MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA STATE BOARD OF INVESTMENT

IAC REAL ESTATE SPECIAL MEETING

MAY 15, 1989

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

May 15, 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: Howard Bicker *Howard Bicker*

SUBJECT: Real Estate Consultant Final Report

In June 1988, the SBI retained the consulting firm of Laventhol & Horwath to conduct a special project review of the SBI's real estate program. The consultant's final report is attached for your review. An executive summary of its conclusions and recommendations is contained in pages 5-12.

On May 15, 1989, the Alternative Investment Committee of the Investment Advisory Council (IAC) met to discuss the report. During the next quarter, the Committee will develop a response and implementation plan based on its conclusions and recommendations. They plan to present the action plan to the Board at its September 1989 meeting.

The Committee will present a brief status report to the IAC and the Board at their June 1989 meetings. In the meantime, if you have any questions or comments on the report, please contact me.

cc: Board Member Deputies

AN ANALYSIS

OF THE

MINNESOTA STATE BOARD OF INVESTMENT'S
REAL ESTATE PORTFOLIO

FEBRUARY 1989

PREPARED BY:

LAVENTHOL & HORWATH
PHILADELPHIA, PENNSYLVANIA

Laventhol & Horwath
Certified Public Accountants/Business Consultants

Laventhol & Horwath
Certified Public Accountants

1845 Walnut Street
Philadelphia, PA 19103
(215) 299-1700
Telex 83-1396
Cable: HORWINTAS

February 3, 1989

Members of the Board
Minnesota State Board of Investment
St. Paul, Minnesota

To the Board:

In accordance with our contract dated July 13, 1988, Laventhol & Horwath is pleased to submit this report entitled "An Analysis of the Minnesota State Board of Investment's Real Estate Portfolio." The objective of our assignment was to assist the Minnesota State Board of Investment in evaluating its existing real estate portfolio and analyzing optimal asset allocation strategies for the real estate portfolio.

To accomplish these objectives, we prepared both a summary of the Minnesota State Board of Investment's existing real estate portfolio and an analysis of the portfolio's risk/return characteristics and diversification efficiency. As part of this study, we met with representatives of each of the seven investment managers who currently manage real estate assets on behalf of the Minnesota State Board of Investment. These meetings included discussions of both the quantitative aspects of each manager's portfolio performance as well as a qualitative discussion of each manager's future goals and objectives. On the basis of the research described in more detail in this report, we are able to make recommendations as to both the reallocation of Minnesota's real estate assets and the development of ongoing real estate investment strategies. The objective of these recommendations is to assist the Minnesota State Board of Investment in achieving a maximum portfolio risk-adjusted return.

Our conclusions, and the accompanying prospective performance analyses included herein, are based on estimates, assumptions and other information developed from research of the market, our knowledge of the industry and other factors, including certain information provided by you and your investment managers. We did not perform any independent verification of the data provided to us by the real estate managers. The sources of information and bases of the estimates and assumption are stated in the report. Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur. Therefore, actual results will vary from those described in our reports, and the variations may be material.

Further, we did not evaluate the effectiveness of the Minnesota State Board of Investment's management nor will we be responsible for future marketing efforts and other management actions upon which actual results will depend.

The terms of this engagement are such that we have no obligation to revise this report to reflect events or conditions subsequent to February 3, 1989. However, we are available to discuss relevant future events, including changes in the economy or financial markets, which may affect the portfolio.

This report is for management purposes only in connection with its deliberation concerning the administration of the pension plans under its management. Any other use would be inappropriate.

We recognize that maximizing the value and return of the portfolio is an important issue for the Minnesota State Board of Investment, and we look forward to working with you on an ongoing basis toward achieving that goal.

Laventhol & Horwath

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I. EXECUTIVE SUMMARY

Laventhol & Horwath ("L&H") was retained by the Minnesota State Board of Investment ("SBI") to perform an in-depth portfolio analysis of the SBI's real estate portfolio. The primary objective of our study was to review and analyze the progress and viability of the SBI's real estate investment strategy. Associated with this primary objective was the determination of the appropriate investment strategy going forward as well as recommending any suggested changes to the existing portfolio structure. The purpose of this executive summary is to briefly state the issues addressed in our analyses and to summarize our conclusions and recommendations.

Has the SBI real estate portfolio achieved its stated performance and diversification objectives?

- Real estate has provided the necessary return and diversification benefits to the SBI portfolio since the inception of the real estate investment program.

- Historical performance of real estate for both the ten year period between 1978 and 1987 and the seven years from 1981 to 1987 in which the SBI has been an investor in real estate is presented below:

	10 Year History 1978 - 1987		SBI History 1981 - 1987	
Asset Class	Mean	Standard Deviation	Mean	Standard Deviation
Inflation (CPI)	6.48%	3.86%	4.30%	2.00%
Stocks (S&P 500)	15.67	11.52	14.30	11.73
Bonds (Long-Term Index)	10.62	15.17	16.16	15.00
NCREIF Real Estate*	12.86	4.85	10.56	3.78
Minnesota Real Estate			9.46	3.25

* National Council of Real Estate Investment Fiduciaries

- As can be seen from the above table, real estate provides significant benefits to a portfolio in the form of both potentially higher rates of return for the entire portfolio and most importantly in its reduction of portfolio volatility through its low level of risk. These diversification benefits are even more apparent when the performance of real estate is correlated with that of other asset classes and including inflation. Typically, portfolio managers attempt to combine assets with negative correlation coefficients. The correlation attributes of real estate for the period of 1981 through 1987 is presented below:

Correlation with	SBI Real Estate	NCREIF
Stocks (S&P 500)	-0.214	-0.036
Bonds (Long-Term Index)	-0.500	-0.143
Inflation (Consumer Price Index)	0.857	0.821

- The SBI portfolio closely approximates the market portfolio, as defined by NCREIF, in terms of geographical distribution. The National Council of Real Estate Investment Fiduciaries (NCREIF) Real Estate Index is the principal industry performance index which measures the historical performance of unleveraged real estate investments made on behalf of qualified pension and profit sharing trusts. As of June 30, 1988, the NCREIF Index comprised assets in excess of $13.6 billion. In terms of property type distribution, the SBI is more heavily weighted towards the retail sector and slightly less so in the office building category. For the most part, the SBI portfolio is sufficiently diversified by property type and geographical region. Future investments should focus on selective investment opportunities with secondary consideration to their impact on portfolio composition.

- The annual performance of the SBI's real estate portfolio, on both a nominal and real return basis, since inception is presented in Exhibit I-1.

- Our findings regarding this issue are described in more detail in Chapters V and VI of this report.

<u>Are any adjustments necessary to the existing portfolio composition to ensure that the SBI can optimize the future performance of its real estate investments?</u>

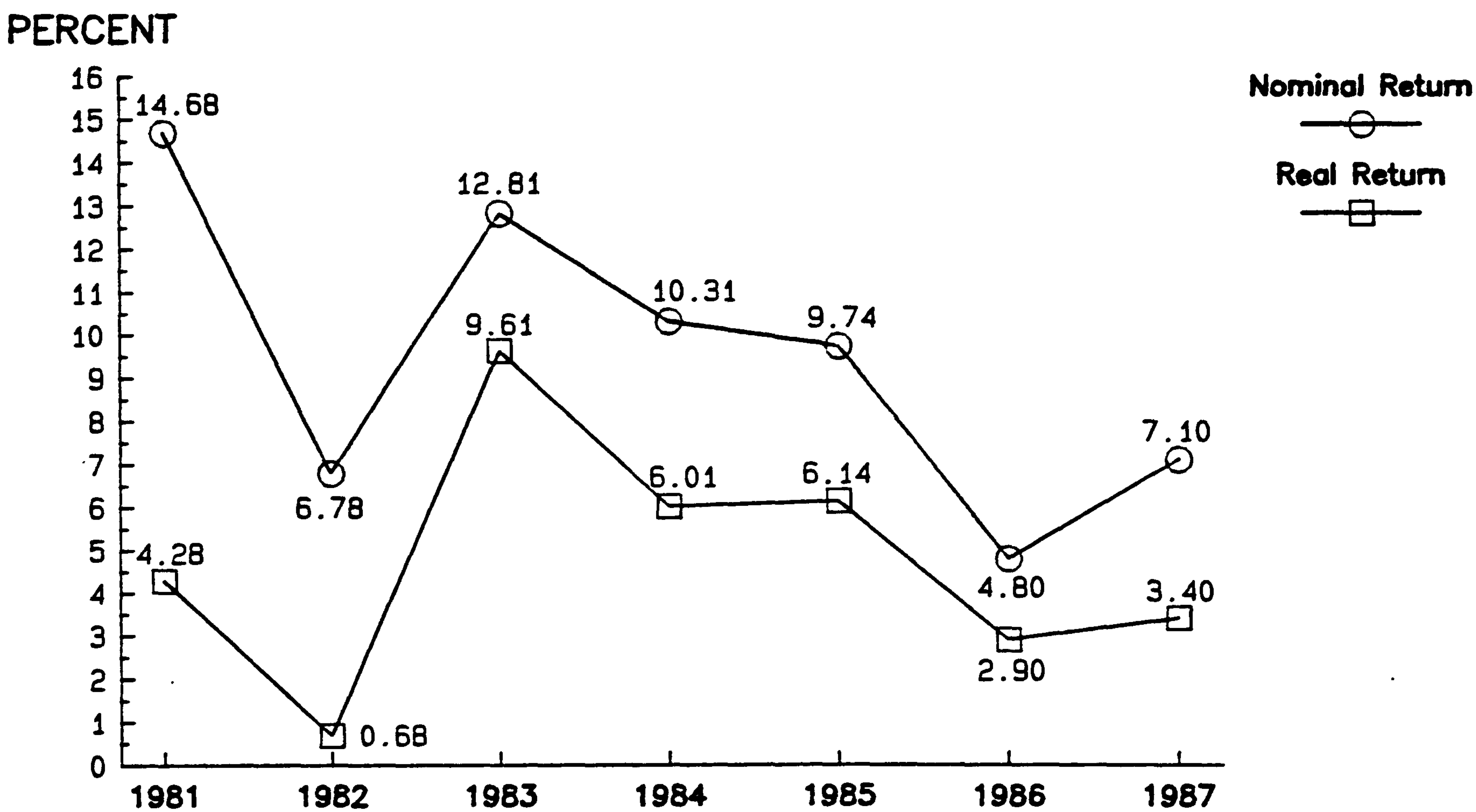
- The SBI should request withdrawal of its investment in PRISA in the most timely and efficient manner possible.

- Our analyses supporting this conclusion are presented in Chapter VIII of this report.

EXHIBIT I-1

MINNESOTA SBI

HISTORICAL RETURNS OF REAL ESTATE PORTFOLIO
1981 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Is it appropriate for the SBI to consider adjusting its investment parameters (i.e., investment type, number of participants, investment amount, etc.)?

- Increase the allowable percentage of participation by the SBI from 20 percent to 25 to 35 percent in any one investment;
- Decrease the required number of additional investor participants from four to two.
- Continue to not do direct investments and separate accounts where the SBI is the owner of 100 percent of the property.
- Continue the requirement for a qualified fiduciary.
- Continue to provide those investment managers selected by the SBI with discretionary authority.
- These conclusions are discussed in more detail in Chapter VIII of this report.

What adjustments, if any, should be made to the SBI's real estate investment strategy?

- The SBI should review and give strong consideration to investments in specified property investments, whether they be specified property commingled funds or single-property investments.
- The SBI should seek to use the co-investment concept in making its future investments. Co-investments as defined here differ from typical commingled funds in that they are structured as a partnership of tax-exempt investors who purchase either an individual or a small number of properties on a deal-by-deal basis rather than on a blind pool basis.
- The SBI should seek additional investment opportunities of an "alternative" or "non-traditional" nature such as residential, developmental, etc.

- The SBI should develop relationships with those ivestment managers who can satisfy these objectives on an ongoing basis.

- The SBI should set an investment target of a minimum six percent real return for its additional investments and require minimum real returns in excess of six percent for those investments which may have the potential of increased risk. This return objective was selected on the basis of the historical performance of the NCREIF Real Estate Index which is a relatively low risk portfolio.

- These conclusions are discussed in more detail in Chapter VIII of this report.

<u>What should be the ongoing investment strategy for the real estate component of the portfolio?</u>

- Approximately one-fourth of the total funds available for future investment should be allocated to a maximum of two specialized commingled funds oriented towards such investments as apartments, self-storage, mobile homes, predevelopment land, targeted geographical areas, opportunistic renovation and development. Total funds available for future investment include potential withdrawal proceeds from Prudential of approximately $63 million as of June 30, 1988 and the SBI's current uncommitted allocation to real estate of approximately $55 million as of June 30, 1988. Existing investments, other than Prudential, are recommended to remain intact. It should also be noted that the definition of specialized commingled funds used above does not include those funds as sponsored by TCW and AEW/State Street Bank. To the extent possible, the funds selected should include specified property portfolios. This will permit the SBI to more completely evaluate the potential investment opportunities.

- The remaining unallocated funds should be allocated to no more than two investment managers oriented towards identifying and implementing co-investment opportunities for their clients.

- In evaluating potential investment managers to assist the SBI in implementing the strategies outlined above, the SBI should continue to use the following selection criteria:

  - ability to define an investment strategy
  - historical performance
  - stability of key personnel
  - fee structures
  - asset management capabilities
  - reporting procedures
  - appraisal policies
  - underwriting/acquisition processes
  - client references
  - investment allocation policies
  - research capabilities
  - fiduciary status

- Depending on the time necessary for Prudential to refund the SBI's withdrawal request from PRISA, it can be expected that it will take a minimum of approximately 12 to 15 months to implement these recommendations and approximately 24 to 30 months for the managers and funds selected to invest the funds in real estate.

- Our analyses supporting these recommendations are presented in Chapter VIII of this report.

<u>What adjustment, if any, should be made to the SBI real estate investment strategy to take into account potential liquidity concerns of the SBI and the possible need to explore the market timing of its real estate investments?</u>

- Our analysis indicated that the SBI should be minimally concerned with the issues of liquidity and market timing as they relate to real estate since these factors have minimal impact on the long-term performance of an asset class such as real estate.

- These issues are discussed in more depth in Chapter VII of this report.

difference between the appraised value in the previous year and the actual proceeds from sale, net of selling expenses. These adjustments are meant to reflect the actual realized gains from the sale of a property, instead of relying solely on appraised values in calculating property returns.

At any one time all of the open-end funds have significant amounts of cash equivalent investments. However, our rate of return analysis was performed only on real estate. Thus there could be significant differences between the funds' reported return and the return based on our computation. For the purpose of this study, fund managers should be evaluated on real estate performance alone, and market timing or money market performance considerations should be excluded. This is particularly true with start-up funds, since they will have a much larger proportion of total assets in cash equivalents, which could bias their reported returns upward or downward depending on money market versus real estate performance.

MEAN AND STANDARD DEVIATION

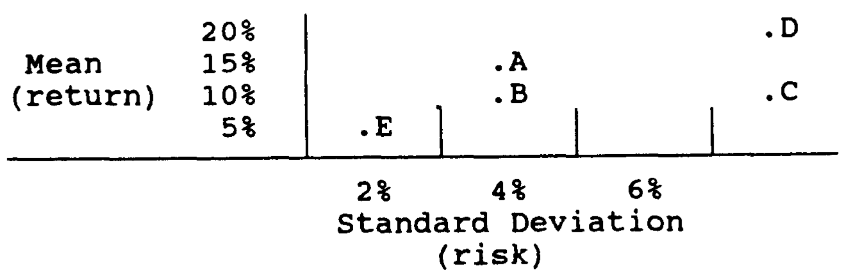
Arithmetic mean (average) annual rates of return were calculated for each of the various sub-categories of the overall portfolio, including: fund; manager; property type; and, geographic region. These mean returns allow for performance comparisons over time for each category. This, in turn, allows for recommendations as to the optimum portfolio composition which will maximize returns, while minimizing overall portfolio risk. Arithmetic means rather than geometric means were utilized as this methodology was considered more appropriate for the accompanying risk analyses.

Risk was measured by calculating the standard deviation from the annual returns. Standard deviation, the most common risk measure, quantifies the degree of fluctuation of a series of observations around their mean. Although expressed as a percent, standard deviations do not represent percentage changes. They measure fluctuations in percentage points. Data with the same mean will vary more with a higher standard deviation than with a lower one. Assuming real estate returns were normally distributed with a mean of 12 percent and a standard deviation of 3 percent, then average returns would be between 9 percent and 15 percent (+/-1 standard deviation) two-thirds of the time. A given return within +/- 2 standard deviations would occur with a 97 percent probability. Throughout this analysis, when we mention "risk", we are implicitly referring to the standard deviation of the returns.

MEAN-STANDARD DEVIATION EFFICIENCY

An investor's risk tolerance plays a large part in determining the composition of the portfolio which that investor will seek. An investor with a higher risk tolerance will typically pursue those investment vehicles with higher standard deviations, provided this risk is rewarded with higher mean returns. There is no absolute formula for determining an optimal risk/return trade-off. The level of risk to be undertaken will depend on the preference of the investor, the desired rate of return, and the willingness to accept higher risk in the hope of realizing some incremental higher rate of return.

The diagram below plots risk versus return for five hypothetical investment vehicles:



By comparing asset A with asset B, we can see that A is "better" since it gives a higher return with the same level of risk. Likewise, B is "better" than asset C since it gives the same return at a reduced level of risk. The term "mean-standard deviation efficient" is used to describe an asset which is "better" in a risk-return context than another asset. Alternately, it could be said that asset B "dominates" asset C.

In the above scenario, it should be noted that neither asset A nor asset D dominates the other, since A has both a lower return and lower risk than D. Assets A, D and E are all mean-standard deviation efficient. Assets B and C are inefficient and should not be included in an investor's portfolio. From the above diagram, a strong argument could be made for the inclusion of either asset A, D or E in an investor's portfolio, depending upon the portfolio manager's desire to assume additional risk in order to realize potentially higher mean returns. However, before a decision is made, it is also necessary to examine the potential interaction between each of the assets under consideration and the other investment vehicles in the portfolio. This interaction between various asset classes is defined by the correlation coefficients between the vehicles.

CORRELATION COEFFICIENTS

A correlation coefficient is a measure of how the returns of any two assets vary over time relative to each other. Portfolio risk can be greatly reduced by combining assets which are negatively correlated. Consider the following table of annual rates of return for assets A through D:

	Year	Asset A	Asset B	Asset C	Asset D
	1	10	6	10	6
	2	15	9	5	6
	3	5	3	15	6
	4	5	3	15	6
	5	20	12	0	6
	6	10	6	10	6
Mean		10.83	6.50	9.17	6.00
Std. Dev.		5.34	3.20	5.34	0.00
CC with A		1.00	1.00	- 1.00	0.00

In this table, "CC with A" means the correlation coefficient of a particular asset with asset A. Asset A is, of course, perfectly correlated with itself. Asset B is also perfectly correlated with asset A (CC=1). This does not imply that the returns on A and B are equal, but rather that B varies in the same direction and in the same relative amount as A. Likewise, a correlation coefficient of .5 means that asset B varies in the same direction as asset A, but only half as much. Asset C, on the other hand, has a correlation coefficient with asset A of -1. It is perfectly negatively correlated with A. Finally, asset D is unrelated to asset A (CC=0).

Now let us consider four different portfolio allocations. Portfolio 1 will include 100 percent of asset A and portfolios 2, 3, and 4 will include 50 percent of asset A and 50 percent of assets B, C, and D, respectively. The "best" portfolio will be the one with the highest return and lowest risk. The mean and standard deviation for each of the four portfolios is shown in the table below and in Exhibit III-1.

	Portfolio	Mean	Standard deviation
1.	100% A	10.83	5.34
2.	50%A, 50%B	8.67	4.27
3.	50%A, 50%C	10.00	0.00
4.	50%A, 50%D	8.42	2.67

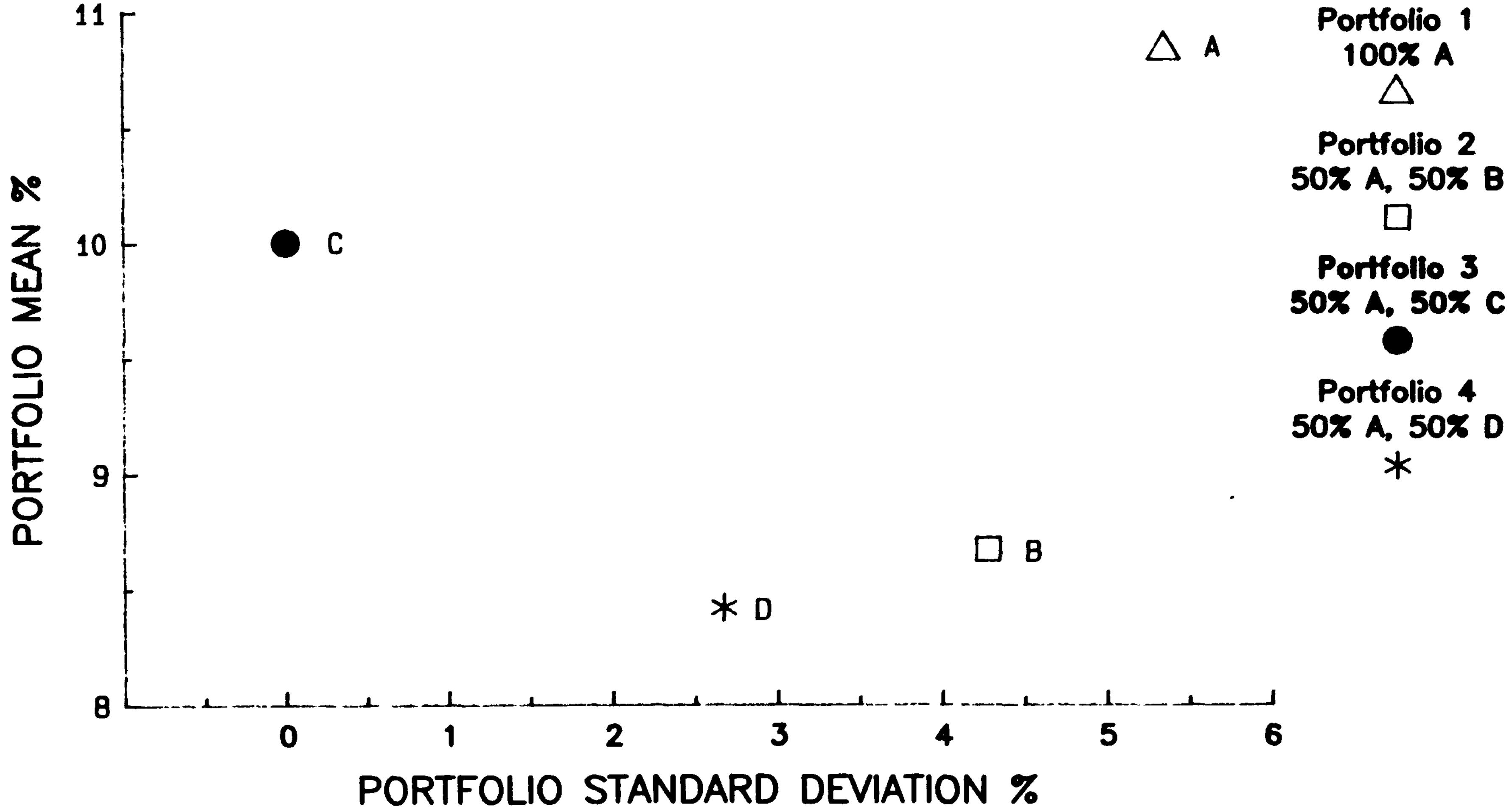
Portfolio 1 is the standard for comparison. Since asset A has the highest mean, the portfolio containing only asset A will also have the highest mean. However, it also has the highest risk. Adding any of the other assets to the portfolio will reduce both the mean (since all of the other assets have lower means) and the standard deviation. This reduction of the standard deviation is what we refer to as the diversification benefit.

Portfolios 1 and 3 are mean-standard deviation efficient. Portfolio 1 is efficient because it has both the highest return and the highest risk. Portfolio 3 combines assets A and C. Since those two assets are perfectly negatively correlated (CC= -1), the resulting portfolio has no risk. That is, the standard deviation of the portfolio is zero. The mean return on the portfolio, 10.00%, is slightly lower than the maximum obtainable mean, 10.83%. So the complete elimination of (portfolio) risk was obtained at the cost of a slight reduction in portfolio return.

EXHIBIT III-1

MEAN VS. STANDARD DEVIATION

FOR FOUR HYPOTHETICAL PORTFOLIOS



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Portfolio 2 and 4 are inefficient. Portfolio 4 combines assets A and D. These two assets are uncorrelated, CC = 0. By combining these two assets, we achieve a much lower risk than in the 100% asset A case, but we also earn a much lower return. Portfolio 2 combines two assets, A and B, which are perfectly correlated. While this combination does reduce the risk of the portfolio, it does not reduce portfolio risk as much as would the addition of assets C or D.

The point of this example is to show that portfolio risk can be greatly reduced by combining assets which are negatively correlated (such as assets A and C). Combining assets which are not correlated with each other (such as assets A and D) will also reduce portfolio risk. Overall, it can and will be shown that real estate has a negative or low correlation with both stocks and bonds. Based on this fact, real estate has been a desirable addition to Minnesota's pension fund portfolio. The eleven real estate funds in which the SBI is an investor each have different correlation coefficients with stocks and bonds. In addition to analyzing the mean and standard deviation of each of the funds, their correlation coefficients will also be computed. All three of these factors affect the mean and standard deviation of the entire pension fund portfolio. Using this information, recommendations will be made as to the elimination of those fund managers, if appropriate, that will allow for the simplication of Minnesota's real estate portfolio management, without the disadvantage of reduced diversification, and possibly to provide greater long-term performance and/or diversification.

IV. ANALYSIS OF INDIVIDUAL FUNDS AND MANAGERS

This section of the report will give an overview of Minnesota SBI's investments in real estate, as well as detailed analyses of each of the real estate funds in which the fund has investments.

As of December 31, 1987, the most recent date for which data was available for our study,the SBI had real estate investments with a combined estimated market value as of the most recent fiscal year for the SBI of June 30, 1987 in excess of $423 million. This represents investments made in 11 various open- and closed-end commingled funds. In addition, the SBI had made a commitment to invest in one additional closed-end fund, which had not closed on any properties as of December 31, 1987.

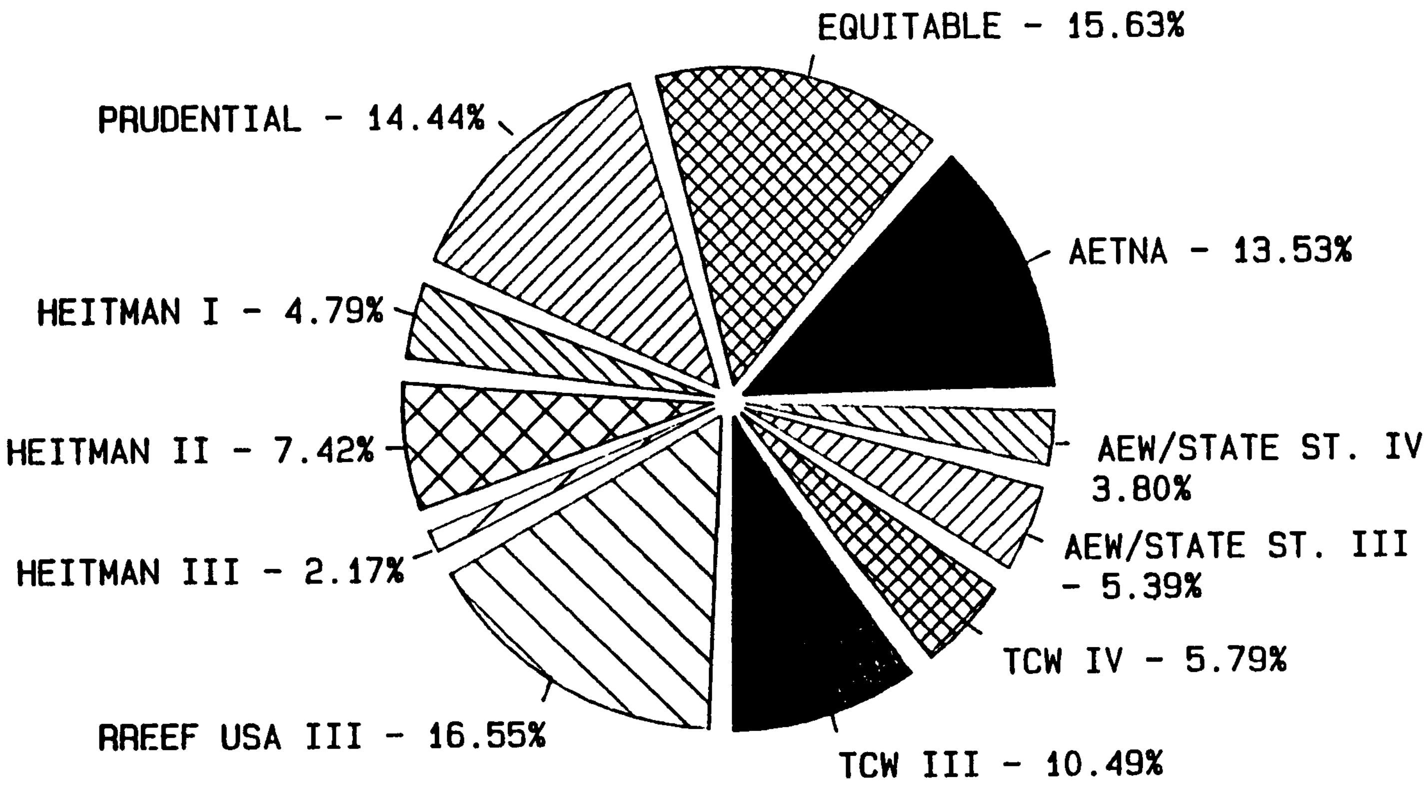
The Exhibit IV-1 shows the percentage invested in each fund. The three open-end funds, managed by Prudential, Aetna and Equitable, account for approximately 43.6 percent of Minnesota's overall real estate portfolio. The remaining 56.4 percent is allocated among eight closed-end funds.

Exhibit IV-2 shows Minnesota's investment in each of the eight property types identified in our analysis as of December 31, 1987. These figures were calculated by multiplying the percentage share that each fund has invested in each property type by the percentage share of Minnesota's total real estate assets in each fund. Not surprisingly, Minnesota's portfolio contains a strong emphasis on the three core property types, office, retail and industrial/warehouse, with the remainder of the investments spread among the other five property types.

Similarly, Exhibit IV-3 shows the distribution of Minnesota's real estate investments by geographic region of the property. Four regions were used: Northeast, South, Midwest and West. The states which comprise each of these regions are listed in Exhibit IV-4. This geographical breakdown is similar to that utilized by the largest institutional real estate performance index, as published by the National Council of Real Estate Investment Fiduciaries ("NCREIF").

EXHIBIT IV-1

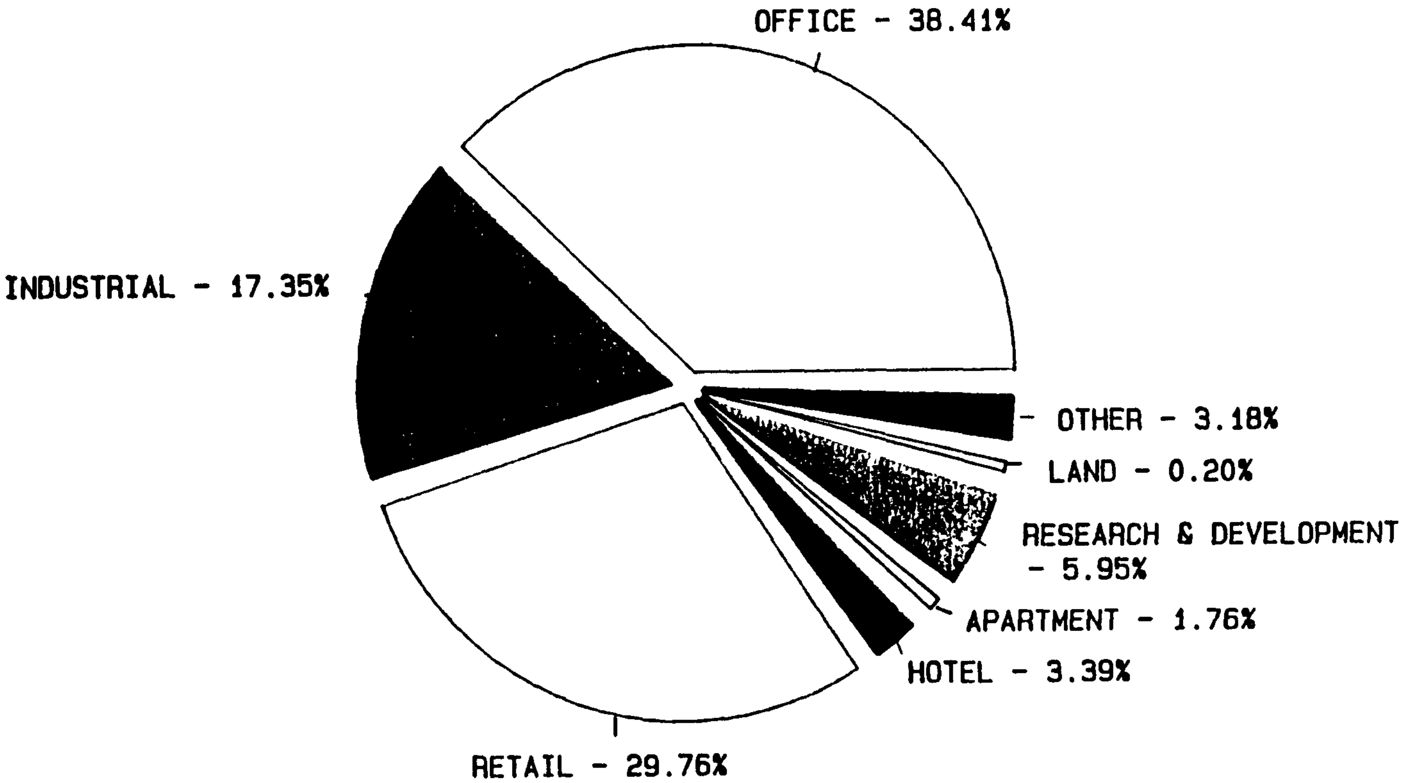
MINNESOTA SBI
PERCENT INVESTED IN EACH REAL ESTATE FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT IV-2

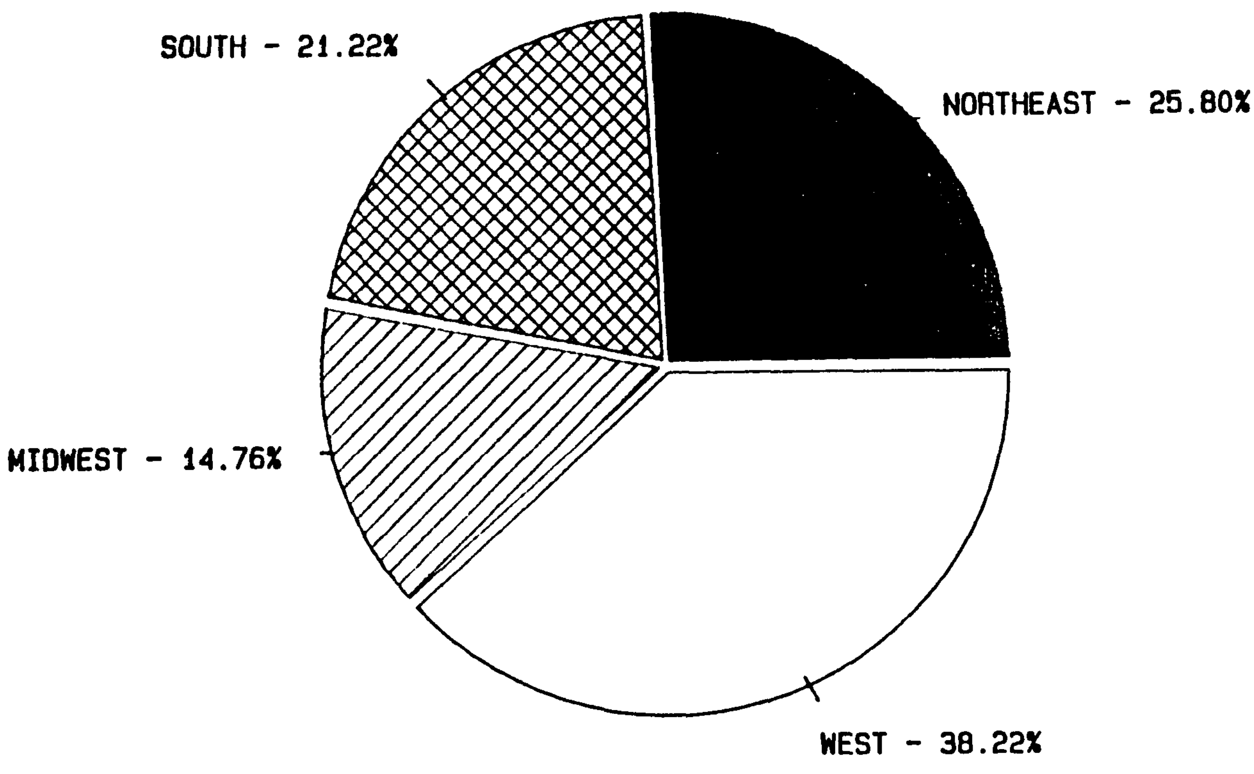
MINNESOTA SBI'S TOTAL ALLOCATION
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT IV-3

MINNESOTA SBI'S TOTAL ALLOCATION
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT IV-4

States Included in Each Geographic Region

Northeast	Midwest	South	West
Connecticut	Illinois	Alabama	Alaska
Delaware	Indiana	Arkansas	Arizona
District of Columbia	Iowa	Florida	California
Maine	Kansas	Georgia	Colorado
Maryland	Kentucky	Louisiana	Hawaii
Massachusetts	Michigan	Mississippi	Idaho
New Hampshire	Minnesota	North Carolina	Montana
New Jersey	Missouri	Oklahoma	Nevada
New York	Nebraska	South Carolina	New Mexico
Pennsylvania	North Dakota	Tennessee	Oregon
Rhode Island	Ohio	Texas	Utah
Vermont	South Dakota		Washington
Virginia	West Virginia		Wyoming
	Wisconsin		

The remainder of this section discusses each real estate fund individually. We describe each fund and explain its investment philosophy and valuation process. We also show the annual rates of return as reported by the fund managers themselves on a gross and net of fees basis and as calculated by L&H. These rates of return do not always agree. There are several reasons for this:

- Our analysis does not include either the income or asset base derived from non-real estate investments.
- As discussed in Section II, there are different ways to compute the rate of return in years where there are significant amounts of capital improvements. We used a consistent methodology throughout.
- Some funds may interpolate between appraisal dates when a year-end appraisal has not been done. We used the appraisal which was closest to the end of the year.
- The funds use different fiscal years and we used a consistent calendar year.

While some of the differences will even out over time, others are based on different conceptions of how returns should be measured. We believe our measure is appropriate for evaluating the performance of the real estate in each portfolio.

We also provide three graphs for each real estate fund that show:

- the annual rates of return over time as reported by the fund (before fees) and as calculated by Laventhol & Horwath;

- the property type distribution for the fund; and,
- the geographic distribution of the properties.

OPEN-END COMMINGLED

FUNDS AND MANAGERS

Aetna Realty Investors, Inc.

Fund: Real Estate Separate Account (RESA)

Origination of Fund: 1978

Fiscal Year End: June 30

I. Fund Description

- Open-end, commingled equity fund.

- Market value of total fund's net assets: $1.59 billion (December 31, 1987)

- Market value of Minnesota SBI's investment: $57.276 million (December 31, 1987), 3.59 percent of total.

- Portfolio diversified by property type and geographic location.

- Fund portfolio consists of urban and suburban office buildings, regional shopping centers, multi-use industrial, research and development facilities, and, on a more limited basis, apartments and hotels. Aetna's current strategy emphasizes larger retail centers, apartments and industrial facilities in selected markets and de-emphasizes office investments because of the generally overbuilt market.

- Properties are managed by a combination of outside management (incentive compensation) and Aetna in-house property inspectors. Many of the properties that are management intensive were acquired as a partnership interest through a joint venture. Often the joint venture partner is a sophisticated property manager.

II. Investment Philosophy

- Primary objective is to provide at least a five percent real rate of return over a three- to five-year period.

- Emphasizes initial cash returns as well as long-term appreciation.

- Will develop or purchase existing real estate as part of a partnership or on a wholly-owned basis.

- Purchase price of acquisition will equal but never exceed replacement cost.

- Historically, an essentially unleveraged portfolio; however, fund will assume attractive below-market financing.

- In response to the low interest rate environment in recent years, Aetna has decided to leverage a limited number of specific properties with stabilized cash flows. Leverage on any one property may range from 50 to 70 percent of its value, although debt will not exceed 25 percent of the market value for RESA's entire portfolio. Leverage currently equals 11.9 percent of RESA's total asset value.

- Structures inflation protection into all leases. Long-term leases comprise a very small fraction of all leases on portfolio properties.

- Aetna intends to respond to the current softness in the office market by emphasizing asset property management and restricting new investments in offices for RESA to only exceptional opportunities.

III. <u>Valuation</u>

- Appraisals performed annually by independent appraisers.

- Quarterly reviews by asset manager:

  - utilize market discount rates

  - compare to existing value and adjust accordingly

  - valuation committee review

IV. Historical Performance

Aetna (RESA):

Year	Aetna net	Aetna gross	L&H
1978	N/A	N/A	8.12%
1979	12.57%	13.60%	14.89
1980	16.65	17.70	23.09
1981	16.43	17.48	14.83
*1982	8.71	9.76	7.25
1983	11.81	12.87	18.30
1984	12.06	13.12	6.39
1985	8.46	9.52	1.80
1986	6.68	7.74	11.40
1987	5.84	6.90	6.60
Mean	11.02%	12.08%	11.27%
Standard deviation	3.69%	3.69%	6.47%

* - Year of initial investment by SBI
N/A - Data not available from manager

V. Discussion of Fund and Advisor

Aetna Realty Investors, Inc. is the real estate investment and operating division of the Aetna Life Insurance Company and serves as the investment manager for the Real Estate Separate Account. As with the other open-end funds in which the Minnesota SBI is an investor, RESA is designed to provide its investors with a core, well diversified portfolio of real estate investments, primarily of an equity nature.

In direct contrast to the other insurance companies who serve as investment managers for the SBI, Aetna utilizes a highly centralized approach to equity real estate investing. Although its mortgage investments are arranged through a series of correspondent firms located throughout the country, the equity investments most often are originated and implemented by the Hartford-based staff of Aetna. This centralized approach ensures a tighter control over its activities and a lessened possibility of miscommunication between portfolio strategists and actual investment personnel.

From our interviews and discussions with the Aetna personnel, it was apparent that Aetna was the most aggressive of the open-end funds in its use and application of asset management to its portfolio. Given the relatively static nature of many of the real estate markets, the ability to add and create additional value within the portfolio will be highly dependent upon the asset management capability of individual managers. Among the techniques utilized are: seeking expansion and renovation opportunities; tenant buy-outs as appropriate; market repositioning of properties; and financial restructuring.

Historically, the performance of RESA has been among the leaders of the open-end funds. They have not experienced the significant withdrawals that others have while continuing to achieve its goal of a five percent real return over a three- to five-year period. However, rather than reacting to changes in the market as they affect the portfolio's performance, the senior management has chosen to take a very proactive approach to ongoing portfolio strategy and management. This is especially important in light of Aetna's concerns regarding its investments in such troubled real estate markets as the Southwest and Sunbelt. Going forward, Aetna will be implementing the following steps:

- Increase research activity in order to target acquisition and disposition activity;

- Increase acquisitions of properties that will permit significant renovation opportunities;

- Seek to dispose of approximately $300 million of properties over the next 18 to 24 months which may not offer maximum future potential;

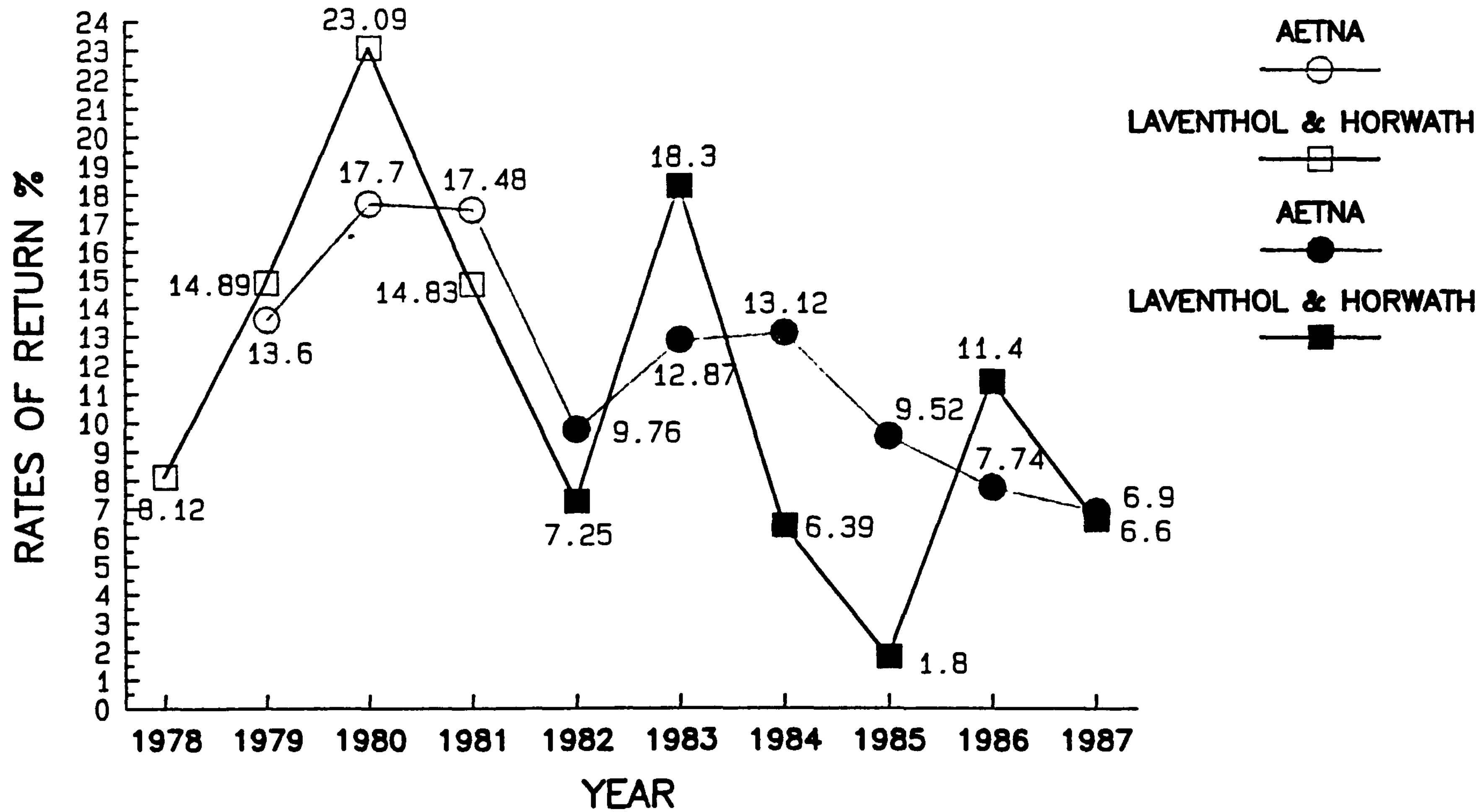
- Lessen the amount of forward commitment activity except where the development period is less than 18 months; and,

- Seek to make better use of the large size of the entire portfolio by increasingly acquiring larger properties which have historically provided greater portfolio stability and higher returns.

These steps will allow RESA to continue to be one of the most successful of the open-end funds. Given the historical performance of the RESA fund and its expected future ability to meet the objectives of its investors, the SBI should give consideration to maintaining its investment in this account.

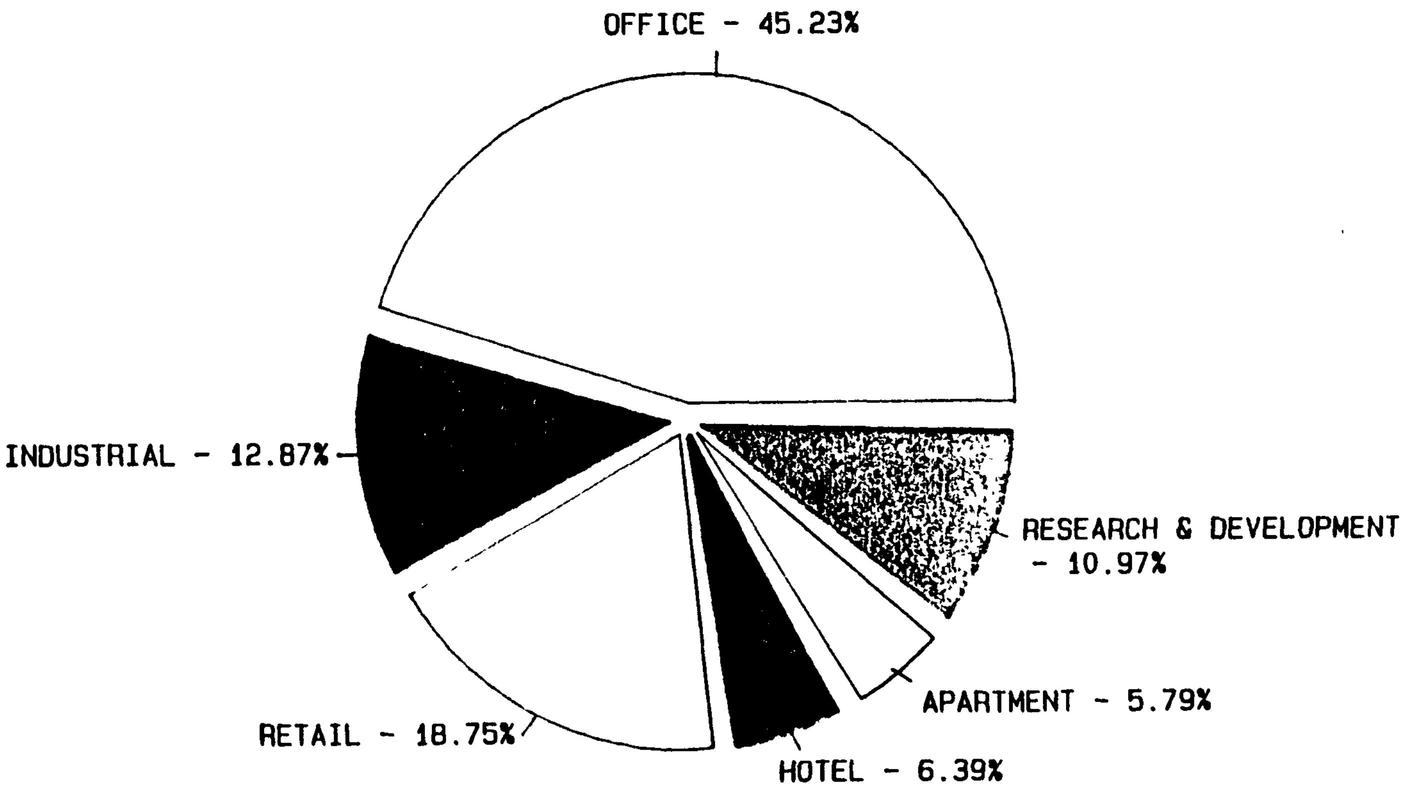
AETNA

ANNUAL RATES OF RETURN
1978 - 1987



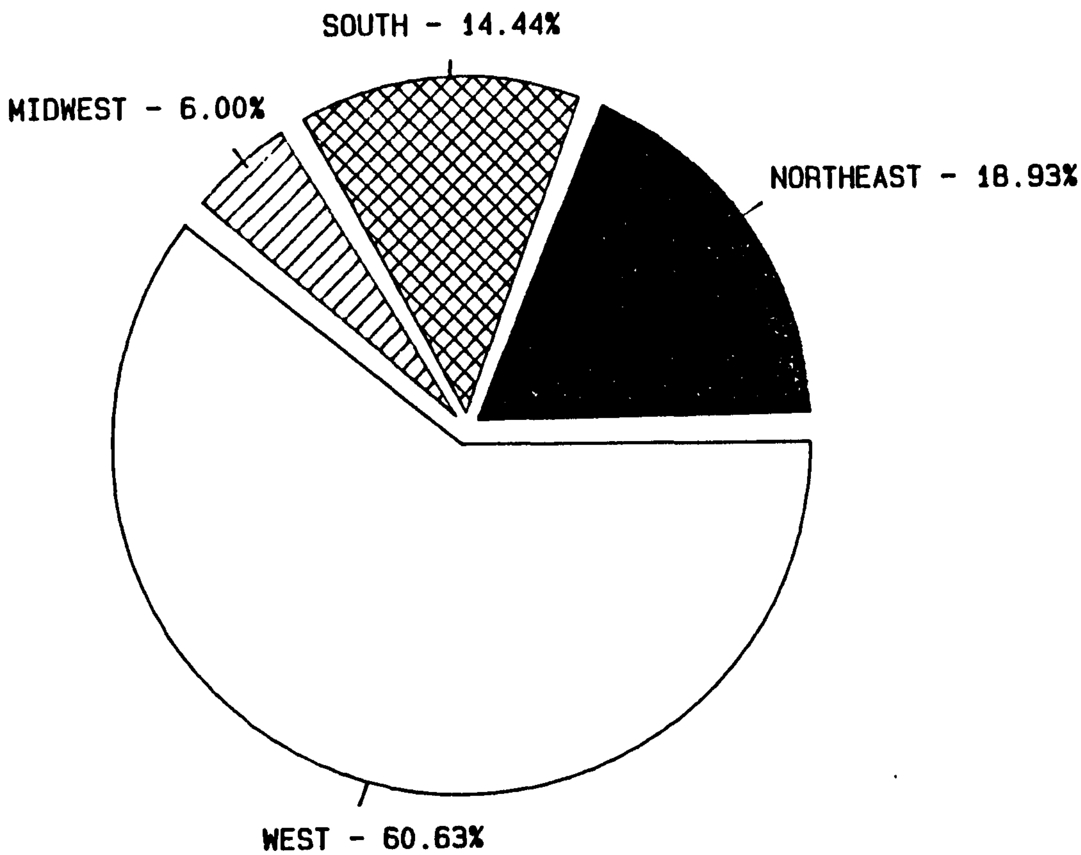
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

AETNA
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

AETNA
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Equitable Real Estate Investment Management, Inc.

Fund: Prime Property Fund

Origination of Fund: 1973

Fiscal Year End: December 31

I. Fund Description

- Open-end, diversified commingled equity fund.
- Market value of total fund's net assets: $3.067 billion (December 31, 1987)
- Market value of Minnesota SBI's investment: $66.14 million (December 31, 1987), 2.16 percent of total.
- Portfolio diversified by property type and geographic region.
- Portfolio consists of office buildings, industrial/ R&D facilities, regional shopping centers and a limited number of hotel properties. Equitable's current strategy emphasizes larger retail centers and downtown office buildings, and de-emphasizes smaller suburban properties, due to the overbuilt nature of many suburban office markets.
- Vast majority of properties handled by independent management companies and leasing agents.

II. Investment Philosophy

- Objective is to provide a four to six percent real rate of return over a long-term horizon.
- Emphasizes initial cash returns, as well as long-term appreciation.
- Essentially unleveraged portfolio; however, fund will assume attractive, below market financing.
- Majority of properties are wholly-owned, although joint venture opportunities are considered. Will also enter into debt arrangements where future equity is guaranteed.

- Strong emphasis on value enhancement through capital improvements and re-tenanting of existing properties.
- Normal holding period is greater than ten years, although apartment buildings would generally be sold after approximately seven years.
- Although it has set no specific disposition quotas, Equitable is attempting to improve the fund's performance by selective sales of underperforming properties.

III. Valuation

- Full independent appraisals performed upon acquisition.
- Quarterly appraisals performed by Equitable's in-house appraisal staff or outside appraisers.
- Each property appraised by independent appraiser once every three years.

IV. Historical Performance

Year	Equitable net	Equitable gross	L&H
1974	8.95%	10.2%	15.01%
1975	6.35	7.60	0.86
1976	8.95	10.20	2.47
1977	10.05	11.30	8.45
1978	12.75	14.00	12.69
1979	13.65	14.90	0.84
1980	11.35	12.60	11.83
1981	16.05	17.30	14.81
*1982	7.05	8.30	9.51
1983	17.25	18.50	15.78
1984	12.85	14.10	14.71
1985	8.45	9.70	22.25
1986	7.15	8.40	3.79
1987	8.15	9.40	11.61
Mean	10.64%	11.98%	10.33%
Standard deviation	3.30%	3.30%	6.39%

* - Year of initial investment by SBI

V. Discussion of Fund and Advisor

Equitable Real Estate Investment Management, Inc. is the real estate arm of the Equitable Life Assurance Society. Equitable is the second largest real estate investment manager among the insurance companies with assets under control exceeded only by Copley Real Estate Advisors, an affiliate of the New England. This growth has been accomplished principally by the activities of the Prime Property Fund (formerly known as Separate Account No. 8) as well as selected separate accounts and closed-end funds.

The Prime Property Fund itself has grown dramatically to the point where it is soon expected to be larger than the PRISA account of Prudential which has always been the industry's benchmark and leader. This growth has been the result of the creation and implementation of a flexible investment policy, which combined with the financial and real estate resources of the Equitable, permits the Fund to assume limited riskier situations which provide for greater potential performance benefits to investors. This is demonstrated by its recent entrance into the apartment sector for the Fund, its continuing involvement in selected development opportunities and its strong commitment to redevelopment and renovation of existing properties within the portfolio. Equitable was one of the first of the investment managers, and the most successful, to identify the greater return possibilities available from redevelopment of existing investments as opposed to making new investments.

As with many of the life insurance companies, Equitable utilizes a very decentralized approach to its actual real estate investment operations, while maintaining centralized control over portfolio strategy. The identification and implementation of actual real estate investment opportunities are the responsibility of the twelve regional operations within Equitable. These regional operating units are also responsible for ongoing asset management. However, the final decision-making responsibility rests in the hands of the senior real estate staff based in both New York and Atlanta. In addition, the headquarters staff is responsible for overall portfolio strategy development and management.

As opposed to other insurance companies and investment managers, Equitable does not primarily utilize sophisticated real estate research methodology in developing its investment strategies. Rather it relies upon its long-term knowledge of individual markets throughout the country resulting from its long-term active involvement in these markets. More importantly, perhaps, the sheer size of the Prime Fund limits the impact of any one new investment on the performance of the Fund. Therefore, there has been greater reliance on spotlighting redevelopment situations and identifying potential sale opportunities.

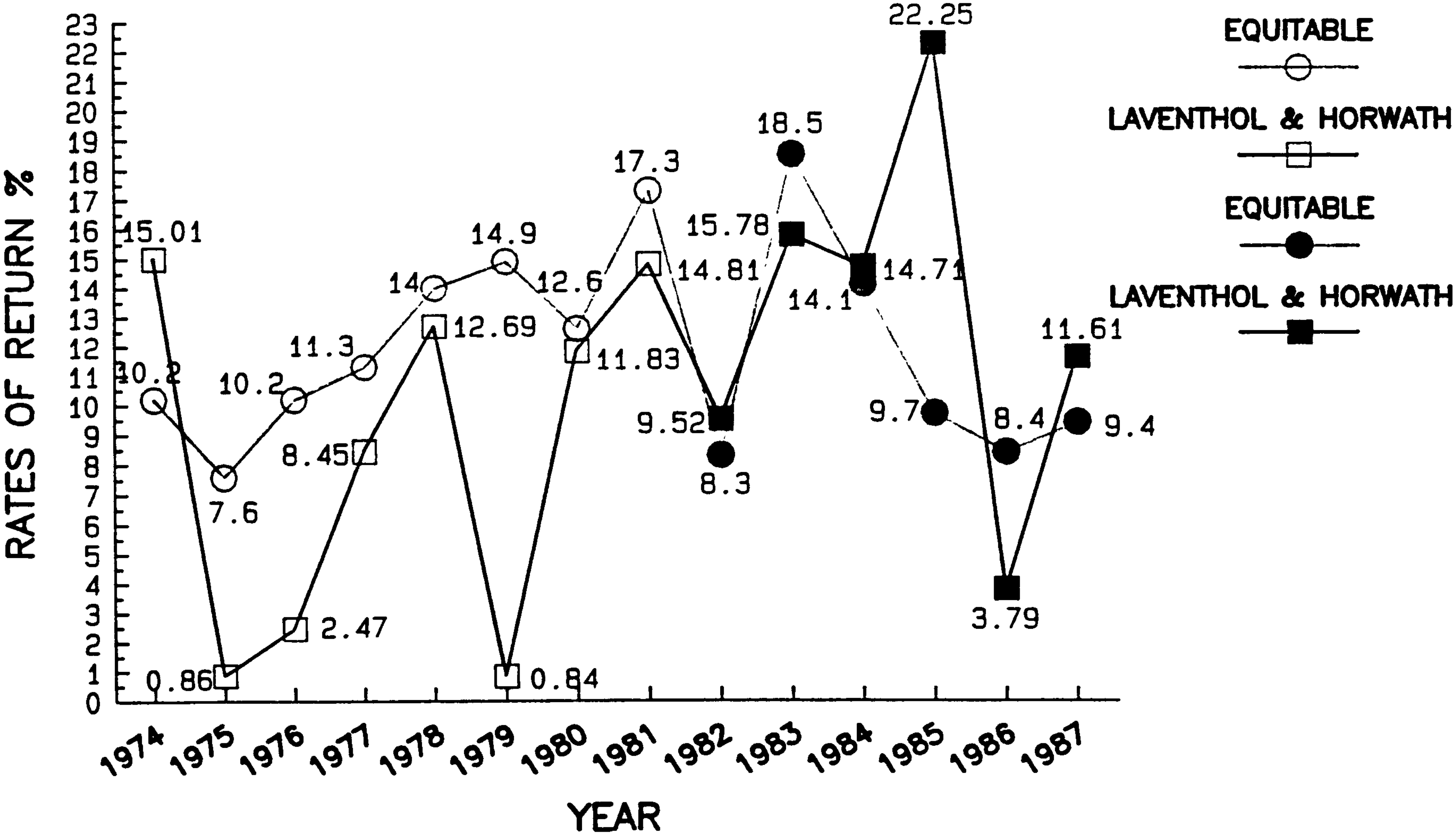
Although Equitable relies principally on outside managers for the actual property management function, there is a fairly heavy emphasis on overall asset management throughout the organization. In addition, in those selected situations, such as the Dallas industrial market, Equitable will assume on-site direct property management in order to maximize the performance of the portfolio. With its long involvement in individual markets, Equitable can effectively choose and monitor external property managers and leasing agents.

The performance of the Prime Property Fund is reflective of the shift in its investment strategy away from the Sunbelt to the Northeast and Rustbelt. In addition, the returns reflect the increasing emphasis placed on the retail sector which has been the best performing land use across the country over the past several years.

Overall, Equitable represents a dynamic, albeit decentralized, organization which has reoriented itself very well in light of the recent changes in the marketplace. It is clear from our discussions that the Prime Fund is poised to perform at its maximum potential over the next real estate cycle.

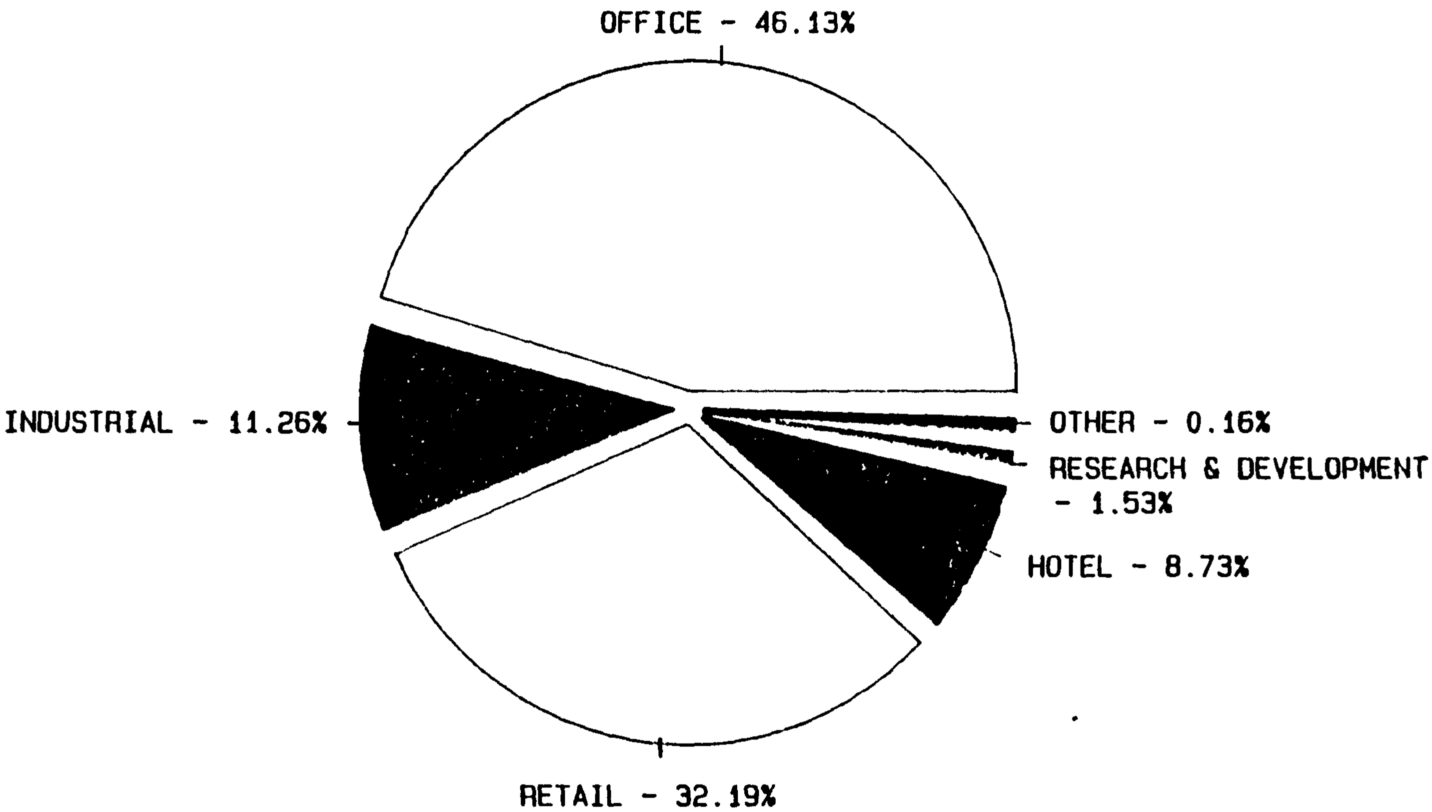
EQUITABLE

ANNUAL RATES OF RETURN
1974 - 1987



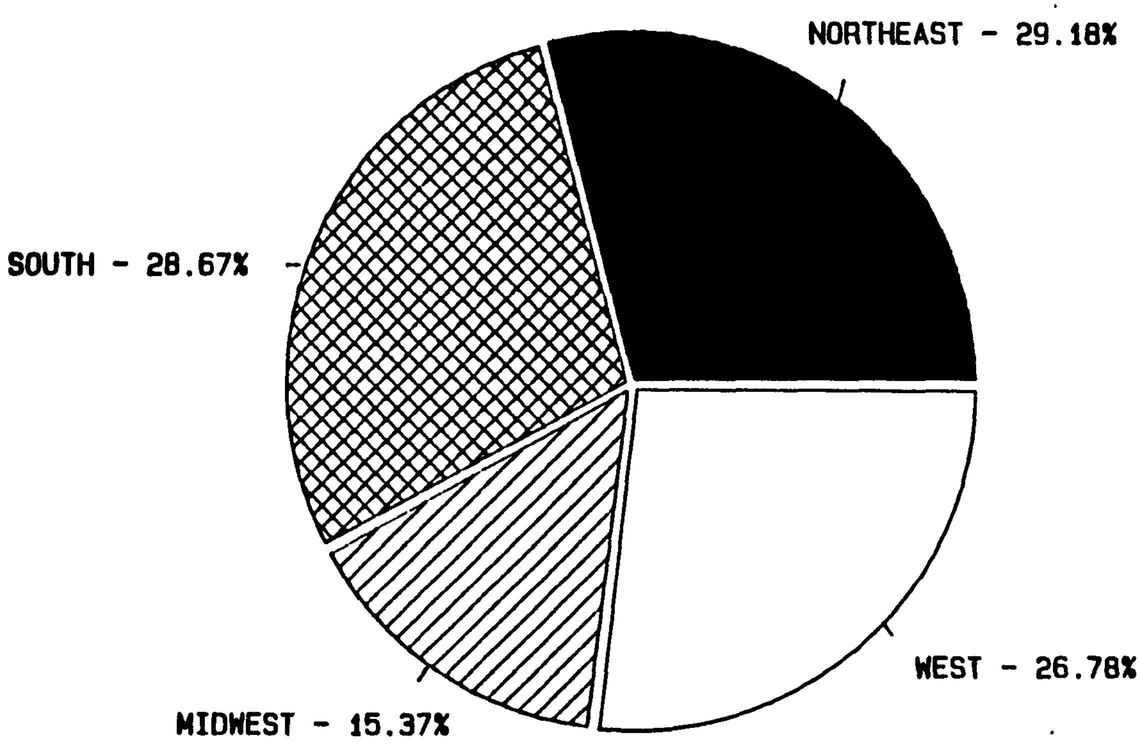
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EQUITABLE
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EQUITABLE
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Prudential Realty Group

Fund: Prudential Property Investment Separate Account

Origination of Fund: 1970

Fiscal Year End: September 30

I. Fund Description

- Open-end, diversified commingled equity fund.
- Market value of total fund's net assets: $3.767 billion (December 31, 1987)
- Market value of Minnesota SBI's investment: $61.092 million (December 31, 1987), 0.50 percent of total.
- Portfolio diversified by property type and geographic region, range of value and lease term.
- The PRISA portfolio consists of:

Fee simple ownership:

Office buildings
Regional shopping centers
Industrial properties
Apartments
Hotels and motels
Agricultural land

Land sale - leasebacks
Land leases

Mortgage loans:

Construction mortgage financing
Acquisition and interim financing
Land and land development loans
Permanent mortgage commitments
Leasehold mortgages
Participating mortgages

Real estate related companies

- At the end of fiscal 1987, 92 percent of PRISA's assets were invested in property ownership. Portfolio strategy includes maintaining sufficient cash reserves to take advantage of investment opportunities.

- Properties managed by a combination of outside management (incentive compensation) and Prudential in-house property supervisors and inspectors. Many of the properties that are management intensive were acquired as a partnership interest of a joint venture. Often, the joint venture partner is a sophisticated property manager.

II. <u>Investment Philosophy</u>

- Objective is to provide a high level of net investment income by investing in well-leased properties which will respond favorably to economic growth as well as inflationary pressures.

- Emphasizes initial cash returns.

- Will develop or purchase existing real estate as part of a partnership or on a wholly-owned basis.

- Essentially unleveraged portfolio; however, fund will assume attractive below-market financing.

- Primarily all cash purchases.

- Structure inflation protection into all leases. Where possible, long-term leases are avoided, although they comprise a very small fraction of all leases on portfolio properties.

- Has responded to the current soft office market in many parts of the country by reducing its exposure to this segment of the market to below 50 percent of the total portfolio.

III. <u>Valuation</u>

- Full independent appraisals performed upon acquisition.

- Appraisals performed annually by independent appraiser for those properties valued at $50 million and below.

- Semi-annual independent appraisals performed for those properties valued between $50 million and $100 million.

- Quarterly independent appraisals performed on those properties valued over $100 million.

- All properties reviewed by Prudential's in-house appraisers during any quarter in which an independent appraisal does not occur.

IV. Historical Performance

Prudential (PRISA):

Year	Prudential net	Prudential gross	L&H
1974	8.80%	10.10%	10.77%
1975	8.30	9.60	19.87
1976	8.50	9.70	9.00
1977	10.70	12.10	9.71
1978	19.50	21.00	19.13
1979	23.60	25.40	23.65
1980	20.20	23.50	19.97
*1981	15.80	17.00	14.68
1982	4.40	5.30	4.41
1983	10.30	11.20	7.53
1984	13.50	14.40	12.08
1985	7.85	8.75	16.95
1986	5.20	6.10	-0.03
1987	4.64	5.54	2.23
Mean	11.52%	12.84%	12.14%
Standard deviation	5.90%	6.33%	7.22%

* - Year of initial investment by SBI

V. Discussion of Fund and Advisor

The PRISA open-end commingled fund as created and managed by Prudential represents the first commingled real estate fund. In addition, it has always been the largest account of this type. As one of the largest, if not the largest, real estate investors in the world, both for investors and its own account, Prudential offers a significant level of resources, both financial and personnel, to any real estate market and/or transaction.

Similar to Equitable, the real estate operations of Prudential are organized on a regional basis. All actual real estate investments, ongoing asset management and dispositions are performed at the regional level. The two senior portfolio managers for PRISA set the investment and operational strategy for PRISA with the final approval of the strategy resting with the Equity Strategy Committee. This committee consists of the Chairman of the Prudential Realty Group and the heads of the individual business units within the Realty Group. The senior portfolio managers also have the responsibility to approve the parameters for all property dispositions, set property selection policies and pricing strategies, review all operating and capital budgets with an emphasis on the capital aspects and provide final approvals for all transactions.

The investment strategy of PRISA is designed to provide investors with a core portfolio of quality real estate assets. Towards accomplishing this on an ongoing basis, and in response to recent downturns in performance which were accompanied by a high level of investor withdrawals, Prudential has embarked upon a sophisticated approach to developing future real estate investment strategy.

The approach, developed by a group of academics retained by Prudential on a full-time basis, seeks "economic diversification" through the utilization of growth dynamics. In its simplest terms, this approach gathers large amounts of data for approximately 110 geographical markets throughout the country. Among the indicators analyzed are building permit data, employment size and characteristics, population growth and characteristics and household composition and growth. This data is then synthesized using a sophisticated software package to provide numerical rankings of each market for differing property types. These results are then used to guide the regional investment personnel in their acquisition, management and disposition activities. In theory, this approach should permit Prudential to be proactive in its portfolio management activities.

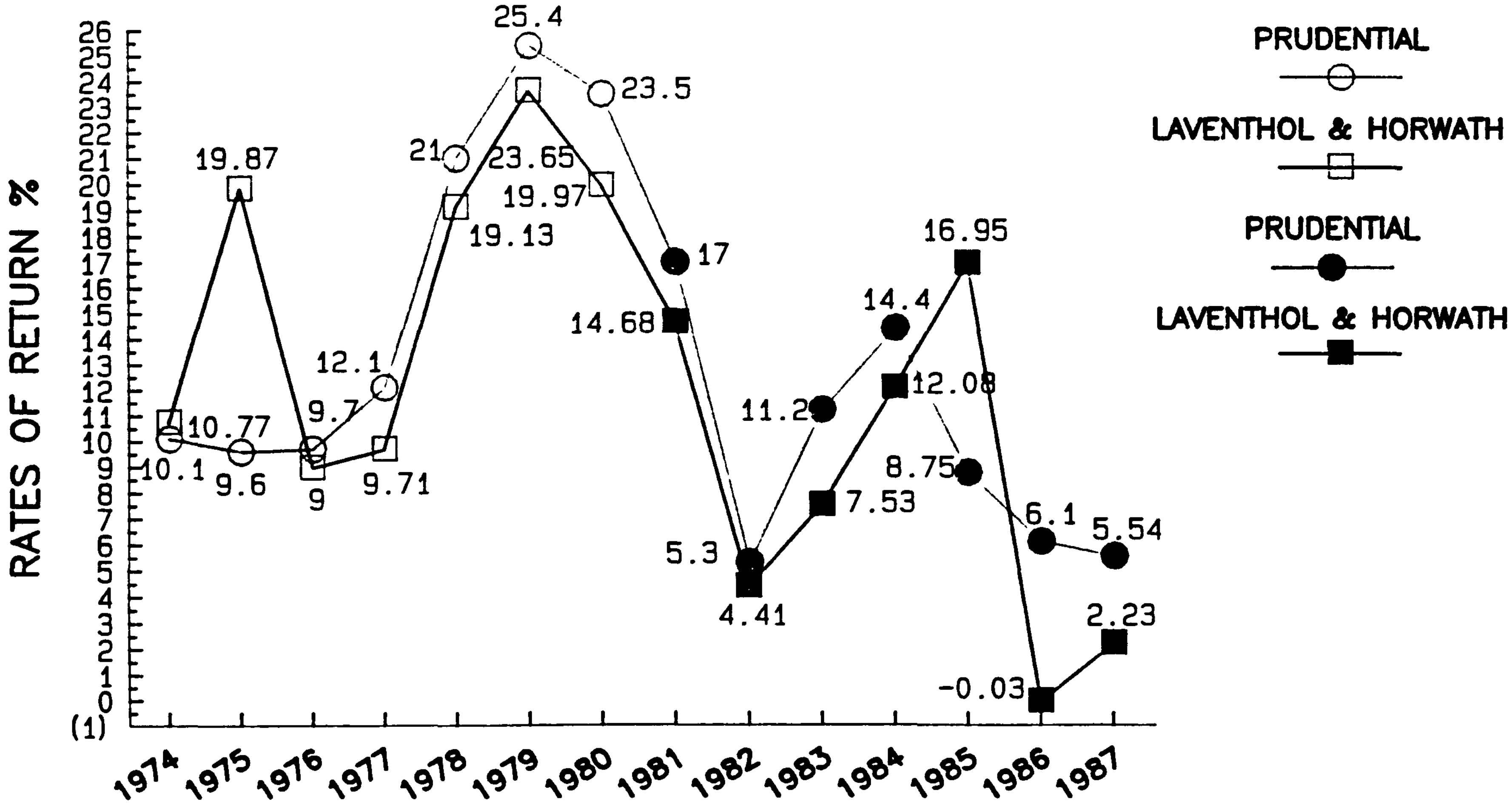
However, there are several concerns regarding this approach. From our discussions, it was not apparent how the results would actually be translated into action by the regional people; it was unclear if there is a true line of demarcation above where deals would and would not be done. In addition, much of the analysis relies upon secondary demographic and economic data as opposed to the approach utilized by TCW Realty Advisors, to be discussed in more detail later in this section of the report, which focuses much of its research activities upon primary market supply and demand information. Furthermore, the long-term objective of this analytical approach is to ensure that the PRISA portfolio is sufficiently diversified. That may be appropriate for those investors whose only real estate investment is PRISA. However, for those investors, such as the SBI, which have a number of investments, their goal is to achieve diversification across its entire portfolio, not merely within a single commingled fund.

As will be shown later in this report, the historic performance and risk profile of the PRISA portfolio does not provide sufficient added economic and diversification benefits to the SBI to warrant its continued presence in the portfolio. In the past, many investors have continued to invest in PRISA because of its index-like performance qualities. If the SBI continues to maintain a sufficiently diversified core portfolio, the presence of an index-type real estate investment may not be necessary.

PRUDENTIAL

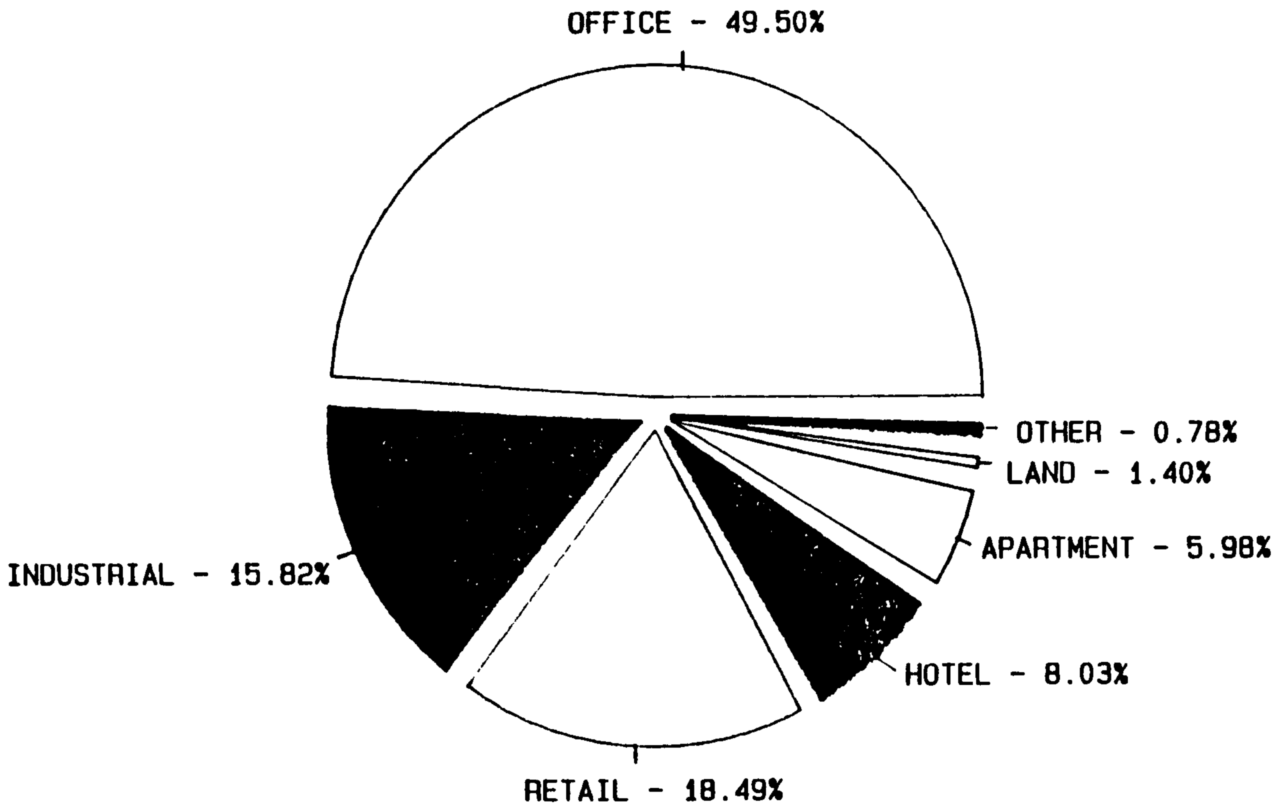
ANNUAL RATES OF RETURN

1974 - 1987



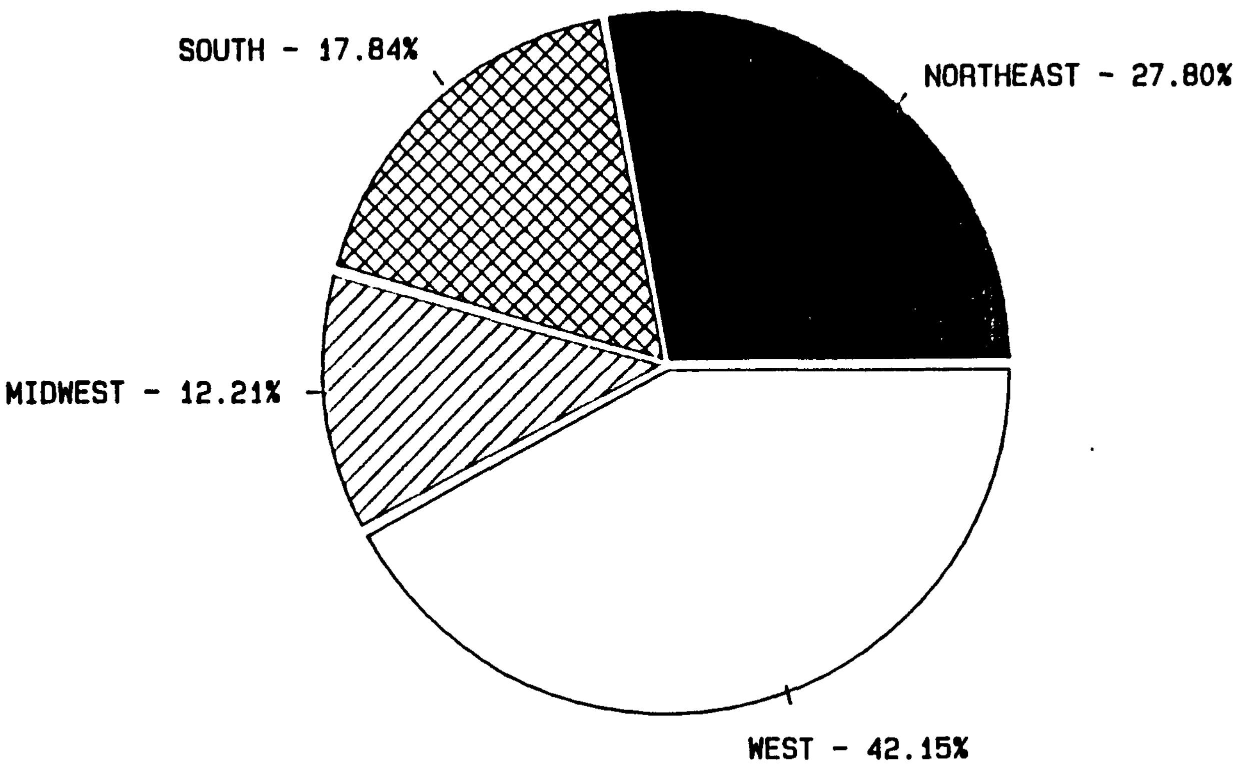
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

PRUDENTIAL
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

PRUDENTIAL
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

CLOSED-END COMMINGLED

FUNDS AND MANAGERS

Aldrich, Eastman and Waltch/State Street Bank

Funds: AEW/State Street Real Estate Fund III (1985)
AEW/State Street Real Estate Fund IV (1986)

Fiscal Year End: December 31

I. Fund Descriptions (General)

- Three non-competing closed-end, commingled equity funds.

Fund	Market value of net assets 12/31/87 (millions)	Market value of SBI's investment 12/31/87 (millions)	Percent of fund total held by SBI
III	$117.49	$22.82	19.42%
IV	$ 92.75	$16.08	17.34%
V	No investments as of 12/31/87		

- Properties are diversified by geographic region and property type.
- Funds consist primarily of office, retail and industrial properties.
- Properties managed by either joint venture partners or outside management companies, which are monitored by AEW's own asset management supervisors.

II. Investment Philosophy

- Objective is to provide a 12 to 13 percent nominal rate of return through operating income, capital appreciation, and aggressive asset management.
- Active approach to asset management, especially as it applies to financial structuring.
- Strategy is to re-invest capital proceeds during the first five years of the fund, and distribute thereafter.

- Funds will consider all property types and geographic locations, assuming proper underwriting can be done. However, the Funds prefer to limit the amount invested in hotel and residential properties.

- Level of leverage used and financial structuring employed will depend upon the interest rate environment.

III. Valuation

- Appraisals performed annually by in-house appraisal staff.

- Outside appraisals are performed every three years, unless a dramatic change has affected the property.

IV. Performance of Funds

AEW/State Street Fund III:

Year	AEW/State net	AEW/State gross	L&H
1985	N/A	N/A	-1.02%
1986	N/A	6.1%	2.70
1987	N/A	8.1	2.71
Mean		7.10%	1.46%
Standard deviation	N/A	1.00%	1.76%

AEW/State Street Fund IV:

Year	AEW/State net	AEW/State gross	L&H
1986	N/A	1.75%	0.59%
1987	N/A	6.90	1.44
Mean		4.33%	1.01%
Standard deviation	N/A	2.58%	0.43%

N/A - Data not available from manager

V. <u>Discussion of Funds and Advisor:</u>

Among the seven investment managers utilized by the SBI, the commingled funds as managed by the joint venture of Aldrich, Eastman & Waltch, Inc. and State Street Bank clearly lie at the riskier end of the spectrum. This is a direct result of the dynamic and active investment and management approach utilized by AEW on behalf of the funds. AEW is known throughout the real estate industry for employing some of the more creative financial structuring techniques in investing tax-exempt funds. In essence, its investment approach is to carve out different pieces of the economic pie for different participants (i.e. developer, pension fund, etc.) in the investment with the overall goal of maximizing the benefits to each.

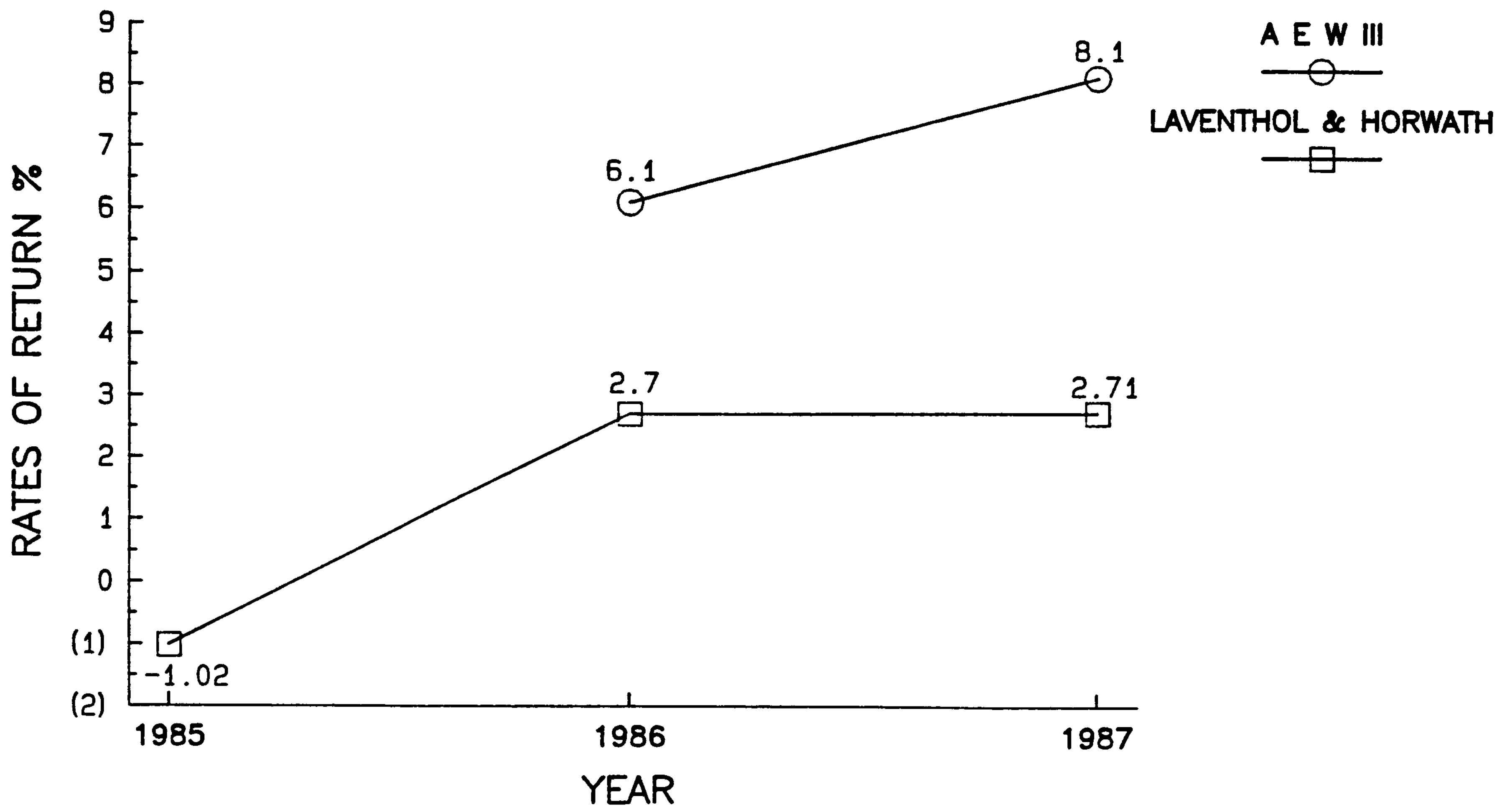
Among the investment approaches utilized by the funds are: participating second mortgages; convertible first mortgages; extensive use of leverage through refinancing of investments; and, development joint ventures. AEW is consistent in that none of its portfolios, for either its separate account clients or the series of State Street Funds, can be considered static. In fact, it is the stated policy of AEW that distributions to investors will not begin until after the first five years of the fund in order to permit the necessary portfolio structuring and restructuring. In addition, although a reasonably balanced portfolio is a goal of the funds, total diversification is not. Given the constantly changing makeup of the portfolios, it is difficult, if not impossible, to set and achieve stated goals regarding geography, property type and investment structure.

Unfortunately, the potential tradeoff when a manager is so actively involved in the constant financial structuring of a portfolio is that the other aspects of asset management may suffer. An examination of the portfolios contained within the AEW/State Street Funds indicates that the quality of the properties cannot be compared to that of the Heitman funds or the three insurance company open-end funds. In addition, much of the property and asset management activity is performed by the joint venture partners, although AEW always maintains sufficient control and oversight. The lower quality of the properties is not a reflection on AEW or State Street, but it does reflect the differing investment objectives.

The relative newness of the portfolios does not allow for a true indication of anticipated long-term performance of the portfolios, but it is also apparent that the investment objectives as stated by AEW and State Street Bank allow for the SBI to benefit in the long-term. Similar to TCW, much of the initial returns generated by these funds have arisen from the short-term investments of the manager, rather than actual real estate investments. Given that these funds are the closest thing to a specialized form of investment within the SBI portfolio, the overall performance of the SBI portfolio should be expected to benefit from the continued presence of these funds within the portfolio.

A E W III

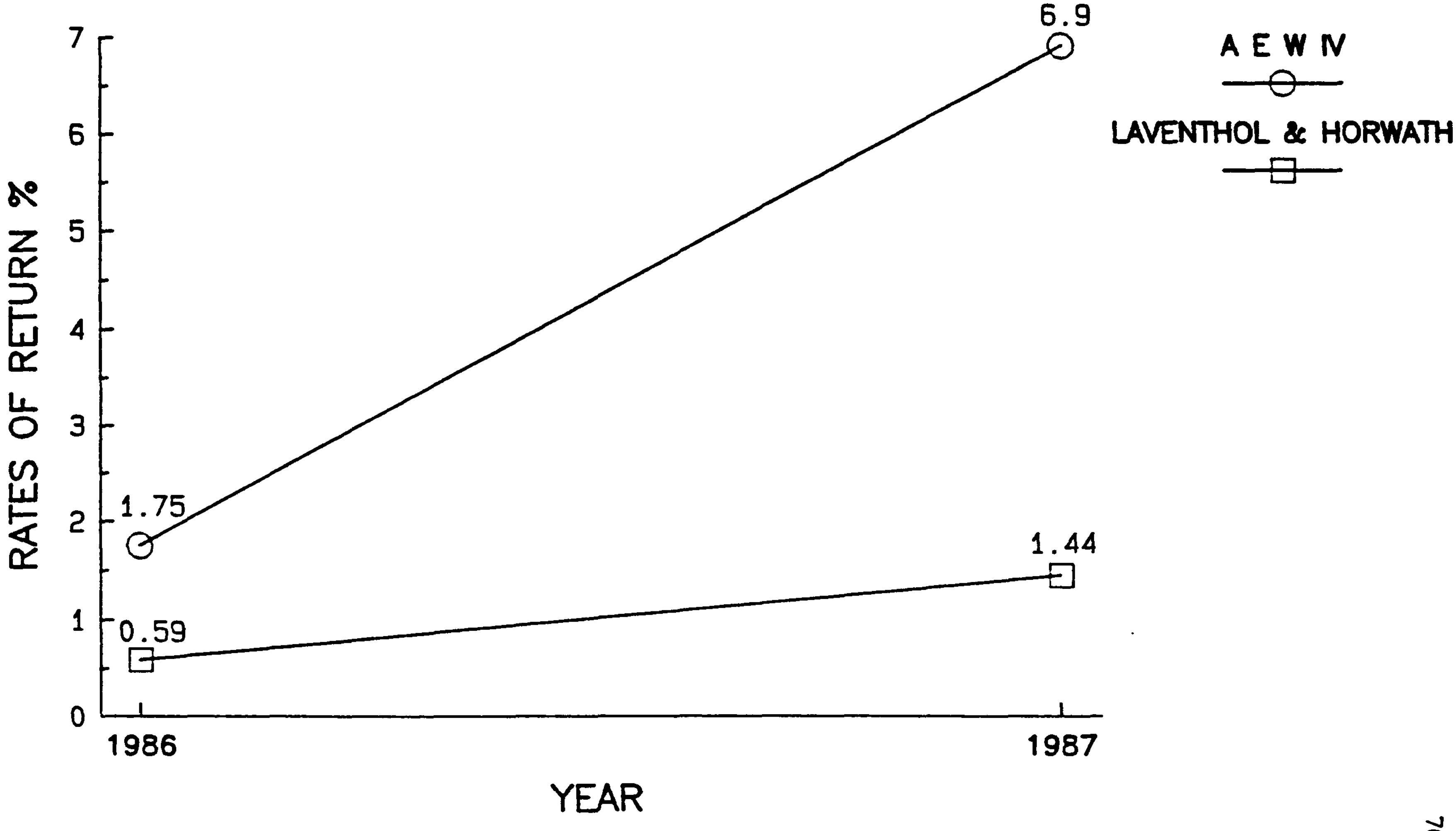
ANNUAL RATES OF RETURN
1985 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

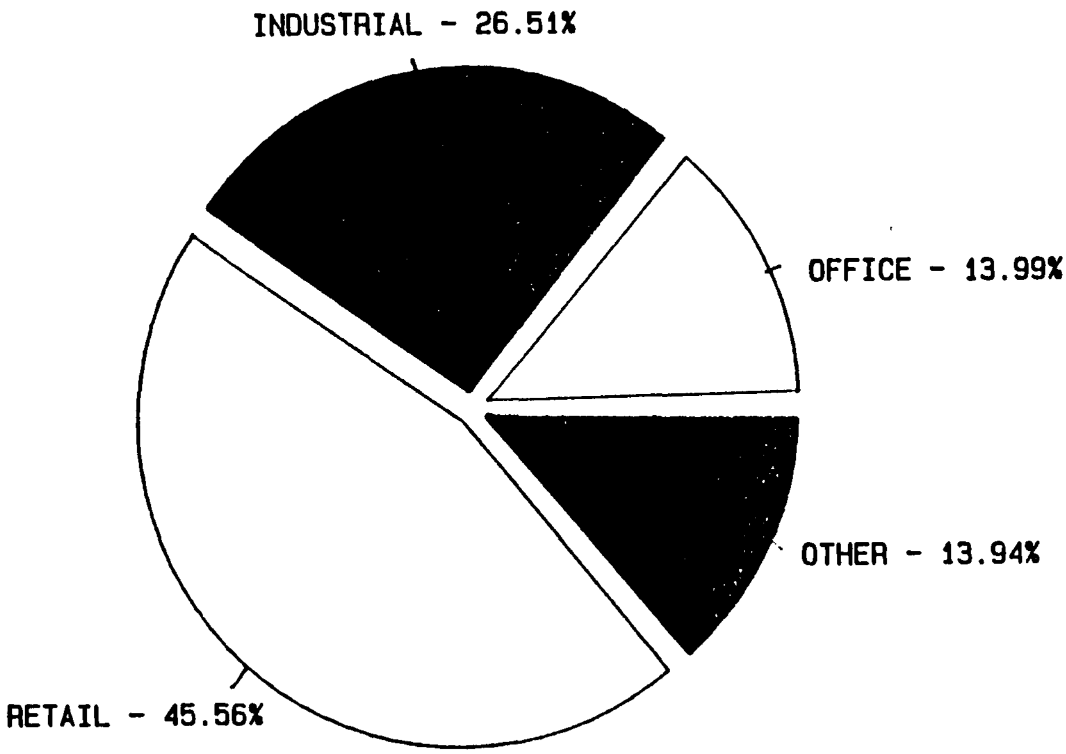
A E W IV

ANNUAL RATES OF RETURN
1986 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

AEW/STATE STREET III
PROPERTY TYPE DISTRIBUTION
December 31,1987



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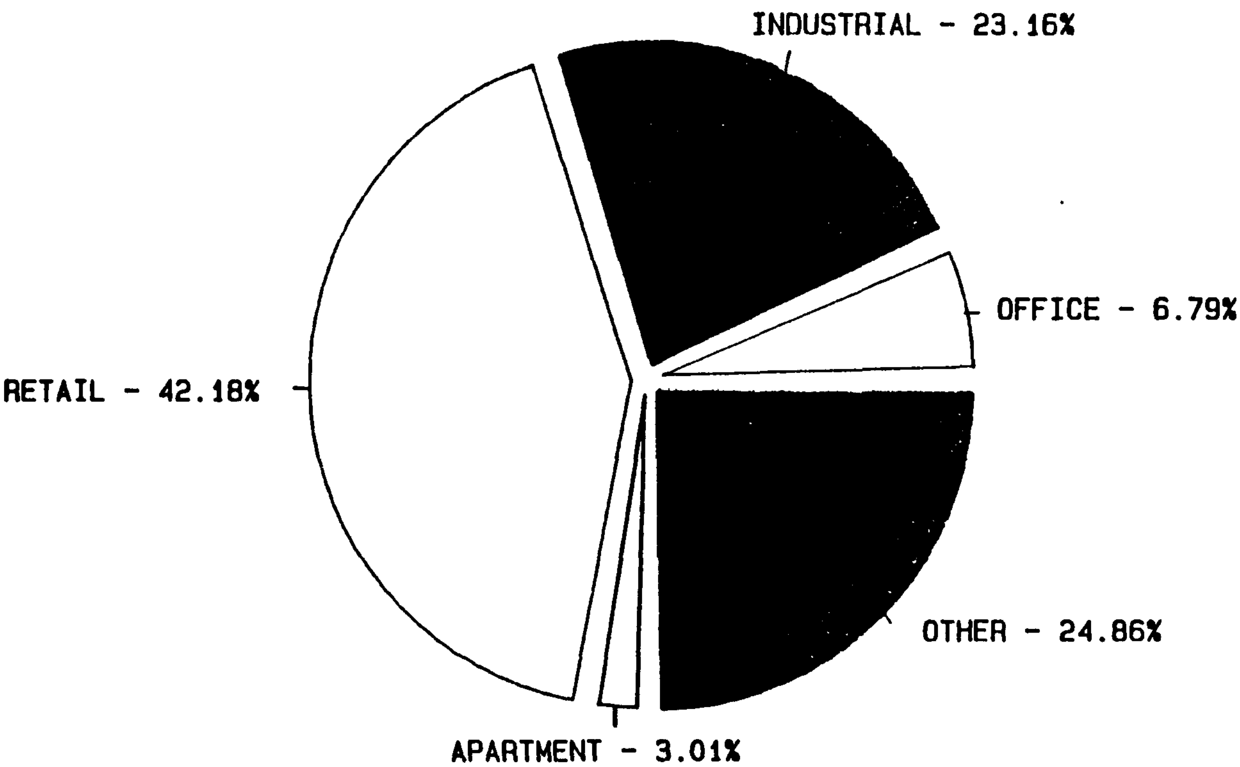
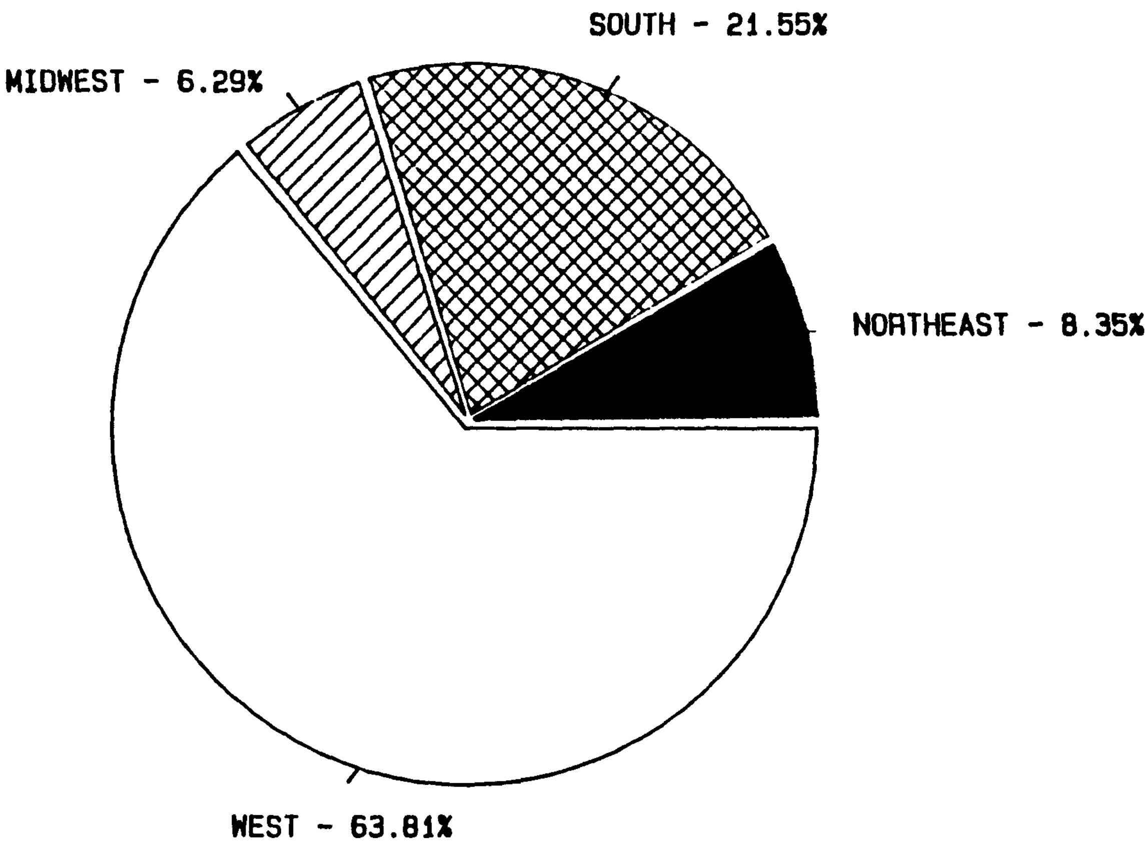
AEW/STATE STREET IV
PROPERTY TYPE DISTRIBUTION
December 31,1987



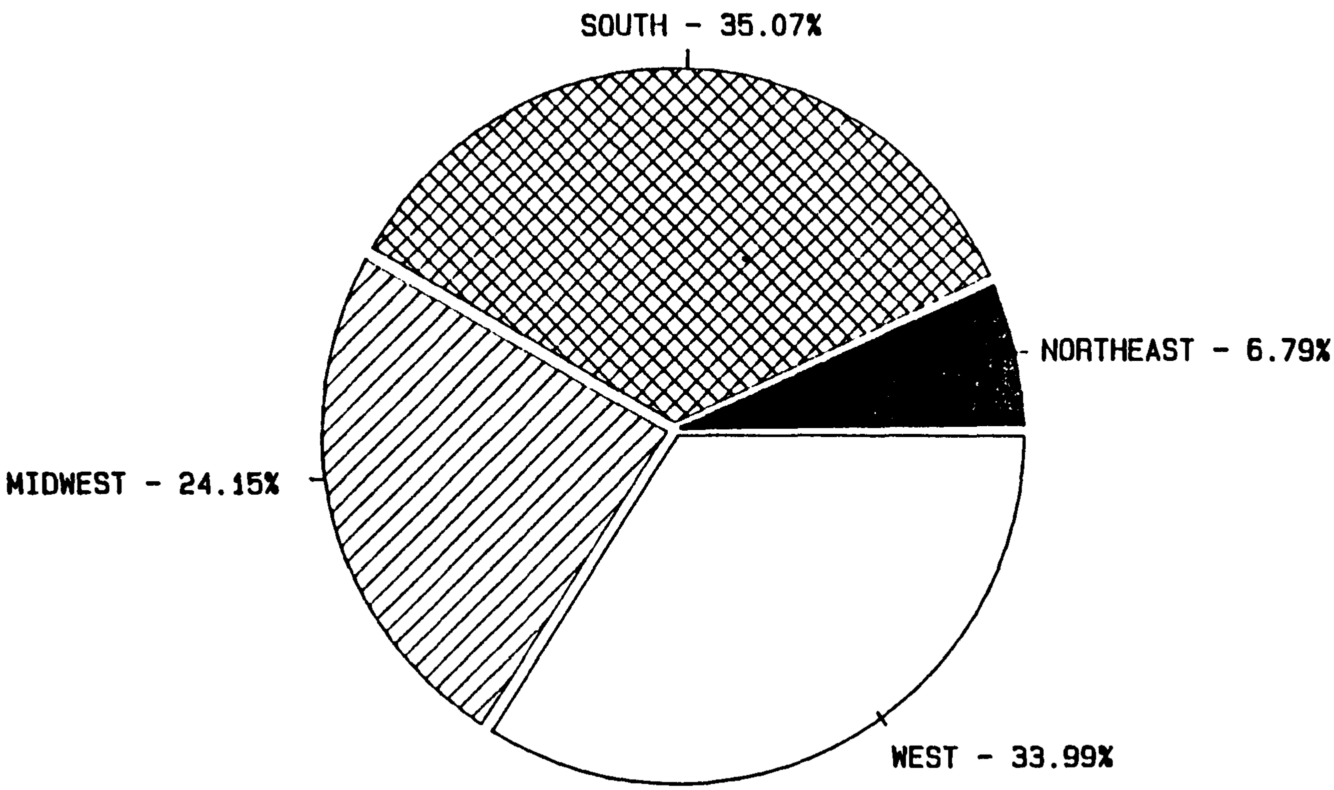
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

AEW/STATE STREET III
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

AEW/STATE STREET IV
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Heitman Advisory Corporation

Funds: Heitman Real Estate Fund I (1984)
Heitman Real Estate Fund II (1985)
Heitman Real Estate Fund III (1987)

Fiscal Year End: December 31

I. Fund Descriptions (General)

- Three non-competing closed-end, commingled equity funds.

Fund	Market value of net assets 12/31/87 (millions)	Market value of SBI's investment 12/31/87 (millions)	Percent of fund total held by SBI
I	$114.55	$20.28	17.70%
II	$249.81	$31.42	12.58%
III	$131.11	$ 9.18	7.01%

- Properties are diversified by geographic region, with a strong emphasis toward properties in the Midwest.

- Funds consist of office, retail and industrial properties.

- With the exception of those regional malls where the joint venture partner is an experienced manager, all property management functions are performed by Heitman Properties, a wholly-owned subsidiary of Heitman Financial Services, Ltd., the parent corporation of Heitman Advisory Corporation.

II. Investment Philosophy

- Objective is to provide a six percent real rate of return through operating income and capital appreciation.

- Heitman also seeks to control risk within the portfolio through diversification by property type and by industry of tenants.

- Long-term orientation; expected holding period is generally ten years. Shorter (three to five year) holding periods will be considered where Heitman is completing development of an existing project.

- Funds will consider redevelopment opportunities, where value can be created through renovation or expansion.

- Leverage can equal, but not exceed, 50 percent of the property's value.

III. Valuation

- Appraisals performed annually by in-house appraisal staff.

- Outside appraisals are performed periodically. However, the frequency of these appraisals depends upon the policy of Heitman's co-investors in each property.

IV. Historical Performance

Heitman Real Estate Fund I:

Year	Heitman net	Heitman gross	L&H
1984	7.74%	7.78%	6.19%
1985	13.37	13.56	13.58
1986	10.78	11.00	10.49
1987	11.36	11.61	16.62
Mean	10.81%	10.99%	11.72%
Standard deviation	2.02%	2.08%	3.86%

Heitman Real Estate Fund II:

Year	Heitman net	Heitman gross	L&H
1985	N/A	N/A	6.81%
1986	14.88%	15.02%	9.27
1987	11.41	11.61	10.34
Mean	13.15%	13.32%	8.81%
Standard deviation	1.73%	1.71%	1.48%

Heitman Real Estate Fund III:

Year	Heitman net	Heitman gross	L&H
1987	5.75%	5.83%	2.77%

N/A - Data not available from manager

V. Discussion of Funds and Advisor:

Heitman Advisory Corporation has been one of the fastest growing of the "boutique" investment managers; that is, one that is not aligned with another financial institution such as an insurance company or investment bank. From its initial activities as a mortgage banker, Heitman became one of the first U.S. investment managers to advise foreign investors, most notably several large funds based in Great Britain. Subsequently, Heitman has grown to the point where assets under their control are in excess of $5.5 billion. This dramatic growth can be traced to several key factors including:

- A thorough and complete underwriting process as applied to acquisitions;
- Long-term relationships with large developers, such as Melvin Simon and Associates, which provide a pipeline for acquisition opportunities;
- A commitment to asset and property management through the use of Heitman's internal management group, Heitman Properties, for all acquisitions except for selected regional mall investments where management is performed by the joint venture partner;

- The provision of the greatest amount of relevant data to its investors on a regular and ongoing basis;

- The pioneering of the co-investment concept, which is usually defined as direct investment opportunities purchased by a partnership of tax-exempt investors on a deal-by-deal basis. This investment approach permits both Heitman's direct account clients and commingled funds to benefit from both Heitman's ability to identify and purchase larger properties which would otherwise be unavailable to them and the resulting increased portfolio diversification; and,

- The commitment to and maintaining of its investment philosophy of quality properties, no developmental properties and only office, retail, industrial and mixed-use investments. This is further accomplished by the maintaining of centralized control over operations by utilizing few satellite offices.

The performance of the closed-end funds in which the SBI is an investor demonstrates the factors described above. Going forward, it is apparent from our discussions that the growth which is expected to continue will not result in any adjustment of philosophy or objectives merely to satisfy growth goals. It should also be mentioned that Heitman, together with Aetna and RREEF, provided us the requested data in the most timely and complete manner.

It should be mentioned, however, that there are several areas of Heitman's operations which bear further analysis. These involve principally its policy of having annual appraisals done on an internal basis except as required by the policies of a co-investment partner. Although the fees as charged by Heitman to its closed-end investors are based strictly on initial cost rather that appraised value, the lack of independent appraisals does not allow for an independent review of the performance of the funds. In essence, the values as set by Heitman determine the annual return for the portfolios which results in some potentially significant marketing advantages for Heitman.

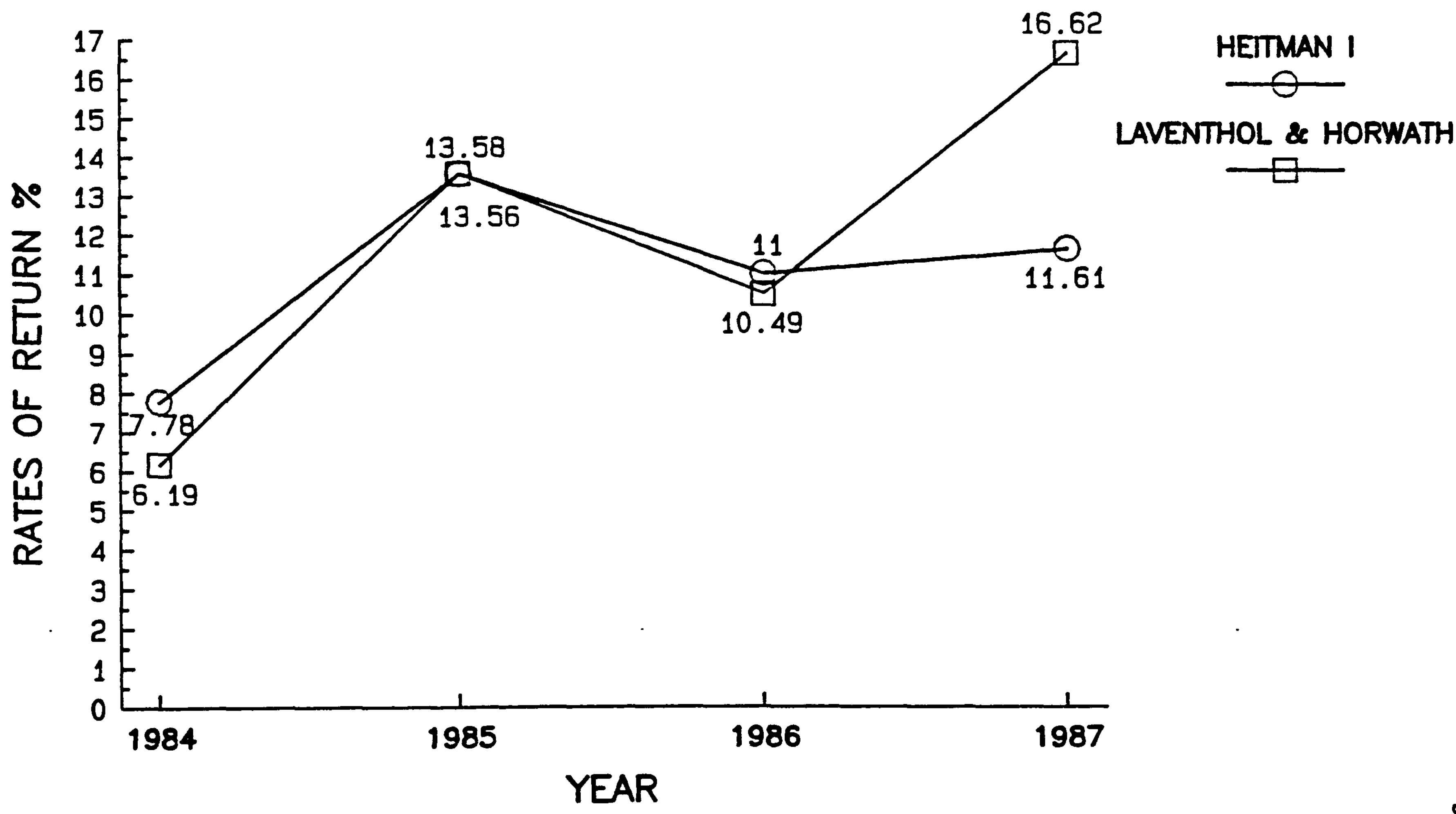
Another area of concern involves Heitman's policy of measuring returns on the basis of cost rather than value. The result is that each year's return includes the total appreciation since acquisition rather than just that for the most recent period. This is in direct opposition to the typical industry practice of measuring annual performance by dividing the most recent value by current income and additional appreciation. Once again, Heitman's methodology can provide them significant marketing advantages.

Overall, however, we were very impressed by Heitman's operation, philosophy and performance and highly recommend that the SBI continue its involvement with Heitman on an ongoing basis. In addition, as will be discussed in more detail later in this report, should the SBI change its investment strategy to accommodate more direct investments utilizing the co-investment approach, Heitman would be one of several highly qualified firms available to carry out this strategy.

HEITMAN I

ANNUAL RATES OF RETURN

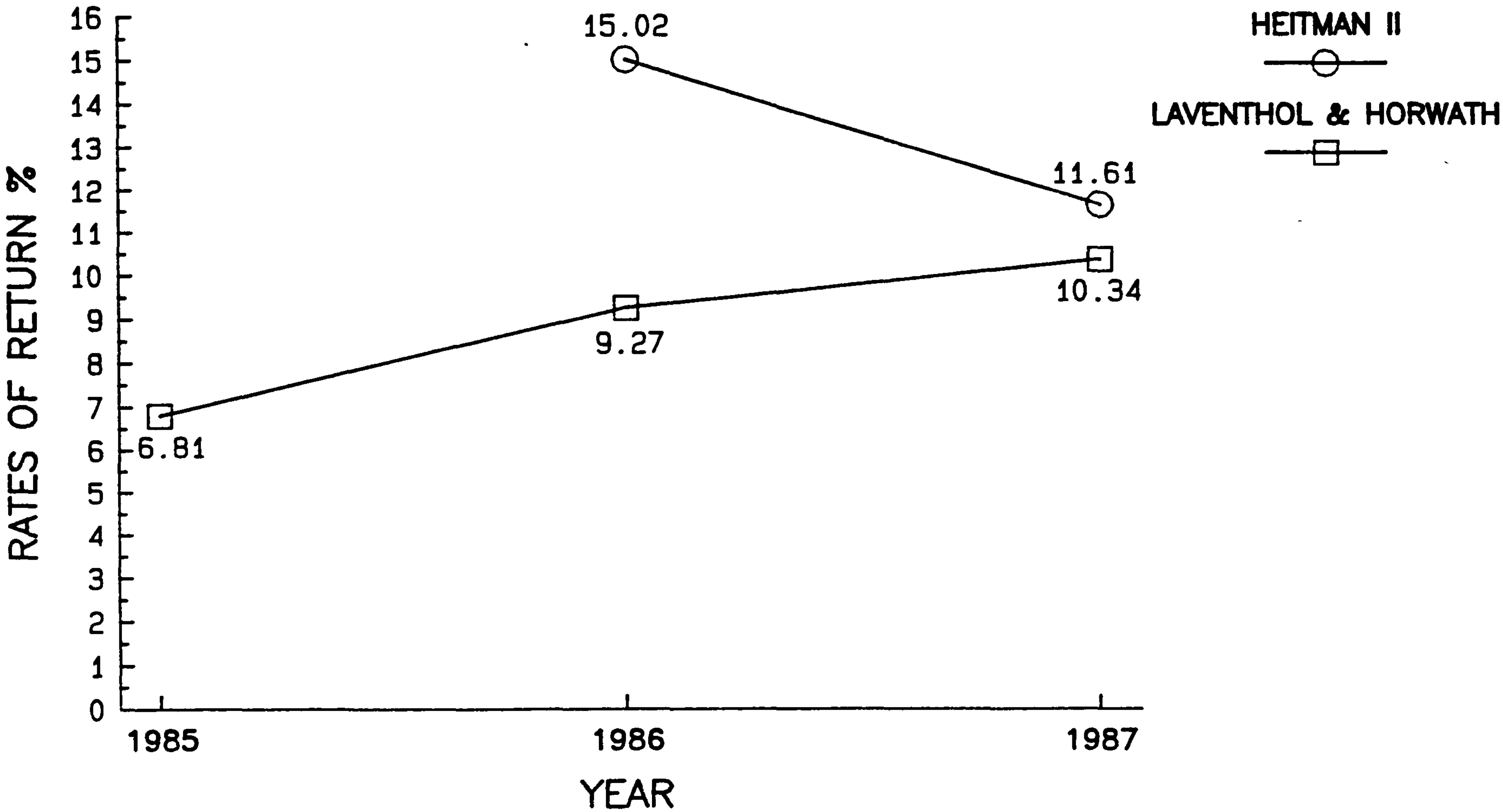
1984 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

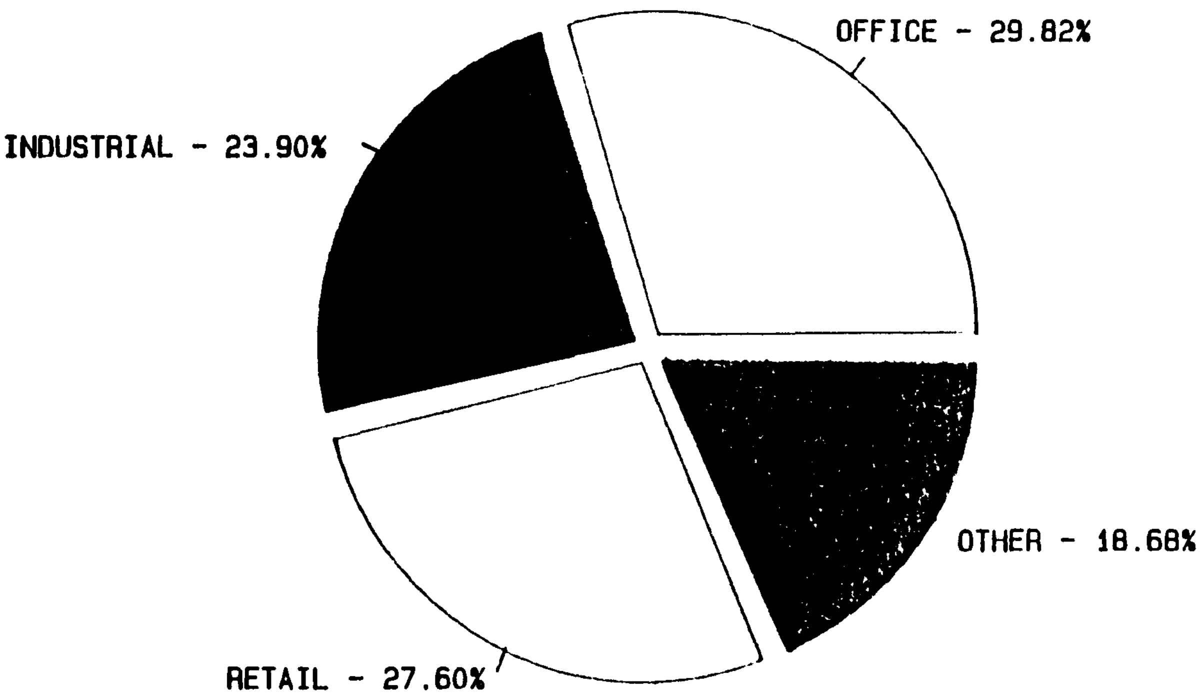
HEITMAN II

ANNUAL RATES OF RETURN
1985 - 1987



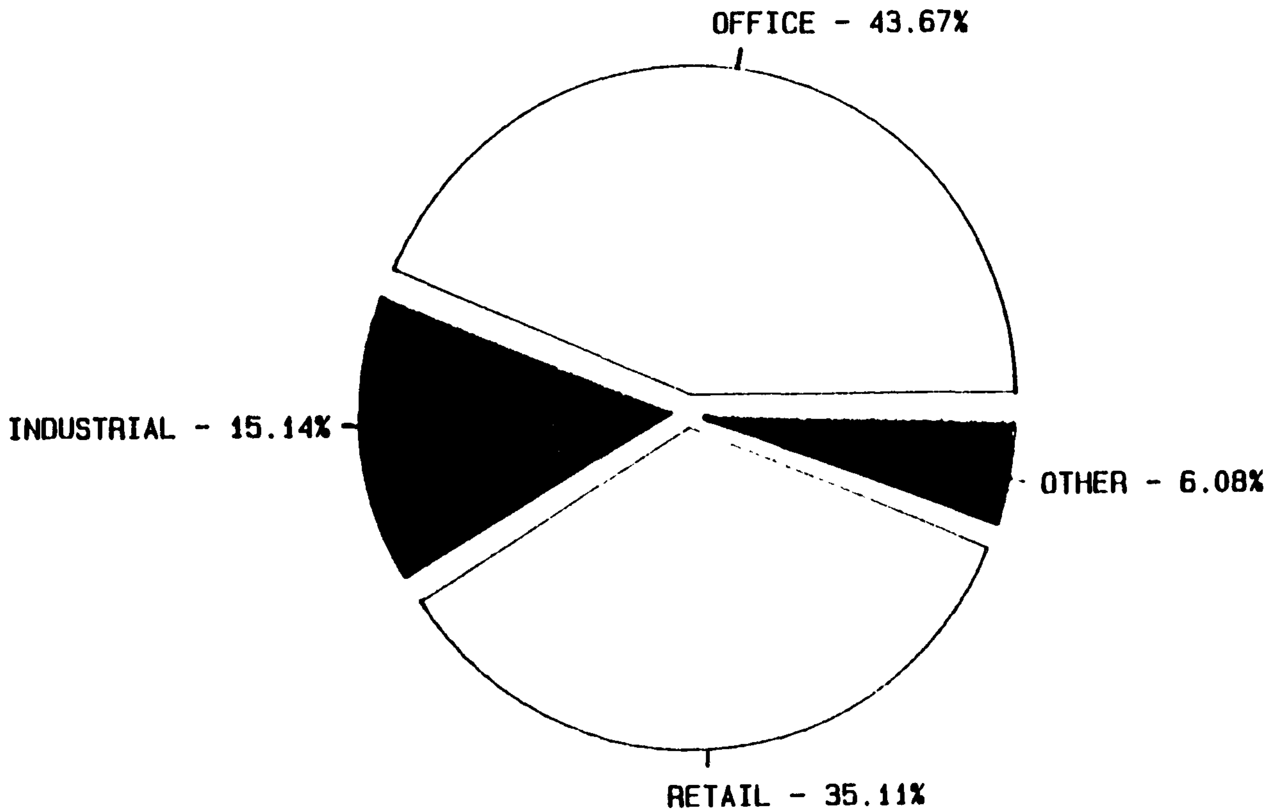
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

HEITMAN I
PROPERTY TYPE DISTRIBUTION
December 31,1987



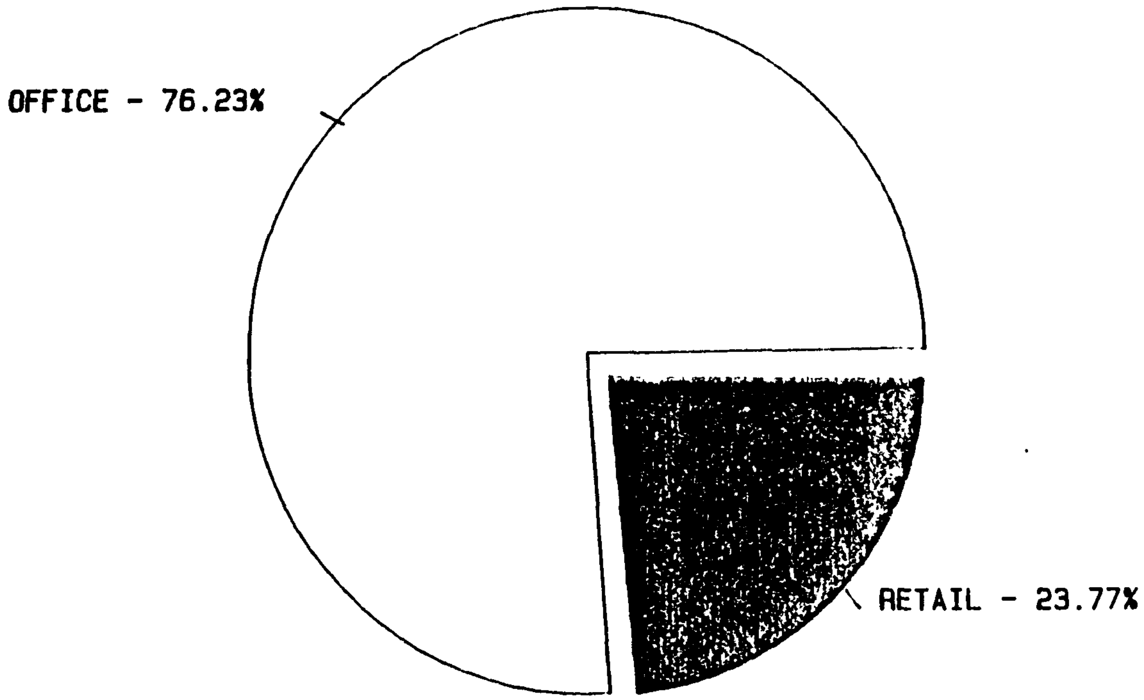
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

HEITMAN II
PROPERTY TYPE DISTRIBUTION
December 31,1987



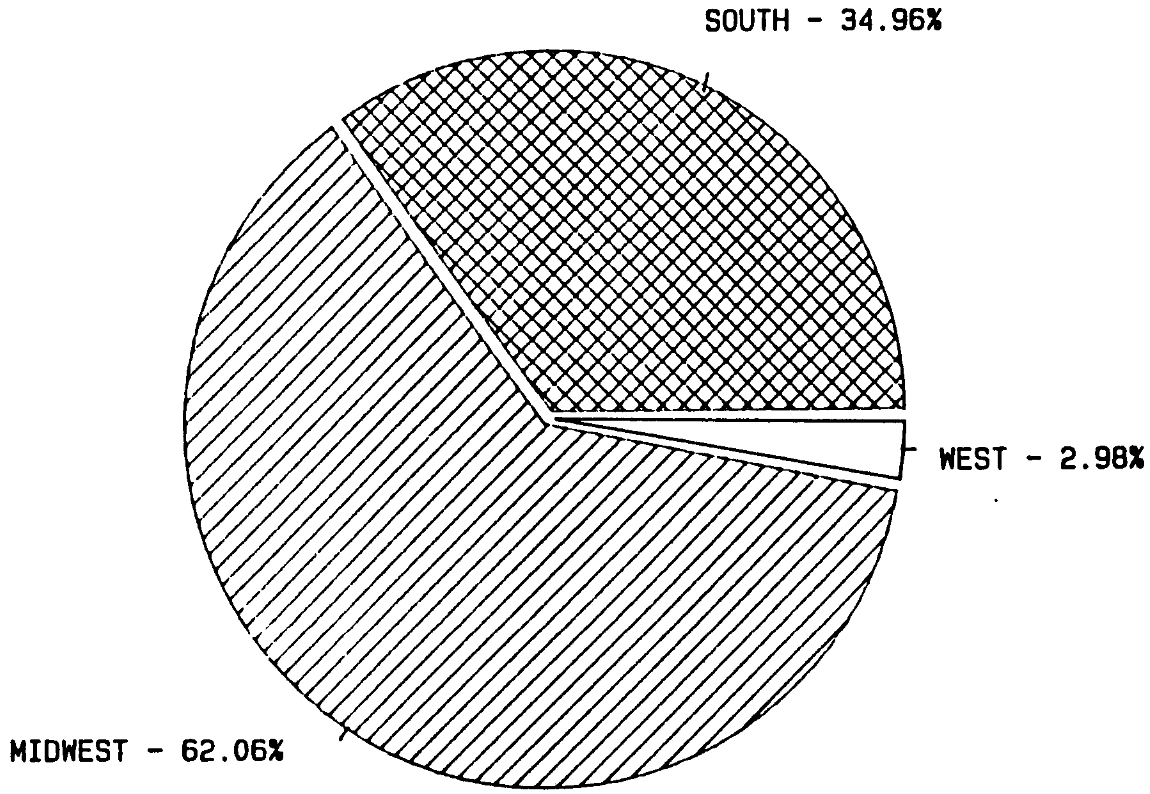
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

HEITMAN III
PROPERTY TYPE DISTRIBUTION
December 31,1987



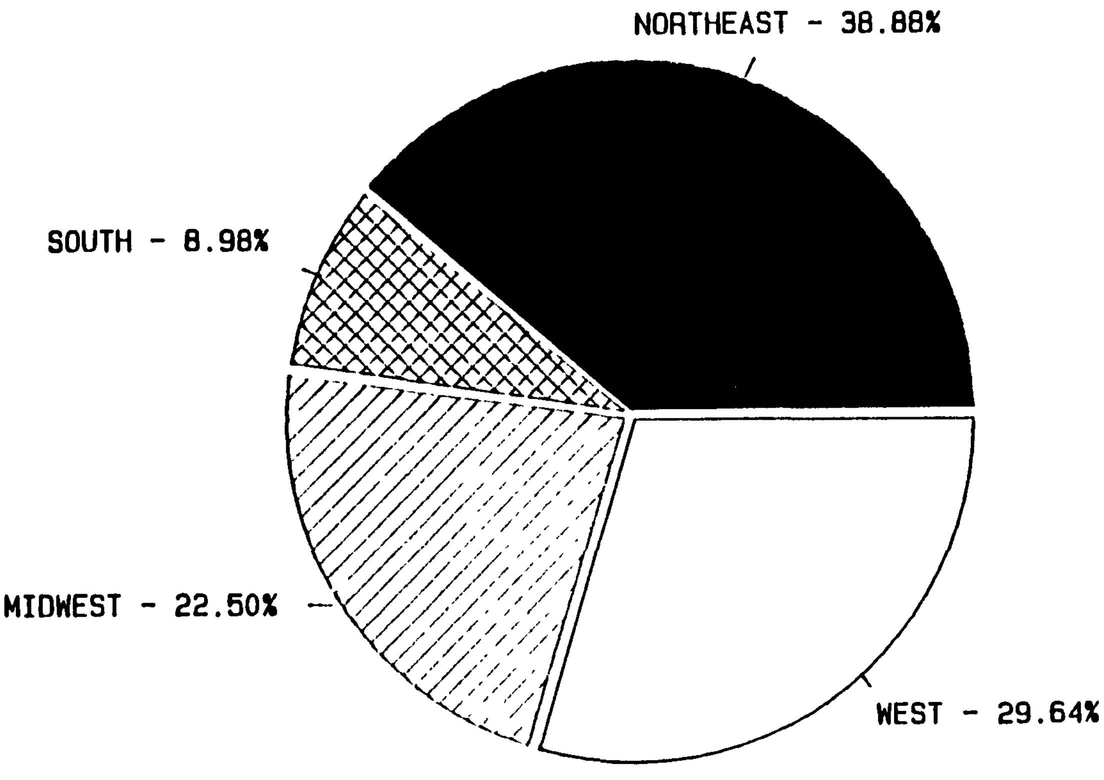
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

HEITMAN I
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

HEITMAN II
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



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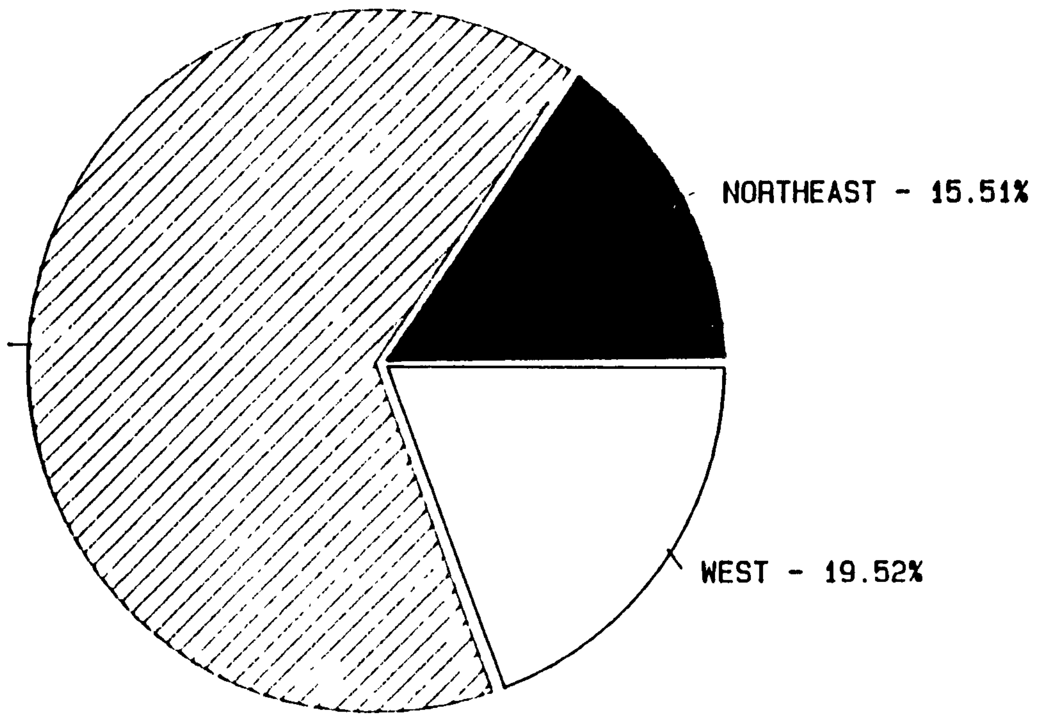
HEITMAN III
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

RREEF

Fund: RREEF USA Fund III

Origination of Fund: 1984

Fiscal Year End: December 31

I. Fund Description:

- Closed-end, commingled equity fund.
- Market value of total fund's net assets: $711.81 million (December 31, 1987)
- Market value of Minnesota SBI's investment: $70.03 million (December 31, 1987), 9.84 percent of total.
- Portfolio diversified by property type and geographic region.
- The Fund consists of community and regional shopping centers, urban and suburban office buildings and industrial facilities. Over 50 percent of the fund is currently invested in retail centers, including four large regional malls. The majority of office space is located in the CBD's of large cities.
- RREEF manages the fund's properties themselves, except when the joint venture partner is an experienced property manager.

II. Investment Philosophy

- Objective is to provide a five to seven percent real rate of return.
- Will purchase existing real estate, generally on a wholly-owned basis. However, attractive joint venture arrangements will be considered.
- Essentially unleveraged portfolio; however, fund will assume attractive, below market financing.
- Will acquire properties where construction is substantially complete and preleasing or existing

occupancy exceeds 80 percent. No development deals, raw land, motels, hotels or apartments.

- The fund will actively consider property sales to improve overall performance.

III. Valuation

- Beginning in 1988, annual appraisals will be handled by four independent appraisal organizations.

- Quarterly appraisals by RREEF's in-house staff.

IV. Historical Performance

RREEF USA Fund III:

Year	RREEF net	RREEF gross	L&H
1984	N/A	N/A	2.01%
1985	6.7%	7.9%	4.16
1986	5.5	6.6	4.69%
1987	3.3	4.5	7.38
Mean	5.17%	6.33%	4.56%
Standard deviation	1.41%	1.40%	1.91%

N/A - Data not available as manager did not calculate for this period

V. Discussion of Fund and Advisor

RREEF was one of the first "boutique" type real estate investment managers. It continues to be one of the largest real estate investment managers with total assets under management in excess of $3 billion. As a result of several incidents, over the past few years, however RREEF has begun to lose some of its credibility in the marketplace. Known since its inception as one, if not the, most conservative of the investment managers, some of the problems that have been experienced by RREEF include the following:

- The necessity to temporarily close the Southglenn Mall in Littleton, Colorado, a regional shopping center in the USA - III portfolio because of the failure to adequately remove asbestos within the facility.

- The massive write-downs by RREEF of properties it owns throughout Texas and Colorado on behalf of several of its closed-end funds including USA-III. These writedowns, which occurred in June 1987, were necessary to reflect the poor economics of the markets. Both the size and suddenness of the writedown caused a shock in the marketplace that is still being felt by RREEF and its investors. The writedowns and the negative reaction to them required a total overhaul of RREEF's appraisal policies.

- The request from several investors, most notably IBM, to withdraw from several RREEF commingled funds, including USA - III, at what could be considered a large discount. Although most closed-end funds do not offer a withdrawal privilege, the provisions within the RREEF funds do so. Although the withdrawals do not in themselves reflect poorly upon RREEF, as there are many reasons for such a withdrawal, they have negative ramifications in the marketplace as investors become quite nervous when they see that type of activity affecting a manager.

- Perhaps most importantly has been the perception by many investors that RREEF's conservative investment structure, i.e., no leverage, all-cash purchases, is indicative of someone who is not creative enough in today's marketplace to structure deals such that quality properties can be acquired at reasonable prices. There is the feeling among many that RREEF too often buys through brokers, or in essence at retail, while others have the ability to buy at wholesale.

RREEF's portfolio consists primarily of large office buildings, regional malls and industrial parks. Wherever possible, RREEF manages the properties itself, thereby maintaining tight control over the operations of the property.

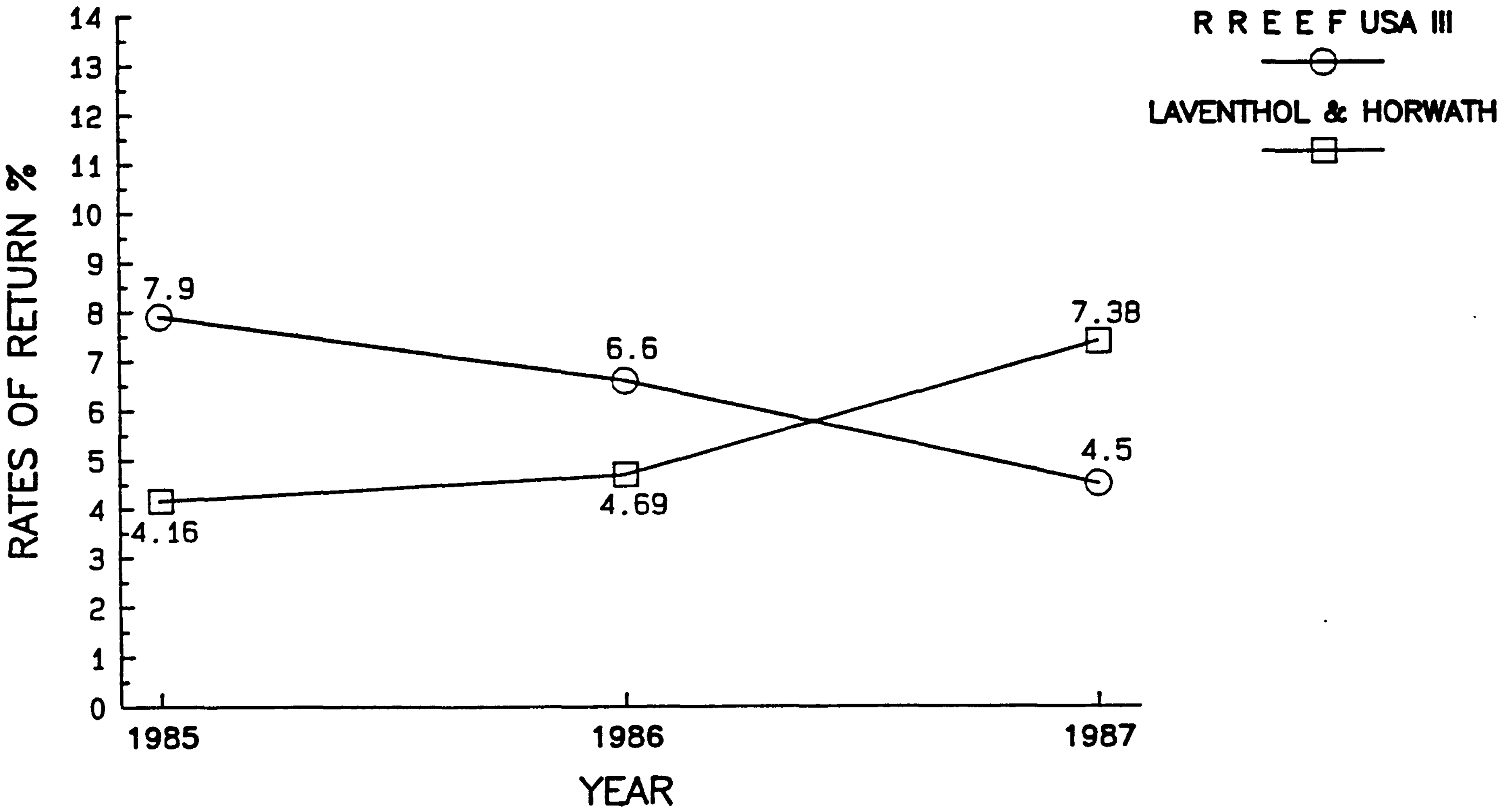
The returns for the USA - III Fund have been below what was expected by both investors and RREEF itself. This reflects both the problems at the Southglenn Mall and the below-market performance of several properties located in the Southeast and Southwest. Although several of the industrial properties and regional malls have provided excellent returns, most of the returns arise from appreciation rather than actual cash flow and are not sufficient to outweigh the poor performance of the remainder of the portfolio.

Given the relatively poor performance of the USA - III portfolio and the similar nature of it to the Heitman portfolios in terms of property type and investment structure, it may be redundant for the SBI to continue to invest additional funds in both on an ongoing basis.

R R E E F USA III

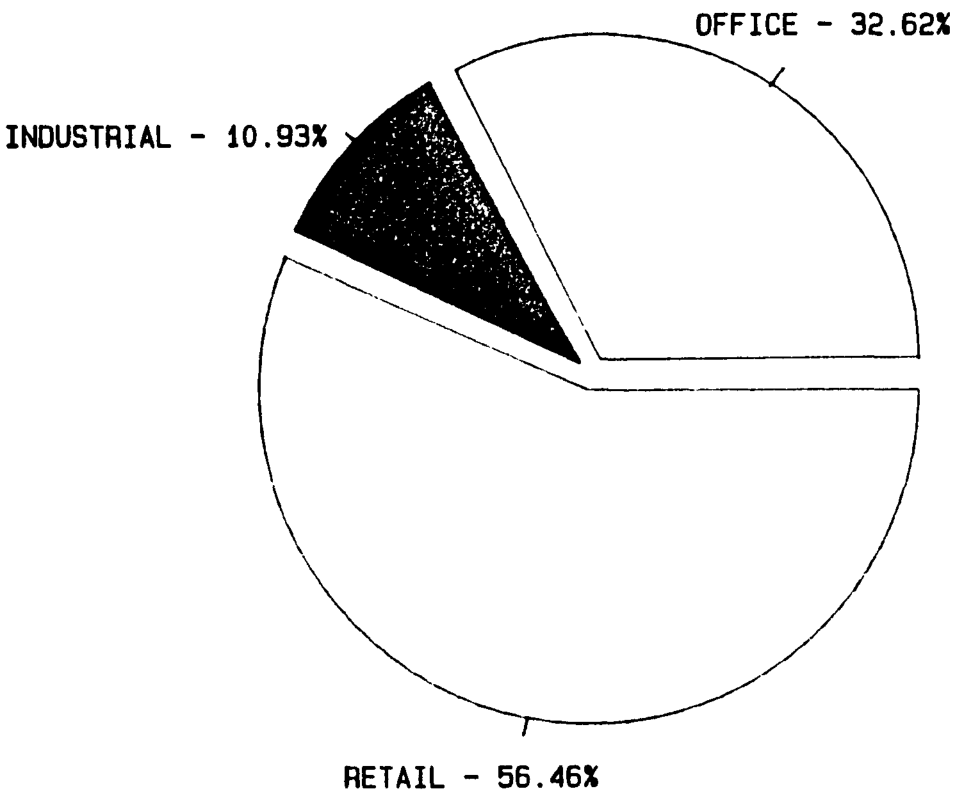
ANNUAL RATES OF RETURN

1985 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

RREEF USA III
PROPERTY TYPE DISTRIBUTION
December 31,1987



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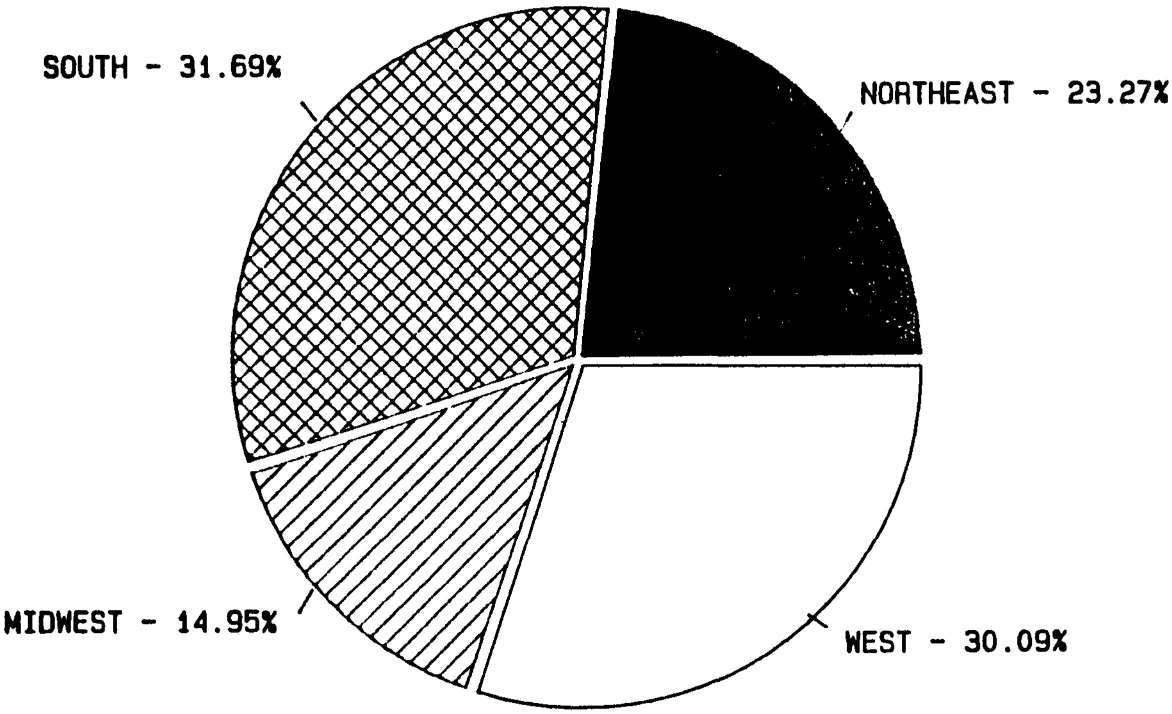
RREEF USA III
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



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TCW Realty Advisors

Funds: TCW Realty Fund III (1985)
TCW Realty Fund IV (1986)

Fiscal Year End: December 31

I. Fund Descriptions (General)

- Two non-competing closed-end, commingled equity funds.

Fund	Market value of net assets 12/31/87 (millions)	Market value of SBI's investment 12/31/87 (millions)	Percent of fund total held by SBI
III	$ 239.50	$ 44.38	18.53%
IV	$ 191.14	$ 24.50	12.82%

- Investments in selected major metropolitan areas.

- Funds consist of office, retail and industrial properties.

- Properties managed by outside management companies which are monitored by TCW Realty Advisors' own asset management supervisors.

II. Investment Philosophy

- Objective is to provide a six percent real rate of return through operating income and capital appreciation.

- Research driven investment selection. Research department studies geographic regions and indicates selected markets in which to target investment.

- The Equity Equivalent Loan (EEL) structure is often used, involving acquisition of an equity interest in the property while preserving some of the ownership rights (especially related to the tax benefits of ownership as well as residual interest) to the joint venture partner. Eventually the EEL structure is converted to a 100 percent fee ownership position if the joint venture partner elects to sell its remaining interest to the Fund.

- The EEL provides a fixed return from the developer and a pro-rata percentage sharing in the upside potential. This structure has been particularly effective when combined with earn-out provisions, where acquisitions are funded only when rents are in place.

- The Fund makes equity equivalent loans secured by first mortgages. The loans provide for fixed monthly interest payments to the fund, as well as additional interest payments based on the attainment of certain conditions, such as the achievement of increased net cash flow.

III. Valuation:

- Appraisals performed annually by independent appraisers.

- Appraisals have no impact on the fees received by TCW.

IV. Historical Performance

TCW Realty Fund III:

Year	TCW net	TCW gross	L&H
1985	9.30%	9.30%	N/A
1986	8.10	9.20	2.11%
1987	11.40	13.10	8.68
Mean	9.60%	10.53%	5.40%
Standard deviation	1.36%	1.82%	3.29%

TCW Realty Fund IV:

Year	TCW net	TCW gross	L&H
1986	9.80%	9.80%	N/A
1987	8.10	8.40	1.97%
Mean	8.95%	9.10%	1.97%
Standard deviation	0.85%	0.70%	N/A

N/A - No return as Fund had no real estate assets

V. Discussion of Funds and Advisor

TCW Realty Advisors is unique among the myriad of real estate investment management firms in that it approaches real estate investing from a highly research-oriented standpoint. Although TCW is similar to other firms in how they actually implement an investment decision, where it differentiates itself is in how it identifies investment opportunities. Rather than covering the country looking for any possible deal, TCW predetermines those particular investment markets, different for each property type, which meet its criteria for acquisition.

This is accomplished by utilizing the resources and skills of a staff trained in real estate market analysis, both on a project specific and macro level. In contrast to those other managers who employ sophisticated analytical approaches, TCW does not purport to create a "black box" approach, but rather there is a reliance on basic supply and demand analysis. More importantly, there is an emphasis on gathering and maintaining the necessary data at the property level. In addition, much of the data gathering is done by TCW professionals themselves rather than relying on data provided by such sources as brokerage firms. This analysis results in TCW selecting a number of cities as its preferred investment locations. This research guides the actions of TCW's acquisition personnel rather than having the research driven by the acquisition staff.

Although TCW does not provide on-site management for any of its properties, it maintains very strict controls over its managers through its asset management department, to the point where the on-site manager has no ability to write checks relating to the property. All checks must be approved and signed by one of the partners of the company. In selected instances, TCW has undertaken significant renovations of properties within the portfolios. Typically, these renovation strategies are part of the overall initial acquisition strategy.

As a result of both the attractiveness of this research driven approach to investing and the overall increased interest on the part of pension funds to invest in real estate, TCW has enjoyed extraordinary growth in the amount of assets under its control. In fact, its latest commingled fund, TCW Realty Fund V, has attracted over $500 million in investor capital. Given that its stated strategy is to invest in properties in the $15-$25 million range, there are questions as to how effectively TCW can continue to invest these larger pools of money into its preferred investment types. Moreover, TCW has been successful in attracting several large separate accounts including the New York State Retirement System, the California State Teachers' Retirement System and the California Public Employees' Retirement System. It is important to note that the series of commingled funds organized by TCW have priority over the separate accounts for any investment opportunity.

Upon its inception, TCW initially concentrated on the West and Midwest for its investments. As they have grown, they are looking on a more nationwide basis. This is due, in part, to the opening and expansion of an acquisition office in Boston.

In general, the research driven investment approach favored by TCW can be seen as providing some organization and stability to a process which can often be haphazard and reactive. On the other hand, this approach can also be seen as restrictive, as TCW does not pursue what might be excellent investment opportunities simply because the overall market may not be on the list of favored markets. Clearly, TCW's investment approach is a way of conserving company resources and applying them in a more efficient manner.

A further concern about TCW's investment approach relates to the semi-annual adjustment of the preferred markets for investment. Clearly, it is a positive that the data is updated and adjusted on a regular basis. On the other hand, real estate is a long-term investment and constantly tinkering with favored markets may lead one to assume that you can market time a real estate investment. In an extreme example, if a market favored in January of a particular year falls out of favor by July, then there may be some impact in the long-term for investments made in that market during that six month period.

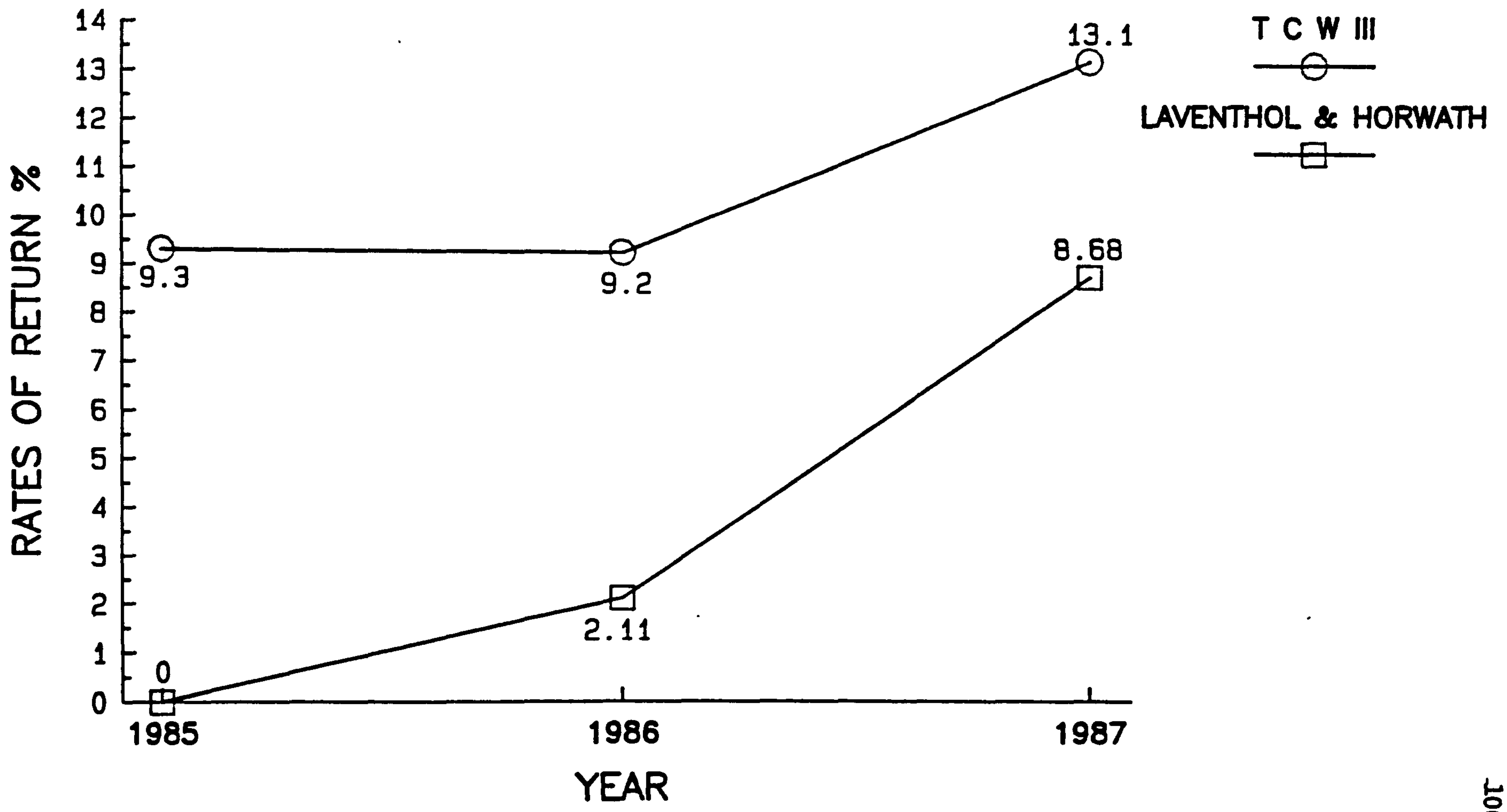
The final concern about TCW's investment strategy relates to the typical size of its investments, $15 to $25 million. Although TCW has been quite successful in this market niche, it has been this "middle market" which has suffered the most in the current real estate turndown. This is because this market niche is the least resistant to competition and new construction. In addition, with the greater amounts of capital that TCW needs to invest on behalf of both its commingled funds and separate account clients, there may not be sufficient quality investment opportunities available. Should TCW decide to abandon the "middle market" niche to move upwards, it is not clear that it has the ability to invest in, and manage, larger assets.

In terms of investment structure, the use by TCW of the EEL, a version of a participating or convertible mortgage, was very beneficial given the value of tax benefits prior to the Tax Reform Act of 1986. Since the passage of this law, the value of tax benefits has been reduced significantly, thereby limiting one of the primary advantages for this investment structure. However, with the expectation that interest rates will continue to rise, the use of convertible and/or participating mortgages will become more prevalent in the real estate marketplace as a result of the lower coupon rate typically associated with a loan of this type.

It is difficult to truly evaluate the performance of Funds' III and IV as they have only recently fully invested and have not reached their true stabilized operating levels. More specifically, the initial returns generated by the funds result primarily from the short-term investments by TCW rather than actual real estate investments. It is clear, however, that the composition of the portfolio reflects TCW's stated investment objectives.

T C W III

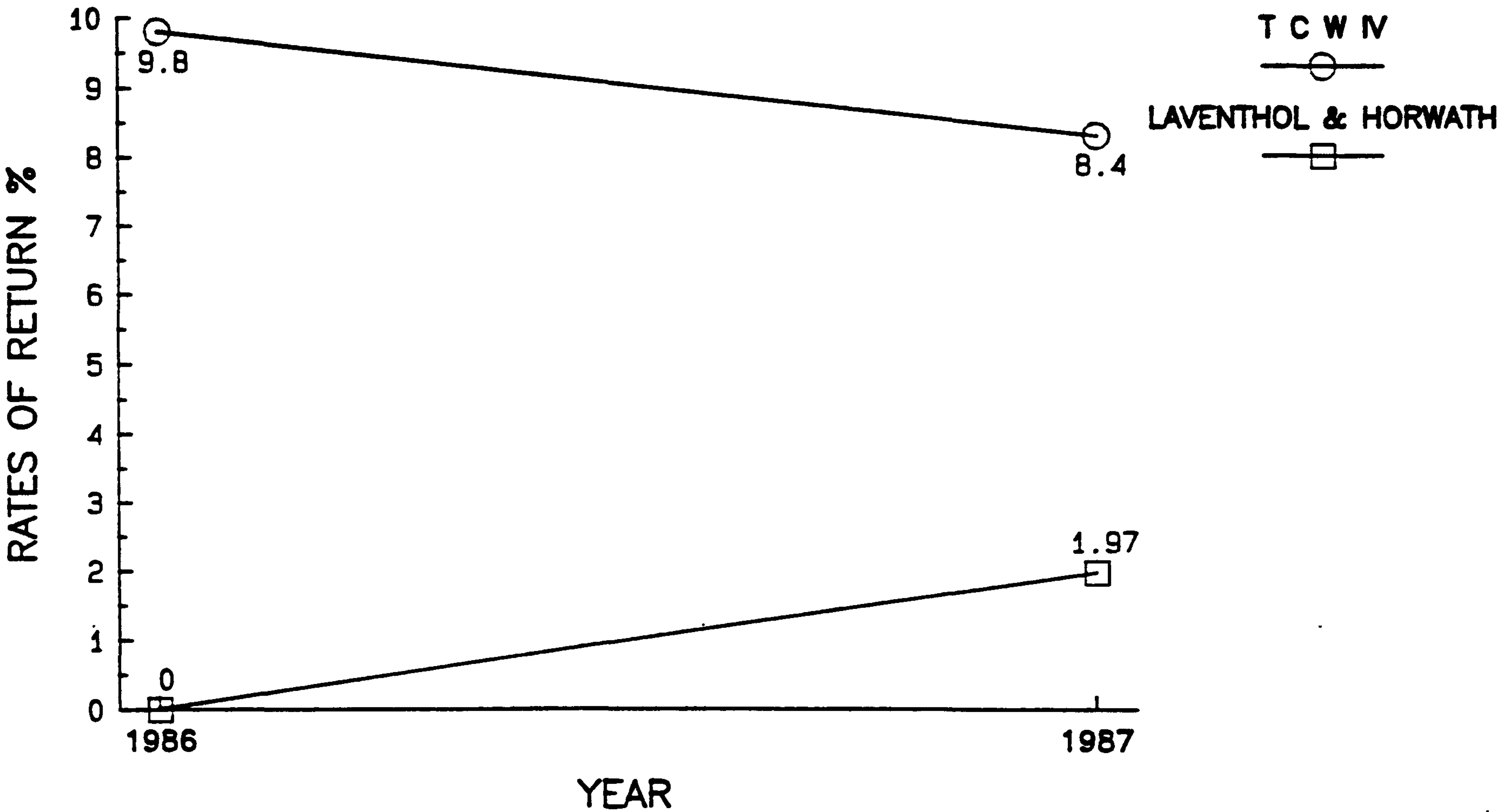
ANNUAL RATES OF RETURN
1985 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

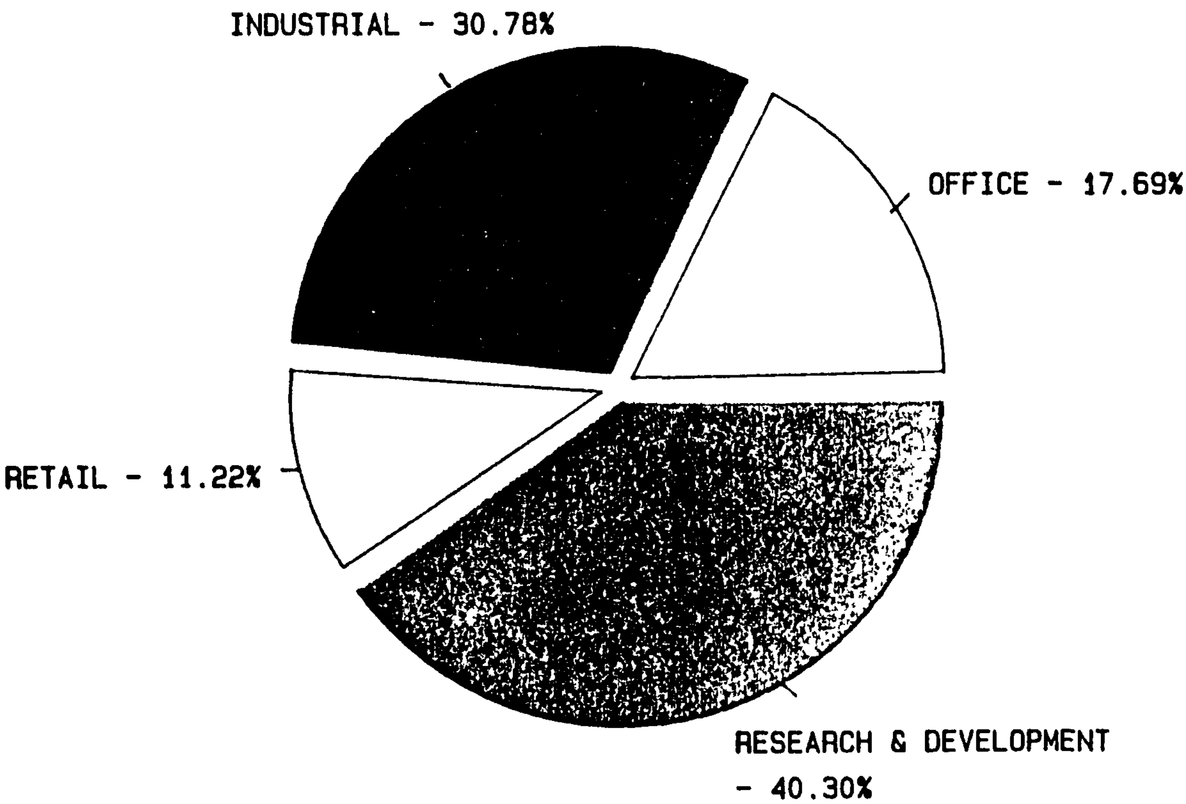
T C W IV

ANNUAL RATES OF RETURN
1986 - 1987



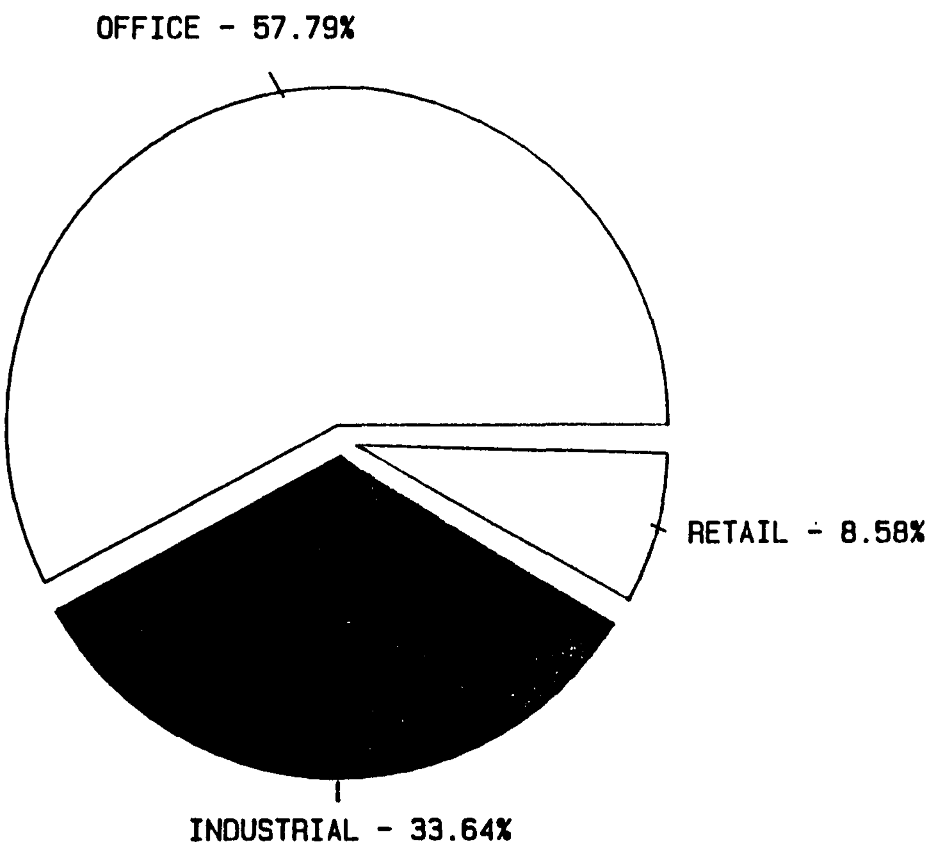
Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

TCW III
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

TCW IV
PROPERTY TYPE DISTRIBUTION
December 31,1987



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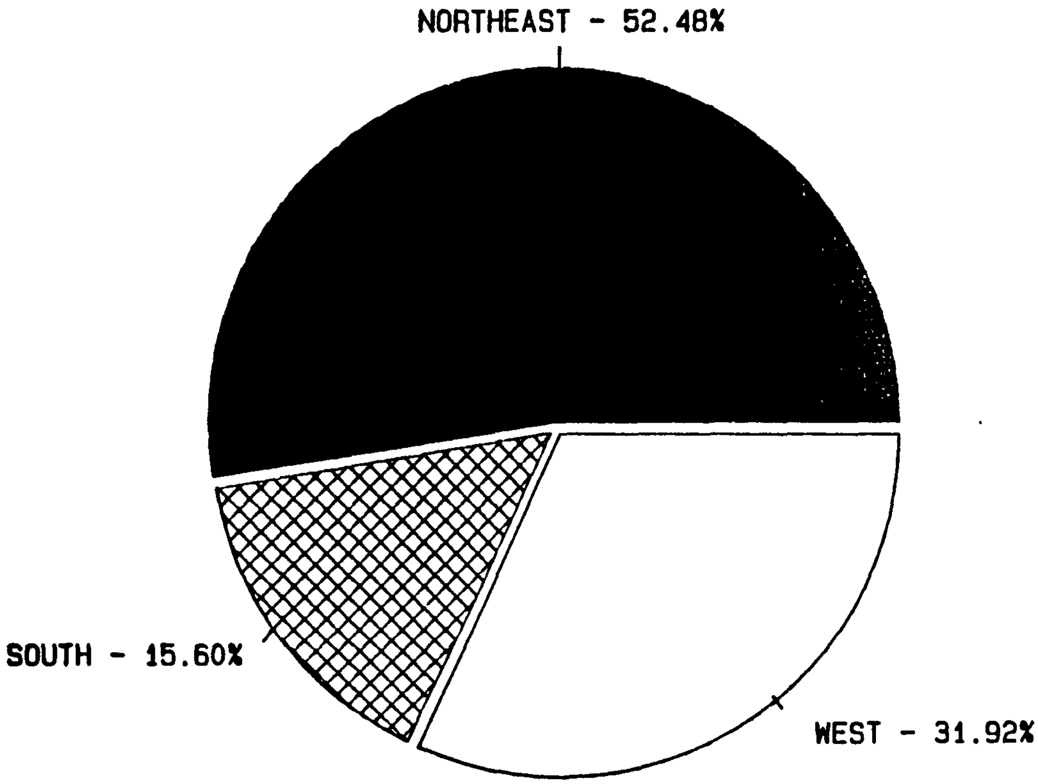
TCW III
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



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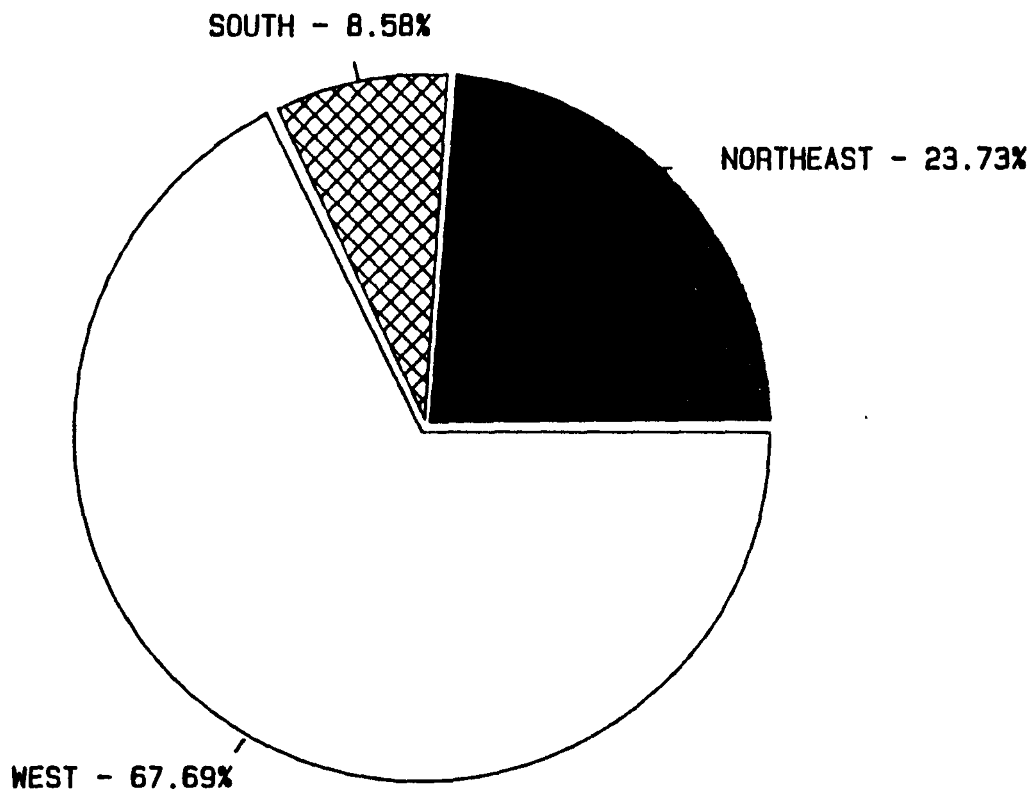
TCW IV
GEOGRAPHIC DISTRIBUTION OF FUND
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

SUMMARY

As will be discussed in more detail in later sections of this report, it is inappropriate to evaluate the performance of open-end and closed-end managers as a single homogeneous group of managers due to the differing investment and valuation philosophies. However, it is possible to prepare relative rankings of individual managers within the two different subgroups. The rankings as presented below are based on the historical performance of the individual managers, the riskiness of each manager's portfolio relative to its performance, the ability of each manager to both succinctly describe its investment philosophy and to succeed in carrying out its chosen strategy and our analysis of each manager's ability to perform in the future.

OPEN-END MANAGERS RANKINGS	OPEN-END MANAGERS	CLOSED-END MANAGERS RANKINGS	CLOSED-END MANAGERS
1st	Equitable	1st	Heitman
2nd	Aetna	2nd	TCW
3rd	Prudential	3rd	AEW/State Street
		4th	RREEF

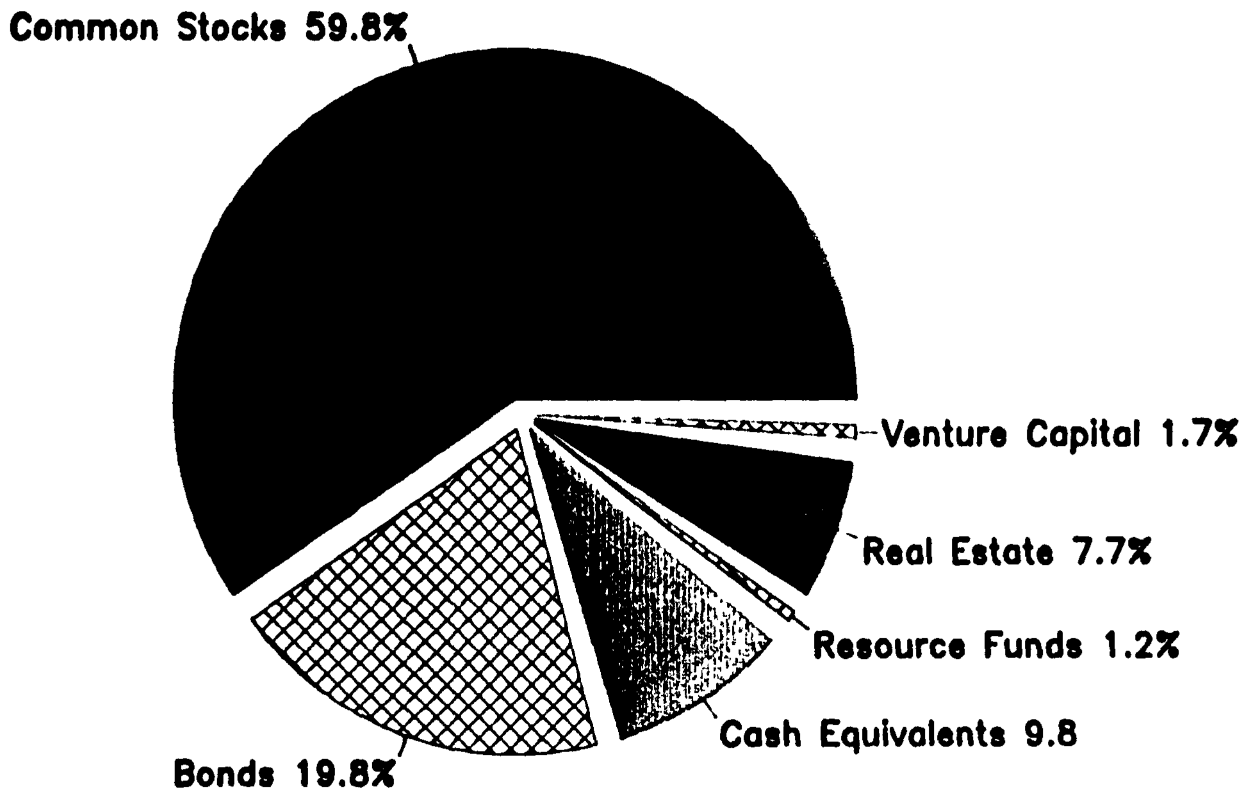
V. THE ROLE OF REAL ESTATE IN A DIVERSIFIED PORTFOLIO

In order to fully understand the risk, return and diversification benefits of real estate in a portfolio, it is important to analyze the performance of real estate relative to the other asset classes in the portfolio. In this section, we will analyze Minnesota SBI's real estate performance in the context of overall portfolio performance, to ensure that the real estate allocation is providing the desired return and diversification benefits.

Minnesota's fund currently contains common stocks, bonds, venture capital, resource funds, real estate and cash equivalents. This section focuses on the performance of the three major asset classes-stocks, bonds and real estate-over the past seven years. Exhibit V-1 shows the relative proportions of each type of investment.

EXHIBIT V-1

MINNESOTA SBI
TOTAL ASSET MIX
(JUNE 30, 1987)



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Minnesota SBI's Asset Allocation
June 30, 1987

Including Cash, Venture Capital and Resource Funds

Asset Class	Actual Allocation	Target Allocation
Common Stocks	59.8%	60.0%
Bonds	19.8%	22.0%
Cash Equivalents	9.8%	3.0%
Real Estate	7.7%	10.0%
Venture Capital	1.7%	2.5%
Resource Funds	1.2%	2.5%

Source: Minnesota State Board of Investment, 1987 Annual Report.

Each of these major asset classes has shown differing return and risk characteristics over the past seven years, since Minnesota made its first real estate investment. The table below shows the mean and standard deviation of the rates of return on the Standard & Poor's 500 index (stocks), the Shearson-Lehman Long-Term Bond Index, Minnesota's real estate investments, and the NCREIF Property Index, a real estate performance index, from 1981 through 1987.

The NCREIF Property Index measures the historical performance of income-producing properties owned by commingled funds on behalf of qualified pension and profit-sharing trusts, or owned directly by these trusts and managed on a separate account basis. The starting date for the Index is December 31, 1977. In order to eliminate the effects of mortgage indebtedness upon valuation, only unleveraged properties (properties owned free of any debt) are included. The data incorporated into the Index is drawn from the performance of properties managed by voting members of the National Council of Real Estate Investment Fiduciaries (NCREIF). Each of the seven managers utilized by the SBI are voting members of NCREIF and contribute performance data as appropriate.

All properties that qualified for the Index are included. Fourteen managers provided the initial property base for the Index of 236 properties, valued at $594.4 million on December 31, 1977. The property base has been expanded since that time through the addition of properties acquired by all members contributing property data. As of September 30, 1988, 1048 properties valued at over $13.6 billion were included in the Index.

Although the Index has several significant shortcomings, most importantly the inclusion of only all-cash investments and the non-verification of the data submitted, it is the most usable proxy for institutional real estate performance comparisons. As the current SBI portfolio closely approximates the NCREIF Index in composition and investment structure (in fact, the SBI's managers are the largest contributors of data to the Index), it is appropriate for the Index to be used by the SBI as the performance benchmark for both this and future analyses.

Historical Rates of Return
1981-1987

	Mean	Standard Deviation
Inflation (CPI)	4.30%	2.00%
Stocks (S&P 500)	14.30%	11.73%
Bonds (Long-Term Index)	16.16%	15.00%
Minnesota Real Estate	9.46%	3.25%
NCREIF Real Estate	10.56%	3.78%

As shown in this table, real estate has not yielded the same level of returns as the other two asset classes over the past seven years. However, real estate has also been a much less risky investment over the same period, whereas there have been large fluctuations in the annual returns of both stocks and bonds. All of these investments are mean-standard deviation efficient, as explained previously, since the added risk has been rewarded by higher returns.

Given the volatility of the stock and bond markets over the past seven years, it is also useful to examine rates of returns for the three asset classes over a longer time horizon. Although Minnesota was not an investor in real estate prior to 1981, the NCREIF index can be used as a relevant performance measure for real estate. Below are the rates of return and standard deviation of the three main asset classes for the 10 years from 1978 through 1987.

Historical Rates of Return
1978-1987

	Mean	Standard Deviation
Inflation (CPI)	6.48%	3.86%
Stocks (S&P 500)	15.67%	11.52%
Bonds (Long-Term Index)	10.62%	15.17%
NCREIF Real Estate	12.86%	4.85%

When viewed over this longer period of time, the benefits of including real estate in a portfolio become even more apparent. First, real estate provided a mean rate of return greater than that of bonds and almost equal to that of stocks. Therefore, the addition of real estate to an existing portfolio of stocks and bonds may increase overall portfolio returns.

The second advantage of real estate is its lower risk when compared to the other major asset classes. During both the seven- and 10-year time periods shown above, real estate has exhibited a standard deviation well below that of the other assets. From 1978 to 1987, real estate had a standard deviation of 4.85 percent, while the standard deviation was 11.52 percent for stocks and 15.17 percent for bonds. Therefore, the addition of real estate could substantially lower the risk of an existing portfolio of stocks and bonds.

Some caution should be exercised when examining the return and risk characteristics of real estate investments, due to the reliance on the appraisal process in determining property values. This process tends to smooth out any variations, either positive or negative, in the value of a property. However, transaction-based analyses of real estate investments, as prepared by Professors Mike Miles, David Guilkey, and Rebel Cole of the University of North Carolina (Real Estate Review, Spring 1987, pages 84-89), have proven that risk and return variations caused by the appraisal process are statistically insignificant.

An additional advantage of real estate is its contribution to overall portfolio diversification. As will be discussed in more detail in the next section of this report, an excellent measure of the ability of an asset to contribute to overall portfolio diversification is the correlation coefficient between different assets. A correlation coefficient approaching +1 indicates that the assets are approaching perfect correlation. This means that as the performance of one asset changes, the accompanying asset changes in a similar fashion and in a similar proportion. In order to maximize the diversification of an entire portfolio, it is appropriate for fund managers to combine assets with negative correlations whenever possible.

As shown in the table below, returns on real estate investments for the period of real estate investment by the SBI are negatively correlated with both the returns on bonds and equities.

Therefore, the addition of real estate has reduced the volatility of the annual rates of returns of the SBI's portfolio.

An additional advantage of real estate is that it can provide a hedge against inflation. The rental rates of many leases are increased by a factor of the Consumer Price Index, providing increases in income, as well as appreciation, during times of inflation. Real estate performed quite well during the inflationary period of the 1970's. It should be recognized, however, that the ability of real estate to act as an inflation hedge requires that the supply and demand characteristics of a market approach a state of equilibrium. Providing a hedge against inflation would be demonstrated by the performance of real estate being positively correlated with the Consumer Price Index. As shown in the table below, for the seven year period of investing in real estate by the SBI, this has occurred. Therefore, the SBI's real estate portfolio has provided its desired hedge against inflation.

Correlation Analyses 1981-1987

Correlation with	SBI Real Estate	NCREIF
Stocks (S&P 500)	-0.214	-0.036
Bonds (Long-Term Index)	-0.500	-0.143
Inflation (Consumer Price Index)	0.857	0.821

In addition to indicating the ability of real estate to add diversification to an entire portfolio and its ability to act as a hedge against inflation, it is also important to note that the SBI's portfolio has done so to a greater extent than the NCREIF Index. Therefore, the slightly lower performance of the SBI portfolio as compared to NCREIF is offset by its superior performance in the context of the entire portfolio.

THE AMOUNT OF REAL ESTATE IN A DIVERSIFIED PORTFOLIO

Having established the desirability of real estate in a diversified portfolio, the next logical step is the determination of the proper allocation of funds to real estate investments. Historically, this has been one of the most difficult analyses for institutional investors to undertake given the limited amount of research and data available. What research has been done has yielded results which may be technically correct but do not fit the reality of the real estate marketplace.

Studies performed by Dr. Steven Ross of Yale University in conjunction with the Goldman Sachs real estate research department indicated that the optimal allocation to real estate would be in excess of 40 percent of a portfolio. Whether or not this is true, the practical limitations of all institutional investors increasing their allocation to real estate from the current industry average of approximately four percent to more than 40 percent and the associated impact on returns (most likely a significant decrease in performance) brings about serious questions regarding the validity of the research. In practice, the choice of asset allocation targets for real estate is principally dependent upon each investor's preference towards the tradeoff between overall portfolio risk and return and expected rates of inflation.

In order to analyze the appropriate allocation to real estate for the SBI, we performed a linear regression analysis on the historical returns for stocks (S&P 500), bonds (Long-Term Index) and real estate (NCREIF Index). We then evaluated the predicted rates of return at various inflation levels for allocations to real estate ranging from zero to twenty percent of the entire portfolio. The non-real estate portion of the portfolio was assumed to be allocated between stocks and bonds in the same ratio that the SBI portfolio had as of June 30, 1987. The associated regression formulas for each asset class are presented below.

Asset Class	Constant/Intercept	X Coefficient	R-Squared
Stocks	0.156	0.017	0.000
Bonds	0.273	-2.573	0.429
Real Estate	0.055	1.133	0.814

The following conclusions can be drawn from this analysis:

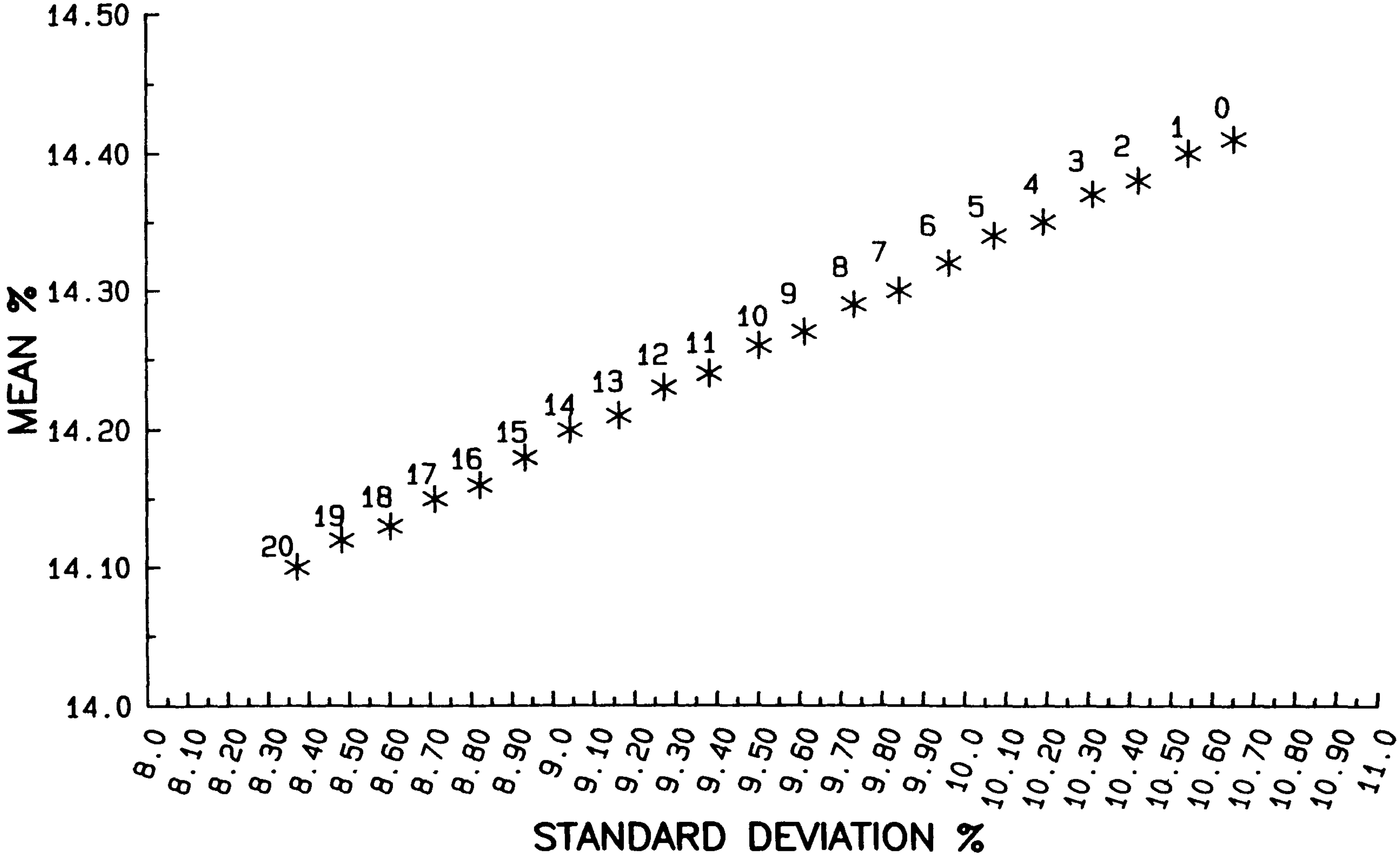
- The addition of real estate always lowered portfolio risk;
- Real estate performance and inflation are highly correlated with each other;
- Stocks show no correlation with inflation which is indicative of its high degree of volatility; and
- Bonds show a relative high degree of correlation as measured by the R-squared calculation which further evidences its intermediate level of volatility.

This analysis demonstrates that real estate makes a valuable contribution to the risk-adjusted rate of return of an investor's overall portfolio. Exhibit V-2 describes the risk and return parameters associated with differing asset allocations utilizing the historical data for the years 1978 through 1987. As can be seen, increases in the real estate allocation level serves to both decrease the overall risk of a portfolio and the return. In addition, it can be seen that each level of allocation creates a mean-standard efficient portfolio. It is important to note that for every percent increase in the real estate allocation, return declines only .015 percent while the associated risk of the portfolio decreases by .114 percent. The choice of where an investor such as the SBI should set its asset allocation target is therefore highly dependent upon its own preferences regarding risk and return.

EXHIBIT V-2

MEAN VS. STANDARD DEVIATION

OVERALL PORTFOLIO WITH REAL ESTATE ALLOCATIONS
OF 0 TO 20 PERCENT
1978 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

An additional factor to consider is the investor's expectation regarding short- and long-term inflation rates. It is of interest to note that the most recent figures released by the federal government indicate that the inflation rate for 1989 is running at a 7.2 percent annualized rate, which is a relatively significant increase from recent historical inflation levels. In our judgement, the current 10 percent target allocation for real estate is certainly reasonable as a long-term objective. More importantly, the SBI may wish to give serious consideration to increasing this target allocation over the long term to 15 percent. Our basis for this recommendation is that we believe sufficient investment vehicles and opportunities exist in the marketplace which will permit the SBI to exceed the performance of the NCREIF Index. The choice of an optimal target allocation will be dependent upon the SBI's preferences towards risk and return.

VI. CHOOSING THE OPTIMAL REAL ESTATE PORTFOLIO

EVALUATION OF MINNESOTA'S CURRENT REAL ESTATE FUNDS

This section of our report will analyze the Minnesota SBI's existing real estate allocation among eleven funds and seven fund managers to determine whether a reallocation would be beneficial. The primary objective behind such a reallocation would be the improvement of the rates of return on Minnesota's investments, without substantially increasing risk or decreasing overall portfolio diversification. A possible side effect of such a reallocation could be the practical advantage of dealing with fewer fund managers. This section provides an evaluation of the financial performance of each fund independently, within the framework of Minnesota's existing portfolio.

We provide data on the performance of each of the open-end funds from 1981 through 1987. Since most of the closed-end funds in which the SBI has invested were originated since 1985, it is not necessarily appropriate to compare their performance to that of the older open-end funds. For the most part, the returns as reported by these newer funds reflect returns from cash equivalents and other short-term investments as much as from actual real estate investments. Therefore, the main focus of our analysis is the performance of the open-end funds (Aetna, Equitable and Prudential), since these are also the funds most likely to be affected by any reallocation decisions.

Exhibit VI-1 shows the mean, standard deviation, beta, Jensen's measure, Sharpe's measure, and the correlation coefficients with equities and bonds for each real estate fund. Exhibit VI-2 ranks the open-end funds from best to worst according to each of these measures. The significance of each of these measures is explained in greater detail in the following paragraphs.

EXHIBIT VI-1

Real Estate Performance Measures by Fund

	Beginning Year of Data	Mean %	Std. Dev. %	Beta	Jennsen's Measure	Sharpe's Measure	Correlation with Equities	Correlation with Bonds
etna	1981	9.51	5.65	-0.02	0.612	0.086	-0.178	-0.321
quitable	1981	13.21	5.75	0.155	3.371	0.729	0.357	-0.143
rudential	1981	8.26	6.48	0.043	-0.981	-0.117	0.179	0.071
eitman I	1984	11.72	4.45	0.038	3.983	0.605	-0.2	-0.2
eitman II	1985	8.81	1.81	-0.071	2.450	-0.118	-1.0	-1.0
eitman III	1987	2.77	N/A	-77.133	403.711	N/A	N/A	N/A
REEF USA III	1984	4.56	2.21	0.033	-3.145	-2.018	-0.4	-0.4
CW III	1985	3.60	4.53	-0.135	-2.427	-1.197	-1.0	-1.0
CW IV	1986	0.99	1.39	0.179	-6.159	-5.765	-1.0	-1.0
EW III	1985	1.46	2.15	-0.058	-4.963	-3.510	-1.0	-1.0
EW IV	1986	1.01	0.60	0.189	-6.188	-13.290	-1.0	-1.0
CREIF	1981	10.56	4.08					
&P	1981	14.30	12.67					
onds	1981	16.16	16.21					
PI	1981	4.30	2.16					
-Bills	1981	9.02	2.56					

Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT VI-2

RANKING OF OPEN-END FUNDS BY VARIOUS MEASURES

	MEAN	STANDARD DEVIATION	BETA	JENSEN'S MEASURE	SHARPE'S MEASURE	CORRELATION WITH EQUITIES	CORRELATION WITH BONDS
Best 1.	Equitable	Aetna	Aetna	Equitable	Equitable	Aetna	Aetna
2.	Aetna	Equitable	Prudential	Aetna	Aetna	Prudential	Equitable
Worst 3.	Prudential	Prudential	Equitable	Prudential	Prudential	Equitable	Prudential

Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Mean and Standard Deviation

Exhibit VI-3 plots the mean versus the standard deviation for each fund. The graph also depicts these points for several other investment vehicles, including:

- National Council of Real Estate Investment Fiduciaries (NCREIF);
- Standard & Poor's 500 (S&P)
- Shearson-Lehman Brothers Long-Term Bond Index (Bonds);
- Consumer Price Index (CPI); and,
- Treasury Bill Rate (T-Bill).

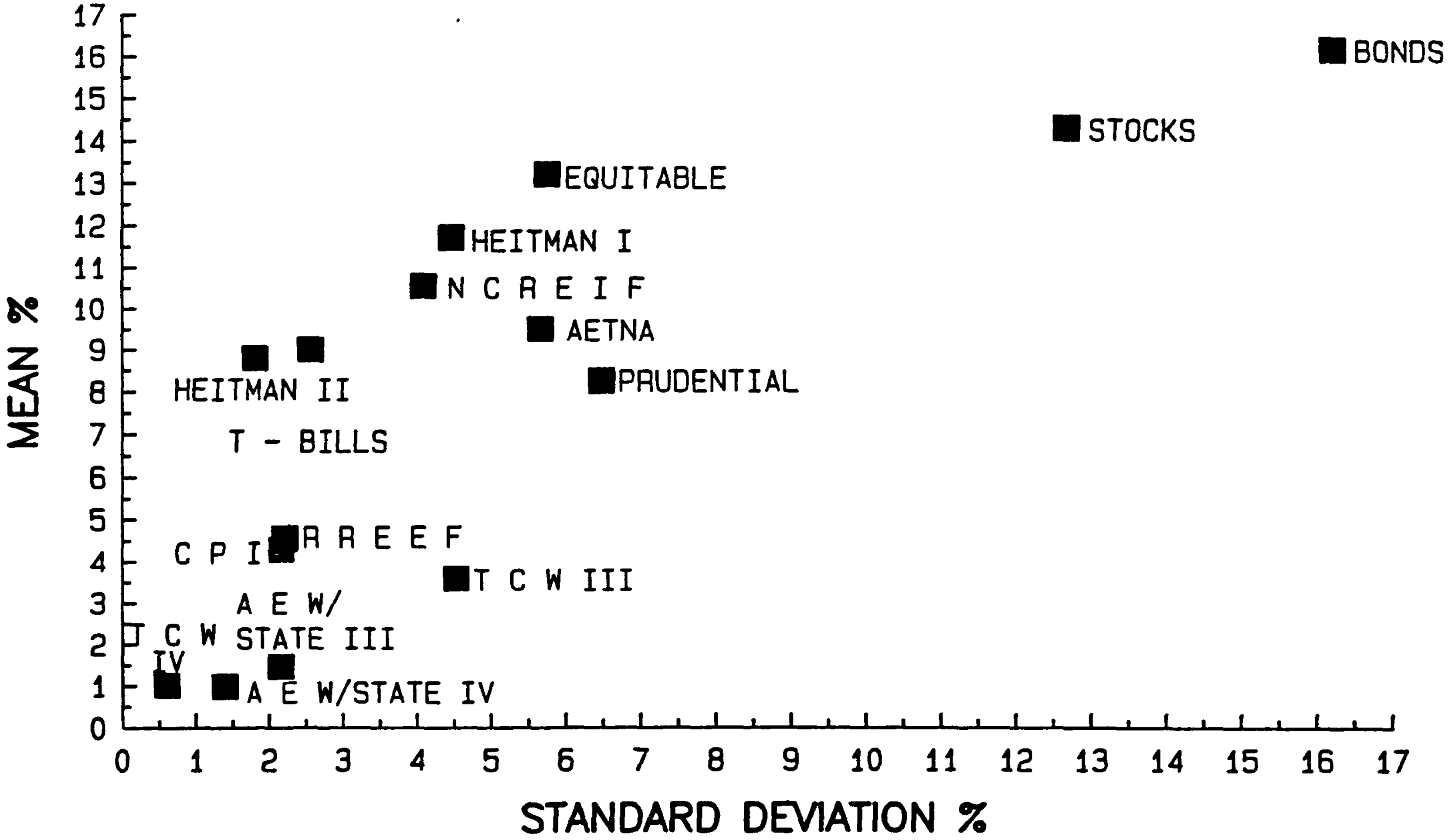
As shown on this graph, the mean returns of stocks and bonds exceeded those of real estate from 1981 through 1987. However, each of the real estate funds had less risk than these other asset classes. NCREIF is an index of a large number of diverse properties, and is often used as a general index of real estate performance. This index will be described in more detail later in this section.

Equitable had a mean return of 13.21 percent from 1981 through 1987, the highest of all of the SBI funds. However, it also had the second highest level of risk as measured by its standard deviation, of 5.75 percent.

EXHIBIT VI-3

MEAN VS. STANDARD DEVIATION

Real Estate, Stocks, Bonds, and the CPI
1981 - 1987

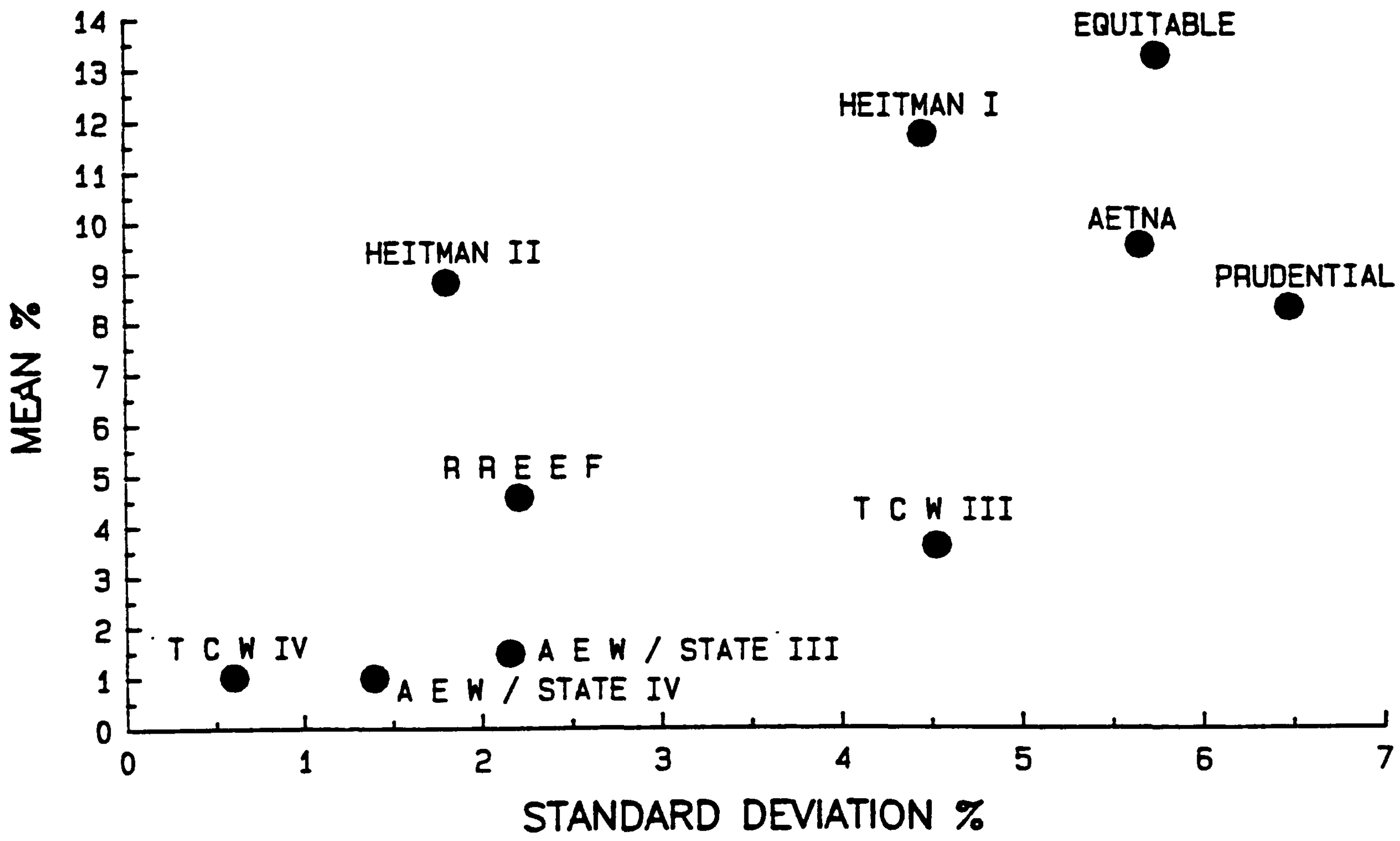


Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT VI-4

REAL ESTATE FUNDS

1981 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Aetna's mean return was 9.51 percent, while its standard deviation was 5.65 percent. Prudential was the most inefficient of the three open-end funds, as it had the lowest return, 8.26 percent, and the highest standard deviation, 6.48 percent.

Of the close-end funds, Heitman I had the highest mean return, 11.72 percent, during its four-year existence. Over the same period, RREEF USA III had a mean return of only 4.56 percent.

The remainder of the closed-end funds have been in existence for three years or less. Most of the returns reported by these fund managers reflect returns from cash equivalents and other short-term investments. Therefore, it is not appropriate to make judgments as to the performance of the real estate assets at this time.

Beta. The beta of a fund is a measure of the volatility of the rates of return of that fund, as compared to the volatility of the stock market as a whole. A beta of one indicates that the fund is as volatile as the market. Such a fund would be expected to yield the same average rate of return as the market. A fund with a beta greater than one is more volatile than the market and would be expected to earn a greater return. A fund with a beta less than one would be expected to be less volatile than the market and to earn a lower return than the market. Betas are calculated through the technique of linear regression. The equation, known as the Capital Asset Pricing Model, follows:

$$R_{efund} - R_f = a_{fund} + B_{fund}\,(R_{mkt} - R_f)$$

where:

R_{efund} = annual return on the real estate fund

R_f = annual risk-free rate of return

a_{fund} = the intercept term of the equation

B_{fund} = the beta of the fund

R_{mkt} = annual return on the market

The beta of a fund is related to the correlation coefficient of that fund and the stock market. Consider an asset which is more volatile than the market: the return on this asset is always 1.2 times the return on the market. The correlation coefficient of this asset with the stock market would be 1. They are perfectly correlated. The beta of the asset would be approximately 1.2. We say "approximately" because the rates of return on the risk-free asset will also influence the fund's beta.

Given the relatively high proportion of stocks within the SBI portfolio, the overall diversification and risk level of the portfolio would be improved by the beta for the real estate portion of the portfolio being as low as possible (either negative or close to zero). A negative beta for the real estate funds is indicative of lower overall risk for the pension fund portfolio. That is, when stock returns fall, real estate will perform well. Thus, with the proper mix of low beta and high beta assets, it is possible for the overall portfolio return to remain constant (increase) while portfolio risk falls (remains constant).

Our analysis indicated that Aetna has the lowest beta of the open-end funds, - 0.02. However, Equitable and Prudential, with betas of 0.16 and 0.04, respectively, can also help to lower the overall risk of the portfolio. Due to the shorter existence of the closed-end funds, their betas can not be considered particularly good indicators of overall volatility. However, the low betas of each of the open-end real estate funds indicate that real estate can lower the overall risk of the portfolio since no fund is highly positively correlated with stocks.

There are several other ways to measure the risk/return performance of portfolios. One, Jensen's measure, is based on the Capital Asset Pricing Model described above. The other, Sharpe's measure, compares the risk premium of an asset with the risk of the portfolio. These two risk measures are described on the following pages.

Jensen's Measure. Jensen's measure is the intercept term, a a^{f}und, in the Capital Asset Pricing Model shown earlier:

$$R_{efund} - R_f = a_{fund} + B_{fund} (R_{mkt} - R_f)$$

The Capital Asset Pricing Model predicts that a_{fund} will not be statistically different from zero. If the intercept of a fund is positive and statistically different from zero, that implies that the fund consistently performs better than expected. That is, the actual return on the fund is better than the risk-adjusted return on the fund predicted by the Capital Asset Pricing Model.

Two of the three open-end real estate funds have positive intercept terms (Jensen's measure). The larger the intercept, the greater the risk-adjusted return. Equitable has the highest Jensen's measure, 3.37 percent. This means that on average Equitable achieves an annual rate of return that is 3.37 percent higher than expected. Aetna has the second highest, 0.61 percent. Prudential has a Jensen's measure of -0.98 percent. This means that this fund earns less than would be predicted by the Capital Asst Pricing Model.

Sharpe's Measure. Sharpe's measure is a variation on the theme of mean-standard deviation efficiency. It is defined as the difference between the average return on the fund and the average return on a risk-free security, divided by the standard deviation of the fund. This measure considers not only the excess return of the fund over the risk-free rate, but also the riskiness of the fund. Sharpe defines "risk" as the standard deviation of the rates of return.

$$\text{Sharpe's measure} = \frac{R_{efund} - R_f}{s_{fund}}$$

where:

R_{efund} = average return on the fund

R_f = average return on the risk free asset

s_{fund} = standard deviation of the returns on the fund

A "good" Sharpe's measure should be positive. A negative Sharpe's measure means that the fund has not been able to earn more than the risk-free rate of return over the period from 1981 through 1987. Of the open-end funds, Equitable has the best Sharpe's measure, 0.729. Aetna has a Sharpe's measure of 0.09. Only Prudential is unacceptable. It's - 0.12 Sharpe's measure shows that Prudential was not able to provide an average rate of return that was greater than the risk-free rate of return (which is defined here as the average rate of return on 6-month treasury bills). Again, the closed-end funds have not been in existence long enough for either their Sharpe's or Jensen's measures to be of significance.

<u>Correlation with Equities</u>. Each fund can also be ranked by its correlation with equities. A correlation coefficient of +1

means that the two returns are perfectly correlated. When one increases, the other increases by the same proportion. A correlation coefficient of -1 means that the two items are perfectly negatively correlated. When one increases, the other decreases by the same proportion. A correlation coefficient of zero indicates that the two items are completely unrelated. When one return increases, it is not possible to predict the direction of movement of the other return.

It is most desirable for the correlation coefficient between the return on equities and the return on a particular real estate fund to be negative. However, even a low correlation coefficient is desirable because of the benefits of diversification. In any given year, one would prefer real estate's financial performance to help offset any changes (positive or negative) in equity returns. This will have the effect of reducing the volatility of the overall portfolio.

All three of the open-end funds have relatively low correlations with equities. Aetna is the best, with a correlation of -0.18. However, Prudential and Equitable, with correlation coefficients of 0.18 and 0.36, respectively, also provide the desired diversification benefits and are a desirable addition to the portfolio in terms of minimizing the correlation with equities.

Correlation with Bonds. The final column in Exhibit V-1 shows the correlation of each fund with bonds. Again, a negative correlation coefficient is desirable, and in fact, all but Prudential have this property. This means that the returns on bonds and real estate move in opposite directions. When the return on bonds is up, the return on real estate is down. This phenomenon is mainly caused by inflation, since real estate investments typically do well in times of high inflation while bonds often perform poorly. The fund with the largest negative correlation with bonds is Aetna, with a correlation coefficient of -0.32.

Correlation Among the Real Estate Funds

Some of the funds within the SBI's real estate portfolio are highly correlated with one another, while others have almost no correlation. It is useful to evaluate the following correlation coefficients between the three open-end funds:

- Equitable and Aetna (CC = -0.11)
- Equitable and Prudential (CC = 0.86)
- Aetna and Prudential (CC = -0.29)

The above figures show the high correlation between Equitable and Prudential, demonstrating a possible redundancy between these similarly composed core-type funds.

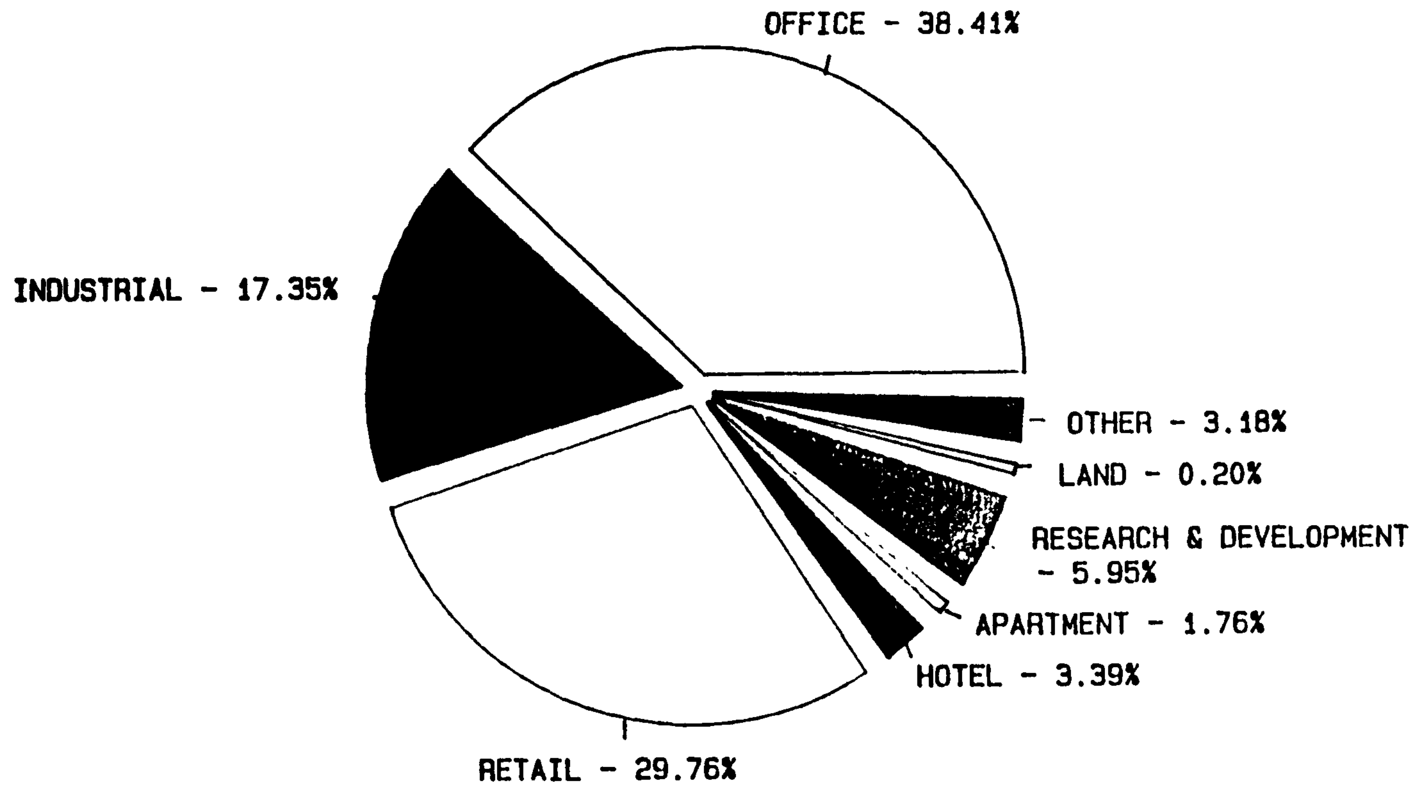
EVALUATION OF THE DIFFERENT TYPES OF PROPERTIES

Minnesota's eleven real estate funds currently have investments in eight different types of properties: office buildings; industrial/warehouse facilities; retail centers; apartments/residential buildings; hotels; research and development (R&D) facilities; land; and, "other" types of property. "Other" principally includes mixed-use properties. Exhibit VI-5 shows the distribution of SBI's investment in these eight property types. The table presented below compares the SBI's portfolio composition with that of the NCREIF Index as of December 31, 1987.

Property Type	% in SBI Portfolio	% in NCREIF Portfolio
Office buildings	38.41%	44.70%
Retail	29.76	19.76
Industrial/warehouse	17.35	17.12
R&D	5.95	12.20
Hotel, land, other, apartments	8.53	6.23

To determine the combination of properties which will satisfy the SBI's risk and return objectives, we have examined the mean and standard deviation of the rates of return on each type of property that comprised the SBI portfolio. We have also calculated the accompanying beta, Jensen's measure, Sharpe's measure, and the correlation coefficients with stocks and bonds for each property type.

MINNESOTA SBI'S TOTAL ALLOCATION
PROPERTY TYPE DISTRIBUTION
December 31,1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Mean and Standard Deviation

Presented in the table below is the performance for each of the property types within the SBI portfolio in terms of both return and risk. Exhibit VI-6 plots the mean versus the standard deviation for each property type from 1981 through 1987. Industrial facilities, retail, apartments and land investments are all mean-standard deviation efficient. Office buildings are somewhat inefficient although their returns are far in excess of hotels and "other" properties without incurring significantly greater risk.

SBI Portfolio Performance by Property Type 1981-1987

Property Type	Mean	Standard Deviation
Office buildings	8.93%	8.16%
Industrial/warehouse	11.17	6.00
Retail	12.30	6.15
Apartments	14.05	9.56
Hotels	5.82	7.50
Research & development	11.59	15.16
Land	18.76	35.52
Other	0.74	7.42

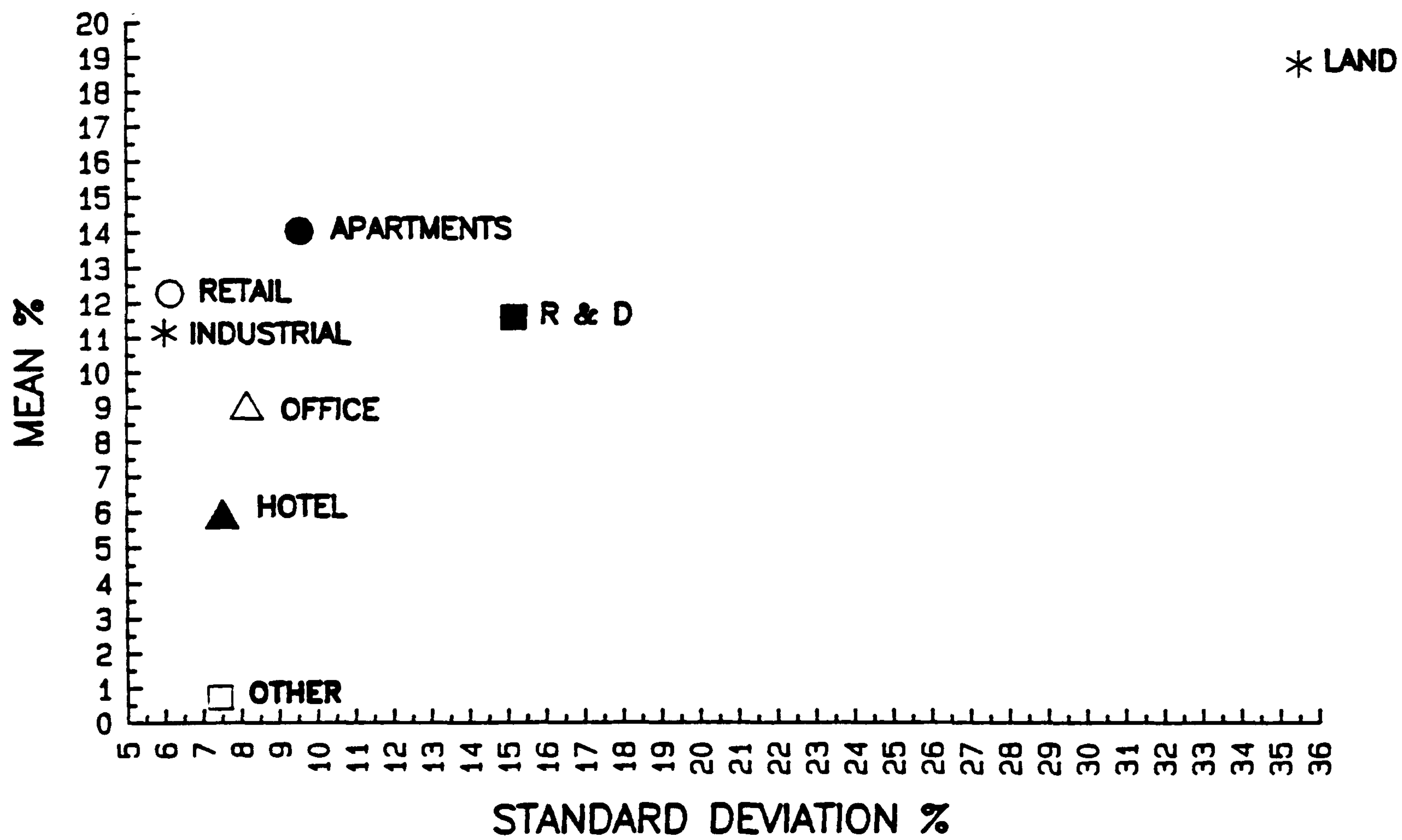
Sharpe's Measure

As described earlier, Sharpe's measures the excess return of a fund over the risk-free rate, while considering the riskiness of the fund. A high positive Sharpe's measure is most desirable.

EXHIBIT VI-6

MEAN VS. STANDARD DEVIATION

BY PROPERTY TYPE



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Apartments and retail properties exhibit the highest Sharpe's measures. "Other" properties are the only property type which exhibits a high negative Sharpe's measure (1.16 percent).

Correlation with Equities

On the basis of this analysis, hotels, R&D facilities and "other" properties are the most desirable as they are all negatively correlated with the S&P 500 Index. Both retail and industrial/warehouse facilities show no correlation at all with equities. Office buildings show a slight positive correlation while both land and apartments appear to have fairly high positive correlations. Both the land and apartment correlations are of minimal concern given the limited amount of the SBI portfolio currently invested in these property types.

Correlation with Bonds

Retail, "other" and R&D properties are all negatively correlated with bonds, making them attractive additions to a portfolio in order to achieve greater diversification. Land is the only potentially undesirable addition according to this measure, since it has a rather high positive correlation with bonds.

Correlation Among the Property Types and with Inflation

Exhibit VI-7 shows the correlation coefficients between each of the property types and with inflation. Retail properties have low positive or negative correlations with most of the other property types. The bottom row of this table shows the correlation coefficient of each of these property types with the CPI or inflation rate. As can be seen, only retail properties are negatively correlated. Given their low positive or negative correlations with other properties, this is not unexpected. This further validates the ability of real estate to act as an inflation hedge.

While the SBI should not rule out any investment opportunities based solely on property type goals or considerations, we believe the future focus should be on industrial, office and apartment investments. R&D investments should be monitored closely, as they have proven to be investment types subject to overbuilding and high vacancies in the few markets which can truly support an R&D environment. Hotel investments should be limited as the market continues to be fairly overbuilt and segmented with the expectation of increased operating profits will not occur for at least three to five years. Land represents a very specialized investment form which may offer some excellent return opportunities although there is a high level of accompanying

EXHIBIT VI-7

Correlation Among the Property Types and with Inflation

(Correlation Coefficients)

	Hotel	Industrial	Office	Other	R&D	Apartments	Retail	Land
otel	1.00							
dustrial	.03	1.00						
fice	.20	.55	1.00					
her	-.17	-.12	-.33	1.00				
D	.25	.22	.21	.29	1.00			
artments	-.11	.39	.31	-.14	.04	1.00		
tail	-.22	-.04	.16	.02	-.19	.26	1.00	
nd	-.12	.05	.19	.07	.15	.38	-.11	1.00
flation	.27	.56	.74	.14	.49	.28	-.08	-.02

Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

risk associated with speculative land investments. Retail investments should also be viewed cautiously. The following paragraphs describe in more detail our thoughts regarding office buildings, apartments, industrial/warehouse and retail investments in more specific terms.

Industrial/warehouse facilities should continue to provide good investment opportunities. These properties are generally less risky than other types, yet provide a high rate of return. One potential problem with this property type is the limited number of sufficiently large investment opportunities of an institutional quality. It should be noted that the industrial market is not a homogeneous market as there are a variety of product types within the market. These include distribution, light assembly and flex (office/warehouse mixture) buildings.

The market demand and supply relationships for industrial properties are in balance more often than other property types since they are relatively easy to build with a short delivery time. The breakdown of property types which has been prepared for the SBI separate the warehouse portion from the more volatile R&D/flex products.

Office buildings should continue to be a good long-term investment. Development has or should cease in most of the soft office markets across the country, thereby reducing excess supply. Although the office market has experienced difficulties in many locations throughout the country, there still remains significant investment opportunities. As more and more communities begin to consider limitations on future growth, those properties already built or in the development pipeline increase in value. The national vacancy rate for office buildings has been slowly declining since mid-1986 as lenders began to limit future building by increasing preleasing requirements and requiring developer equity. Furthermore, many opportunistic investment situations exist for office building investors as related to slightly older buildings which can be upgraded and repositioned in the marketplace. Oftentimes, these investments allow owners to create a cost basis below new construction and yet still appeal to potential tenants on the basis of lower rental rates, prime locations and modern facilities. This trend is different from the past activity involving historic rehabilitations since many of these type developments were driven as much by tax considerations as by economic factors. With proper due diligence procedures and intensive management, office buildings, especially those in markets where future construction and competition is constrained, offer the astute investor excellent opportunities.

Apartments have historically provided steady returns, even during the early 1980s which was perceived to be a difficult time for this property type. More importantly, several new apartment funds, such as the Aetna Apartment Fund, have performed at levels far above the NCREIF Index (in excess of 13 percent). The recent changes in the real estate tax laws have again made apartments attractive to the institutional investor. These investors can now compete on a purely economic basis, rather than competing with syndicators interested more in tax ramifications than economic benefit. As interest rates increase, as they are expected by many to do, apartments will become even more attractive to those who cannot afford home ownership, especially young couples and the elderly. This is evidenced by decreased residential construction starts. Further support for increased apartment investments arises from the changing household pattern to include more unrelated persons sharing living quarters, singles living alone and single parent households, each of which may lean towards the rental side of the housing equation.

Historically, institutional investors have limited their apartment investments due to the perceived need for intensive property management. This concern has been somewhat mitigated since quality property management is necessary for all property types in today's market. One condition to apartment investments is that we do highly recommend that apartments not be invested in through a direct account, but rather through commingled funds. This will permit the investor to diversify the risk of the portfolio among a greater number of properties as well as shield the general public from knowledge of its ownership position. This will serve to reduce the possible direct reaction by tenants against the investor in the event of problems involving the property.

Additional retail investments should be viewed very cautiously. The retail market has become capital rather than product driven and it is expected to show in higher vacancies beginning in 1989. Recent activity in this area has driven yields and capitalization rates to very low levels, and the recently completed transactions in this area may indicate that the market has reached the top. Although yields have been among the highest of any property type during recent years, a large portion of these yields has arisen from appreciation rather than income. The large component of the SBI portfolio currently invested in retail will provide excellent returns for the SBI over the short-term. Those opportunities offering value-creation situations (mall expansion, renovation, retenanting to change with the marketplace) should be given consideration as they arise. Additional opportunities involving situations where geographic or legislative barriers to the future development of competitive facilities should also be given consideration. However, buying existing, well-performing retail properties at "market" should be severely limited.

Although typically considered more risky in nature, development opportunities in general allow the investor to benefit from both the development profit and the ongoing investment value of a property. More importantly, several methods exist for the institutional investor to manage and limit the risk associated with development projects. Given the quality and low risk of the SBI's existing core portfolio, more consideration should be given to quality development opportunities as they become available.

Overall, the Minnesota SBI's real estate portfolio is well diversified by property type. Given the size and relatively low risk nature of the existing SBI portfolio, future investments should focus on identifying opportunistic situations which offer the potential for significantly higher returns than the four to five percent real rate that will be most likely to be provided by the core open-end funds in which the SBI is an investor. To benefit from these situations, the SBI will have to accept higher levels of risk but we do not expect that this will significantly increase the volatility of the entire portfolio. To accomplish these objectives, it will be important for the SBI to select those investment managers who have experience and background in assisting institutional investors carry out similar investment strategies. It should also be recognized that individual transactions will have a limited impact on the portfolio's risk structure given its current and anticipated future size. Therefore maintaining property type diversification should be of only secondary consideration.

Evaluation of the Four Geographic Regions

Exhibit VI-8 shows the geographic distribution of the SBI's real estate investments.

Exhibit VI-9 plots the mean versus the standard deviation for the real estate properties classified by geographic regions. (See Exhibit III-4 for a list of the states which comprise each region). Properties in the Northeast have provided a much higher return, 18.4 percent, than properties in the other three regions. However, this return is also accompanied by the second highest risk, a standard deviation of 7.2 percent. Approximately 26 percent of Minnesota's real estate investments are currently made in properties in the Northeast.

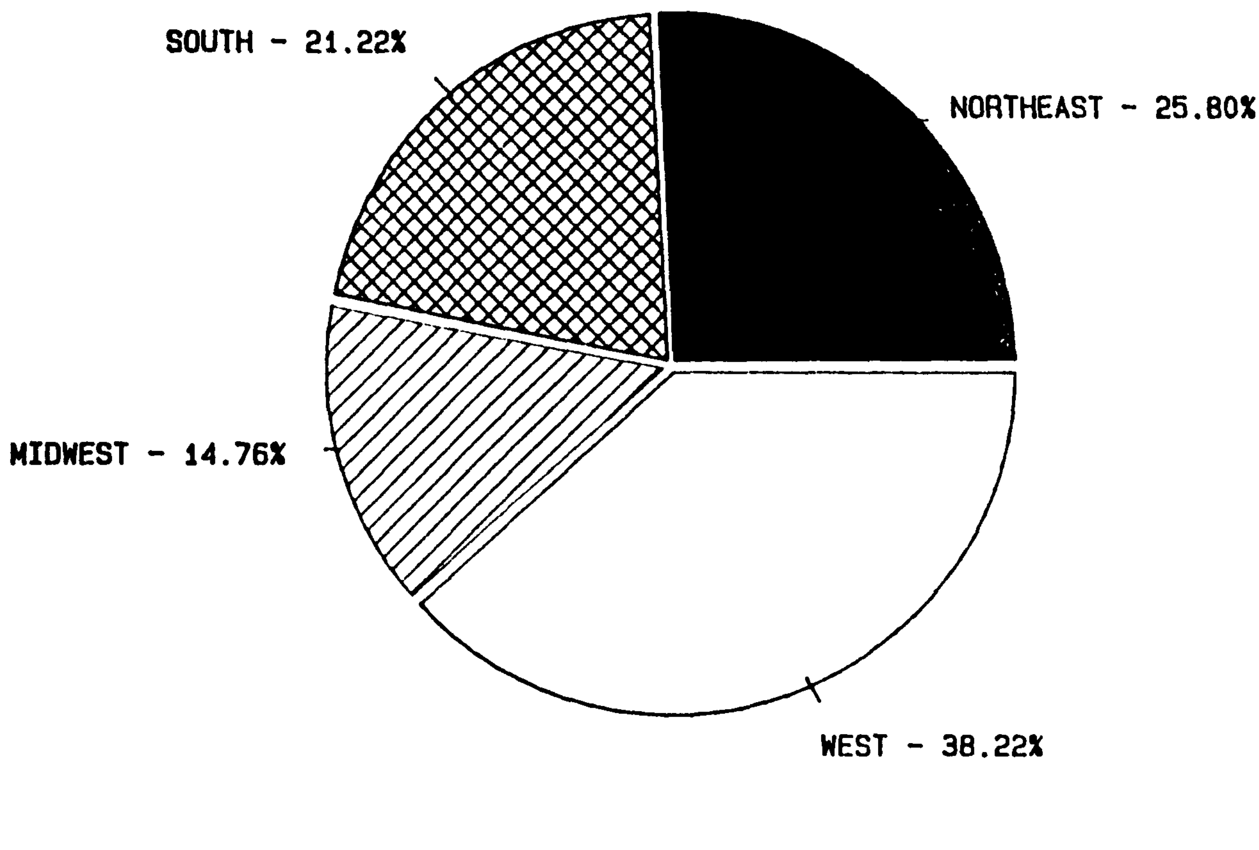
Midwest properties, which account for 14.8 percent of Minnesota's real estate portfolio, provided the second highest return, 9.7 percent, and the lowest risk, with a standard deviation of 3.0 percent. Properties in the West and in the South earned returns of 8.9 and 8.8 percent and had standard deviations of 5.8 and 8.4 percent, respectively. Twenty-one percent of Minnesota's

EXHIBIT VI-8

MINNESOTA SBI'S TOTAL ALLOCATION

GEOGRAPHIC DISTRIBUTION OF FUND

December 31,1987

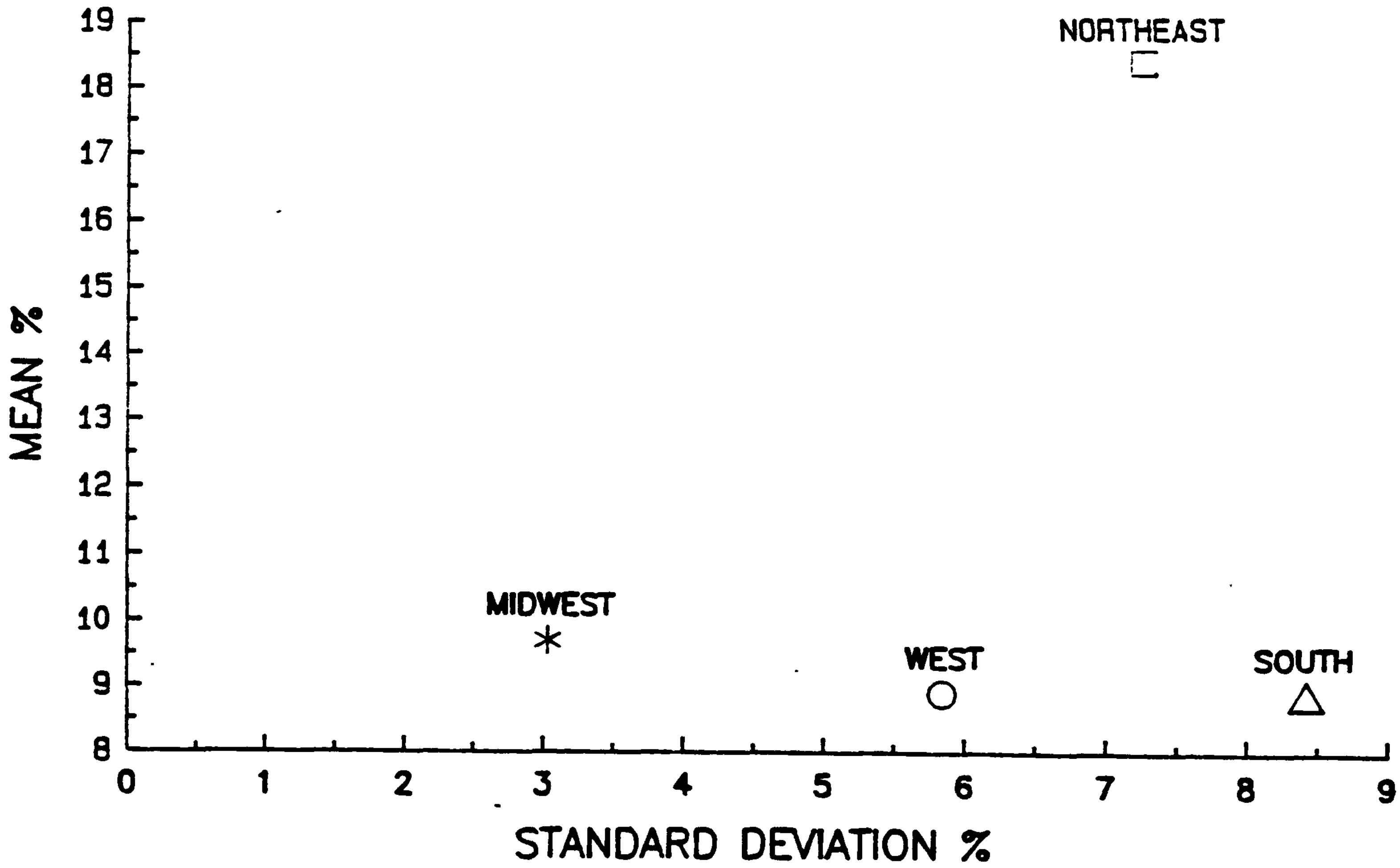


Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

EXHIBIT VI-9

MEAN VS. STANDARD DEVIATION

BY GEOGRAPHIC REGION



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

portfolio is invested in the South and 38 percent is in the West region.

The table presented below compares the geographical breakdown of the SBI portfolio to that of the NCREIF Index as of December 31, 1987.

Geographical Area	SBI Portfolio	NCREIF Portfolio
Northeast	25.80%	23.07%
Midwest	14.76	14.05
South	21.22	22.67
West	38.22	40.21

As can be seen from this table, the geographical breakdown of the SBI portfolio closely approximates the "market" as defined by the NCREIF Index.

As is clear from the performance of the SBI portfolio, those properties located in the Northeast and the Midwest have performed the best from a mean-standard deviation efficiency perspective. Going forward, it would appear that the SBI portfolio would be better served by concentrating its investments in the East and Midwest regions. Therefore, on the basis of the performance of only the managers and funds within the SBI portfolio, any combination of allocations between the East and the Midwest will yield an efficient portfolio structure from a risk and return perspective. However, it may be more appropriate to look at the performance from the geographic perspective with both a larger portfolio and from a longer time frame. Presented below is the mean and standard deviation for each region for the NCREIF Index portfolio. As can be seen from this table, all regions except the South have performed at a mean-standard deviation efficient level. The poor performance of the South can be traced to the poor performance of properties within Texas within the past several years.

NCREIF Performance by Geographical Region 1978-1987

Geographical Region	Mean Return	Standard Deviation
Northeast	17.24%	5.80%
Midwest	10.47	1.77
South	8.93	8.45
West	13.84	5.61

Although we believe the above data is indicative of the relative risk and return parameters for different geographic regions over the past ten years, we do not believe that this is sufficient to determine optimal allocations among geographic regions. Principally this is due to the fact that regions such as the "oil belt" which have performed quite poorly in recent years showed the highest level of returns in the past. The ten year time period for the NCREIF portfolio does not sufficiently cover the entire spectrum of economic cycles which has been experienced by various cities. A further concern is the broad definition of geographical areas as defined by NCREIF. Within an area such as the West, there has been a broad disparity of economic cycles and performance over the recent years. This is evidenced by the inclusion of both California, which has had a relatively boom economy, and Colorado, which has experienced some of the worst impacts of the declining energy industry. This has been recognized by NCREIF and beginning in 1989, the Property Index will be broken down by eight regions: Northeast, Mideast, East North Central, West North Central, Southeast, Southwest, Pacific and Mountain. This will permit more detailed analyses in the future.

In recent years, many institutional investors have focused their current acquisition efforts on large metropolitan areas in the Northeast and California, due to the perceived and actual strength of the markets in these areas. The resultant competition for the select number of investment-grade properties has increased prices, as well as the time needed to fund investments in these area.

Many institutional investors have been wary of making investments in the South and West, due to the well-publicized problems in such markets as Houston, Dallas and Denver. While caution should certainly be exercised when making investments in either of these regions, there are still attractive investment opportunities in the West, particularly in California.

In the long-term, a geographically diversified portfolio can help protect Minnesota's real estate investments against unnecessary volatility caused by the cyclical nature of most real estate markets. Rather than selecting geographical target allocations by region, the SBI should strive to add investments to its portfolio which are countercylical to each other in terms of their economic base. Those markets which should be targeted by the SBI and its managers are those which evidence a regional commitment to growth in terms of infrastructure and labor availability as well as those which will perform well in an environment of a service-based economy and emphasis on transportation efficiency. Therefore, among those markets which we feel will continue to exhibit strong growth tendencies are the major cities on both coasts (on the basis of increased foreign trade both with the Far East and Europe in anticipation of 1992) and those other cities such as Chicago, Nashville, Atlanta, and Cincinnati which offer excellent distribution capabilities. The current portfolio exhibits an adequate geographic diversity. There should an effort to lower the SBI's involvement in the West and the South, to the extent that its portfolio is energy based. This will serve to reduce the overall volatility of the portfolio. For the future, diversification by geographic region should remain a goal, but not necessarily a priority, when making investment decisions.

VII. ADDITIONAL CONSIDERATIONS

Two issues of importance, both to the SBI as well as any other institutional investor, are the ability of real estate to satisfy the liquidity needs of an investor and the ability of that investor to successfully market time real estate investments.

LIQUIDITY

Given the long-term investment horizon of the SBI, the liquidity of its real estate portfolio becomes a lesser concern. Since there does not exist an active day-to-day trading market for real estate investments, the ability of any investor to utilize real estate as a vehicle to provide liquidity is significantly reduced. Investment vehicles, such as real estate investment trusts ("REITs"), which have been designed and developed as real estate securities to provide liquidity to the real estate investor have historically performed with characteristics most typically associated with equity investments rather than real estate investments. They, therefore, would not be appropriate for investors, such as the SBI, who look to their real estate portfolios to perform independently of their equity portfolios. Furthermore, real estate securities have typically traded at what could be considered significant discounts to value. Investors who have invested in liquid real estate vehicles most successfully have been those who can accumulate sufficient control of the publicly traded portfolio to permit conversion to private status. More importantly, by creating liquid and efficient trading vehicles for real estate, one of the primary benefits associated with real estate investing, that is the market inefficiencies which permit the astute investor and manager to achieve above average returns, is severely reduced and, in some cases, eliminated.

MARKET TIMING

The usual concerns brought up when discussing the market timing of any investment apply to even a greater extent to real estate investments. Successful market timing is highly dependent upon accurate market and economic forecasting. Projecting future market conditions related to individual real estate markets throughout the country is an inexact science at best. The risks associated with significantly adjusting portfolio composition and structure to coincide with market forecasts far outweigh the potential benefits. This becomes especially true when the significant transaction costs associated with real estate investments are taken into account. In addition, to successfully implement a market timing strategy for real estate, and to satisfy state statutes regarding to investment types and structure, would require the SBI to concentrate an even higher proportion of its investments in open-end commingled funds since they are designed to provide greater liquidity opportunities to their investors.

However, the shortcomings associated with open-end funds exceed the potential benefits associated with market timing. These include the over reliance upon inexact appraisals to determine investment and withdrawal valuations and the inability of many open-end commingled fund managers to satisfy withdrawal requests efficiently and effectively when these requests begin to grow in number and magnitude.

Furthermore, one of the primary benefits of real estate investing is its ability to provide long-term economic benefits, inflation hedges and portfolio diversification. Constantly adjusting the composition of the real estate portfolio may serve to increase the performance of the real estate portfolio itself, but may result in lesser overall portfolio performance. Finally, analysis indicates that quality real estate investments provide reasonably good returns through numerous economic cycles. Obviously, investment managers need to be able to react quickly to those situations where maximum value can be exploited; however portfolio performance will generally be enhanced by quality, long-term oriented real estate investments.

VIII. CONCLUSIONS AND RECOMMENDATIONS

The objective of this section of our report is to present to the SBI our recommendations as to the future direction for its real estate portfolio as well as addressing other key subjective and qualitative issues of concern to the SBI.

THE OUTLOOK FOR REAL ESTATE

1988 showed the continuation of the increasing domination of the real estate market by institutional investors including domestic pension and profit-sharing plans as well as foreign investors. There is nothing to indicate that this trend will be diminished in any way during 1989 or the foreseeable future. The increased importance of the institutional investor arises from the simple fact that they control the spigot for real estate capital.

As a result of both the tax law changes of 1986 and the crises facing financial institutions such as savings and loans, there has been a dramatic reduction in the amount of capital available for real estate investment by these traditional sources. Accompanying this has been an increased commitment to real estate by institutional investors as evidenced by an allocation of approximately $25 billion to be invested in real estate by pension funds over the next two to three years.

Although interest rates and yield objectives will continue to influence investment activity in the coming years, the institutions making the actual investments will increasingly control the actual number of consummated transactions. The capital markets have undergone more transition during the 1980's than any other part of the real estate industry, with virtually hundreds of financial intermediaries and institutions entering and exiting the investment business. The next decade will experience continued change (the level of which is a matter of conjecture), but there is no question that the larger institutions have emerged as the dominant force.

Given that cash returns for real estate have been relatively flat and short-term interest rates are beginning to rise, the ability to maximize real estate cash flow will be a top priority. The capitalization of income producing property is very similar to any other business enterprise, meaning that it can be funded with debt or equity or a combination of both. A proper balance can mean the difference between successful or mediocre property performance.

Investment yield targets have declined for most income producing real estate and yet institutional investors are still finding it difficult to consummate transactions. Existing properties that are leased and in good markets are becoming harder to find and the sellers who own them want a premium price. For investors with new cash to invest, often the only choice has been to pay the asking price. This situation will not change in 1989, and competition for prime properties will continue to increase.

It is also important to observe that many potential deals are not being made. There are virtually hundreds of properties purportedly on the market that will not be sold. The reason lies in the definition of anticipated cash flow. Informed purchasers, of which there has been a significant increase, are projecting future retenanting expenses and other capital expenditures as a deduction from the property's cash flow. These anticipated costs can result in an offering as much as 20 percent below the seller's asking price. Sellers have been reluctant to accept the lower bids and no sale has occurred. Successful market makers in the coming years will be those buyers who can bridge the gap between bid and ask prices. This can be accomplished by such investment techniques as convertible debt, earnouts, and acquiring partial interests in property.

Given the longer lease-up periods necessary to achieve stabilized occupancies for development projects in many markets throughout the country, equity investors are requiring increased yields to compensate for this increased risk. Equity investors, such as pension funds, are increasingly willing to take these risks for several years in anticipation the future appreciation of the property. The actual pricing for this risk capital is a function of the specific property marketplace and the demand for and supply of this type of investment dollar.

There is no typical structure, but institutional investors creating joint ventures with developers are requiring as much as a 12 percent cumulative preferred return on their investment and as much as 60-70 percent of the appreciation to take the risk. This results in a total anticipated return on to-be-built projects of close to 20 percent, which is over 400 basis points higher than just three years ago.

For existing properties, the required yields will vary widely given the type of property and the nature of its particular market and sub-market. The property markets are so fragmented and values vary so dramatically based on perceived qualify, users and providers of capital will need to establish and compare pricing based on the risks of the specific investment. It appears that most institutional investors are seeking, at a minimum, a five percent real return on their real estate equity investments.

The coming year will see few changes in the above pricing structures. The amount of risk capital available for real estate investment was significantly reduced by the 1986 tax law changes and the markets have not stabilized. This has made investors cautious about the future. The real estate equity market is increasingly seeking to be opportunistic, but those who participate will do so with a full understanding of the risk/reward relationships.

In terms of property types, as described earlier in this report, apartments, industrial properties, and those retail and office situations which offer opportunistic renovation and repositioning investments will be the preferred investments of the institutional investors for the upcoming year and into the short-term future. More importantly, perhaps, there is a market-wide perception that an astute investor will need to be a pragmatic investor. This means that individual opportunities will need to be analyzed in more detail and that it will not be appropriate to write off entire segments of the marketplace (i.e. Houston, Dallas, etc.) as excellent opportunities may exist given the proper pricing restraint and conservative underwriting analyses. In addition, increased emphasis will be placed on developing and implementing value-added asset management strategies for existing portfolio assets rather than focusing exclusively on new acquisitions. As will be discussed later in this section of our report, it is due to this pragmatic approach that we feel the SBI should concentrate more on specific investment opportunities rather than implementing broad-based investment strategies.

MANAGER EVALUATION

In order to appropriately analyze the potential retention and/or expansion of the existing set of investment managers serving the SBI, it is necessary to look at the open-end managers separately from the closed-end managers. This is because 1) the open-end managers have a longer operating history, both in and of themselves and in their service to the SBI and 2) the differing operating attributes and investment objectives of open-end versus closed-end managers.

As was evidenced by our detailed portfolio analyses, the operating characteristics of Prudential's PRISA fund and Equitable's Prime Property Fund create a level of redundancy within the portfolio. This redundancy is evidenced by their similar investment philosophies and portfolio composition. It does not appear that the portfolio of the SBI is improved by the presence of both nor does it appear that the portfolio will be significantly negatively impacted with the removal of one of these managers. The performance of the Prime Fund far exceeds that of the PRISA fund over the past several years while doing so with significantly less risk. In addition, our discussions with each of these managers revealed that Equitable's fund appears to be in a more growth-oriented pro-active mode whereas Prudential was reacting more to its withdrawals and recent poor performance. Therefore, we recommend that the SBI terminate its investment in PRISA in the most timely and efficient manner possible. The benefits of doing so are evidenced in the table below which describes the overall risk and return characteristics excluding the effects of inflation for the SBI portfolio if each of the open-end managers had not been part of the portfolio.

SBI Portfolio Excluding	Real Mean Return	Standard Deviation
Aetna	4.79%	2.85%
Equitable	3.46	2.40
Prudential	5.62	3.64
Actual (all-inclusive)	4.72	3.24

As is also evidenced by the above table, the presence of the Aetna portfolio has provided both added returns to the portfolio and reduced volatility. Therefore, we also recommend that the SBI continue its investment in Aetna's RESA fund. This is a result of both its reasonably good performance and risk characteristics and its excellent future potential as Aetna's management implements its new investment strategies. In addition, maintaining both the Equitable and the Aetna open-end funds will ensure that the Funds continue to possess the core portfolio necessary to ensure proper diversification by property type and geographical region.

In examining the closed-end funds, it is more difficult to objectively review their performance due to their limited operating histories. However, it is evident that the funds as managed by Heitman have been performing far in excess of those of the other managers and have been successful in achieving their stated investment objectives. The Aldrich, Eastman & Waltch/State Street Funds offer the SBI portfolio the opportunity to benefit from their creative investment structures. Given the positive outlook for the industrial market, in which TCW has proven its expertise, we do recommend that SBI maintain its existing investments with TCW. In terms of future investments with TCW, we believe that the SBI should evaluate the ability of TCW to successfully invest its Fund V. As a result of the large amount of funds raised by TCW for this fund (in excess of $500 million), there is some concern that the large amounts involved may cause TCW to change what has been a successful investment strategy of focusing on middle market industrial and office properties. The portfolio as assembled by RREEF appears to be redundant given the composition of the Heitman portfolios as well as the open-end funds. The poor performance of the RREEF portfolio does not warrant additional investments by the SBI with RREEF.

In considering future closed-end fund investments, we recommend that the SBI refrain from investing in blind-pool, core-type investment strategies. The SBI's portfolio is currently deficient in its third real estate investment objective-specialized investments. However, as will be discussed below in more detail, we recommend that the SBI limit its future additional investment utilizing commingled funds.

Although funds such as those managed by TCW and AEW provide some specialization within the portfolio, Minnesota's real estate investments are primarily in core-type funds. While this is the best type of portfolio for an investor making initial investments in the real estate asset class, opportunities for higher returns could be gained through the addition of several specialized real estate investments.

While currently prohibited by statute from making direct investments in real estate, the SBI should consider utilizing co-investments to supplement the current commingled fund investments.

This type of investment could enhance the risk, return and diversification benefits of the existing real estate portfolio.

Most co-investment opportunities are structured as a partnership of tax-exempt investors who purchase either an individual or a small number of properties on a deal-by-deal basis. The advantages of this type of investment include:

- The ability of an investor to "fine-tune" the real estate portfolio by making investments in certain property types or geographic regions whose addition will satisfy certain return, risk or diversification criteria within the portfolio;
- Prior knowledge of the properties to be included in the investment, resulting in greater flexibility and control over a portfolio than is provided by the blind-pool format typically utilized by closed-end commingled funds;
- The ability to exercise greater control over the fees paid to managers with an expectation that total fees will be reduced;
- The ability to participate in larger individual property investments than those typically assumed by closed-end funds; and
- More immediate implementation of investment policy due to the fact that funds committed for investment are not held by the investment manager for short-term investment until appropriate properties are identified, as is often the case with closed-end commingled funds.

The disadvantages associated with this investment approach include the following:

- Investors need to ensure that the investment managers selected to identify and implement the co-investment strategy have an appropriate system in place to ensure the proper allocation of investment opportunities among its various investors as well as any commingled funds for whom it may be serving as investment manager;

- It is at times difficult to match up different institutional investors with similar investment strategies and philosophies to enter into co-investments; and,

- Unless the investor delegates full discretionary authority to the selected investment managers, it may be necessary for the investor to either create an internal capability to review and analyze potential deals or utilize the services of external consultants to perform these services.

Given the above advantages, and the core orientation of Minnesota's current portfolio, we recommend that the SBI give consideration to appropriate co-investment opportunities. The sponsorship of these investments by qualified managers will satisfy the SBI's desire that all investments be made through a fiduciary. In addition, investments could be made such that Minnesota does not control over 20 percent of any one investment. However, the Fund may wish to re-consider the requirement that the SBI invest with a minimum of four other investors as well as the maximum investment participation level of 20 percent. These additional restriction may be unnecessary and may hamper the SBI's ability to participate in otherwise attractive investment opportunities.

In order to enhance the overall performance of its portfolio while at the same time improving its ability to succeed given the current and anticipated future characteristics of the real estate market, we recommend that the SBI pursue the following real estate investment strategy:

- Request withdrawal of its investment in PRISA in the most timely and efficient manner possible.

- Review and strongly consider future investments in specified property investments, whether they be specified property commingled funds or single-property investments;

- Seek additional investment opportunities of an "alternative" nature such as residential, developmental, etc.; and,

- Develop relationships with those investment managers who can satisfy these objectives on an ongoing basis.

- Set an investment target of a minimum six percent real return for its additional investments and require minimum real returns in excess of six percent for those investments which may have the potential of increased risk. This return objective was selected on the basis of the historical performance of the NCREIF Real Estate Index which is a relatively low risk portfolio;

To accomplish these objectives, we recommend the following adjustments to the statutory limitations regarding the SBI's real estate investments:

- Increase the allowable percentage of participation by the SBI from 20 percent to 25 to 35 percent in any one investment;

- Decrease the required number of additional investor participants from four to two;

- Continue to not do direct investments and separate accounts where the SBI is the owner of 100 percent of the property; and,

- Continue the requirement for a qualified fiduciary.

In order to implement these strategies, the other issues that the SBI will need to evaluate are the discretionary authority delegated to its investment managers and the possible need for additional staff resources to analyze and monitor potential investments. Unless the SBI desires to significantly increase its professional real estate staff and staffing budget, it is our recommendation that the SBI not choose to create an internal real estate investment management capability. Therefore, we recommend that the SBI continue to give its managers discretionary authority. In light of the competition for quality investment grade properties, many investors, who have retained final discretion over their investment decisions, have been unsuccessful in achieving their investment objectives. This has been particularly true with several large public pension funds.

We recommend that the SBI continue to utilize the target allocation of ten percent for real estate within the entire portfolio as a long-term objective. If the SBI withdraws from the PRISA fund, the proceeds available from this and the amounts necessary to reach the ten percent level will permit sufficient diversification and investment opportunities. More specifically, our recommendations for the reallocation of SBI's $63 million investment in PRISA and the additional $55 million necessary, both as of June 30, 1988, to increase the overall real estate allocation to $520 million (10 percent of the total SBI portfolio) are as follows:

- Approximately one-fourth of the total available should be allocated to a maximum of two specialized commingled funds oriented towards such investments as apartments, self-storage, mobile homes, predevelopment land, targeted geographical areas, opportunistic renovation and development. It should be noted that the definition of specialized commingled funds used above does not include those funds as sponsored by TCW and AEW/State Street Bank. To the extent possible, the funds selected should include specified property portfolios. This will permit the SBI to more completely evaluate the potential investment opportunities.

- The remaining unallocated funds should be allocated to no more than two investment managers oriented towards identifying and implementing co-investment opportunities for their clients.

- In evaluating potential investment managers to assist the SBI in implementing the strategies outlined above, the SBI should continue to use the following selection criteria:

  - ability to define an investment
  - historical performance
  - stability of key personnel
  - fee structures
  - asset management capabilities
  - reporting procedures
  - appraisal policies
  - underwriting/acquisition processes
  - client references
  - investment allocation policies
  - research capabilities
  - fiduciary status

The SBI should expect that it will take a minimum of approximately 12 to 15 months to implement these recommendations and approximately another 24 to 30 months for the managers and funds selected to invest the funds in real estate. Clearly, this timetable will be subject to the length of time necessary for Prudential to refund the SBI's investment in PRISA.

In conclusion, the Minnesota State Board of Investment has developed a true core portfolio of real estate assets which has added to the overall diversification of its portfolio and served as an inflation hedge. More importantly, the SBI is now in a position to seek increased returns and more active involvement in its real estate portfolio by targeting specialized investments and co-investment strategies, without causing any significant increased risk to the overall portfolio.

Review of the SBI's Real Estate Program

Prepared for the
Minnesota State Board of Investment
by
Laventhol & Horwath

May 1989

Executive Summary

I. EXECUTIVE SUMMARY

Laventhol & Horwath ("L&H") was retained by the Minnesota State Board of Investment ("SBI") to perform an in-depth portfolio analysis of the SBI's real estate portfolio. The primary objective of our study was to review and analyze the progress and viability of the SBI's real estate investment strategy. Associated with this primary objective was the determination of the appropriate investment strategy going forward as well as recommending any suggested changes to the existing portfolio structure. The purpose of this executive summary is to briefly state the issues addressed in our analyses and to summarize our conclusions and recommendations.

Has the SBI real estate portfolio achieved its stated performance and diversification objectives?

- Real estate has provided the necessary return and diversification benefits to the SBI portfolio since the inception of the real estate investment program.

- Historical performance of real estate for both the ten year period between 1978 and 1987 and the seven years from 1981 to 1987 in which the SBI has been an investor in real estate is presented below:

Asset Class	10 Year History 1978 - 1987 Mean	10 Year History 1978 - 1987 Standard Deviation	SBI History 1981 - 1987 Mean	SBI History 1981 - 1987 Standard Deviation
Inflation (CPI)	6.48%	3.86%	4.30%	2.00%
Stocks (S&P 500)	15.67	11.52	14.30	11.73
Bonds (Long-Term Index)	10.62	15.17	16.16	15.00
NCREIF Real Estate*	12.86	4.85	10.56	3.78
Minnesota Real Estate			9.46	3.25

* National Council of Real Estate Investment Fiduciaries

- As can be seen from the above table, real estate provides significant benefits to a portfolio in the form of both potentially higher rates of return for the entire portfolio and most importantly in its reduction of portfolio volatility through its low level of risk. These diversification benefits are even more apparent when the performance of real estate is correlated with that of other asset classes and including inflation. Typically, portfolio managers attempt to combine assets with negative correlation coefficients. The correlation attributes of real estate for the period of 1981 through 1987 is presented below:

Correlation with	SBI Real Estate	NCREIF
Stocks (S&P 500)	-0.214	-0.036
Bonds (Long-Term Index)	-0.500	-0.143
Inflation (Consumer Price Index)	0.857	0.821

- The SBI portfolio closely approximates the market portfolio, as defined by NCREIF, in terms of geographical distribution. The National Council of Real Estate Investment Fiduciaries (NCREIF) Real Estate Index is the principal industry performance index which measures the historical performance of unleveraged real estate investments made on behalf of qualified pension and profit sharing trusts. As of June 30, 1988, the NCREIF Index comprised assets in excess of $13.6 billion. In terms of property type distribution, the SBI is more heavily weighted towards the retail sector and slightly less so in the office building category. For the most part, the SBI portfolio is sufficiently diversified by property type and geographical region. Future investments should focus on selective investment opportunities with secondary consideration to their impact on portfolio composition.

- The annual performance of the SBI's real estate portfolio, on both a nominal and real return basis, since inception is presented in Exhibit I-1.

- Our findings regarding this issue are described in more detail in Chapters V and VI of this report.

<u>Are any adjustments necessary to the existing portfolio composition to ensure that the SBI can optimize the future performance of its real estate investments?</u>

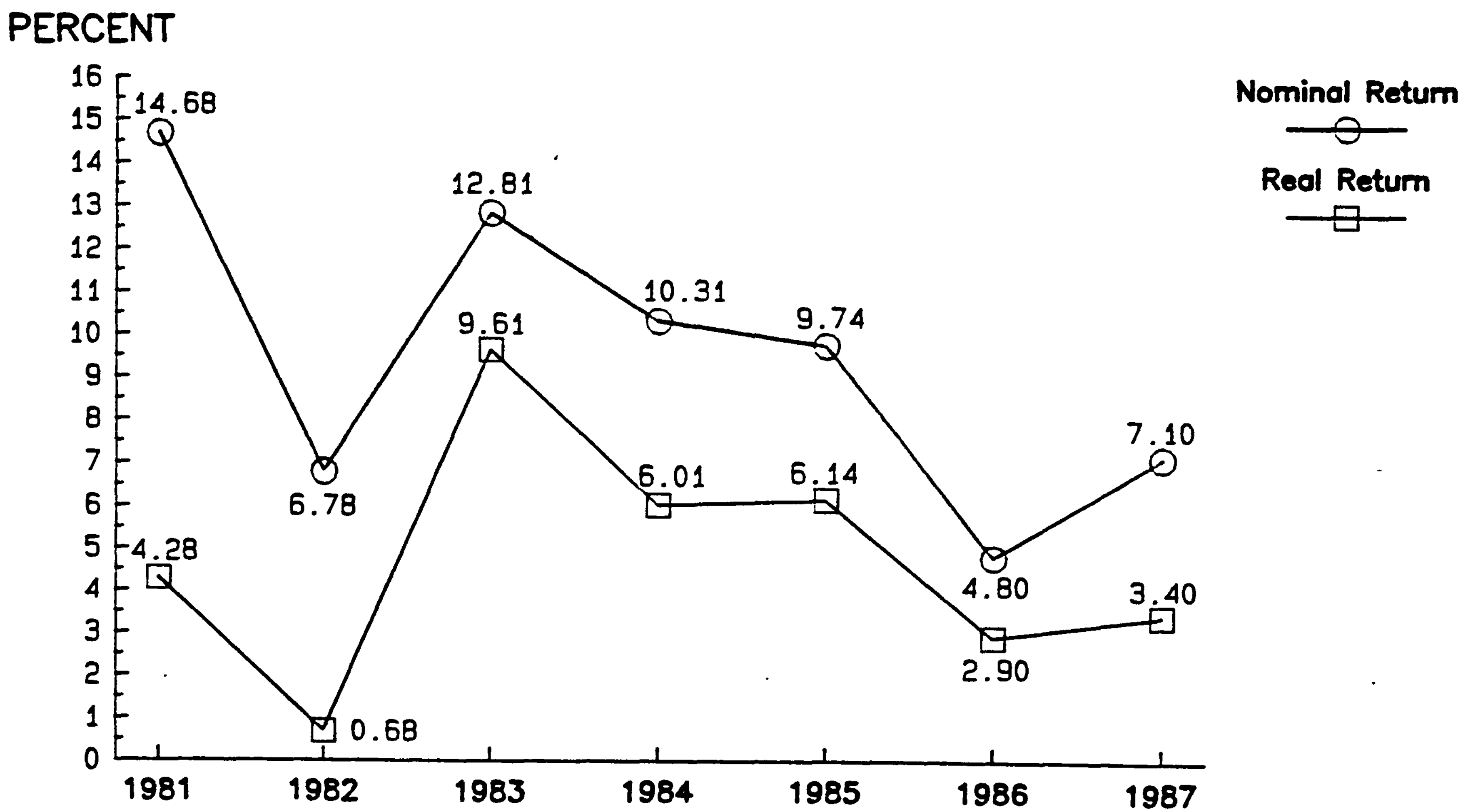
- The SBI should request withdrawal of its investment in PRISA in the most timely and efficient manner possible.

- Our analyses supporting this conclusion are presented in Chapter VIII of this report.

EXHIBIT I-1

MINNESOTA SBI

HISTORICAL RETURNS OF REAL ESTATE PORTFOLIO
1981 - 1987



Note: The comments and assumptions contained in the accompanying report are an integral component of this exhibit.

Is it appropriate for the SBI to consider adjusting its investment parameters (i.e., investment type, number of participants, investment amount, etc.)?

- Increase the allowable percentage of participation by the SBI from 20 percent to 25 to 35 percent in any one investment;

- Decrease the required number of additional investor participants from four to two.

- Continue to not do direct investments and separate accounts where the SBI is the owner of 100 percent of the property.

- Continue the requirement for a qualified fiduciary.

- Continue to provide those investment managers selected by the SBI with discretionary authority.

- These conclusions are discussed in more detail in Chapter VIII of this report.

What adjustments, if any, should be made to the SBI's real estate investment strategy?

- The SBI should review and give strong consideration to investments in specified property investments, whether they be specified property commingled funds or single-property investments.

- The SBI should seek to use the co-investment concept in making its future investments. Co-investments as defined here differ from typical commingled funds in that they are structured as a partnership of tax-exempt investors who purchase either an individual or a small number of properties on a deal-by-deal basis rather than on a blind pool basis.

- The SBI should seek additional investment opportunities of an "alternative" or "non-traditional" nature such as residential, developmental, etc.

- The SBI should develop relationships with those ivestment managers who can satisfy these objectives on an ongoing basis.

- The SBI should set an investment target of a minimum six percent real return for its additional investments and require minimum real returns in excess of six percent for those investments which may have the potential of increased risk. This return objective was selected on the basis of the historical performance of the NCREIF Real Estate Index which is a relatively low risk portfolio.

- These conclusions are discussed in more detail in Chapter VIII of this report.

What should be the ongoing investment strategy for the real estate component of the portfolio?

- Approximately one-fourth of the total funds available for future investment should be allocated to a maximum of two specialized commingled funds oriented towards such investments as apartments, self-storage, mobile homes, predevelopment land, targeted geographical areas, opportunistic renovation and development. Total funds available for future investment include potential withdrawal proceeds from Prudential of approximately $63 million as of June 30, 1988 and the SBI's current uncommitted allocation to real estate of approximately $55 million as of June 30, 1988. Existing investments, other than Prudential, are recommended to remain intact. It should also be noted that the definition of specialized commingled funds used above does not include those funds as sponsored by TCW and AEW/State Street Bank. To the extent possible, the funds selected should include specified property portfolios. This will permit the SBI to more completely evaluate the potential investment opportunities.

- The remaining unallocated funds should be allocated to no more than two investment managers oriented towards identifying and implementing co-investment opportunities for their clients.

In conclusion, the Minnesota State Board of Investment has developed a true core portfolio of real estate assets which has added to the overall diversification of its portfolio and served as an inflation hedge. More importantly, the SBI is now in a position to seek increased returns and more active involvement in its real estate portfolio by targeting specialized investments and co-investment strategies, without causing any significant increased risk to the overall portfolio.