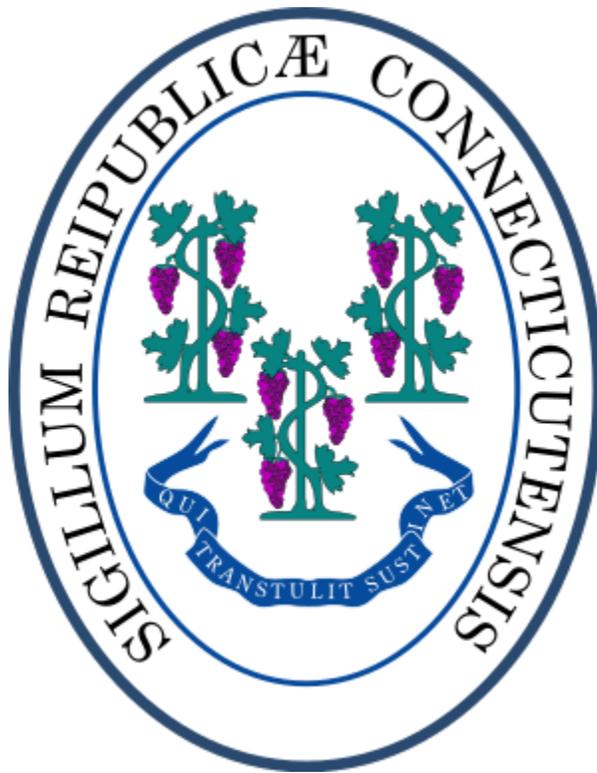


# Connecticut Pension Sustainability Commission Final Report

June 27, 2019



**PA 17-2 June Special Session** Sec. 180. (Effective from passage) (a) There is established a Connecticut Pension Sustainability Commission to study the feasibility of placing state capital assets in a trust and maximizing those assets for the sole benefit of the state pension system. Such commission shall (1) perform a preliminary inventory of state capital assets for the purpose of determining the extent and suitability of those assets for inclusion in such a trust; (2) study the potential impact that the inclusion and maximization of such state capital assets in such a trust may have on the unfunded liability of the state pension system; (3) make recommendations on the appropriateness of placing state assets in a trust and maximizing those assets for the sole benefit of the state pension system; (4) examine the state facility plan prepared pursuant to section 4b-23 of the general statutes and the inventories of state real property submitted pursuant to section 4-67g of the general statutes; and (5) if found to be appropriate by the members of the commission, make recommendations for any legislative or administrative action necessary for establishing a process to (A) create and manage such a trust, and (B) identify specific state capital assets for inclusion in such a trust.

**COMMISSION MEMBERS**

<b>Name</b>	<b>Appointing Authority</b>
<b>Representative Jonathan Steinberg (Chair)</b>	<b>Speaker of the House of Representatives</b>
<b>Robyn Kaplan-Cho</b>	<b>President Pro Tempore of the Senate</b>
<b>Salvatore Luciano</b>	<b>Majority Leader of the Senate</b>
<b>Vacant</b>	<b>Minority Leader of the House of Representatives</b>
<b>Justice C. Ian McLachlan</b>	<b>Senate Republican President Pro Tempore</b>
<b>Michael Imber</b>	<b>Majority Leader of the House of Representatives</b>
<b>Ted Murphy</b>	<b>Deputy Senate Republican President Pro Tempore</b>
<b>Vacant</b>	<b>Governor</b>
<b>Erin Choquette</b>	<b>Department of Administrative</b>
<b>Gregory Messner</b>	<b>Office of Policy &amp; Management</b>
<b>Joseph Rubin</b>	<b>Attorney General</b>
<b>Tara Downes</b>	<b>State Comptroller</b>
<b>Treasurer Denise Nappier / Chief Investment Officer Laurie Martin</b>	<b>State Treasurer</b>

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## **EXECUTIVE SUMMARY**

The State of Connecticut continues to face the consequences of decades of failure by prior administrations to adequately and responsibly fund the state's pension obligations. These failures have threatened not only the financial and economic stability of the state, but have jeopardized the future of retirement security for hundreds of thousands of working people and their families, including teachers, law enforcement officers and caregivers to our state's most vulnerable citizens.

State leaders have taken essential steps over the last eight years to begin the hard work of righting Connecticut's history of pension underfunding. These collaborations have resulted in sacrifices by workers and have created new innovative payment reform plans to set Connecticut on a more disciplined path to financial recovery. Recent Labor-Management agreements have created new retirement tiers that increase employee contributions, prevent overtime spiking and require other sacrifices. New annual "stress tests" of the state's retirement systems will serve as an important monitoring tool for policymakers, better assuring that future generations do not repeat the mistakes of the past.

These steps have already improved the financial health of the state's retirement systems, but more is necessary to adequately strengthen the state's financial outlook, and reaffirm Connecticut's obligations to those who have spent their lives working and sacrificing under the belief and promise of financial security and stability for their families.

Policy makers across government are continuing to explore new and innovative solutions to manage Connecticut's unfunded liabilities. A new state administration, as well as a new team of constitutional officers and lawmakers, is beginning the process of declaring its proposals for consideration.

The Connecticut General Assembly, through Public Act 17-2 June Special Session, Sec. 180, established the Connecticut Pension Sustainability Commission to assist with this work. The Commission was mandated to study the feasibility of placing state capital assets in a trust and maximizing those assets for the sole benefit of the state pension system.

More specifically, this legislation mandated that the Commission fulfill the following:

1. Perform a preliminary inventory of state capital assets for the purpose of determining the extent and suitability of those assets for including in such a trust;

2. Study the potential impact that the inclusion and maximization of such state capital assets in such a trust may have on the unfunded liability of the state pension system;
3. Make recommendations on the appropriateness of placing state assets in a trust and maximizing those assets for the sole benefit of the state pension system;
4. Examine the state facility plan prepared pursuant to section 4b-67g of the general statutes; and
5. If found to be appropriate by the members of the commission, make recommendations for any legislation or administrative action necessary for establishing a process to
  - a. Create and manage such a trust, and
  - b. Identify specific state capital assets for inclusion in such a trust.

The Commission's key findings, conclusions and recommendations are outlined in more detail later in this report but may be summarized as:

- **Trust Concept** - The Commission believes it may be feasible for the state to establish a mechanism to identify and transfer state assets into a trust for the sole benefit of the state's pension funds
- **Asset Eligibility / Public Policy Considerations** – the Commission recommends that the legislature provide specific policy guidelines before specific assets are considered for potential contribution to a trust mechanism
- **Trust Governance** – The Commission concludes that the Office of the State Treasurer is the appropriate authority to provide oversight and direction on the management of any kind of asset trust
- **State Lottery** - The Commission believes that the concept of using the proceeds of the Connecticut Lottery for the benefit of the pension funds or the wholesale transfer of the Connecticut Lottery, as an asset to the funds, is technically feasible. Additional consideration on how either action would affect the liquidity of the pension funds requires further study.
- **Further Analysis** – The Commission recommends that, should the legislature wish to explore the specific concepts identified in this report further, that such work be conducted by either the Office of the State Treasurer and/or through the continuation of the existing Connecticut Pension Sustainability Commission in order to avoid duplicative work by another newly established state entity. The Commission also recommends that the legislature, in pursuing additional analysis, designate sufficient resources to allow for professional legal, accounting, actuarial and/or other necessary consulting services to verify the feasibility of these concepts. The determination of what constitutes sufficient resources will

depend on the scope of analysis mandated by the legislature however the commission notes that professional consulting services may exceed \$100,000.

## **Background**

The State of Connecticut has experienced serial budget deficits dating back more than a decade. Analysis of these deficits indicate that escalating fixed costs have contributed significantly to the imbalance, specifically required annual contributions to retired teachers' and state workers' pension funds. This growing obligation has crowded out spending for other governmental programs and created uncertainty and concern for businesses and credit markets, conceivably depressing economic vitality.

The cause of these burgeoning pension costs is primarily the failure by previous governors and legislatures to make annual contributions to the pension funds in anticipation of actuarially-projected future obligations – typically described today as the “unfunded liabilities.”

The State has struggled to find a path to a balanced budget with these increasing fixed costs. Early in 2017, an information forum sponsored by members of the Finance, Revenue & Bonding Committee included a presentation posing the opportunity to consider a new concept, what subsequently came to be called the Legacy Obligation Trust, or LOT. It was this concept, viewed as a potential means to mitigate state pension unfunded liabilities, which led to the Legislature's decision to create the Pension Sustainability Commission, specifically tasked with proving out the concept. It is important to note that this commission was not tasked with solving all aspects of pension sustainability.

## **Commission Formation & Information Gathering Process**

Although the Commission was given a one-year term to perform its labors, beginning on January 1, 2018, the slow appointment process resulted in a July 2018 start. The Commission spent approximately six months researching and receiving presentations of verbal and written testimony from project managers, actuaries, academics and various experts from across sectors and across the country. The goal was to better understand the costs, benefits and opportunities in reinvesting public assets to optimize those assets, while strengthening the state's financial position.

On a parallel track, the Commission worked to identify legal and policy considerations and criteria that must or should be factored into any decision to transfer any state asset for the purposes of reinvesting it into the state's pension funds ([Legal Subgroup Report](#)). The Commission has been working closely with the State Office of Policy and

Management (OPM) in an effort to apply these proposed criteria to the state's inventory of capital assets so that the state can determine what assets may be appropriate for a state entity to consider reinvesting for the benefit of the state's pension funds. That effort by OPM remains ongoing as of the publication of this report.

At the beginning of the Commission's tenure, the focus of invited presenters was on the background and causes of the State's fiscal condition and deficit history. Presenters included Ben Barnes, Secretary of the Office of Policy & Management, and Jim Millstein, Principal of Millstein & Co ([Millstein Presentation](#)). This report contains a number of charts and other data-derived documents which illustrate the sources and consequences of both the current and future budget situations. The presentations also noted efforts to date intended to address the deficit situation. Presenters included Jim Smith and Bob Patricelli, the Chairs of the former Connecticut Commission on Fiscal Stability and Economic Growth, which had previously considered transfer of the CT Lottery to the pension funds ([Fiscal Stability and Economic Growth Presentation](#)).

Subsequent presentations focused on examples of initiatives similar to the LOT concept instituted overseas as well as New Jersey's experience in seeking to use its state lottery to reduce budget deficits there. Lastly, but very importantly, the Commission examined the consequences of doing nothing, leaving the State in the untenable circumstances of increasing budget deficits on State services and the local economy.

### **Commission Deliberative Process**

Early on in the Commission's discussions, it was agreed that the process would be best served by a better understanding of several key areas: accounting/actuarial benefits; the state capital real estate asset universe (including the CT Lottery) for potential donation to the funds; legal issues; and economic opportunity considerations. Workings groups comprised of Commission members, were created to investigate these subjects more thoroughly and then report back to the full Commission on issues, insights and recommendations ([Working Group Assignments](#)). The group entrusted with evaluating the State capital asset opportunity was particularly important. Much discussion centered on the critical issue of whether there were sufficient "eligible" assets to justify the creation of an independent LOT manager structure to implement the concept. Unfortunately, the short timeframe for the workgroup's deliberations and the aforementioned lack of resources made it virtually impossible to reach conclusions on several of the essential issues, including policy considerations and valuation matters.

The Commission's final report was to be delivered to the Legislature's Finance, Revenue & Bonding Committee as of January 1, 2019. However, a temporary extension was

sought and granted by the Speaker of the House so that the Commission could complete its report.

### **The Legacy Obligation Trust Concept**

The Legacy Obligation Trust (LOT) concept is predicated on the assumption that governmental entities own a multitude of capital assets but typically do not manage such assets to optimize economic value, primarily because that's not the purpose of governmental entities ([LOT Presentation](#)). The LOT concept involves the governmental unit making an in-kind contribution of real assets -- such as land, buildings, infrastructure or enterprises -- to a professionally and independently managed trust. The trust "manager's" responsibility would be to manage such donated assets to maximize value for the express benefit of one or more underfunded pension funds. In return, the manager would be compensated for the additional value created. State-owned assets may offer immediate value and a dedicated cash stream to support the legacy obligations. Additional value may be realized if these assets are managed more efficiently but the upside may be limited. Undeveloped assets, such as raw land and government occupied buildings, can be assessed for their potential to be repurposed for a "higher and better use" as defined by real estate appraisers. To the extent that their present utility can be substituted or eliminated, such assets can be developed to generate cash flows, unlocking value that will offset legacy obligations and afford budget relief.

Importantly, the LOT concept was not intended to be a "silver bullet" for the pension sustainability problem. Rather, it might serve, at best, as a contributory means to mitigate the pension crisis by increasing funded ratios and restoring confidence in the State's fiscal stability.

Several potential benefits may accrue from such a trust, specifically:

- The government unit would receive an immediate credit against its unfunded liability based on fair market valuation of the assets contributed to the trust;
- The pension funded ratios could increase, potentially improving the credit agencies' assessment of the governmental unit;
- The pension funds could receive an immediate, positive cash flow which would positively impact the state's budget, as the "catch up" payment for the underfunding is reduced.

An adjunct to the LOT concept is the potential creation of Certificates of Trust (COTs), an instrument, which could potentially increase the liquidity of donated assets by establishing a public market for such certificates, suitable for investment by public and private sector portfolio investors.

## **Proposed Alternative**

Then-State Treasurer Denise Nappier and staff presented an alternative approach to the LOT concept, embedding the manager's role within the Office of the Treasurer ([Treasurer Nappier Presentation](#)). As stated in the presentation, "A prudent transfer of State assets that can be developed and improved within the confines and authorities of current pension fund governance."

Components of the plan:

1. Monetize CT Lottery revenues and transfer other state capital assets to the Teacher Retirement System (TRS) in order to mitigate the impact of moving to a more realistic investment return assumption of 7.5% (from 8%). Assets would be invested consistent with the Investment Policy Statement, including asset allocations, approved by the Investment Advisory Council, and the requirements of pension fund governance.
2. Pay off the Pension Obligation Bonds (POBs) in Fiscal Year 2026 (the first full fiscal year they can be redeemed), thereby allowing for more options for responsible recalculation of future contributions.
3. Following payoff of the POBs, re-amortize the TRS's remaining unfunded liability and further reduce the investment return assumption to 7%, consistent with capital market expectations.

This proposal would potentially generate net General Fund savings of \$440 million from FY 2020 through 2025, bring General Fund costs roughly in line with budgetary funding "constraint," and improve TRS cash flow by \$560 million.

After Fiscal Year 2025, the State would be in a position to pay off the POBs for roughly \$1.9 billion, using the estimated Actuarially Determined Employer Contribution (ADEC) and the POB debt service payment for that year, subsequently saving \$2.25 billion in debt.

## **Key Findings, Conclusions & Recommendations**

The Commission's key feasibility findings and conclusions with regard to this concept are outlined below.

### *Trust Concept*

The Commission believes it may be feasible for the state to establish a mechanism to identify and transfer state assets into a trust for the sole benefit of the state's pension

funds, but that the concept will require further analysis and action by this Commission or another state entity or agency for reasons explained below.

### *Identification of Real Estate Assets*

There is insufficient information at this time for the Commission to conclusively identify any specific state real estate assets that may be appropriate for contribution into a trust for the benefit of the state pension funds. The Commission has developed a list of criteria that should be considered in a state evaluative process – involving OPM, the Office of the State Treasurer and any other state authority that the legislature should designate – for the purposes of determining what real assets are appropriate for transfer into a trust for the benefit of the state’s pension funds ([\*Capital Asset Selection Criteria\*](#)).

The Commission established some criteria to ensure that any transfer process take into account all legal, policy and practical considerations before making such transfer. In the event that the legislature decides to continue exploring the concept of reinvesting state real estate for the benefit of the state pension funds, it is imperative that the legislature provide explicit policy guidance as to whether properties classified as state parks or as forest land or state farm land, or properties designated as “Historic”, or any other type(s) of properties should or should not be considered in addition to those simply designated as surplus. The policy implications for such an asset reinvestment and transfer, while potentially worthwhile, are too significant for the scope of this Commission’s existing charge.

### *Trust Governance*

The Commission considered two basic governance structures: one by an independent trust manager and the other by the Office of the State Treasurer. The Commission has found that it is only feasible for any such trust, as outlined in this report, to be managed under the sole authority of the State Treasurer who has sole fiduciary authority over the pension funds. The Commission does not believe it is legally feasible or advisable for any trust to be managed by an independent non-state authority over pension fund investments outside of the authority of the State Treasurer. Attempting to do so has the potential to interfere with the State Treasurer’s fiduciary responsibility, as well as the essential tax exempt status of the pension funds.

### *Transfer of Lottery Proceeds vs. Transfer of Lottery Asset*

The Commission explored various concepts involving the use of Connecticut Lottery revenue for the benefit of the state pension funds, including the securitization of all or

some of the anticipated value of the Connecticut Lottery or an entire asset transfer. Based on research and analysis presented to the Commission and attached to this report, including analysis by the Office of the State Treasurer ([Treasurer Nappier Presentation](#)), the Commission believes that the concept of using the proceeds of the Connecticut Lottery for the benefit of the pension funds is feasible. The Commission also believes that wholesale transfer of the Connecticut Lottery, as an asset to the funds, is technically feasible, although the Commission notes that the Office of the State Treasurer raised important concerns about how that approach would affect the liquidity of the pension funds. A wholesale asset transfer would increase the value of the pension funds' assets and reduce the unfunded liability; however, it would also reduce the ADEC and result in negative cash flows to the funds. Donation of the lottery as an asset may be feasible subject to certain concerns related to liquidity and the need to create or modify the governance structure.

#### *Further Analysis*

The Commission recommends that, should the legislature wish to explore the specific concepts identified in this report further, that such work be conducted by either the Office of the State Treasurer and/or through the continuation of the existing Connecticut Pension Sustainability Commission in order to avoid duplicative work by another newly established state entity. The Commission also recommends that the legislature, in pursuing additional analysis, designate sufficient resources to allow for professional legal, accounting, actuarial and/or other necessary consulting services to verify the feasibility of these concepts. The determination of what constitutes sufficient resources will depend on the scope of analysis mandated by the legislature however the commission notes that professional consulting services may exceed \$100,000.

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## **REPORT OF THE PENSION SUSTAINABILITY COMMISSION**

### **HISTORY OF PENSION FUNDING**

#### **State Employees Retirement System (SERS)**

The primary reason for the poor funding status of the State Employees Retirement System (SERS) is that, while it began offering benefits from 1939 onward, it was operated entirely on a "pay as you go" basis until 1973, when a phase-in to actuarial funding first began. The first full ARC payment wasn't made until 1987. Between 1989 and 2009, five retirement incentive programs (RIPs) were adopted; however, no adjustment was made in the state's funding plan to account for the actuarial cost of

these RIPs. The state's actuarially required contribution (ARC) was also routinely reduced between 1993 and 2000 and was further reduced by over \$300 million between FY 2009 and 2011 ([ARC 2.0 Article](#)).

In an effort to reduce the cost of the system, new less-generous tiers were established in 1982 (tier 2), 1997 (tier 2A), 2011 (tier 3), and 2017 (tier 4). In addition, there is an increasingly less-generous formula for retiree cost-of-living adjustments (COLAs) for employees who retire after June 30, 1999, October 2, 2011, and June 30, 2022. Finally, changes to the normal retirement age, an early retirement penalty, and new employee contributions that applied to existing employees were adopted in 2011 and 2017.

As noted above, funding for the system began to transition from "pay as you go" to a pre-funding model starting in 1973, with the first full ARC contribution made in 1987. In 1995 the actuarial method was changed from "entry age normal" to "projected unit credit" and a new 40-year amortization schedule was adopted. That amortization schedule was rebased in 1996 and 1997. Subsequent to the global financial crisis, the return assumption was reduced from 8.5% to 8.25%, and then further reduced to 8.0% in 2013. In 2017, a major modernization of the funding approach was adopted which included returning to entry age normal, reducing the return assumption to 6.9%, transitioning from "level percent of payroll" to "level dollar amortization" over a five year period, extending the amortization period to 2047 for approximately 4/5ths of the outstanding liability and layering future gains and losses over separate 25-year periods. This approach was widely viewed as positive by ratings agencies, and stress testing performed by the Pew Charitable Trust has shown that the state faces very little risk of insolvency in the SERS plan due to market variations ([PEW Charitable Trusts Article](#)).

Subsequent to the Commission's deliberations, Governor Ned Lamont proposed combining the transitional and statutory amortization bases that are to be paid-off by 2047 as well as the adoption of market performance risk-sharing features for future retiree's COLAs.

### **Teacher's Retirement System (TRS)**

The reasons for the poor funding status of the Teachers' Retirement System (TRS), like SERS, include late adoption of actuarial prefunding, consistent underpayment by previous legislatures of the statutorily required annual contribution and optimistic return assumptions. TRS began promising benefits in 1917, but was funded on a pay as you go basis until 1980, and full funding of the ARC was not achieved until 2006. While the full calculated ARC has been paid since then, the return assumption was 8.5% until 2017 when it was reduced to 8.0%. Changes in retiree COLA formula were adopted for

members who retire after 1992 and will be further reduced for members who joined the system after 2007. Member contributions were increased in 1992 and 2018 ([SERS Report](#) and [TRB Report](#)).

Seeking to improve the funding of the system, the state issued \$2.2 billion in Pension Obligation Bonds in 2008. These bonds contained a covenant that pledged that the state would make the ARC payments under the amortization scheme that was adopted at the time. This covenant constrains the State's ability to mitigate TRS pension obligations to this day.

In February 2019, Governor Lamont proposed that unfunded liabilities in both the Teachers' Retirement Fund and the State Employees' Retirement Fund be treated in a similar fashion. For SERS, the unfunded liability as of June 30, 2016 would be funded over a 30-year period ending in FY 2047 and for TRS, the liability as of June 30, 2018 would be funded over a 30-year period ending in 2049. In both systems, future gains and losses would be amortized over new 25-year periods. If we assume that any potential asset contribution would therefore be treated as an actuarial gain in the year in which that asset was contributed, the impact on annually recommended contributions, at an assumed 6.9% discount rate for 25 years, is equal to approximately 8.5% of the value of the asset contributed. For example, if either fund were to receive an asset valued at \$100 million, the State's contribution toward the unfunded liability in that fund would be expected to decrease by approximately \$8.5 million per year for the next 25 years.

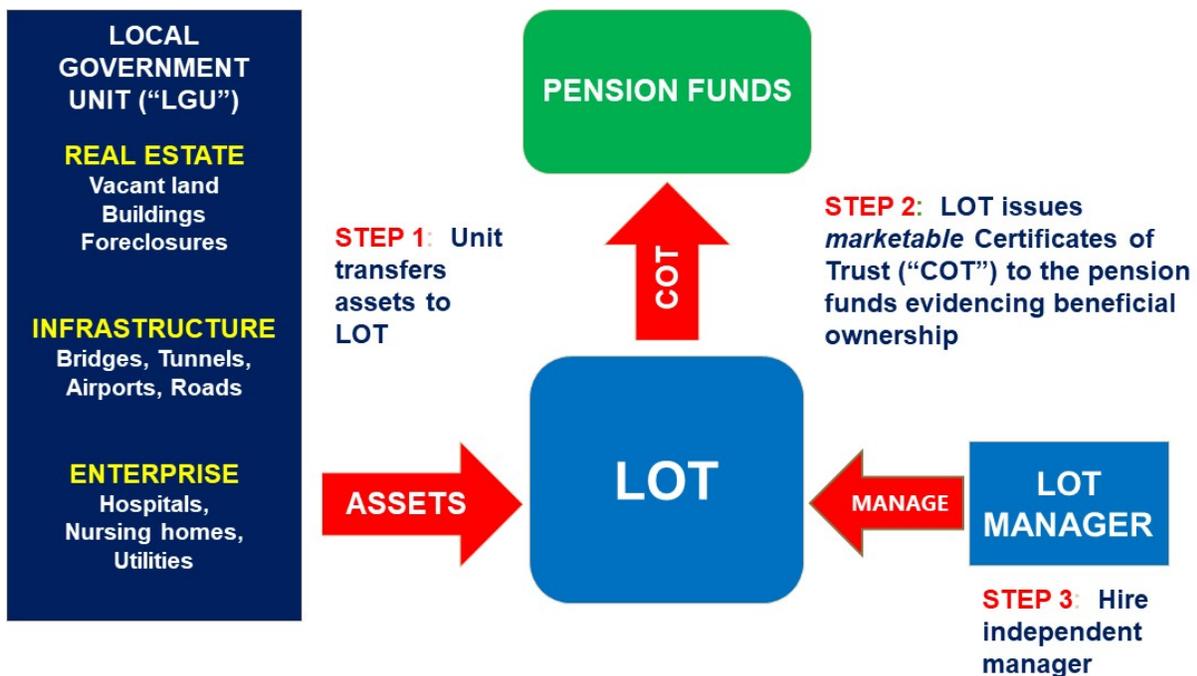
Two other factors will influence the estimate provided above. First, SERS is in the middle of a transition from level percent of payroll to level dollar amortization, but TRS would only begin that transition under the Governor's proposed budget. That means that, if the asset transfer were to be made before the change in amortization method was complete; the impact of an asset transfer would be somewhat smaller than the figure noted above prior to the end of the transition period and somewhat higher thereafter. Second, while the General Fund supports 100% of the unfunded liability for TRS, it only supports approximately 72% of the cost of SERS (the remainder being attributable to positions funded by non-General Fund sources), so the General Fund impact of a \$100 million asset transfer to SERS would be expected to be about \$6 million per year.

## **OVERVIEW**

The Legacy Obligation Trust ("LOT") design is where a government makes an in-kind contribution of real assets – like land, buildings, infrastructure, enterprises - to a professionally managed trust for the benefit of one or more underfunded government

pensions. The trust issues Certificates of Trust (“COTs”), much like shares of stock, and divides them among the various pension funds the government unit sponsors. The COTs convey the fair market value of the assets to the pension funds.

To maximize economic utility of trust assets, which will in turn, increase the fair market value of the COTs, the independent LOT manager could be awarded a limited share of COTs to align a powerful profit incentive with the recovery of stakeholders and the State. The LOT manager can explore various alternatives including a sale, lease, or other strategic partnerships and joint ventures with the private sector and / or existing stakeholders. Driving economic value of the assets contributed to the trust further offsets the legacy obligations.



There are five basic steps to the establishment and functioning of the Legacy Obligation Trust construct.

### STEP 1 – Asset Evaluation

The first task of the asset evaluation process is where a government unit takes inventory of all of its capital assets, including real estate, infrastructure, and enterprises. An underlying premise is that government assets often hold unrealized equity value that, if managed for profit, could be unlocked to increase actual value and drive economic growth.

The universe of government-owned assets can generally be divided into two broad categories: (a) developed enterprise assets and (b) undeveloped assets:

- **DEVELOPED ENTERPRISE ASSETS:** State-owned enterprises, authorities, utilities, and other cash generating assets offer immediate value and a dedicated cash stream to support the legacy obligations. Additional value may be realized if these assets are managed more efficiently but the upside may be more limited. The disadvantage of contributing such assets is that the related cash flows already have a constituency that will be deprived of that benefit. Other sources of funding would be required for that constituency to remain unimpaired.
- **UNDEVELOPED ASSETS:** raw land and government occupied buildings can be assessed for their potential to be repurposed for a higher and better use. To the extent that their present utility can be substituted or eliminated, such assets can be developed to generate cash flows, unlocking value that will offset legacy obligations and afford budget relief. Examples might include:
  - ❖ raw land to be developed into alternative commercial use like retail, residential, or even alternative energy production like solar farms
  - ❖ State offices are consolidated to empty entire buildings that could be leased or sold to the private sector

The advantage of undeveloped assets is that they hold great upside potential and can generate an economic multiplier effect. The disadvantage of such assets is that they require professional management and the benefit of time to unlock the higher and better use value. To the extent that contributed assets exist in the government's designated Opportunity Zones, such assets' investment attractiveness is enhanced.

The fair market value of the in-kind contributed assets provides immediate credit to the pension funds.

The second task is to establish criteria for asset-selection. The criteria evaluation should consider whether the government could part with an asset either by virtue of its surplus status or by a re-prioritization of public policy.

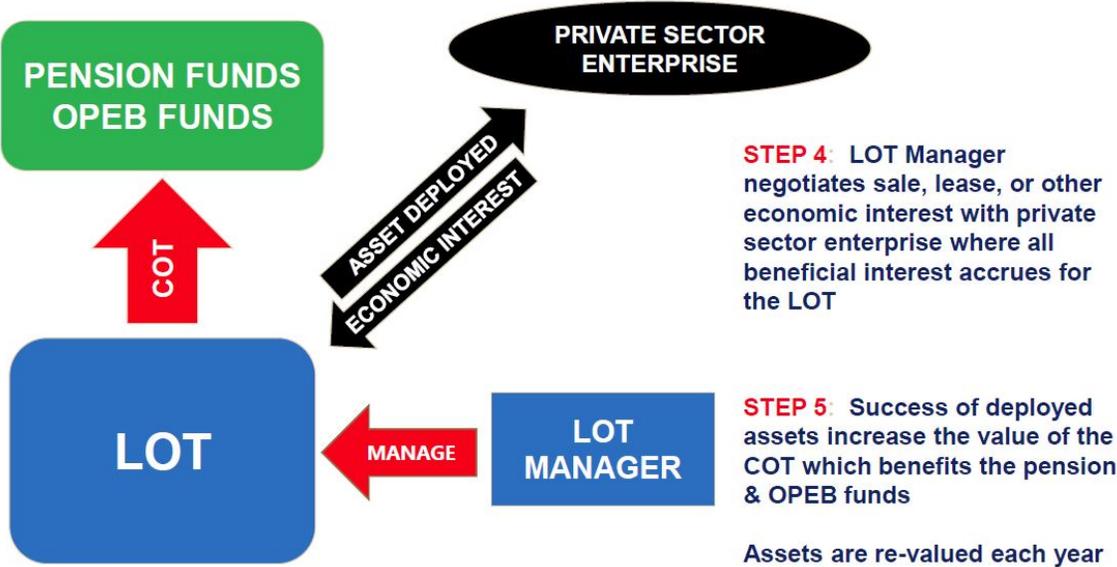
## **STEP 2 – Certificates of Trust:**

The LOT issues Certificates of Trust to the government unit's pension fund(s); the LOT could issue, say, 100,000 certificates – much like shares of stock. The large number of issues COTs accommodates a division of ownership between multiple pension funds. The COTs' value is based on the professional valuation of the assets at time of contribution and annually thereafter.

The COTs could be structured as marketable securities. Over time, as the LOT assets generate steady cash dividends, the COTs may become an attractive investment opportunity for third-party money managers. Such a secondary market gives the pension funds a liquidation option without forcing the sale of the assets from the LOT. A reliable secondary market for COTs eliminates the need for an annual desk-top valuation. Ultimately, the COT market price becomes a proxy measure of the economic fortunes of the government that has contributed the assets.

**STEP 3: LOT Manager:**

Critical to the success of unlocking the hidden equity value in contributed assets is the on-going management of the assets. The selection of the LOT Manager is a consequential exercise for the pension retirees. The skill set of the LOT Manager must be matched to the majority of assets that are contributed. A large firm, with a deep professional bench, might be best suited to the long-term nature of the management effort. Realistically, there is no single firm that could bring the breadth of expertise to manage all assets; the LOT Manager should be enabled to sub-contract the necessary expertise to manage specialized assets but still take responsibility for performance. The governing charter for controlling the LOT Manager is a subject that requires further development. Ideally, the LOT Manager should be able to function independently of government control or influence – or as much as politically feasible. Independence and minimization of government interference is presumed to enhance the ease of repurposing contributed assets to higher and better utility.



## **STEPS 4 & 5: LOT Manager Authority & Empowerment:**

The LOT Manager should be authorized and empowered to sell, lease, or contribute the assets to joint ventures with the private sector. New money invested in the LOT has the potential to enhance asset value, create new jobs and drive COT valuation that benefit the creditors and pension plans.

The range of the LOT Manager's authority must be memorialized in a management contract a set of by-laws so that there is no ambiguity that would interfere with the disposition and re-purposing of contributed assets. Such a contract can mirror other management contracts that the pension fund may use to engage other asset managers. By structuring the COTs as marketable securities, the creditors and pension plans have a liquidity option to monetize their recovery once the assets in the trust are perceived to be growing in value.

Above all else, the LOT Manager's reputation and integrity must be of the highest caliber and beyond reproach. From the selection process to the continuing oversight of the LOT Manager, there has to be transparency of behavior that is consistent with other pension asset manager protocols.

Oversight of the LOT Manager will likely vary from government to government. A Board of Trustees providing oversight is one approach; Board members might include representatives of the beneficiary pension funds, members of the business community, and labor.

In Connecticut, the single fiduciary role of the State Treasurer would compel that office's direct oversight of the LOT Manager.

New value creation is the ultimate measure of success and, consistent with the effort to align incentives, should be tied to the LOT Manager's compensation. While compensation design has not yet been fully developed, a combination of fees and a small percentage of COTs could be granted to the LOT Manager. The COTs could be restricted: some would be earned over time and some earned based on valuation enhancement performance. Growing LOT asset value further offsets unfunded pension liability, minimizes "catch-up" payments, and stimulates the economy.

## **PRIOR EXAMPLES OF IN-KIND CONTRIBUTIONS**

*The LOT concept is a new idea that has not been previously implemented in the U.S. In-kind contributions, however, to satisfy legacy obligations like bond indebtedness and*

pensions have, however, been utilized in the U.S. and internationally. Four examples include:

- **City of Detroit** - The use of real assets as a form of payment was the key to settling the City of Detroit's Chapter 9 bankruptcy in 2013-2014. Several European banks had financed a \$1.4 billion contribution to Detroit's grossly underfunded pension; these creditors accepted the transfer of certain valuable real estate along Detroit's waterfront and downtown area, including the Joe Louis Arena and the Detroit Windsor Tunnel. As the new owners of City assets, these creditors' long-term recovery became dependent on their willingness to invest new money to maximize the economic value of their assets. Presiding bankruptcy court Judge Steven Rhodes specifically cited this creative alignment of the City's redevelopment with creditor recovery as an important feature of the City's successful exit from bankruptcy.
- **City of Hartford** - In 2017, the City of Hartford received a \$5 million credit against its pension liability when it transferred the title of Batterson Park to the City's pension fund. This action helped the City narrow its cash budget deficit and demonstrates that an in-kind contribution of real assets can successfully be used to offset pension liability.
- **State of New Jersey** - New Jersey's 2017 transfer of its lottery to the State's pension system was nationally recognized as an in-kind asset contribution that dedicated a substantial revenue stream to satisfying pension obligations. This transfer, however, took that same revenue stream away from the state's general fund budget that was otherwise funding education and senior citizen-oriented programs. The bond rating agencies generally regarded this particular move as either "credit neutral" or slightly "credit positive".
- **Queensland Australia** - Australia's third largest state, Queensland, experienced a fiscal budget deficit in 2009 in the wake of the global recession. Rating agency downgrades followed rising deficits that ultimately prompted Queensland to announce it would seek to sell or lease major government-owned assets in response to the crisis. After strenuous public objection to the outright privatization of assets, Queensland contributed the state-owned Queensland Motorways Ltd., a 70-kilometer state-owned toll road, to the pension fund. Queensland received an AU\$3 billion credit against its underfunded pension. The pension fund hired professional infrastructure managers who improved operations and expanded the toll road. In less than five years, the pension sold the toll road to the private sector for AU\$7 billion. In short, Queensland unlocked AU\$7 billion of hidden equity value sitting on its balance sheet for the benefit of the pensions ([\*Queensland Motorways Case Study\*](#)).

It is also noteworthy that the State of New Jersey recently issued a Request for Qualifications to select a professional advisor to assist the State select and develop strategies to maximize the value of State-owned assets to fund the State's pension

plans, other post-employment benefit obligations, and existing bonds that collectively exceed more than \$200 billion in obligations. The advisor will evaluate various State assets, including real property, buildings, roads, transit facilities, rights of way, air rights, development rights, naming rights, and infrastructure such as airports, bridges, water facilities, ports, parks and recreational facilities. New Jersey is seeking to complete this evaluation in six months.

In addition, Illinois' Governor J.B. Pritzker recently announced the formation of a pension task force that will evaluate the potential to make in-kind contributions of state-owned capital assets to fund the state's outstanding \$134 billion of unfunded pension liabilities.

## **LOT BENEFITS**

The intended benefits of the LOT structure for a government unit include:

- an immediate reduction in the ADEC based on the fair market valuation of the assets contributed to the trust;
- the ADEC reduction has affords the government unit the opportunity to reduce its general fund budget expenditure;
- the contributed assets can potentially be returned to the property tax rolls as they become economically productive;
- an alignment of economic interests of the government unit, labor unions, the business community, and ultimately, the taxpayers

On the expectation that asset values grow, governments will recognize that the upside valuation makes a dent in the unfunded liabilities and can have a positive cash flow impact. As such, the government will have an incentive to create a business and regulatory environment that can further drive asset value.

## **CONCERNS AND VULNERABILITIES**

As noted earlier, the LOT construct has not been fully implemented previously and represents a new approach that will likely go through trial and error and be modified to suit each government.

S&P Global Market Intelligence released a short advisory on February 19, 2019 entitled "Pension Brief: Are Asset Transfers A Gimmick Or A Sound Fiscal Strategy? In this advisory, S&P expresses concern for weak investment returns, demographic challenges,

and the potential for economic decline increasing the longer the current expansion lasts. They acknowledge that some state and local governments “have looked to develop creative solutions to help mitigate expanding liabilities and bolster wanting asset levels... they are considering asset transfers along with other revenue streams that can be used to both improve pension funding levels and provide budgetary relief.”

S&P has four key questions in considering an asset transfer’s impact on credit quality:

1. Is the valuation of the asset reasonable and verifiable?
2. Is liquidation of the asset practical?
3. Does the plan have such a low funded status that liquidity issues may arise prior to the realization of a future revenue stream?
4. Is the asset valuation technique an attempt to reduce contribution requirements in the short term while further underfunding the pension system and compounding future contribution requirements?

These are excellent questions and beg additional thoughts on the LOT design considerations.

1. **Reasonable and Verifiable Valuation:** an independent valuation at the initial transfer and then regularly afterwards will be required to satisfy S&P’s concern. The valuation process should be done by one or more independent professional firms with expertise in the particular assets. Under the LOT design, there would need to be two valuations: one for the assets and a second for the Certificates of Trust. If the LOT development progresses to the point where cash dividends are being paid, a viable secondary market may develop for the COT holders and a true market price could be used to value the COTs. Such a design could satisfy S&P’s concern.
2. **Asset Liquidation Practicality:** This concern is addressed as part of the asset selection criteria before the transfer. An asset like a lottery cannot be sold to a private third party; therefore, there should be confidence that the cash generating capacity is steady and reliable. Like New Jersey, a lottery could be transferred directly to the pension but not the LOT construct. The LOT, by design, should have the authority to sell its assets to third parties under the terms and conditions outlined in the LOT Manager’s contract.

S&P’s concern has additional implications whether assets should be contributed directly to the pension or to an independent vehicle like the LOT. The answer may vary with the type of asset contributed.

Developed enterprise assets, especially those that have tax-exempt debt attached, may best be contributed directly to State pensions in order to avoid triggering refinancing requirements. These assets are likely to be cash-generating enterprises and authority-owned assets that may continue to provide a public benefit while under pension fund

ownership. Undeveloped assets may best be suited for contribution to an independent vehicle that is under professional management to maximize value under a highest and best use strategy.

3. **Pension Funding Status:** The pension fund liquidity management is a serious concern and requires careful coordination during the asset selection process. A government pension must assume that undeveloped assets contributed to a LOT may require five to eight years of management before it throws off a positive cash flow. Contributing a balance of cash flowing and non-cash flowing assets to a LOT can help abate S&P's concern. In addition, the government could enhance pension liquidity by funding ADEC plus a supplement cash contribution. State Treasurer Denise Nappier raised this very issue was raised during the course of the Commission's deliberations. Treasurer Nappier further expressed concerns about whether such asset transfers may jeopardize attached tax exemption. In addition, the LOT management construct could hinder or conflict with the State Treasurer's fiduciary duty
4. **Funding Discipline:** This last S&P concern is perhaps the most compelling. The government unit needs to exercise the necessary fiscal discipline not to underfund in the future if they are going to pursue an in-kind asset contribution strategy. In the absence of such discipline, the asset transfer would be regarded as a "one-shot" gimmick that defers meaningful reform. The LOT concept holds the potential to make a significant dent in legacy obligations but is not the definitive answer to pension underfunding.

## **CT STATE LOTTERY TRANSFER**

### **Concepts Explored**

The Commission heard from several speakers who addressed the potential for the Connecticut State Lottery to serve as a vehicle for improving the funding status of the TRS. The Connecticut Lottery is a quasi-public asset valued at approximately \$5 billion and generates approximately \$345 million in revenue ([Connecticut Lottery Testimony](#)) for the state's general fund. The Commission believes that the concept of using the proceeds of the Connecticut Lottery to for the benefit of the pension funds is feasible.

Jim Millstein, CEO of Millstein and Co., appeared before this Commission and revisited a recommendation of the Fiscal Stability Commission that the state contribute the lottery in kind to the TRS at a fair market value. He suggested that this be accomplished in a manner similar to what was done in New Jersey in 2017 wherein the lottery enterprise in its entirety was transferred to the New Jersey state pension funds in a 30-year concession agreement. The lottery enterprise was valued as an asset worth over \$13 billion, and part of that transfer, the annual net proceeds of the New Jersey lottery, valued at over \$1 billion annually, would flow to the pension funds as well. Francis Chin

of American Public Infrastructure LLP was involved in the New Jersey transaction and explained to the Commission that a new actuarial technique was developed to set forth how the ADEC would be calculated, but the impact of this transfer would be an immediate decrease in the unfunded liability and a decrease in the state's ADEC. Although initially budget neutral due to the loss of that same amount in the General Fund, Chin clarified that it shifts to level credit over time.

Millstein identified several potential benefits of such an asset transfer. First, it would provide a dedicated source of funding for the TRS. Second, it would replace the annual appropriation to the TRS from the state budget with revenue from the lottery. Third, it would increase the funded status of the TRS thereby reducing the state's pension liability vis à vis a reduced ADEC. This reduced ADEC would offset the loss of the lottery revenue to the General Fund. Moreover, the improved UAAL would result in an improvement to the state's credit rating. State Treasurer Denise Nappier, however, cautioned that "the General Fund's gain would be the TRS's loss because less cash would flow into the TRS and trigger greater negative cash flows." She also noted that although the value of the lottery concession estimated at \$5 billion would be included as a plan asset for actuarial purposes, it would not be valued this way for financial statement purposes in accordance with GASB rules.

Treasurer Nappier instead proposed an alternative plan wherein lottery revenues would be monetized by using revenue bonds sufficient to generate cash proceeds of \$1.5 billion that would be deposited into the TRS. In addition, \$1.5 billion of state owned assets would be transferred into the TRS, and an irrevocable trust would be established. Treasurer Nappier estimated that her proposal would generate approximately \$440 million in savings to the General Fund from FY 2020 through FY 2025, and the TRS cash flow would be improved by approximately \$560 million. Finally, after FY 2025, the State could pay off the Pension Obligation Bonds for \$1.9 billion using the state ADEC and debt service payment for that year. Also, the TRS's investment return assumption could be lowered from 8% to 7%. Nappier insisted that the success of this proposal is dependent on the legislature continuing discipline imposed by the bond covenants and that the legislature should only be permitted to appropriate less than the ADEC by a supermajority vote with public notice. Her plan would result in a significant reduction in the anticipated TRS funding "spike" from \$3.25 billion to \$1.78 billion. It is important to note, however, that Treasurer Nappier's proposal is dependent on the existence of at least \$1.5 billion in state assets that could be transferred to the TRS.

## **Next Steps**

Before any of the above-mentioned proposals can be seriously considered, several steps must be taken. A determination of the exact fair market value of the CT Lottery would be required as would an examination of how/if the management of the Lottery would remain in its current form or be changed.

## **Alternative Proposal**

The Connecticut Retirement Plans and Trust Funds ("CRPTF") was established by the Treasurer of the State of Connecticut ("the Treasurer"), and approved by the Investment Advisory Council ("IAC"), in accordance with the provisions of subsection (c) of Section 3-13b of the Connecticut General Statutes. Invested assets of the following plans and trusts are pooled together:

1. State Employees' Retirement Fund,
2. Teachers' Retirement Fund,
3. Connecticut Municipal Employees' Retirement Fund,
4. Probate Judges and Employees Retirement Fund,
5. State Judge's Retirement Fund,
6. State's Attorneys' Retirement Fund,
7. Soldiers', Sailors' and Marines' Fund,
8. Arts Endowment Fund,
9. Agricultural College Fund,
10. Ida Eaton Cotton Fund,
11. Andrew C. Clark Fund,
12. School Fund,
13. Hopemead Fund, and
14. Police and Firemen Survivors' Benefit Fund.
15. Other Post-Employment Benefits Trust Fund

Pursuant to the Connecticut General Statutes, the Treasurer is the principal fiduciary of the CRPTF. Responsibilities in this regard are governed by fiduciary law and standards, and by the Constitution and laws of the State of Connecticut.

In carrying out these responsibilities, and as an elected Constitutional Officer of the State of Connecticut, the Treasurer is responsible for the investment and custody of all CRPTF assets and the selection of and contracting with all money managers, investment partners and other service providers

The Treasurer may retain money managers, investment partners and other service providers to assist in the management of the assets held by the CRPTF and will exercise prudence and care in selecting, instructing and supervising such providers of investment and investment related services. The Treasurer may invest CRPTF assets directly into companies, including investment funds, limited partnerships, limited liability companies, REITs and conduct due diligence, select and monitor the management of such direct investment vehicles. Consistent with Section 3-13i of the Connecticut General Statutes, before the retention of any such money manager, investment partner or professional consultant, the Treasurer will present recommendations to the IAC for its consideration. After such presentation, unless waived by a vote of the IAC, the IAC will have up to 45 days to review and comment upon any proposed contract for investment advisory services prior to the execution of such a contract by the Treasurer. The Treasurer is responsible for negotiating the terms of the contract and subsequent amendments to said contract.

## **Asset Allocation**

To provide a means for investing pension plans and other trust fund assets in a variety of investment asset classes, open end investment portfolios known as combined investment funds ("CIF") have been established ([Treasurer Nappier Combined Investment Funds Report](#)). The CIFs are as follows and are classified as Liquid, Hybrid Liquid and Illiquid portfolios.

### **Liquid**

1. Mutual Equity Fund (US Equity)
2. Developed Markets International Stock Fund (Developed Markets Equity)
3. Emerging Markets International Stock Fund (Emerging Markets Equity)
4. Core Fixed Income Fund (Core Bonds)
5. Inflation Linked Bond Fund (Global Inflation Linked Bonds)
6. High Yield Bond Fund (High Yield Bonds)
7. Emerging Market Debt Fund (Emerging Market Bonds)
8. Liquidity Fund (Cash and Short Term Investments)

### **Hybrid Liquid**

1. Alternative Investment Fund (Hedge Funds, Private Credit and Real Assets) Illiquid
2. Real Estate Fund (Real Estate Separate Accounts and Funds)
3. Private Investment Fund (Private Equity, Venture Capital)

The asset allocation to the CIF's for each of the CRPTF is established by the Treasurer, with approval of the IAC, based on (1) capital market theory, (2) financial and fiduciary

requirements, and (3) liquidity needs. Benefit payments, trust distributions and plan expenses in excess of contributions are paid from the investment program.

A broad array of asset classes is considered for inclusion in a potential asset allocation structure. Each asset class has its own distinct characteristics, as well as expectations for long term return and risk behavior. Mathematical modeling is used to determine which mix of asset classes maximizes return at each level of risk. In addition to the asset allocation policy then in place, several alternative asset mixes are selected for further analysis. The liabilities or trust distribution needs are modeled in detail and projections are made based on the actuarial or spending assumptions underlying each of the retirement plans and trusts. The behavior of both the asset classes and the liabilities are tested under different economic scenarios using sophisticated simulation software. The outcomes of these tests are then examined to determine which asset mix offers a balanced risk/return tradeoff as measured by the impact on the liabilities or spending policy over multiple time horizons.

For purposes of this report, the capital assets discussed by the Pension Sustainability Commission ("Commission") could be considered for inclusion in the Real Estate Fund ("REF") and/or the Real Assets portion of the Alternative Investment Fund ("AIF"), subject to the guidelines established in the Investment Policy Statement ("IPS").

Further details of these considerations follows:

### **Real Estate Assets**

Capital assets identified for transfer into the pension plan(s) that would otherwise qualify as real estate assets could be allocated to the Real Estate Fund (REF).

The REF is the CIF through which the CRPTF makes investments in the real estate asset class. The investments may consist of a number of different investment strategies and investment vehicles, including externally managed commingled funds, separate accounts and/or publicly traded real estate securities. All investments in real estate assets are expected to adhere to the standards of fiduciary obligation to the beneficiaries of the CRPTF, and will be considered in the context of the relevant risk/reward factors of this asset class and consistent with the statutory requirements for consideration of investments by the Treasurer in accordance with Section 3-13d (a) of the Connecticut General Statutes.

Investment selection entails a comprehensive, thorough process of due diligence and investigation of the critical factors on which an investment decision is to be based,

including quantitative and qualitative analysis of the investment partner, its professionals and their ability to successfully implement their stated investment strategy within the context of current and prospective market environments.

In general and at time of investment, the following REF investment restrictions/limitations would apply to any State assets that are classified as real estate:

- The Investment Partners will follow the contract process for the State of Connecticut Retirement Plans & Trust Funds Responsible Contractor Policy – Real Estate Fund.
- Open-ended Real Estate Investments will be structured to include clearly defined redemption provisions. For closed-end investments, exit or sale provisions will be clearly defined.
- Investment Partners will value all portfolio investments at least annually by qualified third-party appraisal firms or internal processes that are deemed to be institutional quality.
- Independent third party valuations will be obtained, at a minimum, every three years (subsequent to completion of construction) or on an as needed basis.
- No more than 10 percent of the target REF will be allocated to any one individual investment vehicle in which the CRPTF does not have the ability to exit the investment or terminate the manager. Each separate account will not exceed 20% of the target REF.
- No single investment partner will manage more than 25 percent of the market value of the REF allocation.
- General Partners will be required to ensure that all REF investments adhere to all limitations imposed by Connecticut and/or federal law.

### **Infrastructure Assets**

Capital assets identified for transfer into the pension plan(s) that would otherwise qualify as infrastructure assets could be allocated to the Real Assets sub-target allocation within the AIF depending on the capacity within the asset allocation for the real assets strategy

In general and at time of investment, the following REF investment restrictions/limitations would apply to any State assets that are classified as infrastructure:

- Investment managers will adhere to the investment strategy, diversification limits and administrative guidelines described in their private placement memorandum and related contracts;
- Investment managers will be required to ensure that all AIF investments adhere to all limitations imposed by Connecticut General Statutes and/or federal law;
- No more than 20% of the AIF's policy target allocation should be invested in any one investment vehicle.

## **WORKING GROUPS SUMMARIES**

### **Legal Subgroup**

The legal subgroup initially looked at the legal issues raised by the concept of transferring certain state property to a Legacy Obligation Trust ("LOT"), a privately managed and held entity which might be able to be sold by the state to create immediate revenue which the state could use help pay down underfunded long term obligations. As our review developed, we determined that each piece of property under consideration for inclusion in the LOT would require a detailed and specific legal review to determine how, when, and with what, if any conditions the property was acquired, what legal restrictions might attach to an attempt to sell the property because of answers to those questions, and what other legal restrictions might attach to each property because of applicable statutes, constitutional requirements, and common law requirements.

As these considerations are discussed more fully in the report of the Asset Selection Subgroup, they will not be further discussed here. In light of these concerns, and in light of presentations by the Treasurer about the benefits of making any transfer of assets to the Treasurer, rather than a LOT, the Commission has already voted preliminarily that it would support a transfer of the CT Lottery or its proceeds to the Treasurer for the purposes discussed above, but has not pressed for transfer of other state properties. If that continues to be the Commission's recommendation, then there will no need for further analysis of these issues. Because it appeared that the LOT concept was not going to be recommended by the Commission, there was no analysis of the other issues raised by the LOT concept such as fiduciary issues and even the legality of transfer of state assets to a privately managed entity.

The Commission was also informed that federal law requires that lotteries such as the CT Lottery must be owned and operated by a state to comply with federal law. This requirement comes from the fact that federal law generally prohibits the promotion of lotteries in interstate commerce, 18 U.S.C. Secs. 1301-1304, 1953(a), but exempts Lotteries "conducted by [a] State acting under the authority of State law." Id. Secs. 1307(a)(1), 1307(b)(1), 1953(b)(4). These requirements are detailed and analyzed in an opinion of the Office of Legal Counsel of the U.S. Department of Justice dated October 16, 2008, entitled "Scope of Exemption Under Federal Lottery Statutes for Lotteries Conducted by a State Acting Under the Authority of State Law," available on the Commission's website. Because of this legal requirement, it appears that the only way to use the value of the State Lottery or its revenues towards pension sustainability would

be for the legislature to direct or guarantee those revenues to a particular pension-related purpose, or to entrust the revenues or the lottery and its revenues to the Treasurer for specified purposes. Such an avenue, to the best of the Commission's present knowledge, appears to be lawful.

### **Capital Asset Inventory Subgroup**

The Capital Asset Selection Work Group was charged with reviewing and evaluating all State capital assets to determine their suitability for inclusion into as an "in kind" contribution to the pension systems to improve their funding ratios, reducing the unfunded liabilities and, therefore, lower the state's actuarially required contribution payments "ARC." This included reviewing, but not limited to, land, buildings, roads, airports, healthcare facilities and all other State assets.

The Work Group proposed specific criteria for the selection of State-owned assets to be included in a Pension trust which were accepted by the Pension Sustainability Committee:

1. Properties that are not currently being utilized for government functions.
2. Properties that clear a Phase 1 environmental study and require further remediation.
3. Only properties owned by the State of Connecticut and the component unit authorities.
4. Properties not classified as State parks or forest land including state farm land preservation easements.
5. Properties surplus to the State of Connecticut needs – this would require state agency approval to transfer from agency with custody and control of each particular property of via a legislative mandate.
6. Properties that have been determined to be eligible for transfer legally (certain statutes may prohibit particular from being transferred based on state or federal law)
7. Properties that have been designated as "Historic."
8. No DOT Rights of ways as FHWA, under 23 code of the federal Regulation (CFR) 710.403 requires that the proceeds from the sale of any excess property by the DOT must be deposited in the state transportation fund and to be utilized as the state's matching for future transportation projects.

With the assistance of Paul Hinsch, Director of the Bureau of Assets Management within the Office of Policy and Management ("OPM"), the Work Group applied these criteria to the Inventory of Real Property maintained by OPM.

The inventory of Real Property lists approximately 6,800 properties, consisting of both land and structures. The application of the agreed-upon criteria reduced this overall number significantly to no more than a few dozen, essentially properties that have been or are in the process of being declared surplus.

Following this initial analysis, the Pension Sustainability Committee debated whether the criteria were too limiting. A proposal was made to limit the criteria to the following:

- Only properties owned by the State of Connecticut
- Properties that have been determined to be eligible for transfer legally.

In discussing this proposal, the Committee debated whether it should consider property that is currently being used for government functions and if so, what factors should be included in a cost-benefit analysis to determine whether a property that is currently used for a governmental function could be put to a better use as a contribution (directly or indirectly) to the pensions. After robust discussion of these issues, there was consensus that such policy determinations were not within the Pension Sustainability Committee's current authority and that it would be helpful if the legislature identified more clear directives and standards for any future analysis.

Although the Pension Sustainability Committee did not vote to limit the criteria, it was unanimous that for any property under consideration for transfer, it would be necessary to ensure that no legal restrictions prevented such transfer. There is no central repository in which legal restrictions on parcels or buildings are recorded. Accordingly, it will be necessary to consider each property individually to determine what, if any restrictions may exist, and if so, whether such restrictions may be overcome.

There are large classes of properties for which it is reasonable to conclude that the legal restrictions are overwhelming, specifically:

- Land designated as a state park, forest or other public trust
- Land subject to agricultural, transportation, conservation or open space easements
- Land subject to federal highway regulations
- Property subject to federal airport regulations
- Land subject to federal railway regulations

Moreover, there are myriad state laws that relate to the acquisition, use and disposal of state real property, including the recent constitutional amendment regarding the legislatively-mandated transfer of real property. This constitutional amendment imposes the following restrictions on such transfers:

- It requires a public hearing on bills to authorize the transfer, sale, or disposal of state-owned properties, such as state parks, forests, and conserved lands, to non-state entities and
- It requires a two-thirds vote of the Connecticut General Assembly to authorize the transfer, sale, or disposal of land under the control of the state agriculture or environmental protection departments.

In addition to this procedural change, there are several other statutes that must be assessed to determine whether and how they apply to each property under consideration for transfer. Of course the legislature could change certain of these limitations if it wished to do so, but the Commission has no way of knowing what changes the legislature may wish to consider

**The following is a non-exclusive list of such statutes:**

<b>Statutes relating to land use/planning</b>	
<a href="#">4-67g</a>	State real property: Long-range planning, efficiency and appropriateness of use and inventories.
<a href="#">4b-23</a>	State facility plan.
<a href="#">4b-28</a>	Notice of proposed change in use of state-supervised property.
<a href="#">4b-30a</a>	Sublease of land or buildings and facilities leased to the state
<a href="#">4b-35</a>	Lease of state-owned land to private developers
<a href="#">4b-38</a>	Lease of state-owned land or buildings for municipal or private use.
<a href="#">8-37y</a>	Powers of Commissioner of Housing re state real property transferred to Department of Housing and surplus real property made available by the federal government.
<a href="#">13a-85a</a>	Acquisition of land adjacent to state highways for preservation and enhancement of scenic beauty and development of rest and recreation areas
<a href="#">13a-98e</a>	Acquisition of land and rights-of-way.
<a href="#">13a-123</a>	Restriction of outdoor advertising structures, signs, displays or devices on state property or interstate, federal-aid and other limited access highways
<a href="#">13a-142a</a>	Acquisition of land adjacent to highway for environmental protection purposes.
<a href="#">13a-142e</a>	Route 11 Greenway Authority Commission. Transfer of real property to Commissioner of Transportation.
<a href="#">13b-29</a>	Commuter parking facilities
<a href="#">15-120cc</a>	Powers and duties of CT Airport Authority
<a href="#">16-343</a>	Connecticut-New York Railroad Passenger Transportation Compact
<b>Statutes relating to real property acquisition / limits on use or purpose</b>	
<a href="#">4b-22</a>	Real property or rights or interests in real property acquired by the state by gift, devise or exchange

<a href="#">4b-27</a>	Disclosure of state realty needs
<a href="#">6-2a(b)</a>	State succession to property and liabilities of counties
<a href="#">8-273a</a>	Outdoor advertising structures
<a href="#">13a-80</a>	Sale or lease of land by commissioner
<a href="#">17a-454</a>	Acceptance of gift or devise (DMHAS)
<a href="#">17a-455</a>	Acceptance of gift or devise (DMHAS facility)
<a href="#">18-83</a>	Acceptance of gift or devise (DOC)
<a href="#">25-208</a>	Acquisition of land within designated river corridor
<a href="#">26-309</a>	State acquisition of essential habitat
<a href="#">32-228</a>	Sale, exchange or lease of property under control of DECD
<b>Statutes relating to disposal of real property</b>	
<a href="#">4b-21</a>	Purchase, sale or exchange of land by state, surplus property disposition
<a href="#">13a-80h</a>	Agreement setting forth responsibilities of municipality and DOT re acquisition of real property required for certain bridge projects
<a href="#">18-31b</a>	Gratuitous transfer of abandoned facilities to municipalities or municipal redevelopment agencies.
<a href="#">26-3b</a>	Rental, sale, exchange or transfer of real property and buildings in the custody or control of DEEP

It will also be necessary to assess whether there are any property-specific restrictions, such as deed restrictions or conditions of gift. Finally, because of the laws related to property purchased with bond funds for each property under consideration, it will be necessary to determine if the property was purchased with bond funds and if so, whether there are any conditions or restrictions on the transfer of the property.

*[The Accounting/Actuarial and Economic Development subgroups deliberations did not merit separate reports.]*

## **Key Findings, Conclusions & Recommendations**

The State of Connecticut continues to face the consequences of decades of failure by prior administrations to adequately and responsibly fund the state’s pension obligations. These failures have threatened not only the financial and economic stability of the state, but have jeopardized the future of retirement security for hundreds of thousands of working people and their families, including teachers, law enforcement officers and caregivers to our state’s most vulnerable citizens.

State leaders, particularly those from both Labor and Management, have taken essential steps over the last eight years to begin the hard work of righting Connecticut’s history of pension underfunding. These collaborations have resulted in sacrifices by workers and have created new innovative payment reform plans to set Connecticut on a more disciplined path to financial recovery. Recent Labor-Management agreements have

created new retirement tiers that increase employee contributions, prevent overtime spiking and require other sacrifices. New annual “stress tests” of the state’s retirement systems will serve as an important monitoring tool for policymakers, better assuring that no future generation repeats the mistakes of the past.

These steps have already improved the financial health of the state’s retirement systems, but more is necessary to adequately strengthen the state’s financial outlook, and reaffirm Connecticut’s obligations to those who have spent their lives working and sacrificing under the belief and promise of financial security and stability for their families.

Policy makers across government are continuing to explore new and innovative solutions to manage Connecticut’s unfunded liabilities. A new state administration, as well as a new term of constitutional officers and lawmakers, is beginning the process of declaring its proposals for consideration.

As explained earlier in this report, the Connecticut General Assembly, through Public Act 17-2 June Special Session, Sec. 180, established the Connecticut Pension Sustainability Commission to continue this work. The Commission was mandated to study the feasibility of placing state capital assets in a trust and maximizing those assets for the sole benefit of the state pension system. More specifically, this legislation mandated that the Commission fulfill the following:

Following the efforts outlined in this report, the Commission has reached consensus on certain findings regarding the feasibility of a concept that can be generally characterized and defined as “the contribution of state assets (real or other) that have the potential to generate income into a trust, the proceeds of which are dedicated to one or more of the state pension plans.”

The State of Connecticut continues to face the consequences of decades of failure by prior administrations to adequately and responsibly fund the state’s pension obligations. These failures have threatened not only the financial and economic stability of the state, but have jeopardized the future of retirement security for hundreds of thousands of working people and their families, including teachers, law enforcement officers and caregivers to our state’s most vulnerable citizens.

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The Connecticut General Assembly, through Public Act 17-2 June Special Session, Sec. 180, established the Connecticut Pension Sustainability Commission to assist with this work. The Commission was mandated to study the feasibility of placing state capital assets in a trust and maximizing those assets for the sole benefit of the state pension system.

More specifically, this legislation mandated that the Commission fulfill the following:

1. Perform a preliminary inventory of state capital assets for the purpose of determining the extent and suitability of those assets for including in such a trust;
2. Study the potential impact that the inclusion and maximization of such state capital assets in such a trust may have on the unfunded liability of the state pension system;
3. Make recommendations on the appropriateness of placing state assets in a trust and maximizing those assets for the sole benefit of the state pension system;
4. Examine the state facility plan prepared pursuant to section 4b-67g of the general statutes; and
5. If found to be appropriate by the members of the commission, make recommendations for any legislation or administrative action necessary for establishing a process to
  - a. Create and manage such a trust, and
  - b. Identify specific state capital assets for inclusion in such a trust.

## **Trust Concept**

The Commission believes it is feasible for the state to establish a mechanism to identify and transfer state assets into a trust for the sole benefit of the state's pension funds, but that the concept will require further analysis and action by this Commission or another state entity or agency for reasons explained below.

## **Identification of Real Estate Assets**

There is insufficient information at this time for the Commission to conclusively identify any specific state real estate assets that may be appropriate for contribution into a trust for the purpose of reinvesting those assets for the sole benefit of the state pension funds. The Commission has developed a list of criteria that should be considered in a state evaluative process – involving OPM, the Office of the State Treasurer and any other state authority that the legislature should designate – for the purposes of determining what real assets are appropriate for transfer into a trust for the benefit of the state's pension funds. The Commission developed the criteria to ensure that any transfer process factor a minimum of all legal, policy and practical considerations before making such transfer. In the event that the legislature decides to continue exploring the concept of reinvesting state real estate for the benefit of the state pension funds, it is imperative that the legislature provide explicit policy guidance as to whether properties classified as state parks or as forest land or state farm land, or properties designated as "Historic", or any other type(s) of properties should or should not be considered in addition to those simply designated as surplus. The policy implications for such an asset reinvestment and transfer, while potentially worthwhile, are too significant for the scope of this Commission's existing charge.

## **Trust Governance**

In the event that OPM's ongoing effort to apply the Commission's criteria to the state's real property inventory should successfully identify real assets that may be appropriate for transfer to a trust to be reinvested for the sole benefit of the state pension funds, the Commission reviewed potential governance structures. Governance concepts reviewed included governance by an independent trust or by the Office of the State Treasurer. The Commission has found that it is only feasible for any such trust, as outlined in this report, to be managed under the sole authority of the state Treasurer who has sole fiduciary authority over the pension funds. The Commission does not believe it is legally feasible or advisable for any trust to be managed by an independent non-state authority over pension fund investments outside of the authority of the state Treasurer.

Attempting to do so has the potential to interfere with the state Treasurer's fiduciary responsibility, as well as the essential tax exempt status of the pension funds.

### **Transfer of Lottery Proceeds vs. Transfer of Lottery Asset**

The Commission explored various concepts involving the use of Connecticut Lottery revenue for the benefit of the state pension funds, including the State of New Jersey's revenue-allocation model, the securitization of all or some of the anticipated value of the Connecticut Lottery or an entire asset transfer. Based on research and analysis presented to the Commission and attached to this report, including analysis by the Office of the State Treasurer, the Commission believes that the concept of transferring proceeds of the Connecticut Lottery to the pension funds is feasible. The Commission also believes that wholesale transfer of the Connecticut Lottery, as an asset to the funds, is also technically feasible, although the Commission notes that the Office of the State Treasurer raised important concerns about how that approach would affect the liquidity of the pension funds. A wholesale asset transfer would increase the value of the pension funds' assets and reduce the unfunded liability; however, it would also reduce the ADEC and result in negative cash flows to the funds. In the event that the Connecticut Lottery proceeds are directed to the state's pension funds, the determination as to how those proceeds are allocated after transfer is under the authority of the Office of the State Treasurer. Donation of the lottery as an asset may be feasible subject to certain concerns related to liquidity and the need to create or modify the governance structure.

### **Further Analysis**

The Commission recommends that, should the legislature wish to explore the specific concepts identified in this report further, that such work be conducted by either the Office of the State Treasurer and/or through the continuation of the existing Connecticut Pension Sustainability Commission in order to avoid duplicative work by another newly established state entity. The Commission also recommends that the legislature, in pursuing additional analysis, designate sufficient resources to allow for professional legal, accounting, actuarial and/or other necessary consulting services to verify the feasibility of these concepts.

The Commission thanks all of those from within and outside state government who presented research and analysis that will assist our state in identifying additional mechanisms to further strengthen Connecticut's financial stability, and assure retirement security for teachers and state workers.

## Appendices

The documents that are bulleted below have been previously referenced within this report and can be viewed in their totality on the subsequent pages.

- Legal Subgroup Report
- Millstein & Co. Presentation: State of Connecticut Discussion Materials
- Connecticut Commission on Fiscal Stability and Economic Growth Presentation
- Working Group Assignments
- The Legacy Obligation Trust Presentation: A New Approach to Funding Pension & OPEB Liabilities
- Office of State Treasurer Denise L. Nappier Presentation: Plan for Sustainable Funding of the Teachers' Retirement Fund
- Capital Asset Selection Criteria
- The ARC and the Covenants, 2.0 Article: An Update on the Long-Term Credit Risk of US States
- PEW Charitable Trusts Article: The State Pension Funding Gap: 2016 Investment shortfalls, insufficient contributions reduced funded levels for public worker retirement plans
- SERS Report and TRB Report: Presented by John Garrett, Cavanaugh Macdonald Consulting, LLC
- Queensland Motorways Case Study: Presented by Michael Bennon
- Connecticut Lottery Corporation Testimony: Submitted by Greg Smith, President of the Connecticut Lottery Corporation
- State of Connecticut Office of the Treasurer Combined Investment Funds Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2017

PENSION SUSTAINABILITY COMMISSION  
LEGAL SUBGROUP  
PRELIMINARY DRAFT OF LEGAL SUBGROUP SECTION OF FINAL REPORT  
2/25/19

The legal subgroup initially looked at the legal issues raised by the concept of transferring certain state property to a Legacy Obligation Trust ("LOT"), a privately managed and held entity which might be able to be sold by the state to create immediate revenue which the state could use help pay down underfunded long term obligations. As our review developed, we determined that each piece of property under consideration for inclusion in the LOT would require a detailed and specific legal review to determine how, when, and with what, if any conditions the property was acquired, what legal restrictions might attach to an attempt to sell the property because of answers to those questions, and what other legal restrictions might attach to each property because of applicable statutes, constitutional requirements, and common law requirements.

As these considerations are discussed more fully in the report of the Asset Selection Subgroup, they will not be further discussed here. In light of these concerns, and in light of presentations by the Treasurer about the benefits of making any transfer of assets to the Treasurer, rather than a LOT, the Commission has already voted preliminarily that it would support a transfer of the CT Lottery or its proceeds to the Treasurer for the purposes discussed above, but has not pressed for transfer of other state properties. If that continues to be the Commission's recommendation, then there will no need for further analysis of these issues. Because it appeared that the LOT concept was not going to be recommended by the Commission, there was no analysis of the other issues raised by the LOT concept such as fiduciary issues and even the legality of transfer of state assets to a privately managed entity.

The Commission was also informed that federal law requires that lotteries such as the CT Lottery must be owned and operated by a state to comply with federal law. This requirement comes from the fact that federal law generally prohibits the promotion of lotteries in interstate commerce, 18 U.S.C. Secs. 1301-1304, 1953(a), but exempts Lotteries "conducted by [a] State acting under the authority of State law." *Id.* Secs. 1307(a)(1), 1307(b)(1), 1953(b)(4). These requirements are detailed and analyzed in an opinion of the Office of Legal Counsel of the U.S. Department of Justice dated October 16, 2008, entitled "Scope of Exemption Under Federal Lottery Statutes for Lotteries Conducted by a State Acting Under the Authority of State Law," available on the Commission's website. Because of this legal requirement, it appears that the only way to use the value of the State Lottery or its revenues towards pension sustainability would be for the legislature to direct or guarantee those revenues to a particular pension-related purpose, or to entrust the revenues or the lottery and its revenues to the Treasurer for specified purposes. Such an avenue, to the best of the Commission's present knowledge, appears to be lawful.

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State of Connecticut  
*Discussion Materials*

August 17, 2018



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## I. Executive Summary



## Executive Summary

Connecticut (“Connecticut”, “CT” or the “State”) and its municipalities have capital and other assets of significant value that could be unlocked and used more efficiently to shore up its underfunded pensions and mitigate persistent budget imbalances

- The State has significant capital assets on its balance sheet, including large infrastructure assets such as roads, bridges, railways, buildings, and even the lottery system
- In addition, there are many municipal-owned water utilities that could have significant value
- We have developed a set of transactions that could be pursued individually or collectively to unlock value that could be used to relieve pressure on state and local budgets

Asset Transaction	Benefits and Considerations
Contribute the <b>lottery system</b> to the State’s pensions	<ul style="list-style-type: none"> <li>▪ Recent precedent for similar transaction in New Jersey</li> <li>▪ Given the lottery net income currently supports the general fund, the benefit of contributing the lottery (taking into account the resulting reduction of the annual required contribution) would need to be offset against the loss of lottery revenues over time</li> </ul>
Increase rates of <b>municipal water systems</b> to generate equity value to transfer to pensions	<ul style="list-style-type: none"> <li>▪ The State could consider incentives to motivate member municipalities to raise water rates and contribute these assets to their own underfunded pension systems</li> <li>▪ Could shore up local budgets and reduce reliance on State aid</li> <li>▪ Complex transactions given number of member municipalities</li> </ul>
Sell <b>real estate</b> and lease back from private owner	<ul style="list-style-type: none"> <li>▪ Private operator could enhance the value of the State’s real estate portfolio</li> <li>▪ Could provide incremental property tax revenues, as properties previously owned by the State may no longer be tax exempt</li> </ul>

***These measures should be considered in concert with other fiscal measures to develop a cohesive and long-term plan that addresses structural deficits and provides the State flexibility to grow and invest in its economy***



## Overview of Monetization Mechanisms

There are a number of methods by which the State and its municipalities can monetize their capital assets

	Structured Asset Transfer ("In Kind")	Concession / Lease	Full Privatization or Sale/Leaseback
Description	<ul style="list-style-type: none"> <li>Transfer ownership of assets to pension systems at fair market value to satisfy a specified amount of pension contribution requirements</li> <li>Contract with a newly created private or public operating company to operate the assets for the benefit of the plans</li> </ul>	<ul style="list-style-type: none"> <li>Grant a long-term lease to a third party who will operate and maintain the asset in exchange for the right to collect revenues</li> <li>May include up-front cash consideration</li> </ul>	<ul style="list-style-type: none"> <li>Sell assets, with full ownership rights granted to a private entity</li> <li>To the extent necessary, assets can be leased back to the government for their use</li> </ul>
Benefits	<ul style="list-style-type: none"> <li>Cost-effective way of immediately reducing pension funding obligation by utilizing existing assets</li> <li>Consistent with Section 180 of the recently passed 2018-2019 State Biennium Budget, which stipulates the creation of a capital asset trust to benefit the State's pension systems</li> <li>Option to retain existing employees under the same employment contracts as exist currently</li> </ul>	<ul style="list-style-type: none"> <li>Private entity responsible for payment of operating, maintenance and capital expenditures</li> <li>Depending on transaction structure, may provide State/municipality with longer-term, stable cash flows</li> <li>State/municipality would run a competitive bidding process, which may increase value</li> </ul>	<ul style="list-style-type: none"> <li>Private entity responsible for payment of operating, maintenance and capital expenditures</li> <li>Enables State/municipality to immediately monetize assets for upfront consideration, which may be used to repay obligations, fund pension contributions or retire debt</li> <li>Allows assessment of property taxes on previously tax exempt property, helping shore up municipal budgets</li> </ul>
Considerations	<ul style="list-style-type: none"> <li>May require changes in tax regulations to facilitate transaction</li> <li>Must be done on an arms-length basis with appropriate protections both for the State and the pension systems</li> </ul>	<ul style="list-style-type: none"> <li>Reduced public control over assets</li> <li>May not realize upside from potential long-term asset appreciation</li> </ul>	<ul style="list-style-type: none"> <li>Loss of operational control of assets</li> <li>Purchaser retains net operating profits and long-term asset appreciation</li> </ul>

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## II. Lottery System Contribution

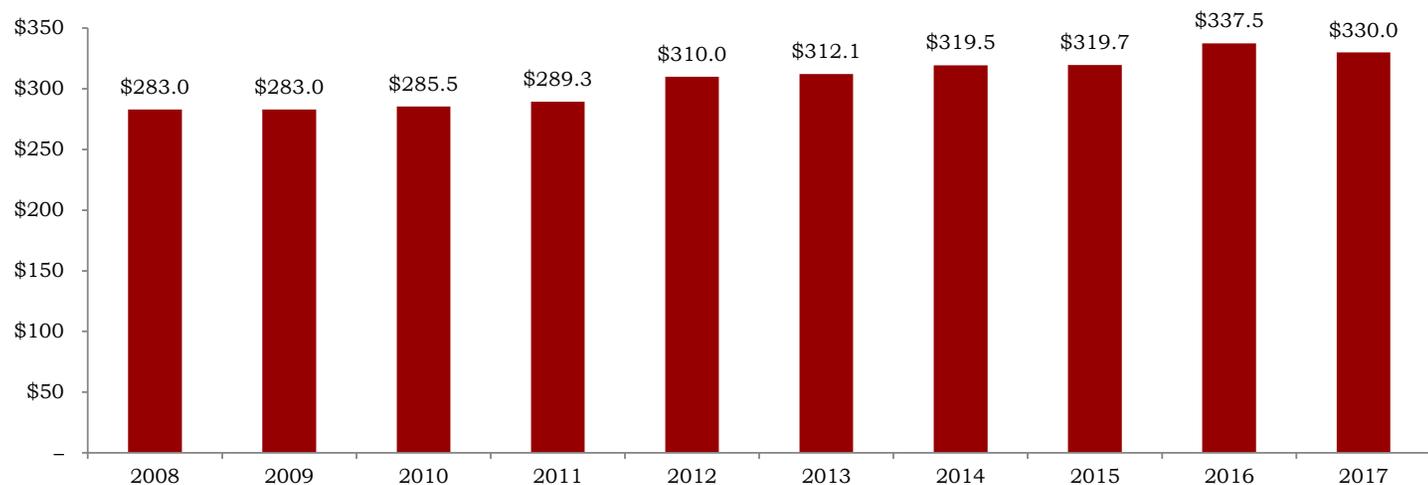


## Contributing the Connecticut Lottery System to the State's Teachers' Retirement System

Connecticut has a lottery system (the "CT Lottery") that produced \$330 million of net revenues for the general fund ("GF") in 2017. The CT Lottery could be contributed in kind to the State's Teachers' Retirement System ("TRS") to offset its underfunded liability and reduce the State's annual required contribution ("ARC")

- The CT Lottery has generated a steady amount of net income over the last 10 years, which has been contributed to the GF to fund public services

### Historical CT Lottery Payments to the State GF (\$ millions)<sup>(1)</sup>



The CT Lottery's payments to the GF have grown steadily with a CAGR of 1.7% between 2008-2017

- As recommended by the Connecticut Commission on Fiscal Stability and Economic Growth (the "Commission") in its March 2018 report, a contribution of the CT Lottery to TRS could be structured as follows:
  1. The state would contribute the CT lottery cash flow stream to TRS at fair market value;
  2. TRS's funded level would increase by the fair market value of the CT Lottery asset, thereby reducing the net pension liability;
  3. As a result of a reduction in TRS's net pension liability, the State's ARC would decrease;
  4. In the first half of the 30-year concession, total costs to the State would be reduced in excess of the foregone lottery cash flows due an improvement in TRS's unfunded liability

<sup>1</sup> Source: 2017 Connecticut Lottery Corporation Annual Report. Under Connecticut General Statute 12-812(c), the amount paid by the Connecticut Lottery Corporation to the State General Fund should represent the balance of the lottery fund that exceeds prize payments, operating expenses and approved reserves.

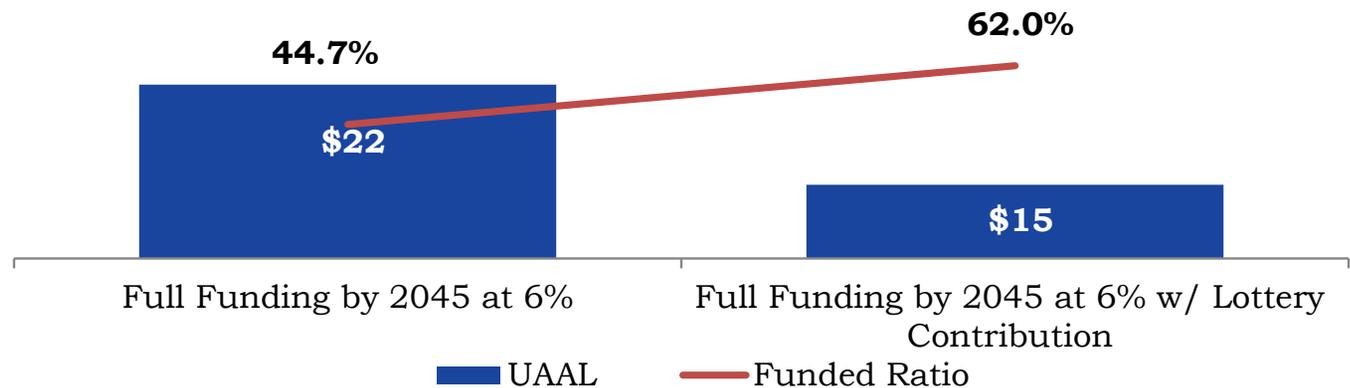


# Lottery Contribution Impact on the State’s Pension Systems Unfunded Liability

**A contribution of the CT Lottery to TRS could reduce TRS’s unfunded liability by approximately \$7 billion**

- A reduction in the UAAL of TRS would also result in a reduction in future State required pension contributions
  - Such reductions could be structured to achieve other objectives, including reaching budget neutrality or further increasing pension plan funding levels, alongside adjustments to pension system contributions
- The following table shows the impact on TRS’s unfunded liability assuming the Commission’s preliminary \$7 billion valuation for the CT Lottery
  - The Commission’s analysis evaluates the impact on the TRS unfunded liability following the reduction of the system’s discount rate to 6% and a re-amortization of the unfunded liability to reach full funding by 2045

**FY 2019 TRS Pension Liability and Funded Ratio:  
Full Funding by 2045 at 6% vs. Full Funding by 2045 at 6% with Lottery Contribution (\$ in billions)<sup>(1)</sup>**



Note that the starting UAAL shown here does not represent TRS’s current stated UAAL but rather the UAAL following a reduction in the discount rate to 6% and a re-amortization of the unfunded liability to reach full funding by 2045

<sup>1</sup> Connecticut Commission on Fiscal Stability and Economic Growth, The Pew Charitable Trusts.



## Lottery Contribution Impact on the State's Annual Contributions to TRS

The Commission's analysis suggests that the lottery contribution would provide net present value savings of \$1.2 billion to the State's General Fund over the first 15 years of the concession and would be only \$196 million dilutive over a 30-year period

### FY 2020 – 2049 Annual Change in State Contributions to TRS (\$ in millions)<sup>(1)</sup>

Fiscal Year	State Contributions to TRS w/out Lottery Contribution	Adjustments		State Contributions to TRS w/ Lottery Contribution	Present Value of Increase / (Further Reduction) in ARC
		CT Lottery Net Proceeds	Increase / (Further Reduction) in ARC		
2020	\$1,428	(\$371)	(\$7)	\$1,049	(\$7)
2021	1,480	(383)	(6)	1,091	(5)
2022	1,532	(396)	(2)	1,135	(1)
2023	1,821	(406)	(232)	1,182	(184)
2024	1,883	(416)	(233)	1,233	(174)
2025	1,945	(427)	(233)	1,285	(165)
2026	1,992	(437)	(215)	1,340	(143)
2027	2,040	(448)	(195)	1,396	(123)
2028	2,089	(458)	(174)	1,456	(103)
2029	2,139	(469)	(152)	1,518	(85)
2030	2,190	(482)	(127)	1,581	(67)
2031	2,243	(495)	(102)	1,646	(50)
2032	2,297	(509)	(74)	1,714	(35)
2033	2,352	(523)	(45)	1,784	(20)
2034	2,408	(537)	(13)	1,857	(6)
2035	2,466	(552)	20	1,934	8
2036	2,525	(567)	55	2,013	20
2037	2,586	(582)	93	2,096	32
2038	2,648	(597)	132	2,183	44
2039	2,711	(612)	174	2,274	54
2040	2,776	(624)	219	2,371	64
2041	2,843	(637)	266	2,472	74
2042	2,911	(650)	316	2,578	83
2043	2,981	(663)	369	2,687	91
2044	3,053	(676)	425	2,801	99
2045	1,431	(689)	1,103	1,845	242
2046	864	(703)	703	864	146
2047	892	(717)	717	892	140
2048	921	(731)	731	921	135
2049	951	(746)	746	951	130
<b>Total</b>	<b>\$62,396</b>	<b>(\$16,505)</b>	<b>\$4,259</b>	<b>\$50,150</b>	<b>\$196</b>

#### Benefits:

- Provides a dedicated funding source for TRS, which is severely underfunded and currently poses a significant risk to the State's credit rating and ability to raise low-cost debt
- Replaces a portion of the current stream of cash flows coming from the State, which is subject to annual appropriations, with a guaranteed stream of cash flows from CT lottery. This locks up those cash flows, ensuring TRS can invest them alongside other plan assets and generate compounding interest
- Generates a nominal \$1.8 billion or discounted (at 6%) \$1.2 billion of savings over the first 15 years, which the State could use to invest in pro-growth initiatives and expand the economy

<sup>1</sup> Connecticut Commission on Fiscal Stability and Economic Growth, The Pew Charitable Trusts.

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### III. Public Water System Monetization

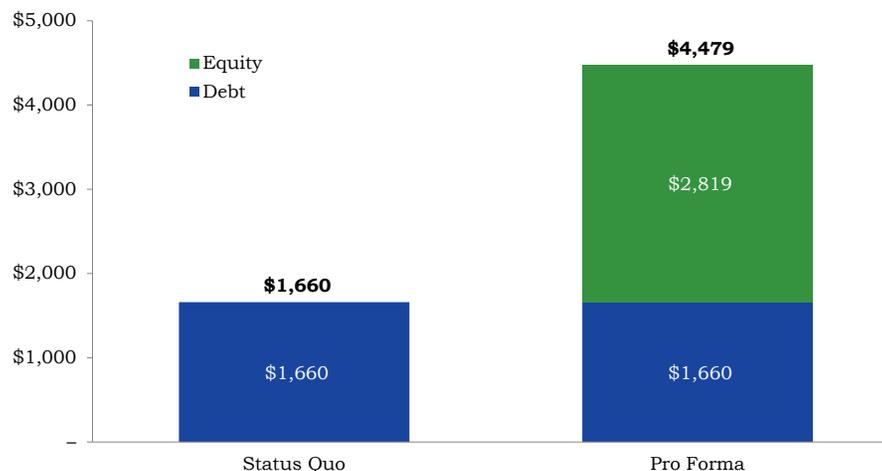


## Maximizing Value of Municipal Water Systems

Connecticut’s municipalities could increase the rates of their public water systems to generate equity value from the assets and subsequently transfer ownership of the systems to their own underfunded municipal pension systems

- Unlike privately-owned water systems, municipal water systems are not subject to rate regulation from Connecticut’s Public Utilities Regulatory Authority (“PURA”)<sup>(1)</sup>
  - Despite being regulated, private water rates are 49% higher than municipal water rates<sup>(2)</sup>
- Given municipal water systems are public instrumentalities, they are engineered to break even after debt service<sup>(3)</sup>
  - If the municipal water systems were to increase their rates to match those of privately-owned systems, equity value would be created where none exists today, making them more attractive assets for the pension systems to take on given the assets’ ability to generate a return on equity (“ROE”)
- As shown below, if the above actions were taken by the South Central Regional Water Authority (“RWA”) and the Metropolitan District Commission (“MDC”) – Connecticut’s two largest municipal water systems that serve nearly 30% the State’s population<sup>(4)</sup> – the State may be able to generate \$2.8 billion of equity value<sup>(5)</sup>

**Aggregate RWA and MDC Capitalization – Status Quo and Pro Forma (\$ millions)<sup>(5)</sup>**



	MDC	RWA
<b>Rates</b>		
Current Residential Rate	\$2.770	\$3.942
Average Private Res. Rate	\$4.436	\$4.436
% Rate Increase	60.1%	12.5%

<b>Pro Forma Capitalization</b>		
Debt	\$1,118	\$541
Equity	2,615	204

Note that MDC recently hosted a public hearing to increase its water rates from \$2.77 to \$3.15 as part of its 10% budget increase. However, this rate increase remains below the proposed increase used in the illustrative analysis

1 Private water systems submit their rates for approval to PURA per Connecticut General Statute.

2 Comparison of residential water rates among the top 15 public and private systems. Excludes sewer rates. See the Appendix for additional information.

3 For example, rates for South Central Regional Water Authority “shall be established so as to provide funds sufficient in each year” to cover the systems’ expenses, including debt service on bonds. See CT Special Act 77-98 Section 14 concerning the South Central Connecticut Regional Water Authority.

4 Per CT Department of Public Health: Public Water System Lists. RWA and MDC are controlled by and serve a conglomeration of municipalities neighboring New Haven and Hartford, respectively.

5 Assumes an 8% ROE. See the following page and the Appendix for additional information and assumptions.



## Generating Return on Equity

The estimated equity value for RWA and MDC is based on an ROE that is in line with other private water systems in Connecticut

- As discussed on the previous page, many of the private water systems in Connecticut face rate regulation tied to an ROE threshold (i.e. the rate they can charge is based on meeting an ROE target)
  - The estimated \$2.8 billion of equity value for MDC and RWA assumes an 8% ROE target. This target is based on a reasonable return expectation for public pensions and, as shown below, is below private operators' returns
  - However, as shown below, RWA's pro forma capitalization would remain more levered than other private operators in Connecticut, implying that RWA may need to formulate a plan to pay down its debt over time
- Certain considerations require further diligence, including any potential tax implications resulting from transferring the assets (including the transfer of state-subsidized debt) to municipal pension systems, as well as the ability of the water systems to continue raising low-cost debt through the State Revolving Fund

### Pro Forma RWA and MDC Capitalization Compared to Historical Rate Cases<sup>(1)</sup>

Water Company	Capitalization		Cost of	
	Debt %	Equity %	Debt	Equity
Connecticut Water	54.3%	45.7%	5.7%	9.8%
Aquarion	48.5%	51.5%	5.2%	9.6%
Hazardville	46.0%	54.0%	6.5%	9.6%
<b>Average</b>	<b>49.6%</b>	<b>50.4%</b>	<b>5.8%</b>	<b>9.7%</b>
RWA	72.7%	27.3%	4.8%	8.0%
MDC	30.0%	70.0%	2.6%	8.0%

<sup>1</sup> Source: CT PURA rate case filings. Approved returns and capitalizations per final decision in the original rate case filing for each company (July 14, 2010 for Connecticut Water; September 24, 2013 for Aquarion; and October 26, 2016 for Hazardville). Does not incorporate any subsequent Water Infrastructure and Conservation Adjustments ("WICA").

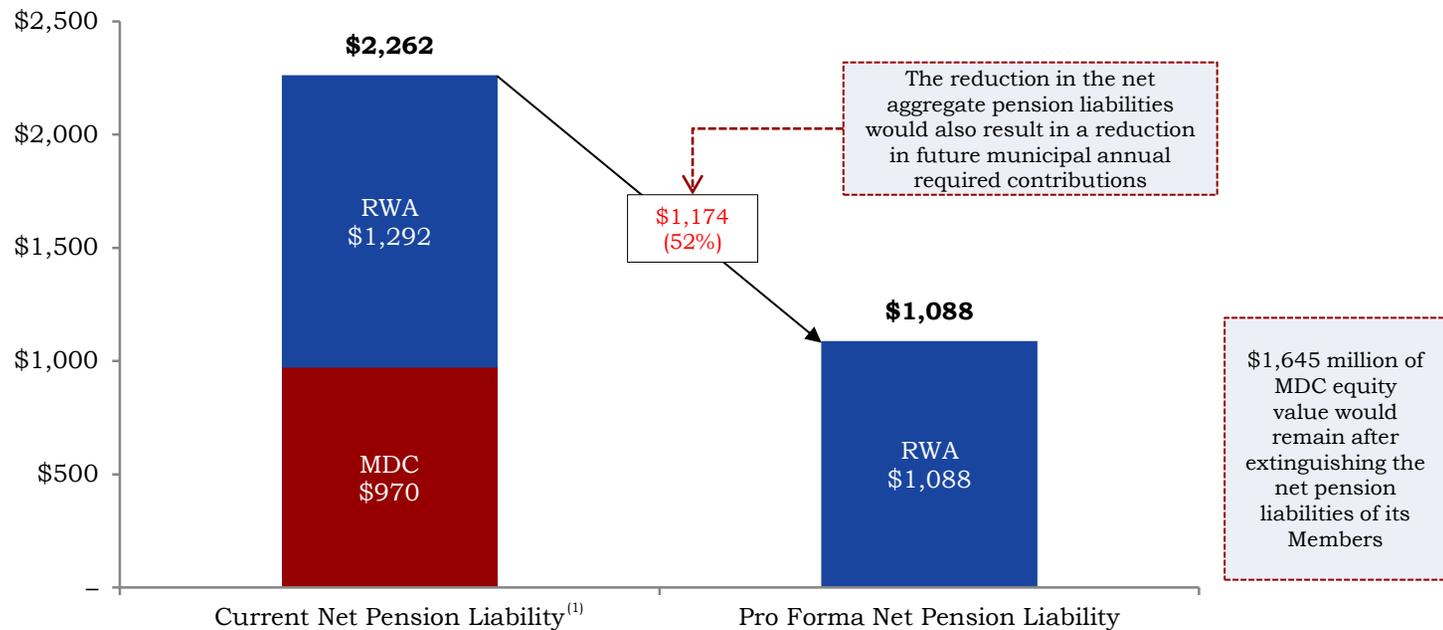


## Water Systems' Impact on the Municipal Pension Systems

The municipalities that currently operate the MDC and RWA systems (“Member Municipalities”) could consider contributing these assets to their own underfunded pension systems in order to shore up local budgets and reduce reliance on State aid

- Given these assets are owned by municipalities, any transaction would necessarily involve local authorities and may require the State to create incentives for the municipalities to seek such asset transfers
- The net pension liability figures shown below exclude the Member Municipalities’ proportionate share of the net pension liability for TRS
- As shown below, MDC could potentially extinguish all of its Members’ net pension liabilities with the equity value generated from a rate increase
  - MDC could potentially be incentivized to contribute the remaining equity value in the system to reduce its Members’ proportionate share of the TRS UAAL

**Member Municipalities’ Net Pension Liability Balance (\$ millions)**



<sup>1</sup> Net pension liability per annual reports of towns and cities that MDC and RWA serve. Excludes State's proportionate share of TRS. Does not include OPEB UAAL.

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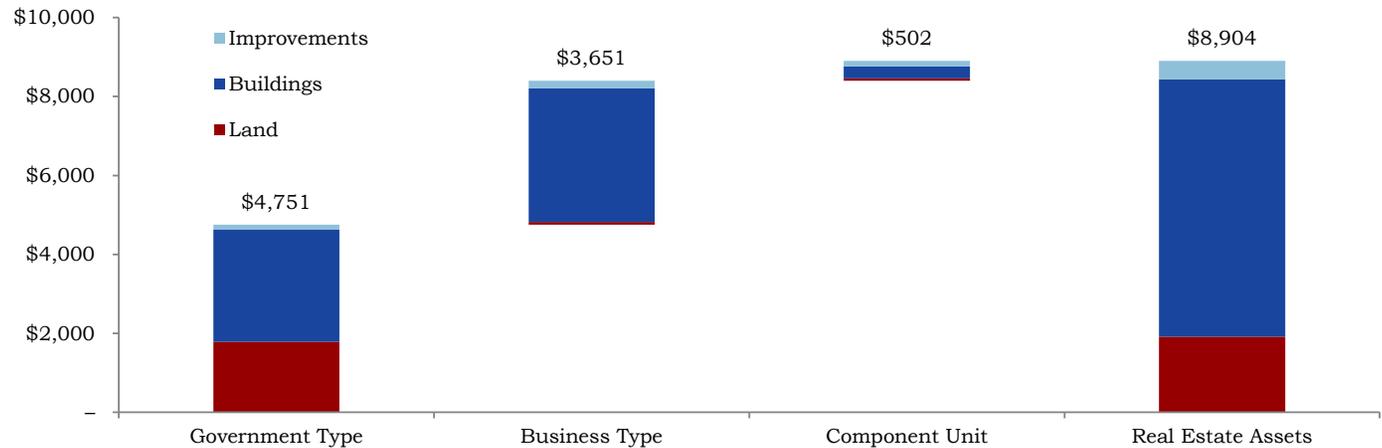
## IV. Real Estate Value Maximization



# The State May Be Able to Unlock Significant Value From Its Real Estate Assets

Of the State's \$21 billion of capital assets on its balance sheet (net of accumulated depreciation and gross of related debt), \$8.9 billion consists of real estate assets (land, buildings and improvements thereon)

Real Estate Capital Assets (\$ millions)<sup>(1)</sup>



Assets related to real estate totaled \$8.9bn as of June 30, 2017, or 43% of the State's \$21 billion of total net capital assets.<sup>(1)</sup> Note that the State has \$15 billion of debt related to its capital assets. Additional diligence and information is required to determine the allocation of debt to real estate assets in particular

Breakdown of Gov't Type Land by Function<sup>(1)</sup>

A majority of the State's Gov't Type land is categorized under Transportation, presumably relating to highways and other infrastructure. The next largest category is Conservation and Development. Section 23-8 of the Connecticut General Statutes requires the State and its partners to protect 21% of the State's land by 2023. The State has currently fulfilled 80% of its 320,576 acres portion of that goal<sup>(2)</sup>

- Transportation
- Education, Libraries, and Museums
- Regulation and Protection

Breakdown of Gov't Type Buildings by Function<sup>(1)</sup>

Total = \$1.8bn

9.1%

Total = \$2.9bn

22.9%

- Conservation and Development
- Corrections
- Health and Hospital
- General Government
- Judicial
- Legislative

<sup>1</sup> 2017 CT CAFR. All figures net of accumulated depreciation and gross of related debt.

<sup>2</sup> Source: Department of Energy & Environmental Protection Comprehensive Open Space Acquisition Strategy: 2016-2020 Green Plan.



## Sale-Leasebacks of State-Owned Buildings Could Provide Value to Both the State and Its Municipalities

Sale-leaseback transactions could generate upfront cash proceeds for the State and replace payments in lieu of taxes (“PILOTs”) to municipalities on previously tax-exempt properties with a full payment of property taxes

- There is precedent in other jurisdictions for real estate sale-leasebacks, such as:
  - The State of California consummated a similar transaction in October 2010 when it sold 11 state office properties for \$2.33 billion to Hines and Antarctica Capital Real Estate LLC, resulting in more than \$1.2 billion for its general fund and \$1.09 billion to repay bonds on the buildings<sup>(1)</sup>
    - The terms of the transaction included a 20-year lease at predetermined rates and the State of California was relieved of all maintenance and operational responsibilities
    - The State of California received more than 300 bids for the portfolio, suggesting that there may be substantial interest for assets of this type
  - The State of South Dakota recently completed a 30-year term sale-leaseback for 118 state-owned buildings, which had generated upfront net proceeds of \$184 million<sup>(2)</sup>
    - The state used the upfront proceeds to purchase an annuity to make lease payments and an excess of \$12 million for building and repairing 18 structures throughout the state
- The Office of Policy and Management’s (“OPM”) Inventory of State Property indicates that 10% of the State’s buildings, and 14% of the State’s buildings specifically located in Hartford, are not fully occupied
  - A private operator may be able to enhance the value of these assets through active portfolio management

**Connecticut State Owned Buildings (millions of net usable sq. ft.)<sup>(3)</sup>**

Structure Classification	Total State Owned			State Owned Located in Hartford		
	Total Sq. Ft.	% Not Fully Occupied	% Sq. Ft. Unoccupied	Total Sq. Ft.	% Not Fully Occupied	% Sq. Ft. Unoccupied
Other	21.8	12%	9%	1.0	9%	4%
Education	7.8	6%	2%	0.2	0%	0%
Office	4.3	11%	1%	1.5	18%	1%
Residence	4.0	15%	3%	0.0	–	–
Court	1.9	2%	0%	0.4	–	–
Hospital	1.0	4%	0%	0.1	35%	0%
Maintenance/Repair Shop	1.4	0%	0%	0.0	–	–
Laboratory	1.2	8%	7%	0.1	100%	90%
Sports/Gymnasium	1.2	7%	1%	–	–	–
Military	0.5	–	–	–	–	–
Library	0.8	14%	3%	0.1	–	–
<b>Total</b>	<b>46.0</b>	<b>10%</b>	<b>5%</b>	<b>3.4</b>	<b>14%</b>	<b>4%</b>

Additional diligence and information is required to determine use of structures classified as “Other” within the Inventory of State Property, as this category accounts for the largest proportion of the State’s buildings and is materially unoccupied

Nearly 35% of the State’s buildings purposed for office use are located in Hartford, 18% of which are buildings not fully occupied (though only 1% of total sq. ft. of Hartford office space is unoccupied)

<sup>1</sup> State of California Department of General Services October 11, 2010 press release.

<sup>2</sup> Rapid City Journal, “Money out of nothing,” dated January 15-16, 2017.

<sup>3</sup> March 2016 – Inventory of State Property – State of Connecticut – Office of Policy & Management. Excludes buildings to be demolished in the next two or five years, on or eligible for historical registry, and without reportable net usable square footage. To be conservative, occupancy is calculated using the higher end of estimated occupancy ranges, and when no occupancy rate is provided, it is assumed that the building is 100% occupied.

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# V. Appendix

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## Appendix A: Comparable In-Kind Contributions



## New Jersey Lottery Contribution

- In July 2017, New Jersey transferred its lottery enterprise, including its net proceeds, to three of its retirement systems for a 30-year term
  - The contribution was effectuated by the Lottery Enterprise Contribution Act (the “Act”) passed by the legislature and a Memorandum of Lottery Contribution (“MOLC”)
- The contribution represented the strongest commitment to pension funding the State could possibly make without a constitutional amendment
  - In *Burgos v. State*,<sup>(1)</sup> the State of New Jersey Supreme Court ruled that state contributions to its retirement systems are subject to annual appropriation and that a multi-year, statutory, contractual commitment to a schedule of pension contributions is not enforceable under state law
  - In contrast, any termination of the lottery contribution could implicate the exclusive benefit rule of the Internal Revenue Code, which requires the assets of the pension plans to exist for the exclusive benefit of their members in order for the pension plans to qualify for favorable tax treatment
- The lottery contribution also had a number of additional benefits, including:
  - Immediately improved the state’s aggregate statutory funded ratio from 45% to 59%
  - Provides budget neutrality for first five fiscal years with a manageable impact thereafter
  - According to former state treasurer, Ford Scudder, the transaction “positively addresses Wall Street’s concerns about the State’s fiscal future by ensuring 30 years of substantial contributions to eligible State Retirement Systems from a source that has reliably produced revenue for 47 years. It also allows the State to achieve better portfolio performance by providing predictable liquidity. By dramatically improving the State’s fiscal outlook, the transaction should lower the State’s cost of borrowing from where it otherwise would be”<sup>(2)</sup>

Source: New Jersey Economic Development Authority School Facilities Construction Bonds, 2017 Series DDD Investor Presentation.

1 *Burgos v. State*, 222 N.J. 175 (2015).

2 <http://www.state.nj.us/treasury/assets/docs/lottery/LotteryContribution%20OpEdFINAL.pdf>.

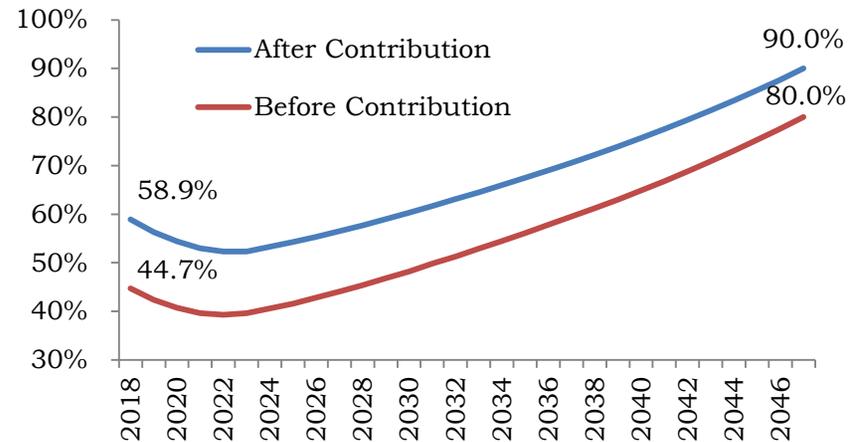


## New Jersey Lottery Contribution (cont'd)

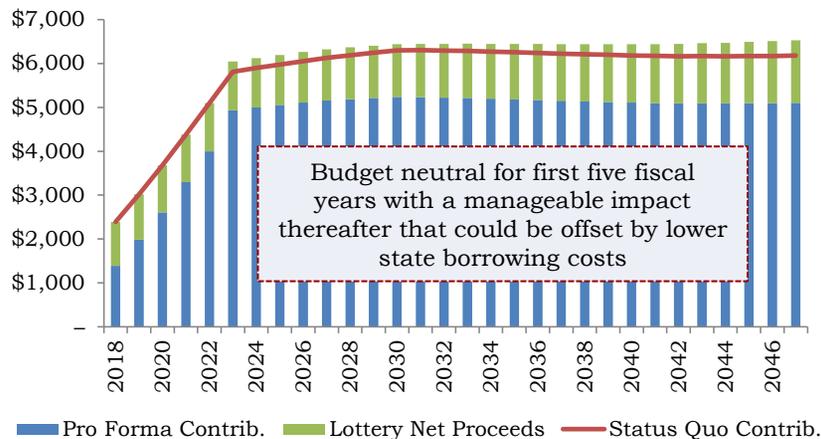
### Transaction Overview

- **Date:** July 2017
- **Asset:** New Jersey Lottery Enterprise
- **Structure:** 30-year concession
- **Transaction Size:** \$13.535 billion valuation<sup>(1)</sup>
- **Beneficiaries:** Teachers' Pension and Annuity Fund ("TPAF"), eligible members of the Public Employees' Retirement System ("PERS"), and eligible members of the Police and Firemen's Retirement System ("PFRS")

### Impact of Projected Statutory Funded Ratio

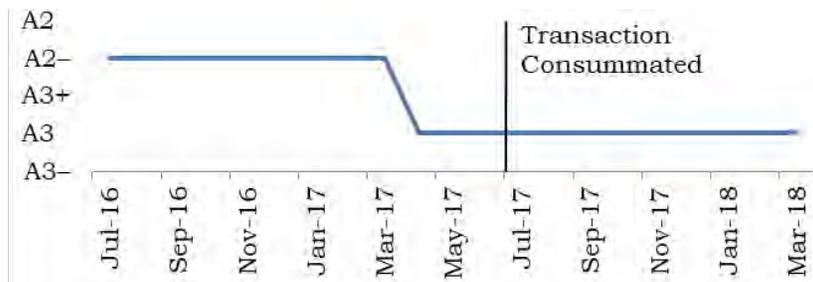


### Impact on New Jersey Budget (\$ millions)



### Impact on New Jersey GO Credit Rating (Moody's)

- Moody's, August 11, 2017: "The most notable long-term effect of the transaction is the creation of an effective minimum, or "floor," on future pension contributions...[which] is slightly positive for the state's credit profile because it all but removes the prospect of a complete pension contribution holiday going forward...[which] is a major driver of [the state's] current pension cost and unfunded liability challenge."



Source: Bloomberg; New Jersey Economic Development Authority School Facilities Construction Bonds, 2017 Series DDD Investor Presentation; Moody's Investors Service.  
 1 The lottery will be revalued every five years. A lower valuation to result in a reduced credit against the State's ARC. A higher valuation to have no impact on the State's credit toward its ARC, thereby providing the pension plans with any upside.



## City of Jacksonville, FL ½ Penny Sales Tax Dedication

- In April 2017, the City of Jacksonville, Florida dedicated a ½ penny sales surtax, beginning no later than 2031, to its pension plans for 30 years or until they reach 100% funding, whichever comes first
  - Prior to the transaction, the ½ penny sales surtax was being used for infrastructure purposes and was originally scheduled to sunset at the expiration of the program (no later than the end of 2030)
- Prior to the transaction, the City of Jacksonville’s pension plans had combined unfunded liabilities of more than \$3 billion and an aggregate funded ratio of approximately 54%
  - Annual contributions to the plans have comprised nearly 20% of the City’s operating budget
- The surtax provides a dedicated revenue stream for benefits owed in future years
  - Although the stream consists of future revenues, it is accounted for today as a pension asset, thereby reducing the city’s near-term contribution requirements and resulting in considerable savings between 2018 and 2030
- The transaction was enabled by legislation passed by the State of Florida,<sup>1</sup> which required the City to take the following prerequisite actions before it could use the surtax for pension funding:
  - Close defined benefit plans to new employees and instead provide a defined contribution plan
  - Increase employee contributions to 10% versus 8%
  - Re-amortize all unfunded liabilities over a period of 30 years
- To garner support for the transaction, the City made certain concessions to its workers, including:
  - Three years of substantial salary increases after nine years of no increases
  - One-time lump sum distributions of roughly 27.3% of pay in FY 2017

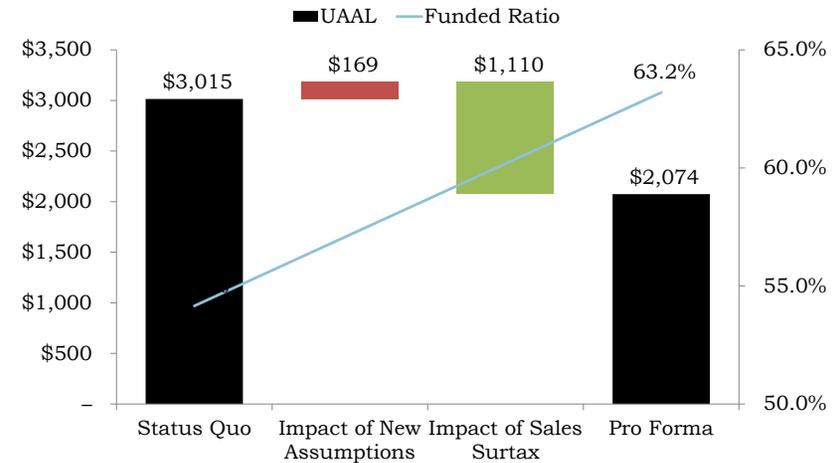


# City of Jacksonville, FL ½ Penny Sales Tax Dedication (cont'd)

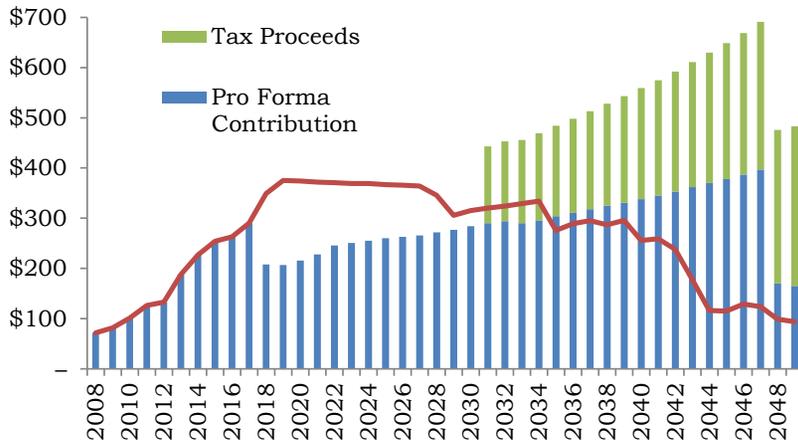
## Transaction Overview

- **Date:** April 2017
- **Asset:** ½ penny sales surtax
- **Structure:** Pledge of tax stream from sunset of ½ penny infrastructure sales surtax (no later than January 1, 2031) to earlier of 30 years (2060) or date of full funding
- **Transaction Size:** Approx. \$9.1 billion of undiscounted cash flows<sup>(1)</sup>
- **Beneficiaries:** Police and Fire Pension Fund (“PFPF”), General Employees’ Retirement Plan (“GERP”), and Correction Officers’ Retirement Plan (“CORP”)

## Impact on Pension Funds’ UAAL and Funded Ratio

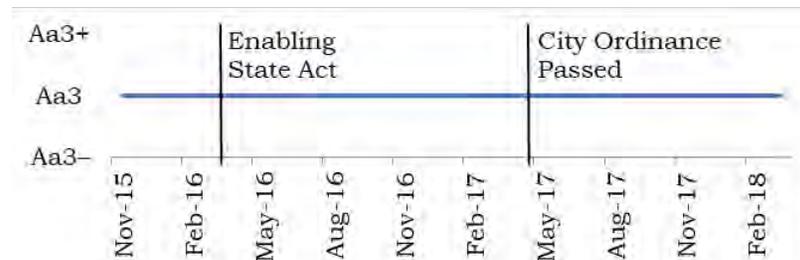


## Impact on City Budget (\$ millions)<sup>(1)</sup>



## Impact on Special Revenue Credit Rating (Moody’s)

- Moody’s, May 17, 2017: “Jacksonville’s reliance on future revenues...will continue to negatively impact our key credit metrics related to its pensions. On the other hand, the city will immediately begin shedding investment performance risk relative to the status quo as new employees with only defined contribution benefits grow as a proportion of the city’s work force.”



Source: Jacksonville City Pension Plans 2016 Actuarial Report; Jacksonville Pension Funds’ Actuarial Impact Statement Reports; Pension Reform City Council Workshop Presentation, April 12, 2017; Moody’s Investors Service.

<sup>1</sup> Assumes projected 4.25% growth in sales tax revenue per City Council.



## City of Pittsburgh, PA Parking Tax Dedication

- In December 2010, the City of Pittsburgh, Pennsylvania dedicated a portion of its annual parking tax revenues to its pension plans through 2041
- The City was forced to do so by State Act 44-2009, which required a 50% aggregate funded ratio (compared to 34% at the time) to avoid forfeiting the City's plans and their assets to the state
  - Local political leaders were concerned that if the State took control of the pension plans, it would look to the City for incremental contributions
    - One such concern was that the State would reduce the investment return assumption for the plans, which would have caused annual contributions to increase by nearly \$30 million
- State Act 44-2009 also mandated certain additional changes to all municipal pension plans in the state
  - Establishment of a revised benefit plan for newly hired employees
  - Revision to amortization schedules for unfunded actuarial accrued liabilities, as follows:
    - Actuarial gains/losses, increased from 15 to 20 years
    - Changes in assumptions, decreased from 20 to 15 years
  - Expansion of asset smoothing corridor for recognitions of gains and losses from 20% to 30%
  - Aggregation of local pension funds for administration and investment
  - Submission of a plan for administrative improvement

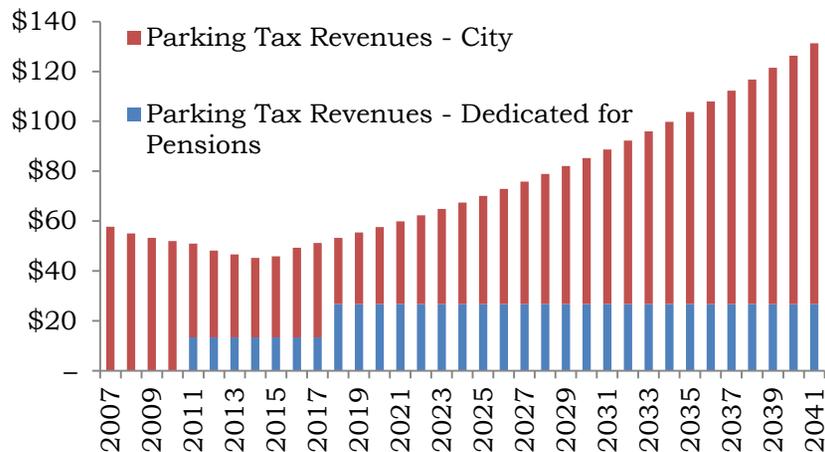


## City of Pittsburgh, PA Parking Tax Dedication (cont'd)

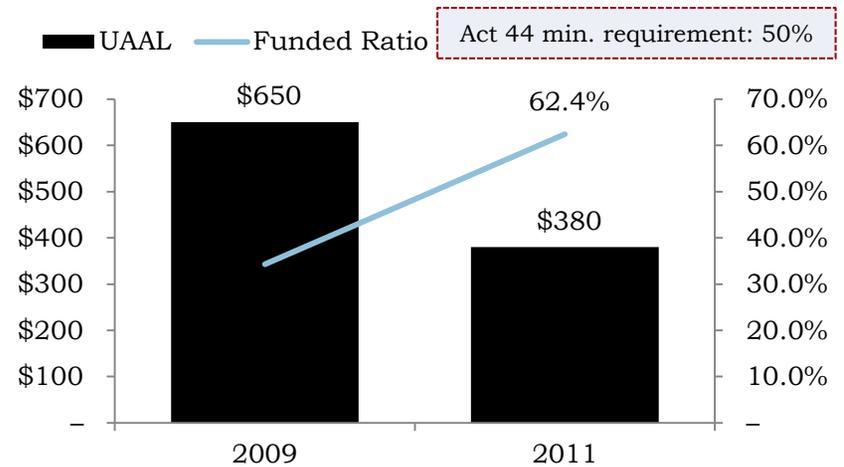
### Transaction Overview

- **Date:** December 2010
- **Asset:** Parking tax (\$13.4mm annually 2011-2017; \$26.8mm annually 2018-2041)
- **Structure:** Dedication of parking tax revenues based on an annual schedule from 2011 through 2041 (full faith and credit)
- **Transaction Size:** \$735,680,000 of undiscounted cash flows
- **Beneficiaries:** Municipal Pension Fund of the City ("Municipal Fund"), Policemen's Relief and Pension Fund of the City ("Policemen's Fund"), and Firemen's Relief and Pension Fund of the City ("Firemen's Fund")

### City Parking Tax Revenues (\$ millions)<sup>(1)</sup>

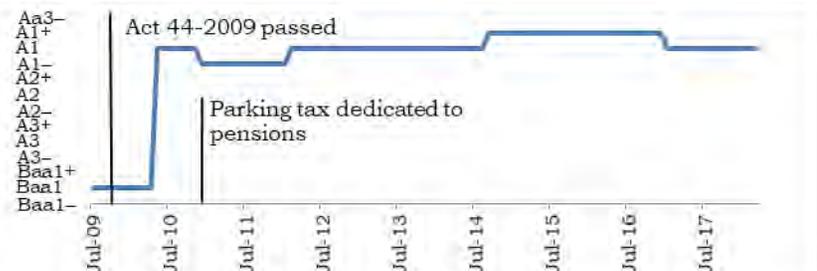


### Impact on Aggregate UAAL and Funded Ratio



### Impact on City GO Credit Ratings (Moody's)

- Moody's, January 19, 2012: "The change in the outlook to stable from negative reflects improved funding of the city's pension funds, resulting in the avoidance of the city's forced entry into the Pennsylvania Municipal Retirement System (PMRS) as required by the Commonwealth's Act 44...this would have required the city to significantly increase its pension contributions over the near- to medium-term."



Source: Bloomberg; 2016 Pittsburg CAFR; Ordinance 44-2010; City of Pittsburgh Pension Funds 2013 Summary Actuarial Valuation Report; City Council Public Hearing Presentation, July 29, 2010.

<sup>1</sup> Assumes parking tax revenue growth of 4% from 2017 through 2041. Per the City's 2018 Operating Budget, total parking tax revenues are forecast to increase by 4.0 percent each year through 2022.



## Queensland Motorways Concession

- In May 2011, the State of Queensland, Australia transferred Queensland Motorways Ltd. (“QML”) for a period of 40 years to the Queensland Investment Corporation (“QIC”) for the benefit of the state’s defined benefit superannuation fund (the “DB Fund”)
  - QML is an approximately 70 km toll road network, serving as a key East-West link in Southeast Queensland and a strategic connection to the Australian TradeCoast
  - QIC, owned by the Queensland government, was initially established to exclusively manage the state’s DB Fund but has since become one of the largest superannuation managers in Australia
    - QIC’s Global Infrastructure Group, on behalf of the DB Fund, built a team of investment professionals to assess and manage infrastructure assets directly. The group has over \$9.5bn in assets under management and has made 12 direct investments in infrastructure projects to date
- Prior to the transaction, both the Queensland government and QML were struggling financially and the government was considering putting the project up for sale or lease
- At the same time, the DB Fund’s actuary identified a \$1.4bn excess of liabilities over plan assets
  - At that point, the government considered the QML/QIC transaction because it would balance the budget via an in-kind contribution while at the same time reducing any downside risks of a competitive bidding process and easing public opposition to a private concession
- After transfer of QML, QIC made operational improvements to the network (including three acquisitions of adjoining toll roads)
  - QIC later sold the network to a private consortium for \$7.1bn, realizing nearly \$4bn in value over cost

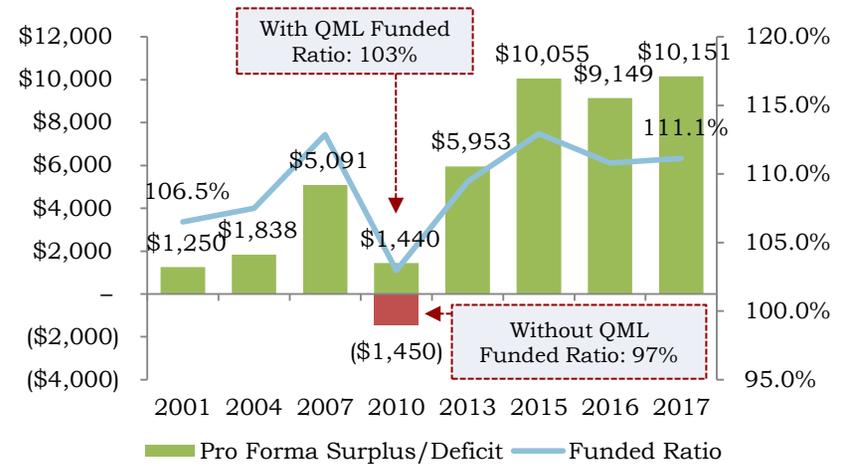


## Queensland Motorways Concession (cont'd)

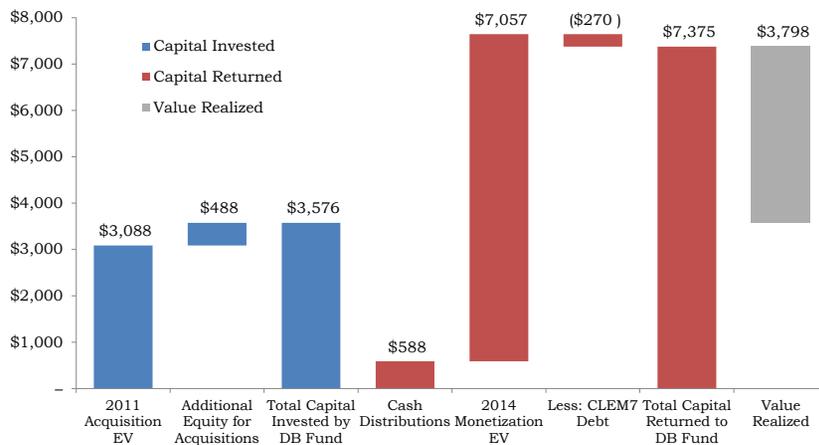
### Transaction Overview

- **Date:** May 2011
- **Asset:** Queensland Motorways Ltd
- **Structure:** 40-year concession
- **Transaction Size:** \$3.088bn valuation
  - QIC later sold QML to a private consortium in 2014 at a valuation of \$7.057bn
- **Beneficiaries:** Queensland Investment Corporation

### Impact on Plan Surplus and Funded Ratio (\$ millions)

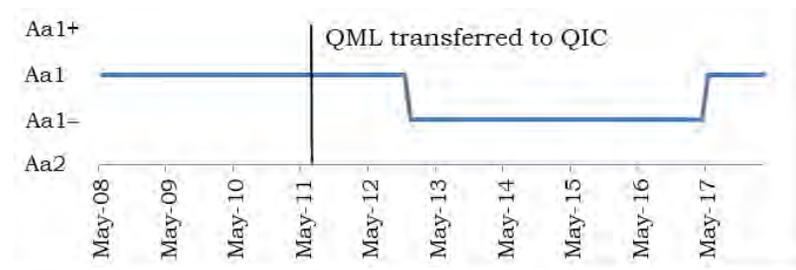


### Value Realized from the QML Transaction (\$ millions)



### Impact on Queensland's Credit Rating (Moody's)

- Premier Anna Bligh: "It's a [transaction] that improves the state's finances, takes us closer to an AAA credit rating, strengthens the Government's superannuation scheme and protects the public interest"<sup>(1)</sup>
- Treasurer Andrew Fraser: "It strengthens the state's balance sheet and strengthens our claim to regain our AAA credit rating and it strengthens the state's superannuation scheme"<sup>(1)</sup>



Source: Bloomberg; Stanford Global Projects Center; QSuper Annual Reports and Actuarial Investigations; Moody's Investors Service.  
 Note: All \$ in AUD.

1 ABC News, "Government to transfer Qld Motorways to QIC", November 25, 2010.

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# Appendix B: Public Water Systems

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## Overview of Public Water Systems in Connecticut

Connecticut's top 15 public water systems supply 66% of the population served by all of the approximately 2,500 systems operating in the State

- Of the top 15 public water systems in Connecticut, private operators charge 49% and 44% higher water rates for residential and commercial customers, respectively, than their municipality-operated peers
  - Residential rates of Connecticut's largest private operators are 60% and 13% above those of MDC and RWA, respectively

### Overview of Connecticut Public Water Systems (\$ millions)

#	Public Water System	Principal City Served	% of Pop. Served <sup>(1)</sup>	Public / Private	Commodity Charges <sup>(2)</sup> (Per 100 Cubic Feet)		As of June 30, 2016 <sup>(4)</sup>		
					Residential <sup>(3)</sup>	Commercial <sup>(3)</sup>	Net Debt	Net Assets Less Debt <sup>(5)</sup>	Change in Net Position <sup>(6)</sup>
1	RWA	New Haven	14%	Public	\$3.942	\$3.635	\$541	\$38	\$8
2	MDC	Hartford	13%	Public	2.770	2.770	1,118	849	57
3	Aquarion - Main	Bridgeport	12%	Private	4.234	4.234	NM - Private		
4	Waterbury	Waterbury	4%	Public	2.520	2.520	29	144	(2)
5	Aquarion - Stamford	Stamford	3%	Private	3.361	3.361	NM - Private		
6	CT Water - Northwest	East Windsor	3%	Private	5.915	5.915	NM - Private		
7	New Britain	New Britain	3%	Public	2.921	2.921	13	42	1
8	Danbury	Danbury	2%	Public	1.586	3.000	21	126	3
9	Meriden	Meriden	2%	Public	4.440	4.440	57	81	(1)
10	Aquarion - Greenwich	Greenwich	2%	Private	4.234	4.234	NM - Private		
11	Bristol	Bristol	2%	Public	2.500	2.500	3	20	(0)
12	Manchester	Manchester	2%	Public	3.280	3.280	54	22	2
13	Southington	Southington	1%	Public	3.040	3.040	NA - Water Results Not Reported Separately		
14	South Norwalk	Norwalk	1%	Public	2.753	2.753	80	16	(0)
15	Middletown	Middletown	1%	Public	2.910	2.910	NA - Water Results Not Reported Separately		
<b>Total/Average Top 15</b>			<b>66%</b>		<b>\$3.360</b>	<b>\$3.434</b>	<b>\$1,917</b>	<b>\$1,338</b>	<b>\$68</b>
Other (2,477 Additional Systems)			34%						
<b>Total</b>			<b>100%</b>						

Average public and private residential rates are \$2.969 and \$4.436, respectively. Average public and private commercial rates are \$3.070 and \$4.436, respectively

1 Source: Connecticut Department of Public Health; Public Water System Lists. Includes community systems, non-transient non-community systems, and transient non-community systems.

2 Excludes service charges.

3 Source: Filings of public water systems. For comparability, rates shown exclude sewer rates. Assumes charge for 5/8" meter size for residential and 1" meter size for commercial.

4 Source: 2016 Comprehensive Annual Financial Reports of the systems or of the municipalities where the systems are located.

5 Net of accumulated depreciation and related debt outstanding.

6 May not include change in net position associated with tangential expenses, such as health benefits, liability insurance, and workers' compensation, which are reported in a separate fund, such as an "Internal Service Fund", on some of the municipalities' financial statements. Internal Service Funds are used to account for the financing of goods or services provided by one department or agency to other departments or agencies of the government and to other government units, on a cost-reimbursement basis.



## Impact of Illustrative Rate Increase on Capitalization

The analysis below illustrates how a rate increase would impact the capital structures of MDC and RWA

Impact of Illustrative Rate Increase (\$ millions except rates)		
	MDC	RWA
Current Residential Rate	\$2.770	\$3.942
Average Private Residential Rate	\$4.436	\$4.436
% Rate Increase	60.1%	12.5%
Pro Forma Revenue	\$406	\$130
Less: Operating Expenses	(132)	(60)
Pro Forma EBITDA	\$274	\$70
Less: D&A	(31)	(20)
Less: Taxes/PILOTs	-	(8)
Less: Interest Expense	(34)	(27)
Pro Forma Net Income	\$209	\$16
Divide: ROE	8.0%	8.0%
Pro Forma Equity Value	\$2,615	\$204
Plus: Net Debt	1,118	541
Pro Forma Enterprise Value	\$3,734	\$745
<b>Pro Forma Debt % of Capital</b>	<b>30.0%</b>	<b>72.7%</b>

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## Comparable Private Water System Companies and Precedent Transactions

### Comparable Private Water System Companies Analysis (\$ millions, except per connection/capita metrics)

	Market Cap	Net Debt	TEV	EBITDA Margin	Leverage	EV /		Total Customers	Population Served	Operating Metrics	
						Rev.	EBITDA			Cost of Debt	Cash % of Rev.
American Water Works Co., Inc.	\$15,829	\$7,369	\$22,906	59%	3.7x	6.9x	11.7x	3,312,000	15,000,000	4.6%	2.8%
Connecticut Water Service, Inc.	738	273	1,032	55%	4.8x	9.9x	18.1x	124,968	400,000	3.0%	8.0%
Middlesex Water Company	687	164	890	50%	2.5x	6.8x	13.6x	128,920	N/A	3.2%	2.1%
Artesian Resources Corporation	349	115	489	50%	2.8x	6.0x	11.9x	85,000	N/A	5.5%	0.3%
American States Water Company	1,942	361	2,341	41%	2.0x	5.3x	12.7x	259,000	N/A	6.2%	1.5%
The York Water Company	437	90	548	62%	3.0x	11.4x	18.3x	67,052	196,000	5.9%	0.0%
California Water Service Group	2,060	722	2,766	34%	3.2x	4.2x	12.3x	511,500	2,000,000	4.7%	4.3%
SJW Group	1,299	436	1,703	34%	3.4x	4.5x	13.4x	246,600	N/A	5.1%	2.0%
Aqua America, Inc.	6,393	2,076	8,438	23%	11.3x	10.5x	45.9x	972,265	3,000,000	4.1%	0.5%
<b>Average</b>				<b>45%</b>	<b>4.1x</b>	<b>7.3x</b>	<b>17.5x</b>			<b>4.7%</b>	<b>2.4%</b>
<b>Median</b>				<b>50%</b>	<b>3.2x</b>	<b>6.8x</b>	<b>13.4x</b>			<b>4.7%</b>	<b>2.0%</b>
Regional Water Authority <sup>(1)</sup>	N/A	541	N/A	48%	9.7x	N/A	N/A	118,800	430,000	4.8%	18.6%
Metropolitan District Commission <sup>(2)</sup>	N/A	1,118	N/A	48%	9.2x	N/A	N/A	101,599	390,887	2.6%	79.1%

### Precedent Transactions Analysis (\$ millions, except per connection/capita metrics)<sup>(3)</sup>

Acquirer	Target	Date	Purchase Price (TEV)	TEV /		TEV /	
				Rev.	EBITDA	Conn.	Pop.
Eversource	Aquarion	2017	\$1,675	8.2x	18.8x	\$7,283	\$2,349
Connecticut Water	The Heritage Village Water Company	2016	21	11.2x	34.1x	4,253	N/A
Connecticut Water	The Avon Water Company	2016	40	8.2x	13.3x	8,354	N/A
Lehigh County Authority <sup>(4)</sup>	City of Allentown, PA Water Systems	2013	220	7.4x	22.6x	6,599	1,864
KKR & United Water <sup>(5)</sup>	City of Bayonne, NJ Water System	2012	150	N/A	N/A	12,500	2,273
Aqua America	American Water - Ohio	2012	116	3.1x	6.7x	1,973	N/A
EPCOR USA	American Water - New Mexico & Arizona	2011	470	5.2x	9.9x	2,691	N/A
JP Morgan & Water Asset Management	SouthWest Water Company	2010	427	2.0x	38.3x	3,286	928
<b>Average</b>				<b>6.5x</b>	<b>20.6x</b>	<b>\$5,867</b>	<b>\$1,854</b>
<b>Median</b>				<b>7.4x</b>	<b>18.8x</b>	<b>\$5,426</b>	<b>\$2,068</b>

Source: Bloomberg, CapitalIQ and company filings.

1 EBITDA for RWA represents operating income plus an addback for depreciation and amortization.

2 EBITDA for MDC represents change in net position of both governmental activities and business type activities with addbacks for interest expense and depreciation expense. Includes sewer operations and some electricity.

3 Financials per company filings, state regulatory reports, and select research reports. Note that

where revenue and EBITDA figures were not directly available, figures have been estimated based on last publicly available information released prior to transaction.

4 50-year concession agreement. Purchase price represents upfront cash proceeds.

5 40-year concession agreement. Purchase price represents upfront cash proceeds.



## Connecticut Public and Private Water System Rate-Setting

**While regional and municipal water utility rates are not regulated by any agency, private water system rates are regulated by the Connecticut Public Utilities Regulatory Authority (“PURA”)**

- Public water systems set their own water rates subject to a vote by the system board subsequent to a public hearing
  - Under Section 2-14 and Section 5-4 of the MDC Charter, the District Board determines whether MDC will increase its rates through an ordinance revision
  - Under Section 14 of Connecticut Special Act 77-98, the Representative Policy Board votes on raising existing water rates for RWA
  - While there is no formal cap on rate increases, the rates *“shall be established so as to provide funds sufficient in each year”* to cover the systems’ expenses, including debt service on bonds<sup>(1)</sup>
- Private water system rates are submitted for approval by PURA under CGS 16-19 and 16-19e through a general rate case filing
- In recent years, however, private water system base rates have remained constant, and rates have only increased through a semi-annual adjustable Water Infrastructure Conservation Adjustment (“WICA”) surcharge
  - The purpose of the WICA legislation is to ensure that private water systems are incentivized to invest in and maintain capital-intensive infrastructure
  - Under CGS 16-262w, the WICA is *“calculated as a percentage, based on the original cost of completed eligible projects multiplied by the applicable rate of return, plus associated depreciation and property tax expenses related to eligible projects [...] as a percentage of the retail water revenues”*
  - The WICA surcharge permits rate increases so as to achieve a maximum 5% rate of return per year—or 10% between general rate case filings—on eligible infrastructure projects

<sup>1</sup> CT Special Act 77-98 Section 14 concerning the South Central Connecticut Regional Water Authority.

# Commission on Fiscal Stability and Economic Growth

## The Charge to the Commission:

***“Develop and recommend policies to achieve state government fiscal stability and promote economic growth and competitiveness within the state. Study and make recommendations regarding state tax revenues, tax structures, spending, debt, administrative and organizational actions and related activities, to:***

***(1) achieve consistently balanced and timely budgets that are supportive of the interests of families and businesses and the revitalization of major cities within the state, and***

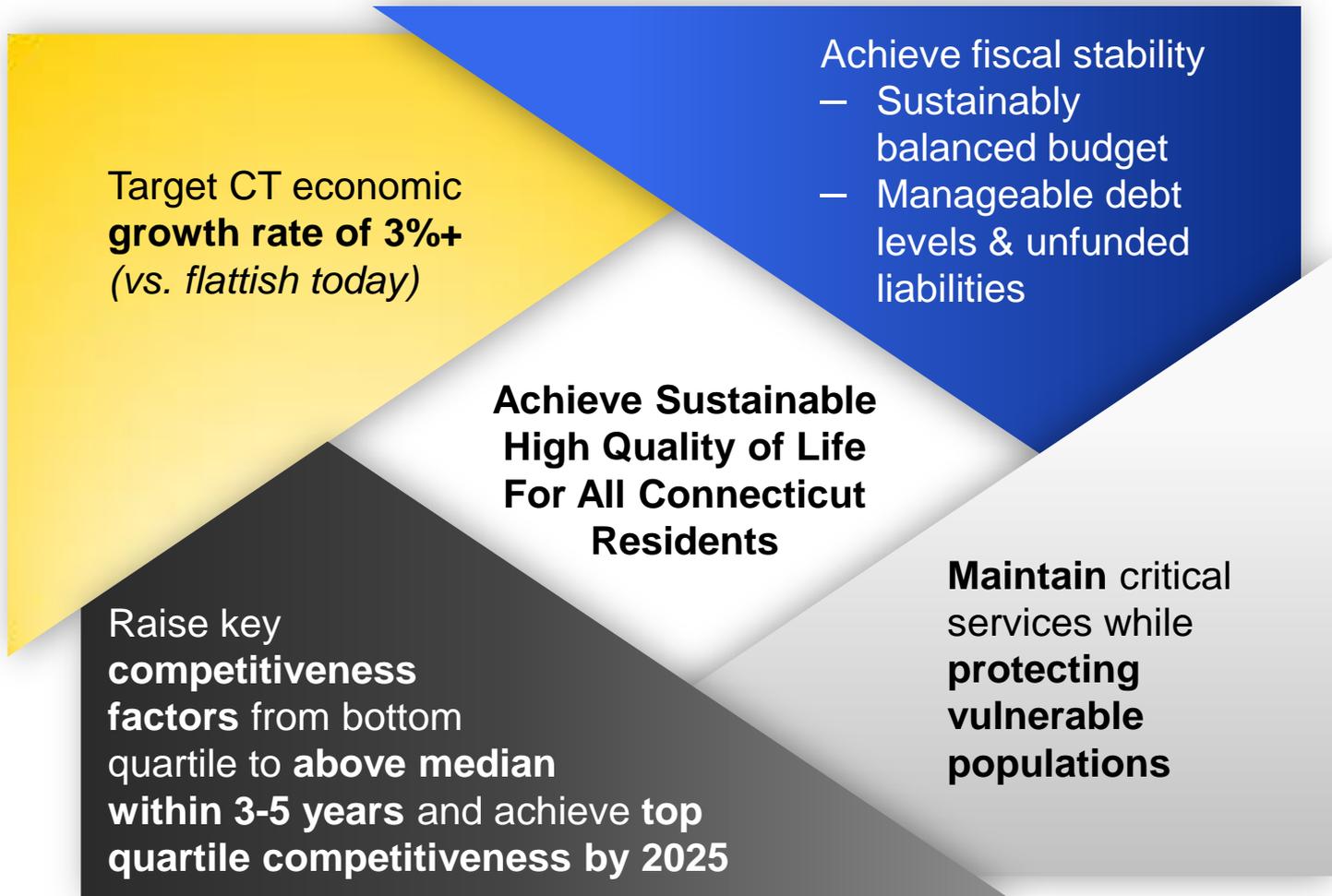
***(2) materially improve the attractiveness of the state for existing and future businesses and residents.”***

## Results to Date:

- 14 Commissioners were appointed, effective December 15, 2017, eight by Governor Malloy, including the Co-chairs and Vice-chair, and six, one each, by the legislative leadership
- Mandated vote by committees / legislature on Commission's recommendations
- Commission members are private sector appointees from varied backgrounds and are diverse in gender, age, ethnicity, race and geography
- Commission held eight public hearings and heard from over 40 witnesses
- Reviewed thousands of pages of submitted testimony and research
- Report completed in 76 days on time, delivered on March 1
- Complimentary review by Governor
- Wide support from editorial boards throughout the state
- Extensive hearings and meetings with legislative leaders and most members of the General Assembly
- Dozens of external speaking engagements

# A “strawman” vision for CT

A long-term vision is required to propel our state back to greatness...



***Commission recommends short-term, medium-term and long-term actions that will enable improved competitiveness and higher growth***

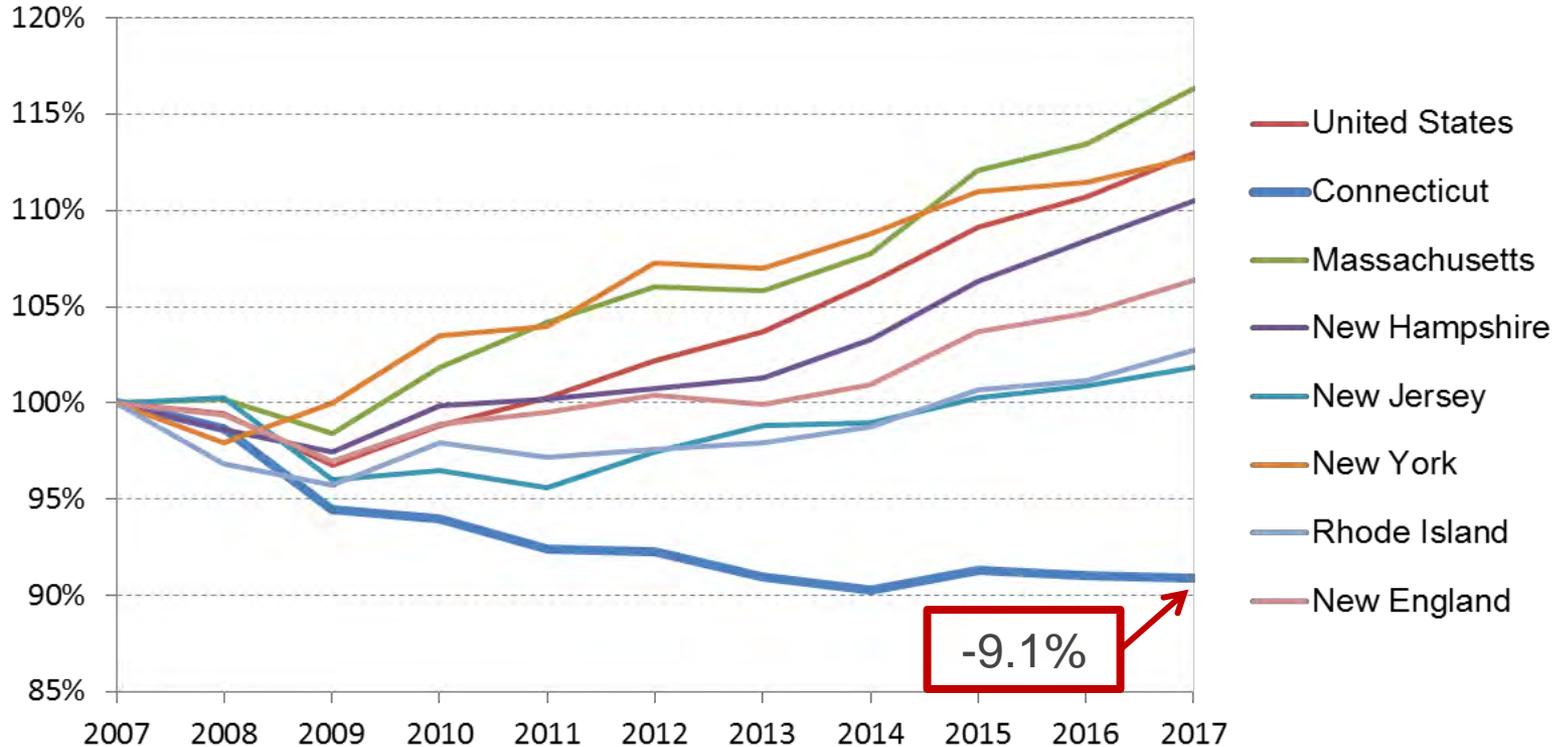
# Connecticut's Burning Platform

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Commission on Fiscal Stability and  
Economic Development

# Connecticut's Economy Has Shrunk By 9.1% Over 10 Years, In Contrast to Our Neighbors

Indexed Real GDP by state (millions of chained 2007 dollars)



- Adjusted for inflation Connecticut's economy is the same size as in 2004
- Connecticut real GDP down 9 out of the past 10 years (year over year)
- Connecticut's 2017 shrinkage of 0.2% ranked 49<sup>th</sup> nationally

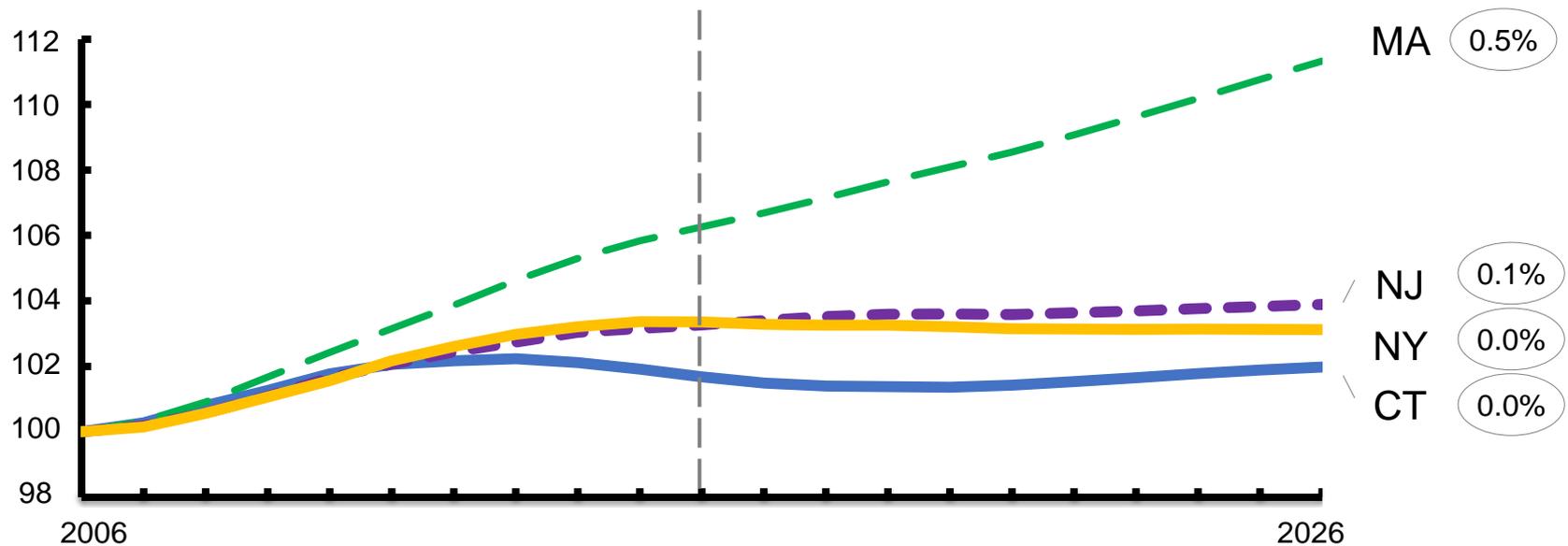
# Connecticut's Population Growth Remains Flat

## Population projections

Indexed to 2006

## CAGR '16-'26

%

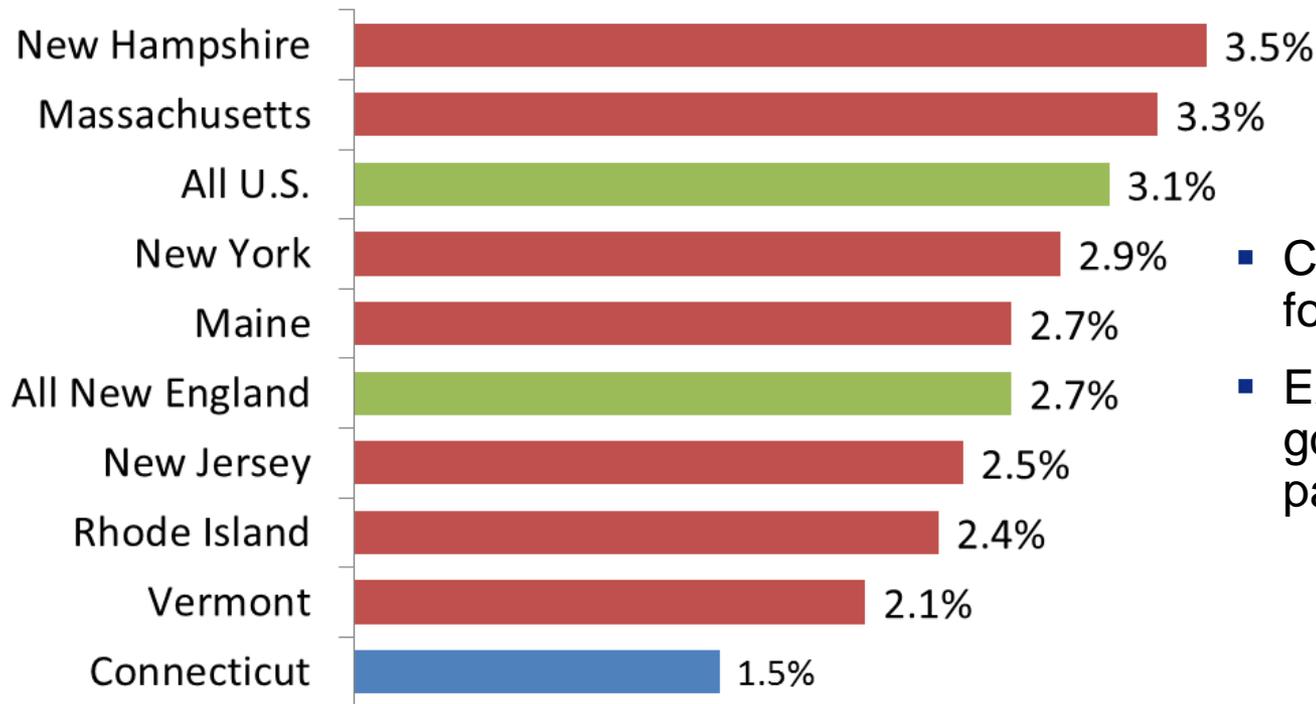


- Zero population growth contributing to double digit year over year decline in new home construction and permits in 2017

# Connecticut's personal income grew at the slowest pace among Neighboring States in 2017

- From 2012 – 2016 Connecticut personal income growth ranked 33<sup>rd</sup> to 49<sup>th</sup>

## Percent change in personal income, 2016 – 2017

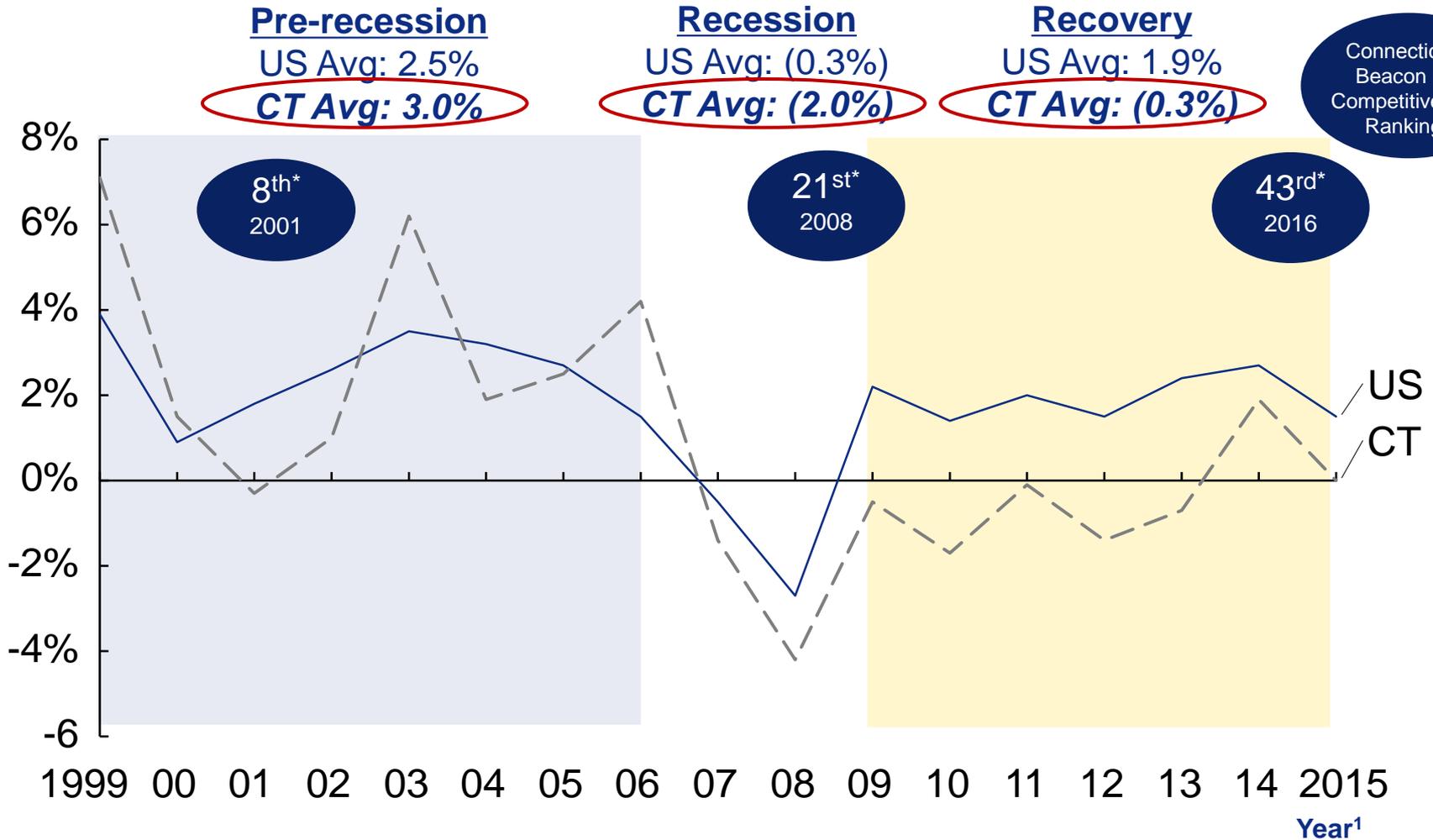


- CT ranked 44<sup>th</sup> in nation for 2017
- Excluding dividends and government transfer payments:
  - United States: 3.3%
  - CT: 0.1% - 2<sup>nd</sup> worst in nation

# Our growth has slowed as our competitiveness has diminished

## CT GDP growth rate

% change from preceding period



Connecticut's  
Beacon Hill  
Competitiveness  
Rankings

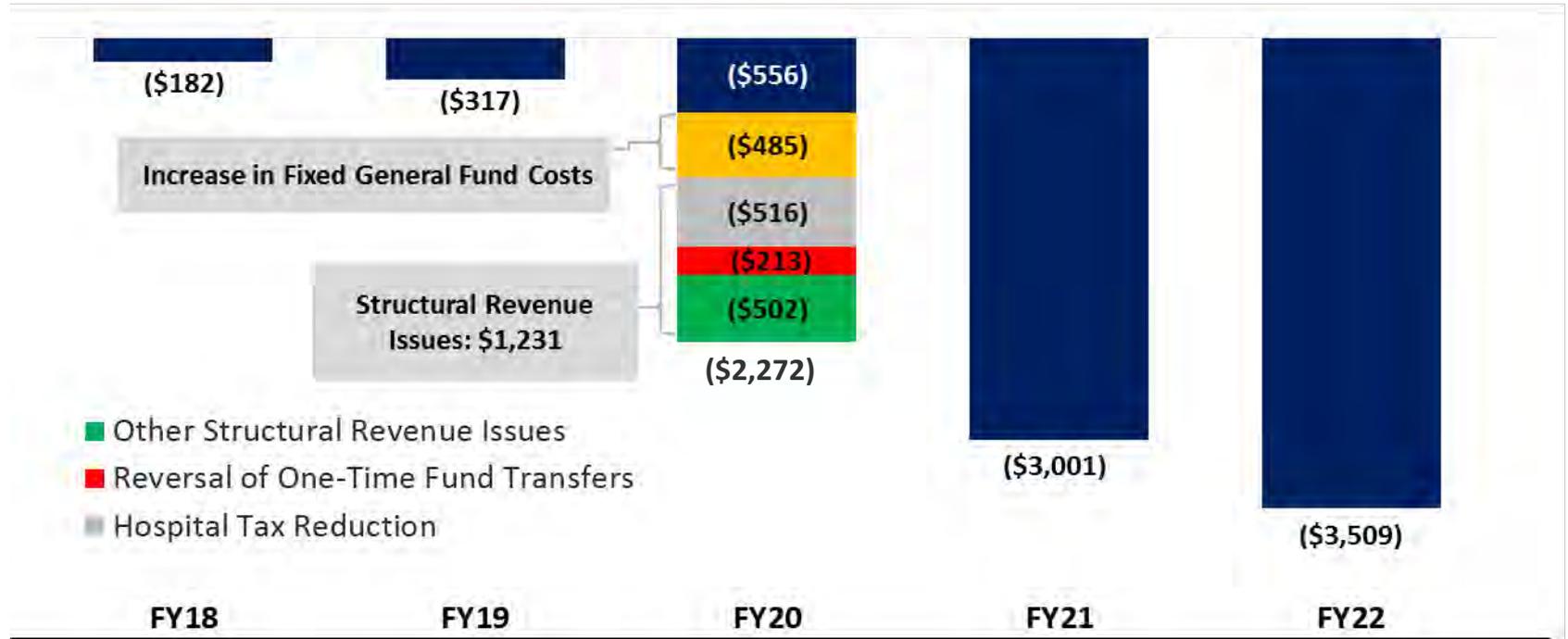
<sup>1</sup> Each year represents the calculation between two years. For example, "1999" was calculated between "1999-2000"

SOURCE: Bureau of Economic Analysis

\* Beacon Hill Competitiveness Rankings

# Despite achieving a bipartisan budget in 2017, significant out year deficits loom

Connecticut State Forecasted Budget Balances (\$ in millions)<sup>1</sup>



(1) Source: FY18-19 Biennial Budget, January 2018 Consensus Revenue Estimates, January 2018 OPM Budget Estimates, OFA Out Year Estimates

# Fixed expenditure growth is accelerating and is crowding out important spending and investment

## Projected General Fund Expenditure Growth<sup>1</sup>

Category (\$ in millions)	Actual FY06 <sup>2</sup>	FY17 <sup>3</sup>	Projected FY20	Annual Growth	
				'06 to '20	'17 to '20
Pension	\$884	\$2,161	\$2,640	8.1%	6.9%
Retiree Healthcare	\$411	\$751	\$1,077	7.1%	12.8%
Debt Service	\$1,306	\$2,076	\$2,410	4.5%	5.1%
Entitlement Programs <sup>4</sup>	\$2,813	\$3,787	\$4,322	3.1%	4.5%
<b>General Fund Fixed Expenditures</b>	<b>\$5,420</b>	<b>\$8,796</b>	<b>\$10,458</b>	<b>4.8%</b>	<b>5.9%</b>

**Projected average annual fixed expenditure increases of 5.9% from FY 2017 to 2020**

Source: OFA Fiscal Accountability Report FY17 – FY 20. Connecticut CAFR. 2017 Annual Report of the State Comptroller. OFA Fiscal Note to Enacted Biennium Budget. OPM and OFA January 16, 2018 Consensus Revenue Estimates. OPM January 19, 2018 Budget Letter.

(1) Fixed cost data from OFA Fiscal Accountability Report dated Nov 15, 2016 and is not reflective of enacted budget and projections.

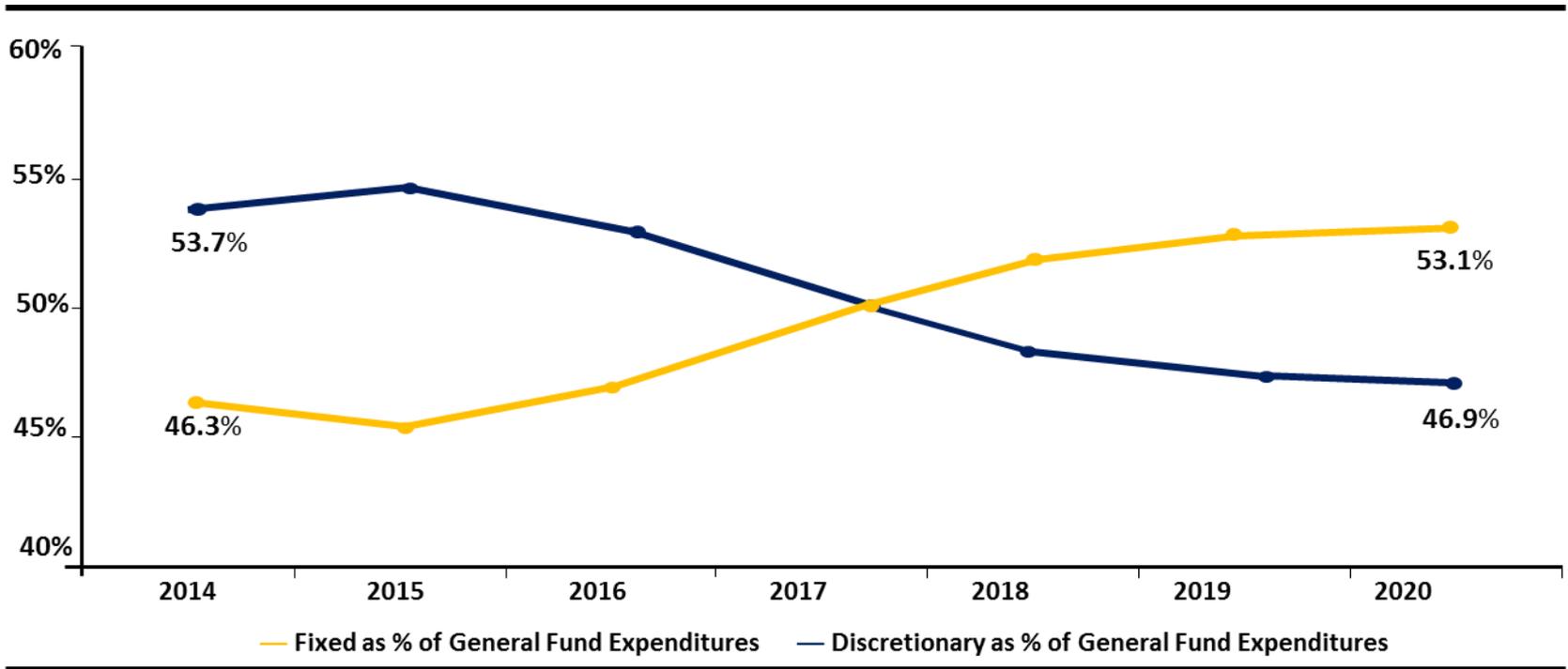
(2) FY06 General Fund revenues and expenditures based on gross funding of Medicaid (includes both federal and local portion).

(3) FY17 General Fund fixed expenditures per OFA Fiscal Accountability Report FY17 – FY20. FY17 total General Fund expenditures and revenues per 2017 State Comptroller's Annual Report.

(4) Includes Medicaid and other services provided by the Department of Social Services, Department of Children and Families, Department of Mental Health and Addiction Services, and Office of Early Childhood.

# Fixed costs have grown to over 50% of the general fund

General Fund Fixed vs. Discretionary Costs (% of General Fund Expenditures)



# Expenses growing much faster than revenues

- Growth in fixed expenses is overwhelming commendable progress in discretionary expenditures controls, and revenue growth is slowing

## Projected General Fund Expenditure and Revenue Growth<sup>1</sup>

Category (\$ in millions)	Actual FY06 <sup>2</sup>	FY17 <sup>3</sup>	Projected FY20	Annual Growth	
				'06 to '20	'17 to '20
<b>General Fund Fixed Expenditures</b>	<b>\$5,420</b>	<b>\$8,796</b>	<b>\$10,458</b>	<b>4.8%</b>	<b>5.9%</b>
Discretionary Expenditures	\$9,080	\$8,967	\$9,251	0.1%	1.0%
<b>Total General Fund Expenditures</b>	<b>\$14,500</b>	<b>\$17,763</b>	<b>\$19,709</b>	<b>2.2%</b>	<b>3.5%</b>
<b>General Fund Revenues</b>	<b>\$14,999</b>	<b>\$17,703</b>	<b>\$17,510</b>	<b>1.1%</b>	<b>-0.4%</b>

**A 3% expense / revenue delta increases the deficit by over \$500M annually**

Source: OFA Fiscal Accountability Report FY17 – FY 20. Connecticut CAFR. 2017 Annual Report of the State Comptroller. OFA Fiscal Note to Enacted Biennium Budget. OPM and OFA January 16, 2018 Consensus Revenue Estimates. OPM January 19, 2018 Budget Letter.

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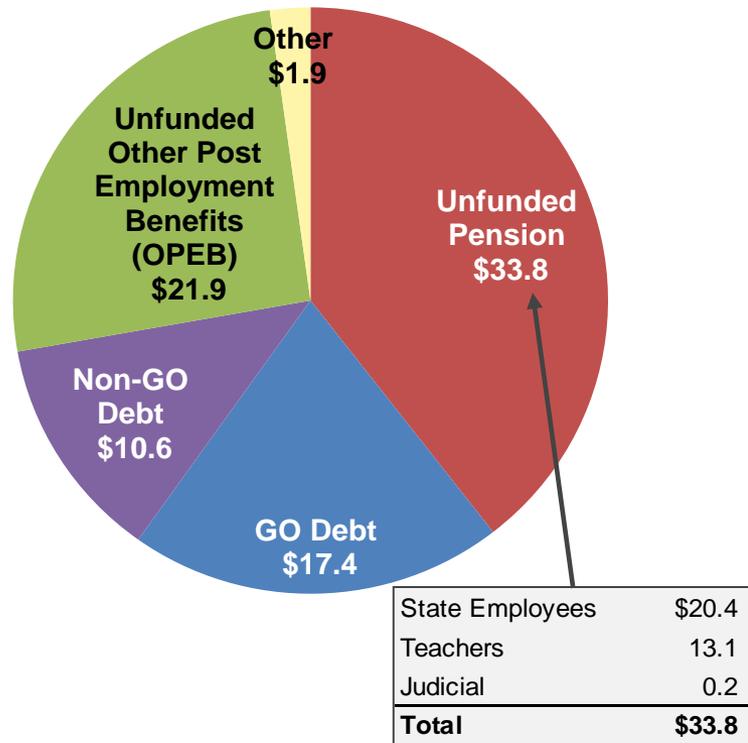
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(3) FY17 General Fund fixed expenditures per OFA Fiscal Accountability Report FY17 – FY20. FY17 total General Fund expenditures and revenues per 2017 State Comptroller's Annual Report.

# CT's unfunded liabilities are growing 3x faster than the economy over the last 15 years

- The State's \$86 billion of total liabilities would increase to nearly \$100 billion if the State's pension systems reduced their investment return assumption to 6%<sup>1</sup>

**Total Liabilities<sup>2</sup> (\$ billions)**  
\$85.5B as of 6/16



- Debt service to revenue ratio of 13.3% is **highest in the US<sup>3</sup>**
  - 3.0x US mean / 3.2x US median
- Moody's adjusted net pension liability (ANPL) is 20.4% of GDP, **3<sup>rd</sup> highest in the US<sup>3</sup>**
  - 2.8x US mean / 4.2x US median
- Pension contributions and debt service at 26.5% of revenue is **highest in the US<sup>3</sup>**
  - 3.0x US mean / 3.6x US median
- Net tax supported debt as a % of personal income is 9.7%, **3<sup>rd</sup> highest in the US<sup>3</sup>**

(1) Sensitivity analysis of pension liabilities per The Pew Charitable Trusts.

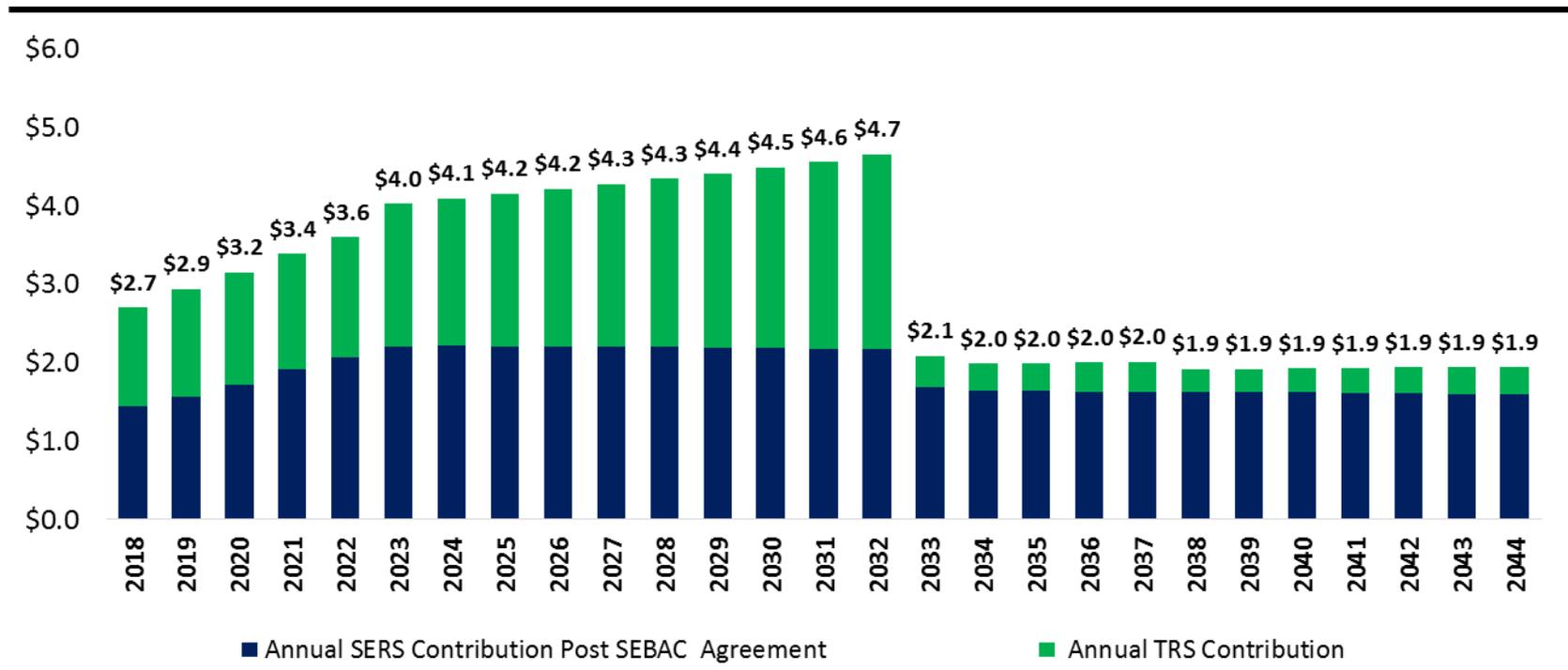
(2) State of Connecticut Comprehensive Annual Financial Report, 2016. Debt includes component units. Unfunded pension and OPEB liabilities represent unfunded actuarial accrued liabilities ("UAAL") based on actuarial reports for the State's pension and OPEB systems.

(3) Moody's Investor Service. These ratios have been calculated based on Moody's definitions of debt, pension liabilities, debt service, contributions and own-source governmental revenues (revenues less federal funding), and in most cases will differ from a state's own published calculations or the calculations of other institutions.

# Escalating required pension contributions, especially for TRS, exacerbate the State's fiscal challenges

- Utilizing the current discount rate of 8% for TRS, total annual contributions reach \$4.7B in 2032

**Projected Annual Pension Contributions (excl. JRS) (\$ in billions)<sup>1</sup>**

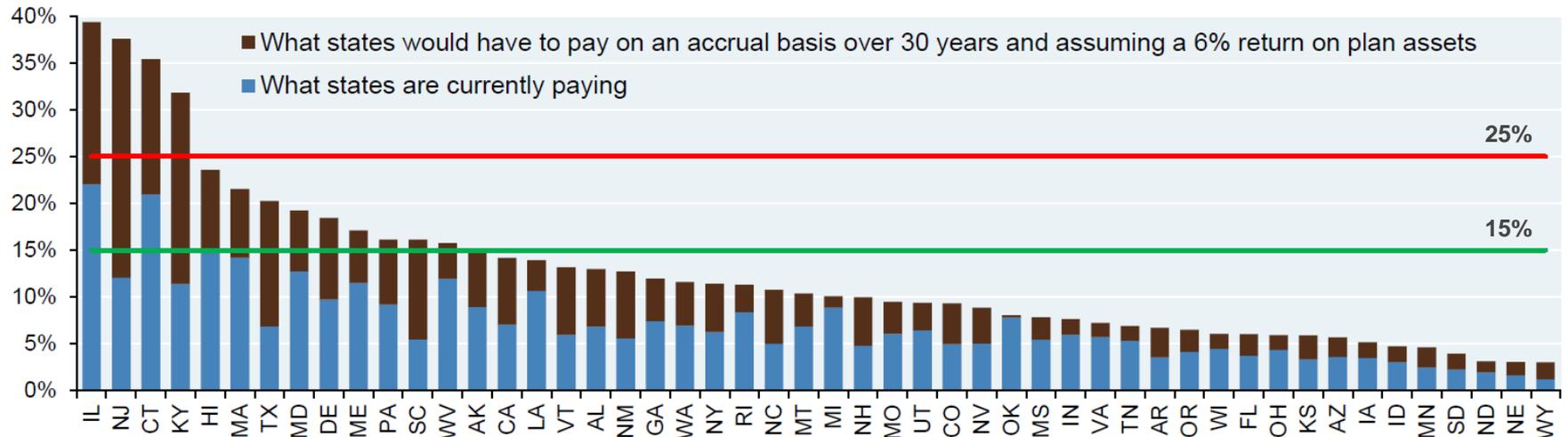


(1) The Pew Charitable Trusts, State Office Policy Management, May 2017 SEBAC Agreement

# Connecticut would need to spend 35 cents of every dollar of revenue to fund obligations amortized over 30 years

- Connecticut spent ~21% of state revenues to fund debt, pension and OPEB liabilities in FY 2015
- 35% of revenue needed to fund debt and legacy pension and OPEB liabilities on an accrual basis over 30 years, assuming an illustrative 6% return on plan assets<sup>1</sup>

## Percent of state revenue collections required to pay the sum of interest on bonds, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments



Source: The ARC and the Covenants 2.0, J.P. Morgan Asset Management; State/Pension Plan Comprehensive Annual Financial Reports; Census; Loop Capital Markets. FY 2015.

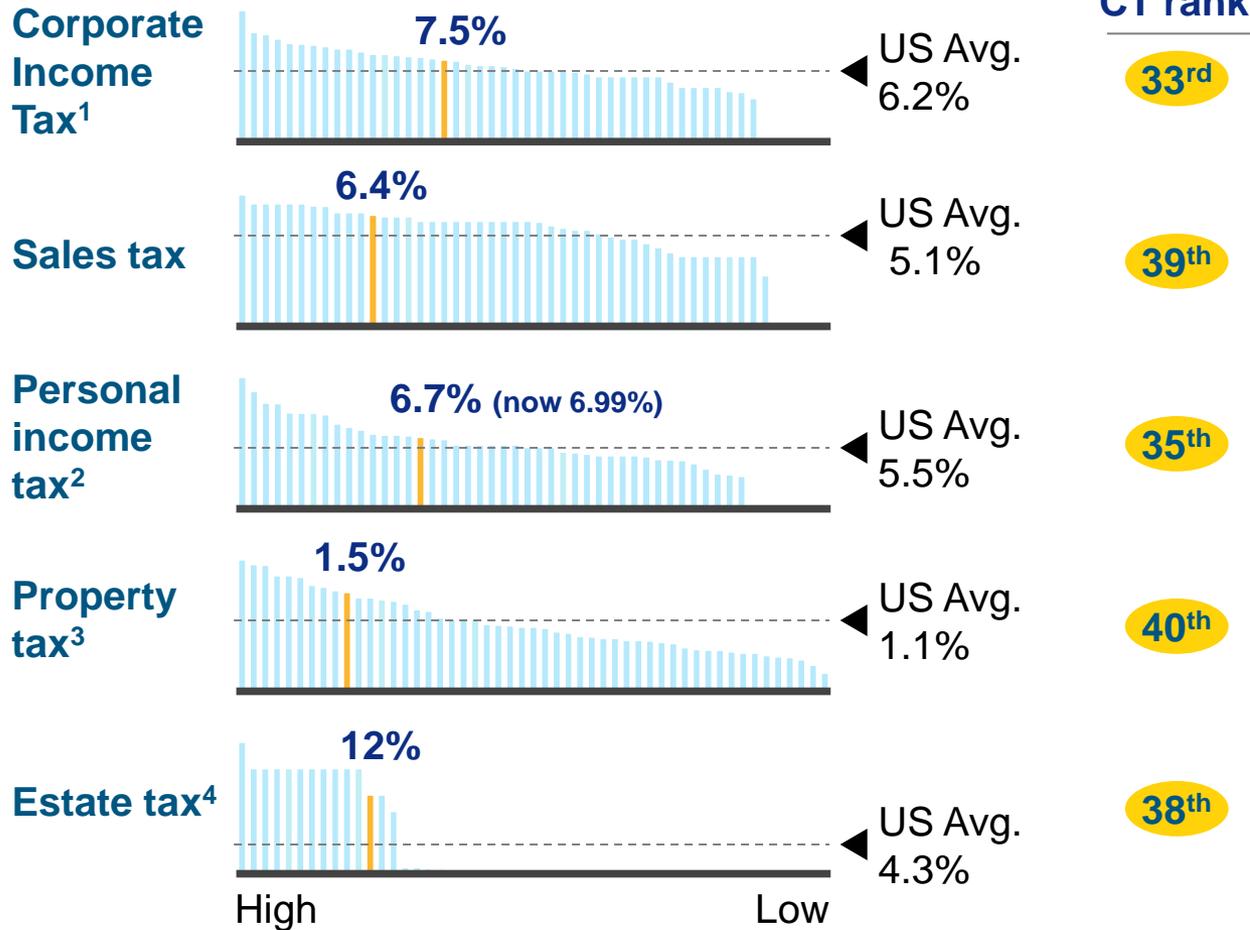
(1) Accrual basis expenditures include payments of benefits that have accrued even if cash payment for such benefits is not yet due.

Commission on Fiscal Stability and  
Economic Development

# Connecticut's taxes are higher than US averages

XX% CT rate ■ Connecticut ■ All other states

## Tax rates by state, 2015, Statutory rate, %



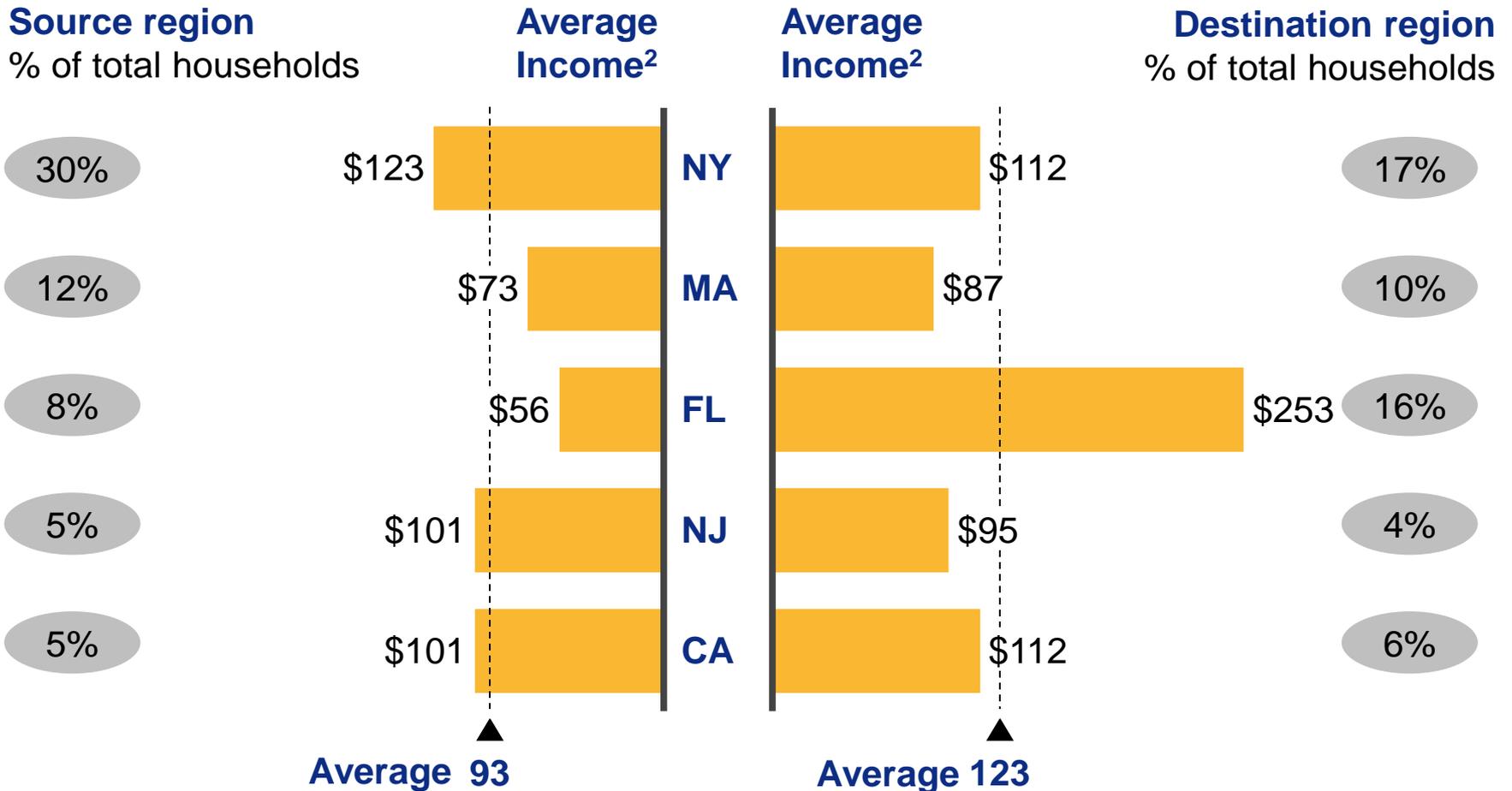
“...CT aggregate state tax burden is the 5<sup>th</sup> highest in the country...”  
 – Tax Policy Center<sup>5</sup> (2015)

<sup>1</sup> Represents the highest marginal corporate tax rate  
<sup>2</sup> State and Local Sales Tax Rates in 2017, Tax Foundation  
<sup>3</sup> State Individual Income Tax Rates and Brackets for 2017, Tax Foundation (Highest Marginal Tax Bracket)  
<sup>4</sup> Mean Effective Property Taxes on Owner-Occupied Housing, Tax Foundation 2015  
<sup>5</sup> Tax Foundation data

# Migrants to CT earn less than those who leave CT

Households<sup>1</sup> moving to Connecticut earn \$93,000/year...

...while CT residents moving away earn more – averaging \$123,000/year



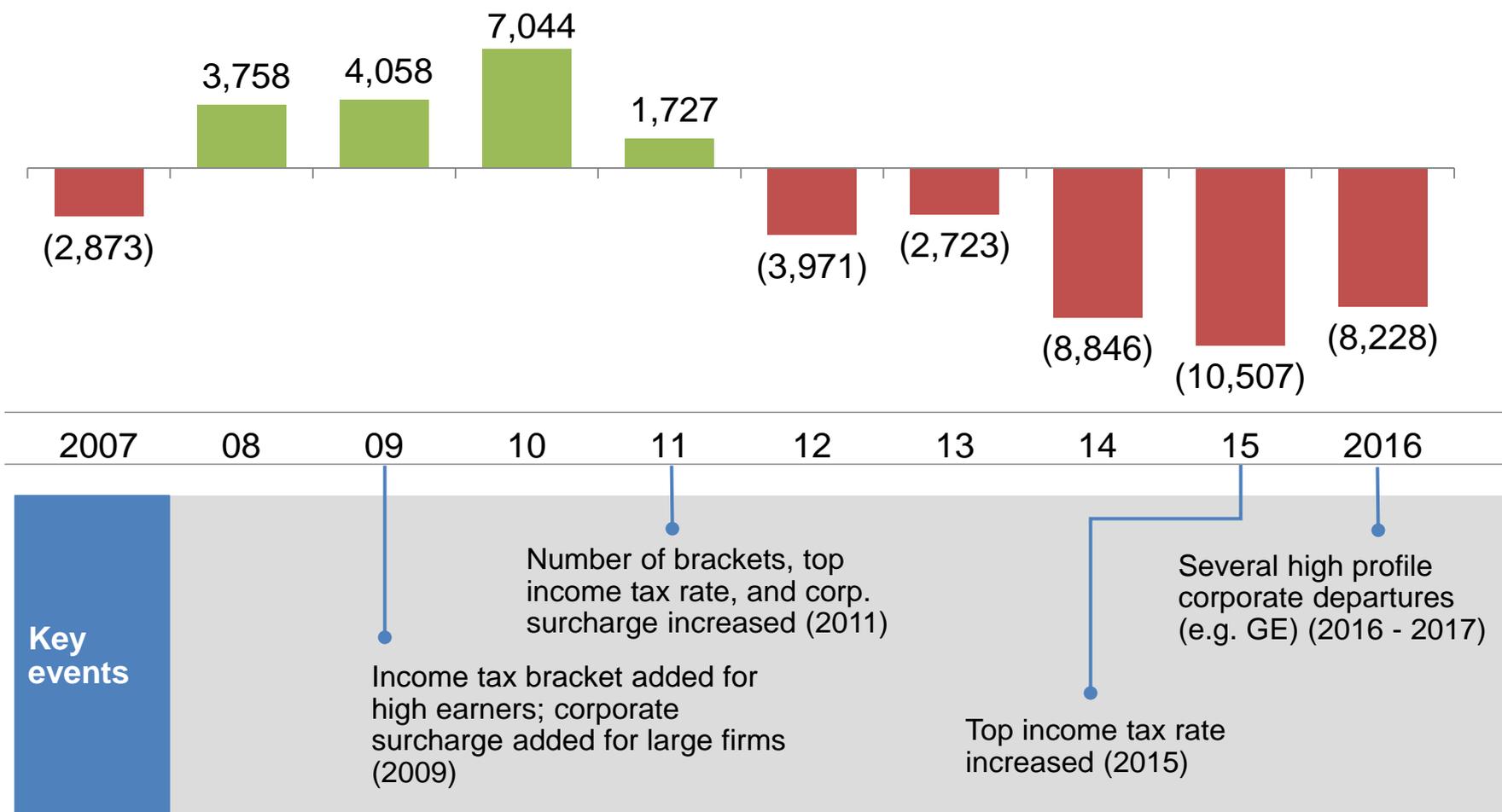
<sup>1</sup> Number of returns filed approximates the number of households that migrated

<sup>2</sup> Adjusted Gross Income as reported to the IRS

SOURCE: Internal Revenue Service (2015-2016)

# At the same time, a series of tax increases has correlated with significant outmigration

Historical Net Migration in Connecticut (# of people)<sup>1</sup>

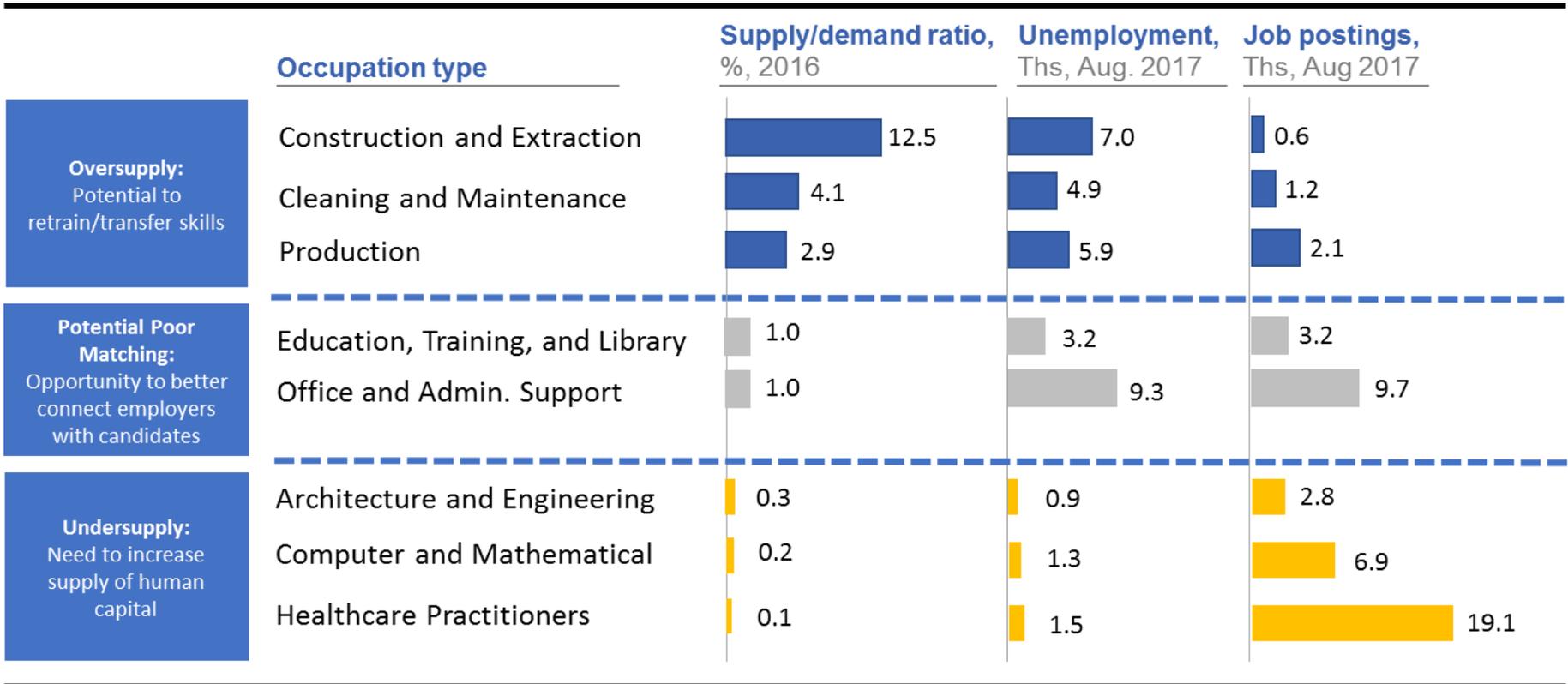


Source: Hartford Courant, January 3, 2018.

(1) FY 2018 – FY 2019 Biennium Economic Report of the Governor

# Connecticut has a Mismatch of Labor Supply and Demand

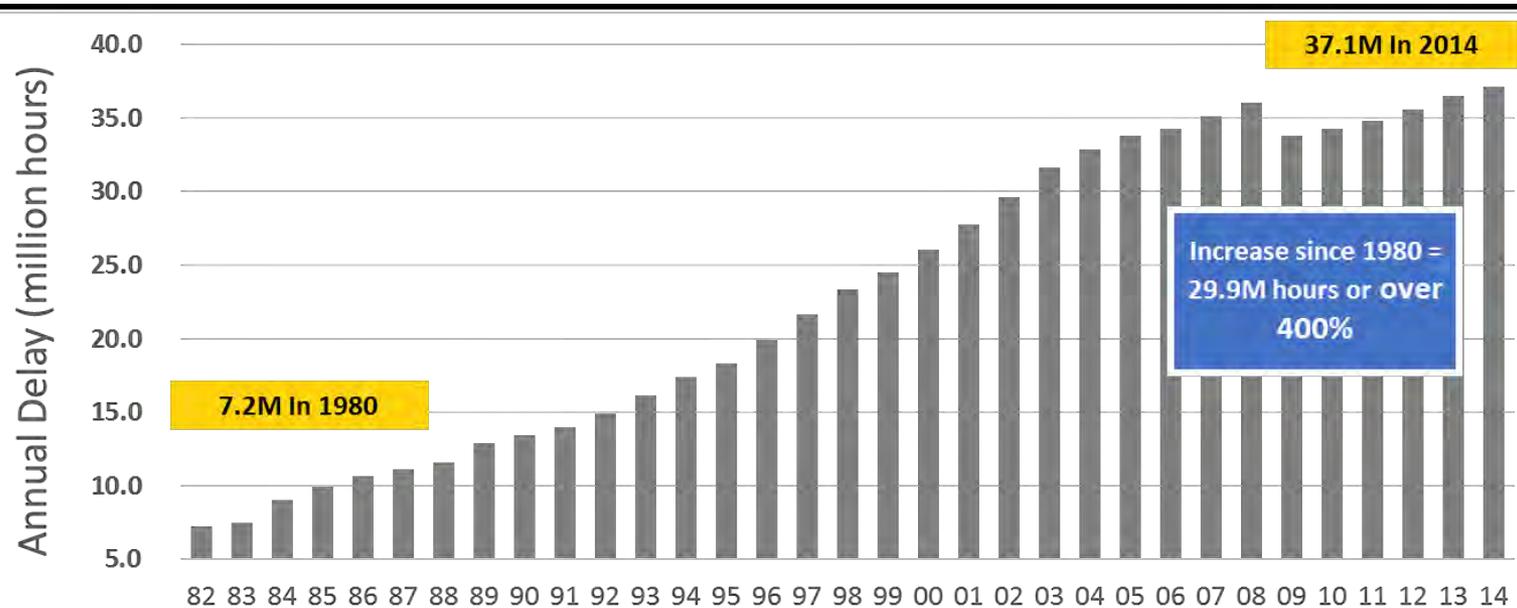
- Connecticut has recovered only 80% of the jobs lost in the Great Recession vs. 200% recovery nationally...a relative shortfall of 142,000 jobs or ~8.5% of the workforce



# The Bridgeport-Stamford Metro Area had 37.1 million hours of traffic delay in 2014, up 400% from 1980

- Highway, airway, rail and port all suffer from underinvestment
- Infrastructure issues cause aggravation and disincentivize business investment
- The backbone of Connecticut's economy needs major capital investment to maintain even current inadequate service levels
- The Special Transpiration Fund (STF) must have a steady, reliable revenue stream in order to commit to longer term investments

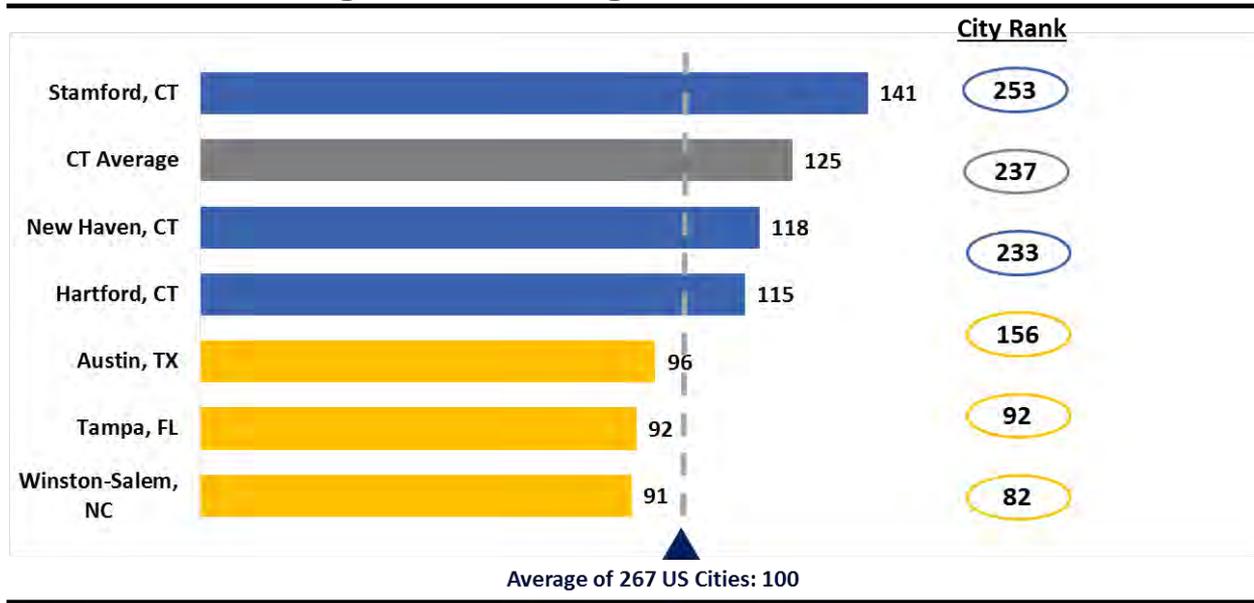
## Millions of Hours of Delay Annually: Bridgeport-Stamford Metro Area



# Connecticut cities' reliance on property taxes generates insufficient revenues to develop vibrant urban cores that are critical to the state's economic growth and well-being

- Our Cities are Challenged by Several Structural Factors:
  - ▶ Relatively small, little regional support
  - ▶ Provide services to the region without sufficient compensation
  - ▶ Uniquely burdened by concentration of tax exempt property
  - ▶ High property taxes, making it hard to compete for businesses and residents

## The Cost of Living in Cities is Higher in Connecticut<sup>1</sup>



# Key Recommendations

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Commission on Fiscal Stability and  
Economic Development

# 1 Commission Recommended a Pro-Growth, Revenue Neutral Rebalancing of State Taxes

- Commission Recommended:

- ▶ Lower personal income tax rates for all filers
- ▶ Offset by higher sales tax revenue including base broadening
- ▶ Eliminate the gift and estate tax now, offset by increase in business taxes
- ▶ Allow municipalities the power to charge fees, to impose payments for Services in Lieu of Taxes (SILOTS) on nonprofits

- Legislature Enacted:

- ▶ Created a new private panel to study and make recommendations by January 1<sup>st</sup> 2019 to rebalance the state's tax mix in order to better stimulate economic growth without raising net new taxes

2

## Commission Recommended a Study on Revenue and Expense Optimization to save \$1B in the General Fund

### Commission Recommended:

#### ▶ Save \$1B in the General Fund through:

- Efficiency improvements
- Enhanced effectiveness in revenue collection
- Increased privatization of services

#### ▶ Without damaging program quality or the social safety net

### Legislature Enacted:

- 
- ▶ Authorize a consultant-led study of opportunities to save \$500M in the General Fund through efficiency/excellence gains in both revenue collection and expense management

3

## Commission Recommended Restructuring the Teachers' Retirement System to Reduce Unfunded Liabilities

### Commission Recommended:

- ▶ Contribution of net lottery proceeds improves funded ratio and reduces annual required contribution
- ▶ Existing debt to be re-amortized as currently allowed in 2025
- ▶ Move to hybrid DB/DC plan for new and unvested teachers
- ▶ Shared risk on investment returns, higher Teacher contributions

### Legislature Enacted:

- ▶ Study Commission's framework for reform of the Teachers' Retirement System with proposals by January 1, 2019, including:
  - 30 year Lottery contribution, debt re-amortization, hybrid DB/DC plan with risk sharing on investment returns



## 4 Rebalance Labor Arrangements [Did not address]

- Move the definition of retirement benefits and funding policies for state and municipal employees from collective bargaining to the legislature and local governing bodies (in 2027 or upon reopening of SEBAC)
- Require Comptroller to certify appropriateness of financial and investment return assumptions
- Change binding arbitration procedures at both state and municipal levels to permit compromise awards (instead of “last best offer”) and selection of single neutral arbitrator
- Appoint a private panel of experts to analyze the competitiveness of 2017 SEBAC agreement both within the tiers and compared to other states and to private plans
- Require coalition collective bargaining for shared services arrangements among towns

## 5 Raise the Minimum Wage [No Action Taken]

- Increase to \$15/hour in annual steps by 2022
  - ▶ Variations based on age, seasonality and full/part time status

## 6 Modify the legislature's budget management process [Did Not Address]

- Legislature to hire an expert consultant to study improvements in budget process including:
  - ▶ Creation of a Joint Budget Committee
  - ▶ Whether changes are needed in compensation
  - ▶ Session length and other legislative processes
- Postpone effective date of bond covenant [Reduced term from 10 to 5 years]

7

## Invest in Select Cities via the Capital Region Development Authority and a STEM Campus [Did Not Address]

- Reserve \$50M in FY 2019 and \$100M in FY 2020 in bond funding for:
  - ▶ Expansion of CRDA concept to two additional cities
  - ▶ Seed funding for a new city-based STEM campus developed in a joint venture with a major research university

## 8 Increase Funding for the Special Transportation Fund

- ✓
  - ▀ Raise gas tax by 7 cents over 4 years
  - ▀ Retain the half cent in sales tax now contributed from the General Fund
  - ▀ Approve tolls in principle, subject to Legislative approval of an acceptable plan
- ✓
  - ▀ Prioritize / deprioritize projects based on economic impact
  - ▀ Acceleration of new car sales tax directed into the STF

**[Legislature increased annual bonding to \$1B]**

# The Governor or Legislature to Establish a Red Tape

## 9 Commission [No Action Taken]

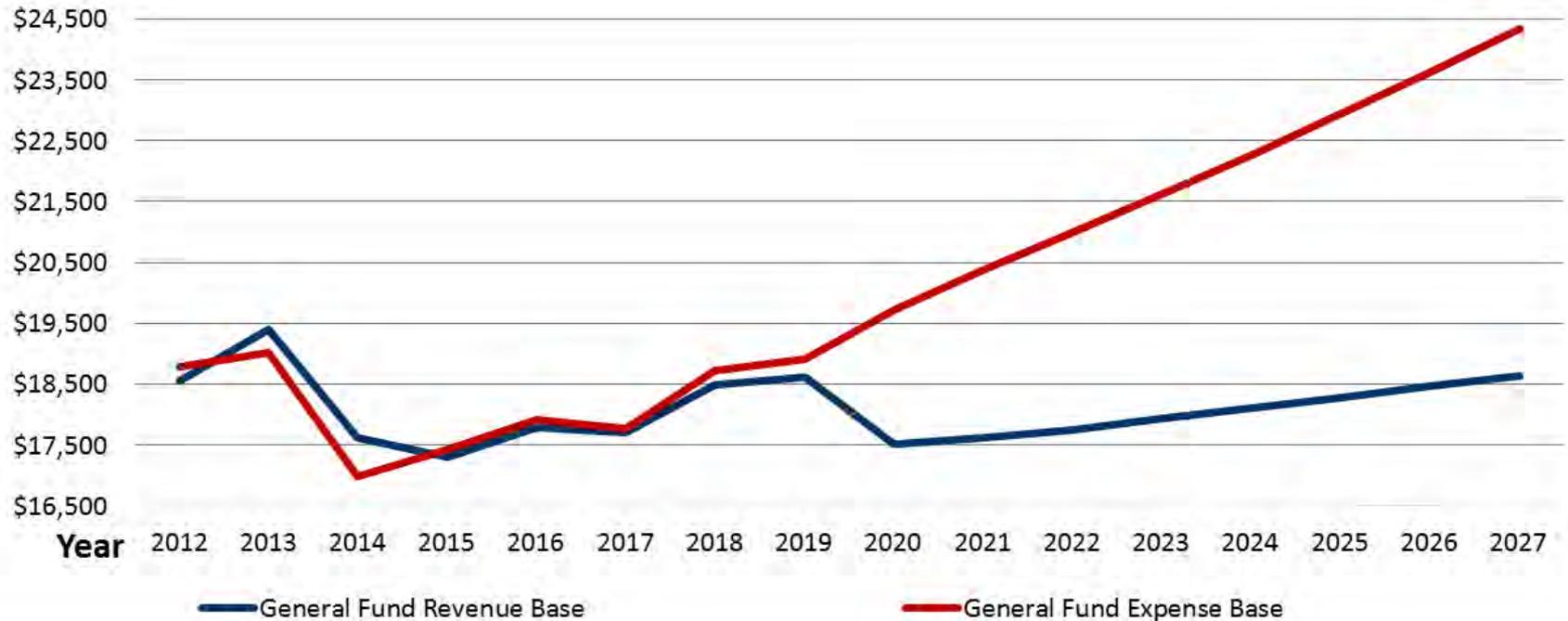
- The goal is to reduce / rationalize existing regulations, as well as set guidelines for future regulations
- To support this effort, a zero-based regulatory policy should be established – any new regulations must be offset by eliminating old ones

## 10 Undertake a Series of Growth Initiatives, Led by the Executive Branch, with the Funding and Support from the Legislature to: [No Action Taken]

1. Develop and retain the workforce Connecticut needs
2. Support the growth of Connecticut's highest-potential economic sectors
3. Transform the business environment for entrepreneurship and innovation

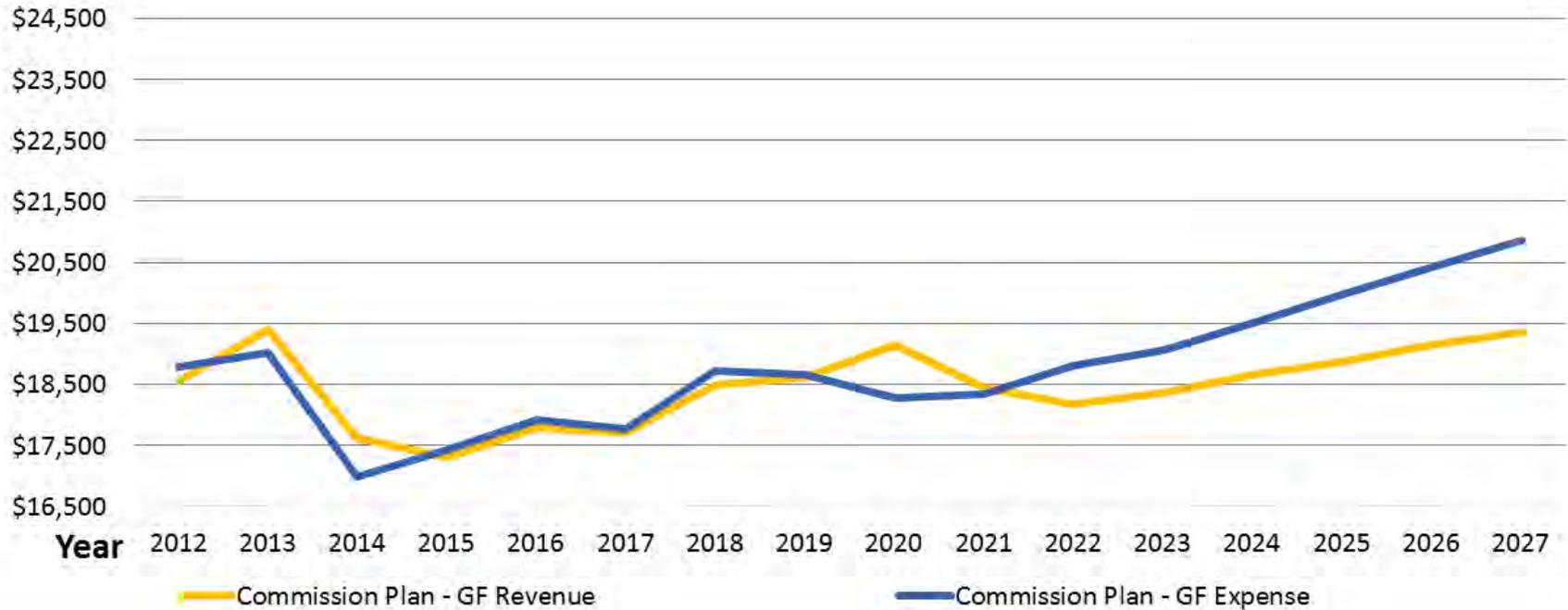
# Current Policy

## General Fund Surplus / Deficit Projections – Current Policy



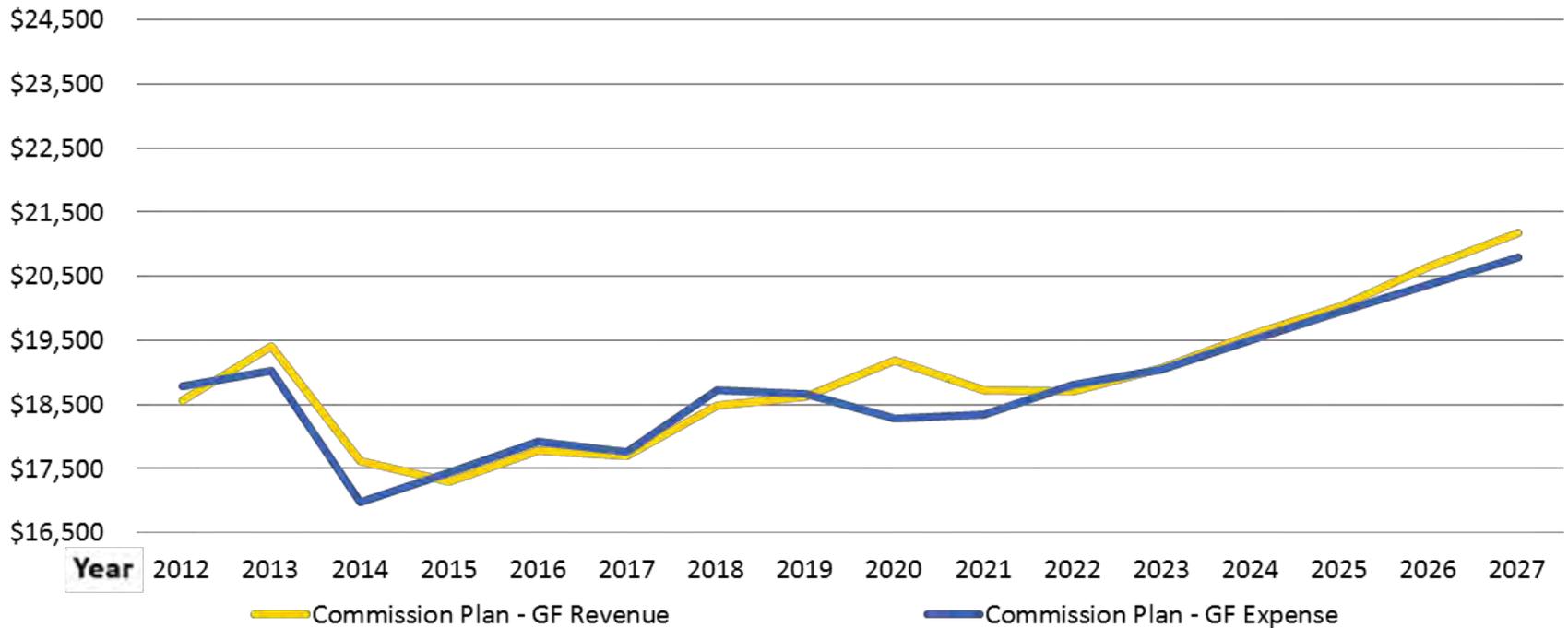
# Commission Plan

## General Fund Surplus / Deficit Projections – Commission Plan



# Commission Plan – Growth Assumption

## General Fund Surplus / Deficit Projections – Commission Plan (Growth Assumption)



Source: Revenues – Comptroller’s Open Budget FY12 – FY17; OPM Consensus Revenue January 2018 | Expenses – OFA Fiscal Accountability Report FY17 – FY20 & October Out Year Estimates; CT Tax Expenditure Report February 2018  
 Key Assumptions: All Tax changes are implemented in 2020; | Payroll Tax – OPM Population data; CT SBA Office of Advocacy; Assume the pro-growth tax initiatives enable roughly 3% increased basis growth each year achieving our goal of a 3% – 3.5% Average GSP in 5-10 years

# CBIA: “Lawmakers should move Fiscal Stability Commission Recommendations Forward”

- "The commission has since refined its initial set of recommendations into a concise, comprehensive list of proposals that demand serious consideration by the entire General Assembly”
- “Connecticut's fiscal and economic challenges are not going to go away and they only get worse with inaction”
- "The state's fiscal problems make it increasingly difficult to find the resources to invest in education, infrastructure, and other areas that are necessary to make our great state fully competitive.”

- Other endorsements from:

Multiple Chambers of  
Commerce



## Next Steps:

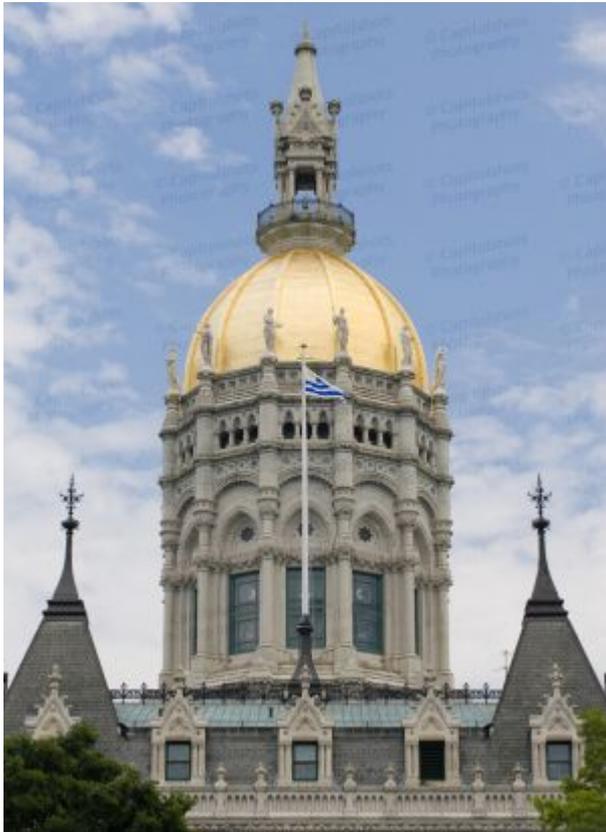
- **Make the “burning platform” a theme of the 2018 election campaigns at all levels, and a referendum on proposals for reform**
- **Carry over proposals into next Legislative session**

## SUGGESTED WORKING GROUPS

LEGAL	ACCOUNTING / ACTUARIAL	ECONOMIC DEVELOPMENT	CAPITAL ASSET SELECTION
Joe Rubin	Greg Messner (OPM)	Fred Wilms	Michael Imber
Erin Choquette (DAS)	Tara Downes (Comptroller)	Ted Murphy	Robyn Kaplan-Cho
Ian McLachlan	Michael Imber	Salvatore Luciano	Fred Wilms
Jonathan Steinberg	Denise Napier / Larry Wilson (Treasurer)	Jonathan Steinberg	Joe Rubin
Treasurer Denise L. Nappier	Robyn Kaplan-Cho	Treasurer Denise L. Nappier	Ted Murphy
			Treasurer Denise L. Nappier

# The Legacy Obligation Trust

A new approach to funding pension & OPEB liabilities



## Connecticut Pension Sustainability Commission

September 21, 2018



# Michael Imber – Eisner Amper LLP

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- **Connecticut resident for 25 years**
- **Recovering banker**
- **Bankruptcy & turnaround consulting since 1993**
- **Focus on municipal distress since 2009**
- **Municipal / State distress consulting**
  - Nassau County, NY
  - State of Kansas
- **Chapter 9 experience**
  - Mammoth Lakes, California
  - Jefferson County, Alabama
  - City of Detroit, MI
- **Managing Director, EisnerAmper Public Sector Advisory Services**

# Presentation Agenda

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- 1) Legacy Obligation Trust (“LOT”) – Executive Summary**
- 2) Background on LOT concept development**
- 3) The LOT Model**
  - Design**
  - Examples**
  - Who else has seen this?**
- 4) Benefits, Reforms, Working Groups**
- 5) Discussion**

# Executive Summary

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- **The Legacy Obligation Trust (“LOT”) concept is a new approach to solving the underfunded municipal pension and retiree healthcare problem in the United States.**
- A government unit makes an **in-kind contribution of real assets** – like land, buildings, infrastructure, enterprises
  - **to a professionally and independently managed trust**
  - for the **benefit of one or more underfunded municipal pensions and retiree health plans.**

# Executive Summary

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- The trust issues **Certificates of Trust (“COTs”)** as the means of conveying **ownership**
- COTs function like **shares of stock** if thousands or tens of thousands of units are issued, **permitting ownership division among more than one pension/OPEB fund**
- COTs are structured as **marketable securities**

# Executive Summary

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- The government unit's intended benefits include:
  - **an immediate credit against its unfunded liability based on the fair market valuation of the assets contributed to the trust**
  - the pension & OPEB funded ratios increase, which **may improve the credit rating agencies' assessment of the government unit**
  - **an immediate, positive cash flow impact on the unit's budget** as the "catch-up" payment for the underfunding goes down
  - the independent, **professional manager is incented to create additional value** to further increase the pension's funded ratio
- **The LOT concept is a new idea that has not been previously implemented in the U.S.**
- **In-kind contributions to pensions have been utilized in the U.S. and internationally.**

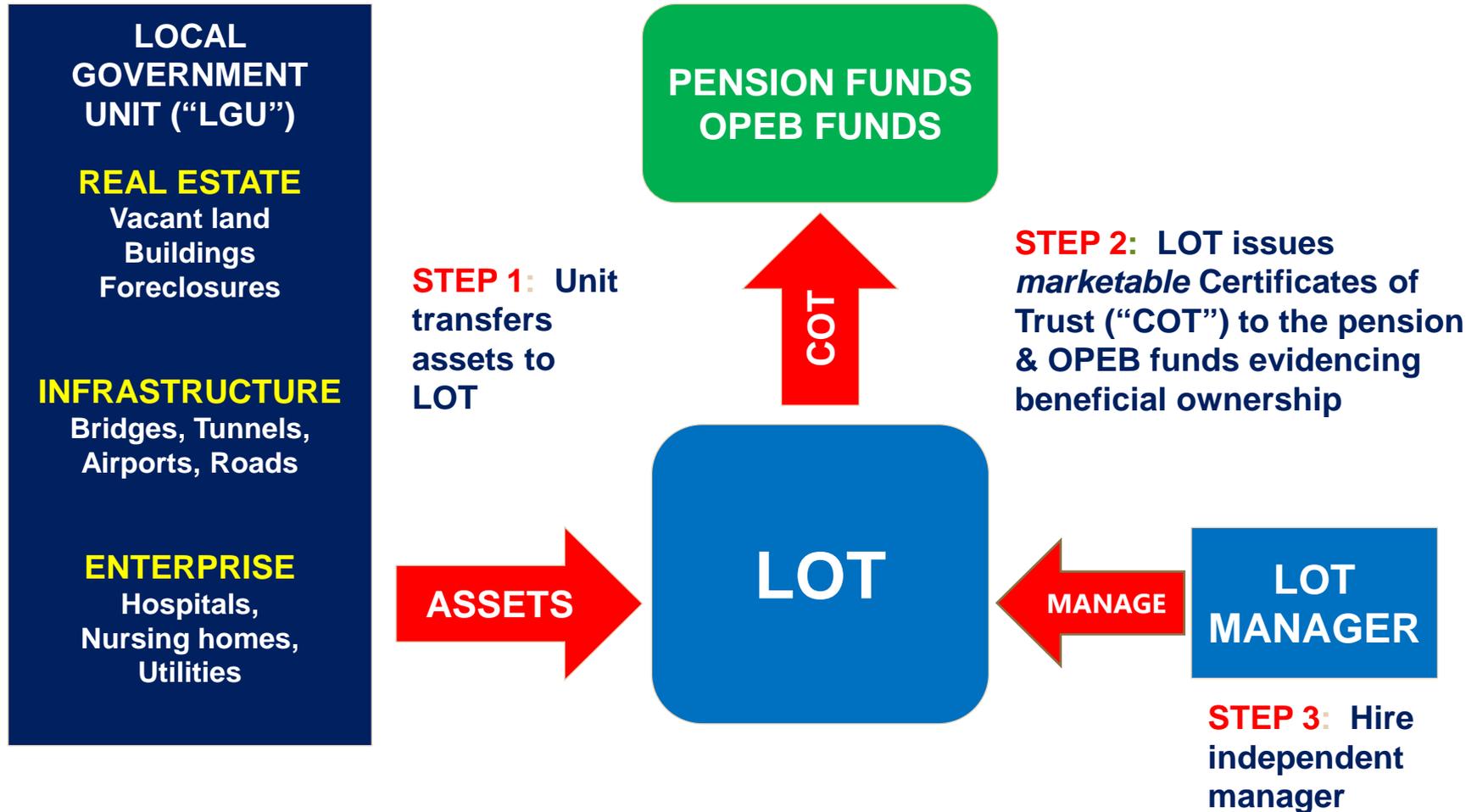
# Background on LOT concept development

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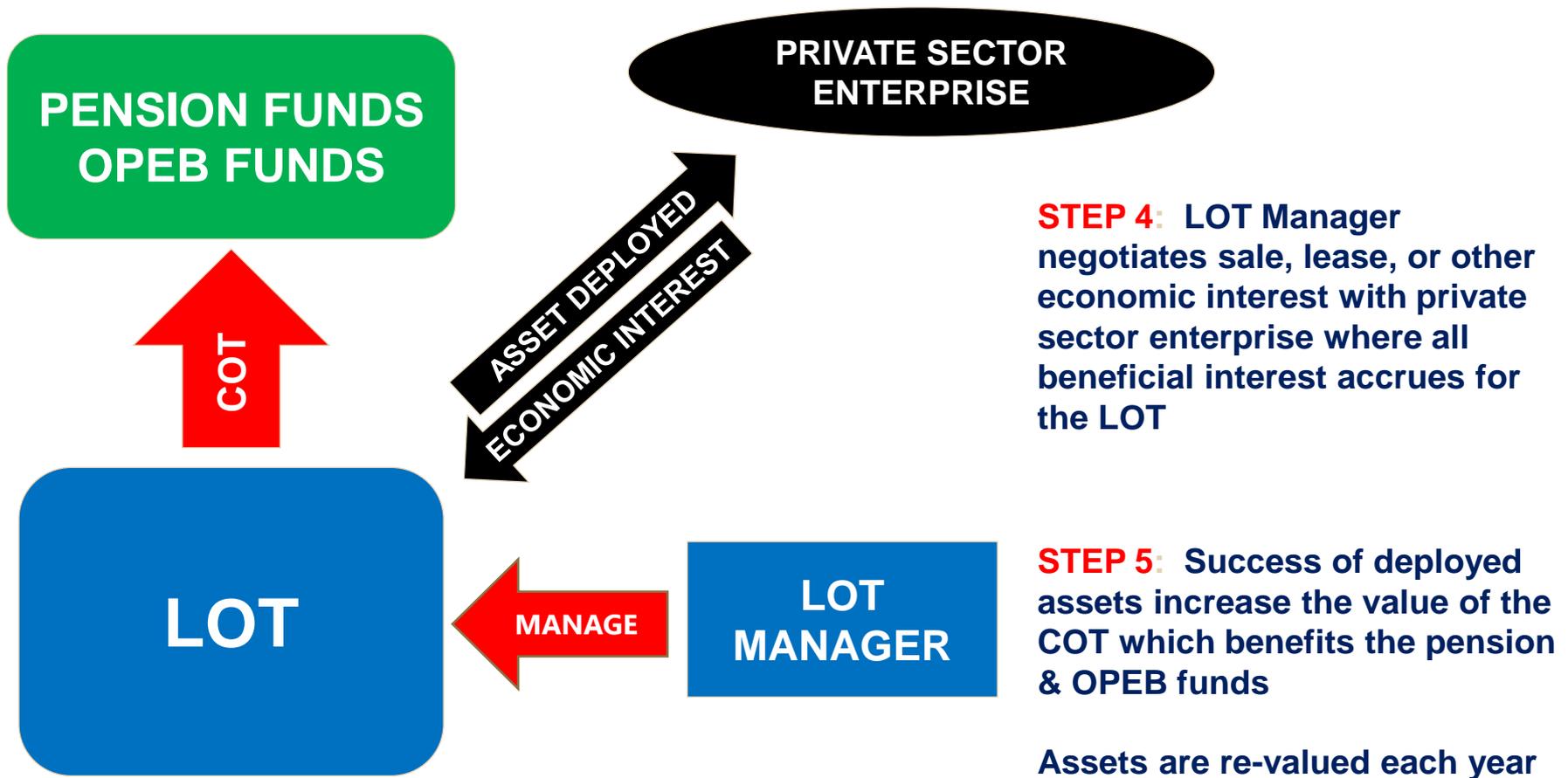
- **City of Detroit bankruptcy**
- **Certificate of Participation note holders**
  - **Financed \$1.4 billion pension contribution**
- **Offered recovery**
- **Final outcome**
- **Judge Rhodes' opinion on Plan of Adjustment**

***An alignment of interests could be the path to fixing legacy obligations***

# Legacy Obligation Trust Model



# The LOT Manager maximizes economic value



# Further thoughts on Capital Asset Universe

- **Undeveloped assets** can be converted to cash generating, unlocking new value
- **Developed assets** need to be assessed for highest and best use and potential for profitable turnaround

UNDEVELOPED	DEVELOPED ENTERPRISE ASSETS	
No \$	Making \$	Losing \$
<ul style="list-style-type: none"><li>• Raw Land</li><li>• Government occupied buildings</li></ul>	<ul style="list-style-type: none"><li>• Stadiums</li><li>• Golf Courses</li><li>• Utilities</li></ul>	<ul style="list-style-type: none"><li>• Hospitals</li><li>• Skilled Nursing Facilities</li></ul>

# Connecticut Universe of Assets *(at cost)*

## State of Connecticut's Capital Assets (Net of Depreciation, in Millions)

	Governmental Activities		Business-Type Activities		Total Primary Government	
	2017	2016	2017	2016	2017	2016
	\$	\$	\$	\$	\$	\$
Land	1,788	1,747	69	68	1,857	1,815
Buildings	2,836	2,605	3,385	3,253	6,221	5,858
Improvements Other Than Buildings	127	141	197	184	324	325
Equipment	49	-	344	348	393	348
Infrastructure	5,096	4,613	-	-	5,096	4,613
Construction in Progress	4,988	4,545	877	686	5,865	5,231
<b>Total</b>	<b>\$ 14,884</b>	<b>\$ 13,651</b>	<b>\$ 4,872</b>	<b>\$ 4,539</b>	<b>\$ 19,756</b>	<b>\$ 18,190</b>

- **Total Primary and Enterprise Capital Assets \$19.8 billion**
- **Total Component Unit Capital Assets \$771 million**
- **Total Universe \$20.5 billion**
  - *This figure does NOT represent fair market value*

*all figures net of depreciation*

# Examples

## Queensland Motorways Queensland, Australia



## Batterson Park Hartford, CT



# Who else has seen this?

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- **Rating agencies**
- **Universities**

# Aligned incentives make the “gears” turn

## Labor and management become partners for economic growth

### ▪ PENSIONS & OPEB:

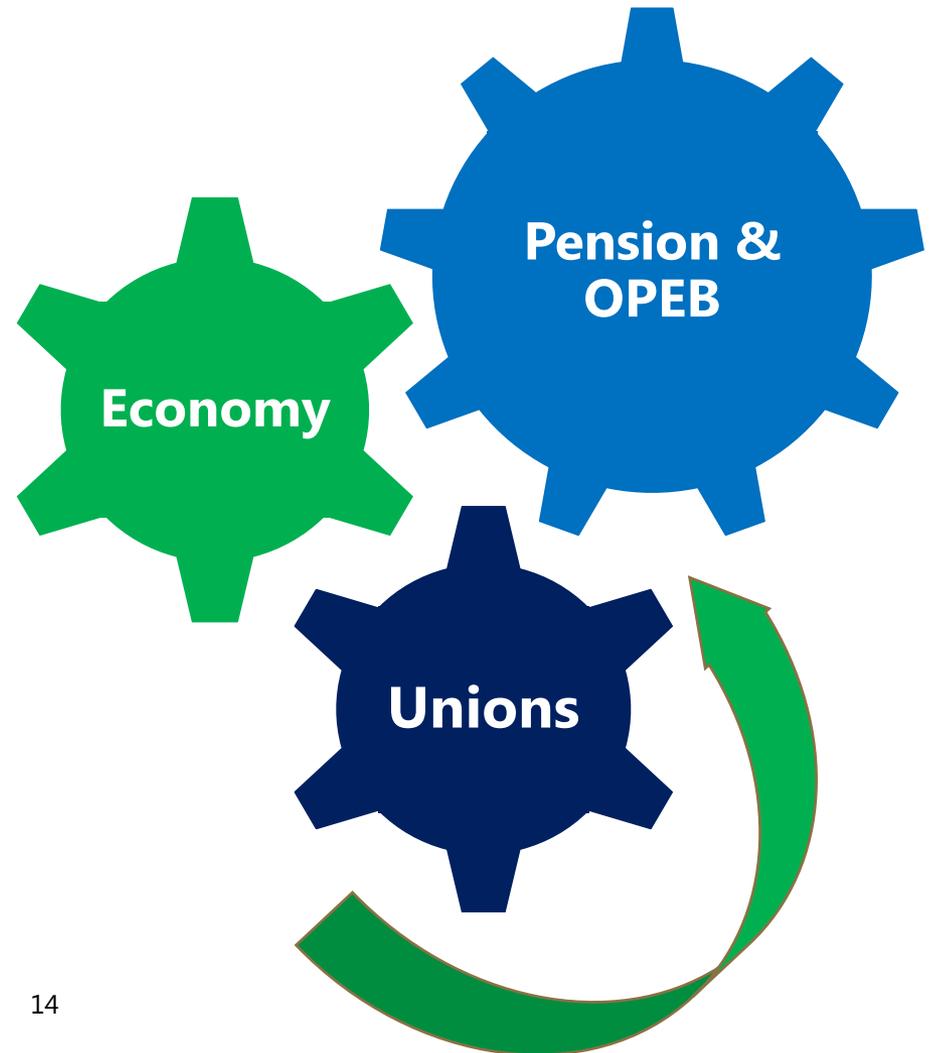
- Funding ratios increased immediately
- Retirees share in upside
- Marketable COT enhances valuation

### ▪ UNIONS:

- Current employee interests align with economy

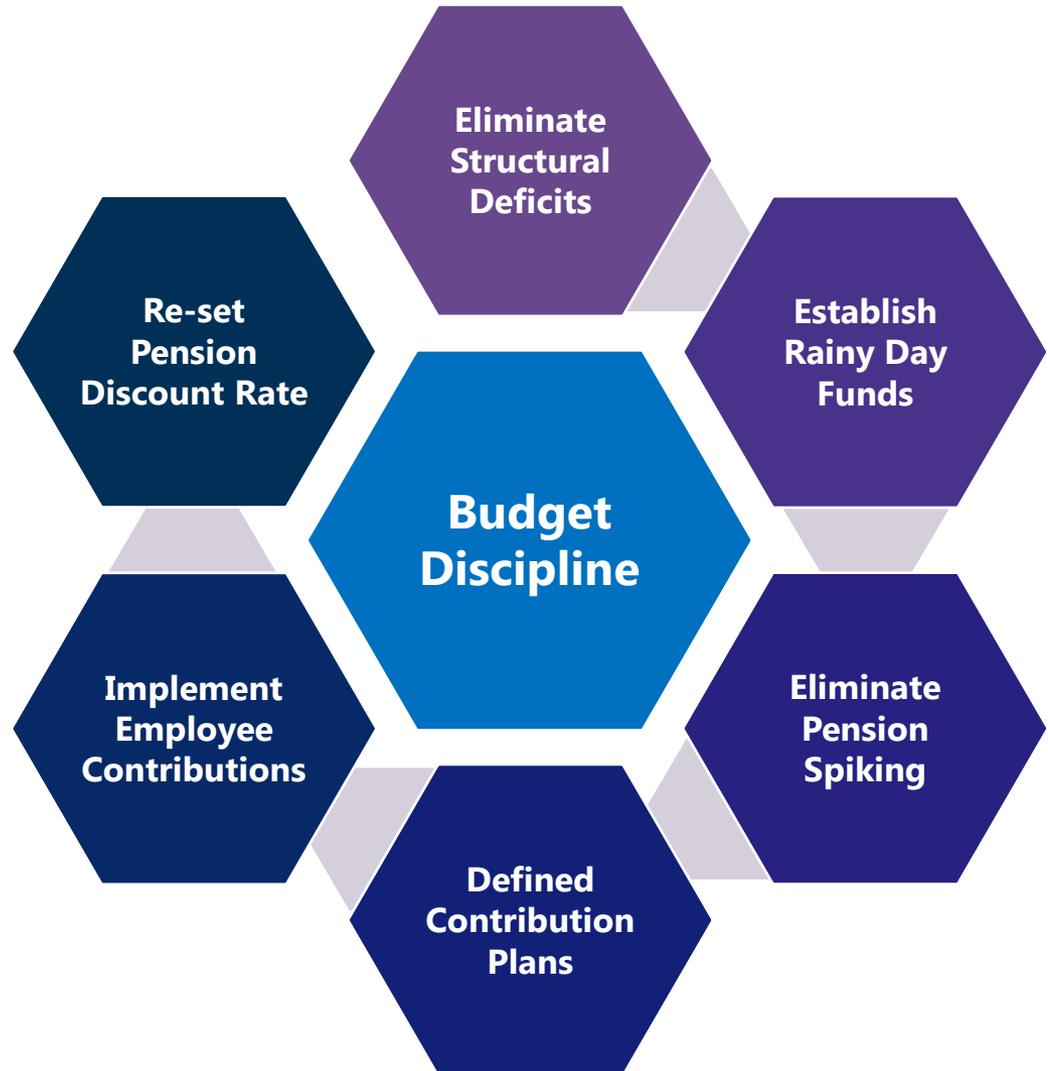
### ▪ ECONOMY:

- Stimulate new jobs and incents government to create growth environment
- Enhance neighborhoods
- Generate new tax revenue



# A sustainable solution requires other reforms...

- The LOT concept cannot be assumed to be the only reform necessary to effect sustainable change
- LOT implementation must be met with the fiscal discipline to adopt best practices in budget management
- Without other reforms, the bad habits of the past can create the legacy obligation funding problem again in the future



# CT PSC Working Groups

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## Capital Asset Selection

- Selection criteria
- Potential alternative uses
- Opportunity Zone / Enterprise Zone

## Economic Development

- Industry initiatives
- Potential regulatory reform
- Potential tax reform

## Legal

- Legislative considerations for asset contribution
- COT design considerations / Treasury acceptance
- Trust governance and design

## Accounting / Actuarial

- Confirmation of accounting/actuarial treatment
- GASB Perspectives
- Rating Agency reactions

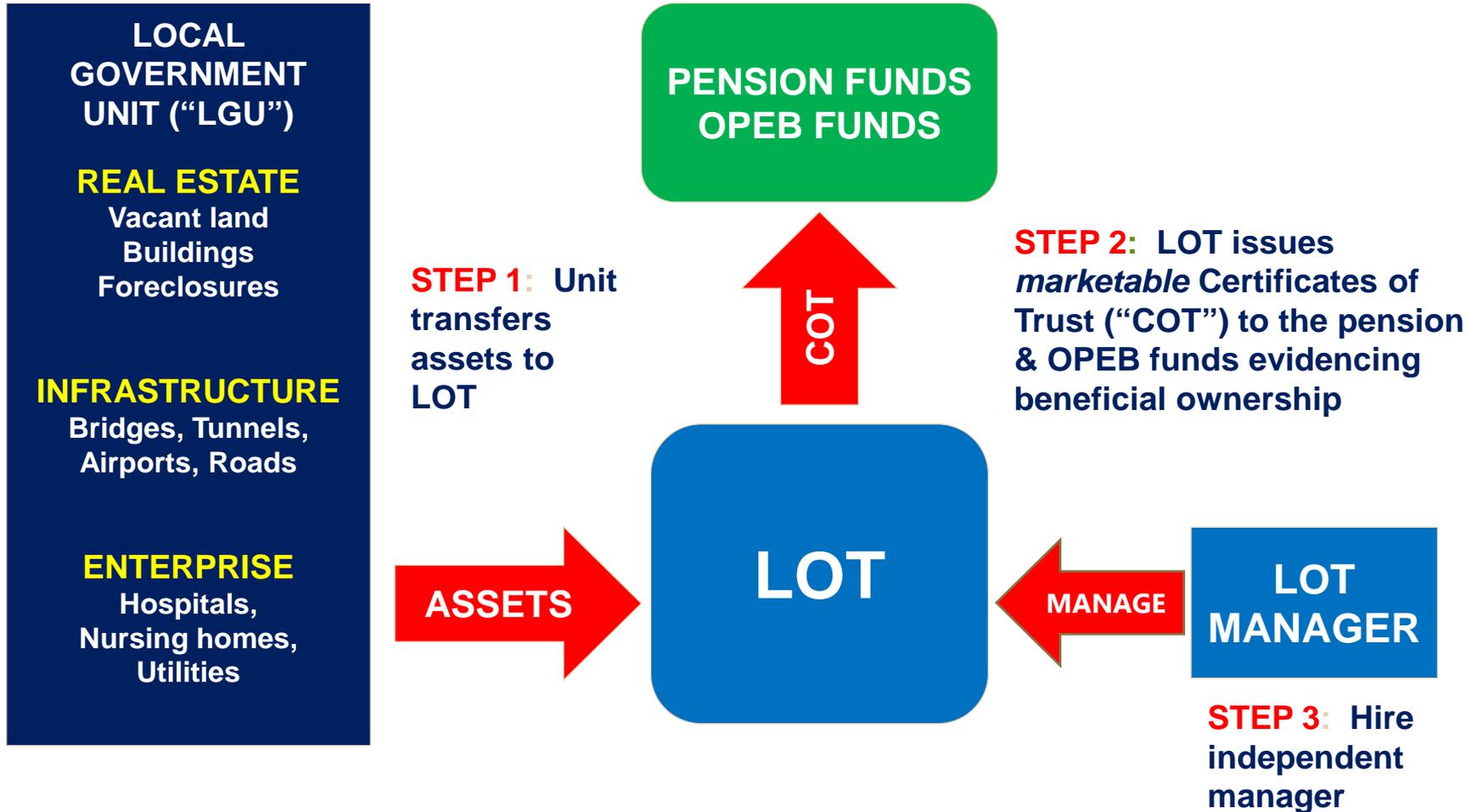


# Appendix A

## Detailed Description of the Legacy Obligation Trust model



# Legacy Obligation Trust Model



# STEP 1 – LGU Transfers Assets to the LOT

## LGU identifies universe of potential assets for an in-kind contribution

- What are the assets that government does **not** need to own?
  - Real estate, infrastructure, enterprises
  - Governments often hold assets to maximize political, not economic, utility
  - Such assets hold **unrealized equity value** that, if professionally managed, could be unlocked to increase actual value and drive economic growth.
    - Examples might include:
      - Raw land to be developed into alternative commercial use
      - State offices are consolidated to empty entire buildings that could be leased or sold to the private sector
- **The value of the in-kind contributed assets provide immediate credit to the pension and OPEB funds**
  - Valuation methodology needs to be commercially reasonable
  - LOT assets must be re-valued each year

# STEP 2 - LOT Issues Certificate of Trust

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## Pension & OPEB funds will own and hold Certificates of Trust (“COTs”)

- The COTs serve as **evidence of ownership** of the LOT
- A large number of COTs may be issued to accommodate a division of ownership between multiple pension and OPEB funds
- **The COTs’ value is based on the desk-top valuation of the assets at time of contribution and annually thereafter**
- The COTs could be structured as **marketable securities**
  - If the LOT assets generate steady cash dividends, the COTs may become an attractive investment opportunity for third-party money managers
    - ❑ Such a **secondary market gives** the pension & OPEB funds a **liquidation option** without forcing the sale of the assets from the LOT
  - A secondary market for COTs eliminates the need for an annual desk-top valuation
    - ❑ The COT market price becomes a **proxy measure of the economic fortunes of the government** that has contributed the assets

## STEP 3 – Government hires LOT Manager

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**The LOT Manager is incentivized to maximize economic utility of trust assets**

- The **assets contributed** to the LOT **dictate the skill set** of the manager to be hired
- The LOT Manager must be **independent, authorized, and empowered**
  - The LOT Manager is **not** subject to government control or influence
  - The LOT Manager is authorized and empowered to sell, lease, or contribute the assets to joint ventures
  - **The integrity and professionalism of the LOT Manager is critical to success**

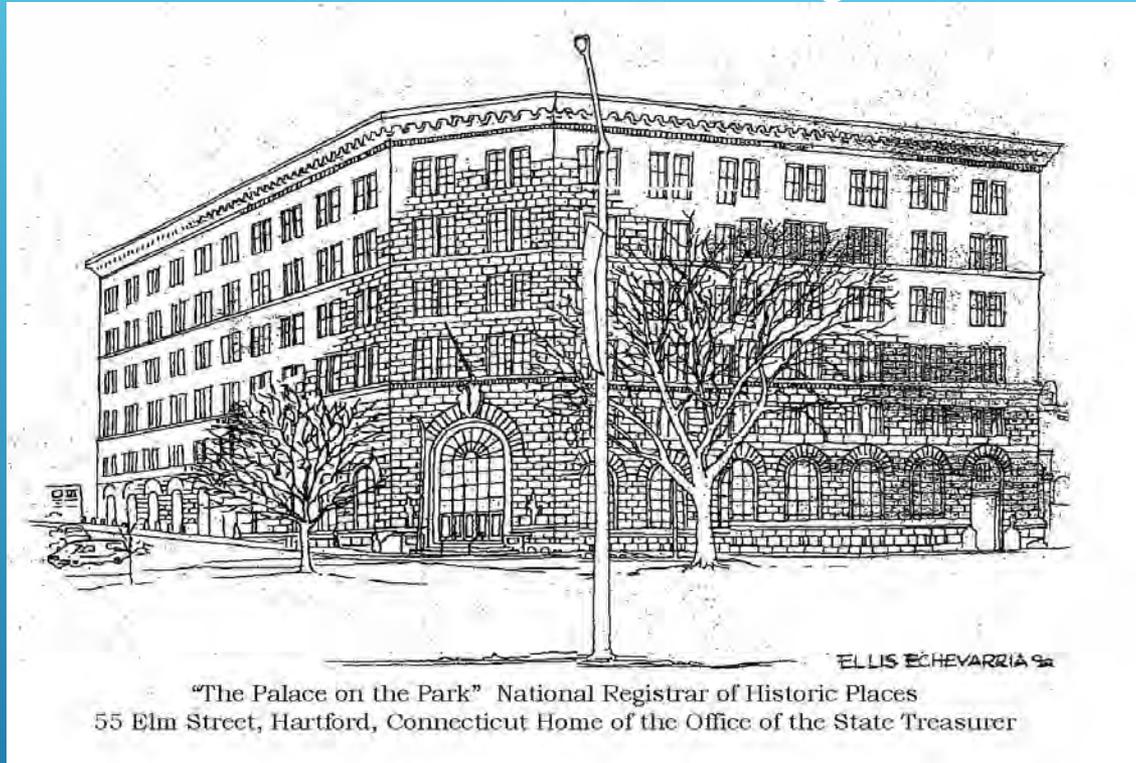
# STEPS 4 and 5 – LOT Manager

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## The LOT Manager is incentivized to maximize economic utility of trust assets

- The LOT Manager's authority and governance structure must be well defined in advance
  - Protocols for transparency must be established
  - Auction protocols must be defined
- A Board of Trustees provides oversight on the LOT Manager
  - Board members will include representatives of the beneficiary pension & OPEB funds, members of the business community, and labor
- New value creation is the LOT Manager's measure of success
  - Growing LOT asset value further offsets unfunded pension liability, minimizes "catch-up" payments, and stimulates the economy
  - Granting a share of the COTs to the LOT Manager aligns incentives

*Presentation to the  
Connecticut Pension Sustainability Commission*



*Plan For Sustainable Funding of the Teachers' Retirement Fund*  
Office of State Treasurer Denise L. Nappier  
November 16, 2018



# Table of Contents

## Plan for Sustainable Funding of the Teachers' Retirement Fund

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### **Introduction**

### **Background**

- Payment of teachers' retirement benefits
- Deterioration of the Teachers' Retirement Fund (TRF)

### **Investment Performance of the TRF, 2000 to 2018**

### **An Intervention in 2008: Issuing Pension Obligation Bonds**

### **Where the TRF currently stands**

### **Statement of the Challenge**

### **Treasurer Nappier's Plan for Sustainable Funding of the TRF**

Step 1: Monetize lottery revenues, transfer assets

Step 2: In FY 2026, pay off Pension Obligation Bonds (POBs)

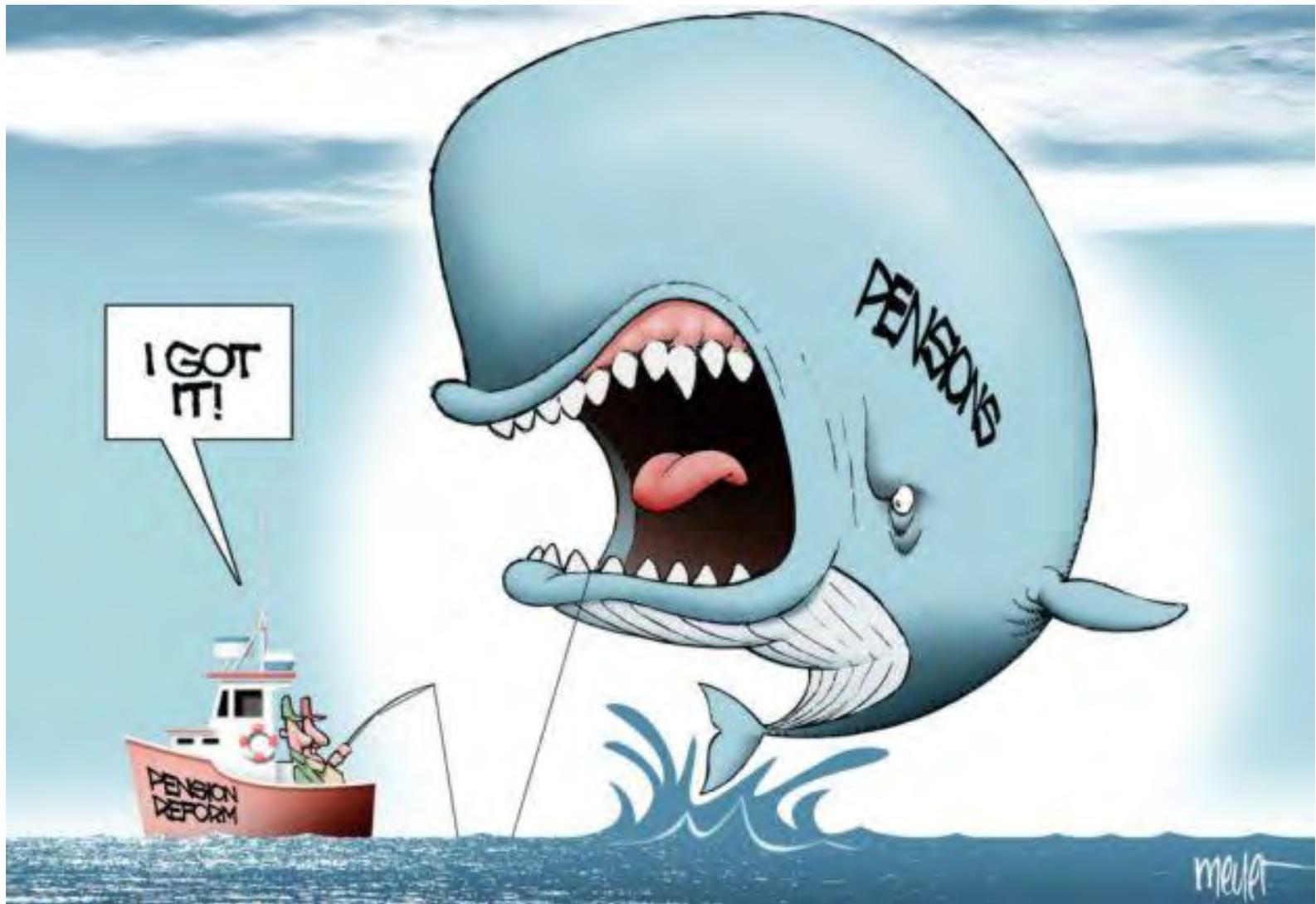
Step 3: After POBs are paid off, re-amortize

### **Other Options**

### **Threshold Considerations**

Fundamental principles for preserving the health of the TRF

# Introduction



# Introduction

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## **Pension Fund Governance**

- The Treasurer is the principal fiduciary of the \$35-billion Connecticut Retirement Plans and Trust Funds for the benefit of more than 219,000 beneficiaries.
- The Investment Advisory Council (IAC), created by the General Assembly in 1973, and revised and strengthened with the Treasury Reform Act of 2000, advises the Treasurer in overseeing the investments of the Connecticut Retirement Plans and Trust Funds (CRPTF).

# Introduction

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## **Pension Fund Governance**

- Investments are made within a system of Pension Fund governance.
- The Treasurer is required, with IAC approval, to adopt the Investment Policy Statement (IPS) for investing state retirement and benefit funds, in a prudent and careful manner, which outlines the following:
  - Investment objectives
  - Asset allocation policy and risk tolerance
  - Asset class definitions with permissible investments
  - Investment manager guidelines
  - Investment performance evaluation guidelines
  - Guidelines for the selection and termination of providers
  - Guidelines for corporate citizenship and proxy voting
  - Liquidity requirements

# Introduction

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- The Teachers' Retirement System has had a funding problem for decades. Today, despite repeated warnings, the bill has come due.
- Let me briefly remind you of what I said back in June 1999: That a key component to any strategy of restoring the Fund to good fiscal health is to contribute the actuarially required contribution each and every year.
- And I repeated my warning in 2001. This 17-year-old quote has proven prescient: “For too long, Connecticut’s state government has regarded pension funding as tomorrow’s problem. Well, tomorrow is about to arrive, and when that happens, the amount of money we will need to fund our debts to retired teachers and state workers will blow the state budget to smithereens.”

# Background: Teachers' retirement benefits

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- Before 1980, Connecticut paid teachers' retirement benefits via annual appropriations, a classic “pay as you go” model.
- Thereafter, an actuarially designed plan was established with the objective of requiring the State to make annual contributions that would pay for:
  - normal (i.e., current) retirement costs; and
  - a portion of the unfunded past service liability, amortized over a fixed period of time.

The method for calculating the State's yearly contributions resulted in a back-loading of payments, with escalating costs later in the amortization period.



# Background: How the health of the Teachers' Retirement Fund deteriorated

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- An essential element for ensuring the soundness and affordability of any actuarially designed plan is consistent funding in an amount determined by the State's actuaries as necessary to reach full funding at the end of the amortization period.
  - ❖ This amount is variously described as the **ARC** (actuarially required contribution) or **ADEC** (actuarially determined employer contribution).
- **What actually happened:** Three factors led to the deteriorating health of the TRF, as measured by its funding ratio:
  - Playing catch-up in the funding of legacy costs incurred before 1979;
  - Consistent underpayment of the State's ADEC; and
  - Unrealistic long-term investment return assumptions.

# Background: How the health of the TRF deteriorated

---

- The State **consistently underpaid what was deemed necessary** to fund the TRF, which affected the Fund in two ways:
  - ❖ First, the amounts not contributed were not invested and, consequently, could not generate income that would have helped the State meet its obligations.
    - Since 1991 through 2005, a total of **\$979 million** was not contributed to the TRF.
    - Had this amount been contributed and invested, taxpayers could very well have saved about **\$5 billion** in contributions.
  - ❖ Second, the amounts not contributed increased the unfunded liability, which compounded the increase in payments in the later years of the amortization period.

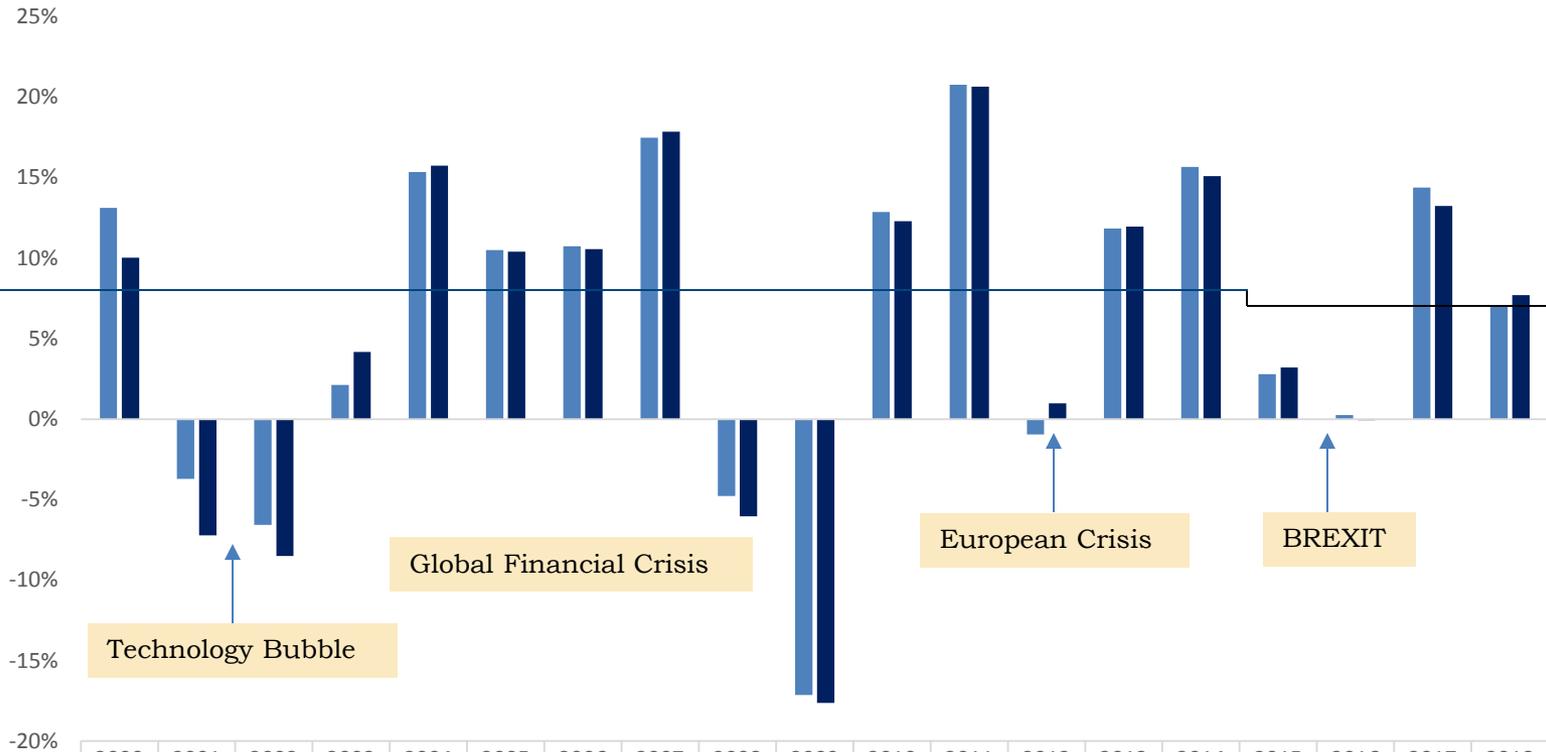
# Background: How the health of the TRF deteriorated

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- Another key contributing factor to the poor health of the TRF was **unrealistic long-term investment return assumptions**, established separately from the Treasurer's investment program.
- Employing assumed investment returns that could not be reasonably achieved in the capital markets resulted in lower calculations of the ADEC. Significantly, even these lower ADECs were not fully paid.
- If return assumptions are set at levels unlikely to be attained, it will be difficult to achieve them without pursuing high risk investment strategies.
- The State ignored a guiding principle:

**It is far more prudent to set an assumed rate of return based on what is achievable, rather than what is desirable.**

# Investment performance of the TRF



**8.50%  
Assumed Rate  
of Return  
FY2000 to  
FY2014**

**8.00% Rate of  
Return Post  
FY2014**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
■ TRF Return	13.1%	-3.7%	-6.6%	2.1%	15.3%	10.5%	10.7%	17.5%	-4.8%	-17.1%	12.9%	20.8%	-1.0%	11.8%	15.7%	2.8%	0.3%	14.4%	7.0%
■ TRF Benchmark Return	10.0%	-7.2%	-8.5%	4.2%	15.7%	10.4%	10.6%	17.8%	-6.0%	-17.6%	12.3%	20.7%	1.0%	12.0%	15.1%	3.2%	-0.1%	13.2%	7.7%

As of September 30, 2018	Market Value	5 Years	7 Years	10 Years	15 Years	20 Years
TRF Return	\$18.1 B	7.3%	9.1%	7.4%	7.3%	6.7%

**During the Nappier Administration, through FY2018, the TRF performance, net of fees and expenses, ranked higher than 70% of Public Defined Benefit Pension Plans >\$1B**

# An intervention in 2008

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In April of 2008, the State issued Pension Obligation Bonds (POBs) which raised \$2 billion for deposit into the Teachers' Retirement Fund.

This transaction improved and protected the health of the TRF:

- Reduced unfunded liability and associated costs;
- Restructured COLAs, which resulted in an estimated \$1.2 billion in savings over the life of the bonds;
- Created a bond covenant that required the State to make 100% of the ADEC for each year that the bonds were outstanding; and
- Limited the State's ability to modify its payments to the TRF by restricting changes to actuarial methods and the amortization period.

# An intervention in 2008

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- Were it not for the bond covenant, the State may have reverted to its historical practice of shorting its payments, further eroding the integrity of the TRF
- Since the redesign of the TRF in 1979 as an actuarially designed plan, the longest period of the State's consistent payment of 100% of the ADEC has been during the existence of the bond covenant
- The economics of the transaction prove its value: as of September 30, 2018, on a cash flow basis, investment earnings have exceeded debt service payments by approximately **\$389 million**.
- Proposal offered during 2018 to restructure payments to the TRF for Fiscal Year 2019 would have violated the covenant, raising the specter of incalculable harm to Connecticut's credit rating. Treasurer Nappier opposed this and the legislature ultimately rejected the proposal.

# Where the TRF currently stands

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## Current Assets

\$18.1 billion as of September 30, 2018

## Liabilities

\$31.1 billion as of June 30, 2018\*

## Funded Ratio

57.7% as of June 30, 2018\*

## Rate of Return Assumption

8.00%\*

\* As reflected in the latest valuation of the TRF conducted by Cavanaugh Macdonald and affirmed by the Teachers' Retirement Board 11/7/18.

# Statement of the challenge

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If the State continues on the current path and investments generate a 7% return and the return assumption remains at 8%, actuaries expect that there is a **50% probability that the State's ADEC will equal or exceed \$3.25 billion by 2032.**

- This is the so-called “spike” that will significantly strain the State’s ability to fully fund the ADEC while balancing its budget.
- Note: Spike is **not** \$6 billion as previously feared. The Teachers’ Retirement Board’s actuaries dismissed this figure, offered by the Center for Retirement Research at Boston College in its 2015 study of Connecticut’s pension plans, as very unlikely. Just an 18% probability, they said.

# Statement of the challenge

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Increases in the ADEC will continue to strain Connecticut's fiscal resources

<b>Expected ADEC for TRF (Based on Deterministic Projections from the 2016 Valuation)</b>	
<i>Source: Cavanaugh Macdonald</i>	
FYE	Assumed return of 8%, with actual returns at 7% (\$ thousands)
2020	1,420,993
2021	1,498,843
2022	1,562,847
2023	1,631,228
2024	1,929,431
2025	2,016,483
2026	2,111,207
2027	2,215,775
2028	2,333,647
2029	2,469,263
2030	2,636,232
2031	2,860,692
2032	3,250,208
2033	415,590

Source:  
Cavanaugh Macdonald  
October 2018

# Statement of the challenge

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## **What the State Needs:**

A viable, sustainable and affordable plan for addressing mounting pension payments to the TRF while keeping intact the commitment to full funding as required by the bond covenant.

# Plan for sustainable funding of the TRF

---

Treasurer Nappier's plan stands the best chance of:

- Mitigating the projected spike in payments
- Preserving the State's credit rating
- Maintaining the discipline that will be critical to the sustainability of the TRF and Connecticut's fiscal health going forward.

# Plan for sustainable funding of the TRF

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## **Components of the Plan**

1. Monetize lottery revenues and transfer other state assets to the TRF in order to mitigate the impact of moving to a more realistic investment return assumption of 7.5% (from 8%). Assets would be invested consistent with the Investment Policy Statement, including asset allocations, approved by the Investment Advisory Council, and the requirements of pension fund governance.
2. Pay off the POBs in Fiscal Year 2026 (the first full fiscal year they can be redeemed), thereby allowing for more options for responsible recalculation of future contributions.
3. Following payoff of the POBs, re-amortize the TRF's remaining unfunded liability and further reduce the investment return assumption to 7%, consistent with capital market expectations.

# Plan for sustainable funding of the TRF

## Step 1: Monetize lottery revenues, transfer assets

---

Prior to Fiscal Year 2026 (the first full fiscal year that the POBs can be paid off), the most viable option for strengthening the funding status of the TRF is with an infusion of cash and other assets of value from two sources:

1a. Monetize lottery revenues by issuing revenue bonds sufficient to generate cash proceeds of approximately \$1.5 billion for deposit into the TRF

➤ **Note:** Final decision to issue Lottery-backed revenue bonds would depend on financial analysis based on market conditions at the time of issuance

1b. Transfer an additional \$1.5 billion of assets currently owned by the State that can be developed and appreciate in value to the TRF

# Plan for sustainable funding of the TRF

## Step 1a: Monetize lottery revenues

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- Establish an irrevocable trust through legislation for the benefit of TRF, separate and distinct from the State's General Fund
- Lottery revenue bonds secured by future lottery revenues would be sold providing \$1.5 billion in proceeds for deposit to TRF
- To achieve the lowest cost of funds and highest possible bond ratings, the bonds would have two additional security features:
  - Debt service coverage for the bonds at four times maximum annual debt service payments
  - A reserve fund, which would further protect bondholders in the event of a failed or insufficient payment. Required amount is approximately 10 percent of the issue.

# Plan for sustainable funding of the TRF

## Step 1b: Transfer of other assets of value

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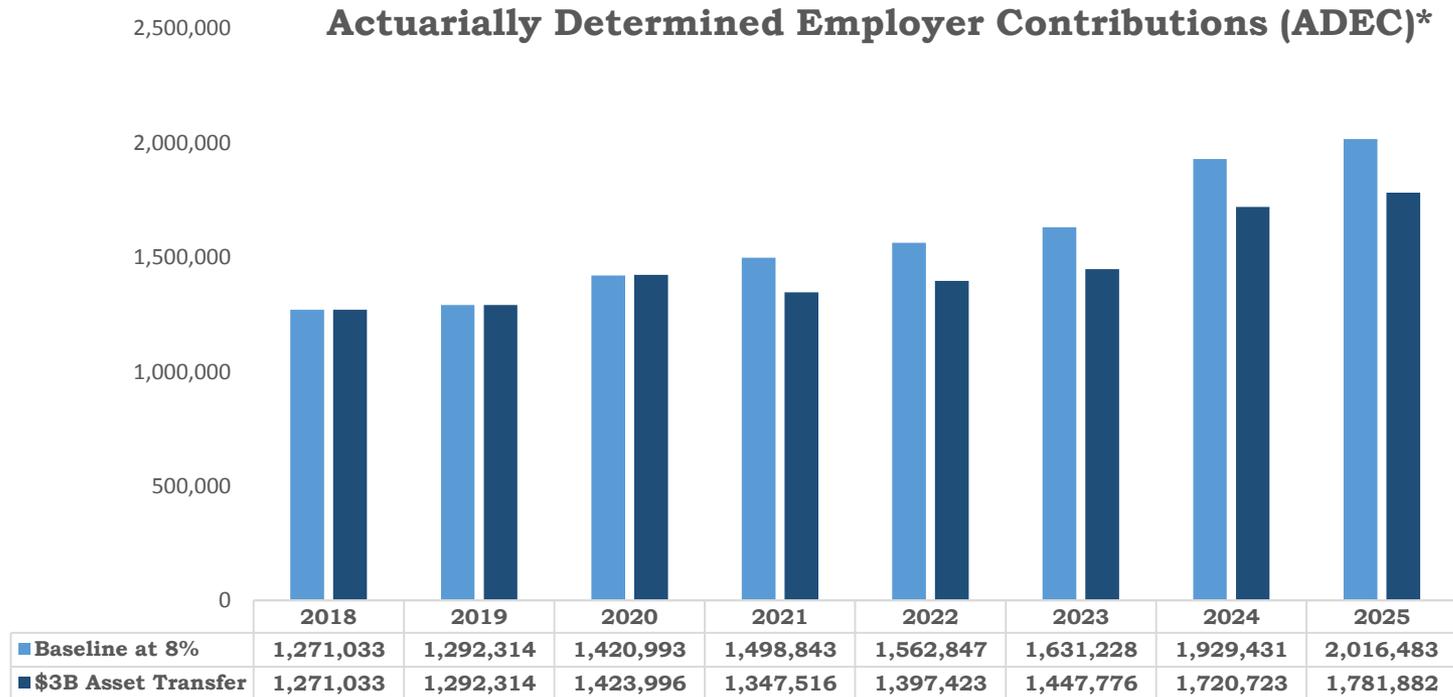
- This proposal contemplates the transfer of state assets currently under review by the capital asset sub-committee
- With its existing investment framework the Office of the Treasurer can implement a plan designed to develop and thereby maximize the value of surplus, unused or underutilized State assets.
  - Conduct a competitive process to engage a manager or managers with appropriate subject matter expertise charged with evaluating assets on the state's books for development and/or management. Vetted assets could be contributed to the pension fund.
  - Agreements could include terms allowing for appropriate oversight of performance of ongoing operational, administrative and investment obligations and incentives to increase value.
  - All assets are marked to market at least quarterly, allowing for actuarial and accounting recognition of increases in value. Eliminates the possibility of carrying two sets of books for valuing assets.
  - This plan would address all legal, accounting, actuarial, fiduciary and tax treatment concerns, with the added advantage of lower costs and less complexity.

# Plan for sustainable funding of the TRF

Summary: Monetize lottery revenues, transfer assets

## Actuarial Impact

Adding \$3 billion to the TRF in FY 2020 and reducing the discount rate from 8.0% to 7.5%, with debt service payments, would reduce the State's costs by approximately \$440 million dollars for the five years ending FY 2025.



\* Per Cavanaugh Macdonald, October 2018. Based on 7% actual return.

# Plan for sustainable funding of the TRF

Summary: monetize lottery revenues, transfer assets

---

- Treasury proposal would:
  - Generate net General Fund savings of \$440 million from FY 2020 through 2025
  - Bring General Fund costs roughly in line with budgetary funding “constraint” [The constraint, developed by the State Office of Policy and Management for the Teachers’ Retirement System Viability Commission, approximates the current proportion of State revenues dedicated to the TRF’s ADEC, as a measure of the State’s financial capability.]
  - Improve TRF cash flow by \$560 million

## Step 2: Pay off POBs

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- After Fiscal Year 2025, the State would be in a position to pay off the POBs for roughly \$1.9 billion, using the estimated State ADEC and the POB debt service payment for that year. Subsequently:
  - Debt service savings; **\$2.25 billion** through FY 2032, which includes a savings of **\$268 million in FY 2026**.
  - Bond covenant extinguished, thereby allowing the State to re-amortize its payments into the TRF, move to a level dollar amortization method, and avoid the projected spike in payments.
  - The State's actuary, Cavanaugh Macdonald, has concluded that the use of the State's ADEC for this purpose "would not irreparably damage the long-term solvency of TRS provided that reasonable amortization methods are implemented to maintain future funding progress, enhance the stability of future funding requirements, and, **most importantly, the State remains committed to annually contribute the full actuarial determined employer contribution (ADEC).**" (Emphasis in the original.)

## Step 3: After POBs are paid off, re-amortize

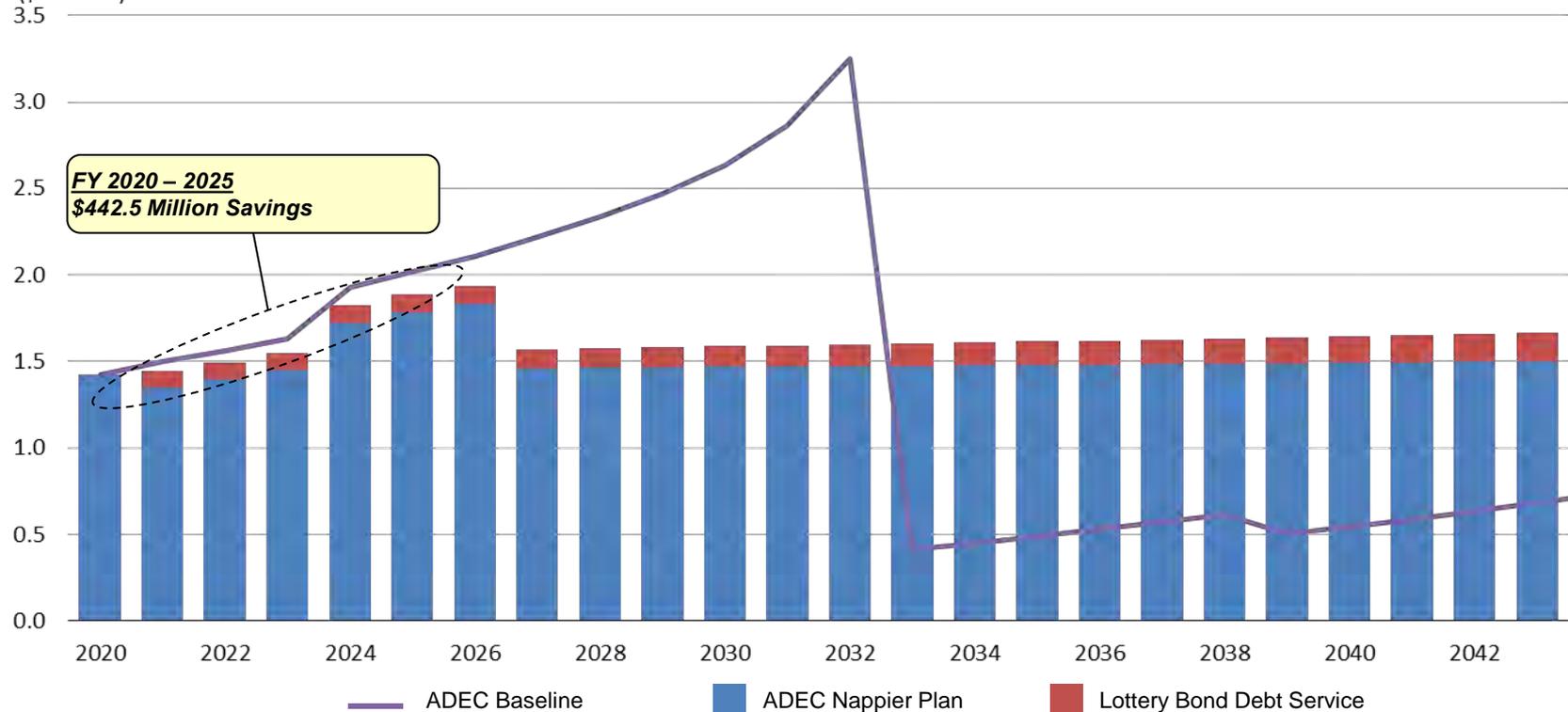
- After the POBs are paid off, reduce the investment return assumption to 7%, consistent with capital market expectations, re-amortize the current UAAL over a longer time period, change to a level dollar amortization method, and implement a layered amortization approach for future UAAL changes. These steps would ameliorate the backloading of payments that has been occurring.
- Adopt legislation to continue the funding discipline that the bond covenant established in 2008. Any legislative action to pay less than the ADEC should require super-majority votes with public notice.
- Additionally, there must be strict limits on spreading out losses due to extraordinary circumstances, such as early retirement incentives
- “Spike” reduced from \$3.25 billion to \$1.78 billion

# Impact of lottery bond / asset transfer on TRF ADEC payments

**Assumes \$1.5 billion Lottery bond proceeds and additional \$1.5 billion asset transfer to TRF**

## Lottery Bond/Asset Transfer Impact on ADEC

(\$ billions)



1. State of Connecticut Office of State Treasurer.
2. Assumes 25-year taxable transaction with 4.0x coverage and 5.308% interest rate.
3. Total \$3 billion in proceeds estimated to reduce the State's unfunded accrued liability by 23% (from \$13.1 billion to \$10.1 billion) and each year's amortization payment reduced by a commensurate 23%.
4. Assumes actuarial rate is reduced to 7.5% from 8.0% until 2026, then ADEC is reamortized and actuarial rate is reduced to 7.0%.

# Other options

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## **\$5.0 billion wholesale transfer of Lottery**

Cautionary Note: The transfer to the TRF would increase the value of the TRF's assets and reduce the unfunded liability. Consequently, the ADEC would also decline.

While this would be of benefit to the State's General Fund, a transfer of assets without cash would have a commensurate negative effect on the TRF itself, particularly as it is a lower funded plan.

Simply put: The General Fund's gain would be the TRF's loss, because less cash would flow into the TRF and trigger greater negative cash flows.

# Other options

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## **Impact on Cash Flows**

- Pension benefit payments are expected to exceed contributions by nearly \$4 billion from FY 2020 to 2025.
- Gap could grow to \$6 billion or more with a wholesale transfer of the Lottery.
- So, even putting aside the number of accounting, governance, management and legal concerns, the Lottery transfer – or any transfer of assets without accompanying cash -- would burden, not help, the TRF.
- In summary, the option would reduce General Fund costs by over \$2 billion, but reduce TRF cash flow by the same amount.

# Other options

## **The Legacy Obligation Trust (LOT)**

LOT's proposed structure:

- Create separate legal entity (Trust)
- The State of Connecticut will not control the Trust (necessary to avoid accounting challenges)
- Transfer unused, underutilized assets to the Trust
- Trust to engage managers incentivized to maximize value of assets
- Pension funds will receive Certificates of Trust (“marketable securities”)
- Pension funds will benefit from value increase and/or dividends

# Other options

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## **Concerns**

The other options, in concept and structure, raise a number of complex and costly concerns that would need to be resolved before any implementation.

- Jeopardy for tax exemption
- Hinders fiduciary duty
- Creates irreconcilable conflict for fiduciary
- May be prohibited by tax exempt financing
- Would require disclosure of two valuation methodologies

# Other options

## **TRF Funding Policy Options FY2020 – FY2025 (\$ Millions)**

	Baseline No Changes	\$3.0 Billion (\$1.5 cash/\$1.5 other assets)		\$5.0 Billion Lottery Concession	
Return Assumption	<b>8.0%</b>	<b>7.5%</b>	<b>8.0%</b>	<b>7.5%</b>	<b>8.0%</b>
ADEC*	10,060	9,119	8,266	7,938	7,069
Change to baseline		(941)	(1,794)	(2,122)	(2,990)
Debt Service		500	500	-	-
Total General Fund	10,060	9,619	8,766	7,938	7,069
Change to baseline		(441)	(1,294)	(2,122)	(2,990)
Funding Constraint**	9,088	9,088	9,088	6,801	6,801
Over/Under	972	31	(822)	1,137	269
TRF Cashflow	(3,870)	(3,310)	(4,164)	(5,991)	(6,860)
Change to baseline		560	(294)	(2,121)	(2,990)
Estimated Funded Ratio FY2025	68.2%	74.2%	74.4%	78.2%	78.5%

\* Per Cavanaugh Macdonald, October 2018. Based on 7% actual return.

\*\* Source: Report of the Teachers' Retirement System Viability Commission, March 19, 2018

# Threshold considerations

## Fundamental principles for preserving the health of the TRF

- Maintain a disciplined approach to funding the State's long-term obligations and protect the State's creditworthiness by adhering to this discipline
- Ensure the overall soundness and integrity of the Teachers' Retirement Fund by keeping the State's commitment to its retired teachers and minimizing the burden on taxpayers and future generations
- Base future assumptions of investment returns on what is achievable in the marketplace, defensible in valuing plan assets and liabilities, feasible in setting realistic required annual contributions, and impactful in improving the plan's funded ratio
- Preserve and enhance long-term investment performance

# Conclusion

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In conclusion, Treasurer Nappier's plan is a prudent, concrete, tangible plan that would strengthen the funding status and long-term sustainability of the TRF while providing relief to the State and avoiding a potential spike.

The components of this plan provide for:

- An infusion of cash through the issuance of lottery-backed revenue bonds that can be invested in a manner consistent with the established Investment Policy Statement asset allocation targets
- A prudent transfer of State assets that can be developed and improved within the confines and authorities of current pension fund governance
- A path forward to reducing the investment rate of return to a more realistic level in line with future capital market assumptions
- A reasonable means to pay off the POB's and allow for the re-amortization of TRF's unfunded liability
- Maintenance of strong fiscal discipline

## CAPITAL ASSET SELECTION CRITERIA MEMO

*Adopted by Capital Asset Selection Work Group - September 21, 2018*

**ASSET SELECTION CRITERIA:** Establishing specific criteria for the selection of state owned real property for the potential “in-kind” donation from the state to a Pension Trust. The following criteria will allow the Pension Sustainability Commission to determine which state owned properties within the Real Property Inventory Database meet these criteria and may be considered for selection for possible donation to the trust:

- 1) Properties that are not currently being utilized for government functions
- 2) Properties that clear a Phase I environmental study and requires no further remediation action
- 3) Only properties currently owned by the State of CT and the component unit authorities
- 4) Properties not classified as state park or forest land
- 5) Properties surplus to State of CT needs; this would require state agency approval to transfer from the agency with custody and control of each particular property or via a legislative mandate
- 6) Properties that have been determined to be eligible for transfer legally (certain statutes may prohibit particular properties from being conveyed from state ownership)
- 7) Properties that have not been designated as historic
- 8) No DOT Rights of Way properties as FHWA, under 23 Code of Federal Regulations (CFR) 710.403 requires that the proceeds from the sale of any excess property by DOT must be deposited in the State Transportation Fund to be utilized as the State’s match for future transportation projects.

### The ARC and the Covenants, 2.0: an update on the long-term credit risk of US states

As managers of ~\$70 billion in municipal bonds across our asset management business (Q1 2016), we’re very focused on the total indebtedness of US states. **New GASB rules have now standardized the reporting of municipal liabilities, so we’re taking this opportunity to update our assessment of how much it will cost states to service them.** Total liabilities include bonds and obligations related to underfunded pensions and retiree healthcare benefits (referred to as “OPEB”, an acronym for Other Post-Employment Retirement Benefits). Pensions and OPEB are a big part of the debt picture: while US states have ~\$500 billion of bonds supported by state tax collections and general revenues, they have another \$1.0-\$1.5 trillion of unfunded pension and OPEB liabilities, depending on rates used to discount them.

After analyzing 330 single-employer and multi-employer pension and OPEB plans, we created a single measure for each state. The chart shows the ratio of what states **currently** spend on bonds, pensions and OPEB as a percentage of their revenues (blue bars), and what they **would** be spending assuming a 6% return on plan assets<sup>1</sup>, amortizing any unfunded pension and OPEB liabilities over 30 years (total bars). For multi-employer plans, we only include the state’s share of pension and OPEB liabilities since local entities are responsible for the rest.

#### The state of the states: how much states spend on debt, pensions and retiree healthcare

% of state revenue collections required to pay the sum of interest on bonds, the state’s share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments



Source: J.P. Morgan Asset Management, state/pension plan Comprehensive Annual Financial Reports, Census, Loop Capital Markets. FY 2015.

One obvious conclusion is that the ratios vary a lot. Consistent with a country founded on States’ Rights, there are large differences in pension and retiree healthcare systems across states. Many articles over-generalize the issue and neglect to mention that **many states do not need a disproportionate share of revenues to service their debts**; these states are at or below the green line. When a state is at the red line, however, they’ve got some serious challenges since the math becomes very difficult.

Before looking more closely at a few states with the highest ratios, I want to be clear about something. **“The ARC and the Covenants”** refers to the means by which states fulfill their obligations to public employees (through an “Annual Required Contribution”, or ARC). Public sector workers<sup>2</sup> form a critical part of American civil society. They rescue and protect us when we’re in danger; they make our lives safer, cleaner and more efficient; they educate our children; they enforce the rule of law and provide remedies when laws are broken; they ensure access to clean air, water and food; and they heal us when we’re sick. The legal, medical, environmental and educational problems sometimes found in other countries are a reminder of what life might be like without them. They earned the benefits they accrued and which were granted by state legislatures, and have the right to expect them to be paid.

<sup>1</sup> See SM Exhibit 5 for 30-year rolling returns on stock-bond portfolios since the 1920s. A 6% nominal (4% real) return over 30 years would be close to the lowest return on record.

<sup>2</sup> In 2015, state and local employment was 13.5% of total non-farm employees, the lowest level since 1970.

### A few states with the highest ratios face considerable challenges

Four states above the red line represent ~20% of municipal general obligation bonds outstanding. We now look more closely at these four states, and at two others close to the red line. “IPOD” is shorthand for the ratio in the chart (I = interest on bonds, P = pension payments, O = OPEB payments, and D = defined contribution payments<sup>3</sup>, all divided by state revenues). The current IPOD ratio shows what states now pay; the “full accrual” IPOD ratio is the percentage of state revenues required to service all future obligations accrued to date. To meet the full accrual IPOD ratio, states would need to raise substantial funds from **increased tax revenues, cuts in non-retirement spending or increases in public sector worker contributions**<sup>4</sup>. The table shows the mutually exclusive amount of each required for states to pay their projected obligations in full.

**Mutually exclusive means of raising incremental revenues required to meet full accrual payments to retirees**

*IPOD = % of state revenues req. to pay interest on bonds, state share of unfunded pension and OPEB liabilities, and defined contribution pmts*

State	Current IPOD ratio	Full accrual IPOD ratio	Increase in revenues (taxes)	Cuts in direct spending	Increase in worker contributions
IL	22%	→ 39%	17%	or 16%	or 400%
NJ	12%	→ 38%	26%	or 24%	or 471%
CT	21%	→ 35%	14%	or 14%	or 699%
KY	11%	→ 32%	20%	or 13%	or 435%
HI	15%	→ 24%	8%	or 6%	or 327%
MA	14%	→ 22%	7%	or 6%	or 164%

Source: JPMAM, state/pension plan CAFRs, Census, Loop. FY 2015.

#### Understanding the table

- To meet future obligations accrued to date, states would need to increase their IPOD ratios from current levels to full accrual levels
- Ways to raise additional funds: raise taxes, cut spending or increase worker contributions
- For example, New Jersey would need to increase state revenue collections by 26%, OR cut non-retirement spending by 24%, OR increase worker contributions by 470%
- Each of these approaches would need to be kept in place for 30 years, and used solely for purposes of pension and OPEB payments

**Tax increases might be politically difficult**, particularly since some states with the highest IPOD ratios already have effective tax rates<sup>5</sup> that rank among the highest in the US (IL, CT, KY, HI). Without changes to taxes, spending or worker contributions, states could rely instead on **elevated investment returns** on pension and OPEB assets to meet future obligations. However, as shown in the last column of the next table, this would require annual returns for 30 years well above what history suggests is achievable.

State	Effective state tax rate on middle quintile earners	Rank of effective state tax rate on middle quintile (1=highest, 50=lowest)	Required annual return on plan assets (in the absence of higher taxes, spending cuts and increased worker contributions)
IL	10.8%	4	13.8%
NJ	9.1%	30	Not mathematically solvable
CT	10.7%	7	13.6%
KY	10.8%	6	16.8%
HI	11.4%	3	13.2%
MA	9.3%	26	10.6%

Source: JPMAM, state/pension plan CAFRs, Census, Loop, ITEP. FY 2015.

<sup>3</sup> While we included **defined contribution** plans in our IPOD ratio, they do not play a large role in state benefit systems. The average state spends just 0.31% of total revenues on DC plans.

<sup>4</sup> Some believe that a 4<sup>th</sup> option could be **pension obligation bonds**. States issue debt, invest the proceeds and attempt to earn a positive spread over their cost of debt (i.e., financial leverage). However, even if the states above issued POBs equal to one third of their general obligation bonds outstanding, and even if they earned a consistent 3% spread over their cost of debt, it would only represent ~5% of their incremental funding needs.

<sup>5</sup> **Effective tax rates** shown include state and local income taxes, property taxes and sales taxes, and incorporate the benefit of the state/local tax deductibility on Federal tax returns.

**Is there anything states have done to reduce accrued pension or OPEB obligations?**

Over the last few years, some states changed cost of living adjustments (COLA) on pensions, and some changed terms and conditions on OPEB plans by adjusting premiums, deductibles and co-payments. In the next table, we made some COLA<sup>6</sup> and OPEB<sup>7</sup> adjustments, but the impact was generally modest, with IPOD ratios falling by 1%-4%. The top 4 states remained above the red line even after the adjustments. In the table, we show the revised IPOD ratio, and split the state’s remaining incremental revenue burden equally across tax increases, spending cuts and worker contributions. Whether this kind of comprise is feasible will only be revealed with the passage of time.

**Impact on IPOD ratio from COLA reductions and OPEB changes**  
*IPOD = % of state revenues req. to pay interest on bonds, state share of unfunded pension and OPEB liabilities, and defined contribution pmts*

State	Full accrual IPOD ratio	Revised Full accrual IPOD ratio	Increase in revenues (taxes)	Cuts in direct spending	Increase in worker contributions
IL	39%	→ 36%	4.7% and	4.4% and	109%
NJ	38%	→ 35%	7.6% and	7.1% and	140%
CT	35%	→ 33%	4.1% and	3.9% and	199%
KY	32%	→ 31%	6.5% and	4.3% and	139%
HI	24%	→ 19%	1.4% and	1.1% and	55%
MA	22%	→ 21%	2.2% and	1.8% and	49%

Source: JPMAM, state/pension plan CAFRs, Census, Loop. FY 2015.

*Understanding the table*

- Our assumed COLA adjustments and OPEB changes do not reduce IPOD ratios by very much; IPOD ratios for the top 4 states remain above our red line of 25%
- As a result, states would still need incremental funds. In the table, we divide the remaining burden **equally** across tax increases, spending cuts and increased worker contributions (i.e., a political compromise)
- These steps would have to be kept in place for 30 years, with proceeds used only for pension and OPEB payments

Our analysis assumes that states modify OPEB plans on the margin, changing some terms and conditions. However, some pension consultants have discussed the potential for states to utilize the **Affordable Care Act** as a way of providing retiree healthcare to state employees. This could reduce OPEB costs by more than what is assumed above; see SM Exhibit 7 for more details.

<sup>6</sup> Our assumption: for **pension plans** with a cost of living adjustment over 2%, reduce it by 1%. This would not be unusual; 17 states made COLA adjustments between 2010 and 2013. While changes to pension accrual formulas, retirement ages and other factors can reduce the growth rate of *future* obligations, when they are only applied to new employees, they do not impact accrued liabilities to existing and retired employees.

<sup>7</sup> Our assumption: for **OPEB plans**, cap liabilities per worker at the 75th percentile across states. Background: a handful of states offer substantially higher retiree healthcare benefits than others, as shown in Exhibit 3 of the Supplemental Materials (SM). As an example, California, Connecticut and New York OPEB liabilities per worker are 2x-3x levels in Maryland, North Carolina, Florida and Vermont. The cap assumes that states with the highest OPEB benefits per worker reduce them, but to a level that’s still top quartile. SM Exhibit 8 shows examples of OPEB changes enacted by states from 2010 to 2013.

## Conclusions, caveats and additional information

- *Special funding.* Many states make payments on behalf of local entities in multi-employer plans (particularly Teacher plans), referred to as “special funding”. These situations can be temporary or permanent, but **since states disclose them as if they are permanent, our IPOD ratios for the states include the cost of assisting local entities:**
  - Of 22 states with special funding, 10 also disclosed their liabilities *without* it
  - In 6 of the 10, special funding occurred on small plans and did not materially affect IPOD ratios
  - However, there were 4 exceptions: if states and local entities paid their respective shares, IPOD ratios for **Kentucky** would decline from 32% to 18%; **Maryland** would decline from 19% to 12%; **Texas** would decline from 20% to 16%; and **West Virginia** would decline from 16% to 8%. See SM Exhibit 11 for special funding situations by state.
- *Rules of engagement.* Even in severely underfunded plans, assets are unlikely to be fully exhausted for many years, if not decades (see SM Exhibit 12). But what would happen one day if pension assets ran out? The legal issues are complex, often involving language in state constitutions protecting both state employees and bondholders, and without established rules or precedent. Given potential risks for bondholders, we’re watching pension dynamics closely in select states. The municipal bond market is currently applying a modest spread premium of 0.5% to 1.5% to states with the highest IPOD ratios, as shown in SM Exhibit 9.
- *What about cities, towns and counties?* Our analysis only covers US states; an analysis of US cities would be equally complex. While some states are well-positioned in our state analysis (e.g., New York), that state’s cities might not be (e.g., New York City, which Pew Research cites as having the highest unfunded OPEB liability per capita in the US).
- *What about lower discount rates and shorter remediation terms?* We explore the impact of lower discount rates and shorter amortization periods in SM Exhibit 6. The impact was not very large, except for states that already have high IPOD ratios.

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[Click here to access Supplemental Materials](#) on pension funding ratios, discount rates, OPEB liabilities, long-term market returns, IPOD scenario analysis, special funding situations, a list of plans included in the analysis and some definitions and assumptions.

## Supplemental Materials (SM) index

- Exhibit 1: Pension plan funding ratios by state
- Exhibit 2: Weighted average pension and OPEB discount rates by state
- Exhibit 3: OPEB liability per worker by state
- Exhibit 4: Unfunded OPEB obligations relative to unfunded pension obligations
- Exhibit 5: Long-term history on stock and bond market returns vs. pension discount rates
- Exhibit 6: IPOD ratio scenario using a 5% discount rate and a 20 year amortization
- Exhibit 7: IPOD ratio scenario assuming the Affordable Care Act reduces OPEB expenditures
- Exhibit 8: Examples of OPEB plan changes enacted by state
- Exhibit 9: IPOD ratios vs. current yields on general obligation bonds and Moody’s rating
- Exhibit 10: Definitions and assumptions
- Exhibit 11: Instances of state special funding on behalf of local entities
- Exhibit 12: How long might it take for an underfunded pension plan to run out of money?
- Exhibit 13: Sources and Acknowledgements
- Exhibit 14: List of pension and OPEB plans analyzed by state

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# State Public Pension Funds Increase Use of Complex Investments

Heavier reliance on alternatives yields mixed results, highlights need for increased transparency

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## Acknowledgments

Siona Listokin of George Mason University provided critical guidance, research, and collaboration during the analysis and drafting of this report, which also benefited from the insights and expertise of external reviewers Josh McGee of the Laura and John Arnold Foundation; Donald J. Boyd of the Rockefeller Institute; Michael Travaglini, formerly of the Massachusetts Pension Reserves Investment Management Board and Grosvenor Capital Management; and Rob Bauer of Maastricht University, and International Centre for Pension Management. Together, their comments helped to improve and clarify this report. Neither they nor their organizations necessarily endorse its findings or conclusions.

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This work is funded in part by The Pew Charitable Trusts with additional support from the Laura and John Arnold Foundation.

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## Overview

State and locally run retirement systems currently manage over \$3.6 trillion in public pension fund investments, most of which are held by states.<sup>1</sup> Broadly, half of these assets are invested in stocks; a quarter in bonds and cash; and another quarter in what are known as alternative investments, such as private equity, hedge funds, real estate, and commodities.

Although governments and employees contribute to pension funds, investment earnings on plan assets are expected to pay for about 60 percent of promised benefits. In a bid to boost investment returns and diversify investment portfolios, public pension plans in recent decades have shifted funds away from low-risk, fixed-income investments such as government and high-grade corporate bonds. During the 1980s and 1990s, plans significantly increased their reliance on stocks, also known as equities. And over the past decade, funds have increasingly turned to alternative investments to achieve investment return targets.

Greater investment in equities and alternatives can provide higher financial returns but also bring heightened volatility and risk of shortfalls. Most funds exceeded their investment return targets during the bull market of the 1990s but then suffered losses during the volatile financial markets of the 2000s—leading to higher pension costs for state and local budgets. The volatility inherent in public funds' investment strategies can be seen in more recent results as well, with large funds posting fiscal year gains of over 12 percent in 2013 and 17 percent in 2014, but only 2 percent in 2012, 4 percent in 2015, and 1 percent in 2016.<sup>2</sup>

The shift toward more complex investment vehicles has also brought higher investment fees. State funds reported paying more than \$10 billion in fees and investment-related costs in 2014, which amounted to their largest expense. Those fees, as a percentage of assets, have increased by about 30 percent over the past decade, a boost closely correlated with the rising use of alternative assets, which has more than doubled since 2006. Additionally, state funds are paying billions of dollars in unreported performance fees associated with these alternative investments.

Accounting and disclosure practices also vary widely among pension plans and have not kept pace with increasingly complex investments and fee structures, underscoring the need for additional public information on plan performance and attention to the effects of investment fees on plan health. Full and accurate reporting of asset allocation, performance, and fee details is essential to determining public pension plans' ability to pay promised retirement benefits. With more than \$3.6 trillion in assets—and the retirement security of 19 million current and former state and local employees at stake—sound and transparent investment strategies are critical.<sup>3</sup>

Research on U.S. public pension investments published in 2014 by The Pew Charitable Trusts highlighted the long-term shift toward stocks and more recent increases in the use of alternative investments. This report provides updated information on asset allocation, performance, and reporting practices for all 50 states and looks deeper at the use of alternative investments by public pension funds. Specifically, this report finds:

- Government sponsors should consider investment performance both in terms of long-term returns and cost predictability. From this perspective, many fund portfolios are highly correlated with the up-and-down swings of the stock market, and expose state budgets to considerable risk and uncertainty.
- Investment performance varies widely among public pension funds, with only two of the funds examined exceeding investment return targets over the past 10 years. Although these results reflect the losses that occurred at the onset of the Great Recession, more recent performance, low interest rates, and forward-looking economic forecasts point to the need to closely examine long-term investment return targets.

- The use of alternative investments varies widely—from none to over half of fund portfolios. While examples exist of top performers with long-standing alternative investment programs, the funds with recent and rapid entries into alternative markets—including significant allocations to hedge funds—reported the weakest 10-year returns. Although longer time horizons will allow better evaluation of these investment strategies, funds and policymakers should carefully examine risks, returns, and fees in the meantime.
- The data do not reveal a best or one-size-fits-all approach to successful investing, but there is a uniform need for full disclosure on investment performance and fees. In 2014, more than a third of state-sponsored funds reported performance figures before deducting the costs of investment management. In addition, unreported investment fees—primarily performance payments made to private equity managers—totaled more than \$4 billion in 2014, or about 40 percent above the \$10 billion in reported investment expenses for that year.

## Data sources

To examine these changing investment practices across the 50 states, The Pew Charitable Trusts used three sources covering the 73 largest state-sponsored pension funds, which collectively have assets under management of over \$2.8 trillion (about 95 percent of all state pension fund investments):<sup>4</sup>

- Data collected from state-sponsored plans' Comprehensive Annual Financial Reports, pension plan actuarial valuations, and other relevant documents published by individual public pension plans from 1992 to 2014, with a primary focus on asset allocation, performance, and fees from 2006 to 2014. In addition, performance data from 2015 were collected from plan documents.
- The U.S. Federal Reserve Financial Accounts of the United States data, which include aggregate economic and investment data on public pensions from 1952 to 2015.
- The Wilshire Trust Universe Comparison Service (TUUS) performance comparison data, reported quarterly from 1991 to 2016.<sup>5</sup>

Together, these data sets provide a 60-year picture of aggregate investment trends and a detailed look at investment practices from 2006 to 2014 across the vast majority of state public pension funds.

## Important terms

Three main types of investments are discussed in this report:

- **Fixed-income investments.** Can include domestic or international bonds issued by governments or corporations. Because they generate predictable streams of income paid at designated times, fixed-income investments are generally considered lower-risk than other investments.
- **Equities.** Stocks, held by investors, that represent partial ownership of a company; can be domestic or international. Equities do not guarantee a return and generally have the potential for both higher returns and greater losses than bonds, making them typically riskier than fixed-income investments.
- **Alternative investments.** Generally include private equity, hedge funds, real estate, and commodities, and typically lack an established public exchange, have low liquidity, and can be more difficult to value than stocks or bonds. Alternative investments typically carry higher fees than fixed-income investments or equities and can be used to diversify investment portfolios or to achieve higher rates of return—although often at higher levels of risk.

The glossary at the end of the report includes a more complete list of definitions; the appendix includes a detailed explanation of the common types of alternative investments.

## **Pension fund investments: 50 states at a glance**

State-sponsored pension plans use a wide range of investment strategies and report significantly different results and investment costs. Using comprehensive investment data for the 73 largest public funds, Table 1 illustrates the differences across the 50 states. The use of alternative investments ranges from zero to over 50 percent of fund portfolios.

Performance, too, varies widely. For the 41 largest state funds that can be clearly compared against target returns—those reporting performance after accounting for management fees and on a fiscal year basis—the average annual target return in 2015 was 7.7 percent. Actual annualized returns over 10 years, however, averaged 6.6 percent and ranged from 4.7 percent to 8.1 percent a year. Only one of the 41 (and two of all 73 funds) exceeded their target return in 2015.

These figures include losses seen at the onset of the Great Recession as well as the high returns that immediately followed. However, recent performance has been flat, and the outlook going forward, while uncertain, is widely expected to remain lower than historic levels.<sup>6</sup>

States also interpret reporting standards differently, a factor reflected in Table 1. For example, the majority of funds report on the basis of a fiscal year ending June 30 and include 10-year performance returns minus the fees paid to investment managers, or “net of fees.” However, 12 funds report on a different time period, and more than a third provide 10-year returns only “gross of fees”—without deducting manager fees.

States also vary in whether they include performance-based fees for certain investments, known as carried interest, for private equity. Generally, states that disclose the cost of carried interest report higher fees than states that do not.

These differences can make direct comparisons across and between funds difficult. However, the level of detail provided in Table 1 is sufficient to draw some critical insights on the strategies and outcomes of public pension plans. The limitations posed by a lack of standardized reporting standards are addressed later in this report with recommendations for improved transparency.

Table 1

## Public Pension Investment Metrics Across the 50 States, 2014

Wide variations in allocations, performance, and fees for 73 largest funds

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Investment Performance Through 2015*					Reporting date
		Equities	Fixed income	Alternatives	Other <sup>†</sup>	Investment expense <sup>‡</sup>	External management fees	Target rate of return, 2015 <sup>§</sup>	10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	
<b>Retirement Systems of Alabama (Employees)</b>	\$10.8	62%	15%	23%	0%	0.03%	N/A	8.00%	5.16%	9.37%	1.05%	Gross of fees	30-Sep
<b>Retirement Systems of Alabama (Teachers)</b>	\$22.2	65%	14%	22%	0%	0.03%	N/A	8.00%	5.41%	9.42%	1.04%	Gross of fees	30-Sep
<b>Alaska Public Employees Retirement System</b>	\$7.5	56%	15%	29%	0%	0.40%	0.38%	8.00%	6.69%	10.89%	3.29%	Net of fees	30-Jun
<b>Alaska Teachers Retirement System</b>	\$3.6	56%	15%	29%	0%	0.34%	0.32%	8.00%	6.73%	10.96%	3.30%	Net of fees	30-Jun
<b>Arizona State Retirement System</b>	\$33.7	53%	19%	28%	0%	0.43%	0.40%	8.00%	6.90%	11.80%	3.20%	Net of fees	30-Jun
<b>Arizona Public Safety Personnel Retirement System</b>	\$5.7	30%	13%	56%	0%	2.00%	2.00%	7.85%	5.22%	8.69%	3.68%	Net of fees	30-Jun
<b>Arkansas Public Employees Retirement System</b>	\$7.3	67%	16%	16%	1%	0.39%	0.38%	7.50%	7.17%	12.25%	2.45%	Gross of fees	30-Jun
<b>Arkansas Teachers Retirement System</b>	\$14.6	61%	17%	19%	3%	0.27%	N/A	8.00%	7.60%	11.70%	5.20%	Net of fees	30-Jun
<b>California Public Employees Retirement System</b>	\$301.5	52%	27%	21%	0%	0.48%	0.38%	7.50%	6.20%	10.70%	2.40%	Net of fees	30-Jun

Continued on next page

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Target rate of return, 2015 <sup>s</sup>	Investment Performance Through 2015 <sup>r</sup>				
	Total invest- ments	Equities	Fixed income	Alter- natives	Other <sup>t</sup>	Invest- ment expense <sup>z</sup>	External man- agement fees		10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Report- ing date
<b>California State Teachers Retirement System</b>	\$214.2	57%	19%	24%	0%	0.14%	0.09%	7.50%	7.02%	12.14%	4.77%	Gross of fees	30-Jun
<b>Colorado Public Employees Retirement Association</b>	\$43.2	57%	25%	18%	0%	0.36%	0.32%	7.50%	6.00%	7.30%	1.50%	Net of fees	31-Dec
<b>Connecticut State Employees Retirement System</b>	\$10.5	56%	25%	19%	0%	0.30%	0.25%	8.00%	6.18%	9.82%	2.84%	Net of fees	30-Jun
<b>Connecticut Teachers Retirement Board</b>	\$16.2	55%	25%	20%	0%	0.31%	0.25%	8.50%	6.30%	9.72%	2.79%	Net of fees	30-Jun
<b>Delaware Public Employees Retirement System</b>	\$8.6	47%	35%	19%	0%	0.26%	0.26%	7.20%	7.90%	11.40%	3.90%	Gross of fees	30-Jun
<b>Florida Retirement System</b>	\$152.9	60%	22%	18%	0%	0.34%	0.31%	7.65%	6.86%	11.01%	3.67%	Net of fees	30-Jun
<b>Georgia Employees Retirement System</b>	\$15.9	67%	26%	0%	7%	0.07%	0.05%	7.50%	6.86%	11.32%	3.74%	Gross of fees	30-Jun
<b>Georgia Teachers Retirement System</b>	\$64.6	73%	27%	0%	0%	0.06%	0.04%	7.50%	6.82%	11.27%	3.70%	Net of fees	30-Jun
<b>Hawaii Employees Retirement System</b>	\$14.2	62%	17%	15%	7%	0.24%	0.23%	7.65%	7.00%	10.84%	4.23%	Gross of fees	30-Jun
<b>Idaho Public Employee Retirement System</b>	\$14.2	64%	26%	10%	0%	0.34%	0.30%	7.00%	7.00%	10.10%	3.00%	Gross of fees	30-Jun
<b>Illinois State Universities Retirement System</b>	\$16.7	63%	24%	14%	-1%	0.30%	0.28%	7.25%	7.08%	11.20%	2.85%	Net of fees	30-Jun

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Target rate of return, 2015 <sup>s</sup>	Investment Performance Through 2015 <sup>t</sup>				
	Total investments	Equities	Fixed income	Alternatives	Other <sup>r</sup>	Investment expense <sup>z</sup>	External management fees		10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Reporting date
<b>Illinois State Employees Retirement System</b>	\$12.5	46%	17%	32%	5%	0.28%	0.27%	7.25%	6.20%	11.40%	4.70%	Net of fees	30-Jun
<b>Illinois Teachers Retirement System</b>	\$45.4	43%	19%	38%	0%	0.66%	0.54%	7.50%	6.62%	11.39%	3.95%	Net of fees	30-Jun
<b>Indiana Public Retirement System</b>	\$32.7	24%	32%	35%	10%	0.62%	0.57%	6.75%	4.73%	7.68%	0.00%	Net of fees	30-Jun
<b>Iowa Public Employees Retirement System</b>	\$27.8	42%	37%	20%	0%	0.22%	0.19%	7.50%	7.21%	10.55%	3.96%	Net of fees	30-Jun
<b>Kansas Public Employees Retirement System</b>	\$16.5	58%	22%	19%	0%	0.31%	0.19%	8.00%	7.40%	11.70%	3.70%	Gross of fees	30-Jun
<b>Kentucky Retirement Systems</b>	\$11.4	44%	22%	35%	0%	0.39%	0.36%	7.50%	6.05%	9.18%	2.01%	Net of fees	30-Jun
<b>Kentucky Teachers Retirement System</b>	\$17.9	63%	22%	15%	0%	0.21%	0.19%	7.50%	7.00%	12.00%	5.10%	Gross of fees	30-Jun
<b>Louisiana State Employees Retirement System</b>	\$11.5	55%	17%	29%	0%	0.64%	0.64%	7.75%	7.40%	11.10%	1.70%	Gross of fees	30-Jun
<b>Louisiana Teachers Retirement System</b>	\$17.5	51%	25%	25%	0%	0.48%	0.47%	7.75%	7.40%	12.30%	3.10%	Gross of fees	30-Jun
<b>Maine Public Employees Retirement System</b>	\$12.9	58%	24%	19%	0%	0.32%	0.29%	7.13%	5.90%	10.20%	2.00%	Net of fees	30-Jun
<b>Maryland State Retirement and Pension System</b>	\$46.3	35%	27%	37%	1%	0.73%	0.70%	7.55%	5.77%	9.36%	2.68%	Net of fees	30-Jun

Continued on next page

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Target rate of return, 2015 <sup>s</sup>	Investment Performance Through 2015 <sup>r</sup>				
	Total investments	Equities	Fixed income	Alternatives	Other <sup>t</sup>	Investment expense <sup>z</sup>	External management fees		10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Reporting date
<b>Massachusetts Pension Reserves Investment Management Board</b>	\$62.5	43%	22%	35%	0%	0.14%	0.11%	7.50%	6.98%	10.95%	3.86%	Gross of fees	30-Jun
<b>Michigan Public School Employees Retirement System</b>	\$43.5	45%	19%	37%	0%	0.30%	0.28%	8.00%	6.70%	10.00%	2.60%	Gross of fees	30-Sep
<b>Michigan State Employees Retirement System</b>	\$10.8	45%	18%	37%	0%	0.30%	0.28%	8.00%	6.60%	10.00%	2.60%	Gross of fees	30-Sep
<b>Minnesota (MSRS, TRA, and PERA)</b>	\$59.5	61%	26%	13%	0%	0.14%	0.14%	8.14%	7.80%	12.30%	4.40%	Net of fees	30-Jun
<b>Mississippi Public Employees Retirement System</b>	\$24.6	66%	21%	13%	0%	0.33%	0.33%	7.75%	6.90%	11.90%	3.40%	Gross of fees	30-Jun
<b>Missouri State Employees Retirement System</b>	\$9.2	10%	39%	51%	0%	1.70%	1.64%	8.00%	7.00%	9.60%	-2.60%	Net of fees	30-Jun
<b>Missouri Public Schools Retirement System</b>	\$37.0	48%	23%	29%	0%	1.49%	1.46%	8.00%	6.60%	11.30%	4.50%	Net of fees	30-Jun
<b>Montana Public Employees Retirement Board</b>	\$6.1	57%	24%	19%	0%	0.54%	0.54%	7.75%	6.59%	11.55%	4.58%	Net of fees	30-Jun
<b>Montana Teachers Retirement System</b>	\$3.7	57%	24%	19%	0%	0.55%	0.44%	7.75%	6.59%	11.57%	4.60%	Net of fees	30-Jun
<b>Nebraska Retirement Systems</b>	\$12.9	64%	28%	8%	0%	0.21%	0.21%	7.97%	6.90%	11.50%	3.90%	Net of fees	30-Jun

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Investment Performance Through 2015*					
	Total investments	Equities	Fixed income	Alternatives	Other†	Investment expense‡	External management fees	Target rate of return, 2015§	10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Reporting date
<b>Nevada Public Employees Retirement System</b>	\$33.2	62%	31%	7%	0%	0.13%	0.13%	8.00%	6.90%	11.40%	4.20%	Gross of fees	30-Jun
<b>New Hampshire Retirement System</b>	\$7.3	63%	22%	16%	0%	0.33%	0.30%	7.75%	6.90%	11.60%	3.50%	Net of fees	30-Jun
<b>New Jersey Division of Pension and Benefits</b>	\$81.8	45%	28%	27%	0%	0.32%	0.28%	7.90%	7.05%	10.49%	4.16%	Net of fees	30-Jun
<b>New Mexico Educational Retirement Board</b>	\$11.0	38%	34%	28%	0%	0.12%	0.12%	7.75%	6.90%	10.10%	4.00%	Gross of fees	30-Jun
<b>New Mexico Public Employees Retirement Association</b>	\$14.3	55%	26%	18%	1%	0.22%	0.20%	7.75%	5.72%	10.40%	1.87%	Net of fees	30-Jun
<b>New York State and Local Retirement Systems</b>	\$176.8	53%	28%	20%	0%	0.32%	0.30%	7.50%	7.12%	10.17%	7.16%	Gross of fees	31-Mar
<b>New York State Teachers Retirement System</b>	\$105.4	59%	22%	19%	0%	0.21%	0.20%	8.00%	7.20%	12.40%	5.20%	Net of fees	30-Jun
<b>North Carolina Retirement Systems</b>	\$90.1	47%	31%	22%	0%	0.55%	0.55%	7.25%	6.20%	9.50%	2.30%	Net of fees	30-Jun
<b>North Dakota Public Employees Retirement System (PERS &amp; Highway)</b>	\$2.3	53%	24%	23%	0%	0.67%	0.64%	8.00%	5.98%	10.61%	3.53%	Net of fees	30-Jun
<b>North Dakota Teachers Fund for Retirement</b>	\$2.1	53%	24%	23%	0%	0.66%	0.64%	7.75%	5.87%	10.94%	3.52%	Net of fees	30-Jun

Continued on next page

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Target rate of return, 2015 <sup>s</sup>	Investment Performance Through 2015 <sup>t</sup>				
	Total invest- ments	Equities	Fixed income	Alter- natives	Other <sup>r</sup>	Invest- ment expense <sup>z</sup>	External man- agement fees		10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Report- ing date
<b>Ohio Public Employees Retirement System</b>	\$74.3	39%	23%	38%	0%	0.45%	0.41%	8.00%	5.74%	7.13%	0.33%	Net of fees	31-Dec
<b>Ohio State Teachers Retirement System</b>	\$70.0	54%	23%	23%	0%	0.27%	0.23%	7.75%	7.33%	11.93%	5.45%	Gross of fees	30-Jun
<b>Oklahoma Public Employees Retirement System</b>	\$9.2	70%	30%	0%	0%	0.10%	0.10%	7.50%	6.99%	11.13%	3.23%	Gross of fees	30-Jun
<b>Oklahoma Teachers Retirement System</b>	\$13.9	62%	20%	17%	0%	0.34%	0.34%	8.00%	8.30%	13.40%	3.50%	Gross of fees	30-Jun
<b>Oregon Employees Retirement System</b>	\$62.7	41%	26%	34%	0%	0.69%	0.55%	7.50%	7.34%	11.20%	4.30%	Net of fees	30-Jun
<b>Pennsylvania Public School Employees Retirement System</b>	\$52.7	20%	24%	53%	4%	0.91%	0.87%	7.50%	6.31%	9.73%	3.04%	Net of fees	30-Jun
<b>Pennsylvania State Employees Retirement System</b>	\$27.4	37%	22%	42%	0%	0.68%	0.65%	7.50%	5.20%	6.90%	0.40%	Net of fees	31-Dec
<b>Rhode Island Employees Retirement System</b>	\$8.2	50%	26%	24%	0%	0.96%	0.88%	7.49%	6.10%	9.80%	2.20%	Net of fees	30-Jun
<b>South Carolina Retirement System</b>	\$26.8	31%	30%	39%	0%	1.56%	1.52%	7.50%	5.06%	8.87%	1.60%	Net of fees	30-Jun
<b>South Dakota Retirement System</b>	\$10.6	44%	32%	24%	0%	0.32%	0.32%	7.25%	8.10%	13.40%	4.20%	Net of fees	30-Jun
<b>Tennessee Consolidated Retirement System</b>	\$42.4	58%	34%	8%	0%	0.10%	0.07%	7.50%	6.45%	10.85%	3.33%	Gross of fees	30-Jun

State pension funds	Assets (billions)	Asset allocation				Fees as a percentage of Investments		Target rate of return, 2015 <sup>s</sup>	Investment Performance Through 2015 <sup>r</sup>				
	Total investments	Equities	Fixed income	Alternatives	Other <sup>t</sup>	Investment expense <sup>z</sup>	External management fees		10-yr inv return, 2015	5-yr inv return, 2015	1-yr inv return, 2015	Returns net or gross of fees	Reporting date
<b>Texas Employees Retirement System</b>	\$25.5	52%	24%	22%	2%	0.14%	0.33%	8.00%	6.18%	9.10%	0.49%	Gross of fees	31-Aug
<b>Teacher Retirement System of Texas</b>	\$132.2	49%	15%	36%	0%	0.15%	0.12%	8.00%	6.76%	10.86%	4.15%	Net of fees	30-Jun
<b>Utah Retirement Systems</b>	\$27.0	36%	22%	43%	0%	0.17%	0.14%	7.50%	6.02%	7.89%	1.92%	Gross of fees	31-Dec
<b>Vermont Teachers Retirement System</b>	\$1.7	32%	32%	36%	0%	0.42%	0.42%	7.95%	5.77%	8.90%	-0.16%	Gross of fees	30-Jun
<b>Vermont State Employees Retirement System</b>	\$1.6	33%	33%	34%	0%	0.41%	0.41%	7.95%	6.01%	9.05%	0.10%	Gross of fees	30-Jun
<b>Virginia Retirement Systems</b>	\$65.5	44%	23%	33%	0%	0.55%	0.51%	7.00%	6.66%	10.30%	4.70%	Net of fees	30-Jun
<b>Washington Department of Retirement Systems</b>	\$88.2	38%	25%	36%	0%	0.30%	0.35%	7.67%	7.55%	11.13%	4.93%	Net of fees	30-Jun
<b>West Virginia Consolidated Public Retirement Board (PERS)</b>	\$5.6	55%	15%	29%	0%	N/A	N/A	7.50%	7.10%	11.10%	3.90%	Net of fees	30-Jun
<b>West Virginia Consolidated Public Retirement Board (TRS)</b>	\$6.7	54%	17%	29%	0%	N/A	N/A	7.50%	6.80%	11.00%	4.00%	Net of fees	30-Jun
<b>Wisconsin Retirement System (Core)</b>	\$91.1	49%	32%	19%	5%	0.39%	0.39%	7.20%	5.83%	6.66%	-0.38%	Gross of fees	31-Dec
<b>Wyoming Retirement System</b>	\$7.9	58%	19%	23%	0%	0.64%	0.63%	7.75%	4.50%	5.90%	-0.30%	Net of fees	31-Dec

Continued on next page

Notes:

- \* Performance metrics reported through 2015, the most recent results available. Differences in performance reporting may limit comparability between certain funds.
  - † Other assets include reported investments that combine different asset classes.
  - ‡ Investment expense taken from Statement of Changes in Fiduciary Net Position and Schedule of Investment Expenses as reported in plan Comprehensive Annual Financial Reports.
  - § Where a retirement system consisted of multiple plans, Pew used a weighted average of the stated plan investment rates of return. State-sponsored pension plans in a number of states have recently lowered or announced plans to lower their rate of return (including California, Connecticut, Hawaii, Maine, and South Carolina).
- “Other” for the Illinois State Universities Retirement System is negative because of pooling of self-managed defined contribution plan forfeiture and disability reserves with defined-benefit portfolio investments.

Sources: Comprehensive Annual Financial Reports, 2014 and 2015; quarterly investment reports, and plan responses to data inquiries

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## Increasingly complex and volatile pension fund portfolios

Over the past three decades, public pension funds have increasingly relied on more complex investments in an effort to diversify portfolios and boost annual returns. Current investment strategies rely heavily on equities and alternatives, such as private equity, hedge funds, real estate, and commodities, to achieve target returns and provide payments to beneficiaries.<sup>7</sup>

Increased allocations to stocks and alternatives can result in greater financial returns but also can heighten volatility and the risk of losses. As Figure 1 illustrates, pension fund yields are highly correlated with the volatile swings in stock returns; even relatively small differences can have a major effect on asset values. Looking at the big picture, a difference of just 1 percentage point in annual returns on \$3.6 trillion equates to a \$36 billion impact on pension assets.

Figure 1

## Average Annual Stock Market and Pension Fund Returns, 2005-16

Equity investments and pension fund yields track closely and are highly volatile



Source: Wilshire Trust Universe Comparison Service®

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Looking at one common measure—equity risk premium—shows that U.S. public pension plans' exposure to financial market uncertainty has increased dramatically over the past 25 years. The equity risk premium is the difference between targeted rates of return and the yield on what are considered risk-free investments, most commonly long-term U.S. government bonds. As Figure 2 shows, between 1992 and 2015, the expected equity risk premium for public funds—the difference between U.S. bond yields and the average plan assumed return—increased from less than 1 percent to more than 4 percent, as bond yields declined and the assumed rates of return remained relatively stable. In other words, plans' equity premium has grown by over 3 percentage points—more than fourfold over the period.

Research by investment experts shows that the asset allocation required to yield target returns today is more than twice as volatile as the allocations used 20 years ago—as measured by the standard deviation of returns.<sup>8</sup> Measures of volatility in investment returns are important to consider because that volatility creates budget uncertainty for state and local governments sponsoring plans. Between 2003 and 2013, for example, actuarially required pension contributions increased from 4 percent to 8 percent of state revenue to adjust for investment losses from the dot-com crash and the onset of the Great Recession.

Figure 2

## Increasing Risk Premium for U.S. Public Pension Funds

Plans' average assumed rate of return remains relatively stable, while bond yields have declined

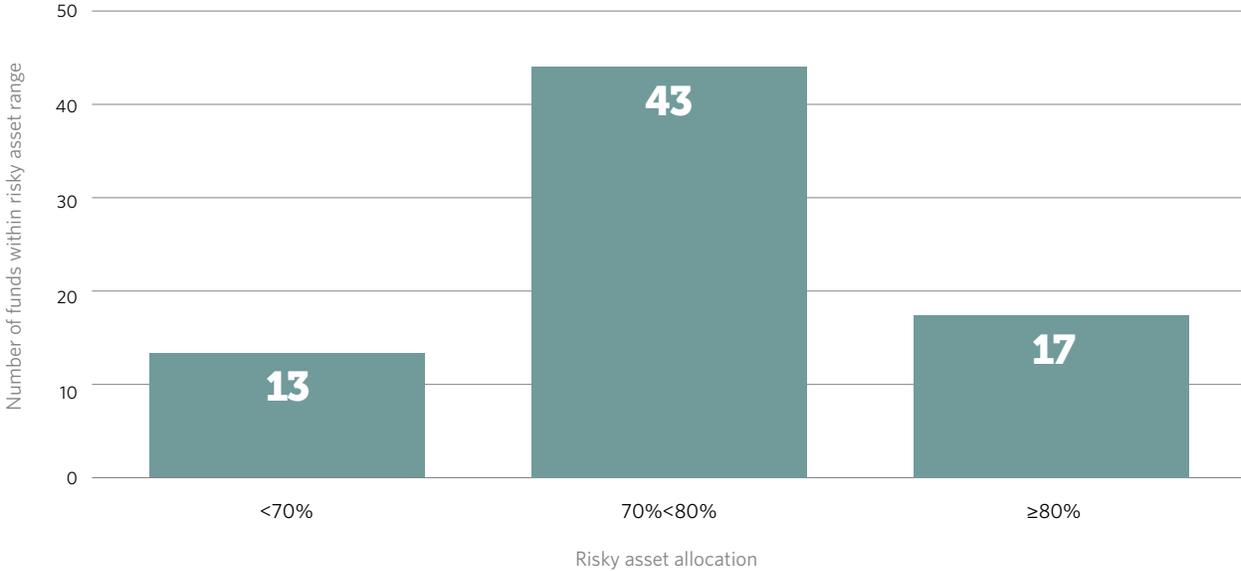


Sources: Analysis by The Pew Charitable Trusts of Comprehensive Annual Financial Reports, actuarial valuations, and related reports from states; U.S. Treasury data; and Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators, Public Plans Data

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These changes are also reflected in the makeup of funds' portfolios. Public pension plan data for 2014 collected from the largest state-sponsored pension funds reveal that most state retirement systems allocated between 70 and 80 percent of their portfolios to equities and alternative investments that historically have been more volatile than fixed-income investment assets.<sup>9</sup> The percentage of these assets held by public pension funds ranged from about 60 percent for several systems - including the Iowa Public Employees and the Missouri State Employees Retirement Systems - to over 87 percent for the Arizona Public Safety Personnel Retirement System. Research shows that these levels are significantly higher than the amounts in private and non-U.S. public funds.<sup>10</sup>

Figure 3  
**State Pension Fund Allocations to Equities and Alternatives**  
 Most of the plans have between 70% and 80% of investments in risky assets

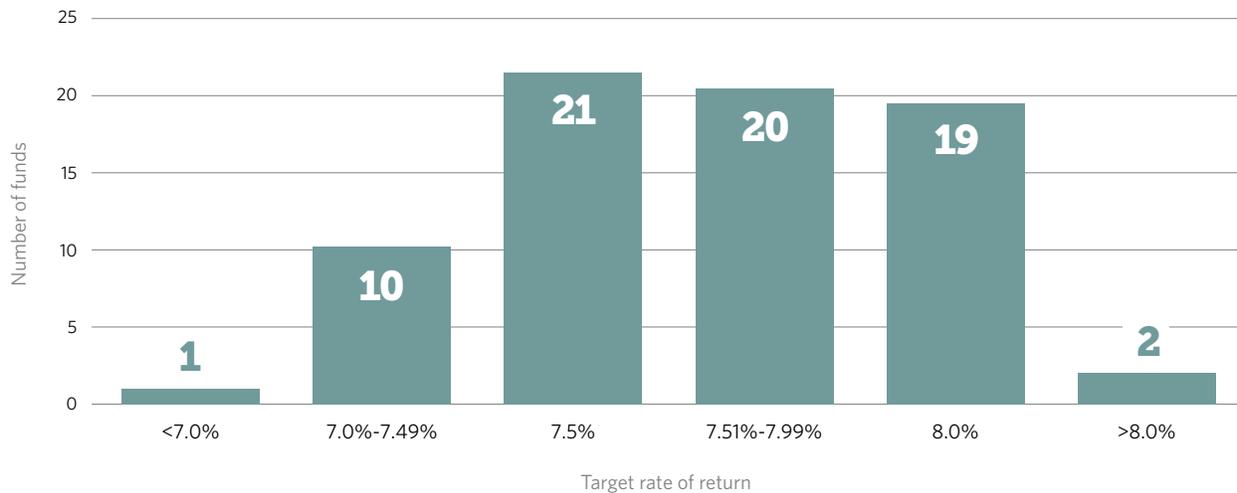


Sources: Comprehensive Annual Financial Reports, 2014; quarterly investment reports; and plan responses to data inquiries  
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The high number of funds with comparable allocations to stocks and alternatives is also reflected in the narrow range of investment return targets. The majority of funds target a long-term rate of return of 7 to 8 percent, with only three falling outside that range.<sup>11</sup> Given the low expected yields on safe fixed-income investments, equity and alternative investments can help funds achieve these return targets.<sup>12</sup>

These investment strategies and return targets indicate that funds employ total return strategies typified by diverse portfolios that seek both income and long-term growth, with relatively small differences in risk tolerance among funds. In contrast, private sector pension funds and pension funds in other countries typically target lower returns and follow strategies that more directly time cash flow from investments with the payments associated with pension liabilities.<sup>13</sup> Maintaining high expected rates of return reduces the size of annual payments into the plan from governments' budgets, but it also brings an increased risk of missing the assumed rate of return. Unfunded liabilities grow when investment returns fall short of the targets, meaning that state or local government sponsors of public pensions must make up for shortfalls.

Figure 4  
 State Pension Fund Expected Rates of Return  
 Most target a long-term rate of between 7-8%



Note: State-sponsored plans in Connecticut and Maine have lowered their expected rate of return below 7% since 2015.

Sources: Comprehensive Annual Financial Reports, 2015; quarterly investment reports; and plan responses to data inquiries

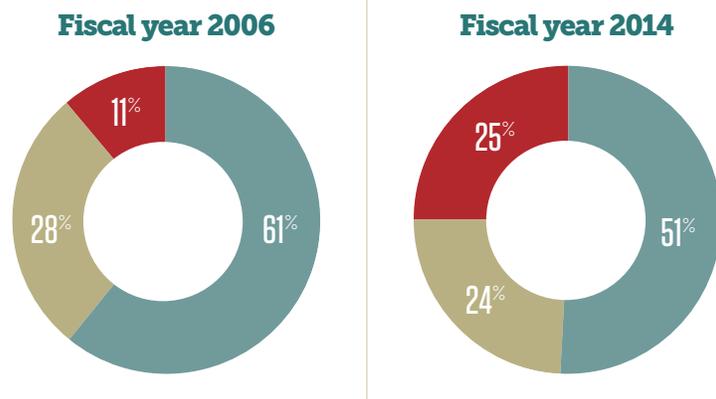
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## Increasing alternative investments and higher fees

Public pension funds have more than doubled their allocations to alternative investments in the past decade—from an average of 11 percent of assets in 2006 to 25 percent in 2014. The expected investment return on these assets has allowed pension funds to keep return assumptions relatively constant even as the returns on less risky bond investments declined.

Figure 5  
 Average Public Pension  
 Asset Allocation,  
 2006 and 2014

Funds have more than doubled their allocation to alternative investments



Sources: Comprehensive Annual Financial Reports, 2006 and 2014; quarterly investment reports; and plan responses to data inquiries

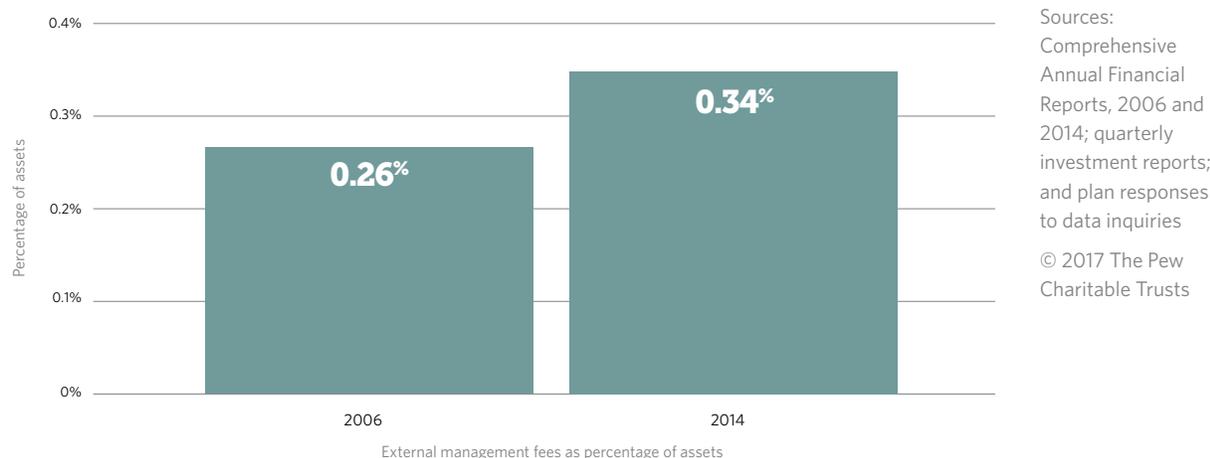
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But the shift to alternative investments has coincided with a substantial increase in fees as well as uncertainty about future realized returns, both of which could have significant implications for public pension funds' costs and long-term sustainability. State pension funds reported investment fees equal to approximately 0.34 percent of assets in 2014, up from an estimated 0.26 percent in 2006. Although the increase may seem small, it equates to over \$2 billion in total annual investment fees for the 73 plans examined.

Figure 6

## External Management Fees as a Percent of Assets

Reported fees increased by 30% as percentage of assets from 2006 to 2014



Some may suggest that net returns—those left after accounting for fees, regardless of their size—are all that should matter when evaluating investment strategies. However, while past performance is no guarantee of future returns, the high fee structures for alternative investments remain stable and fairly certain, though sometimes opaque. And given that investment experts project market returns to stay low for a sustained period, a clear understanding of fee levels is imperative in assessing the potential for future net returns.<sup>14</sup>

The increase in fees has prompted concern among retirement system stakeholders and in some cases shifts in fund investment strategies. For example, the state retirement board in Illinois recently acted to reduce fees by converting most of the plan's investments in stocks and bonds from actively to passively managed funds, or index funds.<sup>15</sup> And in Montgomery County, Pennsylvania, the entire portfolio has been moved to an index-based strategy.<sup>16</sup>

Similarly, fees in Pennsylvania's state public pension funds—reported at nearly \$600 million in 2015—have drawn attention from policymakers who have recently proposed legislation to lower fees through consolidation.<sup>17</sup> The state's two pension plans—the Public School Employees Retirement System (PSERS) and the State Employees Retirement System (SERS)—together manage \$80 billion in pension assets. The combined funds' allocation to alternatives increased rapidly from 18 percent in 2006 to 49 percent in 2014. This has driven reported annual fees to more than 0.8 percent of assets, one of the highest levels across the 50 states. When accounting for the funds' unreported carried interest for private equity (which PSERS and SERS, like most funds, do not disclose in annual reports), fee levels are estimated to be over 0.9 percent of assets—or more than \$700 million annually.<sup>18</sup>

Pennsylvania is not alone in excluding carried interest from reported investment expenses: most of the 73 funds do not report comprehensive accruals of carried interest, monitoring costs, or portfolio company fees. There are two apparent reasons for this. The first is a standard practice: private equity and other limited partnerships traditionally retain 20 percent of a predetermined increase in value. Some investors consider this carried interest as partnership profit rather than an investment fee.<sup>19</sup>

The second reason stems from standards set by the Governmental Accounting Standards Board (GASB), which state that “investment-related costs should be reported as investment expense if they are separable from (a) investment income and (b) the administrative expense of the pension plan.” Given opaque reporting on the part of general partners, many plans find carried interest to be a non-separable expense. But that results in underreported fees on the part of pension plans invested in private equity and other limited partnerships. A recent report by CEM Benchmarking Inc., an independent global provider of comparative analysis for institutional investors, estimates that the average value of undisclosed private equity fees can equal 1.5 percent or more of assets each year, or about half of total private equity management costs.<sup>20</sup> Most funds do not report these fees in a comprehensive manner.<sup>21</sup>

This may be changing. The Institutional Limited Partners Association recently released a widely supported reporting template that would establish comprehensive standards for fee and expense reporting among institutional investors and fund managers.<sup>22</sup> And the California Public Employees’ Retirement System (CalPERS), the nation’s largest public retirement plan, decided in 2014 to begin disclosing the full amount it pays to invest in private equity, including carried interest and fees. In late 2015, CalPERS disclosed that external investment partners realized \$700 million from profit-sharing agreements in fiscal 2015 in addition to the \$1.06 billion in investment expenses reported in that fiscal year’s Comprehensive Annual Financial Report. Also, the California Teachers Retirement System (CalSTRS) followed suit in 2016 with a similar supplemental report on performance and portfolio fees, and other states, such as North Carolina, have included incentive fees in annual public reporting.

Comprehensive fee disclosure in annual financial reports is still uncommon, but a few other states have also adopted the practice. The South Carolina Retirement System (SCRS) collects detailed information on portfolio company fees, other fund-level fees, and accrued carried interest in addition to details provided by external managers’ standard invoices. Likewise, the Missouri State Employees’ Retirement System (MOSERS) is particularly thorough in collecting and reporting these fees, not only by asset class but also for each external manager. Both states reported performance fees of over 2 percent of private equity assets for fiscal 2014 in addition to about 1 percent in invoiced management fees.

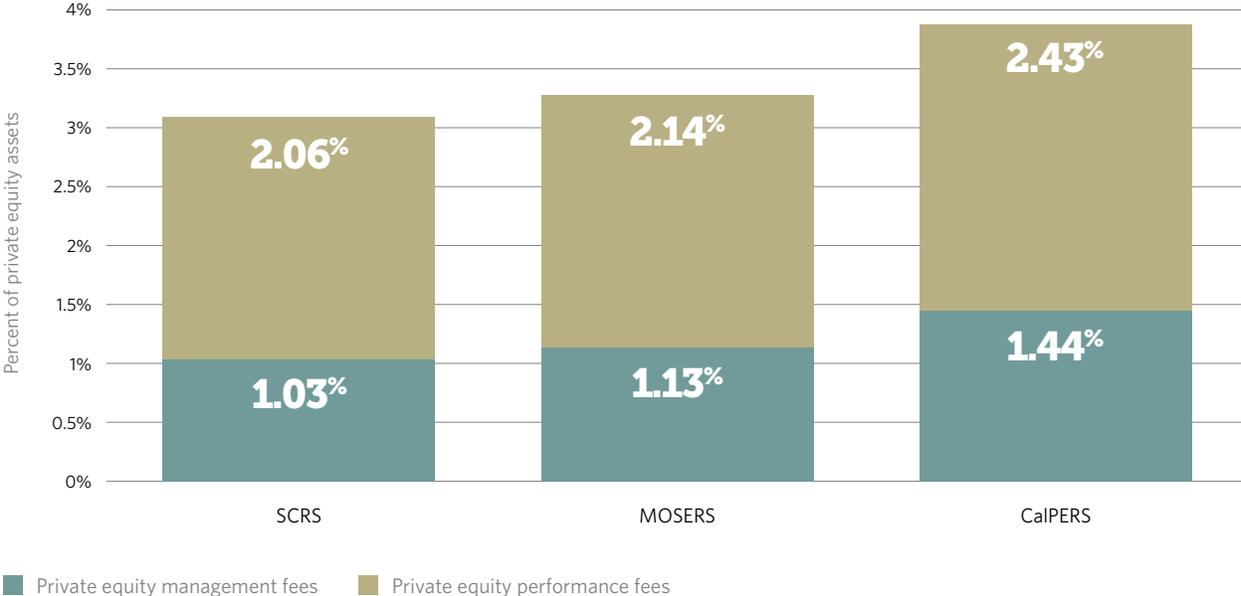
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“Unreported fees could total over \$4 billion annually on the \$255 billion in private equity assets held by state retirement systems. That’s more than 40 percent over currently reported total investment expenses, which topped \$10 billion in 2014.”

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If the relative size of traditionally unreported investment costs demonstrated by CalPERS, MOSERS, and the SCRS holds true for public pension plans generally, unreported fees could total over \$4 billion annually on the \$255 billion in private equity assets held by state retirement systems. That’s more than 40 percent over currently reported total investment expenses, which topped \$10 billion in 2014. Policymakers, stakeholders, and the public need full disclosure on investment performance and fees to ensure that risks, returns, and costs are balanced to meet funds’ policy goals. Such assessments are unlikely when billions of dollars in fees are not reported.

Figure 7  
**Reported Private Equity Fees by State Pension Funds**  
 Performance fees substantially higher than invoiced management fees

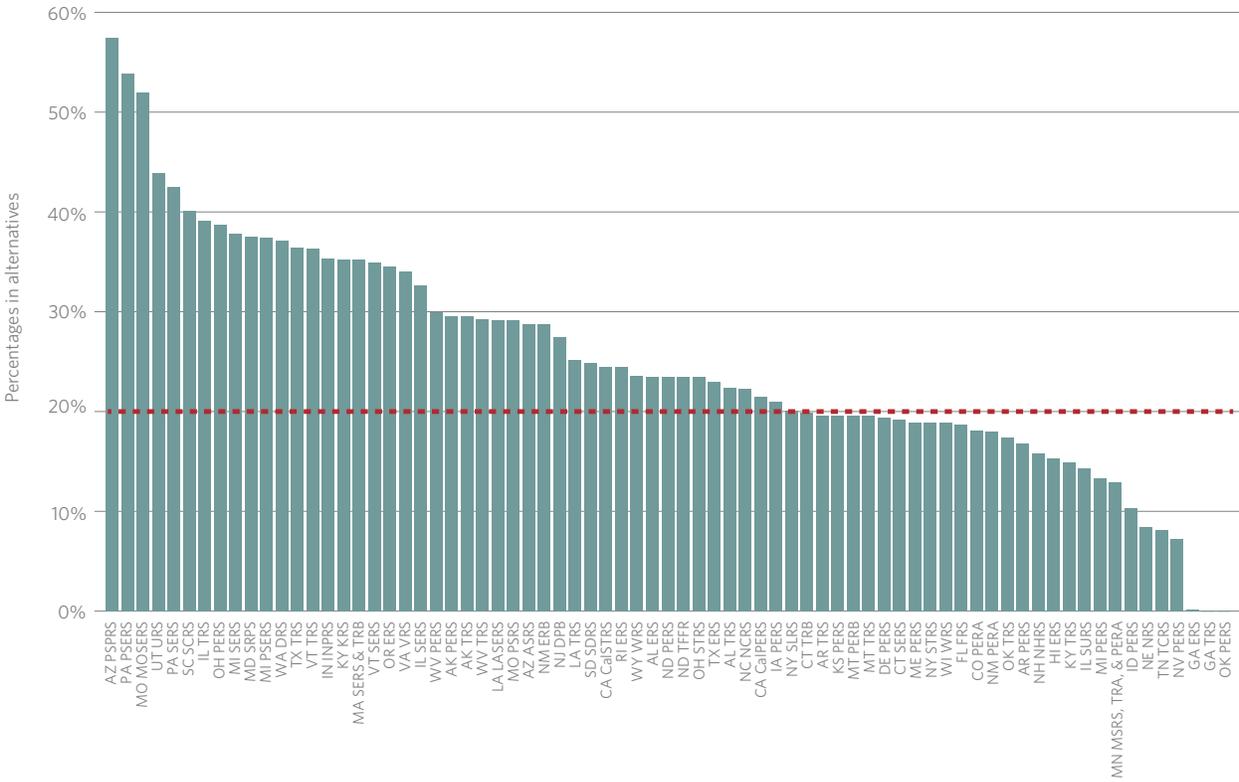


Sources: Comprehensive Annual Financial Reports, 2014; supplemental investment reporting; and plan responses to data inquiries  
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**Diverse strategies with mixed results**

State retirement system data reveal significant variations in investment strategies and performance across the 50 states, including wide variation in allocations to alternative investments that range from zero to over 50 percent of assets. While most of the 73 funds have more than 70 percent in a mix of equities and alternatives, some put a much greater emphasis on alternatives than others. Of the funds examined, two had no alternative investments at all, 21 had at least 30 percent of their portfolio in alternatives, and five had over 40 percent.

Figure 8  
 Alternative Investment Allocations for 73 Public Pension Funds  
 44 invest more than 20% of assets to alternatives



Note: Figure illustrates the percentage of assets invested in alternatives for each of the 73 funds examined.  
 Sources: Comprehensive Annual Financial Reports, 2014; quarterly investment reports; and plan responses to data inquiries  
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Plan performance also varied. Ten-year returns in 2015 ranged from 8.3 percent (Oklahoma Teachers Retirement System) to 4.5 percent (Wyoming Retirement System).<sup>23</sup>

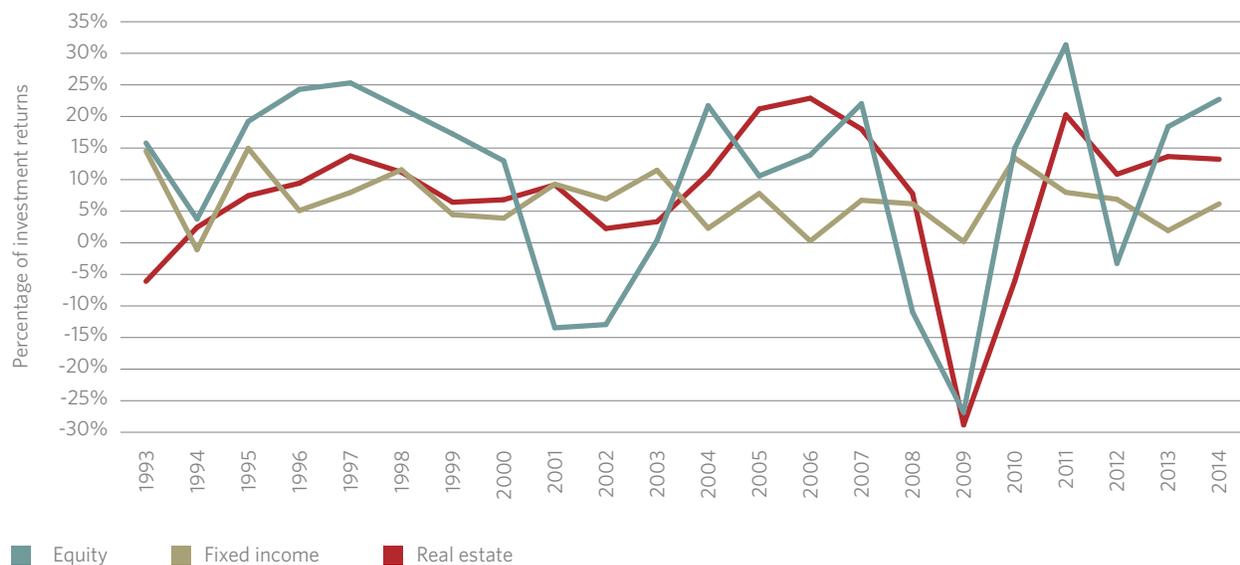
In addition to rising and unreported fees, the shift to alternative investments has broad implications for public pension plan administrators. First, managing these types of investments requires sophisticated expertise that may differ from what is required for managing stocks and bonds. That brings new challenges in investment governance, manager selection, and strategic allocation decisions. Research shows that U.S. public pension fund boards—particularly those with limited financial expertise—can be ill-equipped to make complex investment decisions, a factor that can hinder fund performance.<sup>24</sup>

Alternatives also have fundamentally different valuation and reporting norms from fixed-income and equity investments, making evaluating performance in volatile markets more difficult for fiduciaries and stakeholders. Specifically, alternative investments are typically not traded on an open market, require external valuations to determine prices and performance, and often are more lightly regulated than publicly traded securities.

Despite these general commonalities, there are substantial differences among the various types of alternative investments. For example, higher-yield alternatives such as private equity have similar risk and expected return characteristics as publicly traded stocks and are attractive during periods of strong equity returns. Private equity also takes advantage of pension funds' long investment horizons and helps leverage the "illiquidity premium" that comes with a willingness to forgo immediate or short-term returns.

Yield chasing is not the sole reason for alternative investments, however. Real estate and other real asset investments help diversify portfolios and generally provide returns and bring risks that are higher than bonds but lower than stocks. Real estate also can provide some protection against inflation as asset values tend to capture changes in the price of goods and services throughout the economy.

Figure 9  
**Annual Investment Returns by Asset Class, 1993-2014**  
 Real estate can be used to provide market diversification



Source: Wilshire Trust Universe Comparison Service\*

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Hedge funds deploy a variety of strategies that are designed to provide higher yields, lower total portfolio volatility, or a combination of both. However, the effectiveness of these higher-cost strategies remains uncertain. Additionally, complex fee structures are widely used, often making it difficult to judge total costs.

Hedge funds over the past 10 years have underperformed significantly compared with the Standard & Poor's 500 index and commonly used benchmarks, after accounting for fees.<sup>25</sup> In addition, risk-managed hedge fund strategies employed by some funds have not yet proved successful in providing returns during equity market downturns. Studies have also shown that high fee levels—which can exceed 2 percent annually—are a critical factor that explains why these investments have not met their benchmarks.<sup>26</sup>

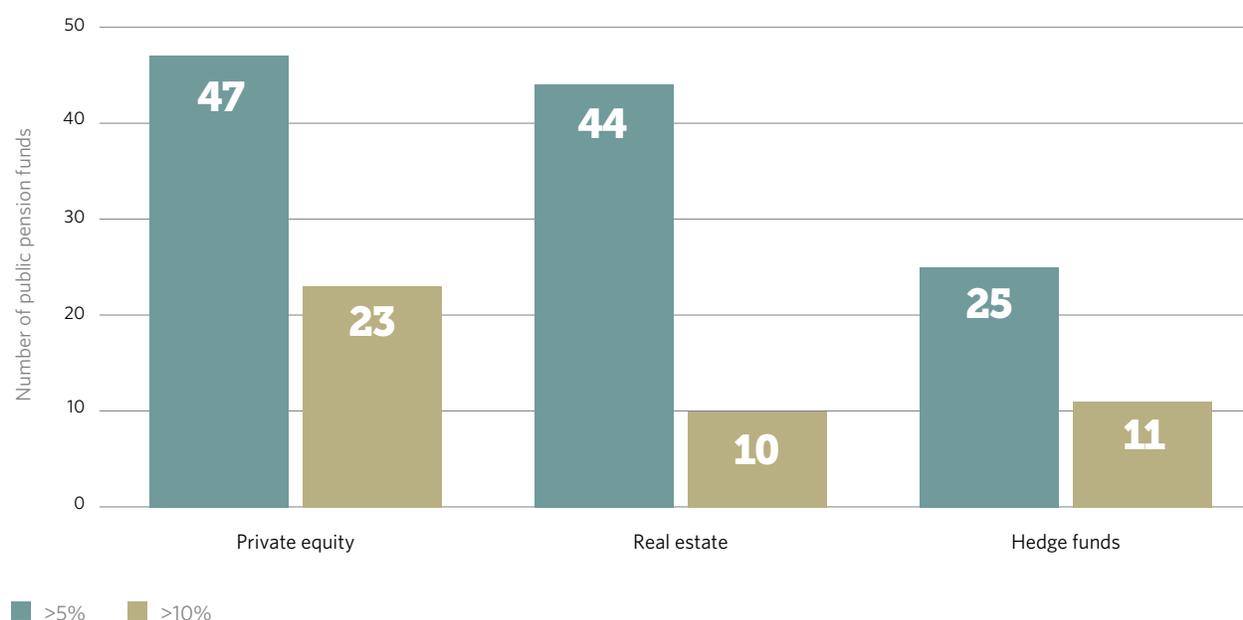
While the allocation to hedge funds has increased in the aggregate, the rise in hedge fund investing by pension funds is slowing overall, and some funds are exiting these investments altogether.<sup>27</sup> In 2014, for example, CalPERS eliminated its \$4 billion hedge fund investment program, citing high costs.<sup>28</sup> Likewise, the board of the New York City Employees' Retirement System voted in April 2016 to withdraw from all hedge fund investments due to underperformance and cost.<sup>29</sup>

Plans also vary widely in their investment choices within the alternatives class. For example, plans are more likely to invest significantly (more than 5 percent of assets) in private equity or real estate than in hedge funds. Nearly a third of the funds had more than 10 percent of assets in private equity, while 15 percent of funds had more than 10 percent in hedge funds.

Figure 10

## Use of Alternative Investments by Public Pension Funds, 2014

Plans vary in their investment choices within the alternative asset class



Sources: Comprehensive Annual Financial Reports, 2014; quarterly investment reports; and plan responses to data inquiries

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## No one-size-fits-all approach

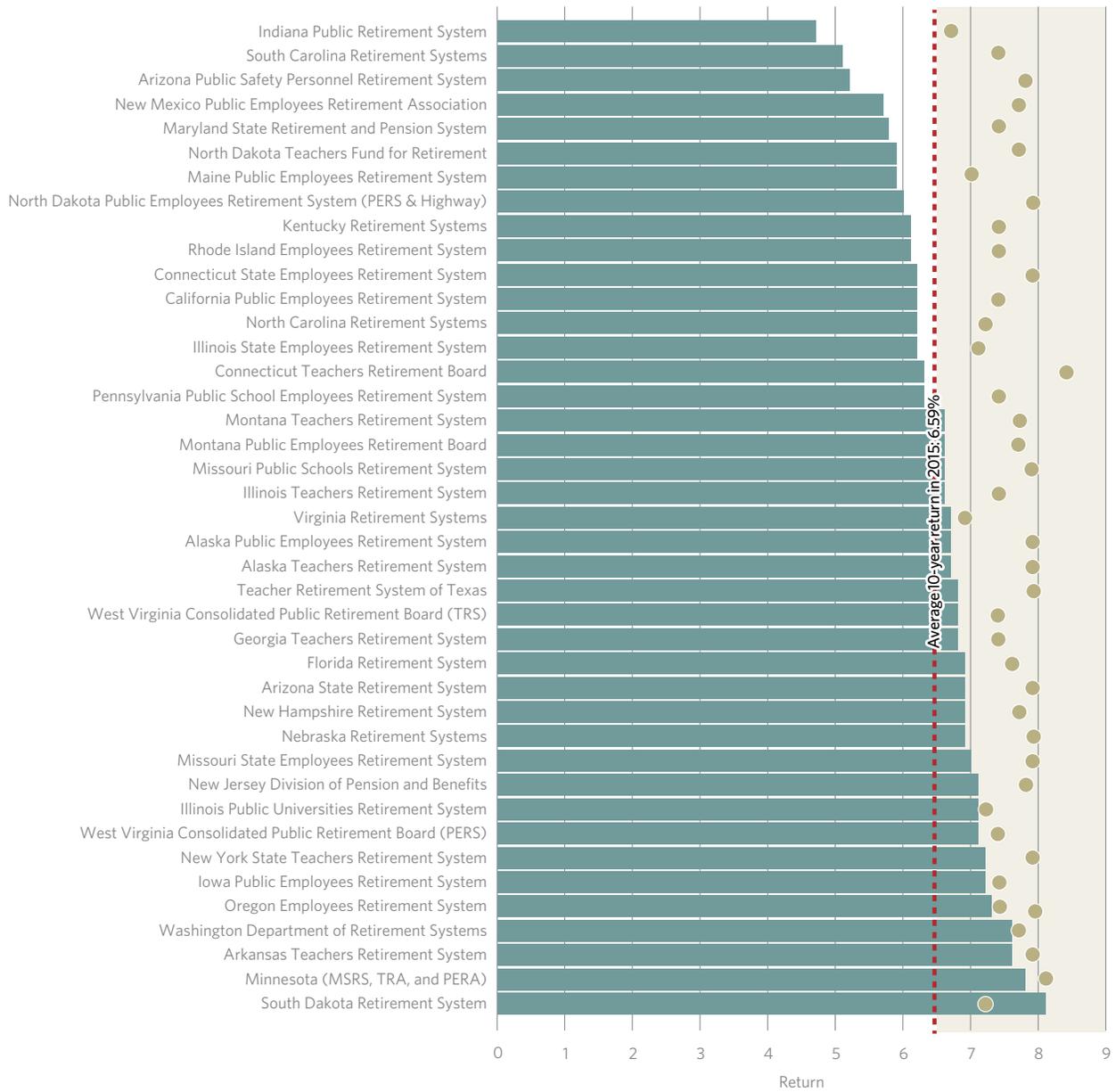
Despite the difference in investment strategies, the data do not reveal a best or one-size-fits-all investment approach. Indeed, high performers can be found among plans with large investments in alternatives as well as those with none.<sup>30</sup>

Ten-year total investment returns for the 41 funds reporting net of fees as of June 30, 2015, ranged from 4.7 percent to 8.1 percent, with a average yield of 6.6 percent. Given that the average target return for these plans was 7.7 percent, the long-term variability is significant. Notably, only one of these plans met or exceeded investment return targets over the 10-year period ending in 2015.

Figure 11

## 10-Year Returns for Plans Reporting Net of Fees on a June 30 Fiscal Year Basis, 2015

Returns ranged from 4.7 percent to 8.1 percent



■ 2015 10-year investment return    ■ 2015 target rate of return

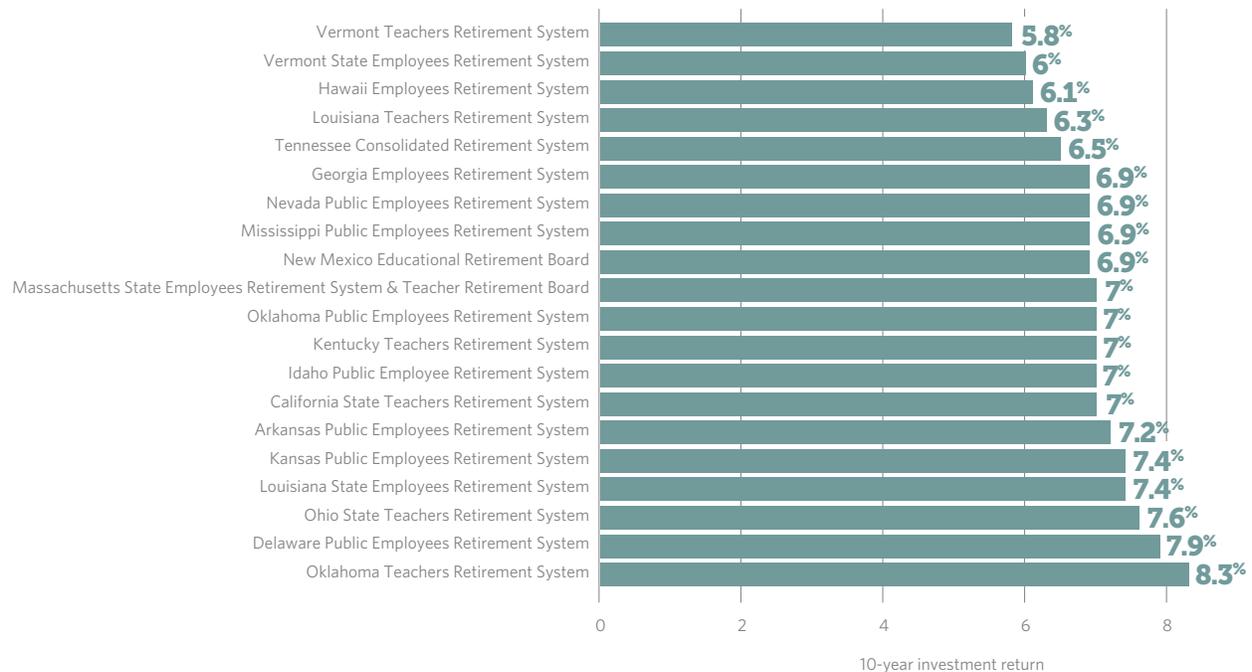
Sources: Comprehensive Annual Financial Reports, 2015; quarterly investment reports; and plan responses to data inquiries

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Figure 12

## 10-Year Returns for Plans Reporting Gross of Fees on a June 30 Fiscal Year Basis, 2015

Assessing bottom-line performance for these plans requires adjustments for fees



Note: Performance of gross of fees reporters is provided for reference; however, average performance and target rates of return are absent given the lack of standardization and comparability arising from missing fee adjustments in plan performance reporting.

Sources: Comprehensive Annual Financial Reports, 2015; quarterly investment reports; and plan responses to data inquiries

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## Alternative investment strategies, experience, and performance vary

Although no clear relationship exists between the use of alternatives and total fund performance, there are examples of top-performing funds with long-standing alternative investment programs. Conversely, funds with recent and rapid entries into alternative markets—including significant allocations to hedge funds—were among those with the weakest 10-year yields.

For example, the Washington Department of Retirement Systems (WDRS) is among the highest-performing public funds and has had a private equities program since 1981, making it one of the earliest adopters of alternative investments. In 2014, the WDRS had 36.3 percent of total investments in alternative asset classes, including 22.3 percent in private equity, 12.4 percent in real estate, and 1.6 percent in other alternatives. Hedge funds were notably absent from the mix. The fund's long-term experience with the complexities of alternatives is reflected in its performance metrics: The WDRS has one of the highest 10-year returns of plans examined here, at 7.6 percent in 2015, buoyed in large part by the performance of its private equity and real estate holdings.

Table 2  
**10-Year Performance  
of Washington  
Department of  
Retirement Systems,  
2015**

Alternative investments have been a significant factor in high fund yields

Sources: WDRS Comprehensive Annual Financial Report, June 30, 2015; Wilshire Trust Universe Comparison Service®

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	Asset allocation	10-year return
<b>Total fund</b>		7.55%
<b>Passive benchmark</b>		6.25%
<b>Wilshire TUCS median</b>		6.73%
<b>Performance by asset class</b>		
<b>Fixed income</b>	23.76%	5.32%
<b>Tangible</b>	1.95%	
<b>Real estate</b>	14.45%	8.76%
<b>Public equity</b>	37.27%	6.71%
<b>Private equity</b>	22.04%	12.15%
<b>Innovation</b>	0.32%	
<b>Cash</b>	0.21%	1.56%

Similarly, the South Dakota Retirement System began its private equity and real estate programs in the mid-1990s and realized 10-year returns of over 8 percent in 2015. The fund held nearly 25 percent of assets in alternative investments in 2014, but lowered this to less than 20 percent in 2015, comparable to the 18.3 percent held in alternatives in 2006. The 2015 allocation includes over 10 percent in real estate, 8 percent in private equity, and 1 percent in hedge funds. The fund reports net since-inception internal rates of return of 9 percent for private equity and 21.4 percent for real estate, in comparison to the S&P 500 index of 5.8 percent for the same period.<sup>31</sup>

Conversely, plans with more recent shifts into alternatives—especially those with significant investment in hedge funds—are among those that exhibit the lowest returns. For example, the three funds with the weakest 10-year performance among net fiscal year reporters—the Indiana Public Retirement System, the South Carolina Retirement System, and the Arizona Public Safety Personnel Retirement System—are also among the half dozen funds with the largest recent shifts to alternative investments. All three have increased their allocations to alternatives by more than 30 percentage points since 2006. Significantly, these funds also have hedge fund allocations above the median fund, and all three rank in the top quartile for reported fees.

For example, in contrast with the WDRS and South Dakota’s early diversification, South Carolina shifted into alternatives precipitously in 2007 when the state enacted legislation to establish a new retirement system investment commission and provide the needed statutory authority to invest in high-yield, diversified nontraditional assets.<sup>32</sup> Within a year, over 31 percent of plan assets were invested in alternatives, and by 2014 those assets made up nearly 40 percent of the fund’s total.<sup>33</sup>

As detailed in an independent audit, rapid diversification into alternative investments proved difficult for a newly founded, under-resourced investment commission: The South Carolina Retirement System’s 10-year return of only 5 percent in 2015 is among the lowest of the plans studied.<sup>34</sup> Given the long-term, illiquid nature of these investments, correcting misjudgments or realigning investments made quickly during the commission’s first years may prove challenging.<sup>35</sup>

This correlation between lower returns and rapid shifts into alternatives does not necessarily demonstrate causation. The timing of changes in asset allocation—in many cases executed during the Great Recession—likely played a role in the comparative underperformance of this and other funds; a longer time horizon may be needed to adequately evaluate new investment strategies. However, these results draw attention to the need for funds to carefully consider and measure the results of shifting into hedge funds and other more complex and higher-fee asset classes.<sup>36</sup>

Many alternative investment strategies also include real estate. Public funds have been investing in this class for decades, but there is evidence that funds with high concentrations of local real estate investments underperform commonly used benchmarks. The Retirement System of Alabama (RSA) provides one example. The system has 5 percent of its more than \$30 billion in assets invested in local real estate, including 26 golf courses, hotels, resorts, and office buildings in the state. Ten-year returns on the RSA's real estate portfolio were only 2.8 percent in 2015, well below the plan's overall expected return of 8 percent or national real estate benchmarks of 6.4 percent. Poor returns on real estate also contributed significantly to the deep financial distress facing the Dallas Police and Fire Pension Plan, which was 45 percent funded in 2016, with more than \$3.3 billion in unfunded liabilities.<sup>37</sup>

In summary, some funds have demonstrated that private equity can be an appropriate strategy to improve long-term returns. Still, although top-quartile private equity investments historically yield higher upside returns, the results of poor performers fall below those of average returns on stocks.<sup>38</sup> In addition, recent evidence on hedge funds suggests that after accounting for fees, they do not, on average, provide excess returns in the long term—or a defense against market downturns.<sup>39</sup> These findings highlight the importance of using skilled plan managers with the capacity for rigorous alternative fund assessment and selection, and who pay attention to measuring and managing fees.

## **Some states realize high net returns with limited or no exposure to alternatives**

Many states have consistently achieved relatively high returns without a heavy reliance on alternatives. Plans in Oklahoma exemplify this approach. Both of the Oklahoma state-sponsored retirement systems examined have lower-than-average allocations to alternatives; one holds no alternatives. Both, however, have 10-year earnings that outpace the median.

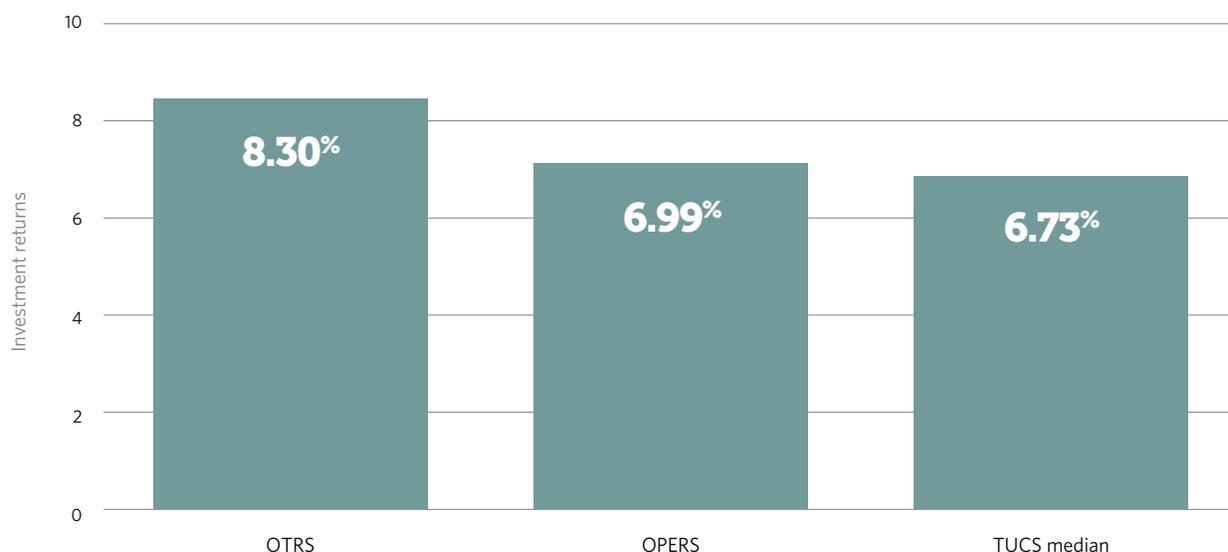
The Oklahoma Teachers Retirement System (OTRS) stands out in terms of performance among state-sponsored pension funds. It ranked near the top percentile of all public funds in the United States with a 10-year return of 8.3 percent gross of fees in 2015. The OTRS holds 17 percent of its assets in alternatives—below the fund average of 25 percent—with the bulk of its investments in public equities (62 percent) and fixed income (20 percent). Diversifying within the equity portfolio, employing low-fee strategies, and cutting operating costs are explicitly part of the fund's overall strategy.<sup>40</sup>

The Oklahoma Public Employees Retirement System (OPERS) takes this approach even further, with 70.2 percent of its investments in equity and 29.5 percent in fixed income. The fund holds no alternative investments. OPERS' investment philosophy is guided by the belief that a pension fund has the longest of investment horizons and, therefore, focuses on factors that affect long-term results.<sup>41</sup> These factors include diversification within and across asset classes as the most effective tool for controlling risk, as well as the use of passive investment management. Still, the fund does employ active investment strategies in less efficient markets.<sup>42</sup>

Although the fund's 10-year returns are lower than those of the OTRS, OPERS' performance remains higher than the TUCS median over that time frame. The OTRS and OPERS report returns gross of fees, so they are directly comparable to the TUCS benchmarks. The OTRS' reported investment expenses totaled 0.34 percent in 2014 while OPERS' were a relatively low 0.10 percent.

Figure 13

## Returns of Oklahoma Public Retirement Systems Outpaced median with low or no alternative investments allocation



Sources: Comprehensive Annual Financial Reports, 2015; WilshireTrust Universe Comparison Service®

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### Standardized reporting needed for greater transparency

Public retirement systems' financial reports are guided by GASB standards, in addition to those of the Government Finance Officers Association (GFOA) and the CFA Institute. Collectively, these guidelines are widely recognized as the minimum standards for responsible accounting and financial reporting practices. For example, both GASB and the CFA Institute require a minimum of 10 years of annual performance reporting; the CFA suggests that plans present more than 10 years of data. The GFOA recommends reporting annualized returns for the preceding 3- and 5-year periods as well.

However, funds apply these standards differently. And because the performance and costs of managing pension investments can significantly affect the long-term costs of providing retirement benefits to public workers, boosting transparency is essential.

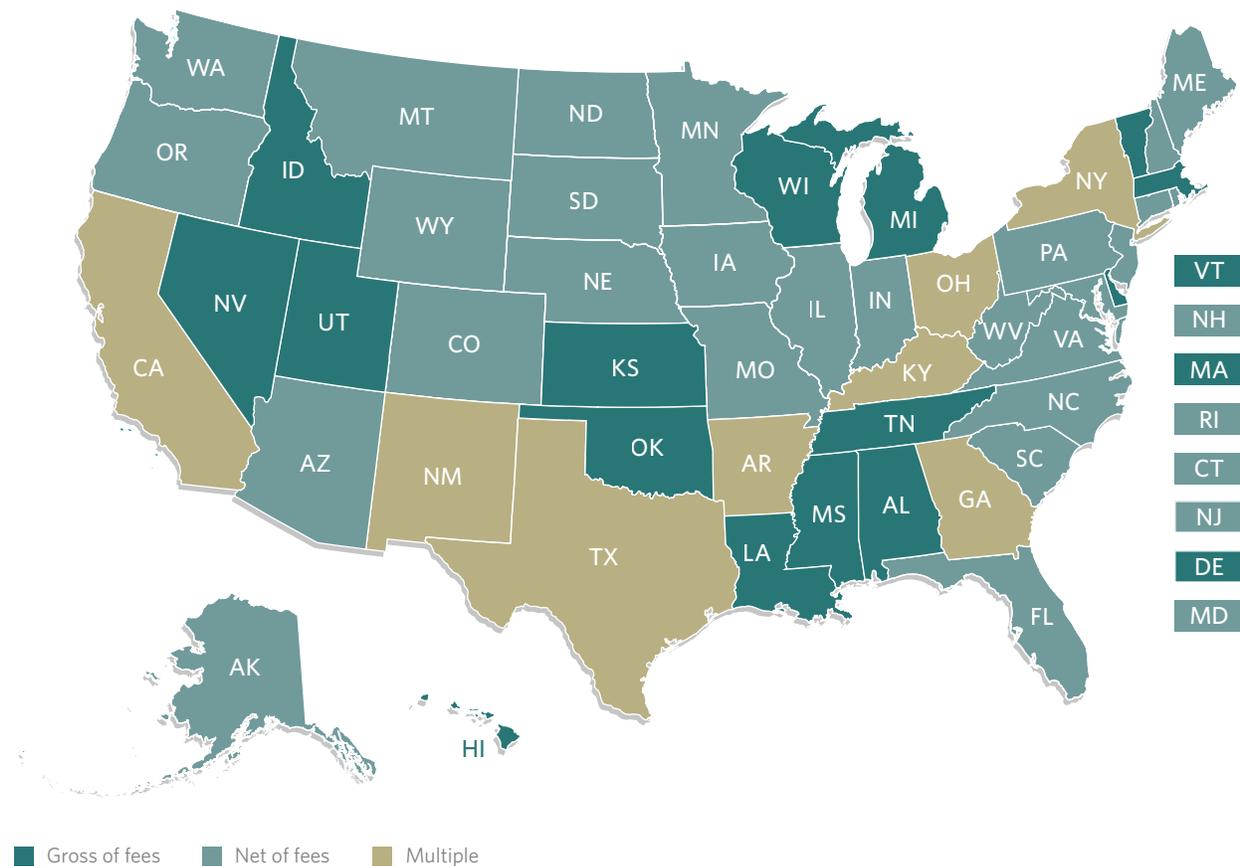
In a recent brief on state pension investment reporting, Pew reviewed the disclosure practices of plans across the 50 states and highlighted the need for greater and more consistent transparency on alternative investments. State funds paid more than \$10 billion in fees and investment expenses in 2014, their largest expenditure and one that has increased by about 30 percent over the past decade as allocation to alternatives has grown.

However, over one-third of the funds in the study report 10-year performance results before deducting the cost of investment management—referred to as “gross of fees reporting.”

Figure 14

## Most States Report Pension Investment Performance After Fees

In some states, reporting practices differ by plans



Notes: South Dakota discloses performance as both net and gross of fees. The states marked as having multiple reporting methods have two funds included in the list of 73 that report performance differently from each other. Pew’s classification for Ohio has changed from a previous publication from “net of fees” to “Multiple.” Ohio’s State Teachers Retirement System reports returns net of fees for its alternative and real estate investments, but gross of fees for all other assets.

Sources: State Comprehensive Annual Financial Reports, 2013 and 2014; state treasury reports; quarterly investment reports; and state responses to data inquiries

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The analysis showed wide variation in the disclosure practices of public funds, and in many cases found policies that make it difficult for policymakers, stakeholders, and the public to gauge actual fund performance. Implementing the practices recommended by Pew to strengthen investment reporting, summarized in Table 3, would help provide policymakers and stakeholders with transparent information on funds’ investment philosophy and bottom-line results on all strategies. Having these practices in place nationwide would result in the disclosure of over \$4 billion in currently unreported fees.

Table 3

## Pension Investments Have Become Increasingly Complex

Disclosure standards and guidelines need to be updated to keep pace

Issue	Pew's recommendation	Current standard	Current state/examples
<b>Pension investments have become increasingly complex: Over 25% of state plan assets are invested in alternatives, more than double the amount a decade ago.</b>	<b>Make investment policy statements available online</b> —provides stakeholders with accessible information on investment strategies.	<b>GFOA:</b> Recommends concrete statement of investment goals that describe plan's investment and risk tolerance.	Of the 73 largest state-sponsored pension funds, 59, or 81 percent, made statements available online.
<b>Performance reporting is inconsistent across funds: Over one-third of funds report 10-year returns "gross of fees"—without deducting manager fees.</b>	<b>Disclose performance both net and gross of fees</b> —provides bottom line results and cost of implementing investment policy.	<b>CFA Institute:</b> Provides disclosure rules for both net and gross reporting, and states that reports "should present gross-of-fees returns."	Most plans disclose 10-year returns minus the fees paid to managers, or "net of fees."
		<b>GASB:</b> Requires disclosure of the rate of return net of pension plan investment expenses for current year reporting.	
<b>Unreported fees: Funds do not report comprehensive accruals of carried interest, monitoring costs, or portfolio company fees. Value of unreported fees estimated to be \$4 billion annually.</b>	<b>Adopt comprehensive fee reporting such as the Institutional Limited Partners Association (ILPA) fee reporting template, including a line itemization of fees paid to individual investment managers</b> —raises the bar on transparency, allows trustees to better measure and manage costs.	<b>GASB:</b> Requires reporting investment-related costs only if "separable from (a) investment income and (b) the administrative expense of the pension plan."	The South Carolina Retirement System and Missouri State Employees' Retirement System collect detailed information on portfolio company fees, other fund-level fees, and accrued carried interest in addition to external managers' standard invoices. They include schedules of these fees in their annual reports.
		<b>GFOA:</b> Management fees "should be reported separately from rebated amounts."	
		<b>CFA Institute:</b> "Firms must disclose the fee schedule."	
<b>Performance reporting does not reflect long-term nature of pension liabilities: Most plans report returns on a 5- or 10-year time horizon despite the longer-term nature of plan liabilities.</b>	<b>Expand performance reporting to include 20-year results</b> —provides stakeholders with long-term results that are more aligned with the long-term investment strategies that funds follow.	<b>GASB:</b> Requires disclosure of net-of-fee returns on pension plan investments for each of the past 10 years.	Georgia, Kentucky, Louisiana, Missouri, and New York release comprehensive 20-year data on performance returns by asset class. But only Georgia Teachers' Retirement System, Missouri State Employees' Retirement System, and the New York Teachers Retirement System make that information available net of fees.
		<b>GFOA:</b> Recommends "rate of return for latest 12 months and annualized rates of return for preceding 3- and 5-year periods."	
		<b>CFA Institute:</b> Recommends reporting "more than 10 years of annual performance."	
<b>Information on results of different investment strategies is limited: Fifteen percent of plans examined do not report performance by asset class.</b>	<b>Include performance results by asset class, both net and gross of fees</b> —provides stakeholders with the results and cost of different investment strategies.	<b>CFA Institute:</b> Recommends reporting rate of return "for each major category of investments and for the portfolio as a whole."	Pennsylvania Public School Employees' Retirement System reports performance and benchmarks by detailed asset classes for one, three, five and 10 years.

## Conclusion

State and local public pension funds have significantly changed investment strategies in recent decades. They have shifted a large percentage of fund assets away from fixed-income securities, such as government and corporate bonds, toward equities and alternative investments, including hedge funds and private equity funds. This shift has increased the complexity of pension portfolios and brought significantly higher investment fees.

Despite the common trend toward more complex investments, public pension fund investment strategies vary widely across states. The data, however, reveal no best or one-size-fits-all approach to successful investing.

There is, however, a uniform need for full disclosure on investment performance and fees. While many state pension fund investment strategies now rely on more complex investments with higher fees, disclosure standards have not kept pace.

The increased investment risk, complexity, and volatility require greater vigilance on the part of administrators, government officials, and board members to safeguard the plans' long-term sustainability. Effectively managing risk and volatility is critical when funds are heavily invested in equities and alternatives. In addition, evaluating costs is vital because such complex investment products can charge high fees. Moreover, the skill requirements for fund administrators and board trustees alike are significantly higher for funds that employ these investment strategies.

The findings presented in this report—particularly the significant unreported fees—point to the need for disclosure of additional public information on plan performance, attention to the full impact of investment costs on plan health, and examination of board responsibilities in light of more sophisticated investment practices.

Greater transparency by public pension plans can help ensure that the plans accurately disclose fees paid and that risks, returns, and costs are balanced in ways that follow best practices.

## Appendix

Despite some commonalities, there are substantial differences among the major investment subcategories of alternative investments. For example, higher-yield alternatives such as private equity are attractive during periods of strong equity valuations, especially for pension funds that use relatively high assumed rates of return.

Conversely, other alternatives—particularly real estate or other real assets—add diversification to pension portfolios and can provide some protection against inflation. Hedge funds, meanwhile, can both lower portfolio volatility and help meet absolute return targets.

As pension funds consider allocating portions of their portfolios within alternatives to deliver potentially higher and more stable returns, managers must consider the unique aspects of each major subclass within the category.

### Private equity

Private equity (PE) funds are investment vehicles funded by outside investors that buy, restructure, and sell companies over an extended (5-plus years) investment horizon. Returns are realized through capital gains on the eventual sale or public offering of the investment companies. Private equity can provide return premiums to investors, such as public pension funds, that are able to hold illiquid assets with longer-term investment needs. However, there is wide variability in the performance of PE investments, making fund selection a crucial element of investment success. Public pension funds may not have access to the highest-return funds, and most PE

partnerships operate with substantially less transparency than other investments.

For example, PE fund managers (or general partners) have complete management control and command high fees, typically including an annual management fee of 1 to 3 percent and a performance fee, or carried interest, of 20 to 30 percent of returns over the life of the investment.<sup>43</sup> As discussed above, the average value of carried interest and other netted fees, often not disclosed by private equity managers, is estimated to represent over half of total private equity costs.<sup>44</sup>

## Real estate

The real estate asset class encompasses different property types (e.g., residential, commercial), investment routes (e.g., direct investment, private real estate equity), and portfolio allocation strategies (core, value-add).<sup>45</sup> Real estate investments can provide higher risk-adjusted returns than traditional assets and can serve as a hedge against inflation.<sup>46</sup> Public pension plans typically focus on “core” real estate products, such as multifamily or office buildings in a cluster of cities and business districts, rather than more opportunistic investments such as distressed properties in secondary cities. Pensions may also invest in real estate through publicly traded real estate investment trusts. The real estate asset class typically refers to both direct real estate investments and those managed by private management groups.

Analyzing risk-adjusted returns for real estate investments, like other alternative investments, is not as straightforward as traditional asset classes. Real estate relies on appraisal pricing procedures, which may not accurately reflect market value if the asset class does not trade actively.

Direct real estate investments can be managed internally or outsourced, and in some instances can be used as a tool for economic development. For example, some states use pension fund assets to make economically targeted investments. Research indicates that public pension funds exhibit home state bias in real estate investments that overweight in-state real estate properties by about 19 percent.<sup>47</sup> The Retirement System of Alabama provides one example, with 5 percent of its more than \$30 billion in assets invested in local real estate, including 26 golf courses, in addition to hotels, resorts, and office buildings within Alabama. Ten-year returns on the RSA’s real estate portfolio were only 2.8 percent in 2015, well below the plan’s overall expected return of 8 percent, as well as national real estate benchmarks of 6.4 percent.

## Hedge funds

Hedge funds are relatively new investment vehicles, and public pension funds only started funneling significant allocations to them in the early to mid-2000s.<sup>48</sup> Like private equity, hedge funds are almost all privately owned and managed, relatively unregulated, and use a performance fee structure. Hedge funds deploy a variety of strategies that can be broadly classified as “absolute return” or “directional,” and invest in multiple asset classes and/or regions. Absolute return hedge funds work to reduce (or fully hedge) market risk and provide steady returns regardless of broader market movements. Directional hedge funds seek to add market risk exposure. Hedge funds that are meant to provide returns in a down market have low correlations to traditional (“long only”) investments. Thus, public pension funds’ “hedge fund strategies” may encompass investments that decrease portfolio volatility, as well as those that amplify equity and fixed-income market movements.<sup>49</sup>

Hedge funds generally have high, sometimes contentious fees structures, as well as greater complexity than lower-fee investments. During strong markets, directional hedge fund strategies typically underperform index funds. During weak markets, absolute return strategies can outperform low-cost investments, but at a scale too small to make a significant difference for large pension funds’ overall returns. Investing enough capital to

meaningfully protect the portfolio during downturns is difficult to do cost-effectively.

Like PE funds, hedge funds use a fixed management fee and performance fee structure. Hedge fund fees have reportedly declined since the financial crises of the 2000s and currently average about 1.5 percent for management fees and 18 percent for performance fees.<sup>50</sup> Roughly half of public plans invest in “funds of hedge funds,” which strategically invest in other hedge funds. This can help pension funds alleviate some of the complexity of fund selection and diversify their hedge fund strategies and manager exposure. Funds-of-funds are also attractive because they can perform due diligence and monitoring that may be beyond the expertise level of public pension funds. Funds-of-funds were less popular following the financial crisis in 2008-09, as their high fees and questionable due diligence turned off investors, but public pension funds continue to invest. These upsides come at the price of an added layer of management and performance fees of about 0.5 to 1 percent and 5 to 10 percent, respectively.<sup>51</sup>

Public pension investments in hedge funds have been particularly fluid in recent years. Many funds are increasing their hedge fund allocations, although there is a fair amount of movement between hedge fund strategies and in the ways that funds categorize or pool hedge fund investments. At the other extreme, CalPERS announced in 2014 that it would be exiting its hedge fund investments, citing high fees, complexity, and performance as its primary concerns. Since CalPERS was an early and experienced investor in alternatives, this was a significant development. Its relatively small allocation to hedge funds was underperforming equity index funds while costing over \$100 million in fees every year. Because CalPERS has huge assets, even its small hedge fund allocation required investments in over a dozen funds, with constant attention to manager monitoring and selection. A discernible market hedge would have required a far larger allocation to hedge funds.

## Commodities

Commodities are real assets with intrinsic economic value for end-use consumption (for agricultural or livestock goods) or manufacturing (metals, energy). Their financial value is a result of market dynamics: supply, demand, investor patience, durability, seasonality, speculation, and other factors. Commodities generally have low correlation with traditional asset classes and are highly correlated with inflation (and thus offer a hedge against rising price levels). Public pension funds began adding commodities to their portfolios in the early 2000s and typically invest through indexes.

Commodities did not uniformly provide hedge or “safe haven” investments during the 2007-08 financial crisis. Ironically, increased institutional investment such as public pension funds seems to have mitigated commodities’ counter business cycle movements, as many commodities increasingly behave like financial assets rather than consumption goods.<sup>52</sup>

## Glossary

**Alternative investments.** Although there is no fixed definition for alternative investments, they are generally agreed to include private equity, hedge funds, real estate, and some commodities. These investments typically lack an established public exchange, have low liquidity, and can be more difficult to value. Alternative investments usually carry higher fees and can be used to diversify investment portfolios or to achieve higher rates of return, although often at higher levels of risk.

**Assumed rate of return.** The assumed, or expected, rate of return is the investment return target and the result that a pension plan estimates its investment allocation mix will deliver.

**Basis point.** A commonly used unit of measure (one one-hundredth of one percentage point) of the change in the value of a financial instrument.

**Bonds.** An instrument of indebtedness of the bond issuer to the holders. It is a debt security, under which the issuer owes the holders a debt and, depending on the terms of the bond, is obliged to pay them interest (the coupon) and/or to repay the principal at a later date, termed the maturity date.

**Carried interest.** A share of the profits of an investment or investment fund—typically private equity or hedge funds—that is paid as a performance fee to the general partner or investment manager in excess of any annual management fee. These fees are typically netted out of a fund's annual estimated return and are separate from management fees charged annually.

**Cash equivalents and short-term investments.** Financial investments of relatively short duration that generally present low risk and lower returns but are more liquid than other investments. For pension plans, these can be notes or certificates of deposit.

**Commodities.** Physical commodities are assets that include agricultural products or natural resources such as timber.

**Equities.** Stocks held by investors that represent ownership in a piece of a company. They can be domestic or international. Equities do not guarantee a specific rate of return and thus are generally riskier than fixed-income investments. But equities also have the potential for higher returns, and shareholders' investments may grow rapidly with the market.

**Fixed income.** Investments in which returns are predictable and paid at designated times. These can include domestic or international bonds. Because fixed-income investments generate predictable streams of income, they are generally considered low-risk.

**General partner.** An owner of a partnership who has unlimited liability and is also commonly a managing partner, or active in the day-to-day operations of the business. In private equity investments, for example, the private equity firm is the general partner.

**Hedge fund.** A relatively unregulated private investment fund or pool that trades and invests in various risky assets such as securities, commodities, currency, and derivatives. Available only to sophisticated investors with significant assets, hedge funds employ a number of different strategies in order to earn high returns (either in an absolute sense or over a specified market benchmark) for investors and may be used to diversify a portfolio.

**Investment fees.** Any fees that a pension plan pays to professionals to allocate its assets. These can be administrative or money management fees. Generally, more traditional investment types have lower investment

fees than more complex investments.

**Limited partner.** A partner whose liability is limited to the partner's share of ownership. Limited partners generally do not have management responsibility in the partnership in which they invest and are not responsible for its debt obligations. For private equity investments, for example, the pension investor is the limited partner.

**Liquidity premium.** The premium demanded by investors when a security is not something that can be easily traded in open markets, for example, a stock exchange.

**Private equity.** An asset class consisting of equity securities and debt in operating companies that are not publicly traded on a stock exchange.

**Real assets.** Physical or tangible assets, such as precious metals, commodities, or oil, as opposed to financial assets.

**Risk premium.** The amount the return on a risky asset is expected to exceed the risk-free rate. This premium can be thought of as compensation for the investor taking on risk.

**Standard deviation.** A statistical measure of the dispersion of a set of data from its mean that, for investments, sheds light on historical volatility. For example, a volatile stock has a high standard deviation, while the deviation of a fixed-income bond is lower. A large dispersion indicates how much the return on the fund is deviating from the expected normal returns.

**Total return strategy.** An investment strategy that balances asset allocations in a traditionally diversified portfolio with the goal of seeking both income (via interest and dividends) and asset appreciation. In contrast, income investing is a strategy that focuses on stable, income-producing investments—such as bonds and equities with healthy dividends—and places less emphasis on asset appreciation and capital gains.

**Volatility.** Investment volatility measures how much the value of a particular asset class or a portfolio in total moves up and down with financial markets and the economy. It is the standard measure of risk that is based on historical results and also used as a forward-looking indicator of risk. A higher volatility indicates the potential for larger fluctuations in value or price.

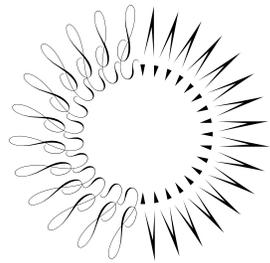
**Yield.** The return on an investment. In securities, it is the dividends or interest received, usually expressed as an annual percentage of either the current market value or the cost of the investment.

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FINAL REPORT ON CONNECTICUT'S  
STATE EMPLOYEES RETIREMENT SYSTEM  
AND  
TEACHERS' RETIREMENT SYSTEM

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November 2015

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## I. Executive Summary

### A. The Challenge

The State of Connecticut administers six retirement systems. The two largest are the State Employees Retirement System (SERS), and the Teachers' Retirement System (TRS). Over the past decade, in spite of a concerted effort to fund by the State,<sup>1</sup> the funded status for both these systems declined by about 20 percentage points and, as of 2014, stood at 42 percent for SERS and 59 percent for TRS – among the lowest in the nation. The total unfunded actuarial accrued liability (UAAL) for the two systems combined was \$25.7 billion – \$14.9 billion for SERS and \$10.8 billion for TRS. As a result, in 2014, the State paid \$1.8 billion to amortize the unfunded liability in both plans compared to about \$400 million for benefits earned by current employees. And the State faces scheduled increases in amortization payments in order to fully extinguish the unfunded liability by 2032, as required under the current plan.

The State has requested an assessment of both SERS and TRS to:

- a) identify factors that have led to today's unfunded liability;
- b) project the systems' finances going forward under the current plan; and
- c) present alternatives to shore up the systems' finances and improve budget flexibility.

### B. Factors Driving Current Unfunded Liabilities

Three factors underlie the current unfunded liability of SERS and TRS: 1) legacy costs from benefits promised before the systems were pre-funded; 2) inadequate contributions once the State decided to pre-fund; and 3) low investment returns relative to the assumed return since 2000. For SERS, poor actuarial experience (particularly retirement patterns) relative to expectations also played a role.

#### *Legacy Costs*

Both systems have promised benefits to their members since 1939. But the benefits provided by SERS and TRS were not pre-funded until 1971 and 1982, respectively. Until then, benefits were paid each year from the State's general revenues. The many years of unfunded benefits accrued over that period saddled both systems with unfunded liabilities that today account for nearly \$9.3 billion of the combined \$26 billion unfunded liability. The remaining portion of the unfunded liability comes from funding shortfalls – due to inadequate contributions, low investment returns relative to expectations, and negative actuarial experience – after the start dates.

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<sup>1</sup> Since 2001, the State has paid, on average, 90 percent of the annual required contribution (ARC) for SERS. For TRS, the State issued \$2 billion in pension obligation bonds in 2008 and has paid 100 percent of the ARC since then. Prior to that, TRS funding was inconsistent; the State paid more than 80 percent of the ARC from 2001 to 2003, close to 70 percent in 2004 and 2005, and essentially 100 percent in 2006 and 2007.

### *Inadequate Contributions*

Paying down the unfunded liability has two components: 1) calculating an appropriate amortization payment that keeps the UAAL from growing each year; and 2) making the full annual required contribution (ARC) payment. Connecticut has fallen short in both areas. Prior to 2000, SERS' calculated its amortization payments using a "level-dollar" approach that, if paid, would reduce the UAAL each year. But a lax statutory funding plan and multiple union agreements led the State to underpay for many years. From 2000 onward, the amortization payment was calculated using a "level-percent-of-payroll" approach that, even if paid, allows the UAAL to grow for many years before declining. So, while the State paid more of its required contribution after 2000 (State Employees Bargaining Agent Coalition agreements continued to allow for contributions below the ARC), the contributions were inadequate due to the choice of amortization method.

Unlike SERS, TRS has always used the less effective level-percent-of-payroll approach to calculate amortization payments. Additionally, a lax statutory funding schedule allowed TRS to underpay until 1992. Even after 1992, TRS continued to underpay – setting an unofficial policy of paying only 85 percent of the required contribution. The use of level-percent-of-payroll has added a combined \$6.3 billion in unfunded liabilities to SERS and TRS (\$2.3 billion and \$4.0 billion respectively), while underpayment of the required contribution, however calculated, has added a combined \$4.7 billion in unfunded liabilities to SERS and TRS (\$3.2 billion and \$1.5 billion respectively).

### *Actual Investment Returns Less than the Assumed Return*

The impact of investment returns on plan finances depends on two factors: 1) the assumed return for the plan; and 2) the actual return. Achieving actual returns that are greater than what is assumed lowers the UAAL. Conversely, if actual returns are below what is assumed, it adds to unfunded liabilities. Prior to 2000, the actual investment return for both systems was much higher than each system's assumed return. In fact, from 1985-2000, the difference between each system's actual investment return and their assumed return *decreased* unfunded liabilities by a combined \$5.4 billion (-\$1.9 billion for SERS and -\$3.5 billion for TRS). Since 2000, however, the returns for SERS and TRS have fallen short of their expected return, averaging only 5.6 percent annually compared to an assumed return of 8.5 percent for TRS and 8 percent for SERS (reduced from 8.5 to 8.25 percent in 2008 and then to 8 percent in 2012). From 2000-2014, the difference between each system's actual investment return and its assumed return has added a combined \$8.9 billion in unfunded liability (\$3.2 billion for SERS and \$5.7 billion for TRS).

### *For SERS, Actuarial Experience*

Actuarial experience has accounted for \$4.1 billion in unfunded liabilities for SERS since 1985. Data from 2009 forward suggest that retirement patterns have been the primary source of poor actuarial experience. One reason may be the ad-hoc early retirement incentive programs (ERIPs) introduced in 1989, 1992, 1997, 2003, and 2009. These programs directly impact the retirement patterns of members and likely cause dramatic deviations from the existing actuarial assumptions for retirement. Overall, we estimate that at least \$1.5 billion, or just over a third, of the \$4.1

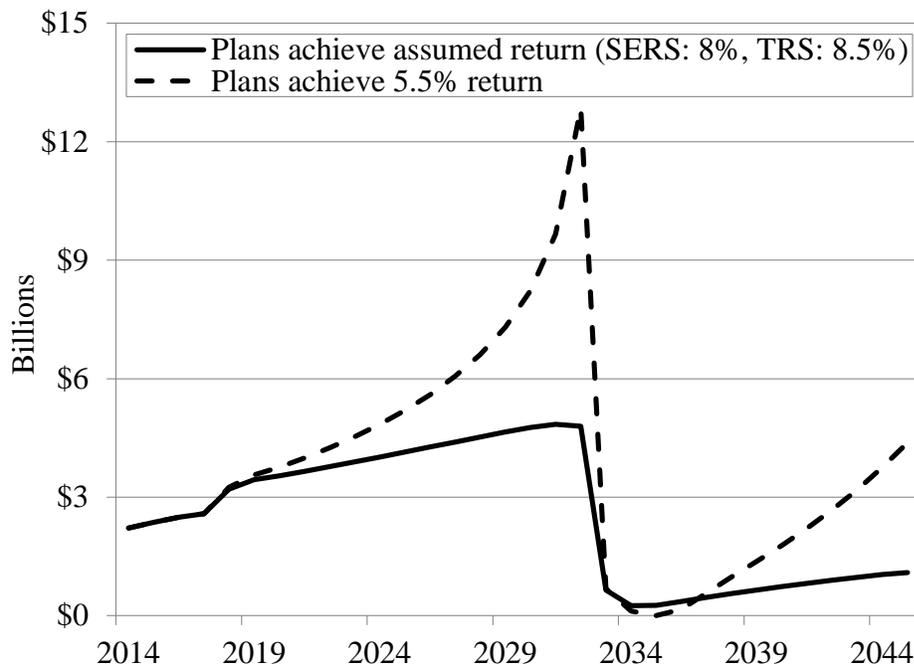
billion is directly due to the ad-hoc ERIPs (read: deviations in retirement patterns). The remaining portion comes from deviations in other assumptions such as mortality, turnover, and salary growth, and likely includes some residual impacts of the ERIPs.

### C. Projections of SERS' and TRS' Finances

The main source of pension costs for the State going forward is the amortization of the unfunded liability of SERS and TRS. Currently, payment by the State to amortize the UAAL is about \$1.8 billion, while the normal cost – the amount to fund benefits being earned by workers today – is only \$400 million. In fact, when compared to similar plans across the nation, the normal cost for both SERS and TRS is below average as a percent of employee payroll. And, for SERS, the normal costs are expected to decline further as Tier III members with lower benefits replace current Tier II and IIA members.

Under the current plan, the UAAL for SERS and TRS is scheduled to be paid off by 2032, with costs expected to rise precipitously over the next 17 years as a result of scheduled increases due to the back-loaded amortization of the UAAL. If all actuarial assumptions are met, and the systems achieve their assumed returns, total costs for the two systems will rise steadily from \$2 billion in 2014 to nearly \$5 billion by 2032. The investment experience over the next 17 years is critical to the projection of costs. If, instead of realizing the assumed returns, the systems' investment experience is similar to the past decade, total annual costs for the two systems could balloon to \$13 billion in order to be fully funded by 2032 (see Figure 1).

Figure 1. *Projected ARC for SERS and TRS Combined under the Current Plan, 2014-2045*



Source: CRR calculations based on various actuarial valuations for Connecticut SERS and TRS.

## **D. Alternatives to SERS' and TRS' Current Funding Methods**

The future costs of SERS and TRS hinge on the same elements that have defined their pasts: addressing the unfunded liability, ensuring adequate contributions, and achieving their expected investment returns. Four key adjustments can help.

### *Shift to Level-Dollar Amortization of Unfunded Liabilities*

The level-dollar approach front-loads payments compared to level-percent-of-payroll, but improves funded levels more quickly and is often easier for budgeting because payments stay fixed in dollar terms. Compared to a level-percent method, using a level-dollar amortization from 2014-2032 would reduce nominal contributions by 3.4 billion (\$2.1 billion more over the first 9 years, but \$5.5 billion less over the last 9 years). Even in the event of consistently poor returns, using a level-dollar method would reduce total nominal contributions by \$3.2 billion over the 18-year funding period.

### *Replace 2032 Full-Funding Date with a Reasonable Rolling Amortization Period*

While the 2032 full-funding date has the attractive quality of providing clear end point, it can also invite dramatic cost volatility if the system experiences any shocks as it approaches 2032 because the State must make up for those shocks over such a short period.

An open period delays full funding, but allows for easier management of unfunded liability costs by maintaining a set number of years over which any shocks (new unfunded liabilities) must be amortized.

### *Lower the Long-Term Assumed Investment Return*

By lowering the assumed return, which also serves as the discount rate, the State will have to contribute more, but the pension systems are less likely to accrue unfunded liabilities due to returns that are below the assumed rate. A quick rule of thumb for the impact of a change in discount rate is that a 1-percent change causes a 12-percent change in the accrued liability and a 22-percent change in the normal cost. Using this rule of thumb, lowering the assumed return by half a percent would increase the employer contributions over the next few years to both SERS and TRS by a combined \$225 million annually.

### *Separately Finance Liabilities for Members Hired before Pre-funding*

Separately financing the liabilities associated with members hired prior to pre-funding recognizes the fact that benefits for members hired prior to pre-funding have been consistently underfunded (even after pre-funding started) while benefits for those hired after pre-funding have been relatively well funded.

The two main policy arguments for separately financing the liabilities are intergenerational equity and the perception of benefit costs for current employees. First is intergenerational equity. The majority of members hired prior to pre-funding are now retirees. The unfunded liabilities associated with them were accumulated over multiple generations and the services these members provide are no longer being enjoyed by current generation because the members

are now retired. As such, it is not fair, from an intergenerational equity standpoint, to place the entire burden of funding the remaining benefits for these members on a single generation (as under the current plan). A longer time horizon for amortizing these benefits that spreads the costs over multiple generations would be more appropriate. The second argument is the undue burden that the cost of these benefits places on current employees. Today, the unfunded liability for members hired prior to prefunding represent a combined \$21.1 billion of SERS' and TRS' combined \$25.7 billion unfunded liability, while members hired after prefunding represent only \$4.6 billion. Combining the pension costs for members hired prior to pre-funding with those for members hired afterward skews the perception of pension benefits for current employees by misrepresenting the pension cost of current employees to the taxpayer.

## **E. Conclusion**

Both SERS and TRS face rising pension costs over the next 18 years if they continue with their current plan to fully fund the systems by 2032. The majority of these costs are a result of the relatively short time period over which each System has chosen to pay down its large UAAL. The UAAL is a product of nearly 40 years of unfunded benefit promises made prior to pre-funding in the 1970s and 1980s, as well as funding shortfalls after the systems started to pre-fund – namely inadequate contributions and investment returns (since 2000) falling short of assumptions. This report identifies four adjustments to the current funding plan both to address the costs associated with the years of unfunded benefits, and to prevent future funding shortfalls.

To address the costs associated with years of unfunded benefits:

- separately finance – over a long time horizon – the liabilities associated with members hired prior to the pre-funding.

To prevent funding shortfalls for ongoing benefits:

- shift to level-dollar amortization of unfunded liabilities;
- replace 2032 full-funding date with a reasonable rolling amortization period; and
- lower the long-term assumed investment return.

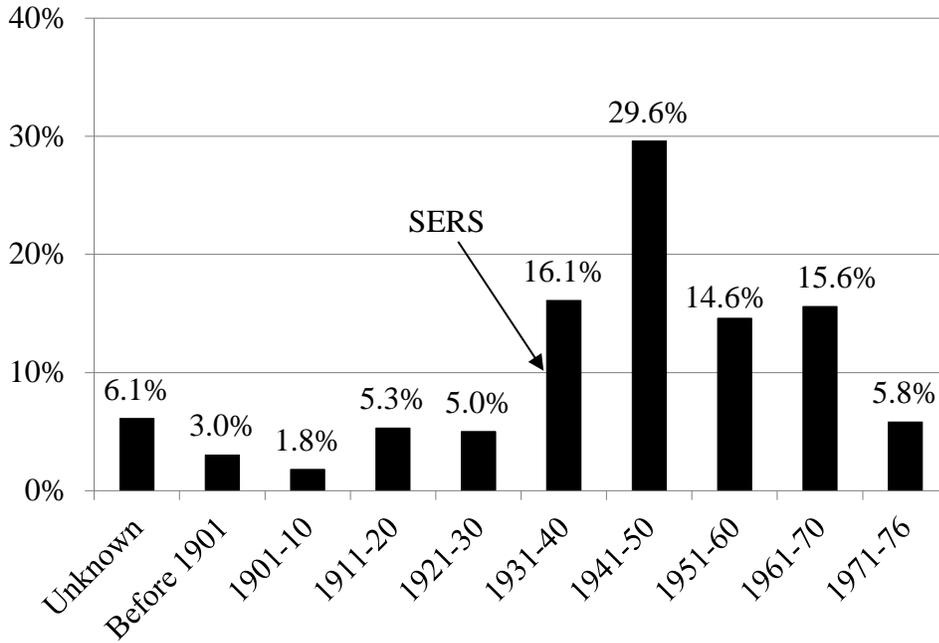
Implementing these changes will more fairly distribute the costs associated with unfunded benefits and better secure ongoing benefits for current employees.

## II. Connecticut State Employees Retirement System (SERS)

### A. A Brief History of SERS' Funding

SERS has been providing retirement benefits to its members since at least 1939 – longer than most state and local retirement systems in the United States (See Figure 2).

Figure 2. *Percentage of State and Local Plans Established or Significantly Restructured, by Date*

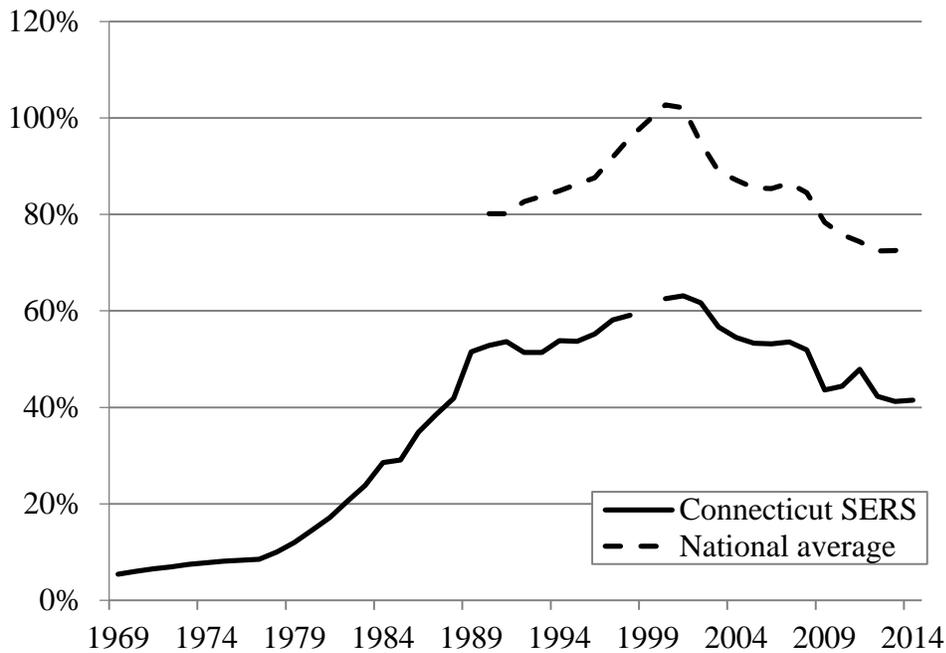


Sources: Various actuarial valuations for Connecticut SERS; CRR calculations based on PENDAT (1990-2000); and *Public Plans Database* (2001-2014).

With the passage of Public Act No. 666 in 1971, the State shifted from its long-standing practice of “funding” benefits on a pay-go basis to pre-funding retirement benefits actuarially (i.e. putting aside enough money in a trust each year while an employee is working in order to fund the payment of the employee’s retirement benefits).

Figure 3 shows the funded status for SERS since its first actuarial valuation performed on December 30, 1969 and provides, for comparison purposes, the average funded ratio for all state and local plans from 1990 forward (data prior to 1990 were not available).

Figure 3. *Funded Ratio of Connecticut SERS Compared to the National Average, 1969-2014*



Note: Funded ratios for 1970-1971, 1973-1977, and 1979-82 were not available for SERS. CRR estimates these data points using a straight line approximation between actual data provided in 1969, 1972, 1978, and 1983. The year 2000 was estimated by taking the average of data in 1999 and 2001.

Sources: Various actuarial valuations for Connecticut SERS; CRR calculations based on PENDAT (1990-2000); and *Public Plans Database* (2001-2014).

Because benefits were financed on a pay-go basis prior to 1971, the system was essentially not funded in 1969 (a small amount of assets had been accumulated through employee contributions). At that point, SERS was 0 percent funded and had an unfunded liability of \$712 million, equaling 284 percent of SERS’ payroll. After 20 years of funding by the State, SERS entered the 1990s with a funded ratio of only 52 percent – well below the national average. And, its UAAL was about \$2.7 billion – equal to 147 percent of payroll, compared to a national average of 56 percent. While SERS’ funded ratio has remained below the national average over the whole period, it has shared a similar pattern, rising during the stock market boom from 1990-2000, and then declining through two financial downturns since 2000. Today, the unfunded liability of SERS stands at \$15 billion, representing 428 percent of SERS’ payroll compared to the national average of 185 percent.

### **B. Factors Driving Current Unfunded Liabilities in SERS**

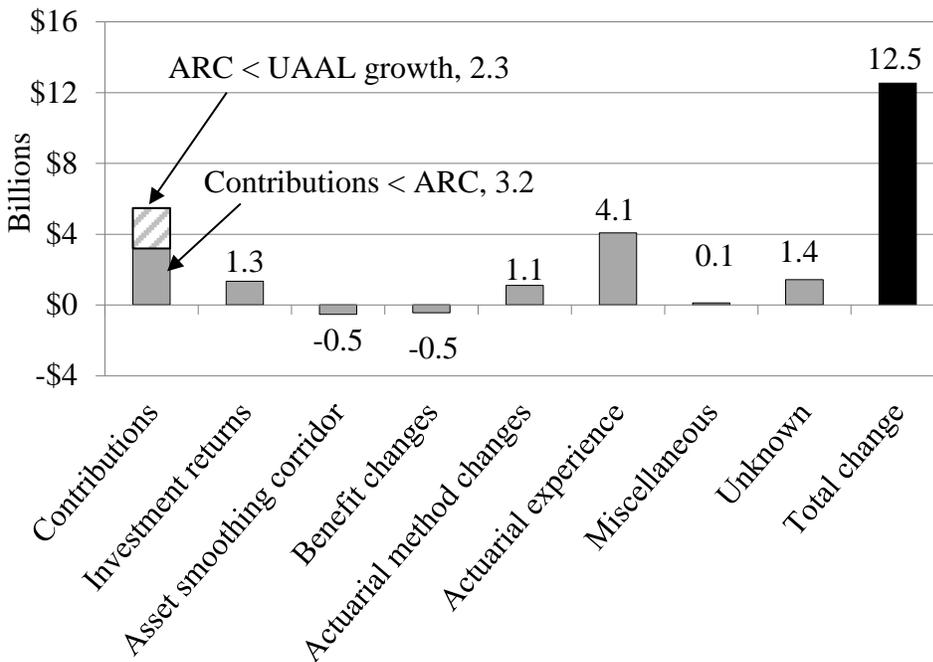
Four factors are behind SERS’ current underfunding: 1) legacy costs due to benefits promised before SERS was pre-funded; 2) a history of inadequate contributions once the State decided to pre-fund; 3) low investment returns relative to expectations since 2000; and 4) poor actuarial experience, relative to expectations. Each factor will be discussed in detail below. Dollar amounts have not been adjusted for inflation.

*Legacy Costs*

A large portion of SERS’ current unfunded liability stems from the many years of benefits promised without pre-funding. The burden of those unfunded benefits still lingers in the current finances of SERS, accounting for about \$5.2 billion or about 35 percent of SERS’ \$14.9-billion unfunded liability.<sup>2</sup>

Because detailed data on SERS’ unfunded liability from 1970-1985 are not available, the assessment of SERS’ underfunding focuses on the change in the unfunded liability from 1985-present (see Figure 4).<sup>3</sup>

Figure 4. *Sources of Change to SERS’ UAAL, 1985-2014*



Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

Since 1985, SERS’ UAAL has grown by \$12.5 billion – from an initial value of \$2.5 billion to today’s value of \$15 billion. As the figure shows, the two largest contributors to the growth in the UAAL have been inadequate contributions and an adverse actuarial experience, including various Early Retirement Incentive Programs (ERIPs). However, other elements have also been significant, namely investment returns.<sup>4</sup>

<sup>2</sup> The total remaining liability for those hired prior to 1971 is estimated to be about \$4.8 billion. Assuming that all liabilities are only 48 percent funded (the 2014 funded ratio of SERS), the unfunded liability for those hired prior to 1971 is equal to \$2.5 billion.

<sup>3</sup> See the Appendix for the methodology of the UAAL analysis.

<sup>4</sup> See the Appendix for a detailed timeline of all the factors that have contributed to annual changes in the UAAL since 1985.

### *Inadequate Contributions*

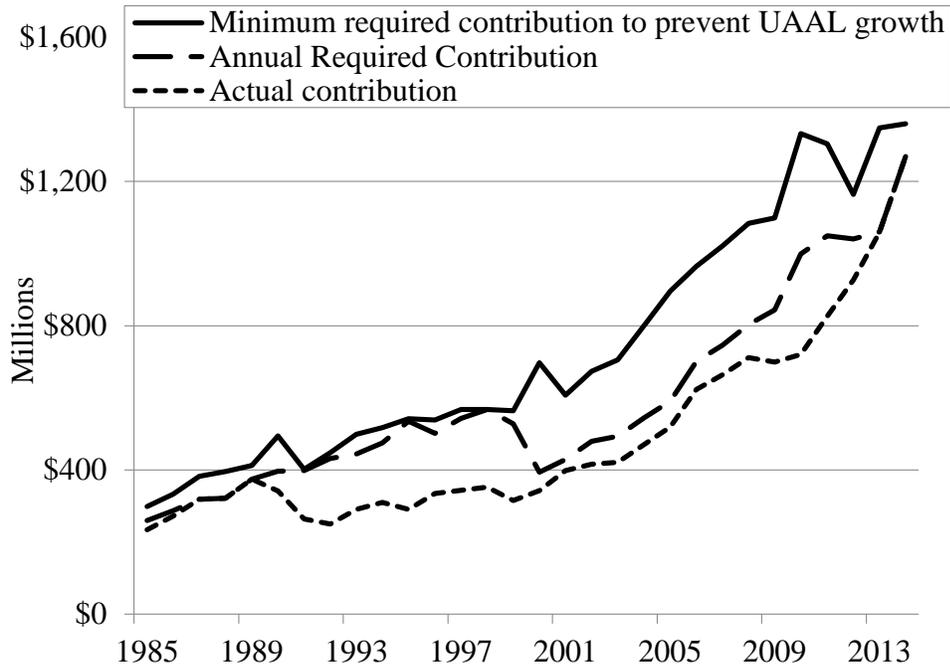
Paying down the unfunded liability has two components: 1) calculating an amortization payment that keeps the unfunded liability from growing each year; and 2) making the full payment. Connecticut SERS has fallen short in both areas. SERS' underpayment of the ARC began as soon as the State decided to pre-fund. At the outset, State law provided for a ramp-up schedule in the State's funding requirement such that, in 1972, the State was only required to pay 30 percent of the ARC. This percentage was scheduled to gradually increase each year until 1985, when the State would be required to pay the full ARC.

Figure 5 shows the minimum contribution required to prevent UAAL growth, the calculated ARC, and the actual contributions made from 1985-2014. From 1985-2000, SERS used a level-dollar method of amortizing the UAAL and the calculated ARC closely tracked the minimum contribution. And the State paid the full ARC for the first few years, thus limiting UAAL growth. Then, in the 1990s, the State began to underpay, allowing the UAAL grow significantly. Much of the underpayment was sanctioned by agreements between the State and employee unions, known as State Employees Bargaining Agent Coalition (SEBAC) Agreements 1-3. After 2000, SERS switched from a level-dollar method of amortizing the UAAL to a level-percent-of-payroll amortization method. This shift resulted in calculated ARC payments that fell far short of the minimum amount required to prevent the UAAL from growing. And SEBAC Agreements 4 and 5 continued to allow for contributions below the calculated ARC by the State. Since 1985, using the level-percent-of-payroll method to calculate the ARC and contributing less than the ARC have accounted for a combined \$5.5 billion in unfunded liabilities (\$2.3 billion and \$3.2 billion, respectively).<sup>5</sup> Of the \$3.2 billion due to contributions below the ARC, about \$2 billion were a direct result of SEBAC agreements and other negotiated reductions.

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<sup>5</sup> A smaller issue with the calculated ARC is that there is a delay between when the ARC is calculated and when it is scheduled to be paid. Because the calculated contribution is generally not adjusted to account for this difference in timing, contributions are often inadequate to address the unfunded liability that exists when the contribution is made. As a result, from 1985-1999 – even though SERS used the level-dollar approach – the scheduled ARC for each year was often just shy of the minimum required contribution.

Figure 5. *Minimum Contribution to Prevent UAAL Growth, ARC, and Actual Contributions for SERS, 1985-2014*

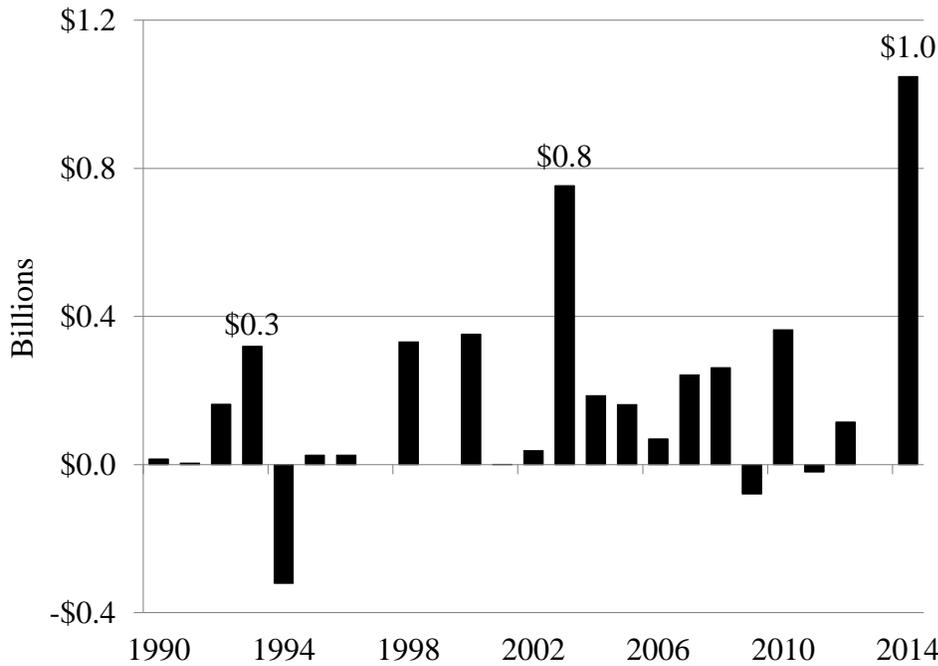


Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

### *Actuarial Experience*

Actuarial experience has accounted for \$4.1 billion in unfunded liabilities since 1985. While actuarial assumptions are not expected to precisely match experience in any given year (in some years, actual experience will fall below assumptions; in other years, it will overshoot), they should align over the long term. Figure 6 shows the annual impact of actuarial experience on SERS' UAAL from 1990-2014. In most years, the difference between assumptions and actual experience has resulted in increased liabilities.

Figure 6. *Annual Impact of Actuarial Experience on Unfunded Liabilities for SERS, 1990-2014*



Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

Most plans, including SERS, perform periodic experience studies to test how well assumptions have aligned with experience, and make adjustments if needed. Given these periodic reviews and adjustments, actuarial experience should have only a minimal impact on UAAL growth over time. However, this has not been the case for SERS. One reason may be the ad-hoc ERIPs introduced in 1989, 1992, 1997, 2003, and 2009. These programs directly impact the retirement patterns of members and likely cause dramatic deviations from the existing actuarial assumptions for retirement.

Figure 7 shows the impact that specific types of actuarial experience (turnover, retirement, mortality, or salary growth) have had on SERS' UAAL from 2009-2014. Although detailed data are not available prior to 2009, data from 2009 forward show that, recently, retirement patterns have been the primary source of UAAL growth from actuarial experience, supporting the notion that ERIPs may be a key factor in the poor actuarial experience.

Figure 7. *Impact of Specific Actuarial Assumptions on Unfunded Liabilities for SERS, 2009-2014*



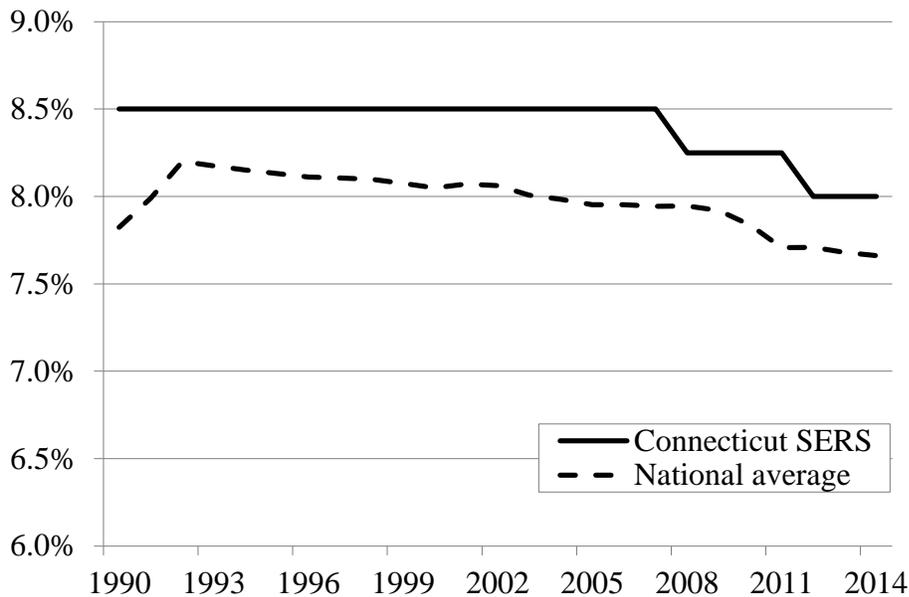
Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

Overall, we estimate that about \$1.5 billion, or just over a third, of the \$4.1 billion in unfunded liabilities from actuarial experience can be attributed to the ad-hoc ERIPs (i.e., deviations in retirement patterns). The remaining portion comes from deviations in other assumptions such as mortality, turnover, and salary growth.

#### *Investment Returns*

The impact of investment returns on the unfunded liability depends on the difference between the system's assumed and actual return. For SERS, this difference has generated \$1.3 billion in unfunded liabilities since 1985. Figure 8 shows the SERS' assumed return compared to the national average from 1990-2014. Although SERS has lowered its assumed return from 8.5 to 8 percent in recent years, it still remains nearly 50 basis points above the national average.

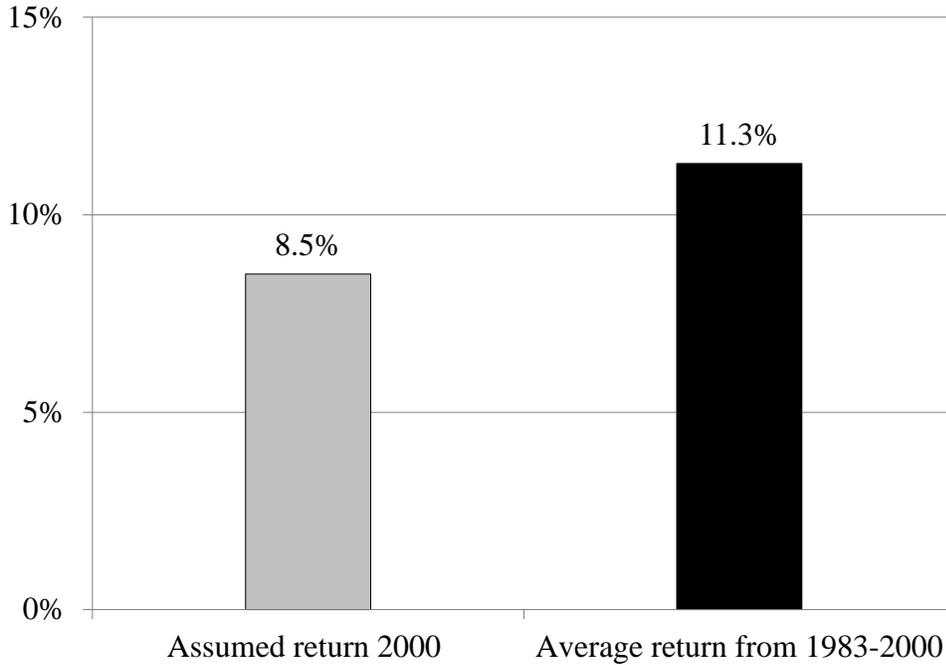
Figure 8. Assumed Return for SERS Compared to the National Average, 1990-2014



Sources: Various actuarial valuations for Connecticut SERS; CRR calculations based on PENDAT (1990-2000); and *Public Plans Database* (2001-2014).

The actual returns for SERS were studied over two distinct periods: 1983-2000, which included the stock market boom of the 1990s, and 2001-2014, which included the 2002 market downturn and the 2008-2009 financial crisis. Figure 9a compares the actual and assumed returns for SERS from 1983-2000. Over that period, SERS' actual investment return was almost 3.0 percentage points above its assumed return. As a result, prior to 2000, investment experience *reduced* the unfunded liabilities by \$1.9 billion.

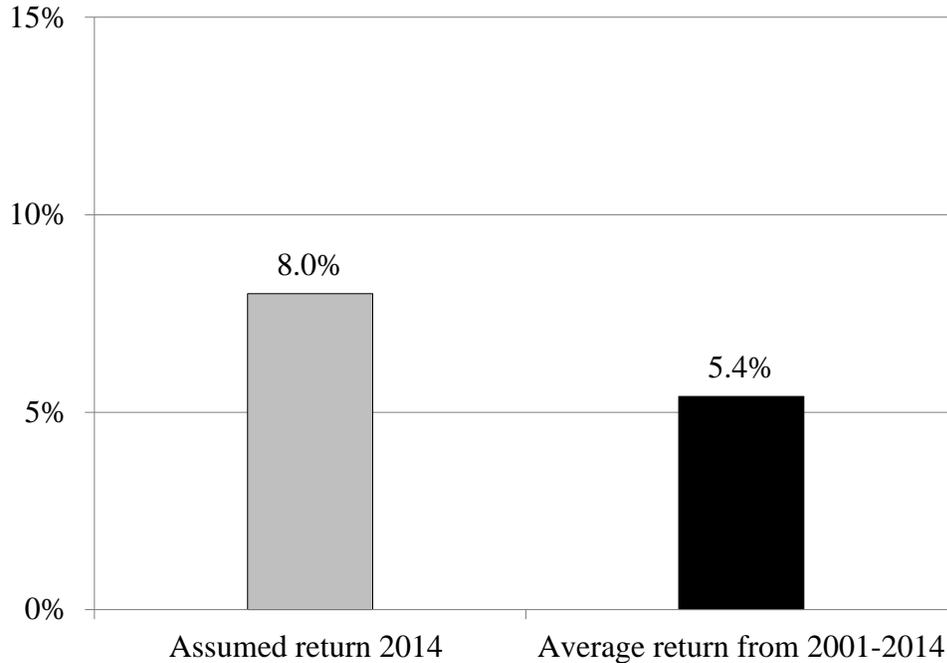
Figure 9a. *Actual and Assumed Investment Return for SERS, 1983-2000*



Sources: CRR calculations based on various actuarial valuations for Connecticut SERS; PENDAT (1990-2000); *Public Plans Database* (2001-2014); and U.S. Census Bureau (1983-2000).

Figure 9b compares the actual and assumed returns for SERS from 2001-2014. Unlike the earlier years, SERS' average return during this period was more than 2.5 percentage points below its assumed return. This investment experience added \$3.2 billion in unfunded liabilities.

Figure 9b. *Actual and Assumed Investment Return for SERS, 2001-2014*



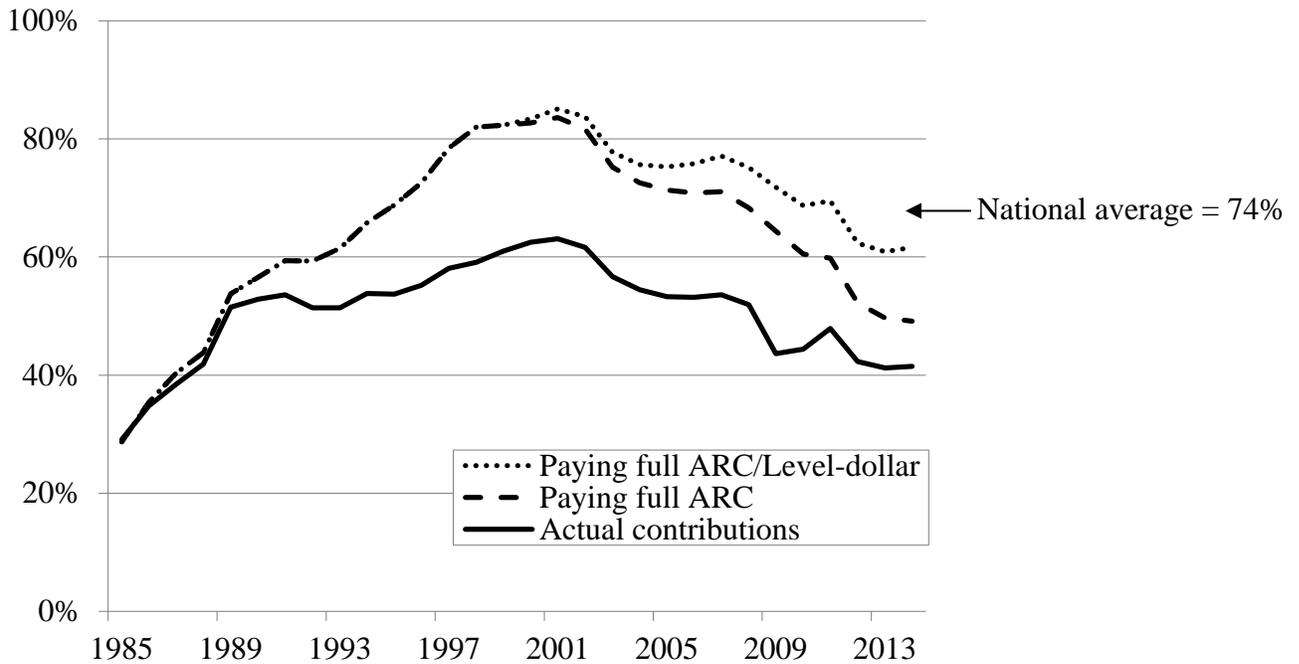
Sources: CRR calculations based on various actuarial valuations for Connecticut SERS; PENDAT (1990-2000); *Public Plans Database* (2001-2014); and U.S. Census Bureau (2001-2014).

### **C. An Alternate History for SERS: Controllable vs. Uncontrollable Factors**

The majority of today's underfunding for SERS stems from the legacy of unfunded benefits, inadequate contributions throughout the State's history of pre-funding, low investment returns relative to the assumed return since 2000, and poor actuarial experience. Some of these factors mentioned above are more controllable than others. Nothing could be done about the initial legacy costs, other than to have had the State pre-fund benefits since SERS' inception. The poor investment and actuarial experience were difficult to fully control. However, calculating the appropriate contribution was definitely within the control of the State, and the State often knowingly underpaid the required contribution.

What would SERS' funded level be today if the plan had: a) fully paid the ARC from 1985-2014; and b) maintained a level-dollar amortization method throughout? To answer this question, we recalculated SERS' funded ratio over time under these two assumptions (see Figure 10).

Figure 10. *SERS' Funded Ratio under Various Funding Regimes, 1985-2014*



Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

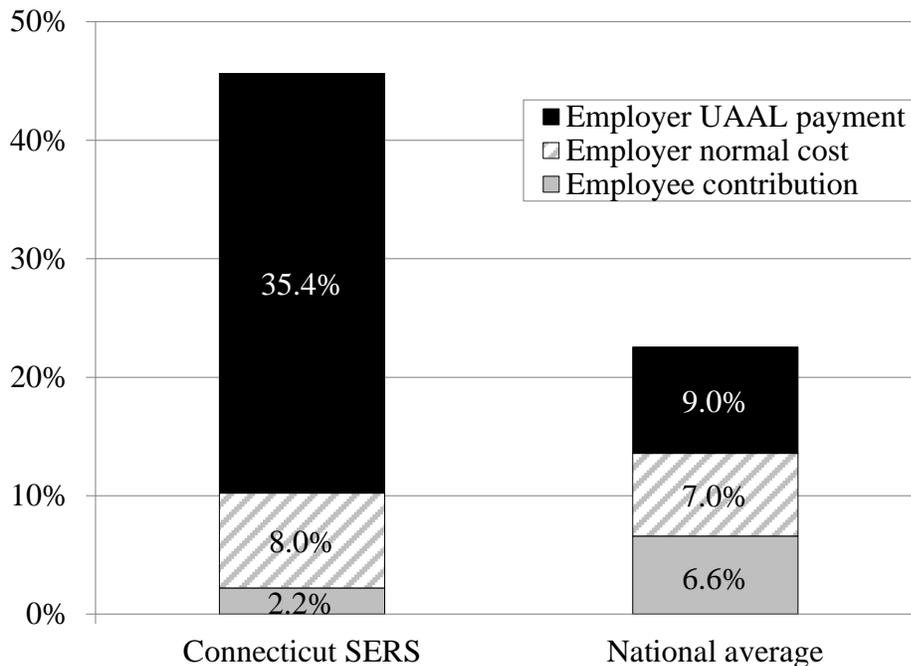
The figure shows that, if SERS had simply paid its full ARC, today's funded ratio would be about 10 percentage points higher. If the plan had also maintained a level-dollar amortization method after 2000, its current funded ratio would be 20 percentage points higher, jumping from 40 to 60 percent. Interestingly, the funded ratio for SERS would be below the national average even if the State contributed adequately, highlighting the importance of legacy costs, investment returns, and actuarial experience.

#### D. Projections of SERS' Finances

This section will project the funded ratio for SERS and the State's required contributions under the current agreement. Data points underlying the projection figures can be found in the Appendix tables.

The main cost driver for SERS is the unfunded liability from legacy costs and funding shortfalls, not overly generous benefits to members. The total normal cost as a percent of payroll (employee contributions plus employer normal cost) is a good way to compare plan generosity among plans. Figure 11 presents a breakdown of normal costs and amortization payments for SERS compared to the national average for similar plans. The figure shows two things. First, the majority of pension costs for the State is due to the unfunded liability. Second, the cost of benefits provided to current employees (the total normal cost) is actually below average. And, with the reduction in benefits for Tier III members, normal costs are projected to decrease from today's rate of 10.2 percent of payroll to about 9.2 percent of payroll once the Tier III members make up most of the workforce.

Figure 11. 2014 Actuarial Costs as a Percent of Payroll for SERS Compared to the National Average, by Element



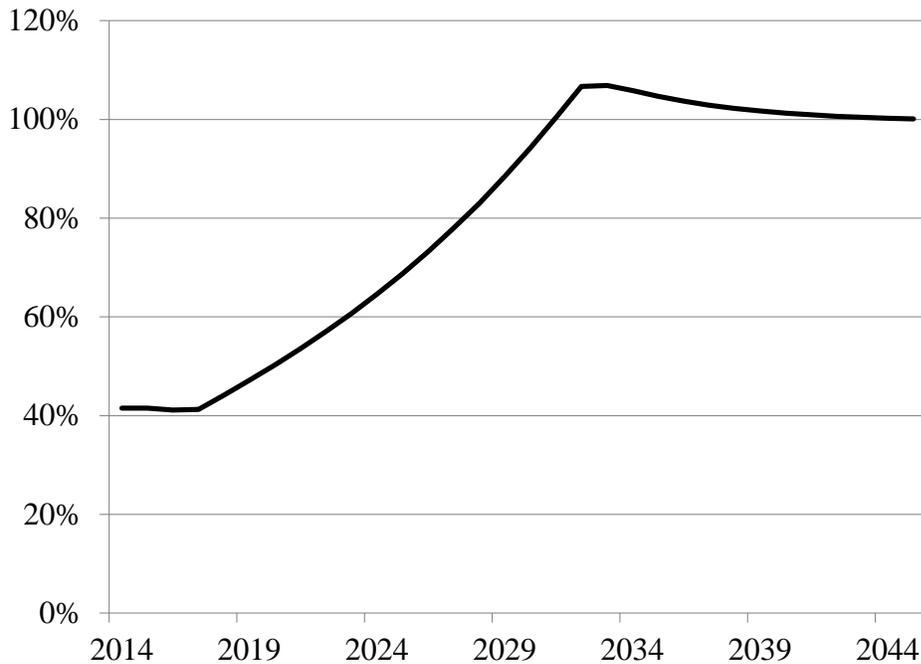
Source: CRR calculations based on 2014 actuarial valuations for Connecticut SERS, projections by the SERS actuary, and *Public Plans Database* (2014).

Two factors determine the annual payments needed to pay down the UAAL. First is the payment schedule (or amortization method): level-dollar payments vs. payments that are a level percent of payroll. Second is the type of amortization period: closed period (setting a fixed date for the plan to be fully funded) or open period (setting a perpetual time horizon for paying down the UAAL). If an open method is chosen, the perpetual time horizon over which to pay down the UAAL is also an important factor. The pros and cons of each are listed below.

- Level-dollar: front-loads payments compared to level-percent-of-payroll, but improves funded levels more quickly and is often easier for budgeting because payments stay fixed in dollar terms.
- Level-percent-of-payroll: back-loads payments compared to level-dollar, as payments increase in step with expected payroll growth. The funded level improves more slowly and budgeting may be tricky as the schedule calls for increasing payments each year.
- Closed period: has the attractive quality of setting a clear date by which the plan will be fully funded. Unfortunately, it can also invite dramatic cost volatility if the system experiences any shocks near the full funding date because the State must make up for those shocks over a short period.
- Open period: perpetually delays full funding, but allows for easier management of unfunded liabilities by maintaining a set number of years over which any shocks (new unfunded liabilities) must be amortized.

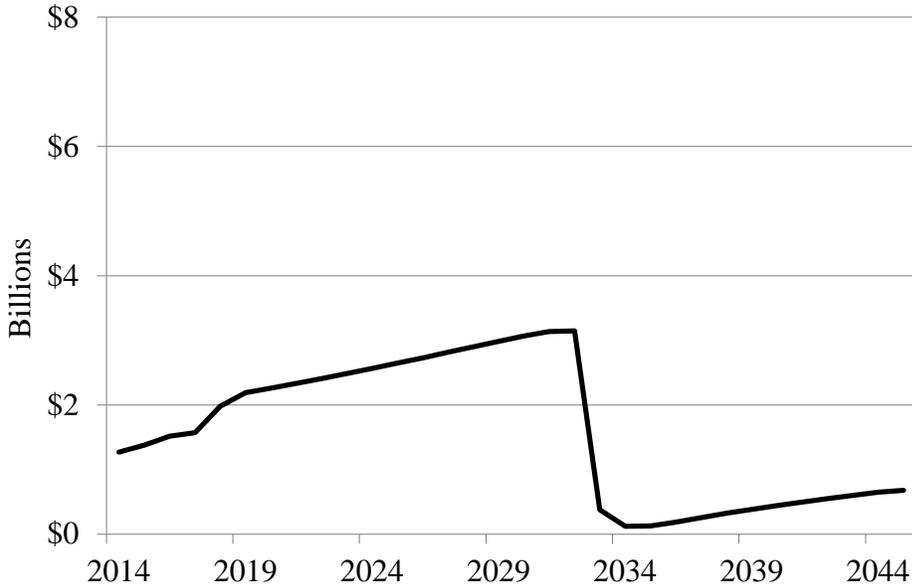
Under the current agreement, SERS’ unfunded liability is to be paid off by 2032 (a closed period) using the level-percent-of-payroll amortization method. Figure 12 shows the funded ratio and Figure 13 shows the ARC (normal cost plus amortization payment) under the current agreement from 2014-2045. The projections assume the full ARC is paid each year and SERS achieves its assumed return of 8 percent. The funded ratio climbs each year to full funding by 2032. The ARC, primarily as a result of the amortization method, steadily rises each year from \$1.3 billion in 2014 to \$3.1 billion in 2032. Once the UAAL is paid off, costs drop precipitously to \$380 million in normal cost payments.

Figure 12. *Projected Funded Ratio for SERS under the Current Agreement, 2014-2045*



Source: CRR calculations.

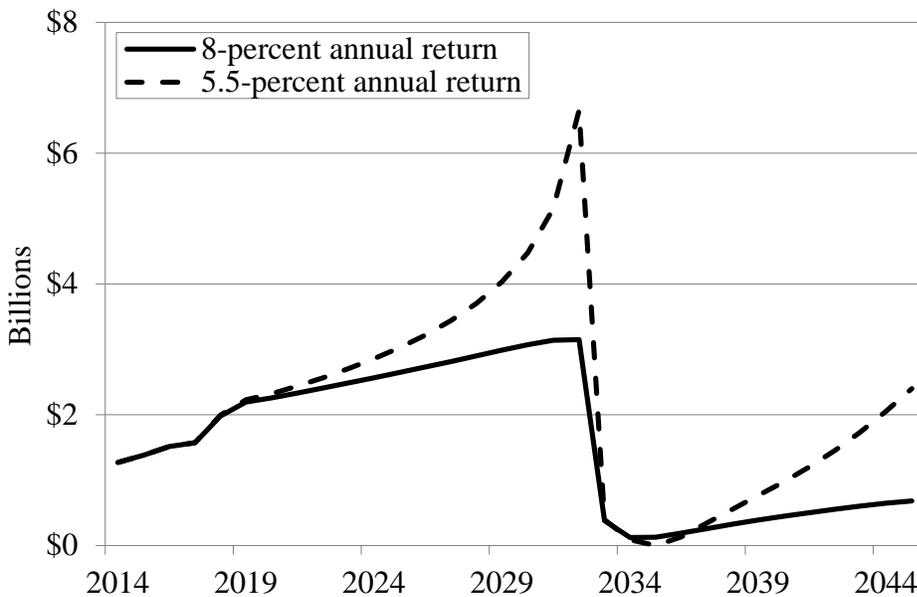
Figure 13. *Projected ARC for SERS under the Current Agreement, 2014-2045*



Source: CRR calculations.

The investment return is critical to the cost projection. If, instead of realizing the assumed return of 8 percent, the investment return for SERS is similar to the past decade, the ARC will rise from \$1.3 billion in 2014 to \$6.7 billion in 2032 (see Figure 14).

Figure 14. *Projected ARC for SERS under the Current Agreement with a 5.5-Percent Return, 2014-2045*



Source: CRR calculations.

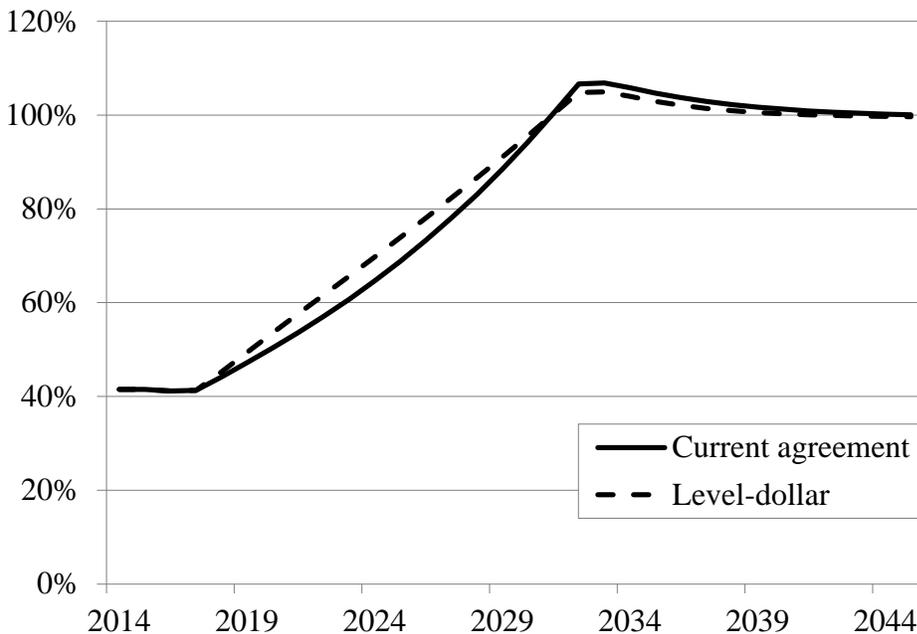
## F. Alternatives to SERS' Current Funding Methods

### *Alternative 1. Switch to a Level-Dollar Amortization of the UAAL*

To limit the scheduled cost increases that result from using the level-percent-of-payroll method for amortizing the UAAL, one alternative for SERS is to switch back to the level-dollar method, which it used prior to 2000.

Figure 15 shows a projection of SERS' funded ratio under the level-percent-of-payroll and level-dollar amortization methods, maintaining the full funding date of 2032. Due to the backloading of amortization payments, the funded ratio under the level-percent-of-payroll method falls below that of the level-dollar method. However, because the 2032 full funding date is only 18 years away, the path of the funded ratio differs very little between the two methods.

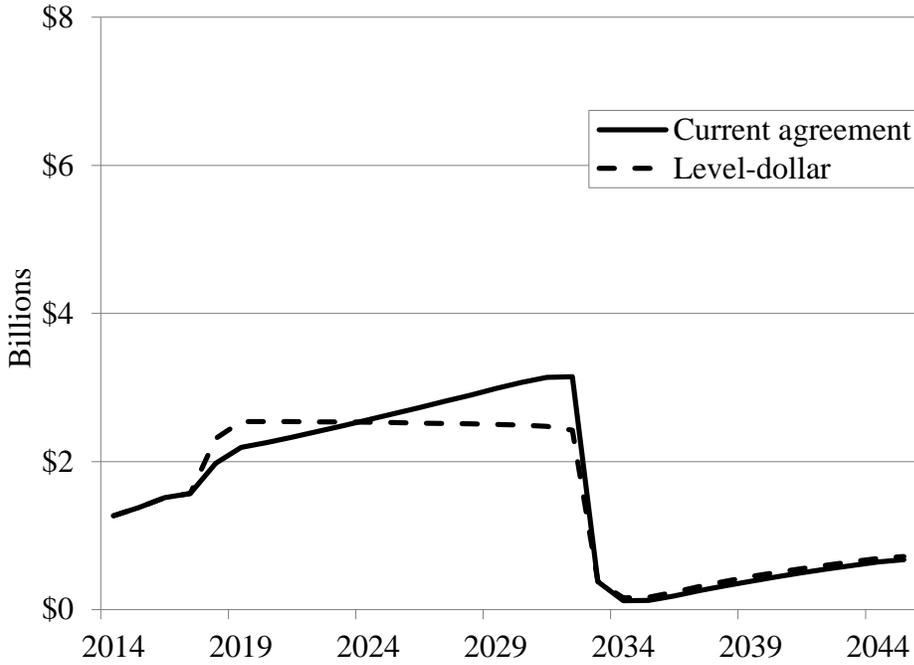
Figure 15. *Projected Funded Ratio for SERS under Alternative Funding Methods, 2014-2045*



Source: CRR calculations.

Unlike the funded ratio, the State's required contributions under a level-percent-of-payroll and level-dollar method have noticeably different trajectories (see Figure 16). Contributions under the level-percent-of-payroll method begin at \$2 billion in the early years, but soon exceed the level-dollar payments, ultimately peaking at \$3.1 billion in 2032. On the other hand, contributions under the level-dollar method remain relatively steady at just about \$2.5 billion annually. In both cases, the State's costs drop dramatically once the plan achieves full funding.

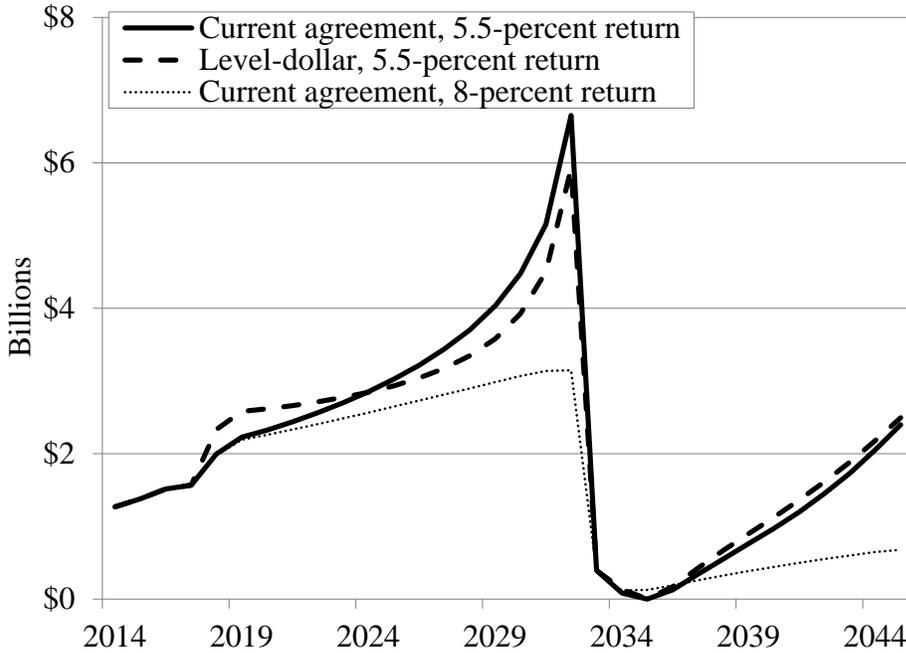
Figure 16. *Projected ARC for SERS under Alternative Funding Methods, 2014-2045*



Source: CRR calculations.

Once again, investment returns are integral to the cost projections. Figure 17 shows employer costs under the two amortization methods with a 5.5-percent return going forward. Under both funding methods, costs could rise to \$6-\$7 billion before dropping once the plan reaches full funding. For visual comparison, the light line in the figure shows projected costs under the current agreement and under an 8-percent return.

Figure 17. *Projected ARC for SERS under Alternative Funding Methods and a 5.5-Percent Return, 2014-2045*



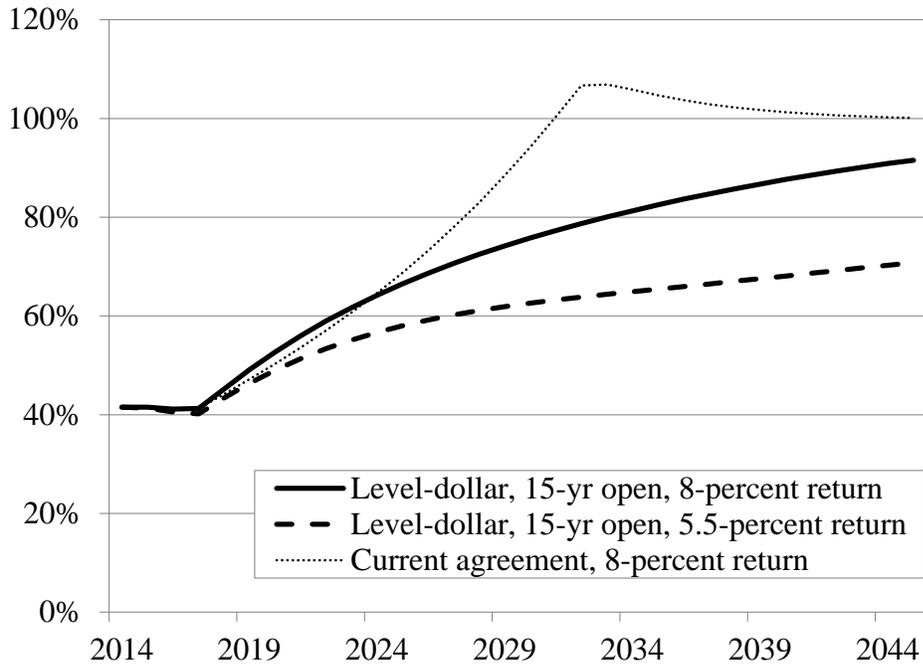
Source: CRR calculations.

*Alternative 2. Switch to a Level-Dollar and 15-year Open Amortization of the UAAL*

As the above figures show, maintaining the status quo may be quite costly for the State, especially if SERS does not realize its assumed 8-percent return. Switching to a level-dollar method provides little relief, as required contributions rise immediately. Additionally, in terms of budgeting, the precipitous drop in contributions once the plan reaches full funding is not practical. As such, it may be preferable to relax the 2032 full funding date in addition to using the level-dollar approach.

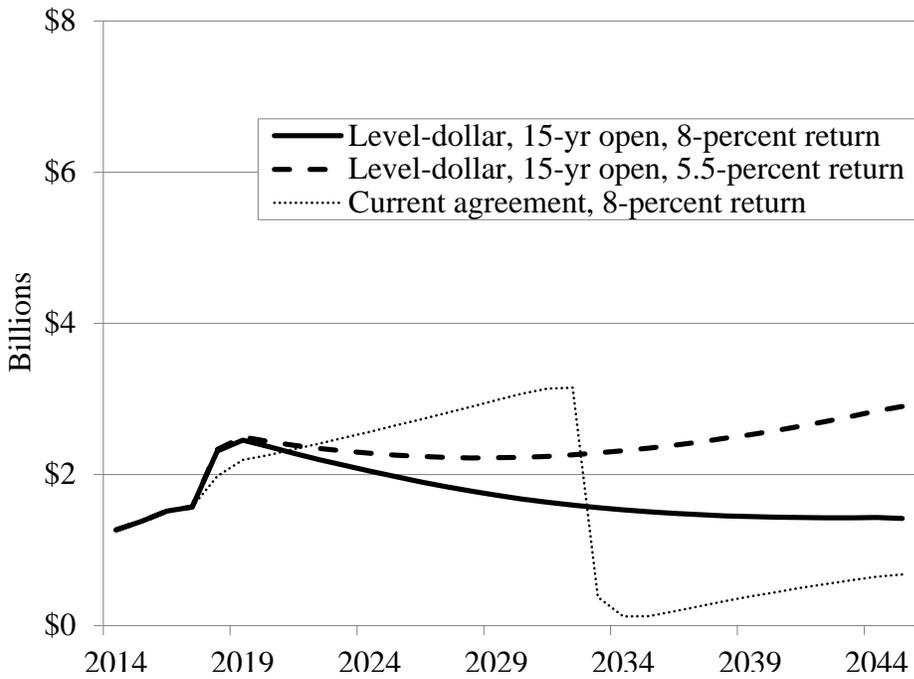
Figures 18 and 19 show the results of this approach under SERS’ assumed return – 8 percent – and a 5.5-percent return (similar to the average return since 2000). The actual outcome will likely fall in between. While the 15-year open amortization approach does mitigate costs, it also delays full funding. This delay can be especially meaningful if returns are below expectations.

Figure 18. *Projected Funded Ratio for SERS under Level-Dollar, 15-yr Open Amortization, 2014-2045*



Source: CRR calculations.

Figure 19. *Projected ARC for SERS under Level-Dollar, 15-yr Open Amortization, 2014-2045*



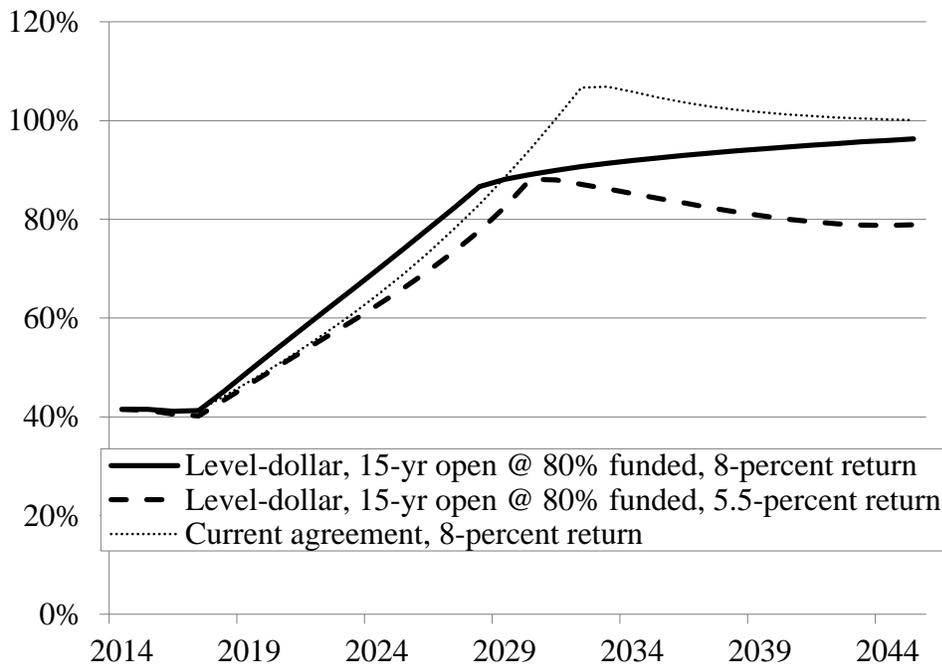
Source: CRR calculations.

*Alternative 3. Relax 2032 Full-funding Date When 80 Percent Funded*

Whether under a level dollar or level-percent amortization, the 2032 full-funding date presents real risks to the State of dramatic contribution rate volatility as the date approaches. Yet, shifting to a 15-year open amortization significantly delays funding improvements. One other approach is to maintain the 2032 goal until the plan reaches a lower funding threshold deemed to be adequate. At that point, relaxing the full-funding date may provide contribution rate relief, while not greatly risking the plan’s fiscal health.

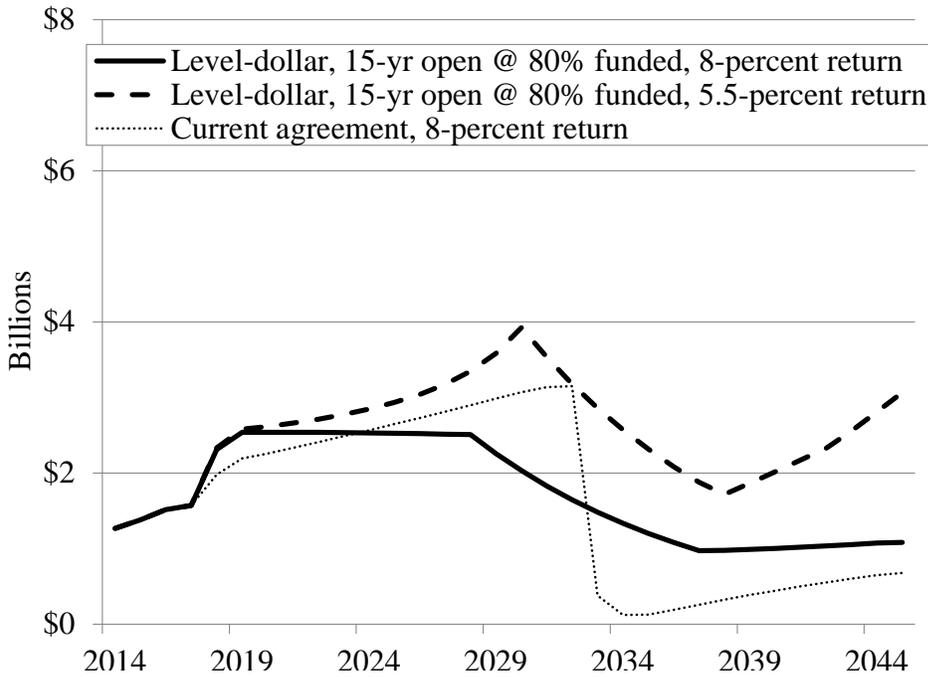
Figures 20 and 21 (below) show the funded ratio and State required contributions under a level-dollar amortization approach that maintains the 2032 full-funding date until SERS is 80-percent funded and then shifts to an open 15-year amortization. As the figure shows, under both the 8-percent and 5.5-percent return scenarios, funding improves quickly in the early years under the 2032 full-funding date and, when the plan shifts to an open amortization, contribution pressure is reduced, while maintaining reasonable funding.

Figure 20. *Projected Funded Ratio for SERS under Level-Dollar and 15-yr Open Amortization at 80-percent Funded, 2014-2045*



Source: CRR calculations.

Figure 21. *Projected ARC for SERS under Level-Dollar and 15-yr Open Amortization at 80-percent Funded, 2014-2045*

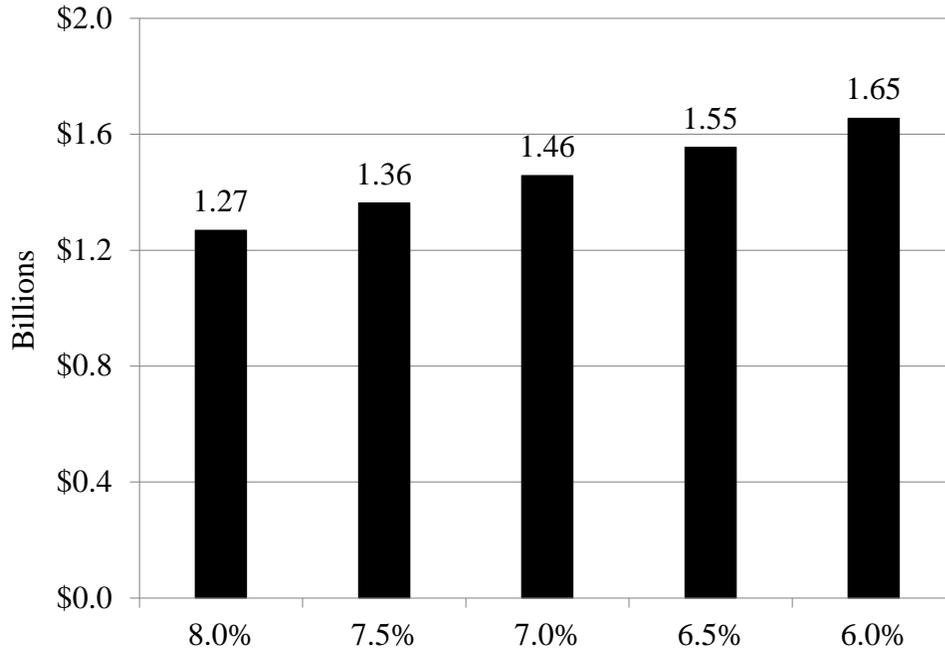


Source: CRR calculations.

#### *Lowering the Discount Rate/Long-Term Assumed Return*

The decision to change the long-term assumed return involves a clear trade-off. Reducing the assumed return means paying more into the system (to make up for lower expected returns). But, it also lowers the likelihood of paying amortization payments in the future for unfunded liabilities that arise due to investment performance that is below the assumed return. Conversely, increasing the assumed return means paying less up front, but it increases the likelihood of having to pay more to make up for unfunded liabilities that accrue if investment experience falls short. Figure 22 shows the impact of various discount rates on the 2014 ARC for SERS. It reflects the change in up-front costs from discount rate changes, but does not include the change in the likelihood of paying UAAL payments down the road if returns do not meet expectations.

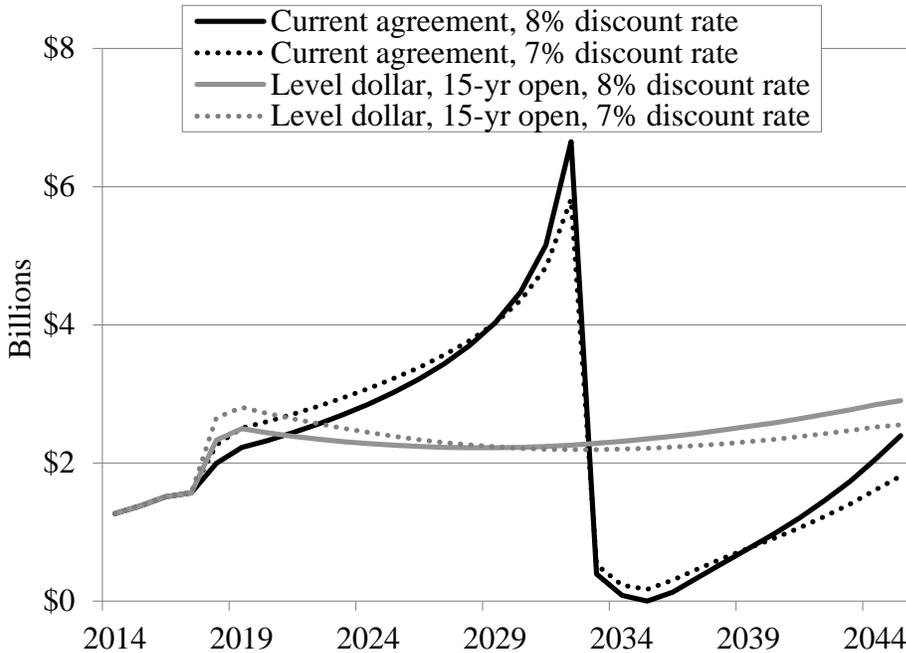
Figure 22. 2014 ARC for SERS under Various Discount Rates/Long-term Assumed Returns



Source: CRR calculations.

Figure 23 shows the trajectory of costs for SERS under an 8-percent and 7-percent assumed return, given an actual return of 5.5 percent. The figure illustrates the trade-off described above. When compared to the 8-percent assumed return, the 7-percent assumed return requires greater contributions in the early years and less in the later years.

Figure 23. *Projected ARC for SERS under Various Discount Rates and a 5.5-percent Return, 2014-2045*



Source: CRR calculations.

### *Separately Finance Liabilities for Tier 1 Members*

When considering alternatives for addressing SERS unfunded liability going forward, the separate financing of legacy costs, particularly for unfunded Tier 1 benefits, should be considered. As stated above, Tier 1 benefits were totally unfunded prior to 1971 and only partially funded from 1971-1985. However, accurately apportioning the *current* unfunded liability to each tier requires a detailed account of how each Tier has been funded over time. A tier-specific funding history is difficult to determine as all pension assets and contributions are commingled in a single retirement trust to finance benefit payments to *all* members, not individual tiers. Getting some sense of each Tier’s individual funded status requires recreating the funding history for SERS as if each Tier were separately funded, with assets held in its own trust.<sup>6</sup> As shown in Table 1, the majority of SERS current unfunded liabilities are, in fact, for Tier 1, while the more recent Tiers are relatively well funded.

<sup>6</sup> We estimate annual liabilities and benefit payments for Tier I assuming a straight-line growth in liabilities and annual benefit payments from the SERS total levels (all Tier 1) in 1983 to the 2014 levels specifically for Tier 1 provided by the SERS administrators and actuaries. For Tier 1 employer normal cost contributions, we use the annual employer normal costs reported in the actuarial valuation. Tier 1 employee contributions are based on the reported payroll for each tier in the actuarial valuation and the member contribution rate. Investment returns for Tier 1 are assumed to be equal to the returns experienced by SERS as a whole. We back into the assets, liabilities, and unfunded liabilities for the remaining Tiers by subtracting Tier 1 estimates from the totals for SERS liabilities, assets, unfunded liabilities, and contributions reported in the annual valuations. Tier 1’s amortization payment is proportional to SERS total amortization payment based on the proportion of the UAAL that Tier 1 represents two years prior.

Table 1. 2014 Assets, Liabilities, Unfunded Liabilities, and Funded Ratio for SERS, by Tier

Tier	Assets (billions)	Liabilities (billions)	Unfunded liabilities (billions)	Funded ratio
Tier I	\$3.7	\$14.4	\$10.7	25.4%
Tiers II, IIA, III	6.9	11.1	4.2	62.4
Total	10.6	25.5	14.9	41.5

Source: CRR calculations based on data from SERS Actuary and Connecticut SERS 2014 Valuation.

Today, the majority of Tier 1 members are retired, and nearly 85 percent of Tier 1 liabilities are for retirees (see Table 2). Thus, the current unfunded liability is primarily the product of benefit promises made to existing retirees (Tier 1) that were never properly funded. In contrast, benefits for most current employees (Tier II, IIA, and III) have been relatively well funded as they have accrued.

Table 2. 2014 Membership and Liabilities for SERS, by Tier

Tier	Actives	Retirees	Active liability (billions)	Retiree liability (billions)
Tier I	2,281	29,214	\$1.3	\$13.1
Tiers II, IIA, III	47,695	16,589	6.1	5.0
Total	49,976	45,803	7.4	18.1

Source: CRR calculations based on data from SERS Actuary and Connecticut SERS 2014 Valuation.

Separately financing the liabilities associated with Tier 1 members recognizes the historical difference in the funding of benefits for Tier 1 members when compared to other Tiers. Benefits for Tier I members have been consistently underfunded (even after pre-funding began), and today are only 25 percent funded. Benefits for members of Tiers II, IIA, and III have been more dutifully funded, and today are about 62 percent funded.

The two main policy arguments for separately financing Tier 1 liabilities are intergenerational equity and the perception of costs for current employees. First is intergenerational equity. The unfunded liability for Tier 1 has been accumulated over multiple generations, and the services provided by those members are no longer being enjoyed by current generations because most Tier 1 members are now retired. As such, it is not fair to place the entire burden of funding the remaining Tier 1 benefits on a single generation (as under the current agreement). A longer time horizon for amortizing Tier 1 liabilities that better spreads the costs over multiple generations would be more appropriate. The second argument is that the cost of Tier 1 benefits place an undue burden on current employees. The funded status of benefits for more recent Tiers is estimated to be about 62 percent. And the cost of ongoing benefits for these Tiers is only about 10 percent of payroll, below the national average. In contrast, the funded status of Tier 1 benefits is only about 25 percent and Tier 1 retirees receive more generous benefits than those in more recent Tiers. Separating the financing of Tier 1 benefits from other Tiers allows for a more

accurate accounting of pension costs for current employees, while clearly defining the costs attributable to a closed system that, for the most part, services retired state employees.

## **F. Conclusion**

SERS faces rapidly rising pension costs over the next 18 years if it continues with its current plan to fully fund the system by 2032. The majority of these costs are a result of the relatively short time period over which SERS has chosen to pay down its large UAAL. SERS' UAAL is mainly the result of underfunding benefits for Tier 1 members, those hired prior to pre-funding. Although unfunded liabilities occurred after the system started to pre-fund – due to inadequate contributions, investment returns (since 2000) less than assumptions, and poor actuarial experience – benefits earned by members of the more recent tiers (Tiers II, IIA, and III) have been relatively well funded. This report identifies four adjustments to the current funding plan both to address the large costs associated with underfunded Tier 1 benefits, and to prevent future funding shortfalls for the more recent Tiers II, IIA, and III.

To address the costs associated with underfunded Tier 1 benefits:

- separately finance – over a long time horizon – the liabilities for Tier 1 members.

To prevent funding shortfalls for ongoing benefits:

- shift to level-dollar amortization of unfunded liabilities;
- replace 2032 full-funding date with a reasonable rolling amortization period; and
- lower the long-term assumed investment return

Implementing these changes will more fairly distribute the costs associated with underfunded Tier 1 benefits and better secure ongoing benefits for current employees.

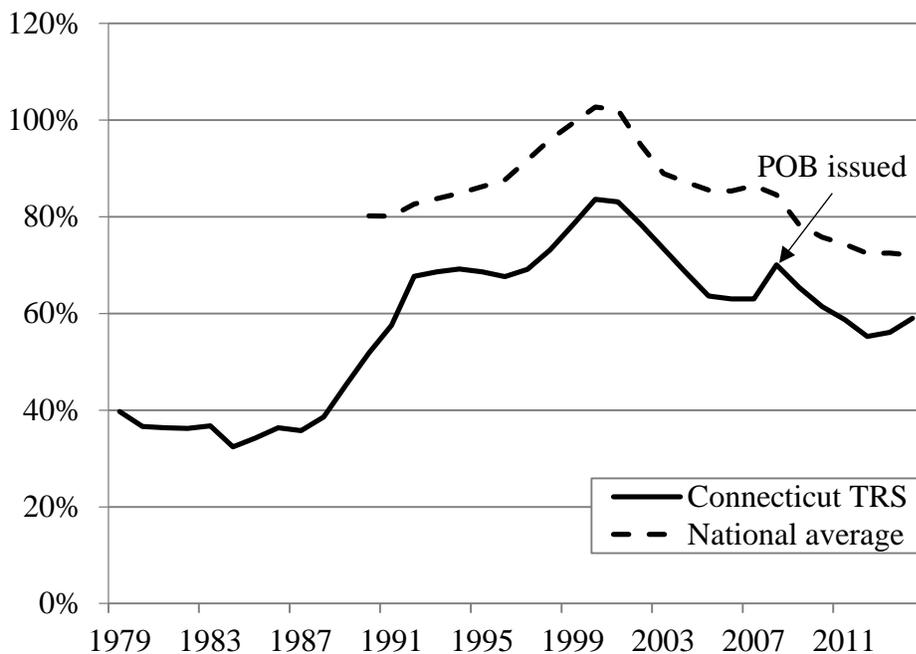
### III. Connecticut Teachers' Retirement System (TRS)

#### A. A Brief History of TRS' Funding

Like SERS, TRS has been providing retirement benefits to its members since at least 1939 – longer than most state and local retirement systems in the United States. And, also like SERS, for much of TRS' history, benefits were paid as they came due, through annual appropriations by the State.

In 1979, the Legislature established an actuarial funding program (Public Act 79-436). Figure 24 shows the funded status for TRS from its first actuarial valuation performed as of July 1, 1979 through 2014 and provides, for comparison purposes, the national average funded ratio for state and local plans since 1990 (data prior to 1990 were not available).

Figure 24. *Funded Ratio of Connecticut TRS Compared to the National Average, 1979-2014*



Note: Beginning in 1992, TRS valuations have been performed biennially in even-numbered years (e.g., 1992, 1994, 1996). Data for odd-numbered years are estimated by taking the average of the year before and after.

Sources: Various actuarial valuations for Connecticut TRS; PENDAT (1990-2000); and *Public Plans Database* (2001-2014).

At the outset, TRS was 40-percent funded (due in large part to the accumulation of employee contributions) and had a \$1.5 billion unfunded liability (equaling 234 percent of TRS' payroll). After about 10 years of pre-funding by the State, TRS entered the 1990s with a funded ratio of only about 50 percent – well below the national average. And its UAAL was still 238 percent of payroll (compared to a national average of 56 percent). While TRS' funded ratio has remained below the national average since 1990, it shares a similar pattern, rising due to strong market performance from 1990-2000, and then declining as a result of two financial downturns since

2000. Today, the unfunded liability of TRS stands at \$11 billion, equaling 282 percent of TRS' payroll compared to the national average of 185 percent.

## **B. Factors Driving Current Unfunded Liabilities in TRS**

Three factors are behind the current unfunded liability of TRS: 1) legacy costs due to benefits promised before TRS was pre-funded; 2) a history of inadequate contributions once the State decided to pre-fund; and 3) investment returns less than expectations since 2000. Each factor will be discussed in detail below. Dollar amounts have not been adjusted for inflation.

### *Legacy Costs*

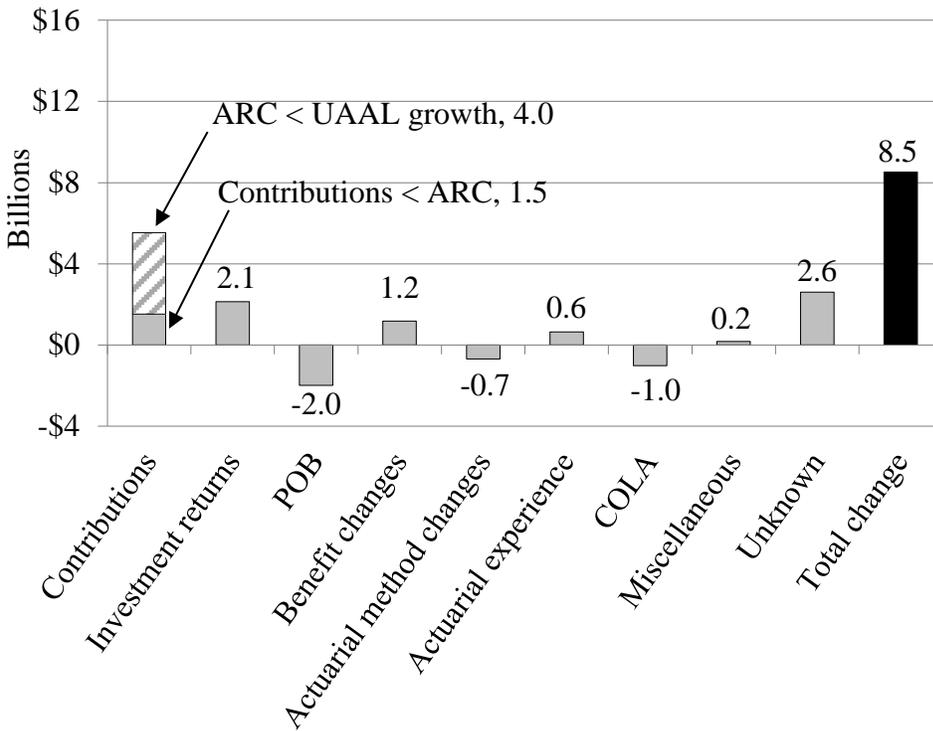
A large portion of TRS' current unfunded liability stems from the many years of benefits promised without pre-funding. Retirement benefits earned by employees prior to 1979 were completely unfunded by the State (although partially pre-funded through employee contributions). When the State decided to pre-fund benefits, it was immediately presented with a \$1.5 billion unfunded liability for benefits earned by employees during the pay-go years. The burden of those unfunded benefits still lingers in the current finances of TRS, accounting for \$4.1 billion, or about 38 percent, of TRS' \$10.8-billion unfunded liability.

In addition to the initial legacy costs, other factors have also played a role in today's unfunded liability. Because detailed data on TRS' unfunded liability are not available from 1979-1982, this assessment of TRS' underfunding focuses primarily on the change in the unfunded liability from 1983-present (see Figure 25).<sup>7</sup>

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<sup>7</sup> See the Appendix for a detailed account of the annual changes to the UAAL since 1985.

Figure 25. Sources of Change to UAAL for TRS, 1983-2014, in Billions



Source: CRR calculations based on various actuarial valuations for Connecticut TRS.

Since 1983, the UAAL has grown by \$8.5 billion – from an initial value of \$2.5 billion to today’s value of \$11 billion.<sup>8</sup> As Figure 28 shows, the two largest identifiable contributors to the growth in the UAAL have been inadequate contributions and low investment returns relative to the assumed return. Other elements, such as actuarial experience, benefit changes, and changes to assumptions and methods have had marginal and essentially offsetting impacts. The Pension Obligation Bond (POB) issued by the State in 2008 – discussed below – lowered the UAAL by \$2 billion, but simultaneously increased the State’s overall indebtedness by \$2 billion.

*Inadequate Contributions*

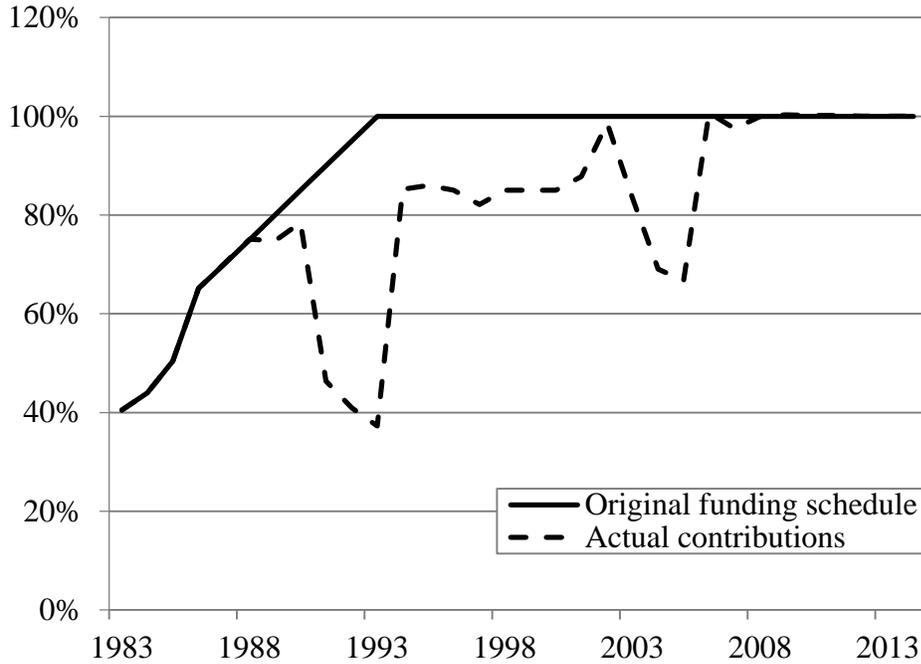
Paying down the unfunded liability has two components: 1) calculating an amortization payment that keeps the unfunded liability from growing each year; and 2) making the full payment. Connecticut TRS has fallen short in both areas. Similar to SERS, TRS’ underpayment of the ARC began as soon as the State decided to pre-fund. At the outset, State law provided for a ramp-up schedule in the State’s funding requirement. In 1979, the State was only required to pay 35 percent of the ARC. This percentage was scheduled to gradually increase until 1993, when the State would be required to pay the full ARC.

Figure 26 shows the actual payments relative to the scheduled percent of ARC from 1983-2014. While the State has made good on its obligation to pay the ARC in recent years, TRS (like

<sup>8</sup> See the Appendix for the methodology of the UAAL analysis.

SERS) has not been as disciplined historically. Even during the ramp-up period prior to 1993, the State often did not meet the lower scheduled payments. Since 1985, underpayment has added \$1.5 billion in unfunded liabilities (see the solid grey area of the contributions bar in Figure 25).

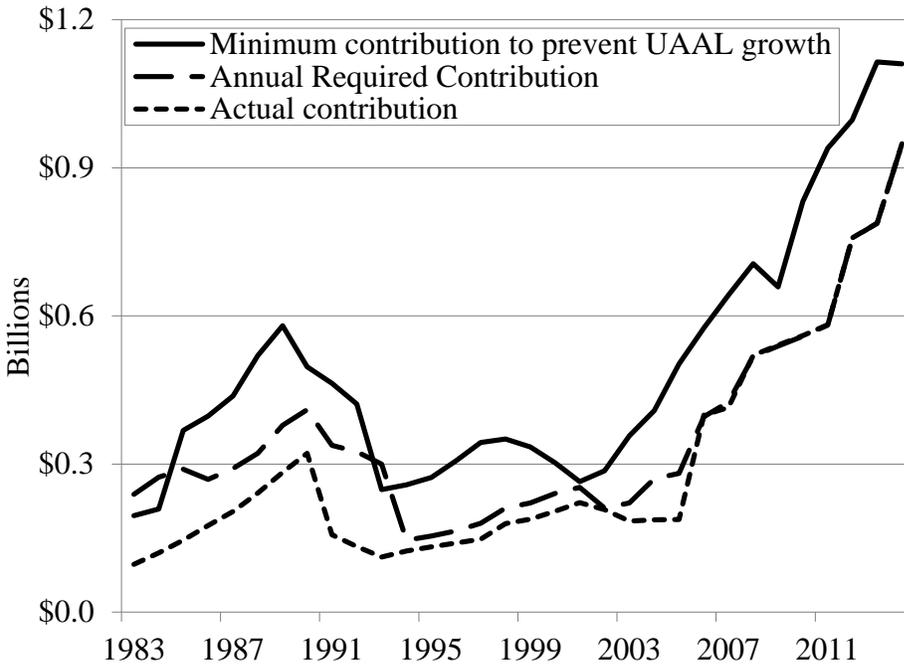
Figure 26. *Percent of Annual Required Contributions Paid for TRS, 1983-2014*



Source: CRR calculations based on various actuarial valuations for Connecticut TRS.

Figure 27 shows the minimum contribution required to prevent growth in the UAAL, compared to the calculated ARC and the actual contributions made from 1983-2014.

Figure 27. *Minimum Contribution to Prevent UAAL Growth, ARC, and Actual Contribution for TRS, 1983-2014*



Source: CRR calculations based on various actuarial valuations for Connecticut TRS.

Since the State began pre-funding TRS, the level-percent-of-payroll method has been used to calculate the UAAL amortization payment. As discussed earlier, this method backloads payments and, when coupled with a long amortization period, results in payments that are too low to keep the UAAL from growing during the early years of the period. From 1979-1992, TRS annually reset its 40-year horizon. In 1992, TRS set the amortization date to 2032. As a result, even if the State had paid the ARC in most years – which it did not – payments would not have been enough to slow the growth of the UAAL. Since 1985, the use of the level-percent-of-payroll method to calculate the amortization component of the ARC has added \$4.0 billion in unfunded liabilities (see the hatched grey area of the contributions bar in Figure 25).<sup>9</sup> In combination with the \$1.5 billion in unfunded liabilities from underpayment of the ARC, the total unfunded liabilities due to inadequate contributions for TRS are \$5.5 billion.

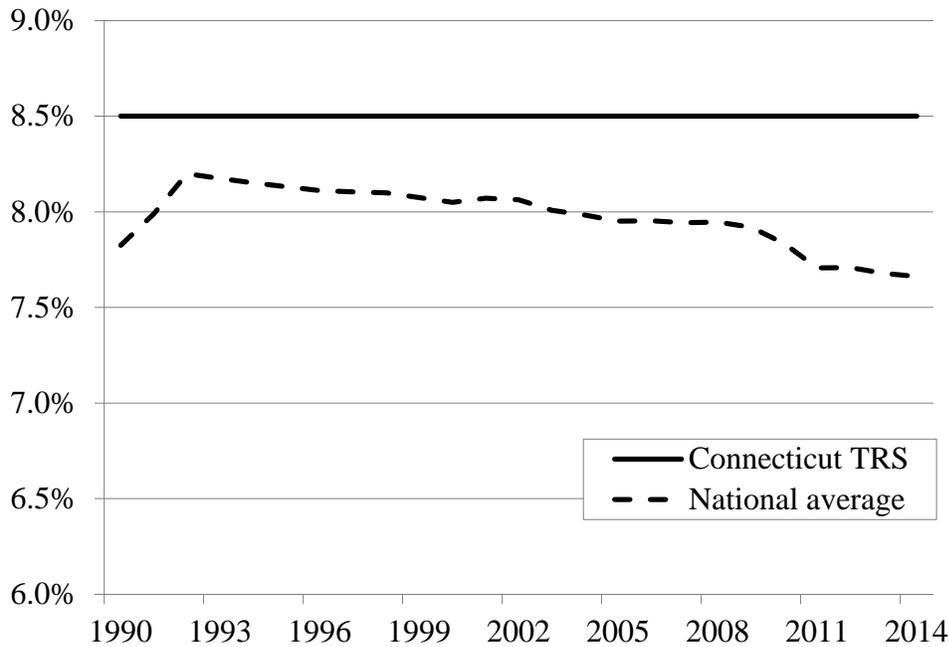
### *Investment Returns*

The impact of investment returns on the unfunded liability depends on the difference between the system’s assumed return and actual return. For TRS, this difference has added \$2.7 billion in unfunded liabilities since 1985. Figure 28 shows the TRS’ assumed return compared to the national average from 1990-2014. Like SERS, TRS’ assumed return has been, and continues to

<sup>9</sup> A smaller issue with the calculated ARC is that there is a delay between when the ARC is calculated and when it is scheduled to be paid. As a result, the amortization payment scheduled for each year is generally based on the UAAL from two or three years prior. This situation often results in contributions that are inadequate for the current year’s unfunded liability.

be, high compared to the national average. However, unlike SERS, TRS has not lowered its assumed return in the wake of the financial crisis. This reluctance to lower the return assumption is difficult to understand given that, since at least 2000, the assets of TRS and SERS have both been held within Connecticut’s Combined Investment Fund and have had nearly identical asset allocations.

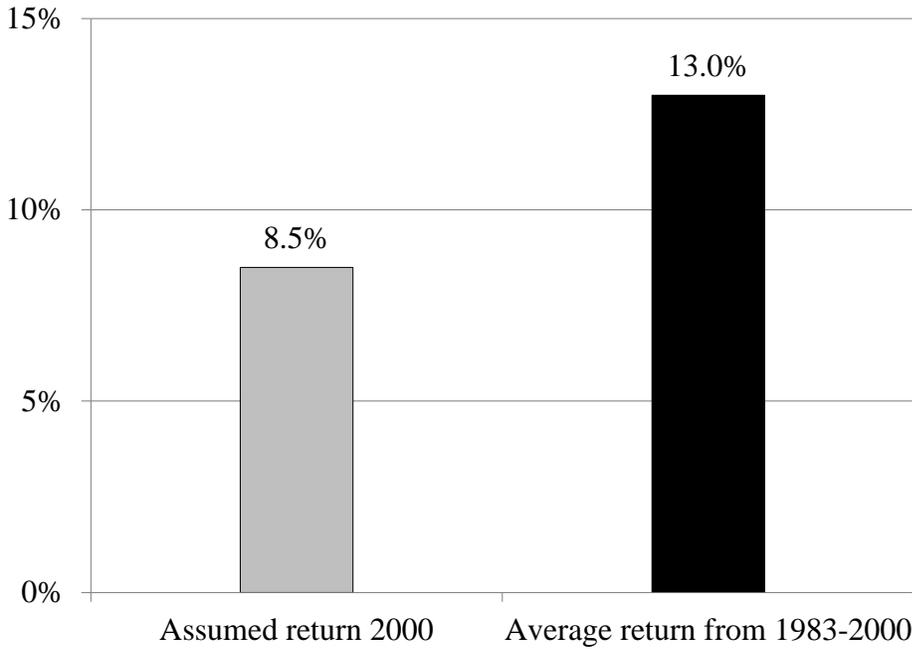
Figure 28. *Assumed Return for TRS Compared to the National Average, 1990-2014*



Sources: Various actuarial valuations for Connecticut TRS; PENDAT (1990-2000); and *Public Plans Database* (2001-2014).

Figure 29a compares the actual and assumed return for TRS from 1983-2000. Over that period, TRS’ investment return was 4.5 percentage points above its assumed return. As a result, investment experience from 1985-2000 *reduced* unfunded liabilities by \$3.5 billion.

Figure 29a. *Actual and Assumed Investment Return for TRS, 1983-2000*



Sources: Various actuarial valuations for Connecticut TRS; and U.S Census Bureau (1983-2000).

Figure 29b compares the actual and assumed returns for TRS from 2001-2014. Unlike the prior years, TRS’ investment experience during this period was more than 3.0 percentage points below its assumed return. As a result, investment experience has added \$5.7 billion in unfunded liabilities since 2000.

Figure 29b. *Actual and Assumed Investment Return for TRS, 2001-2014*



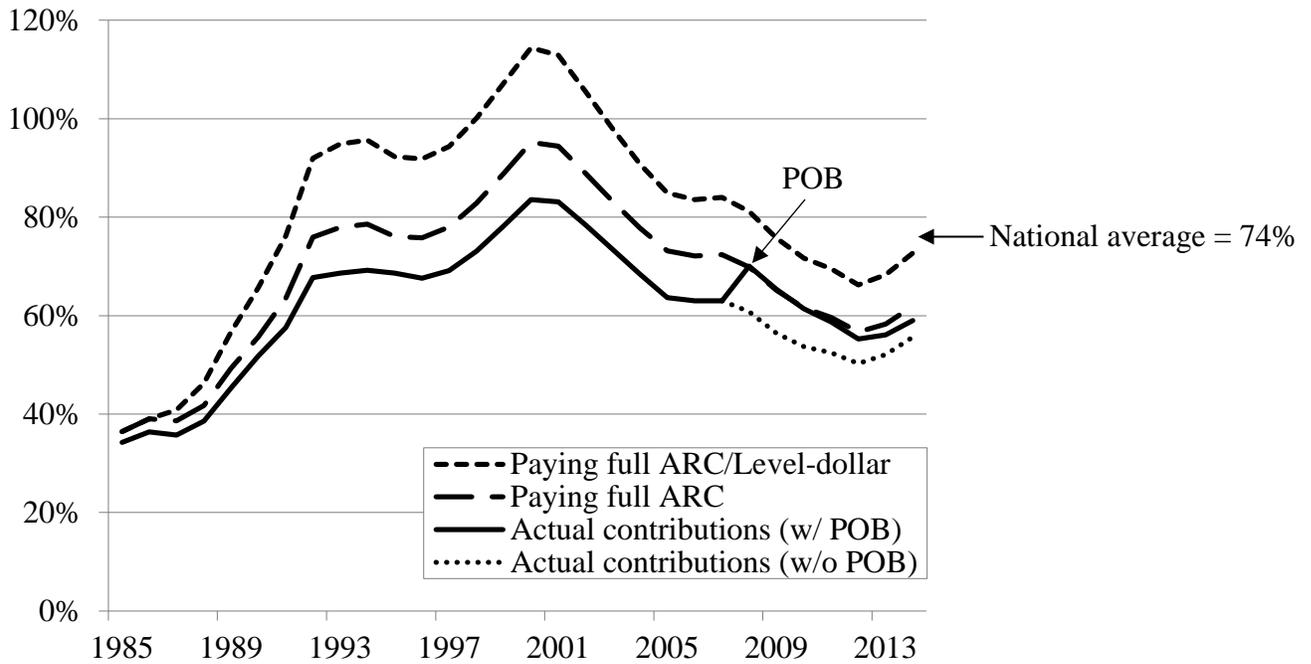
Sources: Various actuarial valuations for Connecticut TRS; and U.S Census Bureau (2001-2014).

### **C. An Alternate History for TRS: Controllable vs. Uncontrollable Factors**

Like SERS, the majority of TRS' current underfunding stems from the legacy of unfunded benefits, inadequate contributions throughout the State's history of pre-funding, and low investment returns relative to the assumed return since 2000. Some of these factors are more controllable than others. Nothing could be done about the initial legacy costs, other than to have had the State pre-fund benefits since TRS' inception. The impact of the low returns could have been mitigated by lowering the assumed return, but actual investment performance is extremely difficult to predict. However, contributions (and how they were calculated) were definitely within the control of the State, and the State often knowingly underpaid.

What would TRS' funded level be today if the plan had: a) fully paid the ARC from 1985-2014; and b) used a level-dollar amortization method throughout? To answer this question, we recalculate TRS' funded ratio over time under these two assumptions (see Figure 30).

Figure 30. TRS Funded Ratio under Various Funding Regimes, 1985-2014



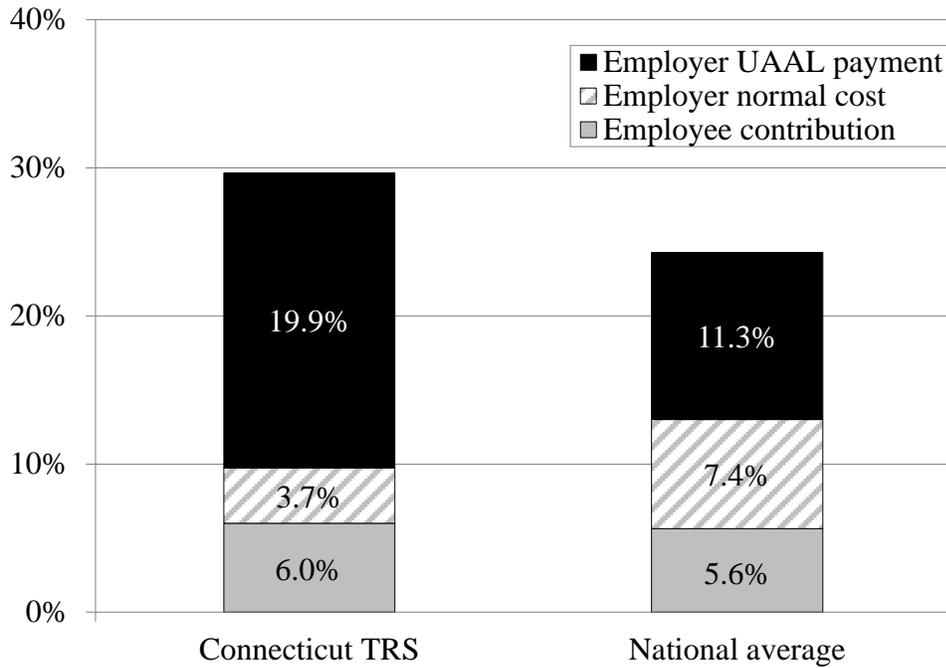
Source: CRR calculations based on various actuarial valuations for Connecticut TRS.

If TRS had simply paid its full ARC, its funded ratio would be slightly better than it is today (and it would not have had to issue a POB to reach that level). But, if the plan had also used a level-dollar amortization method throughout, its current funded ratio would have improved to 71 percent – just below the national average.

#### D. Projections of TRS’ Finances

This section projects the funded ratio for TRS and the State’s required contributions under current law. Like SERS, the main driver of contributions to TRS is the unfunded liability from legacy costs and funding shortfalls, not overly generous benefits. The total normal cost as a percent of payroll (employee contributions plus employer normal cost) is a good way to compare plan generosity among plans. Figure 31 shows that benefits provided to members of TRS actually fall below that of Teachers’ plans elsewhere, and that the State pays very little compared to the national average. The lion’s share of costs to the State is due to the unfunded liability.

Figure 31. 2014 Actuarial Costs as a Percent of Payroll for TRS Compared to the National Average, by Element

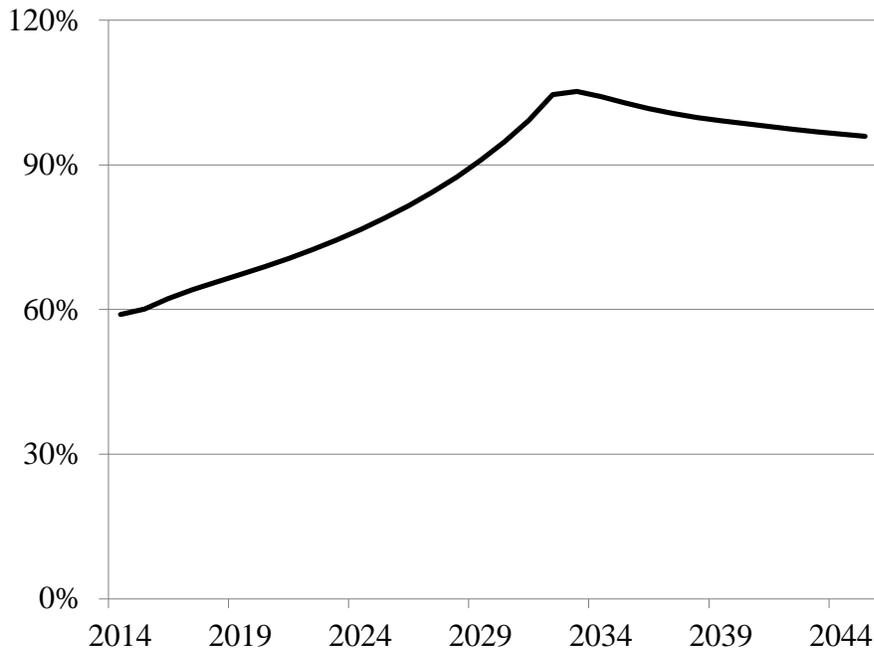


Sources: CRR calculations based on various actuarial valuations for Connecticut TRS; and *Public Plans Database* (2014).

Under current law, TRS’ unfunded liability is to be paid off by 2032 (a closed period) using the level-percent-of-payroll amortization method.<sup>10</sup> Figure 32 shows the funded ratio and Figure 33 shows the ARC (normal cost plus amortization payment) under current law from 2014-2045. If the State pays the full ARC, TRS achieves its assumed return of 8.5 percent each year, and actuarial experience perfectly matches assumptions, the figures show full funding is achieved by 2032. Over the same period, the ARC – primarily as a result of the back-loaded amortization method – steadily rises each year from just under \$1 billion in 2014 to \$1.7 billion in 2032. Once the UAAL is paid off, the required contribution drops precipitously to about \$150 million to cover TRS’ normal cost.

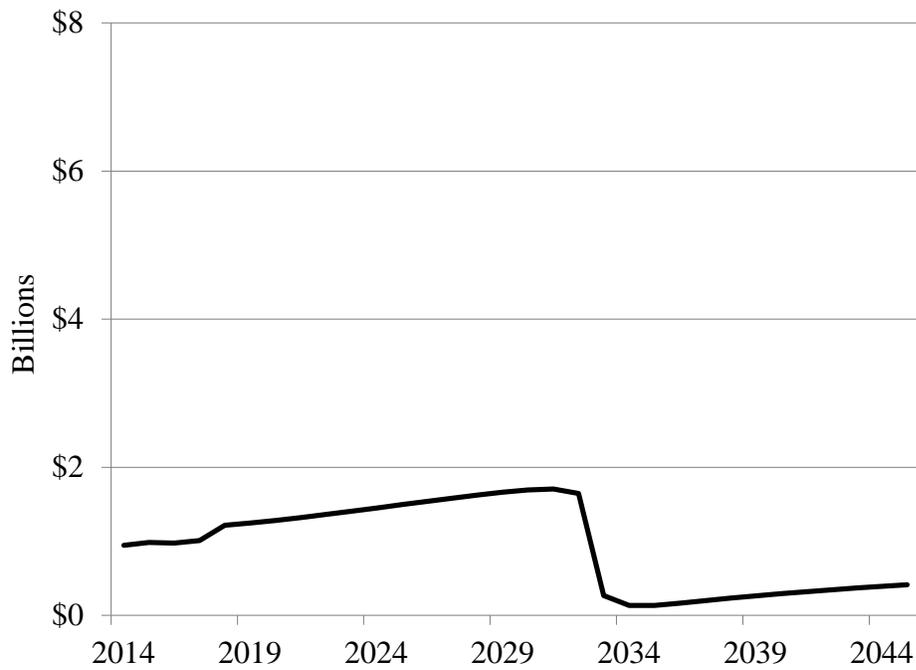
<sup>10</sup> A small portion of the TRS’s UAAL is being separately amortized over a longer period. This portion is primarily the result of benefit changes over time.

Figure 32. *Projected Funded Ratio for TRS under Current Law, 2014-2045*



Source: CRR calculations.

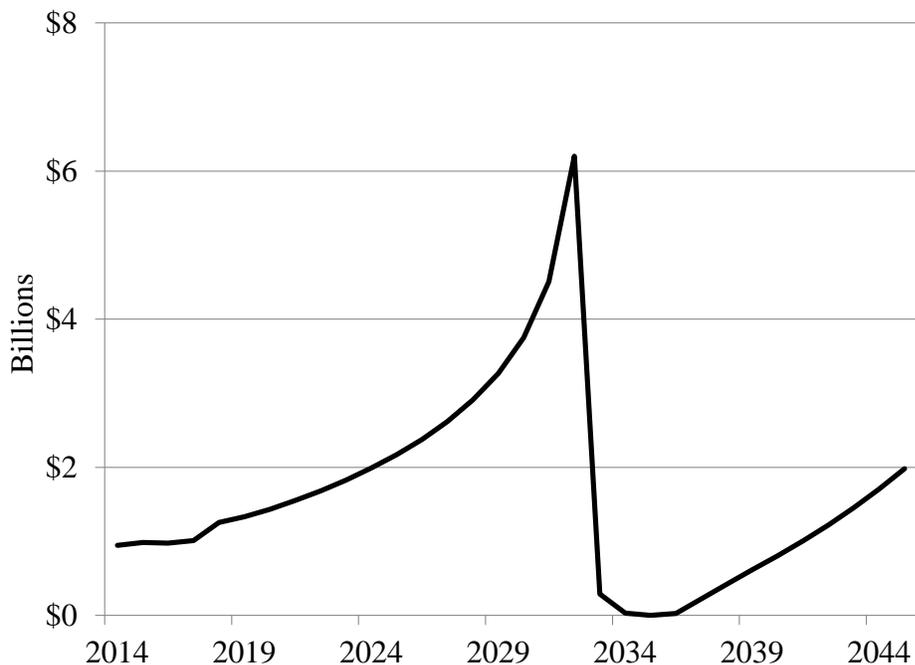
Figure 33. *Projected ARC for TRS under Current Law, 2014-2045*



Source: CRR calculations.

The assumption that TRS achieves its assumed return is critical to the cost projection. Figure 34 shows the ARC if the investment returns over the projection period are similar to the past decade – 5.5 percent – rather than TRS’ assumed return of 8.5 percent. In that case, the ARC rises from \$1 billion in 2014 to \$6 billion in 2032. Again, required contributions drop precipitously after the TRS achieves full funding.

Figure 34. *Projected ARC for TRS under Current Law, and a 5.5-Percent Return, 2014-2045*



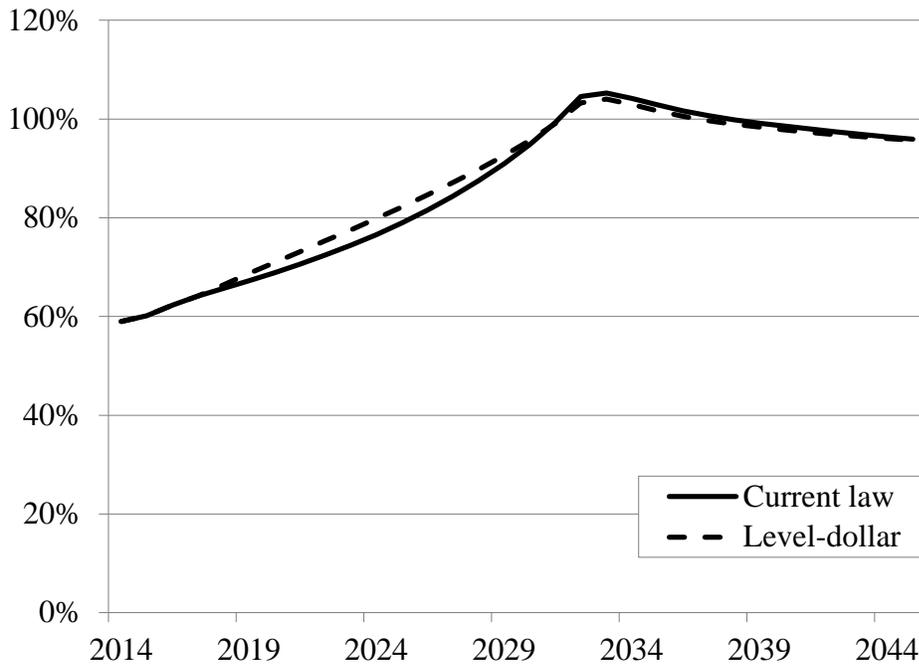
Source: CRR calculations.

### E. Alternatives to TRS’ Current Funding Methods

#### *Alternative 1. Switch to a Level-Dollar Amortization of the UAAL*

To limit the scheduled increases in cost resulting from the level-percent-of-payroll method, one alternative for TRS is to switch to level-dollar amortization of the UAAL. Figure 35 shows a projection of TRS’ funded ratio under the two methods, maintaining the full funding date of 2032. Due to the backloading of amortization payments, the funded ratio under the level-percent-of-payroll method falls below that of the level-dollar method. However, because the 2032 full funding date is only 18 years away, the path of the funded ratio differs very little between the two methods.

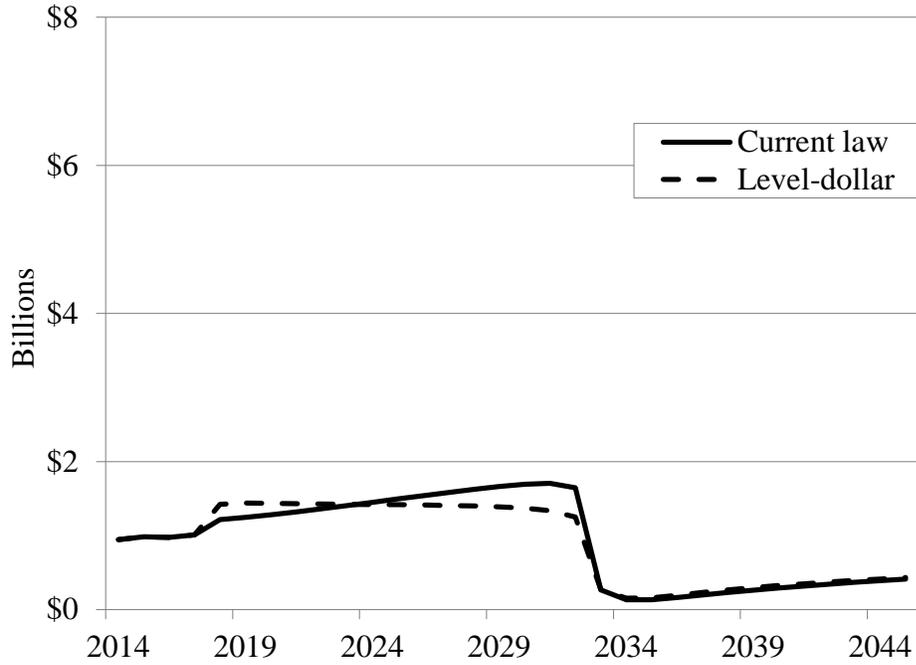
Figure 35. *Projected Funded Ratio for TRS under Alternative Funding Methods, 2014-2045*



Source: CRR calculations.

In contrast to the funded ratio, the contributions under the two amortization methods have very different trajectories (see Figure 36). While contributions under the level-dollar method are greater than those under the level-percent-of-payroll method in the early years, they stay relatively flat throughout at about \$1.3 billion. On the other hand, contributions under the level-percent-of-payroll method eventually exceed the level-dollar payments, peaking at \$1.7 billion in 2032. In both cases, State contributions drop precipitously to the TRS normal cost once the system reaches full funding.

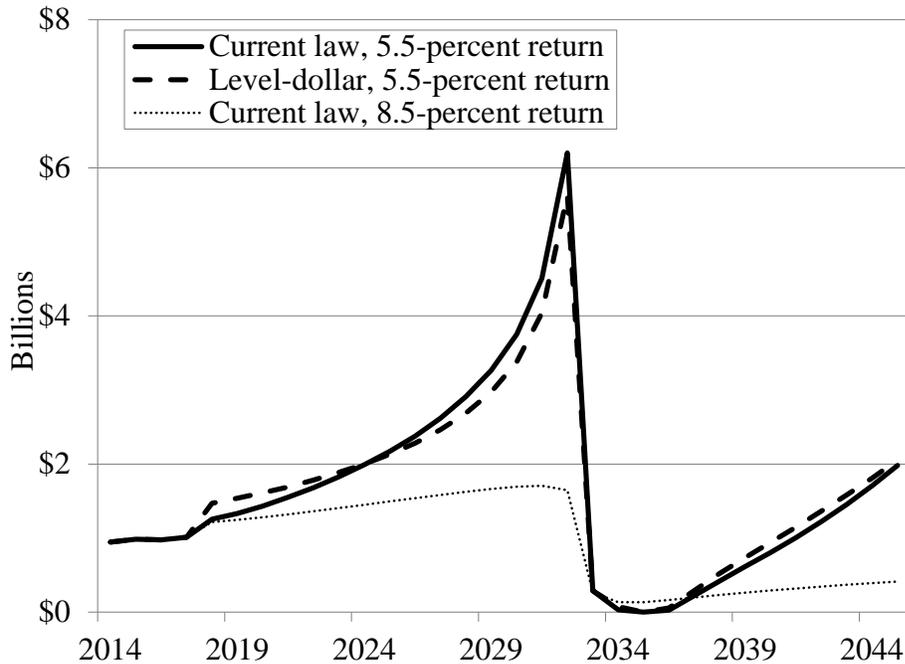
Figure 36. *Projected ARC for TRS under Alternative Funding Methods, 2014-2045*



Source: CRR calculations.

Again, because returns are critical to the projection of costs, Figure 37 shows employer costs under the two methods with a 5.5-percent return over the projection period. Under both methods, costs could rise to almost \$6.2 billion before dropping to about \$150 million in normal costs once the UAAL is paid off. For visual comparison, the light line in the figure shows the projected cost under current law and under an 8.5-percent return.

Figure 37. *Projected ARC for TRS under Alternative Funding Methods and a 5.5-Percent Return, 2014-2045*



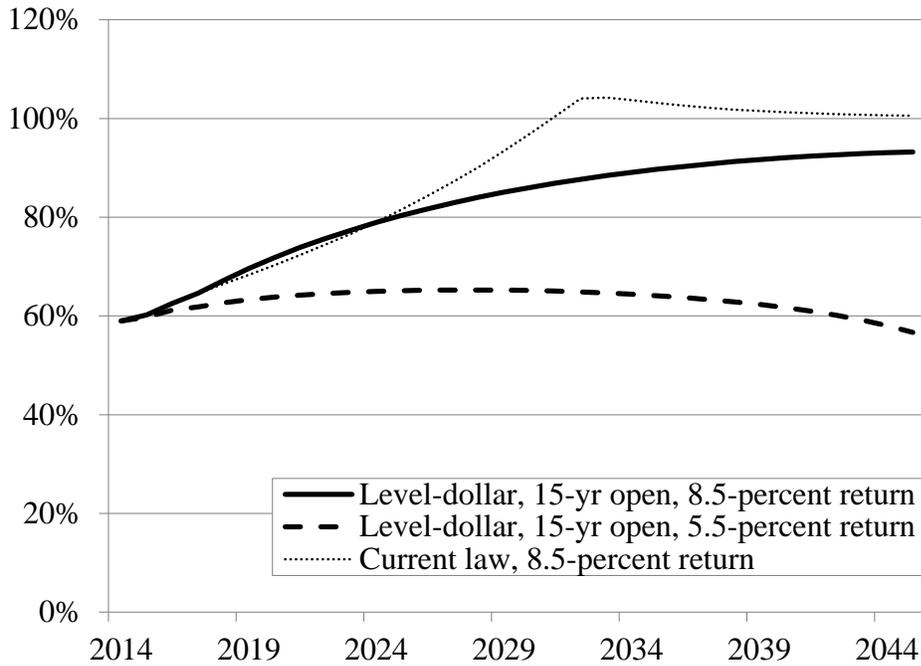
Source: CRR calculations.

*Alternative 2. Switch to a Level-Dollar and 15-year Open Amortization of the UAAL*

As the above figures show, maintaining the status quo may be quite costly for the State, especially if TRS does not realize its assumed return of 8.5 percent. Switching to a level-dollar method provides little relief. Additionally, in terms of budgeting, the precipitous drop in contributions once the plan reaches full funding is not practical. As such, it may be preferable to switch to a level-dollar amortization of the UAAL and employ a 15-year open period for amortization, allowing for more manageable contributions by the State while ensuring TRS remains well funded (if not fully funded).

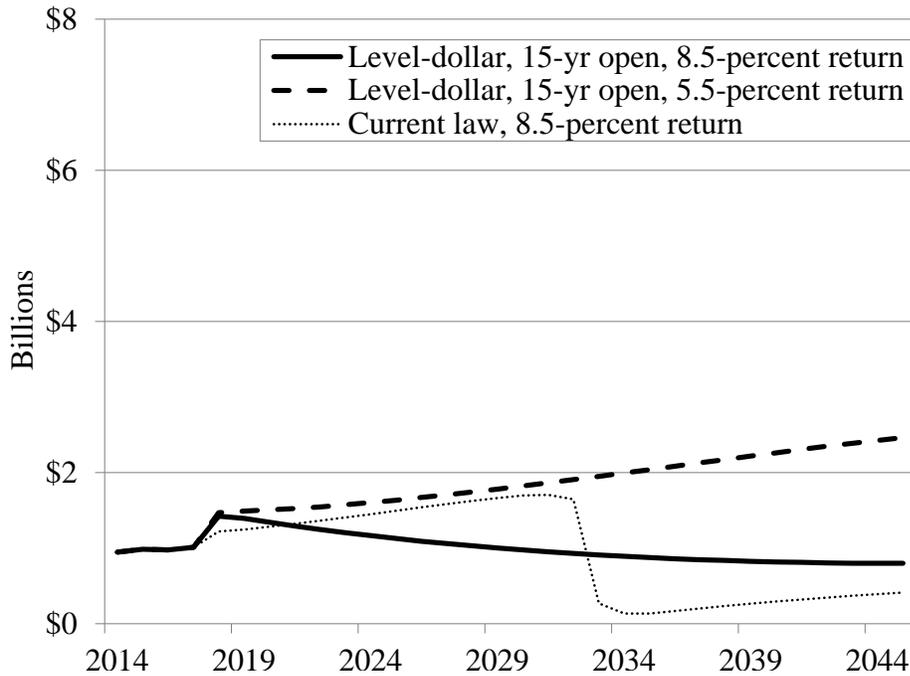
Figures 38 and 39 show the results of this approach under TRS’ assumed return – 8.5 percent – and a 5.5-percent return (similar to the average return since 2000). The actual outcome will likely fall in between. While the 15-year open amortization approach does mitigate costs, it also delays full funding. This delay can be especially meaningful when returns are below expectations.

Figure 38. *Projected Funded Ratio for TRS under Level-Dollar, 15-year Open Amortization, 2014-2045*



Source: CRR calculations.

Figure 39. *Projected ARC for TRS under Level-Dollar, 15-year Open Amortization, 2014-2045*



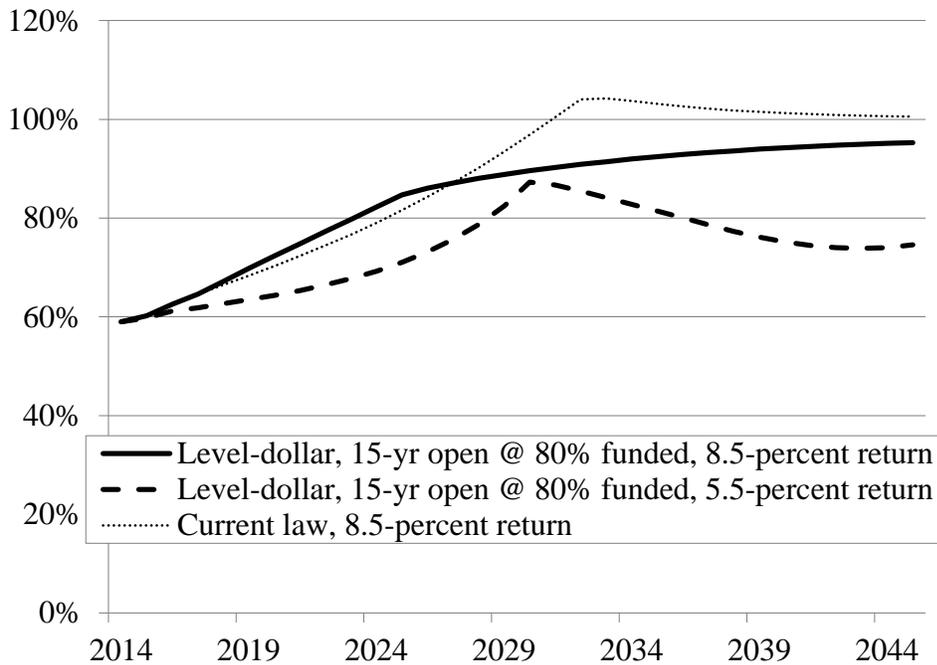
Source: CRR calculations.

*Alternative 3. Relax 2032 Full-funding Date When 80 Percent Funded*

Whether under the level-dollar or level-percent approach, the 2032 full-funding date presents real risks to the State of dramatic contribution rate volatility as the date approaches. Yet, shifting to a 15-year open amortization significantly delays funding improvements. One other approach, is to maintain the 2032 full-funding goal until the plan reaches a lower funding threshold deemed to be adequate. At that point, relaxing the full-funding date may provide contribution rate relief, while not greatly risking the plan’s fiscal health.

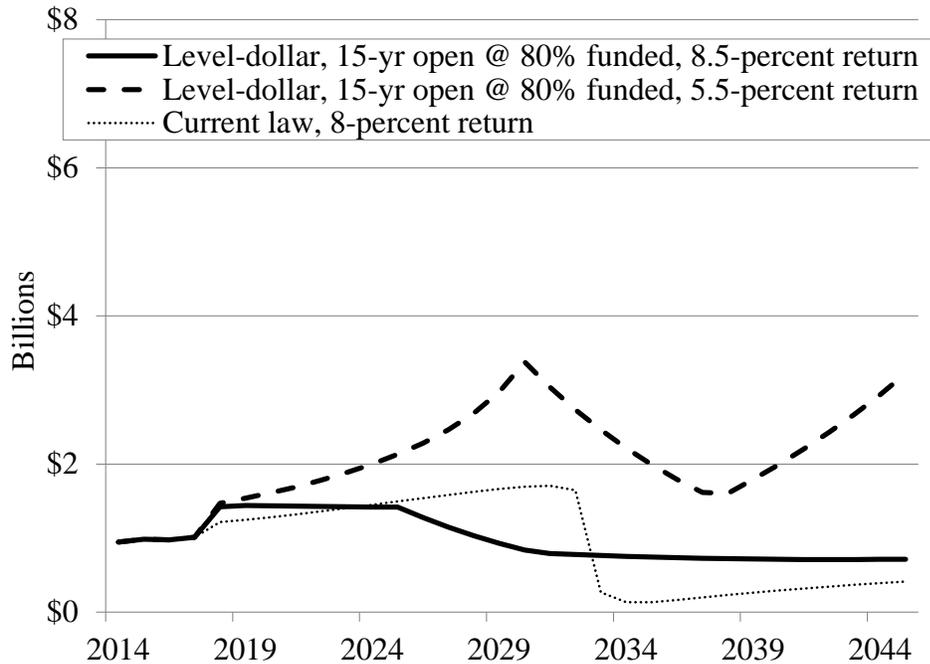
Figures 40 and 41 show the funded ratio and State required contributions under a level-dollar amortization approach that maintains the 2032 full-funding date until TRS is 80-percent funded and then shifts to an open 15-year amortization. As the figure shows, under both the 8-percent and 5.5-percent return scenarios, funding improves quickly in the early years under the 2032 full-funding date and, when the plan shifts to an open amortization, contribution pressure is reduced, while maintaining reasonable funding.

Figure 40. *Projected Funded Ratio for TRS under Level-Dollar and 15-year Open Amortization at 80-percent Funded, 2014-2045*



Source: CRR calculations.

Figure 41. *Projected ARC for TRS under Level-Dollar and 15-year Open Amortization at 80-percent funded, 2014-2045*

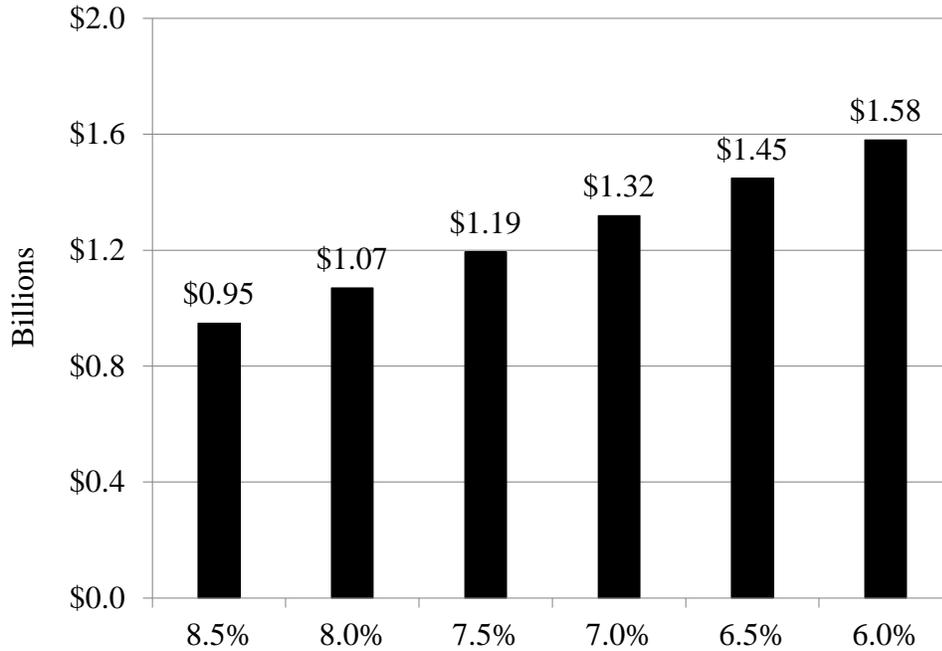


Source: CRR calculations.

#### *Lowering the Discount Rate/Long-Term Assumed Return*

The decision to change the long-term assumed return involves a relatively straightforward trade-off. Reducing the assumed return means paying more into the system (to make up for lower expected returns). But, it also lowers the likelihood of paying amortization payments in the future for unfunded liabilities that arise due to investment performance that is below the assumed return. Conversely, increasing the assumed return means paying less up front, but it increases the likelihood of having to pay more to make up for unfunded liabilities that accrue if investment experience falls short. Figure 42 shows the impact of various discount rates on the 2014 ARC for TRS. It reflects the change in up-front costs from discount rate changes, but does not include the change in the likelihood of paying UAAL payments down the road if returns do not meet expectations.

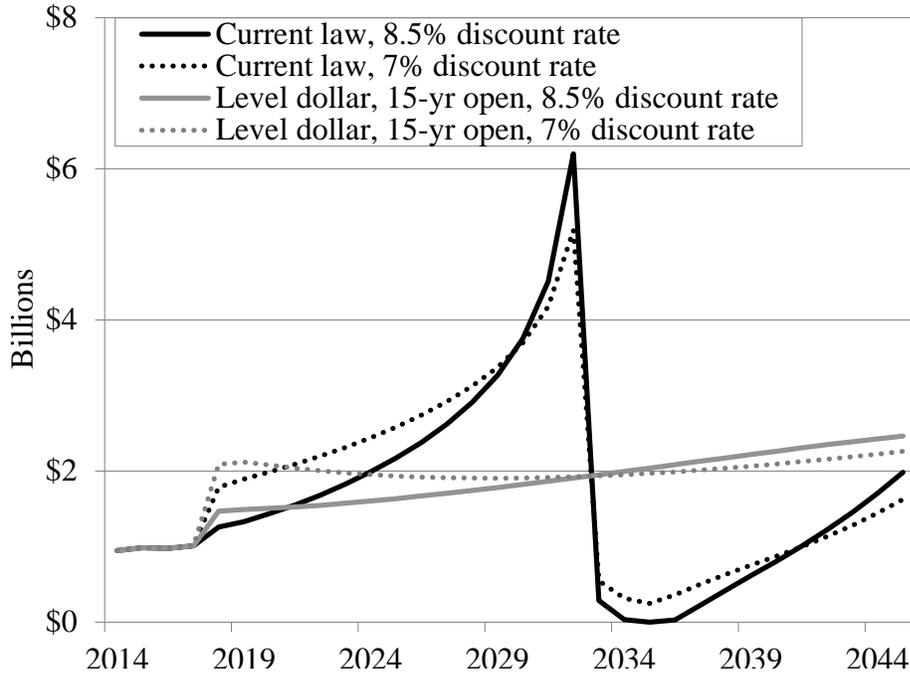
Figure 42. 2014 ARC for TRS under Various Discount Rates/Long-term Assumed Returns



Source: CRR calculations.

Figure 43 shows the trajectory of costs for SERS under an 8.5-percent and 7-percent assumed return, given an actual return of 5.5 percent. The figure clearly illustrates the trade-off described above. When compared to the 8.5-percent assumed return, the 7-percent assumed return requires more contributions in the early years and less in the later years.

Figure 43. *Projected ARC for TRS under Various Discount Rates and a 5.5-percent Return, 2014-2045*



Source: CRR calculations.

*Separately Finance Liabilities for Members Hired before 1979.*

When considering alternatives for addressing TRS’ unfunded liability going forward, the separate financing of liabilities associated with TRS members hired prior to pre-funding should be considered. As stated above, TRS benefits were totally unfunded by the State prior to 1979 and only partially funded from 1979-1993. However, accurately apportioning the *current* unfunded liability to members hired prior to 1979 requires recreating the funding history for TRS as if benefits for those hired prior to 1979 were separately funded with their own trust.<sup>11</sup> As the results in Table 3 show, if you do this the majority of TRS’ current unfunded liabilities are, in fact, associated with those hired prior to 1979, while the benefits for more recently hired members are almost fully funded.

<sup>11</sup> We estimate annual liabilities, benefit payments, and payroll for members hired prior to 1979 by assuming a straight-line growth in liabilities and annual benefit payments from the TRS total levels in 1979 to the 2014 levels specifically for those hired prior to 1979 that are provided by the TRS administrators and actuaries. The total normal cost contributions for pre-1979 members is based on the reported payroll and the total entry age normal cost rate calculated in 1979 (with periodic adjustments made for changes in the discount rate). Investment returns are assumed to be equal to the returns experienced by TRS as a whole. We back into the assets, liabilities, and unfunded liabilities for those hired after 1979 by subtracting the pre-1979 estimates from the totals for TRS liabilities, assets, unfunded liabilities, and contributions reported in the annual valuations. The amortization payment to pre-1979 members is proportional to TRS’ total amortization payment based on the proportion of the UAAL that pre-1979 members represent two years prior.

Table 3. 2014 Assets, Liabilities, Unfunded Liabilities, and Funded Ratio for TRS, by Employee Group

Employee Group	Assets (billions)	Liabilities (billions)	Unfunded liabilities (billions)	Funded ratio
Hired prior to 1979	\$5.7	\$16.1	\$10.4	35.3%
Hired after 1979	9.8	10.2	.4	96.0
Total	15.5	26.3	10.8	59.0

Source: CRR calculations based on data from TRS Actuary and Connecticut TRS 2014 Valuation.

Today, the majority members hired prior to 1979 are retired, and nearly 90 percent of liabilities for members hired prior to 1979 are for retirees (see Table 4). Thus, the current unfunded liability for TRS is primarily the product of benefit promises made to existing retirees that were never properly funded. In contrast, benefits for members hired after 1979 have been almost fully funded as they have accrued.

Table 4. 2014 Membership and Liabilities for TRS, by Employee Group

Employee Group	Actives	Retirees	Active liability (billions)	Retiree liability (billions)
Hired prior to 1979	2,978	28,197	\$1.7	\$14.4
Hired after 1979	48,455	17,644	7.9	2.3
Total	51,433	45,841	9.6	16.7

Source: CRR calculations based on data from TRS Actuary and Connecticut TRS 2014 Valuation.

Separately financing the liabilities associated with members hired before 1979 recognizes the dramatic difference in funding for the two groups. Benefits for those hired prior to 1979 have been consistently underfunded (even after pre-funding began), and today are 35 percent funded. In contrast, benefits for those hired after 1979 are currently almost 100 percent funded

The two main policy arguments for separating the liabilities are intergenerational equity and the perception of costs for current employees. First is intergenerational equity. The liability for members hired prior to 1979 has been accumulated over multiple generations, and the services provided by those members are no longer being enjoyed by current generations because most members are retired. As such, it is not fair to place the entire burden of funding the remaining benefits for this group on a single generation (as under current law). A longer time horizon for amortizing these unfunded benefits that better spreads the costs over multiple generations would be more appropriate. The second argument is that the cost of benefits for members hired prior to 1979 place an undue burden on current employees. The unfunded liability for members hired after 1979 is estimated to be only about \$400 million. In contrast, unfunded liability for members hired prior to 1979 is \$10.4 billion. Combining the cost of the unfunded liabilities for members hired prior to 1979 with that of those hired afterward skews the perception of benefits offered to current teachers by misrepresenting the pension costs for current employees to the taxpayer.

## **F. TRS' Pension Obligation Bond**

Connecticut issued a \$2 billion POB in 2008 to fund TRS, shifting a portion of its pension costs into bond payments. The bond matures in 2032, precisely the same date that TRS is scheduled to extinguish its unfunded liability.

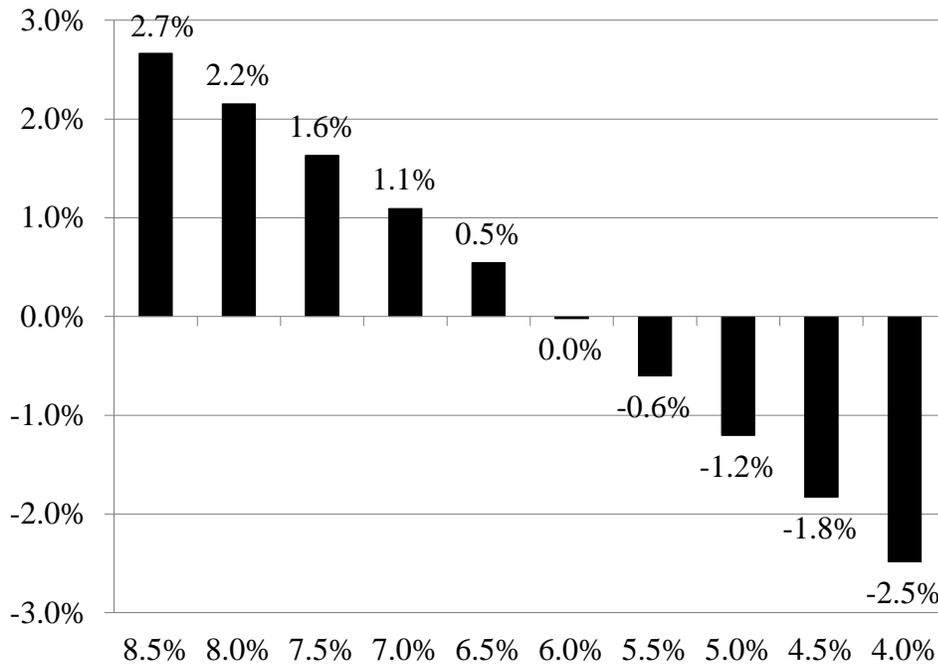
POBs raise issues in terms of investment risk and required payments. In terms of investment risk, if the average return earned on the invested bond proceeds is greater than the interest payments, the bond can be a net gain to the government's finances. Otherwise, it will be a loss. Investment risk aside, a POB restructures pension payments for the plan sponsor. Borrowed funds immediately improve the plan's funded ratio and lower annual pension costs. This decrease is offset by the POB's annual interest payments and the repayment of principal.

### *POB Investment Risk*

In order to assess the extent to which the POB has met the State's expectations, we calculate the internal rate of return (IRR) on the bond. The assumption is that the proceeds from the bond are invested in accordance with the allocation of TRS' assets. Beginning with fiscal year 2009, we calculate the growth of the invested bond proceeds for that year, then subtract the interest (using the stated coupon rate) and principal payments for that year to get a new beginning balance for the following year, and this process is repeated until the date of the assessment. At the date of assessment, we compare the ending balance with the initial proceeds to calculate an IRR.

Using this approach, we find that the TRS POB has returned, on average, negative 30 basis points a year since 2008. To extend this analysis over the full life of the bond, we use a distribution of possible returns from 2014-2032. The results, shown in Figure 44, highlight the variability in possible investment performance of the POB over its lifetime.

Figure 44. Annualized Return on TRS' POB Proceeds at Various Investment Returns



Source: CRR calculations.

### Projection of Required Payments

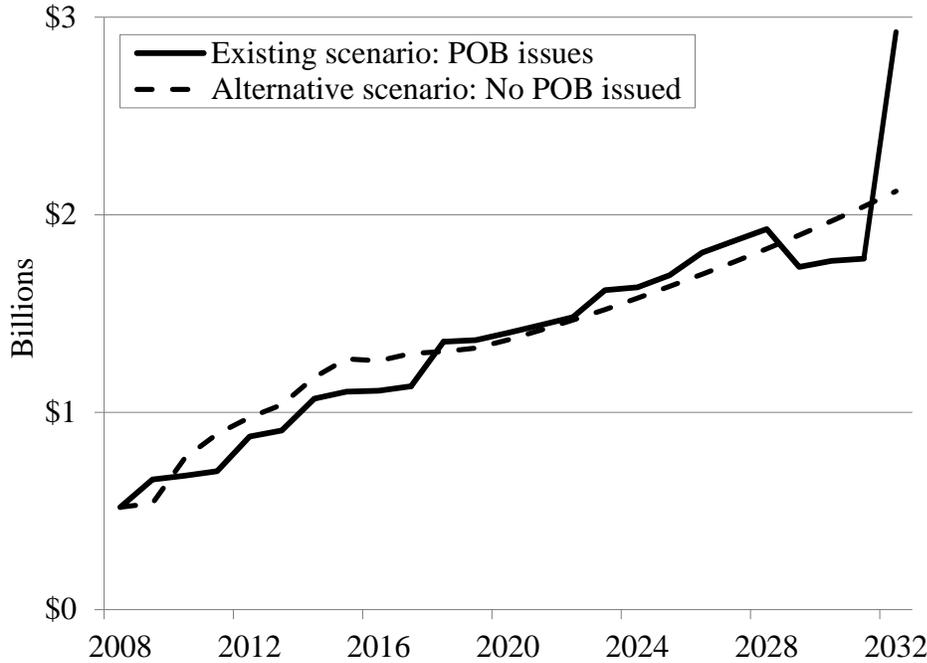
We project the State's overall pension costs (including ARC and POB payments) under two scenarios: 1) the existing arrangement in which the POB was issued in 2008; and 2) assuming the POB had never been issued.

Modeling total State costs under the existing arrangement involves three steps. First, we use actual required pension payments reported for 2008-2014. Second, we project future required pension payments assuming TRS receives 100 percent of the required pension payments and achieves its assumed return of 8.5 percent annually. Third, to get total State costs, we add annual POB interest and principal payments to required pension payments.

The second scenario also has three steps. First, we decrease reported 2008 pension assets by \$2 billion to account for the POB never being issued. Second, we project required pension payments from 2008-2014 assuming the State pays the same percent of required payment and TRS achieves the same returns as reported for those years. Third, we project required pension payments from 2014 forward assuming TRS receives 100 percent of the required pension payments and achieves its assumed return of 8.5 percent annually.

Figure 45 shows the State's costs under the two scenarios. In the near-term, State costs under the existing arrangement are less than if the POB had not been issued. However, from 2018 onward, annual costs are greater under the status quo. And, under the status quo, there is a 1.2-billion dollar principal payment in 2032.

Figure 45. *State Costs With and Without POB Issuance, 2008-2032*



Source: CRR calculations.

## G. Conclusion

TRS faces rising pension costs over the next 18 years if it continues with its current plan to fully fund the system by 2032. The majority of the costs are a result of the relatively short time period over which TRS has chosen to pay down its large UAAL. TRS’ UAAL is mainly the result of underfunding benefits for those hired prior to 1979, when TRS began pre-funding. Although unfunded liabilities occurred after the system started to pre-fund—due to inadequate contributions and investment returns (since 2000) falling short of assumptions—benefits earned by members hired after 1979 have been relatively well funded. This report identifies four adjustments to the current funding plan both to address the large costs associated with underfunded benefits for members hired prior to 1979, and to prevent future funding shortfalls for the employees hired more recently.

To address the costs associated with benefits for those hired prior to 1979:

- Separately finance—over a long time horizon—the liabilities for members hired prior to 1979.

To prevent funding shortfalls for ongoing benefits:

- Shift to level-dollar amortization of unfunded liabilities
- Replace 2032 full-funding date with a reasonable rolling amortization period
- Lower the long-term assumed investment return

Implementing these changes will more fairly distribute the costs associated with benefits for members hired prior to 1979 and better secure ongoing benefits for employees hired more recently.

#### IV. References

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## V. Appendix

### A. Analysis of the UAAL

#### i. Methodology

In most years, the actuarial valuations for SERS and TRS include data on the Unfunded Actuarial Accrued Liability (UAAL), the change in the UAAL, and some information on the factors that led to the change. These factors include: 1) investment returns relative to the assumed return; 2) contributions; 3) deviations from actuarial assumptions (e.g. workers living longer than expected); 4) benefit changes; and 5) assumption changes (e.g. long-run investment returns). As an example, Tables A1 and A2, copied from the Connecticut SERS 2014 valuation, report both the overall change in the UAAL for fiscal years 2013 and 2014 and detail the individual factors that led to that change. In Table A1, the expected UAAL for 2013 (item 5) is equal to the 2012 UAAL and interest on the UAAL, plus the normal cost and interest on the normal cost, minus contributions and interest on the contributions. The expected UAAL for 2014 follows the same methodology. If contributions (and interest) do not cover the interest on the UAAL plus normal cost (and interest), the unfunded liability will grow. The unfunded liability will also grow or decline as a result of a host of other factors listed in Table A2.

Table A1. *Change in the UAAL for Connecticut from 2012-2014, in Millions*

(1) UAAL as of June 30, 2012	\$13,273.8
(2) Total normal cost from 2012 valuation	315.5
(3) Actual employer and employee contributions	(1,228.0)
(4) Interest accrual: $[(1) + (2)] \times .08 - [(3) \times .0392]$	1,039.0
(5) Expected UAAL as of June 30, 2013: (1) + (2) - (3) + (4)	13,400.3
(6) Total normal cost for 2013 fiscal year	323.5
(7) Actual employer and employee contributions	(1,419.9)
(8) Interest accrual: $[(5) + (6)] \times .08 - [(7) \times .0392]$	1,042.2
(9) Expected UAAL as of June 30, 2014: (5) + (6) - (7) + (8)	13,346.1
(10) Plan changes	193.4
(11) Expected UAAL as of June 30, 2014: (9) + (10)	13,539.5
(12) Actual UAAL as of June 30, 2014	14,920.8
(13) Gain/(loss): (11) - (12) (See Schedule H)	(1,381.3)

Source: Connecticut SERS 2014 actuarial valuation.

Table A2. *Details on the Actuarial Gain/(Loss) for Unfunded Liability*

Schedule H: Analysis of Financial Experience  
Gains & Losses in Accrued Liabilities Resulting from Difference  
Between Assumed Experience & Actual Experience, in Millions of Dollars

Type of activity	Gain/loss for two-year period ending 6/30/2014
<b>Age &amp; service retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$(286.9)
<b>Disability retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	(31.2)
<b>Death-in service benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, a loss.	(17.3)
<b>Withdrawal from employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If fewer liabilities are released, a loss.	(29.3)
<b>Pay increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(231.3)
<b>New members.</b> Additional unfunded accrued liability will produce a loss.	(310.2)
<b>Net change on Tier III-Hybrid transfers.</b> Includes \$205.0 million in liabilities offset by \$154.9 million in asset transfers.	(50.1)
<b>Investment income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(333.3)
<b>Death after retirement.</b> If retirees live longer than assumed, there is a loss. If not as long, a gain.	(65.3)
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	(26.4)
<b>Gain (or loss) during year from financial experience.</b>	(1,381.3)
<b>Non-recurring items.</b> Adjustments for plan amendments, assumption changes, or method changes.	(193.4)
<b>Composite gain (or loss) during year.</b>	(1,574.7)

Source: 2014 Connecticut SERS Actuarial Valuation.

The challenge is to take the factors listed in these tables for each year, categorize them in a useful fashion, and combine the annual data over time to highlight the factors that have played a role in the development of the current UAAL. Tables A3 and A4 show the results of this process for SERS and TRS, respectively. For 2013 and 2014, the majority of items listed in the Schedule H were classified as actuarial experience. The two exceptions were: “investment income” and “non-recurring items.” These were classified as: “investment returns” and “benefit changes,” respectively.

## ii. Analysis of SERS' Unfunded Liability

Table A3. Annual Change in the UAAL for Connecticut SERS by Source, 1985-2014, in Millions of Dollars

Year	Starting UAAL	Contributions vs. ARC	ARC vs. UAAL growth	Investment returns	Early retirement program	Benefit changes	Changes to assumptions and methods	Actuarial experience	Other	Unknown	Ending UAAL
1985	\$2,392	\$25	\$9	\$64	\$0	\$0	\$0	\$0	\$0	\$175	\$2,665
1986	2,665	14	16	-72	0	0	0	0	0	20	2,643
1987	2,643	15	20	-85	0	0	0	0	0	306	2,900
1988	2,900	0	46	-720	0	0	0	0	0	814	3,039
1989	3,039	0	9	-19	0	0	-678	0	0	109	2,460 <sup>a</sup>
1990	2,460	55	69	-15	0	0	0	15	67	0	2,652 <sup>b</sup>
1991	2,652	134	-30	32	12	0	0	-8	-17	0	2,775
1992	2,775	181	-17	41	74	0	0	152	37	0	3,243 <sup>c</sup>
1993	3,243	153	21	-11	12	0	-233	308	0	0	3,494 <sup>d,*</sup>
1994	3,494	164	7	41	0	0	0	-321	0	0	3,385 <sup>d</sup>
1995	3,385	245	-29	3	0	0	0	26	0	0	3,629 <sup>c,d</sup>
1996	3,629	166	2	-92	0	0	0	26	0	0	3,731 <sup>d</sup>
1997	3,731	199	-11	-257	322	0	0	0	0	-282	3,702 <sup>e</sup>
1998	3,702	215	-36	-291	0	0	0	331	0	0	3,923 <sup>e,f</sup>
1999 <sup>i</sup>	3,923	212	-2	-508	0	0	0	0	0	495	4,119
2000	4,119	51	260	-230	0	0	470	352	0	-705	4,316 <sup>*</sup>
2001	4,316	54	132	-36	0	0	0	1	0	0	4,467
2002	4,467	64	144	201	0	-2	0	38	1	0	4,912
2003	4,912	72	161	267	492	0	0	-230	0	492	6,165 <sup>b</sup>
2004	6,165	74	208	140	0	0	116	186	0	0	6,890 <sup>*</sup>
2005	6,890	72	253	93	0	0	0	162	0	0	7,470
2006	7,470	78	208	40	0	0	0	69	13	0	7,879
2007	7,879	82	214	-114	0	0	0	242	0	0	8,303

-continued-

Table A4. Annual Change in the UAAL for Connecticut SERS by Source, 1985-2014, in Millions (cont'd)

Year	Starting UAAL	Contributions vs. ARC	ARC vs. UAAL growth	Investment returns <sup>1</sup>	Early retirement program	Benefit changes	Changes to assumptions and methods	Actuarial experience	Other	Unknown	Ending UAAL
2008	\$8,303	\$91	\$213	\$165	\$0	\$0	\$212	\$262	\$7	\$0	\$9,253 <sup>g,*</sup>
2009 <sup>j</sup>	9,253	144	184	1,714	554	0	0	0	0	0	9,581 <sup>b</sup>
2010	11,295	278	-67	-211	0	0	0	-146	0	0	11,295
2011	11,705	224	187	-447	0	-644	0	-20	0	0	11,705
2012	11,004	114	55	773	0	0	1,213	115	0	0	11,004 <sup>h,*</sup>
2013 <sup>k</sup>	13,274	2	125	463	0	0	0	0	0	0	13,274
2014	13,863	0	-54	-129	0	193	0	1,048	0	0	14,921
Total		3,179	2,296	800	1,466	-452	1,099	2,608	108	1,424	

<sup>a</sup> Shift from EAN to PUC.

<sup>b</sup> 1989 Early Retirement Program.

<sup>c</sup> February 1992 SEBAC Agreement II: Re-amortized 1989 Early Retirement Program and 1992 Early Retirement Incentive Program (ERIP) over 40 years, to begin in 1994-1995 fiscal year. Reduced state's contribution to fund past service liability by \$215 million for the 1991-92 fiscal year.

<sup>d</sup> June 1992 SEBAC Agreement III: Set statutory contributions towards the UAAL for fiscal year 1992-93 at \$92.7 million; 1993-94 at \$121.3 million; 1994-95 at \$130.5 million; and 1995-96 at \$138.4 million.

<sup>e</sup> May 1995 SEBAC Agreement IV: Set statutory contributions towards the UAAL for fiscal year 1996-97 at \$152 million; and 1997-98 at \$164.15 million.

<sup>f</sup> February 1997 SEBAC Agreement V: Decreased Tier II vesting from 10 years to 5 years.

<sup>g</sup> Reduced discount rate from 8.5 to 8.25.

<sup>h</sup> Reduced discount rate from 8.25 to 8.00.

<sup>i</sup> No Actuarial Valuation was performed for 1999. Change in the UAAL is estimated.

<sup>j</sup> No detailed data on the change in the UAAL are available for 2009. Data is estimated.

<sup>k</sup> No detailed data on the change in the UAAL are available for 2013. Data is estimated.

<sup>1</sup> Includes both the actuarial smoothing and the corridor method that limits the actuarial assets to +/- 20% of market assets.

\* Experience study.

Source: CRR calculations based on various actuarial valuations for Connecticut SERS.

### iii. Analysis of TRS' Unfunded Liability

Table A5. Annual Change in the UAAL for Connecticut TRS from 1983-2014, by Source, in Millions

Year	Beginning UAAL	Contributions vs. ARC	ARC vs. UAAL growth	Investment returns	POB	Benefit changes	Assumptions and methods	Actuarial experience	COLA	Miscellaneous	Unknown	Ending UAAL
1983	\$2,284	\$139	\$-40	\$0	\$0	\$28	\$0	\$0	\$0	\$0	\$0	\$2,411
1984	2,411	149	-60	-33	0	0	762	0	0	0	33	3,261
1985	3,261	136	87	-42	0	0	0	59	-11	10	0	3,500
1986	3,500	85	138	-159	0	0	0	0	0	0	255	3,819
1987	3,819	77	158	-155	0	2	0	0	0	0	713	4,612
1988	4,612	68	210	-103	0	0	0	0	0	0	1	4,788
1989	4,788	60	192	-134	0	0	-1,202	0	0	0	639	4,343 <sup>a</sup>
1990	4,343	71	98	-132	0	0	0	0	0	0	-420	3,961 <sup>b</sup>
1991	3,961	173	136	-65	0	0	0	0	0	0	-745	3,461
1992	3,461	177	108	-53	0	0	0	0	-1,384	0	122	2,430 <sup>c</sup>
1993	2,430	182	-48	-86	0	0	0	0	0	0	36	2,514 <sup>d</sup>
1994	2,514	16	113	-25	0	0	0	0	0	0	2	2,621
1995	2,621	15	123	-243	0	0	-161	0	0	0	617	2,971 <sup>e</sup>
1996	2,971	19	141	-162	0	0	0	0	0	0	411	3,380 <sup>f</sup>
1997	3,380	26	164	-326	0	0	0	0	0	0	229	3,473
1998	3,473	24	140	-588	0	0	0	0	0	0	200	3,249
1999	3,249	25	113	-596	0	0	0	0	0	0	-27	2,765
2000	2,765	27	62	-633	0	0	0	0	0	0	-31	2,192
2001	2,192	21	12	-84	0	0	0	0	0	0	278	2,419
2002	2,419	-6	76	559	0	0	0	0	0	0	245	3,293 <sup>g</sup>
2004	3,293	120	222	1,753	0	0	0	-166	0	0	2	5,224
2006	5,224	91	332	458	0	0	0	818	0	0	0	6,922 <sup>h</sup>
2008	6,922	9	50	-494	-2,000	1,151	0	188	705	0	0	6,530
2009	6,530	-25	119	1,054	0	0	0	81	-46	163	4	7,881 <sup>i</sup>

-continued-

Table A5. Annual Change in the UAAL for Connecticut TRS from 1983-2014, by Source, in Millions (cont'd)

Year	Beginning UAAL	Contributions vs. ARC	ARC vs. UAAL growth	Investment returns	POB	Benefit changes	Assumptions and methods	Actuarial experience	COLA	Miscellaneous	Unknown	Ending UAAL
2010	\$7,881	\$-25	\$273	\$1,069	\$0	\$0	\$0	\$50	-\$190	\$0	\$7	\$9,066
2011	9,066	-26	358	1,000	0	0	-89	-307	-183	0	0	9,819 <sup>j</sup>
2012	9,819	-33	240	888	0	0	0	26	180	0	7	11,127
2013	11,127	-34	327	-175	0	0	0	106	-28	0	7	11,331
2014	11,331	-41	162	-373	0	0	0	-217	-66	0	6	10,803
Total		1,523	4,006	2,121	-2,000	1,180	-691	637	-1,023	173	2,592	

<sup>a</sup> Impact of changed discount rate from 8 to 8.5 percent on liability.

<sup>b</sup> Impact of changed discount rate from 8 to 8.5 percent on normal cost.

<sup>c</sup> Impact of COLA Amendment PA.92.205 on reported liability.

<sup>d</sup> Impact of COLA Amendment PA.92.205 on normal cost.

<sup>e</sup> Shift to 5-year smoothing of actuarial assets in 1996, recalculates 1995 assets under 5-year smoothing.

<sup>f</sup> Change in Assumptions from 89-94 Experience Study. Shifted to 5-year smoothing of actuarial assets.

<sup>g</sup> Change in Assumptions from 1996-2001 Experience Study.

<sup>h</sup> Change in Assumptions from 2001-2005 Experience Study.

<sup>i</sup> There was an increase in the UAAL of \$163.4 million due to the transition from the prior actuarial firm. This is primarily due to a difference in the allocation of liabilities between normal cost and accrued liability.

<sup>j</sup> Change in Assumptions from 2005-2010 Experience Study. Shift to 5-year smoothing of actuarial assets.

Source: CRR calculations based on various actuarial valuations for Connecticut TRS.

## B. Projections of Plan Funded Ratios and State Contributions

Table A6. *SERS Funded Ratio under the Current Agreement and Alternative Funding Methods*

Year	8% return			6.5% return			5.5% return		
	Current agreement	Level-dollar	Level-dollar, 15-yr open	Current agreement	Level-dollar	Level-dollar, 15-yr open	Current agreement	Level-dollar	Level-dollar, 15-yr open
2014	41.5%	41.5%	41.5%	41.5%	41.5%	41.5%	41.5%	41.5%	41.5%
2015	41.5	41.5	41.5	41.4	41.4	41.4	41.3	41.3	41.3
2016	41.1	41.1	41.1	40.8	40.8	40.8	40.6	40.6	40.6
2017	41.3	41.3	41.3	40.6	40.6	40.6	40.2	40.2	40.2
2018	44.2	45.2	45.2	43.0	44.1	44.1	42.3	43.4	43.4
2019	47.2	49.4	49.1	45.5	47.7	47.5	44.4	46.6	46.4
2020	50.3	53.5	52.7	48.1	51.3	50.5	46.6	49.8	49.0
2021	53.6	57.6	56.0	50.8	54.8	53.1	49.0	53.0	51.3
2022	57.1	61.6	59.0	53.7	58.2	55.5	51.6	56.1	53.4
2023	60.7	65.7	61.7	56.8	61.7	57.6	54.4	59.3	55.1
2024	64.6	69.7	64.2	60.2	65.3	59.5	57.5	62.6	56.7
2025	68.8	73.9	66.5	63.9	69.0	61.2	61.0	66.0	58.0
2026	73.2	78.0	68.7	68.0	72.7	62.7	64.9	69.6	59.2
2027	78.0	82.3	70.7	72.5	76.7	64.1	69.3	73.4	60.2
2028	83.1	86.6	72.5	77.5	81.0	65.3	74.3	77.7	61.1
2029	88.5	91.1	74.2	83.2	85.6	66.4	80.1	82.5	61.9
2030	94.3	95.6	75.8	89.7	90.8	67.4	87.0	88.1	62.6
2031	100.4	100.2	77.3	97.3	96.9	68.3	95.5	95.1	63.2
2032	106.7	104.8	78.7	107.2	105.1	69.2	107.5	105.3	63.8
2033	106.9	105.0	80.1	109.4	107.4	70.0	111.1	109.0	64.4
2034	105.8	104.0	81.3	106.8	104.9	70.8	107.5	105.5	64.9
2035	104.7	103.0	82.5	103.6	101.8	71.5	103.1	101.1	65.4
2036	103.7	102.1	83.7	100.8	99.1	72.2	99.1	97.2	66.0
2037	102.9	101.4	84.7	98.5	97.0	72.9	95.7	94.1	66.5
2038	102.3	100.9	85.8	96.6	95.3	73.6	93.0	91.5	67.0
2039	101.7	100.6	86.7	95.0	93.8	74.2	90.5	89.3	67.5
2040	101.3	100.3	87.7	93.5	92.6	74.8	88.4	87.5	68.1
2041	100.9	100.1	88.5	92.2	91.6	75.5	86.6	86.0	68.6
2042	100.6	99.9	89.4	91.2	90.8	76.1	85.2	84.9	69.2
2043	100.4	99.8	90.1	90.3	90.2	76.7	84.2	84.2	69.7
2044	100.2	99.7	90.9	89.7	89.9	77.3	83.7	83.9	70.3
2045	100.1	99.7	91.6	89.4	89.9	77.8	83.6	84.0	70.8

Source: CRR calculations.

Table A7. *State Contributions to SERS under the Current Agreement and Alternative Funding Methods, in Millions*

Year	8% return			6.5% return			5.5% return		
	Current agreement	Level-dollar	Level-dollar, 15-yr open	Current agreement	Level-dollar	Level-dollar, 15-yr open	Current agreement	Level-dollar	Level-dollar, 15-yr open
2014	\$1,269	\$1,269	\$1,269	\$1,269	\$1,269	\$1,269	\$1,269	\$1,269	\$1,269
2015	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379
2016	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514
2017	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569
2018	1,979	2,313	2,313	1,988	2,324	2,324	1,995	2,332	2,332
2019	2,193	2,539	2,456	2,214	2,564	2,481	2,228	2,581	2,497
2020	2,258	2,541	2,369	2,297	2,586	2,411	2,322	2,616	2,438
2021	2,332	2,540	2,282	2,396	2,613	2,347	2,438	2,661	2,389
2022	2,409	2,538	2,200	2,504	2,645	2,289	2,565	2,713	2,347
2023	2,487	2,535	2,121	2,619	2,682	2,237	2,703	2,774	2,311
2024	2,566	2,531	2,045	2,743	2,725	2,190	2,854	2,847	2,280
2025	2,647	2,526	1,973	2,880	2,778	2,148	3,024	2,934	2,257
2026	2,730	2,521	1,905	3,032	2,844	2,112	3,216	3,041	2,239
2027	2,814	2,516	1,841	3,203	2,926	2,081	3,438	3,174	2,226
2028	2,899	2,509	1,781	3,402	3,033	2,056	3,703	3,347	2,220
2029	2,986	2,503	1,727	3,645	3,180	2,037	4,034	3,582	2,221
2030	3,069	2,494	1,677	3,956	3,395	2,025	4,476	3,924	2,228
2031	3,139	2,478	1,633	4,415	3,758	2,018	5,156	4,503	2,241
2032	3,148	2,426	1,595	5,371	4,638	2,018	6,652	5,918	2,261
2033	379	383	1,561	395	395	2,023	395	395	2,286
2034	121	159	1,532	97	144	2,033	84	135	2,315
2035	126	168	1,506	26	49	2,047	0	0	2,349
2036	188	236	1,485	153	194	2,066	129	170	2,388
2037	258	313	1,468	313	383	2,090	342	425	2,431
2038	324	384	1,454	468	562	2,117	553	672	2,478
2039	386	447	1,443	611	726	2,148	762	899	2,528
2040	444	504	1,435	753	885	2,183	973	1,127	2,583
2041	499	556	1,430	902	1,051	2,222	1,202	1,365	2,642
2042	551	604	1,428	1,065	1,228	2,264	1,455	1,617	2,705
2043	600	649	1,429	1,245	1,419	2,310	1,735	1,887	2,772
2044	648	692	1,431	1,446	1,628	2,359	2,051	2,182	2,843
2045	678	718	1,420	1,658	1,846	2,397	2,397	2,495	2,903

Source: CRR calculations.

Table A8. TRS Funded Ratio under Current Law Alternative Funding Methods

Year	8.5% return			6.5% return			5.5% return		
	Current law	Level-dollar	Level-dollar, 15-yr open	Current law	Level-dollar	Level-dollar, 15-yr open	Current law	Level-dollar	Level-dollar, 15-yr open
2014	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%
2015	60.2	60.2	60.2	59.9	59.9	59.9	59.8	59.8	59.8
2016	62.5	62.5	62.5	61.6	61.6	61.6	61.2	61.2	61.2
2017	64.6	64.6	64.6	62.7	62.7	62.7	61.8	61.8	61.8
2018	66.5	67.2	67.2	63.4	64.1	64.1	61.9	62.6	62.6
2019	68.4	69.8	69.6	64.0	65.5	65.4	62.0	63.5	63.3
2020	70.3	72.3	71.8	64.8	66.9	66.4	62.2	64.4	63.8
2021	72.3	74.8	73.9	65.7	68.3	67.3	62.6	65.3	64.2
2022	74.4	77.3	75.7	66.8	69.8	68.0	63.3	66.4	64.5
2023	76.7	79.8	77.4	68.2	71.5	68.7	64.3	67.7	64.8
2024	79.1	82.2	79.0	69.8	73.2	69.3	65.7	69.3	65.0
2025	81.6	84.7	80.4	71.8	75.2	69.8	67.5	71.0	65.1
2026	84.3	87.3	81.7	74.1	77.4	70.2	69.8	73.1	65.2
2027	87.2	89.8	82.9	76.9	79.9	70.5	72.6	75.7	65.3
2028	90.2	92.4	84.0	80.3	82.8	70.8	76.2	78.7	65.3
2029	93.4	95.0	85.1	84.4	86.2	71.1	80.7	82.5	65.2
2030	96.9	97.7	86.0	89.5	90.3	71.2	86.4	87.3	65.1
2031	100.5	100.4	86.9	96.1	95.8	71.3	94.3	93.9	65.0
2032	104.1	102.9	87.7	105.9	104.2	71.4	106.6	104.7	64.9
2033	104.2	103.0	88.4	109.2	107.5	71.4	111.4	109.5	64.7
2034	103.7	102.5	89.1	106.4	104.8	71.3	107.6	105.7	64.4
2035	103.1	102.0	89.7	103.0	101.3	71.2	102.8	100.9	64.1
2036	102.6	101.5	90.3	99.7	98.0	71.1	98.2	96.3	63.7
2037	102.2	101.2	90.8	96.9	95.4	70.9	94.2	92.6	63.3
2038	101.8	100.9	91.2	94.5	93.2	70.6	90.8	89.4	62.9
2039	101.5	100.7	91.7	92.3	91.2	70.3	87.6	86.4	62.3
2040	101.3	100.5	92.0	90.2	89.3	69.8	84.7	83.8	61.7
2041	101.1	100.4	92.4	88.3	87.6	69.3	81.9	81.4	61.0
2042	100.9	100.3	92.6	86.6	86.1	68.7	79.5	79.3	60.1
2043	100.8	100.2	92.9	85.0	84.8	68.0	77.4	77.5	59.2
2044	100.7	100.2	93.1	83.8	83.9	67.1	75.7	76.2	58.0
2045	100.6	100.1	93.2	82.9	83.2	66.1	74.5	75.3	56.6

Source: CRR calculations.

Table A9. *State Contributions to TRS under Current Law and Alternative Funding Methods, in Millions*

Year	8.5% return			6.5% return			5.5% return		
	Current law	Level-dollar	Level-dollar, 15-yr open	Current law	Level-dollar	Level-dollar, 15-yr open	Current law	Level-dollar	Level-dollar, 15-yr open
2014	\$949	\$949	\$949	\$949	\$949	\$949	\$949	\$949	\$949
2015	984	984	984	984	984	984	984	984	984
2016	976	976	976	976	976	976	976	976	976
2017	1,012	1,012	1,012	1,012	1,012	1,012	1,012	1,012	1,012
2018	1,219	1,425	1,425	1,245	1,455	1,455	1,258	1,470	1,470
2019	1,247	1,440	1,395	1,304	1,507	1,460	1,331	1,540	1,491
2020	1,283	1,436	1,343	1,385	1,554	1,452	1,434	1,611	1,505
2021	1,322	1,431	1,293	1,477	1,607	1,449	1,551	1,692	1,524
2022	1,363	1,427	1,246	1,580	1,669	1,450	1,682	1,783	1,547
2023	1,406	1,424	1,204	1,694	1,739	1,456	1,828	1,886	1,574
2024	1,450	1,421	1,164	1,820	1,819	1,466	1,990	2,001	1,604
2025	1,494	1,418	1,127	1,962	1,911	1,478	2,172	2,133	1,636
2026	1,539	1,414	1,093	2,121	2,017	1,492	2,379	2,285	1,670
2027	1,583	1,408	1,060	2,305	2,143	1,509	2,620	2,465	1,705
2028	1,625	1,400	1,030	2,522	2,299	1,528	2,908	2,687	1,743
2029	1,664	1,389	1,002	2,790	2,500	1,549	3,268	2,973	1,782
2030	1,695	1,371	976	3,145	2,783	1,572	3,754	3,377	1,822
2031	1,707	1,338	952	3,688	3,246	1,596	4,509	4,042	1,864
2032	1,645	1,250	930	4,872	4,350	1,623	6,200	5,635	1,906
2033	269	270	910	288	288	1,650	288	288	1,950
2034	135	158	892	61	96	1,679	33	73	1,994
2035	136	161	876	0	0	1,709	0	0	2,039
2036	166	195	861	66	93	1,740	28	56	2,084
2037	201	232	848	214	272	1,771	223	292	2,129
2038	234	268	836	360	445	1,804	422	527	2,174
2039	265	299	826	500	599	1,836	614	737	2,219
2040	293	326	818	637	747	1,869	804	942	2,263
2041	320	351	811	782	899	1,902	1,006	1,149	2,306
2042	345	374	806	939	1,056	1,934	1,221	1,361	2,348
2043	369	395	802	1,110	1,220	1,966	1,453	1,581	2,389
2044	392	416	799	1,299	1,395	1,997	1,706	1,811	2,427
2045	414	436	798	1,508	1,582	2,027	1,983	2,054	2,464

Source: CRR calculations.

## C. Assumptions and Methods for Projections of Finances

### i. Connecticut SERS

- Benefit growth rate: Actuarial Projection, ~ 2.5 percent annually
- Payroll growth rate: Actuarial Projection, ~ 4 percent annually
- Discount rate/long-term assumed return: 8 percent
- Total normal cost rate: 10.2 → 9.2 percent-of-payroll
- Employee contribution rate: Actuarial Projection, 2.2 → 3.0 percent, percent-of-payroll
- Actuarial asset smoothing method: 5-year smoothing
- Percent of ARC paid: 100 percent
- UAAL amortization methods
  - *Current Agreement.*
    - Level-percent-of-payroll, closed (2032)
  - *Alternative 1.*
    - Level-dollar, closed (2032)
  - *Alternative 2.*
    - Level-dollar, open (15-year period)
  - *Alternative 3.*
    - Level-dollar, closed amortization (2032) until plan is 80-percent funded. Then, open (15-year period) amortization of UAAL.

## ii. Connecticut TRS

- Benefit growth rate: 3.75 percent
- Payroll growth rate: 3.75 percent
- Discount rate/long-term assumed return: 8.5 percent
- Total normal cost rate: 9.73 percent-of-payroll
- Employee contribution rate: 6 percent-of-payroll
- Percent of ARC paid: 100 percent
- Actuarial asset smoothing method: 5-year smoothing
- UAAL amortization methods
  - *Current Law.*
    - Level-percent-of-payroll, closed (2032)
  - *Alternative 1.*
    - Level-dollar, closed (2032)
  - *Alternative 2.*
    - Level-dollar, open (15-year period)
  - *Alternative 3.*
    - Level-dollar, closed amortization (2032) until plan is 80-percent funded. Then, open (15-year period) amortization of UAAL.



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# State of Connecticut Pension Sustainability Commission

October 31, 2018

John Garrett, ASA, FCA, MAAA  
Principal and Consulting Actuary



# Teachers' Retirement System Viability Commission



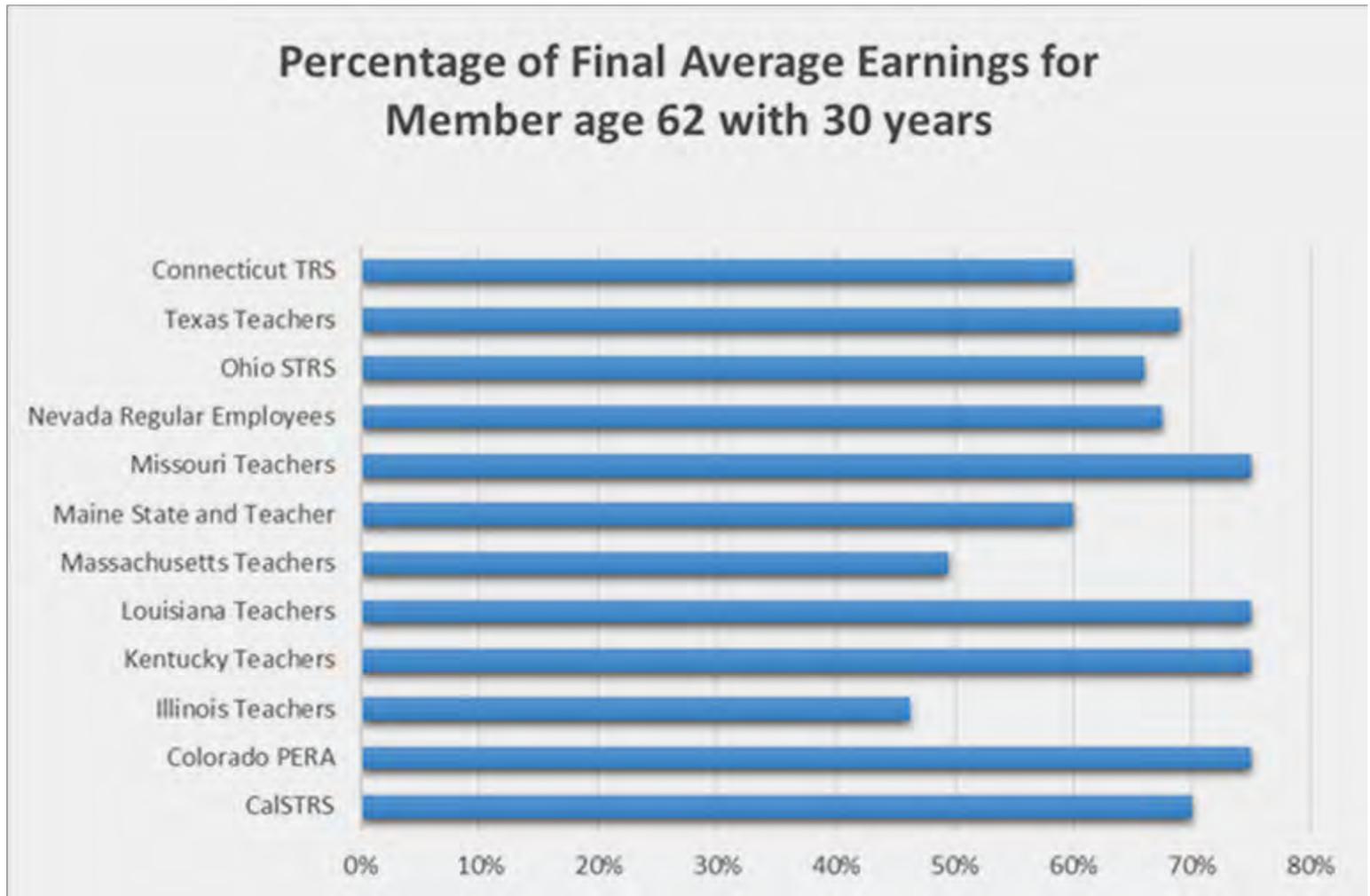
- Commission composed of the Teachers' Retirement Board and Consultant
- Tasked with developing plan which
  - Gives significance to the State's financial capability;
  - Does not include State's ability to raise revenue;
  - Considers actions of other state teacher pension plans;
  - Goals to achieve short and long term sustainability
- Commission defined **viability** as both **sustainable and affordable**
- Commission issued final report March 19, 2018



# Benefit Benchmarking

- Compare Teachers' Retirement System primary retirement benefit to other state teachers' pensions without social security coverage
  - Compare benefit at age 62 with 30 years of service
  - Use latest tier of other state plans
- Normal retirement at age 60 with 20 years of service or after 35 years of service
  - Full vesting at 10 years of service
- CT TRS COLA is already “risk shared” for those retiring after 1992

# Normal Retirement Benefit Benchmarking

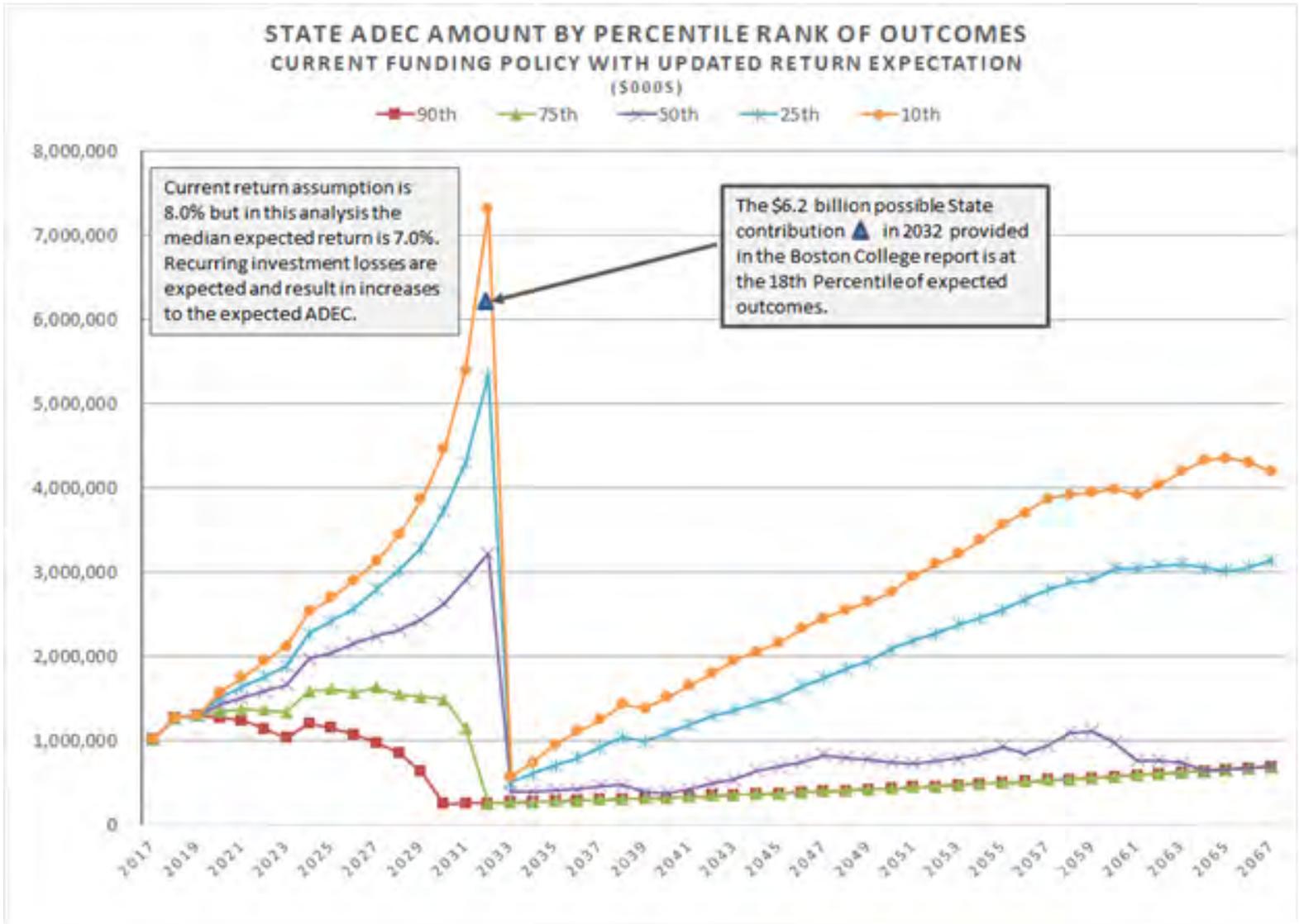


# Normal Cost Comparisons

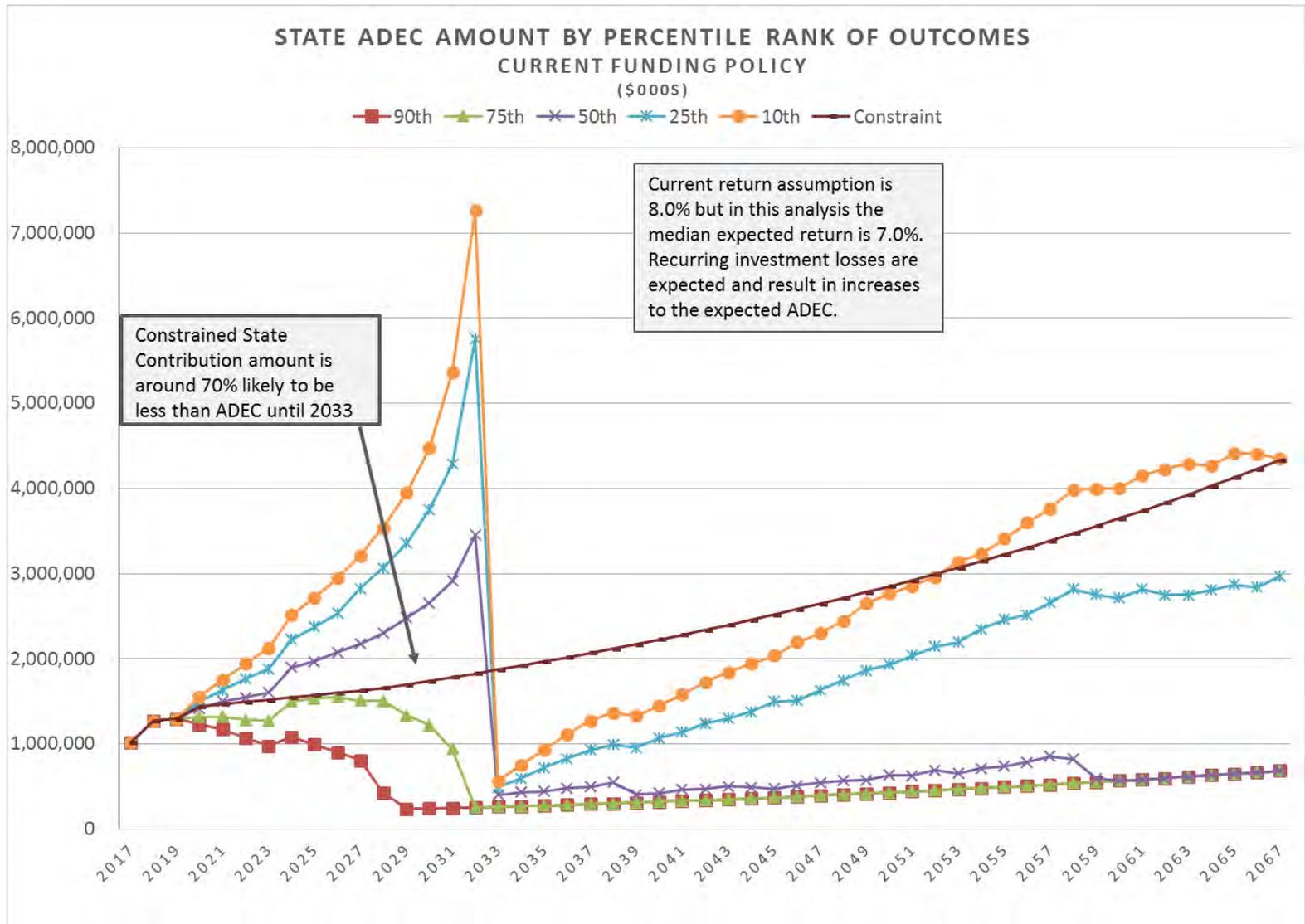


- Pension **Normal Cost** is the expected annual percentage of salary necessary to fund benefit accruals over career
  
- Currently TRS normal cost is 10.60% of salary
  - 7.00% from member
  - 3.60% from employer
  
- Under 6.9% discount rate (like SERS) the normal cost is approximately 13.50% (7.00% employee & 6.50% employer)

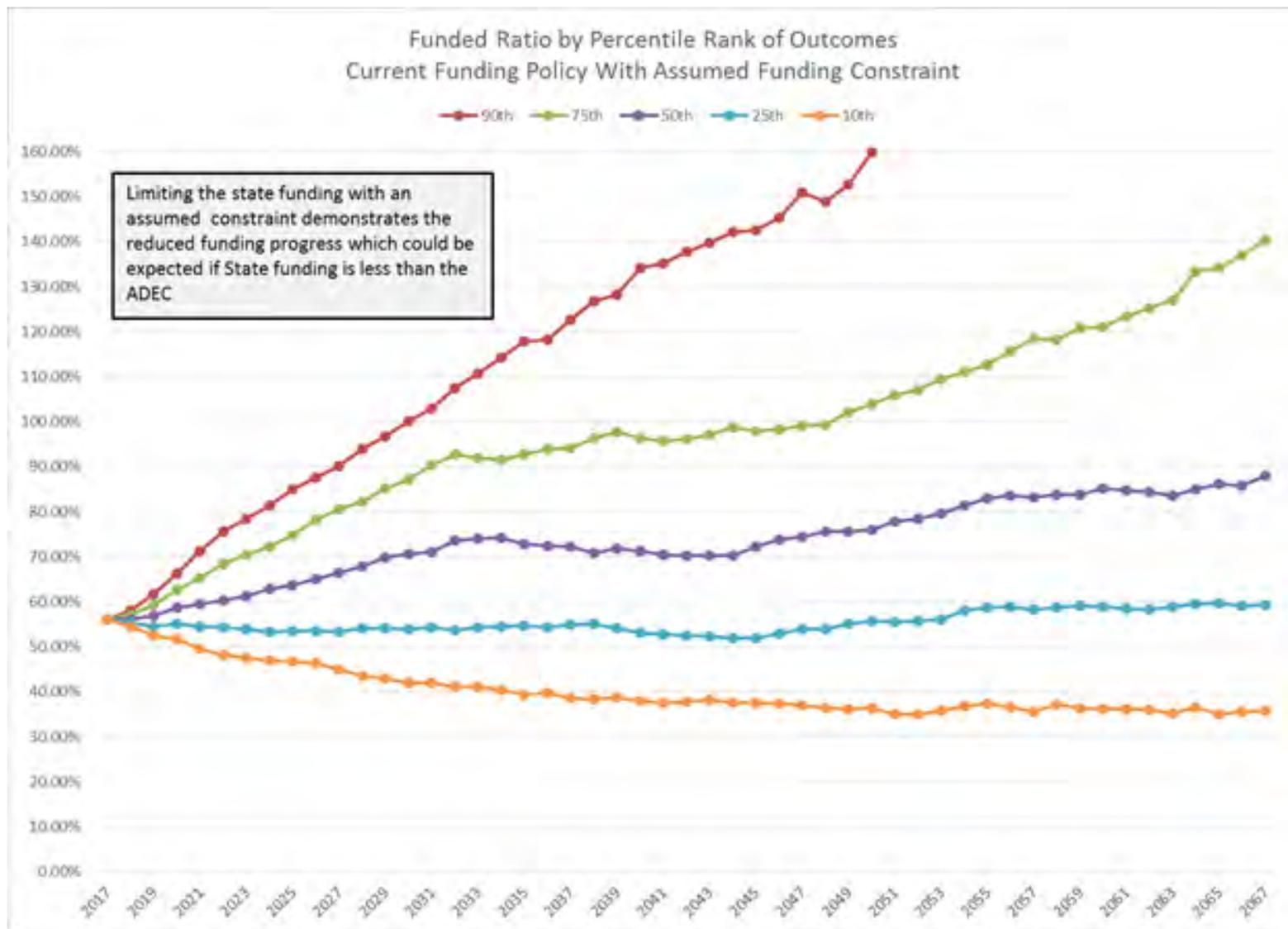
# Current Cost Forecast of TRS – Unconstrained Asset Liability Model



# Current Cost Forecast of TRS Constrained Asset Liability Model



# Current Funded Ratio Forecast of TRS Constrained Asset Liability Model

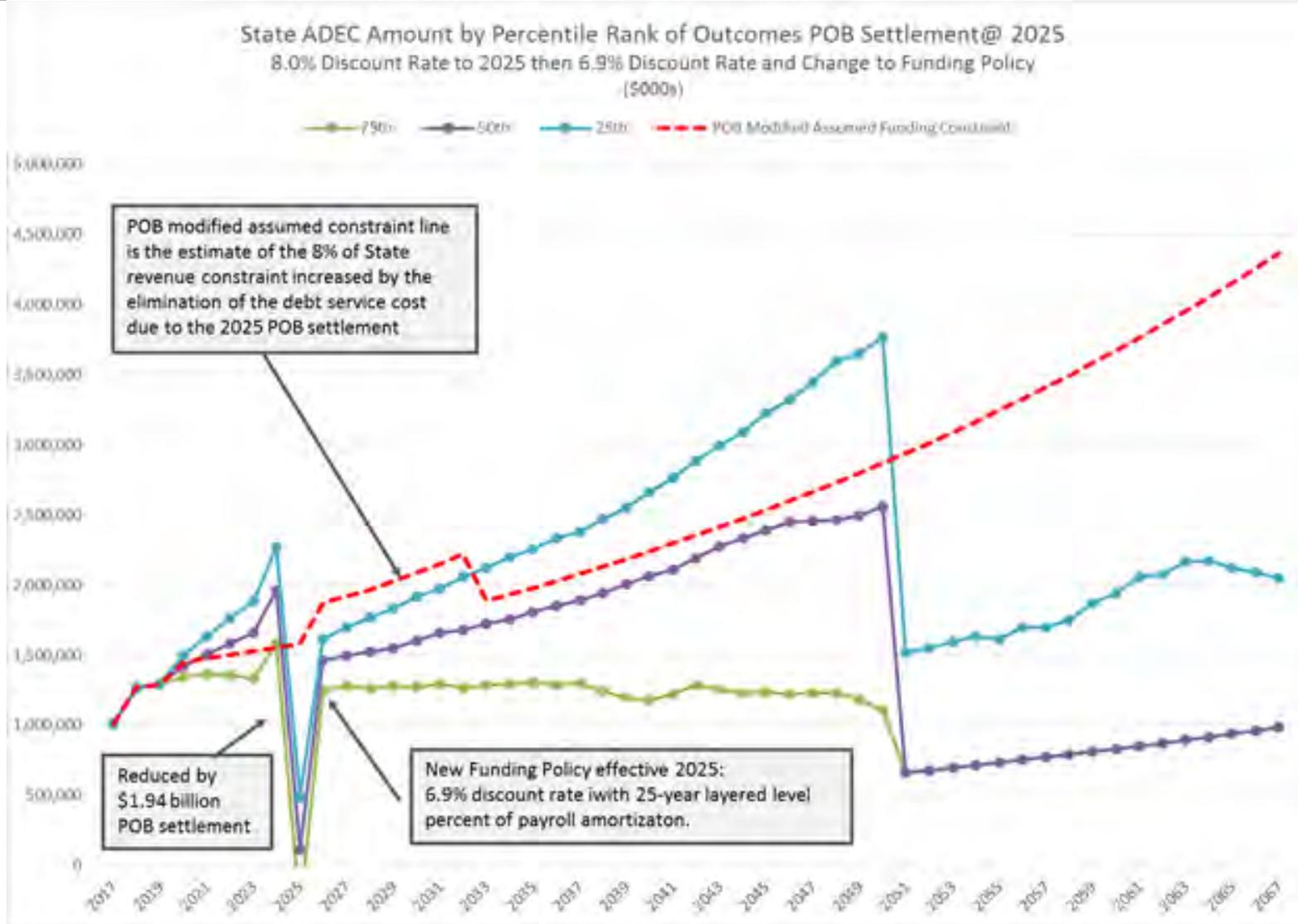




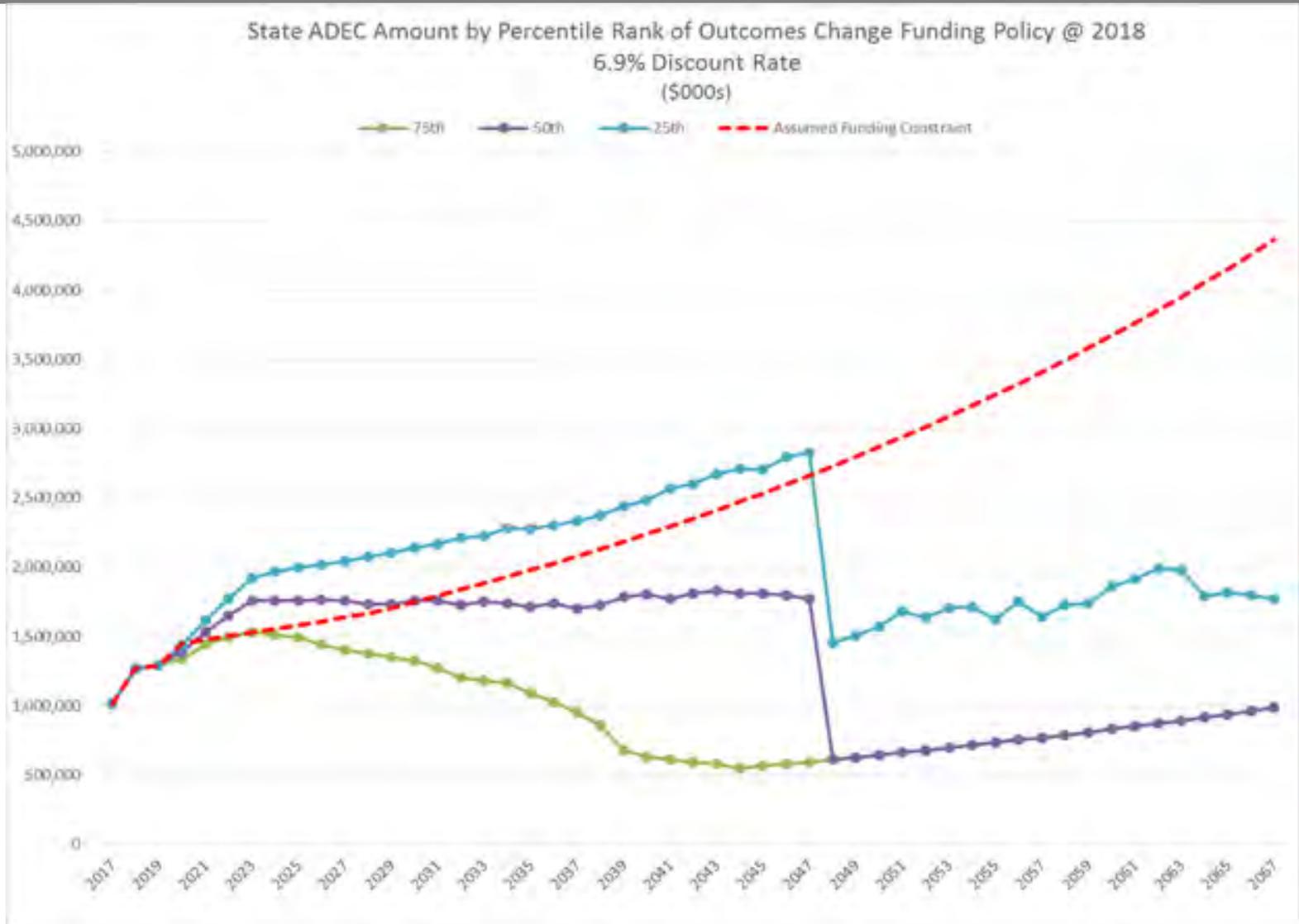
# Viability Commission Plans

- Considered POB settlement in FY 2025 then method change
- Considered immediate change of methods and assumptions
  - Likely breach Bond covenant
- Additional consideration given to additional assets

# ALM Output of Employer Costs POB Settlement



# ALM Output of Employer Costs Change in Funding Policy



# Consideration of Legacy Obligation Trust



- Professionally appraised market value of asset could be utilized as asset in valuations.
- State Treasurer's opinion, as sole fiduciary of Funds, as to how the Legacy Obligation Trust would impact future return expectation is what actuary would rely upon for return assumptions.

# Actuarial Prefunding of Public Plans



- Purpose of actuarial valuations is to provide employer expected future annual cost of program
  - Funding policy
    - Methods for smoothing assets, amortization of UAAL (length and type)
  - Assumptions
    - Based on best expectation of future trends
      - Relatively equal likelihood of gains and losses



# Additional Considerations

- Performed additional projections for TRS with various scenarios of additional assets
  - Already provided to Commission
  
- Currently completing June 30, 2018 actuarial valuation of plans



## IN-KIND INFRASTRUCTURE INVESTMENTS BY PUBLIC PENSIONS: THE QUEENSLAND MOTORWAYS CASE STUDY

Michael Bennon, Dr. Ashby H.B. Monk, and Young-Joon Cho

### ABSTRACT

**Michael Bennon** is the managing director of the Global Projects Center at Stanford University in Stanford, CA.

**Dr. Ashby Monk** is the executive director of the Global Projects Center at Stanford University in Stanford, CA.

**YJ Cho** is a graduate student at Stanford University studying project finance and infrastructure investment.

OECD countries require billions in infrastructure investment for new projects and the rehabilitation of old assets. Public pensions are likewise underfunded and in need of stable, inflation-linked investment opportunities uncorrelated with the rest of their portfolio, making infrastructure a seemingly strong fit. This has led to calls to facilitate more direct investment by public pension funds in infrastructure. In truth there are many impediments to such programs. Under the right policy and institutional conditions, however, direct public pension investments can yield considerable value for taxpayers and retirement beneficiaries alike, in part by overcoming the market inefficiencies and valuation problems inherent to infrastructure investment. This paper uses the case of a toll road network in Queensland, Australia to examine the potential for direct public pension investments in infrastructure. In 2011, the Queensland Government transferred a 40-year concession to operate Queensland Motorways to the Queensland Investment Corporation (QIC) – a government-owned company that manages that state's defined benefit public pension.

**Keywords:** Infrastructure Investment, Public Pensions, Public-Private Partnerships, In-Kind Contributions, Value for Money.

**Acknowledgements:** The authors would like to thank the members of Queensland Motorways and the QIC for their contributions to this study. The authors would also like to thank the Stanford Global Projects Center research community for their invaluable feedback and reviews of this study throughout its development.

June 5<sup>th</sup>, 2017

## 1) Introduction

Public administrations globally face challenges in both managing the investment liabilities associated with defined benefit public pensions and investing in and maintaining the critical infrastructure that undergirds their local economies. These two seemingly disparate challenges are related in that they are both the responsibility of state and local governments, and thus dependent on the limited availability of public capital. They are also both growing liabilities of those governments, as opposed to assets. In many western economies, aging public infrastructure assets are reaching the end of their useful lives, and significant reinvestment is necessary. More importantly, new models for investment and management of infrastructure are sorely needed. At the same time, defined-benefit public pension liabilities for local governments have ballooned in the years following the Global Financial Crisis. Additional public contributions are necessary for administrations to continue supporting their current and future pensioners, and the need for public pensions to innovate and improve returns on investment is more important now than ever before.

These two problems are related beyond the fact that they are both the liabilities of local governments. They also share a joint, potential solution: the in-kind contribution of economic infrastructure assets to pension funds. This form of asset transfer has precedent in privately managed corporate pensions and has generated some debate in the public pension space. To be sure, the concept is certainly not without its challenges, but it also creates an opportunity for governments to 'kill two birds with one stone' by funding a pension plan via an infrastructure transfer, which, in turn,

incentives the pension to upgrade and optimize the infrastructure to maximize the value of the asset. The transfer of Queensland Motorways Ltd. (QML) to the Queensland Investment Corporation (QIC) is an example of such an asset transfer. In this case, the local, defined benefit superannuation fund of the state received QML from the local government.

The QML/QIC case offers a unique opportunity to observe the policy and institutional conditions in which local governments can take advantage of the inherent synergies between public assets and investment funds. The purpose of this case is to study: 1) the decision by the local government to transfer to QIC the QML system, 2) QIC's subsequent operation and monetization of the system, 3) the benefits of the transaction to both the pensioners and drivers of Queensland, and 4) the conditions that made this innovative transaction possible. We also consider whether such a model is replicable in other jurisdictions, particularly in the United States.

This case study is organized in the following sections: First, we provide a literature review and background information on private investment in infrastructure and pension allocations to the asset class. Second, we review previous research on public-pensions and in-kind contributions, and policy proposals involving infrastructure programs and public pension investments. Third, we review the policy and institutional context of both infrastructure and public pension management in Australia at the time of the QML transaction. Fourth, we give a detailed timeline of the transaction from its inception through its monetization by QIC. Finally, we provide an assessment of the applicability of this unique transaction in other contexts globally, and the

policy or institutional changes that would be required to do so.

## **2) Private Infrastructure Investment and Institutional Allocations**

A review of relevant research and industry precedent of both private participation in infrastructure development and various topics related to the management and investment policies of public defined-benefit pensions are necessary to understand the implications of a transaction like QML.

### *Public-Private Partnerships and Private Investment in Toll Roads*

Most water, transportation, and social infrastructure assets are financed and owned publicly. In some cases, governments have solicited private investment in infrastructure via Public-Private Partnerships (P3s). As an alternative delivery model for infrastructure, most P3s involve a solicitation for private investor to finance, develop, operate, and maintain an infrastructure asset for a long-term concession, while ownership is retained by the public. In exchange for the long-term management and maintenance of the system, the private investors are remunerated by regular performance payments or (in the case of revenue-generating infrastructure such as toll roads) access to toll revenues, usually subject to rate limits (Guasch, 2004). The modern form of P3 began being used by governments in Australia in the late 1980's and in the United Kingdom in the early 1990's under the Private-Financing Initiative (Esty & Sesia, 2010). The practice later spread to Europe, Canada, and more recently the United States.

As a policy option, P3s are primarily used by governments to transfer the risks of infrastructure development and management to private investors, or perhaps to utilize any innovative or more efficient operations those investors could bring to a project. Infrastructure projects and systems are risky enterprises. In particular, large and complex new projects often significantly exceed their construction budgets and timelines. During operation, increased maintenance costs or budget cycles can result in the deferral of critical maintenance, which can lead to accelerated system deterioration. For user-fee funded projects like toll roads, there is the added risk that, either due to overly-optimistic traffic projections (Bain, 2009) or changes in driver trends, there could be lower than expected system revenues once the asset starts operating (Liu, Bennon, Garvin, & Wang, In Press). Well-structured P3s transfer some or all of these risks to a private concessionaire by making them responsible for absorbing cost overruns during construction or requiring assets to be well-maintained for the life of the concession irrespective of maintenance costs or system revenues (Arthur Andersen, 2000). Several studies have found a statistically lower risk of construction cost over-runs, for instance, for P3 procurements when compared to traditional procurement (Blanc-Brude & Makovsek, 2013).

While P3s are more commonly used for the development of new infrastructure projects, referred to as greenfield projects, the contracting model has also led some governments to implement procurements for brownfield infrastructure, which involves the sale of a concession on an existing asset (Monk & Dixon, 2013). In the case of the Indiana Toll Road in the United States, for instance, the state sold a long-term concession to operate an existing toll road, and placed the proceeds of the

sale in a trust to maintain and re-invest in new transportation infrastructure in the state (Akintoye & Beck, 2009). In New South Wales and Victoria, Australia, this practice has been formalized into an “asset recycling program” to sell concessions on existing infrastructure projects and to transparently re-invest the proceeds in new projects (Nowacki, Levitt, & Monk, 2016).

### *Institutional Allocations to Infrastructure*

Allocations to infrastructure investments by public pensions and other institutional investors have grown roughly in tandem with the use of P3s as a procurement model globally, though it is still a relatively small percentage of portfolios. Estimates of actual infrastructure allocations have ranged between 0.5% and 3.3% of total assets (Della Croce, 2012) (Bradbrook, 2012). Institutions vary widely in how they classify infrastructure in their investment portfolio – some have a separate allocation for infrastructure, while others include it in their private equity or real assets components (Beeferman, 2008).

Institutional investors allocate capital to private infrastructure assets for a variety of reasons. Often the large, illiquid, quasi-monopolistic assets provide diversification benefits from the rest of the portfolio in that they are not correlated to broader market activity (Inderst, 2010). Once built and in operation, many infrastructure assets also provide steady cash flows that are in some cases even linked to inflation. This provides an added benefit for pension funds, which often have liabilities that are tied to an inflation metric (OECD, 2011).

It is important to note that, as an asset class, the characteristics that make private infrastructure investments attractive for pension funds typically

only apply to brownfield, or already operational, assets and less so for new greenfield projects. Greenfield investments, for their part, often entail a multi-year development and construction period in which default risk is considerably higher and in which the investments often do not yield any cash flows (Sharma & Knight., 2014). In practice this has been mitigated in some cases for Availability Payment (AP) projects, which have a guaranteed revenue stream once development is complete, by partnering with infrastructure developers that shoulder all design and construction risk. However, for infrastructure investments exposed to revenue risk, such as toll roads, pure greenfield investments also do not have the benefit of an observable track record of demand, making revenue forecasting considerably more difficult (Liu, Bennon, Garvin, & Wang, In Press). Survey data indicates that, because of these issues, many pension fund managers are wary of investing their infrastructure allocations in greenfield projects (Belt & Nimmo, 2013). This has created a bit of a “mismatch” in the asset class today, as the majority of the institutional capital allocated to infrastructure is oriented towards brownfield assets, while the majority of governmental need for private finance is for new greenfield projects (Bennon, Monk, & Nowacki, 2015).

Beyond defining the types and risk/return characteristics of the infrastructure that they will be targeting, pension funds and other institutional investors also vary considerably in how they get their allocated capital actually invested in assets. The vast majority of pensions invest their capital through external management companies into pooled infrastructure funds. These external fund managers then source, evaluate, and manage investments. The fund managers are compensated by a management fee, usually calculated as a

percentage of the capital in the fund, and a performance fee, which is usually defined as a percentage of fund profits should certain performance metrics be met. This is referred to as the Indirect Model for institutional investment (Clark & Monk, 2013), and according to surveys the majority of institutional capital is invested this way (Bradbrook, 2012), including the vast majority of allocations from US public pensions. Several notable exceptions do exist, however, as some larger international pension funds have opted instead to hire investment professionals as internal staff to manage and invest their infrastructure allocations. This is commonly referred to as the Direct Model of investment (Clark & Monk, 2013) and is used by several, larger pension funds in Canada, Europe, and Australia including QIC – the pension manager we study herein.

#### *Valuation Problems for Public Infrastructure Assets*

Whether for the use of an in-kind contribution or simply a public tender for a concession, the valuation of publicly owned infrastructure assets is no simple task. These assets are often complex operating enterprises with varying degrees of information available. Anecdotal evidence exists that valuations for assets can vary widely. When the city of Chicago, for instance, sold a 99-year concession to operate the Chicago Skyway, an existing toll bridge, in 2004, the winning consortium paid the city \$1.83 billion, more than \$1 billion higher than the second and third bidders (Engel, Fischer, & Galetovic, 2014). This difficulty in assessing a fair value for these assets can lead to financial distress for private investors. Indeed, in the United States over the last 20 years a dozen transportation assets leased or developed as P3 concessions have underperformed or entered into bankruptcy (Reinhardt, 2015). In the other

extreme, mispricing the assets can also lead to public outcry when people perceive that the government sold an asset for too low a price. For example, the city of Chicago later sold another 99-year concession, this one to upgrade and operate its city parking meter system, which included the rights to increase parking rates according to a fixed schedule. In this case, the concessionaire successfully upgraded the system and the increased parking rates did not lead to lower demand for parking in the city, and the investment turned profitable. This led to some ex-post public criticism and an assessment by Chicago's Inspector General that the city had sold the concession at too low a price (Chicago OIG, 2009).

Extreme cases like these indicate that, without the benefit of the 20/20 hindsight enjoyed by Chicago's Inspector General, the valuation of public infrastructure assets is difficult. This is obvious for concessions to develop new greenfield projects, but it is also an issue for existing systems for several reasons. First, complex systems managed by a public agency in some cases provide less-standardized and transparent conditions for the reporting of both its financial position and maintenance spending. This problem is compounded by the fact that clear conditions assessments are often difficult to perform on infrastructure networks, many of which include buried assets or other difficult-to-inspect components (Leigland, 2008). Finally, the amount of operating value that the private concessionaire can create is often highly uncertain. Will the new private operator be able to improve system operations by using new management practices? Will they be able to reduce maintenance costs by installing new technologies? If so, how much could the concession itself increase the operating value of the asset?

In practice, governments overcome this valuation problem by undergoing a lengthy, rigorous procurement process when considering a concession for a new infrastructure asset or when offering a concession on an existing system. Technical Advisory firms are hired to evaluate the system and associated risks. Financial Consultants assess the viability of the proposed concession and in some cases draft a rigorous assessment to determine whether the transaction is in the taxpayer's best interests (these are referred to as Value for Money studies, or VfM, in industry parlance) (Infrastructure Ontario, 2015). Specialized law firms are also hired to draft and negotiate a lengthy project agreement on behalf of the government (Guasch, 2004). These transaction costs can, depending on the scale of the project, amount to 5-7% of the total costs of the concession itself (Reeves, Flannery, & Palcic, 2015). While that percentage is often considerably lower for very large projects, those costs account for only one half of the costs of the process – the private concessionaires that are pursuing a particular project often spend millions as well evaluating the project, negotiating, and drafting their own proposals (Dudkin & Valila). To mitigate transaction costs while maintaining a competitive procurement, governments often select 2-4 private consortia based on their qualifications early in the procurement process, then review complete proposals from that smaller competitive set (Guasch, 2004). Timelines for this procurement process vary widely, and average between 18 and 24 months, though some have been completed in as little as 7 months while others have lasted 3 years or more (Reeves, Flannery, & Palcic, 2015).

### **3) Public Pensions and Shared Liabilities with Governments**

Many state and local governments maintain defined benefit pension systems for their retired public employees. In exchange for contributions throughout an employee's career, the employee receives guaranteed payments during retirement. Unlike defined contribution pensions, defined benefit programs can create a liability for the states and cities that sponsor them as guarantors, should the investment returns of the pension be insufficient to make retirement payments. To determine the extent of the government liability, actuaries add projected employee contributions to the existing capital in the pension fund. They then forecast the future retirement payments required (based on the life expectancies of retired employees) and pensions' return on investment (based on investment projections) to estimate the pension's Unfunded Liability. In the United States, actuaries also develop an Annual Required Contribution (ARC) for governments to bring their pensions back to fully funded status. In practice, state and local governments vary in the amount of their ARCs that they actually contribute, with some governments making all of their required contributions and some notably less so (Brainard & Brown, 2015).

Estimates of the size of unfunded pension liabilities for governments vary widely, primarily because future investment returns for pensions are unknown. A common practice for public pensions in the United States is to discount future retirement payments at an assumed rate of return on investment for the pension fund. The discount rates assumed vary, with median rates for US state plans declining from 8% to 7.65% between 2012 and

2014 (Bonafede, Foresti, & Walker, 2015). This assumed discount rate has an outsized impact on any estimate of the total liability for sponsoring governments. Because pension benefits are a fixed obligation, some economists have proposed that those benefits should be discounted at a lower risk-free rate, as opposed to the assumed investment return of the pension (Novy-Marx & Rauh, 2008). One study of 126 US state and local public pensions estimated that accounting for benefit payments using a discount rate of 5% would have increased reported unfunded liabilities from a total of \$0.7 trillion to \$2.7 trillion nationally (Munnell, Aubry, & Quinby, 2011). While some debate over the accounting of benefits continues, the 2008 global financial crisis generally exposed unfunded pension liabilities as a growing and serious liability for many state and local governments.

#### *In-Kind Pension Contributions*

One idea for funding a public pension that has been raised involves a government using an in-kind contribution to the pension. We define an in-kind pension contribution as the contribution of an asset, in lieu of a cash payment, by a sponsor into the pension fund that it is responsible for, to meet an unfunded pension liability. In-kind contributions have been relatively common for private pensions with corporate sponsors. In the United States, such contributions for corporate pensions are governed by the Employee Retirement Income Security Act of 1974 (ERISA). A common form of in-kind contribution involves the transfer of some real property owned by the corporation to its pension fund, which the corporation then leases back from the pension (Irving, 2016). To make in-kind contributions, corporations in the US may request exemptions, which are reviewed by the Department of Labor for

specific criteria, including an independent valuation of the proposed asset (Cohen & Levine, 2012). While relatively common for corporate pensions, in-kind contributions for public pensions are extremely rare. In the US, they have not been used or discussed beyond some high-level proposals (AI-CIO, 2011), some of which include proposals involving infrastructure assets (Glasgall, 2014).

#### *Policy Proposals to Induce Public Pension Investments in Infrastructure*

Because of the characteristics of infrastructure investments discussed above, and the need for solutions to address both infrastructure funding gaps and unfunded public pension liabilities, the idea of public pensions investing in infrastructure has been raised several times around the world. In 2013 the Dutch government created a pilot program to utilize local pension capital via tailored long-term financing for infrastructure projects in the Netherlands (Bennon, Monk, & Nowacki, 2015). In 2012, the California Public Employees' Retirement System (CalPERS), the largest public pension in the US, hosted a series of roundtables with state and local agencies in California to identify opportunities and challenges for more direct participation, though no formal investment program was ever adopted (California Public Employees' Retirement System, 2012). In 2013, the Milken Institute hosted a roundtable to address policy impediments to increased public pension investment in the US (Belt & Nimmo, 2013). In Canada, the province of Quebec has created a partnership program with its public pension – Caisse de dépôt et placement du Québec (CDPQ) to finance major new infrastructure projects (CDPQ Infrastructure, 2017).

Perhaps the most notable attempt at creating a formal investment program for public pensions in the US came as a component of Economically Targeted Investment (ETI) programs in the 1980's and 1990's. ETI's as a concept were born from the idea of social investing, and have been proposed or implemented in asset classes as diverse as local venture capital programs and housing and property development in addition to local infrastructure (Hagerman, Clark, & Hebb, 2007). The concept initially involved a local investment by a pension fund that would have additional economic benefits for the local area. The idea was that there may be investments that are unable to attract capital from the market but that could still be attractive to a local pension fund, because the economic benefits of the investment would also be captured by the plan's beneficiaries (Watson, 1994). Future, official definitions of ETI's evolved, though, to clarify that ETI's did not entail a pension fund having to accept a lower risk-adjusted return on investment than what could be achieved in the market. The Clinton administration first introduced ETIs via Department of Labor Interpretive Bulletin (IB) 94-1, which stated that ETIs could meet a pension's fiduciary standard so long as the pension determines that they achieve market, risk adjusted rates of return. Since then the Department of Labor has reversed itself multiple times under different administrations, removing ETIs as an acceptable investment under President Bush with IB 08-01. This was again reversed under the Obama Administration with IB 2015-01, which effectively reinstated IB 94-1 (Department of Labor, 2015). In 1993 The Commission to Promote Investment in America's Infrastructure highlighted the potential of ETI programs to invest pension capital more directly in local infrastructure in a report to congress (The Commission to Promote Investment in America's Infrastructure, 1993).

Debate over the effectiveness of ETI programs has continued in academia ever since. From the outset, economists have cited the inherent paradox that investment opportunities could exist that cannot be financed by the market but that would still provide a pension adequate risk-adjusted returns (Zelinsky, 1995). That paradox simply cannot coexist with an efficient market. Thus, proponents of ETI programs have highlighted the importance of inefficient markets as a premise for the viability of ETI's (Watson, 1994). The paradox is fairly simple: if the marketplace for an asset is efficient, any local pension that invests in a project through an ETI program must be taking a lower risk-adjusted return than what could be achieved from the marketplace. This creates a natural "market for lemons" for ETI programs. As long as markets are efficient for a given set of projects, only the worst projects will be selected as ETI opportunities (Nofsinger, 1998).

That market for lemons is supported by most empirical research on ETI programs, generally, though no studies of ETI's applicability to infrastructure exist because ETI's for US infrastructure were never put into practice. Empirical studies of pensions have found a correlation between the use of ETI programs and below-average returns (Nofsinger, 1998). Other studies have highlighted particularly bad investments as indicative of the potential conflicts of interest inherent in ETI's and other social investing programs, even labeling the programs Politically Targeted Investments (Romano, 1993). Despite some continued debate, ETI investments have decreased significantly in the years since IB 08-01, though part of this decline could be explained by the global financial crisis and ensuing recession (Woelfel & Dixon, 2016). It remains unclear whether the concept will be revisited by

public pensions in the wake of IB 2015-01. The majority of existing ETI programs are oriented towards local community development and real estate, or private equity funds for local businesses. The concept has never been applied for infrastructure in the US as the 1993 commission report initially envisioned.

The ETI debate in the US highlights the significant barriers to increased public pension investments in infrastructure. At the core of the debate is the need for public pension trustees to maintain their fiduciary responsibility to plan beneficiaries above all else. This is a concern for any public pension investing in a non-market security that is difficult to value, including a public infrastructure asset. Yet ETI's are premised on the idea that an investment opportunity could be underserved by capital markets due to valuation difficulties or other market inefficiencies. Long term concessions for infrastructure conceptually fit that requirement.

The basic concepts that make ETI programs attractive but problematic as a policy proposal also apply to potential programs for in-kind contributions of assets to public pensions. If public pensions can fill an "infrastructure gap," can infrastructure assets be contributed to underfunded public pensions? In-kind contributions conceptually just inverse the logic behind ETI proposals for infrastructure.

The value created by programs that sell operating concessions on public assets is largely driven by the procurement itself, or any operational efficiencies that the winning concessionaire is able to implement. Most political resistance to those programs is thus driven by concerns around the difficulty of valuing the concessions and market inefficiencies of private infrastructure transactions.

This drives the fear that most of the additional value created from the transaction will be captured by the private concessionaire instead of taxpayers. These same basic drivers of value creation and value capture would thus be in play for the transfer of a concession on an infrastructure asset to the public pension fund in-kind. Will the public pension be able to increase the operational value of the asset? And will more of that increased value be captured by taxpayers through the transaction? Given the valuation difficulties discussed above, will the transaction be structured in a way that allows the public pension to keep its fiduciary responsibilities paramount to all other considerations?

#### **4) Infrastructure and Institutional**

##### **Investment in Australia**

###### *Infrastructure Australia and Queensland*

According to the OECD, Australia invested more than AUD\$15bn in infrastructure in 2014, making it the third largest investor in infrastructure that year (Australian Government Department of Infrastructure and Regional Development, 2014). Much of that investment was in line with increasing demand due to both population growth and depreciated existing assets. In response to demand, the national and state governments injected large amounts of capital into renovating core infrastructure assets, particularly those in economic hubs. For instance, the federal government currently plans on investing billions in Western Sydney infrastructure, including AUD\$2.9bn over ten years in order to upgrade five major transportation networks and local roads (Australian Government Department of Infrastructure and Regional Development, 2016),

and more than AUD\$5bn for a new airport in the region (Commonwealth of Australia, 2017).

Australia also has a long track record of using private capital to finance critical infrastructure. Australia has a National P3 Policy Framework that requires the consideration of the P3 model for any project with a capital cost in excess of \$AUD50mm (Infrastructure Australia, 2008). More recently, the national government in Australia created an incentive program for states to sell concessions on existing infrastructure assets and to use the proceeds to fund new projects (Commonwealth of Australia, 2014), and several provincial governments have also created special agencies to assess and manage alternative procurements for infrastructure such as P3s. In 2016, the private sector contributed more than 50% of the total domestic infrastructure investment (Australian Government Department of Infrastructure and Regional Development, 2016). As Australia's public sector developed P3 programs for infrastructure, Australian investors developed a strong global competence in the infrastructure investment sector. According to Private Equity International, 6 of the 30 largest global infrastructure investors are based in Australia, and combined have accumulated more than \$47.86bn in capital over the last five years (PEI, 2016).

### *QIC History and Organization*

Queensland is the third-largest state in Australia with a population of more than 4.7 million. Brisbane, the capital of Queensland, is one of the Australia's major trading hubs. The Port of Brisbane handles over 1 million TEUs annually, and Australia TradeCoast, an 8,000 hectare industrial complex, is responsible for 1,500 businesses and 60,000 jobs, acting as a key driver

for regional economic growth (Port of Brisbane, 2016). Due to its commerce-oriented economy, infrastructure has been a critical issue in sustaining Brisbane's long-term competitiveness.

Still, the state of Queensland struggled financially and in meeting its infrastructure needs in the wake of the global financial crisis and ensuing recession. In 2011, the Queensland government reported a net operating loss of AUD\$233mm and an accumulated deficit of AUD\$3bn (Queensland Government, 2012). In 2009, the state government met immediate public opposition when Andrew Fraser, then State Treasurer, unveiled a plan to spend AUD\$18bn on infrastructure improvement (Moore & Hurst, 2009).

QIC is one of the largest superannuation managers in Australia with over AUD\$79bn in assets under management (AUM). It is owned by the Queensland government and was initially established to exclusively manage the state's Defined Benefit Superannuation Fund (the DB Fund) and defined contribution fund (QIC, 2016). Since then, QIC has grown to a commercial fund manager representing over 100 other institutional investors in addition to the DB Fund. QIC, on behalf of the DB Fund, invests in a wide range of assets ranging from real estate and infrastructure market securities and private equity. The Global Infrastructure group at QIC has over AUD\$9.5bn in assets under management and has made twelve direct investments in infrastructure projects to date (QIC, 2016).

Unlike many defined benefit pension funds investing in infrastructure, QIC Global Infrastructure, on behalf of the DB Fund, built a team of investment professionals and developed the in-house capability to assess and manage

infrastructure assets directly. The fund thus employs the direct model of institutional investment for its infrastructure allocation, and competes with fund managers and other investors to source and evaluate investment opportunities, and operate assets efficiently. Over the last decade, QIC has used its investment and operational capabilities to serve as an active investor in the Queensland infrastructure sector and globally. The Global Infrastructure Group acquired the Brisbane Airport in 2007, the Port of Brisbane in 2010, Queensland Motorways in 2011, and more recently has invested in assets such as the Port of Melbourne and the Powering Australian Renewables Fund. QIC has also invested in infrastructure assets in the US, Canada, the UK, Spain and India.

## 5) Queensland Motorways Case Study

The coincidence of the professionalization of the Queensland government in developing alternative procurement programs for infrastructure assets, and the professionalization of its local defined benefit pension's infrastructure investment capability, laid the groundwork for the QML transaction. In 2011, Queensland transferred QML to QIC under a long-term concession which valued the asset at AUD\$3.088bn. QIC made operational improvements and added to the system over the following four years, eventually selling QML to a private consortium in 2014, at a valuation of AUD\$7.057bn. Details of the transaction and valuation of QML are provided in the section below.

### *Project History*

QML is an approximately 70 km road network consisting of the Gateway Motorway and the

Logan Motorway. Since its opening in 1986, QML has served as a key East-West link in Southeast Queensland, and provides a strategic connection to the Australian TradeCoast. Under public ownership, QML undertook several major system upgrade projects from 2007 to 2009, including the development of a new Gateway Bridge and the introduction of a free flow electronic tolling system in 2009, but the upgrades, combined with the impacts of the global recession, necessitated increased tolls for users. Tolls on the system increased at compound annual rates of more than 7% on Gateway and 6% on Logan during the period 2005 to 2009 (QML, 2009). In July 2010, the state government also announced that toll increases would increase 30% system-wide (RACQ, 2010) as part of the Gateway Upgrade Project. In 2010, QML reported an aggregate deficiency of total equity of more than AUD\$500mm from its major shareholder – the state government (QML, 2010).

At the same time, the Queensland state government's finances were deteriorating. In 2009, ratings agencies downgraded the state's credit rating and the state budget forecasted a deficit of AUD\$1.9bn (RACQ, 2010). In mid-2009 the state announced that it would pursue the sale or lease of five government assets to address shortfalls, with QML as one of the assets identified.

Public opposition to the privatization program emerged quickly, particularly for the sale or lease of QML. Public unions were particularly vocal in their opposition, and a "Queensland Not For Sale" political campaign was launched. The proposed program took a turn for the worse in 2010, when the Royal Automobile Club of Queensland (RACQ), the largest motorist organization and largest advocacy club of any type in Queensland,

voiced its opposition to a sale or lease of QML (RACQ, 2010).

Arguments against the sale or lease were largely those common to debates on concessions for brownfield infrastructure and privatization. RACQ stated that privately-owned transportation networks “prioritize financial returns over economic performance, so they reduce the benefits to society.” They were also unconvinced by the government’s promise that tolls under the concession would be capped to increase by no more than inflation (RACQ, 2010). A study, commissioned by RACQ, by Professor Ross Guest, assessed the proposed lease arrangement and found that public value from the arrangement would be driven by the ability of the private concessionaire to operate the system considerably more efficiently than its current governance allowed. Professor Guest’s logic was relatively straightforward – the government as an owner is able to capture the many economic externalities created by a transportation network, as opposed to a concessionaire, which can only capture user-fees. Thus, unless the concessionaire is able to somehow operate the system more efficiently, it would need to toll the network at a higher rate than that which would be economically optimal. Professor Guest also cited valuation issues as a concern for QML, as the system was just completing major capital investments that were not yet fully operational. Professor Guest also included his own valuations of QML using some high-level assumptions of the system’s return on investment and revenue growth rates over a 30-50 year concession, discounted at various real discount rates associated with Queensland’s real cost of borrowing before its ratings downgrade, and determined that the system’s value could range from AUD\$3.6bn to as high as AUD\$6bn. The critical issue of any

concession arrangement would thus be for Queensland to capture the asset’s full value through the proposed transaction (Guest, 2010).

### *Unfunded Liability and Early Decision Making*

While the public debate over the proposed lease of QML was underway, the State Actuary was also completing its three-year review of the state’s defined benefit superannuation pension for public employees (Fraser, 2011). Completed in June 2010, the actuary found that the fund’s liabilities exceeded its assets, inclusive of the state’s reserve funds, by more than AUD\$1.4bn, which would normally necessitate a contribution by the state to support the fund (QSuper, 2011). Given the state’s other financial obligations in the wake of the economic recession, and at the prompting of QIC, the state began to consider the transfer of a concession of QML to the pension in lieu of an open tender. On an initial review, the transaction could mitigate most, if not all, of the political and financial issues associated with the transaction, based on several assumptions:

1. *The downside risks of a competitive bidding process:* It remained unclear whether Queensland would be able to capture the full value of QML through a bidding process with outside investors. Under the shared end goal to serve the residents of Queensland, QIC and the government would have mutual incentives to close the transaction in a win-win setting.
2. *Balancing the budget via an in-kind contribution:* Transferring the concession of QML to QIC would allow the state to meet its financial obligations to the defined benefit fund by replacing a traditional capital contribution with a form of in-kind contribution. For QIC, the acquisition would add a low-risk, long-term investment to their portfolio.

3. *Managing stakeholder relations by keeping QML ownership under a public entity.* By putting the asset into their pension fund, the government could ease public opposition to a brownfield concession arrangement. An acquisition by QIC would mitigate concerns around the incentives of private investors in a long-term concession.

### *Valuation and Initial Sale*

In late 2010, the Queensland government began an exclusive negotiation with QIC on the transfer of a concession for QML. Anna Bligh, the former Premier of Queensland, championed the process by arguing that the transfer to QIC will keep the asset under public ownership (Hurst, Queensland Motorways to Remain in Public Hands After All, 2010). The shared liabilities between QIC and the government mitigated concerns regarding the valuation for the public. QIC remained at arm's length to ensure it was acquiring the asset at a valuation that would support its beneficiaries, but any benefit to the fund from an under-valuation of QML would ultimately be captured by the retirees of Queensland.

The valuation and due diligence process was benefited by QIC's prior experience evaluating infrastructure investments globally and also investing locally in Queensland via its investments in Brisbane Airport and the Port of Brisbane. Following due diligence with external advisors and auditors, QIC and the state finalized the transfer of QML on May 10, 2011. The two entities agreed on a market value of QML at AUD\$3.088bn for a 40-year concession (Hurst, Qld Motorways Transferred in \$3bn Deal, 2011). For its part, the board of the defined benefit fund also commissioned a separate, independent valuation of the concession which produced their own range of

values, the high end of which was AUD\$3.1bn, prior to approving the transfer (Israel, Moorhead, & Carmichael, 2015).

### *QML Operations Under QIC*

After the transfer of QML, QIC began making operational changes to the system and added to the network. QIC's assessment of QML as an investment opportunity identified the following attractive features:

1. *Demand Fundamentals:* Both the Logan and Gateway Motorways are strategically positioned to benefit from the economic growth of the Brisbane region, including the Australia TradeCoast and the South West Industrial Gateway.
2. *Long-term, Inflation-linked investment:* The concession capped tolls to only increase with inflation over the 40-year term, but the inflation increases were linked to local CPI, which is the same metric used to determine increases to the benefit liabilities of the pension fund. The asset thus perfectly matched the pension's liabilities.
3. *Upside potential from operational efficiencies:* At the time of acquisition, the EBITDA margin of QML was considerably lower than those of comparable transportation assets. Based on their prior investments, the leadership at QIC identified potential changes to improve management practices.
4. *Option Value:* QML's strategic position would enable the network to potentially acquire other new and existing toll roads in the region to add to the system (Israel, Moorhead, & Carmichael, 2015).

Based on these findings, QIC implemented a transition plan for the system. Over a three-year

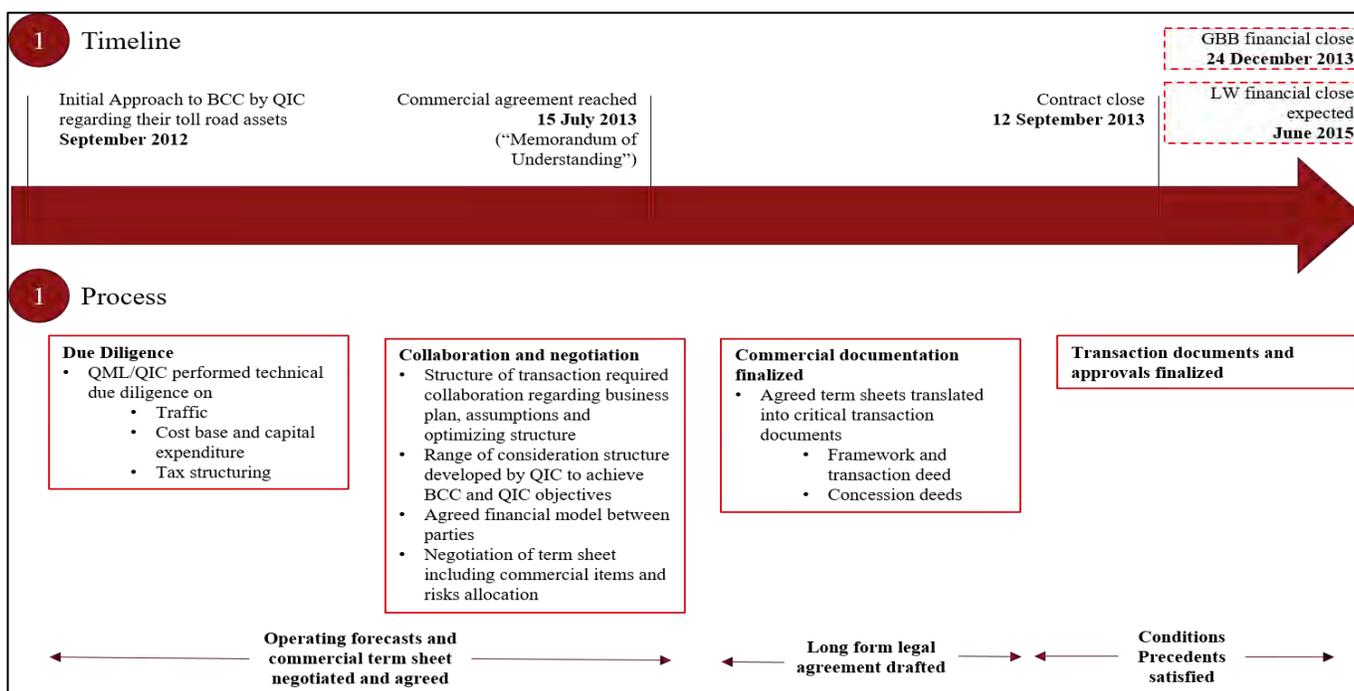
period, QIC implemented various operational changes including:

1. The creation of a new governance framework for the company
2. Recruitment of new senior management for QML
3. A new ownership structure, with leadership compensation tied to performance
4. An overhaul of QML's finance and operations reporting
5. The creation of a concession compliance program to ensure QML was maintaining and operating the system according to the terms of its concession
6. Improved monitoring of capital investment and maintenance procurements by QML
7. Proactive stakeholder engagement and public outreach (Israel, Moorhead, & Carmichael, 2015).

In addition to the changes above, QIC added three additional toll roads to the QML network via acquisition. The CLEM7 was a 6.8km tolled motorway cross city bypass of Brisbane. The

project was developed as a greenfield concession signed in 2006, but the project began experiencing financial difficulties almost immediately after it was partially opened in 2010. Traffic volumes were significantly lower than originally forecast, and in February 2011 the multi-billion dollar project slid into bankruptcy (PPB Advisory, 2014). As project lenders assessed options for CLEM7 in bankruptcy, QIC identified the project as an opportunity to add a connecting asset to QML under favorable market conditions. QML was also advantaged in that the system could take advantage of operational synergies that other potential investors in CLEM7 could not, simply because the project was already connected to their existing network. In late 2013, QIC's bid was selected by the project's lenders over other bidders to acquire CLEM7 for AUD\$618mm, significantly lower than the costs to build the project (O'Sullivan, 2013).

Figure 1: Timeline for QML's Acquisition of Go Between Bridge and Legacy Way



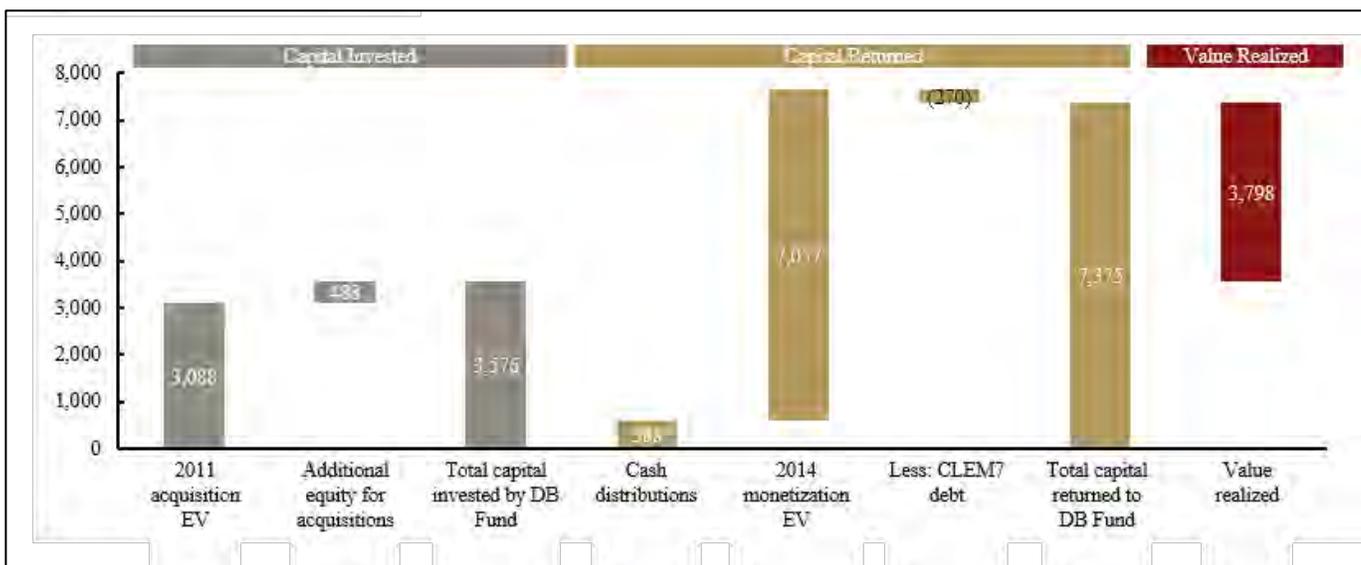
At the same time, QIC identified two additional toll roads, the Go Between Bridge and Legacy Way tunnel, that connected into QML in Brisbane. Both assets were owned and operated by the Brisbane City Council, with the Go Between Bridge open in 2013 and Legacy Way scheduled for opening in 2015. In late 2012, QIC made an unsolicited proposal to the Council to purchase an operating 50-year concession in exchange for up-front payments of AUD\$112mm and AUD\$131mm for the bridge and tunnel, respectively, with further deferred payments linked to actual traffic performance. Following an assessment, the Council agreed to enter into exclusive negotiations with QIC and eventually approved the transaction. The Council's stated reasons for accepting the offer included saving millions in valuation and transaction costs associated with running a competitive tender, the natural synergies of the roads with QML's operations given that it was operating other roads in the region, and the fact that the assets would be extremely difficult to value in a competitive tender given the lack of reliability

in traffic forecasts. The Council also aimed to reinvest the up-front payment from QML to finance another major transportation project. Again, any upside benefits of under-valuation would be captured by the retirees of Queensland (MacDonald, 2013).

#### *QIC's Decision to Divest and the New Valuation*

In late 2013, the board of directors of the pension were presented with a unique challenge regarding QIC's regular updated valuations of the QML system – the valuation was getting too high. Like all defined benefit pensions, one of the board's responsibilities was to establish and maintain a diversified investment portfolio, and by late 2013 QIC's valuation of the system had increased to the point at which that single investment was becoming an over-weighted component of the total pension portfolio. The decision was made to have QIC assess the divestment of all or part of the system to re-diversify the pension (Israel, Moorhead, & Carmichael, 2015).

Figure 2: Capital Investment and Value Realized from QML Transaction



QIC refined its existing business plan for QML as a going concern and prepared due diligence materials and management presentations for potential acquirers. It quickly determined that in order to maximize value for any divestment of the system, the concession on the entire system should be sold as a complete package. Public response to QIC's decision to explore the sale was relatively muted. Premier Campbell Newman notably stated "I would like to see these continue to be held ultimately by Queenslanders but QIC have got to make the best financial decisions. They've got a duty to make sure that they pay pensions and superannuation entitlements to Government and former government employees" (ABC News, 2013).

The operational characteristics of QML had changed considerably since QIC's initial acquisition. In addition to adding the three additional toll roads, EBITDA margins on the original network had increased by more than 8%. QML had a new board of directors and implemented new accounting and reporting procedures. It had a maintenance management plan for the entire length of the concession, and many of the senior executives for the system had been replaced under a new incentive structures to align performance. Over a five month period, QIC completed its assessment and solicited the market for bids to acquire the system. As an operational, brownfield infrastructure asset, QML attracted considerable competition from domestic and international investors alike (Australian Financial Review, 2014).

In July 2014, QIC selected a consortium of Transurban, AustralianSuper, and the Abu Dhabi Investment Authority (ADIA) to acquire QML at a purchase price of AUD\$7.057bn, or approximately 26.5x its FY2013 EBITDA (Remeikis, 2014). When

accounting for all of QIC's capital invested in the system, inclusive of its expansions, along with QML's cash distributions while under QIC's management, QIC realized a profit of nearly AUD\$3.8bn for the pension over a four year period (Israel, Moorhead, & Carmichael, 2015).

## 6) Conclusions and Recommendations

Governments are responsible for separate programs to invest in and maintain capital intensive projects that undergird the local economy and manage defined benefit investment programs on behalf of retirees. The QML transaction highlights many of the opportunities and challenges of programs to procure private concessions for infrastructure management, monetize existing public assets and finally support public pensions via in-kind contributions. It also highlights the potential of in-kind contributions to effectively monetize publicly managed economic infrastructure assets in a way that avoids some of the potential pitfalls of direct tenders for concessions to private investors. We describe some of the benefits and essential elements of these in-kind programs below.

### *Costs and Opportunities of an Inefficient Market*

Government procurements of concessions for the management of infrastructure have the telltale signs of an inefficient market. The programs entail complex, idiosyncratic, and opaque assets. Transaction costs for valuation are high, and the investments involve difficult to assess political risks and uncertainties. This renders the industry theoretically a very strong fit for the investment programs envisioned by proponents of ETI's. A key impediment to ETI programs continues to be

concern around the ability of the public pension to remain an arm's length investor and keep its fiduciary responsibilities paramount. When that impediment is overcome by the professionalization of public pensions, value-added transactions like that for QML become possible. This applies to both the public pension's *governance* and its internal *capability*. The requisite governance would entail a transparent decision making process and professional management at the board level free from undue political influence by the sponsoring government. The requisite capability would also entail the internal resources and staffing to assess, structure, and then manage direct infrastructure investments.

The operational improvements at QML were possible only due to the rare capability at QIC as a state-level pension fund manager to directly invest in and manage infrastructure assets. This internal capability is rare in public pensions. It is thus noteworthy that a transaction like QML was first completed by a state with that unique internal investment capability. Without QIC's dedicated infrastructure team, QML would also likely not have realized the same level of operational turnaround.

It is unclear whether a similar transaction could be replicated in which the public pension uses some form of external management contract with a service provider to assess and operate the in-kind asset without losing the competitive advantages that QIC's internal team enjoyed. We highlight this as an additional area for research or industry experimentation. It is feasible that a public pension that lacks the internal expertise to effectively manage an infrastructure asset could outsource it directly through a services contract to replicate a

transaction like QML, albeit while paying a management fee of some kind.

### *Problems with Monetizing Public Assets*

If the incremental *value created* by concession tenders for managing existing public infrastructure assets is largely driven by the investor's ability to more effectively manage the costs and risks of the system, then the incremental *value captured* by local taxpayers is largely driven by the local government's ability to manage a competitive procurement for the concession. Programs to monetize existing public assets, whether to meet pension obligations or fund new investments in other infrastructure, are often met with considerable political resistance. There are many reasons cited by opponents of these programs, but a core driver of resistance is clearly the difficulty and complexity of valuing the concession itself, and the transaction costs which limit open competition. This undergirds concerns that much of the additional value created by the concession could wind up as profits for investors as opposed to funding for the public. In practice these concerns are often exacerbated when the concessionaire is a foreign company or financial intermediary.

An additional concern with proposals to monetize public assets through infrastructure concessions stems from the government's ability to re-invest the proceeds wisely. Those programs that do exist have been most successful when they clearly identify liabilities of the government that will be funded by the proceeds, such as the prioritized list of new infrastructure projects that will be funded by concession proceeds in New South Wales, Australia (Nowacki, Levitt, & Monk, 2016). Without this clearly identified prioritization, programs that result in large up-front

contributions of capital invite a lack of accountability and, potentially, wasteful spending.

In-kind contributions to public pensions appear to resolve both of these concerns with asset monetization programs. The political concerns stemming from valuation difficulties of infrastructure assets are mitigated, on the upside, because any “profits” from undervaluation simply offset additional unfunded pension liabilities. Likewise, the transaction clearly allocates proceeds to a single large liability of the sponsoring government.

#### *Differentiating ETI's from an In-Kind Contribution like QML*

The early proponents of ETI programs for infrastructure correctly observed that, due to their shared liabilities, local pensions, local governments and local economies are inextricably tied. A concern with those programs was that they (explicitly or implicitly) concluded that a pension could concede on the risk-adjusted returns of a local investment because they will also capture some of the broader economic benefits of that investment. This would require pension managers to subordinate their fiduciary responsibilities to plan beneficiaries, and could lead to undue investment decision making especially for hard to value, complex investments. Programs to facilitate direct local pension investments in infrastructure must enable the pension to remain at arm's length and keep its fiduciary responsibilities to beneficiaries transparently paramount.

In-kind contributions for public pensions essentially reverse this logic. Pension managers stay at arms-length and keep fiduciary responsibilities paramount. For the government granting the

concession, valuation is still difficult, but the risk of under-valuation during the transaction is mitigated because benefits still accrue to the retirees of the state.

It is important to note here that an optimal valuation process for an in-kind contribution would be the same as that for any other negotiated corporate transaction. Independent valuations like the one commissioned by the board of directors of the defined-benefit pension in this case should be used to supplement those developed by the parties to the transaction to ensure transparency and fairness.

#### *A Framework for In-Kind Contributions*

Given these limitations, under what conditions could an in-kind contribution of a public infrastructure system to a public pension be possible? We build on the debate above by proposing a simple, limiting framework:

1. The public pension must be able to keep its fiduciary responsibility to plan beneficiaries paramount to all other considerations. This applies both to their independence and technical capability. The plan must be able to approach any transaction at arm's length, without political influence. The plan must also have the professional capabilities necessary to value and manage the asset in question.
2. The sponsoring government, for its part, and without becoming a formal guarantor of the pension, must identify and accrete value for its citizens in the transaction in its own right through the transfer of operating risk to the pension investor. The government in question must also have the institutional capability to transparently manage procurements for infrastructure concessions.

3. Process transparency, supported by independent valuations, must be maintained throughout the transaction and into the project's operations under the concession.
4. The driver of the success of any such program or transaction must be the public's ability to capture additional value from a project or asset through the management of the public pension. This can only be achieved through either the management practices used or by overcoming the valuation problems inherent in public infrastructure systems.

The above criteria will severely limit the global opportunity for in-kind pension transactions like

QML, primarily because few public pensions, at least in the US, have the internal capability to assess and manage infrastructure investments. At the same time, many governments do not have dedicated programs or agencies to assess and procure concessions for new and existing infrastructure assets. Both of those programs are required to transparently undertake an in-kind transaction for infrastructure. Both of those programs would also require governments to make investments in the professionalization of their pension investment capability and public infrastructure institutions, respectively.

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***Testimony for the Pension Sustainability Commission***

***October 17, 2018***

***Room 1E, LOB***

Good morning Chairman Steinberg and other distinguished members of the Pension Sustainability Commission. My name is Greg Smith, and I am the new President of the Connecticut Lottery Corporation. Thank you for the invitation to give brief remarks this morning. I have now been on the job for three months in Connecticut, but have over six years of lottery industry experience as the leader of two other lotteries – Vermont, and most recently Illinois. While each of those states contribute all or most of their lottery profits to education, there were regular conversations about changing that, and also how to maintain and improve profits. While we will not pretend to understand all of the measures you are considering, we appreciate the opportunity to provide some information relative to lottery to you today.

We believe that the decision of where Lottery proceeds are directed is ultimately a policy question to be addressed by the legislature. I understand this Commission is charged with important tasks, and that the Lottery piece of the puzzle may be just a small part of an overall solution. To that end, the CT Lottery Staff and I are happy to share any information we have, and want to assist, as requested, as this Commission goes through its deliberative process.

Before going further, I'd like to provide some brief background about the Connecticut Lottery Corporation in order to provide some context. The Lottery was created in 1972, and in 1996 the legislature created the quasi-public model to help us function more like a private business than a traditional state agency. Today, our approximate 140 employees are very proud of the work they do. In FY '18, we achieved sales of \$1.26 billion and returned \$345 million to the General Fund, another record year. We have continued to be a steadily growing source of revenue for the State of Connecticut for the past 46 years. In addition to lottery profits, last year we paid over \$70 million in commissions to our 2,900-member retailer network. Most of these retailers are small and medium sized businesses for which the commission is an important source of income. Our economic footprint in Connecticut is significant. Further, the CT Lottery is very successful when measured against other U.S. lotteries. Of the 47 U.S. lotteries, we rank 5<sup>th</sup> in sales per capita. Importantly, we are also an industry leader with respect to our robust and long-standing commitment to and involvement with responsible gambling.

Part of the reason for our success is our operational structure as a quasi-public entity. We have a 13-member Board of Directors, five whom are appointed by the Governor, one who is appointed by the Treasurer, one who is appointed by the Secretary of the Office of Policy and Management, and the rest of whom are appointed by legislative leadership. We are also similar to a state agency in that

- we are all state employees, most of whom are members of five bargaining units,
- we are subject to the Freedom of Information Act and all state ethics laws; and,
- we are accountable to the Legislature, with the Public Safety & Security Committee and Finance, Revenue and Bonding Committee as our committees of cognizance.

But there are certain areas where we are given a bit more flexibility, including procurement and hiring. These exceptions are crucial, as they recognize our entrepreneurial mission and allow us to respond more quickly to market forces, which in turn allow us to maximize sales and General Fund transfers.

We believe the quasi-public model is a good mix of entrepreneurial spirit tempered by accountability to the legislative and executive branches, both directly and through our Board. This quasi-public operational structure is vital to our success. In fact, a recent study by the State of Ohio concluded that a quasi-public operational structure was ideal for lottery, and actually pointed to the Connecticut Lottery Corporation as a model. The report noted that using board appointments by key stakeholders was a good way to maintain this efficient organizational structure. We think this governance approach could well serve any changes that this commission considers or recommends. We are happy to provide the Commission with that study. From my experience at three different lotteries where the state agency model, private management model, and quasi management model have been used, Connecticut's model is superior for allowing maximization of proceeds to the state.

Further, having reviewed documents from NJ's legislation regarding using their lottery to bolster their pensions, we were encouraged to see that their valuation used lottery input for projecting sales and profits by game. Should this commission ultimately recommend using lottery to shore up pension funding we hope that you will also consult with your lottery to know what the future looks like for current games, and to also be thinking about that value if internet lottery or sports betting become product offerings through the CT Lottery. Both of these additions have been considered in prior legislative sessions, so any action on those would certainly impact the projected cash flows and value for pension purposes. Of course, even together, internet lottery and sports betting won't balance the state's budget or shore up the state's pension obligations, but these concepts are viable for improving profits for the state, and would help ensure the Lottery's relevance, and continued growth, in the years to come.

In closing, I want to thank you for your time. My staff and I are happy to assist this Commission and provide any information that may be useful. I'm happy to answer any questions you may have.

# STATE OF CONNECTICUT OFFICE OF THE TREASURER

# 2017

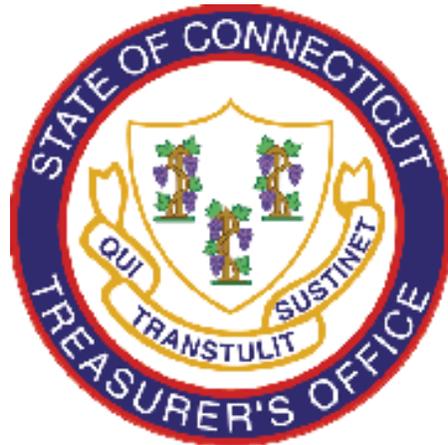


## COMBINED INVESTMENT FUNDS COMPREHENSIVE ANNUAL FINANCIAL REPORT

*For the fiscal year ended June 30, 2017*

# STATE OF CONNECTICUT

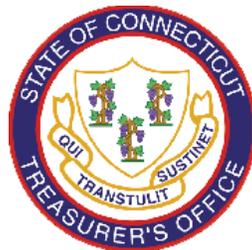
## Office of the State Treasurer



The State Motto, "Qui Transtulit Sustinet" (He Who Transplanted Still Sustains), has been associated with various versions of the State Seal from the creation of the Saybrook Colony Seal.

# STATE OF CONNECTICUT OFFICE OF THE TREASURER

# 2017



## COMBINED INVESTMENT FUNDS COMPREHENSIVE ANNUAL FINANCIAL REPORT

*For the fiscal year ended June 30, 2017*

Prepared by: State of Connecticut  
Office of the Treasurer  
55 Elm Street  
Hartford, CT 06106-1773

**STATE OF CONNECTICUT**  
**Office of the State Treasurer**



**COMBINED INVESTMENT FUNDS**  
**COMPREHENSIVE ANNUAL FINANCIAL REPORT**  
 FOR THE FISCAL YEAR ENDED JUNE 30, 2017

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# **Introductory Section**





DENISE L. NAPPIER  
TREASURER

State of Connecticut  
Office of the Treasurer

December 29, 2017

To the State of Connecticut Combined Investment Funds

Fellow Beneficiaries,

I am pleased to submit this Comprehensive Annual Financial Report for the State of Connecticut Combined Investment Funds (CIF) for the fiscal year ended June 30, 2017. The CIF generated a net investment return of 14.18 percent for the fiscal year. The State's three largest pension funds – the Teachers' Retirement Fund (TRF), the State Employees' Retirement Fund (SERF), and the Connecticut Municipal Employees' Retirement Fund (CMERF) – returned 14.38 percent, 14.32 percent and 13.05 percent, respectively, outperforming their benchmarks by 114, 115, and 98 basis points. Longer term, the five-year returns for the two largest funds, TRF and SERF, were 8.80 percent, while the seven-year returns were 8.96 percent and 9.02 percent, respectively.

The CIF performance for Fiscal Year 2017 added \$3.30 billion of market value to pension assets. After paying fees and expenses, including \$793 million of benefit payments in excess of contribution receipts, the CIF ended the fiscal year with an all-time record of \$32.5 billion in net assets.

The primary purpose of the CRPTF is to help the State pay its benefit obligations. Accordingly, from July 1, 1999 through June 30, 2017, it has distributed \$24.3 billion in benefits and received \$12.4 billion in contributions, resulting in \$11.9 billion of payments in excess of contributions.

Responsibility for both the accuracy of the data and the completeness and fairness of this report rests with Treasury management. All disclosures necessary and required to enable fellow beneficiaries and the financial community to gain an understanding of CIF financial activities are contained within this report.

The enclosed financial statements and data are presented fairly in all material respects and are reported in a manner designed to present the financial position and results of CIF operations accurately.

The CIF were established pursuant to Connecticut General Statutes Section 3-31b as a means to invest pension and trust fund assets entrusted to the Treasurer in a variety of investment classes. The CIF are comprised of separate pooled investment funds: Liquidity Fund, Alternative Investment Fund, Mutual Equity Fund, Core Fixed Income Fund, Inflation Linked Bond Fund, Emerging Market Debt Fund, High Yield Debt Fund, Developed Markets International Stock Fund, Emerging Markets International Stock Fund, Real Estate Fund, and Private Investment Fund.

The units of the CIF are owned by six pension funds: Teachers' Retirement Fund; State Employees' Retirement Fund; Connecticut Municipal Employees' Retirement Fund; State Judges' Retirement Fund; Probate Court Retirement Fund; and State's Attorneys' Retirement Fund. In addition, the CIF are owned by nine trust funds: Soldiers' Sailors' and Marines' Fund; Police and Fireman' Survivors' Benefit Fund; Connecticut Arts Endowment Fund; School Fund; Ida Eaton Cotton Fund; Hopemead State Park Fund; Andrew C. Clark Fund; Agricultural College Fund and State of Connecticut Other Post-Employment Benefits Trust Fund.

## LETTER FROM THE TREASURER

### Financial Information

The consolidated CIF assets at the close of Fiscal Year 2017 were \$32.5 billion based on fair value and the CIF were in full compliance with the standards of the Governmental Accounting Standards Board. The CIF are invested across global public and private market equity, fixed income and alternative asset classes. Additional information on the CIF can be found in the Notes to the Financial Statements.

### Internal Control Structure

Management is responsible for maintaining a system of adequate internal accounting controls designed to provide reasonable assurance that transactions are (i) executed in accordance with management's general or specific authorization, and (ii) recorded as necessary to maintain accountability for assets and to permit preparation of financial statements consistent with generally accepted accounting principles. We believe the internal controls in effect during Fiscal Year 2017 adequately safeguarded the CIF assets and provided reasonable assurance regarding the proper recording of financial transactions. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgments by management.

### Independent Audit

The State of Connecticut's independent Auditors of Public Accounts conducted an annual audit of this Comprehensive Annual Financial Report in accordance with generally accepted auditing standards. The Auditors' report on the basic financial statements is included in the Financial Section of this report.

### Management Discussion and Analysis

The Government Accounting Standards Board requires a narrative introduction, overview and analysis to accompany the basic financial statements in the form of a Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement and be read in conjunction with the MD&A. The MD&A can be found in the Financial Section immediately following the report of the independent auditors.

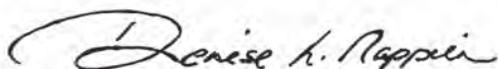
### Awards

The Government Finance Officers Association of the United States and Canada awarded the Combined Investment Funds a Certificate of Achievement for Excellence in Financial Reporting for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2016. The Certificate is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports.

### Requests for Information

This Comprehensive Annual Financial Report is designed to provide a general overview of investment activities of the CIF. We hope this report will prove both informative and useful. Questions concerning any of the information contained in this report or requests for additional financial information should be addressed to the Office of the Treasurer, 55 Elm Street, Hartford, Connecticut 06106-1773, or by telephone to (860) 702-3000. Copies of the report also will be available on the internet at [www.ott.ct.gov](http://www.ott.ct.gov).

Sincerely,



Denise L. Nappier  
Treasurer  
State of Connecticut



DENISE L. NAPPIER  
TREASURER

State of Connecticut  
Office of the Treasurer

December 29, 2017

This Comprehensive Annual Financial Report was prepared by the Office of the Treasurer, which is responsible for the accuracy of the data contained herein, the completeness and fairness of the presentation, and all disclosures. We present the financial statements and data as accurate in all material respects and prepared in conformity with generally accepted accounting principles. Such financial statements are audited annually by the State of Connecticut Auditors of Public Accounts.

To carry out this responsibility, the Office of the Treasurer maintains financial policies, procedures, accounting systems and internal controls that management believes provide reasonable, but not absolute, assurance that accurate financial records are maintained and investments and other assets are safeguarded.

It is our belief that the contents of this Annual Report make evident the Office of the Treasurer's support of the safe custody and conscientious stewardship of the State's property and money, including Trusts and Custodial accounts held by the State Treasurer. In addition, the Office of the Treasurer has sought to maximize earnings on the assets held by the State Treasurer within the boundaries of prudent investment guidelines authorized by Article Four, Section 22 of the Connecticut Constitution and by Title 3 of the Connecticut General Statutes, thereby stabilizing taxpayer costs and securing the safety of benefit commitments established by various general statutes covering the State retirement systems and other retirement systems administered by the State.

The State of Connecticut also issues a Comprehensive Annual Financial Report (the CAFR) available from the State Comptroller's Office. The material presented herein is intended to expand on, but not to conflict with, the State's CAFR.

In management's opinion, the internal control structure of the Office of the Treasurer is adequate to ensure that the financial information in this report fairly presents the financial condition and results of operations of the funds that follow.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence A. Wilson".

Lawrence A. Wilson  
Interim Deputy Treasurer  
State of Connecticut



Government Finance Officers Association

Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting

Presented to

**Connecticut State Treasurer's  
Combined Investment Funds**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2016**

*Christopher P. Morill*

Executive Director/CEO

### Mission Statement

To serve as the premier State Treasurer’s Office in the nation through effective management of public resources, high standards of professionalism and integrity, and expansion of opportunity for the citizens and businesses of Connecticut.

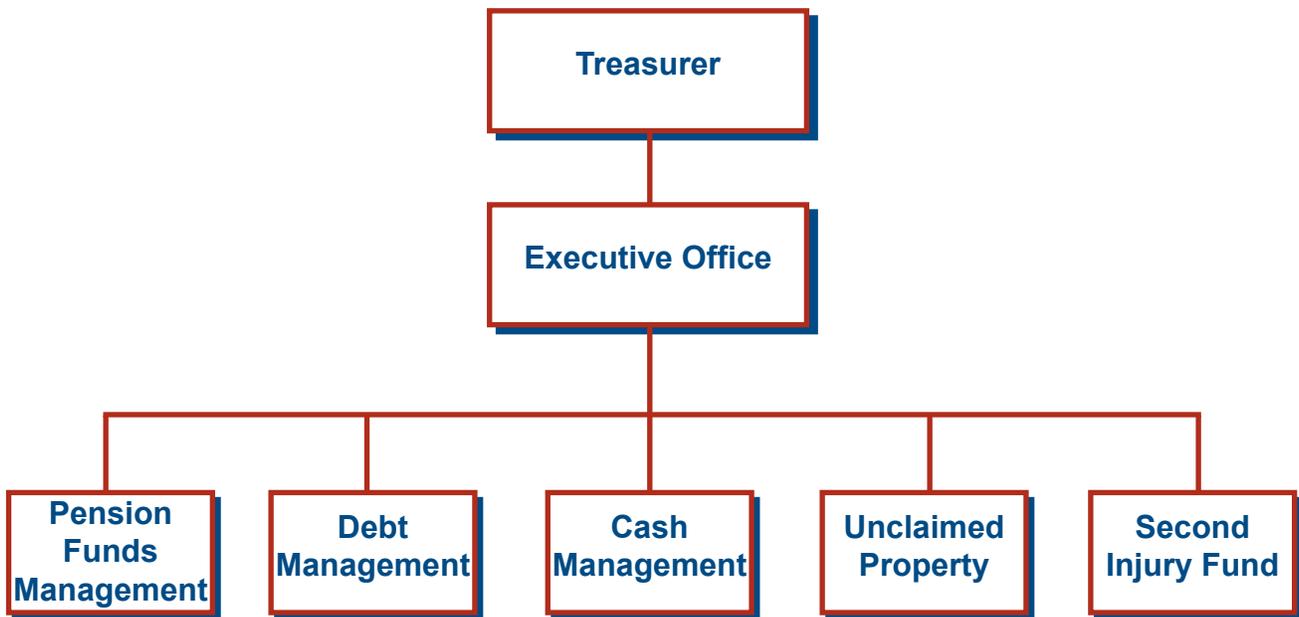
### Constitutional and Statutory Responsibilities

The Office of the Treasurer was established following the adoption of the fundamental orders of Connecticut in 1638. The Treasurer shall receive all funds belonging to the State and disburse the same only as may be directed by law, as described in Article Fourth, Section 22 of the Connecticut Constitution and in Title 3 of the Connecticut General Statutes.

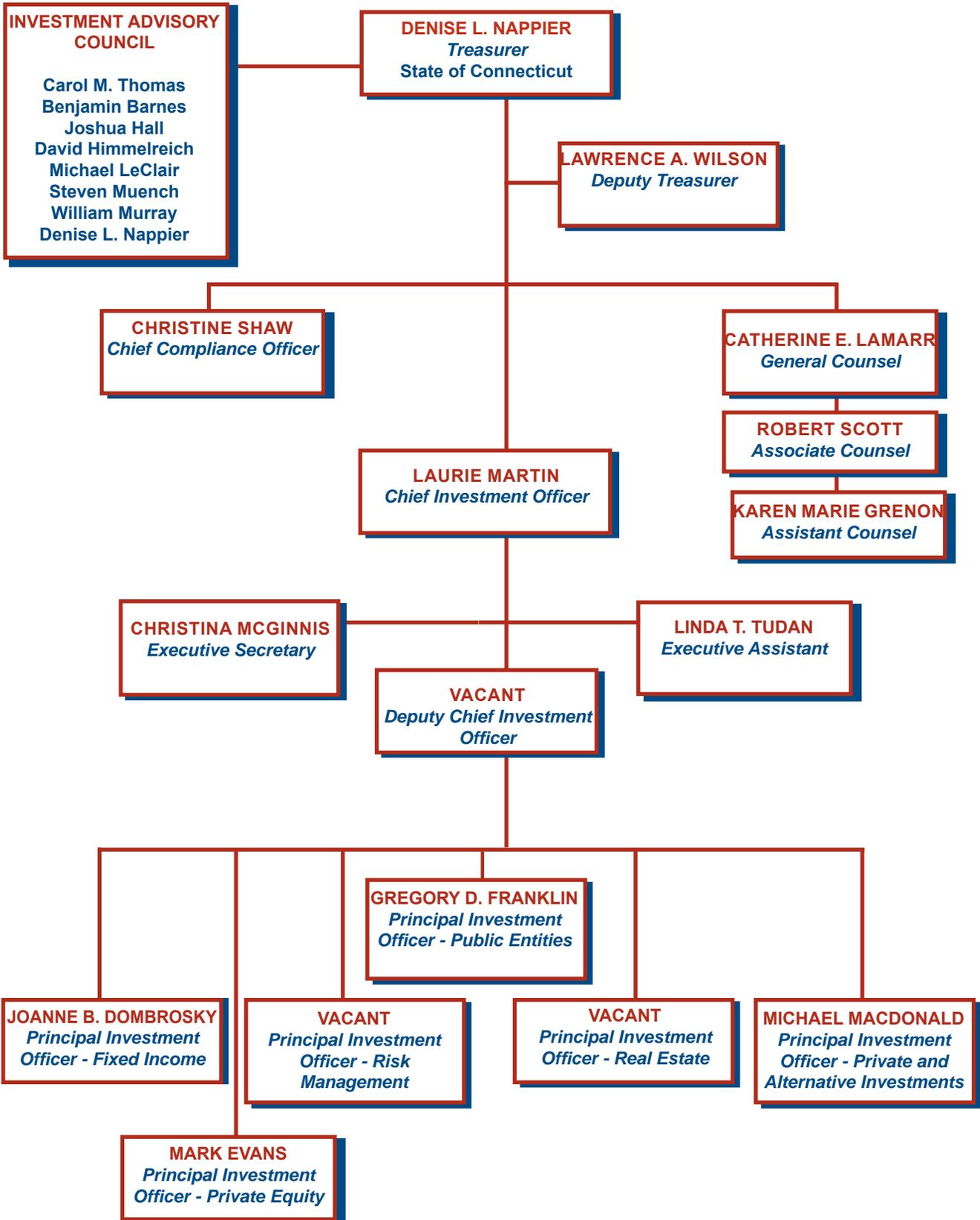
The Treasurer, as chief elected financial officer for the State, oversees the prudent preservation and management of State funds, including the investment of a \$32.5 billion portfolio of pension and trust fund assets, \$6.5 billion in total state and local short-term investments, and \$3.3 billion of assets in the Connecticut Higher Education Trust. The Treasurer maintains an accurate account of all funds through sophisticated security measures and procedures.

### Public Service

The Office of the Treasurer includes an Executive Office as well as five distinct divisions, each with specific responsibilities: Pension Funds Management, Cash Management, Debt Management, Unclaimed Property, and the Second Injury Fund.



COMBINED INVESTMENT FUNDS ADMINISTRATION



LIST OF PRINCIPAL OFFICIALS

**COMBINED INVESTMENT FUNDS**

55 Elm Street, 6th Floor  
Hartford, CT. 06106-2773  
Telephone: (860) 702-3155  
Facsimile: (860) 702-3042  
World Wide Web: [www.ott.ct.gov](http://www.ott.ct.gov)

Treasurer, State of Connecticut  
**DENISE L. NAPPIER (860) 702-3010**

Interim Deputy Treasurer, State of Connecticut  
**LAWRENCE A. WILSON, CTP (860) 702-3070**

Chief Investment Officer  
**LAURIE MARTIN, CIA, CPA (860) 702-3195**

Deputy Chief Investment Officer  
**VACANT**

General Counsel  
**CATHERINE E. LAMARR (860) 702-3018**

Chief Compliance Officer  
**CHRISTINE SHAW (860) 702-3211**

## INVESTMENT ADVISORY COUNCIL

The Investment Advisory Council (IAC) consists of the State Treasurer and the Secretary of the Office of Policy and Management (as ex-officio members of the Council); five public members, all of whom shall be experienced in matters relating to investments, appointed by the Governor and legislative leadership; three representatives of the State teachers' unions and two representatives of the State employees' unions (CGS Sec. 3-13b).

Pursuant to C.G.S. Sec.3-13b, the IAC annually reviews the Investment Policy Statement (IPS), recommended by the Treasurer, which outlines the standards governing investment of the Connecticut Retirement Plans and Trust Funds (CRPTF) assets by the Treasurer. The IPS includes, with respect to each plan and trust fund, (A) investment objectives; (B) asset allocation policies and risk tolerances; (C) asset class definitions, including specific types of permissible investments within each asset class and any specific limitations or other considerations governing the investment of any funds; (D) investment and money manager guidelines; (E) investment performance evaluation guidelines; (F) guidelines for the selection and termination of providers of investment related services, which shall include, but not be limited to, external investment and money managers, investment consultants, custodians, broker-dealers, legal counsel, and similar investment industry professionals; and (G) proxy voting guidelines. The Treasurer shall thereafter adopt the IPS, including any such changes recommended by the IAC the Treasurer deems appropriate, with the approval of a majority of the members appointed to the IAC. The latest IPS was adopted by the Treasurer and approved by the IAC in August 2012, and amended four times, reflecting revisions including the projected capital market returns, the liquidity needs of each plan and trust fund and other financial scenarios for the CRPTF, emanating from the 2012 Asset Liability Study that the Treasurer led, with the assistance of IAC members.

All plan and trust fund investments by the State Treasurer shall be reviewed by the IAC along with all information regarding such investments provided to the IAC which the Treasurer deems relevant to the Council's review and such other information as may be requested by the Council. The IAC shall also review the report provided by the Treasurer at each regularly scheduled meeting of the IAC as to the status of the plan and trust funds and any significant changes which may have occurred or which may be pending with regard to the funds. The Council shall promptly notify the Auditors of Public Accounts and the Comptroller of any unauthorized, illegal, irregular or unsafe handling or expenditure of plan and trust funds or breakdown in the safekeeping of plan and trust fund assets or contemplated action to do the same within their knowledge.

At the close of the fiscal year, the IAC shall make a complete examination of the security investments of the State and determine as of June thirtieth, the value of such investments in the custody of the Treasurer and report thereon to the Governor, the General Assembly and beneficiaries of plan and trust fund assets administered, held or invested by the Treasurer (CGS Sec. 3-13b(c)(2)).

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Council members who contributed their time and knowledge to the IAC during fiscal year 2017 include:

**CAROL M. THOMAS**, Interim Chairperson, as appointed by the Governor; Representative of State employees' unions; Retiree, Department of Developmental Services

**BENJAMIN B. BARNES**, Secretary, State Office of Policy and Management (Ex officio member)

**JOSHUA HALL**, Representative of State teachers' unions; Hartford Federation of Teachers

**DAVID HIMMELREICH**, Principal, Hynes, Himmelreich, Glennon & Company

**MICHAEL LeCLAIR**, Senior Vice President/Investments, Stifel

**STEVEN MUENCH**, Representative of State teachers' unions; Conn. Education Association

**WILLIAM MURRAY**, Representative of State teachers' unions; NEA, Danbury

**DENISE L. NAPPIER**, Treasurer, State of Connecticut (Ex officio member) and Council secretary

## LIST OF EXTERNAL ADVISORS

### **CONSULTANTS**

Cliffwater Associates - Marina del Rey, California  
Aon Hewitt Investment Consulting, Inc. - Chicago, Illinois  
Stepstone Group, LP - New York, New York  
The Townsend Group - Cleveland, Ohio  
Meketa Investment Group - Boston, Massachusetts

### **MASTER CUSTODIAN**

Bank of New York Mellon - New York, New York

### **AUDITORS**

Auditors of Public Accounts - Hartford, Connecticut

### **INVESTMENT ADVISORS**

#### **LIQUIDITY FUND**

State Street Global Advisors - Boston, Massachusetts  
Payden & Rygel - Los Angeles, California  
Pacific Investment Management Company - Newport Beach, California  
Lazard Asset Management LLC - New York, New York  
Colchester Global Investors Ltd. - London, England

#### **MUTUAL EQUITY FUND**

##### **Large Cap**

State Street Global Advisors - Boston, Massachusetts  
T. Rowe Price Associates - Baltimore, Maryland

##### **All Cap**

Capital Prospects, LLC - Stamford, Connecticut  
FIS Group, Inc. - Philadelphia, Pennsylvania

##### **Small/Mid Cap Active**

Bivium Capital Partners - San Francisco, California  
Frontier Capital Management Company, LLC - Boston, Massachusetts

#### **DEVELOPED MARKET INTERNATIONAL STOCK FUND (DMISF)**

##### **Index**

State Street Global Advisors - Boston, Massachusetts

##### **Core**

AQR Capital Management - Greenwich, Connecticut  
Acadian Asset Management - Boston, Massachusetts  
Progress Investment Management Company - San Francisco, California

##### **Active-Growth**

MFS Institutional Advisors, Inc. - Boston, Massachusetts

##### **Active-Value**

Grantham, Mayo, Van Otterloo & Co. - Boston, Massachusetts

##### **Small Cap**

Schroder Investment Management - New York, New York  
Dimensional Fund Advisors - Austin, Texas  
William Blair & Company - Chicago, Illinois

#### **EMERGING MARKET INTERNATIONAL STOCK FUND (EMISF)**

Aberdeen Asset Management, Inc. - Philadelphia, Pennsylvania  
Schroder Investment Management - New York, New York  
Grantham, Mayo, Van Otterloo & Co. - Boston, Massachusetts

## LIST OF EXTERNAL ADVISORS

### REAL ESTATE FUND (REF)

AEW Capital Management, LP - Boston, Massachusetts  
American Realty Advisors - Glendale, California  
Apollo Real Estate Investment Fund - New York, New York  
Blackstone Real Estate Advisors - New York, New York  
Canyon Johnson Urban Funds - Beverly Hills, California  
Capri Capital Advisors - Chicago, Illinois  
Clarion Lion Industrial Trust - Baltimore, Maryland  
Colony Realty Partners II - Los Angeles, California  
Cornerstone Real Estate Advisors - Hartford, Connecticut  
Covenant Apartment Funds - Nashville, Tennessee  
Crow Holdings Realty Partners - Dallas, Texas  
Cypress Acquisition Partners - Dallas, Texas  
Gerding Edlen, LP- Portland, Oregon  
Hart Realty Advisors - Simsbury, Connecticut  
IL & FS India Realty Fund II, LLC - Ebene, Mauritius  
JP Morgan Investment Management, New York, New York  
Landmark Real Estate Partners, Simsbury, Connecticut  
Lone Star Global Acquisitions Ltd - dallas, Texas  
MacFarlane Urban Real Estate Fund - San Francisco, California  
Prime Property Fund - New York, New York  
Prudential Real Estate Investors - Madison, New Jersey  
Rockwood Capital - Greenwich, Connecticut  
Starwood Global Opportunity Funds - Greenwich, Connecticut  
UBS Trumbull Property - Hartford, Connecticut  
Urban Strategy America Fund - Boston, Massachusetts  
USAA EAgle Fund - San Antonio, Texas  
WLR Recovery Associates IV LLC - New York, New York

### CORE FIXED INCOME FUND (CFIF)

State Street Global Advisors - Boston, Massachusetts  
BlackRock Financial Management, Inc. - New York, New York  
Wellington - Boston, Massachusetts  
Conning-Goodwin Capital Advisers Inc. - Hartford, Connecticut  
Progress Investment Management Company - San Francisco, California  
Prudence Crandall Fund III Opportunistic (Rock Creek)- Washington, District of Columbia  
Prudence Crandall Fund IV Opportunistic (K2 Advisors) - Stamford, Connecticut

### HIGH YIELD DEBT FUND (HYDF)

Loomis Sayles & Co., Inc. - Boston, Massachusetts  
Stone Harbor Investment Partners - New York, New York  
Shenkman Capital Management - Stamford, Connecticut  
Oaktree Capital Management, L.L.C. - Los Angeles, California  
AllianceBernstein, LP New York, NY  
DDJ Capital Management, LLC - Waltham, MA  
Columbia Management Investment Advisers, LLC - Minneapolis, MN  
Nomura Corporation Research & Asset Management, Inc. - New York, NY

### EMERGING MARKET INTERNATIONAL STOCK FUND <sup>(1)</sup>

Ashmore Emerging Markets Debt Fund - London, England  
Pyramis Global Investors - Boston, Massachusetts  
Fidelity Institutional Asset Mgt. Trust Co. - Merrimack, NH  
Stone Harbor Investment Partners - New York, New York

(1) Not included in the listing are currency overlay managers: The Bank of New York - New York, New York and Bridgewater Associates, Inc. - Westport, Connecticut.

## LIST OF EXTERNAL ADVISORS

### INFLATION LINKED BOND FUND (ILBF)

BlackRock Financial Management, Inc. - New York, New York  
Colchester Global Investors Ltd. - London, England  
New Century Advisors, LLC - Chevy Chase, Maryland

### PRIVATE INVESTMENT FUND

#### **Corporate Buyouts**

AIG Altaris Health Partners - New York, New York  
Boston Ventures VII - Boston, Massachusetts  
Charterhouse Equity Partners - New York, New York  
Court Square Capital Partners - New York, New York  
Ethos Private Equity Fund V - Jersey, Channel Islands  
FS Equity Partners - Los Angeles, California  
GENNX360 Capital Partners II - New York, New York  
Hicks Muse Tate & Furst Equity Fund III - Dallas, Texas  
ICV Capital Partners II LLC - New York, New York  
JFL Equity Investors - Wilmington, Delaware  
KKR Funds - New York, New York  
Leeds Equity Partners - New York, New York  
Nogales Investors Fund II - Los Angeles, California  
RFE Investment Partners - New Canaan, Connecticut  
TA XI - Boston, Massachusetts  
Thomas H. Lee Equity Fund VI - Boston, Massachusetts  
Vista Equity Partners - San Francisco, California  
Wellspring Capital Partners V - New York, New York  
Welsh, Carson, Anderson & Stowe – New York, New York  
Yucaipa American Alliance Fund II LP - Los Angeles, California  
Yucaipa III - Los Angeles, California

#### **Venture Capital**

Crescendo III – Minneapolis, Minnesota  
Syndicated Communications Venture Partners V - Silver Spring, Maryland

#### **Mezzanine**

Audax Mezzanine III Limited Partnership - New York, New York  
GarMark Partners II LP – Stamford, Connecticut

#### **International**

Gilbert Global Equity Partners - Tacoma, Washington  
Pinebridge Global Emerging Markets Fund - New York, New York

#### **Fund of Funds**

M2 CT Horizon Legacy Fund - Wilmington, Delaware  
CT Growth Capital - Westport, Connecticut  
CS/CT Cleantech Opportunities Fund - New York, New York  
M2 CT Emerging Private Equity - Chicago, Illinois  
Fairview Capital Partners, Inc - Farmington, Connecticut  
JP Morgan Nutmeg Opportunity Fund - New York, New York  
Landmark Private Equity Funds – Simsbury, Connecticut  
Stepstone Pioneer Capital Funds - Chapel Hill, North Carolina

#### **Special Situations**

Apollo Investment Fund VIII LP - New York, New York  
Castlelake II LP - Minneapolis, Minnesota  
Clearlake Capital Partners – Santa Monica, California  
Levine Leichtman Capital Partners - Beverly Hills, California  
Pegasus Partners - Cos Cob, Connecticut  
WLR Recovery Fund IV - New York, New York

## LIST OF EXTERNAL ADVISORS

### ALTERNATIVE INVESTMENT FUND

Arclight Energy Partners Funds - Boston, Massachusetts  
EIG Energy Fund XV Limited Partnership - Washington D.C.  
Marathon European Credit Opportunity - New York, New York  
Prudence Crandall I Permal Limited Partnership - New York, New York  
Prudence Crandall II Prisma Limited Partnership - New York, New York  
Prudence Crandall III Rock Creek Limited Partnership - Washington D.C.  
Prudence Crandall IV K2 Limited Partnership - Stamford, Connecticut  
Thomas Welles Funds - New York, New York

# **Financial**

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# **Section**



# STATE OF CONNECTICUT



## AUDITORS OF PUBLIC ACCOUNTS

State Capitol  
210 Capitol Avenue  
Hartford, Connecticut 06106-1559

JOHN C. GERAGOSIAN

ROBERT J. KANE

### INDEPENDENT AUDITORS' REPORT

Governor Dannel P. Malloy  
Members of the General Assembly:

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the Combined Investment Funds, which comprise the statement of net position as of June 30, 2017, the statements of changes in net position for the fiscal years ended June 30, 2017 and 2016, and the related notes to the financial statements.

#### ***Management's Responsibility for the Financial Statements***

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### ***Auditors' Responsibility***

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### ***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Combined Investment Funds as of June 30, 2017, and the statements of changes in financial position for the fiscal years ended June 30, 2017 and 2016, in conformity with accounting principles generally accepted in the United States of America.

### ***Emphasis of Matter***

As explained in Note 1B to the financial statements of the combined investment funds, the real estate, private investment, alternative investment, and core fixed income funds include investments that are carried at the investment advisors' June 30, 2017 fair value, or net asset value equivalent. The Treasurer's staff reviews the estimated fair values provided by the investment advisors for reasonableness. In those instances in which an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly. We reviewed the documentation and procedures used by the Treasury to determine the fair values, and found them to be appropriate and reasonable; however, because of the inherent uncertainty in valuing these investments, determination of the estimated fair value market values may differ from the actual values had a ready market existed for these investments. Our opinion is not modified with respect to this matter.

As discussed in Note 1 to the financial statements, the financial statements referred to in the first paragraph are intended to present only the Combined Investment Funds administered by the Office of the State Treasurer. They do not purport to, and do not, present fairly the financial position of the State of Connecticut as of June 30, 2017, and the changes in financial position for the fiscal years end June 30, 2017 and 2016, in conformity with generally accepted accounting principles in the United States of America. Our opinion is not modified with respect to this matter.

### ***Other Matters***

#### ***Required Supplementary Information***

Management's Discussion and Analysis, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### ***Supplementary Information***

Our audit was made for the purpose of forming an opinion on the financial statements of the Combined Investment Funds as a whole. Certain other financial information, which includes the Schedule of Net Position by Investment Fund, Schedules of Changes in Net Position by Investment Fund, Total Net Position Value by Pension Plans and Trust Funds and the Schedules of Investment Activity by Pension Plan and by Trust contained within the investment section of this document, is presented for purposes of additional analysis and is not a required part of the financial statements of the combined investment funds. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements of the combined investment funds and certain additional procedures, including comparing and

reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is presented fairly in all material respects in relation to the financial statements taken as a whole.

*Other Information*

The introductory, investment and statistical sections include information other than the schedules noted within the investment section that is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information other than the schedules specifically noted within the investment section, has not been subjected to the auditing procedures applied in the audit of the basic financial statement and, accordingly, we do not express an opinion or provide any assurance on it.

**Other Reporting Required by Government Auditing Standards**

In accordance with *Government Auditing Standards*, we have also issued our report dated December 29, 2017, on our consideration of the State Treasury's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report will be issued under separate cover in the *Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards for the Fiscal Year Ended June 30, 2017*, and is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.



John C. Geragosian  
State Auditor



Robert J. Kane  
State Auditor

December 29, 2017  
State Capitol  
Hartford, Connecticut



## MANAGEMENT'S DISCUSSION AND ANALYSIS

This section presents Management's Discussion and Analysis (MD&A) of the Comprehensive Annual Financial Report (CAFR) of the State of Connecticut's Office of the Treasurer Combined Investment Funds (CIF) financial position and performance for the fiscal year ended June 30, 2017. It is presented as a narrative overview and analysis. Management of the State of Connecticut's Office of the Treasurer encourage readers to review it in conjunction with the transmittal letter included in the Introductory Section at the front of this report and the financial statements in the Financial Section that follow.

The Combined Investment Funds serve as an investment vehicle for the six State pension plans and nine trust funds collectively known as the Connecticut Retirement Plans and Trust Funds representing the pension funds of the State teachers, State and municipal employees, as well as non-retirement trust funds that support academic programs, grants and initiatives throughout the State and are managed for the sole benefit of the participants. CIF investments range in investment diversity from domestic and international stocks to fixed income, real estate and private investment equity. Investments of the pension plans and trust funds are combined in a commingled investment pool as authorized by state statute. Each pension plan and trust fund owns an equity position in the CIF and receives proportionate investment income from the CIF in accordance with each respective ownership percentage. The pension plan and trust fund's allocated share of each type of investment in the CIF is shown in the Schedule of Changes in Net. Investment gains or losses are also reported in the Statement of Changes in Net Position of each pension plan and trust. The Market Value per share is therefore approximately the same for each of the pension plans and trust funds investments in the CIF.

The CIF financial statements reported by the Treasurer's Office for which the Treasurer has fiduciary responsibility for the investment thereof follow this MD&A and provide detailed information about the individual funds.

### FINANCIAL HIGHLIGHTS Condensed Financial Information

#### Combined Investment Funds

##### *Net Position and Changes in Net Position*

The net position of the Combined Investment Funds at the close of the 2017 fiscal year was \$32.5 billion, an increase of \$3.3 billion from the previous year. The change in net position resulted from a \$4.1 billion increase from operations (realized and unrealized gains and investment income) partly offset by \$0.8 billion of net redemptions from the Combined Investment Funds comprised of net beneficiary distributions.

The net position of the Combined Investment Funds at the close of the 2016 fiscal year was \$29.2 billion, a decrease of \$0.6 billion from the previous year. The change in net position resulted from a minor increase from operations (realized and unrealized gains and investment income) offset by \$0.6 billion of net cash withdrawals from the Combined Investment Funds comprised of net beneficiary distributions.

##### *Assets held in trust for Participants*

A summary of the net position of assets held in trust for participants is presented below.

#### Condensed Statement of Net Position Fiscal Year Ended June 30,

Assets	2017	Increase (Decrease)	2016	Increase (Decrease)	2015
Investments at Fair Value	\$32,568,375,166	\$3,362,320,165	\$29,206,055,001	\$(764,201,850)	\$29,970,256,851
Cash, Receivables and Other	10,300,741,694	(4,597,191,581)	14,897,933,275	4,289,147,010	10,608,786,265
Total Assets	42,869,116,860	(1,234,871,416)	44,103,988,276	3,524,945,160	40,579,043,116
Liabilities	(10,321,246,846)	4,536,821,669	(14,858,068,515)	(4,146,001,915)	(10,712,066,600)
Net Position	<u>\$32,547,870,014</u>	<u>\$3,301,950,253</u>	<u>\$29,245,919,761</u>	<u>\$(621,056,755)</u>	<u>\$29,866,976,516</u>

## MANAGEMENT'S DISCUSSION AND ANALYSIS

### Condensed Statement of Changes in Net Position Fiscal Year Ended June 30,

Additions	2017	Increase (Decrease)	2016	Increase (Decrease)	2015
Dividends	\$510,388,935	\$50,435,311	\$459,953,624	\$(42,960,324)	502,913,948
Interest	308,532,848	(28,740,648)	337,273,496	75,263,268	262,010,228
Securities Lending & Other Income	48,252,029	19,482,997	28,769,032	6,012,543	22,756,489
Total Investment Income	867,173,812	41,177,660	825,996,152	38,315,487	787,680,665
Total Investment Expenses	99,529,828	8,875,246	90,654,582	3,156,155	87,498,427
Net Investment Income	767,643,984	32,302,414	735,341,570	35,159,332	700,182,238
Net Increase (Decrease) in Fair Value of Investments and Foreign Currency	3,332,743,095	4,052,859,827	(720,116,732)	(933,063,096)	212,946,364
Net Increase (Decrease) in Net Position resulting from operations	4,100,387,079	4,085,162,241	15,224,838	(897,903,764)	913,128,602
Purchase of Units by Participants	2,687,016,102	222,634,561	2,464,381,541	(546,025,125)	3,010,406,666
Total Additions	6,787,403,181	4,307,796,802	2,479,606,379	(1,443,928,889)	3,923,535,268
Deductions					
Administrative Expense	4,000,655	(602,017)	4,602,672	(19,373)	4,622,045
Distribution of Income to Unit Owners	24,306,542	10,836,504	13,470,038	4,006,919	9,463,119
Redemption of Units by Participants	3,457,145,731	374,555,307	3,082,590,424	(514,008,330)	3,596,598,754
Total Deductions	3,485,452,928	384,789,794	3,100,663,134	(510,020,784)	3,610,683,918
Change in Net Position	3,301,950,253	3,923,007,008	(621,056,755)	(933,908,105)	312,851,350
Net Position – Beginning of year	29,245,919,761	(621,056,755)	29,866,976,516	312,851,350	29,554,125,166
Net Position – End of year	\$32,547,870,014	\$3,301,950,253	\$29,245,919,761	\$(621,056,755)	\$29,866,976,516

## OVERVIEW OF THE FINANCIAL STATEMENTS

This discussion and analysis is an introduction to the Office of the Treasurer's Combined Investment Funds basic financial statements, which are comprised of: 1) Statement of Net Position, 2) Statement of Changes in Net Position and 3) Notes to the Financial Statements.

The Statements of Net Position and Changes in Net Position are two financial statements that report information about the Combined Investment Funds. These statements include all assets and liabilities using the accrual basis of accounting. The current year's revenues and expenses are taken into account regardless of when cash is received or paid.

The Statement of Net Position presents all of the Combined Investment Funds assets and liabilities, with the difference between the two reported as "net position". Over time, increases and decreases in net position measure whether the Combined Investment Funds financial position is improving or deteriorating.

The Statement of Changes in Net Position presents information showing how the Combined Investment Funds net assets changed during the most recent year. All changes in net assets are reported as soon as the underlying events giving rise to the change occurs, regardless of the timing of related cash flows. Therefore, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (eg. security lending rebates and dividend and interest income).

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the Combined Investment Funds financial statements.

## ECONOMIC CONDITIONS AND OUTLOOK

Domestic growth, as measured by Gross Domestic Product (GDP), experienced modest growth during the fiscal year. For Fiscal Year 2017, GDP (on a year-over-year basis) ranged between 1.5 percent and 2.2 percent. For the entire fiscal year, GDP averaged a 1.9 percent year-over-year rate, up from Fiscal Year 2016's 1.8 percent rate. Meanwhile the unemployment rate ended the fiscal year at 4.4 percent, down from the 4.9 percent rate at the end of Fiscal Year 2016. During the course of the fiscal year, approximately 2.2 million people were added to payrolls.

Domestic inflation averaged 1.8 percent during the fiscal year, up sharply from 0.7 percent in fiscal year 2016. Excluding the more volatile food and energy components, inflation during the fiscal year averaged 2.1 percent, unchanged from Fiscal Year 2016. Similar to domestic inflation, inflation in the Eurozone was stronger as well, with an average inflation rate of 1.1 percent, up from 0.0 percent during the 2016 fiscal year period.

Connecticut's unemployment rate has continued to decline from a high of 9.5 percent in October 2010 to 5.0 percent in July 2017, compared to the national unemployment rate of 4.3 percent. The State Comptroller reported on September 29, 2017 that the State's General Fund ended the 2017 fiscal year with a pre-audited \$22.7 million deficit which will be eliminated through a transfer from the Budget Reserve Fund.

## CONTACTING THE OFFICE OF THE TREASURER

This Comprehensive Annual Financial Report is designed to provide a general overview of the CIF and to show the Office of the Treasurer's accountability for its stewardship of CIF assets. Questions about this report or requests for additional information should be addressed to:

Office of the Treasurer  
55 Elm Street  
Hartford, CT 06106-1773  
Telephone (860) 702-3000  
[www.ott.ct.gov](http://www.ott.ct.gov)

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**STATEMENT OF NET POSITION  
JUNE 30, 2017**

	<b>TOTAL</b>
<b>ASSETS</b>	
Investments in Securities, at Fair Value	
Liquidity Fund	\$ -
Cash Equivalents	283,293,693
Asset Backed Securities	254,922,819
Government Securities	3,701,714,063
Government Agency Securities	716,184,623
Mortgage Backed Securities	280,579,047
Corporate Debt	4,037,232,777
Convertible Securities	51,662,496
Common Stock	15,327,223,987
Preferred Stock	77,158,462
Real Estate Investment Trust	319,238,833
Business Development Corporation	57,625,395
Mutual Fund	228,915,053
Limited Liability Corporation	1,156,486
Trusts	-
Limited Partnerships	7,231,467,432
Total Investments in Securities, at Fair Value	<u>32,568,375,166</u>
Cash	89,144,432
Receivables	
Foreign Exchange Contracts	7,804,771,380
Interest Receivable	78,637,964
Dividends Receivable	34,440,797
Due from Brokers	259,182,529
Foreign Taxes	16,147,498
Securities Lending Receivable	1,237,681
Reserve for Doubtful Receivables	<u>(4,655,941)</u>
Total Receivables	8,189,761,908
Invested Securities Lending Collateral	2,020,761,587
Prepaid Expenses	<u>1,073,767</u>
<b>Total Assets</b>	<u>42,869,116,860</u>
<b>LIABILITIES</b>	
Payables	
Foreign Exchange Contracts	7,816,967,543
Due to Brokers	463,602,882
Income Distribution	3,033,211
Other Payable	217,027
Total Payables	<u>8,283,820,663</u>
Securities Lending Collateral	2,020,761,587
Accrued Expenses	<u>16,664,596</u>
<b>Total Liabilities</b>	<u>10,321,246,846</u>
<b>NET POSITION HELD IN TRUST FOR PARTICIPANTS</b>	<u>\$ 32,547,870,014</u>

The accompanying notes are an integral part of these financial statements.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**STATEMENT OF CHANGES IN NET POSITION  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>ADDITIONS</b>	<u><b>TOTAL</b></u>
<b>OPERATIONS</b>	
<b>Investment Income</b>	
Dividends	\$ 510,388,935
Interest	308,532,848
Other Income	21,127,292
Securities Lending	<u>27,124,737</u>
<b>Total Income</b>	867,173,812
 <b>Expenses</b>	
Investment Advisory Fees	77,960,003
Custody and Transfer Agent Fees	3,471,588
Professional Fees	2,852,273
Security Lending Fees	1,576,512
Security Lending Rebates	11,360,474
Investment Expenses	<u>2,308,978</u>
<b>Total Expenses</b>	<u>99,529,828</u>
 <b>Net Investment Income</b>	<u>767,643,984</u>
 <b>Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency</b>	 3,332,743,095
 <b>Net Increase (Decrease) in Net Position Resulting from Operations</b>	 <u>4,100,387,079</u>
 <b>Unit Transactions</b>	
Purchase of Units by Participants	2,687,016,102
 <b>TOTAL ADDITIONS</b>	 <u>6,787,403,181</u>
 <b>DEDUCTIONS</b>	
<b>Administrative Expenses:</b>	
Salary and Fringe Benefits	(4,000,655)
 <b>Distributions to Unit Owners:</b>	
Income Distributed	(24,306,542)
 <b>Unit Transactions</b>	
Redemption of Units by Participants	(3,457,145,731)
 <b>TOTAL DEDUCTIONS</b>	 <u>(3,485,452,928)</u>
 <b>Change in Net Position Held in Trust for Participants</b>	 <u>3,301,950,253</u>
<b>Net Position- Beginning of Period</b>	<u>29,245,919,761</u>
<b>Net Position- End of Period</b>	<u>\$ 32,547,870,014</u>

The accompanying notes are an integral part of these financial statements

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**STATEMENT OF CHANGES IN NET POSITION  
FOR THE FISCAL YEAR ENDED JUNE 30, 2016**

<b>ADDITIONS</b>	<b>TOTAL</b>
<b>OPERATIONS</b>	
<b>Investment Income</b>	
Dividends	\$ 459,953,624
Interest	337,273,496
Other Income	7,688,194
Securities Lending	21,080,838
<b>Total Income</b>	<u>825,996,152</u>
<b>Expenses</b>	
Investment Advisory Fees	74,630,968
Custody and Transfer Agent Fees	3,284,270
Professional Fees	3,380,185
Security Lending Fees	1,574,507
Security Lending Rebates	5,335,764
Investment Expenses	2,448,888
<b>Total Expenses</b>	<u>90,654,582</u>
<b>Net Investment Income</b>	<u>735,341,570</u>
<b>Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency</b>	(720,116,732)
<b>Net Increase (Decrease) in Net Position Resulting from Operations</b>	<u>15,224,838</u>
<b>Unit Transactions</b>	
Purchase of Units by Participants	2,464,381,541
<b>TOTAL ADDITIONS</b>	<u>2,479,606,379</u>
<b>DEDUCTIONS</b>	
<b>Administrative Expenses:</b>	
Salary and Fringe Benefits	(4,602,672)
<b>Distributions to Unit Owners:</b>	
Income Distributed	(13,470,038)
<b>Unit Transactions</b>	
Redemption of Units by Participants	(3,082,590,424)
<b>TOTAL DEDUCTIONS</b>	<u>(3,100,663,134)</u>
<b>Change in Net Position Held in Trust for Participants</b>	<u>(621,056,755)</u>
<b>Net Position- Beginning of Period</b>	29,866,976,516
<b>Net Position- End of Period</b>	<u>\$ 29,245,919,761</u>

The accompanying notes are an integral part of these financial statements

## NOTES TO FINANCIAL STATEMENTS

**NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The Combined Investment Funds (CIF) are separate legally defined funds, which have been created by the Treasurer of the State of Connecticut (the Treasurer) under the authority of the Connecticut General Statutes (CGS) Section 3-31b. The CIF are open-end, unitized portfolios consisting of the Liquidity Fund, Alternative Investment Fund, Mutual Equity Fund, Core Fixed Income Fund, Inflation Linked Bond Fund, Emerging Market Debt Fund, High Yield Debt Fund, Developed Market International Stock Fund, Emerging Market International Stock Fund, Real Estate Fund, and the Private Investment Fund. The CIF were established to provide a means for investing pension and other trust fund assets entrusted to the Treasurer in a variety of investment classes. The units of the CIF are owned by these pension and trust funds. For financial reporting purposes of the State of Connecticut, the CIF are considered to be external investment pools and are not reported in the State's combined financial statements. Instead, each fund type's investment in the CIF is reported as "equity in combined investment funds" in the State's combined balance sheet.

The Treasurer, as sole fiduciary of the CIF, is authorized to invest in a broad range of fixed income and equity securities, as well as real estate properties, mortgages and private equity. This authority is restricted only by statute. Such limitations include prohibitions against investment in companies doing business in Iran and those doing business in Northern Ireland, but who have failed to implement the MacBride Principles (CGS Section 3-13h). Other legislation restricts the maximum aggregate investment in equity securities to 60% of the fair value of the Trust Funds.

The CIF are not subject to regulatory oversight and are not registered with the Securities and Exchange Commission as an investment company.

The following is a summary of significant accounting policies consistently followed by the CIF in the preparation of their financial statements.

**A. NEW PRONOUNCEMENTS**

There were no new pronouncements for the fiscal year ending June 30, 2017.

**B. SECURITY VALUATION**

Investments are stated at fair value for each of the CIFs as described below.

For the Alternative Investment, Real Estate and Private Investment Funds substantially all of the investments, other than those in the Liquidity Fund, are shown at values that are carried at the general partner's June 30, 2017 fair value, or net asset value (NAV) equivalent. The Core Fixed Income Fund also include investments that are carried at the general partner's June 30, 2017 fair value, or net asset value (NAV) equivalent. The CIF's assets are fair valued quarterly by the General Partner and at such other times as determined by the General Partner and are based on Accounting Standards Codification (ASC) 820 "Fair Value Measurements and Disclosures". The fair value the General Partner assigned to these investments is based upon available information and does not represent necessarily the amount that ultimately might be realized upon sale or maturity. Because of the inherent uncertainty of the fair valuation process, this estimated fair value presented by the General Partner may differ significantly from the fair value that would have been used had a ready market for the security existed, and the difference could be material. The General Partner is responsible for coordination and oversight of all investment valuations.

The Treasurer's staff reviews the valuations for all investments in these alternative asset classes to see that they are reasonable and consistent. Due to the inherent uncertainty of valuation, those estimated values may differ significantly from the values that would have been used had a ready market for the securities existed and the differences could be material.

Liquidity Fund

Existing money market vehicles are valued at amortized cost on a daily basis, which approximates fair value. A standard price hierarchy is utilized in the daily valuation of the Liquidity Fund.

The Liquidity Fund at times may utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### NOTES TO FINANCIAL STATEMENTS (Continued)

counterparties to perform under the contracts' terms.

Investing in forward currency contracts may increase the volatility of the CIF's' performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service.

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the fund are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

The Liquidity Fund invests in Mortgage Backed Securities (MBSs) and Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2017, the Fund held MBSs of \$138,464,921 and ABSs of \$168,082,920.

Repurchase agreements held in the fund are collateralized at 100 percent of the securities' value. Such transactions are only entered into with primary government securities dealers who report directly to the Federal Reserve Bank of New York. The collateral is evaluated daily to ensure its fair value exceeds the current fair value of the repurchase agreements including accrued interest.

#### Alternative Investment Fund

Investments in securities not listed on security exchanges and investments in limited partnerships, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2017 fair value, or net asset value (NAV) equivalent. The Treasurer's staff reviews the estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

#### Mutual Equity Fund

Securities traded on securities exchanges are valued at the last reported sales price on the last business day of the fiscal year. Corporate bonds and certain over-the-counter stocks are valued at the mean of bid and asked prices as furnished by broker-dealers.

#### Core Fixed Income Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the CIF are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### NOTES TO FINANCIAL STATEMENTS (Continued)

The Core Fixed Income Fund invests in Mortgage Backed Securities (MBSs) and Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2017, the CIF held MBSs of \$142,114,126 and ABSs of \$87,031,155.

Interest-only stripped mortgage backed securities (IOs), a specialized type of Collateralized Mortgage Obligation (CMO), are included as Mortgage Backed Securities on the Statement of Net Position. The cash flow on these investments is derived from the interest payments on the underlying mortgage loans. Prepayments on the underlying loans curtail these interest payments, reducing the value of the IOs and, as such, these instruments are extremely sensitive to changes in interest rates, which encourage or discourage such prepayments. At June 30, 2017 the CIF's holdings had a fair value of \$470,097 and a cost of \$822,382. The valuations were provided by the custodian.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the Core Fixed Income Fund are authorized to invest in global fixed income securities.

Investments in securities not listed on security exchanges and investments in limited partnerships are carried at the general partner's June 30, 2017 fair value or net asset value (NAV) equivalent. The Treasurer's staff reviews the estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

#### Inflation Linked Bond Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the CIF are fully collateralized by U.S. Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the Inflation Linked Bond Fund are authorized to invest in global fixed income securities.

The Inflation Linked Bond Fund sometimes invests in Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2017, the CIF held ABSs, consisting of swaps and resulting in a fair value of \$754,194.

#### Emerging Market Debt Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings.

The Emerging Market Debt Fund invests in securities in emerging market countries that are either U.S. dollar-denominated or issued in the local currency of the country. In addition to bond interest rate sensitivity, the local currency bonds' values will fluctuate with exchange rates.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### NOTES TO FINANCIAL STATEMENTS (Continued)

"When-issued" securities held in the CIF are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodian. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

The Emerging Market Debt Fund sometimes invests in Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2017, the CIF held ABSs, consisting of swaps and resulting in a fair value of \$243,071.

#### High Yield Debt Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the fund are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the High Yield Debt Fund are authorized to invest in global fixed income securities.

The Inflation Linked Bond Fund sometimes invests in Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2017, the CIF held ABSs, consisting of swaps and resulting in a fair value of (\$1,188,521).

#### Developed Market International Stock Fund

The Developed Market International Stock Fund at times may utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

Investing in forward currency contracts may increase the volatility of the CIF's performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service

Investments in securities listed on security exchanges are valued at the last reported sales price on the last business day of the fiscal year; securities traded in the over-the-counter market and listed securities for which no sale was reported

CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

NOTES TO FINANCIAL STATEMENTS (Continued)

on that date are valued at the mean of the last reported bid and asked prices.

Certain cash held in non-U.S. dollar denominated trading accounts is non-interest bearing.

Emerging Market International Stock Fund

The Emerging Market International Stock Fund at times may utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's' currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's' investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

Investing in forward currency contracts may increase the volatility of the CIF's' performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service

Investments in securities listed on security exchanges are valued at the last reported sales price on the last business day of the fiscal year; securities traded in the over-the-counter market and listed securities for which no sale was reported on that date are valued at the mean of the last reported bid and asked prices.

Certain cash held in non-U.S. dollar denominated trading accounts is non-interest bearing.

Real Estate Fund

Investments in securities not listed on security exchanges and investments in trusts, limited partnerships, and annuities, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2017 fair value, or net asset value (NAV) equivalent. The Treasurer's staff reviews estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

Private Investment Fund

Investments in securities not listed on security exchanges and investments in limited partnerships and limited liability corporations, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2017 fair value, or net asset value (NAV) equivalent. The Treasurer's staff reviews estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

Fair values of the underlying investments are generally represented by cost unless there has been an additional arms-length indication of value, such as a public offering or a new investment by a third party.

**C. INVESTMENT TRANSACTIONS AND RELATED INCOME**

Investment transactions are accounted for on a trade date basis. Dividend income is recognized as earned on the ex-dividend date. Interest income is recorded on the accrual basis as earned. Realized gains and losses are computed on the basis of the average cost of investments sold. Such amounts are calculated independent of and are presented as part of the Net Increase(Decrease)in the Fair Value of Investments on the Statement of Changes in Net Position. Realized gains and losses on investments held more than one fiscal year and sold in the current year were included as a change in the fair value of investments reported in the prior year(s) and the current year. Unrealized gains and losses represent the difference between the fair value and the cost of investments. The increase (decrease) in such difference is also accounted for in the Net Increase (Decrease) in Fair Value of Investments. In the CIF's' cost basis records, premiums are amortized using the straight-line method that approximates the interest method.

Dividends earned by the Private Investment, Real Estate and Alternative Investment Funds relate to investments that are not listed on security exchanges. Such dividends are recognized as income when received, generally net of

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

advisory fees.

**D. FOREIGN CURRENCY TRANSLATION**

The value of investments, assets and liabilities denominated in currencies other than U.S. dollars are translated into U.S. dollars based upon appropriate fiscal year end foreign exchange rates. Purchases and sales of foreign investments and income and expenses are converted into U.S. dollars based on currency exchange rates prevailing on the respective dates of such transactions. The CIF do not isolate that portion of the results of operations arising from changes in the exchange rates from that portion arising from changes in the market prices of securities.

**E. SHARE TRANSACTIONS AND PRICING**

All unit prices are determined at the end of each month based on the net asset value of each CIF divided by the number of units outstanding. Purchases and redemptions of units are based on the prior month end price and are generally processed on the first business day of the month.

**F. EXPENSES**

Expenses of the CIF, excluding certain management fees as discussed in more detail in note 1J, are recognized on the accrual basis and are deducted in calculating net investment income and net asset value on a monthly basis. Each of the CIF bears its direct expenses, such as investment advisory fees, and, in addition, each of the CIF is allocated a portion of the overhead expenses of the Pension Funds Management Division of the Office of the State Treasurer, which services the CIF. These expenses include salary and fringe benefit costs and other administrative expenses. Certain of these costs are allocated among the CIF based on relative net asset values. Other costs are charged directly based on the specific duties of personnel.

**G. DISTRIBUTIONS**

Distributions to unit holders of the CIFs were discontinued after September 30, 2013.

**H. DERIVATIVE FINANCIAL INSTRUMENTS**

GASB Statement Number 53 Accounting and Financial Reporting for Derivative Instruments, requires that the fair value of financial arrangements called derivatives or derivative instruments be reported in the financial statements. GASB defines a derivative instrument as a financial instrument or other contract with all of the following characteristics: a) It has one or more reference rates and (2) one or more notional amounts or payment provisions or both. b) It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors. c) Its terms require or permit net settlement, it can readily be settled net by a means outside the contract, or it provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement.

For the fiscal year ended June 30, 2017, the CIF maintained positions in a variety of such securities that are all reported at fair value on the Statement of Net Position. The following is a listing of such securities:

**Adjustable Rate Securities:**

<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Liquidity	\$485,158,234	\$468,961,661
Core Fixed Income	144,901,985	145,297,233
Inflation Linked Bond	5,056,091	5,048,778
Emerging Market Debt	8,253,885	8,380,712
High Yield Debt	24,463,583	24,494,322

**Asset Backed Securities:**

<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Liquidity	\$171,616,700	\$168,082,920
Core Fixed Income	86,850,325	87,031,155

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

<b>Mortgage Backed Securities, Net of CMO's:</b>		
<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Liquidity	\$138,799,019	\$129,083,007
Core Fixed Income	86,620,005	86,863,327
<b>CMO's:</b>		
<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Liquidity	\$9,530,700	\$9,381,914
Core Fixed Income	55,469,343	55,250,799
<b>TBA's:</b>		
<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Core Fixed Income	\$118,613,510	\$118,184,621
<b>Interest Only:</b>		
<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Core Fixed Income	\$822,382	\$470,097
<b>Options:</b>		
<b>CIF</b>	<b>Cost</b>	<b>Fair Value</b>
Inflation Linked Bond	\$863,057	\$775,491

The Inflation Linked Bond Fund held futures with a negative notional cost of (\$198,263,037) and an unrealized loss of \$412,624 reported in the Due from Brokers in the Statement of Net Position. The Core Fixed Income Fund held futures with a negative notional cost of (\$13,943,831) and an unrealized gain of \$84,506 reported in the Due from Brokers in the Statement of Net Position. The High Yield Debt Fund held futures with a negative notional cost of (\$16,140,454) and an unrealized gain of \$46,371 reported in the Due from Brokers in the Statement of Net Position. The Developed Market International Stock also held futures with a notional cost of \$132,460,661 and an unrealized loss of \$2,498,395 reported in the Due from Brokers in the Statement of Net Position.

The Liquidity, Core Fixed Income, Inflation Linked, Emerging Market Debt, High Yield Debt, Developed Market International Stock and Emerging Market International Stock Funds were invested in foreign exchange contracts. The specific nature of these investments is discussed more fully in the foreign exchange contract note for each respective fund, where appropriate. These financial instruments are utilized for trading and other purposes. Those that are used for other than trading purposes are foreign exchange contracts, which can be used to facilitate trade settlements, and may serve as foreign currency hedges. The credit exposure resulting from such contracts is limited to the recorded fair value of the contracts on the Statement of Net Position.

The remaining such securities are utilized for trading purposes and are intended to enhance investment returns. All positions are reported at fair value and changes in fair value are reflected in income as they occur. The CIF's' credit exposure resulting from such investments is limited to the recorded fair value of the derivative financial instruments.

The Liquidity, Mutual Equity, Emerging Market Debt, and the Emerging Market International Stock Funds also utilize derivatives indirectly through participation in mutual funds. These mutual funds may hold derivatives from time to time. Such derivatives may be used for hedging, investment and risk management purposes. These transactions subject the investor to credit and market risk.

**I. COMBINATION/ELIMINATION ENTRY**

The financial statements depict a full presentation of each of the CIF. However, one of these funds, the Liquidity Fund, is owned both directly by the pension plans and trust funds which have accounts in the Liquidity Fund, and also indirectly because each of the other CIF has an account with the Liquidity Fund. As a result, elimination entries are presented for the purpose of netting out balances and transactions relating to the ownership of the Liquidity Fund by the other CIF. The combined presentation totals to the overall net assets owned by the pension plans and trust funds. In order to help the Liquidity Fund managers better manage their cash balances, realized gains (losses) are no longer included in the Liquidity Fund income sweep.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**J. FEES AND REALIZED GAINS**

Investment advisory fees incurred for certain investments in the Alternative Investment, Core Fixed Income, Private Investment and Real Estate Funds are generally charged to the entity in which the CIF has been invested. In such cases, these amounts are either capitalized in the cost basis of the investment on a cash basis and become a component of unrealized gain (loss) or are netted against the corresponding income generated. Certain other fees are incurred directly by the CIF and are expensed. These expensed amounts are accrued and the expense is reflected as Investment Advisory Fees on the Statement of Changes in Net Position. The appropriate treatment is determined depending on the terms of the investment agreement. Capitalized fees are not separately presented on the Statement of Changes in Net Position. These fees are borne by the partners in their respective shares. The following is a listing of the Funds total fees for the fiscal year ended June 30, 2017:

CIF	Netted	Capitalized	Expensed	Total
Alternative Investment	\$ 10,492,724	\$ 549,956	\$ -	\$ 11,042,680
Core Fixed Income	919,783	-	2,602,485	3,522,268
Private Investment	11,050,087	16,068,437	2,656,009	29,774,533
Real Estate	9,955,336	4,359,943	9,398,239	23,713,518

Periodically the Private Investment and Real Estate Funds may receive security distributions in lieu of cash. These securities are included as Common Stock and Real Estate Investment Trust, respectively on the Statement of Net Position. When one of these individual securities is sold the realized gain or loss is included in the Net Increase (Decrease) in the Fair Value of Investments presented on the Statement of Changes in Net Position. The Private Investment Fund incurred realized gain of \$ 873,759 for such transactions for the fiscal year ended June 30, 2017.

The Liquidity, Mutual Equity, Emerging Market Debt and the Emerging Market International Stock funds include investments in a limited partnership and investments in mutual funds. Fees incurred from these investments are deducted from the operations of the CIF and are not separately presented on the Statement of Changes in Net Position. The following is a listing of the corresponding fees incurred for the fiscal year ended June 30, 2017:

CIF	Amount
Liquidity	\$ 175,794
Emerging Market Debt	17,224,896
Developed Market International Stock	8,091
Emerging Market International Stock	1,203,271

Investment advisory fees for the Liquidity, Mutual Equity, Core Fixed Income, Inflation Linked Bond, Emerging Market Debt, High Yield Debt, Developed Market International Stock and the Emerging Market International Stock Funds, except those noted above are estimated monthly based on periodic reviews of asset values. Accordingly, the amounts listed as Investment Advisory Fees on the Statement of Changes in Net Position represent estimates of annual management fee expenses.

**K. RECLASSIFICATIONS**

Certain prior year amounts have been reclassified to conform to the current year presentation. Net Realized Gain (Loss) and Net Change in Unrealized Gain(Loss) on investments and foreign currency is now presented as Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency.

**L. RELATED PARTY AND OTHER TRANSACTIONS**

There were no related party transactions during the fiscal year. Additionally, there were no "soft dollar" transactions. Soft dollar transactions result from arrangements whereby firms doing business with organizations such as the Treasury arrange for third parties to provide other services in lieu of cash payment. These arrangements tend to obscure the true cost of operations and can result in potential overpayment for services. Such transactions have been prohibited by the Treasurer.

**M. ESTIMATES**

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

revenues and expenses during the reporting period. Actual results could differ from those estimates.

**NOTE 2: DEPOSITS, INVESTMENTS AND SECURITIES LENDING PROGRAM**

**Deposits:**

The CIF minimize custodial credit risk by maintaining certain restrictions set forth in the Investment Policy Statement. Custodial credit risk is risk associated with the failure of a depository financial institution. In the event of a depository financial institution's failure the CIF would not be able to recover its deposits or collateralized securities that are in the possession of the outside parties. The CIF utilize a Liquidity Account that is a cash management pool investing primarily in highly liquid money market securities such as commercial paper, certificates of deposit, bank notes and other cash equivalents, asset backed securities, and floating rate corporate bonds. Deposits shall consist of cash instruments generally maturing in less than one year and having a quality rating, by at least one widely recognized rating agency, of A-1 or P-1 and earn interest at a rate equal to or better than the International Business Communications (IBC) First Tier Institutions-Only Rated Money Fund Report Index.

At June 30, 2017, the reported amount of Funds deposits were \$89,144,432 and the bank balance was \$89,144,432. Of the bank amount, \$89,144,432 was uncollateralized and uninsured. Through the Securities Lending Program, \$2,023,662,776 was collateralized with securities held by the counterparty's trust department or agent but not in the State's name.

**Investments:**

The CIF measure and record their investments using fair value measurement guidelines established by GAAP. The guidelines recognize a three tiered fair value hierarchy, as follows: Level 1: Quoted prices for identical investments in active market; Level 2: Observable inputs other than quoted market price; and, Level 3 Unobservable inputs. At June 30, 2017 the CIF have the following recurring fair value measurements.

Investments by Fair Value Level	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Liquidity Fund	\$ -	\$ -	\$ -	\$ -
Cash Equivalents	283,293,693	652,000	282,641,693	-
Asset Backed Securities	254,922,819	-	254,922,819	-
Government Securities	3,701,714,063	1,256,715,059	2,444,999,004	-
Government Agency Securities	716,184,623	-	716,184,623	-
Mortgage Backed Securities	280,579,047	-	280,579,047	-
Corporate Debt	4,037,232,777	-	3,939,687,518	97,545,259
Convertible Securities	51,662,496	-	51,662,496	-
Common Stock	15,327,223,987	15,327,223,987	-	-
Preferred Stock	77,158,462	59,690,903	17,467,559	-
Real Estate Investment Trust	319,238,833	273,995,685	45,243,148	-
Business Development Corporation	57,625,395	57,625,395	-	-
Mutual Fund	228,915,053	228,915,053	-	-
Limited Partnerships (publicly traded)	522,410	522,410	-	-
<b>Total</b>	<b>\$25,336,273,658</b>	<b>\$17,205,340,492</b>	<b>\$8,033,387,907</b>	<b>\$97,545,259</b>

Investments Measured at the Net Asset Value (NAV)	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Limited Liability Corporation	\$ 1,156,486	Illiquid	N/A
Limited Partnerships	7,230,945,022	Illiquid	N/A
<b>Total</b>	<b>7,232,101,508</b>		
<b>Total Investments in Securities at Fair Value</b>	<b>\$32,568,375,166</b>		

Pursuant to the Connecticut General Statutes, the Treasurer is the principal fiduciary of the plans and trusts, authorized to invest in a broad range of equity and fixed income securities, as well as real estate properties, mortgages and private equity. The CIF minimize credit risk, the risk of loss due to the failure of the security issuer or backer, in accordance with a comprehensive Investment Policy Statement (IPS), as developed by The Office of the Treasurer and the State's Investment Advisory Council (IAC), that provides policy guidelines for the plans and trusts and the CIF and includes an asset allocation plan. The asset allocation plan's main objective is to maximize investment returns over the long term at an acceptable level of risk. There have been no violations of these investment restrictions during the 2017 fiscal year.

The CIF's concentration of credit risk is the risk attributed to the magnitude of an investment in a single issuer. There are no restrictions in the amount that can be invested in Government Securities and Government Agency Securities.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

The following table provides average credit quality and exposure levels information on the credit ratings associated with Funds investments in debt securities.

	<b>Fair Value</b>	<b>Percentage of Fair Value</b>
Aaa	\$2,614,408,280	28.04%
Aa	612,132,025	6.56
A	886,350,713	9.51
Baa	820,963,491	8.80
Ba	742,742,033	7.96
B	967,039,117	10.38
Caa	439,933,802	4.72
Ca	9,343,490	0.10
C	5,016,575	0.05
Prime 1	748,364,737	8.02
Prime 2	24,269,973	0.26
Prime 3	1,802,928	0.02
U.S. Government fixed income securities (not rated)	130,876,265	1.40
Non US Government fixed income securities (not rated)	304,998,050	3.27
Not Rated	1,017,348,039	10.91
	<u>\$9,325,589,518</u>	<u>100.00%</u>

The investments in the Private Equity, Real Estate and Alternative Investment Funds generally utilize investment vehicles such as annuity contracts, common stocks, limited partnerships and trusts to comply with investment guidelines against direct ownership of such investment assets.

The investments of the Liquidity, Mutual Equity, Core Fixed Income, Inflation Linked Bond, Emerging Market Debt, High Yield Debt, Developed Market International Stock and the Emerging Market International Stock Funds have securities registered under the Bank of New York Mellon's nominee name MAC & Co. and held by a designated agency of the Pension Plans and Trust Funds of the State of Connecticut, or bearer and held by a designated agency of the Pension Plans and Trust Funds of the State of Connecticut.

Investments of cash collateral received and invested under securities lending arrangements are registered and maintained by a third party administrator exclusively for the CIF. In circumstances where securities or letters of credit are received as collateral under securities lending arrangements, the collateral is held by the master custodian in a commingled pool in the third party administrator's name as trustee. Securities Lending collateral of \$2,023,662,776 is invested in various short term repurchase agreements classified which is classified as cash equivalents.

The following table provides information about the interest rate risks associated with the CIF investments. Interest rate risk is the risk that the value of fixed income securities will decline because of rising interest rates. The prices of fixed income securities with a longer time to maturity tend to be more sensitive to changes in interest rates and therefore, more volatile than those with shorter maturities. Investment Managers that manage the CRPTF portfolio are given full discretion to manage their portion of CRPTF assets within their respective guidelines and constraints. The guidelines and constraints require each manager to maintain a diversified portfolio at all times. In addition, each core manager is required to maintain a target duration that is similar to its respective benchmark which is typically the Barclay's Aggregate – an intermediate duration index.

The investments include certain short-term cash equivalents which include certificate of deposits and collateral, various long term items, and restricted assets by maturity in years.

<b>Investment Type</b>	<b>Fair Value</b>	<b>Investment Maturities (in Years)</b>			
		<b>Less Than 1</b>	<b>1 - 5</b>	<b>6 - 10</b>	<b>More Than 10</b>
Cash Equivalents	\$283,293,693	\$283,293,693	\$0	\$0	\$0
Asset Backed Securities	254,922,819	3,421,310	104,431,066	104,468,147	42,602,296
Government Securities	3,701,714,063	226,328,300	1,522,901,765	856,578,687	1,095,905,311
Government Agency Securities	716,184,623	95,297,380	53,914,240	21,968,013	545,004,990
Mortgage Backed Securities	280,579,047	-	63,067,629	20,776,800	196,734,618
Corporate Debt	4,037,232,777	1,360,182,144	1,448,360,981	916,313,518	312,376,134
Convertible Debt	51,662,496	1,156,915	9,879,736	12,517,162	28,108,683
	<u>\$9,325,589,518</u>	<u>\$1,969,679,742</u>	<u>\$3,202,555,417</u>	<u>\$1,932,622,327</u>	<u>\$2,220,732,032</u>

Exposure to foreign currency risk results from investments in foreign currency-denominated equity or fixed income securities. As a means of limiting its exposure, the CIF utilize a strategic hedge ratio of 50% for the Developed Market

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

International Stock Fund (DMISF). This strategic hedge ratio represents the neutral stance or desired long-term exposure to currency for the DMISF. To implement this policy, currency specialists actively manage the currency portfolio as an overlay strategy to the equity investment managers. These specialists may manage the portfolio passively or actively depending on opportunities in the market place. While managers within the fixed income portion of the portfolio are allowed to invest in non-U.S. dollar denominated securities, managers are required to limit that investment to a portion of their respective portfolios. The following table provides information on deposits and investments held in various foreign currencies, which are stated in U.S. dollars. Negative amounts are reflective of short positions.

Foreign Currency	Total	Fixed Income Securities						Equities		
		Cash	Cash Equiv Collateral	Government Securities	Corporate Debt	Asset Backed	Mortgage Backed	Common Stock	Preferred Stock	Real Estate Investment Trust
Argentine Peso	\$25,554,055	\$736,936	\$ -	\$23,355,279	\$1,461,840	\$ -	\$ -	\$ -	\$ -	\$ -
Australian Dollar	438,685,449	498,930	-	97,524,852	7,887,460	-	-	308,418,265	-	24,355,942
Brazilian Real	258,327,654	813,899	-	107,363,513	-	(9,821)	-	143,789,893	6,370,170	-
Canadian Dollar	120,512,388	1,497,599	-	21,062,610	-	(45,772)	-	97,935,729	-	62,222
Chilean Peso	18,436,190	-	-	413,756	-	-	-	18,022,434	-	-
Colombian Peso	59,622,298	1,266,909	-	58,175,410	-	-	-	179,979	-	-
Czech Koruna	18,091,334	(737)	-	12,538,803	-	-	-	5,553,268	-	-
Danish Krone	117,933,921	119,558	-	1,281,442	-	-	-	116,532,921	-	-
Egyptian Pound	7,446,542	1,569,121	-	-	3,723,615	-	-	2,153,806	-	-
Euro Currency	2,352,030,954	4,207,687	-	246,731,502	6,902,529	(26,460)	-	2,066,018,579	17,323,865	10,873,252
Georgian Lari	2,128,403	-	-	-	2,128,403	-	-	-	-	-
Ghanaian Cedi	2,696,564	-	-	-	2,696,564	-	-	-	-	-
Hong Kong Dollar	715,345,683	1,500,269	-	-	-	-	-	706,795,556	-	7,049,858
Hungarian Forint	73,330,616	812,386	-	29,992,181	-	-	-	42,526,049	-	-
Iceland Krona	2,330	2,330	-	-	-	-	-	-	-	-
Indian Rupee	4,810,355	-	-	300,909	4,509,446	-	-	-	-	-
Indonesian Rupiah	155,857,832	613,129	-	54,873,446	38,907,320	-	-	61,463,937	-	-
Israeli Shekel	36,423,523	235,632	-	-	-	-	-	36,187,891	-	-
Japanese Yen	1,408,203,467	5,917,457	-	35,454,990	-	212,190	-	1,359,217,449	-	7,401,381
Malaysian Ringgit	93,381,385	1,551,262	-	77,031,244	-	-	-	14,798,879	-	-
Mexican Peso	233,226,077	301,249	-	185,996,928	3,630,783	252,892	-	43,044,225	-	-
New Zealand Dollar	143,220,151	877,405	-	127,517,617	-	-	-	14,825,129	-	-
Nigerian Naira	205,424	66,626	-	-	-	-	-	138,798	-	-
Norwegian Krone	58,528,632	459,427	-	6,414,408	-	-	-	51,654,797	-	-
Peruvian Nouveau Sol	26,245,810	-	-	26,245,810	-	-	-	-	-	-
Philippine Peso	46,124,646	5,418	-	1,945,313	-	-	-	44,173,915	-	-
Polish Zloty	145,366,374	67,406	-	100,203,598	-	-	-	45,095,370	-	-
Pound Sterling	1,233,149,377	2,466,504	6,374	240,599,792	7,082,254	(61,166)	3,216,406	967,733,881	-	12,105,332
Romanian Leu	9,501,944	264,132	-	9,237,812	-	-	-	-	-	-
Russian Ruble	57,047,215	1,331,200	-	55,591,169	-	-	-	124,846	-	-
Singapore Dollar	118,118,676	453,629	-	22,029,445	-	-	-	92,054,025	-	3,581,577
South African Rand	193,635,476	408,332	-	92,469,905	-	-	-	100,658,751	-	98,488
South Korean Won	453,526,347	173,889	-	-	-	-	-	425,914,678	27,437,780	-
Sri Lanka Rupee	6,676,950	-	-	-	6,645,952	-	-	30,998	-	-
Swedish Krona	190,501,456	(43,618)	-	4,384,320	-	-	-	186,160,754	-	-
Swiss Franc	501,034,722	433,508	-	-	-	-	-	500,601,214	-	-
Thailand Baht	147,823,924	93,755	-	26,369,024	-	-	-	121,265,943	-	95,202
Turkish Lira	170,169,267	247,875	-	57,057,963	4,030,887	-	-	108,757,144	-	75,398
Uruguayan Peso	3,981,055	-	-	3,981,055	-	-	-	-	-	-
	<u>\$9,646,904,466</u>	<u>\$28,949,104</u>	<u>\$6,374</u>	<u>\$1,726,144,096</u>	<u>\$89,607,053</u>	<u>\$321,863</u>	<u>\$3,216,406</u>	<u>\$7,681,829,103</u>	<u>\$51,131,815</u>	<u>\$65,698,652</u>

**Securities Lending:**

Certain of the CIF engage in securities lending transactions to provide incremental returns. The CIF are permitted to enter into securities lending transactions pursuant to Section 3-13d of the Connecticut General Statutes. The CIF's third party securities lending administrator is authorized to lend available securities to authorized broker-dealers and banks subject to a formal loan agreement.

During the period ended June 30, 2017, the Agent lent certain securities and received cash or other collateral as indicated on the Agency Securities Lending Agreement. The Agent did not have the ability to pledge or sell collateral securities delivered therefore absent a borrower default. Borrowers were required to deliver collateral for each loan equal to at least 102 percent of the fair value of domestic loaned securities or 105 percent of the fair value of foreign loaned securities.

Pursuant to the Agency Securities Lending Agreement, the Agent has an obligation to indemnify the CIFs in the event any borrower failed to return the loaned securities or pay distributions thereon. There were no such failures

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

by any borrowers to return loaned securities or pay distributions thereon during the fiscal year that resulted in a declaration or notice of default by a borrower. During the fiscal year, the CIF and the borrowers maintained the right to terminate all securities lending transactions upon notice. The cash collateral received on each loan is eligible for investment in cash, securities guaranteed by the U. S. government or any agency of the U. S. government, securities guaranteed by a sovereign government that participates in the General Arrangements to Borrow (Group of 10 or G10) and rated AA or better, or reverse transactions on an overnight or term basis. On June 30, 2017, the CIF had no credit risk exposure to borrowers. The fair value of collateral held for the CIF as of June 30, 2017 was \$2,020,761,587 as cash. The fair value of securities on loan for the CIF as of June 30, 2017 was \$1,973,294,759 as cash.

Under ordinary circumstances, the net weighted average maturity (weighted average maturity of assets less the weighted average maturities of liabilities) will not exceed 60 days. As of June 30, 2017 the cash collateral investment pool had an average duration of 8.86 days and an average weighted final maturity 53.79 days.

The fair value of collateral held and the fair value of securities on loan are as follows for the CIF as of June 30, 2017:

<b>CIF</b>	<b>Fair Value of Collateral</b>	<b>Fair Value of Securities Lent</b>
Mutual Equity	\$778,701,169	\$760,779,648
Core Fixed Income	181,891,304	177,884,431
Inflation Linked Bond	243,894,814	238,729,786
Emerging Market Debt	26,952,510	26,376,550
High Yield Investment	523,258,667	511,955,351
Developed Market International Stock	62,998,657	60,166,734
Emerging Market International Stock	203,064,465	197,402,259
	<u>\$2,020,761,586</u>	<u>\$1,973,294,759</u>

Investments made using the cash collateral received from security loans were included in the Statement of Net Position. The fair value of these amounts is as follows:

<b>CIF</b>	<b>Cash Equivalents</b>
Mutual Equity	\$ 779,380,031
Core Fixed Income	182,049,885
Inflation Linked Bond	244,107,437
Emerging Market Debt	26,976,004
High Yield Debt	523,714,851
Developed Market International Stock	64,193,069
Emerging Market International Stock	203,241,499
Total	<u>\$ 2,023,662,776</u>

These investments are held in a separate accounting consisting of individual securities custodied by the Agent in the name of the CIF. The above total amounts were included on the Statement of Net Position in "Invested Securities Lending Collateral".

**NOTE 3: PURCHASES AND SALES OF INVESTMENT SECURITIES**

For the period ended June 30, 2017, the aggregate cost of purchases and proceeds from sales of investment securities were as follows:

<b>CIF</b>	<b>Purchases</b>	<b>Sales</b>
Alternative Investment	\$293,992,305	\$219,356,110
Mutual Equity	3,218,982,933	3,921,887,127
Core Fixed Income	5,778,237,131	5,657,204,275
Inflation Linked Bond	1,025,238,157	1,012,487,413
Emerging Market Debt	5,126,513,620	5,030,163,319
High Yield Debt	4,354,122,550	4,227,851,102
Developed Market International Stock	3,067,258,281	2,955,491,616
Emerging Market International Stock	1,645,532,118	1,632,116,493
Real Estate	975,318,965	911,896,196
Private Investment	1,702,913,546	1,507,563,473

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

The above amounts include the effect of cost adjustments processed during the year.

**NOTE 4: UNREALIZED APPRECIATION AND DEPRECIATION ON INVESTMENTS AND FOREIGN EXCHANGE CONTRACTS**

At June 30, 2017, the gross appreciation of investment securities in which there was an excess of fair value over cost, the gross depreciation of investment securities in which there was an excess of cost over fair value and the resulting net appreciation (depreciation) by the CIF were as follows:

<b>CIF</b>	<b>Gross Appreciation</b>	<b>Gross Depreciation</b>	<b>Net Appreciation (Depreciation)</b>
Liquidity Investment Fund	\$8,877,003	\$26,632,208	(\$17,755,205)
Alternative Investment Fund	261,317,409	14,986,831	246,330,578
Mutual Equity	2,439,744,551	122,220,936	2,317,523,615
Core Fixed Income	49,395,299	11,882,224	37,513,075
Inflation Linked Bond	26,054,204	40,944,373	(14,890,169)
Emerging Market Debt	34,177,140	42,854,022	(8,676,882)
High Yield Debt	67,746,704	60,717,609	7,029,095
Developed Market International Stock	1,451,375,043	287,502,750	1,163,872,293
Emerging Market International Stock	729,748,933	86,157,680	643,591,253
Real Estate	324,411,230	85,710,413	238,700,817
Private Investment Fund	711,405,110	240,638,719	470,766,391

**NOTE 5: FOREIGN EXCHANGE CONTRACTS**

From time to time the Liquidity, Core Fixed Income, Inflation Linked Bond Fund, Emerging Market Debt, High Yield Debt Fund, Developed Market International Stock, Emerging Market International Funds utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service.

Investing in forward currency contracts may increase the volatility of the CIF's performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

At June 30, 2017, the CIF had recorded unrealized gains (losses) from open forward currency contracts as follows:

<b>Liquidity Funds:</b>		
<u>Local Currency Name</u>	<u>Value</u>	<u>Unrealized Gain/(Loss)</u>
<b>Contracts to Buy:</b>		
Argentina Peso	\$6,072,997	(\$180,051)
Brazil Real	3,081,000	(14,916)
Canadian Dollar	1,033,596	14,704
Chilean Peso	5,134,000	4,252
Chinese Yuan Renminbi	5,999,000	56,180
Colombian Peso	5,154,000	(179,915)
Czech Koruna	9,029,288	504,558
Dominican Rep Peso	1,016,097	9,412
Egyptian Pound	5,064,569	(14,289)
Euro Currency Unit	20,142,936	385,476
Ghanaian Cedi	1,535,000	37,151
Hungarian Forint	9,861,385	162,190
Indian Rupee	4,981,000	21,418
Indonesian Rupiah	3,749,000	13,903
Israeli Shekel	1,041,696	13,419

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

Japanese Yen	5,735,016	(57,300)
Kazakhstan Tenge	3,621,000	(58,933)
New Zealand Dollar	1,422,123	14,649
Norwegian Krone	5,683,963	69,396
Peruvian Sol	2,513,404	28,482
Philippines Peso	3,011,000	(63,168)
Polish Zloty	4,078,573	33,725
Pound Sterling	13,536,925	230,259
Romanian Leu	5,869,080	339,066
Russian Ruble (New)	1,270,000	17,035
Serbian Dinar	502,000	(2,173)
Singapore Dollar	2,496,090	6,219
South African Rand	2,998,000	28,860
South Korean Won	2,500,000	(44,703)
Swedish Krona	10,153,270	330,587
Thailand Baht	3,023,000	(4,272)
Turkish Lira	1,496,000	16,088
Uganda Shilling	1,688,939	26,898
	<u>\$154,493,947</u>	<u>\$1,744,207</u>

**Contracts to Sell:**

Australian Dollar	35,073,724	(287,994)
Brazil Real	1,003,000	(6,704)
Canadian Dollar	6,674,615	(158,865)
Chilean Peso	1,138,877	875
Czech Koruna	8,983,226	(1,117,738)
Euro Currency Unit	21,488,966	(850,983)
Ghanaian Cedi	511,477	(28,430)
Hungarian Forint	5,410,292	(53,187)
Israeli Shekel	1,042,117	(12,998)
Japanese Yen	2,043,000	25,761
Mexican Peso	21,156,092	9,895
New Zealand Dollar	55,735,971	(640,509)
Polish Zloty	25,721,837	(462,564)
Pound Sterling	7,163,015	(31,994)
Romanian Leu	3,891,988	(294,490)
Singapore Dollar	23,632,240	(163,947)
South African Rand	564,000	6,569
Turkish Lira	820,193	702
Uganda Shilling	1,688,000	(32,684)
	<u>223,742,630</u>	<u>(4,099,285)</u>
Grand total	<u>\$378,236,577</u>	<u>(\$2,355,078)</u>

**Financial Statement Amounts:**

	Receivable	Payable	Net
FX Value	\$ 378,236,577	\$ 378,236,577	\$ -
Unrealized Gain/Loss	1,744,207	(4,099,285)	(2,355,078)
Net	<u>\$ 379,980,784</u>	<u>\$ 382,335,862</u>	<u>\$(2,355,078)</u>

**Inflation Linked Bond Fund:**

Local Currency Name	Value	Unrealized Gain/(Loss)
<b>Contracts to Buy:</b>		
Australian Dollar	\$2,725,624	\$35,955
Canadian Dollar	2,756,377	39,846
Danish Krone	441,684	5,080
Euro Currency Unit	20,732,035	124,836
Japanese Yen	22,906,041	(175,151)
Mexican Peso	3,141,925	23,602
New Zealand Dollar	6,226,983	2,597
Norwegian Krone	22,956,261	280,273
Pound Sterling	195,862,430	3,059,225
South African Rand	4,715,405	(89,704)
Swedish Krona	39,897,150	1,268,624
	<u>\$322,361,915</u>	<u>\$4,575,183</u>

**Contracts to Sell:**

Australian Dollar	57,030,881	(456,629)
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**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

Canadian Dollar	2,603,274	(51,038)
Danish Krone	142,622	17
Euro Currency Unit	56,622,487	(951,769)
Japanese Yen	8,579,676	61,719
Mexican Peso	17,369,816	(39,720)
New Zealand Dollar	70,209,944	(832,038)
Polish Zloty	2,334,839	(41,709)
Pound Sterling	19,853,114	(102,909)
Swedish Krona	677,489	(2,068)
	<u>235,424,142</u>	<u>(2,416,144)</u>
Grand total	<u>\$557,786,057</u>	<u>\$2,159,039</u>

**Financial Statement Amounts:**

	Receivable	Payable	Net
FX Value	\$557,786,057	\$557,786,057	\$ -
Unrealized Gain/Loss	4,575,183	(2,416,144)	2,159,039
Net	<u>\$562,361,240</u>	<u>\$560,202,201</u>	<u>\$ 2,159,039</u>

**Emerging Market Debt Fund:**

Local Currency Name	Value	Unrealized Gain/(Loss)
<b>Contracts to Buy:</b>		
Argentina Peso	\$4,003,119	(\$107,949)
Brazil Real	53,627,273	(129,957)
Chilean Peso	12,723,072	(36,790)
Colombian Peso	4,742,093	(216,760)
Czech Koruna	33,127,736	1,301,354
Egyptian Pound	1,707,000	4,717
Euro Currency Unit	12,503,763	445,131
Hungarian Forint	8,546,131	147,614
Indian Rupee	8,474,087	28,752
Indonesian Rupiah	4,923,125	18,136
Japanese Yen	5,461,709	(139,284)
Malaysian Ringgit	3,388,806	(22,121)
Mexican Peso	12,608,400	458,982
Peruvian Sol	3,165,611	18,874
Polish Zloty	34,307,886	726,927
Romanian Leu	9,898,740	369,752
Russian Ruble (New)	7,480,461	(200,046)
South African Rand	2,311,562	(30,860)
Thailand Baht	23,048,618	275,772
Turkish Lira	20,063,330	95,131
	<u>\$266,112,522</u>	<u>\$3,007,375</u>

**Contracts to Sell:**

Argentina Peso	3,586,151	91,459
Brazil Real	63,713,636	844,475
Colombian Peso	2,815,000	53,715
Czech Koruna	7,184,358	(638,104)
Euro Currency Unit	1,376,084	(84,257)
Hungarian Forint	1,086,419	(44,029)
Indonesian Rupiah	2,662,533	(26,967)
Japanese Yen	5,510,010	187,585
Mexican Peso	14,725,458	(565,581)
Peruvian Sol	6,108,550	(76,412)
Philippines Peso	596,095	5,936
Polish Zloty	1,140,000	(49,614)
Romanian Leu	230,000	(9,896)
Russian Ruble (New)	9,921,170	235,160
South African Rand	7,205,290	(62,203)
Thailand Baht	2,038,499	(6,541)
Turkish Lira	8,529,484	(5,516)
	<u>138,428,737</u>	<u>(150,790)</u>
Grand total	<u>\$404,541,259</u>	<u>\$2,856,585</u>

**Financial Statement Amounts:**

	Receivable	Payable	Net
FX Value	\$404,541,259	\$404,541,259	\$ -
Unrealized Gain/Loss	3,007,375	(150,790)	2,856,585

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

Net	\$407,548,634	\$404,692,049	\$ 2,856,585
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**High Yield Debt Fund:**

<u>Local Currency Name</u>	<u>Value</u>	<u>Unrealized Gain/(Loss)</u>
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**Contracts to Buy:**

Euro Currency Unit	\$1,070,830	\$18,633
Pound Sterling	584,498	4,925
	<u>\$1,655,328</u>	<u>\$23,558</u>

**Contracts to Sell:**

Euro Currency Unit	1,142,926	(11,406)
Pound Sterling	1,962,243	(11,030)
	<u>3,105,169</u>	<u>(22,436)</u>

Grand total	<u>\$ 4,760,497</u>	<u>\$ 1,122</u>
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**Financial Statement Amounts:**

	<u>Receivable</u>	<u>Payable</u>	<u>Net</u>
FX Value	\$ 4,760,497	\$4,760,497	\$ -
Unrealized Gain/Loss	23,558	(22,436)	1,122
Net	<u>\$4,784,055</u>	<u>\$4,782,933</u>	<u>\$ 1,122</u>

**Developed Market International Stock Fund:**

<u>Local Currency Name</u>	<u>Value</u>	<u>Unrealized Gain/(Loss)</u>
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**Contracts to Buy:**

Australian Dollar	\$241,729,918	\$6,080,877
Canadian Dollar	392,856,577	6,799,292
Danish Krone	1,429,035	15,545
Euro Currency Unit	74,237,067	1,000,234
Hong Kong Dollar	3,555,928	(5,209)
Israeli Shekel	5,385,246	102,744
Japanese Yen	392,208,696	(4,473,426)
Mexican Peso	72,320	(126)
New Zealand Dollar	450,796,352	6,925,151
Norwegian Krone	162,395,371	1,648,703
Pound Sterling	323,212,643	6,560,724
Singapore Dollar	237,049,365	1,040,668
Swedish Krona	189,691,076	6,074,917
Swiss Franc	2,488,923	21,242
	<u>\$2,477,108,517</u>	<u>\$31,791,336</u>

**Contracts to Sell:**

Australian Dollar	480,336,497	(5,768,217)
Canadian Dollar	442,364,410	(15,885,303)
Danish Krone	49,486,110	(592,587)
Euro Currency Unit	216,992,939	(3,589,282)
Hong Kong Dollar	91,749,408	214,642
Israeli Shekel	20,399,975	(300,600)
Japanese Yen	715,657,689	11,280,691
New Zealand Dollar	577,677,082	(17,065,958)
Norwegian Krone	385,316,706	(3,352,573)
Pound Sterling	431,377,162	(2,814,452)
Singapore Dollar	263,543,910	(1,335,264)
Swedish Krona	353,795,300	(8,220,498)
Swiss Franc	287,086,861	(2,072,121)
	<u>4,315,784,049</u>	<u>(49,501,522)</u>

Grand total	<u>\$6,792,892,566</u>	<u>(\$17,710,186)</u>
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**Financial Statement Amounts:**

	<u>Receivable</u>	<u>Payable</u>	<u>Net</u>
FX Value	\$6,792,892,566	\$6,792,892,566	\$ -
Unrealized Gain/Loss	31,791,336	(49,501,522)	(17,710,186)
Net	<u>\$6,824,683,902</u>	<u>\$6,842,394,088</u>	<u>\$(17,710,186)</u>

**Emerging Market International Stock Fund:**

<u>Local Currency Name</u>	<u>Value</u>	<u>Unrealized Gain/(Loss)</u>
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**Contracts to Buy:**

Brazil Real	\$259,328	(\$2,693)
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**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

Hong Kong Dollar	547,935	69
Indonesian Rupiah	166,262	(171)
South African Rand	1,382,421	(16,304)
Thailand Baht	1,519,186	(861)
Turkish Lira	40,620	(67)
	<u>\$3,915,752</u>	<u>\$(20,027)</u>

**Contracts to Sell:**

Hong Kong Dollar	581,712	60
South Korean Won	329,525	(235)
Turkish Lira	69,033	(75)
	<u>980,270</u>	<u>(250)</u>
Grand total	<u>\$4,896,022</u>	<u>\$(20,277)</u>

**Financial Statement Amounts:**

	Receivable	Payable	Net
FX Value	\$4,896,022	\$4,896,022	\$ -
Unrealized Gain/Loss	(20,027)	(250)	(20,277)
Net	<u>\$4,875,995</u>	<u>\$4,896,272</u>	<u>\$ (20,277)</u>

The net unrealized gain has been included in the Statement of Changes in Net Position as a component of Net Change in Unrealized Gain (Loss) on Investments and Foreign Currency.

**NOTE 6: COMMITMENTS**

In accordance with the terms of the individual investment agreements, the Private Investment, Real Estate, Alternative Investment Funds and Core Fixed Income Fund have outstanding commitments to make additional investments. These commitments will be fulfilled as suitable investment opportunities become available. Commitments at June 30, 2017, were as follows:

CIF	Total Commitment	Cumulative Amounts Funded	Unfunded Commitment
Real Estate	\$3,281,467,201	\$2,866,281,403	\$415,185,798
Private Investment	6,349,570,922	4,955,392,253	1,394,178,669
Alternative Investment	1,730,000,000	1,670,974,855	59,025,145
Core Fixed Income	550,000,000	550,000,000	-

Certain Private Investment Funds allow the General Partner to recycle distributions without a reduction in unfunded commitments and accordingly have no impact upon the above amounts. Capital recycling is a tool frequently used by investment managers to fully invest the committed capital in portfolio investments. Since fees and expenses are a component of a General Partner's total capital commitments, capital recycling generally allows managers to: (i) mitigate the impact of fees and expenses and (ii) increase the possibility that limited partner capital is invested in portfolio companies. Recycling provisions allow managers to recall capital distributions if certain criteria are met. The use of recycling provisions varies by manager but generally limits capital recycling to a range between 0% and 20% of total commitments. As a result the actual commitment could be as much as 120% of the stated commitment amount.

**NOTE 7: CONTINGENCY**

A limited partnership in the PIF invested \$15 million in a portfolio company that reported double digit revenue growth. In 2005, the General Partner initiated a sales process expecting to realize significant gain. Lack of cooperation from management challenged the sale process, resulting in legal action from the partnership and other investors in the portfolio company to force a sale. This process uncovered serious financial irregularities in the portfolio company, resulting in the removal and criminal investigation of the CEO and other senior managers. The portfolio company is currently in bankruptcy. In July 2008, the Bankruptcy Court approved the portfolio company's plan of liquidation. A liquidation trustee was appointed to oversee further liquidation efforts, including investigation and pursuit of potential litigation claims. The liquidation trustee has filed law suits or arbitration proceedings against certain parties, including the bank that issued the credit facility, the investment bank, an equipment manufacturer, accounting firms, and a law firm, among others. In January 2009, the liquidation trustee entered into a settlement agreement with the General Partner, exchanging mutual releases for the GP, the fund and its investors.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

Additionally, the settlement agreement provides for a sharing of recovery from further prosecution of the matter, including any settlement reached with the insurance carrier. Recoveries are anticipated to be quite modest, if at all. In 2009, the bank has filed a motion under seal which, if granted, may permit the bank to reduce any liability to the liquidation trustee by the proportionate amount that it can attribute to either the minority shareholders (including the fund). The liquidating trustee has prepared a motion to close out the bankruptcy case, which was heard on November 19, 2015. The bankruptcy was closed on November 20, 2015. No further recoveries from or related to Le-Natures' are expected.

**NOTE 8: SUBSEQUENT EVENT**

The CRPTF has performed an evaluation of subsequent events through December 29, 2017, the date the basic financial statements were available to be issued. No material events were identified.

**NOTE 9: COST BASIS OF INVESTMENTS**

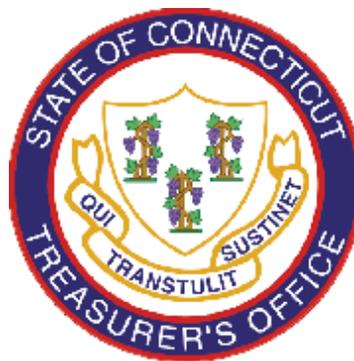
The aggregate cost values of investments in the Funds are as follows at June 30, 2017:

	<b>LIQUIDITY FUND</b>	<b>ALTERNATIVE INVESTMENT FUND</b>	<b>MUTUAL EQUITY FUND</b>	<b>CORE FIXED INCOME FUND</b>	<b>INFLATION LINKED BOND FUND</b>
Investments in Securities, at Cost					
Liquidity Fund	\$ -	\$176,833,266	\$411,822,610	\$150,342,325	\$38,016,392
Cash Equivalents	278,764,721	-	-	-	(252,599)
Asset Backed Securities	171,616,700	-	-	86,850,325	863,057
Government Securities	560,611,701	-	-	525,572,285	1,302,078,989
Government Agency Securities	179,379,418	-	-	535,995,940	-
Mortgage Backed Securities	148,329,719	-	-	142,089,348	-
Corporate Debt	1,517,538,188	-	-	554,821,517	6,921,982
Convertible Securities	-	-	-	-	-
Common Stock	-	-	4,125,007,180	-	-
Preferred Stock	-	-	-	2,877,939	-
Real Estate Investment Trust	-	-	171,905,383	15,391,183	-
Business Development Corp	-	-	-	-	-
Mutual Fund	83,711,810	-	-	-	-
Limited Liability Corporation	-	-	-	-	-
Trusts	-	-	-	-	-
Limited Partnerships	-	1,603,624,241	228,077	550,000,000	-
Partnerships	-	-	-	-	-
Annuities	-	-	-	-	-
<b>Total Investments in Securities, at cost</b>	<b>\$2,939,952,257</b>	<b>\$1,780,457,507</b>	<b>\$ 4,708,963,250</b>	<b>\$ 2,563,940,862</b>	<b>\$ 1,347,627,821</b>

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

<b>EMERGING MARKET DEBT FUND</b>	<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>
\$46,889,245	\$152,794,257	\$124,436,767	\$49,193,010	\$86,226,795	\$301,086,109
(3,886)	610,705	4,174,606	-	-	-
-	(1,059,284)	-	-	-	-
1,278,747,026	58,113,532	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
280,334,866	1,655,570,165	-	-	-	-
455,000	43,551,000	-	-	-	-
395,023	10,970,593	4,972,559,487	2,147,394,044	-	1,347,145
-	17,358,608	16,441,341	32,234,711	-	-
-	28,498,275	60,370,904	282,016	-	-
-	61,275,483	-	-	-	-
-	-	2,452,555	130,091,489	-	-
-	-	-	-	-	1,432,734
-	-	-	-	-	-
-	-	-	-	1,917,730,506	2,196,097,547
-	-	-	-	-	-
-	-	-	-	-	-
<b>\$1,606,817,274</b>	<b>\$ 2,027,683,334</b>	<b>\$ 5,180,435,660</b>	<b>\$ 2,359,195,270</b>	<b>\$2,003,957,301</b>	<b>\$2,499,963,535</b>



# **Investment**

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# **Section**



# 2017 pension funds management division

## Division Overview

### Introduction

As principal fiduciary of six state pension funds and nine trust funds (known collectively as the Connecticut Retirement Plans and Trust Funds (CRPTF), the Treasurer is responsible for managing investment assets for retirement plans serving approximately 219,000 state and municipal employees, teachers, retirees and survivorships, as well as trust funds that support academic programs, grants, and initiatives throughout the state.

Prudent investment management requires the proper safeguard of the CRPTF assets to ensure the retirement security of the beneficiaries and to support the spending policies of the trust funds. Funding of the pension benefit liability is dependent upon state contributions, investment returns and the contribution requirements of eligible retirement plan participants. The spending requirements of the trust funds are met through the generation of investment income and capital gains with a focus on the preservation of capital.

The Combined Investment Funds (CIF) were established pursuant to Connecticut General Statutes Section 3-31b as a means to invest pension and other trust fund assets in a variety of investment classes. The CIF is comprised of the following separate pooled investment funds: Liquidity Fund; Mutual Equity Fund; Core Fixed Income Fund; Emerging Markets Debt Fund; High Yield Debt Fund; Inflation Linked Bond Fund; Developed Markets International Stock Fund; Emerging Markets International Stock Fund; Real Estate Fund; Private Investment Fund; and Alternative Investment Fund.

Over the last ten years, the net asset value of the CRPTF investments under Treasury management has grown from \$25.9 billion to approximately \$32.5 billion. The Teachers' Retirement Fund, with approximately \$17.1 billion of assets under management at June 30, 2017, is the largest participating plan. The State Employees' Retirement Fund and the Connecticut Municipal Employees' Retirement Fund have approximately \$12.0 billion and \$2.4 billion of assets, respectively. For the fiscal year ended June 30, 2017, total investment income (comprised of interest income, dividends, securities lending income, and net realized and unrealized capital gains, net of operating expenses) before allocation of administrative expenses, was approximately \$4.1 billion.

CRPTF's total investment in the CIF at fair value as of June 30, 2017 was:

INVESTMENT SUMMARY AT JUNE 30, 2017		
	Fair Value <sup>(1)(3)</sup>	% of Total Fund Fair Value
Liquidity Fund (LF) <sup>(2)</sup>	\$ 1,387,328,362	4.26%
Mutual Equity Fund (MEF)	7,026,486,865	21.57%
Developed Markets International Stock Fund (DMISF)	6,344,307,953	19.48%
Emerging Markets International Stock Fund (EMISF)	3,002,786,523	9.22%
Real Estate Fund (REF)	2,242,658,118	6.89%
Core Fixed Income Fund (CFIF)	2,601,453,937	7.99%
Inflation Linked Bond Fund (ILBF)	1,332,942,016	4.09%
Emerging Market Debt Fund (EMDF)	1,598,180,952	4.91%
High Yield Debt Fund (HYDF)	2,034,712,429	6.25%
Alternative Investment Fund (AIF)	2,026,788,085	6.22%
Private Investment Fund (PIF)	2,970,729,926	9.12%
Total Fund	<u>\$32,568,375,166</u>	<u>100.00%</u>

- (1) "Fair value" includes securities and cash invested in the Liquidity Fund (LF), and excludes receivables (FX contracts, interest, dividends due from brokers, foreign tax, securities lending receivables, reserve for doubtful accounts, invested securities lending collateral and prepaid expenses), payables (FX contracts, due to brokers, income distribution, securities lending collateral and accrued expenses), and cash not invested in the LF.
- (2) The fair value of the LF represents the pension and trust assets allocated to the LF (excluding receivables and payables); the LF balances of the other combined investment funds are shown in the fair value of each fund.
- (3) Fair Value (\$32.6 billion) differs from net assets (\$32.5 billion) as net assets include additional balance sheet items.

## Fund Management

Under the supervision of a Chief Investment Officer, appointed by the Treasurer with the approval of the Investment Advisory Council (IAC), the Pension Funds Management Division (PFM) executes and manages the investment programs of the pension and trust funds with a 13 member professional staff. Internal resources are augmented by several outside consulting firms that provide research and analytical expertise to the Treasurer, the Chief Investment Officer and PFM professionals. During Fiscal Year 2017, The Bank of New York Mellon (BNY Mellon) served as the custodian of record for the CRPTF, maintaining physical custody of and safeguarding plan assets. BNY Mellon also provided recordkeeping services under the supervision of PFM, and Deutsche Bank was the provider of securities lending services.

The Treasurer employs external money and investment managers to manage the portfolios underlying each CIF. Money and investment managers are selected based upon asset class expertise, investment performance and style. Investment and money managers are expected to comply with the parameters, guidelines, and restrictions set forth in the CRPTF Investment Policy Statement (IPS). As of June 30, 2017, 159 external money and investment managers were employed by the Treasury to invest the pension and trust assets, an increase of 5 managers from June 30, 2016 (See Figure 1-5).

All operating overhead is allocated directly to the earnings of the pension and trust fund assets under management. The Treasury manages assets in a cost-effective manner, consistent with the maximization of long-term returns.

## Investment Policy

One of the immutable principles of investment management is that asset allocation decisions are responsible for as much as 90 percent of investment returns. In September 2012, the IAC approved the Treasurer's adopted IPS, including the asset allocation plan, which governs the CRPTF investment portfolios and each of the CIFs. Subsequently, in December 2012, January 2013, April 2013, and July 2013, the IAC approved the Treasurer's adopted modifications.

The asset allocation plan is customized for each plan and trust with the main objective being the maximization of investment returns over the long term at an acceptable level of risk, primarily through asset diversification. Risk, in this context, is defined as volatility of investment returns. (See Understanding Investment Performance under Supplemental Information.)

Diversification across asset classes is a critical component in structuring portfolios to maximize return at a given level of risk. In developing an asset allocation strategy, there is thorough analysis of the expected risk/return tradeoffs under different economic scenarios predicated on established correlations of investment returns and the diversification benefits of the available asset classes (i.e., those not restricted by statute).

As shown in Figure 1-4, the number and complexity of asset classes comprising the asset allocation policy have fluctuated during the last ten years. As of June 30, 2017, multiple asset classes were integrated in the IPS, including global public market equities and fixed income, as well as alternative investments such as real estate, private equity, hedge fund and real asset investment strategies.

At fiscal year-end, domestic, international developed and emerging markets equities (stocks) comprised the largest percentage of the total CRPTF, at approximately 52 percent. Publicly traded equities have an established record of maximizing investment returns over the long term. Fixed income, real estate and alternative investments were also included to enhance portfolio returns during highly inflationary or deflationary environments, to mitigate the effects of volatility in the stock market and to provide current income.

## Asset Classes

To realize the asset allocations set forth in the IPS for each plan and trust, the Treasurer administers the CIFs as a series of mutual funds in which the various retirement plans and trusts may invest through the purchase of ownership interests. The asset mix for each of the 15 plans and trusts is established by the Treasurer, with approval of the independent IAC, based upon (1) capital market theory, (2) financial and fiduciary requirements and (3) liquidity needs. However, there are instances in which the asset mix for a trust is set by the trust's governing document. A broad array of asset classes is considered for inclusion in a potential asset allocation structure. Each asset class has its own distinct characteristics, as well as expectations for long-term return and risk behavior.

The asset classes that make up the CRPTF portfolio include:

### ***Domestic Equity***

The Mutual Equity Fund (MEF) assets are allocated across the broad U.S. stock market to ensure diversification by market capitalization and investment style, such as value and growth. The MEF may opportunistically invest up to 30 percent of assets to take advantage of shifts in the investment landscape or opportunities that offer diversification and/or risk-return benefits, and may include investments in any market capitalization and/or investment style as well as an allocation to stocks outside the US. As of June 30, 2017, the MEF structure was approximately 75.72 percent invested in large-cap stocks, 10.45 percent in small/mid-cap stocks, 8.97 percent in all-cap, and 4.86 percent in cash equivalents and other net assets. The MEF's ten largest holdings, aggregating 14.76 percent of Fund investments, included a variety of blue chip companies and were broadly diversified, with the largest holding of 2.71 percent in Apple Inc. Performance of the MEF is measured against the Russell 3000 Index (R3000).

Management of the MEF includes the use of pure indexing, enhanced indexing, active management, and opportunistic strategies executed by external money managers. Index and enhanced index strategies are referred to as passive strategies since their investment portfolios are similar to the index. The goal of enhanced indexing is to generate a return slightly in excess of the selected index. Indexing is particularly appropriate for the "large-cap" segment of the equity markets, which is defined as the securities of the largest capitalized public companies. Given the overall efficiency of the domestic equity market, approximately 76 percent of the portfolio is invested in passive strategies. The balance of the portfolio is actively managed, primarily in the less efficient "small and mid-cap" sectors of the equity markets. These securities are issued by companies that are smaller and not as closely monitored, researched or analyzed as the larger capitalization companies. As a result of this relative inefficiency, active money managers have the potential to outperform these markets over the long term, while earning an acceptable level of return per unit of risk.

### ***International Equity***

Exposure to international equities is provided through two funds: the Developed Markets International Stock Fund (DMISF) and the Emerging Markets International Stock Fund (EMISF), each of which has distinct risk/return profiles. Stocks from developed market countries tend to offer lower risk and return potential compared to emerging market securities as a result of generally more stable economic and political environments and the depth and liquidity of their financial markets. The foreign currency exposure in the DMISF is partially hedged back to the U.S. dollar. DMISF and EMISF assets are allocated across foreign markets so that there is diversification by country, sector, capitalization and style, in a mix that is structured to replicate the characteristics of the comparable non-U.S. developed and emerging stock market indices to which each combined investment fund is benchmarked.

External money managers invest DMISF assets primarily in common stocks issued by companies in developed market countries domiciled outside of the U.S. The benchmark for DMISF is the Morgan Stanley Capital International Europe Australasia and Far East Investable Market Index (MSCI EAFE IMI) 50 percent hedged. The DMISF is comprised of passive indexing, core developed markets and opportunistic strategies. As of June 30, 2017, the DMISF structure was approximately 84.11 percent invested in large-cap stocks, 15.67 percent in small-cap stocks, and 0.22 percent in cash equivalents and other net assets. Mandates for active growth/value and small cap developed market strategies represent roughly 22.34 percent and 15.67 percent of the DMISF, respectively. The currency exposure of the DMISF investments is managed through a currency hedging overlay strategy.

The EMISF invests primarily in the common stocks of non-U.S. corporations domiciled in countries included in the EMISF benchmark, which is the Morgan Stanley Capital International Emerging Markets Investable Market Index (MSCI EM IMI). EMISF investments are made through portfolios managed by external money managers. The EMISF is invested 100 percent in active, unhedged emerging markets strategies.

### ***Fixed Income***

Fixed income assets are diversified across four funds: the Core Fixed Income Fund (CFIF), the Inflation Linked Bond Fund (ILBF), the Emerging Markets Debt Fund (EMDF), and the High Yield Debt Fund (HYDF). Investments in the various fixed income CIFs serve to reduce the overall volatility of CRPTF returns under numerous economic scenarios. Further, the fixed income CIFs provide cash flow to the CRPTF in the form

of interest and principal payments.

The CFIF consists of externally managed, primarily investment grade, fixed income portfolios that include debt instruments issued by the U.S. Government and its agencies, quasi-government agencies, U.S. corporations and any other public or private U.S. corporation whose debt security is regulated by the Securities and Exchange Commission (including Eurobonds and quasi or sovereign debt). Assets are diversified across sectors, industries, credit quality and duration, and up to 30 percent may be opportunistically invested based on changes in the investment landscape that may improve diversification, reduce risk or enhance return. As of June 30, 2017, the CFIF structure approximated 41.0 percent invested in Treasury/agency securities, 21.9 percent in corporate securities, 5.5 percent in mortgage-backed securities, 3.3 percent in asset-backed securities, and 28.3 percent in cash equivalents and other net assets. The benchmark for CFIF is the Barclays U.S. Aggregate Bond Index.

The ILBF consists of externally managed fixed income portfolios containing domestic and foreign developed market sovereign bonds. These government bonds are primarily inflation-linked securities. Inflation linked bonds offer protection against inflation and contribute to overall portfolio diversification. As of June 30, 2017, the ILBF structure was comprised of securities from the following countries or regions: 41.2 percent in the U.S., 18.7 percent in the U.K., 17.2 percent in the Eurozone, 10.4 percent in Australia and New Zealand, 3.9 percent in Mexico and 8.6 percent in other countries and cash equivalents. The benchmark for ILBF is the Barclays World Government Inflation-Linked Bond Index.

The EMDF consists of externally managed fixed income portfolios that contain debt instruments issued by governments and companies located in emerging countries as defined by the benchmark and The World Bank. The benchmark for EMDF is the J.P. Morgan Emerging Markets Bond Index Global Diversified/J.P. Morgan Government Bond Index - Emerging Markets Global Diversified (50 percent/50 percent). As of June 30, 2017, the EMDF structure approximated 35.9 percent invested in Latin America, 31.2 percent in Europe, 16.4 percent in Asia, 9.2 percent in Africa, 4.4 percent in the Middle East and 2.9 percent in cash equivalents and other net assets. The benchmark accounts for U.S. dollar-denominated debt and for debt issued in local currencies. The local currency debt is not hedged as the foreign currency is considered an additional source of alpha, or return in excess of that predicted by its benchmark.

The HYDF consists of externally managed fixed income portfolios that include debt instruments rated below investment grade by a nationally recognized rating agency service. The assets are diversified by sector, industry, credit quality and duration. The majority of the bonds are U.S. dollar-denominated. As of June 30, 2017, the HYDF structure approximated 81.8 percent invested in corporate securities, 2.7 percent in Treasury securities, and 15.5 percent in cash equivalents and other net assets. The benchmark for HYDF is the Citigroup U. S. High Yield Market Capped Index.

### **Liquidity Fund**

The Liquidity Fund (LF) consists of externally managed fixed income portfolios intended to provide a liquid source of funds for investment operations and earn a return greater than money market instruments, with minimal exposure to risk of principal. While the majority of the LF is invested in money market instruments, there are allocations to intermediate maturities, developed market sovereign bonds and emerging market currencies. As of June 30, 2017, the LF structure approximated 55.8 percent invested in money market securities, 30.1 percent in short duration bond securities, and 14.1 percent in international sovereign bonds and currencies. The benchmark for the LF is the one month London Interbank Offered Rate (LIBOR) Index.

### **Real Estate**

The Real Estate Fund (REF) is the vehicle by which the CRPTF invests in the real estate asset class and may consist of a number of different investment strategies and investment vehicles, including externally managed commingled funds, open-end funds, separate accounts, and publicly traded real estate securities. The REF invests in real estate properties and mortgages and is designed to dampen the volatility of overall returns through diversification and to generate attractive risk-adjusted rates of return. The REF will invest in the following: core strategies; value added strategies (investments involving efforts to increase property value through repositioning, development and redevelopment); opportunistic strategies (strategies that target niche opportunities, market inefficiencies, or special

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

purpose markets); and publicly traded securities (primarily Real Estate Investment Trusts and Real Estate Operating Companies). Leverage at the aggregate of the REF is limited to 60 percent of REF's total valuation. These investments also adhere to the Responsible Contractor Policy. As of June 30, 2017, the REF structure was approximately 60.4 percent invested in core, 22.1 percent in value-added, 13.7 percent in opportunistic and 3.8 percent in cash equivalents and other net assets. The benchmark for REF is the National Council of Real Estate Investment Fiduciaries National Property Index (NCREIF-NPI), lagged by one quarter

### **Private Investments**

The Private Investment Fund (PIF) is the vehicle used to invest in private equity. PIF investments generally are made in externally managed limited partnerships or through separate accounts that focus on private investments. These vehicles include investments in both venture capital and corporate finance investment strategies. Venture capital typically involves equity capital invested in young or development stage companies, and may include start-up, early, mid or late-stage companies. Corporate finance typically involves equity and debt capital invested in growth, mature or distressed stage companies, often through the financing of acquisitions, spin-offs, mergers or changes in capitalization. As of June 30, 2017, the PIF structure was approximately 69 percent invested in Corporate Finance, 21 percent in Venture, and 11 percent in cash equivalents and other net assets. The benchmark for PIF is the Standard & Poor's 500 Index (S&P 500).

### **Alternative Investments**

The Alternative Investment Fund (AIF) invests in strategies that offer the potential to enhance return and/or reduce risk. The AIF provides a vehicle for investment in portfolio strategies which are not easily classified, categorized, or described in other CIFs. Hybrid strategies which contain multiple asset classes are also considered part of the opportunity set. As of June 30, 2017, the AIF structure was approximately 84.7 percent invested in hedge fund of funds, 6.1 percent in real assets, 0.5 percent in opportunistic strategies, and 8.7 percent in cash equivalents and other net assets. AIF's benchmark is the 90-day Treasury Bill.

### **Securities Lending**

The CRPTF maintains a securities lending program designed to provide incremental risk adjusted returns. This program involves the lending of portfolio securities to broker/dealers in return for payment. Each loan is secured by collateral valued slightly in excess of the market value of the loaned securities. To further mitigate the risks of securities lending transactions, the CRPTF's securities lending bank carefully monitors the credit ratings of each counter-party and overall collateral levels.

Deutsche Bank was responsible for marketing the program, lending the securities, and obtaining adequate collateral during Fiscal Year 2017. As of June 30, 2017, securities with a market value of approximately \$2.0 billion had been loaned against collateral of approximately \$2.0 billion. Income generated by securities lending totaled \$14.2 million for the fiscal year.

## **The Year in Review**

### **Total Fund Performance**

For the fiscal year ending June 30, 2017, the CRPTF achieved an annual total return of 14.2 percent, net of all fees and expenses. The three largest pension plans, the Teachers' Retirement Fund, the State Employees' Retirement Fund, and the Connecticut Municipal Employees' Retirement Fund -- which represent 98 percent of total assets -- returned 14.4 percent, 14.3 percent and 13.1 percent and outperformed their benchmarks by 114, 115 and 98 basis points, respectively. In addition, the plans outperformed their actuarial assumed rates of return of 8.0 percent, 6.9 percent and 8.0 percent, respectively. The CIFs' investment performance for Fiscal Year 2017 added \$3.3 billion of market value to pension assets and every CIF posted positive returns. After paying fees and expenses, including \$793 million of benefit payments in excess of contribution receipts, the CIFs ended the fiscal year with assets of \$32.5 billion.

The DMISF returned 24.8 percent, outperforming its benchmark return of 22.4 percent. Developed international markets benefited from improving macroeconomic trends, continued European central bank

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accommodative monetary policies, and election results across many countries. For the trailing three-, five- and seven-year periods, the DMISF compounded returns, net of all fees and expenses, were 5.3 percent, 11.9 percent and 9.9 percent, respectively.

The EMISF returned 23.0 percent, outperforming its benchmark return of 22.8 percent. Strong performance in emerging market equities during the year was primarily due to a steady recovery in global growth contributing positively to corporate earnings. For the trailing three-, five- and seven-year periods, the EMISF compounded returns, net of all fees and expenses, were 2.1 percent, 4.1 percent and 4.4 percent, respectively.

The MEF returned 19.3 percent, outperforming its benchmark return of 18.5 percent. Much like developed and emerging market equities, U.S. equity performance during the year was driven by global growth that led to an increase in corporate earnings. In addition, the anticipation for fiscal policy, regulatory and tax changes were positive tailwinds for the asset class. For the trailing three-, five- and seven-year periods, the MEF compounded returns, net of all fees and expenses, were 9.2 percent, 14.6 percent and 15.2 percent, respectively.

The HYDF returned 12.6 percent, outperforming its benchmark return of 12.1 percent. Strong demand from investors combined with lack of quality supply, improved commodity prices, as well as positive global growth contributed to the positive returns for the year. For the trailing three-, five- and seven-year periods, the HYDF compounded returns, net of all fees and expenses, were 3.5 percent, 6.2 percent and 7.6 percent, respectively.

The PIF returned 11.0 percent, but underperformed its public market S&P 500 benchmark return of 17.9 percent. Utilizing the institutional standard for measuring private equity performance, Internal Rate of Return (IRR), PIF generated a net IRR of 14.4 percent. While the market for private equity and venture capital-backed exits was down from the prior fiscal year, the PIF portfolio continued to generate positive cash flow with investment distributions exceeding contributions by \$269 million for the year. For the trailing three-, five- and seven-year periods, the PIF compounded returns, net of all fees and expenses, were 11.3 percent, 11.9 percent and 12.1 percent, respectively.

The EMD returned 9.1 percent, outperforming its blended benchmark return of 6.3 percent. The stabilization of commodity prices combined with favorable economic conditions in emerging market countries has been supportive for the EMD asset class during the year. In addition, the rise of the U.S. dollar versus foreign currencies also has had a significant impact. For the trailing three-, five- and seven-year periods, the EMD compounded returns, net of all fees and expenses, were 2.3 percent, 3.1 percent and 5.1 percent, respectively.

The AIF, which invests in hedge funds, real assets and other opportunistic investments, returned 8.5 percent, outperforming its 90-day T-Bill benchmark return of 0.5 percent. Gains in equity sensitive hedge fund strategies such as equity long/short and event driven funds were the primary driver of returns as the public equities markets rallied. For the trailing three- and five-year periods, the AIF compounded returns, net of all fees and expenses, were 2.2 percent and 3.9 percent, respectively.

The REF returned 7.4 percent, slightly outperforming its benchmark return of 7.3 percent. Performance in open end core and core plus funds was very strong during the year and recent commitments to a number of new value add and opportunistic strategies has been accretive to the fund. For the trailing three-, five- and seven-year periods, the REF compounded returns, net of all fees and expenses, were 10.6 percent, 10.5 percent and 10.8 percent, respectively.

The CFIF returned 1.9 percent, outperforming its benchmark return of -0.3 percent. Corporate bonds performed well during the year, however, U.S. Treasury bonds lost value as interest rate yields across all time periods increased. The Federal Reserve implemented three rate hikes during the fiscal year. For the trailing three-, five- and seven-year periods, the CFIF compounded returns, net of all fees and expenses, were 2.4 percent, 2.3 percent and 3.3 percent, respectively.

The LF returned 1.0 percent, outperforming its benchmark return of 0.7 percent. Exposure to corporate securities benefited the LF during the year offset by increases in short term interest rates. For the trailing three-, five- and seven-year periods, the LF compounded returns, net of all fees and

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expenses, were 0.2 percent, 0.4 percent and 0.4 percent, respectively.

The ILBF returned 0.7 percent, underperforming its benchmark return of 0.8 percent. The expectation that global inflation was going to increase during the year did not occur and this was the primary reason for the low performance of the ILBF. For the trailing three-, five- and seven-year periods, the ILBF compounded returns, net of all fees and expenses, were 0.0 percent, -0.1 percent and 2.6 percent, respectively.

### 2017 Management Initiatives

The continued implementation in Fiscal Year 2017 of the CRPTF investment pacing plans established for real estate, alternative investment and private equity opportunities led to a total of \$925 million of new investment capital. Nine investment commitments totaling \$775 million were awarded to the Private Investment Fund and \$150 million was awarded to three Real Estate Fund managers. Also during the fiscal year, Treasurer Nappier continued funding her in-state opportunistic investment mandate, in the Private Investment Fund. In the CRPTF public market portfolios, the Treasurer hired five investment managers for the High Yield Debt Fund mandate; the assignment was effected through a competitive search. Additionally, Treasurer Nappier selected two consulting firms for general investment consulting services and Connecticut Higher Education Trust oversight duties, after a competitive search.

The Connecticut Horizon Fund (CHF), first funded in 2005, is an aggregate of public and private market funds. The CHF is a \$1 billion-plus fund-of-funds public market program and additionally includes a \$155 million private equity allocation and a \$170 million alternative investment allocation designed to provide the Office of the State Treasurer access to a wider number of women-owned, minority-owned, Connecticut-based and emerging firms. As of June 30, 2017, the public market program totaled 4 managers and 36 sub-managers. Emerging firms represent the largest allocation of total assets at 72 percent; minority-owned firms represent 42 percent; women-owned firms followed with 28 percent and Connecticut-based firms were 19 percent of total assets. Additionally, there were 3 private equity managers and 20 sub-managers; including 8 minority-owned, 3 emerging strategies, 1 women-owned and 8 Connecticut-based. In the separately managed Fund-of-Hedge Fund mandate sleeve within the AIF, there were 2 managers and 25 sub-managers; the breakdown includes 21 emerging strategies, 13 minority-owned firms, 7 Connecticut-based and 5 women-owned firms.

Expansion of the diversity of firms with which PFM does business continued during Fiscal Year 2017; overall, 35 minority-owned, women-owned, Connecticut-based and emerging firms, comprised 26.3 percent of the firms doing business with the division. These firms earned fees of \$37.7 million, representing over 39 percent of all fees paid by the division.

### Corporate Governance

In carrying out her fiduciary responsibilities, and in conformance with state law, the Treasurer considers the financial implications for long-term shareholder value of a portfolio company's environmental, social and governance corporate structure and practices. The primary method the Treasurer's Office utilizes to address corporate governance at publicly-traded companies in which the CRPTF invests is through proxy voting. These companies hold annual general meetings at which shareholders vote to approve or reject proposals presented by the company's management or by shareholders on significant transactions or activities at a company. The Treasurer's Office uses comprehensive guidelines approved by the independent Investment Advisory Council when casting proxy votes at these meetings. The guidelines, incorporate best practices on corporate structure, administration and control to reduce risk, encourage sustainability and increase opportunities for growth.

In Fiscal Year 2017, the Treasury filed or co-filed shareholder resolutions on behalf of the CRPTF at 14 companies on issues related to climate change, board diversity, access to the proxy, board declassification and independent chairs. In addition, Treasury staff held discussions with corporate leaders of more than two dozen companies about shareholder concerns. To support its efforts, the Treasury worked with a broad cross section of investors representing public pension funds, investment firms, labor funds and faith-based investors.

There were a number of noteworthy votes during the fiscal year. The CRPTF was lead-filer on a resolution filed at Vista Outdoor, Inc. which called for the annual election of directors (also known as board declassification). The resolution received support from 94 percent of shareholders – making it one of the most

successful votes of the 2017 proxy season.

There were also groundbreaking resolutions filed with oil and gas companies on climate change: the CRPTF garnered majority support from shareholders on resolutions filed at Occidental Petroleum (67%) -- the first such successful vote at a U.S. oil company -- and Exxon Mobil (62%). These companies were asked to prepare a report for shareholders assessing the impact on the company of technological advances and government policies to limit global warming to below 2 degrees Celsius.

Progress was also made as a result of engagements without formal shareholder votes. In the case of Wells Fargo, the Treasury filed a resolution calling for a change in the company's corporate bylaws to ensure an independent non-executive board chair, following news that the bank paid \$185 million in penalties and restitution associated with opening two million unauthorized deposit and credit card accounts. Wells Fargo agreed, and the Treasury withdrew its resolution.

The Treasury also actively promoted board diversity with FleetCor Technologies and Chimera Investment, and ultimately withdrew shareholder resolutions after successful engagements. In the case of FleetCor, the company added a woman to its board; and with Chimera, it agreed to amend its corporate governance guidelines and nominating charter to incorporate diversity considerations when selecting board nominees.

Resolutions filed on behalf of the CRPTF are consistent with Connecticut's proxy voting guidelines. Copies of the CRPTF's proxy voting guidelines and a report of proxy votes cast are available on the Treasury's website, [www.ott.ct.gov/pension\\_guidelines.html](http://www.ott.ct.gov/pension_guidelines.html).

### **Investment Restrictions**

The Treasurer's Office is charged with administering three laws that authorize investment restrictions on companies doing business in Northern Ireland, Sudan and Iran. Connecticut's MacBride law, set forth in Section 3-13h of the Connecticut General Statutes, is based on the MacBride Principles, which are a corporate code of conduct for companies doing business in Northern Ireland designed to address religious discrimination in the workplace. During Fiscal Year 2017, the CRPTF restricted its managers from investing in two companies for failure to adopt these principles: Domino's Pizza Inc. and Yum Brands, Inc

The Treasurer's Office monitored companies doing business in Sudan pursuant to Section 3-21e of the Connecticut General Statutes. The Sudan law, adopted in 2006, authorizes the Treasurer to engage companies doing business in Sudan and potentially divest holdings in those companies if their business is contributing to the government's perpetuation of genocide in Sudan. As of the end of Fiscal Year 2017, the Treasurer's Office prohibited direct investment in eighteen companies: Bharat Heavy Electricals Ltd.; China North Industries Group; China North Industries Corporation a.k.a. NORINCO; NORINCO International Cooperation Ltd.; North Huajin Chemical Industries Co. Ltd.; North Navigation Control Technology Co. Ltd.; China Petroleum and Chemical Corp.; CNPC (Hong Kong); Dongfeng Motor Corporation; Jiangxi Hongdu Aviation Industry Ltd.; Oil and Natural Gas Corp.; Mangalore Refinery and Petrochemicals Ltd.; ONGC Nile Ganga BV, Amsterdam; ONGC Videsh Limited; ONGC Videsh Vankorneft; PetroChina Co. Ltd.; Petronas Capital Ltd.; and Sinopec Shanghai Petrochemical Corp.

Connecticut's Iran law, Connecticut General Statutes Section 3-13g, authorizes the Treasurer to engage with companies doing business in Iran, and potentially divest holdings in such companies if she determines such companies, by their business activities, may be contributing to the Iranian government's development of its nuclear program and its support of global terrorism. As of the end of Fiscal Year 2017, the Treasurer's Office prohibited direct investment in fourteen companies: Bongaigaon Refinery & Petrochemicals; Ca La Electricidad de Caracas; Chennai Petroleum Corp.; China Bluechemical; China National Offshore Oil Corporation; China Oilfield Services Ltd.; CNOOC; Daelim Industrial Co. Ltd.; IBP Co. Ltd.; Indian Oil Corporation Ltd.; Lanka loc Plc; Offshore Oil Engineering Co.; Oil India Ltd.; and Petroleos de Venezuela S.A..

### **Asset Recovery and Loss Prevention**

The Treasurer's Legal Unit works to manage risk by limiting opportunities for loss due to the malfeasance of others. Extensive pre-contracting due diligence helps the Office of the Treasurer select the best available vendors and suitable products to meet the needs of the Office. Careful contract negotiation, coupled with periodic review, development and implementation of best practice contract language, helps to ensure clarity

with respect to the obligations of the Office of the Treasurer and its vendors and investment partners. The Office maintains regular contact with other similar governmental offices and institutional investors, sharing ideas for enhancement of contract language, frequently sharing advice with counterparts in other states.

The Office of the Treasurer deters malfeasance with its reputation for active and diligent pursuit of all opportunities to recover assets lost due to the misfeasance or malfeasance of others.

The Office of the Treasurer believes that most disputes can be resolved through dialogue designed to enforce contract terms or clarify misunderstanding. The Office is, however, prepared, when necessary, to pursue judicial solutions where negotiation is unsuccessful. Although very limited as a percentage of all investments, the Office, like all other investors, experiences losses due to corporate malfeasance. In these instances, the Office believes that litigation managed by investors is more effectively negotiated, efficiently litigated and achieves larger settlements for the benefit of all investors. As such, the Office is committed to taking on its fair share of the management responsibility of such litigation and will consider making application to serve as lead plaintiff in class action litigation where appropriate. From time to time, the Office has used litigation to encourage corporate governance enhancements. Although rare, the Office has filed individual and group actions to pursue specific rights where disputing parties are unwilling or unable to reach an extra-judicial conclusion. Since the U.S. Supreme Court's 2010 decision in *Morrison v. National Australia Bank*, the Office has experienced an increase in its participation in group actions as a means of seeking recovery of lost assets. The Office works with other institutional investors to collaborate and monitor Morrison-related matters.

### ***Class Action Securities Litigation***

The Combined Investment Funds recovered \$1,658,628 million from class action settlements in the fiscal year ended June 30, 2017. The Office continues to closely monitor opportunities to recover lost assets through participation in class action litigation. As of the close of the fiscal year, the class action filing portion of the asset recovery program has exceeded \$50 million since inception.

The Office of the Treasurer, as the Trustee for the CRPTF, served as lead plaintiff in the matter known as *In Re Amgen, Inc. Securities Litigation*, filed in the federal district court for the Southern District of California. The case, settled for \$95 million prior to the commencement of the trial. The court has approved the terms of the settlement and the claims filing process is underway.

### ***Corporate Governance Related Litigation***

Litigation has not been recommended for corporate governance matters in the 2017 fiscal year. The Office of the Treasurer has focused on engagement of companies to promote good corporate citizenship. The Office is judicious in its consideration of the merits of litigation.

### ***Other Litigation***

The Office of the Treasurer continues its participation in group action in Belgium adverse Fortis, N.A., France adverse Vivendi, S.A., Japan adverse Olympus, Denmark adverse O.W. Bunker, Germany adverse Volkswagen and Porsche and in Texas' state court adverse BP. The Fortis and Olympus matters have announced settlements, which are awaiting court approval and distribution of settlement proceeds. The Office evaluated the merits of joining other foreign group action during the fiscal year. Participation in foreign group action became necessary as the Supreme Court's decision in *Morrison* foreclosed all other avenues of recovery in matters of securities fraud.

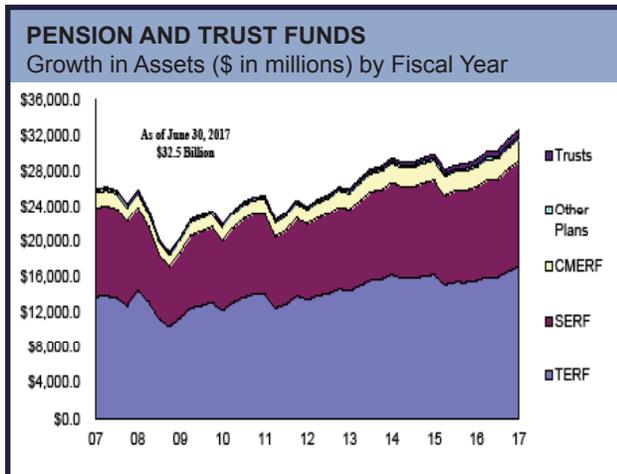
## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 1-1

PENSION AND TRUST FUNDS ASSET ALLOCATION												
Actual vs. Policy at June 30, 2017												
	TERF				SERF				CMERF			
	Actual	Target Policy	Lower Range	Upper Range	Actual	Target Policy	Lower Range	Upper Range	Actual	Target Policy	Lower Range	Upper Range
<b>U.S. EQUITY</b>												
Mutual Equity Fund (MEF)	22.3%	21.0%	17.0%	25.0%	22.2%	21.0%	17.0%	25.0%	16.1%	16.0%	13.0%	19.0%
<b>INTERNATIONAL EQUITY</b>												
Developed Market Intl Stock Fund (DMISF)	20.3%	18.0%	14.0%	22.0%	20.4%	18.0%	14.0%	22.0%	14.2%	14.0%	11.0%	17.0%
Emerging Market Intl Stock Fund (EMISF)	9.7%	9.0%	7.0%	11.0%	9.5%	9.0%	7.0%	11.0%	7.2%	7.0%	6.0%	8.0%
<b>REAL ESTATE</b>												
Real Estate Fund (REF)	7.0%	7.0%	5.0%	9.0%	6.9%	7.0%	5.0%	9.0%	7.0%	7.0%	5.0%	9.0%
<b>FIXED INCOME</b>												
Core Fixed Income Fund (CFIF)	6.7%	7.0%	6.0%	8.0%	7.4%	8.0%	6.0%	10.0%	7.9%	8.0%	6.0%	10.0%
Inflation Linked Bond Fund (ILBF)	3.5%	3.0%	2.0%	4.0%	5.1%	5.0%	4.0%	6.0%	4.9%	5.0%	4.0%	6.0%
Emerging Market Debt Fund (EMDF)	5.4%	5.0%	4.0%	6.0%	4.1%	4.0%	3.0%	5.0%	8.0%	8.0%	6.0%	10.0%
High Yield Debt Fund (HYDF)	5.7%	5.0%	4.0%	6.0%	5.4%	5.0%	4.0%	6.0%	13.9%	14.0%	11.0%	17.0%
Liquidity Fund (LF)*	5.2%	6.0%	5.0%	7.0%	3.4%	4.0%	3.0%	5.0%	2.8%	3.0%	2.0%	4.0%
<b>PRIVATE EQUITY</b>												
Private Investment Fund (PIF)	8.1%	11.0%	8.0%	14.0%	9.6%	11.0%	8.0%	14.0%	10.1%	10.0%	7.0%	13.0%
<b>ALTERNATIVE INVESTMENT</b>												
Alternative Investment Fund (AIF)	6.1%	8.0%	6.0%	10.0%	6.0%	8.0%	6.0%	10.0%	7.9%	8.0%	6.0%	10.0%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>			<b>100.0%</b>	<b>100.0%</b>			<b>100.0%</b>	<b>100.0%</b>		

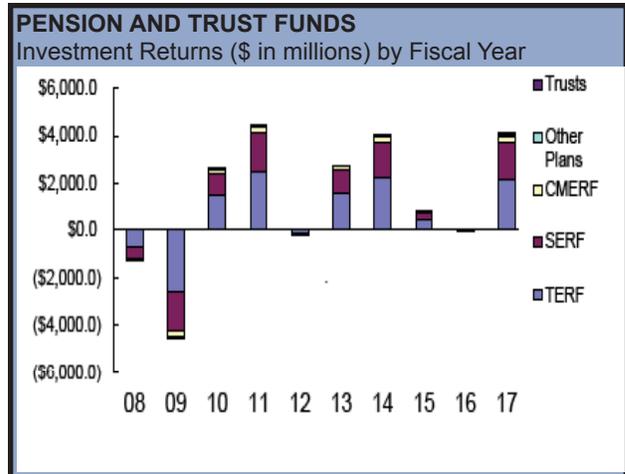
\*Additional LF balances are included in actual allocations of other investment funds.

Figure 1-2



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 1-3



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

# CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 1-4

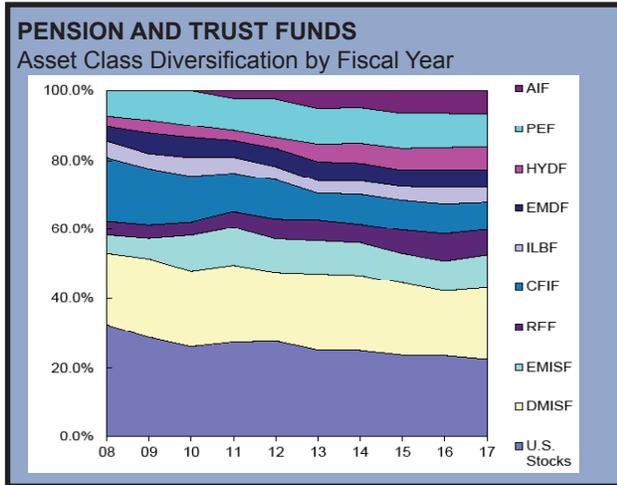
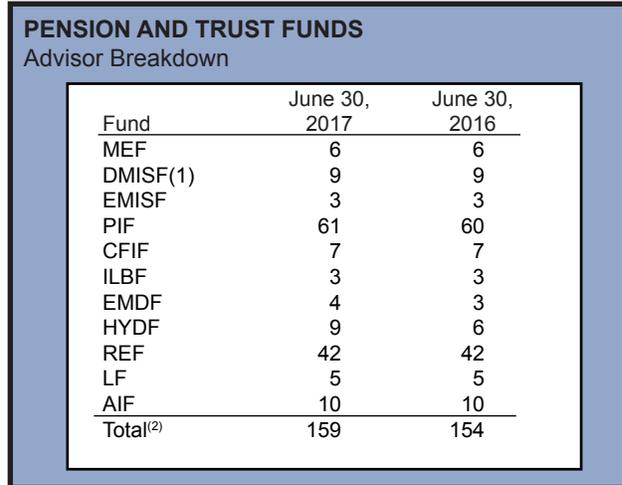
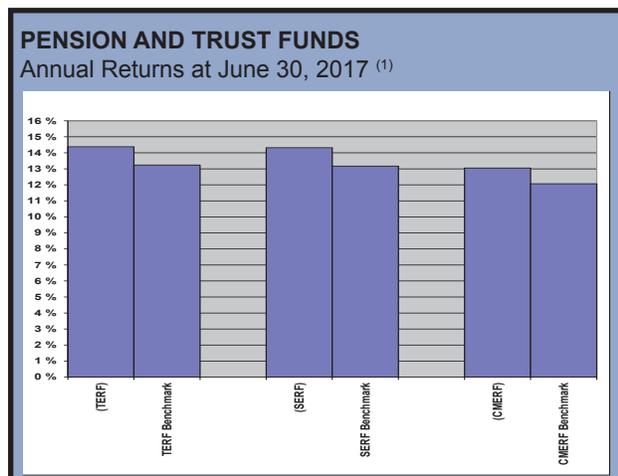


Figure 1-5



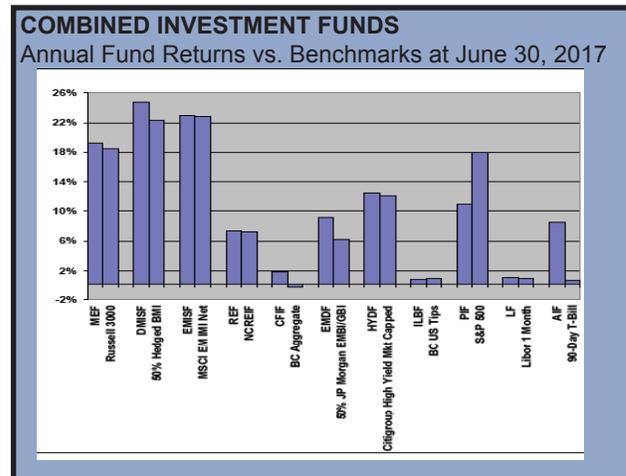
- (1) Does not include the Currency Overlay Manager.
- (2) Actual total advisors was 150 and 145, respectively when factoring in advisors across multiple funds. Private Investment partnerships with nonmaterial balances are not included.

Figure 1-6



- (1) Each Plan benchmark composite represents the Plan's policy allocation weights times each investment Fund's benchmark return.

Figure 1-7



**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**Combined Investment Funds Total Return Analysis (%)**

	Fiscal Years Ended June 30,					Annualized		
	2017	2016	2015	2014	2013	3 Years	5 Years	10 Years
<i>(Investment performance is calculated using a time-weighted rate of return based on the market rate of return.)</i>								
<b>PLANS</b>								
Teachers' Retirement Fund (TERF)	14.38	0.25	2.79	15.67	11.83	5.63	8.80	4.97
TERF Custom Benchmark	13.24	(0.06)	3.21	15.09	11.95	5.32	8.52	4.87
State Employees' Retirement Fund (SERF)	14.32	0.26	2.84	15.62	11.90	5.63	8.80	4.87
SERF Custom Benchmark	13.17	(0.01)	3.24	15.15	11.88	5.32	8.52	4.87
Connecticut Municipal Employees' Retirement Fund (CMERF)	13.05	1.15	2.57	13.58	9.60	5.46	7.86	4.73
CMERF Custom Benchmark	12.07	0.77	2.32	13.85	10.32	4.94	7.74	4.90
<u>U.S. Stocks</u>								
Mutual Equity Fund	19.26	1.75	7.32	25.28	21.15	9.20	14.60	6.71
Russell 3000 Index	18.51	2.14	7.29	25.22	21.46	9.10	14.59	7.26
<u>International Stocks</u>								
Developed Markets International Stock Fund	24.81	(7.09)	0.67	22.31	22.56	5.30	11.86	2.80
MSCI EAFE IMI 50% Hedged	22.41	(9.26)	3.79	21.24	21.31	4.85	11.14	2.25
Emerging Markets International Stock Fund	23.00	(7.15)	(6.93)	11.50	3.29	2.06	4.14	1.57
MSCI Emerging Market Investable Market Index	22.82	(12.16)	(4.41)	14.31	3.66	1.03	4.09	2.09
<u>Equity Commercial Real Estate</u>								
Real Estate Fund	7.38	11.51	12.93	10.66	10.26	10.58	10.53	2.18
NCREIF (1 Qtr. Lag)	7.27	11.84	12.72	11.18	10.52	10.58	10.69	6.72
<u>U.S. Fixed Income</u>								
Core Fixed Income Fund	1.89	3.46	1.85	4.28	(0.24)	2.40	2.25	4.31
Barclays Aggregate Bond Index	(0.31)	6.00	1.86	4.37	(0.69)	2.48	2.21	4.48
Emerging Market Debt	9.11	6.01	(7.57)	6.99	1.69	2.25	3.07	5.87
50% JP Morgan EMBI/50% JPM GBI EMBI	6.26	5.96	(7.72)	7.61	2.82	1.28	2.83	6.08
High Yield Debt	12.59	(0.31)	(1.31)	12.24	8.46	3.47	6.19	6.77
Citigroup High Yield Market Capped Index	12.09	0.82	(0.80)	11.25	9.05	3.88	6.33	7.17
Inflation Linked Bonds	0.66	2.29	(2.85)	4.17	(4.28)	0.01	(0.05)	4.30
Barclays World Gov't Inflation Linked Bond Index	0.81	2.76	(3.21)	4.44	(4.78)	0.09	(0.06)	4.10
(2) Commercial Mortgage Fun	N/A	N/A	0.25	10.17	0.88	N/A	N/A	N/A
Barclays Aggregate Bond Index	N/A	N/A	1.86	4.37	(0.69)	N/A	N/A	N/A
<u>Alternative Assets</u>								
Private Investment Fund	10.97	8.87	14.04	16.06	9.50	11.27	11.85	9.51
S & P 500	17.90	3.99	7.42	24.61	20.60	9.61	14.63	7.18
<u>Liquidity Fund</u>								
(1) Liquidity Fund	0.96	0.68	(1.07)	0.54	0.66	0.18	0.35	0.98
LIBOR 1 Month Index	0.72	0.32	0.17	0.17	0.21	0.40	0.32	0.80
<u>Alternative Investment Fund</u>								
90-Day T-Bill	8.51	(5.32)	3.98	6.63	6.39	2.22	3.92	N/A
90-Day T-Bill	0.49	0.19	0.02	0.05	0.11	0.23	0.17	N/A

(1) The Liquidity Fund includes all cash balances, including manager cash. However all fund returns still reflect cash balances.

# 2017 liquidity fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Liquidity Fund (LF) is to: (1) provide a liquid source of funds for investment operations and (2) earn a return greater than that of money market investments.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$2,919,442,572

**Performance Objective:** A net return that matches the benchmark, over rolling three to five year periods.

**Management Fees:** \$2,240,224

**Benchmark:** One Month London Interbank Offered Rate (LIBOR)

**Operating Expenses:** \$651,869

**Number of Advisors:** 5 external

**Expense Ratio:** 0.12%

## Description of the Fund

The Liquidity Fund is structured into three distinct tiers to balance the need for liquidity with the need for positive investment returns.

1. The first tier is the most active portion of the LF and requires the highest liquidity. Tier I funds are invested in high quality money market instruments, which are considered the most liquid short-term assets.
2. The second tier slightly extends duration and credit quality for a higher expected return than Tier I. Investments include money market instruments, Government and agency paper, and high quality corporate and other short duration fixed income securities.
3. Global exposure in the third tier of the LF provides diversification. Short-to-medium term high quality foreign government bonds are held in this tier, in addition to foreign currencies.

## Portfolio Characteristics

The Liquidity Fund investments include U.S. Treasury and government agency securities, commercial paper, certificates of deposit, repurchase agreements, asset-backed securities, mortgage-backed securities, domestic and foreign corporate bonds, foreign sovereign debt and currencies. (See Figure 2-4.) As of June 30, 2017, the average maturity of the LF was 475 days and the average quality rating was AA-2. (See Figure 2-5.)

## Market Review

Three month Treasury yields rose from a first quarter low of 18 basis points to end the fiscal year at 1.03 percent and Libor also moved higher. For fiscal year 2017, the 2-year Treasury yield rose 78 basis points to 1.36 percent while the 10-year Treasury yield rose 81 basis points to 2.28 percent. The two-year Treasury yield more than doubled since the shock of the U.K. Brexit vote in June 2016. After bottoming in July, Treasury yields rose steadily as investors anticipated the Federal Reserve rate hike and then rates spiked with the presidential election in November. The Fed increased overnight lending rates by 25 basis points on three occasions during the fiscal period, with the Fed Funds target range ending the fiscal year at 1.0 percent to 1.25 percent. Inflation in the U.S. remained benign and unemployment dropped to 4.3 percent, the lowest rate since 2001, both indications of a further strengthening economy. Increases in European consumer confidence and business expectations helped the Euro reach a 52-week high and European sovereign debt yields moved higher. During this period of rising rates, non-Treasury sectors outperformed due to their income advantage as well as a tightening of spreads. Performance for the year ending June 30, 2017 for the Bank of American Merrill Lynch 1-3 Year Treasury Index was negative 11 basis points. Sector performance within the 1-3 year maturities showed corporates, asset-backed, agency, and municipal securities outperforming with excess returns over Treasuries of 156, 121, 31 and 41 basis points, respectively. A majority of emerging market currencies appreciated between 5 percent and 10 percent against the U.S. dollar.

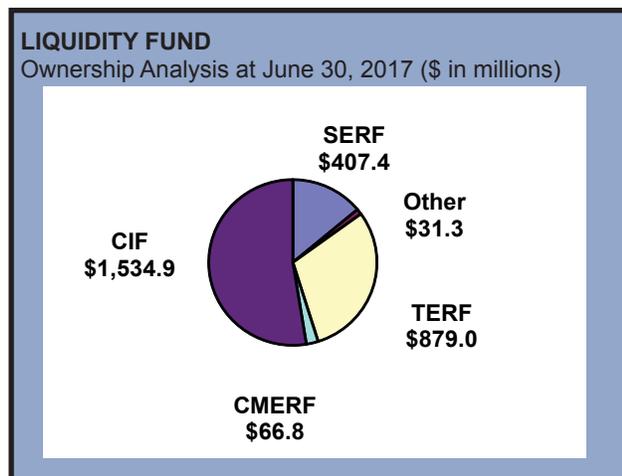
## Performance Summary

For the fiscal year ended June 30, 2017, the LF generated a return of .96 percent, outperforming one month LIBOR's return by 24 basis points. For the three- and five- year periods ending June 30th, the Fund returned 18 basis points and 35 basis points, versus 40 and 32 basis points, respectively, for each time period for one month LIBOR. The cumulative total returns of the LF for the three-, five- and ten-year periods were .55 percent, 1.75 percent, and 10.27 percent, respectively. (See Figure 2-6.)

## Risk Profile

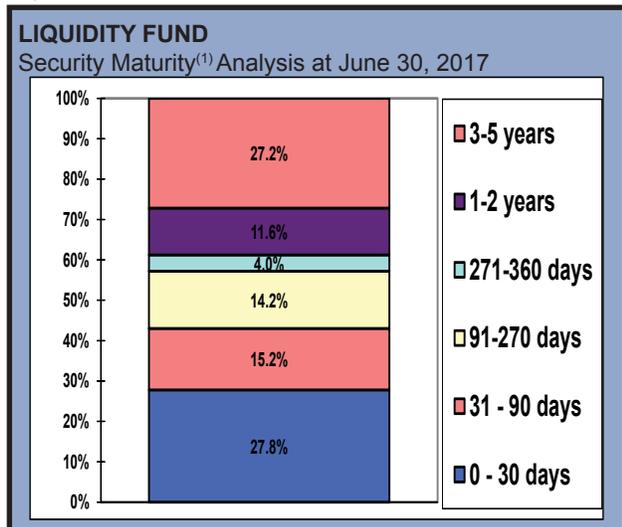
Given the LF's investment policies and objectives, the Fund is exposed to some risks. Interest rate risk is somewhat mitigated by the Fund's 475 days average maturity and credit risk is moderated by investments being concentrated in high quality securities. Other potential risks include currency risk, reinvestment risk and inflation risk. Counter party risk is managed by dealing only with reputable, high quality firms.

Figure 2-1



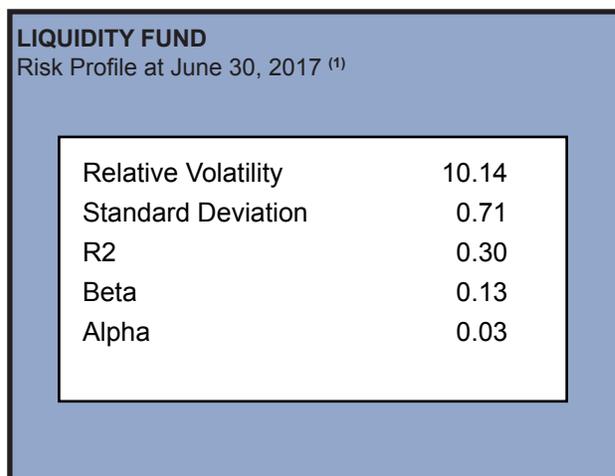
TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund  
CIF - Combined Investment Funds

Figure 2-3



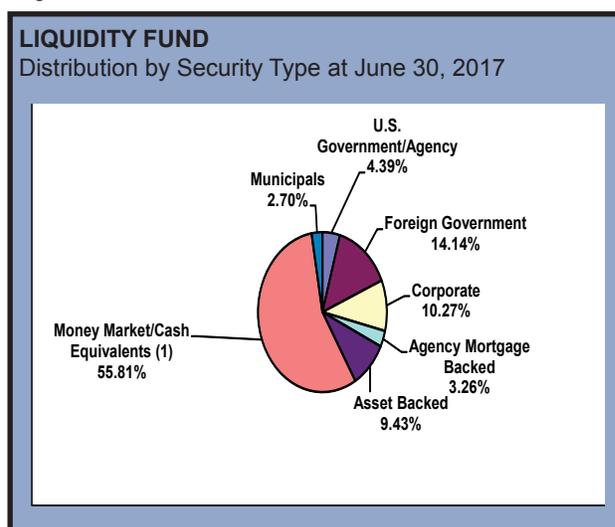
(1) Or Interest Rate Reset Period.

Figure 2-2



(1) Based upon returns over the last five years.

Figure 2-4



(1) Includes Commercial Paper, Certificates of Deposit and Repurchase Agreements.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 2-5

LIQUIDITY FUND Comprehensive Profile				
Date	Number of Issues	Yield <sup>(1)</sup>	Average Maturity	Average Quality
2017	788	0.96%	475 days	AA-2
2016	776	0.68%	387 days	AA-2
2015	742	-1.07%	347 days	AA-2
2014	767	0.54%	343 days	AA-2
2013	495	0.66%	631 days	AA+
2012	329	-0.14%	482 days	AA-2
2011	337	1.20%	321 days	AA-1
2010	244	0.98%	202 days	AA-1
2009	162	1.54%	36 days	AA-2
2008	71	4.59%	39 days	A-1+/AA+

(1) Represents annual total return of the Fund for year ended June 30.

Figure 2-6

	1 YR	3 YRS	5 YRS	10 YRS
<b>LIQUIDITY FUND</b> Periods ending June 30, 2017				
<b>Compounded, Annual Total Return (%)</b>				
LF	0.96	0.18	0.35	0.98
LIBOR 1 MONTH INDEX	0.72	0.40	0.32	0.80
<b>Cumulative Total Return (%)</b>				
LF	0.96	0.55	1.75	10.27
LIBOR 1 MONTH INDEX	0.72	1.20	1.59	8.25

Figure 2-7

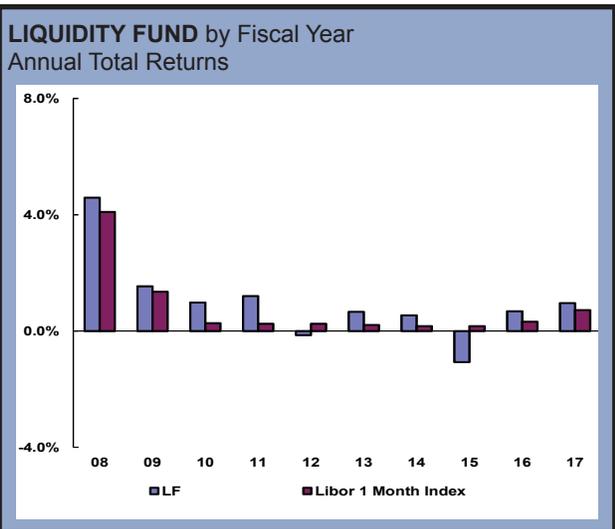


Figure 2-9

LIQUIDITY FUND Investment Advisors at June 30, 2017		
Investment Advisors	Net Asset Value	% of Fund
State Street Global Advisors	\$1,542,288,102	52.83%
Payden & Rygel	548,314,753	18.78%
PIMCO	431,429,437	14.78%
Lazard	99,657,597	3.41%
Colchester Global Investors Ltd.	297,752,345	10.20%
Other (1)	338	0.00%
<b>Total LF</b>	<b>\$2,919,442,572</b>	<b>100.00%</b>

(1) Other Represents cash equivalents, terminated advisors and other assets.

Figure 2-8

LIQUIDITY FUND Investment Tiers at June 30, 2017		
Investments	Net Asset Value	% of Fund
Tier I	\$1,542,288,102	52.83%
Tier II	979,744,528	33.56%
Tier III	397,409,942	13.61%
<b>Total LF</b>	<b>\$2,919,442,572</b>	<b>100.00%</b>

Figure 2-10

LIQUIDITY FUND Ten Largest Holdings* at June 30, 2017				
Security Name	Maturity Date	Market Value	%	
CITIGROUP GLOBAL TRI REPO	7/3/2017	\$ 79,000,000	2.70%	
FEDERAL NATL MTG ASSN DISC	7/3/2017	55,995,567	1.92%	
WAL MART STORES DISC	7/10/2017	39,988,111	1.37%	
U S TREASURY NOTE	12/31/2018	36,072,120	1.23%	
MERRILL LYNCH TRI REPO	7/3/2017	33,000,000	1.13%	
KELLS FDG LLC 144A DISC	9/12/2017	29,901,667	1.02%	
REPUBLIC OF POLAND GVMT	7/25/2019	25,889,189	0.89%	
U S TREASURY NOTE	2/15/2018	25,665,985	0.88%	
NEW ZEALAND GVMT BO REGS	3/15/2019	25,546,107	0.87%	
NATIONAL SEC CORP DISC	7/13/2017	24,988,229	0.86%	
<b>Top Ten</b>		<b>\$376,046,975</b>	<b>12.87%</b>	

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017 alternative investment fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Alternative Investment Fund (AIF) is to invest CRPTF assets in investment strategies that offer the potential to enhance overall portfolio expected returns, reduce risk, or a combination of both in a variety of market conditions. Additionally, the AIF is expected to provide diversification benefits and a degree of inflation protection. The AIF serves as a vehicle for strategies that are not easily classified, categorized, or described in the other Combined Investment Funds. Hybrid strategies that cut across multiple asset classes are also considered part of the opportunity set.

**Date of Inception:** February 1, 2011

**Total Net Position:** \$2,027,956,500

**Performance Objective:** To outperform the 90 day T-Bill Rate ("T-Bills") by 300 basis points net of all expenses.

**Expensed Management Fees:** \$0

**Benchmark:** 90 Day T-Bills

**Capitalized and Netted Fees:** \$11,042,680

**Number of Partnerships:** 10 external

**Operating Expenses:** \$995,988

**Expense Ratio:** 0.05%

\* Expense ratio is calculated using the management fee and operating expense totals.

## Description of the Fund

The AIF represents a unique investment exposure that differs from traditional, long-only funds. The strategies employed within the AIF represent a broad set of investment styles, mandates and products that focus primarily on the liquid equity, fixed income and derivatives markets, and may also include allocations to non-traditional investments, including illiquid securities and investments. AIF strategies may target absolute returns without reference to a traditional benchmark using a wide range of investment tools such as short-selling, leverage, derivatives and complex securities.

The AIF may invest in strategies that do not fit the constraints of existing Combined Investment Funds. Such strategies could include, but are not limited to, absolute return strategies, managed futures strategies, commodities, real assets and other alternative asset strategies.

The AIF mandate is executed through external investment advisors and money managers who actively manage fund of funds portfolios or through direct investments in single manager funds.

## Portfolio Characteristics

As of June 30, 2017, the AIF was invested in six absolute return oriented fund of hedge funds, including two fund of funds participating in the Connecticut Horizon Fund program, with a combined market value of \$1.85 billion. The portfolio also includes three real asset oriented private equity style funds that invest in energy infrastructure with a combined market value of \$122.7 million and a European distressed credit partnership with a market value of \$10.7 million.

## Market Review

The hedge fund industry experienced improved performance for the trailing 12 months ending June 30, 2017 driven by gains in equity sensitive strategies such as equity long/short and event driven funds as equity markets rallied. From a sector perspective, financials, and healthcare continued to drive positive performance and from a geographic perspective international exposure (i.e., Asia and Emerging Markets) out-performed U.S. exposure. With improved performance has come improved investor sentiment and positive flows into the market segment with investors refocusing on more traditional hedge fund products and concentrating their strategy decisions.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

- Equity long/short managers benefited from positive equity beta, as stocks have rallied strongly since the elections in Nov 2016, and more alpha generation opportunities as dispersion in returns across stocks widened during 2017.
- Event driven managers, which lagged in 2016, performed well in 2017 due to an increase in M&A activity and stronger credit performance.
- Credit/distressed managers benefited from tighter yield spreads in 2017, particularly within the energy and metals/mining sectors with the retail sector continuing to lag.
- Market neutral strategies posted modest performance; low and stable volatility made it a challenge to managers that are long volatility. Fixed income relative value and statistical arbitrage managers also performed better.
- Convertible arbitrage managers posted solid returns during the fiscal year due to strong equity and credit markets.

Real asset investment activity rebounded during the first half of calendar year 2017 given the stable commodity price environment combined with profitable drilling and production of crude oil in the Permian Basin and mid-to-large size energy companies rationalizing non-core assets. During this same period energy IPO activity among upstream, midstream, and downstream companies rebounded from the multi-year low that occurred in 2016. In total, \$4.2 billion of IPO issuance occurred during the first half of 2017 compared to a total of \$1.2 billion in all of 2016.

### Performance Summary

For the fiscal year ended June 30, 2017, the AIF generated a return of 8.51 percent, net of all expenses, which outperformed the 90-day Treasury bill return of 0.49 percent by 802 basis points. As of June 30, 2017, the trailing three- and five-year net annualized returns of the AIF were 2.22 percent and 3.92 percent, respectively. These returns outperformed the compounded 90-day Treasury bill return of 0.23 percent and 0.17 percent by 199 and 375 basis points, respectively.

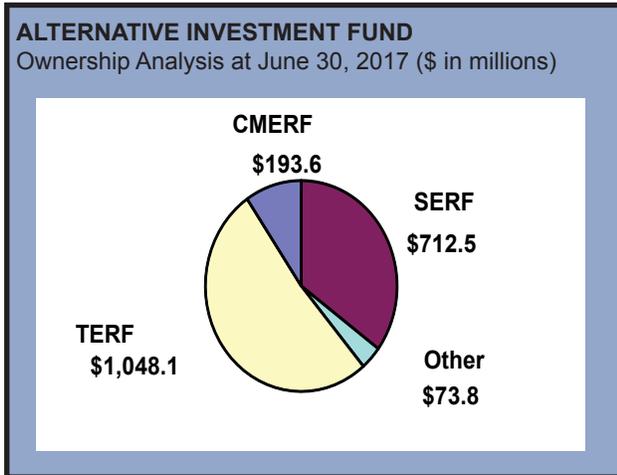
Within the AIF, the fund of hedge funds portfolio returned 8.45 percent as of June 30, 2017. The consolidated hedge fund portfolios outperformed their fund of funds peer group (Hedge Fund Research, Inc. Fund of Funds Composite Index), which increased by 6.29 percent over the same period. It outperformed the broader Hedge Fund Research, Inc. Fund Weighted Composite Index, which increased by 7.98 percent. Within the AIF, the real assets portfolio returned 22.15 percent as of June 30, 2017.

### Risk Profile

Given the AIF's investment policy and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, risks attendant with alternative investments, such as management, operations and product risk, overall liquidity risk, leverage, short selling, derivative use, and transparency. Assuming these risks as part of a prudent, total portfolio strategy assists the AIF in achieving its investment objectives.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 3-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 3-2

**ALTERNATIVE INVESTMENT FUND**  
Periods ending June 30, 2017

	1 YR	3 YRS	5 YRS
<b>Compounded, Annual Total Return (%)</b>			
AIF	8.51	2.22	3.92
90 Day T-Bill	0.49	0.23	0.17
<b>Cumulative Total Return (%)</b>			
AIF	8.51	6.82	21.17
90 Day T-Bill	0.49	0.70	0.87

Figure 3-3

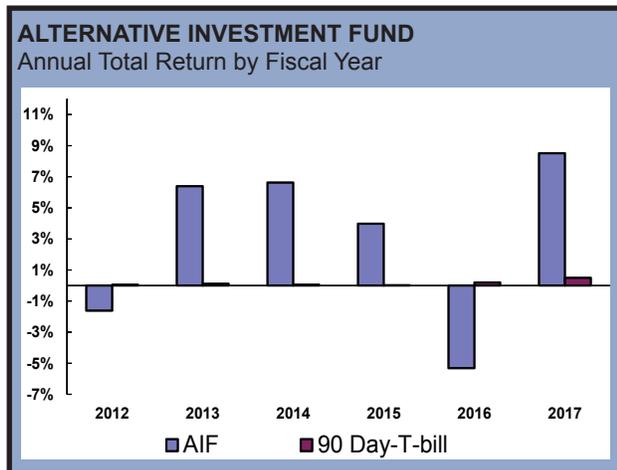


Figure 3-5

**ALTERNATIVE INVESTMENT FUND**  
Investment Advisors at June 30, 2017

Investment Advisor	Net Asset Value	% of Fund
Arclight Energy Partners Fund V	\$36,994,556	1.82%
Arclight VI	49,413,209	2.44%
EIG Energy Fund XV LP	36,262,167	1.79%
Marathon European Credit Opportunity	10,702,910	0.53%
Prudence Crandall I Permal LP	608,296,503	30.00%
Prudence Crandall II Prisma LP	319,006,097	15.73%
Prudence Crandall III Rock Creek LP	309,983,386	15.28%
Prudence Crandall IV K2 LP	305,672,773	15.07%
THOMAS WELLES FUND I	87,595,523	4.32%
THOMAS WELLES FUND II	87,245,454	4.30%
<b>Other <sup>(1)</sup></b>	<b>176,783,922</b>	<b>8.72%</b>
<b>Total</b>	<b>\$2,027,956,500</b>	<b>100.00%</b>

(1) Other represents cash equivalents and other net assets.

Figure 3-4

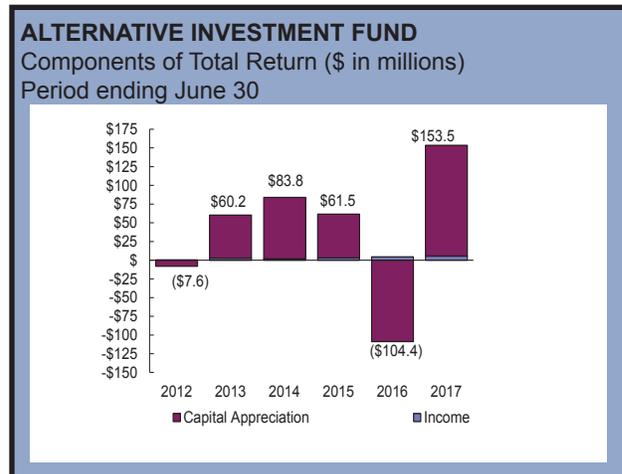


Figure 3-6

**ALTERNATIVE INVESTMENT FUND**  
Ten Largest Holdings\* at June 30, 2017

Partnership Name	Type	Market Value	%
PC I Permal LP	Hedge F-o-F	\$608,296,503	30.01%
PC II Prisma LP	Hedge F-o-F	319,006,097	15.74%
PC III Rock Creek LP	Hedge F-o-F	309,983,386	15.29%
PC IV K2 LP	Hedge F-o-F	305,672,773	15.08%
Thomas Welles Fund I	Hedge F-o-F	87,595,523	4.32%
Thomas Welles Fund II	Hedge F-o-F	87,245,454	4.31%
Arclight Energy Prtnrs VI Real Assets	Real Assets	49,413,209	2.44%
Arclight Energy Prtnrs V Real Assets	Real Assets	36,994,556	1.83%
EIG Energy Fund XV LP Real Assets	Real Assets	36,262,167	1.79%
Marathon Euro Credit Opp	Opportunistic	10,702,910	0.53%
<b>Top Ten</b>		<b>\$1,851,172,578</b>	<b>91.34%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017 mutual equity fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Mutual Equity Fund (MEF) is to (1) achieve a long term, real rate of return significantly above the inflation rate; and (2) provide a source of diversification from other asset classes within the CRPTF during different economic environments.

**Date of Inception:** July 1, 1972

**Total Net Position:** \$7,022,130,703

**Performance Objective:** A net return that, at a minimum, matches the benchmark over rolling three- to five-year periods.

**Management Fees:** \$13,261,733

**Benchmark:** Russell 3000 Index

**Operating Expenses:** \$7,952,650

**Number of Advisors:** 6

**Expense Ratio:** 0.31%

## Description of the Fund

The MEF assets are allocated across the U.S. stock market to ensure diversification by market capitalization and investment style, such as value and growth. The MEF may opportunistically invest up to 30 percent of assets to take advantage of shifts in the investment landscape or opportunities that offer diversification and/or risk-return benefits, and may include investments in any market capitalization and/or investment style as well as an allocation to stocks outside the U.S.

## Portfolio Characteristics

The MEF invests primarily in the common stock of U.S. corporations. The largest industry weightings at June 30, 2017 were financials (20.1 percent), followed by information technology (19.5 percent) and health care (14.1 percent) (See Figure 4-3).

The MEF's ten largest holdings, aggregating 14.8 percent of Fund investments, included a variety of blue chip companies and were broadly diversified, with the largest holding of 2.7 percent in Apple Inc. (See Figure 4-9).

## Market Review

In the months leading up to the November elections, U.S. equities remained relatively flat due to political uncertainty and concerns about the timing of upcoming Federal Reserve interest rate increases. Following the election, U.S. equities soared higher amid hopes for rollback of regulatory reform, tax code changes, and increased infrastructure spending that could lead to stronger economic growth and corporate profits.

The U.S. stock market, as measured by the Russell 3000 index, increased 18.5 percent. Within the Russell 3000, small capitalization companies outperformed mid- and large capitalization companies. In the small cap space, growth and value stocks performed about the same, where in the large- and mid-caps growth stocks outperformed value stocks. The technology sector was the best performing sector in the index with a 34.8 percent return, followed by financial services with a return of 27.6 percent. The worst performing sectors were energy and utilities with a return of -4.7 and -2.0 percent, respectively.

## Performance Summary

For Fiscal Year 2017, the MEF generated a return of 19.26 percent, net of all expenses, which outperformed the Russell 3000 Index return by 75 basis points (See figure 4-4). As of June 30, 2017, the MEF

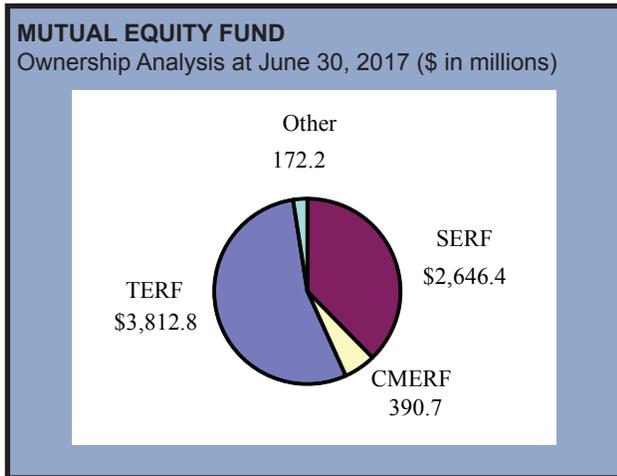
compounded net annualized total returns, for the trailing three-, five- and ten-year periods were 9.20 percent, 14.60 percent and 6.71 percent, respectively.

### **Risk Profile**

Based on returns over the last five years, MEF has exhibited a similar degree of risk as that of its benchmark, the Russell 3000 Index. With a relative volatility of 0.99, the MEF's volatility is approximately the same as the market. The Fund's active return, or its excess returns over the last five years, adjusted for risk, has been a 0.01 (See figure 4-2).

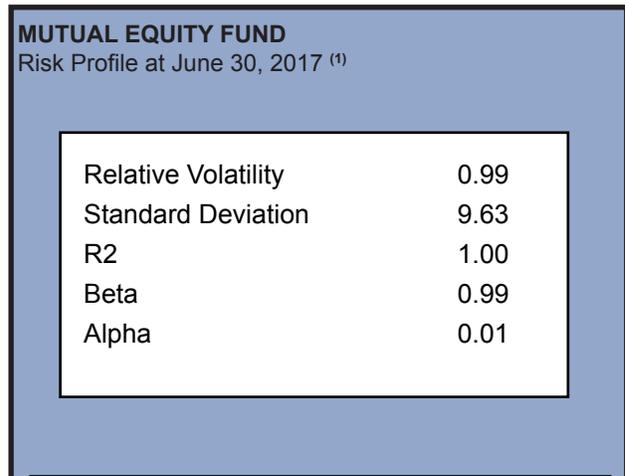
**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 4-1



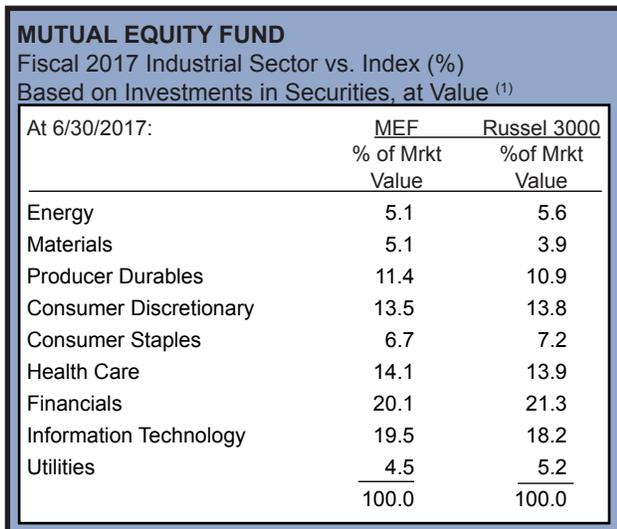
TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 4-2



(1) Based upon returns over the last five years.

Figure 4-3



(1) Excludes the Liquidity Fund.

Figure 4-4

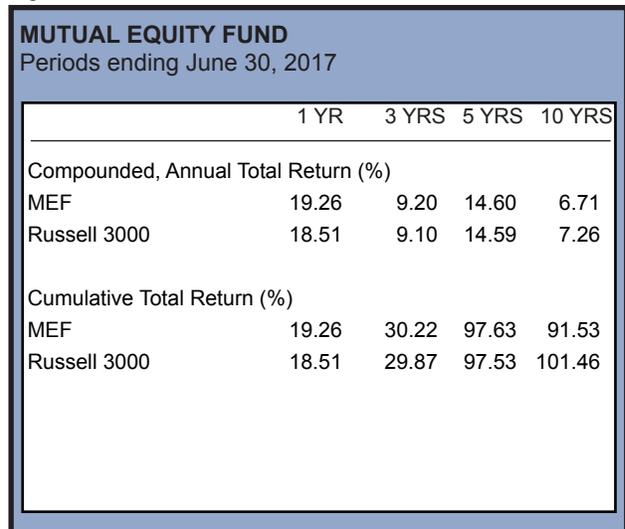


Figure 4-5

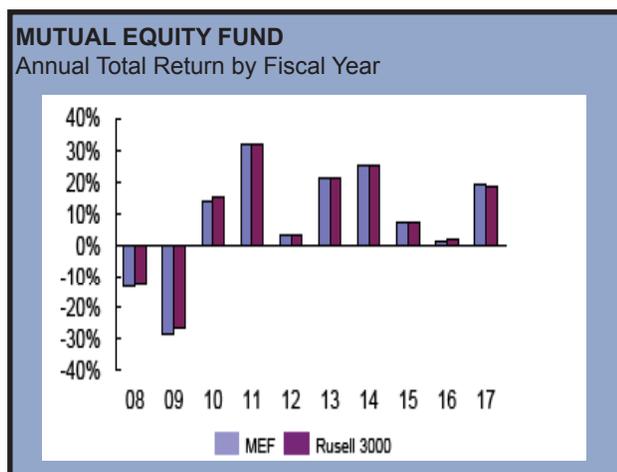
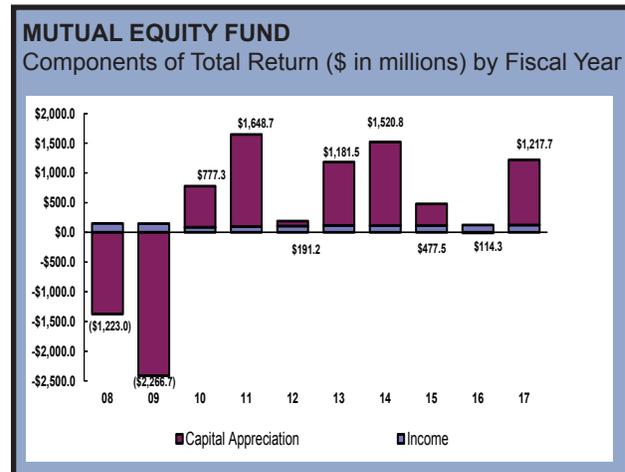


Figure 4-6



## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 4-7

### MUTUAL EQUITY FUND

Comprehensive Profile for the Fiscal Years ending June 30,

	2017		2016		2015		2014		2013	
	MEF	Russell	MEF	Russell	MEF	Russell	MEF	Russell	MEF	Russell
<b># of Issues</b>	1,756	3,000	1,706	3,000	1,807	3,000	1,806	3,000	1,721	3,000
<b>Cap (\$ Bil)</b>	\$137.0	\$140.2	\$114.1	\$114.6	\$108.1	\$108.9	\$102.1	\$101.7	\$85.5	\$85.8
<b>P/E</b>	25.0	24.3	22.8	22.1	22.0	21.7	21.2	20.8	19.3	19.2
<b>Div Yield</b>	1.73%	1.89%	1.92%	2.06%	1.81%	1.93%	1.74%	1.84%	1.90%	2.10%
<b>ROE</b>	16.2%	16.2%	16.6%	16.4%	17.7%	17.5%	16.9%	17.0%	17.3%	17.8%
<b>P/B</b>	3.0	3.0	2.6	2.4	2.8	2.8	2.8	2.7	3.8	3.7
<b>Cash &amp; Equiv.</b>	5.7%	0.0%	1.2%	0.0%	1.1%	0.0%	0.9%	0.0%	0.8%	0.0%

Source: Custodian Bank

Figure 4-8

### MUTUAL EQUITY FUND

Investment Advisors at June 30, 2017

Investment Advisor	Net Asset Value	% of Fund
Large Cap	\$5,317,010,424	75.72%
T. Rowe Price Associates	2,265,341,959	32.26%
State Street Global Advisors	3,051,668,465	43.46%
All Cap	629,717,239	8.97%
Capital Prospects	324,236,955	4.62%
FIS Group, Inc.	305,480,284	4.35%
Small/Mid Cap	733,833,239	10.45%
Frontier Capital Mgmt Co	408,898,925	5.82%
Bivium	324,934,314	4.63%
Other (1)	341,569,801	4.86%
<b>TOTAL MEF</b>	<b>\$7,022,130,703</b>	<b>100.00%</b>

(1) Other represents cash equivalents and other net assets.

Figure 4-9

### MUTUAL EQUITY FUND

Ten Largest Holdings\* at June 30, 2017

Security Name	Sector	Market Value	%
Apple Inc	Information Tech	\$190,196,701	2.71%
Microsoft Corp	Information Tech	149,416,390	2.12%
Amazon.Com Inc	Consumer Discr	107,485,752	1.53%
Facebook Inc	Information Tech	104,412,031	1.49%
Exxon Mobil Corp	Energy	90,102,430	1.28%
Johnson & Johnson	Health Care	87,638,818	1.25%
JPMorgan Chase & Co	Financials	87,365,421	1.24%
Alphabet Inc-CL C	Information Tech	74,943,872	1.07%
Alphabet Inc-CL A	Information Tech	74,259,120	1.06%
Wells Fargo & Co	Financials	70,976,110	1.01%
<b>Top Ten</b>		<b>\$1,036,796,645</b>	<b>14.76%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017

## core fixed income fund

### Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Core Fixed Income Fund (CFIF) is to: (1) achieve a long-term real rate of return above the inflation rate; (2) generate a stream of income and (3) provide a source of diversification from other asset classes within the CRPTF during different economic environments.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$2,452,383,489

**Performance Objective:** A net return that matches its benchmark, over rolling three-to-five year periods.

**Expensed Management Fees:** \$2,602,485

**Capitalized and Netted Fees:** \$919,783

**Benchmark:** Barclays U.S. Aggregate Bond Index

**Net Operating Expenses:** \$1,648,294

**Number of Advisors:** 7 External

**Expense Ratio:** 0.17%

### Description of the Fund

The CFIF assets are invested across debt instruments issued by the U.S. Government and its agencies, U.S. or international corporations, high quality quasi or sovereign debt and any other public or private U.S. regulated debt securities. The CFIF may invest up to 30 percent of its assets opportunistically to take advantage of shifts in the investment landscape or opportunities which offer diversification and/or risk-return benefits.

### Portfolio Characteristics

At the end of fiscal 2017, the composition of the CFIF was: corporate bonds 21.9 percent, mortgage-backed securities 5.5 percent, U.S. Treasuries 20.3 percent, asset-backed securities 3.3 percent, and government agency securities 20.7 percent. The remaining assets were invested in the Liquidity Fund and other assets, including two opportunistic funds valued at \$566,040,052. As of June 30, 2017, the CFIF was overweight government agency securities, asset backed securities, and opportunistic investments compared to the Barclays U.S. Aggregate Bond Index, and underweight mortgage-backed securities, U.S. Treasury, and corporate bonds. (See Figure 5-4.) Fifty eight percent of the CFIF was invested in AAA-rated securities. (See Figure 5-5.) The duration of the Fund was 6.15 years, compared to 6.09 years for the benchmark. The yield to maturity was 2.91 percent for the CFIF versus 2.46 percent for the Barclays U.S. Aggregate Bond Index. (See Figure 5-11.)

### Market Review

The Barclays U.S. Aggregate Index had a 31 basis point loss for the fiscal year ending June 30, 2017, as rising bond yields more than offset the impact of coupon income and spread tightening. The negative return of 2.5 percent during the first half of the fiscal year was driven by the sell-off in rates after the U.S. presidential election. Reflationary trends emerged with stronger nominal growth, higher inflation expectations and the potential for fiscal policy to replace monetary policy as a driver of growth. Yields across the curve rose 60 to 90 basis points in the aftermath of the election as investors priced in the potential impact from a large infrastructure plan, tax code changes and relaxed regulatory reform. In December, the Federal Reserve began a normalization of monetary policy starting with the first of three rate hikes made during the fiscal year.

U.S Treasury securities lost 4.1 percent while investment grade credit sustained only 1.5 percent loss between July and December. In the second half of the fiscal year the core fixed income market generated a gain of 2.3 percent. The yield curve flattened during this period reflecting the lack of progress on stated legislative priorities. Inflation expectations declined as the U.S. economy expanded at its weakest pace in over three years causing yields for bonds with five or more years to maturity to decline materially, thereby erasing some of the losses of the first half of the fiscal period. Treasuries gained 1.9 percent during the period while investment grade credit was up 3.8 percent. Corporate bonds were the top performers, followed by taxable municipal bonds.

In the persistent low interest rate environment investors continued to seek higher yields and spread products and lower rated bonds outperformed.

### **Performance Summary**

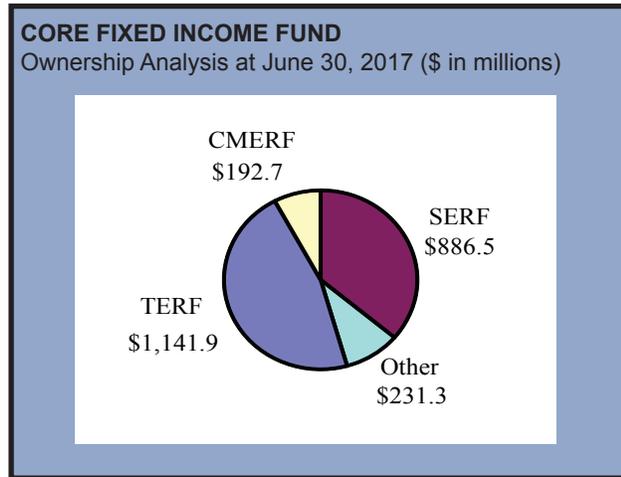
For the fiscal year ended June 30, 2017 the CFIF outperformed the Barclays U.S. Aggregate Bond Index by 220 basis points, generating a 1.89 percent net return compared to a -0.31 percent return for the benchmark. As of June 30, 2017, the CFIF's net annualized total returns for the trailing three and five-year periods were 2.40 percent and 2.25 percent, respectively, slightly underperforming the benchmark by 8 and 4 basis points, respectively. The cumulative total returns of the Fund were 7.36 percent over the past three years and 11.74 percent for the five-year period ending June 30th. (See Figure 5-8.)

### **Risk Profile**

Given the CFIF's investment policies and objectives, the Fund is exposed to several forms of risk, such as credit default risk, interest rate risk, liquidity risk, inflation risk, reinvestment risk, counter party risk and geopolitical risk. These risks are monitored on an ongoing basis, and actions are taken to mitigate identified risks. External rating agencies assign credit ratings to individual securities reflecting their views of the underlying firm's credit worthiness or the underlying assets in the case of securitized debt. As of fiscal year end, over half of the CFIF was rated AAA.

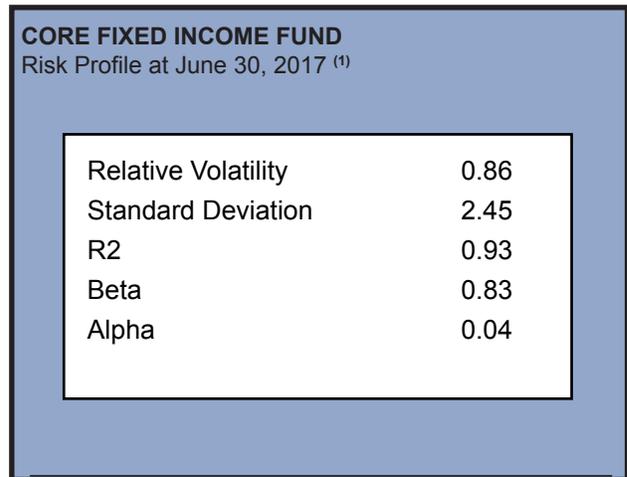
## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 5-1



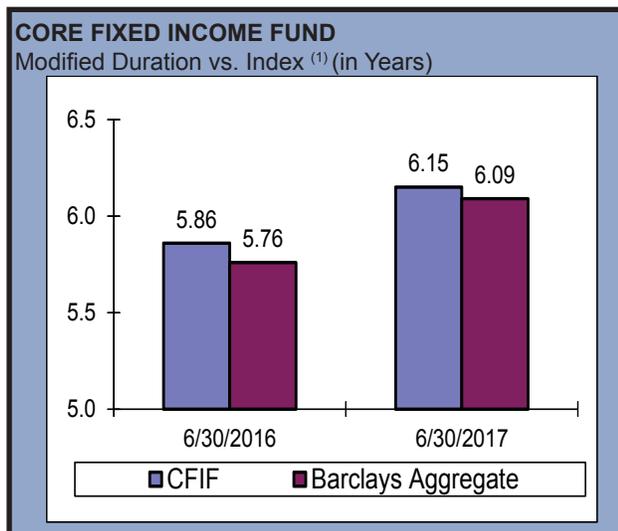
TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 5-2



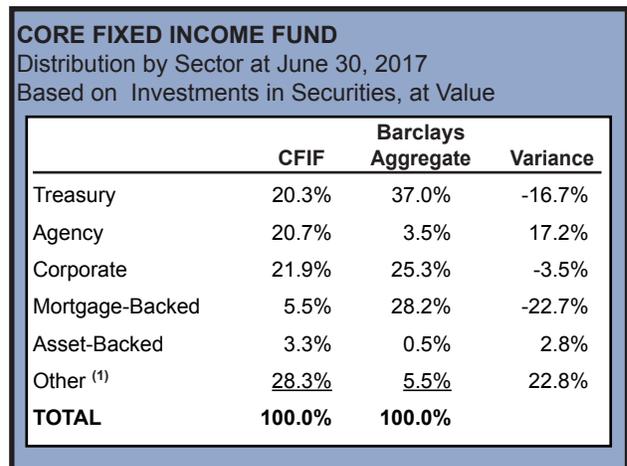
(1) Based upon returns over the last five years.

Figure 5-3



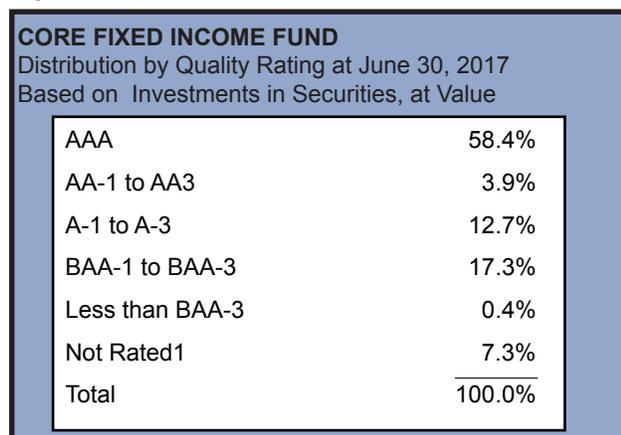
(1) Computed without the effect of Cash and other assets.

Figure 5-4



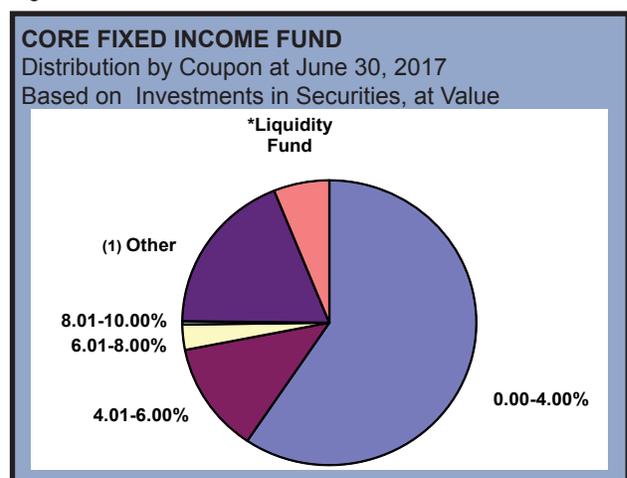
(1) Other category includes opportunistic assets, Liquidity Fund and other assets.

Figure 5-5



(1) Represents securities for which ratings are unavailable.

Figure 5-6



(1) Other category includes opportunistic assets.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 5-7

<b>CORE FIXED INCOME FUND</b>	
Duration Distribution at June 30, 2017 Based on Investments in Securities, at Value	
0-3 Years	22.0%
3-5 Years	31.0%
5-7 Years	16.3%
7-10 Years	10.1%
10+ Years	11.8%
Undetermined <sup>(1)</sup>	8.8%
<b>Total</b>	<b>100.0%</b>

<sup>(1)</sup> Represents securities for which the duration could not be calculated by the custodian.

Figure 5-8

	1 YR	3 YRS	5 YRS	10 YRS
<b>CORE FIXED INCOME FUND</b>				
Periods ending June 30, 2017				
<b>Compounded, Annual Total Return (%)</b>				
Compounded, Annual Total Return (%)				
CFIF	1.89	2.40	2.25	4.31*
Barclays Aggregate	-0.31	2.48	2.21	4.48
<b>Cumulative Total Return (%)</b>				
CFIF	1.89	7.36	11.74	52.46*
Barclays Aggregate	-0.31	7.63	11.57	54.97

\*Represents historical returns at the portfolio composite level.

Figure 5-9

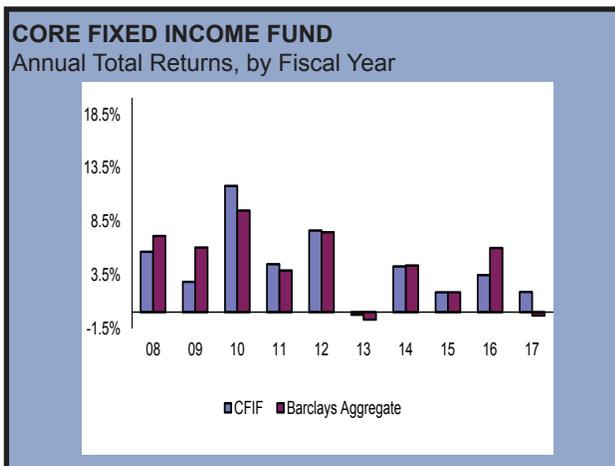


Figure 5-10

<b>CORE FIXED INCOME FUND</b>		
Investment Advisors at June 30, 2017		
Investment Advisors	Net Asset Value	% of Fund
State Street Global Advisors	\$251,945,275	10.27%
BlackRock Financial Management, Inc.	528,277,226	21.54%
Wellington	538,592,555	21.96%
Conning-Goodwin Capital	378,359,692	15.43%
Progress	118,900,899	4.85%
Prudence Crandall Fund III Opportunistic	279,748,952	11.41%
Prudence Crandall Fund IV Opportunistic	286,291,100	11.67%
Other <sup>(1)</sup>	70,267,790	2.87%
<b>TOTAL CFIF</b>	<b>\$2,452,383,489</b>	<b>100.00%</b>

<sup>(1)</sup> Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 5-11

<b>CORE FIXED INCOME FUND</b>											
Comprehensive Profile for the Fiscal Year ending June 30											
	2017		2016		2015		2014		2013		
	CFIF	BC AGG									
# of Issues	4,129	9,355	3,844	9,804	3,448	9,496	3,080	8,818	3,227	8,382	
Average Coupon	3.37%	3.11%	3.35%	3.21%	3.54%	3.31%	3.47%	3.41%	3.60%	3.50%	
Yield Maturity	2.91%	2.46%	2.20%	1.74%	2.59%	2.29%	2.31%	2.10%	2.30%	2.30%	
Average Maturity	8.40	8.00	7.78	7.85	8.73	7.57	8.05	7.29	7.20	6.90	
Modified Duration	6.15	6.09	5.86	5.76	6.15	5.72	5.85	5.58	5.50	5.20	
Average Quality	AA-2	AA-2									
Liquidity Fund	5.8%	0.0%	3.8%	0.0%	7.2%	0.0%	6.5%	0.0%	8.4%	0.0%	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 5-12

**CORE FIXED INCOME FUND**

Ten Largest Holdings\* at June 30, 2017

Security Name	Maturity	Market Value	%
U S TREASURY NOTE	5/31/2019	\$28,565,703	1.10%
U S TREASURY NOTE	6/30/2021	23,957,381	0.92%
FNMA TBA	8/1/2047	22,865,082	0.88%
U S TREASURY NOTE	4/30/2019	19,478,964	0.75%
U S TREASURY NOTE	5/15/2027	18,276,965	0.70%
U S TREASURY NOTE	2/28/2022	17,120,691	0.66%
FNMA TBA	7/1/2047	15,375,669	0.59%
GNMA TBA	7/20/2047	15,219,885	0.59%
FHLM TBA	8/1/2047	15,176,512	0.58%
U S TREASURY NOTE	8/15/2025	12,795,841	0.49%
<b>Top Ten</b>		<b>\$188,832,693</b>	<b>7.26%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 5-13

**CORE FIXED INCOME FUND**

Quarterly Current Yield <sup>(1)</sup> vs. Indices (%)

	6/30/17	3/31/17	12/31/16	9/30/16	6/30/16
CORE FIXED INCOME	3.24	3.29	3.93	3.33	3.48
Barclays Aggregate	2.92	2.94	2.97	2.87	2.90
Barclays Treasury	2.05	2.03	2.01	1.92	1.92
Barclays Agency	2.16	2.17	2.06	2.03	2.09
Barclays Mortgage	3.44	3.46	3.48	3.44	3.48
Barclays Corporate	3.69	3.75	3.81	3.66	3.74
Barclays Asset Backed	1.97	1.90	1.90	1.86	2.04

(1) Current Yield represents annual coupon interest divided by the market value of securities.

# 2017 inflation linked bond fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Inflation Linked Bond Fund (ILBF) is to (1) achieve a long-term, real rate of return above the inflation rate; (2) provide protection against rampant inflation; and (3) offer a source of diversification relative to other asset classes within the CRPTF during different economic environments.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$1,344,025,745

**Performance Objective:** A net return, which matches the benchmark, over rolling three-to five-year periods.

**Management Fees:** \$2,613,172

**Benchmark:** Barclays World Government Inflation-Linked Bond Index

**Net Operating Expenses:** \$2,552,771

**Number of Advisors:** 3 external

**Expense Ratio:** 0.39%

## Description of the Fund

Inflation linked bonds are high-quality securities issued primarily by governments in their home country currencies. While the benchmark for this Fund is unhedged, investment managers have discretion to hedge foreign currency exposure back to the U.S. dollar. Inflation-linked bonds carry a fixed interest rate and the principal of the bonds is adjusted semi-annually for any rise or decline in the inflation rate. (During fiscal year 2015, three firms were hired to invest in global inflation-linked bonds, replacing the firms who previously managed U.S. inflation-linked bonds.)

## Portfolio Characteristics

At June 30, 2017, the ILBF was well diversified with issues of inflation-linked and nominal sovereign bonds from eight countries plus the United Kingdom and the Eurozone. (See Figure 6-3.) The average coupon of this Fund was 1.41 percent compared to 1.15 percent for the benchmark. Duration of the ILBF at 10.85 years was shorter than the 12.55 years of the benchmark. Credit quality of this Fund matched the benchmark at AA-2 on June 30, 2017. (See Figure 6-9.)

## Market Review

The Barclays World Government Inflation Linked Bond Index posted a return of 0.81 percent for the fiscal year ending June 30, 2017. Hawkish central banks and political developments dominated markets and signs of global deflation appeared early in the period. Inflation markets broadly outperformed through the first three quarters of fiscal year 2017, with strong inflows into the asset class, especially in the U.S. Treasury Inflation Protected Securities (TIPS). Ten year TIPS' breakeven rates rallied as high as 2.08 percent before reversing to a low of 1.67 percent in June 2017. Post-election, U.S. inflation breakevens widened 30 basis points and then gave back 24 basis points by the end of the fiscal year. Fiscal policy delays, ongoing monetary tightening and weaker CPI data contributed to a tapering of inflation-linked inflows. After widening earlier in the year, global breakevens narrowed, weighed by increased energy volatility and central bank aggression. While the U.S. Treasury nominal yield curve flattened in response to persistence from the Federal Reserve Bank, U.S. TIPS real rates lagged, although the breakeven curve did also flatten. In Germany, real rates followed nominals steeper on improved economic outlook but also lagged, steepening the breakeven curve in the process. The U.K real curve was mixed, following nominals flatter on initial recession concerns after

the Brexit vote before steepening on rising near-term inflation concerns after the sharp Sterling sell-off. Emerging markets benefitted from low and stable inflation and from a declining U.S. dollar through the last half of the fiscal year.

### **Performance Summary**

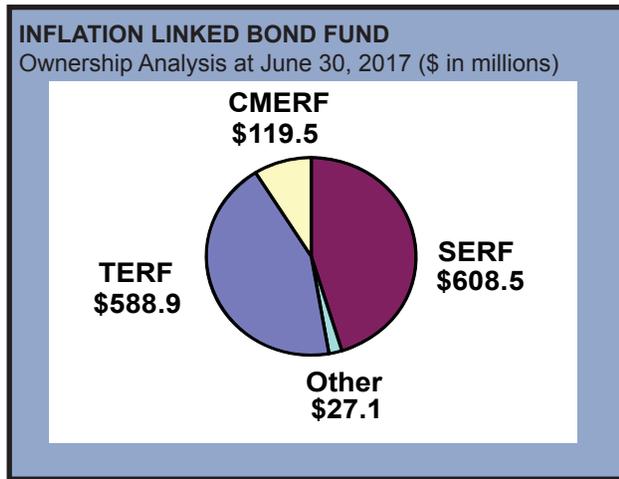
For the fiscal year ended June 30, 2017 the ILBF underperformed the Barclays World Government Inflation-Linked Bond Index by 15 basis points, generating a 0.66 percent net return compared to a 0.81 percent return for the benchmark. During the three- and five-year periods ending June 30th, assets then invested primarily in U.S. inflation-linked bonds, generated annualized returns of 0.01 percent and -0.05 percent, compared with the benchmark returns of 0.09 percent and -0.06 percent, respectively. The cumulative total returns of the Fund were 0.03 percent over the past three years and -0.26 percent for the five-year period ending June 30th. (See Figure 6-7.)

### **Risk Profile**

Given the ILBF's investment policies and objectives, the Fund is exposed to various risks such as interest rate risk, deflation risk, currency risk, geopolitical risk, and credit risk.

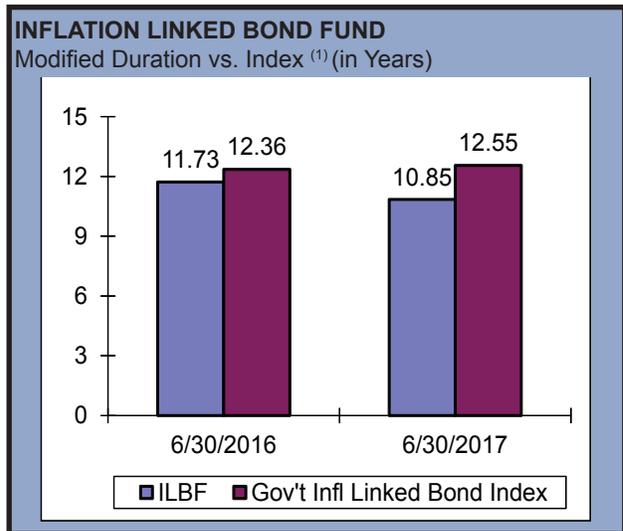
## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 6-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 6-2



(1) Computed without the effect of Cash and other assets.

Figure 6-3

**INFLATION LINKED BOND FUND**  
Distribution by Country at June 30, 2017  
Based on Investments in Securities, at Value

	BC World Gov't		
	ILBF	Infl Linked	Variance*
U.S.	41.2%	43.8%	-2.6%
U.K.	18.7%	28.9%	-10.3%
Eurozone	17.2%	20.1%	-2.9%
Mexico	3.9%	0.0%	3.9%
Brazil	0.0%	0.0%	0.0%
Canada	1.2%	2.1%	-0.9%
South Africa	1.6%	0.0%	1.6%
Japan	1.3%	2.2%	-0.9%
Australia	4.8%	1.2%	3.6%
New Zealand	5.6%	0.5%	5.1%
Other	1.7%	1.2%	0.5%
Liquidity Fund	2.8%	0.0%	2.8%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	

\* Results may be rounded.

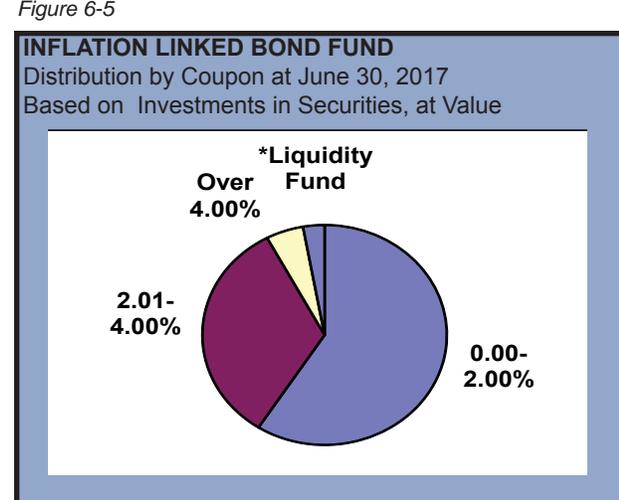
Figure 6-4

**INFLATION LINKED BOND FUND**  
Distribution by Quality Rating at June 30, 2017  
Based on Investments in Securities, at Value

AAA	49.1%
AA-1 to AA-3	29.6%
A-1 to A-3	7.1%
BAA-1 to BAA-3	9.4%
Less than BAA-1	2.0%
Liquidity Fund <sup>(1)</sup>	2.8%
<b>Total</b>	<b>100.0%</b>

(1) Represents monies invested in Cash Equivalents.

Figure 6-5



\*Note: Ending weights

**INFLATION LINKED BOND FUND**  
Duration Distribution at June 30, 2017  
Based on Investments in Securities, at Value

0-3 Years	14.6%
3-5 Years	12.6%
5-7 Years	13.6%
7-10 Years	16.7%
10+ Years	39.7%
Liquidity Fund <sup>(1)</sup>	2.8%
<b>Total</b>	<b>100.0%</b>

(1) Represents monies invested in Cash Equivalents.

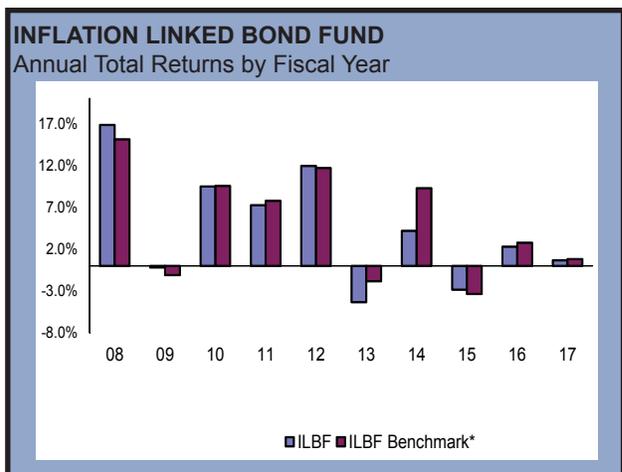
**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 6-7

	1 YR	3 YRS	5YRS	10YRS
<b>INFLATION LINKED BOND FUND</b> Periods ending June 30, 2017				
<b>Compounded, Annual Total Return (%)</b>				
ILBF	0.66	0.01	-0.05	4.30*
BC World Gov't Infl Linked Bond Index <sup>(1)</sup>	0.81	0.09	-0.06	4.10
<b>Cumulative Total Return (%)</b>				
ILBF	0.66	0.03	-0.26	52.35*
BC World Gov't Infl Linked Bond Index <sup>(1)</sup>	0.81	0.27	-0.28	49.52

(1) The benchmark was changed during Fiscal Year 2015 from BC U.S. TIPS to BC World Government Inflation Linked Bond Index.  
\*Represents historical returns at the portfolio composite level.

Figure 6-8



\*Note: 2015 and forward the Benchmark is BC World Government Inflation Linked Bond Index. For prior years the benchmark is BC U.S. TIPS Index.

Figure 6-9

	2017		2016		2015		2014		2013	
	ILBF	BC World Gov't Infl	ILBF	BC World Gov't Infl	ILBF	Barclays US TIPS	ILBF	Barclays US TIPS	ILBF	Barclays US TIPS
# of Issues	382	136	587	134	418	131	37	35	33	34
Average Coupon	1.41%	1.15%	1.65%	1.23%	2.08%	1.35%	1.53%	1.22%	1.45%	1.39%
Average Maturity	11.70	13.68	13.71	13.49	12.63	13.40	8.68	8.57	8.79	8.70
Modified Duration	10.85	12.55	11.73	12.36	11.32	12.07	7.31	7.72	8.20	7.96
Average Quality	AA-2	AA-2	AA-2	AA-1	AA-2	AA-1	AAA	AAA	AAA	AAA
Liquidity Fund <sup>(1)</sup>	2.8%	0.0%	3.1%	0.0%	2.4%	0.0%	5.6%	0.0%	3.6%	0.0%

(1) Ending Weights

Figure 6-10

<b>INFLATION LINKED BOND FUND</b> Investment Advisors at June 30, 2017		
Investment Advisors	Net Asset Value	% of Fund
BlackRock	\$ 515,186,615	38.33%
Colchester	610,713,250	45.44%
New Century	189,191,788	14.08%
Other <sup>(1)</sup>	28,934,092	2.15%
<b>TOTAL ILBF</b>	<b>\$1,344,025,745</b>	<b>100.00%</b>

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 6-11

<b>INFLATION LINKED BOND FUND</b> Ten Largest Holdings <sup>(1)</sup> at June 30, 2017			
Security Name	Maturity	Market Value	%
US TREAS-CPI INFLAT	4/15/2029	\$ 59,556,259	4.47%
US TREAS-CPI INFLAT	4/15/2019	54,596,993	4.10%
ITALY GOVERNMENT BOND	9/15/2023	51,492,593	3.86%
US TREAS-CPI INFLAT	1/15/2027	51,404,516	3.86%
US TREAS-CPI INFLAT	7/15/2022	46,737,288	3.51%
US TREAS-CPI INFLAT	2/15/2042	43,573,827	3.27%
US TREAS-CPI INFLAT	4/15/2022	38,739,825	2.91%
NEW ZEALAND GOVERNMENT BOND	9/20/2030	35,925,949	2.69%
FRANCE GOVERNMENT BOND	7/25/2040	34,993,349	2.62%
UNITED KINGDOM GILT INFLA REGS	3/22/2044	33,235,116	2.49%
<b>Top Ten</b>		<b>\$450,255,715</b>	<b>33.78%</b>

(1) A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017 emerging market debt fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Emerging Market Debt Fund (EMDF) is to (1) achieve long-term, real rate of return above the inflation rate and (2) provide some diversification relative to other asset classes within CRPTF given the different global economic environments.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$1,637,181,016

**Performance Objective:** A net return that exceeds the benchmark by 100 basis points, over rolling three- to five-year periods.

**Management Fees:** \$5,645,057

**Operating Expenses:** \$515,572

**Benchmark:** J.P. Morgan Emerging Markets Bond Index Global Diversified (JPM EMBI GD) (50%)  
J.P. Morgan Government Bond Index Emerging Markets Global Diversified (JPM GBI EM GD) (50%)

**Number of Advisors:** 4 external

**Expense Ratio:** 0.39%

## Description of the Fund

The EMDF invests primarily in debt instruments issued by governments and companies operating in developing countries as identified by the benchmark, the World Bank, or the United Nations. The EMDF is generally weighted 50 percent to U.S. dollar-denominated securities and 50 percent to securities issued in local currencies. For performance measurement purposes, the dollar-denominated securities are benchmarked to the JPM EMBI GD and the local currency securities are benchmarked to the JPM GBI EM GD.

## Portfolio Characteristics

The EMDF is well diversified with broad geographic and currency exposures. Latin America and Europe have the highest representation; while the Middle East and Africa have the lowest exposure, relatively consistent with the benchmark. (See Figure 7-3.) The Fund had an overall yield to maturity of 6.72 percent compared to the EMBI benchmark yield of 5.58 percent. The average quality of EMDF was BA-1 versus the EMBI benchmark average of BAA-3. The duration of the EMDF was 5.69 years versus 5.96 years for the benchmark. (See Figure 7-11.)

## Market Review

Emerging Market Debt (EMD) investments were positive contributors to fiscal year performance. Developing countries enjoyed a broadly supportive external environment, including solid economic activity in developed countries and a cyclical improvement in Chinese data. Growth trends began to recover and external accounts continued to mend. Inflation declined notably in several large emerging countries allowing central banks to lower interest rates. The favorable emerging market debt environment attracted robust inflows into the asset class during the fiscal year.

The U.S. dollar-denominated emerging market debt, as measured by the JPM EMBI GD, returned 6.0 percent during fiscal year 2017. The return was primarily based on yield. EMD credit spreads declined by 80 basis points, but that was fully offset by rising U.S. Treasury yields. Non-investment grade credit outperformed investment grade bonds due to higher yield and greater spread tightening. Regionally, Africa and the Middle East delivered outsized performance, reflective of the higher tolerance for idiosyncratic risk among investors over the period.

In local currency markets, total return was starkly different depending on the currency of measurement. The JP Morgan GBI EM GD index returned 6.4 percent, driven mostly by coupon income. The market yield

declined 15 basis points during the fiscal year, but a small currency translation loss back to the U.S. largely offset this. The currency performance factor split the universe with half benefitting from stronger currencies relative to the U.S. dollar, and half experiencing weaker currencies. Most countries produced a positive total return with the exceptions of Turkey, the Philippines and Malaysia. In contrast, South Africa returned over 20 percent in U.S. dollar terms, generating two thirds of the return from a strengthening currency. Russia also delivered outsized returns as very high real interest rates attracted investors to the local market.

### **Performance Summary**

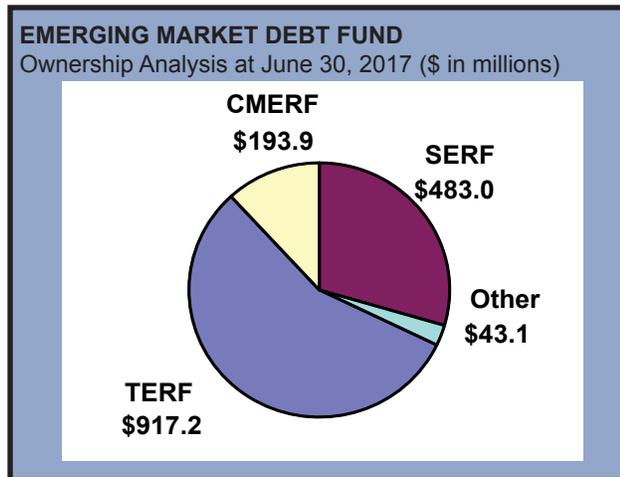
For the fiscal year ended June 30 2017, the EMDF generated a return of 9.11 percent, net of all expenses, outperforming the benchmark return of 6.26 percent by 285 basis points. As of June 30, 2017, the EMDF compounded net annualized returns for the three- and five-year periods were 2.25 percent, and 3.07 percent, respectively, versus 1.28 percent and 2.83 percent for the blended benchmark. The cumulative returns of the EMDF for the three- and five-year periods were 6.90 percent and 16.34 percent, respectively, outperforming the benchmark returns of 3.89 percent and 14.96 percent. (See Figure 7-7).

### **Risk Profile**

Given the EMDF's investment policies and objectives, the Fund is exposed to multiple types of risk. These risks include, but are not limited to, credit risk, currency risk, interest rate risk, liquidity risk, inflation risk and geopolitical risk. Approximately half of the Fund is rated as investment grade.

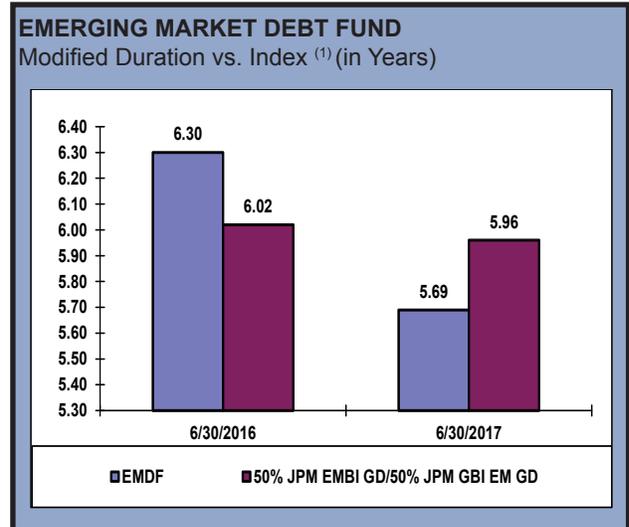
## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 7-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 7-2



(1) Computed without the effect of Cash and other assets.

Figure 7-3

**EMERGING MARKET DEBT FUND**  
Distribution by Region at June 30, 2017

	EMDF	50% JPM EMBI GD/ 50% JPM GBI EM GD	Variance
Asia	16.4%	17.8%	-1.4%
Africa	9.2%	9.2%	0.0%
Europe	31.2%	32.1%	-0.9%
Latin America	35.9%	33.4%	2.5%
Middle East	4.4%	7.5%	-3.1%
United States <sup>(1)</sup>	2.9%	0.0%	2.9%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	

(1) Mainly Liquidity Fund holdings.

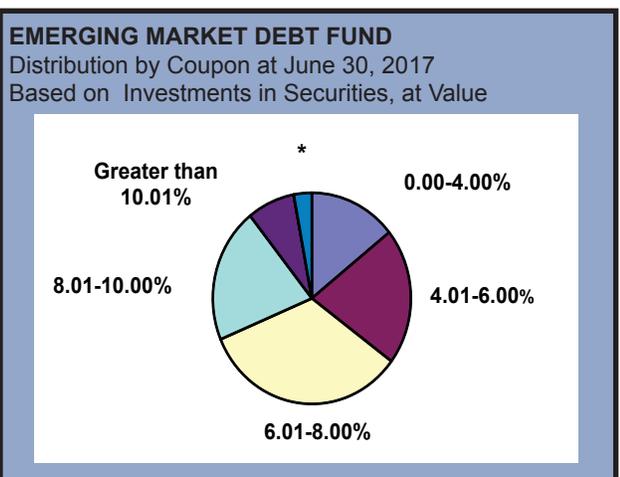
Figure 7-4

**EMERGING MARKET DEBT FUND**  
Distribution by Quality Rating at June 30, 2017  
Based on Investments in Securities, at Value

Aaa	0.7%
AA-1 to AA3	0.2%
A-1 to A-3	13.9%
BAA-1 to BAA3	32.3%
Less than BAA-3	44.7%
Not Rated <sup>(1)</sup>	8.2%
<b>Total</b>	<b>100.0%</b>

(1) Represents securities for which ratings are unavailable.

Figure 7-5



\*Liquidity Fund and other assets.

Figure 7-6

**EMERGING MARKET DEBT FUND**  
Duration Distribution at June 30, 2017  
Based on Investments in Securities, at Value

0-3 Years	19.4%
3-5 Years	27.4%
5-7 Years	19.5%
7-10 Years	17.4%
10+ Years	11.9%
Undetermined <sup>(1)</sup>	1.5%
Liquidity Fund <sup>(2)</sup>	2.9%
<b>Total</b>	<b>100.0%</b>

(1) Represents securities for which the duration could not be calculated by the custodian.

(2) Represents monies invested in the Liquidity Fund and other assets.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 7-7

	1 YR	3 YRS	5YRS	10 YRS
<b>EMERGING MARKET DEBT FUND</b>				
Periods ending June 30, 2017				
<b>Compounded, Annual Total Return (%)</b>				
<b>EMDF</b>	9.11	2.25	3.07	5.87*
50% JPM EMBI GD/ 50% JPM GBI EM GD	6.26	1.28	2.83	6.08
<b>Cumulative Total Return (%)</b>				
<b>EMDF</b>	9.11	6.90	16.34	76.86*
50% JPM EMBI GD/ 50% JPM GBI EM GD	6.26	3.89	14.96	80.48

\* Represents historical returns at the portfolio composite level.

Figure 7-8

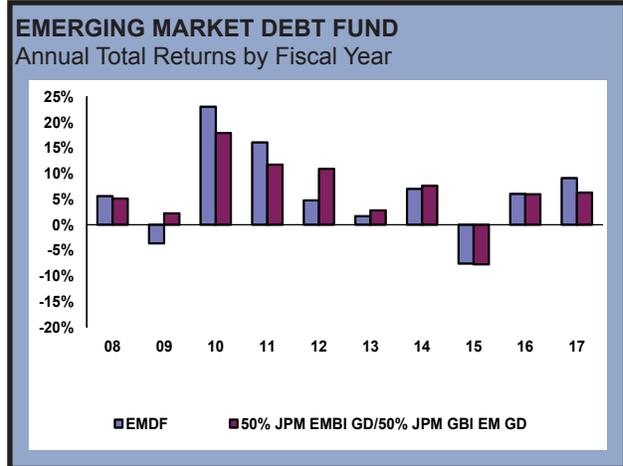


Figure 7-9

Investment Advisors	Net Asset Value	% of Fund
Ashmore Investment Mgt. Ltd.	\$ 576,148,444	35.19%
Payden & Rygel	556,352,645	33.98%
Fidelity Institutional Asset Mgt. Trust Co.	478,378,770	29.22%
Stone Harbor Investment Partners	13,909,252	0.85%
Other <sup>(1)</sup>	12,391,905	0.76%
<b>TOTAL EMDF</b>	<b>\$1,637,181,016</b>	<b>100.00%</b>

(1) Liquidity Fund, other assets and terminated advisor balances.

Figure 7-10

Security Name	Maturity	Market Value	%
Brazil Notas Do Tesouro	1/1/2021	\$ 34,209,134	2.14%
South Africa Gvmt Bond	2/28/2031	24,959,057	1.56%
Colombia Gvemt Bond	5/4/2022	21,040,245	1.32%
Brazil Notas Do Tesouro	1/1/2023	20,080,271	1.26%
Mexican Bonds	6/10/2021	19,666,840	1.23%
Colombia Gvmt Bond	7/24/2024	14,238,523	0.89%
Russian Gvmt Bond	4/14/2021	14,064,928	0.88%
Brazil Notas Do Tesouro	1/1/2025	14,038,676	0.88%
Brazil Notas Do Tesouro	1/1/2027	13,457,482	0.84%
JPM Chase Bank NA	9/17/2026	13,271,837	0.83%
<b>Top Ten</b>		<b>\$189,026,993</b>	<b>11.83%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act..

Figure 7-11

	2017		2016		2015		2014		2013	
	EMDF	EMBI								
# of Issues	1,114	818	978	714	968	686	880	631	866	368
Yield to Maturity	6.72%	5.58%	7.56%	5.81%	8.54%	6.68%	5.32%	5.86%	6.66%	5.82%
Average Maturity	8.69	9.11	9.25	9.28	9.23	9.23	7.57	8.60	10.31	12.52
Modified Duration	5.69	5.96	6.30	6.02	6.17	5.87	5.69	5.74	6.06	7.10
Average Quality	BA-1	BAA-3	BA-1	BAA-3	BA-1	BAA-2	BAA-3	BAA-2	BAA-2	BAA-2
Liquidity Fund*	2.9%	0.0%	2.7%	0.0%	3.0%	0.0%	3.2%	0.0%	1.6%	0.0%

\* Note: Ending Weights

# 2017

## high yield debt fund

### Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the High Yield Debt Fund (HYDF) is to (1) achieve a long-term, real rate of return above the inflation rate; and (2) provide diversification to other asset classes within the CRPTF under different economic environments.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$2,044,334,030

**Performance Objective:** A net return that matches its benchmark, over rolling three- to five-year periods.

**Management Fees:** \$4,896,835

**Benchmark:** Citigroup U.S. High Yield Market Capped Index

**Operating Expenses:** \$2,966,738

**Number of Advisors:** 9 external

**Expense Ratio:** 0.41%

### Description of the Fund

The HYDF invests primarily in debt instruments rated below-investment grade by one or more nationally recognized rating agencies.

### Portfolio Characteristics

The HYDF is well diversified across a range of corporate high yield bonds and bank loans. These securities are predominantly U.S. based. The Fund's average quality rating was B-1 on June 30, 2017, matching the average quality of the benchmark, and had a yield to maturity of 5.51 percent compared to 6.02 percent yield for the benchmark. As of June 30, 2017, the duration of the HYDF was 4.84 years, compared to the benchmark duration of 4.88 years. (See Figure 8-10.)

### Market Review

Strong demand from investors, weak new issuance, improved commodity prices, U.S. economic growth and positive earnings expectations, as well as an accommodating global central bank landscape over the past fiscal year, contributed to a rally in the U.S. high yield market. Spreads tightened approximately 230 basis points over the period. Pessimism about oil supply, Chinese growth, U.S. dollar strength, and U.S. growth eased dramatically, allowing the market to return to more normal valuations. During the first half of the fiscal year, investor sentiment was supported by the prospects of rollback of regulatory reform, tax code changes and increased infrastructure spending. However, optimism waned with legislative issues. In June 2017, the action of the U.S. Federal Reserve Bank to raise rates despite a weaker than expected Consumer Price Index (CPI) increase, along with an indication the Fed might reduce its balance sheet faster than expected, put pressure on the high yield market in the last month of the fiscal year. The best performing sectors over the period were energy refiners and metals & mining, while the healthcare and pharmaceuticals sectors performed poorly. At the end of June 2017, the par-weighted U.S. high yield default rate declined to 1.5 percent from 3.56 percent at the beginning of the fiscal year.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

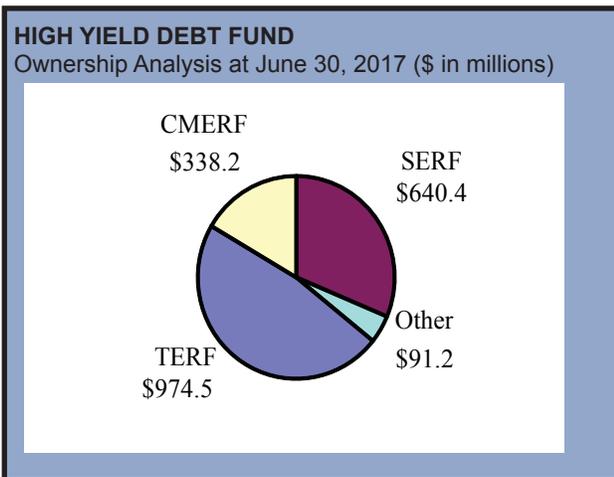
### Performance Summary

For the fiscal year ended June 30, 2017, the HYDF generated a return of 12.59 percent, net of all expenses, outperforming the Citigroup U.S. High Yield Market Capped Index return of 12.09 percent by 50 basis points. Cumulative net total returns over the three-year and five-year periods ending June 30th were 10.77 percent and 35.00 percent, respectively, for the Fund, and 12.10 percent and 35.94 percent, respectively, for the benchmark. (See Figure 8-8.)

### Risk Profile

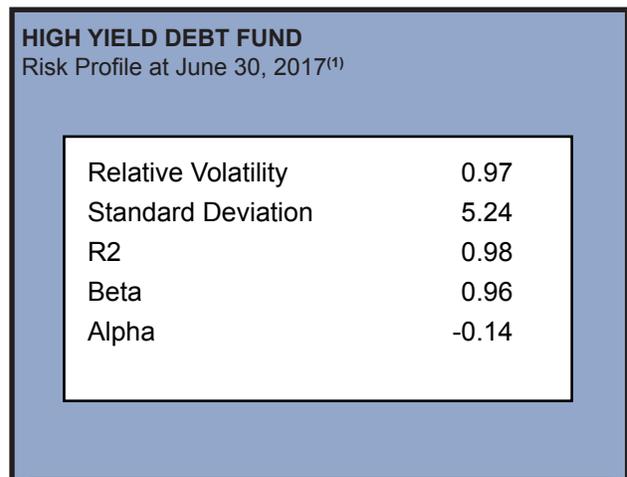
Given the HYDF's investment policies and objective, the Fund is exposed to several forms of risk. These risks include, but are not limited to, credit default risk, interest rate risk, liquidity risk, pre-payment risk, reinvestment risk and inflation risk. In addition, the Fund is occasionally exposed to political, economic and currency risk resulting from investments in international high yield securities. The average quality of the Fund is B-1, which matches the benchmark.

Figure 8-1



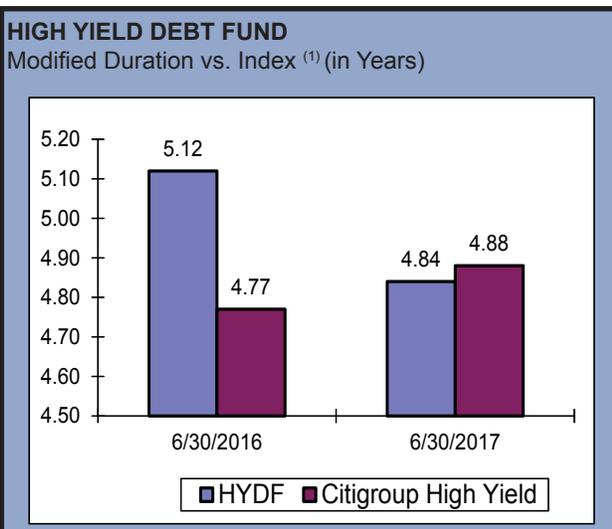
TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 8-2



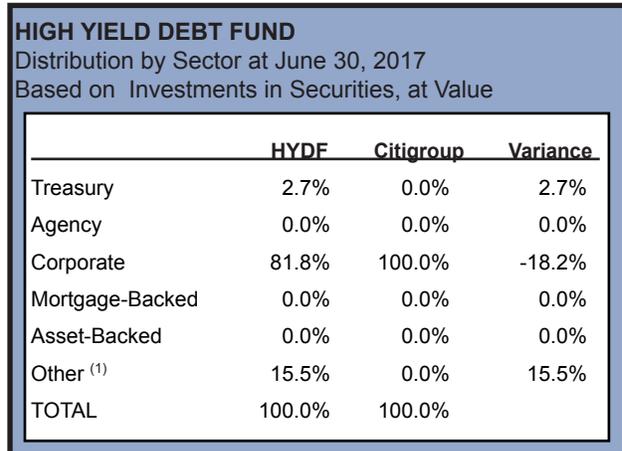
(1) Based upon returns over the last five years.

Figure 8-3



(1) Computed without the effect of Cash and other assets.

Figure 8-4



(1) Other category includes non fixed-income securities such as common and preferred stock and convertible securities, Real Estate Investment Trust, Business Development Corporation, Liquidity Fund and other assets.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 8-5

### HIGH YIELD DEBT FUND

Distribution by Quality Rating at June 30, 2017  
Based on Investments in Securities, at Value

AAA to A3	2.7%
BAA1 to BAA3	3.1%
BA1 to BA3	30.1%
B1 to B3	38.8%
CAA1 to CAA3	16.3%
CA to C	0.3%
Not Rated <sup>(1)</sup>	8.7%
<b>Total</b>	<b>100.0%</b>

(1) Represents securities for which ratings are unavailable.

Figure 8-6

### HIGH YIELD DEBT FUND

Distribution by Coupon at June 30, 2017  
Based on Investments in Securities, at Value

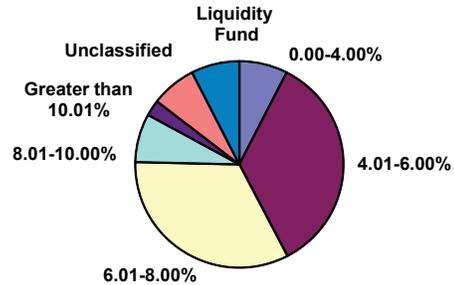


Figure 8-7

### HIGH YIELD DEBT FUND

Duration Distribution at June 30, 2017  
Based on Investments in Securities, at Value

0-3 Years	27.0%
3-5 Years	33.0%
5-7 Years	16.8%
7-10 Years	7.1%
10+ Years	2.7%
Unknown <sup>(1)</sup>	5.9%
Liquidity Fund <sup>(2)</sup>	7.5%
<b>Total</b>	<b>100.0%</b>

(1) Represents securities for which the duration could not be calculated by the custodian.

(2) Represents monies invested in the Liquidity Fund.

Figure 8-8

### HIGH YIELD DEBT FUND

Periods ending June 30, 2017

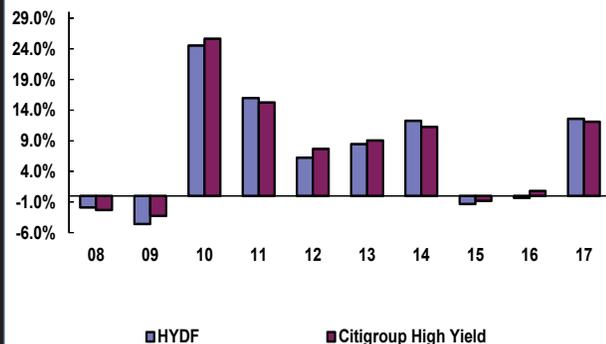
	1 YR	3 YRS	5 YRS	10 YRS
<b>Compounded, Annual Total Return (%)</b>				
HYDF	12.59	3.47	6.19	6.77*
Citigroup High Yield Market Capped Index	12.09	3.88	6.33	7.17
<b>Cumulative Total Return (%)</b>				
HYDF	12.59	10.77	35.00	92.46*
Citigroup High Yield Market Capped Index	12.09	12.10	35.94	99.91

\*Represents historical returns at the portfolio composite level.

Figure 8-9

### HIGH YIELD DEBT FUND

Annual Total Returns by Fiscal Year



## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 8-10

<b>HIGH YIELD DEBT FUND</b>											
Comprehensive Profile for the Fiscal Year ending June 30											
	<u>2017</u>		<u>2016</u>		<u>2015</u>		<u>2014</u>		<u>2013</u>		
	<u>HYDF</u>	<u>Citigroup</u>									
# of Issues	1,354	2,043	1,016	2,179	972	2,220	884	2,183	740	1,752	
Average Coupon	5.60%	6.45%	5.67%	6.54%	5.80%	6.73%	5.88%	7.08%	6.90%	7.60%	
Yield Maturity	5.51%	6.02%	6.87%	7.32%	6.34%	6.77%	5.13%	5.73%	6.90%	7.00%	
Average Maturity	5.33	5.71	6.17	5.64	6.29	5.74	5.99	5.04	7.30	5.30	
Modified Duration	4.84	4.88	5.12	4.77	5.36	4.95	5.42	5.12	5.60	4.40	
Average Quality	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-2	B-2	
Liquidity Fund*	7.5%	0.0%	4.4%	0.0%	4.6%	0.0%	6.6%	0.0%	6.1%	0.0%	

\*Note: Ending Weights

Figure 8-11

<b>HIGH YIELD DEBT FUND</b>		
Investment Advisors at June 30, 2017		
<b>Investment Advisors</b>	<b>Net Asset Value</b>	<b>% of Fund</b>
Loomis Sayles & Co., Inc.	\$381,183,907	18.65%
Stone Harbor Investment Partners	20,153,947	0.99%
Shenkman Capital Management, Inc.	232,440,304	11.37%
Oaktree Capital Management, L.L.C.	7,466,324	0.36%
AllianceBernstein, LP	283,040,061	13.84%
DDJ Capital Management, LLC	160,811,548	7.87%
Columbia Management Investment Advisers, LLC	369,708,326	18.08%
Nomura Corporation Research & Asset Management, Inc.	444,026,436	21.72%
TCG BDC, Inc.	57,625,395	2.82%
Other <sup>(1)</sup>	87,877,782	4.30%
<b>TOTAL HYDF</b>	<b>\$2,044,334,030</b>	<b>100.00%</b>

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 8-12

<b>HIGH YIELD DEBT FUND</b>			
Ten Largest Holdings* at June 30, 2017			
<b>Security Name</b>	<b>Maturity</b>	<b>Market Value</b>	<b>%</b>
US Treasury Note	5/31/2019	\$11,357,448	0.56%
Dish Network Corp. 144A	8/15/2026	10,973,125	0.54%
Indonesia Gvmnt Bond	1/15/2024	9,802,538	0.48%
New Albertson's Inc.	8/1/2029	9,239,250	0.45%
Micron Technology, Inc.	11/15/2043	8,510,625	0.42%
Tenet Healthcare Corp.	11/15/2031	8,263,440	0.41%
Tenet Healthcare Corp.	6/15/2023	7,962,000	0.39%
Morgan Stanley	11/16/2018	7,887,460	0.39%
Transdigm Inc.	7/15/2024	7,749,945	0.38%
Sprint Capital Corp.	11/15/2028	7,747,643	0.38%
<b>Top Ten</b>		<b>\$89,493,474</b>	<b>4.40%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017

## developed market international stock fund

### Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Developed Markets International Stock Fund (DMISF) is to (1) achieve a long-term, real rate of return above the U.S. inflation rate; and (2) provide additional measures of diversification to other asset classes within the CRPTF under different economic scenarios.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$6,381,040,191

**Performance Objective:** A net return that matches the benchmark, over rolling three- to five-year periods.

**Management Fees:** \$21,770,263

**Benchmark:** Morgan Stanley Capital International Europe, Australasia and Far East Investable Market Index (MSCI EAFE IMI) <sup>(1)</sup> 50% Hedged

**Operating Expenses:** \$2,113,677

**Number of Advisors:** 10 external

**Expense Ratio:** 0.41%

- (1) The CRPTF signed a licensing agreement with MSCI to provide benchmark data commencing in fiscal year 2015. For the three, five and ten year performance periods, the CRPTF is using the prior benchmark, S&P/Citigroup Broad Market Index Europe, Pacific and Asia Composite Index 50% Hedged.

### Description of the Fund

DMISF assets are allocated across foreign developed equity markets to provide diversification by country, market capitalization and style. Non-U.S. equities are issued by companies domiciled outside of the United States. The DMISF may invest up to 30 percent of assets opportunistically to take advantage of shifts in the investment landscape, or opportunities that offer diversification and/or risk-return benefits within non-U.S. equity markets.

### Portfolio Characteristics

At fiscal year-end, the DMISF was invested in the developed markets across Europe, Asia and Australia, with the two largest allocations in Japan (22.0 percent) and the United Kingdom (14.8 percent) (see Figure 9.5). The portfolio's largest country overweight positions relative to the benchmark were Canada (1.9 percent vs. the benchmark's 0.0 percent) and the Netherlands (4.5 percent vs. the benchmark's 3.3 percent). The largest underweights were the United Kingdom (14.8 percent vs. the benchmark's 17.8 percent) and Japan (22.0 percent vs. the benchmark's 24.4 percent).

### Market Review

International developed equities posted strong positive returns for the fiscal year. The local currency return versus the market was 180 basis points higher than the U.S. dollar return. The primary reason for the lower return after conversion to USD was a very weak Yen. The developed foreign markets have benefited from improving macroeconomic trends, continued European Central Bank (ECB) stimulus, and election results in several countries that reflected a rejection of extremist candidates.

Overall, the MSCI EAFE index returned 20.3 percent in U.S. dollar terms. Value stocks significantly outperformed growth stocks by 930 basis points and small capitalization stocks outperformed large capitalization stocks during the year. From a region standpoint, MSCI Europe returned 21.1 percent and MSCI Pacific returned 19.3 percent. Within Europe, Austria returned 65.0 percent and Spain returned 38.4 percent. For the developed Asian markets, Hong Kong lead the way with a return of 24.0 percent. Every sector within the MSCI EAFE generated a positive return for the year.

The best performing sectors were financials (38.1 percent) and information technology (35.9 percent). The worst performing sectors were telecommunication services (2.2 percent) and health care (6.4 percent).

### **Performance Summary**

For the fiscal year ended June 30, 2017, the DMISF generated a return of 24.81 percent, net of all expenses, which outperformed the benchmark return of 22.41 percent by 240 basis points (See Figure 9.3). As of June 30, 2017, the DMISF compounded net annualized total returns, for the trailing three-, five- and ten-year periods were 5.30 percent, 11.86 percent, and 2.80 percent, respectively. The returns outperformed the DMISF's benchmark for the three-, five- and ten-year periods.

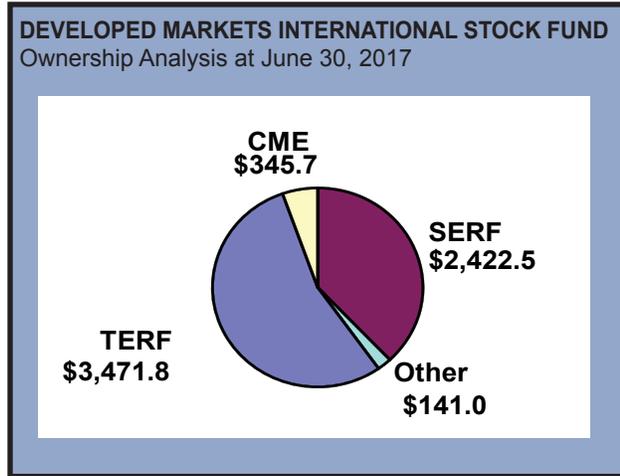
The cumulative returns of the DMISF for the three-, five-, and ten-year periods were 16.74 percent, 75.15 percent, and 31.87 percent, respectively.

### **Risk Profile**

Given the DMISF's investment policies and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, political and economic risk, currency risk, market risk, and individual company risk. A 50 percent currency hedging strategy is employed to reduce the portfolio's currency risk over time. The Fund's volatility over a five year period is only slightly lower than the market at 0.96. On a risk adjusted basis, the Fund has generated excess return of 0.72, which indicates that it is producing a higher risk adjusted return than the benchmark.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 9-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 9-2



(1) Based upon returns over the last five years.

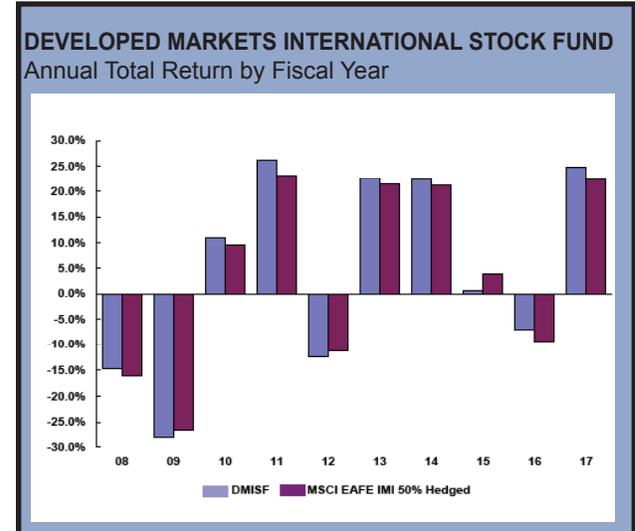
Figure 9-3

**DEVELOPED MARKETS INTERNATIONAL STOCK FUND**  
Periods ending June 30, 2017

	1 YR	3 YRS	5YRS	10YRS
<b>Compounded, Annual Total Return (%)</b>				
DMISF	24.81	5.30	11.86	2.80*
MSCI EAFE IMI 50% Hedged	22.41	4.85	11.14	2.25
<b>Cumulative Total Return (%)</b>				
DMISF	24.81	16.74	75.15	31.87*
MSCI EAFE IMI 50% Hedged	22.41	15.28	69.54	24.97

\*Represents historical returns at the portfolio composite level.

Figure 9-4



**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 9-5

<b>DEVELOPED MARKETS INTERNATIONAL STOCK FUND</b>			
Diversification by Benchmark Country at June 30, 2017 <sup>(1)</sup>			
	<b>DMISF % of Net Assets 6/30/17</b>	<b>Benchmark % of Net Assets 6/30/17</b>	<b>Variance</b>
Japan	22.0	24.4	-2.4
United Kingdom	14.8	17.8	-3.0
Korea	0.1	0.0	0.1
Hong Kong	3.1	3.3	-0.2
United States	0.2	0.0	0.2
France	9.7	9.6	0.1
Germany	9.3	9.1	0.2
Switzerland	8.6	8.0	0.6
Australia	5.4	6.9	-1.6
China	0.3	0.0	0.3
Netherlands	4.5	3.3	1.1
Italy	2.5	2.5	0.0
Spain	3.0	3.3	-0.3
Sweden	3.0	3.3	-0.3
Singapore	1.5	1.4	0.1
Canada	1.9	0.0	1.9
Turkey	0.1	0.0	0.1
Other	10.0	7.1	2.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	

(1) Based upon currency exposures of the underlying securities.

Figure 9-6

<b>DEVELOPED MARKETS INTERNATIONAL STOCK FUND</b>		
Investment Advisors at June 30, 2017		
<b>Investment Advisor</b>	<b>Net Asset Value</b>	<b>% of Fund</b>
<b>Index</b>	\$2,243,712,419	35.16%
State Street Global Advisors	2,243,712,419	35.16%
<b>Core</b>	1,698,253,096	26.61%
AQR Capital Management	779,558,778	12.21%
Acadian Asset Management	774,528,461	12.14%
Progress	144,165,857	2.26%
<b>Active-Growth</b>	914,303,822	14.33%
MFS Institutional Advisors, Inc.	914,303,822	14.33%
<b>Active-Value</b>	511,113,008	8.01%
Grantham, Mayo, Van Otterloo	511,113,008	8.01%
<b>Small Cap</b>	999,897,967	15.67%
Schroder Investment Mgmt.	360,217,280	5.64%
DFA	316,886,481	4.97%
William Blair & Company	322,794,206	5.06%
Other (1)	13,759,879	0.22%
<b>TOTAL DMISF</b>	<b>\$6,381,040,191</b>	<b>100.00%</b>

(1) Other represents Liquidity Fund, other assets and terminated advisor balances, as well as, currency overlay balances for the DMISF (managed by First Quadrant).

Figure 9-7

<b>DEVELOPED MARKETS INTERNATIONAL STOCK FUND</b>			
Ten Largest Holdings* at June 30, 2017			
<b>Security Name</b>	<b>Country</b>	<b>Market Value</b>	<b>%</b>
Nestle SA REG	Switzerland	\$106,804,410	1.68%
Roche Holding AG Genusschein	Switzerland	70,831,897	1.12%
HSBC Holdings PLC	United Kingdom	60,715,152	0.95%
Bayer AG REG	Germany	56,241,204	0.88%
ING GROEP NV	Netherlands	55,237,133	0.87%
Novartis AG REG	Switzerland	53,980,181	0.85%
WPP PLC	United Kingdom	42,269,383	0.67%
SAP SE	Germany	41,733,731	0.66%
Reckitt Benckiser Group PLC	United Kingdom	38,499,656	0.61%
AIA Group Ltd.	Hong Kong	37,963,666	0.60%
<b>TOP TEN</b>		<b>\$564,276,413</b>	<b>8.89%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# 2017 emerging markets international stock fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Emerging Markets International Stock Fund (EMISF) is to (1) achieve a long-term, real rate of return above the U.S. inflation rate; and (2) provide additional measures of diversification within the CRPTF under different economic scenarios.

**Date of Inception:** November 1, 2007

**Total Net Position:** \$3,015,322,058

**Performance Objective:** A net return that matches the benchmark, over rolling three- to five-year periods.

**Management Fees:** \$13,891,017

**Benchmark:** Morgan Stanley Capital International Emerging Markets Investable Market Index (MSCI EM IMI)<sup>(1)</sup>

**Operating Expenses:** \$3,301,344

**Number of Advisors:** 3 external

**Expense Ratio:** 0.63%

(1) The CRPTF signed a licensing agreement with MSCI to provide benchmark data commencing in fiscal year 2015. For the three, five and ten year performance periods, the CRPTF is using the prior benchmark, S&P/Citigroup Broad Market Index Europe, Pacific and Asia Composite Index 50% Hedged.

## Description of the Fund

EMISF assets are allocated across foreign emerging equity markets and are diversified by market, capitalization and style. Emerging market equities are defined as common stocks issued by companies domiciled in developing countries, including the 23 companies in the MSCI EM IMI.

## Portfolio Characteristics

At fiscal year-end, the EMISF's portfolio holdings were diversified over a number of emerging market countries (see Figure 10.6). Notable overweight positions versus the benchmark include Hong Kong (8.2 percent versus the benchmark's 0.0 percent) and Turkey (3.5 percent versus the benchmark's 1.2 percent). Underweight positions include China (12.2 percent versus the benchmark's 26.9 percent), South Africa (2.9 percent versus the benchmark's 6.4 percent), and Malaysia (0.5 percent versus the benchmark's 2.5 percent) (See Figure 10.6).

## Market Review

Emerging market equities initially lost value in the wake of the U.S. election, primarily due to uncertainty over U.S. foreign and trade policy and the prospect of tighter U.S. dollar liquidity. However, a steady recovery in global growth, receding trade policy concerns, and U.S. dollar weakness supported a strong rebound in emerging market equities. The MSCI Emerging Market IMI index returned 22.8 percent for the fiscal year.

The emerging Asian region returned 26.0 percent outperforming emerging Europe, which had a return of 13.7 percent. Taiwan lead the emerging Asian markets with a return of 31.9 percent, followed by China, which returned 30.1 percent. South Korea also had a strong return of 28.8 percent. Within the emerging Europe region, Greece lead with a return of 54.3 percent, followed by Poland, which returned 47.3 percent.

The best performing sectors within the emerging market was information technology (45.3 percent) and materials (27.3 percent). The worst performing sectors were health care (0.50 percent) and consumer staples (2.6 percent).

### Performance Summary

For the fiscal year ended June 30, 2017, the EMISF generated a return of 23.00 percent, net of all expenses, which outperformed the benchmark return of 22.82 percent by 18 basis points (See Figure 10.4). As of June 30, 2017, the EMISF compounded net annualized total returns, for the trailing three-, five- and ten-year periods were 2.06 percent, 4.14 percent, and 1.57 percent, respectively. The returns outperformed the EMISF's benchmark for the three- and five-year periods.

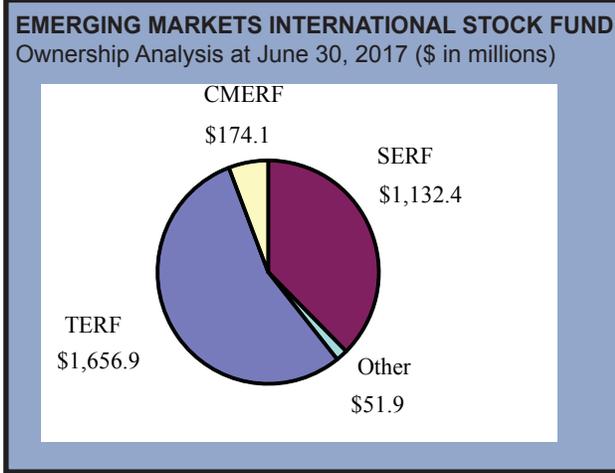
The cumulative returns of the EMISF for the three-, five-, and ten-year periods were 6.29 percent, 22.48 percent, and 16.85 percent, respectively.

### Risk Profile

Given the EMISF's investment policies and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, political and economic risk, currency risk, market risk, and individual company risk. Based on returns over the last five years, the Fund's risk profile equaled that of the benchmark as evidenced by a relative volatility of 1.00. The EMISF's annualized alpha over the five-year period was 0.05, indicating that the fund slightly outperformed the benchmark for the five years on a risk adjusted basis (see Figure 10.2).

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 10-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 10-2



(1) Based upon returns over the last five years.

Figure 10-3

**EMERGING MARKETS INTERNATIONAL STOCK FUND**  
Fiscal Year 2017 Economic Sector vs. Index (%)

	EM ISF	MSCI Index	Variance
Energy	4.8	6.0	-1.2
Materials	6.0	7.7	-1.7
Industrials	3.5	7.0	-3.5
Consumer Discretionary	9.8	11.4	-1.6
Consumer Staples	7.9	6.8	1.1
Health Care	1.3	3.2	-1.9
Financials	26.5	21.8	4.7
Information Technology	27.2	25.1	2.1
Telecommunication Services	6.9	4.9	2.0
Utilities	1.3	2.8	-1.5
Commingled Fund	0.0	0.0	0.0
Preferred Stock	0.0	0.0	0.0
Private Placement	0.0	0.0	0.0
Other	3.2	3.3	-0.1
Liquidity Fund	1.6	0.0	1.6
	100.0	100.0	

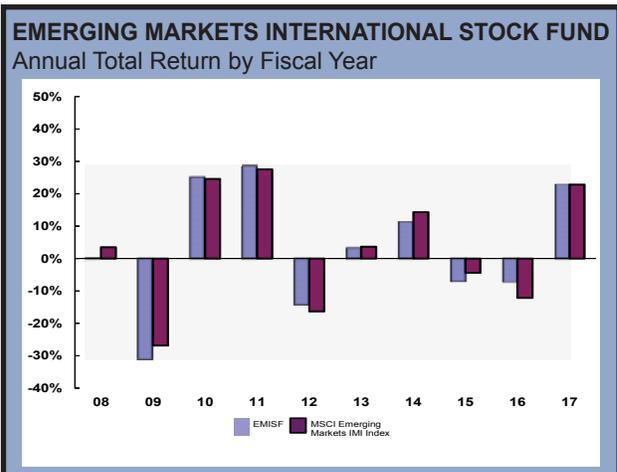
Figure 10-4

**EMERGING MARKETS INTERNATIONAL STOCK FUND**  
Periods ending June 30, 2017

	1 YR	3 YRS	5 YRS	10 YRS
<b>Compounded, Annual Total Return (%)</b>				
EMISF	23.00	2.06	4.14	1.57*
MSCI EMERGING				
MARKETS IMI INDEX	22.82	1.03	4.09	2.09
<b>Cumulative Total Return (%)</b>				
EMISF	23.00	6.29	22.48	16.85*
MSCI EMERGING				
MARKETS IMI INDEX	22.82	3.12	22.19	23.03

\*Represents historical returns at the portfolio composite level.

Figure 10-5



**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 10-6

<b>EMERGING MARKETS INTERNATIONAL STOCK FUND</b>		
Diversification by Benchmark Country at June 30, 2017 <sup>(1)</sup>		
	EMISF Percent of Net Assets 6/30/17	Benchmark Percent of Net Assets 6/30/17
Brazil	8.4%	6.3%
Korea	16.9	15.7
Hong Kong	8.2	0.0
Russia	4.5	2.8
China	12.2	26.9
Taiwan	13.1	13.2
United States	2.3	0.0
Mexico	3.1	3.6
Thailand	3.8	2.4
South Africa	2.9	6.4
Turkey	3.5	1.2
Indonesia	2.0	2.5
Malaysia	0.5	2.5
India	9.6	9.5
Philippines	1.4	1.2
United Kingdom	0.6	0.0
Other Countries	7.0	5.8
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

(1) Includes Liquidity Fund and cash equivalents at each country level.

Figure 10-8

<b>EMERGING MARKETS INTERNATIONAL STOCK FUND</b>			
Ten Largest Holdings* at June 30, 2017			
Security Name	Country	Market Value	%
Taiwan Semiconductor			
Manufacture	Taiwan	\$144,116,447	4.80%
Samsung			
Electronics Co LTD	Republic of Korea	118,333,698	3.94%
Tencent Holdings LTD	China	99,104,743	3.30%
China Mobile LTD	Hong Kong	87,839,679	2.92%
Alibaba Group Holding LTD	Cayman Islands	78,380,838	2.61%
HDFC Bank LTD	India	67,396,532	2.24%
AIA Group LTD	Hong Kong	60,241,795	2.01%
China Construction			
Bank Corp	China	59,665,286	1.99%
Samsung Electronic Co			
LTD GDR	Republic of Korea	57,735,096	1.92%
Hon Hai Precision			
Industry Co	Taiwan	45,240,693	1.51%
<b>Top Ten</b>		<b>\$818,054,807</b>	<b>27.24%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 10-7

<b>EMERGING MARKETS INTERNATIONAL STOCK FUND</b>		
Investment Advisors at June 30, 2017		
Investment Advisor	Net Asset Value	% of Fund
Grantham, Mayo, Van Otterloo	\$798,499,456	26.48%
Aberdeen Asset Management	943,572,024	31.29%
Schroders Investment Mgt	1,263,640,304	41.91%
Other <sup>(1)</sup>	9,610,274	0.32%
<b>TOTAL EMISF</b>	<b>\$3,015,322,058</b>	<b>100.00%</b>

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

# 2017 real estate fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Real Estate Fund (REF) is to 1) provide diversification to the overall CRPTF investment program, 2) preserve investment capital, 3) generate attractive risk-adjusted rates of return, 4) provide consistent current income and 5) act as a hedge against inflation under different economic scenarios.

**Date of Inception:** July 1, 1982

**Total Net Position:** \$2,248,480,820

**Performance Objective:** A net return that matches the benchmark over rolling three-to-five year periods.

**Management Fees <sup>(1)</sup>:** \$9,398,239

**Capitalized and Netted Fees:** \$14,315,279

**Benchmark:** National Council of Real Estate Investment Fiduciaries - National Properties Index ("NCREIF-NPI")

**Operating Expenses:** \$1,007,389

**Expense Ratio:** 0.47%

**Number of Investment Partnerships:** 42

*(1) See note 1 to the Financial Statements for a discussion of similar fees incurred at the investment level.*

## Description of the Fund

The REF is the vehicle by which the CRPTF makes investments in the real estate asset class. The REF may invest in real estate properties, real estate related equity investments, or real estate related debt and mortgages. The REF consists of a number of investment strategies and vehicles including externally managed commingled funds, open-end funds, separate accounts, publically traded real estate securities, limited partnerships, and other indirect ownership structures managed by professional real estate investment managers.

## Portfolio Characteristics

As of June 30, 2017, the portfolio was approximately 25.9 percent invested in close-end fund vehicles, 60.7 percent in open-end funds, and 13.3 percent held in two separate accounts, in which the REF holds 100 percent ownership interest in properties within the portfolio. These separate account vehicles are managed by external managers and employ a core investment strategy. The majority of investments in the REF are comprised of commingled private equity funds vehicles in which the CRPTF holds limited partnership interests. These commingled funds employ three main real estate investment sub-asset classes: core, value-add, and opportunistic strategies. In accordance with the Investment Policy Statement, leverage levels in the REF shall not exceed 60 percent, and investments are diversified across geography and property types, with approximately 94.7 percent located in the markets within the United States and 5.3 percent to real estate markets abroad.

As of June 30, 2017, the REF allocation to sub-strategies was 60.4 percent to core, 22.1 percent to value-add and 13.7 percent to opportunistic. The portfolio is well diversified geographically. While the National Properties Index (NPI) remains the tracked real estate investments benchmark, the CRPTF at any given time may be tactically under- or over-weight in specific property types, regions, vintage years or other characteristics of the index.

## Market Review

The U.S. economy continues to grow at a steady pace. Total employment is up 1.3 percent year-over-year and property values across all sectors have increased. Cap rate spreads versus U.S. Treasuries are at or slightly higher than long term averages and capital flows into real estate are slowing. As the current economic cycle matures, future returns in real estate are expected to moderate.

Market fundamentals in most real estate sectors were strong during the fiscal year, while reduced transaction volumes indicate that capital market activity may decrease in all but a few key markets going forward. Fundraising by private real estate managers fell by 24 percent in the last year but there is a significant amount of capital that has not been deployed.

Industrial properties were the most favored real estate sector, driven primarily by fulfillment and warehousing demand. Investor appetite for multi-family properties has subsided, except in select urban subsectors. After a multi-year run as a top real estate sector, office now is near the bottom and the retail sector continues to suffer, as large department and apparel brick and mortar stores close and mid-priced retailers face competition from e-commerce and discount retailers. Finally, commercial real estate transaction activity continues to decline.

### Performance Summary

For fiscal year 2017 the Fund generated a total fiscal year to date return of 7.4 percent net of all expenses, outperforming its benchmark NCREIF-NPI, which posted a gross return of 7.3 percent. The one-year return reflects an ongoing positive trend in the REF portfolio, which can be attributed to recent accretive commitments to open-ended core and core-plus funds, as well as a number of new value-add strategies in the Fund.

For the trailing three-five-and ten-year periods, the REF's compounded annual returns, net of all expenses, were 10.6 percent, 10.5 percent, and 2.2 percent, respectively (See Figure 11.8). Longer-term portfolio returns continue to lag the benchmark, with five-and ten-year returns underperforming by 16 basis points and 454 basis points, respectively. However, since the Great Recession, REF's net returns have outperformed the gross benchmark in five of the past seven calendar years. The Fund has continued to invest through the recent real estate cycle, with new commitments in value-add and opportunistic strategies during the fiscal year, which has helped to maintain diversification in the fund.

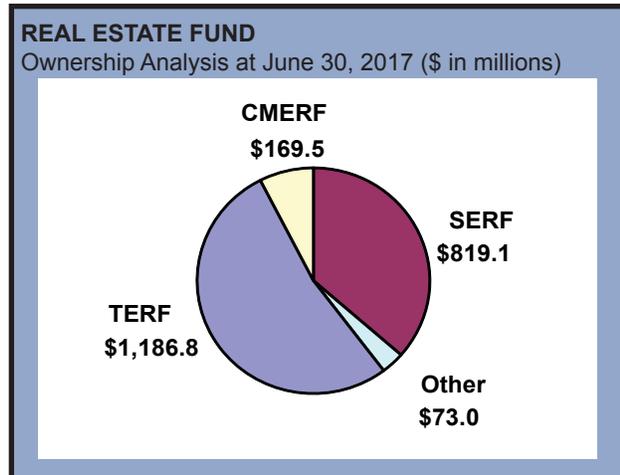
### Risk Profile

The REF takes both a total portfolio and asset class specific approach to risk management. Risk is managed at the portfolio level through diversification and strategic asset allocation and the implementation of strategy. Risks attendant to alternative investments, such as management, operations, local/regional property markets, and liquidity risk, are managed at the asset class level with additional risk management focused on financing, geography, and property type risks specific to a fund manager's portfolio investments.

The REF has lower volatility than NPI, as expected (See Figure 11.2) largely due to allocations to core funds, which generally have lower leverage than value-add and opportunistic strategies and have reduced risk. Also, the REF's core sub-portfolio, which most closely tracks NPI, has a leveraged amount of approximately 35.1 percent. NPI is comprised of a portfolio of 6,000+ properties, many of which are levered, but for purposes of constructing the NPI benchmark, are de-levered for the index. The REF volatility is typical and not excessive relative to a benchmark comprised of unlevered core properties.

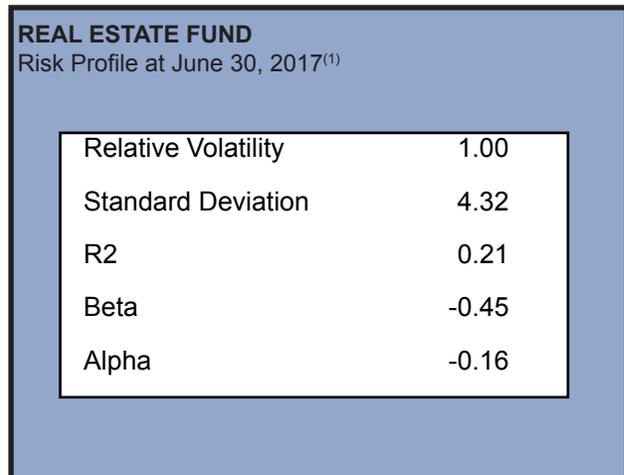
**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 11-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 11-2



(1) Based upon returns over the last five years.

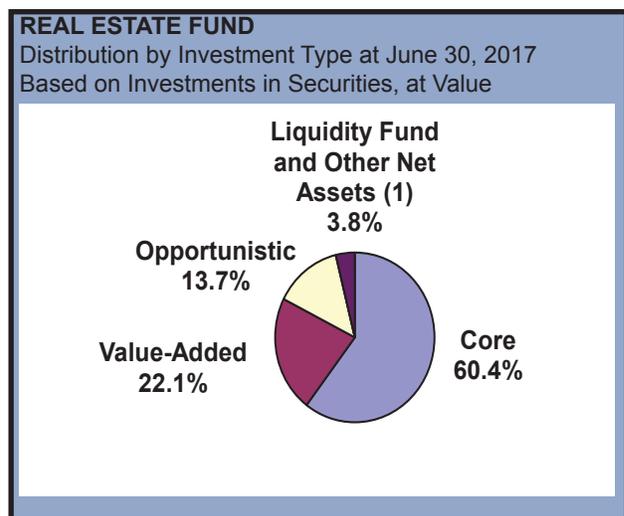
Figure 11-3

**REAL ESTATE FUND**  
Investments Analysis <sup>(1)</sup>

At	No. of REF Investments	REF Book Value	REF Market Value
6/30/2017	42	\$1,917,730,506	\$2,156,493,225
6/30/2016	42	1,798,740,547	2,065,132,526
6/30/2015	38	1,646,736,485	1,732,052,523
6/30/2014	33	1,398,172,794	1,429,069,066
6/30/2013	30	1,366,354,620	1,227,275,238
6/30/2012	36	1,376,611,668	1,180,717,977
6/30/2011	36	1,310,614,926	1,057,213,580
6/30/2010	35	1,097,439,251	715,310,010
6/30/2009	34	996,474,812	745,643,849
6/30/2008	31	920,921,272	968,885,960

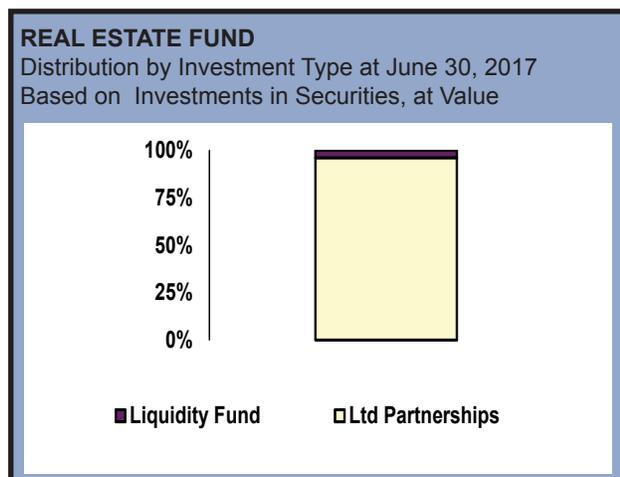
(1) Number of investments in annuities, partnerships, corporations, and trusts, excluding the Liquidity Fund.

Figure 11-4



(1) Liquidity Fund and Other Net Assets

Figure 11-5



(1) Liquidity Fund and other monetary assets.

Figure 11-6

**REAL ESTATE FUND**  
Distribution by Geographic Location at June 30, 2017  
Based on Investments in Securities, at Value

	REF	NCREIF	Variance
East	27.4%	33.2%	-5.8%
Midwest	9.6%	8.6%	1.0%
South	25.4%	19.8%	5.6%
West	31.7%	38.4%	-6.7%
International	5.3%	0.0%	5.3%
Other Net Asset	<u>0.6%</u>	<u>0.0%</u>	0.6%
	100.0%	100.0%	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

Figure 11-7

<b>REAL ESTATE FUND</b>			
Diversification by Property Type at June 30, 2017 Based on Investments in Securities, at Value			
	REF	NCREIF	Variance
Apartment	24.8%	24.3%	0.5%
Industrial	20.0%	14.2%	5.7%
Office	22.6%	36.8%	-14.2%
Retail	20.6%	23.8%	-3.2%
Hotel	4.0%	0.9%	3.1%
Other Net Assets <sup>(1)</sup>	<u>8.0%</u>	<u>0.0%</u>	8.0%
	100.0%	100.0%	

(1) Includes senior living, real estate/mixed use and land.

Figure 11-8

	1 YR	3 YRS	5 YRS	10 YRS
<b>REAL ESTATE FUND</b>				
Periods ending June 30, 2017				
<b>Compounded, Annual Total Return (%)</b>				
REF	7.38	10.58	10.53	2.18
NCREIF Property	7.27	10.58	10.69	6.72
<b>Cumulative Total Return (%)</b>				
REF	7.38	35.22	64.99	24.01
NCREIF Property	7.27	35.23	66.16	91.58

Figure 11-9

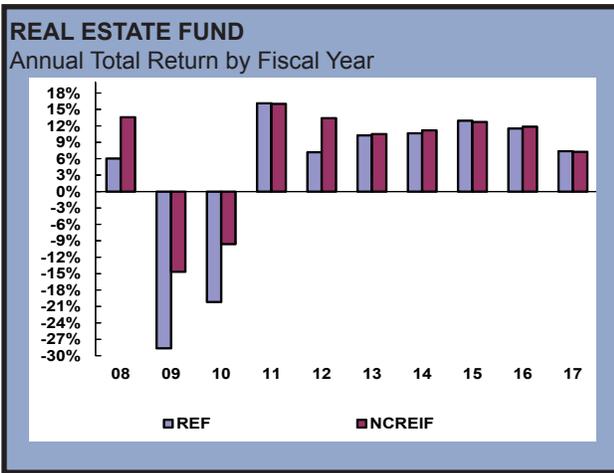
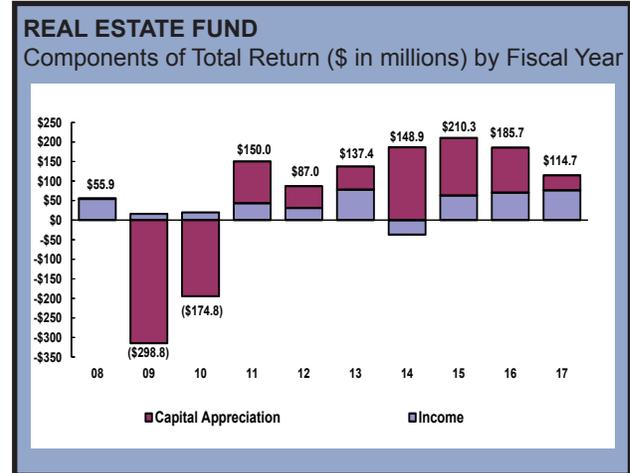


Figure 11-10



## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 11-11

REAL ESTATE FUND		
Funds at June 30, 2017		
Fund	Net Asset Value	% of Fund
AEW Partners III	\$270,172	0.01%
American Realty Advisors	90,401,538	4.02%
Apollo Real Estate	205,358	0.01%
Blackstone Real Estate Partner Europe III LP	34,225,710	1.52%
Blackstone Real Estate Spec Sit II LP	2,180,550	0.10%
Blackstone Real Estate VI LP	20,576,572	0.91%
Blackstone Real Estate Partners VIII LP	47,335,962	2.10%
Blackstone Real Estate Partners EURO V	4,173,260	0.19%
Canyon Johnson Urban Fund II	150,125	0.01%
Canyon Johnson Urban Fund III	447,568	0.02%
Capri Select Income II LLC	60,778	0.00%
Clarion Lion Industrial Trust	116,734,432	5.19%
Colony Realty Partners II LP	9,143,800	0.41%
Cornerstone Patriot Fund LP	293,039,605	13.03%
Covenant Apartment Fund V LP	339,907	0.02%
Covenant Apartment Fund VI	187,454	0.01%
Covenant Apartment Fund VIII	20,879,913	0.93%
Crow Hldgs Realty Partners VII LP	56,054,600	2.49%
Cypress Acquisition Ptnrs Retail FD LP	50,654,012	2.25%
Gerding Edlen Green Cities II	31,154,380	1.39%
Gerding REF III	32,708,305	1.45%
Hart Realty Advisors	197,380,637	8.78%
IL & FS India Realty Fund II LLC	25,244,922	1.12%
JP Morgan Strategic Property	85,542,816	3.80%
Landmark RE Partners VII LP	19,942,161	0.89%
Lone Star Real Estate Part II LP	11,907,393	0.53%
Macfarlane Urban Real Estate Fund II LP	2,654,118	0.12%
Prime Property Fund LLC	263,749,584	11.73%
PRISA	200,459,653	8.92%
Rockwood Capital Fund V	151,000	0.01%
Rockwood Capital VI Limited Partnership	323,897	0.01%
Rockwood Capital VII Limited Partnership	20,343,110	0.90%
Starwood Opportunity Fund VII	15,357,828	0.68%
Starwood Opportunity Fund VIII	10,340,094	0.46%
Starwood Opportunity Fund IX	33,857,966	1.51%
Starwood Opportunity Fund X	71,224,496	3.17%
UBS-Trumbull Property Income	59,078,880	2.63%
UBS-Trumbull Property G&I (TPG)	67,163,079	2.99%
UBS-Trumbull Property Fund LP	86,612,748	3.85%
Urban Strategy America Fund LP	28,574,190	1.27%
USAA Eagle RE Fund	136,225,933	6.06%
WLR IV PPIP Co Invest LP	9,434,720	0.42%
<b>Other <sup>(1)</sup></b>	<b>91,987,594</b>	<b>4.09%</b>
<b>SUBTOTAL REF</b>	<b>\$2,248,480,820</b>	<b>100.00%</b>

(1) Other represents moneys earmarked for distribution to participants, reinvestment and expenses as well as terminated advisor balances.

Figure 11-12

REAL ESTATE FUND			
Ten Largest Holdings* at June 30, 2017			
Property Name	Type	Market Value	%
Cornerstone Patriot Fund LP	Core	\$293,039,605	13.07%
Prime Property Fund LLC	Core	263,749,584	11.76%
PRISA	Core	200,459,653	8.94%
Hart Realty Advisors	Core	197,380,637	8.80%
USAA Eagle RE Fund	Core	136,225,933	6.07%
Clarion Lion Industrial Trust	Value Added	116,734,432	5.21%
American Realty Advisors	Core	90,401,538	4.03%
UBS-Trumbull			
Property Fund LP	Core	86,612,748	3.86%
JP Morgan Strategic Property	Core	85,542,816	3.81%
Starwood Opportunity Fund X	Opportunistic	71,224,496	3.18%
<b>Top Ten</b>		<b>\$1,541,371,442</b>	<b>68.73%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 11-13

REAL ESTATE FUND		
New Investments Made in Fiscal Year 2017 (in Excess of \$3 Million)		
Partnership Name	Commitment Amount	Investment Type
Blackstone Real Estate Partners Europe V	\$50 million	Opportunistic
Gerding Edlen Green Cities II, LP	50 million	Value-Add
Starwood Opportunity Fund XI Global, LP	50 million	Opportunistic
<b>Total</b>	<b>\$150 million</b>	

# 2017 private investment fund

## Fund Facts at June 30, 2017

**Investment Strategy/Goals:** The purpose of the Private Investment Fund (PIF) is to: 1) earn returns in excess of the public equity markets, 2) generate attractive risk-adjusted rates of return, and 3) provide diversification for the CRPTF under different economic environments.

**Date of Inception:** July 1, 1987

**Total Net Position:** \$2,990,442,381

**Performance Objective:** A net return that outperforms the Standard & Poor Index (S&P 500) over rolling ten year periods.

**Management Fees<sup>(1)</sup>:** \$2,656,009

**Benchmark:** S&P 500

**Capitalized and Netted Fees:** \$27,118,524

**Number of Partnerships:** 61

**Operating Expenses:** \$2,159,547

**Expense Ratio:** 0.17%

<sup>(1)</sup>See Note 1 to the Financial Statements for a discussion of similar fees incurred at the investment level.

\*Expense ratio is calculated using the management fee and operating expense totals.

## Description of the Fund

The PIF invests in externally managed funds that are executing strategies divided into two sub-asset classes: venture capital and corporate finance. Venture capital invests equity into young or development stage companies. Corporate finance encompasses several underlying strategies, including leveraged buyout, mezzanine debt, and special situations.

## Portfolio Characteristics

The PIF invests in private equity funds either directly as a Limited Partner to a specific fund or indirectly as a Limited Partner to a fund of funds vehicle. Fund-of-funds invest in multiple private equity partnerships that invest in underlying companies and are typically used to execute a strategic objective within the PIF. Private equity investments include two general areas of strategic focus.

### Corporate Finance

- Buyout focused investments are defined as controlling or majority investments in private equity or equity-like securities of more established companies on the basis of the company's asset value and/or cash flow.
- Mezzanine debt focused investments are defined as investments in securities located between equity and senior debt in the company's capital structure. Mezzanine debt investments offer higher current income than senior debt securities and often offer equity participation features that may take the form of warrants or contingent equity interests.
- Special situation focused investments are defined as investments in a variety of securities (debt, preferred equity and/or common equity) in portfolio companies at a variety of stages of development.
- International private equity focused investments are defined as investments in private equity or equity-like securities in companies located outside the continental United States. International private equity investments provide the benefit of geographic and economic diversification and may include exposure to higher growth economies in select markets.

### Venture Capital

- Venture capital focused investments can be narrowly defined as investments in private equity or equity-like securities of developing companies in need of growth or expansion capital. These investments can range from early-stage financing, where a company has little more than a marketable idea, to expansion financing, where a company has a marketable product but requires additional capital to bring the product to market.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

The PIF had 61 active funds and aggregate capital commitments totaling \$8.6 billion as of June 30, 2017. Approximately 84 percent, or \$7.2 billion, had been “drawn down” for investment purposes as of that date while the balance of approximately \$1.4 billion, or 16 percent, was committed but not drawn (See Figure 13-6).

### Market Review

Despite potential headwinds from uncertainties surrounding economic trends, major elections in the U.S. and Europe, and growing geopolitical risks, global market conditions continued to be favorable and accommodative to the private equity industry. A robust fundraising market combined with access to low cost debt continued to provide managers with ample capital for investment. However, high valuations have presented challenges to private equity managers seeking to deploy capital into new investments.

Fundraising for global private equity totaled \$363.3 billion during the fiscal year representing a 20 percent increase from the prior year. Notably, fiscal year 2017 saw the largest ever European and Asian buyout funds raised, highlighting the trend of increasing investor interest in proven managers investing globally. Buyout funds raised \$225.9 billion in the fiscal year, representing 62 percent of total capital raised, while venture capital funds raised \$73.5 billion, or just over 20 percent of all capital raised globally.

Global buyout and venture capital investment activity in the fiscal year was down from the prior year as managers exhibited discipline in a high valuation cycle while facing continued competition from strategic buyer and public market exit alternatives. More than \$335 billion was invested in close to 4,200 private equity-backed buyout transactions, with aggregate deal value and volume down 12 percent and 1 percent, respectively, from the prior year. The U.S. continued to hold a dominant share of global buyout activity, representing 56 percent of total deal value. Private equity-backed buyout exits generated \$309 billion of value during the year, a decline of 16 percent from the previous year.

Venture capital managers invested \$136 billion globally during the fiscal year, representing a decline of 14 percent from the prior year. The number of investments also declined 14 percent year over year with more than 10,600 venture investments made globally. Venture capital activity in the U.S. represented 42 percent of global venture transactions, down from 40 percent in the prior year. Greater China represented the second most active market with 21 percent of all venture deals closed during the year, outpacing Europe for the second consecutive year.

### Performance Summary

For the fiscal year ended June 30, 2017, PIF generated a net compounded annual rate of return of 10.97 percent (See Figure 13-5). This return was measured using a time weighted return calculation methodology.

While short-term returns are reviewed, longer term (e.g., 10 years) returns are more meaningful in evaluating private equity portfolio performance. Long-term horizons better reflect the illiquid nature of PIF's holdings and the time it takes for investments to realize their potential. PIF's performance is benchmarked against the S&P 500. Over the last 10 years through June 30, 2017, PIF's performance has exceeded that of the S&P 500 by 233 basis points on a compounded annual basis (See Figure 13-5).

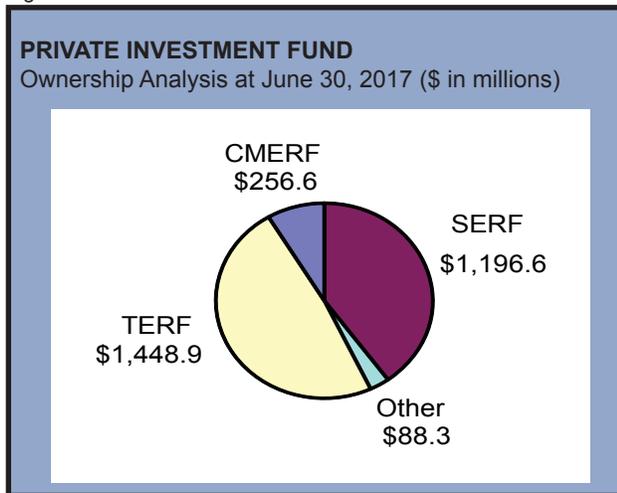
The institutional standard for measuring private equity performance is the Internal Rate of Return (IRR). IRR is a dollar-weighted annualized return that considers both cash flows and time. Since its inception in 1987, PIF has generated a 9.2 percent IRR. A tool commonly used by institutional investors to benchmark IRR performance is the public market equivalent (PME). From inception through June 30, 2017, PIF has generated 213 basis points of annual performance in excess of its S&P 500 PME.

During Fiscal Year 2017, ten new partnership commitments were made to eight managers (See Figure 13-10).

PIF's risk profile is complex given the valuation judgments and liquidity constraints placed on it consistent with an alternative investment strategy. Over the last five years, PIF's volatility relative to its benchmark has been 0.53 with a correlation of 0.00. Over the last five years, the Fund has returned an annual alpha, or return relative to that predicted by its benchmark, of -2.78 (See Figure 13.2).

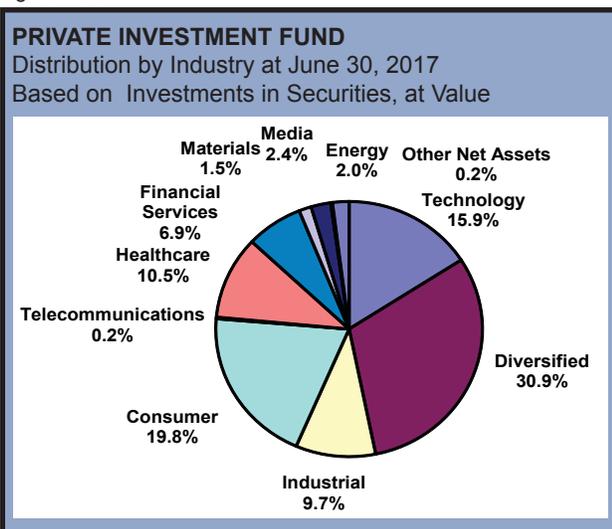
## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 13-1



TERF - Teachers' Retirement Fund  
SERF - State Employees' Retirement Fund  
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 13-3



(1) Data for Private Equity Funds held in PIF; excludes Liquidity Fund and other PIF Assets.

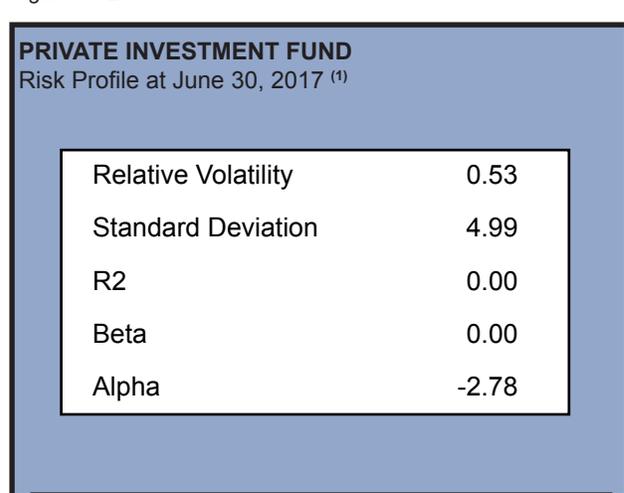
Figure 13-5

**PRIVATE INVESTMENT FUND**  
Periods ending June 30, 2017

	1 YR	3 YRS	5 YRS	10 YRS
<b>Compounded, Annual Total Return (%)</b>				
PIF	10.97	11.27	11.85	9.51
S & P 500	17.90	9.61	14.63	7.18
<b>Cumulative Total Return (%)</b>				
PIF	10.97	37.77	75.09	147.98
S & P 500	17.90	31.70	97.92	100.08

Calculated with time weighted return methodology.

Figure 13-2



(1) Based upon quarterly returns over the last five years.

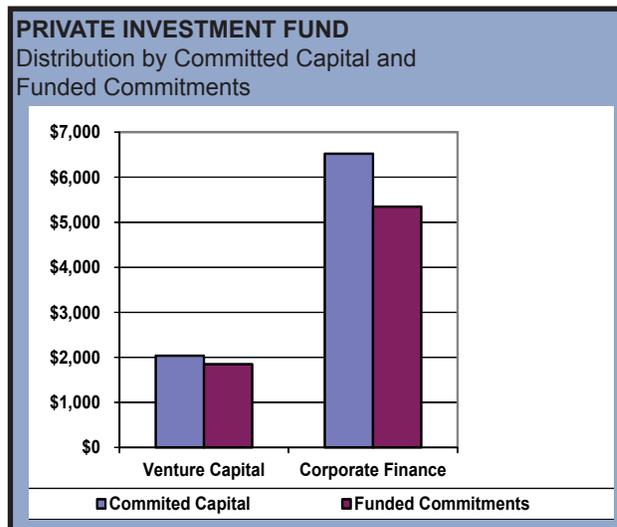
Figure 13-4

**PRIVATE INVESTMENT FUND**  
Distribution by Geographic Location at June 30, 2017  
Based on Investments in Securities, at Value

Region	%
Northeast (Excludes Connecticut)	17.1%
International	8.2%
West Coast	20.3%
Other Assets & Liabilities	0.2%
Southeast	16.7%
Mid-Atlantic	3.9%
MidWest	11.2%
Southwest	11.1%
Connecticut	10.5%
Northwest	0.8%
TOTAL	100.00%

(1) Data for Private Equity Funds held in PIF; excludes Liquidity Fund and other PIF Assets.

Figure 13-6



## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 13-7

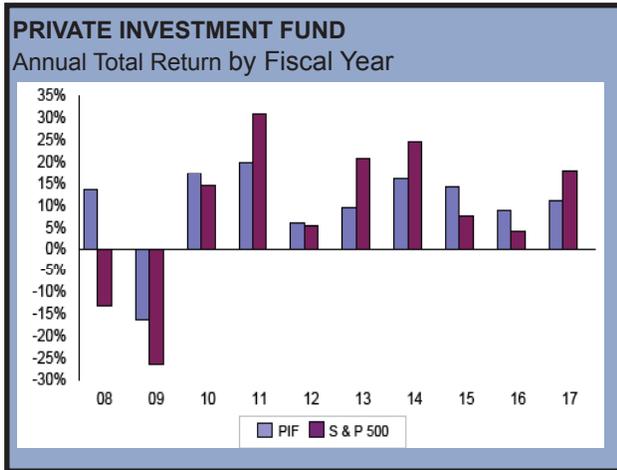


Figure 13-8

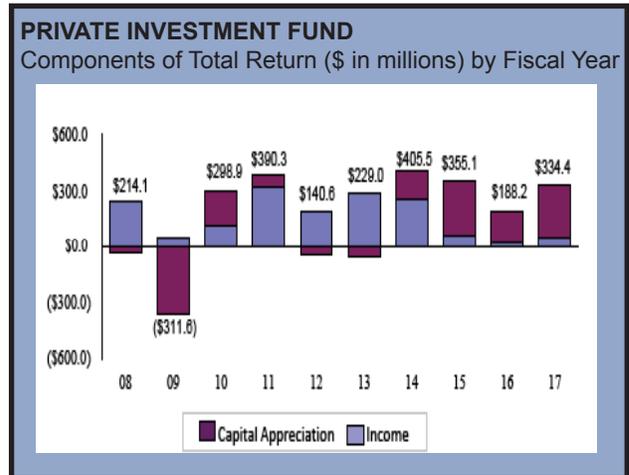


Figure 13-9

PRIVATE INVESTMENT FUND Ten Largest Holdings* at June 30, 2017			
Partnership Name	Partnership Type	Market Value	%
FAIRVIEW CONSTITUTION III LP	Fund of Funds	\$315,539,659	10.62%
FAIRVIEW CONSTITUTION IV LP	Fund of Funds	139,545,704	4.70%
STEPSTONE PIONEER CAPITAL II LP	Fund of Funds	132,208,263	4.45%
FS EQUITY PARTNERS VI	Buyout	124,505,984	4.19%
FAIRVIEW CONSTITUTION II LP	Fund of Funds	90,387,736	3.04%
APOLLO INVESTMENT FUND VIII LP	Special Situations	86,564,648	2.92%
NUTMEG OPPORTUNITIES FUND LP	Fund of Funds	83,953,234	2.83%
YUCAIPA AMERICAN ALLIANCE FUND II	Buyout	81,384,745	2.74%
PEGASUS PARTNERS V LP	Special Situations	81,157,517	2.73%
VISTA EQUITY PARTNERS FUND IV	Buyout	73,479,303	2.47%
<b>Top Ten</b>		<b>\$1,208,726,793</b>	<b>40.69%</b>

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 13-10

PRIVATE INVESTMENT FUND New Commitments Made in Fiscal Year 2017			
Partnership Name	Commitment Amount	Investment Type	Investment Date
JFL Equity Investors IV, L.P.	\$75 million	Buyout	11/15/2016
Vista Equity Partners Fund VI, L.P.	100 million	Buyout	11/16/2016
Leeds Equity Partners VI, L.P.	50 million	Buyout	11/25/2016
Constitution Fund V, LLC - Series A	130 million	Fund-of-Funds	12/30/2016
Constitution Fund V, LLC - Series B	20 million	Fund-of-Funds	12/30/2016
Ironwood Mezzanine Fund IV, L.P.	50 million	Special Situations	5/19/2017
Apollo Investment Fund IX, L.P.	125 million	Buyout	5/31/2017
Nutmeg Opportunities Fund II, LLC	150 million	Fund-of-Funds	6/9/2017
Altaris Constellation Partners IV, L.P.	10 million	Buyout	6/30/2017
Altaris Health Partners IV, L.P.	40 million	Buyout	6/30/2017
<b>Total:</b>	<b>\$750 million</b>		

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

Figure 13-11

### PRIVATE INVESTMENT FUND

Investment Advisors at June 30, 2017

Investment Advisor	Net Asset Value	% of Fund			
<b>Buyout</b>	<b>\$1,090,300,470</b>	<b>36.46%</b>			
AIG Altaris Health Partners II	14,208,866	0.47%	GarMark Partners II LP	9,581,994	0.32%
AIG Altaris Health Partners III	29,429,972	0.98%	<b>International</b>	<b>46,579,869</b>	<b>1.56%</b>
Boston Ventures VII	43,313,369	1.45%	Gilbert Global Equity Partners	44,851,779	1.50%
Charterhouse Equity Partners IV	4,037,714	0.13%	Pinebridge Global Emerging Markets Fund	1,728,090	0.06%
Court Square Capital Partners II	27,058,106	0.90%	<b>Fund of Funds</b>	<b>1,010,862,137</b>	<b>33.80%</b>
Court Square Capital Partners III LP	16,688,090	0.56%	Connecticut Horizon Legacy	5,860,236	0.20%
Ethos Private Equity Fund V	5,324,415	0.18%	CT Growth Capital	7,830,409	0.26%
FS Equity Partners V	6,508,219	0.22%	CS/CT Cleantech Opp Fund	8,123,759	0.27%
FS Equity Partners VI	124,505,984	4.16%	CT Emerging M-2 Pvt Equity	73,164,810	2.45%
GENNX360 Capital Partners II	18,646,010	0.62%	Fairview Constitution II LP	90,387,736	3.02%
Hicks, Muse Tate & Furst Equity Fund III	3,551,237	0.12%	Fairview Constitution III	315,539,659	10.55%
ICV Partners II LP	8,962,675	0.30%	Fairview Constitution IV LP	139,545,704	4.67%
JFL Equity Investors III, LP	50,122,324	1.68%	JP Morgan Nutmeg I	83,953,234	2.81%
JFL IV	26,233,339	0.88%	Landmark Equity Partners XIV LP	38,412,767	1.28%
KKR 2006 Fund	64,659,031	2.16%	Landmark Equity Partners XV LP	37,475,763	1.25%
KKR Millennium Fund	9,244,888	0.31%	Stepstone Pioneer Capital I LP	19,007,759	0.64%
Leeds Equity Partners V LP	32,509,095	1.09%	Stepstone Pioneer Capital II LP	132,208,263	4.42%
Leeds VI	9,898,141	0.33%	Constitution Fund V	22,556,900	0.75%
Nogales Investors Fund II	1,685,506	0.06%	The Constitution Liquidating Fund	36,795,138	1.23%
RFE Investment Partners VII	44,319,391	1.48%	<b>Special Situations</b>	<b>452,045,315</b>	<b>15.12%</b>
RFE Investments Partners VIII	22,912,390	0.77%	Apollo Investment Fund VIII LP	86,564,648	2.90%
TA XI, L.P.	66,429,959	2.22%	Castlelake II LP	45,509,284	1.52%
Thomas H. Lee Equity Fund VI	65,215,336	2.18%	Clearlake Capital Partners III LP	64,676,117	2.16%
Vista Equity Partners Fund III	22,508,517	0.75%	Clearlake IV	48,347,212	1.62%
Vista Equity Partners Fund IV	73,479,303	2.46%	Levine Leichtman Capital Partners	20,220,581	0.68%
Vista Equity Partners Fund VI	46,933,363	1.57%	Levine Leichtman Capital Partners V LP	64,570,094	2.16%
Wellspring Capital Partners V	36,761,719	1.23%	Pegasus Partners IV	29,311,713	0.98%
Welsh Carson Anderson & Stowe X LP	18,865,693	0.63%	Pegasus Partners V	81,157,517	2.71%
Welsh Carson Anderson & Stowe XI	68,992,263	2.31%	WLR Recovery Fund IV	11,688,149	0.39%
WCAS XII, LP	31,951,782	1.07%	<b>Other <sup>(1)</sup></b>	<b>333,947,837</b>	<b>11.17%</b>
Yucaipa American Alliance Fund II LP	81,384,745	2.72%	<b>SUBTOTAL PIF</b>	<b>\$2,990,442,381</b>	<b>100.00%</b>
Yucaipa III	13,959,028	0.47%			
<b>Venture Capital</b>	<b>9,014,785</b>	<b>0.30%</b>			
Crescendo III	1,156,486	0.04%			
Syndicated Communications V	7,858,299	0.26%			
<b>Mezzanine</b>	<b>47,691,968</b>	<b>1.59%</b>			
Audax Mezzanine III Limited Partnership	38,109,974	1.27%			

(1) Other includes partnerships with nonmaterial balances, as well as moneys earmarked for distribution to participants, reinvestment, expenses and other net assets.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 <sup>(1)</sup> FISCAL YEAR ENDED JUNE 30, 2017**

Name of Firm	Description of Services	Contract Date	Aggregate Comp. Paid in FY 2017	Status at June 30, 2017
<b>INVESTMENT ADVISORY SERVICES</b>				
<b><i>Domestic Equity Investment Advisory Services</i></b>				
Bivium Capital Partners, LLC	Equity Advisor	Jul-05	\$2,673,611	Active
Capital Prospects LLC	Equity Advisor	Jul-05	1,729,334	Active
FIS Group Inc.	Equity Advisor	Jul-05	1,465,004	Active
Frontier Capital Management Co.LLC	Equity Advisor	Oct-10	\$2,552,740	Active
State Street Global Advisors	Equity Advisor	Mar-96	\$266,819	Active
T. Rowe Price Associates, Inc.	Equity Advisor	Nov-08	4,342,761	Active
<b>Total Domestic Equity Advisor Compensation</b>			<b>\$13,030,268</b>	
<b><i>Core Fixed Income Investment Advisory Services</i></b>				
Blackrock Financial Management	Core Income Advisor	Mar-96	\$1,161,626	Active
Goodwin Capital Advisors(Phoenix)	Core Income Advisor	Nov-97	551,055	Active
Progress Investment Management	Core Income Advisor	Jul-05	406,597	Active
State Street Global Advisors	Core Income Advisor	Mar-96	100,000	Active
Wellington Asset Management	Core Income Advisor	Nov-97	808,017	Active
<b>Total Core Fixed Income Advisor Compensation</b>			<b>\$3,027,295</b>	
<b><i>Inflation Linked Bond Investment Advisory Services</i></b>				
BlackRock Financial Management, Inc	Inflation Income Advisor	Sep-14	\$950,053	Active
Colchester Global Investors Limited	Inflation Income Advisor	Nov-14	1,413,852	Active
New Century Advisors, LLC	Inflation Income Advisor	Sep-14	371,046	Active
<b>Total Inflation Linked Bond Advisor Compensation</b>			<b>\$2,734,951</b>	
<b><i>Emerging Market Debt Investment Advisory Services</i></b>				
Ashmore Investment Management Limited	Emerging Market Income Advisor	Sep-16	\$1,132,517	Active
BlackRock Institutional Trust Co.	Transition Manager	May-96	\$274,960	Terminated
Payden & Rygel	Emerging Market Income Advisor	Jul-16	713,090	Active
Pyramis Global Advisors	Emerging Market Income Advisor	Oct-07	2,139,429	Active
Stone Harbor Investment Partners	Emerging Market Income Advisor	Oct-07	1,191,463	Terminated
<b>Total Emerging Market Debt Advisor Compensation</b>			<b>\$5,451,459</b>	
<b><i>High Yield Debt Advisory Services</i></b>				
DDJ Capital Management	High Yield Income Advisor	Nov-16	\$226,313	Active
Loomis Sayles & Co., Inc.	High Yield Income Advisor	Mar-96	892,160	Active
Nomura	High Yield Income Advisor	Feb-17	18,170	Active
Oaktree Capital Management	High Yield Debt Advisor	Mar-96	965,221	Terminated
Shenkman Capital Management	High Yield Debt Advisor	Dec-07	1,669,618	Active
Stone Harbor Investment Partners	High Yield Debt Advisor	Oct-07	818,896	Active
<b>Total High Yield Debt Advisor Compensation</b>			<b>\$4,590,467</b>	
<b><i>Liquidity Fund Advisory Services</i></b>				
Colchester Global Investors Limited	Liquidity Fund Advisor	May-09	\$691,033	Active
Lazard Asset Management LLC	Liquidity Fund Advisor	Aug-09	481,333	Active
Pacific Investment Management Co. LLC	Liquidity Fund Advisor	Mar-09	569,264	Active
Payden & Rygel	Liquidity Fund Advisor	Mar-09	529,548	Active
State Street Global Advisors	Liquidity Fund Advisor	Mar-96	179,895	Active
<b>Total Liquidity Fund Advisor Compensation</b>			<b>\$2,451,072</b>	
<b><i>Developed Market International Equity Investment Advisory Services</i></b>				
Acadian Asset Management	International Equity Advisor	Sep-06	\$2,228,775	Active
AQR Capital Management, LLC	International Equity Advisor	Sep-06	2,961,717	Active
Dimensional Fund Advisors LP	International Equity Advisor	Mar-09	1,755,113	Active
First Quadrant LP	International Equity Advisor	Jul-14	3,877,558	Active
Grantham, Mayo, Van Otterloo & Co	International Equity Advisor	Mar-96	2,290,415	Active
MFS Institutional Advisors	International Equity Advisor	Aug-03	2,463,823	Active
Progress Investment Management	International Equity Advisor	Jul-05	801,122	Active
Schroder Investment Management	International Equity Advisor	Sep-03	1,701,537	Active
State Street Global Advisors	International Equity Advisor	Mar-96	1,010,889	Active
William Blair & Company, LLC	International Equity Advisor	Mar-09	2,278,159	Active
<b>Total Developed Market International Equity Advisor Compensation</b>			<b>\$21,429,107</b>	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 <sup>(1)</sup> (Continued)  
FISCAL YEAR ENDED JUNE 30, 2017**

Name of Firm	Description of Services	Contract Date	Aggregate Comp. Paid in FY 2017	Status at June 30, 2017
<b>Emerging Market International Equity Advisory Services</b>				
Aberdeen Asset Management INC	International Equity Advisor	Jul-09	\$4,405,400	Active
Grantham, Mayo, Van Otterloo & Co	International Equity Advisor	Feb-00	3,935,600	Active
Schroder Investment Management	International Equity Advisor	Jan-10	4,965,684	Active
<b>Total Emerging Market International Equity Advisor Compensation</b>			<b>\$13,306,684</b>	
<b>Alternative Investment Advisory Services <sup>(2)</sup></b>				
ArcLight Energy Partners Fund VI	Alternative Investment Advisor	Jul-15	\$1,245,940	Active
EIG Energy Fund XV, LP	Alternative Investment Advisor	Apr-11	295,468	Active
<b>Total Alternative Investment Advisor Compensation</b>			<b>\$1,541,408</b>	
<b>Real Estate Investment Advisory Services <sup>(2)</sup></b>				
American Realty Advisors	Real Estate Advisor	Mar-12	\$498,867	Active
Blackstone Real Estate Advisors Europe	Real Estate Advisor	Nov-08	371,936	Active
Blackstone Real Estate Partners VI	Real Estate Advisor	Aug-07	316,496	Active
Blackstone Real Estate Partners VIII	Real Estate Advisor	Mar-15	1,500,000	Active
Canyon Johnson Urban Fund III, LP	Real Estate Advisor	Feb-08	7,671	Active
Clarion Lion Industrial Trust LP	Real Estate Advisor	Sep-14	1,229,044	Active
Cornerstone Patriot Fund, LP	Real Estate Advisor	Dec-07	1,788,872	Active
Crow Holdings Capital Partners LLC	Real Estate Advisor	Nov-14	1,687,500	Active
Cypress Retail Fund LP	Real Estate Advisor	May-13	703,204	Active
Gerding Elden Fund Management, LP	Real Estate Advisor	May-14	1,570,438	Active
Hart Realty Advisors, Inc. (CORE)	Real Estate Advisor	Nov-11	1,531,417	Active
JP Morgan Investment Mgmt.	Real Estate Advisor	May-14	845,664	Active
Rockwood Capital Partners Fund VII	Real Estate Advisor	Jun-06	18,249	Active
UBS Trumbull Property Growth & Income Fund LP	Real Estate Advisor	Nov-13	672,452	Active
UBS Trumbull Property Fund LP	Real Estate Advisor	Nov-13	825,750	Active
UBS Trumbull Property Income Fund, LP	Real Estate Advisor	Nov-13	470,124	Active
<b>Total Real Estate Advisor Compensation</b>			<b>\$14,037,685</b>	
<b>Private Investment Advisory Services <sup>(2)</sup></b>				
AIG Altaris Healthcare Partners III, LP	Private Investment Advisor	Oct-07	\$800,970	Active
Apollo Advisors VIII, LP	Private Investment Advisor	Nov-13	732,161	Active
Audax Mezzanine Fund III, LP	Private Investment Advisor	May-10	376,599	Active
Boston Ventures LP VII	Private Investment Advisor	May-07	118,236	Active
Clearlake Capital Partners III, LP	Private Investment Advisor	Nov-12	203,547	Active
Clearlake Capital Partners IV, LP	Private Investment Advisor	Aug-15	559,859	Active
Connecticut Growth Capital, LLC	Private Investment Advisor	Dec-15	727,857	Active
Constitution Fund V, LLC	Private Investment Advisor	Dec-16	1,209,962	Active
Constitution Liquidating Fund, LP	Private Investment Advisor	Jul-87	108,303	Active
Court Square Capital Partners III	Private Investment Advisor	May-13	681,203	Active
CT Horizon Legacy Fund LP Total	Private Investment Advisor	Jun-08	50,000	Active
Ethos Capital Fund V, LP	Private Investment Advisor	Aug-06	70,132	Active
Fairview Constitution II, LP	Private Investment Advisor	May-05	468,149	Active
Fairview Constitution III, LP	Private Investment Advisor	Jun-07	1,050,000	Active
Fairview Constitution IV, LP	Private Investment Advisor	Dec-11	975,000	Active
FS Equity Partners V, LP	Private Investment Advisor	Mar-04	36,469	Active
FS Equity Partners VI, LP	Private Investment Advisor	Mar-04	253,951	Active
Garmark Partners, II LP	Private Investment Advisor	Jun-95	63,213	Active
GCM Grosvenor -CT Cleantech (formerly CS/CT Cleantech)	Private Investment Advisor	Jul-07	132,014	Active
GenNx360 Capital Partners II, LP	Private Investment Advisor	Mar-14	378,023	Active
JFL Equity Investors IV, L.P.	Private Investment Advisor	Sep-16	1,654,984	Active
JFL Investors III, LP	Private Investment Advisor	Aug-11	444,394	Active
KKR Associates 2006 Fund, LP	Private Investment Advisor	May-07	143,682	Active
KKR Millennium Fund LP	Private Investment Advisor	Jul-01	8,738	Active
KKR2006 Fund	Private Investment Advisor	Mar-09	222,550	Active
Leeds Equity Partners VI, L.P.	Private Investment Advisor	Nov-16	387,971	Active
Levine Leichtman Capital Partners IV, LP	Private Investment Advisor	Jul-08	73,628	Active
Levine Leichtman Capital Partners V, LP	Private Investment Advisor	Aug-12	1,142,351	Active
Muller & Monroe Asset Management	Private Investment Advisor	Nov-07	436,264	Active

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 <sup>(1)</sup> (Continued) FISCAL YEAR ENDED**

**JUNE 30, 2017**

<b>Name of Firm</b>	<b>Description of Services</b>	<b>Contract Date</b>	<b>Aggregate Comp. Paid in FY 2017</b>	<b>Status at June 30, 2017</b>
Nutmeg Opportunities Fund LP	Private Investment Advisor	Nov-06	645,000	Active
Pegasus Investors IV, LP	Private Investment Advisor	Aug-07	450,458	Active
Pegasus Investors V, LP	Private Investment Advisor	May-12	936,723	Active
RFE Associates VIII, LP	Private Investment Advisor	Apr-12	201,093	Active
StepStone Pioneer Capital Buyout Fund I, LP	Private Investment Advisor	May-05	40,875	Active
StepStone Pioneer Capital Buyout Fund II, LP	Private Investment Advisor	Jun-06	449,712	Active
Syncom Partners V, LP	Private Investment Advisor	Apr-06	19,651	Active
THL Equity Advisors VI, LLC	Private Investment Advisor	Aug-07	384,423	Active
Vista Equity Partners III, LP	Private Investment Advisor	Feb-12	99,720	Active
Vista Equity Partners IV, LP	Private Investment Advisor	May-12	1,078,025	Active
Vista Equity Partners VI, LP	Private Investment Advisor	Nov-16	1,611,047	Active
Yuciapa American Alliance Fund III, LP	Private Investment Advisor	Jul-15	290,624	Active
<b>Total Private Equity Advisor Compensation</b>			<b>\$19,717,560</b>	
<b>TOTAL COMPENSATION TO INVESTMENT ADVISORS</b>			<b>\$101,317,957</b>	
<b>Custody Services</b>				
Bank of New York Mellon	Master Custodian	Oct-13	\$1,742,861	Active
<b>TOTAL CUSTODY SERVICES COMPENSATION</b>			<b>\$1,742,861</b>	
<b>CONSULTING SERVICES</b>				
Cliffwater LLC	Consultant - Alternative Investment	Jun-13	\$535,000	Active
Hewitt EnnisKnupp, Inc.	Consulting - Pension Funds	Aug-11	596,192	Active
Hudepohl & Associates Inc	Consultant -Executive Search	Jul-12	87,367	Active
Mercer Investment Consulting, INC	Consultant - Strategic Asset Study	May-15	30,000	Active
Stepstone Group LP	Consultant -Private Investment	Oct-15	877,310	Active
The Townsend Group, Inc.	Consultant -Pension Funds	Mar-08	312,500	Active
<b>TOTAL CONSULTING SERVICES COMPENSATION</b>			<b>\$2,438,369</b>	
<b>MISCELLANEOUS SERVICES</b>				
A & A Office Systems.	Photocopier Lease	N/A	\$7,590	Active
Advanced Corporate Networking	Computer Equipment	N/A	16,348	Active
Anderson Kill P.C.	Legal Services	Dec-11	10,549	Active
Bloomberg Finance LP	On-Line Information service	N/A	65,980	Active
CERES, Inc.	Dues	N/A	5,000	Active
Corporate Governance Consulting	Corporate Governance Services	N/A	9,045	Active
Council of Institutional Investors	Dues	N/A	30,000	Active
Day Pitney LLP	Legal Services	Mar-12	55,304	Active
Financial Recovery Technologies LLC	Subscription	N/A	29,167	Active
Institutional Limited Partners	Subscription	N/A	7,000	Active
Institutional Shareholder Services	Proxy Voting	Nov-99	83,140	Active
IW Financial	Subscription	N/A	7,500	Active
McCarter & English	Legal Services	Dec-11	49,759	Active
MCI Worldcom International Inc	Telecomm Services	N/A	7,767	Active
Murphy Security Services LLC	Premises Security Services	May-10	11,518	Active
Nextel Communications	Telecomm Services	N/A	10,225	Active
Nossaman	Legal Services	Dec-16	8,342	Active
Orrick, Herrington, & Sutcliffe	Legal Services	Jun-12	34,366	Active
PRI Association	Subscription	N/A	10,361	Active
Pullman & Comley, LLC	Legal Services	Dec-11	16,849	Active
Reinhart Boerner Vandeuere	Legal Services	Dec-11	66,076	Active
Shipman & Goodwin LLP	Legal Services	Mar-12	9,791	Active
Snet	Telecomm Services	N/A	15,330	Active
Squire Patton Boggs	Legal Services	Sep-10	36,046	Active
State Street Bank & Trust	Subscription	N/A	167,000	Active
Sutherland Asbill & Brennan LLP	Legal Services	Dec-16	50,700	Active
Teigland-Hunt LLP	Legal Services	May-17	18,965	Active

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 <sup>(1)</sup> (Continued)  
FISCAL YEAR ENDED JUNE 30, 2017**

<b>Name of Firm</b>	<b>Description of Services</b>	<b>Contract Date</b>	<b>Aggregate Comp. Paid in FY 2017</b>	<b>Status at June 30, 2017</b>
West Group	Subscription	N/A	9,680	Active
<b>TOTAL MISCELLANEOUS SERVICES COMPENSATION</b>			<b>\$849,397</b>	
<b>GRAND TOTAL</b>			<b>\$106,348,583</b>	

- (1) Expenses are presented on a cash basis.
- (2) Alternative Investment Management fees for the Alternative Investment Fund, Private Investment Fund and the Real Estate Fund include capitalized fees and expensed fees. Capitalized fees are part of the cost of the investment and become a component of unrealized gain (loss). Capitalized fees are disclosed in Note 1 of the Combined Investment Funds Financial Statements. Expensed fees which are not part of the cost of the investment are recorded in the Statement of Operations.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF BROKERAGE COMMISSIONS  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

Broker Name	\$ Commission	Shares/ Par Value	Avg Comm	Broker Name	\$ Commission	Shares/ Par Value	Avg Comm
ABG SEC AS (NORGE), FILIAL, STOCKHOLM	503.58	14,444.00	0.03	CITIBANK NA, HONG KONG	3,877.04	3,286,901.00	0.00
ABG SECS, OSLO	2,308.67	181,880.00	0.01	CITIBANK NA, LONDON	34.74	5,718.00	0.01
ABN AMRO CLEARING BANK N.V, AMSTERDAM	766.60	57,179.00	0.01	CITIBANK NY (MER)	48.02	5,600.00	0.01
ABN AMRO MORGANS, BRISBANE	3,943.31	1,765,693.00	0.00	CITIBANK, NY	29.30	4,485.00	0.01
ALLEN & COMPANY LLC, JERSEY CITY	965.82	32,194.00	0.03	CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY	592.51	176,482.00	0.00
APEX CLEARING CORPORATION, DALLAS	941.88	23,547.00	0.04	CITIGROUP GBL MKTS INC, NEW YORK	92,104.72	5,379,613.00	0.02
AUERBACH GRAYSON & CO INC, JERSEY CITY	180.00	6,000.00	0.03	CITIGROUP GBL MKTS/SALOMON, NEW YORK	64,647.30	21,459,631.00	0.00
AVONDALE PARTNERS LLC, NASHVILLE	917.55	23,150.00	0.04	CITIGROUP GLOBAL MARKETS LTD, LONDON	215,663.02	36,073,855.00	0.01
B.RILEY & CO.,LLC, LOS ANGELES	1,249.28	36,926.00	0.03	CJS SECURITIES INC, JERSEY CITY	151.50	3,830.00	0.04
BAIRD, ROBERT W & CO INC, MILWAUKEE	24,712.57	704,702.00	0.04	CLSA AUSTRALIA PTY LTD, SYDNEY	8,735.25	2,225,301.00	0.00
BANCO BTG PACTUAL SA, RIO DE JANEIRO	4,139.31	535,600.00	0.01	COMPASS POINT RESEARCH & TR, JERSEY CITY	1,300.71	37,920.00	0.03
BANCO DE INVESTIMENTUS GARATIA	5,410.13	736,400.00	0.01	CONCORDIA SA CVMCC, RIO DE JANEIRO	621.06	127,880.00	0.00
BANCO ITAU S.A., NEW YORK	6,002.71	592,747.00	0.01	CONVERGE LLC, NEW YORK	72.25	3,400.00	0.02
BANCO ITAU, SAO PAULO	4,689.39	602,171.00	0.01	CORNERSTONE MACRO LLC, NEW YORK	1,726.93	71,140.00	0.02
BANCO SANTANDER, NEW YORK	15,524.45	2,478,821.00	0.01	COWEN AND COMPANY LLC, NEW YORK	4,464.17	174,598.00	0.03
BANK J VONTOBEL & CO LTD, ZURICH	13,479.12	139,148.00	0.10	CRAIG HALLUM, MINNEAPOLIS	2,286.64	77,689.00	0.03
BANK OF AMERICA, N.A, SAN FRANCISCO,CA	6,243.25	75,770,000.00	0.00	CREDIT LYONNAIS SEC, SEOUL	12,334.39	501,387.00	0.02
BANQUE PARIBAS, PARIS	8,066.49	1,583,588.00	0.01	CREDIT LYONNAIS SECS (ASIA), HONG KONG	12,494.48	13,221,554.00	0.00
BARCLAYS BK PLC WHOLESALE, LONDON	1,863.15	28,440,000.00	0.00	CREDIT LYONNAIS SECS, SINGAPORE	18,484.75	12,064,500.00	0.00
BARCLAYS BK PLC, NEW YORK	3,345.40	83,635.00	0.04	CREDIT SUISSE (EUROPE), LONDON	34,307.18	5,561,658.00	0.01
BARCLAYS CAPITAL INC./LE, NEW JERSEY	44,412.30	6,356,077.00	0.01	CREDIT SUISSE (EUROPE), SEOUL	20,564.60	298,721.00	0.07
BARCLAYS CAPITAL INC, JERSEY CITY	15.75	2,100.00	0.01	CREDIT SUISSE (HK) LIMITED, HONG KONG	22,726.38	14,726,535.00	0.00
BARCLAYS CAPITAL LE, JERSEY CITY	10,448.29	651,019.00	0.02	CREDIT SUISSE AUSTRALIA EQ, MELBOURNE	541.45	74,575.00	0.01
BARCLAYS CAPITAL, LONDON (BARCB33)	25,585.08	3,838,084.00	0.01	CREDIT SUISSE, NEW YORK (CSUS)	142,413.09	57,796,758.00	0.00
BARCLAYS CAPITAL, NEW YORK	832.79	247,247.00	0.00	CREDIT SUISSE, SAO PAULO	3,659.77	599,104.00	0.01
BARRINGTON RESEARCH ASSOCIATES, CHICAGO	1,127.91	37,597.00	0.03	CREST DEPOSITORY LTD, LONDON	24.96	1,081.00	0.02
BB&T SECURITIES, LLC, RICHMOND	112.80	3,760.00	0.03	CSL STOCKBROKERS LIMITED, LAGOS	111.45	180,220.00	0.00
BELTONE SEC BROKERAGE S.A.E, CAIRO	67.27	34,939.00	0.00	CUTTONE & CO, JERSEY CITY	63.78	3,189.00	0.02
BERENBERG GOSSLER & CIE, HAMBURG	34,732.43	3,888,853.00	0.01	D CARNEGIE AB, STOCKHOLM	5,473.08	616,097.00	0.01
BERNSTEIN SANFORD C & CO, NEW YORK	79,856.09	30,463,126.00	0.00	DAEWOO SECURITIES CO LTD, SEOUL	4,913.64	150,780.00	0.03
BLOOMBERG TRADEBOOK LLC, NEW YORK	53.27	1,902.00	0.03	DAIWA SECS (HK) LTD, HONG KONG	13,679.40	5,033,184.00	0.00
BLOOMBERG TRADEBOOK, LONDON	472.65	1,215,137.00	0.00	DAIWA SECS AMER INC, NEW YORK	23,480.26	1,818,735.00	0.01
BLOOMBERG TRADEBOOK,NEW YORK	22,111.45	571,109.00	0.04	DAVIDSON(D A) & CO INC, NEW YORK	2,215.79	58,092.00	0.04
BMO CAPITAL MARKETS CORP, NEW YORK	7,120.98	233,753.00	0.03	DAVY STOCKBROKERS, DUBLIN	2,402.80	178,852.00	0.01
BNP PARIBAS PEREGRINE SEC LTD, HONG KONG	19,429.69	16,905,951.00	0.00	DBS VICKERS SEC PTE LTD, SINGAPORE	2,372.17	83,600.00	0.03
BNP PARIBAS PRIME BROKERAGE, JERSEY CITY	6.00	200.00	0.03	DEN DANSKE BANK, COPENHAGEN	2,118.89	73,132.00	0.03
BNP PARIBAS PRIME BROKERAGE,INC,NEW YORK	210.00	7,000.00	0.03	DEN NORSEK CREDITBANK, OSLO	53.27	26,364.00	0.00
BNP PARIBAS SEC SRVS SA, SINGAPORE	22,696.61	9,350,331.00	0.00	DEUTSCHE BANK SAE, BARCELONA	27.74	6,141.00	0.00
BNP PARIBAS SEC SVCS, LONDON (PARBGB2L)	2,119.05	536,872.00	0.00	DEUTSCHE BK AG, LONDON	2,538.79	37,185,000.00	0.00
BNP PARIBAS SECS SERV, SYDNEY	1,300.68	555,794.00	0.00	DEUTSCHE BK INTL EQ, LONDN (DEUTGB22EEQ)	22,210.47	2,899,384.00	0.01
BNP PARIBAS SECURITIES SVCS, HONG KONG	5,245.33	2,761,300.00	0.00	DEUTSCHE BK SECS INC, NY (NWSCUS33)	114,373.83	46,644,099.00	0.00
BNY CONVERGEX EXECUTION SOL, NEW YORK	46,017.05	5,061,833.00	0.01	DEUTSCHE MORGAN GRENPELL SEC, SYDNEY	34.87	4,946.00	0.01
BNY CONVERGEX, NEW YORK	10,575.54	313,181.00	0.03	DEUTSCHE SEC ASIA LTD, HONG KONG	4,445.58	349,815.00	0.01
BRADESCO S.A. CTVM, SAO PAULO	2,976.49	370,881.00	0.01	DEXIA BK (FORMERLY KEMPEN), AMSTERDAM	172.60	15,820.00	0.01
BRADESCO S/A CTVM, SAO PAULO	2,093.01	240,800.00	0.01	DMG N PARTNERS SEC, SINGAPORE	1,278.38	915,800.00	0.00
BREAN CAPITAL LLC, JERSEY CITY	305.32	21,132.00	0.01	DNB NOR MARKETS CUSTODY, OSLO	210.80	13,173.00	0.02
BROADCORT CAPITAL CORP FI, NEW YORK	31.20	780.00	0.04	DOUGHERTY & COMPANY LLC, MINNEAPOLIS	1,496.70	47,896.00	0.03
BROCKHOUSE AND COOPER, MONTREAL	2,013.74	127,400.00	0.02	DOWLING & PARTNERS, JERSEY CITY	1,388.86	39,433.00	0.04
BTIG LLC, SAN FRANCISCO	3,205.25	292,185.00	0.01	DREXEL HAMILTON LLC, JERSEY CITY	748.58	29,330.00	0.03
CABRERA CAPITAL MARKETS, CHICAGO	4,116.03	263,790.00	0.02	ED AND F MAN CAPITAL MARKETS, LONDON	3,171.10	1,799,409.00	0.00
CACEIS BANK DEUTSCHLAND, GERMANY	98.14	286.00	0.32	ERSTE BK SPARKASSEN, PRAGUE	389.93	2,937.00	0.13
CANACCORD GENUITY INC,NEY YORK	2,248.23	69,661.00	0.03	EXANE, PARIS (EXANFRPP)	4,063.17	209,585.00	0.02
CANACCORD GENUITY LTD, LONDON	2,751.84	237,543.00	0.01	FBN SECURITIES INC, JERSEY CITY	47.94	1,598.00	0.03
CANTOR CLEARING SERV, NEW YORK	10,106.99	1,039,802.00	0.01	FBR CAPITAL MARKETS & CO, ARLINGTON	2,931.20	154,358.00	0.02
CANTOR CLEARING SERVICE, NEW YORK	16.60	830.00	0.02	FIG PARTNERS LLC, ATLANTA	1,473.05	45,300.00	0.03
CANTOR FITZGERALD & CO INC, NEW YORK	10,975.60	437,196.00	0.03	FINANCIAL BROKERAGE GROUP (FBG), CAIRO	13.55	1,951.00	0.01
CANTOR FITZGERALD EUROPE, LONDON	287.25	15,449.00	0.02	FIRST ANALYSIS SECS CORP, CHICAGO	382.98	12,766.00	0.03
CAPITAL INSTITUTIONAL SVCS, NEW YORK	550.90	27,545.00	0.02	FIRST CLEARING LLC, RICHMOND	5,465.19	174,772.00	0.03
CARNEGIE ASA, OSLO	2,468.75	150,508.00	0.02	FIRST NZ CAP SECS, WELLINGTON	515.21	167,969.00	0.00
CARNEGIE BANK AS, COPENHAGEN	2,046.57	49,343.00	0.04	FLOW CORRETORA DE MERCADORIAS, SAO PAULO	136.39	13,000.00	0.01
CARNEGIE SECS LTD, HELSINKI (CASFFIH1)	9,019.23	207,093.00	0.04	FOKUS BANK, TRONDHEIM	1,966.07	119,200.00	0.02
CASTLEOAK SEC/CANTOR FITZGERALD & CO, NY	3,123.19	307,801.00	0.01	FOX RIVER EXECUTION TECH,LLC,JERSEY CITY	93.00	18,600.00	0.01
CELADON FINANCIAL GROUP, LLC, NEW YORK	404.60	47,600.00	0.01	FUJI SECURITIES INC, JERSEY CITY	908.48	22,712.00	0.04
CELFIN CAPITAL SA CORREDORES, SANTIAGO	16,241.35	3,942,115.00	0.00	GK GOH SECURITIES	3,438.70	2,711,836.00	0.00
CHEEVERS & CO INC, CHICAGO	72.86	9,100.00	0.01	GOLDMAN SACHS & CO, NY	227,858.93	112,079,727.00	0.00
CHEEVERS & CO. INC.,CHICAGO	1,688.00	83,235.00	0.02	GOLDMAN SACHS ASIA SEC LTD, HONG KONG	812.92	1,974,688.00	0.00
CHINA INTL CAP CORP HK SECS, HONG KONG	13,552.35	8,492,908.00	0.00	GOLDMAN SACHS AUSTRALIA PTY LTD,MELBOURN	88.58	88,782.00	0.00
CHINA INTL CAP CORP LTD, BEIJING	714.07	326,594.00	0.00	GOLDMAN SACHS DO BRASIL, SAO PAULO	8,359.01	872,208.00	0.01
CIBC WORLD MARKETS CORP, NEW YORK	640.00	16,000.00	0.04	GOLDMAN SACHS EXECUTION & CLEARING, NY	2,366.74	165,848.00	0.01
CIBC WORLD MKTS INC, TORONTO	3,619.72	175,751.00	0.02	GOLDMAN SACHS INTL, LONDON (GSILGB2X)	54,860.21	6,084,704.00	0.01
CIBC WORLD MKTS INC, TORONTO (WGDB)	851.01	62,000.00	0.01	GOLDMAN SACHS INTL, NY	1,454.65	29,093.00	0.05
CIMB GK SECURITIES PTE LTD, SINGAPORE	47.75	10,502.00	0.01	GOLDMAN SACHS INTL, TORONTO (GSCI)	2,197.88	111,100.00	0.02
CIMB INVESTMENT BK BERHAD, KUALA LUMPUR	2,934.98	3,804,307.00	0.00	GOODBODY STOCKBROKERS, DUBLIN	1,027.34	293,556.00	0.00
CIMB SECURITIES (USA), INC, NEW YORK	918.31	297,028.00	0.00	GOODBODY STOCKBROKERS, DUBLIN	1,557.95	258,960.00	0.01
CITIBANK (COR), NEW YORK	104.50	103,063.00	0.00	GORDON HASKETT CAP CORP, NJ	925.48	29,612.00	0.03
CITIBANK CUSTODIAL, TORONTO (CITC)	49.85	2,200.00	0.02	GREEN STREET ADVISORS, JERSEY CITY	1,248.47	40,749.00	0.03
CITIBANK LTD, MELBOURNE	5.93	19,772.00	0.00	GREEN STREET TRADING LLC, NEW YORK	1,589.49	50,988.00	0.03

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF BROKERAGE COMMISSIONS (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

Broker Name	\$ Commission	Shares/ Par Value	Avg Comm	Broker Name	\$ Commission	Shares/ Par Value	Avg Comm
GUGGENHEIM CAPITAL MKT LLC, JERSEY CITY	596.12	26,256.00	0.02	LUMINEX TRADING AND ANALYTICS, BOSTON	166.14	66,449.00	0.00
GUZMAN & COMPANY, CORAL GABLES	33.58	1,679.00	0.02	M RAMSEY KING SECURITIES INC, BROOKLYN	2,306.28	47,076.00	0.05
HAITONG INTL SEC CO LTD, HONG KONG	3,508.29	3,633,000.00	0.00	MACQUARIE BANK LIMITED, SYDNEY	8,444.83	2,145,415.00	0.00
HANWHA SECS CO LTD, SEOUL	1,068.97	88,910.00	0.01	MACQUARIE BANK LTD, HONG KONG	33,487.82	19,072,487.00	0.00
HC ISTANBUL MENKUL DEGERLER, ISTANBUL	3,573.67	662,614.00	0.01	MACQUARIE BANK LTD, SYDNEY	828.73	157,500.00	0.01
HILLTOP SECURITIES INC, DALLAS	6,771.44	207,769.00	0.03	MACQUARIE CAPITAL (USA) INC., NEW YORK	12,722.64	832,435.00	0.02
HONG KONG & SHANGHAI BKG CORP, HONG KONG	6,176.84	2,185,900.00	0.00	MACQUARIE CAPITAL LTD, LONDON	1,973.36	124,025.00	0.02
HSBC BANK PLC (MIDLAND BK)(JAC), LONDON	47,794.09	6,694,119.00	0.01	MACQUARIE SECS (SINGAPORE), SINGAPORE	191.87	205,400.00	0.00
HSBC BROKERAGE (USA) INC., NEW YORK	67.50	4,500.00	0.02	MACQUARIE SECURITIES LTD, AUCKLAND	126.03	44,379.00	0.00
HSBC JAMES CAPEL, SEOUL	10,515.79	360,607.00	0.03	MACQUARIE SECURITIES LTD, SEOUL	6,726.25	264,980.00	0.03
HSBC SECS INC, NEW YORK	10,327.70	7,866,625.00	0.00	MACQUARIE SECURITIES(USA)INC JERSEY CITY	1,414.61	50,166.00	0.03
HSBC SECURITIES (USA) INC, NEW YORK	6,752.34	335,099.00	0.02	MAINFIRST BANK AG,FRANKFURT AM MAIN	3,166.22	32,232.00	0.10
HSBC,(ALL HK OFFICES & HEAD OFFICE), HK	2,070.19	6,536,904.00	0.00	MALAYAN BANKING, KUALA LUMPUR	2,430.01	730,964.00	0.00
ICAP DO BRASIL DTVM LTDA, RIO DE JANEIRO	1,214.95	91,010.00	0.01	MAXIM GROUP, JERSEY CITY	1,509.98	48,782.00	0.03
ICBC FINCL SVCS, NEW YORK	4,156.44	232,427.00	0.02	MAYBANK INV BANK BERHAD,KUALA LUMPUR	260.14	239,848.00	0.00
ICHIYOSHI SEC CO LTD, TOKYO	230.80	8,600.00	0.03	MEDIOBANCA SPA, MILANO	3,014.75	135,191.00	0.02
INSTINET AUSTRALIA CLEARING SERV, SYDNEY	7,844.47	2,340,818.00	0.00	MERLIN SECURITIES LLC, JERSEY CITY	817.98	109,055.00	0.01
INSTINET CANADA, TORONTO	555.39	99,280.00	0.01	MERRILL LYNCH & CO INC ATLAS GLOBAL, NY	3,649.76	211,917.00	0.02
INSTINET CORP, NEW YORK	27,025.44	2,675,458.00	0.01	MERRILL LYNCH BROADCORT CAP, NEW YORK	468.25	46,825.00	0.01
INSTINET CORP, NY	10,219.17	604,843.00	0.02	MERRILL LYNCH GILTS LTD, LONDON	37,353.88	15,122,864.00	0.00
INSTINET EUROPE LIMITED, LONDON	109,401.09	59,192,492.00	0.00	MERRILL LYNCH INTL LONDON EQUITIES	173,884.88	75,259,143.00	0.00
INSTINET PACIFIC LTD, HONG KONG	73,074.06	36,843,561.00	0.00	MERRILL LYNCH PIERCE FENNER SMITH INC NY	197,363.93	85,991,863.00	0.00
INSTINET, SINGAPORE	674.95	253,300.00	0.00	MERRILL LYNCH PIERCE FENNER, WILMINGTON	44,647.75	7,477,591.00	0.01
INVESTEC HENDERSON CROSTHWAITE,LONDON	4,346.56	156,411.00	0.03	MERRILL LYNCH PROFESSIONAL CLRG, PURCHAS	294.25	8,758.00	0.03
INVESTEC SECURITIES (331), LONDON	7,505.79	406,398.00	0.02	MERRILL LYNCH SA CVTM, SAO PAULO	3,714.21	364,100.00	0.01
INVESTEC SECURITIES LTD, JOHANNESBURG	7,350.38	644,260.00	0.01	MIRAE ASSET SEC (HK) LTD,HONG KONG	2,244.16	1,187,853.00	0.00
INVESTMENT TECHNOLOGY GROUP LTD,DUBLIN	45,103.28	7,564,407.00	0.01	MIRAE ASSET SECURITIES, SEOUL	5,044.94	217,480.00	0.02
INVESTMENT TECHNOLOGY GROUP, NEW YORK	2,238.10	84,993.00	0.03	MISCHLER FINL/EQUITIES, CORONA DELMAR	1,491.38	55,505.00	0.03
IPOPEMA SECURITIES S.A., WARSZAWA	230.27	1,507.00	0.15	MITSUBISHI UFJ SECS INTL PLC, LONDON	626.84	29,300.00	0.02
ISI GROUP INC, NY	5,796.85	213,827.00	0.03	MITSUBISHI UFJ SECURITIES, NEW YORK	10,704.09	597,700.00	0.02
ITAU USA SECURITIES INC, NEW YORK	622.55	80,340.00	0.01	MIZUHO SECURITIES ASIA, HONG KONG	101.05	4,100.00	0.02
ITG AUSTRALIA LTD, MELBOURNE	13,596.07	5,920,562.00	0.00	MIZUHO SECURITIES USA INC, NEW YORK	3,118.44	320,637.00	0.01
ITG CANADA CORP, TORONTO	3,006.71	176,515.00	0.02	MIZUHO SECURITIES USA INC, NEW YORK	6,695.72	199,889.00	0.03
ITG HONG KONG LIMITED, HONG KONG	22,102.48	11,658,328.00	0.00	MKM PARTNERS LLC, GREENWICH	5,237.98	185,014.00	0.03
ITG INC, NEW YORK	34,049.58	3,399,678.00	0.01	MORGAN STANLEY & CO INC, NY	197,873.43	51,791,725.00	0.00
ITG INC, NY	256.77	75,513.00	0.00	MORGAN STANLEY & CO INTL LTD, SEOUL	16,077.85	352,755.00	0.05
IXIS SECURITIES, PARIS	1,261.82	36,503.00	0.03	MORGAN STANLEY & CO, LONDON (MSLNGB2X)	50,770.35	8,811,681.00	0.01
J & E DAVY, DUBLIN	2,213.45	361,453.00	0.01	MORGAN STANLEY DEAN WITTER, SYDNEY	372.37	294,026.00	0.00
J P MORGAN SEC LTD/STOCK LENDING, LONDON	4,433.15	317,011.00	0.01	MS SECS SVCS INC INTL , BROOKLYN	49.82	41,244.00	0.00
J P MORGAN SEC, SYDNEY	1,064.92	519,586.00	0.00	NATIONAL FINL SVCS CORP, NEW YORK	60,173.12	2,664,276.00	0.02
J P MORGAN SECS LTD, LONDON	97,407.86	19,063,974.00	0.01	NATIONAL SECS CO LTD, BANGKOK	7,783.19	5,265,565.00	0.00
J P MORGAN SECURITIES INC, BROOKLYN	12,303.76	1,020,419.00	0.01	NBCN INC, TORONTO (NBCS)	799.98	52,974.00	0.02
J.P. MORGAN CLEARING CORP, NEW YORK	221,116.32	14,044,025.00	0.02	NEEDHAM AND COMPANY LLC, JERSEY CITY	650.11	18,317.00	0.04
J.P. MORGAN SECURITIES, HONG KONG	29,184.80	15,244,204.00	0.00	NESSBITT BURNS, TORONTO (NTDT)	1,438.97	171,777.00	0.01
JANNEY MONTGOMERY SCOTT, PHILADELPHIA	2,233.10	70,472.00	0.03	NOMURA FINANCIAL & INVESTMENT, SEOUL	13,003.88	696,845.00	0.02
JEFFERIES & CO INC, NEW YORK	129,227.62	15,828,537.00	0.01	NOMURA SECS INTL, LONDON	104.75	14,200.00	0.01
JEFFERIES & CO LTD, LONDON	16,049.03	12,657,833.00	0.00	NORDEA BANK FINLAND PLC,HELSINKI	1,992.73	217,866.00	0.01
JEFFERIES HONG KONG LIMITED, HONG KONG	1,580.19	834,796.00	0.00	NORDEA BK PLC, HELSINKI (NDEAFIHH030)	296.65	53,016.00	0.01
JMP SECURITIES, SAN FRANCISCO	1,598.83	53,124.00	0.03	NORTH SOUTH CAPITAL LLC, JERSEY CITY	1,108.93	85,474.00	0.01
JOHNSON RICE & COMPANY LLC, NEW ORLEANS	545.00	25,382.00	0.02	NORTHLAND SECS INC, JERSEY CITY	555.29	17,344.00	0.03
JONES & ASSOC, WESTLAKE VILLAGE	1,823.60	51,427.00	0.04	NUMIS SECURITIES INC., NEW YORK	7,111.60	946,900.00	0.01
JONESTRADING INSTL SVCS LLC, WESTLAKE	3,591.55	137,601.00	0.03	NUMIS SECURITIES LTD, LONDON	809.80	162,337.00	0.00
JP MORGAN SECS (FAR EAST) LTD, SEOUL	7,566.89	281,669.00	0.03	ODDO ET CIE, PARIS	1,146.27	62,605.00	0.02
JP MORGAN SECS, SINGAPORE	297.14	45,200.00	0.01	OPPENHEIMER & CO INC, NEW YORK	10,371.26	321,205.00	0.03
JPMORGAN CHASE BK, DALLAS	1,239.64	225,689.00	0.01	ORIEL SECURITIES LTD, LONDON	75.99	13,000.00	0.01
JPMORGAN SECURITIES INC, NEW YORK	40,855.73	7,049,515.00	0.01	OSK INVESTMENT BANK BERHAD, KUALA LUMPUR	7,576.79	3,691,046.00	0.00
KAS BANK NV, AMSTERDAM	470.84	15,876.00	0.03	PANMURE GORDON & CO LTD, LONDON	2,108.50	585,340.00	0.00
KEB SALOMON SMITH BARNEY SECS, SEOUL	5,707.04	31,658.00	0.18	PAREL, PARIS	7,526.58	268,179.00	0.03
KEEFE BRUYETTE AND WOODS, JERSEY CITY	715.01	19,877.00	0.04	PEEL HUNT LLP, LONDON	3,279.49	1,612,878.00	0.00
KEPLER EQUITIES, PARIS	893.78	23,682.00	0.04	PENSERRA SECURITIES, NEW YORK	6,144.13	649,502.00	0.01
KEYBANC CAPITAL MARKETS INC, JERSEY CITY	7,727.62	217,870.00	0.04	PEREGRINE SECS PHILIPPINES INC, MANILA	1,574.39	3,737,310.00	0.00
KEYBANC CAPITAL MARKETS INC, NEW YORK	6,198.61	293,577.00	0.02	PERSHING LLC, JERSEY CITY	647,968.87	1,001,286,472.63	0.00
KIM ENG SEC LTD, HONG KONG	225.68	74,400.00	0.00	PERSHING SECURITIES LIMITED, LIVERPOOL	24.96	4,097.00	0.01
KIM ENG SECS PT, JAKARTA	654.26	15,826,300.00	0.00	PERSHING SECURITIES LTD, LONDON	11,585.17	2,178,613.00	0.01
KING (CL) & ASSOCIATES, ALBANY	13,813.31	435,725.00	0.03	PIPER JAFFRAY & CO, MINNEAPOLIS	20,346.34	617,243.00	0.03
KNIGHT CAPITAL EUROPE LTD, LONDON	4,588.10	1,334,845.00	0.00	PT. MANDIRI SEKURITAS,JAKARTA	622.94	97,500,600.00	0.00
KNIGHT CLEARING SERVICES LLC, JERSEY CIT	2,596.49	336,071.00	0.01	RAYMOND JAMES & ASSOC INC, ST PETERSBURG	41,815.38	1,317,788.00	0.03
KNIGHT DIRECT LLC, JERSEY CITY	162.00	21,600.00	0.01	RBC CAPITAL MARKETS LLC, NEW YORK	58,990.95	3,580,135.00	0.02
KNIGHT EQUITY MARKETS L.P.,JERSEY CITY	92.57	4,697.00	0.02	RBC DOMINION SECS INC, TORONTO (DOMA)	8,201.35	342,250.00	0.02
KOREA INVESTMENT AND SEC CO.LTD,SEOUL	11,051.36	459,391.00	0.02	REDBURN PARTNERS LLP, LONDON	1,408.21	314,425.00	0.00
LARRAIN VIAL, SANTIAGO	33.96	253,082.00	0.00	RENAISSANCE CAPITAL LTD, LONDON	9,119.58	797,550.00	0.01
LEERINK SWANN & CO, JERSEY CITY	692.32	17,308.00	0.04	ROTH CAPITAL PARTNERS LLC, IRVINE	73.10	1,990.00	0.04
LIBERUM CAPITAL INC, NEW YORK	2,302.49	162,024.00	0.01	ROYAL BANK OF CANADA EUROPE LTD, LONDON	1,071.93	123,177.00	0.01
LIQUIDNET CANADA INC, TORONTO	3,600.42	240,529.00	0.01	S G WARBURG, SEOUL	13,598.17	892,318.00	0.02
LIQUIDNET EUROPE LIMITED, LONDON	375.21	21,980.00	0.02	SAMSUNG SECS, SEOUL	259.43	1,034.00	0.25
LIQUIDNET INC, NEW YORK	10,032.02	449,985.00	0.02	SAMUEL A. RAMIREZ & COMPANY INC, JERSEY	288.34	38,451.00	0.01
LOOP CAPITAL MARKETS, JERSEY CITY	12,517.05	790,480.00	0.02	SANDLER O'NEILL & PARTNERS LP, NEW YORK	1,811.90	54,220.00	0.03

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF BROKERAGE COMMISSIONS (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

Broker Name	\$ Commission	Shares/ Par Value	Avg Comm	Broker Name	\$ Commission	Shares/ Par Value	Avg Comm
SANFORD C BERNSTEIN & CO INC, LONDON	16,766.64	1,479,269.00	0.01				
SANTANDER CENTRAL HISPANO INVT, MADRID	6,364.50	3,383,341.00	0.00				
SANTANDER INVESTMENT SECS, JERSEY CITY	816.11	108,814.00	0.01				
SCB SECURITIES CO LTD, BANGKOK	9,604.85	14,648,976.00	0.00				
SCOTIA CAPITAL (USA) INC, NEW YORK	780.07	12,751.00	0.06				
SCOTIA CAPITAL INC, NEW YORK	1,389.06	2,259,776.00	0.00				
SCOTIA CAPITAL MKTS, TORONTO	809.21	98,716.00	0.01				
SEAPORT GROUP SECS LLC, NEW YORK	506.79	46,843.00	0.01				
SG AMERICAS SECURITIES LLC, NEW YORK	1,754.62	59,936.00	0.03				
SG SEC (LONDON) LTD, LONDON	39,364.89	6,521,345.00	0.01				
SG SECURITIES, HONG KONG	27,318.80	11,353,890.00	0.00				
SHENYIN WANGUO SECS LTD, HONG KONG	1,828.61	2,029,500.00	0.00				
SHORE CAPITAL STOCKBROKERS, LONDON	541.04	45,129.00	0.01				
SIDOTI & CO LLC, NEW YORK	3,019.57	89,587.00	0.03				
SKANDINAVISKA ENSKILDA BANKEN, COPENHAGE	2,558.28	31,370.00	0.08				
SKANDINAVISKA ENSKILDA BANKEN, LONDON	3,350.33	148,140.00	0.02				
SKANDINAVISKA ENSKILDA BANKEN, STOCKHOLM	3,867.16	187,764.00	0.02				
SMBC NIKKO SECURITIES LTD, WAN CHAI	1,479.03	60,300.00	0.02				
SMBC SECURITIES, INC NEW YORK	2,876.25	239,300.00	0.01				
SOCIETE GENERALE LONDON BRANCH, LONDON	30,872.90	8,130,255.00	0.00				
SOFTLOGIC STOCKBROKERS PVT LTD, COLUMBO	125.74	1,734,386.00	0.00				
STANDARD BANK, LONDON	4,932.34	519,824.00	0.01				
STATE STREET BROKERAGE SVCS, BOSTON	3,619.08	150,211.00	0.02				
STATE STREET GLOBAL MARKETS LLC, BOSTON	8,055.11	464,152.00	0.02				
STEPHENS INC, LITTLE ROCK	26,787.38	1,004,648.00	0.03				
STIFEL NICOLAUS	43,111.04	1,877,287.00	0.02				
STURDIVANT & CO INC, BROOKLYN	1,604.92	41,248.00	0.04				
SUNTRUST CAPITAL MARKETS INC, ATLANTA	4,359.24	123,331.00	0.04				
SVENSKA HANDELSBANKEN, STOCKHOLM	3,897.58	148,103.00	0.03				
TELSEY ADVISORY GROUP LLC, DALLAS	1,365.93	136,593.00	0.01				
THE BANK OF NEW YORK MELLON, BRUSSELS	433.38	4,000.00	0.11				
TONG YANG SECURITIES INC, SEOUL	1,609.97	122,818.00	0.01				
TORONTO DOMINION SEC, TORONTO	5,468.02	200,932.00	0.03				
UBS EQUITIES, LONDON	13,861.93	21,479,278.00	0.00				
UBS SECS SINGAPORE PTE LTD	315.11	1,687,800.00	0.00				
UBS SECURITIES CANADA, TORONTO (BWIT)	2,907.67	364,737.00	0.01				
UBS SECURITIES HONG KONG LTD, HONG KONG	91.26	538,000.00	0.00				
UBS SECURITIES LLC, STAMFORD	131,095.07	19,187,022.00	0.01				
UBS WARBURG ASIA LTD, HONG KONG	57,843.21	49,361,730.00	0.00				
UBS WARBURG AUSTRALIA EQUITIES, SYDNEY	379.95	73,905.00	0.01				
UBS WARBURG, LONDON	90,252.10	15,448,512.00	0.01				
VTB BANK EUROPE PLC, LONDON	1,246.78	215,297.00	0.01				
WEDBUSH MORGAN SECS INC, LOS ANGELES	12,472.69	488,270.00	0.03				
WEEDEN & CO, GREENWICH	1,605.79	303,000.00	0.01				
WEEDEN & CO, NEW YORK	13,447.55	688,394.00	0.02				
WELLS FARGO SECURITIES LLC, CHARLOTTE	3,803.43	117,311.00	0.03				
WELLS FARGO SECURITIES LLC, CHARLOTTE	9,660.35	342,475.00	0.03				
WILLIAM BLAIR & CO, CHICAGO	26,756.06	991,262.00	0.03				
WILLIAMS CAPITAL GROUP LP, JERSEY CITY	3,777.75	183,481.00	0.02				
WINTERFLOOD SECS, LONDON	346.87	235,558.00	0.00				
WOLFE TRAHAN SECURITIES, NEW YORK	238.14	7,938.00	0.03				
WOORI INVESTMENT & SECURITIES, SEOUL	1,257.52	34,460.00	0.04				
XP INVESTIMENTOS CCTVM SA, RIO DE JANEIRO	197.30	18,500.00	0.01				
YAMNER & COMPANY INC, JERSEY CITY	1,656.62	165,662.00	0.01				
<b>TOTAL</b>	<b>\$5,307,689.62</b>						

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS****COMBINED INVESTMENT FUNDS  
TOTAL NET POSITION VALUE BY PENSION PLANS AND TRUST FUNDS  
JUNE 30, 2017**

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<b><u>Retirement Funds</u></b>	<b><u>Net Position Value</u></b>
Teachers' Retirement Fund	\$17,126,802,473
State Employees' Retirement Fund	11,955,374,580
Municipal Employees' Retirement Fund	2,441,303,399
State Judges' Retirement Fund	210,022,249
The Probate Court Retirement Fund	95,047,753
State's Attorneys Retirement Fund	1,798,493
<b><u>Non-retirement Trust Funds</u></b>	
Soldiers' Sailors' & Marines' Fund	75,901,175
Police & Firemans' Survivors' Benefit Fund	32,348,872
Connecticut Arts Endowment Fund	19,953,445
School Fund	11,629,717
Ida Eaton Cotton Fund	2,577,251
Hopemead State Park Fund	3,797,945
Andrew C. Clark Fund	1,212,149
Agricultural College Fund	660,208
OPEB Fund	569,440,305
TOTAL	<u>\$32,547,870,014</u>

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF NET POSITION BY INVESTMENT FUND JUNE 30, 2017**

	<b>LIQUIDITY FUND</b>	<b>ALTERNATIVE INVESTMENT FUND</b>	<b>MUTUAL EQUITY FUND</b>	<b>CORE FIXED INCOME FUND</b>	<b>INFLATION LINKED BOND FUND</b>	<b>EMERGING MARKET DEBT FUND</b>
<b>ASSETS</b>						
Investments in Securities , at Fair Value						
Liquidity Fund	\$ -	\$175,615,507	\$411,748,512	\$150,040,141	\$37,703,198	\$46,741,492
Cash Equivalents	278,764,721	-	-	-	(252,453)	(3,886)
Asset Backed Securities	168,082,920	-	-	87,031,155	754,194	243,071
Government Securities	559,446,428	-	-	529,464,895	1,287,875,567	1,269,152,678
Government Agency Securities	177,510,219	-	-	538,674,404	-	-
Mortgage Backed Securities	138,464,921	-	-	142,114,126	-	-
Corporate Debt	1,516,216,033	-	-	568,908,990	6,861,510	281,596,010
Convertible Securities	-	-	-	-	-	451,587
Common Stock	-	-	6,405,918,911	-	-	-
Preferred Stock	-	-	-	3,249,926	-	-
Real Estate Investment Trust	-	-	208,297,032	15,930,248	-	-
Business Development Corporation	-	-	-	-	-	-
Mutual Fund	83,711,810	-	-	-	-	-
Limited Liability Corporation	-	-	-	-	-	-
Trusts	-	-	-	-	-	-
Limited Partnerships	-	1,851,172,578	522,410	566,040,052	-	-
<b>Total Investments in Securities, at Fair Value</b>	<b>2,922,197,052</b>	<b>2,026,788,085</b>	<b>7,026,486,865</b>	<b>2,601,453,937</b>	<b>1,332,942,016</b>	<b>1,598,180,952</b>
Cash	773,510	879,077	-	213,629	4,411,429	10,563,267
Receivables						
Foreign Exchange Contracts	379,980,784	-	-	-	562,361,240	407,548,634
Interest Receivable	7,913,403	346,952	238,115	11,385,574	5,062,569	32,050,510
Dividends Receivable	-	-	6,534,504	-	-	-
Due from Brokers	2,638,439	-	8,903,416	165,083,958	3,106,066	13,078,672
Foreign Taxes	108,918	-	-	62	202,682	393,200
Securities Lending Receivable	-	-	403,930	47,271	51,388	23,274
Reserve for Doubtful Receivables	-	-	(116,467)	(1,131,504)	(41,211)	(310,733)
<b>Total Receivables</b>	<b>390,641,544</b>	<b>346,952</b>	<b>15,963,498</b>	<b>175,385,361</b>	<b>570,742,734</b>	<b>452,783,557</b>
Invested Securities Lending Collateral	-	-	778,701,169	181,891,304	243,894,815	26,952,510
Prepaid Expenses	-	-	-	-	-	-
<b>Total Assets</b>	<b>3,313,612,106</b>	<b>2,028,014,114</b>	<b>7,821,151,532</b>	<b>2,958,944,231</b>	<b>2,151,990,994</b>	<b>2,088,480,286</b>
<b>LIABILITIES</b>						
Payables						
Foreign Exchange Contracts	382,335,862	-	-	-	560,202,201	404,692,049
Due to Brokers	5,663,928	-	16,763,588	324,074,399	3,261,423	18,520,963
Income Distribution	5,665,013	-	-	-	-	-
Other Payable	-	-	217,027	-	-	-
<b>Total Payables</b>	<b>393,664,803</b>	<b>-</b>	<b>16,980,615</b>	<b>324,074,399</b>	<b>563,463,624</b>	<b>423,213,012</b>
Securities Lending Collateral	-	-	778,701,169	181,891,304	243,894,815	26,952,510
Accrued Expenses	504,731	57,614	3,339,045	595,039	606,810	1,133,748
<b>Total Liabilities</b>	<b>394,169,534</b>	<b>57,614</b>	<b>799,020,829</b>	<b>506,560,742</b>	<b>807,965,249</b>	<b>451,299,270</b>
<b>NET POSITION HELD IN TRUST FOR PARTICIPANTS</b>	<b>\$2,919,442,572</b>	<b>\$2,027,956,500</b>	<b>\$7,022,130,703</b>	<b>\$2,452,383,489</b>	<b>\$1,344,025,745</b>	<b>\$1,637,181,016</b>
Units Outstanding	3,011,742,648	1,669,963,862	3,795,772	18,611,754	8,614,288	9,396,762
Net Position Value and Redemption Price per Unit	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**SCHEDULE OF NET POSITION BY INVESTMENT FUND (Continued) JUNE 30, 2017**

HIGH YIELD- DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	ELIMINATION ENTRY	TOTAL
\$152,617,846	\$124,308,159	\$49,157,004	\$86,164,893	\$300,771,938	\$(1,534,868,690)	\$ -
610,705	4,174,606	-	-	-	-	283,293,693
(1,188,521)	-	-	-	-	-	254,922,819
55,774,495	-	-	-	-	-	3,701,714,063
-	-	-	-	-	-	716,184,623
-	-	-	-	-	-	280,579,047
1,663,650,234	-	-	-	-	-	4,037,232,777
51,210,909	-	-	-	-	-	51,662,496
8,521,335	6,130,006,652	2,771,214,754	-	11,562,335	-	15,327,223,987
16,577,131	17,937,060	39,394,345	-	-	-	77,158,462
29,312,900	65,429,565	269,088	-	-	-	319,238,833
57,625,395	-	-	-	-	-	57,625,395
-	2,451,911	142,751,332	-	-	-	228,915,053
-	-	-	-	1,156,486	-	1,156,486
-	-	-	-	-	-	-
-	-	-	2,156,493,225	2,657,239,167	-	7,231,467,432
2,034,712,429	6,344,307,953	3,002,786,523	2,242,658,118	2,970,729,926	(1,534,868,690)	32,568,375,166
5,250,944	35,520,404	6,870,072	6,287,724	19,147,886	(773,510)	89,144,432
4,784,055	6,824,683,902	4,875,995	-	-	(379,463,230)	7,804,771,380
28,248,645	306,230	120,288	324,874	554,207	(7,913,403)	78,637,964
32,844	13,049,783	14,823,666	-	-	-	34,440,797
10,953,685	54,797,252	3,259,480	-	-	(2,638,439)	259,182,529
447	15,319,064	232,043	-	-	(108,918)	16,147,498
279,715	248,037	184,066	-	-	-	1,237,681
(604,309)	(1,988,266)	(463,451)	-	-	-	(4,655,941)
43,695,082	6,906,416,002	23,032,087	324,874	554,207	(390,123,990)	8,189,761,908
523,258,667	62,998,657	203,064,465	-	-	-	2,020,761,587
-	-	-	-	1,073,767	-	1,073,767
2,606,917,122	13,349,243,016	3,235,753,147	2,249,270,716	2,991,505,786	(1,925,766,190)	42,869,116,860
4,782,933	6,842,394,088	4,896,272	-	-	(382,335,862)	7,816,967,543
33,319,404	57,190,282	10,472,823	-	-	(5,663,928)	463,602,882
-	-	-	-	-	(2,631,802)	3,033,211
-	-	-	-	-	-	217,027
38,102,337	6,899,584,370	15,369,095	-	-	(390,631,592)	8,283,820,663
523,258,667	62,998,657	203,064,465	-	-	-	2,020,761,587
1,222,088	5,619,798	1,997,529	789,896	1,063,405	(265,107)	16,664,596
562,583,092	6,968,202,825	220,431,089	789,896	1,063,405	(390,896,699)	10,321,246,846
\$2,044,334,030	\$6,381,040,191	\$3,015,322,058	\$2,248,480,820	\$2,990,442,381	\$(1,534,869,491)	\$32,547,870,014
13,200,858	11,879,604	7,145,303	42,108,577	38,044,338		
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60		

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>ADDITIONS</b>						
<b>OPERATIONS</b>						
<b>Investment Income</b>						
Dividends	\$ -	\$3,675,456	\$130,853,122	\$7,415	\$459	\$ -
Interest	47,272,487	2,775,092	1,557,805	53,982,946	846,960	100,777,661
Other Income	13,908	23,518	1,272,856	608,095	17,231	17,312,548
Securities Lending	-	-	11,869,343	1,699,211	2,876,399	332,417
<b>Total Income</b>	<b>47,286,395</b>	<b>6,474,066</b>	<b>145,553,126</b>	<b>56,297,667</b>	<b>3,741,049</b>	<b>118,422,626</b>
<b>Expenses</b>						
Investment Advisory Fees	2,240,224	-	13,261,733	2,602,485	2,613,172	5,645,057
Custody and Transfer Agent Fees	160,666	188,495	703,492	244,697	136,366	156,178
Professional Fees	51,404	573,708	228,862	51,521	27,929	41,474
Security Lending Fees	-	-	652,152	77,010	93,113	24,477
Security Lending Rebates	-	-	5,348,677	929,110	1,945,268	87,652
Investment Expenses	12,774	10,433	42,193	38,683	172,699	24,068
<b>Total Expenses</b>	<b>2,465,068</b>	<b>772,636</b>	<b>20,237,109</b>	<b>3,943,506</b>	<b>4,988,547</b>	<b>5,978,906</b>
<b>Net Investment Income</b>	<b>44,821,327</b>	<b>5,701,430</b>	<b>125,316,017</b>	<b>52,354,161</b>	<b>(1,247,498)</b>	<b>112,443,720</b>
<b>Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency</b>						
	(16,931,128)	147,986,010	1,093,439,042	(9,942,660)	10,408,838	24,349,950
<b>Net Increase (Decrease) in Net Position Resulting from Operations</b>						
	27,890,199	153,687,440	1,218,755,059	42,411,501	9,161,340	136,793,670
<b>Unit Transactions</b>						
Purchase of Units by Participants	10,670,233,604	73,221,868	25,848,399	50,171,440	13,067,857	9,119,611
<b>TOTAL ADDITIONS</b>	<b>10,698,123,803</b>	<b>226,909,308</b>	<b>1,244,603,458</b>	<b>92,582,941</b>	<b>22,229,197</b>	<b>145,913,281</b>
<b>DEDUCTIONS</b>						
<b>Administrative Expenses:</b>						
Salary and Fringe Benefits	(427,025)	(223,352)	(977,274)	(307,273)	(177,396)	(181,723)
<b>Distributions to Unit Owners:</b>						
Income Distributed	(44,443,763)	-	-	-	-	-
<b>Unit Transactions</b>						
Redemption of Units by Participants	(9,713,904,136)	(3,070,100)	(863,600,297)	(46,756,545)	-	(6,331,026)
<b>TOTAL DEDUCTIONS</b>	<b>(9,758,774,924)</b>	<b>(3,293,452)</b>	<b>(864,577,571)</b>	<b>(47,063,818)</b>	<b>(177,396)</b>	<b>(6,512,749)</b>
<b>Change in Net Position Held in Trust</b>						
for Participants	939,348,879	223,615,856	380,025,887	45,519,123	22,051,801	139,400,532
<b>Net Position- Beginning of Period</b>	<b>1,980,093,693</b>	<b>1,804,340,644</b>	<b>6,642,104,816</b>	<b>2,406,864,366</b>	<b>1,321,973,944</b>	<b>1,497,780,484</b>
<b>Net Position- End of Period</b>	<b>\$2,919,442,572</b>	<b>\$2,027,956,500</b>	<b>\$7,022,130,703</b>	<b>\$2,452,383,489</b>	<b>\$1,344,025,745</b>	<b>\$1,637,181,016</b>
<b>Other Information:</b>						
<b>Units</b>						
Purchased	10,973,461,035	64,193,409	15,479	386,610	85,657	55,127
Redeemed	(9,988,401,748)	(2,675,765)	(501,504)	(357,863)	-	(38,165)
<b>Net Increase (Decrease)</b>	<b>985,059,287</b>	<b>61,517,644</b>	<b>(486,025)</b>	<b>28,747</b>	<b>85,657</b>	<b>16,962</b>

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND (Continued)**  
**FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

HIGH YIELD- DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	ELIMINATION ENTRY	TOTAL
\$11,598,458	\$174,761,976	\$57,931,072	\$84,913,699	\$46,647,278	\$ -	\$510,388,935
113,359,654	2,398,866	1,084,545	2,100,048	3,795,686	(21,418,902)	308,532,848
1,323,824	114,531	22,788	28,768	395,527	(6,302)	21,127,292
5,104,339	2,781,738	2,461,290	-	-	-	27,124,737
131,386,275	180,057,111	61,499,695	87,042,515	50,838,491	(21,425,204)	867,173,812
4,896,835	21,770,263	13,891,017	9,398,241	2,656,009	(1,015,033)	77,960,003
195,000	602,595	471,686	310,010	375,200	(72,797)	3,471,588
47,359	129,903	63,664	449,555	1,210,185	(23,291)	2,852,273
325,031	247,612	157,117	-	-	-	1,576,512
1,854,032	305,614	890,121	-	-	-	11,360,474
289,911	157,154	1,393,591	12,410	160,850	(5,788)	2,308,978
7,608,168	23,213,141	16,867,196	10,170,216	4,402,244	(1,116,909)	99,529,828
123,778,107	156,843,970	44,632,499	76,872,299	46,436,247	(20,308,295)	767,643,984
101,465,790	1,125,951,807	522,156,606	38,116,638	288,361,287	7,380,915	3,332,743,095
225,243,897	1,282,795,777	566,789,105	114,988,937	334,797,534	(12,927,380)	4,100,387,079
13,149,010	17,140,296	7,204,576	66,607,366	35,661,283	(8,294,409,208)	2,687,016,102
238,392,907	1,299,936,073	573,993,681	181,596,303	370,458,817	(8,307,336,588)	6,787,403,181
(255,405)	(670,799)	(325,165)	(235,414)	(413,312)	193,483	(4,000,655)
-	-	-	-	-	20,137,221	(24,306,542)
(16,952,242)	(142,029,995)	(41,816,972)	(139,968,974)	(149,413,229)	7,666,697,785	(3,457,145,731)
(17,207,647)	(142,700,794)	(42,142,137)	(140,204,388)	(149,826,541)	7,687,028,489	(3,485,452,928)
221,185,260	1,157,235,279	531,851,544	41,391,915	220,632,276	(620,308,099)	3,301,950,253
1,823,148,770	5,223,804,912	2,483,470,514	2,207,088,905	2,769,810,105	(914,561,392)	29,245,919,761
\$2,044,334,030	\$6,381,040,191	\$3,015,322,058	\$2,248,480,820	\$2,990,442,381	\$(1,534,869,491)	\$32,547,870,014
87,988	37,301	19,508	1,291,886	489,630		
(116,161)	(296,111)	(110,695)	(2,788,325)	(2,128,299)		
(28,173)	(258,810)	(91,187)	(1,496,439)	(1,638,669)		

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND  
FOR THE FISCAL YEAR ENDED JUNE 30, 2016**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>ADDITIONS</b>						
<b>OPERATIONS</b>						
<b>Investment Income</b>						
Dividends	\$ -	\$4,592,789	\$128,695,580	\$188	\$ -	\$ -
Interest	26,545,360	924,448	775,588	56,716,843	1,885,985	143,311,719
Other Income	3,647	-	2,812,646	495,044	-	4,313,152
Securities Lending	-	-	10,003,339	1,046,315	1,680,725	359,452
<b>Total Income</b>	<b>26,549,007</b>	<b>5,517,237</b>	<b>142,287,153</b>	<b>58,258,390</b>	<b>3,566,710</b>	<b>147,984,323</b>
<b>Expenses</b>						
Investment Advisory Fees	1,537,535	-	13,228,298	2,592,136	2,280,298	3,837,786
Custody and Transfer Agent Fees	45,602	215,561	749,893	267,116	125,742	144,601
Professional Fees	32,873	613,483	264,026	56,812	27,247	33,011
Security Lending Fees	-	-	701,246	58,626	62,343	34,670
Security Lending Rebates	-	-	2,990,883	460,056	1,057,297	12,757
Investment Expenses	72,372	13,999	59,966	8,500	677,354	100,893
<b>Total Expenses</b>	<b>1,688,382</b>	<b>843,043</b>	<b>17,994,312</b>	<b>3,443,246</b>	<b>4,230,281</b>	<b>4,163,718</b>
<b>Net Investment Income</b>	<b>24,860,625</b>	<b>4,674,194</b>	<b>124,292,841</b>	<b>54,815,144</b>	<b>(663,571)</b>	<b>143,820,605</b>
<b>Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency</b>	<b>(10,935,758)</b>	<b>(108,780,398)</b>	<b>(8,764,298)</b>	<b>28,333,543</b>	<b>29,877,580</b>	<b>(58,123,703)</b>
<b>Net Increase (Decrease) in Net Position Resulting from Operations</b>	<b>13,924,867</b>	<b>(104,106,204)</b>	<b>115,528,543</b>	<b>83,148,687</b>	<b>29,214,009</b>	<b>85,696,902</b>
<b>Unit Transactions</b>						
Purchase of Units by Participants	7,876,647,399	95,771,498	36,280,951	35,482,297	165,326,702	9,496,930
<b>TOTAL ADDITIONS</b>	<b>7,890,572,266</b>	<b>(8,334,706)</b>	<b>151,809,494</b>	<b>118,630,984</b>	<b>194,540,711</b>	<b>95,193,832</b>
<b>DEDUCTIONS</b>						
<b>Administrative Expenses:</b>						
Salary and Fringe Benefits	(270,687)	(271,189)	(1,185,700)	(407,561)	(196,997)	(238,334)
<b>Distributions to Unit Owners:</b>						
Income Distributed	(24,272,621)	-	-	-	-	-
<b>Unit Transactions</b>						
Redemption of Units by Participants	(8,079,489,731)	(8,487,904)	(279,384,694)	(148,326,233)	(3,149,355)	(11,753,875)
<b>TOTAL DEDUCTIONS</b>	<b>(8,104,033,039)</b>	<b>(8,759,093)</b>	<b>(280,570,394)</b>	<b>(148,733,794)</b>	<b>(3,346,352)</b>	<b>(11,992,209)</b>
<b>Change in Net Position Held in Trust for Participants</b>	<b>(213,460,773)</b>	<b>(17,093,799)</b>	<b>(128,760,900)</b>	<b>(30,102,810)</b>	<b>191,194,359</b>	<b>83,201,623</b>
<b>Net Position- Beginning of Period</b>	<b>2,193,554,383</b>	<b>1,821,434,443</b>	<b>6,770,865,716</b>	<b>2,436,967,176</b>	<b>1,130,779,585</b>	<b>1,414,578,861</b>
<b>Net Position- End of Period</b>	<b>\$1,980,093,610</b>	<b>\$1,804,340,644</b>	<b>\$6,642,104,816</b>	<b>\$2,406,864,366</b>	<b>\$1,321,973,944</b>	<b>\$1,497,780,484</b>
<b>Other Information:</b>						
<b>Units</b>						
Purchased	8,075,012,237	82,949,169	25,101	282,187	1,087,346	65,636
Redeemed	(8,283,939,204)	(7,373,331)	(184,532)	(1,168,906)	(21,090)	(76,803)
Net Increase (Decrease)	(208,926,967)	75,575,838	(159,431)	(886,719)	1,066,256	(11,167)

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2016**

<b>HIGH YIELD- DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>COMMERCIAL MORTGAGE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>ELIMINATION ENTRY</b>	<b>TOTAL</b>
\$8,541,540	\$162,777,688	\$54,678,155	\$78,117,664	\$ -	\$22,550,020	\$ -	\$459,953,624
109,098,735	1,346,352	5,511,628	1,079,732	136	1,891,043	(11,814,073)	337,273,496
62,838	559	1,905	-	-	26	(1,623)	7,688,194
2,906,369	3,103,844	1,980,794	-	-	-	-	21,080,838
120,609,482	167,228,443	62,172,482	79,197,396	136	24,441,089	(11,815,696)	825,996,152
5,689,980	21,720,999	13,834,642	7,554,325	-	3,039,252	(684,283)	74,630,968
186,649	779,277	218,278	244,560	1	327,285	(20,295)	3,284,270
40,587	163,611	68,746	539,176	-	1,555,243	(14,630)	3,380,185
243,093	305,401	169,128	-	-	-	-	1,574,507
475,436	49,822	289,513	-	-	-	-	5,335,764
13,596	168,859	1,330,774	14,166	-	20,618	(32,209)	2,448,888
6,649,341	23,187,969	15,911,081	8,352,227	1	4,942,398	(751,417)	90,654,582
113,960,141	144,040,474	46,261,401	70,845,169	135	19,498,691	(11,064,279)	735,341,570
(115,157,340)	(552,420,065)	(212,309,468)	115,122,056	(15,453)	169,119,347	3,937,225	(720,116,732)
(1,197,199)	(408,379,591)	(166,048,067)	185,967,225	(15,318)	188,618,038	(7,127,054)	15,224,838
60,674,737	42,596,214	193,164,163	131,094,177	-	16,552,234	(6,198,705,861)	2,464,381,541
59,477,538	(365,783,377)	27,116,096	317,061,402	(15,318)	205,170,372	(6,205,832,915)	2,479,606,379
(292,321)	(854,845)	(336,036)	(285,970)	(2,836)	(380,666)	120,470	(4,602,672)
-	-	-	-	-	-	10,802,583	(13,470,038)
(10,302,127)	(318,801,669)	(16,597,298)	(27,923,172)	(14,400)	(330,071,249)	6,151,711,283	(3,082,590,424)
(10,594,448)	(319,656,514)	(16,933,334)	(28,209,142)	(17,236)	(330,451,915)	6,162,634,336	(3,100,663,134)
48,883,090	(685,439,891)	10,182,762	288,852,260	(32,554)	(125,281,543)	(43,198,579)	(621,056,755)
1,774,265,680	5,909,244,803	2,473,287,752	1,918,236,645	32,637	2,895,091,648	(871,362,813)	29,866,976,516
\$1,823,148,770	\$5,223,804,912	\$2,483,470,514	\$2,207,088,905	\$83	\$2,769,810,105	\$(914,561,392)	\$29,245,919,761
452,139	98,517	595,224	2,730,330	-	245,166		
(75,718)	(716,920)	(50,439)	(586,760)	(968)	(5,015,234)		
376,421	(618,403)	544,785	2,143,570	(968)	(4,770,068)		

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>Teachers' Retirement Fund</b>						
Book Value at June 30, 2016	\$629,861,699	\$877,868,000	\$532,298,299	\$959,419,399	\$498,447,781	\$651,600,289
Market Value at June 30, 2016	\$629,661,146	\$941,316,173	\$3,721,807,837	\$1,150,153,590	\$585,087,153	\$840,642,760
Shares Purchased	1,925,169,726	27,200,000	-	-	-	-
Shares Redeemed	(1,669,529,245)	-	(580,000,000)	(28,000,000)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(4,229,549)	-	504,950,202	4,847,800	-	-
Net Investment Income Earned	15,178,473	-	-	-	-	-
Net Investment Income Distributed	(15,178,473)	-	-	-	-	-
Changes in Market Value of Fund Shares	(2,105,766)	79,568,238	166,008,894	14,858,014	3,844,861	76,581,229
Market Value at June 30, 2017	\$878,966,312	\$1,048,084,411	\$3,812,766,933	\$1,141,859,404	\$588,932,014	\$917,223,989
Book Value at June 30, 2017	\$881,272,631	\$905,068,000	\$457,248,501	\$936,267,199	\$498,447,781	\$651,600,289
Shares Outstanding	906,755,632	863,067,538	2,060,969	8,665,858	3,774,653	5,264,498
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23
<b>State Employees' Retirement Fund</b>						
Book Value at June 30, 2016	\$351,715,827	\$588,420,000	\$310,398,658	\$752,304,161	\$539,055,068	\$318,201,035
Market Value at June 30, 2016	\$345,957,820	\$626,360,495	\$2,429,010,702	\$889,231,302	\$604,482,740	\$442,660,632
Shares Purchased	255,078,273	32,200,000	-	-	-	-
Shares Redeemed	(191,013,926)	-	(235,000,000)	(18,000,000)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(3,049,182)	-	208,173,414	2,905,009	-	-
Net Investment Income Earned	6,264,344	-	-	-	-	-
Net Investment Income Distributed	(6,264,344)	-	-	-	-	-
Changes in Market Value of Fund Shares	417,607	53,962,761	244,256,483	12,361,049	3,972,318	40,325,683
Market Value at June 30, 2017	\$407,390,592	\$712,523,256	\$2,646,440,599	\$886,497,360	\$608,455,058	\$482,986,315
Book Value at June 30, 2017	\$412,730,992	\$620,620,000	\$283,572,072	\$737,209,170	\$539,055,068	\$318,201,035
Shares Outstanding	420,270,630	586,742,290	1,430,518	6,727,851	3,899,782	2,772,148
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23
<b>Municipal Employees' Retirement Fund</b>						
Book Value at June 30, 2016	\$61,212,324	\$166,583,433	\$66,713,141	\$154,655,334	\$94,209,092	\$156,218,869
Market Value at June 30, 2016	\$60,726,701	\$179,542,868	\$356,090,812	\$178,734,077	\$109,918,687	\$178,502,735
Shares Purchased	61,737,128	2,105,019	7,545,579	10,874,509	8,674,361	4,623,694
Shares Redeemed	(55,202,633)	(2,759,359)	(39,941,684)	(146,022)	-	(5,440,687)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(503,130)	256,171	32,850,493	20,546	-	848,428
Net Investment Income Earned	1,057,869	-	-	-	-	-
Net Investment Income Distributed	(1,057,869)	-	-	-	-	-
Changes in Market Value of Fund Shares	12,821	14,425,437	34,132,149	3,221,803	929,458	15,321,892
Market Value at June 30, 2017	\$66,770,887	\$193,570,136	\$390,677,349	\$192,704,913	\$119,522,506	\$193,856,062
Book Value at June 30, 2017	\$67,243,689	\$166,185,264	\$67,167,529	\$165,404,367	\$102,883,453	\$156,250,304
Shares Outstanding	68,881,920	159,399,408	211,178	1,462,486	766,058	1,112,656
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>TOTAL</b>
\$735,399,049	\$1,591,488,148	\$905,417,118	\$1,047,240,158	\$1,342,629,595	\$9,771,669,535
\$867,182,093	\$2,882,041,042	\$1,365,932,645	\$1,186,792,255	\$1,413,947,520	\$15,584,564,214
-	-	-	50,000,000	15,000,000	2,017,369,726
-	(110,000,000)	(20,000,000)	(110,000,000)	(142,000,000)	(2,659,529,245)
-	-	-	-	-	-
-	54,523,544	7,772,306	12,105,802	7,815,066	587,785,171
-	-	-	-	-	15,178,473
-	-	-	-	-	(15,178,473)
107,282,285	645,244,020	303,232,833	47,912,634	154,185,365	1,596,612,607
\$974,464,378	\$3,471,808,606	\$1,656,937,784	\$1,186,810,691	\$1,448,947,951	\$17,126,802,473
\$735,399,049	\$1,536,011,692	\$893,189,424	\$999,345,960	\$1,223,444,661	\$9,717,295,187
6,292,400	6,463,478	3,926,388	22,226,078	18,433,482	1,846,930,974
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	
\$494,458,589	\$1,008,726,606	\$616,857,122	\$720,514,538	\$1,042,956,083	\$6,743,607,687
\$569,912,171	\$1,940,894,238	\$920,911,372	\$804,708,147	\$1,062,573,026	\$10,636,702,645
-	-	-	-	-	287,278,273
-	-	-	(28,000,000)	-	(472,013,926)
-	-	-	-	-	-
-	-	-	2,698,144	-	210,727,385
-	-	-	-	-	6,264,344
-	-	-	-	-	(6,264,344)
70,505,837	481,620,190	211,488,681	39,715,695	134,053,899	1,292,680,203
\$640,418,008	\$2,422,514,428	\$1,132,400,053	\$819,121,986	\$1,196,626,925	\$11,955,374,580
\$494,458,589	\$1,008,726,606	\$616,857,122	\$695,212,682	\$1,042,956,083	\$6,769,599,419
4,135,365	4,510,004	2,683,409	15,340,163	15,223,460	1,063,735,620
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	
\$283,166,613	\$158,851,301	\$120,265,307	\$132,567,364	\$204,757,966	\$1,599,200,744
\$311,907,135	\$296,145,316	\$155,137,550	\$158,659,157	\$226,658,160	\$2,212,023,198
3,567,713	3,054,452	2,714,964	3,899,041	7,802,537	116,599,087
(14,906,610)	(26,199,954)	(17,825,211)	(1,758,930)	(6,560,131)	(170,741,221)
-	-	-	-	-	-
2,127,120	14,269,696	5,413,536	312,294	762,945	56,358,099
-	-	-	-	-	1,057,869
-	-	-	-	-	(1,057,869)
35,554,270	58,471,469	28,674,936	8,428,975	27,891,026	227,064,236
\$338,249,628	\$345,741,069	\$174,115,775	\$169,540,537	\$256,554,537	\$2,441,303,399
\$273,954,836	\$149,975,585	\$110,568,596	\$135,019,769	\$206,763,317	\$1,601,416,709
2,184,176	643,667	412,596	3,175,082	3,263,881	241,513,109
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>Probate Court Retirement Fund</b>						
Book Value at June 30, 2016	\$2,208,581	\$4,066,303	\$1,888,918	\$6,572,589	\$3,703,566	\$6,037,437
Market Value at June 30, 2016	\$2,210,362	\$4,439,889	\$14,089,176	\$7,955,807	\$4,349,058	\$7,062,632
Shares Purchased	5,165,911	33,838	294,543	431,225	277,076	157,668
Shares Redeemed	(4,965,112)	(113,277)	(1,772,992)	(72,022)	-	(292,128)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(13,178)	11,338	1,541,541	12,934	-	51,515
Net Investment Income Earned	42,348	-	-	-	-	-
Net Investment Income Distributed	(42,348)	-	-	-	-	-
Changes in Market Value of Fund Shares	(8,023)	348,211	1,090,150	130,159	36,994	583,646
Market Value at Jun. 30, 2017	\$2,389,960	\$4,719,999	\$15,242,418	\$8,458,103	\$4,663,128	\$7,563,333
Book Value\Cost at Jun 30, 2017	\$2,396,202	\$3,998,202	\$1,952,010	\$6,944,726	\$3,980,642	\$5,954,492
Shares Outstanding	2,465,522	3,886,782	8,239	64,191	29,887	43,411
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23
<b>Judges' Retirement Fund</b>						
Book Value at June 30, 2016	\$5,401,499	\$14,257,508	\$6,171,614	\$13,156,352	\$8,021,331	\$13,225,425
Market Value at June 30, 2016	\$5,351,878	\$15,383,376	\$30,509,429	\$15,314,244	\$9,418,320	\$15,295,144
Shares Purchased	4,589,155	184,312	697,050	980,803	781,254	409,354
Shares Redeemed	(4,105,233)	(181,208)	(3,359,348)	-	-	(422,079)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(44,183)	17,511	2,716,471	-	-	71,838
Net Investment Income Earned	91,888	-	-	-	-	-
Net Investment Income Distributed	(91,888)	-	-	-	-	-
Changes in Market Value of Fund Shares	1,201	1,244,502	3,037,815	279,074	80,291	1,318,926
Market Value at Jun. 30, 2017	\$5,792,818	\$16,648,493	\$33,601,417	\$16,574,121	\$10,279,865	\$16,673,183
Book Value\Cost at Jun 30, 2017	\$5,841,238	\$14,278,123	\$6,225,787	\$14,137,155	\$8,802,585	\$13,284,538
Shares Outstanding	5,975,965	13,709,555	18,163	125,785	65,887	95,697
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23
<b>State's Attorneys' Retirement Fund</b>						
Book Value at June 30, 2016	\$21,556	\$-	\$150,681	\$313,066	\$23,165	\$71,208
Market Value at June 30, 2016	\$21,531	\$-	\$451,020	\$359,202	\$30,743	\$93,625
Shares Purchased	25,925	-	10,974	41,392	4,139	5,079
Shares Redeemed	(23,486)	-	(27,798)	-	-	(488)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(110)	-	19,220	-	-	107
Net Investment Income Earned	350	-	-	-	-	-
Net Investment Income Distributed	(350)	-	-	-	-	-
Changes in Market Value of Fund Shares	(60)	-	67,111	6,721	267	8,556
Market Value at Jun. 30, 2017	\$23,800	\$-	\$520,527	\$407,315	\$35,149	\$106,879
Book Value\Cost at Jun 30, 2017	\$23,885	\$-	\$153,077	\$354,458	\$27,304	\$75,906
Shares Outstanding	24,549	-	281	3,091	225	613
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$156.02	\$174.23

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>TOTAL</b>
\$11,907,950	\$5,930,520	\$4,514,920	\$5,420,982	\$7,749,704	\$60,001,470
\$13,222,483	\$12,554,291	\$6,138,198	\$6,277,593	\$8,968,014	\$87,267,503
114,469	20,296	85,778	64,849	210,979	6,856,632
(785,529)	(1,180,896)	(769,390)	(70,449)	(289,485)	(10,311,280)
-	-	-	-	-	-
117,521	710,666	260,469	10,663	45,200	2,748,669
-	-	-	-	-	42,348
-	-	-	-	-	(42,348)
1,470,476	2,349,103	1,078,419	332,042	1,075,052	8,486,229
\$14,139,420	\$14,453,460	\$6,793,474	\$6,614,698	\$10,009,760	\$95,047,753
\$11,354,411	\$5,480,586	\$4,091,777	\$5,426,045	\$7,716,398	\$59,295,491
91,302	26,908	16,098	123,877	127,344	6,883,562
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	
\$24,197,972	\$13,707,636	\$10,030,843	\$11,881,609	\$18,245,063	\$138,296,852
\$26,724,528	\$25,374,142	\$13,293,411	\$13,593,674	\$19,419,905	\$189,678,051
289,437	316,157	243,620	365,818	696,683	9,553,643
(1,157,890)	(2,205,269)	(1,491,584)	(129,072)	(515,071)	(13,566,754)
-	-	-	-	-	-
168,028	1,195,409	482,817	18,044	41,960	4,667,895
-	-	-	-	-	91,888
-	-	-	-	-	(91,888)
3,068,048	5,056,476	2,447,259	733,409	2,422,413	19,689,414
\$29,092,151	\$29,736,915	\$14,975,523	\$14,581,873	\$22,065,890	\$210,022,249
\$23,497,547	\$13,013,933	\$9,265,696	\$12,136,399	\$18,468,635	\$138,951,636
187,856	55,361	35,487	273,083	280,722	20,823,562
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	
\$135,799	\$302,966	\$111,881	\$-	\$-	\$1,130,322
\$155,725	\$325,295	\$108,515	\$-	\$-	\$1,545,656
6,383	8,654	3,779	-	-	106,325
(3,575)	(16,255)	(8,682)	-	-	(80,284)
-	-	-	-	-	-
613	3,528	600	-	-	23,958
-	-	-	-	-	350
-	-	-	-	-	(350)
18,473	78,027	23,743	-	-	202,838
\$177,619	\$399,249	\$127,955	\$-	\$-	\$1,798,493
\$139,220	\$298,893	\$107,578	\$-	\$-	\$1,180,321
1,147	743	303	-	-	30,953
\$154.86	\$537.14	\$421.99	\$-	\$-	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>Soldiers' Sailors' &amp; Marines' Fund</b>						
Book Value at June 30, 2016	\$1,663,581	\$-	\$3,813,553	\$40,220,699	\$-	\$-
Market Value at June 30, 2016	\$1,657,084	\$-	\$10,964,998	\$49,150,682	\$-	\$-
Shares Purchased	1,933,535	-	169,381	1,204,183	-	-
Shares Redeemed	(1,811,072)	-	(1,622,773)	(333,399)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(12,094)	-	1,111,105	62,462	-	-
Net Investment Income Earned	31,317	-	-	-	-	-
Net Investment Income Distributed	(31,317)	-	-	-	-	-
Changes in Market Value of Fund Shares	(4,692)	-	925,941	800,829	-	-
Market Value at June 30, 2017	\$1,762,761	\$-	\$11,548,652	\$50,884,757	\$-	\$-
Book Value at June 30, 2017	\$1,773,950	\$-	\$3,471,266	\$41,153,945	\$-	\$-
Shares Outstanding	1,818,492	-	6,243	386,177	-	-
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$-	\$-
<b>Endowment for the Arts</b>						
Book Value at June 30, 2016	\$562,671	\$-	\$1,860,242	\$10,961,402	\$-	\$-
Market Value at June 30, 2016	\$561,912	\$-	\$2,854,297	\$12,795,813	\$-	\$-
Shares Purchased	431,571	-	44,604	270,638	-	-
Shares Redeemed	(397,379)	-	(404,456)	-	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(3,700)	-	163,442	-	-	-
Net Investment Income Earned	9,011	-	-	-	-	-
Net Investment Income Distributed	(9,011)	-	-	-	-	-
Changes in Market Value of Fund Shares	(1,246)	-	358,113	223,311	-	-
Market Value at June 30, 2017	\$591,158	\$-	\$3,016,000	\$13,289,762	\$-	\$-
Book Value at June 30, 2017	\$593,163	\$-	\$1,663,832	\$11,232,040	\$-	\$-
Shares Outstanding	609,849	-	1,630	100,859	-	-
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$-	\$-
<b>Agricultural College Fund</b>						
Book Value at June 30, 2016	\$625	\$-	\$-	\$588,958	\$-	\$-
Market Value at June 30, 2016	\$627	\$-	\$-	\$661,986	\$-	\$-
Shares Purchased	249,719	-	-	700	-	-
Shares Redeemed	(250,250)	-	-	(14,000)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	56	-	-	1,653	-	-
Net Investment Income Earned	51	-	-	-	-	-
Net Investment Income Distributed	(51)	-	-	-	-	-
Changes in Market Value of Fund Shares	(1)	-	-	9,718	-	-
Market Value at June 30, 2017	\$151	\$-	\$-	\$660,057	\$-	\$-
Book Value at June 30, 2017	\$150	\$-	\$-	\$577,311	\$-	\$-
Shares Outstanding	156	-	-	5,009	-	-
Market Value per Share	\$0.97	\$-	\$-	\$131.77	\$-	\$-

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>TOTAL</b>
\$-	\$6,260,250	\$3,074,967	\$-	\$-	\$55,033,050
\$-	\$7,640,490	\$2,908,875	\$-	\$-	\$72,322,129
-	30,394	-	-	-	3,337,493
-	(948,943)	(398,873)	-	-	(5,115,060)
-	-	-	-	-	-
-	288,436	21,317	-	-	1,471,226
-	-	-	-	-	31,317
-	-	-	-	-	(31,317)
-	1,556,911	606,398	-	-	3,885,387
\$-	\$8,567,288	\$3,137,717	\$-	\$-	\$75,901,175
\$-	\$5,630,137	\$2,697,411	\$-	\$-	\$54,726,709
-	15,950	7,435	-	-	2,234,297
\$-	\$537.14	\$422.00	\$-	\$-	
\$-	\$1,634,006	\$802,298	\$-	\$-	\$15,820,619
\$-	\$1,989,091	\$757,469	\$-	\$-	\$18,958,582
-	31,208	-	-	-	778,021
-	(262,788)	(101,742)	-	-	(1,166,365)
-	-	-	-	-	-
-	76,129	5,227	-	-	241,098
-	-	-	-	-	9,011
-	-	-	-	-	(9,011)
-	403,510	158,421	-	-	1,142,109
\$-	\$2,237,150	\$819,375	\$-	\$-	\$19,953,445
\$-	\$1,478,555	\$705,783	\$-	\$-	\$15,673,373
-	4,165	1,942	-	-	718,445
\$-	\$537.14	\$422.00	\$-	\$-	
\$-	\$-	\$-	\$-	\$-	\$589,583
\$-	\$-	\$-	\$-	\$-	\$662,613
-	-	-	-	-	250,419
-	-	-	-	-	(264,250)
-	-	-	-	-	-
-	-	-	-	-	1,709
-	-	-	-	-	51
-	-	-	-	-	(51)
-	-	-	-	-	9,717
\$-	\$-	\$-	\$-	\$-	\$660,208
\$-	\$-	\$-	\$-	\$-	\$577,461
-	-	-	-	-	5,165
\$-	\$-	\$-	\$-	\$-	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>Ida Eaton Cotton Fund</b>						
Book Value at June 30, 2016	\$72,818	\$-	\$55,610	\$1,423,036	\$-	\$-
Market Value at June 30, 2016	\$72,552	\$-	\$368,527	\$1,652,115	\$-	\$-
Shares Purchased	54,865	-	-	68,709	-	-
Shares Redeemed	(50,868)	-	(47,249)	(32,716)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(170)	-	40,930	4,199	-	-
Net Investment Income Earned	1,064	-	-	-	-	-
Net Investment Income Distributed	(1,064)	-	-	-	-	-
Changes in Market Value of Fund Shares	(21)	-	27,353	24,236	-	-
Market Value at Jun. 30, 2017	\$76,358	\$-	\$389,561	\$1,716,543	\$-	\$-
Book Value\Cost at Jun 30, 2017	\$76,645	\$-	\$49,291	\$1,463,228	\$-	\$-
Shares Outstanding	78,770	-	211	13,027	-	-
Market Value per Share	\$0.97	\$-	\$1,849.98	\$131.77	\$-	\$-
<b>Andrew Clark Fund</b>						
Book Value at June 30, 2016	\$34,241	\$-	\$26,244	\$683,969	\$-	\$-
Market Value at June 30, 2016	\$34,125	\$-	\$173,327	\$777,028	\$-	\$-
Shares Purchased	25,802	-	-	32,316	-	-
Shares Redeemed	(23,923)	-	(22,222)	(15,386)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(76)	-	19,241	1,682	-	-
Net Investment Income Earned	498	-	-	-	-	-
Net Investment Income Distributed	(498)	-	-	-	-	-
Changes in Market Value of Fund Shares	(15)	-	12,875	11,694	-	-
Market Value at Jun. 30, 2017	\$35,913	\$-	\$183,221	\$807,334	\$-	\$-
Book Value\Cost at Jun 30, 2017	\$36,044	\$-	\$23,263	\$702,581	\$-	\$-
Shares Outstanding	37,047	-	99	6,127	-	-
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$-	\$-
<b>School Fund</b>						
Book Value at June 30, 2016	\$327,138	\$-	\$262,055	\$6,398,092	\$-	\$-
Market Value at June 30, 2016	\$327,034	\$-	\$1,662,675	\$7,450,995	\$-	\$-
Shares Purchased	302,425	-	29,539	306,110	-	-
Shares Redeemed	(282,364)	-	(246,075)	(143,000)	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(2,025)	-	209,406	19,685	-	-
Net Investment Income Earned	5,271	-	-	-	-	-
Net Investment Income Distributed	(5,271)	-	-	-	-	-
Changes in Market Value of Fund Shares	(784)	-	102,586	111,015	-	-
Market Value at Jun. 30, 2017	\$344,286	\$-	\$1,758,131	\$7,744,805	\$-	\$-
Book Value\Cost at Jun 30, 2017	\$345,174	\$-	\$254,925	\$6,580,887	\$-	\$-
Shares Outstanding	355,177	-	950	58,777	-	-
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$-	\$-

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>TOTAL</b>
\$-	\$209,843	\$103,524	\$-	\$-	\$1,864,831
\$-	\$256,821	\$97,798	\$-	\$-	\$2,447,813
-	4,029	541	-	-	128,144
-	(33,665)	(13,448)	-	-	(177,946)
-	-	-	-	-	-
-	9,764	516	-	-	55,239
-	-	-	-	-	1,064
-	-	-	-	-	(1,064)
-	52,009	20,424	-	-	124,001
\$-	\$288,958	\$105,831	\$-	\$-	\$2,577,251
\$-	\$189,971	\$91,133	\$-	\$-	\$1,870,268
-	538	251	-	-	92,796
\$-	\$537.15	\$422.00	\$-	\$-	
\$-	\$98,691	\$48,713	\$-	\$-	\$891,858
\$-	\$120,788	\$46,000	\$-	\$-	\$1,151,268
-	1,895	255	-	-	60,268
-	(15,833)	(6,325)	-	-	(83,689)
-	-	-	-	-	-
-	4,593	239	-	-	25,679
-	-	-	-	-	498
-	-	-	-	-	(498)
-	24,461	9,608	-	-	58,623
\$-	\$135,904	\$49,777	\$-	\$-	\$1,212,149
\$-	\$89,346	\$42,882	\$-	\$-	\$894,116
-	253	118	-	-	43,644
\$-	\$537.15	\$422.02	\$-	\$-	
\$-	\$958,417	\$464,811	\$-	\$-	\$8,410,513
\$-	\$1,158,291	\$440,729	\$-	\$-	\$11,039,724
-	18,142	1,965	-	-	658,181
-	(155,149)	(61,157)	-	-	(887,745)
-	-	-	-	-	-
-	47,001	4,291	-	-	278,358
-	-	-	-	-	5,271
-	-	-	-	-	(5,271)
-	236,403	91,979	-	-	541,199
\$-	\$1,304,688	\$477,807	\$-	\$-	\$11,629,717
\$-	\$868,411	\$409,910	\$-	\$-	\$8,459,307
-	2,429	1,132	-	-	418,465
\$-	\$537.14	\$422.00	\$-	\$-	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
<b>Hopemead Fund</b>						
Book Value at June 30, 2016	\$107,262	\$-	\$121,477	\$2,112,694	\$-	\$-
Market Value at June 30, 2016	\$104,725	\$-	\$531,961	\$2,384,788	\$-	\$-
Shares Purchased	8,653	-	8,313	102,318	-	-
Shares Redeemed	(5)	-	(66,018)	-	-	-
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	-	-	52,142	-	-	-
Net Investment Income Earned	1,810	-	-	-	-	-
Net Investment Income Distributed	(1,810)	-	-	-	-	-
Changes in Market Value of Fund Shares	(851)	-	47,679	42,466	-	-
Market Value at June 30, 2017	\$112,522	\$-	\$574,077	\$2,529,572	\$-	\$-
Book Value at June 30, 2017	\$115,910	\$-	\$115,914	\$2,215,012	\$-	\$-
Shares Outstanding	116,079	-	310	19,198	-	-
Market Value per Share	\$0.97	\$-	\$1,849.99	\$131.77	\$-	\$-
<b>Police &amp; Fireman's Survivors' Benefit Fund</b>						
Book Value at June 30, 2016	\$844,392	\$2,512,535	\$2,421,698	\$1,787,696	\$988,897	\$1,608,228
Market Value at June 30, 2016	\$830,373	\$2,606,706	\$4,882,409	\$2,018,359	\$1,134,959	\$2,016,003
Shares Purchased	221,654	69,723	133,482	171,073	117,769	68,368
Shares Redeemed	(97,038)	(16,257)	(461,253)	-	-	(29,639)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(2,115)	1,028	253,382	-	-	7,089
Net Investment Income Earned	14,746	-	-	-	-	-
Net Investment Income Distributed	(14,746)	-	-	-	-	-
Changes in Market Value of Fund Shares	(4,827)	214,736	673,666	37,373	10,032	178,225
Market Value at June 30, 2017	\$948,047	\$2,875,936	\$5,481,686	\$2,226,805	\$1,262,760	\$2,240,046
Book Value at June 30, 2017	\$966,893	\$2,567,029	\$2,347,309	\$1,958,769	\$1,106,666	\$1,654,046
Shares Outstanding	978,022	2,368,252	2,963	16,900	8,093	12,857
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23
<b>OPEB Fund</b>						
Book Value at June 30, 2016	\$17,995,995	\$34,645,576	\$58,907,226	\$83,829,083	\$7,420,991	\$11,046,190
Market Value at June 30, 2016	\$18,014,431	\$34,691,137	\$68,707,646	\$88,224,378	\$7,552,284	\$11,506,953
Shares Purchased	120,830,054	11,428,977	16,914,935	35,687,465	3,213,259	3,855,448
Shares Redeemed	(119,453,734)	-	(628,430)	-	-	(146,006)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	1,705	-	124,577	-	-	7,684
Net Investment Income Earned	96,692	-	-	-	-	-
Net Investment Income Distributed	(96,692)	-	-	-	-	-
Changes in Market Value of Fund Shares	(24,940)	3,414,155	14,811,404	2,110,795	109,722	1,307,130
Market Value at June 30, 2017	\$19,367,516	\$49,534,269	\$99,930,132	\$126,022,638	\$10,875,265	\$16,531,209
Book Value at June 30, 2017	\$19,374,020	\$46,074,553	\$75,318,308	\$119,516,548	\$10,634,250	\$14,763,316
Shares Outstanding	19,979,842	40,790,038	54,017	956,417	69,703	94,882
Market Value per Share	\$0.97	\$1.21	\$1,849.99	\$131.77	\$156.02	\$174.23

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued)  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017**

<b>HIGH YIELD DEBT FUND</b>	<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND</b>	<b>EMERGING MARKET INTERNATIONAL STOCK FUND</b>	<b>REAL ESTATE FUND</b>	<b>PRIVATE INVESTMENT FUND</b>	<b>TOTAL</b>
\$-	\$306,401	\$149,036	\$-	\$-	\$2,796,870
\$-	\$370,711	\$141,172	\$-	\$-	\$3,533,357
-	5,816	644	-	-	125,744
-	(41,260)	(16,650)	-	-	(123,933)
-	-	-	-	-	-
-	12,163	901	-	-	65,206
-	-	-	-	-	1,810
-	-	-	-	-	(1,810)
-	78,387	29,890	-	-	197,571
\$-	\$425,817	\$155,957	\$-	\$-	\$3,797,945
\$-	\$283,120	\$133,931	\$-	\$-	\$2,863,887
-	793	370	-	-	136,749
\$-	\$537.14	\$422.00	\$-	\$-	
\$3,069,118	\$3,810,630	\$2,351,151	\$1,712,631	\$2,252,618	\$23,359,594
\$3,450,265	\$4,094,938	\$2,288,615	\$2,047,397	\$3,217,470	\$28,587,494
57,020	64,788	58,208	87,965	143,783	1,193,833
(98,636)	(285,796)	(228,401)	(10,524)	(48,542)	(1,276,086)
-	-	-	-	-	-
15,208	64,537	18,958	1,850	14,889	374,826
-	-	-	-	-	14,746
-	-	-	-	-	(14,746)
404,971	953,039	490,252	112,234	399,104	3,468,805
\$3,828,828	\$4,891,506	\$2,627,632	\$2,238,922	\$3,726,704	\$32,348,872
\$3,042,710	\$3,654,159	\$2,199,916	\$1,791,922	\$2,362,748	\$23,652,167
24,724	9,107	6,227	41,930	47,411	3,516,484
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	
\$29,298,840	\$50,042,690	\$15,591,512	\$28,476,985	\$27,940,896	\$365,195,984
\$30,594,370	\$50,839,458	\$15,268,165	\$35,010,682	\$35,026,010	\$395,435,514
9,113,989	13,584,375	4,094,821	12,189,692	11,807,298	242,720,313
-	(684,185)	(895,506)	-	-	(121,807,861)
-	-	-	-	-	-
-	85,357	67,615	-	-	286,938
-	-	-	-	-	96,692
-	-	-	-	-	(96,692)
4,255,639	14,710,148	4,062,303	2,371,739	5,677,306	52,805,401
\$43,963,998	\$78,535,153	\$22,597,398	\$49,572,113	\$52,510,614	\$569,440,305
\$38,412,829	\$63,028,237	\$18,858,442	\$40,666,677	\$39,748,194	\$486,395,374
283,888	146,209	53,548	928,365	668,039	64,024,949
\$154.86	\$537.14	\$422.00	\$53.40	\$78.60	\$8.89

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS**

**LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT**

**JUNE 30, 2017**

<b>Name of Fund</b>	<b>Investment Strategy</b>	<b>Net Assets Under Management</b>	<b>Percent of Fund Total</b>
<b>LIQUIDITY (LF)</b>			
State Street Global Advisors	Active	\$ 1,542,288,102	52.83%
Payden & Rygel	Active	548,314,753	18.78%
PIMCO	Active	431,429,437	14.78%
Lazard	Active	99,657,597	3.41%
Colchester Global Investors Ltd.	Active	297,752,345	10.20%
<b>Other <sup>(1)</sup></b>		<b>338</b>	<b>0.00%</b>
<b>SUBTOTAL LF</b>		<b>\$ 2,919,442,572</b>	<b>100.00%</b>
<b>MUTUAL EQUITY FUND (MEF)</b>			
<b>Large Cap</b>		<b>\$ 5,317,010,424</b>	<b>75.72%</b>
T. Rowe Price Associates	Enhanced - Index	2,265,341,959	32.26%
State Street Global Advisors	Passive - Indexed	3,051,668,465	43.46%
<b>All Cap</b>		<b>629,717,239</b>	<b>8.97%</b>
Capital Prospects	Active	324,236,955	4.62%
FIS Group, Inc.	Active	305,480,284	4.35%
<b>Small/Mid Cap</b>		<b>733,833,239</b>	<b>10.45%</b>
Frontier Capital Mgmt Co	Active	408,898,925	5.82%
Bivium	Active	324,934,314	4.63%
<b>Other <sup>(1)</sup></b>		<b>341,569,801</b>	<b>4.86%</b>
<b>SUBTOTAL MEF</b>		<b>\$ 7,022,130,703</b>	<b>100.00%</b>
<b>CORE FIXED INCOME FUND (CFIF)</b>			
State Street Global Advisors	Passive	\$ 251,945,275	10.27%
BlackRock Financial Management, Inc.	Active	528,277,226	21.54%
Wellington	Active	538,592,555	21.96%
Conning-Goodwin Capital	Active	378,359,692	15.43%
Progress	Active	118,900,899	4.85%
Prudence Crandall Fund III Opportunistic	Active	279,748,952	11.41%
Prudence Crandall Fund IV Opportunistic	Active	286,291,100	11.67%
<b>Other <sup>(1)</sup></b>		<b>70,267,790</b>	<b>2.87%</b>
<b>SUBTOTAL CFIF</b>		<b>\$ 2,452,383,489</b>	<b>100.00%</b>
<b>INFLATION LINKED BOND FUND (ILBF)</b>			
BlackRock	Active	\$ 515,186,615	38.33%
Colchester	Active	610,713,250	45.44%
New Century	Active	189,191,788	14.08%
<b>Other <sup>(1)</sup></b>		<b>28,934,092</b>	<b>2.15%</b>
<b>SUBTOTAL ILBF</b>		<b>\$ 1,344,025,745</b>	<b>100.00%</b>
<b>EMERGING MARKET DEBT FUND (EMDF)</b>			
Ashmore Investment Mgt. Ltd.	Active	\$ 576,148,444	35.19%
Payden & Rygel	Active	556,352,645	33.98%
Fidelity Institutional Asset Mgt. Trust Co.	Active	478,378,770	29.22%
Stone Harbor Investment Partners	Active	13,909,252	0.85%
<b>Other <sup>(1)</sup></b>		<b>12,391,905</b>	<b>0.76%</b>
<b>SUBTOTAL EMDF</b>		<b>\$ 1,637,181,016</b>	<b>100.00%</b>
<b>HIGH YIELD DEBT FUND (HYDF)</b>			
Loomis Sayles & Co., Inc.	Active	\$ 381,183,907	18.65%
Stone Harbor Investment Partners	Active	20,153,947	0.99%
Shenkman Capital Management, Inc.	Active	232,440,304	11.37%
Oaktree Capital Management, L.L.C.	Active	7,466,324	0.36%
AllianceBernstein, LP	Active	283,040,061	13.84%
DDJ Capital Management, LLC	Active	160,811,548	7.87%
Columbia Management Investment Advisers, LLC	Active	369,708,326	18.08%
Nomura Corporation Research & Asset Management, Inc.	Active	444,026,436	21.72%
TCG BDC, Inc.	Active	57,625,395	2.82%
<b>Other <sup>(1)</sup></b>		<b>87,877,782</b>	<b>4.30%</b>
<b>SUBTOTAL HYDF</b>		<b>\$ 2,044,334,030</b>	<b>100.00%</b>

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS**

**LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued)**

**JUNE 30, 2017**

<b>Name of Fund</b>	<b>Investment Strategy</b>	<b>Net Assets Under Management</b>	<b>Percent of Fund Total</b>
<b>DEVELOPED MARKET INTERNATIONAL STOCK FUND (DMISF)</b>			
<b>Index</b>		<b>\$ 2,243,712,419</b>	<b>35.16%</b>
State Street Global Advisors	Index-Passive	2,243,712,419	35.16%
<b>Core</b>		<b>1,698,253,096</b>	<b>26.61%</b>
AQR Capital Management	Active	779,558,778	12.21%
Acadian Asset Management	Active	774,528,461	12.14%
Progress	Active	144,165,857	2.26%
<b>Active-Growth</b>		<b>914,303,822</b>	<b>14.33%</b>
MFS Institutional Advisors, Inc.	Active	914,303,822	14.33%
<b>Active-Value</b>		<b>511,113,008</b>	<b>8.01%</b>
Grantham, Mayo, Van Otterloo	Active	511,113,008	8.01%
<b>Small Cap</b>		<b>999,897,967</b>	<b>15.67%</b>
Schroder Investment Mgmt.	Active	360,217,280	5.64%
DFA	Active	316,886,481	4.97%
William Blair & Company	Active	322,794,206	5.06%
<b>Other <sup>(1)</sup></b>		<b>13,759,879</b>	<b>0.22%</b>
<b>SUBTOTAL DMISF</b>		<b>\$ 6,381,040,191</b>	<b>100.00%</b>
<b>EMERGING MARKET INTERNATIONAL STOCK FUND (EMISF)</b>			
Aberdeen Asset Management	Active	\$ 943,572,024	31.29%
Schroders Investment Mgt	Active	1,263,640,304	41.91%
Grantham, Mayo, Van Otterloo	Active	798,499,456	26.48%
<b>Other <sup>(1)</sup></b>		<b>9,610,274</b>	<b>0.32%</b>
<b>SUBTOTAL EMISF</b>		<b>\$ 3,015,322,058</b>	<b>100.00%</b>
<b>REAL ESTATE FUND (REF)</b>			
AEW Partners III	Active	\$ 270,172	0.01%
American Realty Advisors	Active	90,401,538	4.02%
Apollo Real Estate	Active	205,358	0.01%
Blackstone Real Estate Partner Europe III LP	Active	34,225,710	1.52%
Blackstone Real Estate Spec Sit II LP	Active	2,180,550	0.10%
Blackstone Real Estate VI LP	Active	20,576,572	0.91%
Blackstone Real Estate Partners VIII LP	Active	47,335,962	2.10%
Blackstone Real Estate Partners EURO V	Active	4,173,260	0.19%
Canyon Johnson Urban Fund II	Active	150,125	0.01%
Canyon Johnson Urban Fund III	Active	447,568	0.02%
Capri Select Income II LLC	Active	60,778	0.00%
Clarion Lion Industrial Trust	Active	116,734,432	5.19%
Colony Realty Partners II LP	Active	9,143,800	0.41%
Cornerstone Patriot Fund LP	Active	293,039,605	13.03%
Covenant Apartment Fund V LP	Active	339,907	0.02%
Covenant Apartment Fund VI	Active	187,454	0.01%
Covenant Apartment Fund VIII	Active	20,879,913	0.93%
Crow Hldgs Realty Partners VII LP	Active	56,054,600	2.49%
Cypress Acquisition Prtnrs Retail FD LP	Active	50,654,012	2.25%
Gerding Edlen Green Cities II	Active	31,154,380	1.39%
Gerding REF III	Active	32,708,305	1.45%
Hart Realty Advisors	Active	197,380,637	8.78%
IL & FS India Realty Fund II LLC	Active	25,244,922	1.12%
JP Morgan Strategic Property	Active	85,542,816	3.80%
Landmark RE Partners VII LP	Active	19,942,161	0.89%
Lone Star Real Estate Part II LP	Active	11,907,393	0.53%
Macfarlane Urban Real Estate Fund II LP	Active	2,654,118	0.12%
Prime Property Fund LLC	Active	263,749,584	11.73%
PRISA	Active	200,459,653	8.92%
Rockwood Capital Fund V	Active	151,000	0.01%
Rockwood Capital VI Limited Partnership	Active	323,897	0.01%
Rockwood Capital VII Limited Partnership	Active	20,343,110	0.90%
Starwood Opportunity Fund VII	Active	15,357,828	0.68%
Starwood Opportunity Fund VIII	Active	10,340,094	0.46%
Starwood Opportunity Fund IX	Active	33,857,966	1.51%

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS**

**LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued)**

**JUNE 30, 2017**

<b>Name of Fund</b>	<b>Investment Strategy</b>	<b>Net Assets Under Management</b>	<b>Percent of Fund Total</b>
Starwood Opportunity Fund X	Active	71,224,496	3.17%
UBS-Trumbull Property Income	Active	59,078,880	2.63%
UBS-Trumbull Property G&I (TPG)	Active	67,163,079	2.99%
UBS-Trumbull Property Fund LP	Active	86,612,748	3.85%
Urban Strategy America Fund LP	Active	28,574,190	1.27%
USAA Eagle RE Fund	Active	136,225,933	6.06%
WLR IV PPIP Co Invest LP	Active	9,434,720	0.42%
<b>Other <sup>(2)</sup></b>	<b>Active</b>	<b>91,987,594</b>	<b>4.09%</b>
<b>SUBTOTAL REF</b>		<b>\$ 2,248,480,820</b>	<b>100.00%</b>
<b>PRIVATE INVESTMENT FUND (PIF)</b>			
<b>Buyout</b>		<b>\$ 1,090,300,470</b>	<b>36.46%</b>
AIG Altaris Health Partners II	Active	14,208,866	0.47%
AIG Altaris Health Partners III	Active	29,429,972	0.98%
Boston Ventures VII	Active	43,313,369	1.45%
Charterhouse Equity Partners IV	Active	4,037,714	0.13%
Court Square Capital Partners II	Active	27,058,106	0.90%
Court Square Capital Partners III LP	Active	16,688,090	0.56%
Ethos Private Equity Fund V	Active	5,324,415	0.18%
FS Equity Partners V	Active	6,508,219	0.22%
FS Equity Partners VI	Active	124,505,984	4.16%
GENNX360 Capital Partners II	Active	18,646,010	0.62%
Hicks, Muse Tate & Furst Equity Fund III	Active	3,551,237	0.12%
ICV Partners II LP	Active	8,962,675	0.30%
JFL Equity Investors III, LP	Active	50,122,324	1.68%
JFL IV	Active	26,233,339	0.88%
KKR 2006 Fund	Active	64,659,031	2.16%
KKR Millennium Fund	Active	9,244,888	0.31%
Leeds Equity Partners V LP	Active	32,509,095	1.09%
Leeds VI	Active	9,898,141	0.33%
Nogales Investors Fund II	Active	1,685,506	0.06%
RFE Investment Partners VII	Active	44,319,391	1.48%
RFE Investments Partners VIII	Active	22,912,390	0.77%
TA XI, L.P.	Active	66,429,959	2.22%
Thomas H. Lee Equity Fund VI	Active	65,215,336	2.18%
Vista Equity Partners Fund III	Active	22,508,517	0.75%
Vista Equity Partners Fund IV	Active	73,479,303	2.46%
Vista Equity Partners Fund VI	Active	46,933,363	1.57%
Wellspring Capital Partners V	Active	36,761,719	1.23%
Welsh Carson Anderson & Stowe X LP	Active	18,865,693	0.63%
Welsh Carson Anderson & Stowe XI	Active	68,992,263	2.31%
WCAS XII, LP	Active	31,951,782	1.07%
Yucaipa American Alliance Fund II LP	Active	81,384,745	2.72%
Yucaipa III	Active	13,959,028	0.47%
<b>Venture Capital</b>		<b>9,014,785</b>	<b>0.30%</b>
Crescendo III	Active	1,156,486	0.04%
Syndicated Communications V	Active	7,858,299	0.26%
<b>Mezzanine</b>		<b>47,691,968</b>	<b>1.59%</b>
Audax Mezzanine III Limited Partnership	Active	38,109,974	1.27%
GarMark Partners II LP	Active	9,581,994	0.32%
<b>International</b>		<b>46,579,869</b>	<b>1.56%</b>
Gilbert Global Equity Partners	Active	44,851,779	1.50%
Pinebridge Global Emerging Markets Fund	Active	1,728,090	0.06%
<b>Fund of Funds</b>		<b>1,010,862,137</b>	<b>33.80%</b>
Connecticut Horizon Legacy	Active	5,860,236	0.20%
CT Growth Capital	Active	7,830,409	0.26%
CS/CT Cleantech Opp Fund	Active	8,123,759	0.27%
CT Emerging M-2 Pvt Equity	Active	73,164,810	2.45%
Fairview Constitution II LP	Active	90,387,736	3.02%
Fairview Constitution III	Active	315,539,659	10.55%
Fairview Constitution IV LP	Active	139,545,704	4.67%

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS**

**LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued)**

**JUNE 30, 2017**

<b>Name of Fund</b>	<b>Investment Strategy</b>	<b>Net Assets Under Management</b>	<b>Percent of Fund Total</b>
JP Morgan Nutmeg I	Active	83,953,234	2.81%
Landmark Equity Partners XIV LP	Active	38,412,767	1.28%
Landmark Equity Partners XV LP	Active	37,475,763	1.25%
Stepstone Pioneer Capital I LP	Active	19,007,759	0.64%
Stepstone Pioneer Capital II LP	Active	132,208,263	4.42%
Constitution Fund V	Active	22,556,900	0.75%
The Constitution Liquidating Fund	Active	36,795,138	1.23%
<b>Special Situations</b>	Active	<b>452,045,315</b>	<b>15.12%</b>
Apollo Investment Fund VIII LP	Active	86,564,648	2.90%
Castlelake II LP	Active	45,509,284	1.52%
Clearlake Capital Partners III LP	Active	64,676,117	2.16%
Clearlake IV	Active	48,347,212	1.62%
Levine Leichtman Capital Partners	Active	20,220,581	0.68%
Levine Leichtman Capital Partners V LP	Active	64,570,094	2.16%
Pegasus Partners IV	Active	29,311,713	0.98%
Pegasus Partners V	Active	81,157,517	2.71%
WLR Recovery Fund IV	Active	11,688,149	0.39%
<b>Other <sup>(2)</sup></b>		<b>333,947,837</b>	<b>11.17%</b>
<b>SUBTOTAL PIF</b>		<b>\$ 2,990,442,381</b>	<b>100.00%</b>
<b>ALTERNATIVE INVESTMENT FUND (AIF)</b>			
Arclight Energy Partners Fund V	Active	\$ 36,994,556	1.82%
Arclight VI	Active	49,413,209	2.44%
EIG Energy Fund XV Limited Partnership	Active	36,262,167	1.79%
Marathon European Credit Opportunity	Active	10,702,910	0.53%
Prudence Crandall I Permal Limited Partnership	Active	608,296,503	30.00%
Prudence Crandall II Prisma Limited Partnership	Active	319,006,097	15.73%
Prudence Crandall III Rock Creek Limited Partnership	Active	309,983,386	15.28%
Prudence Crandall IV K2 Limited Partnership	Active	305,672,773	15.07%
Thomas Welles Fund I	Active	87,595,523	4.32%
Thomas Welles Fund II	Active	87,245,454	4.30%
<b>Other <sup>(2)</sup></b>		<b>176,783,922</b>	<b>8.72%</b>
<b>SUBTOTAL AIF</b>		<b>\$ 2,027,956,500</b>	<b>100.00%</b>
<b>TOTAL</b>		<b>\$ 34,082,739,505</b>	
<b>Adjustments <sup>(3)</sup></b>		<b>(1,534,869,491)</b>	
<b>GRAND TOTAL</b>		<b>\$ 32,547,870,014</b>	

(1) Other represents cash equivalents, other net assets and terminated advisor balances, as well as, currency overlay balances for the DMISF.

(2) Other includes partnerships with nonmaterial balances, as well as moneys earmarked for distribution to participants, reinvestment, expenses and other net assets.

(3) Represents Elimination Entry to account for investment of Combined Investment Funds in the Liquidity Fund.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2017**

**LIQUIDITY FUND**

<b>Security Name</b>	<b>Maturity Date</b>	<b>Market Value</b>	<b>%</b>
CITIGROUP GLOBAL TRI REPO	7/3/2017	79,000,000	2.70%
FEDERAL NATL MTG ASSN DISC	7/3/2017	55,995,567	1.92%
WAL MART STORES DISC	7/10/2017	39,988,111	1.37%
U S TREASURY NOTE	12/31/2018	36,072,120	1.23%
MERRILL LYNCH TRI REPO	7/3/2017	33,000,000	1.13%
KELLS FDG LLC 144A DISC	9/12/2017	29,901,667	1.02%
REPUBLIC OF POLAND GOVERNMENT	7/25/2019	25,889,189	0.89%
U S TREASURY NOTE	2/15/2018	25,665,985	0.88%
NEW ZEALAND GOVERNMENT BO REGS	3/15/2019	25,546,107	0.87%
NATIONAL SEC CORP DISC	7/13/2017	24,988,229	0.86%
<b>Top Ten</b>		<b>\$376,046,975</b>	<b>12.87%</b>

**FAIR VALUE LF**

**\$2,922,197,052**

**ALTERNATIVE INVESTMENT FUND**

<b>Partnership Name</b>	<b>Partnership Type</b>	<b>Market Value</b>	<b>%</b>
PRUDENCE CRANDALL I PERMAL	Hedge Fund-of-Funds	608,296,503	30.01%
PRUDENCE CRANDALL II PRISMA	Hedge Fund-of-Funds	319,006,097	15.74%
PRUDENCE CRANDALL III RCREEK	Hedge Fund-of-Funds	309,983,386	15.29%
PRUDENCE CRANDALL IV K2	Hedge Fund-of-Funds	305,672,773	15.08%
THOMAS WELLES FUND I	Hedge Fund-of-Funds	87,595,523	4.32%
THOMAS WELLES FUND II	Hedge Fund-of-Funds	87,245,454	4.31%
ARCLIGHT ENERGY PARTNERS VI	Real Assets	49,413,209	2.44%
ARCLIGHT ENERGY PARTNERS V	Real Assets	36,994,556	1.83%
EIG ENERGY FUND XV LP	Real Assets	36,262,167	1.79%
MARATHON EUROPEAN CREDIT OPP FUND SPC B	Opportunistic	10,702,910	0.53%
<b>Top Ten</b>		<b>\$1,851,172,578</b>	<b>91.34%</b>

**FAIR VALUE AIF**

**\$2,026,788,085**

**MUTUAL EQUITY FUND**

<b>Security Name</b>	<b>Industry Sector</b>	<b>Market Value</b>	<b>%</b>
APPLE INC	INFORMATION TECHNOLOGY	190,196,701	2.71%
MICROSOFT CORP	INFORMATION TECHNOLOGY	149,416,390	2.12%
AMAZON.COM INC	CONSUMER DISCR	107,485,752	1.53%
FACEBOOK INC	INFORMATION TECHNOLOGY	104,412,031	1.49%
EXXON MOBIL CORP	ENERGY	90,102,430	1.28%
JOHNSON & JOHNSON	HEALTH CARE	87,638,818	1.25%
JP MORGAN CHASE & CO	FINANCIALS	87,365,421	1.24%
ALPHABET INC-CL C	INFORMATION TECHNOLOGY	74,943,872	1.07%
ALPHABET INC-CL A	INFORMATION TECHNOLOGY	74,259,120	1.06%
WELLS FARGO & CO	FINANCIALS	70,976,110	1.01%
<b>Top Ten</b>		<b>\$1,036,796,645</b>	<b>14.76%</b>

**FAIR VALUE MEF**

**\$7,026,486,865**

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2017 (Continued)**

**CORE FIXED INCOME FUND**

Security Name	Coupon	Maturity	Security Type	Market Value	%
U S TREASURY NOTE	1.250	5/31/2019	U.S. Govt/Agency	28,565,703	1.10%
U S TREASURY NOTE	1.125	6/30/2021	U.S. Govt/Agency	23,957,381	0.92%
FNMA TBA	3.500	8/1/2047	U.S. Govt/Agency	22,865,082	0.88%
U S TREASURY NOTE	1.250	4/30/2019	U.S. Govt/Agency	19,478,964	0.75%
U S TREASURY NOTE	2.375	5/15/2027	U.S. Govt/Agency	18,276,965	0.70%
U S TREASURY NOTE	1.875	2/28/2022	U.S. Govt/Agency	17,120,691	0.66%
FNMA TBA	3.500	7/1/2047	U.S. Govt/Agency	15,375,669	0.59%
GNMA TBA	3.000	7/20/2047	U.S. Govt/Agency	15,219,885	0.59%
FHLM TBA	3.500	8/1/2047	U.S. Govt/Agency	15,176,512	0.58%
U S TREASURY NOTE	2.000	8/15/2025	U.S. Govt/Agency	12,795,841	0.49%
<b>Top Ten</b>				<b>\$188,832,693</b>	<b>7.26%</b>

**FAIR VALUE CFIF**

**\$2,601,453,937**

**INFLATION LINKED BOND FUND**

Security Name	Coupon	Maturity	Security Type	Market Value	%
US TREAS-CPI INFLAT	3.875	4/15/2029	U.S. Govt/Agency	59,556,259	4.47%
US TREAS-CPI INFLAT	0.125	4/15/2019	U.S. Govt/Agency	54,596,993	4.10%
ITALY GOVERNMENT BOND	2.600	9/15/2023	Italy Govt/Agency	51,492,593	3.86%
US TREAS-CPI INFLAT	2.375	1/15/2027	U.S. Govt/Agency	51,404,516	3.86%
US TREAS-CPI INFLAT	0.125	7/15/2022	U.S. Govt/Agency	46,737,288	3.51%
US TREAS-CPI INFLAT	0.750	2/15/2042	U.S. Govt/Agency	43,573,827	3.27%
US TREAS-CPI INFLAT	0.125	4/15/2022	U.S. Govt/Agency	38,739,825	2.91%
NEW ZEALAND GOVERNMENT BOND	3.000	9/20/2030	New Zealand Govt/Agency	35,925,949	2.69%
FRANCE GOVERNMENT BOND	1.800	7/25/2040	France Govt/Agency	34,993,349	2.62%
UNITED KINGDOM GILT INFLA REGS	0.125	3/22/2044	U.K. Govt/Agency	33,235,116	2.49%
<b>Top Ten</b>				<b>\$450,255,715</b>	<b>33.78%</b>

**FAIR VALUE ILBF**

**\$1,332,942,016**

**EMERGING MARKET DEBT FUND**

Security Name	Coupon	Maturity	Market Value	%
BRAZIL NOTAS DO TESOURO	10.000	1/1/2021	34,209,134	2.14%
SOUTH AFRICA GOVERNMENT BOND	7.000	2/28/2031	24,959,057	1.56%
COLOMBIA GOVERNMENT BOND	7.000	5/4/2022	21,040,245	1.32%
BRAZIL NOTAS DO TESOURO	10.000	1/1/2023	20,080,271	1.26%
MEXICAN BONDS	6.500	6/10/2021	19,666,840	1.23%
COLOMBIA GOVERNMENT BOND	10.000	7/24/2024	14,238,523	0.89%
RUSSIAN GOVERNMENT BOND	7.600	4/14/2021	14,064,928	0.88%
BRAZIL NOTAS DO TESOURO	10.000	1/1/2025	14,038,676	0.88%
BRAZIL NOTAS DO TESOURO	10.000	1/1/2027	13,457,482	0.84%
JP MORGAN CHASE BANK NA 144A	8.375	9/17/2026	13,271,837	0.83%
<b>Top Ten</b>			<b>\$189,026,993</b>	<b>11.83%</b>

**FAIR VALUE EMDF**

**\$1,598,180,952**

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2017 (Continued)**

**HIGH YIELD DEBT FUND**

<b>Security Name</b>	<b>Coupon</b>	<b>Maturity</b>	<b>Market Value</b>	<b>%</b>
US TREASURY NOTE	1.250	5/31/2019	11,357,448	0.56%
DISH NETWORK CORP 144A	3.375	8/15/2026	10,973,125	0.54%
INDONESIA GOVERNMENT BOND	5.875	1/15/2024	9,802,538	0.48%
NEW ALBERTSON'S INC	7.450	8/1/2029	9,239,250	0.45%
MICRON TECHNOLOGY INC	3.000	11/15/2043	8,510,625	0.42%
TENET HEALTHCARE CORP	6.875	11/15/2031	8,263,440	0.41%
TENET HEALTHCARE CORP	6.750	6/15/2023	7,962,000	0.39%
MORGAN STANLEY	4.750	11/16/2018	7,887,460	0.39%
TRANSDIGM INC	6.500	07/15/2024	7,749,945	0.38%
SPRINT CAPITAL CORP	6.875	11/15/2028	7,747,643	0.38%

**Top Ten**

**\$89,493,474**

**4.40%**

**FAIR VALUE HYDF**

**\$ 2,034,712,429**

**DEVELOPED MARKET INTERNATIONAL STOCK FUND**

<b>Security Name</b>	<b>Country</b>	<b>Market Value</b>	<b>%</b>
NESTLE SA REG	SWITZERLAND	106,804,410	1.68%
ROCHE HOLDING AG GENUSSCHEIN	SWITZERLAND	70,831,897	1.12%
HSBC HOLDINGS PLC	UNITED KINGDOM	60,715,152	0.95%
BAYER AG REG	GERMANY	56,241,204	0.88%
ING GROEP NV	NETHERLANDS	55,237,133	0.87%
NOVARTIS AG REG	SWITZERLAND	53,980,181	0.85%
WPP PLC	UNITED KINGDOM	42,269,383	0.67%
SAP SE	GERMANY	41,733,731	0.66%
RECKITT BENCKISER GROUP PLC	UNITED KINGDOM	38,499,656	0.61%
AIA GROUP LTD	HONG KONG	37,963,666	0.60%

**Top Ten**

**\$564,276,413**

**8.89%**

**FAIR VALUE DMISF**

**\$6,344,307,953**

**EMERGING MARKET INTERNATIONAL STOCK FUND**

<b>Security Name</b>	<b>Country</b>	<b>Market Value</b>	<b>%</b>
TAIWAN SEMICONDUCTOR MANUFACTURE	TAIWAN	\$144,116,447	4.80%
SAMSUNG ELECTRONICS CO LTD	REPUBLIC OF KOREA	118,333,698	3.94%
TENCENT HLDGS LTD	CHINA	99,104,743	3.30%
CHINA MOBILE LTD	HONG KONG	87,839,679	2.92%
ALIBABA GROUP HOLDING LTD	CAYMAN ISLANDS	78,380,838	2.61%
HDFC BANK LTD	INDIA	67,396,532	2.24%
AIA GROUP LTD	HONG KONG	60,241,795	2.01%
CHINA CONSTRUCTION BANK CORP	CHINA	59,665,286	1.99%
SAMSUNG ELECTRONIC CO LTD GDR	REPUBLIC OF KOREA	57,735,096	1.92%
HON HAI PRECISION INDUSTRY CO	TAIWAN	45,240,693	1.51%

**Top Ten**

**\$818,054,807**

**27.24%**

**FAIR VALUE EMISF**

**\$3,002,786,523**

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2017 (Continued)**

**REAL ESTATE FUND**

<b>Partnership Name</b>	<b>Partnership Type</b>	<b>Market Value</b>	<b>%</b>
CORNERSTONE PATRIOT FUND LP	Core	293,039,605	13.07%
PRIME PROPERTY FUND LLC	Core	263,749,584	11.76%
PRISA	Core	200,459,653	8.94%
HART REALTY ADVISORS	Core	197,380,637	8.80%
USAA EAGLE RE FUND	Core	136,225,933	6.07%
CLARION LION INDUSTRIAL TRUST	Value Added	116,734,432	5.21%
AMERICAN REALTY ADVISORS	Core	90,401,538	4.03%
UBS-TRUMBULL PROPERTY FUND LP	Core	86,612,748	3.86%
JP MORGAN STRATEGIC PROPERTY	Core	85,542,816	3.81%
STARWOOD OPPORTUNITY FUND X	Opportunistic	71,224,496	3.18%
<b>Top Ten</b>		<b>\$1,541,371,442</b>	<b>68.73%</b>

**FAIR VALUE REF**

**\$2,242,658,118**

**PRIVATE INVESTMENT FUND**

<b>Partnership Name</b>	<b>Partnership Type</b>	<b>Market Value</b>	<b>%</b>
FAIRVIEW CONSTITUTION III LP	Fund of Funds	315,539,659	10.62%
FAIRVIEW CONSTITUTION IV LP	Fund of Funds	139,545,704	4.70%
STEPSTONE PIONEER CAPITAL II LP	Fund of Funds	132,208,263	4.45%
FS EQUITY PARTNERS VI	Buyout	124,505,984	4.19%
FAIRVIEW CONSTITUTION II LP	Fund of Funds	90,387,736	3.04%
APOLLO INVESTMENT FUND VIII LP	Special Situations	86,564,648	2.92%
NUTMEG OPPORTUNITIES FUND LP	Fund of Funds	83,953,234	2.83%
YUCAIPA AMERICAN ALLIANCE FUND II	Buyout	81,384,745	2.74%
PEGASUS PARTNERS V LP	Special Situations	81,157,517	2.73%
VISTA EQUITY PARTNERS FUND IV	Buyout	73,479,303	2.47%
<b>Top Ten</b>		<b>\$1,208,726,793</b>	<b>40.69%</b>

**FAIR VALUE PIF**

**\$2,970,729,926**

\* A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act..

## GLOSSARY OF INVESTMENT TERMS

- Active extension** - Active extension is defined as an investment strategy that allows for both long and short positions in an investment portfolio with a gross exposure above 100% of total portfolio value on an absolute basis, while maintaining a beta of one.
- Agency Securities** - Securities, usually bonds, issued by U.S. Government agencies. These securities have high credit ratings but are not backed by the full faith and credit of the U.S. Government.
- All-cap** - An investment approach that disregards market capitalization (i.e. small, medium, or large cap) in its security selection process.
- Alpha** - A coefficient which measures risk-adjusted performance, factoring in the risk due to the specific security, rather than the overall market. A high value for alpha implies that the stock or mutual fund has performed better than would have been expected given its beta (volatility).
- Asset** - Anything owned that has economic value; any interest in property, tangible or intangible, that can be used for payment of debts.
- Asset Backed Security** - Bonds or notes collateralized by one or more types of assets including real property, mortgages, and receivables.
- At Value** - A term used to denote the current value of an asset at a point in time. Generally used in presentations containing a mix of assets some of which are traded on an exchange and some that are valued on an appraisal or similar basis.
- Banker's Acceptance (BA)** - A high-quality, short-term negotiable discount note, drawn on and accepted by banks which are obligated to pay the face amount at maturity.
- Basis Point (bp)** - The smallest measure used in quoting yields or returns. One basis point is 0.01% of yield, 100 basis points equals 1%. For example, a yield that changed from 8.75% to 9.50% has increased by 75 basis points.
- Benchmark** - A standard unit used as the basis of comparison; a universal unit that is identified with sufficient detail so that other similar classifications can be compared as being above, below, or comparable to the benchmark.
- Benchmark composite** - A term used when reporting on a portfolio containing multiple asset classes. The composite is generally calculated as a weighted average of the benchmarks of the underlying portfolios.
- Beta** - A quantitative measure of the volatility of a given stock, mutual fund or portfolio relative to the overall market.
- Book Value (BV)** - The value of individual assets, calculated as actual cost minus accumulated depreciation. Book value may be more or less than current market value.
- Buyout** - See "Leveraged Buyout"
- Capital Gain (Loss)** - Also known as capital appreciation (depreciation), capital gain (loss) measures the increase (decrease) in valuation of an asset over time.
- Capitalized Fees** - Fees (and expenses) that increase the cost basis of an investment.
- Certificates of Deposit (CDs)** - A debt instrument issued by banks, usually paying interest, with maturities ranging from 3 months to six years.
- Citigroup Broad Investment-Grade Bond Index (CBIG)** - A market value-weighted index composed of over 4,000 individually priced securities with a quality rating of at least BBB. Each issue has a minimum maturity of one year with an outstanding par amount of at least \$25 million.
- Citigroup World Government Bond Index Non-U.S. (CWGBI)** - An unhedged index measuring government issues of 12 major industrialized countries.
- Close-End fund** - Funds that have set limits on the life of the fund and/or the total amount to be invested.
- Coefficient of Determination (R2)** - A measurement of how closely the returns of an investment portfolio and its benchmark match. An R2 of 1.0 indicates that portfolio returns perfectly match the returns of the benchmark, while a value less than 1.0 indicates that the returns of the portfolio do not match the benchmark return. The closer the value is to 1 the closer the return of the portfolio is to the benchmark.
- Collateral** - Assets pledged by a borrower to secure a loan or other credit, and subject to seizure in the event of default.
- Collateralized Mortgage Obligation (CMO)** - A mortgage-backed, investment-grade bond that separates mortgage pools into different maturity classes. CMO payment obligations are backed by mortgage-backed securities with a fixed maturity.
- Commercial Paper** - Short-term obligations with maturities ranging from 2 to 270 days. An unsecured obligation issued by a corporation or bank to finance its short-term credit needs.
- Commingled fund** - A fund consisting of assets from multiple investors that are blended together. A mutual fund is a common example of a commingled fund.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### GLOSSARY OF INVESTMENT TERMS (Continued)

- Committed capital** - Money that is committed by limited partners to a private investment fund. **Company risk** – The risk of investing in any single company's stock or bonds.
- Compounded Annual Total Return** - Compounded annual total return measures the implicit annual percentage change in value of an investment, assuming reinvestment of dividends, interest, and realized capital gains, including those attributable to currency fluctuations. In effect, compounded annual total return "smoothes" fluctuations in long-term investment returns to derive an implied year-to-year annual return.
- Consumer Price Index (CPI)** - A measure of change in the cost of a fixed basket of products and services as determined by a monthly survey of the U.S. Bureau of Labor Statistics. Components of the CPI include housing costs, food, transportation, and electricity.
- Core real estate strategy** - Lower risk, low leverage, vehicles that invest in stabilized income-producing properties that provide steady net operating income or cash flow. Properties are usually located in major regional markets, have investment grade tenants, at-market rents, and high occupancy levels.
- Cost basis** - The original price paid for an investment.
- Counter-party risk** - The risk to each party of a contract that the counterparty will not live up to its contractual obligations. **Credit default risk** - The risk that a debtor will not make payments in accordance with the terms of the debt.
- Credit risk** - The risk that a borrower will fail to make payments in a timely manner.
- Cumulative Rate of Return** - A measure of the total return earned for a particular time period. This calculation measures the absolute percentage change in value of an investment over a specified period, assuming reinvestment of dividends, interest income, and realized capital gains. For example, if a \$100 investment grew to \$120 in a two-year period, the cumulative rate of return would be 20%.
- Currency exchange risk** - The risk that a foreign country's currency may appreciate or depreciate relative to the U. S. dollar, thus impacting the value of foreign investments.
- Currency hedging** - Transactions intended to manage the foreign exchange rate risk associated with investing in foreign securities.
- Currency spot** - A contract for the purchase or sale of a commodity, security or currency for settlement (payment and delivery) on the spot date, which is normally two business days after the trade date.
- Current Yield** - The relationship between the stated annual interest or dividend rate and the market price of a security. In calculating current yield, only income payments are considered; no consideration is given to capital gain/loss.
- Default risk** - The chance that an issuer will not make the required coupon payments or principal repayments to its debt holders.
- Derivative** - Derivatives are generally defined as contracts whose value depend on, or are derived from, the value of an underlying asset, reference rate, or index. For example, an option is a derivative instrument because its value derives from an underlying stock, stock index, commodity.
- Discount Rate** - The interest rate that the Federal Reserve charges banks for loans, using government securities or eligible paper as collateral.
- Diversification** - A portfolio strategy designed to reduce exposure to risk by putting assets in several different securities or categories of investments.
- Drawdown** - (a) A request for cash charged against capital committed to a limited partnership, limited liability corporation, or other like entity; (b) a decline in the current value of an investment or other asset. **Duration** - Duration is a measure of the price sensitivity of a fixed-income investment to a change in interest rates. (See Modified and Macaulay Duration).
- Economic risk** - The risk that economic activities will negatively impact an investment.
- Enhanced indexing** - Refers to the application of strategies to an index fund designed to generate higher rates of returns. **Equity** - The ownership interest possessed by shareholders in a corporation in the form of common stock or preferred stock.
- ERISA (Employee Retirement Income Security Act)** - The 1974 federal law which established legal guidelines for private pension plan administration and investment practices.
- Expense Ratio** - Operating costs (including management fees) expressed as a percentage of the fund's average net assets for a given time period.
- Fair Value** - The amount at which a financial instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.
- Federal Funds Rate** - The interest rate that banks charge each other for the use of Federal Funds. This rate changes daily and is a sensitive indicator of general interest rate trends.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### GLOSSARY OF INVESTMENT TERMS (Continued)

- Federal Reserve Board** - The seven member Board of Governors that oversees Federal Reserve Banks, establishes monetary policy and monitors the economic health of the economy.
- Fiduciary** - A person, company, or association holding assets in trust for a beneficiary. The fiduciary is charged with the responsibility to invest the assets prudently and solely for the beneficiary's benefit.
- Fitch Investor Services** - A financial services rating agency.
- Floating Rate Note** - A fixed principal instrument which has a long or even indefinite life and whose yield is periodically reset relative to a reference index rate to reflect changes in short- or intermediate-term interest rates.
- Forward contract** - A contract between two parties that requires the parties to sell or purchase an asset at a price set when the contract is entered into for settlement at a specified future date.
- Funded Capital** - Amount of cash invested. Geopolitical risk - See "Political risk".
- Gross Domestic Product** - Total market value of goods and services produced in a country over a particular period of time, usually one year. The GDP growth rate is the primary indicator of the health of the economy.
- Hedge** - An investment in assets which serves to reduce the risk of adverse price movements in a security, by taking an offsetting position in a related security, such as an option or short sale.
- Index** - A benchmark of securities used as an independent representation of market performance. Example: S&P 500 index.  
**Index Fund** - A passively managed fund constructed to mirror the performance of a specific index, such as the S&P 500.  
**Individual company risk** - The risk associated with investment in the securities of any single company.
- Inflation** - The overall general upward price movement of goods and services in an economy, usually as measured by the Consumer Price Index and the Producer Price Index.
- Inflation risk** - The risk that the value of an investment will erode as a result of inflationary pressures.
- Interest rate risk** - The risk that changes in the general level of interest rates will adversely affect the fair value of an investment.
- Investment Income** - The equity dividends, bond interest, and/or cash interest paid on an investment.
- J-Curve** - An economic theory stating that a policy designed to have one effect will initially have the opposite effect. With regard to closed end commingled fund investments, this generally refers to a trend whereby a fund's return tends to be negative in the early years of a fund's existence until income and valuations increase in the later periods as investments mature and as the relative size of fees and other costs diminish relative to the value of invested capital.
- JP Morgan Emerging Markets Bond Index Plus (EMBI+)** - An index which tracks total returns for traded external debt instruments in the emerging markets. The instruments include external-currency-denominated Brady bonds, loans and Eurobonds, as well as U.S. dollar denominated local market instruments. The EMBI+ expands upon JP Morgan's original Emerging Markets Bond Index, which was introduced in 1992 and covers only Brady bonds.
- Letter of Credit** - An instrument or document issued by a bank, guaranteeing the payment of a customer's drafts up to a stated amount for a specified period. It substitutes the bank's credit for the buyer's and reduces the seller's risk.
- Leverage** - The use of borrowed funds to increase purchasing power and, ideally, to increase profitability of an investment transaction or business.
- Leveraged buyout** - A leveraged buyout (LBO) is an acquisition (usually of a company) financed through a combination of equity and debt and in which the cash flows or assets of the target are used to secure and repay the debt used to finance the acquisition.
- Liability** - The claim on the assets of a company or individual - excluding ownership equity. An obligation that legally binds an individual or company to settle a debt.
- Limited Partnership** - A partnership formed by two or more entities with at least one limited partner and one general partner. Limited partner responsibility for debts and losses is limited to the amount of their investment in the partnership. In addition, the limited partner does not participate in the activities of the partnership. The general partner has control over the management of the partnership and has unlimited liability for partnership debt and losses.
- Liquidity risk** - The risk that an investment cannot be immediately liquidated unless discounted in value.
- Macaulay Duration** - The weighted-average term to maturity of a bond's cash flows. The weighting is based on the present value of each cash flow divided by price.
- Management risk** - The risks associated with ineffective, destructive or underperforming management.
- Marked-to-market pricing** - An accounting practice in which the price of an investment recorded within the accounting records is the market value at the end of the month.
- Market Risk** - The risk that fluctuations in the overall market for securities will impact an investment portfolio.

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS

### GLOSSARY OF INVESTMENT TERMS (Continued)

- Market Value** - A security's last reported sale price or its current bid and ask prices. The price as determined dynamically by buyers and sellers in an open market.
- Master Custodian** - An entity, usually a bank, used for safekeeping of securities and other assets. May be responsible for other functions including accounting, performance measurement and securities lending.
- Maturity Date** - The date on which the principal amount of a bond or other debt instrument becomes payable or due. Mezzanine Debt - Debt that incorporates equity-based options, such as warrants, and is subordinated debt.
- MFR Index (iMoneyNet's First Tier Institutional-only Rated Money Fund Report Averages™ Index)** - An index which represents an average of the returns of institutional money market mutual funds that invest primarily in first-tier (securities rated A-1, P-1) taxable securities.
- Modified Duration** - A measure of the price sensitivity of a bond to interest rate movements. It is the primary basis for comparing the effect of interest rate changes on prices of fixed income securities.
- Money Market Fund** - An open-ended mutual fund that invests in commercial paper, bankers' acceptances, repurchase agreements, government securities, certificates of deposit, and other highly liquid and safe securities and pays money market rates of interest. The fund's net asset value remains a constant \$1 per share - only the interest rate goes up or down.
- Moody's (Moody's Investors Service)** - A financial services rating agency.
- MSCI EAFE** - Morgan Stanley Europe Australasia Far East foreign equity index. An arithmetic value weighted average of the performance of over 900 securities on the stock exchanges of 23 countries on three continents. NCREIF (National Council of Real Estate Investment Fiduciaries) - National Council of Real Estate Investment Fiduciaries, a non-profit organization established to serve the institutional real estate investment community as a non-partisan collector, processor, validator and disseminator of real estate performance information.
- Net Asset Value (NAV)** - The total assets (including any valuation gains or losses on investments or currencies) minus total liabilities divided by shares outstanding.
- Netted Fees** - Refers to instances in which investment management fees/expenses are offset against income normally distributed to investors. May also refer to practices whereby investment management fees/expenses are added to the cost basis of an investment.
- NPI** - NCREIF Property Index. The NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. Properties comprising this benchmark, which include wholly owned and joint venture investments, are held on an all-cash, non-leveraged basis, and is restricted to investment-grade, nonagricultural, and income-producing properties.
- Open-End fund** - A fund operated by an investment company in accordance with a stated set of objectives. Open-end funds raise money by periodically selling shares of the fund to the public.
- Operations risk** - The risk associated with negative operating events (net operating losses, inventory write-downs, breakdown in internal procedures, etc).
- Par Value** - The stated or face value of a stock or bond. While it has little significance for common stocks, for bonds, it specifies the payment amount at maturity.
- Pension Fund** - A fund set up by a corporation, labor union, governmental entity, or other organization to provide retirement income.
- Percentile** - A description of the percentage rank of a portfolio's performance, relative to a larger universe of portfolios. Political Risk - The risk resulting from political changes or instability in a country's system of government, laws or regulation. Prepayment risk - The risk associated with the prepayment of fixed income investments in a declining rate environment.
- Present Value** - The current value of a future cash flow or series of cash flows discounted at an appropriate interest rate or rates. For example, at a 12% interest rate, the value of one dollar a year from now has a present value of \$0.89286.
- Price/Book (P/B)** - A ratio showing the price of a stock divided by its book value per share. The P/B measures the multiple at which the market is capitalizing the net asset value per share of a company at any given time.
- Price/Earnings (P/E)** - A ratio showing the price of a stock divided by its earnings per share. The P/E measures the multiple at which the market is capitalizing the earnings per share of a company at any given time.
- Principal** - Face value of an obligation, such as a bond or a loan, that must be repaid at maturity. Product risk - The risk associated with the introduction of a new product or process.
- Prudent Person Rule** - The standard adopted by some states to guide those fiduciaries with responsibility for investing the money of others. Such fiduciaries must act as a prudent person would be expected to act, with discretion and intelligence, to seek reasonable income, preserve capital, and, in general, avoid speculative investments.

## GLOSSARY OF INVESTMENT TERMS (Continued)

**Purchasing power risk**- See "Inflation risk"

**Pure indexing** - Refers to the application of strategies to an index fund designed to exactly match the returns of the portfolio benchmark.

**R2** - See "Coefficient of Determination"

**Real interest rate** - An interest rate that has been adjusted to remove the effects of inflation.

**Real rate of return** - The return realized on an investment adjusted for changes due to inflation or other external effects.

**Realized Gain (Loss)** - A gain (loss) that has occurred financially. The difference between the principal amount received and the cost basis of an asset realized at sale.

**Reinvestment risk** - The risk that cash flows received from a security will be reinvested at lower rates due to declining interest rates.

**Relative Volatility** - The standard deviation of the Fund divided by the standard deviation of its selected benchmark. A relative volatility greater than 1.0 suggests comparatively more volatility in Fund returns than those of the benchmark.

**Repurchase Agreements ("Repos")** - A contract in which the seller of securities, such as Treasury Bills, agrees to buy them back at a specified time and price. Repos are widely used as a money market instrument.

**Return on Equity (ROE)** - Net income of a company (after payment of preferred stock dividends but before payment of common stock dividends) divided by common shareholder equity. Reverse Repurchase Agreements ("Reverse Repos") - A purchase of securities with an agreement to resell them at a higher price at a specific future date.

**Risk Adjusted Return** - A measure of investment return which accounts for the amount of risk taken over a specified period.

**Russell 3000** - An equity index comprised of the securities of the 3,000 largest public U.S. companies as determined by total market capitalization. This index represents approximately 98% of the U.S. equity market's capitalization.

**Securities Lending** - A collateralized process of loaning portfolio positions to custodians, dealers, and short sellers who must make physical delivery of positions. Securities lending may reduce custody costs or enhance annual returns by a full percentage point or more in certain market environments.

**Senior debt securities** - Debt that must be paid off before other liabilities in the event of a business failure or bankruptcy.

**Separate accounts** - An investment portfolio managed by a third party investment manager in which the investor directly owns the securities within the portfolio.

**Soft Dollars** - The value of research or other services that brokerage houses and other service entities provide to a client "free of charge" in exchange for the client's brokerage.

**S&P 500 (Standard & Poor's)** - A basket of 500 stocks chosen for market size, liquidity and industry grouping, among other factors, designed to represent a US equity universe of large capitalization stocks.

**S&P Credit Ratings Service** - A financial services rating agency.

**Special situations** - Private equity investments in a variety of securities (Debt, Preferred Equity and/or Common Equity) in portfolio companies at a variety of stages of development (Seed, Early Stage, Later Stage).

**Standard Deviation** - A measure of the dispersion of a set of data from its mean. Often used as a measure of investment volatility or risk, it measures how much an investment return may vary from its average return.

**Tail risk** - The risk that a loss (or gain) would be three standard deviations from the mean or current price.

**Treasury Bill (T-Bill)** - Short-term, highly liquid government securities issued at a discount from the face value and returning the face amount at maturity.

**Treasury Bond or Note** - Debt obligations of the Federal government that make semiannual coupon payments and are sold at or near par value in denominations of \$1,000 or more.

**Trust** - A fiduciary relationship in which a person, called a trustee, holds title to property for the benefit of another person, called a beneficiary.

**TUCS** - Trust Universe Comparison Service. TUCS is a universe based upon a pooling of quarterly trust accounting data from participating banks and other organizations that provide custody for trust assets.

**Turnover** - Security purchases and sales divided by the fiscal year's average market value  $\{(P+S)/[(BMV+EMV)/2]\}$  for a given portfolio.

**Unhedged** - Not protected from market actions.

**Un-levered** - Investments made without the use of debt or debt like securities.

**Unrealized Gain (Loss)** - A profit (loss) that has not been realized through the sale of a security. The gain (loss) is realized when a security or futures contract is actually sold or settled.

**GLOSSARY OF INVESTMENT TERMS (Continued)**

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**Variable Rate Note** - Floating rate notes with a coupon rate adjusted at set intervals, such as daily, weekly, or monthly, based on different interest rate indices, such as LIBOR, Fed Funds, and Treasury Bills.

**Vintage year** - The year in which a capital commitment is made to an investment, most often applied to real estate and private equity investments.

**Volatility** - A statistical measure of the tendency of a market price or yield to vary over time. Volatility is said to be high if the price, yield, or return typically changes dramatically in a short period of time.

**Warrant** - A security that entitles the holder to buy a specific security at a specified price within a specified time frame. Yield - The income return on an investment.

**Yield Curve** - A graph showing the term structure of interest rates by plotting the yields of all bonds of the same quality with maturities ranging from the shortest to the longest. The Y-axis represents the interest rate and the X-axis represents time, generally with a normal curve that is convex in shape.

**Zero Coupon Bond** - A bond paying no interest that sells at a discount and returns principal only at maturity.

## UNDERSTANDING INVESTMENT PERFORMANCE

## Introduction

This section discusses the Treasury's approach to measuring performance, including risk and return of the Connecticut Retirement Plans and Trust Funds (CRPTF).

## Understanding Performance

To measure success in achieving the primary objective of the Asset Allocation Plan, the Fund's performance is evaluated in two principal areas: risk and return. The results of these reviews, coupled with information on portfolio characteristics, are used to monitor and improve the performance of the Fund's external investment managers.

To monitor and evaluate Fund performance and measurements of risk and return, CRPTF performance is compared to those of similarly structured peer groups and indices. In addition, the performance of the Combined Investment Funds (CIF) invested in by the various plans and trusts is compared to the performance of their respective benchmarks. Each CIF's benchmark is selected on the basis of portfolio composition, investment style, and objectives. The benchmark comparisons enable plan participants, the Treasurer and the Investment Advisory Council, to determine whether and by how much CIF returns exceeded or fell short of their respective benchmarks. The comparisons provide an understanding of the reason for the CIF's performance relative to their benchmarks.

Comparative performance is reviewed over both the near-term and the long-term for two reasons. First, pension management is, by its very nature, a long-term process. While both young and old employees comprise the pool of plan beneficiaries, the increasing life span of plan participants makes it important that plan assets be managed for the long term. Second, as experience has shown, results attained in the short term are not necessarily an indicator of results to be achieved over the long term. Performance must be viewed in a broad context.

Overall performance is measured by calculating monthly returns and linking them to provide one-, three-, five- and ten-year histories of overall investment performance. Short-term performance is measured by total return over one-month, quarter-end, and trailing one-year time periods. Risk is also measured over both short- and long-term periods.

## **Risk**

The measurement of risk is a critical component in investment management. It is the basis for both strategic decision-making and investment evaluation. Investors assume risk to enhance portfolio returns. The primary objective is to generate returns in excess of those available in "risk-free" investments, such as Treasury Bills. The amount of excess returns varies in magnitude according to the degree of risk assumed. Many investors focus on the negative aspects of risk and in doing so forego substantial upside potential, which can significantly enhance long-term returns. Thus, while risk can never be completely eliminated from a portfolio, the prudent management of risk can maximize investment returns at acceptable levels of risk.

Risk can take several forms and include: market risk, the risk of fluctuations in the overall market for securities; company risk, the risk of investing in any single company's stock or bonds; currency-exchange risk, the risk that a foreign country's currency may appreciate or depreciate relative to the U.S. dollar, thus impacting the value of foreign investments; and political risk, risk incurred through investing in foreign countries with volatile economies and political systems.

With respect to fixed income investments, investors also assume: reinvestment risk, the risk that cash flows received from a security will be reinvested at lower rates due to declining interest rates; credit or default risk, the risk that the issuer of a fixed income security may fail to make principal and interest payments on the security; interest rate risk, the risk that the market value of fixed coupon bonds will decline in the event of rising market interest rates; and inflation or purchasing power risk, the risk that the real value of a security and its cash flows may be reduced by inflation. The level of risk incurred in fixed income investing increases as the investment time horizon is lengthened. This is demonstrated by the comparatively higher yields available on "long bonds," or bonds maturing in 20 to 30 years, versus those available on short-term fixed income securities.

## UNDERSTANDING INVESTMENT PERFORMANCE (Continued)

In the alternative investment category, risks are significantly greater than those of publicly traded investments. Assessment of progress is more tenuous and valuation judgments are more complex. The investor assumes not only management, product, market, and operations risk, similar to equity investing, but also assumes liquidity risk, the risk that one's investment cannot be immediately liquidated at other than a substantially discounted value. An additional risk to this category is transparency risk, the risk associated with not knowing the underlying investments within a portfolio.

**Volatility**

To measure the effects of risk on the portfolio, the volatility of returns is calculated over time. Volatility, viewed as the deviation of returns from an average of these returns over some period of time, is measured statistically by standard deviation. Funds with high standard deviations are considered riskier than those with low standard deviations.

To evaluate the significance of the CIF's standard deviation, each CIF's relative volatility, or the ratio of the CIF's standard deviation to that of the benchmark is calculated. A relative volatility greater than 1.0 indicates that the CIF is more volatile than the benchmark while a measure less than 1.0 indicates less volatility. A relative volatility of 1.0 indicates that the volatility of the CIF is the same as the benchmark.

As an extension of standard deviation, each CIF's beta, (a measure of the relative price fluctuation of the CIF to its benchmark) is also calculated. The measurement of beta allows one to evaluate the sensitivity of Fund returns to given movements in the market and/or its benchmark. A beta greater than 1.0 compared to the selected market benchmark signifies greater price sensitivity while a beta less than 1.0 indicates less sensitivity.

To measure the degree of correlation between CIF returns and the benchmark, the Division calculates the coefficient of determination, or R2. This calculation, which is used in conjunction with beta, allows one to evaluate how much of the volatility in CIF returns is explained by returns in the selected market benchmark. An R2 of 1.0 indicates that CIF returns are perfectly explained by returns of the benchmark, while a value less than 1.0 indicates that the returns of the benchmark explain only a portion of the fund return.

Finally, to evaluate how well each of the above measures actually predicted returns of the CIF, a calculation is performed on the CIF's alpha. This calculation measures the absolute difference between the CIF's monthly return and that predicted by its beta. Used together, these measures provide a comprehensive view of a CIF's relative risk profile.

**Return**

The Pension and Trust Funds are managed to maximize return and minimize risk. Return, viewed in this context, includes realized and unrealized gains in the market value of a security, including those attributable to currency fluctuations, as well as income distributed by a security such as dividends and interest. Return is measured through two calculations: compounded annual total return and cumulative total return.

Compounded Annual Total Return - This return measure evaluates performance over the short and long-term. Compounded annual total return measures the implicit annual percentage change in value of an investment, assuming reinvestment of dividends, interest, and realized and unrealized capital gains, including gains attributable to currency fluctuations. In effect, compounded annual total return "smooths" fluctuations in long-term investment returns to derive an implied year-to-year annual return.

Cumulative Total Return - This calculation measures the absolute percentage change in value of an investment over a specified period, assuming reinvestment of dividends, interest income, and realized capital gains. While this calculation does not "smooth" year-to-year fluctuations in long-term returns to derive implied annual performance, cumulative total return allows one to see on an absolute basis the percentage increase in the total Fund's value over a specified time. Viewed graphically, cumulative total return shows one what a \$10 million investment in the CRPTF a set number of years ago would be worth today.



**Statistical**  

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**Section**



**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**STATISTICAL SECTION**

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This part of the Combined Investment Fund's (CIF's) comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial schedules and other supplementary information say about the overall financial health of CIF. The schedules within this statistical section comply with the requirements of GASB 44.

**Financial Trends**

These schedules contain the ten-year trend information on the financial performance of CIF.

<u>Schedule</u>	<u>Page</u>
o Per share data	143
o Schedule of rates of return	143
o Schedule of financial ratios	143
o Schedule of balances in Combined Investment Funds	145

**Revenue Capacity**

Revenue capacity is not applicable to CIF.

**Borrowing Capacity**

Borrowing capacity is not applicable to CIF.

**Demographic and Economic Information**

These schedules show the breakdown between CIF funds, growth of the fund and rate of return information.

<u>Schedule</u>	<u>Page</u>
o Investment summary	146
o Annual money-weighted rates of return	149

**Operating Information**

The summary of operations schedule outlines the expenses, additions and deductions associated with the management of CIF.

<u>Schedule</u>	<u>Page</u>
o Schedule of Net Position	150

*Sources: Unless otherwise noted, the information in these schedules is derived from the comprehensive annual financial reports for the relevant year.*



**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**SUPPLEMENTAL SCHEDULE OF FINANCIAL HIGHLIGHTS (Continued)**

FISCAL YEAR ENDED JUNE 30, PER SHARE DATA	HIGH YIELD DEBT					DEVELOPED MARKET INTERNATIONAL				
	2017	2016	2015	2014	2013	2017	2016	2015	2014	2013
Net Position- Beginning of Period	\$138.05	\$138.05	\$139.80	\$125.63	\$121.79	\$463.22	\$463.22	\$460.14	\$378.32	\$314.31
<b>INCOME FROM INVESTMENT OPERATIONS</b>										
Net Investment Income (Loss)	\$9.35	\$8.72	\$8.06	\$7.86	\$8.37	\$13.00	\$11.50	\$11.36	\$13.40	\$10.35
Net Gains or (Losses) on Securities (Both Realized and Unrealized)	\$7.70	\$(8.96)	\$(9.81)	\$7.30	\$2.22	\$93.79	\$(44.37)	\$(8.28)	\$70.75	\$60.42
Total from Investment Operations	\$17.05	\$(0.24)	\$(1.75)	\$15.16	\$10.59	\$106.79	\$(32.87)	\$3.08	\$84.15	\$70.77
<b>LESS DISTRIBUTIONS</b>										
Dividends from Net Investment Income	\$-	\$-	\$-	\$(0.99)	\$(6.75)	\$-	\$-	\$-	\$(2.33)	\$(6.76)
Net Position - End of Period	\$155.10	\$137.81	\$138.05	\$139.80	\$125.63	\$570.01	\$430.35	\$463.22	\$460.14	\$378.32
<b>TOTAL RETURN</b>	<b>12.59%</b>	<b>-0.31%</b>	<b>-1.31%</b>	<b>12.24%</b>	<b>8.46%</b>	<b>24.81%</b>	<b>-7.09%</b>	<b>0.67%</b>	<b>22.31%</b>	<b>22.56%</b>

RATIOS										
Net Position - End of Period (\$000,000 Omitted)	\$2,044	\$1,823	\$1,774	\$1,588	\$1,248	\$6,381	\$5,224	\$5,909	\$6,135	\$5,447
Ratio of Expenses to Average Net Position (excl. sec. lending fees & rebates)	0.29%	0.35%	0.33%	0.35%	0.36%	0.40%	0.43%	0.40%	0.40%	0.43%
Ratio of Expenses to Average Net Position	0.41%	0.39%	0.34%	0.36%	0.39%	0.41%	0.43%	0.41%	0.40%	0.45%
Ratio of Net Investment Income (Loss) to Average Net Position	6.39%	6.32%	5.80%	5.91%	6.07%	2.69%	2.57%	2.46%	3.17%	3.02%

FISCAL YEAR ENDED JUNE 30, PER SHARE DATA	EMERGING MARKET INTERNATIONAL STOCK					REAL ESTATE				
	2017	2016	2015	2014	2013	2017	2016	2015	2014	2013
Net Position- Beginning of Period	\$369.61	\$369.61	\$397.12	\$358.76	\$351.61	\$46.27	\$46.27	\$39.48	\$36.46	\$35.21
<b>INCOME FROM INVESTMENT OPERATIONS</b>										
Net Investment Income (Loss)	\$6.16	\$6.59	\$8.22	\$6.81	\$6.36	\$1.79	\$1.66	\$1.59	\$(0.97)	\$2.04
Net Gains or (Losses) on Securities (Both Realized and Unrealized)	\$72.65	\$(33.01)	\$(35.73)	\$34.08	\$5.57	\$0.99	\$2.69	\$5.20	\$4.84	\$1.55
Total from Investment Operations	\$78.81	\$(26.42)	\$(27.51)	\$40.89	\$11.93	\$2.78	\$4.35	\$6.79	\$3.87	\$3.59
<b>LESS DISTRIBUTIONS</b>										
Dividends from Net Investment Income	\$-	\$-	\$-	\$(2.53)	\$(4.78)	\$-	\$-	\$-	\$(0.85)	\$(2.34)
Net Position - End of Period	\$448.42	\$343.19	\$369.61	\$397.12	\$358.76	\$49.05	\$50.62	\$46.27	\$39.48	\$36.46
<b>TOTAL RETURN</b>	<b>23.00%</b>	<b>-7.15%</b>	<b>-6.93%</b>	<b>11.50%</b>	<b>3.29%</b>	<b>7.38%</b>	<b>11.51%</b>	<b>12.93%</b>	<b>10.66%</b>	<b>10.26%</b>

RATIOS										
Net Position - End of Period (\$000,000 Omitted)	\$3,015	\$2,483	\$2,473	\$2,655	\$2,369	\$2,248	\$2,207	\$1,918	\$1,510	\$1,482
Ratio of Expenses to Average Net Position (excl. sec. lending fees & rebates)	0.59%	0.64%	0.70%	0.69%	0.84%	0.47%	0.42%	0.39%	0.55%	0.35%
Ratio of Expenses to Average Net Position	0.63%	0.66%	0.71%	0.70%	0.85%	0.47%	0.42%	0.39%	0.55%	0.35%
Ratio of Net Investment Income (Loss) to Average Net Position	1.61%	1.85%	2.15%	1.81%	1.78%	3.44%	3.42%	3.69%	-2.50%	5.56%

FISCAL YEAR ENDED JUNE 30, PER SHARE DATA	PRIVATE INVESTMENT				
	2017	2016	2015	2014	2013
Net Position- Beginning of Period	\$65.13	\$65.13	\$54.72	\$48.06	\$49.83
<b>INCOME FROM INVESTMENT OPERATIONS</b>					
Net Investment Income (Loss)	\$1.18	\$0.46	\$1.31	\$4.72	\$5.51
Net Gains or (Losses) on Securities (Both Realized and Unrealized)	\$7.62	\$4.21	\$9.10	\$2.79	\$(1.23)
Total from Investment Operations	\$8.80	\$4.67	\$10.41	\$7.51	\$4.28
<b>LESS DISTRIBUTIONS</b>					
Dividends from Net Investment Income	\$-	\$-	\$-	\$(0.85)	\$(6.05)
Net Position - End of Period	\$73.93	\$69.80	\$65.13	\$54.72	\$48.06
<b>TOTAL RETURN</b>	<b>10.97%</b>	<b>8.87%</b>	<b>14.04%</b>	<b>16.06%</b>	<b>9.50%</b>

RATIOS					
Net Position - End of Period (\$000,000 Omitted)	\$2,990	\$2,770	\$2,895	\$2,919	\$2,550
Ratio of Expenses to Average Net Position (excl. sec. lending fees & rebates)	0.17%	0.19%	0.17%	0.22%	0.29%
Ratio of Expenses to Average Net Position	0.17%	0.19%	0.17%	0.22%	0.29%
Ratio of Net Investment Income (Loss) to Average Net Position	1.60%	0.68%	2.20%	9.21%	11.23%

Source: Amounts were derived from custodial records.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**PENSION AND TRUST FUNDS  
BALANCES IN COMBINED INVESTMENT FUNDS (Dollars in Thousands)  
TEN YEAR COMPARISON**

<b>2017</b>		
<b>Pension Plans</b>	<b>Percent of Total System Assets</b>	
Teachers' Retirement Fund	52.6%	17,126.8
State Employees' Retirement Fund	36.7%	11,955.4
Municipal Employees' Retirement Fund	7.5%	2,441.3
State Judges' Retirement Fund	0.6%	210.0
The Probate Court Retirement Fund	0.3%	95.0
State's Attorneys Retirement Fund	0.1%	1.8
Trust Funds	2.2%	717.5
	<u>100.00%</u>	<u>\$ 32,547.8</u>

<b>2008</b>		
<b>Pension Plans</b>	<b>Percent of Total System Assets</b>	
Teachers' Retirement Fund	52.6%	14,541.6
State Employees' Retirement Fund	36.7%	9,329.7
Municipal Employees' Retirement Fund	7.5%	1,627.7
State Judges' Retirement Fund	0.3%	177.2
The Probate Court Retirement Fund	0.6%	81.5
State's Attorneys Retirement Fund	0.0%	0.1
Trust Funds	2.2%	113.2
	<u>100.0%</u>	<u>\$ 25,871.0</u>

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
INVESTMENT SUMMARY AT JUNE 30, 2017 <sup>(1)</sup>**

**Liquidity Fund <sup>(2)</sup>**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$1,405,083,566	\$1,387,328,362	4.26%	0.96%
2016	1,036,810,247	1,018,293,290	3.49%	0.68%
2015	1,358,875,058	1,282,270,968	4.31%	-1.07%
2014	1,157,564,578	1,158,961,835	3.93%	0.54%
2013	1,062,418,543	1,041,232,312	4.01%	0.66%
2012	772,408,827	770,217,574	3.20%	-0.14%
2011	756,915,969	775,433,903	3.07%	1.20%
2010	1,626,177,183	1,621,182,259	7.44%	0.98%
2009	952,212,787	950,605,428	4.65%	1.54%
2008	1,140,821,830	1,140,821,830	4.36%	4.59%

**Mutual Equity Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$4,708,963,250	\$7,026,486,865	21.57%	19.26%
2016	4,681,029,693	6,647,482,185	22.76%	1.75%
2015	4,584,447,046	6,784,028,571	22.80%	7.32%
2014	4,612,970,046	7,055,012,881	23.93%	25.28%
2013	4,664,358,346	6,236,082,798	24.07%	21.15%
2012	5,144,712,429	6,417,508,518	26.65%	3.38%
2011	5,327,666,479	6,634,922,151	26.28%	31.92%
2010	5,175,570,747	5,288,853,566	24.28%	14.01%
2009	6,019,782,554	5,588,272,211	27.35%	-28.36%
2008	7,563,373,750	8,017,007,807	30.68%	-12.99%

**Core Fixed Income Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$2,563,940,862	\$2,601,453,937	7.99%	1.89%
2016	2,442,024,334	2,490,655,941	8.53%	3.46%
2015	2,603,408,489	2,627,250,626	8.83%	1.85%
2014	2,528,639,885	2,573,846,130	8.73%	4.28%
2013	2,042,090,874	2,056,321,868	7.94%	-0.24%
2012	2,726,575,207	2,859,134,784	11.88%	7.63%
2011	2,911,577,713	3,001,125,667	11.89%	4.49%
2010	2,682,943,303	2,789,605,943	12.81%	11.81%
2009	3,400,625,343	3,215,718,047	15.74%	2.84%
2008	4,979,684,914	4,851,300,830	18.57%	5.65%

**Inflation Linked Bond Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$1,347,627,821	\$1,332,942,016	4.09%	0.66%
2016	1,338,629,405	1,321,779,931	4.52%	2.29%
2015	1,189,323,643	1,120,365,183	3.77%	-2.85%
2014	1,057,661,503	1,075,489,795	3.65%	4.17%
2013	886,052,044	879,482,495	3.39%	-4.33%
2012	864,059,933	932,982,728	3.88%	11.91%
2011	1,075,894,193	1,115,148,171	4.42%	7.23%
2010	1,033,720,440	1,070,660,872	4.91%	9.48%
2009	813,926,651	829,543,021	4.06%	-0.20%
2008	1,152,973,047	1,162,545,028	4.45%	16.81%

**Emerging Market Debt Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$1,606,817,274	\$1,598,180,952	4.91%	9.11%
2016	1,577,124,552	1,483,772,612	5.08%	6.01%
2015	1,523,207,614	1,399,864,819	4.70%	-7.57%
2014	1,470,166,119	1,500,069,627	5.09%	6.99%
2013	1,415,363,738	1,388,070,525	5.36%	1.69%
2012	1,098,205,685	1,176,095,315	4.88%	4.78%
2011	1,012,164,604	1,141,817,330	4.52%	16.06%
2010	1,082,027,071	1,155,351,613	5.30%	23.02%
2009	1,153,012,696	1,125,226,197	5.51%	-3.62%
2008	1,006,342,436	1,040,295,964	3.98%	5.59%

**High Yield Debt Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$2,027,683,334	\$2,034,712,429	6.25%	12.59%
2016	1,905,160,587	1,808,188,496	6.19%	-0.31%
2015	1,824,316,127	1,772,254,243	5.96%	-1.31%
2014	1,520,226,270	1,592,980,848	5.40%	12.24%
2013	1,261,124,831	1,267,238,204	4.89%	8.46%
2012	693,951,103	706,123,033	2.93%	6.23%
2011	685,595,880	710,362,023	2.81%	15.96%
2010	659,015,939	656,175,724	3.01%	24.54%
2009	801,755,724	718,563,903	3.52%	-4.59%
2008	784,159,491	745,137,049	2.85%	-1.88%

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS**

**INVESTMENT SUMMARY AT JUNE 30, 2017 <sup>(1)</sup> (Continued)**

**Developed Market International Stock Fund**

**Emerging Market International Stock Fund**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return		Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$5,180,435,660	\$6,344,307,953	19.48%	24.81%	\$2,359,195,270	\$3,002,786,523	9.22%	23.00%	
2016	4,943,295,363	5,187,629,818	17.76%	-7.09%	2,305,345,878	2,467,083,187	8.45%	-7.15%	
2015	5,052,512,834	5,879,680,883	19.76%	0.67%	2,313,960,007	2,463,358,430	8.28%	-6.93%	
2014	4,806,622,148	6,101,761,491	20.70%	22.31%	2,278,127,868	2,645,431,257	8.97%	11.50%	
2013	4,861,705,636	5,393,071,695	20.81%	22.56%	2,241,227,436	2,367,182,053	9.14%	3.29%	
2012	4,586,337,006	4,550,036,799	18.90%	-12.48%	2,086,716,284	2,216,901,370	9.21%	-14.16%	
2011	4,684,676,553	5,391,257,095	21.35%	26.30%	2,114,345,516	2,629,250,556	10.41%	28.55%	
2010	4,552,279,820	4,328,450,937	19.87%	11.03%	1,860,837,675	2,065,255,957	9.48%	25.23%	
2009	4,847,669,826	4,464,491,006	21.85%	-27.98%	1,110,911,776	1,141,401,975	5.59%	-30.90%	
2008	4,879,325,913	5,077,825,949	19.43%	-14.60%	1,111,317,184	1,295,936,888	4.96%	0.19%	

**Real Estate Fund <sup>(3)</sup>**

**Commercial Mortgage Fund <sup>(3) (6)</sup>**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return		Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$2,003,957,301	\$2,242,658,118	6.89%	7.38%	\$0	\$0	0.00%	0.00%	
2016	1,941,003,659	2,207,396,472	7.56%	11.51%	83	83	0.00%	0.00%	
2015	1,763,256,288	1,848,291,148	6.21%	12.93%	29,834	29,799	0.00%	0.25%	
2014	1,478,885,377	1,509,757,272	5.12%	10.66%	67,723	67,609	0.00%	10.17%	
2013	1,611,385,620	1,471,299,222	5.68%	10.26%	70,239	70,099	0.00%	0.88%	
2012	1,524,367,937	1,328,560,229	5.52%	7.19%	717,122	765,779	0.00%	-6.48%	
2011	1,350,551,373	1,097,203,255	4.35%	16.12%	2,338,063	2,386,359	0.01%	4.61%	
2010	1,174,718,491	792,483,221	3.64%	-20.18%	3,769,581	3,818,115	0.02%	6.75%	
2009	1,021,805,530	770,955,194	3.77%	-28.66%	5,084,919	5,135,144	0.02%	-3.14%	
2008	954,279,128	1,002,243,816	3.84%	6.04%	6,255,651	6,906,096	0.03%	12.05%	

**Private Investment Fund <sup>(3)</sup>**

**Alternative Investment Fund <sup>(5)</sup>**

	Book Value	Fair Value	% of Total Fund FV	Rate of Return		Book Value	Fair Value	% of Total Fund FV	Rate of Return
2017	\$2,499,963,535	\$2,970,729,926	9.12%	10.97%	\$1,780,457,507	\$2,026,788,085	6.22%	8.51%	
2016	2,306,644,120	2,769,435,919	9.48%	8.87%	1,705,961,044	1,804,337,067	6.18%	-5.32%	
2015	2,286,868,807	2,773,374,435	9.32%	14.04%	1,611,126,633	1,804,487,746	6.06%	3.98%	
2014	2,449,109,360	2,918,978,182	9.90%	16.06%	1,210,080,164	1,349,977,450	4.58%	6.63%	
2013	2,246,698,441	2,564,877,605	9.90%	9.50%	1,190,675,281	1,247,574,910	4.81%	6.39%	
2012	2,221,945,727	2,569,809,038	10.67%	5.92%	550,080,365	549,205,302	2.28%	-1.62%	
2011	1,909,670,699	2,229,679,980	8.83%	19.89%	511,873,555	519,007,742	2.06%	0.00%	
2010	1,859,585,108	2,013,101,198	9.24%	17.32%	0	0	0.00%	0.00%	
2009	1,819,125,566	1,621,268,022	7.94%	-16.36%	0	0	0.00%	0.00%	
2008	1,809,775,995	1,789,139,253	6.85%	13.66%	0	0	0.00%	0.00%	

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**

**COMBINED INVESTMENT FUNDS  
INVESTMENT SUMMARY AT JUNE 30, 2017 <sup>(1)</sup> (Continued)**

<b>Total Fund <sup>(4)</sup></b>				
	<b>Book Value</b>	<b>Fair Value</b>	<b>% of Total Fund FV</b>	<b>Rate of Return</b>
2017	\$27,484,125,381	\$32,568,375,166	100.00%	14.18%
2016	26,183,028,965	29,206,055,001	100.00%	0.35%
2015	26,111,332,380	29,755,256,851	100.00%	2.79%
2014	24,570,121,041	29,482,334,377	100.00%	15.43%
2013	23,483,171,029	25,912,503,786	100.00%	11.64%
2012	22,270,077,625	24,077,340,469	100.00%	-0.90%
2011	22,343,270,597	25,247,594,232	100.00%	20.75%
2010	21,710,645,358	21,784,939,405	100.00%	12.88%
2009	21,945,913,372	20,431,180,148	100.00%	-17.37%
2008	25,388,309,339	26,129,160,510	100.00%	-4.71%

- (1) All rates of return are net of management fees and division operating expenses.
- (2) The fair value of the Liquidity Fund for the periods presented represents the fair value of the pension and trust balances in the Liquidity Fund only (excluding receivables and payables); the Liquidity Fund balances of the other combined investment funds are shown in the fair value of each fund.
- (3) Investment returns published for prior years were net of management fees, but were restated in 2008 net of all expenses.
- (4) Represents a composite return of the total pension and trust funds. Individual returns for the three primary pension funds (Teachers, State Employees and Municipal Employees) are separately presented elsewhere due to different asset allocations of each fund.
- (5) Inception of the Alternative Investment Fund during Fiscal 2011.
- (6) Investments in Commercial Mortgage Fund were redeemed by plan participants.

**CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS**  
**SCHEDULE OF INVESTMENT RETURNS**  
**ANNUAL MONEY-WEIGHTED RATES OF RETURN NET OF INVESTMENT EXPENSES**

	6/30/2017*	6/30/2016	6/30/2015	6/30/2014
Teachers' Retirement Fund	14.37	0.17%	2.79%	15.67%
State Employees' Retirement Fund	14.32	0.23%	2.84%	15.62%
Municipal Employees' Retirement Fund	13.05	1.15%	2.57%	13.58%
State Judges' Retirement Fund	13.04	1.11%	2.58%	13.66%
The Probate Court Retirement Fund	13.19	1.17%	2.49%	13.86%
State's Attorneys' Retirement Fund	14.67	-0.21%	1.58%	13.66%
Soldiers' Sailors' & Marines' Fund	7.65	1.63%	2.17%	9.44%
Police & Fireman's Survivors' Benefit Fund	13.52	0.98%	2.85%	14.17%
Connecticut Arts Endowment Fund	7.54	1.58%	2.19%	9.40%
School Fund	7.69	1.66%	2.17%	9.56%
Ida Eaton Cotton Fund	7.64	1.66%	2.17%	9.50%
Hopemead State Park Fund	7.61	1.66%	2.15%	9.41%
Andrew C. Clark Fund	7.64	1.66%	2.18%	9.50%
Agricultural College Fund	1.94	3.47%	1.85%	4.29%
OPEB Fund	11.83	2.44%	3.40%	11.75%

*\*This schedule is to be built prospectively until it contains ten years of data.*

**CONDENSED SCHEDULE OF NET POSITION  
FISCAL YEAR ENDED JUNE 30 (dollars in millions)**

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Assets</b>										
Investments at Fair Value	\$32,568.4	\$29,206.1	\$29,970.3	\$29,608.5	\$25,912.5	\$24,077.3	\$25,247.6	\$21,784.9	\$20,431.2	\$26,129.2
Cash, Receivables and Other	10,300.7	14,897.9	10,608.8	6,096.3	9,430.8	6,964.2	7,959.9	7,494.7	11,520.3	15,884.6
Total Assets	42,869.1	44,104.0	40,579.4	35,704.8	35,388.3	31,041.5	33,207.5	29,279.6	31,951.5	42,013.8
Liabilities	10,321.2	14,858.1	10,712.1	6,150.7	9,447.5	7,064.7	8,023.8	7,410.0	11,569.3	16,142.0
Net Position	\$32,547.9	\$29,245.9	\$29,867.0	\$29,554.1	\$25,940.8	\$23,976.8	\$25,183.7	\$21,869.6	\$20,382.2	\$25,871.8

**CONDENSED SCHEDULE OF CHANGES IN NET POSITION  
FISCAL YEAR ENDED JUNE 30 (dollars in millions)**

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Fiscal Year Ended June 30,</b>										
<b>Additions</b>										
Dividends	510.4	460.0	502.9	474.6	747.9	622.9	703.3	\$417.4	\$399.9	\$650.1
Interest	308.5	337.3	262.0	270.5	181.8	241.2	283.8	324.0	358.9	460.0
Securities Lending & Other Income	48.3	28.7	22.8	16.5	29.1	28.4	30.0	29.1	74.9	162.4
Total Investment Income	867.2	826.0	787.7	761.7	958.8	892.5	1,017.1	770.5	833.7	1,272.5
Total Investment Expenses	99.5	90.7	87.5	84.3	86.9	83.5	89.6	83.8	89.9	201.8
Net Investment Income	767.7	735.3	700.2	677.4	871.9	809.0	927.5	686.7	743.8	1,070.7
Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency	3,332.7	(720.1)	212.9	3,455.8	1,905.8	(1,023.8)	3,525.6	1,952.1	(5,276.0)	(2,328.6)
Purchase of Units by Participants	2,687.0	2,464.4	3,010.4	2,955.3	4,981.5	2,716.0	3,118.5	3,647.0	6,599.3	8,184.5
Total Additions	6,787.4	2,479.6	3,923.5	7,088.4	7,759.2	2,501.2	7,571.6	6,285.8	2,067.1	6,926.6
<b>Deductions</b>										
Administrative Expense	(4.0)	(4.6)	(4.6)	(4.9)	(4.3)	(4.1)	(4.1)	(3.8)	(3.4)	(3.2)
Distributions to Unit Holders	(24.3)	(13.5)	(9.5)	(190.4)	(813.2)	(660.6)	(813.3)	(579.3)	(707.6)	(972.4)
Redemption of Units by Participants	(3,457.1)	(3,082.6)	(3,596.6)	(3,279.8)	(4,977.7)	(3,043.4)	(3,440.1)	(4,215.3)	(6,845.7)	(6,007.4)
Total Deductions	(3,485.4)	(3,100.7)	(3,610.7)	(3,475.1)	(5,795.2)	(3,708.1)	(4,257.5)	(4,798.4)	(7,556.7)	(6,983.0)
Net Change in Position	3,302.0	(621.1)	312.9	3,613.3	1,964.0	(1,206.9)	3,314.1	1,487.4	(5,489.6)	(56.5)
Beginning Net Position	29,245.9	29,887.0	29,554.1	25,940.8	\$23,976.8	25,183.7	21,869.6	20,382.2	25,871.8	25,928.3
Ending Net Position	\$32,547.9	\$29,245.9	\$29,867.0	\$29,554.1	\$25,940.8	\$23,976.8	\$25,183.7	\$21,869.6	\$20,382.2	\$25,871.8

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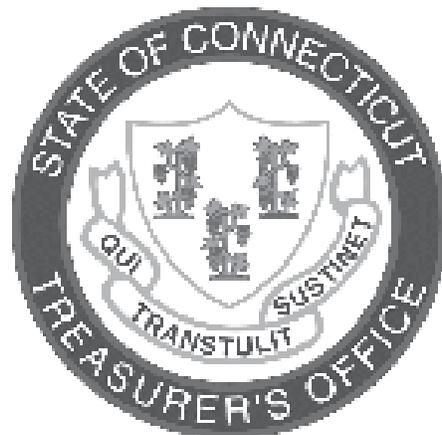
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**Additional Documents for Review:**

Douglas J. Elliott  
The Brookings Institution  
December 3, 2010

## **State and Local Pension Funding Deficits: A Primer**

The financial health of state and local pension funds has been transformed from a yawn-inducing topic to a frightening one in a few short years. By some measurements, the shortfall across the nation adds up to over \$3 trillion or more than two years' worth of state and local tax revenues. In a few states, such as California and Illinois, pension funding has become a major political controversy. This primer focuses on the following key questions:

- What is the problem?
- How big is it?
- How binding is the legal obligation?
- Why do we care about the problem?
- What caused it?
- How can we solve it?

This primer does not address the somewhat similar issue of retiree health care, since it differs considerably from pensions both in its legal status and in the level of predictability of future payments, among other things. To the extent that states are underfunded on that score, as many are, it will doubtless make it still harder to solve the pension problems.

### **What is the pension funding problem?**

States and localities, like most private sector companies, defer a significant portion of their employees' compensation in order to help ensure adequate income in retirement. The great bulk of the deferrals in the public sector are offered through "defined benefit" pension plans. This is the traditional form of pension in which monthly payments are made to the retiree for as long as he or she lives and generally for the lives of surviving spouses as well, at a reduced amount. (Monthly checks from Social Security represent another example of a defined benefit payment in retirement.) For their part, employers make contributions over the working lives of the employees which, along with the very substantial investment income earned on the funds, are used to pay the eventual pension claims. (Employees may also be called on for contributions, as is particularly common in state and local plans.) Employers generally have some flexibility to time their contributions, since the funds are not needed for many years in the future. States and localities have even more flexibility than private companies, which are governed by federal laws designed to ensure that adequate funding is maintained.

Defined benefit plans have many advantages over wages as a form of compensation<sup>1</sup>. They protect employees from the risk of outliving their savings or suffering from poor investment performance and they also force people to save for retirement even if that is not their natural impulse. In addition, they gain from the very substantial tax advantage that employees are not taxed until they begin receiving the benefits, allowing the initial contributions to build up tax-deferred. Typical state and local plans, unlike private sector ones, generally also provide some protection against future inflation, although this is often capped at a 2 or 3 percent annual growth in benefits.

Unfortunately, many of the positives for employees have a corresponding disadvantage for the employers. The longevity and investment risks are borne by the employers that promise the benefits. There are good arguments for doing it this way, since employers are usually in a better position to manage investments and the pooling together of longevity risk eliminates the idiosyncratic portion of the risk as some individuals live longer than expected and others live less. (It does not remove the risk that the *average* life lengthens by more than anticipated.) Nonetheless, the risks taken on by employers in a defined benefit plan are quite substantial and can cause major problems.

The recent financial crisis brought home the severity of the investment risks by very substantially increasing the gap between the value of the assets accumulated in the pension funds and the value of the pension promises which had already been made. This underfunding is the core of the pension problem.

### **How big is the problem?**

Measurements of the aggregate size of the pension deficits at states and localities across the country range widely. Novy-Marx and Rauh (2010a) estimated that state plans alone were in deficit by \$1.2-1.7 trillion as of June 2009, using the states' own accounting and actuarial assumptions<sup>2</sup>. The corresponding funding ratio – the value of the pension assets divided by the value of the future pension payments – was between 53% and 60%. Pew (2010) had found a reported deficit of \$0.5 trillion for state plans as of one year earlier, but had noted the expectation that 2009 deficits would be substantially worse due to declines in the financial markets. Both studies excluded the large deficits that exist at municipal and other local pension plans.

However, many analysts believe that the reported figures are based on inappropriate measurement techniques which substantially understate the true size of the liabilities and therefore of the deficit, as discussed at length shortly. One suggested approach is to use a risk-free discount rate. Novy-Marx and Rauh (2010a) found a \$2.4 trillion deficit for state plans on that basis compared to \$1.2 trillion at the

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<sup>1</sup> Some of these advantages are also true of defined contribution plans, which are another way of deferring compensation for public employees. However, this is not the focus of this paper, since such plans do not generate pension deficits, by definition.

<sup>2</sup> Novy-Marx and Rauh took reported numbers for the state plans as of the most recent reporting date and adjusted them to June 2009 figures, based on historic growth rates of liabilities and changes in asset values. The \$1.2 trillion deficit measures the liability as the Accumulated Benefit Obligation. Most states use an Entry Age Normal method. This produced the \$1.7 trillion figure when applied to all states.

state-chosen discount rates. Biggs (2010) used an options-pricing approach<sup>3</sup> that suggested a \$3.0 trillion economic shortfall as of mid-2008, which would likely have increased by 2009.

On top of this, localities have their own pension deficit problems, which Novy-Marx and Rauh (2010b) estimate to be roughly a quarter trillion dollars on a reported basis and a bit more than half a trillion dollars on a risk-adjusted basis. Thus, the local problem is considerably smaller nationally, but it does add further difficulties for policymakers and taxpayers. In a few cities, such as New York City and Chicago, the per capita figures are sharply higher than the national average, rivaling or exceeding the per capita averages for the states in which they are located.

How can the estimates vary so much? There is disagreement on three critical dimensions. First, there are multiple methods of measuring the size in today's dollars of the estimated future pension payouts. The questions revolve principally around the right interest rate to use in discounting future payments back to an equivalent value in today's dollars. Second, there are different ways of divvying up the future payments between those related to prior service and those related to future service. This is important because the pension liability at any given time generally relates only to past service. Third, states and localities are allowed to show asset values that are based on multi-year averages of market prices, which can considerably slow the reaction of asset values to sharp moves such as occurred in the recent financial crisis.

As a related matter, there are differing views about what portion of the existing promises need to be pre-funded and how much can be left for taxpayers in the future. The "problem" can be viewed as smaller than the size of the pension deficit if one considers it appropriate to maintain investments with a value less than the current promises. Perhaps more accurately, one could view this as splitting the problem between a portion that should be tackled in the near-term and a longer-term portion that is similar to maintaining a certain level of permanent debt. Choosing not to fund a portion of the deficit does have an economic cost. The implicit debt represented by the deficit leaves an overhang of interest accruals similar to the need to pay interest on the explicit debt represented by government bonds.

#### *Measuring the cost of the promises in today's dollars*

A dollar today is worth more than the promise of a dollar a year from now, even if you are sure the promise will be kept. A dollar today could be invested and would therefore be worth more in a year. Alternatively, a dollar today could allow you to avoid borrowing a dollar from someone else, on which you would have to pay interest. If the promise is less than certain of being kept, then receiving the money up-front becomes even more valuable in comparison to the promise. Economists and other experts dealing with long-term promises use a "present value" approach to reckoning the value in today's dollars of future payments. This involves estimating the future payments and then reducing the payments in each year by a discount factor based on: (1) the number of years from now until the

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<sup>3</sup> Biggs used a Black-Scholes model to estimate the price the financial markets would have charged for taking over the states' effective guarantee that the pension plan assets would be sufficient to make all the relevant pension payments.

payment and (2) the chosen interest rate, known as a “discount rate”. For example, at a 5% discount rate, a payment one year from now would be multiplied by 0.95 (one minus the .05 discount rate) and a payment two years from now by roughly 0.90 (the previous year’s discount factor multiplied by one minus the .05 discount rate).

The discount rate is absolutely crucial to measuring the cost in today’s dollars, since the pension payments are spread over so many years, with the average payment typically occurring decades into the future<sup>4</sup>. The compound effect of a discount rate being applied over so many years means that, for example, one dollar received 20 years from now would be worth 46 cents if discounted at a 4% rate or 21 cents at an 8% rate.

Unfortunately, there is a great divide between economists and the traditional views of actuaries about the right discount rate. (Actuaries are professional statisticians who specialize in making the technical calculations necessary for insurers and pension funds. Their figures are then used by accountants and pension fund managers in reporting the current funding status of the state and local pension funds.)

Traditionally, actuaries used the expected return on a pension fund’s investments as the discount rate, which makes some intuitive sense. The future pension payments will be met out of today’s investment assets plus earnings on those assets; if we knew the earnings would match expectations then the fund would only need investments today equal to the discounted value of the pension payments using that rate. Private sector actuarial and accounting rules have abandoned this approach because of concerns described below. However, the Government Accounting Standards Board (GASB), which recommends reporting rules for government entities, has retained this traditional approach, although it is currently considering some modifications that still preserve the core of the methodology<sup>5</sup>.

Virtually all economists, many actuaries, and the author, take issue with this approach to choosing a discount rate, an approach inconsistent with standard practice in finance, economics, and accounting for private sector firms. As Novy-Marx and Rauh (2010a) put it “[d]iscounting liabilities at an expected rate of return on assets in the plan runs counter to the entire logic of financial economics”. The key problem can be expressed in two different ways. Conceptually, a liability such as a promise to pay future pension

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<sup>4</sup> The average “duration” of the plans studied by Novy-Marx and Rauh (2010a) was about 13 years. Duration is a mathematical calculation that essentially determines the average maturity of a stream of future payments, using a net present value approach. Because it reduces the value of future payments using the discounting method described above, it produces a lower figure than if one simply determined the year in which half the cumulative payments would have been made.

<sup>5</sup> In particular, they are considering retaining the current approach for the portion of the liability that would be covered by existing assets but using a municipal bond rate for the unfunded portion, since it is essentially dependent on the creditworthiness of the state or locality which backs the pension promise. This change would have relatively little effect on most pension funds, but would make a major difference for those with large levels of underfunding. It should be noted that there is some uncertainty about how to calculate what portion of the liability is to be considered “unfunded.”

benefits should be discounted based on the uncertainty of the liability<sup>6</sup>, not based on the characteristic of the assets set aside to meet the liability. Owing \$100,000 on a five-year bank loan is an equally firm liability regardless of how one chooses to invest the proceeds for the five years. On the other hand, owing \$100,000 to your family may be a more negotiable debt which perhaps should not be discounted with as low an interest rate, since your family may be willing to write down the debt without forcing you into bankruptcy. As this pair of examples implies, the large majority of liabilities in the world are firmly committed ones that require a low discount rate to reflect their near certainty of required payment.

It is important to note that a higher discount rate would be warranted if a state or locality could legally and practically choose to let a pension plan it sponsored default on its pension obligations. In general, however, state and local governments are legally committed to support these pension payments and therefore pension liabilities should have a discount rate no higher than the interest rate the market requires on municipal bonds<sup>7</sup> to compensate for the risk of default on general obligations of these entities. In fact, these pension payouts are in a privileged position in many states that make them virtually risk-free, implying a considerably lower discount rate. There is considerable discussion later in the primer on the degree of legal commitment to pension obligations.

In addition to the conceptual problems with using *asset* composition to determine the right discount rate for a *liability*, such an approach encourages funding levels that leave future taxpayers with large exposures to overly optimistic return expectations or sub-par investment performance. For example, most states and localities report expected annual returns on their portfolios fairly tightly clustered around 8%. Many observers consider this an unreasonably high expectation. Even if it is a reasonable expectation, it leaves states and localities exposed to decades like the last one in which returns are much lower.

Even worse, this approach can create perverse incentives stemming from effectively treating uncertain future investment returns as certain. Since financial markets generally pay higher expected returns for investments with greater risk, pension funds can increase their expected returns and raise their discount rates by simply accepting more risk. In turn, this would allow lower contributions from the taxpayers since the accounting standard would show that pensions were adequately funded with a lower level of investment assets, due to the higher discount rate used for future pension payments. Behaviorally, this is similar to deciding to save less for your children's college educations because you are going to invest in riskier assets that are likely to have higher returns. It works out great if the higher returns materialize, but exposes you to considerable risk that they may not.

The failure to adjust for risk would be less pernicious if taxpayers and policymakers had symmetric reactions to variations in the actual future pension deficits. Unfortunately, pension deficits are closely correlated with the overall economy, principally because of the high level of investments in the stock

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<sup>6</sup> Brown and Wilcox (2009) sum up the economists' viewpoint as follows: "[f]inance theory is unambiguous that the discount rate used to value future pension obligations should reflect the riskiness of the liabilities."

<sup>7</sup> Note that "municipal bonds" is a term used by the market for both state and local bonds and does not refer solely to bonds offered by localities.

market. Thus, pension deficits turn out to be worst when the economy is in bad shape, such as today, making it particularly hard for taxpayers to absorb the cost of the required additional pension contributions. If they had been luckier and both the economy and the markets had done well, they would face lower than expected pension contributions at a time when this savings would not matter so much. In this respect, risk-taking in pension funds is the opposite of hedging – it is more like gambling the grocery money. Winning would be nice, but losing would be very painful.

Thus, there is a wide range of discount rates that could be applied to the future pension payments, depending on your theoretical viewpoint. Under current actuarial/accounting rules for government entities, most states and localities have chosen discount rates around 8%, based on the future returns they expect on their particular investment portfolios. (These portfolios tend to be heavily weighted towards US common stocks, with significant holdings of bonds, real estate, and “alternative investment vehicles” such as hedge funds or private equity funds.)

In contrast, economists support the use of discount rates that reflect the high probability that the pension liabilities will have to be paid off. Economists generally use Treasury bond rates as the “risk free” interest rate, and some have applied this to state and local pensions, but there are also good arguments for using somewhat higher rates. Some economists use the rate that states and localities pay on their general obligation bonds in cases where they believe the pension obligations are of equivalent legal stature to other obligations. However, a lower rate, closer to Treasuries, should be used in cases where state constitutional guarantees or other legal protections make pension obligations a higher priority than general obligations. Whatever bond rate is chosen, it ideally should be adjusted to reflect differences in tax treatment, liquidity, and inflation protection between Treasury bonds, municipal bonds, and pension payments. Each of these affects the interest rate on an instrument in ways that do not reflect the credit risk element that one needs to determine the appropriate discount rate.

In practice, the proposed discount rates range from roughly 3% for average Treasury rates today to 5-6% for tax-adjusted municipal bond rates to roughly 8% for expected return measures. Using a low-risk discount rate very substantially increases the pension liability compared to using an 8% return measure, in some cases resulting in a doubling of the reported deficit. It is worth noting that tax-adjusted municipal bond rates were significantly closer to 8% in June of 2009, the point in time Novy-Marx and Rauh measured pension deficits, as a result of the financial crisis. This is why their results did not show a large difference between the deficit using reported discount rates and the deficit using tax-adjusted municipal bond rates. Rerunning the figures today would likely show considerably greater liabilities.

#### *Allocating the cost between past and future service*

Complicating the calculation further, there is an issue as to what portion of the promises ought to be reflected as a liability at the current time. Future pension payments are affected both by actions that have already occurred, such as the years of service an employee has performed to date, and future events, such as the impact of future service and future wage increases. At one extreme, the “accumulated benefit obligation” (ABO) measures the value of those payments that have been accumulated to date, assuming no increase in future wage levels. At the other end of the spectrum, the

“projected benefit obligation” (PBO) calculates future pension payments based on assumptions about expected future service and wage increases and then spreads those costs evenly over the years of service of the employee. That is, if the total expected payments were worth \$1,000,000 in today’s dollars and an employee has served 40% of their total expected service, then the PBO would be \$400,000. The key difference with the ABO is that future wage increases are built into the PBO, but not the ABO, and therefore the PBO will virtually always be somewhat higher. This difference is less important in low-inflation periods such as recent decades, but still noticeable.

The large majority of states use an actuarial method called “Entry Age Normal” which spreads the cost over the full period of service of each employee in a way that attempts to keep the cost fixed each year as a percentage of the employee’s salary. Novy-Marx and Rauh (2010a) found that this resulted in a liability figure roughly 15% higher than the ABO for the state plans they studied and not too different from the PBO. Most of the remaining states use a “Projected Unit Cost” method that approximates the PBO.

In sum, it does matter what method is used to allocate the cost over the service of the employees, but differences in discount rates usually have substantially more impact.

#### *Smoothing of asset values*

Actuarial and accounting rules allow state and local pension plans to “smooth” asset values over time by using averages of market prices over multi-year periods for their investments, rather than using only the most recent market prices. Thus, the collapse of equity prices during the recent financial crisis would show up over time in the reported asset values, as would the sharp, partial recovery in stock prices starting in the spring of 2009.

#### *Aggregate liability estimates for all states and localities*

Table 1 shows some summary statistics from various studies on the size of the state and local pension deficits. Three points stand out. First, all the figures confirm that states and localities face a significant problem with pension deficits. Even half a trillion dollars is close to being a half year’s tax revenue. Second, the deficit looks a lot worse as of June 2009 than it did as of June 2008, thanks to the financial crisis. The next figures to be reported by the states are likely to show deficits between those two levels, although this may be counter-balanced for the economic calculations by the drop in prevailing interest rates and therefore discount rates based on Treasuries or municipal bonds. Third, the use of a discount rate based on Treasury bond yields produces dramatically higher deficit figures, as does an options pricing approach which also treats the payments as essentially risk-free<sup>8</sup>. Risk-free calculations show roughly one to two trillion dollars more in liabilities and deficits than using an 8% discount rate.

---

<sup>8</sup> Biggs (2010) uses an approach to valuing the deficit which calculates how much the market would charge to guarantee the pension payments. He values this option using the standard options-pricing approach, the Black-Scholes model. Embedded within his calculations is an assumption that the pension payments must be made, which is consistent with the discount rate approaches that use risk-free rates.

**Table 1: Pension Deficits Calculated by Various Recent Studies**

	<b>Valuation Date</b>	<b>State or Local</b>	<b>Discount Rate/Method</b>	<b>Assets (\$ T)</b>	<b>Liabilities (\$ T)</b>	<b>Deficit (\$ T)</b>
<b>Novy-Marx and Rauh (2010a)</b>	June 2009	State	As reported	\$1.9	\$3.1	<b>\$1.2</b>
<b>Same</b>			Taxable muni	\$1.9	\$3.2	<b>\$1.3</b>
<b>Same</b>			Treasury	\$1.9	\$4.4	<b>\$2.5</b>
<b>Same, using Entry Age Normal</b>			Taxable muni	\$1.9	\$3.5	<b>\$1.6</b>
<b>Same, using Entry Age Normal</b>			Treasury	\$1.9	\$5.3	<b>\$3.4</b>
<b>Pew (2010)</b>	June 2008 <sup>1</sup>	State	As reported	\$2.3	\$2.8	<b>\$0.5</b>
<b>Biggs (2010)</b>	June 2008 <sup>1</sup>	State	Options Pricing	\$2.3	\$5.3	<b>\$3.0</b>
<b>Munnell, et. al. (2010)</b>	June 2008 <sup>1</sup>	Both	8%, using PBO	\$2.7	\$3.4	<b>\$0.7</b>
<b>Same</b>			5%, using PBO	\$2.7	\$4.9	<b>\$2.2</b>

1. Figures were taken from those available in the first part of 2009 and therefore usually reflect fiscal year 2008 numbers. State fiscal years generally end in June.

### *Targeting a funding level*

The key federal law governing pensions for the private sector, known as ERISA, attempts to guide companies towards “full funding,” meaning that pension fund assets would be equal in value to the promises made to that date. Put another way, the target “funding ratio” is 100%, meaning that the value of the assets is 100% of the value of the promises. States and localities are not subject to federal law in this area and there are some who argue that a funding ratio below 100% is appropriate given the permanence of these governments and their need to balance multiple public policy objectives across generations. There are also practical arguments that shooting for 100% funding will sometimes mean that strong financial markets will boost the value of the assets to an extent that creates significant overfunding of existing promises. The concern is that such overfunding can create a political environment in which new pension promises are made simply because “the money is there,” without full recognition of the volatility of financial markets that can take the overfunding away again.

On the other side of the argument, it is clear that holding assets worth less than the promises means that taxpayers will have to come up with additional money in the future for promises they have already made, related to employment service that has already been performed. This violates the general public policy theory that, absent good reason to the contrary, costs incurred in a given year should be funded in that year.

Even among those who believe it is reasonable to maintain a lower funding ratio, there is a strong, albeit not complete consensus, that states and localities should strive to ensure that their pension funds have a funding ratio not too far below 100%<sup>9</sup>. 80% seems to be a popular minimum target, although there is not a strong theoretical reason for that particular figure – it is the result of empirical analyses and judgment calls.

<sup>9</sup> In contrast to the consensus, Bohn (2010) creates a theoretical economic model of the pension funding decision for public entities and concludes that full funding would rarely be the optimal choice and little or no funding could be the best choice under certain circumstances.

### **How binding is the legal obligation?**

There is a key question that affects the appropriate discount rate as well as the potential solutions to the pension problem: are these obligations legally binding? The answer would be quite clear if these were employees of private sector firms. ERISA makes most pension promises legally binding and even sets up the Pension Benefit Guaranty Corporation as an insurer to protect the bulk of the benefits in the event of a bankruptcy by the employer. However, ERISA does not apply to public sector employers.

State and local pension plans are subject to state contract law and any relevant provisions of their state constitutions. All states and localities are bound by the contracts they enter into, but this leaves open the question of whether a public employer has made a contractual commitment when offering a pension plan and what that exact commitment consists of. In many states, specific constitutional provisions for state and local pension benefits would override state contract law, in all cases giving them a binding force at least as great as under normal contract law and sometimes much greater. Brown and Wilcox (2009) note that in “a majority of states, public-sector pension obligations are protected by state constitutional provisions.”

As a general matter, vested pension benefits are strong legal commitments in all states, with force at least equivalent to the obligation to pay bondholders. Benefits based on past service that are not yet vested will generally be protected, but not always. Future service may also be protected, depending on the state. In some states, employees are considered to have a right to continue earning pension benefits for the entirety of their careers in a manner at least as beneficial as the plan they were shown when they joined the employer.

At least three states have concluded that they have the right to reduce the inflation adjustment factor. Each has been sued to prevent such a change and the cases are working their way up through the court systems, likely to land in the lap of the highest state court in each case, given their importance.

In addition to legal theory, there is also some evidence from past practice when state and local governments run into serious financial problems. Brown and Wilcox (2009) discuss the New York City and Orange County financial crises, which led to a formal bankruptcy in the case of Orange County and a supervised financial restructuring for New York City. In both cases, despite relatively drastic actions taken in other areas, pension benefits were left untouched, including the accrual of additional benefits for new service.

### **Why do we care about the pension problem?**

There are multiple reasons for policymakers, analysts, and the public to care about state and local pension deficits. These include:

**Many state and local governments are going to have to make major changes to pension benefits, taxes, or services.** Any of these actions would be painful, as described in the next section.

**Some states and localities have particularly deep pension deficits that will warp civic priorities and local politics for years.** Illinois and California are already among the states confronting these issues and many other states and localities may join them over time.

**The cumulative effects of actions across the country could be a major drag on the national economy.** It has already been observed that state budget cuts triggered by the recent recession have negated a significant portion of the stimulus being provided by federal government's spending and tax cuts. Pension problems could create an even worse, and longer lasting, drag in the future.

**There is a significant chance of an eventual federal bailout, whether directly through tax revenue or indirectly through guaranteed and/or subsidized borrowings.** Even in these relatively early stages of the problem, there are already calls for a federal bailout and these calls are likely to strengthen over time unless booming financial markets save the day.

### **What caused the problem?**

This is a very complex question. There were multiple causes, their importance varied in different places, and analysts differ considerably in the weight they give the different causes. These causes included:

**Excessive total compensation for state and local workers?** This is a major area of disagreement among analysts. It is simply not clear whether state and local workers as a class are being paid too much or too little. Doubtless there are many examples of places or types of jobs where public sector workers are overpaid, as well as many others where they are underpaid. However, it is extremely difficult, except in quite isolated circumstances, to prove this, much less to develop aggregate numbers for the nation as a whole. The main problem is that pay comparisons only make sense if the jobs and workers on the public and private side are similar or differ in ways whose impact on fair compensation can be well-estimated.

For example, media reports often compare the average pay for public sector workers with those for private sector workers and find that the public sector pays better. However, further analysis shows that public sector workers tend to have substantially more education than those in the private sector, on average. Since, all else equal, better educated people earn more in our modern society, this clearly explains much of the difference. Similarly, age, gender, and other factors that have an impact on pay can be controlled for in serious studies. There are good reasons to use this analytical approach, but it does not capture any direct measures of output. The implicit assumption is that people with broadly similar characteristics would produce similar value.

However, there could be important differences that are not being captured, such as attitudes and life goals. For example, consider three stereotypes of public sector workers that, if true, could reasonably affect their output and therefore appropriate pay levels. Some people think public sector workers are less motivated than private sector workers, which should translate to lower output. Others think public sector workers are altruistic and drawn to jobs like teaching where they can do good. This could mean they would accept lower pay, but could also mean that "fair" pay would be higher, because they throw

themselves into their work in ways that are difficult to measure. Yet a third stereotype is that public sector workers are risk-averse. This might not affect output levels, but might indicate that they should be willing to accept lower pay in exchange for the greater job security of the public sector.

An alternative approach taken by some studies is to compare pay in jobs that are very similar between the public and private sectors. There are two problems. First, private and public sector jobs could differ a great deal in ways that are hard to capture, as could the type of people entering each sector. Second, large chunks of the public sector do not have good “comparables” in the private sector and we probably cannot safely assume that the differences found in the comparable areas necessarily hold for the other areas.

At the end of the day, we will probably never know for sure whether state and local workers are overpaid on average in terms of total compensation. This makes it hard to address the directly relevant question of whether these workers receive extravagant pensions. We know pensions are higher and more secure on average than in the private sector, but we do not know whether this is making up for lower salaries than workers could earn in the private sector.

**Bad accounting.** Most state and local pension funds either explicitly or implicitly target a minimum funding ratio, which means that the contributions depend significantly on the measured size of the pension liability. If one accepts the arguments of the economists, as the author does, then contribution decisions are being based on distorted numbers that substantially understate the true liability. In turn, contribution levels are key determinants of the benefit packages that employers are willing to offer in pay negotiations. Thus, unrealistically low estimates of the liability lead to both more generous benefit packages and lower funding, both of which encourage pension deficits.

**Risky investments.** Similarly, setting the discount rate based on the riskiness of the investment portfolio provides a direct incentive to take on more risks, as noted earlier. This helps explain the greater share of common stocks held by public pension funds compared to private sector funds. In addition, many of the key decision-makers may be overly influenced by a widely held misperception that stocks *always* perform better than bonds over long enough time horizons. It is true that stocks are expected to outperform, on average, and that this outperformance widens over time. However, there remains a significant probability of underperformance and the magnitude of that potential underperformance also gets bigger over time. Further, those periods of stock market weakness have a strong tendency to occur during bad economic times when states and localities can least afford to bear the burden of pension deficits, exactly as happened in the most recent crisis.

**Short-term political horizons.** Pension deficits can be easy for politicians to hide or ignore for their four or eight year term in office, which was likely a factor in the growth of the problem over many years. A major source of the deficits was the deliberate choice in some states to frequently skip even the minimum contributions that were calculated by conventional actuarial approaches. This would have been politically difficult to do in other fiscal areas that are less obscure. There is also the issue that

raising benefit levels in an election year can be a quite attractive political strategy, providing incentives to worsen the deficits.

**Union power.** Many of the voters in state and local elections are government workers, which tilts the political incentives towards providing higher benefits. The disproportionate impact of government workers is due in part to a lesser degree of interest among much of the public in these races. Government workers, in contrast, have a vested interest in paying attention and voting.

**Public apathy.** Pensions are quite technical issues and voters rarely get worked up over them, although this seems likely to change to some degree going forward unless and until the deficits drop substantially. Even when they do grow concerned, they are often quite unclear on what actions ought to be taken, which reduces the impact of these concerns on the actual decision-making.

### **How can we solve the problem?**

There is no simple and easy solution to the problem of large pension deficits at the state and local level. There are some steps that can be taken to improve future decision-making, particularly moving to an accounting regime that better reflects the economic realities. However, even ceasing to dig the hole deeper is not necessarily easy, since the status quo of solid benefits and deceptively low apparent costs has been a happy false paradise for many politicians, employees, and union leaders.

Dealing with the accumulated deficit is harder still. Essentially, it requires either a division of the pain among employees/retirees, taxpayers, and other residents or a “bailout” by either federal government largesse or the luck of very favorable financial market conditions. The main possibilities are as follows:

**Cut benefits or raise employee contributions for new workers.** Although painful, this is a relatively easier step than most of the others, since it is clearly legal and does not violate any previous moral commitments. However, it may be quite difficult either for political reasons or because of labor market conditions. The latter point is a lesser issue in the immediate future, because potential new workers are plentiful compared to the quite small number of positions to be filled. Over time, however, it could become more important, depending, of course, on what the overall attractiveness of government work and its compensation truly is.

**Cut benefits or raise employee contributions for new service by existing workers.** This option also has the benefit of being forward-looking, which avoids some legal and moral difficulties. However, a number of states have constitutional or legal protections that make it quite difficult to change the benefit structure once an employee is hired. In addition, union power may be sufficient to stop such changes, although the balance of power has probably shifted in the direction of reducing taxpayer costs. In addition, worker recruitment and retention could be harmed, although it is hard to judge the impact of this in advance for the nation as a whole.

**Cut benefits or raise employee contributions for past service by existing workers.** This is generally exceedingly difficult from a legal perspective. Even general principles of contract law are likely to

eliminate this possibility unless it is part of a negotiated solution and it could require individual assents from each employee. Many states have constitutional protections that are significantly stronger than general contract law. Beyond the high legal barriers, there is also a major moral issue when governments renege on previous firm commitments.

**Reduce inflation indexing for existing benefits.** This is one variation of benefit cuts. It is listed separately because it is being tried in three states and may be easier legally than cutting benefit formulas in other ways. That said, all three states trying this are embroiled in lawsuits over their ability to do it.

**Switch to a defined contribution (DC) approach.** There are many who have suggested that states and localities switch to defined contribution plans, similar to the 401(k)'s available to so many private sector employees. DC plans cannot, by definition, be underfunded, since employees are only promised the returns accruing from their specific investment choices rather than a benefit based on a fixed formula involving years of service and salary levels. In itself, adding a DC plan would do nothing about pension deficits – it is the reduction or elimination of existing defined benefit plans that would cut those deficits. Therefore, adding a DC plan should be viewed as a carrot that can be offered in order to persuade current or future employees to accept changes to existing defined benefit plans. In general, unions and employees have resisted being forced to switch, so that many new DC plans are offered as a choice rather than an enforced substitution for a defined benefit plan. In any event, switching to a DC plan is unlikely to be a viable option to eliminate pension deficits related to *prior* years of service under defined benefit plans.

**Raise taxes and increase contributions to the pension funds.** Infusing more money into the pension funds would definitely reduce the deficits, but there are strong political and economic disadvantages to doing this. For one thing, there are clearly limits to the ability to raise taxes without encouraging people and businesses to move, thus reducing the local tax base.

**Cut services and use the money for increased contributions.** This has similar problems to raising taxes.

**Get a federal bailout.** This will increasingly be part of the debate unless something else reduces the size of the problem. However, it would be quite tricky to pull off. There are the political questions of how to persuade members of Congress from states with small pension deficits to support sending money to those with large deficits, especially since much of the deficit problem is self-inflicted. One way to do this is to effectively disguise the subsidy by providing a guarantee of new state debt raised for pension contributions. However, the expensive rescues of Fannie Mae and Freddie Mac may be too recent a reminder of the way in which guarantees, even implicit ones in those cases, can prove quite costly. If the federal government does step in, there will almost certainly be a quid pro quo of more realistic accounting rules and mandatory minimum funding standards.

**Take more investment risk.** If the Feds will not bail the funds out, perhaps the financial markets will. It is possible for a large rise in the stock market to substantially reduce the pension deficits, since roughly two-thirds of the assets are invested in stocks. However, it would take a very strong and sustained rise

from current levels, which are not cheap by many historical standards of valuation. Unfortunately, there is also the very real possibility that the next decade will see continued underperformance of stocks relative to historical standards. Increasing investment risk now would be very much like doubling one's bets at roulette. It makes it more likely that a lucky streak could restore one's fortune, but it also increases the chance of losing whatever remains of that fortune. As noted earlier, there is also the unfortunate strong tendency of stocks to do badly at precisely the time that states and localities are struggling, since stocks tend to do worst when the economy is in trouble and governments are suffering from decreased tax bases and higher expenses for unemployment benefits and other aid.

## **Conclusions**

Deficits at state and local pension funds constitute a serious problem, with economic values of these deficits aggregating to approximately \$3 trillion or more than 2 years worth of tax revenue. There are no easy answers either, unless very favorable stock markets intervene to save the day. However, the stock market would have to almost triple in a short period from today's level to eliminate the current pension deficits as measured using risk-free discount rates.

A great deal more research is needed, since this area was comparatively lightly studied until quite recently. Among the areas to be addressed further are:

### **Decision-making processes**

- How are pension fund investments determined in practice?
- Who has the most influence on the end decision?
- What criteria influence those investment decisions?
- How are contribution levels determined in practice?
- What are the views of voters about public pensions?
- What are the views of politicians and government officials?

### **Accounting and actuarial issues**

- What are the goals of the various users of pension reporting?
- How does GASB's structure influence its choices on actuarial standards?
- How have reporting standards influenced concrete choices by pension funds?

### **Public finance**

- How big are the deficits compared to state and local resources?
- Which states will be hit the hardest?
- What are the limits on state and local ability to raise their contributions?
- To what extent are pension problems already factored into municipal bond markets?
- How will potential solutions be perceived by the markets?

### **Labor force questions**

- How do public and private workforces differ?
- How do these differences affect their total compensation levels?
- What do public sector workers know about retirement plans?
- What are their preferences regarding retirement plans?
- What would they be most willing and least willing to give up?
- How do these characteristics differ between broad categories of employees?

### **Legal issues**

- What are the key determinants of how binding pension claims are?
- How strong would pension claims likely be in a municipal bankruptcy or near-bankruptcy?
- How do these points differ across the key states?

### **Comparative research across representative pension plans**

- Decision-making structures
- Benefit structures
- Funding levels and contribution decisions
- Investment decisions
- Deficit levels and plans to remedy them
- Actuarial choices
- Legal status of claims

### **Potential solutions to the deficit problems**

- What has been done to date across the country and how have changes worked?
- What is the range of proposals?
- What other options are available?
- What is the right decision framework for evaluating proposals in this area?
- How can obstacles to good public policy be overcome?

### **Federal role**

- How, if at all, have federal choices influenced state and local actions in this area?
- What are the options for the federal government to help?
- What would they cost?
- What are the likely national economic costs of if states are left on their own?
- How would the burden be shared if federal aid were offered?

We also need better transparency, uniformity, and timeliness in the information being provided by the pension funds. A few researchers have put in a great deal of work to reach conclusions that are relevant nationally, but they have been hampered by different and inadequate approaches to reporting. For

example, plans do not normally provide the expected cash outflows used by their actuaries, even though these are central to the main calculations.

Finally, the author is among those who believe it is critical to reform the accounting and actuarial rules so that state and local pension plans report liability levels and deficits that are consistent with economic reality, which will primarily require a move to discount rates that are based on the uncertainty of the liabilities rather than the expected return on the assets.

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**STATE OF CONNECTICUT  
OFFICE OF THE STATE COMPTROLLER**

**Comprehensive Annual  
Financial Report**

**FOR THE FISCAL YEAR ENDED JUNE 30, 2017**



**KEVIN LEMBO  
COMPTROLLER**

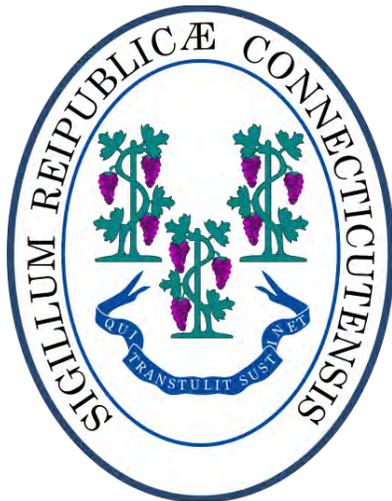
**DECEMBER 2017**

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# Connecticut

## COMPREHENSIVE ANNUAL FINANCIAL REPORT

FOR THE FISCAL YEAR  
ENDED JUNE 30, 2017



**Dannel Malloy**  
GOVERNOR

**Kevin Lembo**  
STATE COMPTROLLER

Prepared by Budget and Financial Analysis Division  
Office of the State Comptroller

<http://www.osc.state.ct.us/2017cafr/>

This report was prepared by the  
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A special thank you to the accounting personnel throughout the State. Their efforts to contribute accurate and timely financial data for their agencies, universities, community colleges, and institutions made this report possible.

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# State of Connecticut

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# *INTRODUCTORY SECTION*

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**KEVIN LEMBO**  
STATE COMPTROLLER



**MARTHA CARLSON**  
DEPUTY COMPTROLLER



STATE OF CONNECTICUT  
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December 29, 2017

To the Citizens, Constitutional Executive Officers, and Members of the Legislative General Assembly of the State of Connecticut:

It is a privilege to present the State of Connecticut Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2017. This report was prepared in accordance with Generally Accepted Accounting Principles (GAAP) as prescribed by the Governmental Accounting Standards Board.

Even though much of this report must be written in a rather formal and technical manner, my office has endeavored to present the information in a way that will help readers without a financial background to understand the State's overall economic and fiscal position.

This report devotes significant attention to the state's General Fund. The General Fund is the largest single governmental fund. It is the fund most often referred to in media reports about Connecticut's finances. About three-quarters of all governmental financial transactions relating to the cost of providing state services and the collection of revenues to pay for those services occur within the General Fund.

The General Fund is formulated, implemented, and modified during the fiscal year using the legal budgetary form of accounting that incorporates certain revenue and expenditure accruals that are not consistent in every instance with the GAAP method of reporting used in this publication. For the GAAP based General Fund results for Fiscal Year 2017 please refer to the *Governmental Fund Financial Statements* section of this report beginning on page 40.

The General Fund ended Fiscal Year 2017 with a deficit of \$22,696,231 on a budgetary basis of accounting. A transfer from the Budget Reserve Fund eliminated the shortfall returning the unappropriated balance of the fund to zero. The Transportation Fund had an operating deficit of \$45,225,502 on the budgetary accounting basis, which left a positive fund balance of \$97,615,054 at the close of Fiscal Year 2017. After the transfer to the General Fund, the Budget Reserve Fund will have a balance of \$212,886,689. The reserves at the beginning of Fiscal Year 2017 were \$235,582,920.

A complete discussion of Fiscal Year 2017 budget and fiscal trends is contained in the MDA section of this report.

## Major Legislative Initiatives

***Public Act No. 17-226 “An Act Concerning Evaluation of Business Assistance and Incentive Programs”*** This act expands legislative review of economic development programs, including certain programs administered by agencies other than the Department of Economic and Community Development (DECD). It does so by requiring DECD to include information about the economic development programs in its annual report and making that report the basis for the review. DECD must submit the expanded report to the Auditors of Public Accounts and several legislative review committees, including Appropriations, Commerce, and Finance, Revenue and Bonding.

The act creates more transparency by requiring additional analysis of the estimated economic effects of the DECD's economic development investments on the state's economy. For each new business or incentive program, additional reporting requirements include the number of new jobs created, the borrowing cost to the state and the estimated impact of such program on annual state revenues. In addition, the act requires an evaluation of whether the statutory and programmatic goals of each business or incentive program are being met, with obstacles to such goals identified, if possible. Finally, the act calls for recommendations as to whether any existing business assistance or incentive program should be continued, modified or repealed and the basis for such recommendations.

***Resolution Act No. 17-1 (House Joint Resolution No. 100), “Resolution Approving a State Constitutional Amendment to Protect Transportation Funds”*** The Connecticut General Assembly passed this joint resolution during the 2017 legislative session, which will put a State constitutional amendment on the ballot in November 2018. The amendment, if approved by Connecticut voters, would provide additional protection for the resources of the Special Transportation Fund (STF). The concept proposed in the resolution has also been described as the “Transportation Lockbox” in many news articles. The ballot designation to be used when the amendment is presented during the 2018 general election is:

*Shall the Constitution of the State be amended to ensure (1) that all moneys contained in the Special Transportation Fund be used solely for transportation purposes, including the payment of debts of the state incurred for transportation purposes, and (2) that sources of funds deposited in the Special Transportation Fund be deposited in said fund so long as such sources are authorized by statute to be collected or received by the state?*

Improving the State’s transportation infrastructure is a critical need for both Connecticut’s quality of life and its future economic growth and development. According to the Connecticut Office of Legislative Research, this resolution, if adopted, would do the following:

1. Maintain the Special Transportation Fund as a perpetual fund and prohibit the legislature from enacting any law authorizing the spending of STF funds for any purpose other than transportation;
2. Require the legislature to use the STF solely for transportation purposes, which includes paying debt service on state obligations incurred for such purposes; and

3. Require sources of funding, money, and receipts that must be legally credited, deposited, or transferred to the STF on or after the amendment's effective date to be credited, deposited, or transferred to the STF as long as state law authorizes the state, or any of its officers, to collect or receive these sources.

***Public Act No. 17-241 “An Act Concerning Contracts Between a Pharmacy and a Pharmacy Benefits Manager, the Bidirectional Exchange of Electronic Health Records and the Charging of Facilities Fees By a Hospital or Health System”*** This act makes several changes affecting hospitals and health systems, health care providers, and health carriers. One of the primary goals of this legislation is to bring more transparency and accountability into pharmaceutical pricing by making more information available to consumers and government entities.

Among other things, the act prohibits pharmacy services contracts from prohibiting or penalizing a pharmacist’s disclosure of certain information, such as therapeutic alternatives or less expensive purchasing methods, to a person purchasing a prescription. In addition, it would allow indirect purchasers (such as State of Connecticut representing itself or the State’s consumers) to recover against drug manufacturers for antitrust violations. Finally, the act forbids certain contracts between health care providers and health carriers’ agents or vendors from prohibiting disclosure of specified cost-related information and all-payer claims data.

### Independent Auditor Opinions

As a Connecticut Constitutional Officer, the State Comptroller is responsible for setting state-wide accounting practices. Ultimate responsibility for the accuracy, completeness, and fairness of data presented in this CAFR, including all disclosures, rests with the State of Connecticut and my office. Connecticut statutes require an annual audit of the state’s basic financial statements. These include statements prepared on the budgetary basis of accounting as well as statements prepared using full GAAP standards. The state is also required to undergo an annual “single audit” for reporting to the federal government. To meet all of these requirements, the State Auditors of Public Accounts have examined our financial statements and the appropriate supporting documentation.

The State auditors gave the CAFR for the State of Connecticut a “clean” opinion indicating they can state, without reservation, that the financial statements are fairly presented in all material respects in conformity with GAAP.

### Profile of the Government and its Safeguards

#### The Nutmeg State

Connecticut became the fifth state of the United States on January 9, 1788. Its borders encompass 5,009 square miles. Within its compact borders, Connecticut has forested hills, urban skylines, shoreline beaches, and historic village greens. Connecticut is a thriving center of business as well as a vacation location. It is both a New England State, and suburban to New

York City. The population of Connecticut was 3,576,452 according to the July 1, 2016 estimate of the U.S. Census Bureau. Five large cities, Bridgeport, New Haven, Hartford (the State Capitol since 1875), Stamford and Waterbury, have populations in excess of 100,000 residents.

### State Government

Separation-of-Powers provisions of the State Constitution established the three branches of state government: executive, legislative and judicial. The executive branch, which is responsible for enforcing state laws, consists of six state executive officers: Governor, Lieutenant Governor, Treasurer, Comptroller, Secretary of State and Attorney General. All are elected to four-year terms.

Connecticut's General Assembly or legislative branch is responsible for creating new laws and consists of a Senate and a House of Representatives. There are currently 36 State Senators and 151 State Representatives. Members of the General Assembly are elected to two-year terms. Connecticut also elects two U.S. Senators and five U.S. Representatives.

The Judicial Branch is responsible for interpreting and upholding our laws as consistent with the State Constitution and legal precedence. The Judicial Branch consists of three levels: The Supreme Court, the Appellate Court and, at the lowest level, the Superior Court which is further divided by state law into Civil, Criminal, Housing and Family Divisions. Judges of the Supreme Court, the Appellate Court and the Superior Court are nominated by the Governor from a list of candidates submitted by the Judicial Selection Commission and are confirmed by the General Assembly. They serve eight-year terms and are eligible for reappointment.

### The Reporting Entity

The State of Connecticut financial reporting entity includes all of the funds of the primary government and of its component units. The primary government includes all funds, agencies, departments, bureaus, commissions, and component units that are considered an integral part of the state's legal entity. Component units are legally separate entities for which the primary government is financially accountable. Note 1 of this report contains detailed information on the reporting entity.

### Internal Controls

Our state's internal control structure has been established to ensure that the assets of the government are protected from loss, theft, or misuse, and to ensure that adequate accounting data are compiled to allow for the preparation of financial statements in accordance with GAAP and state legal requirements. The internal control structure is designed to provide reasonable, but not absolute, assurance that these objectives are met. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived, and (2) the valuation of costs and benefits requires estimates and judgments by management.

## Budgetary Controls

The State Legislature prepares a two-year budget that contains estimates of revenues and expenditures for the ensuing two fiscal years. This budget is the result of negotiations between the Governor and the Legislature. Adjustments, in the form of budget revisions, executive orders, and financial legislation agreed to by the Governor and the Legislature, are made to the annual appropriations throughout the fiscal year. Budgetary controls are maintained at the individual appropriation account level by agency and fund established in authorized appropriation bills. The objective of these controls is to ensure compliance with state laws embodied in the appropriations. The State Comptroller is statutorily responsible for control structures to safeguard revenues due the primary government, to determine the amount equitably due with respect to claims made and to ensure such expenditures are compliant with an appropriation contained in the budget for such purpose.

Budgeted appropriations are the expenditure authorizations that allow state agencies to purchase or create liabilities for goods and services. Before an agency can utilize funds appropriated for a particular purpose, such funds must be allotted for the specific purpose by the Governor and encumbered by the Comptroller upon request by the agency. Such funds can then be expended by the Treasurer only upon a warrant, draft or order of the Comptroller drawn at the request of the responsible agency. The allotment process, which includes limits on the power of the Governor to modify appropriations, preserves expenditure controls over special revenue, enterprise, and internal service funds and capital projects that are not budgeted as part of the annual appropriation act as revised.

## The Spending Cap

In November 1992, electors approved an amendment to the State Constitution providing that the amount of budgeted expenditures authorized for any fiscal year shall not exceed the estimated amount of revenue for such fiscal year. This amendment thus provided a framework for placing a cap on budgeted appropriations.

Annual budgeted appropriations are capped at a percentage increase that is based on either the five-year average annual growth in the State's personal income or annual inflation, whichever is higher. Debt service payments, certain statutory grants to distressed municipalities, and appropriations required by federal mandate or court order are excluded from the limits of the cap.

The spending cap can be lifted if the Governor declares the existence of extraordinary circumstances and the General Assembly by three-fifths vote approves appropriations in excess of the cap.

## Economic Condition and Outlook

According to state Department of Labor (DOL) statistics, Connecticut gained 12,200 nonfarm seasonally-adjusted payroll jobs over the course of FY 2017 and had a total of 1,692,800 employed residents as of June 2017. As the fiscal year closed, unemployment stood at 5.0 percent, down one-tenth of a percent from the beginning of the fiscal year. Connecticut had

recovered 82.3 percent (98,000 jobs) of the 119,100 seasonally adjusted jobs lost in the Great Recession (March 2008 to February 2010) by the end of the fiscal year.

After mixed results in calendar 2016, the housing market in Connecticut improved during the first six months of 2017. According to Berkshire Hathaway Home Services, sales and prices were up for both single family homes and condominiums in the first quarter of 2017 compared with the same period in 2016. In the second quarter of 2017, Connecticut experienced a 5.7 percent increase in sales volume year-over-year and 9.1 percent decrease in days on the market.

A more complete discussion of Fiscal Year 2017 economic condition and outlook is contained in the MDA section of this report

Acknowledgements

I want to thank my staff, the State Auditors, and all of the agency personnel and others who contributed to producing this report. I also want to thank its readers who bring meaning to the work that we do.

Sincerely,

A handwritten signature in cursive script that reads "Kevin Lembo".

Kevin Lembo  
Connecticut State Comptroller



***CONSTITUTIONAL OFFICERS  
EXECUTIVE***

Dannel P. Malloy  
*Governor*

Nancy Wyman  
*Lieutenant Governor*

Denise Merrill  
*Secretary of State*

Denise L. Nappier  
*Treasurer*

Kevin Lembo  
*Comptroller*

George C. Jepsen  
*Attorney General*

***LEGISLATIVE***

Martin M. Looney  
*Democratic President Pro Tempore of the Senate*

Len Fasano  
*Republican President Pro Tempore of the Senate*

Joseph Aresimowicz  
*Speaker of the House of Representatives*

***JUDICIAL***

Chase T. Rogers  
*Chief Justice, Supreme Court*



*FINANCIAL  
SECTION*

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STATE OF CONNECTICUT



AUDITORS OF PUBLIC ACCOUNTS

STATE CAPITOL  
210 CAPITOL AVENUE  
HARTFORD, CONNECTICUT 06106-1559

JOHN C. GERAGOSIAN

ROBERT J. KANE

**INDEPENDENT AUDITORS' REPORT**

Governor Dannel P. Malloy  
Members of the General Assembly

**Report on the Financial Statements**

We have audited the accompanying financial statements of the governmental activities, the business-type activities, the aggregate discretely presented component units, each major fund, and the aggregate remaining fund information of the State of Connecticut as of and for the year ended June 30, 2017, and the related notes to the financial statements, which collectively comprise the state's basic financial statements as listed in the table of contents.

***Management's Responsibility for the Financial Statements***

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

***Auditor's Responsibility***

Our responsibility is to express opinions on these financial statements based on our audit. We did not audit:

Government-wide Financial Statements

- the financial statements of the Special Transportation Fund account within the Transportation Fund and the Transportation Special Tax Obligations account within the Debt Service Fund, which in the aggregate, represent 2 percent of the assets, 2 percent of the net position and 8 percent of the revenues of the Governmental Activities;
- the financial statements of the John Dempsey Hospital account within the University of Connecticut and Health Center, the Connecticut State University System, Connecticut Community Colleges, Bradley International Airport Parking Facility, and the federal accounts for the Clean Water Fund and Drinking Water Fund, which in the aggregate, represent 56 percent of the assets, 48 percent of the net position and 34 percent of the revenues of the Business Type Activities;
- the financial statements of the discretely presented component units.

Fund Financial Statements

- the financial statements of the Special Transportation Fund account, which represents 97 percent of the assets and 97 percent of the revenues of the Transportation Fund;
- the financial statements of the Transportation Special Tax Obligations account, which represents 100 percent of the assets and 100 percent of the revenues of the Debt Service Fund;
- the financial statements of the John Dempsey Hospital account within the University of Connecticut and Health Center, the Connecticut State University System, the Connecticut Community Colleges, Bradley International Airport Parking Facility, and the federal accounts for the Clean Water Fund and Drinking Water Fund, which in the aggregate, represent 56 percent of the assets, 48 percent of the net position and 34 percent of the revenues of the Enterprise Funds.

Those financial statements were audited by other auditors whose reports thereon have been furnished to us, and our opinion, insofar as it relates to the amounts included for the aforementioned funds and accounts, is based on the reports of the other auditors.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. In addition, the financial statements of the Special Transportation Fund, Transportation Special Tax Obligations Fund, Drinking Water Fund, Clean Water Fund, Connecticut Airport Authority, Capital Region Development Authority, Connecticut Lottery Corporation, Materials Innovation and Recycling Authority, Connecticut Health and Educational Facilities Authority, Connecticut Health Insurance Exchange, Connecticut Housing Finance Authority, Connecticut Innovations Incorporated and the Connecticut Green Bank were audited by other auditors in accordance with standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. The audits of the financial statements of the Bradley International Airport Parking Facility, Connecticut State University System, Connecticut Community Colleges, and the University of Connecticut Foundation were not conducted in accordance with *Government Auditing Standards*.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

### ***Opinions***

In our opinion, based upon our audit and the reports of other auditors, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, the aggregate discretely presented component units, each major fund, and the aggregate remaining fund information, for the State of Connecticut, as of June 30, 2017, and the respective changes in financial position and where applicable, cash flows thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America.

### ***Emphasis of Matter***

As discussed in Notes 23 and 25, the State of Connecticut adopted Governmental Accounting Standards Board (GASB) Statement No. 77, *Tax Abatement Disclosures*. This statement requires the disclosure of tax abatements resulting from agreements that are entered into by the state and agreements that are entered into by other governments that reduce the state's tax revenues. Our opinions are not modified with respect to this matter.

### ***Other Matters***

#### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, budgetary comparison schedules, pension plan schedules and information, and the other post-employment benefits schedules, as listed in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information, in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's

responses to our inquiries, the basic financial statements, and other knowledge we obtained during the course of our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Supplementary and Other Information*

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the State of Connecticut's basic financial statements. The combining and individual nonmajor fund financial statements are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The combining and individual nonmajor fund financial statements are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America by us and the other auditors. In our opinion, based on our audit, the procedures performed as described above, and the reports of the other auditors, the combining and individual nonmajor fund financial statements are fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

The introductory and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

**Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated December 29, 2017, on our consideration of the State of Connecticut's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report will be issued under separate cover in the *Auditors' Report on Internal Control over Financial Reporting and on Compliance and Other Matters for the Fiscal Year Ended June 30, 2017, State of Connecticut Comprehensive Annual Financial Report* and is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.



John C. Geragosian  
State Auditor



Robert J. Kane  
State Auditor

December 29, 2017  
State Capitol  
Hartford, Connecticut

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## MANAGEMENT'S DISCUSSION AND ANALYSIS

### INTRODUCTION

The following is a discussion and analysis of the State's financial performance and condition providing an overview of the State's activities for the fiscal year ended June 30, 2017. The information provided here should be read in conjunction with the letter of transmittal in the front of this report and with the State's financial statements, which follow this section.

### HIGHLIGHTS

#### Government-wide Financial Statements

The State's total net position (deficit) increased \$802 million (or 2.1 percent) as a result of this year's operations. Net position (deficit) of governmental activities increased by \$1.2 billion (or 2.8 percent) and net position of business-type activities increased by \$440 million (or 7.0 percent). At year-end, net position (deficit) of governmental activities and business-type activities totaled a negative \$45.4 billion and \$6.7 billion, respectively.

Component units reported net position of \$2.4 billion, an increase of \$46.2 million or 2.0 percent from the previous year. The majority of the net position is attributable to the Connecticut Housing Finance Authority, a major component unit.

#### Fund Financial Statements

The governmental funds reported combined ending fund balance of \$2.9 billion, an increase of \$1.0 billion in comparison with the prior year. Of this total fund balance, \$195.6 million represents nonspendable fund balance, \$3.2 billion represents restricted fund balance, \$303.5 million represents committed fund balance, and \$6.5 million represents assigned fund balance. A negative \$829.7 million unassigned fund balance offsets these amounts. This deficit belongs primarily to the General Fund, decreased by \$177.7 million during the fiscal year.

The State's stabilization account, the General Fund Budget Reserve Account (Rainy Day Fund) ended the fiscal year with a balance of \$212.9 million.

Tax revenues in the governmental funds decreased \$85.4 million or .05 percent. General fund tax revenues decreased \$135.4 million or .09 percent.

The Enterprise funds reported net position of \$6.7 billion at year-end, an increase of \$440.1 million during the year, substantially all of which was invested in capital assets or restricted for specific purposes.

#### Long-Term Debt

Total long-term debt was \$74.5 billion for governmental activities at year-end, of which \$25.5 billion was bonded debt.

Total long-term debt was \$2.1 billion for business-type activities at year-end, of which \$1.6 billion was bonded debt.

### OVERVIEW OF THE FINANCIAL STATEMENTS

This discussion and analysis is an introduction to the State's basic financial statements. The State's basic financial statements comprise of three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to the financial statements. The report also contains other supplementary information to provide additional support to the basic financial statements.

#### Government-wide Financial Statements – Reporting the State as a Whole

The Statement of Net Position and the Statement of Activities beginning on page 35 together comprise the government-wide financial statements. These financial statements are designed to provide readers with a broad overview of the State's finances, in a manner similar to a private-sector business. All revenues and expenses are recognized regardless of when cash is received or spent, and all assets, deferred outflows of resources, liabilities and deferred inflows of resources, including capital assets and long-term debt, are reported at the entity level. The government-wide statements report the State's net position and changes in net position. Over time, increases and decreases in net position measure whether the

## State of Connecticut

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State's overall financial condition is getting better or worse. Non-financial factors such as the State's economic outlook, changes in its demographics, and the condition of capital assets and infrastructure should also be considered when evaluating the State's overall condition.

The statement of net position presents information on all of the State's assets and deferred outflows of resources, and liabilities and deferred inflows of resources with the difference between all reported as net position. Net position is displayed in three components – net investment in capital assets; restricted; and unrestricted.

The statement of activities presents information showing how the State's net position changed during fiscal year 2017. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of the related cash flows. Thus, revenues and expenses are reported in this statement for some items that will result in cash flows in future fiscal periods (e.g., uncollected taxes and earned but unused vacation leave).

Both the Statement of Net Position and Statement of Activities report three separate activities. These activities are described as follows:

- **Governmental Activities** – The State's basic services fall under this activity including legislative, general government, regulation and protection, conservation and development, health and hospital, transportation, human services, education, corrections, and judicial. Taxes and intergovernmental revenues are major funding sources for these programs.
- **Business-type Activities** – The State operates certain activities much like private-sector companies by charging fees to cover all or most of the costs of providing goods and services. The major business-type activities of the State include the University of Connecticut and Health Center, Board of Regents (Connecticut State Universities & Community Colleges), Employment Security Fund, and Clean Water Fund.
- **Discretely Presented Component Units** – A number of entities are legally separate from the State, yet the State remains financially accountable for them. The major component units of the State are Connecticut Housing Finance Authority, Connecticut Lottery Corporation, and Connecticut Airport Authority.

### Fund Financial Statements – Report the State's Most Significant Funds

The fund financial statements beginning on page 39 provide detailed information about individual major funds, not the State as a whole. A fund is a group of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The State uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. All of the funds of the State can be divided into three categories: governmental funds, proprietary funds, and fiduciary funds.

- **Governmental Funds** – Most of the State's basic services are accounted for in governmental funds and are essentially the same functions reported as governmental activities in the government-wide financial statements. Governmental funds use the modified accrual basis of accounting, which measures the flow of current financial resources that can be converted to cash and the balances left at year-end that are available for future spending. This short-term view of the State's financial position helps determine whether the State has sufficient resources to cover expenditures for its basic services in the near future.

Because the focus of governmental funds is narrower than that of the government-wide financial statements, it is useful to compare the information presented for governmental funds with similar information presented for governmental activities in the government-wide financial statements. By doing so, readers may better understand the long-term impact of the State's near-term financing decisions. Both the governmental fund balance sheet and the governmental fund statement of revenues, expenditures, and changes in fund balance provide a reconciliation to facilitate the comparison between governmental funds and governmental activities. These reconciliations are presented on the page immediately following each governmental fund financial statement.

The State reports five individual governmental funds. Information is presented separately in the governmental fund statements for the General Fund, Debt Service Fund, Transportation Fund, Restricted Grants and Accounts

## State of Connecticut

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Fund, and Grants and Loan Programs Fund, all of which are considered major funds. Data from the other seventeen governmental funds is combined into a single, aggregated presentation. Individual fund data for each of these nonmajor governmental funds is provided in the combining statements immediately following the required supplementary information.

- **Proprietary Funds** – Proprietary funds include enterprise funds and internal service funds and account for activities that operate more like private-sector businesses and use the full accrual basis of accounting. Enterprise funds charge fees for services provided to outside customers. Enterprise funds are reported as business-type activities on the government-wide financial statements. Internal Service funds are an accounting device used to accumulate and allocate costs internally among the State's various functions. The State uses Internal Service funds to account for correction industries, information technology, and administrative services. Because these services predominately benefit governmental rather than business-type functions, they have been included within governmental activities in the government-wide financial statements.

The State reports four individual proprietary funds. Information is presented separately in the proprietary fund statements for the University of Connecticut and Health Center, Board of Regents (Connecticut State Universities & Connecticut Community Colleges), Employment Security, and Clean Water all of which are considered major funds. Data from the other enterprise funds is combined into a single, aggregated presentation. Individual fund data for all nonmajor proprietary funds is provided in the combining statements immediately following the required supplementary information.

- **Fiduciary Funds** – Fiduciary funds account for resources held by the State in a trustee or agency capacity for others. Fiduciary funds are not included in the government-wide financial statements because the resources of those funds are not available to support the State's own programs. The accounting used for fiduciary funds is much like that used for proprietary funds. The State's fiduciary activities are reported in separate Statements of Fiduciary Net Position and Changes in Fiduciary Net Position.
- **Component Units** – The government-wide financial statements report information for all component units into a single, aggregated presentation. Information is provided separately in the component unit fund statements for the Connecticut Housing Finance Authority, Connecticut Lottery, and Connecticut Airport Authority. Data from the other component units is combined into a single, aggregated presentation. Individual fund data for all other nonmajor component units is provided in the combining statements immediately following the required supplementary information.

### Reconciliation between Government-wide and Fund Statements

The financial statements include schedules on pages 41 and 43 which reconcile and explain the differences between the amounts reported for governmental activities on the government-wide statements (full accrual basis of accounting, long-term focus) with amounts reported on the governmental fund statements (modified accrual basis of accounting, short-term focus). The following are some of the major differences between the two statements.

- Capital assets and long-term debt are included on the government-wide statements, but are not reported on the governmental fund statements.
- Capital outlay spending results in capital assets on the government-wide statements, but is expenditures on the governmental fund statements.
- Bond proceeds result in liabilities on the government-wide statements, but are other financing sources on the governmental fund statements.
- Net Pension Liability and Net OPEB Obligation are included on the government-wide statements, but are not reported on the governmental fund statements.
- Certain tax revenues that are earned but not yet available are reported as revenue on the government-wide statements, but are deferred inflows of resource on the governmental fund statements.

## State of Connecticut

### Notes to the Financial Statements

The notes to the financial statements provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements can be found immediately following the component unit fund financial statements.

### Required Supplementary Information (RSI)

Following the basic financial statements are budgetary comparison schedules for major funds with legally adopted budgets. In addition, within the RSI there is a reconciliation schedule for Budgetary vs. GAAP basis of accounting. The RSI also includes information regarding the State's funding progress and employer contributions for pension and other postemployment benefits, and change in employers' net pension liability.

### Supplementary Information

The combining financial statements for the State's nonmajor governmental, nonmajor enterprise, nonmajor fiduciary funds, and nonmajor discretely presented component units.

### Statistical Section

This section provides up to ten years of financial, economic, and demographic information.

## FINANCIAL ANALYSIS OF THE GOVERNMENT AS A WHOLE

### Net Position

The combined net position deficit of the State increased \$802 million or 2.1 percent. In comparison, last year the combined net position deficit increased \$2.5 billion or 7.0 percent. The net position deficit of the State's governmental activities increased \$1.2 billion (2.8 percent) to \$45.4 billion during the current fiscal year.

### State Of Connecticut's Net Position (Expressed in Millions)

	<u>Governmental Activities</u>		<u>Business-Type Activities</u>		<u>Total Primary Government</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
<b>ASSETS</b>						
Current and Other Assets	\$ 4,074	\$ 4,674	\$ 2,477	\$ 4,166	\$ 6,551	\$ 8,840
Capital Assets	16,653	13,706	6,888	4,539	23,541	18,245
<b>Total Assets</b>	<u>20,727</u>	<u>18,380</u>	<u>9,365</u>	<u>8,705</u>	<u>30,092</u>	<u>27,085</u>
Deferred Outflows of Resources	11,183	2,656	14	12	11,197	2,668
<b>LIABILITIES</b>						
Current Liabilities	4,716	4,501	691	715	5,407	5,216
Long-term Liabilities	72,236	60,580	1,976	1,714	74,212	62,294
<b>Total Liabilities</b>	<u>76,952</u>	<u>65,081</u>	<u>2,667</u>	<u>2,429</u>	<u>79,619</u>	<u>67,510</u>
Deferred Inflows of Resources	328	83	3	19	331	102
<b>NET POSITION</b>						
Net Investment in Capital Assets	4,568	4,531	4,126	3,794	8,694	8,325
Restricted	2,888	1,977	1,018	1,090	3,906	3,067
Unrestricted	(52,826)	(50,636)	1,565	1,385	(51,261)	(49,251)
<b>Total Net Position (Deficit)</b>	<u>\$ (45,370)</u>	<u>\$ (44,128)</u>	<u>\$ 6,709</u>	<u>\$ 6,269</u>	<u>\$ (38,661)</u>	<u>\$ (37,859)</u>

Total invested in capital assets net of related debt was \$4.6 billion (buildings, roads, bridges, etc.) and \$2.9 billion was restricted for specific purposes, resulting in an unrestricted net position deficit of \$52.8 billion for governmental activities. This deficit is the result of having long-term obligations that are greater than currently available resources. The State has recorded the following outstanding long-term obligations which contributed to the deficit; a) general obligation bonds outstanding of \$18.4 billion to finance various municipal grant programs (e.g., school construction) and \$2.2 billion issued to finance a contribution to a pension trust fund, and b) other long-term obligations in the amount of \$49.0 billion, which are partially funded or not funded by the State (e.g., net pension liability and OPEB obligations and compensated absences).

## State of Connecticut

Net position of the State's business-type activities increased \$440.0 million (7.0 percent) to \$6.7 billion during the current fiscal year. Of this amount, \$4.1 billion invested in capital assets and \$1.0 billion was restricted for specific purposes, resulting in unrestricted net positions of \$1.6 billion. These resources are not available to make up for the net position deficit of the State's governmental activities. The State can only use these net positions to finance the ongoing operations of its Enterprise funds (such as the University of Connecticut and Health Center and others).

Changes in net position for the years ended June 30, 2017 and 2016 were as follows:

### State of Connecticut's Changes in Net Position (Expressed in Millions)

	<u>Governmental Activities</u>		<u>Business-Type Activities</u>		<u>Total</u>		<u>% change 17-16</u>
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	
<b>REVENUES</b>							
Program Revenues							
Charges for Services	\$ 3,038	\$ 1,998	\$ 2,887	\$ 2,820	\$ 5,925	\$ 4,818	23.0%
Operating Grants and Contributions	7,368	7,179	367	594	7,735	7,773	-0.5%
Capital Grants and Contributions	863	779	1	6	864	785	10.1%
General Revenues							
Taxes	16,141	16,204	-	-	16,141	16,204	-0.4%
Casino Gaming Payments	270	266	-	-	270	266	1.5%
Lottery Tickets	326	335	-	-	326	335	-2.7%
Other	153	207	16	13	169	220	-23.2%
<b>Total Revenues</b>	<u>28,159</u>	<u>26,968</u>	<u>3,271</u>	<u>3,433</u>	<u>31,430</u>	<u>30,401</u>	3.4%
<b>EXPENSES</b>							
Legislative	129	140	-	-	129	140	-7.9%
General Government	2,281	2,545	-	-	2,281	2,545	-10.4%
Regulation and Protection	977	968	-	-	977	968	0.9%
Conservation and Development	1,221	1,104	-	-	1,221	1,104	10.6%
Health and Hospital	2,714	2,772	-	-	2,714	2,772	-2.1%
Transportation	1,594	2,238	-	-	1,594	2,238	-28.8%
Human Services	9,470	9,116	-	-	9,470	9,116	3.9%
Education, Libraries, and Museums	5,185	5,315	-	-	5,185	5,315	-2.4%
Corrections	2,211	2,308	-	-	2,211	2,308	-4.2%
Judicial	1,074	1,135	-	-	1,074	1,135	-5.4%
Interest and Fiscal Charges	878	829	-	-	878	829	5.9%
University of Connecticut & Health Center	-	-	2,310	2,255	2,310	2,255	2.4%
Board of Regents	-	-	1,360	1,363	1,360	1,363	-0.2%
Employment Security	-	-	726	686	726	686	5.8%
Clean Water	-	-	36	38	36	38	-5.3%
Other	-	-	66	67	66	67	-1.5%
<b>Total Expenses</b>	<u>27,734</u>	<u>28,470</u>	<u>4,498</u>	<u>4,409</u>	<u>32,232</u>	<u>32,879</u>	-2.0%
Excess (Deficiency) Before Transfers	425	(1,502)	(1,227)	(976)	(802)	(2,478)	
Transfers	(1,667)	(1,746)	1,667	1,746	-	-	
<b>Increase (Decrease) in Net Position</b>	<u>(1,242)</u>	<u>(3,248)</u>	<u>440</u>	<u>770</u>	<u>(802)</u>	<u>(2,478)</u>	
Net Position (Deficit) - Beginning	(44,128)	(40,880)	6,269	5,499	(37,859)	(35,381)	
<b>Net Position (Deficit) - Ending</b>	<u>(45,370)</u>	<u>(44,128)</u>	<u>6,709</u>	<u>6,269</u>	<u>(38,661)</u>	<u>(37,859)</u>	2.1%

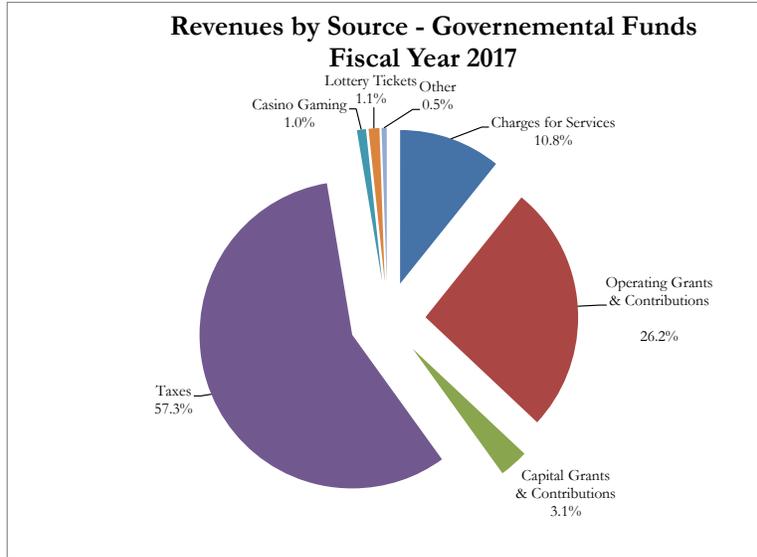
## State of Connecticut

### Changes in Net Position

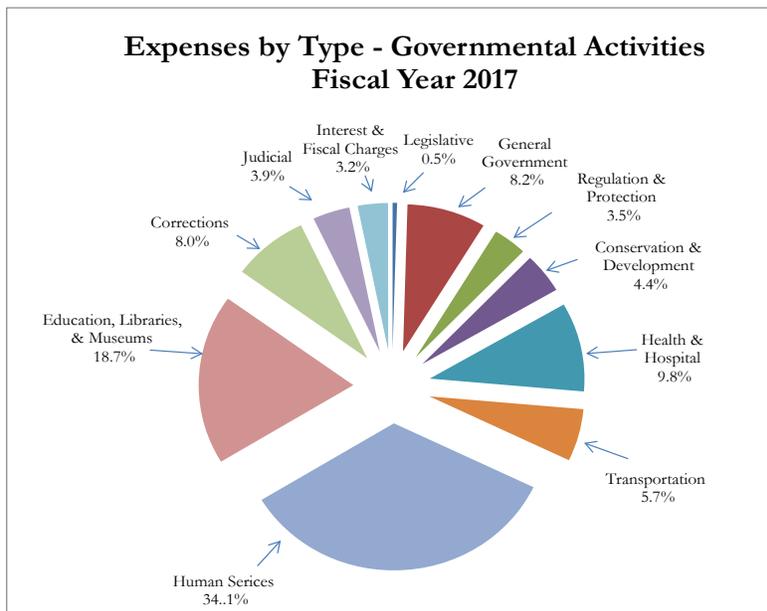
This year the State's governmental activities received 57.3 percent of its revenue from taxes and 29.3 percent of its revenues from grants and contributions. In the prior year, taxes accounted for 60.1 percent and grants and contributions were 29.5 percent of total revenues. Charges for services such as licenses, permits and fees, rents and fines, and other miscellaneous collections comprised 10.8 percent of total revenue in fiscal year 2017, compared to 7.4 percent in fiscal year 2016.

### Governmental Activities

The following graph is a representation of the Statement of Activities revenues for governmental activities. Governmental activities revenues increased by \$1.2 billion, or 4.4 percent. This increase is primarily due to an increase of \$1.0 billion from charges for services.



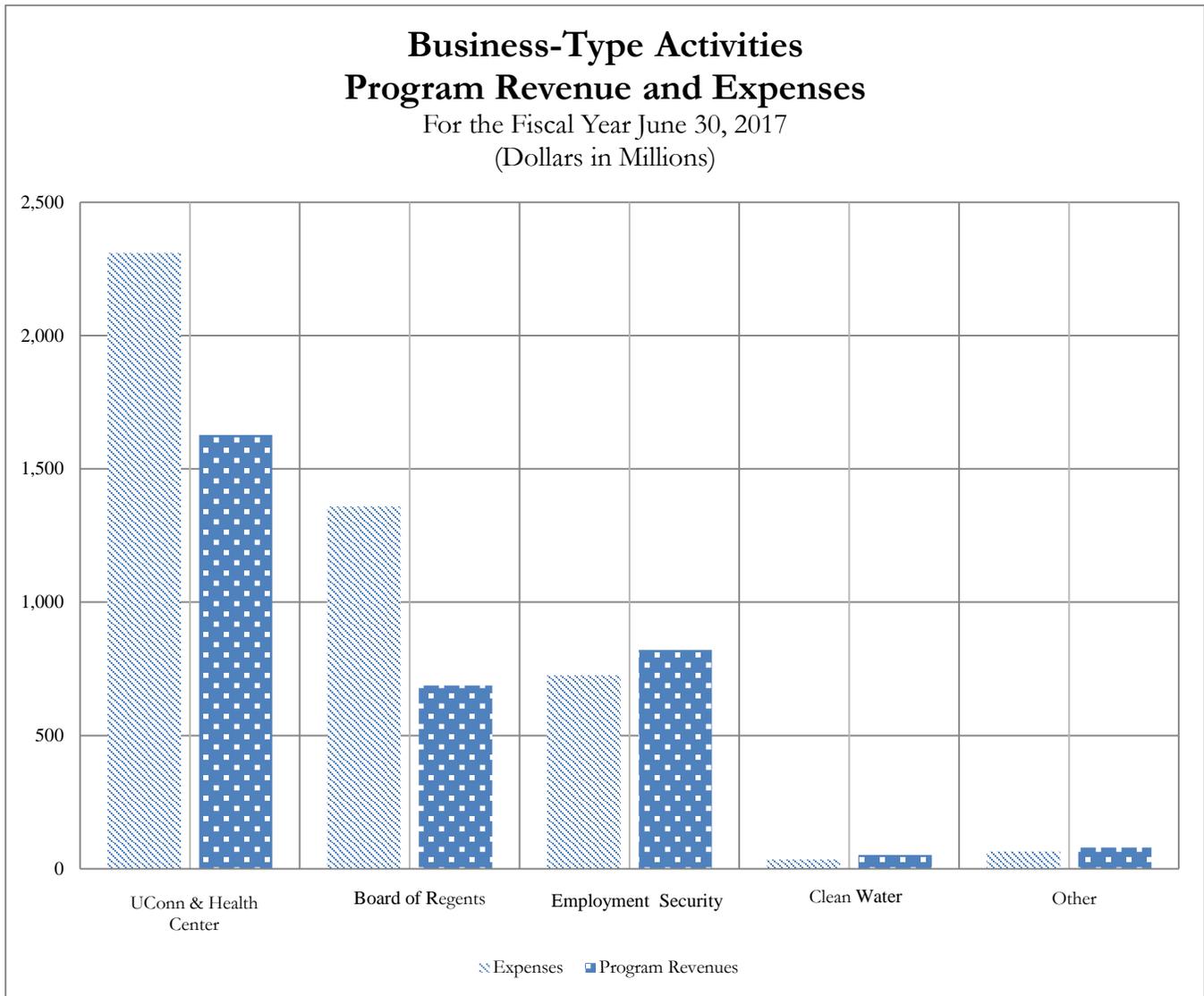
The following graph is a representation of the Statement of Activities expenses for governmental activities. Governmental activities expenses decreased by \$736 million, or 2.6 percent. The decrease is mainly attributable to decreased spending in general government.



## State of Connecticut

### Business-Type Activities

Net position of business-type activities increased by \$440 million during the fiscal year. The following chart highlights the changes in net position for the major enterprise funds.



During the year, total revenues of business-type activities decreased 4.7 percent to \$3.3 billion, while total expenses increased 2.0 percent to \$4.5 billion. In comparison, last year total revenues increased 3.0 percent, while total expenses increased 1.3 percent. The increase in total expenses of \$89 million was due mainly to an increase in University of Connecticut and Health Center expenses of \$55 million or 2.4 percent. Although, total expenses exceeded total revenues by \$1.2 billion, this deficiency was reduced by transfers of \$1,667 million, resulting in an increase in net position of \$440 million.

## State of Connecticut

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### FINANCIAL ANALYSIS OF THE STATE'S GOVERNMENTAL FUNDS

As of the end of the fiscal year, the State's governmental funds had fund balances of \$2.9 billion, an increase of \$1.0 billion over the prior year ending fund balances. Of the total governmental fund balances, \$3.2 billion represents fund balance that is considered restricted for specific purposes by external constraints or enabling legislation; \$195.6 million represents fund balance that is non-spendable; \$310.0 million represents fund balance that is committed or assigned for specific purposes. A negative \$829.7 million unassigned fund balance offsets these amounts.

#### General Fund

The General Fund is the chief operating fund of the State. At the end of the fiscal year, the General Fund had a fund balance deficit of \$494.4 million, a decrease of \$119.8 million in comparison with the prior year. Of this total fund balance, \$326.7 million represents non-spendable fund balance or committed for specific purposes, leaving a deficit of \$821.1 million in unassigned fund balance.

Specific changes to the General Fund balance included the following:

- Non-spendable fund balance increased by \$1.1 million or 2.0 percent.
- Committed fund balance decreased by \$59.0 million or 17.8 percent. There also was a statutory transfer from the Budget Reserve Fund (Rainy Day Fund) for \$22.7 million, after the transfer the fund ended the year with a balance of \$212.9 million.
- Unassigned fund balance deficit decreased by \$177.7 million.

At the end of fiscal year 2017, General Fund revenues were 1.6 percent, or \$287.1 million, higher than fiscal year 2016 revenues. This change in revenue results from increases of \$456.7 million primarily attributable to federal grants (\$134.9 million), casino gaming payments (\$4.0 million), fines, forfeits, and rents (\$174.0 million), and other revenue (\$143.8 million). These increases were offset by decreases of \$169.6 million primarily attributable to taxes (\$135.4 million), licenses, permits and fees (\$20.6 million), and other revenue (\$13.6 million).

At the end of fiscal year 2017, General Fund expenditures were 1.8 percent, or \$306.1 million, lower than fiscal year 2016. This was primarily attributable to a decrease in health & hospitals of \$532.5 million. Net other financing sources and uses increased by \$48.1 million.

#### Debt Service Fund

At the end of fiscal year 2017, the Debt Service Fund had a fund balance of \$827.1 million, all of which was restricted, an increase of \$88.9 million in comparison with the prior year.

#### Transportation Fund

The State's Transportation Fund had a fund balance of \$182.1 million at the end of fiscal 2017. Of this amount, \$26.9 million was in non-spendable form and \$155.2 million was restricted or committed for specific purposes. Fund balance decreased by \$29.7 million during the current fiscal year.

At the end of fiscal year 2017, Transportation Fund revenues increased by \$42.9 million, or 3.1 percent, and expenditures decreased by \$24.3 million, or 2.6 percent. The increased revenue is primarily due to an increase in licenses, permits, and fees.

#### Restricted Grants and Accounts Fund

At the end of fiscal year 2017, the Restricted Grants and Accounts Fund had a fund balance of \$428.1 million, all of which was restricted for specific purposes, an increase of \$230.2 million in comparison with the prior year.

Total revenues were 12.7 percent, or \$855.2 million, higher than in fiscal year 2016. Overall, total expenditures were 10.1 percent, or \$685.2 million, higher than fiscal year 2016.

#### Grant and Loan Programs

As of June 30, 2017, the Grant and Loan Programs Fund had a fund balance of \$843.3 million, all of which was restricted for specific purposes, an increase of \$153.8 million in comparison with the prior year.

## State of Connecticut

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### FINANCIAL ANALYSIS OF THE STATE'S PROPRIETARY FUNDS

Proprietary funds report activities of the State that are similar to for-profit business. Proprietary fund financial statements provide the same type of information as the government-wide financial statements, only in more detail. Accordingly, a discussion of the financial activities of the Proprietary funds is provided in that section.

### FINANCIAL ANALYSIS OF THE STATE'S FIDUCIARY FUNDS

The State maintains Fiduciary funds for the assets of Pension and Other Employee Benefit Trust funds, an Investment Trust fund, and a Private-Purpose Trust fund. The net positions of the State's Fiduciary funds totaled \$34.2 billion, an increase of \$3.3 billion when compared to the prior year ending net position.

#### **Budget Highlights-General Fund**

The State budget is formulated during odd-numbered years; the General Assembly generates a two-year (biennial) budget. The process begins with the Executive Branch, when the governor asks the commissioner of each state agency to prepare draft budgets for the following biennium. Over several months the governor's budget office, the Office of Policy and Management (OPM), compiles this information, makes changes as it sees fit, and then works to match the agencies' spending projections with revenue estimates for the same period.

The result referred to as the 'governor's budget,' is delivered to the General Assembly in a formal address by the governor in early February. The annual budget address often includes policy, initiatives, spending proposals, and vehicles through which additional revenue may be generated. In the address, the governor identifies his priorities for the biennium.

Thereafter, the legislature goes through a similar process to determine spending priorities and corresponding revenue requirements. Later in the session, the Appropriations and Finance Committees approve a budget, which is often different from the governor's. Negotiations with the governor's office reconcile the two versions and determine the final budget language and the state's fiscal path for the following two years. Lastly, the budget must be voted on and passed by both the House and Senate and signed into law by the governor.

The General Fund ended Fiscal Year 2017 with a deficit of \$22,696,231. A transfer from the Budget Reserve Fund eliminated the shortfall. The Transportation Fund had an operating deficit of \$45,225,502, which left a positive fund balance of \$97,615,054 at the close of Fiscal Year 2017.

After the transfer to the General Fund, the Budget Reserve Fund has a balance of \$212,886,689. The reserves at the beginning of Fiscal Year 2017 were \$235,582,920.

In evaluating the Fiscal Year 2017 General Fund deficit, some context may be instructive. The revised budget for FY 2017 included appropriation levels that were \$847.2 million lower than the original budget plan for FY 2017, as adopted in Public Act 15-244. The net reductions in the revised budget for FY 2017 were largely driven by underperforming revenue collections as reflected in the April 30, 2016 consensus revenue forecast, the last of FY 2016.

The revised budget for FY 2017 had a negative growth rate of -0.32 percent, comparing the revised appropriations for FY 2017 to actual FY 2016 expenditures. In the end, General Fund FY 2017 expenditures of \$17,763,039,724 came in \$100.9 million below the revised budget plan.

Overall, General Fund expenditures that are classified as fixed costs continued to grow in FY 2017. Fixed costs, as defined by Connecticut General Statutes (CGS) section 2-36(b), include categories such as entitlements, debt service, pension payments and retirement health insurance costs.

Debt service costs, including UCONN 2000 debt, grew by \$103.6 million in FY 2017 compared with the prior year, an increase of 5.7 percent. Retirement health costs rose by \$60.5 million in FY 2017, representing growth of 9.4 percent. Pension contributions, including the State Employee Retirement and Teachers' Retirement Systems, increased by \$64.5 million or 3.1 percent. Medicaid expenditures, the largest line item in the General Fund, grew by only \$16 million in FY 2017, less than one percent over FY 2016.

## State of Connecticut

Despite rising fixed costs, year-over-year expenditures declined in FY 2017 by \$158.2 million compared with FY 2016 actuals, a decline of nearly one percent. This was accomplished by more stringent cost controls applied to other types of General Fund spending. Personal services expenditures, the primary appropriation for General Fund employee salaries, decreased by \$155.3 million in FY 2017, a reduction of 6.8 percent. Position reductions in the General Fund also translated into \$32.9 million in lower costs for active employee health insurance and Social Security taxes. Other expenses, which state agencies use for a wide variety of non-salary items, decreased by \$52.4 million, a decline of 10.4 percent. Another notable reduction included General Fund block grants for higher education units, which fell by \$67.5 million or 9.5 percent.

Disappointing revenue performance led to deficit mitigation efforts in the fourth quarter of FY 2017, including allotment reductions and revenue transfers contained in Public Act 17-51. In particular, April tax collections were significantly lower than expected. For the year, Personal Income Tax receipts, the largest single General Fund revenue source, came in \$530.3 million below FY 2017 budget targets and \$193 million below FY 2016 final results. A closer look at the components of the income tax revealed that there was modest growth of 1.3 percent in the withholding portion of receipts compared with the prior year totals. However, despite a rising stock market, the estimated and final payments portion of the income tax came in well below projected levels. Collections for these more volatile components, which are related to capital gains and bonus payments, dropped by 7.8 percent compared with FY 2016. One possible explanation for this trend is that wealthy state residents may be holding off selling assets in anticipation of tax reductions at the Federal level. In addition, investors are relying more heavily on tax efficient vehicles such as Exchange Traded Fund (ETFs), which are designed to minimize taxes on capital gains.

Sales and Use Tax receipts, the second largest General Fund tax category, ended the year \$136.5 million below the budget plan. On a positive note, the Corporations Tax offset some of these revenue shortfalls by coming in \$193.8 million above target in FY 2017. The Inheritance and Estate Tax also over-performed budget projections by \$44.1 million.

### CAPITAL ASSETS AND DEBT ADMINISTRATION

#### Capital Assets

The State's investment in capital assets for its governmental and business-type activities as of June 30, 2017 totaled \$19.8 billion (net of accumulated depreciation). This investment in capital assets includes land, buildings, improvements other than buildings, equipment, infrastructure, and construction in progress. The net increase in the State's investment in capital assets for the fiscal year was \$1.6 billion.

Major capital asset events for governmental activities during the fiscal year include additions to buildings and land of \$339.9 million and depreciation expense of \$717.9 million.

The following table is a two-year comparison of the investment in capital assets presented for both governmental and business-type activities:

#### State of Connecticut's Capital Assets (Net of Depreciation, in Millions)

	Governmental Activities		Business-Type Activities		Total Primary Government	
	2017	2016	2017	2016	2017	2016
Land	\$ 1,788	\$ 1,747	\$ 69	\$ 68	\$ 1,857	1,815
Buildings	2,836	2,605	3,385	3,253	6,221	5,858
Improvements Other Than Buildings	127	141	197	184	324	325
Equipment	49	-	344	348	393	348
Infrastructure	5,096	4,613	-	-	5,096	4,613
Construction in Progress	4,988	4,545	877	686	5,865	5,231
Total	<u>\$ 14,884</u>	<u>\$ 13,651</u>	<u>\$ 4,872</u>	<u>\$ 4,539</u>	<u>\$ 19,756</u>	<u>\$ 18,190</u>

Additional information on the State's capital assets can be found in Note 9 of this report.

## State of Connecticut

### Long-Term Debt - Bonded Debt

At the end of the current fiscal year, the State had total debt outstanding of \$27.1 billion. Pursuant to various public and special acts, the State has authorized the issuance of the following types of debt: general obligation debt (payable from the General Fund), special tax obligation debt (payable from the Debt Service Fund), and revenue debt (payable from specific revenues of the Enterprise funds).

The following table is a two-year comparison of bonded debt presented for both governmental and business-type activities:

### State of Connecticut's Bonded Debt (in millions) General Obligation and Revenue Bonds

	Governmental		Business-Type		Total	
	<u>Activities</u>		<u>Activities</u>		<u>Primary Government</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
General Obligation Bonds	\$ 18,399	\$ 17,395	\$ -	\$ -	\$ 18,399	\$ 17,395
Transportation Related bonds	5,042	4,520	-	-	5,042	4,520
Revenue Bonds	-	-	1,443	1,271	1,443	1,271
Long-Term Notes	177	353	-	-	177	353
Premiums and Deferred Amounts	1,887	1,672	175	12	2,062	1,684
<b>Total</b>	<b>\$ 25,505</b>	<b>\$ 23,940</b>	<b>\$ 1,618</b>	<b>\$ 1,283</b>	<b>\$ 27,123</b>	<b>\$ 25,223</b>

The State's total bonded debt increased by \$1.9 billion (7.5 percent) during the current fiscal year. This increase resulted mainly from an increase in general obligation bonds of \$1.0 billion.

Section 3-21 of the Connecticut General Statutes provides that the total amount of bonds, notes or other evidences of indebtedness payable from General Fund tax receipts authorized by the General Assembly but have not been issued and the total amount of such indebtedness which has been issued and remains outstanding shall not exceed 1.6 times the total estimated General Fund tax receipts of the State for the current fiscal year. In computing the indebtedness at any time, revenue anticipation notes, refunded indebtedness, bond anticipation notes, tax increment financing, budget deficit bonding, revenue bonding, balances in debt retirement funds and other indebtedness pursuant to certain provisions of the General Statutes shall be excluded from the calculation. As of July 2017, the State had a debt incurring margin of \$3.6 billion.

### Other Long-Term Debt State of Connecticut Other Long - Term Debt (in Millions)

	Governmental		Business-Type		Total	
	<u>Activities</u>		<u>Activities</u>		<u>Primary Government</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Net Pension Liability	\$ 37,192	\$ 27,449	\$ -	\$ -	\$ 37,192	\$ 27,449
Net OPEB Obligation	10,450	9,928	-	-	10,450	9,928
Compensated Absences	513	511	193	190	706	701
Workers Compensation	718	684	-	-	718	684
Other	120	147	327	349	447	496
<b>Total</b>	<b>\$ 48,993</b>	<b>\$ 38,719</b>	<b>\$ 520</b>	<b>\$ 539</b>	<b>\$ 49,513</b>	<b>\$ 39,258</b>

The State's other long-term obligations increased by \$10.3 billion (26.1 percent) during the fiscal year. This increase was due mainly to an increase in the net pension liability (Governmental activities) of \$9.7 billion or 35.5 percent. Additional information on the State's long-term debt can be found in Notes 16 and 17 of this report.

## State of Connecticut

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### ECONOMIC OUTLOOK AND NEXT YEAR'S BUDGET

According to state Department of Labor (DOL) statistics, Connecticut gained 12,200 nonfarm seasonally-adjusted payroll jobs over the course of FY 2017 and had a total of 1,692,800 employed residents as of June 2017. As the fiscal year closed, unemployment stood at 5.0 percent, down one-tenth of a percent from the beginning of the fiscal year. Connecticut had recovered 82.3 percent (98,000 jobs) of the 119,100 seasonally adjusted jobs lost in the Great Recession (March 2008 to February 2010) by the end of the fiscal year.

After mixed results in calendar 2016, the housing market in Connecticut improved during the first six months of 2017. According to Berkshire Hathaway Home Services, sales and prices were up for both single family homes and condominiums in the first quarter of 2017 compared with the same period in 2016. In the second quarter of 2017, Connecticut experienced a 5.7 percent increase in sales volume year-over-year and 9.1 percent decrease in days on the market. Compared with the same period in the prior year, the median price for single family homes increased 3.1 percent and condominiums increased 3.0 percent.

During FY 2017, Connecticut's economy experienced lower levels of growth compared with past recoveries. After advancing at a 2 percent rate in the fourth quarter of 2016, Connecticut's GDP growth slowed to 0.6 percent in the first quarter of 2017, which ranked 37th among all states. Personal income was expanding in Connecticut at an annual rate of just one percent during Fiscal Year 2017. Personal income growth in the second quarter of 2017 was 0.8 percent, which ranked 22nd among U.S. states.

Despite the deep recession of 2008 and the slow pace of recovery, Connecticut continues to be a wealthy state. The Bureau of Economic Analysis reports that in 2016, Connecticut had a per capita personal income (PCPI) of \$69,311. This PCPI ranked 1st in the United States and was 141 percent of the national average of \$49,246. The 2016 PCPI reflected an increase of 1.4 percent from 2015. The 2015-2016 national change was 1.6 percent. In 2006, the PCPI of Connecticut was \$54,191 and ranked 1st in the United States. The 2006-2016 compound annual growth rate of PCPI was 2.5 percent. The compound annual growth rate for the nation was 2.6 percent.

Over the past several decades, the national economy has seen increasing wage disparity between skilled and unskilled workers. Accordingly, Connecticut's high income is partially explained by the educational achievement of its citizens. Almost 22 percent of the state's adult population has a bachelor's degree and nearly 17 percent possess a graduate degree or higher according to the U.S. Census Bureau. This puts Connecticut's national ranking at 8<sup>th</sup> and 4<sup>th</sup> respectively in the educational attainment of its adult population.

The state continues to be a leader in technology and innovation within its industries. On a per capita basis, Connecticut ranked 6<sup>th</sup> among states in research and development spending. The state ranked 8<sup>th</sup> nationally in patents granted per population. The state's principal industries today produce jet engines and parts, submarines, electronics and electrical machinery, computer equipment, and helicopters, as well as cutting-edge pharmaceuticals (Connecticut ranks 4<sup>th</sup> in the nation in bioscience patents per capita). Much of Connecticut's manufacturing is for the military.

As in many other states, Connecticut's traditional core sectors are being reshaped by national trends and global competition. Manufacturing's contribution to the state economy as measured by GDP has been cut in half over recent decades. At the end of 1990, total manufacturing payroll employment in the state posted over 290,000 jobs; at the end of 2016, that job total was just over 156,000.

Finance, insurance and real estate (FIRE) is an important industry grouping that in 2016 contributed the highest dollar amount to the state's Real Gross Domestic Product at over one quarter of the total. However, the financial crisis that caused the 2008 recession significantly reduced employment in this sector. Jobs in the financial sector remain approximately 13,000 below the 2008 pre-recession peak. These are some of the highest paying jobs within the state. Over the past ten years in Connecticut, the strongest job gains have been in industries with below average wages. The largest gains have been posted in educational services, health care and social assistance, and accommodation and food services, but wages in these sectors are about 20 percent below the statewide average.

## State of Connecticut

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Looking forward Connecticut has numerous competitive advantages and challenges in shaping its economy. As discussed in the introductory section above, Connecticut has been steadily regaining jobs that were lost to the 2008 recession. There are also indications of pay gains in many sectors. The state's labor force has the 5<sup>th</sup> highest productivity rate in the country, which should help sustain higher wages into the future. Connecticut can boast of a high quality of life in attracting and retaining businesses. Connecticut has a ranking of 5<sup>th</sup> among all states in quality of life measures with the 2<sup>nd</sup> highest median family income, the 3<sup>rd</sup> highest overall health of residents, and the 7<sup>th</sup> lowest rate of property crime.

Connecticut surely has challenges ahead in stabilizing its state budget, improving its transportation system and revitalizing its urban centers to accommodate growing preferences for urban living. Our state is well positioned to create a strong economy moving into the future. The state ranked 8<sup>th</sup> nationally in its readiness for the "New Economy", which measures knowledge jobs, globalization, the digital economy, and innovation capacity among other factors. The stability of future state budgets is dependent on this economic growth. Job growth, wage growth and capital gains have been dependable indicators of state revenue growth and the resulting budget balance.

### **CONTACTING THE STATE'S OFFICES OF FINANCIAL MANAGEMENT**

This financial report is designed to provide our citizens, taxpayers, customers, investors, and creditors with a general overview of the State's finances and to demonstrate the State's accountability for the money it receives. If you have any questions about this report, please contact the State Comptroller's Office at 1-860-702-3352.

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*GOVERNMENT-WIDE  
FINANCIAL  
STATEMENTS*

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## State of Connecticut

### STATEMENT OF NET POSITION

June 30, 2017

(Expressed in Thousands)

	Primary Government			Component Units
	Governmental Activities	Business-Type Activities	Total	
<b>Assets</b>				
Current Assets:				
Cash and Cash Equivalents	\$ 1,470,178	\$ 846,008	\$ 2,316,186	\$ 296,688
Deposits with U.S. Treasury	-	482,330	482,330	-
Investments	116,653	77,040	193,693	449,856
Receivables, (Net of Allowances)	2,679,234	646,613	3,325,847	110,001
Due from Primary Government	-	-	-	6,520
Inventories	44,378	12,572	56,950	5,937
Restricted Assets	-	142,418	142,418	1,019,300
Internal Balances	(245,277)	245,277	-	-
Other Current Assets	8,276	25,001	33,277	21,648
<b>Total Current Assets</b>	<b>4,073,442</b>	<b>2,477,259</b>	<b>6,550,701</b>	<b>1,909,950</b>
Noncurrent Assets:				
Cash and Cash Equivalents	-	528,321	528,321	-
Due From Component Units	37,910	-	37,910	-
Investments	-	58,372	58,372	208,037
Receivables, (Net of Allowances)	903,227	999,220	1,902,447	437,300
Restricted Assets	827,125	425,743	1,252,868	4,738,258
Capital Assets, (Net of Accumulated Depreciation)	14,884,431	4,872,356	19,756,787	771,013
Other Noncurrent Assets	83	3,684	3,767	63,507
<b>Total Noncurrent Assets</b>	<b>16,652,776</b>	<b>6,887,696</b>	<b>23,540,472</b>	<b>6,218,115</b>
<b>Total Assets</b>	<b>\$ 20,726,218</b>	<b>\$ 9,364,955</b>	<b>\$ 30,091,173</b>	<b>\$ 8,128,065</b>
<b>Deferred Outflows of Resources</b>				
Accumulated Decrease in Fair Value of Hedging Derivatives	\$ 826	\$ -	\$ 826	\$ 44,569
Unamortized Losses on Bond Refundings	79,122	13,819	92,941	79,527
Related to Pensions	11,103,357	-	11,103,357	84,957
Other Deferred Outflows	-	396	396	55
<b>Total Deferred Outflows of Resources</b>	<b>\$ 11,183,305</b>	<b>\$ 14,215</b>	<b>\$ 11,197,520</b>	<b>\$ 209,108</b>
<b>Liabilities</b>				
Current Liabilities:				
Accounts Payable and Accrued Liabilities	\$ 966,482	\$ 392,433	\$ 1,358,915	\$ 108,118
Due to Component Units	6,520	-	6,520	-
Due to Primary Government	-	-	-	37,910
Due to Other Governments	359,059	770	359,829	-
Current Portion of Long-Term Obligations	2,262,093	162,939	2,425,032	193,464
Amount Held for Institutions	-	-	-	216,998
Unearned Revenue	22,312	41,270	63,582	-
Medicaid Liability	632,473	-	632,473	-
Liability for Escheated Property	387,182	-	387,182	-
Other Current Liabilities	80,079	93,580	173,659	62,253
<b>Total Current Liabilities</b>	<b>4,716,200</b>	<b>690,992</b>	<b>5,407,192</b>	<b>618,743</b>
Noncurrent Liabilities:				
Non-Current Portion of Long-Term Obligations	72,235,501	1,975,649	74,211,150	5,289,968
<b>Total Noncurrent Liabilities</b>	<b>72,235,501</b>	<b>1,975,649</b>	<b>74,211,150</b>	<b>5,289,968</b>
<b>Total Liabilities</b>	<b>\$ 76,951,701</b>	<b>\$ 2,666,641</b>	<b>\$ 79,618,342</b>	<b>\$ 5,908,711</b>
<b>Deferred Inflows of Resources</b>				
Related to Pensions	\$ 327,673	\$ -	\$ 327,673	\$ 27,766
Other Deferred Inflows	-	3,338	3,338	2,000
<b>Total Deferred Inflows of Resources</b>	<b>\$ 327,673</b>	<b>\$ 3,338</b>	<b>\$ 331,011</b>	<b>\$ 29,766</b>
<b>Net Position</b>				
Net Investment in Capital Assets	\$ 4,568,371	\$ 4,126,277	\$ 8,694,648	\$ 458,330
Restricted For:				
Transportation	83,834	-	83,834	-
Debt Service	754,529	4,508	759,037	7,664
Federal Grants and Other Accounts	421,152	-	421,152	-
Capital Projects	504,776	126,207	630,983	114,613
Grant and Loan Programs	849,411	-	849,411	-
Clean Water and Drinking Water Projects	-	729,809	729,809	-
Bond Indenture Requirements	-	-	-	865,197
Loans	-	2,565	2,565	-
Permanent Investments or Endowments:				
Expendable	-	-	-	99,232
Nonexpendable	112,934	14,970	127,904	436,911
Other Purposes	161,273	139,870	301,143	108,481
Unrestricted (Deficit)	(52,826,131)	1,564,985	(51,261,146)	308,268
<b>Total Net Position (Deficit)</b>	<b>\$ (45,369,851)</b>	<b>\$ 6,709,191</b>	<b>\$ (38,660,660)</b>	<b>\$ 2,398,696</b>

The accompanying Notes to the Financial Statements are an integral part of this statement.

**State of Connecticut**

**STATEMENT OF ACTIVITIES**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

<b>Functions/Programs</b>	<b>Program Revenues</b>			
	<b>Expenses</b>	<b>Charges for Services, Fees, Fines , and Other</b>	<b>Operating Grants and Contributions</b>	<b>Capital Grants and Contributions</b>
<b>Primary Government</b>				
Governmental Activities:				
Legislative	\$ 128,659	\$ 4,144	\$ 23	\$ -
General Government	2,281,216	975,905	67,300	-
Regulation and Protection	976,521	860,719	164,789	-
Conservation and Development	1,220,870	79,620	136,339	-
Health and Hospitals	2,713,513	618,482	192,261	-
Transportation	1,593,860	90,663	-	863,002
Human Services	9,470,826	220,670	6,031,992	-
Education, Libraries, and Museums	5,185,450	43,041	620,684	-
Corrections	2,211,201	11,118	137,914	-
Judicial	1,073,970	133,588	16,580	-
Interest and Fiscal Charges	877,822	-	-	-
Total Governmental Activities	27,733,908	3,037,950	7,367,882	863,002
Business-Type Activities:				
University of Connecticut & Health Center	2,310,348	1,355,686	267,290	1,388
Board of Regents	1,360,029	628,345	58,038	-
Employment Security	725,609	799,630	21,424	-
Clean Water	36,234	35,800	8,921	-
Other	66,328	67,202	11,614	-
Total Business-Type Activities	4,498,548	2,886,663	367,287	1,388
Total Primary Government	\$ 32,232,456	\$ 5,924,613	\$ 7,735,169	\$ 864,390
<b>Component Units</b>				
Connecticut Housing Finance Authority (12/31/16)	\$ 204,781	\$ 169,992	\$ -	\$ -
Connecticut Lottery Corporation	1,221,620	1,216,393	-	-
Connecticut Airport Authority	82,733	99,187	-	7,930
Other Component Units	292,357	277,390	45	2,339
Total Component Units	\$ 1,801,491	\$ 1,762,962	\$ 45	\$ 10,269
General Revenues:				
Taxes:				
Personal Income				
Corporate Income				
Sales and Use				
Other				
Restricted for Transportation Purposes:				
Motor Fuel				
Other				
Casino Gaming Payments				
Tobacco Settlement				
Lottery Tickets				
Unrestricted Investment Earnings				
Transfers-Internal Activities				
Total General Revenues, Contributions, and Transfers				
Change in Net Position				
Net Position (Deficit)- Beginning (as restated)				
Net Position (Deficit)- Ending				

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

## State of Connecticut

### Net (Expense) Revenue and Changes in Net Position

Primary Government			
Governmental Activities	Business-Type Activities	Total	Component Units
\$ (124,492)	\$ -	\$ (124,492)	\$ -
(1,238,011)	-	(1,238,011)	-
48,987	-	48,987	-
(1,004,911)	-	(1,004,911)	-
(1,902,770)	-	(1,902,770)	-
(640,195)	-	(640,195)	-
(3,218,164)	-	(3,218,164)	-
(4,521,725)	-	(4,521,725)	-
(2,062,169)	-	(2,062,169)	-
(923,802)	-	(923,802)	-
(877,822)	-	(877,822)	-
<u>(16,465,074)</u>	<u>-</u>	<u>(16,465,074)</u>	<u>-</u>
-	(685,984)	(685,984)	-
-	(673,646)	(673,646)	-
-	95,445	95,445	-
-	8,487	8,487	-
-	12,488	12,488	-
-	<u>(1,243,210)</u>	<u>(1,243,210)</u>	<u>-</u>
<u>(16,465,074)</u>	<u>(1,243,210)</u>	<u>(17,708,284)</u>	<u>-</u>
-	-	-	(34,789)
-	-	-	(5,227)
-	-	-	24,384
-	-	-	<u>(12,583)</u>
-	-	-	<u>(28,215)</u>
8,065,612	-	8,065,612	-
828,100	-	828,100	-
4,226,788	-	4,226,788	-
2,022,836	-	2,022,836	-
907,641	-	907,641	-
90,199	-	90,199	-
269,906	-	269,906	-
123,360	-	123,360	-
326,415	-	326,415	-
29,061	16,357	45,418	74,472
<u>(1,666,956)</u>	<u>1,666,956</u>	<u>-</u>	<u>-</u>
<u>15,222,962</u>	<u>1,683,313</u>	<u>16,906,275</u>	<u>74,472</u>
(1,242,112)	440,103	(802,009)	46,257
<u>(44,127,739)</u>	<u>6,269,088</u>	<u>(37,858,651)</u>	<u>2,352,439</u>
<u>\$ (45,369,851)</u>	<u>\$ 6,709,191</u>	<u>\$ (38,660,660)</u>	<u>\$ 2,398,696</u>

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# *FUND FINANCIAL STATEMENTS*

**State of Connecticut**

**BALANCE SHEET  
GOVERNMENTAL FUNDS**

June 30, 2017

(Expressed in Thousands)

	General	Debt Service	Transportation	Restricted Grants & Accounts	Grant & Loan Programs	Other Funds	Total Governmental Funds
<b>Assets</b>							
Cash and Cash Equivalents	\$ -	\$ -	\$ 39,579	\$ 439,477	\$ 292,646	\$ 686,428	\$ 1,458,130
Investments	-	-	-	-	-	116,653	116,653
Securities Lending Collateral	-	-	-	-	-	8,094	8,094
Receivables:							
Taxes, Net of Allowances	1,380,503	-	139,358	-	-	-	1,519,861
Accounts, Net of Allowances	423,986	-	19,530	138,160	6,531	74,305	662,512
Loans, Net of Allowances	3,419	-	-	46,686	557,203	295,919	903,227
From Other Governments	21,853	-	-	464,033	-	8,822	494,708
Interest	-	1,419	236	-	-	-	1,655
Other	-	-	-	-	-	13	13
Due from Other Funds	43,672	-	1,419	270	5	279,441	324,807
Due from Component Units	36,918	-	-	992	-	-	37,910
Inventories	13,255	-	26,906	-	-	-	40,161
Restricted Assets	-	827,125	-	-	-	-	827,125
Total Assets	<u>\$ 1,923,606</u>	<u>\$ 828,544</u>	<u>\$ 227,028</u>	<u>\$ 1,089,618</u>	<u>\$ 856,385</u>	<u>\$ 1,469,675</u>	<u>\$ 6,394,856</u>
<b>Liabilities, Deferred Inflows, and Fund Balances</b>							
<b>Liabilities</b>							
Accounts Payable and Accrued Liabilities	\$ 350,217	\$ -	\$ 31,042	\$ 236,945	\$ 6,650	\$ 95,425	\$ 720,279
Due to Other Funds	356,302	1,419	-	3,360	31	204,905	566,017
Due to Component Units	-	-	-	6,520	-	-	6,520
Due to Other Governments	357,717	-	-	1,342	-	-	359,059
Unearned Revenue	10,263	-	-	-	-	12,049	22,312
Medicaid Liability	256,355	-	-	376,118	-	-	632,473
Liability For Escheated Property	387,182	-	-	-	-	-	387,182
Securities Lending Obligation	-	-	-	-	-	8,094	8,094
Other Liabilities	50,302	-	-	21,683	-	-	71,985
Total Liabilities	<u>1,768,338</u>	<u>1,419</u>	<u>31,042</u>	<u>645,968</u>	<u>6,681</u>	<u>320,473</u>	<u>2,773,921</u>
<b>Deferred Inflows of Resources</b>							
Receivables to be Collected in Future Periods	649,686	-	13,835	15,586	6,449	71,982	757,538
<b>Fund Balances</b>							
Nonspendable:							
Inventories/Long-Term Receivables	53,592	-	26,906	-	-	-	80,498
Permanent Fund Principal	-	-	-	-	-	115,072	115,072
Restricted For:							
Debt Service	-	827,125	-	-	-	-	827,125
Transportation Programs	-	-	124,856	-	-	-	124,856
Federal Grant and State Programs	-	-	-	428,064	-	-	428,064
Grants and Loans	-	-	-	-	841,956	-	841,956
Other	-	-	-	-	-	965,495	965,495
Committed For:							
Continuing Appropriations	60,237	-	30,389	-	-	-	90,626
Budget Reserve Fund	212,887	-	-	-	-	-	212,887
Assigned To:							
Grants and Loans	-	-	-	-	1,299	-	1,299
Other	-	-	-	-	-	5,207	5,207
Unassigned	(821,134)	-	-	-	-	(8,554)	(829,688)
Total Fund Balances	<u>(494,418)</u>	<u>827,125</u>	<u>182,151</u>	<u>428,064</u>	<u>843,255</u>	<u>1,077,220</u>	<u>2,863,397</u>
Total Liabilities, Deferred Inflows, and Fund Balances	<u>\$ 1,923,606</u>	<u>\$ 828,544</u>	<u>\$ 227,028</u>	<u>\$ 1,089,618</u>	<u>\$ 856,385</u>	<u>\$ 1,469,675</u>	<u>\$ 6,394,856</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**RECONCILIATION OF GOVERNMENTAL FUNDS BALANCE SHEET  
TO THE STATEMENT OF NET POSITION**

June 30, 2017

*(Expressed in Thousands)*

Total Fund Balance - Governmental Funds \$ 2,863,397

Amounts reported for governmental activities in the Statement of Net Position are different because:

**Capital assets** used in governmental activities are not financial resources and, therefore, are not reported in the funds (see Note 9). These consist of:

Cost of capital assets (excluding internal service funds)	29,942,437	
Less: Accumulated depreciation (excluding internal service funds)	<u>(15,106,922)</u>	
Net capital assets		14,835,515

**Some assets** such as receivables, are not available soon enough to pay for current current period's expenditures and thus, are offset by unavailable revenue in the governmental fund 757,538

**Deferred losses on refundings** are reported in the Statement of Net Position (to be amortized as interest expense) but are not reported in the funds. 79,122

**Deferred outflows for pensions** are reported in the Statement of Net Position but are not reported in the funds (see Note 10). 11,103,357

**Long-term debt instruments** such as bonds and notes payable, are not due and payable in the current period and, therefore, the outstanding balances are not reported in the funds (see Note 16). Also, unamortized debt premiums and interest payable are reported in the Statement of Net Position but are not reported in the funds. These balances consist of:

General obligation bonds payable	(18,398,554)	
Transportation bonds payable	(5,041,840)	
Notes payable	(177,120)	
Unamortized premiums	(1,887,084)	
Accrued interest payable	<u>(239,917)</u>	
Net long-term debt		(25,744,515)

**Other liabilities** not due and payable in the current period and, therefore, not reported in the funds (see Note 16).

Net pension liability	(37,192,071)	
Net OPEB obligation	(10,450,182)	
Obligations for worker's compensation	(718,016)	
Capital leases payable	(30,900)	
Compensated absences (excluding internal service funds)	(511,386)	
Claims and judgments payable	(51,163)	
Landfill postclosure care	<u>(36,297)</u>	
Total other liabilities		(48,990,015)

**Deferred inflows** for pensions are reported in the Statement of Net Position but are not reported in the funds (see Note 11). (327,673)

Pension related

**Internal service funds** are used by management to charge the costs of certain activities to individual funds. The assets and liabilities of the internal service funds are included in governmental activities in the Statement of Net Position. 53,423

**Total Net Position - Governmental Activities** \$ (45,369,851)

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES  
GOVERNMENTAL FUNDS**

For The Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	General	Debt Service	Transportation	Restricted Grants & Accounts	Grant & Loan Programs	Other Funds	Total Governmental Funds
<b>Revenues</b>							
Taxes	\$ 15,081,933	\$ -	\$ 997,102	\$ 2	\$ -	\$ -	\$ 16,079,037
Licenses, Permits, and Fees	272,860	-	331,109	5,239	-	88,002	697,210
Tobacco Settlement	-	-	-	-	-	123,360	123,360
Federal Grants and Aid	1,992,063	-	12,168	6,158,944	-	67,709	8,230,884
State Grants and Aid	-	-	-	-	-	-	-
Lottery Tickets	326,415	-	-	-	-	-	326,415
Charges for Services	39,146	-	64,403	-	-	1,071	104,620
Fines, Forfeits, and Rents	188,171	-	19,777	-	-	1,000	208,948
Casino Gaming Payments	269,906	-	-	-	-	-	269,906
Investment Earnings	2,332	5,670	3,001	1,406	6,523	10,129	29,061
Interest on Loans	-	-	-	-	-	26	26
Miscellaneous	328,989	34	9,214	1,445,304	25,114	148,234	1,956,889
Total Revenues	<u>18,501,815</u>	<u>5,704</u>	<u>1,436,774</u>	<u>7,610,895</u>	<u>31,637</u>	<u>439,531</u>	<u>28,026,356</u>
<b>Expenditures</b>							
Current:							
Legislative	114,809	-	-	3,512	-	24	118,345
General Government	1,047,920	-	4,583	243,776	541,834	274,813	2,112,926
Regulation and Protection	441,687	-	108,074	162,863	13,919	173,966	900,509
Conservation and Development	245,635	-	4,548	370,448	346,383	162,843	1,129,857
Health and Hospitals	1,696,573	-	-	797,531	79,303	44,712	2,618,119
Transportation	-	-	800,933	746,400	26,441	-	1,573,774
Human Services	4,402,146	-	2,371	4,371,066	2,747	3,552	8,781,882
Education, Libraries, and Museums	4,194,885	-	-	581,632	22,757	2,856	4,802,130
Corrections	2,018,674	-	-	22,497	1,550	2,103	2,044,824
Judicial	918,746	-	-	24,356	-	49,331	992,433
Capital Projects	-	-	-	-	-	998,917	998,917
Debt Service:							
Principal Retirement	1,466,316	270,550	530	-	-	-	1,737,396
Interest and Fiscal Charges	590,212	232,842	627	175,560	3,167	7,377	1,009,785
Total Expenditures	<u>17,137,603</u>	<u>503,392</u>	<u>921,666</u>	<u>7,499,641</u>	<u>1,038,101</u>	<u>1,720,494</u>	<u>28,820,897</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>1,364,212</u>	<u>(497,688)</u>	<u>515,108</u>	<u>111,254</u>	<u>(1,006,464)</u>	<u>(1,280,963)</u>	<u>(794,541)</u>
<b>Other Financing Sources (Uses)</b>							
Bonds Issued	-	-	-	-	1,159,573	1,951,627	3,111,200
Premiums on Bonds Issued	-	60,565	-	-	95,248	271,511	427,324
Transfers In	393,645	592,966	6,430	177,420	-	259,864	1,430,325
Transfers Out	(1,640,595)	(7,294)	(548,532)	(58,494)	(94,549)	(745,567)	(3,095,031)
Refunding Bonds Issued	-	761,545	-	-	-	-	761,545
Payment to Refunded Bond Escrow Agent	(499)	(821,209)	-	-	-	-	(821,708)
Capital Lease Obligations	4,174	-	-	-	-	-	4,174
Total Other Financing Sources (Uses)	<u>(1,243,275)</u>	<u>586,573</u>	<u>(542,102)</u>	<u>118,926</u>	<u>1,160,272</u>	<u>1,737,435</u>	<u>1,817,829</u>
Net Change in Fund Balances	<u>120,937</u>	<u>88,885</u>	<u>(26,994)</u>	<u>230,180</u>	<u>153,808</u>	<u>456,472</u>	<u>1,023,288</u>
Fund Balances (Deficit) - Beginning	(614,189)	738,240	211,890	197,884	689,447	620,748	1,844,020
Change in Reserve for Inventories	(1,166)	-	(2,745)	-	-	-	(3,911)
Fund Balances (Deficit) - Ending	<u>\$ (494,418)</u>	<u>\$ 827,125</u>	<u>\$ 182,151</u>	<u>\$ 428,064</u>	<u>\$ 843,255</u>	<u>\$ 1,077,220</u>	<u>\$ 2,863,397</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**RECONCILIATION OF THE STATEMENT OF REVENUES, EXPENDITURES,  
AND CHANGES IN FUND BALANCES OF GOVERNMENTAL FUNDS TO THE  
STATEMENT OF ACTIVITIES**

For the Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

Net change in fund balances - total governmental funds \$ 1,023,288

Amounts reported for governmental activities in the Statement of Activities are different because:

**Long-term debt** proceeds provide current financial resources to governmental funds, while the repayment of the related debt principal consumes those financial resources. These transactions, however, have no effect on net position. Also, governmental funds report the effect of premiums and similar items when debt is first issued, whereas these amounts are deferred and amortized in the Statement of Activities. In the current period, these amounts consist of

Debt issued or incurred:			
Bonds issued	(3,111,200)		
Refunding bonds issued	(761,545)		
Premium on bonds issued	(427,324)		
Principal repayment:			
Principal Retirement	1,736,668		
Payments to refunded bond escrow agent	821,708		
Capital lease payments	5,788		
Net debt adjustments			(1,735,905)

**Some capital assets** acquired this year were financed with capital leases. The amount financed by leases is reported in the governmental funds as a source of financing, but lease obligations are reported as long-term liabilities on the Statement of Activities

(4,346)

**Capital outlays** are reported as expenditures in the governmental funds. However, in the Statement of Activities the cost of those assets is allocated over their estimated useful lives and reported as depreciation expense. In the current period, these amounts and other reductions were as follows:

Capital outlays (including construction-in-progress)	1,930,500		
Depreciation expense (excluding internal service funds)	(709,388)		
Retirements	(36,131)		
Net capital outlay adjustments			1,184,981

**Inventories** are reported as expenditures in the governmental funds when purchased. However, in the Statement of Activities the cost of these assets is recognized when those assets are consumed. This is the amount by which purchases exceeded consumption of inventories.

(3,911)

**Some expenses** reported in the Statement of Activities do not require the use of current financial resources and therefore are not recognized in the funds. In the current period, the net adjustments consist of:

Increase in accrued interest	(33,374)		
Increase in interest accreted on capital appreciation debt	(17,945)		
Amortization of bond premium	195,037		
Amortization of loss on debt refundings	(17,676)		
Increase in Net OPEB obligation	(522,231)		
Increase in compensated absences	(1,528)		
Increase in workers compensation	(33,615)		
Decrease in claims and judgments	11,686		
Decrease in landfill postclosure cost	13,136		
Increase in pension liability	(9,732,099)		
Increase in deferred outflows related to pensions	8,219,049		
Increase in employer contributions subsequent to the NPL measurement date	81,476		
Net expense accruals			(1,838,084)

**Some revenues** in the Statement of Activities do not provide current financial resources and, therefore, are deferred inflows of resources in the funds. Also, revenues related to prior periods that became available during the current period are reported in the funds but are eliminated in the Statement of Activities. This amount is the net adjustment.

132,396

**Internal service funds** are used by management to charge the costs of certain activities, to individual funds. The net revenues (expenses) of internal service funds are included with governmental activities in the Statement of Activities.

(531)

Change in net position - governmental activities \$ (1,242,112)

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

## State of Connecticut

### STATEMENT OF NET POSITION PROPRIETARY FUNDS

June 30, 2017

(Expressed in Thousands)

	Business-Type Activities						Governmental
	Enterprise Funds						Activities
	University of Connecticut & Health Center	Board of Regents	Employment Security	Clean Water	Other Funds	Total	Internal Service Funds
<b>Assets</b>							
Current Assets:							
Cash and Cash Equivalents	\$ 472,988	\$ 317,861	\$ 2,200	\$ 4,651	\$ 48,308	\$ 846,008	\$ 12,048
Deposits with U.S. Treasury	-	-	482,330	-	-	482,330	-
Investments	660	76,380	-	-	-	77,040	-
Receivables:							
Accounts, Net of Allowances	143,250	35,836	187,659	-	7,971	374,716	106
Loans, Net of Allowances	2,293	3,627	-	232,648	18,346	256,914	-
Interest	-	-	-	6,372	251	6,623	-
From Other Governments	-	2,654	5,103	-	603	8,360	-
Due from Other Funds	126,793	143,069	856	-	-	270,718	4,980
Inventories	12,572	-	-	-	-	12,572	4,217
Restricted Assets	142,418	-	-	-	-	142,418	-
Other Current Assets	16,718	8,258	-	-	25	25,001	182
Total Current Assets	<u>917,692</u>	<u>587,685</u>	<u>678,148</u>	<u>243,671</u>	<u>75,504</u>	<u>2,502,700</u>	<u>21,533</u>
Noncurrent Assets:							
Cash and Cash Equivalents	-	141,185	-	300,752	86,384	528,321	-
Investments	15,045	34,456	-	8,871	-	58,372	-
Receivables:							
Loans, Net of Allowances	10,591	8,112	-	850,707	129,810	999,220	-
Restricted Assets	1,199	-	-	329,691	94,853	425,743	-
Capital Assets, Net of Accumulated Depreciation	2,934,513	1,913,030	-	-	24,813	4,872,356	48,916
Other Noncurrent Assets	2,981	414	-	-	289	3,684	83
Total Noncurrent Assets	<u>2,964,329</u>	<u>2,097,197</u>	<u>-</u>	<u>1,490,021</u>	<u>336,149</u>	<u>6,887,696</u>	<u>48,999</u>
Total Assets	<u>\$ 3,882,021</u>	<u>\$ 2,684,882</u>	<u>\$ 678,148</u>	<u>\$ 1,733,692</u>	<u>\$ 411,653</u>	<u>\$ 9,390,396</u>	<u>\$ 70,532</u>
<b>Deferred Outflows of Resources</b>							
Unamortized Losses on Bond Refundings	\$ 4,431	\$ -	\$ -	\$ 9,186	\$ 202	\$ 13,819	\$ -
Other Deferred Outflows	-	396	-	-	-	396	-
Total Deferred Outflows of Resources	<u>\$ 4,431</u>	<u>\$ 396</u>	<u>\$ -</u>	<u>\$ 9,186</u>	<u>\$ 202</u>	<u>\$ 14,215</u>	<u>\$ -</u>
<b>Liabilities</b>							
Current Liabilities:							
Accounts Payable and Accrued Liabilities	\$ 250,411	\$ 117,588	\$ 2,432	\$ 10,478	\$ 11,524	\$ 392,433	\$ 2,023
Due to Other Funds	20,904	4,098	439	-	-	25,441	12,931
Due to Other Governments	-	-	770	-	-	770	-
Current Portion of Long-Term Obligations	70,684	28,259	-	53,891	10,105	162,939	89
Unearned Revenue	-	41,270	-	-	-	41,270	-
Other Current Liabilities	85,417	8,163	-	-	-	93,580	-
Total Current Liabilities	<u>427,416</u>	<u>199,378</u>	<u>3,641</u>	<u>64,369</u>	<u>21,629</u>	<u>716,433</u>	<u>15,043</u>
Noncurrent Liabilities:							
Noncurrent Portion of Long-Term Obligations	428,201	442,197	-	920,450	184,801	1,975,649	2,066
Total Noncurrent Liabilities	<u>428,201</u>	<u>442,197</u>	<u>-</u>	<u>920,450</u>	<u>184,801</u>	<u>1,975,649</u>	<u>2,066</u>
Total Liabilities	<u>\$ 855,617</u>	<u>\$ 641,575</u>	<u>\$ 3,641</u>	<u>\$ 984,819</u>	<u>\$ 206,430</u>	<u>\$ 2,692,082</u>	<u>\$ 17,109</u>
<b>Deferred Inflows of Resources</b>							
Other Deferred Inflows	\$ 3,338	\$ -	\$ -	\$ -	\$ -	\$ 3,338	\$ -
Total Deferred Inflows of Resources	<u>\$ 3,338</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 3,338</u>	<u>\$ -</u>
<b>Net Position (Deficit)</b>							
Net Investment in Capital Assets	\$ 2,380,794	\$ 1,748,685	\$ -	\$ -	\$ (3,202)	\$ 4,126,277	\$ 48,998
Restricted For:							
Debt Service	-	-	-	-	4,508	4,508	-
Clean and Drinking Water Projects	-	-	-	577,031	152,778	729,809	-
Capital Projects	126,207	-	-	-	-	126,207	-
Nonexpendable Purposes	14,483	487	-	-	-	14,970	-
Loans	2,565	-	-	-	-	2,565	-
Other Purposes	34,119	105,751	-	-	-	139,870	-
Unrestricted (Deficit)	469,329	188,780	674,507	181,028	51,341	1,564,985	4,425
Total Net Position	<u>\$ 3,027,497</u>	<u>\$ 2,043,703</u>	<u>\$ 674,507</u>	<u>\$ 758,059</u>	<u>\$ 205,425</u>	<u>\$ 6,709,191</u>	<u>\$ 53,423</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET POSITION  
PROPRIETARY FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	Business-Type Activities					Governmental Activities	
	Enterprise Funds						
	University of Connecticut & Health Center	Board of Regents	Employment Security	Clean Water	Other Funds		Totals
<b>Operating Revenues</b>							
Charges for Sales and Services (Net of allowances & discounts \$231,420)	\$ 1,158,573	\$ 483,777	\$ -	\$ -	\$ 27,211	\$ 1,669,561	\$ 53,578
Assessments	-	-	784,745	-	36,299	821,044	-
Federal Grants, Contracts, and Other Aid	184,334	22,560	7,539	-	-	214,433	-
State Grants, Contracts, and Other Aid	25,942	26,211	13,885	-	-	66,038	-
Private Gifts and Grants	57,014	9,267	-	-	-	66,281	-
Interest on Loans	-	-	-	23,361	2,944	26,305	-
Other	103,033	27,143	14,885	-	748	145,809	109
Total Operating Revenues	<u>1,528,896</u>	<u>568,958</u>	<u>821,054</u>	<u>23,361</u>	<u>67,202</u>	<u>3,009,471</u>	<u>53,687</u>
<b>Operating Expenses</b>							
Salaries, Wages, and Administrative	2,086,905	1,222,393	-	579	19,666	3,329,543	34,056
Unemployment Compensation	-	-	725,609	-	-	725,609	-
Claims Paid	-	-	-	-	26,216	26,216	-
Depreciation and Amortization	156,853	95,409	-	-	1,127	253,389	17,890
Other	56,376	31,048	-	-	1,744	89,168	-
Total Operating Expenses	<u>2,300,134</u>	<u>1,348,850</u>	<u>725,609</u>	<u>579</u>	<u>48,753</u>	<u>4,423,925</u>	<u>51,946</u>
Operating Income (Loss)	<u>(771,238)</u>	<u>(779,892)</u>	<u>95,445</u>	<u>22,782</u>	<u>18,449</u>	<u>(1,414,454)</u>	<u>1,741</u>
<b>Nonoperating Revenue (Expenses)</b>							
Interest and Investment Income	3,100	3,852	-	8,097	1,308	16,357	440
Interest and Fiscal Charges	(10,214)	(11,179)	-	(35,655)	(5,870)	(62,918)	-
Other - Net	94,080	117,425	-	12,439	(11,705)	212,239	(462)
Total Nonoperating Revenues (Expenses)	<u>86,966</u>	<u>110,098</u>	<u>-</u>	<u>(15,119)</u>	<u>(16,267)</u>	<u>165,678</u>	<u>(22)</u>
Income (Loss) Before Capital Contributions, Grants, and Transfers	<u>(684,272)</u>	<u>(669,794)</u>	<u>95,445</u>	<u>7,663</u>	<u>2,182</u>	<u>(1,248,776)</u>	<u>1,719</u>
Capital Contributions	1,388	-	-	-	-	1,388	-
Federal Capitalization Grants	-	-	-	8,921	11,614	20,535	-
Transfers In	1,002,324	674,660	-	674	-	1,677,658	-
Transfers Out	-	-	(10,176)	-	(526)	(10,702)	(2,250)
Change in Net Position	319,440	4,866	85,269	17,258	13,270	440,103	(531)
Total Net Position (Deficit) - Beginning	<u>2,708,057</u>	<u>2,038,837</u>	<u>589,238</u>	<u>740,801</u>	<u>192,155</u>	<u>6,269,088</u>	<u>53,954</u>
Total Net Position (Deficit) - Ending	<u>\$ 3,027,497</u>	<u>\$ 2,043,703</u>	<u>\$ 674,507</u>	<u>\$ 758,059</u>	<u>\$ 205,425</u>	<u>\$ 6,709,191</u>	<u>\$ 53,423</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF CASH FLOWS  
PROPRIETARY FUNDS**

For the Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	Business-Type Activities					Totals	Governmental
	Enterprise Funds						Activities
	University of Connecticut & Health Center	Board of Regents	Employment Security	Clean Water	Other		Internal Service Funds
<b>Cash Flows from Operating Activities</b>							
Receipts from Customers	\$ 1,167,664	\$ 473,693	\$ 796,894	\$102,726	\$76,068	\$ 2,617,045	\$ 53,931
Payments to Suppliers	(644,599)	(279,864)	-	-	(7,933)	(932,396)	(30,241)
Payments to Employees	(1,450,375)	(911,507)	-	(532)	(12,806)	(2,375,220)	(10,573)
Other Receipts (Payments)	392,898	45,340	(787,855)	(115,470)	(52,643)	(517,730)	138
Net Cash Provided by (Used in) Operating Activities	(534,412)	(672,338)	9,039	(13,276)	2,686	(1,208,301)	13,255
<b>Cash Flows from Noncapital Financing Activities</b>							
Proceeds from Sale of Bonds	27,479	-	-	363,345	49,503	440,327	-
Retirement of Bonds and Annuities Payable	-	-	-	(61,232)	(9,233)	(70,465)	-
Interest on Bonds and Annuities Payable	-	-	-	(32,628)	(6,121)	(38,749)	-
Transfers In	511,205	574,562	-	674	-	1,086,441	-
Transfers Out	-	-	(10,176)	-	(526)	(10,702)	(2,250)
Other Receipts (Payments)	28,227	127,359	(9,122)	(123,126)	(3,401)	19,937	(462)
Net Cash Flows from Noncapital Financing Activities	566,911	701,921	(19,298)	147,033	30,222	1,426,789	(2,712)
<b>Cash Flows from Capital and Related Financing Activities</b>							
Additions to Property, Plant, and Equipment	(455,704)	(68,154)	-	-	-	(523,858)	(11,437)
Proceeds from Capital Debt	322,521	82,293	-	-	-	404,814	-
Principal Paid on Capital Debt	(90,618)	(7,493)	-	-	-	(98,111)	-
Interest Paid on Capital Debt	(50,552)	(13,467)	-	-	-	(64,019)	-
Transfer In	225,603	148,618	-	-	-	374,221	-
Federal Grant	-	-	-	8,921	(93)	8,828	-
Other Receipts (Payments)	54,191	(104,458)	-	-	11,000	(39,267)	-
Net Cash Flows from Capital and Related Financing Activities	5,441	37,339	-	8,921	10,907	62,608	(11,437)
<b>Cash Flows from Investing Activities</b>							
Proceeds from Sales and Maturities of Investments	-	78,300	-	-	-	78,300	-
Purchase of Investment Securities	(1,171)	(124,355)	-	-	-	(125,526)	-
Interest on Investments	2,559	3,581	8,432	8,484	1,315	24,371	440
(Increase) Decrease in Restricted Assets	-	-	-	(130,586)	-	(130,586)	-
Other Receipts (Payments)	-	-	-	(22,557)	(44,399)	(66,956)	-
Net Cash Flows from Investing Activities	1,388	(42,474)	8,432	(144,659)	(43,084)	(220,397)	440
Net Increase (Decrease) in Cash and Cash Equivalents	39,328	24,448	(1,827)	(1,981)	731	60,699	(454)
Cash and Cash Equivalents - Beginning of Year	577,277	434,598	4,027	6,632	47,577	1,070,111	12,502
Cash and Cash Equivalents - End of Year	\$ 616,605	\$ 459,046	\$ 2,200	\$ 4,651	\$48,308	\$ 1,130,810	\$ 12,048
<b>Reconciliation of Operating Income (Loss) to Net Cash Provided by (Used In) Operating Activities</b>							
Operating Income (Loss)	\$ (771,238)	\$ (779,892)	\$ 95,445	\$ 22,782	\$18,449	\$ (1,414,454)	\$ 1,741
Adjustments not Affecting Cash:							
Depreciation and Amortization	208,786	94,688	-	-	1,127	304,601	17,890
Other	124,703	(7,290)	-	-	-	117,413	-
Change in Assets and Liabilities:							
(Increase) Decrease in Receivables, Net	(331)	664	(91,610)	(36,058)	(243)	(127,578)	153
(Increase) Decrease in Due from Other Funds	-	571	3,590	-	-	4,161	200
(Increase) Decrease in Inventories and Other Assets	(1,989)	(1,019)	-	-	(16,040)	(19,048)	29
Increase (Decrease) in Accounts Payables & Accrued Liabilities	(94,343)	19,940	1,756	-	(607)	(73,254)	(6,758)
Increase (Decrease) in Due to Other Funds	-	-	(142)	-	-	(142)	-
Total Adjustments	236,826	107,554	(86,406)	(36,058)	(15,763)	206,153	11,514
Net Cash Provided by (Used In) Operating Activities	\$ (534,412)	\$ (672,338)	\$ 9,039	\$ (13,276)	\$ 2,686	\$ (1,208,301)	\$ 13,255
<b>Reconciliation of Cash and Cash Equivalents to the Statement of Net Assets</b>							
Cash and Cash Equivalents - Current	\$ 472,988	\$ 317,861					
Cash and Cash Equivalents - Noncurrent	-	141,185					
Cash and Cash Equivalents - Restricted	143,617	-					
	\$ 616,605	\$ 459,046					
<b>Noncash Investing, Capital, and Financing Activities:</b>							
Proceeds from refunding bonds	\$ 36,960	\$ -					
Amortization of Premiums, Discounts, and net loss on debt refunding's	13,018	-					
Mortgage Proceeds held by Trustee in construction escrow	2,315	-					
Accruals of expenses related to construction in progress	164	5,253					
Equipment acquired by capital lease	2,492	955					
	\$ 54,949	\$ 6,208					

The accompanying Notes to the Financial Statements are an integral part of this statement.

**State of Connecticut**

**STATEMENT OF FIDUCIARY NET POSITION  
FIDUCIARY FUNDS**

June 30, 2017

*(Expressed in Thousands)*

	<u>Pension &amp; Other Employee Benefit Trust Funds</u>	<u>Investment Trust Fund External Investment Pool</u>	<u>Private- Purpose Trust Fund Escheat Securities</u>	<u>Agency Funds</u>	<u>Total</u>
<b>Assets</b>					
Current:					
Cash and Cash Equivalents	\$ 85,835	\$ -	\$ -	\$ 198,844	\$ 284,679
Receivables:					
Accounts, Net of Allowances	49,150	-	-	10,388	59,538
From Other Governments	580	-	-	-	580
From Other Funds	2,004	-	-	4,149	6,153
Interest	3,017	949	-	69	4,035
Investments (See Note 3)	32,432,137	1,382,076	-	-	33,814,213
Securities Lending Collateral	2,012,619	-	-	-	2,012,619
Other Assets	-	65	1,829	331,635	333,529
Noncurrent:					
Due From Employers	273,875	-	-	-	273,875
Total Assets	<u>\$ 34,859,217</u>	<u>\$ 1,383,090</u>	<u>\$ 1,829</u>	<u>\$ 545,085</u>	<u>\$ 36,789,221</u>
<b>Liabilities</b>					
Accounts Payable and Accrued Liabilities	\$ 49,243	\$ 980	\$ -	\$ 56,589	106,812
Securities Lending Obligation	2,012,619	-	-	-	2,012,619
Due to Other Funds	1,890	-	-	379	2,269
Funds Held for Others	-	-	-	488,117	488,117
Total Liabilities	<u>\$ 2,063,752</u>	<u>\$ 980</u>	<u>\$ -</u>	<u>\$ 545,085</u>	<u>\$ 2,609,817</u>
<b>Net Position</b>					
Restricted for:					
Pension Benefits	\$ 32,157,234	\$ -	\$ -	-	\$ 32,157,234
Other Postemployment Benefits	638,230	-	-	-	638,230
Pool Participants	-	1,382,110	-	-	1,382,110
Individuals, Organizations, and Other Governments	-	-	1,829	-	1,829
Total Net Position	<u>\$ 32,795,464</u>	<u>\$ 1,382,110</u>	<u>\$ 1,829</u>	<u>\$ -</u>	<u>\$ 34,179,403</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FIDUCIARY FUNDS**

For the Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<b>Pension &amp; Other Employee Benefit <u>Trust Funds</u></b>	<b>Investment <u>Trust Fund</u> External <u>Investment Pool</u></b>	<b>Private- Purpose <u>Trust Fund</u> Escheat <u>Securities</u></b>	<b><u>Total</u></b>
<b>Additions</b>				
Contributions:				
Plan Members	\$ 674,496	\$ -	\$ -	\$ 674,496
State	3,260,947	-	-	3,260,947
Municipalities	70,452	-	-	70,452
Total Contributions	<u>4,005,895</u>	<u>-</u>	<u>-</u>	<u>4,005,895</u>
Investment Income	4,182,031	154,758	-	4,336,789
Less: Investment Expense	(95,067)	(7,015)	-	(102,082)
Net Investment Income	<u>4,086,964</u>	<u>147,743</u>	<u>-</u>	<u>4,234,707</u>
Escheat Securities Received	-	-	31,141	31,141
Pool's Share Transactions	-	4,636	-	4,636
Other	3,716	-	-	3,716
Total Additions	<u>8,096,575</u>	<u>152,379</u>	<u>31,141</u>	<u>8,280,095</u>
<b>Deductions</b>				
Administrative Expense	6,358	-	-	6,358
Benefit Payments and Refunds	4,775,482	-	-	4,775,482
Escheat Securities Returned or Sold	-	-	28,946	28,946
Distributions to Pool Participants	-	147,743	-	147,743
Other	597	-	4,132	4,729
Total Deductions	<u>4,782,437</u>	<u>147,743</u>	<u>33,078</u>	<u>4,963,258</u>
Change in Net Position Held In Trust For:				
Pension and Other Employee Benefits	3,314,138	-	-	3,314,138
Individuals, Organizations, and Other Governments	-	4,636	(1,937)	2,699
Net Position - Beginning	<u>29,481,326</u>	<u>1,377,474</u>	<u>3,766</u>	<u>30,862,566</u>
Net Position - Ending	<u>\$ 32,795,464</u>	<u>\$ 1,382,110</u>	<u>\$ 1,829</u>	<u>\$ 34,179,403</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

## State of Connecticut

### STATEMENT OF NET POSITION COMPONENT UNITS

June 30, 2017

(Expressed in Thousands)

Assets	Connecticut Housing Finance Authority (12-31-16)	Connecticut Lottery Corporation	Connecticut Airport Authority	Other Component Units	Total
<b>Current Assets:</b>					
Cash and Cash Equivalents	\$ -	\$ 19,245	\$ 95,829	\$ 181,614	\$ 296,688
Investments	-	5,651	-	444,205	449,856
<b>Receivables:</b>					
Accounts, Net of Allowances	-	27,354	7,654	41,023	76,031
Loans, Net of Allowances	-	-	-	25,891	25,891
Other	-	1,458	-	1,203	2,661
Due From Other Governments	-	-	5,418	-	5,418
Due From Primary Government	-	-	6,417	103	6,520
Restricted Assets	717,075	-	3,215	299,010	1,019,300
Inventories	-	-	-	5,937	5,937
Other Current Assets	-	4,646	-	17,002	21,648
Total Current Assets	<u>717,075</u>	<u>58,354</u>	<u>118,533</u>	<u>1,015,988</u>	<u>1,909,950</u>
<b>Noncurrent Assets:</b>					
Investments	-	119,050	-	88,987	208,037
Accounts, Net of Allowances	-	-	-	34,335	34,335
Loans, Net of Allowances	-	-	-	402,965	402,965
Restricted Assets	4,525,032	-	121,164	92,062	4,738,258
Capital Assets, Net of Accumulated Depreciation	3,567	865	318,957	447,624	771,013
Other Noncurrent Assets	-	6,680	-	56,827	63,507
Total Noncurrent Assets	<u>4,528,599</u>	<u>126,595</u>	<u>440,121</u>	<u>1,122,800</u>	<u>6,218,115</u>
Total Assets	<u>\$ 5,245,674</u>	<u>\$ 184,949</u>	<u>\$ 558,654</u>	<u>\$ 2,138,788</u>	<u>\$ 8,128,065</u>
<b>Deferred Outflows of Resources</b>					
Accumulated Decrease in Fair Value of Hedging Derivatives	\$ 28,305	\$ -	\$ 16,264	\$ -	\$ 44,569
Unamortized Losses on Bond Refundings	77,774	-	1,753	-	79,527
Related to Pensions	25,240	17,674	22,777	19,266	84,957
Other	-	-	-	55	55
Total Deferred Outflows of Resources	<u>\$ 131,319</u>	<u>\$ 17,674</u>	<u>\$ 40,794</u>	<u>\$ 19,321</u>	<u>\$ 209,108</u>
<b>Liabilities</b>					
<b>Current Liabilities:</b>					
Accounts Payable and Accrued Liabilities	\$ 23,252	\$ 9,400	\$ 16,587	\$ 58,879	\$ 108,118
Current Portion of Long-Term Obligations	162,942	6,384	6,960	17,178	193,464
Due To Primary Government	-	-	992	36,918	37,910
Amount Held for Institutions	-	-	-	216,998	216,998
Other Liabilities	-	32,171	6,306	23,776	62,253
Total Current Liabilities	<u>186,194</u>	<u>47,955</u>	<u>30,845</u>	<u>353,749</u>	<u>618,743</u>
<b>Noncurrent Liabilities:</b>					
Pension Liability	69,628	55,669	74,542	53,625	253,464
Noncurrent Portion of Long-Term Obligations	4,241,675	119,515	125,595	549,719	5,036,504
Total Noncurrent Liabilities	<u>4,311,303</u>	<u>175,184</u>	<u>200,137</u>	<u>603,344</u>	<u>5,289,968</u>
Total Liabilities	<u>\$ 4,497,497</u>	<u>\$ 223,139</u>	<u>\$ 230,982</u>	<u>\$ 957,093</u>	<u>\$ 5,908,711</u>
<b>Other Deferred Inflows</b>					
Related to Pensions	\$ 12,834	\$ 3,991	\$ 4,266	\$ 6,675	\$ 27,766
Other Deferred Inflows	-	-	-	2,000	2,000
Total Deferred Inflows of Resources	<u>\$ 12,834</u>	<u>\$ 3,991</u>	<u>\$ 4,266</u>	<u>\$ 8,675</u>	<u>\$ 29,766</u>
<b>Net Position</b>					
Net Investment in Capital Assets	\$ 3,567	\$ 865	\$ 200,260	\$ 253,638	\$ 458,330
<b>Restricted:</b>					
Debt Service	-	-	7,664	-	7,664
Bond Indentures	863,095	-	2,102	-	865,197
Expendable Endowments	-	-	-	99,232	99,232
Nonexpendable Endowments	-	-	-	436,911	436,911
Capital Projects	-	-	114,613	-	114,613
Other Purposes	-	-	-	108,481	108,481
Unrestricted (Deficit)	-	(25,372)	39,561	294,079	308,268
Total Net Position	<u>\$ 866,662</u>	<u>\$ (24,507)</u>	<u>\$ 364,200</u>	<u>\$ 1,192,341</u>	<u>\$ 2,398,696</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF ACTIVITIES  
COMPONENT UNITS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

<u>Functions/Programs</u>	<u>Expenses</u>	<u>Program Revenues</u>		
		<u>Charges for Services</u>	<u>Operating Grants and Contributions</u>	<u>Capital Grants and Contributions</u>
Connecticut Housing Finance Authority (12/31/16)	\$ 204,781	\$ 169,992	\$ -	\$ -
Connecticut Lottery Corporation	1,221,620	1,216,393	-	-
Connecticut Airport Authority	82,733	99,187	-	7,930
Other Component Units	292,357	277,390	45	2,339
Total Component Units	<u>\$ 1,801,491</u>	<u>\$ 1,762,962</u>	<u>\$ 45</u>	<u>\$ 10,269</u>

General Revenues:  
 Investment Income  
 Total General Revenues  
 Change in Net Position  
 Net Position - Beginning (as restated)  
 Net Position - Ending

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

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**Net (Expense) Revenue and  
Changes in Net Position**

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<b>Connecticut Housing Finance Authority (12-31-16)</b>	<b>Connecticut Lottery Corporation</b>	<b>Connecticut Airport Authority</b>	<b>Other Component Units</b>	<b>Totals</b>
\$ (34,789)	\$ -	\$ -	\$ -	\$ (34,789)
-	(5,227)	-	-	(5,227)
-	-	24,384	-	24,384
-	-	-	(12,583)	(12,583)
(34,789)	(5,227)	24,384	(12,583)	(28,215)
12,397	6,366	624	55,085	74,472
12,397	6,366	624	55,085	74,472
(22,392)	1,139	25,008	42,502	46,257
889,054	(25,646)	339,192	1,149,839	2,352,439
\$ 866,662	\$ (24,507)	\$ 364,200	\$ 1,192,341	\$ 2,398,696

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## Note 1

### Summary of Significant Accounting Policies

#### a. Basis of Presentation

The accompanying financial statements of the State of Connecticut have been prepared in conformity with generally accepted accounting principles as prescribed in pronouncements of the Governmental Accounting Standards Board, except for the financial statements of the University of Connecticut Foundation, Incorporated (a component unit), and the Board of Regents. Those statements are prepared according to generally accepted accounting principles as prescribed in pronouncements of the Financial Accounting Standards Board.

#### b. Reporting Entity

For financial reporting purposes, the State's reporting entity includes the "primary government" and its "component units." The primary government includes all funds, agencies, departments, bureaus, commissions, and component units that are considered an integral part of the State's legal entity. Component units are legally separate organizations for which the State is financially accountable. Financial accountability exists if (1) the State appoints a voting majority of the organization's governing board, and (2) there is a potential for the organization to provide specific financial benefits to, or impose specific financial burdens on the State.

Component units are reported in separate columns and rows in the government-wide financial statements (discrete presentation) to emphasize that they are legally separate from the primary government. Financial statements for the major component units are included in the accompanying financial statements after the fund financial statements. Audited financial statements issued separately by each component unit can be obtained from their respective administrative offices.

The following organizations (Connecticut Housing Finance Authority, Materials, Innovation, and Recycling Authority, Connecticut Health and Educational Facilities Authority, Connecticut Higher Education Supplemental Loan Authority, Connecticut Student Loan Foundation, and Capital Region Development Authority) are reported as component units because the State appoints a voting majority of the organization's governing board and is contingently liable for the organization's bonded debt that is secured by a special capital reserve fund, or other contractual agreement.

The State appoints a voting majority of the organization's governing board and has the ability to access the resources for the following organizations (Connecticut Innovations, Incorporated and Connecticut Green Bank) therefore, these organizations are reported as component units.

The Connecticut Lottery Corporation is reported as a component unit because the State appoints a voting majority of the corporation's governing board and receives a significant amount of revenues from the operations of the lottery.

The Connecticut Airport Authority is reported as a component unit because the nature and significance of its relationship with the State are such that it would be misleading to exclude the authority from the State's reporting entity.

The State's major and nonmajor component units are:

##### ***Connecticut Housing Finance Authority (CHFA)***

CHFA was created for the purpose of increasing the housing supply and encouraging and assisting in the purchase, development, and construction of housing for low and moderate-income families and persons throughout the State. The Authority's fiscal year is for the period ending on December 31, 2016.

##### ***Connecticut Airport Authority (CAA)***

The Connecticut Airport Authority was established in July 2011 to develop, improve and operate Bradley International Airport and the state's five general aviation airports (Danielson, Groton-New London, Hartford-Brainard, Waterbury-Oxford, and Windham airports).

##### ***Materials, Innovation, and Recycling Authority (MIRA)***

MIRA is responsible for the planning, design, construction, financing, management, ownership, operations and maintenance of solid waste disposal, volume reduction, recycling, intermediate processing, resource recovery and related support facilities necessary to carry out the State's Solid Waste Management Plan.

##### ***Connecticut Higher Education Supplemental Loan Authority (CHESLA)***

CHESLA was created to assist students, their parents, and institutions of higher education to finance the cost of higher education through its bond funds. Effective fiscal year 2013, CHESLA was statutorily consolidated into CHEFA, making CHESLA a subsidiary of CHEFA.

***Connecticut Health and Educational Facilities Authority (CHEFA)***

CHEFA was created to assist certain health care institutions, institutions of higher education, and qualified for-profit and not-for-profit institutions in the financing and refinancing of projects to be undertaken in relation to programs for these institutions.

***Connecticut Student Loan Foundation (CSLF)***

CSLF was established as a Connecticut State chartered nonprofit corporation established pursuant to State of Connecticut Statute Chapter 187a for the purpose of improving educational opportunity. CSLF is empowered to achieve this by originating and acquiring student loans and providing appropriate service incident to the administration of programs, which are established to improve educational opportunities. CSLF no longer originates or acquires student loans.

In July 2014, CSLF was statutorily consolidated with CHEFA as a subsidiary and became a quasi-public agency of the State of Connecticut.

***Capital Region Development Authority (CRDA)***

CRDA was established July 1, 2012 to market the major sports, convention, and exhibition venues in the region. CRDA became the successor to the Capital City Economic Development Authority, which was established in 1998.

***Connecticut Innovations, Incorporated (CI)***

CI was established to stimulate and promote technological innovation and application of technology within Connecticut and encourage the development of new products, innovations, and inventions or markets in Connecticut by providing financial and technical assistance.

***Connecticut Green Bank (CGB)***

CGB was established on July 1, 2011 through Public Act 11-80 as a quasi-public agency that supersedes Connecticut Clean Energy Fund. CGB uses public and private funds to finance and support clean energy investment in residential, municipal, small business and larger commercial projects and stimulate demand for clean energy and the deployment of clean energy sources within the state.

***Connecticut Lottery Corporation (CLC)***

The corporation was created in 1996 for the purpose of generating revenues for the State through the operation of a lottery.

In addition, the State also includes the following non-governmental nonprofit corporation as a component unit.

***University of Connecticut Foundation, Incorporated***

The Foundation was created exclusively to solicit, receive, and administer gifts and financial resources from private sources for the benefit of all campuses and programs of the University of Connecticut and Health Center, a major Enterprise fund. The Foundation is reported as a component unit because the nature and significance of its relationship with the State are such that it would be misleading to exclude the Foundation from the State's reporting entity.

**c. Government-wide and Fund Financial Statements*****Government-wide Financial Statements***

The Statement of Net Position and the Statement of Activities report information on all of the nonfiduciary activities of the primary government and its component units. These statements distinguish between the governmental and business-type activities of the primary government by using separate columns and rows. Governmental activities are generally financed through taxes and intergovernmental revenues. Business-type activities are financed in whole or in part by fees charged to external parties. For the most part, the effect of interfund activity has been removed from these statements.

The Statement of Net Position presents the reporting entity's assets, deferred outflows of resources, liabilities, deferred inflows of resources, and net position. Net position is reported in three components:

1. Net Investment in Capital Assets – This component of net position consists of capital assets, net of accumulated depreciation, reduced by the outstanding balances of bonds issued to buy, construct, or improve those assets. Deferred outflows of resources and deferred inflows of resources that are attributable to the purchase, construction, or improvement of those assets or related debt should be included in this component of net position.
2. Restricted – This component of net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets.
3. Unrestricted – This component of net position is the remaining balance of net position, after the determination of the other two components of net position.

When both restricted and unrestricted resources are available for use, the State generally uses restricted resources first, then unrestricted resources as needed. There may be occasions when restricted funds may only be spent in proportion to unrestricted funds spent.

The Statement of Activities demonstrates the degree to which the direct expenses of a given function or segment is offset by program revenues. Direct expenses are those that are clearly identifiable with a specific function or segment. Indirect expenses are not allocated to the various functions or segments. Program revenues include a) fees, fines, and charges paid by the recipients of goods or services offered by the functions or segments and b) grants and contributions that are restricted to meeting the operational or capital needs of a particular function or segment. Revenues that are not classified as program revenues, including all taxes, are reported as general revenues.

#### ***Fund Financial Statements***

The fund financial statements provide information about the State's funds, including its fiduciary funds and blended component units. Separate statements for each fund category (governmental, proprietary, and fiduciary) are presented. The emphasis of fund financial statements is on major governmental and enterprise funds, each displayed in a separate column. All remaining governmental and enterprise funds are aggregated and reported as nonmajor funds.

In the governmental fund financial statements, fund balance (difference between assets and liabilities) is classified as nonspendable, restricted, and unrestricted (committed, assigned, or unassigned). Restricted represents those portions of fund balance where constraints on the resources are externally imposed or imposed by law through constitutional provisions or enabling legislation. Committed fund balance represents amounts that can only be used for specific purposes pursuant to constraints by formal action of the Legislature, such as appropriation or legislation. Assigned fund balance is constrained by the Legislature's intent to be used for specific uses, but is neither restricted nor committed.

The State reports the following major governmental funds:

***General Fund*** - This is the State's primary operating fund. It is used to account for all financial resources which are not required to be accounted in other funds and which are spent for those services normally provided by the State (e.g., health, social assistance, education, etc.).

***Debt Service*** - This fund is used to account for the resources that are restricted for payment of principal and interest on special tax obligation bonds of the Transportation fund.

***Transportation*** - This fund is used to account for motor fuel taxes, vehicle registration and driver license fees, and other revenues that are restricted for the payment of budgeted appropriations of the Transportation and Motor Vehicles Departments.

***Restricted Grants and Accounts*** - This fund is used to account for resources which are restricted by Federal and other providers to be spent for specific purposes.

***Grant and Loan Programs*** - This fund is used to account for resources that are restricted by state legislation for the purpose of providing grants and/or loans to municipalities and organizations located in the State.

The State reports the following major enterprise funds:

***University of Connecticut & Health Center*** - This fund is used to account for the operations of the University of Connecticut, a comprehensive institution of higher education, which includes the University of Connecticut Health Center and John Dempsey Hospital.

***Board of Regents*** - This fund is used to account for the operations of the State University System & the State Community Colleges which consists of four universities: Central, Eastern, Southern, and Western and twelve regional community colleges.

Colleges and universities do not have separate corporate powers and sue and are sued as part of the state with legal representation provided through the state Attorney General's Office. Since the colleges and universities are legally part of the state their financial operations are reported in the state's financial statements using the fund structure prescribed by GASB.

***Employment Security*** - This fund is used to account for unemployment insurance premiums from employers and the payment of unemployment benefits to eligible claimants.

***Clean Water*** - This fund is used to account for resources used to provide loans to municipalities to finance waste water treatment facilities.

In addition, the State reports the following fund types:

**Internal Service Funds** - These funds account for goods and services provided to other agencies of the State on a cost-reimbursement basis. These goods and services include prisoner-built office furnishings, information services support, telecommunications, printing, and other services.

**Pension Trust Funds** - These funds account for resources held in the custody of the state for the members and beneficiaries of the State's pension plans. These plans are discussed more fully in Notes 10, 11, and 12.

**Other Post-Employment Benefit (OPEB) Trust Funds** - These funds account for resources held in trust for the members and beneficiaries of the state's other post-employment benefit plans which are described in notes 13 and 14.

**Investment Trust Fund** - This fund accounts for the external portion of the State's Short-Term Investment Fund, an investment pool managed by the State Treasurer.

**Private-Purpose Trust Fund** - This fund accounts for escheat securities held in trust for individuals by the State Treasurer.

**Agency Funds** - These funds account for deposits, investments, and other assets held by the State as an agent for inmates and patients of State institutions, insurance companies, municipalities, and private organizations.

#### **d. Measurement Focus and Basis of Accounting**

##### ***Government-wide, Proprietary, and Fiduciary Fund Financial Statements***

The government-wide, proprietary, and fiduciary fund financial statements are reported using the economic resources measurement focus and the accrual basis of accounting. Revenues are recorded when earned and expenses are recorded at the time the liabilities are incurred, regardless of when the related cash flows take place. Taxes and casino gaming payments are recognized as revenues in the period when the underlying exchange transaction has occurred. Grants and similar items are recognized as revenues in the period when all eligibility requirements imposed by the provider have been met.

Proprietary funds distinguish operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's principal ongoing operations. The principal operating revenues of the State's enterprise and internal service funds are charges to customers for sales and services, assessments, and intergovernmental revenues. Operating expenses for enterprise and internal service funds include salaries, wages, and administrative expenses, unemployment compensation, claims paid, and depreciation expense. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

##### ***Governmental Fund Financial Statements***

Governmental funds are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Under this method, revenues are recognized when measurable and available. The State considers taxes and other revenues to be available if the revenues are collected within 60 days after year-end. Exceptions to this policy are federal grant revenues, which are considered to be available if collection is expected within 12 months after year-end, and licenses and fees which are recognized as revenues when the cash is collected. Expenditures are recorded when the related fund liability is incurred, except for principal and interest on general long-term debt, compensated absences, and claims and judgments, which are recognized as expenditures to the extent they have matured. General capital asset acquisitions are reported as expenditures in governmental funds. Proceeds of general-long term debt and acquisitions under capital leases are reported as other financing sources.

#### **e. Assets and Liabilities**

##### ***Cash and Cash Equivalents (see Note 3)***

In addition to petty cash and bank accounts, this account includes cash equivalents – short-term, highly liquid investments with original maturities of three months or less when purchased. Cash equivalents consist of investments in the Short-Term Investment Fund which are reported at the fund's share price.

In the Statement of Cash Flows, certain Enterprise funds exclude from cash and cash equivalents investments in STIF reported as noncurrent or restricted assets.

**Investments (see Note 3)**

Investments include Equity in Combined Investment Funds and other investments. Equity in Combined Investment Funds is reported at fair value based on the funds' current share price. Other investments are reported at fair value, except for the following investments which are reported at cost or amortized cost:

- Nonparticipating interest-earning investment contracts.
- Money market investments that mature within one year or less at the date of their acquisition.
- Investments of the External Investment Pool fund (an Investment Trust fund).

The fair value of other investments is determined based on quoted market prices except for:

- The fair value of State bonds held by the Clean Water and Drinking Water funds (Enterprise funds) which is estimated using a comparison of other State bonds.
- The fair value of securities not publicly traded held by the Connecticut Innovations, Incorporated, a Component Unit. The fair value of these investments is determined by an independent valuation committee of the Corporation, after giving consideration to pertinent information about the companies comprising the investments, including but not limited to recent sales prices of the issuer's securities, sales growth, progress toward business goals, and other operating data.

The State invests in derivatives. These investments are held by the Combined Investment Funds and are reported at fair value in each fund's statement of net position.

**Inventories**

Inventories are reported at cost. Cost is determined by the first-in first-out (FIFO) method. Inventories in the governmental funds consist of expendable supplies held for consumption whose cost was recorded as an expenditure at the time the individual inventory items were purchased. Reported inventories in these funds are offset by a fund balance designation (nonexpendable) to indicate that they are unavailable for appropriation.

**Capital Assets and Depreciation**

Capital assets include property, plant, equipment, and infrastructure assets (e.g. roads, bridges, railways, and similar items), are reported in the applicable governmental or business-type activities columns in the government-wide financial statements. Capital assets are defined by the State as assets with an initial individual cost of more than \$5,000 and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated fair market value at the date of donation.

Collections of historical documents, rare books and manuscripts, guns, paintings, and other items are not capitalized. These collections are held by the State Library for public exhibition, education, or research; and are kept protected, cared for, and preserved indefinitely. The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend assets lives are also not capitalized.

Major outlays for capital assets and improvements are capitalized as projects are constructed. Interest incurred during the construction phase of capital assets of business-type activities is included as part of the capitalized value of the assets constructed.

Property, plant, and equipment of the primary government are depreciated using the straight line method over the following estimated useful lives:

Buildings	40 years
Improvements Other than Buildings	10-20 years
Machinery and Equipment	5-30 years
Infrastructure	20-28 years

**Securities Lending Transactions (see Note 3)**

Assets, liabilities, income, and expenses arising from securities lending transactions of the Combined Investment Funds are allocated ratably to the participant funds based on their equity in the Combined Investment Funds.

***Escheat Property***

Escheat property is private property that has reverted to the State because it has been abandoned or has not been claimed by the rightful owners for a period of time. State law requires that all escheat property receipts be recorded as revenue in the General fund. Escheat revenue is reduced and a fund liability is reported to the extent that it is probable that escheat property will be refunded to claimants in the future. This liability is estimated based on the State's historical relationship between escheat property receipts and amounts paid as refunds, taking into account current conditions and trends.

***Deferred Outflows of Resources***

Deferred outflows of resources are defined as the consumption of net assets in one period that are applicable to future periods. These amounts are reported in the Statement of Net Position on the government-wide and fund financial statements in a separate section, after total assets.

***Unearned Revenues***

In the government-wide and fund financial statements, this liability represents resources that have been received, but not yet earned.

***Long-term Obligations***

In the government-wide and proprietary fund financial statements, long-term debt and other long-term obligations are reported as liabilities in the applicable governmental activities, business-type activities, or proprietary fund statement of net position. Bond premiums and issuance costs are deferred and amortized over the life of the bonds using the straight line method. Bonds payable are reported net of the applicable bond premium. Bond issuance costs are reported as an expense in the year they are incurred. Other significant long-term obligations include the net pension liability, OPEB obligation, compensated absences, workers' compensation claims, and federal loans. In the fund financial statements, governmental fund types recognize bond premiums and bond issuance costs during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

***Capital Appreciation Bonds***

Capital appreciation (deep-discount) bonds issued by the State, unlike most bonds, which pay interest semi-annually, do not pay interest until the maturity of the bonds. An investor who purchases a capital appreciation bond at its discounted price and holds it until maturity will receive an amount which equals the initial price plus an amount which has accrued over the life of the bond on a semiannual compounding basis. The net value of the bonds is accreted (the discount reduced), based on this semiannual compounding, over the life of the bonds. This deep-discount debt is reported in the government-wide statement of net position at its net or accreted value rather than at face value.

***Compensated Absences***

The liability for compensated absences reported in the government-wide and proprietary fund statements consist of unpaid, accumulated vacation and sick leave balances. The liability has been calculated using the vesting method, in which leave amounts for both employees who currently are eligible to receive termination payments and other employees who are expected to become eligible in the future to receive such payments upon termination are included.

Vacation and sick policy is as follows: Employees hired on or before June 30, 1977, and managers regardless of date hired can accumulate up to a maximum of 120 vacation days. Employees hired after that date can accumulate up to a maximum of 60 days. Upon termination or death, the employee is entitled to be paid for the full amount of vacation days owed. No limit is placed on the number of sick days that an employee can accumulate. However, the employee is entitled to payment for accumulated sick time only upon retirement, or after ten years of service upon death, for an amount equal to one-fourth of his/her accrued sick leave up to a maximum payment equivalent to sixty days.

**f. Derivative Instruments**

The State's derivative instruments consist of interest rate swap agreements, all of which have been determined by the State to be effective cash flow hedges. Accumulated decreases in the fair value of some of the swaps are reported as deferred outflows of resources in the Statement of Net Position. These agreements are discussed in more detail in Note No. 18.

**g. Deferred Inflows of Resources**

Deferred inflows of resources are defined as the acquisition of net assets in one period that are applicable to future periods. These amounts are reported in the Statement of Net Position and Balance Sheet in a separate section, after total liabilities.

**h. Interfund Activities**

In the fund financial statements, interfund activities are reported as follows:

**Interfund receivables/payables** - The current portion of interfund loans outstanding at the end of the fiscal year is reported as due from/to other funds; the noncurrent portion as advances to/from other funds. All other outstanding balances between funds are reported as due from/to other funds. Any residual balances outstanding between the governmental activities and business-type activities are reported in the government-wide financial statements as “internal balances.”

**Interfund services provided and used** - Sales and purchases of goods and services between funds for a price approximating their external exchange value. Interfund services provided and used are reported as revenues in seller funds and expenditures or expenses in purchaser funds. In the statement of activities, transactions between the primary government and its discretely presented component units are reported as revenues and expenses, unless they represent repayments of loans or similar activities.

**Interfund transfers** - Flows of assets without equivalent flows of assets in return and without a requirement for repayment. In governmental funds, transfers are reported as other financing uses in the funds making transfers and as other financing sources in the funds receiving transfers. In proprietary funds, transfers are reported after nonoperating revenues and expenses.

**Interfund reimbursements** - Repayments from the funds responsible for particular expenditures or expenses to the funds that initially paid for them. Reimbursements are not reported in the financial statements.

**i. Endowments**

The University of Connecticut and Health Center designate the University of Connecticut Foundation (a Component Unit of the State) as the manager of the University’s and Health Center’s endowment funds. The Foundation makes spending distributions to the University and Health Center for each participating endowment. The allocation is spent by the University and Health Center in accordance with the respective purposes of the endowments, the policies and procedures of the University, Health Center, and State statutes, and in accordance with the Foundation’s endowment spending policy.

Additional information regarding endowments is presented in the UConn Foundation financial report.

**j. Supplemental Nutrition Assistance Program (SNAP)**

Nutrition assistance distributed to recipients during the year is recognized as an expenditure and a revenue in the governmental fund financial statements.

**k. External Investment Pool**

Assets and liabilities of the Short-Term Investment Fund are allocated ratably to the External Investment Pool Fund based on its investment in the Short-Term Investment Fund (see Note 3). Pool income is determined based on distributions made to the pool’s participants.

**l. Upcoming Accounting Pronouncements**

In June 2015, GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits other than Pensions*. The objective of this Statement is to improve accounting and financial reporting by state governments for postemployment benefits other than pensions (other postemployment benefits or OPEB). This Statement is effective for fiscal years beginning after June 15, 2017. The State is currently evaluating the impact this standard will have on its financial statements.

In November 2016, GASB issued Statement No. 83, *Certain Asset Retirement Obligations*. The objective of this Statement is to address accounting and financial reporting for certain asset retirement obligations (ARO’s). This Statement is effective for fiscal years beginning after June 15, 2018. The State is currently evaluating the impact this standard will have on its financial statements.

In January 2017, GASB issued Statement No. 84, *Fiduciary Activities*. The objective of this Statement is to improve guidance concerning the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. This Statement is effective for fiscal years beginning after December 15, 2018. The State is currently evaluating the impact this standard will have on its financial statements.

In March 2017, GASB issued Statement No. 85, *Omnibus 2017*. The purpose of this Statement is to improve consistency in accounting and financial reporting by addressing practice issues that have been identified during implementation and application of certain GASB

Statements. This Statement is effective for fiscal years beginning after June 15, 2017. The State is currently evaluating the impact this standard will have on its financial statements.

### m. Use of Estimates

The preparation of the financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts and disclosures in the financial statements. Actual results could differ from those estimates.

## Note 2

### Nonmajor Fund Deficits

The following funds have deficit fund/net position balances at June 30, 2017, none of which constitutes a violation of statutory provisions (amounts in thousands).

<u>Capital Projects</u>	
Transportation	\$ 718
<u>Enterprise</u>	
Bradley Parking Garage	\$ 18,906

The Transportation deficit will be eliminated in the future by the sale of bonds. Bonds have not been issued in this fund since fiscal year 2008.

The Bradley parking garage is designed to generate cash flows from operations that, after operating and maintenance expenses are sufficient to service debt and make State and developer payments as well as to provide a return to the State of minimum guarantee payments, both of which are reflected as expenses in the accompanying statement of operations and accumulated deficit.

## Note 3

### Cash Deposits and Investments

According to GASB Statement No. 40, “*Deposit and Investment Risk Disclosures*”, the State is required to make certain disclosures about deposit and investment risks that have the potential to result in losses. Thus, the following deposit and investment risks are discussed in this note:

**Interest Rate Risk** - the risk that changes in interest rates will adversely affect the fair value of an investment.

**Credit Risk** - the risk that an issuer or other counterparty to an investment will not fulfill its obligations.

**Concentration of Credit Risk** - the risk of loss attributed to the magnitude of an investment in a single issuer.

**Custodial Credit Risk (deposits)** - the risk that, in the event of a bank failure, the State’s deposits may not be recovered.

**Foreign Currency Risk** - the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit.

#### ***Primary Government***

The State Treasurer is the chief fiscal officer of State government and is responsible for the prudent management and investment of monies of State funds and agencies as well as monies of pension and other trust funds. The State Treasurer with the advice of the Investment Advisory Council, whose members include outside investment professionals and pension beneficiaries, establishes investment policies and guidelines. Currently, the State Treasurer manages one Short-Term Investment Fund and twelve Combined Investment Funds.

#### ***Short-Term Investment Fund (STIF)***

STIF is a money market investment pool in which the State, municipal entities, and political subdivisions of the State are eligible to invest. The State Treasurer is authorized to invest monies of STIF in United States government and agency obligations, certificates of deposit, commercial paper, corporate bonds, savings accounts, bankers’ acceptances, repurchase agreements, and asset-backed securities. STIF’s investments are reported at amortized cost (which approximates fair value) in the fund’s statement of net position.

For financial reporting purposes, STIF is considered to be a mixed investment pool – a pool having external and internal portions. The external portion of STIF (i.e. the portion that belongs to participants which are not part of the State’s financial reporting entity) is reported as an investment trust fund (External Investment Pool fund) in the fiduciary fund financial statements. The internal portion of STIF (i.e., the portion that belongs to participants that are part of the State’s financial reporting entity) is not reported in the accompanying financial statements. Instead, investments in the internal portion of STIF by participant funds are reported as cash equivalents in the government-wide and fund financial statements.

For disclosure purposes, certificates of deposit held by STIF are reported in this note as bank deposits, not as investments. As of June 30, 2017, STIF had the following investments and maturities (amounts in thousands):

Short-Term Investment Fund		
Investment Type	Amortized Cost	Investment Maturities (in years)
		Less Than 1
Federal Agency Securities	\$ 1,358,486	\$ 1,358,486
Bank Commercial Paper	1,813,698	1,813,698
Government Money Market Funds	90,211	90,211
Repurchase Agreements	700,000	700,000
Total Investments	\$ 3,962,395	\$ 3,962,395

### Interest Rate Risk

The STIF’s policy for managing interest rate risk is to limit investment to a very short weighted average maturity, not to exceed 90 days, and to comply with Standard and Poor’s requirement that the weighted average maturity not to exceed 60 days. As of June 30, 2017, the weighted average maturity of the STIF was 35 days. Additionally, STIF is allowed by policy to invest in floating-rate securities. However, investment in these securities having maturities greater than two years is limited to no more than 30 percent of the overall portfolio. For purposes of the fund’s weighted average maturity calculation, variable-rate securities are calculated using their rate reset date. Because these securities reprice frequently to prevailing market rates, interest rate risk is substantially reduced. As of June 30, 2017, the amount of STIF’s investments in variable-rate securities was \$1,026 million.

### Credit Risk

The STIF’s policy for managing credit risk is to purchase short-term, high-quality fixed income securities that fall within the highest short-term or long-term rating categories by nationally recognized rating organizations.

As of June 30, 2017, STIF’s investments were rated by Standard and Poor’s as follows (amounts in thousands):

Short-Term Investment Fund				
Investment Type	Amortized Cost	Quality Ratings		
		AAA	AA+/A-1+	A/A-1
Federal Agency Securities	\$ 1,358,486	\$ -	\$ 1,358,486	\$ -
Corporate & Bank Commercial Paper	1,813,698	-	1,813,698	-
Government Money Market Funds	90,211	90,211	-	-
Repurchase Agreements	700,000	-	450,000	250,000
Total Investments	\$ 3,962,395	\$ 90,211	\$ 3,622,184	\$ 250,000

### Concentration of Credit Risk

STIF reduces its exposure to this risk by insuring that at least 75 percent of fund assets will be invested in securities rated “A-1+” or equivalent. In addition exposure to any single non-governmental issuer will not exceed 5 percent (at the time a security is purchased), exposure to any single money market mutual fund (rated AAA) will not exceed 5 percent of fund assets and exposure to money market mutual funds in total will not exceed 10 percent. As of June 30, 2017, STIF’s investments in any one issuer that represents more than 5 percent of total investments were as follows (amounts in thousands):

Investment Issuer	Amortized Cost
Federal Home Loan Bank	\$ 598,333
Federal Farm Credit Bank	\$ 519,248
U.S. Bank	\$ 250,000
Commercial Paper & Corporate Securities	\$ 1,563,698
Merrill Lynch	\$ 250,000
RBC Capital Markets	\$ 450,000

**Custodial Credit Risk-Bank Deposits-Nonnegotiable Certificate of Deposits** (amounts in thousands):

The STIF follows policy parameters that limit deposits in any one entity to a maximum of ten percent of assets. Further, the certificate of deposits must be issued from commercial banks whose short-term debt is rated at least "A-1" by Standard and Poor's and "F-1" by Fitch and whose long-term debt is rated at least "A-" and its issuer rating is at least "C", or backed by a letter of credit issued by a Federal Home Loan bank. As of June 30, 2017, \$2,506,783 of the bank balance of STIF's deposits of \$2,507,533 was exposed to custodial credit risk as follows:

Uninsured and uncollateralized	\$	2,034,558
Uninsured and collateral held by trust department of either the pledging bank or another bank not in the name of the State		<u>472,225</u>
Total	\$	<u>2,506,783</u>

**Combined Investment Funds (CIFS)**

The CIFS are open-ended, unitized portfolios in which the State pension trust and permanent funds are eligible to invest. The State pension trust and permanent funds own the units of the CIFS. The State Treasurer is also authorized to invest monies of the CIFS in a broad range of fixed income and equity securities, as well as real estate properties, mortgages and private equity. CIFS' investments are reported at fair value in each fund's statement of net position.

For financial reporting purposes, the CIFS are considered to be external investment pools and are not reported in the accompanying financial statements. Instead, investments in the CIFS by participant funds are reported as equity in the CIFS in the government-wide and fund financial statements.

	<u>Primary Government</u>		
	<u>Governmental Activities</u>	<u>Business-Type Activities</u>	<u>Fiduciary Funds</u>
Equity in the CIFS	\$ 115,073	\$ 660	\$ 32,432,138
Other Investments	<u>1,580</u>	<u>33,659</u>	<u>1,382,076</u>
Total Investments-Current	<u>\$ 116,653</u>	<u>\$ 34,319</u>	<u>\$ 33,814,214</u>

The CIFS measures and records its investments using fair value measurement guidelines. Fair value is the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date. The guidelines recognize a three tiered fair value hierarchy, as follows: Level 1: Quoted prices for identical investments in active market; Level 2: Observable inputs other than quoted market price; and, Level 3: Unobservable inputs.

As of June 30, 2017, the CIFS had the following investments (amounts in thousands):

<u>Investments by Fair Value Level</u>	<u>Fair Value Measurements</u>			
	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
Cash Equivalents	\$ 283,294	\$ 652	\$ 282,642	\$ -
Asset Backed Securities	254,923	-	254,923	-
Government Securities	3,701,714	1,256,715	2,444,999	-
Government Agency Securities	716,185	-	716,185	-
Mortgage Backed Securities	280,579	-	280,579	-
Corporate Debt	4,037,233	-	3,939,688	97,545
Convertible Securities	51,662	-	51,662	-
Common Stock	15,327,224	15,327,224	-	-
Preferred Stock	77,158	59,691	17,467	-
Real Estate Investment Trust	319,239	273,996	45,243	-
Business Development Corporation	57,625	57,625	-	-
Mutual Fund	228,915	228,915	-	-
Limited Partnerships	<u>522</u>	<u>522</u>	-	-
Total	<u>\$ 25,336,273</u>	<u>\$ 17,205,340</u>	<u>\$ 8,033,388</u>	<u>\$ 97,545</u>
<b>Investments Measured at the Net Asset Value (NAV)</b>		<u>Unfunded Commitments</u>	<u>Redemption Frequency</u>	<u>Redemption Notice Period</u>
Limited Liability Corporation	1,157	\$ -	Illiquid	N/A
Limited Partnerships	<u>7,230,945</u>	<u>1,868,390</u>	Illiquid	N/A
Total	<u>7,232,102</u>	<u>\$ 1,868,390</u>		
Total Investments in Securities at Fair Value	<u>\$ 32,568,375</u>			

**Interest Rate Risk**

CIFS' investment managers are given full discretion to manage their portion of CIFS' assets within their respective guidelines and constraints. The guidelines and constraints require each manager to maintain a diversified portfolio at all times. In addition, each core manager is required to maintain a target duration that is similar to its respective benchmark which is typically the Barclays Aggregate-an intermediate duration index.

Following is a schedule which provides information about the interest rate risks associated with the CIF investments. The investments include short-term cash equivalents including certificate of deposits and collateral, long-term investments and restricted assets by maturity in years. (amounts in thousands):

Combined Investment Funds					
Investment Type	Fair Value	Investment Maturities (in Years)			
		Less Than 1	1 - 5	6 - 10	More Than 10
Cash Equivalents	\$ 283,294	\$ 283,294	\$ -	\$ -	\$ -
Asset Backed Securities	254,923	3,421	104,431	104,468	42,603
Government Securities	3,701,714	226,328	1,522,902	856,579	1,095,905
Government Agency Securities	716,185	95,298	53,914	21,968	545,005
Mortgage Backed Securities	280,579	-	63,068	20,777	196,734
Corporate Debt	4,037,233	1,360,182	1,448,361	916,314	312,376
Convertible Debt	51,662	1,157	9,879	12,517	28,109
	<u>\$ 9,325,590</u>	<u>\$ 1,969,680</u>	<u>\$ 3,202,555</u>	<u>\$ 1,932,623</u>	<u>\$ 2,220,732</u>

**Credit Risk**

The CIFS minimizes exposure to this risk in accordance with a comprehensive investment policy statement, as developed by the Office of the Treasurer and the State's Investment Advisory Council, which provides policy guidelines for the CIFS and includes an asset allocation plan. The asset allocation plan's main objective is to maximize investment returns over the long term at an acceptable level of risk. As of June 30, 2017, CIFS' debt investments were rated by Moody's as follows (amounts in thousands):

Combined Investment Funds								
	Fair Value	Cash Equivalents	Asset		Mortgage		Corporate Debt	Convertible Debt
			Backed Securities	Government Securities	Government Agency Securities	Backed Securities		
Aaa	\$ 2,614,409	\$ -	\$ 191,963	\$ 1,565,409	\$ 597,362	\$ 180,885	\$ 78,790	\$ -
Aa	612,132	25,000	799	396,492	-	1,623	188,218	-
A	886,351	30,000	90	474,681	-	8,021	373,559	-
Baa	820,964	-	-	454,273	-	69	366,622	-
Ba	742,742	-	-	249,074	-	-	476,819	16,849
B	967,040	-	-	150,063	-	81	812,423	4,473
Caa	439,933	-	-	94,671	-	-	345,005	257
Ca	9,343	-	-	-	-	-	9,343	-
C	5,017	-	-	-	-	-	5,017	-
Prime 1	748,364	10,000	7,876	-	-	-	730,488	-
Prime 2	24,270	-	-	-	-	-	24,270	-
Prime 3	1,803	-	-	-	-	-	1,803	-
Government fixed not rated	130,876	-	-	12,053	118,823	-	-	-
Non Government fixed not rated	304,998	-	-	304,998	-	-	-	-
Not Rated	1,017,348	218,293	54,195	-	-	89,901	624,875	30,084
	<u>\$ 9,325,590</u>	<u>\$ 283,293</u>	<u>\$ 254,923</u>	<u>\$ 3,701,714</u>	<u>\$ 716,185</u>	<u>\$ 280,580</u>	<u>\$ 4,037,232</u>	<u>\$ 51,663</u>

**Foreign Currency Risk**

The CIFS manage exposure to this risk by utilizing a strategic hedge ratio of 50 percent for the developed market portion of the International Stock Fund (a Combined Investment Fund). This strategic hedge ratio represents the neutral stance or desired long-term exposure to currency for the ISF. To implement this policy, currency specialists actively manage the currency portfolio as an overlay strategy to the equity investment managers. These specialists may manage the portfolio passively or actively depending on opportunities in the market place. While managers within the fixed income portion of the portfolio are allowed to invest in

## Notes to the Financial Statements

## State of Connecticut

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non-U.S. denominated securities, managers are required to limit that investment to a portion of their respective portfolios. As of June 30, 2017, CIFS' foreign deposits and investments were as follows (amounts in thousands):

Combined Investment Funds										
Foreign Currency	Total	Fixed Income Securities						Equities		Real Estate Investment Trust Fund
		Cash	Cash Equivalent Collateral	Government Securities	Corporate Debt	Asset Backed	Mortgage Backed	Common Stock	Preferred Stock	
Argentine Peso	\$ 25,554	\$ 737	\$ -	\$ 23,355	\$ 1,462	\$ -	\$ -	\$ -	\$ -	\$ -
Australian Dollar	438,685	499	-	97,525	7,887	-	-	308,418	-	24,356
Brazilian Real	258,328	814	-	107,364	-	(10)	-	143,790	6,370	-
Canadian Dollar	120,512	1,498	-	21,063	-	(46)	-	97,935	-	62
Chilean Peso	18,436	-	-	414	-	-	-	18,022	-	-
Colombian Peso	59,622	1,267	-	58,175	-	-	-	180	-	-
Czech Koruna	18,091	(1)	-	12,539	-	-	-	5,553	-	-
Danish Krone	117,934	120	-	1,281	-	-	-	116,533	-	-
Egyptian Pound	7,447	1,569	-	-	3,724	-	-	2,154	-	-
Euro Currency	2,352,031	4,208	-	246,732	6,902	(26)	-	2,066,018	17,324	10,873
Ghanaian Cedi	2,697	-	-	-	2,697	-	-	-	-	-
Hong Kong Dollar	715,346	1,500	-	-	-	-	-	706,796	-	7,050
Hungarian Forint	73,331	812	-	29,993	-	-	-	42,526	-	-
Iceland Krona	2	2	-	-	-	-	-	-	-	-
Indian Rupee	4,810	-	-	301	4,509	-	-	-	-	-
Indonesian Rupiah	155,858	613	-	54,874	38,907	-	-	61,464	-	-
Israeli Shekel	36,424	236	-	-	-	-	-	36,188	-	-
Japanese Yen	1,408,203	5,918	-	35,455	-	212	-	1,359,217	-	7,401
Georgian Lari	2,128	-	-	-	2,128	-	-	-	-	-
Malaysian Ringgit	93,381	1,551	-	77,031	-	-	-	14,799	-	-
Mexican Peso	233,226	301	-	185,997	3,631	253	-	43,044	-	-
New Zealand Dollar	143,220	877	-	127,518	-	-	-	14,825	-	-
Nigerian Naira	205	66	-	-	-	-	-	139	-	-
Norwegian Krone	58,529	460	-	6,414	-	-	-	51,655	-	-
Peruvian Nouveau Sol	26,246	-	-	26,246	-	-	-	-	-	-
Philippine Peso	46,125	6	-	1,945	-	-	-	44,174	-	-
Polish Zloty	145,366	67	-	100,204	-	-	-	45,095	-	-
Pound Sterling	1,233,150	2,467	6	240,599	7,083	(61)	3,216	967,734	-	12,106
Romanian Leu	9,502	264	-	9,238	-	-	-	-	-	-
Russian Ruble	57,047	1,331	-	55,591	-	-	-	125	-	-
Singapore Dollar	118,119	454	-	22,029	-	-	-	92,054	-	3,582
South African Rand	193,636	408	-	92,470	-	-	-	100,659	-	99
South Korean Won	453,526	173	-	-	-	-	-	425,915	27,438	-
Sri Lanka Rupee	6,677	-	-	-	6,646	-	-	31	-	-
Swedish Krona	190,501	(44)	-	4,384	-	-	-	186,161	-	-
Swiss Franc	501,035	434	-	-	-	-	-	500,601	-	-
Thailand Baht	147,824	94	-	26,369	-	-	-	121,266	-	95
Turkish Lira	170,169	248	-	57,057	4,031	-	-	108,758	-	75
Uruguayan Peso	3,981	-	-	3,981	-	-	-	-	-	-
	<u>\$ 9,646,904</u>	<u>\$ 28,949</u>	<u>\$ 6</u>	<u>\$ 1,726,144</u>	<u>\$ 89,607</u>	<u>\$ 322</u>	<u>\$ 3,216</u>	<u>\$ 7,681,829</u>	<u>\$ 51,132</u>	<u>\$ 65,699</u>

**Derivatives**

As of June 30, 2017, the CIFS held the following derivative investments (amounts in thousands):

	2017	2016
	Fair Value	Fair Value
Adjustable Rate Securities	\$ 652,183	\$ 581,229
Asset Backed Securities	255,114	153,799
Mortgage Backed Securities	215,946	303,820
Collateralized Mortgage Obligations	64,633	98,208
TBA's	118,185	41,236
Interest Only	470	423
Options	775	1,281
Total	\$ 1,307,306	\$ 1,179,996

The Inflation Linked Bond Fund held futures with a negative notional cost of (\$198,263 thousand) Also, the Core Fixed Income held futures with a negative notional cost of (\$13,944 thousand). The High Yield Debt Fund held futures with a negative notional cost of (\$16,140 thousand), the Developed Market International Stock held futures with a notional cost of (\$132,461 thousand).

The CIFS invest in derivative investments for trading purposes and to enhance investment returns. The credit exposure resulting from these investments is limited to their fair value at year end.

The CIFS also invest in foreign currency contracts. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIFS' investments against currency fluctuations. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms. As of June 30, 2017, the fair value of contracts to buy and contracts to sell was \$7.8 billion and \$7.8 billion, respectively.

**Custodial Credit Risk-Bank Deposits**

The CIFS minimize this risk by maintaining certain restrictions set forth in the Investment Policy Statement. The CIFS use a Liquidity Account which is a cash management pool investing in highly liquid money market securities. As of June 30, 2017, the CIFS had deposits with a bank balance of \$89.1 million which was uninsured and uncollateralized.

Complete financial information about the STIF and the CIFS can be obtained from financial statements issued by the Office of the State Treasurer.

**Other Investments**

The University of Connecticut measures and records its investments using fair value measurement guidelines. These guidelines have a three tiered fair value hierarchy, as follows: Level 1; Quoted prices for identical investments in active market; Level 2: Observable inputs other than quoted market price; and, Level 3: Unobservable inputs. As of June 30, 2017, UConn had the following recurring fair value measurements. (amounts in thousands):

Fair Value Measurements				
<u>Investments by Fair Value Level</u>	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
Cash Equivalents	\$ 426	\$ 426	\$ -	\$ -
Fixed Income Securities	1,771	1,771	-	-
Equity Securities	10,324	9,571	753	-
Partnerships	-	-	-	-
Total	\$ 12,521	\$ 11,768	\$ 753	\$ -
<b>Investments Measured at the Net Asset Value (NAV)</b>		<b>Unfunded</b>	<b>Redemption</b>	<b>Redemption</b>
		<b>Commitments</b>	<b>Frequency</b>	<b>Notice Period</b>
Private Capital Partnerships	\$ 1,422	\$ 476	N/A	N/A
Private Real Estate Partnerships	137	39	N/A	N/A
Natural Resource Partnerships	630	86	N/A	N/A
Long/Short Equities	1	-	N/A	N/A
Relative Value	855	-	N/A	N/A
Other	232	-	N/A	N/A
Total	3,277	\$ 601		
Total Investments in Securities at Fair Value	\$ 15,798			

As of June 30, 2017, the State had other investments and maturities as follows (amounts in thousands):

Investment Type	Other Investments			
	Fair Value	Investment Maturities (in years)		
		Less Than 1	1-5	6-10
State Bonds	\$ 14,338	\$ 290	\$ 12,808	\$ 1,240
U.S. Government and Agency Securities	242,495	97,991	5,364	139,140
Guaranteed Investment Contracts	112,388	9,964	34,809	67,615
Money Market Funds	28,898	28,898	-	-
Total Debt Investments	398,119	\$ 137,143	\$ 52,981	\$ 207,995
Endowment Pool	14,484			
Corporate Stock	1,082			
Other Investments	232			
Total Investments	\$ 413,917			

### Credit Risk

As of June 30, 2017, other debt investments were rated by Standard and Poor's as follows (amounts in thousands):

Investment Type	Other Investments				
	Fair Value	Quality Ratings			
		AA	A	BBB	Unrated
State Bonds	\$ 14,338	\$ 12,758	\$ 1,580	\$ -	\$ -
U.S. Government and Agency Securities	146,224	146,224	-	-	-
Guaranteed Investment Contracts	112,388	14,565	64,488	14,128	19,207
Money Market Funds	28,898	-	-	-	28,898
Total	\$ 301,848	\$ 173,547	\$ 66,068	\$ 14,128	\$ 48,105

Connecticut State Universities reported \$96 million as U.S. Government Securities, these securities have no credit risk therefore, these securities are not included in the above table.

### Custodial Credit Risk-Bank Deposits (amounts in thousands):

The State maintains its deposits at qualified financial institutions located in the state to reduce its exposure to this risk. These institutions are required to maintain, segregated from its other assets, eligible collateral in an amount equal to 10 percent, 25 percent, 100 percent, or 120 percent of its public deposits. The collateral is held in the custody of the trust department of either the pledging bank or another bank in the name of the pledging bank. As of June 30, 2017, \$169,535 of the bank balance of the Primary Government of \$173,349 was exposed to custodial credit risk as follows:

Uninsured and uncollateralized	\$ 89,379
Uninsured and collateral held by trust department of either the pledging bank or another bank not in the name of the State	80,156
Total	\$ 169,535

### Component Units

The Connecticut Housing Finance Authority (CHFA) and the Connecticut Lottery Corporation (CLC) reported the following investments and maturities as of 12-31-16 and 6-30-17, respectively (amounts in thousands):

Investment Type	Major Component Units				
	Fair Value	Investment Maturities (in years)			
		Less Than 1	1-5	6-10	More Than 10
Collateralized Mortgage Obligations	\$ 626	\$ -	\$ -	\$ 626	\$ -
GNMA & FNMA Program Assets	1,268,049	-	-	724	1,267,325
Mortgage Backed Securities	654	-	-	93	561
Money Market	9,825	9,825	-	-	-
Municipal Bonds	53,426	286	1,329	1,748	50,063
STIF	492,323	492,323	-	-	-
Structured Securities	276	-	-	-	276
U.S. Government Agency Securities	870	-	-	-	870
Total Debt Investments	1,826,049	\$ 502,434	\$ 1,329	\$ 3,191	\$ 1,319,095
Annuity Contracts	124,701				
Total Investments	\$ 1,950,750				

The CHFA and the CLC own 93.6 percent and 6.4 percent of the above investments, respectively. GNMA Program Assets represent securitized home mortgage loans of CHFA which are guaranteed by the Government National Mortgage Association. Annuity contracts are the only investment held by the CLC, which are not subject to investment risks discussed next.

### ***Interest Rate Risk***

#### ***CHFA***

Exposure to declines in fair value is substantially limited to GNMA Program Assets. The Authority's investment policy requires diversification of its investment portfolio to eliminate the risk of loss resulting from, among other things, an over-concentration of assets in a specific maturity. This policy also requires the Authority to attempt to match its investments with anticipated cash flows requirements and to seek diversification by staggering maturities in such a way that avoids undue concentration of assets in a specific maturity sector.

### ***Credit Risk***

#### ***CHFA***

The Authority's investments are limited by State statutes to United States Government obligations, including its agencies or instrumentalities, investments guaranteed by the state, investments in the state's STIF, and other obligations which are legal investments for savings banks in the state. The Fidelity Funds are fully collateralized by obligations issued by the United States Government or its agencies. Mortgage Backed Securities are fully collateralized by the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation or the Government National Mortgage Association, and Collateralized Mortgage Obligations are fully collateralized by the United States Department of Housing and Urban Development mortgage pools.

CHFA's investments were rated as of 12-31-16 as follows (amounts in thousands):

Investment Type	Component Units				
	Fair Value	AAA	Quality Ratings		
			CCC	D	Unrated
Collateralized Mortgage Obligations	\$ 626	\$ -	\$ 626	\$ -	\$ -
Municipal Bonds	53,426	-	-	-	53,426
Money Market	9,825	-	-	-	9,825
STIF	492,323	492,323	-	-	-
Structured Securities	276	-	-	276	-
Total	\$ 556,476	\$ 492,323	\$ 626	\$ 276	\$ 63,251

### ***Concentration of Credit Risk***

#### ***CHFA***

The Authority's investment policy requires diversification of its investment portfolio to eliminate the risk of loss resulting from, among other things, an over-concentration of assets with a specific issuer. As of December 31, 2016, the Authority had no investments in any one issuer that represents 5 percent or more of total investments, other than investments guaranteed by the U.S. Government (GNMA and FNMA Program Assets), and investments in the State's STIF.

### ***Security Lending Transactions***

Certain of the Combined Investment Funds are permitted by State statute to engage in security lending transactions to provide incremental returns to the funds. The funds' Agent is authorized to lend available securities to authorized broker-dealers and banks subject to a formal loan agreement.

During the year, the Agent lent certain securities and received cash or other collateral as indicated on the Securities Lending Authorization Agreement. The Agent did not have the ability to pledge or sell collateral securities received absent a borrower default. Borrowers were required to deliver collateral for each loan equal to at least 102 percent of the market value of the domestic loaned securities or 105 percent of the market value of foreign loaned securities.

According to the Agreement, the Agent has an obligation to indemnify the funds in the event any borrower failed to return the loaned securities or pay distributions thereon. There were no such failures during the fiscal year that resulted in a declaration or notice of default of the borrower. During the fiscal year, the funds and the borrowers maintained the right to terminate all securities lending transactions upon notice. The cash collateral received on each loan was invested in an individual account known as the State of Connecticut Collateral Investment Trust. At year end, the funds had no credit risk exposure to borrowers because the fair value of the collateral held and the fair value of securities on loan were \$2,020.8 million and \$1,973.3 million, respectively.

Under normal circumstances, the average duration of collateral investments is managed so that it will not exceed 60 days. At year end, the average duration of the collateral investments was 8.86 days and an average weighted maturity of 53.79 days.

## Note 4

### Receivables-Current

As of June 30, 2017, current receivables consisted of the following (amounts in thousands):

	Primary Government		
	Governmental Activities	Business-Type Activities	Component Units
Taxes	\$ 1,734,808	\$ -	\$ -
Accounts	1,340,664	480,114	82,676
Loans-Current Portion	-	256,914	25,891
Other Governments	497,534	8,360	5,418
Interest	1,655	4,601	550
Other (1)	392	2,022	2,111
Total Receivables	3,575,053	752,011	116,646
Allowance for Uncollectibles	(895,819)	(105,398)	(6,645)
Receivables, Net	\$ 2,679,234	\$ 646,613	\$ 110,001

(1) Includes a reconciling amount of \$379 thousand from fund financial statements to government-wide financial statements.

## Note 5

### Taxes Receivable

Taxes receivable consisted of the following as of June 30, 2017 (amounts in thousands):

	Governmental Activities		
	General	Transportation	Total
	Fund	Fund	
Sales and Use	\$ 677,132	\$ -	\$ 677,132
Income Taxes	600,968	-	600,968
Corporations	5,265	-	5,265
Gasoline and Special Fuel	-	139,489	139,489
Various Other	311,954	-	311,954
Total Taxes Receivable	1,595,319	139,489	1,734,808
Allowance for Uncollectibles	(214,816)	(131)	(214,947)
Taxes Receivable, Net	\$ 1,380,503	\$ 139,358	\$ 1,519,861

## Note 6

### Receivables-Noncurrent

Noncurrent receivables for the primary government and its component units, as of June 30, 2017, consisted of the following (amounts in thousands):

	Primary Government		
	Governmental Activities	Business-Type Activities	Component Units
Accounts	\$ -	\$ -	\$ 34,335
Loans	914,683	999,489	412,625
Total Receivables	914,683	999,489	446,960
Allowance for Uncollectibles	(11,456)	(269)	(9,660)
Receivables, Net	\$ 903,227	\$ 999,220	\$ 437,300

The Grants and Loans fund (governmental activities) makes loans through the Department of Economic and Community Development to provide financial support to businesses, municipalities, nonprofits, economic development agencies and other partners for a wide range of activities that create and retain jobs; strengthen the competitiveness of the workforce; promote tourism, the arts and historic preservation; and help investigate and redevelop brownfields. The department's investments are helping build stronger neighborhoods and communities and improving the quality of life for state residents. These loans are payable over a ten year period with rates ranging from 2 percent to 4 percent.

Clean Water fund (business-type activities) loans funds to qualified municipalities for planning, design, and construction of water quality projects. These loans are payable over a 20 year period at an annual interest rate of 2 percent and are secured by the full faith and credit or revenue pledges of the municipalities, or both. At year end, the noncurrent portion of loans receivable was \$850.7 million.

The Connecticut Higher Education Supplemental Loan Authority (a component unit) makes loans to individuals from the proceeds of bonds issued by the Authority. The loans bear interest rates ranging from 0 percent to 9.2 percent. At year end, the noncurrent portion of loans receivable was \$100.0 million.

## Note 7 Restricted Assets

Restricted assets are defined as resources that are restricted by legal or contractual requirements. As of June 30, 2017, restricted assets were comprised of the following (amounts in thousands):

	Cash & Cash Equivalents	Investments	Loans, Net of Allowances	Other	Total Restricted Assets
<b>Governmental Activities:</b>					
Debt Service	\$ 827,125	\$ -	\$ -	\$ -	\$ 827,125
Total-Governmental Activities	\$ 827,125	\$ -	\$ -	\$ -	\$ 827,125
<b>Business-Type Activities:</b>					
UConn/Health Center	\$ 143,617	\$ -	\$ -	\$ -	\$ 143,617
Clean Water	201,807	127,884	-	-	329,691
Other Proprietary	86,019	8,834	-	-	94,853
Total-Business-Type Activities	\$ 431,443	\$ 136,718	\$ -	\$ -	\$ 568,161
<b>Component Units:</b>					
CHFA	\$ 503,002	\$ 1,323,615	\$ 3,288,519	\$ 126,971	\$ 5,242,107
CAA	121,188	-	-	3,191	124,379
Other Component Units	371,032	-	-	20,040	391,072
Total-Component Units	\$ 995,222	\$ 1,323,615	\$ 3,288,519	\$ 150,202	\$ 5,757,558

## Note 8 Current Liabilities

### Accounts Payable and Accrued Liabilities

As of June 30, 2017, accounts payable and accrued liabilities consisted of the following (amounts in thousands):

	Vendors	Salaries and Benefits	Interest	Other	Total Payables & Accrued Liabilities
<b>Governmental Activities:</b>					
General	\$ 133,407	\$ 216,810	\$ -	\$ -	\$ 350,217
Transportation	17,639	13,403	-	-	31,042
Restricted Accounts	224,965	11,981	-	-	236,946
Grants and Loans	4,349	113	-	2,188	6,650
Other Governmental	87,555	7,870	-	-	95,425
Internal Service	914	1,109	-	-	2,023
Reconciling amount from fund financial statements to government-wide financial statements	-	-	239,917	4,263	244,180
Total-Governmental Activities	\$ 468,829	\$ 251,286	\$ 239,917	\$ 6,451	\$ 966,483
<b>Business-Type Activities:</b>					
UConn/Health Center	\$ 129,752	\$ 84,112	\$ -	\$ 36,547	\$ 250,411
Board of Regents	22,912	85,504	2,397	6,776	117,589
Other Proprietary	9,712	-	12,778	1,943	24,433
Total-Business-Type Activities	\$ 162,376	\$ 169,616	\$ 15,175	\$ 45,266	\$ 392,433
<b>Component Units:</b>					
CHFA	\$ -	\$ -	\$ 15,200	\$ 8,052	\$ 23,252
Connecticut Lottery Corporation	7,942	-	1,458	-	9,400
Connecticut Airport Authority	3,850	4,972	1,122	6,643	16,587
Other Component Units	1,902	-	994	55,983	58,879
Total-Component Units	\$ 13,694	\$ 4,972	\$ 18,774	\$ 70,678	\$ 108,118

**Note 9****Capital Assets**

Capital asset activity for the year was as follows (amounts in thousands):

	<u>Beginning Balance</u>	<u>Additions</u>	<u>Retirements</u>	<u>Ending Balance</u>
<b>Governmental Activities</b>				
Capital Assets not being Depreciated:				
Land	\$ 1,747,636	\$ 76,887	\$ 36,131	\$ 1,788,392
Construction in Progress	<u>4,544,315</u>	<u>1,732,295</u>	<u>1,288,170</u>	<u>4,988,440</u>
Total Capital Assets not being Depreciated	6,291,951	1,809,182	1,324,301	6,776,832
Capital Assets being Depreciated:				
Buildings	4,321,300	346,617	47,494	4,620,423
Improvements Other than Buildings	466,705	9,237	3,293	472,649
Equipment	2,618,191	131,146	127,480	2,621,857
Infrastructure	<u>14,673,328</u>	<u>924,600</u>	<u>-</u>	<u>15,597,928</u>
Total Other Capital Assets at Historical Cost	22,079,524	1,411,600	178,267	23,312,857
Less: Accumulated Depreciation For:				
Buildings	1,716,901	115,417	47,494	1,784,824
Improvements Other than Buildings	325,349	23,502	3,293	345,558
Equipment	2,563,352	137,063	127,480	2,572,935
Infrastructure	<u>10,059,972</u>	<u>441,969</u>	<u>-</u>	<u>10,501,941</u>
Total Accumulated Depreciation	14,665,574	717,951	178,267	15,205,258
Other Capital Assets, Net	<u>7,413,950</u>	<u>693,649</u>	<u>-</u>	<u>8,107,599</u>
Governmental Activities, Capital Assets, Net	<u>\$ 13,705,901</u>	<u>\$ 2,502,831</u>	<u>\$ 1,324,301</u>	<u>\$ 14,884,431</u>

\* Depreciation expense was charged to functions as follows:

<b>Governmental Activities:</b>	
Legislative	\$ 4,897
General Government	21,838
Regulation and Protection	23,426
Conservation and Development	10,722
Health and Hospitals	9,698
Transportation	563,233
Human Services	986
Education, Libraries and Museums	30,220
Corrections	27,661
Judicial	16,707
Capital assets held by the government's internal service funds are charged to the various functions based on the usage of the assets	<u>8,563</u>
<b>Total Depreciation Expense</b>	<u>\$ 717,951</u>

	<u>Beginning Balance</u>	<u>Additions</u>	<u>Retirements</u>	<u>Ending Balance</u>
<b>Business-Type Activities</b>				
Capital Assets not being Depreciated:				
Land	\$ 68,631	\$ -	\$ 6	\$ 68,625
Construction in Progress	<u>686,070</u>	<u>254,863</u>	<u>63,589</u>	<u>877,344</u>
Total Capital Assets not being Depreciated	754,701	254,863	63,595	945,969
Capital Assets being Depreciated:				
Buildings	5,311,471	297,545	12,705	5,596,311
Improvements Other Than Buildings	403,251	27,378	-	430,629
Equipment	<u>1,042,391</u>	<u>75,327</u>	<u>60,330</u>	<u>1,057,388</u>
Total Other Capital Assets at Historical Cost	6,757,113	400,250	73,035	7,084,328
Less: Accumulated Depreciation For:				
Buildings	2,059,224	163,359	11,437	2,211,146
Improvements Other Than Buildings	218,957	14,607	-	233,564
Equipment	<u>694,936</u>	<u>75,332</u>	<u>57,037</u>	<u>713,231</u>
Total Accumulated Depreciation	2,973,117	253,298	68,474	3,157,941
Other Capital Assets, Net	<u>3,783,996</u>	<u>146,952</u>	<u>4,561</u>	<u>3,926,387</u>
Business-Type Activities, Capital Assets, Net	<u>\$ 4,538,697</u>	<u>\$ 401,815</u>	<u>\$ 68,156</u>	<u>\$ 4,872,356</u>

**Component Units**

Capital assets of the component units consisted of the following as of June 30, 2017 (amounts in thousands):

Land	\$	59,475
Buildings		700,310
Improvements other than Buildings		323,185
Machinery and Equipment		582,155
Construction in Progress		17,969
Total Capital Assets		1,683,094
Accumulated Depreciation		912,081
Capital Assets, Net	\$	771,013

## Note 10

### State Retirement Systems

The State sponsors three major public employee retirement systems: the State Employees' Retirement System (SERS)-consisting of Tier I (contributory), Tier II (noncontributory) Tier IIA (contributory) and Tier III (contributory), the Teachers' Retirement System (TRS), and the Judicial Retirement System (JRS). The three plans in this note do not issue separate financial statements, nor are they reported as a part of other entities. Beginning in fiscal year 2018, all new hires to SERS will be in a new Tier IV Hybrid Plan structure. The financial statements and other required information are presented in Note 12 and in the Required Supplementary Information (RSI) section of the CAFR.

The State Comptroller's Retirement Division under the direction of the Connecticut State Employees' Retirement Commission administers SERS and JRS. The sixteen members are: the State Treasurer or a designee who serves as a non-voting ex-officio member, six trustees representing employees are appointed by the bargaining agents in accordance with the provisions of applicable collective bargaining agreements, one "neutral" Chairman, two actuarial trustees and six management trustees appointed by the Governor. The Teachers' Retirement Board administers TRS. The fourteen members of the Teachers' Retirement Board include: the State Treasurer, the Secretary of the Office of Policy and Management, the Commissioner of Education or their designees, who serve as ex-officio voting members. Six members who are elected by teacher membership and five public members appointed by the Governor.

#### *Special Funding Situation*

The employer contributions for the Teachers' Retirement System (TRS) are funded by the State on behalf of the participating municipal employers. Therefore, these employers are considered to be in a special funding situation and the State is treated as a non-employer contributing entity as defined by GASB 68. As a result, the State reports a liability, deferred outflows of resources and deferred inflows of resources, and expenses. Additionally, the autonomous Component Units that benefit from the services provided by employees of the State are considered, as defined by GASB 68 as non-employer contributing entities. As such they report a liability, deferred outflows of resources and deferred inflows of resources, and expenses as a result of being statutorily required to contribute to SERS.

#### *a. Plan Descriptions and Funding Policy*

Membership of each plan consisted of the following at the date of the latest actuarial evaluation:

	SERS	TRS	JRS
	6/30/2016	6/30/2016	6/30/2016
Inactive Members or their			
Beneficiaries receiving benefits	48,191	36,065	250
Inactive Members Entitled to but			
not yet Receiving Benefits	1,412	2,085	3
Active Members	50,019	50,877	204

#### *State Employees' Retirement System*

##### *Plan Description*

SERS is a single-employer defined-benefit pension plan covering substantially all of the State full-time employees who are not eligible for another State sponsored retirement plan. Plan benefits, cost-of-living allowances, contribution requirements of plan members and the State, and other plan provisions are described in Sections 5-152 to 5-192 of the General Statutes. The plan provides retirement, disability, and death benefits, and annual cost-of-living allowances to plan members and their beneficiaries.

**Funding Policy**

The contribution requirements of plan members and the State are established and may be amended by the State legislature subject to the contractual rights established by collective bargaining. Tier I Plan B regular and Hazardous Duty members are required to contribute 2 percent and 4 percent of their annual salary, respectively, up to the Social Security Taxable Wage Base plus 5 percent above that level; Tier I Plan C members are required to contribute 5 percent of their annual salary; Tier II Plan Hazardous Duty members are required to contribute 4 percent of their annual salary; Tier IIA and Tier III Plans regular and Hazardous Duty members are required to contribute 2 percent and 5 percent of their annual salary, respectively. Individuals hired on or after July 1, 2011 otherwise eligible for the Alternative Retirement Plan (ARP) are eligible to become members of the Hybrid Plan in addition to their other existing choices. The Hybrid Plan has defined benefits identical to Tier II/IIA and Tier III for individuals hired on or after July 1, 2011, but requires employee contributions 3 percent higher than the contribution required from the applicable Tier II/IIA/III plan. Employees in the new Tier IV Hybrid Plan will be required to contribute 3 percent more than Tier II employees into the defined benefit plan. The State is required to contribute at an actuarially determined rate. Administrative costs of the plan are funded by the State.

**Teachers' Retirement System****Plan Description**

TRS is a cost-sharing multiple-employer defined-benefit pension plan covering any teacher, principal, superintendent, or supervisor engaged in service of public schools in the State. Plan benefits, cost-of-living allowances, required contributions of plan members and the State, and other plan provisions are described in Sections 10-183b to 10-183ss of the General Statutes. The plan provides retirement, disability, and death benefits, and annual cost-of-living allowances to plan members and their beneficiaries.

**Funding Policy**

The contribution requirements of plan members and the State are established and may be amended by the State legislature. Plan members are required to contribute 6 percent of their annual salary. Administrative costs of the plan are funded by the State.

**Judicial Retirement System****Plan Description**

JRS is a single-employer defined-benefit pension plan covering any appointed judge or compensation commissioner in the State. Plan benefits, cost-of-living allowances, required contributions of plan members and the State, and other plan provisions are described in Sections 51-49 to 51-51 of the General Statutes. The plan provides retirement, disability, and death benefits, and annual cost-of-living allowances to plan members and their beneficiaries.

**Funding Policy**

The contribution requirements of plan members and the State are established and may be amended by the State legislature. Plan members are required to contribute 6 percent of their annual salary. The State is required to contribute at an actuarially determined rate. Administrative costs of the plan are funded by the State.

**b. Investments**

The State Treasurer employs several outside consulting firms as external money and investment managers, to assist the Chief Investment Officer, as they manage the investment programs of the pension plans. Plan assets are managed primarily through asset allocation decisions with the main objective being to maximize investment returns over the long term at an acceptable level of risk. There is no concentration of investments in any one organization that represents 5.0 percent or more of plan net position available for benefits. The following is the asset allocation policy as of June 30, 2016.

Asset Class	SERS		TRB		JRS	
	Target Allocation	Long-Term Expected Real Rate of Return	Target Allocation	Long-Term Expected Real Rate of Return	Target Allocation	Long-Term Expected Real Rate of Return
Large Cap U.S. Equities	21.0%	5.8%	25.0%	5.8%	21.0%	5.8%
Developed Non-U.S. Equities	18.0%	6.6%	20.0%	6.6%	18.0%	6.6%
Emerging Markets (Non-U.S.)	9.0%	8.3%	9.0%	8.3%	9.0%	8.3%
Real Estate	7.0%	5.1%	5.0%	5.1%	7.0%	5.1%
Private Equity	11.0%	7.6%	10.0%	7.6%	11.0%	7.6%
Alternative Investment	8.0%	4.1%	8.0%	4.1%	8.0%	4.1%
Fixed Income (Core)	8.0%	1.3%	13.0%	1.3%	8.0%	1.3%
High Yield Bonds	5.0%	3.9%	2.0%	3.9%	5.0%	3.9%
Emerging Market Bond	4.0%	3.7%	4.0%	3.7%	4.0%	3.7%
Inflation Linked Bonds	5.0%	1.0%	6.0%	1.0%	5.0%	1.0%
Cash	4.0%	0.4%	6.0%	0.4%	4.0%	0.4%

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

**Rate of Return:** For the year ended June 30, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan expense was 14.3 percent, 14.4 percent, and 13.0 percent for SERS, TRS, and JRS, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

#### **Net Pension Liability**

The components of the net pension liability as of the measurement June 30, 2016 were as follows (amounts in millions):

	<u>SERS</u>	<u>TRS</u>	<u>JRS</u>
Total Pension Liability	\$ 33,617	\$ 29,840	\$ 434
Fiduciary Net Position	<u>10,654</u>	<u>15,595</u>	<u>190</u>
Net Pension Liability	<u>\$ 22,963</u>	<u>\$ 14,245</u>	<u>\$ 244</u>
Ratio of Fiduciary Net Position to Total Pension Liability	31.69%	52.26%	43.76%

#### **Deferred Retirement Option Program (DROP)**

Section 10-183v of the General Statute authorizes that a TRS member teacher receiving retirement benefits from the system may be reemployed for up to one full school year by a local board of education, the State Board of Education or by a constituent unit of the state system of higher education in a position (1) designated by the Commissioner of Education as a subject shortage area, or (2) at a school located in a school district identified as a priority school district. Such reemployment may be extended for an additional school year, by written request for approval to the Teachers' Retirement Board.

As of June 30, 2017 the balance held for the DROP was not available from the Teachers' Retirement Board.

#### **Discount Rate**

The discount rate used to measure the total pension liability was 6.9, 8.0, and 6.9 percent for SERS, TRS, and JRS respectively. The projection of cash flows used to determine the SERS, TRS, and JRS discount rate assumed employee contributions will be made at the current contribution rate and that contributions from the State will be made at actuarially determined rates in future years. Based on those assumptions, SERS, TRS, and JRS pension plans' fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

#### **Sensitivity of the net pension liability to changes in the discount rate**

The following presents the net pension liability of the State, calculated using the discount rates of 6.9, 8.0 and 6.9 percent for SERS, TRS, and JRS, as well as what the State's net pension liabilities would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate (amounts in millions):

	1%	Current	1%
	Decrease in	Discount	Increase in
	<u>Rate</u>	<u>Rate</u>	<u>Rate</u>
SERS Net Pension Liability	\$ 27,250	\$ 22,963	\$ 19,395
TRS Net Pension Liability	\$ 17,574	\$ 14,245	\$ 11,431
JRS Net Pension Liability	\$ 290	\$ 244	\$ 204

*c. GASB Statement 68 Employer Reporting  
Employer Contributions*

The following table presents the primary government's and component units' contributions recognized by the pension plans at the measurement date June 30, 2016 (amounts in thousands):

	<u>SERS</u>	<u>TRS</u>	<u>JRS</u>	<u>Total</u>
Primary Government	\$ 1,484,817	\$ 975,578	\$ 18,259	\$ 2,478,654
Component Units	16,988	-	-	16,988
Total Employer Contributions	<u>\$ 1,501,805</u>	<u>\$ 975,578</u>	<u>\$ 18,259</u>	<u>\$ 2,495,642</u>

*Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

As of the reporting date June 30, 2017, the primary government and component units reported net pension liabilities for the following plans administered by the State as follows (amounts in thousands):

	<u>Primary Government</u>	<u>Component Units</u>
Proportionate Share of the Net Pension Liability		
State Employees' Retirement System	\$ 22,703,172	\$ 259,752
Net Pension Liability		
Teachers' Retirement System	14,245,051	-
Judicial Retirement System	243,845	-
Total Net Pension Liability	<u>\$ 37,192,068</u>	<u>\$ 259,752</u>

The primary government's and component units' proportions of the collective net pension liability for the State Employees' Retirement System as of the measurement date June 30, 2016 as follows (amounts in thousands):

	<u>Primary Government</u>	<u>Component Units</u>
State Employees' Retirement System		
Proportion-June 30, 2016	98.87%	1.13%

For the reporting year ended June 30, 2017, the primary government and component units' recognized pension expense for the following pension plans administered by the State as follows (amounts in thousands):

	<u>Primary Government</u>	<u>Component Units</u>
Pension Expense		
State Employees' Retirement System	\$ 2,467,116	\$ 24,002
Teachers' Retirement System	1,553,474	-
Judicial Retirement System	34,629	-
	<u>\$ 4,055,219</u>	<u>\$ 24,002</u>

**Deferred Outflows and Inflows of Resources**

As of the reporting date June 30, 2017, the State reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Primary Government		Component Units	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
<b>State Employees' Retirement System</b>				
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	\$ 711,943	\$ -	\$ 8,146	\$ -
Difference Between Expected and Actual Experience	630,684	-	7,216	-
Changes in Proportion & Differences Between Employer Contributions & Proportionate Share of Contributions	-	-	7,994	27,815
Change in Assumptions	4,047,825	-	46,312	-
Employer Contributions Subsequent to Measurement Date	1,525,310	-	16,988	-
Total	<u>\$ 6,915,762</u>	<u>\$ -</u>	<u>\$ 86,656</u>	<u>\$ 27,815</u>
<b>Teachers' Retirement System</b>				
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	\$ 1,206,422	\$ -		
Difference Between Expected and Actual Experience	-	320,621		
Change in Assumptions	1,888,199	-		
Employer Contributions Subsequent to Measurement Date	1,012,162	-		
Total	<u>\$ 4,106,783</u>	<u>\$ 320,621</u>		
<b>Judicial Retirement System</b>				
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	\$ 13,075	\$ -		
Difference Between Expected and Actual Experience	-	7,052		
Change in Assumptions	48,573	-		
Employer Contributions Subsequent to Measurement Date	19,164	-		
Total	<u>\$ 80,812</u>	<u>\$ 7,052</u>		

The amount reported as deferred outflows of resources related to pensions resulting from the State contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability reported in the following fiscal year. The amount reported as deferred inflows of resources related to pensions will be recognized as pension expense as follows (amounts in thousands):

<b>State Employees' Retirement System</b>		
<b>Year Ending June 30</b>	Primary	Component
	Government	Units
2017	\$ 1,127,260	\$ 8,673
2018	1,127,258	8,673
2019	1,268,627	10,290
2020	1,161,976	9,052
2021	725,151	5,166
	<u>\$ 5,410,272</u>	<u>\$ 41,854</u>

<b>Teachers' Retirement System</b>	
<b>Year Ending June 30</b>	Primary
	Government
2017	\$ 509,415
2018	509,417
2019	723,584
2020	543,234
2021-2022	488,350
	<u>\$ 2,774,000</u>

<b>Judges' Retirement System</b>	
<b>Year Ending June 30</b>	Primary
	Government
2017	\$ 16,495
2018	16,493
2019	18,462
2020	3,146
2021	-
	<u>\$ 54,596</u>

**Actuarial Assumptions**

The total pension liability was determined by an actuarial valuation as of June 30, 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

	<b>SERS</b>	<b>TRS</b>	<b>JRS</b>
Valuation Date	6/30/2016	6/30/2016	6/30/2016
Inflation	2.50%	2.75%	2.50%
Salary Increases	3.5%-19.5%	3.25%-6.50%	4.50%
Investment Rate of Return	6.90%	8.0%	6.90%

The actuarial assumptions used in the June 30, 2016 SERS and JRS reported mortality rates based on the RP-2014 Mortality Table projected to 2020 by scale BB at 100 percent for males and 95 percent for females for periods after service retirement and dependent beneficiaries. The RP-2014 Disabled Retiree Mortality Table at 65 percent for males and 85 percent for females is used for periods after disability.

The actuarial assumptions used in the June 30, 2016 TRS actuarial report were based on RPH-2014 White Collar table with employee and annuitant rates blended from ages 50 to 80, projected to the year 2020 using the BB improvement scale, and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80 for the period after service retirement and for dependent beneficiaries as well as for active members. The RPH-2014 Disabled Mortality Table projected to 2017 with Scale BB is used for the period after disability retirement.

**Changes in Net Pension Liability**

The following schedule presents changes in the State's pension liability and fiduciary net position for each plan for the measurement date June 30, 2016 (amounts in thousands):

<b>Total Pension Liability</b>	<b>SERS</b>	<b>TRS</b>	<b>JRS</b>
Service Cost	\$ 322,114	\$ 419,616	\$ 8,508
Interest	2,105,947	2,228,958	28,251
Benefit Changes	-	-	-
Difference between expected and actual experience	772,762	(375,805)	(9,380)
Changes of assumptions	4,959,705	2,213,190	64,604
Benefit payments	(1,729,181)	(1,738,131)	(22,994)
Refunds of Contributions	(7,098)	-	-
<b>Net change in total pension liability</b>	<b>6,424,249</b>	<b>2,747,828</b>	<b>68,989</b>
<b>Total pension liability - beginning (a)</b>	<b>27,192,467</b>	<b>27,092,095</b>	<b>364,614</b>
<b>Total pension liability - ending (c)</b>	<b>\$ 33,616,716</b>	<b>\$ 29,839,923</b>	<b>\$ 433,603</b>
<b>Plan fiduciary net position</b>			
Contributions - employer	\$ 1,501,805	\$ 975,578	\$ 18,259
Contributions - member	135,029	293,493	1,831
Net investment income	(100)	(18,473)	1,440
Benefit payments	(1,729,181)	(1,738,131)	(22,994)
Other	77,859	(37,648)	1,680
<b>Net change in plan fiduciary net position</b>	<b>(14,588)</b>	<b>(525,181)</b>	<b>216</b>
<b>Plan net position - beginning (b)</b>	<b>10,668,380</b>	<b>16,120,053</b>	<b>189,542</b>
<b>Plan net position - ending (d)</b>	<b>\$ 10,653,792</b>	<b>\$ 15,594,872</b>	<b>\$ 189,758</b>
<b>Net pension liability - beginning (a)-(b)</b>	<b>\$ 16,524,087</b>	<b>\$ 10,972,042</b>	<b>\$ 175,072</b>
<b>Net pension liability - ending (c)-(d)</b>	<b>\$ 22,962,924</b>	<b>\$ 14,245,051</b>	<b>\$ 243,845</b>

**d. Defined Contribution Plan**

The State also sponsors the Connecticut Alternate Retirement Program (CARP), a defined contribution plan. CARP is administered by the State Comptroller's Retirement Office under the direction of the Connecticut State Employees' Retirement Division. Plan provisions, including contribution requirements of plan members and the State, are described in Section 5-156 of the General Statutes.

Unclassified employees at any of the units of the Connecticut State System of Higher Education are eligible to participate in the plan. Plan members are required to contribute 5 percent of their annual salaries. The State is required to contribute 8 percent of covered salary. During the year, plan members and the State contributed \$36.5 million and \$56.2 million, respectively.

**Note 11****Other Retirement Systems Administered by the State of Connecticut**

The State acts solely as the administrator and custodian of the assets of the Connecticut Municipal Employees' Retirement System (MERS) and the Connecticut Probate Judges and Employees Retirement System (CPJERS). The State makes no contribution to and has only a fiduciary responsibility for these funds. None of the above mentioned systems issue stand-alone financial reports. However, financial statements for MERS and CPJERS are presented in Note No. 12.

**a. Plan Descriptions and Funding Policy**

Membership of each plan consisted of the following at the date of the latest actuarial valuation:

	MERS 6/30/2016	CPJERS 12/31/2015
Retirees and beneficiaries		
receiving benefits	7,102	336
Terminated plan members entitled		
to but not receiving benefits	1,335	149
Active plan members	9,373	371
Total	<u>17,810</u>	<u>856</u>
Number of participating employers	191	1

**Connecticut Municipal Employees' Retirement System****Plan Description**

MERS is a cost-sharing multiple-employer defined benefit pension plan that covers fire, police, and other personnel (except teachers) of participating municipalities in the State. Pension plan assets are pooled and the plan assets can be used to pay the pensions of the retirees of any participating employer. Plan benefits, cost-of-living adjustments, contribution requirements of plan members and participating municipalities, and other plan provisions are described in Chapters 7-425 to 7-451 of the General Statutes. The plan provides retirement, disability, and death benefits, and annual cost-of-living adjustments to plan members and their beneficiaries.

**Funding Policy**

Plan members are required to contribute 2.25 percent to 5.0 percent of their annual salary. Participating municipalities are required to contribute at an actuarial determined rate. The participating municipalities fund administrative costs of the plan.

**b. Investment Policy**

The State Treasurer employs several outside consulting firms as external money and investment managers, to assist the Chief Investment Officer as they manage the investment programs of the pension plans. Plan assets are managed primarily through asset allocation decisions with the main objective being to maximize investment returns over the long term at an acceptable level of risk. There is no concentration of investments in any one organization that represents 5.0 percent or more of plan net position available for benefits.

Asset Class	MERS	
	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Large Cap U.S. Equities	16.0%	5.8%
Developed Non-U.S. Equities	14.0%	6.6%
Emerging Markets (Non-U.S.)	7.0%	8.3%
Real Estate	7.0%	5.1%
Private Equity	10.0%	7.6%
Alternative Investment	8.0%	4.1%
Fixed Income (Core)	8.0%	1.3%
High Yield Bonds	14.0%	3.9%
Emerging Market Bond	8.0%	3.7%
Inflation Linked Bonds	5.0%	1.0%
Cash	3.0%	0.4%

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

*c. GASB Statement 68 Employer Reporting**Net Pension Liability of Participating Employers*

The components of the net pension liability for MERS at June 30, 2016 were as follows (amounts in millions):

	<u>MERS</u>
Employers' Total Pension Liability	\$ 2,840
Fiduciary Net Position	<u>2,507</u>
Employers' Net Pension Liability	<u>\$ 333</u>
Ratio of Fiduciary Net Position to Total Pension Liability	88.29%

**Discount Rate**

The discount rate used to measure the total pension liability was 8 percent for MERS. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. The long-term expected rate of return on pension plan investments was applied to all period of projected benefit payments to determine the total pension liability.

**Sensitivity of the net pension liability to changes in the discount rate**

The following presents the net pension liability of MERS, calculated using the discount rate of 8 percent as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1- percentage-point higher than the current rate (amounts in millions):

	<u>1%</u> <u>Decrease in</u> <u>Rate</u>	<u>Current</u> <u>Discount</u> <u>Rate</u>	<u>1%</u> <u>Increase in</u> <u>Rate</u>
Net Pension Liability	\$ 681	\$ 333	\$ 40

**Deferred outflows and deferred inflows of resources**

The cumulative net amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in future pension expense as follows (amounts in thousands):

	<u>Deferred</u> <u>Outflows of</u> <u>Resources</u>
<b>Municipal Employees Retirement System</b>	
Difference Between Expected and Actual Experience	\$ 40,035
Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	<u>157,150</u>
	<u>\$ 197,185</u>

Amounts recognized in subsequent fiscal years:

<u>Year Ending June 30</u>	<u>MERS</u>
2017	\$ 44,762
2018	44,762
2019	66,197
2020	<u>41,464</u>

The above amounts do not include the deferred outflows/inflows of resources for employer contributions made subsequent to the measurement date. These amounts should be calculated and recorded by each participating employer.

**Collective Pension Expense**

Collective pension expense includes certain current period changes in the collective net pension liability, projected earnings on pension plan investments and the amortization of deferred outflows of resources and deferred inflows of resources for the current period. The collective pension expense for the period ended June 30, 2016 is as follows (amounts in thousands):

Service Cost	\$ 67,126
Interest on the total pension liability	206,064
Expensed portion of current-period difference between expected and actual experience in the total pension liability	10,292
Member Contributions	(24,019)
Projected earnings on plan investments	(179,274)
Expensed portion of current period differences between projected and actual earnings on plan investments	32,305
Other	(6,063)
Recognition of beginning deferred outflows of resources as pension expense	2,165
Collective Pension Expense	<u>\$ 108,596</u>

**Actuarial Assumptions**

The total pension liability was determined by an actuarial valuation as of June 30, 2016, using the following actuarial assumptions, applied to all periods included in the measurement date:

Inflation	3.25%
Salary increase	4.25-11.0%, including inflation
Investment rate of return	8.00%, net of pension plan investment expense, including inflation

Mortality rates were based on the RP-2000 Combined Mortality Table for annuitants and non-annuitants (set forward one year for males and set back one year for females).

**d. Connecticut Probate Judges and Employees' Retirement System****Plan Description**

CPJERS is an agent multi-employer defined benefit pension plan that covers judges and employees of probate courts. Plan benefits, cost-of-living adjustments, required contributions of plan members and the probate court system, and other plan provisions are described in Chapters 45a-34 to 45a-56 of General Statutes. The plan provides retirement, disability, and death benefits, and annual cost-of-living adjustments to plan members and their beneficiaries.

Pension plan assets are pooled for investment purposes but separate accounts are maintained for each individual court so that each court's share of the pooled assets is legally available to pay the benefits of only its employees. The plan is administered by the State Employee's Retirement Commission.

**Funding**

Plan members are required to contribute 1.0 percent to 3.75 percent of their annual salary. The probate court system is required to contribute at an actuarial determined rate. Administrative costs of the plan are funded by the probate court system.

**Pension Liability**

Information concerning the CPJERS total pension liability and significant assumptions used to measure the plans total pension liability, such as inflation, salary changes, discount rates and mortality are available by contacting the State Comptroller's Retirement Division.



## Note 13

### Other Postemployment Benefits (OPEB)

The State sponsors two defined benefit OPEB plans: the State Employee OPEB Plan (SEOPEBP) and the Retired Teacher Healthcare Plan (RTHP). This year the State adapted the Governmental Accounting Standards Board Statement No. 74 - *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*.

The State Comptroller's Healthcare Policy and Benefits Division under the direction of the Connecticut State Employees Retirement Commission administers the State Employee OPEB Plan. The membership of the commission is composed of the State Treasurer or designee, who is a nonvoting ex-officio member; fifteen trustees, including six trustees representing state employees; six trustees representing state management; two trustees who are professional actuaries and one neutral trustee who serves as chairman. Also, the State Comptroller, ex officio, serves as the nonvoting secretary. The Governor makes all appointments except the employee trustees who are selected by employee bargaining agents. Management and employee trustees make the appointments of the chairman and the actuarial trustee positions. The Teachers' Retirement Board administers the Retired Teachers' Healthcare Plan. None of these plans issue stand alone statements, however, financial statements for these plans are presented in Note No. 14.

#### *a. Plan Descriptions and Funding Policy*

Membership of each plan consisted of the following at the date of the latest actuarial evaluation:

	<u>SEOPEBP</u>	<u>RTHP</u>
	<u>6/30/2017</u>	<u>6/30/2016</u>
Inactive Members or their		
Beneficiaries receiving benefits	70,776	40,160
Inactive Members Entitled to but		
not yet Receiving Benefits	484	2,085
Active Members	53,101	50,877

#### *State Employee OPEB Plan*

##### *Plan Description*

SEOPEBP is a single-employer defined benefit OPEB plan that covers retired employees of the State who are receiving benefits from any State-sponsored retirement system, except the Teachers' Retirement System and the Municipal Employees' Retirement System. The plan provides healthcare and life insurance benefits to eligible retirees and their spouses. Plan benefits, required contributions of plan participants and the State, and other plan provisions are described in Sections 5-257 and 5-259 of the General Statutes.

##### *Funding Policy*

The contribution requirements of the plan members and the State are established and may be amended by the State legislature, or by agreement between the State and employees unions, upon approval by the State legislature. The cost of providing plan benefits is financed approximately 100 percent by the State on a pay-as-you-go basis through an annual appropriation in the General fund. Administrative costs of the plan are financed by the State.

#### *Retired Teacher Healthcare Plan*

##### *Plan Description*

RTHP is a single-employer defined benefit OPEB plan that covers retired teachers and administrators of public schools in the State who are receiving benefits from the Teachers' Retirement System. The plan provides healthcare insurance benefits to eligible retirees and their spouses. Plan benefits, required contributions of plan participants and the State, and other plan provisions are described in Section 10-183 of the General Statutes.

##### *Funding Policy*

The contribution requirements of plan members and the State are established and may be amended by the State legislature. The cost of providing plan benefits is financed on a pay-as-you-go basis as follows: active teachers pay for one third of plan costs through a contribution of 1.25 percent of their annual salaries, retired teachers pay for one third of plan costs through monthly premiums, and the State pays for one third of plan costs through an annual appropriation in the General Fund. Administrative costs of the plan are financed by the State.

#### *b. Investments*

The State Treasurer employs several outside consulting firms as external money and investment managers, to assist the Chief Investment Officer, as they manage the investment programs of the State Employee OPEB Plan. Plan assets are managed primarily through assets allocation decisions with the main objective being to maximize investment returns over the long term at an acceptable

level of risk. There is no concentration of investments in any one organization that represents 5.0 percent or more of plan net position available for benefits. The following is the asset allocation policy as of June 30, 2017.

Asset Class	SEOPEBP		RTHP	
	Target Allocation	Long-Term	Target Allocation	Expected 10 year
		Expected Real Rate of Return		Geometric Real Rate of Return
Large Cap U.S. Equities	21.0%	5.8%	0.00%	4.39%
Small/Mid U.S. Equities	0.0%	0.0%	0.00%	4.74%
Non U.S. Equities - Developed	18.0%	6.6%	0.00%	4.86%
Non U.S. - Emerging Markets	9.0%	8.3%	0.00%	6.19%
Real Estate	7.0%	5.1%	0.00%	4.11%
Hedge Funds	0.0%	0.0%	0.00%	3.18%
Commodities	0.0%	0.0%	0.00%	1.78%
Infrastructure	0.0%	0.0%	0.00%	4.34%
Private Equity	11.0%	7.6%	0.00%	6.91%
Alternative Investment	8.0%	4.1%	0.00%	0.00%
Fixed Income (Core)	8.0%	1.3%	0.00%	1.22%
Long Duration Bonds	0.0%	0.0%	0.00%	1.62%
High Yield Bonds	5.0%	3.9%	0.00%	3.66%
Non U.S. Debt - Developed	0.0%	0.0%	0.00%	0.26%
Non U.S. Debt - Emerging	4.0%	3.7%	0.00%	3.53%
TIPS (Inflation Protected)	0.0%	0.0%	0.00%	0.63%
Inflation Linked Bonds	5.0%	1.0%	0.00%	0.00%
U. S. Treasuries (Cash Equivalents)	4.0%	0.4%	100.00%	-0.02%

The long-term expected rate of return on RTHP OPEB plan assets was determined by weighting the expected future real rates of return by the target asset allocation percentage and adding expected inflation. The assumption is not expected to change absent a significant change in asset allocation, a change in inflation assumption, or a fundamental change in the market that alters expected returns in future years.

### c. GASB 74 Requirements

#### Net OPEB Liability

The components of the net OPEB liability as of June 30, 2017, the measurement date, were as follows (amounts in thousands):

	SEOPEBP	RTHP
Total OPEB Liability	\$ 17,928,030	\$ 3,538,772
Fiduciary Net Position	542,342	63,428
Net OPEB Liability	\$ 17,385,688	\$ 3,475,344
Ratio of Fiduciary Net Position to Total OPEB Liability	3.03%	1.79%

#### Actuarial Assumptions

The total OPEB liability was determined by actuarial valuations as of June 30, 2017 and June 30, 2016 respectively, using the following actuarial assumptions, applied to all periods included in the measurement:

	SEOPEBP	RTHP
	6/30/17	6/30/16
Inflation	3.25%	2.75%
Salary increase	3.75%	3.25%-6.5%
Investment rate of return	6.90%	4.25%, net of pension plan investment expense including price inflation
Healthcare cost trend rates	10% for drug cost graded to 5% over 5 years, other cost 5%	7.75% decreasing to 5% by year 2022

Mortality rates for the State Employees OPEB Plan were based on the RP-2000 Healthy Annuitant Mortality Table for male rates projected 15 years (set back 2 years) and female rates projected 25 years (set back one year) under Scale AA.

Mortality rates for the State Teachers Retirement System were based on RPH-2014 White Collar Morality Table with employee and annuitant rates blended from ages 50 to 80 projected to year 2020 under Scale BB and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80. Disabled participants mortality rates were based on the RPH-2014 Disabled Retiree Mortality Table projected to 2017 using BB improvement scale.

**Discount Rate**

The discount rate used to measure the total OPEB liability for SEOPEBP and RTHP respectively, was 3.74 and 3.56 percent. The projection of cash flows used to determine the discount was performed in accordance with GASB 74.

**Sensitivity of the net OPEB liability to changes in the discount rate**

The following presents the net OPEB liability of the State, as well as what the State's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current discount rate (amounts in thousands):

	<b>SEOPEBP</b>		
	1% Decrease in Discount Rate	Current Discount Rate	1% Increase in Discount Rate
	<u>2.74%</u>	<u>3.74%</u>	<u>4.74%</u>
SEOPEBP Net OPEB Liability	\$ 20,115,969	\$ 17,385,688	\$ 15,158,837

	<b>RTHP</b>		
	1% Decrease in Discount Rate	Current Discount Rate	1% Increase in Discount Rate
	<u>2.56%</u>	<u>3.56%</u>	<u>4.56%</u>
RTHP Net OPEB Liability	\$ 4,188,346	\$ 3,475,344	\$ 2,914,719

**Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates**

The following presents the net OPEB liability of the State, as well as what the State's net OPEB liability would be if it were calculated using healthcare cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rate (amounts in thousands):

	<b>SEOPEBP</b>		
	1% Decrease	Current	1% Increase
	<u>14,936,332</u>	<u>17,385,688</u>	<u>20,477,885</u>
SEOPEBP Net OPEB Liability	\$ 14,936,332	\$ 17,385,688	\$ 20,477,885

	<b>RTHP</b>		
	1% Decrease	Current	1% Increase
	<u>2,861,462</u>	<u>3,475,344</u>	<u>4,301,861</u>
RTHP Net OPEB Liability	\$ 2,861,462	\$ 3,475,344	\$ 4,301,861

**Changes in Net OPEB Liability**

The following schedule presents changes in the State's pension liability and fiduciary net position for each plan for the measurement date June 30, 2017 (amounts in thousands):

	<b>SEOPEBP</b>	<b>RTHP</b>
<b>Total OPEB Liability</b>		
Service Cost	\$ 1,081,923	\$ 148,220
Interest	849,907	111,129
Benefit Changes	(8,853,455)	-
Difference between expected and actual experience	(97,527)	-
Changes of assumptions	(1,936,042)	(370,549)
Benefit payments	(639,467)	(84,071)
<b>Net change in total OPEB liability</b>	<u>(9,594,661)</u>	<u>(195,271)</u>
<b>Total OPEB liability - beginning</b>	<u>27,522,691</u>	<u>3,734,043</u>
<b>Total OPEB liability - ending (a)</b>	<u><b>\$ 17,928,030</b></u>	<u><b>\$ 3,538,772</b></u>
<b>Plan fiduciary net position</b>		
Contributions - employer	\$ 667,401	\$ 19,922
Contributions - member	120,783	50,436
Net investment income	53,194	369
Benefit payments	(639,467)	(84,071)
Administrative expense	-	(150)
Other	(187)	42
<b>Net change in plan fiduciary net position</b>	<u>201,724</u>	<u>(13,452)</u>
<b>Plan fiduciary net position - beginning</b>	<u>340,618</u>	<u>76,880</u>
<b>Plan fiduciary net position - ending (b)</b>	<u><b>\$ 542,342</b></u>	<u><b>\$ 63,428</b></u>
<b>Net OPEB liability - ending (a)-(b)</b>	<u><b>\$ 17,385,688</b></u>	<u><b>\$ 3,475,344</b></u>

The benefit changes is a result of the implementation of the Medicare Advantage plan for the State's Medicare-eligible retirees effective after January 1, 2018, as well as proposed changes in the SEBAC agreement for non-Medicare retirees. These changes pertaining to premium shares and health care design changes, affect new retirees after October 2, 2017.

**Annual OPEB Cost and Net OPEB Obligation Required by GASB 45**

The State's annual OPEB cost and the net OPEB obligation for each plan for the current fiscal year were as follows (amounts in thousands):

	<u>SEOPEBP</u>	<u>RTHP</u>
Annual Required Contribution	\$ 1,043,143	\$ 166,802
Interest on Net OPEB Obligation	503,257	49,450
Adjustment to Annual Required Contribution	(512,216)	(40,881)
Annual OPEB Cost	1,034,184	175,371
Contributions Made	667,401	19,922
Increase in net OPEB Obligation	366,783	155,449
Net OPEB Obligation - Beginning of Year	8,829,062	1,098,891
Net OPEB Obligation - End of Year	<u>\$ 9,195,845</u>	<u>\$ 1,254,340</u>

In addition, other related information for each plan for the past three fiscal years was as follows (amounts in thousands):

	<u>Fiscal</u> <u>Year</u>	<u>Annual</u> <u>OPEB</u> <u>Cost</u>	<u>Percentage of</u> <u>Annual OPEB</u> <u>Cost Contributed</u>	<u>Net</u> <u>OPEB</u> <u>Obligation</u>
SEOPEBP				
	2017	\$ 1,034,184	64.5%	\$ 9,195,845
	2016	\$ 1,435,596	42.4%	\$ 8,829,062
	2015	\$ 1,541,667	35.4%	\$ 8,002,059
RTHP				
	2017	\$ 175,371	11.4%	\$ 1,254,340
	2016	\$ 137,983	14.5%	\$ 1,098,891
	2015	\$ 118,175	21.3%	\$ 980,868

**Funded Status and Funding Progress**

The following is funded status information for the SEOPEBP and the RTHP as of June 30, 2017 and 2016, respectively, date of the latest actuarial valuations (amounts in million):

	<u>Actuarial</u> <u>Value of</u> <u>Assets</u> <u>(a)</u>	<u>Actuarial</u> <u>Accrued</u> <u>Liability (AAL)</u> <u>(b)</u>	<u>Unfunded</u> <u>AAL</u> <u>(UAAL)</u> <u>(b-a)</u>	<u>Funded</u> <u>Ratio</u> <u>(a/b)</u>	<u>Covered</u> <u>Payroll</u> <u>(c)</u>	<u>UAAL as a</u> <u>Percentage of</u> <u>Covered Payroll</u> <u>((b-a)/c)</u>
SEOPEBP	\$ 229.6	\$ 19,119.6	\$ 18,890.0	1.2%	\$ 3,895.1	485.0%
RTHP	\$ -	\$ 2,997.5	\$ 2,997.5	0.0%	\$ 3,949.9	75.9%

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding in progress, presented as required supplementary information following the notes to the financial statements, present multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

**d. Other OPEB Plan**

The State acts solely as the administrator and custodian of the assets of the Policemen and Firemen Survivors' Benefit Fund (PFSBF). The State makes no contribution to and has only a fiduciary responsibility for this fund. The fund does not issue stand-alone financial statements. However, financial statements for this fund are presented in Note No. 14.

**Plan Description**

PFSBF is a cost-sharing multiple-employer defined benefit OPEB plan that covers policemen and firemen of participating municipalities in the State. As of June 30, 2016 there were 8 municipalities participating in the plan with a total membership of 634 active members. The plan provides survivor benefits upon the death of an active or retired member of the fund to his spouse and dependent children. Plan benefits, contribution requirements of plan members and participant municipalities, and other plan provisions are described in Sections 7-323a to 7-323i of the General Statutes.

**Contributions**

Plan members are required to contribute one percent of their annual salary. Participating municipalities are required to contribute at an actuarially determined rate. Administrative costs of the plan are financed by participating municipalities.

## Note 14

### OPEB Trust Funds Financial Statements

The financial statements of the OPEB trust funds are prepared using the accrual basis of accounting. Plan member and municipality contributions are recognized in the period in which they are due. State contributions are recognized in the period they are appropriated. Benefits are recognized when due and payable in accordance with the terms of each plan. Investment income and related investment expense of the Combined Investment Funds are allocated ratably to the PFSBF trust fund based on the fund's equity in the Combined Investment Funds.

	Statement of Fiduciary Net Position (000's)			
	State	Retired	Policemen,	Total
	Employees'	Teachers'	Firemen, and	
	OPEB Plan	Healthcare Plan	Survivors' Benefits	
<b>Assets</b>				
Cash and Cash Equivalents	\$ 5,706	\$ 60,890	\$ 109	\$ 66,705
Receivables:				
Accounts, Net of Allowances	-	7,364	-	7,364
From Other Funds	(38)	1,897	-	1,859
Interest	-	-	2	2
Investments	569,440	-	32,349	601,789
Securities Lending Collateral	36,224	-	2,244	38,468
Total Assets	<u>\$ 611,332</u>	<u>\$ 70,151</u>	<u>\$ 34,704</u>	<u>\$ 716,187</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 32,766	\$ 6,722	\$ -	\$ 39,488
Securities Lending Obligation	36,224	-	2,244	38,468
Due To Other Funds	-	-	-	-
Total Liabilities	<u>\$ 68,990</u>	<u>\$ 6,722</u>	<u>\$ 2,244</u>	<u>\$ 77,956</u>
<b>Net Position</b>				
Held in Trust For Employee				
Pension and Other Benefits	\$ 542,342	\$ 63,428	\$ 32,460	\$ 638,230
<b>Total Net Assets</b>	<u>\$ 542,342</u>	<u>\$ 63,428</u>	<u>\$ 32,460</u>	<u>\$ 638,230</u>

	Statement of Changes in Fiduciary Net Position (000's)			
	State	Retired	Policemen,	Total
	Employees'	Teachers'	Firemen, and	
	OPEB Plan	Healthcare Plan	Survivors' Benefit	
<b>Additions</b>				
Contributions:				
Plan Members	\$ 120,783	\$ 102,986	\$ 555	\$ 224,324
State	667,401	19,922	-	687,323
Municipalities	-	-	645	645
Total Contributions	788,184	122,908	1,200	912,292
Investment Income	54,431	369	3,949	58,749
Less: Investment Expenses	(1,237)	-	(90)	(1,327)
Net Investment Income	53,194	369	3,859	57,422
Other	-	42	-	42
Total Additions	841,378	123,319	5,059	969,756
<b>Deductions</b>				
Administrative Expense	-	5,684	-	5,684
Benefit Payments and Refunds	639,467	131,087	1,222	771,776
Other	187	-	-	187
Total Deductions	639,654	136,771	1,222	777,647
Changes in Net Assets	201,724	(13,452)	3,837	192,109
<b>Net Position Held in Trust For</b>				
<b>Other Postemployment Benefits:</b>				
Beginning of Year (as restated)	340,618	76,880	28,623	446,121
End of Year	<u>\$ 542,342</u>	<u>\$ 63,428</u>	<u>\$ 32,460</u>	<u>\$ 638,230</u>

## Note 15

### Capital and Operating Leases

#### *State as Lessor*

The State leases building space, land, and equipment to private individuals. The minimum future lease revenues for the next five years and thereafter are as follows (amounts in thousands):

2018	\$	36,922
2019		36,017
2020		36,366
2021		23,194
2022		23,277
Thereafter		82,967
Total	\$	<u>238,743</u>

Contingent revenues for the year ended June 30, 2017, were \$628 thousand.

#### *State as Lessee*

Obligations under capital and operating leases as of June 30, 2017, were as follows (amounts in thousands):

	<b>Noncancelable Operating Leases</b>	<b>Capital Leases</b>
2018	\$ 25,402	\$ 7,815
2019	31,800	7,352
2020	19,206	6,377
2021	13,570	2,471
2022	19,658	2,159
2023-2027	7,775	6,283
2028-2032	-	4,870
Total minimum lease payments	<u>\$ 117,411</u>	37,327
Less: Amount representing interest costs		<u>6,427</u>
Present value of minimum lease payments		<u>\$ 30,900</u>

Minimum capital lease payments were discounted using interest rates changing from 3.66 percent to 6.00 percent.

Rental payments on noncancelable operating leases charged to expenses during the year ended June 30, 2017, were \$25.4 million.

## Note 16

### Long-Term Debt

The following is a summary of changes in long-term debt of the primary government for the year ended June 30, 2017, (amounts in thousands):

Governmental Activities	Beginning			Ending	
	Balance	Additions	Reductions	Balance	Amounts due within one year
<b>Bonds:</b>					
General Obligation	\$ 17,394,622	\$ 3,004,480	\$ 2,000,548	\$ 18,398,554	\$ 1,403,467
Transportation	4,519,690	868,265	346,115	5,041,840	301,345
	21,914,312	3,872,745	2,346,663	23,440,394	1,704,812
Plus (Less) Premiums	1,672,204	427,323	212,443	1,887,084	190,620
<b>Total Bonds</b>	<b>23,586,516</b>	<b>4,300,068</b>	<b>2,559,106</b>	<b>25,327,478</b>	<b>1,895,432</b>
<b>Long-Term Notes</b>	<b>352,585</b>	<b>-</b>	<b>175,465</b>	<b>177,120</b>	<b>177,120</b>
<b>Other L/T Liabilities:<sup>1</sup></b>					
Net Pension Liability (Note 10)	27,459,972	15,039,145	5,307,046	37,192,071	-
Net OPEB Obligation	9,927,951	1,209,554	687,323	10,450,182	-
Compensated Absences	511,391	40,373	38,928	512,836	40,370
Workers' Compensation	684,401	133,780	100,165	718,016	103,265
Capital Leases	32,342	4,346	5,788	30,900	6,911
Claims and Judgments	62,849	12,200	23,886	51,163	37,778
Landfill Post Closure Care	49,433	-	13,136	36,297	1,217
Liability on Interest Rate Swaps	1,857	-	1,031	826	-
Contracts Payable & Other	705	-	-	705	-
<b>Total Other Liabilities</b>	<b>38,730,901</b>	<b>16,439,398</b>	<b>6,177,303</b>	<b>48,992,996</b>	<b>189,541</b>
<b>Governmental Activities Long-Term Liabilities</b>	<b>\$ 62,670,002</b>	<b>\$ 20,739,466</b>	<b>\$ 8,911,874</b>	<b>\$ 74,497,594</b>	<b>\$ 2,262,093</b>
<sup>1</sup> In prior years, the General and Transportation funds have been used to liquidate other liabilities.					
<b>Business-Type Activities</b>					
Revenue Bonds	\$ 1,246,682	\$ 428,687	\$ 232,564	\$ 1,442,805	\$ 90,176
Plus/(Less) Premiums and Discounts	102,044	77,015	3,442	175,617	2,159
<b>Total Revenue Bonds</b>	<b>1,348,726</b>	<b>505,702</b>	<b>236,006</b>	<b>1,618,422</b>	<b>92,335</b>
Compensated Absences	192,180	37,237	36,670	192,747	53,480
Other	339,188	2,785	14,554	327,419	17,124
<b>Total Other Liabilities</b>	<b>531,368</b>	<b>40,022</b>	<b>51,224</b>	<b>520,166</b>	<b>70,604</b>
<b>Business-Type Long-Term Liabilities</b>	<b>\$ 1,880,094</b>	<b>\$ 545,724</b>	<b>\$ 287,230</b>	<b>\$ 2,138,588</b>	<b>\$ 162,939</b>

The liability for claims and judgments (Governmental Activities) includes a pollution remediation liability of approximately \$37.8 million. This liability represents the State's share of the cost of cleaning up certain polluted sites in the state under federal and state superfund regulations. The liability was estimated using the cash flow technique and could change over time due to changes in costs of goods and services, changes in remediation technology, or changes in laws and regulations governing the remediation effort. In addition, there are other polluted sites in the state that require remedial action by the State that will result in additional cleanup costs. The State did not recognize a liability for these costs at year end because it could not be reasonably estimated.

As of June 30, 2017, long-term debt of component units consisted of the following (amounts in thousands):

Long-Term Debt	Balance June 30, 2017	Amounts due within year
Bonds Payable	\$ 4,712,686	\$ 140,268
Escrow Deposits	182,370	43,612
Annuities Payable	125,434	6,384
Rate Swap Liability	144,257	-
Net Pension Liability	253,464	-
Other	65,221	3,200
Total	\$ 5,483,432	\$ 193,464

Not all component units report net pension liabilities; therefore the net pension liability in the notes is \$6,287 higher than in the financial statements.

#### Landfill Closure and Postclosure Care

Public Act 13-247 and section 99 of Public Act 13-184 required the Materials Innovation and Recycling Authority to transfer all legally required reserves and obligations resulting from the closure of the authority's landfills located in Hartford, Ellington, Waterbury, Wallingford and Shelton to the State Department of Energy and Environmental Protection (DEEP). During the year ended June 30, 2014, the legal transfer of \$35.8 million in post closure care obligations and the concurrent transfer of \$31.0 million of Authority reserve funds to the State resulting from the closure of landfills was addressed by a memorandum of understanding ("MOU") between the Authority and DEEP.

By the end of the year ended June 30, 2015, all work associated with the closure of the five landfills was completed. Going forward DEEP is required to reimburse the authority for all postclosure care obligations as the five landfills are now certified as closed. All landfill expense reimbursements paid by DEEP totaled \$1,216,746 in FY2017.

GASB Statement No.18 *Accounting for Municipal Solid Waste Landfill Closure and Postclosure Care Cost* applies to closure and postclosure care costs that are paid near or after the date a landfill stops accepting waste. The State recognizes landfill expenditures and related General Fund liabilities using the modified accrual basis of accounting. DEEP estimates the State's landfill liability for closure and postclosure costs based on landfill capacity. Increases or decreases in such estimates are reported as additions or reductions in this line item of the State's long-term liabilities. The liability for these estimated costs is reduced when the costs are actually paid. Actual costs may be higher than estimated due to inflation or changes in permitted capacity, technology or regulation. As of June 30, 2013, all five of the landfills had no capacity available since 100 percent of their capacity had been used.

## Note 17

### Long-Term Notes and Bonded Debt

#### a. Economic Recovery Notes

In December 2009, Public Act 09-2 authorized the issuance \$915.8 million of General Obligation Economic Recovery Notes which were used to fund a major portion of the State's General Fund deficit at that time. In October 2013, a portion of these notes were refunded when the State issued \$314.3 million of General Obligation Refunding Notes which were issued in four series as variable-rate remarketed obligations (VRO) that ultimately mature on January 1, 2018. Any series of these notes may be converted by the State at any time from the VRO rate, which is determined by the remarketing agent on a daily basis, to another interest rate mode – such as an adjusted SIFMA rate mode.

If the State decides to convert the interest rate mode, each holder is required to tender their notes for conversion while the State has agreed to make available supplementary information describing the notes following the conversion. If any tendered VRO's of a series are not successfully remarketed they may continue to be owned by their respective holders until the VRO Special Mandatory Redemption Date. That series of notes in that case would bear interest at a higher stepped-up rate. The liquidity available to purchase tendered notes is only provided by remarketing resources and the State's general fund. In the opinion of management, the higher cost precludes the likelihood of conversion by the State. The original VRO interest rate modes remain in effect at the end of the fiscal year.

Total Economic Recovery and VRO Notes outstanding at June 30, 2017 were \$177.1 million. The notes mature on various dates through 2018 and bear interest rates from 3.0 to 3.15 percent. Future amounts needed to pay principal and interest on these notes outstanding at June 30, 2017 were as follows (amounts in thousands):

Year Ending June 30,	Principal	Interest	Total
2018	\$ 177,120	\$ 3,958	\$ 181,078
Total	\$ 177,120	\$ 3,958	\$ 181,078

## b. Primary Government – Governmental Activities

*General Obligation Bonds*

General Obligation bonds are those bonds that are paid out of the revenues of the General Fund and that are supported by the full faith and credit of the State. General Obligation bonds outstanding and bonds authorized but unissued at June 30, 2017, were as follows (amounts in thousands):

<b>Purpose of Bonds</b>	<b>Final Final Dates</b>	<b>Original Original Rates</b>	<b>Outstanding</b>	<b>Authorized But Unissued</b>
Capital Improvements	2017-2037	2.00-5.75%	\$ 4,087,112	\$ 662,842
School Construction	2017-2037	1.70-5.750%	4,614,441	-
Municipal & Other				
Grants & Loans	2017-2036	1.00-5.632%	2,480,886	943,787
Housing Assistance	2017-2035	1.00-5.460%	427,847	195,951
Elimination of Water Pollution	2017-2035	2.00-5.09%	313,434	34
General Obligation Refunding	2017-2038	2.00-5.25%	3,582,785	-
GAAP Conversion	2017-2027	1.00-5.00%	494,535	-
Pension Obligation	2017-2032	4.75-6.27%	2,217,392	-
Miscellaneous	2017-2034	3.50-5.100%	50,360	31,751
			18,268,792	\$ 1,834,365
Accretion-Various Capital Appreciation Bonds			129,762	
		Total	\$ 18,398,554	

Future amounts needed to pay principal and interest on as General Obligation bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

<b>Year Ending June 30,</b>	<b>Principal</b>	<b>Interest</b>	<b>Total</b>
2018	\$ 1,403,467	\$ 819,965	\$ 2,223,432
2019	1,351,591	763,531	2,115,122
2020	1,295,076	708,077	2,003,153
2021	1,273,786	652,455	1,926,241
2022	1,238,814	646,937	1,885,751
2023-2027	5,704,348	2,420,148	8,124,496
2028-2032	4,562,095	943,211	5,505,306
2033-2037	1,437,505	131,618	1,569,123
2038-2042	2,110	85	2,195
Total	\$ 18,268,792	\$ 7,086,027	\$ 25,354,819

*Transportation Related Bonds*

Transportation Related bonds include special tax obligation bonds that are paid out of revenues pledged or earned in the Transportation Fund. The revenue pledged or earned in the Transportation Fund to pay special tax obligation bonds is transferred to the Debt Service Fund for retirement of principal and interest.

Transportation Related bonds outstanding and bonds authorized but unissued at June 30, 2017, were as follows (amounts in thousands):

<b>Purpose of Bonds</b>	<b>Final Maturity Dates</b>	<b>Original Interest Rates</b>	<b>Amount Outstanding</b>	<b>Authorized But Unissued</b>
Infrastructure Improvements	2018-2037	2.00-5.740%	\$ 5,041,840	\$ 2,911,718
			5,041,840	\$ 2,911,718
Accretion-Various Capital Appreciation Bonds			-	
		Total	\$ 5,041,840	

Future amounts required to pay principal and interest on transportation related bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

Year Ending June 30,	Principal	Interest	Total
2018	\$ 301,345	\$ 241,891	\$ 543,236
2019	295,190	228,146	523,336
2020	293,820	214,067	507,887
2021	308,960	199,907	508,867
2022	289,370	185,150	474,520
2023-2027	1,471,955	706,435	2,178,390
2028-2032	1,356,525	337,082	1,693,607
2033-2037	724,675	66,324	790,999
	<u>\$ 5,041,840</u>	<u>\$ 2,179,002</u>	<u>\$ 7,220,842</u>

### c. Primary Government – Business–Type Activities

#### Revenue Bonds

Revenue bonds are those bonds that are paid out of resources pledged in the Enterprise funds and Component Units.

Enterprise funds' revenue bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

Funds	Final Maturity Dates	Original Interest Rates	Amount Outstanding (000's)
UConn	2017-2030	1.5-5.5%	\$ 105,955
Board of Regents	2017-2036	2.0-6.0%	338,745
Clean Water	2017-2035	2.0-5.0%	852,147
Drinking Water	2017-2035	2.0-5.0%	117,943
Bradley Parking Garage	2017-2024	6.5-6.6%	28,015
Total Revenue Bonds			1,442,805
Plus/(Less) premiums and discounts:			
UConn			17,854
Board of Regents			17,963
Clean Water			122,194
Other			17,606
Revenue Bonds, net			<u>\$ 1,618,422</u>

The University of Connecticut has issued student fee revenue bonds to finance the costs of buildings, improvements and renovations to certain revenue-generating capital projects. Revenues used for payments on the bonds are derived from various fees charged to students.

The Connecticut State University System has issued revenue bonds that finance the costs of auxiliary enterprise buildings, improvements and renovations to certain student housing related facilities. Revenues used for payments on the bonds are derived from various fees charged to students.

In 2000, Bradley Parking Garage bonds were issued in the amount of \$53.8 million to build a parking garage at the airport. As of June 30, 2017, \$28.0 million of these bonds are outstanding.

In 1994, the State of Connecticut began issuing Clean Water Fund revenue bonds. The proceeds of these bonds are to be used to provide funds to make loans to Connecticut municipalities for use in connection with the financing or refinancing of wastewater treatment projects. Details on these agreements are disclosed under the separately issued audited financial statements of the fund.

Future amounts needed to pay principal and interest on revenue bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

Year Ending June 30,	Principal	Interest	Total
2018	\$ 90,176	\$ 63,977	\$ 154,153
2019	89,635	61,875	151,510
2020	96,340	57,777	154,117
2021	85,160	53,301	138,461
2022	99,635	49,328	148,963
2023-2027	410,895	184,645	595,540
2028-2032	369,094	88,863	457,957
2033-2037	201,870	22,025	223,895
Total	<u>\$ 1,442,805</u>	<u>\$ 581,791</u>	<u>\$ 2,024,596</u>

#### d. Component Units

Component Units' revenue bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

Component Unit	Final Maturity Date	Interest Rates	Amount Outstanding (000's)
CT Housing Finance Authority	2017-2055	0.0-6.625%	\$ 4,069,091
CT Student Loan Foundation	2034-2046	0.264-2.639%	232,050
CT Higher Education Supplemental Loan Authority	2018-2036	.40-5.25%	157,465
CT Airport Authority	2018-2032	%/1 mth libor	116,290
CT Regional Development Authority	2017-2034	1.00-7.00%	82,685
UConn Foundation	2017-2029	1.90-5.00%	19,955
CT Green Bank	2017-2036	4.19%	2,958
CT Innovations Inc.	2017-2020	2.37-5.25%	1,735
Total Revenue Bonds			4,682,229
Plus/(Less) premiums and discounts:			
CHFA			28,459
CSLF			(542)
CHESLA			3,237
UConn Foundation			(393)
CRDA			(304)
Revenue Bonds, net			<u>\$ 4,712,686</u>

Revenue bonds issued by the Component Units do not constitute a liability or debt of the State. The State is only contingently liable for those bonds as discussed below.

Following the merger of the operations of the Connecticut Development Authority, Connecticut Innovations, Incorporated (CII) assumed responsibility for the former authority's Special Obligation Industrial revenue bonds. The bonds were issued to finance such projects as the acquisition of land, the construction of buildings, the purchase and installation of machinery, equipment, and pollution control facilities. These activities are financed under its Self-Sustaining Bond Program which is described in the no-commitment debt section of this note. In addition, CII has \$1.7 million in General Obligation bonds outstanding at year-end. These bonds were issued to finance the lease of an entertainment/sports facility and the purchase of a hockey team.

Connecticut Housing Finance Authority's revenue bonds are issued to finance the purchase, development and construction of housing for low and moderate-income families and persons throughout the State. The Authority has issued bonds under a bond resolution dated 9/27/72; a special needs indenture dated 9/25/95, and other bond resolutions dated October 2009. As of December 31, 2016, bonds outstanding under the bond resolution, the indenture, and other bond resolutions were \$3,693.8 million, \$56.6 million, and \$347.2 million respectively. According to the bond resolution, the following assets of the Authority are pledged for the payment of the bond principal and interest (1) the proceeds from the sale of bonds, (2) all mortgage repayments with respect to long-term mortgage and construction loans financed from the Authority's General fund, and (3) all monies and securities of the Authority's General and Capital Reserve funds. The resolution and indenture Capital Reserve funds are required to be maintained at an amount at least equal to the amount of principal, sinking fund installments, and interest maturing and becoming due in any succeeding calendar year on all outstanding bonds. The required reserves are \$284.8 million per the resolution and \$4.6 million per the indenture at 12/31/16. As of

December 31, 2016, the Authority has entered into interest rate swap agreements for \$841.2 million of its outstanding variable rate bonds. Details on these agreements are disclosed under the separately issued audited financial statements of the Authority.

Materials, Innovation, and Recycling Authority's revenue bonds are issued to finance the design, development and construction of resources recovery and recycling facilities and landfills throughout the State. These bonds are paid solely from the revenues generated from the operations of the projects and other receipts, accounts and monies pledged in the bond indentures.

Connecticut Higher Education Supplemental Loan Authority's Revenue bonds are issued to provide loans to students, their parents, and institutions of higher education to assist in the financing of the cost of higher education. These loans are issued through the Authority's Bond fund. According to the bond resolutions, the Authority internally accounts for each bond issue in separate funds, and additionally, the Bond fund includes individual funds and accounts as defined by each bond resolution.

### ***Capital Reserves***

Each Authority has established Special Capital Reserve funds that secure all the outstanding bonds of the Authority at year-end. These funds are usually maintained at an amount equal to next year's bond debt service requirements. The State may be contingently liable to restore any deficiencies that may exist in the funds in any one year in the event that the Authority is unable to do so.

The Capital Region Development Authority revenue bonds are issued to provide sufficient funds for carrying out its purposes. The bonds are not debt of the State of Connecticut. However, the Authority and the State have entered into a contract for financial assistance, pursuant to which the State will be obligated to pay principal and interest on the bonds in an amount not to exceed \$9.0 million in any calendar year. The bonds are secured by energy fees from the central utility plant and by parking fees subject to the Travelers Indemnity Company parking agreement.

Future amounts needed to pay principal and interest on Component Unit revenue bonds outstanding at June 30, 2017, were as follows (amounts in thousands):

Year Ending June 30,	Principal	Interest	Total
2018	\$ 140,265	\$ 144,655	\$ 284,920
2019	153,461	138,797	292,258
2020	164,848	134,967	299,815
2021	172,319	129,672	301,991
2022	196,430	124,674	321,104
2023-2027	902,197	533,335	1,435,532
2028-2032	964,820	375,720	1,340,540
2033-2037	809,506	231,890	1,041,396
2038-2042	594,134	124,201	718,335
2043-2047	497,420	96,897	594,317
2048-2052	60,775	11,983	72,758
2053-2057	26,054	6,161	32,215
	<u>\$ 4,682,229</u>	<u>\$ 2,052,952</u>	<u>\$ 6,735,181</u>

### ***No-commitment debt***

Under the Self-Sustaining Bond program, acquired from its combination with the Connecticut Development Authority, Connecticut Innovations, Inc., issues revenue bonds to finance such projects as described previously in the Component Unit section of this note. These bonds are paid solely from payments received from participating companies (or from proceeds of the sale of the specific projects in the event of default) and do not constitute a debt or liability of the Authority or the State. Thus, the balances are not included in the Authority's financial statements. Total bonds outstanding for the year ended June 30, 2017 were \$370.6 million.

The Connecticut Health and Educational Facilities Authority has issued Special Obligation bonds for which the principal and interest are payable solely from the revenues of the institutions. Starting in 1999, the Authority elected to remove these bonds and related restricted assets from its financial statements, except for restricted assets for which the Authority has a fiduciary responsibility. Total Special Obligation bonds outstanding at June 30, 2017, were \$8,219.0 million, of which \$338.7 million was secured by Special Capital Reserve funds.

The Materials, Innovation, and Recycling Authority has served as a conduit issuer for debt to fund the construction of waste processing facilities by independent contractor-operators. The outstanding debt is secured by loan agreements, between the authority and independent contractor-operators, which have been assigned to the trustee for the debt, and through additional corporate guarantee agreements between the trustee and third party guarantors. The payment of the debt is not guaranteed by the Authority or the State.

Thus the assets and liabilities related to the debt are not included in the Authority's financial statements. The amount of the debt outstanding at June 30, 2017 is zero.

#### *e. Debt Refundings*

During the fiscal year the State issued General Obligation and Special Tax Obligation bonds of \$626.7 million at an average coupon interest rate of 4.73 percent to advance refund \$668.5 million of General Obligation and Special Tax Obligation bonds with an average coupon interest rate of 4.86 percent. Although the advance refunding resulted in a \$397 thousand accounting loss, the State in effect reduced its aggregate fund level debt service payments by \$62.5 million over the next 8 years. The present value of these savings represents an economic gain (difference between the present values of the debt service payments of the old and the new bonds) of \$55.7 million.

The proceeds of the refunding bonds were used to purchase U.S. Government securities which were deposited into irrevocable trust accounts with an escrow agent to provide for all future payments on the refunded bonds. Thus, the refunded bonds were removed from the State's financial statements as they are considered defeased.

Additional defeasance occurred during the fiscal year when the State issued General Obligation SIFMA index demand bonds totaling \$134.9 million at an average coupon variable interest rate of 1.574 percent. The resulting cash flow savings on the variable interest rate SIFAMA index refunding bonds was \$696.7 thousand.

In prior years, the State placed the proceeds of refunding bonds in irrevocable trust accounts to provide for all future debt service payments on defeased bonds. The assets of the trust accounts and the liability for defeased bonds are not included in the State's financial statements. As of June 30, 2017, the outstanding balance of bonds defeased in prior years was approximately \$631.4 million.

## Note 18 Derivative Financial Instruments

The fair value balances and notional amounts of the State's derivative instruments outstanding at June 30, 2017, classified by type, and the changes in fair value of such derivative instruments for the year then ended are as follows (amounts in thousands; debit (credit)):

	Changes in Fair Value		Fair Value at Year End		
	Classification	Amount	Classification	Amount	Notional
<b>Governmental activities</b>					
Cash flow hedges:	Deferred		Deferred		
Pay-fixed interest rate swap	outflow of Resources	\$ 1,031	outflow of Resources	\$ (826)	\$ 20,000

#### *Objective and Terms of Hedging Derivative Instruments*

The following table displays the objective and the terms of the States' governmental activities hedging derivative instruments outstanding at June 30, 2017, along with the credit rating of the associated counterparty (amounts in thousands).

Objective	Notional Amounts (000's)	Effective Date	Maturity Date	Terms	Counterparty Credit Rating
Hedge of changes in cash flows of the 2005 GO bonds	\$ 20,000	4/27/2005	6/1/2020	Pay 5.2% receive CPI plus 1.79%	Aa3/A
Total Notional Amount	\$ 20,000				

The fair values of interest rate swaps were estimated using the zero-coupon method. This method calculates the future net settlement payment required under the swaps, assuming that the current forward rates implied by the yield curve correctly anticipate future spot interest rates. These payments are then discounted using the spot rates implied by the current yield curve for hypothetical zero-coupon bonds due on the date each future net settlement on the swaps.

**Credit Risk**

As of June 30, 2017, the State had no credit risk exposure on any of the swaps because the swaps had negative fair value. However, should interest rates change and the fair values of the swaps become positive, the State would be exposed to credit risk in the amount of the swaps' fair value.

**Basis Risk**

The State's variable-rate bond interest payments are based on the CPI floating rate. As of June 30, 2015 the State receives variable-rate payments from the counterparty based on the same CPI floating rate.

**Termination Risk**

The State or the counterparty may terminate any of the swaps if the other party fails to perform under the terms of the contract. If any swap is terminated, the associated variable-rate bonds would no longer carry synthetic interest rates. Also, if at the time of termination the swap has a negative fair value, the State would be liable to the counterparty for a payment equal to the swap's fair value. Under the 2005 swap agreements, the State has up to 270 days to fund any required termination payment.

**Rollover Risk**

Because all of the swap agreements terminate when the associated debt is fully paid, the State is only exposed to rollover risk if an early termination occurs. Upon an early termination, the State will not realize the synthetic rate offered by the swaps on the underlying debt issues.

**Hedging Derivative Instrument Payments and Hedged Debt**

As rates vary, variable-rate bond interest payments and net swap payments will vary. Using rates as of June 30, 2017, debt service requirements of the State's outstanding variable-rate bonds and net swap payments are as follows (amounts in thousands):

Fiscal Year Ending June 30,	Variable-Rate Bonds		Interest Rate	Total
	Principal	Interest	SWAP, Net	
2018	\$ -	\$ 650	\$ 390	\$ 1,040
2019	-	651	389	1,040
2020	20,000	652	388	21,040
	<u>\$ 20,000</u>	<u>\$ 1,953</u>	<u>\$ 1,167</u>	<u>\$ 23,120</u>

## Note 19

### Risk Management

The risk financing and insurance program of the State is managed by the State Insurance and Risk Management Board. The Board is responsible mainly for determining the method by which the State shall insure itself against losses by the purchase of insurance to obtain the broadest coverage at the most reasonable cost, determining whether deductible provisions should be included in the insurance contract, and whenever appropriate determining whether the State shall act as self-insurer. The schedule lists the risks of loss to which the State is exposed and the ways in which the State finances those risks.

Risk of Loss	Risk Financed by	
	Purchase of Commercial Insurance	Self- Insurance
Liability (Torts):		
-General (State buildings, parks, or grounds)		X
-Other	X	
Theft of, damage to, or destruction of assets	X	
Business interruptions	X	
Errors or omissions:		
-Professional liability	X	
-Medical malpractice (John Dempsey Hospital)		X
Injuries to employees		X
Natural disasters	X	

For the general liability risk, the State is self-insured because it has sovereign immunity. This means that the State cannot be sued for liability without its permission. For other liability risks, the State purchases commercial insurance only if the State can be held liable under a particular statute (e.g. per Statute the State can be held liable for injuries suffered by a person on a defective State highway), or if it is required by a contract.

For the risk of theft, of damage to, or destruction of assets (particularly in the automobile fleet), the State insures only leased cars and vehicles valued at more than \$100 thousand. When purchasing commercial insurance the State may retain some of the risk by assuming a deductible or self-insured retention amount in the insurance policy. This amount varies greatly because the State carries a large number of insurance policies covering various risks. The highest deductible or self-insured retention amount assumed by the State is \$25 million, which is carried in a railroad liability policy.

The State records its risk management activities related to the medical malpractice risk in the University of Connecticut and Health Center fund, an Enterprise fund. At year-end, liabilities for unpaid claims are recorded in the statement of net position (government-wide and proprietary fund statements) when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated. The liabilities are determined based on the ultimate cost of settling the claims, including an amount for claims that have been incurred but not reported and claim adjustment expenses. The liabilities are actuarially determined and the unpaid liability for medical malpractice is reported at its present value, using a discount rate of 5 percent. In the General Fund, the liability for unpaid claims is only recorded if the liability is due for payment at year-end. Settlements have not exceeded coverages for each of the past three fiscal years.

Changes in the claims liabilities during the last two fiscal years were as follows (amounts in thousands):

	<u>Governmental Activities Workers' Compensation</u>	<u>Business-Type Activities Medical Malpractice</u>
Balance 6-30-15	\$ 651,184	\$ 26,750
Incurred claims	136,682	9,210
Paid claims	<u>(103,465)</u>	<u>(4,368)</u>
Balance 6-30-16	684,401	31,592
Incurred claims	133,780	-
Paid claims	<u>(100,165)</u>	<u>(6,735)</u>
Balance 6-30-17	<u>\$ 718,016</u>	<u>\$ 24,857</u>

## Note 20 Interfund Receivables and Payables

Interfund receivable and payable balances at June 30, 2017, were as follows (amounts in thousands):

	Balance due to fund(s)											Total
	General	Transportation	Restricted Grants & Accounts	Grant & Loan Programs	Other Governmental	UConn	Board of Regents	Employment Security	Internal Services	Fiduciary	Component Units	
<b>Balance due from fund(s)</b>												
General	\$ -	\$ -	\$ 270	\$ 5	\$ 262,222	\$ 45,101	\$ 38,605	\$ 856	\$ 4,980	\$ 4,263	\$ -	\$ 356,302
Debt Service	-	1,419	-	-	-	-	-	-	-	-	-	1,419
Restricted Grants & Accounts	3,360	-	-	-	-	-	-	-	-	-	6,520	9,880
Grant & Loan Programs	31	-	-	-	-	-	-	-	-	-	-	31
Other Governmental	2,348	-	-	-	16,401	81,692	104,464	-	-	-	-	204,905
UConn	20,904	-	-	-	-	-	-	-	-	-	-	20,904
Board of Regents	4,098	-	-	-	-	-	-	-	-	-	-	4,098
Employment Security	-	-	-	-	439	-	-	-	-	-	-	439
Internal Services	12,931	-	-	-	-	-	-	-	-	-	-	12,931
Fiduciary	-	-	-	-	379	-	-	-	-	1,890	-	2,269
Component Units	36,918	-	992	-	-	-	-	-	-	-	-	37,910
Total	<u>\$ 80,590</u>	<u>\$ 1,419</u>	<u>\$ 1,262</u>	<u>\$ 5</u>	<u>\$ 279,441</u>	<u>\$ 126,793</u>	<u>\$ 143,069</u>	<u>\$ 856</u>	<u>\$ 4,980</u>	<u>\$ 6,153</u>	<u>\$ 6,520</u>	<u>\$ 651,088</u>

Interfund receivables and payables arose because of interfund loans and other interfund balances outstanding at year end.

## Note 21

### Interfund Transfers

Interfund transfers for the fiscal year ended June 30, 2017, consisted of the following (amounts in thousands):

	Amount transferred to fund(s)								
	General	Debt Service	Transportation	Restricted Grants & Accounts	Other Governmental	UConn	Board of Regents	Clean Water & Drinking Water	Total
<b>Amount transferred from fund(s)</b>									
General	\$ -	\$ -	\$ -	\$ -	\$ 89,108	\$ 991,429	\$ 560,058	\$ -	\$ 1,640,595
Debt Service	-	-	-	-	7,294	-	-	-	7,294
Transportation	-	548,532	-	-	-	-	-	-	548,532
Restricted Grants & Accounts	1,051	-	-	-	57,443	-	-	-	58,494
Grants & Loan Programs	-	-	-	-	94,549	-	-	-	94,549
Other Governmental	390,344	44,434	6,430	177,420	768	10,895	114,602	674	745,567
Internal Service	2,250	-	-	-	-	-	-	-	2,250
Employment Security	-	-	-	-	10,176	-	-	-	10,176
Clean Water & Drinking Water	-	-	-	-	526	-	-	-	526
Total	<u>\$ 393,645</u>	<u>\$ 592,966</u>	<u>\$ 6,430</u>	<u>\$ 177,420</u>	<u>\$ 259,864</u>	<u>\$ 1,002,324</u>	<u>\$ 674,660</u>	<u>\$ 674</u>	<u>\$ 3,107,983</u>

Transfers were made to (1) move revenues from the fund that budget or statute requires to collect them to the fund that budget or statute requires to expend them and (2) move receipts restricted to debt service from the funds collecting the receipts to the debt service fund as debt service payments become due.

## Note 22

### Fund Balance Classifications and Restricted Net Position

#### Fund Balance – Restricted and Assigned

As of June 30, 2017 restricted and assigned fund balances of nonmajor governmental funds were comprised as follows (amounts in thousands):

	Restricted Purposes	Assigned Purposes
Capital Projects	\$ 506,738	\$ -
Environmental Programs	24,751	-
Housing Programs	320,192	-
Employment Security Administration	13,509	-
Banking	2,496	-
Other	97,809	5,207
Total	<u>\$ 965,495</u>	<u>\$ 5,207</u>

#### Restricted Net Position

As of June 30, 2017, the government-wide statement of net position reported \$3,906 million of restricted net position, of which \$114.8 million was restricted by enabling legislation.

## Note 23

### Tax Abatements

For financial purposes, a tax abatement is defined as an agreement between the government and an individual or entity through which the government promises to forgo tax revenues and the individual or entity promises to subsequently take a specific action that contributes to the economic development or otherwise benefit the government or its citizens.

#### *Film, Television, and Digital Media Tax Program*

This program assists film, television and digital media companies with direct financial assistance programs. Including but not limited to loans, grants, and job expansion tax credits structured to incentivize relocation to Connecticut and the growth and development of current Connecticut-based companies.

Beginning after January 1, 2010, (a) an eligible production company that incurs production expenses of not less than \$100 thousand, but not more than \$500 thousand, will be eligible for a credit against the tax imposed equal to ten percent of such production expenses, (b) a production company incurring expenses of more than \$500 thousand, but not more than \$1 million, will be eligible for a credit against the tax imposed equal to fifteen percent of production expenses, and (c) a production company incurring expenses of more than \$1 million will be eligible for a credit against the tax imposed (chapter 207, section 12-217jj) equal to thirty percent of production expenses.

No eligible company incurring an amount of production expenses that qualifies for a tax credit shall be eligible unless on or after January 1, 2010, the company conducts (1) not less than fifty percent of principal filming days within the state, or (2) expends not less than fifty percent of postproduction costs within the state, or (3) expends not less than \$1 million of postproduction costs within the state.

An eligible production company shall apply to the Department of Economic and Community Development (DECD) for a tax credit voucher on an annual basis, but not later than ninety days after the first production expenses are incurred in the production of a qualified production, and will provide with the application information that DECD may require to determine if the company is eligible to claim a credit.

#### *Urban and Industrial Sites Reinvestment Tax Program*

This tax program is designed to encourage development and redevelopment activities in eligible communities and to encourage private investment in contaminated properties.

In accordance with Chapter 578 section 32-9t of the General Statutes taxpayers who make investments in eligible urban reinvestment projects or eligible industrial site investment projects may be allowed a tax credit against the tax imposed under chapter 207 and 212a or section 38a-743 in the General Statutes, an amount equal to the following percentage of approved investments made by or on behalf of a taxpayer with respect to the following income years of the taxpayer: (a) the income year in which the investment in the project was made and the next two succeeding income years, zero percent; (b) in the third full income year succeeding the year in which the investment was made and the three succeeding years, ten percent; (c) in the seventh full income year succeeding the year in which the investment in the eligible project was made and the next two succeeding year, twenty percent. The sum of all tax credits shall not exceed \$100 million to a single eligible urban reinvestment project or a single eligible industrial site investment project approved by the commissioner at DECD. The sum of all tax credits under the provisions of this section should not exceed \$950 million.

Tax credits allowed may be claimed by a taxpayer who has made an investment (1) directly only if the investment has a total asset value, either alone or combined with other investors in an eligible project, of not less than \$5 million or, in the case of an investment in an eligible project for the preservation of a historic facility and redevelopment of the facility for combined uses which includes at least four housing units, the total asset value should not be less than \$2 million; (2) an investment managed through a fund manager only if such fund: (a) has a total asset value of not less than \$60 million for the income year for which the initial credit is taken; and (b) has not less than three investors who are not related persons with respect to each other or to any person in which any investment is made other than through the fund at the date the investment is made; or (3) through a community development entity or a contractually bound community development entity. A tax credit made through a fund, should only be available for investments in funds that are not open to additional investments beyond the amount set forth at the formation of the fund.

#### *Insurance Reinvestment Fund Program*

The purpose of the Insurance Reinvestment Fund Program is to capitalize on the base of local insurance expertise and help people laid off after the massive restructuring of the insurance industry. The program was also intended to encourage small insurance startups and specialty insurance businesses in Connecticut companies engaged in the insurance business or providing services to insurance companies.

In accordance with Chapter 698 section 38a-88 a tax credit is allowed against the tax imposed under chapter 207, 208, or 229 or section 38a-343 an amount equal to the following percentage of the moneys of the taxpayer invested through a fund manager in an

insurance business with respect to the following income years of the taxpayer: (a) in the initial income year in which the investment in the insurance business was made and two succeeding income years, zero percent; (b) with respect to the third full income year in which the investment in the insurance business was made and the next three succeeding income years, ten percent; (c) in the seventh full income year succeeding the year in which the investment in the insurance business was made and the next two succeeding income years, twenty percent. The sum of all tax credits shall not exceed \$15 million with respect to investment made by a fund or funds in any single insurance business, and with respect to all investments made by a fund shall not exceed the total amount originally invested in the fund. A fund manager may apply to the Commissioner of DECD for a credit that is greater than the limitations established by law.

The tax credit allowed may be claimed by a taxpayer who has invested in an insurance business through a fund (a) which has total assets of not less than \$30 million for the income year for which the initial credit is taken; (b) has not less than three investors who are not related persons with respect to each other or to any insurance business in which any investment is made other than through the fund at the date the investment is made; and (c) which invests only in insurance businesses that are not related persons to each other.

The credit allowed may only be claimed with respect to an insurance business which (a) occupies the new facility for which an eligibility certificate has been issued by the Commissioner of DECD, or the certificate has been issued as its home office, and (b) employs not less than twenty-five percent of its total work force in new jobs.

The maximum allowed credit shall be \$350 million in total and \$40 million per year.

#### ***Enterprise Zone Property Tax Reimbursement Program***

The enterprise zone program offers various tax incentives and other benefits to businesses that start up or improve real property in areas designated as enterprise zones. This designation is one of several geographic designations the state uses to target economic development assistance (e.g., distressed municipalities).

In 1981, Connecticut became the first state to establish an enterprise zone program when the legislature authorized the DECD commissioner to designate six zones based on statutory criteria (PA 81-445). Over the past several decades, the legislature has made many changes to the program, including expanding the number of zones, changing the eligibility criteria for zone designation, and adding to the types of businesses eligible for benefits under the program.

In most instances, the legislature authorized the DECD commissioner to approve a specified number of zones according to broad eligibility criteria. For example, the initial two designation rounds authorized a total of 10 zones—four in municipalities with a population of 80,000 or more and six in municipalities with a population of fewer than 80,000. The proposed zones also had to meet specific poverty criteria (e.g., 25 percent of the proposed zone's population had to be below the federal poverty level or unemployed).

However, the legislature has shifted from this practice, authorizing additional zones based on narrower designation criteria. For example, in 1993 it authorized two additional enterprise zones in municipalities with a population of 80,000 or less that are affected by plant or military base closings (PA 93-331). In 2014, it required the commissioner to approve two additional zones based on population criteria tailored for two specific towns (Thomaston and Wallingford) (PA 14-217). It has also authorized the DECD commissioner to designate zones, under narrow criteria, in addition to those authorized in statute.

There are eighteen enterprise zones currently designated, and one (Wallingford) which has been authorized by the legislature but not yet designated by DECD. The designated enterprise zones are in the following towns: Bridgeport, Bristol, East Hartford, Groton, Hamden, Hartford, Meriden, Middletown, New Britain, New Haven, New London, Norwalk, Norwich, Southington, Stamford, Thomaston, Waterbury, and Windham.

The zones' benefits are generally available to businesses that start up in the zone or that improve property or relocate there. The benefits include: (1) a five-year, state-reimbursed, 80 percent property tax exemption for improving or acquiring manufacturing facilities (see below) and acquiring machinery and equipment. The state generally reimburses the municipality for half the forgone property tax revenue (CGS 12-81 (59)); (2) a 10-year, 25 percent corporate business tax credit attributed to facility improvements. The credit increases to 50 percent for certain businesses that meet resident employment criteria (CGS 12-217e); (3) a seven-year property tax exemption (100 percent in first two years, 50 percent in third, and a decrease to 10 percent in each of the remaining four years), with no state reimbursement, for commercial and residential real property improvements that do not qualify for the 5-year, 80 percent exemption (other than improvements to manufacturing facilities, as defined below) (CGS 32-71); (4) a 10-year corporate business tax credit (100 percent for first three years, 50 percent for next seven years) for starting a new business in an enterprise zone (business must employ a certain number of residents to qualify) (CGS 12-217v).

Many enterprise zone benefits are available only to manufacturing facilities, but the statutory definition of this term includes certain facilities used for non-manufacturing purposes (CGS 32-9p(d)). For the purpose of the enterprise zone program, manufacturing facilities refers to any plant, building, or other real property improvement that is located in an enterprise zone and used as follows: (1) for manufacturing, processing, or assembling raw materials, parts, or manufactured products; (2) for manufacturing-related research

and development; (3) for servicing industrial machinery and equipment; (4) by a business that the commissioner determines (a) will materially contribute to the economy, or (b) is part of a group of industries linked by customer, supplier, or other relationships (CGS 32-222); or (5) by a business engaged in any of a number of specified industries, including fishing, hunting, and trapping; other types of manufacturing; transportation and warehousing; certain financial and insurance services; certain educational services; child day care services; computer hardware, software, or networking; and telecommunications or communications.

The law designates municipalities that contain enterprise zones as “targeted investment communities” (TICs), and businesses located in these municipalities, but outside the enterprise zone, are eligible for certain benefits, including: (1) a five-year, state-reimbursed property tax exemption for improving manufacturing facilities. The exemption varies depending on the value of improvements, up to a maximum of 80 percent for improvements valued over \$90 million (CGS 12-81(60)); (2) a 10-year corporate business tax credit attributed to improving manufacturing facilities in TICs. The credit varies from 15 percent to 50 percent depending on the number of new employees (CGS 12-217e).

Information relevant to the disclosure of these programs is as follows:

<b>Tax Abatement Program</b>	<b>Amount of Taxes Abated</b>
The Film, Television, and Digital Media Tax Program <i>Corporate Income Tax (as of 6/30/2016)</i>	\$92,926,361
The Urban and Industrial Sites Reinvestment Tax Program <i>Corporate Income Tax (as of 6/30/16)</i>	41,000,000
The Insurance Reinvestment Fund Program <i>Corporate Income Tax (as of 12/31/2016)</i>	20,000,000
Enterprise Zone Property Tax Reimbursement Program <i>Property Tax (6/30/2015)</i>	4,884,678

## Note 24 Related Organizations

The Community Economic Development Fund and Connecticut Health Insurance Exchange are legally separate organizations that are related to the State because the State appoints a voting majority of the organizations governing board. However, the State’s accountability for these organizations does not extend beyond making the appointments.

## Note 25 New Accounting Pronouncements

In 2017, The State implemented the following statements issued by the Governmental Accounting Standards Board (“GASB”).

*Financial Reporting for Postemployment Benefit Plans Other than Pension Plans* (Statement No. 74) - GASB Statement No. 74 establishes financial reporting standards for state and local governmental other postemployment benefit (OPEB) plans other than pension plans. It also establishes financial reporting standards for governments that hold assets accumulated for purposes of providing OPEB through defined benefit OPEB plans that are not administered through trusts or equivalent arrangements.

*Tax Abatement Disclosures* (Statement No. 77) - This Statement establishes financial reporting standards for tax abatement agreements entered into by the State. The disclosures required by this Statement include tax abatements resulting from (a) agreements that are entered into by the State and (b) agreements that are entered into by other governments that reduce the State’s tax revenues. The adoption of this Statement had no significant impact on the State’s financial statements.

*Certain External Investment Pools and Pool Participants* (Statement No. 79) – This Statement establishes accounting and financial reporting criteria for an external investment pool to qualify for making the election to measure all of its investments at amortized cost for financial reporting purposes. While certain provisions of Statement No. 79 were effective for fiscal year 2016 reporting, its provisions related to portfolio quality, custodial credit risk, and shadow pricing are effective for fiscal year 2017 reporting.

## Note 26

### Commitments and Contingencies

#### a. Commitments

##### *Primary Government*

Commitments are defined as “existing arrangements to enter into future transactions or events, such as long-term contractual obligations with suppliers for future purchases at specified prices and sometimes at specified quantities.” As of June 30, 2017, the Departments of Transportation and Construction Services had contractual commitments of approximately \$3,151 million for infrastructure and other construction projects. Additionally, other commitments were approximately as follows:

School construction and alteration grant program \$3,032 million.

Clean and drinking water loan programs \$387 million.

Various programs and services \$5,425 million.

All commitments are expected to be funded by federal grants, bond proceeds, and other resources.

##### *Component Units*

As of December 31, 2016, the Connecticut Housing Finance Authority had mortgage loan commitments of approximately \$137.1 million.

#### b. Contingent Liabilities

The State entered into a contractual agreement with H.N.S. Management Company, Inc. and ATE Management and Service Company, Inc. to manage and operate the bus transportation system for the State. The State shall pay all expenses of the system including all past, present and future pension plan liabilities of the personnel employed by the system and any other fees as agreed upon. When the agreement is terminated the State shall assume or make arrangements for the assumption of all the existing obligations of the management companies including but not limited to all past, present and future pension plan liabilities and obligations.

As of June 30, 2016, the State reported an escheat liability of \$387.2 million in the General fund. This liability represents an estimate of the amount of escheat property likely to be refunded to claimants in the future. However, there is a reasonable possibility that the State could be liable for an additional amount of escheat refunds of \$411.7 million in the future.

Grant amounts received or receivable by the State from federal agencies are subject to audit and adjustment by these agencies. Any disallowed claims, including amounts already collected, may constitute a liability of the applicable funds. The amount, if any, of expenditures that may be disallowed by the federal government cannot be determined at this time, although the State expects such amounts, if any, to be immaterial.

#### c. Litigation

The State, its units and employees are parties to numerous legal proceedings, many of which normally occur in government operations. Most of these legal proceedings are not, in the opinion of the Attorney General, likely to have a material adverse impact on the State's financial position.

There are, however, several legal proceedings which, if decided adversely against the State, may require the State to make material future expenditures for expanded services or capital facilities or may impair future revenue sources. It is neither possible to determine the outcome of these proceedings nor to estimate the possible effects adverse decisions may have on the future expenditures nor revenue sources of the State.

#### d. Lease/Lease Back Transaction

On September 30, 2003 the State executed a U.S. Lease-to-Service Contract of Rolling Stock Agreement (Agreement) whereby the state entered into a head lease of certain rolling stock consisting of rail coaches and locomotives to statutory trusts established for the benefit of three equity investors. Simultaneously, the State executed sublease agreements to lease back the rolling stock in order to allow the State to have continued use of the property. The terms of the head leases are for periods ranging from 40 years to 67 years, expiring through March 2071, while the subleases have terms ranging from 18 years to 28 years, expiring through January 2032. At the end of the respective sublease terms, the State will have the option to purchase the statutory trusts' interest in the rolling stock for an aggregate fixed price.

Proceeds from the prepayment of the head lease rents were paid to debt payment undertakers and custodians in amounts sufficient, together with investment earning thereon, to provide for all future obligations of the State under the sublease agreements and the end of lease term purchase options. Although it is remote that the State will be required to make any additional payments under the sublease, the State is and shall remain liable for all of its obligations under the subleases. As of June 30, 2017 there were no longer any outstanding balances or commitments under the Agreements or subleases.

The State is obligated to insure and maintain the rolling stock. In addition, if an equity investor suffers a loss of tax deductions or incurs additional taxable income as a result of certain circumstances, as defined in the Agreement, then the State must indemnify the equity investor for the additional tax incurred, including interest and penalties thereon. The State has the right to terminate the sublease early under certain circumstances and upon payment of a termination value to the equity investors. If the State chooses early termination, then the termination value would be paid from funds available from the debt payment undertakers and the custodians, and if such amounts are insufficient, then the State would be required to pay the difference.

## Note 27

### Subsequent Events

In preparing these financial statements, the State has evaluated events and transactions for potential recognition or disclosure in the footnotes. The effect of this evaluation led the State to report the following events which took place after the State's fiscal year end date through to the date these financial statements were issued. The subsequent information regarding the Connecticut Housing Finance Authority are events which took place after their fiscal year end of December 31, 2016.

In December 2017, the State issued \$450.0 million of Taxable General Obligation bonds. The taxable 2017 Series-A bonds mature in 2028 and bear coupon interest rates ranging from 2.30 to 3.75 percent. The bonds will fund economic development, housing projects, higher education technology, Town Road Aid, grants-in-aid to towns, grants to hospitals, Jackson Labs, the Small Business Express program, the Manufacturing Innovation Fund, and the BioScience Innovation Fund.

In December 2017, the State issued \$400.0 million of nontaxable General Obligation Bond Anticipation Notes. The nontaxable 2017 Series-A Notes having a coupon interest rate of 5.0 percent, are expected to be converted to long-term bonds in September 2018. The notes will fund a variety of projects including grants-in-aid to towns and school districts, fire training schools, housing projects, higher education, libraries, environmental and brownfield remediation, Clean Water Fund grants, technology upgrades, and demolition, construction and renovation at state-owned facilities.

In December 2017, the Connecticut Higher Education Supplemental Loan Authority issued \$11.3 million of revenue bonds. The Series C bonds mature in 2034 and bear interest rates ranging from 3.5 to 5.0 percent. The proceeds will support the authority's loan program-Special Capital Reserve fund.

On January 5, 2017, the Connecticut Housing Finance authority (CHFA) issued \$37.4 million of Special Needs Housing Program bonds. On February 6, 2017 \$29.9 million of these proceeds were used to refund a portion of the authority's outstanding bonds and \$9.9 million was used to finance 19 group homes for individuals with special needs.

On March 2, 2017 the Connecticut Housing Finance authority (CHFA) issued \$266 million of Housing Mortgage Finance Program bonds, \$141 million of the proceeds were used to refund a portion of the authority's outstanding bonds. The remaining \$125 million was used for single family loans and mortgage backed security purchases. On the same date, to secure the liquidity and potential remarketing of the 2017 Sub-series A-3 variable rate bonds with a principal balance of \$38 million, CHFA entered into Stand-By Bond Purchase with Landesbank Hessen-Thuringen and a Remarketing Agreement with Merrill Lynch. In addition a new swap agreement effective March 2, 2017 was established with the Royal Bank of Canada. More information concerning these transactions can be obtained from separately issued financial statements published by CHFA having a fiscal year end of December 31, 2016.

CHFA issued Housing Mortgage Finance Program bonds on April 18, 2017 for \$125 million 2017 Series B, on May 11, 2017 for \$175 million 2107 Series C, on August 9, 2017 for \$175 million 2017 Series D, on October 25, 2017 for \$49.9 million 2017 Series E, on November 14, 2017 for \$229.2 million 2017 Series F. The proceeds from these bonds were used for the single family and multifamily programs and to refund prior bonds. On August 1, 2017, CHFA entered into a new Stand-By Bond Purchase Agreement with TD Bank, N.A. and Remarketing Agreement with TD Securities LLC to secure the liquidity and remarketing needs of 2017D-3 variable rate bond in the principal amount of \$50 million issued under the General Resolution. On November 14, 2017, CHFA entered into a new Stand-By-Purchase Agreement with Barclays Bank PLC and Remarketing Agreement with Barclays Capital Inc. to secure the liquidity and remarketing needs of 2017F-3 variable rate bond in the principal amount of \$44.8 million issued under the General Resolution.

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*REQUIRED  
SUPPLEMENTARY  
INFORMATION*

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## REQUIRED SUPPLEMENTARY INFORMATION BUDGET

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*Required supplementary information for budget provides information on budget versus actual revenues, expenditures and changes in fund balance and related note disclosure for statutory reporting.*

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The following schedules are included in the Required Supplementary Information for Budget:  
Schedule of Revenues, Expenditures and Changes in Fund Balance: Budget and Actual  
(Budgetary Basis—Non-GAAP):  
General Fund and Transportation Fund

Notes to Required Supplementary Information: Statutory Reporting

**State of Connecticut**

**REQUIRED SUPPLEMENTAL INFORMATION  
SCHEDULE OF REVENUES, EXPENDITURES & CHANGES IN FUND BALANCE  
BUDGET AND ACTUAL (BUDGETARY BASIS — NON-GAAP)  
GENERAL AND TRANSPORTAION FUNDS**

For the Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	General Fund			Variance with Final Budget positive negative)
	Budget		Actual	
	Original	Final		
<b>Revenues</b>				
Budgeted:				
Taxes, Net of Refunds	\$ 15,519,900	\$ 15,052,900	\$ 15,055,526	\$ 2,626
Casino Gaming Payments	267,000	269,900	269,906	6
Licenses, Permits, and Fees	269,200	275,200	275,386	186
Other	393,400	526,900	523,304	(3,596)
Federal Grants	1,257,600	1,325,200	1,325,237	37
Refunds of Payments	(66,100)	(44,200)	(44,199)	1
Operating Transfers In	464,000	447,000	447,015	15
Operating Transfers Out	(58,100)	(58,100)	(58,100)	-
Transfer to/from the Resources of the General Fund	(160,200)	(76,700)	(91,107)	(14,407)
Total Revenues	<u>17,886,700</u>	<u>17,718,100</u>	<u>17,702,968</u>	<u>(15,132)</u>
<b>Expenditures</b>				
Budgeted:				
Legislative	80,274	80,296	66,545	13,751
General Government	602,960	603,158	584,707	18,451
Regulation and Protection	290,735	299,862	274,414	25,448
Conservation and Development	193,090	193,090	181,061	12,029
Health and Hospitals	1,217,226	1,224,852	1,189,787	35,065
Transportation	-	-	-	-
Human Services	3,743,458	3,743,458	3,624,957	118,501
Education, Libraries, and Museums	5,081,647	5,089,114	5,003,922	85,192
Corrections	1,417,988	1,417,988	1,397,113	20,875
Judicial	597,599	597,896	552,370	45,526
Non Functional	4,949,936	4,950,250	4,888,164	62,086
Total Expenditures	<u>18,174,913</u>	<u>18,199,964</u>	<u>17,763,040</u>	<u>436,924</u>
Appropriations Lapsed	<u>190,829</u>	<u>420,061</u>	<u>-</u>	<u>(420,061)</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>(97,384)</u>	<u>(61,803)</u>	<u>(60,072)</u>	<u>1,731</u>
<b>Other Financing Sources (Uses)</b>				
Prior Year Appropriations Carried Forward	96,559	96,559	96,559	-
Appropriations Continued to Fiscal Year 2018	-	-	(60,237)	(60,237)
Miscellaneous Adjustments	410	1,054	1,054	-
Total Other Financing Sources (Uses)	<u>96,969</u>	<u>97,613</u>	<u>37,376</u>	<u>(60,237)</u>
Net Change in Fund Balance	<u>\$ (415)</u>	<u>\$ 35,810</u>	<u>(22,696)</u>	<u>\$ (58,506)</u>
Budgetary Fund Balances - July 1			46,458	
Changes in Reserves			<u>134,094</u>	
Budgetary Fund Balances - June 30			<u>\$ 157,856</u>	

*The information about budgetary reporting is an integral part of this schedule.*

**State of Connecticut**

**Transportation Fund**

<b>Budget</b>		<b>Variance with Final Budget positive (negative)</b>	
<b>Original</b>	<b>Final</b>	<b>Actual</b>	<b>(negative)</b>
\$ 1,050,800	\$ 994,900	\$ 996,904	\$ 2,004
-	-	-	-
403,300	386,300	386,939	639
8,500	8,100	8,995	895
12,100	12,100	12,168	68
(3,800)	(4,100)	(4,103)	(3)
-	-	-	-
(6,500)	(6,500)	(6,500)	-
-	-	-	-
<u>1,464,400</u>	<u>1,390,800</u>	<u>1,394,403</u>	<u>3,603</u>
-	-	-	-
8,961	8,961	6,221	2,740
77,442	77,442	63,812	13,630
2,799	2,799	2,663	136
-	-	-	-
618,385	618,385	604,733	13,652
2,371	2,371	2,371	-
-	-	-	-
-	-	-	-
-	-	-	-
788,060	788,060	752,050	36,010
<u>1,498,018</u>	<u>1,498,018</u>	<u>1,431,850</u>	<u>66,168</u>
15,300	44,701	-	(44,701)
-	-	-	-
<u>(18,318)</u>	<u>(62,517)</u>	<u>(37,447)</u>	<u>25,070</u>
22,610	22,610	22,610	-
-	-	(30,389)	(30,389)
-	-	-	-
<u>22,610</u>	<u>22,610</u>	<u>(7,779)</u>	<u>(30,389)</u>
<u>\$ 4,292</u>	<u>\$ (39,907)</u>	<u>(45,226)</u>	<u>\$ (5,319)</u>
		165,451	
		<u>7,779</u>	
		<u>\$ 128,004</u>	

## NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

### STATUTORY REPORTING

#### A. Budgeting Process

By statute, the Governor must submit the State budget to the General Assembly in February of every other year. Prior to June 30, the General Assembly enacts the budget through the passage of appropriation acts for the next two fiscal years and sets forth revenue estimates for the same period for the following funds: the General Fund, the Transportation Fund, the Mashantucket Pequot Fund, the Workers' Compensation Administration Fund, the Banking Fund, the Consumer Counsel and Public Utility Control Fund, the Insurance Fund, the Criminal Injuries Fund, the Soldiers, Sailors, and Marines Fund, and the Regional Market Operations Fund. Under the State Constitution, the Governor has the power to veto any part of the itemized appropriations bill and to accept the remainder of the bill. However, the General Assembly may separately reconsider and repass the disapproved items by a two-thirds majority vote of both the Senate and the House.

Budgetary control is maintained at the individual appropriation account level by agency as established in authorized appropriation bills and is reported in the Annual Report of the State Comptroller. A separate document is necessary because the level of legal control is more detailed than reflected in the CAFR. Before an agency can utilize funds appropriated for a particular purpose, such funds must be allotted for the specific purpose by the Governor and encumbered by the Comptroller upon request by the agency. Such funds can then be expended by the Treasurer only upon a warrant, draft or order of the Comptroller drawn at the request of the responsible agency. The allotment process maintains expenditure control over special revenue, enterprise, and internal service funds that are not budgeted as part of the annual appropriation act.

The Governor has the power under Connecticut statute to modify budgetary allotment requests for the administration, operation and maintenance of a budgeted agency. However, the modification cannot exceed 3 percent of the fund or 5 percent of the appropriation amount. Modifications beyond those limits, but not in excess of 5 percent of the total funds require the approval of the Finance Advisory Committee. The Finance Advisory Committee is comprised of the Governor, the Lieutenant Governor, the Treasurer, the Comptroller, two senate members, not of the same political party, and three house members, not more than two of the same political party. Additional reductions of appropriations of more than 5 percent of the total appropriated fund can be made only with the approval of the General Assembly.

All funds, except fiduciary funds, use encumbrance accounting. Under this method of accounting, purchase orders, contracts, and other commitments for the expenditures of the fund are recorded in order to reserve that portion of the applicable appropriation. All encumbrances lapse at year-end and, generally, all appropriations lapse at year-end except for certain continuing appropriations (continuing appropriations are defined as carryforwards of spending authority from one fiscal budget into a subsequent budget). The continuing appropriations include: appropriations continued for a one-month period after year-end which are part of a program that was not renewed the succeeding year; appropriations continued the entire succeeding year, as in the case of highway and other capital construction projects; and appropriations continued for specified amounts for certain special programs. Carryforward appropriations are reported as reservations of the fund balance in the financial statements.

The budget is prepared on a "statutory" basis of accounting that utilizes the accounting standards that were applied in the budget act and related legislation. Commencing in Fiscal Year 2014, appropriations were made to legislatively budgeted funds to account for expense accruals. The actual expense accruals were posted using the same methodology described above for the governmental fund financial statements. Revenues were recognized when received except in the General Fund and Transportation Fund. In those two funds certain taxes and Indian gaming payments are recognized within a statutory accrual period as approved by the State Comptroller. The state's three major tax categories (the personal income tax, the sales and use tax, and the corporation tax), among other taxes, are subject to statutory accrual. A comparison of actual results of operations recorded on this basis and the adopted budget is presented in the financial statements for the General and Transportation funds. During the 2017 fiscal year, the original adopted budget was adjusted by the General Assembly and the Finance Advisory Committee.

#### B. Reconciliation of Budget/GAAP Reporting Differences

The *Schedule of Revenues, Expenditures and Changes in Fund Balance – Budget and Actual (Budgetary Basis – Non-GAAP) – General Fund and Transportation Fund*, presents comparisons of the legally adopted budget (which is more fully described in section A, above) with actual data on a budgetary basis. Accounting principles applied to develop data on a budgetary basis differ significantly from those principles used to present financial statements in conformity with generally accepted accounting principles (GAAP). The following describes the major differences between statutory financial data and GAAP financial data.

- Revenues are recorded when received in cash except for certain year-end accruals (statutory basis) as opposed to revenues being recorded when they are susceptible to accrual (GAAP basis).

## State of Connecticut

### NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

- Certain expenditures are not subject to accrual for budgeting purposes and are recorded when paid in cash (statutory basis) as opposed to expenditures being recorded when the related fund liability is incurred (GAAP basis).
- For statutory reporting purposes, continuing appropriations are reported with other financing sources and uses in the determination of the budgetary surplus or deficit to more fully demonstrate compliance with authorized spending for the year. For GAAP purposes, continuing appropriations are excluded from operations and reported as committed fund balance.

The following table presents a reconciliation of differences between the statutory change in fund balance and the GAAP change in fund balance at June 30, 2017. Amounts are expressed in thousands.

	General Fund	Transportation Fund
Net change in fund balances (statutory basis)	\$ (22,696)	\$ (45,226)
Adjustments:		
Increases (decreases) in revenue accruals:		
Receivables and Other Assets	137,398	6,467
(Increases) decreases in expenditure accruals:		
Accounts Payable and Other Liabilities	19,779	1,100
Salaries and Fringe Benefits Payable	22,778	1,621
Increase (Decrease) in Continuing Appropriations	(36,322)	7,779
Fund Reclassification-Bus Operations	-	1,265
Net change in fund balances (GAAP basis)	\$ 120,937	\$ (26,994)

### C. Budget Reserve Fund (“Rainy Day Fund”)

In accordance with Section 4-30a of the Connecticut State Statutes, the State maintains a Budget Reserve (“Rainy Day”) Fund. Per section 4-30a after the accounts for the General Fund have been closed for each fiscal year and the Comptroller has determined the amount of unappropriated surplus, and after any required transfers have been made, the surplus shall be transferred by the State Treasurer to the Budget Reserve Fund. Moneys shall be expended only when in any fiscal year the Comptroller has determined the amount of a deficit applicable with respect to the immediately preceding fiscal year, to the extent necessary.

Historically, resources from the Rainy Day Fund have only been expended during recessionary periods to cover overall budget shortfalls after other budgetary measures have been exhausted. During fiscal year 2018 a withdrawal of \$22.7 million will be made to cover the budgetary shortfall in fiscal year 2017.

After the transfer is made to cover the shortfall in fiscal year 2017 the Budget Reserve Fund will have a balance of \$212.9 million. Effective February 28, 2003, the amount on deposit cannot exceed 10 percent of the net General Fund appropriations for the current fiscal year.

#### *Changes to the Budget Reserve Fund in PA 15-244*

PA 15-244, the fiscal year 2016 and fiscal year 2017 budget bill, establishes, beginning in fiscal year 2021, requires revenue collected from the estimated and final payments portion of the personal income tax and the corporation business tax must be in excess of a calculated threshold to be deposited into the Budget Reserve Fund at the close of each fiscal year. The act allows for the threshold to be adjusted for changes in tax policy that impact the corporation business tax or the personal income tax.

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## REQUIRED SUPPLEMENTARY INFORMATION PENSION PLANS

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*Required supplementary information for pension plans provides information on the sources of changes in net pension liabilities, information about the components of net pension liabilities, employer contributions, and investment returns.*

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The Required Supplementary Information for Pension Plans includes the following schedules:

- Schedule of Changes in the Net Pension Liability and Plan Net Position
- Schedule of Employer Contributions
- Schedule of Investment Returns

**State of Connecticut**

**REQUIRED SUPPLEMENTAL INFORMATION  
PENSION PLANS  
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND PLAN NET POSITION**

Last Ten Fiscal Years\*

(Expressed in Thousands)

**SERS**

<b>Total Pension Liability</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
Service Cost	\$ 322,114	\$ 310,472	\$ 287,473
Interest	2,105,947	2,052,651	1,998,736
Difference between expected and actual experience	772,762	-	-
Changes of assumptions	4,959,705	-	-
Benefit payments	(1,729,181)	(1,650,465)	(1,563,029)
Refunds of contributions	(7,098)	(7,124)	(3,935)
Net change in total pension liability	6,424,249	705,534	719,245
Total pension liability - beginning	27,192,467	26,486,933	25,767,688
<b>Total pension liability - ending (a)</b>	<b>\$ 33,616,716</b>	<b>\$ 27,192,467</b>	<b>\$ 26,486,933</b>
<b>Plan net position</b>			
Contributions - employer	\$ 1,501,805	\$ 1,371,651	\$ 1,268,890
Contributions - member	135,029	187,339	144,807
Net investment income	(100)	294,412	1,443,391
Benefit payments	(1,729,181)	(1,650,465)	(1,563,029)
Administrative expense	(651)	-	-
Refunds of contributions	(7,098)	(7,124)	(3,935)
Other	85,608	-	-
Net change in plan net position	(14,588)	195,813	1,290,124
Plan net position - beginning	10,668,380	10,472,567	9,182,443
<b>Plan net position - ending (b)</b>	<b>\$ 10,653,792</b>	<b>\$ 10,668,380</b>	<b>\$ 10,472,567</b>
Ratio of plan net position to total pension liability	31.69%	39.23%	39.54%
<b>Net pension liability - ending (a) - (b)</b>	<b>\$ 22,962,924</b>	<b>\$ 16,524,087</b>	<b>\$ 16,014,366</b>
Covered-employee payroll	\$ 3,720,751	\$ 3,618,361	\$ 3,487,577
Net pension liability as a percentage of covered-employee payroll	617.16%	456.67%	459.18%

**TRS**

<b>Total Pension Liability</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
Service Cost	\$ 419,616	\$ 404,449	\$ 347,198
Interest	2,228,958	2,162,174	2,090,483
Difference between expected and actual experience	(375,805)	-	-
Changes of assumptions	2,213,190	-	-
Benefit payments	(1,738,131)	(1,773,408)	(1,737,144)
Refunds of contributions	-	(50,329)	-
Net change in total pension liability	2,747,828	742,886	700,537
Total pension liability - beginning	27,092,095	26,349,209	25,648,672
<b>Total pension liability - ending (a)</b>	<b>\$ 29,839,923</b>	<b>\$ 27,092,095</b>	<b>\$ 26,349,209</b>
<b>Plan net position</b>			
Contributions - employer	\$ 975,578	\$ 984,110	\$ 948,540
Contributions - member	293,493	228,100	261,213
Net investment income	(18,473)	452,942	2,277,550
Benefit payments	(1,738,131)	(1,773,408)	(1,737,144)
Refunds of contributions	-	(50,329)	-
Other Changes	(37,648)	57,749	(5,307)
Net change in plan net position	(525,181)	(100,836)	1,744,852
Plan net position - beginning	16,120,053	16,220,889	14,462,903
<b>Plan net position - ending (b)</b>	<b>\$ 15,594,872</b>	<b>\$ 16,120,053</b>	<b>\$ 16,207,755</b>
Ratio of plan net position to total pension liability	52.26%	59.50%	61.51%
<b>Net pension liability - ending (a) - (b)</b>	<b>\$ 14,245,051</b>	<b>\$ 10,972,042</b>	<b>\$ 10,141,454</b>
Covered-employee payroll	\$ 4,125,066	\$ 4,078,367	\$ 3,831,624
Net pension liability as a percentage of covered-employee payroll	345.33%	269.03%	264.68%

**State of Connecticut**

**REQUIRED SUPPLEMENTAL INFORMATION  
PENSION PLANS  
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND PLAN NET POSITION**

Last Ten Fiscal Years\*

*(Expressed in Thousands)*

<u>JRS</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
<b>Total Pension Liability</b>			
Service Cost	\$ 8,508	\$ 8,142	\$ 7,539
Interest	28,251	27,240	26,301
Difference between expected and actual experience	(9,380)	-	-
Changes of assumptions	64,604	-	-
Benefit payments	(22,994)	(22,541)	(21,668)
Net change in total pension liability	<u>68,989</u>	<u>12,841</u>	<u>12,172</u>
Total pension liability - beginning	<u>364,614</u>	<u>351,773</u>	<u>339,601</u>
<b>Total pension liability - ending (a)</b>	<b><u>\$ 433,603</u></b>	<b><u>\$ 364,614</u></b>	<b><u>\$ 351,773</u></b>
<b>Plan net position</b>			
Contributions - employer	\$ 18,259	\$ 17,731	\$ 16,298
Contributions - member	1,831	1,791	1,641
Net investment income	1,440	4,781	23,156
Benefit payments	(22,994)	(22,541)	(21,668)
Other	<u>1,680</u>	<u>-</u>	<u>-</u>
Net change in plan net position	216	1,762	19,427
Plan net position - beginning	<u>189,542</u>	<u>187,780</u>	<u>168,353</u>
<b>Plan net position - ending (b)</b>	<b><u>\$ 189,758</u></b>	<b><u>\$ 189,542</u></b>	<b><u>\$ 187,780</u></b>
Ratio of plan net position to total pension liability	43.76%	51.98%	53.38%
<b>Net pension liability - ending (a) -(b)</b>	<b><u>\$ 243,845</u></b>	<b><u>\$ 175,072</u></b>	<b><u>\$ 163,993</u></b>
Covered-employee payroll	\$ 34,897	\$ 34,972	\$ 33,386
Net pension liability as a percentage of covered-employee payroll	698.76%	500.61%	491.20%

\* Governmental Accounting Standards Board Statement No. 68, Accounting and Financial Reporting for Pensions, requires the presentation of supplementary information for each of the 10 most recent years. However, until a full 10-year trend is compiled, the State will present information for the years for which the information is available. Information presented in the schedule has been determined as of the measurement date (one year before the most recent fiscal year end).

**State of Connecticut**

**REQUIRED SUPPLEMENTARY INFORMATION  
PENSION PLANS  
SCHEDULE OF EMPLOYER CONTRIBUTIONS**

Last Ten Fiscal Years

(Expressed in Thousands)

<b><u>SERS</u></b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Actuarially determined employer contribution	\$ 1,514,467	\$ 1,379,189	\$ 1,268,935	\$ 1,059,652
Actual employer contributions	<u>1,501,805</u>	<u>1,371,651</u>	<u>1,268,890</u>	<u>1,058,113</u>
Annual contributions deficiency excess	<u>\$ 12,662</u>	<u>\$ 7,538</u>	<u>\$ 45</u>	<u>\$ 1,539</u>
Covered Payroll	\$ 3,720,751	\$ 3,618,361	\$ 3,355,077	\$ 3,304,538
Actual contributions as a percentage of covered-employee payroll	40.36%	37.91%	37.82%	32.02%
 <b><u>TRS</u></b>				
Actuarially determined employer contribution	\$ 975,578	\$ 984,110	\$ 948,540	\$ 787,536
Actual employer contributions	<u>975,578</u>	<u>984,110</u>	<u>948,540</u>	<u>787,536</u>
Annual contributions deficiency excess	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered Payroll	\$ 4,125,066	\$ 4,078,367	\$ 3,930,957	\$ 4,101,750
Actual contributions as a percentage of covered-employee payroll	23.65%	24.13%	24.13%	19.20%
 <b><u>JRS</u></b>				
Actuarially determined employer contribution	\$ 18,259	\$ 17,731	\$ 16,298	\$ 16,006
Actual employer contributions	<u>18,259</u>	<u>17,731</u>	<u>16,298</u>	<u>16,006</u>
Annual contributions deficiency excess	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered Payroll	\$ 34,897	\$ 34,972	\$ 33,386	\$ 31,748
Actual contributions as a percentage of covered-employee payroll	52.32%	50.70%	48.82%	50.42%

Valuation Date:

Actuarially determined contribution amounts are calculated as of June 30, 2016.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll
Remaining Amortization Period	SERS 25.1 years TRS 20.4 years JRS 15 years
Asset Valuation Method	SERS & JRS 5 year smoothed actuarial value TRS 4 year smoothed market value
Investment Rate of Return	SERS & JRS 6.90% TRS 8%
Salary Increases	3.22%-19.5%
Cost-of-Living Adjustments	1.75%-4.75%
Inflation	2.5%-2.75%
Social Security Wage Base	SERS 3.5%

## State of Connecticut

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2012	2011	2010	2009	2008	2007
\$ 926,372	\$ 944,077	\$ 897,428	\$ 753,698	\$ 716,944	\$ 663,926
<u>926,343</u>	<u>825,801</u>	<u>720,527</u>	<u>699,770</u>	<u>711,555</u>	<u>663,931</u>
<u>\$ 29</u>	<u>\$ 118,276</u>	<u>\$ 176,901</u>	<u>\$ 53,928</u>	<u>\$ 5,389</u>	<u>\$ (5)</u>
\$ 3,209,782	\$ 3,308,498	\$ 2,920,661	\$ 3,497,400	\$ 3,497,400	\$ 3,310,400
28.86%	24.96%	24.67%	20.01%	20.35%	20.06%
\$ 757,246	\$ 581,593	\$ 559,224	\$ 539,303	\$ 518,560	\$ 412,099
<u>757,246</u>	<u>581,593</u>	<u>559,224</u>	<u>539,303</u>	<u>518,560</u>	<u>412,099</u>
<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
\$ 3,943,990	\$ 3,823,754	\$ 3,676,686	\$ 3,529,470	\$ 3,393,717	\$ 3,296,792
19.20%	15.21%	15.21%	15.28%	15.28%	12.50%
\$ 15,095	\$ 16,208	\$ 15,399	\$ 14,172	\$ 13,434	\$ 12,375
<u>15,095</u>	<u>-</u>	<u>-</u>	<u>14,173</u>	<u>13,434</u>	<u>12,375</u>
<u>\$ -</u>	<u>\$ 16,208</u>	<u>\$ 15,399</u>	<u>\$ (1)</u>	<u>\$ -</u>	<u>\$ -</u>
\$ 30,308	\$ 33,102	\$ 31,602	\$ 34,000	\$ 33,982	\$ 33,757
49.81%	0.00%	0.00%	41.69%	39.53%	36.66%

**State of Connecticut**

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**REQUIRED SUPPLEMENTARY INFORMATION  
PENSION PLANS  
SCHEDULE OF INVESTMENT RETURNS**

Last Four Fiscal Years\*

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**Annual money-weighted rates of return  
net of investment expense**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
State Employees' Retirement Fund	14.32%	0.23%	2.83%	15.62%
Teachers' Retirement Fund	14.37%	0.17%	2.82%	15.67%
State Judges' Retirement Fund	13.04%	1.11%	2.57%	13.66%

\* Governmental Accounting Standards Board Statement No. 68, Accounting and Financial Reporting for Pensions, requires the presentation of supplementary information for each of the 10 most recent years. However, until a full 10-year trend is compiled, the State will present information for the years for which the information is available.



## **REQUIRED SUPPLEMENTARY INFORMATION OTHER POSTEMPLOYMENT BENEFITS**

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*Required supplementary information for other postemployment benefits provides information on funding progress and employer contributions.*

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The following schedules are included in the Required Supplementary Information for Other Postemployment Benefits:

- Schedule of Changes in Net OPEB Liability and Plan Net Position
- Schedule of Employer Contributions
- Schedule of Fund Progress
- Schedule of Investment Returns

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**State of Connecticut**

**REQUIRED SUPPLEMENTAL INFORMATION  
OTHER POSTEMPLOYMENT BENEFIT PLANS  
SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND PLAN NET POSITION**

Last Fiscal Year

*(Expressed in Thousands)*

**SEOPEBP**

<b>Total OPEB Liability</b>	<b>2017</b>
Service Cost	\$ 1,081,923
Interest	849,907
Difference between expected and actual experience	(97,527)
Changes of assumptions	(1,936,042)
Change in benefit terms	(8,853,455)
Benefit payments	(639,467)
Net change in total OPEB liability	(9,594,661)
Total OPEB liability - beginning	27,522,691
<b>Total OPEB liability - ending (a)</b>	<b>\$ 17,928,030</b>

**Plan fiduciary net position**

Contributions - employer	\$ 667,401
Contributions - member	120,783
Net investment income	53,194
Benefit payments	(639,467)
Other	(187)
Net change in plan fiduciary net position	201,724
Plan fiduciary net position - beginning	340,618

**Plan fiduciary net position - ending (b) \$ 542,342**

Plan fiduciary net position as a percentage of the total OPEB liability 3.03%

**Net OPEB liability - ending (a) -(b) \$ 17,385,688**

Covered-employee payroll \$ 3,895,078

Net OPEB liability as a percentage of covered-employee payroll 446.35%

**RTHP**

<b>Total OPEB Liability</b>	<b>2017</b>
Service Cost	\$ 148,220
Interest	111,129
Benefit Changes	-
Difference between expected and actual experience	-
Changes of assumptions	(370,549)
Benefit payments	(84,071)
Net change in total OPEB liability	(195,271)
Total OPEB liability - beginning	3,734,043
<b>Total OPEB liability - ending (a)</b>	<b>\$ 3,538,772</b>

**Plan fiduciary net position**

Contributions - employer	\$ 19,922
Contributions - member	50,436
Net investment income	369
Benefit payments	(84,071)
Administrative expense	(150)
Other	42
Net change in plan fiduciary net position	(13,452)
Plan fiduciary net position - beginning	76,880

**Plan fiduciary net position - ending (b) \$ 63,428**

Plan fiduciary net position as a percentage of the total OPEB liability 1.79%

**Net OPEB liability - ending (a) -(b) \$ 3,475,344**

Covered-employee payroll \$ 4,279,755

Net OPEB liability as a percentage of covered-employee payroll 81.20%

**State of Connecticut**

**REQUIRED SUPPLEMENTARY INFORMATION  
OTHER POSTEMPLOYMENT BENEFIT PLANS  
SCHEDULE OF EMPLOYER CONTRIBUTIONS**

Last Seven and Ten Fiscal Years

*(Expressed in Thousands)*

<b><u>SEOPEBP</u></b>	<b><u>2017</u></b>	<b><u>2016</u></b>	<b><u>2015</u></b>	<b><u>2014</u></b>	<b><u>2013</u></b>
Actuarially determined employer contribution	\$ 1,043,143	\$ 1,443,716	\$ 1,513,336	\$ 1,525,371	\$ 1,271,279
Actual employer contributions	<u>667,401</u>	<u>608,593</u>	<u>546,284</u>	<u>514,696</u>	<u>542,615</u>
Annual contributions deficiency excess	<u>\$ 375,742</u>	<u>\$ 835,123</u>	<u>\$ 967,052</u>	<u>\$ 1,010,675</u>	<u>\$ 728,664</u>
Covered Payroll	\$ 3,895,078	\$ 3,895,100	\$ 3,539,800	\$ 3,539,728	\$ 3,539,728
Actual contributions as a percentage of covered-employee payroll	17.13%	15.62%	15.43%	14.54%	15.33%
<b><u>RTHP</u></b>					
Actuarially determined employer contribution	\$ 166,802	\$ 130,331	\$ 125,620	\$ 187,227	\$ 180,460
Actual employer contributions	<u>19,922</u>	<u>19,960</u>	<u>25,145</u>	<u>25,955</u>	<u>27,040</u>
Annual contributions deficiency excess	<u>\$ 146,880</u>	<u>\$ 110,371</u>	<u>\$ 100,475</u>	<u>\$ 161,272</u>	<u>\$ 153,420</u>
Covered Payroll	\$ 4,279,755	\$ 3,949,900	\$ 3,831,600	\$ 3,831,600	\$ 3,652,500
Actual contributions as a percentage of covered-employee payroll	0.47%	0.51%	0.66%	0.68%	0.74%

\* June 30, 2011 was the first year an actuarial valuation for State Employees Other Postemployment Benefit Plan was performed.

Valuation Date:

Actuarially determined contribution amounts are calculated as of June 30, 2017 and June 30, 2016 for SEOPEBP and RTHP respectively.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	SEOPEBP- Projected Unit Credit RTHP-Entry Age
Amortization Method	Level Percent of Payroll
Remaining Amortization Period	SEOPEBP- 22 years RTHP-30 years
Asset Valuation Method	Market Value
Investment Rate of Return	SEOPEBP-5.7% RTHP-4.25%
Salary Increases	SEOPEBP-3.75% RTHP-3.25%-6.5%
Inflation	RTHP-2.75%
Claims Trend Assumption	5.00-10.00%

## State of Connecticut

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<u>2012</u>	<u>2011</u>	<u>2010*</u>	<u>2009*</u>	<u>2008*</u>
\$ 1,354,738	\$ 1,276,099	N/A	N/A	N/A
<u>541,262</u>	<u>544,767</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>\$ 813,476</u>	<u>\$ 731,332</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
\$ 3,902,248	\$ 3,902,248	N/A	N/A	N/A
13.87%	13.96%	N/A	N/A	N/A
\$ 184,145	\$ 177,063	\$ 121,333	\$ 116,667	\$ 116,123
<u>49,486</u>	<u>5,312</u>	<u>12,108</u>	<u>22,433</u>	<u>20,770</u>
<u>\$ 134,659</u>	<u>\$ 171,751</u>	<u>\$ 109,225</u>	<u>\$ 94,234</u>	<u>\$ 95,353</u>
\$ 3,652,500	\$ 3,646,000	\$ 3,646,000	\$ 3,399,300	\$ 3,399,300
1.35%	0.15%	0.33%	0.66%	0.61%

**State of Connecticut**

**REQUIRED SUPPLEMENTARY INFORMATION  
OTHER POSTEMPLOYMENT BENEFIT PLANS  
SCHEDULE OF FUND PROGRESS**

Last Ten Fiscal Years and Last Eight Fiscal Years

*(Expressed in Millions)*

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Actuarial Accrued Liability (AAL)	(b-a) Unfunded AAL (UAAAL)	(a/b) Funded Ratio	(c) Covered Payroll	((b-a)/c) UAAAL as a Percentage of Covered Payroll
<b><u>RTHP</u></b>						
6/30/2017 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2016	\$-	\$2,997.5	\$2,997.5	0.0%	\$3,949.9	75.9%
6/30/2015 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2014	\$-	\$2,433.0	\$2,433.0	0.0%	\$3,831.6	63.5%
6/30/2013 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2012	\$-	\$3,048.3	\$3,048.3	0.0%	\$3,652.5	83.5%
6/30/2011 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2010	\$-	\$2,997.8	\$2,997.8	0.0%	\$3,646.0	82.2%
6/30/2009 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2008	\$-	\$2,318.8	\$2,318.8	0.0%	\$3,399.3	68.2%
<b><u>SEOPEBP</u></b>						
6/30/2017	\$229.6	\$19,119.6	\$18,889.9	1.2%	\$3,895.1	485.0%
6/30/2016 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2015	\$229.6	\$19,119.6	\$18,889.9	1.2%	\$3,895.1	485.0%
6/30/2014 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2013	\$143.8	\$19,676.3	\$19,532.5	0.7%	\$3,539.7	551.8%
6/30/2012 *	\$-	\$-	\$-	0.0%	\$-	0.0%
6/30/2011	\$49.6	\$17,954.3	\$17,904.7	0.3%	\$3,902.2	458.8%

\*No actuarial valuation was performed.

June 30,2011 was the first year an actuarial valuation for State Employees OPEB Plan was performed.

**State of Connecticut**

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**REQUIRED SUPPLEMENTARY INFORMATION  
OPEB PLAN  
SCHEDULE OF INVESTMENT RETURNS**

Last Four Fiscal Years\*

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**Annual money-weighted rates of return  
net of investment expense**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
OPEB Fund	11.83%	2.44%	3.44%	11.80%

\* Governmental Accounting Standards Board Statement No. 68, Accounting and Financial Reporting for Pensions, requires the presentation of supplementary information for each of the 10 most recent years. However, until a full 10-year trend is compiled, the State will present information for the years for which the information is available.

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*COMBINING FUND  
STATEMENTS  
AND  
SCHEDULES*

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*NONMAJOR  
GOVERNMENTAL  
FUNDS*

**State of Connecticut**

**BALANCE SHEET  
GOVERNMENTAL FUNDS**

June 30, 2017

(Expressed in Thousands)

	General	Debt Service	Transportation	Restricted Grants & Accounts	Grant & Loan Programs	Other Funds	Total Governmental Funds
<b>Assets</b>							
Cash and Cash Equivalents	\$ -	\$ -	\$ 39,579	\$ 439,477	\$ 292,646	\$ 686,428	\$ 1,458,130
Investments	-	-	-	-	-	116,653	116,653
Securities Lending Collateral	-	-	-	-	-	8,094	8,094
Receivables:							
Taxes, Net of Allowances	1,380,503	-	139,358	-	-	-	1,519,861
Accounts, Net of Allowances	423,986	-	19,530	138,160	6,531	74,305	662,512
Loans, Net of Allowances	3,419	-	-	46,686	557,203	295,919	903,227
From Other Governments	21,853	-	-	464,033	-	8,822	494,708
Interest	-	1,419	236	-	-	-	1,655
Other	-	-	-	-	-	13	13
Due from Other Funds	43,672	-	1,419	270	5	279,441	324,807
Due from Component Units	36,918	-	-	992	-	-	37,910
Inventories	13,255	-	26,906	-	-	-	40,161
Restricted Assets	-	827,125	-	-	-	-	827,125
Total Assets	<u>\$ 1,923,606</u>	<u>\$ 828,544</u>	<u>\$ 227,028</u>	<u>\$ 1,089,618</u>	<u>\$ 856,385</u>	<u>\$ 1,469,675</u>	<u>\$ 6,394,856</u>
<b>Liabilities, Deferred Inflows, and Fund Balances</b>							
<b>Liabilities</b>							
Accounts Payable and Accrued Liabilities	\$ 350,217	\$ -	\$ 31,042	\$ 236,945	\$ 6,650	\$ 95,425	\$ 720,279
Due to Other Funds	356,302	1,419	-	3,360	31	204,905	566,017
Due to Component Units	-	-	-	6,520	-	-	6,520
Due to Other Governments	357,717	-	-	1,342	-	-	359,059
Unearned Revenue	10,263	-	-	-	-	12,049	22,312
Medicaid Liability	256,355	-	-	376,118	-	-	632,473
Liability For Escheated Property	387,182	-	-	-	-	-	387,182
Securities Lending Obligation	-	-	-	-	-	8,094	8,094
Other Liabilities	50,302	-	-	21,683	-	-	71,985
Total Liabilities	<u>1,768,338</u>	<u>1,419</u>	<u>31,042</u>	<u>645,968</u>	<u>6,681</u>	<u>320,473</u>	<u>2,773,921</u>
<b>Deferred Inflows of Resources</b>							
Receivables to be Collected in Future Periods	649,686	-	13,835	15,586	6,449	71,982	757,538
<b>Fund Balances</b>							
Nonspendable:							
Inventories/Long-Term Receivables	53,592	-	26,906	-	-	-	80,498
Permanent Fund Principal	-	-	-	-	-	115,072	115,072
Restricted For:							
Debt Service	-	827,125	-	-	-	-	827,125
Transportation Programs	-	-	124,856	-	-	-	124,856
Federal Grant and State Programs	-	-	-	428,064	-	-	428,064
Grants and Loans	-	-	-	-	841,956	-	841,956
Other	-	-	-	-	-	965,495	965,495
Committed For:							
Continuing Appropriations	60,237	-	30,389	-	-	-	90,626
Budget Reserve Fund	212,887	-	-	-	-	-	212,887
Assigned To:							
Grants and Loans	-	-	-	-	1,299	-	1,299
Other	-	-	-	-	-	5,207	5,207
Unassigned	(821,134)	-	-	-	-	(8,554)	(829,688)
Total Fund Balances	<u>(494,418)</u>	<u>827,125</u>	<u>182,151</u>	<u>428,064</u>	<u>843,255</u>	<u>1,077,220</u>	<u>2,863,397</u>
Total Liabilities, Deferred Inflows, and Fund Balances	<u>\$ 1,923,606</u>	<u>\$ 828,544</u>	<u>\$ 227,028</u>	<u>\$ 1,089,618</u>	<u>\$ 856,385</u>	<u>\$ 1,469,675</u>	<u>\$ 6,394,856</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

**State of Connecticut**

**STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES  
GOVERNMENTAL FUNDS**

For The Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	General	Debt Service	Transportation	Restricted Grants & Accounts	Grant & Loan Programs	Other Funds	Total Governmental Funds
<b>Revenues</b>							
Taxes	\$ 15,081,933	\$ -	\$ 997,102	\$ 2	\$ -	\$ -	\$ 16,079,037
Licenses, Permits, and Fees	272,860	-	331,109	5,239	-	88,002	697,210
Tobacco Settlement	-	-	-	-	-	123,360	123,360
Federal Grants and Aid	1,992,063	-	12,168	6,158,944	-	67,709	8,230,884
State Grants and Aid	-	-	-	-	-	-	-
Lottery Tickets	326,415	-	-	-	-	-	326,415
Charges for Services	39,146	-	64,403	-	-	1,071	104,620
Fines, Forfeits, and Rents	188,171	-	19,777	-	-	1,000	208,948
Casino Gaming Payments	269,906	-	-	-	-	-	269,906
Investment Earnings	2,332	5,670	3,001	1,406	6,523	10,129	29,061
Interest on Loans	-	-	-	-	-	26	26
Miscellaneous	328,989	34	9,214	1,445,304	25,114	148,234	1,956,889
Total Revenues	<u>18,501,815</u>	<u>5,704</u>	<u>1,436,774</u>	<u>7,610,895</u>	<u>31,637</u>	<u>439,531</u>	<u>28,026,356</u>
<b>Expenditures</b>							
Current:							
Legislative	114,809	-	-	3,512	-	24	118,345
General Government	1,047,920	-	4,583	243,776	541,834	274,813	2,112,926
Regulation and Protection	441,687	-	108,074	162,863	13,919	173,966	900,509
Conservation and Development	245,635	-	4,548	370,448	346,383	162,843	1,129,857
Health and Hospitals	1,696,573	-	-	797,531	79,303	44,712	2,618,119
Transportation	-	-	800,933	746,400	26,441	-	1,573,774
Human Services	4,402,146	-	2,371	4,371,066	2,747	3,552	8,781,882
Education, Libraries, and Museums	4,194,885	-	-	581,632	22,757	2,856	4,802,130
Corrections	2,018,674	-	-	22,497	1,550	2,103	2,044,824
Judicial	918,746	-	-	24,356	-	49,331	992,433
Capital Projects	-	-	-	-	-	998,917	998,917
Debt Service:							
Principal Retirement	1,466,316	270,550	530	-	-	-	1,737,396
Interest and Fiscal Charges	590,212	232,842	627	175,560	3,167	7,377	1,009,785
Total Expenditures	<u>17,137,603</u>	<u>503,392</u>	<u>921,666</u>	<u>7,499,641</u>	<u>1,038,101</u>	<u>1,720,494</u>	<u>28,820,897</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>1,364,212</u>	<u>(497,688)</u>	<u>515,108</u>	<u>111,254</u>	<u>(1,006,464)</u>	<u>(1,280,963)</u>	<u>(794,541)</u>
<b>Other Financing Sources (Uses)</b>							
Bonds Issued	-	-	-	-	1,159,573	1,951,627	3,111,200
Premiums on Bonds Issued	-	60,565	-	-	95,248	271,511	427,324
Transfers In	393,645	592,966	6,430	177,420	-	259,864	1,430,325
Transfers Out	(1,640,595)	(7,294)	(548,532)	(58,494)	(94,549)	(745,567)	(3,095,031)
Refunding Bonds Issued	-	761,545	-	-	-	-	761,545
Payment to Refunded Bond Escrow Agent	(499)	(821,209)	-	-	-	-	(821,708)
Capital Lease Obligations	4,174	-	-	-	-	-	4,174
Total Other Financing Sources (Uses)	<u>(1,243,275)</u>	<u>586,573</u>	<u>(542,102)</u>	<u>118,926</u>	<u>1,160,272</u>	<u>1,737,435</u>	<u>1,817,829</u>
Net Change in Fund Balances	<u>120,937</u>	<u>88,885</u>	<u>(26,994)</u>	<u>230,180</u>	<u>153,808</u>	<u>456,472</u>	<u>1,023,288</u>
Fund Balances (Deficit) - Beginning	(614,189)	738,240	211,890	197,884	689,447	620,748	1,844,020
Change in Reserve for Inventories	(1,166)	-	(2,745)	-	-	-	(3,911)
Fund Balances (Deficit) - Ending	<u>\$ (494,418)</u>	<u>\$ 827,125</u>	<u>\$ 182,151</u>	<u>\$ 428,064</u>	<u>\$ 843,255</u>	<u>\$ 1,077,220</u>	<u>\$ 2,863,397</u>

*The accompanying Notes to the Financial Statements are an integral part of this statement.*

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## NONMAJOR SPECIAL REVENUE FUNDS

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*The special revenue funds are used to account for and report the collection of money that is restricted or committed for specified purposes.*

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The following are included in the nonmajor special revenue funds:

- Workers' Compensation Administration
- Banking
- Consumer Counsel and Public Utility Control
- Insurance
- Criminal Injuries Compensation
- Regional Market
- Mashantucket Pequot and Mohegan
- Soldiers', Sailors', and Marines
- Employment Security Administration
- Environmental Programs
- Housing Programs

**State of Connecticut**

**COMBINING BALANCE SHEET  
NONMAJOR SPECIAL REVENUE FUNDS**

June 30, 2017

*(Expressed in Thousands)*

	<b>Workers' Compensation</b>	<b>Banking</b>	<b>Consumer Counsel and Public Utility Control</b>	<b>Insurance</b>	<b>Criminal Injuries</b>
<b>Assets</b>					
Cash and Cash Equivalents	\$ 18,415	\$ 3,444	\$ 9,783	\$ 10,060	\$ 3,580
Investments	-	-	-	-	-
Receivables:					
Accounts, Net of Allowances	-	5	350	43,021	-
Loans, Net of Allowances	-	-	-	-	-
From Other Governments	-	-	-	-	-
From Other Funds	76	-	-	288	7
Total Assets	<u>\$ 18,491</u>	<u>\$ 3,449</u>	<u>\$ 10,133</u>	<u>\$ 53,369</u>	<u>\$ 3,587</u>
<b>Liabilities, Deferred Inflows, and Fund Balances</b>					
<b>Liabilities</b>					
Accounts Payable and Accrued Liabilities	\$ 567	\$ 751	\$ 838	\$ 1,228	\$ -
Unearned Revenue	-	-	6,586	5,463	-
Due to Other Funds	133	198	194	285	-
Total Liabilities	<u>700</u>	<u>949</u>	<u>7,618</u>	<u>6,976</u>	<u>-</u>
<b>Deferred Inflows of Resources</b>					
Receivables to be Collected in Future Periods	<u>-</u>	<u>4</u>	<u>144</u>	<u>43,021</u>	<u>-</u>
<b>Fund Balances</b>					
Restricted	17,791	2,496	2,371	3,372	3,587
Assigned	-	-	-	-	-
Total Fund Balances	<u>17,791</u>	<u>2,496</u>	<u>2,371</u>	<u>3,372</u>	<u>3,587</u>
Total Liabilities, Deferred Inflows, and Fund Balance	<u>\$ 18,491</u>	<u>\$ 3,449</u>	<u>\$ 10,133</u>	<u>\$ 53,369</u>	<u>\$ 3,587</u>

**State of Connecticut**

Mashantucket Pequot and Mohegan <u>Fund</u>	Regional Market	Soldiers', Sailors', & Marines'	Employment Security Administration	Environmental Programs	Housing Programs	Other	Total
\$ 23	\$ 95	\$ -	\$ 7,932	\$ 11,811	\$ 36,031	\$ 70,010	\$ 171,184
-	-	-	-	1,580	-	-	1,580
-	-	-	-	8	9,787	21,134	74,305
-	-	-	-	11,743	284,176	-	295,919
-	-	-	8,822	-	-	-	8,822
-	-	7,841	444	-	-	174	8,830
<u>\$ 23</u>	<u>\$ 95</u>	<u>\$ 7,841</u>	<u>\$ 17,198</u>	<u>\$ 25,142</u>	<u>\$ 329,994</u>	<u>\$ 91,318</u>	<u>\$ 560,640</u>
\$ -	\$ 33	\$ -	\$ 2,999	\$ 335	\$ 15	\$ 2,063	\$ 8,829
-	-	-	-	-	-	-	12,049
-	9	7,841	690	48	-	116	9,514
<u>-</u>	<u>42</u>	<u>7,841</u>	<u>3,689</u>	<u>383</u>	<u>15</u>	<u>2,179</u>	<u>30,392</u>
-	-	-	-	8	9,787	19,018	71,982
23	53	-	13,509	24,751	320,192	64,914	453,059
-	-	-	-	-	-	5,207	5,207
<u>23</u>	<u>53</u>	<u>-</u>	<u>13,509</u>	<u>24,751</u>	<u>320,192</u>	<u>70,121</u>	<u>458,266</u>
<u>\$ 23</u>	<u>\$ 95</u>	<u>\$ 7,841</u>	<u>\$ 17,198</u>	<u>\$ 25,142</u>	<u>\$ 329,994</u>	<u>\$ 91,318</u>	<u>\$ 560,640</u>

**State of Connecticut**

**COMBINING STATEMENT OF REVENUES, EXPENDITURES AND  
CHANGES IN FUND BALANCES  
NONMAJOR SPECIAL REVENUE FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>Workers'</u> <u>Compensation</u>	<u>Banking</u>	<u>Consumer</u> <u>Counsel</u> <u>Public Utility</u> <u>Control</u>	<u>Insurance</u>	<u>Criminal</u> <u>Injuries</u>
<b>Revenues</b>					
Licenses, Permits, and Fees	\$ -	\$ 30,404	\$ 21	\$ 42,885	\$ 892
Tobacco Settlement	-	-	-	-	-
Federal Grants and Aid	-	-	-	-	-
Charges for Services	16	-	-	-	-
Fines, Forfeits, and Rents	-	41	-	-	77
Investment Earnings	212	-	-	665	20
Interest on Loans	-	-	-	-	-
Miscellaneous	<u>23,900</u>	<u>92</u>	<u>27,262</u>	<u>33,442</u>	<u>2,303</u>
Total Revenues	<u>24,128</u>	<u>30,537</u>	<u>27,283</u>	<u>76,992</u>	<u>3,292</u>
<b>Expenditures</b>					
Current:					
Legislative	-	-	-	-	-
General Government	688	-	-	487	-
Regulation and Protection	19,082	21,809	2,398	32,627	-
Conservation and Development	-	670	22,865	-	-
Health and Hospitals	-	-	-	42,797	-
Human Services	2,122	-	-	376	-
Education, Libraries, and Museums	-	-	-	-	-
Corrections	-	-	-	-	-
Judicial	-	3,572	-	-	2,918
Debt Service:					
Interest and Fiscal Charges	-	-	-	-	-
Total Expenditures	<u>21,892</u>	<u>26,051</u>	<u>25,263</u>	<u>76,287</u>	<u>2,918</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>2,236</u>	<u>4,486</u>	<u>2,020</u>	<u>705</u>	<u>374</u>
<b>Other Financing Sources (Uses)</b>					
Bonds Issued	-	-	-	-	-
Premium on Bonds Sold	-	-	-	-	-
Transfers In	-	-	-	63	-
Transfers Out	-	(11,000)	-	-	-
Total Other Financing Sources (Uses)	<u>-</u>	<u>(11,000)</u>	<u>-</u>	<u>63</u>	<u>-</u>
Net Change in Fund Balances	2,236	(6,514)	2,020	768	374
Fund Balances - Beginning	<u>15,555</u>	<u>9,010</u>	<u>351</u>	<u>2,604</u>	<u>3,213</u>
Fund Balances-Ending	<u>\$ 17,791</u>	<u>\$ 2,496</u>	<u>\$ 2,371</u>	<u>\$ 3,372</u>	<u>\$ 3,587</u>

**State of Connecticut**

<b>Mashantucket Pequot and Mohegan Fund</b>	<b>Regional Market</b>	<b>Employment Security Administration</b>	<b>Environmental Programs</b>	<b>Housing Programs</b>	<b>Other</b>	<b>Total</b>
\$ -	\$ -	\$ 3,582	\$ 4,872	\$ -	\$ 5,346	\$ 88,002
-	-	-	-	-	123,360	123,360
-	-	67,709	-	-	-	67,709
-	-	-	-	-	1,055	1,071
-	858	-	-	-	24	1,000
-	1	48	235	95	680	1,956
-	-	-	26	-	-	26
-	-	167	110	2,366	58,186	147,828
-	859	71,506	5,243	2,461	188,651	430,952
-	-	-	-	-	24	24
58,077	-	-	7,496	16,909	189,345	273,002
-	-	83,989	-	-	14,061	173,966
-	940	-	76,856	60,605	530	162,466
-	-	-	-	-	1,912	44,709
-	-	-	-	-	1,054	3,552
-	-	-	-	-	2,823	2,823
-	-	-	-	-	2,103	2,103
-	-	-	-	-	42,841	49,331
-	-	-	260	180	126	566
58,077	940	83,989	84,612	77,694	254,819	712,542
(58,077)	(81)	(12,483)	(79,369)	(75,233)	(66,168)	(281,590)
-	-	-	65,000	105,362	40,001	210,363
-	-	-	8,701	5,549	5,551	19,801
58,100	-	10,176	-	-	191,500	259,839
-	-	-	(8,589)	(5,369)	(147,304)	(172,262)
58,100	-	10,176	65,112	105,542	89,748	317,741
23	(81)	(2,307)	(14,257)	30,309	23,580	36,151
-	134	15,816	39,008	289,883	46,541	422,115
<u>\$ 23</u>	<u>\$ 53</u>	<u>\$ 13,509</u>	<u>\$ 24,751</u>	<u>\$ 320,192</u>	<u>\$ 70,121</u>	<u>\$ 458,266</u>

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## NONMAJOR CAPITAL PROJECTS FUNDS

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*The Capital Projects funds are used to account for and report financial resources that are restricted, committed, or assigned to expenditure for capital outlays, including the acquisition or construction of capital facilities. They are financed principally by debt proceeds.*

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The following are included in the nonmajor capital projects funds:

- State Facilities
- Infrastructure
- Other Transportation

**State of Connecticut**

**COMBINING BALANCE SHEET  
NONMAJOR CAPITAL PROJECTS FUNDS**

June 30, 2017

*(Expressed in Thousands)*

	<b>State</b>			
	<b><u>Facilities</u></b>	<b><u>Infrastructure</u></b>	<b><u>Transportation</u></b>	<b><u>Total</u></b>
<b>Assets</b>				
Cash and Cash Equivalents	\$ 241,888	267,510	\$ -	\$ 509,398
Receivables:				
Accounts, Net of Allowances	-	-	-	-
Due From Other Funds	<u>270,605</u>	<u>-</u>	<u>-</u>	<u>270,605</u>
Total Assets	<u>\$ 512,493</u>	<u>\$ 267,510</u>	<u>\$ -</u>	<u>\$ 780,003</u>
<b>Liabilities and Fund Balances</b>				
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 39,776	\$ 46,820	\$ -	\$ 86,596
Due To Other Funds	<u>186,220</u>	<u>449</u>	<u>718</u>	<u>187,387</u>
Total Liabilities	<u>225,996</u>	<u>47,269</u>	<u>718</u>	<u>273,983</u>
<b>Fund Balances</b>				
Restricted	286,497	220,241	-	506,738
Unassigned	<u>-</u>	<u>-</u>	<u>(718)</u>	<u>(718)</u>
Total Fund Balances (Deficit)	<u>286,497</u>	<u>220,241</u>	<u>(718)</u>	<u>506,020</u>
Total Liabilities and Fund Balances	<u>\$ 512,493</u>	<u>\$ 267,510</u>	<u>\$ -</u>	<u>\$ 780,003</u>

**State of Connecticut**

**COMBINING STATEMENT OF REVENUES, EXPENDITURES, AND  
CHANGES IN FUND BALANCES  
NONMAJOR CAPITAL PROJECTS FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>State</u>			
	<u>Facilities</u>	<u>Infrastructure</u>	<u>Transportation</u>	<u>Total</u>
<b>Revenues</b>				
Miscellaneous	\$ 403	\$ -	\$ -	\$ 403
Total Revenues	<u>403</u>	<u>-</u>	<u>-</u>	<u>403</u>
<b>Expenditures</b>				
Capital Projects	241,503	757,414	-	998,917
Debt Service:				
Interest and Fiscal Charges	3,167	3,644	-	6,811
Total Expenditures	<u>244,670</u>	<u>761,058</u>	<u>-</u>	<u>1,005,728</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>(244,267)</u>	<u>(761,058)</u>	<u>-</u>	<u>(1,005,325)</u>
<b>Other Financing Sources (Uses)</b>				
Bonds Issued	941,264	800,000	-	1,741,264
Premium on Bonds Issued	98,796	152,914	-	251,710
Transfer Out	<u>(521,431)</u>	<u>(51,536)</u>	<u>-</u>	<u>(572,967)</u>
Total Other Financing Sources	<u>518,629</u>	<u>901,378</u>	<u>-</u>	<u>1,420,007</u>
Net Change in Fund Balances	274,362	140,320	-	414,682
Fund Balances (Deficit) - Beginning	<u>12,135</u>	<u>79,921</u>	<u>(718)</u>	<u>91,338</u>
Fund Balances (Deficit) - Ending	<u>\$ 286,497</u>	<u>\$ 220,241</u>	<u>\$ (718)</u>	<u>\$ 506,020</u>

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## NONMAJOR PERMANENT FUNDS

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*Permanent funds are used to account for and report the principal and interest earned on investments for the benefit of its citizenry.*

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The following are included in the nonmajor permanent funds:

Soldiers', Sailors', and Marines'  
Connecticut Arts Endowment  
Other

**State of Connecticut**

**COMBINING BALANCE SHEET  
NONMAJOR PERMANENT FUNDS**

June 30, 2017

*(Expressed in Thousands)*

	<b>Soldiers', Sailors', &amp; Marines'</b>	<b>Connecticut Arts Endowment</b>	<b>Other</b>	<b>Total</b>
<b>Assets</b>				
Cash and Cash Equivalents	\$ -	\$ 20	\$ 5,826	\$ 5,846
Investments	75,902	19,954	19,217	115,073
Securities Lending Collateral	5,351	1,397	1,346	8,094
Other Receivables	4	1	1	6
Due From Other Funds	-	-	13	13
Total Assets	<b>\$ 81,257</b>	<b>\$ 21,372</b>	<b>\$ 26,403</b>	<b>\$ 129,032</b>
<b>Liabilities and Fund Balance</b>				
<b>Liabilities</b>				
Due To Other Funds	\$ 7,841	\$ -	\$ 163	\$ 8,004
Securities Lending Obligation	5,351	1,397	1,346	8,094
Total Liabilities	13,192	1,397	1,509	16,098
<b>Fund Balances</b>				
Nonspendable:				
Permanent Fund Principal	75,901	19,954	19,217	115,072
Restricted	-	21	5,677	5,698
Unassigned	(7,836)	-	-	(7,836)
Total Fund Balances	68,065	19,975	24,894	112,934
Total Liabilities and Fund Balances	<b>\$ 81,257</b>	<b>\$ 21,372</b>	<b>\$ 26,403</b>	<b>\$ 129,032</b>

**State of Connecticut**

**COMBINING STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES  
IN FUND BALANCES  
NONMAJOR PERMANENT FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>Soldiers', Sailors', &amp; Marines'</u>	<u>Connecticut Arts Endowment</u>	<u>Other</u>	<u>Total</u>
<b>Revenues</b>				
Investment Earnings	\$ 5,390	\$ 1,392	\$ 1,391	\$ 8,173
Miscellaneous	<u>2</u>	<u>-</u>	<u>1</u>	<u>3</u>
Total Revenues	<u>5,392</u>	<u>1,392</u>	<u>1,392</u>	<u>8,176</u>
<b>Expenditures</b>				
General Government	1,811	-	-	1,811
Conservation and Development	-	377	-	377
Health and Hospital	-	-	3	3
Education, Libraries, and Museums	<u>-</u>	<u>-</u>	<u>33</u>	<u>33</u>
Total Expenditures	<u>1,811</u>	<u>377</u>	<u>36</u>	<u>2,224</u>
Excess (Deficiency) of Revenues Over Expenditures	<u>3,581</u>	<u>1,015</u>	<u>1,356</u>	<u>5,952</u>
<b>Other Financing Sources (Uses)</b>				
Transfers Out	-	-	(338)	(338)
Transfers In	<u>-</u>	<u>-</u>	<u>25</u>	<u>25</u>
Total Other Financing Sources (Uses)	<u>-</u>	<u>-</u>	<u>(313)</u>	<u>(313)</u>
Net Change in Fund Balances	3,581	1,015	1,043	5,639
Fund Balances - Beginning	<u>64,484</u>	<u>18,960</u>	<u>23,851</u>	<u>107,295</u>
Fund Balances - Ending	<u>\$ 68,065</u>	<u>\$ 19,975</u>	<u>\$ 24,894</u>	<u>\$ 112,934</u>

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## NONMAJOR ENTERPRISE FUNDS

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*Enterprise funds are used to account and report activities for which a fee is charged in exchange for goods or services.*

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The following are included in the nonmajor enterprise funds:

Bradley Parking Garage  
Second Injury and Compensation Insurance  
Drinking Water

**State of Connecticut**

**COMBINING STATEMENT OF NET POSITION  
NONMAJOR ENTERPRISE FUNDS**

June 30, 2017

(Expressed in Thousands)

	<u>Second Injury &amp; Compensation Assurance</u>	<u>Bradley Parking Garage</u>	<u>Drinking Water</u>	<u>Total</u>
<b>Assets</b>				
Current Assets:				
Cash and Cash Equivalents	\$ 43,486	\$ 147	\$ 4,675	\$ 48,308
Accounts Receivable, Net of Allowances	7,800	171	-	7,971
Loans, Net of Allowances	-	-	18,346	18,346
Interest Receivable	-	-	251	251
Due From Other Governments	-	-	603	603
Other	25	-	-	25
Total Current Assets	<u>51,311</u>	<u>318</u>	<u>23,875</u>	<u>75,504</u>
Noncurrent Assets:				
Cash and Cash Equivalents	-	-	86,384	86,384
Receivables:				
Loans, Net of Allowances	-	-	129,810	129,810
Restricted Assets	-	15,736	79,117	94,853
Capital Assets, Net of Accumulated Depreciation	-	24,813	-	24,813
Other Noncurrent Assets	-	289	-	289
Total Noncurrent Assets	<u>-</u>	<u>40,838</u>	<u>295,311</u>	<u>336,149</u>
Total Assets	<u>\$ 51,311</u>	<u>\$ 41,156</u>	<u>\$ 319,186</u>	<u>\$ 411,653</u>
<b>Deferred Outflows of Resources</b>				
Unamortized Losses on Bond Refundings	\$ -	\$ -	\$ 202	\$ 202
Total Deferred Outflows of Resources	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 202</u>	<u>\$ 202</u>
<b>Liabilities</b>				
Current Liabilities:				
Accounts Payable and Accrued Liabilities	\$ 7,712	\$ 2,434	\$ 1,378	\$ 11,524
Current Portion of Long-Term Debt	576	2,750	6,779	10,105
Total Current Liabilities	<u>8,288</u>	<u>5,184</u>	<u>8,157</u>	<u>21,629</u>
Noncurrent Liabilities:				
Noncurrent Portion of Long-Term Liabilities	1,152	54,878	128,771	184,801
Total Noncurrent Liabilities	<u>1,152</u>	<u>54,878</u>	<u>128,771</u>	<u>184,801</u>
Total Liabilities	<u>\$ 9,440</u>	<u>\$ 60,062</u>	<u>\$ 136,928</u>	<u>\$ 206,430</u>
<b>Net Position (Deficit)</b>				
Net Investment in Capital Assets	\$ -	\$ (3,202)	\$ -	\$ (3,202)
Restricted for:				
Debt Service	-	4,508	-	4,508
Drinking Water Projects	-	-	152,778	152,778
Unrestricted (Deficit)	41,871	(20,212)	29,682	51,341
Total Net Position (Deficit)	<u>\$ 41,871</u>	<u>\$ (18,906)</u>	<u>\$ 182,460</u>	<u>\$ 205,425</u>

**State of Connecticut**

**COMBINING STATEMENT OF REVENUES, EXPENSES AND CHANGES IN  
FUND NET POSITION  
NONMAJOR ENTERPRISE FUNDS**

For The Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	<b>Second Injury &amp; Compensation Assurance</b>	<b>Bradley Parking Garage</b>	<b>Drinking Water</b>	<b>Total</b>
<b>Operating Revenues</b>				
Assessments	\$ 36,299	\$ -	\$ -	\$ 36,299
Charges for Sales and Services (Net of discounts \$1,727)	-	27,211	-	27,211
Interest on Loans	-	-	2,944	2,944
Miscellaneous	748	-	-	748
Total Operating Revenues	37,047	27,211	2,944	67,202
<b>Operating Expenses</b>				
Salaries, Wages, and Administrative	7,802	8,171	3,693	19,666
Claims Paid	26,216	-	-	26,216
Depreciation and Amortization	-	1,127	-	1,127
Other	-	-	1,744	1,744
Total Operating Expenses	34,018	9,298	5,437	48,753
Operating Income	3,029	17,913	(2,493)	18,449
<b>Nonoperating Revenues (Expenses)</b>				
Interest and Investment Income	247	78	983	1,308
Interest and Fiscal Charges	-	(2,233)	(3,637)	(5,870)
Other	-	(12,462)	757	(11,705)
Total Nonoperating Income (Expense)	247	(14,617)	(1,897)	(16,267)
Income (Loss) Before Grants and Transfers	3,276	3,296	(4,390)	2,182
Federal Capitalization Grants	-	-	11,614	11,614
Transfers Out	-	-	(526)	(526)
Change in Net Position	3,276	3,296	6,698	13,270
Total Net Position (Deficit) - Beginning	38,595	(22,202)	175,762	192,155
Total Net Position (Deficit) - Ending	\$ 41,871	\$ (18,906)	\$ 182,460	\$ 205,425

**State of Connecticut**

**COMBINING STATEMENT OF CASH FLOWS  
NONMAJOR ENTERPRISE FUNDS**

For the Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<b>Second Injury &amp; Compensation Assurance</b>	<b>Bradley Parking Garage</b>	<b>Drinking Water</b>	<b>Totals</b>
<b>Cash Flows from Operating Activities</b>				
Receipts from Customers	\$ 35,960	\$ 27,255	\$ 12,853	\$ 76,068
Payments to Suppliers	-	(6,189)	(1,744)	(7,933)
Payments to Employees	(7,775)	(1,839)	(3,192)	(12,806)
Other Receipts (Payments)	(25,107)	(849)	(26,687)	(52,643)
Net Cash Provided by (Used in) Operating Activities	<u>3,078</u>	<u>18,378</u>	<u>(18,770)</u>	<u>2,686</u>
<b>Cash Flows from Noncapital Financing Activities</b>				
Proceeds from Sale of Bonds	-	-	49,503	49,503
Retirement of Bonds and Annuities Payable	-	(2,580)	(6,653)	(9,233)
Interest of Bonds	-	(2,729)	(3,392)	(6,121)
Transfers Out	-	-	(526)	(526)
Other Receipts (Payments)	-	(12,988)	9,587	(3,401)
Net Cash Flows from Noncapital Financing Activities	<u>-</u>	<u>(18,297)</u>	<u>48,519</u>	<u>30,222</u>
<b>Cash Flows from Capital and Related Financing Activities</b>				
Additions to Property, Plant, and Equipment	-	(93)	-	(93)
Federal Grant	-	-	11,000	11,000
Net Cash Flows from Capital and Related Financing Activities	<u>-</u>	<u>(93)</u>	<u>11,000</u>	<u>10,907</u>
<b>Cash Flows from Investing Activities</b>				
Interest on Investments	241	78	996	1,315
Other Receipts (Payments)	-	-	(44,399)	(44,399)
Net Cash Flows from Investing Activities	<u>241</u>	<u>78</u>	<u>(43,403)</u>	<u>(43,084)</u>
Net Increase (Decrease) in Cash and Cash Equivalents	3,319	66	(2,654)	731
Cash and Cash Equivalents - Beginning of Year	40,167	81	7,329	47,577
Cash and Cash Equivalents - End of Year	<u>\$ 43,486</u>	<u>\$ 147</u>	<u>\$ 4,675</u>	<u>\$ 48,308</u>
<b>Reconciliation of Operating Income (Loss) to Net Cash Provided by (Used In) Operating Activities</b>				
Operating Income (Loss)	\$ 3,029	\$ 17,913	\$ (2,493)	\$ 18,449
Adjustments not Affecting Cash:				
Depreciation and Amortization	-	1,127	-	1,127
Change in Assets and Liabilities:				
(Increase) Decrease in Receivables, Net	(448)	45	160	(243)
(Increase) Decrease in Inventories and Other Assets	(9)	406	(16,437)	(16,040)
Increase (Decrease) in Accounts Payables & Accrued Liabilities	506	(1,113)	-	(607)
Total Adjustments	<u>49</u>	<u>465</u>	<u>(16,277)</u>	<u>(15,763)</u>
Net Cash Provided by (Used In) Operating Activities	<u>\$ 3,078</u>	<u>\$ 18,378</u>	<u>\$ (18,770)</u>	<u>\$ 2,686</u>



## NONMAJOR INTERNAL SERVICE FUNDS

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*The internal service funds are used to account for and report the operations of state agencies whose exclusive or nearly exclusive purpose is to provide goods or services to other state agencies on a cost-reimbursement basis.*

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The following are included in the nonmajor internal service funds:

Correction Industries  
Administrative Services  
Information Technology

**State of Connecticut**

**COMBINING STATEMENT OF NET POSITION  
INTERNAL SERVICE FUNDS**

June 30, 2017

*(Expressed in Thousands)*

	<u>Correction Industries</u>	<u>Information &amp; Technology</u>	<u>Administrative Services</u>	<u>Total</u>
<b>Assets</b>				
Current Assets:				
Cash and Cash Equivalents	\$ 6,114	\$ 5,934	\$ -	\$ 12,048
Receivables, Net of Allowances	13	63	30	106
Due From Other Funds	435	2,592	1,953	4,980
Inventories	4,123	-	94	4,217
Other Current Assets	19	-	163	182
Total Current Assets	<u>10,704</u>	<u>8,589</u>	<u>2,240</u>	<u>21,533</u>
Noncurrent Assets:				
Capital Assets, Net of Accumulated Depreciation	1,916	-	47,000	48,916
Other Noncurrent Assets	-	-	83	83
Total Noncurrent Assets	<u>1,916</u>	<u>-</u>	<u>47,083</u>	<u>48,999</u>
Total Assets	<u>\$ 12,620</u>	<u>\$ 8,589</u>	<u>\$ 49,323</u>	<u>\$ 70,532</u>
<b>Liabilities</b>				
Current Liabilities:				
Accounts Payable and Accrued Liabilities	\$ 1,138	\$ 594	\$ 291	\$ 2,023
Due To Other Funds	-	-	12,931	12,931
Compensated Absences-Current Portion	49	20	20	89
Total Current Liabilities	<u>1,187</u>	<u>614</u>	<u>13,242</u>	<u>15,043</u>
Noncurrent Liabilities:				
Noncurrent Portion of Long-Term Debt	-	705	-	705
Compensated Absences	684	319	358	1,361
Total Noncurrent Liabilities	<u>684</u>	<u>1,024</u>	<u>358</u>	<u>2,066</u>
Total Liabilities	<u>\$ 1,871</u>	<u>\$ 1,638</u>	<u>\$ 13,600</u>	<u>\$ 17,109</u>
<b>Net Position</b>				
Net Investment in Capital Assets	\$ 1,915	\$ -	\$ 47,083	\$ 48,998
Unrestricted (Deficit)	8,834	6,951	(11,360)	4,425
Total Net Position	<u>\$ 10,749</u>	<u>\$ 6,951</u>	<u>\$ 35,723</u>	<u>\$ 53,423</u>

**State of Connecticut**

**COMBINING STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN  
FUND NET POSITION  
INTERNAL SERVICE FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>Correction Industries</u>	<u>Information &amp; Technology</u>	<u>Administrative Services</u>	<u>Total</u>
<b>Operating Revenues</b>				
Charges for Sales and Services	\$ 24,654	\$ 3,885	\$ 25,039	\$ 53,578
Miscellaneous	109	-	-	109
Total Operating Revenues	<u>24,763</u>	<u>3,885</u>	<u>25,039</u>	<u>53,687</u>
<b>Operating Expenses</b>				
Salaries, Wages, and Administrative	22,881	3,920	7,255	34,056
Depreciation and Amortization	848	-	17,042	17,890
Total Operating Expenses	<u>23,729</u>	<u>3,920</u>	<u>24,297</u>	<u>51,946</u>
Operating Income	<u>1,034</u>	<u>(35)</u>	<u>742</u>	<u>1,741</u>
<b>Nonoperating Revenue (Expenses)</b>				
Investment Income	440	-	-	440
Other Nonoperating Revenue (Expense)	158	-	(620)	(462)
Total Nonoperating Revenue (Expense)	<u>598</u>	<u>-</u>	<u>(620)</u>	<u>(22)</u>
Income (Loss) before Transfers	<u>1,632</u>	<u>(35)</u>	<u>122</u>	<u>1,719</u>
Transfer Out	<u>(2,250)</u>	<u>-</u>	<u>-</u>	<u>(2,250)</u>
Change in Net Position	<u>(618)</u>	<u>(35)</u>	<u>122</u>	<u>(531)</u>
Total Net Position - Beginning	<u>11,367</u>	<u>6,986</u>	<u>35,601</u>	<u>53,954</u>
Total Net Position - Ending	<u>\$ 10,749</u>	<u>\$ 6,951</u>	<u>\$ 35,723</u>	<u>\$ 53,423</u>

**State of Connecticut**

**COMBINING STATEMENT OF CASH FLOWS  
INTERNAL SERVICE FUNDS**

For the Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>Correction Industries</u>	<u>Information Technology</u>	<u>Administrative Services</u>	<u>Totals</u>
<b>Cash Flows from Operating Activities</b>				
Receipts from Customers	\$ 24,696	\$ 4,075	\$ 25,160	\$ 53,931
Payments to Suppliers	(20,268)	(836)	(9,137)	(30,241)
Payments to Employees	(3,159)	(2,964)	(4,450)	(10,573)
Other Receipts (Payments)	140	-	(2)	138
Net Cash Provided by (Used in) Operating Activities	<u>1,409</u>	<u>275</u>	<u>11,571</u>	<u>13,255</u>
<b>Cash Flows from Capital and Related Financing Activities</b>				
Additions to Property, Plant, and Equipment	(486)	-	(10,951)	(11,437)
Net Cash Flows from Capital and Related Financing Activities	<u>(486)</u>	<u>-</u>	<u>(10,951)</u>	<u>(11,437)</u>
<b>Cash Flows from Noncapital Financing Activities</b>				
Other Receipts (Payments)	158	-	(620)	(462)
Transfers Out	(2,250)	-	-	(2,250)
Net Cash Flows from Noncapital Financing Activities	<u>(2,092)</u>	<u>-</u>	<u>(620)</u>	<u>(2,712)</u>
<b>Cash Flows from Investing Activities</b>				
Interest on Investments	440	-	-	440
Net Cash Flows from Investing Activities	<u>440</u>	<u>-</u>	<u>-</u>	<u>440</u>
Net Increase (Decrease) in Cash and Cash Equivalents	(729)	275	-	(454)
Cash and Cash Equivalents - Beginning of Year	6,843	5,659	-	12,502
Cash and Cash Equivalents - End of Year	<u>\$ 6,114</u>	<u>\$ 5,934</u>	<u>\$ -</u>	<u>\$ 12,048</u>
<b>Reconciliation of Operating Income (Loss) to Net Cash Provided by (Used In) Operating Activities</b>				
Operating Income	\$ 1,034	\$ (35)	\$ 742	\$ 1,741
Adjustments Not Affecting Cash:				
Depreciation	848	-	17,042	17,890
Change in Assets and Liabilities:				
(Increase) Decrease in Receivables, Net	118	-	35	153
(Increase) Decrease in Due From Other Funds	(75)	189	86	200
(Increase) Decrease in Inventories and Other Assets	31	-	(2)	29
Increase (Decrease) in Accounts Payables & Accrued Liabilities	(547)	121	(6,332)	(6,758)
Total Adjustments	<u>375</u>	<u>310</u>	<u>10,829</u>	<u>11,514</u>
Net Cash Provided by (Used In) Operating Activities	<u>\$ 1,409</u>	<u>\$ 275</u>	<u>\$ 11,571</u>	<u>\$ 13,255</u>



## PENSION AND (OTHER EMPLOYEE BENEFIT) TRUST FUNDS

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*The pension and other employee benefit trust funds are used to account for and report the money that has been contributed by both the employer and the employee for pension benefits. A trustee administers the funds and invests the money, collects the earnings and interest and distributes the benefits.*

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The following are included in the pension and (other employee benefit) trust funds:

- State Employees
- State Teachers
- Judicial
- Connecticut Municipal Employees
- Probate Judges
- State Employee OPEB Plan
- Retired Teacher Healthcare Plan
- Policemen, Firemen, and Survivors' Benefits

**State of Connecticut**

**COMBINING STATEMENT OF FIDUCIARY NET POSITION  
PENSION AND OTHER EMPLOYEE BENEFIT TRUST FUNDS**

June 30, 2017

(Expressed in Thousands)

	<b>Pension Trust</b>			
	<b><u>State Employees</u></b>	<b><u>State Teachers</u></b>	<b><u>Judicial</u></b>	<b><u>Connecticut Municipal Employees</u></b>
<b>Assets</b>				
Current:				
Cash and Cash Equivalents	\$ 10,434	\$ 5,631	\$ 59	\$ 2,637
Receivables:				
Accounts, Net of Allowances	14,976	10,965	32	15,809
From Other Governments	-	580	-	-
From Other Funds	119	6	-	19
Interest	892	1,964	12	141
Investments	11,955,375	17,126,802	210,022	2,441,303
Securities Lending Collateral	741,682	1,024,750	15,844	184,213
Noncurrent:				
Due From Employers	-	-	-	273,875
Total Assets	<u>\$ 12,723,478</u>	<u>\$ 18,170,698</u>	<u>\$ 225,969</u>	<u>\$ 2,917,997</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 19	\$ 9,732	\$ -	\$ -
Securities Lending Obligation	741,682	1,024,750	15,844	184,213
Due to Other Funds	-	1,890	-	-
Total Liabilities	<u>\$ 741,701</u>	<u>\$ 1,036,372</u>	<u>\$ 15,844</u>	<u>\$ 184,213</u>
<b>Net Position</b>				
Held in Trust For Employee				
Pension and Other Benefits	\$ 11,981,777	\$ 17,134,326	\$ 210,125	\$ 2,733,784
Total Net Position	<u>\$ 11,981,777</u>	<u>\$ 17,134,326</u>	<u>\$ 210,125</u>	<u>\$ 2,733,784</u>

**State of Connecticut**

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<u>Pension Trust</u>		<u>Other Employee Benefits</u>				
<u>Probate Judges</u>	<u>Other</u>	<u>Retired Teacher Healthcare Plan</u>	<u>Policemen, Firemen, and Survivors' Benefits</u>	<u>State Employee OPEB Plan</u>		<u>Total</u>
\$ 17	\$ 352	\$ 60,890	\$ 109	\$ 5,706		\$ 85,835
4	-	7,364	-	-		49,150
-	-	-	-	-		580
-	1	1,897	-	(38)		2,004
6	-	-	2	-		3,017
95,048	1,798	-	32,349	569,440		32,432,137
7,508	154	-	2,244	36,224		2,012,619
-	-	-	-	-		273,875
<u>\$ 102,583</u>	<u>\$ 2,305</u>	<u>\$ 70,151</u>	<u>\$ 34,704</u>	<u>\$ 611,332</u>		<u>\$ 34,859,217</u>
\$ 4	\$ -	\$ 6,722	\$ -	\$ 32,766		\$ 49,243
7,508	154	-	2,244	36,224		2,012,619
-	-	-	-	-		1,890
<u>\$ 7,512</u>	<u>\$ 154</u>	<u>\$ 6,722</u>	<u>\$ 2,244</u>	<u>\$ 68,990</u>		<u>\$ 2,063,752</u>
<u>\$ 95,071</u>	<u>\$ 2,151</u>	<u>\$ 63,428</u>	<u>\$ 32,460</u>	<u>\$ 542,342</u>		<u>\$ 32,795,464</u>
<u>\$ 95,071</u>	<u>\$ 2,151</u>	<u>\$ 63,428</u>	<u>\$ 32,460</u>	<u>\$ 542,342</u>		<u>\$ 32,795,464</u>

**State of Connecticut**

**COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET ASSETS  
PENSION (AND OTHER EMPLOYEE BENEFITS) TRUST FUNDS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<b>Pension Trust</b>			
	<u>State Employees</u>	<u>State Teachers</u>	<u>Judicial</u>	<u>Connecticut Municipal Employees</u>
<b>Additions</b>				
Contributions:				
Plan Members	\$ 132,557	\$ 288,251	\$ 1,689	\$ 27,377
State	1,542,298	1,012,162	19,164	-
Municipalities	-	-	-	69,807
Total Contributions	<u>1,674,855</u>	<u>1,300,413</u>	<u>20,853</u>	<u>97,184</u>
Investment Income	1,544,980	2,251,063	25,021	290,445
Less: Investment Expenses	<u>(35,118)</u>	<u>(51,168)</u>	<u>(569)</u>	<u>(6,618)</u>
Net Investment Income	<u>1,509,862</u>	<u>2,199,895</u>	<u>24,452</u>	<u>283,827</u>
Other	-	1,679	-	524
Total Additions	<u>3,184,717</u>	<u>3,501,987</u>	<u>45,305</u>	<u>381,535</u>
<b>Deductions</b>				
Administrative Expense	674	-	-	-
Benefit Payments and Refunds	1,855,687	1,962,533	24,899	155,407
Other	<u>371</u>	<u>-</u>	<u>39</u>	<u>-</u>
Total Deductions	<u>1,856,732</u>	<u>1,962,533</u>	<u>24,938</u>	<u>155,407</u>
Changes in Net Position	1,327,985	1,539,454	20,367	226,128
<b>Net Position Held in Trust For</b>				
<b>Pension and Other Employee Benefits</b>				
Beginning of Year	<u>10,653,792</u>	<u>15,594,872</u>	<u>189,758</u>	<u>2,507,656</u>
End of Year	<u>\$ 11,981,777</u>	<u>\$ 17,134,326</u>	<u>\$ 210,125</u>	<u>\$ 2,733,784</u>

**State of Connecticut**

<u>Pension Trust</u>		<u>Other Employee Benefits</u>			
<u>Probate Judges</u>	<u>Other</u>	<u>Retired Teacher Healthcare Plan</u>	<u>Policemen, Firemen, and Survivors' Benefits</u>	<u>State Employee OPEB Plan</u>	<u>Total</u>
\$ 254	\$ 44	\$ 102,986	\$ 555	\$ 120,783	\$ 674,496
-	-	19,922	-	667,401	3,260,947
-	-	-	645	-	70,452
<u>254</u>	<u>44</u>	<u>122,908</u>	<u>1,200</u>	<u>788,184</u>	<u>4,005,895</u>
11,541	232	369	3,949	54,431	4,182,031
(262)	(5)	-	(90)	(1,237)	(95,067)
<u>11,279</u>	<u>227</u>	<u>369</u>	<u>3,859</u>	<u>53,194</u>	<u>4,086,964</u>
<u>1,469</u>	<u>2</u>	<u>42</u>	<u>-</u>	<u>-</u>	<u>3,716</u>
<u>13,002</u>	<u>273</u>	<u>123,319</u>	<u>5,059</u>	<u>841,378</u>	<u>8,096,575</u>
-	-	5,684	-	-	6,358
5,180	-	131,087	1,222	639,467	4,775,482
-	-	-	-	187	597
<u>5,180</u>	<u>-</u>	<u>136,771</u>	<u>1,222</u>	<u>639,654</u>	<u>4,782,437</u>
7,822	273	(13,452)	3,837	201,724	3,314,138
<u>87,249</u>	<u>1,878</u>	<u>76,880</u>	<u>28,623</u>	<u>340,618</u>	<u>29,481,326</u>
<u>\$ 95,071</u>	<u>\$ 2,151</u>	<u>\$ 63,428</u>	<u>\$ 32,460</u>	<u>\$ 542,342</u>	<u>\$ 32,795,464</u>

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## AGENCY FUNDS

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*Agency funds account for and report resources held by the State as an agent for individuals and private organizations for which the state has custodial responsibility for the flow of assets.*

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The following are included in the agency funds:

- Fringe Benefit Clearing
- Receipts Pending Distribution
- Insurance Companies' Securities
- State Institution Activity

**State of Connecticut**

**COMBINING STATEMENT OF ASSETS AND LIABILITIES  
AGENCY FUNDS**

June 30, 2017

(Expressed in Thousands)

	<b>Fringe Benefit Clearing</b>	<b>Receipts Pending Distribution</b>	<b>Insurance Companies' Securities</b>	<b>State Institution Activity</b>	<b>Other</b>	<b>Total</b>
<b>Assets</b>						
Cash and Cash Equivalents	\$ -	\$ 77,421	\$ -	\$ 25,111	\$ 96,312	\$ 198,844
Receivables:						
Accounts, Net of Allowances	-	1,399	-	11	8,978	10,388
From Other Funds	4,149	-	-	-	-	4,149
Interest	-	-	-	16	53	69
Other Assets	-	-	315,606	-	16,029	331,635
Total Assets	<u>\$ 4,149</u>	<u>\$ 78,820</u>	<u>\$ 315,606</u>	<u>\$ 25,138</u>	<u>\$ 121,372</u>	<u>\$ 545,085</u>
<b>Liabilities</b>						
Accounts Payable and Accrued Liabilities	\$ -	\$ 56,046	\$ -	\$ 440	\$ 103	\$ 56,589
Due To Other Funds	379	-	-	-	-	379
Funds Held for Others	3,770	22,774	315,606	24,698	121,269	488,117
Total Liabilities	<u>\$ 4,149</u>	<u>\$ 78,820</u>	<u>\$ 315,606</u>	<u>\$ 25,138</u>	<u>\$ 121,372</u>	<u>\$ 545,085</u>

**State of Connecticut**

**COMBINING STATEMENT OF CHANGES IN ASSETS AND LIABILITIES  
AGENCY FUNDS**

For The Fiscal Year Ended June 30, 2017

(Expressed in Thousands)

	<u>Balance</u> <u>July 1, 2016</u>	<u>Additions</u>	<u>Deletions</u>	<u>Balance</u> <u>June 30, 2017</u>
<b><u>Fringe Benefit Clearing</u></b>				
<b>Assets</b>				
Cash and Cash Equivalents	\$ -			\$ -
From Other Funds	4,149	4,149	4,149	4,149
Total Assets	<u>\$ 4,149</u>	<u>\$ 4,149</u>	<u>\$ 4,149</u>	<u>\$ 4,149</u>
<b>Liabilities</b>				
Due to Other Funds	\$ 347	\$ 379	\$ 347	\$ 379
Funds Held for Others	3,802	3,770	3,802	3,770
Total Liabilities	<u>\$ 4,149</u>	<u>\$ 4,149</u>	<u>\$ 4,149</u>	<u>\$ 4,149</u>
<b><u>Receipts Pending Distribution</u></b>				
<b>Assets</b>				
Cash and Cash Equivalents	\$ 63,695	\$ 77,421	\$ 63,695	\$ 77,421
Accounts, Net of Allowances	1,570	1,399	1,570	1,399
Total Assets	<u>\$ 65,265</u>	<u>\$ 78,820</u>	<u>\$ 65,265</u>	<u>\$ 78,820</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 50,508	\$ 56,046	\$ 50,508	\$ 56,046
Funds Held for Others	14,757	22,774	14,757	22,774
Total Liabilities	<u>\$ 65,265</u>	<u>\$ 78,820</u>	<u>\$ 65,265</u>	<u>\$ 78,820</u>
<b><u>Insurance Companies' Securities</u></b>				
<b>Assets</b>				
Other Assets	\$ 323,177	\$ 315,606	\$ 323,177	\$ 315,606
Total Assets	<u>\$ 323,177</u>	<u>\$ 315,606</u>	<u>\$ 323,177</u>	<u>\$ 315,606</u>
<b>Liabilities</b>				
Funds Held for Others	\$ 323,177	\$ 315,606	\$ 323,177	\$ 315,606
Total Liabilities	<u>\$ 323,177</u>	<u>\$ 315,606</u>	<u>\$ 323,177</u>	<u>\$ 315,606</u>
<b><u>State Institution Activity</u></b>				
<b>Assets</b>				
Cash and Cash Equivalents	\$ 22,654	\$ 25,111	\$ 22,654	\$ 25,111
Accounts, Net of Allowances	57	11	57	11
Interest	6	16	6	16
Other Assets	12	-	12	-
Total Assets	<u>\$ 22,729</u>	<u>\$ 25,138</u>	<u>\$ 22,729</u>	<u>\$ 25,138</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 998	\$ 440	\$ 998	\$ 440
Funds Held for Others	21,731	24,698	21,731	24,698
Total Liabilities	<u>\$ 22,729</u>	<u>\$ 25,138</u>	<u>\$ 22,729</u>	<u>\$ 25,138</u>

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**State of Connecticut**

**COMBINING STATEMENT OF CHANGES IN ASSETS AND LIABILITIES  
AGENCY FUNDS**

*continued*

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

	<u>Balance</u> <u>July 1, 2016</u>	<u>Additions</u>	<u>Deletions</u>	<u>Balance</u> <u>June 30, 2017</u>
<b>Other</b>				
<b>Assets</b>				
Cash and Cash Equivalents	\$ 147,567	\$ 96,312	\$ 147,567	\$ 96,312
Accounts, Net of Allowances	-	8,978	-	8,978
Interest	46	53	46	53
Other Assets	<u>29,542</u>	<u>16,029</u>	<u>29,542</u>	<u>16,029</u>
Total Assets	<u>\$ 177,155</u>	<u>\$ 121,372</u>	<u>\$ 177,155</u>	<u>\$ 121,372</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 56	\$ 103	\$ 56	\$ 103
Funds Held for Others	<u>177,099</u>	<u>121,269</u>	<u>177,099</u>	<u>121,269</u>
Total Liabilities	<u>\$ 177,155</u>	<u>\$ 121,372</u>	<u>\$ 177,155</u>	<u>\$ 121,372</u>
<b>Total - All Agency Funds</b>				
<b>Assets</b>				
Cash and Cash Equivalents	\$ 233,916	\$ 198,844	\$ 233,916	\$ 198,844
Accounts, Net of Allowances	1,627	10,388	1,627	10,388
From Other Funds	4,149	4,149	4,149	4,149
Interest	52	69	52	69
Other Assets	<u>352,731</u>	<u>331,635</u>	<u>352,731</u>	<u>331,635</u>
Total Assets	<u>\$ 592,475</u>	<u>\$ 545,085</u>	<u>\$ 592,475</u>	<u>\$ 545,085</u>
<b>Liabilities</b>				
Accounts Payable and Accrued Liabilities	\$ 51,562	\$ 56,589	\$ 51,562	\$ 56,589
Due to Other Funds	347	379	347	379
Funds Held for Others	<u>540,566</u>	<u>488,117</u>	<u>540,566</u>	<u>488,117</u>
Total Liabilities	<u>\$ 592,475</u>	<u>\$ 545,085</u>	<u>\$ 592,475</u>	<u>\$ 545,085</u>



## NONMAJOR COMPONENT UNITS

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*The component units listed below are legally separate organizations for which the State is financially accountable.*

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The following are included in the nonmajor component units:

Connecticut Higher Education Supplemental Loan Authority  
Connecticut Health and Educational Facilities Authority  
Connecticut Student Loan Foundation  
Materials, Innovations, and Recycling Authority  
Connecticut Innovations, Incorporated  
UConn Foundation  
Capital Region Development Authority  
Connecticut Green Bank

**State of Connecticut**

**COMBINING STATEMENT OF NET POSITION  
NONMAJOR COMPONENT UNITS**

June 30, 2017

(Expressed in Thousands)

	Connecticut Higher Education Supplemental Loan Authority	Connecticut Health and Educational Facilities Authority	Connecticut Student Loan Foundation	Materials, Innovations, and Recycling Authority
<b>Assets</b>				
Current Assets:				
Cash and Cash Equivalents	\$ 4,197	\$ 767	\$ 598	\$ 41,605
Investments	-	7,588	-	-
Receivables:				
Accounts, Net of Allowances	-	118	16	4,982
Loans, Net of Allowances	20,755	-	-	-
Interest Receivable	550	-	-	-
Due From Primary Government	-	-	-	-
Restricted Assets	44,060	216,998	29,998	204
Inventories	-	-	-	5,937
Other Current Assets	71	64	1	2,322
Total Current Assets	<u>69,633</u>	<u>225,535</u>	<u>30,613</u>	<u>55,050</u>
Noncurrent Assets:				
Investments	-	-	-	-
Accounts, Net of Allowances	-	-	-	-
Loans, Net of Allowances	100,036	-	228,106	-
Restricted Assets	21,416	6,845	-	-
Capital Assets, Net of Accumulated Depreciation	-	81	-	86,102
Other Noncurrent Assets	-	-	-	-
Total Noncurrent Assets	<u>121,452</u>	<u>6,926</u>	<u>228,106</u>	<u>86,102</u>
Total Assets	<u>\$ 191,085</u>	<u>\$ 232,461</u>	<u>\$ 258,719</u>	<u>\$ 141,152</u>
<b>Deferred Outflows of Resources</b>				
Related to Pensions	\$ -	\$ -	\$ -	\$ -
Other	-	-	-	-
Total Deferred Outflows of Resources	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
<b>Liabilities</b>				
Current Liabilities:				
Accounts Payable & Accrued Liabilities	\$ 880	\$ 179	\$ 1,398	\$ 9,551
Current Portion of Long-Term Obligations	10,000	-	-	-
Due To Primary Government	-	-	-	-
Amounts Held for Institutions	-	216,998	-	-
Other Liabilities	-	-	-	-
Total Current Liabilities	<u>10,880</u>	<u>217,177</u>	<u>1,398</u>	<u>9,551</u>
Noncurrent Liabilities:				
Pension Liability	-	-	-	-
Noncurrent Portion of Long-Term Obligations	150,702	2,176	231,508	5,000
Total Noncurrent Liabilities	<u>150,702</u>	<u>2,176</u>	<u>231,508</u>	<u>5,000</u>
Total Liabilities	<u>\$ 161,582</u>	<u>\$ 219,353</u>	<u>\$ 232,906</u>	<u>\$ 14,551</u>
<b>Deferred Inflows of Resources</b>				
Related to Pensions	\$ -	\$ -	\$ -	\$ -
Other Deferred Inflows	2,000	-	-	-
Total Deferred Inflows of Resources	<u>\$ 2,000</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
<b>Net Position</b>				
Net Investment in Capital Assets	\$ -	\$ 81	\$ -	\$ 86,102
Restricted:				
Expendable Endowments	-	-	-	-
Nonexpendable Endowments	-	-	-	-
Other Purposes	19,076	4,563	6,381	49
Unrestricted	8,427	8,464	19,432	40,450
Total Net Position	<u>\$ 27,503</u>	<u>\$ 13,108</u>	<u>\$ 25,813</u>	<u>\$ 126,601</u>

**State of Connecticut**

Connecticut Innovations, Incorporated	UConn Foundation	Capital Region Development Authority	Connecticut Green Bank	Total
\$ 66,848	\$ 13,952	\$ 16,498	\$ 37,149	\$ 181,614
973	435,644	-	-	444,205
-	26,562	6,433	2,912	41,023
5,136	-	-	-	25,891
653	-	-	-	1,203
103	-	-	-	103
-	-	7,750	-	299,010
-	-	-	-	5,937
81	-	403	14,060	17,002
<u>73,794</u>	<u>476,158</u>	<u>31,084</u>	<u>54,121</u>	<u>1,015,988</u>
88,987	-	-	-	88,987
-	34,335	-	-	34,335
37,544	-	37,279	-	402,965
36,068	894	4,776	22,063	92,062
112	5,641	294,177	61,511	447,624
97	1,660	1,013	54,057	56,827
<u>162,808</u>	<u>42,530</u>	<u>337,245</u>	<u>137,631</u>	<u>1,122,800</u>
<u>\$ 236,602</u>	<u>\$ 518,688</u>	<u>\$ 368,329</u>	<u>\$ 191,752</u>	<u>\$ 2,138,788</u>
\$ 9,288	\$ -	\$ -	\$ 9,978	\$ 19,266
55	-	-	-	55
<u>\$ 9,343</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 9,978</u>	<u>\$ 19,321</u>
\$ 10,113	\$ 6,572	\$ 18,309	\$ 11,877	\$ 58,879
555	-	3,976	2,647	17,178
-	-	36,918	-	36,918
-	-	-	-	216,998
23,776	-	-	-	23,776
<u>34,444</u>	<u>6,572</u>	<u>59,203</u>	<u>14,524</u>	<u>353,749</u>
28,380	-	-	25,245	53,625
3,934	36,541	86,560	33,298	549,719
<u>32,314</u>	<u>36,541</u>	<u>86,560</u>	<u>58,543</u>	<u>603,344</u>
<u>\$ 66,758</u>	<u>\$ 43,113</u>	<u>\$ 145,763</u>	<u>\$ 73,067</u>	<u>\$ 957,093</u>
\$ 6,675	\$ -	\$ -	\$ -	\$ 6,675
-	-	-	-	2,000
<u>\$ 6,675</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 8,675</u>
\$ 112	\$ (541)	\$ 167,323	\$ 561	\$ 253,638
-	99,232	-	-	99,232
-	376,884	-	60,027	436,911
13,972	-	47,597	16,843	108,481
158,428	-	7,646	51,232	294,079
<u>\$ 172,512</u>	<u>\$ 475,575</u>	<u>\$ 222,566</u>	<u>\$ 128,663</u>	<u>\$ 1,192,341</u>

**State of Connecticut**

**COMBINING STATEMENT OF ACTIVITIES  
NONMAJOR COMPONENT UNITS**

For The Fiscal Year Ended June 30, 2017

*(Expressed in Thousands)*

<u>Functions/Programs</u>	<u>Program Revenues</u>			
	<u>Expenses</u>	<u>Charges for Services</u>	<u>Operating Grants and Contributions</u>	<u>Capital Grants and Contributions</u>
Connecticut Higher Education Supplemental Loan Authority	\$ 9,828	\$ 9,977	\$ -	\$ -
Connecticut Health and Educational Facilities Authority	9,052	7,793	-	-
Connecticut Student Loan Foundation	9,861	10,412	-	-
Materials, Innovations, and Recycling Authority	79,093	63,426	-	-
Connecticut Innovations, Incorporated	41,153	46,010	-	-
UConn Foundation	48,530	47,638	-	-
Capital Region Development Authority	55,206	51,722	45	2,339
Connecticut Green Bank	39,634	40,412	-	-
Total Nonmajor Component Units	<u>\$ 292,357</u>	<u>\$ 277,390</u>	<u>\$ 45</u>	<u>\$ 2,339</u>

General Revenues:  
 Investment Income  
 Total General Revenues  
 Change in Net Position  
 Total Net Position - Beginning (as restated)  
 Total Net Position - Ending

**State of Connecticut**

**Net (Expense) Revenue and  
Changes in Net Position**

Connecticut Higher Education Supplemental Loan Authority	Connecticut Health & Educational Facilities Authority	Connecticut Student Loan Foundation	Materials, Innovations, and Recycling Authority	Connecticut Innovations, Incorporated	UConn Foundation	Capital Region Development Authority	Connecticut Green Bank	<u>Totals</u>
\$ 149	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 149
-	(1,259)	-	-	-	-	-	-	(1,259)
-	-	551	-	-	-	-	-	551
-	-	-	(15,667)	-	-	-	-	(15,667)
-	-	-	-	4,857	-	-	-	4,857
-	-	-	-	-	(892)	-	-	(892)
-	-	-	-	-	-	(1,100)	-	(1,100)
-	-	-	-	-	-	-	778	778
<u>149</u>	<u>(1,259)</u>	<u>551</u>	<u>(15,667)</u>	<u>4,857</u>	<u>(892)</u>	<u>(1,100)</u>	<u>778</u>	<u>(12,583)</u>
283	84	37	208	7,865	45,653	432	523	55,085
283	84	37	208	7,865	45,653	432	523	55,085
432	(1,175)	588	(15,459)	12,722	44,761	(668)	1,301	42,502
27,071	14,283	25,225	142,060	159,790	430,814	223,234	127,362	1,149,839
<u>\$ 27,503</u>	<u>\$ 13,108</u>	<u>\$ 25,813</u>	<u>\$ 126,601</u>	<u>\$ 172,512</u>	<u>\$ 475,575</u>	<u>\$ 222,566</u>	<u>\$ 128,663</u>	<u>\$ 1,192,341</u>

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**Index to Statistical Section**

This part of the State of Connecticut’s comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the government’s overall financial health.

**FINANCIAL TRENDS INFORMATION**

These schedules contain trend information to help the reader understand how the State’s financial performance and well-being have changed over time.

Net Position by Component	172
Changes in Net Position	174
Fund Balances, Governmental Funds	178
Changes in Fund Balances, Governmental Funds	178

**REVENUE CAPACITY INFORMATION**

These schedules present revenue capacity information for the State’s most significant revenue source, the personal income tax.

Personal Income Tax Filers and Liability by Income Level	180
Personal Income by Major Component	182
Personal Income Tax Rates	185

**DEBT CAPACITY INFORMATION**

These schedules present information to assist the user in understanding and assessing a government’s debt burden and its ability to issue additional debt.

Legal Debt Margin	186
Ratios of Outstanding Debt by Type	188
Ratios of Net General Bonded Debt	188
Pledged-Revenue Coverage	190

**DEMOGRAPHIC AND ECONOMIC INFORMATION**

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Population and Per Capita Personal Income	194
Employment Information	194
Top Ten Employers	197

**OPERATING INFORMATION**

These schedules contain information about the State’s operations and a resource to help the reader understand how the State’s financial information relates to the activities it performs.

State Employees by Function	198
Operating Indicators by Function	200
Capital Asset by Function	204

**Sources:** Unless otherwise noted the information in these schedules is derived from the comprehensive annual financial reports for the relevant year.

**State of Connecticut**

**NET POSITION BY COMPONENT**

Last Ten Fiscal Years

*(Expressed in Thousands)*

	<u>2017</u>	<u>2016</u>	<u>2015</u>
<b>Governmental Activities:</b>			
Net Invested in Capital Assets	\$ 4,568,371	\$ 4,530,912	\$ 4,957,690
Restricted	2,887,909	1,977,196	1,884,897
Unrestricted	<u>(52,826,131)</u>	<u>(50,635,847)</u>	<u>(47,667,704)</u>
Total Governmental Activities Net Position	<u>\$ (45,369,851)</u>	<u>\$ (44,127,739)</u>	<u>\$ (40,825,117)</u>
<b>Business-Type Activities:</b>			
Net Invested in Capital Assets	\$ 4,126,277	\$ 3,794,464	\$ 3,448,779
Restricted	1,017,929	1,089,692	1,154,457
Unrestricted	<u>1,564,985</u>	<u>1,384,932</u>	<u>895,770</u>
Total Business-Type Activities Net Position	<u>\$ 6,709,191</u>	<u>\$ 6,269,088</u>	<u>\$ 5,499,006</u>
<b>Primary Government:</b>			
Net Invested in Capital Assets	\$ 8,694,648	\$ 8,325,376	\$ 8,406,469
Restricted	3,905,838	3,066,888	3,039,354
Unrestricted	<u>(51,261,146)</u>	<u>(49,250,915)</u>	<u>(46,771,934)</u>
Total Primary Government Net Position	<u>\$ (38,660,660)</u>	<u>\$ (37,858,651)</u>	<u>\$ (35,326,111)</u>

**Notes:** The governmental activities have a deficit in unrestricted Net Position mainly because the State recognized in the Statement of Net Position the following long-term obligations:

1. General obligation bonds which were issued to finance various grant programs of the State, such as school construction and municipal aid.
2. Other long-term obligations which the State has partially funded or not funded. For example, net pension liabilities, compensated absences obligations, etc.
3. In fiscal year 2014, Bradley International Airport, a major Enterprise fund, was reclassified as a major component unit. Business-type activities for the fiscal years prior to 2014 have been restated to reflect this change.
4. In fiscal year 2015, the State implemented GASB statement No. 68 requiring the reporting of the actuarially determined liability to the pension plan members net of the fiduciary net position of the plans.

**State of Connecticut**

2014	2013	2012	2011	2010	2009	2008
\$ 5,776,818	\$ 5,824,691	\$ 5,305,440	\$ 4,905,025	\$ 4,910,178	\$ 5,499,602	\$ 4,930,749
1,795,757	2,282,900	1,647,790	1,809,873	1,777,780	1,617,726	1,641,377
<u>(24,943,380)</u>	<u>(23,199,567)</u>	<u>(21,984,094)</u>	<u>(20,764,608)</u>	<u>(20,361,003)</u>	<u>(16,686,518)</u>	<u>(13,460,055)</u>
<u>\$ (17,370,805)</u>	<u>\$ (15,091,976)</u>	<u>\$ (15,030,864)</u>	<u>\$ (14,049,710)</u>	<u>\$ (13,673,045)</u>	<u>\$ (9,569,190)</u>	<u>\$ (6,887,929)</u>
\$ 3,169,151	\$ 3,029,092	\$ 2,810,724	\$ 2,677,999	\$ 2,544,919	\$ 2,499,175	\$ 2,465,734
1,065,211	898,180	995,806	1,051,544	1,157,139	1,359,459	1,649,200
<u>546,492</u>	<u>391,597</u>	<u>360,131</u>	<u>171,738</u>	<u>302,435</u>	<u>373,035</u>	<u>306,755</u>
<u>\$ 4,780,854</u>	<u>\$ 4,318,869</u>	<u>\$ 4,166,661</u>	<u>\$ 3,901,281</u>	<u>\$ 4,004,493</u>	<u>\$ 4,231,669</u>	<u>\$ 4,421,689</u>
\$ 8,945,969	\$ 8,853,783	\$ 8,116,164	\$ 7,583,024	\$ 7,455,097	\$ 7,998,777	\$ 7,396,483
2,860,968	3,181,080	2,643,596	2,861,417	2,934,919	2,977,185	3,290,577
<u>(24,396,888)</u>	<u>(22,807,970)</u>	<u>(21,623,963)</u>	<u>(20,592,870)</u>	<u>(20,058,568)</u>	<u>(16,313,483)</u>	<u>(13,153,300)</u>
<u>\$ (12,589,951)</u>	<u>\$ (10,773,107)</u>	<u>\$ (10,864,203)</u>	<u>\$ (10,148,429)</u>	<u>\$ (9,668,552)</u>	<u>\$ (5,337,521)</u>	<u>\$ (2,466,240)</u>

**State of Connecticut**

**CHANGES IN NET POSITION**

Last Ten Fiscal Years

*(Expressed in Thousands)*

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
<b>Expenses</b>					
Governmental Activities:					
Legislative	\$ 128,659	\$ 139,916	\$ 107,629	\$ 122,679	\$ 106,349
General Government	2,281,216	2,544,489	1,712,498	2,060,294	2,036,173
Regulation and Protection	976,521	968,289	1,028,126	905,310	868,187
Conservation and Development	1,220,870	1,103,531	921,859	997,092	665,365
Health and Hospital	2,713,513	2,772,452	2,172,348	2,623,687	2,540,349
Transportation	1,593,860	2,237,773	1,761,500	1,985,288	1,572,755
Human Services	9,470,826	9,115,540	6,736,623	8,272,895	7,471,625
Education, Libraries, and Museums	5,185,450	5,315,342	4,396,212	4,638,713	4,490,144
Corrections	2,211,201	2,307,516	1,820,490	2,142,788	1,976,657
Judicial	1,073,970	1,135,055	873,879	1,004,610	893,860
Interest and Fiscal Charges	<u>877,822</u>	<u>829,246</u>	<u>796,727</u>	<u>922,110</u>	<u>779,515</u>
Total Governmental Activities Expenses	<u>27,733,908</u>	<u>28,469,149</u>	<u>22,327,891</u>	<u>25,675,466</u>	<u>23,400,979</u>
Business-Type Activities:					
University of Connecticut and Health Center	2,310,348	2,255,211	2,154,599	2,050,529	1,872,131
Board of Regents	1,360,029	1,362,522	1,319,274	1,231,024	1,154,913
Employment Security	725,609	686,494	750,573	1,059,631	1,514,674
Clean Water	36,234	38,369	35,125	39,841	50,194
Other	<u>66,328</u>	<u>65,757</u>	<u>69,099</u>	<u>72,674</u>	<u>58,989</u>
Total Business-Type Activities Expenses	<u>4,498,548</u>	<u>4,408,353</u>	<u>4,328,670</u>	<u>4,453,699</u>	<u>4,650,901</u>
Total Primary Government Expenses	<u>\$ 32,232,456</u>	<u>\$ 32,877,502</u>	<u>\$ 26,656,561</u>	<u>\$ 30,129,165</u>	<u>\$ 28,051,880</u>
<b>Program Revenues</b>					
Governmental Activities:					
Charges for Services, Fees, Fines, and Forfeitures	\$ 3,037,950	\$ 1,997,571	\$ 1,902,257	\$ 1,726,200	\$ 1,575,556
Operating Grants and Contributions	7,367,882	7,179,312	7,095,874	6,496,625	5,992,403
Capital Grants and Contributions	<u>863,002</u>	<u>778,909</u>	<u>717,358</u>	<u>610,274</u>	<u>767,793</u>
Total Governmental Activities Program Revenues	<u>11,268,834</u>	<u>9,955,792</u>	<u>9,715,489</u>	<u>8,833,099</u>	<u>8,335,752</u>
Business-Type Activities:					
Charges for Services, Fees, Fines, and Forfeitures	2,886,663	2,819,354	2,599,678	2,546,840	2,484,561
Operating Grants and Contributions	367,287	594,260	676,418	780,137	1,172,820
Capital Grants and Contributions	<u>1,388</u>	<u>6,026</u>	<u>32,807</u>	<u>27,807</u>	<u>51,614</u>
Total Business-Type Activities Program Revenues	<u>3,255,338</u>	<u>3,419,640</u>	<u>3,308,903</u>	<u>3,354,784</u>	<u>3,708,995</u>
Total Primary Government Program Revenues	<u>\$ 14,524,172</u>	<u>\$ 13,375,432</u>	<u>\$ 13,024,392</u>	<u>\$ 12,187,883</u>	<u>\$ 12,044,747</u>
<b>Net (Expense)/Revenue</b>					
Governmental Activities	\$ (16,465,074)	\$ (18,513,357)	\$ (12,612,402)	\$ (16,842,367)	\$ (15,065,227)
Business-Type Activities	<u>(1,243,210)</u>	<u>(988,713)</u>	<u>(1,019,767)</u>	<u>(1,098,915)</u>	<u>(941,906)</u>
Total Primary Government Net Expense	<u>\$ (17,708,284)</u>	<u>\$ (19,502,070)</u>	<u>\$ (13,632,169)</u>	<u>\$ (17,941,282)</u>	<u>\$ (16,007,133)</u>

## State of Connecticut

2012	2011	2010	2009	2008
\$ 113,982	\$ 99,542	\$ 105,870	\$ 101,695	\$ 111,910
1,987,920	1,508,994	1,565,653	1,752,751	1,737,917
853,458	780,363	796,124	768,272	788,419
692,719	529,292	565,836	562,507	473,797
2,475,759	2,300,369	2,443,119	2,278,059	2,298,272
1,845,656	1,637,847	1,742,009	1,570,324	1,482,250
7,223,118	6,675,895	6,829,916	6,208,275	5,743,810
4,495,905	4,463,129	4,920,983	4,591,672	4,749,284
2,061,176	1,932,375	2,082,743	2,071,331	2,085,053
910,362	828,124	828,128	793,580	806,309
816,508	873,847	792,950	810,403	733,791
<u>23,476,563</u>	<u>21,629,777</u>	<u>22,673,331</u>	<u>21,508,869</u>	<u>21,010,812</u>
1,801,687	1,806,815	1,703,104	1,725,343	1,626,532
1,129,586	1,132,498	1,098,591	1,085,848	1,018,273
1,823,464	2,306,715	2,700,797	1,573,806	631,935
53,330	45,473	52,761	30,723	27,181
58,152	61,199	78,013	65,091	68,618
<u>4,866,219</u>	<u>5,352,700</u>	<u>5,633,266</u>	<u>4,480,811</u>	<u>3,372,539</u>
<u>\$ 28,342,782</u>	<u>\$ 26,982,477</u>	<u>\$ 28,306,597</u>	<u>\$ 25,989,680</u>	<u>\$ 24,383,351</u>
\$ 1,952,042	\$ 1,647,311	\$ 1,522,375	\$ 1,490,271	\$ 1,447,573
5,770,935	6,350,067	6,113,086	5,552,688	4,271,504
716,056	725,080	765,837	646,416	442,310
<u>8,439,033</u>	<u>8,722,458</u>	<u>8,401,298</u>	<u>7,689,375</u>	<u>6,161,387</u>
2,471,871	2,336,105	2,170,823	2,062,643	1,943,772
1,412,355	1,789,697	1,885,115	907,050	322,936
12,328	34,098	7,386	53,351	32,167
<u>3,896,554</u>	<u>4,159,900</u>	<u>4,063,324</u>	<u>3,023,044</u>	<u>2,298,875</u>
<u>\$ 12,335,587</u>	<u>\$ 12,882,358</u>	<u>\$ 12,464,622</u>	<u>\$ 10,712,419</u>	<u>\$ 8,460,262</u>
\$ (15,037,530)	\$ (12,907,319)	\$ (14,272,033)	\$ (13,819,494)	\$ (14,849,425)
<u>(969,665)</u>	<u>(1,192,800)</u>	<u>(1,569,942)</u>	<u>(1,457,767)</u>	<u>(1,073,664)</u>
<u>\$ (16,007,195)</u>	<u>\$ (14,100,119)</u>	<u>\$ (15,841,975)</u>	<u>\$ (15,277,261)</u>	<u>\$ (15,923,089)</u>

**Note:** In fiscal year 2014, Bradley International Airport, a major Enterprise fund, was reclassified as a major component unit. Business-type activities for the fiscal years prior to 2014, disclosed in this and the next page, have been restated to reflect this change.

*continued*

**State of Connecticut**

**CHANGES IN NET POSITION *(Continued)***

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014	2013
<b>General Revenues and Other Changes in Net Position</b>					
Governmental Activities:					
Taxes:					
Personal Income	\$ 8,065,612	\$ 9,091,156	\$ 8,186,946	\$ 7,752,553	\$ 7,743,804
Corporate Income	968,438	778,917	687,347	627,100	558,287
Sales and Use	4,226,788	4,224,989	4,167,054	4,116,012	3,953,768
Other	1,882,498	1,231,783	1,735,788	1,796,678	2,327,754
Restricted for Transportation Purposes:					
Motor Fuel	907,641	877,371	846,062	882,107	693,444
Other	90,199	69,752	83,868	82,216	79,000
Casino Gaming Payments	269,906	265,907	267,986	279,873	296,396
Tobacco Settlement	123,360	120,448	118,988	197,138	123,745
Lottery Tickets	326,415	335,387	319,700	319,500	312,100
Unrestricted Investment Earnings	29,061	16,535	22,091	27,313	3,942
Special Items:					
Statutory Payment from Component Units	-	-	-	31,000	-
Other	-	-	-	-	-
Transfers-Internal Activities	<u>(1,666,956)</u>	<u>(1,746,295)</u>	<u>(1,726,281)</u>	<u>(1,547,952)</u>	<u>(1,088,125)</u>
Total Governmental Activities	<u>15,222,962</u>	<u>15,265,950</u>	<u>14,709,549</u>	<u>14,563,538</u>	<u>15,004,115</u>
Business-Type Activities					
Unrestricted Investment Earnings	16,357	12,500	11,638	12,948	16,742
Special Items:					
Other	-	-	-	-	-
Debt Reduction Transfer	-	-	-	-	-
Transfers-Internal Activities	<u>1,666,956</u>	<u>1,746,295</u>	<u>1,726,281</u>	<u>1,547,952</u>	<u>1,088,125</u>
Total Business-Type Activities	<u>1,683,313</u>	<u>1,758,795</u>	<u>1,737,919</u>	<u>1,560,900</u>	<u>1,104,867</u>
Total Primary Government	<u>\$ 16,906,275</u>	<u>\$ 17,024,745</u>	<u>\$ 16,447,468</u>	<u>\$ 16,124,438</u>	<u>\$ 16,108,982</u>
<b>Changes in Net Position</b>					
Governmental Activities	\$ (1,242,112)	\$ (3,247,407)	\$ 2,097,147	\$ (2,278,829)	\$ (61,112)
Business-Type Activities	<u>440,103</u>	<u>770,082</u>	<u>718,152</u>	<u>461,985</u>	<u>162,961</u>
Total Primary Government	<u>\$ (802,009)</u>	<u>\$ (2,477,325)</u>	<u>\$ 2,815,299</u>	<u>\$ (1,816,844)</u>	<u>\$ 101,849</u>
<b>Other Changes in Net Position</b>					
Governmental Activities:					
Prior-Year Adjustments	<u>\$ -</u>	<u>\$ (55,368,000)</u>	<u>\$ (25,551,459)</u>	<u>\$ -</u>	<u>\$ -</u>
Total Governmental Activities	<u>-</u>	<u>(55,368,000)</u>	<u>(25,551,459)</u>	<u>-</u>	<u>-</u>
Business-Type Activities:					
Prior-Year Adjustments	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Business-Type Activities	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Primary Government	<u>\$ -</u>	<u>\$ (55,368,000)</u>	<u>\$ (25,551,459)</u>	<u>\$ -</u>	<u>\$ -</u>

**State of Connecticut**

2012	2011	2010	2009	2008
\$ 7,360,165	\$ 6,327,263	\$ 5,773,609	\$ 5,657,309	6,588,233
601,509	726,090	465,980	437,444	548,539
3,880,607	3,365,250	3,150,203	3,301,096	3,537,911
1,953,170	1,655,594	1,455,628	1,407,084	1,544,801
713,477	477,411	494,222	492,566	487,568
76,618	237,242	209,684	196,034	192,663
344,645	359,582	384,248	377,805	411,411
123,799	121,422	128,977	153,819	141,348
310,000	289,300	285,500	283,000	283,000
15,955	18,434	27,681	42,493	131,915
-	-	-	13,150	-
-	-	21,000	-	-
<u>(1,227,570)</u>	<u>(1,080,151)</u>	<u>(1,347,362)</u>	<u>(1,156,590)</u>	<u>(1,062,256)</u>
<u>14,152,375</u>	<u>12,497,437</u>	<u>11,049,370</u>	<u>11,205,210</u>	<u>12,805,133</u>
18,141	20,483	27,468	60,759	98,787
-	-	(21,000)	-	-
-	-	-	85,000	-
<u>1,227,570</u>	<u>1,080,151</u>	<u>1,347,362</u>	<u>1,156,590</u>	<u>1,062,256</u>
<u>1,245,711</u>	<u>1,100,634</u>	<u>1,353,830</u>	<u>1,302,349</u>	<u>1,161,043</u>
<u>\$ 15,398,086</u>	<u>\$ 13,598,071</u>	<u>\$ 12,403,200</u>	<u>\$ 12,507,559</u>	<u>\$ 13,966,176</u>
\$ (885,155)	\$ (409,882)	\$ (3,222,663)	\$ (2,614,284)	\$ (2,044,292)
<u>276,046</u>	<u>(92,166)</u>	<u>(216,112)</u>	<u>(155,418)</u>	<u>87,379</u>
<u>\$ (609,109)</u>	<u>\$ (502,048)</u>	<u>\$ (3,438,775)</u>	<u>\$ (2,769,702)</u>	<u>\$ (1,956,913)</u>
\$ (95,999)	\$ 33,217	\$ (881,193)	\$ (66,976)	\$ -
<u>(95,999)</u>	<u>33,217</u>	<u>(881,193)</u>	<u>(66,976)</u>	<u>-</u>
-	-	-	(21,652)	-
-	-	-	(21,652)	-
<u>\$ (95,999)</u>	<u>\$ 33,217</u>	<u>\$ (881,193)</u>	<u>\$ (88,628)</u>	<u>\$ -</u>

**Notes:** In fiscal year 2012 the sales tax increased from 6% to 6.35%. Starting in fiscal year 2013, due to the change in fund classification reported on the previous page, lottery ticket sales were reported as general revenue, rather than as "transfer-internal activities" under the governmental activities section reported above. Transfers-internal activities for fiscal years prior to 2013 have been restated to reflect this change. Other changes in Net Position are direct adjustments to the beginning balance of Net Position (See Note 23).

**State of Connecticut**

**FUND BALANCES, GOVERNMENTAL FUNDS**

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014
<b>General Fund</b>				
Reserved/Nonspendable, Restricted, Committed or Assigned	\$ 326,716	\$ 384,683	\$ 603,309	\$ 686,017
Unreserved/Unassigned	(821,134)	(998,872)	(793,158)	(727,209)
<b>Total General Fund</b>	<u>\$ (494,418)</u>	<u>\$ (614,189)</u>	<u>\$ (189,849)</u>	<u>\$ (41,192)</u>
<b>All Other Governmental Funds</b>				
Reserved/Nonspendable, Restricted, Committed or Assigned	\$ 2,871,951	\$ 2,466,765	\$ 2,307,993	\$ 2,146,103
Unreserved/Unassigned				
Transportation Fund	-	-	-	-
Special Revenue Funds	-	-	29	-
Capital Projects Funds	(718)	(718)	(718)	(718)
Permanent Funds	(7,836)	(7,959)	(8,042)	(7,070)
<b>Total All Other Governmental Funds</b>	<u>\$ 2,863,397</u>	<u>\$ 2,458,088</u>	<u>\$ 2,299,262</u>	<u>\$ 2,138,315</u>

**CHANGES IN FUND BALANCES, GOVERNMENTAL FUNDS**

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014
<b>Revenues</b>				
Taxes	\$ 16,079,037	\$ 16,164,452	\$ 15,714,900	\$ 15,222,023
Assessments	-	-	-	-
Licenses, Permits, and Fees	697,210	733,939	680,820	692,028
Tobacco Settlement	123,360	120,448	118,988	197,138
Federal Grants and Aid	8,230,884	7,957,998	7,813,232	7,106,897
Lottery Tickets	326,415	335,387	319,700	319,500
Charges for Services	104,620	109,130	100,465	107,970
Fines, Forfeits, and Rents	208,948	35,491	20,821	97,815
Casino Gaming Payments	269,906	265,907	267,986	279,873
Investment Earnings	29,061	24,484	17,857	26,121
Miscellaneous	1,956,915	1,068,575	1,108,994	853,389
<b>Total Revenues</b>	<u>28,026,356</u>	<u>26,815,811</u>	<u>26,163,763</u>	<u>24,902,754</u>
<b>Expenditures</b>				
Legislative	118,345	124,797	120,879	116,344
General Government	2,112,926	2,307,262	1,943,795	1,952,284
Regulation and Protection	900,509	869,166	1,165,741	858,450
Conservation and Development	1,129,857	1,003,171	1,054,591	945,552
Health and Hospital	2,618,119	2,535,805	2,499,833	2,488,749
Transportation	1,573,774	1,680,900	1,643,229	1,482,632
Human Services	8,781,882	8,345,715	7,762,916	7,835,677
Education, Libraries, and Museums	4,802,130	4,845,487	5,041,968	4,509,914
Corrections	2,044,824	2,086,630	2,069,663	2,030,842
Judicial	992,433	1,030,324	998,193	956,164
Capital Projects	998,917	1,202,184	934,452	955,785
Debt Service:				
Principal	1,737,396	1,636,512	1,421,518	1,323,303
Interest	1,009,785	954,549	904,935	893,737
<b>Total Expenditures</b>	<u>28,820,897</u>	<u>28,622,502</u>	<u>27,561,713</u>	<u>26,349,433</u>
Revenue Over (Under) Expenditure	(794,541)	(1,806,691)	(1,397,950)	(1,446,679)
<b>Other Financing Sources (Uses) and Special Items</b>				
Bonds Issued	3,111,200	2,961,510	2,820,167	2,761,025
Premiums on Bonds Issued	427,324	442,332	386,856	390,556
Transfers In	1,430,325	1,009,021	1,023,698	1,058,913
Transfers Out	(3,095,031)	(2,755,316)	(2,749,979)	(2,606,865)
Refunding Bonds Issued	761,545	721,635	709,210	1,280,710
Payment to Refunded Bond Escrow	(821,708)	(841,226)	(780,530)	(1,378,119)
Capital Lease Obligations	4,174	3,034	3,036	8,828
Special Items:				
Payment from Component Units	-	-	-	31,000
Other	-	-	-	-
<b>Total Other Financing Sources (Uses) and Special Items</b>	<u>1,817,829</u>	<u>1,540,990</u>	<u>1,412,458</u>	<u>1,546,048</u>
<b>Net Change in Fund Balances</b>	<u>\$ 1,023,288</u>	<u>\$ (265,701)</u>	<u>\$ 14,508</u>	<u>\$ 99,369</u>
<b>Debt Service as a Percentage of Noncapital Expenditures</b>	10.20%	9.61%	8.89%	8.94%

NOTE: Starting in fiscal year 2013, lottery ticket sales were reported as revenues, rather than as transfers from the Connecticut Lottery Corporation fund.

This fund is no longer being reported as an enterprise fund, it is being reported as a component unit instead. Transfers were restated to reflect this for fiscal years prior to 2013.

## State of Connecticut

2013	2012	2011	2010	2009	2008
\$ 628,429	\$ 233,632	\$ 451,637	\$ 696,149	\$ 1,503,851	\$ 2,052,521
<u>(1,217,051)</u>	<u>(1,146,053)</u>	<u>(1,748,946)</u>	<u>(1,678,971)</u>	<u>(2,303,429)</u>	<u>(1,149,231)</u>
<u>\$ (588,622)</u>	<u>\$ (912,421)</u>	<u>\$ (1,297,309)</u>	<u>\$ (982,822)</u>	<u>\$ (799,578)</u>	<u>\$ 903,290</u>
\$ 2,592,926	\$ 2,608,751	\$ 2,691,530	\$ 1,728,125	\$ 1,647,404	\$ 1,711,007
-	-	-	94,074	89,998	160,745
-	(9)	(1,823)	352,525	247,763	502,679
(718)	(718)	(718)	229,037	181,139	(156,937)
<u>(5,812)</u>	<u>(4,714)</u>	<u>(3,991)</u>	<u>-</u>	<u>-</u>	<u>-</u>
<u>\$ 2,586,396</u>	<u>\$ 2,603,310</u>	<u>\$ 2,684,998</u>	<u>\$ 2,403,761</u>	<u>\$ 2,166,304</u>	<u>\$ 2,217,494</u>

2013	2012	2011	2010	2009	2008
\$ 15,395,003	\$ 14,712,566	\$ 12,602,015	\$ 11,594,568	\$ 11,416,766	\$ 13,014,886
-	-	28,444	27,268	28,129	21,457
617,132	657,446	601,767	611,535	546,871	550,025
123,745	123,799	121,422	128,977	153,819	141,347
6,760,196	6,490,516	7,241,824	6,926,397	6,017,660	4,717,846
312,100	310,000	289,300	285,500	283,000	283,000
103,622	107,327	98,843	98,617	101,500	100,143
74,552	452,358	142,355	86,520	32,841	73,444
296,396	344,645	359,582	384,248	377,805	411,410
3,042	14,386	18,626	27,841	43,287	132,490
804,558	704,405	712,466	704,145	790,010	693,292
<u>24,490,346</u>	<u>23,917,448</u>	<u>22,216,644</u>	<u>20,875,616</u>	<u>19,791,688</u>	<u>20,139,340</u>
109,635	103,512	99,989	98,336	102,088	104,160
1,996,036	1,876,249	1,502,016	1,437,645	1,707,309	1,626,024
883,063	784,002	778,567	734,718	750,473	735,875
668,303	662,823	527,165	504,250	510,887	442,519
2,472,142	2,374,693	2,271,075	2,215,141	2,222,497	2,154,248
1,508,262	1,534,797	1,441,006	1,440,072	1,268,269	1,190,650
7,213,996	6,967,044	6,578,719	6,175,132	6,059,858	5,390,379
4,226,319	4,185,168	4,255,644	4,379,875	4,401,423	6,307,070
1,958,289	1,939,091	1,920,179	1,903,466	2,010,977	1,949,342
893,276	858,339	824,089	762,290	775,711	754,223
757,001	547,212	464,023	435,288	438,724	341,148
1,515,283	1,473,894	1,273,278	1,238,055	1,166,282	1,153,553
888,243	947,102	945,781	935,878	918,633	810,297
<u>25,089,848</u>	<u>24,253,926</u>	<u>22,881,531</u>	<u>22,260,146</u>	<u>22,333,131</u>	<u>22,959,488</u>
(599,502)	(336,478)	(664,887)	(1,384,530)	(2,541,443)	(2,820,148)
1,802,290	1,554,801	1,619,625	2,617,910	1,863,600	3,688,623
216,795	313,715	74,583	189,469	110,560	69,779
953,198	933,231	922,118	772,174	1,040,765	928,444
(2,041,323)	(2,175,501)	(2,005,934)	(2,122,891)	(2,192,545)	(1,993,489)
194,890	1,219,815	412,870	344,105	586,940	231,085
(224,910)	(1,388,158)	(431,550)	(379,015)	(590,397)	(241,560)
3,556	6,084	4,089	-	-	437
-	-	-	-	13,150	-
-	-	-	26,099	-	-
<u>904,496</u>	<u>463,987</u>	<u>595,801</u>	<u>1,421,752</u>	<u>832,073</u>	<u>2,683,319</u>
<u>\$ 304,994</u>	<u>\$ 127,509</u>	<u>\$ (69,086)</u>	<u>\$ 37,222</u>	<u>\$ (1,709,370)</u>	<u>\$ (136,829)</u>
10.40%	10.39%	10.19%	10.36%	10.23%	8.90%

**State of Connecticut**

**PERSONAL INCOME TAX FILERS AND LIABILITY BY INCOME LEVEL**

Calendar Years 2007 and 2014

*(Expressed in Thousands)*

<u>Income Level</u>	<u>Calendar Year 2007</u>			
	<u>Number of Filers</u>	<u>Percentage of Total</u>	<u>Personal Income Tax Liability</u>	<u>Percentage of Total</u>
\$50,000 and under	811,965	53.6%	\$ 354,701,019	5.1%
\$50,001 - \$100,000	391,252	25.8%	1,144,834,938	16.5%
\$100,001 - \$200,000	216,846	14.3%	1,378,683,663	19.9%
\$200,001 - \$500,000	68,050	4.5%	971,731,870	14.0%
\$500,001 - \$2,000,000	22,076	1.5%	968,858,227	14.0%
\$2,000,000 and up	<u>5,258</u>	<u>0.3%</u>	<u>2,115,938,960</u>	<u>30.5%</u>
Total	<u>1,515,447</u>	<u>100.0%</u>	<u>\$ 6,934,748,677</u>	<u>100.0%</u>

**Note:** Due to confidentiality issues, the names of the ten largest tax payers are not available.

The categories presented are intended to provide alternative information regarding the sources of the State's tax revenue. Calendar Year 2014 is the most recent year for which the data is available.

**Source:** Department of Revenue Services reporting for fiscal year ending June 30, 2016.

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## State of Connecticut

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### Calendar Year 2014

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Number <u>of Filers</u>	Percentage <u>of Total</u>	Personal	
		Income Tax <u>Liability</u>	Percentage <u>of Total</u>
933,421	50.8%	\$ 332,024,874	3.6%
443,730	24.1%	1,262,276,743	13.9%
296,656	16.1%	1,880,617,327	20.6%
115,482	6.3%	1,567,401,528	17.2%
37,572	2.0%	1,529,016,028	16.8%
<u>10,587</u>	<u>0.7%</u>	<u>2,540,826,642</u>	<u>27.9%</u>
<u>1,837,448</u>	<u>100.0%</u>	<u>\$ 9,112,163,142</u>	<u>100.0%</u>

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## State of Connecticut

### PERSONAL INCOME BY MAJOR COMPONENT

Last Ten Calendar Years

(Expressed in Thousands)

Description	<u>2017</u>	<u>2016</u>	<u>2015</u>
<b>Income by place of residence (seasonally adjusted)</b>			
Personal income	\$ 256,225,149	\$ 252,249,206	\$ 246,709,339
Average Effective Rate for Personal Income (note 1)	3.06%	3.23%	3.33%
Derivation of personal income:			
Earnings by place of work	169,971,596	168,342,395	164,941,621
Less: Contributions for government social insurance (note 2):			
Employee and self-employed contributions for government social insurance	8,965,858	8,829,408	8,665,734
Employer contributions for government social insurance	7,868,874	7,788,722	7,707,569
Plus: Adjustment for residence (note 3)	<u>15,103,892</u>	<u>14,818,234</u>	<u>14,271,664</u>
<b>Equals: Net earnings by place of residence</b>	168,240,756	166,542,499	162,839,982
Plus: Dividends, interest, and rent (note 4 & 7)	54,525,505	52,952,710	52,179,464
Plus: Personal current transfer receipts	33,458,888	32,753,997	31,689,893
Components of earnings by place of work:			
Wages and salaries	114,685,688	114,057,180	112,326,830
Supplements to wages and salaries:			
Employer contributions for employee pension and insurance funds (note 5 & 8)	17,338,397	17,392,404	17,036,521
Employer contributions for government social insurance	7,868,874	7,788,722	7,707,569
Proprietors' income (note 6 & 9):			
Farm proprietors' income	(17,080)	(8,148)	(9,627)
Nonfarm proprietors' income	30,095,717	29,112,237	27,880,328

**Notes:**

1. Nonfarm personal income is total personal income less farm income.
2. Farm income is farm earnings less farm employer contributions for government social insurance.
3. Census Bureau midyear population estimate. Estimates for 2010-2014 reflect Census Bureau midyear state population estimates available as of December 2014. Estimates for 2015 are derived from the quarterly state population estimates produced by BEA based on unpublished Census Bureau data.
4. Per capita personal income is total personal income divided by total midyear population.
5. Employer contributions for government social insurance are included in earnings by industry and earnings by place of work, but they are excluded from net earnings by place of residence and personal income. Employee and self-employed contributions are subtractions in the calculation of net earnings by place of residence and all of the income measures.
6. The adjustment for residence is the net inflow of the earnings of interarea commuters. For the United States, it consists of adjustments for border workers and U.S. residents employed by international organizations and foreign embassies.
7. Rental income of persons includes the capital consumption adjustment.
8. Includes actual employer contributions and actuarially imputed employer contributions to reflect benefits accrued by defined benefit pension plan participants through services to employers in the current period.
9. Proprietors' income includes the inventory valuation adjustment and the capital consumption adjustment.

Note-- All dollar estimates are in current dollars (not adjusted for inflation).

(NA) Data not available for this year.

Last updated: March 24, 2016-- new estimates for 2015. In 2015 details may not add to totals because of rounding.

**Sources:** U. S. Bureau of Economic Analysis and Department of Revenue Services

## State of Connecticut

<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
\$ 239,829,273 3.27%	\$ 230,614,799 3.24%	\$ 233,710,888 3.14%	\$ 229,211,506 2.82%	\$ 222,404,940 2.56%	\$ 215,234,464 2.45%	\$ 217,101,744 3.25%
160,754,656	155,343,894	156,192,927	158,317,960	156,297,304	153,795,727	152,435,704
8,440,527	8,122,502	6,120,443	6,013,172	7,356,564	7,305,130	7,534,646
7,504,621	7,331,676	7,213,262	6,989,204	6,668,227	6,622,346	6,754,848
13,158,832	12,662,206	13,518,623	11,709,612	11,261,423	9,198,888	9,737,699
157,968,340	152,551,922	156,377,845	157,025,196	153,533,936	149,067,139	147,883,909
51,244,356	48,198,709	47,804,030	43,030,842	39,824,720	38,927,922	44,650,263
30,616,577	29,864,168	29,529,013	29,155,468	29,046,284	27,239,403	24,567,572
109,039,641	105,486,854	104,278,374	101,598,704	97,848,445	96,206,697	101,501,573
16,701,290	16,521,067	16,454,330	16,635,251	16,374,300	15,882,011	16,093,842
7,504,621	7,331,676	7,213,262	6,989,204	6,668,227	6,622,346	6,754,848
(12,648)	15,905	(2,111)	4,641	2,387	(3,767)	753
27,521,752	25,988,392	28,249,072	33,090,160	35,403,945	35,088,440	28,084,688

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## State of Connecticut

### PERSONAL INCOME TAX RATES

Calendar Years 2008 through 2017

(Expressed in Thousands)

Annual Income Tax Rates are applied to Taxable Income in excess of the following brackets					
Year	Median Rate	Single/ Married Filing Separate	Married Filing Jointly	Head of Household	Average Effective Rate
2008	5.00%	\$10,000	\$20,000	\$16,000	3.25%
2009	5.00%	\$10,000	\$20,000	\$16,000	2.45%
2010	5.00%	\$10,000	\$20,000	\$16,000	2.56%
Income Tax Rates are applied to Taxable Income by income range for the same brackets					
<u>For taxable years commencing on or after January 1, 2015:</u> <sup>[2]</sup>					
	5.00%	<b>\$10,000 - \$50,000</b>	<b>\$20,000 - \$100,000</b>	<b>\$16,000 - \$80,000</b>	1.85%
	5.50%	<b>\$50,000 - \$100,000</b>	<b>\$100,000 - \$200,000</b>	<b>\$80,000 - \$160,000</b>	1.85%
	6.00%	<b>\$100,000 - \$200,000</b>	<b>\$200,000 - \$400,000</b>	<b>\$160,000 - \$320,000</b>	1.85%
	6.50%	<b>\$200,000 - \$250,000</b>	<b>\$400,000 - \$500,000</b>	<b>\$320,000 - \$400,000</b>	1.85%
	6.90%	<b>\$250,000 - \$500,000</b>	<b>\$500,000 - \$1,000,000</b>	<b>\$400,000 - \$800,000</b>	1.85%
	6.99%	<b>greater than \$500,000</b>	<b>greater than \$1,000,000</b>	<b>greater than \$800,000</b>	1.85%
<u>For taxable years commencing prior to January 1, 2015:</u>					
	6.70%	<b>greater than \$250,000</b>	<b>greater than \$500,000</b>	<b>greater than \$400,000</b>	1.85%

**Notes:**

[1] Taxable income equal to or less than amounts listed this year is taxed at a rate of 3%. Effective calendar year 2015, the following exemption amounts apply: \$14,500 singles, \$12,000 for filing separately, \$19,000 head of household and \$24,000 filing jointly. The exemption amount is reduced by \$1,000 for each \$1,000, or fraction thereof, by which AGI exceeds \$29,000 for singles, \$24,000 for filing separately, \$56,000 for head of household and \$48,000 for filing jointly.

[2] Taxable income equal to or less than amounts listed this year is taxed at a rate of 3% except as follows. The amount to which the 3% rate applies is reduced by \$1,000 for each \$5,000, or fraction thereof, by which AGI exceeds \$56,500 for singles and by \$1,000 for each \$2,500 for filing separately, by \$1,600 for each \$4,000 for head of household and by \$2,000 for each \$5,000 or fraction thereof, by which AGI exceeds \$56,500, \$50,250, \$78,500 and \$100,500 for single, filing separately, head of household, and filing jointly.

The average effective rate equals the fiscal year's net tax collections divided by prior-year total personal income based on 'statistics provided' by the U. S. Bureau of Economic Analysis.

Source: Department of Revenue Services - Annual Report.

**State of Connecticut**

**LEGAL DEBT MARGIN INFORMATION**

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014
Estimated General Fund Tax Receipts	\$ 15,519,900	\$ 15,519,900	\$ 15,711,565	\$ 14,334,000
Statutory Multiplier	1.6	1.6	1.6	1.6
Statutory Debt Limit for Debt Incurred	24,831,840	24,831,840	25,138,504	22,934,400
Less: Authorized Bonds, Notes, and Other Obligations Subject to Certain Limitations	21,206,270	21,886,034	21,520,230	18,456,323
Legal Debt Margin	\$ 3,625,570	\$ 2,945,806	\$ 3,618,274	\$ 4,478,077
Legal Debt Margin as a percentage of the debt limit	14.60%	11.86%	14.39%	19.53%
Date Calculation was made	2/15/17	7/1/16	7/1/15	12/15/13

**Source:** State of Connecticut General Obligation Bonds Offering Statement dated May 2017

## State of Connecticut

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<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
\$ 14,334,000	\$ 14,019,100	\$ 14,019,100	\$ 10,927,600	\$ 12,971,100	\$ 12,453,200
<u>1.6</u>	<u>1.6</u>	<u>1.6</u>	<u>1.6</u>	<u>1.6</u>	<u>1.6</u>
22,934,400	22,430,560	22,430,560	17,484,160	20,753,760	19,925,120
<u>18,970,659</u>	<u>15,180,510</u>	<u>15,493,181</u>	<u>15,110,495</u>	<u>14,876,927</u>	<u>14,266,573</u>
<u>\$ 3,963,741</u>	<u>\$ 7,250,050</u>	<u>\$ 6,937,379</u>	<u>\$ 2,373,665</u>	<u>\$ 5,876,833</u>	<u>\$ 5,658,547</u>
<u>17.28%</u>	<u>32.32%</u>	<u>30.93%</u>	<u>13.58%</u>	<u>28.32%</u>	<u>28.40%</u>
7/1/13	2/1/12	10/1/11	2/1/10	2/1/09	2/1/08

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## State of Connecticut

### RATIOS OF OUTSTANDING DEBT BY TYPE

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014
<b>Governmental Activities</b>				
General Obligation Bonds	\$ 18,398,554	\$ 17,394,622	\$ 16,402,537	\$ 15,281,579
Transportation Obligation Bonds	5,041,840	4,519,690	4,089,540	3,771,260
Long-Term Notes	177,120	352,585	520,275	580,775
Capital Leases	30,900	32,342	35,368	37,820
<b>Total Governmental Activities</b>	<u>23,648,414</u>	<u>22,299,239</u>	<u>21,047,720</u>	<u>19,671,434</u>
<b>Business-Type Activities</b>				
Revenue Bonds	1,442,805	1,246,681	1,356,779	1,212,681
<b>Total Business-Type Activities</b>	<u>1,442,805</u>	<u>1,246,681</u>	<u>1,356,779</u>	<u>1,212,681</u>
<b>Total Primary Government</b>	<u>\$ 25,091,219</u>	<u>\$ 23,545,920</u>	<u>\$ 22,404,499</u>	<u>\$ 20,884,115</u>
<b>Debt as a Percentage of Personal Income</b>	9.79%	9.33%	9.08%	8.71%
<b>Amount of Debt Per Capita</b>	\$7,003	\$6,564	\$6,234	\$5,806

**Notes:** Details regarding the State's debt can be found in Note 17 of the financial statements.

### RATIOS OF NET GENERAL BONDED DEBT OUTSTANDING

Last Ten Fiscal Years

*(Expressed in Thousands)*

	2017	2016	2015	2014
General Obligation Bonds	\$ 18,398,554	\$ 17,394,622	\$ 16,402,537	\$ 15,281,579
Transportation Obligation Bonds	5,041,840	4,519,690	4,089,540	3,771,260
Debt Service Fund Balance	(827,125)	(738,240)	(668,426)	(659,543)
<b>Net General Obligation Bonded Debt</b>	<u>\$ 22,613,269</u>	<u>\$ 21,176,072</u>	<u>\$ 19,823,651</u>	<u>\$ 18,393,296</u>
<b>Net General Obligation Debt as a Percentage of Personal Income</b>	8.83%	8.39%	8.04%	7.67%
<b>Amount of Net GO Debt Per Capita</b>	\$6,304	\$5,904	\$5,516	\$5,114

**Notes:** Details regarding the State's debt can be found in Note 17 of the financial statements.

## State of Connecticut

2013	2012	2011	2010	2009	2008
\$ 14,228,228	\$ 13,964,576	\$ 13,794,340	\$ 13,592,708	\$ 13,443,525	\$ 13,092,570
3,461,875	3,287,340	3,357,595	3,030,485	2,817,015	2,790,682
573,365	747,935	915,795	1,143,955	228,160	-
38,218	42,759	42,995	41,702	47,129	51,748
<u>18,301,686</u>	<u>18,042,610</u>	<u>18,110,725</u>	<u>17,808,850</u>	<u>16,535,829</u>	<u>15,935,000</u>
<u>1,376,698</u>	<u>1,439,345</u>	<u>1,556,218</u>	<u>1,498,380</u>	<u>1,601,797</u>	<u>1,358,084</u>
<u>1,376,698</u>	<u>1,439,345</u>	<u>1,556,218</u>	<u>1,498,380</u>	<u>1,601,797</u>	<u>1,358,084</u>
<u>\$ 19,678,384</u>	<u>\$ 19,481,955</u>	<u>\$ 19,666,943</u>	<u>\$ 19,307,230</u>	<u>\$ 18,137,626</u>	<u>\$ 17,293,084</u>
8.53%	8.34%	8.58%	8.68%	8.43%	7.97%
\$5,472	\$5,427	\$5,492	\$5,399	\$5,092	\$4,877

2013	2012	2011	2010	2009	2008
\$ 14,228,228	\$ 13,964,576	\$ 13,794,340	\$ 13,592,708	\$ 13,443,525	\$ 13,092,570
3,461,875	3,287,340	3,357,595	3,030,485	2,817,015	2,790,682
(660,113)	(703,376)	(708,645)	(687,752)	(679,384)	(683,636)
<u>\$ 17,029,990</u>	<u>\$ 16,548,540</u>	<u>\$ 16,443,290</u>	<u>\$ 15,935,441</u>	<u>\$ 15,581,156</u>	<u>\$ 15,199,616</u>
7.38%	7.08%	7.17%	7.17%	7.24%	7.00%
\$4,736	\$4,610	\$4,592	\$4,456	\$4,374	\$4,286

## State of Connecticut

### PLEGED-REVENUE COVERAGE

Last Ten Fiscal Years

(Expressed in Thousands)

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
<b>University of Connecticut and Health Center</b>				
Gross Revenues	\$ 2,629,793	\$ 2,465,794	\$ 2,463,391	\$ 2,236,397
Operating Expenses	<u>2,153,495</u>	<u>2,134,537</u>	<u>2,015,393</u>	<u>1,915,644</u>
Net Available Revenues	<u>\$ 476,298</u>	<u>\$ 331,257</u>	<u>\$ 447,998</u>	<u>\$ 320,753</u>
Debt Service:				
Principal	\$ 90,618	\$ 105,525	\$ 17,764	\$ 17,810
Interest	<u>50,552</u>	<u>68,696</u>	<u>55,306</u>	<u>50,069</u>
Total	<u>\$ 141,170</u>	<u>\$ 174,221</u>	<u>\$ 73,070</u>	<u>\$ 67,879</u>
Coverage	3.37	1.90	6.13	4.73
<b>Board of Regents</b>				
Gross Revenues	\$ 1,364,895	\$ 1,473,844	\$ 835,169	\$ 815,596
Operating Expenses	<u>1,222,393</u>	<u>1,368,422</u>	<u>709,352</u>	<u>651,797</u>
Net Available Revenues	<u>\$ 142,502</u>	<u>\$ 105,422</u>	<u>\$ 125,817</u>	<u>\$ 163,799</u>
Debt Service:				
Principal	\$ 7,493	\$ 20,247	\$ 42,791	\$ 18,052
Interest	<u>13,467</u>	<u>12,158</u>	<u>14,064</u>	<u>11,654</u>
Total	<u>\$ 20,960</u>	<u>\$ 32,405</u>	<u>\$ 56,855</u>	<u>\$ 29,706</u>
Coverage	6.80	3.25	2.21	5.51
<b>Clean Water</b>				
Gross Revenues	\$ 52,818	\$ 46,135	\$ 49,684	\$ 56,751
Operating Expenses	<u>579</u>	<u>925</u>	<u>1,291</u>	<u>3,093</u>
Net Available Revenues	<u>\$ 52,239</u>	<u>\$ 45,210</u>	<u>\$ 48,393</u>	<u>\$ 53,658</u>
Debt Service:				
Principal	\$ 61,232	\$ 73,802	\$ 70,351	\$ 70,603
Interest	<u>32,628</u>	<u>33,811</u>	<u>29,717</u>	<u>32,582</u>
Total	<u>\$ 93,860</u>	<u>\$ 107,613</u>	<u>\$ 100,068</u>	<u>\$ 103,185</u>
Coverage	0.56	0.42	0.48	0.52
<b>Bradley Parking Garage</b>				
Gross Revenues	\$ 27,289	\$ 26,702	\$ 25,578	\$ 24,640
Operating Expenses	<u>22,866</u>	<u>19,778</u>	<u>9,254</u>	<u>8,828</u>
Net Available Revenues	<u>\$ 4,423</u>	<u>\$ 6,924</u>	<u>\$ 16,324</u>	<u>\$ 15,812</u>
Debt Service:				
Principal	\$ 2,580	\$ 2,415	\$ 2,265	\$ 2,120
Interest	<u>2,729</u>	<u>2,442</u>	<u>3,112</u>	<u>2,987</u>
Total	<u>\$ 5,309</u>	<u>\$ 4,857</u>	<u>\$ 5,377</u>	<u>\$ 5,107</u>
Coverage	0.83	1.43	3.04	3.10

**State of Connecticut**

<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
\$ 1,814,856	\$ 1,975,204	\$ 1,774,037	\$ 1,786,129	\$ 1,806,256	\$ 1,577,646
1,738,237	1,669,601	1,673,797	1,569,966	1,592,289	1,482,749
\$ 76,619	\$ 305,603	\$ 100,240	\$ 216,163	\$ 213,967	\$ 94,897
\$ 61,905	\$ 90,400	\$ 95,962	\$ 79,655	\$ 76,148	\$ 74,846
52,254	49,723	52,730	53,523	52,307	15,897
\$ 114,159	\$ 140,123	\$ 148,692	\$ 133,178	\$ 128,455	\$ 90,743
0.67	2.18	0.67	1.62	1.67	1.05
\$ 722,893	\$ 687,772	\$ 702,729	\$ 669,388	\$ 629,832	\$ 631,477
603,660	589,972	588,571	599,792	589,022	568,197
\$ 119,233	\$ 97,800	\$ 114,158	\$ 69,596	\$ 40,810	\$ 63,280
\$ 16,211	\$ 69,526	\$ 32,986	\$ 18,976	\$ 19,163	\$ 18,669
10,300	11,572	11,851	-	-	-
\$ 26,511	\$ 81,098	\$ 44,837	\$ 18,976	\$ 19,163	\$ 18,669
4.50	1.21	2.55	3.67	2.13	3.39
\$ 77,527	\$ 60,032	\$ 59,714	\$ 64,648	\$ 52,232	\$ 50,557
10,971	11,078	9,468	8,502	465	564
\$ 66,556	\$ 48,954	\$ 50,246	\$ 56,146	\$ 51,767	\$ 49,993
\$ 70,578	\$ 70,687	\$ 67,310	\$ 53,745	\$ 46,897	\$ 42,520
33,057	35,226	32,724	37,113	23,635	22,048
\$ 103,635	\$ 105,913	\$ 100,034	\$ 90,858	\$ 70,532	\$ 64,568
0.64	0.46	0.50	0.62	0.73	0.77
\$ 23,029	\$ 21,723	\$ 21,076	\$ 18,792	\$ 20,375	\$ 22,984
9,140	8,287	8,609	8,776	9,039	8,968
\$ 13,889	\$ 13,436	\$ 12,467	\$ 10,016	\$ 11,336	\$ 14,016
\$ 1,990	\$ 1,865	\$ 1,755	\$ 1,650	\$ 1,550	\$ 1,460
3,218	3,172	3,378	3,620	3,437	3,451
\$ 5,208	\$ 5,037	\$ 5,133	\$ 5,270	\$ 4,987	\$ 4,911
2.67	2.67	2.43	1.90	2.27	2.85

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**State of Connecticut**

**PLEDGED-REVENUE COVERAGE (Continued)**

Last Ten Fiscal Years

(Expressed in Thousands)

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
<b>Drinking Water</b>				
Gross Revenues	\$ 16,298	\$ 11,882	\$ 16,134	\$ 29,427
Operating Expenses	<u>9,074</u>	<u>8,257</u>	<u>7,180</u>	<u>8,207</u>
Net Available Revenues	<u>\$ 7,224</u>	<u>\$ 3,625</u>	<u>\$ 8,954</u>	<u>\$ 21,220</u>
Debt Service:				
Principal	\$ 6,653	\$ 7,343	\$ 5,544	\$ 5,727
Interest	<u>3,392</u>	<u>3,199</u>	<u>1,490</u>	<u>1,706</u>
Total	<u>\$ 10,045</u>	<u>\$ 10,542</u>	<u>\$ 7,034</u>	<u>\$ 7,433</u>
Coverage	0.72	0.34	1.27	2.85
<b>Rate Reduction Bonds<sup>1</sup></b>				
Gross Revenues	\$ -	\$ -	\$ -	\$ -
Operating Expenses	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Net Available Revenues	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Debt Service:				
Principal	\$ -	\$ -	\$ -	\$ -
Interest	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Coverage	-	-	-	-

**Notes:** Gross revenues include nonoperating revenue. Operating expenses include nonoperating expenses and exclude depreciation and interest expenses. Revenues for Higher Education funds include transfers in. Revenues for Clean Water and Drinking Water bonds include federal grants.

Rate Reduction Bonds were issued in fiscal year 2005 and retired in fiscal year 2010.

**State of Connecticut**

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<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
\$ 12,786	\$ 9,706	\$ 17,935	\$ 14,714	\$ 10,714	\$ 17,164
5,601	5,032	8,802	7,068	4,184	2,576
\$ 7,185	\$ 4,674	\$ 9,133	\$ 7,646	\$ 6,530	\$ 14,588
\$ 4,952	\$ 4,643	\$ 4,055	\$ 3,964	\$ 2,718	\$ 2,660
2,163	2,391	2,141	2,405	1,794	1,633
\$ 7,115	\$ 7,034	\$ 6,196	\$ 6,369	\$ 4,512	\$ 4,293
1.01	0.66	1.47	1.20	1.45	3.40
\$ -	\$ -	\$ -	\$ -	\$ 18,319	\$ 35,261
-	-	-	-	747	305
\$ -	\$ -	\$ -	\$ -	\$ 17,572	\$ 34,956
\$ -	\$ -	\$ -	\$ -	\$ 110,990	\$ 28,450
-	-	-	-	-	6,436
\$ -	\$ -	\$ -	\$ -	\$ 110,990	\$ 34,886
-	-	-	-	0.16	1.00

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**State of Connecticut**

**DEMOGRAPHIC AND ECONOMIC STATISTICS  
POPULATION AND PER CAPITA PERSONAL INCOME**

Last Ten Calendar Years

*(Expressed in Thousands)*

Year	Population			
	United States	% Growth From Previous Year	Connecticut	% Growth From Previous Year
2017	326,755	0.81%	3,583	-0.11%
2016	324,119	0.57%	3,587	-0.19%
2015	322,273	1.07%	3,594	-0.08%
2014	318,857	0.78%	3,597	0.03%
2013	316,395	0.71%	3,596	0.17%
2012	314,168	0.83%	3,590	0.25%
2011	311,592	0.73%	3,581	0.14%
2010	309,330	0.83%	3,576	0.39%
2009	306,772	0.88%	3,562	0.45%
2008	304,094	0.95%	3,546	0.54%

Sources: U.S. Bureau of Economic Analysis

**DEMOGRAPHIC AND ECONOMIC STATISTICS  
EMPLOYMENT INFORMATION**

Last Ten Fiscal Years

*(Expressed in Thousands)*

Year	United States Labor Force			
	Civilian Labor force	Employed	Unemployed	Unemployment Rate
2017	160,494	153,513	6,981	4.3%
2016	160,135	151,990	8,144	5.1%
2015	157,037	148,739	8,299	5.3%
2014	155,700	146,247	9,453	6.1%
2013	155,835	144,058	11,777	7.6%
2012	155,063	142,974	12,088	7.8%
2011	153,421	139,334	14,087	9.2%
2010	153,741	139,119	14,623	9.5%
2009	154,926	140,196	14,729	9.5%
2008	154,390	145,891	8,499	5.5%

Sources: U.S. Department of Labor

## State of Connecticut

Personal Income		Per Capita Personal Income		% Above the United States
United States	Connecticut	United States	Connecticut	
\$16,384,700,000	\$264,054,000	\$50,144	\$73,696	47.0%
\$15,943,900,000	\$252,249,000	\$49,192	\$70,323	43.0%
\$15,356,000,000	\$246,709,339	\$47,649	\$68,645	44.1%
\$14,792,000,000	\$239,829,273	\$46,391	\$60,906	31.3%
\$14,138,400,000	\$230,614,799	\$44,686	\$64,131	43.5%
\$13,355,900,000	\$233,710,888	\$42,512	\$65,101	53.1%
\$13,017,400,000	\$229,211,506	\$41,777	\$64,008	53.2%
\$12,590,671,000	\$222,404,940	\$40,703	\$62,194	52.8%
\$12,083,900,000	\$215,234,464	\$39,390	\$60,425	53.4%
\$12,002,122,000	\$217,101,744	\$39,468	\$61,224	55.1%

### Connecticut Labor Force

Civilian Labor Force	Employed	Unemployed	Unemployment Rate
1,933	1,836	97	5.0%
1,892	1,796	96	5.1%
1,918	1,809	109	5.7%
1,879	1,753	126	6.7%
1,851	1,702	149	8.0%
1,898	1,728	170	9.0%
1,886	1,715	166	8.8%
1,887	1,721	166	8.8%
1,879	1,731	147	7.8%
1,897	1,795	102	5.4%

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**State of Connecticut**

**DEMOGRAPHIC AND ECONOMIC STATISTICS  
TOP TEN NON-GOVERNMENTAL EMPLOYERS**

Current Year and Ten Years Ago

<b>NAME</b>	<b>2017</b>			<b>2008</b>		
	<b>Employees in CT</b>	<b>Percentage of Total CT Employment</b>	<b>Rank</b>	<b>Employees in CT</b>	<b>Percentage of Total CT Employment</b>	<b>Rank</b>
United Technologies Corp. UTC	20,000	1.1%	1 (1)	26,490	1.5%	1
Stop & Shop Co. LLC	13,574	0.7%	2 (2)	13,574	0.8%	2
Foxwoods Resort Casino	10,500	0.6%	3	12,000	0.7%	5
Aetna Inc.	10,001	0.5%	4	7,300	0.4%	9
Yale University & Health Sys	11,530	0.6%	5	12,163	0.7%	4
Immucor (medical supply)	7,200	0.4%	6		0.0%	
General Dynamics/Electric Boat	6,100	0.3%	8	7,400	0.4%	8
Hartford Hospital	6,053	0.3%	8		0.0%	
Mohegan Sun Casino	6,000	0.3%	9	10,000	0.6%	6
Eversource Energy	5,000	0.3%	10		0.0%	
Hartford Financial Services	5,000	0.3%	10	13,000	0.7%	3
<b>Total</b>	<b>100,958</b>	<b>5.4%</b>		<b>101,927</b>	<b>5.8%</b>	

**Sources:** 2008 - Hartford Business Journal (HBJ), 2017 Infogroup, Omaha, NE

(1) Includes Sikorsky Aircraft, UTC Aerospace, Pratt & Whitney - Business units of UTC.

(2) Omitted from the HBJ survey. The number equals the employees reported by HBJ in 2008.

**State of Connecticut**

**STATE EMPLOYEES BY FUNCTION**

Last Ten Fiscal Years

Function	2017	2016	2015	2014
Primary Government				
Legislative	679	715	722	685
General Government	3,135	3,289	3,360	3,324
Regulation and Protection	3,867	4,074	4,126	4,064
Conservation and Development	1,222	1,269	1,309	1,303
Health and Hospital	3,673	3,814	3,792	3,822
Transportation	3,169	3,179	3,092	3,027
Human Services	4,156	4,690	4,898	4,841
Education, Libraries, and Museums	17,664	19,392	21,263	20,937
Corrections	8,223	8,750	8,721	8,588
Judicial	4,185	4,548	4,639	4,597
Total Number of Employees - Primary Government	<u>49,973</u>	<u>53,720</u>	<u>55,922</u>	<u>55,188</u>

**Note:** The number of employees excludes job classes such as contractors, intermittent, durational, seasonal, trainee, temporary, and part-time employment. The total for the primary government includes the employees of the University of Connecticut, the University of Connecticut Health Center, and the Board of Regents for Higher Education which includes the State University System and the Connecticut Community Colleges.

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## State of Connecticut

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<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
705	716	705	706	713	701
3,107	3,453	3,584	3,630	3,811	3,897
3,945	3,999	4,099	4,088	4,271	4,384
1,324	1,393	1,296	1,293	1,388	1,356
3,857	3,862	3,844	3,925	4,138	7,984
2,986	3,018	3,055	3,070	3,139	3,256
4,618	5,017	5,133	5,175	1,982	2,046
21,203	21,692	20,777	20,225	20,126	20,219
8,628	9,151	9,243	9,539	10,034	10,116
<u>4,605</u>	<u>4,744</u>	<u>4,626</u>	<u>4,601</u>	<u>4,567</u>	<u>4,628</u>
<u><u>54,978</u></u>	<u><u>57,045</u></u>	<u><u>56,362</u></u>	<u><u>56,252</u></u>	<u><u>54,169</u></u>	<u><u>58,587</u></u>

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**State of Connecticut**

**OPERATING INDICATORS BY FUNCTION**

Last Ten Fiscal Years

	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
<b><u>Legislative</u></b>				
<b>Office of Legislative Management</b>				
Number of Public and Special Acts	244	277	258	311
Number of Amendments Drafted	2,587	3,043	2,190	2,756
<b><u>General Government</u></b>				
<b>Office of the State Treasurer</b>				
% of Payments made Electronically	81.9%	81.3%	75.0%	69.6%
Number of Unclaimed Property Claims Paid	15,758	17,888	20,897	17,852
<b>Department of Revenue Services</b>				
% of Income Tax Returns Filed Electronically	87.0%	85.0%	84.0%	82.0%
Revenue Collected per \$1 of Agency Expense	\$264	\$264	\$255	\$256
<b>Department of Construction Services</b>				
Number of Construction Contracts Awarded	231	26	13	n/a
State Floor Space Owned and Leased	9,311,535	8,999,852	9,282,711	n/a
<b><u>Regulation and Protection</u></b>				
<b>Department of Emergency Services &amp; Public Protection</b>				
Number of Background Checks - Firearms	54,944	49,547	61,107	47,745
Number of Fingerprint Checks for CT/Pd's	86,588	88,354	100,145	98,216
<b>Department of Motor Vehicles</b>				
Number of Registered Motor Vehicles	3,671,652	3,030,510	3,026,823	2,272,537
Number of Licensed Drivers	2,613,244	2,566,673	2,542,588	2,534,090
<b>Department of Labor</b>				
Number of Initial Unemployment Claims	148,336	153,040	245,632	265,700
Persons Using Employment Service (1)	47,711	161,637	191,372	218,879
<b><u>Conservation and Development</u></b>				
<b>Department of Energy &amp; Environmental Protection</b>				
Nitrogen Discharged into Long Island Sound (2)	7,562	7,400	7,340	7,500
Attained Goal of Open Space (3)	81.0%	81.0%	84.0%	81.0%
<b><u>Health and Hospitals</u></b>				
<b>Department of Public Health</b>				
Number of Tuberculosis Cases Served (includes active and latent cases)	1,065	1,133	1,236	1,515
Number of Licenses Applications - New	18,811	18,015	17,716	17,116
Number of Licenses Applications - Renewal	161,595	155,251	153,328	153,997
<b>Department of Developmental Services</b>				
Number of Qualified Providers	259	249	250	248
Number of Persons Served in Various Programs	16,724	16,328	16,274	16,037

## State of Connecticut

<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
221	273	217	270	200	256
2,458	3,043	2,717	3,889	2,853	2,977
74.6%	63.4%	68.8%	69.0%	66.1%	64.2%
18,381	17,933	17,360	14,481	16,787	20,930
81.0%	78.0%	75.0%	70.5%	72.4%	70.2%
\$270	\$250	\$203	\$178	\$207	\$207
26	22	28	20	13	28
7,895,255	7,129,801	7,465,869	8,651,460	8,770,901	8,713,211
38,304	33,064	37,194	44,632	29,693	64,766
110,452	138,044	211,163	165,603	178,379	258,111
2,973,691	2,974,801	3,007,638	3,002,772	3,016,521	3,015,867
3,029,328	2,986,267	2,934,576	2,916,143	2,883,324	2,848,602
275,782	335,166	299,563	326,179	261,400	215,404
218,879	228,203	228,283	211,613	170,701	140,922
7,500	7,670	7,670	8,400	9,100	10,558
81.0%	79.0%	81.0%	79.0%	78.0%	78.0%
1,988	2,103	3,006	3,124	2,770	3,498
13,976	14,510	14,899	12,964	12,595	15,439
150,663	149,370	151,205	149,818	123,014	140,973
239	233	204	188	176	184
15,858	15,640	15,495	15,390	15,270	15,148

*continued*

**State of Connecticut**

**OPERATING INDICATORS BY FUNCTION *(Continued)***

Last Ten Fiscal Years

	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
<b><u>Human Services</u></b>				
<b>Department of Social Services</b>				
Number of Medicaid Eligible Clients	735,008	737,490	656,252	610,527
Temp Family Assistance Average Caseload	15,602	17,538	18,256	18,506
<b><u>Education</u></b>				
<b>Department of Higher Education</b>				
Number of Degrees Conferred - Statewide	32,499	n/a	n/a	n/a
Enrollment - Statewide	170,597	n/a	n/a	n/a
<b><u>Transportation</u></b>				
<b>Department of Transportation</b>				
Active Construction Projects	302	279	268	117
Miles of Road Resurfaced	341	445	355	326
Estimated Billions of Persons Using Roadways	4,903	4.882	4.214	4.185
<b><u>Corrections</u></b>				
<b>Department of Corrections</b>				
Incarcerated Population	19,271	16,023	16,551	16,674
Direct Daily Inmate Expenditures	\$73	\$105	\$100	\$95
<b><u>Judicial</u></b>				
<b>Judicial Branch</b>				
Number of Superior Court Cases Filed	535,158	432,803	443,135	443,135
Average Number of Supervised Probationers	54,315	43,510	48,779	48,779

(1) The department of Labor assists individuals in job search, resume preparation, etc.

(2) Average annual number of tons

(3) % of accomplished State goal to acquire 320,957 acres of open space

n/a = statistic not available at time of publication

## State of Connecticut

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<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
581,174	556,558	465,667	434,480	409,960	392,179
19,223	20,517	20,862	20,862	20,203	21,124
n/a	40,218	38,912	38,047	36,634	36,045
n/a	200,637	193,212	191,134	184,544	178,855
102	188	257	281	212	175
340	258	282	215	265	218
4.157	4.353	4.313	4.399	4.302	4,265
16,591	17,631	18,431	19,204	19,482	18,970
\$95	\$95	\$90	\$92	\$90	\$86
468,981	513,511	567,607	563,572	570,497	547,354
50,699	53,345	57,778	56,555	56,500	57,597

**State of Connecticut**

**CAPITAL ASSETS BY FUNCTION**

Last Ten Fiscal Years

(Expressed in Thousands)

		2017	2016	2015	2014
<b>Legislative</b>	<b>Total</b>	<b>\$ 175,443</b>	<b>\$ 175,558</b>	<b>\$ 171,286</b>	<b>\$ 171,283</b>
Buildings		158,920	159,076	157,087	157,087
Equipment		16,523	16,482	14,199	14,195
<b>General Government</b>	<b>Total</b>	<b>\$ 1,197,084</b>	<b>\$ 1,201,502</b>	<b>\$ 1,263,226</b>	<b>\$ 1,254,165</b>
Land		195,019	193,582	192,744	190,216
Construction in Progress		159,258	150,531	188,534	233,319
Buildings		392,715	392,608	392,392	382,840
Improvements Other than Buildings		57,845	54,701	54,016	53,937
Equipment		392,247	410,080	435,540	384,854
<b>Regulation and Protection</b>	<b>Total</b>	<b>\$ 644,256</b>	<b>\$ 621,075</b>	<b>\$ 582,024</b>	<b>\$ 557,330</b>
Land		9,192	9,227	9,227	8,775
Buildings		3,249,689	326,690	326,624	320,719
Improvements Other than Buildings		26,850	27,977	27,496	24,430
Equipment		258,525	257,181	218,677	203,406
<b>Conservation and Development</b>	<b>Total</b>	<b>\$ 680,764</b>	<b>\$ 668,268</b>	<b>\$ 652,381</b>	<b>\$ 630,730</b>
Land		414,666	402,633	389,414	381,167
Buildings		121,711	121,493	121,393	108,731
Improvements Other than Buildings		75,717	75,717	74,992	75,717
Equipment		68,670	68,425	66,582	65,114
<b>Health and Hospital</b>	<b>Total</b>	<b>\$ 314,133</b>	<b>\$ 315,655</b>	<b>\$ 365,287</b>	<b>\$ 358,066</b>
Land		6,645	6,697	6,707	6,752
Buildings		235,373	239,172	289,390	284,411
Improvements Other than Buildings		19,558	19,530	19,013	18,800
Equipment		52,557	50,256	50,177	48,103
<b>Transportation</b>	<b>Total</b>	<b>\$ 24,322,303</b>	<b>\$ 22,745,027</b>	<b>\$ 21,579,682</b>	<b>\$ 20,444,797</b>
Land		1,131,384	1,106,967	1,083,450	1,072,625
Construction in Progress		4,829,184	4,393,784	3,476,307	3,231,739
Buildings		1,105,084	917,872	1,025,616	746,765
Improvements Other than Buildings		236,741	233,234	228,346	211,743
Equipment		1,421,982	1,419,842	1,458,601	1,357,277
Infrastructure		15,597,928	14,673,328	14,307,362	13,824,648
<b>Human Services</b>	<b>Total</b>	<b>\$ 18,320</b>	<b>\$ 17,038</b>	<b>\$ 17,285</b>	<b>\$ 16,841</b>
Improvements Other than Buildings		691	672	667	667
Equipment		17,629	16,366	16,618	16,173
<b>Education, Libraries, and Museums</b>	<b>Total</b>	<b>\$ 1,108,499</b>	<b>\$ 1,082,196</b>	<b>\$ 1,052,735</b>	<b>\$ 1,064,712</b>
Land		1,027	1,027	1,027	1,027
Buildings		1,015,642	990,879	864,538	890,490
Improvements Other than Buildings		220	220	209	209
Equipment		91,610	90,070	186,961	172,986
<b>Corrections</b>	<b>Total</b>	<b>\$ 1,052,226</b>	<b>\$ 1,039,570</b>	<b>\$ 1,031,119</b>	<b>\$ 1,012,802</b>
Land		10,322	10,322	10,322	10,322
Buildings		775,880	775,294	768,283	762,754
Improvements Other than Buildings		49,401	48,991	52,625	52,162
Equipment		216,623	204,963	199,889	187,563
<b>Judicial</b>	<b>Total</b>	<b>\$ 576,661</b>	<b>\$ 505,586</b>	<b>\$ 462,125</b>	<b>\$ 462,672</b>
Land		20,076	17,181	15,601	15,648
Buildings		465,349	398,216	351,219	351,922
Improvements Other than Buildings		5,688	5,663	5,663	5,369
Equipment		85,548	84,526	89,642	89,733
<b>Total Capital Assets at Historical Cost</b>	<b>\$</b>	<b>30,089,689</b>	<b>\$ 28,371,475</b>	<b>\$ 27,177,150</b>	<b>\$ 25,973,398</b>
<b>Total Accumulated Depreciation</b>	<b>\$</b>	<b>(15,205,258)</b>	<b>\$ (14,665,574)</b>	<b>\$ (14,145,909)</b>	<b>\$ (13,433,773)</b>
<b>Governmental Activities, Capital Assets, Net</b>	<b>\$</b>	<b>14,884,431</b>	<b>\$ 13,705,901</b>	<b>\$ 13,031,241</b>	<b>\$ 12,539,625</b>

## State of Connecticut

(restated)					
2013	2012	2011	2010	2009	2008
<b>\$ 170,552</b>	<b>\$ 170,329</b>	<b>\$ 171,245</b>	<b>\$ 168,349</b>	<b>\$ 168,584</b>	<b>\$ 170,185</b>
156,805	156,805	156,805	156,585	156,585	158,449
13,747	13,524	14,440	11,764	11,999	11,736
<b>\$ 1,259,818</b>	<b>\$ 1,017,372</b>	<b>\$ 1,189,407</b>	<b>\$ 1,218,961</b>	<b>\$ 1,154,135</b>	<b>\$ 1,060,383</b>
189,192	193,063	191,400	180,404	160,947	158,454
308,902	144,159	296,604	331,767	379,176	386,317
321,232	297,896	297,821	297,601	244,017	206,930
53,638	54,741	54,741	54,763	54,768	51,319
386,854	327,513	348,841	354,426	315,227	257,363
<b>\$ 481,959</b>	<b>\$ 452,633</b>	<b>\$ 402,401</b>	<b>\$ 395,028</b>	<b>\$ 376,832</b>	<b>\$ 392,819</b>
8,775	8,775	8,837	8,837	8,823	9,980
256,762	236,968	210,755	209,095	201,776	201,412
19,846	19,846	19,837	17,181	17,076	26,580
196,576	187,044	162,972	159,915	149,157	154,847
<b>\$ 614,615</b>	<b>\$ 603,652</b>	<b>\$ 590,538</b>	<b>\$ 571,685</b>	<b>\$ 475,504</b>	<b>\$ 460,286</b>
374,267	366,999	355,989	345,121	248,585	233,759
107,640	107,146	107,653	104,548	104,476	107,762
72,907	70,753	69,317	65,650	63,340	63,699
59,801	58,754	57,579	56,366	59,103	55,066
<b>\$ 357,353</b>	<b>\$ 298,566</b>	<b>\$ 311,328</b>	<b>\$ 304,608</b>	<b>\$ 300,135</b>	<b>\$ 291,844</b>
6,561	6,767	6,911	6,911	6,913	6,892
283,644	227,432	239,079	224,682	222,123	224,808
18,778	16,988	18,757	27,094	26,061	16,767
48,370	47,382	46,581	45,921	45,038	43,377
<b>\$ 19,395,070</b>	<b>\$ 18,343,934</b>	<b>\$ 17,338,101</b>	<b>\$ 16,256,933</b>	<b>\$ 15,637,149</b>	<b>\$ 15,043,055</b>
1,060,109	1,036,517	1,004,641	993,751	942,688	958,763
2,690,602	2,441,123	2,043,549	1,387,610	973,326	956,131
576,030	560,152	543,331	481,206	466,452	479,255
260,263	254,243	246,874	246,075	247,521	246,664
1,155,032	1,028,099	843,984	592,510	740,699	772,476
13,653,034	13,023,800	12,655,722	12,555,781	12,266,463	11,629,766
<b>\$ 16,843</b>	<b>\$ 13,926</b>	<b>\$ 14,142</b>	<b>\$ 14,441</b>	<b>\$ 13,809</b>	<b>\$ 13,807</b>
667	667	667	-	-	-
16,176	13,259	13,475	14,441	13,809	13,807
<b>\$ 977,529</b>	<b>\$ 779,508</b>	<b>\$ 776,143</b>	<b>\$ 773,831</b>	<b>\$ 570,910</b>	<b>\$ 517,232</b>
1,027	1,027	1,027	1,027	1,027	1,027
802,713	608,276	608,276	608,276	406,118	350,948
8,217	8,217	8,217	8,211	8,200	8,079
165,572	161,988	158,623	156,317	155,565	157,178
<b>\$ 1,007,522</b>	<b>\$ 1,010,491</b>	<b>\$ 1,003,179</b>	<b>\$ 975,787</b>	<b>\$ 978,850</b>	<b>\$ 964,442</b>
10,305	10,305	10,351	10,351	10,351	19,351
759,122	756,975	760,336	740,705	737,481	721,522
51,515	51,481	51,140	50,793	51,437	48,863
186,580	191,730	181,352	173,938	179,581	174,706
<b>\$ 456,279</b>	<b>\$ 450,962</b>	<b>\$ 448,899</b>	<b>\$ 454,167</b>	<b>\$ 439,743</b>	<b>\$ 394,221</b>
15,648	15,648	15,648	15,648	14,616	11,616
351,922	351,922	351,830	351,821	343,153	303,080
4,675	3,242	1,740	1,657	1,767	1,755
84,034	80,150	79,681	85,041	80,207	77,770
<b>\$ 24,737,540</b>	<b>\$ 23,141,373</b>	<b>\$ 22,245,383</b>	<b>\$ 21,133,790</b>	<b>\$ 20,115,651</b>	<b>\$ 19,308,274</b>
<b>\$ (12,750,730)</b>	<b>\$ (12,175,489)</b>	<b>\$ (11,321,085)</b>	<b>\$ (10,563,938)</b>	<b>\$ (9,921,291)</b>	<b>\$ (9,280,140)</b>
<b>\$ 11,986,810</b>	<b>\$ 10,965,884</b>	<b>\$ 10,924,298</b>	<b>\$ 10,569,852</b>	<b>\$ 10,194,360</b>	<b>\$ 10,028,134</b>

# UNACCOUNTABLE AND UNAFFORDABLE

UNFUNDED  
PUBLIC  
PENSION  
LIABILITIES  
EXCEED  
**\$ 6 TRILLION**



**Unaccountable and Unaffordable 2017**

Unfunded Public Pension Liabilities Top \$6 Trillion

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**Acknowledgments and Disclaimers**

The authors wish to thank Lisa B. Nelson, Christine Phipps, Christine Smith and the professional staff at ALEC for their valuable assistance with this project.

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## INTRODUCTION

Absent significant reforms, unfunded liabilities of state-administered pension plans will continue to grow and threaten the financial security of state retirees and taxpayers alike. The fiscal calamity could be far deeper and prolonged than the Great Recession.

*Unaffordable and Unaccountable 2017* surveys the more than 280 state-administered public pension plans, detailing their assets and liabilities. The unfunded liabilities (the amount by which the present value of liabilities exceeds current assets) are reported using the investment return assumptions used by states, along with alternative measures more consistent with prudent risk management and more reasonable long-term market performance expectations. This report clearly illuminates the pervasive pension underfunding across the nation and details the assumptions and trends contributing to this crisis.

The opening section outlines the valuation and reporting standards states must follow and provides an overview of the scope of the nation's pension crisis in terms of absolute and per capita underfunding. This section also calculates state pension plan funding ratios by revaluing the liabilities of each pension plan according to a risk-free rate of return assumption (the rate of return obtainable by investing in a risk-free asset, typified by United States government debt). This chapter also discusses the correlation between the best funded states and pro-growth policies.

The second section explores how discount rates (generally the assumed rate of future investment returns on fund assets) should function theoretically and examines which systems adjusted their discount rates between 2015 and 2016. The authors also explore the impact of incentives and political posturing on pension management and performance. Sensitivity analysis is used to convey the importance of discount rate assumptions in determining the extent of the underfunding problem.

The third section explains the mathematics and financial economics behind how we calculate unfunded liabilities. The methodology in this report presents a more comprehensive picture of the problem, which is often obscured by the states' flawed reporting of liabilities.

Section four contrasts states that provide clear, accessible, and timely reporting of their pension plans' financial details with those engaged in a combination of rare and sporadic reporting, confusing or minimal coverage or purposeful efforts to conceal or obfuscate their reports.

Lastly, section five reviews states that have taken substantive steps to reform pension policy. Using case studies from Michigan and Pennsylvania, the section explores possible routes to pension solvency.

It is our hope that providing a more realistic picture of unfunded pension liabilities across the states will convey the urgency and seriousness of this issue to taxpayers, retirees, and legislators alike.

## SECTION 1: THE SCOURGE OF UNFUNDED PENSION LIABILITIES

Unfunded liabilities of public pension plans continue to loom over state governments nationwide. If net pension assets are determined using more realistic investment return assumptions, pension funding gaps are much wider than even the large sums reported in state financial documents. Unfunded liabilities (using a risk-free rate of return assumption) of state-administered pension plans now exceed \$6 trillion—an increase of \$433 billion since our 2016 report. The national average funding ratio is a mere 33.7 percent, amounting to \$18,676 dollars of unfunded liabilities for every resident of the United States.

Much of this problem is due to state governments failing to make their annually required contributions (ARC). The ARC represents the annual appropriation needed to invest in order to cover the cost of future pension obligations accrued in the current, along with amortization of prior unfunded liabilities. The National Association of State Retirement Administrators (NASRA) has called the ARC the “unofficial measuring stick of the effort states and local governments are making to fund their pension plans.”<sup>i</sup> Unfortunately, the vast majority of states consistently fail to make full ARC payments; some even skip payments altogether. According to a 2017 Pew Charitable Trusts report, only 32 states in FY 2015 made pension fund contributions sufficient enough to diminish accrued unfunded liabilities (“positive amortization”).<sup>ii</sup> Each contribution that a state skips must be made up in the future, along with unrealized investment returns.

Current state workers and retirees are not the only people affected by this unfunded pension crisis. Taxpayers ultimately provide the wages for public sector employees and the financial resources to cover the promised benefits of traditional pension plans. And all residents are impacted when pension costs absorb limited government resources, rather than core government services such as education, public safety, and roads.

### Nationwide, Liabilities Obscured by Accounting Assumptions

Faulty accounting and reporting methods obscure the magnitude of unfunded liabilities. Partly in response to the devastating impact of the Great Recession, the Governmental Accounting Standards Board (GASB) made two significant changes in 2012 (Statement No. 67, *Financial Reporting for Pension Plans* and Statement No. 68, *Accounting and Financial Reporting for Pensions*) to the methods used for measuring the financial health of pension plans. GASB intended these changes to increase transparency, consistency, and comparability of pension information. Public pensions are now required to report their assets and liabilities using a standardized actuarial cost method, to disclose investment returns, and to include unfunded pension liabilities on state balance sheets.

Unfortunately, states have found ways to work around these requirements and paint an unrealistically rosy picture of their pension funding status.

Pension promises for future years are discounted by an assumed rate of return to determine the present value of those future obligations. The higher this expected rate of return, the lower the value of current investment assets needed to ensure sufficient funds to pay promised future benefits. According to public finance scholars Robert Novy-Marx and Joshua D. Rauh, “states use discount rates that are unreasonably high.”<sup>iii</sup> As former Social Security Administration deputy commissioner Andrew Biggs and economist Kent Smetters have

explained, “No matter how well a pension plan manages its investments, it cannot generate 8 percent returns with certainty.”<sup>iv</sup>

Unfortunately, the plans analyzed in *Unaccountable and Unaffordable 2017* have not heeded this warning. Collectively, the unweighted average assumed discount rate for these plans is 7.34 percent. In effect, these state governments are relying on unlikely long-term investment gains to remedy decades of underfunding the pension funds.

The Center for State Fiscal Reform at ALEC analyzes the annual official financial documents of more than 280 state-administered pension plans using more realistic investment return assumptions in order to gain a clearer picture of the pension problem. The unfunded liabilities of each pension plan are revalued using a discount rate equal to a risk-free rate of return, best represented by debt instruments issued by the United States government. This year’s study uses a risk-free rate of 2.142 percent, derived from an average of the 10- and 20-year U.S. Treasury bond yields over the course of 12 months spanning April 2016 to March 2017. Based on these revised investment return assumptions, we report on total unfunded pension liability, unfunded pension liabilities per capita, and the funding ratio of these plans.

### **Total Unfunded Pension Liability**

Total unfunded pension liability reveals the fiscal strain on state budgets in raw dollar terms. Even in the best-case scenario, all states have significant funding gaps. Smaller states, such as South Dakota or Wyoming, employ fewer workers and thus face smaller burdens. More populous states with larger government workforces tend to have the largest unfunded liabilities. California, for example, has more than \$987 billion in unfunded liabilities.

### **Unfunded Pension Liabilities Per Capita**

Unfunded pension liabilities per capita is another alarming facet of pension funding. This metric reveals the personal share of liability for every resident in each state, an indicator of the severity of the taxes to be borne now or in the future by each taxpayer for promises made but not funded. In Alaska, each resident is on the hook for a staggering \$45,689, the highest in the nation. Connecticut, Ohio, Illinois, and New Mexico follow for the five highest per person unfunded pension liabilities.

### **The Funding Ratio**

The funding ratio is the most important measure of a pension fund’s health. Applying the estimated risk-free rate of return to the actuarial assets and actuarial liabilities reported by pension plans generates a more realistic estimate of each state’s funding ratio.

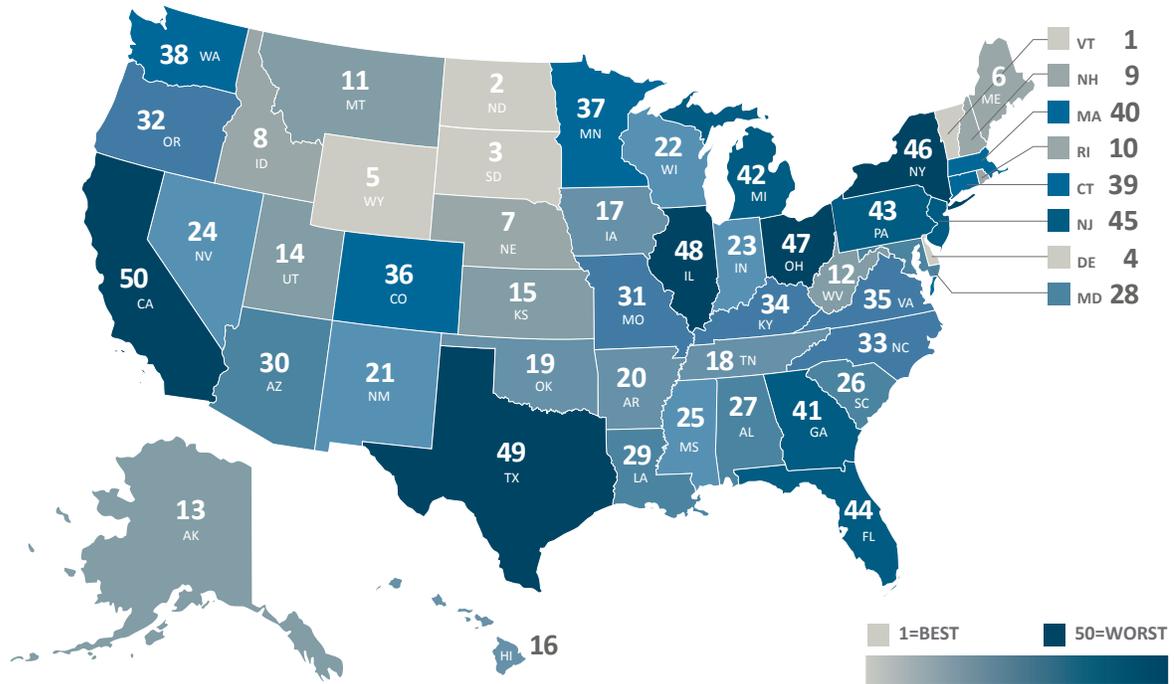
A relatively higher funding ratio enables a pension fund to better withstand periodic economic shocks without placing future benefits at risk. The Pension Protection Act of 2006 attempted to provide greater security to private sector defined-benefit (DB) pension plans by articulating acceptable funding ratio levels. The Government Accountability Office (GAO) explained in testimony to the Joint Economic Committee, “The Pension Protection Act of 2006 provided that large private sector pension plans will be considered at risk of defaulting on their liabilities if they have less than 80 percent funding ratios under standard actuarial

assumptions and less than 70 percent funding ratios under certain additional “worst-case” actuarial assumptions.”<sup>v</sup> By 2011, this standard was fully phased in for private DB plans.

However, the Pension Protection Act does not apply to public sector DB pension plans. If the Pension Protection Act were applied to the public sector, every single state would be considered at risk of defaulting on their pension obligations assuming a risk-free rate of return. Even using the official optimistic return assumptions, 35 states would fall short of the standard.

Keep in mind, this 80 percent standard still falls far short of guidance provided by the American Academy of Actuaries. According to the Academy, “Pension plans should have a strategy in place to attain or maintain a funded status of 100percent or greater over a reasonable period of time.”<sup>vi</sup>

FIGURE 1, TABLE 1 | Total Unfunded Liabilities of Public Pension Plans

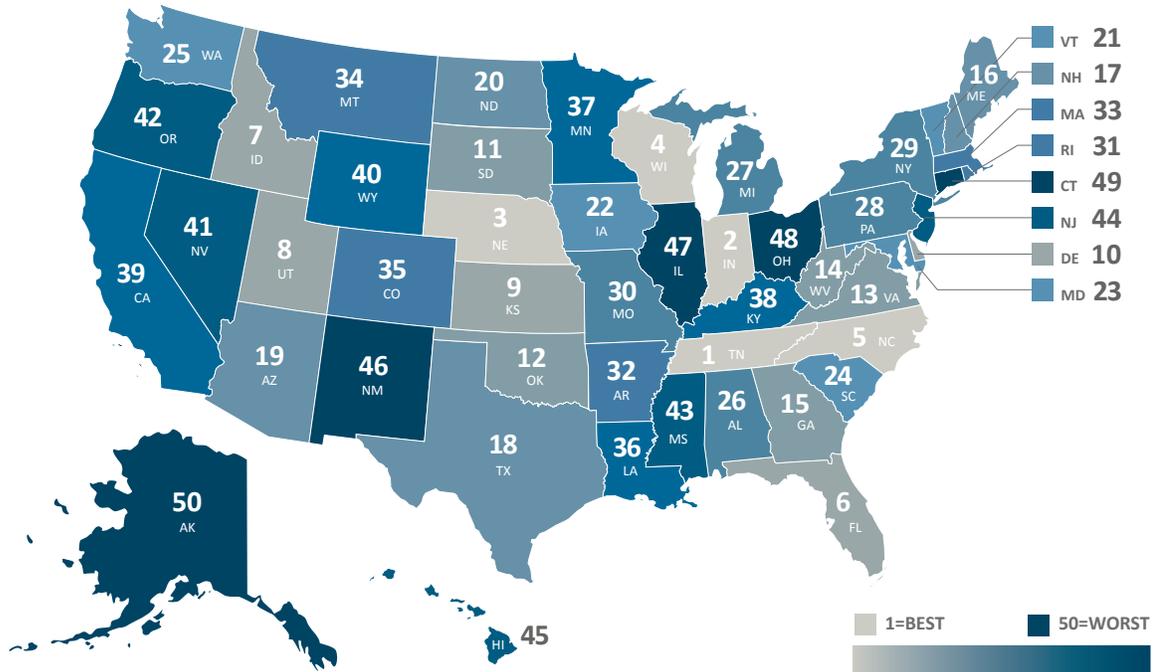


RANK		STATE	UNFUNDED LIABILITIES	
2017	2016		2016 REPORT	2017 REPORT
1	1	Vermont	\$8,707,979,583	\$9,508,596,530
2	2	North Dakota	\$10,213,597,800	\$11,531,251,530
3	4	South Dakota	\$11,286,522,172	\$11,710,286,670
4	3	Delaware	\$11,262,866,330	\$12,699,612,355
5	5	Wyoming	\$13,642,969,825	\$14,831,573,219
6	9	Maine	\$17,676,038,583	\$18,547,934,726
7	8	Nebraska	\$17,367,830,965	\$18,688,179,588
8	6	Idaho	\$16,572,789,476	\$18,849,519,045
9	7	New Hampshire	\$17,320,649,176	\$18,958,166,864
10	10	Rhode Island	\$18,636,960,291	\$19,724,353,926
11	11	Montana	\$19,496,700,717	\$20,986,614,425
12	12	West Virginia	\$23,640,020,456	\$25,091,326,534
13	13	Alaska	\$31,715,653,280	\$33,896,375,418
14	15	Utah	\$37,987,328,775	\$37,459,414,421
15	16	Kansas	\$40,737,986,356	\$38,541,732,859
16	14	Hawaii	\$35,136,593,006	\$40,089,375,714
17	18	Iowa	\$46,424,775,242	\$50,409,077,210
18	19	Tennessee	\$47,826,122,962	\$50,553,359,525
19	20	Oklahoma	\$51,903,613,095	\$53,161,039,762
20	17	Arkansas	\$43,976,220,971	\$58,430,317,385
21	22	New Mexico	\$54,455,339,568	\$58,515,336,352
22	21	Wisconsin	\$52,842,437,646	\$59,602,602,815
23	23	Indiana	\$56,748,217,042	\$60,569,292,356
24	25	Nevada	\$69,697,815,811	\$76,106,755,581
25	24	Mississippi	\$64,300,123,348	\$80,403,262,959

RANK		STATE	UNFUNDED LIABILITIES	
2017	2016		2016 REPORT	2017 REPORT
26	26	South Carolina	\$74,095,092,870	\$81,919,035,841
27	27	Alabama	\$74,957,966,779	\$82,106,200,573
28	29	Maryland	\$93,343,409,896	\$99,156,426,748
29	30	Louisiana	\$94,320,807,435	\$100,246,142,253
30	28	Arizona	\$90,710,340,087	\$102,397,274,547
31	35	Missouri	\$99,369,429,995	\$107,494,591,707
32	33	Oregon	\$97,781,712,858	\$109,451,211,506
33	32	North Carolina	\$96,402,637,555	\$111,048,459,937
34	31	Kentucky	\$95,946,947,928	\$111,369,923,048
35	37	Virginia	\$107,648,590,922	\$114,619,581,764
36	36	Colorado	\$106,382,900,927	\$118,394,342,516
37	39	Minnesota	\$110,474,025,601	\$118,715,398,465
38	38	Washington	\$107,740,838,715	\$120,597,886,756
39	34	Connecticut	\$99,299,024,840	\$127,788,768,899
40	41	Massachusetts	\$126,677,266,263	\$134,901,320,203
41	40	Georgia	\$122,645,214,077	\$143,074,967,721
42	42	Michigan	\$156,941,092,013	\$168,132,867,620
43	44	Pennsylvania	\$211,586,194,586	\$223,173,807,897
44	43	Florida	\$210,153,896,482	\$226,527,273,092
45	45	New Jersey	\$235,489,469,324	\$248,712,244,965
46	47	New York	\$347,542,971,698	\$345,252,415,832
47	46	Ohio	\$331,420,701,160	\$354,683,017,278
48	49	Illinois	\$362,646,966,724	\$388,342,219,353
49	48	Texas	\$360,396,676,526	\$397,325,058,758
50	50	California	\$956,081,787,553	\$987,774,192,764

Source: Data are based on ALEC Center for State Fiscal Reform's calculations. To read the full report and methodology, see [ALEC.org/PensionDebt2017](http://ALEC.org/PensionDebt2017)

FIGURE 2, TABLE 2 | Unfunded Liabilities Per Capita of Public Pension Plans

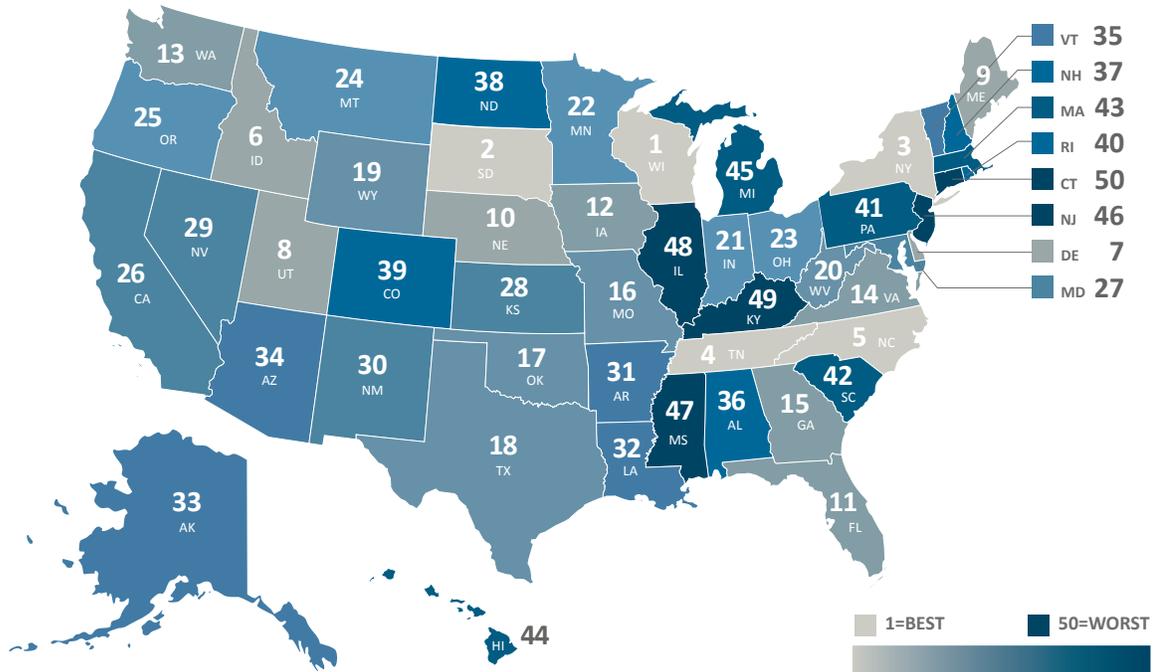


RANK		STATE	UNFUNDED LIABILITIES PER CAPITA	
2017	2016		2016 REPORT	2017 REPORT
1	1	Tennessee	\$7,252	\$7,601
2	2	Indiana	\$8,582	\$9,131
3	4	Nebraska	\$9,171	\$9,799
4	3	Wisconsin	\$9,161	\$10,314
5	5	North Carolina	\$9,606	\$10,944
6	7	Florida	\$10,381	\$10,990
7	6	Idaho	\$10,027	\$11,199
8	10	Utah	\$12,702	\$12,277
9	21	Kansas	\$14,015	\$13,257
10	8	Delaware	\$11,930	\$13,339
11	15	South Dakota	\$13,156	\$13,531
12	16	Oklahoma	\$13,283	\$13,549
13	12	Virginia	\$12,865	\$13,626
14	11	West Virginia	\$12,840	\$13,703
15	9	Georgia	\$12,025	\$13,877
16	17	Maine	\$13,296	\$13,930
17	13	New Hampshire	\$13,022	\$14,203
18	14	Texas	\$13,139	\$14,260
19	18	Arizona	\$13,305	\$14,774
20	19	North Dakota	\$13,495	\$15,214
21	20	Vermont	\$13,909	\$15,224
22	23	Iowa	\$14,870	\$16,081
23	27	Maryland	\$15,570	\$16,481
24	25	South Carolina	\$15,137	\$16,512
25	24	Washington	\$15,047	\$16,547

RANK		STATE	UNFUNDED LIABILITIES PER CAPITA	
2017	2016		2016 REPORT	2017 REPORT
26	26	Alabama	\$15,443	\$16,883
27	28	Michigan	\$15,824	\$16,935
28	30	Pennsylvania	\$16,541	\$17,457
29	31	New York	\$17,600	\$17,485
30	29	Missouri	\$16,354	\$17,642
31	32	Rhode Island	\$17,655	\$18,671
32	22	Arkansas	\$14,768	\$19,553
33	33	Massachusetts	\$18,672	\$19,804
34	34	Montana	\$18,891	\$20,131
35	35	Colorado	\$19,524	\$21,369
36	37	Louisiana	\$20,202	\$21,412
37	36	Minnesota	\$20,151	\$21,507
38	39	Kentucky	\$21,685	\$25,100
39	43	California	\$24,519	\$25,166
40	40	Wyoming	\$23,259	\$25,331
41	41	Nevada	\$24,169	\$25,886
42	42	Oregon	\$24,296	\$26,738
43	38	Mississippi	\$21,509	\$26,902
44	46	New Jersey	\$26,355	\$27,806
45	44	Hawaii	\$24,655	\$28,063
46	45	New Mexico	\$26,176	\$28,119
47	48	Illinois	\$28,246	\$30,336
48	49	Ohio	\$28,558	\$30,538
49	47	Connecticut	\$27,701	\$35,731
50	50	Alaska	\$42,992	\$45,689

Source: Data are based on ALEC Center for State Fiscal Reform's calculations. To read the full report and methodology, see [ALEC.org/PensionDebt2017](http://ALEC.org/PensionDebt2017)

FIGURE 3, TABLE 3 | Funding Ratio of Public Pension Plans



RANK		STATE	FUNDING RATIO	
2017	2016		2016 REPORT	2017 REPORT
1	1	Wisconsin	63.4%	61.5%
2	3	South Dakota	47.8%	48.1%
3	6	New York	44.9%	46.3%
4	4	Tennessee	47.3%	45.9%
5	2	North Carolina	47.9%	45.0%
6	5	Idaho	46.5%	43.2%
7	7	Delaware	44.7%	42.4%
8	9	Utah	41.7%	41.5%
9	8	Maine	42.1%	41.4%
10	11	Nebraska	40.3%	39.7%
11	10	Florida	40.5%	39.1%
12	13	Iowa	39.8%	38.8%
13	12	Washington	39.9%	38.2%
14	15	Virginia	37.4%	37.1%
15	14	Georgia	38.8%	36.2%
16	16	Missouri	36.9%	35.9%
17	23	Oklahoma	34.9%	35.6%
18	17	Texas	36.9%	35.6%
19	18	Wyoming	36.6%	35.5%
20	22	West Virginia	35.5%	35.0%
21	24	Indiana	34.8%	34.1%
22	25	Minnesota	34.5%	33.5%
23	26	Ohio	34.3%	33.4%
24	27	Montana	33.6%	33.3%
25	20	Oregon	36.3%	33.2%

RANK		STATE	FUNDING RATIO	
2017	2016		2016 REPORT	2017 REPORT
26	21	California	35.6%	32.9%
27	28	Maryland	33.1%	32.5%
28	38	Kansas	29.9%	32.1%
29	29	Nevada	32.7%	32.1%
30	30	New Mexico	32.1%	31.4%
31	19	Arkansas	36.4%	31.1%
32	32	Louisiana	31.3%	30.9%
33	31	Alaska	31.4%	30.2%
34	33	Arizona	31.2%	29.5%
35	34	Vermont	30.4%	29.4%
36	35	Alabama	30.3%	29.3%
37	43	New Hampshire	28.0%	28.8%
38	42	North Dakota	28.9%	28.7%
39	36	Colorado	30.3%	28.6%
40	39	Rhode Island	29.6%	28.6%
41	41	Pennsylvania	28.9%	28.1%
42	37	South Carolina	30.1%	28.0%
43	45	Massachusetts	27.7%	27.2%
44	40	Hawaii	29.2%	27.2%
45	46	Michigan	27.5%	26.9%
46	47	New Jersey	26.9%	25.7%
47	44	Mississippi	27.9%	24.2%
48	48	Illinois	23.8%	23.3%
49	49	Kentucky	23.4%	20.9%
50	50	Connecticut	22.8%	19.7%

Source: Data are based on ALEC Center for State Fiscal Reform's calculations. To read the full report and methodology, see [ALEC.org/PensionDebt2017](http://ALEC.org/PensionDebt2017)

## The Best

Relative to other states, Wisconsin is in a league of its own with a 61.5 percent funding ratio (using a risk-free rate of return assumption). The next most responsibly managed state pension system, South Dakota, is 13 percentage points less funded than Wisconsin. The state of Wisconsin does far better than others in pursuing retirement security to current and past employees, alongside fiscal responsibility to taxpayers.

Wisconsin's relatively high funding ratio is due in large part to the unique design of the state's hybrid pension. A typical hybrid pension has a traditional DB and a defined-contribution (DC) 401(k) benefit, the proportions of which vary from plan to plan. Wisconsin's hybrid plan does not have a 401(k) benefit portion, but instead pays an annual dividend based on the health of the pension fund and the age of the retiree.<sup>vii</sup> Unlike a traditional DB plan, which provides a payout regardless of fund performance, a performance shortfall does not necessitate higher employee and/or taxpayer contributions to make up an additional gap between assets and liabilities. With this hybrid plan, underperformance simply results in a lower annual dividend, avoiding an underfunding issue.

## The Worst

Connecticut ranks last with a dismal 19.7 percent funding ratio, down 3.1 percentage points from last year. Connecticut is one of four states to set retiree benefits through collective bargaining and is unique in that the legislature does not have to consent to contracts for them to go into effect.<sup>viii</sup> A total of 124 contracts have been passed without a vote in either chamber in the legislature.<sup>ix</sup>

Under these rules, politicians can abstain from making politically difficult decisions needed to protect taxpayers from future pension fund bailouts and retirees from the consequences of a future pension default. Such decisions could anger current public sector union membership, placing personal political careers at risk. In late 2016, Gov. Dan Malloy came to an agreement with the state employees union to extend the amortization period of the official unfunded liability to 2046. In other words, the state will delay paying down these liabilities.<sup>x</sup> Because the fund will have relatively fewer assets generating investment income over the next two decades as a result of this delay, a combination of higher taxes, reduced state services, and pension benefits cuts becomes more likely in future years. In addition, Connecticut continues to use an assumed rate of return in excess of 8 percent to estimate unfunded liabilities—more than 5.8 percentage points higher than the risk-free rate of return. Such baseless optimism threatens the state's fiscal solvency.

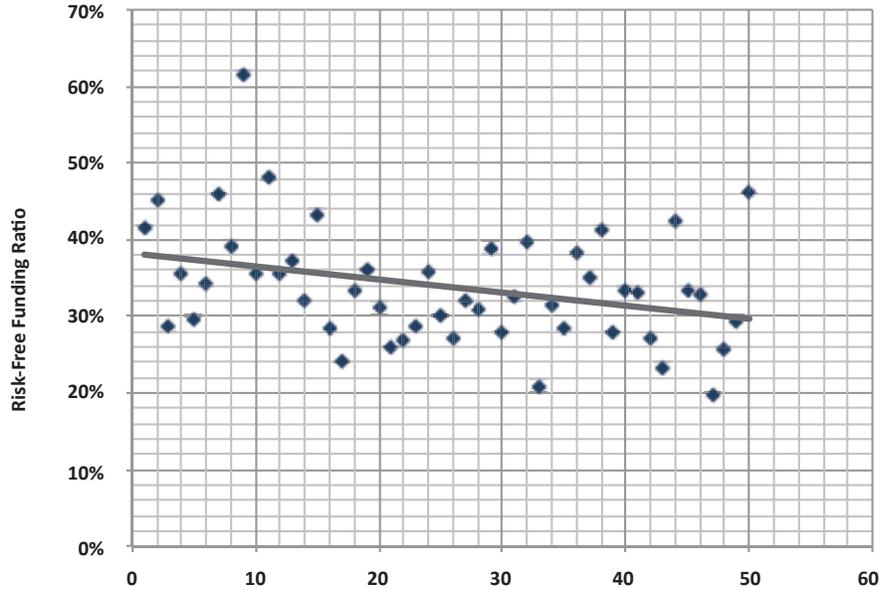
## Fiscal Responsibility and Pro-Growth Policies

States that display fiscal responsibility and adopt pro-growth policies tend to have a higher funding ratio than states that do not. The American Legislative Exchange Council's annual *Rich States, Poor States* publication projects economic performance outlook for each state based on 15 policy variables, demonstrably associated with growth in migration, jobs, and income. The measure has been cross validated by the Mercatus Center's *State Fiscal Rankings* publication, which correlates closely with *Rich States, Poor States* rankings.<sup>xi</sup>

In Figure 4, the average funding ratio of each state between 2015 and 2016 is displayed against the state's average *Rich States, Poor States* rank for the same years. A trend line highlights the direction of the

relationship. States with a positive *Rich States, Poor States* ranking tend to have higher funding ratios, protecting their state employees from reduced benefits and their residents from higher taxes.

FIGURE 4 | Higher Risk-Free Funding Ratios Positively Correlates with More Competitive Economic Outlooks



Economic Outlook Ranking in Rich States, Poor States ALEC-Laffer Economic Competitiveness Index

Several possible causes could explain the correlation between state rankings and their respective funding ratios. Perhaps most importantly, an expanded tax base resulting from accelerated economic growth can yield revenue growth exceeding the rising costs of state and local government. The additional revenue generated may be used to meet pension investment obligations more consistently.

Lack of proper funding and artificially high estimates of future returns have prodded many pension funds into chasing higher returns. For instance, managers have shifted from fixed-income instruments (such as T-bonds and high-grade corporate bonds) to publicly traded equity and also to alternative investments. This alternatives class of investments (including private placement equity, real estate, and hedge funds) is particularly problematic. Although an opportunity for outsized gains may exist, these investments are often riskier, more difficult to value, and less liquid. Financial reporting standards or public documentation may be lacking as well. This added complexity also makes management of such investments more expensive.<sup>xii</sup>

Unfortunately for taxpayers, workers, and retirees, the growing problems of pension reporting and funding plague states nationwide. We hope that by clearly illustrating the current level of unfunded liabilities and the trends leading to its growth, the public and the lawmakers who serve them will begin to take meaningful steps toward pension reform. Addressing overly-optimistic assumptions, committing to annually required contributions, and considering modern alternatives to traditional pension plans are the only way forward.

## SECTION 2: PENSIONS, POLITICS, AND INCENTIVES

While most of the public employee retirement debate revolves around the structure and funding of plans, the area of actuarial assumptions desperately needs reform. The current pension crisis stems from overt mismanagement, failures to meet the actuarially required contribution, and subtle mismanagement, such as outdated mortality tables and unrealistic actuarial assumptions. The use of overly-optimistic discount rates cannot be attributed to ignorance. Federal regulators require private sector pension managers to use a discount rate of approximately 4.5 percent, but turn a blind eye to the 7 or 8 percent assumed rates used by public sector managers.<sup>xiii</sup> Instead, the use of these unrealistically high assumed rates is likely the result of fund managers, politicians, and union leaders pursuing their self-interest. An inflated assumption of future returns artificially lowers the ARC for the current year by exaggerating the expected future value of current pension assets.

### Discount Rates

The most important statistic in evaluating a pension's health is its funding ratio, which consists of the pension's current assets divided by the present value of its liabilities. The present value of liabilities is determined by the discount rate, sometimes referred to as the assumed rate of return. The discount rate formula is nearly identical to the compounding interest rate formula. As with compounding interest and future value, a small change in the discount rate has a massive impact on present value, and thus the funding ratio.

Private and public sector pension funds calculate their discount rates in different ways. Generally, private sector pensions must base theirs on trends in the bond market whereas public sector pensions use their historic rates of return.<sup>xiv</sup> As a result, private sector pension funds usually have more conservative assumed rates of return, which increase their annual required contributions and diminish the risk of insolvency. Conversely, public pension plans continue to assume excessively optimistic rates of return. Between 2000 and 2016, the average assumed rate of return was 7.83 percent, whereas the actual rate was nearly a point lower, 6.99 percent.<sup>xv</sup>

Table 4 contrasts funding ratios for each state utilizing each state's self-reported assumed rate of return, and a risk-free rate of 2.142 percent (the yield of a synthetic 15-year Treasury bond). "Normalizing" funding ratios to a uniformly applied discount rate alters the ranked health of public pension funds. For example, South Dakota reports having a slightly higher funding ratio than Wisconsin. However, normalizing the discount rate reveals South Dakota's pension plans to be far less funded than Wisconsin's.

The public sector estimates of future returns are woefully delayed in responding to market reality. While 46 percent of pension funds reduced their discount rates to reflect poorer-than-expected returns over the past two decades, their reaction is too little too late. Even the lower rates adopted in 2016 are well above the risk-free rate that would protect taxpayers from having to bail out pension plans.

TABLE 4 | Normalizing Funding Ratios to a Risk-Free Rate of Return Yields Noteworthy Results

STATE	OFFICIAL FUNDING RATIO USING REPORTED ARR	FUNDING RATIO USING RISK-FREE RATE	STATE	OFFICIAL FUNDING RATIO USING REPORTED ARR	FUNDING RATIO USING RISK-FREE RATE
AK	70%	30%	MT	74%	33%
AL	60%	26%	NC	94%	45%
AR	70%	31%	ND	65%	29%
AZ	67%	29%	NE	91%	40%
CA	70%	33%	NH	60%	29%
CO	60%	29%	NJ	57%	26%
CT	47%	20%	NM	70%	31%
DE	86%	42%	NV	74%	32%
FL	85%	39%	NY	95%	46%
GA	78%	35%	OH	74%	33%
HI	55%	27%	OK	76%	36%
IA	84%	39%	OR	72%	33%
ID	87%	43%	PA	58%	28%
IL	47%	23%	RI	61%	29%
IN	66%	34%	SC	60%	28%
KS	67%	32%	SD	100%	48%
KY	44%	21%	TN	99%	46%
LA	68%	31%	TX	81%	36%
MA	59%	27%	UT	86%	41%
MD	71%	33%	VA	75%	37%
ME	82%	41%	VT	67%	29%
MI	62%	27%	WA	84%	38%
MN	77%	36%	WI	100%	62%
MO	81%	36%	WV	75%	35%
MS	54%	24%	WY	79%	35%

The differences between private and public pension management show different postures toward risk, with the former being forced into conservative investments while the latter takes a remarkably optimistic view of the market. The California Public Employees' Retirement Systems' (CalPERS) two-tiered treatment of pension plans illustrates how management differences cannot be attributed to ability or sector, but are a response to incentives.

CalPERS implicitly recognizes these return assumptions may be grossly exaggerated. Using the risk-free rate of 2.14 percent, CalPERS currently faces more than \$987 billion in unfunded liabilities. But CalPERS uses a 7.5 percent discount rate to value its liabilities. Because of this, the reported net pension liability in California far lower in FY 2015, at just \$174 billion. Many municipalities are attempting to withdraw from the struggling fund, a tacit recognition of the dire situation. But CalPERS only permits an exit if the municipality agrees to lower its discount rate to 3.8 percent.<sup>xvi</sup> This rate is far closer to a risk-free rate than CalPERS' rate. The increased annual contributions required by the lower discount rate diminish the prospects of CalPERS from bailing out a municipal government's pension plan.

If CalPERS admits the efficacy of a 3.8 percent discount rate (rather than 7.5 percent) in shielding itself from municipal mismanagement, why not apply the same rate to its own pension funds in order to protect California taxpayers from state mismanagement?

### **Incentives and Political Capital**

CalPERS' two-tiered treatment is only inconsistent from the perspective of the taxpayer; public pension fund managers, politicians, and union leaders support a higher-than-realistic discount rate because it is in their self-interest. All parties, except for the taxpayer, gain some short-term benefit from a high discount rate. Optimistic assumed rates of return for a pension fund translate into a lower ARC, and therefore smaller payroll contributions from workers and employers.

Minimizing pension contributions through a high discount rate, likely underfunding the plan, can be appealing to politicians. Pension contributions compete with revenue for other functions of government, but do not produce the accolades of a new construction project or social service program. Increasing the discount rate beyond realistic expectations allows a politician to seemingly maintain the support of public sector employees through generous pension benefits while shouldering future taxpayers, and elected officials, with the financial burden of these decisions. Meanwhile, the funds that should have been invested in order to meet future obligations are presently diverted to provide more visible public services or maintain relatively lower tax rates on unsuspecting residents. Through this process, fiscal reckoning is pushed into the future.

Across the pension bargaining table from politicians are union leaders with a self-interest in underestimating the annually required contribution needed to fund the pension promises to future retirees. The apparent immediate costs of an increase in promised future benefits can be masked by simply using a higher assumed rate of return on existing pension fund investments. For instance, applying an 8 percent discount rate rather than a 4 percent discount rate reduces the projected cost of a more comprehensive retiree healthcare plan by about two-thirds over time. Both the politician and the union negotiator have incentives to underestimate the costs and underfund promised pension benefits.

Even absent political pressures, pension fund managers and boards have incentives to maintain high discount rates. Regardless of whether such a reality exists, reducing a discount rate lowers the reported funding ratio and may imply poor investment management. A declining funding ratio paired with such accusations from both labor leaders and politicians can cost a manager or investment board executive their position.

The tensions between good financial management and politics are rarely made explicit. However, the reactions to a recent audit of the Public Employees Retirement System of Mississippi trace an outline of the various incentives.<sup>xvii</sup> The audit found that the discount rate was unrealistically high. Pat Robertson, the Executive Director of the Public Employees Retirement System of Mississippi, acknowledged this but explained the funding ratio would deteriorate under a more realistic discount rate, resulting in higher required contributions. The concern of rising pension costs exemplifies the impact of external politics. Comments from the Mississippi Alliance of State Employees President Brenda Scott made it clear that any increase in the annual contribution should come from the employer, or ultimately the taxpayer. The latter concern reveals the lengths the pension board is willing to go for self-preservation. A disinterested manager would aim for accuracy without preoccupation with the appearance of a lower funding ratio.

Data clearly suggest perverse incentives in fund management affect the assumed rate of return used by public pension funds in determining both annual required contributions and funding ratios.

Figure 5 divides states into two groups: those reducing the assumed rate of return for this most recent reported year vs. those leaving the assumed rate of return unchanged. Also visualized for the two groups of states are the changes in both the self-reported funding ratio (based on the official assumed rate of return) and the risk-free funding ratio (based on a uniform 2.142 percent rate of return).

On average, funds lowering their assumed rate of return experienced an increase in the risk-free funding ratio—often as a result of superior investment returns. Superior returns can generate the political capital necessary to reduce the discount rate and withstand any blowback from the resulting decline in the self-reported funding ratio.<sup>xviii</sup>

On the other hand, fund managers refraining from lowering the assumed rate of return—or in some cases actually increasing investment return expectations—tended to actually experience a decrease in the risk-free funding ratio. Of interesting note, this group of funds refraining from lowering their assumed rates of return reported less of a decline in their funding ratios compared with their counterparts, even as their risk-free funding ratios sank in comparison. In short, superior returns are correlated with lower official future expectations and more healthy risk-free funding ratios; subpar returns are correlated with higher official expectations and more toxic risk-free funding ratios.

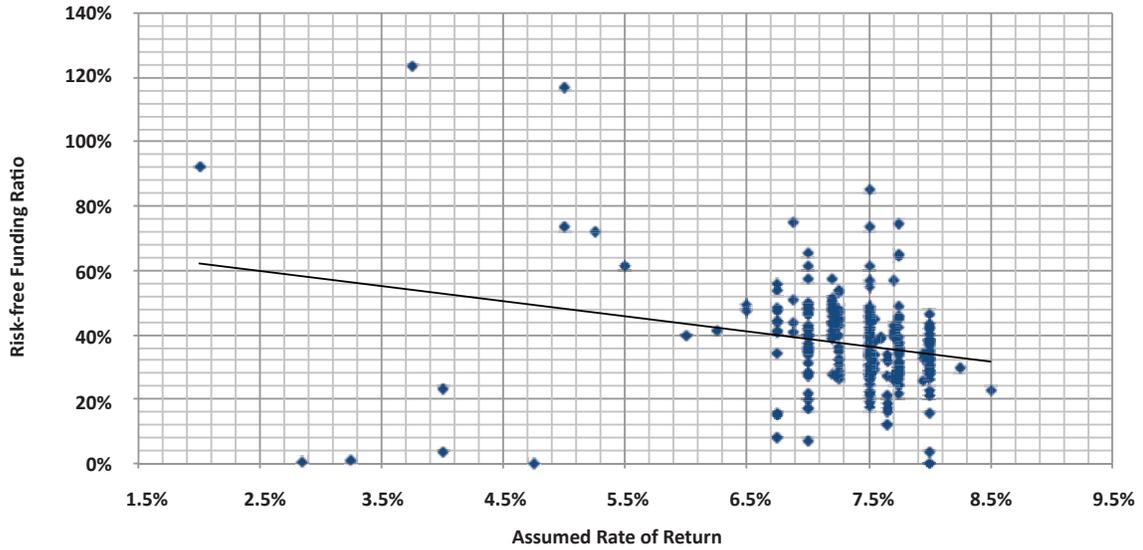
Raising the expected rate of return after a period of under-performance disguises unfunded pension liabilities by artificially lowering the present value of the future liabilities. This is a perverse incentive.

### **Long-Term Effects of Mismanagement**

Discount rates have played a central role in long-term pension fund mismanagement. Figure 5 plots each plan by its assumed rate of return and normalized funding ratio. Outliers have been excluded to show the general trend more clearly, but the complete visualization can be found in the appendix. Plans with a lower assumed rate of return (discount rate) have a higher risk-free funding ratio, and thus a lower chance of defaulting on promises made to state workers or bailing out the plans at taxpayer expense.

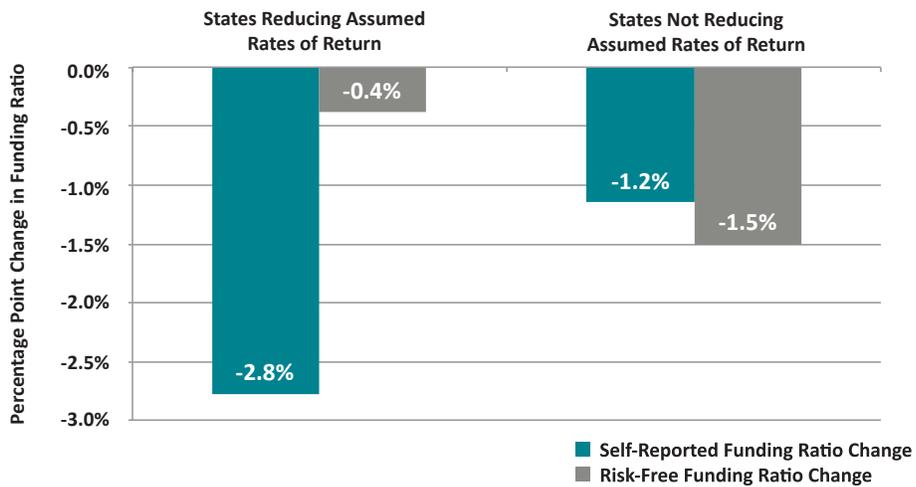
The correlation between realistic discount rates and higher risk-free funding ratios is not surprising. CalPER's dual treatment shows when a fund manager must protect a fund from shortfalls, they use a risk-free rate. As seen in Figure 6, the closer a fund's assumed rate of return is to the risk-free rate, the higher the risk-free funding ratio. Taxpayers and state workers benefit from use of more realistic return assumptions. Taxpayers are protected from future tax hikes or cuts in government services stemming from pension fund bailouts thanks to higher annual required contributions—contributions that are invested and grow over time. Public employees gain a more secure future due to diminished risk of potential defaults or benefit reductions.

FIGURE 5 | Risk-free Funding Ratios Increase as Assumed Rates of Returns Decrease



Risk-free Funding Ratios Increase as Assumed Rates of Returns Decrease

FIGURE 6 | Perverse Incentives in Fund Management Skew Reported Funding Ratios



Perverse Incentives in Fund Management Skew Reported Funding Ratios

## SECTION 3: METHODOLOGY

This study covers more than 280 state-administered public pension plans representing \$3 trillion in assets. Data are drawn from Actuarial Valuation Reports and Comprehensive Annual Financial Reports (CAFRs) as provided by each plan or by state administrators. In each case, figures are from the most current valuation available at the time of research. States that have not reported new valuations are noted in visualizations and in the appendix. To calculate each plan's unfunded liabilities, this report uses the actuarial value of assets (AVA) and actuarial accrued liability (AAL). Some plans provide only fair market valuations, in which case the fair market value of assets and liabilities were used in lieu of the AAL. While slightly different, fair market values do not vary dramatically from actuarial values. Therefore, the use of fair market values in these cases is unlikely to affect a state's unfunded liabilities and rankings.

This publication makes several assumptions about the structure of state liabilities and the quality of the states' actuarial assumptions to make more realistic estimates of state liabilities. States are not required to report their liability projected over a time series, such as reporting the total liability due per year for the next 75 years. This publication must assume the midpoint of the state's liability in order to recalculate state liabilities under different discount rates. Barring states reporting their liabilities in detail, 15 years is a fair estimate of the average midpoint for pension plans and is used in *Unaffordable and Unaccountable*. Other actuarial assumptions, such as mortality rates, are held constant, and thus implicitly assumed accurate in our estimates of state liabilities.

Unlike GASB-directed CAFRs and Actuarial Valuation Reports, ALEC uses a more realistic valuation to determine the unfunded liabilities of public pension plans. Many plans assume rates of return far higher than can be consistently expected of today's market, even under direction of the best asset managers. These decisions generate substantial perverse incentives for pension administrators and investment managers, often inviting politicized decision-making and risky fund allocations. ALEC uses a more prudent rate of return, based on the equivalent of a hypothetical 15-year U.S. Treasury bond yield. Since this is not presently offered as an investment instrument, the number is derived from an average of the 10- and 20-year bond yields. This year's number is averaged from the 12 months spanning April 2016 to March 2017. The resulting rate is 2.142 percent, a reduction of 0.202 percent compared to last year.

As the Society of Actuaries' Blue Ribbon Panel on Public Pension Plan Funding recommends, "the rate of return assumption should be based primarily on the current risk-free rate plus explicit risk premium or on other similar forward-looking techniques."<sup>xix</sup> Because federal government bonds are insured with the full faith and credit of the United States government, the rate of return for these bonds is the best proxy for a risk-free rate. A valuation of liabilities based on a risk-free rate contrasts sharply with the optimistic assumptions used by nearly every public sector pension plan.

The formula for calculating a more realistic present value for a liability requires first finding the future value of the liability. That formula, in which "i" represents a plan's assumed interest rate, is  $FV = AAL \times (1+i)^{15}$ . The second step is to discount the future value to arrive at the present value of the more reasonably valued liability. That formula is  $PV = FV / (1+i)^{15}$ , in which "i" represents the risk-free interest rate.

Using a more reasonable valuation ensures state officials cannot overestimate their asset performance and underestimate their required contributions to the pension systems. The public sector's current assumed rates

of return significantly distort how much money is needed to fund the plans today to guarantee and eventually pay out future benefits. Ultimately, this will result in broken promises to state employees and financial hardship for taxpayers.

In addition to normalizing discount rates, this study uses several decision rules used when collecting and organizing data. One fundamental challenge is that *Unaffordable and Unaccountable* is an annual report on systems that often issue their data on a biannual schedule. In each of our publications, some states have not released new reports or valuations of their pension liabilities. In these cases, the previous year's figures are carried over. This, in effect, is stating that there was no measurable change from year to year. Ideally, states will begin to report their pension liabilities annually and in a timely manner, so changes can be measured.

## SECTION 4: TRANSPARENCY

### Transparency Is Essential

Transparency enables voters, taxpayers and all stakeholders to access, research and understand the operations of the government and hold lawmakers and officials accountable for their actions. The digital world makes sharing and retrieving information easier, and less expensive, than ever before. Governments no longer have the excuse that compiling, printing or sharing information would cost too much in time or money.

In this new era, government should place all financial information disclosable to the public online, in an accessible location and understandable format. For more than a decade, ALEC has called on state and local governments to put their budgets online, in an accessible format for all taxpayers to see.<sup>xx</sup>

In particular, state-administered public pension plans should disclose this and other relevant information on a regular and timely basis: the financial status of the system, all actuarial assumptions, the composition of the investment portfolio, investment decisions, investment performance, governance structures, benefits decisions and the findings of relevant independent assessments. All of this information should be made available without fee and organized in a reasonably comprehensible manner.

### Case Studies—Pension Management Transparency in Action

Kentucky, North Carolina and Nebraska provide examples for every pension system to emulate in order to improve transparency. Each of these three states provides up-to-date, easily-found comprehensive financial reporting for their state-administered pensions. Conversely, Louisiana and Georgia fail to provide such financial reports in an acceptable manner.

The Commonwealth of Kentucky catalogues the majority of the state-administered systems in the Kentucky Retirement System's Comprehensive Annual Financial Report (CAFR). In addition, the financial, investments, actuarial and statistical sections of the report are laid out in a clear, organized, rationally flowing manner. In particular, the actuarial section contains all of the data required to compute unfunded actuarial accrued liability, and presents that key number along with the funding ratio for all of its plans. Rather than merely presenting required information such as the actuarial valuation of assets and liabilities, Kentucky provides the raw data along with computed key fundamentals.

Towards the front of the section, Kentucky Retirement Systems (KYRET) presents the funding levels of all its plans for pensions and other post-employment benefits (OPEB) for the current year and the prior year.

IMAGE 1 | Kentucky Retirement Systems CAFR

Funding Level				
	2016		2015	
System	Pension Fund	Insurance Fund	Pension Fund	Insurance Fund
KERS Non-Hazardous	16.0%	30.3%	19.0%	28.8%
KERS Hazardous	59.7%	125.3%	62.2%	120.4%
CERS Non-Hazardous	59.0%	69.6%	60.3%	68.7%
CERS Hazardous	57.7%	72.9%	58.0%	72.3%
SPRS	30.3%	67.2%	33.8%	65.8%

Source: Kentucky Retirement Systems, CAFR 2016

Furthermore, the written analysis and descriptions are understandable to the average reader. They provide comprehensive summaries of the actuarial assumptions used, definitions for any industry terminology and draw attention to portions warranting special consideration. The report also provides a comprehensive summary of all actuarial valuation data in a clear, organized format.

IMAGE 2 | Kentucky Retirement Systems CAFR

Summary of Actuarial Valuation Results					
	KERS Non-Hazardous	KERS Hazardous	CERS Non-Hazardous	CERS Hazardous	SPRS
<b>Recommended Rate Fiscal 2015-2016</b>					
Pension Fund Contribution	41.98%	20.48%	14.48%	22.20%	71.57%
Insurance Fund Contribution	8.41%	1.34%	4.70%	9.35%	18.10%
Recommended Employer Contribution	50.39%	21.82%	19.18%	31.55%	89.67%
<b>Funded Status as of Valuation Date</b>					
<b>PENSION FUND</b>					
Actuarial Liability	\$13,224,698,427	\$936,706,126	\$11,076,456,794	\$3,704,456,223	\$775,160,294
Actuarial Value of Assets	\$2,112,286,498	\$559,487,184	\$6,535,372,347	\$2,139,119,173	\$234,567,536
Unfunded Liability on Actuarial Value of Assets	\$11,112,411,929	\$377,218,942	\$4,541,084,447	\$1,565,337,050	\$540,592,758
Funding Ratio on Actuarial Value of Assets	15.97%	59.73%	59.00%	57.74%	30.26%
Market Value of Assets	\$1,953,422,354	\$524,678,968	\$6,106,186,908	\$2,003,669,273	\$217,594,068
Unfunded Liability on Market Value of Assets	\$11,271,276,073	\$412,027,158	\$4,970,269,886	\$1,700,786,950	\$557,566,226
Funding Ratio on Market Value of Assets	14.77%	56.01%	55.13%	54.09%	28.07%

Source: Kentucky Retirement Systems, CAFR 2016

Further into the actuarial section, each state-administered plan is evaluated in even greater detail on its own, with historical data presented for previous years. The inclusion of data for prior years provides an important benchmark by which to contrast management investment performance with market performance.

Looking to North Carolina, the strength of their pension reporting comes from the location, ease-of-access to the documents, along with the informational organization. Unlike most states which make pension fund financial documents available only through the pension organization itself (often distinct from any governmental agency), all pension fund financials are easily available from North Carolina's Department of State Treasurer. Even better, separate web pages host the CAFRs and Actuarial Valuation Reports, each categorized by year and plan name. Beyond that, the format consistency of format enhances ease of reading and understanding. Each report is well organized, and descriptively labeled. All financial fundamentals required to assess plan solvency—such as actuarial valuations and assumptions—are presented clearly.

Much like North Carolina, Nebraska's pension plans are all organized on a single website. All key financial reports are organized on the same webpage with separate sections for actuarial reports, GASB reports, investment reports and a plethora of valuable and informative documentation. Nebraska's Actuarial Valuations, which are catalogued by the plan's name and by year, are particularly admirable. Further, within each report, actuarial valuations and investment assumptions are easy to find and understand.

Unfortunately, most states fail to mirror the highly transparent examples set by Kentucky, North Carolina and Nebraska. This failure to respect taxpayers' right to publicly disclosable information results in a lack of accountability.

Across all states, Louisiana is quite possibly the most opaque in its reporting of pension finances. The large number of plans (16) is difficult to track. In addition, standards of timeliness, format, content or public availability appear nonexistent. Although some pension financial reports may be found on the website for the State's Division of Administration, most are years out-of-date. Worse, the lack of a centrally located page forces those seeking information to either use an archaic search function on the site or rely on Google to find direct links to PDFs of the reports. Such an expedition requires intimate knowledge of the proper search terms. The format of the discoverable reports often fails to provide actuarial valuations of assets or liabilities, obscuring the assumed rates of return.

Although Georgia does a far better job at providing actuarial valuation reports compared to Louisiana, much room for reporting improvement exists. Although many states also lack of a central repository for all state-administered pension funds financial statements, the high number of plans in Georgia exacerbates this problem. Like Louisiana, few or no reporting standards seem to exist. Locating actuarial reports online is excessively difficult, with an abundance of defunct, broken or "coming soon" websites. Requests for missing reports by researchers compiling data for *Unaccountable and Unaffordable 2017* were met with suspicion or otherwise obstructive behavior by plan administrators. Only after multiple requests did researchers receive needed information

Although a uniform approach is not feasible, the basic principles of transparency should be followed.

TABLE 5 | Transparency Leaders and Laggards

TRANSPARENCY LEADERS AND LAGGARDS	
MOST TRANSPARENT	LEAST TRANSPARENT
Kentucky	Alabama
Montana	California
Nebraska	Georgia
North Carolina	Louisiana

State-administered pension plans represent \$3 trillion in assets and trillions more in pension promises. This transparency enhances the capacity of taxpayers and public workers to hold politicians and investment managers accountable for keeping promises made to workers while simultaneously safeguarding taxpayers from undue risk. All such stakeholders deserve comprehensible, navigable and accessible information.

## SECTION 5: STATES ENACT BREAKTHROUGH REFORMS IN 2017

Despite more than \$6 trillion dollars of unfunded liabilities across the nation, three states provided reason for optimism in 2017. Both Pennsylvania and Michigan enacted meaningful pension reforms to preserve retirement security, pave the way for additional improvements and prevent further growth in the heavy burden of unfunded liabilities. And Gov. Doug Ducey's 2016 reforms to the Arizona Public Safety Personnel Retirement System took effect this year as well.

### Arizona

Arizona's pension system is just 29.5 percent funded, and to address this, Gov. Doug Ducey signed significant pension reforms in 2016 that took effect in July of 2017. These reforms addressed cost of living adjustments (COLAs), created a new plan design for all new employees and improved governance over pension plans. The reduction in costs for new hires alone is estimated to save Arizona taxpayers \$1.5 billion over the next 30 years.<sup>xxi</sup>

The comprehensive reforms give new employees the choice to enter a DC plan or a DB hybrid plan as well as reduce the maximum salary on which benefits are calculated from \$265,000 per year to \$110,000 per year. Reforms like these can offer a model for other states that need to address long-term costs while at the same time protect retirement security for state employees.

### Pennsylvania

Pennsylvania's pensions are the 11th lowest funded in the nation, with unfunded liabilities exceeding \$17,400 for every man, woman and child in the Commonwealth. The comprehensive pension reforms enacted into law from Senate Bill 1 this year begin to address those daunting challenges.

Prior pension reform efforts made in 2010 assured the state made full pension payments, but failed to prevent pension liabilities from soaring to \$223 billion dollars. Pennsylvania's ballooning liability is primarily due to the failure to reach the overly-optimistic annual assumed rates of return, such as 7.5 percent for the Public Schools Employees Retirement System and the State Employees Retirement System. Annual required contributions are based off of official return assumptions. Even if these contributions are fully met, subpar investment performance widens the gap between assets and the present value of future promised pension benefits.

Reforms in Pennsylvania's Senate Bill 1 create a defined-contribution component for every new state and school district employee by 2019. Employees will also have more retirement options; two defined-benefit-defined-contribution hybrids and a 401(k)-style plan. Similar hybrid models have been successfully implemented in Tennessee, Virginia and Washington.<sup>xxii</sup>

New workers can choose to participate solely in the defined-contribution (DC) plan, rather than also contributing to the defined-benefit (DB) plan. Current employees may elect to join one of these hybrids or the 401(k) plan, although current employees may also opt to remain in the existing DB plan.

These measures will help Pennsylvania keep its promises to employees and retirees alike. Better still, they can serve as a platform for further improvements. Preserving retirement security for existing and future employees, while putting in place a more fiscally sustainable benefit for new workers, means both public employees *and* taxpayers win.

## Michigan

Michigan's unfunded liabilities exceed \$16,900 for every resident in the state. The state's pension system needed significant structural changes to honor promises to public sector retirees while also protecting taxpayers. While state employees have been enrolled in a sustainable DC pension model since the late 1990s, public school and municipal employees were not included in those reforms.

In 2010, the state made some progress by implementing a hybrid plan for public school employees, but this year's comprehensive reforms in House Bill 4647 for public school employees further address the daunting \$168 billion of unfunded liabilities statewide that remain.

Reforms in House Bill 4647 build on prior efforts by closing the current hybrid plan to new public school employees hired after February 1, 2018. New employees will join the existing DC plan by default unless they opt into the new hybrid plan instead. A key component of the DC plan is an automatic employer contribution of 4 percent of compensation. An employee can contribute up to an additional 3 percent annually, fully matched by the employer. This 100 percent match is a core component of the DC plan and provides a fully funded and flexible retirement option.

The new plan incorporates several features to enhance the pension system's fiscal health. Foremost, the new hybrid plan uses a more realistic assumed rate of return of 6 percent, though still 1.5 percentage points higher than the average private sector pension plan. Further, there are a series of conditional changes allowing the plan to correct itself, setting it on a path toward fiscal responsibility if the funds begin to falter. If investment return assumptions are not met, the costs of the increased Annual Required Contribution will be shared by the school system and employees equally. If the funding ratio falls below 85 percent for two consecutive years, new hires will be enrolled and remain in the default DC plan. Closing enrollment into the hybrid plan option if funding requirements are not met assures that unfunded liabilities cannot continue increasing. The hybrid plan continues to provide a DC component match of 50 cents per dollar contributed by the employee up to 1 percent of compensation in lieu of annual Cost of Living Increases (COLAs) to the DB component. Finally, in certain instances, the plan would raise the retirement age if longevity increases.

Over the past three decades, Michigan has underfunded the DB pension plans that remained after the reforms of the 1990s, which is reflected in a funding ratio of a mere 27 percent. (Important note: The DC plan for state workers was not similarly underfunded). If annual contributions had been prudently made, investment revenue from accumulated plan assets would be far higher than current levels. Fortunately, with the reforms of 2017, Michigan lawmakers have put their pension system on a much more sustainable path for the future. If implemented properly, these reforms could result in a national model for reform and establish Michigan as one of the brightest turnaround stories among the states.

Building on the momentum created by Arizona, Pennsylvania and Michigan, first-term Kentucky Gov. Matt Bevin has worked with the legislature to address the need for comprehensive pension reform. Kentucky ranks 49 out of the 50 states for their poor funding ratio, and unfunded liabilities exceed \$25,000 for each resident

of Kentucky. The leadership from the governor and the legislature on this issue is a commendable first step in the right direction for the taxpayers and public sector employees and retirees of Kentucky. At press time, the special session date has not been set, but we are hopeful that policymakers in Kentucky follow in the footsteps of these aforementioned states and implement meaningful reform.

As states across the nation address the current pension funding crisis, they should look to Arizona, Pennsylvania and Michigan as examples. Implementing reforms that bolster stewardship, modernize pension plans for new hires, and assume realistic rates of return will protect taxpayers, employees and retirees alike.

## APPENDIX: GLOSSARY OF TERMS

The following is a brief, nontechnical description of some of the terms used in this report. Readers who desire a more precise, technical explanation should consult the Governmental Accounting Standards Board (GASB) or their state's retirement systems.

**Actuarial accrued liability (AAL)**—The money that a plan should have on hand now to pay, sometime in the future, for the retirement benefits that an employee has earned to date.

**Actuarial value of assets (AVA)**—The total present value of all pension plan assets, which should not include the present value of future payments into the plan

**Annual required contribution (ARC)**—The amount of money an employer should deposit into a defined-benefit plan for a given year. It has two parts: the normal cost and an amount needed to amortize unfunded liabilities

**Discount rate**—An investment return, expressed as a percentage, that the retirement plan's managers hope to achieve. It may be tied to the yield of U.S. Treasury bills, a stock market index or other measure.

**Funding ratio**—A percentage that reflects how much money a retirement plan has to meet its obligations over the long term.

**Moral hazard**—The risk that occurs when the agent responsible for making decisions is not responsible for the cost that arises from the consequences of said decisions

**Risk-free rate**—A rate derived from an average of the 10 and 20-year U.S. Treasury bond yields. The rate in this year's edition is 2.142083 percent.

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