INVESTMENT PRACTICES OF THE STATE TREASURER

Connecticut

General Assembly

LEGISLATIVE
PROGRAM REVIEW
AND
INVESTIGATIONS
COMMITTEE

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CONNECTICUT GENERAL ASSEMBLY

LEGISLATIVE PROGRAM REVIEW AND INVESTIGATIONS COMMITTEE

The Legislative Program Review and Investigations Committee is a joint, bipartisan, statutory committee of the Connecticut General Assembly. It was established in 1972 to evaluate the efficiency, effectiveness, and statutory compliance of selected state agencies and programs, recommending remedies where needed. In 1975, the General Assembly expanded the committee's function to include investigations, and during the 1977 session added responsibility for "Sunset" performance reviews. The committee was given authority to raise and report bills in 1985.

The program review committee is composed of 12 members. The president pro tempore of the senate, the senate minority leader, the speaker of the house, and the house minority leader each appoint three of those members.

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INVESTMENT PRACTICES OF THE STATE TREASURER: A PERFORMANCE AUDIT

LEGISLATIVE PROGRAM REVIEW AND INVESTIGATIONS COMMITTEE
NOVEMBER 1989

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INVESTMENT PRACTICES OF THE STATE TREASURER

SUMMARY

The purpose of the program review committee's study of the treasurer's investment practices was to examine the investment policies of the state treasurer and the process used in making investment decisions. Overall, the committee found that the treasurer's investment policies and approaches compare favorably with those of other public and private institutional investors. Investment performance in terms of returns also compares well with accepted benchmarks.

The major elements necessary for an effective investment process are in place. Investment decisions are guided by a comprehensive, formally adopted, long-range policy that has a sound theoretical basis. Investment strategies and their results are regularly reviewed by treasury staff as well as an independent advisory body. The Investments Division of the state treasury has recently been restructured and automated to improve productivity and accountability.

Weaknesses found by the program review committee centered on the following areas: 1) the reporting of investment information to the public; 2) the formality of certain investment operating procedures; and 3) the role of the Investment Advisory Council. In addition, problems the treasurer faces in attracting and retaining Investments Division personnel were brought the committee's attention during the study.

In response, the committee adopted several proposals aimed at improving the quality, frequency, and distribution of information on investment activities and results. Recommendations calling for written guidelines for key functions within the Investment Division were also made to insure consistency and aid monitoring of investment activities.

The program review committee additionally recommended clarifying the council's role in the investment process and further study of the division's hiring system. A complete list of the recommendations adopted by the committee in July 1989 follows.

Recommendations

1. The treasurer shall send to each recognized organization representing participants of the actively managed pension funds and to the committees of the General Assembly with cognizance of appropriations and finance, quarterly reports that summarize performance, overall and for each investment fund. In the quarterly report, include for each fund:

   - the change in market value of a unit of the fund from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;
   - the change in the number of units held by each source of funding from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;
   - net contributions to the fund (new contributions minus redemptions) by source, from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;
   - total return per unit for the fund for the reporting quarter and from the end of the same quarter of the prior year.

2. The treasurer shall prepare and annually update a prospectus style report, developed in accordance with relevant U.S. Securities and Exchange Commission guidelines, for each mutual investment fund. Each year, distribute these reports in the same manner recommended above for the quarterly performance reports.

3. The treasurer shall publicize that periodic performance reports and fund prospectuses are available upon request.

4. The treasurer shall insure that all investment performance materials issued identify the methods used to calculate asset value (e.g., market value, cost, etc.) and return on investment (e.g., dollar or time weighted total return, etc.).

5. Establish written operating guidelines for each mutual investment fund and submit them to the Investment Advisory Council for review and comment by February 1, 1990. In the guidelines, address:

- the decision-making role of the Investments Division staff, outside service providers, if any, and the Investment Advisory Council concerning the purchase or sale of assets or the provision of advice and other services;

- any restrictions on the sale or purchase of assets, such as standards of asset quality or prohibitions on types of assets owned;

- any required or restricted investment practices and techniques; and

- the monitoring of performance, noting what measures or benchmarks will be used to evaluate and compare performance.

The treasurer shall annually review, seeking comment from the council, and readopt all investment fund guidelines.

6. The treasurer shall establish written procedures for obtaining external fund managers, financial advisors, brokers, and other outside professional services and submit them to the Investment Advisory Council for its review and comment no later than February 1, 1990. In these procedures define the decision-making roles of the treasurer, the Investments Division staff, and the Investment Advisory Council regarding:

   - initial selection of outside professionals; and

   - changes in funding levels of active external investment fund managers.

7. By February 1, 1990, the treasurer shall expand current written guidelines for the minority/women-owned and local broker commission program to include descriptions, which identify decision-making authority, of the processes for selecting participants and allocating commissions. The treasurer shall develop a strategy for encouraging eligible firms to apply to the program, and include a description of this recruitment process in the written program guidelines.

8. Amend current statutes to limit the advice and consent of the Investment Advisory Council to the hiring of key staff within the Investments Division, including the assistant treasurer for investments and all senior investment officers.

9. The treasurer shall adopt a policy of requiring Investment Advisory Council review and comment on proposed increases in the amount of assets managed by an external investment fund manager beyond the level initially authorized.

10. The Investment Advisory Council shall amend its bylaws to define its role in the investment division employment process and in reviewing external managers, including the policy concerning external manager funding levels recommended above.

11. The treasurer shall submit to the General Assembly's committee having cognizance of matters relating to public employees, a report that proposes a revised system for hiring and setting compensation levels of professional staff of the Investments Division.

INTRODUCTION

The Legislative Program Review and Investigations Committee voted to undertake a performance audit of the investment practices of the state treasurer, focusing on processes for developing and implementing investment policies, in 1988. The purpose of the review was to evaluate how investment decisions are made and to determine whether existing policies and procedures for investing state funds are adequate. The study scope did not include an analysis of decisions on individual investment transactions.

In conducting the review, a variety of sources and research methods were used. State statutes, regulations and agency written procedures governing the investment of state funds were examined. At a public hearing held in November 1988, an overview of current investment activities was presented to the program review committee by the state treasurer and his staff. Committee staff interviewed key staff of the Investments Division of the Office of the State Treasurer regarding decision-making roles and operating procedures. Program review committee staff also attended the monthly meetings of the treasurer's Investment Advisory Council and interviewed several council members.

Sources of funds for investments and investment vehicles used were identified and analyzed as to structure and performance. Investment operations in selected states were reviewed and two large, Connecticut-based, private institutional investors were consulted regarding their overall policies and procedures.

The following five chapters provide both background information and analysis on the state treasurer's investment practices. Chapter I discusses the treasurer's investment authority and the management structure, organization, and resources of the investment division. Sources of investment capital and current investment policy and investment vehicles are described in Chapter II. The investment process is outlined in Chapter III, while actual investment performance is analyzed in Chapter IV. The findings and recommendations of the Legislative Program Review and Investigations Committee concerning the state treasurer's investment practices are presented in Chapter V.

It is the policy of the committee to provide audited agencies with an opportunity to review and comment on a final report prior to its publication. Formal agency responses, if submitted, are then included in the published document. A copy of the state treasurer's response to this review is contained in Appendix B.

CHAPTER I

AUTHORITY, MANAGEMENT, AND RESOURCES

Investment Authority

In Connecticut, the treasurer, a constitutional, elected official, has sole authority to invest the state operating funds, public employee pension funds, and other trust funds in the treasury's custody. Under state law, the treasurer is permitted to invest in a wide range of vehicles, from U.S. government bonds and certificates of deposit to international stocks and bonds and equity real estate. The treasurer is further authorized to establish combined investment funds (mutual funds), provided that appropriate accounting procedures are adopted.

A number of statutory provisions govern the treasurer's investment authority. Like all trustees, the treasurer is required by state law to invest with the care of a prudent investor. In addition to this general fiduciary responsibility, state law specifically prohibits the treasurer from investing more more than 50 percent of the value of any trust fund in common stock.

When investing state funds, the treasurer must consider foreign policy and U.S. national interests; social, economic, and environmental implications may be considered. Investment in corporations doing business in South Africa has been restricted by law since 1980.

Furthermore, under 1987 legislation (P.A. 87-170), the treasurer is prohibited from investing any new funds in corporations doing business in South Africa and was mandated to disinvest existing holdings by July 1989. Investment in corporations doing business in Northern Ireland or in Iran under certain conditions is simililarly prohibited and disinvestment of Northern Ireland holdings is required by 1990.

All investments by the treasurer are subject to review by a statutory body, the Investment Advisory Council. The treasurer may be directed by the governor to change any investment when this council judges such action to be in the state's best interest.

The treasurer is authorized to appoint an assistant treasurer for investments and investment officers and other personnel, with the advice and consent of the advisory council, to assist with investment duties. The statutes further permit the treasurer to retain outside professional investment advisors.

Management Overview

The treasurer, with sole authority to invest state funds, sets investment policy. Within statutory and fiduciary constraints, the treasurer makes final decisions on investment vehicles, asset allocation, and distribution of assets among internal and external financial managers. The treasurer also selects all investment personnel, including external financial managers and other consultants.

The Investment Advisory Council advises the treasurer on policy and reviews all investments. Council members, who are appointed by the governor, include five investment experts and five representatives of major pension fund participant unions (state employees and teachers). The secretary of the Office of Policy and Management and the treasurer serve as ex-officio members.

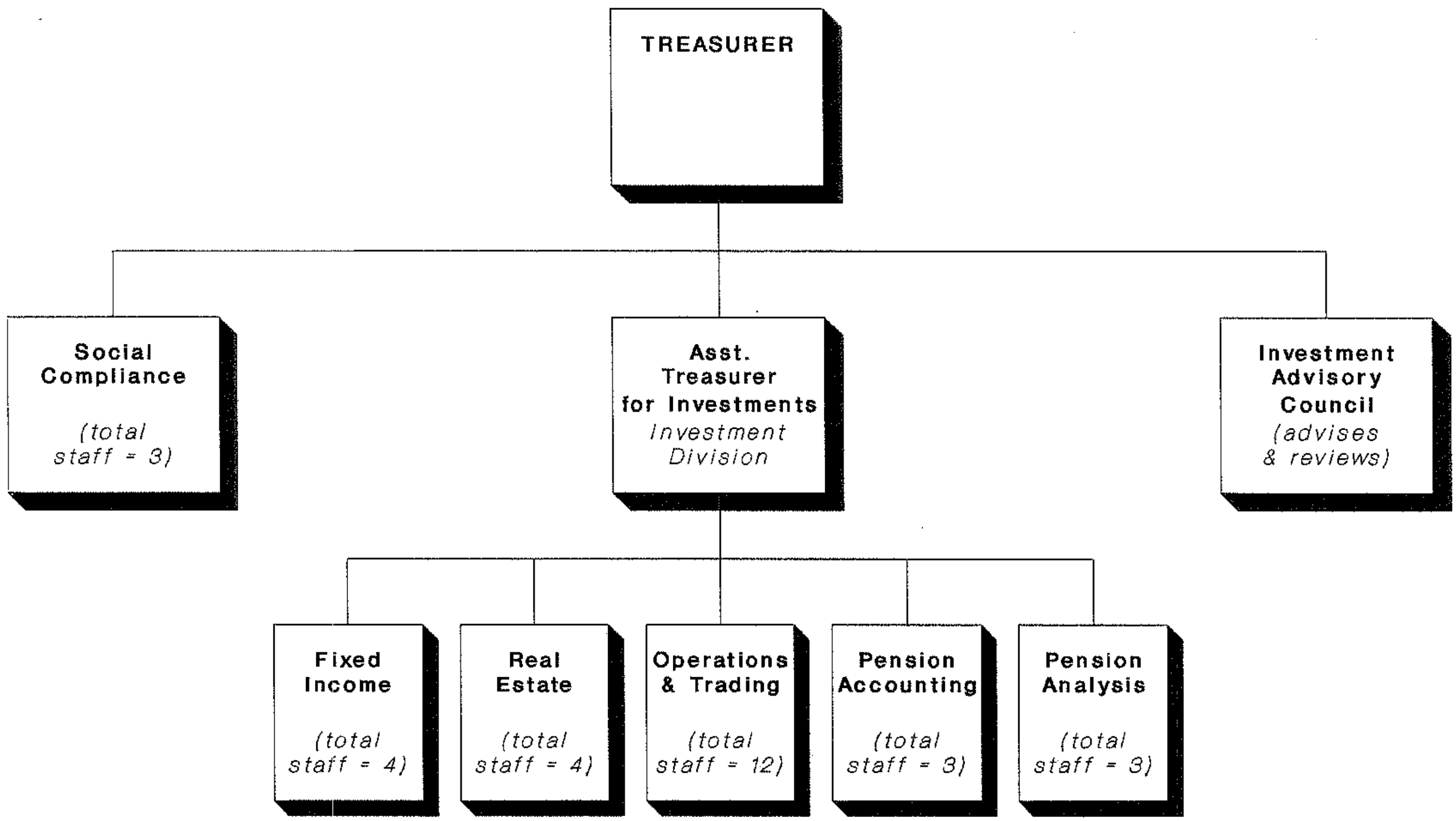
The treasurer uses the council like a board of directors. At monthly meetings, the council takes formal votes to endorse the treasurer's actions on such policy matters as asset allocation and investment vehicles, and on the selection of external financial managers. Council members receive and comment on performance reports prepared by division staff and consultants on a quarterly basis.

Investment policy is implemented by the Investments Divison, one of four divisions within the state treasury. An assistant treasurer for investments directs the Investments Division and acts as the chief investment officer.

The assistant treasurer oversees day-to-day operation of the division and recommends policies, including asset allocation, as well as external managers and their funding levels to the treasurer. Senior staff of the Investments Division, either directly or through the outside investment advisors, manage 11 mutual funds, which are the treasurer's primary investment vehicles. Management and operation of the treasurer's mutual funds are discussed in detail in a later section.

Organization. The current organizational structure for the treasurer's investment activities is shown in Figure 1. This structure is the result of a recent agency-wide management consultant study. As the figure shows, the Investments Division is comprised of five units.

Figure 1. State Treasurer's Office
Current Structure for Investments



Source of Data: Treasurer's Office

The Fixed Income Unit is responsible for overseeing bond and short-term (money market) investments. Staff of the Real Estate Unit manage equity real estate and mortgage investment programs. The Operations and Trading Unit processes transaction paperwork related to all mutual funds and handles trades of domestic stocks.

Two new units were formed as a result of recommendations contained in the management consultant study. The Pension Analysis Unit was established in state FY 89 to provide greater in-house performance monitoring and evaluation capability. Responsibility for investment accounting, formerly carried out by several units in the treasury, was centralized in the Pension Accounting Unit during the past fiscal year.

A Social Compliance Unit that reports directly to the treasurer, is also involved in the investment function. The unit monitors compliance with investment restrictions such as statutory prohibitions on South African investment and implements the agency's affirmative action program.

The Investment Advisory Council, in an advisory capacity, also reports directly to the treasurer. The council is located within the Office of the State Treasurer for administrative purposes only.

Resources

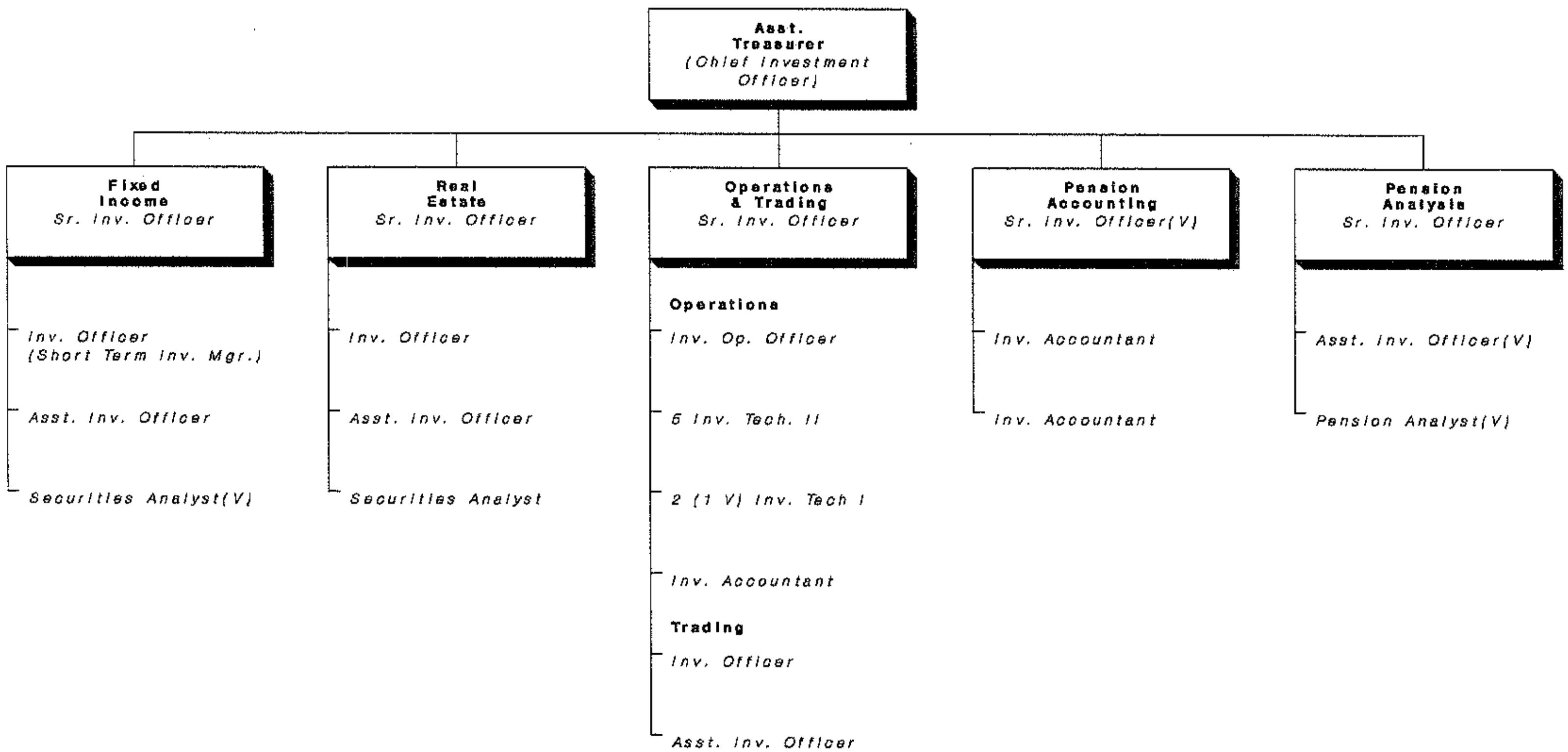
Staffing of each unit of the investment division as of March 1989 is shown in Figure 2. Operations and trading is the largest unit with 12 positions, many of which are technical staff in the operations section. In contrast, the other units are comprised of 3 to 4 investment professionals. Of the 27 total positions shown in the figure, 5 were vacant as of June 1989.

Positions budgeted for investment-related functions, including social compliance staff, totalled 30 in FY 89. Over the past five years, division staffing has increased by about one-third, corresponding to expansion of investment vehicles, added units, and a doubling of the amount of assets managed.

Outside professional services are retained to augment division resources. As of March 1989, agreements were in effect with nearly 70 firms that provide general financial advice, legal advice, master custodian services, and investment fund management services.

Division computer resources have recently been upgraded, permitting better monitoring and reporting of investment activities. The investment division was fully automated

Figure 2. Investments Division
Organization and Staffing, June 1989

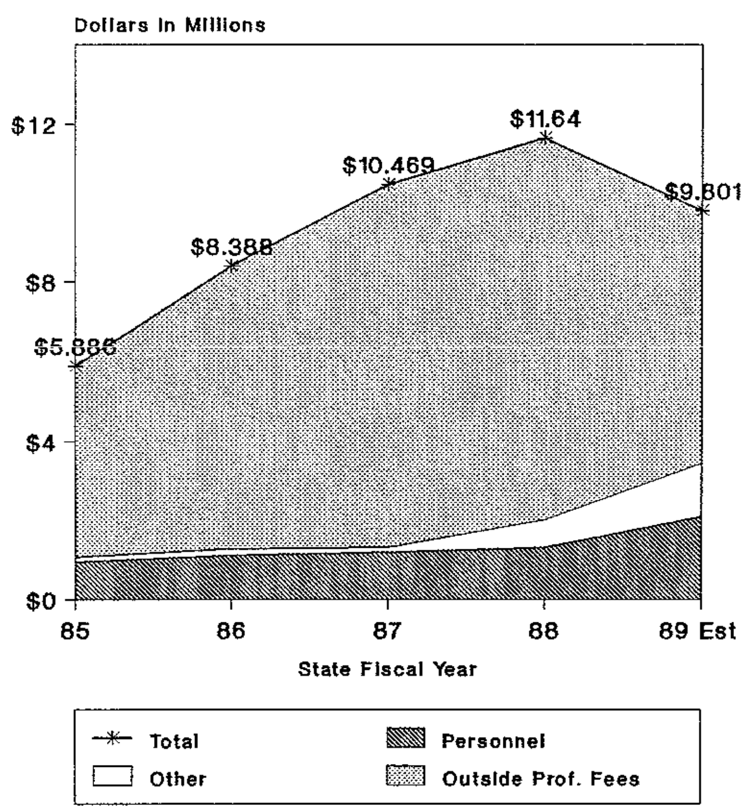


Source: LPR&IC staff analysis (V=vacant) during the past fiscal year. The division also relocated to improved office space with the rest of the treasury department during the past fiscal year.

Expenses. Operating costs for the Investments Division are paid from investment income; no General Fund monies are expended for Investments Division functions. Monies for staff salaries, professional fees of external managers, which include most related investment transaction costs, other outside consultant fees, and miscellaneous expenses such as supplies, equipment, and travel, are transferred from investment funds to a special General Fund account. Expenses then are processed and paid through the central state accounting system.

Trends in division budgeted expenses are shown in Figure 3 below. Total expenditures have increased each of the four years shown in the figure. For the just completed fiscal year, total costs are projected to decline to about $9.8 million. However, actual expenditures for outside professional fees, the bulk of the division's budget, typically have exceeded cost estimates. Based on current division figures, FY 89 projections will be exceeded since expenditures through the first three quarters of the year total more than $9.2 million.

Figure 3. Investments Division
Budgeted Expenses, FY 85 - FY 89



Source of Data: Investments Division

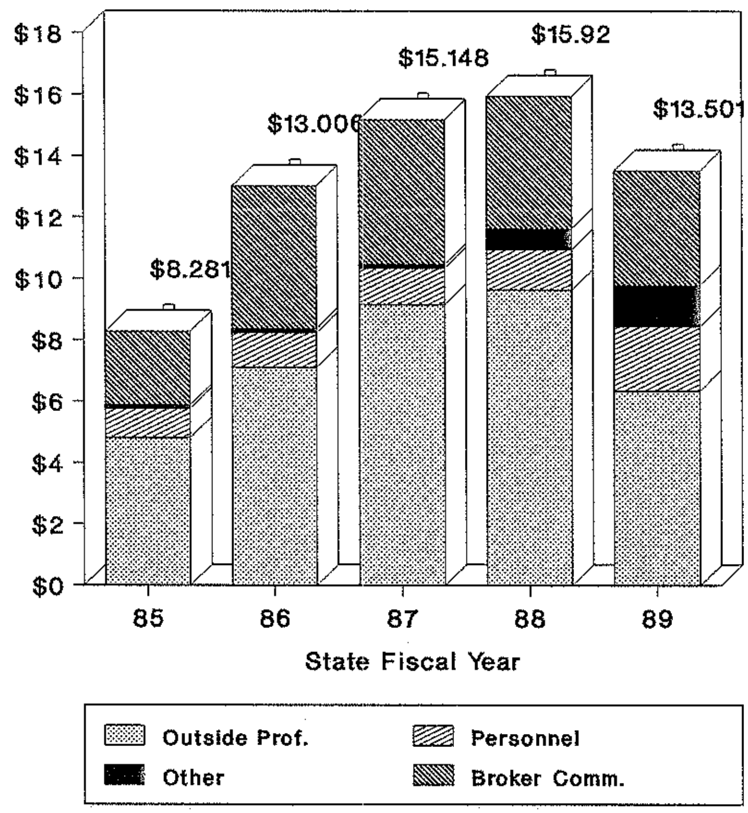
External manager fees are difficult to predict since they are a function of the market value of the assets managed. The volatility in outside professional expenses also is related to changes in the volume of transactions from year to year as well as high start up costs when new investment vehicles are added. For example, expenses in fiscal years 1987 and 1988 include the costs of initiating four new mutual funds.

The sharp increase in the "other expenses" category shown in Figure 3 is related to the hiring of a new master custodian bank. Automation project costs during FY 87 and FY 88 also account for the recent rise in the other expenses category. The project has been conducted under the direction of an outside consultant over a two year period at a total cost of approximately $2,000,000.

One cost not paid through the General Fund account, and, therefore, excluded from the above chart of budgeted expenses, is broker commissions related to domestic stock trades. These expenses, which ranged from $2.4 to $4.7 million over FY 85 to FY 88, are netted out of the trade price at the time of transaction. In Figure 4, all division costs including broker commissions paid are shown for fiscal years 1985 through 1988.

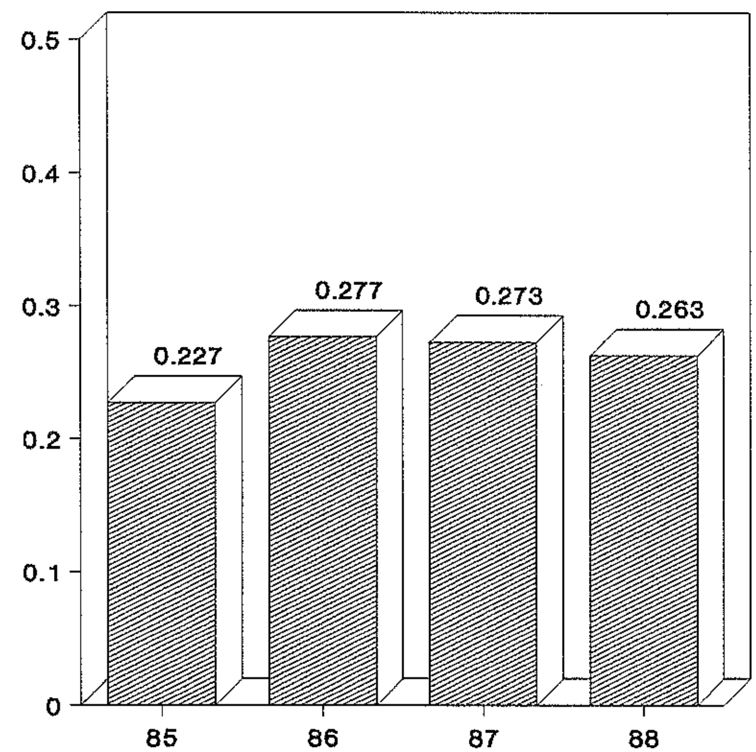
As Figure 4 illustrates, broker commissions are the second largest expense category of the investment division. However, even when these trading expenses are included, the division's total costs are less than one-half of one percent of the value of actively managed assets. In addition, while total costs have been increasing each year, the ratio of expenses to market value of assets managed has, as Figure 5 shows, remained fairly stable. Overall, investment expenses have averaged about one quarter of one cent for each dollar of assets managed.

Figure 4. Division Expenses
By Category, FY 85 - FY 88



Source of Data: Investments Division

Figure 5. Expenses as a Percent
of Assets Managed, FY 85 - FY 88



Source of Data: Investments Division

CHAPTER II

SOURCES, POLICY, AND VEHICLES

Sources of Money for Investment

Sources of money invested by the state treasurer include state government operating funds, public employee pension funds, and a variety of other trust funds. The FY 87 market values of the various funds in the treasurer's custody are presented in Table 1. (Fiscal year 87 is the most recent year for which complete, audited asset value figures are available).

As Table 1 indicates, pension funds are by far the largest source of investment capital, comprising nearly 85 percent of the assets in the treasurer's custody in state fiscal year 1987. Operating funds accounted for another 13 percent of assets while all other trust funds totalled only 3 percent.

Depending on its source, investment capital becomes available in such forms as appropriations, retirement contributions, federal funds, tax revenues, or income from prior investments. Once available, monies are distributed among investment vehicles in accordance with a source fund's particular needs and the treasurer's asset allocation policies.

Operating fund cash flow, which usually is needed for expenditure within a short time, is invested primarily in short-term vehicles like money market instruments. About 95 percent of operating fund assets in the treasurer's custody are invested in this manner. Similarly, many trust funds other than the pension funds require that monies be available for benefit payments or similar disbursements. Therefore, about 80 percent of other trust fund assets are invested in short-term instruments.

In contrast, pension fund cash flow can be placed in longer term vehicles, as payouts of benefits will not occur until years in the future. At present, about five percent of all pension fund assets are invested in short term money market instruments while the remainder are widely diversified among longer horizon, equity, fixed income, and real estate investment vehicles.

Table 1. Funds Invested by the State Treasurer: Market Value as of June 30, 1987.

	Market Value ($ in millions)
State Operating Funds	$ 864.030
Pension Funds	5,510.856
Teachers	3,130.353
State Employees	1,997.332
Municipal Employees	344.684
Probate Court	23.307
Judges	14.890
States Attorneys	.264
Public Defenders	.026
Other Trust Funds	200.251
Soldiers, Sailors & Marines	40.858
School	3.986
Second Injury	13.132
Workers Rehab.	5.149
Workers Education	.761
Other/Misc. State Agency	136.366

Source of Data: Auditors of Public Accounts, Report on the State Treasurer for the Fiscal Year Ended June 30, 1987

Investment Policy

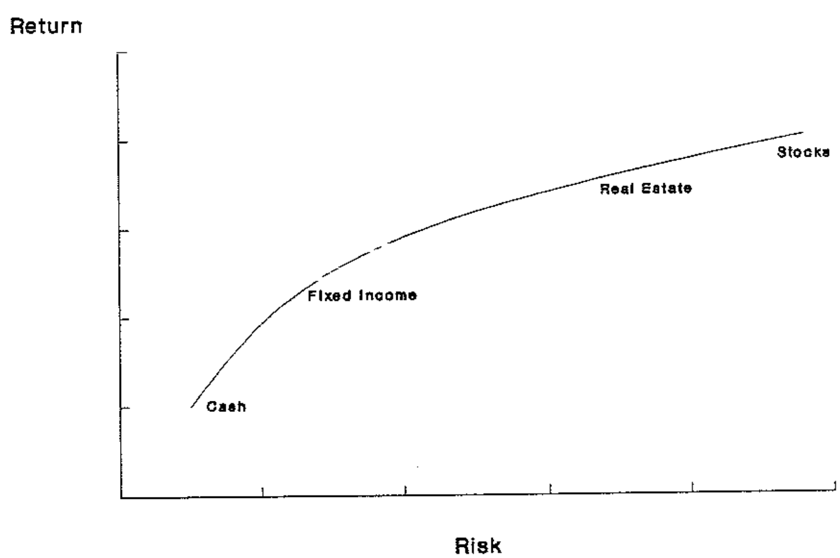
The process used to allocate funds among various asset classes such as stocks, bonds, and real estate is a key element of any investment operation. The result of the process, referred to as asset allocation, is a policy statement indicating how funds will be distributed among categories of investments. How the funds will be invested within a class is separate process, guided by other strategies for achieving broad diversification. The processes the treasurer uses for allocating assets and diversifying within asset classes are described below.

Asset allocation. In developing an allocation policy, an expected rate of return and a risk factor are estimated for each asset class. Expected return is usually estimated from data pertaining to an asset's historical rate of return, its current yield, and forecasts of interest rates and other economic conditions. Risk is generally estimated by the variance in returns an asset produces over time and under various economic conditions.

The traditional view of the relationship between expected return and risk holds that the greater the expected return the greater the risk. This view is illustrated in Figure 6, which shows risk along the horizontal axis and return along the vertical axis.

Under the traditional model of investing, a fund that was extremely risk adverse would invest in cash and bonds, while a fund seeking high rates of return without regard to risk would invest in real estate and stocks. Accordingly, a fund taking a moderate view of risk would distribute its investments among asset classes rather than cluster them at either end of the spectrum.

Figure 6. Asset Allocation: Traditional Theory of Risk and Return Relationship



There are a number of methods for making decisions about how to allocate funds among asset classes. Those recognized as legitimate alternatives for pension funds range from subjective judgments based on traditional analyses of individual asset classes to quantitative approaches derived from elaborate mathematical models.

The process followed by the state treasurer in developing an asset allocation policy begins with the assistant treasurer for investments consulting with financial professionals from both business and academic environments. In recent years the proposal that has emerged from these consultations has been based on a theoretical model known as arbitrage pricing. The model generates an asset mix, which in general terms is based on the sensitivity of asset classes to economic events, and statistical relationships among all asset classes and their effect on the state's desired rate of return.

The allocation policy developed by the assistant treasurer is discussed with the state treasurer and then presented to the Investment Advisory Council. The council at its May meeting reviews the proposed asset allocation and by formal vote recommends its adoption or rejection to the treasurer.

The approved policy serves as a guideline and remains in effect for 12 months. The actual asset mix is reviewed monthly by the Investments Division and quarterly by the Investment Advisory Council. As Table 2 illustrates, the approved and actual asset mixes have not coincided in any of the past three years. However, the differences have generally been very small.

Table 2. Comparison of Approved and Actual Asset Mix.

	1986		1987		1988	
Class	Approved	Actual	Approved	Actual	Approved	Actual
Cash	2.0%	5.7%	2.0%	5.5%	2.0%	5.8%
Fixed Inc.	38.0%	39.6%	33.0%	36.4%	33.0%	36.0%
Real Est.	15.0%	12.0%	15.0%	12.4%	15.0%	14.8%
Stocks	45.0%	42.8%	50.0%	45.8%	50.0%	43.4%

Source of Data: Investments Division.

The allocation policy applies to all of the actively mangaged pension funds but is not directed at the smaller, less active trust funds. Table 3 shows the asset mix for each source fund in the portfolio. The data indicate that the asset mix among the state's pension funds is fairly uniform. However, there are significant differences between the pension and trust funds, and among the trust funds.

This result is caused primarily by the method used to adjust the existing allocation to meet the new policy. Under the approach used by the state treasurer, new contributions and returns on existing investments are directed toward asset classes that are under the share called for by the approved allocation policy and away from those that are over their called-for share. Thus, pension funds, which regularly receive inflows of cash, can more easily be brought in line with the approved policy than trust funds that do not generate new contributions or have erratic cash flow.

Table 3. Asset Mix of Each Source Fund, June 30, 1988.

Source	Cash	Fixed Income	Real Estate	Stock
Policy	**2.0%**	**33.3%**	**15.0%**	**50.0%**
Teachers	5.5	36.1	14.9	43.5
State Emp.	6.6	35.6	14.7	43.1
Municipal Emp.	3.7	37.1	14.9	44.0
Judges	15.6	31.3	13.0	40.1
Probate	4.2	38.2	13.6	44.1
State Atty.	8.4	41.1	7.2	43.1
Solders, Sail. & Marines	10.0	74.5	0.0	15.5
Ida Cotton	10.0	20.5	0.0	69.9
School Fund	9.7	50.4	0.0	40.0
Agri. College	12.8	24.2	0.0	63.0

Source of Data: Computations based on data supplied in the State Treasurer's Annual Report for FY 88.

Connecticut's pension system has historically been under-funded. As a result, it is partially dependent upon new contributions to support future retirement benefits. As a consequence, the state is pushed into seeking higher returns to maximize the amount of future liabilities that can be paid from investment returns or to minimize future contributions. Of course, this means the portfolio must accept the higher risk, in the form of volatility, associated with pursuing higher returns.

A comparison of Connecticut's asset allocation with other public and corporate pension funds is contained in Table 4. The data indicate that Connecticut is further out on the risk spectrum than a composite of public and private funds prepared by Greenwich Associates, a private investment management firm. The principal difference between Connecticut and the others is the weighting in real estate.

Table 4. Connecticut's Asset Allocation vs Other Public and Corporate Pension Funds, 1988 (Percent).

Asset Class	Connecticut	Public	Corporate
Cash	5.8	6.8	9.2
Fixed Income	36.0	46.0	34.4
Real Estate	14.8	3.9	4.6
Stocks	43.4	40.8	49.3
Other	0.0	2.5	2.4

Source of Data: State Treasurer and Greenwich Associates, as reported in Institutional Investment Management: Grace Under Pressure, 1989.

Diversification within asset classes. Nearly all assets under the control of the treasurer are invested through participation in one of more mutual funds created under the treasurer's statutory authority to establish "combined investment funds." The current mutual funds, described in detail in the following section, represent each major asset class and segments within asset classes. For example, within the equities asset class, funds have been established for domestic and international stocks as well as venture capital.

The aim of such diversification is to spread assets among a combination of funds that do well under different economic conditions, thus reducing risk and providing balance to returns. For similar reasons, efforts are made to divide an individual mutual fund's assets among managers representing a variety of investment philosophies and styles.

Within the fixed income fund, for example, both aggressive and conservative mangers are hired, and firms that specialize in certain types of instruments that may represent a particular sector of the economy, term, or quality are sought. In this way, poor performance on the part of one manager may be offset by the gains that another manager with a different investment approach is experiencing.

Objectives (e.g., a specific rate of return, and more generally, growth, income production, liquidity, etc.) for each of the treasurer's mutual funds are developed by the assistant treasurer and investments division staff and subject to approval by the treasurer. Fund structure (e.g., internal, external, or combined management, number of managers, etc.) and strategies for achieving objectives are similarly developed.

Outside consultants are sometimes hired to assist in developing or revising the structure and strategies for a fund. For example, the number of managers, management styles, and geographic balance of the new International Stock Fund were established with the help of consultant.

Investment Vehicles

As of FY 89, the major investment vehicles used by the treasurer were 11 mutual funds representing 4 major asset classes--cash, equity, fixed income, and real estate. Table 5 briefly describes each of the treasurer's mutual investment funds while a detailed summary is provided in Appendix A.

As Table 5 indicates, the first mutual investment funds, established in 1972, represented domestic stocks (Mutual Equity), dollar-based bonds (Mutual Fixed Income), cash (Short Term Investment) and a residential mortgage pool (Mutual Mortgage). Over time, new funds, such as those for equity real estate and international stocks, have been added to further diversify the state's portfolio. Some, like the Mutual Mortgage and Mutual Contract Funds, have become inactive with changes in the investment climate. In addition to the funds listed in the table, an international bond fund, recently authorized by the treasurer and endorsed by the Investment Advisory Council, will begin operating in the current fiscal year.

Source funds invest in these vehicles by purchasing units or percentages of the mutual investment funds. Investment returns are then distributed to the "owners" based on level of participation. As required by statute, the treasurer has adopted regulations that outline ownership, valuation methods, income distribution, and accounting and other procedures concerning the mutual funds.

Table 5. The Treasurer's Mutual Investment Funds.

FUND	ACRONYM	DATE ESTB.	MARKET VALUE 6/30/88 ($ in millions)
Cash Reserve Account (money mrkt. intruments; pension funds only)	**CRA**	9/87	$708.2
Commercial Mortgage (commercial real estate debt)	**CMF**	FY 88	$78.5
International Stock (foreign corp. stock)	**ISF**	1/88	$104.2
Mutual Contract (insurance co. guaranteed income contracts)	**MCF**	12/80	$45.4
Mutual Equity (domestic stocks)	**MEF**	7/72	$2,515.6
Mutual Fixed Income (govt. & corp. bonds)	**MFIF**	7/72	$2,047.2
Mutual Mortgage (residential mortgage pool--now inactive)	**MMF**	7/72	$3.9
Real Estate (commercial equity real estate)	**REF**	7/82	$907.1
Short Term Investment (money mrkt. instruments; all but pension funds)	**STIF**	7/72	$1,007.2
Venture Capital (venture capital partnerships)	**VCF**	7/87	$16.4
Yankee Mac (in-state residential mortgage pools)	**YMF**	6/81	$36.0

Source of Data: Investments Division.

The pension trust funds, not surprisingly given their size, are the major participants in the treasurer's mutual investment funds. In fact, the two largest pension funds, the Teachers' Retirement and the State Employees Retirement Funds, together own 90 percent or more of all but two of the treasurer's mutual funds as Table 6 shows.

The small, inactive Mutual Mortgage Fund is the only fund in which a nonpension trust fund (the School Fund) is a significant participant (22.5 percent). In the case of the Cash Reserve Account, half of the fund is held by the pension funds, while the mutual funds in which they are invested own the remainder.

The pension trust funds do not participate at all in the Short Term Investment Fund, which is excluded from Table 6. In September 1987, the Cash Reserve Account was established as a separate short-term investment and cash management funds which they invest, to permit better accounting of these actively managed assets. STIF continues to be used as a short-term investment vehicle for state operating funds and all other trust funds. Towns, school districts, and certain other political subdivisions of the state also participate in STIF.

Table 6. Mutual Fund Participation in FY 88: Percent Owned by Each Participant Fund.

	Mutual Funds									
Participants	CRA	CMF	ISF	MCF	MEF	MFIF	MMF	REF	VCF	YMF
Teachers	26.2	48.3	56.3	67.9	56.1	55.3	76.1	56.4	55.5	57.5
St. Emp.	20.7	42.9	36.7	24.2	36.7	36.2	-	37.9	37.0	35.7
Mun. Emp.	1.9	8.2	6.5	7.5	6.0	6.9	1.3	6.0	6.6	6.0
Judges	0.5	0.2	0.4	-	0.3	0.3	-	0.4	0.4	0.4
Probate	0.0	0.2	0.4	0.4	0.4	0.4	-	0.3	0.4	0.1
St. Atty.	-	-	0.4	0.0	0.1	0.1	-	0.0	-	0.0
Other*	50.5	-	-	-	0.3	0.0	22.5	-	-	0.0

Note: A value of 0.0 percent indicates participation at less than one-tenth of one percent; a - means no participation.

* Other includes one or more of the non-retirement trust funds (e.g., Soldiers, Sailors & Marines, School, Cotton, Clark, Agriculture College or Hopemead Funds) <u>except</u> for CRA, for which other participants are the other mutual funds

Source of Data: Investments Division.

CHAPTER III

INVESTMENT PROCESS

In general, the process is the same for investing all funds in the treasurer's custody. The assets of the pension trust funds, however, are actively managed due to their large size (over $6 billion), the steady cash flow of the funds, and the goal of safely maximizing returns to the retirement systems. For source funds with little capital or high liquidity needs, such as the smaller trust funds and temporarily surplus state operating monies, a passive management approach that concentrates on fewer vehicles and shorter term, guaranteed rate instruments is followed.

Major elements of the investment process, described in detail below, include:

- distributing capital among investment vehicles (the mutual funds) in accordance with policy;
- operating mutual funds, either internally or through external managers;
- selecting external managers;
- monitoring performance; and
- reporting results.

The Investments Division's execution of domestic stock transactions, a key function in the operation of the Mutual Equity Fund, is also described.

Distributing Capital

Cash flow, regardless of its source, is initially deposited in a short-term, money market type of account pending expenditure or transfer to other types of investment vehicles. The assistant treasurer for investments is responsible for distributing investment capital, as it becomes available, among the mutual funds in accordance with the asset allocation policy adopted by the treasurer and the Investment Advisory Council.

Pension fund cash flow, the most active, is allocated each month in accordance with the formal asset mix policy. Allocations are made after checking cash balances and comparing the actual asset mix of each retirement fund to the formal policy and to each other. Monthly cash flow is used to rebalance each fund's asset mix as needed.

The assistant treasurer also considers requests from division fund managers when allocating cash flow. For example, real estate fund staff may request that some amount of future revenues be reserved to finance a deal currently in negotiation.

Within the mutual funds, responsible division staff allocate cash flow. For funds with external managers, this responsibility includes: assigning monies among external managers at funding levels set by the treasurer, the assistant treasurer, and the Investment Advisory Council; and insuring that, in general, the capital of each pension fund is allocated in equal proportions among external managers, at least in terms of differing investment styles.

Operating Mutual Funds

The treasurer's mutual investment funds are overseen by senior staff of the Investments Division. Some funds are operated totally by division staff, while others use outside professionals for day-to-day portfolio management. Internal and external responsibility for each fund is summarized in Table 7.

In general, outside professional services are sought for funds that require staffing levels and services that are neither feasible nor economical to develop in-house. As Table 7 indicates, external managers operate the large Mutual Equity Fund as well as the smaller, highly specialized equity funds. Daily management responsibility for the Mutual Fixed Income fund, the second largest fund overall, is split between division staff and outside managers. Division staff are responsible for both short term cash funds and the smaller fixed income sector funds.

Outside professional real estate investment firms also are used for mangement of the Real Estate Fund. However, their role differs from other types of external managers. These external mangers propose real estate investment deals but the division's real estate staff make the decisions on specific real estate transactions, subject to the treasurer's approval.

Acting in a fiduciary capacity, the external real estate managers then own and manage the selected investment properties. The state has no liability beyond the actual investment, which occurs in the form of a security (e.g., shares of a group annuity, limited partnerhsip, group trust, etc.). This arrangement is necessary since the tresurer's real estate investments are limited by statute to securities (the state cannot directly own the investment properties).

Table 7. Management of Treasurer's Mutual Investment Funds in FY 88.

Fund	Overall Supervision	Daily Management
CRA	Invest. Officer Short Term Invest.	division staff
CMF	Sr. Invest. Officer Real Estate	1 external manager
ISF	Asst. Treasurer* for Investments	5 external managers
MCF		division staff
MEF	Asst. Treasurer* for Investments**	13 external managers
MFIF	Sr. Invest. Officer* Fixed Income	40% division staff; 60% external managers
MMF	Sr. Invest. Officer Real Estate	division staff
REF	Sr. Invest. Officer Real Estate	13 external managers
STIF	Invest. Officer Short Term Invest.	division staff
VCF	Asst. Treasurer for Investments	1 external manager
YMF	Sr. Invest. Officer Real Estate	division staff

* The Senior Investment Officer for Pension Analysis assumed supervisory responsibilty for these funds during FY 89.

** An outside consultant monitors and evaluates manager performance and assists with the hiring of new Mutual Equity Fund managers.

Source: LPR&IC staff analysis

Although the number of funds operated internally and externally is about equal, the bulk of the assets in the treasurer's custody are externally managed. Table 8 shows that at the end of fiscal year 1988, 39 external managers handled approximately two-thirds of the total assets.

Table 8. Funds and Assets by Type of Management, as of June 30, 1988.

INTERNAL MANAGEMENT Fund	Mkt. Val. Assets(MM)	EXTERNAL MANAGEMENT Fund	Mkt. Val. Assets(MM)	No. Mgrs.
Cash Reserve.....$	708.2	Commerical Mortgage......$	78.5	1
Mutual Contract..	45.3	International Stock.........	104.1	5
Mutual Fixed Income (40%)...	807.8	Mutual Equity...	2,515.6	13
Mutual Mortgage..	3.9	Mutual Fixed Income (60%)..	1,223.7	6
Short Term Investment.....	1,007.2	Real Estate.....	907.1	13
Yankee Mac.......	36.0	Venture Capital.	16.4	1
Total	$2,608.4		$4,845.4	39

Source of Data: Investments Division

The external fund mangers are subject to the same investment restrictions as the treasurer, including the statutory prohibitions on investment in South Africa, Northern Ireland, and Iran as well as legal standards of prudent investment and fiduciary responsibility. In addition, the treasurer's official policies concerning corporate responsibility and prudent investment must be observed.

Written guidelines established for the equity, international stock, and fixed income funds outline specific investment restrictions regarding those funds; similar guidelines are not available for the remaining mutual funds. Guidelines are developed by the division staff and are subject to approval by the treasurer.

Existing guidelines vary in content but cover such items as minimum acceptable quality and required cash management procedures. Limits on the total amount of certain types of instruments within a manager's portfolio (e.g., unlisted securities are limited to 20 percent of equity assets), and prohibited procedures (e.g., no short sales, no leverage or margin purchasing, etc.) are also included in existing fund guidelines.

Subject to the general investment restrictions and their specific written guidelines, fund managers, both internal and external, select instruments, make buying and selling decisions, and otherwise manage the fund portfolio on a day-to-day basis. Individual transactions, except for certain equity real estate investments, do not have to be approved by top division management prior to execution. All of the Mutual Equity Fund managers, however, must execute their transactions through the Investments Division's internal trading desk, a process described in the following, separate section.

For the Real Estate Fund, prior approval by top management is required for specified transactions. These are the specific equity real estate deals in which the state is the sole or one of a limited number of major investors, in contrast to real estate investments involving participation in blind, comingled equity real estate funds.

The approval process involves the following steps. Division real estate staff first conduct a complete market analysis of each potential investment; site visits are made to those considered promising. Potential investments are discussed with the assistant treasurer and treasurer. Specified transactions under serious consideration are also discussed with the Investment Advisory Council.

For each recommended transaction, division staff prepares an investment memorandum that summarizes the structure and financing and for initial investments, a proposed funding level is usually included. The memorandum is signed by the senior real estate staff, forwarded to the assistant treasurer and the treasurer for approval and signature, and formally presented to the advisory council for review.

The Mutual Contract, Mutual Mortgage, and Yankee Mac Funds are essentially inactive now and passively managed by division staff. Initial instrument selection and certain investment details (e.g., interest rates for the Yankee Mac mortgages) were subject to the approval of treasurer and the Investment Advisory Council.

Domestic Equities Trading

All trades of Mutual Equity Fund securities are handled by the internal trading desk of the division's Operations and Trading Unit. External equity managers are required to call the desk with their buy and sell instructions. These instructions may be: specific (e.g., buy or sell at a certain price); general (e.g., buy or sell within a specified price range); or discretionary (e.g., the trader uses own judgment to execute purchase or sale).

Prior to executing any purchases, the internal traders insure that South African, Northern Ireland, and Iranian restrictions are met by checking the latest list of unapproved investments. Proposed purchases of unapproved securities will not be executed.

The trading desk maintains accounts with nearly 100 brokers representing 4 general categories. These include:

- full service -- firms that provide information, research, and advice in addition to executing trades;
- discount -- firms that only execute trades and, therefore, offer a lower cost;
- research/service -- firms that are directed a certain amount of commissions in exchange for a specified value of research or other types of investment services; these firms either provide the services directly or pay for services provided by a third party; and
- minority/women-owned and local -- firms that participate in the treasurer's broker commission set-aside program described below.

Brokers are selected for specfic transactions by the trading desk staff, generally on the basis of what services are needed, what type of securities are involved, and the difficulty of the trade. Broker use is also guided by an overall commission allocation policy that budgets a portion of total commissions for research/service brokers, minority or women-owned or local brokerage firms, and discount brokers. The commission allocation policy is developed annually by the treasurer with input from division staff.

At the end of each day, the internal traders record all transactions in a daily "blotter" that shows by trade:

- trade and settle dates;
- security name, number of shares and price;
- broker used and commission paid (in total and by share); and
- other fee information, if any.

The unit's operations staff confirm each trade, prepare final paperwork, including a final "blotter", and complete the transaction processing (e.g., handle any wired monies, etc.).

Copies of the final "blotter" are distributed to top investment management (i.e., treasurer, assistant treasurer for investments) for their information, and to the state auditors for review. The final "blotter" is also sent to the Investments Division's master custodian bank to guide its disbursements, collections, and transaction accounting regarding domestic equities trades.

Commission costs for a trade are negotiated with brokers by the internal traders at the time of the transaction. Commissions paid to brokers are then netted out in the trade price of transactions. As a result, these costs do not show up in the budget of the Investments Division.

Total broker commissions over the past five years, as reported by the division, are shown in Table 9. During the period shown in the table, the commission cost per share traded averaged about six cents.

Table 9. Broker Commissions Paid: FY 85 - FY 89.

State Fiscal Year Ending June 30	Total Commission Payments
1985	$2,395,000
1986	$4,618,000
1987	$4,679,000
1988	$4,280,000
1989 (est.)	$3,700,000

Source of Data: Operations & Trading Unit, Investsments Div.

Information on total numbers of shares traded, which indicates annual trading volume, has been compiled by the unit since mid-1987. During FY 88, 44,036,136 shares were traded at an average commission cost of .064 cents per share. From July 1, 1988 through March 1, 1989, a total of 46,432,661 shares were traded. The commission cost per share for the first 8 months of fiscal year 1989 averaged .045 cents.

Brokers used. During the last fiscal year, more than half (55 percent) of all commissions were paid to full-service brokers compared with only about 5 percent paid to discount brokers. Commissions directed to firms in exchange for research and other services accounted for just over 20 percent of FY 88 commission expenses. All together, brokers included under the treasurer's set-aside program for minority/women-owned and local firms received almost 18 percent of paid commissions.

Under the treasurer's set-aside program, the internal traders try to direct a specified value of commissions to participating minority/women-owned brokerage firms and to local (defined as having a Connecticut office) brokers. The current overall minority/women and local broker allocation goal is 25 percent of commissions paid. The goal was established by the treasurer, with input from the heads of the Social Compliance and the Operations and Trading Units.

A list of local and minority/women-owned brokerage firms recommended for the set-aside program is developed each year by the Social Compliance Unit. The list also includes proposed commission allocation goals for each recommended participant.

In developing the list, federal Securities and Exchange Commission (SEC) reports and affirmative action information supplied by interested brokers, who have requested to be considered for the program, are reviewed. Potential participants must also supply three institutional references.

The list and allocation goals developed by the Social Compliance Unit are submitted to the treasurer for finalization and approval. Minority, women, and local brokers approved by the treasurer for participation in the program are notified of their selection by mail. However, participants are not told their allocation goals.

Statistics on the types of brokers used and commissions paid during state FY 88 are summarized in the following table. The allocations for brokers with budgeted commissions are also shown in Table 10.

Table 10. Broker Commission Statistics: State FY 1988.

TYPE	NO. USED	COMMISSIONS BUDGETED	COMMISSIONS PAID	PERCENT OF TOTAL PAID
Local	5	$260,000	$212,292	5.72%
Minority/ Women	6	$405,000	$436,571	11.76%
Research/ Service	12	$832,050	$791,202	21.31%
Discount	5	*	$188,322	5.07%
Full Service	68	n/a	$2,060,598	55.51%
Other (e.g., internal)	2	n/a	$23,187	.62%
TOTAL	98		$3,712,172	(100.00%)

n/a = not applicable

* Commissions are not budgeted for discount brokers although a target of $100,000 for lowest cost/share trades was set for FY 88

Source of Data: Operations and Trading Unit, Investments Division.

Selecting External Fund Managers

The same basic steps are followed for hiring external managers for all the mutual funds. Senior division staff who oversee a mutual fund have primary responsibilty for identifying and screening potential external managers, if any, for that fund.

An outside consultant assists, on an on-going basis, in searching for and evaluating new Mutual Equity Fund managers. The consultant meets periodically with the assistant treasurer to discuss potential new managers and whether existing managers should be retained. The division's new Pension Analysis Unit will be assuming this function later in 1989.

Outside consultants have also been hired to assist in manager selection on a one-time basis. For example, consulting firms were used to screen and recommend outside advisors to manage the new International Stock Fund and the recently authorized International Bond Fund.

Criteria considered in the screening process for external managers include:

- performance record (returns relative to other managers, financial benchmarks);
- investment style (aggressive, moderate, or conservative, growth or value oriented, etc.);
- stability of the organization (years in business, staff turnover rate, etc.); and
- qualifications/experience of key personnel.

A firm's internal policies on equal opportunity, affirmative action and corporate responsibility are also evaluated.

Responsible senior staff present recommendations for new outside managers to the assistant treasurer for investments. Funding levels--the portion of a mutual fund's assets to be assigned to the external advisor for management--are usually proposed at this time as well. Screening of outside investment advisors for the Real Estate Fund involves an additional step because potential advisors are usually proposing a specific investment. Thus, the merits of the investment proposal, as well as the external real estate manager, will be evaluated.

The assistant treasurer presents final recommendations to the treasurer. As part of the final evaluation, a social compliance review of any recommended manager is conducted by the treasurer's staff. Managers who fail to meet social responsiblity criteria are withdrawn from consideration.

The treasurer interviews manager candidates and, in consultation with the assistant treasurer, decides which ones will make presentations to the Investment Advisory Council. After the managers make their presentations, the advisory council, through a formal vote, recommends whether or not the treasurer should select them. Initial funding levels for new managers are usually discussed with the council during the selection deliberations. The final hiring decision, however, rests with the treasurer.

External managers are officially hired by standard contracts, which are processed like other state personal service agreements with review by the Offices of the Attorney General and the Comptroller as to form and funding. Agreements with external managers outline the services to be provided, fees and compensation schedules, and all affirmative action and equal employement opportunity requirements.

External manager fees are based on the market value of the portfolio managed and usually stated as a percentage per dollar amount of value, often on a sliding scale. For example, a manager may receive a fee of 0.5 percent on the first $25 million of assets, 0.25 percent on the next $25 million, and 0.2 percent on any value over $50 million.

Most professional investment advisors have a stated fee schedule, although more favorable rates can sometimes be negotiated by the Investments Division staff. Fees vary widely and depend on the type of assets managed. Specialty managers, such as firms expert in handling venture capital partnerships or international securites, receive the highest rates due to the higher costs associated with managing more complicated instruments.

The selection of external managers is an ongoing process, as indicated by Table 11, which summarizes the managers retained by the treasurer and the portion of a fund portfolio each managed over the period FY 86 through FY 88. During this period, six managers were dropped and ten new ones were added for existing mutual investment funds while seven managers for funds initiated during FY 88 were hired. Overall, the total number of external managers increased from 28 to 39.

Table 11. External Managers Retained by the Treasurer: Percent of Mutual Fund Assets Managed, FY 86 - FY 88.

EXTERNAL MANAGERS	FY 86 %	FY 87 %	FY 88 %
Fixed Income			
Scudder	11.2	-	-
Bear Stearns	9.9	9.2	8.8
Lehman	13.4	-	-
Loomis Sayles	18.0	13.4	13.8
Pacific Investment	-	8.7	9.7
Standish Ayer Wood	-	8.8	9.4
State St. Research	-	8.8	9.0
STW	-	8.5	9.2
Total Percent	52.5	57.4	59.9
Total Market Value	$1,447	$1,920	$2,043
Equity			
Aetna	4.2	4.8	5.0
Bankers Trust (index)	8.0	16.1	27.5
Capital Guardian	21.1	12.5	11.9
CT National Bank	2.9	2.7	2.5
Glickenhaus	3.7	4.4	-
Oppenheimer	11.0	10.3	9.7
Phoenix	4.3	4.9	5.6
Provident Capital	10.7	5.0	-
Wright	12.0	11.5	11.4
Concord Capital	4.1	4.6	4.8
Franklin	3.8	5.3	5.5
N.E. Asset Mgt.	-	-	1.7
One Lewis Street	-	-	3.2
Roanoke	3.9	3.7	3.6
Siebel	3.7	3.9	-
Wright Jr. Blue Chip	4.0	4.3	4.1
Inventory Fund	2.6	5.9	3.3
Total Percent	100.0	99.9	99.8
Total Market Value	$2,018	$2,545	$2,516

EXTERNAL MANAGERS	FY 86 %	FY 87 %	FY 88 %
Real Estate			
Aetna	30.6	24.8	16.8
CIGNA	21.2	17.4	16.8
Copley	-	3.0	5.3
Hancock	-	1.3	1.8
Heitman	5.8	7.8	12.4
JMB	5.9	6.0	11.0
Morgan	7.0	6.2	5.3
Phoenix	5.2	4.6	3.8
Public Storage	3.9	5.3	4.9
RREEF	13.5	14.3	11.3
Security Capital	-	-	0.7
State St./AEW	5.9	8.0	6.5
TCW	-	1.3	3.5
Travelers	1.0	-	-
Total Percent	100.0	100.0	100.1
Total Market Value	$523	$678	$870
International Stock			
Boston Intrnl. (Index)	-	-	33.3
Capital Guardian	-	-	16.7
Fidelity International	-	-	16.7
Nomura Capital	-	-	16.7
Schroder	-	-	16.7
Total Percent			100.1
Total Initial Funding			$150
Commercial Mortgage			
Aldrich	-	-	100.0
Total Market Value			$78
Venture Capital			
Crossroads	-	-	100.0
Total Initial Funding			$100

Source of Data: Investments Division and Treasurer's Annual Reports

NOTE: Dollar values are in millions

Monitoring Performance

Investment performance is continually monitored by division staff and regularly reviewed by the treasurer and Investment Advisory Council. In addition to overall returns on investment, performance is analyzed by mutual fund, by manager, and by major retirement fund.

Senior division staff are responsible for collecting and analyzing performance information on the mutual funds and external managers, if any, they oversee. However, an outside consultant monitors Mutual Equity Fund performance overall and by manager and meets regularly with the assistant treasurer to review fund and manager results; internal capacity to carry out this function is being developed now.

Each quarter, written reports that include information on returns versus benchmarks for the previous three months and over time, both overall and by manager (if applicable) are prepared for each mutual fund. Most mutual fund quarterly reports are developed by the responsible divison staff; however, the outside consultant prepares the equity fund quarterly report.

Detailed transaction information is included in reports for the short-term money funds (STIF, CRA), which are internally managed, as well as for the internally managed portion of the Mutual Fixed Income Fund. Reports on the newly established Venture Capital Fund are prepared by the fund's external manager. Due to the slow start-up time for venture capital investments, reports are only being made every six months at this point.

The assistant treasurer prepares a quarterly report on the status of each major retirement fund that indicates its allocation among asset classes (mutual funds) and its returns, both overall and by asset class. The Social Compliance Unit prepares a quarterly report on disinvestment progress, noting any significant developments in terms of investment restrictions.

Quarterly performance reports for each mutual fund, the major retirement funds, and on social compliance are reviewed by the treasurer and formally presented to the Investment Advisory Council at the its March, June, September, and December meetings. An internally prepared economic review and outlook is also provided to the council on a quarterly basis for background information.

Reports are presented by division staff except for the Mutual Equity Fund, which is presented by the consultant, and the Venture Capital Fund, which is discussed by the current fund manager. Based on the report information or recommendations from the division staff, the council may request that external managers appear at a meeting to explain unsatisfactory performance. After review and questioning, the council acknowledges receipt of the quarterly performance information through a formal vote.

Annually, during the Investment Advisory Council's May meeting on asset allocation, long-term performance is Reviewed and performance by asset class is analyzed. Investment performance, overall, by mutual fund, and by source fund, is also reviewed by the Auditors of Public Accounts during their annual examination of the Office of the State Treasurer.

Reporting Results

Investment results are formally reported by the division both quarterly and annually. As described above, quarterly reports covering each mutual fund and the major retirement funds are prepared by division staff and/or consultants and presented to the Investment Advisory Council.

The treasurer's statutorily mandated annual report includes a description of each mutual fund and an overview of the Investments Division activities for the preceeding fiscal year. A report from the advisory council to the governor, the legislature and trust fund beneficiaries on the value of the state's investments, which is also required annually by state law, is included in the treasurer's annual report.

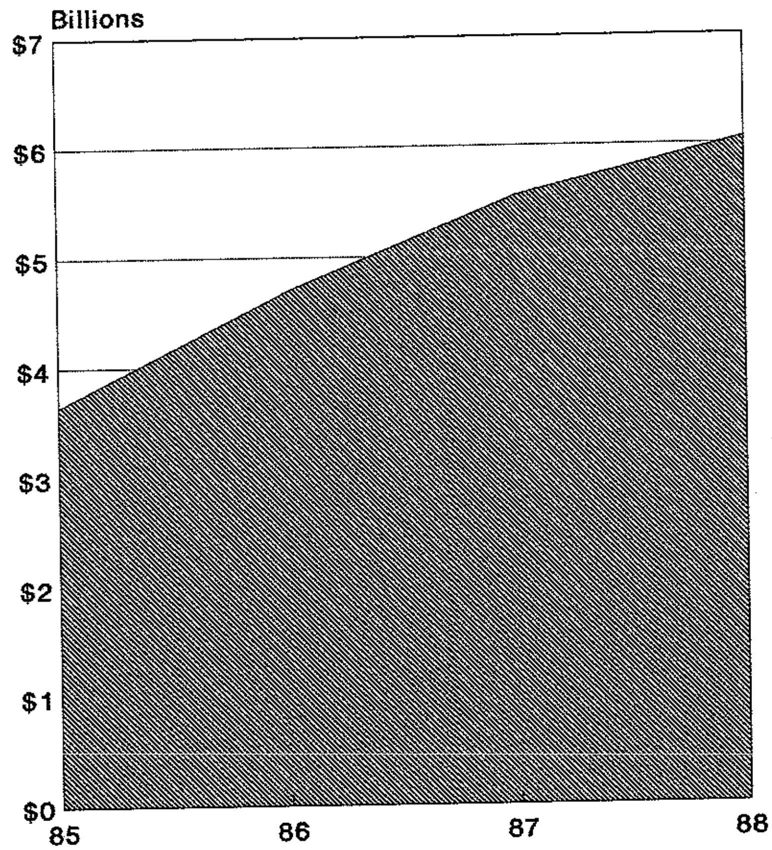
The statutory deadline for the annual report of September 15 was amended to October 15 by Public Act 10 of the 1989 regular session of the General Assembly. In recent years, the deadline has been met by submitting a final draft version to the governor. The treasurer's annual report for fiscal year 1987 was not published until May 1988 and the fiscal year 1988 report is not available in final form at this time.

CHAPTER IV

INVESTMENT PERFORMANCE

The total market value of the actively managed assets in the treasurer's custody has been growing steadily, as Figure 7 shows. Between FY 85 and FY 88, the combined market value of the active pension funds, as reported in the treasurer's annual report, increased 66 percent, rising from $3.6 billion to over $6.0 billion.

Figure 7. Market Value of the Actively Managed Assets, FY 85 - FY 88



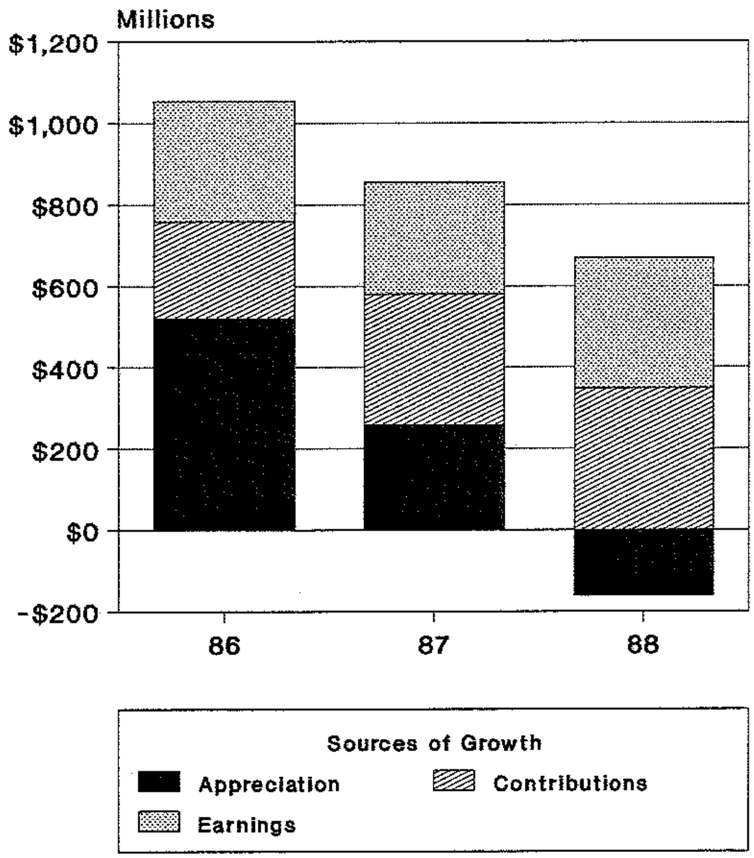
Source of Data: Investments Division

Growth in asset value comes from three sources: 1) new capital, such as retirement contributions; 2) appreciation of assets held in the portfolio; 3) earnings from reinvestment of interest and dividends on existing assets. Figure 8 shows amount of growth due to each source for the past three fiscal years.

Figure 8 illustrates that earnings accounted for about 25 percent of the total growth in FY 86 and roughly 33 percent in FY 87, while growth attributable to asset appreciation was approximately 50 percent in FY 86 and 33 percent in FY 87.

The impact of the October 1987 stock market crash on the state's investment portfolio can be seen in two areas. First, appreciation was a negative growth factor in FY 88. Second, new capital, which made up about 25 and 30 percent of asset growth for fiscal years 1986 and 1987, accounted for about 50 percent in FY 88.

Figure 8. Growth in Asset Value by Source, FY 86 - FY 88



Source of Data: Investments Division

A standard measure of investment performance is the return on investment attributable to appreciation and earnings. Together, these two factors comprise total return. Their performance is heavily dependent on investment decisions and market conditions.

The overall rates of return for the actively managed assets for fiscal years 1982 through 1988, as reported in the treasurer's annual report, are shown in Figure 9. All return figures reported and used by the treasurer are net of manager fees, transactions costs, and other related investment division expenses.

Rates of return during this seven-year period have ranged from a high of 36.6 percent in FY 83 to a low of 0.3 percent in FY 84. For comparative purposes, Figure 9 also contains data on major benchmarks of investment performance.

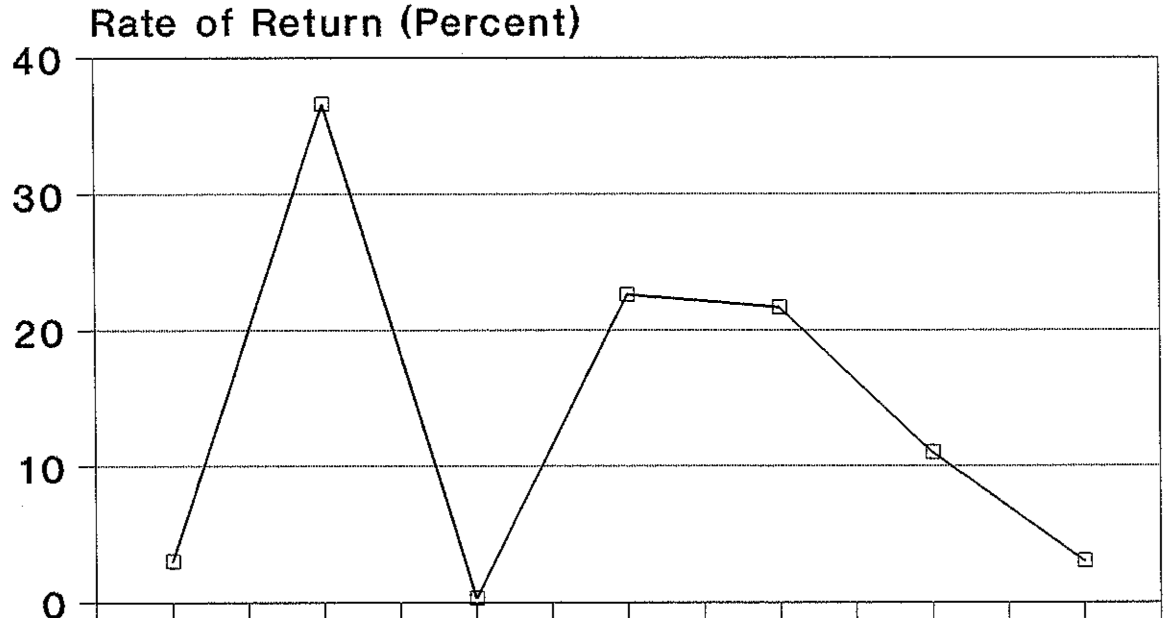
On an annualized basis, the overall rate of return on the state's investments during the seven-year period was 13.4 percent. This figure compares favorably with the other performance benchmarks pictured in Figure 9.

It exceeds by nearly three and a half times the treasurer's goal of producing a rate of return that is four percent above the rate of inflation as measured by the Consumer Price Index (CPI). The treasurer's investments also outperformed the 90-day Treasury bill, the accepted indicator of risk-free rate of return, in four of the last seven fiscal years and on an annualized basis (13.4% vs 7.6%).

Returns of the treasurer's diversified portfolio are compared to those of a recognized indicator of an all stock portfolio, the Standard and Poor's (S&P) 500 Index While below the 16 percent annualized return of the S&P 500 Index for FY 82 through FY 88, the treasurer's returns each year show considerably less volatility than those of the index. Furthermore, some of the differences in performance, particularly since FY 85, are due to South Africa investment restrictions and divestiture requirement that must be observed by the treasurer.

Another way to measure the treasurer's investment performance is to compare returns for Connecticut's actively managed assets with those of other public funds. However, comparisons are difficult because differences in returns may be due to a number of factors other than investment performance. Chief among these is the fact that public funds operate under a wide variety of legal restrictions and investment policies. Also, the size and funding status of a retirement fund may have an impact on what investments are made and what returns will be realized.

Figure 9. Overall Rate of Return
FY 82 - FY 88



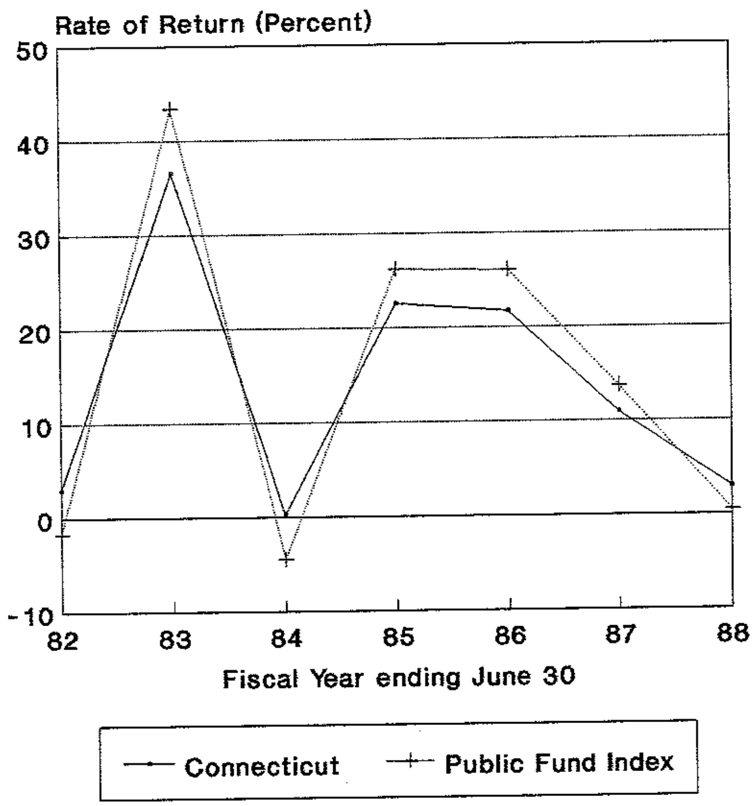
	82	83	84	85	86	87	88
Overall	3	36.6	0.3	22.6	21.7	11	3
CPI	7.1	2.6	4.2	3.9	1.5	3.7	4
90-day T-Bill	13.6	8.7	9.6	9	7.3	5.7	6.1
S&P 500	-11.6	61.2	4.7	31.1	35.8	25.2	-6.9

Source of Data:
Treasurer's Annual Report, FY 88

At present, there is no generally accepted benchmark for measuring public pension fund performance. One indicator that is used by the financial management industry is the Public Retirement Fund Index prepared by CDA Investment Technologies.

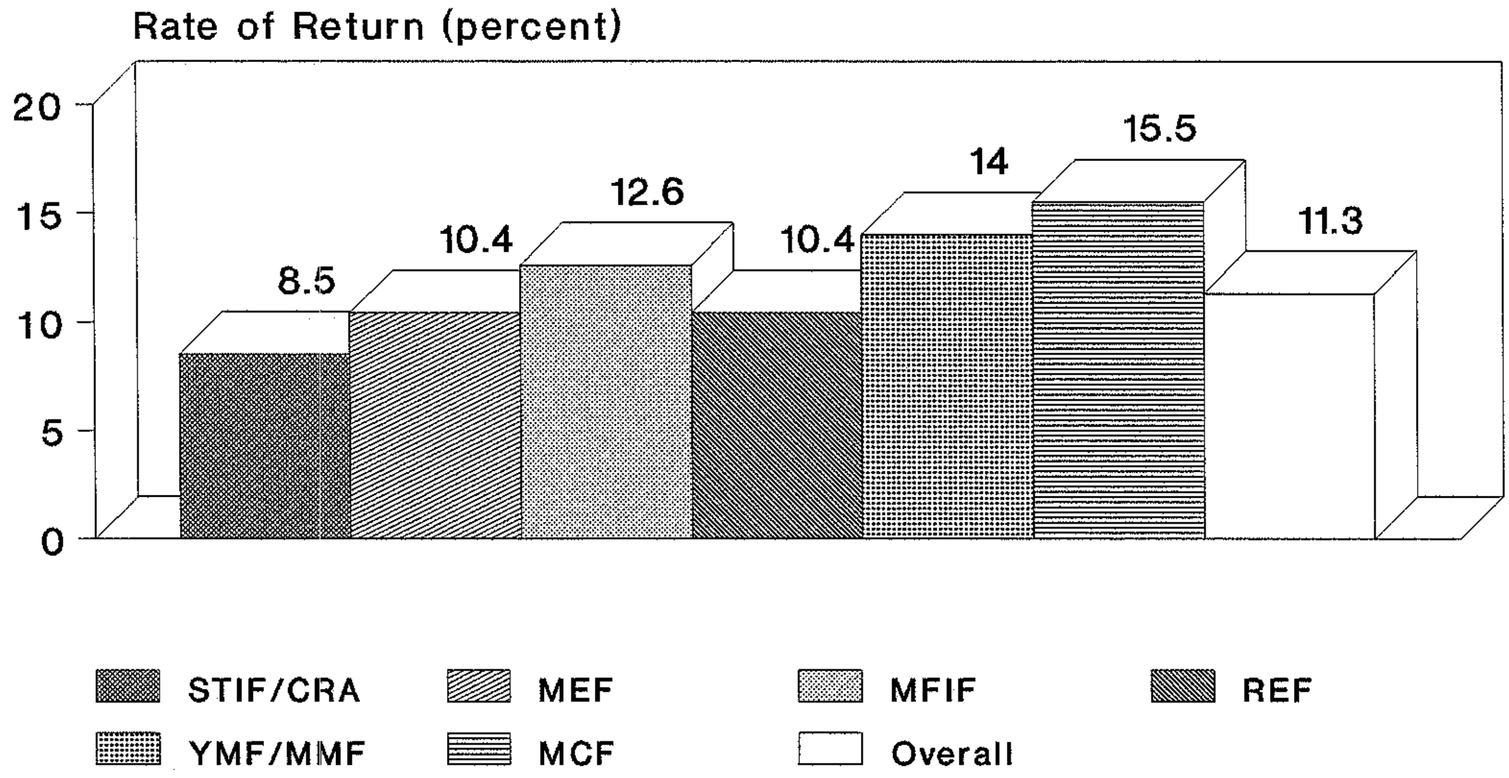
Figure 10 compares the overall return of Connecticut's actively managed pension funds with the Public Retirement Fund Index. However, extreme caution must be used in interpreting the results because the two are not strictly comparable. Connecticut's reported rate of return is net of expenses while the Public Fund Index is a gross figure. What can be inferred from the graph is that Connecticut investments have performed similarly to other public pension funds and have probably experienced less volatility.

Figure 10. Connecticut vs Other Public Funds: Rate of Return FY 82 - FY 88



Source of Data: Investment Division;
CDA Public Fund Index from Ennis, Knupp
& Assoclates

Figure 11. Treasurer's Mutual Funds
Annualized Rates of Return
FY 84 - FY 88 (5 Years)



Source of Data:
Treasurer's FY 88 Annual Report

Mutual fund performance. Overall performance actually is a combination of the returns from each of the treasurer's mutual investment funds. The mutual funds, because they represent different investment sectors, perform differently. The diversity is demonstrated by Figure 11, which shows annualized rates of return for the funds in existence over the last five fiscal years.

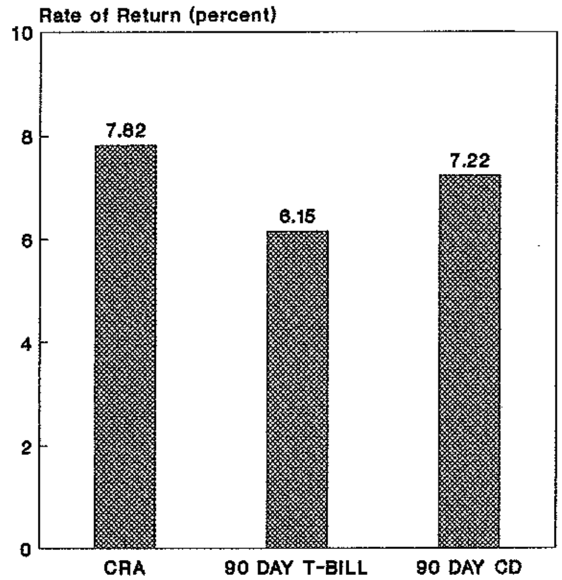
Data on returns and benchmarks for each mutual fund are presented and discussed below. For most funds, the data cover fiscal years 1984 through 1988. For the newer funds, including the Commercial Mortgage, International Stock, and Cash Reserve Account Funds, performance statistics are only provided for part of FY 88. In the case of the Venture Capital Fund, also established during FY 88, performance data are being developed. Separate information on the Mutual Mortgage Fund has not been provided by the treasurer in recent years since the fund is inactive.

Figure 12 shows that for its first 10 months of operation, the treasurer's money market account for the active pension funds, the Cash Reserve Account, had a higher rate of return (7.82 percent) than either 90-day treasury bills or the benchmark index for certificates of deposit. The treasurer's other short-term fund, the STIF, has also consistently outperformed both the 90-day T-Bill and CD benchmarks over the past five fiscal years, as shown in Figure 13.

Performance of the Mutual Equity Fund, the treasurer's domestic stock fund, is displayed in Figure 14. The MEF underperformed the Standard and Poor's 500 Index every year shown except for FY 88. This result is generally attributed to the fact that the MEF, unlike the S&P 500, is prohibited from investing in firms doing business in South Africa and thus tends to be concentrated in smaller capitalization stocks. Performance has also been affected by the treasurer's mandate to divest holdings in corporations doing business in South Africa by July 1989.

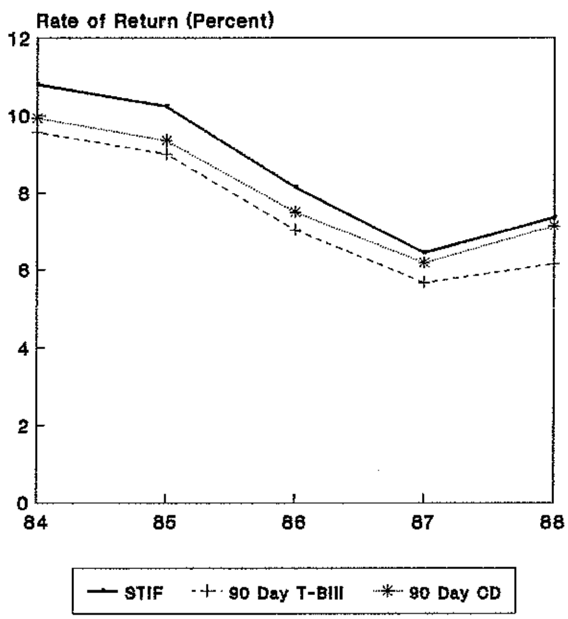
In Figure 15, MEF performance in FY 87 and FY 88 is compared to two indices adjusted for South Africa investment restrictions: the South Africa Free (SAF) Standard and Poor's 500, and the SAF Russell 3000. The Russell 3000 is based on a broad stock portfolio that like the MEF contains many smaller capitalization holdings and is, therefore, considered a closer benchmark than the more commonly used S&P 500. The performance of the MEF and the Russell 3000 is similar, with MEF doing slightly better over both years presented in the figure. The SAF Standard and Poor's 500 exceeded MEF in FY 87, but the treasurer's domestic equity fund performed significantly better than the benchmark in FY 88.

Figure 12. CRA Performance
FY 88 Partial Year
(Sept. 1, 1987 - June 30, 1988)



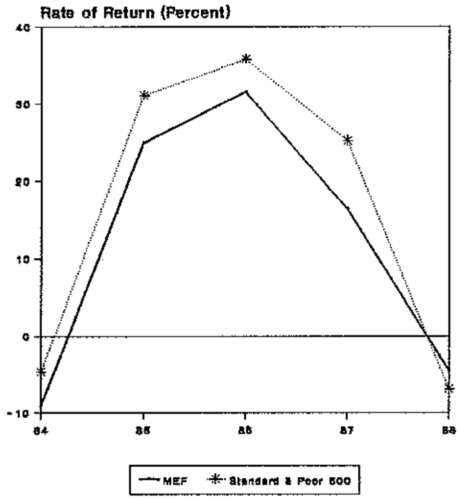
Source of Data: Investments Division

Figure 13. STIF Performance
FY 84 - FY 88



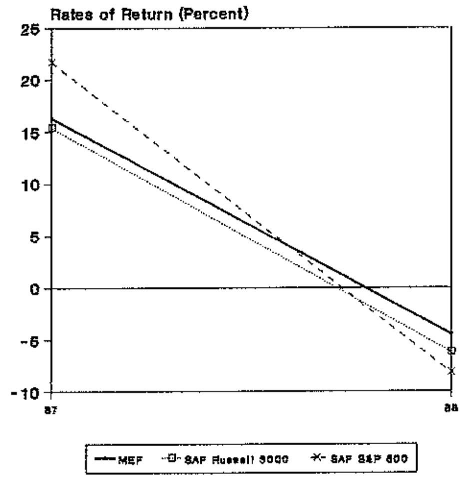
Source of Data: Investments Division

Figure 14. MEF Performance
FY 84 - FY 88



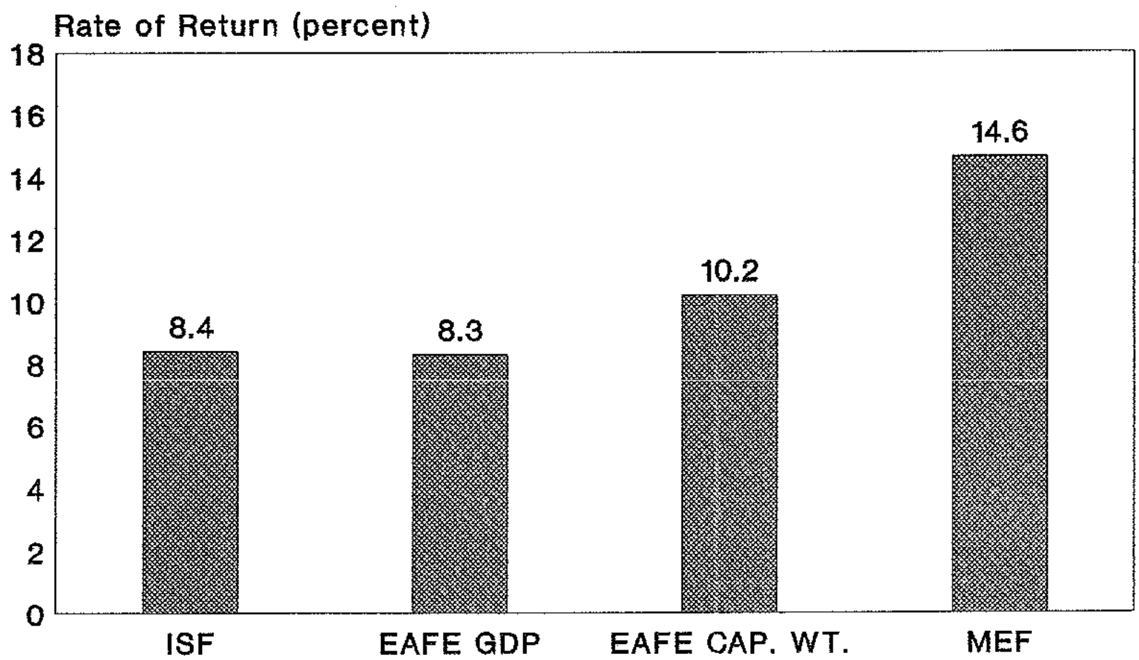
Source of Data: Investments Division

Figure 15. MEF Performance
South Africa Free (SAF) Benchmarks
FY 87 - FY 88



Source of Data: Investments Division

Figure 16. ISF Performance
FY 88 Partial Year
Jan. 1, 1988 - June 30, 1988

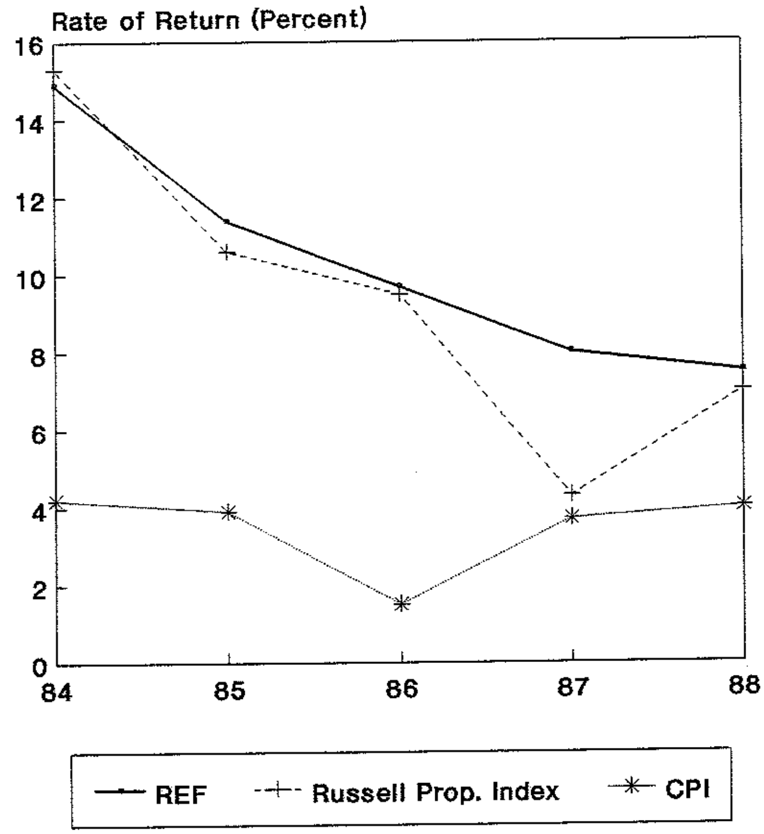


Source of Data: Investments Division

Returns of the treasurer's new International Stock Fund (ISF) over its first six months of operation are compared with two foreign stock indices in Figure 16. Of the two, the European, Australian, Far East index based on market capitalization weights (EAFE Cap. Wt.), is the more widely used benchmark. However, the Europeon, Australian, Far East index weighted on the basis of a country's gross domestic product (EAFE GDP) is more representative of the ISF structure. Despite high start up costs which reduce initial returns, the ISF performed as well as the EAFE GDP benchmark although returns were lower than those of the EAFE Cap. Wt. index.

The treasurer's equity real estate fund, REF, has shown good returns over the past five fiscal years. As Figure 17 portrays, the REF has produced returns well above the inflation rate as measured by the Consumer Price Index and has exceeded its benchmark, the Russell Property Index, each year except FY 84.

Figure 17. REF Performance
FY 84 - FY 88



Source of Data: Investments Division

Performance has also been good for most funds in the fixed income sector within this period. The Mutual Fixed Income Fund, except for FY 86, has done as well or better than both of its benchmarks, the Salomon Brothers Broad Bond Index and the Shearson/Lehman Government-Corporate Bond Index, as pictured in Figure 18. In Figure 19, steady high returns of the Mutual Contract Fund compare well with the Shearson Bond Index and are very good relative to the 90-day Treasury Bill rate.

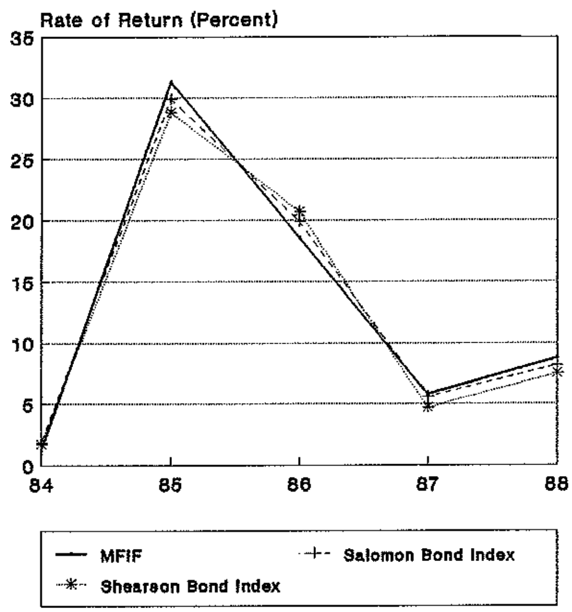
Data on Yankee Mac Fund (YMF) performance, shown for the past three fiscal years in Figure 20, reflect the major restructuring undertaken during FY 88 to improve returns. While the fund underperformed the Salomon Brothers Mortgage Index in the first two years, the YMF returns were substantially higher than the benchmark for the 1988 fiscal year.

Figure 21 presents performance information on the Commercial Mortgage Fund (CMF), another fund established during FY 88. Like other newly established funds, CMF initial returns are diminished by start-up costs. For the period shown, the fund, which invests in commercial real estate debt, produced lower returns than the Salomon Brothers Broad Bond Index, a benchmark for commercial debt instruments.

Pension fund returns. Returns for each of the primary sources of investment money generally parallel the overall return rate for combined assets. As discussed earlier, the major pension funds, due to similar funding characteristics, cash flow, and asset management policies achieve roughly the same rates of return. This can be seen graphically in Figure 22, where the annualized rates of return for the teachers, state employees, and municipal employees retirement funds are nearly identical.

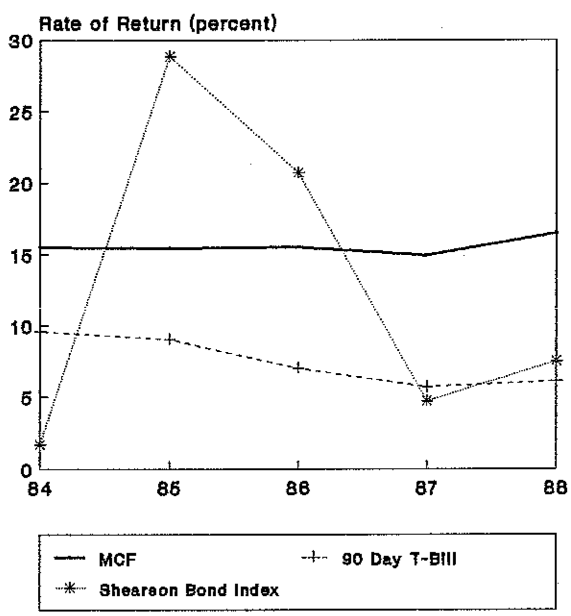
Figure 23 illustrates that the smaller retirement funds covering the probate court, judges, and state's attorneys, sometimes perform differently than the major pension funds. This is due in large part to their greater variation from the asset allocation policy. This problem is exacerbated by the difficulty involved in bringing the asset mix of these funds in line with the policy given the relatively small flow of new capital from these funds.

Figure 18. MFIF Performance
FY 84 - FY 88



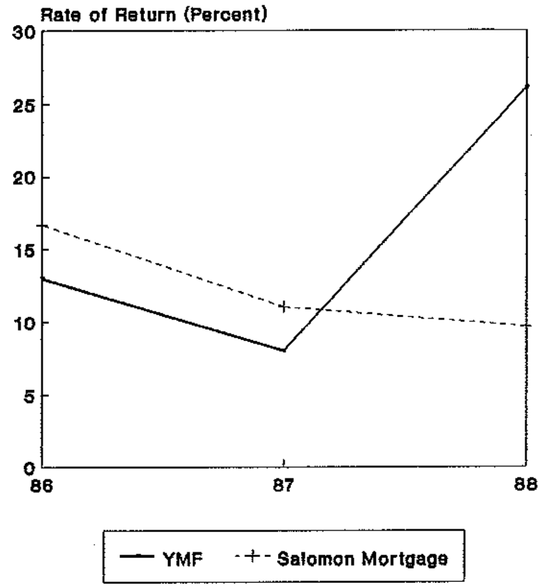
Source of Data: Investments Division

Figure 19. MCF Performance
FY 84 - FY 88



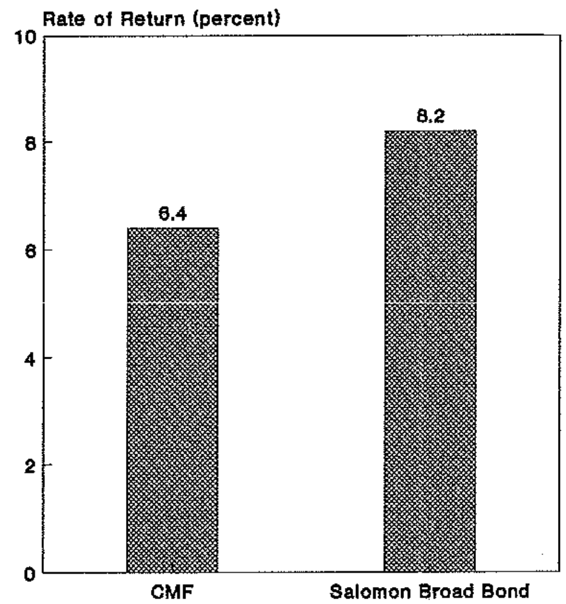
Source of Data: Investments Division

Figure 20. YMF Performance
FY 86 - FY 88



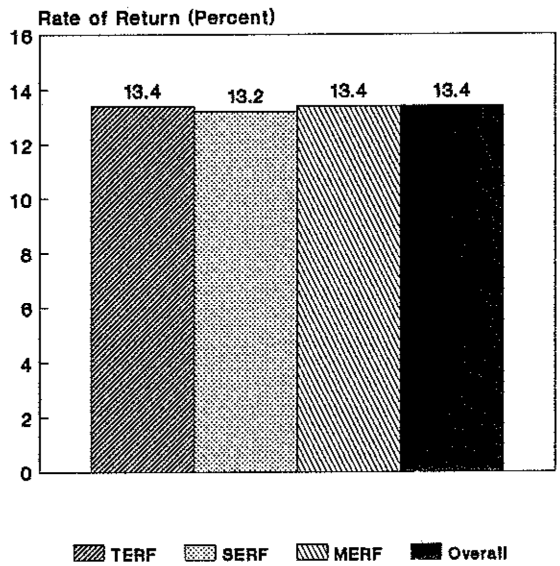
Source of Data: Investments Division

Figure 21. CMF Performance
FY 88 Partial Year



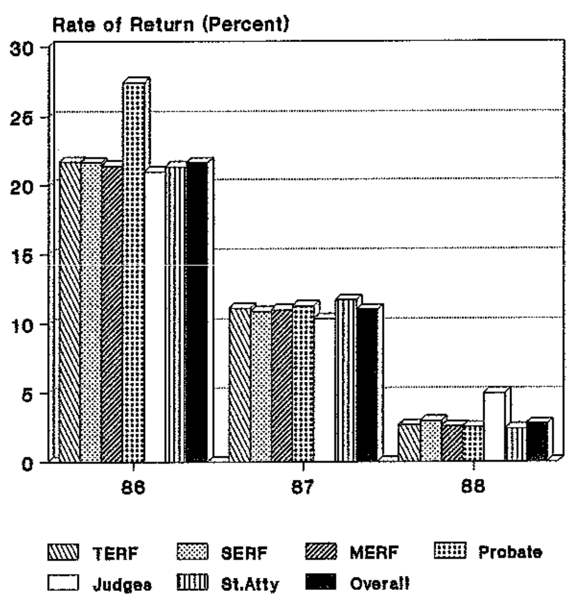
Source of Data: Investments Division

Figure 22. Annualized Rate of Return
Major Retirement Funds And Overall
FY 82 - FY 88 (7 Years)



Source of Data:
Treasurer's FY 88 Annual Report

Figure 23. Rates of Return
Overall and by Pension Fund
FY 86 - FY 88



Source of Data: Investments Division

CHAPTER V

FINDINGS AND RECOMMENDATIONS

The Legislative Program Review and Investigations Committee found that the treasurer's investment policies and approaches compare favorably overall with those of other public and private institutional investors. Investment performance in terms of returns also compares well with accepted benchmarks.

Considering asset classes, the state's portfolio is highly diversified, and as such, is consistent with a conservative, defensive approach to investing. This has been achieved by following a long-term asset allocation policy, annually reviewed by the treasurer and approved by the Investment Advisory Council.

The state's portfolio is more heavily weighted in real estate than the typical pension fund. However, in analyzing the asset mix of other funds, the committee also noted a general trend toward increasing the real estate holdings within public and private pension fund portfolios.

The state's investments within each asset class are also highly diversified. This is the result of a strategy of selecting external investment managers that have different styles, and monitoring both external and internal managers to insure that funds do not become concentrated in similar types of investments.

As the analysis presented in the previous chapter revealed, the state's highly diversified portfolio has kept the volatility of its returns low relative to most benchmark indicators. On an annualized basis, return on the state's investments during state fiscal years 1982 through 1988 was 13.4 percent. This compares favorably with most benchmark indicators for the period and appears to exceed the index for other public pension funds.

The program review committee study also revealed that the major elements necessary for an effective investment process are in place. Investment decisions are guided by a comprehensive, formally adopted, long-range policy that has a sound theoretical basis. Investment strategies and their results are regularly reviewed by treasury staff as well as an independent advisory body. The Investments Division of the state treasury has recently been restructured and automated to improve productivity and accountability.

Weaknesses were found by the program review committee in the following areas: 1) the reporting of investment information to the public; 2) the formality of certain investment operating procedures; and 3) the role of the Investment Advisory Council. In addition, problems the treasurer has faced in attracting and retaining Investments Division personnel were brought to the committee's attention during the study. Detailed findings concerning each of these areas and the committee's recommendations to address them are presented below.

Information and Reporting

Efforts by the treasurer to provide accurate and timely information on state investment activities are critical to accountability. The Investment Advisory Council needs such information to fullfill its statutory duty to review all investments and recommend policies consistent with law and the state's best interests. Public reporting on investments permits taxpayers and pension and trust fund beneficiaries to independently judge the performance of the treasurer, their sole fiduciary.

The program review committee found that the Investment Advisory Council generally receives sufficient information to monitor the treasurer's investment activities. Detailed reports on transactions and performance by type of fund are provided quarterly to council members.

However, current efforts to report investment activities to pension and trust fund participants, beneficiaries, and to the public are inadequate. No information, other than that contained in the treasurer's annual report, is regularly and widely distributed.

The treasurer's annual report does not provide a complete public record of investment activities. Figures on fund values are inconsistent. Calculation of return and valuation of assets are not explained. Operating expenses related to the treasurer's mutual investment funds are not clearly identified. Descriptions of the mutual funds vary in level of detail, and some trust fund descriptions are outdated.

The treasurer's annual report is not a timely source of investment information. For the past two years, the report has not been released in final form by the statutory deadline (September 15). The report for fiscal year 1987 was not published until May 1988 and the FY 88 report remains in draft form at this time.

To improve the quality, frequency, and distribution of information about investment activities, **the program review committee recommends that the treasurer send to each recognized organization representing participants of the actively managed pension funds and to the committees of the General Assembly with cognizance of appropriations and finance, quarterly reports that summarize performance, overall and for each investment fund. In the quarterly report, the treasurer should include for each fund:**

- **the change in market value of a unit of the fund from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;**
- **the change in the number of units held by each source of funding from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;**
- **net contributions to the fund (new contributions minus redemptions) by source, from the beginning to the end of the reporting quarter and from the end of the same quarter of the prior year;**
- **total return per unit for the fund for the reporting quarter and from the end of the same quarter of the prior year.**

The Legislative Program Review and Investigations Committee further **recommends that the treasurer prepare and annually update a prospectus-style report, developed in accordance with relevant U.S. Securities and Exchange Commission guidelines, for each mutual investment fund. These reports should be distributed each year in the same manner recommended above for the quarterly performance reports.**

The committee also **recommends that the treasurer publicize that periodic performance reports and fund prospectuses are available upon request. In addition, the treasurer should insure that all investment performance materials issued identify the methods used to calculate asset value (e.g., market value, cost, etc.) and return on investment (e.g., dollar or time weighted total return, etc.).**

Operating Procedures

The program review committee found the operations of the Investments Division to be, for the most part, reasonable, consistent, and comparable to those of other institutional investors. Several important functions, however, lack the formality of written procedures. With a change in personnel or in administration of the treasury, current desirable but unwritten practices could be discontinued or altered without review.

For example, written guidelines that specify investment objectives, management authority, restrictions on types of investments and investment practices, and required documentation and reporting have not been established for all of the treasurer's mutual investment funds. At present, guidelines are in effect for 3 of the 11 operating funds.

The program review committee, therefore, **recommends that the treasurer establish written operating guidelines for each mutual investment fund and submit them to the Investment Advisory Council for review and comment by February 1, 1990. At a minimum, the guidelines should address:**

- **the decision-making role of the Investments Division staff, outside service providers, if any, and the Investment Advisory Council concerning the purchase or sale of assets or the provision of advice and other services;**

- **any restrictions on the sale or purchase of assets, such as standards of asset quality or prohibitions on types of assets owned;**

- **any required or restricted investment practices and techniques; and**

- **the monitoring of performance, noting what measures or benchmarks will be used to evaluate and compare performance.**

To insure that the operating policies established for the mutual funds remain up-to-date, the Legislative Program Review and Investigations Committee also **recommends that the treasurer annually review, seeking comment from the council, and readopt all investment fund guidelines.**

As earlier chapters described, the treasurer makes extensive use of outside professional services for investment activities. Payments to external fund managers and other consultants, which include related transaction costs as well as fees, totalled more than $9 million in FY 88, while broker commissions cost another $4 million.

The program review committee found that there are no written procedures for hiring external investment fund managers or other outside staff such as financial advisors or brokers that execute domestic equities trades. To insure consistency and promote accountability of the hiring process, the committee **recommends that the treasurer establish written procedures for obtaining external fund managers, financial advisors, brokers, and other outside professional services and submit them to the Investment Advisory Council for its review and comment no later than February 1, 1990.**

The committee further **recommends that in these procedures, the treasurer define the decision-making roles of the treasurer, the Investments Division staff, and the Investment Advisory Council regarding:**

- **initial selection of outside professionals; and**
- **changes in funding levels of active external investment fund managers.**

The committee found that the treasurer's broker commission program is another area in need of more formal operating procedures. Selection of brokerage firms to execute domestic equity trades is based in part on an allocation policy developed annually by the treasurer and his staff. This policy, which targets a portion of commissions for minority/women-owned and local brokers, and for discount, research, and full-service brokers is not spelled out in statute or regulation.

The treasurer's minority/women/local broker commission program is not widely publicized, and there is no formal recruitment effort. The committee also found that while the requirements for participation have been established in writing, other aspects of the program's operation, including the selection process, have not.

The program review committee **recommends that the treasurer, by February 1, 1990, expand current written guidelines for the minority/women-owned and local broker commission program to include descriptions, which identify decision-making authority, of the processes for selecting participants and allocating commissions. In addition, the treasurer should develop a strategy for encouraging eligible firms to apply to the program, and include a description of this recruitment process in the written program guidelines.**

Role of the Investment Advisory Council

The Investment Advisory Council's primary role in the investment process to to review and recommend investment policy. However, it does have the authority to approve the appointment of Investments Division personnel by the treasurer. It is also the treasurer's policy to seek the council's input and endorsement regarding the selection of external investment managers.

The program review committee found that division staff have been hired without the advice and consent of the Investment Advisory Council as required by statute. Most recently, there is no evidence that the council participated in or formally approved the appointment of the senior investment officer for pension analysis.

The Investment Advisory Council does participate in and endorse the selection of external managers for the mutual investment funds, although it is not involved in the hiring of other outside staff such as financial advisors and brokers that execute equities trades. The council's role in making decisions on the amount of assets assigned to an external manager, however, is not well defined.

The council's advice is usually sought for initial funding levels for newly hired external managers, but the role of the council has not been consistent when a change in a current external manager's allocation is made. The program review committee believes that the allocation of assets among managers, specifically chosen for their different investment styles and philosophies, is as an important policy decision as the selection of those managers.

To clarify the role of the Investment Advisory Council, the program review committee first **recommends that current statutes be amended to limit the advice and consent of the Investment Advisory Council to the hiring of key staff within the Investments Division, including the assistant treasurer for investments and all senior investment officers.** With this change, it will be clear that staffing decisions on positions with direct responsibility for investment policy and performance are subject to council approval.

Second, the program review committee **recommends that the treasurer adopt a policy of requiring Investment Advisory Council review and comment on proposed increases in the amount of assets managed by an external investment fund manager beyond the level initially authorized.** Finally, the committee **recommends that The Investment Advisory Council amend its bylaws to define its role in the investment division employment process and in reviewing external managers, including the policy concerning external manager funding levels recommended above.**

Investments Division Personnel

The treasurer's office, including the investments division, must operate within a state personnel system that was not designed to respond to rapidly changing market conditions. In testimony presented to the program review committee, the treasurer noted that restrictions on his authority to act quickly to create and fill positions, and to adjust compensation levels accordingly, has handicapped efforts to attract and retain qualified investment personnel.

For example, the committee staff were told that four individuals have turned down the senior officer position for investment accounting in part because the salary level was too low. This position, which heads the pension accounting unit, has remained vacant since it was created in 1988.

It is entirely possible, as the treasurer and his staff have indicated, that some of the problems the committee found with the timeliness and detail of the treasurer's reporting of information are a result of difficulty in obtaining qualified personnel. Likewise, it is conceivable that if more experienced and qualified personnel could be attracted to the Investments Division, the agency's dependence on and expense of outside professionals could be reduced.

The program review and investigations committee did not explore in detail issues related to personnel hiring and compensation. Since the extent of any problems or possible solutions associated with these issues require further analysis, the committee **recommends that the state treasurer submit to the General Assembly's committee having cognizance of matters relating to public employees, a report that proposes a revised system for hiring and setting compensation levels for professional staff within the investment division.**

APPENDIX A
THE TREASURER'S MUTUAL FUNDS

Cash Reserve Account

Commercial Mortgage Fund

International Stock Fund

Mutual Contract Fund

Mutual Equity Fund

Mutual Fixed Income Fund

Mutual Mortgage Fund

Real Estate Fund

Short Term Investment Fund

Venture Capital Fund

Yankee Mac Fund

CASH RESERVE ACCOUNT

NAME

Cash Reserve Account (CRA)

OBJECTIVE

The objective of the Cash Reserve Account is to invest high quality, highly liquid money market instruments.

DESCRIPTION

The Cash Reserve Account was established on September 1, 1987. The fund's investment capital is derived from six state pension funds and the mutual funds in which they invest. The following table shows each participating fund, the percentage of the CRA it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent of Total	Market Value 6/30/88 ($ 000)
Teachers Retirement	26.4%	$ 187,000.9
State Employees Retirement	20.8	147,661.7
Municipal Employees Retirement	1.9	13,475.1
Judges Retirement	.5	3,309.7
Probate Court Retirement	.1	1,029.1
State Attorneys Retirement	.0	22.9
Retirement Funds Total	49.7%	$ 352,587.9
Mutual Equity	26.4%	187,342.4
Mutual Fixed Income	12.5	88,608.7
Comm. Mortgage	6.7	47,707.2
Real Estate	4.1	29,136.4
Mutual Mortgage	.2	2,081.2
International Stock	.1	668.5
Yankee Mac	.0	90.1
Venture Capital	.0	1.9
Mutual Contract	.0	1.7
Mutual Funds Total	50.2%	$ 355,638.0
Total	100.0%	$ 708,225.8

The assets of the Cash Reserve Account, which total over $708 million, are invested primarily in short-term paper. The fund is managed by the treasurer's staff. The allocation of assets by type of instrument as of June 30, 1988, was:

Agencies	9%
Certificates of Deposit	75%
Bankers Acceptances	14%
Repurchase Agreements and Other	2%

PERFORMANCE

Total Rate of Return: September 1, 1987 - June 30, 1988

CRA	90 Day T-Bill	90 Day CD
7.82%	6.15%	7.22%

COMMERCIAL MORTGAGE FUND

NAME

Commercial Mortgage Fund (CMF)

OBJECTIVE

The objective of the Commercial Mortgage Fund is to invest in commercial real estate debt.

DESCRIPTION

The Commercial Mortgage Fund was established during the 1988 state fiscal year. The fund's investment capital is derived from five state pension funds. The following table shows each participating fund, the percentage of the mutual fund it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent Of Total	Market Value (6/30/88)
Teachers Retirement	48.3%	$ 38,032,618
State Employees Retirement	42.9	33,737,528
Municipal Employees Retirement	8.2	6,445,430
Judges Retirement	.2	185,066
Probate Court Retirement	.2	120,744
Total	99.8%	$ 78,521,386

Assets of the Commercial Mortgage Fund are invested in mortgages on income-producing commercial property located throughout the United States. Initial investment focused on conservative, fixed rate mortgages. Attempts will be made in the future to enhance return on such loans through securitizing and restructuring, and by the sale of portions of the portfolio.

At present, the fund is handled by one outside investment management firm, Aldrich, Eastman & Waltch. This firm both selects and manages the funded commercial mortgages. In addition, the management firm holds the current assets, valued at more than $78 million, in a trust format. It is expected that additional external managers will be hired as the CMF grows.

PERFORMANCE

Total Rate of Return: FY 88 (Partial Year)

CMF	Salomon Broad Bond Index
6.4%	8.2%

INTERNATIONAL STOCK FUND

NAME

International Stock Fund (ISF)

OBJECTIVE

The objective of the International Stock Fund is to invest in stock of foreign corporations.

DESCRIPTION

The International Stock Fund was established during the 1988 state fiscal year with initial funding occurring on January 1, 1988. The fund's investment capital is derived from five state pension funds. The following table shows each participating fund, the percentage of the fund it holds, and the market value of that holding as of June 30, 1988.

Pension Fund	Percent of Total	Market Value (6/30/88)
Teachers Retirement	56.3%	$ 58,621,177
State Employees Retirement	36.7	38,227,617
Municipal Employees Retirement	6.5	6,512,417
Judges Retirement	.4	416,779
Probate Court Retirement	.4	416,779
Total	100.3%	$104,194,769

Assets of the $105 million fund are invested in stocks of foreign corporations according to a structure designed to reflect the importance of a country's ecomony rather than the size of its stock market. Under the planned fund structure, half of ISF investment will be composed of an index fund based on the gross national product weights for 18 countries. The other half of fund investment will be equally divided between portfolios representing the Pacific Basin region and the Europeon region, which includes the United Kingdom. In accordance with state law, funds are not invested in the securities of firms doing business in South Africa or of companies doing business in Northern Ireland that have not adopted the "MacBride Principles."

The entire International Stock fund is handled by outside investment advisors. One external manager is responsible for the index fund described above; four additional advisors were recently hired to actively manage European and Pacific Basin region portfolios. The external managers and their initial funding levels are shown below.

External Managers	Initial Funding Level
Boston International Advisors (index fund)	$ 50 million*
Capital Guardian Trust Co. (European region)	$ 25 million
Fidelity International Inv. Advisors (European region)	$ 25 million
Nomura Capital Management (Pacific Basin region)	$ 25 million
Schroder Capital Mgt. International (Pacific Basin regions)	$ 25 million

* subsequently increased to $100 million

PERFORMANCE

Total Rate of Return: January 1, 1988 - June 30, 1988

ISF	EAFE GDP*	EAFE Cap. Weight*	Mutual Equity Fund
8.4%	8.3%	10.2%	14.6%

* MSCI Europe, Australia, Far East index based on gross domestic product (GDP) or market capitalization weight

MUTUAL CONTRACT FUND

NAME

Mutual Contract Fund (MCF)

OBJECTIVE

The objective of the Mutual Contract Fund is to diversify fixed income investment by investing in insurance company guaranteed investment contracts.

DESCRIPTION

The Mutual Contract Fund was established in December 1980. The fund's investment capital is derived from five pension funds. The following table shows each participating fund, the percentage of the mutual fund it holds, and the asset valuation of that holding as of June 30, 1988.

Participating Fund	Percent of Total	Asset Value Accrual Basis ($ 000)
Teachers Retirement	67.9%	$30,827.5
State Employees Retirement	24.2	10,971.9
Municipal Employees Retirement	7.5	3,400.1
Probate Court Retirement	.4	190.6
State Attorney Retirement	.0	4.5
Total	100.0%	$45,394.6

The fund's assets, which total over $45 million, are invested in Guaranteed Investment Contracts (G.I.C.'s) issued by insurance companies. The types of contracts invested in either: 1)pay simple interest annually; or 2) compound interest annually and pay accumulated interest with principal at maturity. These contracts usually carry one to twelve year maturities.

The Mutual Contract Fund is managed by the state treasurer and investment staff. At present, the fund is relatively inactive. No new G.I.C. investments have been made since 1984.

PERFORMANCE

Total Rate of Return: FY 84 - FY 88

Fiscal Year Ending 6/30	MCF	Shearson Govt./Corp. Bond Index	90 Day T-Bill
FY 88	16.5%	7.5%	6.1%
FY 87	14.9%	4.7%	5.7%
FY 86	15.5%	20.7%	7.0%
FY 85	15.4%	28.8%	9.0%
FY 84	15.5%	1.7%	9.6%

MUTUAL EQUITY FUND

NAME

Mutual Equity Fund (MEF)

OBJECTIVE

The objective of the Mutual Equity Fund is to invest in all types of domestic common stocks.

DESCRIPTION

The Mutual Equity Fund was established in July 1972. The fund's investment capital is derived from various state pension and trust funds. The following table shows each participating fund, the percentage of the fund that it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent of Total	Market Value (6/30/88)
Teachers Retirement	56.13%	$1,412,173,059
State Employees Retirement	36.71%	923,486,452
Municipal Employees Retirement	6.07%	152,772,553
Probate Court Retirement	.41%	10,341,175
Judges Retirement	.32%	8,008,592
State Attorneys Retirement	.01%	118,931
Soldiers, Sailors & Marines	.25%	6,332,769
School Fund	.06%	1,447,337
Ida E. Cotton	.02%	498,662
Andrew C. Clark	.01%	283,179
Hopemead State Park	.01%	182,376
Total	100.00%	$2,515,645,085

The fund's assets are invested in the common stock of U.S. corporations. Connecticut statutes prohibit investment of state funds in securities of any corporations doing business in South Africa or companies doing business in Northern Ireland that have not adopted the "MacBride Principles." Futhermore, state law requires that holdings in such companies be disinvested. Divestiture of South African investments, which has a July 1, 1989, statutory deadline, and of Northern Ireland investments, which has a 1990 deadline, is virtually completed.

The entire $2.5 billion fund is handled by outside investment advisors consciously selected for differing investment styles. The treasurer also retains a consultant to assist with the selection process and to evaluate the performance of the external equity managers. However, this function will be carried out by a new investment divison unit beginning next fiscal year.

At present, thirteen outside advisors representing two general sectors -- either large-capacity core managers or specialty managers -- each manage portfolios for the equity fund. As of June 30, 1988, Mutual Equity Fund assets were distributed among the outside advisors and an inventory fund, which is used to temporarily hold cash and securities, as follows:

Manager	Market Value (in millions)	Percent of MEF Assets
Core		
Aetna Life & Casualty	$ 126	5.0
Bankers Trust Co.	691	27.5
Capital Guardian Trust	300	11.9
Franklin Portfolio Assoc.	139	5.5
Oppenheimer Capital Mgt.	245	9.7
Phoenix Invest. Counsel	142	5.6
Wright Investors - Modified Core Portfolio	286	11.4
Total Core	$1,929	76.7
Specialty		
Concord Capital Mgt.	$ 122	4.8
Conn. National Bank	64	2.5
New England Asset Mgt.	44	1.7
One Lewis Street	81	3.2
Roanoke Asset Mgt.	92	3.6
Wright Investors - Junior Blue Chips	103	4.1
Total Specialty	$ 505	20.1
Inventory Fund	$ 83	3.3
TOTAL	$2,516	100.0

PERFORMANCE

Total Rate of Return: FY 84 - FY 88

Fiscal Year Ending 6/30	MEF	Russell 3000	S&P 500	South Africa Free Russell 3000	South Africa Free S&P 500
FY 88	-4.5%	-5.9%	-6.9%	-6.2%	-8.2%
FY 87	16.3%	19.9%	25.2%	15.4%	21.7%
FY 86	31.5%	N.A.	35.8%	N.A.	N.A.
FY 85	24.9%	N.A.	31.1%	N.A.	N.A.
FY 84	-9.1%	N.A.	-4.7%	N.A.	N.A.

N.A. = not available

MUTUAL FIXED INCOME FUND

NAME

Mutual Fixed Income Fund (MFIF)

OBJECTIVE

The objective of the Mutual Fixed Income Fund is to invest in domestic bonds and notes of various maturities, qualities, and sectors.

DESCRIPTION

The Mutual Fixed Income Fund was established in July 1972. The fund's investment capital is derived from various state pension and trust funds. The table below identifies each pension and trust fund that participates in the MFIF, the percentage of the fund that it holds, and the market value of the holdings as of June 30, 1988.

Participating Fund	Percent of Total	Market Value (6/30/87)
Teachers Retirement	55.34%	$1,132,955,589
State Employees Retirement	36.28	742,634,764
Municipal Emp. Retirement	6.09	124,578,034
Probate Court Retirement	.44	8,919,023
Judges Retirement	.31	6,374,046
States' Attorney Retirement	.01	106,327
Soldiers,Sailors,& Marines	1.48	30,343,965
School Fund	.05	931,940
Ida Eaton Cotton Fund	.01	146,576
Hopemead State Park Trust	.01	143,017
Agriculture College Fund	.00	52,114
Andrew C. Clark Fund	.00	3,742
TOTAL	100.00%	$2,047,189,140

The fund's assets are invested in: short term government bonds and notes; long term government bonds; foreign dollar-based bonds, both government and corporate; domestic corporate bonds; and bonds of federal and state authorities. The distribution of the assets among the various investment categories as of June 30, 1988, was:

Treasury/Agency	31.9%
Corporate	38.9%
Mortgage	22.8%
Short-Term	6.4%

Approximately 40 percent of the 2.0 billion dollar fund is handled internally, with the balance being managed by 6 outside investment advisors. The table below shows the market value of the fund's assets as they are distributed among the various managers.

Manager	Market Value ($ millions) 6/30/88	Percent
In-House	$807.8	39.5%
Bear-Stearns	179.8	8.8
Loomis Sayles	282.8	13.8
Pacific Investment	198.7	9.7
Standish Ayer & Wood	191.0	9.4
State Street Research	183.5	9.0
STW Fixed Income	187.9	9.2
Unallocated Cash	11.6	.6
	$2,043.1	100.0%

PERFORMANCE

Total Rate of Return: FY 84 - FY 88

Fiscal Year Ending 6/30	MFIF	Shearson/Lehman Govt./Corp.Index	Salomon Broad Bond Index
FY 88	8.8%	7.5%	8.2%
FY 87	5.8%	4.7%	5.6%
FY 86	18.6%	20.7%	19.9%
FY 85	31.3%	28.8%	29.9%
FY 84	1.2%	1.7%	1.8%

MUTUAL MORTGAGE FUND

NAME

Mutual Mortgage Fund (MMF)

OBJECTIVE

The objective of the Mutual Mortgage Fund is to invest in residential real estate mortgages.

DESCRIPTION

The Mutual Mortgage Fund was established on July 1, 1972. The fund's investment capital is derived from two state pension funds and one trust fund. The following table shows each participating fund, the percentage of the mutual fund it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent of Total	Market Value (6/30/88)
Teachers Retirement	76.1%	$3,011,464
Municipal Employees Retirement	1.3	52,542
School Fund	22.6	891,838
Total	100.0%	$3,955,844

The fund's assets are invested in residential mortgages on dwellings, primarily individual units, located in Connecticut and other states. The fund is managed by the treasurer's investment staff although arrangements have been made with professional servicing organizations to adminster the mortgages. At present, the MMF is inactive; no purchases or sales of mortgages have been made in recent years.

PERFORMANCE

(not available)

REAL ESTATE FUND

NAME

Real Estate Fund (REF)

OBJECTIVE

The objective of the Real Estate Fund is to invest in commercial equity real estate.

DESCRIPTION

The Real Estate Fund was established on July 1, 1982. The fund's investment capital is derived from six state pension funds. The following table shows each participating fund, the percentage of the mutual fund it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent Of Total	Market Value (6/30/88)
Teachers Retirement	56.43%	$511,858,417
State Employees Retirement	37.94	334,189,802
Municipal Employees Retirement	6.06	54,935,722
Probate Court Retirement	.37	3,359,385
Judges Retirement	.31	2,776,116
States Attorneys Retirement	.00	19,628
Total	100.00%	$907,139,070

The fund's assets are invested in shares of group annuities, limited partnerships, group trusts, and other such entities that are managed by professional real estate firms. Investment of state funds is limited to real estate securities by Connecticut statute. During the 1988 state fiscal year, a shift was made from investments focused on large, blind, commingled pools consisting primarily of existing, fully leased properties to projects involving development, rehabilitation, and releasing of properties.

Multiple outside managers selected for differing investment styles handle the Real Estate Fund under the supervision of the treasurer's investment staff. Fund assets totaling $870 million were distributed, as of June 30, 1988, among thirteen professional real estate managers as follows:

Manager	Percent	Manger	Percent
Aetna Life	16.8	Phoenix Mutual	3.8
Cigna	16.8	Public Storage	4.9
Copley	5.3	RREEF	11.3
Hancock	1.8	Security Capital	0.7
Heitman	12.4	State St./AEW	6.5
JMB	11.0	TCW	3.5
Morgan	5.3		

PERFORMANCE

Total Rate of Return: FY 84 - FY 88

Fiscal Year Ending 6/30	REF	Frank Russell Property Index*	Consumer Price Index
FY 88	7.5%	7.0%	4.0%
FY 87	8.0%	4.3%	3.7%
FY 86	9.7%	9.5%	1.5%
FY 85	11.4%	10.6%	3.9%
FY 84	14.9%	15.3%	4.2%

* Russell Property Index calculated before any fees taken out while REF return calculated net of management fees/expenses

SHORT TERM INVESTMENT FUND

NAME

Short Term Investment Fund (STIF)

OBJECTIVE

The objective of the Short Term Investment Fund is to invest in high quality, highly liquid money market instruments.

DESCRIPTION

The Short Term Investment Fund was established on July 1, 1972. The fund's investment capital is derived from state agency operating funds, state trust funds and monies from participating Connecticut municipalities, school districts, and other political subdivisions. Until September 1987, when a separate short-term account (the Cash Reserve Account) was established for the six public employee pension funds in the treasurer's custody, those trust funds also participated in STIF.

The assets of the fund, which totaled over $1.0 billion as of June 30, 1988, are invested mainly in short-term paper and the Secondary Market for Student Loans (Susie Mae). Whenever possible, state monies are invested in securities of Connecticut financial institutions. The distribution of STIF assets among the types of investment instruments at the end of state fiscal year 1988 was:

Certificates of Deposits	67%
Bankers' Acceptances	6%
Corporate Notes	3%
Repurchase Agreements	20%
Connecticut Student Loans	4%

The Short Term Investment Fund is managed by the treasurer's staff. Participants are able to invest in or withdraw from the fund with 24 hours notice to the treasurer. Earnings, which are based on a monthly interest rate established in accordance with prevailing money market rates on the first day of the month, accrue on a daily basis and are distributed quarterly.

PERFORMANCE

Total Rate of Return: FY 84 - FY 88

Fiscal Year Ending 6/30	STIF	90 Day T-Bill	90 Day CD
FY 88	7.35%	6.14%	7.14%
FY 87	6.44%	5.66%	6.18%
FY 86	8.14%	7.03%	7.49%
FY 85	10.23%	9.00%	9.34%
FY 84	10.80%	9.57%	9.93%

VENTURE CAPITAL FUND

NAME

Venture Capital Fund (VCF)

OBJECTIVE

The objective of the Venture Capital Fund is to invest in emerging companies and industries by participating in venture capital partnerships.

DESCRIPTION

The Venture Capital Fund was established in July 1987. The fund's investment capital is derived from five state retirement funds. The following table shows each participating fund, the percentage of the fund it holds, and the market value of its holding as of June 30, 1988.

Participating Funds	Percent Of Total	Market Value (6/30/88)
Teachers Retirement	55.43%	$ 9,117,063
State Employees Retirement	37.00	6,086,447
Municipal Employees Retirement	6.69	1,100,347
Probate Court Retirement	.47	76,936
Judges Retirement	.41	67,691
Total	100.00%	$16,448,484

Of the initial $100 million VCF commitment, $20 million was earmarked for Connecticut based venture capital deals. A recent revision in strategy increased the VCF funding level to $200 million, with $20 million earmarked for venture capital partnerships operating in the United Kingdom and Europe.

The Venture Capital Fund is handled by an outside investment manager, Crossroads Management Partners, through a separate account, limited partnership arrangement with the state. The state of Connecticut is the sole, limited partner. Acting as general partner, Crossroads Management manages a "fund of funds" portfolio of selected venture capital funds.

PERFORMANCE

(not available)

YANKEE MAC FUND

NAME

Yankee Mac Fund (YMF)

OBJECTIVE

The objective of the Yankee Mac Fund is to invest in Connecticut residential mortgages.

DESCRIPTION

The Yankee Mac Fund was established in June 1981. The fund's investment capital is derived from six state pension funds. The following table shows each participating fund, the percentage of the YMF it holds, and the market value of that holding as of June 30, 1988.

Participating Fund	Percent Of Total	Market Value (6/30/88)
Teachers Retirement	57.54	$20,736,464
State Employees Retirement	35.76	12,899,205
Municipal Employees Retirement	6.06	2,184,969
Probate Court Retirement	.42	152,609
Judges Retirement	.17	62,365
State Attorneys Retirement	.05	1,892
Total	100.00%	$36,037,504

Initially, the fund's assets were invested in mortgage-backed pass-through certificates designed to be rated AA by Standard and Poor. The treasurer made a forward commitment to purchase the certificates, which were secured by fixed-rate, in-state residential mortages originated to specfications set by the treasurer in consultation with the Investment Advisory Council.

Changes in the investment environment prompted a recent restructuring of the YMF portfolio to improve its performance. In January 1987, assets were converted to a Collateralized Mortgage Obligation (CMO)/Real Estate Mortgage Investment Conduit (REMIC). In essence, the YMF mortgage portfolio was swapped for cash, which was distributed to participants for reallocation, AAA rated bonds, and a residual interest. Current assets, which total $36 million, include an AAA bond with an average life of 5.5 years and the residual securities. The residual is backed by the float from investing mortgage cash flow.

The Yankee Mac Fund is managed by the treasurer's staff with the assistance of a master servicer bank and an outside financial consultant. While under its new structure the fund portfolio is passive, prior activities included establishing commitment levels and interest rates for upcoming mortgage pools. No mortgage pools have been issued since April 1986. A new format for future Yankee Mac mortgage program offerings is now being researched and developed.

PERFORMANCE

Total Rate of Return: FY 86 - FY 88

Fiscal Year Ending 6/30	YMF	Salomon Brothers Mortgage Index
FY 88	26.12%	9.73%
FY 87	8.04%	11.08%
FY 86	13.00%	16.70%

APPENDIX B

AGENCY RESPONSE

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FRANCISCO L. BORGES
TREASURER

State of Connecticut

OFFICE OF THE TREASURER

EDWARD J. FORAND JR.
DEPUTY TREASURER

August 30, 1989

The Honorable Fred H. Lovegrove, Jr.
The Honorable Jay B. Levin
Co-Chairmen
Legislative Program Review
and Investigations Committee
State Capitol - Room 506
Hartford, CT 06106

Dear Senator Lovegrove and Representative Levin:

Thank you for this opportunity to respond to the Legislative Program Review and Investigations Committee report on the Treasury's investment division operations. It is my understanding that this letter will be included in your Committee's report as part of the public record.

First of all, I want to commend the Committee's staff for a fine job in preparing the "Background Information" study which accompanied the report recommendations. It provides a good overview for those who know little about the Investment Division, pointing out many of the Division's successes and innovations in recent years.

Also, many of the recommendation's are valuable ones which I look forward to implementing. Regarding the recommendations, I would like to respond to each one.

Recommendation 1

I have wanted to boost our reporting capabilities for sometime, and would like to implement this recommendation as soon as possible. During the past two and a half years, the Treasury, including the investment division, has been reorganized, automated and moved to new working quarters. Now, we are ready to focus on our reporting capabilities. This cannot be accomplished without hiring staff to perform these complicated reporting duties, and I am currently working with DAS - Personnel to establish a position which will enable us to carry out this recommendation.

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Recommendation 2

This recommendation is an inappropriate one for the Treasury's investment division. The purpose of a Securities and Exchange Commission "prospectus-style report" is to protect prospective securities' or mutual funds' investors in the general public from fraud and misrepresentation when considering a purchase of such investments. In this case, the State Treasurer is the only investor of pension fund monies. Assuming that the intent of this recommendation is to expand the reporting activities of the investment division, which I heartily support, then the Treasurer's annual report, along with the reporting requirements of Recommendation 1, will provide fund participants and the legislature ample information of the kind found in traditional prospectuses.

Recommendations 3 and 4

These recommendations are in the process of being implemented.

Recommendation 5

I support this recommendation, and we are in the process of implementing it. Written operating guidelines can be accomplished during the current fiscal year. However, since our long-awaited senior investment officer for accounting joined us only in late August and since he and his staff have an enormous and complex agenda to accomplish (this dedicated accounting function never previously existed in the division), we would like to have the entire fiscal year to implement this recommendation.

Recommendation 6

Procedures are in place now for obtaining external fund managers, financial advisors, brokers, and other outside professional services, and we will reduce them to writing, also by the end of the current fiscal year. However, we are also mindful that in this fluid investment environment, it serves the pension fund participants well to employ flexible, rather than rigid procedures for obtaining necessary services.

Recommendation 7

The Treasury currently has a terrific minority/women-owned/local broker commission program. In fact, we have been getting calls from other states that have heard about our success and wish to implement their own program patterned after Connecticut's. Part of the success of the program is due to the flexible nature of it -- building in success by encouraging the participation of those firms which have the capability of successfully performing what is to be required of them. We stand by our current procedures which have served us well in this program. Again, we do not wish to put an already successful program in jeopardy by imposing rigid procedures that may threaten its future success.

Recommendations 8, 9 and 10

In my view, these recommendations represent a misunderstanding of the role of the Investment Advisory Council. As you know, the Treasurer has the fiduciary responsibility to invest pension fund assets. The Investment Advisory Council's role is an advisory one only, a role they carry out in a singularly admirable, responsible and competent fashion. The Council members closely advise the Treasurer on the establishment of overall investment policy. They do not involve themselves, nor would they wish to, in the day-to-day administration of the investment division. Funding levels for investment fund managers, beyond that initially authorized, are determined by our highly skilled in-house investment professionals whose job it is to advise the Treasurer on those matters. To a large degree, funding level decisions are dictated by the asset allocation policy that has been established by our investment staff and approved by the IAC. It establishes the percentage of pension fund assets that will be invested in each asset class, like equities or bonds, for example.

Recommendation 11

I very much appreciate the fact that the Committee has recognized the problem we have of attracting and retaining investment professionals under the current compensation program. Our recent experience attempting to recruit a senior investment officer for accounting (as mentioned earlier a key position to fill before we can substantially improve our reporting capabilities), makes clear the inadequacies of the current system. We made an offer to four applicants, but were turned down each time. The primary reason is that we were not able to offer applicants a competitive salary to attract the kind of qualified individual we need to manage the accounting functions for an over $7 billion pension fund program. Finally, another applicant was hired after we received special permission from DAS-Personnel to offer a higher salary. As it was, the applicant took a substantial pay cut to take the position here.

I intend to conduct a study of investment professionals' compensation levels in Connecticut for comparative purposes as part of a report to the General Assembly urging revision of the current system for hiring and setting compensation levels for investment professionals.

Sincerely,

Francisco L. Borges

FLB/pg