



Milliman USA

Consultants and Actuaries

The Ohio Retirement Study Council

Third Quarter 2002

INVESTMENT PERFORMANCE REVIEW

November 13, 2002

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OHIO RETIREMENT STUDY COUNCIL
Comparative Performance Study

TABLE OF CONTENTS

Introduction	1-3
Total Fund	4-8
Domestic Equity	9-11
Fixed Income	12-14
International Equity	15-16
Real Estate	17
Introduction to the Five Systems	18
Highway Patrol Retirement System	19-23
Public Employees Retirement System	24-29
Police & Fire Pension Fund	30-34
School Employees Retirement System	35-39
State Teachers Retirement System	40-45
Actuarial Interest Rate Commentary	46

Appendix

Workers' Compensation Exhibits	47-55
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Ohio Retirement Study Council

OHIO RETIREMENT STUDY COUNCIL

Comparative Performance Study

Period ending 6/30/2002

Executive Summary

Milliman USA is pleased to present to the Council the most recent results of our ongoing, semi-annual comparative study of the performance of the five Ohio Statewide pension funds pursuant to Section 171.04 of the Revised Code. This is the seventh report prepared by Milliman USA pursuant to this authority. The purpose of this comparative report is to provide the framework for dialogue with the retirement systems to assist the Council in meeting its oversight responsibilities. The legislature guarantees the defined benefit pension benefits that are paid to participants and determines maximum contribution rates. Underscoring the importance of investment results is the fact that the majority of the benefits paid are typically funded by investment income. This report reflects investment performance for all five retirement systems over the eight and one half-year period beginning January 1, 1994 and ending June 30, 2002.

Council members will notice that the format of this report is different from those that you have received in the past. Beginning on page 4 we have included text that describes the charts and graphs on each page. This is an effort to make the report more readable and to be responsive to past requests for greater clarity.

Our findings may be summarized as follows:

- The twelve months ending 6/30/02 was a volatile period for all of the funds. All experienced negative results, ranging from -3.73 (HPRS) to -8.13 (STRS). With the exception of HPRS which placed in the second quartile, the four remaining funds placed in the third and fourth quartiles compared to a broad universe of public retirement systems.
- Longer term, the impact of three years of negative returns has been meaningful. HPRS, PERS, OP&F, and STRS have eight and one half-year annualized returns that are below their actuarial interest-rate assumptions, and for the past five years no fund has enjoyed returns in excess of its assumption.
- Also longer term, only OP&F had results that were ahead of its own benchmark for the eight and one half-year measurement period (1/1/94 – 6/30/02). HPRS had the worst eight and one half-year results relative to benchmark, underperforming by 2.98%.
- SERS has had the best absolute results over the full measurement period, achieving an average return of 8.63%.
- The long-term results of the four funds below their actuarial interest rate are troublesome, particularly if they persist into the future. HPRS, which has experienced the lowest return over the entire measurement period, has shown dramatic signs of improvement over the past year. The fund's -3.73% return over the past year not only represents the smallest loss experienced by any of the systems for the year, but compares favorably to the -7.18% benchmark return for the twelve months ending 6/30/2002.

Ohio Retirement Study Council

An important value of this type of report is its ability to provide an “apples to apples” comparison of the systems’ investment results. Such a comparison is possible, since all of the Systems are subject to the same investment standards and restrictions and have been so from their inception. In light of the fact that rate of return calculations are extremely sensitive to time period differences, it is critical that any comparative study be done with a consistent time frame, as was done in this report.

As is common practice when examining pension fund results we make reference, throughout the first three sections of the report, to such things as quartile rankings and universe comparisons. The universes used for comparative purposes are those of the Wilshire Cooperative Universe Service. The comparisons are formulated by pooling data from a wide range of investment consulting firms and they provide a statistically valid measure of results relative to a large sample.

Before presenting this comparative data, we wish to caution against jumping to conclusions, particularly in volatile markets, regarding the investment performance of any of the systems based on a single performance report. Any investment program, no matter how sound, can expect to encounter unfavorable investment environments. It is important that the systems’ long term results be reviewed for reasonableness and not judged on short-term performance, whether favorable or unfavorable. Because of the long-term nature of the systems’ obligations, it is also important that the funds not be managed with near-term results in mind. Such market timing is a recipe for disaster.

Over the long term, it is reasonable for the Council to expect to see emerging investment performance reflecting the systems’ investment policies and to make judgments regarding whether those policies are being effectively implemented. While reasonable people could disagree over the definition of long term, it is generally accepted that five years (twenty quarters) is a sufficient time period to provide meaningful analysis of such things as the value added (or subtracted) by deviations from policy targets and active vs. passive investment strategies.

In order to put performance in the proper context, it is important to understand the historical evolution of the investment restrictions imposed on the funds by statute. Prior to 1993 and the passage of S.B. 43, the investment authority of the funds was severely limited. Only 35% of each fund’s assets could be invested in common stock and individual stock purchases were limited to domestic securities specified by a legal list. S.B. 43 expanded the legal list to include American Depository Receipts (ADRs), commingled stock investment funds, derivative instruments and real estate investment trusts (REITs). More importantly, the act permitted the funds to invest up to 50% of their total assets in U.S. stock and 10% in foreign stocks, bonds, and other obligations.

Ohio Retirement Study Council

In March 1997, S.B. 82 abolished the legal list and adopted the “prudent person rule.” The funds’ investment authority under this act is expanded to allow any individual investment, so long as the overall portfolio is diversified. This allows for responses to changes in the economy and investment markets and reliance on professional investment managers and economic advisors to guide the decision making process. Along with this expansion of investment authority, however, comes the requirement of prudence and diligence in the development of guidelines, benchmarks, and objectives, and importantly, mandates ongoing monitoring by those with fiduciary responsibility.

The majority of pension assets, in both the public and private sector, are managed with “prudent person” guidelines, which is to say largely without minimums or maximums placed on individual asset classes or securities. This approach, currently in place in the Ohio systems, is the optimal way to manage fund assets. It gives each fund the ability to develop an asset allocation strategy that is likely to maximize expected return while minimizing risk, all relative to the need to fund future obligations. Such an approach is fully consistent with the primary mandate of any pension fund – management that is in the best interest of plan participants.

Pursuant to a recent request by a Council member, we have added an appendix to this report (pp. 51 and following) which reviews the Ohio Workers’ Compensation Fund results over the past five years in comparison to the five pension funds. As we mention in the introduction to this Appendix, any comparison of pension fund results to workers’ compensation fund results should be made with the understanding that these funds exist in order to fund liabilities and that the underlying liabilities of a workers’ compensation fund are materially different from those underlying a pension fund.

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Performance Summary Table
Quarter Ending 6/30/02

Manager	1 Qtr	2 Qtrs	3 Qtrs	1 Year	3 Yrs	5 Yrs	7 Yrs	Incept Date	Incept Ret
HPRS									
Total Return	-4.22	-2.96	3.63	-3.73	-1.83	2.00	5.98	12/31/93	6.21
Equity	-10.00	-8.57	1.86	-11.49	-9.27	-2.81	4.52	12/31/93	6.80
Fixed Income	4.31	4.61	4.19	9.29	8.24	7.63	7.27	12/31/93	6.84
Cash & Equiv	0.76	1.41	1.92	3.11	4.71	4.95	5.09	3/31/94	5.06
Real Estate	2.67	4.92	7.97	8.48	10.79	9.02	8.81	12/31/93	8.08
International Equity	-2.18	-1.22	7.97	-7.20	-2.28	1.67	4.81	3/31/95	4.72
PERS									
Total Return	-6.20	-5.07	1.57	-6.96	-1.16	4.19	6.17	12/31/93	6.43
Equity	-13.10	-12.32	-1.97	-16.48	-8.50	3.04	8.28	12/31/93	8.11
Fixed Income	2.10	2.30	2.41	6.91	7.69	7.31	7.11	12/31/93	7.16
Cash & Equiv	0.40	0.80	1.41	2.32	4.68	5.00	5.22	12/31/93	5.14
Real Estate	3.00	6.50	5.54	6.39	10.56	10.24	10.20	12/31/93	10.60
International Equity	-3.10	-0.97	7.65	-8.61	-4.52	-1.12		12/31/95	1.11
OP&F									
Total Return	-5.62	-4.16	3.34	-5.34	-0.81	4.67	8.03	12/31/93	8.03
Equity	-10.70	-8.70	2.11	-12.13	-4.53	4.51	10.46	12/31/93	10.45
Fixed Income	1.56	2.33	3.70	8.29	8.46	7.68	7.47	12/31/93	7.04
Cash & Equiv	0.47	0.89	1.54	2.63	4.57	4.93		9/30/96	4.70
Real Estate	2.03	1.01	2.52	5.09	8.73	12.15	11.44	12/31/93	10.43
International Equity	-4.79	-3.01	9.01	-9.77	-6.98	-0.76	3.99	9/30/94	3.84
SERS									
Total Return	-6.20	-5.26	1.19	-7.76	-1.10	5.16	8.67	12/31/93	8.63
Equity	-12.50	-11.45	-0.28	-15.55	-7.04	4.08	10.25	12/31/93	10.77
Fixed Income	3.60	4.12	4.62	9.11	8.73	7.92	7.61	12/31/93	7.00
Cash & Equiv	0.40	0.20	1.90	2.62	5.74	5.54	5.56	12/31/93	5.43
Real Estate	0.90	-0.41	-1.66	-1.31	7.61	8.93	9.70	12/31/93	9.67
International Equity	-6.00	-3.37	5.77	-11.95	-4.84	0.62	5.71	9/30/94	5.29

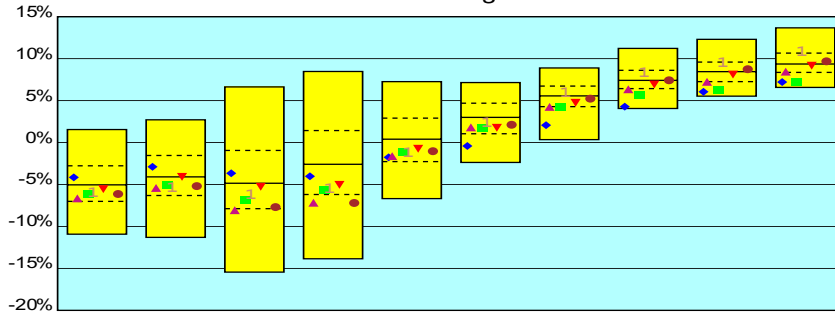
Performance Summary Table 2
Quarter Ending 6/30/02

Manager	1 Qtr	2 Qtrs	3 Qtrs	1 Year	3 Yrs	5 Yrs	7 Yrs	Incept Date	Incept Ret
STRS									
Total Return	-6.72	-5.48	1.87	-8.13	-1.69	4.18	7.17	12/31/93	7.53
Equity	-13.30	-12.75	-2.39	-17.51	-8.31	2.85	8.33	12/31/93	9.00
Fixed Income	2.09	2.54	3.62	7.78	8.10	8.12	7.84	12/31/93	7.78
Cash & Equiv	0.46	0.92	1.57	2.41	4.79	5.09	5.26	12/31/93	4.97
Real Estate	1.75	1.40	2.46	3.92	9.49	11.61	10.89	12/31/93	10.28
International Equity	-4.80	-0.19	10.94	-7.90	-3.39	-1.43	2.81	12/31/93	3.02
Indices									
Russell 1000	-13.46	-12.81	-3.12	-17.89	-8.63	3.89	10.57	12/31/93	11.02
Russell 2000	-8.35	-4.70	15.39	-8.59	1.67	4.44	8.68	12/31/93	8.57
Russell 3000	-13.09	-12.26	-1.94	-17.25	-7.93	3.84	10.30	12/31/93	10.71
Standard & Poors 500	-13.40	-13.16	-3.88	-18.00	-9.16	3.68	10.66	12/31/93	11.25
S&P 500 Equal Wtd	-11.51	-6.99	9.83	-10.76	-1.33	6.97	11.97	12/31/93	12.29
S&P 600 Small Cap	-6.53	-0.02	20.67	0.28	8.43	8.27	12.50	12/31/93	11.34
S&P MidCap 400	-9.30	-3.19	14.20	-4.76	6.70	12.56	15.30	12/31/93	14.12
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	9.97	12/31/93	10.40
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	7.28	12/31/93	6.95
SB Broad Inv Grade	3.53	3.61	3.63	8.51	8.05	7.55	7.26	12/31/93	6.95
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	2.42	12/31/93	3.20
MSCI Em Mkts Free (G)	-8.38	2.07	29.23	1.31	-6.30	-8.39	-3.32	12/31/93	-3.98
MSCI World Ex-US (Ne)	-2.24	-1.69	5.35	-9.43	-6.43	-1.34	2.67	12/31/93	3.40
LB Mortgage	3.48	4.50	4.58	8.99	8.40	7.61	7.57	12/31/93	7.27
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	11.11	12/31/93	10.39

The Summary Tables show that for the 8 1/2 year, since inception measurement period, SERS had the highest total return (8.63% per year) and HPRS had the lowest total return (6.21% per year). Total Return, here and throughout the report, is defined as the return for the entire fund, including all asset classes. For the five years ending 6/30/2002, SERS again had the highest total return (5.16% per year) and HPRS had the lowest total return (2.00% per year). For the most recent twelve month period, all of the funds experienced negative returns. The smallest loss was experienced by HPRS (-3.73%) and the greatest loss was produced by STRS (-8.13%). For the first half of this year (2 Qtrs. on the table and the period since our last report), all of the funds again suffered losses. HPRS produced the smallest loss of all the funds with a return of -2.96%. STRS had the greatest six-month loss with a total return of -5.48%. Table 2 also includes a summary of the returns of the various benchmarks utilized by the funds. These may be used as reference points to compare the asset class results of the various funds. For example, for the 8 1/2 year measurement period, the broad U.S. equity market, as defined by the Wilshire 5000 Index, returned 10.40% per year. OP&F and SERS are the only funds that experienced domestic equity performance in excess of this index for the period (10.45% & 10.77% respectively).

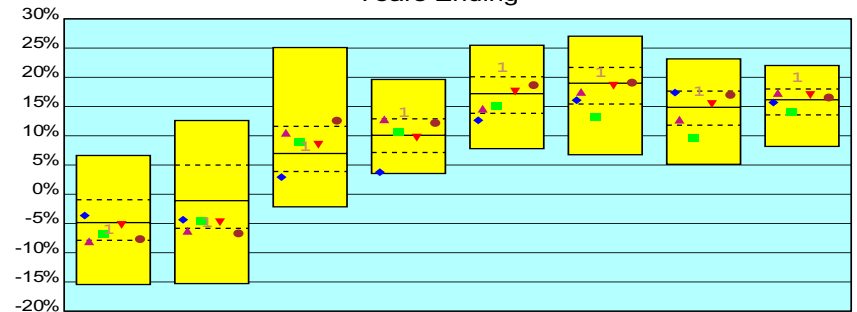
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Cumulative Performance Comparison
Total Returns of Total Fund Portfolios
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	1.55	2.71	6.63	8.47	7.26	7.15	8.89	11.22	12.30	13.67
1st Qt	-2.77	-1.54	-0.94	1.43	2.91	4.69	6.73	8.61	9.59	10.66
Median	-5.04	-4.09	-4.85	-2.59	0.40	3.00	5.56	7.41	8.45	9.36
3rd Qt	-7.01	-6.31	-7.88	-6.19	-2.27	1.05	4.28	6.43	7.26	8.36
Low	-10.92	-11.30	-15.44	-13.85	-6.68	-2.37	0.35	4.06	5.53	6.57
◆ HPRS Return	-4.22	-2.96	-3.73	-4.09	-1.83	-0.48	2.00	4.21	5.98	7.14
Rank	41	37	40	58	72	90	93	94	93	93
■ PERS Return	-6.20	-5.07	-6.96	-5.78	-1.16	1.65	4.19	5.63	6.17	7.12
Rank	67	61	67	70	66	66	76	85	91	93
▼ OP&F Return	-5.62	-4.16	-5.34	-5.11	-0.81	1.69	4.67	6.85	8.03	9.09
Rank	58	51	55	66	63	65	68	63	58	60
● SERS Return	-6.20	-5.26	-7.76	-7.27	-1.10	2.05	5.16	7.35	8.67	9.61
Rank	67	63	74	79	65	62	58	53	43	45
▲ STRS Return	-6.72	-5.48	-8.13	-7.24	-1.69	1.74	4.18	6.28	7.17	8.38
Rank	72	66	78	79	70	65	77	78	76	74
⊥ 60/40 Index Return	-6.09	-5.51	-6.29	-5.62	-1.28	2.27	5.85	8.18	9.45	10.69
Rank	65	66	63	69	66	59	45	32	29	24

Consecutive Performance Comparison
Total Returns of Total Fund Portfolios
Years Ending

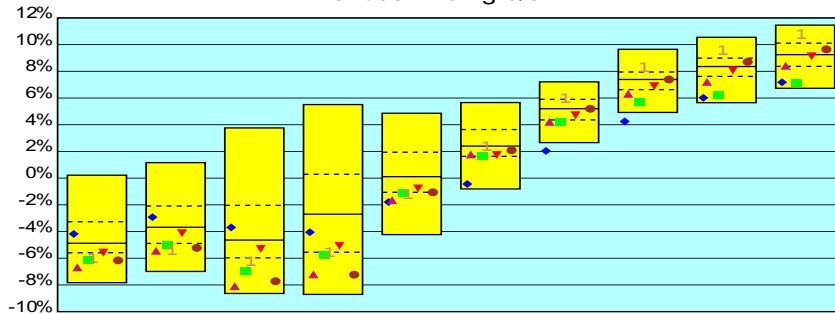


	Year 6/02	Year 6/01	Year 6/00	Year 6/99	Year 6/98	Year 6/97	Year 6/96	Year 6/95
High	6.63	12.61	25.09	19.63	25.48	27.03	23.15	22.02
1st Qt	-0.94	4.99	11.61	12.90	20.09	21.69	17.64	18.00
Median	-4.85	-1.10	6.97	10.08	17.20	18.99	14.87	16.16
3rd Qt	-7.88	-5.83	3.89	7.14	13.84	15.43	11.81	13.57
Low	-15.44	-15.28	-2.15	3.55	7.80	6.76	5.12	8.18
◆ HPRS Return	-3.73	-4.45	2.84	3.68	12.56	15.99	17.30	15.60
Rank	40	66	81	94	81	72	26	55
■ PERS Return	-6.96	-4.59	8.78	10.56	15.04	13.09	9.48	14.04
Rank	67	67	37	45	67	82	84	71
▼ OP&F Return	-5.34	-4.88	8.38	9.59	17.47	18.47	15.34	16.88
Rank	55	69	40	55	47	55	44	37
● SERS Return	-7.76	-6.78	12.50	12.11	18.58	19.00	16.91	16.46
Rank	74	79	21	30	37	49	29	44
▲ STRS Return	-8.13	-6.34	10.43	12.74	14.55	17.42	12.67	17.24
Rank	78	77	29	25	70	63	70	33
⊥ 60/40 Index Return	-6.29	-4.94	8.00	13.72	21.43	20.62	17.43	19.78
Rank	63	69	41	19	16	34	26	9

This page compares the Total Fund results to a broad universe of total funds - 1077 other funds, including those of public, corporate, and multi-employer pension plans - over an eight-year measurement period. Here and elsewhere in the report, the "floating bars" define the universe against which the performance is being compared. The top of the bar is the 5th percentile, the higher dotted line is the 25th percentile (bottom of the first quartile), the solid line is the median, the lower dotted line is the 75th percentile (bottom of the third quartile) and the bottom of the bar is the 95th percentile. The table just below the graph defines the quartile marks and the table below that displays each fund's return for that period and the relevant ranking in the universe. The numbers in the "rank" rows are percentile rankings. The last line in the bottom table is the return and rank of a hypothetical portfolio of 60% stocks (Wilshire 5000) and 40% bonds (Lehman Aggregate Bond Index). The graph on the left is a cumulative performance comparison with measurement periods that are annualized over the last eight years. The graph on the right is a consecutive performance comparison with twelve-month measurement periods ending 6/2002. The graph on the left shows that SERS has demonstrated the highest return for the eight-year period with an 9.61% per year return, which ranks the fund in the 45th percentile. The graph on the right shows that this eight-year ranking was achieved by above-median performance for 12 month periods ending 6/30 in 1995 through 2000.

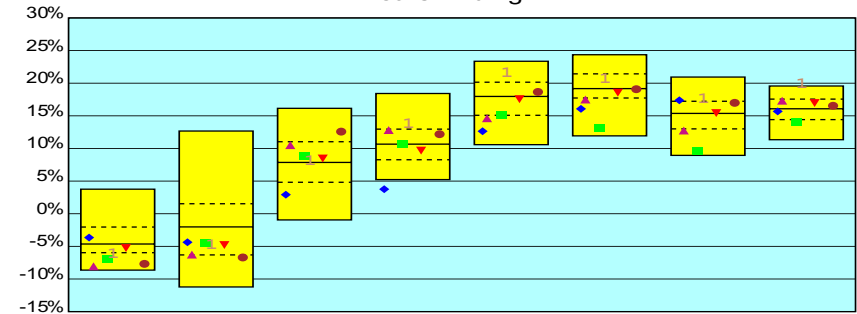
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Cumulative Performance Comparison
Total Returns of Total Fund Public Sponsors
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	0.22	1.16	3.76	5.51	4.86	5.66	7.21	9.65	10.55	11.46
1st Qt	-3.27	-2.09	-2.04	0.29	1.94	3.64	5.90	7.95	8.99	10.11
Median	-4.88	-3.68	-4.64	-2.70	0.11	2.40	5.20	7.39	8.36	9.25
3rd Qt	-5.59	-4.89	-5.97	-5.55	-1.06	1.63	4.36	6.63	7.62	8.37
Low	-7.83	-6.99	-8.64	-8.71	-4.23	-0.81	2.66	4.92	5.65	6.73
◆ HPRS Return	-4.22	-2.96	-3.73	-4.09	-1.83	-0.48	2.00	4.21	5.98	7.14
Rank	35	32	40	58	81	94	97	99	92	94
■ PERS Return	-6.20	-5.07	-6.96	-5.78	-1.16	1.65	4.19	5.63	6.17	7.12
Rank	84	75	84	77	75	73	81	92	92	94
▼ OP&F Return	-5.62	-4.16	-5.34	-5.11	-0.81	1.69	4.67	6.85	8.03	9.09
Rank	76	60	62	70	69	71	68	71	60	58
● SERS Return	-6.20	-5.26	-7.76	-7.27	-1.10	2.05	5.16	7.35	8.67	9.61
Rank	84	77	89	84	75	59	50	53	39	37
▲ STRS Return	-6.72	-5.48	-8.13	-7.24	-1.69	1.74	4.18	6.28	7.17	8.38
Rank	87	80	92	84	79	70	81	81	78	72
⊥ 60/40 Index Return	-6.09	-5.51	-6.29	-5.62	-1.28	2.27	5.85	8.18	9.45	10.69
Rank	84	81	76	76	75	51	25	16	14	12

Consecutive Performance Comparison
Total Returns of Total Fund Public Sponsors
Years Ending

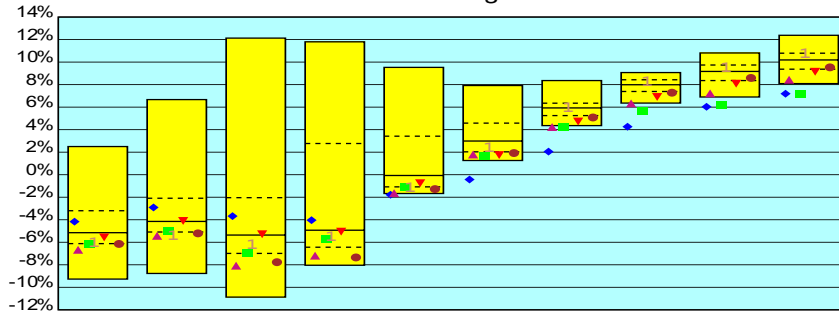


	6/02	6/01	6/00	6/99	6/98	6/97	6/96	6/95
High	3.76	12.67	16.15	18.42	23.36	24.36	20.94	19.57
1st Qt	-2.04	1.53	11.03	12.96	20.15	21.43	17.23	17.56
Median	-4.64	-2.02	7.86	10.66	17.97	19.17	15.37	16.08
3rd Qt	-5.97	-6.31	4.82	8.27	15.08	17.73	13.00	14.42
Low	-8.64	-11.22	-0.95	5.23	10.58	11.93	8.94	11.34
◆ HPRS Return	-3.73	-4.45	2.84	3.68	12.56	15.99	17.30	15.60
Rank	40	65	83	98	91	87	24	56
■ PERS Return	-6.96	-4.59	8.78	10.56	15.04	13.09	9.48	14.04
Rank	84	66	39	52	75	94	91	79
▼ OP&F Return	-5.34	-4.88	8.38	9.59	17.47	18.47	15.34	16.88
Rank	62	67	44	64	54	62	52	31
● SERS Return	-7.76	-6.78	12.50	12.11	18.58	19.00	16.91	16.46
Rank	89	80	16	35	41	53	28	37
▲ STRS Return	-8.13	-6.34	10.43	12.74	14.55	17.42	12.67	17.24
Rank	92	75	28	26	78	76	78	27
⊥ 60/40 Index Return	-6.29	-4.94	8.00	13.72	21.43	20.62	17.43	19.78
Rank	76	68	48	19	13	35	22	3

The graphs above compare the Total Fund results to a universe comprised solely of the 125 Public Retirement Systems in the universe. SERS is the only Ohio fund to rank above the median return for this universe over the last eight years. OP&F and STRS have displayed third quartile performance over the eight-year measurement period, while PERS and HPRS have placed in the fourth quartile over the same eight-year period.

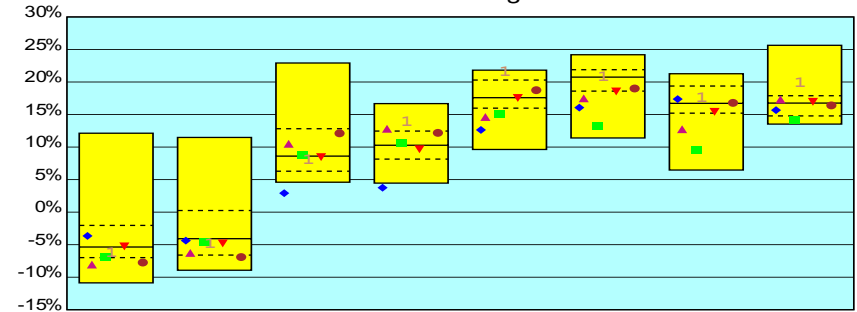
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Total Returns of Total Fund Portfolios
Total Market Value Over One Billion
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	2.50	6.67	12.13	11.80	9.53	7.92	8.36	9.07	10.81	12.38
1st Qt	-3.20	-2.09	-2.04	2.77	3.42	4.58	6.35	8.43	9.74	10.79
Median	-5.15	-4.15	-5.36	-4.93	-0.07	2.99	5.93	7.99	9.17	10.19
3rd Qt	-6.12	-5.09	-6.99	-6.44	-1.08	2.03	5.25	7.39	8.36	9.37
Low	-9.27	-8.77	-10.87	-8.04	-1.67	1.26	4.36	6.36	6.90	8.09
◆ HPRS Return Rank	-4.22 25	-2.96 30	-3.73 28	-4.09 40	-1.83 95	-0.48 99	2.00 99	4.21 99	5.98 100	7.14 100
■ PERS Return Rank	-6.20 75	-5.07 68	-6.96 68	-5.78 65	-1.16 78	1.65 91	4.19 95	5.63 95	6.17 100	7.12 100
▼ OP&F Return Rank	-5.62 68	-4.16 50	-5.34 46	-5.11 53	-0.81 67	1.69 91	4.67 87	6.85 91	8.03 84	9.09 84
● SERS Return Rank	-6.20 75	-5.26 75	-7.82 84	-7.40 85	-1.33 85	1.87 79	5.03 83	7.23 83	8.54 62	9.48 65
▲ STRS Return Rank	-6.72 81	-5.48 78	-8.13 87	-7.24 81	-1.69 95	1.74 83	4.18 95	6.28 95	7.17 94	8.38 94
⊥ 60/40 Index Return Rank	-6.09 71	-5.51 78	-6.29 56	-5.62 62	-1.28 81	2.27 64	5.85 53	8.18 37	9.45 41	10.69 29

Total Returns of Total Fund Portfolios
Total Market Value Over One Billion
Years Ending

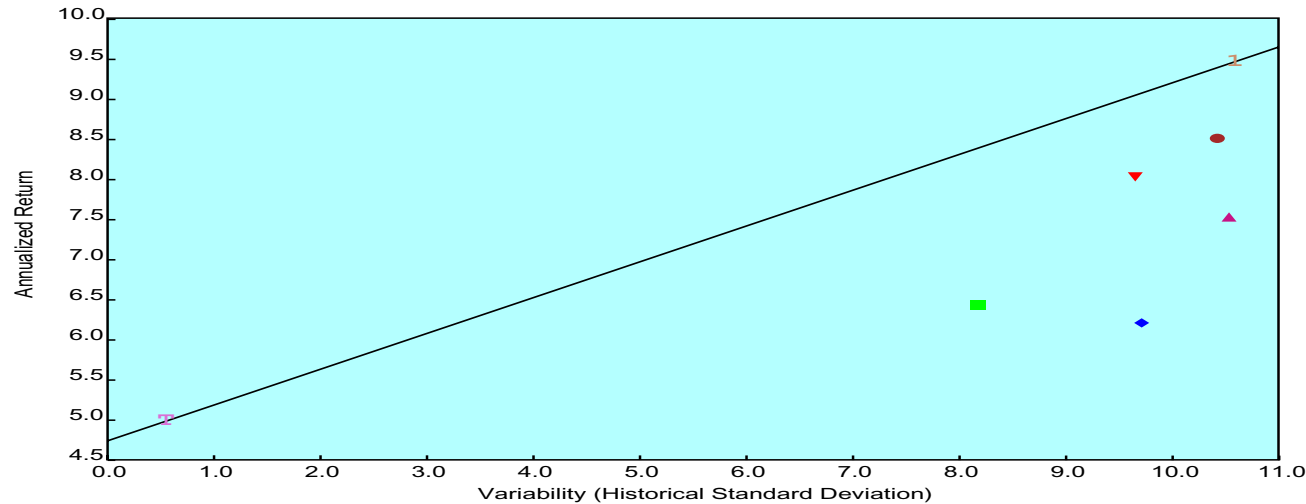


	6/02	6/01	6/00	6/99	6/98	6/97	6/96	6/95
High	12.13	11.48	22.92	16.68	21.82	24.19	21.27	25.64
1st Qt	-2.04	0.25	12.82	12.46	20.30	21.89	19.38	17.89
Median	-5.36	-4.08	8.61	10.28	17.59	20.75	16.72	16.76
3rd Qt	-6.99	-6.60	6.29	8.15	15.98	18.60	15.21	14.79
Low	-10.87	-8.93	4.60	4.46	9.63	11.40	6.47	13.53
◆ HPRS Return Rank	-3.73 28	-4.45 53	2.84 99	3.68 95	12.56 87	15.99 87	17.30 41	15.60 60
■ PERS Return Rank	-6.96 68	-4.59 53	8.78 46	10.56 46	15.04 75	13.09 87	9.48 89	14.04 94
▼ OP&F Return Rank	-5.34 46	-4.88 53	8.38 53	9.59 64	17.47 53	18.47 75	15.34 70	16.88 41
● SERS Return Rank	-7.82 84	-6.98 78	12.04 34	12.11 39	18.67 35	18.93 66	16.72 50	16.33 55
▲ STRS Return Rank	-8.13 87	-6.34 71	10.43 43	12.74 15	14.55 75	17.42 79	12.67 84	17.24 33
⊥ 60/40 Index Return Rank	-6.29 56	-4.94 56	8.00 53	13.72 15	21.43 5	20.62 50	17.43 41	19.78 10

The charts above compare the total fund returns to a universe of large funds. This particular universe consists of 73 funds with total assets over one billion dollars.

Ohio Retirement Study Council

Quarterly Total Return Market Line Analysis Periods from 12/93 to 6/02



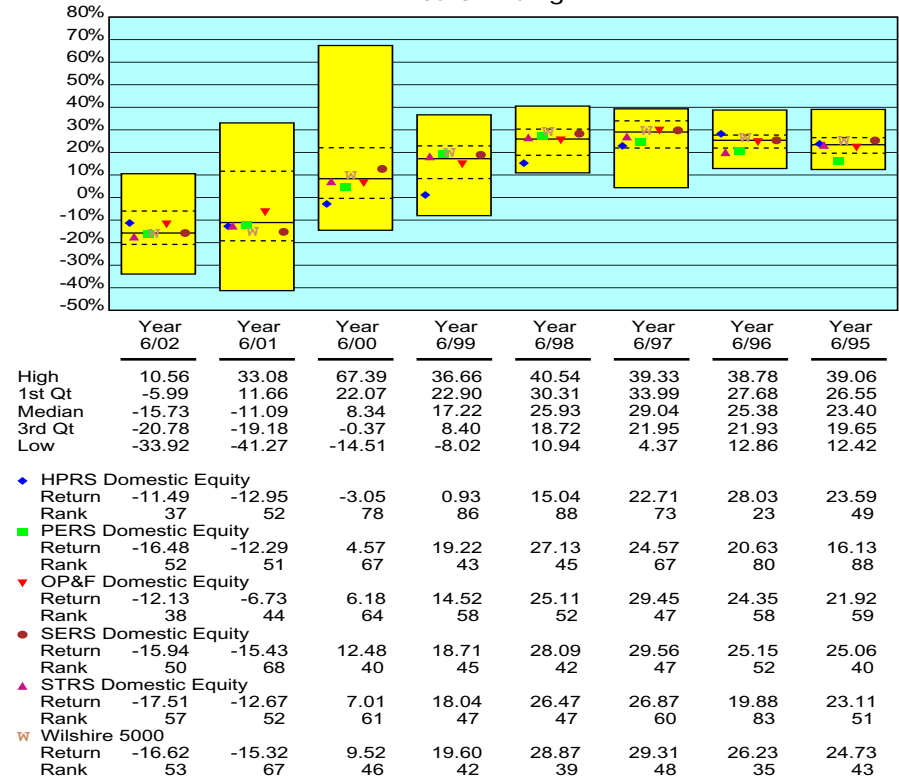
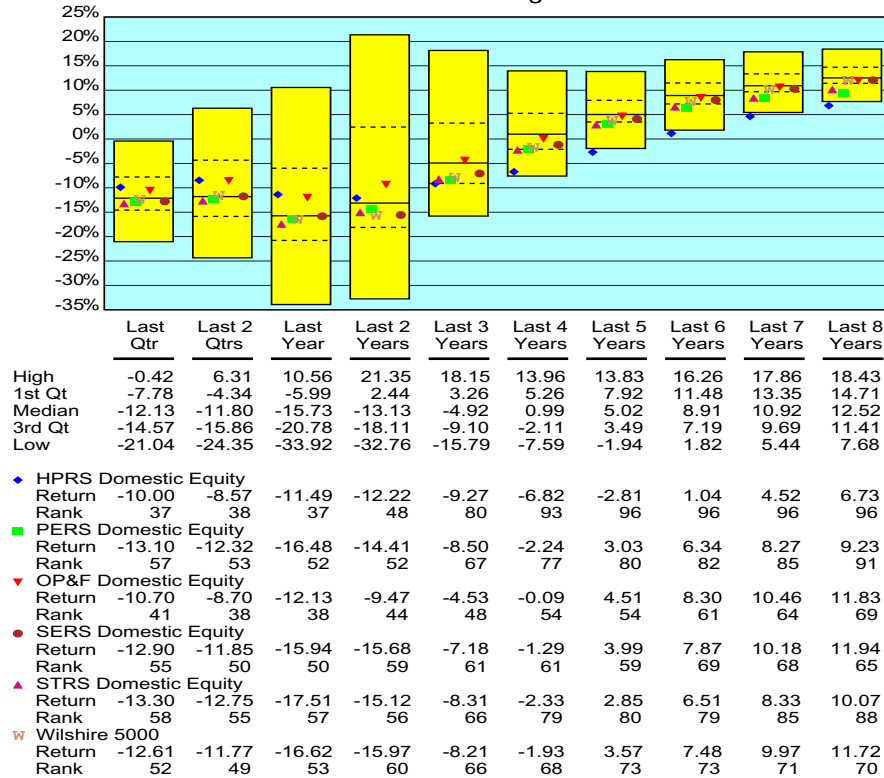
	Annualized Return	Variability	Reward	Sharpe Ratio
◆ HPRS	6.21	9.76	1.21	0.12
■ PERS	6.43	8.22	1.43	0.17
▼ OP&F	8.03	9.70	3.03	0.31
● SERS	8.51	10.47	3.51	0.34
▲ STRS	7.53	10.58	2.53	0.24
■ 60/40 Index	9.47	10.62	4.47	0.42
■ 91-Day Treasury Bill	5.00	0.59	0.00	0.00

The graph above provides the first analysis of risk. The 8 1/2 year results of each Total Fund are displayed in risk-return space. The vertical axis shows the fund's return and the horizontal axis shows the fund's risk (defined as annualized quarterly standard deviation of returns) for the period. The diagonal line is the Capital Market Line, drawn by connecting the risk/return point of US T-bills (the theoretical risk-free rate) and the risk/return point of the hypothetical 60% stock, 40% bond portfolio that was introduced on page 5. This line is included because, theoretically, an investor could, using a combination of index funds and T-bills, have risk/return performance that is on the line. This analysis allows us to compare the funds to each other on a risk/return basis. For example, the two funds with the lowest return for the period were PERS and HPRS. PERS' low return was achieved with the lowest risk (volatility) while HPRS' return was achieved with the higher risk (volatility) of the two for the period. The Sharpe Ratio provides another tool for analysis. The number alone is not particularly meaningful, but when comparing two or more funds as is the case in this study, the higher Sharpe Ratio is the better risk-adjusted return.

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Cumulative Performance Comparison
Total Returns of Equity Portfolios
Periods Ending 6/02

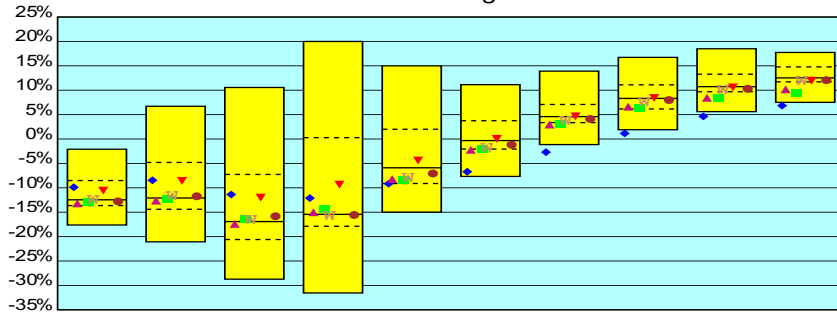
Consecutive Performance Comparison
Total Returns of Equity Portfolios
Years Ending



The exhibits above, and those on the next two pages, focus on US Equity results. The analysis is similar to the Total Fund analysis, except that now the comparisons are to a broad equity universe (above) and to the equity returns of Public Funds (page 10). When compared to equity portfolios in the broad equity universe (above), OP&F and SERS have near median results while HPRS, PERS, and STRS have placed in the fourth quartile. Over the past two years, all five of the funds have displayed near-median results and all have outperformed the Wilshire 5000 index. The exhibit on the right displays performance by twelve-month periods ending June 30. This exhibit highlights the fact that the long-term underperformance of the HPRS fund can be significantly explained by its bottom-quartile equity results in 1998, 1999, and 2000. Since then, results have rebounded nicely.

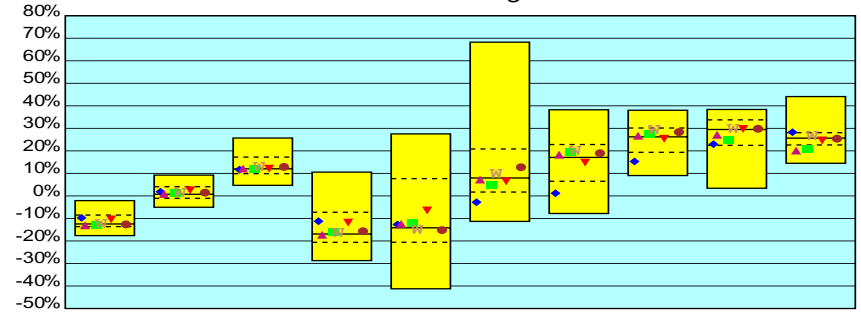
Ohio Retirement Study Council

Cumulative Performance Comparison
Total Returns of Public Equity Portfolios
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	-2.09	6.71	10.56	19.99	14.99	11.14	13.91	16.73	18.49	17.74
1st Qt	-8.51	-4.80	-7.26	0.28	2.00	3.75	7.08	11.10	13.28	14.78
Median	-12.46	-12.09	-16.92	-15.44	-5.90	-0.32	4.59	8.32	10.73	12.53
3rd Qt	-13.64	-14.40	-20.60	-17.88	-9.12	-2.06	3.36	6.16	9.69	11.72
Low	-17.62	-21.07	-28.72	-31.55	-14.98	-7.67	-1.14	1.90	5.61	7.51
◆ HPRS Domestic Equity										
Return	-10.00	-8.57	-11.49	-12.22	-9.27	-6.82	-2.81	1.04	4.52	6.73
Rank	35	37	33	40	81	94	96	96	99	99
■ PERS Domestic Equity										
Return	-13.10	-12.32	-16.48	-14.41	-8.50	-2.24	3.03	6.34	8.27	9.23
Rank	60	52	48	44	65	80	79	74	85	93
▼ OP&F Domestic Equity										
Return	-10.70	-8.70	-12.13	-9.47	-4.53	-0.09	4.51	8.30	10.46	11.83
Rank	40	38	36	35	44	48	52	53	63	70
● SERS Domestic Equity										
Return	-12.90	-11.85	-15.94	-15.68	-7.18	-1.29	3.99	7.87	10.18	11.94
Rank	55	48	46	51	57	61	59	61	67	69
▲ STRS Domestic Equity										
Return	-13.30	-12.75	-17.51	-15.12	-8.31	-2.33	2.85	6.51	8.33	10.07
Rank	62	56	53	47	63	81	80	74	85	90
W Wilshire 5000										
Return	-12.61	-11.77	-16.62	-15.97	-8.21	-1.93	3.57	7.48	9.97	11.72
Rank	50	47	48	54	63	67	73	67	71	75

Consecutive Performance Comparison
Total Returns of Public Equity Portfolios
Years Ending

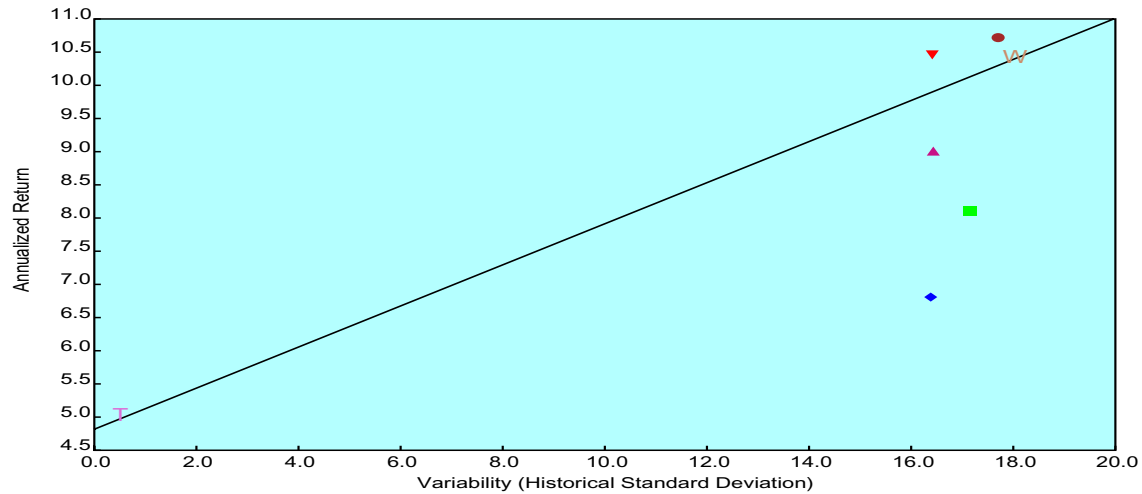


	Qtr 6/02	Qtr 3/02	Qtr 12/01	Year 6/02	Year 6/01	Year 6/00	Year 6/99	Year 6/98	Year 6/97	Year 6/96
High	-2.09	9.23	25.70	10.56	27.53	68.26	38.24	38.03	38.38	44.11
1st Qt	-8.51	4.09	17.23	-7.26	7.67	20.84	22.82	30.14	33.77	28.08
Median	-12.46	0.73	12.03	-16.92	-14.17	7.96	17.10	26.22	29.49	25.65
3rd Qt	-13.64	-1.07	9.88	-20.60	-20.59	1.71	6.50	19.36	22.45	22.62
Low	-17.62	-5.04	4.69	-28.72	-41.24	-11.32	-7.81	9.04	3.40	14.48
◆ HPRS Domestic Equity										
Return	-10.00	1.59	11.41	-11.49	-12.95	-3.05	0.93	15.04	22.71	28.03
Rank	35	40	52	33	45	81	84	89	74	25
■ PERS Domestic Equity										
Return	-13.10	0.90	11.80	-16.48	-12.29	4.57	19.22	27.13	24.57	20.63
Rank	60	47	51	48	42	70	43	46	71	84
▼ OP&F Domestic Equity										
Return	-10.70	2.24	11.84	-12.13	-6.73	6.18	14.52	25.11	29.45	24.35
Rank	40	35	50	36	37	66	58	53	50	63
● SERS Domestic Equity										
Return	-12.90	1.20	12.62	-15.94	-15.43	12.48	18.71	28.09	29.56	25.15
Rank	55	44	44	46	65	38	45	41	49	57
▲ STRS Domestic Equity										
Return	-13.30	0.63	11.88	-17.51	-12.67	7.01	18.04	26.47	26.87	19.88
Rank	62	51	50	53	44	62	47	48	65	87
W Wilshire 5000										
Return	-12.61	0.96	12.37	-16.62	-15.32	9.52	19.60	28.87	29.31	26.23
Rank	50	46	48	48	65	44	40	38	51	36

The comparisons above compare the domestic equity returns of the five Ohio public funds to the domestic equity returns of all of the public funds in the Wilshire universe. Over the past twelve months, the domestic equity results of the five systems have ranged from the 33rd percentile (HPRS) to the 53rd percentile (STRS). Over the past five years, OP&F had the highest return and ranking (4.51% and 52nd percentile). The domestic equity results for all five systems, however, fell short of the median portfolio for the five-year period.

Ohio Retirement Study Council

Quarterly Total Return Market Line Analysis Periods from 12/93 to 6/02



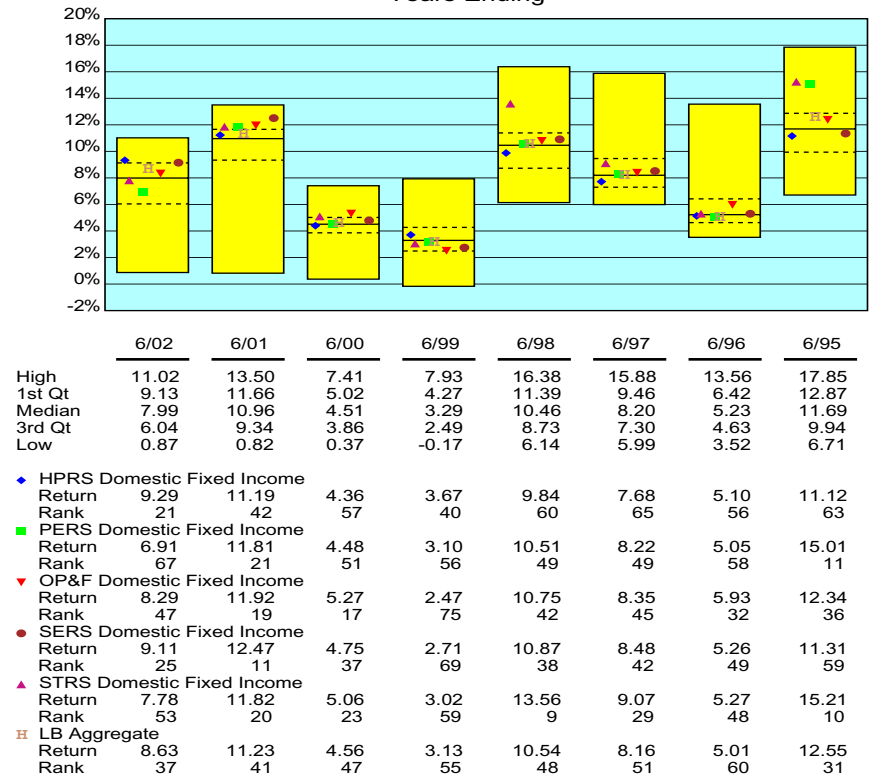
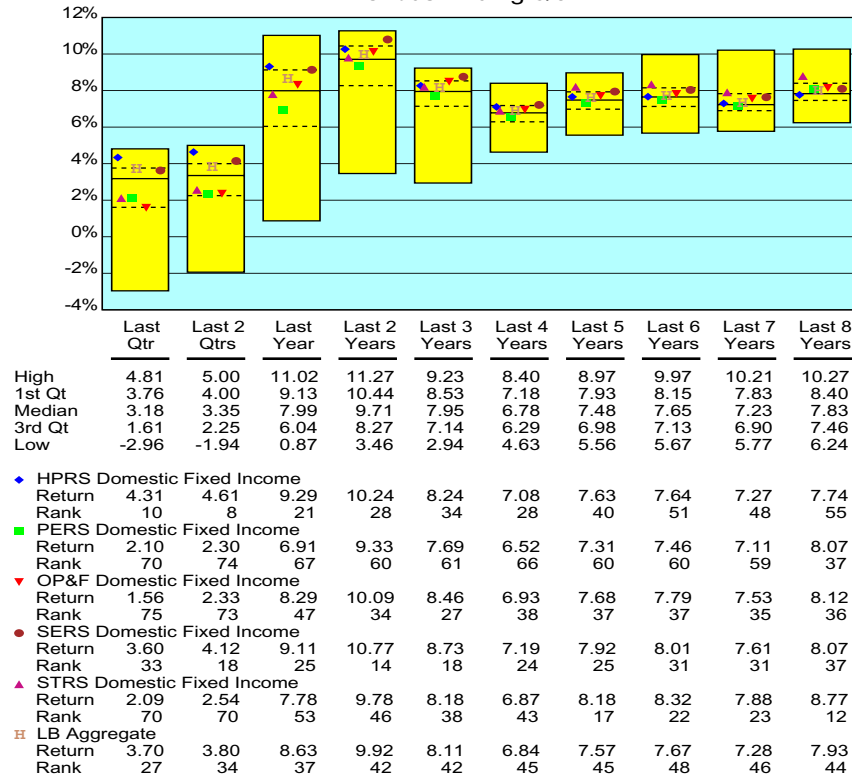
	Annualized Return	Variability	Reward	Sharpe Ratio
◆ HPRS Domestic Equity	6.80	16.49	1.80	0.11
■ PERS Domestic Equity	8.10	17.25	3.10	0.18
▼ OP&F Domestic Equity	10.45	16.52	5.45	0.33
● SERS Domestic Equity	10.71	17.81	5.71	0.32
▲ STRS Domestic Equity	9.00	16.54	4.00	0.24
W Wilshire 5000	10.40	18.03	5.40	0.30
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

This is a risk -return analysis of domestic equity portfolios for all of the funds. The Capital Market Line is drawn, this time, between T-bills and the Wilshire 5000, the proxy for the total US stock market. As noted on the Capital Market Line exhibit on page 8, a Sharpe Ratio is calculated, providing a means of comparing returns adjusted for risk. SERS, OP&F, & STRS have enjoyed the best risk-adjusted equity results over the 8 1/2 year period. SERS and OP&F, in particular, had “above the line” risk-adjusted equity results and Sharpe Ratios greater than the broad-market Wilshire 5000 index.

Ohio Retirement Study Council

Cumulative Performance Comparison
Total Returns of Fixed Income Portfolios
Periods Ending 6/02

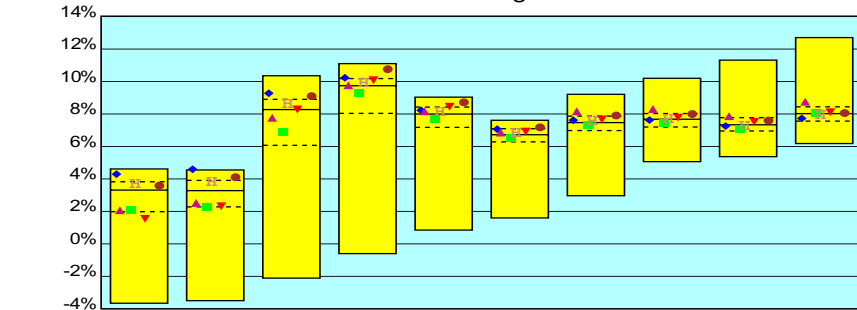
Consecutive Performance Comparison
Total Returns of Fixed Income Portfolios
Years Ending



The exhibits above, and those on the next two pages, compare the fixed income results of the five funds to that of a broad fixed income universe. Over the past eight years, four of the fund's fixed income results are above the median. Over the last twelve months, the results have varied a bit. Both HPRS and SERS have placed in the top quartile, while OP&F and STRS have placed near the median and PERS has placed in the lower part of the third quartile. The graph on the right provides an analysis of the performance of twelve-month periods ending June 30. The chart shows that STRS eight-year cumulative return was spurred by top decile performance in the years ending June 30, 1998 and June 30, 1995.

Ohio Retirement Study Council

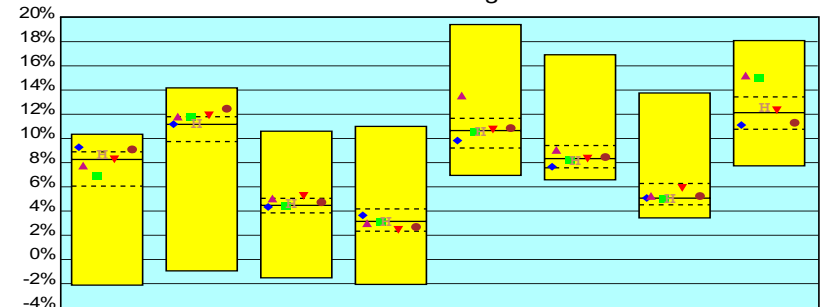
Cumulative Performance Comparison
Total Returns of Public Fixed Income Portfolios
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	4.63	4.57	10.37	11.12	9.06	7.64	9.24	10.23	11.35	12.74
1st Qt	3.84	3.93	8.92	10.20	8.45	7.12	7.90	8.06	7.81	8.48
Median	3.33	3.30	8.29	9.76	8.02	6.75	7.50	7.71	7.37	8.06
3rd Qt	2.00	2.30	6.09	8.06	7.20	6.31	7.01	7.23	6.99	7.60
Low	-3.63	-3.47	-2.08	-0.57	0.88	1.63	3.00	5.10	5.41	6.22

◆ HPRS Domestic Fixed Income										
Return	4.31	4.61	9.29	10.24	8.24	7.08	7.63	7.64	7.27	7.74
Rank	8	4	15	24	41	27	38	55	56	66
■ PERS Domestic Fixed Income										
Return	2.10	2.30	6.91	9.33	7.69	6.52	7.31	7.46	7.11	8.07
Rank	73	75	70	59	65	66	56	63	66	47
▼ OP&F Domestic Fixed Income										
Return	1.56	2.33	8.29	10.09	8.46	6.93	7.68	7.79	7.53	8.12
Rank	77	74	50	30	24	37	37	38	41	43
● SERS Domestic Fixed Income										
Return	3.60	4.12	9.11	10.77	8.73	7.19	7.92	8.01	7.61	8.07
Rank	37	16	20	10	11	22	22	27	33	47
▲ STRS Domestic Fixed Income										
Return	2.09	2.54	7.78	9.78	8.18	6.87	8.18	8.32	7.88	8.77
Rank	73	71	59	49	42	43	12	13	18	15
▣ LB Aggregate										
Return	3.70	3.80	8.63	9.92	8.11	6.84	7.57	7.67	7.28	7.93
Rank	33	30	35	42	46	44	42	55	56	58

Consecutive Performance Comparison
Total Returns of Public Fixed Income Portfolios
Years Ending



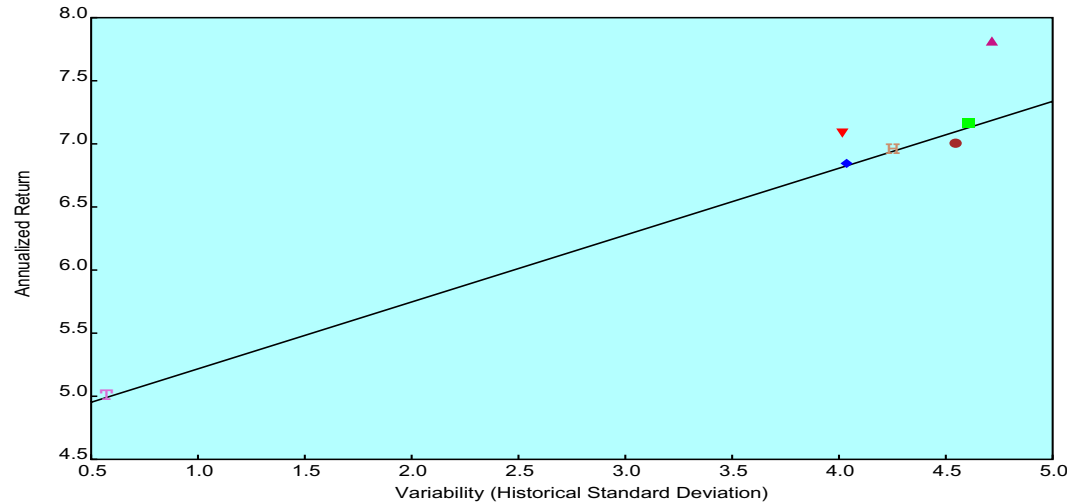
	6/02	6/01	6/00	6/99	6/98	6/97	6/96	6/95
High	10.37	14.20	10.63	11.03	19.44	16.95	13.80	18.13
1st Qt	8.92	11.82	5.09	4.22	11.70	9.46	6.33	13.48
Median	8.29	11.19	4.51	3.19	10.69	8.38	5.12	12.18
3rd Qt	6.09	9.77	3.89	2.38	9.25	7.62	4.57	10.81
Low	-2.08	-0.90	-1.47	-2.01	6.99	6.63	3.49	7.79

◆ HPRS Domestic Fixed Income								
Return	9.29	11.19	4.36	3.67	9.84	7.68	5.10	11.12
Rank	15	50	60	37	69	73	52	71
■ PERS Domestic Fixed Income								
Return	6.91	11.81	4.48	3.10	10.51	8.22	5.05	15.01
Rank	70	26	51	55	55	57	55	14
▼ OP&F Domestic Fixed Income								
Return	8.29	11.92	5.27	2.47	10.75	8.35	5.93	12.34
Rank	50	23	21	73	48	52	29	44
● SERS Domestic Fixed Income								
Return	9.11	12.47	4.75	2.71	10.87	8.48	5.26	11.31
Rank	20	13	38	68	45	46	43	69
▲ STRS Domestic Fixed Income								
Return	7.78	11.82	5.06	3.02	13.56	9.07	5.27	15.21
Rank	59	25	27	58	12	33	43	13
▣ LB Aggregate								
Return	8.63	11.23	4.56	3.13	10.54	8.16	5.01	12.55
Rank	35	49	48	54	54	59	57	40

The exhibits above compare the fixed income results of the five funds to that of the fixed income returns of public funds in the Wilshire universe. The analysis is similar to page 12. STRS has had the best performance over the past eight years (8.77%), while HPRS has had the worst fixed income performance over the same measurement period (7.74%). Four of the funds (PERS, OP&F, SERS, & STRS) outperformed the LB Aggregate Bond Market index for the same period, while HPRS underperformed the LB Aggregate by only a small margin.

Ohio Retirement Study Council

Quarterly Total Return Market Line Analysis Periods from 12/93 to 6/02

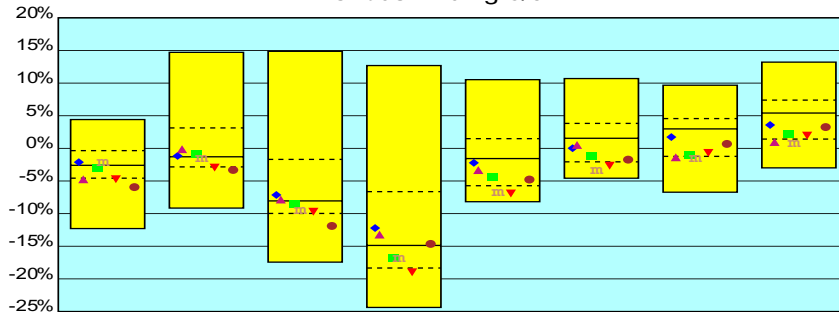


	Annualized Return	Variability	Reward	Sharpe Ratio
◆ HPRS Domestic Fixed Income	6.84	4.06	1.84	0.45
■ PERS Domestic Fixed Income	7.16	4.63	2.16	0.47
▼ OP&F Domestic Fixed Income	7.08	4.04	2.08	0.52
● SERS Domestic Fixed Income	7.00	4.57	2.00	0.44
▲ STRS Domestic Fixed Income	7.81	4.74	2.81	0.59
■ LB Aggregate	6.95	4.27	1.95	0.46
■ 91-Day Treasury Bill	5.00	0.59	0.00	0.00

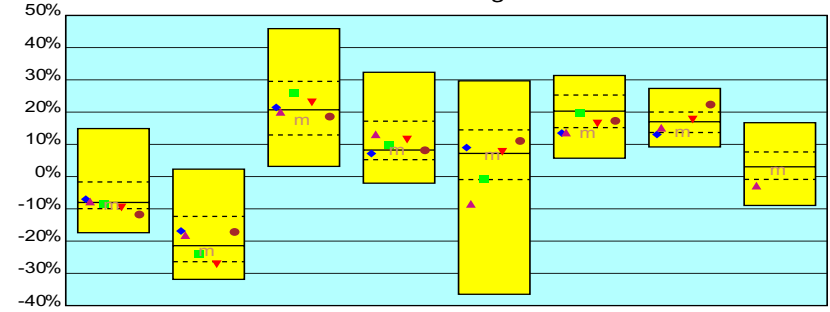
The risk-return analysis above shows that three of the funds' fixed income portfolios (OP&F, PERS, & STRS) have enjoyed risk-adjusted returns (as measured by the Sharpe Ratios) greater than the bond market as defined by the Lehman Aggregate Index. SERS cumulative return has outperformed the Lehman Aggregate Index over the observed 8 1/2-year period, however its return volatility has resulted in a slightly lower Sharpe Ratio than the index. HPRS, on the other hand, underperformed the index but with less volatility, resulting in a slightly lower Sharpe ratio than the index.

Ohio Retirement Study Council

Cumulative Performance Comparison
Total Returns of International Equity Portfolios
Periods Ending 6/02



Consecutive Performance Comparison
Total Returns of International Equity Portfolios
Years Ending



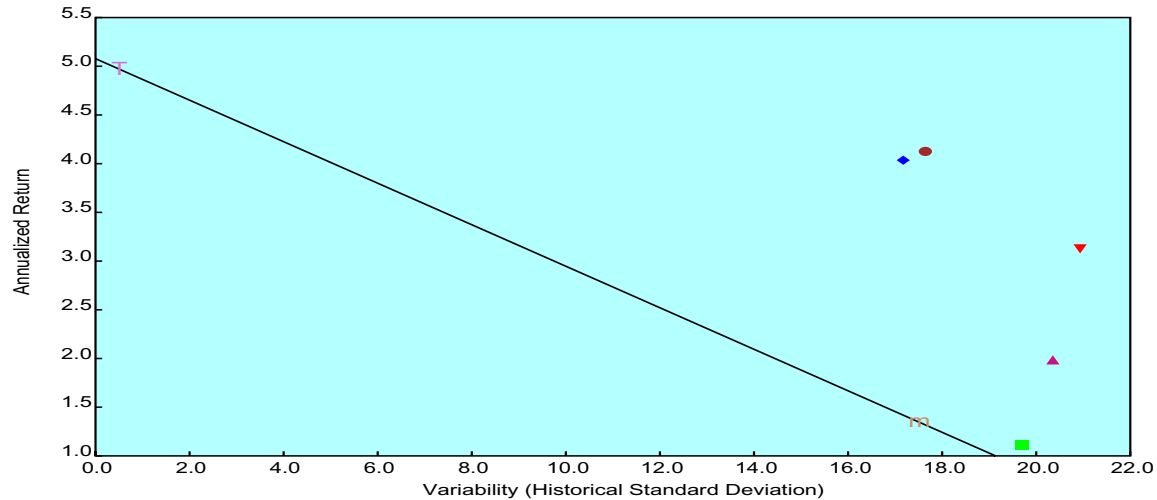
	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years
High	4.42	14.72	14.88	12.70	10.54	10.71	9.69	13.23
1st Qt	-0.34	3.14	-1.68	-6.62	1.50	3.84	4.58	7.41
Median	-2.59	-1.28	-8.04	-14.86	-1.55	1.56	3.00	5.43
3rd Qt	-4.56	-2.83	-9.96	-18.32	-5.71	-2.05	-1.21	1.44
Low	-12.28	-9.14	-17.42	-24.36	-8.16	-4.56	-6.70	-2.97
◆ HPRS Intn'l Equity								
Return	-2.18	-1.22	-7.20	-12.27	-2.28	-0.04	1.67	3.52
Rank	43	49	46	39	56	62	59	61
■ PERS Intn'l Equity								
Return	-3.10	-0.97	-8.61	-16.79	-4.52	-1.16	-1.12	2.07
Rank	54	45	61	63	67	69	73	71
▼ OP&F Intn'l Equity								
Return	-4.79	-3.01	-9.77	-19.05	-6.98	-2.72	-0.76	1.89
Rank	77	77	73	81	87	78	71	72
● SERS Intn'l Equity								
Return	-6.00	-3.37	-11.95	-14.70	-4.84	-1.79	0.62	3.20
Rank	84	82	81	49	69	71	63	62
▲ STRS Intn'l Equity								
Return	-4.80	-0.19	-7.90	-13.27	-3.39	0.46	-1.43	0.91
Rank	77	42	49	41	63	58	79	78
■ MSCI EAFE (Net)								
Return	-2.12	-1.62	-9.49	-16.85	-6.78	-3.37	-1.55	0.71
Rank	42	54	71	63	86	85	79	82

	6/02	6/01	6/00	6/99	6/98	6/97	6/96	6/95
High	14.88	2.29	45.87	32.33	29.67	31.33	27.31	16.68
1st Qt	-1.68	-12.37	29.51	17.16	14.46	25.26	19.99	7.60
Median	-8.04	-21.45	20.69	8.21	7.16	20.27	16.98	3.00
3rd Qt	-9.96	-26.42	12.89	5.22	-0.95	15.16	13.64	-0.91
Low	-17.42	-31.90	3.14	-2.07	-36.53	5.67	9.16	-8.99
◆ HPRS Intn'l Equity								
Return	-7.20	-17.07	21.27	6.96	8.81	13.31	12.87	
Rank	46	32	49	60	40	80	83	
■ PERS Intn'l Equity								
Return	-8.61	-24.25	25.72	9.63	-0.95	19.62		
Rank	61	64	33	42	75	54		
▼ OP&F Intn'l Equity								
Return	-9.77	-27.38	22.82	11.29	7.49	16.26	17.49	
Rank	73	81	45	37	48	70	44	
● SERS Intn'l Equity								
Return	-11.95	-17.36	18.42	7.97	10.87	17.10	22.15	
Rank	81	32	54	51	34	66	12	
▲ STRS Intn'l Equity								
Return	-7.90	-18.33	19.90	12.94	-8.64	13.49	14.98	-2.98
Rank	49	33	51	33	82	79	67	82
■ MSCI EAFE (Net)								
Return	-9.49	-23.61	17.18	7.59	6.09	12.84	13.28	1.66
Rank	71	61	60	55	55	85	80	59

The exhibits on this page and the one on the next page, analyze the International Equity results of the five funds. Seven and eight-year comparisons are not meaningful, since two of the funds have not had allocations to this asset class for that length of time. For the six-year period ending 6/30/2002, all of the funds have had International Equity results that are below the median international equity portfolio in our universe. On an absolute basis, these range from 3.52% (HPRS) to 0.91% (STRS). HPRS had the best International Equity return for the most recent twelve months.

Ohio Retirement Study Council

Quarterly Total Return Market Line Analysis
Periods from 12/95 to 6/02

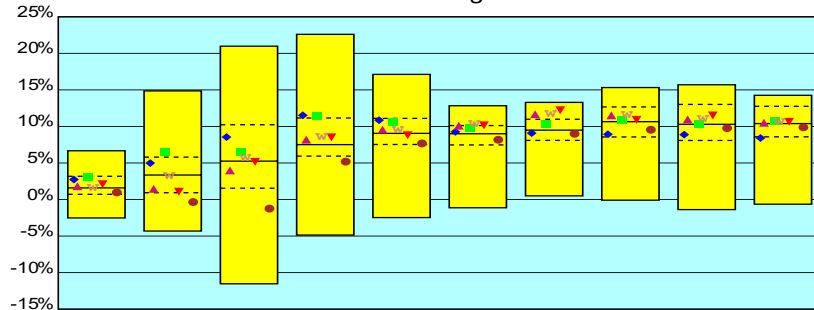


	Annualized Return	Variability
◆ HPRS Intn'l Equity	4.03	17.29
■ PERS Intn'l Equity	1.11	19.82
▼ OP&F Intn'l Equity	3.12	21.05
● SERS Intn'l Equity	4.12	17.76
▲ STRS Intn'l Equity	1.98	20.47
■ MSCI EAFE (Net)	1.34	17.54
⊥ 91-Day Treasury Bill	4.95	0.60

On a risk-return basis, for the 6 1/2 years that all five funds have international equity data, the results are quite disparate. The international equity returns of all of the funds fell short of the T-bill return for the period. In this negative environment for international investing, only PERS underperformed the generic EAFE international benchmark for the period. Since negative Sharpe Ratios are not meaningful, they are not included in this exhibit.

Ohio Retirement Study Council

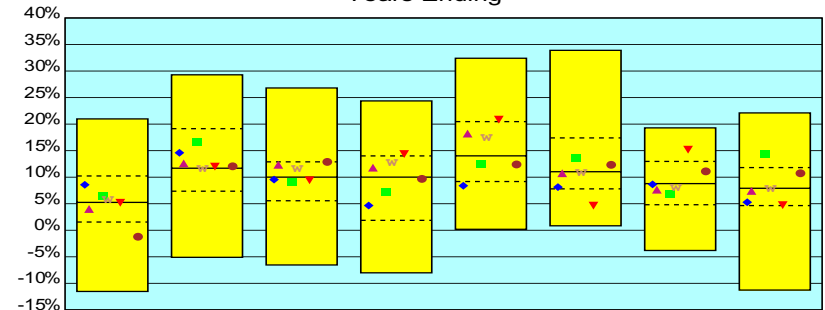
Cumulative Performance Comparison
Total Returns of Real Estate Portfolios
Periods Ending 6/02



	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years	Last 6 Years	Last 7 Years	Last 8 Years
High	6.67	14.86	20.98	22.60	17.12	12.83	13.29	15.32	15.70	14.26
1st Qt	3.18	5.80	10.23	11.15	11.10	10.12	10.98	12.67	13.01	12.75
Median	1.59	3.35	5.25	7.51	9.05	9.00	9.49	10.65	10.29	10.39
3rd Qt	0.71	0.93	1.55	5.94	7.53	7.47	8.09	8.56	8.08	8.58
Low	-2.52	-4.31	-11.53	-4.86	-2.47	-1.13	0.50	-0.09	-1.38	-0.64

◆ HPRS Real Estate	Return	2.67	4.92	8.48	11.46	10.79	9.20	9.02	8.86	8.81	8.35
	Rank	31	31	32	24	27	45	62	73	65	76
■ PERS Real Estate	Return	3.00	6.50	6.39	11.31	10.56	9.70	10.24	10.77	10.20	10.71
	Rank	27	21	44	24	27	35	44	42	50	43
▼ OP&F Real Estate	Return	2.03	1.01	5.09	8.44	8.73	10.09	12.15	10.84	11.44	10.57
	Rank	43	74	51	42	57	26	10	40	39	43
● SERS Real Estate	Return	0.90	-0.41	-1.31	5.12	7.61	8.11	8.93	9.48	9.70	9.81
	Rank	67	88	88	79	72	64	63	61	56	55
▲ STRS Real Estate	Return	1.75	1.40	3.92	8.13	9.49	10.04	11.61	11.45	10.89	10.44
	Rank	45	70	57	43	40	29	20	35	42	46
Ⓜ NCREIF	Return	1.70	3.30	5.74	8.63	9.63	10.41	11.78	11.62	11.11	10.69
	Rank	47	50	47	41	37	19	18	34	39	43

Consecutive Performance Comparison
Total Returns of Real Estate Portfolios
Years Ending



	6/02	6/01	6/00	6/99	6/98	6/97	6/96	6/95
High	20.98	29.29	26.81	24.37	32.41	33.90	19.29	22.11
1st Qt	10.23	19.14	12.89	14.01	20.47	17.40	12.97	11.81
Median	5.25	11.69	10.01	10.01	14.02	11.03	8.79	7.91
3rd Qt	1.55	7.36	5.56	1.87	9.18	7.80	4.81	4.65
Low	-11.53	-5.10	-6.54	-8.02	0.18	0.84	-3.81	-11.27

◆ HPRS Real Estate	Return	8.48	14.51	9.46	4.57	8.30	8.04	8.56	5.19
	Rank	32	32	52	68	79	73	51	72
■ PERS Real Estate	Return	6.39	16.46	9.07	7.15	12.47	13.44	6.82	14.35
	Rank	44	28	55	60	60	37	62	12
▼ OP&F Real Estate	Return	5.09	11.90	9.33	14.27	20.75	4.55	15.09	4.64
	Rank	51	48	52	23	24	89	16	75
● SERS Real Estate	Return	-1.31	11.96	12.79	9.59	12.31	12.24	11.01	10.65
	Rank	88	47	26	54	61	42	36	33
▲ STRS Real Estate	Return	3.92	12.51	12.25	11.71	18.13	10.66	7.56	7.33
	Rank	57	41	29	41	34	53	59	58
Ⓜ NCREIF	Return	5.74	11.61	11.63	12.79	17.45	10.81	8.07	7.80
	Rank	47	51	34	33	36	51	57	52

The exhibits above evaluate the real estate returns for the five funds. For the eight year cumulative period from 7/1/1994 to 6/30/2002, only one of the funds (PERS) had real estate performance that outperformed the NCREIF benchmark. Returns for the past twelve month period show HPRS ahead of the other funds in this asset class with an 8.48% return vs. 5.74% for the NCREIF real estate index. We have not included a risk/return analysis for real estate. While institutional investors in real property compute and report quarterly returns, these returns are based on appraisals and are not appropriately compared with other investments which actually trade on a daily basis. An annualized quarterly standard deviation of returns for real estate is, in our judgement, a meaningless number.

Ohio Retirement Study Council

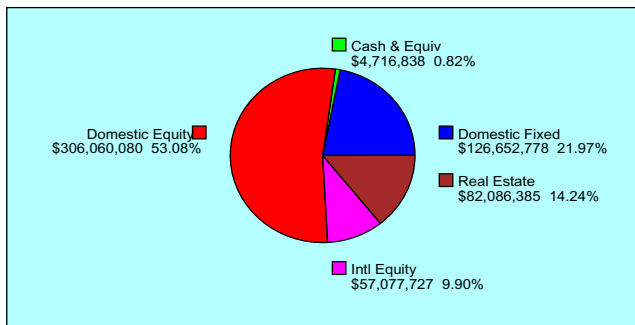
Recognizing the importance of asset allocation in the determination of long-term investment results, this section of the report is a departure from the rest of the document. Instead of comparing the funds to one another, we now provide a comparison of each fund's total return to its own asset allocation policy benchmark. The inclusion of this fund-by-fund analysis is an acknowledgement of the importance of comparing each fund to its own set of objectives. While it is valid to look at each of the state pension funds in relation to each other and in comparison to a universe of other funds, conclusions must not be drawn without reference to the unique nature of each fund. It is not sufficient to look at page 1 of the report and rank the funds in order of their long-term returns. For example, part of the difference between the 8.63% compound return for SERS over the measurement period (1/1/94 – 6/30/02) and the 6.43% compound return for PERS over the same period can be explained by the fact that the policy benchmark for SERS had a return of 8.95% (p. 37) for the period compared to the PERS policy benchmark return of 7.02% (p. 27). In the preparation of this section of the report, each fund office was contacted to confirm that the custom policy benchmark was appropriate.

Several academic studies have concluded that more than 90% of the variability in returns on investment performance is attributable to the asset allocation between fixed income investments, equity investments, cash equivalents, and other investments. Ten percent or less of a portfolio's performance can be attributed to relative performance within a given asset class due to superior security selection and/or market timing. Consequently, we focus a significant amount of attention on performance relative to the asset allocation of each of the funds.

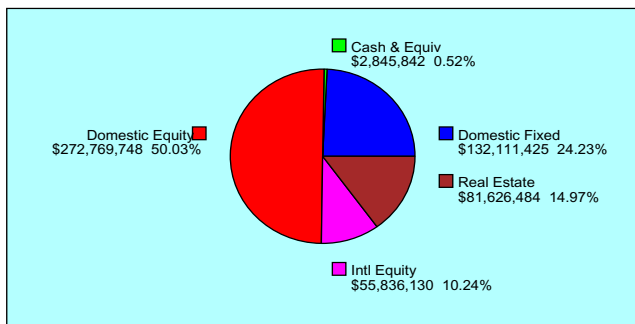
Highway Patrol Retirement System

Asset Allocation
HPRS

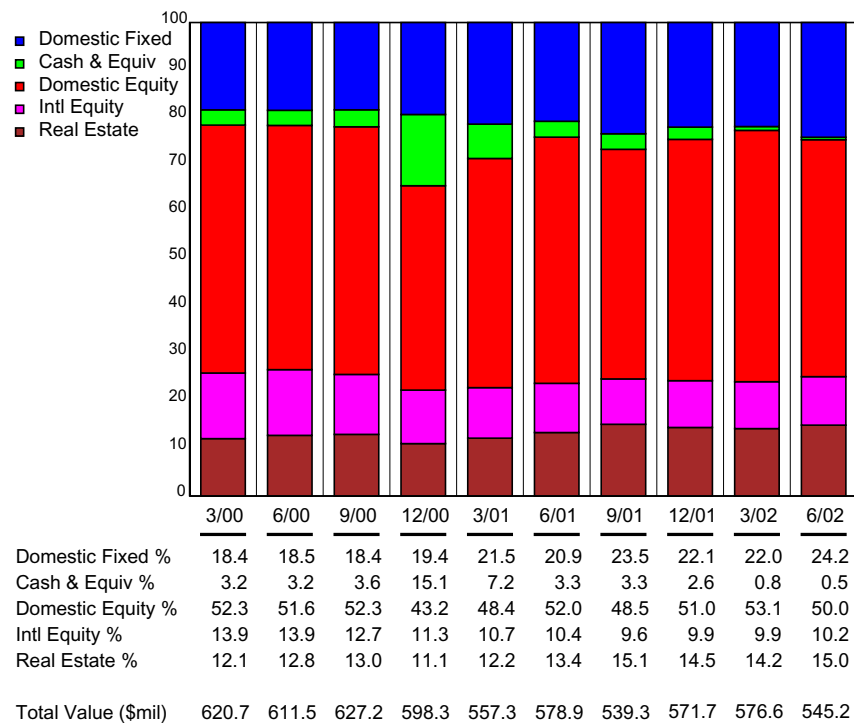
March 31, 2002 \$576,593,808



June 30, 2002 \$545,189,629



Asset Allocation
HPRS



This is the first page devoted to the analysis of the Ohio Highway Patrol Retirement System's asset allocation and its performance compared to its asset allocation policy benchmark. The chart on the left displays the fund's asset allocation over the first two quarters of 2002. The chart on the right tracks the quarterly asset allocation of the fund over the last ten periods.

Highway Patrol Retirement System

Custom Benchmark Specification

HPRS

Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index	Mar-94	Dec-95	50.00	LB Aggregate
			50.00	Standard & Poors 500
	Mar-96	Dec-97	50.00	Standard & Poors 500
			40.00	LB Aggregate
			5.00	MSCI EAFE (Net)
			5.00	NCREIF
	Mar-98	Sep-99	40.00	Standard & Poors 500
			25.00	LB Aggregate
			15.00	Russell 2000
			10.00	MSCI EAFE (Net)
	Dec-99	Dec-00	10.00	NCREIF
			40.00	Standard & Poors 500
			20.00	Russell 2000
			20.00	LB Aggregate
	Mar-02	Jun-02	10.00	MSCI EAFE (Net)
10.00			NCREIF	
40.00			Standard & Poors 500	
20.00			Russell 2500	
20.00			LB Aggregate	

HPRS' custom policy index is listed above. The chart tracks the fund's change in asset allocation strategy over the past 8 1/2 years.

Highway Patrol Retirement System

Performance Overview

HPRS

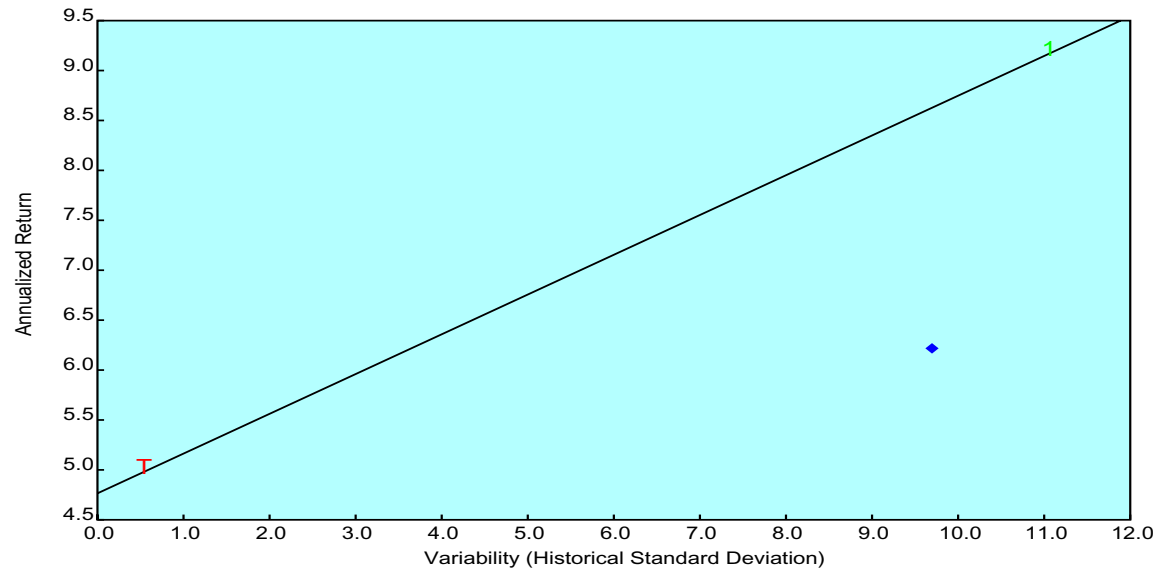
Returns for Periods Ending June 30, 2002

	Last Quarter	Last 2 Quarters	Last 3 Quarters	Last Year	Last 3 Years	Last 5 Years	Since 1st Qtr 94
Total Return	-4.22	-2.96	3.63	-3.73	-1.83	2.00	6.21
Policy Index Return	-6.47	-5.49	3.08	-7.18	-1.15	5.51	9.19
Domestic Equity Return	-10.00	-8.57	1.86	-11.49	-9.27	-2.81	6.80
Equity Segment Median Return	-12.65	-12.18	-1.08	-16.27	-6.27	4.74	
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	10.40
Int'l Equity Return	-2.18	-1.22	7.97	-7.20	-2.28	1.67	
Int'l Equity Segment Median Return	-2.47	-1.08	7.06	-8.06	-1.60	2.54	
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	3.20
Domestic Fixed Return	4.31	4.61	4.19	9.29	8.24	7.63	6.84
Fixed Income Segment Median Return	3.33	3.42	3.60	8.24	7.97	7.55	
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	6.95
Cash Return	0.76	1.41	1.92	3.11	4.71	4.95	
Real Estate Return	2.67	4.92	7.97	8.48	10.79	9.02	8.08
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	10.39

Over the entire observed period, the fund's total return is trailing its policy index by almost 3% annually. This is due almost entirely to its domestic equity returns, which lagged the broad market as defined by the Wilshire 5000 by 3.6% annually. The most recent twelve months, however, show that HPRS has outperformed its policy index by a substantial margin and each of the asset classes have outperformed the broad market indexes and their respective median portfolios over the last twelve months.

Highway Patrol Retirement System

Quarterly Total Return Market Line Analysis
Periods from 12/93 to 6/02



	Annualized Return	Variability	Reward	Sharpe Ratio
◆ HPRS	6.21	9.76	1.21	0.12
1 HPRS Policy Index	9.19	11.11	4.19	0.38
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

This risk-return chart above differs from those earlier in the report in that it will measure a system's risk-adjusted returns to a Capital Market Line drawn by connecting the risk/return point of US T-bills and the risk return point of HPRS' own policy index. The calculation of the Sharpe Ratio shows that on a risk-adjusted basis, the fund has fallen well short of the risk adjusted return of its policy index.

Highway Patrol Retirement System

Asset Allocation Actual vs. Benchmark December 31, 2001

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Large Cap Equity	34.90%	S & P 500	40%	-5.10%
Small/Mid Cap Equ	16.06%	Russell 2000	20%	-3.94%
Fixed Income	22.09%	LB Aggregate	20%	2.09%
Intl. Equity	9.89%	MSCI EAFE (Net)	10%	-0.11%
Real Estate	14.48%	NCREIF	10%	4.48%
Short Term	2.59%		0%	2.59%

June 30, 2002

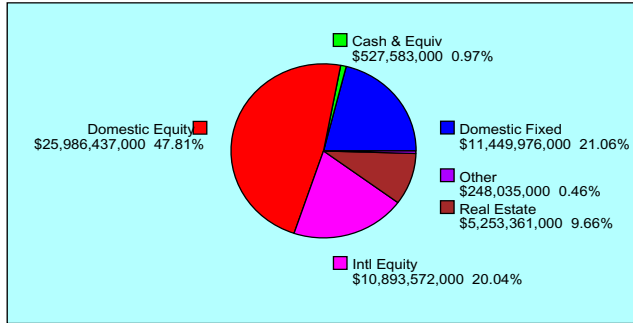
Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Large Cap Equity	32.71%	S & P 500	40%	-7.29%
Small/Mid Cap Equ	17.31%	Russell 2000	20%	-2.69%
Fixed Income	24.23%	LB Aggregate	20%	4.23%
Intl. Equity	10.24%	MSCI EAFE (Net)	10%	0.24%
Real Estate	14.97%	NCREIF	10%	4.97%
Short Term	0.52%		0%	0.52%

Over the past two quarters, the HPRS fund has been underweight in domestic equity and overweight in fixed income and real estate. As of June 30, the fund held essentially a zero cash position.

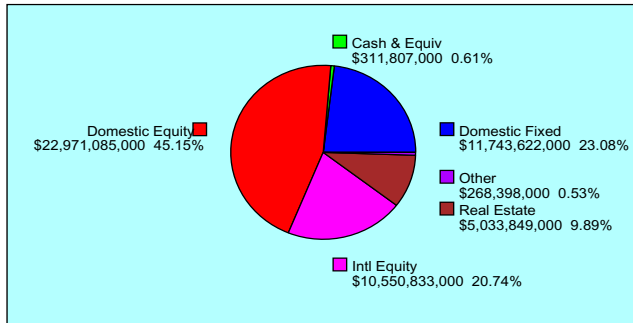
Public Employees Retirement System

Asset Allocation
PERS

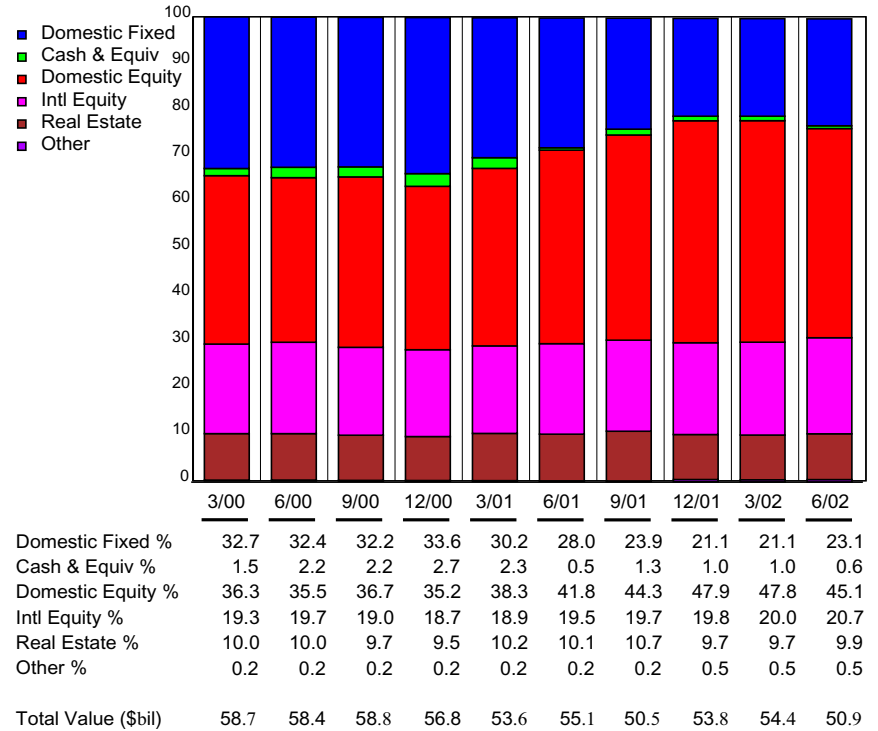
March 31, 2002 \$54,358,964,000



June 30, 2002 \$50,879,594,000



Asset Allocation
PERS



This is the first page devoted to the analysis of the Ohio Public Employees Retirement System's asset allocation and its performance compared to its asset allocation policy benchmark. The chart on the left displays the fund's asset allocation over the first two quarters of 2002. The chart on the right tracks the quarterly asset allocation of the fund over the last ten periods.

Public Employees Retirement System

Custom Benchmark Specification
 PERS
 Quarter Ending 6/30/02

Custom Benchmark Specification
 PERS
 Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index	Mar-94	Jun-95	68.00	SB Broad Inv Grade
			17.00	Standard & Poors 500
			8.00	91-Day Treasury Bill
			7.00	NCREIF
	Sep-95	Dec-95	59.00	SB Broad Inv Grade
			26.00	Standard & Poors 500
			8.00	NCREIF
			6.00	91-Day Treasury Bill
			1.00	MSCI EAFE (Net)
	Mar-96	Dec-96	62.50	SB Broad Inv Grade
			23.00	Standard & Poors 500
			8.00	NCREIF
			4.50	91-Day Treasury Bill
			2.00	MSCI EAFE (Net)
	Mar-97	Dec-97	56.50	SB Broad Inv Grade
			27.00	Standard & Poors 500
			8.00	NCREIF
			4.50	91-Day Treasury Bill
			4.00	MSCI EAFE (Net)
Mar-98	Dec-98	51.00	SB Broad Inv Grade	
		30.50	Standard & Poors 500	
		8.00	NCREIF	
		6.00	MSCI EAFE (Net)	
		4.50	91-Day Treasury Bill	

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	Dec-98	Dec-98	51.00	SB Broad Inv Grade
			30.50	Russell 3000
			6.00	MSCI World Ex-US (Net)
			4.80	NCREIF
			4.50	91-Day Treasury Bill
			1.60	NAREIT
			1.60	Gilberto-Levy Mortgage
	Mar-99	Mar-99	45.40	SB Broad Inv Grade
			35.00	Standard & Poors 500
			7.60	MSCI World Ex-US (Net)
			6.60	NCREIF
			2.20	NAREIT
	Jun-99	Jun-99	40.10	SB Broad Inv Grade
			35.00	Standard & Poors 500
			12.90	MSCI World Ex-US (Net)
			6.60	NCREIF
			2.20	NAREIT
		2.20	Gilberto-Levy Mortgage	
		1.00	91-Day Treasury Bill	

The charts above and on the following page track PERS' asset allocation policy index over the last 8 1/2 years. The current policy index is located on page 26 in the chart on the right.

Public Employees Retirement System

Custom Benchmark Specification
PERS
Quarter Ending 6/30/02

Custom Benchmark Specification
PERS
Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	Sep-99	Mar-02	36.10	SB Broad Inv Grade
			35.00	Standard & Poors 500
			16.90	MSCI World Ex-US (Net)
			6.60	NCREIF
			2.20	NAREIT
			2.20	Giliberto-Levy Mortgage
	1.00	91-Day Treasury Bill		
	Mar-02	Mar-02	34.30	S&P 1500
			31.80	SB Broad Inv Grade
			18.90	MSCI World Ex-US (Net)
			5.70	NCREIF
			3.00	Russell 3000
			2.30	91-Day Treasury Bill
			1.90	NAREIT
			1.90	Giliberto-Levy Mortgage
	0.20	Standard & Poors 500		
	Jun-02	Sep-02	34.70	S&P 1500
			29.20	SB Broad Inv Grade
19.30			MSCI World Ex-US (Net)	
5.80			Russell 3000	
5.58			NCREIF	
1.86			NAREIT	
1.86			Giliberto-Levy Mortgage	
1.50	91-Day Treasury Bill			
0.20	Standard & Poors 500			

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	Sep-02	Sep-02	44.70	Russell 3000
			25.60	SB Broad Inv Grade
			19.70	MSCI World Ex-US (Net)
			5.46	NCREIF
			1.82	NAREIT
			1.82	Giliberto-Levy Mortgage
	0.70	91-Day Treasury Bill		
	0.20	Standard & Poors 500		
	Dec-02	Jun-02	47.00	Russell 3000
			23.00	SB Broad Inv Grade
			20.00	MSCI World Ex-US (Net)
			5.40	NCREIF
			1.80	NAREIT
			1.80	Giliberto-Levy Mortgage
0.60			91-Day Treasury Bill	
0.40			Standard & Poors 500	

Public Employees Retirement System

Performance Overview

PERS

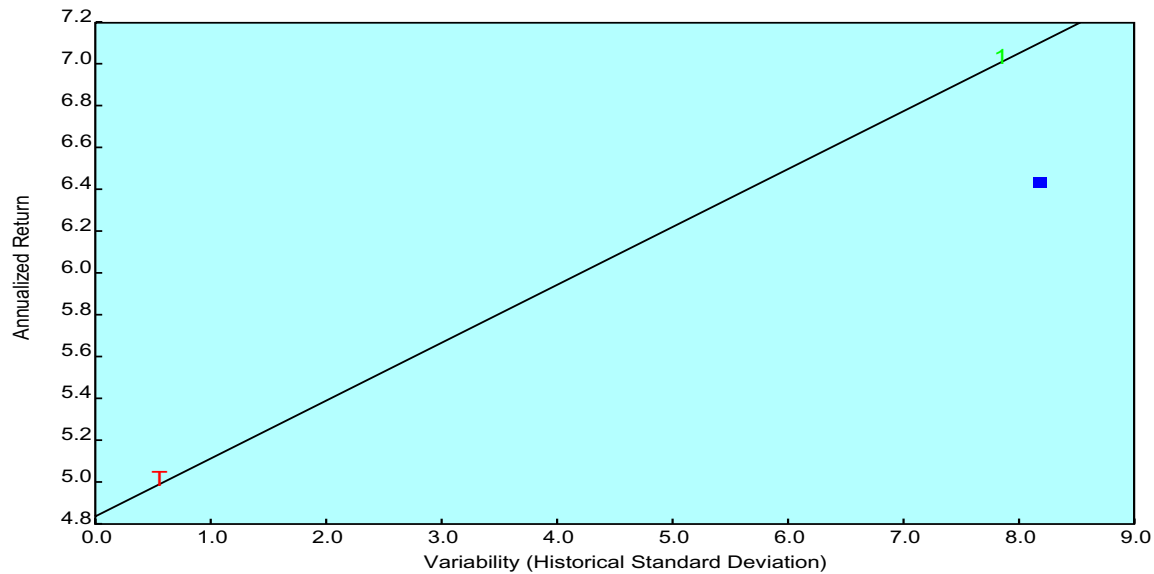
Returns for Periods Ending June 30, 2002

	Last Quarter	Last 2 Quarters	Last 3 Quarters	Last Year	Last 3 Years	Last 5 Years	Since 1st Qtr 94
Total Return	-6.20	-5.07	1.57	-6.96	-1.16	4.19	6.43
Policy Index Return	-5.90	-4.86	2.28	-6.48	-0.87	4.86	7.02
Domestic Equity Return	-13.10	-12.32	-1.97	-16.48	-8.50	3.04	8.11
Equity Segment Median Return	-12.65	-12.18	-1.08	-16.27	-6.27	4.74	
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	10.40
Int'l Equity Return	-3.10	-0.97	7.65	-8.61	-4.52	-1.12	
Int'l Equity Segment Median Return	-2.47	-1.08	7.06	-8.06	-1.60	2.54	
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	3.20
Domestic Fixed Return	2.10	2.30	2.41	6.91	7.69	7.31	7.16
Fixed Income Segment Median Return	3.33	3.42	3.60	8.24	7.97	7.55	
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	6.95
Cash Return	0.40	0.80	1.41	2.32	4.68	5.00	5.14
Real Estate Return	3.00	6.50	5.54	6.39	10.56	10.24	10.60
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	10.39

Over the past 8 1/2 year period, PERS has trailed its policy index by about 0.6% annually. During the same period, PERS' US Equity results trailed the broad market Wilshire 5000 index by over 2% annually. Results over the past twelve months are similar in that the total fund return is trailing the policy index by about 0.5%, however much of this underperformance can be attributed to the fixed income segment trailing the broad market LB Aggregate Bond Index by over 1.7%.

Public Employees Retirement System

Quarterly Total Return Market Line Analysis
 Periods from 12/93 to 6/02



	Annualized Return	Variability	Reward	Sharpe Ratio
■ PERS	6.43	8.22	1.43	0.17
1 PERS Policy Index	7.02	7.88	2.02	0.26
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of PERS' own policy index. On an absolute and risk-adjusted basis, the PERS total fund return underperformed the policy index over the 8 1/2 year period, with risk similar to the custom benchmark.

Public Employees Retirement System

Asset Allocation Actual vs. Benchmark December 31, 2001

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	47.90%	S&P 1500	47.0%	0.90%
Fixed Income	21.10%	SB Broad Inv Grade	23.0%	-1.90%
Intl. Equity	19.80%	MSCI ACWI	20.0%	-0.20%
Real Estate	9.70%	PERS Custom Index	9.0%	0.70%
Venture Capital	0.50%	S&P 500	0.6%	-0.10%
Short Term	1.00%	3 Month T-Bill	0.4%	0.60%

June 30, 2002

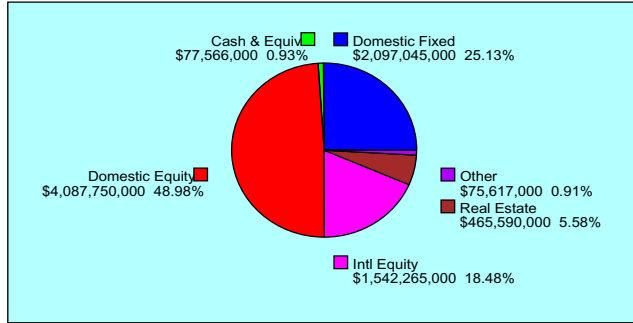
Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	45.15%	S&P 1500	47.0%	-1.85%
Fixed Income	23.08%	SB Broad Inv Grade	23.0%	0.08%
Intl. Equity	20.74%	MSCI ACWI	20.0%	0.74%
Real Estate	9.89%	PERS Custom Index	9.0%	0.89%
Venture Capital	0.53%	S&P 500	0.6%	-0.07%
Short Term	0.61%	3 Month T-Bill	0.4%	0.21%

Over the past two quarters, the PERS fund has not deviated from its target asset allocation strategy.

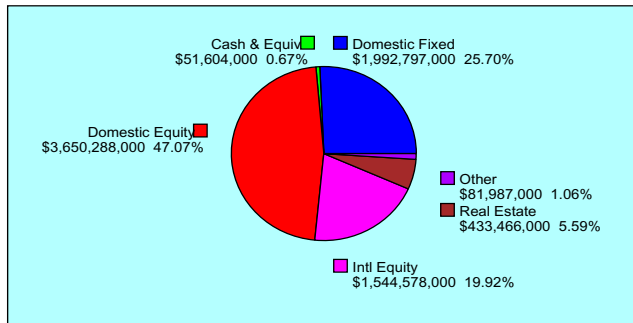
Police & Fire Pension Fund

Asset Allocation
OP&F

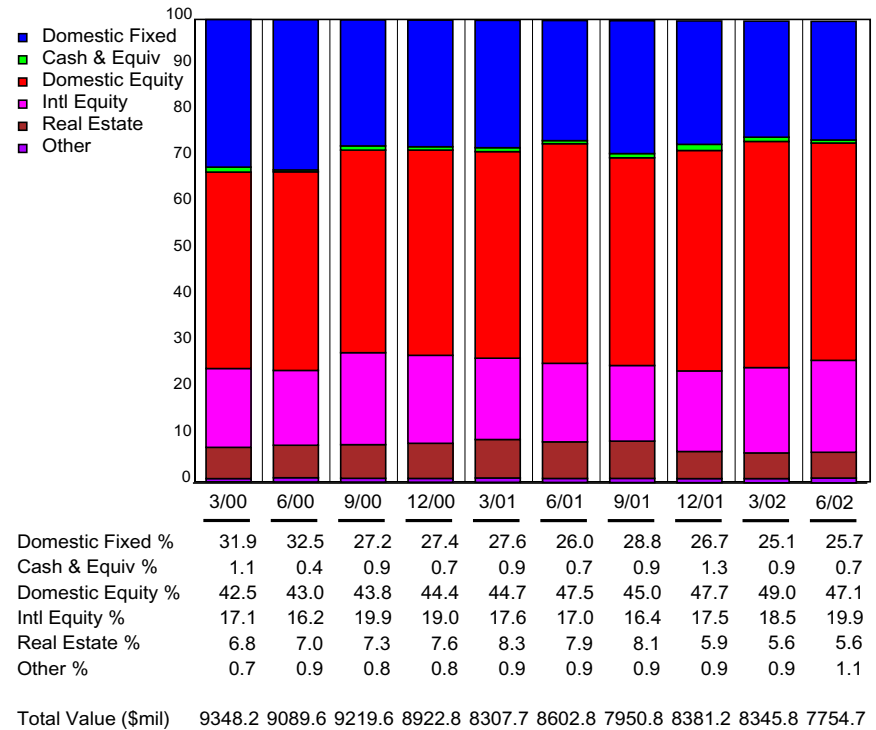
March 31, 2002 \$8,345,833,000



June 30, 2002 \$7,754,720,000



Asset Allocation
OP&F



This is the first page devoted to the analysis of the Ohio Police & Fire Pension Fund's asset allocation and its performance compared to its asset allocation policy benchmark. The chart on the left displays the fund's asset allocation over the first two quarters of 2002. The chart on the right tracks the quarterly asset allocation of the fund over the last ten periods.

Police & Fire Pension Fund

Custom Benchmark Specification
Police and Fire
Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index	Mar-94	Sep-97	41.50	Wilshire 5000
			39.50	LB Aggregate
			10.00	MSCI EAFE (Net)
			9.00	Wilshire RE Funds
	Dec-97	Dec-00	42.00	Wilshire 5000
			35.00	LB Aggregate
			10.00	MSCI EAFE (Net)
			8.00	Wilshire RE Funds
			5.00	MSCI Em Mkts Free (Gross)
	Mar-01	Jun-01	48.00	Wilshire 5000
			18.00	LB Aggregate
			17.00	MSCI EAFE (Net)
			8.00	Wilshire RE Funds
			5.00	First Boston High Yield
			3.00	MSCI Em Mkts Free (Gross)
	Sep-02	Mar-02	48.00	Wilshire 5000
18.00			LB Aggregate	
17.00			MSCI EAFE (Net)	
8.00			Wilshire RE Funds	
5.00			First Boston High Yield	
1.00			Wilshire 5000 + 5%	

Custom Benchmark Specification
Police and Fire
Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	Jun-02	Jun-02	48.00	Wilshire 5000
			18.00	LB Aggregate
			17.00	MSCI EAFE (Net)
			8.00	NCREIF
			5.00	First Boston High Yield
			3.00	MSCI Em Mkts Free (Gross)
			1.00	Wilshire 5000 + 5%

OP&F's custom policy index is listed above. The chart tracks the fund's change in asset allocation strategy over the past 8 1/2 years. The current policy index is listed in the table on the right.

Police & Fire Pension Fund

Performance Overview

OP&F

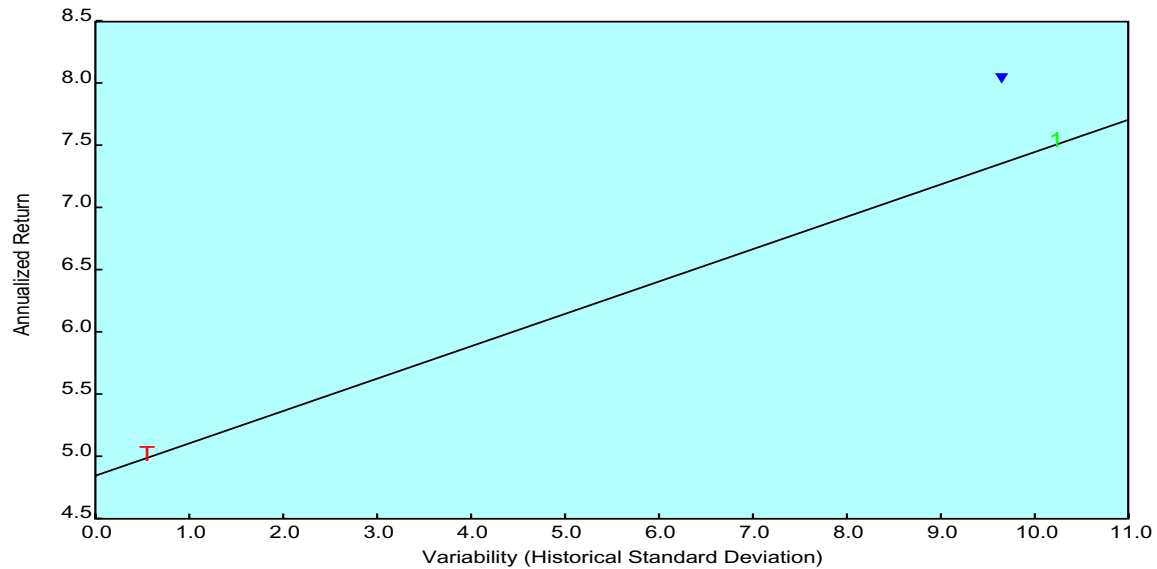
Returns for Periods Ending June 30, 2002

	<u>Last Quarter</u>	<u>Last 2 Quarters</u>	<u>Last 3 Quarters</u>	<u>Last Year</u>	<u>Last 3 Years</u>	<u>Last 5 Years</u>	<u>Since 1st Qtr 94</u>
Total Return	-5.62	-4.16	3.34	-5.34	-0.81	4.67	8.03
Policy Index Return	-5.96	-4.98	2.76	-7.36	-2.29	4.15	7.52
Domestic Equity Return	-10.70	-8.70	2.11	-12.13	-4.53	4.51	10.45
Equity Segment Median Return	-12.65	-12.18	-1.08	-16.27	-6.27	4.74	
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	10.40
Int'l Equity Return	-4.79	-3.01	9.01	-9.77	-6.98	-0.76	
Int'l Equity Segment Median Return	-2.47	-1.08	7.06	-8.06	-1.60	2.54	
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	3.20
Domestic Fixed Return	1.56	2.33	3.70	8.29	8.46	7.68	7.04
Fixed Income Segment Median Return	3.33	3.42	3.60	8.24	7.97	7.55	
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	6.95
Cash Return	0.47	0.89	1.54	2.63	4.57	4.93	
Real Estate Return	2.03	1.01	2.52	5.09	8.73	12.15	10.43
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	10.39
Other Return	-2.36	-10.34	-17.03	-20.98			

The chart above is a performance overview for the total fund and all of its asset classes over the past 8 1/2 years. Over the entire observed period, the fund's total return has outperformed its policy index by about 0.5% annually. The most recent twelve months show that OP&F has outperformed its policy index by a substantial margin. The domestic equity return has outperformed the broad market Wilshire 5000 Index by over 4% in the last twelve months.

Police & Fire Pension Fund

Quarterly Total Return Market Line Analysis
 Periods from 12/93 to 6/02



	Annualized Return	Variability	Reward	Sharpe Ratio
▼ OP&F	8.03	9.70	3.03	0.31
1 OP&F Policy Index	7.52	10.27	2.52	0.25
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of OP&F's own policy index. The OP&F total fund return has outperformed the policy index on an absolute and risk-adjusted basis over the last 8 1/2 years.

Police & Fire Pension Fund

Asset Allocation Actual vs. Benchmark December 31, 2001

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	47.70%	Wilshire 5000	48%	-0.30%
Fixed Income	21.30%	Lehman Aggregate	18%	3.30%
High Yield Bonds	5.40%	CSFB High Yield	5%	0.40%
Intl. Equity Comp.	17.46%	MSCI EAFE (Net) -17%, MSCI Em Mkts Free - 3%	20%	-2.54%
Real Estate	5.90%	Wilshire RE Fund	8%	-2.10%
Venture Capital	0.90%	S&P 500 + 5%	1%	-0.10%
Short Term	1.30%	3 Month T-Bill	0%	1.30%

June 30, 2002

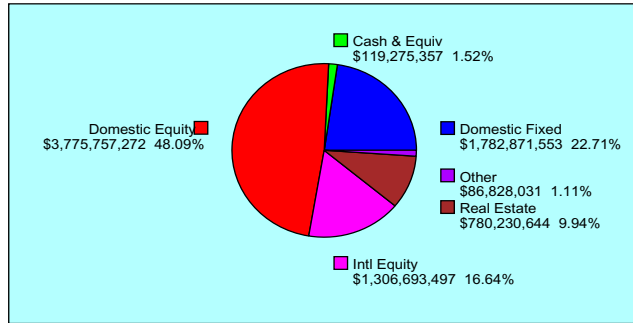
Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	48.98%	Wilshire 5000	48%	0.98%
Fixed Income	19.58%	Lehman Aggregate	18%	1.58%
High Yield Bonds	5.70%	CSFB High Yield	5%	0.70%
Intl. Equity Comp.	19.92%	MSCI EAFE (Net) -17%, MSCI Em Mkts Free - 3%	20%	-0.08%
Real Estate	5.59%	NCREIF	8%	-2.41%
Venture Capital	1.06%	S&P 500 + 5%	1%	0.06%
Short Term	0.67%	3 Month T-Bill	0%	0.67%

Over the past two quarters, the OP&F fund has been somewhat overweight in fixed income and underweight in real estate.

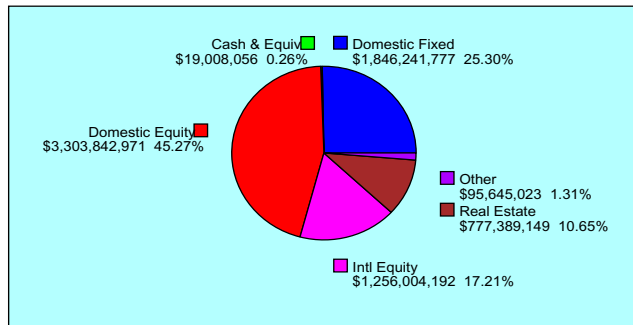
School Employees Retirement System

Asset Allocation
SERS

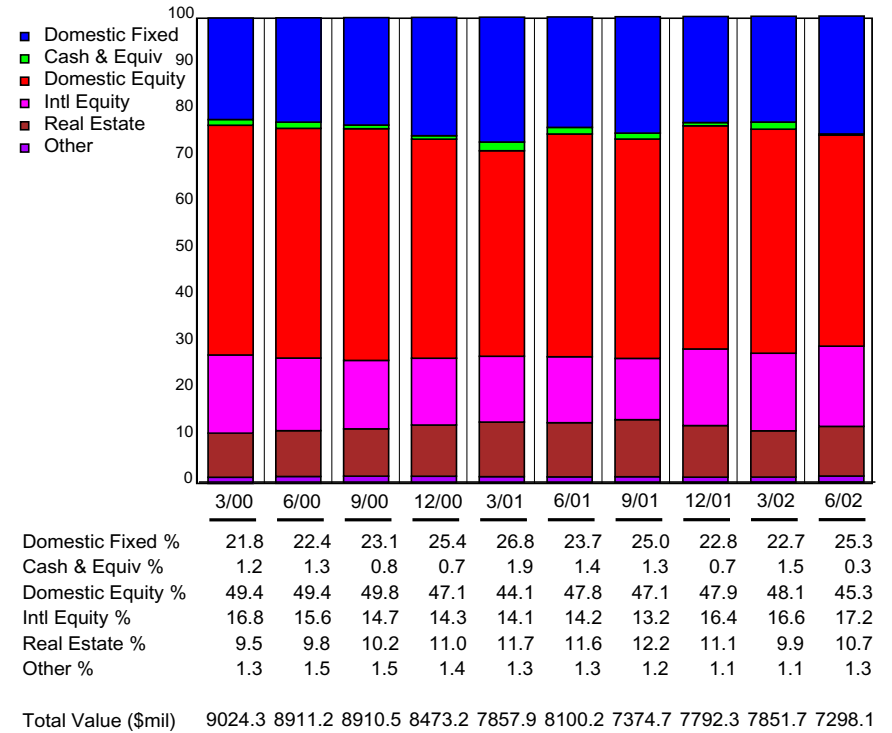
March 31, 2002 \$7,851,656,354



June 30, 2002 \$7,298,131,168



Asset Allocation
SERS



This is the first page devoted to the analysis of the Ohio School Employees Retirement System's asset allocation and its performance compared to its asset allocation policy benchmark. The chart on the left displays the fund's asset allocation over the first two quarters of 2002. The chart on the right tracks the quarterly asset allocation of the fund over the last ten periods.

School Employees Retirement System

Custom Benchmark Specification
SERS
Quarter Ending 6/30/02

Custom Benchmark Specification
SERS
Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index	Mar-94	Sep-94	47.00	Standard & Poors 500
			28.00	LB Aggregate
			10.00	MSCI EAFE (Net)
			10.00	NCREIF
			5.00	Salomon 30-Day CD
	Dec-94	Dec-94	47.00	Standard & Poors 500
			28.00	LB Aggregate
			10.00	NCREIF
			5.00	MSCI EAFE (Net)
			5.00	MSCI EAFE Hedged
	Mar-95	Mar-97	47.00	Russell 3000
			28.00	LB Aggregate
			10.00	NCREIF
			5.00	MSCI EAFE (Net)
			5.00	MSCI EAFE Hedged
	Jun-97	Sep-97	46.00	Russell 3000
			28.00	LB Aggregate
			10.00	NCREIF
			7.50	MSCI EAFE (Net)
			7.50	MSCI EAFE Hedged
Sep-97	Dec-00	46.00	Russell 3000	
		28.00	LB Aggregate	
		10.00	NCREIF	
		7.25	MSCI EAFE (Net)	
		7.25	MSCI EAFE Hedged	
		1.00	Salomon 30-Day CD	
		0.50	MSCI Em Mkts Free (Gross)	

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	1-Mar	Jun-01	48.00	Russell 3000
			23.00	LB Aggregate
			16.00	MSCI ACWI Free ex US
			10.00	NCREIF
			2.00	Salomon 30-Day CD
	Sep-01	Jun-02	47.00	Russell 3000
			23.00	LB Aggregate
			16.00	MSCI ACWI Free ex US
			10.00	NCREIF
			2.00	S&P 500 +3%
		2.00	Salomon 30-Day CD	

SERS's custom policy index is listed above. The chart tracks the fund's change in asset allocation strategy over the past 8 1/2 years. The current policy index is listed in the bottom box of the table on the right.

School Employees Retirement System

Performance Overview

SERS

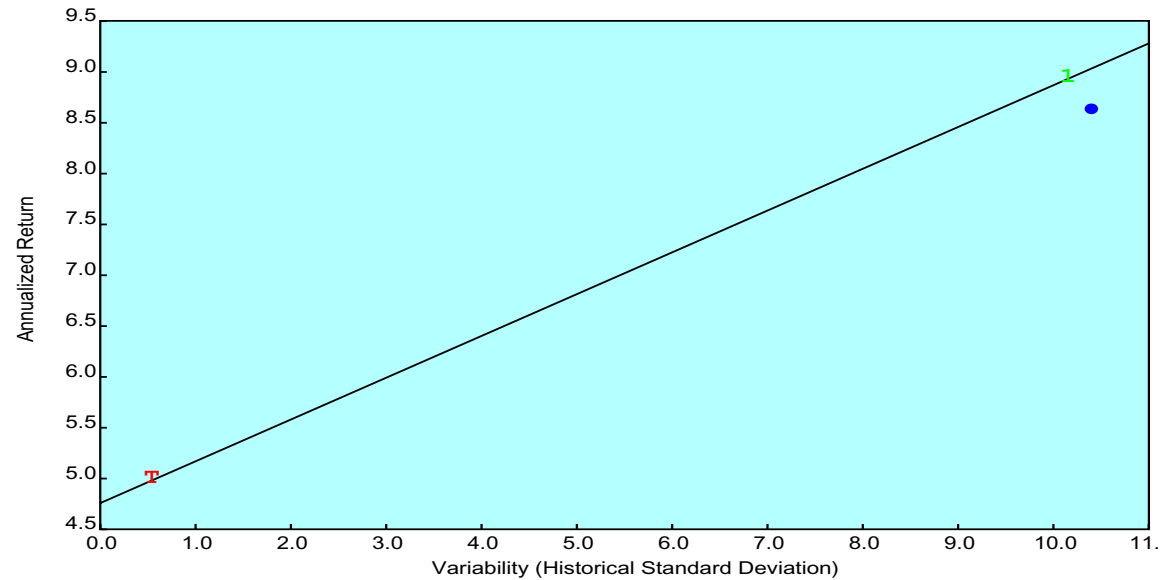
Returns for Periods Ending June 30, 2002

	Last Quarter	Last 2 Quarters	Last 3 Quarters	Last Year	Last 3 Years	Last 5 Years	Since 1st Qtr 94
Total Return	-6.20	-5.26	1.19	-7.76	-1.10	5.16	8.63
Policy Index Return	-6.40	-5.56	1.52	-7.69	-1.36	5.35	8.95
Domestic Equity Return	-12.50	-11.45	-0.28	-15.55	-7.04	4.08	10.77
Equity Segment Median Return	-12.65	-12.18	-1.08	-16.27	-6.27	4.74	
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	10.40
Int'l Equity Return	-6.00	-3.37	5.77	-11.95	-4.84	0.62	
Int'l Equity Segment Median Return	-2.47	-1.08	7.06	-8.06	-1.60	2.54	
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	3.20
Domestic Fixed Return	3.60	4.12	4.62	9.11	8.73	7.92	7.00
Fixed Income Segment Median Return	3.33	3.42	3.60	8.24	7.97	7.55	
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	6.95
Cash Return	0.40	0.20	1.90	2.62	5.74	5.54	5.43
Real Estate Return	0.90	-0.41	-1.66	-1.31	7.61	8.93	9.67
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	10.39
Other Return	-5.80	-11.26					

The chart above is a performance overview for the total fund and all of its asset classes over the past 8 1/2 years. Over the entire observed period, the fund's total return is trailing its policy index by 0.32% annually. The most recent twelve months show that SERS has underperformed its policy index by 0.07%. The domestic equity and fixed income returns have outperformed their respective market indexes, however the return for the international equity (-11.95%) and real estate segments (-1.31%) over the past twelve months are below their benchmarks and have hindered the performance of the total fund.

School Employees Retirement System

Quarterly Total Return Market Line Analysis
 Periods from 12/93 to 6/02



	Annualized Return	Variability	Reward	Sharpe Ratio
● SERS	8.63	10.46	3.63	0.35
1 SERS Policy Index	8.95	10.20	3.95	0.39
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of SERS' own policy index. The SERS total fund return has slightly underperformed the policy index on an absolute and risk-adjusted basis over the last 8 1/2 years.

School Employees Retirement System

Asset Allocation Actual vs. Benchmark December 31, 2001

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Domestic Equity	47.90%	Russell 3000	47%	0.90%
Fixed Income	22.80%	LB Aggregate	23%	-0.20%
Intl. Equity	16.40%	MSCI ACWI ex US	16%	0.40%
Real Estate	11.10%	NCREIF	10%	1.10%
Venture Capital	1.10%	S&P 500 + 3%	2%	-0.90%
Short Term	0.70%	Salomon 30 Day CD	2%	-1.30%

June 30, 2002

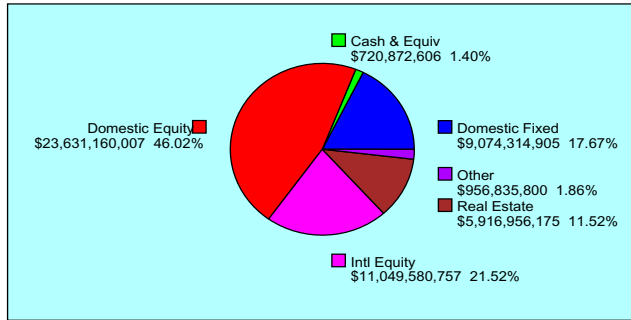
Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Domestic Equity	45.27%	Russell 3000	47%	-1.73%
Fixed Income	25.30%	LB Aggregate	23%	2.30%
Intl. Equity	17.21%	MSCI ACWI ex US	16%	1.21%
Real Estate	10.65%	NCREIF	10%	0.65%
Venture Capital	1.31%	S&P 500 + 3%	2%	-0.69%
Short Term	0.26%	Salomon 30 Day CD	2%	-1.74%

Over the past two quarters, the SERS fund has been modestly overweight in fixed income and real estate and underweight in cash.

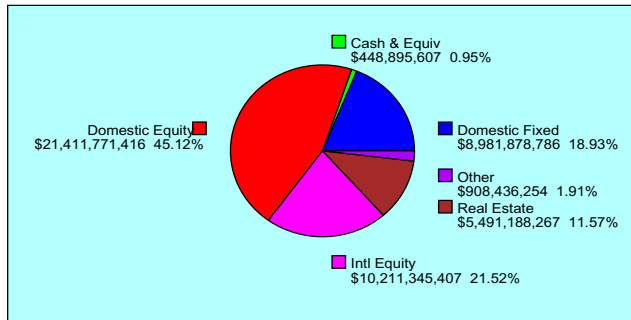
State Teachers Retirement System

Asset Allocation
STRS

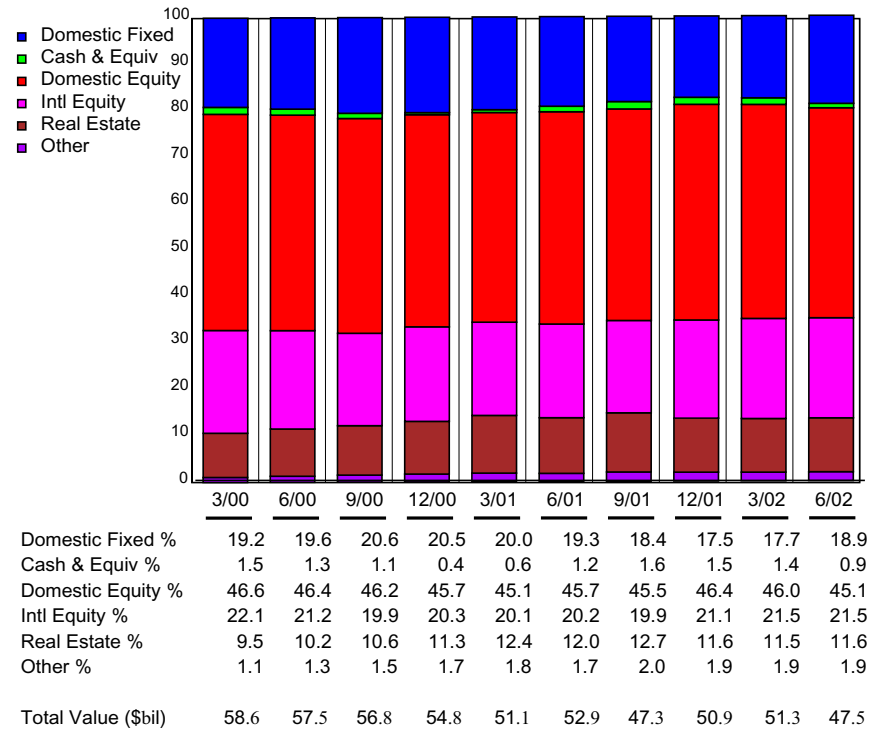
March 31, 2002 \$51,349,720,250



June 30, 2002 \$47,453,515,737



Asset Allocation
STRS



This is the first page devoted to the analysis of the Ohio State Teachers Retirement System's asset allocation and its performance compared to its asset allocation policy benchmark. The chart on the right displays the fund's asset allocation over the first two quarters of 2002. The chart on the left tracks the quarterly asset allocation of the fund over the last ten periods.

State Teachers Retirement System

STRS
Quarter Ending 6/30/02

STRS
Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index	Mar-94	Sep-94	45.00	Standard & Poors 500
			40.00	LB Aggregate
			9.00	STRS NCREIF Hybrid
			3.00	MSCI EAFE (Net)
			3.00	91-Day Treasury Bill
	Dec-94	Dec-94	45.00	Standard & Poors 500
			40.00	LB Aggregate
			9.00	STRS NCREIF Hybrid
			3.00	91-Day Treasury Bill
			2.25	MSCI EAFE (Net)
	Mar-95	Mar-96	46.00	Standard & Poors 500
			35.00	LB Aggregate
			9.00	STRS NCREIF Hybrid
			6.00	MSCI EAFE (Net)
			2.00	MSCI Em Mkts Free (Gross)
	Jun-96	Mar-97	45.00	Standard & Poors 500
35.00			LB Aggregate	
9.00			STRS NCREIF Hybrid	
6.75			MSCI EAFE (Net)	
2.25			MSCI Em Mkts Free (Gross)	
		2.00	91-Day Treasury Bill	

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (Cont.)	Mar-97	Jun-97	45.00	Standard & Poors 500
			34.00	LB Aggregate
			9.00	STRS NCREIF Hybrid
			6.00	MSCI EAFE (Net)
			4.00	MSCI Em Mkts Free (Gross)
			2.00	91-Day Treasury Bill
	Sep-97	Dec-97	45.00	Standard & Poors 500
			24.00	LB Aggregate
			12.00	MSCI EAFE (Net)
			9.00	STRS NCREIF Hybrid
			8.00	MSCI Em Mkts Free (Gross)
			2.00	91-Day Treasury Bill
	Mar-98	Sep-98	45.00	Standard & Poors 500
			24.00	LB Aggregate
			12.00	MSCI EAFE 50% Hedged
			9.00	STRS NCREIF Hybrid
			8.00	MSCI Em Mkts Free (Gross)
			2.00	91-Day Treasury Bill
	Dec-98	Dec-00	45.00	S&P 1500
			24.00	LB Aggregate
14.00			MSCI EAFE 50% Hedged	
9.00			STRS NCREIF Hybrid	
6.00			MSCI Em Mkts Free (Gross)	
		2.00	91-Day Treasury Bill	

STRS' custom policy index is listed above and on page 42. The chart tracks the fund's change in asset allocation strategy over the past 8 1/2 years.

State Teachers Retirement System

STRS

Quarter Ending 6/30/02

Label	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)	Dec-00	Jun-02	45.00	S&P 1500
			25.00	Lehman Universal
			15.00	MSCI EAFE 50% Hedged
			9.00	STRS NCREIF Hybrid
			5.00	MSCI Em Mkts Free (Gross)
			1.00	91-Day Treasury Bill

The page above is a continuation of the previous page. The current STRS policy index is listed above.

State Teachers Retirement System

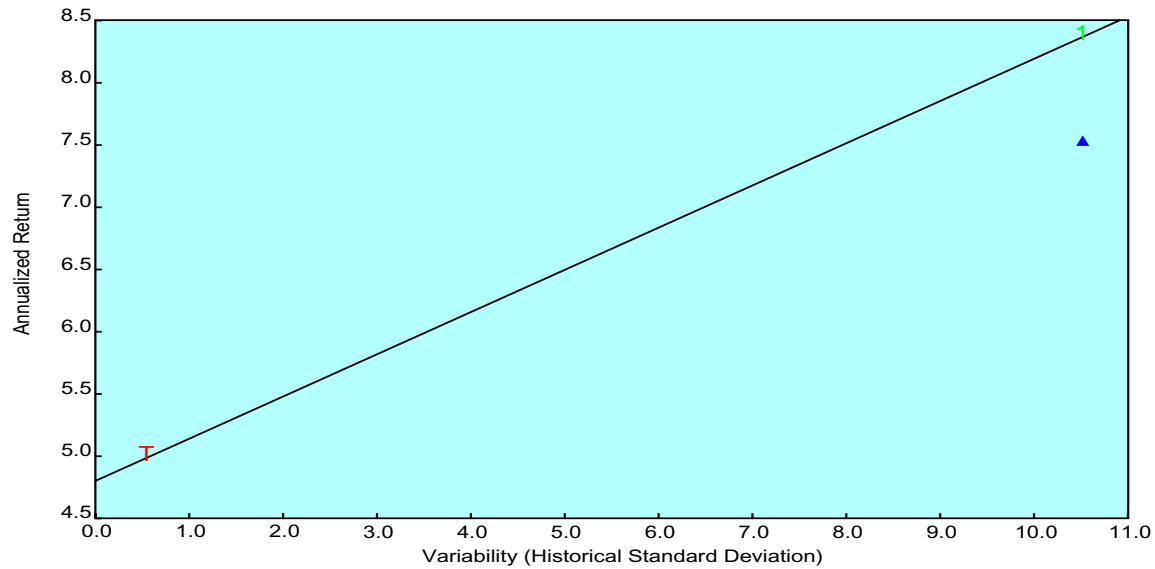
Performance Overview STRS Returns for Periods Ending June 30, 2002

	Last Quarter	Last 2 Quarters	Last 3 Quarters	Last Year	Last 3 Years	Last 5 Years	Since 1st Qtr 94
Total Return	-6.72	-5.48	1.87	-8.13	-1.69	4.18	7.53
Policy Index Return	-6.47	-5.09	2.32	-7.29	-1.69	4.61	8.38
Domestic Equity Return	-13.30	-12.75	-2.39	-17.51	-8.31	2.85	9.00
Equity Segment Median Return	-12.65	-12.18	-1.08	-16.27	-6.27	4.74	
Wilshire 5000	-12.61	-11.77	-0.85	-16.62	-8.21	3.57	10.40
Int'l Equity Return	-4.80	-0.19	10.94	-7.90	-3.39	-1.43	3.02
Int'l Equity Segment Median Return	-2.47	-1.08	7.06	-8.06	-1.60	2.54	
MSCI EAFE (Net)	-2.12	-1.62	5.24	-9.49	-6.78	-1.55	3.20
Domestic Fixed Return	2.09	2.54	3.62	7.78	8.10	8.12	7.78
Fixed Income Segment Median Return	3.33	3.42	3.60	8.24	7.97	7.55	
LB Aggregate	3.70	3.80	3.84	8.63	8.11	7.57	6.95
Cash Return	0.46	0.92	1.57	2.41	4.79	5.09	4.97
Real Estate Return	1.75	1.40	2.46	3.92	9.49	11.61	10.28
NCREIF	1.70	3.30	4.06	5.74	9.63	11.78	10.39
Other Return	-5.82	-6.23	-10.71	-12.38			

The exhibit above is a performance overview for the total fund and all of its asset classes over the past 8 1/2 years. Over the entire observed period, the fund's total return is trailing its policy index by 0.85% annually. This is due almost entirely to its domestic equity returns, which lagged the broad market as defined by the Wilshire 5000 by 1.4% annually. The most recent twelve months show that STRS has underperformed its policy index by 0.84%. With the exception of international equity, STRS' asset classes have underperformed their respective broad market indexes over the last twelve months.

State Teachers Retirement System

Quarterly Total Return Market Line Analysis
 Periods from 12/93 to 6/02



	Annualized Return	Variability	Reward	Sharpe Ratio
▲ STRS	7.53	10.58	2.53	0.24
1 STRS Policy Index	8.38	10.56	3.38	0.32
T 91-Day Treasury Bill	5.00	0.59	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of STRS' own policy index. The STRS total fund return has underperformed the policy index on an absolute and risk-adjusted basis over the last 8 1/2 years.

State Teachers Retirement System

Asset Allocation Actual vs. Benchmark December 31, 2001

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	46.40%	S&P 1500	45%	1.40%
Fixed Income	17.50%	Lehman Universal	25%	-7.50%
Intl. Equity	21.10%	Intl. Hybrid Benchmark	20%	1.10%
Real Estate	11.60%	NCREIF Adjusted	9%	2.60%
Venture Capital	1.90%		0%	1.90%
Short Term	1.50%	3 Month T-Bill	1%	0.50%

June 30, 2002

Asset Class	Asset Allocation	Benchmark	Benchmark Weighting	Difference
Equity	45.12%	S&P 1500	45%	0.12%
Fixed Income	18.93%	Lehman Universal	25%	-6.07%
Intl. Equity	21.52%	Intl. Hybrid Benchmark	20%	1.52%
Real Estate	11.57%	NCREIF Adjusted	9%	2.57%
Venture Capital	1.91%		0%	1.91%
Short Term	0.95%	3 Month T-Bill	1%	-0.05%

Over the past two quarters, the STRS fund is underweight in fixed income and overweight in international equity, real estate, and venture capital.

Ohio Retirement Study Council

When each fund is compared to its own asset allocation policies and actuarial interest rate assumptions (as of the most recent valuation) for the eight and a half year measurement period, the following picture emerges: (funds are listed below in ascending order by their average annual return for the entire period)

Fund	Annual Return	Benchmark Annual Return	Actuarial Interest Rate	Valuation Date
HPRS	6.21%	9.19%	8.00%	12/31/2001
PERS	6.43%	7.02%	8.00%	12/31/2001
STRS	7.53%	8.38%	7.75%	7/1/2001
OP&F	8.03%	7.52%	8.25%	1/1/2001
SERS	8.63%	8.95%	8.25%	6/30/2001

Only OP&F is ahead of its benchmark. Most of the funds, however, are within 100 basis points of their target policies' returns for the measurement period. The exception, with respect to performance vs. benchmark, is HPRS, whose annual results are 298 basis points below the target policy benchmark return for the measurement period.

Two years of adverse market conditions have taken their toll on the systems' returns. The cushion enjoyed a few years ago has eroded. With long U.S. Treasury bonds yielding less than 6% and stock market returns unlikely to be as robust as they were in the 90s, however, this might be a good time to reexamine benchmarks and assumptions.

For funding purposes, pension funds smooth asset values and returns over long periods (typically four years) in order to keep contribution rates and funded ratios stable. The losses experienced during the recent market downturn will have an impact over the next several years, having a dampening effect on any gains that might occur. It is important that any decisions regarding benefits be made with an understanding of the smoothing process in mind. The imbedded losses that are currently present have not been fully reflected in the actuarial value of fund assets.

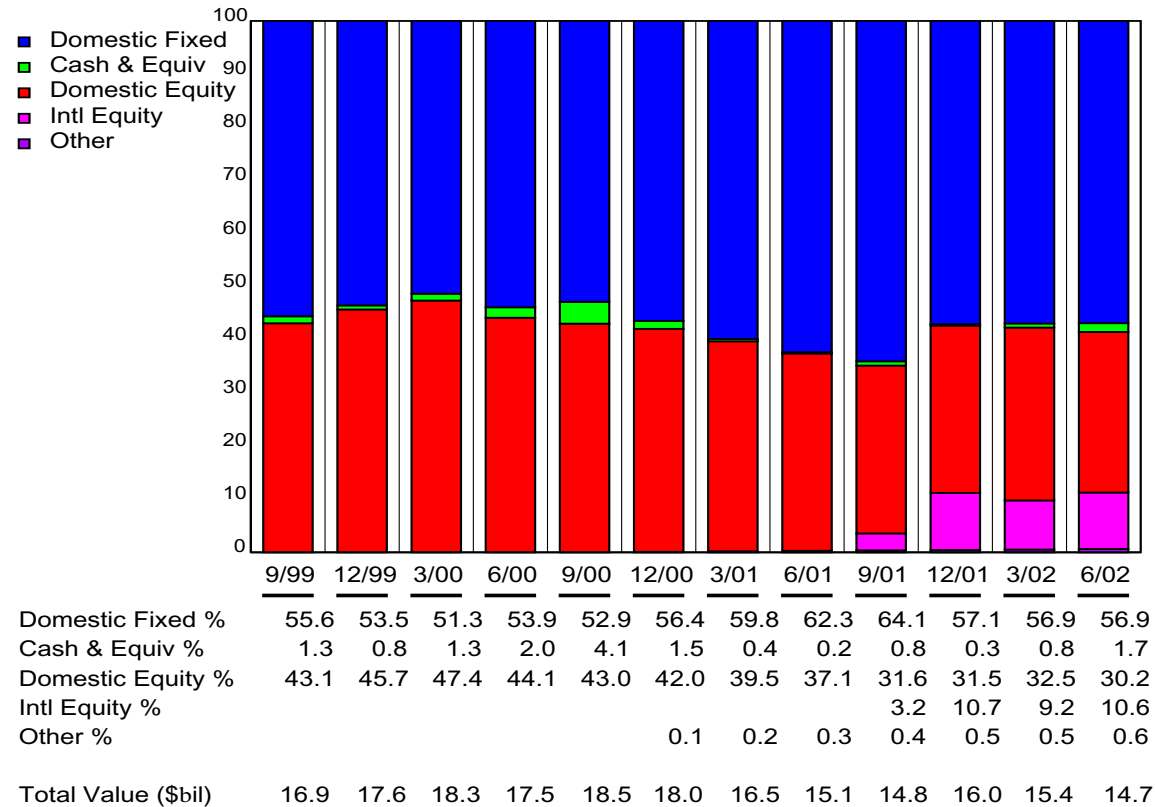
Appendix : Ohio Workers' Compensation Fund

Pages 48-55 examine the five-year results enjoyed by the Ohio Workers' Compensation Fund and compare them to the returns of the five Statewide Pension Funds. While making comparisons between funds of different types is mathematically possible, it is important that Council members bear in mind that the funds have different objectives and that any conclusions about relative performance must be drawn with those objectives in mind. The following points should be considered when reviewing the analysis:

1. Workers' compensation liabilities are not like pension liabilities. The Workers' Compensation Fund, therefore, exists in order to fund present and future claims, not long-term retirement payments. This means that, in general, these funds are properly invested more conservatively than pension funds, since they have a greater need to make payments in the near future.
2. Over the measurement period, the Ohio Worker's Compensation Fund's asset allocation has been very different from the asset allocation of the five pension funds. The average allocation to bonds for the Workers' Compensation fund was in excess of 55%, while the average allocation for the pension funds was less than 24%. Since the stock/bond mix of any institutional fund dominates the performance results, it is fair to conclude that the difference in performance between the Workers' Compensation Fund and the Pension Funds is largely attributable to this difference in asset allocation.
3. While further analysis would be necessary to make a definitive judgement, our comparison of equity and fixed income returns (pages 51 and 53 suggests that, for the funds in this study, there is not a meaningful difference in investment results that can be attributed to the use of external investment managers. The Workers' Compensation Fund equity returns, when compared to the large Pension Funds over the five-year measurement period, are in the "middle of the pack." Over the past twelve months, the Workers' Compensation Fund's equity results are ahead of only one of the Pension Funds (STRS). With respect to fixed income, the results are equally inconclusive. The Workers' Compensation Fund fixed income returns, while ahead of the Pension Funds for the full five-year period, are at the bottom of the distribution for three years and next-to-last for one year. There is no pattern that suggests that an external approach to fund management produces superior results to that obtained by managing funds internally.

Appendix : Ohio Workers' Compensation Fund

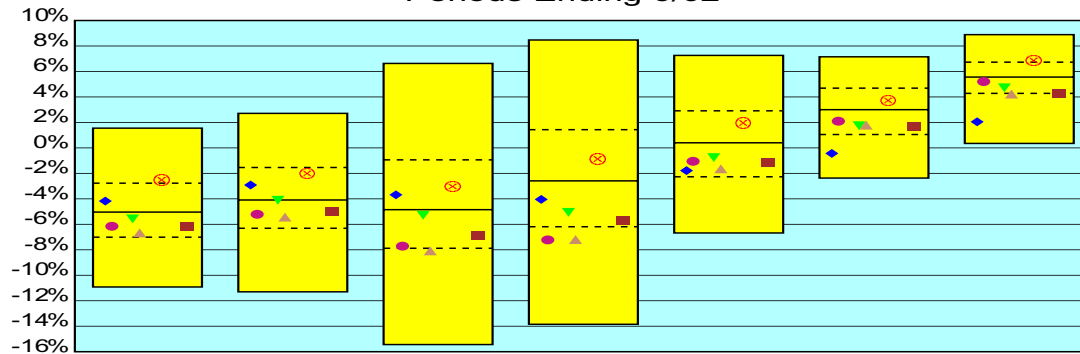
Asset Allocation Ohio Workers' Compensation



The exhibit above tracks the asset allocation of the Workers' Compensation Fund over the past twelve quarters. The average fixed income allocation over that period was 56.7%.

Appendix : Ohio Workers' Compensation Fund

Cumulative Performance Comparison
Total Returns of Total Fund Portfolios
Periods Ending 6/02

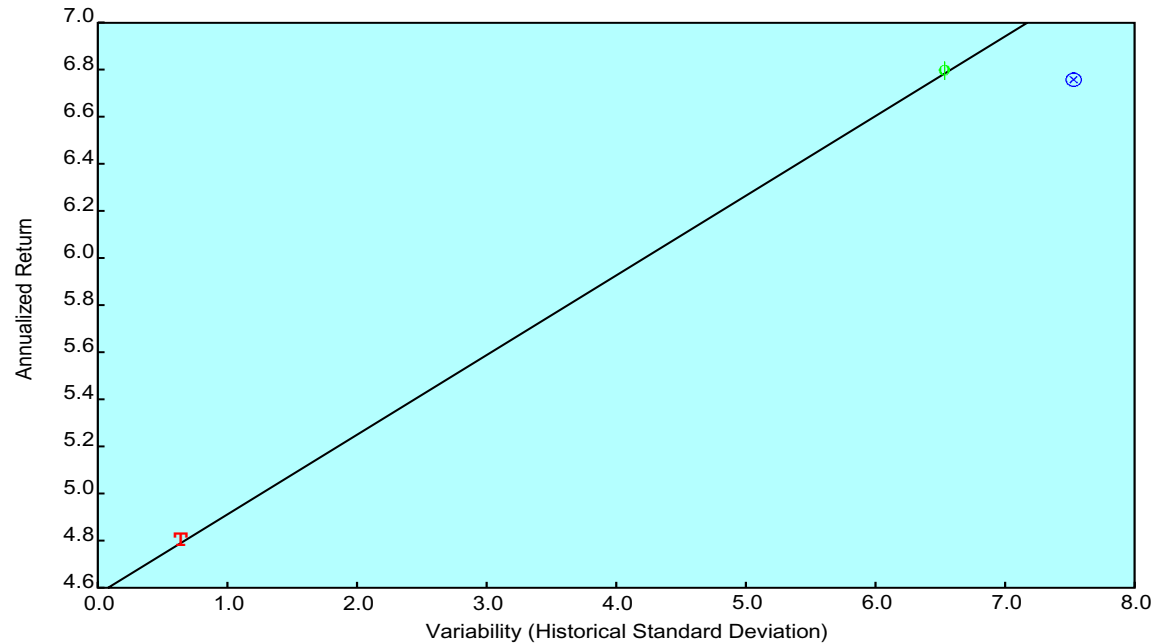


	Last Qtr	Last 2 Qtrs	Last Year	Last 2 Years	Last 3 Years	Last 4 Years	Last 5 Years
High	1.55	2.71	6.63	8.47	7.26	7.15	8.89
1st Qt	-2.77	-1.54	-0.94	1.43	2.91	4.69	6.73
Median	-5.04	-4.09	-4.85	-2.59	0.40	3.00	5.56
3rd Qt	-7.01	-6.31	-7.88	-6.19	-2.27	1.05	4.28
Low	-10.92	-11.30	-15.44	-13.85	-6.68	-2.37	0.35
◆ HPRS Return Rank	-4.22 41	-2.96 37	-3.73 40	-4.09 58	-1.83 72	-0.48 90	2.00 93
▼ OP&F Return Rank	-5.62 58	-4.16 51	-5.34 55	-5.11 66	-0.81 63	1.69 65	4.67 68
⊗ Ohio Workers' Compensation Return Rank	-2.63 24	-2.13 29	-3.14 37	-0.97 41	1.86 35	3.63 40	6.75 24
■ PERS Return Rank	-6.20 67	-5.07 61	-6.96 67	-5.78 70	-1.16 66	1.65 66	4.19 76
● SERS Return Rank	-6.20 67	-5.26 63	-7.76 74	-7.27 79	-1.10 65	2.05 62	5.16 58
▲ STRS Return Rank	-6.72 72	-5.48 66	-8.13 78	-7.24 79	-1.69 70	1.74 65	4.18 77

The performance of the total return of the Workers' Compensation Fund is compared to the total returns of the five Ohio retirement systems in the above graph. The Workers' Compensation Fund has outperformed the five retirement systems over the last five years due almost entirely to the fund's asset allocation.

Appendix : Ohio Workers' Compensation Fund

Quarterly Total Return Market Line Analysis Periods from 6/97 to 6/02

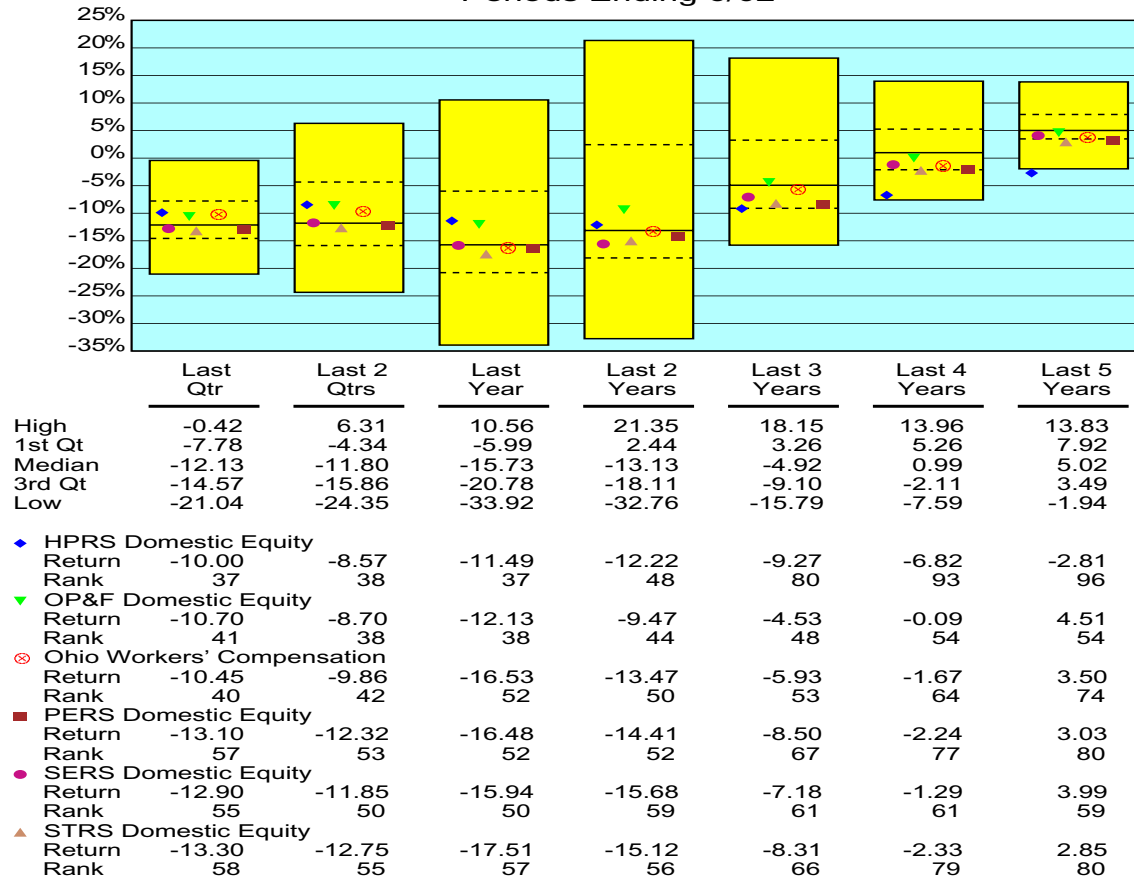


	Annualized Return	Variability	Reward	Sharpe Ratio
⊗ Ohio Workers' Compensation	6.75	7.55	1.95	0.26
ϕ Ohio Workers' Comp Benchmark	6.80	6.58	2.00	0.30
T 91-Day Treasury Bill	4.80	0.67	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of the Workers' Compensation benchmark. Over the last five years, the Workers' Compensation Fund has slightly underperformed the benchmark with a higher return volatility. The result is a lower Sharpe Ratio than the benchmark.

Appendix : Ohio Workers' Compensation Fund

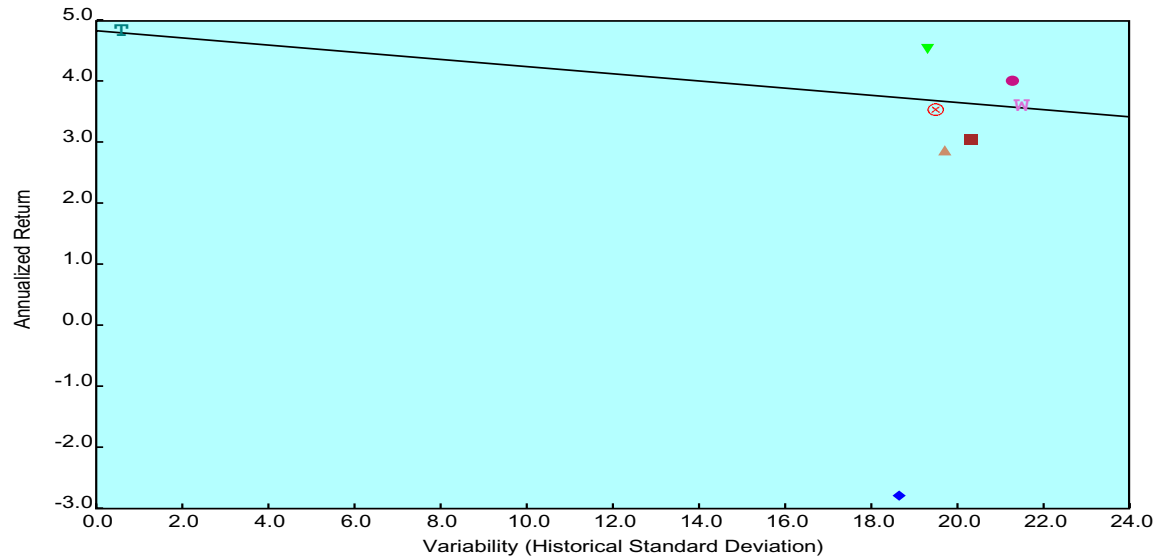
Cumulative Performance Comparison
Total Returns of Equity Portfolios
Periods Ending 6/02



Over the last five years, the Workers' Compensation Fund has achieved a return of 3.50% which placed the fund in the 74th percentile of the broad equity universe. For the last twelve months, the fund has returned a negative 16.53% and has placed in the 52nd percentile.

Appendix : Ohio Workers' Compensation Fund

Quarterly Total Return Market Line Analysis Periods from 6/97 to 6/02

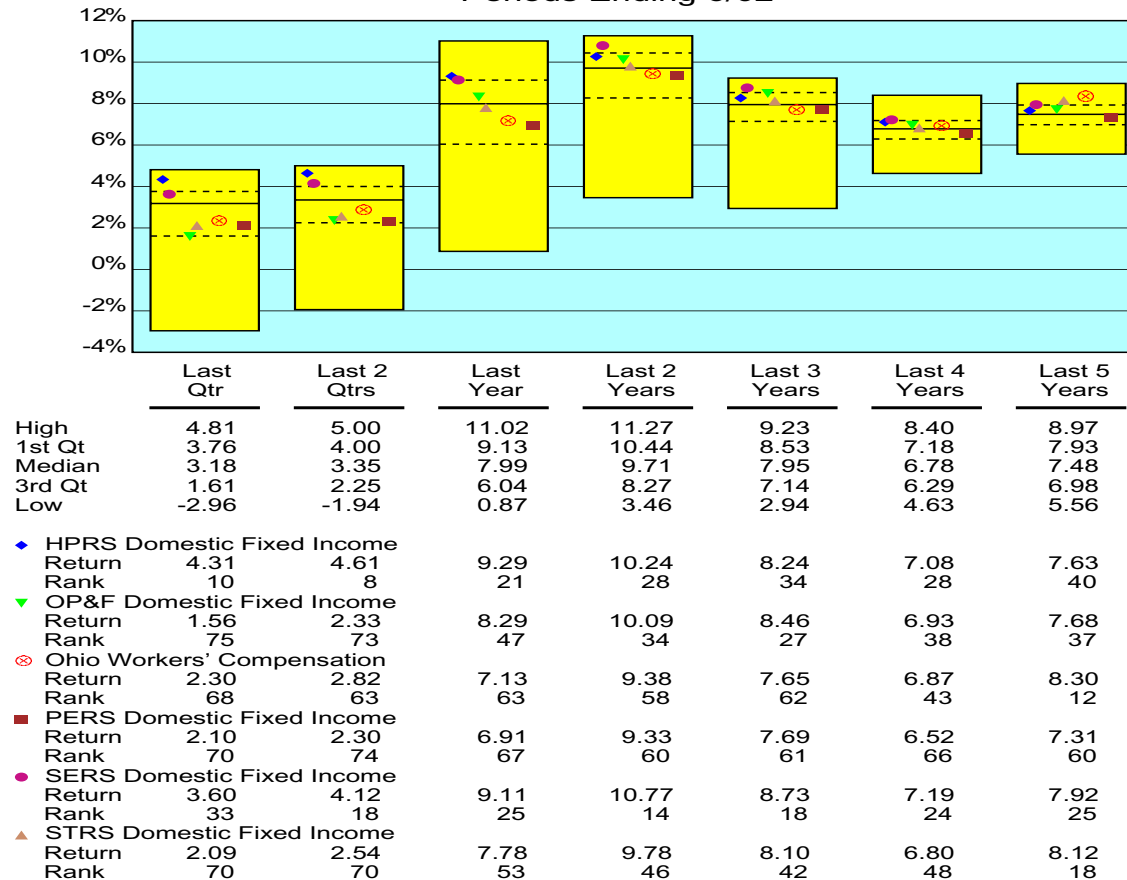


	Annualized Return	Variability
◆ HPRS Domestic Equity	-2.81	18.76
▼ OP&F Domestic Equity	4.51	19.42
⊗ Ohio Workers' Compensation	3.50	19.56
■ PERS Domestic Equity	3.03	20.42
● SERS Domestic Equity	3.99	21.39
▲ STRS Domestic Equity	2.85	19.82
W Wilshire 5000	3.57	21.58
T 91-Day Treasury Bill	4.80	0.67

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of the Wilshire 5000 Index. The Workers' Compensation fund has had lower returns, but with lower volatility as well.

Appendix : Ohio Workers' Compensation Fund

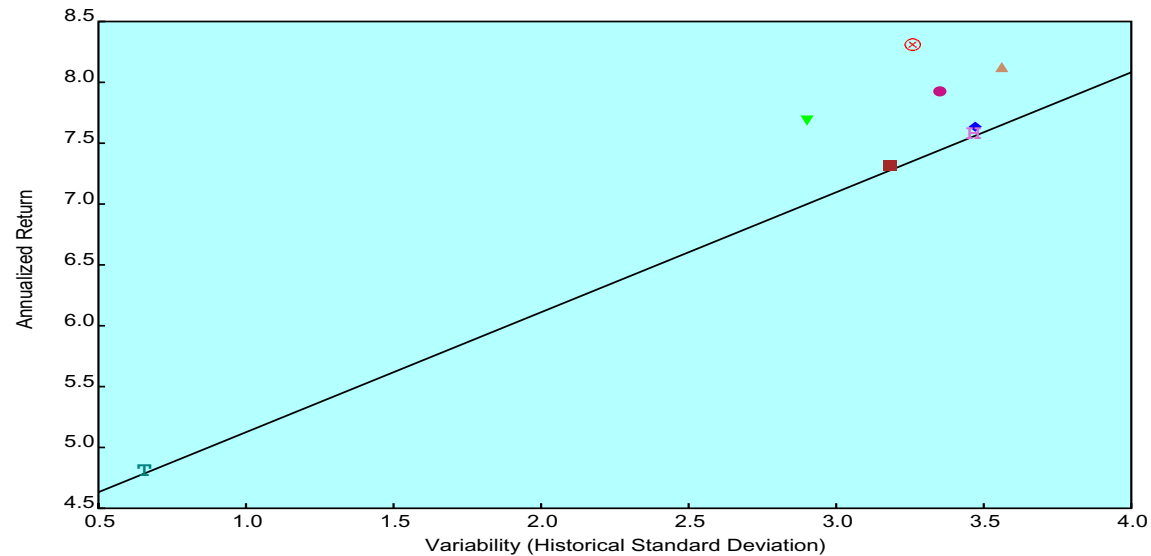
Cumulative Performance Comparison
Total Returns of Fixed Income Portfolios
Periods Ending 6/02



Over the last five years, the Workers' Compensation fund has had top quartile fixed income results. This strong five-year performance in fixed income has contributed to the fund's outperformance.

Appendix : Ohio Workers' Compensation Fund

Quarterly Total Return Market Line Analysis Periods from 6/97 to 6/02

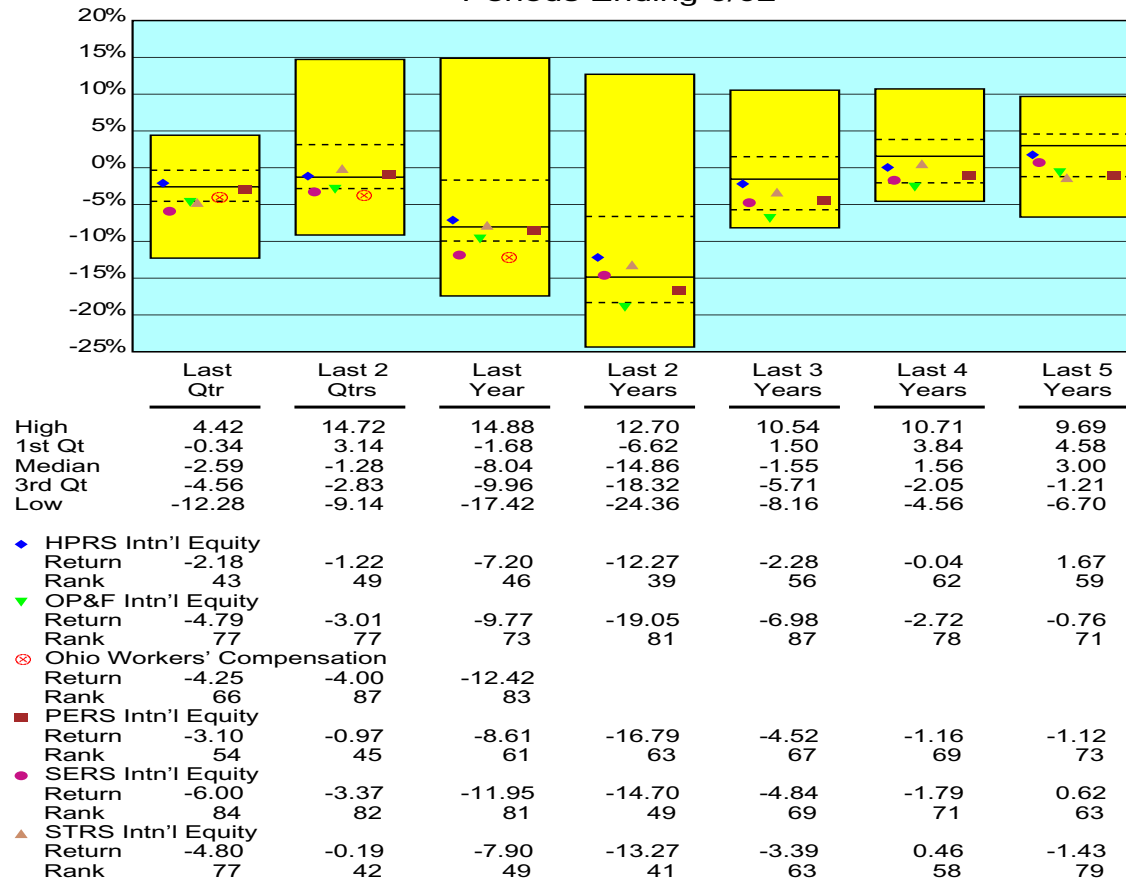


	Annualized Return	Variability	Reward	Sharpe Ratio
◆ HPRS Domestic Fixed Income	7.63	3.49	2.82	0.81
▼ OP&F Domestic Fixed Income	7.68	2.92	2.88	0.99
⊗ Ohio Workers' Compensation	8.30	3.27	3.50	1.07
■ PERS Domestic Fixed Income	7.31	3.20	2.51	0.78
● SERS Domestic Fixed Income	7.92	3.37	3.11	0.92
▲ STRS Domestic Fixed Income	8.12	3.58	3.32	0.93
⊠ LB Aggregate	7.57	3.48	2.77	0.80
T 91-Day Treasury Bill	4.80	0.67	0.00	0.00

The Capital Market Line in this graph is drawn by connecting the risk/return point of US T-bills and the risk/return point of the Lehman Brothers Aggregate Bond Market Index. On a risk-adjusted basis, the Workers' Compensation Fund has experienced the highest absolute and risk adjusted returns over the last five years compared to the five Ohio retirement systems. The Fund enjoyed above-benchmark returns with below-benchmark risk, producing the highest Sharpe Ratio (1.07) of the group.

Appendix : Ohio Workers' Compensation Fund

Cumulative Performance Comparison
Total Returns of International Equity Portfolios
Periods Ending 6/02



The Workers' Compensation international equity allocation began in the first quarter of 2001 therefore there are no results beyond the one-year observed period. The one-year results place the fund in the 83rd percentile with a return of -12.42%.