MINNESOTA STATE BOARD OF INVESTMENT MEETING
June 3, 1987

&

INVESTMENT ADVISORY COUNCIL MEETING
June 2, 1987

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

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
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

AGENDA

STATE BOARD OF INVESTMENT MEETING

Wednesday, June 3,1987
8:30 A.M.
Room 112, State Capitol
Saint Paul

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1. Approval of Minutes of March 4, 1987	
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1. Basic Retirement Funds	
2. Post Retirement Fund and Other Investment Funds	
B. Portfolio Statistics	B
3. Report from Investment Advisory Council Committees:	
A. Administrative and Asset Allocation Committees	C
1. SBI Member Travel Policy	
2. Approval of Consultant Contract	
3. Basic Retirement Fund Paper - Part III	
4. Policy Asset Mix Rebalancing Policy	
5. Report on Short Term Investment Pools	
B. Equity Manager Committee	D
1. Review of Equity Investment Manager Structure	
2. Modification of Performance Fee Arrangements	
3. Review of Manager Performance	
4. Approval of External Manager Contracts	
C. Fixed Income Manager Committee	E
1. Review of Fixed Income Investment Manager Structure	
2. Review of Manager Performance	
3. Approval of External Manager Contracts	
D. Alternative Investment Committee	F
1. Report on the Alternative Investment Program	
E. Legislative Update	G
1. Status Report	
F. South Africa Task Force	H
1. Report of the Task Force	

AN EQUAL OPPORTUNITY EMPLOYER

MEMBERS OF THE BOARD:
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55 Sherburne Avenue
Saint Paul 55155
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MINUTES
STATE BOARD OF INVESTMENT
MARCH 4, 1987

The State Board of Investment met on Wednesday, March 4, 1987 at 9:00 A.M. in Room 118 of the State Capitol. Governor Rudy Perpich, Chair; Secretary of State Joan Anderson Growe; State Treasurer Michael A. McGrath; State Auditor Arne H. Carlson; and Attorney General Hubert H. Humphrey were present.

The minutes of the December 18, 1986 meeting were unanimously approved.

Howard Bicker, Executive Director, stated that the terms of six members of the Investment Advisory Council appointed by the Board have expired. Five of these members have applied for new terms: Judy Mares, Gary Norstrem, Malcolm McDonald, Michael Rosen and Jan Yeomans. Mr. Bicker recommended reappointment of these five members and suggested the Board use the open appointments process to fill the remaining vacancy. Mr. Bicker also reported that the Governor has three appointees to the Investment Advisory Council. The Governor has reappointed Joseph Rukavina and Raymond Vecellio to new four year terms. The Governor has named Vernell Jackels to fill the third appointment. Arne Carlson moved approval of the recommendations on the appointments. The motion was unanimously approved.

EXECUTIVE DIRECTOR'S REPORT

Howard Bicker first reviewed the asset allocation and investment performance of the Basic Retirement Funds. He stated the assets of the Basic Retirement Funds grew 3% during the fourth quarter, and this increase brought the Basic Funds' asset growth for calendar year 1986 to 11.0%. Mr. Bicker stated that the growth in the market value of the assets was due entirely to investment performance as the net withdrawals from the Basic Funds totaled $39 million for the fourth quarter and $113 million for the latest year. Mr. Bicker stated that there was very little change in the asset mix of the Basic Retirement Funds during the fourth quarter, but reported that cash flow to several of the Board's real estate, venture and resource managers resulted in a minor increase in the alternative equity segment of the Basic Funds' portfolio.

Mr. Bicker stated that the Basic Retirement Funds total portfolio generated a 3.8% rate of return for the fourth quarter and 13.8% for the year. Excluding alternative assets, the total portfolio produced fourth quarter results of 4.2% and a yearly performance of 15.2%. Mr. Bicker stated that the Funds active equity managers produced a fourth quarter rate of return of 3.9%, essentially equal to the 4.0% return generated by the Wilshire 5000. For calendar year 1986, the managers' combined performance was 14.3%, compared to 16.1% return for the Wilshire 5000. Mr. Bicker reported that the Basic Funds active bond managers produced a fourth quarter rate of return of 5.2% and an annual return of 15.3%. He said the bond managers outperformed the market dramatically in the fourth quarter and slightly underperformed the market for the year.

Mr. Bicker then summarized the performance of the Post Retirement Fund. He stated that the Fund grew at a rate of 3.8% for the quarter and 22.6% for the year. Mr. Bicker stated that this was due to investment gains but was also the result of a substantial positive cash flow to the Fund. Mr. Bicker reported that the equity performance of the Post Fund was poor at 0.0% rate of return for the fourth quarter.

In closing, Mr. Bicker stated that as of December 31, 1986, all assets under management at the State Board of Investment were $10.8 billion.

In response to a question from Mr. Carlson concerning the bond portfolio, Mr. Bicker stated that the Post Retirement Bond portfolio performed at a 4.1% rate for the quarter and 20.4% for the year versus the Salomon index of 3.3% for the quarter and 15.5% for the year. Mr. Bicker explained that the dedicated bond portfolio is structured to insure cash flow sufficient to pay promised benefits and is not managed to maximize total rate of return.

INVESTMENT ADVISORY COUNCIL REPORT

Jan Yeomans presented the Investment Advisory Council Report.

ADMINISTRATIVE AND ASSET ALLOCATION COMMITTEES

Ms. Yeomans stated that the Committees reviewed Part II of the staff's position paper on investment policy for the Basic Retirement Funds. She stated that Part II of the paper recommends a policy asset mix and various asset class targets for the Basic Funds and also discusses the subject of market timing. The Committees accepted the paper, but they wish to consider further the issue of market timing, or active asset allocation. She said this issue will be studied during the next quarter by the staff and the Board's consultant, Richards & Tierney.

EQUITY MANAGER COMMITTEE

Ms. Yeomans stated that the Committee reviewed the recent performance of the Board's external equity managers. She stated that five external managers outperformed their benchmark portfolios significantly, five underperformed and the remaining three were fairly close to the benchmark portfolio. She stated the performance of the Board's internal equity manager in the Post Fund was reviewed in detail by the Committee. She reported that the internally managed assets are now invested solely according to the recommendations of two quantitative stock selection models which have a demonstrated history of successful performance.

In response to a statement by Governor Perpich concerning investment performance, Ms. Yeomans stated that for the past three years more than 70% of stock managers underperformed the market as a whole. In response to a statement by Governor Perpich regarding the need for additional venture capital within Minnesota, Mr. Bicker stated that the Board is investing in venture capital partnerships that finance new business nationwide, including Minnesota. In addition, he stated the Board was instrumental in establishing a venture capital partnership specifically for Minnesota companies. Mr. Bicker reported the Basic Retirement Funds performed near the top quartile of both private and public plans throughout the United States during the last fiscal year. Mr. Carlson requested that Board members or their designees be informed when the Investment Advisory Council meets to evaluate the performance of internal or external managers.

ALTERNATIVE INVESTMENT COMMITTEE

Ms. Yeomans stated that the Board has committed funds to ten venture capital funds for total commitments of $143.5 million. This is near the 2.5% target established for this asset class. She reported the Committee is reviewing the possible benefits and costs of retaining a consultant to assist in performance monitoring and performance measurement of venture capital investments.

Ms. Yeomans reported that the Board has committed $370 million to 11 commingled real estate funds. She stated they are also considering the possibility of establishing a real estate common stock portfolio and may choose to retain a consultant to assist in review of the entire real estate investment portfolio.

She stated the Committee continues to search for investment opportunities in the resource area, and is considering consultant services that could identify some attractive opportunities and assist with due diligence and performance monitoring. In response to several questions from Mr. Carlson, Mr. Bicker stated the staff and Investment Advisory Council will be investigating a variety of consultant services in the alternative asset area.

LEGISLATIVE UPDATE

Mr. Bicker referred members to a status report on legislation of interest to the Board contained in the Board folder. He stated that the Board's bill is on General Orders in the Senate and has been re-referred to Committee in the House. Mr. Bicker stated two Board proposals which have met with some controversy: authority to invest non-rated and high yield bonds and the authority to invest in foreign securities. In response to a question from Mr. Carlson, Mr. McGrath stated that at the last MSRS Board meeting there was a great deal of concern expressed about both these new authorities. Mr. Carlson stated that he felt it important for the Board to obtain the new debt authority and suggested that Mr. Bicker should pursue modifications in the Board's bill that will assist in its passage.

The meeting adjourned at 9:40 A.M.

Respectfully submitted,

Howard Bicker

Howard J. Bicker
Executive Director

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

Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

AGENDA

INVESTMENT ADVISORY COUNCIL MEETING

Tuesday, June 2,1987
2:00 P.M.
MEA Building-Conference Room "A"
41 Sherburne Avenue, Saint Paul

	TAB
1. Approval of Minutes of March 3, 1987	
2. Executive Director's Report:	
A. Quarterly Investment Review	A
1. Basic Retirement Funds	
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3. Report from Investment Advisory Council Committees:	
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3. Basic Retirement Fund Paper - Part III	
4. Policy Asset Mix Rebalancing Policy	
5. Report on Short Term Investment Pools	
B. Equity Manager Committee	D
1. Review of Equity Investment Manager Structure	
2. Modification of Performance Fee Arrangements	
3. Review of Manager Performance	
4. Approval of External Manager Contracts	
C. Fixed Income Manager Committee	E
1. Review of Fixed Income Investment Manager Structure	
2. Review of Manager Performance	
3. Approval of External Manager Contracts	
D. Alternative Investment Committee	F
1. Report on the Alternative Investment Program	
E. Legislative Update	G
1. Status Report	
F. South Africa Task Force	H
1. Report of the Task Force	

MEMBERS OF THE BOARD:
GOVERNOR RUDY PERPICH
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STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

MINUTES
INVESTMENT ADVISORY COUNCIL
March 3, 1987

The Investment Advisory Council met on Tuesday March 3, 1987 at 2:00 P.M. in the MEA Building, St. Paul.

MEMBERS PRESENT: Harry Adams, James Eckmann, Elton Erdahl, Paul Groschen, Ken Gudorf, Vern Jackels, James Hacking, Jay Kiedrowski, Malcolm McDonald, Judy Mares, Gary Norstrem, Joe Rukavina, Ray Vecellio, Jan Yeomans.

MEMBERS ABSENT: Mike Rosen and Debbie Veverka.

SBI STAFF: Howard Bicker, Jeff Bailey, Beth Lehman, John Griebenow, Daralyn Peifer, Harriet Balian, Charlene Olson.

OTHERS ATTENDING: Tom Richards, Richards & Tierney; James Heidelberg; Jake Manahan; Mike Ousdigian; Bob Whitaker.

The minutes of the December 17, 1986, meeting were approved.

EXECUTIVE DIRECTOR'S REPORT:

Howard Bicker, Executive Director, first reviewed the asset allocation and investment performance of the Basic Retirement Funds. He stated the assets of the Basic Retirement Funds grew 3% during the fourth quarter, and this increase brought the Basic Funds' asset growth for calendar year 1986 to 11.0%. Mr. Bicker stated this growth was due entirely to investment performance as the net withdrawals from the Basic Funds totaled $39 million for the fourth quarter and $113 million for the latest year. He stated that there was very little change in the asset mix of the Basic Retirement Funds during the fourth quarter, but reported that cash flow to several of the Board's real estate, venture and resource managers resulted in a minor increase in the alternative equity segment of the Basic Funds' portfolio. Mr. Bicker reported the Basic Retirement Funds' total portfolio generated a 3.8% rate of return for the fourth quarter 1986, and 13.8% for the year. Excluding alternative assets, the total portfolio produced fourth quarter results of 4.2% and a yearly performance of 15.2%. Mr. Bicker stated that the Basic Retirement Funds' active equity managers produced a fourth quarter rate of return of 3.9%, essentially equal to the 4.0% return generated by the Wilshire 5000. For calendar year 1986 their combined performance was 14.3%, compared to 16.1% annual return for the Wilshire 5000. Mr. Bicker reported that the Basic Retirement Funds' active bond managers produced a fourth quarter rate of return of 5.2% and an annual return of 15.3%. They outperformed the market dramatically in the fourth quarter and slightly underperformed the market for the year.

Mr. Bicker stated that the market value of the Post Retirement Investment Fund's assets increased 3.8% during the fourth quarter and 22.6% for the calendar year 1986. Mr. Bicker reported that the equity performance in the Post Fund was poor and produced a 0.0% rate of return for the fourth quarter and a 3.5% return for the year 1986. He indicated the report from the Investment Advisory Council would further address this issue.

Mr. Bicker reported that as of December 31, 1986 all assets under management at the State Board of Investment were $10.8 billion.

INVESTMENT ADVISORY COUNCIL REPORT

Jan Yeomans presented the Investment Advisory Council Report. She stated that due to changes in membership of the Investment Advisory Council, new committee assignments have been made. Copies of the Committee assignments were distributed to the members (see Exhibit A).

ADMINISTRATIVE AND ASSET ALLOCATION COMMITTEES

Ms. Yeomans stated that the Committees reviewed Part II of the staff's position paper on investment policy for the Basic Retirement Funds. She stated that Part II of the paper recommends a policy asset mix and various asset class targets for the Basic Funds and also discusses the subject of market timing. She also stated the Committees recommend adoption of the staff position paper, but they believe the market timing issue should be given further consideration by the IAC and staff.

At the request of several Council members, Jim Eckmann described his experience with market timing, or strategic asset allocation. In response to other questions and comments by Council members, Mr. Tom Richards of Richards & Tierney, stated that their experience with large plan sponsors indicates that most institutional investors do not engage in market timing or tactical allocation. After further discussion, Malcolm McDonald moved that the Board's consultant, Richards & Tierney, present the methodology it uses to assess the investment skill of a "market timer" at a future IAC meeting. The motion passed unanimously.

EQUITY MANAGER COMMITTEE

Judy Mares reported that the Committee reviewed the recent performance of the Board's external equity managers and stated that there was no need to take any action at this time. She also reported the Committee reviewed the recent performance of the Board's internal equity manager in some detail. Due to recent poor performance of the internal manager, the staff has made significant changes in the investment approach used. This portfolio is now invested solely according to the recommendations of two quantitative stock selections models that have demonstrated history of successful performance. The Committee plans to continue to monitor the performance of the internal manager and will report again to the Council and the Board at its next meeting.

ALTERNATIVE INVESTMENT COMMITTEE

Ken Gudorf stated that most of the matters the Committee discussed were of a housekeeping nature. He stated there were no additional investment decisions to make at this time and indicated the Committee will continue to look at various investment vehicles in the alternative asset area.

Mr. McDonald moved acceptance of the Committee reports. The motion was unanimously approved.

Mr. Bicker presented an update on pending legislation. He pointed out the status of the Board's bill and stated that there is some opposition regarding the new foreign investment authority and the new debt authority contained in the bill. He also reported the SBI will continue to pursue passage of the bill as proposed.

The meeting adjourned at 3:30 P.M.

Respectfully submitted,

Howard Bicker

Howard J. Bicker
Executive Director

Attachment

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
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STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

March 2, 1987

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Jan Yeomans, Chair
Investment Advisory Council

SUJBECT: IAC Committee Assignments

Due to changes in membership of the Investment Advisory Council, (IAC) I have reviewed the membership on each of the committees of the IAC.

I am making the following Committee assignments:

Administrative Committee

Jan Yeomans
Malcolm McDonald
Jay Kiedrowski

Equity Manager Committee

Jim Eckmann
Elton Erdahl
Judy Mares
Debbie Veverka

Asset Allocation Committee

Paul Groschen
Jay Kiedrowski
Ray Vecellio
Jan Yeomans

Alt. Investment Committee

Harry Adams
Ken Gudorf
Malcolm McDonald
Mike Rosen

Fixed Income Manager Committee

Jim Hacking
Judy Mares
Gary Norstrem
Joe Rukavina

These appointments are effective immediately. If you have any comments or concerns please contact me or Howard Bicker.

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MARCH 31, 1987

MINNESOTA STATE BOARD OF INVESTMENT

BASIC RETIREMENT FUNDS

FIRST QUARTER 1987

Summary

ASSETS

An impressive performance by the common stock market during first quarter 1987 resulted in a 13.4% increase in the asset value for the Basic Retirement Funds. This brought asset growth for the most recent year to 13.7%. Although the Basic Retirement Funds received modest net contributions of $3.6 million during the first quarter of the year, withdrawals exceeded contributions by $115 million for the full year. The asset growth history for the Basic Retirement Funds over the last five calendar years is outlined below.

Calendar Year	Market Value (millions)	Percent Change from Previous Period
1982	2,806	+ 30.6
1983	3,129	+ 11.5
1984	3,265	+ 4.4
1985	4,030	+ 23.4
1986	4,474	+ 11.0
1987 1Q	5,075	+ 13.4

ASSET MIX

The Basic Retirement Funds experienced a slight shift in asset mix during the first quarter of the year. A minor increase in the relative weighting of the common stock segment of the portfolio was offset by a decrease in the bond and alternative investment segment weights. These changes were attributable to the relative performances of the capital markets during the period.

The Basic Funds' asset mix for the most recent two quarters and year is presented below.

ASSET MIX

	3/31/86	12/31/86	3/31/87
Common Stocks	61.2%	58.3%	61.7%
Bonds	23.3	24.3	20.9
Cash Equivalents*	6.5	6.2	6.8
Alternative Equity Assets	9.0	11.2	10.6
	100.0%	100.0%	100.0%

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

INVESTMENT RETURNS

The Basic Retirement Funds' total portfolio produced a 13.3% return for first quarter 1987 and a 16.6% return for the latest year. Excluding alternative equity assets, the Basic Funds' generated a 14.9% rate of return for the quarter. This performance resulted in a 18.3% return for the year.

The Basic Retirement Funds benefited from their substantial common stock exposure during the first quarter and the latest year. In both periods, the Basic Retirement Funds' total portfolio performance exceeded that of the TUCS Median Balanced Fund Manager and the assigned composite of market indices.

Total portfolio and asset segment returns are displayed below.

	Total Rate of Return	
	First Quarter 1987	Year Ending 3/31/87
Common Stocks	20.7%	21.6%
Bonds	2.3	10.9
Cash	1.5	6.5
Alternative Equity Assets	1.8	5.4
Total Fund (including alt. assets)	13.3	16.6

EQUITY PERFORMANCE

The Basic Retirement Funds' active equity managers matched the performance of the common stock market during the first quarter of the year with an aggregate return of 21.0%. The quarterly results brought the active managers' combined return for the latest year to 20.1%. The return for the Wilshire 5000 for the year was 23.0%.

As in recent quarters, the active manager returns were very widely dispersed. Outstanding performances by several of the managers offset the underperformance by others to result in essentially a market performance. For the most part, underperformance by managers was attributable either to the value style or market timing. Several of the managers were hindered by the substantial cash reserves they held at year-end 1986. When the stock market shot upwards in early 1987 the managers were unable to increase their equity exposure rapidly enough to benefit from the strong but brief market move.

The risk compositions and industry sector concentrations of the active managers changed very little. As a group, the active managers continued to be underweighted in the Capital Goods, Energy, and Utilities sectors. In addition, the managers maintained overweighted positions in the Consumer Durables, Financial, Technology, and Transportation sectors and market-weighted in the Consumer Nondurables and Materials and Services sectors.

The index fund produced a 20.8% rate of return for first quarter 1987 and a 22.3% return for the most recent year.

The Basic Retirement Funds' equity manager returns for the latest quarter and year are presented below.

Total Portfolio Returns

	First Quarter 1987	Year Ending 3/31/87
Fred Alger	18.4%	16.2%
Alliance Capital	27.4	25.1
Beutel Goodman	17.6	10.6
BMI Capital	24.8	27.6
Forstmann Leff	19.8	20.3
Hellman Jordan	29.4	22.0
IDS	22.4	23.7
Investment Advisers	19.7	18.7
Lieber & Company	20.1	20.7
Peregrine Capital	17.3	18.9
Waddell and Reed	18.4	18.8
Internal Manager	19.2	23.4
Total - External Active Managers	21.0	20.1
Wilshire Associates (Index Fund)	20.8	22.3*
Wilshire 5000	21.2	23.0

* Performance negatively impacted due to cash withdrawals under the Rule of 85.

BOND PERFORMANCE

The performance of the Basic Retirement Funds' active bond managers exceeded the lackluster first quarter performance of the bond market. As a group, the bond managers generated a 2.3% rate of return for the quarter and a 10.9% return for the most recent year. The bond market, in contrast, produced a total rate of return of 1.3% for the quarter and 8.4% for the year. The managers' aggregate performance also exceeded that of the TUCS Median Bond Manager, which produced quarterly returns of 1.4% and an annual return of 8.6%.

As a group, the managers benefited from their substantial exposure to the Mortgage and Corporate sectors of the bond market. These two sectors significantly outperformed the Treasury and Agency sectors during the quarter and year.

The managers' risk characteristics and bond sector allocations remained much the same as the previous quarter. In aggregate, the allocation to cash equivalents increased slightly. Positions in the Government and Utilities sectors were increased, while holdings in the Financial and Mortgage sectors were trimmed.

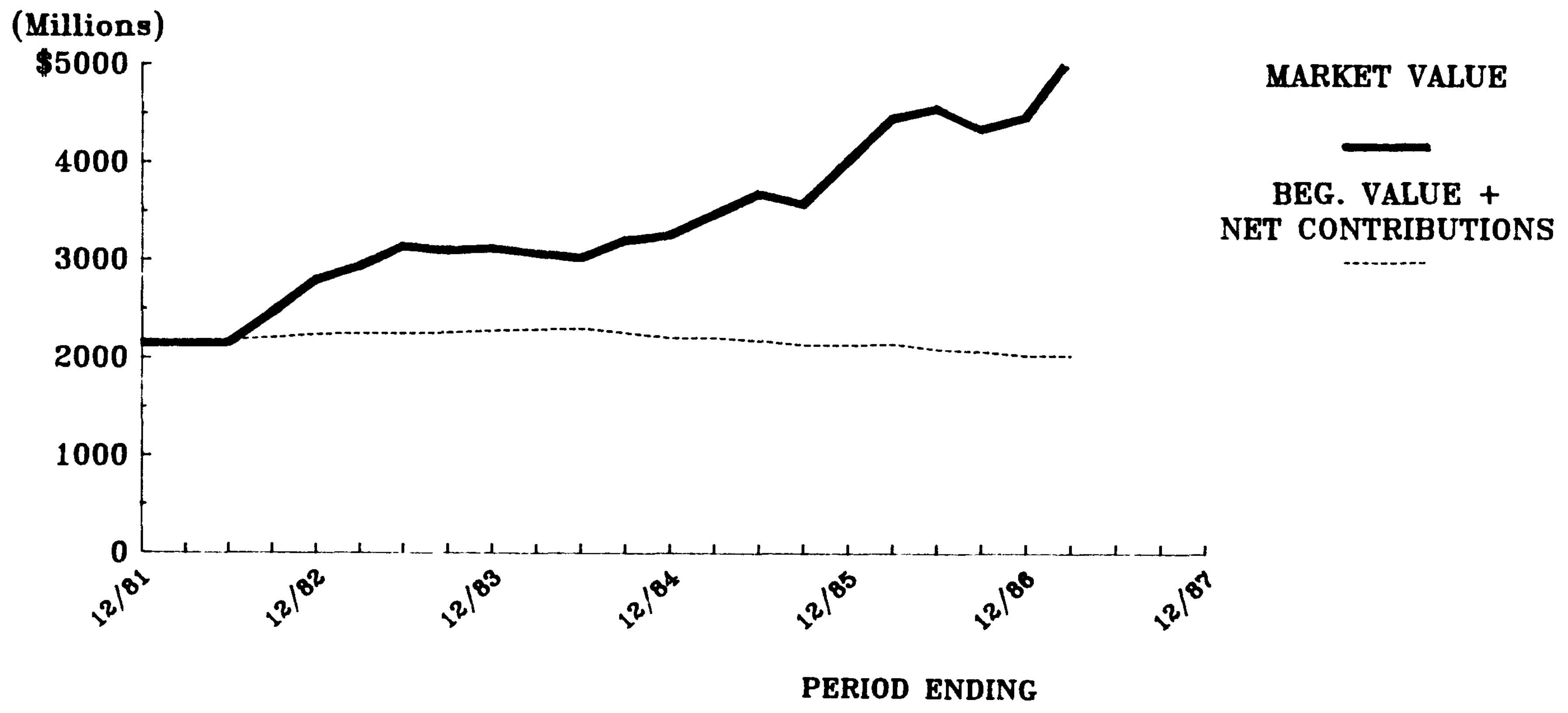
The Basic Retirement Funds' bond manager performance for first quarter 1987 and the latest year are detailed below.

Total Portfolio Returns

	First Quarter 1987	Year Ending 3/31/87
Investment Advisers	1.0%	7.1%
Lehman Management	1.1	8.1
Miller Anderson	2.8	16.1
Morgan Stanley	2.9	9.4
Peregrine Capital	2.0	9.3
Western Asset	2.6	11.4
Total - External Managers	2.3	10.9
Salomon Brothers Broad Bond Index	1.3	8.4

FIGURE 1

BASIC RETIREMENT FUNDS
ASSET GROWTH



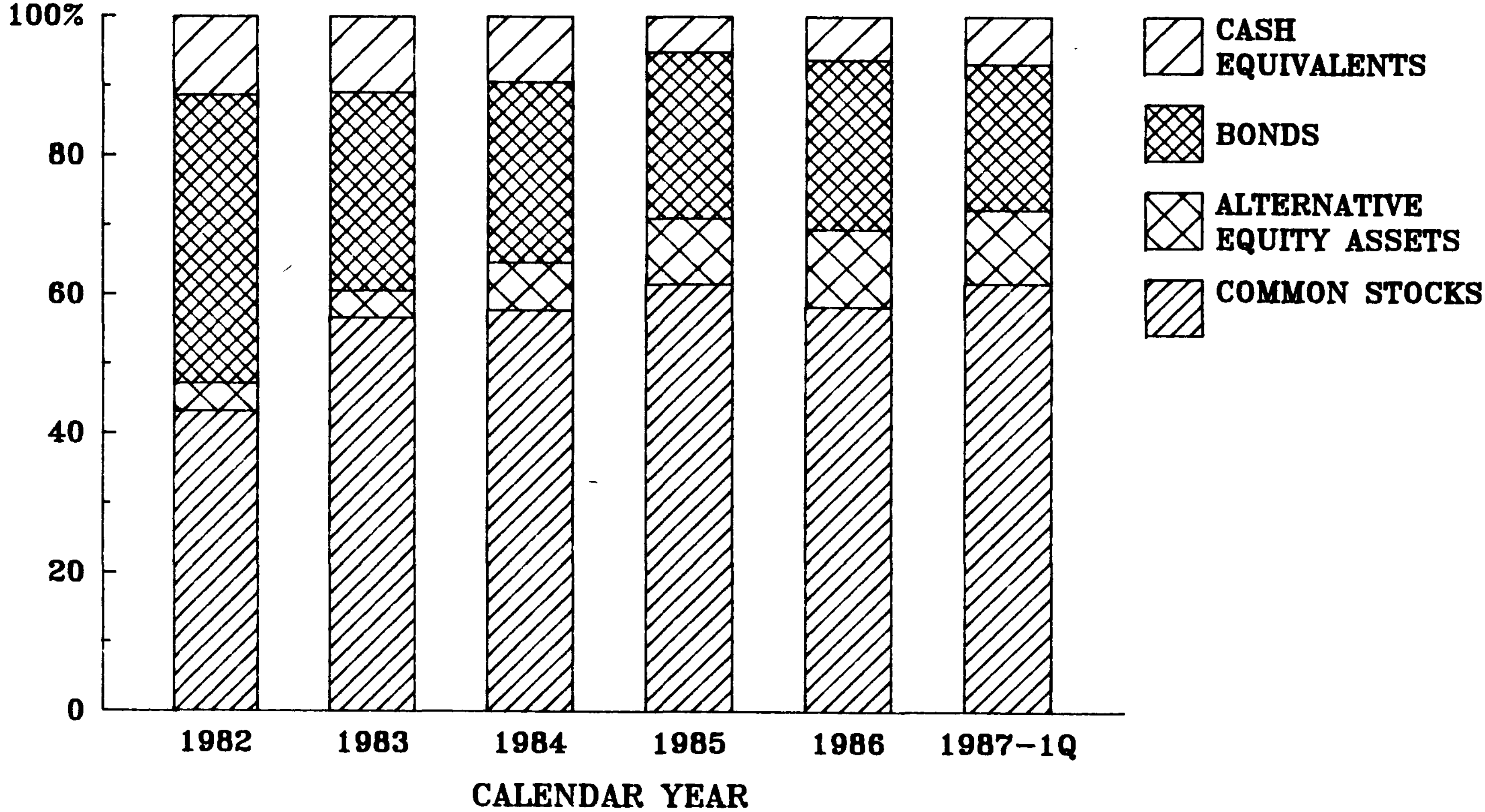
	12/82	12/83	12/84	12/85	12/86	3/87
BEGINNING VALUE	2,148.8	2,806.2	3,129.0	3,265.0	4,029.6	4,474.1
NET CONTRIBUTIONS	91.0	40.0	-77.6	-62.7	-112.8	3.6
INVESTMENT RETURN	566.4	282.8	213.6	827.3	557.3	597.4
ENDING VALUE	2,806.2	3,129.0	3,265.0	4,029.6	4,474.1	5,075.1

(MILLIONS OF DOLLARS)

FIGURE 2

BASIC RETIREMENT FUNDS

HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 1

BASIC RETIREMENT FUNDS
ASSET MIX

PERCENT OF MARKET VALUE
(End of Period Allocations)

	Common Stocks		Bonds		Cash*		Real Estate		Resource Funds		Venture Capital	
	$Million	Percent	$Million	Percent	$Million	Percent	$Million	Percent	$Million	Percent	$Million	Percent
1982	1,212	43.2	1,165	41.5	317	11.3	93	3.3	17	0.7	-	-
1983	1,773	56.7	892	28.5	342	10.9	101	3.2	21	0.7	-	-
1984	1,887	57.8	847	25.9	308	9.4	178	5.5	23	0.7	22	0.7
1985	2,481	61.6	961	23.8	204	5.1	288	7.1	47	1.2	49	1.2
1986	2,608	58.3	1,088	24.3	277	6.2	367	8.2	63	1.4	71	1.6
1987 1Q	3,130	61.7	1,060	20.9	347	6.8	391	7.7	63	1.2	85	1.7

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

TABLE 2

BASIC RETIREMENT FUNDS

ASSET MIX – ACTUAL vs. POLICY

PERCENT OF MARKET VALUE
(End of Period Allocations)

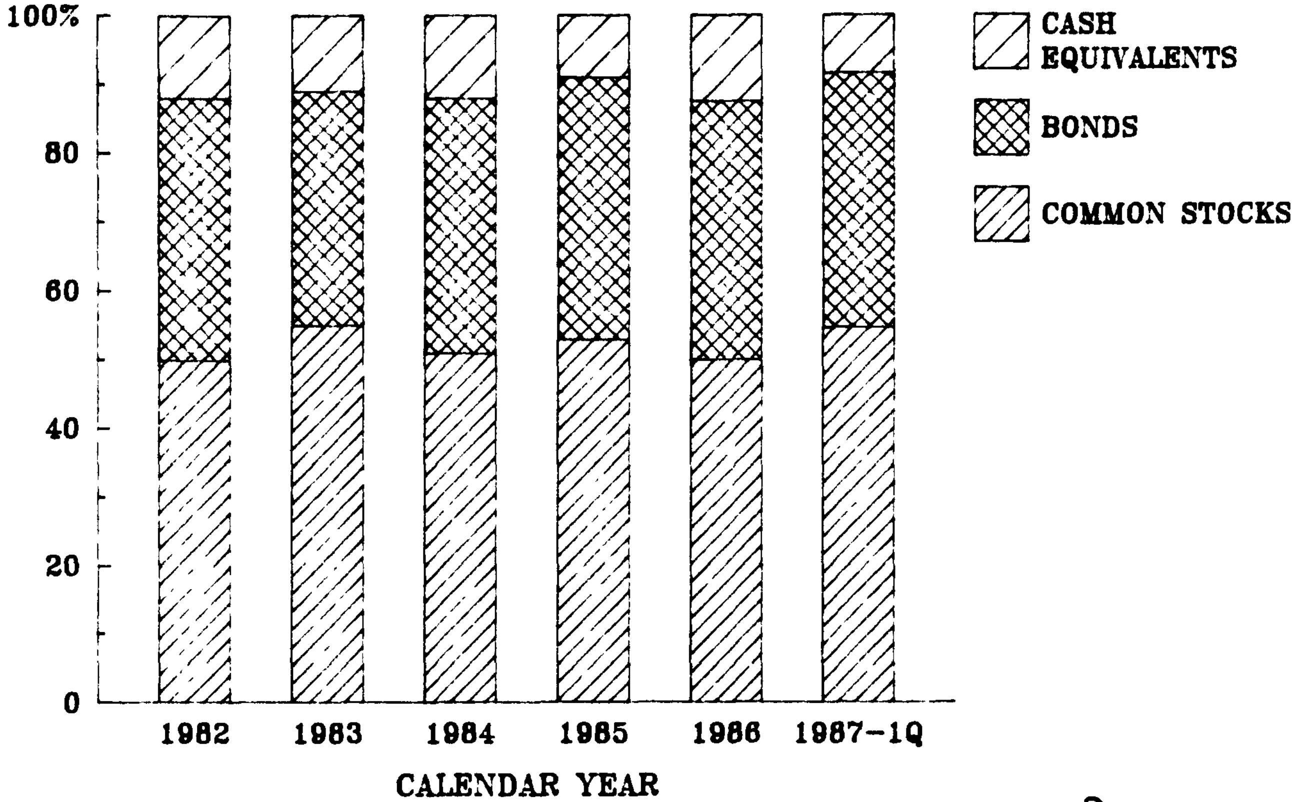
		Common Stocks*						Fixed Income***			Real Estate*			Resource Funds Venture Capital*		
		Passive Management			Active Management											
		Actual	Policy	Diff.	Actual	Policy	Diff.	Actual	Policy	Diff.	Actual	Policy	Diff.	Actual	Policy	Diff.
1983	1Q	0	40	-40	57.9	20	+37.9	38.3	25	+13.3	3.2	10	-6.8	0.6	5	-4.4
	2Q	0	40	-40	61.9	20	+41.9	34.5	25	+ 9.5	3.0	10	-7.0	0.6	5	-4.4
	3Q	0	40	-40	63.4	20	+43.4	32.8	25	+ 7.8	3.2	10	-6.8	0.6	5	-4.4
	4Q	43.5	40	+ 3.5	18.5	20	- 1.5	34.1	25	+ 9.1	3.2	10	-6.8	0.7	5	-4.3
1984	1Q	42.2	40	+ 2.2	17.8	20	- 2.2	35.7	25	+10.7	3.5	10	-6.5	0.8	5	-4.2
	2Q	41.7	40	+ 1.7	17.7	20	- 2.3	33.3	25	+ 8.3	5.5	10	-4.5	1.8	5	-3.2
	3Q	42.5	40	+ 2.5	17.9	20	- 2.1	32.6	25	+ 7.6	5.3	10	-4.7	1.7	5	-3.3
	4Q	42.1	40	+ 2.1	18.0	20	- 2.0	32.7	25	+ 7.7	5.5	10	-4.5	1.7	5	-3.3
1985	1Q	43.0	40	+ 3.0	18.3	20	- 1.7	31.4	25	+ 6.4	5.7	10	-4.3	1.6	5	-3.4
	2Q	43.2	40	+ 3.2	18.7	20	- 1.3	30.7	25	+ 5.7	5.6	10	-4.4	1.8	5	-3.2
	3Q	42.8	40	+ 2.8	18.8	20	- 1.2	29.5	25	+ 4.5	6.6	10	-3.4	2.3	5	-2.7
	4Q	44.6	40	+ 4.6	19.2	20	- 0.8	26.5	25	+ 1.5	7.2	10	-2.8	2.5	5	-2.5
1986	1Q	45.8	40	+ 5.8	20.0	20	0.0	25.1	25	+ 0.1	7.0	10	-3.0	2.1	5	-2.9
	2Q	43.7	40	+ 3.7	20.4	20	+ 0.4	26.3	25	+ 1.3	7.3	10	-2.7	2.3	5	-2.7
	3Q	41.9	40	+ 1.9	19.7	20	- 0.3	26.7	25	+ 1.7	8.4	10	-1.6	3.3	5	-1.7
	4Q	40.8	40	+ 0.8	19.8	20	- 0.2	27.9	25	+ 2.9	8.3	10	-1.7	3.2	5	-1.8
1987	1Q	42.8	40	+ 2.8	21.4	20	+ 1.4	24.9	25	- 0.1	7.8	10	-2.2	3.1	5	-1.9

*Includes cash held by external managers in the particular asset class.
**Includes cash uncommitted to long-term assets.

FIGURE 3

TAX-EXEMPT BALANCED PORTFOLIO UNIVERSE

HISTORICAL ASSET MIX



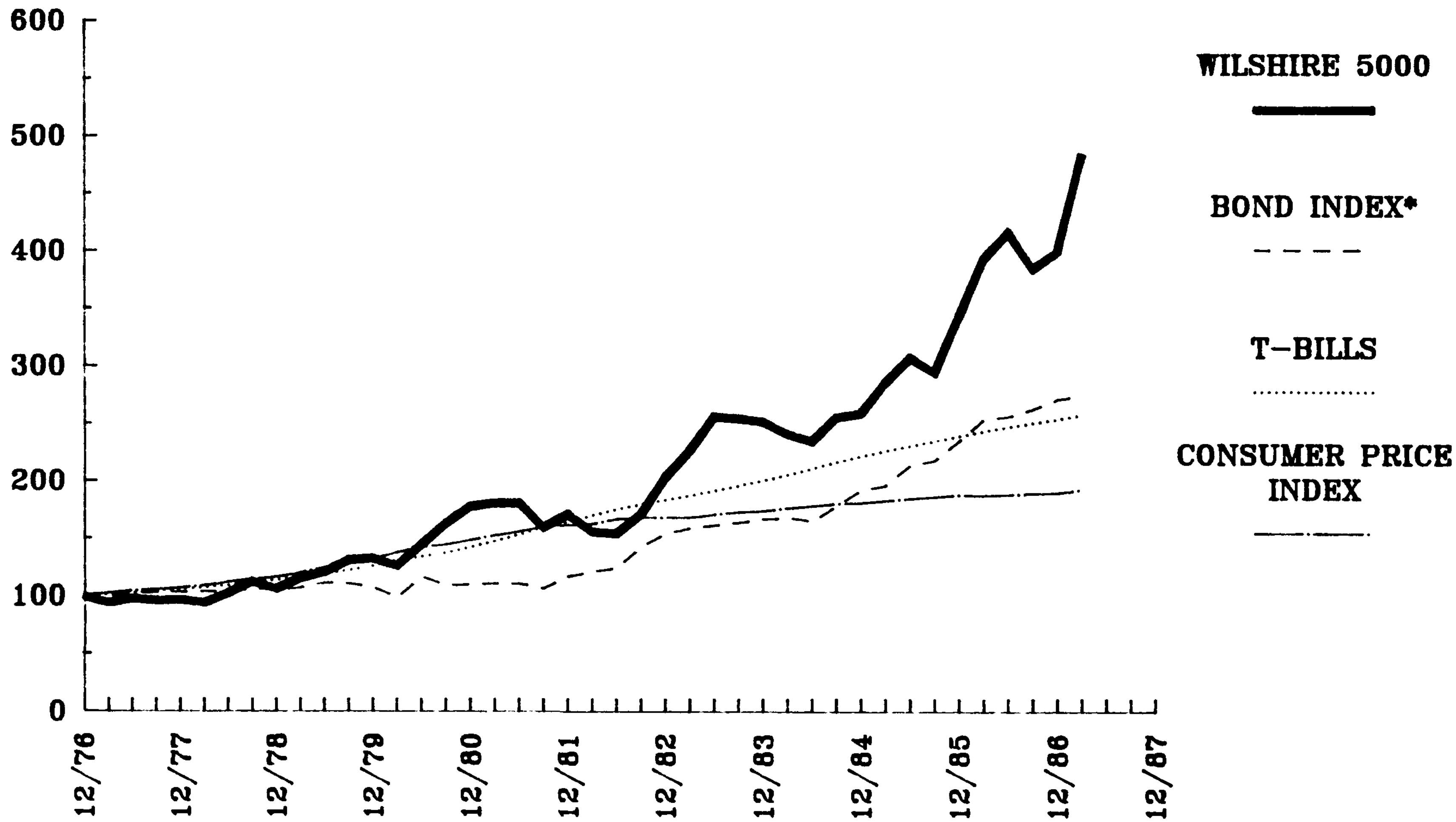
	1982	1983	1984	1985	1986	1987-1Q
COMMON STOCKS	48%	52%	48%	50%	48%	52%
BONDS	36	32	35	36	36	35
CASH EQUIVALENTS	12	10	11	9	12	8

PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

Figure 3 and the accompanying table depict the median asset class weightings held in Wilshire Associate's TUCS universe of balanced portfolios during the most recent quarter and five calendar years. The figure and table are intended to give a perspective of the historical asset allocation of balanced tax-exempt corporate and public funds. The portfolios in the balanced universe differ in composition. Many of the portfolios are comprised of only common stocks, bonds, and cash equivalents. Other portfolios in the balanced universe, however, contain alternative assets such as real estate and venture capital in addition to stocks and bonds.

FIGURE 4

PERFORMANCE OF CAPITAL MARKETS
CUMULATIVE RETURNS



*M.L. MASTER INDEX THROUGH 12/79
SALOMON BROAD INDEX THEREAFTER

FIGURE 5

BASIC RETIREMENT FUNDS

INVESTMENT RETURNS

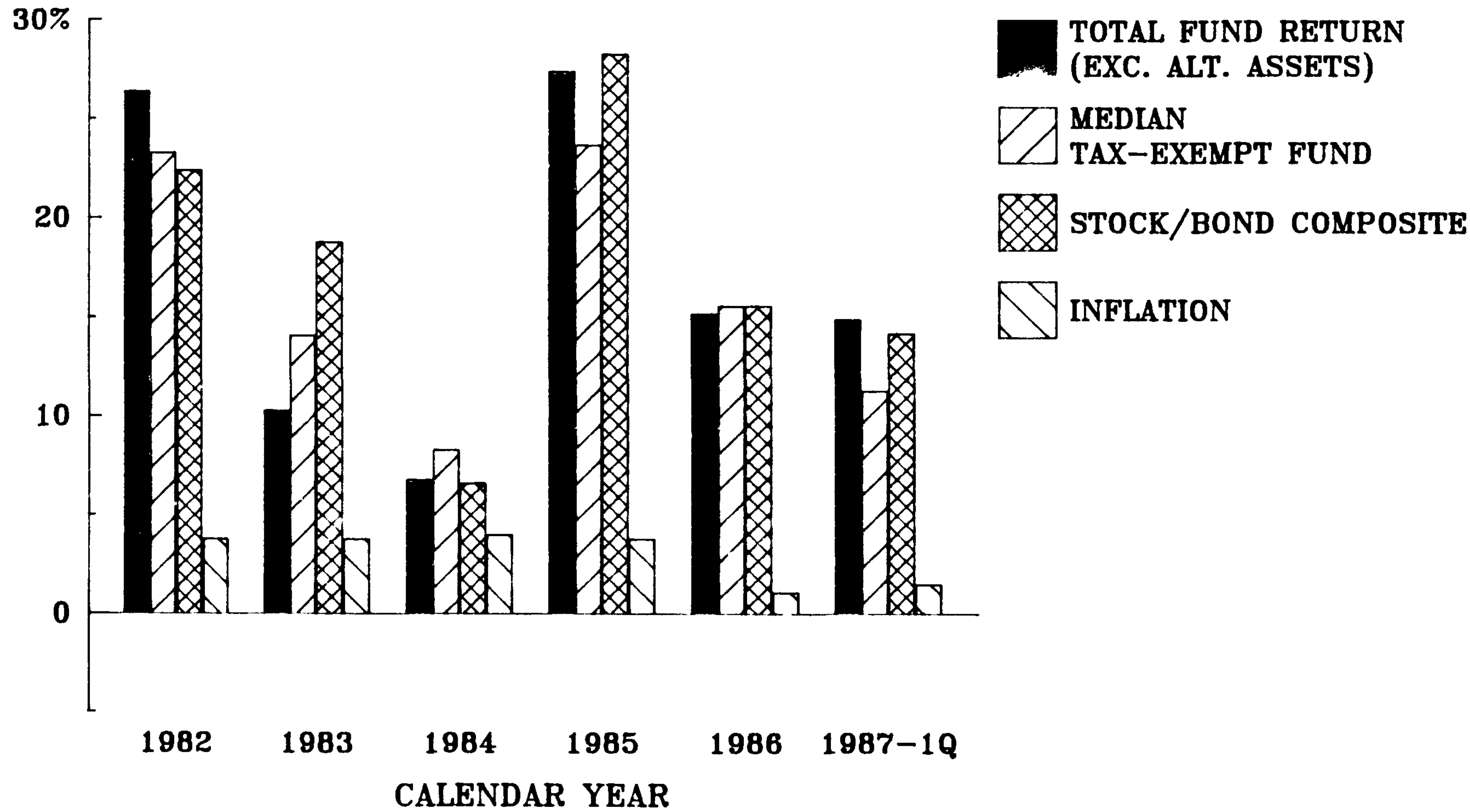


TABLE 3

BASIC RETIREMENT FUNDS

INVESTMENT RETURNS RELATIVE TO PERFORMANCE STANDARDS

Calendar Year	Total Fund Return (exc. alt. assets)	Median Tax-exempt Fund	Stock/Bond* Composite	Inflation	90 Day T-Bills	Total Fund Return (inc. alt. assets)
1982	26.4	23.3	24.4	3.9	11.7	25.7
1983	10.3	14.1	18.2	3.8	9.3	10.1
1984	6.8	8.3	6.9	4.0	10.4	6.9
1985	27.4	23.7	28.3	3.8	7.9	25.6
1986	15.2	15.6	15.6	1.1	6.3	13.8
1987 1Q	14.9	11.3	14.2	1.5	1.4	13.3
1 Year Through 3/31/87	18.3	16.2	18.1	3.0	5.9	16.6
3 Years Annualized Through 3/31/87	22.7	21.5	22.9	3.0	7.8	21.0
5 Years Annualized Through 3/31/87	20.4	20.5	22.4	3.5	8.7	19.3

*50/45/5 Wilshire 5000/Salomon Broad Bond Index/T-Bill Composite Through 12-31-82;
65/30/5 Wilshire 5000/Salomon Broad Bond Index/T-Bill Composite Thereafter

TABLE 4

BASIC RETIREMENT FUNDS

INVESTMENT RETURNS - DETAIL

CALENDAR YEAR	COMMON STOCKS Basics	COMMON STOCKS Wilshire 5000	BONDS Basics	BONDS Salomon Bond Index	ALTERNATIVE EQUITY ASSETS Basics
1982	21.6	18.7	38.1	29.8	11.9
1983	12.7	23.5	9.3	7.8	7.4
1984	2.7	3.1	14.6	15.1	11.8
1985	31.4	32.6	21.4	21.8	6.8
1986	15.2	16.1	15.1	15.5	2.3
1987 1Q	20.7	21.2	2.3	1.3	1.8
1 Year Through 3/31/87	21.6	23.0	10.9	8.4	5.4
3 Years Annualized Through 3/31/87	25.5	26.1	17.0	17.8	6.2
5 Years Annualized Through 3/31/87	22.1	25.4	19.2	17.8	7.7

TABLE 5

BASIC RETIREMENT FUNDS

EQUITY MANAGER PERFORMANCE
TOTAL PORTFOLIO RETURNS

Managers	First Quarter 1987	Year Ending 3/31/87	Two Years Ending 3/31/87 (Annualized)	Three Years Ending 3/31/87 (Annualized)	Four Years Ending 3/31/87 (Annualized)
Fred Alger	18.4%	16.2%	31.2%	24.4%	18.0%
Alliance Capital	27.4	25.1	37.2	32.6	21.3
Beutel Goodman	17.6	10.6	17.9	19.7	17.9
BMI Capital	24.8	27.6	27.1	23.9	12.1
Forstmann Leff	19.8	20.3	31.2	26.6	19.8
Hellman Jordan	29.4	22.0	30.1	26.5	19.5
IDS	22.4	23.7	34.1	30.5	21.8
Investment Advisers	19.7	18.7	25.0	23.6	17.9
Lieber & Company	20.1	20.7	28.0	25.9	19.7
Peregrine Capital	17.3	18.9	N.A.	N.A.	N.A.
Waddell & Reed	18.4	18.8	26.5	19.6	17.5
Internal Manager	19.2	23.4	N.A.	N.A.	N.A.
Total - External Active Managers	21.0	20.1	28.2	24.1	17.0
Wilshire Associates (Index Fund)	20.8	22.3*	29.6*	26.0	N.A.
Performance Benchmarks					
Wilshire 5000	21.2	23.0	30.0	26.1	20.8
90-Day Treasury Bills	1.4	5.9	6.7	7.8	8.3
Inflation	1.5	3.0	2.7	3.0	3.4

* Performance negatively impacted due to cash withdrawals under the Rule of 85.

TABLE 6

BASIC RETIREMENT FUNDS

BOND MANAGER PERFORMANCE

TOTAL PORTFOLIO RETURNS

Managers	First Quarter 1987	Year Ending 3/31/87	Two Years Ending 3/31/87 (Annualized)
Investment Advisers	1.0%	7.1%	16.1%
Lehman Management	1.1	8.1	16.0
Miller Anderson	2.8	16.1	20.5
Morgan Stanley	2.9	9.4	19.4
Peregrine Capital	2.0	9.3	15.0
Western Asset	2.6	11.4	20.3
Total - External Bond Managers	2.3	10.9	18.6
Performance Benchmarks			
Salomon Brothers Broad Bond Index	1.3	8.4	18.3
90-Day Treasury Bills	1.4	5.9	6.7
Inflation	1.5	3.0	2.7

MINNESOTA STATE BOARD OF INVESTMENT

POST RETIREMENT INVESTMENT FUND

QUARTERLY INVESTMENT REVIEW

MARCH 31, 1987

MINNESOTA STATE BOARD OF INVESTMENT

POST RETIREMENT INVESTMENT FUND

FIRST QUARTER 1987

Summary

ASSETS

The Post Retirement Investment Fund experienced a 4.5% increase in asset growth in first quarter 1987. This increase in the market value of the Post Fund's assets brought growth for the most recent year to 14.5%. Asset growth was attributable to both investment returns and net contributions. The Post Retirement Investment Fund continued to receive a steady flow of contributions during the first quarter. Contributions exceeded withdrawals by $9 million for the quarter and $206 million for the latest year.

The growth in the market value of the Post Retirement Investment Fund's assets over the last five years is presented below.

Calendar Year	Market Value (millions)	Percent Change from Previous Period
1982	1,523	+38.3
1983	1,803	+18.4
1984	2,246	+24.6
1985	3,107	+38.3
1986	3,808	+22.6
1987 1Q	3,980	+ 4.5

ASSET MIX

The asset mix of the Post Retirement Investment Fund was altered slightly during first quarter 1987 as a result of a routine rebalancing of the dedicated bond portfolio. The cash equivalents segment of the portfolio, which had received a flow of contributions at calendar year-end, returned to a more normal level while the bond segment increased in relative size. Although lower interest rates have caused the common stock segment to decrease over time as a proportion of the total fund, the segment experienced a modest increase in relative weighting during first quarter 1987 due to the strong performance of the common stock market.

The Post Retirement Investment Funds asset mix for the most recent two quarters and year are presented below.

ASSET MIX

	3/31/86	12/31/86	3/31/87
Common Stocks	19.7%	15.1%	16.7%
Bonds	70.6	74.2	76.5
Cash Equivalents	9.7	10.7	6.8
	100.0%	100.0%	100.0%

EQUITY PERFORMANCE

The performance of the Post Retirement Investment Fund's equity portfolio showed marked improvement in the first quarter of the year. The equity portfolio produced a 20.0% total rate of return for the period. This performance exceeded that of the Basic Funds' managers with similar value orientations, although it lagged the Wilshire 5000 with its 21.2% return. Due to its difficulties in previous quarters, the Post Retirement Investment Fund's equity portfolio trailed the Wilshire 5000's performance for the year. The gap between the Post Fund's equity portfolio and the market's performance narrowed, however, due to the first quarter performance. The Post Fund's performance for the most recent year was 12.4%.

There were several significant changes in the industry sector concentrations of the Post Retirement Investment Fund's equity portfolio during the first quarter 1987. Positions in the Consumer Durables and Technology sectors were pared back substantially, while holdings in the Financial, Transportation, and Utilities sectors were increased for the second consecutive quarter. The equity portfolio is currently underweighted in the Capital Goods, Consumer Durables, Consumer Nondurables, and Materials and Services sectors and overweighted in the Financial and Transportation sectors.

Performance of the Post Retirement Investment Fund's equity portfolio for the quarter and year are presented below.

	First Quarter 1987	Year Ending 3/31/87
Equity Portfolio	20.0%	12.4%
Wilshire 5000	21.2	23.0

DEDICATED BOND PORTFOLIO

The composition of the Post Retirement Investment Fund's bond portfolio changed slightly as a result of the first quarter rebalancing. The average coupon and current yield decreased, reflecting an increase in the zero coupon component of the portfolio. The average quality rating of the portfolio remained at AA. Sector concentrations were altered modestly as Treasury and agency issues increased as a percentage of the portfolio, and corporates declined in relative weighting.

The Post Retirement Investment Fund bond portfolio produced a 1.6% rate of return for first quarter 1987 and a 7.7% performance for the latest year.

ENHANCED CASH PROGRAM

At its December meeting, the Minnesota State Board of Investment approved the commitment of $100 million to an enhanced cash program. The program will be run by BEA Associates, which specializes in the management of financial futures. BEA will employ three low risk stock index futures strategies. The strategies, which were described in the December board folder, are designed to enhance the rate of return on cash equivalents. BEA received its initial funding at the beginning of second quarter 1987.

TABLE 7

POST RETIREMENT INVESTMENT FUND

DEDICATED BOND PORTFOLIO STATISTICS

MARCH 31, 1987

Value at Market	$2,760,378,433
Value at Cost	2,387,188,206
Average Coupon	7.02%
Current Yield	8.38
Yield to Maturity	7.99
Current Yield at Cost	9.69
Time to Maturity	15.38 Years
Average Duration	7.44 Years
Average Quality Rating	AA
Number of Issues	284

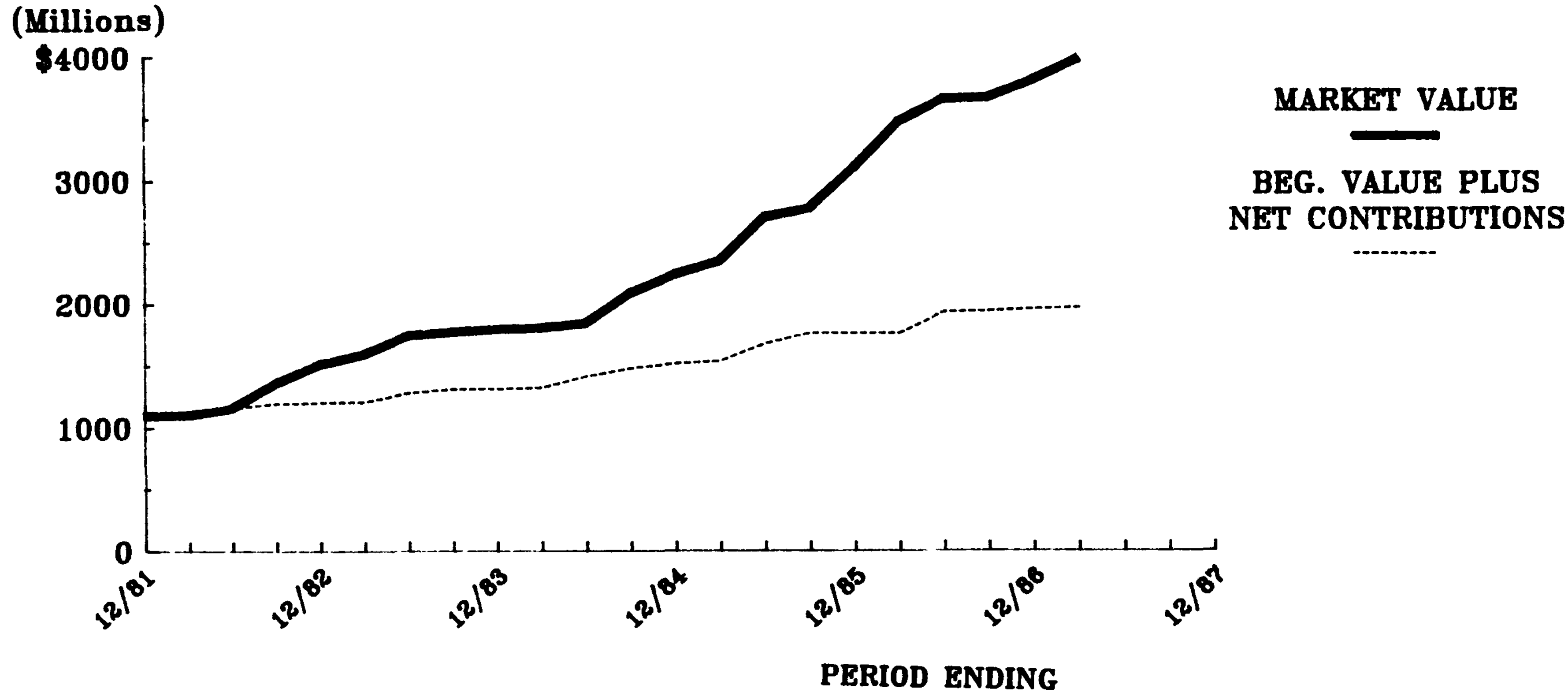
SECTOR WEIGHTINGS

Treasury	66.0%
Federal Agency	8.9
Industrial	8.2
Utilities	5.9
Finance	5.6
Transportation	0.8
Mortgages	0.0
Miscellaneous	4.6
	100.0%

FIGURE 6

POST RETIREMENT INVESTMENT FUND

ASSET GROWTH



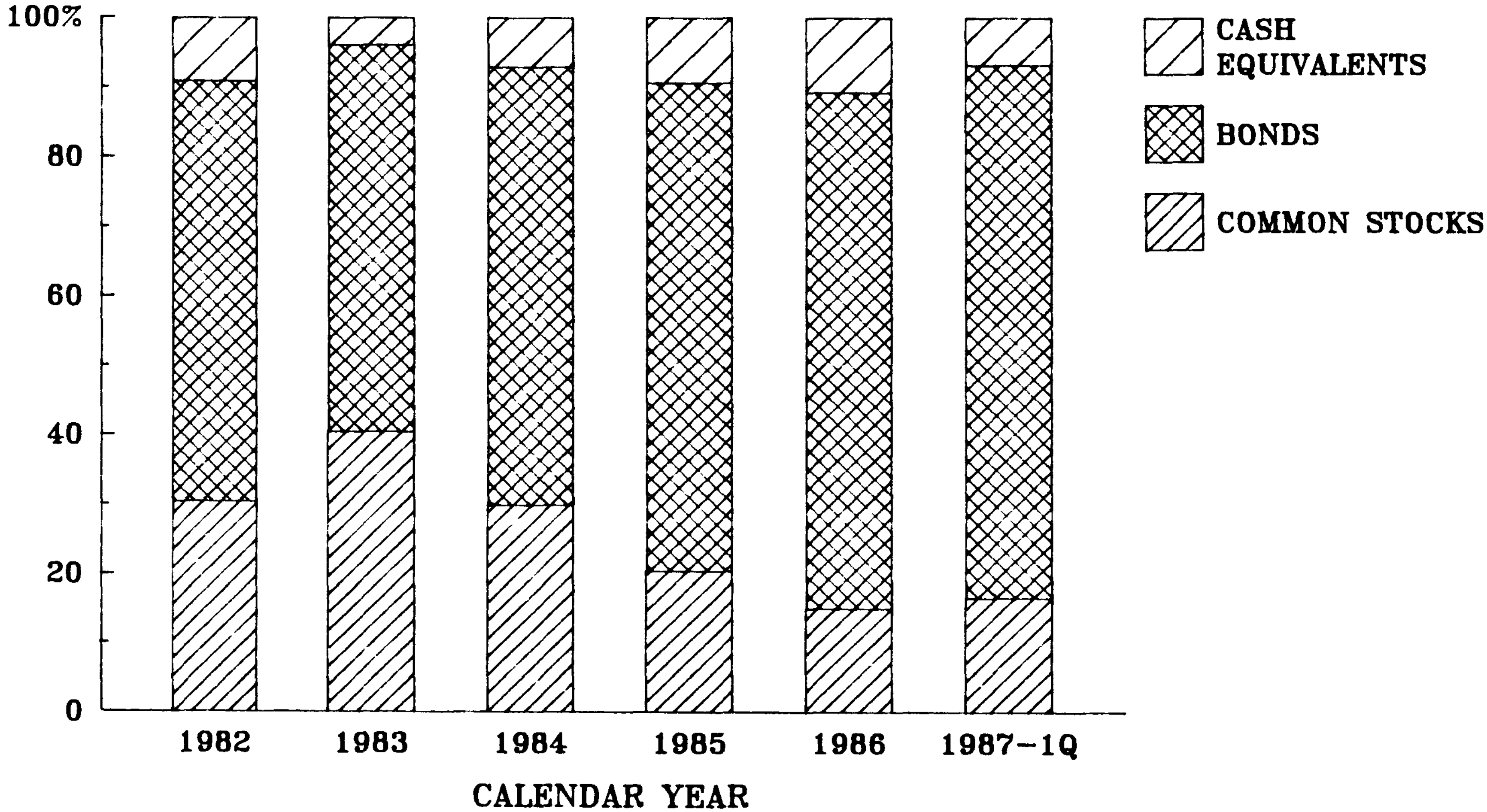
	12/82	12/83	12/84	12/85	12/86	3/87
BEGINNING VALUE	1,100.9	1,522.9	1,802.9	2,245.7	3,107.3	3,807.5
NET CONTRIBUTIONS	102.6	109.1	201.0	238.9	198.6	9.1
INVESTMENT RETURN	319.4	170.8	241.8	622.7	501.6	163.0
ENDING VALUE	1,552.9	1,802.9	2,245.7	3,107.3	3,807.5	3,979.6

(MILLIONS OF DOLLARS)

FIGURE 7

POST RETIREMENT INVESTMENT FUND

HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 8

POST RETIREMENT INVESTMENT FUND

ASSET MIX

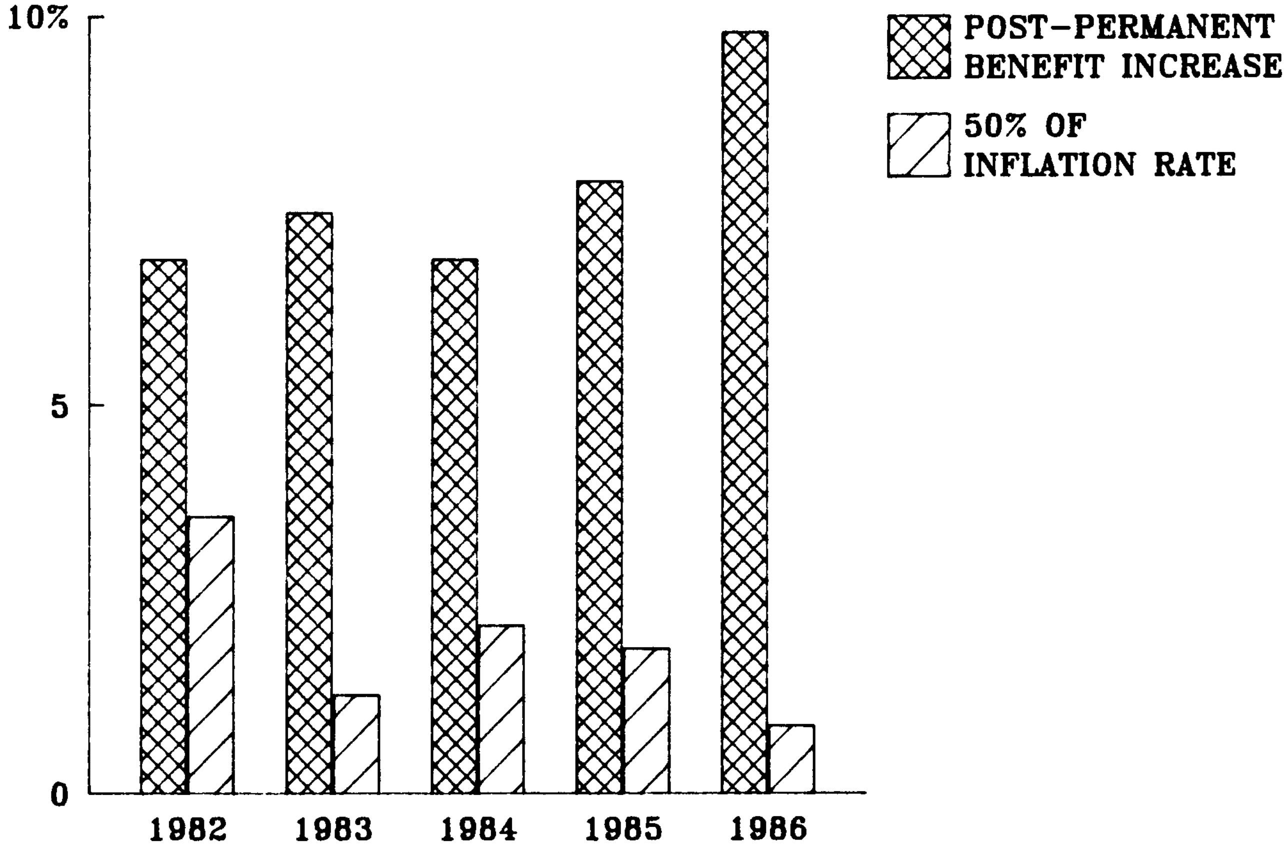
PERCENT OF MARKET VALUE

(End Of Period Allocations)

Calendar Year	Common Stocks $Million	Common Stocks Percent	Bonds $Million	Bonds Percent	Cash $Million	Cash Percent
1982	465.0	30.5	919.9	60.4	138.1	9.1
1983	730.3	40.5	1,002.1	55.6	69.8	3.9
1984	674.8	30.0	1,411.4	62.9	159.5	7.1
1985	636.5	20.5	2,182.5	70.2	288.3	9.3
1986	574.6	15.1	2,827.2	74.2	405.7	10.7
1987 1Q	664.7	16.7	3,046.3	76.5	268.6	6.8

FIGURE 8

POST RETIREMENT INVESTMENT FUND
BENEFIT INCREASES VERSUS INFLATION



	FISCAL YEAR					(Annualized)	
	1982	1983	1984	1985	1986	3 YR.	5 YR.
BENEFIT INCREASE	6.9%	7.5%	6.9%	7.9%	9.8%	8.2%	7.8%
50%–INFLATION RATE	3.6	1.3	2.1	1.9	0.9	1.6	2.0

FIGURE 9

POST RETIREMENT INVESTMENT FUND

EQUITY SEGMENT RETURNS

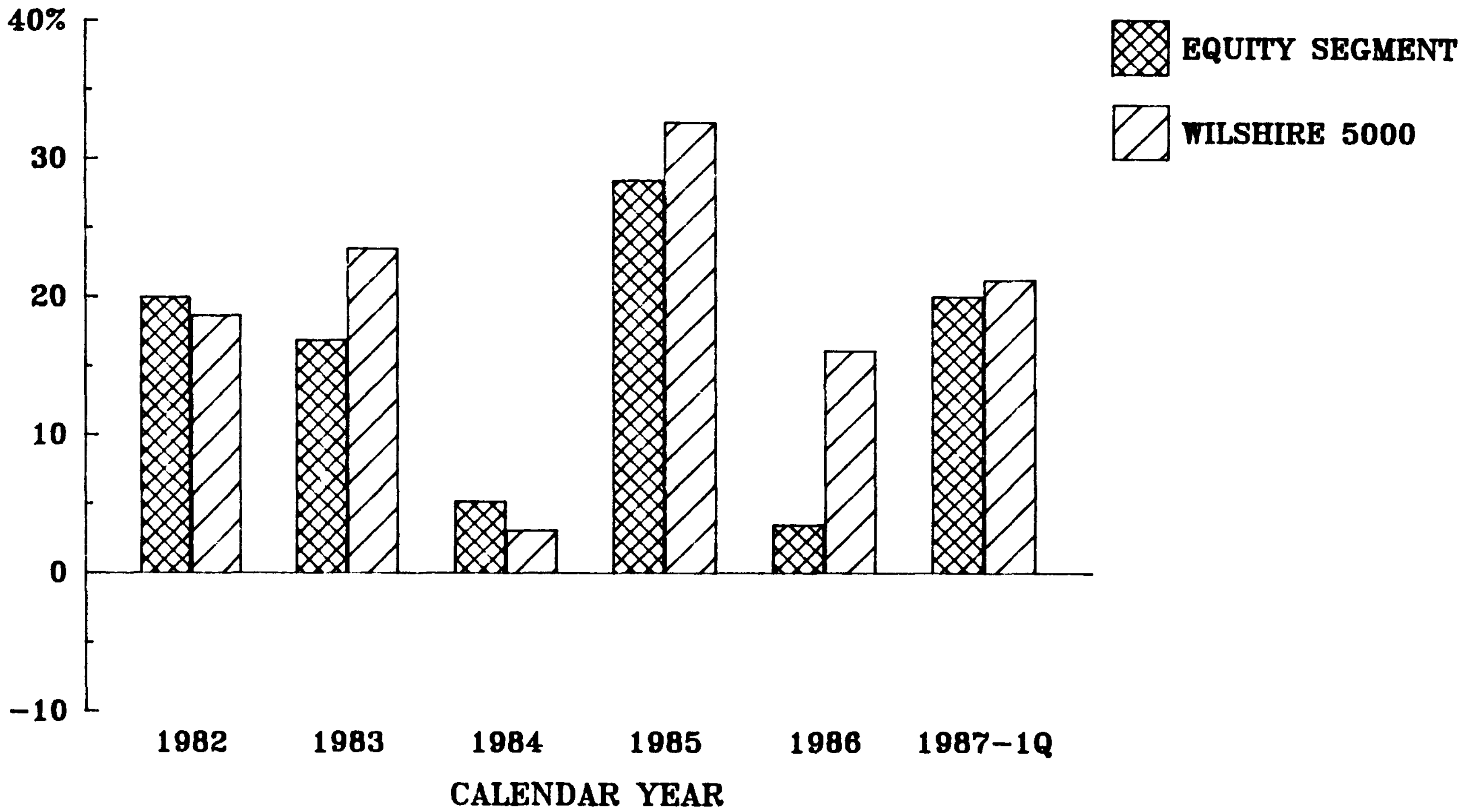


TABLE 9

POST RETIREMENT INVESTMENT FUND

EQUITY SEGMENT RETURNS

INVESTMENT RETURNS RELATIVE TO PERFORMANCE STANDARDS

	Total Returns	
	Post Retirement Fund	Wilshire 5000
1982	20.0	18.7
1983	16.9	23.5
1984	5.2	3.1
1985	28.4	32.6
1986	3.5	16.1
1987 1Q	20.0	21.2
1 Year Through 3/31/87	12.4	23.0
3 Years Annualized Through 3/31/87	20.7	26.1
5 Years Annualized Through 3/31/87	20.0	25.4

TABLE 10

POST RETIREMENT INVESTMENT FUND

EQUITY MANAGER DATA

MARCH 31, 1987

SECTOR WEIGHTINGS

SECTORS	WEIGHTING INTERNAL MANAGER	WEIGHTING WILSHIRE 5000
Capital Goods	2.5%	4.6%
Consumer Durables	2.5	3.9
Consumer Nondurables	17.6	27.5
Energy	9.8	9.4
Financial	25.9	13.0
Materials & Services	6.2	13.6
Technology	15.7	12.9
Transportation	6.3	3.0
Utilities	13.4	12.1
	------	------
	100.0%	100.0%

QUARTER-END PORTFOLIO STATISTICS *

MANAGER	# OF STOCKS	EQUITY ALLOC.	MKT. VOLTY	DIVER.	YIELD	E/P	REL. RET.	P/B	5 YR EARN	MVAR	EVAR	SIZE	GROW	FINL
Internal Mgr.	142	100%	1.13	0.91	0.25	0.33	-0.55	-0.28	0.17	0.19	0.05	0.23	0.25	0.08

* See Equity Manager Portfolio Statistics Glossary for definitions.

MINNESOTA STATE BOARD OF INVESTMENT

SUPPLEMENTAL INVESTMENT FUND

- INCOME SHARE ACCOUNT
- GROWTH SHARE ACCOUNT
- COMMON STOCK INDEX ACCOUNT
- BOND MARKET ACCOUNT
- MONEY MARKET ACCOUNT
- GUARANTEED RETURN ACCOUNT
- BOND ACCOUNT

QUARTERLY INVESTMENT REVIEW

MARCH 31, 1987

MINNESOTA STATE BOARD OF INVESTMENT

SUPPLEMENTAL INVESTMENT FUND

FIRST QUARTER 1987

Summary

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 Fund for a variety of purposes:

- o It functions as the investment manager for all assets of the Unclassified Employees Retirement Plan.
- o 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.
- o It is one investment vehicle offered to public employees as part of the state's Deferred Compensation Plan.
- o 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 March 31, 1987 the market value of the entire fund was $391 million.

A wide diversity of investment goals exists among the Fund's participants. In order to meet those needs, the 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 the statutory requirements and rules established by the participating organizations. Participation in the Fund is accomplished through the purchase or sale of shares in each account.

As of the beginning of fiscal year 1987, participants in the Supplemental Investment Fund may select from among the following seven investment options:

- o Income Share Account - an actively managed, balanced portfolio utilizing both common stocks and bonds

- Growth Share Account - an actively managed, all common stock portfolio
- Common Stock Index Account - a passively managed, all common stock portfolio designed to track the performance of the entire stock market
- Bond Market Account - an actively managed, all bond portfolio that reflects changes in the market value of bonds
- Money Market Account - a portfolio utilizing short term, liquid debt securities
- Guaranteed Return Account - an option utilizing guaranteed investment contracts (GIC's), which offer a fixed rate of return for a specified period of time.
- Bond Account - a portfolio of intermediate term debt securities that are bought and held to maturity. This option is available only to local police and firefighter retirement plans.

SUPPLEMENTAL INVESTMENT FUND

INCOME SHARE ACCOUNT

The primary investment objective of the Income Share Account is similar to that of the Basic Retirement Funds. The Account seeks to maximize long-term real rates of return, while limiting short-run portfolio return volatility.

To achieve this objective, the Income Share Account is invested in a balanced portfolio of common stocks and fixed income securities. The Account's target long-term asset allocation is 60% common stocks, 35% bonds, and 5% cash equivalents. Common stocks provide the potential for significant capital appreciation, while bonds provide a deflation hedge and portfolio diversification.

The investment management structure of the Income Share Account combines internal and external management. The SBI investment staff manages the entire fixed income segment of the Account's portfolio and approximately 25% of the common stock segment. The balance of the common stock portfolio is managed externally. The Account participates in the passive component of the common stock segment of the Combined Investment Funds.

The March 31, 1987 market value of the Income Share Account was $209 million.

The Income Share Account's asset mix for the last five calendar years is presented on pages 37 and 38.

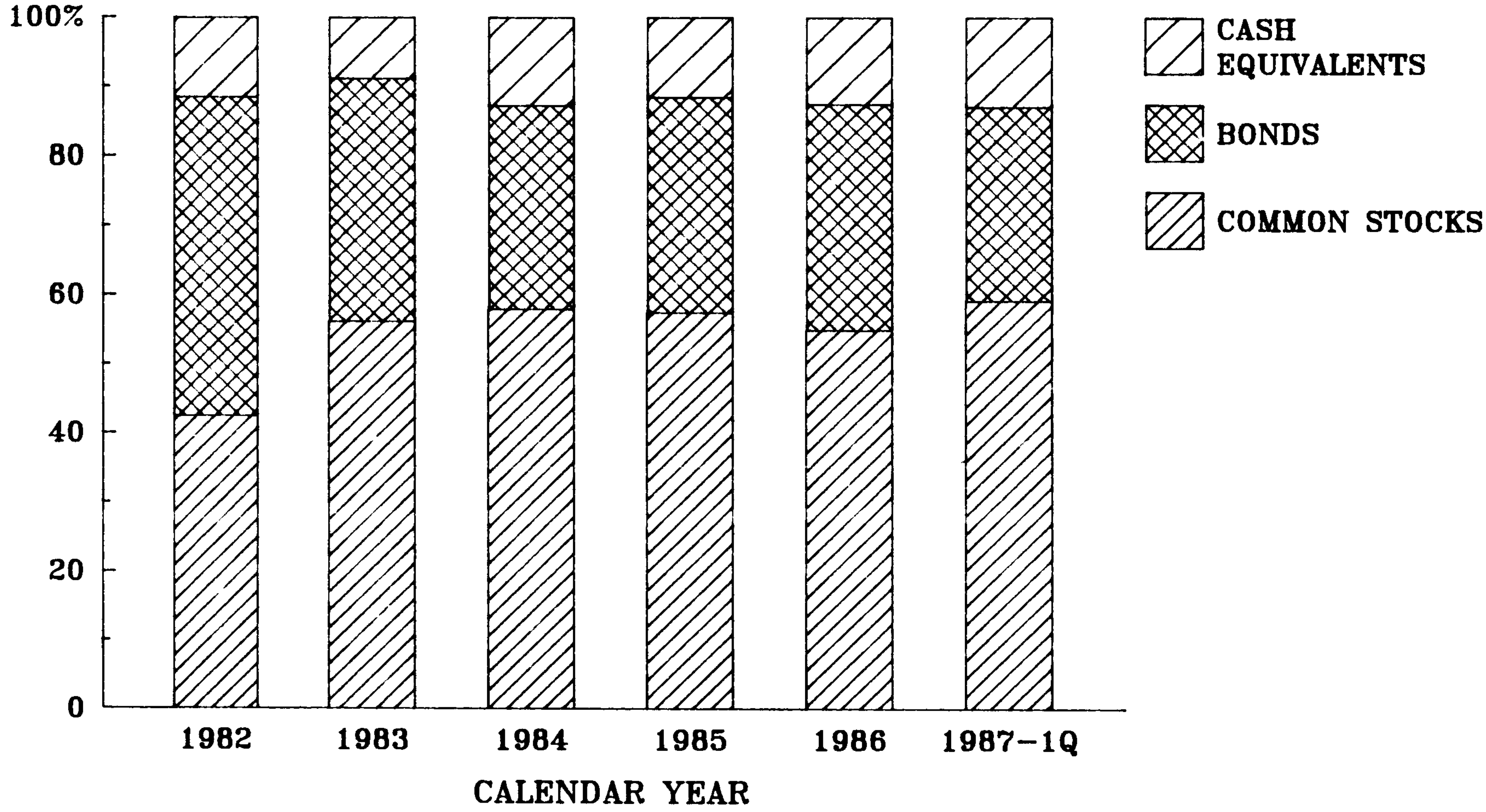
Total account and asset segment performance is displayed on page 39. Individual external manager performance is presented on page 16.

FIGURE 10

SUPPLEMENTAL INVESTMENT FUND

(INCOME SHARE ACCOUNT)

HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 11

SUPPLEMENTAL INVESTMENT FUND
(Income Share Account)
ASSET MIX

PERCENT OF MARKET VALUE
(End Of Period Allocations)

Calendar Year	Common Stocks $Million	Common Stocks Percent	Bonds $Million	Bonds Percent	Cash* $Million	Cash* Percent
1982	42.7	42.5	46.2	46.0	11.5	11.5
1983	63.5	56.2	39.6	35.0	9.9	8.8
1984	74.4	58.0	37.6	29.3	16.4	12.7
1985	92.8	57.5	50.0	31.0	18.5	11.5
1986	101.9	55.0	60.2	32.5	23.1	12.5
1987 1Q	123.8	59.2	58.4	27.9	27.1	12.9

*Includes cash held by the external managers

TABLE 12

SUPPLEMENTAL INVESTMENT FUND

INCOME SHARE ACCOUNT

INVESTMENT PERFORMANCE

Total Returns

	FIRST QUARTER 1987	YEAR ENDING 3/31/87
Total Account	12.1%	11.6%
Median Fund*	11.3	16.2
Composite**	13.2	17.4
Equity Segment	20.4	14.4
Wilshire 5000	21.2	23.0
Bond Segment	1.5	8.5
Salomon Broad Bond Index	1.3	8.4

* TUCS Median Balanced Portfolio

** 50/45/5 Wilshire 5000/Salomon Broad Bond Index/T-Bills Composite Through 12-31-82; 60/35/5 Composite Thereafter

SUPPLEMENTAL INVESTMENT FUND

GROWTH SHARE ACCOUNT

The Growth Share Account's principal investment objective is to generate above-average returns from capital appreciation. In order to attain this objective, the Growth Share Account's investment program focuses on common stocks. The long-run target asset allocation for the Account is 95% common stock, 5% cash equivalents. The small cash equivalents component represents the normal cash reserves held by the Account as a result of net contributions not yet allocated to stocks.

The SBI investment staff manages approximately one fourth of the common stock portfolio; the balance is managed externally. The Growth Share Account's external equity component is achieved through its participation in the active common stock segment of the Board's Combined Investment Funds. The SBI investment staff manages the internal component of the equity portfolio with a long-term value-oriented approach. This approach is complemented by the external managers' more aggressive posture.

The March 31, 1987 market value of the Growth Share Account was $90 million.

The historical asset mix for the account is displayed on pages 41 and 42.

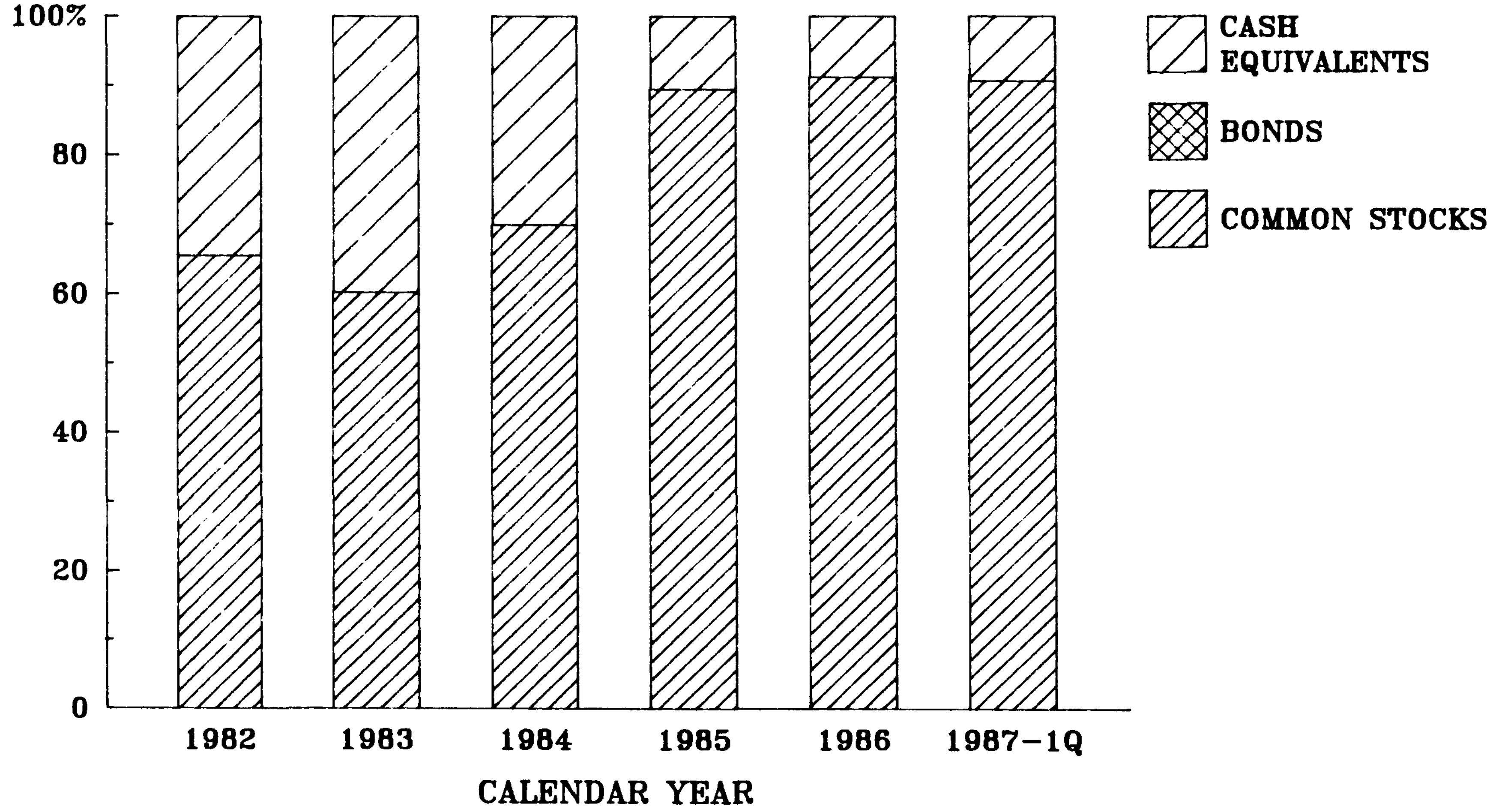
Total account and asset segment performance is presented on page 43. Individual common stock manager performance is listed on page 16.

FIGURE 11

SUPPLEMENTAL INVESTMENT FUND

(GROWTH SHARE ACCOUNT)

HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 13

SUPPLEMENTAL INVESTMENT FUND

(Growth Share Account)

ASSET MIX

PERCENT OF MARKET VALUE
(End Of Period Allocations)

Calendar Year	Common Stocks $Million	Common Stocks Percent	Bonds $Million	Bonds Percent	Cash* $Million	Cash* Percent
1982	32.5	65.6	----	----	17.0	34.4
1983	33.7	60.3	----	----	22.2	39.7
1984	41.8	70.0	----	----	17.9	30.0
1985	65.8	89.5	----	----	7.7	10.5
1986	68.5	91.2	----	----	6.6	8.8
1987 1Q	81.6	90.7	----	----	8.3	9.3

*Includes cash held by the external managers

TABLE 14

SUPPLEMENTAL INVESTMENT FUND

GROWTH SHARE ACCOUNT

INVESTMENT PERFORMANCE

	Total Returns	
	FIRST QUARTER 1987	YEAR ENDING 3/31/87
Total Account	20.4%	16.4%
Median Fund*	19.1	21.4
Composite**	20.2	22.2
Equity Segment	20.6	16.5
Wilshire 5000	21.2	23.0

* TUCS Median Managed Equity Portfolio

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

SUPPLEMENTAL INVESTMENT FUND

COMMON STOCK INDEX ACCOUNT

The Common Stock Index Account is a new investment option for the participants in the Supplemental Investment Fund. The Index Account accepted contributions effective July 1, 1986. The March 31, 1987 market value of the Account was $1,443,846.

The investment objective of the Common Stock Index Account is to generate returns that match those of the common stock market. This objective is achieved through the Account's participation in the SBI's existing index fund.

The SBI's index fund is a passively-managed portfolio of over 1,300 different stocks. The fund is designed to track the performance of the Wilshire 5000, a broad-based equity market indicator. The Wilshire 5000 represents virtually the entire domestic common stock market.

The performance of the Supplemental Common Stock Index Account is presented below. Performance from third quarter 1986 on reflects the returns earned by the newly created Index Account. Performance data prior to third quarter 1986 represents what the performance of the Common Stock Index Account would have been had it participated in the index fund during the time periods indicated.

Total Returns

CALENDAR YEAR	SUPPLEMENTAL COMMON STOCK INDEX ACCOUNT	WILSHIRE 5000
1985	32.5%	32.6%
1986	16.0	16.1
1987 1Q	20.7	21.2
1 Year Ending 3/31/87	22.7	23.0
2 Years Annualized Ending 3/31/87	29.8	30.0

SUPPLEMENTAL INVESTMENT FUND

BOND MARKET ACCOUNT

The Bond Market Account is another new investment option for the participants in the Supplemental Investment Fund. The Account accepted contributions effective July 1, 1986. The March 31, 1987 market value of the Account was $977,149.

The investment objective of the Bond Market Account is to earn a high rate of return by investing in fixed income securities. Account returns are generated in the form of interest income and capital appreciation. The Account invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years.

The entire Bond Market Account is invested externally. The Account participates in the bond component of the Combined Investment Funds. Through this participation, the Account uses the same six external bond managers as the Basic Retirement Funds.

The Board funded the external bond managers in early July, 1984. The six managers were selected for their blend of investment styles. Each of the managers emphasizes active investment decisions. However, the managers vary in their approach to interest rate anticipation, issue selection, and bond market sector weighting.

Performance of the Supplemental Bond Market Account is displayed below. Individual manager performance is presented on page 17.

As with the Common Stock Index Account, performance from third quarter 1986 on reflects the returns earned by the new Bond Market Account. The performance prior to third quarter 1986 represents what the performance of the Bond Market Account would have been had the account participated in the bond component of the Combined Investment Funds during the periods indicated.

Total Returns

CALENDAR YEAR	SUPPLEMENTAL BOND MARKET ACCOUNT	SALOMON BROAD BOND INDEX
1985	21.7%	22.3%
1986	15.4	15.5
1987 1Q	2.3	1.3
1 Year Ending 3/31/87	11.0	8.4
2 Years Annualized Ending 3/31/87	18.6	18.3

SUPPLEMENTAL INVESTMENT FUND

MONEY MARKET ACCOUNT

The Money Market Account is essentially a new option for participants in the Supplemental Investment Fund. The Account was formerly called the Fixed Return Account. However, its name has been changed to more accurately reflect its new investment focus. The March 31, 1987 market value of the Account was $73 million.

The investment objective of the Money Market Account is to purchase short-term, liquid fixed income investments that pay interest at rates competitive with those available in the money markets.

The Money Market Account is invested entirely in high quality short-term investments such as U.S. Treasury Bills, bank certificates of deposit, repurchase agreements, and high grade commercial paper. The maximum maturity of these investments is three years.

The Money Market Account is managed solely by State Street Bank and Trust Company of Boston, MA. State Street manages a major portion of the Board's cash reserves.

Fourth quarter 1986 was the first full quarter of performance for the Money Market Account under its new focus. The historical performance from previous periods for State Street's short-term account represents the investment returns that would have been generated by the Money Market Account had it been invested under the current approach.

Total Returns
(Annualized)

CALENDAR YEAR	SUPPLEMENTAL MONEY MARKET ACCOUNT	90-DAY TREASURY BILLS
1985	8.2%	7.9%
1986	6.9	6.3
1987 1Q	6.1	5.7
1 Year Ending 3/31/87	6.5	5.9
2 Years Annualized Ending 3/31/87	7.2	6.7

SUPPLEMENTAL INVESTMENT FUND

GUARANTEED RETURN ACCOUNT

The Guaranteed Return Account is a new investment option for participants in the Supplemental Investment Fund. The investment objectives of the Guaranteed Return Account are to protect investors from any loss of their original investment and to provide a fixed rate of return over a three year period.

The Guaranteed Return Account is invested in guaranteed investment contracts (GIC's) offered by major U.S. insurance companies. Each year, the Board will accept bids from insurance companies that meet the financial quality criteria defined by State statute. The insurance company offering the highest three-year GIC interest rate will be awarded the contract. That interest rate will then be offered to participants who make contributions to the Guaranteed Return Account over the following twelve months.

Final bidding on the 1986 GIC contract occurred during October, 1986. Principal Mutual Life Insurance Company (formerly The Bankers Life of Iowa) submitted the winning bid of 7.72%.

The Guaranteed Return Account first accepted contributions in November, 1986.

SUPPLEMENTAL INVESTMENT FUND

BOND ACCOUNT

The Bond Account was established by the 1981 Legislature to provide a separate fixed return investment vehicle for police and firefighter organizations. Its objective is to generate high levels of current income by investing in high quality debt securities. The Account's sole source of return is the interest income produced by its holdings.

Contributions to the Bond Account are grouped by fiscal year (July 1 to June 30), referred to as a "class year". The established yield for each class year is the weighted average yield on all fixed income securities purchased for that year. This established yield is in effect for the life of the class. If a retirement organization chooses to withdraw contributions from the Bond Account prior to the expiration of the fixed period for the class, its withdrawal will be redeemed at market value. Organizations withdrawing from the Account will not affect the established yield of other participants in the class.

The Bond Account is managed entirely by Investment Board staff. Since all assets are held to maturity, staff provides very cost-effective management for the Account.

Participation in the Bond Account is structured much like a money market mutual fund. The Account maintains a uniform value of $5.00 per share. Annual income for the Account is determined at the close of each fiscal year (June 30).

Participating organizations may choose to receive their annual income at the close of each fiscal year, or they may elect to use the income to purchase new shares in the upcoming class year.

Returns for the Bond Account for recent years are presented below:

CLASS YEAR	FIXED PERIOD	ESTABLISHED YIELD (ANNUAL)
1982	7 yrs. (1982-88)	14.4%
1983	6 yrs. (1983-88)	11.2%
1984	7 yrs. (1984-90)	13.0%
1985	7 yrs. (1985-91)	11.8%
1986	7 yrs. (1986-92)	10.5%

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA VARIABLE ANNUITY FUND

QUARTERLY INVESTMENT REVIEW

MARCH 31, 1987

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA VARIABLE ANNUITY FUND

FIRST QUARTER 1987

Summary

The Minnesota Variable Annuity Fund is an investment option formerly offered to members of the Teachers' Retirement Association. The Fund was designed as an alternative to the regular teachers' retirement plan. The opportunity to enroll in the Fund is no longer offered to new Association members, although members enrolled prior to the cutoff date may retain their participation in the Fund and continue to make contributions. The March 31, 1987 market value of the Fund was $168 million.

The investment objective of the Minnesota Variable Annuity Fund is comparable to that of the Supplemental Investment Fund's Growth Share Account. The goal of the Variable Annuity Fund is to generate above-average capital appreciation. Like the Growth Share Account, the Variable Annuity Fund's long-term, policy asset allocation is 95% common stocks, 5% cash equivalents.

Management of the Variable Annuity Fund is split between internal and external management. The SBI staff manages approximately 25% of the common stock portfolio, while the balance is managed externally. The SBI staff provides a conservative value-oriented style of management, while the external managers complement the internal staff with a more aggressive investment approach.

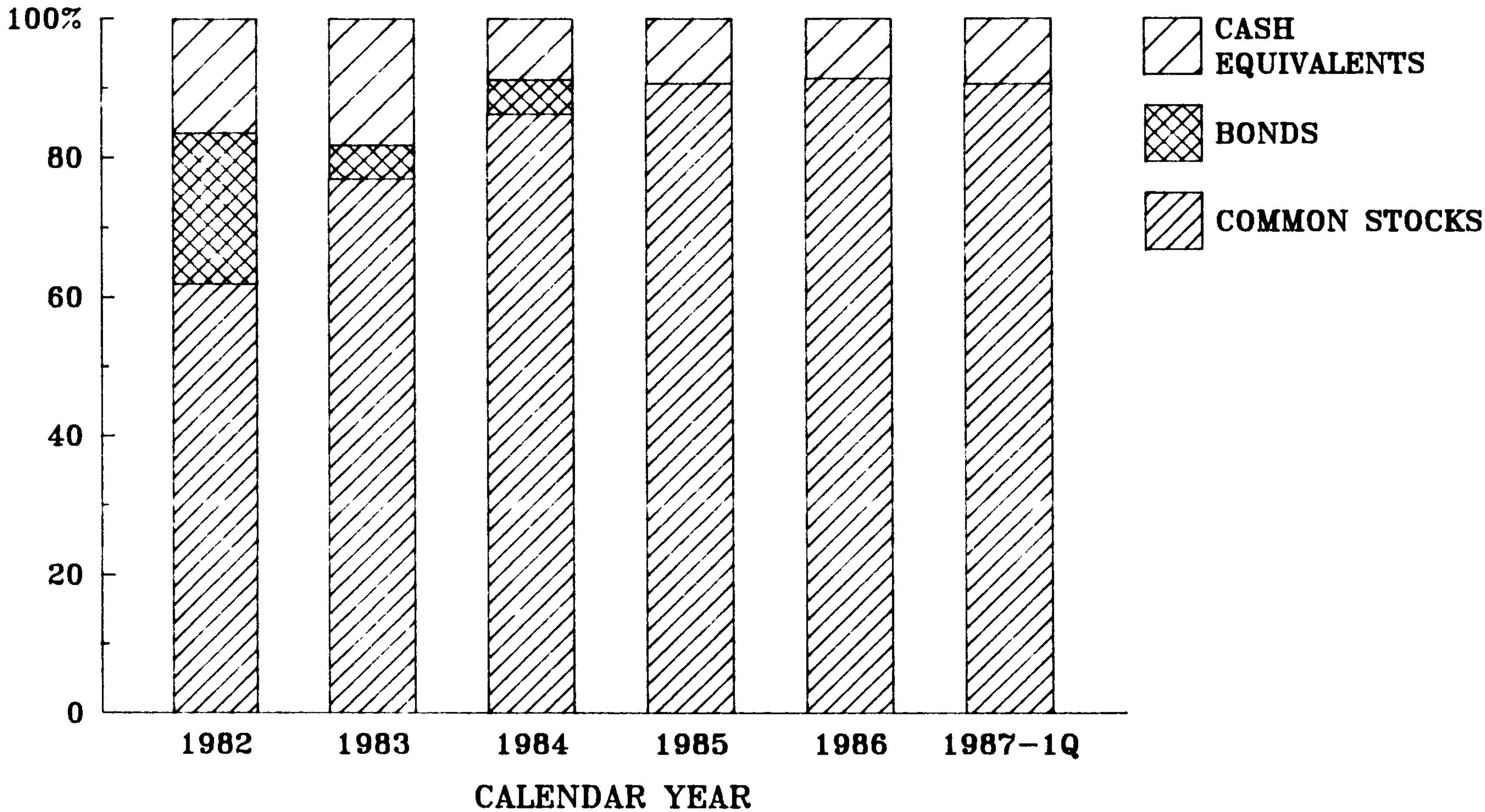
Historical asset allocation for the Minnesota Variable Annuity Fund is presented in the graph on page 53 and the accompanying table on page 54.

Total account and asset segment performance is presented in the table on page 55. Individual common stock managers performance is given on page 16.

FIGURE 12

MINNESOTA VARIABLE ANNUITY FUND

HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 15

MINNESOTA VARIABLE ANNUITY FUND
ASSET MIX

PERCENT OF MARKET VALUE
(End Of Period Allocations)

Calendar Year	Common Stocks $Million	Common Stocks Percent	Bonds $Million	Bonds Percent	Cash* $Million	Cash* Percent
1982	56.7	62.0	19.8	21.6	15.0	16.4
1983	78.9	77.0	5.0	4.8	18.7	18.2
1984	89.4	86.3	5.1	4.9	9.1	8.8
1985	116.8	90.7	---	---	12.0	9.3
1986	127.6	91.4	---	---	12.0	8.6
1987 1Q	152.0	90.6	---	---	15.8	9.4

*Includes cash held by external managers

TABLE 16

MINNESOTA VARIABLE ANNUITY FUND

INVESTMENT PERFORMANCE

	Total Returns	
	FIRST QUARTER 1987	YEAR ENDING 3/31/87
Total Account	20.4%	16.8%
Median Fund*	19.1	21.4
Composite**	20.2	22.2
Equity Segment	20.6	16.9
Wilshire 5000	21.2	23.0

* TUCS Median Managed Equity Portfolio

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

MINNESOTA STATE BOARD OF INVESTMENT

PERMANENT SCHOOL FUND

QUARTERLY INVESTMENT REVIEW

MARCH 31, 1987

MINNESOTA STATE BOARD OF INVESTMENT

PERMANENT SCHOOL FUND

FIRST QUARTER 1987

Summary

ASSETS

The market value of the Permanent School Fund's assets declined 0.8% during first quarter 1987. The decrease was attributable to withdrawals from the fund rather than investment performance. Withdrawals from the fund exceeded contributions by $9 million for the quarter and $27.9 for the most recent year. Asset growth over the last five years for the Permanent School Fund is presented below.

Calendar Year	Market Value (Millions)	Percent Change From Previous Period
1982	286	+ 21.2
1983	290	+ 1.4
1984	308	+ 6.2
1985	350	+ 13.6
1986	364	+ 4.0
1987 1Q	361	- 0.8

ASSET MIX

The assets of the Permanent School Fund are invested entirely in fixed income securities. As discussed in previous Quarterly Investment Reviews, the accounting restrictions under which the Fund must operate dictate that current income maximization be its primary investment goal. Common stocks are not a viable component of the Fund's long-run asset mix.

Cash equivalents increased as a percentage of the Fund's total value during the first quarter from the receipt of portfolio income and from principal prepayments from mortgages. Excess cash reserves will be invested in bonds during second quarter 1987.

The percentage of the Fund (at market value) invested in common stocks, bonds, and cash equivalents over the last two quarters and previous year is presented below.

ASSET MIX

	3/31/86	12/31/86	3/31/87
Common Stocks	0.0%	0.0%	0.0%
Bonds	67.7	72.0	66.9
Cash Equivalents	32.3	28.0	33.1
	100.0%	100.0%	100.0%

BOND PORTFOLIO

The composition of the Permanent School Fund's bond portfolio changed very little during the first quarter of the year. The Permanent School Fund's bond portfolio continued to be concentrated in the Treasury, Agency, and Mortgage sectors of the bond market. The average quality rating of the portfolio remained at AAA. Portfolio statistics as of March 31, 1987 are presented on the following page.

TABLE 17

PERMANENT SCHOOL FUND

BOND PORTFOLIO STATISTICS

MARCH 31, 1987

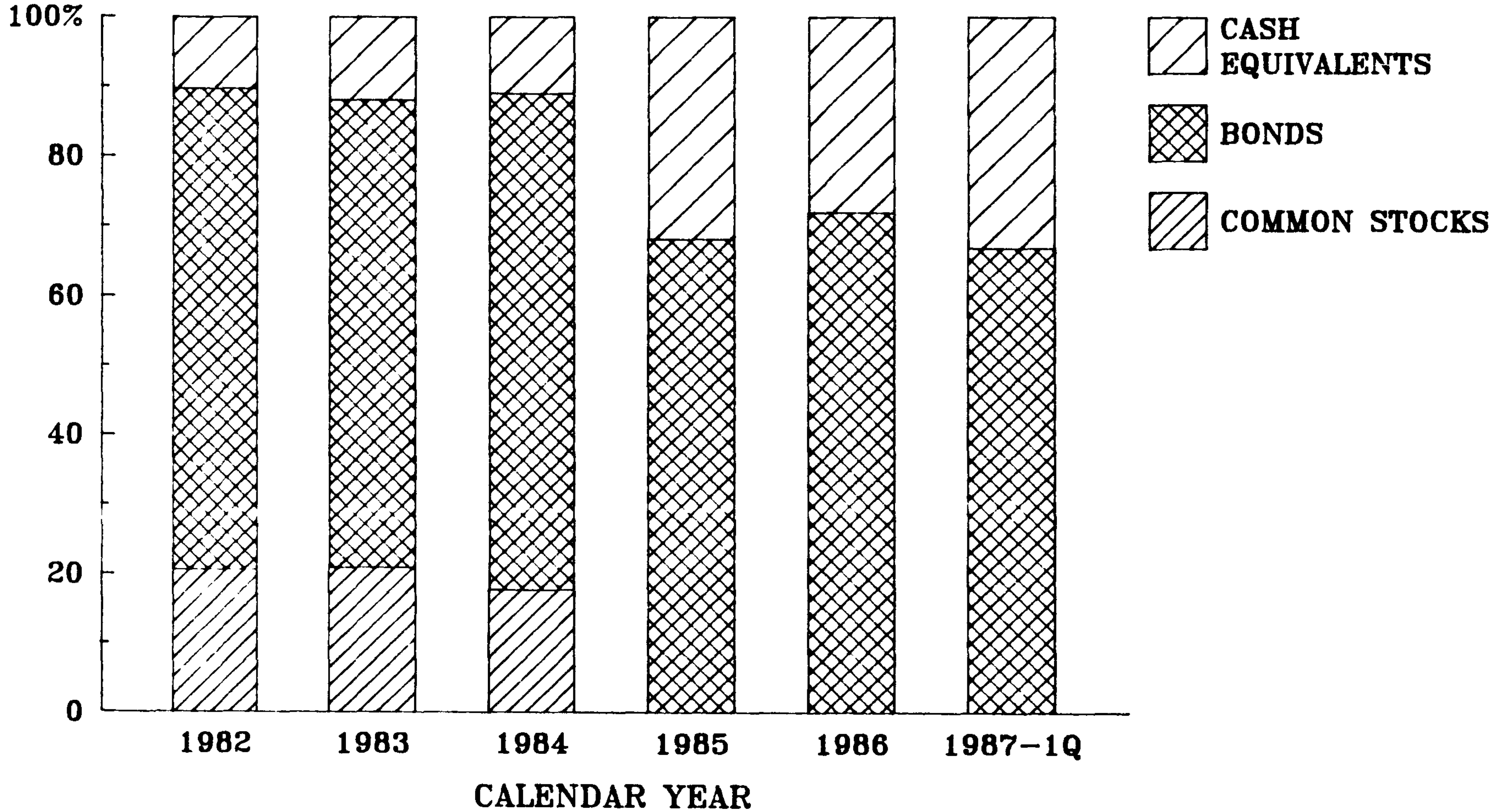
Value at Market	$236,948,384	
Value at Cost	220,969,406	
Average Coupon	9.55%	
Current Yield	9.17	
Yield to Maturity	8.16	
Current Yield at Cost	10.24	
Time to Maturity	11.78	Years
Average Duration	6.26	Years
Average Quality Rating	AAA	
Number of Issues	114	

SECTOR WEIGHTINGS

Treasury	17.6%
Federal Agency	21.0
Industrial	13.8
Utilities	9.2
Finance	1.9
Transportation	6.4
Mortgages	29.4
Miscellaneous	0.7
	100.0%

FIGURE 13

PERMANENT SCHOOL FUND
HISTORICAL ASSET MIX



PERCENT OF MARKET VALUE
END OF PERIOD ALLOCATIONS

TABLE 18

PERMANENT SCHOOL FUND

ASSET MIX

PERCENT OF MARKET VALUE
(End Of Period Allocations)

Calendar Year	Common Stocks		Bonds		Cash	
	$Million	Percent	$Million	Percent	$Million	Percent
1982	59.1	20.7	197.6	69.0	29.5	10.3
1983	60.8	21.0	195.0	67.1	34.4	11.9
1984	54.9	17.8	219.4	71.2	33.8	11.0
1985	0.0	0.0	238.7	68.2	111.5	31.8
1986	0.0	0.0	262.3	72.0	102.1	28.0
1987 1Q	0.0	0.0	241.5	66.9	119.3	33.1

APPENDIX

This appendix contains historical portfolio data pertaining to the SBI's external equity and fixed income managers from the inception of the SBI's accounts with these managers. Any revisions of portfolio data reported in previous quarterly reviews are contained in this appendix.

EQUITY MANAGER PORTFOLIO STATISTICS GLOSSARY

In the following pages, summary descriptions of the individual equity managers' investment philosophy, 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 in the Quarterly Investment Review and Appendix 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.

# of Stocks	- number of different issues held in the manager's stock portfolio.
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	- 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 .85.

Market Volatility (Equity 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-Month Relative Return (REL RET)	- the return on the stocks currently in the manager's portfolio over the last 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 Year 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 Immaturity (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 trailing four quarter earnings per share of the manager's common stock portfolio 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.

Industry Sector Overweightings - those sectors of the economy in which the manager has invested a significantly larger percentage of the portfolio than is represented by the stock market.

Industry Sector Underweightings - those sectors of the economy in which the manager has invested a significantly smaller percentage of the portfolio than is represented by the stock market.

TABLE A-1

EXTERNAL EQUITY MANAGERS

PORTFOLIO STATISTICS RELATIVE TO BENCHMARK PORTFOLIOS

QUARTER-END PORTFOLIO STATISTICS *

MANAGER		# OF STOCKS	EQUITY ALLOC.	MKT. VOLTY	DIVER.	YIELD	E/P	REL. RET.	P/B	5 YR EARN	MVAR	EVAR	SIZE	GROW	FINL
GROWTH MANAGERS															
Fred Alger	(A)	50	79	1.16	0.95	-0.35	-0.02	0.01	0.37	0.13	0.48	0.21	0.16	0.32	-0.04
	(B)	628	95	1.14	N.A.	-0.33	-0.11	-0.08	0.59	0.33	0.38	-0.01	0.25	0.42	-0.06
Alliance	(A)	35	92	1.20	0.95	-0.51	-0.08	0.09	0.93	0.20	0.55	0.06	-0.28	0.65	-0.10
	(B)	334	95	1.20	N.A.	-0.42	-0.07	-0.21	0.38	0.44	0.48	0.02	0.48	0.58	-0.06
SMALL GROWTH MANAGERS															
BMI Capital	(A)	31	96	1.29	0.89	-0.63	0.10	-0.02	0.00	-0.62	0.65	0.48	1.27	0.89	0.25
	(B)	735	95	1.30	N.A.	-0.55	-0.14	-0.18	0.60	0.31	0.70	0.13	1.34	0.81	-0.04
Lieber & Co.	(A)	109	94	1.27	0.85	-0.34	0.15	-0.25	-0.01	0.22	0.27	0.06	1.58	0.59	-0.25
	(B)	1,201	95	1.28	N.A.	-0.41	-0.06	-0.36	0.22	0.17	0.43	0.09	1.83	0.73	-0.13
Waddell & Reed	(A)	70	90	1.22	0.93	-0.18	-0.17	-0.07	-0.05	-0.41	0.65	0.18	0.67	0.16	0.03
	(B)	N.A.	80	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
ROTATIONAL MANAGERS															
Forstmann Leff	(A)	27	77	1.21	0.95	-0.45	-0.15	0.29	0.55	-0.09	0.51	-0.09	-0.16	0.30	0.00
	(B)	1,350	70	1.17	N.A.	-0.16	-0.08	-0.21	0.18	0.12	0.35	0.04	0.62	0.42	0.03
Hellman Jordan	(A)	39	96	1.33	0.93	-0.65	-0.17	0.08	0.64	-0.16	0.83	0.10	-0.17	0.84	-0.05
	(B)	N.A.	100	1.06	N.A.	0.12	0.02	N.A.	0.05	-0.04	0.07	-0.03	0.06	0.05	0.00
IDS	(A)	49	97	1.14	0.96	-0.22	-0.15	0.42	0.65	0.07	0.44	0.05	-0.20	0.27	-0.15
	(B)	N.A.	100	1.06	N.A.	0.12	0.02	N.A.	0.05	-0.04	0.07	-0.03	0.06	0.05	0.00
IAI	(A)	42	82	1.08	0.95	-0.27	-0.06	0.18	0.72	0.08	0.27	0.06	-0.16	0.16	0.04
	(B)	N.A.	100	1.06	N.A.	0.12	0.02	N.A.	0.05	-0.04	0.07	-0.03	0.06	0.05	0.00
VALUE MANAGERS															
Beutel Goodman	(A)	28	84	1.18	0.88	-0.02	-0.17	-0.57	-0.66	-0.23	0.25	0.31	0.25	0.34	0.27
	(B)	401	95	1.16	N.A.	-0.06	-0.14	-0.39	-0.25	-0.13	0.17	0.10	0.96	0.05	0.11
Peregrine Cap.	(A)	197	79	1.12	0.84	0.57	0.06	-0.90	-0.59	-0.19	-0.11	0.00	0.54	-0.04	0.10
	(B)	1,244	90	1.16	N.A.	0.09	-0.10	-0.48	-0.37	-0.16	0.10	0.07	0.77	0.21	0.06
Composite Active Ext. Managers		543	89	1.17	0.97	-0.17	-0.02	-0.09	0.15	-0.07	0.38	0.10	0.14	0.36	0.04
Index Fund Manager		1,470	100	1.06	0.98	0.12	0.02	-0.19	0.05	-0.04	0.07	-0.03	0.06	0.05	0.00
Composite All Basic Eq. Managers		1,604	96	1.10	0.98	0.03	0.00	-0.13	0.07	-0.05	0.16	0.01	0.08	0.14	0.01

(A) - Actual Portfolio
(B) - Benchmark Portfolio

TABLE A-2

EXTERNAL EQUITY MANAGERS

SECTOR WEIGHTINGS RELATIVE TO BENCHMARK PORTFOLIOS

SECTOR WEIGHTINGS

MANAGER		CAPITAL GOODS	CONSUMER DURABLES	CONSUMER NONDURABLES	ENERGY	FINANCIAL	MAT. & SERVICES	TECHNOLOGY	TRANS-PORTATION	UTILITIES
GROWTH MANAGERS										
Fred Alger	(A)	1.3%	2.5%	43.1%	2.1%	12.1%	11.6%	25.1%	2.2%	---%
	(B)	3.3	1.4	36.1	2.3	8.4	20.7	23.3	2.9	1.6
Alliance	(A)	5.8	5.5	33.9	3.5	20.8	9.5	16.5	4.5	---
	(B)	2.6	1.3	31.1	1.6	19.7	17.6	22.2	4.0	---
SMALL GROWTH MANAGERS										
BMI Capital	(A)	11.7	8.1	37.0	5.3	14.3	13.3	10.3	---	---
	(B)	5.3	4.1	35.0	1.9	7.3	20.7	21.9	3.1	0.7
Lieber & Company	(A)	3.4	8.8	29.7	1.8	39.7	5.8	8.3	1.8	0.7
	(B)	6.9	5.8	27.0	1.9	17.6	16.6	19.1	2.5	2.6
Waddell & Reed	(A)	1.1	13.6	19.7	16.1	5.2	15.3	24.0	3.8	1.1
	(B)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
ROTATIONAL MANAGERS										
Forstmann Leff	(A)	---	---	31.0	---	22.5	30.8	10.6	5.1	---
	(B)	3.6	3.6	29.0	5.0	15.5	16.0	15.2	4.0	8.3
Hellman Jordan	(A)	---	6.0	24.9	---	25.6	5.8	31.3	6.3	---
	(B)	4.7	3.9	27.3	9.5	12.8	13.7	13.2	3.0	12.0
IDS	(A)	2.6	3.1	25.7	12.5	5.5	23.8	18.5	4.7	3.6
	(B)	4.7	3.9	27.3	9.5	12.8	13.7	13.2	3.0	12.0
Investment Advisers	(A)	5.4	3.2	28.5	3.0	6.1	29.1	11.9	7.4	5.3
	(B)	4.7	3.9	27.3	9.5	12.8	13.7	13.2	3.0	12.0
VALUE MANAGERS										
Beutel Goodman	(A)	2.4	3.1	15.4	3.4	25.5	17.8	25.9	3.5	3.1
	(B)	9.9	4.7	28.2	7.8	13.4	21.0	10.5	4.5	---
Peregrine Capital	(A)	5.2	8.2	24.7	4.9	13.0	8.3	16.7	4.0	15.0
	(B)	7.7	2.7	19.8	10.6	15.9	14.8	13.8	3.8	10.8
Composite External Managers		3.2	5.2	26.0	6.6	16.4	14.3	18.4	4.7	5.2
Index Fund Manager		4.7	3.9	27.3	9.5	12.8	13.7	13.2	3.0	12.0
Composite All Basic Managers		4.2	4.3	26.9	8.6	13.9	13.9	14.8	3.5	9.9
Wilshire 5000		4.6	3.9	27.5	9.4	13.0	13.6	12.9	3.0	12.1

(A) - Actual Portfolio
(B) - Benchmark Portfolio

TABLE A-3

EXTERNAL EQUITY MANAGERS

PERFORMANCE RELATIVE TO BENCHMARK PORTFOLIOS

Managers	First Quarter 1987		Year Ending 3/31/87		Two Years Ending 3/31/87 (Annualized)	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio
Fred Alger	18.4%	23.8%	16.2%	23.7%	31.2%	30.3%
Alliance Capital	27.4	22.8	25.1	18.6	37.2	27.2
Beutel Goodman	17.6	21.5	10.6	24.0	17.9	30.4
BMI Capital	24.8	23.1	27.6	21.0	27.1	28.0
Forstmann Leff	19.8	16.1	20.3	17.3	31.2	22.4
Hellman Jordan	29.4	21.2	22.0	23.0	30.1	30.0
IDS	22.4	21.2	23.7	23.0	34.1	30.0
Investment Advisers	19.7	21.2	18.7	23.0	25.0	30.0
Lieber & Company	20.1	20.4	20.7	18.4	28.0	26.3
Peregrine Capital	17.3	18.5	18.9	20.4	N.A.	N.A.
Waddell & Reed	18.4	N.A.	18.8	N.A.	26.5	N.A.
Internal Manager	19.2	20.9	23.4	23.2	N.A.	N.A.
Total - External Active Managers	21.0	N.A.	20.1	N.A.	28.2	N.A.
Wilshire Associates (Index Fund)	20.8	N.A.	22.3*	N.A.	29.6*	N.A.
Performance Standards						
Wilshire 5000	21.2		23.0		30.0	
90-Day Treasury Bills	1.4		5.9		6.7	
Inflation	1.5		3.0		2.7	

* Performance negatively impacted due to cash withdrawals under the Rule of 85.

TABLE A-4

EXTERNAL EQUITY MANAGERS

PORTFOLIO STATISTICS HISTORICAL SUMMARY

MANAGER NAME	DATE	QTR. PORT. T/O	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
AVG. EXT. MANAGERS	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
FRED ALGER	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	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

MANAGER NAME	DATE	QTR. PORT. T/O	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
BEUTEL GOODMAN	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
	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	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
	12/3186	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	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
	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

MANAGER NAME	DATE	QTR. PORT. T/O	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
HELLMAN JORDAN	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	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	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
	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

MANAGER NAME	DATE	QTR. PORT. T/O	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
LIEBER & COMPANY	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	3/31/87	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
	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	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

TABLE A-5

EXTERNAL EQUITY MANAGERS

SECTOR WEIGHTING HISTORICAL PROFILE

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	EQUITY SECTOR WEIGHTS: CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
AVG. EXT. MANAGERS	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
	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
FRED ALGER	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	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	---

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
BEUTEL GOODMAN	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	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	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	1.3
	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	1.1
	3/31/86	87,886,861	1.3	4.0	18.1	---	34.7	17.4	10.1	8.1	6.3
	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	---
	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

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
HELLMAN JORDAN	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	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
IDS ADVISORY	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

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
LIEBER & COMPANY	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	3/31/87	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
	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
	9/30/85	72,758,648	8.3	8.5	18.3	12.6	4.5	15.7	18.0	3.0	11.2
	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	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	---	---

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
WILSHIRE 5000	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 EQUITY MANAGERS

HISTORICAL PERFORMANCE SUMMARY

	1Q 87	2Q 87	3Q 87	4Q 87	1Q 88	2Q 88	3Q 88	4Q 88	1Q 89	2Q 89	3Q 89	4Q 89
FRED ALGER												
Equity	22.3%											
Total Fund	18.4											
ALLIANCE CAPITAL												
Equity	28.8											
Total Fund	27.4											
BEUTEL GOODMAN												
Equity	18.6											
Total Fund	17.6											
BMI CAPITAL												
Equity	25.8											
Total Fund	24.8											
FORSTMANN-LEFF												
Equity	25.7											
Total Fund	19.8											
HELLMAN JORDAN												
Equity	30.2											
Total Fund	29.4											
IDS ADVISORY												
Equity	23.1											
Total Fund	22.4											
INVESTMENT ADVISERS												
Equity	24.9											
Total Fund	19.7											
LIEBER & COMPANY												
Equity	21.2											
Total Fund	20.1											
PEREGRINE CAPITAL												
Equity	21.8											
Total Fund	17.3											
WADDELL & REED												
Equity	23.0											
Total Fund	18.4											
SBI AGGREGATE												
Equity	23.6											
Total Fund	21.0											
MARKET INDICES												
Wilshire 5000	21.2											
S&P 500	21.3											
91 Day T-Bills	1.4											

(Previous historical performance data can be found on the following page).

TABLE A-6

EXTERNAL 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	1Q 86	2Q 86	3Q 86	4Q 86
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%	21.2%	9.0%	-14.7%	5.7%
Total Fund	13.1	-3.4	-0.9	-7.0	-3.5	8.0	0.2	7.2	9.1	-4.6	18.7	19.8	8.5	-14.1	5.3
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	20.0	6.1	-11.9	5.3
Total Fund	12.7	-8.0	-0.4	-10.1	2.2	6.6	1.3	12.2	10.8	-3.3	17.8	19.3	5.9	-11.8	5.2
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	15.7	-0.9	-4.8	-1.2
Total Fund	8.7	1.1	3.3	-0.6	-2.8	9.3	4.9	10.7	7.5	-8.6	12.0	14.3	-0.6	-4.2	-1.3
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	18.6	7.2	-9.7	5.8
Total Fund	11.9	-7.7	-6.1	-14.5	2.0	3.4	2.2	9.3	-0.9	-2.4	11.1	17.8	7.0	-9.4	5.5
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	20.8	10.1	-16.0	5.7
Total Fund	9.9	-1.2	-0.6	-6.0	-1.7	4.6	3.4	10.9	8.1	-4.2	16.3	18.8	8.9	-10.8	3.4
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	16.1	0.4	-10.7	5.2
Total Fund	5.8	-3.2	-1.0	-0.6	-3.9	9.5	4.6	8.7	7.5	-5.6	18.6	15.3	0.3	-10.4	4.9
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	18.2	8.1	-10.6	4.8
Total Fund	13.6	-5.6	-0.6	-7.3	0.4	10.3	3.0	8.5	10.1	-5.9	19.7	17.2	7.5	-10.1	4.5
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	14.7	5.3	-11.1	4.9
Total Fund	8.0	-1.8	1.3	-4.9	-2.8	10.7	5.7	6.4	6.4	-7.2	18.5	12.4	4.6	-8.9	4.1
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	13.8	11.8	-9.5	0.3
Total Fund	11.6	-1.9	1.3	-7.3	-1.4	7.9	2.6	11.6	6.0	-1.9	14.6	13.9	11.0	-9.5	0.1
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	7.7	2.1	-5.7	5.2
Total Fund	16.4	-2.6	-5.1	-7.4	-2.7	4.7	-1.9	7.8	9.1	-1.9	12.8	6.5	1.9	-4.7	4.4
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	19.7	2.4	-8.3	6.2
Total Fund	24.0	-3.0	-5.3	-2.2	-1.3	1.4	1.5	5.2	7.0	-2.0	10.4	16.4	2.0	-6.4	5.1
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	16.6	5.0	-1.4	4.4
Total Fund	10.5	-4.5	-1.2	-5.9	-2.2	7.2	2.4	8.4	8.0	-4.5	15.2	15.2	4.5	-8.6	3.9
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	14.4	5.8	-7.7	4.0
S&P 500	11.1	-0.1	0.4	-2.4	-2.5	9.7	1.8	9.2	7.4	-4.1	17.3	14.1	6.0	-7.0	5.4
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	1.8	1.6	1.4	1.3

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 to 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.

TABLE A-7

EXTERNAL FIXED INCOME MANAGERS

PORTFOLIO STATISTICS HISTORICAL SUMMARY

MANAGER NAME	DATE	QUARTER PORTFOLIO T/O	# OF BONDS	BOND ALLOCATION	COUPON	CURRENT YIELD	YIELD TO MAT.	AVERAGE QUALITY	DURATION	TERM TO MAT.
AVG. EXT. MGRS	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
INVESTMENT ADV.	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
	9/30/94	10	7	100	9.0	10.8	12.6	AAA	6.4	15.2
LEHMAN MGMT.	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

MANAGER NAME	QUARTER DATE	PORTFOLIO T/O	# OF BONDS	BOND ALLOCATION	COUPON	CURRENT YIELD	YIELD TO MAT.	AVERAGE QUALITY	DURATION	TERM TO MAT.
MILLER ANDERSON	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
	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	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	8.6	8.9	12.5	AAA	3.7	5.3
PEREGRINE	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	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
	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	5.4	12.1
	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

TABLE A-8

EXTERNAL FIXED INCOME MANAGERS
SECTOR WEIGHTING HISTORICAL PROFILE

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	QUALITY WEIGHTINGS AAA	AA	A	BAA	OTHER	SECTOR WEIGHTINGS GOVT	AGCY	ZERO	IND	UTIL	FIN	TRAN	MTGS	MISC	CASH
AVG. EXT. MGRS.	3/31/87	---	77	5	11	4	3	32	2	2	10	2	7	1	32	3	9
	12/31/86	---	74	5	13	3	5	29	3	2	12	1	9	1	35	2	6
	9/30/86	---	76	6	12	3	3	29	3	2	11	2	9	1	39	3	1
	6/30/86	---	78	6	10	3	3	28	6	3	9	2	10	1	37	3	4
	3/31/86	---	79	6	9	3	3	35	2	2	9	2	9	0	34	3	4
	12/31/85	---	80	5	8	2	5	35	3	2	6	2	9	0	35	3	5
	9/30/85	---	81	5	8	1	5	33	3	2	7	2	9	0	39	1	4
	6/30/85	---	81	6	6	3	4	34	1	4	5	4	9	0	36	1	5
	3/31/85	---	78	10	6	2	4	27	5	4	5	6	12	0	31	1	9
	12/31/84	---	77	12	7	2	2	33	8	4	2	8	12	0	24	1	7
	9/30/84	---	79	12	7	2	0	30	10	7	3	8	9	1	19	1	12
INVESTMENT ADV.	3/31/87	42,655,770	86	4	10	0	0	51	5	12	11	0	9	0	9	0	3
	12/31/86	42,094,854	80	7	13	0	0	40	5	11	13	0	15	0	9	0	7
	9/30/86	40,731,041	78	8	14	0	0	45	5	12	23	0	13	0	0	0	2
	6/30/86	39,301,944	81	8	11	0	0	34	18	12	23	0	10	0	0	0	4
	3/31/86	38,938,391	84	8	8	0	0	52	0	12	25	0	6	0	0	0	5
	12/31/85	36,766,845	96	4	0	0	0	68	0	12	8	0	7	0	0	0	5
	9/30/85	34,573,707	96	4	0	0	0	70	0	13	9	0	7	0	0	0	1
	6/30/85	33,794,148	96	4	0	0	0	62	0	23	10	0	4	0	0	0	1
	3/31/85	30,942,776	85	15	0	0	0	53	0	18	11	13	4	0	0	0	1
	12/31/84	30,397,636	74	26	0	0	0	52	0	18	0	25	4	0	0	0	1
	9/30/84	27,932,974	72	28	0	0	0	59	0	10	0	31	0	0	0	0	0
LEHMAN MGMT.	3/31/87	238,911,690	85	9	4	0	2	63	0	0	12	2	5	0	9	0	9
	12/31/86	236,321,758	81	6	11	0	2	58	0	0	14	3	7	0	12	0	6
	9/30/86	229,994,337	80	6	12	0	2	53	0	0	14	8	7	0	16	0	2
	6/30/86	223,483,722	89	4	6	1	0	60	0	0	11	2	7	0	18	0	3
	3/31/86	220,998,995	89	4	6	1	0	65	2	0	9	0	6	0	15	0	3
	12/31/85	207,462,430	89	5	6	0	0	51	10	0	7	2	7	0	12	0	11
	9/30/85	194,774,253	87	6	7	0	0	54	12	0	9	2	7	0	11	0	5
	6/30/85	190,808,742	91	5	4	0	0	64	8	0	5	2	4	0	9	0	8
	3/31/85	177,383,853	95	3	2	0	0	65	13	0	2	0	2	0	3	0	15
	12/31/84	173,831,628	98	0	2	0	0	64	13	0	3	0	0	0	5	0	15
	9/30/84	162,737,117	96	1	2	0	0	60	13	5	4	0	0	0	0	0	18

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	QUALITY WEIGHTINGS AAA	AA	A	BAA	OTHER	SECTOR WEIGHTINGS GOVT	AGCY	ZERO	IND	UTIL	FIN	TRAN	MTGS	MISC	CASH
MILLER ANDERSON	3/31/87	252,209,582	75	2	3	5	15	42	0	0	5	0	3	1	30	1	18
	12/31/86	245,302,600	68	2	6	3	21	38	0	0	7	0	6	0	44	1	4
	9/30/86	222,348,832	72	3	5	6	14	24	0	0	6	0	6	0	61	2	1
	6/30/86	217,656,629	71	5	4	5	15	25	0	0	2	0	8	0	60	2	3
	3/31/86	217,291,031	74	0	5	5	16	45	0	0	2	0	8	0	37	0	8
	12/31/85	208,552,908	71	0	6	4	19	45	0	0	2	0	8	0	44	0	1
	9/30/85	191,849,284	68	1	9	4	18	24	0	0	5	0	9	0	60	0	2
	6/30/85	183,857,869	69	3	8	4	16	19	0	2	5	0	12	0	57	0	5
	3/31/85	173,961,916	54	13	11	2	20	2	0	4	7	0	27	0	52	0	8
	12/31/84	169,696,156	55	17	14	5	9	0	0	7	5	0	36	0	51	0	1
	9/30/84	159,574,376	81	12	5	2	0	0	0	0	2	0	17	0	52	0	29
MORGAN STANLEY	3/31/87	246,865,703	100	0	0	0	0	25	0	0	0	0	0	0	75	0	2
	12/31/86	239,857,185	100	0	0	0	0	27	0	0	0	0	0	0	73	0	0
	9/30/86	229,631,966	100	0	0	0	0	35	0	0	0	0	0	0	65	0	0
	6/30/86	222,763,940	100	0	0	0	0	33	9	0	0	0	0	0	58	0	0
	3/31/86	225,686,690	100	0	0	0	0	41	0	0	0	0	0	0	59	0	0
	12/31/85	208,381,895	100	0	0	0	0	42	0	0	0	0	0	0	58	0	0
	9/30/85	193,513,567	100	0	0	0	0	41	0	0	0	0	0	0	59	0	0
	6/30/85	188,907,479	100	0	0	0	0	49	0	0	0	0	0	0	51	0	0
	3/31/85	173,106,782	100	0	0	0	0	38	9	0	0	0	0	0	38	0	15
	12/31/84	170,547,941	100	0	0	0	0	74	18	0	0	0	0	0	8	0	0
	9/30/84	159,109,110	100	0	0	0	0	45	27	27	0	0	0	0	0	0	1
PEREGRINE	3/31/87	114,089,715	47	12	32	7	2	0	0	0	15	1	24	1	34	17	8
	12/31/86	111,810,642	47	14	29	4	6	0	0	0	22	0	20	0	31	11	16
	9/30/86	108,237,995	49	14	32	2	3	0	0	0	12	0	26	0	47	13	2
	6/30/86	104,606,143	48	19	31	0	2	0	0	0	9	0	30	0	41	17	3
	3/31/86	104,370,666	48	18	32	0	2	0	0	0	9	0	31	0	40	17	2
	12/31/85	100,139,659	55	13	29	0	3	0	0	0	5	0	29	0	48	16	2
	9/30/85	95,186,493	61	12	25	0	2	0	0	0	4	2	31	0	52	7	4
	6/30/85	92,417,709	56	15	20	7	2	0	0	0	4	5	33	0	49	7	2
	3/31/85	86,259,088	55	23	19	3	0	3	0	0	0	5	38	0	47	7	0
	12/31/84	84,387,890	65	13	18	4	0	6	7	0	0	5	30	0	48	0	4
	9/30/84	79,887,650	58	14	24	4	0	12	7	0	10	0	31	0	33	0	7
WESTERN ASSET	3/31/87	262,481,416	69	2	16	11	2	8	6	1	16	10	4	3	36	3	13
	12/31/86	255,942,435	69	2	17	10	2	8	11	0	20	5	5	3	42	1	5
	9/30/86	244,004,935	75	2	11	11	1	16	13	2	9	7	4	4	43	2	0
	6/30/86	238,657,259	80	2	8	9	1	13	9	3	7	7	2	4	45	0	10
	3/31/86	235,514,306	76	4	5	14	1	7	9	3	12	9	2	1	52	0	5
	12/31/85	220,363,561	73	5	8	7	7	5	8	1	15	9	2	1	48	0	11
	9/30/85	201,666,058	74	6	5	4	11	11	3	0	14	10	0	1	49	0	12
	6/30/85	197,929,627	73	9	4	8	6	10	0	0	8	15	0	1	51	0	15
	3/31/85	181,426,695	76	9	4	7	4	4	11	0	8	16	0	1	47	0	13
	12/31/84	177,328,832	69	15	7	5	4	3	11	0	6	19	2	2	33	4	20
	9/30/84	165,957,816	68	15	9	5	3	4	16	0	3	18	4	5	26	4	20

TABLE A-9

EXTERNAL FIXED INCOME MANAGERS

HISTORICAL PERFORMANCE SUMMARY

	1Q 87	4Q 86	3Q 86	2Q 86	1Q 86	4Q 85	3Q 85	2Q 85	1Q 85	4Q 84	3Q 84
INVESTMENT ADVISERS											
Fixed Income	1.0%	2.8%	2.5%	0.9%	6.2%	6.5%	2.5%	9.4%	1.9%	8.8%	11.8%
Total Fund	1.0	2.7	2.4	0.9	5.9	6.3	2.3	9.2	1.8	8.8	11.8
LEHMAN MANAGEMENT											
Fixed Income	1.0	2.8	3.0	1.2	6.7	6.9	2.1	8.7	2.0	7.7	9.6
Total Fund	1.1	2.8	2.9	1.1	6.5	6.5	2.1	7.6	2.1	6.8	8.7
MILLER ANDERSON											
Fixed Income	3.2	10.6	2.2	0.2	4.4	8.8	4.4	6.0	2.5	7.5	7.7
Total Fund	2.8	10.3	2.2	0.2	4.2	8.7	4.4	5.7	2.5	6.3	6.7
MORGAN STANLEY											
Fixed Income	3.1	4.3	3.1	-2.1	8.2	7.7	2.5	9.3	1.5	7.3	6.1
Total Fund	2.9	4.5	3.1	-1.3	8.3	7.7	2.4	9.1	1.5	7.2	6.3
PEREGRINE CAPITAL											
Fixed Income	2.2	3.4	3.6	0.2	4.3	5.4	3.1	7.3	2.3	6.0	7.7
Total Fund	2.0	3.3	3.5	0.2	4.2	5.2	3.0	7.1	2.2	5.6	6.9
WESTERN ASSET											
Fixed Income	2.6	5.0	2.3	0.9	7.4	10.7	1.9	10.7	2.4	8.0	11.8
Total Fund	2.6	4.9	2.2	1.3	6.9	9.3	1.9	9.1	2.3	6.8	10.8
SBI FIXED INCOME AGGREGATE											
Fixed Income	2.4	5.3	2.8	1.7	6.4	8.1	2.8	8.5	2.1	7.5	8.8
Total Fund	2.3	5.2	2.7	0.4	6.2	7.7	2.7	7.8	2.1	6.8	8.1
MARKET INDEX											
Salomon Broad Bond Index	1.3	3.3	2.5	1.1	7.9	7.8	2.0	8.9	2.2	7.5	8.6

Tab B

PORTFOLIO STATISTICS

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
COMPOSITION OF STATE INVESTMENT PORTFOLIO'S BY TYPE OF INVESTMENT
MARKET VALUE MARCH 31, 1987
(in 000's)

	CASH AND SHORT TERM SECURITIES	BONDS		STOCKS		ALTERNATIVE ASSETS	TOTAL
		INTERNAL	EXTERNAL	INTERNAL	EXTERNAL		
BASIC RETIREMENT FUNDS:							
TEACHERS RETIREMENT FUND	$ 44,185 2.13%	$ -0- 0.00%	$ 471,331 22.77%	$ -0- 0.00%	$1,327,912 64.14%	$226,842 10.96%	$ 2,070,270 100%
PUBLIC EMPLOYEES RETIRE. FUND	21,355 1.53%	-0- 0.00%	320,450 22.91%	-0- 0.00%	902,826 64.54%	154,226 11.02%	1,398,857 100%
STATE EMPLOYEES RETIRE. FUND	22,095 2.02%	-0- 0.00%	249,544 22.79%	-0- 0.00%	703,078 64.22%	120,100 10.97%	1,094,817 100%
PUBLIC EMP. POLICE & FIRE FUND	16,008 3.75%	-0- 0.00%	95,482 22.39%	-0- 0.00%	269,010 63.08%	45,953 10.78%	426,453 100%
HIGHWAY PATROL RETIRE. FUND	1,719 2.14%	-0- 0.00%	18,281 22.77%	-0- 0.00%	51,498 64.13%	8,798 10.96%	80,296 100%
JUDGES RETIREMENT FUND	763 17.47%	-0- 0.00%	1,149 26.32%	-0- 0.00%	1,901 43.54%	553 12.67%	4,366 100%
POST RETIREMENT FUND	268,650 6.75%	3,046,302 76.55%	-0- 0.00%	664,674 16.70%	-0- 0.00%	-0- 0.00%	3,979,626 100%
MINNESOTA SUPPLEMENTAL FUNDS:							
INCOME SHARE ACCOUNT	25,604 12.24%	58,379 27.90%	-0- 0.00%	30,407 14.53%	94,864 45.33%	-0- 0.00%	209,254 100%
GROWTH SHARE ACCOUNT	341 0.38%	-0- 0.00%	-0- 0.00%	22,268 24.76%	67,338 74.86%	-0- 0.00%	89,947 100%
MONEY MARKET ACCOUNT	73,436 100%	-0- 0.00%	-0- 0.00%	-0- 0.00%	-0- 0.00%	-0- 0.00%	73,436 100%
BOND ACCOUNT	243 2.00%	11,928 98.00%	-0- 0.00%	-0- 0.00%	-0- 0.00%	-0- 0.00%	12,171 100%
COMMON STOCK INDEX ACCOUNT	-0- 0.00%	-0- 0.00%	-0- 0.00%	-0- 0.00%	1,444 100%	-0- 0.00%	1,444 100%
BOND MARKET ACCOUNT	-0- 0.00%	-0- 0.00%	977 100%	-0- 0.00%	-0- 0.00%	-0- 0.00%	977 100%
GUARANTEED RETURN ACCOUNT	-0- 0.00%	-0- 0.00%	4,183 100%	-0- 0.00%	-0- 0.00%	-0- 0.00%	4,183 100%
MINNESOTA VARIABLE ANNUITY	840 0.50%	-0- 0.00%	-0- 0.00%	40,997 24.44%	125,936 75.06%	-0- 0.00%	167,773 100%
TOTAL RETIREMENT FUNDS	$ 475,239 4.94%	$3,116,609 32.42%	$1,161,397 12.08%	$758,346 7.89%	$3,545,807 36.88%	$556,472 5.79%	$ 9,613,870 100%

PERMANENT SCHOOL FUND	119,297	241,491	-0-	-0-	-0-	-0-	360,788
	33.07%	66.93%	0.00%	0.00%	0.00%	0.00%	100%
TREASURERS CASH	579,559	-0-	-0-	-0-	-0-	-0-	579,559
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
TRANSPORTATION FUNDS	472,117	-0-	-0-	-0-	-0-	-0-	472,117
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
STATE BUILDING FUNDS	-0-	-0-	-0-	-0-	-0-	-0-	-0-
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HOUSING FINANCE AGENCY	169,190	-0-	-0-	-0-	-0-	-0-	169,190
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
MINNESOTA DEBT SERVICE FUND	191,135	-0-	-0-	-0-	-0-	-0-	191,135
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
MISCELLANEOUS ACCOUNTS	301,610	-0-	-0-	-0-	-0-	-0-	301,610
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
TACONITE AREA ENVIR. PROTECTION	8,945	-0-	-0-	-0-	-0-	-0-	8,945
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
N.E. MINNESOTA PROTECTION	42,299	-0-	-0-	-0-	-0-	-0-	42,299
	100%	0.00%	0.00%	0.00%	0.00%	0.00%	100%
GRAND TOTAL	$2,359,391	$3,358,100	$1,161,397	$758,346	$3,545,807	$556,472	$11,739,513
	20.10%	28.61%	9.89%	6.46%	30.20%	4.74%	100%

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
NET CASH FLOW AVAILABLE FOR INVESTMENT

For period of
January 1, 1987 - March 31, 1987

Teachers Retirement Fund	$ -0-
Public Employees Retirement Fund	(4,300,000.00)
State Employees Retirement Fund	5,225,000.00
Public Employees Police & Fire	3,500,000.00
Highway Patrol Retirement Fund	-0-
Judges Retirement Fund	(655,000.00)
Post Retirement Fund	9,270,940.00
Supplemental Retirement Fund - Income	1,537,046.00
Supplemental Retirement Fund - Growth	(484,277.00)
Supplemental Retirement Fund - Money Market	(294,370.00)
Supplemental Retirement Fund - Bond Fund	-0-
Supplemental Retirement Fund - Index	296,379.00
Supplemental Retirement Fund - Bond Mkt.	157,999.00
Supplemental Retirement Fund - Guaranteed	50,295.00
Minnesota Variable Annuity Fund	$ (330,714.00)
Total Retirement Funds Net Cash Flow	$ 13,973,298.00
Permanent School Fund	(9,099,658.00)
Total Net Cash Flow	$ 4,873,640.00

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

TRANSACTION AND ASSET SUMMARY
RETIREMENT FUNDS

	Net Transactions				Asset Summary (at market)			
	Bonds (000,000)	Stocks (000,000)	Total	Cash Flow	Short-term % of Fund	Bonds % of Fund	Equity % of Fund	Total (000,000) (at market)
March 1985	(1)	5	4	26	4.6	41.7	53.7	6213
April	(79)	17	(62)	23	5.9	40.7	53.4	6260
May	(13)	(41)	(54)	32	6.9	40.4	52.7	6602
June	284	118	402	408	6.8	41.2	52.0	6801
July	84	68	153	40	5.2	41.8	53.0	6812
August	79	4	83	30	4.3	43.3	52.4	6867
September	32	(10)	22	31	4.6	44.6	50.8	6751
October	50	52	102	26	3.3	44.8	51.9	6986
November	(29)	(22)	(51)	41	4.4	43.1	52.5	7299
December	(3)	(76)	(79)	16	5.5	43.1	51.4	7583
January 1986	(7)	13	6	13	5.5	42.9	51.6	7618
February	36	(8)	28	34	5.3	42.9	51.8	8049
March	1	(3)	(2)	27	5.4	42.9	51.7	8429
April	(3)	(131)	(134)	20	7.3	42.9	49.8	8384
May	(2)	8	6	44	7.7	40.8	51.5	8450
June	226	326	552	625	8.3	41.4	50.3	8715
July	175	2	177	33	6.8	44.8	48.4	8488
August	147	59	206	39	4.6	45.5	49.9	8884
September	14	(67)	(53)	(48)	4.9	47.0	48.1	8490
October	4	(117)	(113)	10	6.2	46.5	47.3	8724
November	(17)	(3)	(20)	40	6.8	46.0	47.2	8864
December	(51)	44	(7)	12	7.0	46.0	47.0	8772
January 1987	34	21	42	15	6.2	44.4	49.4	9283
February	120	(9)	111	50	5.4	44.4	50.2	9576
March	76	(15)	61	18	4.9	44.5	50.6	9614

Tab C

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

Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 14, 1987

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Administrative and Asset Allocation Committees

SUBJECT: Committee Report

The Administrative and Asset Allocation Committees met jointly and considered the following issues.

1) SBI Member Travel Policy

The Committee recommends that the Board continue the current policy. That policy specifies that each Board member is allocated up to $2,000 annually for travel by him or herself and/or their staff for purposes related to the Board's affairs.

2) Consultant Contract

Richards & Tierney has served as the Board's consultant for the past year. During that time the firm has provided the Board with a number of services, including: normal portfolio construction and maintenance; performance measurement; investment policy design; asset mix simulation software; and, South Africa financial advice. The Committee believes that Richards & Tierney's consulting services have been valuable. The Committee recommends renewal of the firm's contract for another year at an unchanged cost of $120,000.

3) Investment Policy Paper Part III

The Committee reviewed the third part of the staff's paper on investment policy for the Basic Retirement Funds. This part presents staff's policy recommendations regarding investment management structure. The Committee recommends adoption of the staff proposals. The third part of the staff position paper accompanies the Committee's report.

4) Policy Asset Mix Rebalancing Rules

The Committee discussed a staff proposal relating to periodic rebalancings of the Basic Retirement Funds' policy asset mix. With minor modifications, the Committee recommends adoption of the staff's proposal, which accompanies the Committee's report.

5) Short-Term Investment Pool

The Committee discussed staff's plan to construct a commingled pool combining various short-term accounts managed by the Board. Such a pool would considerably improve operating efficiencies and offer higher returns to the many small accounts now managed by the Board. The Committee recommends that the Board approve the staff's short-term investment pool concept and direct staff to proceed with its implementation.

BASIC RETIREMENT FUNDS
INVESTMENT POLICY

PART III
INVESTMENT MANAGEMENT STRUCTURE

Staff Position Paper
May 1987

EXECUTIVE SUMMARY

The Basic Retirement Funds' investment policy paper presents staff's recommendations concerning the long-run management of the Basic Funds' assets. Part I addresses the topics of investment objectives and risk tolerance. Part II considers the issues of policy asset mix, asset class targets, and market timing.

Part III now examines the investment management structure of the Basic Funds. The focus is on the common stock and bond segments. Further, the discussion centers on the following issues:

- Rationale for passive and active management
- Mix of passive and active management
- Mix of management styles within the active component
- Multiple active manager portfolio
- Number of active managers

In the context of investing in a particular asset class, passive management is defined as buying and holding the securities which make up the asset class target. Active management is defined as buying or selling securities with the intention of outperforming the asset class target.

Active management is predicated on the assumption that skillful investors can consistently exploit various market inefficiencies. Passive management, conversely, assumes that those same skillful investors make the markets so efficient that few, if any, of them can consistently earn superior returns. The empirical evidence relating to the passive/active management question is inconclusive.

The appropriate policy passive/active mix is determined by two primary factors: the expected return from active management and the additional volatility in returns that active management produces (i.e., active risk). The former factor is a function of several considerations including the plan sponsor's attitude toward the passive/active debate, the plan sponsor's ability to identify successful managers, and the size of pension plan. The greater is the expected return from active management relative to active risk, the larger will be the plan sponsor's active allocation.

The policy passive/active allocation can be either fixed or flexible. A fixed allocation is changed only when a new investment policy is established. A flexible allocation is changed as the plan sponsor identifies superior managers or chooses to fire inferior managers. The passive allocation serves as a residual, determined by the active allocation.

An active manager's investment style consistently exposes his portfolio to different levels of risk and return than are incurred by the manager's asset class target. One means of representing a manager's investment style is through a normal portfolio. A normal portfolio is a collection of securities, appropriately weighted, from which the manager generally makes his investment selections.

Within each asset class, the plan sponsor is responsible for allocating funds to the various managers so that their combined investment styles, or aggregate normal portfolio, is consistent with the asset class target. To accomplish this task, three options are available to the plan sponsor:

- o Actively manage the aggregate style bias emphasizing those styles expected to be favored by the market.
- o Maintain a neutral aggregate style exposure by hiring active managers with a diverse range of styles.
- o Maintain a neutral aggregate style exposure by constructing a portfolio which compensates for any bias present in the combined manager styles. This offsetting portfolio is called a completeness fund.

Most pension plans allocate their actively managed funds within an asset class across on array of specialized managers. These specialized managers pursue investment styles that are characterized by risk exposures different from those of the asset class target. The alternative to hiring multiple specialized managers is to retain one or more eclectic managers. Eclectic managers follow a broad investment style covering the entire asset class.

Hiring more than one manager produces diversification of judgement. Hiring managers representing different investment styles produces diversification of style. The multiple specialized manager approach provides both diversification of judgment and style.

There are a number of arguments both for and against multiple specialized managers. The primary points in favor of this approach are that specialized managers develop an expertise within their segments of the market that allows them to achieve superior returns and that the multiple specialized manager approach permits the plan sponsor to better control the risk exposure of the aggregate manager portfolio.

Arguments against the multiple specialized manager approach include diseconomies of scale, the possibility of hiring mediocre managers simply to cover a market segment, the problems of inducing managers to be sufficiently aggressive, and various administrative concerns.

The maximum number of active managers appropriate for a pension plan depends largely on two factors. The first is the availability of superior managers. The more efficient the plan sponsor believes the markets to be, generally the more difficult the plan sponsor will view the task of hiring superior managers. Hence, the fewer managers the plan sponsor likely will retain.

The second factor relates to administrative considerations. Because of the administrative costs of selecting and monitoring additional managers, a plan sponsor will be limited in the number of managers by the resources that can be devoted to these administrative functions.

A summary of the current status of the Basic Funds' investment management structure with respect to the five issues discussed above, along with staff's recommended investment management structure, is presented in the following table.

BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE

SUMMARY OF CURRENT STATUS AND RECOMMENDATIONS

ISSUE	CURRENT	RECOMMENDED
Passive vs. active management	Both passive and active stock management. Only active bond management.	Both passive and active stock and bond management
Policy passive/active mix	Fixed passive/active allocations in both stock and bond segments. 67%/33% in stock segment, 0%/100% mix in bond segment.	Flexible passive/active allocations in both stock and bond segments depending on identification of superior managers. In both segments, active allocations in 10%-50% range. Passive allocations as residual in 90%-50% range.
Aggregate active management investment style	Diversified group of active managers in both stock and bond segments. Minor style biases. No completeness fund.	Active managers selected solely on basis of superior performance potential in both stock and bond segments. Completeness fund to offset any style biases.
Specialized vs. eclectic managers	Multiple specialized managers operating in various segments of the stock and bond markets.	No change, with exception of better delineation of bond manager investment styles.
Number of managers	12 active stock managers, 1 passive stock manager, 6 active bond managers. No limits on number of managers.	Maximum number of active managers in 15-20 range, allocated among stock and bond segments as appropriate.

RECOMMENDED INVESTMENT POLICY STATEMENT: PART III

The Board seeks to construct an investment management structure that effectively implements the policy asset mix of the Basic Retirement Funds and that is consistent with their investment objectives and risk tolerance. The Board recognizes that this investment management structure must be compatible with the special needs of a large public pension fund.

In developing the Basic Funds' investment management structure, the Board has considered five fundamental issues and has prepared specific policies related to each issue. The Board's analysis has focused on the common stock and bond segments of the Basic Funds, although the discussion can be generalized to a certain degree, to other asset classes as well.

The fundamental issues and associated Board policies are outlined below.

ISSUE	POLICY
o Passive vs. active management	o Utilize both passive and active management
o Policy passive/active mix	o Flexible passive/active mix with upper and lower limits on active management of 50% and 10%, respectively
o Aggregate active management investment style	o Aggregate active management style should equal asset class target through use of a completeness fund
o Specialized vs. eclectic managers	o Multiple managers specializing in various segments of the markets
o Number of active managers	o Maximum of 15-20 active stock and bond managers

SECTION 1: REVIEW OF PARTS I & II CONCLUSIONS

INTRODUCTION

A consistently applied investment policy is important to the ultimate success of any pension plan. The Basic Retirement Funds' investment policy paper presents, in a formal and unambiguous manner, staff's recommendations concerning the long-run management of the Basic Funds' assets. The first two parts of the paper address five major topics:

- o Investment objectives (Part I)
- o Risk tolerance (Part I)
- o Policy asset mix (Part II)
- o Asset class targets (Part II)
- o Market timing (Part II)

PART I CONCLUSIONS

Part I specifies three primary investment objectives of the Basic Funds. In order of importance, they are:

1) Secure promised benefits;
2) Reduce employer/employee contributions and/or increase promised benefits;
3) Avoid excessive short-run volatility in portfolio returns.

These objectives are not fully compatible. Part I discusses the risk-return policy trade-offs involved in achieving these conflicting objectives. Based on this discussion, Part I recommends an aggressive, high expected return investment policy that incorporates a sizable equity exposure. This policy is recommended with the understanding that it may result in quarters or even years of disappointing results. Nevertheless, given the extended investment time horizon of the Basic Funds, the long-run benefits of such a policy are expected to be significant.

PART II CONCLUSIONS

Part II follows the Part I investment objectives and risk tolerance discussions with a formal policy (long-run) asset mix recommendation. Specifically:

Equity Assets		75.0%
Common Stocks	60.0	
Venture Capital	2.5	
Real Estate	10.0	
Resource Funds	2.5	
Fixed Income Assets		25.0
Bonds	22.0	
Cash Equivalents	3.0	
TOTAL		100.0%

This policy asset mix is designed to protect the Basic Funds from debilitating economic environments by incorporating deflation and inflation hedge asset classes. Further, the policy asset mix avoids excessive short-run return volatility by diversifying among equity and fixed income assets. Within these constraints, the policy asset mix seeks maximum returns through a large common stock exposure.

Part II also considers the subject of asset class target selection. An asset class target is a diversified collection of securities within a particular asset class. It represents the set of feasible investment opportunities that best achieves the purposes for which the asset class is included in the policy asset mix. Part II recommends the following market indices as asset class targets for the Basic Funds' policy asset mix:

Asset Class	Asset Class Target
o Common Stocks	o Wilshire 5000
o Bonds	o Salomon Brothers Large Pension Fund Baseline Bond Index
o Cash Equivalents	o 90-day Treasury Bills
o Real Estate	o Prudential Real Estate Investment Separate Account
o Venture Capital	o First Chicago Venture Capital Index
o Resource Funds	o Portfolio of publicly held energy companies

Finally, Part II discusses the issue of market timing. Market timing involves short-run deviations from the policy asset mix in order to take advantage of perceived temporary misvaluations between asset classes. Part II recommends against market timing on a policy level based upon the necessarily large commitment of assets, the highly uncertain outcome of the strategy, and the potentially sizable transactions costs for a large pension plan such as the Basic Funds.

PART III STRUCTURE

This investment policy paper begins at the most basic level of decisions made by a plan sponsor. Step-by-step the paper progresses to more detailed levels of decisionmaking. Part III now considers the investment management structure of the Basic Funds. This is potentially an extremely broad topic. To narrow the focus of the discussion, Part III examines the investment management structure of only the common stock and bond segments of the Basic Funds' policy asset mix. Further, the discussion centers on the following issues:

- Rationale for passive and active management
- Mix of passive and active management
- Mix of management styles within the active component
- Multiple active manager portfolio
- Number of active managers

It must be stressed that there are no clear-cut answers to many of the issues raised in this analysis. The body of investment knowledge, particularly as it relates to the investment management structure of large pension plans, is far from complete. It currently is incapable of offering comprehensive solutions to many of the most fundamental problems confronting pension plans. As a result, the Board must develop a comfort level with a recommended investment management structure based primarily on the logical appeal of that structure. Various plan sponsors can justifiably arrive at quite different conclusions regarding the appropriate investment management structure for similar pension plans. Further, those conclusions are likely to change as new information and techniques are developed.

SECTION 2: PASSIVE AND ACTIVE MANAGEMENT

DEFINITION OF PASSIVE AND ACTIVE MANAGEMENT

Developing an appropriate investment management structure requires that a number of difficult decisions be made. The first issue that must be addressed is the choice between two forms of investment management: active and passive. Should one form be used to the complete exclusion of the other?

In the context of investing in a particular asset class, passive management is defined as buying and holding the securities which make up the asset class target. With the exception of investing income and new contributions, and occasional minor rebalancings, no transactions occur in a passively managed portfolio. Most importantly, no attempt is made to exploit misvalued securities within the asset class.

A passively managed asset class portfolio is referred to as an index fund. An index fund is designed to match the performance of its asset class target. Properly constructed, an index fund should not outperform its asset class target, but equivalently neither should it materially underperform the target. [1]

Active management within an asset class is defined as buying or selling securities with the intention of outperforming the asset class target. Active management can take many forms, but all involve identifying and trading securities that are perceived to be misvalued. Further, all forms of active management imply creating portfolios that intentionally differ in some manner from the composition of the asset class target. It is only by these deviations (referred to as active bets) that active management can add value to the asset class target's return.

Active management offers the possibility of outperforming the asset class target. Necessarily, however, it also creates the risk of underperforming the target.

A summary of comparative characteristics of passive and active management is presented in Table 1.

GROWTH OF PASSIVE MANAGEMENT

Despite the simplicity of its approach, passive management is a relatively new investment concept. Prior to the late 1960's, it was the conventional wisdom that all investment portfolios should be actively managed. Any other policy was viewed as both unproductive and a violation of a manager's fiduciary responsibility. However, advances in performance measurement techniques, capital markets theory, and electronic data processing all helped to stimulate numerous academic studies that seriously questioned the effectiveness of active management. These studies, combined with the poor performance of active managers in the years 1969 and 1973-75, led many plan sponsors to turn to index funds.

Wells Fargo constructed the first common stock index fund for Samsonite Corporation in 1971. The trickle of assets into index funds became a flood by 1976. While that flow subsided in the late 1970's and early 1980's, when active managers fared relatively better, it surged again in the mid-1980's as active managers again performed poorly. Today it is estimated that over $150 billion, or over 5% of the value of the stock market, is

TABLE 1

COMPARATIVE CHARACTERISTICS OF ACTIVE AND PASSIVE MANAGEMENT

PASSIVE		ACTIVE
Match performance of asset class target	GOAL	Exceed performance of asset class target
No opportunity to outperform asset class target. No risk of underperformance	PERFORMANCE	Opportunity to outperform asset class target. Risk of underperformance
Simple and limited in number	STRATEGIES	Vary widely in terms of complexity and type
Similar to asset class target in terms of issues held and associated weights	PORTFOLIO COMPOSITION	Differs from asset class target by excluding certain issues and varying weights in others
Requires minimal trading	TRADING/ TURNOVER	May, although not necessarily, involve considerable portfolio turnover
Very low fees	MANAGEMENT FEES	Moderate to expensive fees
Requires little monitoring by plan sponsor	MONITORING	Requires careful monitoring by plan sponsor to avoid unintended results

invested in common stock index funds. [2] Most of these investments belong to pension plans. Bond index funds have been a more recent development, but interest in them is growing rapidly as well.

Despite the growth in index fund investment, pension plans still manage the vast majority of their assets actively. The belief in the value of active management remains strong. Should the relative performance of active managers, which appears to run in cycles, improve once again, new cash flows to active managers can be expected to increase at the expense of index funds.

CASE FOR PASSIVE AND ACTIVE MANAGEMENT

The debate between proponents of passive and active management has gone on for over twenty years. Yet the issues have remained surprisingly constant. Most market participants and other informed observers agree that the stock and bond markets are, on average, very efficient. That is, information relevant to securities prices is quickly and accurately incorporated into those prices. However, these individuals disagree on the implications of market efficiency as it concerns the choice between active and passive management.

The primary argument for active management is quite simple. In essence, it is that sufficient market inefficiencies exist that skillful and hardworking investors can consistently exploit them. Numerous examples of successful stock and bond managers and strategies are cited as evidence. An additional supporting argument is based on the logic of the work ethic. That is, hard work and innovation in the investment business, like any other business, should be expected to produce superior results. In the same vein, active management proponents generally are philosophically averse to the idea of accepting passive returns. They view it as imperative to strive for superior performance.

The arguments for passive management are more subtle. The primary contention is that the same skillful hardworking managers who strive to earn superior returns make the common stock and bond markets so efficient as to prevent any of the managers from consistently earning those superior returns. Many studies are available demonstrating the futility of active management. Further, it is argued that passive management does not imply settling for "mediocre" returns. Rather, because management fees and transactions costs are incurred by active managers, over the long-run a passively managed fund will always outperform the "average" manager. [3]

There is an overabundance of research supporting both sides of the passive versus active management issue. It is beyond the scope of this position paper to discuss those studies. However, it is fair to state that there exists no conclusive evidence on the issue that would allow the Board, or any other plan sponsor, to arrive at a definitive policy. The choice ultimately involves a subjective decision based on incomplete information. This situation, unfortunately, is not likely to be satisfactorily resolved in the foreseeable future.

CURRENT BASIC FUNDS STRUCTURE

The Basic Funds' common stock segment currently utilizes both passive and active management. The bond segment uses only active management.

RECOMMENDATIONS

In light of the inconclusive evidence regarding the superiority of either passive or active management, staff recommends against employing one form of investment management to the complete exclusion of the other. In any situation that exhibits considerable uncertainty it is usually wise to avoid extreme policies. Thus, staff recommends that the Board adopt an investment management structure for the common stock and bond segments of the Basic Funds that employs both passive and active management. Implementation of this recommendation will involve no change in the management structure of the Basic Funds' common stock segment. However, it will require the retention of a bond index fund manager.

SECTION 3: PASSIVE/ACTIVE MIX

PRIMARY DETERMINATES OF THE POLICY PASSIVE/ACTIVE MIX

The decision to use both passive and active management must be followed by a second decision: In what proportions should the common stock and bond components be allocated to passive and active management? Two primary factors determine the appropriate policy passive/active mix.

The first factor is the degree of confidence that a plan sponsor has in active management. Many elements will influence this confidence level including:

- Attitude concerning the passive/active debate discussed in Section 2. The more the plan sponsor is convinced by arguments supporting active management, the larger will be the plan's policy active allocation.

- Ability to identify successful managers. Beyond the plan sponsor's belief in the effectiveness of active management, the greater is the plan sponsor's confidence in its manager selection process, the larger will be the plan's policy active allocation.

- Dollar size of the plan's common stock and bond segments. It is reasonable to assume that there are binding limits on the number of successful managers that the plan sponsor can identify as well as monitor. It is also reasonable to assume (with less conviction, however) that the performance of most managers declines as their assets under management rises above some critical threshold. Therefore, the larger are the plan's stock and bond components, the smaller will be the policy active allocation.

The second factor determining of the policy passive/active mix is the additional volatility in portfolio returns caused by active management. This additional volatility is referred to as active risk. Because plan sponsors dislike return volatility, then all other things remaining the same, the greater is the active risk created by active management, the lower will be the plan sponsor's policy allocation to active management.

Jointly considering these two primary factors, the greater is the expected incremental return offered by active management compared to the additional return volatility that it produces, the more the plan sponsor will tilt the policy passive/active mix toward active management. This proportion of expected active return to active risk is referred to as the <u>information ratio</u>.

Assume that a plan sponsor has a strong belief that active management can generate returns for its plan well in excess of those of index funds. Further, assume that the plan sponsor believes that the variability of these superior returns is low. In other words, the plan sponsor believes that the information ratio of its active management program is very high. In this case 100% of the plan's investments should be allocated to active management. To do otherwise would be to unjustifiably pass up low risk expected incremental returns.

Conversely, assume that the plan sponsor has no confidence in the ability of active management to add value to its plan's investment returns. Further, the plan sponsor believes that the variability of active management returns is very high. That is, the plan sponsor views the information ratio of its active management program as very small. In this case all of the plan's investments should be passively managed. Any other course of action would unjustifiably increase risk and, at best, add nothing to expected returns.

Of course, examples of extreme active management information ratios such as these are rare. Most plan sponsors adopt a more balanced perspective toward the risk-return opportunities offered by active management. As a result, their investment management structures display a blend of active and passive management. Their particular policy passive/active mixes will depend on their beliefs regarding the active management information ratio and their unique risk-return preferences. [4]

VARYING THE LEVEL OF ACTIVE RISK

Active management should not be viewed as a homogeneous investment approach. Despite the fact that all investment management strategies involve active bets relative to an asset class target, the aggressiveness of those bets (i.e., or the active risk assumed) can vary considerably across strategies.

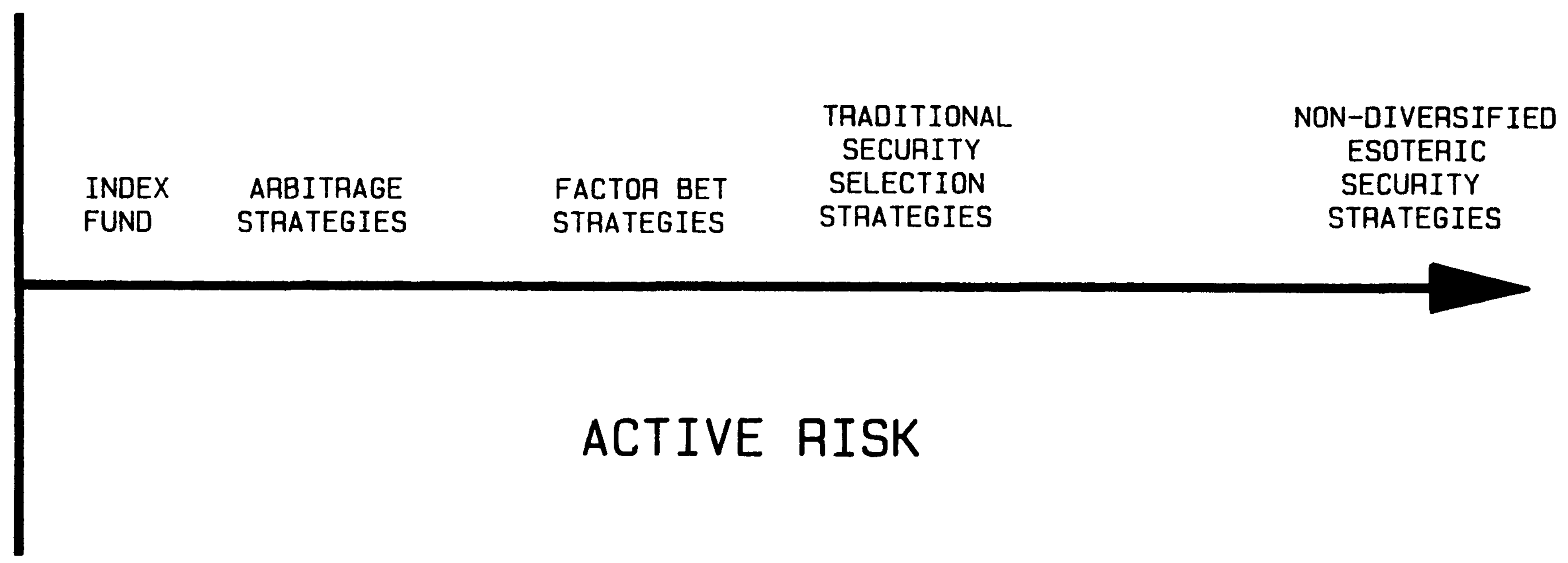
In fact, one way to categorize different active management strategies is to align them across a continuum of active risk. As shown in Figure 1, moving from left to right the active management strategies increase in terms of active risk. The lowest level of active risk is by definition an index fund, which engages in no active management at all. On the other extreme are active management strategies which involve a few concentrated holdings in securities exhibiting low correlations with the market.

Plan sponsors using higher active risk investment strategies presumably anticipate earning commensurately higher returns above the asset class target's return. If this were not the case, the information ratios and, hence, the attractiveness of the more aggressive active management strategies would be inferior to the more defensive strategies.

It is the plan sponsor's responsibility to control the level of active risk within the plan's various asset classes,

FIGURE 1

SPECTRUM OF ACTIVE RISK



particularly the common stock and bond segments. To do so, the plan sponsor must be aware of the active risk assumed by the individual managers within each asset class and how those managers together generate active risk for the asset class as a whole. As managers are changed or the policy passive/active mix is altered, the plan sponsor should act to ensure that active risk remains within reasonable bounds.

FIXED VERSUS FLEXIBLE ALLOCATION APPROACHES

In adopting a policy passive/active mix for an asset class, the plan sponsor have essentially two options. First, a fixed allocation can be assigned to both passive and active management. This allocation would change only in the event that a new investment policy was established. Second, a flexible allocation to active management can be used. As the plan sponsor identifies superior managers (i.e., who demonstrate desirable information ratios), they can be allocated portions of the asset class funds. The passive allocation serves as a residual, determined by the allocation to active management. Upper or lower policy limits on the active allocation can also be set by the plan sponsor under this approach.

The fixed allocation approach has the advantage of simplicity and clarity. Based on the subjective and objective considerations that influence the plan sponsor's estimate of the active management information ratio, in conjunction with the plan sponsor's risk-return preferences, the policy passive/active mix is set. Changes in allocations to new and existing managers can easily be analyzed and implemented within the framework of the fixed allocation.

The flexible allocation approach has the advantage of being more responsive to changing opportunities facing the pension plan. Attractive managers can be retained or poorly performing managers can be dismissed more readily without having to satisfy a fixed passive/active allocation.

CURRENT BASIC FUNDS STRUCTURE

The Basic Funds common stock segment currently is allocated 67% to passive management and 33% to active management. These allocations are fixed. The bond segment is 100% actively managed. This allocation is also fixed. Figure 2 illustrates the current common stock and bond segments' policy passive/active mixes. The amount of active risk exhibited by the common stock and bond segments is modest.

RECOMMENDATIONS

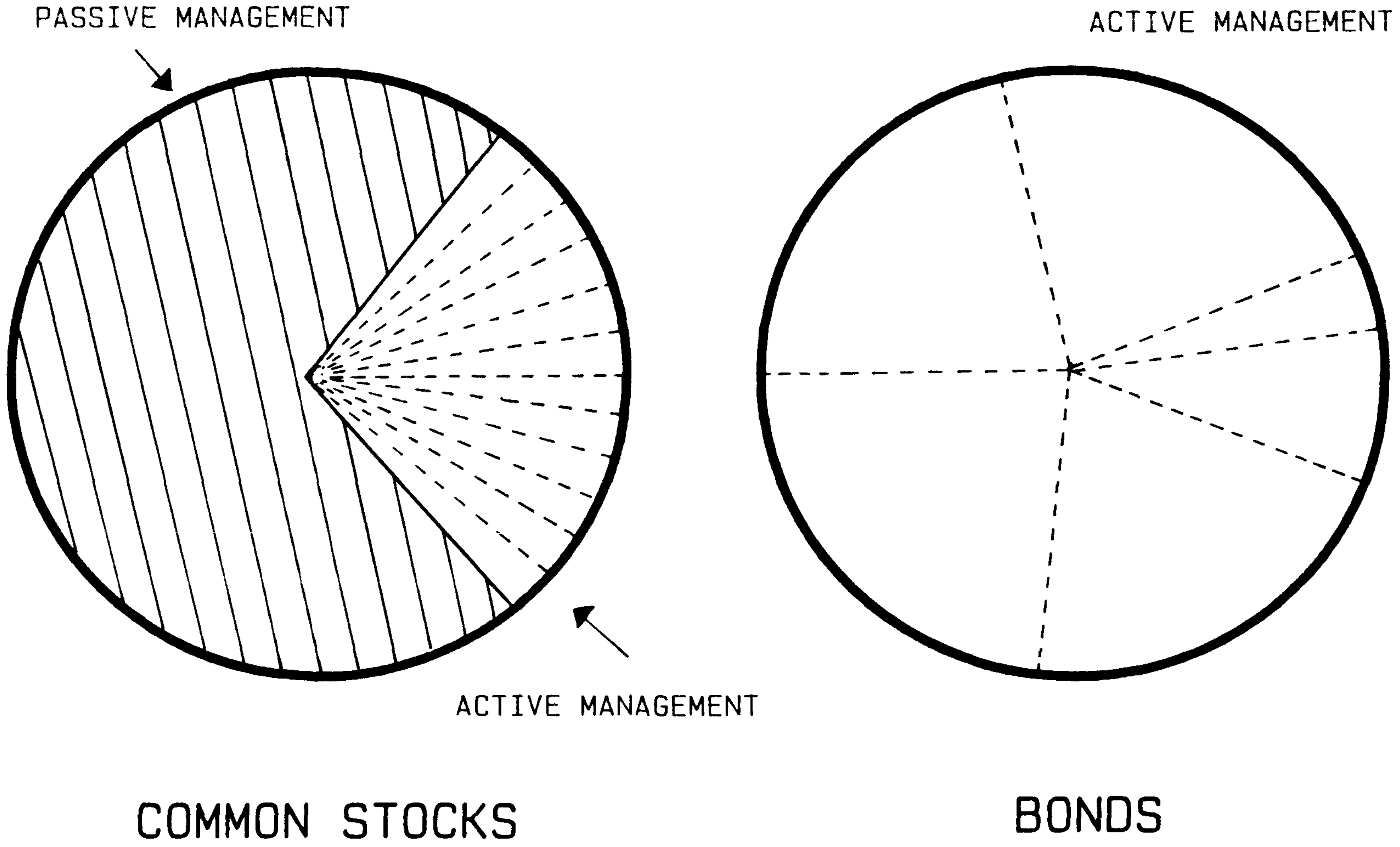
Staff recommends that the Basic Funds' policy passive/active mix maintain a meaningful active allocation. However, this mix should be tilted toward passive management. Staff bases this recommendation on its perception that the Board's active management information ratio is not particularly high. This view results from several considerations:

- First, even though as Section 2 discussed, the evidence regarding the superiority of passive or active management is inconclusive, it is still the case that the costs of active management (i.e., management fees and transactions costs, as well as Board resources spent in the manager selection and monitoring process) are material. The burden of proof in this debate thus should rest more heavily on active management.

- Second, the Board's practical experience in implementing active management has not been highly successful thus far. Until the Board is more confident in its ability to hire

FIGURE 2

CURRENT POLICY - PASSIVE/ACTIVE MIX



superior active managers, active management should not be emphasized.

- Third, the size of the Basic Funds' common stock and bond segments produces practical constraints on the amount of funds that can be actively managed successfully.

- Fourth, active management, as applied in the Board's multiple manager approach, does add modestly to the variability of returns within the common stock and bond segments of the Basic Funds. Until the Board is more confident that this increased variability is compensated through higher returns from active management, passive management should dominate the passive/active mix.

Staff also recommends that the aggressiveness of the common stock and bond active management components be monitored as the passive/active mix changes or managers are replaced. If necessary, the Board can control the level of active risk by adjusting the mix of investment styles in its common stock and bond segments.

Finally, staff recommends that the Board adopt the flexible approach to setting the policy passive/active mix. The active management allocation should remain passively managed until the Board chooses to allocate funds to specific active managers. It is conceivable that at times very little of the common stock and bond asset classes will be actively managed. Conversely, it is also possible that the maximum active allocation might be filled.

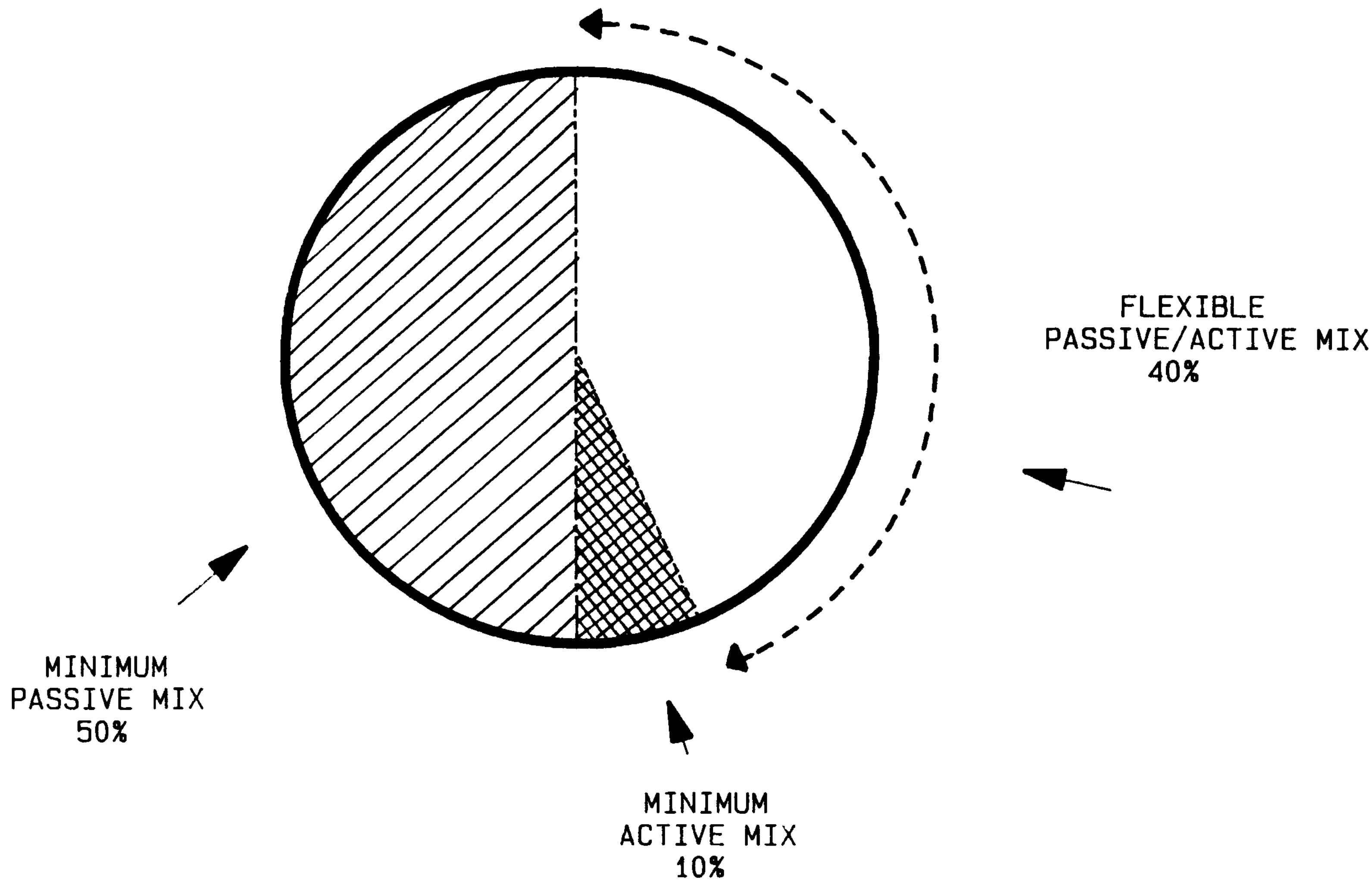
This approach is designed to make the most efficacious use of active management. It will avoid the situation in which funds are forced into active management simply to meet a relatively arbitrary target. Instead, it will create a discipline of employing active management only in situations in which the Board is satisfied that proper risk-return expectations are in place and that the potential to add consistent value to passive management exists.

With respect to upper and lower limits on the flexible policy passive/active mix, staff recommends that the active management allocation be permitted to fluctuate in a 10-50% range, dependent on the availability of managers in whom the Board has confidence. Passive management, serving as the residual allocation, therefore would move in a 90-50% band. Figure 3 illustrates staff's proposed approach to the policy passive/active mix.

FIGURE 3

PROPOSED POLICY - PASSIVE/ACTIVE MIX

COMMON STOCKS AND BONDS



SECTION 4: AGGREGATE INVESTMENT STYLE

DEFINITION OF INVESTMENT STYLE

It has become popular in recent years to speak of money manager investment "styles". For example, in the common stock asset class "Value" and "Growth" styles are now familiar terms. A manager's investment style is a set of fundamental investment principles and decision rules that the manager utilizes, on a consistent basis, to construct a portfolio. For example, an equity manager might concentrate his selections in those stocks which exhibit low price-to-earnings and low price-to-book value ratios. Similarly, a bond manager might invest primarily in mortgage-backed securities.

A manager pursuing a particular active investment style usually produces a pattern of portfolio returns that differs in a systematic fashion from the returns generated by the manager's asset class target. In other words, the manager's investment style consistently exposes his portfolio to different levels of investment risk than are incurred by the asset class target.

One means of representing a manager's investment style is through a <u>normal portfolio</u>. A normal portfolio is a collection of securities, appropriately weighted, from which the manager generally makes his investment selections. It exhibits the same prominent risk characteristics that the manager's portfolio assumes over time.

For a pension plan employing multiple managers within an asset class (discussed at length in Section 5), it is the aggregate investment style of the managers within the asset class that should command the plan sponsor's attention. Clearly, the plan sponsor should be concerned with the investment styles of each of its individual investment managers. Such information is important in allocating funds to the managers and in evaluating their performances. But the plan sponsor should recognize that each manager is but a single, small portion of a larger investment portfolio. It is the risk characteristics of the managers' combined portfolios that impacts performance within an asset class. These aggregate risk characteristics can best be evaluated by combining the individual managers' normal portfolios into an aggregate normal portfolio.

ACTIVE AGGREGATE INVESTMENT STYLE

The plan sponsor is responsible for implementing an approach to selecting money managers consistent with the plan's investment objectives. Within each asset class then, passive and/or active managers should be combined so that the combination of their investment styles, or aggregate normal portfolio, possesses risk characteristics similar to those of the asset class target. By definition, the passively managed portion of a plan's asset class investments (i.e., the index fund) reflects the asset class target's risk composition. Therefore, if the combination of passive and active portions of a plan's asset class investments are to exhibit risk characteristics similar to those of the asset class target, the active portion (in aggregate) must necessarily also exhibit those same risk characteristics.

Thus, in selecting active managers within an asset class, the plan sponsor has essentially three options with respect to the design of the active manager aggregate normal portfolio:

- Periodically adjust the bias of the active manager aggregate normal portfolio toward specific styles that are expected to be favored by the market. On average, however, maintain a neutral position relative to the asset class target.
- Ensure that the active manager aggregate normal portfolio's style exposure is always neutral by combining a diversified collection of management styles.
- Ensure that the active manager aggregate normal portfolio's style exposure is always neutral by constructing an additional portfolio designed to offset any style bias present in the active managers combined styles.

The first alternative is akin to market timing. Unquestionably, investment styles have a cyclical element to their performance over time. For example, managers emphasizing small capitalization, growth oriented stocks did very well in the late 1970's and early 1980's. More recently, however, their performance has been generally poor. If a plan sponsor could anticipate how various investment styles would perform in the near future, the style emphasis of the active manager aggregate portfolio could be adjusted appropriately. Over time, however, it would be expected that the aggregate active portfolio's average style bias would be neutral relative to the asset class target.

The second alternative calls for maintaining an active aggregate investment style that always has risk exposures similar to those of the asset class target. This is accomplished by retaining a diverse group of managers with different investment styles. Funds must be allocated among the managers so that their various risk exposures relative to the asset class target offset one another. The objective of this structure is to incur the same risk as the asset class target. However, if the managers can add value to their individual investment styles, the active manager aggregate portfolio should outperform the asset class target.

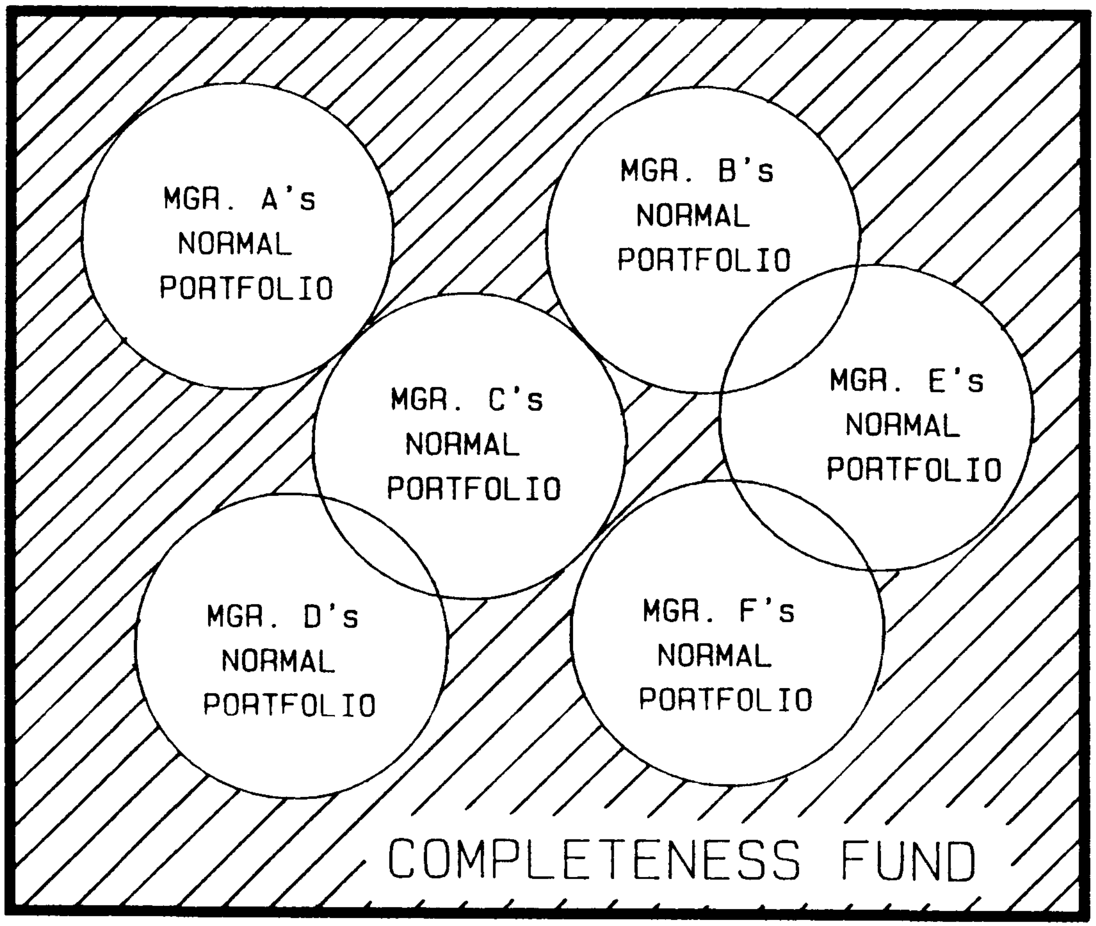
The third alternative is similar to the second. But instead of specifically hiring a diverse group of managers, no restrictions are placed on the types of managers hired within an asset class. As a result, the active manager aggregate normal portfolio may possess different risk exposures than those of the asset class target. These exposures are offset by an additional portfolio referred to as a <u>completeness fund</u>.

A completeness fund is a passively managed portfolio solely designed to counteract unintended risk biases in the active manager aggregate normal portfolio. [5] A completeness fund accomplishes this objective by maintaining an over or under-exposure, in the opposite direction, to risk biases in the active manager aggregate normal portfolio. For example, many managers do not research or invest in utility stocks. This fact does not necessarily mean that utility stocks are poor relative performers. It is simply the case that the managers' investment styles consistently ignore these stocks. If such managers comprised a pension plan's active manager aggregate portfolio, the completeness fund would, in part, hold a diversified collection of utility stocks to fill the gap in the aggregate active manager style.

Figure 4 presents a simplified conceptual view of a completeness fund combined with multiple managers. The large rectangle represents the securities (and their associated risk characteristics) that comprise the asset class target. The

FIGURE 4

DEPLOYMENT OF COMPLETENESS FUND AND MULTIPLE MANAGERS



ASSET CLASS TARGET

managers in Figure 4 pursue management styles that, in aggregate, do not cover the entire asset class target. The completeness fund compensates for this partial coverage by holding securities (and risk characteristics) that are not part of the managers' aggregate style (i.e., aggregate normal portfolio).

Because managers' normal portfolios, or investment styles, do not change materially in the short-run, a pension plan's completeness fund will likewise remain largely unchanged in the near-term. Only as managers are added or subtracted from the active manager aggregate portfolio would the completeness fund's composition be significantly altered.

The result of combining the completeness fund with the active managers' normal portfolios is no risk exposure relative to the asset class target. As in the second alternative, if the active managers can add value to their investment styles, the active manager aggregate portfolio (including the completeness fund) should outperform the asset class target.

CURRENT BASIC FUNDS STRUCTURE

Both the common stock and bond segments of the Basic Funds currently employ a diversified group of active managers in an approach similar to that of the second alternative above. Minor unintended investment style biases relative to the asset class targets exist. A completeness fund is not used to offset these biases.

Additionally, the Board currently does not adjust the investment style biases of its active manager groups in anticipation of near-term favorable or unfavorable performance of certain styles.

RECOMMENDATIONS

Staff recommends that the Board adopt the third approach to constructing the active manager aggregate normal portfolio. That is, the Board should seek out the best available active managers and offset any unintended investment style biases with a completeness fund.

Staff recommends against the first approach due to the inherent difficulty of forecasting which investment styles will be in or out of favor. Many of the same arguments opposing and supporting market timing (see Part II, Section 4, of the investment policy paper) also apply to attempting to anticipate the success of various investment styles. Nevertheless, like the issue of market timing, the Board may wish to further explore the topic of investment style forecasting in the future.

Staff also recommends against the second approach. This approach may result in hiring managers for the wrong reasons. That is, managers may be hired primarily because they complement other managers in the Basic Funds active manager aggregate portfolio. It may also reduce flexibility in firing managers for the same reason.

Staff believes that the third approach to active manager aggregate normal portfolio construction is the most appropriate. It focuses on the ultimate reason for hiring active managers within an asset class. That is, to add value to the asset class target's return. The use of a completeness fund prevents unintended investment style biases in the active manager aggregate normal portfolio, while maintaining considerable flexibility to adjust the active manager group as deemed necessary.

SECTION 5: MULTIPLE MANAGERS

ECLECTIC AND SPECIALIZED MANAGERS

The implementation of a plan sponsor's desired active management aggregate investment style could be immensely simplified by selecting, within each asset class, a single manager. This manager would be charged with adding value to the asset class target's return by searching across the entire asset class for profitable investment opportunities. The manager's normal portfolio would be the asset class target itself. Such a manager will be referred to as an eclectic manager. Retaining a single eclectic manager within each asset class, by definition, will ensure that the plan's active management aggregate investment style is consistent with the asset class target.

Despite the obvious simplicity of this approach, few, if any, pension plans have chosen to retain a single common stock or bond eclectic manager. The primary reason is that plan sponsors do not feel comfortable entrusting all of their actively managed assets to one manager. They are concerned that the manager might make serious investment mistakes to which they would be fully exposed. By hiring more than one manager, plan sponsors can diversify the risk of an error in investment judgement. This action is called diversification of judgement. [6]

The rationale for hiring more than one active manager is simple enough. However, the design of an active manager aggregate portfolio could still remain fairly uncomplicated if several eclectic managers were retained within each asset class. This approach would offer adequate diversification of judgement.

Further, because each eclectic manager's normal portfolio would be the asset class target, the active manager aggregate normal portfolio would still possess no biases relative to this target.

Most pension plans have not followed the multiple eclectic manager approach. Instead, within each asset class, the actively managed assets have been allocated across an array of <u>specialized managers</u>. These specialized managers pursue investment styles that are characterized by risk exposures different (and in some cases significantly different) from those of the asset class target.

Pension plans implementing this multiple specialized manager approach typically categorize each asset class into various segments. This categorization scheme is usually very rudimentary and varies among pension plans. It may be based on market sectors (e.g., mortgage-backed securities), or financial characteristics (e.g., low price-to-earnings ratio), or nebulous style titles (e.g., value). Within some, or all, of these asset class segments the plan sponsor hires one or more managers whose investment styles are consistent with the assigned segments.

Plan sponsors hiring multiple specialized managers achieve not only diversification of judgement, but <u>diversification of style</u> as well. While the former is certainly beneficial to an actively managed pension plan, the case for the latter is less clear.

ARGUMENTS FOR MULTIPLE SPECIALIZED MANAGERS

The primary argument in favor of specialized managers is that they can more readily recognize investment opportunities in their particular segments of the market than can eclectic managers. The presumption is that specialized managers develop an expertise in those segments that will permit them to more readily identify profitable investment opportunities and, hence, achieve superior returns.

By combining specialized managers across a number of market segments, many plan sponsors believe that they can not only outperform the asset class target, but eclectic managers as well. The key assumption is that the pension plans' specialized managers, in aggregate, will perform well enough within their market segments to overcome the ability of eclectic managers to forecast which segments will (and will not) perform well and shift their investments appropriately.

The second argument for the multiple specialized manager approach is that it better controls the risk exposure of the active manager aggregate normal portfolio. True eclectic managers, who cover an entire asset class, are difficult to find. As a result certain segments of the market may not receive adequate coverage in a multiple eclectic manager portfolio. The use of specialized managers permits the plan sponsor to more effectively ensure that the active manager aggregate normal portfolio has risk exposures similar to those of the asset target.

Finally, the multiple specialized manager approach offers the advantage of considerably more hands-on control on the part of the plan sponsor. The plan sponsor is responsible for positioning the specialized managers within the asset classes. The plan sponsor thus can fine tune the process to its liking.

Conversely, by using eclectic managers the plan sponsor abdicates responsibility for market coverage to the eclectic managers. The managers move among market segments as they deem appropriate, with the plan sponsor exercising no control over their decisions.

It may well be that this last point is the most important to plan sponsors. In recent years, pension plan administrators have shown increased interest in taking control of certain aspects of the actual management of plan assets. The multiple specialized manager approach offers plan sponsors the chance to exercise direct control over a significant element of the investment management structure.

ARGUMENTS AGAINST MULTIPLE SPECIALIZED MANAGERS

There are a number of serious objections to the multiple specialized manager approach. The first argument relates to several diseconomies of scale associated with hiring multiple managers. For example, most managers have sliding fee scales that reduce fees per dollar of assets managed as the amount of assets rises. By hiring more managers to invest the same dollars of plan assets, the plan sponsor may lose some of the benefits of these sliding fee scales. Further, multiple managers at times will generate offsetting securities transactions. That is, one of the plan's managers may sell the same asset that another is simultaneously buying. The net effect for the plan is actually negative (rather than neutral) because of the trading costs involved. The more managers that are hired, the more offsetting transactions are likely to occur.

The second argument against the multiple specialized manager approach is that the plan sponsor may be forced to hire inferior active managers simply to cover a segment of the market. That is, within a particular market segment, plan sponsor may not be able to identify an active manager that can add value. If the plan sponsor is unwilling (as many are) to utilize a completeness fund for this segment, then the resulting performance could be disappointing.

The third argument relates to controlling the level of specialized manager aggressiveness. Because the plan sponsor is hiring a number of managers, each assigned to take advantage of opportunities within a particular segment of the market, the plan sponsor will want each manager to be very aggressive within their segment. However, it is difficult to provide adequate incentives to force specialized managers to be very aggressive. They frequently are heavily concerned with the business risk of underperforming their market segment if their aggressive bets are incorrect. The plan sponsor, on the other hand, is not concerned about this possibility, because the plan is well-diversified across managers. Any one manager cannot seriously hinder performance. Instead, the plan sponsor wants each specialized manager to concentrate in their top selections. Because specialized managers may be reluctant to be sufficiently aggressive, the multiple specialized manager approach may result in too much (and too expensive) diversification for the pension plan.

The fourth argument against the multiple specialized manager approach concerns administrative overhead costs. The number of managers required to implement the specialized approach is much greater than is needed under the eclectic approach. Unfortunately, from the plan sponsors perspective, there are few economies of scale in constructing a multiple active manager portfolio. Thus, the time and expense of selecting, monitoring, coordinating, and evaluating managers basically is linearly related to the number of managers that a pension plan retains. The last manager added to the multiple manager portfolio is roughly as administratively burdensome as the first.

CURRENT BASIS FUNDS STRUCTURE

Both the common stock and bond segments of the Basic Funds use a multiple specialized manager approach. However, the investment styles of the Board's common stock managers are more specifically defined than are those of the bond managers.

RECOMMENDATIONS

Despite the legitimate questions regarding the effectiveness of the multiple specialized manager approach, staff recommends that the Board maintain this approach over the alternatives of hiring either a single or multiple eclectic managers. Staff believes that the multiple specialized manager approach is the best available means of implementing active management in the Basic Funds' common stock and bond segments. Staff believes that the Board is better able to construct an aggregate manager portfolio that has desired investment characteristics by utilizing multiple specialized managers.

The difficulties of implementing a multiple specialized manager approach should not be lightly dismissed. In particular, no strong empirical evidence exists demonstrating the superiority of specialized managers over eclectic managers. Further, the administrative concerns and level of aggressiveness problems associated with specialized managers are troublesome. Nevertheless, staff believes that these problems are surmountable and that multiple specialized managers are preferred to eclectic managers.

SECTION 6: OPTIMAL NUMBER OF MANAGERS

MAXIMUM NUMBER OF MANAGERS

The final aspect of the Basic Funds' investment management structure to be considered is the desired number of active managers within the common stock and bond segments. With respect to a maximum number of managers, the decision is basically a function of two factors: the availability of successful managers and administrative considerations. Staff believes both factors point to retaining a relatively limited number of managers.

The availability of superior active managers is an important, but difficult to quantify, constraint on the investment management structure. Obviously not all money managers are superior investors. Institutional money managers control a large portion of the common stock and bond markets' active trading. As a result, their aggregate performance (relative to the markets) is a zero-sum game. Superior performance by some managers is attained at the expense of inferior performance by others.

Plan sponsors disagree on the seriousness of the superior manager availability issue. Plan sponsors who view the stock and bond markets as highly efficient will perceive superior managers to be a rare breed. Further, they are likely to question their own ability to select these superior managers from among the equally rare inferior managers and numerous mediocre managers. Conversely, plan sponsors who perceive the stock and bond markets to offer many exploitable inefficiencies will think that there exist many superior (and inferior) managers. They also are likely to be confident that their selection procedures can identify these managers. Figure 5 illustrates these contrasting views.

Plan sponsors who think the markets are highly efficient will set tight limits on the maximum number of active managers. Hiring numerous managers increases the chances of mediocre managers dominating their active management programs and thereby producing expensive passive management results. Conversely, plan sponsors who believe the markets are inefficient will not be concerned with limiting the number of managers (except for administrative considerations). Increasing the number of managers will not materially dilute returns, but will provide reduced risk through diversification.

From the administrative perspective of the plan sponsor, active managers are costly. The conscientious plan sponsor has a wide range of responsibilities in a multiple specialized manager program. These responsibilities include:

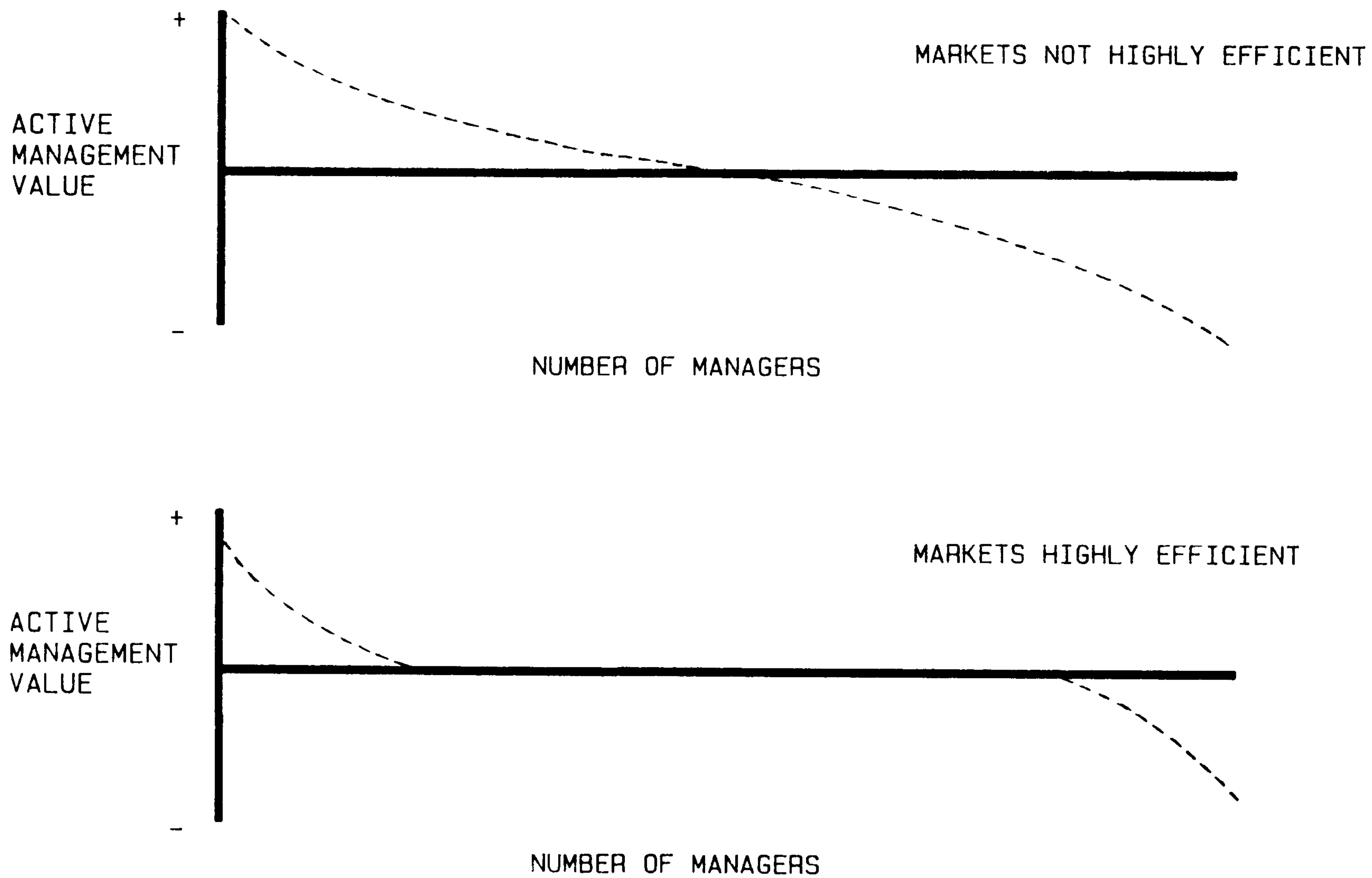
- Maintaining a knowledge of available managers
- Hiring new managers
- Maintaining normal portfolios
- Allocating funds among managers
- Meeting with managers
- Collecting risk-return data on managers
- Evaluating managers
- Reporting on manager performance to interested parties
- Replacing managers

In the case of virtually all of these functions, adding additional managers increases the administrative efforts required of the plan sponsor. As discussed in Section 5, there are few economies of scale (and several diseconomies) involved in adding active managers to a pension plan. Administratively, therefore, the maximum number of active managers that a plan sponsor can effectively control will depend upon the resources that the sponsor is willing to devote to the monitoring process.

FIGURE 5

AVAILABILITY OF SUPERIOR MANAGERS

CONTRASTING VIEWS



MINIMUM NUMBER OF MANAGERS

The minimum number of active managers that a plan sponsor should hire will depend largely of two factors: plan assets under active management and the maximum dollars that each manager hired by the plan can manage. While a precise specification is not possible, there do appear to be practical account size limits that managers can handle. Most managers (and plan sponsors) become uncomfortable when one client becomes too large a percentage of a manager's business. Further, some managers' investment styles are more amenable to large account sizes than are others. (For example, small capitalization technology managers can effectively invest considerably fewer total dollars than can large capitalization growth managers.) The investment management lore is full of anecdotes concerning managers who were initially successful with a small amount of dollars under management. As they grew, however, many of these managers found that they could not invest the larger amount of dollars with anywhere near their earlier superior results.

For any given dollar amount of actively managed assets, a plan sponsor who retains managers with less asset management capacity will be forced to hire more managers than a plan sponsor who hires larger asset management capacity managers.

CURRENT BASIC FUNDS STRUCTURE

The Basic Funds' common stock segment now employs twelve active managers (down from a high of fifteen when the program was initiated in early 1983). The bond segment employs six active managers.

RECOMMENDATIONS

Staff believes that the common stock and bond markets are very efficient. Therefore, staff believes truly superior managers are rare and difficult to identify. Staff recommends that the Board avoid indiscriminately hiring a large number of active managers. Staff believes that the results of such a policy would produce expensive and disappointing performance results.

Staff also believes that administrative considerations call for limiting the number of active managers. Given current staff resources, staff recommends fifteen to twenty common stock and bond managers represent the maximum number of active managers that the Board should hire and closely monitor.

FOOTNOTES

1. Most index funds differ slightly in composition from the asset class target, both in terms of security names and associated investment weights. These differences are the result of the statistical sampling techniques designed to economically replicate the asset class target's return. Because of the slightly different portfolio compositions, index fund's returns may vary from those of their asset class targets. This difference is referred to as tracking error. Tracking error is generally insignificant and largely unbiased. That is, it can be either positive or negative, with an expected value of zero. However, index funds do incur certain expenses, such as minor trading costs, custodial expenses, and management fees, that create a small negative bias to tracking error.
2. See Wall Street Journal, March 23, 1987, pp. 1, 12.
3. An interesting, but more complicated, additional argument for passive management relates to the fact that the returns produced by most active managers have a high correlation with those of the market. Even for very aggressive common stock managers, frequently 60-80% of their portfolio returns are "explained" by the market. Given this fact, it makes sense to utilize passive management even in situations where the plan sponsor believes active management can be effective. This is because passive management is so much less expensive than active management. If the plan sponsor can induce its

active managers to lower the correlation of their portfolios with the market (i.e., take more active bets), then an index fund can be combined with the now more aggressive active managers. This combination has the potential to produce the same superior returns as the 100% actively-managed portfolio, but at a lower cost.

4. It is theoretically possible to quantify the above discussion considerably. This analysis would require that specific assumptions be made concerning a plan sponsor's risk-return preferences, as well as expected returns and risks of active management. The recommendations of such an analysis would have a very precise appearance to them. However, the heroic nature of the underlying assumptions makes any conclusions drawn from such a quantitative approach suspect. Recommendations based on more qualitative and heuristic processes are probably no less reliable, and certainly more comprehensible to the typical plan sponsor.

5. Within an asset class, the required size of the completeness fund will depend not only on the unintended risk exposure of the active manager aggregate normal portfolio, but the relative size of the index fund as well. It is the combined risk exposure of the active manager aggregate normal portfolio and the index fund which is of concern to the plan sponsor. Thus, the larger is the index fund, which by definition has no risk exposure, the smaller is the relative importance of any active manager aggregate normal risk exposure.

6. It is possible to structure the risk guidelines for a single eclectic manager such that disastrous performance results would be highly unlikely. For example, various diversification constraints could be established. Plan sponsors appear to have rejected this means of achieving adequate diversification of judgement through a single manager.

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SECRETARY OF STATE JOAN ANDERSON GROWE
ATTORNEY GENERAL HUBERT H. HUMPHREY III

EXECUTIVE DIRECTOR
HOWARD J. BICKER

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 11, 1987

TO: Asset Allocation Committee

FROM: Jeff Bailey

SUBJECT: Rules for asset mix rebalancing

Attached is a proposed set of procedures for periodically rebalancing the Basic Retirement Funds' asset mix back to policy targets. If approved, these procedures would become an addendum to Part II of the investment policy statement for the Basic Funds. Your comments would be appreciated.

REBALANCING RULES

Over time, the Basic Funds will experience changes in its actual asset mix due to a number of factors. These factors include: contributions and withdrawals; interest and dividend income; asset liquidation proceeds; and, market value increases or decreases. There will be occasions when the effect of these factors is sufficient to cause the actual asset mix to deviate materially from the policy asset mix. A set of procedures should be established that governs the response to such deviations.

If no response were made to deviations from policy, the outcome could be performance results significantly different from expectations. If the policy asset mix is truly the desired long-run allocation among asset classes, it makes little sense to permit sizable deviations from this target. Therefore, staff recommends periodically rebalancing back to the policy asset mix.

Ideally, a rebalancing back to the policy asset mix should take place when the costs of foregoing the rebalancing are outweighed by the benefits. The rebalancing costs are transactions-related. The rebalancing benefits are reduced errors in tracking the performance of the policy asset mix. Unfortunately, with the possible exception of common stocks, the ability to estimate transactions costs is virtually non-existent. Therefore, staff recommends a more heuristic approach to the problem.

Specifically, staff recommends the following rebalancing procedures:

- The Basic Funds' actual asset mix (at market) will be reviewed quarterly.

- A rebalancing will be required if an asset class deviates by more than 10% from its policy allocation. For deviations in the 5-10% range, staff will have discretion whether to rebalance.

- If a liquid asset class (i.e., stocks, bonds, and cash equivalents) requires rebalancing, funds will be transferred between that asset class and those other liquid asset classes which deviate from their policy allocations in an opposite direction.

- If an illiquid asset class (i.e., real estate, venture capital, and resource funds) requires rebalancing, allocation adjustments will depend on the direction of the difference between the actual and policy allocation:

    - In the case of overweightings, new cash flow will be withheld from the overweighted illiquid asset classes until the deviations are corrected.

- In the case of underweightings, funds will be invested in the underweighted illiquid asset classes as opportunities arise. In the meantime, any unfunded allocation to venture capital will be invested in common stocks, while unfunded allocations to real estate and resource funds will be invested in cash. These asset class substitutes satisfy similar investment objectives (i.e., maximizing total return in the case of venture capital and common stocks, and inflation protection in the case of real estate, resource funds and cash equivalents).

Illiquid assets classes are treated differently than liquid assets classes in the rebalancing procedures because of the difficulty of raising cash from, and investing cash in, these asset classes. For illiquid asset classes, the transactions costs of an immediate rebalancing almost certainly outweigh the benefits. Because of the different treatment of the illiquid and liquid asset classes, it often may be impossible to move precisely back to the policy asset mix during a rebalancing. Nevertheless, the residual deviations are expected to be insignificant.

Tab D

MEMBERS OF THE BOARD:
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SECRETARY OF STATE JOAN ANDERSON GROWE
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EXECUTIVE DIRECTOR
HOWARD J. BICKER

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 14, 1987

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Equity Manager Committee

SUBJECT: Committee Report

The Equity Manager Committee met to consider the following issues:

1) Investment Management Structure

The Committee has met twice over the last quarter to discuss the subject of an appropriate investment management structure for the Basic Retirement Funds. The Committee recommends that the Board adopt the staff's proposals as they apply to the equity managers. Those proposals are contained in Part III of the Basic Retirement Funds investment policy paper. A summary of the staff's proposals follows this report. Should the Board approve the staff proposals, the Committee will work with the Board and staff to implement the proposed investment management structure over the next several quarters.

2) Performance Fee Contract Modifications

The Committee discussed a staff proposal to slightly modify the equity managers performance fee contracts. Specifically, the contracts would be changed to take into account the managers' sliding fee scales on larger amounts of assets under management. This change would effectively lower fees paid by the Board at any given level of performance. The Committee recommends that the Board approve this proposed modification.

AN EQUAL OPPORTUNITY EMPLOYER

3) Manager Performance

The Committee reviewed the performance of the Board's external equity managers. The managers, in aggregate, performed in line with the market for the most recent quarter, although individual performances were widely dispersed. The Committee recommends that the current manager composition be maintained for the time being. However, should the Board adopt the staff's investment management structure recommendations, the Committee is prepared to conduct a comprehensive review of the Board's manager group and recommend any necessary changes.

4) Manager Contracts

The equity managers' contracts expire on June 30, 1987. The Committee recommends that all equity manager contracts be renewed for the next fiscal year. Should the Board choose to end a manager relationship during that period, the 30-day escape clause contained in all the contracts offers sufficient flexibility.

BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE

SUMMARY OF CURRENT STATUS AND RECOMMENDATIONS

ISSUE	CURRENT	RECOMMENDED
Passive vs. active management	Both passive and active stock management. Only active bond management.	Both passive and active stock and bond management
Policy passive/active mix	Fixed passive/active allocations in both stock and bond segments. 67%/33% in stock segment, 0%/100% mix in bond segment.	Flexible passive/active allocations in both stock and bond segments depending on identification of superior managers. In both segments, active allocations in 10%-50% range. Passive allocations as residual in 90%-50% range.
Aggregate active management investment style	Diversified group of active managers in both stock and bond segments. Minor style biases. No completeness fund.	Active managers selected solely on basis of superior performance potential in both stock and bond segments. Completeness fund to offset any style biases.
Specialized vs. eclectic managers	Multiple specialized managers operating in various segments of the stock and bond markets.	No change, with exception of better delineation of bond manager investment styles.
Number of managers	12 active stock managers, 1 passive stock manager, 6 active bond managers. No limits on number of managers.	Maximum number of active managers in 15-20 range, allocated among stock and bond segments as appropriate.

MEMBERS OF THE BOARD:
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ATTORNEY GENERAL HUBERT H. HUMPHREY III

EXECUTIVE DIRECTOR
HOWARD J. BICKER

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 11, 1987

TO: Members, IAC Equity Manager Committee

FROM: Jeff Bailey

SUBJECT: Recommended Changes to the SBI's Performance-Based Fee Structure

The current performance-based fee used by the SBI entails the following noteworthy features:

- o 50 basis point base fee rate
- o Symmetrical fulcrum performance fee which shares excess (or deficit) performance with the manager on a 1:15 split
- o Stated as a formula, the current performance-based fee is calculated in basis points as:

TF = 50 + (RM-RN-200)/15

Where:

TF = total fee rate
RM = return on manager's actual portfolio, before base fee
RN = return on manager's benchmark portfolio

Driven by the strong performance of the stock market, the portfolios invested by the SBI's active equity managers in most cases exceed the $100 million in assets-under-management mark. New cash flows to the Basic Retirement Funds, if directed to these managers, will also increase the size of their SBI accounts. Account sizes in the $150-200 million range in the near future are conceivable.

Given the currently large, and potentially larger, account sizes of the Board's active equity managers, staff believes that the flat 50 basis point base fee is too high and should be reduced. To that end, staff recommends adjusting the Board's performance-based fee schedule to take into account the managers' unique sliding fee scales. Specifically, staff recommends a performance-based fee calculated as follows:

$$TF = BF + [(RM' - RN - 150) \times (BF/50)]/15$$

Where:

BF = base fee rate derived from manager's sliding fee scale.

RM' = return on manager's actual portfolio, after base fee

There are several important aspects of this recommended structure:

- As assets under management increase, the base fee rate paid the manager will decrease in line with the manager's sliding fee scale.

- The 1:15 split of excess (or deficit) performance is adjusted for changes in the level of the base fee.

- The excess performance calculation will now reflect base fee payments. The manager's actual portfolio return will be calculated net of the base fee. The manager is expected to outperform the normal portfolio, net of the base fee, by 150 basis points.

- Regardless of the base fee, the manager will still reach the minimum and maximum total fee rates at the same 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).

- The minimum and maximum total fee rates would be zero and twice the base fee.

Staff believes that this proposed performance-based fee structure retains the simplicity and non-volatile nature of the existing structure, while permitting the Board to benefit from the reduced fees charged by managers as account sizes increase.

Tab E

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HOWARD J. BICKER

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 14, 1987

TO: Members, State Board of Investment
Members, Investment Advisory council

FROM: Fixed Income Manager Committee

SUBJECT: Committee Report

The Fixed Income Manager Committee met to consider the following issues:

1) Investment Management Structure

The Committee reviewed staff's recommendations regarding the Basic Retirement Funds' investment management structure. The Committee supports the staff's proposals as they concern the fixed income managers. If the Board approves the staff's recommendations, the Committee will work with the Board and staff over the next several quarters to implement a bond market index fund and make modifications in the active manager group as deemed necessary. The staff's investment management structure recommendations are contained in Part III of the Basic Retirement Funds investment policy paper. A summary of the staff's proposals follows this report.

2) Manager Performance

The Committee reviewed the performance of the Board's external fixed income managers. In aggregate, the managers have outperformed the market both recently and over the last two years. Individual performance has been mixed, however. The Committee recommends that no immediate changes be made in the fixed income manager group. A more detailed manager review will be conducted should the Board choose to restructure the current mix of fixed income managers. A summary of the staff's recent meetings with the Board's bond managers accompanies this report.

3) Manager Contracts

The fixed income managers' contracts expire on June 30, 1987. The Committee recommends that all the manager contracts be renewed for the next fiscal year. The 30-day escape clause in all the contracts gives the Board the ability to quickly terminate a manager relationship at any time should that be deemed necessary.

BASIC RETIREMENT FUNDS
INVESTMENT MANAGEMENT STRUCTURE
SUMMARY OF CURRENT STATUS AND RECOMMENDATIONS

ISSUE	CURRENT	RECOMMENDED
Passive vs. active management	Both passive and active stock management. Only active bond management.	Both passive and active stock and bond management
Policy passive/active mix	Fixed passive/active allocations in both stock and bond segments. 67%/33% in stock segment, 0%/100% mix in bond segment.	Flexible passive/active allocations in both stock and bond segments depending on identification of superior managers. In both segments, active allocations in 10%-50% range. Passive allocations as residual in 90%-50% range.
Aggregate active management investment style	Diversified group of active managers in both stock and bond segments. Minor style biases. No completeness fund.	Active managers selected solely on basis of superior performance potential in both stock and bond segments. Completeness fund to offset any style biases.
Specialized vs. eclectic managers	Multiple specialized managers operating in various segments of the stock and bond markets.	No change, with exception of better delineation of bond manager investment styles.
Number of managers	12 active stock managers, 1 passive stock manager, 6 active bond managers. No limits on number of managers.	Maximum number of active managers in 15-20 range, allocated among stock and bond segments as appropriate.

BOND MANAGER UPDATE INTERVIEWS
SUMMARY NOTES

I. STAFF COMMENTS AND RECOMMENDATIONS

With the end of the interest rate decline in late 1986 and the subsequent rise in early 1987, the relatively conservative strategies of the Board's fixed income managers have begun to pay off. The managers' aggregate performance has exceeded that of the market for the last several quarters, as well as cumulatively over the last two years.

Staff recommends that no immediate action be taken with respect to the Board's fixed income managers. Under Tab C of this Quarterly Report, staff presents comprehensive recommendations concerning the investment management structure of the Basic Retirement Funds. Staff believes that any adjustments to the Board's fixed income manager group should be incorporated into these investment manager structure recommendations. A target of beginning such adjustments before calendar year-end appears feasible.

II. RECENT MEETING DATES

MANAGER	DATE OF MEETING
Investment Advisers	May 28
Lehman Management	May 18
Miller Anderson, Sherrerd	May 18
Morgan Stanley	May 19
Peregrine Capital	May 28
Western Asset	May 26

III. ORGANIZATION

Only one significant organizational change occurred since the last semi-annual meetings. Shearson Lehman Inc., which owns Lehman Management, was spun off by American Express. Staff does not believe that this change will have any material impact on Lehman's operations.

IV. ASSETS UNDER MANAGEMENT

	JUNE 30, 1984		SEPTEMBER 1986		MARCH 1987	
	NUMBER	MARKET VALUE (MILL.)	NUMBER	MARKET VALUE (MILL.)	NUMBER	MARKET VALUE (MILL.)
Investment Advisers	48	$ 275	66	$ 924	68	$1,058
Lehman Management	36	3,000	40	5,000	38	4,500
Miller Anderson	37	2,184	57	5,211	65	6,746
Morgan Stanley	29	1,040	65	4,158	74	4,893
Peregrine Capital	5	170	5	306	5	259
Western Asset	30	1,599	30	2,800	30	2,801

Account growth at the Board's fixed income managers has been quite limited over the last year. Assets under management have increased primarily due to strong investment results.

V. STAFF

Miller Anderson is planning to add two persons who will function initially as investment analysts. Ken Dunn is joining their staff and bringing an expertise in evaluating the option values of fixed income securities. The firm also plans to hire a fixed income analyst specializing in credit analysis later in the year. No significant personnel changes have taken place at the Board's other fixed income managers.

VI. INVESTMENT APPROACH

Staff continues to review the investment style of each manager. A through understanding of each manager's investment approach will be important when incorporating the recommended investment management structure changes into the fixed income manager program. As part of this review, staff continues to work with the managers to develop benchmark (or normal) portfolios.

Tab F

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STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 13, 1987

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Alternative Investment Committee

SUBJECT: Alternative Investment Strategy

ALTERNATIVE INVESTMENT STRATEGY

As a strategy to increase overall portfolio diversification and provide a hedge against inflation, the Investment Advisory Council's Asset Allocation Committee has recommended that 15% or $750 million of the $5.0 billion Basic Retirement Fund be allocated to alternative investments. Alternative investments include real estate, venture capital and resource investments where Minnesota State Board of Investment (SBI) participation is limited to commingled funds or other pooled vehicles.

The venture capital investment strategy is to establish and maintain broadly diversified venture capital portfolio comprised of investments that provide diversification by industry type, stage of corporate development and location.

To date, the SBI has committed to ten commingled venture capital funds for a total commitment of $144.1 million. These commitments substantially complete the SBI's current venture capital asset allocation.

The real estate investment strategy involves three steps. The first step calls for investment of 30-40% of the real estate portfolio in diversified open-end commingled funds. The second step calls for investment of 30-40% of the real estate portfolio in diversified closed-end commingled funds. The third step calls for investment of 20-30% of the real estate portfolio in less diversified, more focused (specialty) commingled funds.

Currently, the SBI has committed $370.0 million to eleven commingled real estate funds. The Alternative Investment

Committee is considering other investments for the SBI's real estate allocation.

The strategy for resource investment requires that investments be made in resource investment vehicles that are specifically designed for institutional investors to provide an inflation hedge and additional diversification. Individual resource investments will include proved producing oil and gas properties, royalties and other investments that are diversified geographically and by type.

Currently, the SBI has committed $97.5 million to five commingled oil and gas funds. The Alternative Investment Committee is considering other ways of completing the SBI's remaining resource allocation.

ALTERNATIVE INVESTMENT COMMITTEE - CURRENT ACTIVITIES

During the latest quarter, the Alternative Investment Committee conducted annual review sessions with four of the SBI's real estate managers (RREEF, Heitman, TCW and AEW/State Street) and one of the SBI's venture capital managers (KKR). The Committee did not identify any significant problems with any of the managers.

In general, the SBI's investments with the managers are relatively new and are being valued near cost. Many of the managers are still making acquisitions for the commingled funds in which the SBI has an investment. An investment status and performance report for each manager is included in the attached annual review summaries.

Also during the quarter, the Committee met to establish objectives for, and implement, a review of potential alternative investment consultants. The long term policy issues and portfolio review items being considered in the consultant review include:

- o Long-term investment objectives
- o Policy weights for alternative investments
- o Compositional breakdowns of the markets for alternative investments
- o Asset class targets
- o Investment timing strategies
- o Liquidity strategies
- o Performance benchmarks

Recommendations regarding alternative investment consultants will be made to the SBI when appropriate.

FUTURE CONSIDERATIONS

Going forward, the Alternative Investment Committee agenda includes:

- Review alternative investment consultants.

- Review long-term investment policy

- Evaluate other commingled funds for possible investment.

- Examine ways of improving performance monitoring of existing alternative investment managers.

Recommendations regarding these issues will be made to the Board when appropriate.

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
APRIL 16, 1987

FUND NAME:	TCW Realty Fund III-IV	
FIRM NAME:	TCW Realty Advisors	
CONTACT:	Vince Martin, Bruce Ludwig	
ACCOUNT INCEPTION:	TCW III	August, 1985
	TCW IV	November, 1986
SBI TOTAL COMMITMENT:	TCW III	$40,000,000
	TCW IV	$30,000,000
SBI FUNDED:	TCW III	$40,000,000
	TCW IV	$9,000,000
SBI CURRENT INVESTMENT: (MARKET VALUE)	TCW III	$39,891,176
	TCW IV	$8,974,829
SBI DISTRIBUTIONS RECEIVED:	TCW III	$2,741,815
	TCW IV	$25,172

INVESTMENT DESCRIPTION: Management of the TCW funds is a joint venture between Trust Company of the West and Westmark Real Estate Investment Services of Los Angeles. The fund managers utilize specialty investment vehicles such as convertible and participating mortgages to enhance real estate returns. Investments are diversified by location and type. Management of portfolio properties typically is conducted by local property management firms.

TCW III PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
12	$221,074,000

LOCATION:	
East	44.9%
Midwest	0.0
South	21.0
West	34.1
	100.0%

PROPERTY TYPE:	
Retail	14.9%
Office	0.0
Industrial	79.8
Industrial R&D	5.3
	100.0%

FINANCING STRUCTURE:

Unleveraged Equity	33.5%
Leveraged Equity	56.8
Equity-Oriented Debt	9.7
	100.0%

TCW IV PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
2	$15,260,000

LOCATION:		PROPERTY TYPE:	
East	0.0%	Retail	0.0%
Midwest	0.0	Office	0.0
South	0.0	Industrial	100.0
West	100.0	Industrial R&D	0.0
	100.0%		100.0%

FINANCING STRUCTURE:

Unleveraged Equity	31.7%
Leveraged Equity	68.3
Equity-Oriented Debt	0.0
	100.0%

TCW III FUND PERFORMANCE:

	4Q 86	YEAR ENDING 12/31/86
Income	1.7%	8.0%
Appreciation	---	1.1
TOTAL	1.7%	9.2%

TCW IV FUND PERFORMANCE

Fund IV closed on December 31, 1986, and therefore, does not have any performance figures as yet.

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
APRIL 16, 1987

FUND NAME:	Heitman Real Estate Funds I-II-III	
FIRM NAME:	Heitman Advisory Corporation	
CONTACT:	David Glickman	
ACCOUNT INCEPTION:	Heitman I	August, 1984
	Heitman II	November, 1985
	Heitman III	January, 1987
SBI TOTAL COMMITMENT:	Heitman I	$20,000,000
	Heitman II	$30,000,000
	Heitman III	$20,000,000
SBI FUNDED:	Heitman I	$20,000,000
	Heitman II	$30,000,000
	Heitman III	$10,000,000
SBI CURRENT (MARKET VALUE)	Heitman I	$19,808,892
	Heitman II	$31,895,636
	Heitman III	$10,000,000
SBI DISTRIBUTIONS RECEIVED:	Heitman I	$3,118,495
	Heitman II	$1,879,325
	Heitman III	$0

INVESTMENT DESCRIPTION: The Heitman Funds I,II, and III are managed by the Chicago-based Heitman Advisory Corporation. The majority of the funds' investments are equity real estate. The real estate portfolio is diversified by the type and location of the properties. Centre Properties, Ltd., an affiliate of Heitman, manages the funds' wholly-owned properties. Properties that are partially owned by the trust may be managed by joint venture partners.

HEITMAN I PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
9	$200,639,785

LOCATION:		PROPERTY TYPE:	
East	0.0%	Office	32.3%
Midwest	61.6	Retail	22.0
South	35.3	Industrial	28.3
West	3.1	Mixed Use	17.4
	100.0%		100.0%

FINANCING STRUCTURE:

Equity	33.5%
Leveraged Equity	38.7
Joint Venture	27.8
Other	0.0
	100.0%

HEITMAN II PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
10	$209,617,757

LOCATION:		PROPERTY TYPE:	
East	40.9%	Office	56.6%
Midwest	23.1	Retail	27.3
South	2.1	Industrial	9.0
West	33.9	Mixed Use	7.1
	100.0%		100.0%

FINANCING STRUCTURE:

Equity	9.0%
Leveraged Equity	63.5
Joint Venture	27.5
Other	0.0
	100.0%

HEITMAN III PORTFOLIO COMPOSITION:

The final closing for the Heitman III Fund is still pending. There are several properties under consideration but no purchases have been made.

HEITMAN FUND PERFORMANCE:

HEITMAN I	4Q 86	YEAR ENDING 12/31/86
Income	1.7%	7.3%
Appreciation	2.1	3.3
TOTAL	3.8%	10.6%

HEITMAN II	4Q 86	YEAR ENDING 12/31/86
Income	0.9%	6.0%
Appreciation	3.8	8.1
TOTAL	4.7%	14.1%

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
APRIL 16, 1987

FUND NAME: RREEF USA FUND III
FIRM NAME: RREEF
CONTACT: Don King

ACCOUNT INCEPTION: May, 1984

SBI TOTAL COMMITMENT: $75,000,000

SBI FUNDED: $67,300,000

SBI CURRENT INVESTMENT: $68,665,888
(MARKET VALUE)

SBI DISTRIBUTIONS RECEIVED: $4,049,449

INVESTMENT DESCRIPTION: RREEF USA III is 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.

RREEF USA III PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
12	$609,407,000

LOCATION:

East	23.5%
Midwest	14.1
South	20.0
West	42.4
	100.0%

PROPERTY TYPE:

Retail	55.0%
Office	35.0
Industrial	10.0
	100.0%

FINANCING STRUCTURE:

Unleveraged Equity 100.0%

RREEF USA III FUND PERFORMANCE:

	4Q 1986	YEAR ENDING 12/31/86
Income	1.3%	6.6%
Appreciation	0.0	0.0
TOTAL	1.3%	6.6%

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
APRIL 16, 1987

FUND NAME:	AEW-State Street Real Estate Fund III-IV	
FIRM NAME:	Aldrich, Eastman & Waltch, Inc. State Street Bank and Trust	
CONTACT:	Darlene DeRemer, Peter Aldrich	
ACCOUNT INCEPTION:	AEW-State Street III	July, 1985
	AEW-State Street IV	July, 1986
SBI TOTAL COMMITMENT:	AEW-State Street III	$20,000,000
	AEW-State Street IV	$15,000,000
SBI FUNDED:	AEW-State Street III	$20,000,000
	AEW-State Street IV	$15,000,000
SBI CURRENT INVESTMENT:	AEW-State Street III	$21,549,831
(MARKET VALUE)	AEW-State Street IV	$15,325,633
SBI DISTRIBUTIONS	AEW-State Street III	$0
RECEIVED:	AEW-State Street IV	$829

INVESTMENT DESCRIPTION: The AEW-State Street Funds III and IV are managed by the State Street Bank and Trust Company of Boston. State Street Bank has retained Aldrich, Eastman and Waltch 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. Both funds have fifteen year terms. Fund III was organized in July, 1985. Fund IV was organized one year later.

AEW-STATE STREET III PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
8	$111,200,000

LOCATION:

East	8.0%
Midwest	7.0
South	25.0
West	60.0
	100.0%

PROPERTY TYPE:

Office	23.0%
Retail	47.0
Industrial	30.0
	100.0%

FINANCING STRUCTURE:

Equity	79.0%
Junior Debt	21.0
Senior Debt	0.0
	100.0%

AEW-STATE STREET IV PORTFOLIO COMPOSITION:

# OF PROPERTIES	MARKET VALUE PROPERTIES
3	$60,500,000

LOCATION:

East	0.0%
Midwest	52.0
South	30.0
West	18.0
	100.0%

PROPERTY TYPE:

Office	18.0%
Retail	29.0
Industrial	53.0
	100.0%

FINANCING STRUCTURE:

Equity	82.0%
Junior Debt	18.0
Senior Debt	0.0
	100.0%

AEW-STATE STREET III FUND PERFORMANCE:

	4Q 1986	YEAR ENDING 12/31/86
Income	0.54	5.7%
Appreciation	0.38	0.4
TOTAL	0.92%	6.1%

AEW-STATE STREET IV FUND PERFORMANCE:

	4Q 1986	YEAR ENDING* 12/31/86
Income	1.75%	---
Appreciation	---	---
TOTAL	1.75%	---

* Fourth quarter 1986 was the first full quarter of operations for Fund IV

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
APRIL 16, 1987

FUND NAME:	Kohlberg, Kravis, Roberts 1984 and 1986 Funds	
FIRM NAME:	Kohlberg, Kravis Roberts & Co.	
CONTACT:	George Roberts	
ACCOUNT INCEPTION:	KKR 1984 Fund	March, 1984
	KKR 1986 Fund	December, 1985
SBI TOTAL COMMITMENT:	KKR 1984	$25,000,000
	KKR 1986	$50,000,000
SBI FUNDED:	KKR 1984	$25,000,000
	KKR 1986	$19,639,890
SBI CURRENT INVESTMENT: (MARKET VALUE)	KKR 1984	$25,375,000
	KKR 1986	$20,389,810

INVESTMENT DESCRIPTION: The KKR 1984 and 1986 Funds are managed by Kohlberg, Kravis and Co., which operates offices in New York and San Francisco. The investment focus of both funds is on very large management leveraged buyouts. The majority of the funds' portfolio companies are mature, low technology companies with very diversified operations. Both funds have twelve year terms. The 1984 Fund was organized in March 1984 and the 1986 Fund closed in December, 1985.

KKR 1984 FUND PORTFOLIO COMPOSITION:

# OF PORTFOLIO COMPANIES	MARKET VALUE PORTFOLIO COMPANIES
8	$1,617,326,326

LOCATION:

Most of the 1984 Fund companies are conglomerates with geographically diversified operations

INDUSTRY:

Food/Food Distribution/ Consumer Durables	11.0%
Specialty retailing	8.3
Printing/Industrial	18.8
Budget Motels	12.5
Resource exploration/ Production	24.8
Broadcast & Cable TV	21.9
Real Estate/Construction	2.7
	100.0%

STAGE OF FINANCING:

Seed Stage	0.0%
Early Stage	0.0
Later Stage	0.0
Mezzanine	0.0
LBO	100.0
	100.0%

KKR 1986 FUND PORTFOLIO COMPOSITION:

# OF PROPERTIES COMPANIES	MARKET VALUE PORTFOLIO COMPANIES
3	$531,308,388

LOCATION:

Most of the 1986 Fund companies are conglomerates with geographically diversified operations

INDUSTRY:

Food/Consumer Durables	43.3%
Food Retailing	23.9
Glass Packaging	32.8
	100.0%

STAGE OF FINANCING:

Seed Stage	0.0%
Early Stage	0.0
Later Stage	0.0
Mezzanine	0.0
LBO	100.0
	100.0%

ALTERNATIVE EQUITY INVESTMENTS
MARCH 31, 1987

REAL ESTATE:	INCEPTION DATE	FUND SIZE (MILLIONS)	SBI COMMITMENT	SBI-FUNDED	SBI- TO BE FUNDED	FUND DESCRIPTION	NEXT FUND EST.
EQUITABLE	10/81	$2,849.7	$40,000,000.00	$40,000,000.00	$0.00	OPEN - DIV.	--
AETNA	4/82	$1,592.0	$40,000,000.00	$40,000,000.00	$0.00	OPEN - DIV.	--
PRUDENTIAL	9/81	$4,584.0	$40,000,000.00	$40,000,000.00	$0.00	OPEN - DIV.	--
RREEF- USA III	4/84	$773.0	$75,000,000.00	$67,000,000.00	$8,000,000.00	CLOSED - DIV.	2Q87
HEITMAN I	6/84	$113.0	$20,000,000.00	$20,000,000.00	$0.00	CLOSED - DIV.	1Q88
HEITMAN II	10/85	$238.0	$30,000,000.00	$30,000,000.00	$0.00	CLOSED - DIV.	1Q88
HEITMAN III	11/86	$200.0	$20,000,000.00	$10,000,000.00	$10,000,000.00	CLOSED - DIV.	1Q88
TCW I	7/85	$216.0	$40,000,000.00	$40,000,000.00	$0.00	CLOSED - SPEC.	1Q88
TCW II	9/86	$250.0	$30,000,000.00	$9,000,000.00	$21,000,000.00	CLOSED - SPEC.	1Q88
STATE STREET I	7/85	$103.0	$20,000,000.00	$20,000,000.00	$0.00	CLOSED - SPEC.	2Q88
STATE STREET II	7/86	$86.0	$15,000,000.00	$15,000,000.00	$0.00	CLOSED - SPEC.	2Q88
TOTAL R.E. PORTF	--	--	$370,000,000.00	$331,000,000.00	$39,000,000.00	--	--
VENTURE CAPITAL:							
NORWEST	1/84	$60.0	$10,000,000.00	$10,000,000.00	$0.00	EARLY STAGE	--
KKR I	3/84	$1,000.0	$25,000,000.00	$25,000,000.00	$0.00	LBO	--
KKR II	12/85	$2,000.0	$50,000,000.00	$19,639,889.64	$30,360,110.36	LBO	--
SUMMIT	12/84	$93.0	$10,000,000.00	$7,500,000.00	$2,500,000.00	LATER STAGE	--
FIRST CENTURY	12/84	$100.0	$10,000,000.00	$2,500,000.00	$7,500,000.00	EARLY STAGE	--
DSV	4/85	$60.0	$10,000,000.00	$10,000,000.00	$0.00	EARLY STAGE	--
MATRIX	7/85	$70.0	$10,000,000.00	$4,000,000.00	$6,000,000.00	EARLY STAGE	--
INMAN/BOWMAN	6/85	$44.0	$7,500,000.00	$1,875,000.00	$5,625,000.00	EARLY STAGE	--
ALLIED	7/85	$40.0	$5,000,000.00	$1,666,667.00	$3,333,333.00	LATER STAGE	--
SUPERIOR VENTURE	6/86	$35.0	$6,600,000.00	$1,661,250.00	$4,938,750.00	EARLY STAGE - MN.	--
TOTAL V.C. PORTF	--	--	$144,100,000.00	$83,842,806.64	$60,257,193.36	--	--
RESOURCES:							
AMGO I	7/81	$144.0	$15,000,000.00	$15,000,000.00	$0.00	DEBT WITH EQUITY	--
AMGO II	2/83	$36.0	$7,000,000.00	$7,000,000.00	$0.00	DEBT WITH EQUITY	--
APACHE I	5/84	$150.0	$22,500,000.00	$500,000.00	$22,000,000.00	DEBT WITH EQUITY	--
APACHE II	10/85	$180.0	$23,000,000.00	$22,400,000.00	$600,000.00	DEBT WITH EQUITY	--
APACHE III	12/86	$190.0	$30,000,000.00	$30,000,000.00	$0.00	NET PROFITS INT.	--
TOTAL RES. PORTF	--	--	$97,500,000.00	$74,900,000.00	$22,600,000.00	--	--
TOTAL ALT. INV.	--	--	$611,600,000.00	$489,742,806.64	$121,857,193.36	--	--

Tab G

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

Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 20, 1987

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Howard J. Bicker

SUBJECT: Legislative Update

The 1987 Legislature approved the following measures of interest to the SBI:

1) <u>SBI Legislative Proposal</u>

The Board's legislative package was introduced as separate legislation, H.F. 186 (Simoneau)/S.F. 314 (Pogemiller). During the last week of the session, the legislation was incorporated in the conference committee report on H.F. 1159, a bill that carried many other items related to public pensions (see below).

The conference committee report contained all of the Board's original proposals except the item related to international investments. In addition to the "housekeeping" changes requested by the Board, the Legislature approved two new investment authorities:

- o Increased the investment limits on total equities from 75% to 85% of a fund. Within the equity category, the authority for alternative investments was raised from 20% to 35% of a fund.

- o Added unrated and high yield debt obligations as an authorized investment under the SBI's alternative investment statute.

2) <u>Conference Committee Report on H.F. 1159</u>

Most pension related items of interest to the SBI were incorporated in the conference committee report on H.F. 1159. Those items included:

AN EQUAL OPPORTUNITY EMPLOYER

- Creation of a new plan within PERA for city and county correctional employees. The SBI will be responsible for the investment management of this plan.

- Creation of a defined contribution plan within PERA for volunteer ambulance drivers. The Supplemental Investment Fund will be the plan's investment vehicle.

- Limitation on use of public pension plan assets. The provision prohibits loans between public pension plans and also prohibits transfers or loans from a public pension plan to the state or a local government unit.

- Inclusion of SBI bill (see above).

3) <u>Actuarial Clarification Bill</u> (H.F. 1026/S.F. 1033)

This bill incorporates various changes recommended by the actuary of the Legislative Commission on Pensions and Retirement and includes the creation of a separate fund for correctional employees within MSRS. The SBI will be responsible for the investment management of this plan.

4) <u>Workers Compensation State Insurance Fund Bill</u> (H.F. 26/S.F. 56)

This bill establishes the state insurance fund as a domestic mutual insurance corporation. It also adds debt issues of domestic mutual insurance companies as authorized investments for the SBI.

Tab H

MEMBERS OF THE BOARD:
GOVERNOR RUDY PERPICH
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SECRETARY OF STATE JOAN ANDERSON GROWE
ATTORNEY GENERAL HUBERT H. HUMPHREY III

EXECUTIVE DIRECTOR
HOWARD J. BICKER

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

Room 105, MEA Building
55 Sherburne Avenue
Saint Paul 55155
(612) 296-3328

May 27, 1987

TO: Members of the State Board of Investment

FROM: South Africa Task Force

SUBJECT: Implementation of the SBI Resolution on Companies that Do Business in South Africa.

The South Africa Task Force met on May 21, 1987 to review implementation of the SBI's resolution. The members of the Task Force are:

Jay Kiedrowski, Chair Commissioner of Finance	Governor's Representative
Elton Erdahl Teachers Retirement Association	Retirement Fund Representative
Richard Helgeson Deputy State Auditor	State Auditor's Representative
Michael Lucas Senior Vice President Norwest Bank	Private Sector Representative
Jake Manahan Deputy State Treasurer	State Treasurer's Representative
Jack Tunheim Chief Deputy Attorney General	Attorney General's Representative
Rick Scott AFSCME	Public Employee Representative
Elaine Voss Deputy Secretary of State	Secretary of State's Representative

Phases I and II of the SBI's resolution required the Board to restrict its holdings to companies that signed the Sullivan Principles and agreed to independent monitoring of their implementation of the Sullivan Principles.

Phase III of the SBI's resolution on South Africa requires the Board to restrict its holdings to those companies that have achieved the highest category ranking on their implementation of the Sullivan Principles. The highest category ranking is "Category I - Making Good Progress."

According to the Investor Responsibility Research Center (IRRC), 204 companies have direct investments in South Africa as of April 1987. Of this number, 143 have been identified as publicly traded U.S. companies:

Sullivan Ranking	Publicly Traded U.S. Companies	% of Total
New Signator, Not Yet Rated	39	27.3%
I - Making Good Progress	19	13.3
IIA - Making Progress Based on Full Reporting	36	25.1
IIB - Making Progress Based on Short Form Reporting	6	4.2
IIIA - Passed Basic Requirements	13	9.1
IIIB - Did Not Pass Basic Requirements	0	0.0
Non-Signators	30	21.0
	143	100.0%

- o Companies that meet the Phase III requirement.

  Both Category I and New Signators can be considered to meet Phase III criteria until the next Sullivan ratings are available. Companies are not rated until they have been signators for a full reporting period. The next period will end June 1987 and new ratings will not be available until early 1988.

  As shown above, there are currently 58 publicly traded U.S. companies with direct investments in South Africa that meet the requirement.

- o Companies that do not meet the Phase III requirement.

  Non-signators and signators that received a Category IIA, IIB, IIIA or IIIB rating do not meet the Phase III criteria.

As shown above, there are currently 85 publicly traded U.S. companies with direct investments in South Africa that do not meet the requirements. In February 1987, the SBI's active common stock managers held stock in 25 of these restricted companies with a market value of $139 million. The index fund held stock in 60 of these companies with a market value of $194 million.

As specified in the resolution, the SBI must obtain financial and legal advice before implementing any phase of the resolution. In order to fulfill that requirement, Board's consultant, Richards & Tierney, was asked to analyze the financial impact of the Phase III requirement and the Attorney General's office was asked to provide the corresponding legal advice.

Recommendation Concerning Phase III

Based on the financial analysis and legal advice received, the Task Force recommends that the Board continue to implement its divestment program through attrition. It further recommends that the divestment program continue to be limited to the SBI's actively managed stock portfolios.

Under this policy, stock holdings that do not meet the Phase III requirement would not be liquidated immediately. However, the Board's active managers would be directed to discontinue purchases of the stock of any restricted company, unless the manager determines the failure to buy a particular stock would be a violation of its fiduciary responsibility. In these instances, a letter certifying the reason for the purchase would be sent to the Board's staff. As existing holdings are sold during the normal course of business, the stock held in the restricted companies will decline.

This recommendation is consistent with the provisions of section five of the Board's resolution and is similar to the actions taken to meet the requirements of Phases I and II of the resolution.

Implementation of the Recommendation

Based on the recommendation of the Task Force, SBI staff directed the Board's active stock managers to discontinue purchases of stock in companies that do not meet the Phase III requirement. This increases the managers' list of restricted companies from 30 corporations (non-signators only) to 85 companies (non-signators, plus categories IIA, IIB, IIIA, IIIA, IIIB). Managers will be updated on a monthly basis to coincide with the receipt of updated information from the IRRC.

The Task Force plans to reconvene prior to the Board's next quarterly meeting to review progress on implementation of the Phase III recommendation.