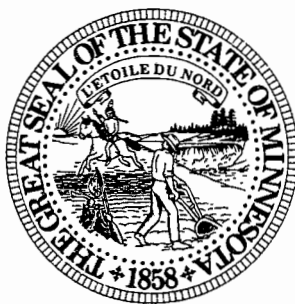


MINNESOTA STATE BOARD OF INVESTMENT



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

**MINNESOTA
STATE BOARD
OF INVESTMENT**

SPECIAL MEETING

FEBRUARY 8, 1989

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
St. Paul, MN 55155
Tel. (612) 296-3328
FAX: (612) 296-9572

January 12, 1989

TO: Members, State Board of Investment
Governor Rudy Perpich
State Auditor Arne H. Carlson
Secretary of State Joan Anderson Growe
State Treasurer Michael J. McGrath
Attorney General Hubert H. Humphrey III

FROM: Howard J. Bicker *Howard Bicker*

SUBJECT: Special SBI Meeting

This is to confirm that the State Board of Investment (SBI) will convene a special meeting:

Wednesday, February 8, 1989
8:00 A.M.-10:00 A.M.
Room 118
State Capitol
St. Paul

Please note that the next regular quarterly meeting of the SBI is scheduled for Wednesday, March 1, 1989.

cc: Board Member Deputies
IAC Members

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



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STATE BOARD OF INVESTMENT

Room 105, MEA Building
55 Sherburne Avenue
St. Paul, MN 55155
Tel. (612) 296-3328
FAX: (612) 296-9572

January 20, 1989

TO: Members, State Board of Investment
Governor Rudy Perpich
State Auditor Arne H. Carlson
Secretary of State Joan Anderson Growe
State Treasurer Michael J. McGrath
Attorney General Hubert H. Humphrey III

FROM: Howard J. Bicker *Howard Bicker*

SUBJECT: Special SBI Meeting - CHANGE OF TIME

This is to confirm that the State Board of Investment (SBI) will convene a special meeting to review the results of the Task Force Fund Objectives:

Wednesday, February 8, 1989
8:30 A.M.-10:00 A.M.
Room 118
State Capitol
St. Paul

Please note that the next regular quarterly meeting of the SBI is scheduled for Wednesday, March 1, 1989.

cc: Board Member Deputies
IAC Members
SBI Agenda Mailing List



**State of Minnesota
Department of Finance**

400 Centennial Building
658 Cedar Street
St. Paul, Minnesota 55155
(612) 296-5900

February 4, 1989

To: Governor Perpich

Fr: Tom Triplett

Re: State Board of Investment - Special Meeting

At its special meeting this coming Wednesday, February 8, the State Board of Investment will review the report of the IAC Task Force on the goals and objectives of the Basic Retirement and the Post Retirement Funds. You might recall that the Board asked for this Report as a result of uncertainty about whether to increase the number of outside managers and in response to questions about SBI performance.

In this memo, I want to summarize the attached and give you our recommendations.

Part One of the report makes recommendations that can be implemented without statutory changes. I believe these recommendations are good ones and should be adopted by the Board. Major items covered in this Part are:

- O A mission statement for the Basic Fund.
- O Two objectives for the Basic Fund:
 - Total Return (consisting of both real and relative return measurements), and
 - Liquidity.
- O Indices to measure the Basic Funds performance.
- O A new asset allocation strategy.
- O A mission statement for the Post Fund.
- O Two objectives for the Post Fund:
 - Realized Earnings, and
 - Liquidity.
- O A conclusion that the asset allocation strategy currently in place for the Post Fund not be changed.

Governor Perpich, page 2

- O A Score Card Report Format for use in quarterly reporting to the SBI.

Part Two of the report (beginning on page 11) recommends statutory changes. These recommendations are more controversial and should be the subject of further study by SBI deputies and staff and affected groups such as the pension funds. In addition, these recommendations affect the public pension benefits question which is now being reviewed by Finance and legislative staff (as per the directive from you and legislative leaders).

These statutory changes would change the present benefit increase formula to one that relates to inflation rather than realized investment earnings. In addition, they call for the elimination of separate Basic and Post Retirement Funds.

Summary and Conclusion. The SBI has been struggling with its investment policy and the performance review of the Basic and Post Funds. This report from the Task Force provides an opportunity for the SBI to discuss these issues and to establish a framework for answering subsequent questions such as the use of outside managers, appropriate measurement standards, etc.

In addition to accepting Part One of the Report, I also recommend that the SBI charge the IAC to continue the development of the investment philosophy and performance review standards. Specific questions that could be considered by the IAC include:

- O More specific indices/targets to be used in measuring the Basic Fund's performance.
- O The percentage split between active and passive management.
- O Performance evaluation processes for the active managers.

Finally, I recommend that the SBI direct its staff to discuss the recommended Part Two statutory changes with the pension boards, the Legislative Commission on Pensions and Retirement, and other key legislators and to report back to you by the next regular SBI meeting. These discussions should be coordinated with discussions about 1989 pension benefit adjustments.

cc: SBI members and staff
Jan Yeomans and John Bohan

**POST RETIREMENT INVESTMENT FUND
BENEFIT INCREASE HISTORY**

<u>Date</u>	<u>Increase</u>	<u>Inflation (1)</u>
Jan. 1, 1972	2.500%	3.36%
Jan. 1, 1973	4.500	3.41
July 1, 1973	12.070 (2)	--
Jan. 1, 1974	11.537 (2)	8.80
Jan. 1, 1975	--	12.20
Jan. 1, 1976	--	7.01
Jan. 1, 1977	--	4.81
Jan. 1, 1978	4.000	6.77
Jan. 1, 1979	--	9.03
Jan. 1, 1980	--	13.31
Jan. 1, 1981 (3)	3.209	12.40
Jan. 1, 1982	7.436	8.94
Jan. 1, 1983	6.853	3.87
Jan. 1, 1984	7.499	3.80
Jan. 1, 1985	6.905	3.95
Jan. 1, 1986	7.884	3.77
Jan. 1, 1987	9.792	1.13
Jan. 1, 1988	8.054	4.10
Jan. 1, 1989	6.918	4.47

	<u>Cumulative</u>	<u>Cumulative</u>
1972-1989	159.452%	202.34%
1981-1989	86.327%	56.62%

	<u>Annualized</u>	<u>Annualized</u>
1972-1989	5.439%	6.34%
1981-1989	7.159%	5.11%

- (1) CPI increase for the 12 months preceding the benefit increase.
- (2) Legislature increased annuities by special law.
- (3) Benefit increase formula modified.

POST RETIREMENT FUND

TASK FORCE RECOMMENDATION

Mission

To insure that assets... generate sufficient realized earnings to maintain promised benefits and to generate additional realized earnings that will provide benefit increases. All investments are governed by the prudent person rule and MS Chapter 11A.

Objectives

- o Generate at least 8% annual realized earnings
- o Liquidity

Asset Allocation

- o Use dedicated bond portfolio to satisfy 5% requirement
- o Use dedicated bond portfolio to provide floor 3% benefit increase
- o Commit remainder to stocks

CURRENT POLICY

Objectives/Goals

- o To produce earnings sufficient to maintain promised benefits at current levels
- o To generate additional earnings which allow benefits to be increased

Performance Standards

- o Generate annual benefit increases (requires earnings in excess of 5%)
- (Assumed in asset allocation)

Asset Allocation

- o Use dedicated bond portfolio to satisfy 5% requirement
- o Use dedicated bond portfolio to provide floor 3% benefit increase
- o Commit remainder to stocks

BASIC RETIREMENT FUNDS

TASK FORCE RECOMMENDATION

Mission

To invest pension contributions... so that sufficient funds are available to finance promised benefits...at retirement. All investments are governed by the prudent person rule and MS Chapter 11A.

Objectives

- o Real Return of 3-5%
- o Relative Return
 - Above Custom Index (includes alt. assets)
 - Above Peer Index (TUCS)
- o Liquidity

Asset Allocation

Domestic Stock	60.0%
Int'l Stock	10.0
Real Estate	10.0
Venture Capital	2.5
Resource Funds	2.5
Domestic Bonds	15.0
Cash Equivalents	----
	<u>100.0%</u>

CURRENT POLICY

Objectives/Goals

- o To generate returns sufficient to secure the retirement benefits promised to public employees
- o To generate additional returns that would allow reductions in contributions or increases in benefits
- o To avoid excessive volatility in the short run

Performance Standards

(Nothing equivalent)

- o Relative Return
 - Above Custom Index (excludes alt. assets)
 - Above Peer Index (TUCS)

(Target of 3% cash included in asset allocation)

Asset Allocation

Domestic Stock	60.0%
Int'l Stock	----
Real Estate	10.0
Venture Capital	2.5
Resource Funds	2.5
Domestic Bonds	22.0
Cash Equivalents	<u>3.0</u>
	<u>100.0%</u>

MEMBERS OF THE BOARD:

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STATE AUDITOR ARNE H. CARLSON
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February 1, 1989

TO: Members, 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

FROM: John Bohan, Chair
IAC Task Force on Fund Objectives

SUBJECT: Report of the Task Force
February 8, 1989 Special Board Meeting

At its December 1988 meeting, the State Board of Investment (SBI) concurred with the Investment Advisory Council (IAC) recommendation that a Task Force be formed to review the objectives of the Basic and Post Retirement Funds. The IAC discussed the Task Force recommendations on January 30, 1989 and agreed that the attached report should be presented to the SBI for its consideration.

A special meeting of the SBI has been scheduled to review and discuss the Task Force Report:

Wednesday, February 8, 1989
8:30 - 10:00 A.M.
Room 118
State Capitol

If you have questions or comments on the report prior to the Board meeting, please contact me (330-4163) or Jan Yeomans, IAC Chair (733-7377). We look forward to reviewing the full report with Board on February 8th.

cc: Board Members Deputies
IAC Members

Report of the Task Force on Fund Objectives

**Basic Retirement Funds
Post Retirement Investment Fund**

January, 1989

Members of the Task Force:

**John Bohan, Pillsbury Company, Chair
Harry Adams, Mpls. Teachers Retirement Fund
Jim Eckmann, Dayton-Hudson
Malcolm McDonald, Space Center Corporation
Joe Rukavina, Public Representative
Jan Yeomans, 3M Company**

REPORT ON THE TASK FORCE ON FUND OBJECTIVES

BASIC RETIREMENT FUNDS
POST RETIREMENT INVESTMENT FUND

Table of Contents

	<u>Pages</u>
Executive Summary	1- 2
Recommendations Within Current Statutory Requirements	
o Basic Retirement Funds	3- 6
o Post Retirement Investment Fund	7- 8
o Funding Status	9
o Score Card Report Format	10
Recommendations For Statutory Changes	11-13

Report of the Task Force on Fund Objectives

EXECUTIVE SUMMARY

MISSION:

At its first meeting on December 15, 1988, the Task Force agreed that its mission was to:

- o Review objectives of the Basic and Post Retirement Funds as to relevancy, clarity, measurability of results, and recognition of the Board's responsibilities to the Fund beneficiaries and contributors.
- o Identify barriers to the development and execution of strategies to accomplish stated objectives.
- o After review with the Investment Advisory Council, report findings to the Board, including where appropriate, recommendations for change.

PROCESS:

Participants included six members of the Investment Advisory Council (IAC). Extensive meetings were held on consecutive Wednesdays: December 15, December 28 and January 4. Members of the professional staff and representatives of members of the State Board of Investment were present at each meeting and contributed to the discussions.

A report draft of the Task Force report was forwarded to the Investment Advisory Council on January 23, 1989. Following discussion with the IAC on January 30, in which the Board's consultant participated, the draft was modified to incorporate certain clarifications.

CONCLUSIONS AND RECOMMENDATIONS:

Early on in its deliberations, the Task Force concluded that it would separate its recommendations into two parts:

- o Recommendations that can be implemented within current statutory requirements (pages 3 to 10).
- o Recommendations that require statutory changes to eliminate what the Task Force perceives as unreasonable and costly investment policy restrictions (pages 11 to 13).

Recommendations within current statutory requirements:

- o The Task Force developed, separately for the Basic and Post Retirement Funds, a mission statement, a statement of

Executive Summary (con't)

objectives and an asset allocation strategy designed to achieve the respective mission and objectives.

Further, the Task Force recommends that the combined funding status of the Basic and Post Retirement Funds, currently 72% of the present value of the future benefit obligations for actives and retirees, be included in the periodic reporting to the State Board of Investment. The current statute provides for the obligation to be fully funded by 2009. Adoption of the Task Force recommendations for a more aggressive investment policy in the Basic Funds may permit the acceleration of this schedule without affecting the current mechanism used to finance retirement benefit increases.

- o The Task Force also recommends that a "score card" (page 10) be used in quarterly reporting of performance to the Board.

Recommendations that require statutory changes:

- o The Task Force recommends substituting an inflation-based benefit increase formula for the current formula that is keyed to excess "realized income" from the Post Retirement Investment Fund.
- o The Task Force recommends that the separation of the pension assets of retirees and active employees be discontinued. This structure is believed to be unique among U.S. pension plans, with the known exception of one other public plan in Minnesota. This structure, along with the investment-driven benefit increase formula, leads to an asset allocation for the Post Retirement Investment Fund that generates current "realized income" from fixed income securities. Greater return could be secured from a portfolio more heavily weighted to equities, albeit with potentially more volatility in any given year.

The Task Force recommends that the Board, at its February 8, 1989 meeting, approve those recommendations that can be implemented within current statutory requirements.

With respect to statutory changes, the Task Force recommends that the Board, after consulting with the retirement systems and other state agencies, develop enabling legislation for consideration by the Legislature. The Investment Advisory Council stands ready to assist the Board in furthering these changes.

Report of the Task Force on Fund Objectives

BASIC RETIREMENT FUNDS

Mission, Objectives, Asset Allocation Strategy

MISSION:

To invest the pension contributions of employees/employers so that sufficient funds are available to finance promised benefits to over 200,000 public employees at retirement. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommends the following objectives:

- o Total Return
- o Liquidity

1) Total Return (net of fees)

a) Real Return over 10 years

The Basic Funds should generate total annualized returns that are 3-5 percentage points greater than the rate of inflation over moving 10 year periods.

Rationale: Historically, the capital markets have, over time, provided total returns exceeding inflation.

Since inflation and stock and bond returns will vary widely on a year to year basis, comparisons over short time periods are not meaningful. Given current trends in inflation, the Task Force believes an objective of 3-5% real return over a 10 year period is an appropriate and achievable objective for the Basic Funds. If inflationary trends change significantly, this objective should be re-evaluated.

Basic Funds (con't)

b) Relative Return over 5 years

Relative return measures should be compared to the Basic Funds' performance over moving 5 year periods. Return comparisons for shorter time periods (1 and 3 years) provide insights to relative performance but should not be used in judging the Funds' performance.

o Exceed a composite of market indices ("Custom Index")

The Basic Funds' total return should exceed a composite of market indices that is weighted in a manner that reflects the target asset allocation of the Funds.

<u>Asset Class</u>	<u>Recommended Index/Target</u>	<u>Current Index/Target</u>
Equities:		
Domestic Common Stock	Wilshire 5000	Wilshire 5000
Int'l Common Stock	EAFE *	None
Real Estate	**	None
Venture Capital	**	None
Resource Funds	**	None
Fixed Income:		
Domestic Bonds	Salomon BIG	Salomon BIG
Cash Equivalents	None	91 Day T-Bills

* Morgan Stanley Capital International Index of Europe, Asia and the Far East.

** To be recommended by the Alternative Investment Committee of the IAC.

Rationale: The Task Force recommends that the indices in the custom index correspond to the Board's asset class targets. If the Board changes these asset class targets, corresponding changes in the indices used in the composite should be made.

Implicit in the objective to "exceed" the Custom Index is the use of active management. Over time, active management is expected to add value, net of fees, to the return available from passively managed index funds.

Basic Funds (con't)

o Exceed the median fund in TUCS Universe ("Peer Index")

The Basic Funds' total return should be above the median return from a representative cross section of other public and private pension funds.

The current peer index used is the Trust Universe Comparison Service (TUCS). Since many funds report only their stock, bond and cash returns to TUCS, the Task Force recommends that this measure be compared to the Basic Funds' return without alternative assets.

Rationale: TUCS is the largest and most comprehensive universe available to the SBI. It includes the returns of more than 800 public and private pension funds across the U.S.

The recommended asset allocation for the Basic Funds contains a larger percentage of stock than most funds reported to TUCS. As a result, the Basic Funds' return may be above the TUCS median return in years that the stock market performs well relative to the bond market, and below the TUCS median in years when the stock market performs poorly. The Task Force believes the Basic Funds' can be expected to exceed the TUCS median return over a moving 5 year period.

It should be noted that many funds report their returns before management fees are deducted. As a result, the Basic Funds are at a disadvantage when compared to other funds in the sample.

2) Liquidity

The Basic Funds should provide enough cash to meet the monthly transfer needs to the Post Retirement Fund.

Rationale: Historically, cash equivalents have provided lower rates of return than investments in stocks, bonds or alternative assets. Accordingly, the Task Force recommends that the Basic Funds minimize the amount of cash it holds at any point.

Basic Funds (con't)

ASSET ALLOCATION STRATEGY

The Task Force recommends the Basic Funds allocate 85% of its assets to equities (common stock and alternative assets). This is the maximum equity allocation allowed under current statute. The specific long term asset allocation recommended by the Task Force is:

	<u>Recommended</u>	<u>Current</u>
Equities:		
Domestic Common Stock	60.0%	60.0%
International Common Stock	10.0	---
Real Estate	10.0	10.0
Venture Capital	2.5	2.5
Resource Funds	2.5	2.5
Sub-Total Equities	85.0%	75.0%
Fixed Income:		
Domestic Bonds	15.0	22.0%
Cash Equivalents	0.0	3.0
Sub-Total Fixed Income	15.0%	25.0%

Rationale: Historically, equities have provided higher returns than fixed income assets. Over the long term, the Basic Funds will achieve substantially higher total return than is possible from a lower equity position, although returns may fluctuate widely on a year to year basis. Given their long time horizon and low liquidity needs, the Basic Funds are ideally suited to take advantage of this return relationship.

The Task Force believes that the Basic Funds should increase its equity exposure by adding a 10% allocation to international common stocks and reducing allocations to bonds and cash equivalents. The Task Force recommends that staff develop an implementation plan for the international equity component for the Basic Funds. The plan should be reviewed by the IAC and approved by the Board prior to execution.

Report of the Task Force on Fund Objectives

POST RETIREMENT INVESTMENT FUND

Mission, Objectives, Asset Allocation Strategy

MISSION:

To insure that assets transferred to the Post Retirement Fund generate sufficient realized earnings to maintain promised benefits, and to generate additional realized earnings that will provide increases to more than 55,000 retired public employees. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommended the following objectives:

- o Realized Earnings
- o Liquidity

1) Annual Realized Earnings

a) Generate 5% Realized Earnings to Maintain Current Benefits

The Post Fund must generate realized earnings of 5% each year to maintain current benefits.

b) Generate at least 3% Additional Realized Earnings to Provide Benefit Increases

After the 5% earnings goal is assured, the Post Fund should maximize additional realized earnings in a way that provides a relatively consistent level of benefit increases over time.

Rationale: The Post Fund's return objectives focus on realized earnings (interest, dividends plus net realized capital gains) because of its statutory provisions. By statute, the Post Fund must realize 5% earnings on the entire fund each year in order to provide current benefits.

If the Fund generates more than 5% realized earnings in any year, statutes require that the additional earnings be distributed to retirees in the form of lifetime benefit increases. In order to provide benefit increases over time,

the Fund should be invested to generate a relatively stable stream of additional earnings each year.

2) Liquidity

The Post Fund must generate sufficient cash each month to pay benefits to retirees.

ASSET ALLOCATION STRATEGY:

As cited previously, the Post Fund requires a large, stable stream of current income to pay monthly benefits to retirees. The Task Force believes the asset mix strategy currently in place fulfills this need. The current strategy is:

- o Commit sufficient assets to a dedicated bond portfolio to meet the annual realized earnings objective of 5%.
- o Commit additional assets to a dedicated bond portfolio to provide a floor benefit increase of 3% each year.
- o Invest any remaining assets in common stock to provide realized gains that will contribute to benefit increases.

Rationale: A dedicated bond portfolio is a collection of various maturity, high quality bonds that generate cash flows from income and principal payments matching a specific stream of liabilities. The dedicated bond portfolio ensures that funds are available at the required times to meet promised benefit payments.

While the dedicated bond portfolio satisfies the Post Fund's statutory constraints, the Task Force believes there are other investment strategies that can generate a high level of current income and low volatility. The Task Force recommends that staff explore alternatives (e.g. dividend models used by endowment funds) and report on their potential applicability to the Post Fund.

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Funding Status

During its deliberations, the Task Force spent considerable time discussing the funding status of the statewide retirement systems. At the present time, the three largest statewide retirement plans have assets equal to approximately 72% of their combined actuarial liability. In dollar terms, this equals a shortfall of \$3.2 billion. Current law provides that this shortfall will be eliminated by 2009.

Two sources of financing could reduce the shortfall at a faster pace than anticipated by current State law:

- o increased contributions by employees/employers
- o increased investment returns

While the State Board of Investment has no control over the level of contributions coming into the retirement plans, it can assist in reducing the shortfall through superior investment performance.

Actuarial funding status is calculated on the assumption that the Basic Retirement Funds will provide an annual return of 8% over time and the Post Retirement Fund will provide 5% annual return.

The Task Force believes it is appropriate for the Basic Retirement Funds to employ an aggressive investment program that will, over time, have a high likelihood of exceeding the 8% assumed rate of return. This will assist the State in achieving full funding on or before the statutory target date of 2009. In addition, it could reduce the long term cost of public pension financing to the general taxpayer or allow benefit formulas to be enhanced.

MINNESOTA STATE BOARD OF INVESTMENT
QUARTERLY REPORT ON OBJECTIVES

	Status <u>Month/Day/Year</u>
<u>BASIC RETIREMENT FUNDS</u>	\$xx.x billion
o Total Return (Annualized)	
- Real (10 years)	xx.x%
3 to 5 percentage points over inflation	x.x percentage points over/under
- Relative (5 years)	xx.x%
Above median return	x.x percentage points above/below
Above composite index return	x.x percentage points above/below
o Liquidity	
- Minimal cash	\$xx million in cash, ___% of total fund
<u>POST RETIREMENT INVESTMENT FUND</u>	\$xx.x billion
o Realized earnings	\$xx.x million in FY 19__
- Above 8% per year	x.x percentage points above/below
o Liquidity	
- Cash equivalent to one month's benefits	\$xx.x million, ___% of previous month's
<u>FUNDING (BASIC + POST RETIREMENT FUNDS)*</u>	Status <u>June 30, 19__</u>
o Achieve full funding by 2009	
- Projected benefit obligations (PBO)	\$xx.x billion
- Fair market value of assets (FMV)	\$xx.x billion
- Percent funded (PBO/FMV)	xx%

* TRA, MSRS, PERA General Plans Only

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Recommendations for Statutory Changes

The Task Force has reviewed the structure of the Basic and Post Retirement Funds within their current statutory requirements. The Task Force has identified three structural issues that unduly constrain the SBI's investment policies and asset management strategies. Addressing any of these issues would require changes the SBI's statutory authority.

o Equity Exposure Limit

By law, no more than 85% of any fund may be invested in equities or equity equivalents (common stock, real estate, venture capital, resource funds, high yield debt, international securities).

Since equities have provided the highest historical rates of return, limits on equity exposure may limit the SBI's ability to maximize returns over time.

o Benefit Increase Formula

By law, benefit increases in the Post Retirement Fund are granted whenever realized earnings exceed 5% in a year. This formula presents two problems:

- The formula requires the Post Fund to focus on generating current income (interest, dividends and net realized capital gains and losses) rather than total return (interest, dividends and realized and unrealized capital gains and losses). This limits the Post Fund's exposure to equities and therefore limits its potential for long term growth.
- The formula generates increases that may bear little relationship to inflation. Over time, it is likely that the formula will produce high increases during periods of low inflation and low (or no) increases during periods of high inflation. This is contrary to the implicit objective of providing benefit increases that parallel inflation and maintain the buying power of retirees.

o Separation of the Basic and Post Funds

By law, pension assets of currently working employees accumulate in the Basic Funds and pension assets attributable to retirees are transferred to the Post Fund for payout during retirement. This structure is very rare among other public and private pension plans in Minnesota and across the U.S.

Statutory Changes (con't)

The Task Force believes that separate fund management, combined with the current benefit increase formula, increases the long term costs of pension financing in Minnesota. Therefore, the Task Force believes this structure should be modified.

Over the long term, there is a potential increase in annual total return of 1.12% if the current statutory constraints were modified to permit a more aggressive investment policy. This translates to increases in value of more than \$100 million each year.(1)

RECOMMENDATION:

The Task Force recommends that legislation be developed and implemented that:

- o Replaces the present benefit increase formula that is totally dependent on "realized earnings" with one that relates in some manner to inflation.
- o Eliminates the requirement for separate investment of the pension assets of active and retired employees.

Rationale: The Task Force believes that the pension income of public employees should be targeted at a proportion of their preretirement after-tax income that is competitive with the private sector for similar jobs.

Generally, public and private sector pensions are fixed as of the date of retirement. Some employers have subsequently elected, at their sole discretion, to provide ad hoc increases to mitigate the impact of inflation on retirees' after-tax income.

If it is the policy of the State of Minnesota to provide formula-driven benefit increases after retirement, the formula should relate to inflation rather than to excess "realized earnings" on a portion of retirement assets. Further, in establishing a new policy, due consideration should be given to competitive practices by other public and private employers.

The Task Force believes that continuation of the present benefit increase formula and the accompanying statutory limitations on investment policy are not in the best interest

Statutory Changes (con't)

of Minnesota taxpayers and do not effectively achieve the implicit objective of protecting retirees' income from the ravages of inflation. While any modifications should recognize the benefits promised to current retirees, such considerations should not preclude future action.

- (1) Assumes asset mix changes from 40% stock/60% bonds to 60% stock/40% bonds on a fund of \$10 billion.

Calculated using 9.9% annual total return for stocks and 4.3% annual total return for bonds. These total return values are taken from research by Ibbotson Associates and cover the period from 1926-1987.

If the Basic and Post Retirement Funds are considered together, their combined asset mix on 9/30/88 was 35% stocks/7% alternative assets/49% bonds/9% cash and their combined value was \$9.65 billion.

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



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STATE BOARD OF INVESTMENT

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REVISED

MINUTES

SPECIAL MEETING

STATE BOARD OF INVESTMENT

February 8, 1989

The State Board of Investment (SBI) met on Wednesday, February 8, 1989 in Room 118, State Capitol, at 8:45 A.M. This was a special State Board of Investment meeting to review the results of the Investment Advisory Council Task Force on Fund Objectives. Governor Rudy Perpich, Chair; Secretary of State Joan Anderson Growe, State Auditor Arne H. Carlson; State Treasurer Michael A. McGrath, and Attorney General Hubert H. Humphrey III were present.

Governor Perpich introduced Mr. John Bohan. He stated that Mr. Bohan would share with the Board the report from the Task Force on Fund Objectives. (See attached)

Mr. Bohan stated that a written report was sent to each Board member, and his presentation would summarize the report. He stated the mission of the Task Force was to review fund objectives of the Basic Funds and Post Retirement Fund and to suggest necessary changes, and stated that the recommendations were in two parts: 1) changes that could be implemented within current statutory language, and 2) changes that would require statutory change.

Mr. Bohan stated that the Task Force developed for the Basic Retirement Funds a mission statement; total return objectives, including a real return measure (return compared to inflation) and two relative return measures (return compared to the market and compared to a peer group); a liquidity objective; and an appropriate asset allocation to achieve the objectives.

In response to a question from Mr. Carlson concerning whether the Wilshire 5000 or the S&P 500 is the appropriate index by which to measure the SBI's relative performance, Mr. Bohan stated that the Task Force would suggest using the index that is appropriate given the portfolio of equities in which the SBI invests. He stated that the Wilshire 5000 is a much broader

index than the S&P 500, and that to the extent the SBI is participating in a broader capital market than the S&P 500, the Wilshire 5000 is a more appropriate index. Mr. Carlson stated that the Task Force report contained no language that would indicate flexibility in choosing market targets. Mr. Bohan stated he thought that the Board should have an investment policy and statement of objectives that do not change with the vacillations of the market. He stated that one should not confuse the actual asset allocation decision with the choice of the performance measure of the market in which the fund participates.

Mr. Bohan then stated that the Task Force developed for the Post Retirement Fund a mission statement, return objectives, and asset allocation.

After Mr. Bohan finished his presentation, Mr. Humphrey asked why the proposal for international investments was included in the report. He asked whether there was sufficient diversity in domestic investment opportunities. In response, Mr. Bohan stated that capital markets outside the U.S. are smaller, except Japan, and have the opportunity to grow at higher rates. He also stated that other capital markets do not move in the same direction as the U.S. market, so that by adding assets from non-U.S. markets the Board could lower variability of returns. Mr. Humphrey then expressed concern over the emphasis on long term goals. He asked how the Board could balance long term goals with short term economic and political realities. In response, Mr. Bohan stated that the suggested five year return measures respond to more immediate needs of the funds than what may be captured in the very long-term horizons of the capital markets.

Mr. Carlson moved 1) approval of the first part of the Task Force Report with the understanding that the Board is not committed solely to the Wilshire 5000 and the Salomon Bond Index as performance measures and that it would discuss the question of a flexible asset allocation, and 2) further discussion of the proposal to change the Post Fund by the pension funds, who would report back to the Board at the next Board meeting. In response to a question from Mr. Carlson, Mr. Bicker stated that, in his opinion, if the Post Retirement benefit increase formula were changed the questions of combining the investments of the Post Fund with those of the Basic Funds would be moot. Mr. Bicker also stated that he would be willing to speak with the retirement systems and retiree groups, the IAC, the Finance Department and others about trying to reach a consensus on the issue of needing to change the Post Fund formula. Ms. Grove stated that the first part of the report dealt with fund objectives given present statutory language. She asked Mr. Carlson whether the motion was to accept the first part of the report with the understanding that the question of the Wilshire 5000 or the S&P 500 would be decided later, and to accept the suggested reporting format. Mr. Carlson concurred. Mr. Humphrey stated that he was concerned that the Board was making decisions about the two funds (Basic Funds and Post Retirement Fund) based on the premise that the

suggested statutory changes to combine the funds would happen. He expressed concern over the recommendation to change the asset allocation in the Basic Funds to 85 percent equities. Mr. Bicker then stated that the recommendations for change concerning the Basic Funds' asset allocation primarily involve international investments and that the Board would have to develop an implementation plan. Mr. Bicker stated that this plan would take at least six months to develop. Ms. Grove stated that the recommendations will provide a structure from which the Board can operate and upon which the Board may make more rational decisions. The Carlson motion was approved. ('Aye'-Carlson, Grove, McGrath, Perpich; 'nay'-Humphrey).

The meeting adjourned at 10:00 A.M.

Respectfully submitted,

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

Howard Bicker
Executive Director

Attachment

Report of the Task Force on Fund Objectives

**Basic Retirement Funds
Post Retirement Investment Fund**

January, 1989

Members of the Task Force:

John Bohan, Pillsbury Company, Chair
Harry Adams, Mpls. Teachers Retirement Fund
Jim Eckmann, Dayton-Hudson
Malcolm McDonald, Space Center Corporation
Joe Rukavina, Public Representative
Jan Yeomans, 3M Company

REPORT ON THE TASK FORCE ON FUND OBJECTIVES

BASIC RETIREMENT FUNDS
POST RETIREMENT INVESTMENT FUND

Table of Contents

	<u>Pages</u>
Executive Summary	1- 2
Recommendations Within Current Statutory Requirements	
o Basic Retirement Funds	3- 6
o Post Retirement Investment Fund	7- 8
o Funding Status	9
o Score Card Report Format	10
Recommendations For Statutory Changes	11-13

Report of the Task Force on Fund Objectives

EXECUTIVE SUMMARY

MISSION:

At its first meeting on December 15, 1988, the Task Force agreed that its mission was to:

- o Review objectives of the Basic and Post Retirement Funds as to relevancy, clarity, measurability of results, and recognition of the Board's responsibilities to the Fund beneficiaries and contributors.
- o Identify barriers to the development and execution of strategies to accomplish stated objectives.
- o After review with the Investment Advisory Council, report findings to the Board, including where appropriate, recommendations for change.

PROCESS:

Participants included six members of the Investment Advisory Council (IAC). Extensive meetings were held on consecutive Wednesdays: December 15, December 28 and January 4. Members of the professional staff and representatives of members of the State Board of Investment were present at each meeting and contributed to the discussions.

A report draft of the Task Force report was forwarded to the Investment Advisory Council on January 23, 1989. Following discussion with the IAC on January 30, in which the Board's consultant participated, the draft was modified to incorporate certain clarifications.

CONCLUSIONS AND RECOMMENDATIONS:

Early on in its deliberations, the Task Force concluded that it would separate its recommendations into two parts:

- o Recommendations that can be implemented within current statutory requirements (pages 3 to 10).
- o Recommendations that require statutory changes to eliminate what the Task Force perceives as unreasonable and costly investment policy restrictions (pages 11 to 13).

Recommendations within current statutory requirements:

- o The Task Force developed, separately for the Basic and Post Retirement Funds, a mission statement, a statement of

Executive Summary (con't)

objectives and an asset allocation strategy designed to achieve the respective mission and objectives.

Further, the Task Force recommends that the combined funding status of the Basic and Post Retirement Funds, currently 72% of the present value of the future benefit obligations for actives and retirees, be included in the periodic reporting to the State Board of Investment. The current statute provides for the obligation to be fully funded by 2009. Adoption of the Task Force recommendations for a more aggressive investment policy in the Basic Funds may permit the acceleration of this schedule without affecting the current mechanism used to finance retirement benefit increases.

- o The Task Force also recommends that a "score card" (page 10) be used in quarterly reporting of performance to the Board.

Recommendations that require statutory changes:

- o The Task Force recommends substituting an inflation-based benefit increase formula for the current formula that is keyed to excess "realized income" from the Post Retirement Investment Fund.
- o The Task Force recommends that the separation of the pension assets of retirees and active employees be discontinued. This structure is believed to be unique among U.S. pension plans, with the known exception of one other public plan in Minnesota. This structure, along with the investment-driven benefit increase formula, leads to an asset allocation for the Post Retirement Investment Fund that generates current "realized income" from fixed income securities. Greater return could be secured from a portfolio more heavily weighted to equities, albeit with potentially more volatility in any given year.

The Task Force recommends that the Board, at its February 8, 1989 meeting, approve those recommendations that can be implemented within current statutory requirements.

With respect to statutory changes, the Task Force recommends that the Board, after consulting with the retirement systems and other state agencies, develop enabling legislation for consideration by the Legislature. The Investment Advisory Council stands ready to assist the Board in furthering these changes.

Report of the Task Force on Fund Objectives

BASIC RETIREMENT FUNDS

Mission, Objectives, Asset Allocation Strategy

MISSION:

To invest the pension contributions of employees/employers so that sufficient funds are available to finance promised benefits to over 200,000 public employees at retirement. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommends the following objectives:

- o Total Return
- o Liquidity

1) Total Return (net of fees)

a) Real Return over 10 years

The Basic Funds should generate total annualized returns that are 3-5 percentage points greater than the rate of inflation over moving 10 year periods.

Rationale: Historically, the capital markets have, over time, provided total returns exceeding inflation.

Since inflation and stock and bond returns will vary widely on a year to year basis, comparisons over short time periods are not meaningful. Given current trends in inflation, the Task Force believes an objective of 3-5% real return over a 10 year period is an appropriate and achievable objective for the Basic Funds. If inflationary trends change significantly, this objective should be re-evaluated.

Basic Funds (con't)

b) Relative Return over 5 years

Relative return measures should be compared to the Basic Funds' performance over moving 5 year periods. Return comparisons for shorter time periods (1 and 3 years) provide insights to relative performance but should not be used in judging the Funds' performance.

o Exceed a composite of market indices ("Custom Index")

The Basic Funds' total return should exceed a composite of market indices that is weighted in a manner that reflects the target asset allocation of the Funds.

<u>Asset Class</u>	<u>Recommended Index/Target</u>	<u>Current Index/Target</u>
Equities:		
Domestic Common Stock	Wilshire 5000	Wilshire 5000
Int'l Common Stock	EAFE *	None
Real Estate	**	None
Venture Capital	**	None
Resource Funds	**	None
Fixed Income:		
Domestic Bonds	Salomon BIG	Salomon BIG
Cash Equivalents	None	91 Day T-Bills

* Morgan Stanley Capital International Index of Europe, Asia and the Far East.

** To be recommended by the Alternative Investment Committee of the IAC.

Rationale: The Task Force recommends that the indices in the custom index correspond to the Board's asset class targets. If the Board changes these asset class targets, corresponding changes in the indices used in the composite should be made.

Implicit in the objective to "exceed" the Custom Index is the use of active management. Over time, active management is expected to add value, net of fees, to the return available from passively managed index funds.

Basic Funds (con't)

o Exceed the median fund in TUCS Universe ("Peer Index")

The Basic Funds' total return should be above the median return from a representative cross section of other public and private pension funds.

The current peer index used is the Trust Universe Comparison Service (TUCS). Since many funds report only their stock, bond and cash returns to TUCS, the Task Force recommends that this measure be compared to the Basic Funds' return without alternative assets.

Rationale: TUCS is the largest and most comprehensive universe available to the SBI. It includes the returns of more than 800 public and private pension funds across the U.S.

The recommended asset allocation for the Basic Funds contains a larger percentage of stock than most funds reported to TUCS. As a result, the Basic Funds' return may be above the TUCS median return in years that the stock market performs well relative to the bond market, and below the TUCS median in years when the stock market performs poorly. The Task Force believes the Basic Funds' can be expected to exceed the TUCS median return over a moving 5 year period.

It should be noted that many funds report their returns before management fees are deducted. As a result, the Basic Funds are at a disadvantage when compared to other funds in the sample.

2) Liquidity

The Basic Funds should provide enough cash to meet the monthly transfer needs to the Post Retirement Fund.

Rationale: Historically, cash equivalents have provided lower rates of return than investments in stocks, bonds or alternative assets. Accordingly, the Task Force recommends that the Basic Funds minimize the amount of cash it holds at any point.

Basic Funds (con't)

ASSET ALLOCATION STRATEGY

The Task Force recommends the Basic Funds allocate 85% of its assets to equities (common stock and alternative assets). This is the maximum equity allocation allowed under current statute. The specific long term asset allocation recommended by the Task Force is:

	<u>Recommended</u>	<u>Current</u>
Equities:		
Domestic Common Stock	60.0%	60.0%
International Common Stock	10.0	---
Real Estate	10.0	10.0
Venture Capital	2.5	2.5
Resource Funds	2.5	2.5
Sub-Total Equities	85.0%	75.0%
Fixed Income:		
Domestic Bonds	15.0	22.0%
Cash Equivalents	0.0	3.0
Sub-Total Fixed Income	15.0%	25.0%

Rationale: Historically, equities have provided higher returns than fixed income assets. Over the long term, the Basic Funds will achieve substantially higher total return than is possible from a lower equity position, although returns may fluctuate widely on a year to year basis. Given their long time horizon and low liquidity needs, the Basic Funds are ideally suited to take advantage of this return relationship.

The Task Force believes that the Basic Funds should increase its equity exposure by adding a 10% allocation to international common stocks and reducing allocations to bonds and cash equivalents. The Task Force recommends that staff develop an implementation plan for the international equity component for the Basic Funds. The plan should be reviewed by the IAC and approved by the Board prior to execution.

Report of the Task Force on Fund Objectives

POST RETIREMENT INVESTMENT FUND

Mission, Objectives, Asset Allocation Strategy

MISSION:

To insure that assets transferred to the Post Retirement Fund generate sufficient realized earnings to maintain promised benefits, and to generate additional realized earnings that will provide increases to more than 55,000 retired public employees. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommended the following objectives:

- o Realized Earnings
- o Liquidity

1) Annual Realized Earnings

a) Generate 5% Realized Earnings to Maintain Current Benefits

The Post Fund must generate realized earnings of 5% each year to maintain current benefits.

b) Generate at least 3% Additional Realized Earnings to Provide Benefit Increases

After the 5% earnings goal is assured, the Post Fund should maximize additional realized earnings in a way that provides a relatively consistent level of benefit increases over time.

Rationale: The Post Fund's return objectives focus on realized earnings (interest, dividends plus net realized capital gains) because of its statutory provisions. By statute, the Post Fund must realize 5% earnings on the entire fund each year in order to provide current benefits.

If the Fund generates more than 5% realized earnings in any year, statutes require that the additional earnings be distributed to retirees in the form of lifetime benefit increases. In order to provide benefit increases over time,

Post Fund (con't)

the Fund should be invested to generate a relatively stable stream of additional earnings each year.

2) Liquidity

The Post Fund must generate sufficient cash each month to pay benefits to retirees.

ASSET ALLOCATION STRATEGY:

As cited previously, the Post Fund requires a large, stable stream of current income to pay monthly benefits to retirees. The Task Force believes the asset mix strategy currently in place fulfills this need. The current strategy is:

- o Commit sufficient assets to a dedicated bond portfolio to meet the annual realized earnings objective of 5%.
- o Commit additional assets to a dedicated bond portfolio to provide a floor benefit increase of 3% each year.
- o Invest any remaining assets in common stock to provide realized gains that will contribute to benefit increases.

Rationale: A dedicated bond portfolio is a collection of various maturity, high quality bonds that generate cash flows from income and principal payments matching a specific stream of liabilities. The dedicated bond portfolio ensures that funds are available at the required times to meet promised benefit payments.

While the dedicated bond portfolio satisfies the Post Fund's statutory constraints, the Task Force believes there are other investment strategies that can generate a high level of current income and low volatility. The Task Force recommends that staff explore alternatives (e.g. dividend models used by endowment funds) and report on their potential applicability to the Post Fund.

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Funding Status

During its deliberations, the Task Force spent considerable time discussing the funding status of the statewide retirement systems. At the present time, the three largest statewide retirement plans have assets equal to approximately 72% of their combined actuarial liability. In dollar terms, this equals a shortfall of \$3.2 billion. Current law provides that this shortfall will be eliminated by 2009.

Two sources of financing could reduce the shortfall at a faster pace than anticipated by current State law:

- o increased contributions by employees/employers
- o increased investment returns

While the State Board of Investment has no control over the level of contributions coming into the retirement plans, it can assist in reducing the shortfall through superior investment performance.

Actuarial funding status is calculated on the assumption that the Basic Retirement Funds will provide an annual return of 8% over time and the Post Retirement Fund will provide 5% annual return.

The Task Force believes it is appropriate for the Basic Retirement Funds to employ an aggressive investment program that will, over time, have a high likelihood of exceeding the 8% assumed rate of return. This will assist the State in achieving full funding on or before the statutory target date of 2009. In addition, it could reduce the long term cost of public pension financing to the general taxpayer or allow benefit formulas to be enhanced.

MINNESOTA STATE BOARD OF INVESTMENT
QUARTERLY REPORT ON OBJECTIVES

	Status <u>Month/Day/Year</u>
<u>BASIC RETIREMENT FUNDS</u>	\$xx.x billion
o Total Return (Annualized)	
- Real (10 years)	xx.x%
3 to 5 percentage points over inflation	x.x percentage points over/under
- Relative (5 years)	xx.x%
Above median return	x.x percentage points above/below
Above composite index return	x.x percentage points above/below
o Liquidity	
- Minimal cash	\$xx million in cash, ___% of total fund
<u>POST RETIREMENT INVESTMENT FUND</u>	\$xx.x billion
o Realized earnings	\$xx.x million in FY 19__
- Above 8% per year	x.x percentage points above/below
o Liquidity	
- Cash equivalent to one month's benefits	\$xx.x million, ___% of previous month's
<u>FUNDING (BASIC + POST RETIREMENT FUNDS)*</u>	Status <u>June 30, 19__</u>
o Achieve full funding by 2009	
- Projected benefit obligations (PBO)	\$xx.x billion
- Fair market value of assets (FMV)	\$xx.x billion
- Percent funded (PBO/FMV)	xx%

* TRA, MSRS, PERA General Plans Only

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Recommendations for Statutory Changes

The Task Force has reviewed the structure of the Basic and Post Retirement Funds within their current statutory requirements. The Task Force has identified three structural issues that unduly constrain the SBI's investment policies and asset management strategies. Addressing any of these issues would require changes the SBI's statutory authority.

o Equity Exposure Limit

By law, no more than 85% of any fund may be invested in equities or equity equivalents (common stock, real estate, venture capital, resource funds, high yield debt, international securities).

Since equities have provided the highest historical rates of return, limits on equity exposure may limit the SBI's ability to maximize returns over time.

o Benefit Increase Formula

By law, benefit increases in the Post Retirement Fund are granted whenever realized earnings exceed 5% in a year. This formula presents two problems:

- The formula requires the Post Fund to focus on generating current income (interest, dividends and net realized capital gains and losses) rather than total return (interest, dividends and realized and unrealized capital gains and losses). This limits the Post Fund's exposure to equities and therefore limits its potential for long term growth.
- The formula generates increases that may bear little relationship to inflation. Over time, it is likely that the formula will produce high increases during periods of low inflation and low (or no) increases during periods of high inflation. This is contrary to the implicit objective of providing benefit increases that parallel inflation and maintain the buying power of retirees.

o Separation of the Basic and Post Funds

By law, pension assets of currently working employees accumulate in the Basic Funds and pension assets attributable to retirees are transferred to the Post Fund for payout during retirement. This structure is very rare among other public and private pension plans in Minnesota and across the U.S.

Statutory Changes (con't)

The Task Force believes that separate fund management, combined with the current benefit increase formula, increases the long term costs of pension financing in Minnesota. Therefore, the Task Force believes this structure should be modified.

Over the long term, there is a potential increase in annual total return of 1.12% if the current statutory constraints were modified to permit a more aggressive investment policy. This translates to increases in value of more than \$100 million each year. (1)

RECOMMENDATION:

The Task Force recommends that legislation be developed and implemented that:

- o Replaces the present benefit increase formula that is totally dependent on "realized earnings" with one that relates in some manner to inflation.
- o Eliminates the requirement for separate investment of the pension assets of active and retired employees.

Rationale: The Task Force believes that the pension income of public employees should be targeted at a proportion of their preretirement after-tax income that is competitive with the private sector for similar jobs.

Generally, public and private sector pensions are fixed as of the date of retirement. Some employers have subsequently elected, at their sole discretion, to provide ad hoc increases to mitigate the impact of inflation on retirees' after-tax income.

If it is the policy of the State of Minnesota to provide formula-driven benefit increases after retirement, the formula should relate to inflation rather than to excess "realized earnings" on a portion of retirement assets. Further, in establishing a new policy, due consideration should be given to competitive practices by other public and private employers.

The Task Force believes that continuation of the present benefit increase formula and the accompanying statutory limitations on investment policy are not in the best interest

Statutory Changes (con't)

of Minnesota taxpayers and do not effectively achieve the implicit objective of protecting retirees' income from the ravages of inflation. While any modifications should recognize the benefits promised to current retirees, such considerations should not preclude future action.

- (1) Assumes asset mix changes from 40% stock/60% bonds to 60% stock/40% bonds on a fund of \$10 billion.

Calculated using 9.9% annual total return for stocks and 4.3% annual total return for bonds. These total return values are taken from research by Ibbotson Associates and cover the period from 1926-1987.

If the Basic and Post Retirement Funds are considered together, their combined asset mix on 9/30/88 was 35% stocks/7% alternative assets/49% bonds/9% cash and their combined value was \$9.65 billion.

Report of the Task Force on Fund Objectives

Basic Retirement Funds Post Retirement Investment Fund

January, 1989

Members of the Task Force:

**John Bohan, Pillsbury Company, Chair
Harry Adams, Mpls. Teachers Retirement Fund
Jim Eckmann, Dayton-Hudson
Malcolm McDonald, Space Center Corporation
Joe Rukavina, Public Representative
Jan Yeomans, 3M Company**

REPORT ON THE TASK FORCE ON FUND OBJECTIVES

BASIC RETIREMENT FUNDS
POST RETIREMENT INVESTMENT FUND

Table of Contents

	<u>Pages</u>
Executive Summary	1- 2
Recommendations Within Current Statutory Requirements	
o Basic Retirement Funds	3- 6
o Post Retirement Investment Fund	7- 8
o Funding Status	9
o Score Card Report Format	10
Recommendations For Statutory Changes	11-13

Report of the Task Force on Fund Objectives

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- o Identify barriers to the development and execution of strategies to accomplish stated objectives.
- o After review with the Investment Advisory Council, report findings to the Board, including where appropriate, recommendations for change.

PROCESS:

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- o Recommendations that can be implemented within current statutory requirements (pages 3 to 10).
- o Recommendations that require statutory changes to eliminate what the Task Force perceives as unreasonable and costly investment policy restrictions (pages 11 to 13).

Recommendations within current statutory requirements:

- o The Task Force developed, separately for the Basic and Post Retirement Funds, a mission statement, a statement of

Executive Summary (con't)

objectives and an asset allocation strategy designed to achieve the respective mission and objectives.

Further, the Task Force recommends that the combined funding status of the Basic and Post Retirement Funds, currently 72% of the present value of the future benefit obligations for actives and retirees, be included in the periodic reporting to the State Board of Investment. The current statute provides for the obligation to be fully funded by 2009. Adoption of the Task Force recommendations for a more aggressive investment policy in the Basic Funds may permit the acceleration of this schedule without affecting the current mechanism used to finance retirement benefit increases.

- o The Task Force also recommends that a "score card" (page 10) be used in quarterly reporting of performance to the Board.

Recommendations that require statutory changes:

- o The Task Force recommends substituting an inflation-based benefit increase formula for the current formula that is keyed to excess "realized income" from the Post Retirement Investment Fund.
- o The Task Force recommends that the separation of the pension assets of retirees and active employees be discontinued. This structure is believed to be unique among U.S. pension plans, with the known exception of one other public plan in Minnesota. This structure, along with the investment-driven benefit increase formula, leads to an asset allocation for the Post Retirement Investment Fund that generates current "realized income" from fixed income securities. Greater return could be secured from a portfolio more heavily weighted to equities, albeit with potentially more volatility in any given year.

The Task Force recommends that the Board, at its February 8, 1989 meeting, approve those recommendations that can be implemented within current statutory requirements.

With respect to statutory changes, the Task Force recommends that the Board, after consulting with the retirement systems and other state agencies, develop enabling legislation for consideration by the Legislature. The Investment Advisory Council stands ready to assist the Board in furthering these changes.

Report of the Task Force on Fund Objectives

BASIC RETIREMENT FUNDS

Mission, Objectives, Asset Allocation Strategy

MISSION:

To invest the pension contributions of employees/employers so that sufficient funds are available to finance promised benefits to over 200,000 public employees at retirement. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommends the following objectives:

- o Total Return
- o Liquidity

1) Total Return (net of fees)

a) Real Return over 10 years

The Basic Funds should generate total annualized returns that are 3-5 percentage points greater than the rate of inflation over moving 10 year periods.

Rationale: Historically, the capital markets have, over time, provided total returns exceeding inflation.

Since inflation and stock and bond returns will vary widely on a year to year basis, comparisons over short time periods are not meaningful. Given current trends in inflation, the Task Force believes an objective of 3-5% real return over a 10 year period is an appropriate and achievable objective for the Basic Funds. If inflationary trends change significantly, this objective should be re-evaluated.

Basic Funds (con't)

b) Relative Return over 5 years

Relative return measures should be compared to the Basic Funds' performance over moving 5 year periods. Return comparisons for shorter time periods (1 and 3 years) provide insights to relative performance but should not be used in judging the Funds' performance.

o Exceed a composite of market indices ("Custom Index")

The Basic Funds' total return should exceed a composite of market indices that is weighted in a manner that reflects the target asset allocation of the Funds.

<u>Asset Class</u>	<u>Recommended Index/Target</u>	<u>Current Index/Target</u>
Equities:		
Domestic Common Stock	Wilshire 5000	Wilshire 5000
Int'l Common Stock	EAFE *	None
Real Estate	**	None
Venture Capital	**	None
Resource Funds	**	None
Fixed Income:		
Domestic Bonds	Salomon BIG	Salomon BIG
Cash Equivalents	None	91 Day T-Bills

* Morgan Stanley Capital International Index of Europe, Asia and the Far East.

** To be recommended by the Alternative Investment Committee of the IAC.

Rationale: The Task Force recommends that the indices in the custom index correspond to the Board's asset class targets. If the Board changes these asset class targets, corresponding changes in the indices used in the composite should be made.

Implicit in the objective to "exceed" the Custom Index is the use of active management. Over time, active management is expected to add value, net of fees, to the return available from passively managed index funds.

Basic Funds (con't)

o Exceed the median fund in TUCS Universe ("Peer Index")

The Basic Funds' total return should be above the median return from a representative cross section of other public and private pension funds.

The current peer index used is the Trust Universe Comparison Service (TUCS). Since many funds report only their stock, bond and cash returns to TUCS, the Task Force recommends that this measure be compared to the Basic Funds' return without alternative assets.

Rationale: TUCS is the largest and most comprehensive universe available to the SBI. It includes the returns of more than 800 public and private pension funds across the U.S.

The recommended asset allocation for the Basic Funds contains a larger percentage of stock than most funds reported to TUCS. As a result, the Basic Funds' return may be above the TUCS median return in years that the stock market performs well relative to the bond market, and below the TUCS median in years when the stock market performs poorly. The Task Force believes the Basic Funds' can be expected to exceed the TUCS median return over a moving 5 year period.

It should be noted that many funds report their returns before management fees are deducted. As a result, the Basic Funds are at a disadvantage when compared to other funds in the sample.

2) Liquidity

The Basic Funds should provide enough cash to meet the monthly transfer needs to the Post Retirement Fund.

Rationale: Historically, cash equivalents have provided lower rates of return than investments in stocks, bonds or alternative assets. Accordingly, the Task Force recommends that the Basic Funds minimize the amount of cash it holds at any point.

Basic Funds (con't)

ASSET ALLOCATION STRATEGY

The Task Force recommends the Basic Funds allocate 85% of its assets to equities (common stock and alternative assets). This is the maximum equity allocation allowed under current statute. The specific long term asset allocation recommended by the Task Force is:

	<u>Recommended</u>	<u>Current</u>
Equities:		
Domestic Common Stock	60.0%	60.0%
International Common Stock	10.0	---
Real Estate	10.0	10.0
Venture Capital	2.5	2.5
Resource Funds	<u>2.5</u>	<u>2.5</u>
Sub-Total Equities	85.0%	75.0%
Fixed Income:		
Domestic Bonds	15.0	22.0%
Cash Equivalents	<u>0.0</u>	<u>3.0</u>
Sub-Total Fixed Income	15.0%	25.0%

Rationale: Historically, equities have provided higher returns than fixed income assets. Over the long term, the Basic Funds will achieve substantially higher total return than is possible from a lower equity position, although returns may fluctuate widely on a year to year basis. Given their long time horizon and low liquidity needs, the Basic Funds are ideally suited to take advantage of this return relationship.

The Task Force believes that the Basic Funds should increase its equity exposure by adding a 10% allocation to international common stocks and reducing allocations to bonds and cash equivalents. The Task Force recommends that staff develop an implementation plan for the international equity component for the Basic Funds. The plan should be reviewed by the IAC and approved by the Board prior to execution.

Report of the Task Force on Fund Objectives

POST RETIREMENT INVESTMENT FUND

Mission, Objectives, Asset Allocation Strategy

MISSION:

To insure that assets transferred to the Post Retirement Fund generate sufficient realized earnings to maintain promised benefits, and to generate additional realized earnings that will provide increases to more than 55,000 retired public employees. All investments shall be governed by standards codified in Minnesota Statutes Chapter 11A, including the prudent person rule.

OBJECTIVES:

The Task Force recommended the following objectives:

- o Realized Earnings
- o Liquidity

1) Annual Realized Earnings

a) Generate 5% Realized Earnings to Maintain Current Benefits

The Post Fund must generate realized earnings of 5% each year to maintain current benefits.

b) Generate at least 3% Additional Realized Earnings to Provide Benefit Increases

After the 5% earnings goal is assured, the Post Fund should maximize additional realized earnings in a way that provides a relatively consistent level of benefit increases over time.

Rationale: The Post Fund's return objectives focus on realized earnings (interest, dividends plus net realized capital gains) because of its statutory provisions. By statute, the Post Fund must realize 5% earnings on the entire fund each year in order to provide current benefits.

If the Fund generates more than 5% realized earnings in any year, statutes require that the additional earnings be distributed to retirees in the form of lifetime benefit increases. In order to provide benefit increases over time,

the Fund should be invested to generate a relatively stable stream of additional earnings each year.

2) Liquidity

The Post Fund must generate sufficient cash each month to pay benefits to retirees.

ASSET ALLOCATION STRATEGY:

As cited previously, the Post Fund requires a large, stable stream of current income to pay monthly benefits to retirees. The Task Force believes the asset mix strategy currently in place fulfills this need. The current strategy is:

- o Commit sufficient assets to a dedicated bond portfolio to meet the annual realized earnings objective of 5%.
- o Commit additional assets to a dedicated bond portfolio to provide a floor benefit increase of 3% each year.
- o Invest any remaining assets in common stock to provide realized gains that will contribute to benefit increases.

Rationale: A dedicated bond portfolio is a collection of various maturity, high quality bonds that generate cash flows from income and principal payments matching a specific stream of liabilities. The dedicated bond portfolio ensures that funds are available at the required times to meet promised benefit payments.

While the dedicated bond portfolio satisfies the Post Fund's statutory constraints, the Task Force believes there are other investment strategies that can generate a high level of current income and low volatility. The Task Force recommends that staff explore alternatives (e.g. dividend models used by endowment funds) and report on their potential applicability to the Post Fund.

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Funding Status

During its deliberations, the Task Force spent considerable time discussing the funding status of the statewide retirement systems. At the present time, the three largest statewide retirement plans have assets equal to approximately 72% of their combined actuarial liability. In dollar terms, this equals a shortfall of \$3.2 billion. Current law provides that this shortfall will be eliminated by 2009.

Two sources of financing could reduce the shortfall at a faster pace than anticipated by current State law:

- o increased contributions by employees/employers
- o increased investment returns

While the State Board of Investment has no control over the level of contributions coming into the retirement plans, it can assist in reducing the shortfall through superior investment performance.

Actuarial funding status is calculated on the assumption that the Basic Retirement Funds will provide an annual return of 8% over time and the Post Retirement Fund will provide 5% annual return.

The Task Force believes it is appropriate for the Basic Retirement Funds to employ an aggressive investment program that will, over time, have a high likelihood of exceeding the 8% assumed rate of return. This will assist the State in achieving full funding on or before the statutory target date of 2009. In addition, it could reduce the long term cost of public pension financing to the general taxpayer or allow benefit formulas to be enhanced.

MINNESOTA STATE BOARD OF INVESTMENT
QUARTERLY REPORT ON OBJECTIVES

	Status <u>Month/Day/Year</u>
<u>BASIC RETIREMENT FUNDS</u>	\$xx.x billion
o Total Return (Annualized)	
- Real (10 years)	xx.x%
3 to 5 percentage points over inflation	x.x percentage points over/under
- Relative (5 years)	xx.x%
Above median return	x.x percentage points above/below
Above composite index return	x.x percentage points above/below
o Liquidity	
- Minimal cash	\$xx million in cash, ___% of total fund
<u>POST RETIREMENT INVESTMENT FUND</u>	\$xx.x billion
o Realized earnings	\$xx.x million in FY 19__
- Above 8% per year	x.x percentage points above/below
o Liquidity	
- Cash equivalent to one month's benefits	\$xx.x million, ___% of previous month's
<u>FUNDING (BASIC + POST RETIREMENT FUNDS)*</u>	Status <u>June 30, 19__</u>
o Achieve full funding by 2009	
- Projected benefit obligations (PBO)	\$xx.x billion
- Fair market value of assets (FMV)	\$xx.x billion
- Percent funded (PBO/FMV)	xx%
* TRA, MSRS, PERA General Plans Only	

Report of the Task Force on Fund Objectives

BASIC AND POST RETIREMENT FUNDS Recommendations for Statutory Changes

The Task Force has reviewed the structure of the Basic and Post Retirement Funds within their current statutory requirements. The Task Force has identified three structural issues that unduly constrain the SBI's investment policies and asset management strategies. Addressing any of these issues would require changes the SBI's statutory authority.

o Equity Exposure Limit

By law, no more than 85% of any fund may be invested in equities or equity equivalents (common stock, real estate, venture capital, resource funds, high yield debt, international securities).

Since equities have provided the highest historical rates of return, limits on equity exposure may limit the SBI's ability to maximize returns over time.

o Benefit Increase Formula

By law, benefit increases in the Post Retirement Fund are granted whenever realized earnings exceed 5% in a year. This formula presents two problems:

- The formula requires the Post Fund to focus on generating current income (interest, dividends and net realized capital gains and losses) rather than total return (interest, dividends and realized and unrealized capital gains and losses). This limits the Post Fund's exposure to equities and therefore limits its potential for long term growth.
- The formula generates increases that may bear little relationship to inflation. Over time, it is likely that the formula will produce high increases during periods of low inflation and low (or no) increases during periods of high inflation. This is contrary to the implicit objective of providing benefit increases that parallel inflation and maintain the buying power of retirees.

o Separation of the Basic and Post Funds

By law, pension assets of currently working employees accumulate in the Basic Funds and pension assets attributable to retirees are transferred to the Post Fund for payout during retirement. This structure is very rare among other public and private pension plans in Minnesota and across the U.S.

Statutory Changes (con't)

The Task Force believes that separate fund management, combined with the current benefit increase formula, increases the long term costs of pension financing in Minnesota. Therefore, the Task Force believes this structure should be modified.

Over the long term, there is a potential increase in annual total return of 1.12% if the current statutory constraints were modified to permit a more aggressive investment policy. This translates to increases in value of more than \$100 million each year.(1)

RECOMMENDATION:

The Task Force recommends that legislation be developed and implemented that:

- o Replaces the present benefit increase formula that is totally dependent on "realized earnings" with one that relates in some manner to inflation.
- o Eliminates the requirement for separate investment of the pension assets of active and retired employees.

Rationale: The Task Force believes that the pension income of public employees should be targeted at a proportion of their preretirement after-tax income that is competitive with the private sector for similar jobs.

Generally, public and private sector pensions are fixed as of the date of retirement. Some employers have subsequently elected, at their sole discretion, to provide ad hoc increases to mitigate the impact of inflation on retirees' after-tax income.

If it is the policy of the State of Minnesota to provide formula-driven benefit increases after retirement, the formula should relate to inflation rather than to excess "realized earnings" on a portion of retirement assets. Further, in establishing a new policy, due consideration should be given to competitive practices by other public and private employers.

The Task Force believes that continuation of the present benefit increase formula and the accompanying statutory limitations on investment policy are not in the best interest

Statutory Changes (con't)

of Minnesota taxpayers and do not effectively achieve the implicit objective of protecting retirees' income from the ravages of inflation. While any modifications should recognize the benefits promised to current retirees, such considerations should not preclude future action.

- (1) Assumes asset mix changes from 40% stock/60% bonds to 60% stock/40% bonds on a fund of \$10 billion.

Calculated using 9.9% annual total return for stocks and 4.3% annual total return for bonds. These total return values are taken from research by Ibbotson Associates and cover the period from 1926-1987.

If the Basic and Post Retirement Funds are considered together, their combined asset mix on 9/30/88 was 35% stocks/7% alternative assets/49% bonds/9% cash and their combined value was \$9.65 billion.

**IAC Task Force Report
To State Board of Investments
February 8, 1989**

- Mission
- Process
- Recommendations

Task Force Mission

- Review Fund Objectives
 - Relevancy
 - Clarity
 - Measurability of Results
 - Recognition of Responsibilities

To Beneficiaries
To Contributors

- Identify Barriers to Execution
- Recommend Changes

Task Force Process

- Participants
 - 6 Members of IAC
 - Professional Staff
 - State Board Deputies
 - Consultant
- 3 Spirited Afternoon Meetings
- Reviewed With IAC on January 30
- Report to SBI
 - Written 2/1/89
 - Oral 2/8/89

Task Force Recommendations

- Within Current Statutes
 - Basic Retirement Funds
 - Post Retirement Fund
 - Funding
 - Score Card

- Requiring Statutory Change
 - Benefit Increase Formula
 - Retiree Funding

Basic Retirement Funds

I. Mission

II. Objectives

A. Total Return

1. Real Return

2. Relative Return

a. Market Indices

b. Comparative
Manager Universe

B. Liquidity

III. Asset Allocation

BASIC FUNDS

Mission

To invest funds to provide for the timely payments of promised benefits to over 200,000 public employees at the lowest possible long term cost to the Funds as governed by standard codified in Minnesota Statutes Chapter 11A, including the Prudent Person Rule.

MINNESOTA STATE BOARD OF INVESTMENT

STATUS

OBJECTIVES

DECEMBER 31, 1988

BASIC FUND

\$XX.X BILLION

• RETURN (ANNUALIZED)

- REAL (10 YEAR)

3 TO 5 PERCENTAGE POINTS
OVER INFLATION

XX.X%

X.X PP OVER INFLATION

- RELATIVE (6 YEAR)

ABOVE MEDIAN PEER GROUP
RETURN (TUCS)

XX.X%

X.X PERCENTILE RANK

ABOVE MEDIAN MARKET
RETURN (CUSTOM INDEX)

XX.X%

• LIQUIDITY

- MINIMAL CASH

\$XX MILLION IN CASH

BASIC FUNDS

Return - Real

Annualized returns should exceed the rate of inflation by 3-5% over moving 10-year periods.

BASIC FUNDS

Return - Relative

Over moving 5 year periods exceed:

1. Composite of market indices.
2. TUCS Universe median return.

BASIC FUNDS

Liquidity

Maintain only enough cash
to make monthly transfers
to the Post Retirement Fund.

BASIC FUNDS

Asset Allocation

	<u>Recommend</u>	<u>Current</u>
Equities		
Stock-Domestic	60.0%	60.0%
-International	10.0	-
Real Estate	10.0	10.0
Venture Capital	2.5	2.5
Resource Funds	<u>2.5</u>	<u>2.5</u>
Subtotal	<u>85.0</u>	<u>75.0</u>
Fixed Income		
Bonds-Domestic	15.0	22.0
Cash Equivalents	<u>-</u>	<u>3.0</u>
Subtotal	<u>15.0</u>	<u>25.0</u>
TOTAL	<u>100.0%</u>	<u>100.0%</u>

Asset Allocation

Why Stocks?

1. \$100 invested in common stocks in 1900 would have grown to \$226,101.90 on December 31, 1987.
2. \$100 invested in long-term corporate bonds would have grown to \$6,275.90.
3. \$100 invested in money market instruments would have grown to \$2,784.60.

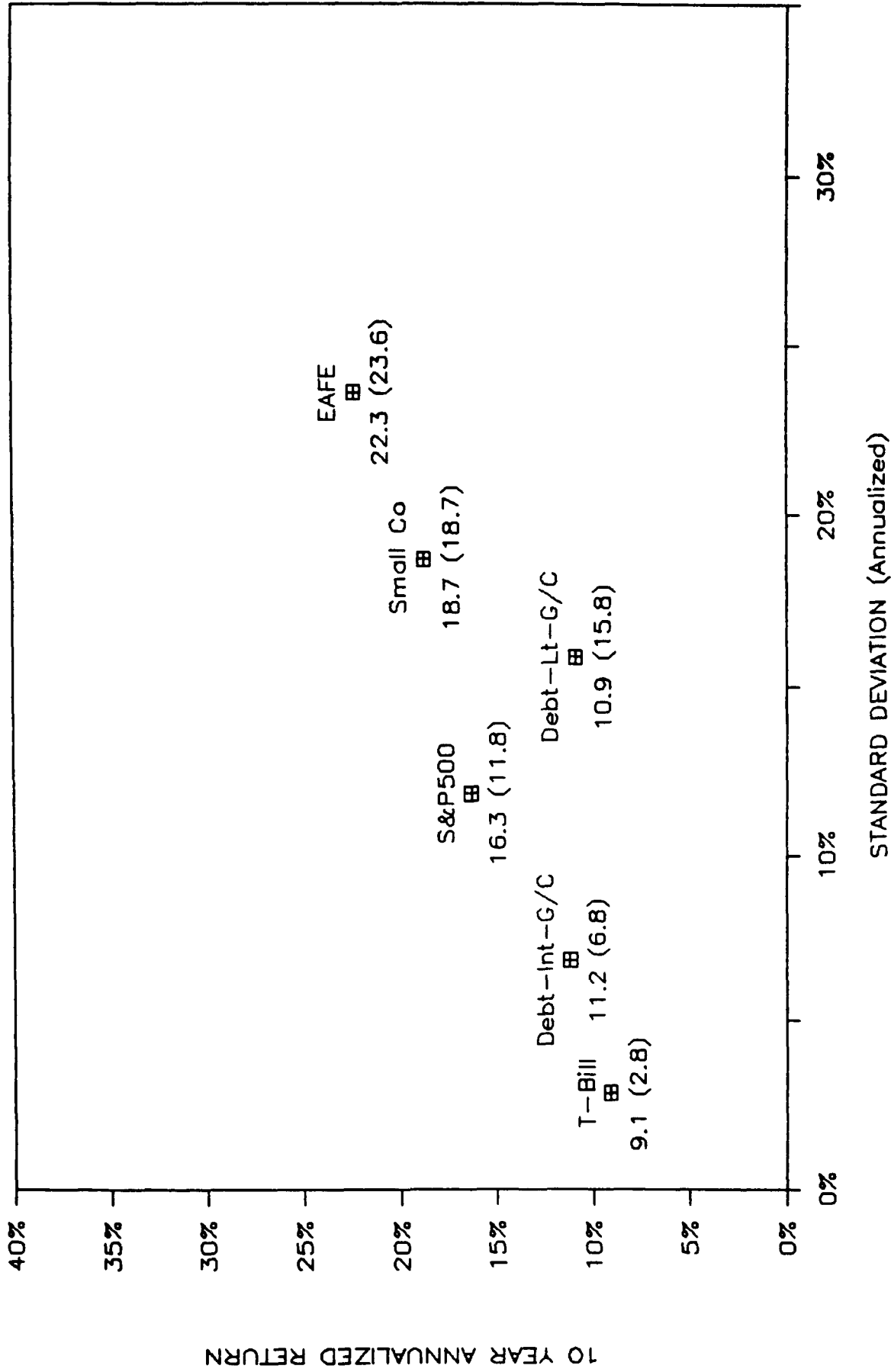
Asset Allocation

Why Bonds?

1. Short-term speculation.
2. Insurance in case of deflation/depression.
3. Increase portfolio income.

RISK VERSUS RETURN

TEN YEARS ENDED DECEMBER 31, 1988



Post Retirement Fund

I. Mission

II. Objectives

A. Realized Earnings

1. Current Benefits

2. Benefit Increases

B. Liquidity

III. Asset Allocation

POST FUND

Mission

To insure that assets transferred to the Post Retirement Fund generate sufficient realized earnings to maintain promised benefits, and to generate additional realized earnings that will provide increases to more than 55,000 retired public employees. All investments are governed by standards codified in Minnesota Statutes Chapter 11A, including the Prudent Person Rule.

MINNESOTA STATE BOARD OF INVESTMENT

STATUS

DECEMBER 31, 1988

OBJECTIVES

POST RETIREMENT FUND

\$XX.X BILLION

• RELIZED EARNINGS

XX.X% IN 1988

- IN EXCESS OF 8% PER
YEAR

X.X PP OVER 8%

• LIQUIDITY

- CASH EQUIVALENT TO
ONE MONTHS BENEFITS

\$XX.X MILLION, ----% OF
JANUARY PAYMENTS

POST FUND

Realized Earnings

1. Provide Current Benefits

Realized earnings of 5% are required.

2. Produce Benefit Increases

Realized earnings in excess of 5% should be produced to provide a relatively consistent level of benefit increases over time.

POST FUND

Liquidity

Sufficient cash must be generated each month to pay retiree benefits.

POST FUND

Asset Allocation

The high income component will necessitate a significant commitment to bonds. While the dedicated bond portfolio satisfies the constraints, it may not be the long-term lowest cost way to do so.

Asset Allocation

An 85% allocation to equities in the Basic Retirement Funds would result in a

43% equities

8% alternative
investments

49% bonds &
cash

asset mix in the combined funds.

BASIC + POST

Funding Status

- 72% of Liability (3 largest funds)
- Current Law Provides that \$3.2 Billion be Eliminated by 2009
- Alternatives for Faster Funding
 - Higher Contributions by Employees and/or Employers
 - Investment Return in Excess of 8% Assumed Rate

MINNESOTA STATE BOARD OF INVESTMENT

STATUS

DECEMBER 31, 1988

OBJECTIVES

FUNDING (BASIC + POST RETIREMENT)

- ACHIEVE FULL FUNDING BY 2009
- PROJECTED BENEFIT OBLIGATIONS (PRO) \$XX.X BILLION
- FAIR MARKET VALUE OF ASSETS (FMV) XX.X BILLION
- PERCENT FUNDED (PBO\FMV) XX%

MINNESOTA STATE BOARD OF INVESTMENT
QUARTERLY REPORT ON OBJECTIVES

24

Status
Month/Day/Year

BASIC RETIREMENT FUNDS

\$xx.x billion

o Total Return (Annualized)

- Real (10 years)

xx.x%

3 to 5 percentage points over inflation

x.x percentage points over/under

- Relative (5 years)

xx.x%

Above median return

x.x percentage points above/below

Above composite index return

x.x percentage points above/below

o Liquidity

- Minimal cash

\$xx million in cash, ___% of total fund

POST RETIREMENT INVESTMENT FUND

\$xx.x billion

o Realized earnings

\$xx.x million in FY 19__

- Above 6% per year

x.x percentage points above/below

o Liquidity

- Cash equivalent to one month's benefits

\$xx.x million, ___% of previous month's

FUNDING (BASIC + POST RETIREMENT FUNDS)*

Status
June 30, 19__

o Achieve full funding by 2009

- Projected benefit obligations (PBO)

\$xx.x billion

- Fair market value of assets (FMV)

\$xx.x billion

- Percent funded (PBO/FMV)

xx%

STATUTORY CHANGE

Issue

- Benefit Increase Formula
 - Tied to Investment Earnings
 - Earnings Current not Total Income
 - Little Relationship to Inflation
- 85% Equity Limit on Each Fund
 - Separate Funding for Retirees

Recommendation

- Decouple Retiree Increases From Post Retirement Fund Current Income
- Combine Funding for Actives & Retirees

SUGGESTED 2/8 SBI ACTIONS

- Approve recommendations that can be implemented within current statutory requirements
- Direct or otherwise initiate enabling legislation to
 - Decouple retiree increases from Post Retirement Fund current income
 - Combine funding for actives & retirees

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
St. Paul, MN 55155
Tel. (612) 296-3328
FAX (612) 296-9572**

MEETING NOTICE

**STATE BOARD OF INVESTMENT
SPECIAL STATE BOARD OF INVESTMENT MEETING**

**FEBRUARY 8, 1989
8:30 - 10:00 A.M.
ROOM 118
STATE CAPITOL
ST. PAUL**

AGENDA

- 1. Report from the Task Force on Fund Objectives**

PROJECT LIST

A. Issues Resulting From February 8, 1989 Board Meeting.

1. Asset Class Targets

- stocks
- bonds
- real estate
- venture capital
- oil & gas
- international

2. Composite Index

- construction
- timing for reporting purposes

3. Market Timing

- validity of concept
- feasibility for SBI
- management structure, if used by SBI

4. International Equities

- Asset Class Target
- Active/Passive
- Hedged/Unhedged
- Manager Configuration/Selection
- Custody
- Funding Source
 - Reallocation
 - New Cash Flow

5. International Short Term (cash accounts)

- Allocation
- Portfolio Management
- Custody

6. Cash Allocation

- Basics - allocation of current cash
 - hedged/unhedged
 - internal/external

- Post - BEA status
 - allocation of current cash

- CD Program

7. Reporting Revisions

Score card
Summary of allocation

8. Post Benefit Increase Mechanism

History/Projections
Consensus Building
Chapter 11A.18 re-write

B. Other Issues - March-June

1. Real estate study
2. Consultant RFP
3. First Trust Contract
4. Wilshire Index Manager Review
5. Completeness Fund Recommendations
6. Bond Index Manager Performance Fees
7. Post Fund Endowment Model
8. FY 90 Work Plan

PROJECT LIST

A. Issues Resulting From February 8, 1989 Board Meeting.

1. Asset Class Targets

JUN	DG	stocks
JUN	RH	bonds
JUN	JG	real estate
JUN	JG	venture capital
JUN	JG	oil & gas
JUN	BL	international

2. Composite Index

JUN	MM	construction
JUN	MM	timing for reporting purposes

3. Market Timing

MAR	HB	current rebalancing guidelines
MAR	HB	concept
JUN/SEP	ME/DG	feasibility for SBI
SEP/DEC	ME/DG	management structure, if used by SBI

4. International Equities

JUN	BL	Asset Class Target
JUN	BL	Active/Passive
JUN	ME	Hedged/Unhedged
JUN	BL	Manager Configuration
JUN	BL	Funding Source
		Reallocation
		New Cash Flow
JUN/SEP	BL	Mini-Seminar for Board/Deputies
SEP/DEC	MS	Custody
SEP/DEC	BL	Manager Selection

5. International Short Term

JUN	HB/JF	Allocation
JUN	HB/JF	Portfolio Management
JUN	HB/JF	Custody

6. Cash Allocation

JUN/SEP	ME	Basics - hedged/unhedged
MAR	ME	Post - BEA status
JUN/SEP	MS	CD Program
FEB	GROUP	Allocation of current cash in Basic and Post

7. Reporting Revisions

MAR	BL	Score card
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8. Post Benefit Increase Mechanism

MAR	ME	History/Projections
MAR/JUN	HB	Consensus Building
?	JH	Chapter 11A.18 re-write

9. Summary for Board

FEB	HB/BL	Write-up
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B. Other Issues

JUN	JG	1. Real estate study
JUN	BL	2. Consultant RFP
JUN	HB/JF	3. First Trust Contract
JUN	DG	4. Wilshire Index Manager Review
JUN	DG	5. Completeness Fund Recommendations
JUN	RH	6. Bond Index Manager Performance Fees
JUN/DEC	ME/RH	7. Post Fund Endowment Model
MAY	DG	8. FY 90 Work Plan
MAY	MS	9. FY 90 Budget Plan
MAY	DG	10. Soft dollar budget
HB		
BL		

MANAGER CONTINUATION POLICY SUMMARY

Probation/termination decisions are based on a quarterly review of qualitative and quantitative factors.

Qualitative

A manager will be placed on probation if any of the following events occur:

- o A change in the firm's ownership or in the members of its management team.
- o A change in the manager's investment style.
- o An inability to create and maintain an appropriate benchmark portfolio.

If a manager cannot resolve these issues within two quarters, the manager will be terminated.

Other issues regarding the manager's organization and investment process may cause concern and warrant continued monitoring. However, they will not require probation/termination, as a general rule.

Quantitative

Using statistical methods, a confidence interval is constructed for each manager based on the manager's actual cumulative return relative to the manager's benchmark. Returns falling outside the confidence interval represent superior or inferior performance significant enough that the odds of it being due to chance are low. The confidence interval narrows over time. As more performance data is received, the ability to make judgments about a manager's investment skill increases, according to statistical theory.

Probation Level: A cumulative return that falls below this level is low enough to cause concern, but the possibility that it is due to chance is still high. (1:5)

Termination Level: A cumulative return that falls below this level is significant enough that it is unlikely the manager possesses investment skill. (1:10)

There is no specified time limit to probation status for quantitative reasons.

PROPOSED CHANGES TO
MANAGER CONTINUATION POLICY

Qualitative

Add the following as an event that requires probation:

- o A significant gain or loss in number of accounts or clients under management over the previous year.

Quantitative

Add the following concerning probation status:

A manager who continues on probation status for successive quarters will be re-evaluated by staff and the appropriate committee of the IAC during the following quarter. The IAC will recommend continuation or termination of the firm based on the results of the evaluation.

MEMBERS OF THE BOARD:
GOVERNOR RUDY PERPICH
STATE AUDITOR ARNE H. CARLSON
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February 21, 1989

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

FROM: Howard Bicker *Howard Bicker*

SUBJECT: Asset Class Targets
Active/Passive Mix

At its meeting on February 15, 1989, the SBI Administrative Committee discussed the need for the Board to come to some conclusion on the issues of asset class targets and active/passive mix so that it could move forward on the Investment Advisory Council's (IAC) recommendation to add four new managers to the active stock manager group. This recommendation has been pending since September 1988.

It was the consensus of the Committee that these items should be reviewed by the IAC on February 28, if possible, and that the Board should be prepared to discuss these issues at its meeting on March 1.

For your information, two background pieces on these issues are attached.

- o November 1988 staff position paper "Wilshire 5000 as an Equity Asset Class Target"
- o Excerpts from the May 1987 staff position paper "Basic Retirement Funds, Part III, Investment Management Structure"
 - Section 2: Passive and Active Management
 - Section 3: Passive/Active Mix
 - Summary Chart of recommendations on investment management structure

If you have any questions, please contact me.

cc: Board Member Deputies
AN EQUAL OPPORTUNITY EMPLOYER

WILSHIRE 5000
AS AN
EQUITY ASSET CLASS TARGET

Staff Position Paper
November 1988

EXECUTIVE SUMMARY

In 1983, the State Board of Investment (SBI) selected the Wilshire 5000 as its asset class target for domestic common stocks. The purpose of this paper is to review the rationale for that decision.

Generally, the most appropriate asset class target is a broad market index which represents the full range of investment opportunities within an asset class. The asset class target should embody the plan's return objectives and risk tolerance for a particular asset class. It also provides a measurable performance standard with which to evaluate investment results.

Most plan sponsors have chosen either the Standard and Poor's 500 (S&P 500) or the Wilshire 5000 as their domestic equity asset class target. In recent years, many plans have moved away from the S&P 500 in order to gain greater exposure to the smaller capitalization area of the market. Since the Wilshire 5000 includes many small capitalization stocks, it is a logical alternative to the S&P 500.

Historically, the Wilshire 5000 has produced returns that are somewhat greater and slightly more volatile than those of the S&P 500. Over shorter periods of time (one to five years), performance may differ significantly. Over longer periods of time (ten to fifteen years), the performance difference between the two indices is minimal.

There are two primary advantages to the Wilshire 5000 as an asset class target:

- o The Wilshire 5000 represents virtually all publicly traded domestic common stocks. It is the most direct means of gaining exposure to the entire stock market and includes both small and large capitalization stocks.
- o The Wilshire 5000 is more representative of the universe of stocks held by the Board's managers. The SBI's active stock managers, in aggregate, are oriented toward smaller capitalization stocks.

Staff believes that the use of an extended broad market index is consistent with the Board's investment objectives and risk tolerance. Staff recommends that the Board continue to use the Wilshire 5000 as its asset class target for domestic equities.

INTRODUCTION

In 1983, the State Board of Investment (SBI) selected the Wilshire 5000 as its asset class target for the domestic common stocks. The purpose of this paper is to review the rationale for that decision. The discussion has been organized in a question and answer format:

1. What is an asset class target?
2. What is the purpose of an asset class target?
3. What market indexes are typically chosen as asset class targets?
4. Are there situations where a market index is not appropriate?
5. Do any of these considerations apply to the SBI?
6. How does the performance of the two most common asset class targets compare (S&P 500 vs. Wilshire 5000)?
7. Is relative performance a sound basis for choosing an asset class target?
8. What are the advantages of the Wilshire 5000 as an asset class target?
9. What would be the impact of changing the SBI's asset class target?

The paper concludes with a staff recommendation that the Board continue to use the Wilshire 5000 as its asset class target for domestic common stock.

1. What is an asset class target?

An asset class target is a diversified collection of securities within a particular asset class. It represents the set of feasible investment opportunities that the plan sponsor believes best achieve the purposes for which the asset class is included in the policy asset mix. The plan's investments in the asset class, in aggregate, should reflect the risk-return characteristics of the selected asset class target.

Generally, the most appropriate asset class target is a broad market index which represents the full range of investment opportunities within the asset class. Currently, the SBI uses the Wilshire 5000 Index as its asset class target for domestic equities and the Salomon Broad Investment Grade Bond Index as its class target for domestic fixed income.

2. What is the purpose of an asset class target?

There are two primary purposes for establishing an asset class target:

- o The asset class target should embody the plan's return objectives and risk tolerance for a particular asset class. The establishment of an appropriate asset class target, by defining the range of available investments, assures that implementation is consistent with stated policy.
- o The asset class target should provide a measurable performance standard with which to evaluate the results of the plan's investment program.

3. What market indices are typically chosen as asset class targets?

The majority of plan sponsors utilize the Standard & Poor's 500 (S&P 500) as their asset class target. The

popularity of the S&P 500 is due primarily to its widespread use in the financial press. (See Appendix A for a description of the S&P 500).

In recent years, many plan sponsors have moved to non-S&P 500 targets. The desire on the part of some plan sponsors to extend the range of investment opportunities in the smaller capitalization area of the market has been the primary motivation. The Wilshire 5000 is a widely used "extended" index. (See Appendix A for a description of the Wilshire 5000).

4. Are there situations where a market index is not appropriate?

Yes. A plan sponsor may choose to restrict the composition of its asset class target if:

- o Statutory, regulatory or policy requirements prohibit ownership of certain securities within an asset class.
- o The nature of the plan sponsor's business makes it desirable to exclude certain types of securities within an asset class.
- o The plan sponsor perceives certain significant long-run investment opportunities within an asset class.

In the first case, a pension plan may be prohibited from owning particular types of securities. For example, many public pension plans operate under legal lists which permit ownership of only certain specified securities. Securities not on these legal lists are ineligible for inclusion in the plans' investment portfolios.

In the second case, the plan sponsor may wish to avoid certain securities whose returns are highly correlated with

the plan sponsor's economic prospects. For example, corporations ordinarily do not own large positions of their own stock in their employees' pension plans. In periods when the corporations's profit outlook is poor, its stock will also perform poorly, detracting from pension plan performance at a financially inopportune time.

In the third case, the plan sponsor may believe that certain persistent investment opportunities exist within an asset class. As a result, the plan sponsor may wish to concentrate investments within the asset class in those opportunities. For example, it is well-documented that over the last 60 years small capitalization stocks have outperformed large capitalization stocks. A plan sponsor could permanently emphasize small capitalization stocks in the plan's common stock component by selecting an asset class target that is heavily weighted in small cap stocks.

In each of these situations, the plan sponsor's decision to limit the types of securities held in a particular asset class should be reflected in the target for that asset class. By doing so, the plan's investment opportunities are reconciled with its policy asset mix.

5. Do any of these considerations apply to the SBI?

Not at the present time. Since none of the these target-restricting circumstances described in Question #4 currently applies to the Board's common stock investments, the broadest possible market index is most appropriate choice for the SBI domestic stock target. Specifically:

- o There are no statutory restrictions on the Basic Funds common stock investments. It should be noted, however, that the Board policy concerning South Africa, liquor and tobacco have some impact on security selection.
- o Given Minnesota's broad economy, it is impractical to avoid economic sectors of the stock market that are highly correlated with Minnesota's tax revenue base.
- o Certain sources of persistent above average returns in the stock market do exist (e.g., small capitalization stocks, low price-to-book value stocks, low price-to-earnings stocks, etc.). However, given the difficulty in accurately predicting the cyclical nature of these opportunities, it is not feasible to select an asset class target designed to exploit market anomalies.

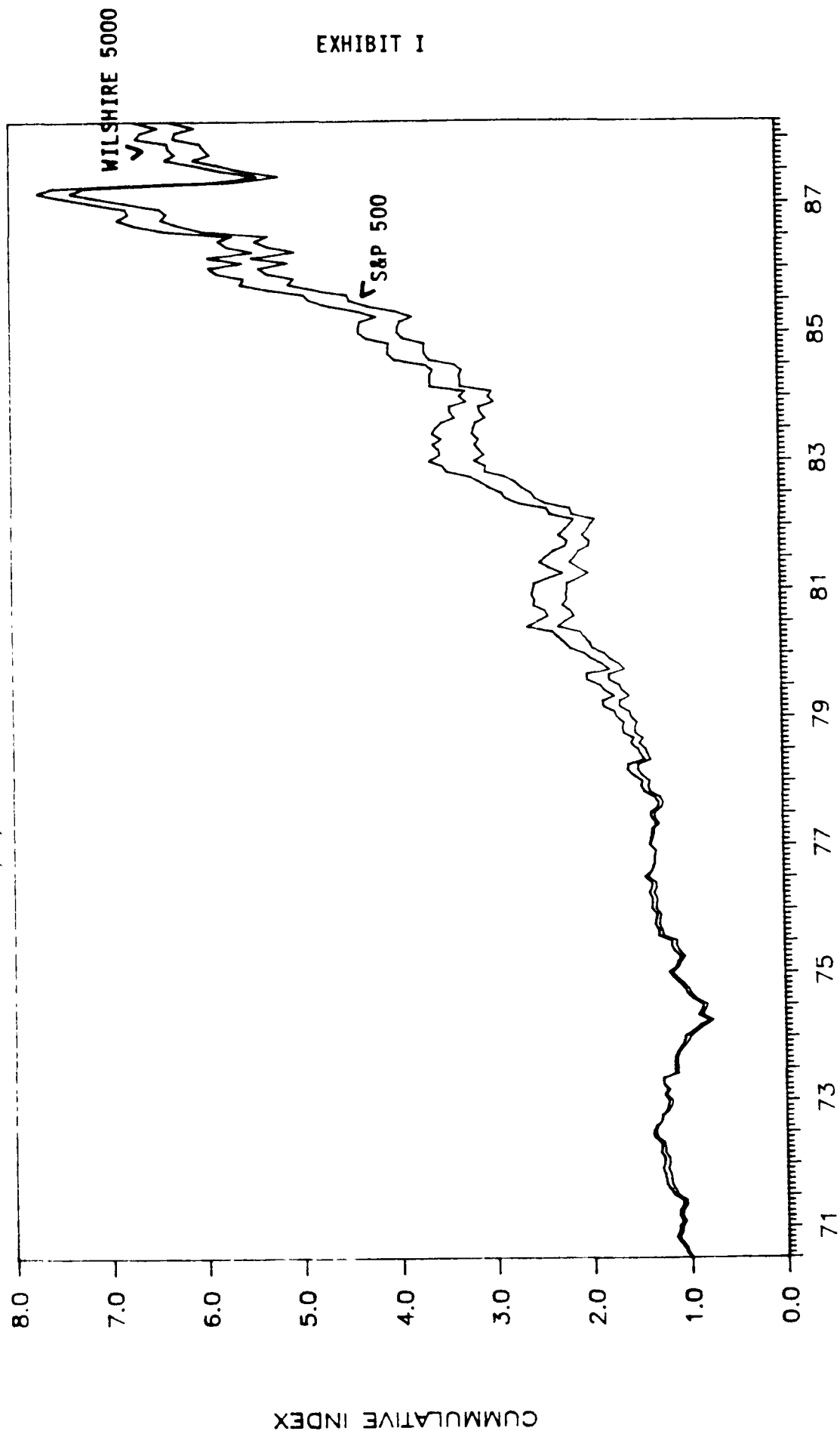
Given these considerations, there has been no reason to limit the Board's investments in the domestic stock market at the present time. Therefore, a broad market index is appropriate for the SBI's equity asset class target.

6. How does the performance of the two most common asset class targets compare (Wilshire 5000 vs. S&P 500)?

Historically, the Wilshire 5000 has produced returns that are somewhat greater and slightly more volatile than those of the S&P 500. As is illustrated in Table I, the standard deviation of returns on the Wilshire 5000 over the last 213 months is 17.0% per annum versus 16.3% per annum for the S&P 500. Over this same time period, the Wilshire 5000 has returned 11.3% per annum versus 10.9% for the S&P 500. Over long periods of time the performance difference between the two indices is minimal. Exhibit I shows the value of \$1 invested on January 1, 1971 in the Wilshire 5000 and S&P 500.

S&P 500 VS WILSHIRE 5000

1/1/71 TO 9/30/88



--- S&P 500 — WILSHIRE 5000

TABLE I
TOTAL RETURN AND STANDARD DEVIATION
OF THE WILSHIRE 5000 AND THE S&P 500

	For The Period Jan. 1971 - Sept. 1988	
	Wilshire 5000	S&P 500
Annualized Total Return	11.3%	10.9%
Annualized Standard Deviation	17.0%	16.3%

7. Is relative performance a sound basis for choosing an asset class target?

No. Using performance as a criterion can be very misleading. This can be illustrated by comparing the performance of the Wilshire 5000 and S&P 500 over two different five-year periods.

Exhibit II encompasses the five year period ending June, 1981. During this period the Wilshire 5000 outperformed the S&P 500 by 4.1% per annum (Wilshire 14.1% vs. S&P 10.0%). The S&P 500 underweighting in the "small cap" sectors is the primary cause of the differences in the rates of return produced by the two market indicators. Over this period, small capitalization stocks significantly outperformed large capitalization stocks, just as they have done over the last 60 years. This was not captured by the S&P 500.

By contrast, the five year period ending June 30, 1988 produces a much different result. As shown in Exhibit III, the S&P 500 provided superior results relative to the

EXHIBIT II

WILSHIRE 5000 VS S&P 500

7/1/76 TO 6/30/81

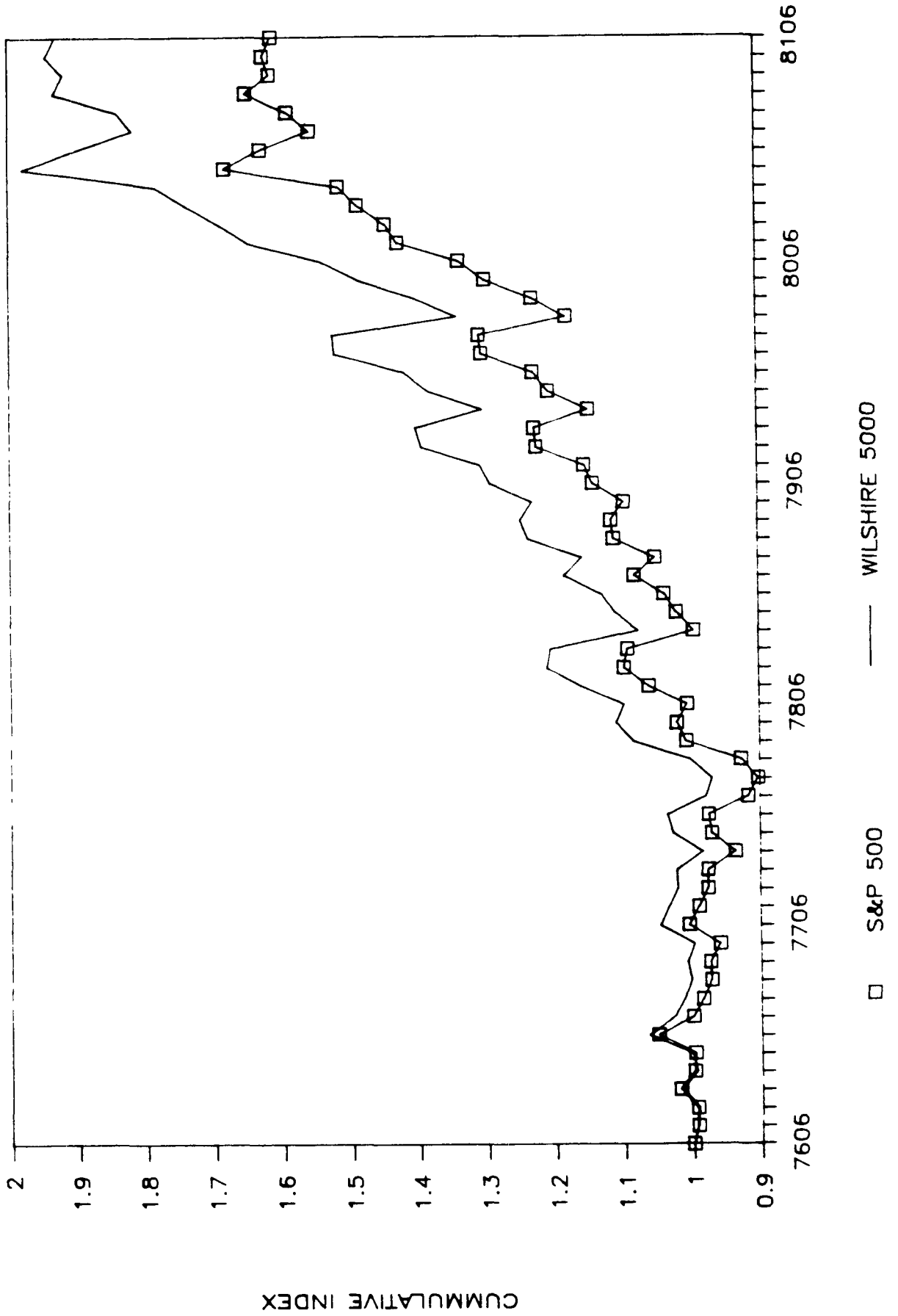
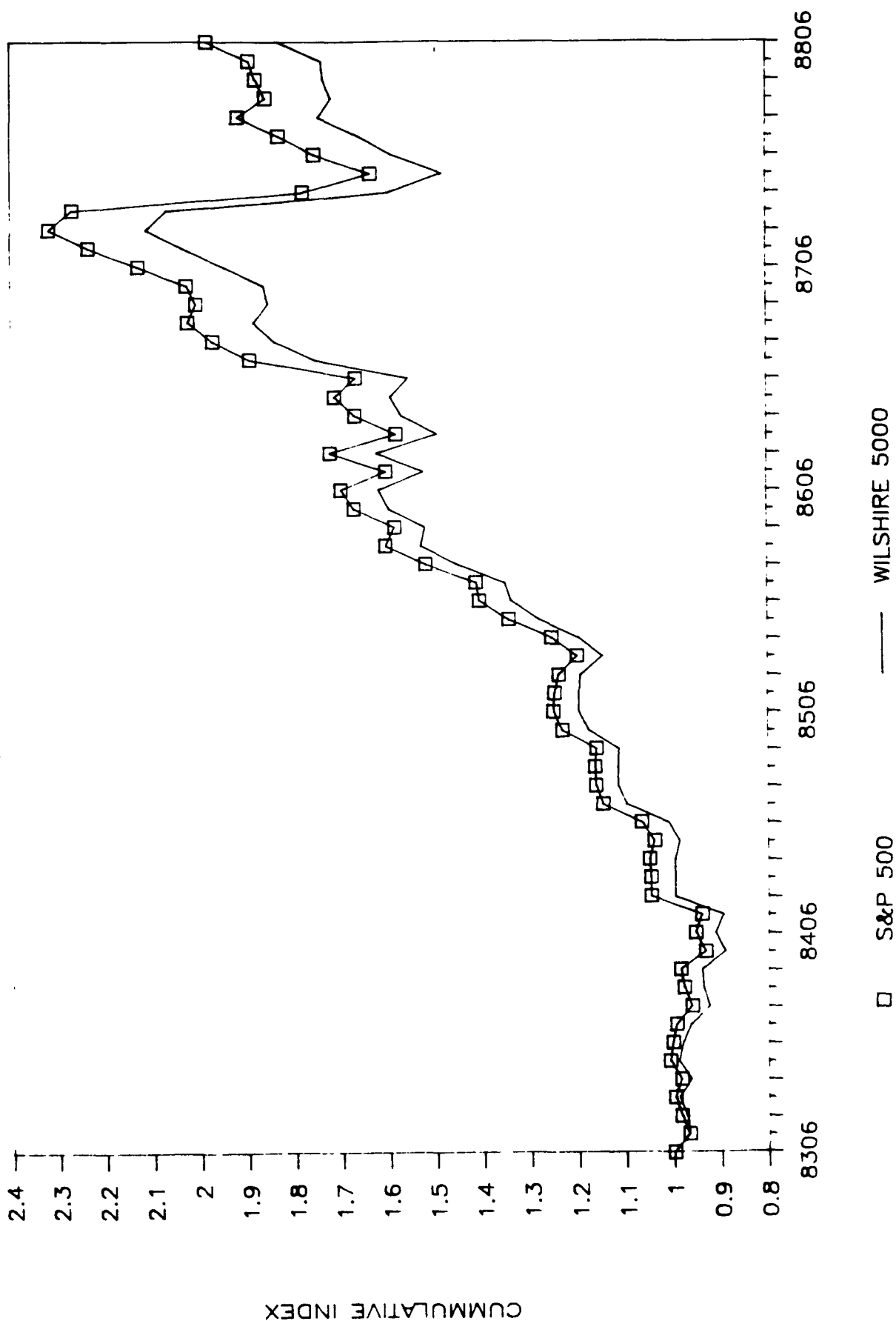


EXHIBIT III

S&P 500 VS WILSHIRE 5000

7/1/83 TO 6/30/88



Wilshire 5000. Over this period the S&P 500 outperformed the Wilshire 5000 by an annualized rate of 1.7% (S&P 14.6% vs. Wilshire 12.9%).

Many explanations have been offered for the S&P 500's recent exceptional performance, e.g. liquidity, financial futures, portfolio insurance, indexing. Whether these phenomena will continue into the future is unknown.

8. What are the advantages of the Wilshire 5000 as an asset class target?

Staff believes there are several advantages to the Wilshire 5000:

- (1) Using the Wilshire 5000 as a target index is the most direct means of gaining exposure to the entire common stock market. The Wilshire 5000 represents virtually all publicly traded domestic common stocks. The S&P 500, on the other hand, has a capitalization only 70% of that of the Wilshire 5000. It is significantly underweighted in the "smaller cap" sectors of the market. Thus, it provides a much less adequate representation of the overall stock market.
- (2) The SBI's active managers, in aggregate, are oriented toward smaller capitalization stocks. Thus, using the Wilshire 5000 is more representative of the universe of stocks held by the Board's managers.

- (3) Market indices that focus predominately on large capitalization stocks, like the S&P 500, are becoming less representative of the entire stock market. As indicated in Table II, the percent of the equity market represented by large capitalization stocks has declined over the last fifteen years.

TABLE II
CAPITALIZATION OF STOCKS

		Percent of Wilshire 5000	
<u>Capitalization</u>		<u>As of</u> <u>12/31/72</u>	<u>As Of</u> <u>9/30/88</u>
Largest	250 issues	67.6%	61.9%
	500 issues	81.3	77.0%
	1000 issues	93.9	88.9%

It is hypothesized that as the U.S. economy continues to evolve from an industrial, centralized structure to an information-oriented, decentralized form, total capitalization within the stock market will become even more diffuse.

- (4) The Wilshire 5000 is not a "managed" index. Although changes occur fairly infrequently, the composition of the S&P 500 occasionally is altered. This fact, combined with the somewhat arbitrary rationale by which stocks are included in the index, give the S&P 500 a certain "managed" style. The particular stocks which comprise the S&P 500 are selected by the "500 Committee." The

Committee bases its choices not only on capitalization and industry representation, but investor interest as well. The Wilshire 5000, on the other hand, is a completely unmanaged market indicator. No judgments regarding whether a particular stock should be included in the indicator are required since all publicly traded stocks are represented.

9. What would be the impact of changing the SBI's asset class target?

Changing the SBI's domestic equity asset class target from the Wilshire 5000 to the S&P 500 would impact the fund in two ways.

First, more than two-thirds of the common stock assets in the Basic Funds are passively managed in a Wilshire 5000 index fund. A Wilshire 5000 index fund measured against an S&P 500 target is totally incompatible. The expense of moving the Wilshire 5000 index fund portfolio to a compatible S&P 500 portfolio must be outweighed by the expectation of better relative performance from the S&P 500. As discussed in Questions #6 and #7, staff does not believe such an expectation is warranted over the long term.

Second, a move to the S&P 500 would be an implicit "bet" on larger capitalization stocks. That is, it would indicate the Board perceives a significant long-run investment opportunity in large capitalization companies. This is contrary to the evidence that smaller stocks have outperformed larger stocks over the past 60 years.

CONCLUSION

Staff believes that the use of an extended broad market index as the asset class target for domestic common stocks is consistent with the Board's investment objectives and risk tolerance.

Staff recommends that the Board continue to use the Wilshire 5000 as the asset class target for domestic common stocks. The Wilshire 5000, which represents essentially the entire U.S. stock market, is the least restrictive index currently available.

APPENDIX A

Description Of Wilshire 5000

The Wilshire 5000 is a broad based domestic equity market indicator, composed of all common stocks publicly traded in the U.S. market for which daily prices are obtainable. The actual number of issues contained in the market indicator varies over time as publicly held companies come into and go out of existence. As of September 30, 1988, the Wilshire 5000 included 5,825 common stock issues.

The Wilshire 5000 is a capitalization-weighted market measure. In calculating its value, the weight assigned to a particular issue is based upon the market value of the total shares outstanding of that issue. Unlike the S&P 500, the current market value of the Wilshire 5000 is not stated relative to a base period market value. Rather, the Wilshire 5000 is measured in billion dollar units. On September 30, 1988, the unit value of the Wilshire 5000 was reported to be 2,706,669, indicating that the aggregate market value of the stocks in the market indicator was roughly \$2.7 trillion.

Historical data is available on the Wilshire 5000 extends back to 1971.

Description Of The Standard & Poor's 500

Like the Wilshire 5000, the S&P 500 is designed to provide a broad representation of the entire domestic common stock market. However, instead of including all issues for which daily pricing

is obtainable, the S&P 500 attempts to represent the stock market by utilizing a limited subset of the available stocks. More specifically, as of September 30, 1988, the S&P 500 included 400 industrial, 40 transportation, 20 utility, and 40 financial issues. The particular stocks which make up the index are selected by Standard & Poor's "500 Committee." The Committee bases its choices not only on capitalization size and industry representation, but investor interest as well. Major changes in the composition of the index are rare. However, since the number of stocks in the index is a constant 500, mergers or acquisitions of companies, whose stock is part of the index, require for replacements. Further, the "500 Committee" may determine that certain stocks are no longer "appropriate" for inclusion in the index and it may choose to replace those stocks.

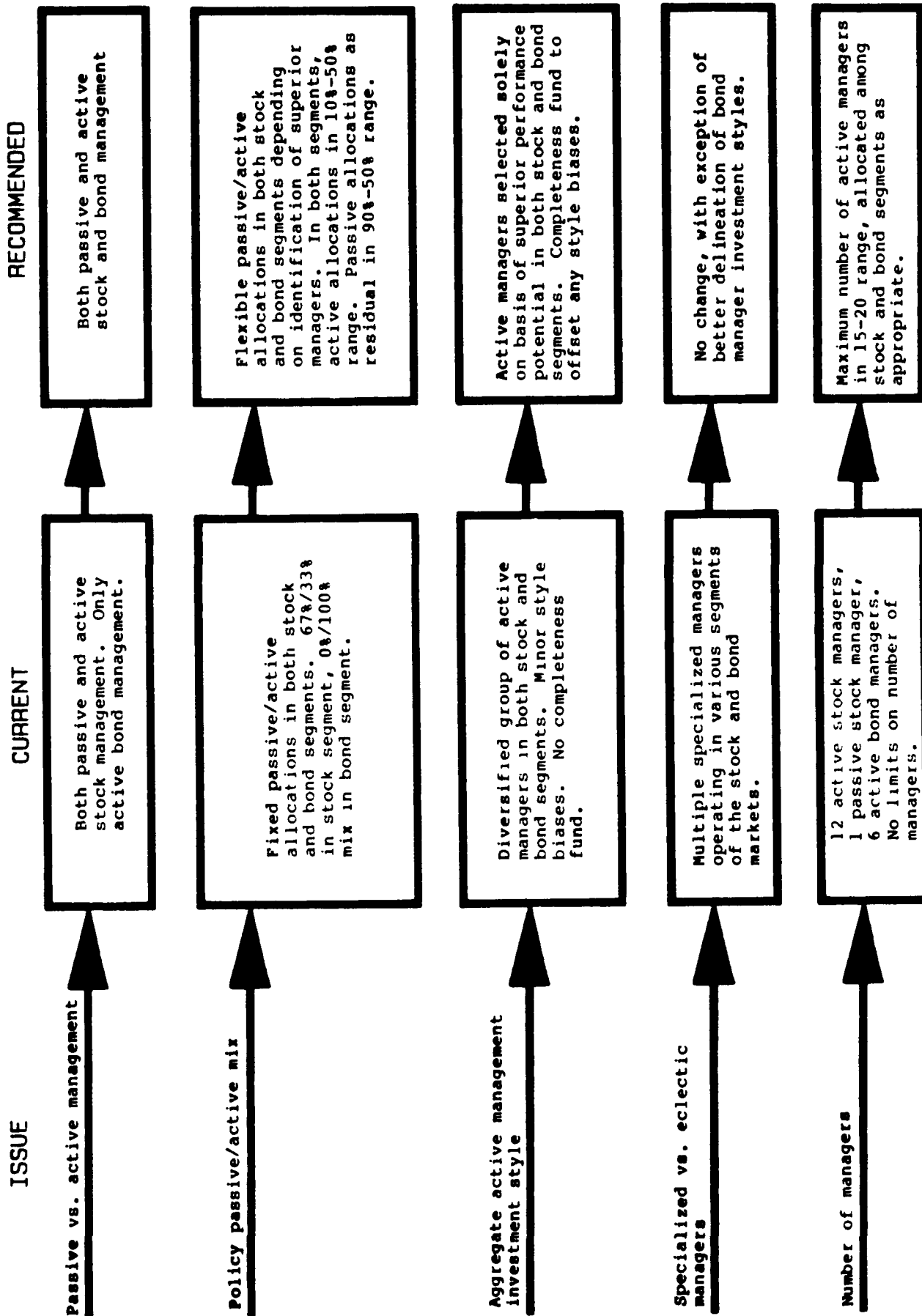
Like the Wilshire 5000, the S&P 500 is a capitalization-weighted market indicator. Unlike the Wilshire 5000, however the current value of the S&P 500 represents a ratio of the current total market value of the stocks in the index relative to the total market value of the stocks in the index as of the period 1941-43. This ratio then is scaled to produce a base year value of 10. On September 30, 1988, the value of the S&P 500 index was 271.91, indicating that the total market value of all stocks in the index is currently 27.19 times greater than it was in the base period 1941-43.

Historical information is available on the S&P 500 extending back to 1941.

BASIC RETIREMENT FUNDS

INVESTMENT MANAGEMENT STRUCTURE

SUMMARY OF CURRENT STATUS AND RECOMMENDATIONS



SECTION 2: PASSIVE AND ACTIVE MANAGEMENT

DEFINITION OF PASSIVE AND ACTIVE MANAGEMENT

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

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

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

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

deviations (referred to as active bets) that active management can add value to the asset class target's return.

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

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

GROWTH OF PASSIVE MANAGEMENT

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

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

TABLE 1

COMPARATIVE CHARACTERISTICS OF ACTIVE AND PASSIVE MANAGEMENT

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

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

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

CASE FOR PASSIVE AND ACTIVE MANAGEMENT

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

The primary argument for active management is quite simple. In essence, it is that sufficient market inefficiencies exist that skillful and hardworking investors can consistently exploit them. Numerous examples of successful stock and bond managers and strategies are cited as evidence. An additional supporting argument is based on the logic of the work ethic. That is, hard work and innovation in the investment business, like any other

business, should be expected to produce superior results. In the same vein, active management proponents generally are philosophically averse to the idea of accepting passive returns. They view it as imperative to strive for superior performance.

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

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

CURRENT BASIC FUNDS STRUCTURE

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

RECOMMENDATIONS

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

SECTION 3: PASSIVE/ACTIVE MIX

PRIMARY DETERMINATES OF THE POLICY PASSIVE/ACTIVE MIX

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

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

- o Attitude concerning the passive/active debate discussed in Section 2. The less the plan sponsor is convinced by arguments supporting active management, the smaller will be the plan's policy active allocation.
- o Ability to identify successful managers. Beyond the plan sponsor's belief in the effectiveness of active management, the less the plan sponsor's confidence in its manager selection process, the smaller will be the plan's policy active allocation.
- o Dollar size of the plan's common stock and bond segments. It is reasonable to assume that there are binding limits on the number of successful managers that the plan sponsor can identify as well as monitor. It is also reasonable to assume (with less conviction, however) that the performance of most managers declines as their assets under management rises above some critical threshold. Therefore, the larger are the plan's stock and bond components, the smaller will be the policy active allocation.

The second factor determining of the policy passive/active mix is the incremental volatility (either positive or negative) in portfolio returns caused by active management. This incremental volatility is referred to as active risk. Because plan sponsors dislike return volatility, then all other things remaining the same, the more positive is the active risk created

by active management, the smaller will be the plan sponsor's policy allocation to active management.

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

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

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

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

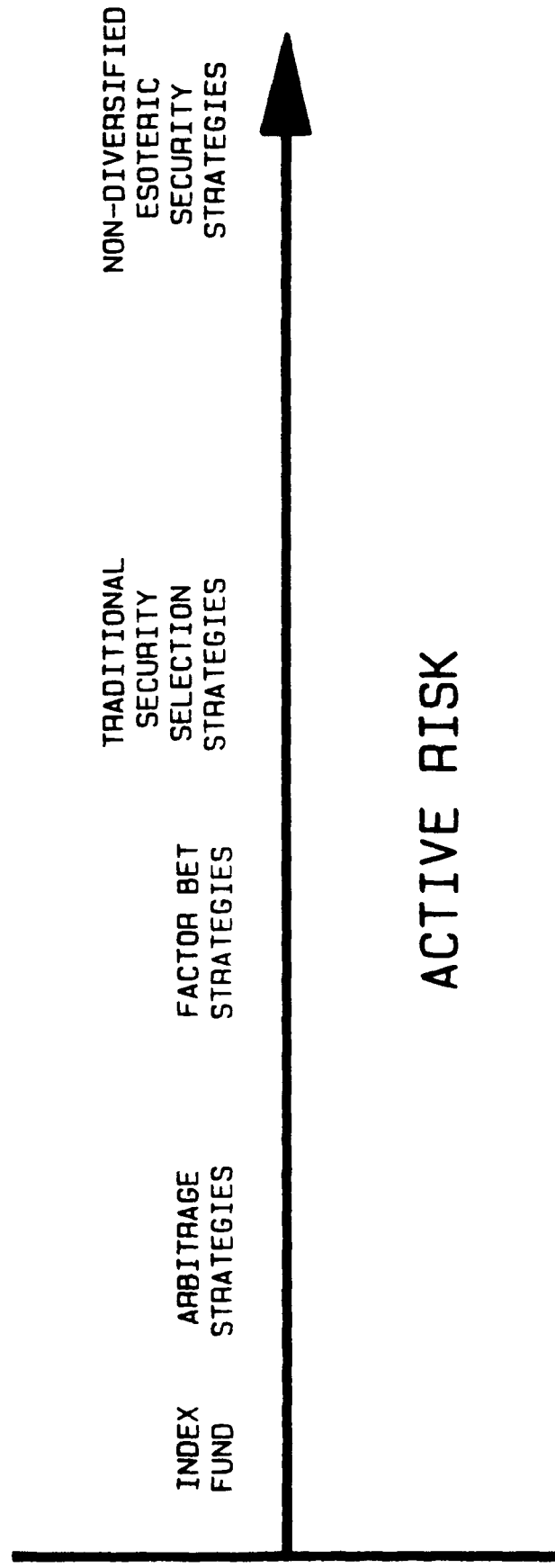
VARYING THE LEVEL OF ACTIVE RISK

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

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

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

FIGURE 1
SPECTRUM OF ACTIVE RISK



aggressive active management strategies would be inferior to the more defensive strategies.

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

FIXED VERSUS FLEXIBLE ALLOCATION APPROACHES

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

The fixed allocation approach has the advantage of simplicity and clarity. Based on the plan sponsor's estimate of the active management information ratio, in conjunction with the plan

sponsor's risk-return preferences, the policy passive/active mix is set. Changes in allocations to new and existing managers can easily be analyzed and implemented within the framework of the fixed allocation.

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

CURRENT BASIC FUNDS STRUCTURE

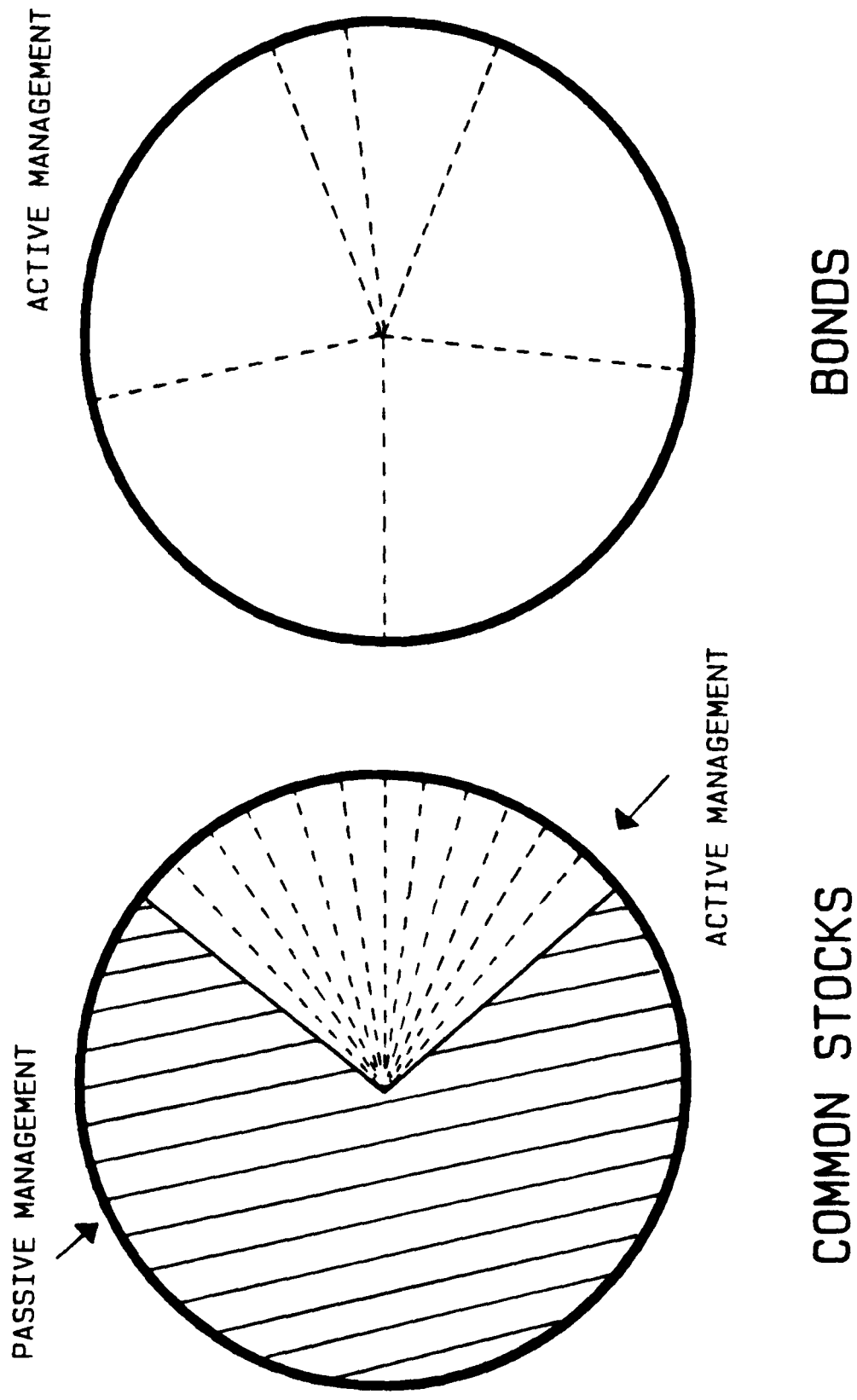
The Basic Funds common stock segment currently is allocated 67% to passive management and 33% to active management. These allocations are fixed. The bond segment is 100% actively managed. This allocation is also fixed. Figure 2 illustrates the current common stock and bond segments' policy passive/active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

RECOMMENDATIONS

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

- o First, even though as Section 2 discussed, the evidence regarding the superiority of passive or active management is inconclusive, it is still the case that the costs of active management (i.e., management fees and transactions

FIGURE 2
CURRENT POLICY - PASSIVE/ACTIVE MIX



costs, as well as Board resources spent in the manager selection and monitoring process) are material. Thus, the burden of proof in this debate thus should rest more heavily on active management.

- o Second, the Board's practical experience in implementing active management has not been highly successful thus far. Until the Board is more confident in its ability to hire superior active managers, active management should not be emphasized.
- o Third, the size of the Basic Funds' common stock and bond segments produces practical constraints on the amount of funds that can be actively managed successfully.
- o Fourth, active management, as applied in the Board's multiple manager approach, does add modestly to the variability of returns within the common stock and bond segments of the Basic Funds. Until the Board is more confident that this increased variability is compensated through higher returns from active management, passive management should dominate the passive/active mix.

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

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

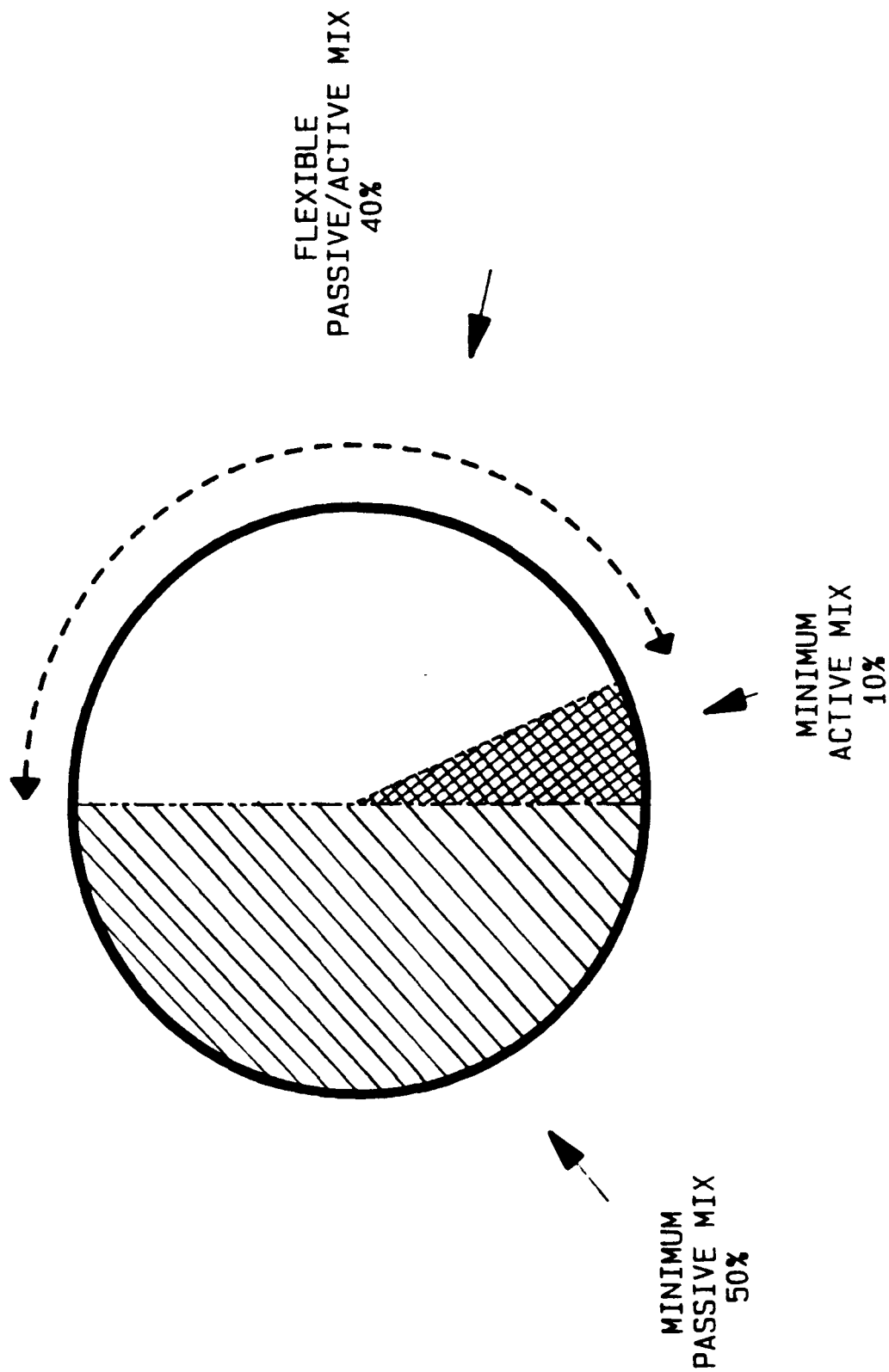
This approach is designed to make the most efficacious use of active management. It will avoid the situation in which funds are forced into active management simply to meet a relatively

arbitrary target. Instead, it will create a discipline of employing active management only in situations in which the Board is satisfied that proper risk-return expectations are in place and that the potential to add consistent value to passive management exists.

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

FIGURE 3

PROPOSED POLICY - PASSIVE/ACTIVE MIX COMMON STOCKS AND BONDS





First Trust

First Trust Center
P.O. Box 64190
St. Paul, MN 55164-0190

April 20, 1989

Ms. Shirley Tigges
Minnesota State Board of Investments
C/O Treasurer, State of Minnesota
303 Administration Building
St. Paul, MN 55101

RE: 602870, TREASURER/ST OF MN/FOR ESCHEATED ESTATE

Dear Shirley:

Listed below are the securities that were held in the Escheated Estate Account showing the total proceeds resulting from the sale, dividends, interest and/or redemption of these securities.

<u>PAR</u>	<u>SECURITIES</u>	<u>PROCEEDS</u>
10 shares	Cities Service Co. Common Stock	\$ 741.94
\$500	Missouri Pacific RR 4.25% 1/1/2005	908.78
\$500	Missouri Pacific RR 4/25% 1/1/1990	1,104.40
\$1,000	Northern Pacific Railway 3% 1/1/2047	1,196.00
2,042 Shares	Northern States Power Co. Common Stock	67,108.12
214 Shares	Philadelphia Electric Co.	4,282.00
44 Ctfs.	United States Savings Bonds Ser E	5,341.38
	Total Proceeds	<hr/> \$80,682.62

PS/dp:1904i(1)

Ms. Shirley Tigges
April 20, 1989
Page 2

The fees for this account totaled \$226.95, which were included in your monthly billing and have been paid.

Please instruct us as to what you would like done with the cash balance of \$80,682.62.

If you have any questions concerning this information, please call me at 223-7399.

Sincerely,



Peggy Sime
Customer Service Representative

PS/dp:1904i(2)

ESCHEATED ESTATE OF:	NAME OF SECURITY SOLD	AMOUNT REC'D
FULLER, EARL W.	214 SHS PHILADELPHIA ELECTRIC COMMON STOCK	4,282.00
FULLER, EARL W.	642 SHS NSP COMMON STOCK	21,097.05
JONES, JOHN HENRY	\$500 MISSOURI PACIFIC RR 4.25% DUE 1/1/2005	908.78
JONES, JOHN HENRY	\$500 MISSOURI PACIFIC RR 4.25% DUE 1/1/1990	1,104.40
JONES, JOHN HENRY	\$1,000 NORTHERN PACIFIC RR 3% DUE 1-1-2047	1,196.00
LARSON, PHILIP DAVID	500 SHS NSP COMMON STOCK	16,424.53
LARSON, PHILIP DAVID	10 SHS CITIES SERVICE CO., DELAWARE	741.94
MACHUGA, WALTER	\$5,341 U.S. SAVINGS BONDS SERIES E	5,341.38
MATHEY, ALEAN & MINA	900 SHS NSP COMMON STOCK	29,586.54
		80,682.62

Total amount received includes sale of security and any dividends
or interest money collected.

MINNESOTA FINANCE DEPARTMENT
400 CENTENNIAL BUILDING

REASURER'S OFFICE
CASH RECEIPTS

DEPOSIT WITH STATE TREASURER

LOCATION NO: 064
DEPOSIT NO: 422
DATE: 04-25-89

TRAN	FY	INDEX	ITEM	CLS	PD	AMOUNT	SOURCE	TRAN NO.	DESCRIPTION
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1A20	9	13100	99-10	820	10	80,682.62	64990		Escheated Estates
									Several securities sold for various Estates thru 1st Bank St. Paul

see attached

cc: Attorney
General's Office
340 Bremer Tower
Michele Olson

TOTAL 80,682.62


AUTHORIZED SIGNATURE

STATE TREASURER STAMP

TREASURER'S OFFICE
CASH RECEIPTS

80,682.62 CASH RECEIPTS

LOCATION NO: 064
DEPOSIT NO: 422
DATE: 04-25-89

80,682.62 TOTAL



STATE OF MINNESOTA
OFFICE OF THE STATE TREASURER
ST. PAUL 55155

MICHAEL A. McGRATH
Treasurer

303 State Administration Building
50 Sherburne Avenue
St. Paul, Minnesota 55155
(612) 296-7091

February 27, 1989

TO: Members, State Board of Investment
FROM: Michael A. McGrath, State Treasurer
SUBJECT: Escheated Property

The following is a status report on escheated property:

1) Securities Sold

2,042	shares of Northern States Power Common Stock	\$66,025.86
214	Shares of Philadelphia Electric Common Stock	4,164.30
1,000	Bond of Northern Pacific Railway 3½ due 1/1/2047	806.25
10	Shares of Cities Service	566.45*
500	Bond of Missouri Pacific Railway 4.25½ due 1/1/2005	228.13*
500	Bond of Missouri Pacific Railway 4.25½ due 1/1/1990	423.75*
	Accrued Interest and Dividends or securities sold	<u>3,126.50*</u>
	Total Proceeds Received	\$75,341.24

2) Securities in re-registration (to be sold)

1,200	United States Savings Bonds	<u>5,350.00</u>
	Total Estimated Value	\$80,691.24

* Additional proceeds since my December 7, 1988 report.

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
St. Paul, MN 55155
Tel. (612) 296-3328
FAX: (612) 296-9572

February 22, 1989

TO: Howard Bicker
FROM: Harold Syverson
RE: Escheated Property Liquidation

Sales and redemptions of the following issues have been completed:

<u>Shares/Face</u>		<u>Net Proceeds</u>
2,045	Northern States Power	\$66,025.86
214	Philadelphia Electric	4,164.30
\$500	Missouri Pac. RR. 1st Mtg Ser C 4.25% 1-1-05	228.13
\$500	Missouri Pac. RR. 1st Mtg Ser B 4.25% 1-1-90	423.75
10	Cities Service	566.45
	Accrued Interest and Dividends	<u>3,932.75</u>
	Total Proceeds Received	\$75,341.24

The remaining issues to be liquidated are \$1,200 in U.S. Series E Savings Bonds valued at \$5,350 (estimated). These Bonds have been submitted to the Federal Reserve Bank for redemption.

NOTICE

State of Minnesota
Office of the Legislative Auditor
Veterans Service Building • St. Paul, MN 55155
612/296-4708

MAR 2 1989

March 1989

STATEWIDE AUDIT MANAGEMENT LETTERS AND AUDIT REPORTS FISCAL YEAR 1988

The Office of the Legislative Auditor has released the Management Letters listed below as part of the annual statewide audit. The statewide audit focuses on the most significant state financial systems. The audit produces three basic types of reports. First an audit opinion will be included with the state's Annual Financial Report, prepared by the Department of Finance. The report will be completed by the end of December.

Second, the audit satisfies the audit requirements of the federal government. A separate report entitled Financial and Compliance Report on Federally Assisted Programs will be issued in March 1989. This report is intended primarily for federal officials and summarizes financial information and conclusions on controls and compliance pertinent to federal programs.

Finally, the statewide audit results in a series of management letters or audit reports being issued to specific state departments. At the minimum, each department in which audit testing is conducted will receive a management letter discussing the results of the audit work applicable to that department. If supplemental audit work is performed on other financial activities of a particular department, then an audit report is issued in lieu of a management letter. The management letters/audit reports resulting from the 1988 statewide audit are listed on the reverse side of this notice. These documents are released soon after completion.

CURRENT MANAGEMENT LETTER/AUDIT REPORT RELEASES

The following Management Letters and Audit Reports contain no audit findings:

State Agricultural Society--Audit Report
State Board of Investment--Audit Report
Department of Military Affairs--Management Letter
Minnesota Veterans Homes--Management Letter

STATE TREASURER'S OFFICE--MANAGEMENT LETTER

The management letter contained one finding relating to debt service record keeping. We recommended that staff post all transactions to detail records in a timely manner and investigate all variances. We also recommended that the State Treasurer request information from paying agents on funds held by them at year end.

**STATEWIDE AUDIT
STATUS OF AUDIT REPORTS/LETTERS
AS OF MARCH 2, 1989**

<u>DEPARTMENT</u>	<u>AUDIT SCOPE</u>	<u>NUMBER OF AUDIT FINDINGS</u>	<u>REPORT DATE</u>
STATEWIDE AUDIT REPORTS/LETTERS ISSUED TO DATE:			
Higher Education Coordinating Board	2	1	9-15-88
Health	2	1	10-01-88
Agriculture	2	3	11-28-88
Public Employees Retirement Association	1	0	12-19-88
Investment Board	1	0	1-23-89
State Agricultural Society	1	0	2-08-89
State Treasurer	2	2	2-13-89
Veterans Affairs	2	0	2-14-89
Military Affairs	2	0	2-08-89

STATEWIDE AUDIT REPORTS/LETTERS TO BE ISSUED:

Administration	1
Community Colleges	2
Education	1
Employee Relations	1
Finance	1
Human Rights	2
Human Services	1
Jobs and Training	1
Labor and Industry	2
Minnesota State Retirement System	1
Natural Resources	2
Public Safety	2
Revenue	1
State Universities	2
Teachers Retirement Association	1
Trade & Economic Development	1
Transportation	2
Vocational Technical Education Board	1

EXPLANATION OF AUDIT SCOPE CODINGS:

- 1/ Indicates an expanded financial and compliance audit of the department.
The audit scope will include various financial activities beyond work necessary for the statewide audit.
- 2/ Indicates that the audit is limited to only what is necessary to complete the statewide audit.

**STATE BOARD OF INVESTMENT
FINANCIAL AND COMPLIANCE AUDIT
FOR THE YEAR ENDED JUNE 30, 1988**

JANUARY 1989

**Financial Audit Division
Office of the Legislative Auditor
State of Minnesota**



STATE OF MINNESOTA

OFFICE OF THE LEGISLATIVE AUDITOR

VETERANS SERVICE BUILDING, ST. PAUL, MN 55155 • 612/296-4708

JAMES R. NOBLES, LEGISLATIVE AUDITOR

Senator Randolph W. Peterson, Vice-Chairman
Legislative Audit Commission

Members of the Legislative Audit Commission

and

Mr. Howard J. Bicker, Executive Director
State Board of Investment

Audit Scope

We have completed a financial and compliance audit of the State Board of Investment (SBI) for the year ended June 30, 1988. Our audit was made in accordance with generally accepted auditing standards, and the standards for financial and compliance audits contained in the U.S. General Accounting Office Government Auditing Standards, and accordingly, included such audit procedures as we considered necessary in the circumstances. Field work was completed on December 1, 1988.

The objectives of the audit were to:

- express an opinion on the financial statements of the State Board of Investment for the year ended June 30, 1988;
- study and evaluate major SBI internal control systems, including a review of investment transactions and administrative disbursements; and
- verify that financial transactions were made in accordance with applicable laws, regulations, and policies, including Minn. Stat. Chapter 11A and other finance-related laws and regulations.

Management Responsibilities

The management of SBI is responsible for establishing and maintaining a system of internal accounting control designed to provide reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, and that transactions are executed in accordance with management's authorization and recorded properly. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of control procedures.

Because of inherent limitations in any system of internal accounting control, errors or irregularities may occur and not be detected. These limitations were considered when evaluating the effectiveness of SBI's system of accounting control. Also, projection of any evaluation of the

Senator Randolph W. Peterson, Vice-Chairman
Members of the Legislative Audit Commission
Mr. Howard J. Bicker, Executive Director
State Board of Investment
Page 2

system to future periods is subject to the risk that procedures may become inadequate because of changes in conditions, or that the degree of compliance with the procedures may deteriorate.

The management of SBI is also responsible for the agency's compliance with laws and regulations. In connection with our audit, we selected and tested transactions and records from the programs administered by SBI. The purpose of our testing of transactions was to obtain reasonable assurance that SBI had, in all material respects, administered their programs in compliance with applicable laws and regulations.


Conclusions

We have issued an unqualified opinion on the SBI financial statements for the year ended June 30, 1988. Our audit opinion, dated December 1, 1988, is included in the 1988 SBI Annual Report.

In our opinion, the SBI system of internal accounting control in effect on June 30, 1988, taken as a whole, was sufficient to provide management with reasonable, but not absolute assurance that assets are safeguarded against loss from unauthorized use or disposition, and that transactions are executed in accordance with management's authorization and recorded properly.

In our opinion, for the year ended June 30, 1988, SBI administered its programs in compliance, in all material respects, with applicable finance-related laws and regulations.

We would like to thank the State Board of Investment staff for the cooperation extended to us during this audit.


James R. Nobles
Legislative Auditor

January 23, 1989


John Asmussen, CPA
Deputy Legislative Auditor

**PRESENTATION TO
MINNESOTA STATE BOARD OF INVESTMENT**

MARCH 1, 1989

STATE OF MINNESOTA

BASIC RETIREMENT FUNDS

INVESTMENT PERFORMANCE

RELATIVE TO FUND OBJECTIVES

SINCE 12/31/1983

YEAR 1988

ACTUAL RATE-OF-RETURN

13.74%

12.51%

**POSITIVE RATE-OF-RETURN
(PRESERVATION OF CAPITAL)**

0.00%

0.00%

**RISK-FREE ASSET
(PRESERVATION OF PURCHASING POWER)**

7.11%

7.70%

**INVESTMENT POLICY
(REAL RETURN)**

14.45%

12.78%

**ACTIVE MANAGEMENT
(BETTER THAN AVERAGE)**

13.74%

12.51%

STATE OF MINNESOTA
BASIC RETIREMENT FUNDS
ASSET ALLOCATION INVESTMENT POLICY

<u>ASSET CATEGORY</u>	<u>ALLOCATION POLICY</u>	<u>BENCHMARK</u>
A. DOMESTIC EQUITY	60.0%	WILSHIRE 5000 + CASH
B. HIGH QUALITY FIXED INCOME	22.0	SALOMON BROAD + CASH
C. ALTERNATIVE INVESTMENTS	15.0	SPECIAL ASSET BNMKS
D. SHORT TERM INVESTMENTS	3.0	90-DAY US T-BILLS

	100.0%	

STATE OF MINNESOTA
BASIC RETIREMENT FUNDS
INVESTMENT PERFORMANCE INCREMENTS
RELATIVE TO FUND OBJECTIVES

	<u>YEAR 1988</u>	<u>SINCE 12/31/1983</u>
POSITIVE RATE-OF-RETURN (PRESERVATION OF CAPITAL)	0.00%	0.00%
RISK-FREE ASSET (PRESERVATION OF PURCHASING POWER)	7.11%	7.70%
INVESTMENT POLICY (REAL RETURN)	7.34%	5.08%
ACTIVE MANAGEMENT (BETTER THAN AVERAGE)	(0.71%)	(0.27%)
ACTUAL RATE-OF-RETURN	13.74%	12.51%

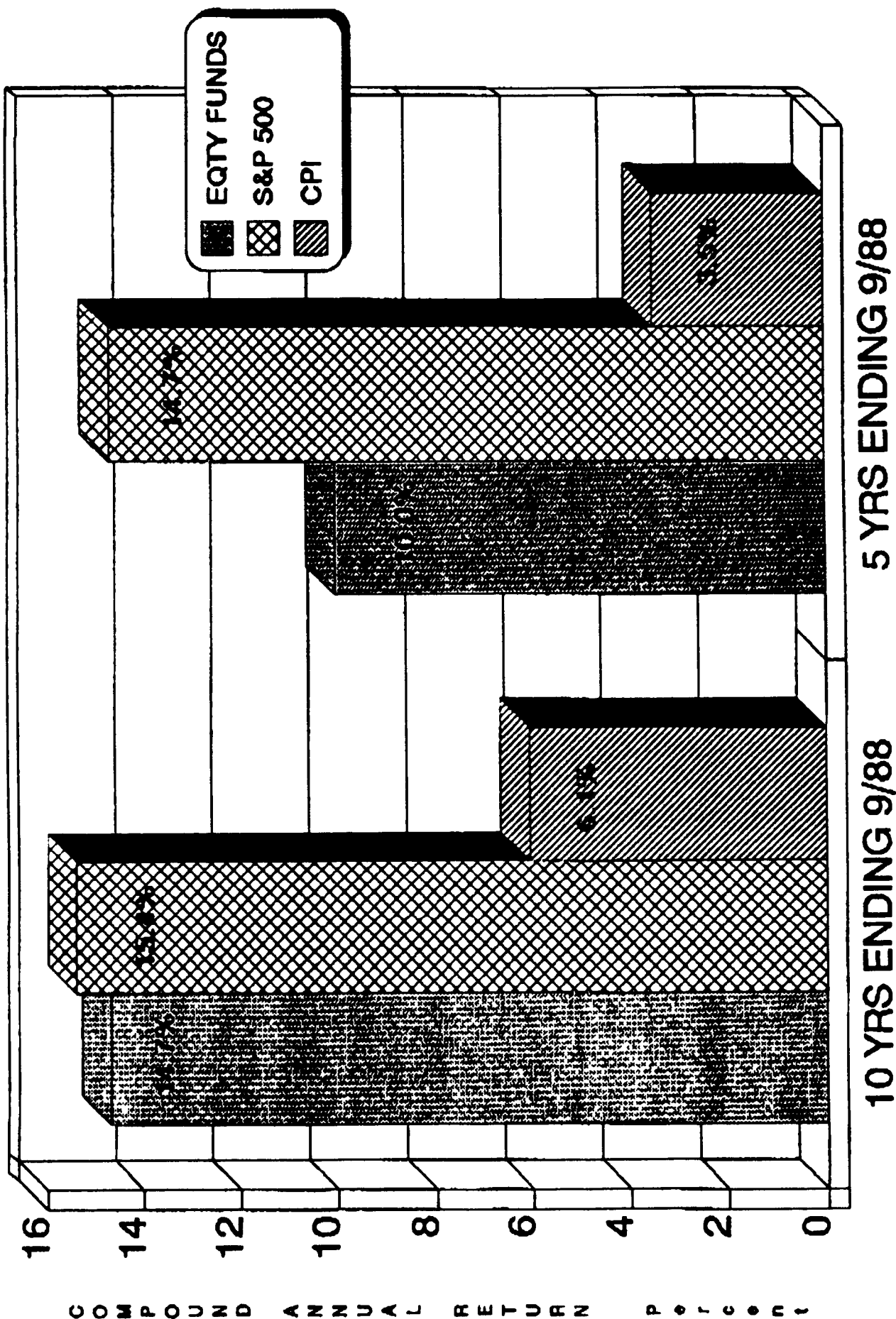
Active Equity Management Affirmative

- **Higher Portfolio Return Potential**
- **Protection in Down Markets**
- **Source of Investment Knowledge**
- **Improved Tools of Analysis**
- **Experience and Knowledge**
- **Current Passive Position**
- **100% Passive - Out of Mainstream**

Active Equity Management Negative

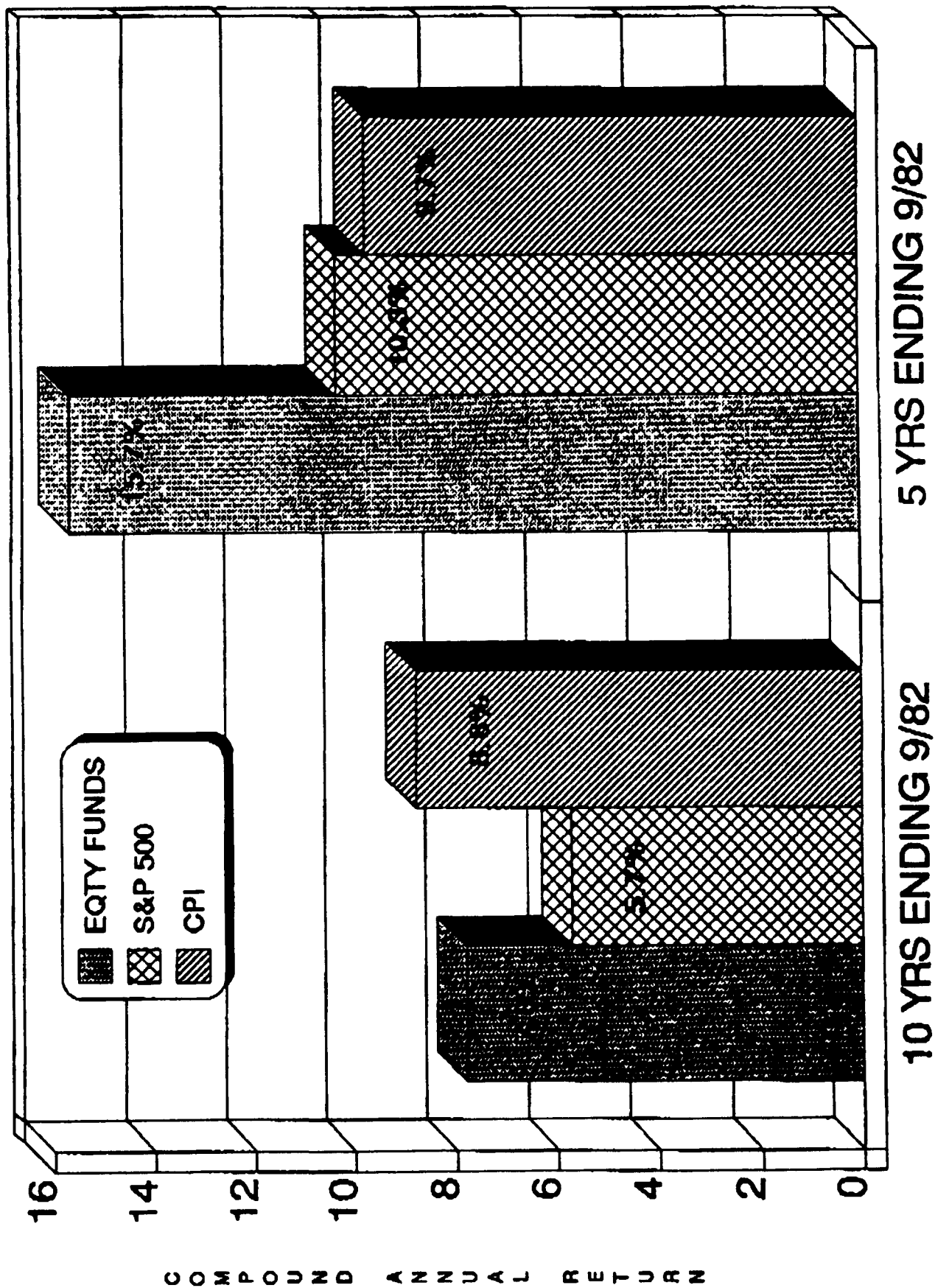
- **Additional Uncertainty**
- **Use of SBI Resources**
- **Management Fees**
- **Transaction Costs**

RELATIVE PERFORMANCE OF EQUITY MANAGERS



SOURCE: LIPPER

RELATIVE PERFORMANCE OF EQUITY MANAGERS



SOURCE: LIPPER



RECEIVED BY
MAR 1 1989
FEB 1989

February 27, 1989

Mr. Howard Bicker
Executive Director
Minnesota State Board of Investment
55 Sherbourne Avenue
St. Paul, MN 55155

Dear Howard:

As per your request we have developed an estimate of the cost of transitioning the existing Wilshire 5000 Index portfolio oriented toward the S&P 500.

As of February 23, 1989 we calculate the value of the fund to be \$2,696,789,750. Based upon the configuration as of this point we have determined that approximately \$808 million in securities would have to be liquidated and repositioned into S&P 500 names.

Rebalancing Summary

	Shares	Principal Amount	% of Fund
Sales	42,273,922	\$807,739,853	30.0%
Purchases	19,431,800	807,500,000	30.0

In estimating the cost of the rebalance, we have assumed that the maximum allowable period for transitioning is one month in order to keep the impact contained to as short a reporting period as possible. The cost estimates are based upon an analysis of the size of each position relative to the total shares outstanding for the company as well as a comparison of the position in each name relative to the average daily trading volume for that security. Securities were ranked by quintile of liquidity and estimates were developed for each quintile.

Portfolio Purchases

It would be our recommendation that futures be used to effect the purchases required to build an S&P 500 portfolio. Proceeds from our liquidation activities would be applied to the cheaper of S&P packages or S&P 500 futures contracts. Whatever futures positions are taken during this transition would be unwound as soon as we were able to take advantage of the futures selling at a premium to the underlying shares. While there is always uncertainty as to when those situations are likely to occur it is our experience that there is enough variability in the pricing of futures contracts such that these premiums could be captured. Consequently, arbitrage opportunities may reduce the cost of the purchase side of the transition.

Mr. Howard Bicker
Minnesota State Board of Investment
February 27, 1989
Page 2

Portfolio Sales

The strategy we would suggest to liquidate the non-S&P segment would employ "basket" or "program" trading techniques together with individual security trading techniques employed at Wilshire to acquire or liquidate difficult-to-trade issues. The least liquid segment of the non-S&P securities would be liquidated individually. These stocks trade infrequently, with corresponding large bid-asked spreads. Individual handling of these names would reduce the cost of trading without subjecting the fund to undue industry or market capitalization risk exposures. The more liquid stocks to be sold would be packaged together and divided into roughly forty equal tranches. These tranches would be executed as market sell orders when the measured price difference between the tranche to be sold and the S&P 500 (stocks or futures, whichever is cheapest) is tolerable. In this way, we would proceed in an orderly fashion from the Wilshire 5000 configuration to the S&P 500 configuration. We used this trading technique in November, 1988 to effect a transition from an S&P 500 Index Fund to a Wilshire 5000 Index Fund. We were able to trade \$400 million in stocks during two weeks with minimal market impact.

Cost Estimates

In general, the cost of trading can be broken into three components: brokerage commission, bid-offer spread, and market impact. Only the brokerage commission cost is easily measured or predicted. For this transition, we anticipate a brokerage commission rate in the area of one to two cents per share. Our prediction is based on current commission rates for "basket" or "program" trades. Many brokerage firms provide this service and compete aggressively on price. In addition, brokerage firms would compete aggressively merely to capture such a large piece of business. Care must be taken, however, in selecting a firm to execute these trades because the information value of this transition is high.

Contrary to current brokerage research, the bid-asked spread is not easily measured. For exchange traded stocks, the real spread is frequently hidden by exchange specialists and floor practices, as well as upstairs or third market trading. It is virtually impossible to measure the true spread in the over-the-counter securities market due to the lack of information regarding market-maker trade size. All in all, what you see on your Quotron screen is most certainly not what you will get in an actual trade. The following table gives rough estimates of the bid-asked spreads for stocks to be sold by quintile:

Quintile	Market Value	Shares	Average Price	Average Spread	Spread As %	Spread Cost
1	\$298,502,134	14,725,116	20.27	\$0.19	0.94%	\$1,398,999
2	196,021,016	9,371,182	20.92	\$0.25	1.20%	1,171,254
3	135,230,254	7,191,846	18.80	\$0.28	1.49%	1,007,034
4	97,373,342	5,942,129	16.39	\$0.32	1.95%	950,563
5	<u>80,613,107</u>	<u>5,043,649</u>	15.98	\$0.36	2.25%	<u>908,032</u>
	\$807,739,853	42,273,922				\$5,435,882

Mr. Howard Bicker
Minnesota State Board of Investment
February 27, 1989
Page 3

The strategy we suggest will always incur as a cost one-half of the spread existing at the time of the trade. By definition, market orders to sell occur at the bid price; this price may very well be different than the observable bid. Some sales may occur at prices above the observable bid, some at prices below. At what price a trade will take place is, obviously, impossible to predict. Without better information, we believe the above bid-asked spreads to be a reasonable assumption for the trading cost due to the spread. The spread cost, under these assumptions, for the liquidation is \$5,435,882.

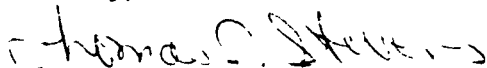
The last component of trading cost, and the most difficult to measure (let alone predict) is market impact. "Market impact" itself has many definitions; the one we are concerned with here is post-trade price influence. Program trading potentially incurs large market impact because it is a sale executed at the bid price (market order to sell) or a buy executed at the asked price (market order to buy) that can exhaust the short-term demand or supply for stock with a resulting immediate change in price.

By dividing the basket of liquid stocks into forty smaller tranches, we hope to minimize market impact subject to the constraint of completing trading within one month. This constraint forces us to crowd a large amount of trading activity into a short time period without regard to market conditions. Under these circumstances, it is conceivable we might incur large market impact costs to complete the trading activity.

We would predict this cost to be a function of the bid-asked spread. When demand or supply of a stock is exhausted in the short term, market makers adjust their spread down or up. This adjustment typically takes place by a shift downward (or upward for buys) roughly by the amount of the spread. This market impact is more likely to occur in the less liquid stocks. We are concerned that the trading technique we have to employ to complete the trading within one month would expose the fund to large, cumulative costs from these repeated price adjustments in one direction. This effect could cause costs to be much greater than we estimate here.

We estimate the total cost to the fund for the transition from the Wilshire 5000 Index to the S&P 500 Index to be the sum of commissions, \$1.6 million, bid-asked spread costs for both sales and purchases, \$5.4 million to \$7.9 million, and market impact, \$10 million to \$20 million: \$17 million to \$29.5 million. This represents from 1.1% to 1.8% of the total dollar amount to be traded to effect the transition.

Sincerely,



Thomas D. Stevens
Chief Investment Officer
Wilshire Asset Management

TDS/ldr

ALL SELLS

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	1476	41273722	607739653	100%	207%
NASDAQ	562	17368606	279060031	35%	210%
NEW YORK	825	20823152	460622592	41%	149%
AMERICAN	109	4057164	63057210	24%	591%

FIRST QUINTILE

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	299	14725115	298602134	100%	33%
NASDAQ	111	5786616	87361284	33%	39%
NEW YORK	178	8630729	203649059	61%	50%
AMERICAN	10	658051	7191791	3%	65%

SECOND QUINTILE

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	299	9371132	196021015	162%	130%
NASDAQ	111	3569756	67193700	35%	83%
NEW YORK	178	4996865	110322899	102%	146%
AMERICAN	10	904561	18504417	24%	207%

THIRD QUINTILE

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	299	7191845	135230254	143%	166%
NASDAQ	125	3290945	56916377	56%	155%
NEW YORK	162	3526605	70328627	76%	171%
AMERICAN	12	574296	7984750	11%	214%

FOURTH QUINTILE

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	299	5942129	97373342	192%	320%
NASDAQ	103	2743797	36802297	72%	303%
NEW YORK	171	2733952	44107270	81%	290%
AMERICAN	25	864380	16463775	44%	425%

FIFTH QUINTILE

EXCHANGE	#	SHARES	MKT VAL	%MV TOT	WTD VOL
	300	5043649	80613107	461%	901%
NASDAQ	112	2197472	30483893	177%	913%
NEW YORK	136	1390601	32214737	112%	546%
AMERICAN	52	1256076	17912477	173%	1521%

89.02/27 15:42 P01 *

W I L S H I R E

W

RECEIVED BY
MIN 551

FEB 1989

TELEFAX COMMUNIQUE

TO: Doug Gorence
(name)

FAX# 612-296-9572

PHONE# 612-296-9343

Minnesota State Board of Investment
(company)

FROM: Tom Stevens
WILSHIRE ASSOCIATES

FAX# _____

PHONE# 213-451-3051

DATE: 2/27/89

TIME: _____ am/pm

Number of pages (including cover sheet) 4

Wilshire Associates
1299 Ocean Avenue, 7th Floor
Santa Monica, CA 90401
(213) 451-3051

89. 02/27 15:42 P02 *

W I L S H I R E



February 27, 1989

Mr. Howard Bicker
Executive Director
Minnesota State Board of Investment
55 Sherbourne Avenue
St. Paul, MN 55155

Dear Howard:

As per your request we have developed an estimate of the cost of transitioning the existing Wilshire 5000 Index portfolio oriented toward the S&P 500.

As of February 23, 1989 we calculate the value of the fund to be \$2,696,789,750. Based upon the configuration as of this point we have determined that approximately \$808 million in securities would have to be liquidated and repositioned into S&P 500 names.

Rebalancing Summary

	Shares	Principal Amount	% of Fund
Sales	42,273,922	\$807,739,853	30.0%
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WILSHIRE ASSOCIATES
1209 OCEAN AVENUE
SANTA MONICA, CA 90401
213 451-3051

Mr. Howard Bicker
 Minnesota State Board of Investment
 February 27, 1989
 Page 2

Portfolio Sales

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QUINTILE	MARKET VALUE	SHARES	AVERAGE PRICE	AVERAGE SPREAD	SPREAD AS %	SPREAD COST
1	298502134	14725116	20.27	\$0.19	0.94%	1398999
2	196021016	9371182	20.92	\$0.25	1.20%	1171254
3	135230254	7191846	18.80	\$0.28	1.49%	1007034
4	97373342	5942129	16.39	\$0.32	1.95%	950563
5	<u>80613107</u>	<u>5043649</u>	15.98	\$0.36	2.25%	<u>908032</u>
	\$807,739,853	42273922				\$5,435,882

Mr. Howard Bicker
Minnesota State Board of Investment
February 27, 1989
Page 3

The strategy we suggest will always incur as a cost one-half of the spread existing at the time of the trade. By definition, market orders to sell occur at the bid price; this price may very well be different than the observable bid. Some sales may occur at prices above the observable bid, some at prices below. At what price a trade will take place is, obviously, impossible to predict. Without better information, we believe the above bid-asked spreads to be a reasonable assumption for the trading cost due to the spread. The spread cost, under these assumptions, for the liquidation is \$5,435,882.

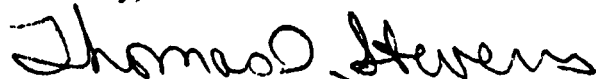
The last component of trading cost, and the most difficult to measure (let alone predict) is market impact. "Market impact" itself has many definitions; the one we are concerned with here is post-trade price influence. Program trading potentially incurs large market impact because it is a sale executed at the bid price (market order to sell) or a buy executed at the asked price (market order to buy) that can exhaust the short-term demand or supply for stock with a resulting immediate change in price.

By dividing the basket of liquid stocks into forty smaller tranches, we hope to minimize market impact subject to the constraint of completing trading within one month. This constraint forces us to crowd a large amount of trading activity into a short time period without regard to market conditions. Under these circumstances, it is conceivable we might incur large market impact costs to complete the trading activity.

We would predict this cost to be a function of the bid-asked spread. When demand or supply of a stock is exhausted in the short term, market makers adjust their spread down or up. This adjustment typically takes place by a shift downward (or upward for buys) roughly by the amount of the spread. This market impact is more likely to occur in the less liquid stocks. We are concerned that the trading technique we have to employ to complete the trading within one month would expose the fund to large, cumulative costs from these repeated price adjustments in one direction. This effect could cause costs to be much greater than we estimate here.

We estimate the total cost to the fund for the transition from the Wilshire 5000 Index to the S&P 500 Index to be the sum of commissions, \$1.6 million, bid-asked spread costs for both sales and purchases, \$5.4 million to \$7.9 million, and market impact, \$10 million to \$20 million: \$17 million to \$29.5 million. This represents from 1.1% to 1.8% of the total dollar amount to be traded to effect the transition.

Sincerely,



Thomas D. Stevens
Chief Investment Officer
Wilshire Asset Management

TDS/ldr

February 22, 1989

State of Minnesota,
State Board of Investment,
Room 105 - MEA Building,
55 Sherburne Avenue,
St. Paul, MN 55155.

Dear Sirs:

This is in reference to the Trust Unit Purchase Agreement (the "Purchase Agreement"), dated the date hereof, among The Standard Oil Company ("SOC"), The British Petroleum Company p.l.c. ("BP") and you.

1. Notwithstanding anything to the contrary contained in Sections 2(h) and 6(f) and 6(h) of the Purchase Agreement, the Purchaser shall not have any obligation to indemnify or hold harmless SOC, BP, or BP Exploration (Alaska) Inc., their officers, directors, employees and agents, or any person who controls any of them within the meaning of either the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, under the terms of the Purchase Agreement.

2. SOC shall allow any person or persons designated by the Minnesota State Board of Investment (the "Board"), within reason, including the Board's internal auditors, legislative auditors, independent accountants and actuaries, and any investment manager appointed by the Board, to inspect and audit the accounts and the books and

State of Minnesota

-2-

records of the Trust (as defined in the Purchase Agreement) relative to investment by the Trust and to receipts and disbursements and other transactions affecting the Trust.

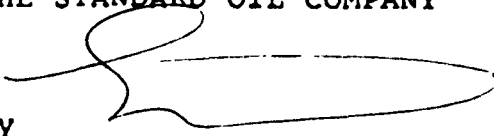
3. Your obligation under the terms of the Purchase Agreement to keep confidential Records (as defined therein) provided to you and matters relating to the Purchase Agreement is subject to the provisions of the Government Data Practices Act, Minnesota Statutes Chapter 13; it being understood that if a request for disclosure is made pursuant to such Act you shall, to the extent possible, claim the application of the "trade secrets exemption" from disclosure provided by such Act.

4. Each of SOC and BP hereby represent and warrant that it has not had more than 20 full time employees within the State of Minnesota during the year preceding the date of the Purchase Agreement.

Except as provided above, all the terms and provisions of the Purchase Agreement remain in full force and effect among SOC, BP and you.

Very truly yours,

THE STANDARD OIL COMPANY

By 

Printed Name: E. Whitehead

Title: Treasurer

Date:

State of Minnesota

-3-

THE BRITISH PETROLEUM COMPANY,
p.l.c.

By SLE ATTACHED
Printed Name:
Title:
Date:

ACCEPTED at New York, New York, as
of the date first above written.
STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

By Howard B. Bicker
Printed Name: Howard Bicker, State Board of Investment
Title: Executive Director
Address: 55 Sherburne Avenue-RM 105-MEA Building-Saint Paul, MN 55155
Telephone: (612) 296-3328
Telex: (612) 296-9572
Telecopy: (612) 296-9572

OFFICE OF ATTORNEY GENERAL
as to the Form and Execution

By Christie B. Eller
Printed Name: Christie B. Eller, Office of Attorney General
Title: Assistant Attorney General
Date: February 23, 1989

DEPARTMENT OF ADMINISTRATION

By Gerald T. Joyce
Printed Name: Gerald T. Joyce, Department of Administration
Title: Contract Administrator
Date: 2/23/89

State of Minnesota

-4-

DEPARTMENT OF FINANCE

By Frank C. Dowding
Printed Name: Frank C. Dowding
Title: Finance Operations Supervisor
Date: 2 23 87

State of Minnesota

-3-

THE BRITISH-PETROLEUM COMPANY,
P.L.C.

By X. J. A. Summ.

Printed Name: _____

Title: _____

Date: _____

ACCEPTED at New York, New York, as
of the date first above written.
STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

By _____

Printed Name: _____

Title: _____

Address: _____

Telephone: _____

Telex: _____

Telecopy: _____

OFFICE OF ATTORNEY GENERAL
as to the Form and Execution

By _____

Printed Name: _____

Title: _____

Date: _____

DEPARTMENT OF ADMINISTRATION

By _____


Printed Name: _____

Title: _____

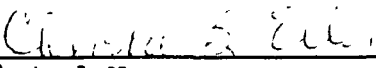
Date: _____

ACCEPTED at New York, New York, as
of the date first above written.


STATE OF MINNESOTA
STATE BOARD OF INVESTMENT

By 
Printed Name: Howard Bicker, State Board of Investment
Title: Executive Director
Address: 55 Sherburne Avenue-RM 105-MEA Building-Saint Paul, MN 55155
Telephone: (612) 296-3328
Telex: (612) 296-9572
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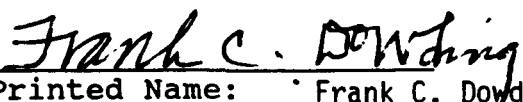
OFFICE OF ATTORNEY GENERAL
as to the Form and Execution

By 
Printed Name: Christie B. Eller, Office of Attorney General
Title: Assistant Attorney General
Date: February 23, 1989

DEPARTMENT OF ADMINISTRATION

By 
Printed Name: Gerald T. Joyce, Department of Administration
Title: Contract Administrator
Date: 2/23/89

DEPARTMENT OF FINANCE


By 
Printed Name: Frank C. Dowding
Title: Finance Operations Supervisor
Date: 2-23-89

for the sale of the Trust Units, whereupon when this Agreement is signed by BP and SOC it shall become a binding agreement between you, BP and SOC.

Very truly yours,

THE STANDARD OIL COMPANY

By

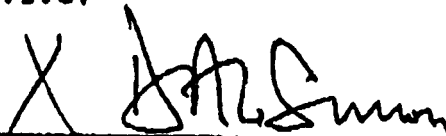


Printed Name: G. J. Dunn

Title: Vice President

THE BRITISH PETROLEUM COMPANY,
p.l.c.

By



Printed Name: D. A. G. Simon

Title: Managing Director