MINNESOTA

1991 ANNUAL REPORT

STATE BOARD OF INVESTMENT

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MINNESOTA STATE BOARD OF INVESTMENT

Governor Arne H. Carlson

State Auditor Mark B. Dayton

State Treasurer Michael A. McGrath

Secretary of State Joan Anderson Growe

Attorney General Hubert H. Humphrey III

MINNESOTA STATE BOARD OF INVESTMENT

Suite 105, MEA Bldg.
55 Sherburne Avenue
St. Paul, MN 55155
(612)296-3328
FAX (612)296-9572

The Minnesota State Board of Investment is pleased to submit its 1991 Annual Report.

Fiscal year 1991 was a fairly volatile period for all investors due to fears of recession and concerns over political instability in the Persian Gulf region. However, with an early end to the Gulf War, the stock market rebounded after January 1991 and finished the fiscal year with a modest gain. The bond market generated attractive returns as a result of an accomodating monetary policy set by the Federal Reserve Bank. Returns on most financial assets exceeded the rate of inflation for the year.

Several events should be highlighted for the year:

- **The Basic Retirement Funds, the largest group of funds managed by the Board, produced a total rate of return of 6.7% for fiscal year 1991.** Over the last five fiscal years the Basic Funds have generated a cumulative return of 59.1%, excluding alternative assets. (Refer to page 7.)
- **The Post Retirement Investment Fund generated earnings that will provide a life-time benefit increase of 4.3% for eligible retirees beginning January 1, 1992**. Over the last five years, benefit increases have been 5.7% on an annualized basis. (Refer to page 29.)
- **The Board assumed the investment management responsibility for the Minnesota Workers Compensation Assigned Risk Plan from the Department of Commerce effective May 1991.** Voyageur Asset Management was retained to manage the $297 million in assets for the fund. (Refer to page 65).

On June 30, 1991, assets under management totaled $17.4 billion. This total is the aggregate of several separate pension funds, trust funds and cash accounts, each with differing investment objectives. In establishing a comprehensive management program, the Board develops an investment strategy for each fund which reflects its unique needs. **The primary purpose of this annual report is to communicate the investment goals, policies, and performance of each fund managed by the Board.**

Through the investment programs presented in this report, the Minnesota State Board of Investment will continue to enhance the management and investment performance of the funds under its control.

Sincerely,

Howard Bicker

Howard J. Bicker
Executive Director

INVESTMENT ADVISORY COUNCIL

The Legislature has established a 17-member Investment Advisory Council to advise the Board and its staff on investment-related matters.

- The Board appoints ten members experienced in finance and investment. These members traditionally have come from the Minneapolis and St. Paul corporate investment community.
- The Commissioner of Finance and the Executive Directors of the three statewide retirement systems are permanent members of the Council.
- Two active employee representatives and one retiree representative are appointed to the Council by the Governor.

The Council has formed three committees organized around broad investment subjects relevant to the Board's decision-making: Asset Allocation, Stock and Bond Managers and Alternative Investments.

All proposed investment policies are reviewed by the appropriate Committee and the full Council before they are presented to the Board for action.

Members of the Council (as of December 1991)

John E. Bohan	Vice President, Pension Investments	Grand Metropolitan - Pillsbury
James R. Eckmann	Assistant Treasurer	Dayton Hudson Corporation
Elton Erdahl	Executive Director	Teachers Retirement Association
Doug Mewhorter	Acting Executive Director	Mn. State Retirement System
Kenneth F. Gudorf	President	KFG Ventures
John M. Gunyou	Commissioner	Mn. Department of Finance
Laurie Fiori Hacking	Executive Director	Public Employees Retirement Assoc.
David B. Jeffery	Vice President and Resident Manager	Shearson Lehman Bros.
Keith Johnson	Retiree Representative	
Peter J. Kiedrowski	Executive Vice President	Norwest Bank
Han Chin Liu	Active Employee Representative	
Malcolm W. McDonald**	Director & Corporate Secretary	Space Center, Inc.
Gary R. Norstrem	Treasurer	City of St. Paul
Barbara Schnoor	Active Employee Representative	
Michael L. Troutman	Sr. Manager, Investment Programs	Board of Pensions, ELCA
Deborah Veverka	Manager, Pension Investments	Honeywell, Inc.
Jan Yeomans*	Director, Benefit Funds & Fin'l. Markets	3M Co.

*Chair **Vice-Chair

CONSULTANT

Richards & Tierney, Inc. Chicago, Illinois

INVESTMENT BOARD STAFF

Howard Bicker	Executive Director
Beth Lehman	Assistant Executive Director
James E. Heidelberg	Assistant to the Executive Director

External Money Management

John Griebenow	Manager, Alternative Investments
Michael J. Menssen	Manager, External Equities
James H. Lukens	Manager, External Fixed Income
Mansco Perry III	Investment Analyst, Alternative Investments
Joan M. Guckeen	Investment Analyst, Equities
Andrea J. Botos	Investment Analyst, Fixed Income
Deborah F. Griebenow	Investment Analyst, Management Reporting

Internal Money Management - Stocks and Bonds

Roger W. Henry	Manager, Internal Portfolios
A. Arthur Kaese	Senior Equity Analyst
N. Robert Barman	Senior Fixed Income Analyst
Arthur M. Blauzda	Senior Analyst, Shareholder Services

Internal Money Management - Cash Accounts

John T. Kinne	Manager, Short-Term Accounts
Harold L. Syverson	Security Trader, Short-Term

Administrative Staff

L. Michael Schmitt	Administrative Director
Mable E. Patrick	Accounting Supervisor
Thomas L. Delmont	Accounting Officer, Intermediate
Nancy Wold	Accounting Officer
Kathy Sears	Computer Operator
Harriet Balian	Secretary to the Executive Director
Charlene Olson	Secretary, External Programs
Lin Nadeau	Secretary, Internal Programs
Lavern Jagg	Receptionist

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PART TWO of the Minnesota State Board of Investment's 1991 Annual Report contains financial statements, asset listings and accounting data.

All investments undertaken by the Minnesota State Board of Investment (SBI) are governed by the common law prudent person rule and other standards codified in *Minnesota Statutes*, Chapter 11A and Chapter 356A.

Prudent Person Rule

The prudent person rule, as codified in *Minnesota Statutes* 11A.09, requires all members of the Board, Investment Advisory Council, and SBI staff to "*...act in good faith and exercise that degree of judgment and care, under circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable safety of their capital as well as the probable income to be derived therefrom.*" *Minnesota Statutes* 356A.04 contains similar codification of the prudent person rule applicable to the investment of pension fund assets.

Authorized Investments

In addition to the prudent person rule, the Minnesota Statutes contain a specific list of asset classes available for investment, including common stocks, bonds, short term securities, real estate, venture capital, and resource funds. The statutes prescribe the maximum percentage of fund assets that may be invested in each asset class and contain specific restrictions to ensure the quality of the investments.

Investment Policies

Within the requirements defined by state law, the State Board of Investment, in conjunction with SBI staff and the Investment Advisory Council, establishes investment policies for all funds under its management. These investment policies are tailored to the particular needs of each fund and specify investment objectives, risk tolerance, asset allocation, investment management structure, and specific performance standards.

The Board's policy concerning investment in companies with direct investment in South Africa is described in the Major Policy Initiatives section of this report. In addition to these restrictions, the SBI does not hold the stock of any company which generates more than fifty percent of its revenues from the sale of liquor or tobacco and does not invest in the stock of American Home Products.

In recent years, the Board, its staff, and the Investment Advisory Council have conducted detailed analyses of the investment policies of the Basic Retirement Funds, the Post Retirement Investment Fund, the Supplemental Investment Fund, and the Permanent School Trust Fund. The results of these studies guide the on-going management of these funds and will be updated periodically.

Report Format

This annual report is published in two separate volumes. This volume, **Part One,** contains the text of the annual report. It describes the investment policies and performance for each of the funds managed by the SBI. It also contains statistical data on the Board's managers. The second volume, **Part Two,** contains audited financial statements, asset listings and accounting data.

FUNDS UNDER MANAGEMENT

Basic Retirement Funds

Post Retirement Investment Fund

Supplemental Investment Fund

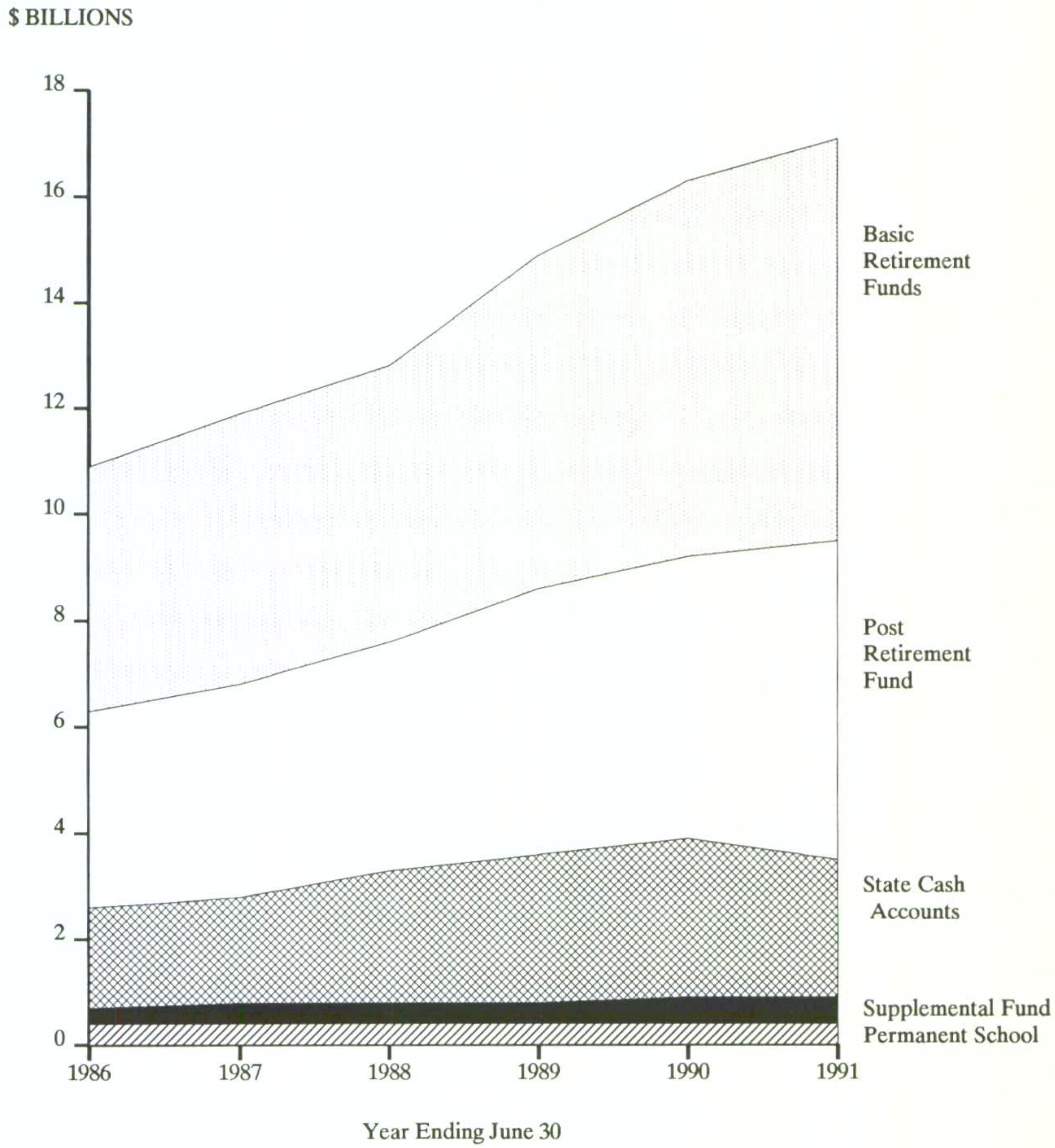
Permanent School Trust Fund

Assigned Risk Plan

State Cash Accounts

Growth in Assets

Fiscal Years 1987 - 1991



Note: The Assigned Risk Plan was added in May 1991 and is not shown. The market value of the Plan on June 30, 1991 was $297 million.

	Market Value June 30, 1991

Basic Retirement Funds — $ 7.6 billion

The Basic Retirement Funds contain the pension assets of the currently working participants in eight major statewide retirement plans:

• Teachers Retirement Fund	$ 3,467 million
• Public Employees Retirement Fund	1,727 million
• State Employees Retirement Fund	1,488 million
• Public Employees Police and Fire Fund	661 million
• Highway Patrol Retirement Fund	110 million
• Correctional Employees Fund	74 million
• Police and Fire Consolidation Fund	76 million
• Judges Retirement Fund	6 million

Post Retirement Investment Fund — $ 6.0 billion

The Post Retirement Investment Fund is composed of the reserves for retirement benefits to be paid to retired employees. Permanent retirement benefit increases are permitted based on excess earnings from dividends, interest, and net realized capital gains.

Supplemental Investment Fund — $ 0.5 billion

The Supplemental Investment Fund includes the assets of the state deferred compensation plan, supplemental benefit arrangements, various retirement programs for local police and firefighters, and the unclassified employees of the state. Participants may choose among six separate accounts with different investment emphases designed to meet a wide range of investor needs and objectives.

• Income Share Account	stocks and bonds	$ 269 million
• Growth Share Account	actively managed stocks	76 million
• Common Stock Index Account	passively managed stocks	15 million
• Bond Market Account	actively managed bonds	8 million
• Money Market Account	short-term debt securities	86 million
• Guaranteed Return Account	guaranteed investment contracts	65 million

Permanent School Trust Fund — $0.4 billion

The Permanent School Trust Fund is a trust established for the benefit of Minnesota public schools.

Assigned Risk Plan — $ 0.3 billion

The Mn. Workers Compensation Assigned Risk Plan is the insurance company of last resort for companies unable to obtain private worker compensation insurance. The SBI is the investment manager for the fund's balanced portfolio.

State Cash Accounts — $ 2.6 billion

These accounts are the cash balances of state government funds, including the Invested Treasurers Cash Fund, transportation funds, and other miscellaneous cash accounts. All assets are invested in high quality, liquid short-term debt securities.

Total Assets — $17.4 billion

BASIC RETIREMENT FUNDS

Investment Objectives

Asset Allocation

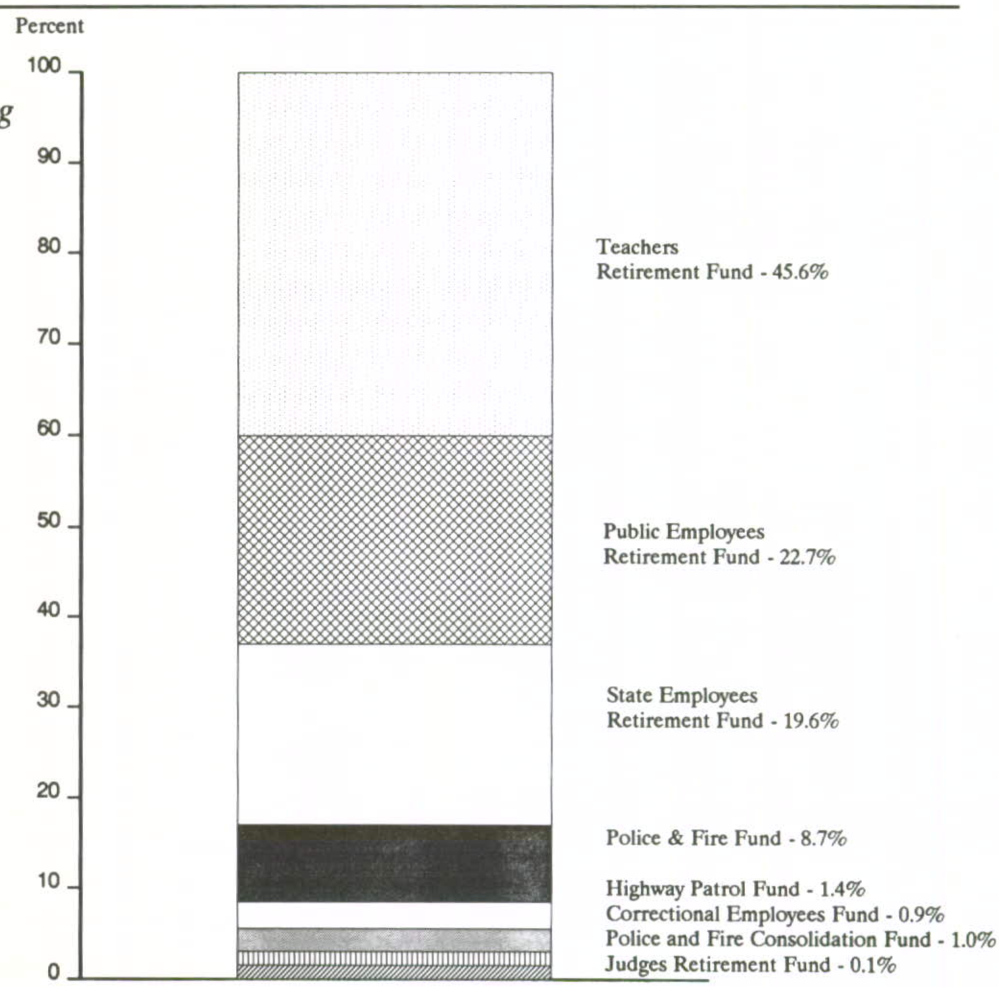
Investment Management

Investment Performance

The Basic Retirement Funds are composed of the retirement assets for currently working participants in eight statewide retirement funds.

Figure 1 identifies the individual retirement funds which comprise the Basic Funds. The Funds serve as accumulation pools for the pension contributions of public employees and their employers during the employees' years of active service. Approximately 250,000 public employees participate in the Basic Funds. On June 30, 1991 the market value of the Funds was $7.6 billion.

Figure 1. Participating Funds FY 1991



INVESTMENT OBJECTIVES

The State Board of Investment (SBI) has one overriding responsibility with respect to its management of the Basic Funds: to ensure that sufficient funds are available to finance promised retirement benefits.

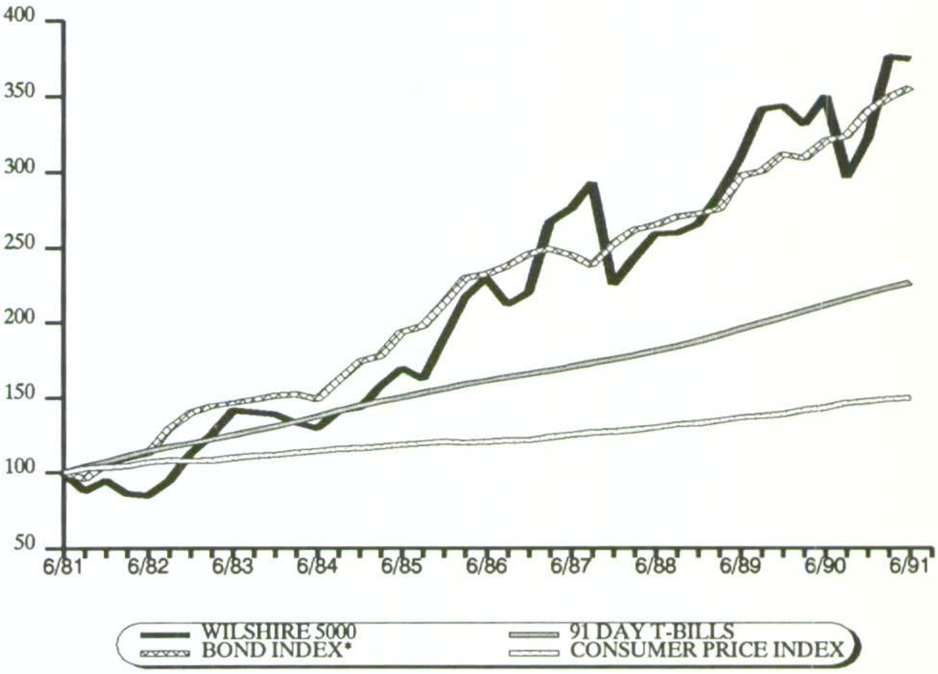
Actuarial Assumed Return

The Basic Funds invest the pension contributions of most public employees in the State of Minnesota during their working years. Employee and employer contribution rates are specified in state law as a percentage of an employee's salary. The rates are set so that contributions plus expected investment earnings will cover the projected cost of promised pension benefits. In order to meet these projected pension costs, the Basic Retirement Funds must generate investment returns of at least 8.5% on an annualized basis, over time.

Time Horizon

Normally, pension assets will accumulate in the Basic Retirement Funds for thirty to forty years during an employee's years of active service. This provides the Basic Funds with a long investment time horizon and permits the Board to take

Figure 2. Performance of Capital Markets FY 1982-1991



* Salomon Broad Investment Grade Bond Index

advantage of the long run return opportunities offered by the capital markets in order to meet its actuarial return target.

As illustrated in Figure 2, historical evidence strongly indicates that common stocks will provide the greatest opportunity to maximize investment returns over the long-term. As a result, the Board has chosen to incorporate a large commitment to common stocks in its asset allocation policy for the Basic Funds. In order to limit the short run volatility of returns exhibited by common stocks, the Board includes other asset classes such as bonds and real estate in the total portfolio. These assets diversify the Basic Funds and reduce wide fluctuations in investment returns on a year to year basis. This diversification benefit should not impair the Basic Funds' ability to meet or exceed their actuarial return target over the long-term.

Long-Term Objectives

Within this context, the Board has established several long-term investment objectives for the Basic Retirement Funds. Monitoring actual performance against these return objectives helps the Board to ensure that the Basic Funds will meet their long-term funding obligations:

- **Provide Real Returns.** Over a ten year period, the Basic Funds are expected to generate total returns that are 3-5 percentage points greater than the rate of inflation.

- **Exceed Market Returns.** Over a five year period, the Basic Funds are expected to outperform a composite of market indices weighted in a manner that reflects their long-term asset allocation policy.

- **Exceed Median Fund Returns.** Over a five year period, the Basic Funds are expected to outperform the median fund from a representative universe of public and private funds with a balanced asset mix of stocks and bonds.

ASSET ALLOCATION

The allocation of assets among common stocks, bonds, and alternative investments can have a dramatic impact on investment results. In fact, asset allocation decisions overwhelm the impact of individual security selection within a total portfolio. Consequently, the Board has focused considerable attention on the selection of an appropriate long-term asset allocation policy for the Basic Funds.

Long-Term Allocation Policy

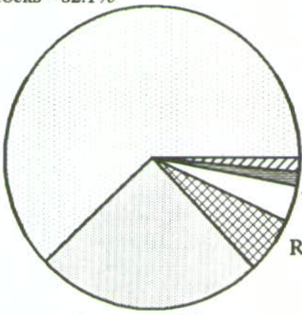
Based on the Basic Funds' investment objectives and the expected long run performance of the capital markets, the Board has adopted the following long-term asset allocation policy for the Basic Funds:

• Domestic Common Stocks	60.0%
• Domestic Bonds	24.0
• Real Estate	10.0
• Venture Capital	2.5
• Resource Funds	2.5
• Unallocated Cash	1.0

It should be noted that the Board has approved the addition of international stocks to the Basic Funds. When an appropriate implementation plan has been approved the asset allocation targets shown above will be adjusted by adding a 10.0% allocation to international common stocks and lowering the domestic common stock allocation to 50.0%.

Figure 3 presents the actual asset mix of the Basic Funds at the end of fiscal year 1991. Historical data on the Basic Funds' actual asset mix over the last five years are displayed in Figure 4.

Figure 3.
Asset Mix
June 30, 1991



	Market Value $Millions	Actual Asset Mix	Policy Target
Common Stocks	$4,727	62.1%	60.0%
Bonds	1,899	25.0	24.0
Alternative Assets:			
Real Estate	456	6.0	10.0
Venture Capital	295	3.9	2.5
Resource Funds	112	1.5	2.5
Unallocated Cash	121	1.5	1.0
Total	$7,610	100.0%	100.0%

Total Return Vehicles

The SBI invests the majority of the Basic Funds' assets in common stocks. A large allocation is consistent with the investment time horizon of the Basic Funds and the advantageous long-term risk-return characteristics of common stocks. The rationale underlying the venture capital allocation is similar. However, the relatively small size of the venture capital market presents a practical limit to the amount that may be allocated to this asset class.

The Board recognizes that this sizable policy allocation to common stock and venture capital likely will produce more volatile portfolio returns than a more conservative policy focused on fixed income securities. It is understood that this policy may result in quarters or even years of disappointing results. Nevertheless, the long run return benefits of this policy are expected to compensate for the additional volatility.

Diversification Vehicles

The Board includes other asset classes in the Basic Funds both to provide some insulation against highly inflationary or deflationary environments and to diversify the portfolio sufficiently to avoid excessive return volatility.

Real estate and resource (oil and gas) investments provide an inflation hedge that other financial assets cannot offer. In a period of rapidly rising prices, these "hard" assets can be expected to appreciate in value at a rate at least equal to the inflation rate. Further, even under more normal financial conditions such as low to moderate inflation, the returns on these assets are not highly correlated with common stocks. Thus, their inclusion in the Basic Funds serves to dampen return volatility.

The bond component of the Basic Funds acts as a hedge against a deflationary economic environment. In the event of a major deflation, high quality fixed income assets, particularly long-term bonds, will protect principal and generate significant capital gains. And, like real estate and resource funds, under normal financial conditions bonds help to diversify the Basic Funds, thereby controlling return volatility.

INVESTMENT MANAGEMENT

All assets in the Basic Retirement Funds are managed externally by private money management firms under contracts or agreements with the SBI.

Common Stock Segment

The Board allocates 60% of the Basic Funds to common stocks. The SBI utilizes a two-part approach to the management of the common stock segment:

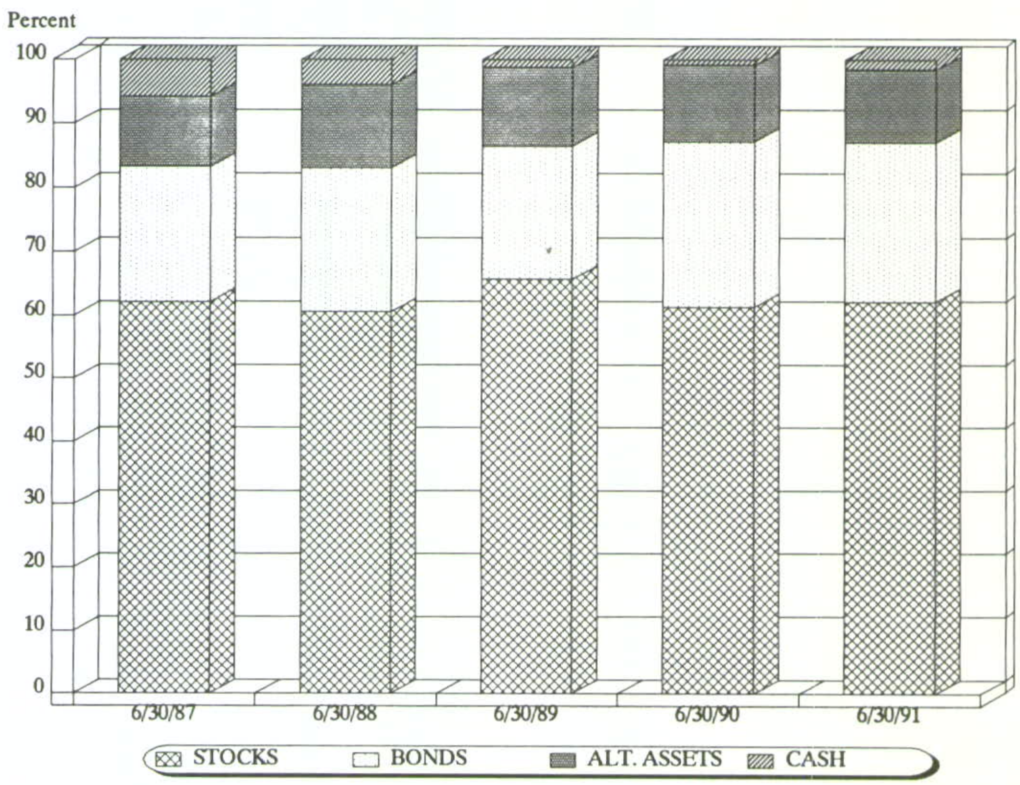
- **Active Management.** No more than one-half of the stock segment will be actively managed. At the end of fiscal year 1991, approximately 40% of the stock segment was actively managed by a group of nine external money managers.

- **Passive Management.** On an on-going basis, at least one-half of the stock segment will be passively managed, i.e. invested in an **index fund.** At the end of fiscal year 1991, approximately 60% of the stock segment was indexed.

The **actively managed segment** of the Basic Funds' common stock portfolio is designed to add value. Each active manager is expected to add incremental value over the long run relative to a customized benchmark which reflects its unique investment approach or style.

This type of active manager structure can result in misfit or style bias. "Misfit" can be defined as the difference between the

Figure 4. Historical Asset Mix FY 1987-1991



aggregate benchmarks of the active managers and the asset class target (e.g. the Wilshire 5000). The SBI has experienced three major areas of misfit in its active manager group:

- persistent over-exposure to small capitalization stocks
- persistent over-exposure to growth oriented stocks
- persistent under-exposure to yield oriented stocks

These areas have underperformed the broad stock market in the recent past, and as a result, the manager's benchmarks, individually and in aggregate, have also underperformed.

The SBI uses the **passively managed segment** of the stock portfolio to compensate for misfit. Because of its large size, the index fund can be a powerful lever in managing the characteristics of the entire stock segment. By making relatively minor changes in its holdings, the index fund is being modified or "tilted" to compensate for the existing misfit in the active manager group. This strategy should result in a decrease in the volatility of total segment returns and allow the value added through active management to benefit the total common stock segment returns.

Figure 4 (con't). Historical Asset Mix FY 1987-1991

	Market Value June 30,				
	1987	1988	1989	1990	1991
Common Stocks					
$Million	3,188.0	3,164.0	4,154.0	4,358.0	4,727.0
Percent	62.1	60.6	65.7	61.3	62.1
Bonds					
$Million	1,089.0	1,178.0	1,318.0	1,840.0	1,899.0
Percent	21.2	22.5	20.8	25.9	25.0
Real Estate					
$Million	405.0	465.0	502.0	525.0	456.0
Percent	7.9	8.9	7.9	7.4	6.0
Venture Capital					
$Million	93.0	138.0	181.0	241.0	295.0
Percent	1.8	2.6	2.9	3.4	3.9
Resource Funds					
$Million	68.0	78.0	96.0	84.0	112.0
Percent	1.3	1.5	1.5	1.2	1.5
Unallocated Cash					
$Million	294.0	203.0	74.0	58.0	121.0
Percent	5.7	3.9	1.2	0.8	1.5
Total Fund					
$Million	5,137.0	5,224.0	6,325.0	7,106.0	7,610.0

A comprehensive monitoring system has been established to ensure that the many elements of the common stock portfolio conform to the Basic Funds' investment policy. Performance benchmarks have been established for each of the Board's managers. These benchmarks enable the SBI to evaluate more effectively the managers' decision-making, both individually and in aggregate, with respect to risk incurred and returns achieved.

FY 1991 Changes

Implementation of the tilted index fund described above began in October 1990. By June 30, 1991 the majority of the modifications were in place. During fiscal year 1991, the SBI terminated its relationships with Concord Capital and Sasco Capital. The funds were placed in the index fund until new managers could be selected during fiscal year 1992.

A description of each common stock manager's investment approach is included in the Manager Summary section. Their portfolio characteristics are included in the Statistical Data Appendix.

Bond Segment

The Board allocates 24% of the Basic Funds to bonds. The SBI uses a two-part approach to the management of the bond segment:

- **Active Management.** No more than one-half of the bond segment will be actively managed. At the end of the fiscal year 1991, approximately 44% of the bond segment was actively managed by a group of four external money managers.

- **Semi-Passive Management.** On an on-going basis, at least one-half of the assets allocated to bonds will be managed by semi-passive managers. At the end of fiscal year 1991, approximately 56% of the bond segment was invested using an **enhanced index** approach.

The group of **active bond managers** was selected for its blend of investment styles. Each of the managers invests in high quality, fixed income securities. The managers vary, however, in the emphasis they place on interest rate anticipation and in the manner in which they approach issue selection and sector weighting decisions.

In keeping with the objective of utilizing the bond portfolio as a deflation hedge, the active managers are restricted regarding the minimum average life of their portfolios. This requirement is designed to prevent the Basic Funds' total bond portfolio from assuming an excessively short-lived position and thus, severely diluting its deflation hedge capacity. Further, the bond managers are permitted to purchase only high quality (BAA or better) fixed income assets. In addition, to avoid extreme variability in total bond segment returns, the SBI constrains the maximum duration (average life) of the managers' portfolios to a band of three to seven years.

The goal of the **enhanced index managers** is to add incremental value to the Salomon Broad Investment Grade (BIG) Index through the superior selection of bonds for the portfolios. The enhanced index portfolios adhere very closely to characteristics of the Salomon BIG and match its duration and maturity structure. The semi-passive managers seek to add value by exploiting perceived mispricings among individual securities or by making minor alterations in the sector weightings within the portfolio. Although the enhanced index managers seek to exceed the performance of the index, the possibility exists that the semi-passive approach may slightly underperform the target index during some periods.

FY 1991 Changes

There were no additions or deletions to the bond segment during fiscal year 1991.

A description of each bond manager's investment approach is included in the Manager Summary section. Their portfolio characteristics are presented in the Statistical Data Appendix.

Real Estate Segment

The Board allocates 10% of the Basic Funds for investment in real estate. State law authorizes the SBI to invest in real estate through commingled funds, limited partnerships and trusts. Each of the Board's real estate investments involve at least four other participants. In addition, the Board's investment may not exceed 20% of a given commingled fund, partnership or trust. State law does not permit investment in real estate through direct investments, separate accounts or individual transactions.

By investing in several open-end and closed-end commingled funds, the SBI has created a large core portfolio of real estate that is broadly diversified by property type, location and financing structure. The core portfolio is designed to reflect the composition of the aggregate U.S. real estate market and, as such, is expected to earn at least market returns. The broad diversification of the core portfolio enables the SBI to select less diversified, special orientation managers for the remaining portion of the real estate segment. With their more focused approach to real estate management, these funds offer the ability to enhance the return earned by the core portfolio.

Prospective real estate managers are reviewed and selected based on the managers' experience, investment strategy and performance history.

FY 1991 Changes

At fiscal year-end, the market value of the real estate portfolio comprised 6.0% of the Basic Funds. The SBI will continue to review and add new real estate investments, as attractive opportunities are identified.

During fiscal year 1991, the SBI approved two commitments:

- Heitman Real Estate Fund V, a follow-on investment with Heitman Advisory Corp. Fund V will focus on equity interests in existing shopping centers, industrial and business parks, and office buildings

- Zell\Merrill Lynch Real Estate Opportunity Partners II Limited Partnership. This fund will make equity or equity-related investments in opportunistic real estate situations.

A description of each real estate manager's investment approach is included in the Manager Summary section.

Venture Capital Segment

The Board allocates 2.5% of the Basic Funds to investment in venture capital. Under state law, the SBI is authorized to invest in venture capital through limited partnerships and corporations. As with real estate investments, each venture capital investment must involve at least four other investors, and the Board's investment may not exceed 20% of a particular limited partnership.

The SBI maintains a broadly diversified venture capital portfolio that is diversified across three dimensions: location, industry type and stage of corporate development of individual portfolio companies.

Prospective venture capital managers are reviewed and selected based primarily on the managers' experience, investment strategy, diversification potential and performance history.

FY 1991 Changes

At year-end, the market value of Basic Funds' venture capital segment was 3.9%, somewhat above its long-term target. The SBI has made additional investments to replenish commitments that will expire in the mid-1990's when several of the SBI's current venture capital partnerships mature.

During fiscal year 1991, the SBI approved two commitments:

- The 1991 KKR Supplemental Fund is a leveraged buyout investment fund raised to supplement KKR's 1987 fund and will invest primarily in management buyouts. It is expected that the 1991 Fund will utilize more conservative acquisition capital structures (less debt, more equity) than prior KKR funds.

- IMR Fund, L.P., was approved subject to certain funding conditions. When operational, the fund proposes to take positions in companies with under-valued or under-utilized assets that can be restructured.

A description of each venture capital manager's investment approach is included in the Manager Summary section.

Resource Fund Segment

The Board allocates 2.5% of the Basic Funds' assets for investment in oil and gas partnerships. The SBI invests in partnerships structured specifically for pension funds and other tax-exempt investors. There must be four other participants in each of the SBI's resource investments and the Board may invest no more than 20% of a partnership's total capital. The resource partnerships in which the Board invests concentrate their investments in producing properties and royalty interests that are diversified geographically and/or geologically.

Resource investments are selected based on the managers' experience, investment strategy and performance history.

FY 1991 Changes

At year-end, the market value of the resource fund segment was 1.5% of the Basic Funds. During fiscal year 1991, the SBI approved a commitment with a new oil and gas fund, L.E. Simmons, OFS Investments, L.P. This investment is in the oil field service and equipment industry. The Board plans to continue to review resource investments for possible inclusion in the portfolio.

A description of each resource fund manager's investment approach is included in the Manager Summary section.

Unallocated Cash

The Board allocates 1% of the Basic Funds to cash. Given the long-term objectives of the Basic Funds and their limited liquidity needs, the Board believes that a minimal commitment to short-term investments is most appropriate.

These cash reserves, as well as any cash held by stock and bond managers, are invested in a short-term investment fund (STIF) managed by State Street Bank and Trust, the Basic Funds' master custodian. The STIF is a separate account invested under the same state statutes which guide all of the SBI's short-term investments.

INVESTMENT PERFORMANCE

The Board has adopted performance objectives which are consistent with the objectives of the Basic Funds and realistic because they are both attainable and measurable. The evaluation of performance outcomes relative to established policy is an integral part of the SBI's investment program.

Evaluation Framework

Given the long-term investment time horizon of the Basic Funds, the performance evaluation time period is necessarily long-term as well. Recognizing that excessive attention to performance in the short run can be counterproductive, the SBI evaluates investment performance over a time horizon of approximately three to five years (roughly corresponding to a typical market cycle). While performance is measured and reviewed quarterly to identify trends and control extreme underperformance, decisions regarding the effectiveness of the Board's investment program are made over a considerably longer period.

The Basic Funds' multi-manager structure requires that investment performance be evaluated on two distinct levels:

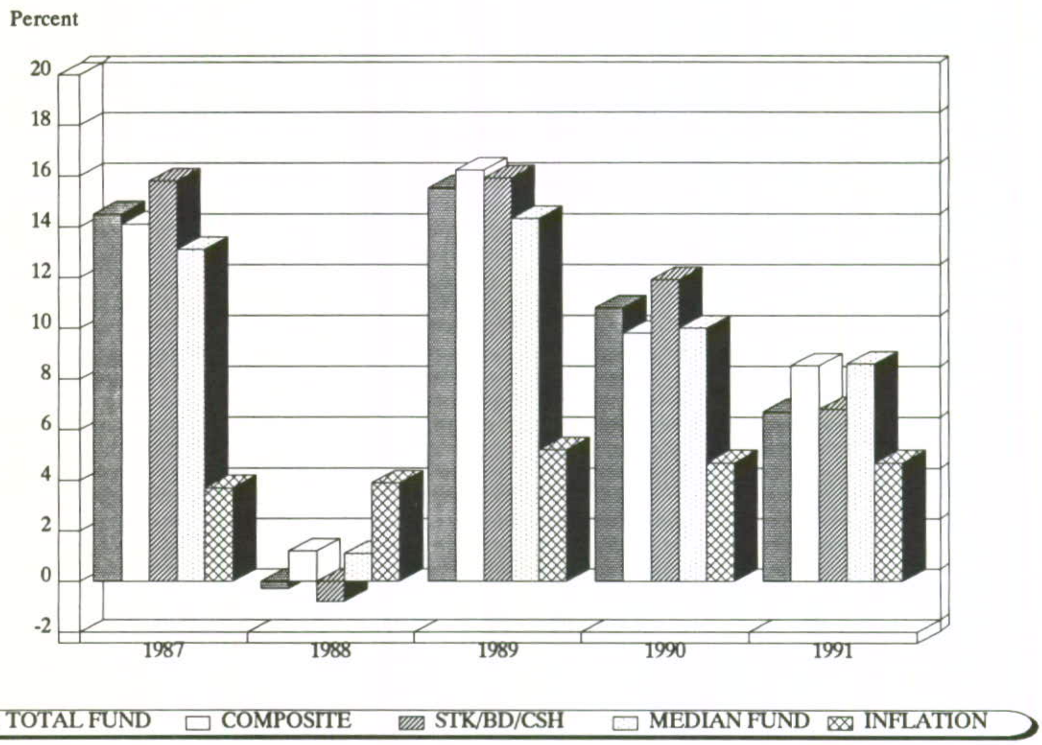
- **Total Fund.** Risk-return targets for the total fund ensure that long run strategic decisions which affect the total performance of the Basic Funds are implemented in a manner consistent with their investment policy. Specific standards have been selected to monitor performance on a total fund level.

- **Individual Managers.** Risk-return objectives for the individual managers are designed to ensure that they adhere to their assigned investment roles and to permit an evaluation of the value they add to the SBI's investment program. Individual benchmarks have been developed for each manager to monitor performance at the manager level.

Total Fund Performance

To a significant degree, the **risk objective** of the total fund is set implicitly when the asset allocation and investment management structure are determined. Given the adequate funding levels and

Figure 5.
Total Fund Performance
Fiscal Years 1987 - 1991



	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
Total Fund	**14.5%**	**-0.3%**	**15.5%**	**10.8%**	**6.7%**	**11.0%**	**9.3%**
Composite Index*	14.1	1.2	16.2	9.8	8.5	11.3	9.7
Stocks, Bonds, Cash Only	**15.8**	**-0.8**	**15.9**	**11.9**	**6.8**	**11.5**	**9.7**
Median Fund**	13.1	1.1	14.3	10.0	8.6	11.4	9.8
Inflation	3.7	3.9	5.2	4.7	4.7	4.8	4.4

* **60%** Wilshire 5000/**24%** Salomon Broad Investment Grade Bond Index/**10%** Wilshire Real Estate Index/**1%** 91 Day T-Bills/**2.5%** Venture Capital Funds/**2.5%** Resource Funds since July 1989.

** Wilshire Assoc. Trust Universe Comparison Service (TUCS) median balanced portfolio. TUCS contains returns of more than 800 public and private funds.

long-term investment time horizon of the Basic Funds, the Board believes an above-average risk posture is appropriate.

The Board's objective is to take advantage of the established relationship between risk and return. Higher risk investment strategies have been shown to offer higher long run returns than lower risk strategies. The SBI's risk target therefore, is implemented by committing the majority of the Basic Funds' assets to common stocks.

The Basic Funds' risk objectives are implicitly met by attaining the targeted policy asset mix. In this regard, the common stock and bond targets have been achieved. The Basic Funds began commitments to real estate, venture capital and resource funds in the early to middle 1980's. With alternative investments near their policy targets, only moderate additional activity is expected over the next several years.

The Basic Funds' **return objectives** are evaluated relative to three specific standards:

- **Real Return.** Over a ten year period, the Basic Funds are expected to produce returns that exceed inflation by 3-5 percentage points annually.

- **Composite Index.** Over a five year period, the returns produced by the total portfolio are expected to exceed those derived from a composite of market indices weighted in the same proportion as the Basic Funds' long-term asset allocation.

- **Median Fund.** Over a five year period, the Basic Funds, excluding alternative assets, are expected to outperform the median return produced by a representative sample of other public and private pension and trust funds with a balanced asset mix of stocks and bonds.

Overall, the Basic Funds have performed satisfactorily compared to these standards:

- **Real Return.** Over the last ten years, the Basic Funds have exceeded inflation by 8.9 percentage points annualized. For fiscal year 1991, the Funds' return surpassed inflation by 2.0 percentage points.

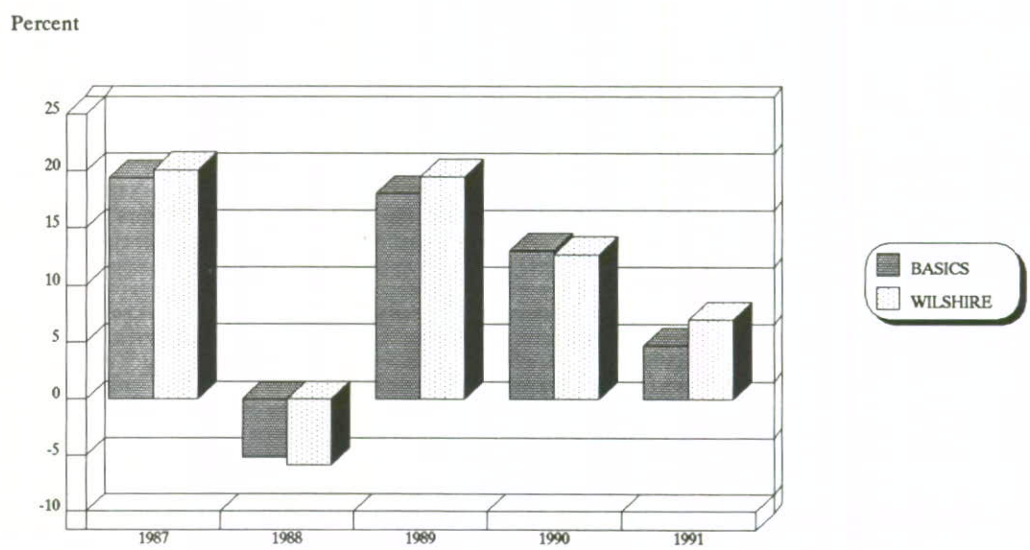
- **Composite Index.** Over the last five years, the Basic Funds have underperformed their market index composite by 0.4 percentage point annualized. For fiscal year 1991, the Funds trailed the composite by 1.8 percentage points.

- **Median Fund.** Over the last five years the Basic Funds, excluding alternative assets, were in the middle third (56th percentile) of public and private pension funds in the Wilshire Associates Trust Universe Comparison Service (TUCS). The Basic Funds ranked in the third quartile (71st percentile) of TUCS for fiscal year 1991.

Fiscal year 1991 was a fairly volatile period for all investors. Fears of recession and concerns over political instability in the Persian Gulf region caused a substantial decline in the stock market in the first half of the year. However, with an early end to the Gulf War, the stock market rebounded after January 1991 and finished the fiscal year with a modest gain. The bond market generated attractive returns as a result of an accomodating monetary policy set by the Federal Reserve Bank. Returns on most financial assets exceeded the rate of inflation for the year. Over the last five years, the Basic Funds have provided a cumulative return of 59.1%, excluding alternative assets.

Performance relative to total fund targets is presented in Figure 5. Common stock and bond segment performance are shown in Figure 6 and Figure 7.

*Figure 6.
Stock Segment
Performance
FY 1987 -1991*



Fiscal Year

	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
STOCK SEGMENT	19.4%	-5.2%	18.0%	13.0%	4.7%	11.8%	9.6%
Wilshire 5000	20.1	-5.9	19.5	12.7	7.0	13.0	10.2

Stock Manager Performance

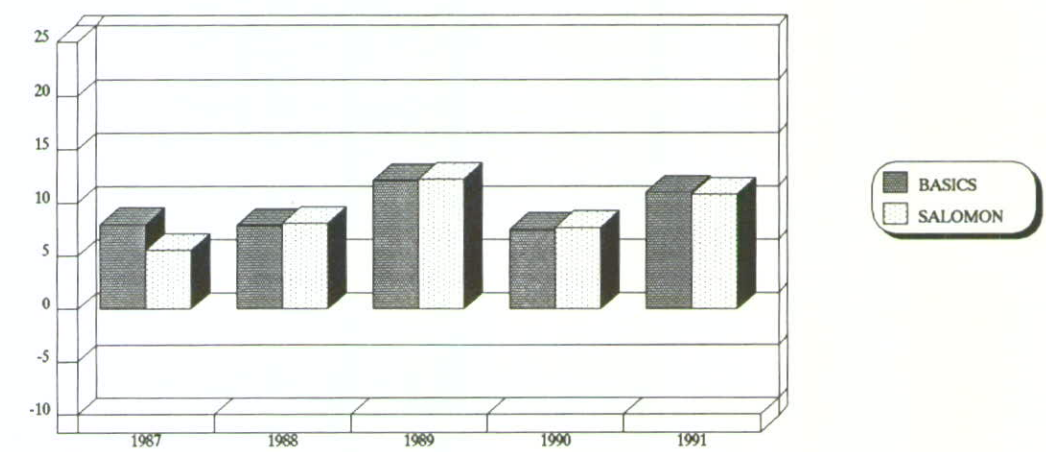
Two primary long run **risk objectives** have been established for the Basic Funds' common stock managers:

- **Investment Approach.** Each manager (active or passive) is expected to hold a portfolio that is consistent, in terms of risk characteristics, with the manager's stated investment approach.

- **Diversification.** Each active common stock manager is expected to hold a highly non-diversified portfolio, while the index fund manager is expected to hold a well diversified portfolio which tracks its stated target. In the short run, the active common stock managers may depart from these two risk targets as part of their specific investment strategies.

The common stock managers successfully fulfilled their long term risk objectives during fiscal year 1991. In general, the managers constructed portfolios consistent with their stated investment approaches and maintained appropriate levels of diversification.

Figure 7. Bond Segment Performance FY 1987-1991



	1987	1988	1989	1990	1991	3 Yr. (Annualized)	5 Yr. (Annualized)
BOND SEGMENT	7.9%	7.9%	12.1%	7.5%	11.0%	10.2%	9.3%
Salomon Index*	5.6	8.1	12.2	7.7	10.8	10.2	8.9

* Salomon Broad Investment Grade Bond Index

The SBI evaluates the common stock managers' returns against the performance of customized indices constructed to represent the managers' specific investment approaches. These custom indices are commonly referred to as "benchmark portfolios." The **benchmark portfolios** take into account the equity market forces that at times favorably or unfavorably impact certain investment styles. Thus, the benchmarks are more appropriate return targets against which to judge the managers' performances than are broad market indices.

From a return perspective, common stock manager performance was disappointing. Two active managers (Forstmann and GeoCapital) exceeded their benchmarks for the year. The remainder of the managers underperformed their benchmarks to varying degrees. As a group, the active and passive managers underperformed the broad market by 2.2 percentage points during fiscal year 1991.

Fiscal year 1991 performance data for the individual common stock managers are presented in Figure 8. Historical information is included in the Statistical Data Appendix.

Figure 8.
Stock Manager Performance FY 1991

	Total Portfolio Return	Benchmark Return
Alliance Capital	3.0%	4.9%
Forstmann Leff	10.7	6.4
Franklin Portfolio	3.9	7.8
GeoCapital	10.2	5.0
IDS Advisory	-0.4	4.0
Investment Advisers	0.6	5.6
Lieber & Company	5.5	5.6
Rosenberg Institutional	1.3	5.7
Waddell & Reed	-1.5	4.9
Wilshire Associates (tilted index)	6.4	6.9
Basic Funds' Common Stock Segment*	4.8%	
Stock Segment Performance Standards		
Wilshire 5000	7.0%	
TUCS Median Managed Equity Portfolio	6.6	
Inflation	4.7%	

* includes performance of any manager retained for less than the full fiscal year

Bond Manager Performance

The SBI constrains the **risk** of the active bond managers' portfolios to ensure that they fulfill their deflation hedge and total fund diversification roles. The managers are restricted in terms of the duration (average life) of their portfolios and the quality of their fixed income investments.

The bond managers successfully fulfilled their long-term risk objective during fiscal year 1991. In general, the managers constructed portfolios consistent with their stated investment approaches and maintained appropriate levels of quality and duration.

As with the stock segment, the returns of each of the Board's bond managers is compared to an appropriate **benchmark portfolio**. Relative performance by the bond managers was favorable. Strong performance by two managers (Fidelity, Western) more than offset performance at or below benchmark levels from the remainder of the group. As a group, the active and semi-passive bond managers exceeded the performance of the broad bond market by 0.2 percentage points for the year.

Figure 9. Bond Manager Performance FY 1991

	Total Portfolio Return	Benchmark Return
Investment Advisers	10.2%	10.5%
Lehman Ark	10.2	10.3
Miller, Anderson & Sherrerd	10.7	10.8
Western Asset	11.2	11.0
Fidelity Management (enhanced index)	11.5	10.8
Lincoln Capital (enhanced index)	10.8	10.8
Basic Funds' Bond Segment	11.0%	
Bond Segment Performance Standards		
Salomon Broad Investment Grade Bond Index	10.8%	
TUCS Median Managed Bond Portfolio	10.6	
Inflation	4.7%	

Fiscal year 1991 performance data for the individual bond managers are presented in Figure 9. Historical information is included in the Statistical Data Appendix.

Alternative Asset Managers

The SBI reviews performance of its real estate investments relative to two standards:

- the Wilshire Associates Real Estate Index, an index of commingled real estate funds
- inflation, as measured by changes in the Consumer Price Index (CPI)

During fiscal year 1991, the SBI's real estate portfolio underperformed both standards (SBI real estate -4.4%, Wilshire Real Estate Index -3.8%, CPI 4.7%). Comparisons over the last five years, however, show the real estate portfolio outperforming (SBI real estate 4.6% annualized, Wilshire index 4.5% annualized, CPI 4.4% annualized). As the above numbers illustrate, the real estate market as a whole is currently in the midst of a significant downturn.

At this time, specific performance objectives have not been established for the venture capital and resource fund managers. The long-term nature of these investments and the lack of comprehensive data on the returns provided by the resource and venture capital markets preclude comprehensive performance evaluation. In the future, as markets for these assets become more institutionalized, the SBI will fully integrate appropriate performance standards for these assets into its performance analysis.

POST RETIREMENT FUND

Investment Objectives

Asset Allocation

Investment Management

Investment Performance

The Post Retirement Investment Fund contains the pension assets of retired public employees covered by nine statewide retirement plans (i.e. the Basic Retirement Funds and the Legislative & Survivors Retirement Fund).

The assets of the Post Fund finance monthly annuities paid to retirees. These annuities may be adjusted upwards based on the earnings of the Post Fund. On June 30, 1991, the Post Fund had a market value of $6.0 billion with over 60,000 retiree participants.

INVESTMENT OBJECTIVES

Actuarial Assumed Return

Public employees participating in the statewide retirement plans are promised benefits based on their total years of service and their "high five" average salaries. When an employee retires, a sum of money sufficient to finance a fixed monthly annuity is transferred from accumulation pools in the Basic Funds to the Post Fund. In order to support promised benefits, the Post Fund must "earn" at least 5% on its invested assets each year. If the Post Fund exceeds this earnings rate, excess earnings are used to finance permanent benefit increases for eligible retirees.

Earnings Objectives

Within this framework, the State Board of Investment (SBI) pursues two objectives for the Post Fund:

- To generate 5% realized earnings each year to maintain current benefits.
- To generate at least 3% additional realized earnings each year to provide annual benefit increases to eligible retirees.

The Board views the first of these two objectives as being of primary importance. Furthermore, to achieve these two objectives, the SBI recognizes that the Post Fund requires a completely different investment approach than that applied to the Basic Retirement Funds.

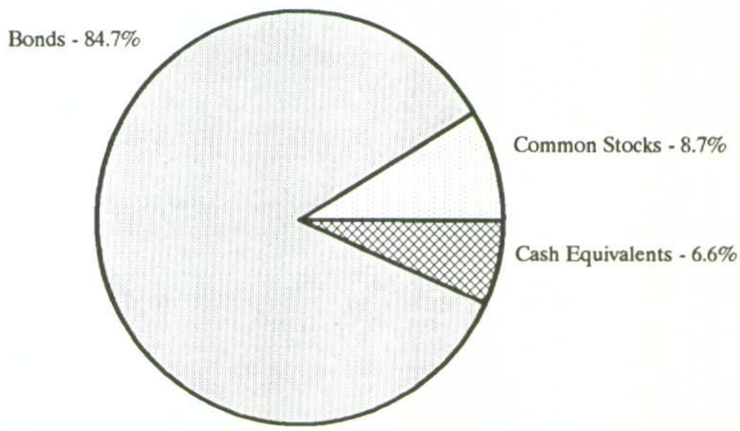
The ability of the Post Fund to maintain current benefit levels and provide future benefit increases depends upon its realized earnings. State statutes define earnings for the Post Fund as interest and dividend income as well as realized equity and fixed income capital gains (or losses). Unrealized capital gains (or losses) have no direct impact on the benefits paid to retirees. Unrealized capital gains (or losses) are excluded from defined earnings in order to make benefit payments largely insensitive to near-term fluctuations in the capital markets. (More information on the benefit increase formula is included in the Statistical Data Appendix.)

As a result, the Post Fund is not oriented toward maximizing long-term total rate of return. Rather, the SBI attempts to generate a high, consistent stream of earnings for the Post Fund that will maintain current benefits, as well as produce income sufficient to increase benefits over time.

ASSET ALLOCATION

The Board has designed the asset mix of the Post Fund to generate the sizable stable earnings stream referred to in the

Figure 10.
Asset Mix
June 30, 1991



	Market Value $Millions	Percent
Common Stocks	$ 523	8.7%
Bonds	5,063	84.7
Unallocated Cash	390	6.6
Total	$5,976	100.0%

previous section. The Post Fund's year-end asset mix is presented in Figure 10. Historical asset allocation data is shown in Figure 11.

Dedicated Bond Portfolio

The SBI invests the majority of the Post Fund's assets in a dedicated bond portfolio. A dedicated bond portfolio is a collection of high quality bonds with various maturities which generate cash flows from income and principal payments that match a specific stream of liabilities or benefit payments. The highly predictable benefits owed to the Post Fund's retired participants and the high real interest rates that have existed in recent years have created an ideal situation to employ a dedicated bond portfolio.

The dedicated bond portfolio facilitates the attainment of the Post Fund's two objectives. Most importantly, it ensures that funds are available at the required times to meet promised benefit payments. Also, the dedicated bond portfolio consistently earns enough additional interest income to permit a minimum annual benefit increase of 3%, provided the portfolio yields at least 8% on an annual basis. If the portfolio yield is greater than 8% or if stock investments do well, as was the case in recent years, the Post Fund can offer eligible retirees even more than this floor benefit increase.

Common Stocks

While bonds represent the largest asset class in the Post Fund's total portfolio, common stocks also play an important role. Common stocks provide the Post Fund with a source of long run earnings growth not available from fixed income investments. In recent years, realized gains on common stocks have contributed importantly to large benefit increases.

Unallocated Cash

Cash equivalents make up the remainder of the Post Fund's portfolio. Because the Post Fund's cash needs are very predictable, the SBI generally maintains a small cash equivalents allocation. However, large cash flows into the Post Fund, which frequently occur at fiscal year-end, give a distorted view of the Post Fund's normal allocation to the segment.

Changes in Asset Mix

During fiscal year 1991, the asset mix of the Post Fund did not change significantly. In the mid-1980's, the substantial decline in interest rates necessitated an increase in the size of the dedicated bond portfolio and a concomitant reduction in the size of the common stock portfolio. With lower interest rates, new cash flows into the Post Fund are invested at lower yields than in the recent past. If interest rates remain at relatively low levels, the size of the common stock portfolio will continue to shrink slowly as the dedicated bond portfolio grows larger.

INVESTMENT MANAGEMENT

The Post Fund is managed almost entirely by SBI staff. The Board relies heavily on internal management for two reasons:

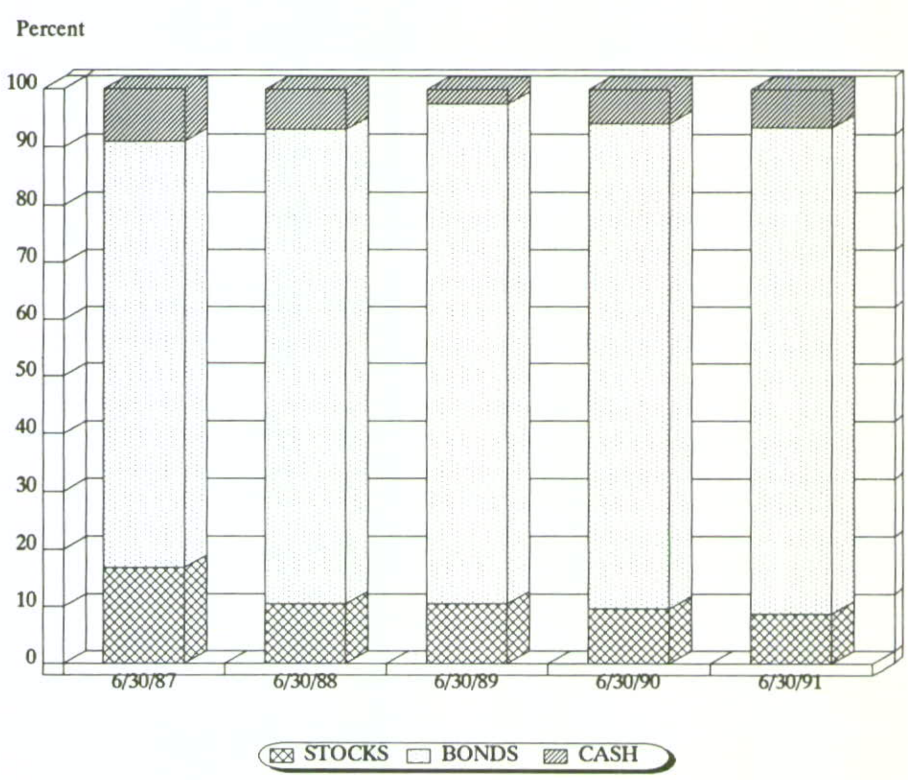
- **Dedicated Bond Portfolio.** The low turnover, limited discretion nature of the dedicated bond portfolio makes bond management by SBI staff cost effective.

- **Investment Constraints.** With respect to common stock management, the Post Fund's equity manager must be concerned with generating current income and avoiding realized losses. Most external investment managers are not used to functioning under the Post Fund's unique investment requirements. SBI staff, on the other hand, has operated under these constraints since the Post Fund's inception.

Bond Management

As described earlier, the dedicated bond portfolio represents the bulk of the Post Fund's assets. Staff constructs the lowest cost portfolio, within established constraints, that produces sufficient cash flows to fund promised benefit payments and maintains adequate quality levels.

Figure 11. Historical Asset Mix FY 1987-1991



The management of the dedicated bond portfolio requires that the State's actuary supply the SBI with forecasts of benefit payments expected to be paid over a twenty-five year horizon. Based upon these forecasts, a computer program generates a list of bonds that will meet these forecasted benefit payments. Staff then attempt to purchase the recommended issues. If these bonds are not available, substitute bonds are purchased. Staff rebalance the dedicated bond portfolio annually following the receipt of the benefit payment projections from the State's actuary.

Common Stock Management

The focus of SBI staff's common stock management is long-term, value-based stock selection. Staff generally implement less aggressive investment strategies than those utilized by the Basic Retirement Funds' active stock managers. Further, SBI staff are aware of the Post Fund's need to avoid investment strategies which generate high portfolio turnover and which, at times, could result in sizable realized losses.

SBI staff attempt to identify stocks that have attractive expected returns, yet do not possess significantly high levels of market volatility. Staff use recommendations generated by quantitative valuation models as the primary source of investment candidates.

Figure 11 (con't). Historical Asset Mix FY 1987-1991

	Market Value June 30,				
	1987	1988	1989	1990	1991
Common Stocks					
$Million	673.0	446.0	524.0	514.0	523.0
Percent	16.8	10.5	10.4	9.6	8.7
Bonds					
$Million	2,965.0	3,511.0	4,358.0	4,512.0	5,063.0
Percent	74.2	82.5	86.9	84.5	84.7
Unallocated Cash					
$Million	359.0	301.0	132.0	313.0	390.0
Percent	9.0	7.0	2.6	5.9	6.6
Total Fund					
$Million	3,997.0	4,258.0	5,014.0	5,339.0	5,976.0
Percent	100.0	100.0	100.0	100.0	100.0

Staff always maintain a fully invested position in the equity segment.

Cash Enhancement

The SBI has established a cash enhancement program using financial futures for a portion of the Post Fund's cash reserves. Low risk stock index futures investment strategies are employed to improve the rate of return earned on cash equivalents. The strategies are low risk because each investment is fully hedged. That is, stock index futures contracts are simultaneously bought and sold, thereby eliminating market risk. The underlying mispricings between the contracts provide the source of returns to the cash enhancement program.

The Board has retained BEA Associates, New York, NY, a firm specializing in the management of financial futures, to manage the cash enhancement program.

INVESTMENT PERFORMANCE

Because of its focus on generating current income, the risk composition of the Post Fund's investment portfolio is conservatively structured. The majority of the Post Fund's assets are invested in high quality bonds. Further, the Post Fund's common stock portfolio maintains a relatively high level of diversification and a moderate level of relative market volatility.

Total Fund Performance

In terms of long-term rate of return objectives, the Fund's investment results are compared to two standards:

- **Actuarial Assumptions.** In order to finance promised benefit payments, the Post Fund must generate a level of interest and dividend income which, combined with realized net capital gains, meets the Post Fund's actuarial assumption of 5% per year.

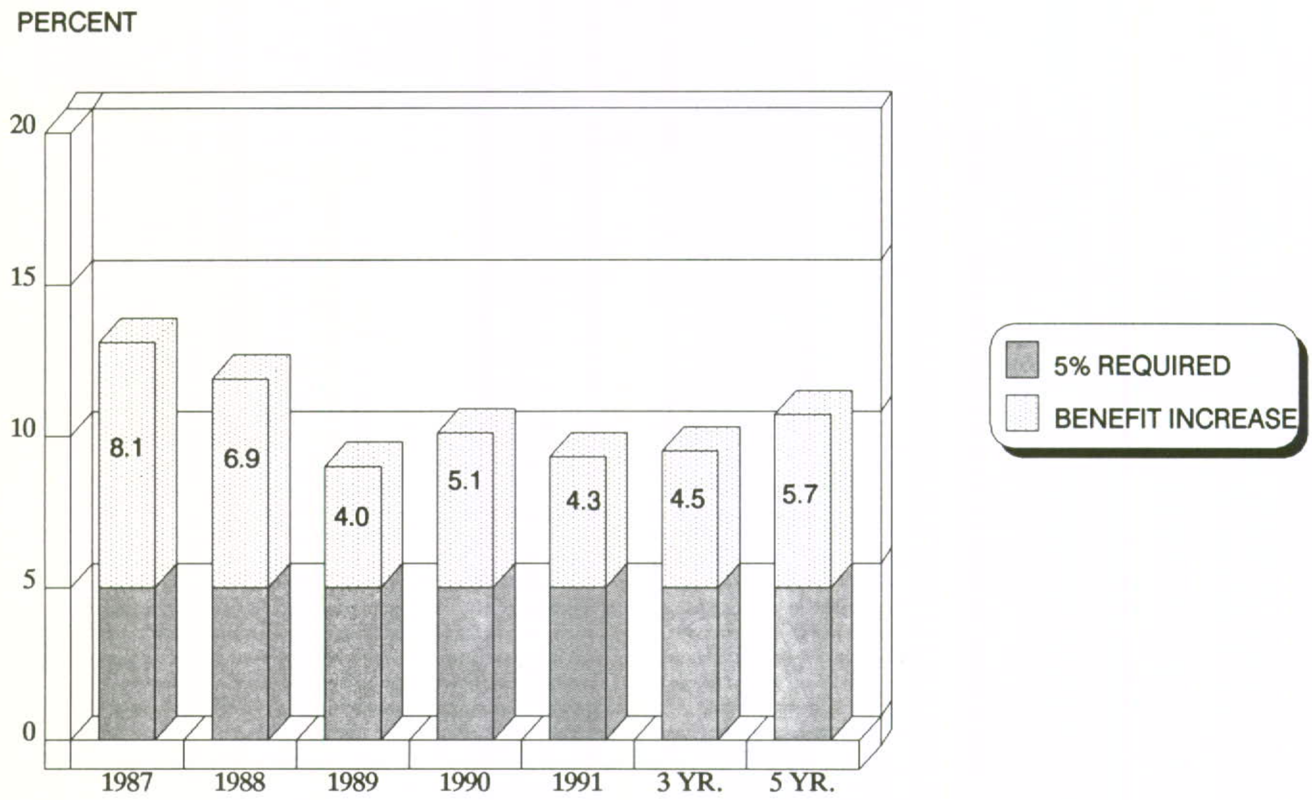
- **Benefit Increase Level.** The Post Fund is expected to produce additional earnings sufficient to allow benefits to increase by at least 3% per year.

The Post Fund's total portfolio met all of the prescribed **risk** targets during the 1991 fiscal year. Approximately 85% of the fund was invested in bonds with an average quality rating of AAA. The Post Fund's common stock portfolio maintained a slightly above average level of relative market volatility and was consistently well diversified.

Figure 12.

Realized Earnings

Fiscal Years 1987-1991



	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
Realized Earnings*	13.1%	11.9%	9.0%	10.1%	9.3%	9.5%	10.7%
Benefit Increase**	8.1	6.9	4.0	5.1	4.3	4.5	5.7
Inflation	3.7	3.9	5.2	4.7	4.7	4.9	4.4

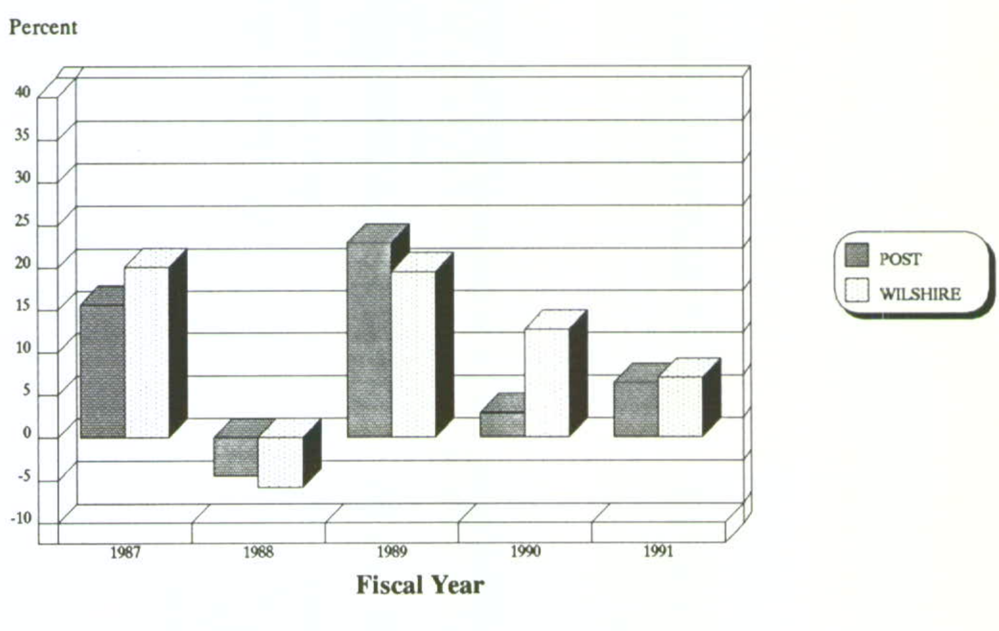
* Interest, dividends and net realized capital gains.
** Payable starting January 1 of the following calendar year.

Overall, investment **returns** relative to performance objectives were satisfactory for the 1991 fiscal year. The Post Fund generated income and realized net capital gains in excess of the amount needed to fund promised benefits. The surplus earnings will permit a benefit increase of 4.3% beginning January 1, 1992. (The total rate of return for the Fund was 9.6% for fiscal year 1991 and 8.4% annualized for FY87-91.)

As shown in Figure 12, the Post Fund has generated benefit increases of 5.7% on an annualized basis over the last five years. During this period, investment returns were high compared to inflation, which increased at an annualized rate of 4.4%. The formula used to compute benefit increases was revised in 1980. During the twelve years since the revised formula was instituted, benefit increases have been 6.5% on an annualized basis. This compares to an annualized inflation rate of 5.4% for the same period.

More information on the benefit increase formula is included in the Statistical Data Appendix.

Figure 13. Stock Segment Performance FY 1987-1991



	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
STOCK SEGMENT	15.7%	-4.5%	22.9%	2.9%	6.4%	10.4%	8.3
Wilshire 5000	20.1	-5.9	19.5	12.7	7.0	13.0	10.2

Segment Performance

The contrarian value style pursued by the Post Fund's internal **common stock** manager underperformed the Wilshire 5000 by 0.6 percentage points for the fiscal year. Historical performance data on the stock segment of the Post Fund is shown in Figure 13.

At the end of fiscal year 1991, the **dedicated bond portfolio** had a duration or average life of 7.6 years and a current yield of 7.7%. This is consistent with the design of the dedicated bond portfolio. More information on the dedicated bond portfolio is shown in Figure 14.

During fiscal year 1991, the **cash enhancement program** produced a 7.4% total rate of return. This is substantially above the rate of return generated by investments in 91 Day Treasury Bills and indicates the cash enhancement program met its objective during its fourth year of operation.

Figure 14. Dedicated Bond Portfolio Statistics June 30, 1991

Value at Market	$ 4,968,567,551
Value at Cost	4,567,934,400
Average Coupon	8.61%
Current Yield	7.66
Yield to Maturity	8.57
Current Yield at Cost	8.33
Time to Maturity	15.38 Years
Average Duration	7.57 Years
Average Quality Rating	AAA
Number of Issues	425

SUPPLEMENTAL INVESTMENT FUND

Income Share Account

Growth Share Account

Common Stock Index Account

Bond Market Account

Money Market Account

Guaranteed Return Account

The Minnesota Supplemental Investment Fund is a multi-purpose investment program that offers a range of investment options to state and local public employees. The different participating groups use the Supplemental Fund for a variety of purposes:

- It functions as the investment manager for all assets of the Unclassified Employees Retirement Plan.
- It acts as one investment manager for assets of the supplemental retirement programs for state university and community college faculty.
- It is the sole investment manager for all assets of the Hennepin County Supplemental Retirement Program.
- It is one investment vehicle offered to public employees as part of the state's Deferred Compensation Plan.
- It serves as an external money manager for a portion of some local police and firefighter retirement plans.

The Supplemental Investment Fund serves more than 20,000 individuals. On June 30, 1991, the market value of the entire fund was $520 million.

Fund Structure

A wide diversity of investment goals exists among the Supplemental Fund's participants. In order to meet those needs, the Supplemental Fund has been structured much like a **"family of mutual funds."** Participants may allocate their investments among one or more accounts that are appropriate for their needs, within statutory requirements and rules established by the participating organizations. Participation in the Supplemental Fund is accomplished through the purchase or sale of shares in each account.

Fund Management

The investment objectives, asset allocation, investment management and investment performance of each existing account in the Supplemental Fund are explained in the following sections.

Range of Investment Options

Participants in the Supplemental Fund have six different investment options:

- **Income Share Account**, a balanced portfolio of stocks and bonds
- **Growth Share Account**, a portfolio of actively managed common stocks
- **Common Stock Index Account,** a passively managed common stock portfolio
- **Bond Market Account,** an actively managed fixed income portfolio
- **Money Market Account,** a portfolio of liquid, short-term debt securities
- **Guaranteed Return Account,** an investment option utilizing guaranteed investment contracts (GIC's)

Share Values

Each account in the Supplemental Fund establishes a share value and participants may buy or sell shares monthly, based on the most recent unit value.

In the Income Share Account, the Growth Share Account, the Common Stock Index Account and the Bond Market Account, shares are priced monthly based on the market value of the entire account. Individuals measure the performance of these accounts by changes in share values, which in turn are a function of the income and capital appreciation (or depreciation) generated by the securities in the accounts.

In the Money Market Account and the Guaranteed Return Account, share values remain constant and the accrued interest income is credited to the accounts through the purchase of additional shares at predetermined intervals.

The investment returns shown in this report are calculated using a time-weighted rate of return formula. These returns may differ slightly from calculations based on share values, due to the movement of cash flows in and out of the accounts.

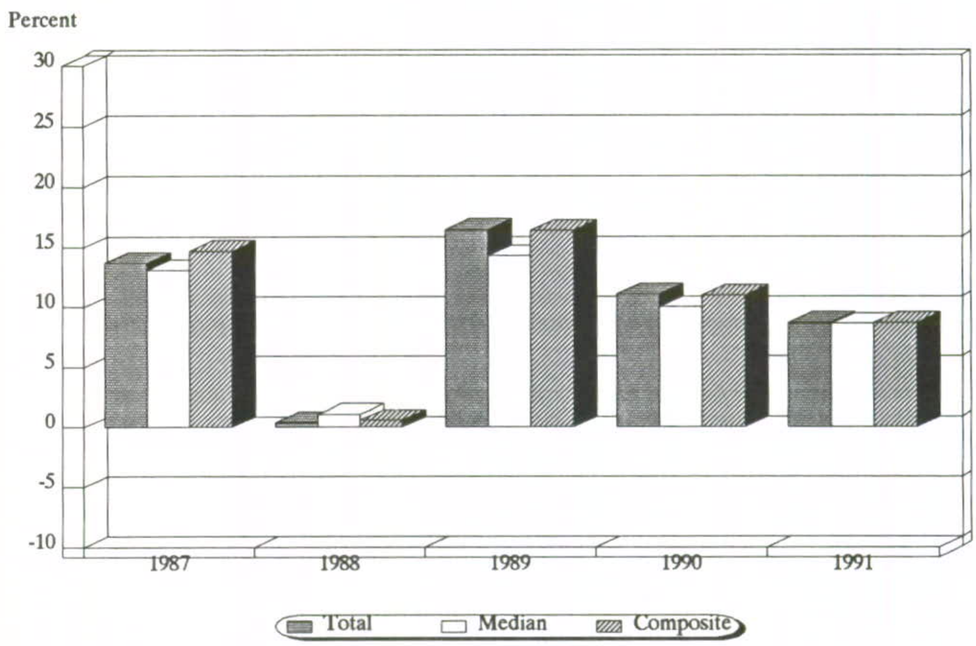
INCOME SHARE ACCOUNT

Objective

The $269 million Income Share Account resembles the Basic Retirement Funds in terms of investment objectives. The Account seeks to maximize long-term inflation-adjusted rates of return. The Income Share Account pursues this objective within the constraints of protecting against disastrous financial environments and limiting short run portfolio return volatility.

The SBI invests the Income Share Account in a balanced portfolio of common stocks and fixed income securities. The Account's policy asset allocation calls for the following long-term asset mix: **60% common stocks, 35% bonds, 5% cash equivalents.** Common stocks provide the potential for significant long-term capital appreciation, while bonds provide both a hedge against deflation and the diversification needed to limit excessive portfolio return volatility.

Figure 15. Income Share Account FY 1987-1991



	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
TOTAL ACCOUNT	**13.7%**	**0.4%**	**16.5%**	**11.1%**	**8.7%**	**12.0%**	**9.9%**
Median Fund*	13.1	1.1	14.3	10.0	8.6	11.4	9.8
Composite**	14.7	0.6	16.4	11.0	8.7	12.0	10.1

* TUCS Median Balanced Portfolio
** 60% Wilshire 5000/35% Salomon Broad Investment Grade Bond Index/5% 91 day T-Bills

Management

The Income Share Account's investment management structure combines internal and external management. SBI staff manage the entire fixed income segment. Currently, the entire common stock segment is managed by Wilshire Associates as part of a passively managed index fund designed to track the Wilshire 5000. Prior to April 1988, a significant portion of the stock segment was actively managed.

Performance

Similar to the other SBI funds which utilize a multi-manager investment structure, the Board evaluates the performance of the Income Share Account on two levels:

- **Total Account.** The Income Share Account is expected to exceed the returns of a composite of market indices weighted in the same proportion as its policy asset allocation. In addition, the Income Share Account's performance is expected to exceed the performance of the median fund from a universe of other balanced funds over the long-term.

- **Individual Manager.** The passive stock manager is expected to track closely the performance of the Wilshire 5000. The internal bond manager for the account is expected to exceed the performance of the Salomon Broad Investment Grade Bond Index.

The Income Share Account provided a return of 8.7% for fiscal year 1991, essentially matching its market index composite and the median fund. A five year history of performance results is presented in Figure 15.

GROWTH SHARE ACCOUNT

Objective

The Board has established above-average capital appreciation as the primary investment objective of the $76 million Growth Share Account. To achieve this objective, the Account maintains a large equity exposure with the following long-term asset allocation: **95% common stocks, 5% cash equivalents**.

The small cash equivalents component represents the normal cash reserves held by the Growth Share Account as a result of new contributions not yet allocated to common stocks. The Growth Share Account's asset mix may vary from its assigned policy allocation at times, depending on the Account managers' near-term outlook for the capital markets.

Because of its substantial common stock policy allocation, the Growth Share Account's returns are more variable than those of the balanced Income Share Account. The Board expects higher long run returns from the Growth Share Account's investments to compensate for the additional variability of returns.

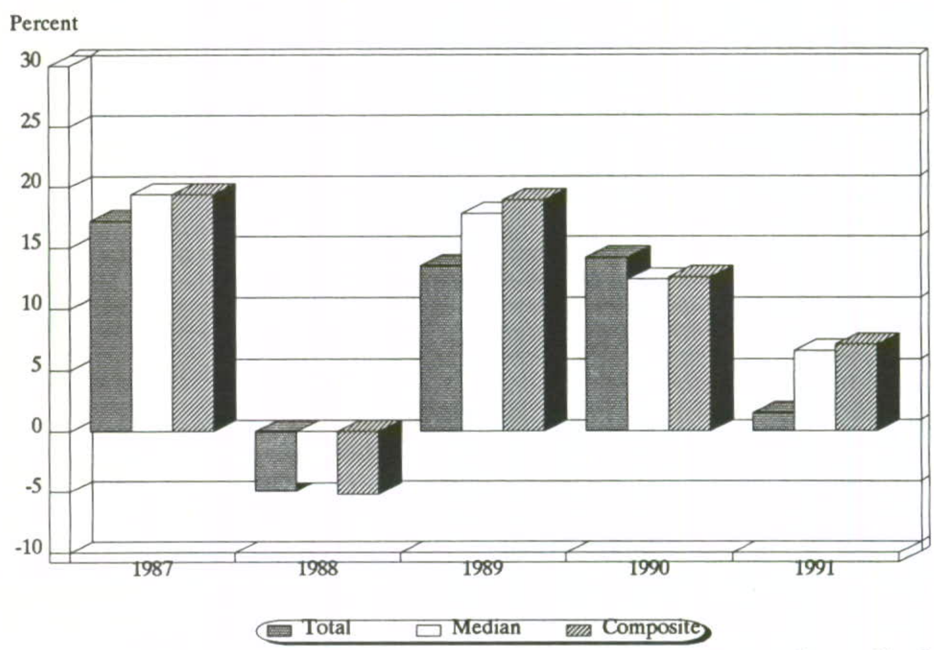
Management

The SBI has assigned the entire common stock portfolio of the Growth Share Account to external managers. The allocation to active common stock managers, rather than to an index fund, reflects the more aggressive investment policy of the Growth Share Account. Currently, these assets are managed by the same active managers utilized by the Basic Retirement Funds. Prior to April 1988, a significant portion of the account was invested by other active managers.

Performance

Like the Income Share Account, the Board evaluates the performance of the Growth Share Account on two levels:

Figure 16. Growth Share Account FY 1987-1991



	1987	1988	1989	1990	1991	(Annualized) 3 YR.	5 YR.
TOTAL ACCOUNT	17.2%	-4.9%	13.5%	14.2%	1.5%	9.5%	7.9%
Median Fund*	19.4	-4.3	17.8	12.4	6.6	12.9	10.9
Composite**	19.4	-5.2	18.9	12.6	7.1	12.8	10.2

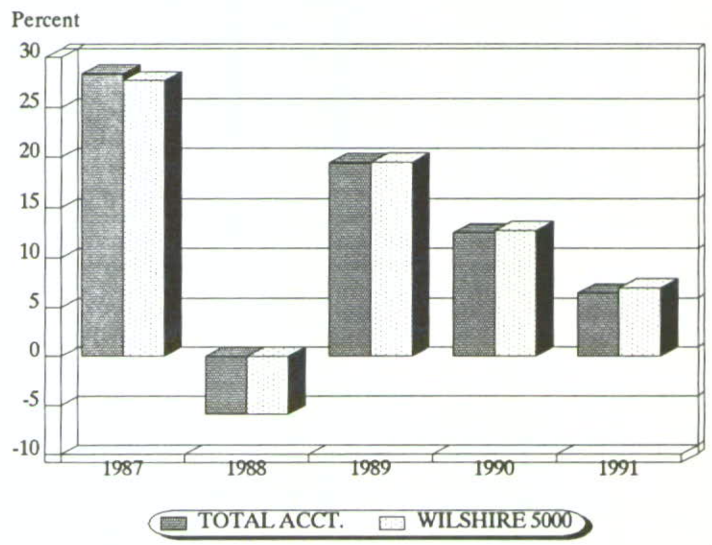
* TUCS Median Managed Equity Portfolio
** 95% Wilshire 5000/5% 91 Day T-Bills

- **Total Account.** The Growth Share Account is expected to exceed the returns of a composite of market indices weighted in the same proportion as its policy asset allocation. The Account's performance is also expected to surpass the performance of the median portfolio from a universe of managed equity portfolios.

- **Individual Manager.** Performance objectives for the external managers are described in the Basic Retirement Funds discussion.

The Growth Share Account underperformed both the composite and median manager for the year by a substantial margin. A large portion of the Account was committed to the stock of medium size companies. These holdings underperformed the stock of very large and small companies. An overweighting in energy stocks and an underweighting in the consumer non-durable sector also contributed to disappointing returns. A five year history of performance results is shown in Figure 16.

Figure 17.
Common Stock Index Account
FY 1987-1991



	1987*	1988	1989	1990	1991	(Annualized) 3 Yr.	Since Incept.*
Total Account	**28.4%**	**-5.9%**	**19.4%**	**12.5%**	**6.5%**	**12.7%**	**11.8%**
Wilshire 5000	27.7	-5.9	19.5	12.7	7.0	13.0	11.8

* Since July 30, 1986.

COMMON STOCK INDEX ACCOUNT

The Common Stock Index Account began accepting contributions at the end of July 1986. At the end of fiscal year 1991, it had a market value of $15 million.

Objective

The investment objective of the Common Stock Index Account is to generate returns that match the performance of the common stock market, as represented by the Wilshire 5000. To accomplish this objective, the SBI allocates all of the Common Stock Index Account's assets to **passively managed common stocks.**

This 100% common stock allocation means that the Common Stock Index Account's returns, like those of the Growth Share Account, are more variable than the returns produced by the balanced Income Share Account. The Board expects that this greater variability in returns will be compensated over the long run by higher returns.

Management

The Common Stock Index Account is invested entirely by Wilshire Associates, the SBI's passive stock manager.

Performance

The performance objective of the Common Stock Index Account is straightforward. The Account is expected to track closely the performance of the Wilshire 5000. The SBI recognizes that the Account's returns may deviate slightly from those of the Wilshire 5000 due to the effects of management fees, new contributions, dividend flows or tracking error.

During fiscal year 1991, the Common Stock Index Account produced a return of 6.5%, 0.5 percentage point under the Wilshire 5000. This is within the range of acceptable tracking error. Total account results for prior years are shown in Figure 17.

BOND MARKET ACCOUNT

The Bond Market Account began accepting contributions at the end of July 1986. At the end of fiscal year 1991, the market value of the Account was $8 million.

Objective

The Bond Market Account offers participants a means of adding a fixed income component to their set of investments. The account is **invested entirely in investment-grade government and corporate bonds** with intermediate to long maturities.

The Account earns investment returns through interest income and capital appreciation. Because bond prices move inversely with interest rates, the Account entails some risk for investors. However, historically, it represents a lower risk alternative than the investment options that include only common stocks.

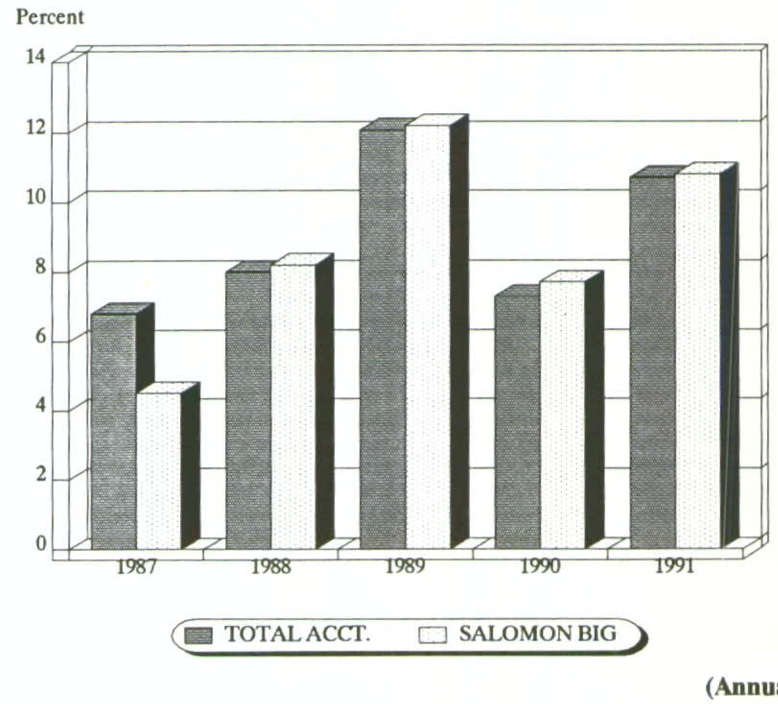
Management

The SBI has assigned the entire bond portfolio to external managers. These assets are managed by the same active managers utilized by the Basic Retirement Funds. A discussion of the SBI's active bond managers is presented in the Basic Funds section.

Performance

The Bond Market Account is expected to exceed the performance of the bond market, as represented by the Salomon Broad Investment Grade Bond Index. For fiscal year 1991, the Bond Market Account essentially matched this target, with a 10.7% return compared to the Salomon index return of 10.8%. Total account results for prior years are shown in Figure 18.

Figure 18. Bond Market Account FY 1987-1991



	1987*	1988	1989	1990	1991	(Annualized) 3 Yr.	Since Incept.*
Total Account	**6.8%**	**8.0%**	**12.1%**	**7.3%**	**10.7%**	**10.0%**	**9.1%**
Salomon Index	4.5	8.2	12.2	7.7	10.8	10.2	8.8

* Since July 30, 1986.

MONEY MARKET ACCOUNT

Objective

The Money Market Account invests solely in **short-term, liquid debt securities**. The Account's investment objectives are to preserve capital and offer competitive money market returns. At the end of fiscal year 1991, the Money Market Account had a market value of $86 million.

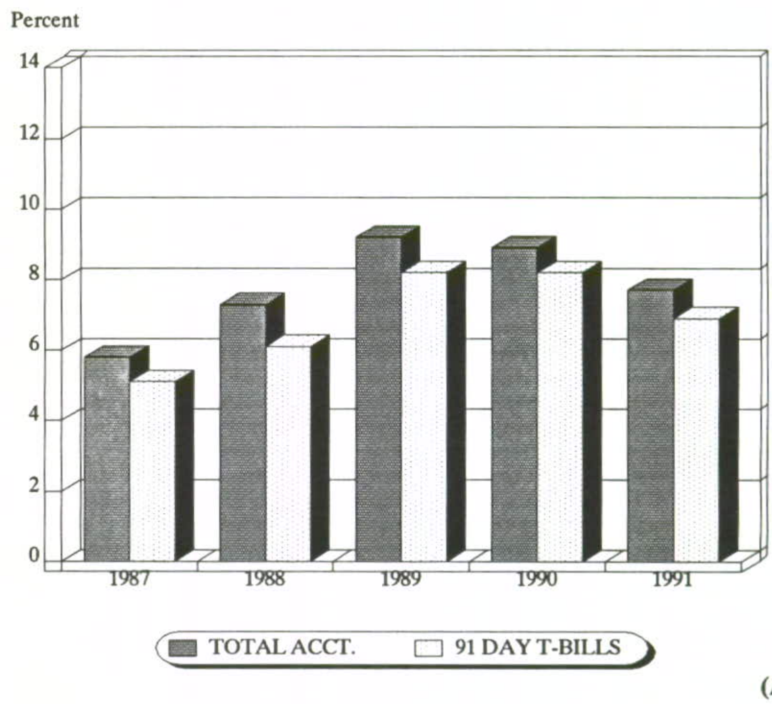
Management

The Account utilizes the same short-term investment manager as the Basic Retirement Funds, which is State Street Bank and Trust Company.

Performance

The Account is expected to produce returns competitive with those available from short-term debt securities. The Money Market Account exceeded that target in fiscal year 1991 with a 7.7% return versus a return on 91 Day Treasury Bills of 6.9%. Total account results for prior years are shown in Figure 19.

Figure 19. Money Market Account FY 1987-1991



	1987*	1988	1989	1990	1991	(Annualized) 3 Yr.	Since Incept.*
Total Account	**5.8%**	**7.3%**	**9.2%**	**8.9%**	**7.7%**	**8.6%**	**7.9%**
91 Day T-Bills	5.1	6.1	8.2	8.2	6.9	7.8	7.0

* Since July 30, 1986.

GUARANTEED RETURN ACCOUNT

Objective

The Guaranteed Return Account opened for subscription in November 1986. The Guaranteed Return Account is designed to offer participants a fixed rate of return for a specified period of time with negligible risk. At the end of fiscal year 1991, the account totaled $65 million.

Management

The SBI invests the Guaranteed Return Account in **three-year guaranteed investment contracts** (GIC's) offered by major U.S. insurance companies and banks. Annually, the SBI accepts bids from banks and insurance companies that meet financial quality criteria defined by State statute. Generally, the insurance company or bank bidding the highest three-year GIC interest rate will be awarded the contract for the three-year period. Participants making contributions over the following twelve months receive the fixed rate for the remainder of the three year contract period.

Within the constraints of permitting only top-rated U.S. insurance companies and banks to bid on the GIC contracts, the SBI desires to maximize the three-year interest rate offered to Guaranteed Return Account participants. The Board believes the competitive bidding presents the most effective method of achieving this goal.

Performance

The Board was very satisfied with the winning bid of 8.875% on the 1990-1993 GIC, which was 84 basis points over prevailing interest rates on three-year Treasury Notes at the time of the bid.

Contract Period	Annual Effective Interest Rate
Nov. 1, 1988 - Oct. 31, 1991	9.010%
Nov. 1, 1989 - Oct. 31, 1992	8.400
Nov. 1, 1990 - Oct. 31, 1993	8.875

The 1988-1991 contract was awarded to Mutual of America, New York, NY. The 1989-1992 contract was placed with John Hancock, Boston, MA. The 1990-1993 contract was awarded to two firms: Mutual of America, New York, NY and Provident National, Chattanooga, TN.

PERMANENT SCHOOL TRUST FUND

Investment Objectives

Asset Allocation

Investment Management

Investment Performance

The Permanent School Trust Fund is a trust fund created by the Minnesota State Constitution and designated as a long-term source of revenue for public schools. Proceeds from land sales, mining royalties, timber sales, lakeshore and other leases are invested in the Fund.

Income generated by the Fund's assets is used to offset state school aid payments. During fiscal year 1991, investment income reported to the Minnesota Department of Finance totaled $34 million.

INVESTMENT OBJECTIVES

The State Board of Investment (SBI) invests the Permanent School Trust Fund to produce a high, consistent level of income that will assist in offsetting state expenditures on school aids.

Investment Constraints

The Fund's investment objectives are influenced by the restrictive legal provisions under which its investments must be managed. These provisions require that the Fund's principal remain inviolate. Further, any net realized capital gains from stock or bond investments must be added to principal. Moreover, if the Fund realizes net capital losses, these losses must be offset against interest and dividend income before such income can be distributed. Finally, all interest and dividend income must be distributed in the year in which it is earned.

These legal provisions limit the investment time horizon over which the Permanent School Trust Fund is managed. Long run growth in its assets is difficult to achieve without seriously reducing current spendable income and exposing the spendable income stream to unacceptable volatility. The SBI, therefore, invests the Fund's assets to produce the maximum amount of current income, within the constraint of maintaining adequate portfolio quality.

ASSET ALLOCATION

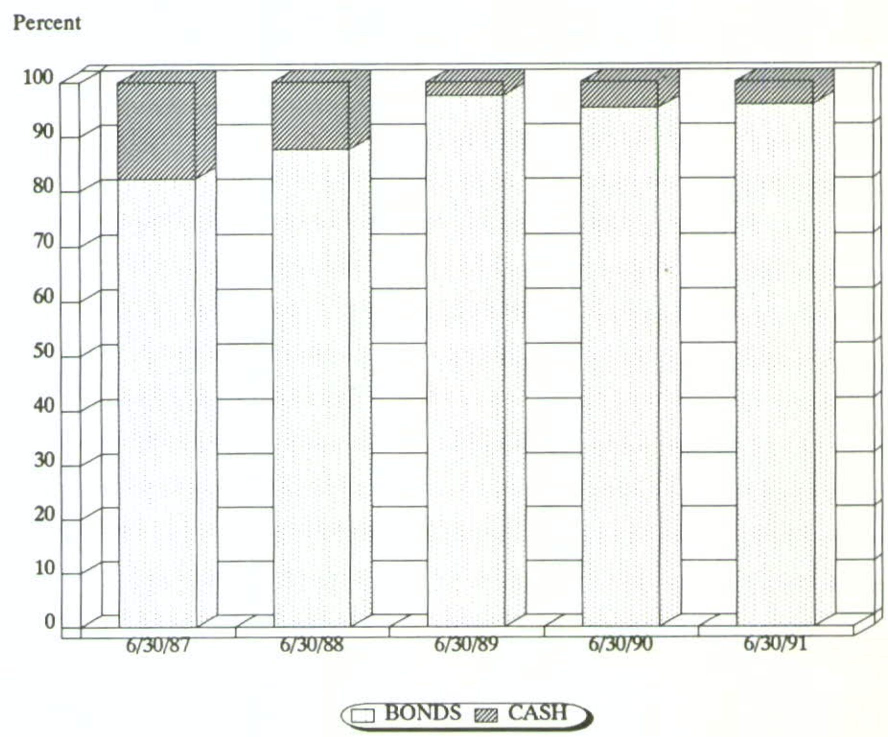
The SBI maximizes current income by investing all of the Permanent School Trust Fund's assets in fixed income securities.

The SBI has a strong incentive not to invest in equity assets for several reasons:

- Common stock yields are considerably lower than bond yields. Thus, common stocks generate less current income than bonds.
- Stock prices are highly volatile and at times may produce realized capital losses that will reduce spendable income.
- Net capital gains become part of the Permanent School Trust Fund's principal. Therefore, the effect of the volatility of common stock prices on the Permanent School Fund's spendable income cannot be smoothed out by including past realized capital gains in spendable income.

Considering these constraints, the Board completely eliminated the Fund's small common stock component in fiscal year 1986,

Figure 20. Historical Asset Mix FY 1987-1991



investing the proceeds in fixed income securities. Historical asset mix data for the Fund are shown in Figure 20.

INVESTMENT MANAGEMENT

SBI staff manage all assets of the Permanent School Trust Fund. Given the existing legal restrictions of the Fund, external managers would find it extremely difficult to invest the Fund's portfolio.

The Fund's emphasis on producing high levels of current spendable income through passive investments is not compatible with the investment style of most money managers. In addition, with the move to an all fixed income portfolio, SBI staff management of the Fund is the most cost-effective approach.

The staff manage the Fund's bond portfolio primarily through a buy-and-hold, laddered maturity approach. Virtually all securities are held to maturity after purchase. To minimize reinvestment risk and reduce exposure to dramatic interest rate fluctuations, the portfolio purchases securities with uniformly staggered maturity dates.

Figure 20 (con't). Historical Asset Mix FY 1987-1991

	Market Value June 30,				
	1987	**1988**	**1989**	**1990**	**1991**
Bonds					
$Million	297.0	313.6	375.0	359.0	368.2
Percent	82.2	87.6	97.5	95.2	95.8
Unallocated Cash					
$Million	64.0	44.2	9.6	18.2	23.7
Percent	17.8	12.4	2.5	4.8	4.2
Total Fund					
$Million	361.0	357.8	384.6	377.2	391.9
Percent	100.0	100.0	100.0	100.0	100.0

INVESTMENT PERFORMANCE

The Permanent School Trust Fund's investment objective is to maximize spendable income, within the constraint of maintaining adequate portfolio quality.

From a total portfolio **risk perspective,** the Fund is very conservatively structured, as its target asset mix calls for a full commitment to fixed income securities. Within the bond portfolio, SBI staff control risk by establishing a laddered portfolio structure, thereby avoiding significant interest rate bets. Further, the staff purchase only investment-grade bonds and seek to maintain an overall portfolio quality rating of at least AA.

From a **rate of return perspective,** the Board is not concerned with the Fund's total rate of return. Market value changes have no effect on the Fund's ability to produce spendable income. Spendable income is affected only to the extent that any securities are sold at losses. Thus, the Fund's return objective is to maintain a high current yield on new investments.

The Fund achieved its risk-return performance objectives during the year. On June 30, 1991, the Fund's bond portfolio had a duration of 7.2 years, an average quality rating of AAA and a current yield of 8.9%. (The total rate of return for the Fund was 10.5% for fiscal year 1991 and 9.3% annualized for FY87-91.)

Figure 21.
Bond Portfolio Statistics
June 30, 1991

Value at Market	$368,248,287
Value at Cost	355,333,402
Average Coupon	9.14%
Current Yield	8.87
Yield to Maturity	8.68
Current Yield at Cost	9.19
Time to Maturity	15.27 Years
Average Duration	7.18 Years
Average Quality Rating	AAA
Number of Issues	132

CASH MANAGEMENT

Internal Cash Pools

Securities Lending Program

Certificate of Deposit Program

INTERNAL CASH POOLS

State Cash Accounts

The State Board of Investment (SBI) manages the cash balances in more than 400 state agency accounts with the objectives of preserving capital and providing competitive money market returns. To this end, the SBI invests these cash accounts in short-term, liquid, high quality debt securities. These investments include U. S. Treasury and Agency issues, repurchase agreements, bankers acceptances, and commercial paper. On June 30, 1991, the combined value of all agency cash balances was $2.6 billion.

Pool Structure

Most of the cash accounts are managed by SBI staff through two pooled investment vehicles, which operate much like money market mutual funds:

- **Trust Fund Pool.** This pool contains cash balances of retirement-related accounts managed internally as well as the cash in the Permanent School Fund. The Trust Fund Pool has an average daily balance of $ 0.2 billion.

- **Treasurer's Cash Pool.** This pool contains cash balances from the Invested Treasurer's Cash and other accounts necessary for the operation of state agencies . The Treasurer's Cash Pool has an average daily balance of $2.2 billion.

Because of special legal restrictions, a small number of cash accounts cannot be commingled. These accounts are therefore invested separately.

Performance

For fiscal year 1991, both the Trust Fund Pool and the Invested Treasurer's Cash Pool outperformed the total return on 91 Day Treasury Bills:

Trust Fund Pool	8.0%
Treasurer's Cash Pool	8.6
91Day Treasury Bills	6.9%

The SBI is in the process of determining a more appropriate target against which to measure the performance of the cash equivalent assets.

SECURITIES LENDING PROGRAM

As part of its internal cash management program, the SBI administers a securities lending program in which U. S. Treasury and Government Agency securities held by the SBI are loaned to banks and government security dealers for a daily fee. These loans are fully collateralized. The Securities Lending Program generated approximately $3.0 million in additional income for the funds managed by the Board in fiscal year 1991.

CERTIFICATE OF DEPOSIT PROGRAM

The SBI also manages a certificate of deposit (CD) program in which it purchases CD's from Minnesota banks and savings and loan institutions. The SBI receives a market rate of return on these investments, using the average secondary CD market rate quoted by the New York Federal Reserve Bank. Only the cash reserves of pension funds (i.e., Basic Retirement Funds or Post Retirement Fund) are used in the program. As a result, all investments are fully insured by the Federal Deposit Insurance Corporation (FDIC).

The Minnesota Certificate of Deposit program provides a reliable source of capital to Minnesota financial institutions, regardless of size, many of which do not have access to the national CD market. The Board designed the program so that no single institution is favored in the allocation of assets.

During fiscal year 1991, the SBI purchased over $114 million of CD's from Minnesota financial institutions. Since it began the program in 1980, the SBI has purchased over $1.6 billion of CD's from over 465 financial institutions throughout the state.

MAJOR POLICY INITIATIVES

Assigned Risk Plan

Program Evaluation Report

Tactical Asset Allocation Review

Police and Fire Fund Consolidation

Resolution on South Africa

Mandate on Northern Ireland

Proxy Voting

ASSIGNED RISK PLAN

In accordance with legislation enacted during the 1990 legislative session, investment management responsibility for the Minnesota Workers Compensation Assigned Risk Plan was transferred from the Department of Commerce to the State Board of Investment (SBI) effective May 1991. During fiscal year 1991, the SBI reviewed the portfolio and selected an outside investment firm to manage the assets of the plan.

Plan Description

The Assigned Risk Plan (ARP) was established in 1983 to provide workers' compensation coverage to Minnesota employers rejected by a licensed insurance company. The Assigned Risk Plan operates as a non-profit, tax exempt entity and is administered by the Department of Commerce. The Plan provides disability income, medical expenses, retraining expenses and death benefits, with payments being made either periodically or in lump sum.

Investment Objectives and Constraints

The SBI recognizes that the Plan has limited tolerance for risk due to erratic cash flows, no allowance for surplus, and generally short duration liabilities.

The SBI has therefore established two investment objectives for the ARP:

- to minimize mismatch between assets and liabilities
- to provide sufficient liquidity (cash) for payment of on-going claims and operating expenses

Asset Allocation

In order to meet the investment objectives and constraints listed above, an initial asset allocation for the Assigned Risk Plan was developed in conjunction with the investment manager for the Plan:

Common Stocks	20.0%
Bonds	80.0

In the future, the actual asset mix will fluctuate in response to changes in the liability stream projected by the Plan's actuary and further analysis by the investment manager and SBI staff. Performance of the total portfolio will be reviewed against a benchmark that reflects the asset allocation of the Plan. This benchmark must change over time to reflect changes in the liability stream.

Manager Selection

The Board considered a wide range of managers and evaluated all firms against the following criteria:

- ability to provide both stock and bond management
- extent of firm's experience in asset/liability management
- extent of firm's systems and analytic capabilities
- ability to address the firm's investment approach to the unique characteristics of the Assigned Risk Plan

Seven firms were asked to make presentations to a search committee appointed by the Board. The evaluation of finalists focused on the firms' ability to enhance portfolio returns as well as their experience in asset/liability management. At its meeting in June 1991, the Board selected Voyageur Asset Management to manage the assets of the Assigned Risk Plan.

LEGISLATIVE AUDITOR'S PROGRAM EVALUATION REPORT

In May 1990, the Legislative Audit Commission requested that the Program Evaluation Division conduct an evaluation of state investment performance. The study, entitled "State Investment Performance," was released in April 1991.

Issues Addressed

The report evaluated the performance of the funds managed by the State Board of Investment (SBI) over the last ten years. The SBI's management policies, legal restrictions, and other constraints were factored into the evaluation. The report concentrated on:

- an evaluation of the state's investment performance against appropriate benchmarks
- potential policy changes needed to improve investment performance

Findings

The report stated that statutory and fiduciary responsibilities have been successfully fulfilled by the Board, it staff and the Investment Advisory Council. The report noted several investment policy changes initiated by the SBI that have had a positive impact on the funds under its control during the 1980's:

- restructuring the Basic Retirement Funds and the Supplemental Investment Fund
- implementation of a performance-based fee structure for external managers
- pooling of numerous cash accounts to enhance returns and improve administrative flexibility

The report also noted several areas which warrant additional attention from the Legislature and the SBI:

- **Post Retirement Fund.** Changes in the fund's cash flow, a decreasing allocation to stocks and lower interest rates on bonds are expected to result in a reduction in the benefit increase for retirees in the future, given the statutory benefit increase mechanism presently in place. The low stock exposure in the Post Fund reduces the earning power of the portfolio over the long-term.
- **Permanent School Fund.** The fund currently consists of bonds which typically are held to maturity. The absence of

stocks in the fund is likely to reduce the long-term growth of the portfolio.

- **Cash Management.** Given the current composition of both the Invested Treasurer's Cash pool and the Trust Fund pool, the benchmark used to measure performance (91-day Treasury Bills) is not representative of the pools.

Recommendations

In light of these findings, the report made the following recommendations:

- The Legislature should consider changes to the Post Retirement benefit increase mechanism.
- The equity exposure in the Permanent School Fund should be increased to enhance the long-term earning power of the assets.
- The SBI should develop a more appropriate performance benchmark for its cash portfolios.
- The SBI should add certain performance information to its quarterly and annual reports.

The SBI will continue to address these recommendations and incorporate changes where necessary.

TACTICAL ASSET ALLOCATION REVIEW

Tactical asset allocation (TAA) strategies attempt to generate excess return relative to a given asset mix by increasing or decreasing the exposure of stocks, bonds or cash depending on a forecasted future rate of returns. TAA and other forms of market timing have not been used previously in the Basic Retirement Funds. During fiscal year 1991, staff re-examined that policy decision and discussed the expected risks and returns associated with TAA. The following material is a summary of the information presented to the Board in a staff policy paper on this issue.

Current Asset Allocation Strategy

The asset allocation policy for the Basic Funds incorporates a large commitment to common stocks in order to obtain higher rates of return over the long-term. (See Basic Retirement Funds section for more information.) The long-term asset allocation targets are:

Domestic Common Stocks	60.0%
Domestic Bonds	24.0
Real Estate	10.0
Venture Capital	2.5
Resource Funds	2.5
Unallocated Cash	1.0

The SBI's present asset allocation strategy uses a constant rebalancing approach. Currently, staff must rebalance the Basic Retirement Fund if an asset class deviates by more than 10% from its policy allocation (e.g. for stocks at a policy weight of 60%, the rebalancing range is ± 6%). The policy gives staff discretion whether to rebalance for deviation in the 5-10% range (e.g. stocks ± 3%).

Staff analysis indicated that this rebalancing strategy provides the greatest additional return for the least additional risk when compared to other rebalancing ranges. In effect, the SBI's current rebalancing guidelines impose a "buy low, sell high" discipline in the Basic Retirement Funds relative to its long-term asset mix policy.

Risks of TAA

Staff reviwed both academic studies and actual results of plan sponsors to assess the potential risks and rewards of TAA for the Basic Funds. Several significant risks were identified:

- TAA strategies have greater potential downside loss than upside gain when compared to the current rebalancing strategy for the Basic Funds.

- TAA strategies would have to improve their track record significantly in order to consistently outperform a constant rebalancing strategy on a risk-return basis.

- TAA would require a large commitment of the total assets to one, or relatively few, managers and TAA strategies.

- TAA would require a potentially longer evaluation time frame than other investment strategies to determine whether the results were due to skill or chance.

Board Action

Based on the analysis, staff and the Investment Advisory Council recommended that the Board retain its current rebalancing policy and not implement a TAA strategy for the Basic Retirement Funds. At its meeting in March 1991, the Board adopted this recommendation.

POLICE AND FIRE FUND CONSOLIDATION

In 1987, legislation was enacted that establishes procedures for voluntary consolidation of local police and fire plans with the Public Employees Retirement Association (PERA). When a merger is approved, assets are transferred from the local plan to the Basic Retirement Funds and Post Retirement Fund.

By statute, the executive director of the State Board of Investment (SBI) has authority to accept assets in-kind or to require that individual holdings be converted to cash prior to the transfer. Since the investments made by local plans are similar to those made by the SBI, most assets can be transferred at their market value.

During fiscal year 1991, eight plans with assets totaling $41 million merged with PERA under the procedures established by *Minnesota Statutes* Chapter 353A:

Chisholm Fire Relief Association	$520,000
Chisholm Police Relief Association	$860,000
Crookston Fire Relief Association	$780,000
Faribault Fire Relief Association	$3,400,000
Mankato Fire Relief Association	$2,600,000
Rochester Fire Relief Association	$15,800,000
St. Louis Park Police Relief Association	$12,100,000
Winona Police Relief Association	$5,100,000

Since inception in 1987, 20 plans with total assets of $114 million have merged with PERA.

RESOLUTION ON SOUTH AFRICA

In October 1985, the State Board of Investment (SBI) adopted a resolution concerning its holdings in companies doing business in countries of South Africa and Namibia. In March 1989, the SBI revised and restated the resolution.

Original Resolution

The original resolution established a four phase timetable for the SBI's divestment program which was tied to a company's rating on its implementation of the Sullivan Principles, a set of fair employment guidelines established by Dr. Leon Sullivan. In addition, the resolution required that the divestment action associated with each phase of the resolution would not take place before the Board obtained legal and financial advice concerning any impact on its fiduciary responsibilities.

After reviewing reports from its financial and legal advisers, the Board decided not to immediately liquidate holdings affected by the resolution. Rather, it chose to implement the requirements of each phase by instituting a policy of **"divestment through attrition."** Under this policy, the Board's active stock managers were directed to discontinue purchases of stock in companies affected by the resolution unless the manager determined that the failure to buy a particular securities would be a violation of its fiduciary responsibility. As existing holdings were sold during the normal course of business, it was expected that stock holdings in the restricted companies would decline.

During fiscal years 1986-1988, substantial progress was made toward full divestment using the divestment through attrition policy. The reduction was due both to sales of shares during the normal course of business and the decision of many companies to withdraw their operations from South Africa.

Revised Resolution

In March 1989, the Board revised the original resolution to reflect the divestment through attrition policy and to recognize the continual change in the specific companies that have South African operations.

The revised resolution provides that the Board will divest from its actively managed stock portfolios the remaining holdings of all companies doing business in South Africa by March 1, 1991. In the event a stock becomes subject to divestiture after March 1, 1991, the stock is to be divested within two years.

The SBI relies on information available through the Investor Responsibility Research Center (IRRC) in Washington, D.C. to identify companies with direct investment in South Africa. The Board directs its active stock managers to discontinue purchases of these companies unless the manager determines that failure to complete a purchase would be a breach of the manager's fiduciary responsibility.

At the time the Board adopted the revised resolution, the SBI's active stock managers held shares in 21 companies with direct investments in South Africa. By the end of fiscal year 1991, the number had been lowered to 3 companies indicating that progress continues to be made through the Board's divestment through attrition policy.

Task Force

When the original resolution was adopted, the Board created a Task Force on South Africa to advise the SBI on its implementation process. Designees of each of the five Board members serve as members of the Task Force along with a representative from the statewide retirement systems, a representative of public employees and a representative from the private sector. The Task Force was officially reinstated in March 1991 and continues under the revised resolution. It meets periodically to monitor the SBI's progress in implementing the resolution.

MANDATE ON NORTHERN IRELAND

Requirements

In 1988, the Legislature enacted statutory provisions concerning the Board's investments in U.S. companies with operations in Northern Ireland. The statute requires the State Board of Investment (SBI) to:

- Annually compile a list of U.S. corporations with operations in Northern Ireland in which the SBI invests.
- Annually determine whether those corporations have taken affirmative action to eliminate religious or ethnic discrimination. The statute lists nine goals modeled after the MacBride Principles.
- Sponsor, co-sponsor and support resolutions that encourage U.S. companies to pursue affirmative action in Northern Ireland, where feasible.

The statute does not require the SBI to divest existing holdings in any companies and does not restrict future investments by the SBI.

Implementation

The SBI uses the services of the Investor Responsibility Research Center (IRRC), Washington D.C., to determine corporate activity in Northern Ireland. In January 1991 the SBI held stocks or bonds in 40 out of 46 corporations identified by IRRC as having operations in Northern Ireland.

The SBI filed shareholder resolutions with 28 of these corporations during the 1991 proxy season. The resolutions asked corporations to sign the MacBride Principles, to implement affirmative action programs or to report on the steps they have taken to alleviate religious or ethnic discrimination. Eleven (11) resolutions were withdrawn when the targeted companies agreed to provide information on their employment activity in Northern Ireland. The voting results on the remaining 17 resolutions are shown below:

Company	Affirmative Vote	Company	Affirmative Vote
Baker Hughes	10.5%	Marsh & McLennan	8.1%
Dun & Bradstreet	12.1	McDonnell Douglas	5.7
Exxon	6.0	Minnesota Mining	7.4
Ford Motor	5.1	Mobil	10.1
General Motors	9.5	NCR	15.3
IBM	9.6	Unisys	17.4
Illinois Tool Works	8.2	VF Corp.	7.2
Interpublic Group	4.3	Xerox	12.7
James River	11.9		

PROXY VOTING

As a stockholder, the State Board of Investment (SBI) is entitled to participate in corporate annual meetings through direct attendance or casting its votes by proxy. Through proxy voting, the Board directs company representatives to vote its shares in a particular way on resolutions under consideration at annual meetings. Resolutions prepared at annual meetings range from routine issues, such as those involving the election of corporate directors and ratification of auditors, to matters such as merger proposals and corporate social responsibility issues. In effect, as a shareholder the SBI can participate in shaping corporate policies and practices.

Voting Process

The Board recognizes its fiduciary responsibility to cast votes on proxy issues. The SBI does not delegate the duty to its external investment managers. Rather, the SBI actively votes all shares according to guidelines established by its Proxy Committee.

The Board delegates proxy voting responsibilities to its Proxy Committee which is comprised of a designee of each Board member. The five member Committee meets only if it has a quorum and casts votes on proxy issues based on a majority vote of those present. In the unusual event that it reaches a tie vote or a quorum is not present, the Committee will cast a vote to abstain.

Voting Guidelines

The Committee has formulated guidelines by which it casts votes on a wide range of corporate governance and social responsibility issues. Each year the Proxy Committee reviews existing guidelines and determines which issues it will review on a case-by-case basis.

Corporate Governance Issues

- **Routine Matters.** In general, the SBI **supports** management on routine matters such as uncontested election of directors; selection of auditors; management proposals on compensation issues including savings plans and stock options; and limits on director and officer liability or increases in director and officer indemnification permitted under the laws of the state of incorporation.

- **Shareholder Rights Issues.** In general, the SBI **opposes** proposals that would restrict shareholder ability to effect change. Such proposals include instituting supermajority requirements to ratify certain actions or events; creating classified boards; barring shareholders from participating in the determination of the rules governing the board's actions, such as quorum requirements and the duties of directors; prohibiting or limiting shareholder action by written consent; and granting certain stockholders superior voting rights over other stockholders.

In general, the SBI **supports** proposals that preserve shareholder rights to effect change. Such proposals include requiring shareholder approval of poison pill plans; repealing classified boards; adopting secret ballot of proxy votes; reinstating cumulative voting; and adopting anti-greenmail provisions.

- **Buyout Proposals.** In general, the SBI **supports** friendly takeovers and management buyouts.

- **Special Cases.** The Proxy Committee evaluates hostile takeovers, contested election of directors, compensation agreements that are contingent upon corporate change in control, and recapitalization plans on a case-by-case basis. In addition, the Committee reviews all corporate governance issues affecting companies incorporated or headquartered in Minnesota on a case-by-case basis.

Social Responsibility Issues

- **South Africa and Namibia.** The SBI **supports** a variety of proposals regarding South Africa including those that encourage the signing of the Statement of Principles (formerly Sullivan Principles); encourage withdrawal from South Africa; sever all company ties with South Africa; promote the welfare of black employees and improve the quality of black life outside the work environment; limit strategic sales to South Africa; apply economic pressures on the South African government; or request a report on operations in South Africa.

- **Northern Ireland.** The SBI **supports** resolutions that call for the adoption of the MacBride Principles as a means to encourage equal employment opportunities in Northern Ireland. Also, the SBI **supports** resolutions that request companies to submit reports to shareholders concerning their labor practices or their sub-contractors' labor practices in Northern Ireland.

- **Environmental Protection/Awareness**. In general, the SBI **supports** resolutions that require a corporation to report or disclose to shareholders company efforts in the environmental arena. In addition, the SBI **supports** resolutions that request a corporation to report on progress toward achieving the objectives of the Valdez

Principles, an environmental code of conduct for corporations.

- **Other Social Responsibility Issues.** In general, the SBI **supports** proposals that require a company to report or disclose to shareholders company efforts concerning a variety of social responsibility issues. In the past, these reporting resolutions have included issues such as affirmative action programs, animal testing procedures, nuclear plan safety procedures and criteria used to evaluate military contract proposals.

  In general, the SBI **opposes** proposals that require a company to institute a specific business action in response to such issues. As an example, the SBI voted against a shareholder proposal which would have required a utility to phase out operations of a nuclear power plant.

FY 1991 Proposals.

As in years past, the issues on corporate ballots included a broad range of proposals. In the corporate governance area, shareholders submitted 42 proposals to redeem "poison pills" (an anti-takeover device) or submit them to shareholder vote. These proposals passed at 6 companies. More than 33 proposals were submitted concerning confidential voting, however, none of these proposals passed. Other proposals included the repeal of classified boards (33), proposals dealing with golden parachutes (16), cumulative voting (41), more disclosure on executive compensation (14) and proposals requiring directors to hold a specified minimum number of shares (11).

In the social responsibility area, South Africa again was the dominant social issue with over 90 proposals, followed by Valdez Principles with 53 resolutions, discrimination in Northern Ireland 34 resolutions and various military issues with 23 resolutions. Other social responsibility issues included proposals regarding smoking and health, poor and minority issues, affordable housing, and environmental issues other than Valdez.

During fiscal year 1991, the SBI voted proxies for more than 1,400 corporations

INVESTMENT MANAGER SUMMARIES

Common Stock Managers

Bond Managers

Alternative Investment Managers

COMMON STOCK MANAGERS

Alliance Capital Management

Alliance searches for companies likely to experience high rates of earnings growth on either a cyclical or secular basis. Alliance invests in a wide range of growth opportunities from small, emerging growth to large, cyclically sensitive companies. There is no clear distinction on the part of the firm as to an emphasis on one particular type of growth company over another. However, the firm's decision-making process appears to be much more oriented toward macroeconomic considerations than is the case with most other growth managers. Accordingly, cyclical earnings prospects, rather than secular, appear to play a larger role in terms of stock selection. Alliance is not an active market timer, rarely raising cash above minimal levels.

Forstmann Leff Associates

Forstmann Leff is a classic example of a "rotational" manager. The firm focuses almost exclusively on asset mix and sector weighting decisions. Based upon its macroeconomic outlook, the firm will move aggressively into and out of asset classes and equity sectors over the course of a market cycle. The firm tends to purchase liquid, large capitalization stocks. Forstmann Leff will make sizable market timing moves at any point during a market cycle.

Franklin Portfolio Associates

Franklin Portfolio Associate's investment decisions are quantitatively driven and controlled. The firm believes that consistent application of integrated multiple valuation models produces superior investment results. The firm's stock selection model is a composite model comprised of 30 valuation measures each of which falls into one of the following groups: fundamental momentum, relative value, future cash flow, and economic cycle analysis. The firm believes that a multi-dimensional approach to stock selection provides greater consistency than reliance on a limited number of valuation criteria. The firm attributes its value-added to its stock picking ability. Franklin's portfolio management process focuses on buying and selling the right stock rather than attempting to time the market or pick the right sector or industry groups. The firm always remains fully invested.

GeoCapital Corp.

GeoCapital invests primarily in small capitalization equities with the intent to hold them as they grow into medium and large capitalization companies. The firm uses a theme approach and an individual stock selection analysis to invest in the growth/technology and intrinsic value areas of the market. In the growth/technology area, GeoCapital looks for companies that will have above average growth due to a good product development program and limited competition. In the intrinsic value area, the key factors in this analysis are the corporate assets, free cash flow, and a catalyst that will cause a positive change in the company. The firm generally stays fully invested, with any cash positions due to the lack of attractive investment opportunities.

IDS Advisory

IDS employs a "rotational" style of management, shifting among industry sectors based upon its outlook for the economy and the financial markets. The firm emphasizes primarily sector weighting decisions. Moderate market timing is also used. Over a market cycle IDS invests in a wide range of industries. It tends to buy liquid, large capitalization stocks. While IDS makes occasional significant asset mix shifts over a market cycle, the firm is a less aggressive market timer than most rotational managers.

Investment Advisers Inc.

Investment Advisers is a "rotational" manager. Its macroeconomic forecasts drive its investment decision-making. The firm emphasizes market timing and sector weighting decisions. Investment Advisers invests in a wide range of industries over a market cycle. It tends to hold liquid, medium to large capitalization stocks. The firm is an active market timer, willing to make gradual but significant asset mix shifts over a market cycle.

Lieber & Co.

Lieber and Co. seeks to identify investment concepts that are either currently profitable or likely to become so in the near future, yet whose prospects are not reflected in the stock prices of the companies associated with the concepts. The investment concepts upon which the firm focuses are related to both macroeconomic trends and specific product developments within particular industries or companies. Stocks purchased by Lieber tend to be those of well-managed, high growth and high return on equity, small-to-medium sized companies. The stocks may be undervalued due to the failure of investors to recognize fully either the value of new products or a successful turnaround situation. Particularly attractive to Lieber are small-to-medium sized takeover candidates. The firm generally is fully invested, with any cash positions the result of a lack of attractive investment concepts.

Rosenberg Institutional Equity Management

Rosenberg Institutional Equity Management believes the market is inefficient in the relative valuation of individual companies within groups of similar companies. Rosenberg uses quantitative techniques to identify and purchase undervalued stocks. The firm's valuation system, as embodied in several computer programs, analyzes accounting data on over 3,500 companies. Unlike traditional analysis which assigns an entire company to one industry, Rosenberg compares each company's separate business segments with similar business operations of other companies. These separate valuations are then integrated into a single valuation for the total company. The difference between Rosenberg's valuation and the current market price is the expected profit opportunity. Stocks with large positive profit opportunity are candidates for purchase. The firm does not strive to outperform its benchmark by timing the market or by "betting" on factors. The firm always remains fully invested.

Waddell & Reed

Waddell & Reed focuses its attention primarily on small capitalization aggressive growth stocks. However, the firm has demonstrated a willingness to make significant bets against this investment approach for extended periods of time. The firm is an active market timer and will raise cash to extreme levels at various points in the market cycle.

Wilshire Associates

The index fund managed by Wilshire Associates is designed to track a custom index which has been modified or "tilted" to compensate for style bias or misfit in the active managers' aggregate benchmark. The tilting process was initiated during fiscal year 1991. Prior to that time, Wilshire Associates' portfolio was indexed to the Wilshire 5000. The Wilshire 5000 is a broad-based market indicator and is composed of the common stock of all U.S. domiciled corporations for which daily prices are available.

Portfolio statistics for each of the active equity managers can be found in the Statistical Data Appendix.

BOND MANAGERS

Investment Advisers Inc.

Investment Advisers is a traditional top down bond manager. The firm's approach is oriented toward correct identification of the economy's position in the credit cycle. This analysis leads the firm to its interest rate forecast and maturity decisions, from which the firm derives most of its value-added. Investment Advisers is an active asset allocator, willing to make rapid, significant moves between cash and long maturity investments over the course of an interest rate cycle. Quality, sector and issue selection are secondary decisions. Quality and sector choices are made through yield spread analyses consistent with interest rate forecasts. Individual security selection receives very limited emphasis, focusing largely on specific bond characteristics such as call provisions.

Fidelity Management Trust

Fidelity Management Trust manages a diversified semi-passive portfolio of fixed income securities designed to simulate the characteristics of the Salomon Broad Investment Grade (BIG) index, a diversified market indicator composed of government, mortgage and corporate securities. The BIG index represents virtually the entire investment grade fixed income market. While matching the risk profile of the BIG index, Fidelity seeks to enhance returns by actively managing yield curve, sector, and issue exposure. The objective is to provide modest increments to the BIG index return on a consistent basis.

Lehman Management

Lehman's primary emphasis is on forecasting cyclical interest rate trends and positioning its portfolios in terms of maturity, quality and sectors, in response to its interest rate forecast. However, the firm avoids significant, rapidly changing interest rate bets. Instead, it prefers to shift portfolio interest rate sensitivity gradually over a market cycle, avoiding extreme positions in either long or short maturities. Individual bond selection is based on a quantitative valuation approach and the firm's internally-conducted credit analysis. High quality (A or better) undervalued issues are selected consistent with the desired maturity, quality and sector composition of the portfolios. In August, 1989, Lehman completed a management buyout and became Lehman Ark.

Lincoln Capital Management

Lincoln Capital manages a diversified semi-passive portfolio of fixed income securities designed to simulate the Salomon Broad Investment Grade (BIG) index. Lincoln employs quantitative disciplines that model the BIG index according to a variety of risk variables. Lincoln seeks to enhance returns relative to the BIG index by modest alterations to the BIG index sector weightings, the use of undervalued securities, and an aggressive trading strategy in mortage securities. The objective is to provide modest increments to the BIG index return on a consistent basis.

Miller, Anderson & Sherrerd

Miller Anderson focuses its investments in misunderstood or under-researched classes of securities. Over the years this approach has led the firm to emphasize mortgage-backed securities in its portfolios. Based on its economic and interest rate outlook, the firm establishes a desired maturity level for its portfolios. This decision is instituted primarily through the selection of specific types of mortgage securities that have prepayment expectations consistent with the portfolio's desired maturity. In addition, the firm will move in and out of cash gradually over an interest rate cycle. The firm never takes extremely high cash positions and keeps total portfolio maturity within an intermediate three-to-seven year duration band. Unlike other firms that also invest in mortgage securities, Miller Anderson intensively researches and, in some cases, manages the mortgage pools in which it invests.

Western Asset Management

Western recognizes the importance of interest rates changes on fixed income portfolio returns. However, the firm believes that successful interest rate forecasting, particularly short-run forecasting is extremely difficult to accomplish consistently. Thus, the firm attempts to keep portfolio maturity in a narrow band near that of the market, making only relatively small, gradual shifts over an interest rate cycle. It prefers to add value primarily through appropriate sector decisions. Based on its economic analysis, Western will significantly overweight particular sectors, shifting these weights as economic expectations warrant. Issue selection, like its maturity decisions, are of secondary importance to the firm.

Portfolio statistics for each of the active bond managers can be found in the Statistical Data Appendix.

ALTERNATIVE INVESTMENT MANAGERS

Real Estate

Fund: RESA

Aetna Life & Casualty

Real Estate Separate Account (RESA) is an open-end commingled real estate fund managed by the Aetna Life and Casualty Company of Hartford, Conn. The fund was formed in January, 1978. The fund has no termination date; investors have the option to withdraw all or a portion of their investment. RESA invests primarily in existing equity real estate. Investments are diversified by location and type of property. On-site management of properties is contracted to outside firms or conducted by a joint venture partner.

Fund: Prime Property Fund

Equitable Real Estate Group

Prime Property Fund was formed in August, 1973 by the New York-based Equitable Real Estate Group, Inc. The account is an open-end commingled real estate fund. The fund has no termination date; investors retain the option to withdraw all or a portion of their investment. The fund makes equity investments in existing real estate. The fund's portfolio is diversified by location and property type. Management of the fund's properties is contracted to outside firms or is conducted by joint venture partners.

Funds: HAC Group Trust I
HAC Group Trust II
HAC Group Trust III

Heitman Advisory Corp. (HAC)

HAC Group Trusts are closed-end commingled funds managed by the Heitman Advisory Group. The majority of the trust investments are equity real estate. The real estate portfolios are diversified by the type and location of the properties. Centre Properties, Ltd., an affiliate of Heitman, manages the trusts' wholly-owned properties. Properties that are partially owned by the trusts may be managed by joint venture partners. Heitman Advisory is based in Chicago.

Fund: Paine Webber Qualified Plan Property Funds I-IV and Mortgage Partners Five, L.P.'s.

Paine Webber

The Managing General Partner of Funds I-V is based in Boston, Mass. and is a wholly owned subsidiary of Paine Webber Group, Inc. The Funds have real estate investments which are diviersified by location and property type. The SBI received these investments through Police and Fire Plan consolidations.

Fund: RREEF USA III

Rosenberg Real Estate Equity Funds (RREEF)

RREEF USA III is a closed-end commingled fund managed by the Rosenberg Real Estate Equity Funds. Typically, the trust purchases 100% of the equity of its properties with cash. The trust generally does not utilize leverage or participating mortgages. Properties are diversified by location and type. RREEF's in-house staff manages the trust's real estate properties. The firm's primary office is located in San Francisco.

Funds: AEW - State Street Real Estate Fund III
AEW - State Street Real Estate Fund IV
AEW - State Street Real Estate Fund V

State Street Bank & Trust

State Street Real Estate Funds are closed-end commingled funds managed by the State Street Bank and Trust Company of Boston. State Street Bank has retained Aldrich, Eastman and Waltch (AEW) as the funds' advisor. The funds' special orientation is the use of creative investment vehicles such as convertible and participating mortgages to maximize real estate returns. The real estate portfolios are diversified by location and property type. On-site property management typically is contracted to outside firms or conducted by joint venture partners.

Funds: TCW Realty Fund III
TCW Realty Fund IV

Trust Company of the West (TCW)

TCW Realty Funds are closed-end commingled funds. The funds are managed as joint ventures between Trust Company of the West and Westmark Real Estate Investment Services of Los Angeles. These managers utilize specialty investment vehicles such as convertible and participating mortgages to enhance real estate returns. Investments are diversified by location and type. Portfolio properties are typically managed by local property management firms.

Venture Capital

Fund: Allied Venture Partnership

Allied Capital

Allied Venture Partnership was formed in September, 1985 and has a ten-year term. Based in Washington D.C., the fund focuses on later-stage, low technology companies located in the Southeastern and Eastern U. S. Most investments will be made in syndication with Allied Capital, a large, publically owned venture capital corporation formed in 1958.

Funds: Venture Partnership Acquisition Fund I
Venture Partnership Acquisition Fund II

Brinson Partners

Brinson Partners Venture Partnership Acquisition Funds I and II were formed in 1988 and 1990, respectively. The limited partnerships have ten year terms. Brinson Partners is based in Chicago, Illinois. Fund I and II invest exclusively in secondary venture capital limited partnership interests which are sold by investors who for a variety of reasons have decided to sell some or all of their venture capital holdings.

Fund: DSV Partners IV

DSV Management Ltd.

DSV Partners IV limited partnership was formed in April, 1985. It has a twelve-year term. DSV Partners IV is the fourth venture fund to be managed by DSV Management Ltd. since the firm's inception in 1968. The firm has offices in Princeton, New Jersey, and California. DSV Partners' investment emphasis is on portfolio companies in the start-up and early stages of corporate development. The geographic focus of the partnership is on East and West Coast firms. Investments are diversified by industry type.

Fund: Golder, Thoma and Cressey Fund III

Golder, Thoma & Cressey

Golder, Thoma and Cressey Fund III, a venture capital limited partnership, was formed in October, 1987. The fund is based in Chicago, Illinois and has a ten year term. The fund will invest in growing private businesses, found and build companies in fragmented industries and invest in small leveraged buyouts. In addition, the portfolio will be diversified geographically and by industry.

Fund: Inman & Bowman

Inman & Bowman Management

The Inman & Bowman limited partnership was formed in June, 1985. Its investment focus is early-stage, high-technology firms. The fund will emphasize investments in California, where the general partner, Inman & Bowman Management, is based. However, the fund will consider investments in the Pacific Northwest as well. The partnership has a ten-year term.

Fund: Superior Venture Partners
IAI Ventures I
IAI Ventures II

IAI Venture Capital Group

Superior Ventures is a Minnesota-based venture capital limited partnership. It was formed in June, 1986 and has an eleven-year term. Superior Ventures is managed by IAI Venture Capital Group, a subsidiary of Investment Advisers, Inc. Up to 15% of the fund will be invested in other Minnesota-based venture capital limited partnerships. The remainder of the fund will be invested in operating companies located within the state.

IAI Ventures I and II are also Minnesota-based venture capital limited partnerships managed by IAI Venture Capital Group. These funds have venture capital investment strategies similar to Superior's but are more diversified geographically.

Funds: KKR 1984 LBO Fund
KKR 1986 LBO Fund
KKR 1987 LBO Fund
KKR 1991 LBO Fund

Kohlberg, Kravis, Roberts & Co. (KKR)

KKR's Leveraged Buyout Funds are structured as limited partnerships. The funds invest in large leveraged buyouts but may include other types of investments as well. The partnerships' portfolio companies are often mature, low technology companies with very diversified operations. Kohlberg, Kravis, Roberts and Co. operates offices in New York and San Francisco.

Fund: Matrix Partners II
Matrix Partners III

Matrix Partners

Matrix Partners II and III are venture capital limited partnerships amd have terms of ten years. Investment emphasis is on high-technology firms in the early and expansion stages of corporate development. However, for diversification the portfolios will include a sizable component of non-technology firms. The portfolios may include several small leveraged buyout investments as well. The funds are managed by five general partners with offices in Boston, San Jose, and San Francisco.

Fund: Northwest Venture Partners I

Norwest Venture Capital Management

Northwest Venture Partners I was formed in January, 1984 and has a term of ten years. Norwest Venture Capital Management, a wholly owned subsidiary of Norwest Corp., is the general partner and manager of the partnership. Norwest Venture Capital also manages the Northwest Growth Fund, a small business investment company (SBIC), and Northwest Equity Capital, a leveraged buyout fund. Northwest Venture Partners' investment focus is on high technology companies in the early stages of corporate development. However, the partnership's portfolio also includes investments in expansion stage firms and is diversified by the location and industry type of its portfolio companies.

Fund: First Century III

Smith Barney Venture Corp.

First Century III was formed in December, 1984. It is structured as a limited partnership with a term of ten years. The general partner and manager of the partnership is Smith Barney Venture Corp., a subsidiary of Smith Barney Harris Upham and Co. Smith Barney Venture has offices in New York and San Francisco. This is the third fund formed by the firm since 1972. The partnership invests primarily in early stage, high technology companies. Investments are diversified by location and industry group.

Fund: Summit Ventures I
Summit Ventures II

Stamps, Woodsum & Co.

Summit Ventures are limited partnerships with ten-year terms. The funds were formed by Stamps, Woodsum & Co., the managing general partners of the fund, and Shearson/American Express. Stamps and Woodsum focus on profitable, expansion stage firms that have not yet received any venture backing. The majority of the partnerships investments are in high tech firms. Investments are diversified by location and industry type.

T. Rowe Price

T. Rowe Price, a Baltimore-based money management firm, was selected to manage stock distributions from the Board's venture capital limited partnerships. T. Rowe Price has extensive research capabilities in the small capitalization company area. In addition, the firm has a large trading staff with particular expertise in the trading of small capitalization and illiquid stocks.

Fund: Zell/Chilmark

Zell/ Chilmark

Zell/Chilmark was formed in July 1990 with a 10 year term. Based in Chicago, Illinois, the Fund focuses on corporate restructuring and rejuvenation situations. The partnership will invest primarily in the assets, debt and/or common and preferred stock of companies with a fair market value of at least $100 million.

Resource Funds

Funds: Apache Equipment Financing Notes
Apache Acquisition Net Profits Interest

Apache Corporation

Apache Equipment Financing Notes are a $150 million private placement to finance Apache's portion of production facility expenditures. The expenditures were made under the terms of a series of offshore joint ventures in the Gulf of Mexico. The joint ventures were organized by Shell Oil Company. In addition to fixed interest payments of 10% per annum, noteholders will receive additional interest of 2% of Apache's share of gross revenues from the joint ventures. The 2% additional interest will be paid to noteholders throughout the life of producing properties. Apache Corp. is based in Denver.

Apache Acquisition Net Profits Interest is a $190 million private placement to acquire a non-operating interest in the net profit generated by oil and gas properties acquired in 1986 from Occidental Petroleum Company. Investors will receive a 85% net profits interest in the financed share of producing properties until the cumulative total of such payments equals the investment cost plus 8% per year return on investment (the "Payout"). However, if the cumulative net profit discounted at 10% should fail to exceed a defined cumulative cash flow comparably discounted, investors will receive a 90% net profits interest until Payout. After Payout, investors will receive a 75% net profits interest for the life of the producing properties.

Fund: British Petroleum Prudoe Bay Royalty Trust

British Petroleum Company

The British Petroleum Prudhoe Bay Royalty Trust is an overriding royalty interest (ORI) in the Prudhoe Bay Field, Alaska, the largest oil and gas producing field in the U.S. The ORI will equal 15.35% of the first 90,000 barrels per day of oil production net to British Petroleum's interest in the Prudhoe Bay Field. British Petroleum's current total production from the field is over seven times greater than this amount. Under terms of the agreement, production costs are fixed and can vary only with inflation. The oil price is tied directly to the West Texas Intermediate spot price. British Petroleum has guaranteed an average minimum price of $15 per barrel for the first 2.5 years.

Funds: AMGO I
AMGO II
AMGO IV
AMGO V

First Reserve Corp.

American Gas and Oil (AMGO) funds are structured as limited partnerships. The general partner and manager of the funds is First Reserve Corp. The general partner's long-term investment strategy is to create diversified portfolios of oil and gas investments. The portfolios are diversified across four dimensions: location, geological structure, investment type, and operating company.

Fund: Morgan Petroleum Fund II

J.P. Morgan Investment Management

Morgan Petroleum Fund II was formed in July 1988 and is managed by J.P. Morgan Investment Management, Inc. The fund managers have an office in Houston, Texas. Fund investments will be diversified geographically and by company. Most investments will take the form of an overriding royalty interest and will include, primarily, property acquisitions and development drilling.

A summary of the Board's commitments to these real estate, venture capital, and resource funds can be found in the Statistical Data Appendix.

STATISTICAL DATA APPENDIX

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STOCK MANAGER RISK FACTOR EXPOSURE GLOSSARY

The following definitions describe the risk factors that the State Board of Investment (SBI) uses in monitoring its stock managers. The terms are referred to in Table 1.

SBI analysis of a stock manager's portfolio, in part, utilizes the BARRA E2 risk model. The BARRA model contains a number of risk factors that the SBI has found to correlate highly with a manager's investment style. That is, a manager tends to exhibit consistent exposures to many of these risk factors over time. The benchmark construction process includes identifying these persistent exposures and capturing them in the benchmark portfolio.

Factor exposures are calibrated relative to approximately 1400 of the largest market capitalization (HICAP) companies. An exposure level of 0 for a particular stock to a particular factor indicates that the stock has the same exposure as the capitalization-weighted average of the HICAP stocks. Around that zero exposure, deviations are measured in standard deviation units. Thus, an exposure level of +1 indicates that the stock has a greater exposure to the factor than roughly 68% of the HICAP stocks.

Beta	Forecasts the sensitivity of a stock's return to the return on the market portfolio. The BARRA E2 beta is a forecasted beta, based on a company's exposure to thirteen common risk factors and fifty-five industries.
Book-to-Price (B/P)	Measures the book value of a company's common equity divided by market capitalization.
Dividend Yield (Div. Yld.)	Used as a predictor of dividend yield for the coming year.
Earnings-to-Price (E/P)	Incorporates several variants of a company's earnings-price ratio. Includes the current earnings-price ratio, the normalized (5 year) earnings-price ratio, and analysts's forecasted earnings-price ratio as compiled by the Institutional Brokerage Estimate Services (IBES).
Earnings Variability (Earn. Var.)	Indicates the variability of a company's earnings. Comprised of six descriptors: historical earnings variance, cash flow variance, earnings covariability with the economy, the level of concentration of the company's earnings from various sources, the incidence of extraordinary items, and the variability of the company's earnings estimates as compiled by IBES.
Equity Allocation (Eq. Alloc.)	Measures the percent of the manager's total portfolio invested in common stocks, preferred stocks and convertible securities.
Financial Leverage (Finl.)	Measures the extent to which a company utilizes financial leverage to finance its operations. Comprised of three descriptors: debt-to-total assets (at market), debt-to-total assets (at book), and uncovered fixed charges.
Foreign Income (For. Inc.)	Measures the extent to which a company's operating income is generated outside of the U.S.

STOCK MANAGER RISK FACTOR EXPOSURE GLOSSARY

Growth	Indicates potential growth in a company's earnings over the next five years. Comprised of seven descriptors: most recent five-year dividend payout, most recent five-year dividend yield, most recent five-year earnings-price ratio, change in capital structure, normalized (5 year) earnings-price ratio, recent earnings change, and forecasted earnings growth.
Labor Intensity (Labor Int.)	Measures the degree to which labor, as opposed to capital, is used by a company as a factor of production. Derived from three descriptors: labor expense relative to assets, fixed plant and equipment (inflation adjusted) relative to equity, and depreciated plant value relative to gross plant value.
Monthly Turnover (Mo. T/O)	Measures the total equity asset sales divided by the average value of the equity assets in the manager's portfolio.
Size	Indicates the relative size of the company. It includes three descriptors: market capitalization, total assets, and the length of earnings history.
Success (Suc.)	Describes the extent to which a company has been "successful" in the recent past, in terms of both earnings and stock prices. Composed of six descriptors: most recent five-year earnings growth, most recent one-year earnings growth, forecasted next year's earnings growth, historical alpha, and relative strength. (The last two descriptors are calculated over the most recent year and most recent five-years).
Trading Activity (Trad. Act.)	Measures the trading characteristics of a company's stock. Comprised of six descriptors: most recent five-year share turnover, most recent year share turnover, quarterly share turnover, stock price, trading volume relative to stock price variance, and the number of IBES analysts following the stock.
Variability in Markets (Var. Mkts.)	Measures the volatility of a stock's return related to its past behavior and the behavior of its options. Variants of the factor are calculated for optioned stocks, listed but not optioned stocks, and thinly traded stocks. A partial list of the descriptors that make up this factor include: historical beta, option-implied standard deviation of return, daily standard deviation of return, cumulative price range, stock price, and share turnover.

Table 1.

EXTERNAL ACTIVE STOCK MANAGERS

Risk Factor Exposures
July 1986 - June 1991

	Beta	Var. Mkts.	Suc.	Size	Trad. Act.	Growth	E/P	B/P	Earn. Var.	Finl.	For. Inc.	Labor Int.	Div. Yld.	Mo. T/O	Eq. Alloc.
Alliance Capital															
Minimum	1.09	0.13	0.12	-0.11	0.17	0.41	-0.22	-0.42	-0.12	-0.12	-0.12	0.18	-0.80	0.81	92%
Average	1.14	0.25	0.29	0.14	0.43	0.53	-0.13	-0.34	0.03	0.09	0.12	0.28	-0.64	4.80	97%
Maximum	1.19	0.45	0.51	0.37	0.61	0.70	-0.04	-0.25	0.12	0.28	0.26	0.42	-0.50	10.91	100%
Bmrk. Avg.	1.16	0.36	0.05	-0.37	0.26	0.50	-0.06	-0.23	0.03	0.01	-0.04	0.43	-0.56	N.A.	95%
Forstmann Leff															
Minimum	1.01	0.05	-0.16	-1.35	0.19	-0.14	-0.35	-0.45	-0.04	-0.19	-0.36	-0.28	-1.08	1.69	44%
Average	1.14	0.49	0.23	-0.43	0.58	0.34	0.06	-0.14	0.30	0.10	0.12	0.08	-0.47	13.92	66%
Maximum	1.42	1.26	0.70	0.10	1.37	1.07	0.36	0.11	0.56	0.40	0.58	0.38	-0.14	38.82	93%
Bmrk. Avg.	1.15	0.42	-0.03	-0.50	0.29	0.37	-0.01	-0.00	0.18	0.07	-0.04	0.26	-0.35	N.A.	70%
Franklin Portfolio*															
Minimum	1.03	0.13	-0.24	-0.95	0.05	0.01	0.15	0.10	0.10	-0.15	-0.61	-0.19	-0.26	0.00	94%
Average	1.05	0.23	-0.04	-0.67	0.12	0.15	0.31	0.18	0.25	-0.05	-0.51	-0.05	-0.11	6.53	98%
Maximum	1.09	0.31	0.15	-0.30	0.21	0.31	0.48	0.27	0.38	0.07	-0.36	0.16	0.02	10.69	100%
Bmrk. Avg.	1.04	0.20	-0.14	-0.62	0.12	0.07	0.03	0.12	0.14	-0.06	-0.39	-0.03	-0.04	N.A.	98%
GeoCapital Corp.**															
Minimum	1.22	0.90	-0.58	-2.33	0.49	0.94	-0.72	-0.46	0.48	0.18	-0.66	0.42	-0.98	0.00	76%
Average	1.24	1.11	-0.13	-2.21	0.68	1.02	-0.52	-0.30	0.53	0.35	-0.55	0.48	-0.93	0.90	94%
Maximum	1.28	1.28	0.34	-2.09	0.80	1.08	-0.46	-0.15	0.59	0.70	-0.40	0.52	-0.85	3.18	99%
Bmrk. Avg.	1.21	0.89	0.09	-1.98	0.51	0.98	-0.39	-0.22	0.42	0.16	-0.41	0.53	-0.84	N.A.	95%
IDS Advisory															
Minimum	1.08	0.17	0.05	-0.47	0.11	0.20	-0.22	-0.34	-0.01	-0.18	-0.39	0.12	-0.59	0.84	86%
Average	1.12	0.34	0.33	-0.12	0.29	0.35	-0.05	-0.21	0.16	-0.03	0.09	0.28	-0.47	7.36	96%
Maximum	1.18	0.55	0.57	0.12	0.64	0.42	0.11	-0.09	0.36	0.21	0.51	0.45	-0.29	17.36	100%
Bmrk. Avg.	1.02	0.07	-0.03	-0.17	0.06	0.06	0.01	0.03	0.04	-0.01	-0.10	0.01	-0.05	N.A.	90%

Bmrk. Avg. = Benchmark average.
Aggregate Active figures include data only for managers retained on 6/30/91.

* Manager retained on 4/1/89. Data covers period from 4/1/89 - 6/30/91 only.
** Manager retained on 4/1/90. Data covers period from 4/1/90 - 6/30/91 only.

Table 1. Con't.

EXTERNAL ACTIVE STOCK MANAGERS

Risk Factor Exposures
July 1986 - June 1991

	Beta	Var. Mkts.	Suc.	Size	Trad. Act.	Growth	E/P	B/P	Earn. Var.	Finl.	For. Inc.	Labor Int.	Div. Yld.	Mo. T/O	Eq. Alloc.
Investment Advisers															
Minimum	1.03	0.01	0.05	-0.47	0.21	0.17	-0.33	-0.36	-0.16	-0.16	-0.17	-0.08	-0.64	0.00	66%
Average	1.08	0.20	0.24	-0.17	0.38	0.33	-0.10	-0.24	0.04	-0.02	0.28	0.19	-0.40	5.11	80%
Maximum	1.14	0.49	0.43	0.10	0.66	0.51	0.04	-0.09	0.34	0.10	0.62	0.39	-0.24	35.58	88%
Bmrk. Avg.	1.03	0.06	-0.03	0.00	0.07	0.05	-0.00	-0.01	0.01	-0.00	0.09	0.03	-0.04	N.A.	90%
Lieber & Co.															
Minimum	1.03	0.10	-0.32	-1.72	0.02	0.34	-0.10	-0.11	-0.02	-0.20	-0.63	0.35	-0.61	0.10	87%
Average	1.08	0.36	-0.05	-1.57	0.15	0.40	0.02	0.01	0.09	-0.03	-0.45	0.49	-0.49	3.61	95%
Maximum	1.12	0.57	0.28	-1.34	0.29	0.47	0.16	0.11	0.17	0.10	-0.27	0.62	-0.40	11.43	100%
Bmrk. Avg.	1.08	0.48	-0.17	-1.96	0.06	0.47	0.06	0.11	0.26	0.03	-0.43	0.45	-0.47	N.A.	95%
Rosenberg Institutional*															
Minimum	1.01	0.03	-0.17	-0.47	0.01	-0.04	0.24	0.29	0.02	-0.07	-0.16	-0.11	-0.06	1.81	97%
Average	1.02	0.08	-0.07	-0.32	0.05	0.02	0.28	0.34	0.09	-0.04	-0.04	-0.02	-0.03	8.33	99%
Maximum	1.03	0.15	0.04	-0.17	0.09	0.07	0.31	0.42	0.17	0.02	0.04	0.07	0.01	69.52	100%
Bmrk. Avg.	1.02	0.09	-0.07	-0.24	0.04	0.06	-0.00	0.06	0.06	0.00	-0.18	-0.01	-0.04	N.A.	98%
Waddell & Reed															
Minimum	1.10	0.28	-0.30	-1.29	0.40	0.16	-0.38	-0.24	0.16	-0.24	-0.35	0.15	-0.80	0.00	51%
Average	1.20	0.65	0.11	-0.85	0.81	0.55	-0.20	-0.01	0.48	0.02	-0.04	0.35	-0.53	11.90	71%
Maximum	1.30	0.92	0.35	-0.16	1.20	0.79	0.07	0.19	0.75	0.30	0.50	0.54	-0.12	27.19	90%
Bmrk. Avg.	1.17	0.61	-0.12	-1.27	0.41	0.55	-0.18	0.06	0.38	0.29	-0.16	0.38	-0.54	N.A.	80%
Aggregate Active															
Minimum	1.08	0.22	-0.05	-0.58	0.29	0.31	-0.16	-0.29	0.08	-0.03	-0.14	0.16	-0.63	N.A.	N.A.
Average	1.13	0.36	0.20	-0.38	0.43	0.41	-0.05	-0.15	0.17	0.03	0.04	0.24	-0.48	N.A.	N.A.
Maximum	1.19	0.53	0.39	-0.20	0.54	0.52	0.03	0.01	0.24	0.18	0.27	0.35	-0.35	N.A.	N.A.

Bmrk. Avg. = Benchmark average.
Aggregate Active figures include data only for managers retained on 6/30/91.

* Manager retained on 4/1/89. Data covers period from 4/1/89 - 6/30/91 only.
** Manager retained on 4/1/90. Data covers period from 4/1/90 - 6/30/91 only.

Table 2.

EXTERNAL ACTIVE STOCK MANAGERS

Sector Weights
Actual Portfolio Less Benchmark Portfolio
July 1986 - June 1991

	Cons. Non Dur.	Cons. Dur.	Basic Mat.	Cap. Goods	Energy	Tech.	Trans.	Util.	Finl.
Alliance Capital									
Minimum	-7.34%	-1.93%	-11.50%	-6.62%	-1.68%	-12.08%	-4.12%	-1.71%	-5.16%
Average	0.77	0.44	-4.72	-1.16	1.90	-1.25	1.81	0.90	1.32
Maximum	16.70	2.79	2.68	3.96	8.39	7.33	7.25	6.39	8.10
Bmrk. Avg.	42.47	3.67	12.18	7.06	2.84	14.22	2.71	1.56	13.30
Forstmann Leff									
Minimum	-17.35	-5.77	-7.18	-7.29	-7.69	-9.67	-3.69	-10.04	-16.64
Average	-0.04	-2.42	7.67	-3.07	8.99	-2.19	-1.42	-2.12	-5.40
Maximum	23.04	3.34	21.83	2.53	28.48	13.57	6.03	14.14	13.40
Bmrk. Avg.	34.75	4.76	13.68	7.13	4.97	9.90	3.29	6.01	15.51
Franklin Portfolio*									
Minimum	-6.52	-2.83	-4.37	-2.63	-4.57	-2.21	-2.38	-8.41	-2.34
Average	0.62	-0.82	0.25	-0.32	0.64	0.25	-0.74	-0.29	0.40
Maximum	6.57	0.36	2.03	1.42	3.92	2.76	0.62	4.42	3.51
Bmrk. Avg.	29.97	4.01	11.10	6.08	5.74	5.49	2.66	16.59	18.37
GeoCapital Corp.**									
Minimum	7.25	-3.67	-4.69	-6.04	-6.45	-10.86	-3.07	1.11	7.20
Average	13.99	-3.27	-3.25	-4.46	-6.34	-9.70	-2.96	4.78	11.22
Maximum	17.91	-0.74	-0.98	-0.36	-4.85	-7.75	-1.75	6.40	15.07
Bmrk. Avg.	53.28	3.01	5.22	5.85	6.04	14.43	2.80	4.73	4.63
IDS Advisory									
Minimum	-7.87	-2.94	-2.15	-6.23	-7.19	-8.39	-2.26	-18.87	-13.22
Average	0.21	1.26	9.10	3.80	0.54	-0.44	1.77	-10.82	-5.43
Maximum	7.03	6.74	20.60	9.74	5.68	7.42	5.17	2.04	5.58
Bmrk. Avg.	30.17	4.24	10.49	6.47	7.93	8.62	2.69	15.67	13.73

Bmrk. Avg. = Benchmark average
Aggregate Active figures include data only for managers retained on 6/30/91.

* Manager retained effective 4/1/89. Data covers period from 4/1/89 to 6/30/91 only.
** Manager retained effective 4/1/90. Data covers period from 4/1/90 to 6/30/91 only.

Table 2 Con't.

EXTERNAL ACTIVE STOCK MANAGERS

Sector Weights
Actual Portfolio Less Benchmark Portfolio
July 1986 - June 1991

	Cons. Non Dur.	Cons. Dur.	Basic Mat.	Cap. Goods	Energy	Tech.	Trans.	Util.	Finl.
Investment Advisers									
Minimum	-1.78%	-5.32%	-4.61%	-4.25%	-9.20%	-5.26%	-2.76%	-15.02%	-9.98%
Average	8.46	-3.47	4.06	1.10	-2.77	2.96	0.31	-4.18	-6.48
Maximum	16.65	-0.27	10.05	8.36	4.64	9.91	6.71	3.45	-2.20
Bmrk. Avg.	32.41	4.97	10.92	6.48	9.77	9.19	2.88	13.09	10.30
Lieber & Co.									
Minimum	-4.59	-2.30	-8.20	-7.44	-2.28	-6.56	-0.75	-5.68	-18.86
Average	7.39	-0.38	-0.50	-2.89	0.06	-2.22	1.35	-2.35	-0.47
Maximum	16.29	1.55	5.49	0.12	4.59	2.92	4.15	0.14	20.48
Bmrk. Avg.	31.74	6.23	11.21	9.10	3.25	8.86	2.36	4.47	22.77
Rosenberg Institutional*									
Minimum	-0.92	-2.38	0.44	-2.79	-2.34	-1.78	-0.71	-3.60	-6.44
Average	1.34	-0.28	2.77	-1.47	0.67	0.95	0.21	-0.67	-3.52
Maximum	3.44	1.47	5.42	0.11	4.18	4.09	0.85	2.79	-0.82
Bmrk. Avg.	29.43	4.82	8.98	6.44	8.81	7.94	2.16	17.36	14.07
Waddell & Reed									
Minimum	-20.15	-6.45	-7.49	-5.32	-8.00	-5.76	-5.85	-2.34	-0.94
Average	-6.82	-0.85	-2.07	0.06	-0.81	3.19	-0.10	3.26	4.13
Maximum	9.71	5.11	5.41	4.67	8.62	16.75	9.27	18.80	17.46
Bmrk. Avg.	37.80	7.59	17.76	9.97	8.48	10.83	5.55	0.77	1.25
Aggregate Active									
Minimum	-4.32	-1.72	-2.77	-4.65	-5.41	-4.82	-2.03	-5.50	-7.86
Average	1.17	-0.59	1.84	-0.64	1.22	-0.10	0.62	-1.85	-1.67
Maximum	7.53	1.21	7.11	2.48	7.64	7.26	3.14	1.29	6.81

Bmrk. Avg. = Benchmark average
Aggregate Active figures include data only for managers retained on 6/30/91.

* Manager retained effective 4/1/89. Data covers period from 4/1/89 to 6/30/91 only.
** Manager retained effective 4/1/90. Data covers period from 4/1/90 to 6/30/91 only.

Table 3.

EXTERNAL ACTIVE STOCK MANAGERS

Five Year Quarterly Performance Summary

	3Q86	4Q86	1Q87	2Q87	3Q87	4Q87	1Q88	2Q88	3Q88	4Q88
Alliance Capital										
Actual Portfolio	-11.8%	5.2%	27.4%	4.7%	10.8%	-21.4%	4.0%	9.6%	-3.5%	0.6%
Benchmark Portfolio	-9.9	2.6	22.8	3.2	5.1	-24.2	6.8	6.0	-0.9	1.3
Forstmann Leff										
Actual Portfolio	-10.8	3.4	19.8	1.6	8.4	-17.6	6.9	3.4	-2.6	2.6
Benchmark Portfolio	-5.6	2.6	16.1	2.1	4.2	-16.1	6.7	5.5	0.1	1.6
Franklin Portfolio										
Actual Portfolio	Manager not retained until 2Q89.									
Benchmark Portfolio										
GeoCapital Corp.										
Actual Portfolio	Manager not retained until 2Q90.									
Benchmark Portfolio										
IDS Advisory										
Actual Portfolio	-10.1	4.5	22.4	3.7	5.9	-20.7	0.6	7.1	-3.7	1.6
Benchmark Portfolio	-7.4	3.9	20.5	3.2	5.2	-19.5	7.5	5.3	0.3	2.3
Investment Advisers										
Actual Portfolio	-8.9	4.1	19.7	4.0	8.8	-15.2	-1.5	4.6	-1.0	1.9
Benchmark Portfolio	-7.4	3.9	20.5	3.2	5.7	-18.9	5.6	5.8	0.7	3.0
Lieber & Company										
Actual Portfolio	-9.5	0.1	20.1	-1.4	2.7	-23.0	16.2	4.6	0.8	0.1
Benchmark Portfolio	-10.8	2.2	20.4	0.1	4.1	-24.8	15.0	6.9	-1.0	0.3
Rosenberg Institutional										
Actual Portfolio	Manager not retained until 2Q89.									
Benchmark Portfolio										
Waddell & Reed										
Actual Portfolio	-6.4	5.1	18.4	2.4	9.8	-20.8	8.1	7.3	-5.9	1.2
Benchmark Portfolio	-6.9	3.0	22.1	3.6	6.0	-21.0	11.1	5.5	-1.7	1.0
Aggregate Active*	-8.6	3.9	21.0	2.3	6.9	-21.8	7.3	6.8	-2.8	0.5
Market Index										
Wilshire 5000	-7.7	4.0	21.2	3.3	6.2	-23.1	8.0	6.5	0.2	2.3

* Aggregate Active performance numbers include returns of any managers retained during the time period shown but subsequently terminated by the Board.

Table 3 Con't.

EXTERNAL ACTIVE STOCK MANAGERS

Five Year Quarterly Performance Summary

	1Q89	2Q89	3Q89	4Q89	1Q90	2Q90	3Q90	4Q90	1Q91	2Q91
Alliance Capital										
Actual Portfolio	10.0%	11.7%	15.2%	0.3%	-2.6%	9.7%	-16.4%	9.7%	17.4%	-4.3%
Benchmark Portfolio	6.7	8.3	10.7	-3.6	-0.9	8.5	-18.3	10.3	17.3	-0.8
Forstmann Leff										
Actual Portfolio	8.3	2.1	9.8	-2.2	-2.7	2.9	-8.3	2.2	19.3	-1.1
Benchmark Portfolio	6.3	6.2	7.8	-1.0	-1.3	5.0	-14.6	8.0	15.2	0.2
Franklin Portfolio										
Actual Portfolio		9.7	11.1	-2.5	-3.2	2.4	-18.8	11.7	17.3	-2.4
Benchmark Portfolio		8.4	7.4	-2.2	-3.6	4.1	-17.0	10.1	17.9	0.1
GeoCapital Corp.										
Actual Portfolio	Manager not retained until 2Q90.					6.0	-30.1	25.8	30.3	-3.9
Benchmark Portfolio						6.1	-22.3	10.8	24.6	-2.1
IDS Advisory										
Actual Portfolio	8.2	7.5	15.8	-0.5	0.3	7.6	-19.4	4.7	19.7	-1.4
Benchmark Portfolio	6.6	8.6	8.8	-0.3	-2.7	5.5	-14.7	7.9	13.3	-0.3
Investment Advisers										
Actual Portfolio	7.4	6.5	12.4	0.2	-2.9	5.8	-14.3	5.8	13.3	-2.0
Benchmark Portfolio	6.4	7.2	9.4	0.9	-2.0	5.8	-13.3	8.1	13.4	-0.6
Lieber & Company										
Actual Portfolio	7.2	6.1	8.8	-3.9	-5.3	6.2	-21.4	11.8	19.9	0.1
Benchmark Portfolio	7.1	6.4	8.0	-3.6	-3.8	2.1	-20.7	7.1	22.7	1.3
Rosenberg Institutional										
Actual Portfolio		8.7	10.7	-0.6	-2.4	3.7	-16.9	8.0	16.2	-2.8
Benchmark Portfolio		8.2	9.5	0.1	-3.3	4.9	-16.1	8.7	16.5	-0.5
Waddell & Reed										
Actual Portfolio	5.2	10.4	12.1	-2.7	-0.3	5.8	-15.4	3.3	14.1	-1.2
Benchmark Portfolio	6.5	5.9	7.9	-2.5	-0.3	3.9	-17.4	6.9	18.5	0.2
Aggregate Active*	8.1	7.9	11.7	-1.4	-2.2	5.8	-17.1	7.3	17.6	-2.5
Market Index										
Wilshire 5000	7.4	8.5	10.1	0.6	-3.5	5.5	-15.2	8.7	16.5	-0.3

* Aggregate Active performance numbers include returns of any managers retained during the time period shown but subsequently terminated by the Board.

Table 4.

EXTERNAL STOCK MANAGERS

Five Year Annualized Performance Summary

	Year Ending 6/30/91		Two Years Ending 6/30/91		Three Years Ending 6/30/91		Five Years Ending 6/30/91	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio
Active Managers								
Alliance Capital	3.0%	4.9%	12.8%	9.7%	14.9%	11.8%	13.2%	8.1%
Forstmann Leff	10.7	6.4	9.1	8.4	9.5	10.5	7.8	8.8
Franklin	3.9	7.8	5.7	6.6	Manager retained effective 4/1/89			
GeoCapital	10.2	5.0	Manager retained effective 4/1/90					
IDS	-0.4	4.0	11.2	7.6	12.0	11.2	8.7	9.5
Investment Advisers	0.6	5.6	7.9	9.9	10.3	12.7	8.5	10.4
Lieber & Company	5.5	5.6	5.4	3.9	8.4	6.9	5.6	5.2
Rosenberg	1.3	5.7	6.2	8.4	Manager retained effective 4/1/89			
Waddell & Reed	-1.5	4.9	6.5	6.9	7.8	8.6	8.6	8.8
Passive Manager								
Wilshire Associates	6.4%	6.9%	9.3%	9.8%	12.6%	12.9%	10.1%	10.2%
Total Basic Retirement Funds' Common Stock Segment*	4.8%	6.4%	8.8%	9.1%	11.8%	12.1%	9.8%	9.7%
Capital Markets Data								
Wilshire 5000	7.0%	–	9.8%	–	13.0%	–	10.2%	–
91-Day Treasury Bills	6.9	–	7.6	–	7.8	–	7.0	–
Inflation	4.7	–	4.7	–	4.8	–	4.4	–

* Total segment performance numbers include returns of any managers retained during the time periods shown but subsequently terminated by the Board.

BOND MANAGER PORTFOLIO CHARACTERISTICS GLOSSARY

The bond manager portfolio statistics glossary is designed to define terminology the State Board of Investment uses in evaluating a bond manager's investment philosophy, risk characteritics and performance data. The definitions refer to categories shown in Table 5.

Average Quality Weightings (Avg. Qual.)	Refers to the average rating given the total portfolio's securities by Moody's Corp. A security's rating indicates the financial strength of its issuer and other factors related to the likelihood of full and timely payment of interest and principal.
Bond Allocation (Bond Alloc.)	The percent of the manager's total portfolio invested in bonds.
Coupon	The annual interest payment received on the manager's total portfolio stated as a percent of the portfolio's face value.
Current Yield (Cur. Yield)	The annual interest payment produced by the manager's total portfolio stated as a percent of the portfolio's market value.
Duration (Dur.)	A measure of the average life of the total portfolio. Duration is a weighted average maturity where the time in the future that each cash flow is received is weighted by the proportion that the present value of the cash flow contributes to the total present value (or price) of the total portfolio.
Number of Issues (# of Issues)	The number of different bond issues held in the manager's portfolio.
Quarterly Turnover (Qtr. T/O)	The manager's total bond sales during the quarter divided by the average value of the manager's bond portfolio over the quarter.
Term to Maturity (Term to Mat.)	A measure of the average life of the total portfolio. Term to maturity is the number of years remaining until the average bond in the portfolio makes its final cash payment.
Yield to Maturity (Yield to Mat.)	The compounded annualized return that the manager's total portfolio would produce if it were held to maturity and all cash flows were reinvested at an interest rate equal to the yield to maturity.

Table 5.

EXTERNAL ACTIVE BOND MANAGERS

Portfolio Characteristics

July 1986 - June 1991

	Qtr. T/O	# Of Issues	Bond Alloc.	Coupon	Yield To Mat.	Avg. Qual.	Dur.	Term To Mat.
Investment Advisers								
Minimum	0.0%	11	92%	7.60%	8.00%	AAA	3.20 Yrs.	4.30 Yrs.
Average	14.0	18	96	8.24	8.64	AAA	5.26	11.10
Maximum	37.0	22	99	9.40	9.90	AAA	7.00	19.77
Lehman Management								
Minimum	14.0	26	87	7.41	7.30	AA	3.63	5.00
Average	44.0	41	93	8.25	8.51	AAA	3.93	6.92
Maximum	103.0	50	100	10.20	10.10	AAA	4.50	8.60
Miller Anderson								
Minimum	7.0	43	73	5.40	7.80	A	3.10	5.50
Average	42.0	62	96	8.18	9.98	AA	5.57	10.04
Maximum	86.0	70	100	9.50	13.00	AAA	6.96	16.10
Western Asset								
Minimum	12.0	38	84	8.22	8.30	AA	4.20	8.40
Average	40.0	54	93	8.84	9.21	AA	5.24	12.93
Maximum	85.0	71	100	9.60	10.50	AA	6.70	16.89
Salomon BIG*								
Minimum				8.83	7.57	AAA	4.12	8.97
Average				9.11	8.85	AAA	4.47	9.51
Maximum				9.83	9.91	AAA	4.67	9.84

* Salomon Broad Investment Grade Bond Index

Table 6.

EXTERNAL ACTIVE BOND MANAGERS

Sector Weights

July 1986 - June 1991

(In Percentages)

	Treas.	Agcy	Total Govt.	Ind	Util	Fin	Tran	Total Corp.	Mtgs	Misc	Cash
Investment Advisers											
Minimum	51	0	56	0	0	2	0	2	0	0	1
Average	66	7	73	2	1	10	0	13	11	0	3
Maximum	83	14	87	23	3	19	0	36	25	0	12
Lehman Management											
Minimum	46	0	48	3	1	5	0	10	5	0	0
Average	59	1	60	7	3	13	0	23	12	0	5
Maximum	71	6	71	14	8	26	0	33	24	0	19
Miller Anderson											
Minimum	0	0	0	3	0	3	0	9	20	0	1
Average	24	1	25	6	0	20	1	27	39	2	7
Maximum	44	5	44	9	5	59	2	68	60	7	18
Western Asset											
Minimum	5	3	12	9	5	1	0	23	23	0	0
Average	19	8	27	16	9	9	1	35	29	3	6
Maximum	33	13	43	22	17	18	4	43	45	6	13
Salomon BIG*											
Minimum			53					18	21		
Average			55					19	26		
Maximum			59					20	29		

Abbreviations:

Treas	Treasuries
Agcy	Government agencies
Ind	Industrials
Util	Utilities
Fin	Financials
Tran	Transportation
Mtgs	Mortgages
Misc	Miscellaneous or other

* The Salomon Broad Investment Grade (BIG) Bond Index categorizes the index according to Government, Corporate, and Mortgage securities only.

Table 7.

EXTERNAL ACTIVE BOND MANAGERS

Five Year Quarterly Performance Summary

	3Q86	4Q86	1Q87	2Q87	3Q87	4Q87	1Q88	2Q88	3Q88	4Q88
Investment Advisers										
Actual Portfolio	2.4%	2.7%	1.0%	-0.9%	-1.9%	5.1%	3.2%	1.1%	1.9%	0.6%
Benchmark Portfolio	2.5	3.3	1.3	-1.6	-2.8	5.8	3.8	1.2	2.0	0.8
Lehman Management										
Actual Portfolio	2.9	2.8	1.1	-1.6	-2.1	5.3	3.2	0.7	3.3	0.8
Benchmark Portfolio	2.3	2.9	1.5	-1.3	-2.1	5.2	3.4	1.1	1.8	0.9
Miller Anderson										
Actual Portfolio	2.2	10.3**	2.8	-1.6	-3.6	6.3	3.6	1.5	1.9	1.6
Benchmark Portfolio	2.5	3.3	1.3	-1.6	-2.8	5.8	3.8	1.2	2.0	0.8
Western Asset										
Actual Portfolio	2.2	4.9	2.6	-3.4	-3.1	5.3	5.3	1.5	2.7	1.5
Benchmark Portfolio	2.4	3.2	1.3	-1.4	-2.7	5.6	4.0	1.4	2.2	0.9
Aggregate Active*	2.7	5.3	2.3	-2.3	-2.2	5.3	3.8	1.1	2.4	1.1
Market Index										
Salomon Broad Investment Grade Bond Index	2.5	3.3	1.3	-1.6	-2.8	5.8	3.8	1.2	2.0	0.8

* Aggregate Active performance numbers include returns of any managers retained during the time periods shown but subsequently terminated by the Board.

** Performance reflects positive impact of pricing adjustment made during the quarter.

Table 7 Con't.

EXTERNAL ACTIVE BOND MANAGERS

Five Year Quarterly Performance Summary

	1Q89	2Q89	3Q89	4Q89	1Q90	2Q90	3Q90	4Q90	1Q91	2Q91
Investment Advisers										
Actual Portfolio	1.3%	9.8%	0.4%	4.2%	-2.7%	4.0%	-0.6%	7.0%	2.4%	1.2%
Benchmark Portfolio	1.1	8.4	0.9	3.9	-1.2	3.7	0.8	5.4	2.3	1.6
Lehman Management										
Actual Portfolio	1.3	7.0	1.1	3.2	-0.5	3.2	1.2	4.6	2.5	1.7
Benchmark Portfolio	1.2	7.2	1.2	3.5	-0.4	3.4	1.2	4.6	2.5	1.6
Miller Anderson										
Actual Portfolio	1.4	4.4	0.4	3.4	-0.7	3.8	-0.5	6.1	3.2	1.7
Benchmark Portfolio	1.2	7.9	1.0	3.7	-0.8	3.6	1.0	5.1	2.6	1.8
Western Asset										
Actual Portfolio	1.5	8.2	1.8	3.5	-1.4	3.7	0.1	5.5	3.4	1.8
Benchmark Portfolio	1.2	7.8	1.0	3.6	-0.4	3.7	0.8	4.8	3.0	2.0
Aggregate Active*	1.4	6.9	1.2	3.5	-1.3	3.7	-0.1	5.4	3.0	1.7
Market Index										
Salomon Broad Investment Grade Bond Index	1.2	7.9	1.0	3.7	-0.8	3.6	1.0	5.1	2.6	1.8

* Aggregate Active performance numbers include returns of any managers retained during the time periods shown but subsequently terminated by the Board.

Table 8.

EXTERNAL BOND MANAGERS
Five Year Annualized Performance Summary

	Year Ending 6/30/91		Two Years Ending 6/30/91		Three Years Ending 6/30/91		Five Years Ending 6/30/91	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portoflio
Active Managers								
Investment Advisers	10.2%	10.5%	8.1%	8.9%	10.0%	10.1%	8.5%	8.7%
Lehman Management	10.2	10.3	8.7	9.0	10.0	9.8	8.5	8.5
Miller Anderson	10.7	10.8	8.8	9.3	9.1	10.2	9.8	8.9
Western Asset	11.2	11.0	9.5	9.5	11.1	10.5	9.7	9.1
Semi-Passive Managers								
Fidelity Management	11.5%	10.8%	9.7%	9.3%	10.5%	10.2	Manager retained 7/88	
Lincoln Capital	10.8	10.8	9.2	9.3	10.2	10.2	Manager retained 7/88	
Total Basic Retirement Funds' Bond Segment*	11.0%	10.8%	9.2%	9.2%	10.2%	10.1%	9.3%	8.9%
Capital Markets Data								
Salomon BIG Index**	10.8%	–	9.3%	–	10.2%	–	8.9%	–
91 Day Treasury Bills	6.9	–	7.6	–	7.8	–	7.0	–
Inflation	4.7	–	4.7	–	4.8	–	4.4	–

* Total segment performance numbers include returns of any managers retained during the time periods shown but subsequently terminated by the Board.

**Salomon Broad Investment Grade Bond Index

Table 9.

ALTERNATIVE ASSETS

Summary of Commitments
As of June 30, 1991

	Total Fund Size (Millions)	SBI Inception Date	SBI Commitment	SBI Funded	SBI To Be Funded	Fund Description
Real Estate						
Aetna	$1,573	4/82	$40,000,000	$40,000,000	$0	OpenEnd/Diversified
AEW III	103	9/85	20,000,000	20,000,000	0	Closed/Diversified
AEW IV	86	9/86	15,000,000	15,000,000	0	ClosedEnd/Diversified
AEW V	82	12/87	15,000,000	15,000,000	0	ClosedEnd/Diversified
Equitable	3,613	10/81	40,000,000	40,000,000	0	OpenEnd/Diversified
Heitman I	113	8/84	20,000,000	20,000,000	0	ClosedEnd/Diversified
Heitman II	238	11/85	30,000,000	30,000,000	0	ClosedEnd/Diversified
Heitman III	200	1/87	20,000,000	20,000,000	0	ClosedEnd/Diversified
Paine Webber*	124	2/90	500,000	500,000	0	Closed End/Diversified
RREEF	773	9/84	75,000,000	75,000,000	0	ClosedEnd/Diversified
TCW III	216	8/85	40,000,000	40,000,000	0	ClosedEnd/Diversified
TCW IV	250	11/86	30,000,000	30,000,000	0	ClosedEnd/Diversified
Real Estate Total			**$345,500,000**	**$345,500,000**	**$0**	
Resource (Oil & Gas)						
AMGO I	$144	9/81	$15,000,000	$15,000,000	$0	Debt with Equity
AMGO II	36	2/83	7,000,000	7,000,000	0	Debt with Equity
AMGO IV	75	7/88	12,300,000	12,300,000	0	Debt with Equity
AMGO V	85	5/90	16,800,000	9,745,020	7,054,980	Debt with Equity
Apache I	100	5/84	1,981,735	1,981,735	0	Debt with Equity
Apache III	190	12/86	30,000,000	30,000,000	0	Net Profits Interest
British Pet.	500	2/89	25,000,000	25,000,000	0	Royalty
Morgan O&G	135	8/88	15,000,000	10,800,000	4,200,000	Debt with Equity
Resource Totals			**$123,081,735**	**$111,826,755**	**$11,254,980**	

(Continued on following page)

Table 9 Con't.

ALTERNATIVE ASSETS

Summary of Commitments
As of June 30, 1991

	Total Fund Size (Millions)	SBI Inception Date	SBI Commitment	SBI Funded	SBI To Be Funded	Fund Description
Venture Capital						
Allied	$40	9/85	$5,000,000	$5,000,000	$0	Later Stage
DSV	60	4/85	10,000,000	10,000,000	0	Early Stage
First Century	100	12/84	10,000,000	8,500,000	1,500,000	Early Stage
Brinson	50	5/88	5,000,000	4,787,202	212,798	Secondary Interests
Brinson II	110	7/90	20,000,000	4,000,000	16,000,000	Secondary Interests
Golder Thoma	225	10/87	14,000,000	7,000,000	7,000,000	Later Stage
IAI Ventures I*	40	3/91	500,000	450,000	50,000	Early Stage
IAI Ventures II	64	7/90	10,000,000	1,767,637	8,232,363	Early Stage
Inman/Bowman	44	6/85	7,500,000	5,250,000	2,250,000	Early Stage
KKR 1984 Fund	1,000	3/84	25,000,000	25,000,000	0	LBO
KKR 1986 Fund	2,000	12/85	18,365,339	18,365,339	0	LBO
KKR 1987 Fund	5,600	10/87	146,634,660	127,164,179	19,470,481	LBO
KKR 1991 Fund	1,200	5/91	150,000,000	0	150,000,000	LBO
Matrix	70	8/85	10,000,000	10,000,000	0	Early Stage
Matrix II	80	5/90	10,000,000	2,125,000	7,875,000	Early Stage
Norwest	60	1/84	10,000,000	10,000,000	0	Early Stage
Summit I	93	12/84	10,000,000	10,000,000	0	Later Stage
Summit II	230	5/88	30,000,000	19,500,000	10,500,000	Later Stage
Superior	35	6/86	6,645,000	4,651,500	1,993,500	Early Stage-Mn.
T. Rowe Price	--	11/87	5,782,964	5,782,964	0	IPO Manager
Zell/Chilmark	1,000	7/90	30,000,000	0	30,000,000	Restructuring
Venture Capital Totals			**$534,427,963**	**$279,343,821**	**$255,084,142**	

SUMMARY

Real Estate Totals	$345,500,000	$345,500,000	$0
Resource Totals	123,081,735	111,826,755	11,254,980
Venture Capital Totals	534,427,963	279,343,821	255,084,142
GRAND TOTALS	**$1,003,009,698**	**$736,670,576**	**$266,339,122**

* Received from Police & Fire Fund Consolidation

TIME-WEIGHTED RATE OF RETURN

In measuring the performance of a manager or fund whose investment objective is to maximize the total value of an investment portfolio, the proper measuring tool is the time-weighted total rate of return. This performance measure includes the effect of income earned as well as realized and unrealized portfolio market value changes. In addition, the time-weighted total rate of return nets out the influence of contributions made to and distributions taken from the manager or fund. These are variables over which the manager or fund generally has no control.

The calculation of a portfolio's true time-weighted return requires that the portfolio be valued every time that there is a capital flow in or out. Because most portfolios are not valued that frequently, it is usually necessary to estimate the time-weighted total rates of return by approximating the required valuations.

In 1968, the Bank Administration Institute (BAI) commissioned a study, conducted by the University of Chicago, which considered desirable methods of estimating time-weighted returns. The BAI report is considered to be the definitive work in the field of performance measurement because of the academic reputations and thorough scientific efforts of its authors.

When monthly data are available, the BAI study recommends employing a technique called the linked internal rate of return (LIRR). State Street Bank, the SBI's performance measurement consultant, calculates the LIRR by solving the following equation for R:

$$VB \cdot (1+R) + \sum_{i=1}^{n} C_i \cdot (1+R)^{ti} = VE$$

Where:

VB = Value of the fund at the beginning of the month

VE = Value of the fund at the end of the month

C_i = Net cash flow on the ith day of the month

n = Number of cash flows in the month

R = Internal rate of return

ti = Time from cash flow i to the end of the period, expressed as a percentage of the total number days in the month

The internal rate of return, R, is a proxy for the true time-weighted return over the month. It approximates the interim valuations by assuming a uniform growth of the invested assets throughout the period.

The IRR's calculated for each month can be linked together to estimate the time-weighted return for a longer period. For example, given three consecutive monthly IRR's (R1, R2, and R3), the quarterly time-weighted return (TWRQ) is:

$$TWRQ = (1+R1)\cdot(1+R2)\cdot(1+R3) - 1$$

BENEFIT INCREASE FORMULA

In order to support currently promised benefits, the Post Retirement Investment Fund must generate 5% realized earnings on its invested assets each year. All realized earnings in excess of 5% are used to finance permanent lifetime benefit increases for current retirees. The benefit increase calculation is specified in Minnesota Statutes Chapter 11A.18, subdivision 9. A summary of the methodology is shown below:

Investment Earnings (1)	–	Required Return of 5% (2)	=	Income Available for Benefit Increase
Income Available for Benefit Increase	÷	Required Reserves(3)	=	Benefit Increase (4)

(1) Investment earnings are defined as dividends, interest, accruals and realized capital gains or losses applicable to the most recent fiscal year ending June 30.

(2) Each cash flow in or out of the Post Fund is adjusted by 5% multiplied by the fraction of a year from the date of the cash flow to the end of the fiscal year on June 30.

(3) Total required reserves are calculated by the State's actuary retained by the Legislative Commission on Pensions and Retirement.

(4) A retiree who has been receiving an annuity or benefit for at least one year as of the end of the fiscal year will receive the full benefit increase. A retiree who has been receiving an annuity or benefit for less than one year will receive one twelfth of the full increase for each month the person was retired during the fiscal year. Full or partial increases are effective beginning January 1 of the following calendar year.

EXTERNAL STOCK AND BOND MANAGER FEES

Total Payments for Fiscal Year 1991

Active Stock Managers (1)	
Alliance Capital	$ 1,281,935
Concord Capital Management*	44,357
Forstmann Leff Associates	589,939
Franklin Portfolio Associates	545,470
GeoCapital Corp.	679,760
IDS Advisory	391,237
Investment Advisers Inc.	121,604
Lieber & Company	1,284,752
Rosenberg Institutional Equity Management	845,323
Sasco Capital, Inc.*	28,741
Waddell & Reed	325,873
Passive Stock Manager (2)	
Wilshire Associates	$ 415,235
Active Bond Managers (2)	
Investment Advisers Inc.	$ 241,518
Lehman Management	228,537
Miller, Anderson & Sherrerd	386,762
Western Asset Management	490,773
Semi-Passive Bond Managers(3)	
Fidelity Management Trust	$ 524,051
Lincoln Capital Management	295,410

* Manager terminated during fiscal year 1991.

(1) Active stock managers are compensated on a performance-based fee formula. Fees earned may range from zero to twice the manager's base fee, depending on the manager's performance relative to an established benchmark.

(2) The passive stock manager and active bond managers are compensated based on a specified percentage of assets under management.

(3) The semi-passive bond managers are compensated on a performance-based fee formula. Fees earned may range from 5 to 10 basis points of assets under management, depending on the manager's performance relative to an established benchmark.

COMMISSIONS AND TRADING VOLUME

By Broker for Fiscal Year 1991

Broker	Stock $ Volume	Stock $ Commissions	Bond $ Volume	Bond $ Commissions	Short Term $ Volume
ABD Securities	$ 677,560	$ 560	$ 0	$ 0	$ 0
Abel/Noser Corp.	20,933,146	40,496	0	0	0
Adams Harkness & Hill	4,967,574	8,609	0	0	0
Adler, Coleman & Co.	10,881,313	15,192	0	0	0
Allison-Williams	0	0	839,790	0	0
Associates Corp. of N.A.	0	0	0	0	155,000,000
Autranet	77,932,541	109,285	6,162,094	1,770	0
BHS Securities	0	0	5,537,988	0	0
Bank of America	0	0	3,000,000	0	62,000,000
Bankers Trust	0	0	0	0	20,000,000
Barclays American Corp.	0	0	15,678,797	0	109,343,420
Bateman Eichler	171,571	571	0	0	0
Baum George K. & Co.	1,885,043	1,841	0	0	0
Bear Stearns & Co.	109,857,050	204,768	46,491,127	0	0
Bernstein, Sanford & Co.	42,890,988	79,992	0	0	0
Birr, Wilson & Co.	2,332,002	1,913	0	0	0
Blair & Co.	2,066,700	1,800	0	0	0
Blunt Ellis & Loewi	3,283,425	2,772	0	0	0
Brandt (Robert) & Co.	7,871,925	17,638	0	0	0
Brean Murray	525,438	376	0	0	0
Bridge Trading Co.	89,608,796	139,394	0	0	0
Broadcort Capital	130,830,122	223,811	3,197,902	0	0
Brown (Alex) & Sons, Inc.	24,433,534	30,808	0	0	0
Brown Bros. Harriman	3,713,967	9,550	0	0	0
BT Securities Corp.	0	0	0	0	35,000,000
Burns Fry & Timmins	1,665,580	2,902	0	0	0
Cantor Fitzgerald	146,300,237	239,671	0	0	0
Capital Inst. Services	13,449,682	22,060	4,485,938	703	0
Carolina Securities	0	0	21,109,887	0	0
Carroll McEntee & McGinley	0	0	30,331,859	0	0
Charles Schwab & Co., Inc.	5,810,847	13,233	0	0	0
Chase Govt. Securities Inc.	0	0	2,000,000	0	0
Chase Manhattan Bank	0	0	34,547,744	0	22,406,000
Chemical Bank New York	0	0	0	0	2,000,000
CIT Group Holdings	0	0	0	0	60,000,000
Citibank	0	0	0	0	14,934,204
Citicorp	0	0	0	0	1,900,000
Citicorp Sec. Markets, Inc.	0	0	16,065,625	0	311,500,000
CL Glazer Inc.	4,832,956	8,764	0	0	0
Commercial Credit Co.	0	0	0	0	101,692,000
Conning & Co.	1,152,763	2,422	0	0	0
Continental Bank (CHI)	0	0	0	0	4,200,000
Continental Illinois Bank & Trust	0	0	10,184,375	0	0
County Natwest Securities Corp.	25,352,224	55,539	0	0	0
Cowen & Co.	41,461,641	44,164	0	0	0
Cronin & Co.	0	0	283,941	0	0
CRT Govt. Securities Ltd.	0	0	279,838,658	0	24,592,508,000
Cyrus J. Lawrence	2,171,688	4,072	3,677,832	0	0
Dain Bosworth, Inc.	11,801,969	12,872	116,091	0	0
Daiwa Sec. America	0	0	43,036,164	0	25,000,000
Daniels & Bell	366,208	1,680	0	0	0
Dean Witter Reynolds	19,909,862	34,320	88,287,100	0	11,512,500,000
Deere & Co.	0	0	0	0	40,000,000
Delafield, Harvey Tabell	1,314,250	6,250	0	0	0
Dillon Read	10,657,722	24,790	137,080,202	0	1,423,929,000
Discount Corp. NY	0	0	74,835,938	0	0
Discover Credit Corp.	0	0	0	0	46,000,000
DLJ Fixed Income	0	0	42,931,300	0	0
Dominick & Dominick	1,198,198	2,060	0	0	0
Donaldson Lufkin	22,938,011	40,153	9,421,368	10,575	0
Edwards - Bond Service	0	0	2,762,108	0	0
Edwards A.G. & Sons	467,625	0	1,006,820	0	0
Ernst & Co.	101,710,959	181,430	0	0	0
Execution Services Inc.	19,320,612	42,996	0	0	0
Exxon Credit Corp.	0	0	0	0	27,000,000
Factset Data	1,900,326	3,025	0	0	0
Fahnestock & Co.	11,231,898	14,720	0	0	0
FBS Investment Services Inc.	0	0	2,906,719	0	4,305,000
Federal Reserve Mpls.	0	0	59,519,700	0	0
First Albany	1,836,961	2,032	0	0	0
First Bank Nat'l. Assoc.	62,505,048	68,993	120,389,725	0	7,520,000
First Boston Corp.	48,271,044	31,253	186,889,441	0	53,700,000

COMMISSIONS AND TRADING VOLUME

By Broker for Fiscal Year 1991

Broker	Stock \$ Volume	Stock \$ Commissions	Bond \$ Volume	Bond \$ Commissions	Short Term \$ Volume
First Chicago Capital Markets Inc.	\$ 0	\$ 0	\$ 0	\$ 0	\$ 60,000,000
First Chicago Corp.	201,710	0	0	0	0
First Manhattan Company	30,802,539	57,932	0	0	0
First Nat'l. Bank Chicago	0	0	0	0	5,946,161
First Southwest Co.	84,375	0	0	0	0
Ford Financial Services	0	0	0	0	97,002,000
Fourteen Research Corp.	3,263,871	3,255	0	0	0
Freeman Securities	0	0	779,709	0	0
Furman Selz Mager	1,615,236	840	0	0	0
Garat & Co.	0	0	6,576,222	0	0
General Electric Capital Corp.	0	0	0	0	313,769,000
General Electric Financial Serv.	0	0	0	0	25,000,000
General Motors Acceptance	0	0	0	0	162,600,000
Gerard Klaver Madison	3,327,004	3,560	0	0	0
Goldman Sachs & Co.	121,264,469	152,876	741,985,382	71,708	189,800,000
Goldman Sachs Money Mkt. Inc.	0	0	0	0	40,000,000
Goodrich Securities	1,333,144	4,215	0	0	0
Gordon Haskett & Co.	1,802,800	20,740	0	0	0
Greenwich Capital Markets, Inc.	0	0	251,880,382	0	978,538,000
Gruntal & Co.	3,971,021	5,634	0	0	0
GX Clarke	0	0	0	0	120,000
Heller Financial, Inc.	0	0	0	0	194,100,000
Herzog Heine Geduld	5,920,707	7,180	0	0	0
Household Finance	0	0	0	0	109,700,000
Howard Weil Labouisse	371,700	450	0	0	0
Impact Securities Co.	2,395,351	3,841	0	0	0
Income Reinvestment	0	0	463,438	0	0
Instinet	338,947,129	500,226	0	0	0
Institutional	0	0	7,378,924	0	0
Interstate	450,896	0	0	0	0
Invemed Associates	297,280	452	0	0	0
ITT Financial Sec. Inc.	0	0	0	0	145,000,000
J.C. Bradford & Co.	898,011	1,425	0	0	0
J.C. Sargent Securities	0	0	1,503,736	0	0
J.P. Morgan & Co.	0	0	51,136,811	0	75,000,000
J.P. Morgan Securities Inc.	0	0	127,908,721	0	146,250,000
Janney Montgomery Scott	84,108	189	0	0	0
Jefferies & Co.	217,667,090	305,134	0	0	0
Jessup & Lamont	7,116,227	10,614	0	0	0
Jones & Assoc.	37,494,430	56,780	0	0	0
Keefe Bruyette & Woods	1,114,063	3,875	0	0	0
Kidder Peabody	33,872,590	67,532	262,115,153	4,375	2,205,157,692
Lazard Freres & Co.	1,244,287	3,655	7,731,077	0	0
Legg Mason	353,843	1,260	0	0	0
Lehman Bros. Inc.	19,557,261	23,357	109,574,605	110,000	184,200,000
Lehman Brothers Inc.	0	0	129,433,504	0	128,000,000
Lehman Govt. Securities	0	0	102,358,953	0	327,100,000
Lewco Securities, Inc.	34,972,112	51,682	0	0	0
Lieber & Company	51,068,586	128,740	0	0	0
Lipper Analytical Dist.	3,583,142	4,340	0	0	0
Lynch, Jones & Ryan	47,254,772	89,848	0	0	0
Mabon Nugent & Co.	2,961,618	9,609	0	0	5,050,486
Manufacturers Hanover Sec. Corp.	0	0	0	0	422,073,121
Manufacturers Hanover Trust	0	0	0	0	1,000,000
Marquette National Bank	0	0	10,078,781	0	29,175,000
Mayer & Schweitzer Inc.	383,725	0	0	0	0
McDonald & Company	4,049,886	8,057	0	0	0
Merrill Lynch PF&S	166,557,002	264,508	292,004,512	0	3,841,338,383
Mesirow & Company	4,314,900	12,852	0	0	0
Montgomery Securities	74,813,644	142,231	1,100,850	0	0
Morgan Guaranty	277,854,128	322,257	166,420,610	0	27,487,404
Morgan Kegan Inc.	272,561	336	0	0	0
Morgan Stanley & Co.	139,331,387	127,586	165,739,301	51,133	0
National City Bank Mpls.	48,304,900	87,125	0	0	150,567,337
National Financial	5,707,591	8,403	0	0	0
Needham Securities	298,125	0	0	0	0
Neuberger & Berman	6,042,709	12,033	0	0	0
Newbridge Securities	741,875	1,750	0	0	0
Nomura Securities Int'l.	2,731,868	4,829	148,844,712	16,165	839,837,000
Norwest Investment Services Inc.	0	0	2,000,000	0	229,370,000
Oppenheimer & Co.	36,675,997	56,548	0	0	0
Oscar Grussman	467,531	1,771	0	0	0
Paine Webber Inc.	51,999,057	73,710	32,837,829	313	0

COMMISSIONS AND TRADING VOLUME

By Broker for Fiscal Year 1991

Broker	Stock $ Volume	Stock $ Commissions	Bond $ Volume	Bond $ Commissions	Short Term $ Volume
Paine Webber J & C	$ 32,697,804	$ 49,268	$ 13,764,860	$ 0	$ 2,374,819
Penney J.C. Funding Corp.	0	0	0	0	20,000,000
Pershing	19,402,624	33,324	0	0	0
Pforzheimer Carl H.	65,766	315	0	0	0
Piper Jeffray & Hopwood	8,482,158	11,613	2,580,000	0	0
Piper G.W. & Co.	0	0	2,113,950	0	0
PNC Securities Inc.	0	0	0	0	45,000,000
Prescott Ball & Turban	6,285,285	11,723	0	0	0
Prudential	35,278,859	41,962	49,148,278	0	0
Prudential Securities Inc.	8,884,711	19,462	86,416,543	0	3,715,000
Rauscher Pierce Refsnes	3,294,369	9,397	0	0	0
Raymond James & Associates	2,578,281	1,966	0	0	0
RBC Dominion Securities	1,416,526	6,120	0	0	0
Reynders Gray & Co.	2,581,141	4,340	0	0	0
Robert Fleming	565,723	0	0	0	0
Robert W. Baird & Co.	83,437	0	0	0	0
Robertson Colman & Stephens	5,236,454	5,456	0	0	0
Robinson-Humphrey Co.	8,362,171	10,534	0	0	0
Rodman & Renshaw	4,947,314	6,504	0	0	0
Roulston & Company	5,111,355	8,364	0	0	0
Salomon Brothers	89,620,697	105,783	626,788,566	12,500	891,339,262
Sanwa-BGK	0	0	10,367,227	0	0
Sears Roebuck Acceptance	0	0	0	0	317,270,000
Securities Settlement Corp.	34,224	62	0	0	25,200,000
Security Pacific Bank	0	0	0	0	30,000,000
Security Pacific National Bank	0	0	0	0	30,000,000
SEI Funds Evaluation	1,744,020	3,278	0	0	0
Shearson American Express	55,102,086	86,519	732,579,406	0	31,186,485
Sherwood Securities	298,344	0	0	0	0
Smith R.D.	0	0	30,313	0	0
Smith Barney & Company	46,495,761	80,254	23,732,763	0	1,300,901,817
Standard & Poor Securities	2,075,601	14,260	0	0	0
State Board of Investment	12,579,716	0	0	0	0
State Street Bank & Trust	1,059,300	0	0	0	3,304,305,665
Stechler Associates	0	0	1,477,969	0	0
Stephens, Inc.	0	0	406,210	0	0
Sutro & Company, Inc.	3,069,014	4,530	0	0	0
The Chicago Corp.	1,468,880	2,670	0	0	0
Toronto Domin	0	0	0	0	3,000,000
Troster Singer	58,438	0	0	0	0
Tucker Anthonly & R.L. Day, Inc.	360,499	0	0	0	0
UBS Securities	7,774,473	1,910	13,087,972	0	0
UBS-DB Corporation	1,368,987	1,294	0	0	0
Union Bank of L.A.	0	0	1,025,000	0	0
W & D Securities	2,399,863	11,005	0	0	0
Wagner Stott & Co.	83,865,264	103,811	0	0	0
Warburg S.G.	5,127,658	13,572	0	0	0
Watkins & Co.	0	0	2,406,432	0	0
Weeden & Company	62,153,413	122,041	0	0	0
Wertheim Schroder & Co. Inc.	2,657,041	8,012	1,000,000	0	0
Wessels, Arnold & Henderson	1,460,655	0	0	0	0
Westinghouse Securities Corp.	0	0	10,000,000	0	130,000,000
Wheaton First Securities, Inc.	1,085,132	0	0	0	0
William Blair & Co.	727,719	0	0	0	0
Wilshire Associates	13,373,670	20,827	0	0	0
Broker Unavailable*	1,431,473,644	191,078	1,704,126,651	4,730	2,377,345,353
All Brokers Combined	$ 4,861,037,334	$ 5,383,267	$ 7,153,521,581	$ 283,971	$ 58,077,257,609

* Includes transactions where broker data was incomplete.

** Totals may not add due to rounding.

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Minnesota State Board of Investment
Room 105, MEA Building
55 Sherburne Avenue
St. Paul, MN 55155
(612)296-3328