
**1988
ANNUAL
REPORT**

**MINNESOTA STATE
BOARD OF
INVESTMENT**

1988 ANNUAL REPORT

MINNESOTA STATE BOARD OF INVESTMENT

Governor Rudy Perpich

State Auditor Arne H. Carlson

State Treasurer Michael A. McGrath

Secretary of State Joan Anderson Growe

Attorney General Hubert H. Humphrey III

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 state wide 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 four committees organized around broad investment subjects relevant to the Board's decision-making: Asset Allocation, Equity Managers, Fixed Income 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

Henry H. Adams, Jr.	Executive Sec. & Investment Mgr., Mpls. Teachers Ret. Fund
John E. Bohan	Vice President, Pension Investments, The Pillsbury Co.
James R. Eckmann	Assistant Treasurer, Dayton-Hudson Corporation
Elton Erdahl	Executive Director, Teachers Retirement Association
Paul L. Groschen	Executive Director, Minnesota State Retirement System
Kenneth F. Gudorf	CFO & Vice President of Finance, The Carlson Cos., Inc.
James M. Hacking	Executive Director, Public Employees Retirement Assoc.
Vernell Jackels	Active Employee Representative
David B. Jeffery	Vice President and Resident Manager, Shearson Hamill
Judith W. Mares	Board Appointee
Malcolm W. McDonald**	Director & Corporate Secretary, Space Center, Inc.
Gary R. Norstrem	City Treasurer, City of St. Paul
Joseph T. Rukavina	Active Employee Representative
Thomas J. Triplett	Commissioner, Minnesota Department of Finance
Raymond B. Vecellio	Retiree Representative
Deborah Veverka	Manager, Pension Investments, Honeywell, Inc.
Jan Yeomans*	Director, Benefit Funds & Financial Markets, 3M Co.

*Chair

**Vice-Chair

CONSULTANT

Richards & Tierney, Inc.

INVESTMENT BOARD STAFF

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

Internal Money Management - Stocks and Bonds

Mark Edwards	Senior Portfolio Manager, Equities
A. Arthur Kaese	Senior Equity Analyst
N. Robert Barman	Senior Fixed Income Analyst
Arthur M. Blauzda	Senior Analyst, Shareholder Services
Harold L. Syverson	Security Trader

Internal Money Management - Cash Accounts

Grant A. Feldman	Manager, Short Term Accounts
John T. Kinne	Portfolio Manager, Short Term

External Money Management

Doug Gorence	Manager, External Equities
John Griebenow	Manager, Alternative Investments
Roger W. Henry	Manager, Fixed Income*
James H. Lukens	Investment Analyst, Fixed Income & Alt. Investments
Michael J. Menssen	Investment Analyst, Equities
Deborah F. Griebenow	Investment Analyst, Management Reporting

* Responsible for internal and external fixed income programs

Administrative Staff

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

MEMBERS OF THE BOARD:

**GOVERNOR RUDY PERPICH
STATE AUDITOR ARNE H. CARLSON
STATE TREASURER MICHAEL A. McGRATH
SECRETARY OF STATE JOAN ANDERSON GROWE
ATTORNEY GENERAL HUBERT H. HUMPHREY III**



**EXECUTIVE DIRECTOR
HOWARD J. BICKER**

**STATE OF MINNESOTA
STATE BOARD OF INVESTMENT**

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55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

The Minnesota State Board of Investment is pleased to submit its 1988 Annual Report.

Fiscal year 1988 was a difficult period for institutional investors, primarily due to the poor performance of the stock market. After three years of spectacular growth, the stock market fell precipitously in October 1987. While this event was dramatic, the funds managed by the Board have produced substantial positive annualized returns in recent years. This report reflects the performance of the individual funds managed by the State Board of Investment during fiscal year 1988 as well as returns produced over the last five years.

Several events should be highlighted for the year:

- **The Post Retirement Investment Fund generated earnings that will provide a life-time benefit increase of 6.9% for eligible retirees beginning January 1989. This is considerably above the calendar year 1988 inflation rate. The Post Fund continued to benefit from the high inflation-adjusted yields available in the bond market during recent years. (Refer to page 27.)**
- **The Basic Retirement Funds, the largest group of funds managed by the Board, produced a total rate of return of -0.3% for fiscal year 1988. Over the last five fiscal years the Basic Funds have generated a cumulative return of 78%, excluding alternative assets. This cumulative return was largely the result of the Board's asset allocation policy, which allowed the Basic Funds to take advantage of the superior returns available in the capital markets in prior years. (Refer to page 7).**
- **The Board obtained new investment authority to invest in international securities under legislation adopted during the 1988 legislative session. The Board expects to develop a program utilizing international securities over the next one to two years. (Refer to page 71.)**
- **The Board adopted a set of specific evaluation guidelines which form a "manager continuation policy." The guidelines include qualitative and quantitative performance criteria that assist the Board in its decisions concerning the retention and termination of money managers. (Refer to page 75.)**

- **A passive component was developed for the fixed income segment of the Basic Retirement Funds. Beginning in fiscal year 1989, approximately one half of the bond segment of the Funds will be invested using an enhanced indexation strategy. (Refer to page 78.)**

On June 30, 1988, the Board's portfolio totaled \$12.9 billion. This amount is actually a composite 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 clearly 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,

A handwritten signature in cursive script that reads "Howard Bicker".

Howard J. Bicker
Executive Director

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PART TWO of the Minnesota State Board of Investment's 1988 Annual Report contains financial statements, asset listings and accounting data.

INTRODUCTION

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.

Prudent Person Rule

The prudent person rule 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.*"

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, policy asset mix, investment management structure, and specific performance standards.

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 Fund. The results of these studies represent the "roadmap" by which the SBI manages these funds. The Board intends periodically to revise the

INTRODUCTION

investment policies established for each fund. Most recently, the Basic Retirement Funds' investment policies were thoroughly reviewed and updated.

The annual report is divided into two separate publications:

- **Part One.** This volume 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.
- **Part Two.** The second volume contains financial statements, asset listings and accounting data.

FUNDS UNDER MANAGEMENT

Basic Retirement Funds

Post Retirement Investment Fund

Supplemental Investment Fund

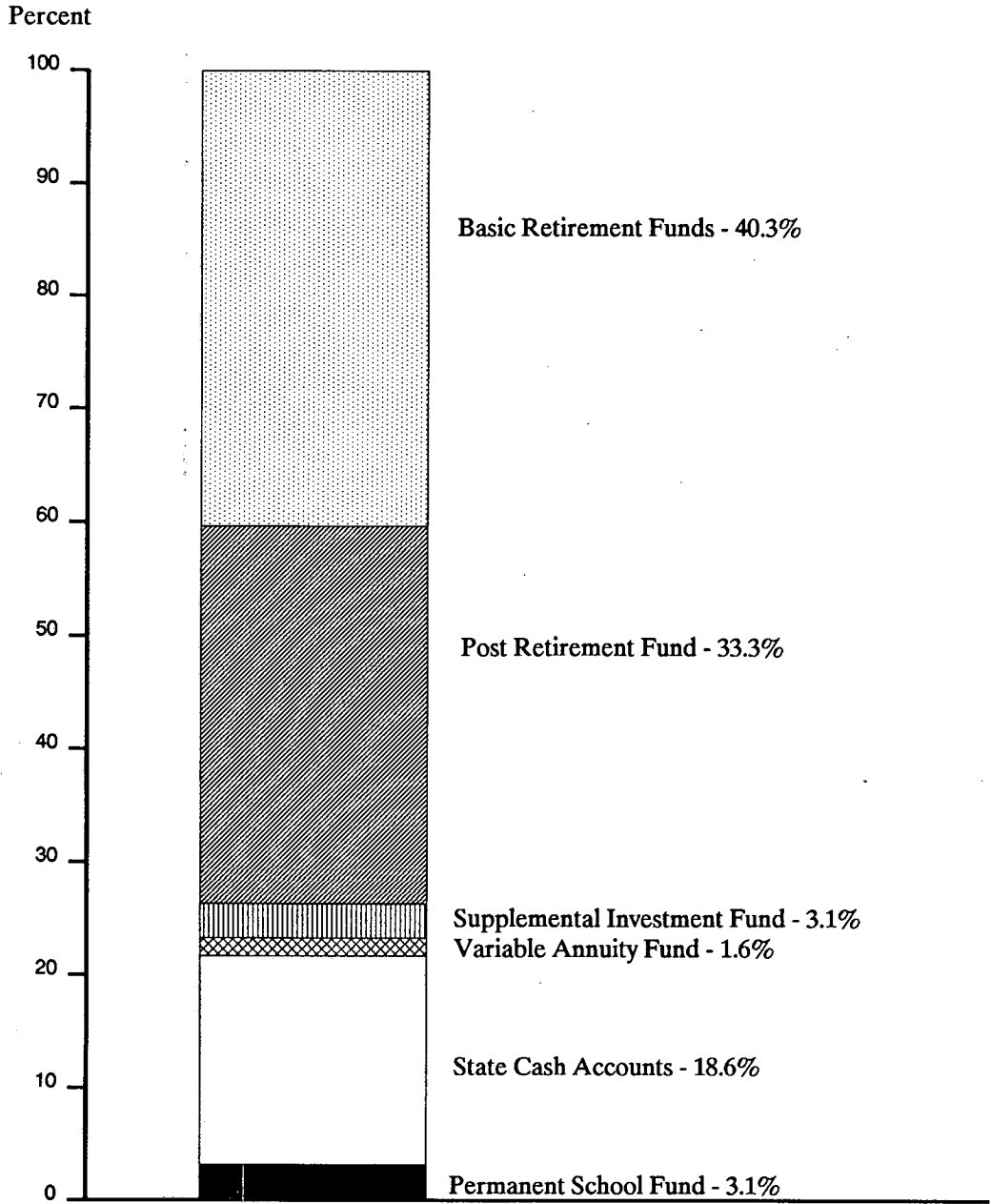
Variable Annuity Fund

State Cash Accounts

Permanent School Fund

Composition By Fund

June 30, 1988



FUNDS UNDER MANAGEMENT

**Market Value
June 30, 1988**

Basic Retirement Funds

\$ 5.2 billion

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

• Teachers Retirement Fund	\$ 2,247 million
• Public Employees Retirement Fund	1,352 million
• State Employees Retirement Fund	1,047 million
• Public Employees Police and Fire Fund	441 million
• Highway Patrol Retirement Fund	78 million
• Judges Retirement Fund	3 million
• Police and Fire Consolidation Fund	6 million
• Correctional Employees Fund	51 million

Post Retirement Investment Fund

\$ 4.3 billion

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

Supplemental Investment Fund

\$ 0.4 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 have a choice among six separate accounts with different investment emphases designed to meet a wide range of investor needs and objectives.

• Income Share Account	\$ 216 million
• Growth Share Account	83 million
• Common Stock Index Account	3 million
• Bond Market Account	1 million
• Money Market Account	76 million
• Guaranteed Return Account	22 million

Variable Annuity Fund

\$ 0.2 billion

The Variable Annuity Fund is an investment option concentrating on common stocks which formerly was offered to members of the Teachers Retirement Association. It is not available to new members.

State Cash Accounts

\$ 2.4 billion

These accounts are composed of high quality, short-term debt investments. They include the Invested Treasurers Cash Fund, transportation funds, and other miscellaneous cash accounts.

Permanent School Fund

\$0.4 billion

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

Total

\$12.9 billion

BASIC RETIREMENT FUNDS

Investment Objectives

Asset Allocation

Investment Management

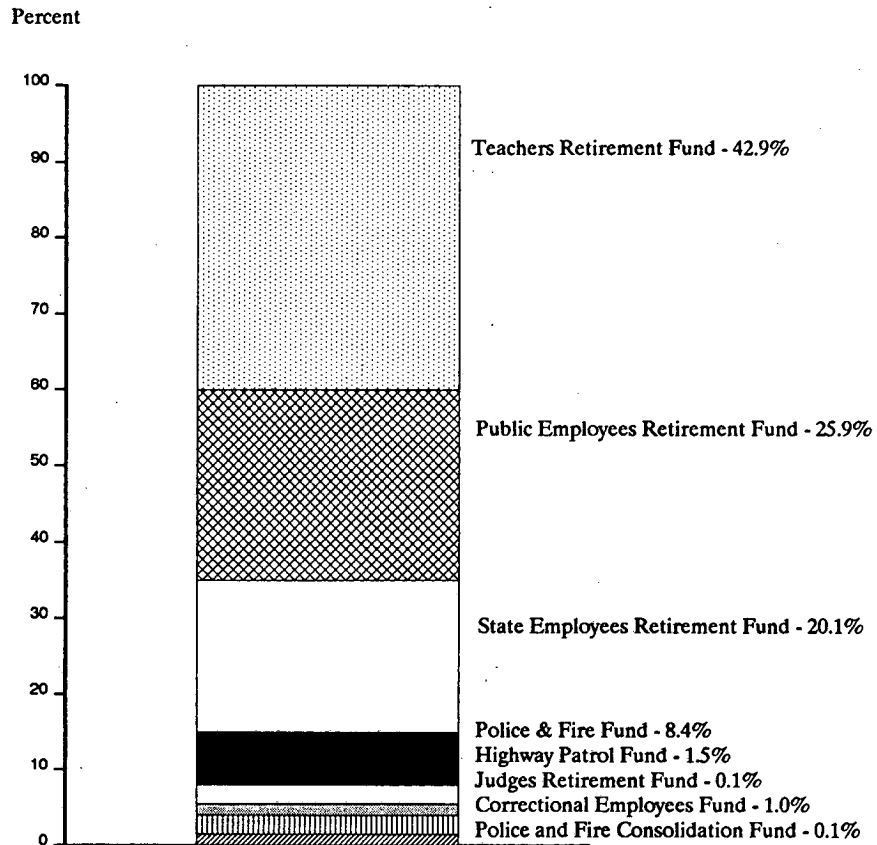
Investment Performance

BASIC RETIREMENT FUNDS

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

Figure 1 identifies the individual retirement funds which comprise the Basic Funds. The Funds serve as accumulation pools in which the pension contributions of public employees and their employers are placed during the employees' years of active service. Approximately 200,000 public employees participate in the Basic Funds. On June 30, 1988 the market value of the Funds was \$5.2 billion.

*Figure 1.
Participating
Funds
FY 1988*



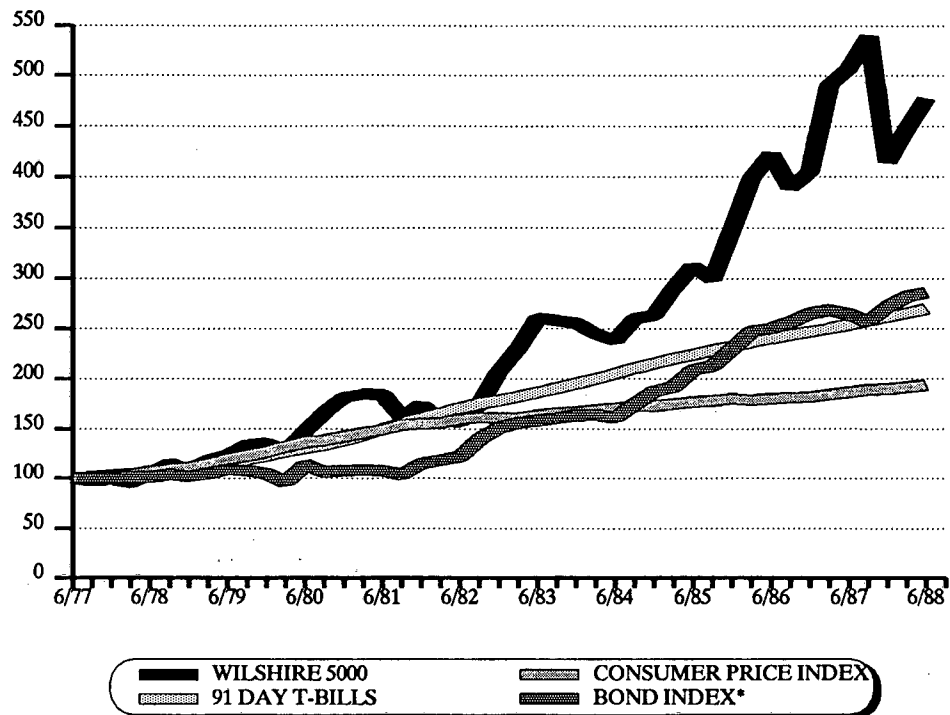
INVESTMENT OBJECTIVES

The State Board of Investment (SBI) pursues several investment objectives in the management of the Basic Funds' assets. In order of importance, those objectives are:

- To generate total returns sufficient to finance the benefits promised public employees covered by the statewide retirement funds.
- To generate additional total returns that will allow a reduction in employer/employee contributions or an increase in promised benefits.
- To avoid excessive volatility in portfolio returns over the short-run.

The Board's primary responsibility is to ensure that sufficient funds are available to finance promised benefits. However, other investment objectives are also important. Based upon the Basic Funds' adequate funding levels and participant demographics, its investment time horizon is

*Figure 2.
Performance of
Capital Markets
1978-1988*



* Merrill Lynch through 12/79; Salomon Broad thereafter

quite long. This extended time horizon permits the Board to take advantage of the long-run return opportunities offered by the capital markets. As illustrated in the capital markets chart in Figure 2, historical evidence strongly supports the position that long-run investment results are highly correlated with short-run volatility of returns. Thus, the Board seeks to reduce the cost of pension funding through an aggressive, high expected return investment policy which incorporates a sizable equity component. The Board is cognizant, however, that excessive short-run return volatility is undesirable. As a result, the Basic Funds' investment policy also is designed to limit extreme portfolio return results.

ASSET ALLOCATION

The allocation of assets among common stocks, bonds, cash equivalents, 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 mix for the Basic Funds.

**Policy
Asset Mix**

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 policy asset allocation for the Basic Funds:

- Common Stocks 60.0%
- Bonds 22.0%
- Cash Equivalents 3.0%
- Real Estate 10.0%
- Venture Capital 2.5%
- Resource Funds 2.5%

Figure 3 presents the actual asset allocation of the Basic Funds at the end of the 1988 fiscal year. Historical data on the Basic Funds' actual asset mix over the last five years are displayed in Figure 4.

BASIC RETIREMENT FUNDS

Total Return Vehicles

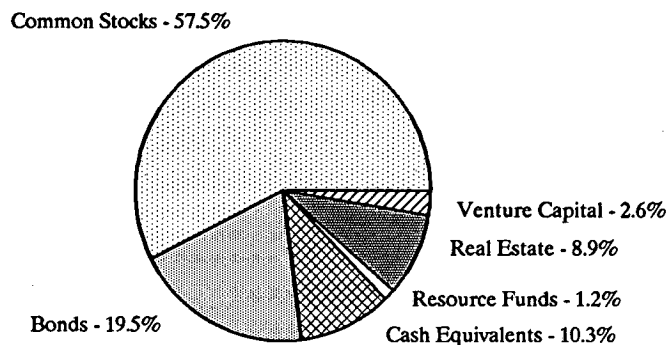
The SBI invests the majority of the Basic Funds' assets in common stocks. This large allocation is consistent with the investment time horizon of the Basic Funds and the advantageous long-term risk-return characteristics of common stocks. The rationale underlying the venture capital allocation is similar. However, the relatively small size of the venture capital market limits the allocation 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, higher fixed income allocation policy. 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 more than compensate for the additional volatility.

Inflation Hedge

The Board includes other asset classes in the Basic Funds' asset mix both to protect against debilitating

Figure 3.
Asset Mix
June 30, 1988



	\$Million	Actual	Policy
Common Stocks	\$3,006	57.5%	60.0%
Bonds	1,018	19.5	22.0
Cash Equivalents*	539	10.3	3.0
Alternative Assets:			
Real Estate	462	8.9	10.0
Venture Capital	135	2.6	2.5
Resource Funds	64	1.2	2.5
Total	\$5,224	100.0%	100.0%

*includes cash uncommitted to long-term assets plus all cash held by external managers

economic environments and to diversify the portfolio sufficiently to avoid excessive return volatility. Real estate and resource fund 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 normal financial conditions, the returns on these assets are not highly correlated with common stocks. Thus, their inclusion in the portfolio serves to dampen return volatility.

Deflation Hedge

The fixed income component (bonds and cash equivalents) of the Basic Funds' total portfolio 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 not only protect principal but generate significant capital gains as well. And, like real estate and resource funds, under normal financial conditions fixed income securities help to diversify the Basic Funds' total portfolio, thereby controlling return volatility.

INVESTMENT MANAGEMENT

Common Stock Segment

The SBI utilizes a two-part approach to the management of the Basic Funds' common stock segment:

- a large passive portfolio (i.e., an index fund). At the end of fiscal year 1988, nearly three quarters of the stock segment was passively managed.
- a smaller group of non-diversified actively managed portfolios.

An **index fund** is a well-diversified portfolio of common stocks designed to match the rate of return performance of a predetermined stock market index. The index fund utilized by the SBI tracks the Wilshire 5000, a broad-based equity market indicator composed of the common stocks of all U.S.-domiciled corporations for which daily prices are available. In effect, the Wilshire 5000 represents virtually the entire domestic common stock market.

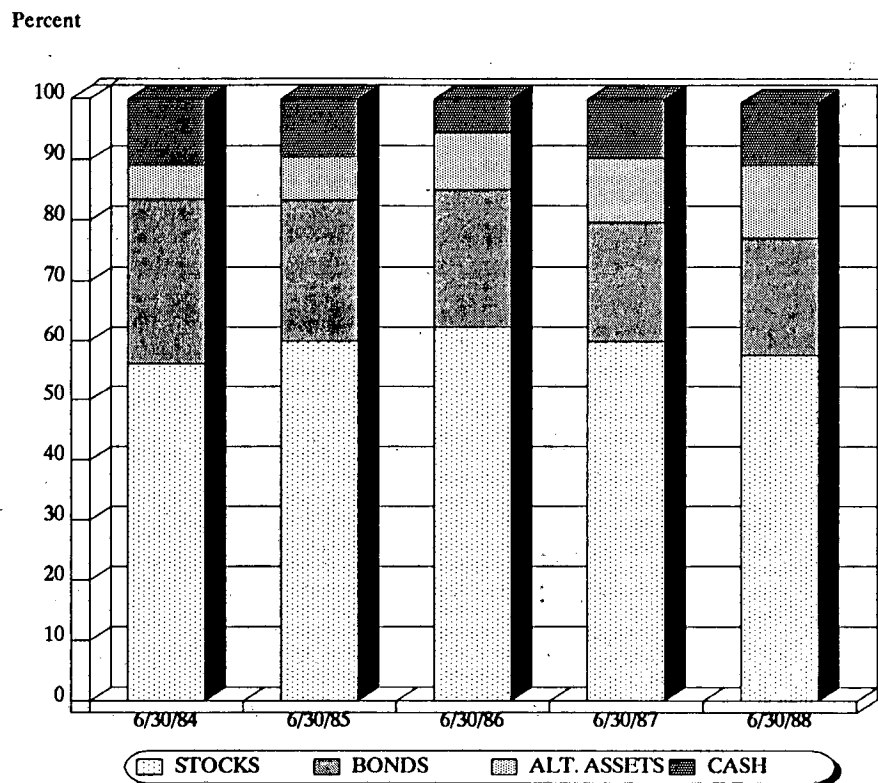
BASIC RETIREMENT FUNDS

The Board's decision to utilize an index fund is based on the inherent difficulty of actively managing a multi-billion dollar common stock portfolio. The Board has chosen to accept market returns on a substantial portion of its common stock portfolio through the utilization of an index fund. The Board seeks above-market returns through the active management of the remaining common stock assets.

The **actively managed segment** of the Basic Funds' common stock portfolio is designed to complement the core index fund. With the index fund providing adequate diversification for the Basic Funds' total portfolio, the active managers are expected to add incremental value over the long-run through aggressive investment management decisions.

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

*Figure 4.
Historical
Asset Mix
1984-1988*



BASIC RETIREMENT FUNDS

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. More information on benchmarks and the Board's monitoring policies is included in the Major Developments Section.

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

During fiscal year 1988, the bond segment of the Basic Funds' was managed by six active external bond managers. This group of 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.

*Figure 4 (con't).
Historical
Asset Mix
1984-1988*

	1984	1985	June 30, 1986	1987	1988
Common Stocks					
\$Million	1,696.0	2,209.0	2,838.0	3,070.0	3,006.0
Percent	56.1	59.9	62.2	59.8	57.5
Bonds					
\$Million	829.0	865.0	1,041.0	1,016.0	1,018.0
Percent	27.4	23.4	22.8	19.8	19.5
Cash Equivalents*					
\$Million	331.0	355.0	253.0	506.0	539.0
Percent	10.9	9.6	5.6	9.8	10.3
Real Estate					
\$Million	140.0	203.0	330.0	396.0	462.0
Percent	4.6	5.5	7.2	7.7	8.9
Venture Capital					
\$Million	4.0	34.0	65.0	86.0	135.0
Percent	0.2	0.9	1.4	1.7	2.6
Resource Funds					
\$Million	23.0	34.0	65.0	86.0	64.0
Percent	0.8	0.7	0.8	1.2	1.2
Total Fund					
\$Million	3,023.0	3,691.0	4,564.0	5,137.0	5,224.0
Percent	100.0	100.0	100.0	100.0	100.0

*includes cash uncommitted to long-term assets plus all cash held by external managers

In keeping with the objective of utilizing the bond portfolio as a deflation hedge, the 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 hold only high-quality (BAA or better) fixed income assets. In addition, to avoid extreme variability in total bond portfolio returns, the Board constrains the maximum average life of the managers' portfolios to a duration band of three to seven years.

As previously noted, all of the SBI's bond managers pursued active investment approaches during fiscal year 1988. The Board has approved the use of passive management in the Basic Funds' bond portfolio. During fiscal year 1989, approximately one-half the Basic Funds' bond portfolio will be managed under a semi-passive approach. More information on the design of the passive bond portfolio is included in the Major Developments Section.

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.

Cash Equivalents

The long-term asset mix of the Basic Funds targets a 3% allocation to cash equivalents. Given the long-run objectives of the Basic Funds and their limited liquidity needs, the Board believes that a minimal commitment to short-term investments is most appropriate. The cash equivalents allocation is based on the expectation that at any given time it is quite likely that some cash reserves will be present in the Basic Funds' total portfolio. Cash equivalent holdings are derived from two sources:

- New contributions provided by the retirement funds which have yet to be allocated to a specific long-term asset segment
- External investment managers, who are permitted to hold cash as part of their own individual short-run asset mix strategies

BASIC RETIREMENT FUNDS

Cash reserves 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.

Real Estate Investments

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 statutes do not permit investment in real estate through direct investments, separate accounts, or individual transactions.

The Board has adopted a three-part program to implement the real estate policy allocation:

- 30-40% of the real estate portfolio is invested in open-end diversified commingled funds
- 30-40% is invested in closed-end diversified commingled funds
- 20-30% is placed in less diversified, more focused commingled funds

The objective of the first two parts of the SBI's real estate program is to create a large core portfolio 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 implement the third part of the real estate program, the selection of less diversified, special orientation managers. 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.

BASIC RETIREMENT FUNDS

The SBI continued to make progress toward its policy allocation to real estate during fiscal year 1988. One new commitment was made to a closed-end commingled fund in the specialty segment of the portfolio. The Board will continue to review and add new real estate investments to the portfolio, as needed, to fulfill the target 10% allocation. The SBI plans to conduct a comprehensive review of its real estate portfolio during fiscal year 1989. The results of the review will be used to guide future commitments to new and existing managers.

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

Venture Capital Investments

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 or corporation.

Like the real estate portfolio, the SBI maintains a broadly diversified venture capital portfolio. It consists primarily of participations in venture capital partnerships and 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.

The Board's policy allocation to venture capital was attained fully in fiscal year 1988. Cash distributions from the existing venture capital portfolio permitted additional commitments to four limited partnerships during the last year; two with new fund managers and two in follow-on funds with the Board's existing managers. The Board intends to make additional commitments in future years as the growth of the Basic Retirement Funds warrants the expansion of the venture capital portfolio.

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

Resource Fund Investments

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 tax-exempt investors. Again, 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 through procedures similar to those used to evaluate real estate and venture capital investments.

During the 1988 fiscal year, the Board continued to make progress toward its policy allocation to resource investments through two new commitments to oil and gas partnerships. The Board plans to continue to review resource investments for possible inclusion in the Basic Funds' portfolio.

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

INVESTMENT PERFORMANCE

The Board has adopted performance objectives which are consistent with the objectives of the Basic Funds and realistic in the sense that 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.

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).

BASIC RETIREMENT FUNDS

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.

Risk-Return Objectives

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

- **Total Fund.** The use of total fund risk-return targets ensures that long-run strategic decisions which affect the total performance of the Basic Funds are implemented in a manner consistent with their investment policy.
- **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.

Total Fund Risk-Return Objectives

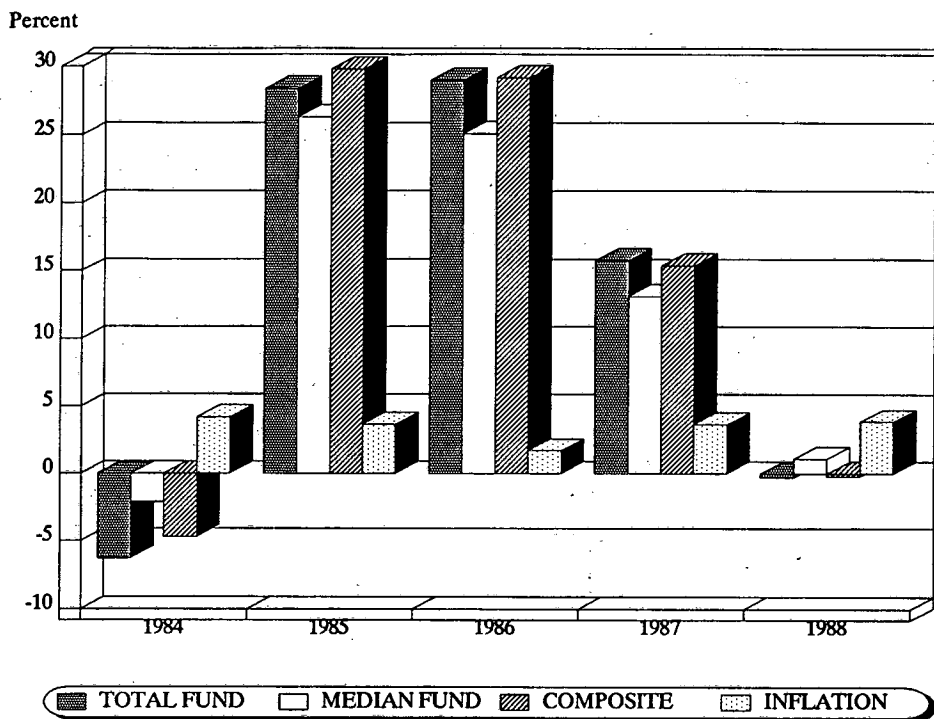
To a significant degree, the risk level of the total fund is set implicitly when the policy asset mix and investment management structure are determined. Given the adequate funding levels and long-term investment time horizons of the Basic Funds, the Board believes an above-average risk posture is appropriate.

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 is implemented through the long-term commitment of a sizable portion of the Basic Funds' assets to common stocks.

The Basic Funds' long-term rate of return performance is evaluated relative to two specific benchmarks:

- **Composite Index.** 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' policy asset allocation. Because comprehensive data is available for only the stock, bond and cash equivalents

Figure 5.
Total Fund Performance
Fiscal Years 1984 - 1988



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
Total Fund	-5.5%	26.8%	26.2%	14.5%	-0.3%	13.0%	11.6%
Total Fund without Alternative Assets*	-6.3	28.4	29.0	15.8	-0.8	14.0	12.3
Median Fund**	-2.1	26.3	25.1	13.1	1.1	13.5	13.1
Composite***	-4.7	29.8	29.2	15.4	-0.2	14.2	12.9
Inflation	4.2	3.7	1.7	3.7	3.9	3.1	3.5

* without alternative assets: real estate, venture capital and resource funds

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

*** 65/30/5 Wilshire 5000/Salomon Broad Investment Grade Bond Index/91 Day T-Bills composite

BASIC RETIREMENT FUNDS

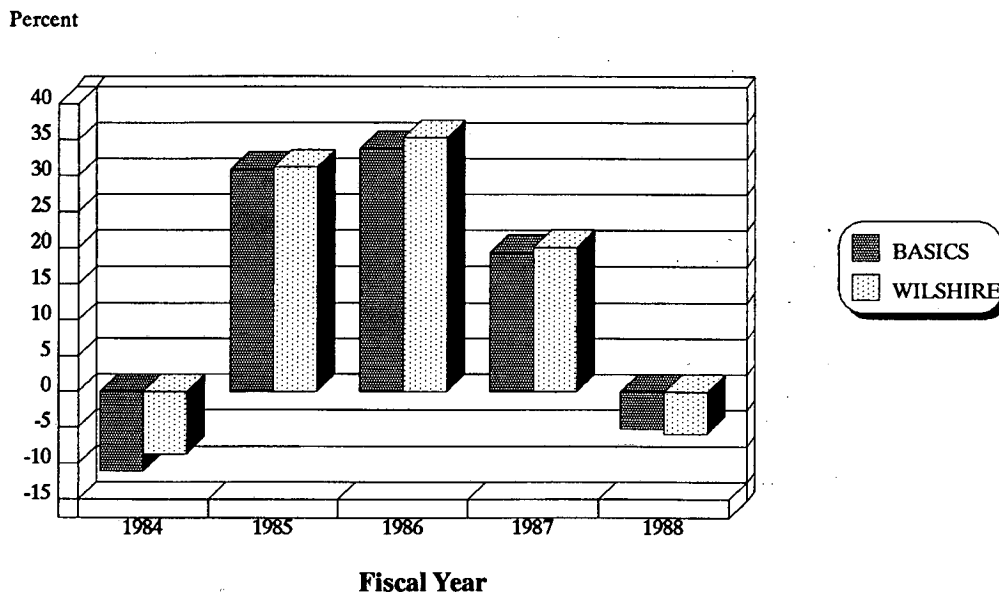
markets, the composite index is weighted 65% stocks, 30% bonds, 5% cash equivalents.

- **Median Tax-Exempt Fund.** Over the long term, the Basic Funds' portfolio is expected to outperform the median return produced by a representative sample of other public and private tax-exempt balanced funds.

Individual Manager Risk-Return Objectives

Two primary long-run risk objectives have been established for the Basic Funds' common stock managers. The first objective is based on each manager's individual 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. The second objective relates to the managers' levels of 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. In the short-run, the active common stock managers may depart from these two risk targets as part of their specific investment strategies.

*Figure 6.
Stock Segment
Performance
1984-1988*



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
STOCK SEGMENT	-11.1%	30.9%	33.8%	19.4%	-5.2%	14.8%	12.0%
Wilshire 5000	-8.7	31.2	35.3	20.1	-5.9	15.2	12.9

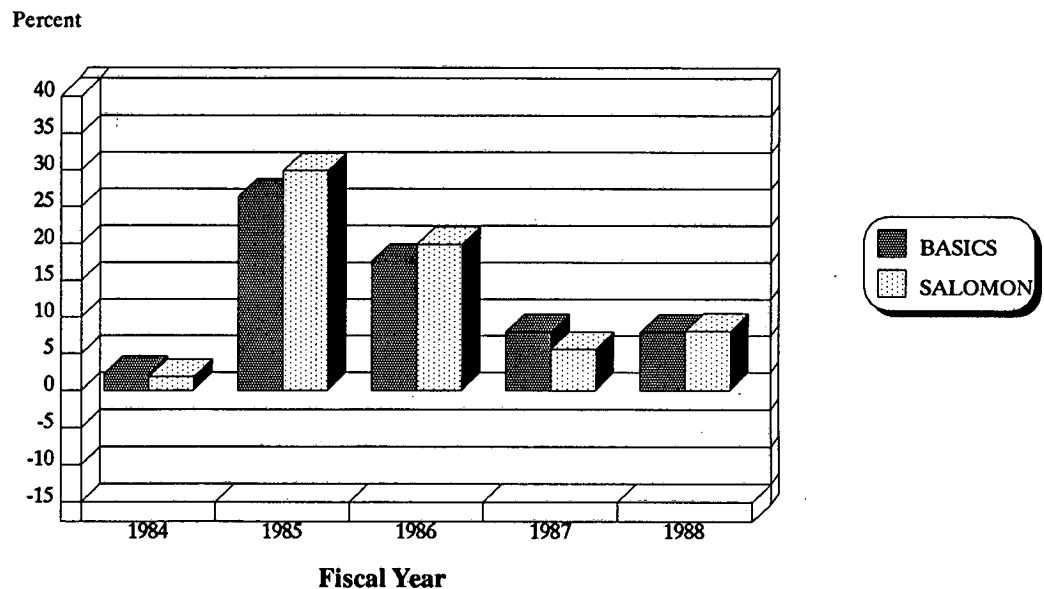
BASIC RETIREMENT FUNDS

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 bogeys against which to judge the managers' performances than are broad market indices.

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

During fiscal year 1988, three of the Board's active bond managers developed customized benchmark portfolios. The remaining three managers continue to be evaluated against the Salomon Broad Investment Grade Bond Index, which

Figure 7.
Bond Segment
Performance
1984-1988



BOND SEGMENT	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
BOND SEGMENT	2.2%	26.4%	17.6%	7.9%	7.9%	11.1%	12.1%
Salomon Index*	1.8	29.9	19.9	5.6	8.1	11.0	12.6

* Salomon Broad Investment Grade Bond Index

BASIC RETIREMENT FUNDS

represents the performance of essentially the entire investment-grade bond market. The SBI plans to establish customized benchmark portfolios for these managers during fiscal year 1989.

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

Total Fund Performance

The Basic Funds' **risk objectives** are implicitly met by attaining the targeted policy asset mix. Progress toward fulfillment of the Board's policy asset mix target continued during fiscal year 1988. The common stock and bond targets have been achieved. Primary activity has centered around the Basic Funds' alternative investment programs. New commitments were made to real estate, venture capital and resource investments during the year. With alternative investments near their policy asset allocation, only moderate additional activity is expected over the next several years.

Figure 8. Stock Manager Performance FY 1988

	Total Portfolio Return	Benchmark Return
Fred Alger	-9.0%	-4.5%
Alliance Capital	-0.8	-9.7
Beutel Goodman	-1.5	0.3
BMI Capital	-5.3	-5.7
Forstmann Leff	-1.3	-1.5
IDS Advisory	-9.5	-4.1
Investment Advisers	-4.9	-4.3
Lieber & Company	-3.9	-3.8
Waddell & Reed	0.9	-1.8
Wilshire Associates (index fund)	-5.9	-5.8
Basic Funds' Common Stock Segment	-5.2%	
Stock Segment Performance Standards		
Wilshire 5000	-5.9%	
TUCS Median Managed Equity Portfolio	-4.3	
Inflation	3.9%	

BASIC RETIREMENT FUNDS

With respect to **return objectives**, fiscal year 1988 was a difficult period for institutional investors, primarily due to the poor performance of the stock market. After more than three years of spectacular growth that peaked in August 1987, the stock market fell dramatically in October. Despite substantial advances during the following months, the market, as represented by the Wilshire 5000, posted a -5.9% total return for fiscal year 1988. The bond market followed an irregular path during the year as it responded to periods of both falling and rising interest rates. In contrast to the negative returns produced in the stock market, however, the bond market, as represented by the Salomon Broad Investment Grade Bond Index, generated a 8.1% total rate of return in fiscal year 1988.

In this investment environment, the Basic Retirement Funds' total portfolio generated a -0.3% rate of return for fiscal year 1988. Due to its larger than average allocation to common stock, the Basic Funds lagged the return on the median tax-exempt fund. It also trailed the return on its composite index target. Fiscal year 1988 results follow several years of exceptionally strong performance. Excluding alternative assets, the Basic Funds' cumulative five-year return is 78.3%.

Figure 9.
Bond Manager
Performance
FY 1988

	Total Portfolio Return	Benchmark Return
Investment Advisers	7.4%	8.1%
Lehman Management	7.2	7.7
Miller, Anderson & Sherrerd	7.8	8.1
Morgan Stanley	7.9	8.1
Peregrine Capital	7.6	8.7
Western Asset	9.1	8.2
Basic Funds' Bond Segment	7.9%	
Bond Segment Performance Standards		
Salomon Broad Investment Grade Bond Index	8.1%	
TUCS Median Managed Bond Portfolio	7.7	
Inflation	3.9%	

BASIC RETIREMENT FUNDS

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.

Individual Manager Performance

The external common stock managers successfully fulfilled their long-term risk objectives during fiscal year 1988. In general, the managers constructed portfolios consistent with their stated investment approaches and maintained appropriate levels of diversification.

From a return perspective, the active common stock managers' results were mixed. In aggregate, the managers added modest value to their individual benchmarks. Most managers performed in a relatively narrow band around their benchmarks. Two managers (Alliance Capital and Waddell & Reed) experienced very strong results and two managers (Fred Alger Management and IDS Advisory) produced weak performance relative to their benchmarks. As expected, the index fund matched the performance of the Wilshire 5000 for the year.

During fiscal year 1988, the bond managers fulfilled their assigned long-term risk targets. Portfolio quality and maturities were maintained within the ranges specified by the SBI.

From a return prospective, the bond managers slightly trailed their individual benchmarks. One manager (Western Asset) provided strong results relative to its benchmark. The other managers underperformed their targets by varying amounts for the year.

Performance data for the individual common stock and bond managers are presented in Figure 8 and Figure 9.

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, 1988, the Post Fund had a market value of \$4.3 billion and over 55,000 retiree participants.

INVESTMENT OBJECTIVES

Public employees participating in the statewide retirement plans are promised benefits based on their total years of service and their "high five" average salaries. Upon the employees' retirement, sums of money sufficient to finance fixed monthly annuities are 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.

The State Board of Investment (SBI) pursues two investment goals for the Post Fund:

- To produce annual earnings sufficient to maintain promised benefits at current levels
- To generate additional earnings which allow benefits to be increased at a rate which compensates, to some degree, for inflation

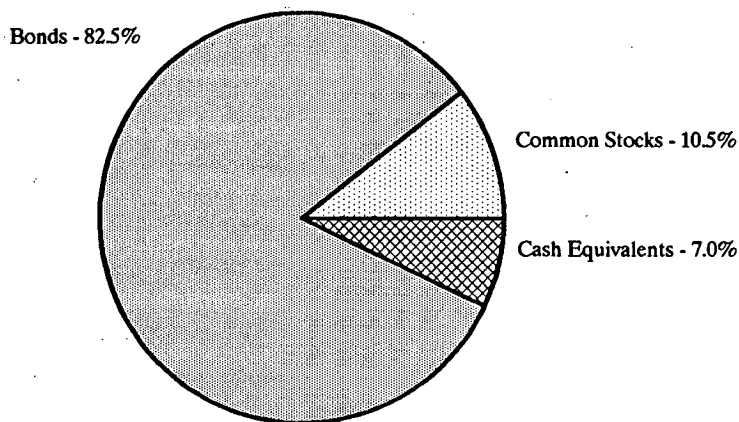
POST RETIREMENT INVESTMENT FUND

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 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 out 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 long-term total rate of return maximization. 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 benefit increases over time.

Figure 10.
Asset Mix
June 30, 1988



	\$Million	Percent
Common Stocks	\$446	10.5%
Bonds	3,511	82.5
Cash Equivalents	301	7.0
Total	4,258	100.0%

ASSET ALLOCATION

The Board has designed the asset mix of the Post Fund to generate the sizable stable earnings stream referred to in the 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 various maturity, high-quality bonds which generate cash flows from income and principal payments that match a specific stream of liabilities. 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. As has been the case in recent years, if the portfolio yield is greater than 8%, or stock investments do well, 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 the large benefit increases.

**Cash
Equivalents**

Cash equivalents make up the remainder of the Post Fund's portfolio. Because the Post Fund's liquidity needs are very predictable, the SBI generally maintains a very 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.

POST RETIREMENT INVESTMENT FUND

Changes in Asset Mix

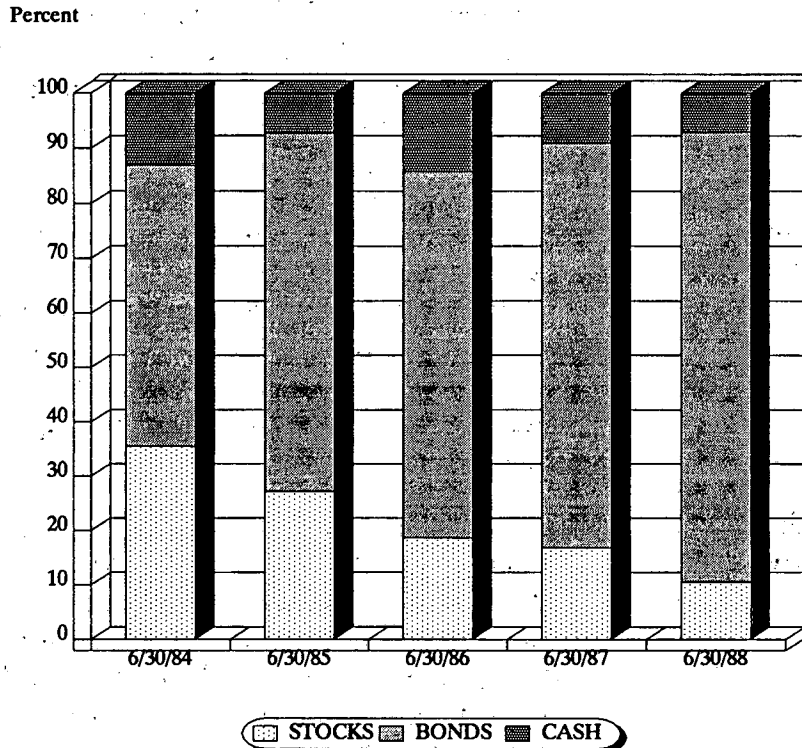
During fiscal year 1988, the asset mix of the Post Fund continued to shift toward bonds and away from common stocks. The substantial interest rate decline of recent years necessitated an increase in the size of the dedicated bond portfolio and a concomitant reduction in the size of the common stock portfolio. 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.

Figure 11.
Historical
Asset Mix
1984-1988



POST RETIREMENT INVESTMENT FUND

- **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.

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.

Bond Management

The management of the dedicated bond portfolio requires that the State's actuary supply SBI staff with forecasts of benefit payments expected to be paid over a twenty-five year horizon. Based upon these forecasts, a

*Figure 11 (con't).
Historical
Asset Mix
1984-1988*

	1984	1985	June 30, 1986	1987	1988
Common Stocks					
\$Million	657.0	733.0	681.0	673.0	446.0
Percent	35.5	27.1	18.6	16.8	10.5
Bonds					
\$Million	951.0	1,780.0	2,457.0	2,965.0	3,511.0
Percent	51.4	65.7	67.2	74.2	82.5
Cash Equivalents					
\$Million	243.0	196.0	520.0	359.0	301.0
Percent	13.1	7.2	14.2	9.0	7.0
Total Fund					
\$Million	1,851.0	2,709.0	3,658.0	3,997.0	4,258.0
Percent	100.0	100.0	100.0	100.0	100.0

POST RETIREMENT INVESTMENT FUND

computer program generates a list of bonds that will meet these forecasted benefit payments. Staff then attempts to purchase the recommended issues. If these bonds are not available, substitute bonds are purchased. Staff rebalances 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 implements less aggressive investment strategies than those utilized by the Basic Retirement Funds' external equity managers. As the only common stock manager for the Post Fund, staff recognizes the diversification requirements of the Post Fund's stock portfolio. Further, SBI staff is 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.

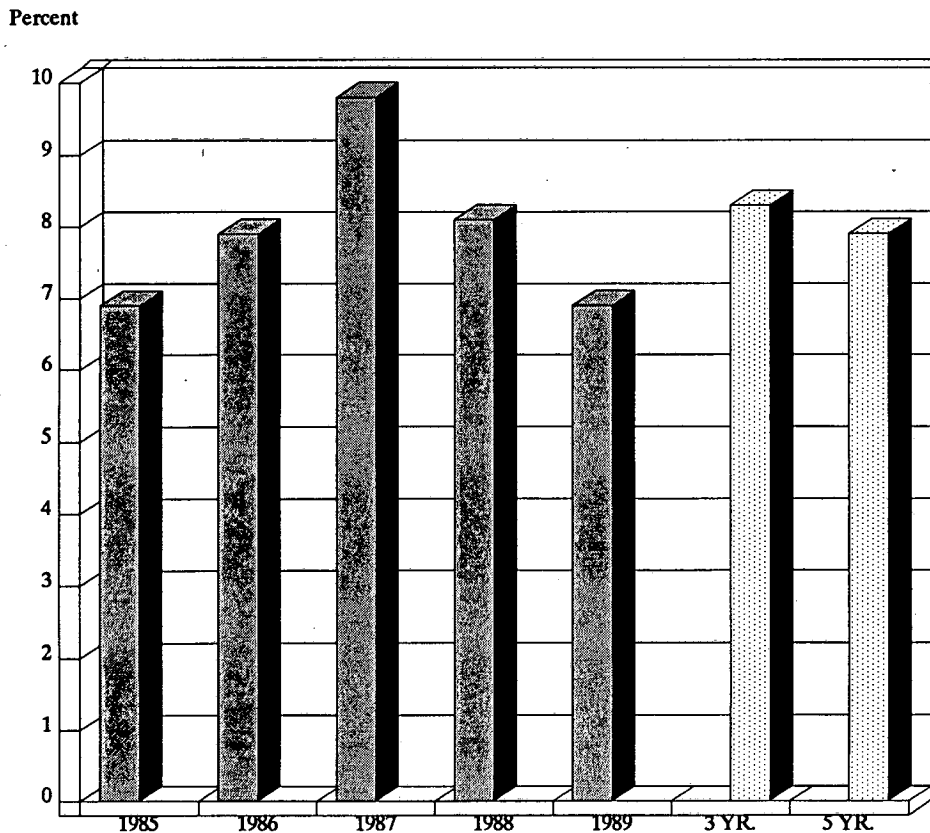
SBI staff attempts to identify stocks that have attractive expected returns, yet do not possess significantly high levels of market volatility. Staff uses recommendations generated by quantitative valuation models as the primary source of investment candidates. Staff always maintains a fully invested position in the equity portfolio.

Cash Management

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.

**Figure 12.
Benefit Increases
Calendar Years 1985-1989**



	1985	1986	1987	1988	1989	(Annualized)	
						3 YR.	5 YR.
Benefit Increase	6.9%	7.9%	9.8%	8.1%	6.9%	8.3%	7.9%

Benefit increases are intended to compensate, to some degree, for the effect of inflation. As measured by the Consumer Price Index (CPI) inflation increased by 3.7% on an annualized basis over the last five years (calendar 1984-1988).

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 equity portfolio maintains a relatively high level of diversification and a moderate level of relative market volatility.

Total Fund Risk-Return Objectives

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 at a rate equal to at least one-half of the inflation rate.

Total Fund Performance

The Post Fund's total portfolio met all of the prescribed risk targets during the 1988 fiscal year. The Post Fund was approximately 83% invested in fixed income assets, 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.

Overall, investment returns relative to performance objectives were satisfactory for the 1988 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 6.9% beginning January 1, 1989, considerably above the estimated 1988 calendar year inflation rate of 5.0%.

As shown in Figure 12, the Post Fund has generated benefit increases of 7.9% on an annualized basis for the last five years. During this period, investment returns were high

POST RETIREMENT INVESTMENT FUND

compared to inflation, which increased at an annualized rate of 3.7%. The formula used to compute benefit increases was revised in 1980. During the nine years since the revised formula was instituted, benefit increases have been 7.2% on an annualized basis. This compares to an annualized inflation rate of 5.6% for the same period.

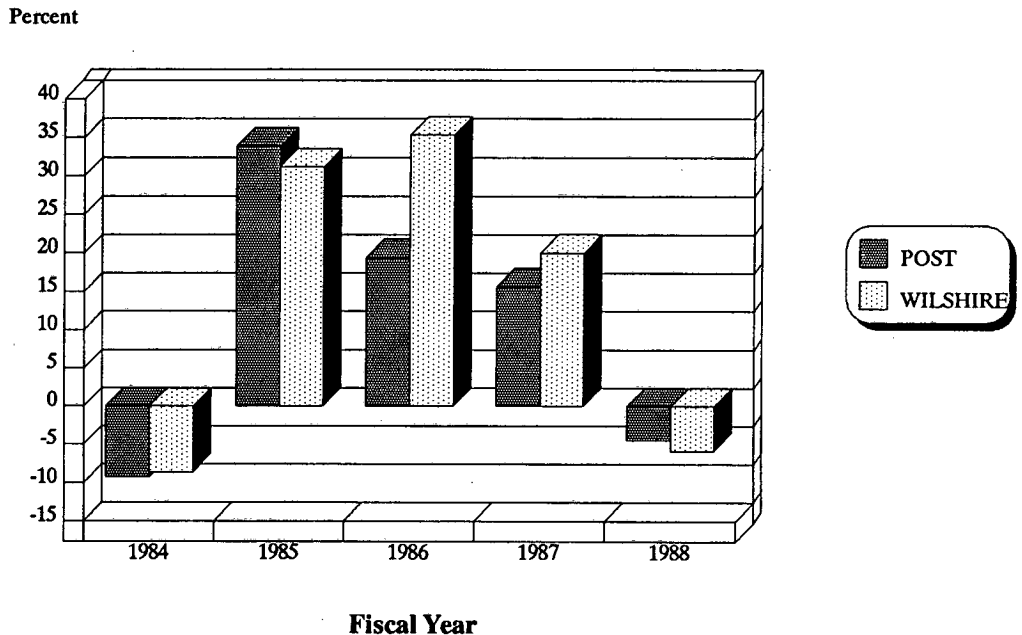
More information on the benefit increase formula is included in the Statistical Data Appendix.

Segment Performance

Common stock performance, on a relative basis, was favorable. The contrarian value style pursued by the Post Fund's internal equity manager significantly outperformed the Wilshire 5000 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 1988, the dedicated bond portfolio had a duration of 7.8 years and a current yield of 8.6%. This is consistent with the design of the dedicated

*Figure 13.
Stock Segment
Performance
1984-1988*



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
STOCK SEGMENT	-9.3%	33.9%	19.5%	15.7%	-4.5%	9.7%	9.9%
Wilshire 5000	-8.7	31.2	35.3	20.1	-5.9	15.2	12.9

POST RETIREMENT INVESTMENT FUND

bond portfolio. More information on the dedicated bond portfolio is in Figure 14.

During fiscal year 1988, the cash enhancement program produced a 8.2% 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 first year of operation.

*Figure 14.
Dedicated Bond
Portfolio
Statistics
June 30, 1988*

Value at Market	\$ 3,434,926,115
Value at Cost	3,347,524,472
Average Coupon	6.48%
Current Yield	8.63
Yield to Maturity	9.16
Current Yield at Cost	8.85
Time to Maturity	16.94 Years
Average Duration	7.84 Years
Average Quality Rating	AAA
Number of Issues	404

SUPPLEMENTAL INVESTMENT FUND

Income Share Account

Growth Share Account

Common Stock Index Account

Bond Market Account

Money Market Account

Guaranteed Return Account

SUPPLEMENTAL INVESTMENT FUND

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 the investment manager for all assets of the supplemental retirement programs for state university and community college teachers and for Hennepin County Employees.
- 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 14,000 individuals. On June 30, 1988, the market value of the entire fund was \$401 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.

SUPPLEMENTAL INVESTMENT FUND

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 consisting entirely of 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.

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.

INCOME SHARE ACCOUNT

Investment Objective

The \$216 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.

Investment Management

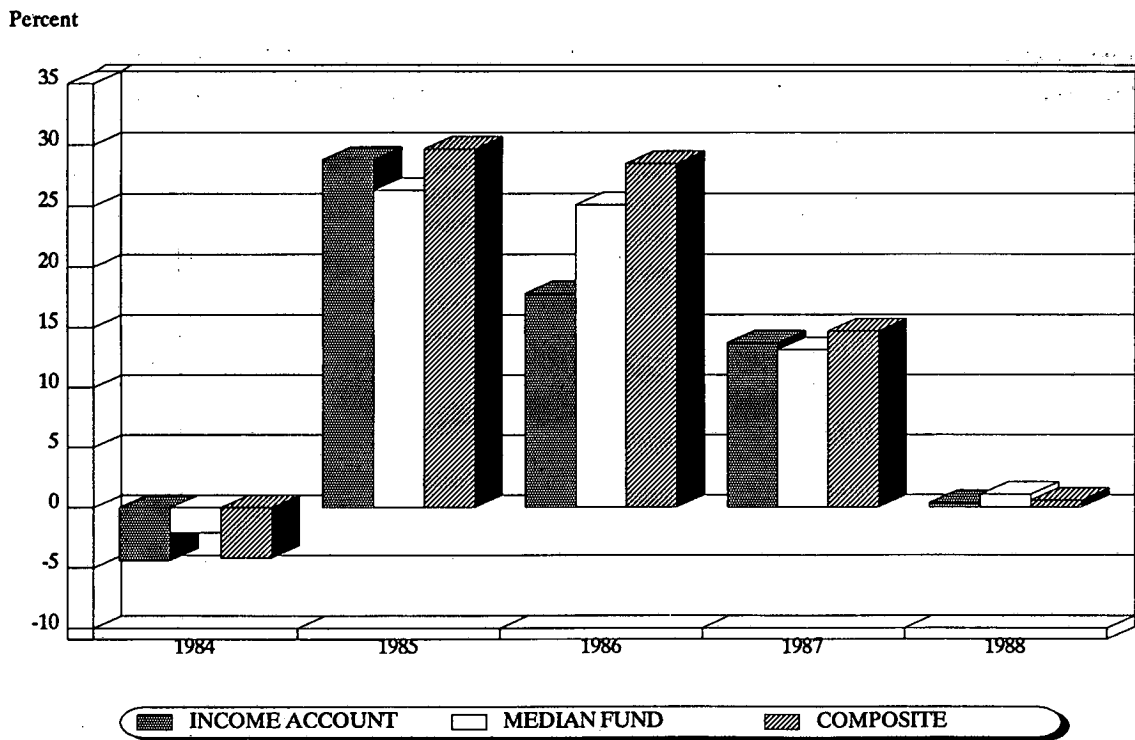
The Income Share Account's investment management structure combines internal and external management. The entire common stock segment is managed by Wilshire Associates as part of a passively managed index fund designed to track the Wilshire 5000. SBI staff manage the entire fixed income segment.

Investment 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

Figure 15.
Income Share Account
Fiscal Years 1984 - 1988



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
TOTAL ACCOUNT	-4.4%	28.8%	17.8%	13.7%	0.4%	10.4%	10.6%
Median Fund*	-2.1	26.3	25.1	13.1	1.1	13.5	13.1
Composite**	-4.2	29.7	28.5	14.7	0.6	14.0	13.0
STOCK SEGMENT	-11.0	30.4	19.9	18.4	-5.8	10.2	9.2
Wilshire 5000	-8.7	31.2	35.3	20.1	-5.9	15.2	12.9
BOND SEGMENT	2.3	32.1	16.2	7.6	8.6	10.7	12.9
Salomon Index***	1.8	29.9	19.9	5.6	8.1	11.0	12.6

* TUCS Median tax-exempt balanced portfolio

** 60/35/5 Wilshire 5000/Salomon Broad Investment Grade Bond Index/91 day T-Bills Composite

*** Salomon Broad Investment Grade Bond Index

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.

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

On a total account basis, the Income Share Account trailed the performance of the median balanced fund manager and its market index composite for fiscal year 1988. Total account and segment performance results are presented in Figure 15.

GROWTH SHARE ACCOUNT

Investment Objective

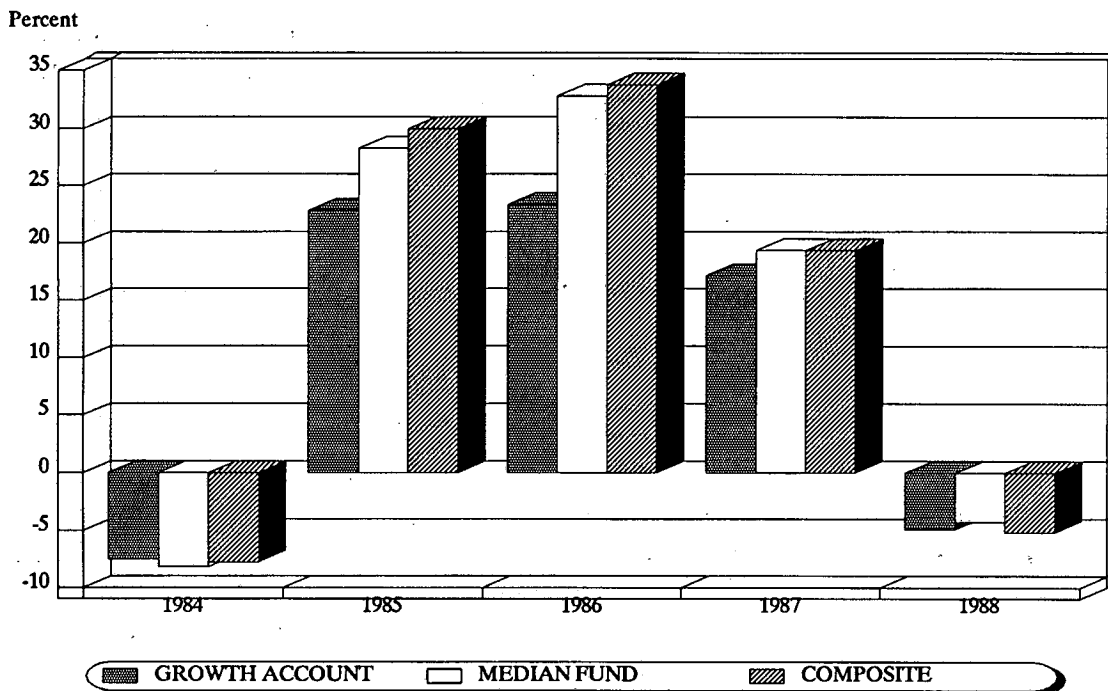
The Board has established above-average capital appreciation as the primary investment objective of the \$83 million Growth Share Account. To achieve this objective, the Account maintains a large equity exposure. The Growth Share Account's policy asset allocation calls for a large equity exposure:

- 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.

Figure 16.
Growth Share Account
Fiscal Years 1984 - 1988



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
TOTAL ACCOUNT	-7.5%	22.9%	23.4%	17.2%	-4.9%	11.2%	9.3%
Median Fund*	-8.2	28.3	32.8	19.4	-4.3	15.4	13.3
Composite**	-7.8	30.0	33.8	19.4	-5.2	14.9	12.8
STOCK SEGMENT	-17.9	28.1	24.0	17.4	-4.7	11.5	7.8
Wilshire 5000	-8.7	31.2	35.3	20.1	-5.9	15.2	12.9

* TUCS Median Managed Equity Portfolio

** 95/5 Wilshire 5000/91 Day T-Bills Composite

SUPPLEMENTAL INVESTMENT FUND

Investment Management

The SBI has assigned the entire common stock portfolio of the Growth Share Account to external managers. These assets are managed by the same active managers utilized by the Basic Retirement Funds.

The allocation to active common stock managers, rather than to an index fund, reflects the more aggressive investment policy of the Growth Share Account.

Investment Performance

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

- **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 outperformed its composite index for the year but trailed the median equity portfolio return. Total account and segment results are shown in Figure 16.

COMMON STOCK INDEX ACCOUNT

The Common Stock Index Account began accepting contributions in July, 1986. At the end of fiscal year 1988, it had a market value of \$3 million.

Investment 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 equities.

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.

**Investment
Management**

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

**Investment
Performance**

The performance objective of the Common Stock Index Account are 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 1988, the Common Stock Index Account met its performance objectives by exactly tracking the Wilshire 5000 and producing a return of -5.9%.

BOND MARKET ACCOUNT

The Bond Market Account began accepting contributions in July, 1986. At the end of fiscal year 1988, the market value of the Account was \$1 million.

**Investment
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 all-common stock investment options.

**Investment
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 fixed income managers is presented in the Basic Funds section.

**Investment
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 the fiscal year 1988, the Bond Market Account slightly trailed this target, with an 8.0% return compared to the Salomon index return of 8.1%.

A more detailed discussion of the performance of the individual bond managers is provided in the Basic Funds section.

MONEY MARKET ACCOUNT

The Money Market Account invests solely in short-term, liquid fixed income investments. The Account's investment objectives are to preserve capital and offer competitive money market returns. At the end of fiscal year 1988, the Money Market Account had a market value of \$76 million.

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

The Account is expected to produce returns competitive with available short-term fixed income investments. The Money Market Account exceeded that target in fiscal year 1988 with a 7.3% return versus a return on 91-day Treasury Bills of 6.0%.

GUARANTEED RETURN ACCOUNT

The Guaranteed Return Account opened for subscription in November, 1986. At the end of fiscal year 1988, the account totaled \$22 million.

The Guaranteed Return Account is designed to offer participants a fixed rate of return for a specified period of time with negligible risk. The SBI invests the Guaranteed Return Account in three-year guaranteed investment contracts (GIC's) offered by major U.S. insurance companies and banks.

SUPPLEMENTAL INVESTMENT FUND

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 in the Guaranteed Return Account then receive that interest rate on contributions made over the next twelve months.

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.

The Board was very satisfied with the winning bid of 8.45% on the 1988-1990 GIC, which was 51 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, 1986 - Oct. 31, 1989	7.72%
Nov. 1, 1987 - Oct. 31, 1990	8.45%

Both the 1986-1989 and 1987-1990 GIC's were awarded to Principal Mutual Life, Des Moines, IA.

VARIABLE ANNUITY FUND

Investment Objectives

Asset Allocation

Investment Management

Investment Performance

The Minnesota Variable Annuity Fund is an investment option formerly offered to members of the Teachers Retirement Association as an alternative to the regular teachers' retirement plan. The opportunity to enroll is no longer offered to new Association members. However, members enrolled prior to the cutoff date retain their past participation in the Variable Annuity Fund and, if they so select, may continue to make contributions. The June 30, 1988 market value of the Variable Annuity Fund was \$161 million.

INVESTMENT OBJECTIVES AND ASSET ALLOCATION

The investment objective of the Variable Annuity Fund is the same as that of the Growth Share Account in the Supplemental Investment Fund. The purpose of the Variable Annuity Fund is to provide participants with above average long-run capital appreciation on their investments.

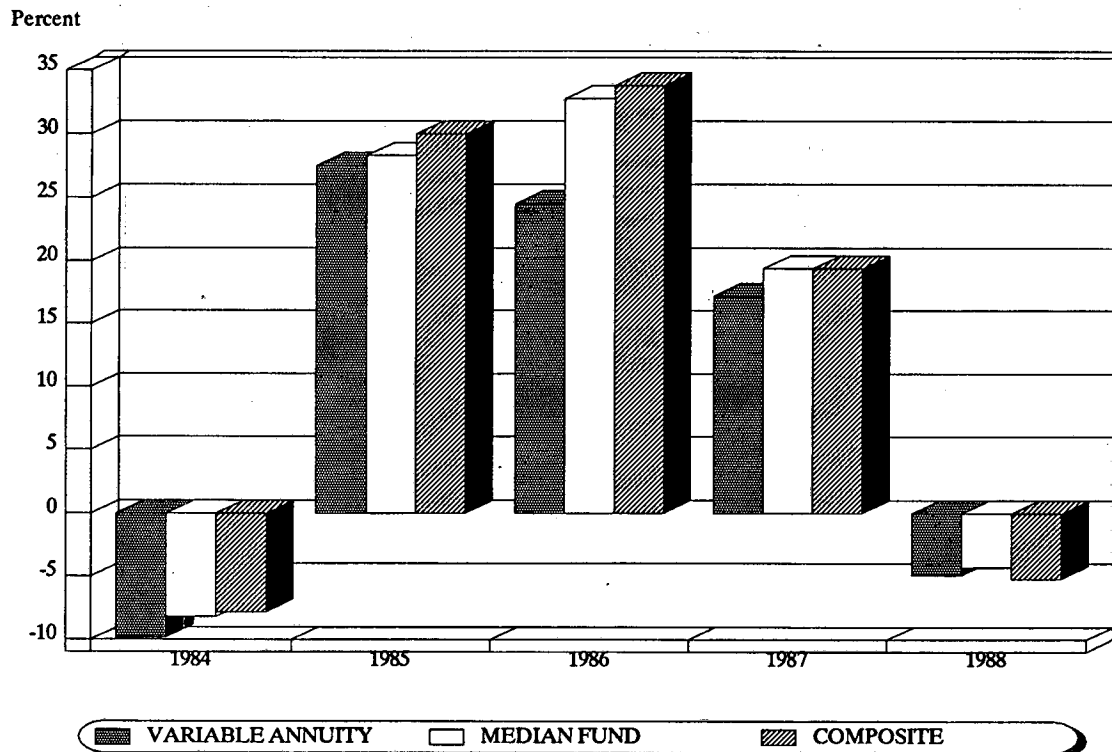
This investment objective necessitates a sizable long-term commitment to common stocks. The Variable Annuity Fund is authorized to hold up to 100% of its market value in common stocks. The long term policy asset allocation of the fund is:

- 95% common stocks
- 5% cash equivalents

Figure 17.

Total Fund Performance

Fiscal Years 1984 - 1988



	1984	1985	1986	1987	1988	(Annualized)	
						3 YR.	5 YR.
TOTAL FUND	-9.8%	27.5%	24.5%	17.2%	-4.9%	11.6%	9.8%
Median Fund*	-8.2	28.3	32.8	19.4	-4.3	15.4	13.3
Composite**	-7.8	30.0	33.8	19.4	-5.2	14.9	12.8
STOCK SEGMENT	-14.1%	30.3%	24.9%	17.4%	-4.6	11.8%	9.4%
Wilshire 5000	-8.7	31.2	35.3	20.1	-5.9	15.2	12.9

* TUCS Median Managed Equity Portfolio

** 95/5 Wilshire 5000/91 Day T-Bills Composite

INVESTMENT MANAGEMENT

The State Board of Investment (SBI) has assigned the Variable Annuity Fund's assets to the SBI's active external common stock managers. The Variable Annuity Fund shares these managers with the Basic and Supplemental Funds. The allocation to active common stock managers, rather than to an index fund, reflects the more aggressive investment policy of the Variable Annuity Fund. More information on the active external managers is included in the Basic Retirement Funds section.

INVESTMENT PERFORMANCE

The Board evaluates the performance of the Variable Annuity Fund on two levels:

- **Total Account.** The Variable Annuity Fund 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 Variable Annuity Fund outperformed its composite index for fiscal year 1988 but trailed the median equity portfolio return. Total fund and segment results are shown in Figure 17.

PERMANENT SCHOOL FUND

Investment Objectives

Asset Allocation

Investment Management

Investment Performance

The Permanent School 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, and lakeshore and other leases are invested in the Permanent School Fund.

Income generated by the Permanent School Fund's assets is used to offset state school aid payments. During the 1988 fiscal year, investment income reported to the Minnesota Department of Finance totaled \$33.7 million.

INVESTMENT OBJECTIVES

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

Investment Constraints

The Permanent School Fund's investment objectives are influenced by the restrictive legal provisions under which its investments must be managed. These provisions require that the Permanent School Fund's principal remain inviolate. Further, any net realized equity and fixed income capital gains must be added to principal. Moreover, if the Permanent School 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 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 Permanent School Fund's assets to produce the maximum amount of current income, within the constraint of maintaining adequate portfolio quality.

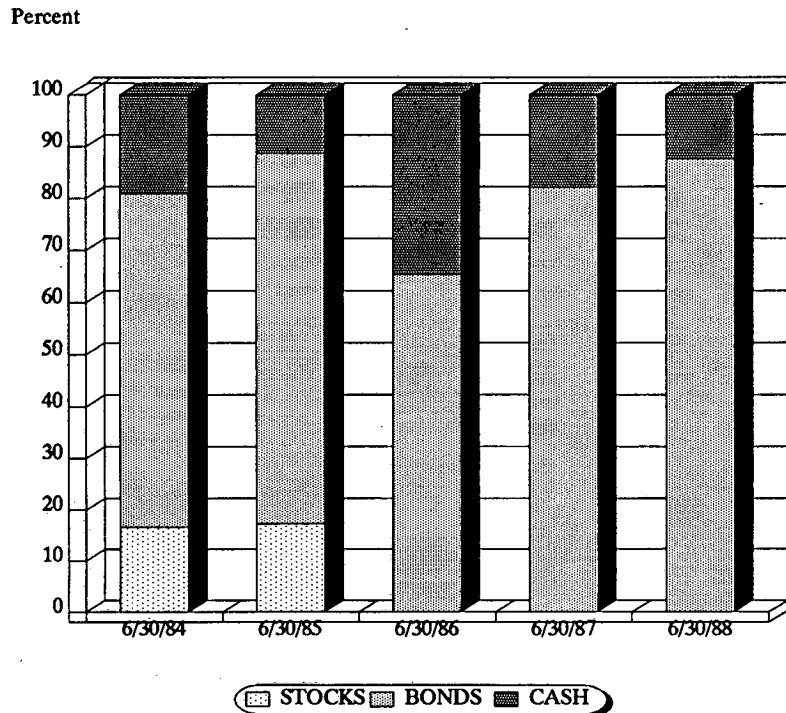
ASSET ALLOCATION

The SBI maximizes current income by investing all of the Permanent School 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.

*Figure 18.
Historical
Asset Mix
1984-1988*



PERMANENT SCHOOL FUND

- Net capital gains become part of the Permanent School 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 Permanent School Fund's small common stock component in fiscal year 1986, investing the proceeds in fixed income securities. Historical asset mix data for the Fund are shown in Figure 18.

INVESTMENT MANAGEMENT

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

*Figure 18 (con't).
Historical
Asset Mix
1984-1988*

	1984	1985	June 30, 1986	1987	1988
Common Stocks					
\$Million	46.0	58.0	0.0	0.0	0.0
Percent	16.6	17.2	0.0	0.0	0.0
Bonds					
\$Million	178.0	241.0	239.0	297.0	313.6
Percent	64.3	71.5	65.4	82.2	87.6
Cash Equivalents					
\$Million	53.0	38.0	126.0	64.0	44.2
Percent	19.1	11.3	34.6	17.8	12.4
Total Fund					
\$Million	277.0	337.0	365.0	361.0	357.8
Percent	100.0	100.0	100.0	100.0	100.0

PERMANENT SCHOOL FUND

The Permanent School 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 Permanent School Fund is the most cost-effective approach. The staff manages the Permanent School Fund's bond portfolio primarily through a buy-and-hold laddered maturity approach.

INVESTMENT PERFORMANCE

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

From a total portfolio risk perspective, the Permanent School 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 controls risk by establishing a laddered portfolio structure, thereby avoiding significant interest rate bets. Further, the staff purchases only investment-grade bonds and seeks to maintain an overall portfolio quality rating of at least AA.

Figure 19.
Bond Portfolio
Statistics
June 30, 1988

Value at Market	\$307,562,755
Value at Cost	310,163,965
Average Coupon	9.07%
Current Yield	9.33
Yield to Maturity	9.40
Current Yield at Cost	9.35
Time to Maturity	17.13 Years
Average Duration	7.89 Years
Average Quality Rating	AAA
Number of Issues	123

PERMANENT SCHOOL FUND

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

The Permanent School Fund achieved its risk-return performance objectives during the year. On June 30, 1988, the Permanent School Fund's bond portfolio had a duration of 7.9 years, an average quality rating of AAA and a current yield of 9.33%. Further, for the fiscal year the Permanent School Fund generated income in excess of the Minnesota Department of Finance's spendable income target.

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, 1988, the combined value of all agency cash balances was \$2.4 billion.

**Pool
Structure**

Most State 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 special or dedicated accounts necessary for the operation of State agencies as well as the balance of Invested Treasurer's Cash. The Treasurer's Cash Pool has an average daily balance of \$1.5 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 1988 both the Trust Fund Pool and the Invested Treasurer's Cash Pool substantially outperformed the total return on 91-Day Treasury Bills:

Trust Fund Pool	7.4%
Treasurer's Cash Pool	8.0
91-Day Treasury Bills	6.0%

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 \$3.3 million in additional income for the funds managed by the Board in fiscal year 1988.

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) or Federal Savings and Loan Insurance Corporation (FSLIC).

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. Since it began in 1980, the SBI has purchased over \$1 billion of CD's from over 365 financial institutions throughout the state.

MAJOR DEVELOPMENTS

Legislative Changes

Benchmark Portfolios

Performance-Based Fees

Manager Continuation Policy

Enhanced Bond Indexation

Resolution on South Africa

Proxy Voting

LEGISLATIVE CHANGES

The 1988 Legislature enacted two changes that affect the statutory authority of the State Board of Investment (SBI).

International Investments

The Legislature approved the Board's request to add international securities as authorized investments for the funds under its control. Under the statute adopted by the Legislature, international investments will be considered an alternative asset class. Previously, the Legislature authorized real estate, venture capital, resource fund investments and unrated debt as alternative assets classes. By statute, investments in all alternative asset classes, including international securities, are capped at 35% of a fund.

The Board has not yet established a target asset allocation for international investments in any fund. It expects to develop an international investment program over the next one to two years.

Northern Ireland

The Legislature also enacted statutory provisions concerning the SBI's investments in U.S. companies with operations in Northern Ireland. The new statute requires the SBI to:

- Annually compile a list of U.S. corporations with operations in Northern Ireland.
- Annually determine whether those corporations have taken affirmative action to eliminate religious or ethnic discrimination. The statute lists nine goals modeled after the McBride 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 company and does not restrict future investments by the SBI.

BENCHMARK PORTFOLIOS

The State Board of Investment (SBI) has developed benchmark portfolios for most of its external money managers in recent years. These benchmarks are an integral component of the Board's manager evaluation process and provide the foundation for a performance-based fee system.

A benchmark portfolio is a customized index that represents the investment style of an individual money manager. A benchmark reflects the prominent risk characteristics that a manager's portfolio would exhibit if the manager were making no active investment judgments.

Benchmark portfolios are appropriate targets against which to measure the performance of individual managers. At times, managers may perform well simply because their styles are "in favor." As representations of managers' styles, benchmark portfolios compensate for this factor. This allows plan sponsors to evaluate more effectively the value individual managers add to the investment process.

SBI staff developed the initial benchmark portfolios for the Board's active common stock managers in fiscal year 1986. During the following year, responsibility for maintaining appropriate benchmarks was shifted from staff to the individual managers. During fiscal year 1988, benchmarks were developed and adopted for three of the Board's active bond managers. The Board plans to adopt benchmarks for the remaining bond managers during fiscal year 1989.

All benchmarks are monitored by Board staff and the Board's consultant, Richards & Tierney. The managers' performances relative to their benchmarks are calculated by Richards & Tierney on a quarterly basis.

Benchmark portfolios will continue to be a key component of the Board's on-going investment management program. They have proven to be useful tools in manager evaluation and are integral to the application of performance-based fees.

PERFORMANCE-BASED FEES

After the Securities and Exchange Commission removed its prohibition on performance-based fees, the SBI was among the first institutional investors to implement this method of compensation.

In general, the Board uses symmetrical fulcrum fee systems. These fee systems establish a base compensation for a manager and a performance benchmark against which additional compensation (positive and negative) is paid. If a manager's performance matches that of the target, no additional fee is paid. If performance exceeds the target, an additional predetermined amount is paid. If performance fails to match the target, the base fee is reduced by the same predetermined formula. As a result, performance above the target produces additional payments to managers that are equivalent to those withheld from managers for performance below target.

**Active
Stock
Managers**

During fiscal year 1988, each of the Board's external active stock managers was paid using a fee schedule that compensates managers for their performance relative to their benchmark portfolios.

- As assets under management increase, the base fee rate paid to the manager decreases in line with the manager's sliding fee scale.
- The excess performance calculation reflects base fee payments. The manager's actual portfolio return is calculated net of the base fee. The manager is expected to outperform the benchmark portfolio, net of the base fee, by 150 basis points.
- Regardless of the base fee, the manager reaches the minimum and maximum performance fee rates at levels of deficit and excess performance measured net of the base fee (i.e., 600 basis points below and 900 basis points above the benchmark's return, respectively).

MAJOR DEVELOPMENTS

- The minimum fee rate is zero and the maximum total fee rate is twice the base fee.

The Board believes this fee structure retains the simplicity and non-volatile nature of a symmetrical fulcrum fee structure. At the same time, it permits the SBI to benefit from the reduced fees charged by managers as account sizes increase.

Enhanced Bond Index Managers

In fiscal year 1989, the Board will use a performance based fee to compensate its newly hired enhanced bond index managers. In several respects, the performance fee for these managers will be similar to the schedule described above:

- The excess performance calculation reflects base fee payments. The manager's actual portfolio return will be calculated net of the base fee. The manager is expected to outperform the bond index, net of the base fee, by 7 basis points.
- The manager will reach the minimum and maximum performance fee rates at levels of deficit and excess performance measured net of the base fee (i.e., 3.5 basis points below and 4.5 basis points above the index return, respectively).
- The total fee will be capped by both minimum and maximum levels to ensure the manager maintains a level of risk that is appropriate for a semi-passive management approach. The minimum fee will be 3.5 basis points and the maximum fee will be 11.5 basis points.

The Board believes this fee schedule provides incentive compensation that is appropriate for a semi-passive manager. More information on the design of the enhanced bond index portfolios is included in a following section of this report.

MANAGER CONTINUATION POLICY

Evaluating the performance of a diverse group of money managers is an integral feature of the Board's investment policy. In order to make informed judgments regarding the current capabilities of its managers, the Board adopted a set of specific evaluation guidelines during the fiscal year 1988. These guidelines form a "**manager continuation policy**" that assists the Board in its decisions concerning retention and termination of money managers.

The Board believes its manager continuation policy offers three primary benefits:

- It encourages a comprehensive and consistently applied analysis.
- It fosters a long-term attitude toward performance evaluation.
- It communicates investment objectives between the Board, its managers and its staff.

The Board's manager continuation policy includes both quantitative and qualitative performance criteria. The difficulty of statistically confirming investment skill makes an absolute reliance on portfolio return numbers inadvisable. Qualitative aspects of a manager's operation should also be considered.

Qualitative Criteria

Qualitative performance evaluation criteria relate to those aspects of a money manager's investment operation that cannot be expressed as measurable targets. Investors such as the Board must attempt to deduce the skills of money managers by searching for the presence or absence of basic building blocks of sound investment management within a manager's firm:

- **Elements of an Efficient Organization**

- Experienced and talented staff
- Organizational stability
- Clear leadership
- Planned growth
- Adequate client support

- **Elements of a Well-Defined Investment Approach**

Clearly specified investment style
Well-conceived decision-making process
Adequate feed-back and control mechanisms

Failure to meet one or more of these criteria is not sufficient reason to terminate a manager. As a general rule, qualitative evaluation is applied in conjunction with quantitative evaluation to determine whether a manager is meeting the Board's expectations. However, it is important to specify exceptions to this general rule. Certain changes in a manager's organization or investment approach will dictate reevaluation of the Board's relationship with the firm: a change in the firm's ownership or important members of its management team, a change in the manager's investment style, or an inability to create or maintain an appropriate benchmark portfolio.

Quantitative Criteria

Quantitative performance evaluation criteria relate to those aspects of a money manager's operation that can be analyzed relative to measurable targets. A manager's return relative to an appropriate benchmark represents "the bottom line" for a plan sponsor. However, the Board recognizes that investment performance of superior and inferior managers exhibits a large amount of variability, even when returns are measured relative to a customized benchmark.

Quantitative performance criteria must take this variability into account. A poorly designed measure could lead a plan sponsor to erroneously classify managers as inferior. This, in turn, could create costly and excessive manager turnover.

Figure 20 depicts a statistically valid method of assessing the variability of manager performance relative to a benchmark. The horizontal line represents the return on the manager's customized benchmark. Cumulative performance exceeding the benchmark will plot above the horizontal line; cumulative performance falling below the benchmark will plot below the line. The area between the two curved lines represents a confidence interval based on the manager's actual return relative to its benchmark.

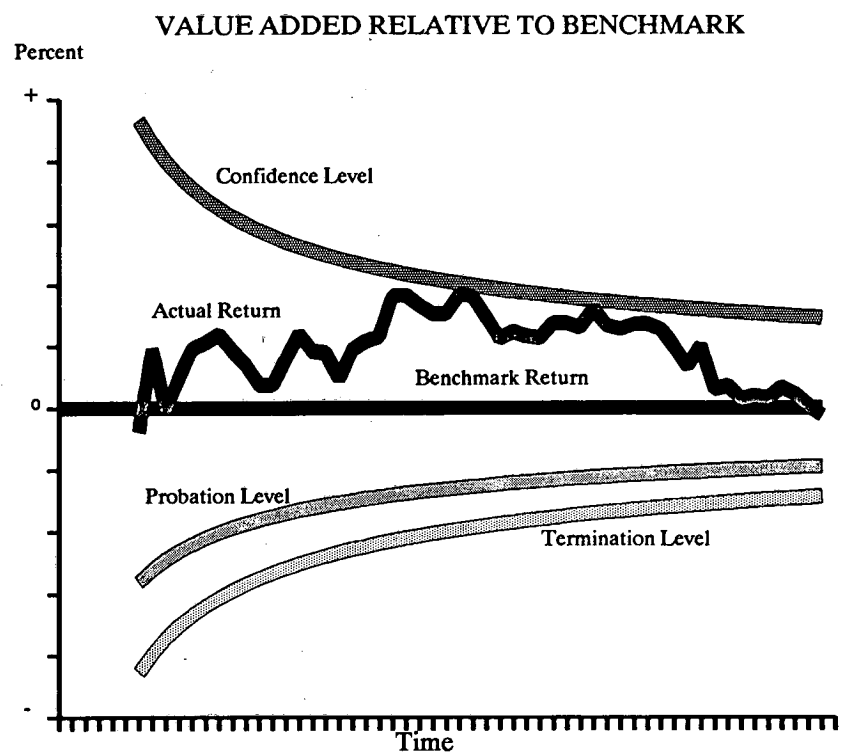
MAJOR DEVELOPMENTS

Returns within the confidence interval represent performance due either to skill or to chance. Returns falling outside the confidence interval represent superior or inferior performance significant enough that the odds of it being due to chance are low. Since performance results are reviewed on a cumulative and annualized basis, the confidence interval range narrows over time. As more information is received, the ability to make judgments about a manager's investment skill increases. The Board has incorporated this confidence interval approach in the quantitative evaluation of its stock and bond managers.

Quarterly Review

On a quarterly basis, staff reviews the results of both the qualitative and quantitative evaluations with the Investment Advisory Council. This analysis is the foundation for recommendations to the Board concerning the retention and termination of the Board's active stock and bond managers. It provides a comprehensive and consistent approach to performance evaluation and provides a clearer measure of a manager's ability to add value over time.

Figure 20.
Confidence
Interval



ENHANCED BOND INDEXATION

The State Board of Investment (SBI), in collaboration with the Investment Advisory Council, conducted a comprehensive review of the investment policies of the Basic Retirement Funds during fiscal year 1987. One recommendation from the study called for the creation of a passively managed fixed income component in the Basic Funds. As noted earlier in this annual report, the entire fixed income segment of the Basic Funds has been actively managed.

Indexation Strategies

During fiscal year 1988, SBI staff examined a range of bond indexation strategies:

- **Passive Indexation.** The goal of the passive index manager is to minimize tracking error relative to a specified bond index. The manager attempts to replicate the performance of the index with the highest possible degree of consistency.
- **Semi-Passive Indexation.** The semi-passive index manager attempts to exceed the performance of a specified bond index by a modest amount through the use of relatively low-risk valuation strategies.
- **Semi-Active Indexation.** Typically, the semi-active manager employs both valuation and interest-rate anticipation strategies in an attempt to exceed the performance. As a result, the semi-active index manager lies much closer to the active end of the continuum between passive and active management.

Of the three indexation approaches, only the passive and semi-passive approaches were considered appropriate for the Basic Fund's passive bond component. The semi-passive approach, while less conservative than strict passive indexation, is still a relatively low-cost, low-risk strategy and offers the potential for modest return enhancement. The Board selected the semi-passive approach as its indexation strategy. This enhanced bond indexation strategy is described more fully in the following section.

Enhanced Bond Indexation

The goal of an enhanced bond indexer is to add value to the indexation process through the superior selection of bonds for the index fund. The underlying index is categorized by risk characteristics (i.e., coupon, sector, maturity, etc.) into a large number of cells. A cell is comprised of all of the bonds in the underlying base index with a particular combination of risk characteristics. Each cell can be considered as a separate distribution of expected cash flows.

Typically, the index manager need select only a few of the available bonds in each target cell for the index fund itself. A strict passive manager will select the bonds that most closely match the aggregate target cell cashflows. An enhanced bond indexer, on the other hand, will consider not only the cell cashflow characteristics but also the relative values of the bonds within the cell. The manager will select bonds that are selling "cheap" or are mispriced relative to the other bonds in the cell.

Generally, the enhanced bond index manager stays very closely within the cellular constraints of the base index. The manager matches the duration and maturity of the index fund to that of the base index. In addition, the manager matches quality characteristics as well. If the manager deviates from the index cellular constraints, it will be to make minor alterations in sector weightings of the index fund.

Depending upon the strategies employed by the individual index manager, the expected value to be added above the performance of the base universe from a semi-passive enhanced approach may range from 5 to 30 basis points per year. The variance of the monthly tracking error for an enhanced index fund will be slightly greater than that of a purely passive approach. Although the enhanced index manager's goal is for the index fund to exceed the performance of the base index, the possibility exists that the index fund will slightly underperform the target during some periods as well.

MAJOR DEVELOPMENTS

Manager Selection

Late in fiscal year 1988, the Board selected two firms to manage enhanced bond index portfolios:

- Fidelity Management Trust, Boston, MA
- Lincoln Capital Management, Chicago, IL

On July 1, 1988, approximately one-half of the bond holdings in the Basic Retirement Funds were shifted from active to passive management. Lincoln and Fidelity will manage passive portfolios using enhanced indexation strategies that seek to add value to the Salomon Broad Investment Grade (BIG) Bond Index.

Custom Target

During its study of passive bond strategies, SBI staff considered the use of a custom bond index target in lieu of a market index such as the Salomon BIG. By altering duration, sector composition and duration strategy of the market index, it is possible to develop a custom bond target with greater deflation hedge capacity. Such a custom target could assist the Board in structuring the bond segment of the Basic Funds to better meet its long term deflation hedge objective. SBI staff and the Investment Advisory Council will continue to study this issue during fiscal year 1989.

RESOLUTION ON SOUTH AFRICA

On October 2, 1985, the Board adopted a resolution concerning its holdings in companies doing business in the countries of South Africa and Namibia. The resolution calls for the Board to implement a four-phase divestment program which will be completed in 1989. The resolution also requires that divestment action will not take place before the Board obtains legal and financial advice concerning any impact on its fiduciary responsibilities.

When the resolution was adopted, the Board created a Task Force on South Africa to advise the Board on its implementation process. Membership of the Task Force includes one person designated by each of the five Board members, one representative from the private sector, one representative from the retirement fund systems, and one public employee representative.

Summary

At several points, the Board's resolution refers to the "Sullivan Principles", a set of employment guidelines for companies conducting business in South Africa established by the Reverend Dr. Leon Sullivan in 1977. In 1987, Dr. Sullivan officially withdrew his association from the Sullivan Organization. A successor organization, the Industry Support Unit, adopted the Sullivan Principles as the "Statement of Principles." In this report, "the Principles" refer to the Sullivan Principles and the equivalent Statement of Principles. Like the Sullivan Organization, the Industry Support Group retains Arthur D. Little, Inc. as an independent monitor. Signatories continue to be evaluated on their implementation of the Principles using consistent standards.

The resolution establishes the following timetable for the divestment program:

- **Phase 1:** By January 2, 1986, the SBI will limit its holdings and future investments to companies that are signatories of the Principles, and/or making substantial efforts to eliminate Apartheid.
- **Phase 2:** By August 3, 1986, the SBI will limit its holdings and future investments to companies that meet the requirements of Phase 1 and that subject

their behavior in South Africa or Namibia to monitoring.

- **Phase 3:** By August 3, 1987, the SBI will limit its holdings and future investments to companies that have complied with Phases 1 and 2 and that obtain the highest rating on their implementation of the Principles, or their equivalent, by an independent monitor.
- **Phase 4:** By August 3, 1989, the SBI will be divested of and make no new investments in companies doing business in South Africa.

In addition, the resolution requires the Board to consider divesting its holdings in companies which operate in a manner which directly supports Apartheid. Companies that support Apartheid are those which provide goods or services to governmental agencies responsible for the enforcement of Apartheid; provide technology or facilities which make South Africa or Namibia less dependent on international trade; or provide financial services to the government or governmental agencies of South Africa or Namibia.

Implementation of Phases 1 & 2

After the Board's resolution was adopted, the Principles stipulated that companies must provide outside monitoring of their activities in order to maintain their status as a signatory of the Principles. As a result, all signatories meet the requirements of both Phases 1 and 2 of the resolution.

When it began implementation of the resolution, the Board and the Task Force focused their attention on companies in the actively managed common stock portfolios. Based on correspondence with companies known to do business in South Africa and information available through the Investor Responsibility Research Center (IRRC), it was initially determined that twenty companies in the actively managed common stock portfolios had not signed the Sullivan Principles.

By January, 1986 (the end of Phase 1), fourteen of these companies became signatories or instituted a policy comparable to the Principles and three other non-signatories sold their operations in South Africa. As a

MAJOR DEVELOPMENTS

result, three companies in the actively managed common stock portfolios did not meet the requirements of the resolution by the end of Phase 1.

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

By August, 1986 (the end of Phase 2), the Board's actively managed common stock portfolios did not contain the stock of any company which had not signed the Principles. As a result, all holdings in those portfolios met the requirements of the resolution at the end of Phase 2. This change was due both to sales of stock by managers during the normal course of business as well as the decision of other companies to become signatories of the Principles.

Implementation of Phase 3

Phase 3 of the resolution requires the SBI to restrict its holdings to signatories that have achieved the highest category ranking on their implementation of the Principles (i.e., "Category I, Making Good Progress").

In May, 1987, the Task Force recommended that the divestment through attrition policy be expanded to include any company in the actively managed stock portfolios that did not meet the Phase 3 requirements. This action restricts the active common stock managers from purchasing stock in any of the following companies: non-signatories of the Principles; companies whose most recent rating on their implementation of the Principles was "Category II, Making Progress" or "Category III, Needs to Become More Active."

In May, 1987, the Board's active stock managers had positions in twenty six restricted companies totaling 2.8 million shares. In June, 1988, approximately one year later, the managers had positions in seven restricted companies

MAJOR DEVELOPMENTS

totaling 0.4 million shares. This is a 86% reduction in the number of restricted shares and indicates substantial progress continues to be made in implementing the Board's policy of divestment through attrition in Phase 3. This reduction was due both to sales of stock by managers during the normal course of business as well as the decisions of companies to terminate their operations in South Africa.

Future developments concerning Phases 3 and 4 of the resolution will be described in subsequent Annual Reports.

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 non-routine items involving such matters as merger proposals and corporate social responsibility issues. In effect, as a shareholder the SBI can participate in shaping corporate policies and practices.

Proxy Voting Committee

All non-routine proxy matters are reviewed by a committee of the Board and voted in accordance with the SBI's statement of investment responsibility, which states, in part:

"...The Investment Board recognizes that when performing their duty of investing the trust funds (pension and other funds) for which they are custodian, their primary responsibility is the prudent and responsible investment of the assets of the funds for the economic benefit of the beneficiaries of the funds..."

"...Consistent with prudent and responsible investment policy, the Investment Board shall not knowingly invest or maintain holdings in those corporations which are in flagrant violation of the law or in stubborn disregard of the social welfare of the society, or do not recognize environmental responsibilities in their corporate actions, and are not taking reasonable steps to overcome the situations..."

Fiscal Year 1988 Proposals

During fiscal year 1988, the SBI voted proxies for approximately 1,500 corporations. As in previous years, resolutions introduced by shareholder and corporate management could be categorized in two broad areas, social responsibility and corporate governance.

In the social responsibility area, shareholder resolutions addressed a wide range of issues including human rights,

MAJOR DEVELOPMENTS

affirmative action, environmental concerns and defense programs. In the area of corporate governance, non-routine issues were submitted by corporate management and by shareholders. Requests to limit the liability of corporate officers, or to indemnify them against certain actions, occupied a large number of the proposals from management. Shareholder proposals in the corporate governance area were dominated by resolutions that asked companies to rescind certain anti-takeover provisions.

INVESTMENT MANAGER SUMMARIES

Common Stock Managers

Bond Managers

Alternative Investment Managers

COMMON STOCK MANAGERS

Fred Alger Management

Fred Alger searches for companies expected to experience above-consensus earnings gains. These earnings gains may be either cyclical or secular. The firm focuses on two types of companies: first, companies whose products are expected to produce high consistent unit volume growth rates and second, companies undergoing a positive life cycle change not yet fully recognized by the market. The proportion of the total portfolio invested in these two types of companies varies over time. On average, however, the high unit growth companies tend to dominate the total portfolio. Fred Alger is not an active market timer, usually maintaining a fully invested position.

Alliance Capital Management

Alliance searches for companies likely to experience high rates of earnings growth, on either a cyclical or secular basis. Alliance has invested 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.

BMI Capital

BMI's investment approach focuses on companies expected to exhibit strong sustained earnings gains. BMI attempts to identify two types of "growth" companies: first, misperceived companies that are in the process of undergoing dynamic changes that will cause them to produce materially higher earnings over the near-term; and second, small-to-medium sized companies that exhibit the potential for rapid future earnings growth. The weighting of the two types of growth companies within the firm's portfolio will vary over time depending upon economic and financial conditions. Generally, however, the misperceived companies will make up the majority of the portfolio. On the other hand, the smaller high growth companies tend to dominate the portfolio's risk characteristics. The firm concentrates almost exclusively on stock selection, only rarely raising cash to significant levels.

Beutel Goodman Capital Management

Beutel Goodman searches for companies whose stock prices are low in comparison to estimated tangible book value or companies whose P/E's are low in relation to earnings quality and expected earnings growth. This "value" investment approach is contrarian and defensive by nature, exhibiting less volatility than investment styles focusing on growing

INVESTMENT MANAGER SUMMARIES

earnings. Beutel Goodman is not an active market timer and is almost always fully invested.

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.

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 will invest in a wide range of industries. It tends to buy liquid, large capitalization stocks. While IDS will make occasional significant asset mix shifts over a market cycle, the firm is a less aggressive market timer than most rotational managers.

Investment Advisers

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 will invest 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.

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.

INVESTMENT MANAGER SUMMARIES

Wilshire Associates

The index fund managed by Wilshire Associates is a well-diversified portfolio of common stocks designed to match the rate of return performance of a predetermined stock market index. The index fund utilized by the SBI tracks the Wilshire 5000, a broad-based equity market indicator composed of the common stocks of all U.S. domiciled corporations for which daily prices are available. In effect, the Wilshire 5000 represents virtually the entire domestic common stock market.

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

BOND MANAGERS

Investment Advisers

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 the interest rate forecasts. Individual security selection receives very limited emphasis, focusing largely on specific bond characteristics such as call provisions.

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.

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

INVESTMENT MANAGER SUMMARIES

that have prepayment expectations consistent with the portfolio's desired maturity. The firm will also move in and out of cash, but generally only gradually over an interest rate cycle and never taking extremely high cash positions. Total portfolio maturity is always kept within an intermediate three-to-seven year duration band. Unlike other firms that also invest in mortgage securities, Miller Anderson intensively researches and, even in some cases manages, the mortgage pools in which it invests.

Morgan Stanley

Morgan Stanley takes a very conservative approach to fixed income investing, emphasizing the preservation of capital through the generation of consistent real returns. This philosophy has led the firm to maintain a vast majority of its portfolio in short to intermediate maturity, high quality (A or better) securities. Large positions in maturities longer than ten years are held only as temporary trading opportunities. These positions are increased or reduced gradually as the firm's expectations of the cyclical level of interest rates changes. Issue selection is of secondary importance to maturity decisions. Rather, given its maturity decisions, the firm prefers to make sizable investments in specific areas of the market where it believes persistent misvaluations are present.

Peregrine Capital Management

Peregrine Capital stresses consistency of fixed income portfolio relative returns. To accomplish this goal, the firm maintains a portfolio of high quality, liquid securities and a balance of maturity levels avoiding extreme exposures on either the long or short end. Further, Peregrine will make only gradual moves between maturities over an interest rate cycle. The firm also concentrates on exploring misperceived fixed income securities, which has led the firm to make extensive use of mortgage-backed securities and floating rate notes.

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 these managers can be found in the Statistical Data Appendix.

ALTERNATIVE INVESTMENT MANAGERS

Real Estate

**Aetna Life
& Casualty**

Fund: RESA

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.

**Equitable
Real Estate
Group**

Fund: Prime Property Fund

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.

**Prudential
Investment
Management**

Fund: PRISA I

PRISA I is an open-end commingled real estate fund. One of the largest and oldest of the open-end funds, PRISA I was formed in July 1970 by the Prudential Investment Management Corporation of New Jersey. PRISA's real estate portfolio consists primarily of equity investments in existing properties. Investments are diversified by both the type and location of properties. Prudential contracts with outside firms for the on-site management of its properties or retains joint venture partners as property managers. The fund has no termination date. Investors have the option quarterly to withdraw a portion or all of their investment.

**Rosenberg Real
Estate Equity
Funds
(RREEF)**

Fund: RREEF USA III

RREEF USA III is a closed-end commingled fund managed by the Rosenberg Real Estate Equity Funds. It has a twelve-year term. 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.

**Heitman
Advisory Corp.
(HAC)**

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

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

INVESTMENT MANAGER SUMMARIES

and location of the properties. Centre Properties, Ltd., an affiliate of Heitman, manages the trust's wholly-owned properties. Properties that are partially owned by the trusts may be managed by joint venture partners. Heitman Advisory is based in Chicago.

Trust Company of the West (TCW)

Funds: TCW Realty Fund III TCW Realty Fund IV

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.

State Street Bank & Trust

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

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.

Venture Capital

Allied Capital

Fund: Allied Venture Partnership

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.

DSV Management Ltd.

Fund: DSV Partners IV

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.

INVESTMENT MANAGER SUMMARIES

First Chicago Investment Advisers

Fund: Venture Partnership Acquisition Fund

First Chicago's Venture Partnership Acquisition Fund was formed in March 1988. This limited partnership has a ten year term. Although this is First Chicago's first fund, they have been making venture capital investments for institutional clients since 1972. First Chicago is based in Chicago, Illinois. The fund will invest exclusively in secondary venture capital limited partnership interests. Secondary interests are presented by limited partners, who for a variety of reasons, have decided to liquidate their venture capital holdings.

Golder, Thoma & Cressey

Fund: Golder, Thoma and Cressey Fund III

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.

Inman & Bowman Management

Fund: Inman & Bowman

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.

IAI Venture Capital Group

Fund: Superior Venture Partners

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.

Kohlberg, Kravis, Roberts & Co. (KKR)

Funds: KKR 1984 LBO Fund

KKR 1986 LBO Fund

KKR 1987 LBO Fund

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

Matrix Partners

Fund: Matrix Partners II

Matrix Partners II limited partnership was formed in August, 1985 and has a term of ten years. The fund's investment emphasis is on high-technology firms in the early and expansion stages of corporate development. However, for diversification the Fund's portfolio will include a sizable component of non-technology firms. The portfolio may include several small leveraged buyout investments as well. The fund is managed by five experienced general partners. The partners have offices in Boston, San Jose, and San Francisco.

INVESTMENT MANAGER SUMMARIES

Norwest Venture Capital Management

Fund: Northwest Venture Partners I

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, an 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.

Smith Barney Venture Corp.

Fund: First Century III

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.

Stamps, Woodsum & Co.

Fund: Summit Ventures I Summit Venture II

Summit Ventures are limited partnerships with a ten-year terms. The funds were formed funds 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 capital, illiquid stocks.

Resource Funds

Apache Corporation

Funds: Apache Equipment Financing Notes Apache Properties Acquisition Notes Apache Acquisition Net Profits Interest

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

INVESTMENT MANAGER SUMMARIES

Apache (con't)

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. Principal and interest on the notes are estimated to be repaid by 1992. The 2% additional interest will be paid to noteholders throughout the life of producing properties. Apache Corp. is based in Denver.

Apache 1985 Properties Acquisition Notes are a \$118 million private placement to finance the acquisition and tangible development costs related to certain producing oil and gas properties, of which some are fully developed and some are partially developed. 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 properties. Principal and interest on the notes are estimated to be repaid by 1996. The 2% additional interest will be paid to noteholders throughout the life of producing properties.

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. Payout is expected in 1991.

Funds: AMGO I AMGO II AMGO IV

First Reserve Corp.

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 be 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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Equity Manager Portfolio Statistics Glossary

In the following pages, summary descriptions of the individual equity managers' risk characteristics and performance data are displayed. Some of the statistics presented are technical in nature. This glossary is designed to aid in understanding the terms that are introduced.

The first five portfolio characteristics listed in the glossary are presented on an absolute basis. The remaining portfolio statistics are reported relative to the stock market. The purpose of presenting these statistics in a relative fashion is to "normalize" them, or remove the impact of market-wide changes on the characteristics of a manager's portfolio. In calculating the relative values, the stock market is represented by the 1000 largest capitalization companies in the Wilshire 5000. The managers' portfolio characteristics are reported in standard deviation units relative to the average or mean of these 1000 companies. Thus, a positive (negative) value for a portfolio characteristic indicates a value higher (lower) than the market average.

Qtr. Port. Turnover	The manager's total equity asset sales during the quarter divided by the average value of the manager's equity assets over the quarter.
Equity Allocation (Eq. Alloc.)	Percent of the manager's total portfolio invested in common and preferred stocks and convertible securities.
Diversification (R2)	Extent to which a manager's equity holdings statistically resemble the stock market. Low (high) diversification portfolios will experience returns which are not well (are well) correlated with those of the market. By definition, the market has a diversification measure of 1.0. The less a portfolio is diversified, the lower will be its diversification measure (referred to as R-squared). The SBI's managers are required, over the long-term, to hold portfolios with diversification levels less than 0.85.
Market Variability (Eq. Beta)	Degree to which the returns on the manager's stock portfolio are sensitive to movements in the stock market's return. By definition the market has a market volatility measure (referred to as beta) of 1.0. Portfolios with values greater (less) than 1.0 have above (below) average sensitivity to market moves. The SBI's managers are required, over the long-term to hold portfolios with market volatility levels above 1.10. This measure does not include the impact of cash holdings on total portfolio volatility.
Price Variability (MVAR)	Risk related to the historical variability of the prices of stocks in the manager's portfolio. The more variable are the portfolio's securities' prices, the more risky is the portfolio. Items such as current stock price, twelve month price range, trading volume, and beta make up this measure.
Earnings Variability (EVAR)	Risk related to the variability of the earnings of those companies owned in the manager's portfolio. The more variable are the companies' earnings, the more risky is the portfolio. Items such as variance of accounting earnings, variance of cash flow, occurrence of extraordinary accounting items, and the correlation of companies' earnings with U.S. corporate earnings make up this measure.

12-Mo. Relative Return (REL RET)	The return on the stocks in the manager's portfolio over the preceeding twelve months less the return on the S&P 500.
Price-to-Book Ratio (P/B)	The market value of the manager's portfolio divided by the latest available annual book value.
5 Yr. Earnings Growth (5 YR. EARN)	The annualized growth of the average earnings per share of the manager's portfolio over the latest five fiscal years.
Size and Maturity (SIZE)	Risk related to the size and maturity of the companies held in the portfolio. The smaller and younger the companies, the more risky is the portfolio. Items such as total assets, market capitalization, gross plant/book value ratio, and company age make up this measure.
Growth (GROW)	Risk related to the growth orientation of companies owned by the manager. The more growth-oriented are the companies, the riskier is the portfolio. Items such as dividend yield, E/P ratio, and growth in total assets make up this measure.
Earnings-to-Price Ratio (E/P)	The weighted average earnings per share of the manager's common stock portfolio for the trailing four quarters divided by the weighted average price per share of the manager's common stock portfolio.
Dividend Yield (YIELD)	Indicated annual dividend of the manager's stock portfolio divided by the portfolio market value.
Financial Leverage (FINL)	Risk related to the extent to which companies held in the portfolio have used debt to finance their operations. The more leveraged are the companies, the riskier is the portfolio. Items such as debt/asset ratio, current asset/current liability ratio, and uncovered fixed charges make up this ratio.

Table A-1

EXTERNAL EQUITY MANAGERS

Portfolio Statistics Relative to Benchmark Portfolios

As of June 30, 1988

Manager		# Of Stks	Eq. Alloc.	Eq. Beta	R2	Yield	E/P	Rel Ret	P/B	5 Yr Earn	Mvar	Evar	Size	Grow	Finl
GROWTH MANAGERS															
Fred Alger	(A)	42	93	1.31	0.91	-0.51	-0.16	-0.18	0.76	0.44	0.98	0.41	0.96	1.13	-0.03
	(B)	957	95	1.27	N.A.	-0.28	-0.11	-0.36	0.21	0.08	0.61	0.12	0.51	0.53	-0.05
Alliance Capital	(A)	42	96	1.18	0.93	-0.49	-0.14	0.01	0.66	0.40	0.46	0.43	-0.27	0.64	-0.09
	(B)	333	95	1.25	N.A.	-0.40	-0.08	-0.24	0.34	0.24	0.59	-0.02	0.23	0.70	-0.08
SMALL GROWTH MANAGERS															
BMI Capital	(A)	29	95	1.49	0.83	-0.69	-0.16	-0.24	0.01	-0.07	1.24	1.05	2.35	0.99	0.30
	(B)	385	95	1.37	N.A.	-0.44	-0.04	-0.25	0.03	0.00	0.93	0.20	1.36	0.70	-0.14
Lieber & Co.	(A)	172	97	1.31	0.90	-0.34	0.02	-0.14	0.03	0.25	0.71	-0.02	2.20	0.72	-0.54
	(B)	1,700	95	1.39	N.A.	-0.48	-0.20	-0.30	-0.02	-0.01	0.79	0.18	1.85	0.90	-0.27
Waddell & Reed	(A)	45	68	1.40	0.86	-0.51	-0.20	0.05	0.26	-0.08	1.20	0.92	1.67	0.80	-0.09
	(B)	1,048	80	1.34	N.A.	-0.40	-0.22	-0.36	0.10	0.02	0.85	0.21	1.02	0.63	0.09
ROTATIONAL MANAGERS															
Forstmann Leff	(A)	39	64	1.12	0.92	-0.16	0.12	-0.20	0.01	0.30	0.54	0.43	-0.24	0.15	0.10
	(B)	820	70	1.06	N.A.	0.15	0.11	-0.24	0.04	0.06	0.08	-0.05	-0.10	0.13	0.04
IDS Advisory	(A)	47	96	1.18	0.93	-0.29	0.00	-0.12	0.21	0.06	0.69	0.71	0.22	0.25	0.05
	(B)	640	90	1.05	N.A.	0.25	0.15	-0.30	-0.01	0.03	0.03	-0.09	0.06	0.10	0.05
Investment Advisers	(A)	42	87	1.09	0.94	-0.11	-0.08	-0.12	0.39	0.10	0.18	0.36	-0.19	0.31	0.12
	(B)	362	85	1.04	N.A.	0.20	0.12	-0.30	0.10	0.08	0.06	-0.09	-0.34	0.05	-0.00
VALUE MANAGERS															
Beutel Goodman	(A)	34	49	1.28	0.85	0.24	0.66	-0.29	-0.59	-0.23	0.67	0.88	0.39	-0.13	0.13
	(B)	419	95	1.26	N.A.	0.06	0.15	-0.38	-0.42	-0.06	0.60	0.17	0.67	0.21	0.06
Composite Active Ext. Mgrs.		377	81	1.24	0.95	-0.35	-0.02	-0.12	0.28	0.18	0.71	0.56	0.59	0.55	-0.01
Index Fund Mgr.		1,660	100	1.08	0.98	0.16	0.08	-0.26	-0.05	-0.01	0.17	0.25	0.38	0.12	-0.03
Composite All Basic Eq. Mgrs.		1,752	94	1.12	0.98	0.04	0.06	-0.23	0.02	0.03	0.30	0.32	0.43	0.22	-0.02

(A) - Actual Portfolio

(B) - Benchmark Portfolio

Table A-2

EXTERNAL EQUITY MANAGERS

Sector Weightings Relative To Benchmark Portfolios

As Of June 30, 1988

Manager		Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat. & Serv	Tech	Tran	Util
GROWTH MANAGERS										
Fred Alger	(A)	3.3%	3.4%	29.5%	0.0%	7.1%	26.8%	23.5%	6.3%	0.0%
	(B)	5.0	4.2	37.4	6.5	8.3	16.3	16.6	2.9	2.8
Alliance	(A)	5.6	5.3	35.3	2.5	8.3	9.1	24.2	9.6	0.0
	(B)	2.8	2.1	36.4	4.2	12.0	14.0	24.9	3.5	0.1
SMALL GROWTH MANAGERS										
BMI Capital	(A)	11.8	2.4	43.9	3.8	14.7	7.9	15.6	0.0	0.0
	(B)	4.2	5.7	24.9	4.3	20.5	18.8	16.9	3.1	1.7
Lieber & Co.	(A)	4.3	4.1	32.4	2.4	17.7	20.2	14.1	4.4	0.5
	(B)	6.4	5.0	24.6	4.2	21.0	17.4	17.7	2.6	1.0
Waddell & Reed	(A)	6.9	11.6	13.2	5.3	0.0	23.0	29.3	8.5	2.3
	(B)	7.9	3.5	31.5	7.7	0.5	23.1	19.0	6.2	0.5
ROTATIONAL MANAGERS										
Forstmann Leff	(A)	1.8	2.9	27.1	3.6	2.1	34.8	21.0	2.9	3.7
	(B)	5.2	2.8	28.4	9.5	12.7	15.2	11.1	3.0	12.2
IDS Advisory	(A)	6.6	2.6	27.0	10.4	0.0	26.5	18.1	6.7	2.0
	(B)	4.0	2.3	25.6	7.5	14.0	14.9	13.6	3.5	14.6
Investment Advisers	(A)	10.9	0.0	29.2	4.1	2.4	26.3	15.1	4.2	7.8
	(B)	5.1	4.1	30.1	9.8	9.2	13.6	14.1	3.1	11.0
VALUE MANAGERS										
Beutel Goodman	(A)	0.7	11.3	12.0	8.5	14.0	16.8	22.8	9.1	4.8
	(B)	5.6	4.9	21.1	7.9	21.8	19.6	12.1	6.6	0.4
Composite External Managers		5.7	4.7	28.5	4.4	6.5	20.7	21.1	6.3	2.0
Index Fund Manager		5.1	4.2	26.3	9.3	12.5	13.7	13.0	3.0	12.8
Composite All Basic Managers		5.3	4.4	26.8	8.1	11.0	15.4	15.0	3.8	10.2
Wilshire 5000		5.1	4.0	27.4	9.7	12.2	13.7	12.0	3.0	12.9

(A) - Actual Portfolio

(B) - Benchmark Portfolio

Table A-3

EXTERNAL EQUITY MANAGERS
Performance Relative To Benchmark Portfolios

Managers	Year Ending 6/30/88		Two Years Ending 6/30/88 (Annualized)		Three Years Ending 6/30/88 (Annualized)		Four Years Ending 6/30/88 (Annualized)	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio
Fred Alger	-9.0%	-4.5%	-1.3%	7.1%	12.8%	15.8%	16.0%	18.5%
Alliance Capital	-0.8	-9.7	10.7	2.9	20.8	11.8	24.1	15.7
Beutel Goodman	-1.5	0.3	7.4	11.8	10.3	18.2	16.3	21.7
BMI Capital	-5.3	-5.7	6.9	3.6	15.9	13.6	15.6	16.4
Forstmann Leff	-1.3	-1.5	5.3	6.3	16.9	12.5	19.9	15.2
IDS	-9.5	-4.1	3.9	7.1	15.3	15.5	20.1	19.1
Investment Advisers	-4.9	-4.3	6.0	7.0	13.2	15.4	17.8	19.0
Lieber & Company	-3.9	-3.8	1.5	2.8	13.5	12.7	17.6	15.9
Waddell & Reed	0.9	-1.8	9.7	9.1	15.6	14.3	15.5	15.7
Wilshire Associates (Index Fund)	-5.9	-5.8	6.5	6.3	15.1	15.2	19.0	18.9
Total Basic Retirement Funds' Common Stock Segment*	-5.2%	-5.0%	6.4%	6.7%	14.8%	15.0%	18.6%	18.7%
Capital Markets Data								
Wilshire 5000	-5.9%	--	6.3%	--	15.2%	--	19.0%	--
90-Day Treasury Bills	6.0	--	5.9	--	6.3	--	7.1	--
Inflation	3.9	--	3.8	--	3.1	--	3.3	--

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

Table A-4

EXTERNAL EQUITY MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 12/83 - 6/88

Name	Date	Qtr.	Eq. Alloc.	R2	Eq.	Mvar	Evar	Rel	P/B	5 Yr	Size	Grow	E/P	Yld	Finl
		T/o			Beta			Ret		Earn					
Fred Alger	6/30/88	37	93	0.91	1.31	0.98	0.41	-0.18	0.76	0.44	0.96	1.13	-0.16	-0.51	-0.03
	3/31/88	76	96	0.94	1.26	0.79	0.50	-0.11	0.36	0.17	0.73	0.54	0.02	-0.37	0.10
	12/31/87	21	95	0.93	1.27	0.82	0.18	0.08	0.79	0.35	0.26	0.85	-0.13	-0.61	0.02
	9/30/87	40	93	0.93	1.27	0.89	0.16	0.52	0.92	0.35	0.18	0.91	-0.04	-0.62	0.09
	6/30/87	50	95	0.94	1.17	0.64	0.11	0.30	0.92	0.39	0.02	0.64	-0.25	-0.48	0.04
	3/31/87	82	79	0.95	1.16	0.48	0.21	0.01	0.37	0.13	0.16	0.32	-0.02	-0.35	-0.04
	12/31/86	49	93	0.95	1.17	0.45	0.13	0.26	0.73	0.01	0.19	0.39	-0.02	-0.34	-0.04
	9/30/86	38	88	0.91	1.28	0.84	0.32	0.44	0.56	0.03	0.40	0.49	-0.19	-0.58	-0.10
	6/30/86	21	94	0.92	1.31	0.88	0.35	0.74	0.40	0.09	0.02	0.39	-0.04	-0.56	-0.01
	3/31/86	40	98	0.91	1.29	0.94	0.48	0.31	0.23	0.12	-0.17	0.45	-0.40	-0.54	0.19
	12/31/85	28	95	0.90	1.25	0.69	0.45	0.11	0.13	0.25	0.14	0.19	0.02	-0.45	0.25
	9/30/85	28	95	0.83	1.23	0.64	0.33	-0.07	0.16	0.31	0.32	0.33	-0.17	-0.42	0.08
	6/30/85	41	92	0.79	1.23	0.77	0.39	-0.07	0.32	0.48	0.26	0.53	-0.05	-0.55	0.05
	3/31/85	36	96	0.85	1.27	0.84	0.24	0.03	0.39	0.69	0.05	0.38	-0.23	-0.64	0.08
	12/31/84	16	95	0.86	1.19	0.48	0.05	0.03	0.35	0.10	0.26	0.10	0.03	-0.47	-0.09
	9/30/84	20	94	0.86	1.22	0.44	0.14	0.10	0.34	0.00	0.42	-0.01	-0.04	-0.44	-0.08
	6/30/84	16	93	0.86	1.22	0.11	-0.01	0.06	0.06	-0.21	0.45	-0.13	-0.21	-0.31	0.07
	3/31/84	19	91	0.86	1.19	0.14	0.04	-0.13	0.08	-0.34	0.46	-0.12	-0.40	-0.32	-0.00
12/31/83	23	95	0.88	1.18	0.38	0.08	0.26	-0.04	-0.37	0.31	-0.05	-0.50	-0.32	0.05	
Alliance Capital	6/30/88	15	96	0.93	1.18	0.46	0.43	0.01	0.66	0.40	-0.27	0.64	-0.14	-0.49	-0.09
	3/31/88	19	97	0.94	1.17	0.45	0.26	-0.01	0.89	0.18	-0.26	0.69	-0.09	-0.55	0.05
	12/31/87	10	99	0.92	1.15	0.28	-0.04	0.34	1.00	0.13	-0.15	0.60	-0.22	-0.61	0.02
	9/30/87	13	98	0.95	1.21	0.63	-0.04	0.41	0.70	0.13	-0.25	0.68	-0.21	-0.55	-0.07
	6/30/87	18	99	0.96	1.20	0.54	0.03	0.13	0.70	0.25	-0.18	0.67	-0.09	-0.50	-0.08
	3/31/87	29	92	0.95	1.20	0.55	0.06	0.09	0.93	0.20	-0.28	0.65	-0.08	-0.51	-0.10
	12/31/86	19	96	0.92	1.23	0.43	-0.04	0.28	0.66	0.34	-0.15	0.82	-0.06	-0.58	-0.08
	9/30/86	13	99	0.91	1.21	0.44	-0.14	0.20	0.64	0.35	-0.12	0.64	0.00	-0.50	-0.26
	6/30/86	11	97	0.89	1.21	0.88	0.35	0.30	0.75	0.48	-0.19	0.68	-0.02	-0.50	-0.26
	3/31/86	17	94	0.85	1.24	0.53	0.11	0.48	0.88	0.36	-0.10	0.57	-0.46	-0.49	0.09
	12/31/85	7	96	0.83	1.23	0.52	0.13	0.23	1.06	0.43	-0.14	0.56	-0.44	-0.54	0.00
	9/30/85	15	89	0.73	1.24	0.53	0.15	0.09	0.99	0.54	-0.02	0.64	-0.50	-0.61	-0.08
	6/30/85	7	95	0.76	1.21	0.52	0.03	0.04	0.96	0.66	0.08	0.68	-0.30	-0.56	-0.06
	3/31/85	10	96	0.76	1.19	0.48	-0.12	0.10	0.74	0.73	0.15	0.63	-0.27	-0.55	-0.20
	12/31/84	8	92	0.73	1.30	0.56	0.09	0.03	0.82	0.51	0.26	0.85	-0.29	-0.73	-0.15
	9/30/84	13	88	0.72	1.34	0.53	0.15	-0.02	0.72	0.52	0.33	0.83	-0.28	-0.65	-0.09
	6/30/84	8	92	0.73	1.39	0.46	0.13	-0.27	0.78	0.45	0.48	0.78	-0.40	-0.73	-0.04
	3/31/84	12	92	0.72	1.38	0.68	0.13	0.13	0.71	0.46	0.50	0.65	-0.47	-0.72	-0.04
12/31/83	14	92	0.72	1.37	0.65	0.31	0.18	0.78	0.14	0.45	0.72	-0.50	-0.72	0.06	
Beutel Goodman	6/30/88	79	49	0.85	1.28	0.67	0.88	-0.29	-0.59	-0.23	0.39	-0.13	0.66	0.24	0.13
	3/31/88	11	90	0.82	1.21	0.51	0.71	-0.28	-0.66	-0.11	0.63	0.01	0.04	0.28	0.40
	12/31/87	9	87	0.79	1.23	0.51	0.09	-0.45	-0.53	0.02	0.76	0.25	-0.12	0.22	0.45
	9/30/87	15	86	0.85	1.15	0.05	0.08	-0.42	-0.53	-0.30	0.74	0.30	-0.62	0.01	0.33
	6/30/87	12	86	0.89	1.14	0.13	0.05	-0.30	-0.59	-0.30	0.22	0.18	-0.42	-0.08	0.24
	3/31/87	25	84	0.88	1.18	0.25	0.31	-0.57	-0.66	-0.23	0.25	0.34	-0.17	-0.02	0.27
	12/31/86	18	96	0.86	1.21	0.41	0.22	-0.79	-0.69	-0.24	0.22	0.40	-0.35	-0.04	0.39
9/30/86	13	95	0.87	1.20	0.33	0.48	-0.68	-0.68	-0.35	0.38	0.09	-0.31	0.09	0.35	

Table A-4 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 12/83 - 6/88

Name	Date	Qtr. Port. T/O	Eq Alloc.	R2	Eq. Beta	Mvar	Evar	Rel. Ret	P/B	5 Yr. Earn	Size	Grow	E/p	Yld	Finl	
Beutel Con't.	6/30/86	10	87	0.89	1.20	0.22	0.54	-0.79	-0.67	-0.28	0.23	0.07	-0.41	0.10	0.28	
	3/31/86	22	87	0.85	1.15	0.37	0.64	-0.66	-0.64	-0.33	0.19	0.23	-0.94	0.06	0.12	
	12/31/85	18	89	0.83	1.22	0.30	0.58	-0.58	-0.61	-0.74	0.63	0.13	-0.88	0.25	0.35	
	9/30/85	5	99	0.81	1.26	0.47	0.47	-0.40	-0.32	-0.52	0.90	0.12	-0.73	0.09	0.26	
	6/30/85	6	94	0.83	1.24	0.55	0.22	-0.27	-0.26	-0.64	0.96	0.27	-0.55	-0.02	0.37	
	3/31/85	14	93	0.83	1.18	0.38	-0.25	-0.38	-0.25	-0.71	1.19	0.14	-0.43	0.06	0.24	
	12/31/84	8	94	0.81	1.19	0.27	-0.15	-0.41	-0.42	-0.87	1.14	0.04	0.21	0.06	0.63	
	9/30/84	10	93	0.81	1.21	0.31	-0.17	-0.10	-0.41	-0.81	1.28	0.10	0.23	0.08	0.59	
	6/30/84	11	92	0.79	1.18	0.05	-0.29	0.19	-0.44	-0.89	1.32	0.07	0.02	-0.05	0.58	
	3/31/84	12	98	0.79	1.16	0.16	-0.19	0.27	-0.41	-0.85	1.34	0.01	-0.42	-0.04	0.37	
	12/31/83	15	95	0.74	1.08	0.21	-0.08	0.22	-0.42	-0.61	1.18	0.03	-0.72	0.05	0.24	
	BMI Capital	6/30/88	19	95	0.83	1.49	1.24	1.05	-0.24	0.01	-0.07	2.35	0.99	-0.16	-0.69	0.30
		3/31/88	21	96	0.86	1.41	1.15	0.82	-0.30	-0.17	-0.33	2.37	0.93	-0.13	-0.76	0.10
12/31/87		5	96	0.89	1.40	0.83	0.44	-0.60	-0.33	-0.45	2.20	0.48	0.37	-0.62	0.01	
9/30/87		23	98	0.90	1.28	0.54	0.52	-0.33	-0.12	-0.39	1.97	0.60	0.06	-0.57	0.10	
6/30/87		14	99	0.91	1.28	0.62	0.61	-0.19	-0.02	-0.34	1.56	0.60	0.09	-0.64	0.14	
3/31/87		20	96	0.89	1.29	0.65	0.48	-0.02	0.00	-0.62	1.27	0.89	0.10	-0.63	0.25	
12/31/86		21	96	0.91	1.21	0.67	0.47	0.13	-0.01	-0.43	1.15	0.76	-0.09	-0.74	-0.04	
9/30/86		7	97	0.89	1.31	0.78	0.49	0.14	-0.03	-0.28	1.50	1.07	-0.35	-0.85	-0.11	
6/30/86		20	96	0.90	1.37	1.10	0.31	0.23	0.23	-0.14	1.60	0.95	-0.08	-0.84	-0.17	
3/31/86		17	97	0.86	1.33	0.98	0.43	-0.13	0.37	0.03	1.48	0.96	-1.06	-0.59	0.08	
12/31/85		5	95	0.85	1.27	0.74	0.35	-0.30	0.22	0.13	1.14	0.59	-0.80	-0.40	-0.01	
9/30/85		28	28	0.72	1.40	0.89	0.32	-0.78	0.48	0.67	1.47	0.74	-0.42	-0.71	-0.25	
6/30/85		10	98	0.75	1.22	0.80	0.17	-0.52	0.80	1.06	1.42	0.63	-0.14	-0.56	-0.38	
3/31/85		2	99	0.55	1.26	0.84	0.10	-0.66	1.13	1.04	1.49	0.23	-0.20	-0.61	-0.33	
12/31/84		13	87	0.74	1.33	0.78	0.34	-0.20	1.05	0.56	1.41	0.11	-0.24	-0.57	-0.18	
9/30/84		29	82	0.75	1.33	0.78	0.17	-0.44	0.83	0.63	1.17	-0.05	0.01	-0.44	-0.23	
6/30/84		6	99	0.79	1.33	0.63	0.17	-0.37	0.67	0.32	1.51	0.22	-0.24	-0.48	-0.16	
3/31/84		18	95	0.80	1.32	0.77	0.20	-0.53	0.72	0.31	1.86	0.36	-0.40	-0.47	-0.14	
12/31/83	14	98	0.81	1.29	1.02	0.26	0.26	0.58	0.08	1.60	0.48	-0.52	-0.49	0.01		
Forstmann Leff	6/30/88	32	64	0.92	1.12	0.54	0.43	-0.20	0.01	0.30	-0.24	0.15	0.12	-0.16	0.10	
	3/31/88	68	50	0.94	1.04	0.31	0.27	-0.15	0.40	0.15	-0.32	0.05	0.09	0.05	0.26	
	12/31/87	51	54	0.92	1.09	0.32	0.28	-0.01	0.25	0.04	-0.14	0.08	-0.17	-0.08	0.34	
	9/30/87	50	56	0.93	1.04	0.20	0.22	0.36	0.16	0.02	-0.11	0.08	-0.09	-0.16	0.25	
	6/30/87	63	68	0.94	1.11	0.47	0.10	0.50	0.53	-0.01	-0.20	0.23	-0.30	-0.29	0.05	
	3/31/87	77	77	0.95	1.21	0.51	-0.09	0.29	0.55	-0.09	-0.16	0.30	-0.15	-0.45	0.00	
	12/31/86	54	71	0.88	1.29	0.64	0.29	0.90	1.01	0.24	0.19	0.44	-0.09	-0.58	-0.16	
	9/30/86	60	51	0.85	1.53	1.33	0.59	0.44	0.43	0.44	1.08	1.07	-0.02	-0.82	-0.12	
	6/30/86	71	87	0.88	1.49	1.26	0.51	0.29	0.37	0.35	0.87	0.93	-0.04	-0.72	-0.25	
	3/31/86	83	89	0.88	1.37	0.91	0.35	0.16	0.10	-0.35	0.64	0.59	-0.77	-0.39	0.27	
	12/31/85	78	88	0.91	1.35	0.94	0.36	0.48	0.06	-0.38	0.03	0.45	-0.44	-0.46	0.35	
	9/30/85	108	70	0.88	1.27	0.64	0.24	0.13	0.10	-0.42	0.00	0.25	-0.48	-0.43	0.25	
	6/30/85	27	77	0.89	1.22	0.83	0.17	0.16	0.15	0.08	-0.20	0.35	-0.07	-0.33	0.09	
	3/31/85	55	69	0.89	1.19	0.67	0.07	-0.15	-0.04	0.13	-0.03	0.16	0.14	-0.18	0.02	
	12/31/84	12	87	0.84	1.22	0.39	-0.06	-0.14	-0.07	-0.44	0.39	-0.06	-0.01	-0.10	0.08	
9/30/84	40	83	0.86	1.26	0.49	0.03	-0.20	-0.25	-0.43	0.25	-0.17	-0.23	-0.09	0.14		

Table A-4 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 12/83 - 6/88

Name	Date	Qtr. Port. T/O	Eq Alloc.	R2	Eq. Beta	Mvar	Evar	Rel. Ret	P/B	5 Yr. Earn	Size	Grow	E/p	Yld	Finl
Forstmann Con't.	6/30/84	31	54	0.81	1.26	0.14	0.01	-0.27	-0.21	-0.22	0.16	0.07	-0.08	-0.16	0.15
	3/31/84	34	71	0.82	1.17	0.13	-0.04	-0.11	-0.14	-0.21	0.17	0.05	-0.18	-0.10	0.15
	12/31/83	41	81	0.70	1.10	0.02	-0.11	-0.25	-0.03	-0.25	-0.12	-0.03	-0.15	-0.07	0.05
Hellman Jordan	12/31/87	42	58	0.90	1.16	0.24	0.15	-0.15	-0.10	-0.00	-0.18	0.35	0.48	-0.18	0.01
	9/30/87	55	79	0.93	1.18	0.44	0.06	-0.01	0.23	0.12	-0.10	0.62	0.26	-0.35	-0.04
	6/30/87	44	78	0.93	1.22	0.59	0.13	-0.02	0.56	0.27	-0.39	0.78	0.08	-0.45	-0.28
	3/31/87	18	96	0.93	1.33	0.83	0.10	0.08	0.64	-0.16	-0.17	0.84	-0.17	-0.65	-0.05
	12/31/86	16	96	0.91	1.29	0.72	0.11	0.05	0.36	-0.22	-0.24	0.65	0.02	-0.64	-0.05
	9/30/86	20	96	0.90	1.34	0.87	0.07	0.22	0.30	-0.21	-0.18	0.89	-0.02	-0.70	-0.06
	6/30/86	15	98	0.89	1.34	0.80	0.15	0.12	0.16	-0.29	-0.07	0.95	-0.02	-0.57	0.00
	3/31/86	35	97	0.88	1.26	0.79	0.34	0.26	0.06	0.19	-0.16	0.83	-0.71	-0.48	0.09
	12/31/85	36	95	0.93	1.14	0.32	0.23	-0.13	-0.17	0.04	-0.13	0.39	-0.22	-0.22	0.25
	9/30/85	36	96	0.89	1.07	0.26	0.09	-0.49	-0.29	-0.06	-0.54	0.03	0.02	0.00	0.27
	6/30/85	38	89	0.89	1.10	0.29	-0.04	-0.27	-0.21	-0.12	-0.47	-0.07	0.18	0.15	0.07
	3/31/85	52	81	0.88	1.13	0.28	-0.12	-0.20	-0.28	-0.07	-0.24	0.00	-0.07	0.06	0.30
	12/31/84	36	82	0.86	1.21	0.59	0.25	-0.36	-0.35	-0.36	0.15	0.12	0.14	-0.09	0.30
	9/30/84	10	80	0.84	1.22	0.64	0.38	-0.17	-0.26	-0.45	0.22	0.16	-0.08	0.05	0.33
	6/30/84	34	61	0.87	1.25	0.28	0.21	-0.34	-0.29	-0.33	0.10	0.10	-0.10	0.16	0.52
3/31/84	30	58	0.87	1.16	0.25	0.15	0.03	-0.41	-0.22	0.01	0.19	-0.05	0.25	0.30	
12/31/83	43	51	0.74	1.23	0.16	0.09	-0.19	-0.23	-0.26	0.25	0.18	0.07	0.45	0.26	
IDS Advisory	6/30/88	22	96	0.93	1.18	0.69	0.71	-0.12	0.21	0.06	0.22	0.25	0.00	-0.29	0.05
	3/31/88	41	99	0.94	1.15	0.47	0.80	-0.06	0.34	-0.44	0.06	0.20	-0.06	-0.21	0.05
	12/31/87	12	99	0.94	1.09	0.32	0.24	0.32	0.61	-0.21	-0.07	0.34	-0.35	-0.35	-0.06
	9/30/87	31	90	0.95	1.13	0.45	0.13	0.37	0.63	-0.20	-0.03	0.34	-0.21	-0.34	-0.04
	6/30/87	22	98	0.96	1.13	0.41	0.09	0.26	0.45	0.07	-0.09	0.38	-0.23	-0.30	-0.07
	3/31/87	38	97	0.96	1.14	0.44	0.05	0.42	0.65	0.07	-0.20	0.27	-0.15	-0.22	-0.15
	12/31/86	14	99	0.94	1.16	0.35	0.08	0.48	0.51	0.25	0.01	0.27	0.09	-0.21	-0.07
	9/30/86	28	95	0.92	1.19	0.45	0.22	0.58	0.35	0.32	0.18	0.23	0.10	-0.18	-0.03
	6/30/86	28	90	0.93	1.19	0.54	0.17	0.54	0.46	0.25	0.09	0.22	0.06	-0.23	-0.08
	3/31/86	16	92	0.91	1.20	0.53	0.21	0.44	0.50	0.34	0.11	0.29	-0.11	-0.22	0.11
	12/31/85	19	93	0.88	1.18	0.55	0.30	0.19	0.55	0.35	0.24	0.28	-0.12	-0.21	0.16
	9/30/85	21	98	0.86	1.15	0.37	0.28	-0.02	0.30	0.34	0.07	0.22	-0.17	-0.15	0.06
	6/30/85	13	98	0.87	1.11	0.37	0.21	0.17	0.16	0.41	-0.02	0.16	0.00	0.04	0.03
	3/31/85	39	87	0.85	1.08	0.24	-0.06	0.10	0.07	0.43	-0.09	-0.06	0.18	0.18	0.10
	12/31/84	21	89	0.83	1.05	0.04	-0.10	0.16	0.12	0.23	-0.07	-0.07	0.11	0.25	0.07
9/30/84	40	92	0.89	1.08	0.17	-0.12	0.17	0.28	0.31	0.08	-0.04	0.19	0.23	0.03	
6/30/84	42	87	0.85	1.04	-0.08	-0.15	0.28	0.54	0.31	0.28	-0.11	0.18	0.21	0.17	
3/31/84	41	82	0.80	1.09	0.11	-0.01	0.23	0.15	0.19	0.17	-0.13	0.28	0.14	0.04	
12/31/83	45	89	0.86	1.17	0.24	0.23	0.27	0.15	-0.15	0.43	0.22	-0.34	-0.13	0.14	
Investment Advisers	6/30/88	17	87	0.94	1.09	0.18	0.36	-0.12	0.39	0.10	-0.19	0.31	-0.08	-0.11	0.12
	3/31/88	7	82	0.91	1.04	0.14	0.11	-0.09	0.63	0.03	-0.13	0.31	-0.11	-0.14	0.13
	12/31/87	3	82	0.91	1.02	0.05	-0.01	0.40	0.82	0.03	-0.08	0.38	-0.30	-0.32	-0.04
	9/30/87	7	79	0.94	1.10	0.38	-0.04	0.40	0.70	0.02	-0.17	0.36	-0.09	-0.28	0.05
	6/30/87	9	82	0.95	1.06	0.19	0.05	0.29	0.85	0.01	-0.14	0.21	-0.13	-0.27	0.03
3/31/87	8	82	0.95	1.08	0.27	0.06	0.18	0.72	0.08	-0.16	0.16	-0.06	-0.27	0.04	

Table A-4 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 12/83 - 6/88

Name	Date	Qtr. Port. T/O	Eq Alloc.	R2	Eq. Beta	Mvar	Evar	Rel. Ret	P/B	5 Yr. Earn	Size	Grow	E/p	Yld	Finl
IAI Con't.	12/31/86	15	77	0.93	1.07	0.24	0.12	0.29	0.45	0.02	-0.12	0.18	0.00	-0.23	-0.02
	9/30/86	12	77	0.94	1.12	0.31	0.06	0.27	0.34	0.07	0.00	0.35	-0.17	-0.39	-0.09
	6/30/86	22	84	0.94	1.17	0.55	-0.04	0.40	0.28	0.06	-0.03	0.28	-0.16	-0.44	-0.10
	3/31/86	13	84	0.95	1.12	0.48	0.10	0.07	0.02	-0.03	-0.11	0.40	-0.57	-0.29	0.02
	12/31/85	32	83	0.93	1.14	0.39	0.18	-0.22	0.04	-0.01	-0.12	0.29	-0.27	-0.24	0.02
	9/30/85	4	95	0.92	1.15	0.45	0.18	-0.40	-0.12	0.07	-0.02	0.28	0.02	-0.25	0.03
	6/30/85	10	90	0.90	1.17	0.60	0.10	-0.33	-0.26	0.14	-0.17	0.12	0.18	-0.19	-0.08
	3/31/85	28	89	0.91	1.17	0.51	0.05	-0.33	-0.26	0.16	0.08	-0.02	0.43	-0.11	-0.06
	12/31/84	9	97	0.88	1.19	0.39	-0.12	-0.20	-0.34	-0.15	0.09	-0.08	0.43	-0.01	0.04
	9/30/84	21	88	0.86	1.21	0.40	-0.13	-0.21	-0.23	-0.00	0.12	0.02	0.45	-0.02	0.06
	6/30/84	8	98	0.89	1.21	0.11	-0.23	-0.28	-0.22	0.09	0.08	0.02	0.48	0.00	0.21
	3/31/84	21	92	0.89	1.17	0.05	-0.22	-0.36	-0.17	0.14	0.14	0.07	0.25	-0.14	0.22
	12/31/83	16	89	0.86	1.13	0.06	-0.15	-0.30	-0.16	-0.05	0.01	0.15	-0.09	-0.17	0.17
Lieber & Co.	6/30/88	9	97	0.90	1.31	0.71	-0.02	-0.14	0.03	0.25	2.20	0.72	0.02	-0.34	-0.54
	3/31/88	20	94	0.90	1.33	0.67	-0.02	-0.21	-0.04	0.21	2.09	0.69	0.06	-0.28	-0.34
	12/31/87	14	96	0.88	1.33	0.53	0.06	-0.35	-0.13	0.24	2.34	0.66	0.10	-0.26	-0.20
	9/30/87	16	92	0.85	1.26	0.26	0.04	-0.43	-0.14	0.26	2.29	0.67	0.15	-0.25	-0.23
	6/30/87	11	97	0.86	1.25	0.17	-0.01	-0.51	-0.04	0.27	1.50	0.74	0.19	-0.23	-0.27
	3/31/87	15	94	0.85	1.27	0.27	0.06	-0.25	-0.01	0.22	1.58	0.59	0.15	-0.34	-0.25
	12/31/86	14	96	0.88	1.28	0.35	0.11	0.01	-0.08	0.13	1.47	0.49	0.19	-0.32	-0.17
	9/30/86	11	99	0.89	1.31	0.44	0.10	0.06	-0.02	0.24	1.44	0.52	0.15	-0.32	-0.27
	6/30/86	7	99	0.90	1.32	0.59	0.12	0.12	0.05	0.15	1.50	0.55	0.14	-0.36	-0.33
	3/31/86	14	99	0.86	1.31	0.63	0.02	-0.06	0.03	0.16	1.49	0.48	0.00	-0.38	-0.27
	12/31/85	12	97	0.85	1.30	0.53	0.07	-0.01	0.04	0.27	1.56	0.48	0.02	-0.39	-0.21
	9/30/85	6	98	0.80	1.30	0.54	0.12	-0.04	0.03	0.35	1.64	0.50	-0.10	-0.40	-0.31
	6/30/85	14	96	0.80	1.27	0.55	0.04	-0.17	0.03	0.40	1.83	0.36	-0.05	-0.35	-0.43
	3/31/85	19	99	0.81	1.24	0.65	0.03	0.04	0.09	0.35	1.79	0.17	-0.02	-0.35	-0.21
	12/31/84	14	85	0.79	1.34	0.78	0.12	-0.25	0.03	0.39	1.94	0.48	-0.05	-0.47	-0.17
	9/30/84	17	87	0.80	1.31	0.74	0.07	-0.28	0.05	0.49	1.99	0.51	0.01	-0.48	-0.18
	6/30/84	10	95	0.81	1.33	0.76	0.05	-0.37	0.13	0.52	1.99	0.42	-0.02	-0.48	-0.10
3/31/84	0	93	0.85	1.37	0.65	0.00	-0.16	0.18	0.57	1.99	0.45	0.03	-0.46	-0.12	
12/31/83	9	00	0.83	1.24	0.63	-0.01	0.30	-0.06	0.28	1.93	0.29	0.12	-0.38	-0.07	
Peregrine Capital	3/31/88	24	92	0.91	1.19	0.24	0.08	-0.63	-0.59	-0.19	0.50	-0.14	0.11	0.75	0.04
	12/31/87	41	91	0.88	1.22	0.31	-0.01	-0.92	-0.54	-0.12	0.79	-0.08	0.12	0.70	0.11
	9/30/87	30	83	0.85	1.07	-0.26	0.01	-0.85	-0.64	-0.21	0.95	-0.09	0.28	0.79	0.12
	6/30/87	26	79	0.84	1.10	-0.15	-0.04	-0.91	-0.61	-0.25	0.67	-0.05	0.15	0.69	0.12
	3/31/87	41	79	0.84	1.12	-0.11	0.00	-0.90	-0.59	-0.19	0.54	-0.04	0.06	0.57	0.10
	12/31/86	50	81	0.86	1.18	0.12	0.04	-1.05	-0.57	-0.20	0.51	0.16	-0.15	0.42	0.12
	9/30/86	50	83	0.86	1.12	-0.07	0.06	-1.06	-0.66	-0.26	0.50	0.12	0.00	0.47	0.17
	6/30/86	37	83	0.79	1.18	0.09	0.27	-1.28	-0.75	-0.52	0.62	0.17	-0.06	0.56	0.22
	3/31/86	47	84	0.76	1.19	0.19	0.16	-1.53	-0.73	-0.41	0.73	0.20	-0.31	0.51	0.19
	12/31/85	53	82	0.81	1.21	0.26	0.18	-1.31	-0.77	-0.55	0.88	0.10	-0.54	0.33	0.27
	9/30/85	9	80	0.82	1.22	0.53	0.37	-1.26	-0.63	-0.36	0.36	0.15	-0.33	0.22	0.24
	6/30/85	58	75	0.78	1.48	0.25	0.00	-1.46	-0.60	-0.45	1.06	0.07	-0.34	0.27	-0.13
	3/31/85	49	89	0.79	1.41	0.32	0.07	-1.28	-0.53	-0.48	1.01	-0.07	-0.09	0.27	0.02
12/31/84	37	87	0.81	1.37	1.11	0.39	-0.05	0.72	0.27	1.88	0.76	-0.79	-0.96	-0.11	

Table A-4 Con't.

EXTERNAL EQUITY MANAGERS

Portfolio Statistics Historical Summary

Name	Date	Qtr.	Eq. Alloc.	R2	Eq. Beta	Mvar	Evar	Rel Ret	P/B	5 Yr	Size	Grow	E/P	Yld	Finl
		Port. T/o								Earn					
Peregrine Con't.	9/30/84	61	97	0.81	1.36	1.10	0.43	0.10	0.89	0.22	1.70	0.83	-0.82	-0.95	-0.17
	6/30/84	26	89	0.83	1.39	0.77	0.37	-0.59	0.49	0.23	1.45	0.71	-0.55	-0.77	-0.09
	3/31/84	66	87	0.82	1.28	0.76	0.26	-0.30	0.82	0.31	1.29	0.77	-0.59	-0.67	-0.07
	12/31/83	92	83	0.87	1.23	0.66	0.16	0.12	0.41	0.12	1.32	0.74	-0.59	-0.69	-0.09
Waddell & Reed	6/30/88	39	68	0.86	1.40	1.20	0.92	0.05	0.26	-0.08	1.67	0.80	-0.20	-0.51	-0.09
	3/31/88	25	61	0.86	1.41	1.16	1.12	-0.08	-0.22	-0.49	1.90	1.04	-0.48	-0.45	0.08
	12/31/87	30	57	0.85	1.44	1.27	0.24	0.03	0.08	-0.38	2.37	1.16	-0.53	-0.49	0.00
	9/30/87	38	74	0.92	1.26	0.58	-0.02	0.16	0.05	-0.37	1.63	0.89	-0.38	-0.25	0.04
	6/30/87	45	86	0.92	1.25	0.54	0.16	0.03	0.28	-0.17	0.70	0.65	-0.30	-0.35	-0.09
	3/31/87	29	90	0.93	1.22	0.65	0.18	-0.07	-0.05	-0.41	0.67	0.16	-0.17	-0.18	0.03
	12/31/86	42	73	0.95	1.13	0.38	0.16	0.06	-0.14	-0.47	0.23	-0.02	-0.11	0.09	-0.01
	9/30/86	38	78	0.94	1.14	0.38	0.07	0.03	-0.13	-0.17	0.00	0.02	0.13	0.10	-0.06
	6/30/86	35	79	0.93	1.28	0.74	0.08	0.28	0.02	-0.04	0.30	0.23	-0.02	-0.35	-0.02
	3/31/86	20	88	0.93	1.29	0.87	0.42	0.22	-0.07	-0.19	0.36	0.11	-0.51	-0.16	0.11
	12/31/85	36	75	0.91	1.27	0.76	0.36	0.10	-0.12	0.02	0.48	0.22	-0.02	-0.20	0.15
	9/30/85	41	50	0.85	1.24	0.53	0.37	-0.02	-0.24	-0.13	0.36	0.15	0.17	-0.09	0.24
	6/30/85	34	74	0.79	1.19	0.55	0.21	0.14	-0.31	0.17	0.26	-0.17	0.41	0.11	0.27
	3/31/85	51	78	0.82	1.26	0.62	0.23	-0.12	-0.39	0.09	0.49	-0.09	0.43	0.01	0.34
	12/31/84	39	52	0.75	1.29	0.78	0.10	0.00	-0.05	0.05	0.54	0.27	0.13	-0.30	0.12
	9/30/84	76	35	0.76	1.27	0.53	0.07	-0.01	-0.04	0.08	0.35	0.22	0.21	-0.20	0.02
	6/30/84	81	21	0.52	1.56	0.71	0.22	-0.74	-0.05	-0.16	0.89	-0.03	0.72	-0.60	0.24
3/31/84	35	31	0.74	1.31	0.43	0.03	-0.13	-0.12	-0.22	0.61	-0.08	0.28	-0.35	0.23	
12/31/83	103	31	0.72	1.36	0.86	0.03	-0.49	-0.23	-1.07	1.42	0.09	-0.24	-0.46	-0.14	
Average External Manager	6/30/88	30	83	0.90	1.26	0.74	0.57	-0.14	0.19	0.13	0.79	0.54	0.01	-0.32	-0.01
	3/31/88	28	86	0.90	1.22	0.59	0.47	-0.19	0.09	-0.08	0.76	0.43	-0.06	-0.17	0.09
	12/31/87	22	83	0.89	1.22	0.50	0.15	-0.12	0.17	-0.03	0.74	0.46	-0.07	-0.24	0.06
	9/30/87	29	84	0.91	1.18	0.39	0.10	0.02	0.18	-0.03	0.65	0.49	-0.08	-0.23	0.05
	6/30/87	29	88	0.92	1.17	0.38	0.12	-0.04	0.28	0.02	0.33	0.46	-0.11	-0.26	-0.02
	3/31/87	35	88	0.92	1.20	0.44	0.13	-0.07	0.23	-0.09	0.27	0.41	-0.06	-0.28	0.01
	12/31/86	28	89	0.91	1.20	0.43	0.15	0.06	0.20	-0.05	0.31	0.41	-0.05	-0.29	-0.01
	9/30/86	26	87	0.90	1.25	0.55	0.21	0.04	0.10	0.04	0.47	0.50	-0.06	-0.33	-0.05
	6/30/86	25	91	0.90	1.28	0.70	0.26	0.09	0.12	0.01	0.45	0.49	-0.06	-0.36	-0.07
	3/31/86	29	92	0.88	1.25	0.66	0.30	-0.04	0.07	0.02	0.41	0.41	-0.53	-0.27	0.08
	12/31/85	29	90	0.89	1.23	0.55	0.29	0.03	0.04	-0.02	0.43	0.33	-0.34	-0.23	0.14
	9/30/85	27	82	0.83	1.23	0.53	0.27	-0.29	0.04	0.07	0.41	0.31	-0.15	-0.25	0.07
	6/30/85	24	90	0.83	1.23	0.55	0.14	-0.23	0.07	0.20	0.46	0.27	-0.07	-0.18	-0.02
	3/31/85	33	90	0.82	1.23	0.53	0.02	-0.26	0.06	0.21	0.54	0.13	-0.01	-0.17	0.03
	12/31/84	24	86	0.81	1.25	0.56	0.08	-0.13	0.17	0.03	0.73	0.23	-0.03	-0.32	0.05
	9/30/84	33	84	0.82	1.26	0.56	0.09	-0.10	0.17	0.05	0.72	0.22	-0.08	-0.28	0.04
	6/30/84	27	81	0.81	1.29	0.36	0.04	-0.25	0.13	0.01	0.79	0.19	-0.02	-0.29	0.14
3/31/84	25	83	0.82	1.25	0.38	0.03	-0.10	0.13	0.01	0.60	0.20	-0.15	-0.26	0.08	
12/31/83	36	84	0.80	1.23	0.44	0.07	-0.03	0.07	-0.19	0.80	0.26	-0.31	-0.27	0.06	

Table A-5
EXTERNAL ACTIVE EQUITY MANAGERS
Sector Weighting Historical Profile
Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
Fred Alger	6/30/88	\$110,364,959	3.3%	3.4%	29.5%	---	7.1%	26.8%	23.5%	6.3%	---
	3/31/88	101,170,778	1.1	7.8	41.6	2.2%	7.2	16.1	17.2	6.8	---
	12/31/87	99,460,859	---	3.8	48.8	---	8.9	12.2	21.2	5.1	---
	9/30/87	130,985,906	---	4.8	54.1	---	1.5	13.1	20.8	5.7	---
	6/30/87	120,786,460	1.0	1.7	45.5	3.6	2.4	10.2	28.7	5.3	1.6%
	3/31/87	120,744,512	1.3	2.5	43.1	2.1	12.1	11.6	25.1	2.2	---
	12/31/86	101,957,413	2.0	3.0	44.1	6.5	10.8	12.2	20.4	0.9	---
	9/30/86	96,875,274	1.9	3.7	49.6	---	12.8	4.6	18.8	8.7	---
	6/30/86	112,733,180	1.9	7.5	52.9	---	11.6	6.2	15.8	4.0	---
	3/31/86	103,958,164	1.7	8.2	46.5	---	17.4	5.9	18.7	1.6	---
	12/31/85	86,744,768	1.7	11.7	38.7	---	18.2	3.1	17.0	6.6	2.9
	9/30/85	73,092,544	---	10.3	44.4	2.4	14.1	3.1	14.5	8.4	2.8
	6/30/85	63,144,042	---	17.6	36.0	1.4	9.3	3.5	15.7	16.6	---
	3/31/85	57,886,615	5.2	14.3	28.8	3.7	7.8	1.8	24.8	13.6	---
	12/31/84	54,018,782	5.2	16.1	36.1	---	4.1	7.9	25.2	5.4	---
	9/30/84	53,908,974	9.3	15.4	33.7	---	0.8	11.4	23.5	6.0	---
	6/30/84	49,936,760	14.0	8.0	30.7	---	3.8	11.5	29.5	2.6	---
	3/31/84	51,737,228	13.3	4.3	28.8	---	3.4	18.3	31.9	---	---
	12/31/83	55,644,200	13.2	6.6	21.7	---	6.4	18.1	33.9	---	---
Alliance Capital	6/30/88	201,757,656	5.6	5.3	35.3	2.5	8.3	9.1	24.2	9.6	---
	3/31/88	154,189,387	4.5	3.9	35.5	3.8	10.1	12.9	21.1	8.1	---
	12/31/87	118,226,764	6.2	3.2	38.3	1.8	12.6	16.7	18.0	3.2	---
	9/30/87	150,466,291	5.8	4.6	35.2	2.6	14.3	15.4	19.1	3.1	---
	6/30/87	136,207,599	5.9	5.1	35.4	2.4	16.5	11.6	17.5	5.7	---
	3/31/87	130,165,259	5.8	5.5	33.9	3.5	20.8	9.5	16.5	4.5	---
	12/31/86	102,208,699	3.3	4.6	32.5	---	23.2	10.4	15.0	11.0	---
	9/30/86	97,177,251	3.0	3.9	42.5	---	24.2	4.7	13.0	8.7	---
	6/30/86	110,202,737	2.3	3.6	49.1	---	28.1	---	9.8	7.1	---
	3/31/86	104,093,860	2.4	4.5	46.6	---	30.2	2.5	8.2	5.6	---
	12/31/85	87,252,311	---	4.6	45.6	---	29.2	---	14.3	6.3	---
	9/30/85	74,094,296	---	7.5	52.0	---	21.8	---	11.1	7.6	---
	6/30/85	65,072,829	---	8.7	49.9	2.2	14.3	---	12.7	8.9	3.3
	3/31/85	58,738,405	---	9.9	47.9	2.4	12.6	---	15.8	8.0	3.4
	12/31/84	52,332,767	---	8.7	48.8	---	10.2	---	20.6	8.1	3.7
	9/30/84	51,653,441	---	8.8	49.7	---	9.6	---	19.3	9.2	3.5
	6/30/84	48,457,996	---	8.1	51.6	---	6.9	---	23.5	9.9	---
	3/31/84	47,427,119	---	8.3	48.0	2.7	5.6	---	25.1	10.4	---
	12/31/83	52,725,699	0.8	7.5	45.3	---	6.8	2.4	24.2	13.1	---
Beutel Goodman	6/30/88	131,349,373	0.7	11.3	12.0	8.5	14.0	16.8	22.8	9.1	4.8
	3/31/88	121,661,394	---	6.0	12.6	18.2	25.1	8.7	18.8	3.3	7.2
	12/31/87	110,731,055	1.8	5.9	13.6	13.8	27.4	8.5	21.4	---	7.6
	9/30/87	144,431,591	5.7	2.8	14.6	14.4	26.4	7.1	22.7	---	6.3

Table A-5 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Sector Weighting Historical Profile

Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
Beutel Con't.	6/30/87	\$132,802,200	6.5%	3.0%	18.6%	6.5%	27.8%	13.0%	22.2%	---	2.5%
	3/31/87	126,160,277	2.4	3.1	15.4	3.4	25.5	17.8	25.9	3.5%	3.1
	12/31/86	107,294,817	2.1	3.4	9.7	4.8	23.0	20.6	29.3	4.3	2.7
	9/30/86	86,368,324	2.7	4.4	11.1	4.2	24.6	23.4	19.4	5.9	4.1
	6/30/86	90,128,302	3.4	5.3	9.3	4.0	20.3	23.3	19.0	11.0	4.4
	3/31/86	90,652,277	4.2	4.2	9.2	3.8	18.6	22.9	20.9	11.5	4.6
	12/31/85	79,304,850	3.9	3.8	9.0	2.8	28.2	22.1	18.2	12.0	---
	9/30/85	70,821,795	2.7	3.7	15.7	---	26.0	24.0	16.6	11.3	---
	6/30/85	75,450,430	2.8	---	12.8	---	30.4	23.1	19.1	11.7	---
	3/31/85	70,177,266	2.1	---	19.2	---	28.4	33.1	13.6	3.6	---
	12/31/84	63,402,269	8.8	---	13.8	---	32.2	33.8	11.4	---	---
	9/30/84	60,461,938	6.5	---	14.0	---	37.1	35.6	6.8	---	---
	6/30/84	55,295,358	9.3	---	21.1	---	30.4	32.4	6.7	---	---
	3/31/84	56,896,258	8.9	---	18.6	---	27.2	39.3	6.0	---	---
	12/31/83	57,233,781	9.8	---	20.2	---	11.2	46.2	5.4	7.2	---
BMI Capital	6/30/88	78,102,359	11.8	2.4	43.9	3.8	14.7	7.9	15.6	---	---
	3/31/88	74,231,350	11.1	3.6	45.7	3.4	9.9	15.3	11.0	---	---
	12/31/87	59,920,930	9.6	8.6	40.2	5.0	11.5	14.7	10.4	---	---
	9/30/87	85,846,390	9.1	8.1	37.2	5.5	14.3	11.2	14.4	---	---
	6/30/87	82,736,116	12.4	5.8	42.3	7.5	13.5	8.5	10.1	---	---
	3/31/87	81,802,425	11.7	8.1	37.0	5.3	14.3	13.3	10.3	---	---
	12/31/86	65,559,574	8.7	10.5	35.9	---	20.1	8.9	15.9	---	---
	9/30/86	62,163,502	10.2	8.1	38.7	---	13.1	12.4	17.5	---	---
	6/30/86	68,576,473	8.5	6.4	43.4	---	19.8	2.9	19.1	---	---
	3/31/86	64,120,062	6.8	7.7	38.4	4.6	20.9	3.6	18.0	---	---
	12/31/85	54,452,525	9.9	4.0	32.2	14.6	19.3	4.3	12.3	3.4	---
	9/30/85	49,026,413	10.4	3.4	37.8	---	6.0	4.0	28.9	9.6	---
	6/30/85	9,759,880	5.4	9.7	34.9	---	5.7	4.0	30.3	9.9	---
	3/31/85	9,851,108	7.1	9.0	37.6	---	---	6.8	35.9	3.7	---
	12/31/84	9,015,974	6.5	5.8	40.0	---	---	7.4	35.9	4.4	---
9/30/84	8,820,740	4.6	13.4	42.6	---	---	4.1	31.3	3.9	---	
6/30/84	8,533,642	3.2	16.4	37.4	---	---	11.5	31.5	---	---	
3/31/84	8,366,038	4.3	12.7	39.3	---	---	17.8	25.9	---	---	
12/31/83	9,784,767	7.4	12.1	28.4	---	6.6	19.0	26.4	---	---	
Forstmann Leff	6/30/88	170,669,309	1.8	2.9	27.1	3.6	2.1	34.8	21.0	2.9	3.7
	3/31/88	135,115,524	1.5	---	39.3	---	---	28.3	7.0	7.9	16.0
	12/31/87	96,222,605	2.0	10.3	34.1	---	5.9	12.2	6.9	12.7	15.9
	9/30/87	116,644,605	1.8	1.7	33.1	---	4.5	30.5	17.4	3.0	8.0
	6/30/87	107,438,093	---	---	25.2	0.9	2.3	42.1	25.0	4.4	---
	3/31/87	105,717,837	---	---	31.0	---	---	22.5	30.8	10.6	5.1
	12/31/86	88,281,072	---	1.4	44.6	---	---	16.7	20.5	9.6	5.9
	9/30/86	85,396,871	---	10.4	28.8	---	---	19.0	17.2	18.9	5.7
	6/30/86	95,703,997	2.6	6.6	25.2	---	---	22.4	13.2	23.7	5.2
	3/31/86	87,886,861	1.3	4.0	18.1	---	---	34.7	17.4	10.1	8.1
	12/31/85	73,996,082	1.4	7.9	25.7	2.1	25.2	22.1	8.9	6.7	---
	9/30/85	63,626,068	---	9.7	41.6	6.6	20.9	6.4	12.1	2.8	---

Table A-5 Con't.
EXTERNAL ACTIVE EQUITY MANAGERS
Sector Weighting Historical Profile
Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
Forstmann Con't.	6/30/85	\$66,383,632	1.1%	7.4%	40.1%	---	25.1%	10.3%	11.0%	5.1%	---
	3/31/85	61,436,421	2.5	9.8	25.7	---	25.5	14.7	17.4	4.4	---
	12/31/84	55,396,358	1.4	10.5	30.9	---	23.3	15.1	13.3	5.5	---
	9/30/84	53,550,733	4.5	4.6	32.5	---	21.5	14.5	18.9	3.6	---
	6/30/84	51,218,131	3.7	3.6	40.2	---	7.0	10.3	24.3	7.2	3.7
	3/31/84	52,083,507	7.6	3.0	37.0	---	6.0	14.5	23.1	6.0	2.8
	12/31/83	55,421,154	5.7	13.6	35.5	5.8	3.9	8.4	18.7	5.3	3.1
Hellman Jordan	12/31/87	83,632,334	---	14.2	20.8	1.6	18.3	10.7	28.8	2.0	3.5
	9/30/87	107,083,180	---	11.7	20.0	1.2	15.5	13.1	32.9	3.9	1.9
	6/30/87	102,296,573	---	11.2	18.0	---	22.1	9.8	34.0	4.9	---
	3/31/87	101,035,689	---	6.0	24.9	---	25.6	5.8	31.3	6.3	---
	12/31/86	78,099,466	---	3.8	29.8	---	31.7	7.3	23.2	4.1	---
	9/30/86	74,466,800	---	6.4	25.6	---	33.5	8.1	23.3	3.2	---
	6/30/86	83,097,338	---	9.3	24.8	---	32.7	10.7	20.1	2.4	---
	3/31/86	82,829,526	---	12.1	22.3	2.2	29.8	13.6	18.4	1.7	---
	12/31/85	71,819,754	---	8.8	20.1	9.4	23.5	18.7	15.2	2.9	1.4
	9/30/85	60,551,842	---	5.6	17.1	6.9	26.9	17.2	13.8	4.7	7.7
	6/30/85	64,181,384	3.9	3.5	23.0	7.0	26.0	15.5	7.5	3.5	10.0
	3/31/85	59,732,797	1.3	---	21.9	5.9	25.3	13.6	16.1	6.7	9.2
	12/31/84	54,923,168	1.3	6.1	19.5	1.1	19.8	17.1	20.3	9.2	5.7
	9/30/84	52,497,049	1.5	10.7	11.3	0.8	14.0	15.3	29.3	12.0	5.0
	6/30/84	47,929,367	1.8	12.4	13.8	1.2	16.4	21.2	12.6	11.1	9.6
3/31/84	49,895,127	---	12.4	19.5	6.4	15.7	15.7	4.3	8.8	17.2	
12/31/83	50,182,761	---	14.8	30.0	6.0	16.5	10.4	2.1	3.0	17.2	
Investment Advisers	6/30/88	97,145,848	10.9	---	29.2	4.1	2.4	26.3	15.1	4.2	7.8
	3/31/88	92,828,454	8.0	---	36.9	3.3	---	31.1	11.5	1.9	7.3
	12/31/87	94,229,641	8.5	1.4	36.2	2.7	---	29.2	15.0	1.7	5.3
	9/30/87	110,995,988	8.2	2.8	32.9	3.2	---	29.3	14.7	3.8	5.1
	6/30/87	101,936,871	6.4	3.1	31.9	3.6	1.1	30.7	14.4	3.4	5.4
	3/31/87	98,002,073	5.4	3.2	28.5	3.0	6.1	29.1	11.9	7.4	5.3
	12/31/86	81,868,013	4.5	2.2	31.0	2.9	6.9	25.8	10.1	9.7	6.7
	9/30/86	78,677,066	5.2	---	33.0	2.9	7.6	28.6	14.7	8.0	---
	6/30/86	86,330,923	8.2	---	33.0	1.0	9.6	26.5	13.2	8.6	---
	3/31/86	82,520,514	5.6	3.3	20.6	2.3	9.6	23.8	18.8	13.4	2.6
	12/31/85	73,389,199	4.0	6.6	15.7	3.0	12.6	18.5	24.4	12.2	2.9
	9/30/85	61,953,366	3.2	6.5	8.3	2.9	15.9	20.2	28.3	12.8	1.8
	6/30/85	66,785,302	3.4	8.8	6.5	3.2	18.8	17.1	29.0	13.2	---
	3/31/85	62,742,678	3.4	6.0	6.1	2.8	16.3	19.9	32.9	12.6	---
	12/31/84	58,967,426	3.3	6.4	13.6	5.9	20.5	19.2	19.9	10.8	0.6
	9/30/84	55,807,710	3.7	7.2	21.5	6.9	21.0	13.1	20.2	5.6	0.8
	6/30/84	50,388,386	5.5	5.9	26.3	6.2	18.8	9.1	20.6	3.7	3.9
	3/31/84	51,864,720	5.8	5.4	30.2	8.9	21.5	7.7	15.6	3.9	1.0
	12/31/83	54,533,402	6.3	6.3	25.0	5.8	21.9	9.7	15.7	6.1	3.2

Table A-5 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Sector Weighting Historical Profile

Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
IDS Advisory	6/30/88	\$137,129,678	6.6%	2.6%	27.0%	10.4%	---	26.5%	18.1%	6.7%	2.0%
	3/31/88	127,991,912	5.5	2.2	24.9	11.5	1.7	25.9	15.8	9.4	3.0
	12/31/87	97,193,741	4.8	---	23.6	8.4	2.4	31.2	19.9	5.5	4.2
	9/30/87	122,497,788	3.7	3.6	21.1	9.7	---	28.5	23.7	5.9	3.9
	6/30/87	115,535,096	2.3	5.0	28.1	11.5	---	23.0	19.6	7.9	2.7
	3/31/87	111,432,245	2.6	3.1	25.7	12.5	5.5	23.8	18.5	4.7	3.6
	12/31/86	91,035,628	2.7	1.1	25.2	7.4	10.9	24.6	7.8	7.3	13.0
	9/30/86	87,085,769	2.3	1.2	29.7	8.2	10.4	23.4	5.8	5.0	14.0
	6/30/86	96,881,914	---	---	42.4	3.1	16.4	15.8	6.5	5.0	10.8
	3/31/86	90,164,763	---	1.7	32.6	1.1	17.7	15.6	8.9	12.1	10.2
	12/31/85	76,939,408	---	1.9	31.7	2.6	14.9	10.4	13.9	13.2	11.4
	9/30/85	64,292,295	3.0	2.2	27.1	5.1	13.6	12.7	13.9	12.7	9.7
	6/30/85	68,295,847	3.0	4.8	27.7	8.4	13.4	7.2	11.7	8.5	15.1
	3/31/85	62,021,800	---	5.2	27.5	9.8	11.0	7.3	14.0	7.7	17.6
	12/31/84	57,153,006	1.8	4.6	29.5	3.7	7.6	3.7	16.9	7.2	25.0
	9/30/84	55,468,185	3.4	6.6	25.4	7.6	7.9	5.6	19.6	4.6	19.4
	6/30/84	50,278,968	---	5.3	27.6	8.1	6.8	7.6	19.2	4.8	20.6
	3/31/84	50,085,955	4.8	10.1	12.4	9.6	8.7	14.3	15.2	9.5	15.4
12/31/83	54,006,960	4.9	7.6	18.0	---	8.8	19.0	26.1	6.0	9.6	
Lieber & Company	6/30/88	67,508,400	4.3	4.1	32.4	2.4	17.7	20.2	14.1	4.4	0.5
	3/31/88	43,777,958	3.6	3.8	37.8	1.4	23.4	11.8	12.2	6.0	---
	12/31/87	37,684,660	4.4	6.7	34.6	1.3	26.8	9.5	9.7	6.4	0.6
	9/30/87	48,954,439	4.0	6.9	31.4	1.6	32.3	6.3	11.0	5.9	0.6
	6/30/87	47,687,801	3.3	6.1	31.6	1.7	37.4	7.3	8.9	3.1	0.7
	3/31/87	48,385,863	3.4	8.8	29.7	1.8	39.7	5.8	8.3	1.8	0.7
	12/31/86	40,294,436	3.0	8.0	26.5	2.4	41.1	8.6	7.7	1.7	0.7
	9/30/86	40,257,595	2.3	7.4	25.5	2.4	42.7	9.2	6.4	2.8	1.2
	6/30/86	44,505,476	1.7	7.3	22.4	3.1	41.8	10.3	7.5	3.7	2.1
	3/31/86	40,102,680	2.1	7.4	21.4	3.5	38.4	12.3	9.0	4.0	2.0
	12/31/85	35,197,559	1.8	8.7	20.1	3.5	34.3	11.9	12.2	5.4	2.0
	9/30/85	30,715,520	1.6	7.0	21.9	4.5	32.6	14.3	11.8	5.1	1.2
	6/30/85	31,313,770	2.1	7.8	21.4	4.6	30.3	16.0	11.0	5.5	1.2
	3/31/85	29,544,589	2.9	8.0	25.3	6.1	28.9	15.1	8.9	3.5	1.3
	12/31/84	26,473,866	3.2	5.3	27.0	3.2	24.2	18.4	15.3	3.4	---
	9/30/84	25,807,665	2.9	3.8	33.0	4.1	22.4	16.8	14.8	2.2	---
	6/30/84	23,927,529	2.6	3.3	34.8	3.5	21.1	16.7	15.3	1.8	0.8
	3/31/84	24,261,218	3.6	6.4	32.3	4.9	17.3	16.8	16.3	1.8	0.7
12/31/83	11,159,936	7.7	4.5	33.7	3.5	16.7	22.3	6.1	5.6	---	
Peregrine Capital	3/31/88	98,031,111	3.6	7.1	25.3	1.3	19.5	11.9	16.7	4.7	9.8
	12/31/87	86,846,303	0.9	8.1	24.6	2.0	20.9	9.0	17.4	4.9	12.1
	9/30/87	109,568,922	2.8	7.1	21.1	2.7	19.4	8.2	14.7	2.6	21.4
	6/30/87	105,285,388	3.9	7.8	24.7	3.7	15.0	7.4	16.1	3.1	18.2
	3/31/87	103,857,724	5.2	8.2	24.7	4.9	13.0	8.3	16.7	4.0	15.0
	12/31/86	88,571,840	6.7	8.1	22.0	4.5	11.8	11.1	17.3	4.7	13.8
	9/30/86	84,825,995	8.6	8.0	16.8	9.6	10.7	13.7	14.8	5.5	12.2
6/30/86	89,051,403	8.0	6.7	9.6	15.2	8.1	15.7	13.6	5.0	18.1	

Table A-5 Con't.
EXTERNAL ACTIVE EQUITY MANAGERS
Sector Weighting Historical Profile
Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
Peregrine Con't.	3/31/86	\$87,406,272	7.4%	5.5%	15.6%	16.2%	5.3%	15.7%	14.8%	3.8%	15.8%
	12/31/85	82,085,372	9.1	6.3	15.1	17.8	5.3	19.1	11.2	3.3	12.7
	6/30/85	29,610,673	0.2	---	51.4	4.2	12.4	2.9	24.0	2.7	2.3
	3/31/85	27,145,424	---	2.3	44.2	6.3	9.2	6.2	28.0	1.9	1.9
	12/31/84	25,188,312	---	2.3	37.5	2.7	3.9	9.8	37.7	4.1	1.9
	9/30/84	25,685,954	---	3.7	38.0	0.6	2.3	11.9	39.7	1.3	2.4
	6/30/84	24,546,941	2.8	5.5	31.2	5.8	1.0	9.3	38.9	4.3	1.3
	3/31/84	10,385,041	3.6	4.4	23.1	8.5	1.1	7.2	45.5	5.4	1.1
	12/31/83	11,215,761	2.5	1.6	25.5	1.2	3.2	6.0	51.8	1.7	6.6
Waddell & Reed	6/30/88	149,261,345	6.9	11.6	13.2	5.3	---	23.0	29.3	8.5	2.3
	3/31/88	109,202,978	---	14.2	9.9	13.5	1.2	26.3	27.2	5.1	2.6
	12/31/87	101,042,528	---	11.9	14.9	7.0	---	25.1	35.0	3.8	2.3
	9/30/87	127,554,770	0.6	8.5	15.1	7.0	2.3	21.0	30.9	6.2	8.3
	6/30/87	116,141,569	4.1	10.2	19.1	9.0	2.9	20.8	30.7	2.3	0.8
	3/31/87	113,451,543	1.1	13.6	19.7	16.1	5.2	15.3	24.0	3.8	1.1
	12/31/86	95,836,775	1.6	11.2	21.7	12.3	12.3	16.1	19.2	5.6	---
	9/30/86	91,162,262	2.9	8.5	21.7	12.4	12.9	14.6	18.9	6.6	1.5
	6/30/86	97,376,898	4.4	7.8	26.0	0.4	20.7	21.7	12.4	6.6	---
	3/31/86	95,498,169	4.3	7.3	13.0	2.9	23.3	24.9	16.9	7.3	---
	12/31/85	82,027,227	4.6	7.7	17.0	5.4	15.2	25.9	15.0	9.1	---
	9/30/85	74,328,144	2.0	7.7	18.8	5.1	19.7	22.5	15.6	5.2	3.3
	6/30/85	29,531,769	---	11.8	14.5	2.5	21.1	18.4	13.3	6.1	12.4
	3/31/85	27,604,382	---	12.8	11.9	2.7	21.5	15.8	16.3	7.9	11.2
	12/31/84	26,234,116	---	14.0	18.7	---	18.8	2.7	25.5	1.0	19.3
	9/30/84	25,856,251	1.4	13.9	28.0	3.3	14.3	0.5	30.9	1.6	6.1
	6/30/84	25,495,564	---	29.0	25.7	---	15.7	---	17.8	11.8	---
	3/31/84	25,833,644	5.2	32.1	21.4	---	25.0	---	11.7	4.5	---
12/31/83	11,409,742	12.8	32.4	---	---	33.9	---	20.9	---	---	
Average External Managers	6/30/88	---	5.8	4.8	27.7	4.5	7.4	21.3	20.4	5.8	2.3
	3/31/88	---	3.9	4.9	31.0	5.9	9.8	18.8	15.8	5.3	4.6
	12/31/87	---	3.5	6.7	30.0	4.0	12.2	16.3	18.5	4.1	4.7
	9/30/87	---	3.8	5.7	28.7	4.4	11.9	16.7	20.2	3.6	5.0
	6/30/87	---	4.2	5.4	29.1	4.6	12.8	16.8	20.6	3.6	2.9
	3/31/87	---	3.5	5.7	28.5	4.8	17.3	15.6	18.1	3.9	2.6
	12/31/86	---	3.1	5.2	29.4	3.7	19.0	15.1	16.0	5.0	3.5
	9/30/86	---	3.6	5.6	29.4	3.6	19.2	14.5	15.6	5.5	3.0
	6/30/86	---	3.7	5.5	30.7	2.4	21.0	13.3	14.6	5.3	3.3
	3/31/86	---	2.8	5.5	25.6	5.1	20.7	13.4	14.6	6.4	5.8
	12/31/85	---	3.0	6.2	24.1	7.4	19.1	13.0	14.5	7.4	5.3
	9/30/85	---	2.8	6.6	27.5	4.2	18.4	12.7	16.8	7.6	3.4
	6/30/85	---	2.2	6.6	29.3	3.1	20.0	10.9	17.3	7.6	3.0
	3/31/85	---	2.4	6.8	26.4	3.6	17.5	11.4	22.2	6.8	3.0
	12/31/84	---	2.4	8.0	26.4	2.3	15.5	11.2	23.9	6.6	4.0
	9/30/84	---	2.9	7.9	27.9	3.8	14.1	9.6	26.3	4.8	2.7

Table A-5 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Sector Weighting Historical Profile

Quarterly, 12/83 - 6/88

Manager Name	Date	Total Portfolio Market Value	Cap Gds	Cons Dur	Cons Ndur	Ener	Finl	Mat & Serv	Tech	Tran	Util
Average Con't.	6/30/84	---	4.0%	7.6%	28.6%	4.2%	12.5%	10.9%	23.4%	5.4%	3.4%
	3/31/84	---	5.2	7.6	24.0	5.7	13.2	13.3	22.7	5.1	3.1
	12/31/83	---	6.0	6.4	23.5	3.0	12.2	15.1	24.0	6.3	3.5
Wilshire 5000	6/30/88	---	5.1	4.0	27.4	9.7	12.2	13.7	12.0	3.0	12.9
	3/31/88	---	5.1	3.8	27.6	9.2	12.2	14.1	11.8	3.0	13.2
	12/31/87	---	5.0	3.5	27.2	9.0	12.3	14.2	11.7	3.0	14.1
	9/30/87	---	4.9	3.9	28.1	8.9	12.4	13.8	13.5	3.2	11.3
	6/30/87	---	4.8	4.0	27.3	9.8	12.3	13.4	13.6	3.1	11.7
	3/31/87	---	4.6	3.9	27.5	9.4	13.0	13.6	12.9	3.0	12.1
	12/31/86	---	4.6	3.8	27.2	9.0	13.5	12.6	12.2	3.0	14.1
	9/30/86	---	4.4	3.8	26.9	9.0	14.0	12.1	12.4	3.1	14.3
	6/30/86	---	4.5	4.0	28.8	7.8	14.0	12.4	12.6	3.0	12.9
	3/31/86	---	4.8	4.7	27.0	8.0	14.1	11.8	13.4	3.3	12.9
	12/31/85	---	4.8	4.2	25.7	10.5	12.9	11.4	14.2	3.3	13.0
	9/30/85	---	4.7	4.1	26.2	10.6	12.3	11.4	14.0	3.4	13.3
	6/30/85	---	4.8	4.0	26.3	11.2	12.2	10.8	13.6	3.6	13.5
	3/31/85	---	4.9	3.9	25.3	13.0	11.4	10.9	14.4	3.3	12.9
	12/31/84	---	5.4	9.9	23.0	13.5	9.9	10.6	13.2	3.7	10.8
	9/30/84	---	5.2	4.3	24.9	13.2	10.3	11.5	15.5	2.9	12.2
6/30/84	---	5.3	4.0	25.7	13.5	9.6	11.7	15.6	2.9	11.7	
3/31/84	---	5.4	3.9	23.6	16.1	9.8	12.1	15.3	2.9	11.1	
12/31/83	---	5.5	4.2	24.0	14.5	9.5	12.2	16.3	2.8	11.1	

Table A-6

EXTERNAL ACTIVE EQUITY MANAGERS

Historical Performance Summary

	2Q 83	3Q 83	4Q 83	1Q 84	2Q 84	3Q 84	4Q 84	1Q 85	2Q 85	3Q 85	4Q 85
FRED ALGER											
Equity	13.9%	-3.5%	-1.0%	-8.1%	-4.1%	8.3%	0.2%	7.3%	10.1%	-4.7%	20.0%
Total Fund	13.1	-3.4	-0.9	-7.0	-3.5	8.0	0.2	7.2	9.1	-4.6	18.7
ALLIANCE CAPITAL											
Equity	14.3	-8.7	-0.6	-11.2	2.2	7.1	1.3	13.1	11.5	-3.6	19.2
Total Fund	12.7	-8.0	-0.4	-10.1	2.2	6.6	1.3	12.2	10.8	-3.3	17.8
BEUTEL GOODMAN											
Equity	13.9	3.4	3.5	-0.7	-2.8	10.1	5.1	12.1	8.1	-9.0	12.5
Total Fund	8.7	1.1	3.3	-0.6	-2.8	9.3	4.9	10.7	7.5	-8.6	12.0
BMI CAPITAL											
Equity	14.4	-7.8	-6.0	-14.4	2.1	3.6	2.3	10.5	-0.7	-9.9	19.4
Total Fund	11.9	-7.7	-6.1	-14.5	2.0	3.4	2.2	9.3	-0.9	-2.4	11.1
FORSTMANN LEFF											
Equity	11.2	-1.7	-1.0	-8.3	-2.8	7.5	3.7	12.6	9.4	-5.4	21.5
Total Fund	9.9	-1.2	-0.6	-6.0	-1.7	4.6	3.4	10.9	8.1	-4.2	16.3
HELLMAN JORDAN											
Equity	10.0	-9.5	-0.9	-3.1	-4.8	8.6	4.3	10.0	9.5	-5.9	19.4
Total Fund	5.8	-3.2	-1.0	-0.6	-3.9	9.5	4.6	8.7	7.5	-5.6	18.6
IDS ADVISORY											
Equity	14.3	-6.6	-0.9	-8.4	0.0	11.4	3.2	9.2	10.7	-5.9	20.5
Total Fund	13.6	-5.6	-0.6	-7.3	0.4	10.3	3.0	8.5	10.1	-5.9	19.7
INVESTMENT ADVISERS											
Equity	11.6	-2.9	1.5	-5.8	-3.0	11.3	5.8	6.6	7.1	-7.8	20.5
Total Fund	8.0	-1.8	1.3	-4.9	-2.8	10.7	5.7	6.4	6.4	-7.2	18.5
LIEBER & COMPANY											
Equity	16.6	-2.4	1.7	-10.2	-1.3	8.9	2.9	13.8	6.3	-1.7	15.2
Total Fund	11.6	-1.9	1.3	-7.3	-1.4	7.9	2.6	11.6	6.0	-1.9	14.6
PEREGRINE CAPITAL											
Equity	19.6	-3.6	-6.0	-8.8	-3.2	5.3	-2.1	9.5	10.7	0.4	15.5
Total Fund	16.4	-2.6	-5.1	-7.4	-2.7	4.7	-1.9	7.8	9.1	-1.9	12.8
WADDELL & REED											
Equity	30.2	-4.7	-9.3	-14.0	-10.3	-1.6	0.7	8.1	8.7	-5.4	18.4
Total Fund	24.0	-3.0	-5.3	-2.2	-1.3	1.4	1.5	5.2	7.0	-2.0	10.4
SBI AGGREGATE											
Equity	12.1	-5.6	-1.5	-7.5	-2.7	8.0	2.4	9.5	8.8	-5.7	17.7
Total Fund	10.5	-4.5	-1.2	-5.9	-2.2	7.2	2.4	8.4	8.0	-4.5	15.2
MARKET INDICES											
Wilshire 5000	13.0	-0.9	-1.0	-4.2	-2.8	9.2	1.3	10.3	7.5	-4.3	16.8
91 Day T-Bills	2.2	2.4	2.3	2.4	2.6	2.7	2.3	2.1	1.9	1.9	1.8

Table A-6 Con't.

EXTERNAL ACTIVE EQUITY MANAGERS

Historical Performance Summary

	1Q 86	2Q 86	3Q 86	4Q86	1Q 87	2Q 87	3Q 87	4Q 87	1Q 88	2Q 88
FRED ALGER										
Equity	21.2%	9.0%	-14.7	5.7%	22.3%	-0.6%	8.8%	-25.6%	1.7%	9.6%
Total Fund	19.8	8.5	-14.1	5.3	18.4	0.0	8.3	-24.2	1.6	9.0
ALLIANCE CAPITAL										
Equity	20.0	6.1	-11.9	5.3	28.8	4.9	11.1	-22.2	4.2	9.9
Total Fund	19.3	5.9	-11.8	5.2	27.4	4.6	10.8	-21.4	4.0	9.6
BEUTEL GOODMAN										
Equity	15.7	-0.9	-4.8	-1.2	18.6	6.4	10.0	-25.8	10.7	8.8
Total Fund	14.3	-0.6	-4.2	-1.3	17.6	5.3	8.6	-23.4	9.8	7.9
BMI CAPITAL										
Equity	18.6	7.2	-9.7	5.8	25.8	1.2	4.3	-31.5	25.3	5.4
Total Fund	17.8	7.0	-9.4	5.5	24.8	1.2	4.1	-30.2	23.9	5.2
FORSTMANN LEFF										
Equity	20.8	10.1	-16.0	5.7	25.7	2.1	12.0	-29.2	10.9	5.6
Total Fund	18.8	8.9	-10.8	3.4	19.8	1.6	8.4	-17.6	6.9	3.4
HELLMAN JORDAN										
Equity	16.1	0.4	-10.7	5.2	30.2	1.8	6.6	-29.6	N.A.	N.A.
Total Fund	15.3	0.3	-10.4	4.9	29.4	1.3	4.8	-21.9	N.A.	N.A.
IDS ADVISORY										
Equity	18.2	8.1	-10.6	4.8	23.1	3.9	6.0	-22.8	0.6	7.3
Total Fund	17.2	7.5	-10.1	4.5	22.4	3.7	5.9	-20.7	0.6	7.1
INVESTMENT ADVISERS										
Equity	14.7	5.3	-11.1	4.9	24.9	4.9	10.8	-19.6	-2.0	5.3
Total Fund	12.4	4.6	-8.9	4.1	19.7	4.0	8.8	-15.2	-1.4	4.7
LIEBER & COMPANY										
Equity	13.8	11.8	-9.5	0.3	21.2	-1.4	2.9	-23.5	17.0	5.2
Total Fund	13.9	11.0	-9.5	0.1	20.1	-1.3	2.7	-23.0	16.2	4.6
PEREGRINE CAPITAL										
Equity	7.7	2.1	-5.7	5.2	21.8	1.5	4.7	-24.1	13.9	N.A.
Total Fund	6.5	1.9	-4.7	4.4	17.3	1.4	3.9	-20.8	13.0	N.A.
WADDELL & REED										
Equity	19.7	2.4	-8.3	6.2	23.0	2.6	11.6	-25.1	12.8	9.9
Total Fund	16.4	2.0	-6.4	5.1	18.4	2.4	9.8	-20.8	8.1	7.3
SBI AGGREGATE										
Equity	16.6	5.0	-1.4	4.4	23.6	2.9	7.9	-25.1	8.3	7.9
Total Fund	15.2	4.5	-8.6	3.9	21.0	2.6	6.9	-21.8	7.3	6.8
MARKET INDICES										
Wilshire 5000	14.4	5.8	-7.7	4.0	21.2	3.3	6.2	-23.1	8.0	6.5
91 Day T-Bills	1.8	1.6	1.4	1.3	1.4	1.4	1.5	1.5	1.4	1.5

Bond Manager Portfolio Statistics Glossary

Like the preceding equity manager portfolio statistics glossary, this bond manager portfolio statistics glossary is designed to define terminology used in evaluating a bond manager's investment philosophy, risk characteristics and performance data.

Qtr. Port. Turnover	The manager's total bond sales during the quarter divided by the average value of the manager's bond portfolio over the quarter.
# of Issues	The number of different bond issues held in the manager's portfolio.
Bond Allocation	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	The annual interest payment produced by the manager's total portfolio stated as a percent of the portfolio's market value.
Yield To Maturity	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.
Duration	A measure of the average life of the total portfolio. Duration is a weighted average maturity whereby 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.
Term of Maturity	Also 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.
Quality Weightings	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.
Sector Weightings	Refers to the sectors of the bond market in which the manager has positioned his/her bond portfolio.
TUCS Median	The median manager within a subsample of the TUCS universe that is restricted to fixed income managers investing in portfolios with quality and duration characteristics similar to those that are required of the SBI's bond managers.

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Table A-7

EXTERNAL ACTIVE FIXED INCOME MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 9/84 - 6/88

Manager Name	Date	Qtr. Port. T/O	# Of Bonds	Bond Alloc.	Coupon	Cur. Yield	Yield To Mat.	Avg. Qual.	Dur.	Term To Mat.
Investment Advisers	6/30/88	25%	19	95%	8.1%	8.1%	8.4%	AAA	3.7Yrs.	5.0Yrs.
	3/31/88	10	19	98	7.9	7.7	8.0	AAA	3.2	4.1
	12/31/87	8	19	88	7.6	7.6	8.3	AAA	3.1	4.0
	9/30/87	0	21	99	7.8	8.1	9.9	AAA	3.4	4.6
	6/30/87	15	19	92	7.7	7.6	8.3	AAA	3.5	4.5
	3/31/87	7	24	97	8.6	8.1	8.0	AAA	3.4	4.3
	12/31/86	11	25	93	8.9	8.4	8.1	AAA	3.5	4.4
	9/30/86	5	22	98	9.4	8.6	8.5	AAA	3.5	4.4
	6/30/86	9	21	96	9.6	8.8	8.3	AAA	3.3	4.1
	3/31/86	17	22	95	9.9	8.9	8.2	AAA	3.3	4.2
	12/31/85	10	16	95	9.4	8.8	8.7	AAA	3.4	4.3
	9/30/85	30	18	99	9.7	9.3	9.9	AAA	3.8	5.1
	6/30/85	50	17	99	8.4	8.1	10.1	AAA	4.7	6.2
	3/31/85	19	13	99	8.7	9.3	11.7	AAA	4.9	8.9
	12/31/84	25	10	99	8.4	9.3	11.5	AAA	5.6	12.1
9/30/84	10	7	100	9.0	10.8	12.6	AAA	6.4	15.2	
Lehman Management	6/30/88	55	47	92	8.1	8.4	10.1	AAA	4.1	7.8
	3/31/88	75	40	87	8.3	8.4	8.4	AAA	3.9	8.1
	12/31/87	32	42	89	8.2	8.5	8.5	AAA	3.6	5.2
	9/30/87	54	34	81	8.0	8.5	9.1	AAA	3.5	6.1
	6/30/87	36	46	92	7.9	8.1	8.2	AAA	3.7	5.0
	3/31/87	51	46	91	8.5	8.1	7.3	AAA	3.9	5.6
	12/31/86	40	45	94	9.6	8.9	7.5	AAA	4.3	6.7
	9/30/86	31	44	98	10.2	9.4	8.2	AAA	4.4	8.6
	6/30/86	16	48	97	10.8	9.8	8.3	AAA	4.0	8.1
	3/31/86	28	54	97	11.0	9.7	8.3	AAA	4.0	8.5
	12/31/85	40	32	89	11.1	10.2	9.2	AAA	3.7	6.5
	9/30/85	24	35	95	11.4	10.9	10.2	AAA	3.9	6.6
	6/30/85	49	27	92	11.4	10.8	9.9	AAA	3.8	6.3
	3/31/85	43	24	85	11.6	11.4	11.0	AAA	3.6	5.6
	12/31/84	44	19	85	11.6	11.4	10.8	AAA	3.3	5.3
9/30/84	62	15	82	11.2	11.5	12.2	AAA	3.7	6.5	
Miller Anderson	6/30/88	24	60	84	8.4	8.5	10.0	AA	3.6	6.0
	3/31/88	65	57	83	8.4	8.5	8.9	AA	4.1	6.8
	12/31/87	30	57	92	9.2	9.0	9.2	AA	4.7	7.6
	9/30/87	36	58	93	9.2	9.4	9.6	AA	4.9	8.6
	6/30/87	52	76	95	9.0	8.8	8.9	AA	5.4	8.6
	3/31/87	70	43	82	8.4	7.9	7.8	AA	4.8	7.6
	12/31/86	30	57	96	9.5	8.8	8.2	AA	6.6	12.1
	9/30/86	15	68	99	9.3	9.3	9.8	AA	5.6	12.5
	6/30/86	57	60	97	9.4	9.3	9.5	AA	5.2	11.6
	3/31/86	73	37	92	10.5	9.7	8.8	AA	4.4	11.4
	12/31/85	71	42	99	10.4	9.9	9.6	AA	5.3	9.6
	9/30/85	23	52	98	9.6	10.2	10.6	AA	5.0	9.7
	6/30/85	75	48	95	9.3	10.0	10.4	AA	4.6	9.3
	3/31/85	35	41	92	9.0	10.0	11.1	AA	3.7	7.4

Table A-7 Con't.

EXTERNAL ACTIVE FIXED INCOME MANAGERS

Portfolio Statistics Historical Summary

Quarterly, 9/84 - 6/88

Manager Name	Date	Qtr. Port. T/O	# Of Bonds	Bond Alloc.	Coupon	Cur. Yield	Yield To Mat.	Avg. Qual.	Dur.	Term To Mat.
Miller Con't.	12/31/84	50	43	99	9.1	10.1	11.3	AA	3.9	7.3
	9/30/84	83	59	71	9.8	11.1	11.9	AAA	3.3	6.7
Morgan Stanley	6/30/88	90%	8	81%	8.4%	8.5%	8.6%	AAA	4.2Yrs.	7.4Yrs.
	3/31/88	78	10	99	8.6	8.7	8.8	AAA	5.5	8.4
	12/31/87	160	11	100	8.5	8.7	8.9	AAA	5.2	8.0
	9/30/87	27	7	73	7.6	7.9	8.6	AAA	2.2	3.4
	6/30/87	107	9	93	7.8	8.0	8.2	AAA	3.4	5.1
	3/31/87	17	18	98	8.3	8.3	8.3	AAA	6.2	11.1
	12/31/86	42	19	100	7.7	8.5	8.3	AAA	6.5	11.0
	9/30/86	9	14	100	8.4	8.7	8.9	AAA	5.3	10.7
	6/30/86	89	13	100	8.6	8.9	9.1	AAA	5.4	10.8
	3/31/86	62	20	100	9.4	9.0	8.7	AAA	5.4	19.9
	12/31/85	58	17	100	10.4	10.1	9.9	AAA	5.0	10.6
	9/30/85	18	20	100	11.2	11.1	11.0	AAA	4.4	9.8
	6/30/85	38	17	100	11.4	10.8	10.5	AAA	5.0	9.7
	3/31/85	62	16	85	11.1	11.3	11.5	AAA	3.8	7.3
	12/31/84	30	12	100	11.5	11.5	11.5	AAA	5.3	9.4
9/30/84	105	20	99	9.6	8.9	12.5	AAA	3.7	5.3	
Peregrine Capital	6/30/88	8	58	88	8.5	8.5	9.4	AA	3.8	6.6
	3/31/88	19	56	89	8.4	8.3	10.5	AA	3.5	5.7
	12/31/87	8	62	92	9.2	9.4	11.3	AA	3.2	6.2
	9/30/87	6	64	93	9.2	9.4	9.6	AA	4.6	9.2
	6/30/87	8	64	93	9.2	9.1	10.8	AA	4.4	8.7
	3/31/87	6	62	92	9.4	9.0	8.1	AA	5.2	9.5
	12/31/86	24	52	84	10.5	8.1	8.5	AA	4.7	8.9
	9/30/86	14	56	97	10.3	9.8	11.3	AA	4.5	11.0
	6/30/86	12	51	97	10.8	10.2	9.8	AA	4.3	9.7
	3/31/86	10	54	98	11.2	10.3	9.4	AA	4.1	11.0
	12/31/85	18	51	98	11.5	10.8	10.4	AA	3.7	9.3
	9/30/85	20	43	96	11.6	11.2	11.0	AA	3.3	7.8
	6/30/85	15	35	98	11.2	10.8	10.5	AA	3.4	7.6
	3/31/85	13	28	100	11.1	11.3	11.5	AA	3.7	7.6
	12/31/84	39	25	96	10.5	10.9	11.3	AA	3.5	7.5
9/30/84	17	21	93	10.6	11.7	12.5	AA	3.6	7.6	
Western Asset	6/30/88	65	48	95	8.5	8.8	10.1	AA	4.6	9.8
	3/31/88	28	55	95	8.5	8.9	9.6	AA	4.9	10.3
	12/31/87	12	54	95	8.5	9.2	10.3	AA	4.7	9.7
	9/30/87	25	47	93	8.7	9.5	10.0	AA	5.6	13.1
	6/30/87	46	52	94	8.8	9.0	9.2	AA	6.2	13.2
	3/31/87	31	40	87	8.6	8.3	8.3	AA	5.7	11.6
	12/31/86	33	40	95	8.8	8.7	8.6	AA	6.7	13.9
	9/30/86	38	40	100	9.6	9.1	9.0	AA	6.4	16.4
	6/30/86	97	48	90	9.3	9.0	9.0	AA	5.6	15.7
	3/31/86	58	48	95	9.8	9.8	9.3	AA	5.5	18.9
	12/31/85	47	40	87	10.3	10.1	10.0	AA	5.2	11.9

Table A-7 Con't.
EXTERNAL ACTIVE FIXED INCOME MANAGERS
Portfolio Statistics Historical Summary
Quarterly, 9/84 - 6/88

Manager Name	Date	Qtr. Port. T/O	# Of Bonds	Bond Alloc.	Coupon	Cur. Yield	Yield To Mat.	Avg. Qual.	Dur.	Term To Mat.
Western Con't.	9/30/85	19	34	89	10.7	11.0	11.1	AA	5.6	13.0
	6/30/85	58%	29	84%	10.5%	10.7%	10.8%	AA	5.4Yrs.	12.1Yrs.
	3/31/85	52	28	87	10.4	11.5	12.1	AA	5.3	12.2
	12/31/84	39	24	80	10.6	11.4	11.8	AA	5.2	11.3
	9/30/84	49	19	80	11.3	12.3	12.8	AA	4.8	11.3
Average External Managers	6/30/88	45	40	89	8.3	8.5	9.4	AAA	4.0	7.1
	3/31/88	46	40	92	8.4	8.4	9.0	AAA	4.2	7.2
	12/31/87	42	41	93	8.5	8.7	9.4	AAA	4.1	6.8
	9/30/87	25	39	89	8.4	8.8	9.5	AAA	4.0	7.5
	6/30/87	44	44	93	8.4	8.4	8.9	AAA	4.4	7.5
	3/31/87	30	39	91	8.6	8.3	8.0	AAA	4.9	8.3
	12/31/86	30	40	94	9.2	8.6	8.2	AAA	5.4	9.5
	9/30/86	19	41	99	9.5	9.2	9.3	AAA	5.0	10.6
	6/30/86	47	40	96	9.8	9.3	9.0	AAA	4.6	10.0
	3/31/86	41	39	96	10.3	9.6	8.8	AAA	4.5	12.3
	12/31/85	41	33	95	10.5	10.0	9.6	AAA	4.4	8.7
	9/30/85	22	34	96	10.7	10.6	10.6	AAA	4.3	8.7
	6/30/85	48	29	95	10.4	10.2	10.4	AAA	4.5	8.5
	3/31/85	37	25	91	10.3	10.8	11.5	AAA	4.2	8.2
	12/31/84	38	22	93	10.3	10.8	11.4	AAA	4.5	8.8
9/30/84	54	29	88	10.1	11.1	12.3	AAA	4.3	8.8	

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5800 S. UNIVERSITY AVENUE
CHICAGO, ILLINOIS 60637

Run	Time	Temp	Pressure	Flow	Detector	Response
1	10.0	100	1.0	1.0	1.0	1.0
2	10.5	100	1.0	1.0	1.0	1.0
3	11.0	100	1.0	1.0	1.0	1.0
4	11.5	100	1.0	1.0	1.0	1.0
5	12.0	100	1.0	1.0	1.0	1.0
6	12.5	100	1.0	1.0	1.0	1.0
7	13.0	100	1.0	1.0	1.0	1.0
8	13.5	100	1.0	1.0	1.0	1.0
9	14.0	100	1.0	1.0	1.0	1.0
10	14.5	100	1.0	1.0	1.0	1.0
11	15.0	100	1.0	1.0	1.0	1.0
12	15.5	100	1.0	1.0	1.0	1.0
13	16.0	100	1.0	1.0	1.0	1.0
14	16.5	100	1.0	1.0	1.0	1.0
15	17.0	100	1.0	1.0	1.0	1.0
16	17.5	100	1.0	1.0	1.0	1.0
17	18.0	100	1.0	1.0	1.0	1.0
18	18.5	100	1.0	1.0	1.0	1.0
19	19.0	100	1.0	1.0	1.0	1.0
20	19.5	100	1.0	1.0	1.0	1.0
21	20.0	100	1.0	1.0	1.0	1.0
22	20.5	100	1.0	1.0	1.0	1.0
23	21.0	100	1.0	1.0	1.0	1.0
24	21.5	100	1.0	1.0	1.0	1.0
25	22.0	100	1.0	1.0	1.0	1.0
26	22.5	100	1.0	1.0	1.0	1.0
27	23.0	100	1.0	1.0	1.0	1.0
28	23.5	100	1.0	1.0	1.0	1.0
29	24.0	100	1.0	1.0	1.0	1.0
30	24.5	100	1.0	1.0	1.0	1.0
31	25.0	100	1.0	1.0	1.0	1.0
32	25.5	100	1.0	1.0	1.0	1.0
33	26.0	100	1.0	1.0	1.0	1.0
34	26.5	100	1.0	1.0	1.0	1.0
35	27.0	100	1.0	1.0	1.0	1.0
36	27.5	100	1.0	1.0	1.0	1.0
37	28.0	100	1.0	1.0	1.0	1.0
38	28.5	100	1.0	1.0	1.0	1.0
39	29.0	100	1.0	1.0	1.0	1.0
40	29.5	100	1.0	1.0	1.0	1.0
41	30.0	100	1.0	1.0	1.0	1.0
42	30.5	100	1.0	1.0	1.0	1.0
43	31.0	100	1.0	1.0	1.0	1.0
44	31.5	100	1.0	1.0	1.0	1.0
45	32.0	100	1.0	1.0	1.0	1.0
46	32.5	100	1.0	1.0	1.0	1.0
47	33.0	100	1.0	1.0	1.0	1.0
48	33.5	100	1.0	1.0	1.0	1.0
49	34.0	100	1.0	1.0	1.0	1.0
50	34.5	100	1.0	1.0	1.0	1.0
51	35.0	100	1.0	1.0	1.0	1.0
52	35.5	100	1.0	1.0	1.0	1.0
53	36.0	100	1.0	1.0	1.0	1.0
54	36.5	100	1.0	1.0	1.0	1.0
55	37.0	100	1.0	1.0	1.0	1.0
56	37.5	100	1.0	1.0	1.0	1.0
57	38.0	100	1.0	1.0	1.0	1.0
58	38.5	100	1.0	1.0	1.0	1.0
59	39.0	100	1.0	1.0	1.0	1.0
60	39.5	100	1.0	1.0	1.0	1.0
61	40.0	100	1.0	1.0	1.0	1.0
62	40.5	100	1.0	1.0	1.0	1.0
63	41.0	100	1.0	1.0	1.0	1.0
64	41.5	100	1.0	1.0	1.0	1.0
65	42.0	100	1.0	1.0	1.0	1.0
66	42.5	100	1.0	1.0	1.0	1.0
67	43.0	100	1.0	1.0	1.0	1.0
68	43.5	100	1.0	1.0	1.0	1.0
69	44.0	100	1.0	1.0	1.0	1.0
70	44.5	100	1.0	1.0	1.0	1.0
71	45.0	100	1.0	1.0	1.0	1.0
72	45.5	100	1.0	1.0	1.0	1.0
73	46.0	100	1.0	1.0	1.0	1.0
74	46.5	100	1.0	1.0	1.0	1.0
75	47.0	100	1.0	1.0	1.0	1.0
76	47.5	100	1.0	1.0	1.0	1.0
77	48.0	100	1.0	1.0	1.0	1.0
78	48.5	100	1.0	1.0	1.0	1.0
79	49.0	100	1.0	1.0	1.0	1.0
80	49.5	100	1.0	1.0	1.0	1.0
81	50.0	100	1.0	1.0	1.0	1.0
82	50.5	100	1.0	1.0	1.0	1.0
83	51.0	100	1.0	1.0	1.0	1.0
84	51.5	100	1.0	1.0	1.0	1.0
85	52.0	100	1.0	1.0	1.0	1.0
86	52.5	100	1.0	1.0	1.0	1.0
87	53.0	100	1.0	1.0	1.0	1.0
88	53.5	100	1.0	1.0	1.0	1.0
89	54.0	100	1.0	1.0	1.0	1.0
90	54.5	100	1.0	1.0	1.0	1.0
91	55.0	100	1.0	1.0	1.0	1.0
92	55.5	100	1.0	1.0	1.0	1.0
93	56.0	100	1.0	1.0	1.0	1.0
94	56.5	100	1.0	1.0	1.0	1.0
95	57.0	100	1.0	1.0	1.0	1.0
96	57.5	100	1.0	1.0	1.0	1.0
97	58.0	100	1.0	1.0	1.0	1.0
98	58.5	100	1.0	1.0	1.0	1.0
99	59.0	100	1.0	1.0	1.0	1.0
100	59.5	100	1.0	1.0	1.0	1.0

Table A-8
EXTERNAL ACTIVE FIXED INCOME MANAGERS
Sector Weighting Historical Profile
Quarterly, 9/84 - 6/88

Name	Date	Total Port. Market Value	Govt	Agcy	Zero	Ind	Util	Fin	Tran	Mtgs	Misc	Cash
Investment Advisers	6/30/88	\$45,668,674	75	4	5	0	0	3	0	8	0	5
	3/31/88	45,068,558	71	4	12	0	0	3	0	8	0	2
	12/31/87	43,210,295	58	6	13	0	0	3	0	8	0	12
	9/30/87	41,169,671	67	5	13	0	0	6	0	8	0	1
	6/30/87	42,121,121	56	9	13	0	0	6	0	8	0	8
	3/31/87	42,655,770	51	5	12	11	0	9	0	9	0	3
	12/31/86	42,094,854	40	5	11	13	0	15	0	9	0	7
	9/30/86	40,731,041	45	5	12	23	0	13	0	0	0	2
	6/30/86	39,301,944	34	18	12	23	0	10	0	0	0	4
	3/31/86	38,938,391	52	0	12	25	0	6	0	0	0	5
	12/31/85	36,766,845	68	0	12	8	0	7	0	0	0	5
	9/30/85	34,573,707	70	0	13	9	0	7	0	0	0	1
	6/30/85	33,794,148	62	0	23	10	0	4	0	0	0	1
	3/31/85	30,942,776	53	0	18	11	13	4	0	0	0	1
	12/31/84	30,397,636	52	0	18	0	25	4	0	0	0	1
9/30/84	27,932,974	59	0	10	0	31	0	0	0	0	0	
Lehman Mgmt.	6/30/88	252,089,498	50	5	1	5	4	17	0	10	0	8
	3/31/88	250,336,317	53	5	0	6	2	9	0	12	0	13
	12/31/87	242,532,368	66	0	0	10	1	5	0	7	0	11
	9/30/87	230,295,486	55	0	0	8	1	7	0	10	0	19
	6/30/87	235,159,610	63	0	0	9	1	7	0	12	0	8
	3/31/87	238,911,690	63	0	0	12	2	5	0	9	0	9
	12/31/86	236,321,758	58	0	0	14	3	7	0	12	0	6
	9/30/86	229,994,337	53	0	0	14	8	7	0	16	0	2
	6/30/86	223,483,722	60	0	0	11	2	7	0	18	0	3
	3/31/86	220,998,995	65	2	0	9	0	6	0	15	0	3
	12/31/85	207,462,430	51	10	0	7	2	7	0	12	0	11
	9/30/85	194,774,253	54	12	0	9	2	7	0	11	0	5
	6/30/85	190,808,742	64	8	0	5	2	4	0	9	0	8
	3/31/85	177,383,853	65	13	0	2	0	2	0	3	0	15
	12/31/84	173,831,628	64	13	0	3	0	0	0	5	0	15
9/30/84	162,737,117	60	13	5	4	0	0	0	0	0	18	
Miller Anderson	6/30/88	267,410,692	16	0	2	5	5	36	0	20	0	16
	3/31/88	263,539,176	20	0	3	7	1	32	0	20	0	17
	12/31/87	254,427,181	37	0	1	5	0	26	1	22	0	8
	9/30/87	239,261,941	44	0	1	6	0	17	1	24	0	7
	6/30/87	248,119,545	37	0	1	9	0	17	1	30	0	5
	3/31/87	252,209,582	42	0	0	5	0	3	1	30	1	18
	12/31/86	245,302,600	38	0	0	7	0	6	0	44	1	4
	9/30/86	222,348,832	24	0	0	6	0	6	0	61	2	1
	6/30/86	217,656,629	25	0	0	2	0	8	0	60	2	3
	3/31/86	217,291,031	45	0	0	2	0	8	0	37	0	8
	12/31/85	208,552,908	45	0	0	2	0	8	0	44	0	1
	9/30/85	191,849,284	24	0	0	5	0	9	0	60	0	2
	6/30/85	183,857,869	19	0	2	5	0	12	0	57	0	5

Table A-8 Con't.

EXTERNAL ACTIVE FIXED INCOME MANAGERS

Sector Weighting Historical Profile

Quarterly, 9/84 - 6/88

Name	Date	Total Port. Market Value	Govt	Agcy	Zero	Ind	Util	Fin	Tran	Mtgs	Misc	CasH.
Miller Con't.	3/31/85	\$173,961,916	2	0	4	7	0	27	0	52	0	8
	12/31/84	169,696,156	0	0	7	5	0	36	0	51	0	1
	9/30/84	159,574,376	0	0	0	2	0	17	0	52	0	29
Morgan Stanley	6/30/88	214,508,291	39	0	0	0	0	10	0	32	0	19
	3/31/88	213,746,041	60	0	0	0	0	11	0	16	13	1
	12/31/87	207,262,805	60	0	0	0	0	10	0	25	5	0
	9/30/87	197,851,213	47	0	0	0	0	9	0	17	0	27
	6/30/87	198,820,186	54	0	0	0	0	10	0	29	0	7
	3/31/87	246,865,703	25	0	0	0	0	0	0	75	0	2
	12/31/86	239,857,185	27	0	0	0	0	0	0	73	0	0
	9/30/86	229,631,966	35	0	0	0	0	0	0	65	0	0
	6/30/86	222,763,940	33	9	0	0	0	0	0	58	0	0
	3/31/86	225,686,690	41	0	0	0	0	0	0	59	0	0
	12/31/85	208,381,895	42	0	0	0	0	0	0	58	0	0
	9/30/85	193,513,567	41	0	0	0	0	0	0	59	0	0
	6/30/85	188,907,479	49	0	0	0	0	0	0	51	0	0
	3/31/85	173,106,782	38	9	0	0	0	0	0	38	0	15
12/31/84	170,547,941	74	18	0	0	0	0	0	8	0	0	
9/30/84	159,109,110	45	27	27	0	0	0	0	0	0	1	
Peregrine Capital	6/30/88	120,747,666	0	0	6	10	0	47	1	21	3	12
	3/31/88	118,892,393	0	0	9	10	0	42	0	23	5	11
	12/31/87	115,245,984	0	0	0	13	0	43	0	24	12	8
	9/30/87	111,294,267	0	0	0	11	0	40	0	26	16	7
	3/31/87	114,089,715	0	0	0	15	1	24	1	34	17	8
	12/31/86	111,810,642	0	0	0	22	0	20	0	31	11	16
	9/30/86	108,237,995	0	0	0	12	0	26	0	47	13	2
	6/30/86	104,606,143	0	0	0	9	0	30	0	41	17	3
	3/31/86	104,370,666	0	0	0	9	0	31	0	40	17	2
	12/31/85	100,139,659	0	0	0	5	0	29	0	48	16	2
	9/30/85	95,186,493	0	0	0	4	2	31	0	52	7	4
	6/30/85	92,417,709	0	0	0	4	5	33	0	49	7	2
	3/31/85	86,259,088	3	0	0	0	5	38	0	47	7	0
	12/31/84	84,387,890	6	7	0	0	5	30	0	48	0	4
9/30/84	79,887,650	12	7	0	10	0	31	0	33	0	7	
Western Asset	6/30/88	276,513,937	26	3	2	13	14	11	3	23	0	5
	3/31/88	272,331,415	14	7	2	16	7	12	3	34	0	5
	12/31/87	258,653,270	7	6	2	17	10	8	3	42	0	5
	9/30/87	245,548,700	6	10	0	13	8	15	3	38	0	7
	6/30/87	253,510,478	5	7	0	19	10	11	3	39	0	6
	3/31/87	262,481,416	8	6	1	16	10	4	3	36	3	13
	12/31/86	255,942,435	8	11	0	20	5	5	3	42	1	5
	9/30/86	244,004,935	16	13	2	9	7	4	4	43	2	0
6/30/86	238,657,259	13	9	3	7	7	2	4	45	0	10	

Table A-8 Con't.
EXTERNAL ACTIVE FIXED INCOME MANAGERS
Sector Weighting Historical Profile
Quarterly, 9/84 - 6/88

Name	Date	Total Port. Market Value	Govt	Agcy	Zero	Ind	Util	Fin	Tran	Mtgs	Misc	Cash
Western Con't.	3/31/86	\$235,514,306	7	9	3	12	9	2	1	52	0	5
	12/31/85	220,363,561	5	8	1	15	9	2	1	48	0	11
	9/30/85	201,666,058	11	3	0	14	10	0	1	49	0	12
	6/30/85	197,929,627	10	0	0	8	15	0	1	51	0	15
	3/31/85	181,426,695	4	11	0	8	16	0	1	47	0	13
	12/31/84	177,328,832	3	11	0	6	19	2	2	33	4	20
	9/30/84	165,957,816	4	16	0	3	18	4	5	26	4	20
	Average External Manager	6/30/88	----	34	2	2	6	4	21	1	19	0
	3/31/88	---	36	3	4	6	2	18	1	19	3	8
	12/31/87	---	38	1	3	8	2	16	0	22	3	7
	9/30/87	---	36	2	2	7	2	16	1	20	3	11
	6/30/87	---	36	3	2	8	2	14	1	24	3	7
	3/31/87	---	32	2	2	10	2	7	1	32	3	9
	12/31/86	---	29	3	2	12	1	9	1	35	2	6
	9/30/86	---	29	3	2	11	2	9	1	39	3	1
	6/30/86	---	28	6	3	9	2	10	1	37	3	4
	3/31/86	---	35	2	2	9	2	9	0	34	3	4
	12/31/85	---	35	3	2	6	2	9	0	35	3	5
	9/30/85	---	33	3	2	7	2	9	0	39	1	4
	6/30/85	---	34	1	4	5	4	9	0	36	1	5
	3/31/85	---	27	5	4	5	6	12	0	31	1	9
	12/31/84	---	33	8	4	2	8	12	0	24	1	7
	9/30/84	---	30	10	7	3	8	9	1	19	1	12

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Table A-9

EXTERNAL ACTIVE FIXED INCOME MANAGERS

Historical Performance Summary

	3Q84	4Q84	1Q85	2Q85	3Q85	4Q85	1Q86	2Q86	3Q86	4Q86
INVESTMENT ADVISERS										
Fixed Income	11.8%	8.8%	1.9%	9.4%	2.5%	6.5%	6.2%	0.9%	2.5%	2.8%
Total Fund	11.8	8.8	1.8	9.2	2.3	6.3	5.9	0.9	2.4	2.7
LEHMAN MANAGEMENT										
Fixed Income	9.6	7.7	2.0	8.7	2.1	6.9	6.7	1.2	3.0	2.8
Total Fund	8.7	6.8	2.1	7.6	2.1	6.5	6.5	1.1	2.9	2.8
MILLER ANDERSON										
Fixed Income	7.7	7.5	2.5	6.0	4.4	8.8	4.4	0.2	2.2	10.6
Total Fund	6.7	6.3	2.5	5.7	4.4	8.7	4.2	0.2	2.2	10.3
MORGAN STANLEY										
Fixed Income	6.1	7.3	1.5	9.3	2.5	7.7	8.2	-2.1	3.1	4.3
Total Fund	6.3	7.2	1.5	9.1	2.4	7.7	8.3	-1.3	3.1	4.5
PEREGRINE CAPITAL										
Fixed Income	7.7	6.0	2.3	7.3	3.1	5.4	4.3	0.2	3.6	3.4
Total Fund	6.9	5.6	2.2	7.1	3.0	5.2	4.2	0.2	3.5	3.3
WESTERN ASSET										
Fixed Income	11.8	8.0	2.4	10.7	1.9	10.7	7.4	0.9	2.3	5.0
Total Fund	10.8	6.8	2.3	9.1	1.9	9.3	6.9	1.3	2.2	4.9
SBI AGGREGATE										
Fixed Income	8.8	7.5	2.1	8.5	2.8	8.1	6.4	1.7	2.8	5.3
Total Fund	8.1	6.8	2.1	7.8	2.7	7.7	6.2	0.4	2.7	5.2
MARKET INDEX										
Salomon Broad										
Bond Index	8.6	7.5	2.2	8.9	2.0	7.8	7.9	1.1	2.5	3.3

Table A-9 Con't.

EXTERNAL ACTIVE FIXED INCOME MANAGERS**Historical Performance Summary**

	1Q87	2Q87	3Q87	4Q87	1Q88	2Q88
INVESTMENT ADVISERS						
Fixed Income	1.0%	-0.9%	-2.0%	5.2%	3.4%	1.2%
Total Fund	1.0	-0.9	-1.9	5.1	3.2	1.1
LEHMAN MANAGEMENT						
Fixed Income	1.0	-1.7	-2.7	5.9	3.5	0.6
Total Fund	1.1	-1.6	-2.1	5.3	3.2	0.7
MILLER ANDERSON						
Fixed Income	3.2	-2.0	-3.8	6.6	3.5	1.4
Total Fund	2.8	-1.6	-3.6	6.3	3.6	1.5
MORGAN STANLEY						
Fixed Income	3.1	-5.6	-0.9	5.1	3.0	0.3
Total Fund	2.9	-3.1	-0.5	4.8	3.1	0.4
PEREGRINE CAPITAL						
Fixed Income	2.2	-1.9	-0.9	3.8	3.3	1.6
Total Fund	2.0	-1.7	-0.8	3.6	3.2	1.6
WESTERN ASSET						
Fixed Income	2.6	-3.9	-3.7	5.9	5.4	1.6
Total Fund	2.6	-3.4	-3.1	5.3	5.3	1.5
SBI AGGREGATE						
Fixed Income	2.4	-2.8	-2.7	5.7	3.8	1.7
Total Fund	2.3	-2.3	-2.2	5.3	3.8	1.1
MARKET INDEX						
Salomon Broad						
Bond Index	1.3	-1.6	-2.8	5.8	3.8	1.2

Table A-10

EXTERNAL FIXED INCOME MANAGERS

Performance Relative To Benchmark Portfolios

Managers	Year Ending 6/30/88		Two Years Ending 6/30/88 (Annualized)		Three Years Ending 6/30/88 (Annualized)	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio
Investment Advisers	7.4%	8.1%	6.3%	6.8%	9.5%	10.8%
Lehman Management	7.2	7.7	6.2	6.6	9.7	10.4
Miller Anderson	7.8	8.1	10.8*	6.8	13.3*	10.8
Morgan Stanley	7.9	8.1	7.6	6.8	10.9	10.8
Peregrine Capital	7.6	8.7	7.4	7.1	9.3	11.0
Western Asset	9.1	8.2	7.6	6.9	11.8	10.8
Total Basic Retirement Funds' Fixed Income Segment	7.9%	8.11%	8.0%	6.8%	11.1%	10.7%
Capital Markets Data						
Salomon Bond Index	8.1%	--	6.9%	--	11.0%	--
90-Day Treasury Bills	6.0	--	5.9	--	6.3	--
Inflation	3.9	--	3.8	--	3.1	--

* Performance reflects positive impact of pricing adjustment in 4Q 1986.

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Table A-11

ALTERNATIVE ASSETS

Summary of Commitments
As of June 30, 1988

	Total Fund Size (Millions)	SBI Incept Date	SBI Commitment	SBI-Funded	SBI-To Be Funded	Fund Description
Real Estate:						
Aetna	\$1,791	Apr-82	\$40,000,000	\$40,000,000	\$0	Open End/Diversified
Equitable	\$3,067	Oct-81	\$40,000,000	\$40,000,000	\$0	Open End/Diversified
Prudential	\$3,767	Sep-81	\$40,000,000	\$40,000,000	\$0	Open End/Diversified
Heitman I	\$113	Jun-84	\$20,000,000	\$20,000,000	\$0	Closed End/Diversified
Heitman II	\$238	Oct-85	\$30,000,000	\$30,000,000	\$0	Closed End/Diversified
Heitman III	\$200	Nov-86	\$20,000,000	\$18,119,115	\$1,880,885	Closed End/Diversified
RREEF	\$773	Apr-84	\$75,000,000	\$71,300,000	\$3,700,000	Closed End/Diversified
State Street III	\$103	Jul-85	\$20,000,000	\$20,000,000	\$0	Closed End/Specialized
State Street IV	\$86	Jul-86	\$15,000,000	\$15,000,000	\$0	Closed End/Specialized
State Street V	\$82	Nov-87	\$15,000,000	\$10,000,000	\$5,000,000	Closed End/Specialized
TCW III	\$216	Jul-85	\$40,000,000	\$40,000,000	\$0	Closed End/Specialized
TCW IV	\$250	Sep-86	\$30,000,000	\$30,000,000	\$0	Closed End/Specialized
Total Real Estate			\$385,000,000	\$374,419,115	\$10,580,885	
Venture Capital:						
Allied	\$40	Jul-85	\$5,000,000	\$3,333,334	\$1,666,666	Later Stage
DSV	\$60	Apr-85	\$10,000,000	\$10,000,000	\$0	Early Stage
First Century	\$100	Dec-84	\$10,000,000	\$4,000,000	\$6,000,000	Early Stage
First Chicago	\$50	Mar-88	\$5,000,000	\$475,000	\$4,525,000	Secondary Interests
Golder Thoma	\$225	Oct-87	\$14,000,000	\$700,000	\$13,300,000	Later Stage
Inman/Bowman	\$44	Jun-85	\$7,500,000	\$3,750,000	\$3,750,000	Early Stage
KKR I	\$1,000	Mar-84	\$25,000,000	\$25,000,000	\$0	LBO
KKR II	\$2,000	Dec-85	\$18,365,172	\$18,365,172	\$0	LBO
KKR III	\$4,300	Oct-87	\$146,634,660	\$12,498,452	\$134,136,208	LBO
Matrix	\$70	Jul-85	\$10,000,000	\$7,500,000	\$2,500,000	Early Stage
Norwest	\$60	Jan-84	\$10,000,000	\$10,000,000	\$0	Early Stage
Summit I	\$93	Dec-84	\$10,000,000	\$7,500,000	\$2,500,000	Later Stage
Summit II	\$230	May-88	\$30,000,000	\$3,000,000	\$27,000,000	Later Stage
Superior	\$35	Jun-86	\$6,645,000	\$3,322,500	\$3,322,500	Early Stage - MN.
T. Rowe Price	---	Mar-86	\$125,023	\$125,023	\$0	IPO Manager
Total Venture Capital			\$308,269,855	\$109,569,481	\$198,700,374	
Resources:						
Amgo I	\$144	Jul-81	\$15,000,000	\$15,000,000	\$0	Debt with Equity
Amgo II	\$36	Feb-83	\$7,000,000	\$7,000,000	\$0	Debt with Equity
Amgo IV	\$75	May-88	\$15,000,000	\$0	\$15,000,000	Debt with Equity
Apache I	\$100	May-84	\$15,000,000	\$993,994	\$14,006,006	Debt with Equity
Apache II	\$180	Oct-85	\$23,000,000	\$23,074,449	(\$74,449)	Debt with Equity
Apache III	\$190	Dec-86	\$30,000,000	\$30,000,000	\$0	Net Profits Interest
Morgan O&G	\$135	Jul-88	\$15,000,000	\$0	\$15,000,000	Debt with Equity
Total Resources			\$120,000,000	\$76,068,443	\$43,931,557	
Total Alternative Assets			\$813,269,855	\$560,057,039	\$253,212,816	

Section 1: Introduction

This document is a report on the findings of a study conducted in 1998.

Year	Q1	Q2	Q3	Q4	Total
1998	100	150	200	250	700
1999	120	180	230	280	810
2000	140	200	250	300	900
2001	160	220	270	320	970
2002	180	240	290	340	1050
2003	200	260	310	360	1130
2004	220	280	330	380	1210
2005	240	300	350	400	1300
2006	260	320	370	420	1380
2007	280	340	390	440	1460
2008	300	360	410	460	1540
2009	320	380	430	480	1620
2010	340	400	450	500	1700
2011	360	420	470	520	1780
2012	380	440	490	540	1860
2013	400	460	510	560	1940
2014	420	480	530	580	2020
2015	440	500	550	600	2100
2016	460	520	570	620	2180
2017	480	540	590	640	2260
2018	500	560	610	660	2340
2019	520	580	630	680	2420
2020	540	600	650	700	2500

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:

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

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

t_i = 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:

$$TWRQ = (1+R1)*(1+R2)*(1+R3) - 1$$

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1. The first part of the document discusses the general situation of the country and the role of the government in the economy. It mentions the need for a comprehensive reform of the economic system and the importance of maintaining social stability during the transition process.

2. The second part of the document focuses on the specific measures that have been implemented or planned to address the economic challenges. These include reforms in the financial sector, the legal system, and the labor market.

3. The third part of the document discusses the social and political aspects of the reform process. It emphasizes the need for a strong and transparent government and the importance of involving the citizenry in the decision-making process.

4. The fourth part of the document provides a summary of the key findings and recommendations. It concludes that the reform process is complex and long-term, but that it is essential for the country's future development and prosperity.

BENEFIT INCREASE CALCULATION

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:

$$\begin{array}{rcccl} \boxed{\text{Investment Earnings (1)}} & - & \boxed{\text{Required Return of 5\% (2)}} & = & \boxed{\text{Income Available for Benefit Increase}} \\ \\ \boxed{\text{Income Available for Benefit Increase}} & \div & \boxed{\text{Required Reserves(3)}} & = & \boxed{\text{Benefit Increase (4)}} \end{array}$$

- (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 calculated benefit increase beginning January 1 of the following calendar year.

[The following text is extremely faint and largely illegible due to low contrast and blurring. It appears to be a multi-paragraph document.]

EXTERNAL STOCK AND BOND MANAGER FEES

Total Payments in Fiscal Year 1988

Active Equity Managers (1)

Fred Alger	\$ 28,376
Alliance Capital	1,020,571
Beutel Goodman	450,139
Forstmann Leff Asset	366,997
Hellman Jordan	212,174
IDS Advisory	120,651
Investment Advisers	230,750
BMI Capital	344,825
Waddell & Reed	553,450
Lieber & Company	382,457
Peregrine Capital	281,529

Passive Equity Manager (2)

Wilshire Associates	\$ 259,478
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Active Bond Managers (2)

Investment Advisers	\$ 87,559
Lehman Management	487,627
Miller Anderson	508,623
Morgan Stanley	416,684
Peregrine Capital	233,090
Western Asset	363,262

(1) Active equity 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. (See page 73 for a more complete description of this formula.)

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

MINNESOTA STATE BOARD OF INVESTMENT
 COMMISSIONS & TRADING VOLUME
 BY BROKER
 FISCAL YEAR 1988

BROKER	EQUITY		BOND		SHORT TERM
	DOLLAR VOLUME	COMMISSIONS	DOLLAR VOLUME	COMMISSIONS	DOLLAR VOLUME
ABEL/NOSER CORP.	\$ 11,856,073	\$ 27,593	\$ 0	\$ 0	\$ 0
ABRAMS & CO	9,102,171	22,478	0	0	0
ADAMS HARKNESS & HILL	1,014,881	1,375	0	0	0
ALLEN & COMPANY	50,472	425	0	0	0
ALLISON-WILLIAMS	844,800	2,560	136,193	191	0
ALPHA MANAGEMENT INC	1,513,736	5,264	0	0	0
ASSOC CORP OF N AMER	0	0	0	0	120,874,000
AUTRANET	84,253,316	214,438	6,573,586	0	0
BANKERS DISCOUNT CORP.	0	0	3,636,656	0	0
BANKERS TRUST	0	0	13,801,250	16,250	331,000,000
BATEMAN EICHLER	1,280,300	1,620	0	0	0
BEAR STEARNS & CO	74,634,101	160,972	29,398,630	14,913	1,535,115,000
BLUNT ELLIS	302,500	500	0	0	0
BOSTON INST. SERVICES	938,844	1,314	76,746,950	91,483	0
BRADFORD (J.C.) & CO	1,015,574	1,200	0	0	0
BRANDT (ROBERT) & CO	22,264,263	26,093	0	0	0
BREAN MURRAY	79,846,734	210,619	0	0	0
BRICK SECURITIES	1,586,447	5,400	0	0	0
BRIDGE TRADING CO.	132,527,688	252,376	0	0	0
BROKER UNAVAILABLE	399,518,785	202,420	148,278,898	0	0
BROWN ALEX & SONS	4,823,107	4,091	0	0	0
BROWN BROS. HARRIMAN	1,231,509	3,300	0	0	0
BURDGE DANIELS & CO.	0	0	1,939,541	2,637	0
BURKE & CO.	169,575	612	0	0	0
BURNS FRY & TIMMINS	318,000	600	0	0	0
BUTCHER & SINGER	0	0	22,894,668	0	0
CABLE/HOWSE & RAGEN	837,827	800	0	0	0
CAN-AM SECURITIES	490,250	2,220	0	0	0
CANTOR FITZGERALD	63,820,668	136,224	0	0	0
CAPITAL INST. SERVICES	2,220,166	3,600	10,153,828	0	0
CARROLL MCENTEE & MCG	0	0	23,037,750	0	0
CHASE MANHATTAN BANK	0	0	0	0	164,635,000
CIT FINANCIAL CORP	0	0	0	0	129,070,000
CITIBANK	0	0	23,021,928	15,000	292,100,000
COWEN&CO	12,798,472	23,984	0	0	0
CYRUS J. LAWRENCE	13,724,219	24,939	0	0	0
DAIN BOSWORTH INC	2,712,070	7,544	0	0	0
DAIN KALMAN & QUAIL S	3,601,180	11,965	0	0	0
DAIWA SEC. AMERICA	0	0	12,086,429	3,375	2,160,000
DEAN WITTER REYNOLDS	9,457,873	18,860	17,426,788	0	25,000,000
DILLON, READ	5,163,630	2,448	250,343,621	0	10,000,000
DISCOUNT CORP (N.Y.)	0	0	4,987,500	10,000	2,000,000
DOMINION SEC. H & P	1,714,919	1,280	5,009,000	0	0
DONALDSON LUFKIN	7,088,882	12,512	2,419,600	0	0
DREXEL BURNHAM LAMBERT	149,056,646	256,906	100,882,439	48,322	5,953,584,000
E F HUTTON AND CO	16,516,495	31,009	15,237,650	0	18,000,000
EBERSTADT (F) & CO	5,863,393	9,583	0	0	0
ERNST & CO.	12,411,404	21,469	0	0	0
FIRST ALBANY	284,580	920	0	0	0
FIRST BANK NAT'L ASSN.	55,474,447	94,201	167,938,241	0	513,194,000
FIRST BOSTON CORPORATION	42,308,888	50,326	195,441,393	30,125	4,310,799,000
FIRST INTERSTATE BK CAL	0	0	0	0	89,000,000
FIRST KANSAS	12,895,469	15,204	0	0	0
FIRST MANHATTAN COMPANY	15,180,483	35,439	0	0	0
FIRST NATIONAL BANK BOSTON	0	0	1,093,106	0	0
FIRST NATIONAL BANK CHI	0	0	0	0	98,200,000
FORD MOTOR CREDIT CO	0	0	0	0	187,256,000
FRED ALGER & COMPANY	356,513,119	823,325	0	0	0

MINNESOTA STATE BOARD OF INVESTMENT
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 BY BROKER
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BROKER	EQUITY		BOND		SHORT TERM	
	DOLLAR VOLUME	COMMISSIONS	DOLLAR VOLUME	COMMISSIONS	DOLLAR VOLUME	COMMISSIONS
FURMAN SELZ MAGER	\$ 4,540,078	\$ 7,838	\$ 0	\$ 0	\$ 0	\$ 0
GENERAL ELEC. FIN. SERV.	0	0	0	0	85,634,000	0
GENERAL ELECTRIC CAPITAL CORP	0	0	0	0	163,928,000	0
GENERAL MOTORS ACCEPTANCE	0	0	0	0	192,799,000	0
GOELZER & CO	3,295,587	2,723	0	0	0	0
GOLDMAN SACHS & COMPANY	162,743,821	231,092	688,109,815	16,599	938,435,000	0
GOODRICH SECURITIES	2,814,480	3,276	0	0	0	0
GORDON HASKETT & CO.	4,216,614	10,432	0	0	0	0
GREENWICH CAPITAL MARKETS INC	0	0	138,223,455	0	0	0
GRUNTAL & COMPANY	2,128,086	3,928	0	0	0	0
HELLER FINANCIAL INC.	0	0	0	0	385,575,000	0
HERZOG HEINE GEDVID	1,359,481	0	0	0	0	0
INSTINET	415,343,837	220,882	0	0	0	0
INTERSTATE SECURITIES	95,972	110	0	0	0	0
ITT FINANCIAL	0	0	0	0	768,000	0
JANNEY MONTGOMERY SCOTT	1,862,090	3,355	860,321	2,198	0	0
JEFFERIES & CO	290,311,410	411,076	0	0	0	0
JESUP & LAMONT	140,995	210	0	0	0	0
JOHNSON	2,869,660	6,266	0	0	0	0
JOHNSON LANE SPACE & SMITH	9,285,606	22,741	0	0	0	0
JONES ASSOCIATES	38,115,221	56,104	0	0	0	0
KALB VOORHIS & CO	427,562	1,385	0	0	0	0
KEEFE BRUYETTE & WOOD	3,468,318	7,604	0	0	0	0
KIDDER PEABODY	80,532,597	117,748	47,447,639	40,948	7,254,797,000	0
KLEINWORT BENSON GOVT SEC. IN	0	0	6,675,484	0	4,000,000	0
L F ROTHSCHILD	3,343,204	6,023	35,341,652	19,630	0	0
LAIDLAW AD	574,127	1,204	0	0	0	0
LAZARD FRERES & CO	2,502,956	4,016	0	0	0	0
LEGG MASON	5,559,715	11,908	0	0	0	0
LEHMAN GOVT SECURITIES	0	0	40,586,945	0	6,328,098,000	0
LEWCO SECURITIES INC.	35,501,267	53,210	0	0	0	0
LIEBER & COMPANY	60,815,631	138,252	0	0	0	0
LOVETT MITCHELL WEBBER INC.	298,800	830	0	0	0	0
LYNCH, JONES & RYAN	34,660,904	78,420	0	0	0	0
MABON NUGENT & CO.	3,294,293	4,529	0	0	0	0
MARQUETTE NATIONAL BANK	0	0	0	0	77,455,000	0
MCDONALD & COMPANY	9,534,707	31,069	0	0	0	0
MERRILL LYNCH - IDC	138,820,729	254,696	910,412,924	0	0	0
MERRILL LYNCH P F & S (R)	52,876,285	130,988	36,773,740	42,305	8,799,566,000	0
MESIROW AND COMPANY	975,625	3,006	0	0	0	0
MESIROW-JOUPPI ACCOUNT	207,900	594	0	0	0	0
MONNES WILLIAMS CRE	0	0	36,261	0	0	0
MONTGOMERY SECURITIES	22,883,206	36,299	725,000	0	0	0
MOORE SCHLEY & CAMERON	1,898,495	3,703	0	0	0	0
MORGAN GUARANTY	101,347,938	155,472	258,197,762	0	0	0
MORGAN OLMSTEAD KENNEDY	720,000	0	0	0	0	0
MORGAN STANLEY & CO	60,767,544	142,351	41,936,296	54,325	437,000,000	0
NEUBERGER & BERMAN	3,356,937	5,200	0	0	0	0
NEW YORK & FOREIGN SEC	2,385,350	6,142	0	0	0	0
NEWARD COOKE & CO	224,993	400	0	0	0	0
NOMURA SECURITIES INTL	7,448,706	11,427	33,489,674	0	5,500,000	0
NORWEST BANK MPLS	0	0	0	0	126,900,000	0
OPPENHEIMER & CO	69,731,683	136,429	0	0	0	0
PAINE WEBBER J & C.	84,781,717	181,626	46,993,049	0	0	0
PENNEY J.C. FUNDING CORP	0	0	0	0	90,000,000	0
PERSHING	42,207,289	50,348	4,990,625	0	0	0
PFORZHEIMER CARL H.	263,910	700	0	0	0	0
PIPER, JAFFRAY & HOP S	7,361,526	10,113	0	0	0	0

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BROKER	EQUITY DOLLAR VOLUME	EQUITY COMMISSIONS	BOND DOLLAR VOLUME	BOND COMMISSIONS	SHORT TERM DOLLAR VOLUME
PRESCOTT BALL & TURBAN	\$ 2,424,029	\$ 9,167	\$ 0	\$ 0	\$ 0
PRUDENTIAL	38,331,219	60,784	64,391,976	0	0
PRUDENTIAL BACHE SECURITIES I	44,879,510	111,087	0	0	7,371,664,000
ROBERT FLEMING	864,977	1,950	0	0	0
ROBERT W. BAIRD & CO	4,122,300	11,778	0	0	0
ROBERTSON COLMAN & STEPHENS	1,150,503	0	0	0	0
ROBINSON-HUMPHREY CO	3,249,997	4,535	0	0	0
ROCHDALE SECURITIES CORP	3,529,911	5,560	0	0	0
ROULSTON & COMPANY	1,526,140	2,450	0	0	0
SALOMON BROTHERS	79,155,216	150,047	493,649,480	54,461	1,228,416,000
SANFORD C. BERNSTEIN	44,888,746	91,256	0	0	0
SCHAPIRO (M.A.) & CO	27,825	24	0	0	0
SCHWAB (CHARLES) & CO	28,601,429	23,791	0	0	0
SECURITIES SETTLEMENT CORP.	3,392,898	4,935	0	0	0
SEI FUNDS EVALUATION	13,867,595	24,843	0	0	0
SHEARSON ARGUS RESEARCH	45,882,201	68,366	197,418,074	0	0
SHEARSON LEHMAN (BONDSTAT)	0	0	20,478,125	62,500	0
SHEARSON/AMERICAN EXPRESS	4,166,338	11,903	0	0	0
SMITH BARNEY & COMPANY	47,855,114	93,170	17,882,504	0	0
STATE ST BK & TRUST	150,053,294	0	18,075,572	0	0
STIFEL NICOLAUS & COMPANY	585,899	1,435	0	0	0
SUTRO AND COMPANY INC.	2,260,957	1,460	1,265,170	0	0
THOMSON & MCKINNON	6,092,180	17,405	5,391,255	10,413	0
TUCKER ANTHONY & R.L. DAY	3,274,350	4,958	0	0	0
W.E. POLLOCK & COMPANY INC	0	0	0	0	25,500,000
WAGNER STOTT & CO.	137,230,953	202,418	0	0	0
WALL STREET CLEARING	414,986	800	0	0	0
WALSH GREENWOOD	1,190,206	1,890	0	0	0
WEEDEN & COMPANY	34,884,353	81,170	0	0	0
WELLINGTON & CO.	42,138,194	119,229	0	0	0
WERTHEIM SCHRODER & CO INC	1,397,200	4,470	0	0	0
WESTINGHOUSE CREDIT	0	0	0	0	35,000,000
WHEAT BURST SECURITIES	677,550	798	0	0	0
WHEATON FIRST SECURITIES INC	445,000	534	0	0	0
WILLIAM BLAIR & CO.	4,554,904	5,685	0	0	0
WILSHIRE ASSOCIATES	71,457,462	185,192	0	0	0
WOOD GUNDY & COMPANY	746,825	1,600	0	0	0
ALL BROKERS COMBINED	\$ 4,222,445,070	\$ 6,600,420	\$ 4,241,838,444	\$ 535,675	\$47,333,022,000