

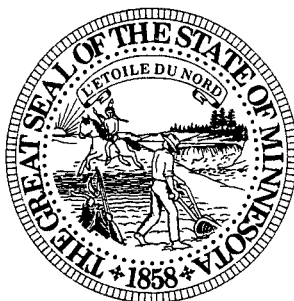
Joint Meeting

SBI / IAC

MEETING MATERIALS

October 1, 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

ATTENDEES

Joint Meeting of the State Board of Investment and the Investment Advisory Council

October 1, 1987

Board Members

**Governor Rudy Perpich
Auditor Arne Carlson
Treasurer Michael McGrath
Secretary of State Joan Anderson Growe**

Investment Advisory Council (IAC)

Harry Adams	Minneapolis Teachers Retirement Fund
Jim Eckmann	Dayton-Hudson Corporation
Elton Erdahl	Teachers Retirement Association
Paul Groschen	Minnesota State Retirement System
Ken Gudorf	The Carlson Companies, Inc.
Jim Hacking	Public Employees Retirement Association
Vern Jackels	Active Employee Representative
Nellie Johnson	Department of Finance
Judy Mares	General Mills, Inc.
Malcolm McDonald**	Space Center, Inc.
Gary Norstrem	City of St. Paul
Michael Rosen	Michael I. Rosen & Associates, Inc.
Joe Rukavina	Active Employee Representative
Ray Vecellio	Retiree Representative
Deborah Veverka	Honeywell, Inc.
Jan Yeomans*	3M Company

*** Chair**

**** Vice Chair**

Board Member Deputies

Richard Helgeson	Deputy Auditor
Jake Manahan	Deputy Treasurer
Mike Miles	Special Assistant Attorney General
Elaine Voss	Deputy Secretary of State

ATTENDEES (continued)

Board Staff

Howard Bicker	Executive Director
Jeff Bailey	Assistant Executive Director
Beth Lehman	Assistant to the Executive Director
Roger Henry	Equity & Fixed Income Manager
Doug Gorence	Manager, External Equity Program
Daralyn Peifer	Manager, External Fixed Income Program
John Griebenow	Manager, Alternative Investment Program
Harriet Balian	Secretarial Staff
Lin Nadeau	Secretarial Staff

Board Consultants

Tom Richards	Richards & Tierney, Inc.
Dave Tierney	Richards & Tierney, Inc.

Other Attendees

Gary Austin	Teachers Retirement Association
Bill Giese	Peregrine Capital Management, Inc.
Claudia Gudvangen	Office of the Legislative Auditor
Dan Haggerty	Norwest Venture Capital Management
Al Hans	Minnesota Housing Finance Agency
Jim Heidelberg	Legislative Commission on Pensions & Retirement
Arvin Herman	Minnesota State Retirement System
Larry Hill	Investment Advisers, Inc.
Gary Hovland	Public Employees Retirement Association
Ed Hunter	State Planning Agency
John Hustad	Minnesota House of Representatives
Jack Koltes	Alliance Capital Management
Mitzi Malevich	IDS Advisory Group, Inc.
Larry Martin	Legislative Commission on Pensions & Retirement
Bob Mersky	Peregrine Capital Management, Inc.
Mike Ousdigian	Minnesota Association of Retired Public Employees
Noel Rahn	IAI Venture Capital Group
Peter Sausen	Minnesota Department of Finance

Tab A

AGENDA

**JOINT MEETING OF
THE STATE BOARD OF INVESTMENT
AND
THE INVESTMENT ADVISORY COUNCIL**

**Thursday, October 1, 1987
8:30 A.M. - 2:00 P.M.**

**Spring Hill Center
Conference Room C
Wayzata, Minnesota 55391**

**8:30-8:45 Coffee and Rolls
 Introductions**

8:45-9:00 Opening Comments

**TAB
A**

Presenter: Howard Bicker, Executive Director

- o Objective for the day: Taking a look
 at the "big picture"**
- o 1982-1987: Years of growth and change
 for the SBI**

9:00-9:15 What is the SBI today?

B

**Presenter: Beth Lehman, Assistant to the
 Executive Director**

- o Scope and impact of the SBI**
- o Oversight responsibilities of the Board**
- o Decision-making structure**

**9:15-10:45 How does the SBI manage \$10 billion in pension
 fund assets?**

C

**A review of the investment objectives, asset
allocation, management structure, and performance
of the two largest funds managed by the Board.**

TAB
D

o **Basic Retirement Funds (9:15-10:15)**

Issue: Is it meeting its objectives?

Presentors: Jeff Bailey, Assistant Director
Tom Richards, Richards & Tierney

Discussion will include a comparison of the Basic Funds with other public and private pension funds.

o **Post Retirement Fund (10:15-10:45)**

E

Issue: How well does/will it serve the needs of retirees?

Presentors: Jeff Bailey, Assistant Director
Howard Bicker, Executive Director

Discussion will include a review of the post retirement benefit increase mechanism and the benefit increases it generates.

10:45-11:00 Break

11:00-11:40 When does the SBI earn a competitive return and benefit Minnesota, too?

F

Presentor: Howard Bicker, Executive Director

o Minnesota Certificate of Deposit (CD) Program

o Minnesota Housing Finance Agency Bond Issue

o Minnesota Mortgage Pool

o Minnesota Small Business Finance Agency Program

o Superior Ventures, a Minnesota Venture Capital Limited Partnership

11:40-12:00

How is the SBI viewed by its clientele?

TAB
(None)

Moderator: Howard Bicker, Executive Director

- o Investment Advisory Council
Jan Yeomans, IAC Chair
- o Statewide Retirement Systems
Jim Hacking, Executive Director, PERA
Elton Erdahl, Executive Director, TRA
Paul Groschen, Executive Director, MSRS
- o Retiree Groups
Mike Ousdigian, Minnesota Association of
Retired Public Employees

12:00-1:00

Lunch

1:00-2:00

What lies ahead for the SBI?

G

This portion of the agenda will also serve as the regular quarterly meeting of the State Board of Investment. Items requiring Board action are noted below each committee heading.

- o Staff goals for Fiscal Year 1988
Presenter: Howard Bicker

- o Reports from IAC Committees
on major developments

Administrative and Asset
Allocation Committees

Presenter: Jan Yeomans, 3M Company

Equity Manager Committee

Presenter: Debbie Veverka, Honeywell, Inc.

Fixed Income Manager Committee

Presenter: Gary Norstrom, City of St. Paul

Alternative Investment Committee

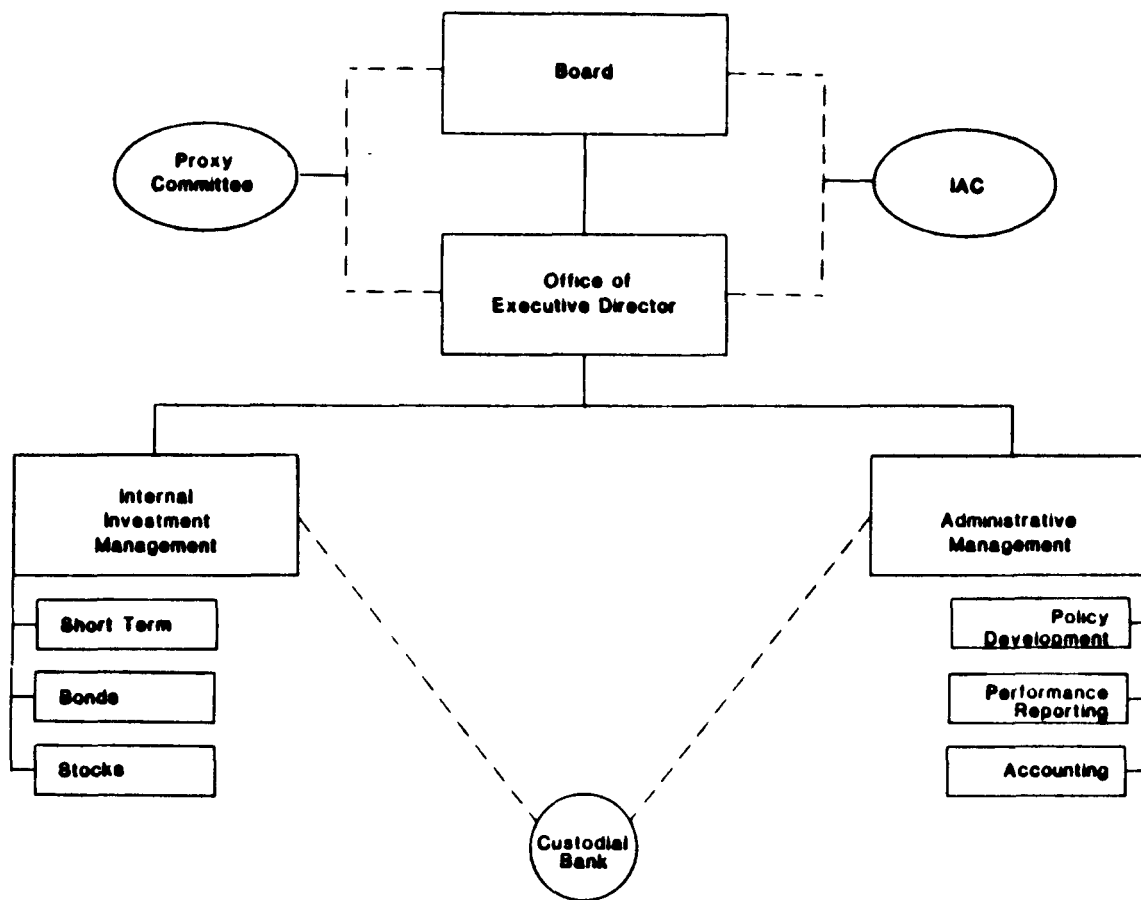
Presenter: Ken Gudorf,
The Carlson Companies, Inc.

Action Items:

1. Commitment to KKR Fund 1987
2. Commitment to AEW-State Street Fund
3. Commitment to Golder, Thoma & Cressey Fund

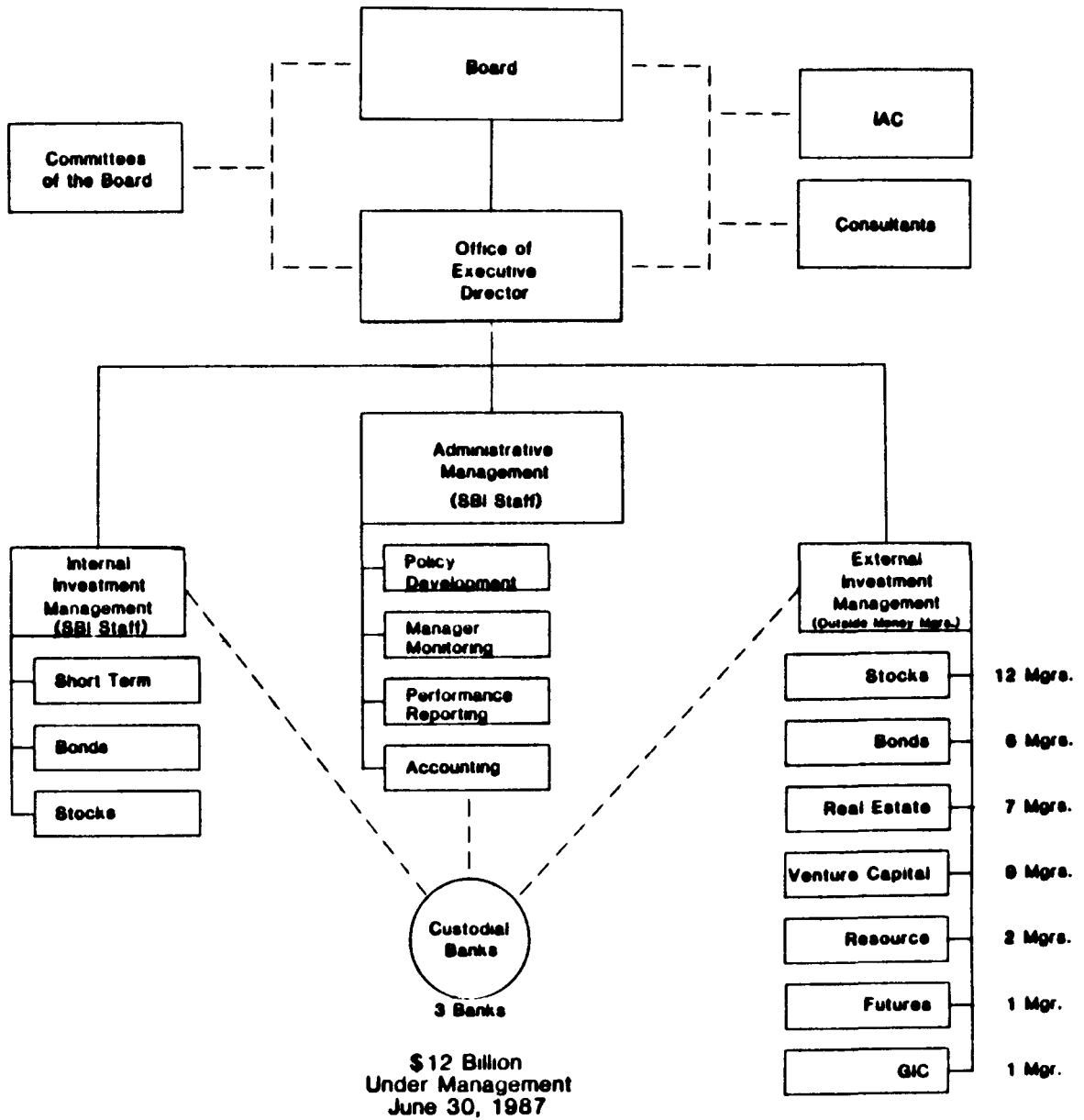
**FUNCTIONAL
ORGANIZATION STRUCTURE**

1981



**\$5 Billion
Under Management
June 30, 1981**

**FUNCTIONAL
ORGANIZATION STRUCTURE
1987**



Tab B

CONSTITUTIONAL AUTHORITY

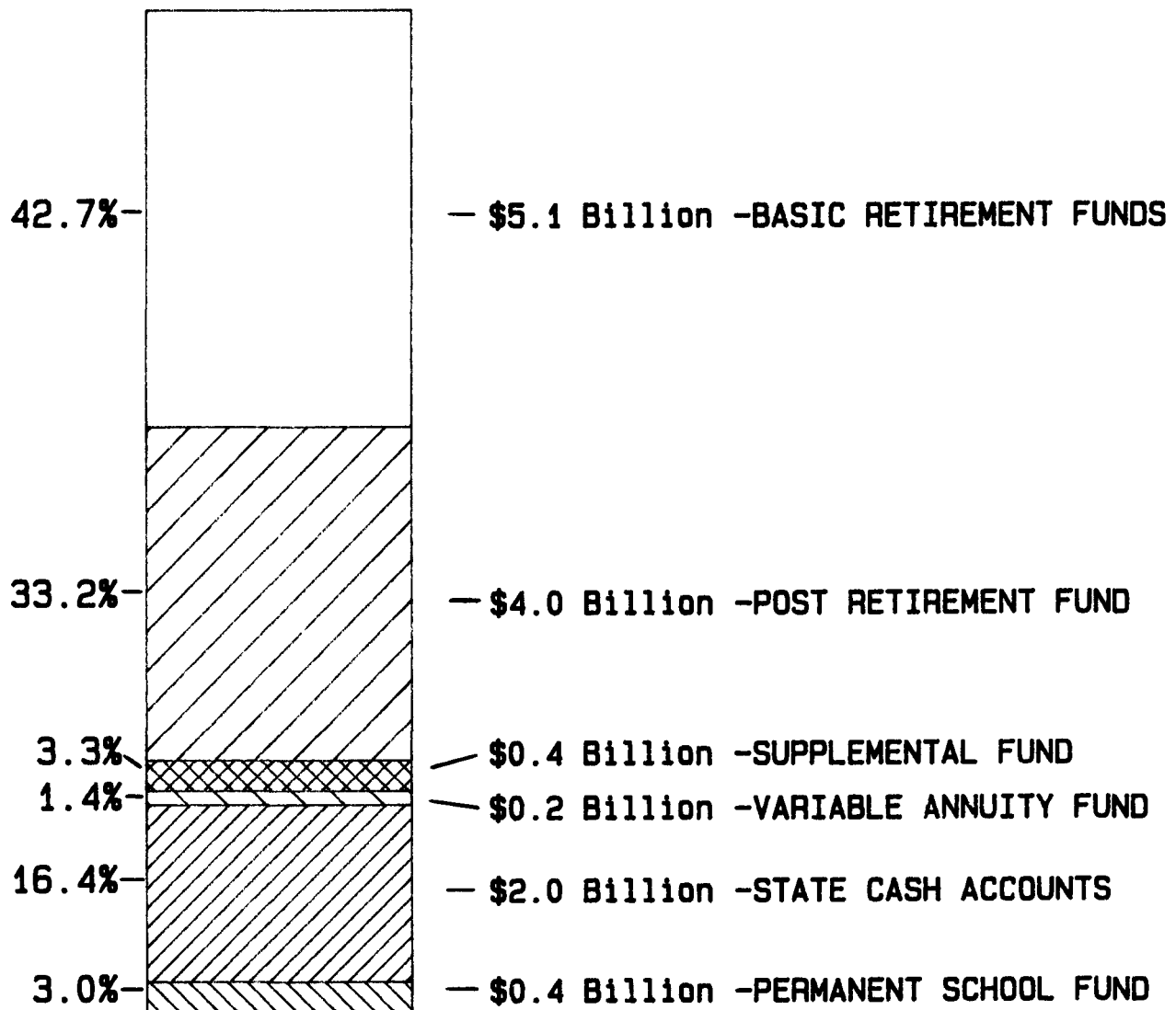
Minnesota Constitution, Section 8

- Specifies membership
- States purpose

" ... constituted for the purpose of administering and directing the investment of all state funds ... "

MINNESOTA STATE BOARD OF INVESTMENT FUNDS UNDER MANAGEMENT

FISCAL YEAR 1987
\$12 Billion




Pension
Assets


Cash
Accounts


Trust
Funds

MINNESOTA STATE BOARD OF INVESTMENT FUNDS UNDER MANAGEMENT

FISCAL YEAR 1987

\$12 Billion

Market Value
June 30, 1987
\$ 5.1 billion

BASIC RETIREMENT FUNDS

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

Teachers Retirement Fund	\$2,104 million
Public Employees Retirement Fund	1,403 million
State Employees Retirement Fund	1,110 million
Public Employees Police and Fire Fund	433 million
Highway Patrol Retirement Fund	82 million
Judges Retirement Fund	4 million

\$ 4.0 billion

POST RETIREMENT FUND

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

\$ 0.4 billion

SUPPLEMENTAL INVESTMENT FUND

The Supplemental Investment Fund includes assets of the state deferred compensation plan, supplemental benefit arrangements, various retirement programs for local police and firefighters, and the unclassified employees of the state. Participants have a choice among seven separate accounts with different investment emphases as authorized by law.

\$ 0.2 billion

VARIABLE ANNUITY FUND

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

\$ 2.0 billion

STATE CASH ACCOUNTS

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

\$ 0.4 billion

PERMANENT SCHOOL FUND

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

\$12.0 billion*

TOTAL

* Does not add due to rounding

42.7%-BASIC RETIREMENT FUNDS

33.2%-POST RETIREMENT FUND

3.3%-SUPPLEMENTAL FUND

1.4%-VARIABLE ANNUITY FUND

16.4%-STATE CASH ACCOUNTS

3.0%-PERMANENT SCHOOL FUND

STATUTORY AUTHORITY

Activity governed by MS Chapter 11A

11A.09 Standard of Care

Prudent person rule is the Board's
fiduciary standard

11A.24 Authorized Investments

- Lists allowable asset classes
- Sets limits on investments
- Establishes quality criteria for investments

AUTHORIZED ASSET CLASSES FOR ALL FUNDS MS CHAPTER 11A.24

EQUITIES

Common Stock

Alternative Assets

- Real estate
- Venture capital
- Resource (oil & gas)
- High yield & unrated debt

Equities can total
 no more than
 85% of a fund.

Alternative assets can total
 no more than
 35% of a fund.

FIXED INCOME

Government Bonds

Corporate Bonds

Short Term Securities

- Commercial paper
- Bankers acceptances
- Repurchase agreements
- Certificates of deposit

Fixed income securities
 can total up to
 100% of a fund.

SETTING INVESTMENT MANAGEMENT POLICIES

For each fund:

- Establish investment objectives
- Set asset allocation targets to meet objectives
- Select investment management structure
- Review performance in light of objectives

INVESTMENT ADVISORY COUNCIL (IAC)

Established in statute. Advises the Board and its staff on investment related matters.

17 Members:

- Board's appointees - 10 members with experience in investments & pensions
- Commissioner of Finance
- Executive Directors of MSRS, TRA, PERA
- Governor's appointees - 2 active employees - 1 retiree

Organized in 5 Committees:

- Administrative
- Asset Allocation
- Equity Managers
- Fixed Income Managers
- Alternative Investments

PROXY COMMITTEE

Responsibility: Establish broad voting policies

Review precedents on a
case-by-case basis

Membership:

Designee of each
Board member

SOUTH AFRICA TASK FORCE

Responsibility:

Advise the Board on
implementation of its
resolution

Review progress

Membership:

Designee of each
Board member

Public employee representative
Retirement fund representative
Private sector representative

AD HOC COMMITTEES

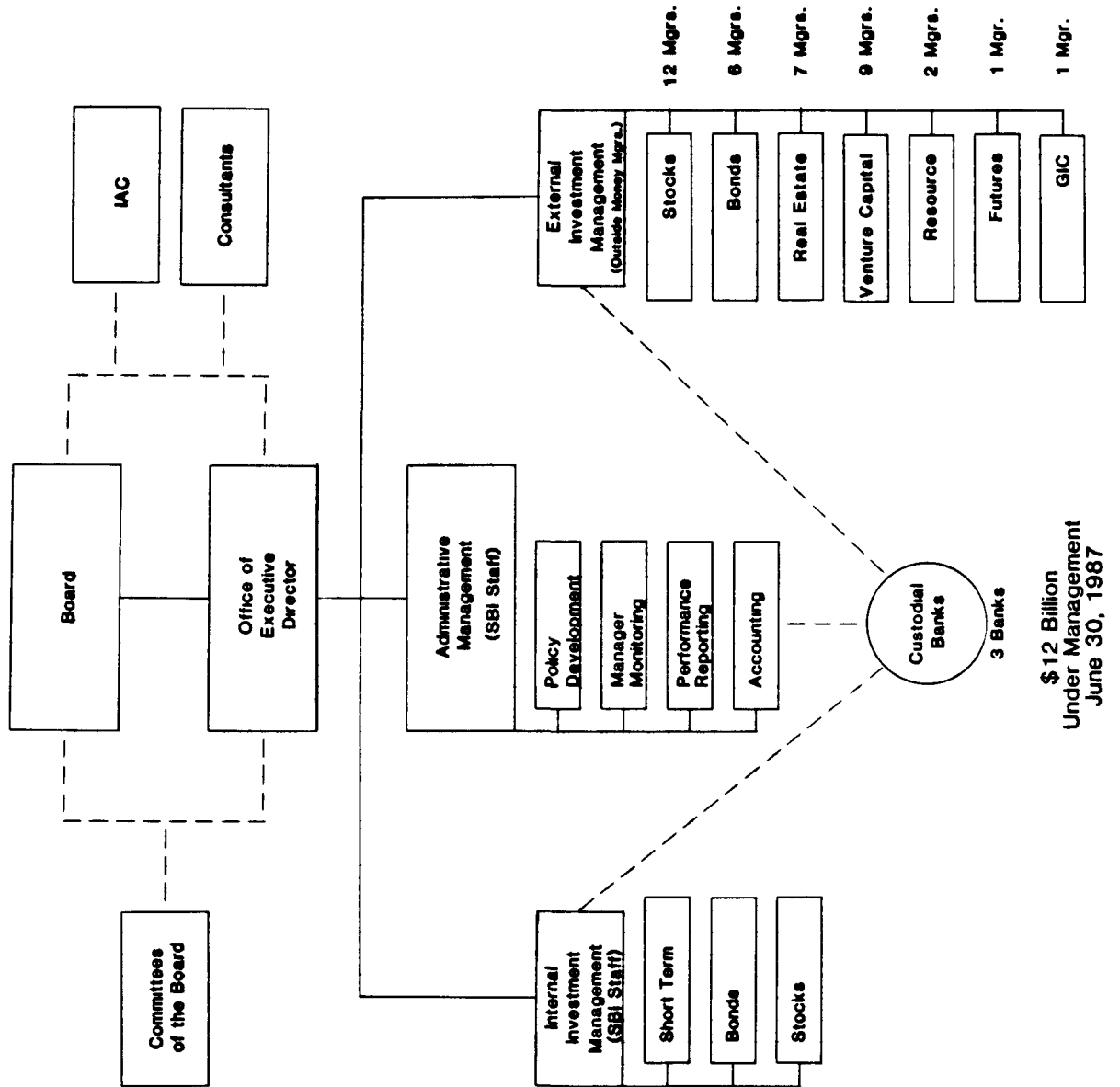
Responsibility: Advise the Board on special issues

Membership: Designee of each Board member

Representative(s) of IAC

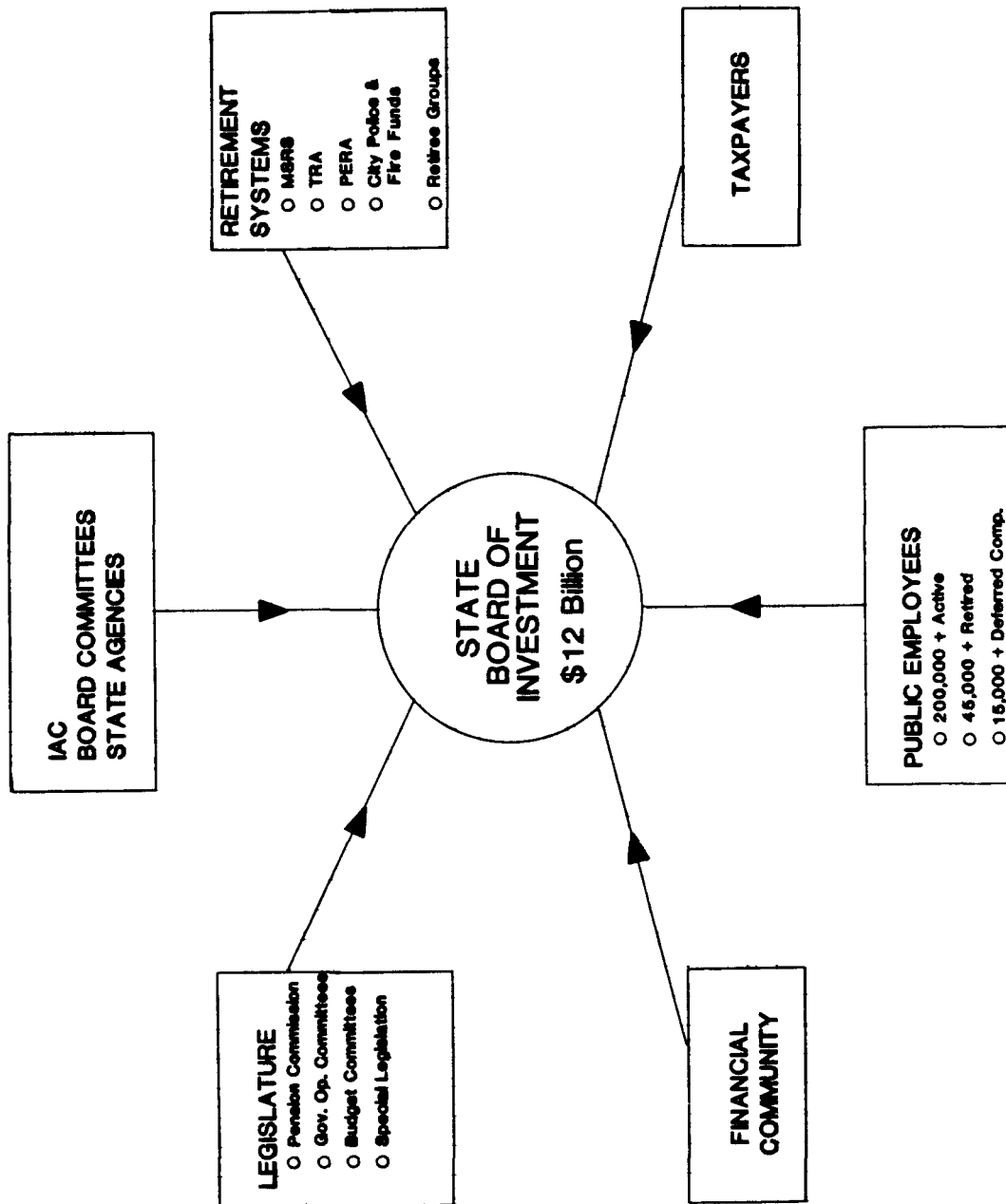
FUNCTIONAL ORGANIZATION STRUCTURE

1987



\$12 Billion
Under Management
June 30, 1987

COMMUNICATION



Tab C

PRESENTATION OUTLINE

SBI INVESTMENT POLICY

Introduction

Basic Retirement Funds (BASICS)

Post Retirement Investment Fund (POST)

- Overview
- Investment objectives
- Policy asset mix
- Investment management structure
- Performance evaluation

INTRODUCTION

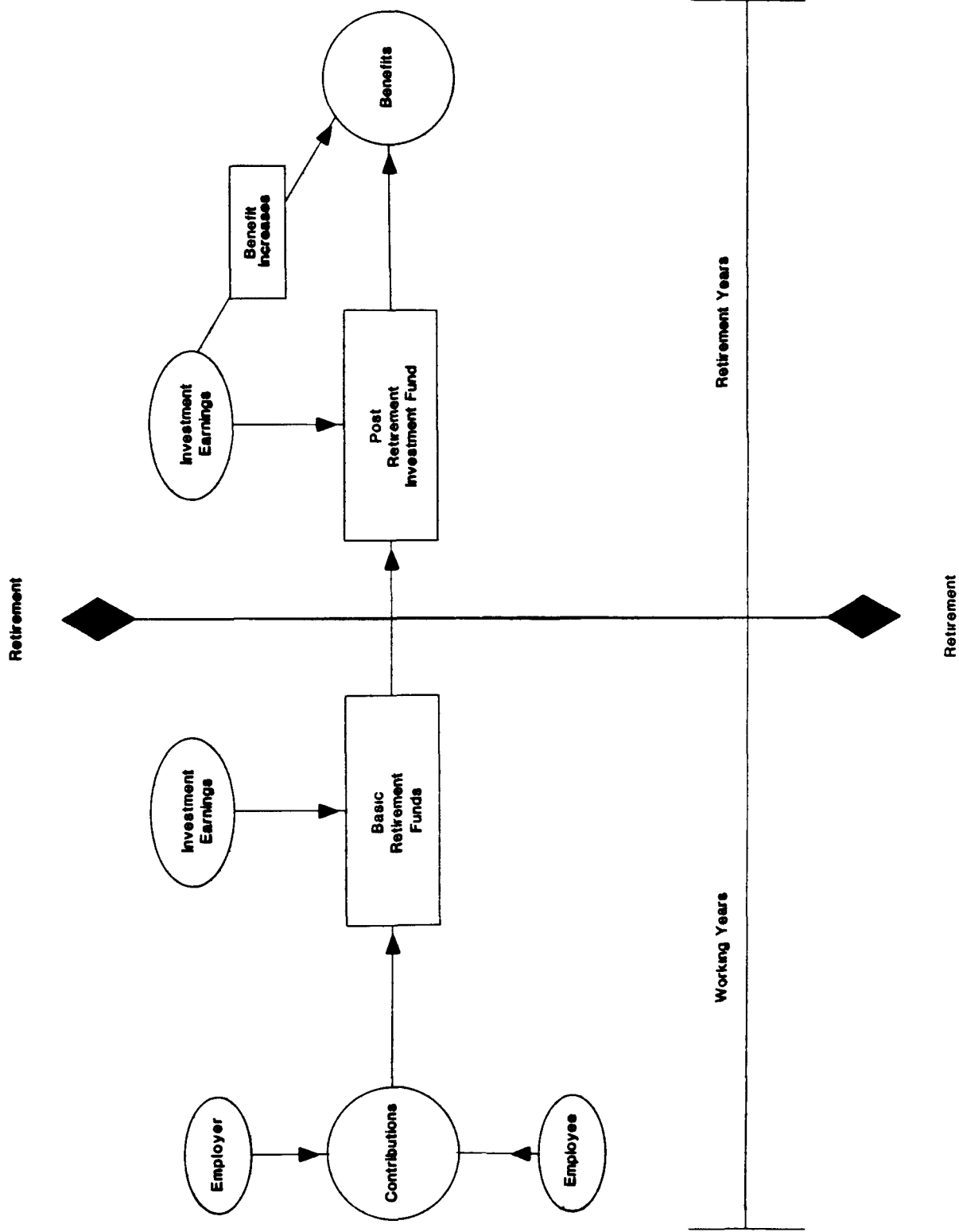
INVESTMENT POLICY

Investment policy represents pension plan's long-term objectives as well as guidelines for achieving objectives

- Emphasis on word "long-term"
- Investment policy is blueprint which guides investment program
- Sound investment policy is key to successful investment program

Tab D

FINANCING OF EMPLOYEE RETIREMENT BENEFITS



BASIC RETIREMENT FUNDS

INVESTMENT OBJECTIVES

Three primary investment objectives:

- 1) Secure promised benefits
- 2) Increase benefits/reduce contributions
- 3) Avoid excessive short-run volatility of returns

Objective #1 clearly overriding goal

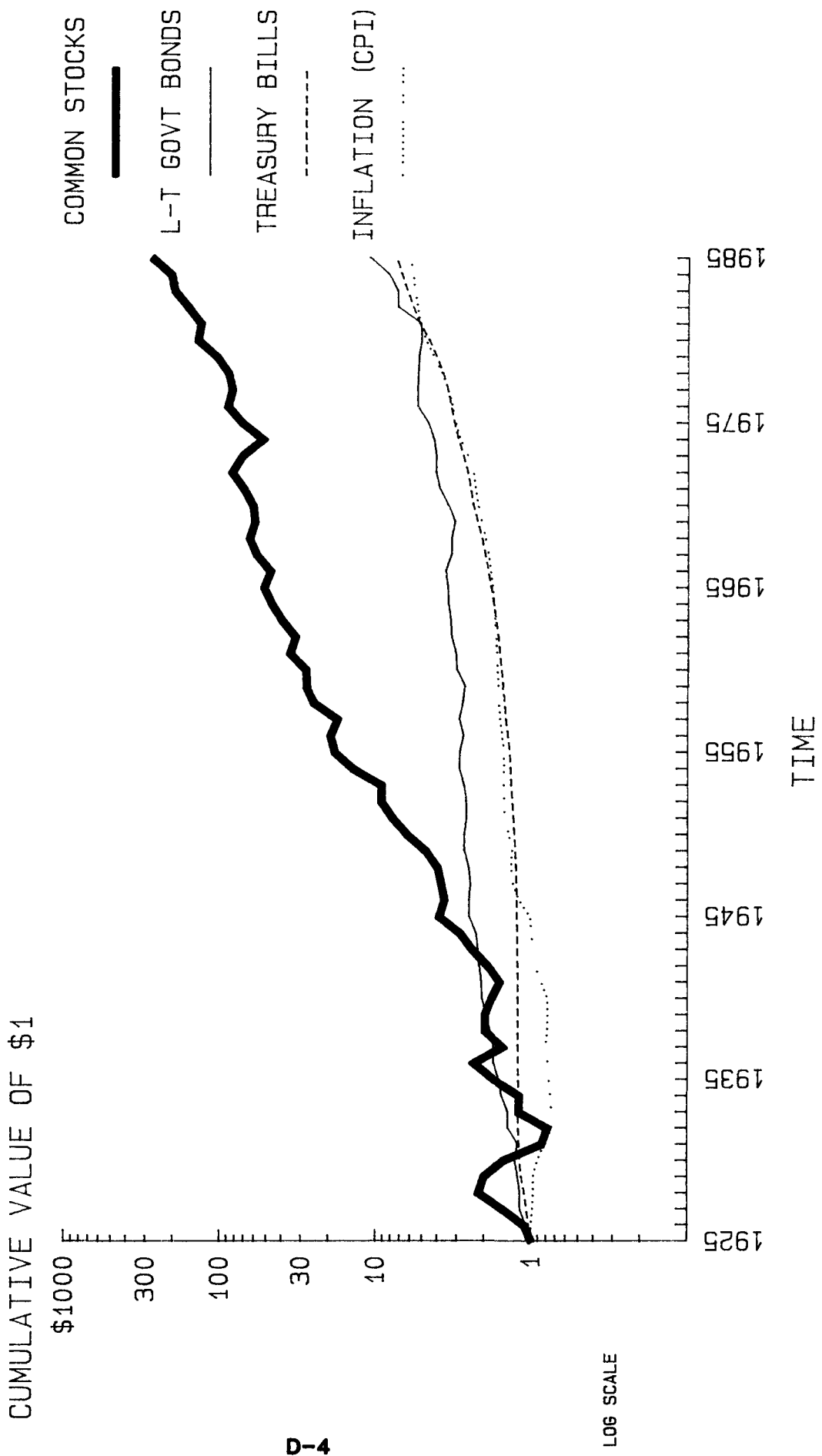
BASIC RETIREMENT FUNDS

INVESTMENT OBJECTIVES (cont'd)

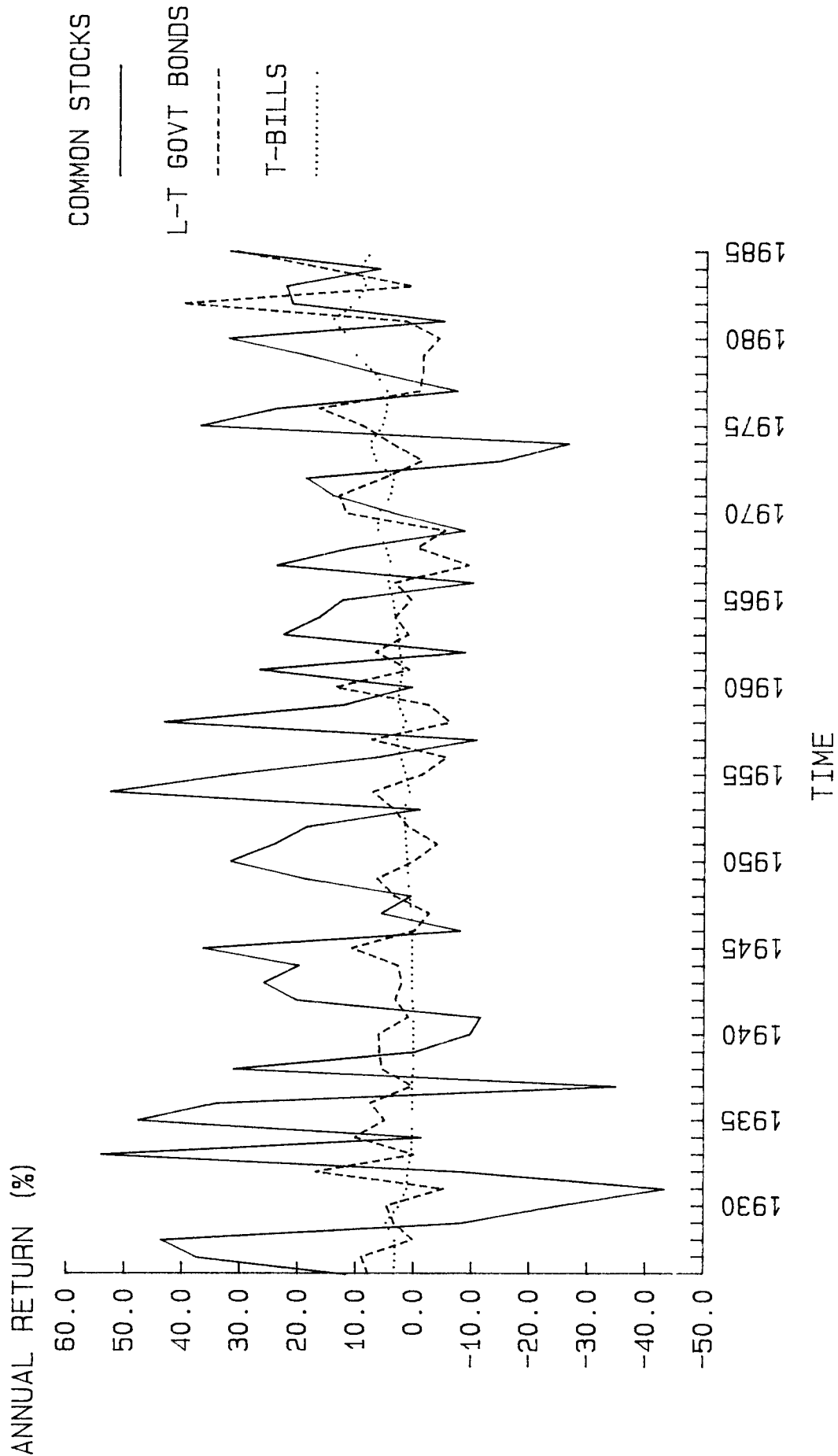
Other factors to consider:

- Long-term investment orientation appropriate for BASICS
- Common stocks historically best performing asset class
- Common stocks also most volatile asset class
- Risk-return trade-off favorable to long term investors

HISTORICAL CAPITAL MARKETS RETURNS CUMULATIVE INVESTMENT VALUES 1926-1985



ASSET CLASS HISTORICAL RETURNS 1926 - 1985



SOURCE: IBBOTSON ASSOCIATES

BASIC RETIREMENT FUNDS

INVESTMENT OBJECTIVES (cont'd)

Conclusions:

- BASICS well-suited to take advantage of risk-return trade-off
- Aggressive, high expected return policy appropriate for BASICS
- Large common stock component recommended
- If one can accept return volatility of aggressive policy, long-term financial benefits are considerable

BASIC RETIREMENT FUNDS

INVESTMENT OBJECTIVES (cont'd)

Consequences:

- In short-run:
 - Better average performance than more conservative policy
 - But also frequent occurrences of very positive results and negative results
- In long-run:
 - Return volatility smooths out
 - Performance far superior to more conservative policy

BASIC RETIREMENT FUNDS

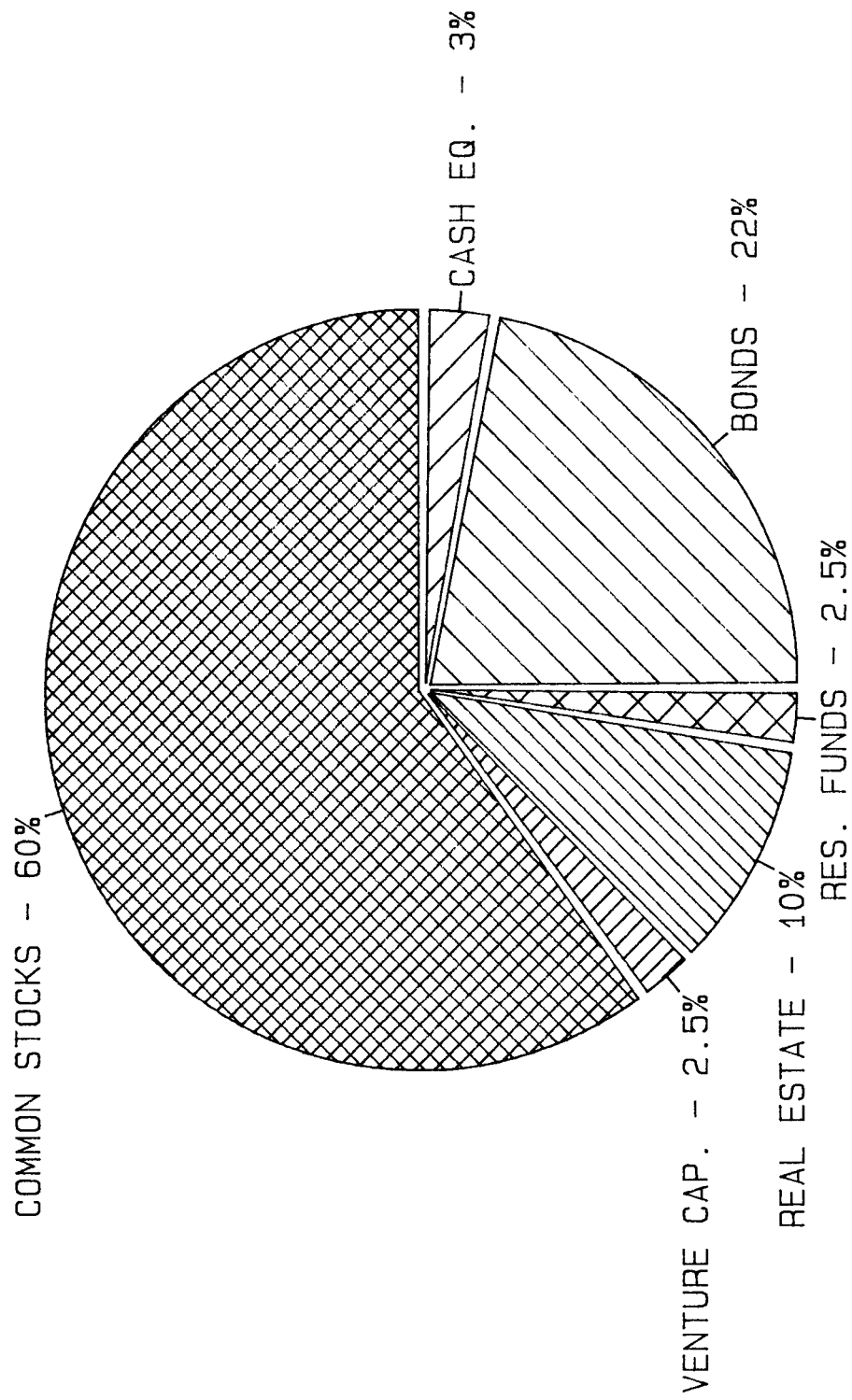
POLICY ASSET MIX

Policy asset mix is desired long-term allocation among various asset classes

Policy asset mix represents combinations of asset classes most likely to achieve goals of pension plan

Policy asset mix also reflects statutory constraints under which pension plan operates

BASIC RETIREMENT FUNDS POLICY ASSET MIX



BASIC RETIREMENT FUNDS

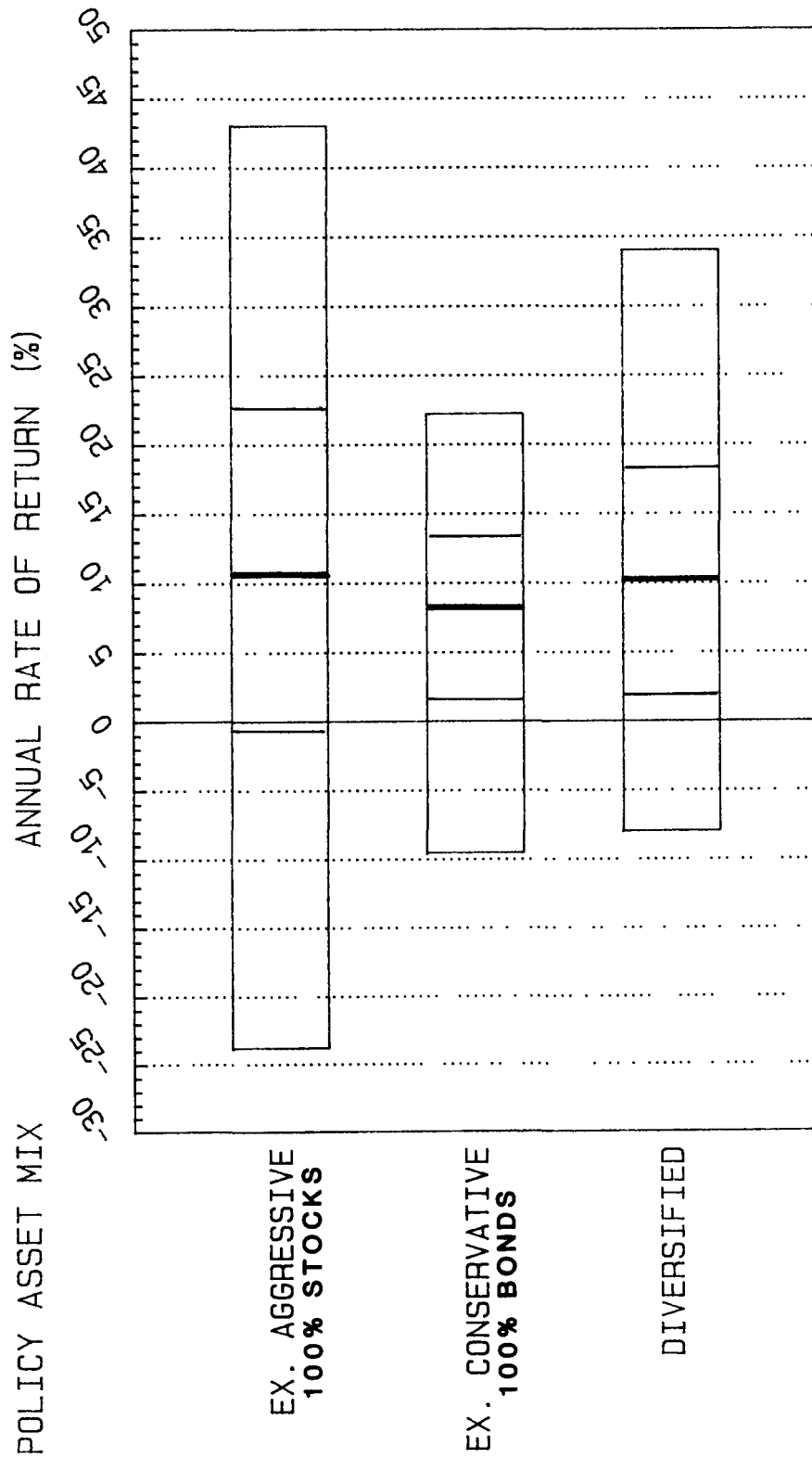
POLICY ASSET MIX (cont'd)

Rationale behind BASICS policy asset mix:

- Common stocks and venture capital together represent largest component
- Consistent with aggressive, high expected return policy for BASICS
- Offers some protection against difficult financial markets:
 - Bonds protect against deflation
 - Real estate, resource funds protect against inflation
- Under normal financial conditions, bonds, real estate, resource funds diversify BASICS and control volatility

ALTERNATIVE ASSET MIXES: SIMULATED RETURNS

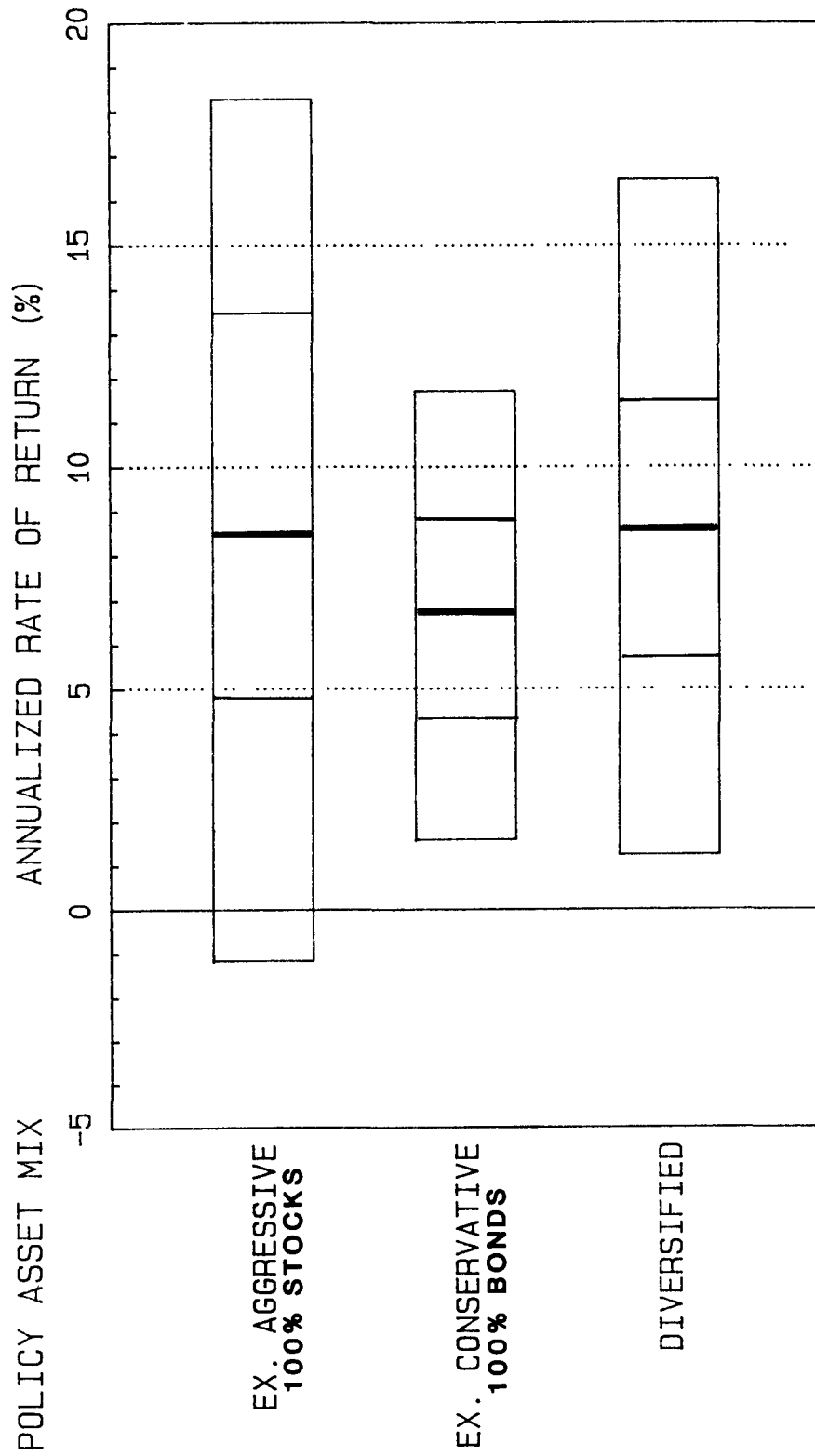
ONE-YEAR HOLDING PERIODS



RANGE ENDPOINTS REPRESENT
5TH AND 95TH PERCENTILES

SOURCE: RICHARDS & TIERNEY

ALTERNATIVE ASSET MIXES: SIMULATED RETURNS TEN-YEAR HOLDING PERIODS



REBALANCED ANNUALLY

SOURCE: RICHARDS & TIERNEY

RANGE ENDPOINTS REPRESENT
5TH AND 95TH PERCENTILES

BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE

Investment management structure represents system through which investment policy actually implemented

Investment management structure composed of various types of money managers within each asset class

Two primary topics:

- 1) Passive/active management allocation
- 2) Selection of active managers

BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE (cont'd)

Passive management designed to match market's performance

Rationale:

- Difficulty of identifying consistently successful active managers
- Difficulty of managing large amounts of money actively
- Low costs
- Predictable results relative to policy

Large passive component provides BASICS with low cost stable core of asset management

BASIC RETIREMENT FUNDS

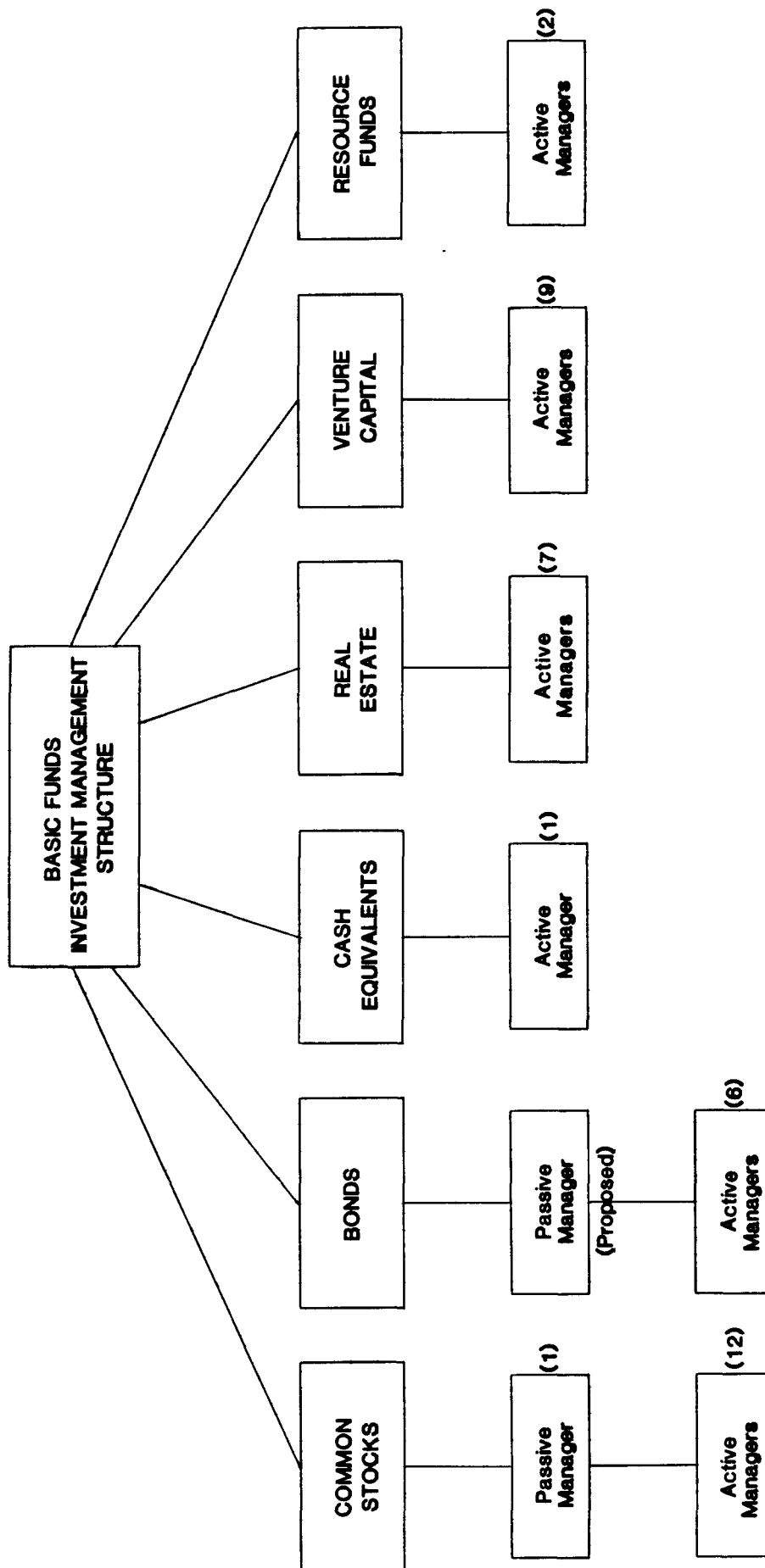
INVESTMENT MANAGEMENT STRUCTURE (cont'd)

Active management designed to exceed performance of market

Rationale:

- Successful active managers enhance returns produced by passive management
- Active managers offer valuable insights to a changing financial marketplace

Effectively implemented, active management can add value to BASICS investment policy



BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE (cont'd)

Future modifications to BASICS investment management structure approved by Board include:

- Addition of passive component in bond segment
- Adoption of flexible passive/active allocation within stock and bond segments

Investment management structure, like rest of investment policy, is dynamic. Always open to changes that could improve performance.

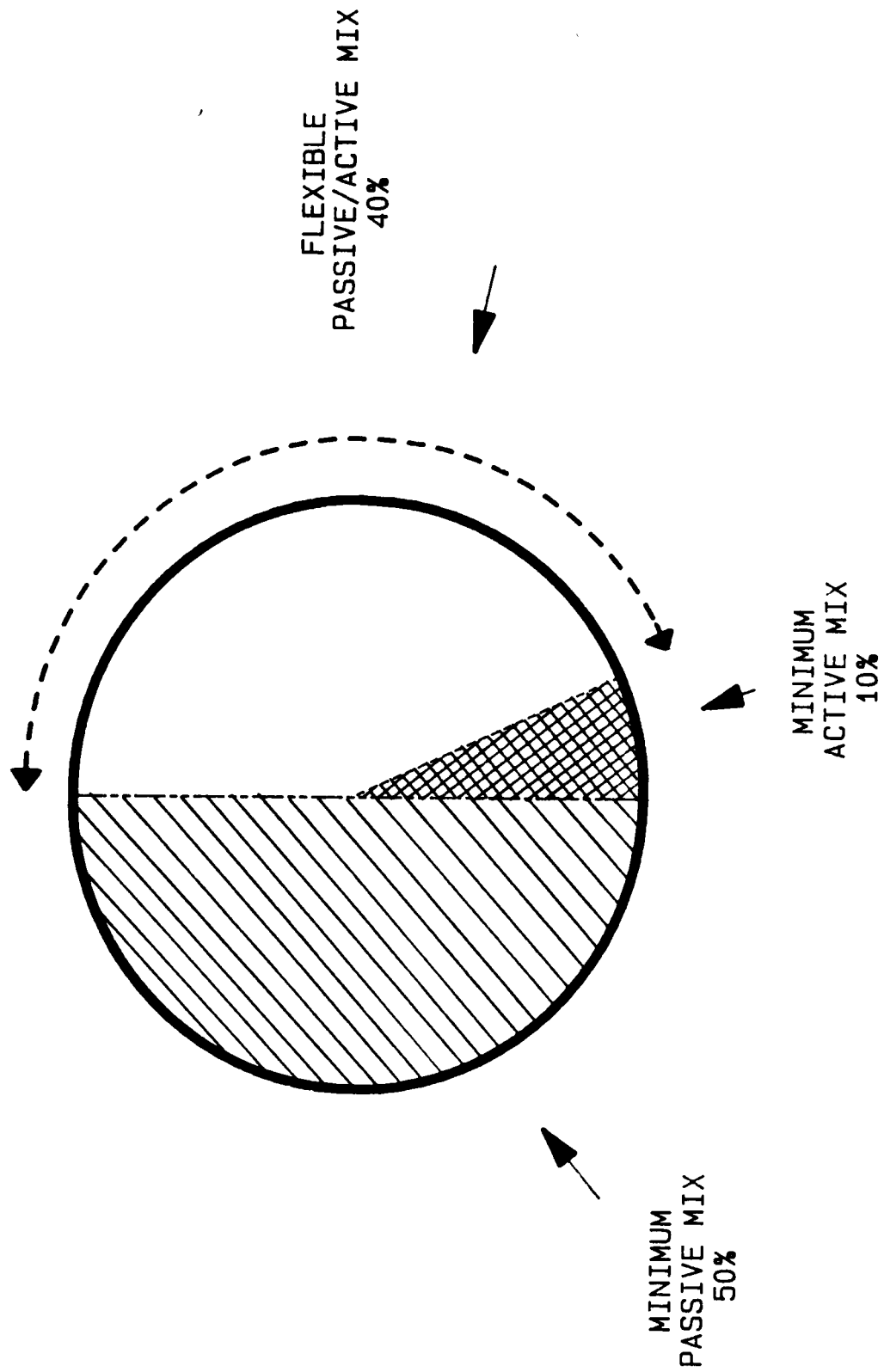
BASIC RETIREMENT FUNDS
Performance

Tom Richards

Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

FLEXIBLE PASSIVE/ACTIVE ALLOCATION

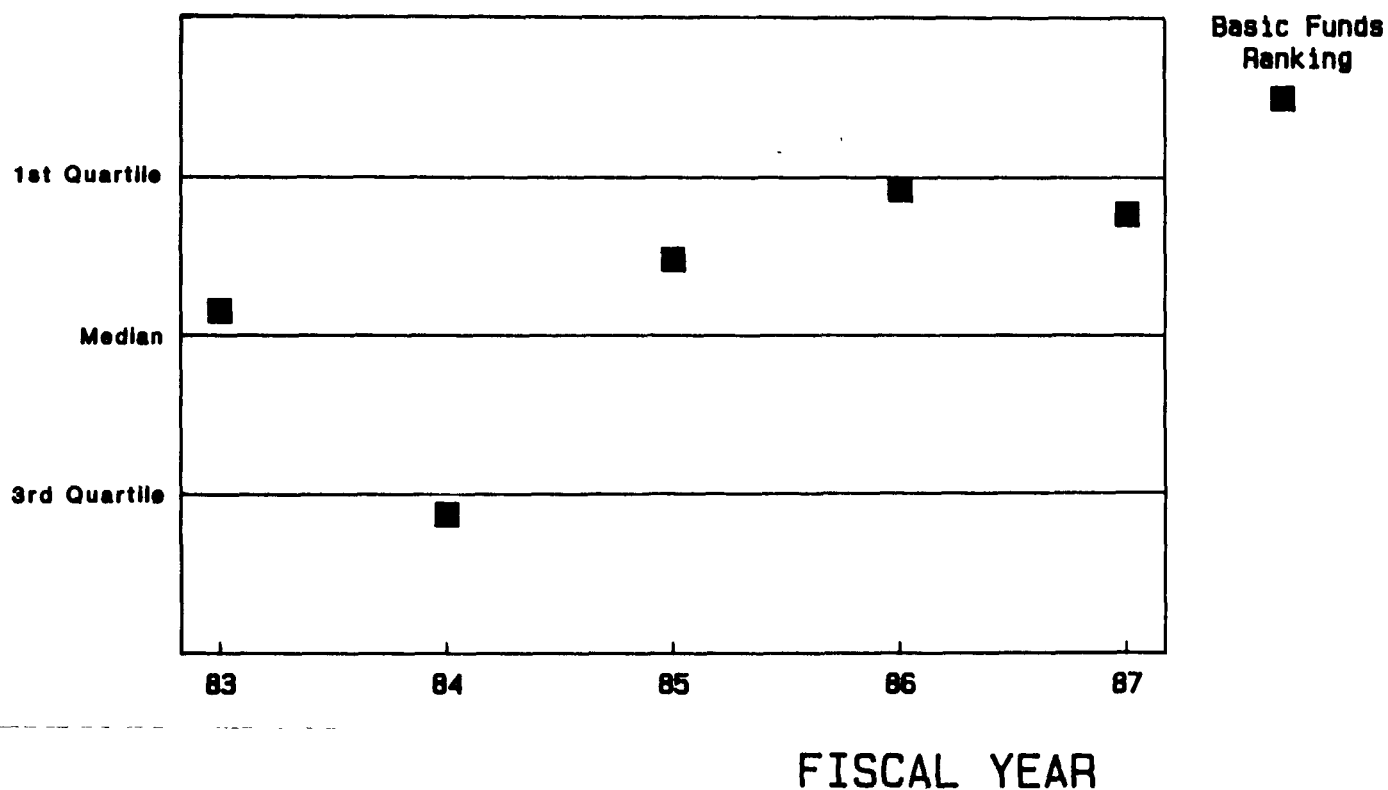


BASIC RETIREMENT FUNDS

Basic Funds Performance

VS.

Tax Exempt Funds*



Tax Exempt Funds*

Median Return	41.2%	- 2.0%	26.4%	25.2%	13.1%
---------------	-------	--------	-------	-------	-------

Basic Funds (excl) **	42.1%	- 6.3%	28.4%	29.0%	15.8%
-----------------------	-------	--------	-------	-------	-------

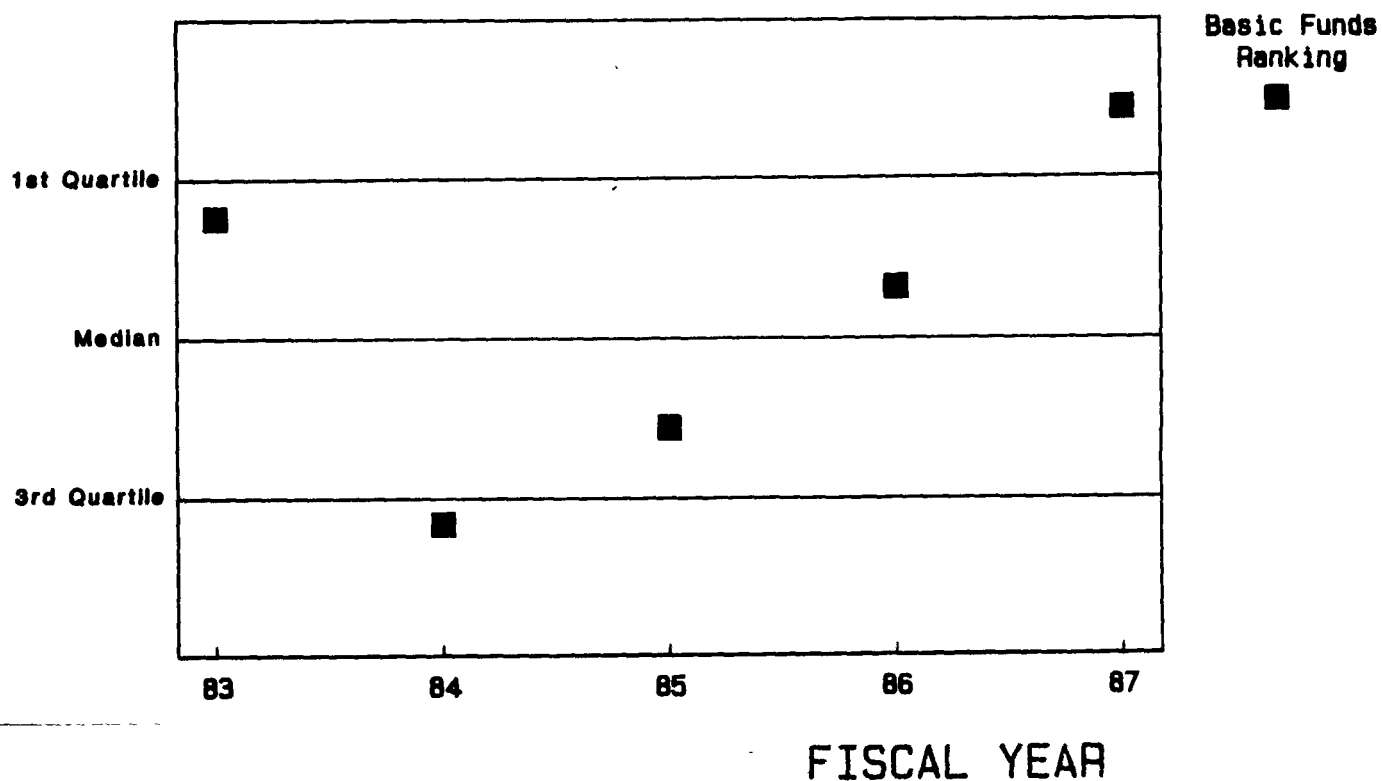
*Tax exempt funds include balanced portfolios of both private and public funds

**Excluding alternative assets

Source: Trust Universe Comparison Service (TUCS)

BASIC RETIREMENT FUNDS

Basic Funds Performance VS. Public Funds*



Public Funds*					
Median Return	38.2%	- 1.4%	30.3%	28.2%	10.5%
Basic Funds (excl)**	42.1%	- 6.3%	28.4%	29.0%	15.8%

*Public Funds includes balanced portfolios of public funds

**Excluding alternative assets

Source: Trust Universe Comparison Service (TUCS)

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4, 029, 586, 639.63	
ENDING MARKET VALUE	\$ 5, 137, 136, 359.33	
<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Actual Rate-of-Return	31.09%	19.78%

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4, 029, 586, 639.63	
DOLLAR INCREMENTS Net Contributions	- 128, 986, 265.62	\$3, 900, 600, 374.01
ENDING MARKET VALUE	\$ 5, 137, 136, 359.33	
<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Actual Rate-of-Return	31.09%	19.78%

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4, 029, 586, 639.63	
DOLLAR INCREMENTS		
Net Contributions	- 128, 986, 265.62	\$3, 900, 600, 374.01
Risk-Free Assets	415, 844, 071.91	4, 316, 444, 445.92
ENDING MARKET VALUE	\$ 5, 137, 136, 359.33	
<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Actual Rate-of-Return	31.09%	19.78%

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS Investment Policy

June 30, 1987

<u>ASSET CATEGORY</u>	<u>ALLOCATION POLICY</u>
Domestic Equity	60.0%
Fixed Income	22.0%
Short Term	3.0%
Real Estate	10.0%
Venture Capital	2.5%
Resource Funds	2.5%
	<hr/>
Total Fund	100.0%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS All Asset Categories</p>

June 30, 1987

	ACTUAL ASSET MIX	ALLOCATION POLICY
ALL DOMESTIC EQUITY	\$3, 188, 599, 024.63	62.07%
ALL FIXED INCOME	1, 089, 138, 618.54	21.20%
ALL SHORT TERM	293, 816, 736.58	5.72%
ALL REAL ESTATE	404, 580, 350.32	7.87%
ALL VENTURE CAPITAL	93, 398, 295.96	1.82%
ALL RESOURCE FUNDS	67, 603, 333.30	1.32%
TOTAL FUND	\$5, 137, 136, 359.33	100.00%

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4,029,586,639.63	
DOLLAR INCREMENTS		
Net Contributions	- 128,986,265.62	\$3,900,600,374.01
Risk-Free Assets	415,844,071.91	4,316,444,445.92
Investment Policy	804,062,144.01	5,120,506,589.93
ENDING MARKET VALUE	\$ 5,137,136,359.33	

<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Investment Policy	30.72%	19.55%
Actual Rate-of-Return	31.09%	19.78%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS Investment Policy Impact</p>
--

December 31, 1985 - June 30, 1987

INVESTMENT
POLICY

DOMESTIC EQUITY	\$ 762, 627, 087.41
FIXED INCOME	85, 371, 747.23
SHORT TERM	0.00
ALT. INVESTMENTS	- 43, 936, 690.63
MISCELLANEOUS	0.00
<hr/>	
TOTAL	\$ 804, 062, 144.01

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4, 029, 586, 639.63	
DOLLAR INCREMENTS		
Net Contributions	- 128, 986, 265.62	\$3, 900, 600, 374.01
Risk-Free Assets	415, 844, 071.91	4, 316, 444, 445.92
Investment Policy	804, 062, 144.01	5, 120, 506, 589.93
Active Management	<u>16, 629, 769.40</u>	5, 137, 136, 359.33
ENDING MARKET VALUE	\$ 5, 137, 136, 359.33	

<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Investment Policy	30.72%	19.55%
Actual Rate-of-Return	31.09%	19.78%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS</p> <p>Active Management Impact</p>

December 31, 1985 - June 30, 1987

	- Active Management -		TOTAL
	SELECTION	ALLOCATION	IMPACT
DOMESTIC EQUITY	\$ 7,692,054.94	\$ 13,868,065.97	\$ 21,560,120.91
FIXED INCOME	-47,796,985.79	11,357,578.10	-36,439,407.69
SHORT TERM	1,879,641.95	- 836,431.59	1,043,210.36
ALT. INVESTMENTS	3,981,026.07	26,769,572.23	30,750,598.30
MISCELLANEOUS	0.00	- 284,752.48	- 284,752.48
<hr/>			
TOTAL	\$-34,244,262.83	\$ 50,874,032.23	\$ 16,629,769.40

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS</p> <p>Domestic Equity Segment</p>
--

June 30, 1987

	<u>ACTUAL ASSET MIX</u>		<u>ALLOCATION POLICY</u>
ALL DOMESTIC EQUITY	\$3, 188, 599, 024.63	62.07%	60.0%
Individual Managers			
WILSHIRE	\$2, 073, 774, 352.94	65.04%	67.0%
FRED ALGER	102, 564, 177.75	3.22%	3.0%
ALLIANCE	115, 658, 827.43	3.63%	3.0%
BMI CAPITAL	70, 245, 754.87	2.20%	2.0%
BEUTEL GOODMAN	112, 767, 179.39	3.54%	3.0%
FORSTMANN-LEFF	91, 229, 593.47	2.86%	3.0%
HELLMANN JORDAN	86, 863, 742.08	2.72%	3.0%
IDS ADVISORY	98, 105, 053.44	3.08%	3.0%
INVESTMENT ADVISERS	86, 558, 306.03	2.71%	3.0%
LIEBER & CO.	40, 493, 446.44	1.27%	1.0%
PEREGRINE CAPITAL	89, 401, 653.83	2.80%	3.0%
WADDELL & REED	98, 620, 031.71	3.09%	3.0%
INTERNAL MGR.	122, 316, 905.25	3.84%	3.0%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS</p> <p>Domestic Equity Segment</p>
--

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 2, 570, 259, 276.36	
DOLLAR INCREMENTS		
Net Contributions	- 427, 653, 064.44	\$2, 142, 606, 211.92
Risk-Free Assets	261, 805, 604.39	2, 404, 411, 816.31
Investment Policy	779, 655, 661.19	3, 184, 067, 477.50
Active Management	<u>4, 531, 547.13</u>	3, 188, 599, 024.63
ENDING MARKET VALUE	\$ 3, 188, 599, 024.63	

<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Investment Policy	43.40%	27.16%
Actual Rate-of-Return	43.55%	27.26%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS High Quality Fixed Income</p>
--

June 30, 1987

	<u>ACTUAL ASSET MIX</u>		<u>ALLOCATION POLICY</u>
ALL HIGH QUALITY FIXED INCOME	\$1, 089, 138, 618.54	21.20%	20.0%
Individual Managers			
INVESTMENT ADVISERS	\$ 42, 090, 260.12	3.86%	5.0%
LEHMAN	234, 987, 315.98	21.58%	21.0%
MILLER ANDERSON	247, 937, 755.22	22.76%	21.0%
MORGAN STANLEY	198, 674, 515.61	18.24%	21.0%
PEREGRINE CAPITAL	112, 124, 034.05	10.29%	11.0%
WESTERN ASSET	253, 324, 737.56	23.26%	21.0%

Source: Richards & Tierney, Inc.

<p>BASIC RETIREMENT FUNDS</p> <p>Fixed Income Segment</p>

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 1, 021, 173, 299.06	
DOLLAR INCREMENTS		
Net Contributions	- 80, 550, 349.34	\$ 940, 622, 949.72
Risk-Free Assets	99, 583, 329.28	1, 040, 206, 279.00
Investment Policy	108, 180, 044.02	1, 148, 386, 323.02
Active Management	- <u>59, 247, 704.48</u>	1, 089, 138, 618.54
ENDING MARKET VALUE	\$ 1, 089, 138, 618.54	

<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Investment Policy	21.46%	13.84%
Actual Rate-of-Return	14.90%	9.70%

Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

December 31, 1985 - June 30, 1987

	<u>CUMULATIVE</u>	<u>ENDING VALUE</u>
BEGINNING MARKET VALUE	\$ 4,029,586,639.63	
DOLLAR INCREMENTS		
Net Contributions	- 128,986,265.62	\$3,900,600,374.01
Risk-Free Assets	415,844,071.91	4,316,444,445.92
Investment Policy	804,062,144.01	5,120,506,589.93
Active Management	<u>16,629,769.40</u>	5,137,136,359.33
ENDING MARKET VALUE	\$ 5,137,136,359.33	

<u>INVESTMENT RETURNS</u>	<u>CUMULATIVE</u>	<u>ANNUALIZED</u>
Risk-Free Assets	9.56%	6.27%
Investment Policy	30.72%	19.55%
Actual Rate-of-Return	31.09%	19.78%

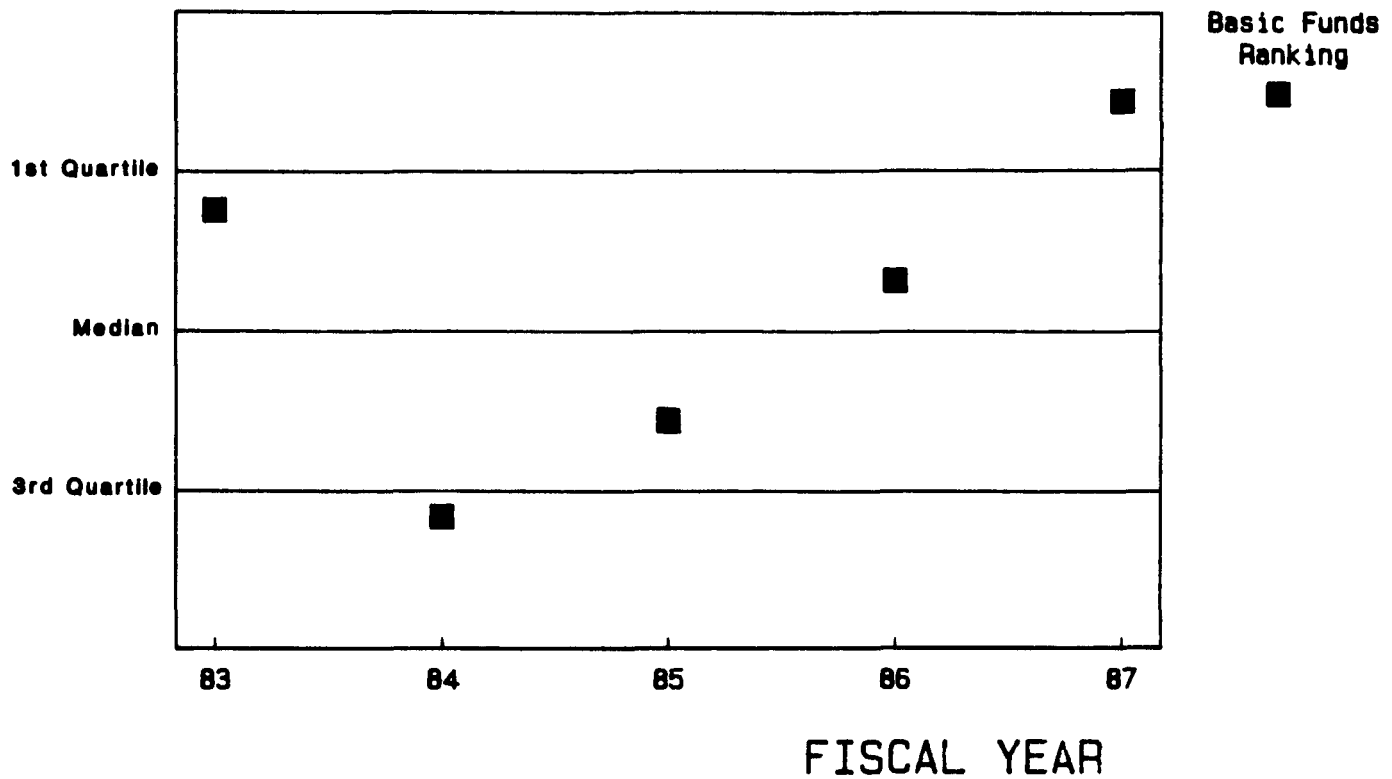
Source: Richards & Tierney, Inc.

BASIC RETIREMENT FUNDS

Basic Funds Performance

VS.

Public Funds*



Public Funds*					
Median Return	38.2%	- 1.4%	30.3%	28.2%	10.5%
Basic Funds (excl)**	42.1%	- 6.3%	28.4%	29.0%	15.8%

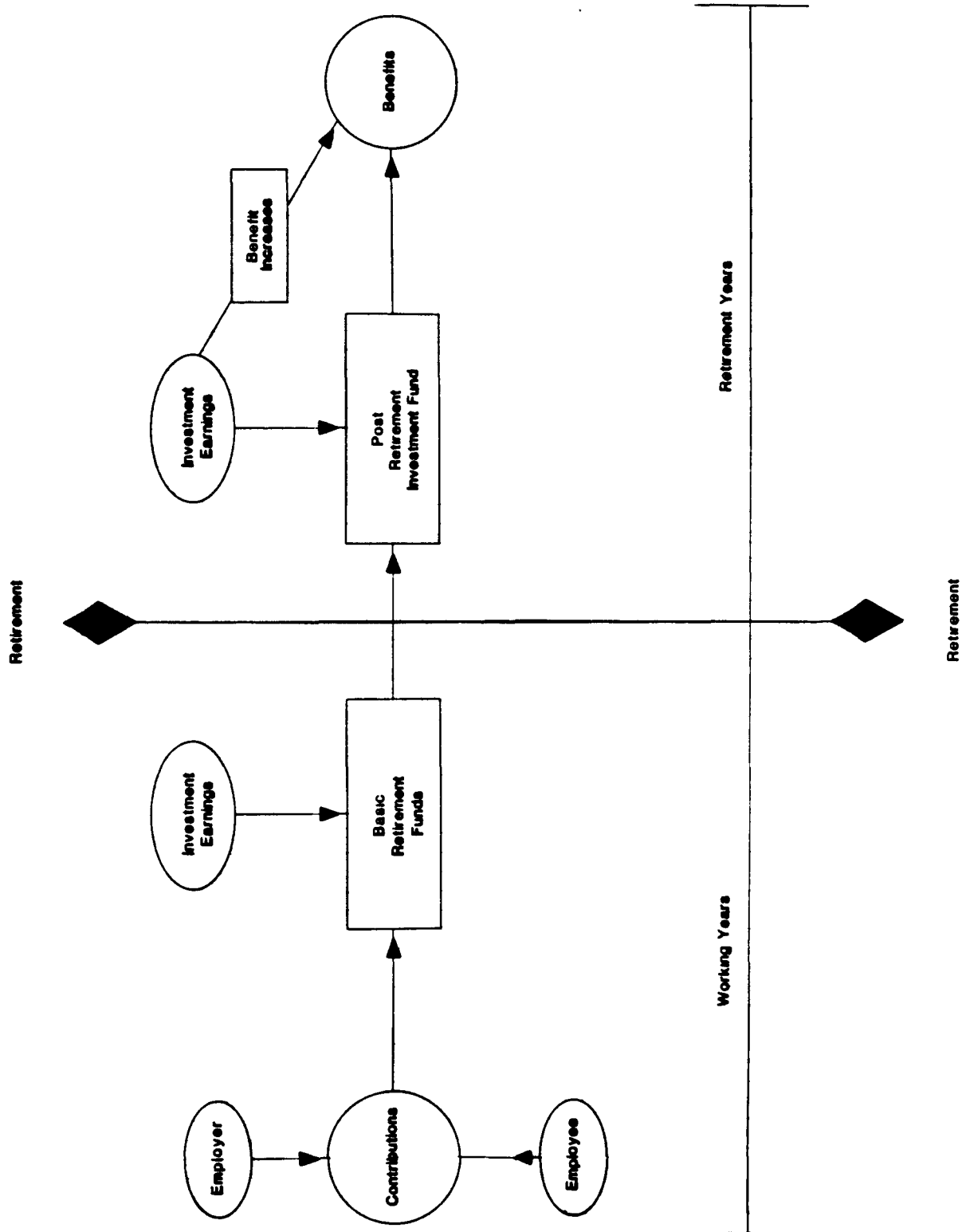
*Public Funds includes balanced portfolios of public funds

**Excluding alternative assets

Source: Trust Universe Comparison Service (TUCS)

Tab E

FINANCING OF EMPLOYEE RETIREMENT BENEFITS



POST RETIREMENT FUND

INVESTMENT OBJECTIVES

Two primary investment objectives:

- 1) Secure promised benefits
- 2) Generate benefit increases which compensate, to some degree, for inflation

Objective #1 by far top priority goal

POST RETIREMENT FUND

INVESTMENT OBJECTIVES (cont'd)

Considerations for Objective #1 (Secure Benefits):

- Investment time horizon of POST participants not long
- POST not positioned to take advantage of risk-return trade-off as is BASICS
- Volatility of common stock returns too great in short-run for POST's needs
- Very conservative policy required to ensure achievement of Objective #1

POST RETIREMENT FUND

INVESTMENT OBJECTIVES (cont'd)

Considerations for Objective #2 (Adjust for Inflation):

- Want to increase benefits over time, if possible, to compensate for inflation
- Only common stocks historically have produced meaningfully positive inflation-adjusted returns
- Conclude best chance to achieve Objective #2 requires sizable investment in common stocks
- Yet such a policy contradicts conservative policy need to achieve Objective #1

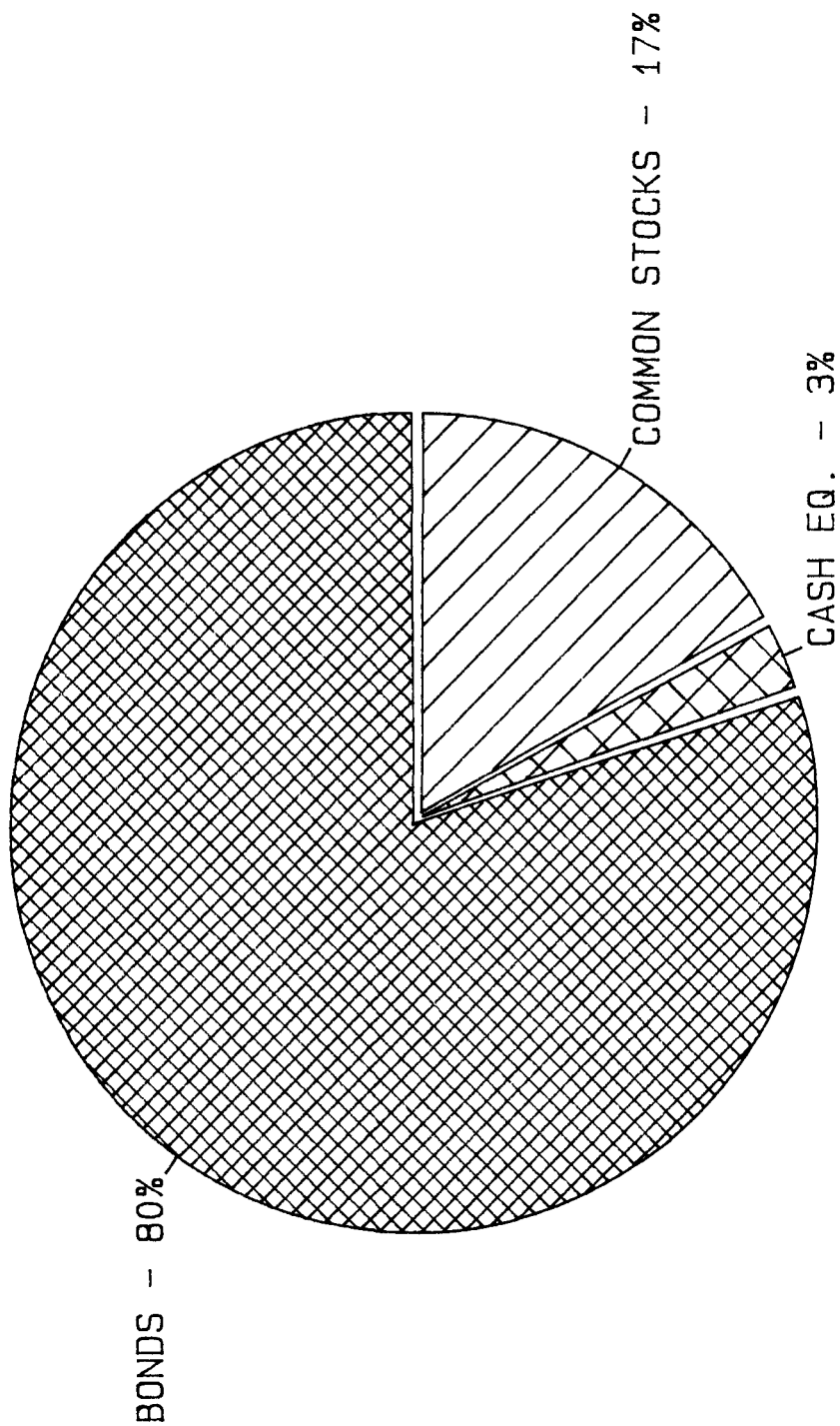
POST RETIREMENT FUND

INVESTMENT OBJECTIVES (cont'd)

Conclusions:

- Conflicting nature of POST investment objectives calls for segmenting fund
- Part of POST's assets invested conservatively to achieve Objective #1 (Secure Benefits)
- Other part invested more aggressively to achieve Objective #2 (Adjust for Inflation)

POST RETIREMENT INVESTMENT FUND POLICY ASSET MIX



AS OF JUNE 30, 1987

POST RETIREMENT FUND

POLICY ASSET MIX

Objective #1 achieved through use of dedicated bond portfolio:

- Dedicated bond portfolio produces cash flows just equal to timing and amount of promised benefits
- Dedicated bond portfolio very low risk, conservative investment approach
- Size of dedicated bond portfolio not fixed. Fluctuates inversely to interest rates. Just big enough to meet Objective #1.

POST RETIREMENT FUND

POLICY ASSET MIX (cont'd)

Assets remaining after dedicated bond portfolio constructed are invested to achieve Objective #2:

- Residual assets invested in common stocks, highest expected return asset class
- Policy asset mix does not guarantee large benefit increases every year
- Benefit increases largely dependent on performance of stock market and amount of residual assets available

POST RETIREMENT FUND

INVESTMENT MANAGEMENT STRUCTURE

Investment management structure of POST very uncomplicated compared to BASICS

All PRIF assets internally managed

Dedicated bond portfolio managed passively, fairly simple to maintain, thus very cost effective to manage internally

POST RETIREMENT FUND Benefit Increase Formula

Investment	-	Required Return	=	Income Available for
Income		of 5%		Benefit Increase

Income Available for		
Benefit Increase		
<hr/>	=	Benefit Increase
Required Reserves		

ደ ሠ ጽ ሀ ሠ ጸ ጥ



E-11

POST RETIREMENT FUND

What has contributed to past benefit increases?

- absolute level of interest rates
- strong stock market
- level of real interest rates
- cash flow

POST RETIREMENT FUND

What will effect future benefit increases?

- interest rates
- stock market
- cash flow
- benefit formula

Tab F

CAN THE SBI MAKE COMPETITIVE
INVESTMENTS WITHIN MINNESOTA?

ANSWER: YES

EXAMPLES OF COMPETITIVE INVESTMENTS IN MINNESOTA

- Minnesota Certificate of Deposit (CD) Program
- Minnesota Housing Finance Agency Bond Issue
- Minnesota Mortgage Pool
- Minnesota Small Business Finance Agency Program
- Superior Ventures, a Minnesota Venture Capital Limited Partnership

MINNESOTA CERTIFICATE OF DEPOSIT (CD) PROGRAM

GOAL:

- Invest a portion of the SBI's short term portfolio in Minnesota financial institutions

ISSUES:

- Maintain safety of principal
- Earn a competitive rate of return
- Solve operational problems

MINNESOTA CERTIFICATE OF DEPOSIT (CD) PROGRAM

RESULTS:

- Over \$1 billion of CD's have been purchased by the SBI from over 365 financial institutions throughout the state.
- The SBI's short-term investment pool has earned a very competitive rate of return.
- Minnesota's financial institutions have, through the SBI's purchase of their CD's, increased their capital base. This may allow them to make additional loans to individuals and businesses throughout the state.

MINNESOTA HOUSING FINANCE AGENCY BOND ISSUE

GOAL:

To allow the Minnesota Housing Finance Agency to issue over \$60 million of debt. Proceeds would be used to offer below market rate mortgages to first time home buyers throughout the state.

ISSUES:

- At the time, interest rates were too high for the MHFA to issue long-term bonds and still provide long-term, below market rate mortgages.
- Investment quality of the mortgage pool must be assured prior to SBI purchase.
- SBI should be compensated for any forward commitment.

MINNESOTA HOUSING FINANCE AGENCY BOND ISSUE

RESULTS:

- MHFA issued \$62.5 million of 10-year bonds to finance below market-rate mortgages.
- SBI committed to purchase a high quality, pool of mortgages at above market rates:
 - yield will be 50 basis points above GNMA's
 - mortgage pool will be rated AA by S&P
 - pool will contain only seasoned mortgages
 - no mortgages in default will be purchased
- In exchange for the promised purchase, the SBI receives a commitment fee of 1/4% per year from MHFA on the outstanding balance of the mortgages.

MINNESOTA SMALL BUSINESS FINANCE AGENCY PROGRAM

GOAL:

To provide small businesses throughout the state with long-term, fixed-rate financing

ISSUES:

- Participation by U.S. Government's Small Business Finance Agency
- Distribution of loans to businesses
- Quality, pricing, and composition of the investment vehicles the SBI would purchase

MINNESOTA SMALL BUSINESS FINANCE AGENCY PROGRAM

RESULTS:

- The SBI purchased bonds issued by the Minnesota SBFA which provided small businesses throughout the state with long-term, fixed-rate financing
- The SBI purchased high quality securities at an above-market rate of interest:
 - bonds are backed by the U.S. government on the guaranteed portion of the SBA loans
 - yield on the bonds is 250 basis points above the 10-year Treasury bond
 - received a one time commitment fee of 50 basis points from the MSBFA

SUPERIOR VENTURES
A MINNESOTA VENTURE CAPITAL
LIMITED PARTNERSHIP

GOAL:

To provide a pool of Minnesota only venture capital

ISSUES:

- Determine the appropriateness of a Minnesota only Venture Capital Fund for the SBI
- Retain a manager for the fund
- Work with the manager to establish investment parameters

SUPERIOR VENTURES
A MINNESOTA VENTURE CAPITAL
LIMITED PARTNERSHIP

RESULTS:

- A \$36 million Minnesota only venture capital fund has been formed
- Many of the major financial organizations throughout the state are participating in the fund

Tab G

STAFF GOALS FOR FISCAL YEAR 1988

- Continue to refine the investment process for funds managed by the SBI
 - use of flexible allocation between active and passive management
 - continued search for new managers
 - use of derivatives
- Request additional investment authority
- Continue to develop and refine investment policies for all funds under management

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

October 1, 1987

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

FROM: Alternative Investment Committee

SUBJECT: Alternative Investment Committee Recommendations

During the quarter, the Alternative Investment Committee considered additional investments with one of the SBI's real estate managers, AEW-State Street, and one of the SBI's venture capital managers, Kohlberg, Kravis and Roberts. The Committee also considered an investment with a new venture capital manager, Golder, Thoma and Cressey.

AEW-State Street Real Estate Fund V is a follow-on fund to a series of funds offered annually by AEW-State Street. Currently, the SBI has a \$20 million investment in AEW-State Street Fund III and a \$15 million investment in AEW-State Street Fund IV. The Committee recommends the SBI commit \$20 million to the follow-on fund.

Kohlberg, Kravis and Roberts (KKR) 1987 Fund is also a follow-on Fund to previous Funds offered by KKR since 1976. Currently, the SBI has a \$25 million investment in the KKR 1984 Fund and a \$50 million investment in the KKR 1986 Fund. The Committee recommends the SBI commit \$115 million to the follow-on fund.

Golder, Thoma and Cressey (GTC) Fund III is the third Fund raised by GTC since 1980. Prior to 1980, the principals of GTC worked together at First Chicago's private equity group. GTC offers one of the most experienced venture capital staffs in the industry, in addition to proven capabilities in successfully investing, managing and liquidating venture capital investments. A summary description of the proposed GTC Fund III investment is attached. The Committee recommends the SBI commit \$20 million to the new fund.

NEW VENTURE CAPITAL MANAGER PROFILE

I. BACKGROUND DATA

FUND MANAGER: Golder, Thoma & Cressey

NAME OF FUND: Golder, Thoma & Cressey Fund III

TYPE OF FUND: \$225 million Limited Partnership

INTERVIEW DATE: August 28, 1987

REPRESENTING MANAGER: Stan Golder, Bryan Cressey, Carl Thoma, Bruce Rauner

MANAGER CONTACT: Bryan Cressey

ADDRESS: 120 S. LaSalle St., Chicago, IL 60603

TELEPHONE: 312-853-3310

II. ORGANIZATION AND STAFF

The Fund will be managed by Golder, Thoma & Cressey ("GTC") which is organized as a partnership. The three founding general partners, Stan Golder, Carl Thoma and Bryan Cressey, have worked together since the inception of GTC in 1980. Prior to the formation of GTC, the three founding partners worked together at First Chicago's private equity group. Bruce Rauner, the fourth general partner, has six years of experience at GTC. In addition to the four general partners, six associate investment professionals are on the staff of GTC.

III. INVESTMENT STRATEGY

GTC Fund III will invest in growing private businesses, found and build companies in fragmented industries and invest in leveraged buyouts. In addition, the portfolio will be diversified geographically and by industry. A more specific definition of investment types follows:

1. **Industry Consolidations** - GTC first targets a fragmented industry which can be consolidated and then identifies an existing company to grow through a series of buyouts. These investments combine the traits of a leveraged buyout and a growth equity investment.

2. **GTC Founded Companies** - When GTC is unable to identify an existing company in a consolidating fragmented industry, it will selectively found and build its own company by recruiting a management team.
3. **Leveraged Buyouts** - In a leveraged buyout, the cash flow and assets of an existing business act as collateral for financing the purchase price. GTC normally works with existing management teams in these transactions.
4. **Growth Equities** - These companies typically have proven performance and markets, but rapid growth outstrips both their borrowing capacity and internal cash flow. GTC's investment is typically the company's first source of "professional" capital.
5. **Early Stage (traditional venture capital)** - Early stage investments are expected to be a minor portion of Fund III, consistent with Fund II where early stage investments are less than 10% of the portfolio. These companies usually involve a high risk of capital loss but offer high upside potential.

IV. INVESTMENT PERFORMANCE

While it is too early to determine the ultimate performance of Funds I and II, the present indications are positive. The \$56 million invested by Fund II since February, 1984, has increased in value by \$18 million to \$74 million based on realized gains and the valuation of the portfolio as of December 31, 1986. This is a compound annual return on investment in excess of 43% before GTC's profit sharing and before expenses.

The \$66 million invested by Fund I since August, 1980, has increased in value by \$76 million to \$142 million based on realized gains and the valuation of the portfolio as of December 31, 1986. This is a compound annual return on investment in excess of 31% before GTC's profit sharing and before expenses.

The valuation of Fund investments still outstanding significantly influences return on investment calculations. GTC believes that its valuation policies are conservative. For example, the 26 companies which have gone public, sold out or merged through December 31, 1986, have netted the Funds more than double their immediate prior-to-sale quarterly valuations. Also, these valuations reflect a discount on publicly traded securities, averaging approximately 20%.

During the time the Partners were associated with First Chicago's equity group (1971-1979), the investments under their management produced over a 22% compound annual return before expenses.

V. INVESTMENT AGREEMENT

Term

The Fund will have a ten-year initial term with GTC having the option to extend the Fund for up to three additional one-year terms to permit orderly dissolution.

Management Fee

During the first six years, the Fund will pay GTC an annual fee of 2% of total commitments (adjusted annually to reflect changes in the Consumer Price Index). Fifty percent of any fees received by GTC from portfolio companies is used to reduce the annual management fee. During the seventh year, the management fee will be 90% of the amount computed as set forth above, and during each succeeding year, the management fee will decline by ten percentage points (80% in the eighth year, 70% in the ninth, etc.).

Allocation of Income, Gains, Losses and Expenses

Income, gains, losses and expenses will generally be allocated 80% to the accounts of all Partners in proportion to their capital contributions and 20% to the account of GTC, except that short-term interest will be allocated according to capital accounts to the extent that the aggregate of short-term interest and portfolio dividends and interest exceed partnership expenses (including management fee).

GTC will not be entitled to receive distributions (other than to pay taxes) unless the Limited Partner's fair value capital accounts (plus amounts previously distributed to Limited Partners) are at least 120% of the Limited Partners' capital contributions, and after the Limited Partners have received distributions equal to their capital contributions, in proportion to their capital accounts.

VI. INVESTORS

Commitments as of 8/25/87

Leeway & Company	\$ 30	M
Abbott Capital Management	22	M
Horsley, Keogh & Associates	15	M
University of California	15	M
Crossroads Capital, Ltd.	12	M
Northwestern Mutual Insurance Company	10	M
Hughes Aircraft Retirement Fund	9	M
First Chicago Investment Advisors	6.5	M
Manufacturers Hanover Investment Corp.	5	M
John Hancock Venture Capital	5	M
Avon Products, Inc.	5	M
MNC Commercial Corporation	5	M
Chemical Equity Associates	4	M
Owens-Illinois	3	M
Continental Illinois Equity Corporation	3	M
GTC	2	M
Other	<u>4</u>	<u>M</u>
Total Committed	\$155.5	M

**Joint Meeting
Minnesota State Board
of Investment
&
Investment Advisory Council**

October 1, 1987

TABLE OF CONTENTS

	<u>TAB</u>
Agenda for October 1, 1987 Meeting	A
Minutes of Past Meetings	B
1. June 3, 1987 State Board of Investment	
2. June 2, 1987 Investment Advisory Council	
Quarterly Investment Review (April 1-June 30, 1987)	C
1. Basic Retirement Funds	
2. Post Retirement Fund and Other Investment Funds	
Portfolio Statistics (June 30, 1987)	D
Reports from Investment Advisory Council Committees:	E
1. Reports from the Administrative, Asset Allocation, Equity Manager, and Fixed Income Manager Committees	
2. Report from the Alternative Investment Committee	
a. Report on the Alternative Investment Program	
b. Recommendation on KKR 1987 Fund	
c. Recommendation on AEW-State Street Fund V	
d. Recommendation on Golder, Thoma & Cressey Fund	

Tab A

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

**JOINT MEETING OF
THE STATE BOARD OF INVESTMENT
AND
THE INVESTMENT ADVISORY COUNCIL**

**Thursday, October 1, 1987
8:30 A.M. - 2:00 P.M.**

**Spring Hill Center
Conference Room C
Wayzata, Minnesota 55391**

**8:30-8:45 Coffee and Rolls
 Introductions**

8:45-9:00 Opening Comments

Presentor: Howard Bicker, Executive Director

- o Objective for the day: Taking a look
 at the "big picture"**
- o 1982-1987: Years of growth and change
 for the SBI**

9:00-9:15 What is the SBI today?

**Presentor: Beth Lehman, Assistant to the
 Executive Director**

- o Scope and impact of the SBI**
- o Oversight responsibilities of the Board**
- o Decision-making structure**

**9:15-10:45 How does the SBI manage \$10 billion in pension
 fund assets?**

**A review of the investment objectives, asset
allocation, management structure, and performance
of the two largest funds managed by the Board.**

o **Basic Retirement Funds (9:15-10:15)**

Issue: Is it meeting its objectives?

Presentors: Jeff Bailey, Assistant Director
Tom Richards, Richards & Tierney

Discussion will include a comparison of the Basic Funds with other public and private pension funds.

o **Post Retirement Fund (10:15-10:45)**

Issue: How well does/will it serve the needs of retirees?

Presentors: Jeff Bailey, Assistant Director
Howard Bicker, Executive Director

Discussion will include a review of the post retirement benefit increase mechanism and the benefit increases it generates.

10:45-11:00 Break

11:00-11:40 When does the SBI earn a competitive return and benefit Minnesota, too?

Presenter: Howard Bicker, Executive Director

- o Minnesota Certificate of Deposit (CD) Program
- o Minnesota Housing Finance Agency Bond Issue
- o Minnesota Mortgage Pool
- o Minnesota Small Business Finance Agency Program
- o Superior Ventures, a Minnesota Venture Capital Limited Partnership

11:40-12:00 **How is the SBI viewed by its clientele?**

Moderator: Howard Bicker, Executive Director

- o Investment Advisory Council
 Jan Yeomans, IAC Chair
- o Statewide Retirement Systems
 Jim Hacking, Executive Director, PERA
 Elton Erdahl, Executive Director, TRA
 Paul Groschen, Executive Director, MSRS
- o Retiree Groups
 Mike Ousdigian, Minnesota Association of
 Retired Public Employees

12:00-1:00 **Lunch**

1:00-2:00 **What lies ahead for the SBI?**

This portion of the agenda will also serve as the regular quarterly meeting of the State Board of Investment. Items requiring Board action are noted below each committee heading.

- o Staff goals for Fiscal Year 1988
 Presentor: Howard Bicker

- o Reports from IAC Committees
 on major developments

Administrative and Asset
Allocation Committees

Presentor: Jan Yeomans, 3M Company

Equity Manager Committee

Presentor: Debbie Veverka, Honeywell, Inc.

Fixed Income Manager Committee

Presentor: Gary Norstrem, City of St. Paul

Alternative Investment Committee

Presentor: Ken Gudorf,
 The Carlson Companies, Inc.

Action Items:

1. Commitment to KKR Fund 1987
2. Commitment to AEW-State Street Fund
3. Commitment to Golder, Thoma & Cressey Fund

Tab B

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

**MINUTES
STATE BOARD OF INVESTMENT
JUNE 3, 1987**

The State Board of Investment met on Wednesday, June 3, 1987 at 8:30 A.M. in Room 112 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 III, were present.

The minutes of the March 4, 1987 meeting were 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 increased in value by 13.4% during the first quarter due to a very strong common stock market. Mr. Bicker stated that although the Basic Retirement Funds had a cash flow of \$3.6 million during the first quarter of the year, the Funds experienced a negative cash flow of \$115 million for the last year due to the Rule of 85. Mr. Bicker reported that the total rate of return for the Basic Retirement Funds was 13.3% for the quarter and 16.6% for the year including alternative investments. Excluding alternative investments, the Basic Funds were up 14.9% for the quarter and 18.3% for the year. These returns placed the Basic Retirement Funds in the top quartile of all public and private pension funds over that period. Mr. Bicker stated that the Basic Funds' active equity managers matched the performance of the common stock market during the first quarter, but they underperformed the market for the year. He reported that the Basic Funds' bond managers showed a return of 2.3% for the quarter and 10.9% for the year, outperforming the market during both these periods.

Mr. Bicker then summarized the performance of the Post Retirement Fund. He stated the Fund grew at a rate of 4.5% for the quarter and 14.5% for the most recent year. Much of this growth was due to a very sizable positive cash flow from the early retirements under the Rule of 85. Mr. Bicker reported that the Post Retirement Fund's equity portfolio produced a 20% total rate of return for the first quarter while the market was up 21.2%.

In closing, Mr. Bicker stated that as of March 31, 1987, all assets under management at the State Board of Investment were \$11.7 billion.

INVESTMENT ADVISORY COUNCIL REPORT

Jan Yeomans presented the Investment Advisory Council Report.

ADMINISTRATIVE AND ASSET ALLOCATION COMMITTEES

Ms. Yeomans stated that the Administrative and Asset Allocation Committees considered five issues at their quarterly meeting. The first issue was the travel policy for Board members. She stated that the Committees recommend the Board continue the current policy which allocates \$2000 annually for each Board member and/or their staff for SBI related business. Auditor Carlson moved approval. The motion was unanimously approved. The second issue considered was renewal of the Board's consultant contract with Richards & Tierney. She stated the Committee believes that the consulting services of Richards & Tierney have been valuable and it recommends continuation of their contract for another year at an unchanged cost of \$120,000. Mr. Carlson moved approval. The motion was unanimously approved. The third issue was consideration of Part III of the Basic Retirement Funds Investment policy staff position paper. It recommends several changes in investment management structure of both the equity and fixed income segments of the Basic Retirement Funds. The paper recommends that the actively managed component of both the stock and bond segments be allowed to fluctuate between 10 and 50% and the passively managed component fluctuate between 50 and 90%. It further recommends that a completeness fund be established to offset any style bias that may occur in the actively managed stock and bond components. Ms. Yeomans further stated that the paper proposed the total number of active stock and bond managers range between 15 and 20. In response to a question from Mr. Carlson, Ms. Yeomans stated that the proposed composition of the Basic Funds will not look radically different from the market as a whole, given the size of the funds. In response to another question from Mr. Carlson, Ms. Yeomans stated it may be realistic to expect the Basic Funds to perform in the top quartile of all pension funds over a five year cycle. The fourth issue the Committee discussed was a staff proposal relating to periodic rebalancing of the Basic Retirement Funds' policy asset mix. Mr. Carlson moved approval. The motion passed unanimously. The fifth issue concerned a proposal to construct commingled investment pools combining various short-term accounts currently managed by the Board. Mr. Carlson moved approval. The motion was passed unanimously.

EQUITY MANAGER COMMITTEE

Ms. Yeomans stated that the Equity Manager Committee considered four issues. The first was the investment management structure addressed by Part III of the Basic Retirement Funds Investment Policy staff position paper. The Committee recommends the Board adopt the proposals concerning the equity component of

the Funds presented in the paper. In response to a question from Treasurer McGrath, Ms. Yeomans stated that there are two events that may require the replacement of a manager; one is the change in the manager's business organization and the second is the manager's performance relative to its benchmark portfolio. Mr. Carlson moved approval of the Committee recommendation. The motion passed unanimously. Ms. Yeomans stated the Committee also discussed a staff proposal to modify the equity managers performance fee formula. The Committee accepted a proposal to institute a sliding scale base fee. This change would effectively lower fees paid by the Board at any given level of performance. Secretary Growe moved approval. The motion was unanimously passed. The third issue concerned performance of the Board's external equity managers. Ms. Yeomans stated that in aggregate, the managers were much in line with the market for the most recent quarter. She said the Committee recommends no manager changes at this time, since the Board will be considering several modifications connected with the revised investment management structure just adopted by the Board. Mr. McGrath moved approval. The motion passed unanimously. The fourth issue concerned renewal of the manager contracts for the coming fiscal year. The Committee recommends that all equity manager contracts be renewed at this time. If the Board chooses to end a manager relationship, the 30-day cancellation clause gives sufficient flexibility to make any necessary changes. Ms. Growe moved approval. The motion passed unanimously.

FIXED INCOME MANAGER COMMITTEE

Ms. Yeomans stated that the first item considered by the Fixed Income Manager Committee was the investment management structure of the bond segment of the Basic Funds. The Committee recommends adoption of the investment policy as contained in Part III of the Basic Retirement Funds investment policy paper. This would move the bond segment from 100% active management to some portion being passively managed. Mr. Carlson moved approval. The motion passed unanimously. Ms. Yeomans stated the Committee recommend that all the fixed income manager contracts be renewed for the fiscal year with the provision that they provide for a 30-day cancellation clause be used. Mr. Carlson moved approval. The motion was unanimously approved.

ALTERNATIVE INVESTMENT COMMITTEE

Ms. Yeomans stated that the Alternative Investment Committee reviewed the current allocations to the real estate, venture capital and resource fund managers. She reported the Committee is searching for a consultant to assist in the alternative investment area and has established objectives for selection of the consultant.

Governor Perpich requested that a meeting be held away from the Capitol to discuss all assets controlled by the SBI. Mr. Bicker said he would make those arrangements and suggested that such a meeting be held jointly with the Advisory Council to discuss a number of issues of common interest.

LEGISLATIVE UPDATE

Mr. Bicker reviewed the results of the Board's proposal to the 1987 Legislature. Three of the four requests were granted: to increase the authorized equity limit from 75% to 85% of the fund; to increase the authorized limit on alternative investments from 20% to 35% of a fund; and to add non-rated and high yield fixed income securities as authorized investments for the Board. The request to invest in international securities was not granted. He stated that there were a number of other proposals of interest to the SBI, including a new defined contribution plan within PERA and new authority to invest in debt issues of domestic mutual insurance corporations.

SOUTH AFRICA TASK FORCE

Jay Kiedrowski, Task Force Chair, reported that the South Africa Task Force met during the quarter to review implementation of Phase III of the Board's resolution. Phase III requires the Board to limit its holdings to companies that have achieved the highest category ranking on their implementation of the Sullivan Principles. Current information indicates 85 of the 143 publicly traded U.S. companies doing business in South Africa do not meet this requirement. He said that the Task Force reviewed financial analysis and legal advice on implementation of Phase III and recommended the Board continue to implement its divestment program through attrition. The Task Force also recommended that action be limited to the actively managed stock portfolios. This recommendation is similar to the Board's action during Phases I and II. Mr. Kiedrowski said SBI staff had directed the Board's active managers to discontinue purchases of stock that do not meet the Phase III requirement unless the managers feel it would be a violation of their fiduciary responsibility to do so. In these cases the manager must inform the Board, in writing, of their reasons for purchasing the stock. Mr. Kiedrowski concluded the report by stating the Task Force will meet before the next Board meeting to review progress on implementation of this policy.

Mr. Carlson questioned the need for managers to notify Board staff if they purchased stock in a restricted company and moved to strike the letter writing requirement. There was no second.

In response to a question from Mr. Carlson, Tom Richards stated that imposing the Phase III requirement on the Basic Retirement Funds during calendar year 1986 would have reduced investment returns by \$27 million. In addition, he stated that transaction costs to liquidate the restricted securities and replace them with other non-restricted stocks would have totaled approximately \$4 million.

Mr. Carlson questioned the logic of the Board's action and suggested the Board rescind its resolution. Attorney General Humphrey disagreed with Mr. Carlson's statements and said the Board's actions have had direct and affirmative results on the business activities of companies. Mr. McGrath stated he supports

the Board's proposed action given its financial and legal constraints. Mr. McGrath moved to adopt the Task Force recommendation. The motion was seconded by Mr. Humphrey and was passed on a voice vote.

The meeting adjourned at 9:45 A.M.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "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

**MINUTES
INVESTMENT ADVISORY COUNCIL
June 2, 1987**

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

MEMBERS PRESENT: Harry Adams, James Eckmann, Elton Erdahl, Arvin Herman (for Paul Groschen), Ken Gudorf, James Hacking, Vern Jackels, Jay Kiedrowski, Malcolm McDonald, Mike Rosen, Joe Rukavina, Ray Vecellio, Debbie Veverka, and Jan Yeomans.

MEMBERS ABSENT: Paul Groschen, Ken Gudorf, Judy Mares, and Gary Norstrem.

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

OTHER ATTENDING: Tom Richards, Richards & Tierney; James Heidelberg; Mike Ousdigian; Peter Sausen; Bob Whitaker; Craig Rushmeyer, New Era Financial Group, Wayzata; and Gary Austin, TRA.

The minutes of the March 3, 1987 meeting were 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 increased in value by 13.4% during the first quarter, due to a very strong common stock market. Mr. Bicker stated that although the Basic Retirement Funds had a cash flow of \$3.6 million during the first quarter of the year, the Funds experienced a negative cash flow of \$115 million for the last year due to the Rule of 85. Mr. Bicker reported that the total rate of return for the Basic Retirement Funds was 13.3% for the quarter and 16.6% for the year including alternative investments. Excluding alternative investments the Basic Funds were up 14.9% for the quarter and 18.3% for the year. These returns placed the Basic Funds in the top quartile of all public and private pension funds over that period. Mr. Bicker stated that the Basic Funds' active equity managers matched the

performance of the common stock market during the first quarter, but they underperformed the market for the year. Mr. Bicker reported that the Basic Funds' bond managers showed a return of 2.3% for the quarter and 10.9% for the year outperforming the market during both time periods.

Mr. Bicker then summarized the performance of the Post Retirement Fund. He stated the Fund grew at a rate of 4.5% for the quarter and 14.5% for the most recent year. Much of this growth was due to a very sizable positive cash flow from early retirements under the Rule of 85. Mr. Bicker reported that the Post Retirement Fund's equity portfolio produced a 20% total rate of return for the first quarter while the market was up 21.2%.

In closing, Mr. Bicker stated that as of March 31, 1987, all assets under management at the State Board of Investment were \$11.7 billion.

INVESTMENT ADVISORY COUNCIL REPORT

ADMINISTRATIVE AND ASSET ALLOCATION COMMITTEES

Jan Yeomans stated that the Committees considered five issues. The first issue was the travel policy for Board members. The Committee recommended a continuation of the current policy which allocates \$2000 annually for each Board member and/or their staff for SBI related travel. The second issue was renewal of the contract with Richards & Tierney, the Board's consultant, at \$120,000 for one year. The third issue was consideration of Part III of the staff Investment Policy Paper which recommended changes in the structure of both the equity and fixed income segments of the Basic Retirement Funds. The fourth issue discussed was a staff proposal relating to periodic rebalancings of the Basic Retirement Funds. The staff recommended that a rebalancing be required if an asset class deviates by more than 10% from its policy allocation. The Committees accepted this recommendation and further recommended that staff have the discretion to rebalance if there is a deviation in the range of 5-10%. The fifth issue concerned a proposal to construct commingled short-term investment pools working in conjunction with the Department of Finance. Mr. Rukavina moved the Council accept the Committee report. The motion passed unanimously.

EQUITY MANAGER COMMITTEE

Ms. Veverka stated the Equity Manager Committee considered three issues. First, the Committee recommended several changes contained in the staff paper on the investment management structure of the equity segment of the Basic Retirement Funds. The Committee accepted the proposal to introduce flexible, rather than fixed, allocations to the active and passive portions of the stock segment. Further, the Committee accepted the proposal to select active managers solely on the basis of their potential to produce superior returns. Finally, they accepted a proposal to create a passively managed completeness fund to offset any style

biases that may occur in the active manager group. The second issue discussed was a staff proposal to modify the external manager performance fee formula. The Committee accepted a staff recommendation to institute a sliding scale base fee. This change will effectively lower the fees paid at any given level of performance. The final issue concerned renewal of the external stock manager contracts. The Committee recommended all contracts be renewed for the next fiscal year and felt the 30-day cancellation clause provides sufficient flexibility to make any changes that may be necessary in the near future. Mike Rosen moved approval to accept the Committee report. The motion was unanimously approved.

FIXED INCOME MANAGER COMMITTEE

Jim Hacking stated the Fixed Income Manager Committee recommended adoption of the proposals contained in Part III of the staff investment policy paper pertaining to the fixed income portion of the Basic Funds. This will include the introduction of a passively managed bond index fund in lieu of a total allocation to active management. It also includes a flexible allocation to the passive and active segments and a corresponding completeness fund. Mr. Hacking stated the Committee recommended that all the fixed income manager contracts be renewed for the next fiscal year. The 30-day cancellation clause in all the contracts gives the Board the authority to terminate a contract at any time should that be deemed necessary. Malcolm McDonald moved approval of the Committee report. The motion passed unanimously.

ALTERNATIVE INVESTMENT COMMITTEE

Mr. McDonald stated that the Alternative Investment Committee reviewed the current commitments to all alternative investment managers. He stated the Committee is also reviewing consultants to assist in monitoring alternative asset managers and to help the Committee refine investment objectives for the entire alternative investment segment of the Basic Funds.

LEGISLATIVE UPDATE

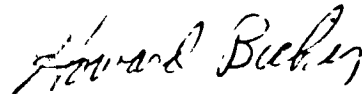
Mr. Bicker reviewed the results of the Board's proposal to the 1987 Legislature. Three of the four requests were granted: to increase the authorized equity limit from 75% to 85% of a fund; to increase the authorized limit on alternative investments from 20% to 35% of a fund; and to add non-rated and high yield fixed income securities as authorized investments for the Board. The request to invest in international securities was not granted. He stated that there were a number of other proposals of interest to the SBI, including a new defined contribution plan within PERA for volunteer ambulance drivers and new authority to invest in debt issues of domestic mutual insurance corporations.

SOUTH AFRICA TASK FORCE

Jay Kiedrowski, Chair of the South Africa Task Force, stated that the Task Force met to review the implementation of Phase III of the SBI's resolution. He stated that based on the financial analysis and legal advice received concerning the impact of the Phase III requirement, the Task Force recommends that the Board continue to implement its divestment program through attrition and limit application of the resolution to the actively managed stock portfolios. The Board's active managers will be directed to discontinue purchases of the stock of any company that does not meet the Phase III requirement unless the manager determines the failure to buy a particular stock would be a violation of its fiduciary responsibility. He also stated that the Task Force plans to reconvene prior to the Board's next quarterly meeting to review progress on implementation of the Phase III recommendation.

The meeting adjourned at 3:00 P.M.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Howard Bicker".

Howard J. Bicker
Executive Director

Tab C

TABLE OF CONTENTS

<u>BASIC RETIREMENT FUNDS</u>	<u>PAGE</u>
Quarterly Investment Summary.....	2
Asset Growth.....	7
Asset Mix.....	8
Asset Mix - Actual vs. Policy.....	10
Balanced Portfolio Universe-Historical Asset Mix.....	11
Performance of Capital Markets.....	12
Investment Returns Relative to Performance Standards.....	13
Equity Manager Performance.....	16
Bond Manager Performance.....	17
 <u>POST RETIREMENT INVESTMENT FUND</u>	
Quarterly Investment Summary.....	18
Dedicated Bond Portfolio Statistics.....	23
Asset Growth.....	24
Asset Mix.....	25
Benefit Increases vs. Inflation.....	27
Equity Segment Returns.....	28
Equity Manager Data.....	30
 <u>SUPPLEMENTAL INVESTMENT FUND</u>	32
Income Share Account.....	36
Asset Mix.....	37
Investment Performance.....	39
Growth Share Account.....	40
Asset Mix.....	41
Investment Performance.....	43
Common Stock Index.....	44
Bond Market Account.....	45
Money Market Account.....	46
Guaranteed Return Account.....	47
Bond Account.....	48
 <u>Minnesota Variable Annuity Fund</u>	50
Asset Mix.....	53
Investment Performance.....	55
 <u>PERMANENT SCHOOL FUND</u>	
Quarterly Investment Summary.....	58
Bond Portfolio Statistics.....	60
Asset Mix.....	61

TABLE OF CONTENTS

APPENDIX

Equity Manager Portfolio Statistics Glossary.....A-3

External Equity Managers:

Portfolio Statistics Relative to Benchmark Portfolios...A-7

Sector Weightings Relative to Benchmark Portfolios.....A-8

Performance Relative to Benchmark Portfolios.....A-9

Portfolio Statistics Historical Summary.....A-10

Sector Weighting Historical Profile.....A-15

Historical Performance Summary.....A-20

Bond Manager Portfolio Statistics Glossary.....A-22

External Fixed Income Managers:

Portfolio Statistics Historical Summary.....A-24

Sector Weighting Historical Profile.....A-26

Historical Performance Summary.....A-28

MINNESOTA STATE BOARD OF INVESTMENT

BASIC RETIREMENT FUNDS

QUARTERLY INVESTMENT REVIEW

JUNE 30, 1987

MINNESOTA STATE BOARD OF INVESTMENT

BASIC RETIREMENT FUNDS

SECOND QUARTER 1987

Summary

ASSETS

The Basic Retirement Funds experienced a modest increase in asset value during second quarter 1987. The increase was due entirely to investment performance, as quarterly withdrawals from the Basic Funds exceeded contributions by \$21 million. Investment performance brought asset growth for fiscal year 1987 to 12.6%, despite net withdrawals for the period of \$80 million. Large net withdrawals are expected to continue into July of 1987 due to the expiration of the "Rule of 85". Positive cash flows into the Basic Funds are anticipated to begin later this year.

The asset growth history of the Basic Retirement Funds over the last five calendar years and two quarters is detailed below.

<u>Calendar Year</u>	<u>Market Value (millions)</u>	<u>Percent Change from Previous Period</u>
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
2Q	5,137	+ 1.2

ASSET MIX

During the second quarter, the cash equivalents segment of the Basic Retirement Funds increased slightly as a percentage of total assets. The Basic Funds' cash position was increased in anticipation of heavy third quarter withdrawals due to the expiration of the "Rule of 85". Cash was raised primarily through the sale of equities in the index fund and as a result, the common stock segment of the portfolio declined in relative weighting. The increase in the cash equivalents weighting also reflected several second quarter distributions from alternative investment managers that had not yet been allocated to new investments at the quarter's end. The segment is expected to return to a more normal weighting by the end of third quarter 1987.

Asset segment weightings for the Basic Retirement Funds for the most recent two quarters and year are displayed below.

ASSET MIX

	<u>6/30/86</u>	<u>3/31/87</u>	<u>6/30/87</u>
Common Stocks	62.2%	61.7%	59.8%
Bonds	22.8	20.9	19.8
Cash Equivalents*	5.6	6.8	9.8
Alternative Equity	<u>9.4</u>	<u>10.6</u>	<u>10.6</u>
Assets			
	100.0%	100.0%	100.0%

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

INVESTMENT RETURNS

The capital markets performance during second quarter 1987 was lackluster. Following its explosive first quarter, the stock market produced only modest returns, while the bond market reacted to a sudden interest rate rise with a negative performance. In this environment, the Basic Retirement Funds generated a 1.6% total rate of return for the second quarter. Excluding alternative assets, the Basic Funds' quarterly performance was 1.7%. This performance roughly matched that of the Funds' assigned benchmarks, the capital markets composite and the TUCS median balanced tax-exempt fund.

Aided by a very strong first quarter, the Basic Retirement Funds produced a 14.5% rate of return for fiscal year 1987. Excluding other assets, the total portfolio performance for the period was 15.8%. During the year, the Basic Retirement Funds benefited from a long-term investment policy asset mix which favors common stocks. With their substantial common stock exposure, the Basic Funds outperformed the median TUCS balanced fund for fiscal year 1987 by a wide margin.

The Basic Retirement Funds total portfolio and asset segment returns are presented below.

	Total Rate of Return	
	Second Quarter 1987	Year Ending 6/30/87
Common Stocks	3.2%	19.4%
Bonds	-2.3	8.0
Cash	1.7	6.4
Alternative Equity Assets	1.6	5.1
Total Fund (including alt. assets)	1.6	14.5

EQUITY PERFORMANCE

In aggregate, the Basic Retirement Funds' equity managers roughly matched the performance of the market during the second quarter and slightly underperformed for the fiscal year 1987. As noted in previous Quarterly Investment Reviews, the individual active equity manager returns have consistently been broadly dispersed. During second quarter 1987, this divergence of performance was particularly apparent. The wide distribution of second quarter returns again reflected general market conditions. During the period, large capitalization stocks continued to outperform small cap ones by an overwhelming margin. In addition, there were significant differences among the performances of the various market sectors. For example, the Energy and Transportation sectors of the market generated outstanding returns during the quarter, while the Finance and Utilities sectors exhibited negative returns.

The risk composition of the aggregate equity manager portfolio remained essentially the same. Sector concentrations shifted slightly. As a group, the active managers trimmed their Finance holdings, reducing their aggregate position to a market weighting. In addition, the managers' Capital Goods holdings were increased slightly. The managers are now overweighted in the Consumer Durables, Consumer Nondurables, Materials and Services, and Technology sectors. They continue to be underweighted in the Energy and Utilities sectors.

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

Total Portfolio Returns		
	Second Quarter <u>1987</u>	Year Ending <u>6/30/87</u>
Fred Alger	0.0%	7.1%
Alliance Capital	4.6	23.6
Beutel Goodman	5.3	17.1
BMI Capital	1.2	20.7
Forstmann Leff	1.6	12.3
Hellman Jordan	1.3	23.1
IDS	3.7	19.3
Investment Advisers	4.0	18.1
Lieber & Company	-1.3	7.3
Peregrine Capital	1.4	18.3
Waddell and Reed	2.4	19.3
Internal Manager	3.4	26.3
Wilshire Associates	3.6	20.3
(Index Fund)		
Total Basic Retirement Funds'		
Common Stock Segment	3.2	19.4
Wilshire 5000	3.3	20.1

BOND PERFORMANCE

The aggregate performance of the Basic Retirement Funds' active bond managers trailed that of the bond market during the second quarter. The bond managers produced a combined rate of return of -2.3% for the quarter, while the market generated a -1.6% return. The second quarter was a difficult period for bond managers, as interest rates increased sharply in April. However, a strong first quarter performance by the bond manager group allowed them to outperform the market by a wide margin for the fiscal year.

The risk characteristics and the sector concentrations of the aggregate bond portfolio shifted during the quarter. Current yield and yield to maturity were increased slightly, while portfolio duration was decreased. The managers added to their positions in the Government, Agency, and Finance sectors and trimmed their holdings in the Mortgage and Industrial sectors.

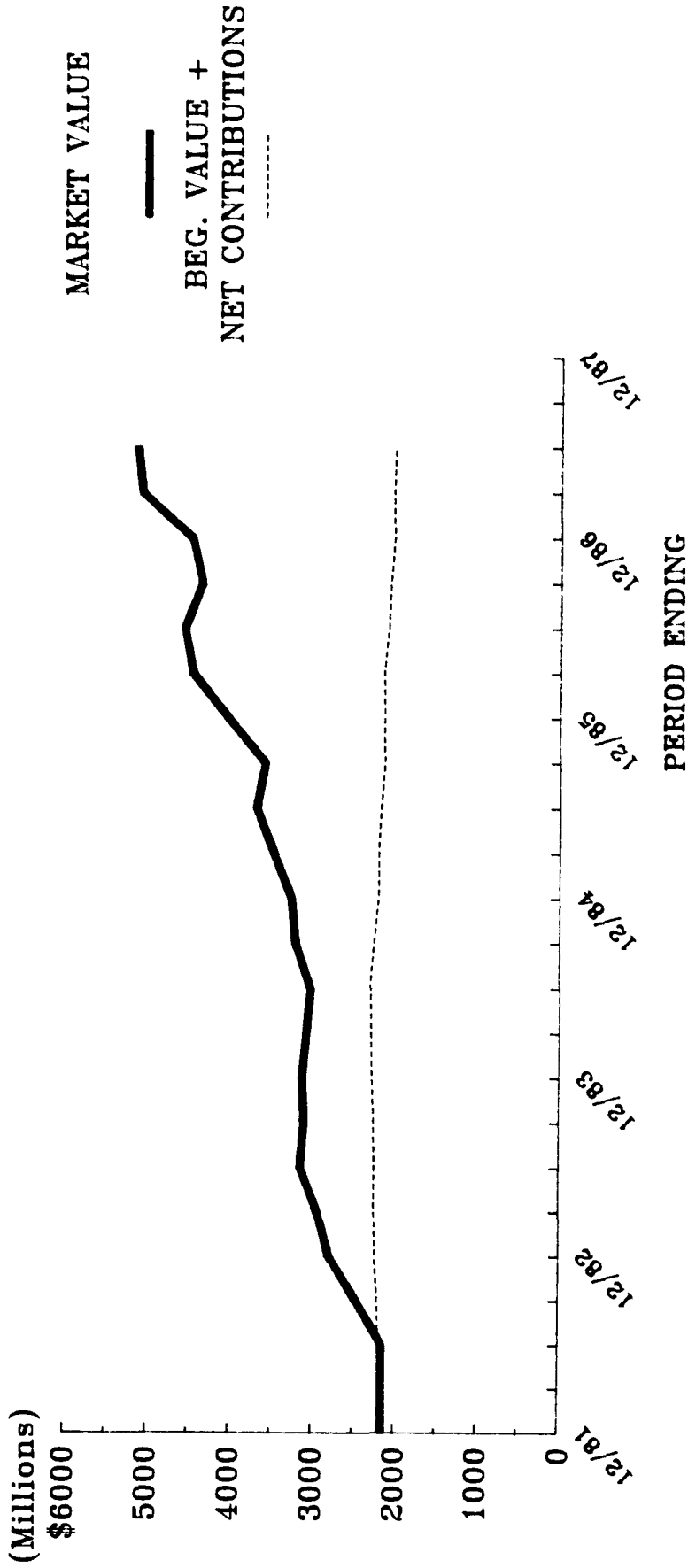
The Basic Retirement Funds' bond manager performance for the most recent quarter and year are displayed below.

	Total Portfolio Returns	
	Second Quarter <u>1987</u>	Year Ending <u>6/30/87</u>
Investment Advisers	- 0.9%	5.2
Lehman Management	- 1.6	5.2
Miller Anderson	- 1.6	14.0*
Morgan Stanley	- 3.1	7.4
Peregrine Capital	- 1.7	7.3
Western Asset	- 3.4	6.2
Total Basic Retirement Funds' Bond Segment	- 2.3	8.0
Salomon Brothers Broad Bond Index	- 1.6	5.6

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

FIGURE 1

BASIC RETIREMENT FUNDS ASSET GROWTH



(Millions)
\$6000
5000
4000
3000
2000
1000
0

(MILLIONS OF DOLLARS)

FIGURE 2

BASIC RETIREMENT FUNDS HISTORICAL ASSET MIX

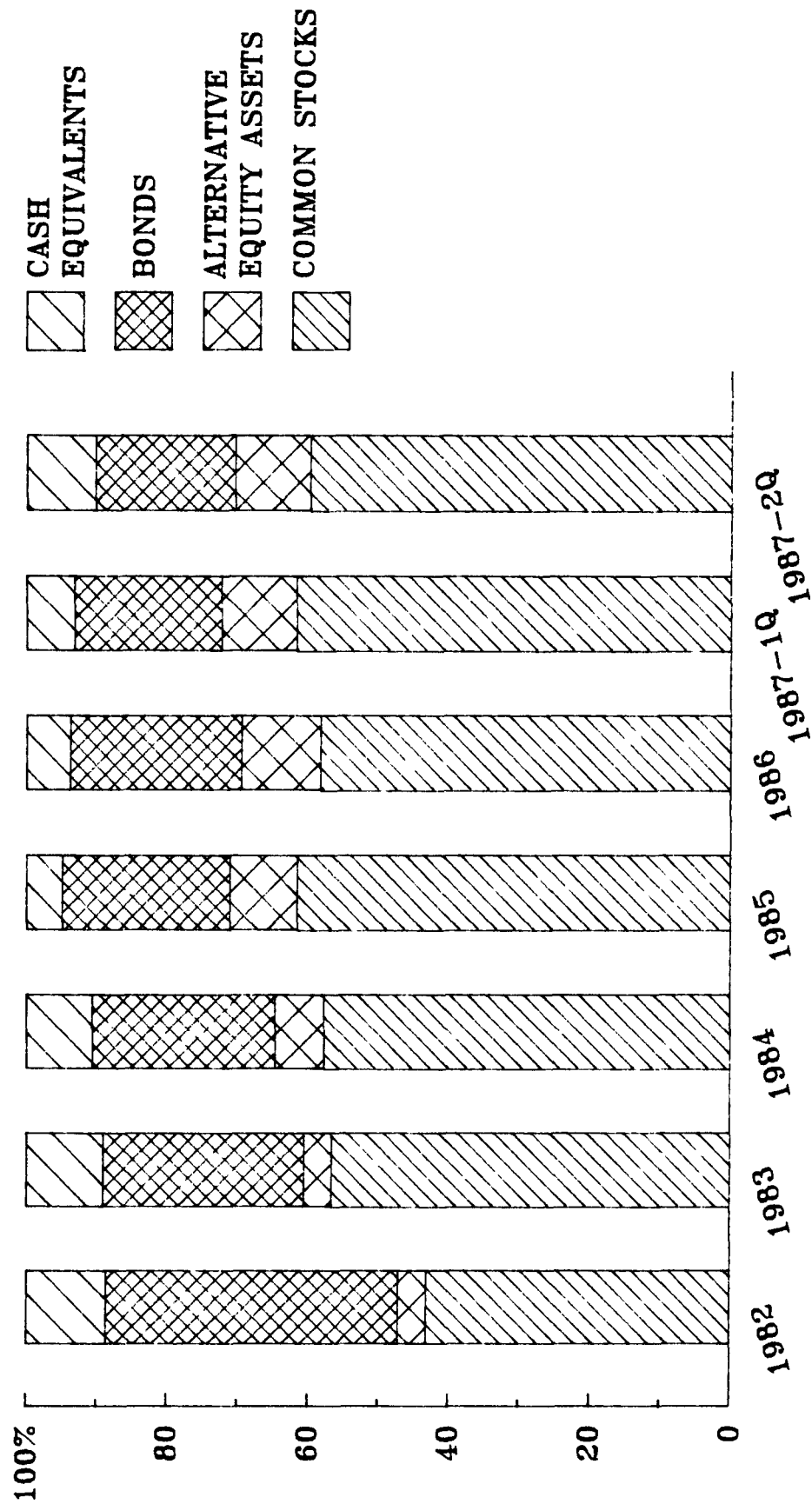


TABLE 1

BASIC RETIREMENT FUNDS ASSET MIX

PERCENT OF MARKET VALUE (End of Period Allocations)

	Common Stocks \$Million	Percent	Bonds \$Million	Percent	Cash* \$Million	Percent	Real Estate \$Million	Percent	Resource Funds \$Million	Percent	Venture Capital \$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
2Q	3,070	59.8	1,016	19.8	506	9.8	396	7.7	63	1.2	86	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)

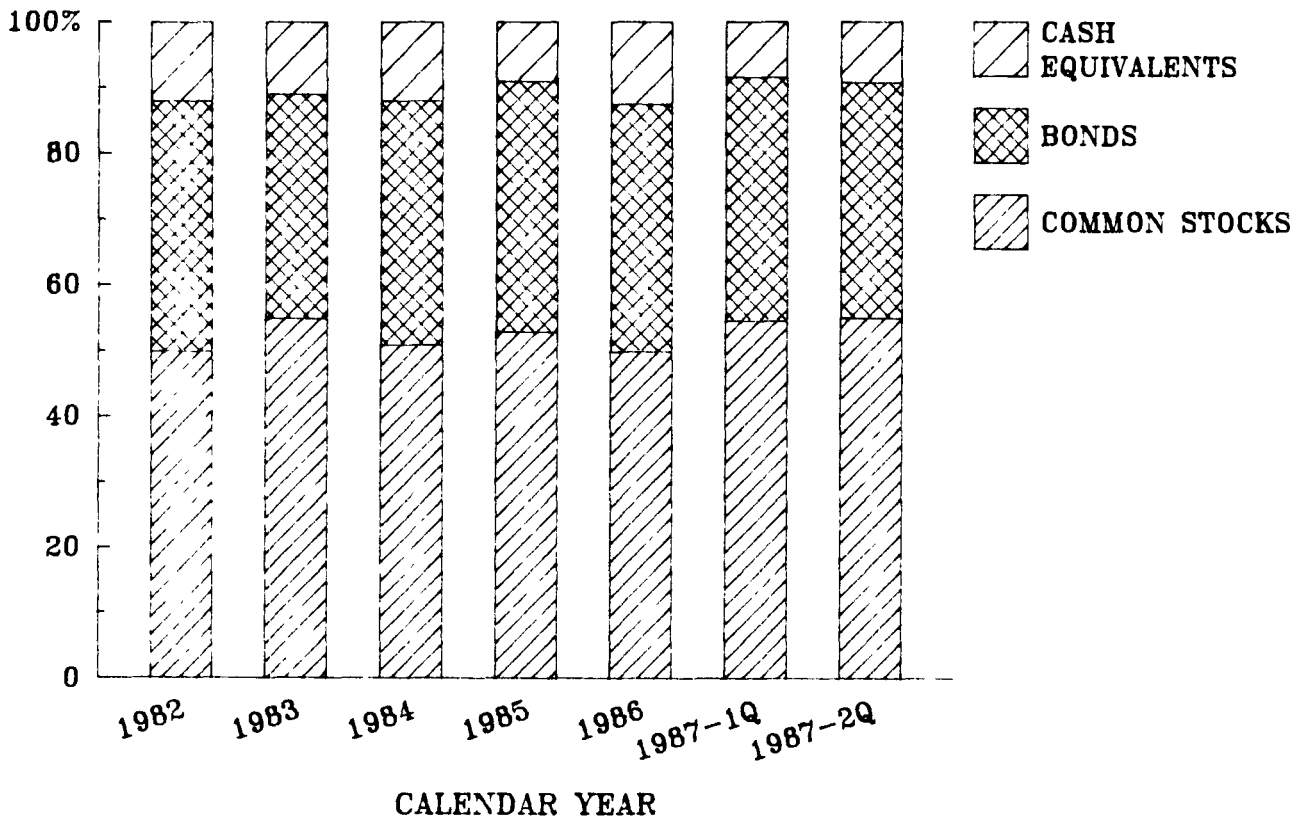
	Common Stocks*			Fixed Income**			Real Estate*			Resource Funds Venture Capital*	
	Passive Management Actual Policy Diff.	Active Management Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual Policy Diff.	Actual 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	
	2Q 40.4	40 + 0.4	21.7	20 + 1.7	26.9	25 + 1.9	7.9	10 -2.1	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**



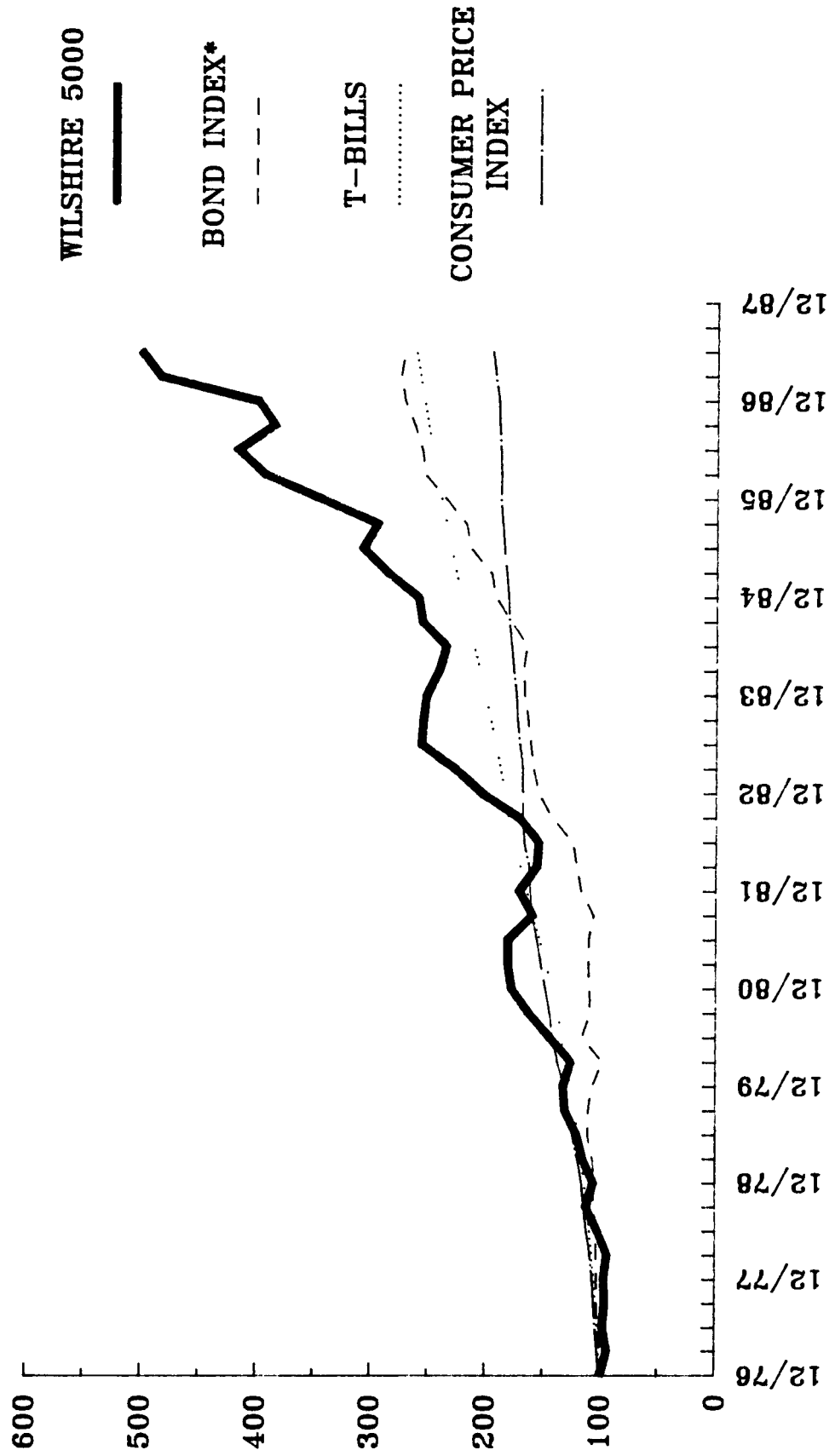
	1982	1983	1984	1985	1986	1987-1Q	1987-2Q
COMMON STOCKS	48%	52%	48%	50%	48%	52%	54%
BONDS	36	32	35	36	36	35	35
CASH EQUIVALENTS	12	10	11	9	12	8	9

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 two quarters 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

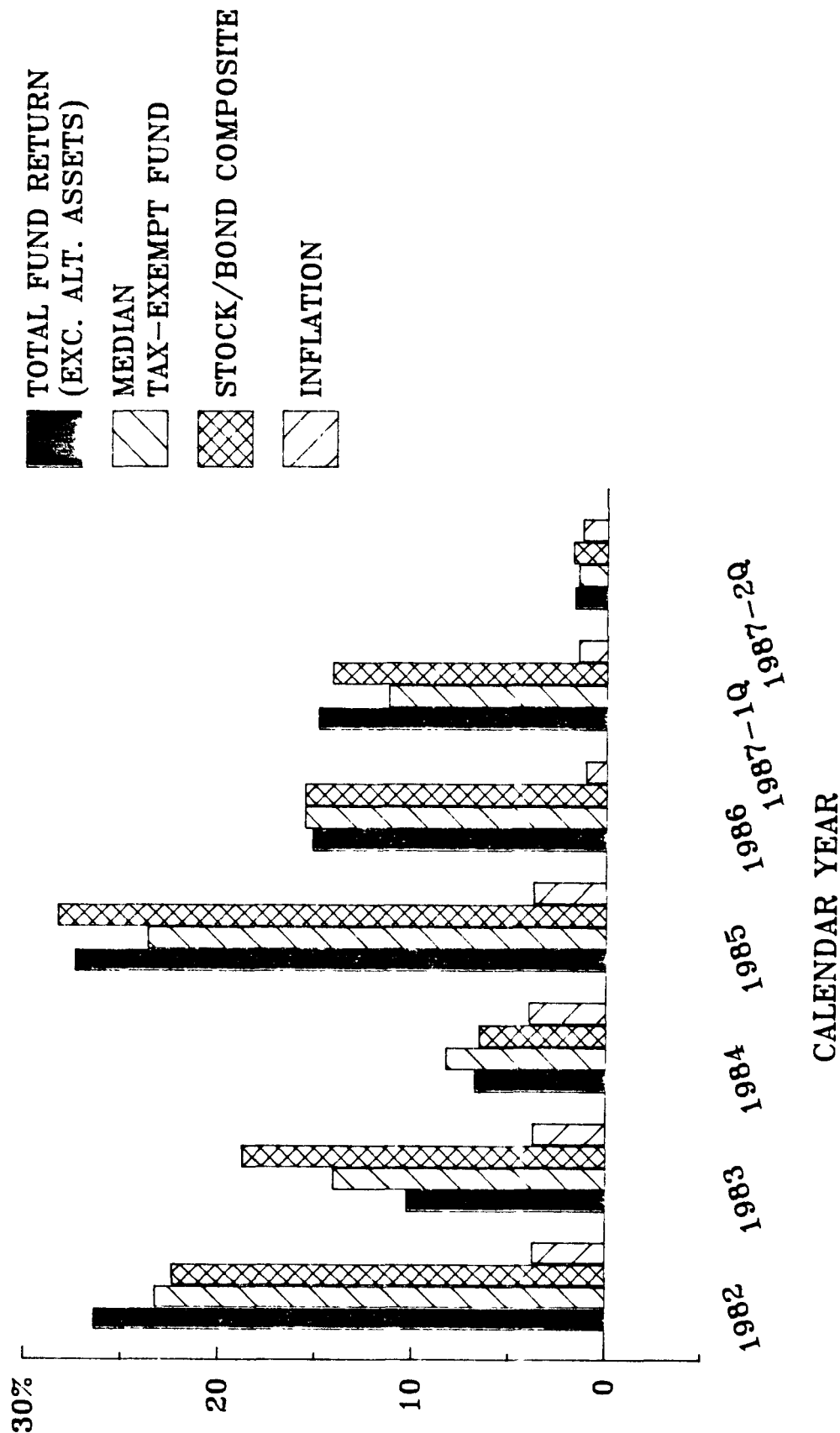


TABLE 3

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
2Q	1.7	1.5	1.7	1.3	1.4	1.6
1 Year Through 6/30/87	15.8	13.1	15.4	3.7	5.7	14.5
3 Years Annualized Through 6/30/87	24.3	22.8	24.6	3.1	7.4	22.4
5 Years Annualized Through 6/30/87	20.6	20.6	22.6	3.2	8.3	19.5

*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 -----		BONDS -----		ALTERNATIVE EQUITY ASSETS -----
	Basics -----	Wilshire 5000 -----	Basics -----	Salomon Bond Index -----	
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
2Q	3.2	3.3	- 2.3	- 1.6	1.6
1 Year Through 6/30/87	19.4	20.1	8.0	5.6	5.1
3 Years Annualized Through 6/30/87	27.9	28.6	17.1	18.0	5.7
5 Years Annualized Through 6/30/87	23.4	26.5	17.7	16.8	6.7

TABLE 5

BASIC RETIREMENT FUNDS

EQUITY MANAGER PERFORMANCE
TOTAL PORTFOLIO RETURNS

Managers	Second Quarter 1987	Year Ending 6/30/87	Two Years Ending 6/30/87 (Annualized)	Three Years Ending 6/30/87 (Annualized)	Four Years Ending 6/30/87 (Annualized)
Fred Alger	0.0%	7.1%	25.6%	25.9%	14.4%
Alliance Capital	4.6	23.6	33.4	33.6	19.1
Beutel Goodman	5.3	17.1	16.7	22.9	17.0
BMI Capital	1.2	20.7	28.4	23.6	9.3
Forstmann Leff	1.6	12.3	27.2	28.0	17.5
Hellman Jordan	1.3	23.1	26.3	28.7	18.2
IDS	3.7	19.3	30.1	31.9	19.0
Investment Advisers	4.0	18.1	23.6	26.4	16.8
Lieber & Company	- 1.3	7.3	23.5	25.9	16.1
Peregrine Capital	1.4	18.3	19.2	N.A.	N.A.
Waddell & Reed	2.4	19.3	23.8	21.1	12.0
Internal Manager	3.4	26.3	22.3	N.A.	N.A.
Wilshire Associates (Index Fund)	3.6	20.3	27.2	28.6	N.A.
Total Basic Retirement Funds' Common Stock Segment	3.2	19.4	26.4	27.8	16.8
Capital Markets Data					
Wilshire 5000	3.3	20.1	27.4	28.6	18.1
90-Day Treasury Bills	1.4	5.7	6.5	7.4	8.1
Inflation	1.3	3.7	2.7	3.1	3.4

TABLE 6

BASIC RETIREMENT FUNDS BOND MANAGER PERFORMANCE

TOTAL PORTFOLIO RETURNS				
Managers	Second Quarter 1987	Year Ending 6/30/87	Two Years Ending 6/30/87 (Annualized)	Three Years Ending 6/30/87 (Annualized)
Investment Advisers	- 0.9%	5.2%	10.6%	18.2%
Lehman Management	- 1.6	5.2	11.0	16.2
Miller Anderson	- 1.6	14.0*	16.2	18.4
Morgan Stanley	- 3.1	7.4	12.5	16.9
Peregrine Capital	- 1.7	7.3	10.2	14.4
Western Asset	- 3.4	6.2	13.2	19.1
Total - External Bond Managers	- 2.3	8.0	12.9	17.4
Capital Markets Data				
Salomon Brothers Broad Bond Index	- 1.6	5.6	12.5	18.0
90-Day Treasury Bills	1.4	5.7	6.5	7.4
Inflation	1.3	3.7	2.7	3.1

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

MINNESOTA STATE BOARD OF INVESTMENT

POST RETIREMENT INVESTMENT FUND

QUARTERLY INVESTMENT REVIEW

JUNE 30, 1987

MINNESOTA STATE BOARD OF INVESTMENT

POST RETIREMENT INVESTMENT FUND

SECOND QUARTER 1987

Summary

ASSETS

The market value of the Post Retirement Investment Fund's assets increased by 0.4% during second quarter 1987. With this increase, asset growth for fiscal year 1987 was brought to 9.3%. The Post Retirement Investment Fund experienced a steady flow of contributions throughout the entire fiscal year. However, the expiration of the "Rule of 85" in June 1987 resulted in a particularly large inflow of contributions in the second quarter. During this period, contributions exceeded withdrawals by \$127 million, resulting in net contributions for fiscal year 1987 of over \$150 million. The "Rule of 85" expiration is expected to generate significant contributions to the Post Retirement Investment Fund in the third quarter as well.

The asset growth history of the Post Retirement Investment Fund over the last five-and-a-half years is detailed below.

<u>Calendar Year</u>	<u>Market Value (millions)</u>	<u>Percent Change from Previous Period</u>
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
2Q	3,997	+ 0.4

ASSET MIX

A large influx of contributions at second quarter's-end resulted in an increase in the relative weighting of the cash equivalents segment of the Post Retirement Investment Fund portfolio. The segment will be reduced to a more normal level as the excess cash reserves are invested in the stock and bond segments of the portfolio in third quarter 1987.

Asset mix for the Post Retirement Investment Fund for the most recent two quarters and year is displayed below.

	ASSET MIX		
	<u>6/30/86</u>	<u>3/31/87</u>	<u>6/30/87</u>
Common Stocks	18.6%	16.7%	16.8%
Bonds	67.2	76.5	74.2
Cash Equivalents	<u>14.2</u>	<u>6.8</u>	<u>9.0</u>
	100.0%	100.0%	100.0%

EQUITY PERFORMANCE

The Post Retirement Investment Fund's equity portfolio generated a 1.7% rate of return for the second quarter of the year. The equity portfolio underperformed the Wilshire 5000 with its 3.3% rate of return for the period. The disappointing second quarter performance was largely attributable to the equity portfolio's substantial overweighting of the Finance sector, the poorest performing sector of the common stock market. The portfolio was aided, on the other hand, by its market weighting of the Energy sector and its overweighting of Transportation issues, the top performing sectors of the market. For the most recent year, the Post Retirement Investment Fund's equity portfolio generated a 15.7% rate of return. The Wilshire 5000 performance was 20.1% for the year.

The equity portfolio's industry sector concentrations remained essentially unchanged during the quarter. The portfolio retained its overweighted positions in the Financial and Transportation sectors and its underweighted positions in the Capital Goods, Consumer Durables, Consumer Nondurables, and Materials and Services sectors.

The performance of the Post Retirement Investment Fund's equity portfolio for the latest quarter and year are displayed below.

	<u>Second Quarter 1987</u>	<u>Year Ending 6/30/87</u>
Equity Portfolio	1.7%	15.7%
Wilshire 5000	3.3	20.1

DEDICATED BOND PORTFOLIO

The composition of the Post Retirement Investment Fund's dedicated bond portfolio changed very little during the second quarter of the year. The average quality rating of the bond portfolio remained at AA. The sector composition remained essentially unchanged, with the majority of the portfolio issues concentrated in the Treasury and Agency sectors of the market.

The Post Retirement Investment Fund's bond portfolio provided a -3.7% total rate of return for the second quarter and a 3.2% rate of return for fiscal year 1987. The Post Fund's dedicated bond portfolio is designed so that portfolio income and maturities match the Fund's liability stream. With this design, the duration of the dedicated bond portfolio exceeds that of the bond market. Consequently, on a total return basis, the portfolio can be expected to underperform the bond market in down periods such as the second quarter and outperform the market in up periods.

The composition of the Post Retirement Investment Fund's dedicated bond portfolio is outlined on the following page.

TABLE 7

POST RETIREMENT INVESTMENT FUND

DEDICATED BOND PORTFOLIO STATISTICS

JUNE 30, 1987

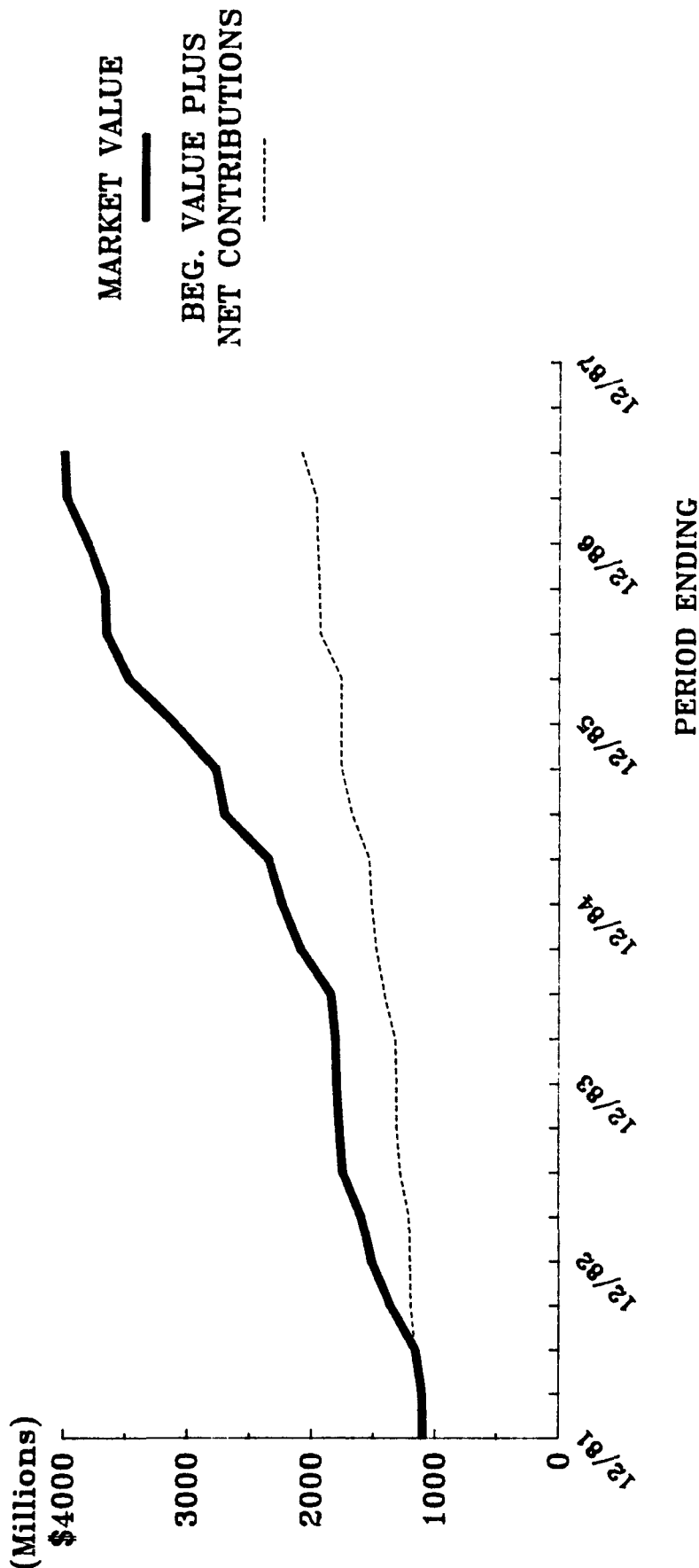
Value at Market	\$2,599,997,262
Value at Cost	2,377,434,896
Average Coupon	7.02%
Current Yield	8.87
Yield to Maturity	8.79
Current Yield at Cost	9.70
Time to Maturity	15.18 Years
Average Duration	7.10 Years
Average Quality Rating	AA
Number of Issues	284

SECTOR WEIGHTINGS

Treasury	72.3
Federal Agency	6.3
Industrial	7.4
Utilities	5.3
Finance	4.4
Transportation	0.4
Mortgages	0.0
Miscellaneous	<u>3.9</u>
	100.0%

FIGURE 6

POST RETIREMENT INVESTMENT FUND ASSET GROWTH



	12/82	12/83	12/84	12/85	12/86	6/87
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	127.1
INVESTMENT RETURN	349.4	170.8	241.8	622.7	501.6	62.8
ENDING VALUE	1,552.9	1,802.9	2,245.7	3,107.3	3,807.5	3,997.4

(MILLIONS OF DOLLARS)

FIGURE 7

POST RETIREMENT INVESTMENT FUND HISTORICAL ASSET MIX

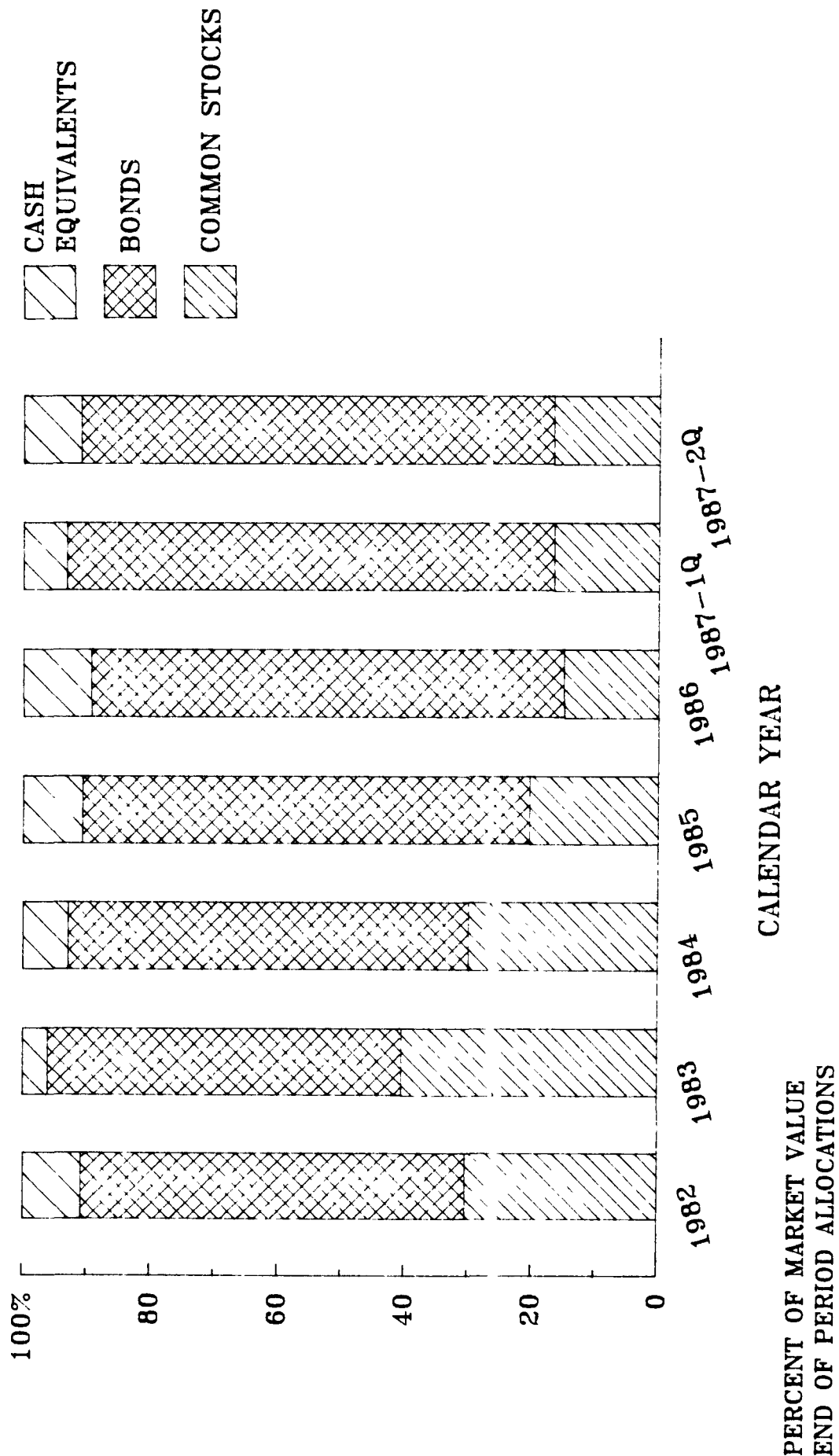


TABLE 8

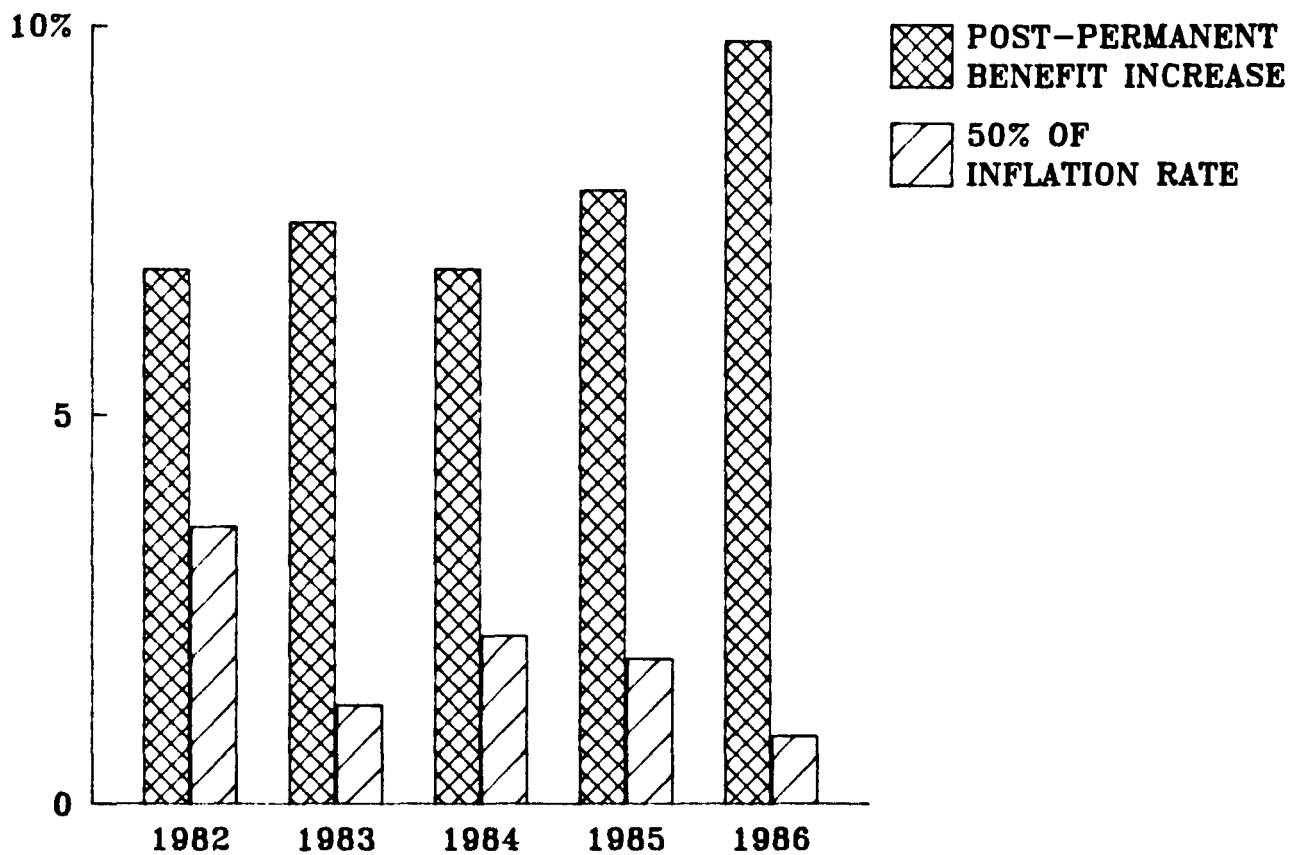
POST RETIREMENT INVESTMENT FUND ASSET MIX

PERCENT OF MARKET VALUE (End Of Period Allocations)

Calendar Year	Common Stocks		Bonds		Cash	
	\$Million	Percent	\$Million	Percent	\$Million	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	664.7	16.7	3,046.3	76.5	268.6	6.8
	672.7	16.8	2,965.3	74.2	359.5	9.0

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

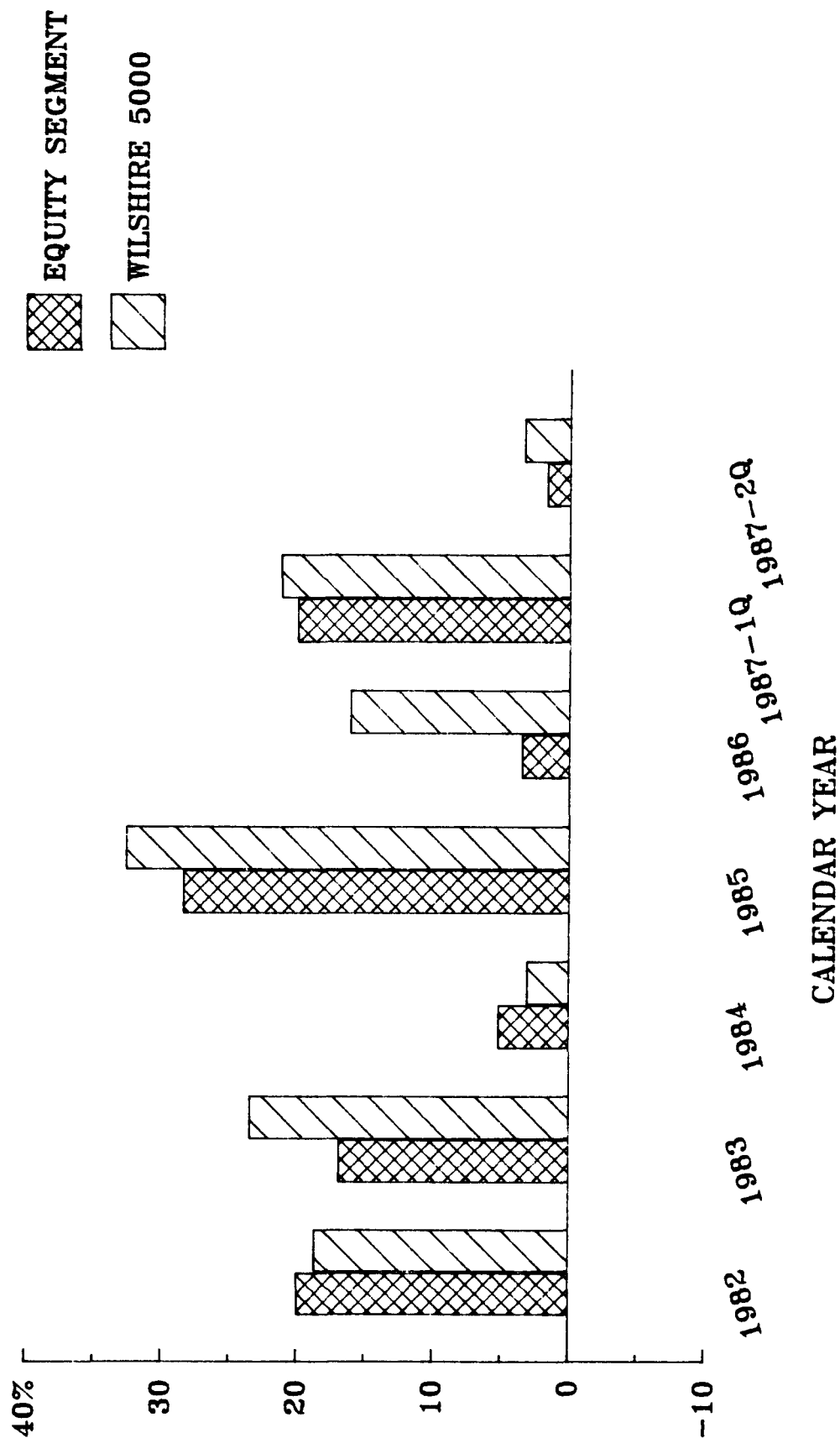


TABLE 9

POST RETIREMENT INVESTMENT FUND

EQUITY SEGMENT RETURNS

INVESTMENT RETURNS RELATIVE TO PERFORMANCE STANDARDS

		Total Returns	
		Post Retirement Fund	<u>Wilshire 5000</u>
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
	2Q	1.7	3.3
1 Year Through			
6/30/87		15.7	20.1
3 Years Annualized			
Through 6/30/87		22.8	28.6
5 Years Annualized			
Through 6/30/87		21.1	26.5

TABLE 10

POST RETIREMENT INVESTMENT FUND EQUITY MANAGER DATA

JUNE 30, 1987

SECTORS	SECTOR WEIGHTINGS	
	WEIGHTING INTERNAL MANAGER	WEIGHTING WILSHIRE 5000
Capital Goods	2.7%	4.8%
Consumer Durables	2.4	4.0
Consumer Nondurables	19.0	27.3
Energy	8.9	9.8
Financial	25.2	12.3
Materials & Services	5.8	13.4
Technology	15.1	13.6
Transportation	6.8	3.1
Utilities	14.0	11.7
	----- 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.	139	100%	1.11	0.91	0.23	0.32	-0.48	-0.23	0.08	0.11	-0.04	0.30	0.27	0.19

* See Equity Manager Portfolio Statistics Glossary for definitions.

**MINNESOTA STATE BOARD OF INVESTMENT
SUPPLEMENTAL INVESTMENT FUND**

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

QUARTERLY INVESTMENT REVIEW

JUNE 30, 1987

MINNESOTA STATE BOARD OF INVESTMENT

SUPPLEMENTAL INVESTMENT FUND

SECOND 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 June 30, 1987 the market value of the entire fund was \$400 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

- o Growth Share Account - an actively managed, all common stock portfolio
- o Common Stock Index Account - a passively managed, all common stock portfolio designed to track the performance of the entire stock market
- o Bond Market Account - an actively managed, all bond portfolio that reflects changes in the market value of bonds
- o Money Market Account - a portfolio utilizing short term, liquid debt securities
- o Guaranteed Return Account - an option utilizing guaranteed investment contracts (GIC's), which offer a fixed rate of return for a specified period of time.
- o 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 June 30, 1987 market value of the Income Share Account was \$214 million.

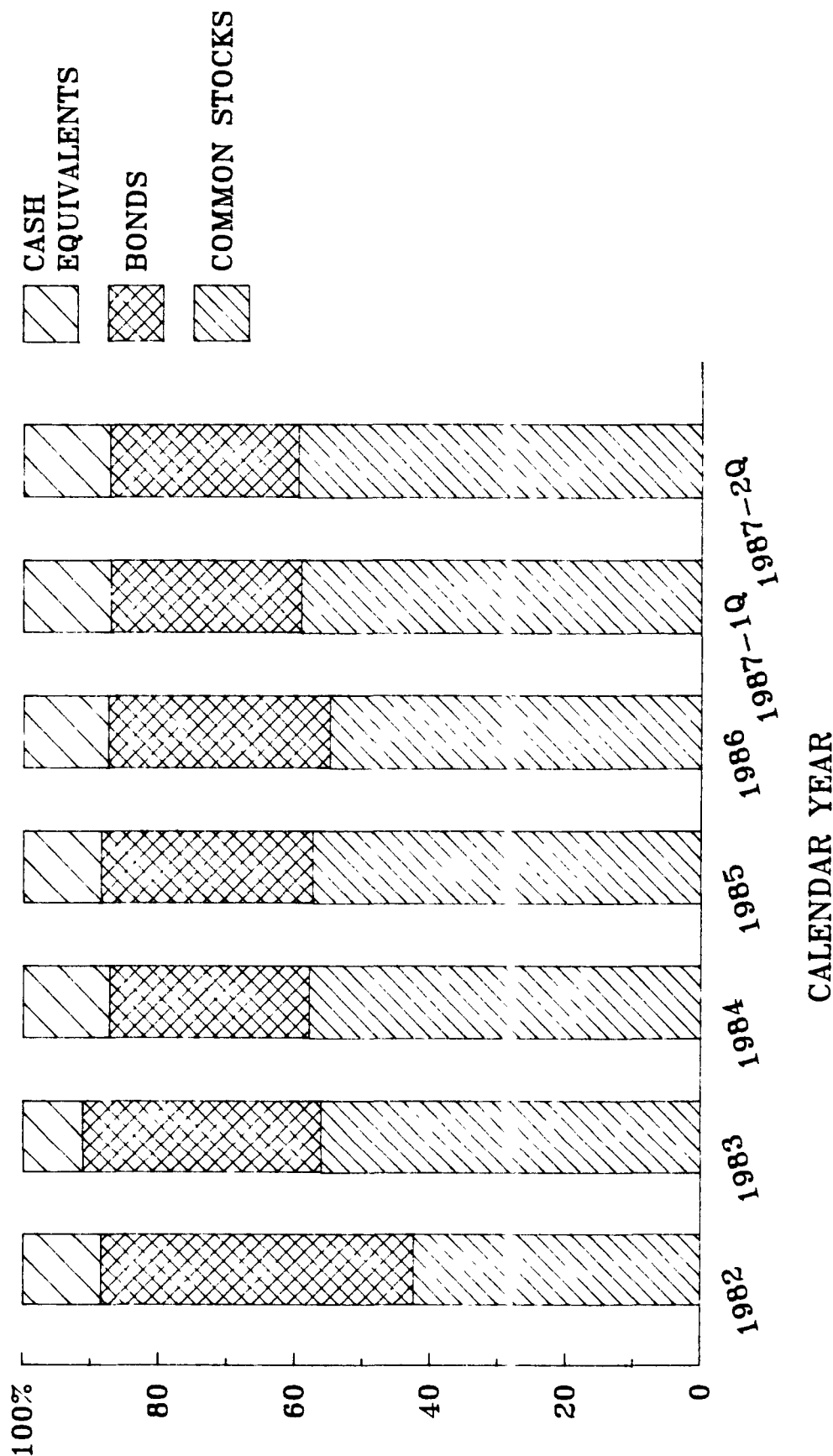
The Income Share Account's asset mix for the last five calendar years is presented on pages 37 and 38.

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		Bonds		Cash*	
	\$Million	Percent	\$Million	Percent	\$Million	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	123.8	59.2	58.4	27.9	27.1	12.9
	127.8	59.7	59.1	27.6	27.3	12.7

*Includes cash held by the external managers

TABLE 12

SUPPLEMENTAL INVESTMENT FUND

INCOME SHARE ACCOUNT

INVESTMENT PERFORMANCE

Total Returns

	SECOND QUARTER 1987	YEAR ENDING 6/30/87
Total Account	2.2%	13.7%
Median Fund*	1.5	13.1
Composite**	1.5	14.7
Equity Segment	3.1	18.5
Wilshire 5000	3.3	20.1
Bond Segment	0.4	7.6
Salomon Broad Bond Index	- 1.6	5.6

* 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 June 30, 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.

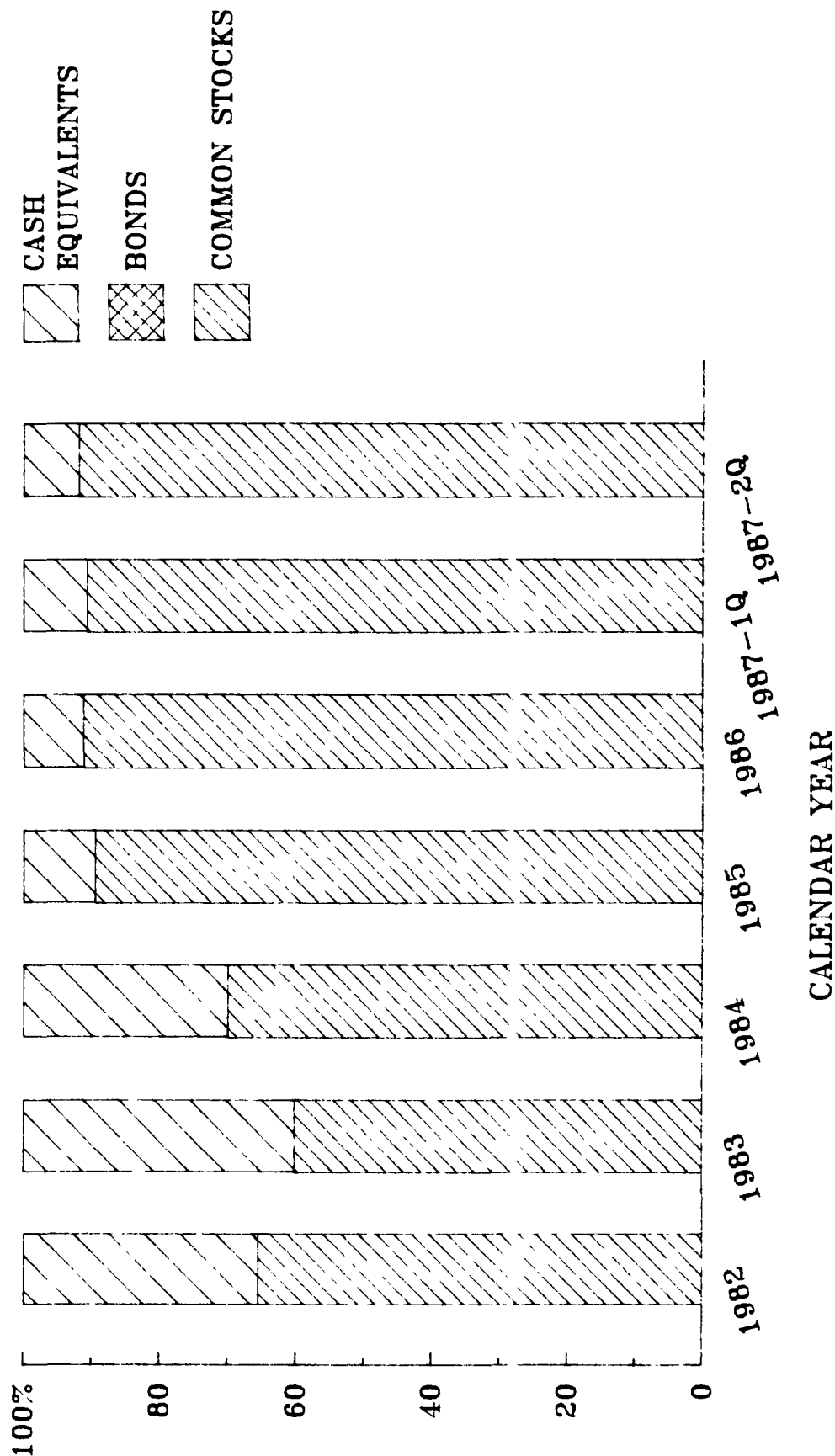
Total account and asset segment performance is presented on page 43. Individual common stock manager performance is listed on page 16.

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		Bonds		Cash*	
	\$Million	Percent	\$Million	Percent	\$Million	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	81.6	90.7	-----	-----	8.3	9.3
2Q	83.1	91.8	-----	-----	7.4	8.2

*Includes cash held by the external managers

TABLE 14

SUPPLEMENTAL INVESTMENT FUND

GROWTH SHARE ACCOUNT

INVESTMENT PERFORMANCE

Total Returns

	SECOND QUARTER 1987	YEAR ENDING 6/30/87
Total Account	2.3%	17.2%
Median Fund*	3.2	19.4
Composite**	3.3	19.5
Equity Segment	2.3	17.4
Wilshire 5000	3.3	20.1

* 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 June 30, 1987 market value of the Account was \$1,906,509.

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

<u>CALENDAR YEAR</u>	<u>SUPPLEMENTAL COMMON STOCK INDEX ACCOUNT</u>	<u>WILSHIRE 5000</u>
1985	32.5%	32.6%
1986	16.0	16.1
1987 1Q	20.7	21.2
2Q	3.6	3.3
1 Year Ending 6/30/87	20.7	20.1
2 Years Annualized Ending 6/30/87	27.4	27.4

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 June 30, 1987 market value of the Account was \$798,566.

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

<u>CALENDAR YEAR</u>	<u>SUPPLEMENTAL BOND MARKET ACCOUNT</u>	<u>SALOMON BROAD BOND INDEX</u>
1985	21.7%	22.3%
1986	15.4	15.5
1987 1Q	2.3	1.3
2Q	- 2.3	- 1.6
1 Year Ending 6/30/87	8.1	5.6
2 Years Annualized Ending 6/30/87	13.0	12.5

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 June 30, 1987 market value of the Account was \$77 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.

<u>CALENDAR YEAR</u>	<u>Total Returns (Annualized)</u>	
	<u>SUPPLEMENTAL MONEY MARKET ACCOUNT</u>	<u>90-DAY TREASURY BILLS</u>
1985	8.2%	7.9%
1986	6.9	6.3
1987 1Q	6.1	5.7
2Q	6.6	5.7
1 Year Ending 6/30/87	6.4	5.7
2 Years Annualized Ending 6/30/87	6.8	6.5

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:

<u>CLASS YEAR</u>	<u>FIXED PERIOD</u>	<u>ESTABLISHED YIELD</u> <u>(ANNUAL)</u>
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%
1987	7 yrs. (1987-93)	9.0%

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA VARIABLE ANNUITY FUND

QUARTERLY INVESTMENT REVIEW

JUNE 30, 1987

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA VARIABLE ANNUITY FUND

SECOND 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 June 30, 1987 market value of the Fund was \$171 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

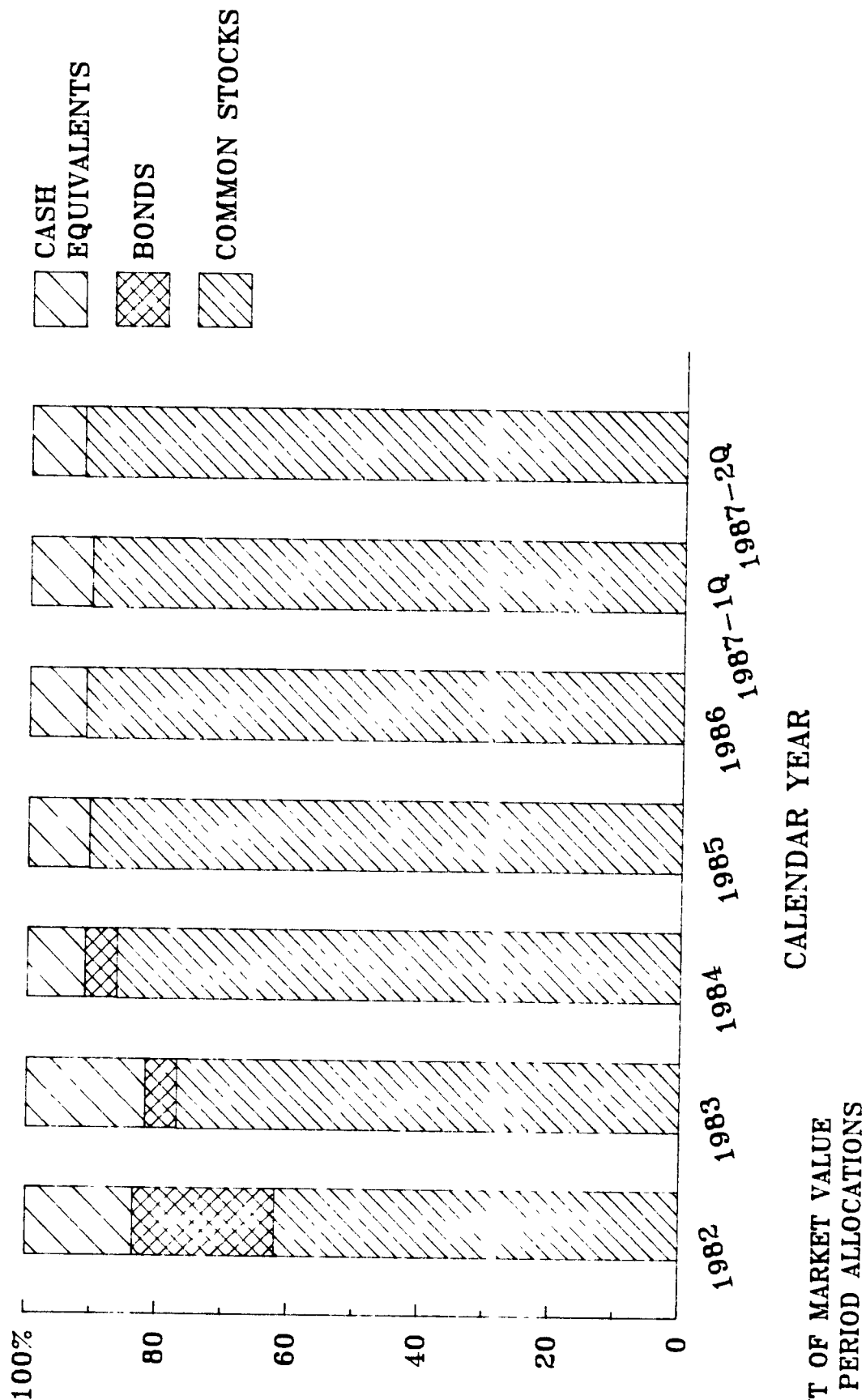


TABLE 15

MINNESOTA VARIABLE ANNUITY FUND

ASSET MIX

PERCENT OF MARKET VALUE (End Of Period Allocations)

Calendar Year	Common Stocks		Bonds		Cash*	
	\$Million	Percent	\$Million	Percent	\$Million	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	152.0	90.6	---	---	15.8	9.4
	156.6	91.8	---	---	14.0	8.2

*Includes cash held by external managers

TABLE 16

MINNESOTA VARIABLE ANNUITY FUND

INVESTMENT PERFORMANCE

	Total Returns	
	SECOND QUARTER <u>1987</u>	YEAR ENDING <u>6/30/87</u>
Total Account	2.3%	17.2%
Median Fund*	3.2	19.4
Composite**	3.3	19.5
Equity Segment	2.3	17.4
Wilshire 5000	3.3	20.1

* TUCS Median Managed Equity Portfolio

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

MINNESOTA STATE BOARD OF INVESTMENT

PERMANENT SCHOOL FUND

QUARTERLY INVESTMENT REVIEW

JUNE 30, 1987

MINNESOTA STATE BOARD OF INVESTMENT

PERMANENT SCHOOL FUND

SECOND QUARTER 1987

Summary

ASSETS

The market value of the Permanent School Fund's assets remained unchanged during second quarter 1987. Although the Fund experienced a slight decline in the market value of its assets due to the negative performance of the bond market, the decline was exactly offset by quarterly net contributions to the Fund of \$1.2 million. For fiscal year 1987, the Permanent School Fund experienced a -0.8% decline in asset value. The decline in the market value for the fiscal year was attributable solely to net withdrawals from the Fund, which totaled \$28 million.

Asset growth of the Permanent School Fund over the last five calendar years and the most recent two quarters is displayed below.

<u>Calendar Year</u>	<u>Market Value (Millions)</u>	<u>Percent Change From Previous Period</u>
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
2Q	361	0.0

ASSET MIX

Due to accounting restrictions under which the Permanent School Fund operates, all of the Fund's assets are invested in fixed income securities. Common stocks are not considered appropriate for the Fund's long-run policy asset mix under the present investment constraints.

During second quarter 1987 as interest rates rose, the majority of the Permanent School Fund's excess cash reserves were invested in bonds. As a result, the cash equivalents segment, which had increased in relative weighting during the first quarter of the year, declined substantially. The balance of the excess reserves will be invested during the third quarter.

The asset mix for the Permanent School Fund over the last two quarters and year is presented below.

ASSET MIX

	<u>6/30/86</u>	<u>3/31/87</u>	<u>6/30/87</u>
Common Stocks	0.0%	0.0%	0.0%
Bonds	65.4	66.9	82.2
Cash Equivalents	<u>34.6</u>	<u>33.1</u>	<u>17.8</u>
	100.0%	100.0%	100.0%

BOND PORTFOLIO

The composition of the Permanent School Fund's bond portfolio was altered as a result of the second quarter investment of the Fund's excess cash reserves. The cash reserves were used to create a more laddered distribution of bond maturities, thereby reducing the portfolio's exposure to reinvestment rate risk. With this rebalancing, the average maturity and duration of the portfolio were lengthened. The portfolio's current yield and yield to maturity were increased as well. Sector concentrations shifted as a result of the new investments. Treasury and Finance sector weightings were increased significantly, while the remaining sector positions were reduced. The average quality ranking remained at AAA.

TABLE 17

PERMANENT SCHOOL FUND BOND PORTFOLIO STATISTICS

JUNE 30, 1987

Value at Market	\$291,141,016
Value at Cost	284,743,989
Average Coupon	9.49%
Current Yield	9.33
Yield to Maturity	8.64
Current Yield at Cost	9.59
Time to Maturity	15.13 Years
Average Duration	6.62 Years
Average Quality Rating	AAA
Number of Issues	120

SECTOR WEIGHTINGS

Treasury	28.4%
Federal Agency	17.1
Industrial	11.0
Utilities	7.9
Finance	6.2
Transportation	4.2
Mortgages	24.2
Miscellaneous	<u>1.0</u>
	100.0%

FIGURE 13

PERMANENT SCHOOL FUND HISTORICAL ASSET MIX

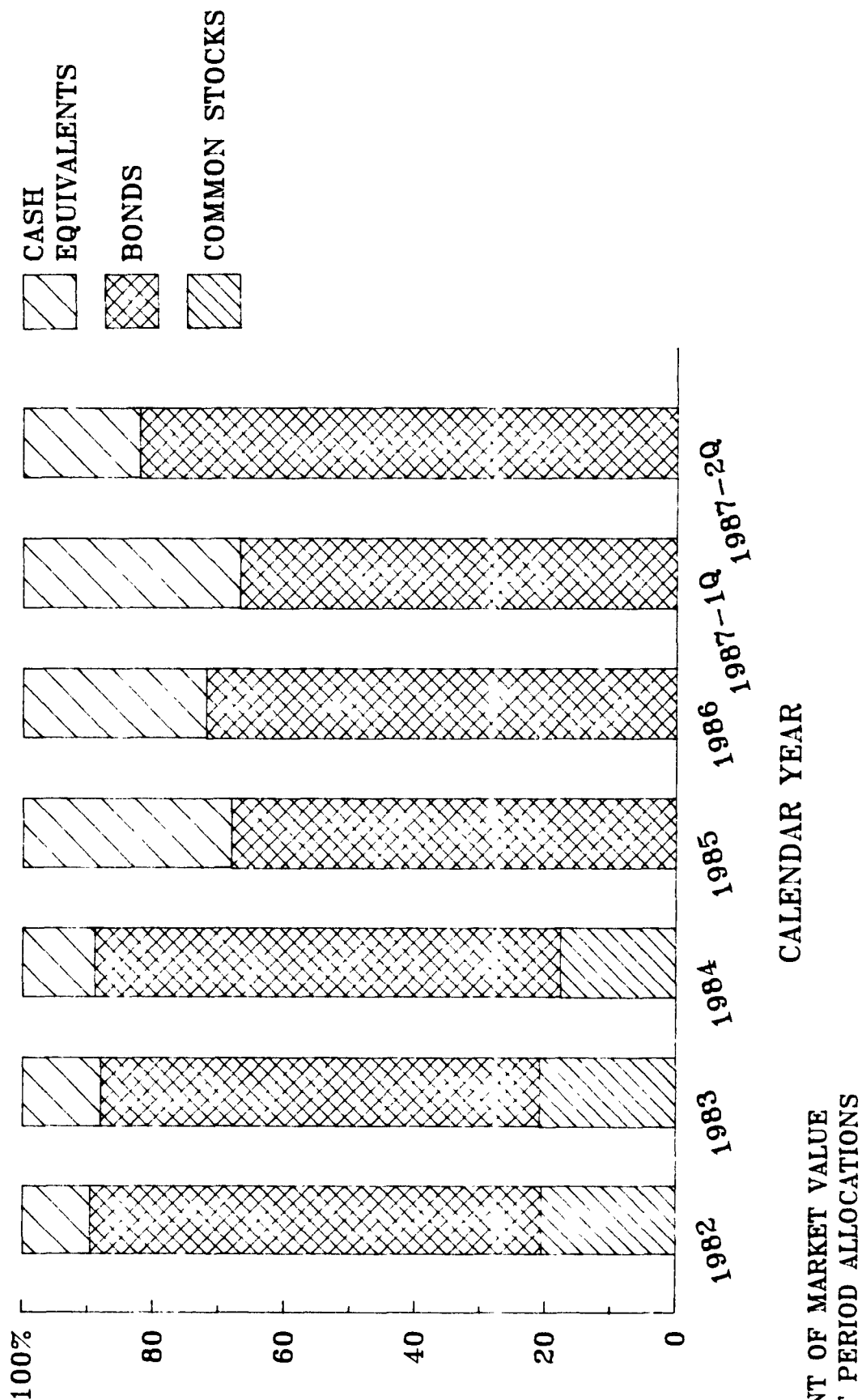


TABLE 18

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	0.0	0.0	241.5	66.9	119.3	33.1
	0.0	0.0	296.8	82.2	64.1	17.8

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	56	95	1.17	0.94	-0.48	-0.25	0.30	0.92	0.39	0.64	0.11	0.02	0.64	0.04
(B)	1,045	95	1.21	N.A.	-0.28	-0.18	-0.33	0.13	0.00	0.40	0.11	0.07	0.50	0.03
Alliance	40	99	1.20	0.96	-0.50	-0.09	0.13	0.70	0.25	0.54	0.03	-0.18	0.67	-0.08
(B)	334	95	1.22	N.A.	-0.45	-0.15	-0.19	0.34	0.31	0.49	0.02	0.44	0.72	-0.04
SMALL GROWTH MANAGERS														
BMI Capital	31	99	1.28	0.91	-0.64	0.09	-0.19	-0.02	-0.34	0.62	0.61	1.56	0.60	0.14
(B)	1,042	95	1.43	N.A.	-0.61	-0.33	-0.03	0.13	0.00	0.92	0.13	0.77	0.98	-0.08
Lieber & Co.	113	97	1.25	0.86	-0.23	0.19	-0.51	-0.04	0.27	0.17	-0.01	1.50	0.74	-0.27
(B)	1,129	95	1.29	N.A.	-0.44	-0.04	-0.56	0.01	0.09	0.40	0.05	1.94	0.85	-0.23
Waddell & Reed	66	86	1.25	0.92	-0.35	-0.30	0.03	0.28	-0.17	0.54	0.16	0.70	0.65	-0.09
(B)	1,203	80	1.27	N.A.	-0.45	-0.37	-0.16	0.09	-0.11	0.59	0.22	1.13	0.62	0.13
ROTATIONAL MANAGERS														
Forstmann Leff	35	68	1.11	0.94	-0.29	-0.30	0.50	0.53	-0.01	0.47	0.10	-0.20	0.23	0.05
(B)	1,383	70	1.17	N.A.	-0.13	-0.08	-0.22	0.12	0.07	0.31	0.04	0.63	0.45	0.06
Hellman Jordan	29	78	1.22	0.93	-0.45	0.08	-0.02	0.56	0.27	0.59	0.13	-0.39	0.78	-0.28
(B)	454	83	1.05	N.A.	0.01	-0.05	-0.15	0.16	0.03	0.07	-0.01	-0.12	0.04	0.05
IDS	53	98	1.13	0.96	-0.30	-0.23	0.26	0.45	0.07	0.41	0.09	-0.09	0.38	-0.07
(B)	786	90	1.05	N.A.	0.15	0.04	-0.21	0.05	0.05	0.01	-0.06	0.10	0.07	0.07
IAI	43	80	1.06	0.95	-0.27	-0.13	0.29	0.85	0.01	0.19	0.05	-0.14	0.21	0.03
(B)	331	85	1.02	N.A.	0.11	0.01	-0.09	0.15	0.05	0.07	-0.05	-0.24	0.02	0.07
VALUE MANAGERS														
Beutel Goodman	29	86	1.14	0.89	-0.08	-0.42	-0.30	-0.59	-0.30	0.13	0.05	0.22	0.18	0.24
(B)	422	95	1.19	N.A.	-0.02	0.01	-0.41	-0.46	-0.16	0.34	0.24	0.88	0.20	0.15
Peregrine Cap.	175	79	1.10	0.84	0.69	0.15	-0.91	-0.61	-0.25	-0.15	-0.04	0.67	-0.05	0.12
(B)	1,056	90	1.11	N.A.	0.09	-0.04	-0.38	-0.24	-0.19	0.05	-0.03	0.49	0.12	0.12
Composite Active Ext. Managers														
Index Fund Manager	538	88	1.15	0.98	-0.18	-0.08	-0.10	0.18	0.00	0.32	0.07	0.16	0.39	0.04
Composite All Basic	1,482	100	1.06	0.98	0.08	-0.01	-0.19	0.05	-0.04	0.06	-0.05	0.09	0.07	-0.01
Eq. Managers	1,628	95	1.10	0.98	0.00	-0.04	-0.14	0.09	-0.02	0.20	0.04	0.02	0.17	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) 1.0%	1.7%	45.5%	3.6%	2.4%	10.2%	28.7%	5.3%	1.6%
	(B) 4.3	3.9	34.0	6.4	12.5	16.5	15.8	4.3	2.5
Alliance	(A) 5.9	5.1	35.4	2.4	16.5	11.6	17.5	5.7	---
	(B) 3.1	1.9	35.6	1.5	16.6	16.3	21.2	3.8	---
SMALL GROWTH MANAGERS									
BMI Capital	(A) 12.4	5.8	42.3	7.5	13.5	8.5	10.1	---	---
	(B) 5.2	3.4	28.5	2.0	26.5	15.5	13.6	4.5	0.6
Lieber & Company	(A) 3.3	6.1	31.6	1.7	37.4	7.3	8.9	3.1	0.7
	(B) 6.9	6.1	27.8	2.8	17.2	16.2	18.3	2.9	1.6
Waddell & Reed	(A) 4.1	10.2	19.1	9.0	2.9	20.8	30.7	2.3	0.8
	(B) 7.1	4.6	31.1	6.8	0.7	25.9	17.7	6.0	0.1
ROTATIONAL MANAGERS									
Forstmann Leff	(A) ---	---	25.2	0.9	2.3	42.1	25.0	4.4	---
	(B) 3.8	3.2	28.5	4.7	15.2	16.2	14.1	4.9	9.3
Hellman Jordan	(A) ---	11.2	18.0	---	22.1	9.8	34.0	4.9	---
	(B) 4.3	2.6	32.8	5.8	12.3	17.3	12.4	5.6	6.9
IDS	(A) 2.3	5.0	28.1	11.5	---	23.0	19.6	7.9	2.7
	(B) 3.5	2.6	27.4	5.6	14.1	14.4	13.2	4.4	14.7
Investment Advisers	(A) 6.4	3.1	31.9	3.6	1.1	30.7	14.4	3.4	5.4
	(B) 3.6	2.9	29.3	10.2	9.7	15.5	11.7	4.6	12.5
VALUE MANAGERS									
Beutel Goodman	(A) 6.5	3.0	18.6	16.5	27.8	13.0	22.2	---	2.5
	(B) 5.8	4.1	17.5	8.5	23.2	19.5	12.9	8.4	---
Peregrine Capital	(A) 3.9	7.8	24.7	3.7	15.0	7.4	16.1	3.1	18.2
	(B) 6.2	3.8	22.0	5.6	15.6	14.2	14.0	6.2	12.4
Composite External Managers									
Index Fund Manager	3.9	4.9	27.2	6.3	12.5	14.8	20.4	4.4	5.6
Composite All Basic Managers	4.8	3.9	27.9	9.6	12.5	13.3	13.3	3.2	11.5
Wilshire 5000	4.5	4.2	27.7	8.5	12.5	13.8	15.6	3.6	9.6
	4.8	4.0	27.3	9.8	12.3	13.4	13.6	3.1	11.7

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

TABLE A-3

EXTERNAL EQUITY MANAGERS

PERFORMANCE RELATIVE TO BENCHMARK PORTFOLIOS

Managers	Second Quarter 1987		Year Ending 6/30/87		Two Years Ending 6/30/87 (Annualized)		Three Years Ending 6/30/87 (Annualized)	
	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio	Actual Portfolio	Benchmark Portfolio
Fred Alger	0.0%	2.8%	7.1%	20.0%	25.6%	27.5%	25.9%	27.6%
Alliance Capital	4.6	3.2	23.6	17.1	33.4	24.8	33.6	24.7
Beutel Goodman	5.3	3.5	17.1	24.5	16.7	28.1	22.9	29.3
BMI Capital	1.2	0.3	20.7	13.9	28.4	24.3	23.6	24.5
Forstmann Leff	1.6	2.1	12.3	15.1	27.2	20.4	28.0	21.5
Hellman Jordan	1.3	3.4	23.1	20.2	26.3	27.5	28.7	28.7
IDS	3.7	3.4	19.3	20.2	30.1	27.5	26.4	28.7
Investment Advisers	4.0	3.4	18.1	20.2	23.6	27.5	31.9	28.7
Lieber & Company	- 1.3	0.1	7.3	9.7	23.5	23.0	25.9	23.8
Peregrine Capital	1.4	2.5	18.3	19.9	19.2	23.5	N.A.	23.9
Waddell & Reed	2.4	3.4	19.3	20.2	23.8	27.5	21.1	28.7
Internal Manager	3.4	4.9	26.3	24.8	22.3	N.A.	N.A.	N.A.
Wilshire Associates (Index Fund)	3.6	3.4	20.3	20.2	27.2	27.5	28.6	28.7
Total Basic Retirement Funds' Common Stock Segment	3.2	3.1	19.4	19.4	26.4	N.A.	27.8	N.A.
Capital Markets Data								
Wilshire 5000	3.3	---	20.1	---	27.4	---	28.6	---
90-Day Treasury Bills	1.4	---	5.7	---	6.5	---	7.4	---
Inflation	1.3	---	3.7	---	2.7	---	3.1	---

TABLE A-4

EXTERNAL EQUITY MANAGERS

PORTFOLIO STATISTICS HISTORICAL SUMMARY

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
AVG. EXT. MANAGERS	88	6/30/87	29	0.92	1.17	0.38	0.12	-0.04	0.28	0.02	0.33	0.46	-0.11	-0.26	-0.02
	88	3/31/87	35	0.92	1.20	0.44	0.13	-0.07	0.23	-0.09	0.27	0.41	-0.06	-0.28	0.01
	89	12/31/86	28	0.91	1.20	0.43	0.15	0.06	0.20	-0.05	0.31	0.41	-0.05	-0.29	-0.01
	87	9/30/86	26	0.90	1.25	0.55	0.21	0.04	0.10	0.04	0.47	0.50	-0.06	-0.33	-0.05
	91	6/30/86	25	0.90	1.28	0.70	0.26	0.09	0.12	0.01	0.45	0.49	-0.06	-0.36	-0.07
	92	3/31/86	29	0.88	1.25	0.66	0.30	-0.04	0.07	0.02	0.41	0.41	-0.53	-0.27	0.08
	90	12/31/85	29	0.89	1.23	0.55	0.29	0.03	0.04	-0.02	0.43	0.33	-0.34	-0.23	0.14
	82	9/30/85	27	0.83	1.23	0.53	0.27	-0.29	0.04	0.07	0.41	0.31	-0.15	-0.25	0.07
	90	6/30/85	24	0.83	1.23	0.55	0.14	-0.23	0.07	0.20	0.46	0.27	-0.07	-0.18	-0.02
	90	3/31/85	33	0.82	1.23	0.53	0.02	-0.26	0.06	0.21	0.54	0.13	-0.01	-0.17	0.03
	86	12/31/84	24	0.81	1.25	0.56	0.08	-0.13	0.17	0.03	0.73	0.23	-0.03	-0.32	0.05
	84	9/30/84	33	0.82	1.26	0.56	0.09	-0.10	0.17	0.05	0.72	0.22	-0.08	-0.28	0.04
	81	6/30/84	27	0.81	1.29	0.36	0.04	-0.25	0.13	0.01	0.79	0.19	-0.02	-0.29	0.14
	83	3/31/84	25	0.82	1.25	0.38	0.03	-0.10	0.13	0.01	0.60	0.20	-0.15	-0.26	0.08
	84	12/31/83	36	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	95	6/30/87	50	0.94	1.17	0.64	0.11	0.30	0.92	0.39	0.02	0.64	-0.25	-0.48	0.04
	79	3/31/87	82	0.95	1.16	0.48	0.21	0.01	0.37	0.13	0.16	0.32	-0.02	-0.35	-0.04
	93	12/31/86	49	0.95	1.17	0.45	0.13	0.26	0.73	0.01	0.19	0.39	-0.02	-0.34	-0.04
	88	9/30/86	38	0.91	1.28	0.84	0.32	0.44	0.56	0.03	0.40	0.49	-0.19	-0.58	-0.10
	94	6/30/86	21	0.92	1.31	0.88	0.35	0.74	0.40	0.09	0.02	0.39	-0.04	-0.56	-0.01
	98	3/31/86	40	0.91	1.29	0.94	0.48	0.31	0.23	0.12	-0.17	0.45	-0.40	-0.54	0.19
	95	12/31/85	28	0.90	1.25	0.69	0.45	0.11	0.13	0.25	0.14	0.19	0.02	-0.45	0.25
	95	9/30/85	28	0.83	1.23	0.64	0.33	-0.07	0.16	0.31	0.32	0.33	-0.17	-0.42	0.08
	92	6/30/85	41	0.79	1.23	0.77	0.39	-0.07	0.32	0.48	0.26	0.53	-0.05	-0.55	0.05
	96	3/31/85	36	0.85	1.27	0.84	0.24	0.03	0.39	0.69	0.05	0.38	-0.23	-0.64	0.08
	95	12/31/84	16	0.86	1.19	0.48	0.05	0.03	0.35	0.10	0.26	0.10	0.03	-0.47	-0.09
	94	9/30/84	20	0.86	1.22	0.44	0.14	0.10	0.34	0.00	0.42	-0.01	-0.04	-0.44	-0.08
	93	6/30/84	16	0.86	1.22	0.11	-0.01	0.06	0.06	-0.21	0.45	-0.13	-0.21	-0.31	0.07
	91	3/31/84	19	0.86	1.19	0.14	0.04	-0.13	0.08	-0.34	0.46	-0.12	-0.40	-0.32	-0.00
	95	12/31/83	23	0.88	1.18	0.38	0.08	0.26	-0.04	-0.37	0.31	-0.05	-0.50	-0.32	0.05

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
ALLIANCE CAPITAL	18	6/30/87	99	0.96	1.20	0.54	0.03	0.13	0.70	0.25	-0.18	0.67	-0.09	-0.50	-0.08
	29	3/31/87	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
	19	12/31/86	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
	13	9/30/86	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
	11	6/30/86	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
	17	3/31/86	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
	7	12/31/85	96	0.83	1.23	0.52	0.13	0.23	1.06	0.43	-0.14	0.56	-0.54	-0.54	0.00
	15	9/30/85	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
	7	6/30/85	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
	10	3/31/85	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
	8	12/31/84	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
	13	9/30/84	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
	8	6/30/84	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
	12	3/31/84	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
	14	12/31/83	92	0.72	1.37	0.65	0.31	0.18	0.78	0.14	0.45	0.72	-0.50	-0.72	0.06

BEUTEL GOODMAN	12	6/30/87	86	0.89	1.14	0.13	0.05	-0.30	-0.59	-0.30	0.22	0.18	-0.42	-0.08	0.24
	25	3/31/87	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
	18	12/31/86	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
	13	9/30/86	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
	10	6/30/86	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
	22	3/31/86	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
	18	12/31/85	89	0.83	1.22	0.30	0.58	-0.58	-0.61	-0.74	0.63	0.13	-0.73	0.25	0.35
	5	9/30/85	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	6/30/85	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
	14	3/31/85	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
	8	12/31/84	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
	10	9/30/84	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
	11	6/30/84	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
	12	3/31/84	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
	15	12/31/83	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	14	6/30/87	99	0.91	1.28	0.62	0.61	-0.19	-0.02	-0.34	1.56	0.60	0.09	-0.64	0.14
	20	3/31/87	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
	21	12/31/86	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
	7	9/30/86	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
	20	6/30/86	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
	17	3/31/86	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
	5	12/31/85	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
	28	9/30/85	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
	10	6/30/85	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
	2	3/31/85	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
	13	12/31/84	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
	29	9/30/84	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	6/30/84	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
	18	3/31/84	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
	14	12/31/83	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

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
FORSTMANN-LEFF	63	6/30/87	68	0.94	1.11	0.47	0.10	0.50	0.53	-0.01	-0.20	0.23	-0.30	-0.29	0.05
	77	3/31/87	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
	54	12/31/86	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
	60	9/30/86	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
	71	6/30/86	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
	83	3/31/86	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
	78	12/31/85	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
	108	9/30/85	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
	27	6/30/85	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
	55	3/31/85	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	12/31/84	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
	40	9/30/84	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
	31	6/30/84	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
	34	3/31/84	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
	41	12/31/83	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	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
HELLMAN JORDAN	44	6/30/87	78	0.93	1.22	0.59	0.13	-0.02	0.56	0.27	-0.39	0.78	0.08	-0.45	-0.28
	18	3/31/87	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
	16	12/31/86	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
	20	9/30/86	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
	15	6/30/86	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
	35	3/31/86	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
	36	12/31/85	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
	36	9/30/85	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
	38	6/30/85	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
	52	3/31/85	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
	36	12/31/84	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
	10	9/30/84	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
	34	6/30/84	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
	30	3/31/84	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
	43	12/31/83	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

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
IDS ADVISORY	22	6/30/87	98	0.96	1.13	0.41	0.09	0.26	0.45	0.07	-0.09	0.38	-0.23	-0.30	-0.07
	38	3/31/87	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
	14	12/31/86	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
	28	9/30/86	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
	28	6/30/86	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
	16	3/31/86	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
	19	12/31/85	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
	21	9/30/85	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
	13	6/30/85	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
	39	3/31/85	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
	21	12/31/84	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
	40	9/30/84	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
	42	6/30/84	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
	41	3/31/84	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
	45	12/31/83	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

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
INVESTMENT ADVISERS	9	6/30/87	82	0.95	1.06	0.19	0.05	0.29	0.85	0.01	-0.14	0.21	-0.13	-0.27	0.03
	8	3/31/87	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
	15	12/31/86	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
	12	9/30/86	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
	22	6/30/86	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
	13	3/31/86	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
	32	12/31/85	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
	4	9/30/85	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
	10	6/30/85	90	0.90	1.17	0.60	0.10	-0.33	-0.26	0.14	-0.17	-0.02	0.18	-0.19	-0.08
	28	3/31/85	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
	9	12/31/84	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
	21	9/30/84	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
	8	6/30/84	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
	21	3/31/84	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
	16	12/31/83	89	0.86	1.13	0.06	-0.15	-0.30	-0.16	-0.05	0.01	0.15	-0.09	-0.17	0.17
LIEBER & COMPANY	11	6/30/87	97	0.86	1.25	0.17	-0.01	-0.51	-0.04	0.27	1.50	0.74	0.19	-0.23	-0.27
	15	3/31/87	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
	14	12/31/86	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
	11	9/30/86	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
	7	6/30/86	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
	14	3/31/86	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	12/31/85	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
	6	9/30/85	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
	14	6/30/85	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
	19	3/31/85	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
	14	12/31/84	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
	17	9/30/84	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
	10	6/30/84	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
	0	3/31/84	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
	9	12/31/83	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	26	6/30/87	79	0.84	1.10	-0.15	-0.04	-0.91	-0.61	-0.25	0.67	-0.05	0.15	0.69	0.12
	41	3/31/87	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
	50	12/31/86	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
	50	9/30/86	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
	37	6/30/86	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
	47	3/31/86	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
	53	12/31/85	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	9/30/85	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
	58	6/30/85	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
	49	3/31/85	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
	37	12/31/84	87	0.81	1.37	1.11	0.39	-0.05	0.72	0.27	1.88	0.76	-0.09	-0.96	-0.11
	61	9/30/84	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
	26	6/30/84	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
	66	3/31/84	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
	92	12/31/83	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

MANAGER NAME	QTR. PORT. T/O	DATE	EQUITY ALLOC.	R2	EQUITY BETA	MVAR	EVAR	REL RET	P/B	5 YR EARN	SIZE	GROW	E/P	YIELD	FINL
WADDELL & REED	45	6/30/87	86	0.92	1.25	0.54	0.16	0.03	0.28	-0.17	0.70	0.65	-0.30	-0.35	-0.09
	29	3/31/87	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
	42	12/31/86	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
	38	9/30/86	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
	35	6/30/86	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
	20	3/31/86	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
	36	12/31/85	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
	41	9/30/85	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
	34	6/30/85	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
	51	3/31/85	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
	39	12/31/84	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
	76	9/30/84	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
	81	6/30/84	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
	35	3/31/84	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
	103	12/31/83	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

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
AVG. EXT. MANAGERS	6/30/87	---	4.2	5.4	29.1	4.6	12.8	16.8	20.6	3.6	2.9
	3/31/87	---	3.5	5.7	28.5	4.8	17.3	15.6	18.1	3.9	2.6
	12/31/86	---	3.1	5.2	29.4	3.7	19.0	15.1	16.0	5.0	3.5
	9/30/86	---	3.6	5.6	29.4	3.6	19.2	14.5	15.6	5.5	3.0
	6/30/86	---	3.7	5.5	30.7	2.4	21.0	13.3	14.6	5.3	3.3
	3/31/86	---	2.8	5.5	25.6	5.1	20.7	13.4	14.6	6.4	5.8
	12/31/85	---	3.0	6.2	24.1	7.4	19.1	13.0	14.5	7.4	5.3
	9/30/85	---	2.8	6.6	27.5	4.2	18.4	12.7	16.8	7.6	3.4
	6/30/85	---	2.2	6.6	29.3	3.1	20.0	10.9	17.3	7.6	3.0
	3/31/85	---	2.4	6.8	26.4	3.6	17.5	11.4	22.2	6.8	3.0
	12/31/84	---	2.4	8.0	26.4	2.3	15.5	11.2	23.9	6.6	4.0
	9/30/84	---	2.9	7.9	27.9	3.8	14.1	9.6	26.3	4.8	2.7
	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	6/30/87	120,786,460	1.0	1.7	45.5	3.6	2.4	10.2	28.7	5.3	1.6
	3/31/87	120,744,512	1.3	2.5	43.1	2.1	12.1	11.6	25.1	2.2	---
	12/31/86	101,957,413	2.0	3.0	44.1	6.5	10.8	12.2	20.4	0.9	---
	9/30/86	96,875,274	1.9	3.7	49.6	---	12.8	4.6	18.8	8.7	---
	6/30/86	112,733,180	1.9	7.5	52.9	---	11.6	6.2	15.8	4.0	---
	3/31/86	103,958,164	1.7	8.2	46.5	---	17.4	5.9	18.7	1.6	---
	12/31/85	86,744,768	1.7	11.7	38.7	---	18.2	3.1	17.0	6.6	2.9
	9/30/85	73,092,544	---	10.3	44.4	2.4	14.1	3.1	14.5	8.4	2.8
	6/30/85	63,144,042	---	17.6	36.0	1.4	9.3	3.5	15.7	16.6	---
	3/31/85	57,886,615	5.2	14.3	28.8	3.7	7.8	1.8	24.8	13.6	---
	12/31/84	54,018,782	5.2	16.1	36.1	---	4.1	7.9	25.2	5.4	---
	9/30/84	53,908,974	9.3	15.4	33.7	---	0.8	11.4	23.5	6.0	---
	6/30/84	49,936,760	14.0	8.0	30.7	---	3.8	11.5	29.5	2.6	---
	3/31/84	51,737,228	13.3	4.3	28.8	---	3.4	18.3	31.9	---	---
	12/31/83	55,644,200	13.2	6.6	21.7	---	6.4	18.1	33.9	---	---

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
ALLIANCE CAPITAL	6/30/87	136,207,599	5.9	5.1	35.4	2.4	16.5	11.6	17.5	5.7	---
	3/31/87	130,165,259	5.8	5.5	33.9	3.5	20.8	9.5	16.5	4.5	---
	12/31/86	102,208,699	3.3	4.6	32.5	---	23.2	10.4	15.0	11.0	---
	9/30/86	97,177,251	3.0	3.9	42.5	---	24.2	4.7	13.0	8.7	---
	6/30/86	110,202,737	2.3	3.6	49.1	---	28.1	---	9.8	7.1	---
	3/31/86	104,093,860	2.4	4.5	46.6	---	30.2	2.5	8.2	5.6	---
	12/31/85	87,252,311	---	4.6	45.6	---	29.2	---	14.3	6.3	---
	9/30/85	74,094,296	---	7.5	52.0	---	21.8	---	11.1	7.6	---
	6/30/85	65,072,829	---	8.7	49.9	2.2	14.3	---	12.7	8.9	3.3
	3/31/85	58,738,405	---	9.9	47.9	2.4	12.6	---	15.8	8.0	3.4
	12/31/84	52,332,767	---	8.7	48.8	---	10.2	---	20.6	8.1	3.7
	9/30/84	51,653,441	---	8.8	49.7	---	9.6	---	19.3	9.2	3.5
	6/30/84	48,457,996	---	8.1	51.6	---	6.9	---	23.5	9.9	---
	3/31/84	47,427,119	---	8.3	48.0	2.7	5.6	---	25.1	10.4	---
	12/31/83	52,725,699	0.8	7.5	45.3	---	6.8	2.4	24.2	13.1	---
BEUTEL GOODMAN	6/30/87	132,802,200	6.5	3.0	18.6	6.5	27.8	13.0	22.2	---	2.5
	3/31/87	126,160,277	2.4	3.1	15.4	3.4	25.5	17.8	25.9	3.5	3.1
	12/31/86	107,294,817	2.1	3.4	9.7	4.8	23.0	20.6	29.3	4.3	2.7
	9/30/86	86,368,324	2.7	4.4	11.1	4.2	24.6	23.4	19.4	5.9	4.1
	6/30/86	90,128,302	3.4	5.3	9.3	4.0	20.3	23.3	19.0	11.0	4.4
	3/31/86	90,652,277	4.2	4.2	9.2	3.8	18.6	22.9	20.9	11.5	4.6
	12/31/85	79,304,850	3.9	3.8	9.0	2.8	28.2	22.1	18.2	12.0	---
	9/30/85	70,821,795	2.7	3.7	15.7	---	26.0	24.0	16.6	11.3	---
	6/30/85	75,450,430	2.8	---	12.8	---	30.4	23.1	19.1	11.7	---
	3/31/85	70,177,266	2.1	---	19.2	---	28.4	33.1	13.6	3.6	---
	12/31/84	63,402,269	8.8	---	13.8	---	32.2	33.8	11.4	---	---
	9/30/84	60,461,938	6.5	---	14.0	---	37.1	35.6	6.8	---	---
	6/30/84	55,295,358	9.3	---	21.1	---	30.4	32.4	6.7	---	---
	3/31/84	56,896,258	8.9	---	18.6	---	27.2	39.3	6.0	---	---
	12/31/83	57,233,781	9.8	---	20.2	---	11.2	46.2	5.4	7.2	---
BMI CAPITAL	6/30/87	82,736,116	12.4	5.8	42.3	7.5	13.5	8.5	10.1	---	---
	3/31/87	81,802,425	11.7	8.1	37.0	5.3	14.3	13.3	10.3	---	---
	12/31/86	65,559,574	8.7	10.5	35.9	---	20.1	8.9	15.9	---	---
	9/30/86	62,163,502	10.2	8.1	38.7	---	13.1	12.4	17.5	---	---
	6/30/86	68,576,473	8.5	6.4	43.4	---	19.8	2.9	19.1	---	---
	3/31/86	64,120,062	6.8	7.7	38.4	4.6	20.9	3.6	18.0	---	---
	12/31/85	54,452,525	9.9	4.0	32.2	14.6	19.3	4.3	12.3	3.4	---
	9/30/85	49,026,413	10.4	3.4	37.8	---	6.0	4.0	28.9	9.6	---
	6/30/85	9,759,880	5.4	9.7	34.9	---	5.7	4.0	30.3	9.9	---
	3/31/85	9,851,108	7.1	9.0	37.6	---	---	6.8	35.9	3.7	---
	12/31/84	9,015,974	6.5	5.8	40.0	---	---	7.4	35.9	4.4	---
	9/30/84	8,820,740	4.6	13.4	42.6	---	---	4.1	31.3	3.9	---
	6/30/84	8,533,642	3.2	16.4	37.4	---	---	11.5	31.5	---	---
	3/31/84	8,366,038	4.3	12.7	39.3	---	---	17.8	25.9	---	---
	12/31/83	9,784,767	7.4	12.1	28.4	---	6.6	19.0	26.4	---	---

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
FORSTMANN-LEFF	6/30/87	107,438,093	---	---	25.2	0.9	2.3	42.1	25.0	4.4	---
	3/31/87	105,717,837	---	---	31.0	---	22.5	30.8	10.6	5.1	---
	12/31/86	88,281,072	---	1.4	44.6	---	16.7	20.5	9.6	5.9	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
HELLMAN JORDAN	6/30/87	102,296,573	---	11.2	18.0	---	22.1	9.8	34.0	4.9	---
	3/31/87	101,035,689	---	6.0	24.9	---	25.6	5.8	31.3	6.3	---
	12/31/86	78,099,466	---	3.8	29.8	---	31.7	7.3	23.2	4.1	---
	9/30/86	74,466,800	---	6.4	25.6	---	33.5	8.1	23.3	3.2	---
	6/30/86	83,097,338	---	9.3	24.8	---	32.7	10.7	20.1	2.4	---
	3/31/86	82,829,526	---	12.1	22.3	2.2	29.8	13.6	18.4	1.7	---
	12/31/85	71,819,754	---	8.8	20.1	9.4	23.5	18.7	15.2	2.9	1.4
	9/30/85	60,551,842	---	5.6	17.1	6.9	26.9	17.2	13.8	4.7	7.7
	6/30/85	64,181,384	3.9	3.5	23.0	7.0	26.0	15.5	7.5	3.5	10.0
	3/31/85	59,732,797	1.3	---	21.9	5.9	25.3	13.6	16.1	6.7	9.2
	12/31/84	54,923,168	1.3	6.1	19.5	1.1	19.8	17.1	20.3	9.2	5.7
	9/30/84	52,497,049	1.5	10.7	11.3	0.8	14.0	15.3	29.3	12.0	5.0
	6/30/84	47,929,367	1.8	12.4	13.8	1.2	16.4	21.2	12.6	11.1	9.6
	3/31/84	49,895,127	---	12.4	19.5	6.4	15.7	15.7	4.3	8.8	17.2
	12/31/83	50,182,761	---	14.8	30.0	6.0	16.5	10.4	2.1	3.0	17.2
INVESTMENT ADVISERS	6/30/87	101,936,871	6.4	3.1	31.9	3.6	1.1	30.7	14.4	3.4	5.4
	3/31/87	98,002,073	5.4	3.2	28.5	3.0	6.1	29.1	11.9	7.4	5.3
	12/31/86	81,868,013	4.5	2.2	31.0	2.9	6.9	25.8	10.1	9.7	6.7
	9/30/86	78,677,066	5.2	---	33.0	2.9	7.6	28.6	14.7	8.0	---
	6/30/86	86,330,923	8.2	---	33.0	1.0	9.6	26.5	13.2	8.6	---
	3/31/86	82,520,514	5.6	3.3	20.6	2.3	9.6	23.8	18.8	13.4	2.6
	12/31/85	73,389,199	4.0	6.6	15.7	3.0	12.6	18.5	24.4	12.2	2.9
	9/30/85	61,953,366	3.2	6.5	8.3	2.9	15.9	20.2	28.3	12.8	1.8
	6/30/85	66,785,302	3.4	8.8	6.5	3.2	18.8	17.1	29.0	13.2	---
	3/31/85	62,742,678	3.4	6.0	6.1	2.8	16.3	19.9	32.9	12.6	---
	12/31/84	58,967,426	3.3	6.4	13.6	5.9	20.5	19.2	19.9	10.8	0.6
	9/30/84	55,807,710	3.7	7.2	21.5	6.9	21.0	13.1	20.2	5.6	0.8
	6/30/84	50,388,386	5.5	5.9	26.3	6.2	18.8	9.1	20.6	3.7	3.9
	3/31/84	51,864,720	5.8	5.4	30.2	8.9	21.5	7.7	15.6	3.9	1.0
	12/31/83	54,533,402	6.3	6.3	25.0	5.8	21.9	9.7	15.7	6.1	3.2

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
IDS ADVISORY	6/30/87	115,535,096	2.3	5.0	28.1	11.5	---	23.0	19.6	7.9	2.7
	3/31/87	111,432,245	2.6	3.1	25.7	12.5	5.5	23.8	18.5	4.7	3.6
	12/31/86	91,035,628	2.7	1.1	25.2	7.4	10.9	24.6	7.8	7.3	13.0
	9/30/86	87,085,769	2.3	1.2	29.7	8.2	10.4	23.4	5.8	5.0	14.0
	6/30/86	96,881,914	---	---	42.4	3.1	16.4	15.8	6.5	5.0	10.8
	3/31/86	90,164,763	---	1.7	32.6	1.1	17.7	15.6	8.9	12.1	10.2
	12/31/85	76,939,408	---	1.9	31.7	2.6	14.9	10.4	13.9	13.2	11.4
	9/30/85	64,292,295	3.0	2.2	27.1	5.1	13.6	12.7	13.9	12.7	9.7
	6/30/85	68,295,847	3.0	4.8	27.7	8.4	13.4	7.2	11.7	8.5	15.1
	3/31/85	62,021,800	---	5.2	27.5	9.8	11.0	7.3	14.0	7.7	17.6
	12/31/84	57,153,006	1.8	4.6	29.5	3.7	7.6	3.7	16.9	7.2	25.0
	9/30/84	55,468,185	3.4	6.6	25.4	7.6	7.9	5.6	19.6	4.6	19.4
	6/30/84	50,278,968	---	5.3	27.6	8.1	6.8	7.6	19.2	4.8	20.6
	3/31/84	50,085,955	4.8	10.1	12.4	9.6	8.7	14.3	15.2	9.5	15.4
	12/31/83	54,006,960	4.9	7.6	18.0	---	8.8	19.0	26.1	6.0	9.6
LIEBER & COMPANY	6/30/87	47,687,801	3.3	6.1	31.6	1.7	37.4	7.3	8.9	3.1	0.7
	3/31/87	48,385,863	3.4	8.8	29.7	1.8	39.7	5.8	8.3	1.8	0.7
	12/31/86	40,294,436	3.0	8.0	26.5	2.4	41.1	8.6	7.7	1.7	0.7
	9/30/86	40,257,595	2.3	7.4	25.5	2.4	42.7	9.2	6.4	2.8	1.2
	6/30/86	44,505,476	1.7	7.3	22.4	3.1	41.8	10.3	7.5	3.7	2.1
	3/31/86	40,102,680	2.1	7.4	21.4	3.5	38.4	12.3	9.0	4.0	2.0
	12/31/85	35,197,559	1.8	8.7	20.1	3.5	34.3	11.9	12.2	5.4	2.0
	9/30/85	30,715,520	1.6	7.0	21.9	4.5	32.6	14.3	11.8	5.1	1.2
	6/30/85	31,313,770	2.1	7.8	21.4	4.6	30.3	16.0	11.0	5.5	1.2
	3/31/85	29,544,589	2.9	8.0	25.3	6.1	28.9	15.1	8.9	3.5	1.3
	12/31/84	26,473,866	3.2	5.3	27.0	3.2	24.2	18.4	15.3	3.4	---
	9/30/84	25,807,665	2.9	3.8	33.0	4.1	22.4	16.8	14.8	2.2	---
	6/30/84	23,927,529	2.6	3.3	34.8	3.5	21.1	16.7	15.3	1.8	0.8
	3/31/84	24,261,218	3.6	6.4	32.3	4.9	17.3	16.8	16.3	1.8	0.7
	12/31/83	11,159,936	7.7	4.5	33.7	3.5	16.7	22.3	6.1	5.6	---
PEREGRINE CAPITAL	6/30/87	105,285,388	3.9	7.8	24.7	3.7	15.0	7.4	16.1	3.1	18.2
	3/31/87	103,857,724	5.2	8.2	24.7	4.9	13.0	8.3	16.7	4.0	15.0
	12/31/86	88,571,840	6.7	8.1	22.0	4.5	11.8	11.1	17.3	4.7	13.8
	9/30/86	84,825,995	8.6	8.0	16.8	9.6	10.7	13.7	14.8	5.5	12.2
	6/30/86	89,051,403	8.0	6.7	9.6	15.2	8.1	15.7	13.6	5.0	18.1
	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

EQUITY SECTOR WEIGHTS

MANAGER NAME	DATE	TOTAL PORTFOLIO MARKET VALUE	CAP GDS	CONS DUR	CONS NDUR	ENER	FINL	MAT & SERV	TECH	TRAN	UTIL
WADDELL & REED	6/30/87	116,141,569	4.1	10.2	19.1	9.0	2.9	20.8	30.7	2.3	0.8
	3/31/87	113,451,543	1.1	13.6	19.7	16.1	5.2	15.3	24.0	3.8	1.1
	12/31/86	95,836,775	1.6	11.2	21.7	12.3	12.3	16.1	19.2	5.6	---
	9/30/86	91,162,262	2.9	8.5	21.7	12.4	12.9	14.6	18.9	6.6	1.5
	6/30/86	97,376,898	4.4	7.8	26.0	0.4	20.7	21.7	12.4	6.6	---
	3/31/86	95,498,169	4.3	7.3	13.0	2.9	23.3	24.9	16.9	7.3	---
	12/31/85	82,027,227	4.6	7.7	17.0	5.4	15.2	25.9	15.0	9.1	---
	9/30/85	74,328,144	2.0	7.7	18.8	5.1	19.7	22.5	15.6	5.2	3.3
	6/30/85	29,531,769	---	11.8	14.5	2.5	21.1	18.4	13.3	6.1	12.4
	3/31/85	27,604,382	---	12.8	11.9	2.7	21.5	15.8	16.3	7.9	11.2
	12/31/84	26,234,116	---	14.0	18.7	---	18.8	2.7	25.5	1.0	19.3
	9/30/84	25,856,251	1.4	13.9	28.0	3.3	14.3	0.5	30.9	1.6	6.1
	6/30/84	25,495,564	---	29.0	25.7	---	15.7	---	17.8	11.8	---
	3/31/84	25,833,644	5.2	32.1	21.4	---	25.0	---	11.7	4.5	---
	12/31/83	11,409,742	12.8	32.4	---	---	33.9	---	20.9	---	---
WILSHIRE 5000	6/30/87	---	4.8	4.0	27.3	9.8	12.3	13.4	13.6	3.1	11.7
	3/31/87	---	4.6	3.9	27.5	9.4	13.0	13.6	12.9	3.0	12.1
	12/31/86	---	4.6	3.8	27.2	9.0	13.5	12.6	12.2	3.0	14.1
	9/30/86	---	4.4	3.8	26.9	9.0	14.0	12.1	12.4	3.1	14.3
	6/30/86	---	4.5	4.0	28.8	7.8	14.0	12.4	12.6	3.0	12.9
	3/31/86	---	4.8	4.7	27.0	8.0	14.1	11.8	13.4	3.3	12.9
	12/31/85	---	4.8	4.2	25.7	10.5	12.9	11.4	14.2	3.3	13.0
	9/30/85	---	4.7	4.1	26.2	10.6	12.3	11.4	14.0	3.4	13.3
	6/30/85	---	4.8	4.0	26.3	11.2	12.2	10.8	13.6	3.6	13.5
	3/31/85	---	4.9	3.9	25.3	13.0	11.4	10.9	14.4	3.3	12.9
	12/31/84	---	5.4	9.9	23.0	13.5	9.9	10.6	13.2	3.7	10.8
	9/30/84	---	5.2	4.3	24.9	13.2	10.3	11.5	15.5	2.9	12.2
	6/30/84	---	5.3	4.0	25.7	13.5	9.6	11.7	15.6	2.9	11.7
	3/31/84	---	5.4	3.9	23.6	16.1	9.8	12.1	15.3	2.9	11.1
	12/31/83	---	5.5	4.2	24.0	14.5	9.5	12.2	16.3	2.8	11.1

TABLE A-6

EXTERNAL 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%	-0.6										
Total Fund	18.4	0.0										
ALLIANCE CAPITAL												
Equity	28.8	4.9										
Total Fund	27.4	4.6										
BEUTEL GOODMAN												
Equity	18.6	6.4										
Total Fund	17.6	5.3										
BMI CAPITAL												
Equity	25.8	1.2										
Total Fund	24.8	1.2										
FORSTMANN-LEFF												
Equity	25.7	2.1										
Total Fund	19.8	1.6										
HELLMAN JORDAN												
Equity	30.2	1.8										
Total Fund	29.4	1.3										
IDS ADVISORY												
Equity	23.1	3.9										
Total Fund	22.4	3.7										
INVESTMENT ADVISERS												
Equity	24.9	4.9										
Total Fund	19.7	4.0										
LIEBER & COMPANY												
Equity	21.2	-1.4										
Total Fund	20.1	-1.3										
PEREGRINE CAPITAL												
Equity	21.8	1.5										
Total Fund	17.3	1.4										
WADDELL & REED												
Equity	23.0	2.6										
Total Fund	18.4	2.4										
SBI AGGREGATE												
Equity	23.6	2.9										
Total Fund	21.0	2.6										
MARKET INDICES												
Wilshire 5000	21.2	3.3										
S&P 500	21.3	5.1										
91 Day T-Bills	1.4	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
FORSTWANN-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	6/30/87	44	44	93	8.4	8.4	8.9	AAA	4.4	7.5
	3/31/87	30	39	91	8.6	8.3	8.0	AAA	4.9	8.3
	12/31/86	30	40	94	9.2	8.6	8.2	AAA	5.4	9.5
	9/30/86	19	41	99	9.5	9.2	9.3	AAA	5.0	10.6
	6/30/86	47	40	96	9.8	9.3	9.0	AAA	4.6	10.0
	3/31/86	41	39	96	10.3	9.6	8.8	AAA	4.5	12.3
	12/31/85	41	33	95	10.5	10.0	9.6	AAA	4.4	8.7
	9/30/85	22	34	96	10.7	10.6	10.6	AAA	4.3	8.7
	6/30/85	48	29	95	10.4	10.2	10.4	AAA	4.5	8.5
	3/31/85	37	25	91	10.3	10.8	11.5	AAA	4.2	8.2
	12/31/84	38	22	93	10.3	10.8	11.4	AAA	4.5	8.8
	9/30/84	54	29	88	10.1	11.1	12.3	AAA	4.3	8.8
INVESTMENT ADV.	6/30/87	15	19	92	7.7	7.6	8.3	AAA	3.5	4.5
	3/31/87	7	24	97	8.6	8.1	8.0	AAA	3.4	4.3
	12/31/86	11	25	93	8.9	8.4	8.1	AAA	3.5	4.4
	9/30/86	5	22	98	9.4	8.6	8.5	AAA	3.5	4.4
	6/30/86	9	21	96	9.6	8.8	8.3	AAA	3.3	4.1
	3/31/86	17	22	95	9.9	8.9	8.2	AAA	3.3	4.2
	12/31/85	10	16	95	9.4	8.8	8.7	AAA	3.4	4.3
	9/30/85	30	18	99	9.7	9.3	9.9	AAA	3.8	5.1
	6/30/85	50	17	99	8.4	8.1	10.1	AAA	4.7	6.2
	3/31/85	19	13	99	8.7	9.3	11.7	AAA	4.9	8.9
	12/31/84	25	10	99	8.4	9.3	11.5	AAA	5.6	12.1
	9/30/94	10	7	100	9.0	10.8	12.6	AAA	6.4	15.2
LEHMAN MGMT.	6/30/87	36	46	92	7.9	8.1	8.2	AAA	3.7	5.0
	3/31/87	51	46	91	8.5	8.1	7.3	AAA	3.9	5.6
	12/31/86	40	45	94	9.6	8.9	7.5	AAA	4.3	6.7
	9/30/86	31	44	98	10.2	9.4	8.2	AAA	4.4	8.6
	6/30/86	16	48	97	10.8	9.8	8.3	AAA	4.0	8.1
	3/31/86	28	54	97	11.0	9.7	8.3	AAA	4.0	8.5
	12/31/85	40	32	89	11.1	10.2	9.2	AAA	3.7	6.5
	9/30/85	24	35	95	11.4	10.9	10.2	AAA	3.9	6.6
	6/30/85	49	27	92	11.4	10.8	9.9	AAA	3.8	6.3
	3/31/85	43	24	85	11.6	11.4	11.0	AAA	3.6	5.6
	12/31/84	44	19	85	11.6	11.4	10.8	AAA	3.3	5.3
	9/30/84	62	15	82	11.2	11.5	12.2	AAA	3.7	6.5

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	6/30/87	52	76	95	9.0	8.8	8.9	AA	5.4	8.6
	3/31/87	70	43	82	8.4	7.9	7.8	AA	4.8	7.6
	12/31/86	30	57	96	9.5	8.8	8.2	AA	6.6	12.1
	9/30/86	15	68	99	9.3	9.3	9.8	AA	5.6	12.5
	6/30/86	57	60	97	9.4	9.3	9.5	AA	5.2	11.6
	3/31/86	73	37	92	10.5	9.7	8.8	AA	4.4	11.4
	12/31/85	71	42	99	10.4	9.9	9.6	AA	5.3	9.6
	9/30/85	23	52	98	9.6	10.2	10.6	AA	5.0	9.7
	6/30/85	75	48	95	9.3	10.0	10.4	AA	4.6	9.3
	3/31/85	35	41	92	9.0	10.0	11.1	AA	3.7	7.4
	12/31/84	50	43	99	9.1	10.1	11.3	AA	3.9	7.3
	9/30/84	83	59	71	9.8	11.1	11.9	AAA	3.3	6.7
MORGAN STANLEY	6/30/87	107	9	93	7.8	8.0	8.2	AAA	3.4	5.1
	3/31/87	17	18	98	8.3	8.3	8.3	AAA	6.2	11.1
	12/31/86	42	19	100	7.7	8.5	8.3	AAA	6.5	11.0
	9/30/86	9	14	100	8.4	8.7	8.9	AAA	5.3	10.7
	6/30/86	89	13	100	8.6	8.9	9.1	AAA	5.4	10.8
	3/31/86	62	20	100	9.4	9.0	8.7	AAA	5.4	19.9
	12/31/85	58	17	100	10.4	10.1	9.9	AAA	5.0	10.6
	9/30/85	18	20	100	11.2	11.1	11.0	AAA	4.4	9.8
	6/30/85	38	17	100	11.4	10.8	10.5	AAA	5.0	9.7
	3/31/85	62	16	85	11.1	11.3	11.5	AAA	3.8	7.3
	12/31/84	30	12	100	11.5	11.5	11.5	AAA	5.3	9.4
	9/30/84	105	20	99	8.6	8.9	12.5	AAA	3.7	5.3
PEREGRINE	6/30/87	8	64	93	9.2	9.1	10.8	AA	4.4	8.7
	3/31/87	6	62	92	9.4	9.0	8.1	AA	5.2	9.5
	12/31/86	24	52	84	10.5	8.1	8.5	AA	4.7	8.9
	9/30/86	14	56	97	10.3	9.8	11.3	AA	4.5	11.0
	6/30/86	12	51	97	10.8	10.2	9.8	AA	4.3	9.7
	3/31/86	10	54	98	11.2	10.3	9.4	AA	4.1	11.0
	12/31/85	18	51	98	11.5	10.8	10.4	AA	3.7	9.3
	9/30/85	20	43	96	11.6	11.2	11.0	AA	3.3	7.8
	6/30/85	15	35	98	11.2	10.8	10.5	AA	3.4	7.6
	3/31/85	13	28	100	11.1	11.3	11.5	AA	3.7	7.6
	12/31/84	39	25	96	10.5	10.9	11.3	AA	3.5	7.5
	9/30/84	17	21	93	10.6	11.7	12.5	AA	3.6	7.6
WESTERN ASSET	6/30/87	46	52	94	8.8	9.0	9.2	AA	6.2	13.2
	3/31/87	31	40	87	8.6	8.3	8.3	AA	5.7	11.6
	12/31/86	33	40	95	8.8	8.7	8.6	AA	6.7	13.9
	9/30/86	38	40	100	9.6	9.1	9.0	AA	6.4	16.4
	6/30/86	97	48	90	9.3	9.0	9.0	AA	5.6	15.7
	3/31/86	58	48	95	9.8	9.8	9.3	AA	5.5	18.9
	12/31/85	47	40	87	10.3	10.1	10.0	AA	5.2	11.9
	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										SECTOR WEIGHTINGS						
			AAA	AA	A	BAA	OTHER	GOVT	AGCY	ZERO	IND	UTIL	FIN	TRAN	MTGS	MISC	CASH		
AVG. EXT. MGRS.	6/30/87	---	76	5	11	5	3	36	3	2	8	2	14	1	24	3	7		
	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.	6/30/87	42,121,121	96	0	4	0	0	56	9	13	0	0	6	0	8	0	8		
	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	5		
	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.	6/30/87	235,159,610	88	6	5	0	1	63	0	0	9	1	7	0	12	0	8		
	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	9	0	5		
	6/30/85	190,808,742	91	5	4	0	0	64	8	0	5	2	4	0	3	0	8		
	3/31/85	177,383,853	95	3	2	0	0	65	13	0	2	0	2	0	5	0	15		
	12/31/84	173,831,628	98	0	2	0	0	64	13	0	3	0	0	0	3	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	TOTAL PORTFOLIO MARKET VALUE	DATE	QUALITY WEIGHTINGS					SECTOR WEIGHTINGS									
			AAA	AA	A	BAA	OTHER	GOVT	AGCY	ZERO	IND	UTIL	PIN	TRAN	MTGS	MISC	CASH
MILLER ANDERSON	248,119,545	6/30/87	67	5	7	6	15	37	0	1	9	0	17	1	30	0	5
	252,209,582	3/31/87	75	2	3	5	15	42	0	0	5	0	3	1	30	1	18
	245,302,600	12/31/86	68	2	6	3	21	38	0	0	7	0	6	0	44	1	4
	222,348,832	9/30/86	72	3	5	6	14	24	0	0	6	0	6	0	61	2	1
	217,656,629	6/30/86	71	5	4	5	15	25	0	0	2	0	8	0	60	2	3
	217,291,031	3/31/86	74	0	5	5	16	45	0	0	2	0	8	0	37	0	8
	208,552,908	12/31/85	71	0	6	4	19	45	0	0	2	0	8	0	44	0	1
	191,849,284	9/30/85	68	1	9	4	18	24	0	0	5	0	9	0	60	0	2
	183,857,869	6/30/85	69	3	8	4	16	19	0	2	5	0	12	0	57	0	5
	173,961,916	3/31/85	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	1	1	
	159,574,376	81	12	5	2	0	0	0	0	2	2	0	17	0	52	0	29
MORGAN STANLEY	198,820,186	6/30/87	100	0	0	0	0	54	0	0	0	0	10	0	29	0	7
	246,865,703	3/31/87	100	0	0	0	0	25	0	0	0	0	0	0	75	0	2
	239,857,185	12/31/86	100	0	0	0	0	27	0	0	0	0	0	0	73	0	0
	229,631,966	9/30/86	100	0	0	0	0	35	0	0	0	0	0	0	65	0	0
	222,763,940	6/30/86	100	0	0	0	0	33	9	0	0	0	0	0	58	0	0
	225,686,690	3/31/86	100	0	0	0	0	41	0	0	0	0	0	0	59	0	0
	208,381,895	12/31/85	100	0	0	0	0	42	0	0	0	0	0	0	58	0	0
	193,513,567	9/30/85	100	0	0	0	0	41	0	0	0	0	0	0	59	0	0
	188,907,479	6/30/85	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	
	159,109,110	100	0	0	0	0	45	27	27	0	0	0	0	0	0	1	
PEREGRINE	112,206,244	6/30/87	41	18	34	5	2	0	0	0	14	0	31	1	29	18	7
	114,089,715	3/31/87	47	12	32	7	2	0	0	0	15	1	24	1	34	17	8
	111,810,642	12/31/86	47	14	29	4	6	0	0	0	22	0	20	0	31	11	16
	108,237,995	9/30/86	49	14	32	2	3	0	0	0	12	0	26	0	47	13	2
	104,606,143	6/30/86	48	19	31	0	2	0	0	0	9	0	30	0	41	17	3
	104,370,666	3/31/86	48	18	32	0	2	0	0	0	9	0	31	0	40	17	2
	100,139,659	12/31/85	55	13	29	0	3	0	0	0	5	0	29	0	48	16	2
	95,186,493	9/30/85	61	12	25	0	2	0	0	0	4	2	31	0	52	7	4
	92,417,709	6/30/85	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	4	0	6	7	0	0	5	30	0	48	0	4
	79,887,650	58	14	24	4	4	0	12	7	0	10	0	31	0	33	0	7
WESTERN ASSET	253,510,478	6/30/87	64	3	15	18	0	5	7	0	19	10	11	3	39	0	6
	262,481,416	3/31/87	69	2	16	11	2	8	6	1	16	10	4	3	36	3	13
	255,942,435	12/31/86	69	2	17	10	2	8	11	0	20	5	5	3	42	1	5
	244,004,935	9/30/86	75	2	11	11	1	16	13	2	9	7	4	4	43	2	0
	238,657,259	6/30/86	80	2	8	9	1	13	9	3	7	7	2	4	45	0	10
	235,514,306	3/31/86	76	4	5	14	1	7	9	3	12	9	2	1	52	0	5
	220,363,561	12/31/85	73	5	8	7	7	5	8	1	15	9	2	1	48	0	11
	201,666,058	9/30/85	74	6	5	4	11	10	3	0	14	10	0	1	49	0	12
	197,929,627	6/30/85	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	4	3	11	0	6	19	2	2	33	4	20
	165,957,816	68	15	9	5	5	3	4	16	0	3	18	4	5	26	4	20

TABLE A-9

EXTERNAL FIXED INCOME MANAGERS

HISTORICAL PERFORMANCE SUMMARY

	2Q 87	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	-0.9	1.0%	2.8%	2.5%	0.9%	6.2%	6.5%	2.5%	9.4%	1.9%	8.8%	11.8%
Total Fund	-0.9	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	-1.7	1.0	2.8	3.0	1.2	6.7	6.9	2.1	8.7	2.0	7.7	9.6
Total Fund	-1.6	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	-2.0	3.2	10.6	2.2	0.2	4.4	8.8	4.4	6.0	2.5	7.5	7.7
Total Fund	-1.6	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	-5.6	3.1	4.3	3.1	-2.1	8.2	7.7	2.5	9.3	1.5	7.3	6.1
Total Fund	-3.1	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	-1.9	2.2	3.4	3.6	0.2	4.3	5.4	3.1	7.3	2.3	6.0	7.7
Total Fund	-1.7	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	-3.9	2.6	5.0	2.3	0.9	7.4	10.7	1.9	10.7	2.4	8.0	11.8
Total Fund	-3.4	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	-2.8	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	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	-1.6	1.3	3.3	2.5	1.1	7.9	7.8	2.0	8.9	2.2	7.5	8.6

Tab D

PORTFOLIO STATISTICS

	PAGE
I. Composition of State Investment Portfolios 6/30/87	1
II. Cash Flow Available for Investment 4/1/87-6/30/87	3
III. Monthly Transactions and Asset Summary - Retirement Funds	4

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
COMPOSITION OF STATE INVESTMENT PORTFOLIOS BY TYPE OF INVESTMENT
MARKET VALUE JUNE 30, 1987
(in 000's)

	CASH AND SHORT TERM SECURITIES	BONDS		STOCKS		ALTERNATIVE ASSETS	TOTAL
		INTERNAL	EXTERNAL	INTERNAL	EXTERNAL		
BASIC RETIREMENT FUNDS:							
TEACHERS RETIREMENT FUND	\$ 120,391 5.72%	\$ -0-	\$ 446,087 21.20%	\$ -0-	\$ 1,306,248 62.07%	\$231,650 11.01%	\$ 2,104,376 100%
PUBLIC EMPLOYEES RETIRE. FUND	77,991 5.56%	-0-	298,123 21.24%	-0-	872,412 62.17%	154,813 11.03%	1,403,339 100%
STATE EMPLOYEES RETIRE. FUND	63,620 5.73%	-0-	235,455 21.20%	-0-	689,391 62.06%	122,270 11.01%	1,110,736 100%
PUBLIC EMP. POLICE & FIRE FUND	26,912 6.22%	-0-	91,231 21.09%	-0-	267,110 61.74%	47,375 10.95%	432,628 100%
HIGHWAY PATROL RETIRE. FUND	4,669 5.72%	-0-	17,302 21.20%	-0-	50,663 62.07%	8,985 11.01%	81,619 100%
JUDGES RETIREMENT FUND	233 5.25%	-0-	941 21.20%	-0-	2,776 62.54%	489 11.01%	4,439 100%
POST RETIREMENT FUND	359,481 8.99%	2,965,262 74.18%	-0-	672,661 16.83%	-0-	-0-	3,997,404 100%
MINNESOTA SUPPLEMENTAL FUNDS:							
INCOME SHARE ACCOUNT	25,907 12.09%	59,078 27.58%	-0-	30,901 14.43%	98,303 45.90%	-0-	214,189 100%
GROWTH SHARE ACCOUNT	26 0.03%	-0-	-0-	21,442 23.70%	69,013 76.27%	-0-	90,481 100%
MONEY MARKET ACCOUNT	76,927 100%	-0-	-0-	-0-	-0-	-0-	76,927 100%
BOND ACCOUNT	576 4.78%	11,474 95.22%	-0-	-0-	-0-	-0-	12,050 100%
COMMON STOCK INDEX ACCOUNT	-0-	-0-	-0-	-0-	1,906 100%	-0-	1,906 100%
BOND MARKET ACCOUNT	-0-	-0-	799 100%	-0-	-0-	-0-	799 100%
GUARANTEED RETURN ACCOUNT	-0-	-0-	4,473 100%	-0-	-0-	-0-	4,473 100%
MINNESOTA VARIABLE ANNUITY	148 0.09%	-0-	-0-	41,401 24.27%	129,054 75.64%	-0-	170,603 100%
TOTAL RETIREMENT FUNDS	\$ 756,881 7.80%	\$3,035,814 31.28%	\$1,094,411 11.27%	\$766,405 7.90%	\$3,486,876 35.92%	\$565,582 5.83%	\$ 9,705,969 100%

PERMANENT SCHOOL FUND	64,064 17.75%	296,845 82.25%	-0-	-0-	-0-	-0-	360,909 100%
TREASURERS CASH	944,275 100%	-0-	-0-	-0-	-0-	-0-	944,275 100%
TRANSPORTATION FUNDS	492,810 100%	-0-	-0-	-0-	-0-	-0-	492,810 100%
HOUSING FINANCE AGENCY	165,352 100%	-0-	-0-	-0-	-0-	-0-	165,352 100%
MINNESOTA DEBT SERVICE FUND	180,975 100%	-0-	-0-	-0-	-0-	-0-	180,975 100%
MISCELLANEOUS ACCOUNTS	137,521 100%	-0-	-0-	-0-	-0-	-0-	137,521 100%
TACONITE AREA ENVIR. PROTECTION	7,695 100%	-0-	-0-	-0-	-0-	-0-	7,695 100%
N.E. MINNESOTA PROTECTION	43,334 100%	-0-	-0-	-0-	-0-	-0-	43,334 100%
GRAND TOTAL	\$2,792,907 23.20%	\$3,332,659 27.68%	\$1,094,411 9.09%	\$766,405 6.37%	\$3,486,876 28.96%	\$565,582 4.70%	\$12,038,840 100%

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

For period of
April 1, 1987 - June 30, 1987

Teachers Retirement Fund	\$ -0-
Public Employees Retirement Fund	(18,000,000.00)
State Employees Retirement Fund	(2,035,000.00)
Public Employees Police & Fire	750,000.00
Highway Patrol Retirement Fund	-0-
Judges Retirement Fund	-0-
Post Retirement Fund	118,149,875.45
Supplemental Retirement Fund - Income	321,834.59
Supplemental Retirement Fund - Growth	(1,453,338.93)
Supplemental Retirement Fund - Money Market	2,270,785.10
Supplemental Retirement Fund - Bond Fund	-0-
Supplemental Retirement Fund - Index	392,356.50
Supplemental Retirement Fund - Bond Mkt.	(154,447.47)
Supplemental Retirement Fund - Guaranteed	209,436.84
Minnesota Variable Annuity Fund	<u>\$ (938,572.05)</u>
 Total Retirement Funds Net Cash Flow	 \$ 98,012,930.03
 Permanent School Fund	 1,163,490.37
 Total Net Cash Flow	 <u>\$ 99,176,420.40</u>

STATE OF MINNESOTA
STATE BOARD OF INVESTMENT
TRANSACTION AND ASSET SUMMARY
RETIREMENT FUNDS

	Net Transactions		Asset Summary (at market)					Total (000,000) (at market)
	Bonds (000,000)	Stocks (000,000)	Total	Cash Flow	Short-term % of Fund	Bonds % of Fund	Equity % of Fund	
July 1985	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
April	100	(7)	93	4	4.1	45.0	50.9	9383
May	3	(136)	(133)	33	5.9	44.6	49.5	9403
June	(42)	(22)	(64)	141	7.8	42.6	49.6	9706

Tab E

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**

September 22, 1987

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

**FROM: Administrative Committee
Asset Allocation Committee
Equity Managers Committee
Fixed Income Managers Committee**

RE: Committee Reports

The Administrative, Asset Allocation, Equity Managers and Fixed Income Managers Committees met separately during the quarter to review and discuss the agenda for the joint meeting of the Board and the Investment Advisory Council (IAC) on October 1, 1987.

Each Committee reviewed events during the last five years that have had a major impact on their respective areas of responsibility. The chair of each committee will present a summary of those discussions at the October meeting.

No other official action was taken.

hml

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**

September 18, 1987

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

FROM: Alternative Investment Committee

SUBJECT: Alternative Investment Strategy

ALTERNATIVE INVESTMENT 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 billion Basic Retirement Funds 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 a 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.

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 million to eleven commingled real estate funds.

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.

ALTERNATIVE INVESTMENT COMMITTEE CURRENT ACTIVITIES AND RECOMMENDATIONS

During the latest quarter, the Alternative Investment Committee conducted annual review sessions with three of SBI's real estate managers (Prudential, Equitable and Aetna). In general, all three managers are experiencing the effects of an over-built office market. Acquisition activities and investment returns have declined from last year's levels. In response, the managers have emphasized active management and improvements to existing holdings in addition to selective retail, industrial and apartment acquisitions. An investment status and performance report for each manager is included in the attached annual review summaries.

Also during the quarter, the Alternative Investment Committee considered additional investments with one of the SBI's real estate managers, AEW-State Street, and one of the SBI's venture capital managers, Kohlberg, Kravis and Roberts. The Committee also considered an investment with a new venture capital manager, Golder, Thoma and Cressey. Specifically, the Committee is recommending the Board approve a \$20 million investment in AEW-State Street Real Estate Fund V, a \$115 million additional investment in the Kohlberg, Kravis and Roberts 1987 Fund, and a \$20 million investment in Golder, Thoma and Cressey Fund III.

AEW-State Street Real Estate Fund V is a follow-on fund to a series of funds offered annually by AEW-State Street. Currently, the SBI has a \$20 million investment in AEW-State Street Fund III and a \$15 million investment in AEW-State Street Fund IV.

The Kohlberg, Kravis and Roberts (KKR) 1987 Fund is also a follow-on Fund to previous Funds offered by KKR since 1976. Currently, the SBI has a \$25 million investment in the KKR 1984 Fund and a \$50 million investment in the KKR 1986 Fund.

Golder, Thoma and Cressey (GTC) Fund III is the third Fund raised by GTC since 1980. Prior to 1980, the principals of GTC worked together at First Chicago's private equity group. GTC offers one of the most experienced venture capital staffs in the industry, in addition to proven capabilities in successfully investing, managing and

liquidating venture capital investments. A summary description of the proposed GTC Fund III investment is attached.

FUTURE CONSIDERATIONS

Going forward, the Alternative Investment Committee agenda will include:

- o Conducting annual review sessions with existing alternative investment managers
- o Ongoing reviews of investment objectives, strategy, asset allocation and performance measurement
- o Considering additional investments with new and existing managers
- o Considering potential alternative investment consultants

ALTERNATIVE EQUITY INVESTMENTS
JUNE 30, 1987

REAL ESTATE:	INCEPTION DATE	FUND SIZE (MILLIONS)	SBI COMMITMENT	SBI-FUNDED	SBI- TO BE FUNDED	FUND DESCRIPTION
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.
REEF- USA III	4/84	\$773.0	\$75,000,000.00	\$67,000,000.00	\$8,000,000.00	CLOSED - DIV.
HEITHAN I	6/84	\$113.0	\$20,000,000.00	\$20,000,000.00	\$0.00	CLOSED - DIV.
HEITHAN II	10/85	\$238.0	\$30,000,000.00	\$30,000,000.00	\$0.00	CLOSED - DIV.
HEITHAN III	11/86	\$200.0	\$20,000,000.00	\$10,000,000.00	\$10,000,000.00	CLOSED - DIV.
TCW I	7/85	\$216.0	\$40,000,000.00	\$40,000,000.00	\$0.00	CLOSED - SPEC.
TCW II	9/86	\$250.0	\$30,000,000.00	\$15,000,000.00	\$15,000,000.00	CLOSED - SPEC.
STATE STREET I	7/85	\$103.0	\$20,000,000.00	\$20,000,000.00	\$0.00	CLOSED - SPEC.
STATE STREET II	7/86	\$86.0	\$15,000,000.00	\$15,000,000.00	\$0.00	CLOSED - SPEC.
TOTAL R.E. PORTFOLIO	--	--	\$370,000,000.00	\$337,000,000.00	\$33,000,000.00	--
VENTURE CAPITAL:						
NORVEST	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	\$14,591,340.00	\$35,408,660.00	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	\$7,500,000.00	\$2,500,000.00	EARLY STAGE
INMAN/BOWMAN	6/85	\$44.0	\$7,500,000.00	\$3,750,000.00	\$3,750,000.00	EARLY STAGE
ALLIED	7/85	\$40.0	\$5,000,000.00	\$3,333,334.00	\$1,666,666.00	LATER STAGE
SUPERIOR VENTURE	6/86	\$35.0	\$6,600,000.00	\$1,661,250.00	\$4,938,750.00	EARLY STAGE - MM.
TOTAL V.C. PORTFOLIO	--	--	\$144,100,000.00	\$85,835,924.00	\$58,264,076.00	--
RESOURCES:						
ANGO I	7/81	\$144.0	\$15,000,000.00	\$15,000,000.00	\$0.00	DEBT WITH EQUITY
ANGO 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	\$766,916.75	\$21,733,083.25	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. PORTFOLIO	--	--	\$97,500,000.00	\$75,166,916.75	\$22,333,083.25	--
TOTAL ALT. INV. PORT	--	--	\$611,600,000.00	\$498,002,840.75	\$113,597,159.25	--

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
JULY 16, 1987

FUND NAME: Real Estate Separate Account (RESA)
 FIRM NAME: Aetna Life and Casualty Company
 CONTACT: Tom Anathan, Maurice Giannotti,
 Tom Rogers

SBI ACCOUNT INCEPTION: April, 1982

SBI COMMITMENT: \$40,000,000

SBI CURRENT INVESTMENT: \$55,794,883 (6/30/87)
 (MARKET VALUE)

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

RESA PORTFOLIO COMPOSITION 6/30/87:

<u># OF PROPERTIES</u>		<u>MARKET VALUE OF PROPERTIES</u>	
118		\$1,778,830,299	
<u>LOCATION:</u>		<u>PROPERTY TYPE:</u>	
East	20.0%	Retail	19.4%
Midwest	6.2	Office	44.1
South	17.8	Industrial	11.9
West	56.0	Hotel	6.2
	<u>100.0%</u>	Apartment	6.5
		Office R&D	<u>11.9</u>
			100.0%

RESA PERFORMANCE:

	<u>2Q 87</u>	<u>YEAR ENDING 6/30/87</u>	<u>3 YEARS ANNUALIZED</u>	<u>5 YEARS ANNUALIZED</u>
Income	1.71%	7.24%	8.02%	8.46%
Appreciation	0.02	0.15	0.70	1.69
TOTAL	<u>1.73%</u>	<u>7.39%</u>	<u>8.72%</u>	<u>10.15%</u>

ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
JULY 16, 1987

FUND NAME: Separate Account #8
 FIRM NAME: Equitable Real Estate Group, Inc.
 CONTACT: David Bradford, Sandra Dzinski

SBI ACCOUNT INCEPTION: October, 1981

SBI COMMITMENT: \$40,000,000

SBI CURRENT INVESTMENT \$64,115,557 (6/30/87)
 (MARKET VALUE)

INVESTMENT DESCRIPTION: Separate Account #8 was formed in August, 1973, by the New York-based Equitable Real Estate Group, Inc. The account is an open-end, commingled, real estate fund. The fund has no termination date; investors retain the option to withdraw all or a portion of their investment. The fund makes equity investments in existing real estate. The fund's portfolio is diversified by location and property type. Management of the fund's properties is contracted to outside firms or is conducted by joint venture partners.

SEPARATE ACCOUNT #8 PORTFOLIO COMPOSITION 6/30/87:

<u># OF PROPERTIES</u>		<u>MARKET VALUE OF PROPERTIES</u>	
229		\$3,060,566,799	
<u>LOCATION:</u>		<u>PROPERTY TYPE:</u>	
East	30.8%	Retail	37.5%
Midwest	19.7	Office	38.3
South	27.7	Industrial	15.2
West	23.6	Hotel	8.7
	<u>100.0%</u>	Specialized	0.3
			<u>100.0%</u>

SEPARATE ACCOUNT #8 PERFORMANCE:

	<u>2Q 87</u>	<u>YEAR ENDING 6/30/87</u>	<u>3 YEARS ANNUALIZED</u>	<u>5 YEARS ANNUALIZED</u>
Income	1.8%	7.0%	7.2%	7.5%
Appreciation	1.0	2.2	3.3	4.3
TOTAL	2.8%	9.2%	10.5%	11.8%

**ALTERNATIVE INVESTMENT MANAGER INFORMATION
ANNUAL REVIEW SUMMARY
JULY 16, 1987**

FUND NAME: PRISA I
FIRM NAME: Prudential Investment Management Corp.
CONTACT: Robert Dunphy, Charles Lightner

SBI ACCOUNT INCEPTION: September, 1981

SBI COMMITMENT: \$40,000,000

SBI CURRENT INVESTMENT: \$58,564,175 (6/30/87)
(MARKET VALUE)

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

PRISA I PORTFOLIO COMPOSITION 6/30/87:

<u># OF PROPERTIES</u>	<u>MARKET VALUE OF PROPERTIES</u>
263	\$4,096,000,000
<u>LOCATION:</u>	<u>PROPERTY TYPE:</u>
East 29.8%	Retail 18.7
Midwest 14.3	Office 48.9
South 18.4	Industrial 15.6
West 37.5	Hotel 9.2
<u>100.0%</u>	Apartment 5.4
	Other <u>2.2</u>
	100.0%

PRISA I FUND PERFORMANCE:

	<u>2Q 1987</u>	<u>YEAR ENDING 6/30/87</u>	<u>3 YEARS ANNUALIZED</u>	<u>5 YEARS ANNUALIZED</u>
Income	1.96%	7.19%	7.42%	7.62%
Appreciation	<u>(1.58)</u>	<u>(2.68)</u>	<u>(.04)</u>	<u>.93</u>
TOTAL	.58%	4.51%	7.38%	8.55%

NEW VENTURE CAPITAL MANAGER PROFILE

I. BACKGROUND DATA

FUND MANAGER: Golder, Thoma & Cressey

NAME OF FUND: Golder, Thoma & Cressey Fund III

TYPE OF FUND: \$225 million Limited Partnership

INTERVIEW DATE: August 28, 1987

REPRESENTING MANAGER: Stan Golder, Bryan Cressey, Carl Thoma, Bruce Rauner

MANAGER CONTACT: Bryan Cressey

ADDRESS: 120 S. LaSalle St., Chicago, IL 60603

TELEPHONE: 312-853-3310

II. ORGANIZATION AND STAFF

The Fund will be managed by Golder, Thoma & Cressey ("GTC") which is organized as a partnership. The three founding general partners, Stan Golder, Carl Thoma and Bryan Cressey, have worked together since the inception of GTC in 1980. Prior to the formation of GTC, the three founding partners worked together at First Chicago's private equity group. Bruce Rauner, the fourth general partner, has six years of experience at GTC. In addition to the four general partners, six associate investment professionals are on the staff of GTC.

III. INVESTMENT STRATEGY

GTC Fund III will invest in growing private businesses, found and build companies in fragmented industries and invest in leveraged buyouts. In addition, the portfolio will be diversified geographically and by industry. A more specific definition of investment types follows:

1. **Industry Consolidations** - GTC first targets a fragmented industry which can be consolidated and then identifies an existing company to grow through a series of buyouts. These investments combine the traits of a leveraged buyout and a growth equity investment.

2. **GTC Founded Companies** - When GTC is unable to identify an existing company in a consolidating fragmented industry, it will selectively found and build its own company by recruiting a management team.
3. **Leveraged Buyouts** - In a leveraged buyout, the cash flow and assets of an existing business act as collateral for financing the purchase price. GTC normally works with existing management teams in these transactions.
4. **Growth Equities** - These companies typically have proven performance and markets, but rapid growth outstrips both their borrowing capacity and internal cash flow. GTC's investment is typically the company's first source of "professional" capital.
5. **Early Stage (traditional venture capital)** - Early stage investments are expected to be a minor portion of Fund III, consistent with Fund II where early stage investments are less than 10% of the portfolio. These companies usually involve a high risk of capital loss but offer high upside potential.

IV. INVESTMENT PERFORMANCE

While it is too early to determine the ultimate performance of Funds I and II, the present indications are positive. The \$56 million invested by Fund II since February, 1984, has increased in value by \$18 million to \$74 million based on realized gains and the valuation of the portfolio as of December 31, 1986. This is a compound annual return on investment in excess of 43% before GTC's profit sharing and before expenses.

The \$66 million invested by Fund I since August, 1980, has increased in value by \$76 million to \$142 million based on realized gains and the valuation of the portfolio as of December 31, 1986. This is a compound annual return on investment in excess of 31% before GTC's profit sharing and before expenses.

The valuation of Fund investments still outstanding significantly influences return on investment calculations. GTC believes that its valuation policies are conservative. For example, the 26 companies which have gone public, sold out or merged through December 31, 1986, have netted the Funds more than double their immediate prior-to-sale quarterly valuations. Also, these valuations reflect a discount on publicly traded securities, averaging approximately 20%.

During the time the Partners were associated with First Chicago's equity group (1971-1979), the investments under their management produced over a 22% compound annual return before expenses.

V. INVESTMENT AGREEMENT

Term

The Fund will have a ten-year initial term with GTC having the option to extend the Fund for up to three additional one-year terms to permit orderly dissolution.

Management Fee

During the first six years, the Fund will pay GTC an annual fee of 2% of total commitments (adjusted annually to reflect changes in the Consumer Price Index). Fifty percent of any fees received by GTC from portfolio companies is used to reduce the annual management fee. During the seventh year, the management fee will be 90% of the amount computed as set forth above, and during each succeeding year, the management fee will decline by ten percentage points (80% in the eighth year, 70% in the ninth, etc.).

Allocation of Income, Gains, Losses and Expenses

Income, gains, losses and expenses will generally be allocated 80% to the accounts of all Partners in proportion to their capital contributions and 20% to the account of GTC, except that short-term interest will be allocated according to capital accounts to the extent that the aggregate of short-term interest and portfolio dividends and interest exceed partnership expenses (including management fee).

GTC will not be entitled to receive distributions (other than to pay taxes) unless the Limited Partner's fair value capital accounts (plus amounts previously distributed to Limited Partners) are at least 120% of the Limited Partners' capital contributions, and after the Limited Partners have received distributions equal to their capital contributions, in proportion to their capital accounts.

VI. INVESTORS

Commitments as of 8/25/87

Leeway & Company	\$ 30	M
Abbott Capital Management	22	M
Horsley, Keogh & Associates	15	M
University of California	15	M
Crossroads Capital, Ltd.	12	M
Northwestern Mutual Insurance Company	10	M
Hughes Aircraft Retirement Fund	9	M
First Chicago Investment Advisors	6.5	M
Manufacturers Hanover Investment Corp.	5	M
John Hancock Venture Capital	5	M
Avon Products, Inc.	5	M
MNC Commercial Corporation	5	M
Chemical Equity Associates	4	M
Owens-Illinois	3	M
Continental Illinois Equity Corporation	3	M
GTC	2	M
Other	4	M
Total Committed	\$155.5	M