

Table of Contents

•	Executive Summary	Tab 1
•	Q1 2021 Performance Report	Tab 2
•	Active Management Challenges	Tab 3



Executive Summary



OKLAHOMA STATE PENSION COMMISSION Q1 2021 EXECUTIVE SUMMARY

Economic and Capital Market Review

"Perhaps the most frequent variant of market timing comes not in the form of explicit bets for and against asset classes, but in the form of passive drift away from target allocations."

- David Swensen

"I made a fortune selling too early."

- J. Pierpont Morgan

Capital markets, as a whole, produced solid returns through the first quarter of 2021, continuing the trend from the prior year. Although the overarching return trajectory was largely continuous, beneath the surface, return drivers shifted meaningfully relative to the prior year. For example, in 2020, strong equity returns were driven almost exclusively by growth-oriented companies, especially those operating in the technology and healthcare sectors. In contrast, equity returns for the first quarter of 2021 were driven almost exclusively by value-oriented companies, particularly those operating in the energy and financial sectors. Returns were a bit more consistent by geographic region, as U.S. markets continued to outperform foreign markets – although the margin of outperformance was considerably less in comparison to 2020.

In contrast to equities, fixed income returns were negative during the first quarter as a result of higher interest rates and a modest widening of spreads. A key driver of interest rate movements was an uptick in inflation expectations due to the expected impact of fiscal stimulus associated with the \$1.9 trillion American Rescue Plan Act of 2021 and signals from the Federal Reserve that it "will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time." Real interest rates also rose as GDP growth forecasts were revised higher and the bond market pulled forward expectations for the eventual start of Fed rate hikes to early 2023. Key market index returns for Q1 2021 can be found in **Figure 1**, below.

Figure 1: Key Market Index Returns
Period Ending March 31, 2021

Index	Asset Class	QTD/ CYTD	1 Year	5 Year	10 Year
S&P 500 Index	US Equity	6.17	56.35	16.29	13.91
MSCI ACW Ex-US Index	International Equity	3.49	49.41	9.76	4.93
NCREIF ODCE (Gross)	Core Real Estate	2.09	2.30	6.19	9.67
Bloomberg US Agg	US Fixed Income	-3.38	0.71	3.10	3.44
Cambridge Private Equity ¹	Private Equity	11.41	21.32	15.28	13.92
HFRX Absolute Return Index	Hedge Funds	0.65	9.75	2.29	1.46
Bloomberg Commodity Index	Commodities	6.92	35.04	2.31	-6.28

¹ Private equity returns are as of December 31, 2020, as returns for March 31, 2021 are not yet available.

In terms of future outlook, it is never wise to forecast short-term return trends, but attempting to do so in 2021 would be especially bold. There are simply too many unknowable economic variables, and the reaction of monetary and fiscal authorities to each variable is even less predictable. That being said, it is no secret that the primary factor that will shape asset class returns for the remainder of the year will likely be the speed and absorption of COVID vaccinations, as well as the willingness of the populace to resume normal economic activity as the acute phase of the pandemic subsides. Potentially adding to forward momentum to both economic growth and asset prices is the substantial amount of cash that has amassed on the sidelines. To this point, **Figure 2** shows the excess savings that U.S. households have accumulated over the past 21 months. To the extent that this savings constitutes pent up demand that is about to be unleashed, it is conceivable, if not likely, that a greater than anticipated spike in economic activity could be forthcoming, which could be accompanied by an acceleration of speculation.

Pre-COVID Pace of Saving Excess Saving Actual Saving \$580B \$530B \$480B \$430B \$380B \$330B \$280B \$230B \$180B \$1.94 Trillion (9.0% of GDP) \$130B \$80B Aug-19 Oct-19 Dec-19 Feb-20 Apr-20 Jun-20 Aug-20 Oct-20 Dec-20 Feb-21 Jun-19

Figure 2: United States Personal Savings (Monthly)
(June 2019 – February 2021)

Sources: Guggenheim Investments, Haver Analytics, Bureau of Economic Analysis.

In conclusion, speculating about possible outcomes for the remainder of 2021 is admittedly interesting on an intellectual level, but it is important to ground such speculation in the humbling reality that accurately predicting asset class returns over a short time horizon is nearly impossible in any environment, much less the current one. To make such a forecast, one must presume that they possess an almost magical ability to project the future. In light of this reality, more so than ever, we encourage clients to remain disciplined with regard to their long-term strategic asset allocation. Should speculation in risky assets accelerate over the coming year, we encourage clients to exercise discipline. Whereas financial panics tend to strengthen one's temptation to avoid risky assets, financial speculation increases the temptation to refuse to sell them. Disciplined rebalancing requires acknowledgement of both temptations and resilience to succumbing to them.

Collective Performance Highlights

Total Fund Performance

During the 1st Quarter, the Oklahoma State Pension Funds produced strong returns that ranged from approximately 2.6% to 4.5% net of fees. Similar to longer term trends, the primary drivers were public equity returns, and to a lesser degree, positive returns from private equity, and hedge funds. There were few weak spots in the market during the first quarter, with the only exception being fixed income. Performance relative to benchmarks was especially strong for the quarter, with five out of seven plans outperforming their respective policy benchmarks. Comparative performance of the seven plans can be found on **pages 12-15** of the performance report.

Asset Class Performance

All major asset classes generated positive returns for the quarter. Performance highlights for specific asset classes are provided below, and detailed performance numbers can be found on pages 16-27 of the performance report.

- 1. U.S. Equity U.S. equity generated strong returns for the quarter; and all plans added excess return due to style tilts (i.e., small/mid cap and value) and the performance of active managers. U.S. equity returns ranged from approximately 6.7% (Wildlife) to 10.0% (Law Enforcement). The strong performance for the quarter helped reverse earlier underperformance for the first nine months of the year. However, longer term performance over 3-, 5-, and 7-year 10-year periods tended to trail the return produced by a broad indexes of U.S. equities.
- 2. International Equity International equity returns generated positive absolute and mixed relative returns across the pension plan portfolios. First quarter returns ranged from approximately 1.3% (Firefighters) to 4.8% (Teachers). The use of active management in this asset class continues to generate meaningful value over long time periods as well, and all plans outperformed their respective indices over time periods beyond 5 years.
- 3. Fixed Income Fixed income produced negative returns for the quarter, as interest rates rose during the start of the year. Returns ranged from approximately -4.5% (Teachers) to -0.7% (Police). Relative performance was mixed, with four out of seven plans outperforming the Bloomberg US Aggregate Bond Index. Over longer periods of time, results remain mixed, but over a ten-year horizon, most plans are exceeding or roughly flat against the index.
- 4. Real Estate Real estate returns were positive for the quarter, but were relatively weak over the trailing year. The asset class continues to struggle more so than others from the impact of the COVID-19 pandemic. The retail sector remains the hardest hit sector due to business closures throughout the country. Office and residential properties fared better, but continue to suffer from economic uncertainty in the short term.
- 5. Hedge Funds Hedge fund generated strong returns in the first quarter. Returns ranged from a low of approximately 1.3% (Police) to a high of 10.6%. (Firefighters). On a relative basis, returns were mixed. The Firefighters Fund generated exceptional returns for the quarter, outperforming its index by 688 basis points. Law Enforcement returned 5.9%, outperforming its index by 1.28%, while Police lagged its index by 324 basis points.

6. **Private Equity** – Private equity returns were generally strong, but remain variable across the different pension plans. This variability is consistent with expectations given that each plan has different exposures by investment strategy and vintage year. Further, performance versus benchmarks varied considerably, but this is primarily due to the fact that one plan (Teachers) uses a public equity benchmark, while the others use a private benchmark.

Overall performance of the pension plans was solid for the quarter in both absolute and relative terms. As a result, the 5-Year and 10-Year return and risk-adjusted returns for most plans continue to compare favorably relative to indices and peers. Updated 5-Year and 10-Year return metrics are provided in **Figure 3** and **Figure 4**.

Figure 3: Five and Ten-Year Performance of Oklahoma Pension Plans
Ordered by Level of 10-Year Net-of-Fees Return as of March 31, 2021

Plan	5-Year Return Net of Fees	10-Year Return Net of Fees	10-Year Rank vs. All Public Plans ¹
Firefighters	12.70	10.07	3 rd
Teachers	11.27	9.26	6 th
Public Employees	10.74	8.74	26 th
Judges	10.79	8.57	36 th
Law Enforcement	9.99	8.12	50 th
Wildlife	9.75	7.93	52 nd
Police	10.74	7.62	58 th

Figure 4: 10-Year Risk-Adjusted Returns for Oklahoma Pension Plans
Ranked by Sharpe Ratio as of March 31, 2021

Plan	Sharpe	10-Year Rank vs.
	Ratio	All Public Plans
Firefighters	1.05	13 th
Police	1.02	18 th
Wildlife	0.94	41 st
Teachers	0.92	47 th
Law Enforcement	0.91	50 th
Public Employees	0.89	59 th
Judges	0.87	66 th

¹ Peer ranking are based on gross of fees; therefore, it is possible for a Plan to be ranked higher relative to peers despite having a lower net of fees return.

Individual Plan Performance Highlights

Oklahoma Teachers' Retirement System (OTRS)

Detailed performance of the OTRS plan begins on **page 40** of the performance report. As of March 31, 2021, the market value of assets for OTRS was approximately **\$20.58 Billion**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OTRS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OTRS Total Fund (Net)	4.43	4.43	24.00	39.58	10.49	11.27	8.27	9.26
OTRS Policy Index	3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92
Difference	0.62	0.62	0.70	-2.34	-1.05	-0.02	-0.21	0.34
OTRS Actual Allocation Index	4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33
Difference	0.25	0.25	0.16	-2.02	-1.03	-0.34	-0.60	-0.07
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	9	9	8	15	27	11	24	6

Commentary

The OTRS Total Fund has provided returns below its policy index over most trailing periods, although this is predominantly attributable to underperformance over the last three years. Relative to a broad group of pension plans, however, the Plan has ranked in the top quartile over the 5-, 7-, and 10-year periods. Favorable peer rankings were heavily influenced by the higher allocation to public equities (and U.S. equity in particular) relative to other public plans. Returns have lagged more recently relative to the policy and actual allocation index. Underperformance is heavily related to performance of the US equity portfolio – especially during the trailing one-year period. The largest source of underperformance in this portfolio was the allocation to the non-cap-weighted exposure to U.S. equity.² International equity returns fared better over the past year, outperforming the MSCI ACW Ex-US IM Index by 54 basis points.

In summary, the OTRS plan has generated solid long term returns relative to its policy index and peers over a 7- and 10-year period, but performance has weakened a bit over the past three years. On a risk-adjusted basis, the Plan has ranked roughly at median relative to other public plans and other Oklahoma plans, as illustrated in **Figure 3** on the previous page.

² This captures both the performance of active manager and the tilt toward small cap equity.

Oklahoma Public Employees Retirement System (OPERS)

Detailed performance of the OPERS plan begins on **page 60** of the performance report. As of March 31, 2021, the market value of assets for OPERS was approximately **\$11.93 Billion**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OPERS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OPERS Total Fund (Net)	2.89	2.89	21.04	38.04	10.67	10.74	8.41	8.74
OPERS Policy Index	2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58
Difference	0.61	0.61	0.88	0.84	-0.01	-0.05	-0.05	0.16
OPERS Actual Allocation Index	2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36
Difference	0.26	0.26	0.58	1.05	0.27	0.19	0.11	0.38
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	58	58	32	26	26	29	29	26

Commentary

The OPERS Total Fund provided solid returns over all periods relative to its policy index, and also ranked around the top quartile over all periods relative to the median returns of a broad peer group of public plans. In aggregate, active management added value on a net of fees basis. This observation is supported by the outperformance of the plan versus the actual allocation index over all trailing, annualized periods. The source of active manager value added varied by asset class. In general, U.S. large cap equity managers detracted from performance, while U.S. small cap managers added value. International equity and fixed income managers consistently outperformed their respective indices.

In summary, the OPERS plan has generated solid long term returns relative to its policy index and peers over all trailing periods. On a risk-adjusted basis, the Plan has ranked slightly below median relative to other public plans and 6th among the group of seven Oklahoma plans.

Oklahoma Firefighters Pension & Retirement System (OFPRS)

Detailed performance of the OFPRS plan begins on **page 77** of the performance report. As of March 31, 2021, the market value of assets for OFPRS was approximately **\$3.54 Billion**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OFPRS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OFPRS Total Fund (Net)	3.70	3.70	24.68	41.11	12.43	12.70	10.20	10.07
OFPRS Policy Index	3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89
Difference	-0.07	-0.07	3.20	4.48	0.70	1.13	0.63	0.18
OFPRS Actual Allocation Index	3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29
Difference	0.38	0.38	3.68	4.80	1.40	1.30	1.27	0.78
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	29	29	6	11	3	2	2	3

Commentary

The Firefighter's plan generated the strongest long-term return among the seven Oklahoma pension plans both on an absolute and risk-adjusted basis. In terms of absolute returns, the Plan exceeded its policy and actual allocation index over virtually all trailing periods and ranked in the 2nd percentile relative to a broad peer group of public plans over the 5-, 7-, and 10-year period. Over the trailing ten years, on a risk-adjusted basis, the Plan ranked in the 15th percentile relative to a broad peer group of public pension plans and 1st among the group of seven Oklahoma pension plans.

Although the most significant drivers of performance relative to the Oklahoma plans were the asset allocation decisions, the plan also benefitted from active management value-added over all trailing periods. In the US equity portfolio, active manager performance was positive relative to their respective benchmarks, with particularly impressive performance from small cap managers. Over the past year, the portfolio also benefitted from a higher weighting to small cap equity relative to a broad U.S. equity index. International equity performance was even more substantial, with the composite outperforming the index by 2,185 basis points over the past year. The fixed income portfolio also added modestly to performance over the past, providing excess return of 90 basis points. Real estate was the only area of the portfolio with some slight underperformance in recent years, although over the long term it continues to outperform. Overall, the Firefighter's plan continues to perform exceptionally well relative to peers, benchmarks, and other Oklahoma plans.

Oklahoma Police Pension & Retirement System (OPPRS)

Detailed performance of the OPPRS plan begins on **page 101** of the performance report. As of March 31, 2021, the market value of assets for OPPRS was approximately **\$3.08 Billion**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OPPRS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OPPRS Total Fund (Net)	4.38	4.38	20.97	31.80	9.26	9.56	7.33	7.62
OPPRS Policy Index	2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82
Difference	1.77	1.77	3.02	-0.32	-0.05	-0.06	0.20	-0.20
OPPRS Actual Allocation Index	2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00
Difference	2.04	2.04	3.39	0.82	-1.47	-0.92	-0.55	-0.38
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	9	9	30	63	53	58	59	58

Commentary

The Police Plan provided absolute returns that ranked near or below median over all trailing periods out to ten years and also trailed both the policy index and actual allocation index. This performance is heavily influenced by the intentional decision to reduce downside risk in the portfolio to protect the funded status of the plan. It should be noted that, consistent with this strategy, the risk-adjusted returns of the portfolio are consistent with this objective. As illustrated in **Figure 3** on page 4, the OPPRS 10-year Sharpe ratio is ranked 2nd relative to other Oklahoma Plans and in the 24th percentile relative to a broad peer group of public plans. Thus, on a risk-adjusted based, the OPPRS plan has performed relatively well over the long term and in a manner that is consistent with the stated objectives. In terms of return drivers relative to benchmarks, performance has varied, but the plan has performed roughly consistent with benchmarks overall.

In summary, the OPPRS plan has generally lagged the performance of peers and other Oklahoma pension plans in terms of absolute returns over all trailing periods. On the other hand, the Plan has ranked relatively well on a risk-adjusted basis, which is consistent with its stated intention of managing a portfolio with less sensitivity to downside risk.

Oklahoma Law Enforcement Retirement System (OLERS)

The detailed performance of the OLERS plan begins on **page 116** of the performance report. As of March 31, 2021, the market value of assets for OLERS was approximately **\$1.18 Billion**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OLERS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OLERS Total Fund (Net)	4.49	4.49	21.50	35.17	9.27	9.99	7.64	8.12
OLERS Policy Index	3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66
Difference	0.88	0.88	1.95	0.52	-1.16	-0.38	-0.71	-0.54
OLERS Actual Allocation Index	3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55
Difference	0.58	0.58	0.55	0.55	-1.36	-0.54	-0.85	-0.43
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	8	8	25	42	60	51	55	50

Commentary

The Law Enforcement Plan generated a 10-year absolute return that ranked 5th relative to other Oklahoma Pension Plans and slightly below median relative to a broad peer group of public plans over all trailing periods up to 10 years. Active management had been a significant drag on performance during the first nine months of the year, but strong performance during the fourth quarter substantially reduced this performance drag. U.S. equity ended the year with a 19.60% return, outperforming the S&P 500 Index by 120 basis points. International equity also provided strong performance, outperforming the MSCI ACW ex-US Index by 192 basis points for the calendar year. The biggest detractor from performance stemmed from the long/short equity allocation, which consists of two hedge fund-of-funds. Over the past year, the combined performance of these two funds underperformed by 669 basis points.

In summary, the OLERS Plan has generally lagged the performance of peers and other Oklahoma plans in terms of absolute returns over various trailing periods. The Plan has also slightly lagged peers on a risk-adjusted basis, as represented by a Sharpe ratio that ranks in the 56th percentile relative to peers.

Oklahoma Uniform Retirement System for Justices & Judges (OURSJJ)

Detailed performance of the OURSJJ plan begins on **page 132** of the performance report. As of March 31, 2021, the market value of assets for OURSJJ was approximately **\$412.62 Million**. A high-level summary of Total Plan Performance and brief commentary is provided below.

OURSJJ Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OURSJJ Total Fund (Net)	2.69	2.69	20.76	37.29	10.69	10.79	8.42	8.57
OURSJJ Policy Index	2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59
Difference	0.41	0.41	0.60	0.09	0.00	-0.01	-0.05	-0.02
OURSJJ Actual Allocation Index	2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38
Difference	0.06	0.06	0.29	0.63	0.36	0.29	0.24	0.19
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	66	66	37	30	28	31	32	36

Commentary

The Judges Plan generate a 10-year absolute return that ranked 4th relative to other Oklahoma Pension Plans, and in the 35th percentile relative to a broad peer group of public plans over all trailing periods. Strong returns relative to peers was aided by a modest tilt toward US equity relative to international equity, as well as an exclusive allocation to index funds during a period in which most active equity managers underperformed their benchmarks. The Plan also benefitted from strong relative performance in its fixed income portfolio, a large portion of which stemmed from its allocation to Hoisington US Long Duration Fixed Income. This strategy is interesting in that it rotates the portfolio between long duration fixed income securities and cash depending upon expectations of interest rate movements. The fund continues to benefit from the substantial decline in yields over the past 10 years, although it has significantly detracted from returns over the past two quarters due to the recent increase in interest rates. Finally, the absence of an absolute return allocation generally aided performance.

Overall, the OURSJJ Plan performed well over the past 10 years relative to a broad peer group of public plans and roughly average relative to other Oklahoma plans. On a risk-adjusted basis, the Plan performed slightly below median over the past 10 years relative to peers (with a Sharpe ratio ranking in the 67th percentile) and ranked 7th relative to Oklahoma Plans.

Oklahoma Wildlife Conservation Retirement System (OWCRS)

Detailed performance of the OWCRS plan begins on **page 144** of the performance report. As of March 31, 2021, the market value of assets for OWCRS was approximately **\$136.13 Million**. A high level summary of Total Plan Performance and brief commentary is provided below.

OWCRS Annualized Net-of-Fees Returns

Period Ending March 31, 2021

	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
OWCRS Total Fund (Net)	2.62	2.62	17.20	32.57	10.03	9.75	7.83	7.93
OWCRS Policy Index	3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72
Difference	-0.60	-0.60	-1.90	-1.26	0.58	0.64	0.73	0.21
OWCRS Actual Allocation Index	3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49
Difference	-1.13	-1.13	-3.64	-3.29	-1.19	-0.88	-0.76	-0.56
All Public Plans – Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20
Rank	66	66	77	58	40	57	48	52

Commentary

The Wildlife Plan provided 10-year absolute returns that ranked 6th relative to other Oklahoma Pension Plans, but roughly at median relative to a broad peer group of public plans over all trailing periods of at least one or more years. Strong returns relative to peers was aided by a heavy allocation to public equity and generally strong active management over the long term. Over the past quarter, active managers tended to lag their respective indices, particularly in U.S. equity and alternative investments. Fixed income offset this underperformance to a degree.

Overall, the OWCRS Plan performed in line with, or slightly better than, a broad peer group of public plans. On a risk-adjusted basis, the Plan also performed well over the past 10 years relative to peers (with a Sharpe ratio ranking in the 42nd percentile) and ranking 3rd relative to the group of seven Oklahoma Plans.

Overview of Fundamental Investment Performance Drivers

When reviewing the performance of the Oklahoma Pension Plans, it is important to understand the key drivers of investment returns, which we will reference throughout this document. In short, the return of an investment portfolio can be attributed to the following three, fundamental factors.

- 1. Strategic Asset Allocation The long-term strategic asset allocation of a portfolio is by far the most significant driver of absolute returns in the long term. In other words, the percentages that a plan allocates to various asset classes, such as US equity, international equity, private equity, real estate, etc., tend to dominate. To this end, the most significant decision for pension plan boards is the extent of their exposure to various types of assets especially equities. To this point, the degree of equity exposure is primarily a function of a plan's risk tolerance and long term return requirements; thus understanding these requirements is the most critical responsibility of pension plan sponsors and their advisors.
- 2. Tactical Asset Allocation Tactical asset allocation is a term that describes the return impact when a portfolio deviates from its long term strategic asset allocation targets. In general, use of intentional tactical allocation at the total portfolio level is unlikely to add value, thus most institutional investors wisely avoid it. However, some degree of *unintentional* tactical allocation is inevitable due to the inability of institutional investors to match allocations with desired targets at all times. This is especially true in illiquid asset classes, such as private equity, as investors have limited control over the investment and distribution of capital from underlying funds. Nevertheless, even though some degree of tactical allocation is unavoidable, its overall impact on performance is generally modest.
- 3. Active Management The third driver of investment performance is active management. Active management involves the construction of a portfolio of securities that differs from the mix in a comparable reference index. Although active management is usually not the most important driver of long-term absolute returns, it is an important driver of relative returns in comparison to peer organizations with similar allocation strategies. In general there are three primary ways in which active management is incorporated into an institutional investment strategy.
 - a. Use of Style Tilts within Asset Classes When all securities available for investment are aggregated within an asset class, the resulting portfolio can be categorized into various market segments. For example, the US equity market can be divided into small-, mid-, and large-sized companies, as well as value- and growth-oriented companies. Thus, one form of active management is to deliberately tilt a portfolio toward specific market segments in a manner that differs from the broad universe. For example, investors with a "small cap bias" make an active decision to favor investment in small companies rather than large companies. The degree to which this "style tilt" pays off is measured by evaluating an investor's asset class performance relative to a broad asset class index. After adjusting for manager performance relative to their individual benchmarks, this reveals whether the style tilt added or detracted value.
 - b. Use of Active Managers in Traditional Asset Classes with Index Fund Alternatives In many traditional asset classes, such as US equity, investors can choose a low-cost index fund or a more expensive, actively managed fund. An actively managed fund holds

securities that differ from a reference index representative of the asset class. For example, an active U.S. equity manager may hold a portfolio of stocks that have different weightings than the S&P 500 Index. If an investors chooses to invest in an actively managed fund, their objective is to outperform the reference index. This can be evaluated on an absolute return basis and/or a risk-adjusted basis (i.e., the manager may provide a lower return but with less risk).

c. Use of Alternative Asset Classes that Lack Index Funds – The final way in which active management is used is by investing in asset classes in which index funds are unavailable. Examples include private equity, hedge funds, private real estate, and several other niche market segments. In these situations, the key to evaluating performance is to gauge absolute and risk-adjusted returns versus a relatively comparable public market index or fundamental economic indicator (e.g., the consumer price index, which may be used as a proxy for inflation). In addition, peer rankings can be useful to gauge whether plans are selecting top tier managers relative to other institutional investors, as superior manager selection is essential in these asset classes. Although there are performance metrics that can be useful in these markets, it is also important to acknowledge that these metrics are considerably less precise that the metrics used in traditional asset classes. In addition, the metrics offer particularly limited value over shorter time periods.

In summary, it is important for institutional investors to be aware of the three factors that drive absolute and relative performance of institutional investment portfolios. When evaluating the performance of the Oklahoma pension plans, both individually and collectively, we will often make reference to these three performance drivers.



2020 Greenwich Quality Leader Award

Coalition Greenwich recently announced that RVK is 1 of 3 firms among large US consultants to receive the 2020 Greenwich *Quality Leader* award.* RVK is proud to receive this recognition for the 4^{th} consecutive year.

RVK ranked first (or tied for first) in 11 out of 14 key criteria:

- Advice on Long-term Asset Allocation (#1)
- Communication of Philosophy and Beliefs (#1)
- Proactive Advice and Innovative Ideas (#1)
- Usefulness of Written Investment Reviews (#1)
- Client Satisfaction with Manager Recommendations (#1)
- Responsiveness to Client Requests (#1)

- Sufficient Professional Resources to Meet Client Needs (#1)
- Reasonable Fees Relative to Services Delivered (#1)
- Timeliness in Providing Written Info/Reports (#1)
- Advice on DC Plan Structure and Design (tied for #1)
- Usefulness of Personal Meetings (tied for #1)



We are deeply grateful for your continued confidence and support. From all of us here at RVK, thank you for the opportunity to serve you!

To read the Greenwich press release, please refer to the following URL: https://www.greenwich.com/press-release/covid-19-crisis-put-investment-consultant-advisory-capabilities-test

^{*}Between July and October 2020, Coalition Greenwich (formerly known as Greenwich Associates) conducted in-person and phone interviews and online surveys with 856 individuals at 704 of the largest tax-exempt funds in the US-including corporate and union funds, public funds, endowments and foundations, insurance general accounts, and healthcare organizations, with either pension or investment pool assets greater than \$150 million. Study participants were asked to provide quantitative and qualitative evaluations of their asset managers and investment consultants, including qualitative assessments of those firms soliciting their business and detailed information on important market trends. RVK is one of three firms recognized in the large investment consultant category. The ratings may not be representative of any one client's experience with RVK; rather they are representative of those clients that chose to participate in the survey. The results are not indicative of RVK's future performance.

Capital Markets Metrics



Capital Markets Review As of March 31, 2021

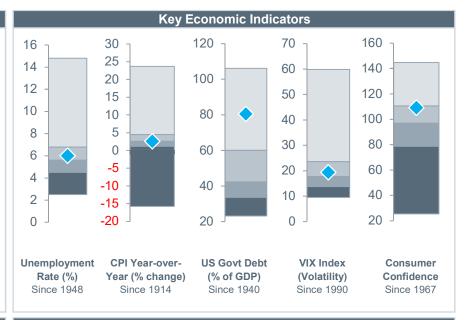
First Quarter Economic Environment

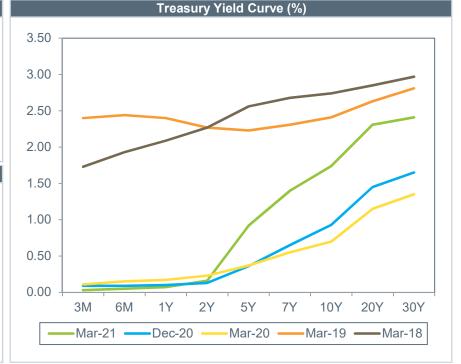
Investor expectations for a swift global economic recovery rose with the progress of vaccination distribution in the US being a key catalyst. The passage of further fiscal support in the US and anticipation of a bill more focused on infrastructure spending also factored into rising global and US GDP growth forecasts for 2021-22. Monetary policies remained supportive with the Federal Open Markets Committee (FOMC) and other major central banks maintaining interest rate levels near or below zero. In addition, the FOMC reiterated a commitment to accommodative policies until its inflation target is reached and a stronger labor market is sustained. As investors digested the potential for higher future growth and inflation, long-term bond yields moved higher throughout Q1. However, potential drags on sustained economic growth, including newer variants of the coronavirus and the prospect of rising inflationary pressures, remain as risks to the ongoing recovery. Another headwind to the recovery is the lower vaccination rates reported in other developed countries and some emerging market countries making parts of the world more susceptible to further outbreaks. With this backdrop, risk assets delivered positive returns in Q1 with most fixed income groups experiencing negative returns as longer-dated Treasury yields moved higher. Most commodity prices rose during Q1, notably crude oil appreciated quickly, partially driven by a tanker blocking passage of the Suez Canal in March.

Economic Indicators	Mar-21	Dec-20	Mar-20	Mar-18	20 Yr
Federal Funds Rate (%)	0.06	0.09	0.08	1.68	1.42
Breakeven Infl 5 Yr (%)	2.60 🔺	1.97	0.53	2.04	1.83
Breakeven Infl 10 Yr (%)	2.37	1.99	0.93	2.06	2.01
CPI YoY (Headline) (%)	2.6	1.4	1.5	2.4	2.1
Unemployment Rate (%)	6.0 ▼	6.7	4.4	4.0	6.1
Real GDP YoY (%)	0.4	-2.4	0.3	3.1	1.7
PMI - Manufacturing	64.7 ▲	60.5	49.7	59.2	52.9
USD Total Wtd Idx	114.13	111.55	122.82	107.67	103.22
WTI Crude Oil per Barrel (\$)	59.2 ▲	48.5	20.5	64.9	62.7
Gold Spot per Oz (\$)	1,708 ▼	1,898	1,577	1,326	1,028
Market Performance (%)	QTD	CYTD	1 Yr	5 Yr	10 Yr
Market Performance (%) S&P 500 (Cap Wtd)	QTD 6.17	CYTD 6.17	1 Yr 56.35	5 Yr 16.29	10 Yr 13.91
S&P 500 (Cap Wtd)	6.17	6.17	56.35	16.29	13.91
S&P 500 (Cap Wtd) Russell 2000	6.17 12.70	6.17 12.70	56.35 94.85	16.29 16.35	13.91 11.68
S&P 500 (Cap Wtd) Russell 2000 MSCI EAFE (Net)	6.17 12.70 3.48	6.17 12.70 3.48	56.35 94.85 44.57	16.29 16.35 8.85	13.91 11.68 5.52
S&P 500 (Cap Wtd) Russell 2000 MSCI EAFE (Net) MSCI EAFE SC (Net)	6.17 12.70 3.48 4.50	6.17 12.70 3.48 4.50	56.35 94.85 44.57 61.98 58.39	16.29 16.35 8.85 10.50	13.91 11.68 5.52 8.01
S&P 500 (Cap Wtd) Russell 2000 MSCI EAFE (Net) MSCI EAFE SC (Net) MSCI Emg Mkts (Net)	6.17 12.70 3.48 4.50 2.29	6.17 12.70 3.48 4.50 2.29	56.35 94.85 44.57 61.98 58.39 0.71	16.29 16.35 8.85 10.50 12.07	13.91 11.68 5.52 8.01 3.65
S&P 500 (Cap Wtd) Russell 2000 MSCI EAFE (Net) MSCI EAFE SC (Net) MSCI Emg Mkts (Net) Bloomberg US Agg Bond	6.17 12.70 3.48 4.50 2.29	6.17 12.70 3.48 4.50 2.29	56.35 94.85 44.57 61.98 58.39 0.71	16.29 16.35 8.85 10.50 12.07 3.10	13.91 11.68 5.52 8.01 3.65 3.44

HFRI FOF Comp

Bloomberg Cmdty (TR)







2.00

6.92

23.99

35.04

5.64

2.31

2.00

6.92

3.44

-6.28

US Equity Review As of March 31, 2021

First Quarter Review

Broad Market

US equity markets opened 2021 with solid performance in Q1, driven by the passage of the \$1.9 trillion American Recovery Plan and hopes for a full reopening of the US economy with an ahead of schedule vaccine rollout. After poor performance at the start of Q1, the S&P 500 Index bounced back to finish the guarter up 6.2%.

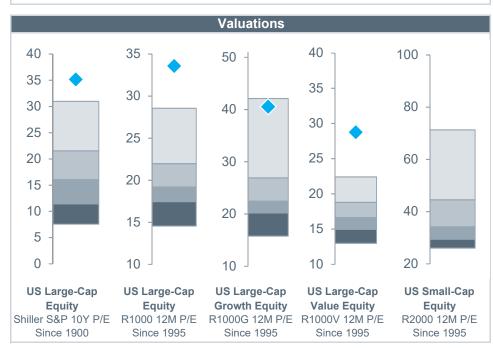
Market Cap

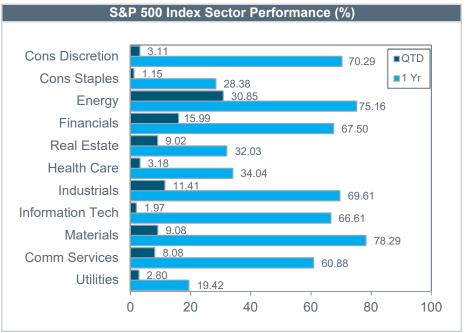
Small-cap stocks significantly outperformed their larger-cap counterparts. The Russell 2000 Index returned 12.7% compared to 6.2% for the S&P 500.

Style and Sector

Value continued to outperform growth, to a much greater extent than in Q4 2020, across the market capitalization spectrum. The Russell 1000 Value Index returned 11.2% in Q1, versus 0.9% for the Russell 1000 Growth Index.







Valuation data courtesy of Bloomberg Professional Service and Robert J. Shiller, Irrational Exuberance, Second Edition.

P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers. Current R2000 P/E is unavailable due to negative earnings per share as of 03/31



Non-US Equity Review As of March 31, 2021

First Quarter Review

Developed Markets

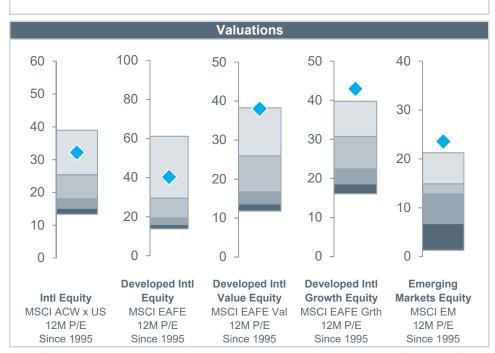
Developed international equity lagged the US market in Q1, but did provide positive absolute returns. The rotation into value stocks continued in Q1 with growth stocks finishing in negative territory and small-cap stocks outperforming large. Median manager performance indicates that active management delivered mixed results amid the positive market returns in Q1.

Emerging Markets

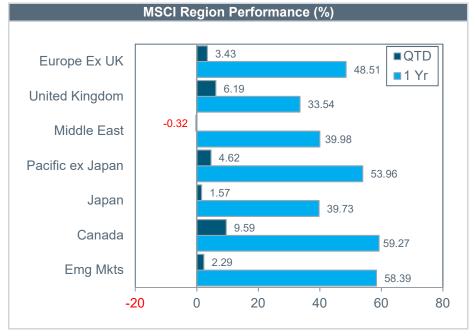
Emerging markets ended Q1 with positive returns, but underperformed developed markets. Value stocks outperformed growth and small cap outperformed large, but the spreads between these groups were not as significant as in developed international markets. Active management continued to add value this quarter and universe median excess returns indicate significant alpha has been produced in the last twelve months.

Market Cap & Style

In both developed international markets and emerging markets, value stocks outperformed growth, while small-cap stocks outperformed large-cap.









P/E metrics shown represent the 5th through 95th percentiles to minimize the effect of outliers. All returns are shown net of foreign taxes on dividends.



Fixed Income Review

As of March 31, 2021

First Quarter Review

Broad Market

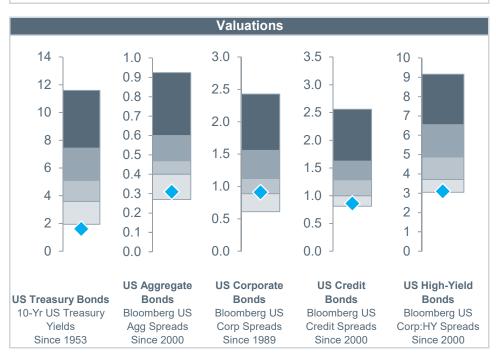
The Bloomberg US Aggregate Index declined -3.4% in Q1 as Treasury yields rose abruptly. The yield movement was primarily driven by investors reacting to potential inflationary pressure caused by a strong economic recovery.

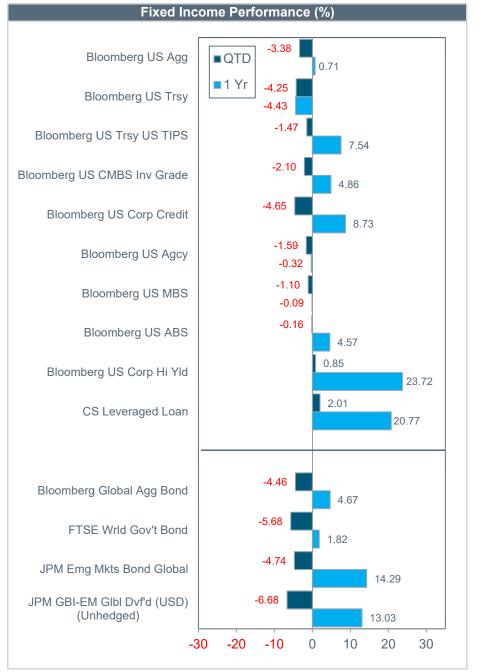
Credit Market

Below investment grade rated debt continued outperforming the broader market, a trend also seen in Q4 2020. The Bloomberg US Credit Index declined -4.5%, while the Bloomberg US High Yield Index returned 0.9% in Q1, largely carried by the lowest quality debt, with Caa rated debt returning 3.6% QTD in particular.

Emerging Market Debt

Increased US stimulus and an improving US economy contributed to a strengthening US Dollar. Local currency denominated debt as measured by the JPM GBI-EM Global Diversified Index returned -6.7%, underperforming both hard currency and corporate emerging market debt.







Valuations shown represent the 5th through 95th percentiles to minimize the effect of outliers.



Alternatives Review As of March 31, 2021

First Quarter Review - Absolute Return

General Market - Hedge Funds

Hedge fund returns in Q1 were positive in aggregate, though with considerable dispersion across strategies and trading styles. The HFRI Fund Weighted Composite Index returned 6.1% in Q1, outperforming its asset weighted counterpart. Given the style shifts seen in equity markets, managers with growth tilts lagged peers. Short alpha was particularly challenged, with prime brokerage data pointing to one of the worst quarters on record for stock picking on the short side.

General Market - Global Tactical Asset Allocation (GTAA)

GTAA strategies RVK follows closely largely generated positive absolute returns in Q1, ranging from low- to mid-single digits. Long-biased strategies performed well, though with some divergence, versus a static and less diversified blend of 60% US equity and 40% US fixed income. Generally, strategies that have continued to maintain a value bias relative to peers outperformed in Q1. Many of the strategies that outperformed peers have continued adding to alternative exposures.

HFRI Hedge Fund Performance (%) 2.00 HFRI FOF ■ QTD 23.99 3.92 Conv Arbitrage ■1 Yr 24.74 6.84 **Equity Hedge** 47.45 1.83 Mkt Neutral Eq 5.36 8.50 Distressed 4.25 Macro 11.66 3.63 Relative Value 19.43 7.59 **Event Driven** 38.16 4.83 Merger Arb 23.76 4.86 Credit Arb 27.76 -30 -10 10 30 50 70

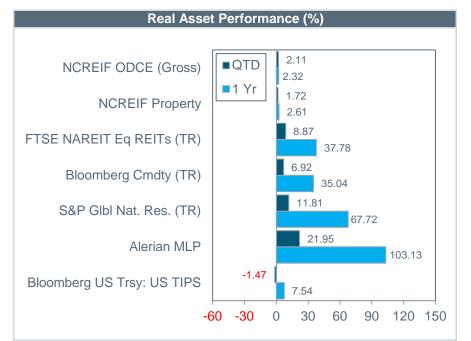
First Quarter Review - Real Assets

General Market - Diversified Inflation Strategies (DIS)

DIS managers that RVK follows closely largely generated positive absolute performance during Q1, ranging from low- to mid-single digits. For the quarter, traditional inflation-sensitive assets such as commodities, listed infrastructure, natural resource equities, and REITs posted positive absolute returns. Strategies with higher relative weights to these asset classes generally outperformed peers with higher relative exposures to TIPS, as the increase in yields during the quarter was a drag on performance.

General Market - Real Estate

Core private real estate generated a gross 2.1% return in Q1, as reported by the NFI-ODCE Index, with the total return comprising of 1.0% income and 1.1% price appreciation. While the income component improved over the prior quarter and is more in line with historical levels, price appreciation rebounded meaningfully by 0.7% from the level recorded in Q4 2020. Investors of publicly traded real estate outperformed their private market counterparts.





Annual Asset Class Performance As of March 31, 2021

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD
Best	39.38	8.44	78.51	27.94	22.49	20.00	38.82	30.14	15.02	21.31	37.28	8.35	31.49	19.96	12.70
1	16.23	5.24	58.21	26.85	15.99	18.23	32.39	19.31	9.59	17.13	33.01	1.87	26.00	18.40	8.87
	15.97	2.06	46.78	22.04	13.56	18.06	29.30	13.69	3.20	11.96	25.03	0.01	25.53	18.31	6.92
	11.63	-2.35	31.78	18.88	8.29	17.32	22.78	12.50	1.38	11.77	21.83	-1.26	24.96	16.12	6.17
	11.17	-10.01	28.01	16.83	7.84	16.35	13.94	5.97	0.55	11.19	14.65	-2.08	22.01	12.34	4.50
	10.25	-21.37	27.17	16.36	4.98	16.00	8.96	4.89	0.05	8.77	10.71	-4.02	19.59	10.99	3.48
	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.27	8.52	7.77	-4.38	18.44	10.88	2.29
	6.60	-33.79	18.91	15.06	0.10	10.94	2.47	3.37	-0.81	6.67	7.62	-4.62	14.32	7.82	2.11
	5.49	-35.65	11.47	10.16	-4.18	8.78	0.07	2.45	-1.44	4.68	7.50	-4.68	8.72	7.51	2.00
	5.00	-37.00	11.41	7.75	-5.72	6.98	-2.02	0.04	-3.30	2.65	5.23	-11.01	8.43	7.11	0.85
	1.87	-37.74	5.93	6.54	-12.14	4.79	-2.60	-2.19	-4.41	2.18	3.54	-11.25	8.39	1.19	0.02
	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47	1.00	3.01	-13.79	7.69	0.67	-1.47
	-1.57	-47.01	0.21	5.70	-15.94	0.11	-8.83	-4.95	-14.92	0.51	1.70	-14.58	5.34	-3.12	-3.38
Worst	-15.70	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66	0.33	0.86	-17.89	2.28	-8.00	-10.41
									DI .		EIE		DI FOE		105
S&P 500 US Larg Cap		mall (Net)		(Net) - (I	MSCI EM Net) - Int'I Emg Mkts	Bloombrg US Agg Bond - FI	Bloombrg US Corp H Yield - Fl		IS Crodit I	ov ODO	CE NARI	EIT Eq C	volinb C		ICE BofAML 3 Mo T-Bill - Cash Equiv





Oklahoma State Pension Commission



Oklahoma State Pension Commission All Plans Summary

Accet	Allocation	& Performance	- Net of Fees

	Allocation	1						Performa	ance (%)					
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
Oklahoma State Pension Commission	40,865,238,601	100.00												
OTRS (Teachers) Total Fund	20,578,884,930	50.36	4.43	4.43	24.00	39.58	10.49	11.27	8.27	9.26	13.22	19.48	-5.29	15.83
OTRS Policy Index			3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	15.02	21.09	-5.12	14.05
Difference			0.62	0.62	0.70	-2.34	-1.05	-0.02	-0.21	0.34	-1.80	-1.61	-0.17	1.78
OTRS Actual Allocation Index			4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	16.40	18.94	-4.70	14.35
Difference			0.25	0.25	0.16	-2.02	-1.03	-0.34	-0.60	-0.07	-3.18	0.54	-0.59	1.48
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Difference			2.72	2.72	18.79	32.58	3.49	4.27	1.27	2.26	6.22	12.48	-12.29	8.83
OPERS (Public Employees) Total Fund	11,934,694,337	29.21	2.89	2.89	21.04	38.04	10.67	10.74	8.41	8.74	15.18	21.23	-6.57	17.01
OPERS Policy Index			2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	15.06	21.46	-6.09	16.86
Difference			0.61	0.61	0.88	0.84	-0.01	-0.05	-0.05	0.16	0.12	-0.23	-0.48	0.15
OPERS Actual Allocation Index			2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	14.72	20.87	-6.49	16.51
Difference			0.26	0.26	0.58	1.05	0.27	0.19	0.11	0.38	0.46	0.36	-0.08	0.50
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Difference			1.30	1.30	16.20	31.54	4.17	4.24	1.91	2.24	8.68	14.73	-13.07	10.51
OFPRS (Firefighters) Total Fund	3,537,854,799	8.66	3.70	3.70	24.68	41.11	12.43	12.70	10.20	10.07	18.43	20.15	-2.46	18.66
OFPRS Policy Index			3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	13.84	21.76	-3.80	16.41
Difference			-0.07	-0.07	3.20	4.48	0.70	1.13	0.63	0.18	4.59	-1.61	1.34	2.25
OFPRS Actual Allocation Index			3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	14.51	20.30	-3.93	15.64
Difference			0.38	0.38	3.68	4.80	1.40	1.30	1.27	0.78	3.92	-0.15	1.47	3.02
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			1.88	1.88	19.11	33.61	4.93	5.20	2.70	2.57	10.93	12.65	-9.96	11.16
OPPRS (Police) Total Fund	3,081,893,070	7.54	4.38	4.38	20.97	31.80	9.26	9.56	7.33	7.62	12.17	15.22	-2.85	12.91
OPPRS Policy Index			2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	12.33	18.96	-5.34	15.45
Difference			1.77	1.77	3.02	-0.32	-0.05	-0.06	0.20	-0.20	-0.16	-3.74	2.49	-2.54
OPPRS Actual Allocation Index			2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	20.17	15.02	-3.70	13.78
Difference			2.04	2.04	3.39	0.82	-1.47	-0.92	-0.55	-0.38	-8.00	0.20	0.85	-0.87
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			2.56	2.56	15.40	24.30	1.76	2.06	-0.17	0.12	4.67	7.72	-10.35	5.41



Oklahoma State Pension Commission All Plans Summary Asset Allocation & Performance - Net of Fees

	Allocation							Performa	ance (%)					
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
OLERS (Law Enforcement) Total Fund	1,183,155,373	2.90	4.49	4.49	21.50	35.17	9.27	9.99	7.64	8.12	11.83	17.49	-4.75	14.53
OLERS Policy Index			3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	12.77	19.12	-3.67	13.36
Difference			0.88	0.88	1.95	0.52	-1.16	-0.38	-0.71	-0.54	-0.94	-1.63	-1.08	1.17
OLERS Actual Allocation Index			3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	14.70	17.33	-3.47	14.63
Difference			0.58	0.58	0.55	0.55	-1.36	-0.54	-0.85	-0.43	-2.87	0.16	-1.28	-0.10
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			2.67	2.67	15.93	27.67	1.77	2.49	0.14	0.62	4.33	9.99	-12.25	7.03
OURSJJ (Judges) Total Fund	412,623,769	1.01	2.69	2.69	20.76	37.29	10.69	10.79	8.42	8.57	15.06	21.36	-6.43	16.85
OURSJJ Policy Index			2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	15.06	21.51	-6.09	16.86
Difference			0.41	0.41	0.60	0.09	0.00	-0.01	-0.05	-0.02	0.00	-0.15	-0.34	-0.01
OURSJJ Actual Allocation Index			2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	14.47	21.01	-6.52	16.63
Difference			0.06	0.06	0.29	0.63	0.36	0.29	0.24	0.19	0.59	0.35	0.09	0.22
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Difference			1.10	1.10	15.92	30.79	4.19	4.29	1.92	2.07	8.56	14.86	-12.93	10.35
OWCRS (Wildlife) Total Fund	136,132,323	0.33	2.62	2.62	17.20	32.57	10.03	9.75	7.83	7.93	13.05	19.21	-3.85	13.93
OWCRS Policy Index			3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	12.67	17.53	-4.95	12.96
Difference			-0.60	-0.60	-1.90	-1.26	0.58	0.64	0.73	0.21	0.38	1.68	1.10	0.97
OWCRS Actual Allocation Index			3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	13.22	20.53	-3.71	14.38
Difference			-1.13	-1.13	-3.64	-3.29	-1.19	-0.88	-0.76	-0.56	-0.17	-1.32	-0.14	-0.45
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Difference			0.91	0.91	11.99	25.57	3.03	2.75	0.83	0.93	6.05	12.21	-10.85	6.93



Oklahoma State Pension Commission All Plans Summary Asset Allocation & Performance - Gross of Fees

	Allocation	1						Performa	ance (%)					
	Market	%	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017
Oldeberge Otata Barraian Occurriation	Value (\$)	400.00				Year	Years	Years	Years	Years				
Oklahoma State Pension Commission	40,865,238,601	100.00												
All Public Plans-Total Fund Median			3.14	3.14	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30
OTRS (Teachers) Total Fund	20,578,884,930	50.36	4.48	4.48	24.18	39.85	10.79	11.62	8.65	9.67	13.45	19.83	-4.98	16.20
OTRS Policy Index			3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	15.02	21.09	-5.12	14.05
Difference			0.67	0.67	0.88	-2.07	-0.75	0.33	0.17	0.75	-1.57	-1.26	0.14	2.15
OTRS Actual Allocation Index			4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	16.40	18.94	-4.70	14.35
Difference			0.30	0.30	0.34	-1.75	-0.73	0.01	-0.22	0.34	-2.95	0.89	-0.28	1.85
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Difference			2.77	2.77	18.97	32.85	3.79	4.62	1.65	2.67	6.45	12.83	-11.98	9.20
Rank			9	9	8	15	27	11	24	6	38	33	71	33
OPERS (Public Employees) Total Fund	11,934,694,337	29.21	2.91	2.91	21.17	38.22	10.80	10.86	8.53	8.86	15.34	21.38	-6.48	17.13
OPERS Policy Index			2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	15.06	21.46	-6.09	16.86
Difference			0.63	0.63	1.01	1.02	0.12	0.07	0.07	0.28	0.28	-0.08	-0.39	0.27
OPERS Actual Allocation Index			2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	14.72	20.87	-6.49	16.51
Difference			0.28	0.28	0.71	1.23	0.40	0.31	0.23	0.50	0.62	0.51	0.01	0.62
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Difference			1.32	1.32	16.33	31.72	4.30	4.36	2.03	2.36	8.84	14.88	-12.98	10.63
Rank			58	58	32	26	26	29	29	26	19	12	93	17
OFPRS (Firefighters) Total Fund	3,537,854,799	8.66	3.70	3.70	24.69	41.12	12.43	12.70	10.22	10.09	18.44	20.15	-2.46	18.67
OFPRS Policy Index			3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	13.84	21.76	-3.80	16.41
Difference			-0.07	-0.07	3.21	4.49	0.70	1.13	0.65	0.20	4.60	-1.61	1.34	2.26
OFPRS Actual Allocation Index			3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	14.51	20.30	-3.93	15.64
Difference			0.38	0.38	3.69	4.81	1.40	1.30	1.29	0.80	3.93	-0.15	1.47	3.03
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			1.88	1.88	19.12	33.62	4.93	5.20	2.72	2.59	10.94	12.65	-9.96	11.17
Rank			29	29	6	11	3	2	2	3	5	28	18	5



Oklahoma State Pension Commission All Plans Summary Asset Allocation & Performance - Gross of Fees

	Allocation							Performa	ance (%)					
	Market	%	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017
	Value (\$)		•			Year	Years	Years	Years	Years				
OPPRS (Police) Total Fund	3,081,893,070	7.54	4.47	4.47	21.28	32.20	9.67	9.99	7.76	8.04	12.54	15.68	-2.46	13.40
OPPRS Policy Index			2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	12.33	18.96	-5.34	15.45
Difference			1.86	1.86	3.33	0.08	0.36	0.37	0.63	0.22	0.21	-3.28	2.88	-2.05
OPPRS Actual Allocation Index			2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	20.17	15.02	-3.70	13.78
Difference			2.13	2.13	3.70	1.22	-1.06	-0.49	-0.12	0.04	-7.63	0.66	1.24	-0.38
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			2.65	2.65	15.71	24.70	2.17	2.49	0.26	0.54	5.04	8.18	-9.96	5.90
Rank			9	9	30	63	53	58	59	58	51	85	18	82
OLERS (Law Enforcement) Total Fund	1,183,155,373	2.90	4.54	4.54	21.68	35.42	9.48	10.18	7.83	8.22	12.03	17.70	-4.55	14.71
OLERS Policy Index			3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	12.77	19.12	-3.67	13.36
Difference			0.93	0.93	2.13	0.77	-0.95	-0.19	-0.52	-0.44	-0.74	-1.42	-0.88	1.35
OLERS Actual Allocation Index			3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	14.70	17.33	-3.47	14.63
Difference			0.63	0.63	0.73	0.80	-1.15	-0.35	-0.66	-0.33	-2.67	0.37	-1.08	0.08
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Difference			2.72	2.72	16.11	27.92	1.98	2.68	0.33	0.72	4.53	10.20	-12.05	7.21
Rank			8	8	25	42	60	51	55	50	58	62	59	62
OURSJJ (Judges) Total Fund	412,623,769	1.01	2.70	2.70	20.79	37.34	10.73	10.83	8.46	8.62	15.10	21.40	-6.38	16.89
OURSJJ Policy Index			2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	15.06	21.51	-6.09	16.86
Difference			0.42	0.42	0.63	0.14	0.04	0.03	-0.01	0.03	0.04	-0.11	-0.29	0.03
OURSJJ Actual Allocation Index			2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	14.47	21.01	-6.52	16.63
Difference			0.07	0.07	0.32	0.68	0.40	0.33	0.28	0.24	0.63	0.39	0.14	0.26
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Difference			1.11	1.11	15.95	30.84	4.23	4.33	1.96	2.12	8.60	14.90	-12.88	10.39
Rank			66	66	37	30	28	31	32	36	22	11	92	21
OWCRS (Wildlife) Total Fund	136,132,323	0.33	2.70	2.70	17.48	33.01	10.29	9.99	8.05	8.15	13.39	19.46	-3.68	14.13
OWCRS Policy Index			3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	12.67	17.53	-4.95	12.96
Difference			-0.52	-0.52	-1.62	-0.82	0.84	0.88	0.95	0.43	0.72	1.93	1.27	1.17
OWCRS Actual Allocation Index			3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	13.22	20.53	-3.71	14.38
Difference			-1.05	-1.05	-3.36	-2.85	-0.93	-0.64	-0.54	-0.34	0.17	-1.07	0.03	-0.25
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Difference			0.99	0.99	12.27	26.01	3.29	2.99	1.05	1.15	6.39	12.46	-10.68	7.13
Rank			66	66	77	58	40	57	48	52	39	38	41	71

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



Oklahoma State Pension Commission All Plans Summary Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
US Equity												
	0.04	0.04	00.55	00.50	40.04	45.00	44.00	10.11	45.40	07.04		00.50
OTRS US Equity	8.81	8.81	38.77	69.78	13.94	15.03	11.38	12.44	15.40	27.64	-8.27	20.72
S&P 500 Index (Cap Wtd)	6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	18.40	31.49	-4.38	21.83
Difference	2.64	2.64	9.06	13.43	-2.84	-1.26	-2.21	-1.47	-3.00	-3.85	-3.89	-1.11
OPERS US Equity	7.61	7.61	35.61	66.81	16.29	16.34	12.99	13.67	20.37	29.26	-6.45	21.27
OPERS US Equity Custom Index	6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	20.97	30.56	-5.70	20.71
Difference	0.67	0.67	0.39	1.35	-0.72	-0.32	-0.36	-0.08	-0.60	-1.30	-0.75	0.56
OFPRS US Equity	7.08	7.08	37.79	71.59	18.70	18.11	14.08	14.11	25.88	31.42	-4.97	22.94
Russell 3000 Index	6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	20.89	31.02	-5.24	21.13
Difference	0.73	0.73	4.60	9.06	1.58	1.47	0.64	0.32	4.99	0.40	0.27	1.81
OLERS US Equity	9.97	9.97	42.49	76.57	16.84	17.44	13.01	13.52	19.60	32.84	-8.58	21.40
S&P 500 Index (Cap Wtd)	6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	18.40	31.49	-4.38	21.83
Difference	3.80	3.80	12.78	20.22	0.06	1.15	-0.58	-0.39	1.20	1.35	-4.20	-0.43
OURSJJ US Equity	7.08	7.08	35.49	65.76	17.01	16.67	13.33	13.67	21.02	30.49	-5.83	20.57
OURSJJ US Equity Custom Index	6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	20.97	30.56	-5.70	20.71
Difference	0.14	0.14	0.27	0.30	0.00	0.01	-0.02	-0.08	0.05	-0.07	-0.13	-0.14
OWCRS US Equity	6.74	6.74	29.80	57.06	15.35	15.85	12.67	13.23	18.87	28.92	-5.64	22.16
Russell 3000 Index	6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	20.89	31.02	-5.24	21.13
Difference	0.39	0.39	-3.39	-5.47	-1.77	-0.79	-0.77	-0.56	-2.02	-2.10	-0.40	1.03



Oklahoma State Pension Commission All Plans Summary Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
International Equity												
OTRS International Equity	4.82	4.82	32.56	56.32	5.85	9.80	5.81	6.23	12.13	21.38	-16.32	31.43
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	1.33	1.33	3.89	6.91	-0.66	0.04	0.55	1.30	1.48	-0.13	-2.12	4.24
OPERS International Equity	3.40	3.40	29.48	51.19	7.66	10.17	5.94	5.78	12.30	23.21	-13.81	27.32
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	-0.09	-0.09	0.81	1.78	1.15	0.41	0.68	0.85	1.65	1.70	0.39	0.13
OFPRS International Equity	1.31	1.31	32.47	55.20	13.31	15.27	10.41	7.71	32.50	27.22	-13.23	36.00
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	-2.18	-2.18	3.80	5.79	6.80	5.51	5.15	2.78	21.85	5.71	0.97	8.81
OLERS International Equity	4.25	4.25	30.06	52.86	7.85	10.56	6.60	5.63	12.57	23.97	-14.43	30.46
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	0.76	0.76	1.39	3.45	1.34	0.80	1.34	0.70	1.92	2.46	-0.23	3.27
OURSJJ International Equity	3.58	3.58	28.80	49.73	6.83	10.04	5.52	5.18	10.86	21.83	-13.97	27.54
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	0.09	0.09	0.13	0.32	0.32	0.28	0.26	0.25	0.21	0.32	0.23	0.35
OWCRS International Equity	3.11	3.11	28.90	52.30	6.21	10.05	5.51	5.36	10.17	23.05	-13.82	29.05
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19
Difference	-0.38	-0.38	0.23	2.89	-0.30	0.29	0.25	0.43	-0.48	1.54	0.38	1.86
Total Equity												
· ·												
OPPRS Total Equity	6.85	6.85	33.29	52.23	13.38	13.41	10.27	10.17	18.46	21.98	-5.24	18.31
MSCI ACW Index (USD) (Net)	4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	16.25	26.60	-9.42	23.97
Difference	2.28	2.28	3.61	-2.37	1.31	0.20	0.87	1.03	2.21	-4.62	4.18	-5.66



Oklahoma State Pension Commission All Plans Summary

Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017
Fixed Income				Year	Years	Years	Years	Years				
rixed income												
OTRS Fixed Income	-4.54	-4.54	-0.34	5.86	6.11	5.36	4.62	5.34	11.91	11.84	-1.44	6.44
Bloomberg US Unv Bond Index	-3.05	-3.05	-0.83	2.95	4.86	3.59	3.57	3.77	7.58	9.29	-0.25	4.09
Difference	-1.49	-1.49	0.49	2.91	1.25	1.77	1.05	1.57	4.33	2.55	-1.19	2.35
OPERS Fixed Income	-4.37	-4.37	-2.67	0.68	5.64	3.76	4.02	4.29	10.54	10.12	-0.33	4.42
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	-0.99	-0.99	-0.54	-0.03	0.99	0.66	0.71	0.85	3.03	1.40	-0.34	0.88
OFPRS Fixed Income	-3.38	-3.38	2.80	9.62	2.67	3.09	3.10	3.77	8.41	7.22	-2.41	7.09
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	0.00	0.00	4.93	8.91	-1.98	-0.01	-0.21	0.33	0.90	-1.50	-2.42	3.55
OPPRS Fixed Income	-0.69	-0.69	4.30	9.53	4.26	4.10	2.79	N/A	6.63	7.24	-0.21	5.37
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	2.69	2.69	6.43	8.82	-0.39	1.00	-0.52	N/A	-0.88	-1.48	-0.22	1.83
OLERS Fixed Income	-3.06	-3.06	-1.19	2.15	3.00	3.10	2.90	3.57	5.62	6.12	0.30	4.37
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	0.32	0.32	0.94	1.44	-1.65	0.00	-0.41	0.13	-1.89	-2.60	0.29	0.83
OURSJJ Fixed Income	-4.46	-4.46	-2.84	0.42	5.60	3.71	3.98	4.28	10.58	10.06	-0.32	4.37
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	-1.08	-1.08	-0.71	-0.29	0.95	0.61	0.67	0.84	3.07	1.34	-0.33	0.83
OWCRS Fixed Income	-2.03	-2.03	0.91	4.28	5.24	3.17	3.20	3.32	8.29	7.94	0.76	3.02
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54
Difference	1.35	1.35	3.04	3.57	0.59	0.07	-0.11	-0.12	0.78	-0.78	0.75	-0.52



Oklahoma State Pension Commission All Plans Summary

Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	. 1	3	5	7	10	2020	2019	2018	2017
				Year	Years	Years	Years	Years				
Real Estate												
OTRS Real Estate	0.59	0.59	-0.30	-2.62	2.88	4.67	N/A	N/A	-2.48	5.59	7.43	6.47
NCREIF Property Index	1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	1.60	6.42	6.72	6.96
Difference	-1.13	-1.13	-3.94	-5.23	-2.01	-1.14	N/A	N/A	-4.08	-0.83	0.71	-0.49
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66
Difference	-1.30	-1.30	-3.58	-4.09	-1.08	-0.59	N/A	N/A	-2.82	1.20	0.07	-0.19
OPERS Real Estate	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	-8.51	2.90	1.12	-2.11
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66
Difference	0.09	0.09	0.57	-9.66	-5.66	-4.55	N/A	N/A	-8.85	-1.49	-6.24	-8.77
OFPRS Real Estate	1.74	1.74	1.21	0.21	4.44	6.10	8.21	8.76	0.18	4.69	9.39	8.02
NCREIF Property Index	1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	1.60	6.42	6.72	6.96
Difference	0.02	0.02	-2.43	-2.40	-0.45	0.29	0.59	-0.06	-1.42	-1.73	2.67	1.06
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66
Difference	-0.15	-0.15	-2.07	-1.26	0.48	0.84	0.93	0.09	-0.16	0.30	2.03	1.36
OLERS Real Estate	1.46	1.46	2.45	0.20	1.95	3.80	3.85	5.17	-0.12	2.76	3.23	5.55
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66
Difference	-0.43	-0.43	-0.83	-1.27	-2.01	-1.46	-3.43	-3.50	-0.46	-1.63	-4.13	-1.11
Real Assets												
Near Assets												
OPPRS Real Assets	2.25	2.25	3.19	0.69	2.06	4.10	3.79	4.27	-1.07	3.52	3.55	5.71
OPPRS Real Assets Blended Benchmark	1.89	1.89	3.28	1.47	2.13	4.05	1.42	4.48	0.34	4.43	0.98	5.05
Difference	0.36	0.36	-0.09	-0.78	-0.07	0.05	2.37	-0.21	-1.41	-0.91	2.57	0.66



Oklahoma State Pension Commission All Plans Summary Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
Hedge Funds												
OFPRS Hedge Fund	10.57	10.57	16.99	6.21	1.62	3.91	2.26	2.91		3.52		10.18
HFRI FOF: Cnsvt Index	3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	6.47	6.30	-0.87	4.12
Difference	6.88	6.88	4.31	-12.75	-3.36	-0.83	-1.11	-0.27	-11.09	-2.78	-1.99	6.06
OPPRS Long/Short Equity	1.33	1.33	22.35	35.63	10.86	10.01	7.43	7.00	22.33	16.34	-4.94	11.59
MSCI ACW Index (USD) (Net)	4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	16.25	26.60	-9.42	23.97
Difference	-3.24	-3.24	-7.33	-18.97	-1.21	-3.20	-1.97	-2.14	6.08	-10.26	4.48	-12.38
HFRI FOF: Strategic Index	1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	14.62	10.52	-6.67	11.22
Difference	-0.28	-0.28	3.19	3.49	4.70	3.12	2.94	3.05	7.71	5.82	1.73	0.37
OLERS Long/Short Equity	5.85	5.85	18.48	26.26	6.38	7.65	5.42	5.63	8.08	12.36	-5.53	11.66
MSCI ACW Index (USD) (Net)	4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	16.25	26.60	-9.42	23.97
Difference	1.28	1.28	-11.20	-28.34	-5.69	-5.56	-3.98	-3.51	-8.17	-14.24	3.89	-12.31
HFRI FOF: Strategic Index	1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	14.62	10.52	-6.67	11.22
Difference	4.24	4.24	-0.68	-5.88	0.22	0.76	0.93	1.68	-6.54	1.84	1.14	0.44



Oklahoma State Pension Commission All Plans Summary Asset Class Performance - Net of Fees

						Performa	ance (%)					
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017
Private Equity												
OTRS Private Equity	2.17	2.17	18.42	17.92	20.31	17.72	16.18	15.24	17.27	17.73	23.03	13.89
R 2000 Index+4%	13.81	13.81	59.99	102.64	19.35	21.01	15.49	16.15	24.76	30.55	-7.45	19.23
Difference	-11.64	-11.64	-41.57	-84.72	0.96	-3.29	0.69	-0.91	-7.49	-12.82	30.48	-5.34
OFPRS Private Equity	11.54	11.54	22.41	16.04	13.66	13.32	15.40	N/A	7.49	6.45	18.91	19.03
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01
Difference	11.54	11.54	-0.76	-18.54	-0.32	-1.96	2.60	N/A	-13.83	-7.43	8.72	1.02
OPPRS Private Equity	10.37	10.37	33.20	25.07	16.43	13.38	13.11	12.44	15.87	10.51	15.22	9.65
MSCI ACW Index (USD) (Net)	4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	16.25	26.60	-9.42	23.97
Difference	5.80	5.80	3.52	-29.53	4.36	0.17	3.71	3.30	-0.38	-16.09	24.64	-14.32
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01
Difference	10.37	10.37	10.03	-9.51	2.45	-1.90	0.31	-0.90	-5.45	-3.37	5.03	-8.36
OLERS Private Equity	4.98	4.98	19.59	12.83	10.66	9.40	10.55	10.39	8.91	6.84	15.45	7.59
S&P 500 Index+5%	7.48	7.48	34.54	64.17	22.62	22.11	19.27	19.61	24.32	38.06	0.40	27.92
Difference	-2.50	-2.50	-14.95	-51.34	-11.96	-12.71	-8.72	-9.22	-15.41	-31.22	15.05	-20.33
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01
Difference	4.98	4.98	-3.58	-21.75	-3.32	-5.88	-2.25	-2.95	-12.41	-7.04	5.26	-10.42
Other Alternatives												
OWCRS Alternative Investments	2.70	2.70	13.87	25.85	4.93	5.98	3.40	3.06	2.14	15.31	-6.07	9.36
OWCRS Alternatives Custom Index	2.00	2.00	14.96	23.99	5.47	5.67	N/A	N/A	10.88	8.38	-4.02	7.06
Difference	0.70	0.70	-1.09	1.86	-0.54	0.31	N/A	N/A	-8.74	6.93	-2.05	2.30



	Performance (%)													
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017		
US Equity														
OTRS US Equity	8.85	8.85	38.95	70.07	14.24	15.40	11.69	12.66	15.62	28.03	-7.94	21.17		
S&P 500 Index (Cap Wtd)	6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	18.40	31.49	-4.38	21.83		
Difference	2.68	2.68	9.24	13.72	-2.54	-0.89	-1.90	-1.25	-2.78	-3.46	-3.56	-0.66		
OPERS US Equity	7.62	7.62	35.76	67.02	16.44	16.47	13.11	13.78	20.53	29.50	-6.38	21.39		
OPERS US Equity Custom Index	6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	20.97	30.56	-5.70	20.71		
Difference	0.68	0.68	0.54	1.56	-0.57	-0.19	-0.24	0.03	-0.44	-1.06	-0.68	0.68		
OFPRS US Equity	7.08	7.08	37.79	71.61	18.71	18.12	14.09	14.12	25.89	31.43	-4.96	22.96		
Russell 3000 Index	6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	20.89	31.02	-5.24	21.13		
Difference	0.73	0.73	4.60	9.08	1.59	1.48	0.65	0.33	5.00	0.41	0.28	1.83		
OLERS US Equity	9.97	9.97	42.49	76.58	16.85	17.44	13.02	13.52	19.61	32.84	-8.56	21.40		
S&P 500 Index (Cap Wtd)	6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	18.40	31.49	-4.38	21.83		
Difference	3.80	3.80	12.78	20.23	0.07	1.15	-0.57	-0.39	1.21	1.35	-4.18	-0.43		
OURSJJ US Equity	7.08	7.08	35.49	65.77	17.02	16.68	13.34	13.69	21.03	30.51	-5.81	20.58		
OURSJJ US Equity Custom Index	6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	20.97	30.56	-5.70	20.71		
Difference	0.14	0.14	0.27	0.31	0.01	0.02	-0.01	-0.06	0.06	-0.05	-0.11	-0.13		
OWCRS US Equity	6.78	6.78	29.98	57.29	15.63	16.14	12.92	13.43	19.18	29.17	-5.38	22.45		
Russell 3000 Index	6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	20.89	31.02	-5.24	21.13		
Difference	0.43	0.43	-3.21	-5.24	-1.49	-0.50	-0.52	-0.36	-1.71	-1.85	-0.14	1.32		



	Performance (%)												
_	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017	
	Q15	0115		Year	Years	Years	Years	Years		2010	2010		
International Equity													
OTRS International Equity	4.93	4.93	32.95	56.96	6.34	10.32	6.28	6.72	12.61	21.95	-15.88	32.00	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	1.44	1.44	4.28	7.55	-0.17	0.56	1.02	1.79	1.96	0.44	-1.68	4.81	
OPERS International Equity	3.43	3.43	29.68	51.46	7.81	10.35	6.12	5.95	12.53	23.34	-13.69	27.54	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	-0.06	-0.06	1.01	2.05	1.30	0.59	0.86	1.02	1.88	1.83	0.51	0.35	
OFPRS International Equity	1.31	1.31	32.47	55.20	13.31	15.27	10.43	7.74	32.50	27.22	-13.23	36.00	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	-2.18	-2.18	3.80	5.79	6.80	5.51	5.17	2.81	21.85	5.71	0.97	8.81	
OLERS International Equity	4.34	4.34	30.48	53.47	8.29	11.04	7.08	5.50	13.02	24.39	-14.03	31.05	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	0.85	0.85	1.81	4.06	1.78	1.28	1.82	0.57	2.37	2.88	0.17	3.86	
OURSJJ International Equity	3.58	3.58	28.82	49.75	6.85	10.08	5.56	5.22	10.87	21.86	-13.93	27.58	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	0.09	0.09	0.15	0.34	0.34	0.32	0.30	0.29	0.22	0.35	0.27	0.39	
OWCRS International Equity	3.25	3.25	29.46	53.18	6.91	10.85	6.19	5.83	10.82	23.86	-13.14	30.11	
MSCI ACW Ex US Index (USD) (Net)	3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	10.65	21.51	-14.20	27.19	
Difference	-0.24	-0.24	0.79	3.77	0.40	1.09	0.93	0.90	0.17	2.35	1.06	2.92	
Total Equity													
OPPRS Total Equity	6.92	6.92	33.60	52.67	13.74	13.79	10.64	10.54	18.81	22.38	-4.91	18.72	
MSCI ACW Index (USD) (Net)	4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	16.25	26.60	-9.42	23.97	
Difference	2.35	2.35	3.92	-1.93	1.67	0.58	1.24	1.40	2.56	-4.22	4.51	-5.25	





	Performance (%)												
	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017	
Fired by a con-				Year	Years	Years	Years	Years					
Fixed Income													
OTRS Fixed Income	-4.49	-4.49	-0.20	6.06	6,32	5.58	4.85	5 5 7	12.11	12.05	-1.23	6.60	
Bloomberg US Unv Bond Index		-3.05	-0.20	6.06	4.86			5.57 3.77	7.58			6.68	
	-3.05			2.95		3.59	3.57			9.29	-0.25	4.09	
Difference	-1.44	-1.44	0.63	3.11	1.46	1.99	1.28	1.80	4.53	2.76	-0.98	2.59	
OPERS Fixed Income	-4.36	-4.36	-2.60	0.79	5.74	3.85	4.11	4.39	10.65	10.19	-0.24	4.49	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	-0.98	-0.98	-0.47	0.08	1.09	0.75	0.80	0.95	3.14	1.47	-0.25	0.95	
OFPRS Fixed Income	-3.38	-3.38	2.80	9.62	2.67	3.09	3.11	3.79	8.41	7.22	-2.41	7.10	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	0.00	0.00	4.93	8.91	-1.98	-0.01	-0.20	0.35	0.90	-1.50	-2.42	3.56	
OPPRS Fixed Income	-0.62	-0.62	4.54	9.87	4.68	4.54	3.26	4.02	6.98	7.74	0.24	5.84	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	2.76	2.76	6.67	9.16	0.03	1.44	-0.05	0.58	-0.53	-0.98	0.23	2.30	
OLERS Fixed Income	-3.03	-3.03	-1.11	2.25	3.13	3.19	2.96	3.61	5.73	6.27	0.44	4.38	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	0.35	0.35	1.02	1.54	-1.52	0.09	-0.35	0.17	-1.78	-2.45	0.43	0.84	
OURSJJ Fixed Income	-4.45	-4.45	-2.77	0.52	5.70	3.80	4.06	4.38	10.70	10.14	-0.23	4.45	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	-1.07	-1.07	-0.64	-0.19	1.05	0.70	0.75	0.94	3.19	1.42	-0.24	0.91	
OWCRS Fixed Income	-1.96	-1.96	1.15	4.62	5.35	3.24	3.25	3.36	8.56	7.94	0.76	3.02	
Bloomberg US Agg Bond Index	-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	7.51	8.72	0.01	3.54	
Difference	1.42	1.42	3.28	3.91	0.70	0.14	-0.06	-0.08	1.05	-0.78	0.75	-0.52	



	Performance (%)													
	QTD	CYTD	FYTD	1	3	5	7	10	2020	2019	2018	2017		
	Q.D	0115		Year	Years	Years	Years	Years			2010	2017		
Real Estate														
OTRS Real Estate	0.65	0.65	-0.13	-2.39	3.07	4.85	N/A	N/A	-2.27	5.77	7.60	6.65		
NCREIF Property Index	1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	1.60	6.42	6.72	6.96		
Difference	-1.07	-1.07	-3.77	-5.00	-1.82	-0.96	N/A	N/A	-3.87	-0.65	0.88	-0.31		
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66		
Difference	-1.24	-1.24	-3.41	-3.86	-0.89	-0.41	N/A	N/A	-2.61	1.38	0.24	-0.01		
OPERS Real Estate	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	-8.51	2.90	1.12	-2.11		
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66		
Difference	0.09	0.09	0.57	-9.66	-5.66	-4.55	N/A	N/A	-8.85	-1.49	-6.24	-8.77		
OFPRS Real Estate	1.74	1.74	1.21	0.21	4.44	6.10	8.29	8.81	0.18	4.69	9.39	8.02		
NCREIF Property Index	1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	1.60	6.42	6.72	6.96		
Difference	0.02	0.02	-2.43	-2.40	-0.45	0.29	0.67	-0.01	-1.42	-1.73	2.67	1.06		
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66		
Difference	-0.15	-0.15	-2.07	-1.26	0.48	0.84	1.01	0.14	-0.16	0.30	2.03	1.36		
OLERS Real Estate	1.69	1.69	3.16	1.11	2.79	4.63	4.69	6.62	0.76	3.58	4.02	6.38		
NCREIF ODCE Index (AWA) (Net)	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	0.34	4.39	7.36	6.66		
Difference	-0.20	-0.20	-0.12	-0.36	-1.17	-0.63	-2.59	-2.05	0.42	-0.81	-3.34	-0.28		
Real Assets														
Real Assets														
OPPRS Real Assets	2.46	2.46	3.75	1.15	2.73	4.83	4.48	5.09	-0.51	4.21	4.30	6.68		
OPPRS Real Assets Blended Benchmark	1.89	1.89	3.28	1.47	2.13	4.05	1.42	4.48	0.34	4.43	0.98	5.05		
Difference	0.57	0.57	0.47	-0.32	0.60	0.78	3.06	0.61	-0.85	-0.22	3.32	1.63		



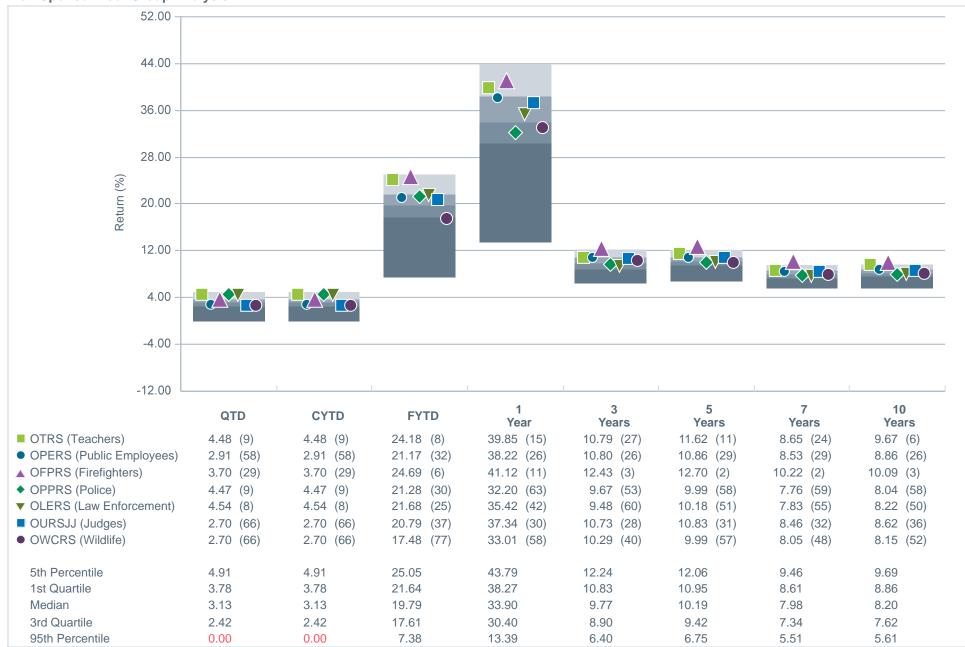
	Performance (%)												
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	
Hedge Funds													
OFPRS Hedge Fund	10.57	10.57	16.99	6.21	1.62	3.91	2.26	2.91	-4.62	3.52	-2.86	10.18	
HFRI FOF: Cnsvt Index	3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	6.47	6.30	-0.87	4.12	
Difference	6.88	6.88	4.31	-12.75	-3.36	-0.83	-1.11	-0.27	-11.09	-2.78	-1.99	6.06	
OPPRS Long/Short Equity	1.35	1.35	22.49	35.89	11.25	10.44	7.87	7.45	22.68	16.85	-4.52	12.10	
HFRI FOF: Strategic Index	1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	14.62	10.52	-6.67	11.22	
Difference	-0.26	-0.26	3.33	3.75	5.09	3.55	3.38	3.50	8.06	6.33	2.15	0.88	
OLERS Long/Short Equity	5.85	5.85	18.48	26.26	6.38	7.65	5.42	5.63	8.08	12.36	-5.53	11.66	
HFRI FOF: Strategic Index	1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	14.62	10.52	-6.67	11.22	
Difference	4.24	4.24	-0.68	-5.88	0.22	0.76	0.93	1.68	-6.54	1.84	1.14	0.44	



	Performance (%)												
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	
Private Equity													
OTRS Private Equity	2.17	2.17	18.42	17.92	20.31	17.72	16.18	15.24	17.27	17.73	23.03	13.89	
R 2000 Index+4%	13.81	13.81	59.99	102.64	19.35	21.01	15.49	16.15	24.76	30.55	-7.45	19.23	
Difference	-11.64	-11.64	-41.57	-84.72	0.96	-3.29	0.69	-0.91	-7.49	-12.82	30.48	-5.34	
OFPRS Private Equity	11.54	11.54	22.41	16.04	13.66	13.32	15.40	N/A	7.49	6.45	18.91	19.03	
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01	
Difference	11.54	11.54	-0.76	-18.54	-0.32	-1.96	2.60	N/A	-13.83	-7.43	8.72	1.02	
OPPRS Private Equity	10.37	10.37	33.20	25.07	16.43	13.38	13.11	12.44	15.87	10.51	15.22	9.65	
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01	
Difference	10.37	10.37	10.03	-9.51	2.45	-1.90	0.31	-0.90	-5.45	-3.37	5.03	-8.36	
OLERS Private Equity	4.96	4.96	19.58	12.82	10.65	9.40	10.55	10.39	8.91	6.84	15.45	7.59	
Cambridge US Prvt Eq Index	0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	21.32	13.88	10.19	18.01	
Difference	4.96	4.96	-3.59	-21.76	-3.33	-5.88	-2.25	-2.95	-12.41	-7.04	5.26	-10.42	
Other Alternatives													
OWCRS Alternative Investments	2.89	2.89	14.52	26.81	5.19	6.14	3.51	3.14	2.74	15.31	-6.07	9.36	
OWCRS Alternatives Custom Index	2.00	2.00	14.96	23.99	5.47	5.67	N/A	N/A	10.88	8.38	-4.02	7.06	
Difference	0.89	0.89	-0.44	2.82	-0.28	0.47	N/A	N/A	-8.14	6.93	-2.05	2.30	



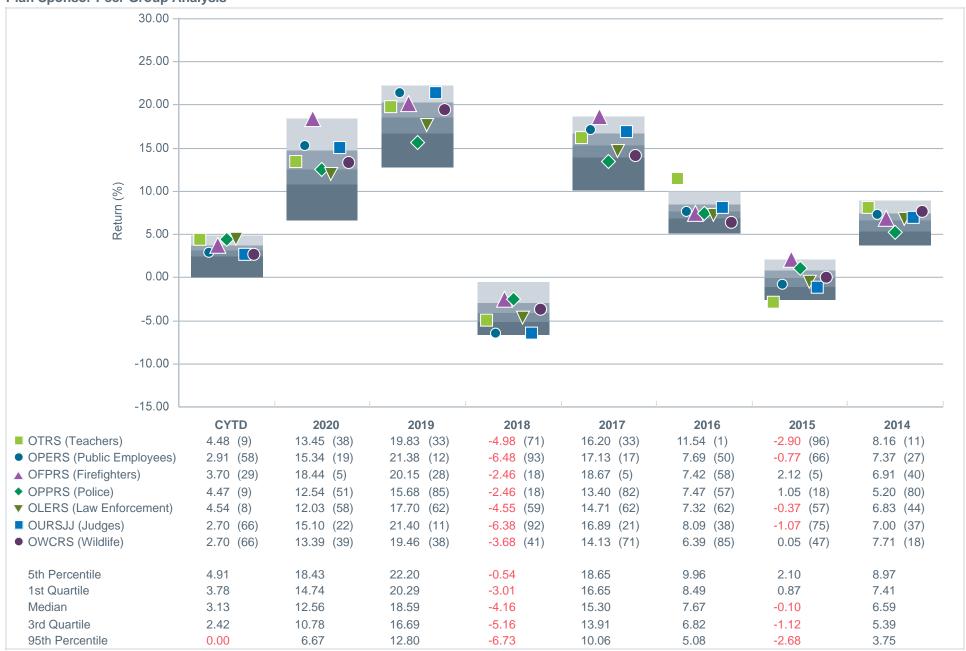
Oklahoma State Pension Commission All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Oklahoma State Pension Commission fiscal year begins on 07/01.



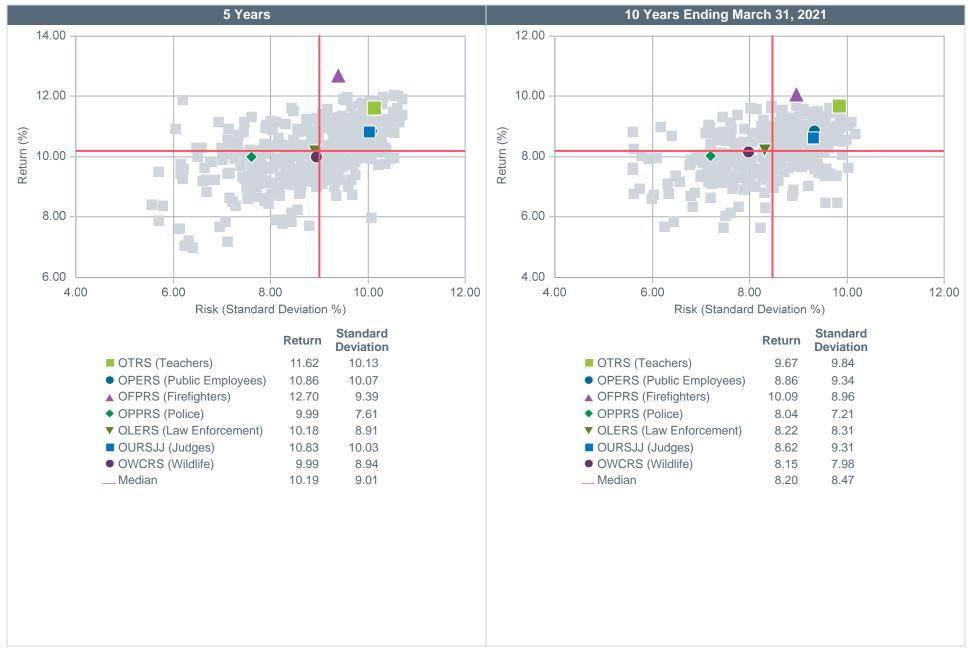
Oklahoma State Pension Commission All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Oklahoma State Pension Commission fiscal year begins on 07/01.



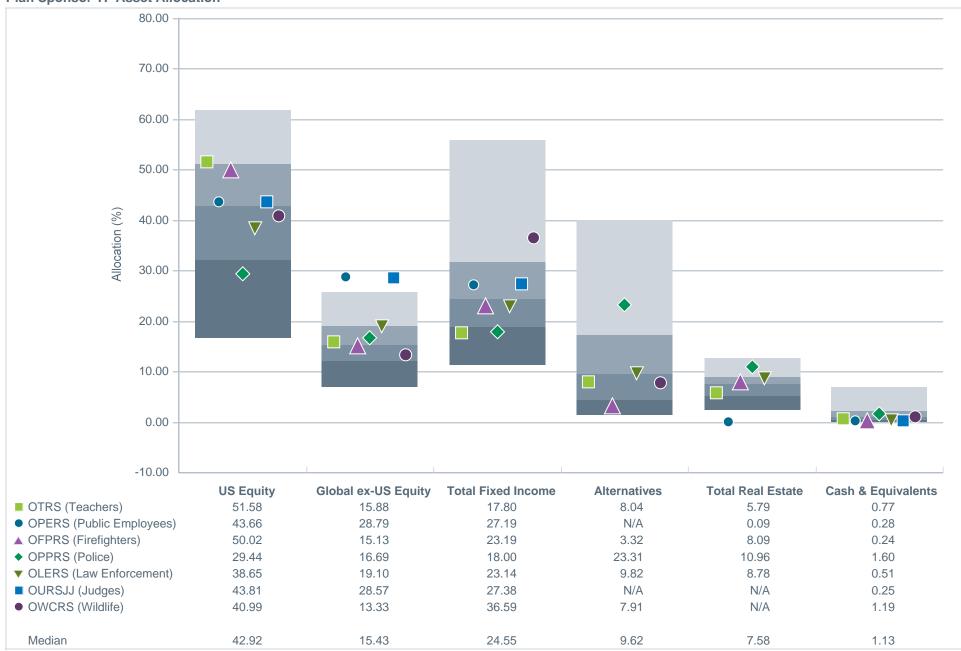
Total Fund Risk & Return vs. All Public Plans-Total Fund



Performance shown is gross of fees. Calculation is based on monthly periodicity.

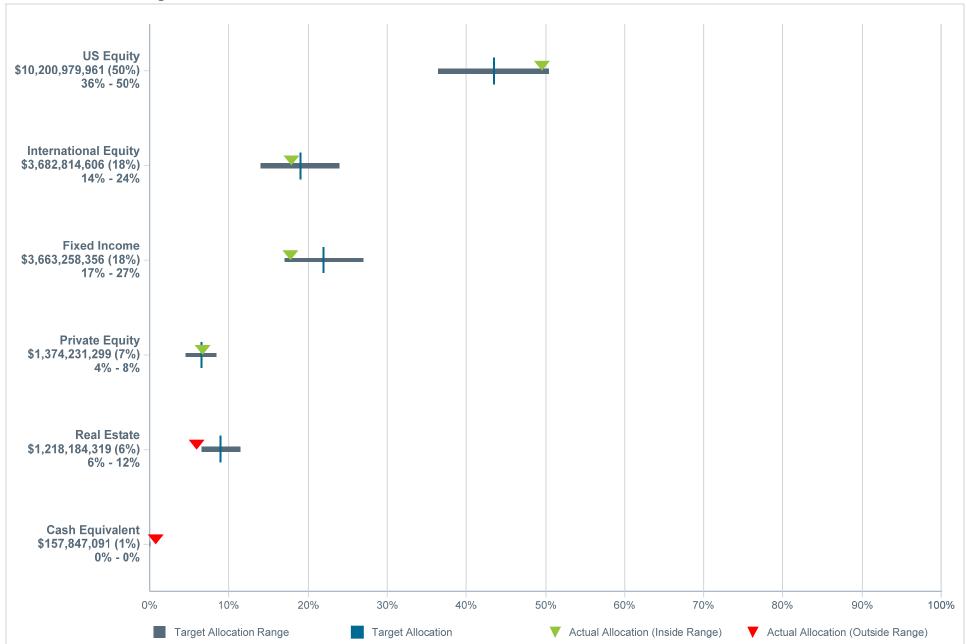


Oklahoma State Pension Commission All Plans Total Fund vs. All Public Plans-Total Fund Plan Sponsor TF Asset Allocation



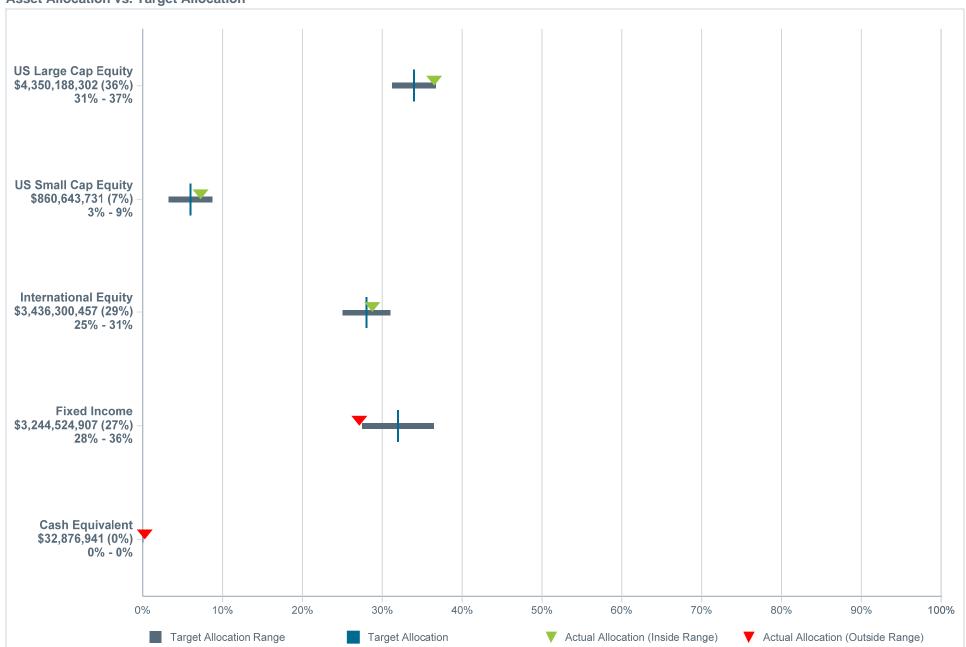
Parentheses contain percentile ranks.





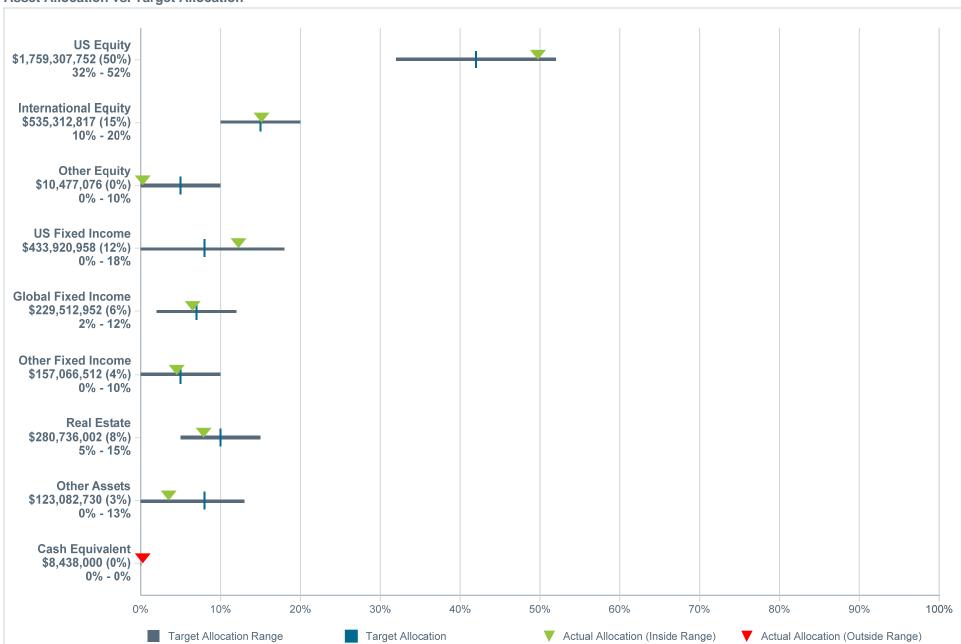
Allocations shown may not sum up to 100% exactly due to rounding. Allocation to Private Equity includes Private Credit. Cash held in short-term investments with the Custodian shall be considered as domestic fixed income for rebalancing purposes.





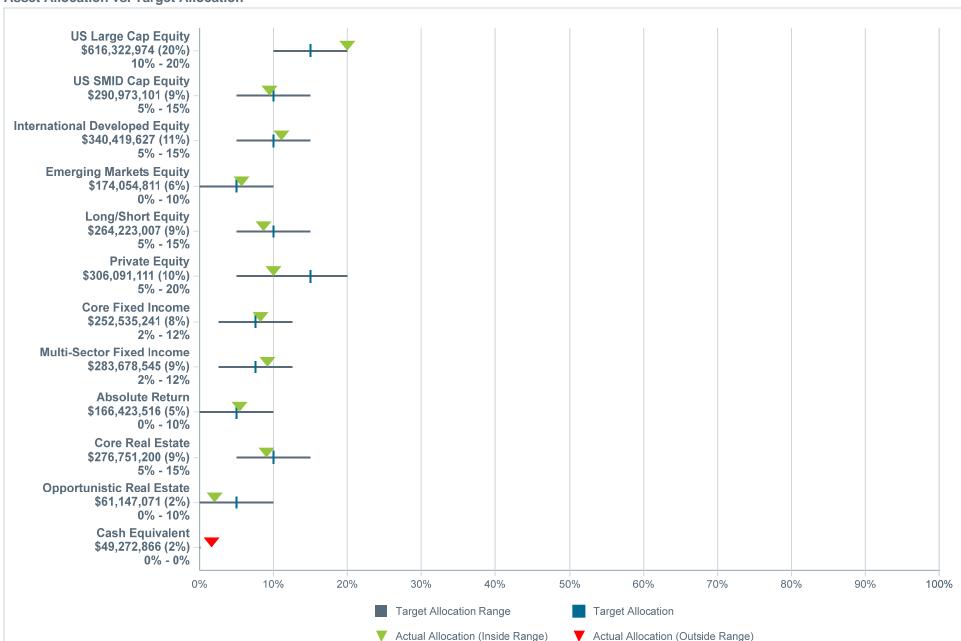
Allocations shown may not sum up to 100% exactly due to rounding. Cash held in short-term investments with the Master Custodian and direct real estate holdings shall be considered as U.S. fixed income for rebalancing purposes.





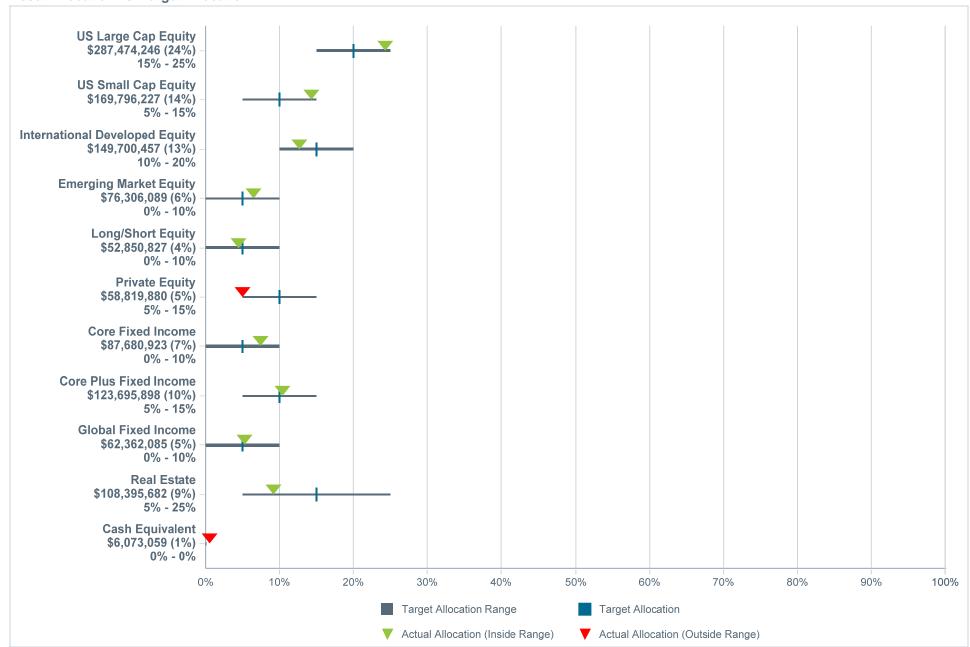
Allocations shown may not sum up to 100% exactly due to rounding. Allocation to Other Equity includes opportunistic equity; Other Fixed Income includes non-core Fixed Income; and Other Assets include Hedge Funds and Private Equity.





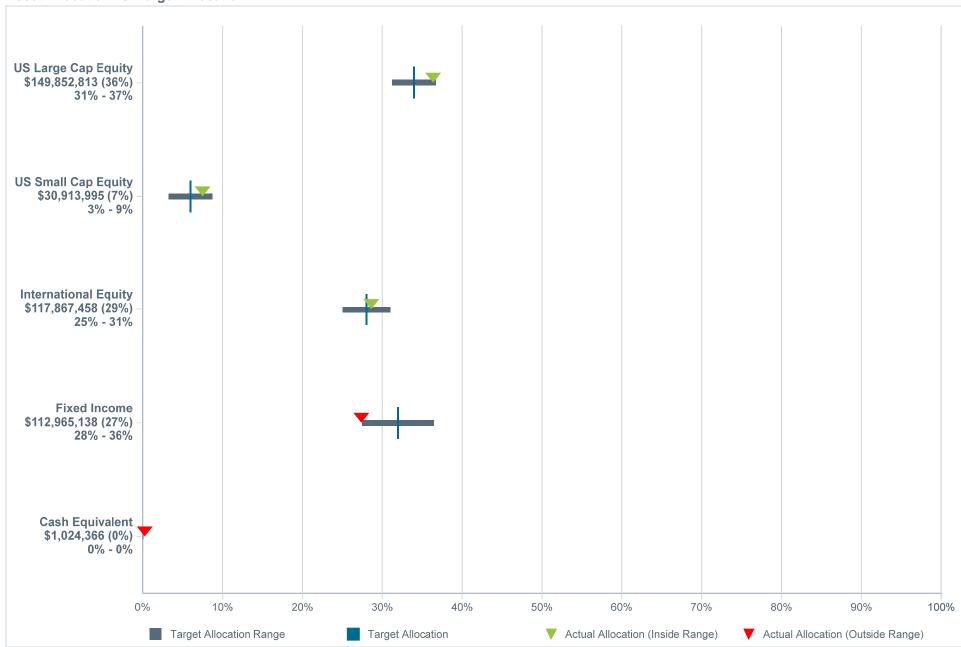






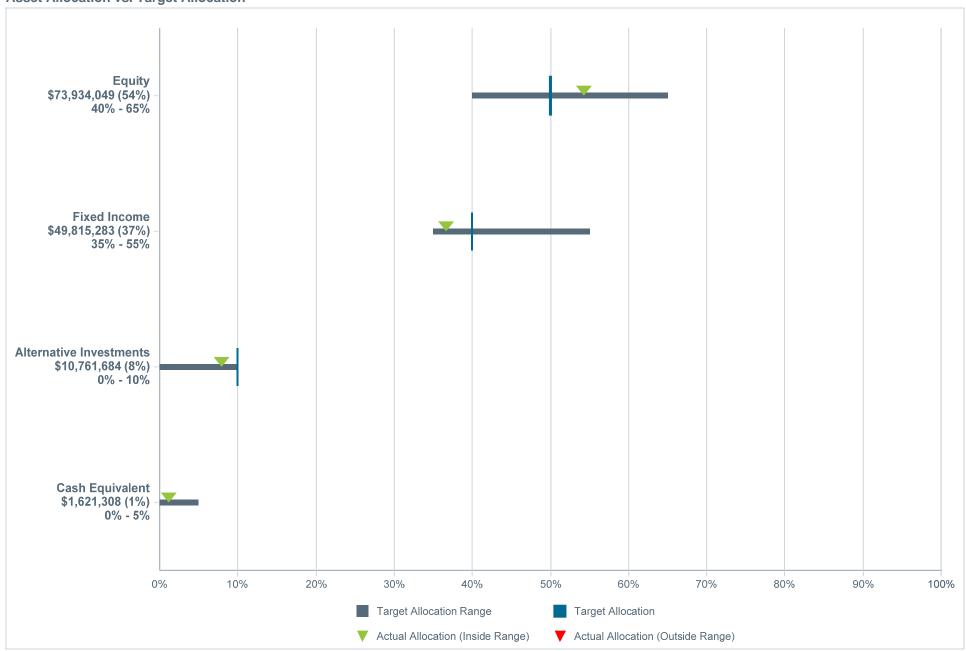
Allocations shown may not sum up to 100% exactly due to rounding. Short term cash reserves shall be considered as fixed income for rebalancing purposes.





Allocations shown may not sum up to 100% exactly due to rounding. Cash held in short-term investments with the Master Custodian and direct real estate holdings shall be considered as U.S. fixed income for rebalancing purposes.









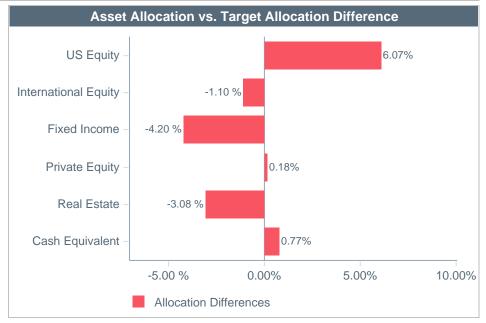
Oklahoma Teachers' Retirement System (OTRS)



Oklahoma State Pension Commission Oklahoma Teachers' Retirement System Total Fund Summary

Performance (%)														
			Trailir	ng						Calenda	r Year			
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	
OTRS Total Fund (Net)	4.43	4.43	24.00	39.58	10.49	11.27	8.27	9.26	13.22	19.48	-5.29	15.83	11.02	
OTRS Policy Index	3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	15.02	21.09	-5.12	14.05	10.61	
Difference	0.62	0.62	0.70	-2.34	-1.05	-0.02	-0.21	0.34	-1.80	-1.61	-0.17	1.78	0.41	
OTRS Actual Allocation Index	4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	16.40	18.94	-4.70	14.35	10.93	
Difference	0.25	0.25	0.16	-2.02	-1.03	-0.34	-0.60	-0.07	-3.18	0.54	-0.59	1.48	0.09	
Actuarial Discount Rate (7.0%)	1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	
Difference	2.72	2.72	18.79	32.58	3.49	4.27	1.27	2.26	6.22	12.48	-12.29	8.83	4.02	
OTRS Total Fund (Gross)	4.48	4.48	24.18	39.85	10.79	11.62	8.65	9.67	13.45	19.83	-4.98	16.20	11.54	
OTRS Policy Index	3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	15.02	21.09	-5.12	14.05	10.61	
Difference	0.67	0.67	0.88	-2.07	-0.75	0.33	0.17	0.75	-1.57	-1.26	0.14	2.15	0.93	
OTRS Actual Allocation Index	4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	16.40	18.94	-4.70	14.35	10.93	
Difference	0.30	0.30	0.34	-1.75	-0.73	0.01	-0.22	0.34	-2.95	0.89	-0.28	1.85	0.61	
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67	
Rank	9	9	8	15	27	11	24	6	38	33	71	33	1	

	Asset Allocation vs. Ta	arget Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OTRS (Teachers)	20,578,884,930	100.00	100.00
US Equity	10,200,979,961	49.57	43.50
International Equity	3,682,814,606	17.90	19.00
Fixed Income	3,663,258,356	17.80	22.00
Private Equity	1,374,231,299	6.68	6.50
Real Estate	1,218,184,319	5.92	9.00
Cash Equivalent	157,847,091	0.77	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation				Perfor	mance (%)						
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OTRS Total Fund	20,578,884,930	100.00	4.43	4.43	24.00	39.58	10.49	11.27	8.27	9.26	9.23	12/01/1991
OTRS Policy Index			3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	9.22	
Difference			0.62	0.62	0.70	-2.34	-1.05	-0.02	-0.21	0.34	0.01	
OTRS Actual Allocation Index			4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	N/A	
Difference			0.25	0.25	0.16	-2.02	-1.03	-0.34	-0.60	-0.07	N/A	
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	
Difference			2.72	2.72	18.79	32.58	3.49	4.27	1.27	2.26	2.23	
US Equity	10,200,979,961	49.57	8.81	8.81	38.77	69.78	13.94	15.03	11.38	12.44	11.16	04/01/1990
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	10.70	
Difference			2.46	2.46	5.58	7.25	-3.18	-1.61	-2.06	-1.35	0.46	
US Active Equity	3,677,776,190	17.87	12.11	12.11	53.02	93.89	15.88	16.32	12.09	12.84	9.48	12/01/1998
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	8.11	
Difference			5.76	5.76	19.83	31.36	-1.24	-0.32	-1.35	-0.95	1.37	
Hotchkis & Wiley Mid Cap Value Equity (SA)	496,220,145	2.41	25.85	25.85	86.84	134.35	5.95	8.76	5.48	9.53	11.01	08/01/2002
Russell Mid Cap Val Index			13.05	13.05	44.86	73.76	10.70	11.60	9.34	11.05	11.00	
Difference			12.80	12.80	41.98	60.59	-4.75	-2.84	-3.86	-1.52	0.01	
Wellington Mid Cap Growth (SA)	751,676,576	3.65	2.34	2.34	29.60	72.27	21.69	20.66	14.10	12.97	11.61	09/01/1998
Russell Mid Cap Grth Index			-0.57	-0.57	29.44	68.61	19.41	18.39	14.37	14.11	10.72	
Difference			2.91	2.91	0.16	3.66	2.28	2.27	-0.27	-1.14	0.89	
Frontier Small Cap Value Equity (SA)	277,316,341	1.35	19.29	19.29	65.24	104.31	9.93	12.02	9.02	N/A	10.71	06/01/2013
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.39	
Difference			-1.88	-1.88	-0.48	7.26	-1.64	-1.54	0.09	N/A	0.32	
Neumeier Poma Small Cap Equity (SA)	329,874,298	1.60	12.00	12.00	46.79	71.63	11.91	15.00	12.49	N/A	13.93	06/01/2013
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	12.47	
Difference			-0.70	-0.70	-8.57	-23.22	-2.85	-1.35	1.44	N/A	1.46	
Shapiro Enhanced Small Cap Equity (SA)	1,170,078,182	5.69	17.01	17.01	69.66	108.66	11.73	16.49	10.54	11.85	10.23	02/01/1998
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	8.77	
Difference			4.31	4.31	14.30	13.81	-3.03	0.14	-0.51	0.17	1.46	
Geneva US Small Cap Growth Equity (SA)	307,679,726	1.50	3.07	3.07	31.33	70.74	18.50	19.47	15.26	N/A	16.35	06/01/2013
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	14.18	
Difference			-1.81	-1.81	-14.32	-19.46	1.34	0.86	2.49	N/A	2.17	



	Allocation						Perfor	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Wasatch Small Cap Core Growth (SA)	344,930,921	1.68	5.74	5.74	42.93	91.68	23.56	22.94	16.90	N/A	16.98	06/01/2013
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	14.18	
Difference			0.86	0.86	-2.72	1.48	6.40	4.33	4.13	N/A	2.80	
US Passive Equity (Cap Wgt)	3,590,458,923	17.45	6.71	6.71	34.36	64.73	17.03	16.00	13.44	N/A	14.50	04/01/2012
Northern Trust Russell 1000 Index (SA)	2,336,752,776	11.36	5.93	5.93	31.81	60.29	17.23	N/A	N/A	N/A	15.53	12/01/2017
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.60	
Difference			0.02	0.02	-0.01	-0.30	-0.08	N/A	N/A	N/A	-0.07	
Northern Trust Russell Mid Cap Index (CF)	1,253,706,147	6.09	8.20	8.20	39.40	73.65	N/A	N/A	N/A	N/A	36.36	03/01/2020
Russell Mid Cap Index			8.14	8.14	39.35	73.64	14.73	14.67	11.65	12.47	36.24	
Difference			0.06	0.06	0.05	0.01	N/A	N/A	N/A	N/A	0.12	
US Passive Equity (Non-Cap Wgt)	2,932,744,840	14.25	7.43	7.43	28.90	51.84	12.32	13.94	11.50	N/A	13.70	04/01/2012
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	14.05	
Difference			-4.06	-4.06	-12.08	-19.77	-2.58	-0.80	-0.63	N/A	-0.35	
SciBeta US High FactorExposure Index (SA)	2,932,744,840	14.25	7.43	7.43	28.90	51.84	12.32	N/A	N/A	N/A	10.90	12/01/2017
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	13.37	
Difference			-4.06	-4.06	-12.08	-19.77	-2.58	N/A	N/A	N/A	-2.47	



International Equity 3,682,814,606 17,90 4,82 4,82 32,56 56,32 5,85 9,80 5,81 6,22 MSCI ACW Ex US IM Index (USD) (Gross) 3,87 3,87 3,87 3,24 52,55 7,01 10,35 5,93 5,55 5,00		Market											
MSCI ACW Ex US IM Index (USD) (Gross)			%	QTD	CYTD	FYTD					10 Years	Since Incep.	Inception Date
Difference	Equity	3,682,814,606	17.90	4.82	4.82	32.56	56.32	5.85	9.80	5.81	6.23	8.08	02/01/1996
Causeway Intl Opportunities (SA) 625,515,329 3.04 6.66 6.66 36.11 61.72 5.32 9.44 4.79 5.81 MSCI ACW Ex US Val Index (USD) (Gross) 7.20 7.20 32.33 49.52 3.02 7.89 3.20 3.65 Difference -0.54 -0.54 -0.54 3.78 12.20 2.30 1.55 1.59 2.26 Allianz Best Styles AC Intl Equity (SA) 1,265,480,912 6.15 5.87 3.0.04 47.25 4.34 N/A	US IM Index (USD) (Gross)			3.87	3.87	30.24	52.55	7.01	10.35	5.93	5.59	5.92	
MSCI ACW Ex US Val Index (USD) (Gross)				0.95	0.95	2.32	3.77	-1.16	-0.55	-0.12	0.64	2.16	
Difference	Opportunities (SA)	625,515,329	3.04	6.66	6.66	36.11	61.72	5.32	9.44	4.79	5.88	8.63	05/01/2003
Allianz Best Styles AC Intl Equity (SA) 1,265,480,912 6.15 5.87 5.87 30.04 47.25 4.34 N/A N/A N/A MSCI ACW Ex US Index (USD) (Gross) 3.60 3.60 29.01 50.03 7.02 10.28 5.75 5.4* Difference 2.27 2.27 1.03 -2.78 -2.68 N/A N/A N/A N/A N/A MSCI ACW Ex US Index (USD) (Gross) 0.00 0.00 25.60 49.76 10.70 12.42 8.13 7.00 Difference 3.17 3.17 4.27 4.31 1.39 N/A N/A N/A N/A MSCI ACW Ex US Grith Index (USD) (Gross) 0.00 0.00 25.60 49.76 10.70 12.42 8.13 7.00 Difference 3.17 3.17 4.27 4.43 1.39 N/A N/A N/A N/A MSCI ACW Ex US Sm Cap Index (USD) (Gross) 414,051,259 2.01 -1.49 -1.49 26.01 57.47 9.28 11.74 9.17 N/A MSCI ACW Ex US Sm Cap Index (USD) (Gross) 5.61 5.61 38.58 70.42 7.02 10.82 7.07 6.7* Difference 7.7.10 -7.10 -12.57 12.95 2.26 0.92 2.10 N/A MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.33 Difference 0.90 0.90 4.39 4.06 4.70 3.666 -3.34 N/A N/A N/A MSCI Emg Mikts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 3.62 9.53 0.76 N/A N/A N/A N/A N/A MSCI Emg Mikts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 3.62 9.53 0.76 N/A N/A N/A N/A N/A MSCI Emg Mikts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 3.62 9.53 0.76 N/A	US Val Index (USD) (Gross)			7.20	7.20	32.33	49.52	3.02	7.89	3.20	3.62	8.10	
MSCI ACW Ex US Index (USD) (Gross) 3.60 29.01 50.03 7.02 10.28 5.75 5.4				-0.54	-0.54	3.78	12.20	2.30	1.55	1.59	2.26	0.53	
Difference 2.27 2.27 1.03 -2.78 -2.68 N/A N/	tyles AC Intl Equity (SA)	1,265,480,912	6.15	5.87	5.87	30.04	47.25	4.34	N/A	N/A	N/A	10.06	07/01/2016
Wellington Intl Quality Growth (SA) 705,499,114 3.43 3.17 29.87 54.19 12.09 N/A N/A N//A MSCI ACW Ex US Grth Index (USD) (Gross) 0.00 0.00 25.60 49.76 10.70 12.42 8.13 7.00 Difference 3.17 3.17 4.27 4.43 1.39 N/A N/A N//A Wasatch International Small Cap Growth (SA) 414,051,259 2.01 -1.49 -1.49 26.01 57.47 9.28 11.74 9.17 N//A MSCI ACW Ex US Sm Cap Index (USD) (Gross) 5.61 5.61 38.58 70.42 7.02 10.82 7.07 6.7 Difference -7.10 -7.10 -7.10 -12.57 -12.95 2.26 0.92 2.10 N//A Wellington International Small Cap Equity (CF) 325,210,267 1.58 5.49 5.49 39.79 66.60 2.02 7.25 4.47 N//A MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 4.59 35.40	US Index (USD) (Gross)			3.60	3.60	29.01	50.03	7.02	10.28	5.75	5.41	10.94	
MSCI ACW Ex US Grth Index (USD) (Gross) 0.00 0.00 25.60 49.76 10.70 12.42 8.13 7.00				2.27	2.27	1.03	-2.78	-2.68	N/A	N/A	N/A	-0.88	
MSCI ACW Ex US Grth Index (USD) (Gross) 0.00 0.00 25.60 49.76 10.70 12.42 8.13 7.00	I Quality Growth (SA)	705,499,114	3.43	3.17	3.17	29.87	54.19	12.09	N/A	N/A	N/A	14.78	07/01/2016
Difference 3.17 3.17 4.27 4.43 1.39 N/A N/A	US Grth Index (USD) (Gross)			0.00	0.00	25.60	49.76	10.70	12.42	8.13	7.06	12.97	
MSCI ACW Ex US Sm Cap Index (USD) (Gross) 5.61 5.61 38.58 70.42 7.02 10.82 7.07 6.7 Difference -7.10 -7.10 -12.57 -12.95 2.26 0.92 2.10 N// Wellington International Small Cap Equity (CF) 325,210,267 1.58 5.49 5.49 39.79 66.60 2.02 7.25 4.47 N// MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.33 Difference 0.90 0.90 4.39 4.06 -4.70 -3.66 -3.34 N// SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N/A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 <t< td=""><td></td><td></td><td></td><td>3.17</td><td>3.17</td><td>4.27</td><td>4.43</td><td>1.39</td><td>N/A</td><td>N/A</td><td>N/A</td><td>1.81</td><td></td></t<>				3.17	3.17	4.27	4.43	1.39	N/A	N/A	N/A	1.81	
MSCI ACW Ex US Sm Cap Index (USD) (Gross) 5.61 5.61 38.58 70.42 7.02 10.82 7.07 6.7 Difference -7.10 -7.10 -12.57 -12.95 2.26 0.92 2.10 N// Wellington International Small Cap Equity (CF) 325,210,267 1.58 5.49 5.49 39.79 66.60 2.02 7.25 4.47 N// MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.33 Difference 0.90 0.90 4.39 4.06 -4.70 -3.66 -3.34 N// SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N/A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 <t< td=""><td>national Small Cap Growth (SA)</td><td>414,051,259</td><td>2.01</td><td>-1.49</td><td>-1.49</td><td>26.01</td><td>57.47</td><td>9.28</td><td>11.74</td><td>9.17</td><td>N/A</td><td>12.77</td><td>12/01/2011</td></t<>	national Small Cap Growth (SA)	414,051,259	2.01	-1.49	-1.49	26.01	57.47	9.28	11.74	9.17	N/A	12.77	12/01/2011
Wellington International Small Cap Equity (CF) 325,210,267 1.58 5.49 5.49 39.79 66.60 2.02 7.25 4.47 N// MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.38 Difference 0.90 0.90 4.39 4.06 -4.70 -3.66 -3.34 N// SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N//A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.3 Bloomberg US Unv Bond Index -3.05 -3.05 -3.05 -0.83 2.95 4.86	• • • • • •			5.61	5.61	38.58	70.42	7.02	10.82	7.07	6.71	9.56	
MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.38 Difference 0.90 0.90 4.39 4.06 -4.70 -3.66 -3.34 N// SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N/A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.66 Difference 1.03 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.34 Bloomberg US Unv Bond Index -3.05 -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference				-7.10	-7.10	-12.57	-12.95	2.26	0.92	2.10	N/A	3.21	
MSCI EAFE Sm Cap Index (USD) (Gross) 4.59 4.59 35.40 62.54 6.72 10.91 7.81 8.38 Difference 0.90 0.90 4.39 4.06 -4.70 -3.66 -3.34 N/A SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N/A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.66 Difference 1.03 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.34 Bloomberg US Unv Bond Index -3.05 -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference	ernational Small Cap Equity (CF)	325,210,267	1.58	5.49	5.49	39.79	66.60	2.02	7.25	4.47	N/A	9.49	12/01/2011
SSGA Emerging Market Small Cap (CF) 347,057,725 1.69 8.74 8.74 43.98 78.28 4.82 N/A N/A N/A MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.34 Bloomberg US Unv Bond Index -3.05 -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.55 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.44 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71				4.59	4.59	35.40	62.54	6.72	10.91	7.81	8.39	11.15	
MSCI Emg Mkts Sm Cap Index (USD) (Gross) 7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.60 Difference 1.03 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.34 Bloomberg US Unv Bond Index -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02				0.90	0.90	4.39	4.06	-4.70	-3.66	-3.34	N/A	-1.66	
Difference 1.03 1.03 -3.62 -9.53 -0.76 N/A N/A N/A Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.36 Bloomberg US Unv Bond Index -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02	ng Market Small Cap (CF)	347,057,725	1.69	8.74	8.74	43.98	78.28	4.82	N/A	N/A	N/A	8.63	09/01/2016
Fixed Income 3,663,258,356 17.80 -4.54 -4.54 -0.34 5.86 6.11 5.36 4.62 5.36 Bloomberg US Unv Bond Index -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02	s Sm Cap Index (USD) (Gross)			7.71	7.71	47.60	87.81	5.58	9.95	5.80	3.66	9.32	
Bloomberg US Unv Bond Index -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 3.77 Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02				1.03	1.03	-3.62	-9.53	-0.76	N/A	N/A	N/A	-0.69	
Difference -1.49 -1.49 0.49 2.91 1.25 1.77 1.05 1.57 Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.4 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02		3,663,258,356	17.80	-4.54	-4.54	-0.34	5.86	6.11	5.36	4.62	5.34	6.85	04/01/1990
Loomis Sayles Multisector Full Discretion (SA) 1,021,184,124 4.96 -1.01 -1.01 6.92 18.83 7.28 6.00 4.80 5.40 Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02	Unv Bond Index			-3.05	-3.05	-0.83	2.95	4.86	3.59	3.57	3.77	6.09	
Bloomberg US Agg Bond Index -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 3.44 Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02				-1.49	-1.49	0.49	2.91	1.25	1.77	1.05	1.57	0.76	
Difference 2.37 2.37 9.05 18.12 2.63 2.90 1.49 2.02	s Multisector Full Discretion (SA)	1,021,184,124	4.96	-1.01	-1.01	6.92	18.83	7.28	6.00	4.80	5.46	6.27	07/01/1999
	Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.83	
Mackay Shields Core+ Extended Discretion (SA) 970,497,240 4,72 -1.46 -1.46 4.81 13.24 6.13 4.73 3.70 4.43				2.37	2.37	9.05	18.12	2.63	2.90	1.49	2.02	1.44	
	ds Core+ Extended Discretion (SA)	970,497,240	4.72	-1.46	-1.46	4.81	13.24	6.13	4.73	3.70	4.47	5.16	11/01/2004
				-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.04	
					1.92	6.94	12.53	1.48	1.63	0.39	1.03	1.12	
Lord Abbett Core Plus Full Discretion (SA) 947,784,518 4.61 -1.42 -1.42 4.10 11.01 5.32 4.10 3.91 4.4	ore Plus Full Discretion (SA)	947,784,518	4.61	-1.42	-1.42	4.10	11.01	5.32	4.10	3.91	4.41	5.08	11/01/2004
	` '	, , , , ,									3.44	4.04	
• ••											0.97	1.04	



	Allocation	1					Perfor	mance (%)	1			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Hoisington Active Duration Long Bonds (SA)	723,792,474	3.52	-15.78	-15.78	-18.13	-19.44	6.51	3.39	6.25	7.57	6.87	11/01/2004
Bloomberg US Trsy Index			-4.25	-4.25	-4.88	-4.43	4.09	2.23	2.69	2.90	3.56	
Difference			-11.53	-11.53	-13.25	-15.01	2.42	1.16	3.56	4.67	3.31	
Private Equity	1,374,231,299	6.68	2.17	2.17	18.42	17.92	20.31	17.72	16.18	15.24	15.81	07/01/2015
R 2000 Index+4%			13.81	13.81	59.99	102.64	19.35	21.01	15.49	16.15	16.46	
Difference			-11.64	-11.64	-41.57	-84.72	0.96	-3.29	0.69	-0.91	-0.65	
Franklin Park Private Equity LP	1,363,901,802	6.63	2.19	2.19	18.58	18.14	20.70	17.98	16.09	N/A	15.91	07/01/2015
Legacy Private Equity LP	10,329,497	0.05	-0.20	-0.20	1.59	-3.56	-3.21	0.98	2.10	4.55	2.28	10/01/2008
Special Opportunities	280,294,040	1.36	5.89	5.89	16.47	-0.09	5.25	7.24	N/A	N/A	6.73	07/01/2015
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.34	
Difference			9.27	9.27	18.60	-0.80	0.60	4.14	N/A	N/A	3.39	
PIMCO Bravo LP	127,992	0.00	13.33	13.33	26.17	-38.67	-21.26	-15.93	-135.07	-150.90	-151.19	03/01/2011
PIMCO Bravo II LP	41,607,546	0.20	11.37	11.37	12.53	-11.68	-0.38	3.59	5.21	N/A	6.83	03/01/2013
PIMCO Bravo III LP	183,785,118	0.89	4.10	4.10	15.07	2.93	7.43	N/A	N/A	N/A	9.29	04/01/2017
PIMCO COF II LP	54,773,384	0.27	8.30	8.30	24.22	5.53	7.30	N/A	N/A	N/A	10.23	10/01/2016
Bloomberg US Unv Bond Index			-3.05	-3.05	-0.83	2.95	4.86	3.59	3.57	3.77	3.21	
Difference			11.35	11.35	25.05	2.58	2.44	N/A	N/A	N/A	7.02	
Real Estate	1,218,184,319	5.92	0.59	0.59	-0.30	-2.62	2.88	4.67	N/A	N/A	5.99	07/01/2015
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	6.52	
Difference			-1.13	-1.13	-3.94	-5.23	-2.01	-1.14	N/A	N/A	-0.53	
AEW Core Property Trust (CF)	333,669,358	1.62	1.67	1.67	1.71	0.68	4.30	5.41	6.79	N/A	7.14	07/01/2011
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.43	
Difference			-0.22	-0.22	-1.57	-0.79	0.34	0.15	-0.49	N/A	-1.29	
Heitman America Real Estate (CF)	323,690,688	1.57	1.68	1.68	1.04	-1.00	2.36	4.68	6.56	N/A	7.56	05/01/2011
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.75	
Difference			-0.21	-0.21	-2.24	-2.47	-1.60	-0.58	-0.72	N/A	-1.19	
L&B Core Income Partners LP	83,103,179	0.40	-1.14	-1.14	-4.58	-16.20	-3.82	0.69	4.34	4.66	4.66	04/01/2011
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.67	
Difference			-3.03	-3.03	-7.86	-17.67	-7.78	-4.57	-2.94	-4.01	-4.01	



	Allocation						Perfor	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
American Strategic Value Realty (CF)	72,966,622	0.35	0.87	0.87	1.15	2.44	6.34	7.63	N/A	N/A	8.21	12/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13	
Difference			-1.02	-1.02	-2.13	0.97	2.38	2.37	N/A	N/A	1.08	
Angelo Gordon Value X LP	30,373,185	0.15	8.28	8.28	20.40	12.49	N/A	N/A	N/A	N/A	-3.65	07/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.63	
Difference			6.39	6.39	17.12	11.02	N/A	N/A	N/A	N/A	-6.28	
Artemis Real Estate III LP	12,282,505	0.06	1.14	1.14	22.36	19.01	N/A	N/A	N/A	N/A	N/A	02/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.05	
Difference			-0.75	-0.75	19.08	17.54	N/A	N/A	N/A	N/A	N/A	
Dune Real Estate III LP	40,390,342	0.20	-1.45	-1.45	-19.00	-19.20	-3.98	2.36	N/A	N/A	3.45	11/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.03	
Difference			-3.34	-3.34	-22.28	-20.67	-7.94	-2.90	N/A	N/A	-3.58	
Dune Real Estate IV LP	17,389,347	0.08	-1.53	-1.53	-11.94	-14.27	N/A	N/A	N/A	N/A	-22.49	09/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.91	
Difference			-3.42	-3.42	-15.22	-15.74	N/A	N/A	N/A	N/A	-25.40	
FCP Realty IV LP	26,589,701	0.13	8.16	8.16	10.04	10.31	N/A	N/A	N/A	N/A	-13.73	12/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.50	
Difference			6.27	6.27	6.76	8.84	N/A	N/A	N/A	N/A	-17.23	
GreenOak US II LP	22,728,166	0.11	-25.97	-25.97	-28.15	-32.31	-13.05	-6.24	N/A	N/A	-5.12	10/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	6.94	
Difference			-27.86	-27.86	-31.43	-33.78	-17.01	-11.50	N/A	N/A	-12.06	
GreenOak US III LP	20,345,080	0.10	-12.05	-12.05	-13.95	-21.89	N/A	N/A	N/A	N/A	-19.19	06/01/2018
NCREIF ODCE Index (AWA) (Net)	, ,		1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	4.20	
Difference			-13.94	-13.94	-17.23	-23.36	N/A	N/A	N/A	N/A	-23.39	
Harbert European Real Estate V LP	25,707,257	0.12	1.71	1.71	3.69	6.57	N/A	N/A	N/A	N/A	-7.69	12/01/2018
NCREIF ODCE Index (AWA) (Net)	, ,		1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.50	
Difference			-0.18	-0.18	0.41	5.10	N/A	N/A	N/A	N/A	-11.19	
Invesco Strategic Opportunity (CF)	13,703,138	0.07	4.63	4.63	8.51	118.71	N/A	N/A	N/A	N/A	68.50	10/01/2019
NCREIF ODCE Index (AWA) (Net)	,,	0.0.	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.34	
Difference			2.74	2.74	5.23	117.24	N/A	N/A	N/A	N/A	66.16	
L&B Gloden Driller (SA)	74,729,863	0.36	0.00	0.00	-0.01	-4.15	11.10	7.59	N/A	N/A	N/A	07/01/2014
NCREIF ODCE Index (AWA) (Net)	1 7,1 20,000	0.00	1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.14	01/01/2017
Difference			-1.89	-1.89	-3.29	-5.62	7.14	2.33	N/A	N/A	N/A	
2			1.00	1.00	0.20	3.02	1117	2.00	14/11	14/71	14//1	



	Allocation						Perfori	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Landmark Real Estate VII LP	9,837,248	0.05	0.65	0.65	-4.06	-6.34	-1.46	4.90	N/A	N/A	9.18	12/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13	
Difference			-1.24	-1.24	-7.34	-7.81	-5.42	-0.36	N/A	N/A	2.05	
Lyrical-OTRS Realty Partner IV LP	60,656,248	0.29	0.00	0.00	7.83	10.51	19.06	8.11	N/A	N/A	4.13	11/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.03	
Difference			-1.89	-1.89	4.55	9.04	15.10	2.85	N/A	N/A	-2.90	
Starwood Opportunity X LP	15,944,732	0.08	3.83	3.83	-1.68	-5.29	4.54	8.56	N/A	N/A	8.75	07/01/2015
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	6.09	
Difference			1.94	1.94	-4.96	-6.76	0.58	3.30	N/A	N/A	2.66	
Starwood Opportunity XI LP	26,777,660	0.13	10.02	10.02	2.48	4.83	N/A	N/A	N/A	N/A	21.74	08/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.77	
Difference			8.13	8.13	-0.80	3.36	N/A	N/A	N/A	N/A	17.97	
Property ACQ Fund	7,300,000	0.04	0.00	0.00	-0.03	-44.38	-25.34	N/A	N/A	N/A	-21.07	08/01/2017



	Allocatio	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OTRS Total Fund	20,578,884,930	100.00	4.48	4.48	24.18	39.85	10.79	11.62	8.65	9.67	9.57	12/01/1991
OTRS Policy Index			3.81	3.81	23.30	41.92	11.54	11.29	8.48	8.92	9.22	
Difference			0.67	0.67	0.88	-2.07	-0.75	0.33	0.17	0.75	0.35	
OTRS Actual Allocation Index			4.18	4.18	23.84	41.60	11.52	11.61	8.87	9.33	N/A	
Difference			0.30	0.30	0.34	-1.75	-0.73	0.01	-0.22	0.34	N/A	
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	
Difference			2.77	2.77	18.97	32.85	3.79	4.62	1.65	2.67	2.57	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	8.23	
Rank			9	9	8	15	27	11	24	6	2	
US Equity	10,200,979,961	49.57	8.85	8.85	38.95	70.07	14.24	15.40	11.69	12.66	11.23	04/01/1990
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	10.70	
Difference			2.50	2.50	5.76	7.54	-2.88	-1.24	-1.75	-1.13	0.53	
IM U.S. Equity (SA+CF) Median			9.26	9.26	38.41	69.78	15.45	15.91	12.33	13.17	11.77	
Rank			52	52	49	50	58	55	57	58	67	
US Active Equity	3,677,776,190	17.87	12.21	12.21	53.51	94.75	16.42	16.80	12.52	13.30	9.95	12/01/1998
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	8.11	
Difference			5.86	5.86	20.32	32.22	-0.70	0.16	-0.92	-0.49	1.84	
IM U.S. Equity (SA+CF) Median			9.26	9.26	38.41	69.78	15.45	15.91	12.33	13.17	10.21	
Rank			36	36	21	20	45	41	48	49	55	
Hotchkis & Wiley Mid Cap Value Equity (SA)	496,220,145	2.41	25.90	25.90	87.07	134.77	6.30	9.21	5.95	10.04	11.54	08/01/2002
Russell Mid Cap Val Index			13.05	13.05	44.86	73.76	10.70	11.60	9.34	11.05	11.00	
Difference			12.85	12.85	42.21	61.01	-4.40	-2.39	-3.39	-1.01	0.54	
IM U.S. Mid Cap Value Equity (SA+CF) Median			13.85	13.85	46.90	76.97	11.35	12.58	10.14	11.74	11.98	
Rank			1	1	1	1	96	96	100	92	65	
Wellington Mid Cap Growth (SA)	751,676,576	3.65	2.40	2.40	29.81	72.65	21.98	20.94	14.43	13.34	12.05	09/01/1998
Russell Mid Cap Grth Index			-0.57	-0.57	29.44	68.61	19.41	18.39	14.37	14.11	10.72	
Difference			2.97	2.97	0.37	4.04	2.57	2.55	0.06	-0.77	1.33	
IM U.S. Mid Cap Growth Equity (SA+CF) Median			1.55	1.55	32.07	72.44	20.74	19.43	15.06	14.68	12.08	
Rank			44	44	67	50	37	35	64	76	58	
Frontier Small Cap Value Equity (SA)	277,316,341	1.35	19.44	19.44	66.00	105.71	10.77	12.96	9.96	N/A	11.66	06/01/2013
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.39	
Difference			-1.73	-1.73	0.28	8.66	-0.80	-0.60	1.03	N/A	1.27	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	11.21	
Rank			45	45	29	30	58	55	40	N/A	38	



	Allocation	1					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Neumeier Poma Small Cap Equity (SA)	329,874,298	1.60	12.14	12.14	47.38	72.59	12.56	15.71	13.19	N/A	14.65	06/01/2013
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	12.47	
Difference			-0.56	-0.56	-7.98	-22.26	-2.20	-0.64	2.14	N/A	2.18	
IM U.S. Small Cap Equity (SA+CF) Median			13.65	13.65	53.92	94.10	14.82	16.11	11.65	12.68	13.28	
Rank			60	60	73	89	65	54	31	N/A	33	
Shapiro Enhanced Small Cap Equity (SA)	1,170,078,182	5.69	17.11	17.11	70.25	109.69	12.37	17.22	11.30	12.65	11.12	02/01/1998
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	8.77	
Difference			4.41	4.41	14.89	14.84	-2.39	0.87	0.25	0.97	2.35	
IM U.S. Small Cap Equity (SA+CF) Median			13.65	13.65	53.92	94.10	14.82	16.11	11.65	12.68	11.43	
Rank			35	35	13	23	67	43	55	51	54	
Geneva US Small Cap Growth Equity (SA)	307,679,726	1.50	3.22	3.22	31.93	71.79	19.29	20.29	15.91	N/A	16.94	06/01/2013
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	14.18	
Difference			-1.66	-1.66	-13.72	-18.41	2.13	1.68	3.14	N/A	2.76	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	16.85	
Rank			68	68	96	91	65	61	40	N/A	48	
Wasatch Small Cap Core Growth (SA)	344,930,921	1.68	5.91	5.91	43.72	93.08	24.52	23.95	17.88	N/A	17.97	06/01/2013
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	14.18	
Difference			1.03	1.03	-1.93	2.88	7.36	5.34	5.11	N/A	3.79	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	16.85	
Rank			50	50	63	54	41	38	19	N/A	31	
US Passive Equity (Cap Wgt)	3,590,458,923	17.45	6.71	6.71	34.37	64.75	17.04	16.00	13.45	N/A	14.51	04/01/2012
Northern Trust Russell 1000 Index (SA)	2,336,752,776	11.36	5.93	5.93	31.82	60.30	17.24	N/A	N/A	N/A	15.54	12/01/2017
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.60	
Difference			0.02	0.02	0.00	-0.29	-0.07	N/A	N/A	N/A	-0.06	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	15.27	
Rank			73	73	44	44	34	N/A	N/A	N/A	32	
Northern Trust Russell Mid Cap Index (CF)	1,253,706,147	6.09	8.20	8.20	39.41	73.66	N/A	N/A	N/A	N/A	36.37	03/01/2020
Russell Mid Cap Index			8.14	8.14	39.35	73.64	14.73	14.67	11.65	12.47	36.24	
Difference			0.06	0.06	0.06	0.02	N/A	N/A	N/A	N/A	0.13	





	Allocation	1			Performance (%)									
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date		
US Passive Equity (Non-Cap Wgt)	2,932,744,840	14.25	7.45	7.45	28.96	51.94	12.40	14.00	11.54	N/A	13.74	04/01/2012		
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	14.05			
Difference			-4.04	-4.04	-12.02	-19.67	-2.50	-0.74	-0.59	N/A	-0.31			
SciBeta US High FactorExposure Index (SA)	2,932,744,840	14.25	7.45	7.45	28.96	51.94	12.40	N/A	N/A	N/A	10.97	12/01/2017		
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	13.37			
Difference			-4.04	-4.04	-12.02	-19.67	-2.50	N/A	N/A	N/A	-2.40			
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	15.27			
Rank			22	22	84	94	84	N/A	N/A	N/A	84			
International Equity	3,682,814,606	17.90	4.93	4.93	32.95	56.96	6.34	10.32	6.28	6.72	8.53	02/01/1996		
MSCI ACW Ex US IM Index (USD) (Gross)			3.87	3.87	30.24	52.55	7.01	10.35	5.93	5.59	5.92			
Difference			1.06	1.06	2.71	4.41	-0.67	-0.03	0.35	1.13	2.61			
IM International Equity (SA+CF) Median			3.79	3.85	32.89	57.57	7.11	11.12	6.96	6.89	8.20			
Rank			38	39	50	52	60	60	61	54	36			
Causeway Intl Opportunities (SA)	625,515,329	3.04	6.74	6.74	36.41	62.21	5.67	9.82	5.09	6.09	8.75	05/01/200		
MSCI ACW Ex US Val Index (USD) (Gross)			7.20	7.20	32.33	49.52	3.02	7.89	3.20	3.62	8.10			
Difference			-0.46	-0.46	4.08	12.69	2.65	1.93	1.89	2.47	0.65			
IM ACWI Ex US Value (SA+CF) Median			6.26	6.26	34.87	57.35	7.01	10.67	5.68	6.13	9.22			
Rank			43	43	45	37	66	63	71	53	62			
Allianz Best Styles AC Intl Equity (SA)	1,265,480,912	6.15	5.93	5.93	30.28	47.62	4.62	N/A	N/A	N/A	10.36	07/01/2010		
MSCI ACW Ex US Index (USD) (Gross)			3.60	3.60	29.01	50.03	7.02	10.28	5.75	5.41	10.94			
Difference			2.33	2.33	1.27	-2.41	-2.40	N/A	N/A	N/A	-0.58			
IM ACWI Ex US Core (SA+CF) Median			3.24	3.24	30.18	55.03	8.11	10.73	6.47	6.62	11.41			
Rank			16	16	48	72	88	N/A	N/A	N/A	66			
Wellington Intl Quality Growth (SA)	705,499,114	3.43	3.30	3.30	30.36	54.98	12.70	N/A	N/A	N/A	15.42	07/01/2016		
MSCI ACW Ex US Grth Index (USD) (Gross)			0.00	0.00	25.60	49.76	10.70	12.42	8.13	7.06	12.97			
Difference			3.30	3.30	4.76	5.22	2.00	N/A	N/A	N/A	2.45			
IM ACWI Ex US Growth (SA+CF) Median			1.19	1.19	28.69	55.24	10.99	13.16	8.89	8.60	14.11			
Rank			11	11	43	51	35	N/A	N/A	N/A	33			
Wasatch International Small Cap Growth (SA)	414,051,259	2.01	-1.32	-1.32	26.60	58.48	10.09	12.60	10.04	N/A	13.71	12/01/201		
MSCI ACW Ex US Sm Cap Index (USD) (Gross)			5.61	5.61	38.58	70.42	7.02	10.82	7.07	6.71	9.56			
Difference			-6.93	-6.93	-11.98	-11.94	3.07	1.78	2.97	N/A	4.15			
IM International Small Cap Equity (SA+CF) Median			4.49	4.49	35.54	65.95	7.04	11.17	7.98	9.29	11.55			
Rank			91	91	93	81	24	32	22	N/A	13			



Market Value (\$) 325,210,267	% 1.58	QTD 5.59 4.59	CYTD 5.59	FYTD	1 Year	3 Years	5 Years	7 Years	10	Since	Inception Date
325,210,267	1.58		5.59				10010	i eai s	Years	Incep.	Date
		4 59		40.23	67.33	2.59	7.91	5.14	N/A	10.23	12/01/2011
		1.00	4.59	35.40	62.54	6.72	10.91	7.81	8.39	11.15	
		1.00	1.00	4.83	4.79	-4.13	-3.00	-2.67	N/A	-0.92	
		4.08	4.08	27.56	48.44	6.40	9.33	5.77	6.93	8.96	
		26	26	4	6	98	78	72	N/A	13	
347,057,725	1.69	8.90	8.90	44.63	79.40	5.53	N/A	N/A	N/A	9.30	09/01/2016
		7.71	7.71	47.60	87.81	5.58	9.95	5.80	3.66	9.32	
		1.19	1.19	-2.97	-8.41	-0.05	N/A	N/A	N/A	-0.02	
		3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	11.74	
		8	7	9	14	69	N/A	N/A	N/A	78	
3,663,258,356	17.80	-4.49	-4.49	-0.20	6.06	6.32	5.58	4.85	5.57	7.04	04/01/1990
		-3.05	-3.05	-0.83	2.95	4.86	3.59	3.57	3.77	6.09	
		-1.44	-1.44	0.63	3.11	1.46	1.99	1.28	1.80	0.95	
		-0.95	-0.95	0.94	5.32	5.08	3.88	3.77	4.11	6.14	
		91	91	73	46	25	26	27	27	20	
1,021,184,124	4.96	-0.95	-0.95	7.11	19.12	7.52	6.20	4.98	5.64	6.46	07/01/1999
		-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.83	
		2.43	2.43	9.24	18.41	2.87	3.10	1.67	2.20	1.63	
		-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	5.73	
		13	13	8	6	3	8	11	9	11	
970,497,240	4.72	-1.41	-1.41	4.98	13.49	6.38	4.95	3.93	4.70	5.40	11/01/2004
		-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.04	
		1.97	1.97	7.11	12.78	1.73	1.85	0.62	1.26	1.36	
		-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	5.04	
		16	16	12	13	13	30	67	38	29	
947,784,518	4.61	-1.38	-1.38	4.24	11.22	5.51	4.29	4.09	4.58	5.25	11/01/2004
		-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.04	
		2.00	2.00	6.37	10.51	0.86	1.19	0.78	1.14	1.21	
		-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	5.04	
		16	16	16	19	60	60	58	47	36	
723,792,474	3.52	-15.76	-15.76	-18.08	-19.37	6.61	3.50	6.38	7.71	7.01	11/01/2004
		-4.25	-4.25	-4.88	-4.43	4.09	2.23	2.69	2.90	3.56	
		-11.51	-11.51	-13.20	-14.94	2.52	1.27	3.69	4.81	3.45	
		-9.63	-9.63	-5.46	2.46	7.95	6.37	6.75	7.59	7.18	
		100	100	100	100	91	100	80	40	57	
	3,663,258,356 1,021,184,124 970,497,240 947,784,518	3,663,258,356 17.80 1,021,184,124 4.96 970,497,240 4.72	7.71 1.19 3.46 8 3,663,258,356 17.80 -4.49 -3.05 -1.44 -0.95 91 1,021,184,124 4.96 -0.95 -3.38 2.43 -2.75 13 970,497,240 4.72 -1.41 -3.38 1.97 -2.75 16 947,784,518 4.61 -1.38 -3.38 2.00 -2.75 16 723,792,474 3.52 -15.76 -4.25 -11.51 -9.63	7.71 7.71 1.19 1.19 3.46 3.43 8 7 3,663,258,356 17.80 -4.49 -4.49 -3.05 -3.05 -1.44 -1.44 -0.95 -0.95 91 91 1,021,184,124 4.96 -0.95 -0.95 -3.38 -3.38 -2.43 2.43 -2.75 -2.75 13 13 970,497,240 4.72 -1.41 -1.41 -3.38 -3.38 1.97 1.97 -2.75 -2.75 16 16 947,784,518 4.61 -1.38 -1.38 -3.38 -3.38 2.00 2.00 -2.75 -2.75 16 16 723,792,474 3.52 -15.76 -15.76 -4.25 -4.25 -11.51 -11.51 -9.63 -9.63	7.71 7.71 47.60 1.19 1.19 -2.97 3.46 3.43 37.42 8 7 9 3,663,258,356 17.80 -4.49 -4.49 -0.20 -3.05 -3.05 -0.83 -1.44 -1.44 0.63 -0.95 -0.95 0.94 91 91 73 1,021,184,124 4.96 -0.95 -0.95 7.11 -3.38 -3.38 -2.13 2.43 2.43 9.24 -2.75 -2.75 0.87 13 13 8 970,497,240 4.72 -1.41 -1.41 4.98 -3.38 -3.38 -2.13 1.97 1.97 7.11 -2.75 -2.75 0.87 16 16 12 947,784,518 4.61 -1.38 -1.38 4.24 -3.38 -3.38 -2.13 2.00 2.00 6.37 -2.75 -2.75 0.87 16 16 16 16 723,792,474 3.52 -15.76 -15.76 -18.08 -4.25 -4.25 -4.88 -11.51 -11.51 -13.20 -9.63 -9.63 -5.46	7.71 7.71 47.60 87.81 1.19 1.19 -2.97 -8.41 3.46 3.43 37.42 64.70 8 7 9 14 3,663,258,356 17.80 -4.49 -4.49 -0.20 6.06 -3.05 -3.05 -0.83 2.95 -1.44 -1.44 0.63 3.11 -0.95 -0.95 0.94 5.32 91 91 73 46 1,021,184,124 4.96 -0.95 -0.95 7.11 19.12 -3.38 -3.38 -2.13 0.71 2.43 2.43 9.24 18.41 -2.75 -2.75 0.87 7.02 13 13 8 6 970,497,240 4.72 -1.41 -1.41 4.98 13.49 -3.38 -3.38 -2.13 0.71 1.97 1.97 7.11 12.78 -2.75 -2.75 0.87 7.02 16 16 12 13 947,784,518 4.61 -1.38 -1.38 4.24 11.22 -3.38 -3.38 -2.13 0.71 -2.75 -2.75 0.87 7.02 16 16 16 12 13 947,784,518 4.61 -1.38 -1.38 4.24 11.22 -3.38 -3.38 -2.13 0.71 -2.75 -2.75 0.87 7.02 16 16 16 12 13 723,792,474 3.52 -15.76 -15.76 -18.08 -19.37 -4.25 -4.25 -4.88 -4.43 -11.51 -11.51 -13.20 -14.94 -9.63 -9.63 -5.46 2.46	7.71 7.71 47.60 87.81 5.58 1.19 1.19 -2.97 -8.41 -0.05 3.46 3.43 37.42 64.70 7.03 8 7 9 14 69 3,663,258,356 17.80 -4.49 -4.49 -0.20 6.06 6.32 -3.05 -3.05 -0.83 2.95 4.86 -1.44 -1.44 0.63 3.11 1.46 -0.95 -0.95 0.94 5.32 5.08 91 91 73 46 25 1,021,184,124 4.96 -0.95 -0.95 7.11 19.12 7.52 -3.38 -3.38 -2.13 0.71 4.65 2.43 2.43 9.24 18.41 2.87 -2.75 -2.75 0.87 7.02 5.77 13 13 8 6 3 970,497,240 4.72 -1.41 -1.41 4.98 13.49 6.38 -3.38 -3.38 -2.13 0.71 4.65 1.97 1.97 7.11 12.78 1.73 -2.75 -2.75 0.87 7.02 5.77 16 16 12 13 13 947,784,518 4.61 -1.38 -1.38 4.24 11.22 5.51 -3.38 -3.38 -3.38 -2.13 0.71 4.65 -2.00 2.00 6.37 10.51 0.86 -2.75 -2.75 0.87 7.02 5.77 16 16 16 19 60 723,792,474 3.52 -15.76 -15.76 -18.08 -19.37 6.61 -4.25 -4.25 -4.88 -4.43 4.09 -11.51 -11.51 -13.20 -14.94 2.52 -9.63 -9.63 -5.46 2.46 7.95	7.71 7.71 47.60 87.81 5.58 9.95 1.19 1.19 -2.97 -8.41 -0.05 N/A 3.46 3.43 37.42 64.70 7.03 12.77 8 7 9 14 69 N/A 3,663,258,356 17.80 -4.49 -4.49 -0.20 6.06 6.32 5.58 -3.05 -3.05 -0.83 2.95 4.86 3.59 -1.44 -1.44 0.63 3.11 1.46 1.99 -0.95 -0.95 0.94 5.32 5.08 3.88 91 91 73 46 25 26 1,021,184,124 4.96 -0.95 -0.95 7.11 19.12 7.52 6.20 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.43 2.43 9.24 18.41 2.87 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50 -3.38 -3.38 -2.13 0.71 4.65 3.10 -2.75 -2.75 0.87 7.02 5.77 4.50	7.71 7.71 47.60 87.81 5.58 9.95 5.80 1.19 1.19 -2.97 -8.41 -0.05 N/A N/A 3.46 3.43 37.42 64.70 7.03 12.77 7.39 8 7 9 14 69 N/A N/A 3,663,258,356 17.80 -4.49 -4.49 -0.20 6.06 6.32 5.58 4.85 -3.05 -3.05 -0.83 2.95 4.86 3.59 3.57 -1.44 -1.44 0.63 3.11 1.46 1.99 1.28 -0.95 -0.95 0.94 5.32 5.08 3.88 3.77 91 91 73 46 25 26 27 1,021,184,124 4.96 -0.95 -0.95 7.11 19.12 7.52 6.20 4.98 -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 2.43 2.43 9.24 18.41 2.87 3.10 1.67 -2.75 -2.75 0.87 7.02 5.77 4.50 4.18 13 13 8 6 3 8 11 970,497,240 4.72 -1.41 -1.41 4.98 13.49 6.38 4.95 3.93 -3.38 -3.38 -2.13 0.71 4.65 3.10 3.31 1.97 1.97 7.11 12.78 1.73 1.85 0.62 -2.75 -2.75 0.87 7.02 5.77 4.50 4.18 16 16 12 13 13 30 67 947,784,518 4.61 -1.38 -1.38 4.24 11.22 5.51 4.29 4.09 947,784,518 4.61 -1.38 -1.38 4.24 11.22 5.51 4.29 4.09 -2.75 -2.75 0.87 7.02 5.77 4.50 4.18 16 16 16 19 60 60 58 723,792,474 3.52 -15.76 -15.76 -18.08 -19.37 6.61 3.50 6.38 -4.25 -4.25 -4.88 -4.43 4.09 2.23 2.69 -11.51 -11.51 -13.20 -14.94 2.52 1.27 3.69 -15.63 -9.63 -5.46 2.46 7.95 6.37 6.75	7.71 7.71 47.60 87.81 5.58 9.95 5.80 3.66 1.19 1.19 1.19 -2.97 -8.41 -0.05 N/A N/A N/A N/A N/A 3.46 3.43 37.42 64.70 7.03 12.77 7.39 5.29 8 7 9 14 69 N/A	7.71



	Allocation	١			Performance (%)								
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
Private Equity	1,374,231,299	6.68	2.17	2.17	18.42	17.92	20.31	17.72	16.18	15.24	15.81	07/01/2015	
R 2000 Index+4%			13.81	13.81	59.99	102.64	19.35	21.01	15.49	16.15	16.46		
Difference			-11.64	-11.64	-41.57	-84.72	0.96	-3.29	0.69	-0.91	-0.65		
Franklin Park Private Equity LP	1,363,901,802	6.63	2.19	2.19	18.58	18.14	20.70	18.05	16.26	N/A	16.12	07/01/2015	
Legacy Private Equity LP	10,329,497	0.05	-0.20	-0.20	1.59	-3.56	-3.21	1.02	2.16	4.59	2.31	10/01/2008	
Special Opportunities	280,294,040	1.36	5.89	5.89	16.47	-0.09	5.25	7.24	N/A	N/A	6.73	07/01/2015	
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.34		
Difference			9.27	9.27	18.60	-0.80	0.60	4.14	N/A	N/A	3.39		
PIMCO Bravo LP	127,992	0.00	13.33	13.33	26.17	-38.67	-21.26	-15.80	-8.14	0.29	0.29	03/01/2011	
PIMCO Bravo II LP	41,607,546	0.20	11.37	11.37	12.53	-11.68	-0.38	3.76	5.77	N/A	7.52	03/01/2013	
PIMCO Bravo III LP	183,785,118	0.89	4.10	4.10	15.07	2.93	7.43	N/A	N/A	N/A	9.29	04/01/2017	
PIMCO COF II LP	54,773,384	0.27	8.30	8.30	24.22	5.53	7.30	N/A	N/A	N/A	10.23	10/01/2016	
Bloomberg US Unv Bond Index			-3.05	-3.05	-0.83	2.95	4.86	3.59	3.57	3.77	3.21		
Difference			11.35	11.35	25.05	2.58	2.44	N/A	N/A	N/A	7.02		
Real Estate	1,218,184,319	5.92	0.65	0.65	-0.13	-2.39	3.07	4.85	N/A	N/A	6.16	07/01/2015	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	6.52		
Difference			-1.07	-1.07	-3.77	-5.00	-1.82	-0.96	N/A	N/A	-0.36		
AEW Core Property Trust (CF)	333,669,358	1.62	1.67	1.67	1.71	0.68	4.30	5.52	7.42	N/A	7.83	07/01/2011	
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.43		
Difference			-0.22	-0.22	-1.57	-0.79	0.34	0.26	0.14	N/A	-0.60		
Heitman America Real Estate (CF)	323,690,688	1.57	1.87	1.87	1.59	-0.29	3.09	5.41	7.32	N/A	8.35	05/01/2011	
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.75		
Difference			-0.02	-0.02	-1.69	-1.76	-0.87	0.15	0.04	N/A	-0.40		
L&B Core Income Partners LP	83,103,179	0.40	-1.22	-1.22	-4.82	-16.48	-4.20	0.40	4.23	4.69	4.69	04/01/2011	
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.67		
Difference			-3.11	-3.11	-8.10	-17.95	-8.16	-4.86	-3.05	-3.98	-3.98		
American Strategic Value Realty (CF)	72,966,622	0.35	1.16	1.16	2.01	3.60	7.57	8.83	N/A	N/A	9.52	12/01/2014	
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13		
Difference			-0.73	-0.73	-1.27	2.13	3.61	3.57	N/A	N/A	2.39		



	Allocation	١					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Angelo Gordon Value X LP	30,373,185	0.15	8.28	8.28	20.40	12.49	N/A	N/A	N/A	N/A	-3.65	07/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.63	
Difference			6.39	6.39	17.12	11.02	N/A	N/A	N/A	N/A	-6.28	
Artemis Real Estate III LP	12,282,505	0.06	1.14	1.14	22.36	19.01	N/A	N/A	N/A	N/A	N/A	02/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.05	
Difference			-0.75	-0.75	19.08	17.54	N/A	N/A	N/A	N/A	N/A	
Dune Real Estate III LP	40,390,342	0.20	-1.45	-1.45	-19.00	-19.20	-3.98	2.52	N/A	N/A	4.66	11/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.03	
Difference			-3.34	-3.34	-22.28	-20.67	-7.94	-2.74	N/A	N/A	-2.37	
Dune Real Estate IV LP	17,389,347	0.08	-1.53	-1.53	-11.94	-14.27	N/A	N/A	N/A	N/A	-22.49	09/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.91	
Difference			-3.42	-3.42	-15.22	-15.74	N/A	N/A	N/A	N/A	-25.40	
FCP Realty IV LP	26,589,701	0.13	8.16	8.16	10.04	10.31	N/A	N/A	N/A	N/A	-13.73	12/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.50	
Difference			6.27	6.27	6.76	8.84	N/A	N/A	N/A	N/A	-17.23	
GreenOak US II LP	22,728,166	0.11	-25.97	-25.97	-28.15	-32.31	-13.05	-6.06	N/A	N/A	-4.01	10/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	6.94	
Difference			-27.86	-27.86	-31.43	-33.78	-17.01	-11.32	N/A	N/A	-10.95	
GreenOak US III LP	20,345,080	0.10	-12.05	-12.05	-13.95	-21.89	N/A	N/A	N/A	N/A	-19.19	06/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	4.20	
Difference			-13.94	-13.94	-17.23	-23.36	N/A	N/A	N/A	N/A	-23.39	
Harbert European Real Estate V LP	25,707,257	0.12	1.71	1.71	3.69	6.57	N/A	N/A	N/A	N/A	-7.69	12/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.50	
Difference			-0.18	-0.18	0.41	5.10	N/A	N/A	N/A	N/A	-11.19	
Invesco Strategic Opportunity (CF)	13,703,138	0.07	4.63	4.63	8.51	118.71	N/A	N/A	N/A	N/A	68.50	10/01/2019
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	2.34	
Difference			2.74	2.74	5.23	117.24	N/A	N/A	N/A	N/A	66.16	
L&B Gloden Driller (SA)	74,729,863	0.36	0.00	0.00	-0.01	-4.15	11.10	7.68	N/A	N/A	5.31	07/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.14	
Difference			-1.89	-1.89	-3.29	-5.62	7.14	2.42	N/A	N/A	-1.83	
Landmark Real Estate VII LP	9,837,248	0.05	0.65	0.65	-4.06	-6.34	-1.46	5.16	N/A	N/A	11.47	12/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13	
Difference			-1.24	-1.24	-7.34	-7.81	-5.42	-0.10	N/A	N/A	4.34	



	Allocation											
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Lyrical-OTRS Realty Partner IV LP	60,656,248	0.29	0.00	0.00	7.83	10.51	19.06	8.41	N/A	N/A	6.50	11/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.03	
Difference			-1.89	-1.89	4.55	9.04	15.10	3.15	N/A	N/A	-0.53	
Starwood Opportunity X LP	15,944,732	0.08	3.83	3.83	-1.68	-5.29	4.54	8.83	N/A	N/A	9.74	07/01/2015
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	6.09	
Difference			1.94	1.94	-4.96	-6.76	0.58	3.57	N/A	N/A	3.65	
Starwood Opportunity XI LP	26,777,660	0.13	10.02	10.02	2.48	4.83	N/A	N/A	N/A	N/A	21.74	08/01/2018
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	3.77	
Difference			8.13	8.13	-0.80	3.36	N/A	N/A	N/A	N/A	17.97	
Property ACQ Fund	7,300,000	0.04	0.00	0.00	0.00	-44.36	-17.19	N/A	N/A	N/A	-14.08	08/01/2017



Oklahoma State Pension Commission Oklahoma Teachers' Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



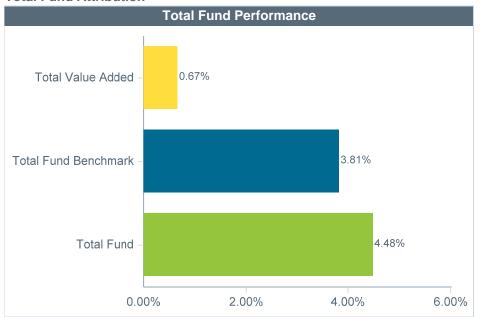
Oklahoma State Pension Commission Oklahoma Teachers' Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

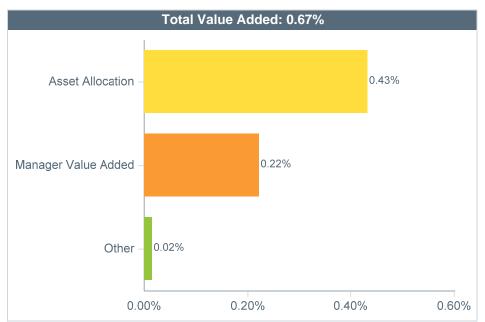


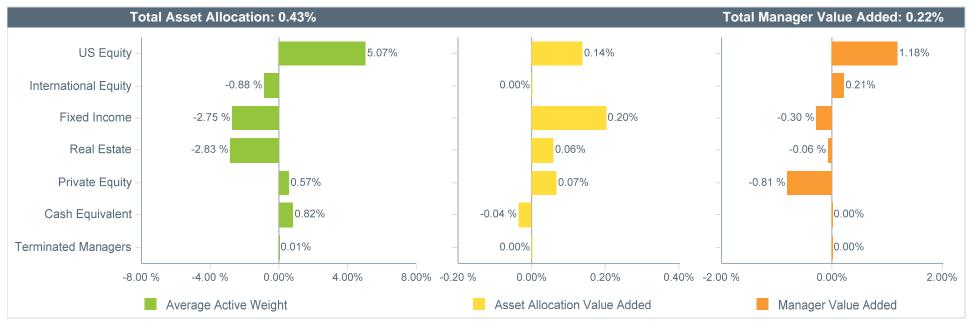
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Teachers' Retirement System Total Fund Attribution





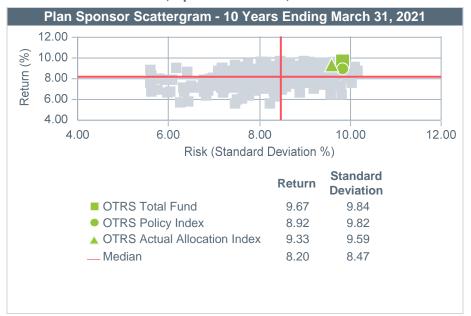


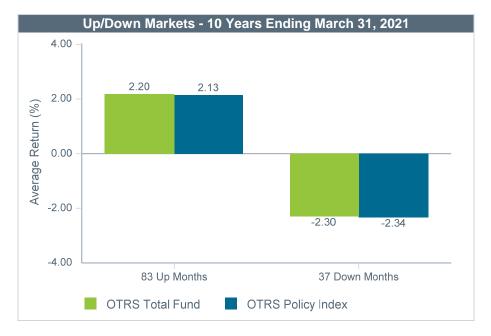
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation. Allocation to Private Equity includes Private Credit.

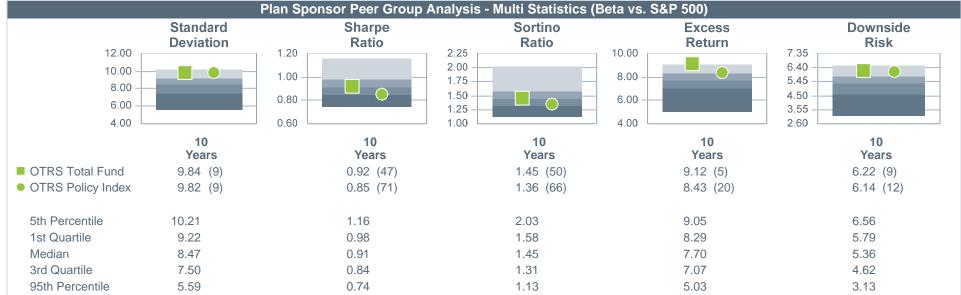


Oklahoma State Pension Commission Oklahoma Teachers' Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



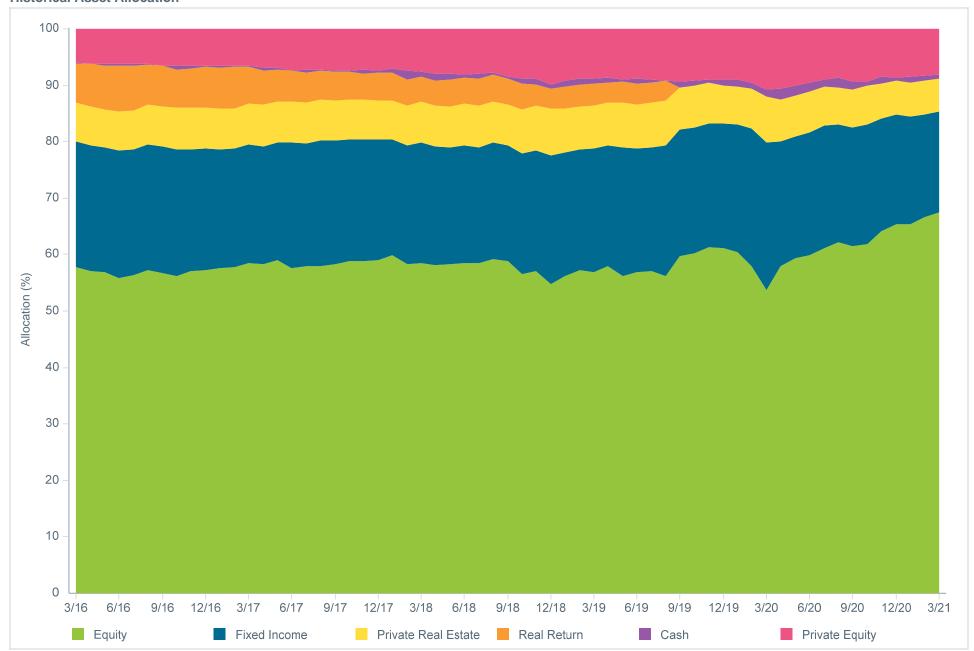




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Teachers' Retirement System Historical Asset Allocation





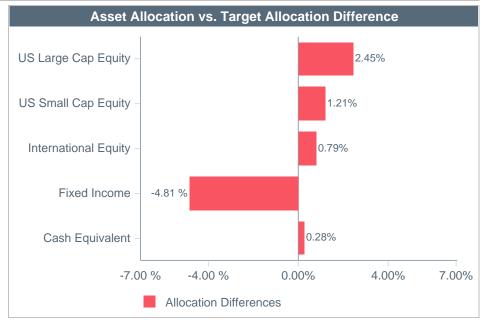
Oklahoma Public Employees Retirement System (OPERS)



Oklahoma State Pension Commission Oklahoma Public Employees Retirement System Total Fund Summary

Performance (%)													
			Trailir	ng						Calenda	r Year		
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
OPERS Total Fund (Net)	2.89	2.89	21.04	38.04	10.67	10.74	8.41	8.74	15.18	21.23	-6.57	17.01	7.59
OPERS Policy Index	2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	15.06	21.46	-6.09	16.86	8.12
Difference	0.61	0.61	0.88	0.84	-0.01	-0.05	-0.05	0.16	0.12	-0.23	-0.48	0.15	-0.53
OPERS Actual Allocation Index	2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	14.72	20.87	-6.49	16.51	8.09
Difference	0.26	0.26	0.58	1.05	0.27	0.19	0.11	0.38	0.46	0.36	-0.08	0.50	-0.50
Actuarial Discount Rate (6.5%)	1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Difference	1.30	1.30	16.20	31.54	4.17	4.24	1.91	2.24	8.68	14.73	-13.07	10.51	1.09
OPERS Total Fund (Gross)	2.91	2.91	21.17	38.22	10.80	10.86	8.53	8.86	15.34	21.38	-6.48	17.13	7.69
OPERS Policy Index	2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	15.06	21.46	-6.09	16.86	8.12
Difference	0.63	0.63	1.01	1.02	0.12	0.07	0.07	0.28	0.28	-0.08	-0.39	0.27	-0.43
OPERS Actual Allocation Index	2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	14.72	20.87	-6.49	16.51	8.09
Difference	0.28	0.28	0.71	1.23	0.40	0.31	0.23	0.50	0.62	0.51	0.01	0.62	-0.40
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67
Rank	58	58	32	26	26	29	29	26	19	12	93	17	50

Asset Allo	cation vs. Target A	Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OPERS (Public Employees)	11,934,694,337	100.00	100.00
US Large Cap Equity	4,350,188,302	36.45	34.00
US Small Cap Equity	860,643,731	7.21	6.00
International Equity	3,436,300,457	28.79	28.00
Fixed Income	3,244,524,907	27.19	32.00
Cash Equivalent	32,876,941	0.28	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation	n					Perfor	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OPERS Total Fund	11,934,694,337	100.00	2.89	2.89	21.04	38.04	10.67	10.74	8.41	8.74	N/A	03/01/1987
OPERS Policy Index			2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	8.51	
Difference			0.61	0.61	0.88	0.84	-0.01	-0.05	-0.05	0.16	N/A	
OPERS Actual Allocation Index			2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	8.45	
Difference			0.26	0.26	0.58	1.05	0.27	0.19	0.11	0.38	N/A	
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	
Difference			1.30	1.30	16.20	31.54	4.17	4.24	1.91	2.24	N/A	
US Equity	5,210,832,032	43.66	7.61	7.61	35.61	66.81	16.29	16.34	12.99	13.67	N/A	09/01/1988
OPERS US Equity Custom Index			6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	N/A	
Difference			0.67	0.67	0.39	1.35	-0.72	-0.32	-0.36	-0.08	N/A	
US Active Large Cap Equity	396,615,653	3.32	2.54	2.54	25.30	52.56	13.01	14.84	11.00	12.63	N/A	08/01/2003
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.67	
Difference			-3.37	-3.37	-6.52	-8.03	-4.30	-1.82	-2.64	-1.34	N/A	
Westfield Large Cap Growth Equity (SA)	396,615,653	3.32	2.54	2.54	28.03	62.55	22.15	N/A	N/A	N/A	22.81	02/01/2017
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	22.95	
Difference			1.60	1.60	0.73	-0.19	-0.65	N/A	N/A	N/A	-0.14	
US Large Cap Enhanced Index Equity	1,484,866,475	12.44	7.44	7.44	29.90	57.81	14.51	14.75	12.43	13.53	N/A	03/01/2000
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	7.44	
Difference			1.53	1.53	-1.92	-2.78	-2.80	-1.91	-1.21	-0.44	N/A	
State Street Large Cap Enhanced Index (SA)	747,028,722	6.26	8.41	8.41	31.96	59.18	16.35	15.90	13.37	14.07	10.05	09/01/2004
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.55	
Difference			2.50	2.50	0.14	-1.41	-0.96	-0.76	-0.27	0.10	-0.50	
Mellon EB DV Large Cap Stock Index (SA)	737,837,754	6.18	6.48	6.48	27.88	56.45	12.66	13.58	11.48	12.98	9.29	06/01/2004
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.30	
Difference			0.57	0.57	-3.94	-4.14	-4.65	-3.08	-2.16	-0.99	-1.01	
US Large Cap Passive Equity	2,468,706,173	20.69	6.70	6.70	32.46	61.38	17.54	16.74	13.80	14.07	N/A	01/01/2003
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	11.13	
Difference			0.79	0.79	0.64	0.79	0.23	0.08	0.16	0.10	N/A	





	Allocation	1					Perfor	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
BlackRock Russell 1000 Value (CF)	353,328,578	2.96	11.28	11.28	N/A	N/A	N/A	N/A	N/A	N/A	11.28	01/01/2021
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	11.26	
Difference			0.02	0.02	N/A	N/A	N/A	N/A	N/A	N/A	0.02	
Blackrock Russell 1000 Index (CF)	2,115,377,595	17.72	5.93	5.93	31.83	60.61	17.35	16.69	13.68	14.01	15.94	09/01/2010
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.91	
Difference			0.02	0.02	0.01	0.02	0.04	0.03	0.04	0.04	0.03	
US Active Small Cap Equity	860,643,731	7.21	13.02	13.02	62.52	113.18	18.21	19.30	12.42	13.33	N/A	08/01/2003
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.57	
Difference			0.32	0.32	7.16	18.33	3.45	2.95	1.37	1.65	N/A	
BHMS Small Cap Value Equity (SA)	290,688,957	2.44	14.05	14.05	69.06	117.09	14.62	16.61	11.22	12.07	11.73	12/01/2004
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	8.05	
Difference			-7.12	-7.12	3.34	20.04	3.05	3.05	2.29	2.01	3.68	
UBS US Small Cap Growth Equity (SA)	299,075,041	2.51	5.70	5.70	56.14	121.34	26.83	25.42	15.94	16.32	N/A	06/01/2003
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	11.76	
Difference			0.82	0.82	10.49	31.14	9.67	6.81	3.17	3.30	N/A	
DePrince Race & Zollo Micro Cap Value (SA)	270,879,732	2.27	20.29	20.29	60.21	94.91	11.80	14.93	9.34	10.95	11.02	03/01/2011
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.12	
Difference			-0.88	-0.88	-5.51	-2.14	0.23	1.37	0.41	0.89	0.90	
International Equity	3,436,300,457	28.79	3.40	3.40	29.48	51.19	7.66	10.17	5.94	5.78	N/A	05/01/1994
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.64	
Difference			-0.09	-0.09	0.81	1.78	1.15	0.41	0.68	0.85	N/A	
International Core Active Equity	699,343,905	5.86	6.59	6.59	31.29	45.95	4.31	7.16	3.80	4.83	N/A	08/01/2003
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.68	
Difference			3.10	3.10	2.62	-3.46	-2.20	-2.60	-1.46	-0.10	N/A	
Mondrian ACWI ex US Equity (SA)	699,343,905	5.86	6.59	6.59	31.29	45.95	4.31	7.16	3.80	4.83	N/A	08/01/2001
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.41	
Difference			3.10	3.10	2.62	-3.46	-2.20	-2.60	-1.46	-0.10	N/A	





	Allocation						Perfor	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
International Core Passive Equity	1,784,568,927	14.95	3.58	3.58	28.80	49.73	6.83	10.05	5.52	5.18	N/A	08/01/2003
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.68	
Difference			0.09	0.09	0.13	0.32	0.32	0.29	0.26	0.25	N/A	
Blackrock ACWI Ex US Index (CF)	1,784,568,927	14.95	3.58	3.58	28.80	49.73	6.83	10.05	5.52	5.18	6.29	11/01/2009
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.04	
Difference			0.09	0.09	0.13	0.32	0.32	0.29	0.26	0.25	0.25	
International Growth Equity	952,387,625	7.98	0.85	0.85	29.46	58.24	12.23	13.10	8.56	7.40	7.76	05/01/2005
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.20	
Difference			0.93	0.93	4.06	8.88	1.92	1.07	0.82	0.71	0.56	
Baille Gifford Intl Growth Equity (SA)	529,161,603	4.43	0.71	0.71	32.15	67.05	14.78	14.67	9.85	N/A	10.16	10/01/2013
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.91	
Difference			0.79	0.79	6.75	17.69	4.47	2.64	2.11	N/A	2.25	
Blackrock ACWI Ex US Growth (CF)	423,226,021	3.55	1.02	1.02	26.25	48.44	9.33	11.29	7.11	6.29	7.50	11/01/2009
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.83	
Difference			1.10	1.10	0.85	-0.92	-0.98	-0.74	-0.63	-0.40	-0.33	
Fixed Income	3,244,524,907	27.19	-4.37	-4.37	-2.67	0.68	5.64	3.76	4.02	4.29	N/A	04/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	6.07	
Difference			-0.99	-0.99	-0.54	-0.03	0.99	0.66	0.71	0.85	N/A	
Active Fixed Income	1,296,395,599	10.86	-6.29	-6.29	-5.39	-3.05	6.13	3.96	4.58	5.13	N/A	08/01/2003
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.20	
Difference			-2.91	-2.91	-3.26	-3.76	1.48	0.86	1.27	1.69	N/A	
MetWest Core Plus Fixed Income (SA)	982,275,447	8.23	-2.88	-2.88	-0.58	3.54	5.74	3.99	3.89	4.15	N/A	09/01/2001
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.39	
Difference			0.50	0.50	1.55	2.83	1.09	0.89	0.58	0.71	N/A	
Hoisington Long Duration Fixed Income (SA)	314,120,152	2.63	-15.57	-15.57	-17.82	-19.09	6.42	3.33	6.37	7.60	N/A	10/01/1991
Bloomberg US Trsy Lng Trm Bond Index			-13.51	-13.51	-16.01	-15.80	5.87	3.13	5.51	6.35	7.32	
Difference			-2.06	-2.06	-1.81	-3.29	0.55	0.20	0.86	1.25	N/A	





	Allocation	Allocation					Perfori	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Enhanced Fixed Income	1,584,225,969	13.27	-3.41	-3.41	-1.66	2.38	5.15	3.50	3.64	3.77	N/A	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.03	-0.03	0.47	1.67	0.50	0.40	0.33	0.33	N/A	
Blackrock Enhanced Core (SA)	1,584,225,969	13.27	-3.41	-3.41	-1.66	2.38	5.15	3.50	3.64	3.77	N/A	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.03	-0.03	0.47	1.67	0.50	0.40	0.33	0.33	N/A	
Passive Fixed Income	363,903,339	3.05	-1.46	-1.46	3.26	7.83	5.81	4.02	3.55	3.56	3.87	03/01/2010
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.55	
Difference			1.92	1.92	5.39	7.12	1.16	0.92	0.24	0.12	0.32	
Blackrock TIPS (SA)	363,903,339	3.05	-1.46	-1.46	3.26	7.83	5.81	4.02	3.55	3.56	3.87	03/01/2010
Bloomberg US Trsy US TIPS Index			-1.47	-1.47	3.16	7.54	5.68	3.86	3.42	3.44	3.82	
Difference			0.01	0.01	0.10	0.29	0.13	0.16	0.13	0.12	0.05	
Real Estate	10,160,000	0.09	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	1.11	12/01/2015
NCREIF ODCE Index (EWA) (Net)			2.07	2.07	3.64	2.12	4.41	5.64	7.62	8.88	6.34	
Difference			-0.09	-0.09	0.21	-10.31	-6.11	-4.93	N/A	N/A	-5.23	
Grand Centre (CF)	10,160,000	0.09	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	1.11	12/01/2015
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	5.91	
Difference			0.09	0.09	0.57	-9.66	-5.66	-4.55	N/A	N/A	-4.80	



	Allocation						Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OPERS Total Fund	11,934,694,337	100.00	2.91	2.91	21.17	38.22	10.80	10.86	8.53	8.86	8.66	03/01/1987
OPERS Policy Index			2.28	2.28	20.16	37.20	10.68	10.79	8.46	8.58	8.51	
Difference			0.63	0.63	1.01	1.02	0.12	0.07	0.07	0.28	0.15	
OPERS Actual Allocation Index			2.63	2.63	20.46	36.99	10.40	10.55	8.30	8.36	8.45	
Difference			0.28	0.28	0.71	1.23	0.40	0.31	0.23	0.50	0.21	
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	
Difference			1.32	1.32	16.33	31.72	4.30	4.36	2.03	2.36	2.16	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	8.32	
Rank			58	58	32	26	26	29	29	26	28	
US Equity	5,210,832,032	43.66	7.62	7.62	35.76	67.02	16.44	16.47	13.11	13.78	10.78	09/01/1988
OPERS US Equity Custom Index			6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	N/A	
Difference			0.68	0.68	0.54	1.56	-0.57	-0.19	-0.24	0.03	N/A	
IM U.S. Equity (SA+CF) Median			9.26	9.26	38.41	69.78	15.45	15.91	12.33	13.17	12.04	
Rank			58	58	56	56	45	45	42	42	94	
US Active Large Cap Equity	396,615,653	3.32	2.57	2.57	25.35	52.64	13.07	14.93	11.17	12.77	9.58	08/01/2003
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.67	
Difference			-3.34	-3.34	-6.47	-7.95	-4.24	-1.73	-2.47	-1.20	-1.09	
IM U.S. Large Cap Equity (SA+CF) Median			6.64	6.64	30.89	59.49	16.50	16.25	13.34	13.84	10.82	
Rank			82	82	85	80	73	62	71	67	87	
Westfield Large Cap Growth Equity (SA)	396,615,653	3.32	2.56	2.56	28.11	62.69	22.26	N/A	N/A	N/A	23.03	02/01/2017
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	22.95	
Difference			1.62	1.62	0.81	-0.05	-0.54	N/A	N/A	N/A	0.08	
IM U.S. Large Cap Growth Equity (SA+CF) Median			2.25	2.25	27.20	60.48	21.53	20.13	16.53	15.89	21.80	
Rank			44	44	43	39	41	N/A	N/A	N/A	37	



	Allocation				Perfor	mance (%)					
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
US Large Cap Enhanced Index Equity	1,484,866,475	12.44	7.45	7.45	29.92	57.85	14.54	14.78	12.46	13.56	6.30	03/01/2000
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	7.44	
Difference			1.54	1.54	-1.90	-2.74	-2.77	-1.88	-1.18	-0.41	-1.14	
IM U.S. Large Cap Enhanced Index Equity (SA+CF) Median			7.06	7.06	30.10	57.42	15.40	15.78	13.49	14.16	7.81	
Rank			46	46	54	47	65	68	69	70	100	
State Street Large Cap Enhanced Index (SA)	747,028,722	6.26	8.41	8.41	31.99	59.22	16.39	15.94	13.40	14.10	10.10	09/01/2004
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.55	
Difference			2.50	2.50	0.17	-1.37	-0.92	-0.72	-0.24	0.13	-0.45	
IM U.S. Large Cap Enhanced Index Equity (SA+CF) Median			7.06	7.06	30.10	57.42	15.40	15.78	13.49	14.16	10.53	
Rank			36	36	24	28	39	47	58	53	76	
Mellon EB DV Large Cap Stock Index (SA)	737,837,754	6.18	6.48	6.48	27.90	56.48	12.69	13.61	11.50	13.01	9.33	06/01/2004
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.30	
Difference			0.57	0.57	-3.92	-4.11	-4.62	-3.05	-2.14	-0.96	-0.97	
IM U.S. Large Cap Enhanced Index Equity (SA+CF) Median			7.06	7.06	30.10	57.42	15.40	15.78	13.49	14.16	10.28	
Rank			60	60	90	66	79	78	78	80	96	
US Large Cap Passive Equity	2,468,706,173	20.69	6.70	6.70	32.46	61.39	17.54	16.75	13.80	14.08	11.35	01/01/2003
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	11.13	
Difference			0.79	0.79	0.64	0.80	0.23	0.09	0.16	0.11	0.22	
BlackRock Russell 1000 Value (CF)	353,328,578	2.96	11.28	11.28	N/A	N/A	N/A	N/A	N/A	N/A	11.28	01/01/2021
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	11.26	
Difference			0.02	0.02	N/A	N/A	N/A	N/A	N/A	N/A	0.02	
IM U.S. Large Cap Value Equity (SA+CF) Median			11.56	11.56	37.24	61.36	11.93	13.05	10.42	11.85	11.56	
Rank			55	55	N/A	N/A	N/A	N/A	N/A	N/A	55	
Blackrock Russell 1000 Index (CF)	2,115,377,595	17.72	5.93	5.93	31.83	60.62	17.36	16.70	13.69	14.01	15.95	09/01/2010
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.91	
Difference			0.02	0.02	0.01	0.03	0.05	0.04	0.05	0.04	0.04	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	15.80	
Rank			74	74	42	35	21	26	25	21	19	



	Allocation	1					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
US Active Small Cap Equity	860,643,731	7.21	13.09	13.09	63.59	114.76	19.08	19.98	13.08	13.97	13.22	08/01/2003
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.57	
Difference			0.39	0.39	8.23	19.91	4.32	3.63	2.03	2.29	2.65	
IM U.S. Small Cap Equity (SA+CF) Median			13.65	13.65	53.92	94.10	14.82	16.11	11.65	12.68	12.01	
Rank			54	54	24	17	24	24	32	33	28	
BHMS Small Cap Value Equity (SA)	290,688,957	2.44	14.17	14.17	69.60	118.07	15.19	17.20	11.78	12.65	12.37	12/01/2004
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	8.05	
Difference			-7.00	-7.00	3.88	21.02	3.62	3.64	2.85	2.59	4.32	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	10.02	
Rank			81	81	20	11	16	13	13	21	3	
UBS US Small Cap Growth Equity (SA)	299,075,041	2.51	5.74	5.74	57.93	123.94	27.95	26.16	16.68	17.00	13.68	06/01/2003
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	11.76	
Difference			0.86	0.86	12.28	33.74	10.79	7.55	3.91	3.98	1.92	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	13.87	
Rank			52	52	19	15	21	25	30	22	62	
DePrince Race & Zollo Micro Cap Value (SA)	270,879,732	2.27	20.36	20.36	60.63	95.66	12.61	15.58	9.97	11.59	11.66	03/01/2011
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.12	
Difference			-0.81	-0.81	-5.09	-1.39	1.04	2.02	1.04	1.53	1.54	
IM U.S. Micro Cap Equity (SA+CF) Median			21.30	21.30	66.65	115.88	15.00	18.16	12.62	14.07	14.10	
Rank			59	59	71	80	63	64	70	82	83	
International Equity	3,436,300,457	28.79	3.43	3.43	29.68	51.46	7.81	10.35	6.12	5.95	6.36	05/01/1994
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.64	
Difference			-0.06	-0.06	1.01	2.05	1.30	0.59	0.86	1.02	0.72	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	7.70	
Rank			47	47	62	67	56	60	62	76	99	
International Core Active Equity	699,343,905	5.86	6.68	6.68	31.61	46.45	4.69	7.54	4.17	5.21	7.57	08/01/2003
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.68	
Difference			3.19	3.19	2.94	-2.96	-1.82	-2.22	-1.09	0.28	-0.11	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	9.15	
Rank			18	18	46	81	83	87	92	92	87	
Mondrian ACWI ex US Equity (SA)	699,343,905	5.86	6.68	6.68	31.61	46.45	4.69	7.54	4.17	5.21	7.34	08/01/2001
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.41	
Difference			3.19	3.19	2.94	-2.96	-1.82	-2.22	-1.09	0.28	0.93	
IM ACWI Ex US Core (SA+CF) Median			3.24	3.24	30.18	55.03	8.11	10.73	6.47	6.62	N/A	
Rank			8	8	30	82	87	92	96	96	N/A	



	Allocation				Perfor	mance (%)					
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
International Core Passive Equity	1,784,568,927	14.95	3.58	3.58	28.82	49.75	6.85	10.08	5.56	5.22	7.37	08/01/2003
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.68	
Difference			0.09	0.09	0.15	0.34	0.34	0.32	0.30	0.29	-0.31	
Blackrock ACWI Ex US Index (CF)	1,784,568,927	14.95	3.58	3.58	28.82	49.75	6.85	10.08	5.56	5.22	6.33	11/01/2009
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.04	
Difference			0.09	0.09	0.15	0.34	0.34	0.32	0.30	0.29	0.29	
International Growth Equity	952,387,625	7.98	0.88	0.88	29.90	58.82	12.46	13.36	8.79	7.57	7.90	05/01/2005
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.20	
Difference			0.96	0.96	4.50	9.46	2.15	1.33	1.05	0.88	0.70	
IM ACWI Ex US Growth (SA+CF) Median			1.19	1.19	28.69	55.24	10.99	13.16	8.89	8.60	8.75	
Rank			59	59	45	35	36	48	53	81	79	
Baille Gifford Intl Growth Equity (SA)	529,161,603	4.43	0.76	0.76	32.93	68.12	15.18	15.13	10.25	N/A	10.55	10/01/2013
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.91	
Difference			0.84	0.84	7.53	18.76	4.87	3.10	2.51	N/A	2.64	
IM ACWI Ex US Growth (SA+CF) Median			1.19	1.19	28.69	55.24	10.99	13.16	8.89	8.60	9.12	
Rank			61	61	20	10	15	25	25	N/A	26	
Blackrock ACWI Ex US Growth (CF)	423,226,021	3.55	1.03	1.03	26.29	48.48	9.37	11.34	7.16	6.34	7.55	11/01/2009
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.83	
Difference			1.11	1.11	0.89	-0.88	-0.94	-0.69	-0.58	-0.35	-0.28	
IM ACWI Ex US Growth (SA+CF) Median			1.19	1.19	28.69	55.24	10.99	13.16	8.89	8.60	9.78	
Rank			55	55	75	79	74	74	81	95	99	



	Allocation	1					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Fixed Income	3,244,524,907	27.19	-4.36	-4.36	-2.60	0.79	5.74	3.85	4.11	4.39	6.81	04/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	6.07	
Difference			-0.98	-0.98	-0.47	0.08	1.09	0.75	0.80	0.95	0.74	
IM U.S. Broad Market Fixed Income (SA+CF) Median			-2.96	-2.96	-0.19	4.70	5.43	4.00	3.95	4.19	6.52	
Rank			97	97	95	92	35	59	39	39	14	
Active Fixed Income	1,296,395,599	10.86	-6.28	-6.28	-5.28	-2.93	6.25	4.07	4.69	5.26	6.32	08/01/2003
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.20	
Difference			-2.90	-2.90	-3.15	-3.64	1.60	0.97	1.38	1.82	2.12	
IM U.S. Broad Market Fixed Income (SA+CF) Median			-2.96	-2.96	-0.19	4.70	5.43	4.00	3.95	4.19	4.90	
Rank			100	100	100	100	12	46	12	11	6	
MetWest Core Plus Fixed Income (SA)	982,275,447	8.23	-2.88	-2.88	-0.47	3.68	5.85	4.08	3.99	4.28	5.56	09/01/2001
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.39	
Difference			0.50	0.50	1.66	2.97	1.20	0.98	0.68	0.84	1.17	
IM U.S. Broad Market Core+ Fixed Income (SA+CF) Median			-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	5.37	
Rank			59	59	80	85	43	68	64	65	37	
Hoisington Long Duration Fixed Income (SA)	314,120,152	2.63	-15.53	-15.53	-17.73	-18.99	6.55	3.47	6.51	7.75	8.15	10/01/1991
Bloomberg US Trsy Lng Trm Bond Index			-13.51	-13.51	-16.01	-15.80	5.87	3.13	5.51	6.35	7.32	
Difference			-2.02	-2.02	-1.72	-3.19	0.68	0.34	1.00	1.40	0.83	
IM U.S. Long Duration (SA+CF) Median			-9.63	-9.63	-5.46	2.46	7.95	6.37	6.75	7.59	N/A	
Rank			100	100	100	100	92	100	73	39	N/A	
Enhanced Fixed Income	1,584,225,969	13.27	-3.39	-3.39	-1.60	2.48	5.24	3.59	3.72	3.86	5.14	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.01	-0.01	0.53	1.77	0.59	0.49	0.41	0.42	0.22	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	5.33	
Rank			73	73	67	68	54	62	58	59	74	
Blackrock Enhanced Core (SA)	1,584,225,969	13.27	-3.39	-3.39	-1.60	2.48	5.24	3.59	3.72	3.86	5.14	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.01	-0.01	0.53	1.77	0.59	0.49	0.41	0.42	0.22	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	5.33	
Rank			73	73	67	68	54	62	58	59	74	





	Allocation						Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Passive Fixed Income	363,903,339	3.05	-1.46	-1.46	3.27	7.84	5.82	4.03	3.56	3.57	3.88	03/01/2010
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.55	
Difference			1.92	1.92	5.40	7.13	1.17	0.93	0.25	0.13	0.33	
Blackrock TIPS (SA)	363,903,339	3.05	-1.46	-1.46	3.27	7.84	5.82	4.03	3.56	3.57	3.88	03/01/2010
Bloomberg US Trsy US TIPS Index			-1.47	-1.47	3.16	7.54	5.68	3.86	3.42	3.44	3.82	
Difference			0.01	0.01	0.11	0.30	0.14	0.17	0.14	0.13	0.06	
IM U.S. TIPS (SA+CF) Median			-1.42	-1.42	3.27	7.75	5.66	3.89	3.43	3.46	3.85	
Rank			55	55	51	46	27	31	26	35	41	
Real Estate	10,160,000	0.09	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	1.11	12/01/2015
NCREIF ODCE Index (EWA) (Net)			2.07	2.07	3.64	2.12	4.41	5.64	7.62	8.88	6.34	
Difference			-0.09	-0.09	0.21	-10.31	-6.11	-4.93	N/A	N/A	-5.23	
Grand Centre (CF)	10,160,000	0.09	1.98	1.98	3.85	-8.19	-1.70	0.71	N/A	N/A	1.11	12/01/2015
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	5.91	
Difference			0.09	0.09	0.57	-9.66	-5.66	-4.55	N/A	N/A	-4.80	



Oklahoma State Pension Commission Oklahoma Public Employees Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



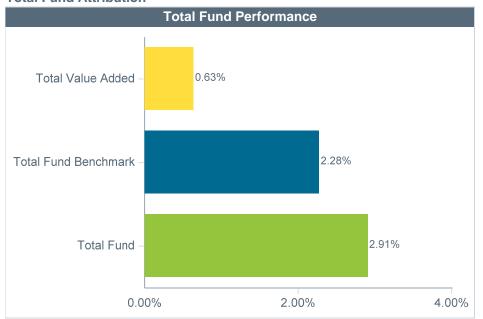
Oklahoma State Pension Commission Oklahoma Public Employees Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

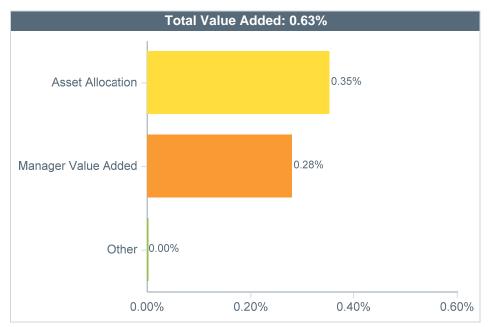


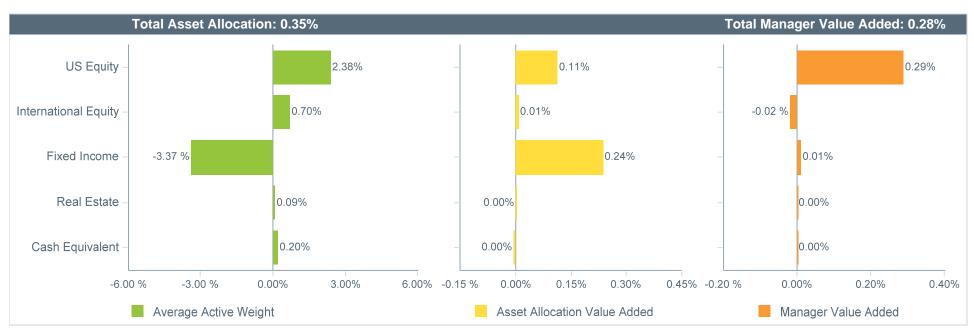
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Public Employees Retirement System Total Fund Attribution





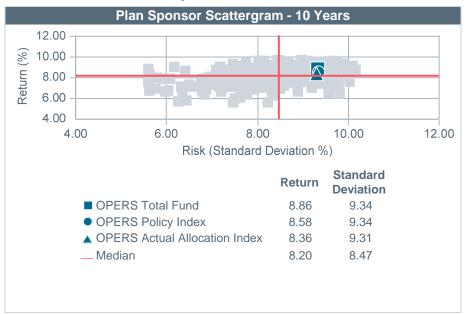


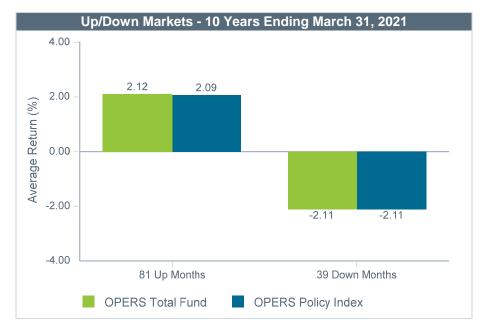
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation.

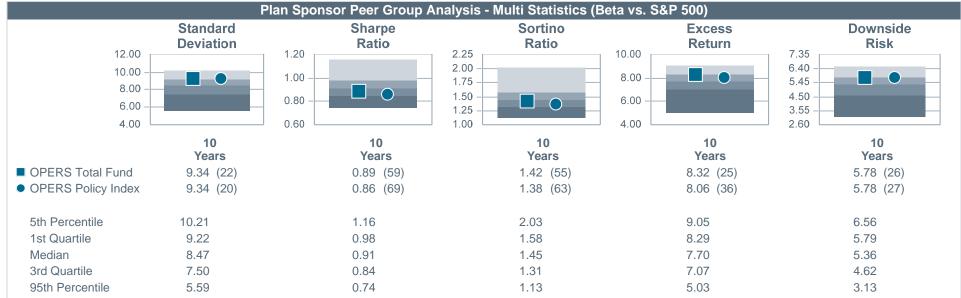


Oklahoma State Pension Commission Oklahoma Public Employees Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics

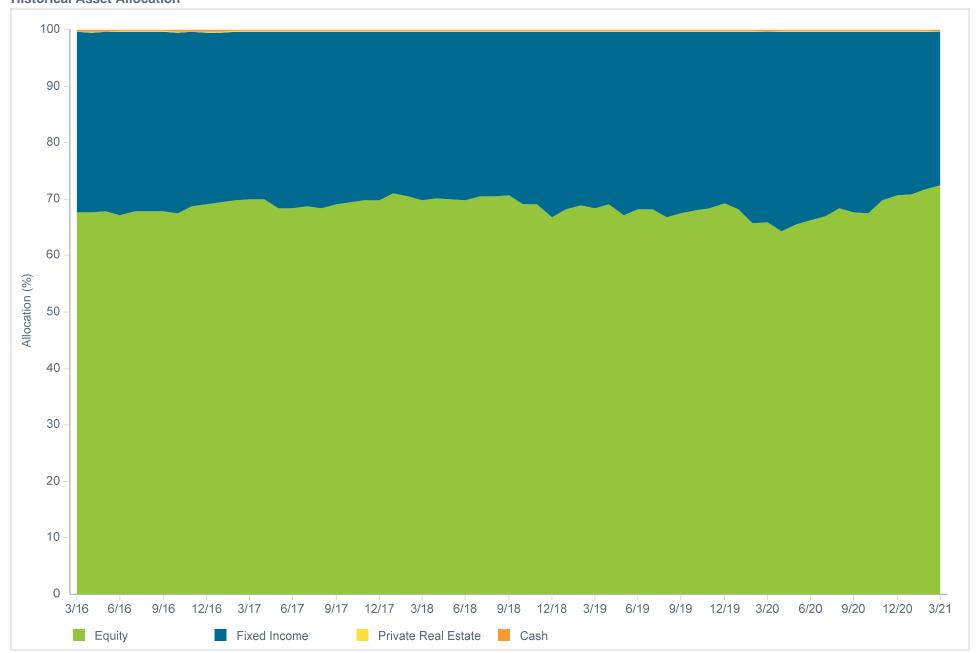






Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.







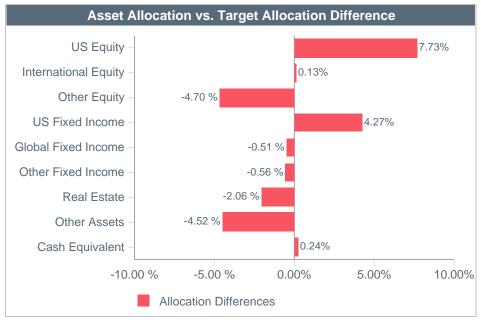
Oklahoma Firefighters Pension & Retirement System (OFPRS)



Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System Total Fund Summary

Performance (%)														
			Trailin	ıg						Calenda	r Year			
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	
OFPRS Total Fund (Net)	3.70	3.70	24.68	41.11	12.43	12.70	10.20	10.07	18.43	20.15		18.66	7.42	
OFPRS Policy Index	3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	13.84	21.76	-3.80	16.41	8.76	
Difference	-0.07	-0.07	3.20	4.48	0.70	1.13	0.63	0.18	4.59	-1.61	1.34	2.25	-1.34	
OFPRS Actual Allocation Index	3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	14.51	20.30	-3.93	15.64	9.45	
Difference	0.38	0.38	3.68	4.80	1.40	1.30	1.27	0.78	3.92	-0.15	1.47	3.02	-2.03	
Actuarial Discount Rate (7.5%)	1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	
Difference	1.88	1.88	19.11	33.61	4.93	5.20	2.70	2.57	10.93	12.65	-9.96	11.16	-0.08	
OFPRS Total Fund (Gross)	3.70	3.70	24.69	41.12	12.43	12.70	10.22	10.09	18.44	20.15	-2.46	18.67	7.42	
OFPRS Policy Index	3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	13.84	21.76	-3.80	16.41	8.76	
Difference	-0.07	-0.07	3.21	4.49	0.70	1.13	0.65	0.20	4.60	-1.61	1.34	2.26	-1.34	
OFPRS Actual Allocation Index	3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	14.51	20.30	-3.93	15.64	9.45	
Difference	0.38	0.38	3.69	4.81	1.40	1.30	1.29	0.80	3.93	-0.15	1.47	3.03	-2.03	
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67	
Rank	29	29	6	11	3	2	2	3	5	28	18	5	58	

Asset	: Allocation vs. Targ	get Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OFPRS (Firefighters)	3,537,854,799	100.00	100.00
US Equity	1,759,307,752	49.73	42.00
International Equity	535,312,817	15.13	15.00
Other Equity	10,477,076	0.30	5.00
US Fixed Income	433,920,958	12.27	8.00
Global Fixed Income	229,512,952	6.49	7.00
Other Fixed Income	157,066,512	4.44	5.00
Real Estate	280,736,002	7.94	10.00
Other Assets	123,082,730	3.48	8.00
Cash Equivalent	8,438,000	0.24	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocatio	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OFPRS Total Fund	3,537,854,799	100.00	3.70	3.70	24.68	41.11	12.43	12.70	10.20	10.07	N/A	07/01/1989
OFPRS Policy Index			3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	N/A	
Difference			-0.07	-0.07	3.20	4.48	0.70	1.13	0.63	0.18	N/A	
OFPRS Actual Allocation Index			3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	8.46	
Difference			0.38	0.38	3.68	4.80	1.40	1.30	1.27	0.78	N/A	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			1.88	1.88	19.11	33.61	4.93	5.20	2.70	2.57	N/A	
Total Equity	2,294,620,569	64.86	5.51	5.51	36.31	67.30	17.50	17.48	13.22	12.73	8.57	01/01/1997
Wilshire 5000 Index			6.49	6.49	33.04	62.23	17.18	16.71	13.56	13.82	9.40	
Difference			-0.98	-0.98	3.27	5.07	0.32	0.77	-0.34	-1.09	-0.83	
US Equity	1,759,307,752	49.73	7.08	7.08	37.79	71.59	18.70	18.11	14.08	14.11	N/A	07/01/1989
Wilshire 5000 Index			6.49	6.49	33.04	62.23	17.18	16.71	13.56	13.82	10.63	
Difference			0.59	0.59	4.75	9.36	1.52	1.40	0.52	0.29	N/A	
US Large Cap Equity	1,284,333,069	36.30	6.94	6.94	32.83	61.63	16.88	16.55	13.45	13.90	N/A	07/01/1989
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.76	
Difference			1.03	1.03	1.01	1.04	-0.43	-0.11	-0.19	-0.07	N/A	
US Large Cap Core Equity	838,959,929	23.71	7.61	7.61	34.07	62.21	15.94	15.79	13.24	13.77	N/A	11/01/1996
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	9.38	
Difference			1.44	1.44	4.36	5.86	-0.84	-0.50	-0.35	-0.14	N/A	
SSgA Equity Index (CF)	256,326,248	7.25	6.18	6.18	29.73	56.36	16.76	16.28	13.60	13.92	N/A	11/01/1996
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	9.38	
Difference			0.01	0.01	0.02	0.01	-0.02	-0.01	0.01	0.01	N/A	
SSgA Eq Wtd S&P Index (CF)	257,419,175	7.28	11.30	11.30	40.84	70.91	14.64	14.60	12.02	13.01	10.54	12/01/2001
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	10.57	
Difference			-0.19	-0.19	-0.14	-0.70	-0.26	-0.14	-0.11	-0.08	-0.03	
Liquidity Pool - SSgA Equity Index (CF)	59,080,669	1.67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Liquidity Pool - SSgA Eq Wtd S&P Index (CF)	14,770,181	0.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	



	Allocation	n					Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Intech Enhanced Investment Tech (SA)	251,363,655	7.10	5.39	5.39	31.52	59.33	16.13	16.09	13.80	14.17	9.88	02/01/2002
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	8.94	
Difference			-0.78	-0.78	1.81	2.98	-0.65	-0.20	0.21	0.26	0.94	
US Large Cap Value Equity	236,348,353	6.68	9.72	9.72	34.30	55.77	11.99	12.96	9.28	10.78	N/A	06/01/1990
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	9.98	
Difference			-1.54	-1.54	-2.27	-0.32	1.03	1.22	-0.12	-0.21	N/A	
Beutel Goodman American Equity (SA)	126,069,226	3.56	9.43	9.43	33.13	54.61	16.49	15.40	N/A	N/A	15.92	05/01/2016
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	11.48	
Difference			-1.83	-1.83	-3.44	-1.48	5.53	3.66	N/A	N/A	4.44	
Aristotle US Equity (SA)	110,279,127	3.12	10.05	10.05	N/A	N/A	N/A	N/A	N/A	N/A	24.76	09/01/2020
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	26.16	
Difference			-1.21	-1.21	N/A	N/A	N/A	N/A	N/A	N/A	-1.40	
US Large Cap Growth Equity	209,024,787	5.91	1.65	1.65	26.90	62.34	23.98	22.14	18.14	17.24	N/A	07/01/1989
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	11.09	
Difference			0.71	0.71	-0.40	-0.40	1.18	1.09	0.64	0.61	N/A	
Fred Alger Capital Appreciation (SA)	209,024,787	5.91	1.65	1.65	26.90	62.34	23.98	22.11	18.12	17.23	18.70	08/01/2010
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	17.97	
Difference			0.71	0.71	-0.40	-0.40	1.18	1.06	0.62	0.60	0.73	

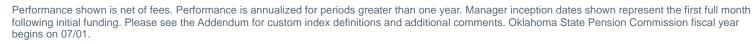


	Allocation	on Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
US Small Cap Equity	474,974,683	13.43	7.29	7.29	50.11	99.32	23.03	21.77	15.55	15.17	N/A	07/01/1992
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.45	
Difference			-5.41	-5.41	-5.25	4.47	8.27	5.42	4.50	3.49	N/A	
Liqiduity Pool - SSgA Small Cap Completeness Index (CF)	31,584,018	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
Russell Sm Cap Compl Index			7.27	7.27	51.21	97.64	18.27	18.14	12.73	13.18	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
US Small Cap Value Equity	230,591,806	6.52	14.68	14.68	50.17	83.53	15.36	16.64	12.37	12.73	N/A	09/01/1992
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.50	
Difference			1.98	1.98	-5.19	-11.32	0.60	0.29	1.32	1.05	N/A	
Earnest Partner Small Cap Value Equity (SA)	119,276,986	3.37	16.06	16.06	55.99	93.35	17.27	18.41	13.61	13.57	10.66	09/01/2005
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	8.01	
Difference			-5.11	-5.11	-9.73	-3.70	5.70	4.85	4.68	3.51	2.65	
River Road Small Cap Value Equity (SA)	111,314,820	3.15	13.31	13.31	43.85	72.99	13.22	14.71	11.00	11.80	8.36	05/01/2007
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	7.14	
Difference			-7.86	-7.86	-21.87	-24.06	1.65	1.15	2.07	1.74	1.22	
US Small Cap Growth Equity	212,798,859	6.01	1.09	1.09	48.64	110.60	30.04	26.81	18.73	17.64	N/A	07/01/1992
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	9.37	
Difference			-3.79	-3.79	2.99	20.40	12.88	8.20	5.96	4.62	N/A	
Lord Abbett Small Cap Growth Equity (SA)	108,675,588	3.07	2.77	2.77	53.11	116.26	33.42	29.58	17.51	17.36	17.02	05/01/2011
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.73	
Difference			-2.11	-2.11	7.46	26.06	16.26	10.97	4.74	4.34	4.29	
Delaware SMID Focus Growth Equity (SA)	104,123,271	2.94	-0.60	-0.60	44.30	105.09	26.94	24.41	19.76	17.55	17.43	05/01/2011
Russell 2500 Grth Index			2.49	2.49	41.11	87.50	19.96	19.91	14.32	14.21	13.94	
Difference			-3.09	-3.09	3.19	17.59	6.98	4.50	5.44	3.34	3.49	
Other Equity												
Tortoise Direct Opportunities (CF)	10,477,076	0.30	12.25	12.25	45.45	-24.86	-12.12	N/A	N/A	N/A	-4.81	10/01/2016
Alerian MLP Index			21.95	21.95	35.26	103.13	-2.98	-1.30	-6.55	-0.93	-5.53	
Difference			-9.70	-9.70	10.19	-127.99	-9.14	N/A	N/A	N/A	0.72	





	Allocatio	n					Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
International Equity	535,312,817	15.13	1.31	1.31	32.47	55.20	13.31	15.27	10.41	7.71	N/A	07/01/1989
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A	
Difference			-2.18	-2.18	3.80	5.79	6.80	5.51	5.15	2.78	N/A	
International Developed Equity	370,827,904	10.48	0.90	0.90	31.81	54.21	16.57	16.95	12.29	9.48	N/A	04/01/1994
MSCI EAFE Index (USD) (Net)			3.48	3.48	25.84	44.57	6.02	8.85	4.80	5.52	5.35	
Difference			-2.58	-2.58	5.97	9.64	10.55	8.10	7.49	3.96	N/A	
Liquidity Pool - SSgA MSCI ACWI ex US (CF)	31,306,123	0.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chautauqua Intl Growth Equity (CF)	204,147,673	5.77	1.40	1.40	35.37	45.35	13.19	15.14	10.73	N/A	12.01	09/01/2012
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.24	
Difference			-2.09	-2.09	6.70	-4.06	6.68	5.38	5.47	N/A	4.77	
WCM Berkeley Street Intl Equity (SA)	166,648,402	4.71	0.70	0.70	29.28	62.74	19.77	18.64	14.17	N/A	15.27	09/01/2012
MSCI EAFE Index (USD) (Net)			3.48	3.48	25.84	44.57	6.02	8.85	4.80	5.52	7.65	
Difference			-2.78	-2.78	3.44	18.17	13.75	9.79	9.37	N/A	7.62	
Emerging Markets Equity	133,178,790	3.76	3.21	3.21	35.35	59.41	4.24	10.51	5.27	N/A	5.24	09/01/2012
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.35	
Difference			0.92	0.92	1.22	1.02	-2.24	-1.56	-1.31	N/A	-1.11	
RBC GAM Emerging Markets Equity (CF)	65,629,500	1.86	3.08	3.08	33.46	56.21	N/A	N/A	N/A	N/A	13.38	02/01/2019
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	13.58	
Difference			0.79	0.79	-0.67	-2.18	N/A	N/A	N/A	N/A	-0.20	
Wellington Emerging Markets (CF)	67,549,290	1.91	3.34	3.34	37.24	62.64	N/A	N/A	N/A	N/A	14.90	02/01/2019
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	13.58	
Difference			1.05	1.05	3.11	4.25	N/A	N/A	N/A	N/A	1.32	





	Allocatio	Allocation					Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Fixed Income	663,433,910	18.75	-3.38	-3.38	2.80	9.62	2.67	3.09	3.10	3.77	N/A	07/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.86	
Difference			0.00	0.00	4.93	8.91	-1.98	-0.01	-0.21	0.33	N/A	
Garcia Hamilton Core Fixed Income (SA)	198,199,927	5.60	-3.27	-3.27	-1.74	3.04	4.47	3.29	N/A	N/A	3.58	08/01/2014
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.20	
Difference			0.11	0.11	0.39	2.33	-0.18	0.19	N/A	N/A	0.38	
Orleans Core Fixed Income (SA)	153,774,423	4.35	-3.29	-3.29	-1.26	3.94	4.99	3.47	N/A	N/A	3.35	08/01/2014
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.20	
Difference			0.09	0.09	0.87	3.23	0.34	0.37	N/A	N/A	0.15	
Liquidity Pool - SSgA Aggregate Bond (CF)	73,517,825	2.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Garrison Middle Market Funding (CF)	1,372,401	0.04	22.18	22.18	39.74	31.44	4.41	3.80	4.46	N/A	4.61	08/01/2013
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.30	
Difference			25.56	25.56	41.87	30.73	-0.24	0.70	1.15	N/A	1.31	
Medley Opportunity II (CF)	7,056,382	0.20	0.00	0.00	-12.88	-20.75	-16.22	-8.80	-5.24	N/A	-4.47	08/01/2013
CS Lvg'd Loan Index			2.01	2.01	10.08	20.77	4.13	5.33	4.03	4.41	4.14	
Difference			-2.01	-2.01	-22.96	-41.52	-20.35	-14.13	-9.27	N/A	-8.61	
Brandywine Global Fixed Income (CF)	229,512,952	6.49	-3.87	-3.87	10.15	21.25	2.61	4.39	3.42	4.69	5.32	10/01/2009
FTSE Wrld Gov't Bond Index			-5.68	-5.68	-0.22	1.82	2.09	2.15	1.55	1.66	1.77	
Difference			1.81	1.81	10.37	19.43	0.52	2.24	1.87	3.03	3.55	



	Allocation	n					Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Other Fixed Income												
PIMCO Corporate Opp II (CF)	19,393,556	0.55	7.28	7.28	23.37	4.69	7.22	N/A	N/A	N/A	9.79	01/01/2017
Bloomberg US Corp Hi Yld Index	10,000,000	0.00	0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	6.37	0 110 1120 11
Difference			6.43	6.43	11.08	-19.03	0.38	N/A	N/A	N/A	3.42	
PIMCO Bravo III (CF)	52,285,568	1.48	4.07	4.07	14.96	2.05	7.05	N/A	N/A	N/A	8.46	12/01/2017
Bloomberg US Corp Hi Yld Index			0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	5.96	
Difference			3.22	3.22	2.67	-21.67	0.21	N/A	N/A	N/A	2.50	
PIMCO Private Income (CF)	85,387,388	2.41	4.01	4.01	17.30	10.44	N/A	N/A	N/A	N/A	7.87	05/01/2019
Bloomberg US Corp Hi Yld Index			0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	6.84	
Difference			3.16	3.16	5.01	-13.28	N/A	N/A	N/A	N/A	1.03	
Hedge Fund	3,588,887	0.10	10.57	10.57	16.99	6.21	1.62	3.91	2.26	2.91	2.44	07/01/2015
HFRI FOF: Cnsvt Index			3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.40	
Difference			6.88	6.88	4.31	-12.75	-3.36	-0.83	-1.11	-0.27	-0.96	
Glouston Capital Partners Permal (CF)	3,588,887	0.10	10.57	10.57	16.99	6.20	2.01	3.29	N/A	N/A	2.22	07/01/2015
HFRI FOF: Cnsvt Index			3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.40	
Difference			6.88	6.88	4.31	-12.76	-2.97	-1.45	N/A	N/A	-1.18	
Real Estate	280,736,002	7.94	1.74	1.74	1.21	0.21	4.44	6.10	8.21	8.76	6.47	05/01/2005
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.83	
Difference			0.02	0.02	-2.43	-2.40	-0.45	0.29	0.59	-0.06	-1.36	
JP Morgan Strategic Property (CF)	97,951,903	2.77	1.72	1.72	3.65	1.55	4.41	5.81	7.67	9.59	7.46	05/01/2005
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.83	
Difference			0.00	0.00	0.01	-1.06	-0.48	0.00	0.05	0.77	-0.37	
Portfolio Advisors Real Estate III LP	2,145,466	0.06	-3.01	-3.01	-17.60	-17.87	-9.85	-3.54	3.20	3.76	-2.16	08/01/2008
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	5.93	
Difference			-4.73	-4.73	-21.24	-20.48	-14.74	-9.35	-4.42	-5.06	-8.09	
Portfolio Advisors Real Estate IV LP	1,351,272	0.04	3.36	3.36	-4.71	-4.81	0.82	5.11	8.60	N/A	6.56	08/01/2011
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.71	
Difference			1.64	1.64	-8.35	-7.42	-4.07	-0.70	0.98	N/A	-2.15	
Angelo Gordon Net Lease III LP	23,847,884	0.67	2.61	2.61	5.73	5.48	7.09	7.31	4.86	N/A	4.86	04/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.62	
Difference			0.89	0.89	2.09	2.87	2.20	1.50	-2.76	N/A	-2.76	



	Allocation	n					Perfor	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Mesirow Real Estate (CF)	23,082,990	0.65	6.79	6.79	11.11	12.47	14.68	11.03	8.98	N/A	9.09	05/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.71	
Difference			5.07	5.07	7.47	9.86	9.79	5.22	1.36	N/A	1.38	
Dune Real Estate III LP	19,492,946	0.55	-1.45	-1.45	-18.79	-18.99	-3.96	3.05	N/A	N/A	5.17	06/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.81	
Difference			-3.17	-3.17	-22.43	-21.60	-8.85	-2.76	N/A	N/A	-2.64	
Portfolio Advisors Real Estate LP	4,641,693	0.13	-0.83	-0.83	-15.01	-15.44	-5.93	-1.93	N/A	N/A	3.12	07/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.45	
Difference			-2.55	-2.55	-18.65	-18.05	-10.82	-7.74	N/A	N/A	-4.33	
Landmark Real Estate VII LP	7,026,606	0.20	0.57	0.57	-4.06	-5.84	-1.44	2.61	N/A	N/A	11.02	10/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.32	
Difference			-1.15	-1.15	-7.70	-8.45	-6.33	-3.20	N/A	N/A	3.70	
JP Morgan Special Situation Property (CF)	58,525,445	1.65	1.82	1.82	4.90	4.05	6.88	8.27	N/A	N/A	10.60	12/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.52	
Difference			0.10	0.10	1.26	1.44	1.99	2.46	N/A	N/A	3.08	
Hall Capital III LP	8,170,561	0.23	0.00	0.00	-0.15	0.01	4.94	6.57	N/A	N/A	1.55	12/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.52	
Difference			-1.72	-1.72	-3.79	-2.60	0.05	0.76	N/A	N/A	-5.97	
Portfolio Advisors Real Estate VI LP	16,194,712	0.46	3.08	3.08	-0.56	-0.95	5.28	N/A	N/A	N/A	8.05	02/01/2017
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	5.61	
Difference			1.36	1.36	-4.20	-3.56	0.39	N/A	N/A	N/A	2.44	
Dune Real Estate IV LP	14,385,199	0.41	-1.60	-1.60	-12.24	-14.66	N/A	N/A	N/A	N/A	-14.38	09/01/2019
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	4.01	
Difference			-3.32	-3.32	-15.88	-17.27	N/A	N/A	N/A	N/A	-18.39	
Hall Capital Real Estate LP	3,919,324	0.11	0.00	0.00	3.37	4.89	N/A	N/A	N/A	N/A	4.11	10/01/2018
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	4.45	
Difference			-1.72	-1.72	-0.27	2.28	N/A	N/A	N/A	N/A	-0.34	





	Allocation	Allocation					Perfori	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Private Equity	119,493,843	3.38	11.54	11.54	22.41	16.04	13.66	13.32	15.40	N/A	15.40	04/01/2014
Pomona Captial VIII LP	3,733,315	0.11	0.00	0.00	43.17	18.02	11.08	13.04	15.33	N/A	15.33	04/01/2014
Capital Dynamics Global Secondaries IV	30,015,545	0.85	13.89	13.89	24.06	12.78	15.19	12.52	N/A	N/A	11.85	01/01/2015
Ardian AESF VI LP	27,396,631	0.77	15.12	15.12	13.62	10.79	8.45	N/A	N/A	N/A	11.31	04/01/2017
Pomona Capital IX LP	21,684,724	0.61	0.00	0.00	21.48	15.56	34.49	N/A	N/A	N/A	33.42	03/01/2018
Argonaut Private Equity IV LP	8,995,810	0.25	0.00	0.00	-12.46	-8.82	N/A	N/A	N/A	N/A	-1.26	09/01/2018
Ardian ASF VIII LP	22,101,959	0.62	21.54	21.54	45.56	N/A	N/A	N/A	N/A	N/A	45.56	05/01/2020
Ardian Real Estate (CF)	5,565,859	0.16	21.29	21.29	31.88	18.50	11.50	11.77	13.03	N/A	13.20	05/01/2014



	Allocatio	n					Perfori	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OFPRS Total Fund	3,537,854,799	100.00	3.70	3.70	24.69	41.12	12.43	12.70	10.22	10.09	8.76	07/01/1989
OFPRS Policy Index			3.77	3.77	21.48	36.63	11.73	11.57	9.57	9.89	N/A	
Difference			-0.07	-0.07	3.21	4.49	0.70	1.13	0.65	0.20	N/A	
OFPRS Actual Allocation Index			3.32	3.32	21.00	36.31	11.03	11.40	8.93	9.29	8.46	
Difference			0.38	0.38	3.69	4.81	1.40	1.30	1.29	0.80	0.30	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			1.88	1.88	19.12	33.62	4.93	5.20	2.72	2.59	1.26	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	8.37	
Rank			29	29	6	11	3	2	2	3	22	
Total Equity	2,294,620,569	64.86	5.51	5.51	36.31	67.31	17.51	17.49	13.24	12.75	9.95	07/01/1989
Wilshire 5000 Index			6.49	6.49	33.04	62.23	17.18	16.71	13.56	13.82	10.63	
Difference			-0.98	-0.98	3.27	5.08	0.33	0.78	-0.32	-1.07	-0.68	
US Equity	1,759,307,752	49.73	7.08	7.08	37.79	71.61	18.71	18.12	14.09	14.12	10.41	07/01/1989
Wilshire 5000 Index			6.49	6.49	33.04	62.23	17.18	16.71	13.56	13.82	10.63	
Difference			0.59	0.59	4.75	9.38	1.53	1.41	0.53	0.30	-0.22	
IM U.S. Equity (SA+CF) Median			9.26	9.26	38.41	69.78	15.45	15.91	12.33	13.17	11.72	
Rank			61	61	51	48	28	31	30	34	93	
US Large Cap Equity	1,284,333,069	36.30	6.95	6.95	32.84	61.65	16.90	16.56	13.47	13.91	10.58	07/01/1989
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	10.76	
Difference			1.04	1.04	1.02	1.06	-0.41	-0.10	-0.17	-0.06	-0.18	
IM U.S. Large Cap Equity (SA+CF) Median			6.64	6.64	30.89	59.49	16.50	16.25	13.34	13.84	11.13	
Rank			48	48	40	40	45	45	48	47	84	
US Large Cap Core Equity	838,959,929	23.71	7.61	7.61	34.09	62.24	15.96	15.81	13.26	13.79	10.22	11/01/1996
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	9.38	
Difference			1.44	1.44	4.38	5.89	-0.82	-0.48	-0.33	-0.12	0.84	
IM U.S. Large Cap Core Equity (SA+CF) Median			6.75	6.75	30.50	57.08	15.94	16.10	13.25	13.76	10.04	
Rank			40	40	25	28	50	55	50	50	46	
SSgA Equity Index (CF)	256,326,248	7.25	6.19	6.19	29.76	56.40	16.79	16.32	13.63	13.95	9.40	11/01/1996
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	9.38	
Difference			0.02	0.02	0.05	0.05	0.01	0.03	0.04	0.04	0.02	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	9.45	
Rank			51	51	59	61	54	56	34	34	74	



	Allocation	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
SSgA Eq Wtd S&P Index (CF)	257,419,175	7.28	11.30	11.30	40.87	70.96	14.67	14.63	12.05	13.03	10.55	12/01/2001
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	10.57	
Difference			-0.19	-0.19	-0.11	-0.65	-0.23	-0.11	-0.08	-0.06	-0.02	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	9.00	
Rank			4	4	5	4	82	82	82	82	2	
Liquidity Pool - SSgA Equity Index (CF)	59,080,669	1.67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Large Cap Core Equity (SA+CF) Median			6.75	6.75	30.50	57.08	15.94	16.10	13.25	13.76	N/A	
Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Liquidity Pool - SSgA Eq Wtd S&P Index (CF)	14,770,181	0.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
S&P 500 Index (Eq Wtd)			11.49	11.49	40.98	71.61	14.90	14.74	12.13	13.09	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Large Cap Core Equity (SA+CF) Median			6.75	6.75	30.50	57.08	15.94	16.10	13.25	13.76	N/A	
Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Intech Enhanced Investment Tech (SA)	251,363,655	7.10	5.39	5.39	31.52	59.33	16.13	16.09	13.80	14.17	9.88	02/01/2002
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	8.94	
Difference			-0.78	-0.78	1.81	2.98	-0.65	-0.20	0.21	0.26	0.94	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	9.11	
Rank			85	85	52	52	78	77	21	19	13	
US Large Cap Value Equity	236,348,353	6.68	9.72	9.72	34.30	55.77	11.99	12.96	9.28	10.78	9.62	06/01/1990
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	9.98	
Difference			-1.54	-1.54	-2.27	-0.32	1.03	1.22	-0.12	-0.21	-0.36	
IM U.S. Large Cap Value Equity (SA+CF) Median			11.56	11.56	37.24	61.36	11.93	13.05	10.42	11.85	11.10	
Rank			70	70	64	68	49	52	76	80	96	
Beutel Goodman American Equity (SA)	126,069,226	3.56	9.43	9.43	33.13	54.61	16.49	15.40	N/A	N/A	15.92	05/01/2016
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	11.48	
Difference			-1.83	-1.83	-3.44	-1.48	5.53	3.66	N/A	N/A	4.44	
IM U.S. Large Cap Value Equity (SA+CF) Median			11.56	11.56	37.24	61.36	11.93	13.05	10.42	11.85	12.82	
Rank			73	73	70	71	14	21	N/A	N/A	16	
Aristotle US Equity (SA)	110,279,127	3.12	10.05	10.05	N/A	N/A	N/A	N/A	N/A	N/A	24.76	09/01/2020
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	26.16	
Difference			-1.21	-1.21	N/A	N/A	N/A	N/A	N/A	N/A	-1.40	
IM U.S. Large Cap Value Equity (SA+CF) Median			11.56	11.56	37.24	61.36	11.93	13.05	10.42	11.85	26.30	
Rank			66	66	N/A	N/A	N/A	N/A	N/A	N/A	58	



	Allocatio	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
US Large Cap Growth Equity	209,024,787	5.91	1.65	1.65	26.90	62.34	23.98	22.14	18.14	17.24	10.72	07/01/1989
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	11.09	
Difference			0.71	0.71	-0.40	-0.40	1.18	1.09	0.64	0.61	-0.37	
IM U.S. Large Cap Growth Equity (SA+CF) Median			2.25	2.25	27.20	60.48	21.53	20.13	16.53	15.89	12.26	
Rank			60	60	55	39	25	24	22	21	95	
Fred Alger Capital Appreciation (SA)	209,024,787	5.91	1.65	1.65	26.90	62.34	23.98	22.11	18.12	17.23	18.70	08/01/2010
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	17.97	
Difference			0.71	0.71	-0.40	-0.40	1.18	1.06	0.62	0.60	0.73	
IM U.S. Large Cap Growth Equity (SA+CF) Median			2.25	2.25	27.20	60.48	21.53	20.13	16.53	15.89	17.39	
Rank			60	60	55	39	25	24	22	21	19	
US Small Cap Equity	474,974,683	13.43	7.29	7.29	50.11	99.32	23.03	21.78	15.56	15.17	11.12	07/01/1992
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.45	
Difference			-5.41	-5.41	-5.25	4.47	8.27	5.43	4.51	3.49	0.67	
IM U.S. Small Cap Equity (SA+CF) Median			13.65	13.65	53.92	94.10	14.82	16.11	11.65	12.68	13.38	
Rank			79	79	66	36	16	18	17	20	92	
Liqiduity Pool - SSgA Small Cap Completeness Index (CF)	31,584,018	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
Russell Sm Cap Compl Index			7.27	7.27	51.21	97.64	18.27	18.14	12.73	13.18	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Small Cap Equity (SA+CF) Median			13.65	13.65	53.92	94.10	14.82	16.11	11.65	12.68	N/A	
Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
US Small Cap Value Equity	230,591,806	6.52	14.68	14.68	50.17	83.53	15.36	16.64	12.37	12.73	11.36	09/01/1992
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	10.50	
Difference			1.98	1.98	-5.19	-11.32	0.60	0.29	1.32	1.05	0.86	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	13.25	
Rank			78	78	82	70	15	15	10	18	90	
Earnest Partner Small Cap Value Equity (SA)	119,276,986	3.37	16.06	16.06	55.99	93.35	17.27	18.41	13.61	13.57	10.66	09/01/2005
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	8.01	
Difference			-5.11	-5.11	-9.73	-3.70	5.70	4.85	4.68	3.51	2.65	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	9.75	
Rank			67	67	60	49	9	5	4	8	30	
River Road Small Cap Value Equity (SA)	111,314,820	3.15	13.31	13.31	43.85	72.99	13.22	14.71	11.00	11.80	8.36	05/01/2007
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	7.14	
Difference			-7.86	-7.86	-21.87	-24.06	1.65	1.15	2.07	1.74	1.22	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	9.11	
Rank			85	85	91	88	28	31	22	33	73	



	Allocatio	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
US Small Cap Growth Equity	212,798,859	6.01	1.09	1.09	48.64	110.60	30.04	26.81	18.73	17.64	10.00	07/01/1992
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	9.37	
Difference			-3.79	-3.79	2.99	20.40	12.88	8.20	5.96	4.62	0.63	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	13.89	
Rank			87	87	45	29	15	25	13	15	98	
Lord Abbett Small Cap Growth Equity (SA)	108,675,588	3.07	2.77	2.77	53.11	116.26	33.42	29.58	17.51	17.36	17.02	05/01/2011
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.73	
Difference			-2.11	-2.11	7.46	26.06	16.26	10.97	4.74	4.34	4.29	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	15.00	
Rank			73	73	33	21	12	14	23	17	17	
Delaware SMID Focus Growth Equity (SA)	104,123,271	2.94	-0.60	-0.60	44.30	105.09	26.94	24.41	19.76	17.55	17.43	05/01/2011
Russell 2500 Grth Index			2.49	2.49	41.11	87.50	19.96	19.91	14.32	14.21	13.94	
Difference			-3.09	-3.09	3.19	17.59	6.98	4.50	5.44	3.34	3.49	
IM U.S. SMID Cap Growth Equity (SA+CF) Median			3.27	3.27	38.80	86.96	21.78	21.06	15.10	14.92	14.61	
Rank			81	81	37	24	22	25	3	13	11	
Other Equity												
Tortoise Direct Opportunities (CF)	10,477,076	0.30	12.25	12.25	45.45	-24.86	-12.12	N/A	N/A	N/A	-4.81	10/01/2016
Alerian MLP Index			21.95	21.95	35.26	103.13	-2.98	-1.30	-6.55	-0.93	-5.53	
Difference			-9.70	-9.70	10.19	-127.99	-9.14	N/A	N/A	N/A	0.72	
International Equity	535,312,817	15.13	1.31	1.31	32.47	55.20	13.31	15.27	10.43	7.74	N/A	07/01/1989
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A	
Difference			-2.18	-2.18	3.80	5.79	6.80	5.51	5.17	2.81	N/A	
IM International Equity (SA+CF) Median			3.79	3.85	32.89	57.57	7.11	11.12	6.96	6.89	8.93	
Rank			77	77	52	59	11	15	15	37	N/A	
International Developed Equity	370,827,904	10.48	0.90	0.90	31.81	54.21	16.57	16.95	12.31	9.49	7.31	04/01/1994
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.75	
Difference			-2.59	-2.59	3.14	4.80	10.06	7.19	7.05	4.56	1.56	
IM International Equity Developed Markets (SA+CF) Median			4.04	4.05	30.77	54.60	7.18	10.58	6.79	7.49	7.91	
Rank			82	82	44	52	4	6	6	19	68	
Liquidity Pool - SSgA MSCI ACWI ex US (CF)	31,306,123	0.88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	N/A	
Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	



	Allocation	ı		Performance (%)									
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
Chautauqua Intl Growth Equity (CF)	204,147,673	5.77	1.40	1.40	35.37	45.35	13.20	15.14	10.73	N/A	12.01	09/01/2012	
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	7.24		
Difference			-2.09	-2.09	6.70	-4.06	6.69	5.38	5.47	N/A	4.77		
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	9.11		
Rank			71	71	21	83	13	12	10	N/A	11		
WCM Berkeley Street Intl Equity (SA)	166,648,402	4.71	0.70	0.70	29.28	62.74	19.77	18.64	14.17	N/A	15.27	09/01/2012	
MSCI EAFE Index (USD) (Net)			3.48	3.48	25.84	44.57	6.02	8.85	4.80	5.52	7.65		
Difference			-2.78	-2.78	3.44	18.17	13.75	9.79	9.37	N/A	7.62		
IM EAFE Core (SA+CF) Median			4.08	4.08	27.56	48.44	6.40	9.33	5.77	6.93	8.77		
Rank			92	92	28	7	1	1	1	N/A	1		
Emerging Markets Equity	133,178,790	3.76	3.21	3.21	35.35	59.41	4.24	10.51	5.28	N/A	5.32	09/01/2012	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.35		
Difference			0.92	0.92	1.22	1.02	-2.24	-1.56	-1.30	N/A	-1.03		
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	7.91		
Rank			56	55	67	69	79	75	84	N/A	91		
RBC GAM Emerging Markets Equity (CF)	65,629,500	1.86	3.08	3.08	33.46	56.21	N/A	N/A	N/A	N/A	13.38	02/01/2019	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	13.58		
Difference			0.79	0.79	-0.67	-2.18	N/A	N/A	N/A	N/A	-0.20		
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	15.70		
Rank			57	57	79	83	N/A	N/A	N/A	N/A	68		
Wellington Emerging Markets (CF)	67,549,290	1.91	3.34	3.34	37.24	62.64	N/A	N/A	N/A	N/A	14.90	02/01/2019	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	13.58		
Difference			1.05	1.05	3.11	4.25	N/A	N/A	N/A	N/A	1.32		
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	15.70		
Rank			53	53	51	57	N/A	N/A	N/A	N/A	54		



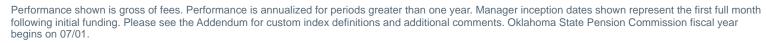
	Allocatio	n										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Fixed Income	663,433,910	18.75	-3.38	-3.38	2.80	9.62	2.67	3.09	3.11	3.79	5.86	07/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.86	
Difference			0.00	0.00	4.93	8.91	-1.98	-0.01	-0.20	0.35	0.00	
IM Global Fixed Income (SA+CF) Median			-1.95	-1.95	5.92	13.92	4.62	4.91	3.93	3.94	N/A	
Rank			67	68	71	68	87	88	66	56	N/A	
Garcia Hamilton Core Fixed Income (SA)	198,199,927	5.60	-3.27	-3.27	-1.74	3.04	4.47	3.29	N/A	N/A	3.58	08/01/2014
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.20	
Difference			0.11	0.11	0.39	2.33	-0.18	0.19	N/A	N/A	0.38	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	3.71	
Rank			58	58	71	55	95	77	N/A	N/A	61	
Orleans Core Fixed Income (SA)	153,774,423	4.35	-3.29	-3.29	-1.26	3.94	4.99	3.47	N/A	N/A	3.35	08/01/2014
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.20	
Difference			0.09	0.09	0.87	3.23	0.34	0.37	N/A	N/A	0.15	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	3.71	
Rank			59	59	60	39	69	70	N/A	N/A	78	
Liquidity Pool - SSgA Aggregate Bond (CF)	73,517,825	2.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	04/01/2021
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	N/A	
Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Garrison Middle Market Funding (CF)	1,372,401	0.04	22.18	22.18	39.74	31.44	4.41	3.80	4.46	N/A	4.61	08/01/2013
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.30	
Difference			25.56	25.56	41.87	30.73	-0.24	0.70	1.15	N/A	1.31	
IM U.S. Broad Market Core+ Fixed Income (SA+CF) Median			-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	4.25	
Rank			1	1	1	1	95	79	30	N/A	29	
Medley Opportunity II (CF)	7,056,382	0.20	0.00	0.00	-12.88	-20.75	-16.22	-8.80	-5.24	N/A	-4.47	08/01/2013
CS Lvg'd Loan Index			2.01	2.01	10.08	20.77	4.13	5.33	4.03	4.41	4.14	
Difference			-2.01	-2.01	-22.96	-41.52	-20.35	-14.13	-9.27	N/A	-8.61	
Brandywine Global Fixed Income (CF)	229,512,952	6.49	-3.87	-3.87	10.15	21.25	2.61	4.39	3.42	4.69	5.32	10/01/2009
FTSE Wrld Gov't Bond Index			-5.68	-5.68	-0.22	1.82	2.09	2.15	1.55	1.66	1.77	
Difference			1.81	1.81	10.37	19.43	0.52	2.24	1.87	3.03	3.55	
IM Global Fixed Income (SA+CF) Median			-1.95	-1.95	5.92	13.92	4.62	4.91	3.93	3.94	4.22	
Rank			76	77	34	35	88	61	58	33	33	



	Allocation	n		Performance (%)								
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Other Fixed Income												
PIMCO Corporate Opp II (CF)	19,393,556	0.55	7.28	7.28	23.37	4.69	7.22	N/A	N/A	N/A	9.79	01/01/2017
Bloomberg US Corp Hi Yld Index	13,333,330	0.55	0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	6.37	01/01/2017
Difference			6.43	6.43	11.08	-19.03	0.38	N/A	N/A	N/A	3.42	
Difference			0.43	0.43	11.00	-13.03	0.50	IN//	IN/ /\	IN/ /\	5.42	
PIMCO Bravo III (CF)	52,285,568	1.48	4.07	4.07	14.96	2.05	7.05	N/A	N/A	N/A	8.46	12/01/2017
Bloomberg US Corp Hi Yld Index			0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	5.96	
Difference			3.22	3.22	2.67	-21.67	0.21	N/A	N/A	N/A	2.50	
PIMCO Private Income (CF)	85,387,388	2.41	4.01	4.01	17.30	10.44	N/A	N/A	N/A	N/A	7.87	05/01/2019
Bloomberg US Corp Hi Yld Index	, ,		0.85	0.85	12.29	23.72	6.84	8.06	5.42	6.48	6.84	
Difference			3.16	3.16	5.01	-13.28	N/A	N/A	N/A	N/A	1.03	
Hedge Fund	3,588,887	0.10	10.57	10.57	16.99	6.21	1.62	3.91	2.26	2.91	2.54	06/01/2015
HFRI FOF: Cnsvt Index	, ,		3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.25	
Difference			6.88	6.88	4.31	-12.75	-3.36	-0.83	-1.11	-0.27	-0.71	
Glouston Capital Partners Permal (CF)	3,588,887	0.10	10.57	10.57	16.99	6.20	2.01	3.29	N/A	N/A	2.19	06/01/2015
HFRI FOF: Cnsvt Index	0,000,001	00	3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.25	00/01/2010
Difference			6.88	6.88	4.31	-12.76	-2.97	-1.45	N/A	N/A	-1.06	
Real Estate	280,736,002	7.94	1.74	1.74	1,21	0.21	4.44	6.10	8.29	8.81	6.51	05/01/2005
NCREIF Property Index	200,100,002		1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.83	00/01/2000
Difference			0.02	0.02	-2.43	-2.40	-0.45	0.29	0.67	-0.01	-1.32	
JP Morgan Strategic Property (CF)	97,951,903	2.77	1.72	1.72	3.65	1.55	4.41	5.81	7.79	9.68	7.52	05/01/2005
NCREIF Property Index	97,951,905	2.11	1.72	1.72	3.64	2.61	4.41	5.81	7.62	8.82	7.83	05/01/2005
Difference			0.00	0.00	0.01	-1.06	-0.48	0.00	0.17	0.86	-0.31	
Difference			0.00	0.00	0.01	-1.00	-0.40	0.00	0.17	0.00	-0.51	
Portfolio Advisors Real Estate III LP	2,145,466	0.06	-3.01	-3.01	-17.60	-17.87	-9.85	-3.54	3.20	3.76	-2.16	08/01/2008
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	5.93	
Difference			-4.73	-4.73	-21.24	-20.48	-14.74	-9.35	-4.42	-5.06	-8.09	
Portfolio Advisors Real Estate IV LP	1,351,272	0.04	3.36	3.36	-4.71	-4.81	0.82	5.11	8.60	N/A	6.56	08/01/2011
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.71	
Difference			1.64	1.64	-8.35	-7.42	-4.07	-0.70	0.98	N/A	-2.15	
Angelo Gordon Net Lease III LP	23,847,884	0.67	2.61	2.61	5.73	5.48	7.09	7.31	4.86	N/A	4.86	04/01/2014
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.62	
Difference			0.89	0.89	2.09	2.87	2.20	1.50	-2.76	N/A	-2.76	



	Allocation	1	Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
Mesirow Real Estate (CF)	23,082,990	0.65	6.79	6.79	11.11	12.47	14.68	11.03	8.98	N/A	9.09	05/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.71		
Difference			5.07	5.07	7.47	9.86	9.79	5.22	1.36	N/A	1.38		
Dune Real Estate III LP	19,492,946	0.55	-1.45	-1.45	-18.79	-18.99	-3.96	3.05	N/A	N/A	5.17	06/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.81		
Difference			-3.17	-3.17	-22.43	-21.60	-8.85	-2.76	N/A	N/A	-2.64		
Portfolio Advisors Real Estate LP	4,641,693	0.13	-0.83	-0.83	-15.01	-15.44	-5.93	-1.93	N/A	N/A	3.12	07/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.45		
Difference			-2.55	-2.55	-18.65	-18.05	-10.82	-7.74	N/A	N/A	-4.33		
Landmark Real Estate VII LP	7,026,606	0.20	0.57	0.57	-4.06	-5.84	-1.44	2.61	N/A	N/A	11.02	10/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.32		
Difference			-1.15	-1.15	-7.70	-8.45	-6.33	-3.20	N/A	N/A	3.70		
JP Morgan Special Situation Property (CF)	58,525,445	1.65	1.82	1.82	4.90	4.05	6.88	8.27	N/A	N/A	10.60	12/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.52		
Difference			0.10	0.10	1.26	1.44	1.99	2.46	N/A	N/A	3.08		
Hall Capital III LP	8,170,561	0.23	0.00	0.00	-0.15	0.01	4.94	6.57	N/A	N/A	1.55	12/01/2014	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	7.52		
Difference			-1.72	-1.72	-3.79	-2.60	0.05	0.76	N/A	N/A	-5.97		
Portfolio Advisors Real Estate VI LP	16,194,712	0.46	3.08	3.08	-0.56	-0.95	5.28	N/A	N/A	N/A	8.05	02/01/2017	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	5.61		
Difference			1.36	1.36	-4.20	-3.56	0.39	N/A	N/A	N/A	2.44		
Dune Real Estate IV LP	14,385,199	0.41	-1.60	-1.60	-12.24	-14.66	N/A	N/A	N/A	N/A	-14.38	09/01/2019	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	4.01		
Difference			-3.32	-3.32	-15.88	-17.27	N/A	N/A	N/A	N/A	-18.39		
Hall Capital Real Estate LP	3,919,324	0.11	0.00	0.00	3.37	4.89	N/A	N/A	N/A	N/A	4.11	10/01/2018	
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	4.45		
Difference			-1.72	-1.72	-0.27	2.28	N/A	N/A	N/A	N/A	-0.34		





	Allocation	Allocation					Perfori	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Private Equity	119,493,843	3.38	11.54	11.54	22.41	16.04	13.66	13.32	15.40	N/A	15.40	04/01/2014
Pomona Captial VIII LP	3,733,315	0.11	0.00	0.00	43.17	18.02	11.08	13.04	15.33	N/A	15.33	04/01/2014
Capital Dynamics Global Secondaries IV	30,015,545	0.85	13.89	13.89	24.06	12.78	15.19	12.52	N/A	N/A	11.85	01/01/2015
Ardian AESF VI LP	27,396,631	0.77	15.12	15.12	13.62	10.79	8.45	N/A	N/A	N/A	11.31	04/01/2017
Pomona Capital IX LP	21,684,724	0.61	0.00	0.00	21.48	15.56	34.49	N/A	N/A	N/A	33.42	03/01/2018
Argonaut Private Equity IV LP	8,995,810	0.25	0.00	0.00	-12.46	-8.82	N/A	N/A	N/A	N/A	-1.26	09/01/2018
Ardian ASF VIII LP	22,101,959	0.62	21.54	21.54	45.56	N/A	N/A	N/A	N/A	N/A	45.56	05/01/2020
Ardian Real Estate (CF)	5,565,859	0.16	21.29	21.29	31.88	18.50	11.50	11.77	13.03	N/A	13.20	05/01/2014



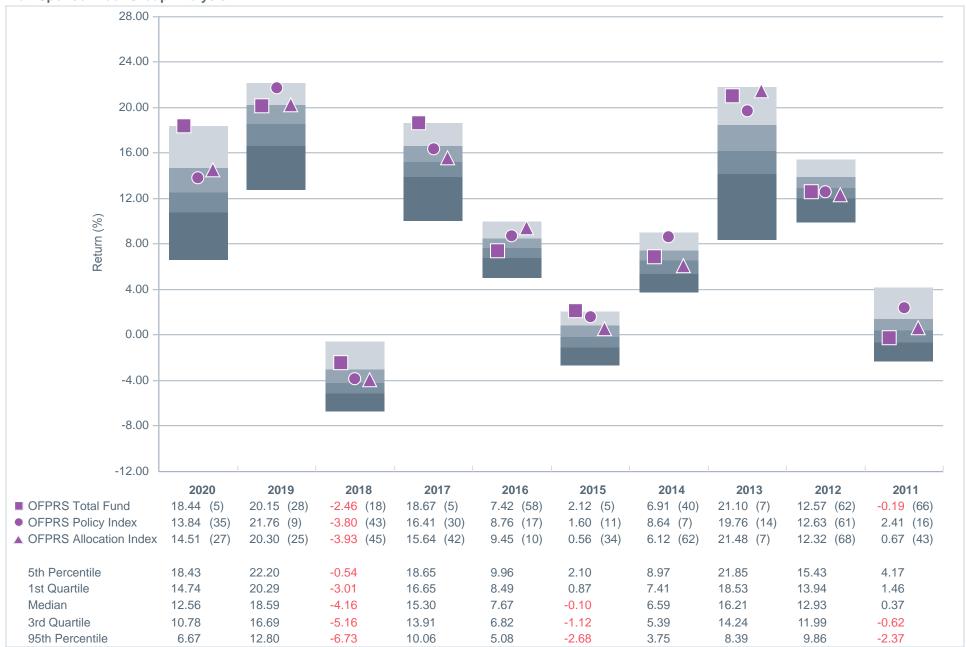
Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



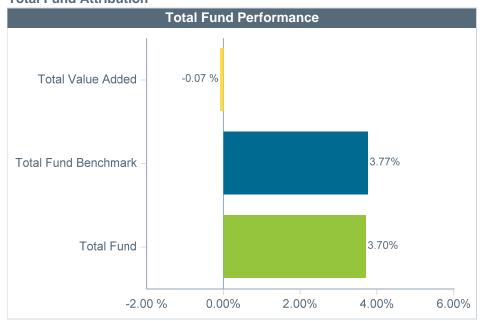
Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

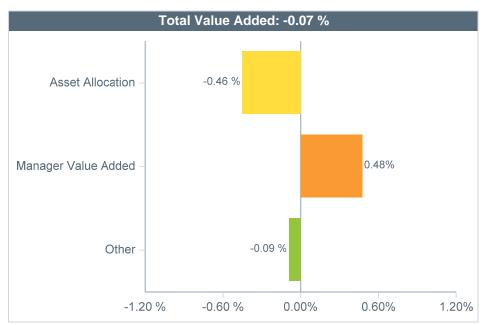


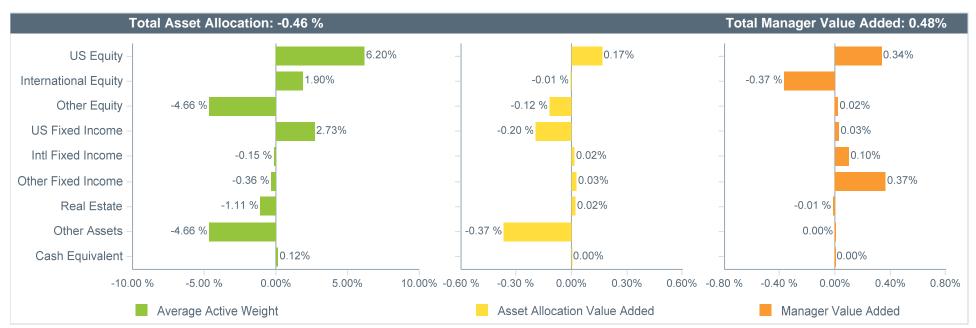
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System Total Fund Attribution





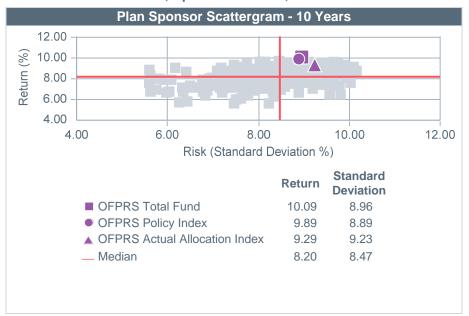


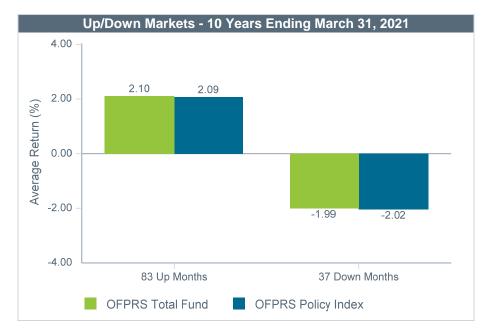
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation. Allocation to Other Equity includes opportunistic equity; Other Fixed Income includes non-core Fixed Income; and Other Assets include Hedge Funds and Private Equity.

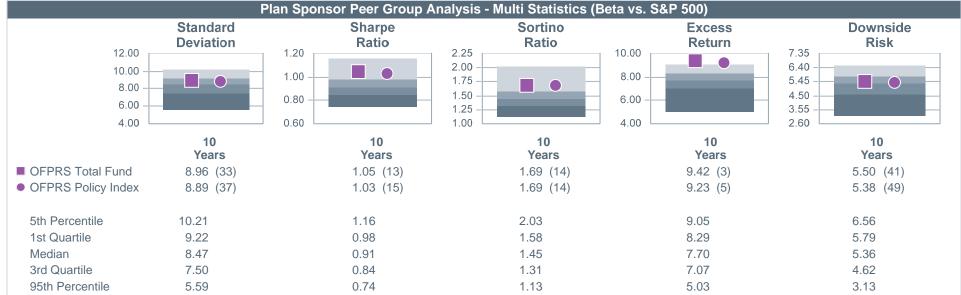


Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



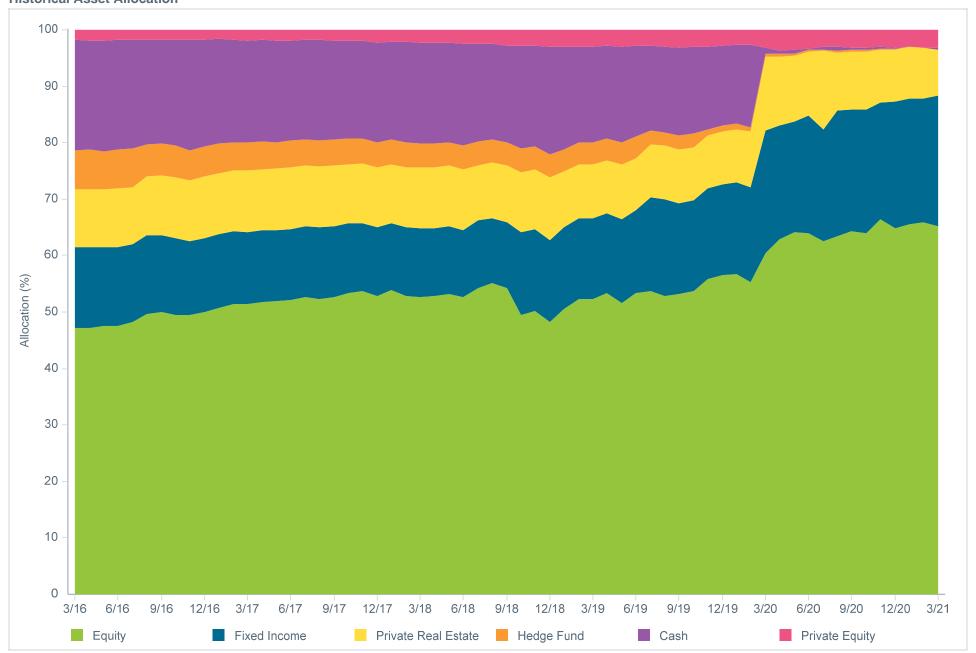




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Firefighters Pension & Retirement System Historical Asset Allocation





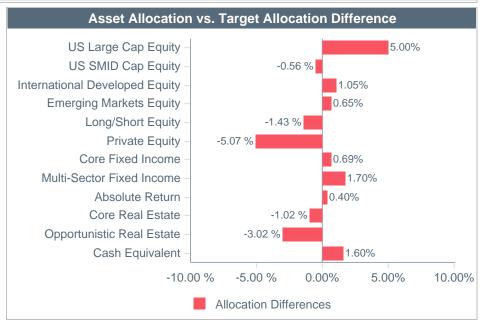
Oklahoma Police Pension & Retirement System (OPPRS)



Oklahoma State Pension Commission Oklahoma Police Pension & Retirement System Total Fund Summary

	Performance (%)													
			Trailir	ng						Calenda	ır Year			
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	
OPPRS Total Fund (Net)	4.38	4.38	20.97	31.80	9.26	9.56	7.33	7.62	12.17	15.22	-2.85	12.91	7.04	
OPPRS Policy Index	2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	12.33	18.96	-5.34	15.45	7.07	
Difference	1.77	1.77	3.02	-0.32	-0.05	-0.06	0.20	-0.20	-0.16	-3.74	2.49	-2.54	-0.03	
OPPRS Actual Allocation Index	2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	20.17	15.02	-3.70	13.78	6.66	
Difference	2.04	2.04	3.39	0.82	-1.47	-0.92	-0.55	-0.38	-8.00	0.20	0.85	-0.87	0.38	
Actuarial Discount Rate (7.5%)	1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	
Difference	2.56	2.56	15.40	24.30	1.76	2.06	-0.17	0.12	4.67	7.72	-10.35	5.41	-0.46	
OPPRS Total Fund (Gross)	4.47	4.47	21.28	32.20	9.67	9.99	7.76	8.04	12.54	15.68	-2.46	13.40	7.47	
OPPRS Policy Index	2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	12.33	18.96	-5.34	15.45	7.07	
Difference	1.86	1.86	3.33	0.08	0.36	0.37	0.63	0.22	0.21	-3.28	2.88	-2.05	0.40	
OPPRS Actual Allocation Index	2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	20.17	15.02	-3.70	13.78	6.66	
Difference	2.13	2.13	3.70	1.22	-1.06	-0.49	-0.12	0.04	-7.63	0.66	1.24	-0.38	0.81	
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67	
Rank	9	9	30	63	53	58	59	58	51	85	18	82	57	

Asset Alloc	ation vs. Target <i>I</i>	Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OPPRS (Police)	3,081,893,070	100.00	100.00
US Large Cap Equity	616,322,974	20.00	15.00
US SMID Cap Equity	290,973,101	9.44	10.00
International Developed Equity	340,419,627	11.05	10.00
Emerging Markets Equity	174,054,811	5.65	5.00
Long/Short Equity	264,223,007	8.57	10.00
Private Equity	306,091,111	9.93	15.00
Core Fixed Income	252,535,241	8.19	7.50
Multi-Sector Fixed Income	283,678,545	9.20	7.50
Absolute Return	166,423,516	5.40	5.00
Core Real Estate	276,751,200	8.98	10.00
Opportunistic Real Estate	61,147,071	1.98	5.00
Cash Equivalent	49,272,866	1.60	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocatio	n					Perfor	mance (%)			
	Market	%	QTD	CYTD	FYTD	1	3	5	7	10	Since	Inception
	Value (\$)	70	QID	CTID	FIID	Year	Years	Years	Years	Years	Incep.	Date
OPPRS Total Fund	3,081,893,070	100.00	4.38	4.38	20.97	31.80	9.26	9.56	7.33	7.62	6.93	07/01/2005
OPPRS Policy Index			2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	6.72	
Difference			1.77	1.77	3.02	-0.32	-0.05	-0.06	0.20	-0.20	0.21	
OPPRS Actual Allocation Index			2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	7.19	
Difference			2.04	2.04	3.39	0.82	-1.47	-0.92	-0.55	-0.38	-0.26	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			2.56	2.56	15.40	24.30	1.76	2.06	-0.17	0.12	-0.57	
Total Equity	1,992,084,631	64.64	6.85	6.85	33.29	52.23	13.38	13.41	10.27	10.17	8.33	07/01/2005
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	7.87	
Difference			2.28	2.28	3.61	-2.37	1.31	0.20	0.87	1.03	0.46	
US Equity												
Northern Trust Russell 1000 Index (SA)	616,322,974	20.00	5.94	5.94	31.80	60.55	17.30	16.65	13.64	13.96	N/A	07/01/1998
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	7.98	
Difference			0.03	0.03	-0.02	-0.04	-0.01	-0.01	0.00	-0.01	N/A	
Boston Partners SMID Value Equity (SA)	141,215,474	4.58	17.73	17.73	62.63	100.36	9.84	12.28	8.83	10.66	N/A	06/01/1997
Russell 2500 Val Index			16.83	16.83	55.45	87.47	10.88	12.15	8.70	10.23	9.86	
Difference			0.90	0.90	7.18	12.89	-1.04	0.13	0.13	0.43	N/A	
Silvercrest Small Cap Growth Equity (SA)	149,757,627	4.86	14.30	14.30	66.61	138.77	28.08	26.49	14.91	N/A	12.83	01/01/2014
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.38	
Difference			9.42	9.42	20.96	48.57	10.92	7.88	2.14	N/A	0.45	
International Equity												
Mondrian International Value Equity (SA)	156,417,092	5.08	7.02	7.02	27.56	38.80	3.03	6.26	3.12	4.72	N/A	04/01/2004
MSCI EAFE Val Index (USD) (Net)			7.44	7.44	29.60	45.71	1.85	6.57	2.19	3.65	4.65	
Difference			-0.42	-0.42	-2.04	-6.91	1.18	-0.31	0.93	1.07	N/A	
Barings Focused EAFE Plus Equity (SA)	184,002,535	5.97	3.57	3.57	23.71	41.97	6.91	9.86	6.61	N/A	6.21	02/01/2012
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.72	
Difference			0.08	0.08	-4.96	-7.44	0.40	0.10	1.35	N/A	-0.51	

Performance shown is net of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01. Total Equity includes Public Equity, Private Equity, and Long/Short Equity.



	Allocation	n					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
AB EM Strategic Core Equity (CF)	115,360,054	3.74	3.49	3.49	32.68	52.51	4.48	N/A	N/A	N/A	8.77	10/01/2016
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	11.17	
Difference			1.20	1.20	-1.45	-5.88	-2.00	N/A	N/A	N/A	-2.40	
Wasatch EM Small Cap (SA)	58,694,757	1.90	4.77	4.77	39.11	84.72	14.54	14.80	9.42	N/A	8.29	08/01/2012
MSCI Emg Mkts Sm Cap Index (USD) (Net)			7.67	7.67	47.18	87.13	5.19	9.59	5.46	3.33	6.54	
Difference			-2.90	-2.90	-8.07	-2.41	9.35	5.21	3.96	N/A	1.75	
Fixed Income	536,213,786	17.40	-0.69	-0.69	4.30	9.53	4.26	4.10	2.79	N/A	N/A	07/01/2005
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.04	
Difference			2.69	2.69	6.43	8.82	-0.39	1.00	-0.52	N/A	N/A	
Agincourt Core Fixed Income (SA)	252,535,241	8.19	-3.76	-3.76	-2.27	2.14	5.08	3.54	3.61	3.80	N/A	07/01/1998
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.75	
Difference			-0.38	-0.38	-0.14	1.43	0.43	0.44	0.30	0.36	N/A	
Loomis Sayles Global World Bond (SA)	88,466,430	2.87	-5.48	-5.48	3.49	10.57	3.27	3.81	2.45	2.65	3.41	05/01/2008
FTSE Wrld Gov't Bond Index			-5.68	-5.68	-0.22	1.82	2.09	2.15	1.55	1.66	2.27	
Difference			0.20	0.20	3.71	8.75	1.18	1.66	0.90	0.99	1.14	
Oaktree Global Credit (SA)	150,084,735	4.87	1.91	1.91	12.26	24.34	3.94	5.44	3.65	4.94	5.63	01/01/1998
Oaktree Global Credit Custom Index			0.96	0.96	11.41	23.23	4.44	2.98	3.22	3.38	N/A	
Difference			0.95	0.95	0.85	1.11	-0.50	2.46	0.43	1.56	N/A	
Private Credit	45,127,380	1.46	10.57	10.57	16.81	17.61	10.46	N/A	N/A	N/A	10.03	10/01/2016
Real Assets	337,898,271	10.96	2.25	2.25	3.19	0.69	2.06	4.10	3.79	4.27	N/A	01/01/1998
OPPRS Real Assets Blended Benchmark			1.89	1.89	3.28	1.47	2.13	4.05	1.42	4.48	5.61	
Difference			0.36	0.36	-0.09	-0.78	-0.07	0.05	2.37	-0.21	N/A	
JP Morgan Strategic Property (CF)	155,519,243	5.05	1.64	1.64	3.16	0.87	3.56	4.92	6.86	8.70	4.61	11/01/2007
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	4.22	
Difference			-0.25	-0.25	-0.12	-0.60	-0.40	-0.34	-0.42	0.03	0.39	
Blackstone Property Partners (CF)	116,703,806	3.79	1.92	1.92	2.34	-1.01	4.49	6.30	N/A	N/A	8.29	12/01/2014
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13	
Difference			0.03	0.03	-0.94	-2.48	0.53	1.04	N/A	N/A	1.16	

Performance shown is net of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01. Total Equity includes Public Equity, Private Equity, and Long/Short Equity.



	Allocation	า					Perfor	mance (%	.)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Columbus Square (SA)	4,528,151	0.15	-0.75	-0.75	-7.98	-7.10	1.93	4.56	5.37	6.34	N/A	03/01/1995
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.77	
Difference			-2.64	-2.64	-11.26	-8.57	-2.03	-0.70	-1.91	-2.33	N/A	
Private Real Estate	61,147,071	1.98	4.79	4.79	5.57	2.00	8.50	8.16	10.29	N/A	8.58	08/01/2011
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.50	
Difference			2.90	2.90	2.29	0.53	4.54	2.90	3.01	N/A	0.08	
Long/Short Equity	264,223,007	8.57	1.33	1.33	22.35	35.63	10.86	10.01	7.43	7.00	7.91	05/01/2012
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	10.54	
Difference			-3.24	-3.24	-7.33	-18.97	-1.21	-3.20	-1.97	-2.14	-2.63	
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	4.94	
Difference			-0.28	-0.28	3.19	3.49	4.70	3.12	2.94	3.05	2.97	
Grosvenor Long/Short Equity (CF)	15,676,176	0.51	-4.63	-4.63	19.56	27.93	8.72	8.72	6.53	6.38	N/A	09/01/2003
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	4.43	
Difference			-6.24	-6.24	0.40	-4.21	2.56	1.83	2.04	2.43	N/A	
K2 Mauna Kea (CF)	248,546,831	8.06	1.59	1.59	21.55	39.73	N/A	N/A	N/A	N/A	22.96	06/01/2020
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	22.39	
Difference			-0.02	-0.02	2.39	7.59	N/A	N/A	N/A	N/A	0.57	
Absolute Return												
PAAMCO (CF)	22,885,752	0.74	2.86	2.86	8.71	12.83	1.99	2.62	0.86	2.42	N/A	10/01/2002
HFRI FOF: Cnsvt Index			3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.41	
Difference			-0.83	-0.83	-3.97	-6.13	-2.99	-2.12	-2.51	-0.76	N/A	
Wellington Global Total Return (CF)	79,910,764	2.59	2.82	2.82	2.62	3.32	3.96	N/A	N/A	N/A	3.44	12/01/2016
ICE BofAML 3 Mo US T-Bill Index+4%			1.01	1.01	3.08	4.12	5.55	5.24	4.90	4.66	5.38	
Difference			1.81	1.81	-0.46	-0.80	-1.59	N/A	N/A	N/A	-1.94	
TCW MetWest Unconstrained (SA)	63,627,000	2.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2021
ICE BofAML 3 Mo US T-Bill Index+3%			0.77	0.77	2.34	3.12	4.54	4.22	3.89	3.65	0.77	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	





	Allocation						Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Private Equity	306,091,111	9.93	10.37	10.37	33.20	25.07	16.43	13.38	13.11	12.44	12.59	07/01/2003
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	8.93	
Difference			5.80	5.80	3.52	-29.53	4.36	0.17	3.71	3.30	3.66	
Cambridge US Prvt Eq Index			0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	14.56	
Difference			10.37	10.37	10.03	-9.51	2.45	-1.90	0.31	-0.90	-1.97	



	Allocatio	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OPPRS Total Fund	3,081,893,070	100.00	4.47	4.47	21.28	32.20	9.67	9.99	7.76	8.04	7.27	07/01/2005
OPPRS Policy Index			2.61	2.61	17.95	32.12	9.31	9.62	7.13	7.82	6.72	
Difference			1.86	1.86	3.33	0.08	0.36	0.37	0.63	0.22	0.55	
OPPRS Actual Allocation Index			2.34	2.34	17.58	30.98	10.73	10.48	7.88	8.00	7.19	
Difference			2.13	2.13	3.70	1.22	-1.06	-0.49	-0.12	0.04	0.08	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			2.65	2.65	15.71	24.70	2.17	2.49	0.26	0.54	-0.23	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	7.32	
Rank			9	9	30	63	53	58	59	58	54	
Total Equity	1,992,084,631	64.64	6.92	6.92	33.60	52.67	13.74	13.79	10.64	10.54	8.63	07/01/2005
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	7.87	
Difference			2.35	2.35	3.92	-1.93	1.67	0.58	1.24	1.40	0.76	
IM Global Equity (SA+CF) Median			4.93	4.93	30.01	56.32	12.19	13.35	9.83	10.30	8.97	
Rank			29	29	33	60	38	45	39	47	55	
US Equity												
Northern Trust Russell 1000 Index (SA)	616,322,974	20.00	5.94	5.94	31.81	60.57	N/A	N/A	N/A	N/A	N/A	07/01/1998
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	7.98	
Difference			0.03	0.03	-0.01	-0.02	N/A	N/A	N/A	N/A	N/A	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	7.77	
Rank			72	72	45	38	N/A	N/A	N/A	N/A	N/A	
Boston Partners SMID Value Equity (SA)	141,215,474	4.58	17.89	17.89	63.29	101.38	N/A	N/A	N/A	N/A	N/A	06/01/1997
Russell 2500 Val Index			16.83	16.83	55.45	87.47	10.88	12.15	8.70	10.23	9.86	
Difference			1.06	1.06	7.84	13.91	N/A	N/A	N/A	N/A	N/A	
IM U.S. SMID Cap Value Equity (SA+CF) Median			15.13	15.13	52.73	85.01	11.57	13.05	10.04	11.33	11.59	
Rank			31	31	24	24	N/A	N/A	N/A	N/A	N/A	
Silvercrest Small Cap Growth Equity (SA)	149,757,627	4.86	14.53	14.53	67.65	140.70	N/A	N/A	N/A	N/A	N/A	01/01/2014
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.38	
Difference			9.65	9.65	22.00	50.50	N/A	N/A	N/A	N/A	N/A	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	14.76	
Rank			13	13	11	9	N/A	N/A	N/A	N/A	N/A	





	Allocation	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
International Equity												
Mondrian International Value Equity (SA)	156,417,092	5.08	7.14	7.14	27.98	39.41	N/A	N/A	N/A	N/A	N/A	04/01/2004
MSCI EAFE Val Index (USD) (Net) Difference			7.44 -0.30	7.44 -0.30	29.60 -1.62	45.71 -6.30	1.85 N/A	6.57 N/A	2.19 N/A	3.65 N/A	4.65 N/A	
IM International Value Equity (SA+CF) Median			6.26	6.41	33.28	55.26	5.58	9.13	5.29	6.37	7.40	
Rank			38	39	75	88	N/A	N/A	N/A	N/A	N/A	
Barings Focused EAFE Plus Equity (SA)	184,002,535	5.97	3.77	3.77	24.53	43.05	N/A	N/A	N/A	N/A	N/A	02/01/2012
MSCI ACW Ex US Index (USD) (Net) Difference			3.49 0.28	3.49 0.28	28.67 -4.14	49.41 -6.36	6.51 N/A	9.76 N/A	5.26 N/A	4.93 N/A	6.72 N/A	
IM International Equity (SA+CF) Median			3.79	3.85	32.89	57.57	7.11	11.12	6.96	6.89	8.73	
Rank			51	52	86	87	N/A	N/A	N/A	N/A	N/A	
AB EM Strategic Core Equity (CF)	115,360,054	3.74	3.64	3.64	33.30	53.47	N/A	N/A	N/A	N/A	N/A	10/01/201
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	11.17	
Difference			1.35	1.35	-0.83	-4.92	N/A	N/A	N/A	N/A	N/A	
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	11.68	
Rank			48	48	80	89	N/A	N/A	N/A	N/A	N/A	
Wasatch EM Small Cap (SA)	58,694,757	1.90	5.13	5.13	40.53	87.23	N/A	N/A	N/A	N/A	N/A	08/01/201
MSCI Emg Mkts Sm Cap Index (USD) (Net)			7.67	7.67	47.18	87.13	5.19	9.59	5.46	3.33	6.54	
Difference			-2.54	-2.54	-6.65	0.10	N/A	N/A	N/A	N/A	N/A	
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	7.93	
Rank			35	35	28	5	N/A	N/A	N/A	N/A	N/A	
Fixed Income	536,213,786	17.40	-0.62	-0.62	4.54	9.87	4.68	4.54	3.26	4.02	4.99	07/01/200
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.04	
Difference			2.76	2.76	6.67	9.16	0.03	1.44	-0.05	0.58	0.95	
IM U.S. Fixed Income (SA+CF) Median			-0.95	-0.95	0.94	5.32	5.08	3.88	3.77	4.11	4.42	
Rank			47	47	25	31	62	38	66	52	34	
Agincourt Core Fixed Income (SA)	252,535,241	8.19	-3.73	-3.73	-2.16	2.28	N/A	N/A	N/A	N/A	N/A	07/01/199
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.75	
Difference			-0.35	-0.35	-0.03	1.57	N/A	N/A	N/A	N/A	N/A	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	5.15	
Rank			93	93	88	71	N/A	N/A	N/A	N/A	N/A	

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01. Total Equity includes Public Equity, Private Equity, and Long/Short Equity.



	Allocation	n					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Loomis Sayles Global World Bond (SA)	88,466,430	2.87	-5.40	-5.40	3.74	10.93	N/A	N/A	N/A	N/A	N/A	05/01/200
FTSE Wrld Gov't Bond Index			-5.68	-5.68	-0.22	1.82	2.09	2.15	1.55	1.66	2.27	
Difference			0.28	0.28	3.96	9.11	N/A	N/A	N/A	N/A	N/A	
IM Global Fixed Income (SA+CF) Median			-1.95	-1.95	5.92	13.92	4.62	4.91	3.93	3.94	4.35	
Rank			93	93	64	61	N/A	N/A	N/A	N/A	N/A	
Oaktree Global Credit (SA)	150,084,735	4.87	2.06	2.06	12.74	25.06	4.58	6.08	4.27	5.46	6.11	01/01/199
Oaktree Global Credit Custom Index			0.96	0.96	11.41	23.23	4.44	2.98	3.22	3.38	N/A	
Difference			1.10	1.10	1.33	1.83	0.14	3.10	1.05	2.08	N/A	
Private Credit	45,127,380	1.46	10.57	10.57	16.81	17.61	10.46	N/A	N/A	N/A	10.03	10/01/201
Real Assets	337,898,271	10.96	2.46	2.46	3.75	1.15	2.73	4.83	4.48	5.09	5.41	01/01/1998
OPPRS Real Assets Blended Benchmark			1.89	1.89	3.28	1.47	2.13	4.05	1.42	4.48	5.61	
Difference			0.57	0.57	0.47	-0.32	0.60	0.78	3.06	0.61	-0.20	
JP Morgan Strategic Property (CF)	155,519,243	5.05	1.86	1.86	3.81	1.71	N/A	N/A	N/A	N/A	N/A	11/01/200
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	4.22	
Difference			-0.03	-0.03	0.53	0.24	N/A	N/A	N/A	N/A	N/A	
Blackstone Property Partners (CF)	116,703,806	3.79	2.21	2.21	3.07	-1.04	N/A	N/A	N/A	N/A	N/A	12/01/201
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.13	
Difference			0.32	0.32	-0.21	-2.51	N/A	N/A	N/A	N/A	N/A	
Columbus Square (SA)	4,528,151	0.15	-0.75	-0.75	-7.98	-7.10	N/A	N/A	N/A	N/A	N/A	03/01/199
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	7.77	
Difference			-2.64	-2.64	-11.26	-8.57	N/A	N/A	N/A	N/A	N/A	
Private Real Estate	61,147,071	1.98	4.79	4.79	5.57	2.00	8.50	8.16	10.29	N/A	8.58	08/01/201
NCREIF ODCE Index (AWA) (Net)			1.89	1.89	3.28	1.47	3.96	5.26	7.28	8.67	8.50	
Difference			2.90	2.90	2.29	0.53	4.54	2.90	3.01	N/A	0.08	
Long/Short Equity	264,223,007	8.57	1.35	1.35	22.49	35.89	11.25	10.44	7.87	7.45	8.39	05/01/2012
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	10.54	
Difference			-3.22	-3.22	-7.19	-18.71	-0.82	-2.77	-1.53	-1.69	-2.15	
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	4.94	
Difference			-0.26	-0.26	3.33	3.75	5.09	3.55	3.38	3.50	3.45	
Grosvenor Long/Short Equity (CF)	15,676,176	0.51	-4.43	-4.43	20.32	28.99	N/A	N/A	N/A	N/A	N/A	09/01/200
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	4.43	
Difference			-6.04	-6.04	1.16	-3.15	N/A	N/A	N/A	N/A	N/A	

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01. Total Equity includes Public Equity, Private Equity, and Long/Short Equity.



	Allocation	1					Perfor	mance (%)				
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
K2 Mauna Kea (CF)	248,546,831	8.06	1.59	1.59	21.55	39.73	N/A	N/A	N/A	N/A	22.96	06/01/2020
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	22.39	
Difference			-0.02	-0.02	2.39	7.59	N/A	N/A	N/A	N/A	0.57	
Absolute Return												
PAAMCO (CF)	22,885,752	0.74	3.09	3.09	9.45	13.85	N/A	N/A	N/A	N/A	N/A	10/01/2002
HFRI FOF: Cnsvt Index			3.69	3.69	12.68	18.96	4.98	4.74	3.37	3.18	3.41	
Difference			-0.60	-0.60	-3.23	-5.11	N/A	N/A	N/A	N/A	N/A	
Wellington Global Total Return (CF)	79,910,764	2.59	2.88	2.88	2.81	3.58	N/A	N/A	N/A	N/A	N/A	12/01/2016
ICE BofAML 3 Mo US T-Bill Index+4%			1.01	1.01	3.08	4.12	5.55	5.24	4.90	4.66	5.38	
Difference			1.87	1.87	-0.27	-0.54	N/A	N/A	N/A	N/A	N/A	
TCW MetWest Unconstrained (SA)	63,627,000	2.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2021
ICE BofAML 3 Mo US T-Bill Index+3%			0.77	0.77	2.34	3.12	4.54	4.22	3.89	3.65	0.77	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Private Equity	306,091,111	9.93	10.37	10.37	33.20	25.07	16.43	13.38	13.11	12.44	12.59	07/01/2003
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	8.93	
Difference			5.80	5.80	3.52	-29.53	4.36	0.17	3.71	3.30	3.66	
Cambridge US Prvt Eq Index			0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	14.56	
Difference			10.37	10.37	10.03	-9.51	2.45	-1.90	0.31	-0.90	-1.97	



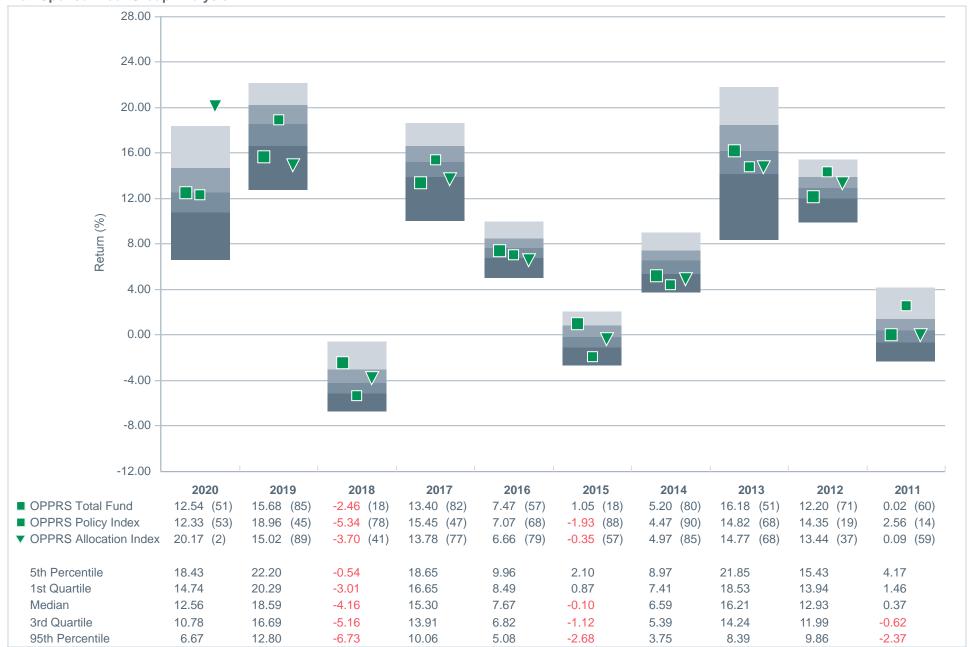
Oklahoma State Pension Commission Oklahoma Police Pension & Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



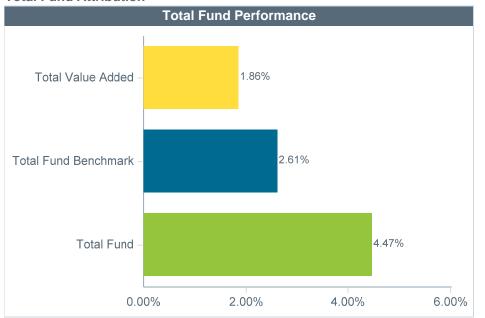
Oklahoma State Pension Commission Oklahoma Police Pension & Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

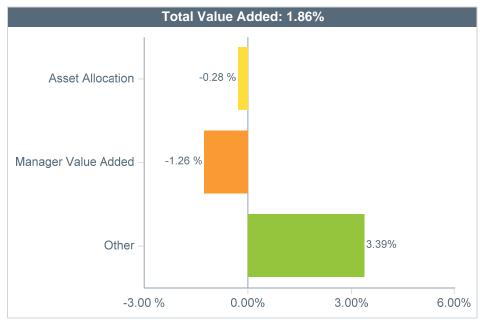


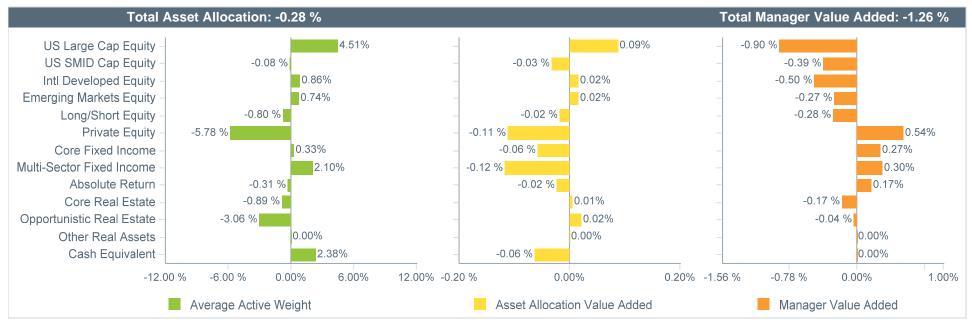
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Police Pension & Retirement Fund Total Fund Attribution





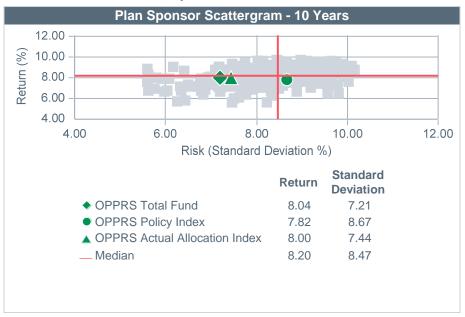


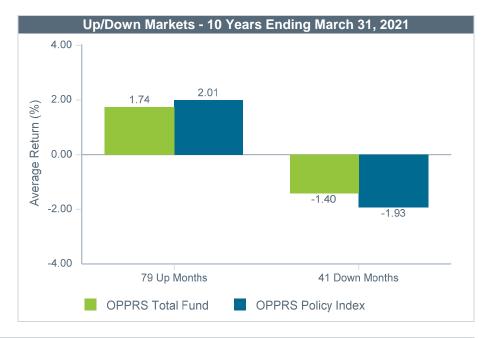
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation. Allocation to Multi-Sector Fixed Income includes Private Credit.

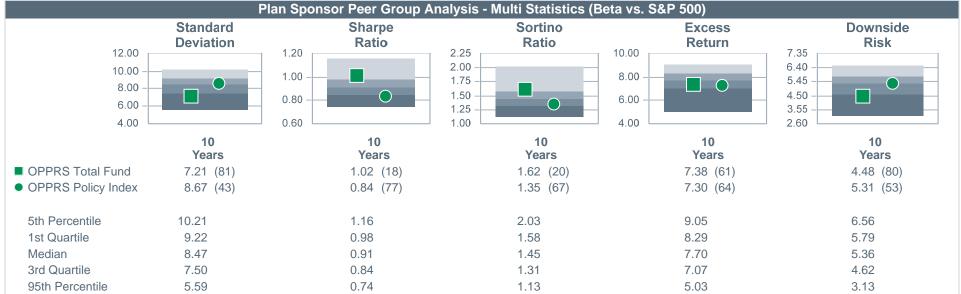


Oklahoma State Pension Commission Oklahoma Police Pension & Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



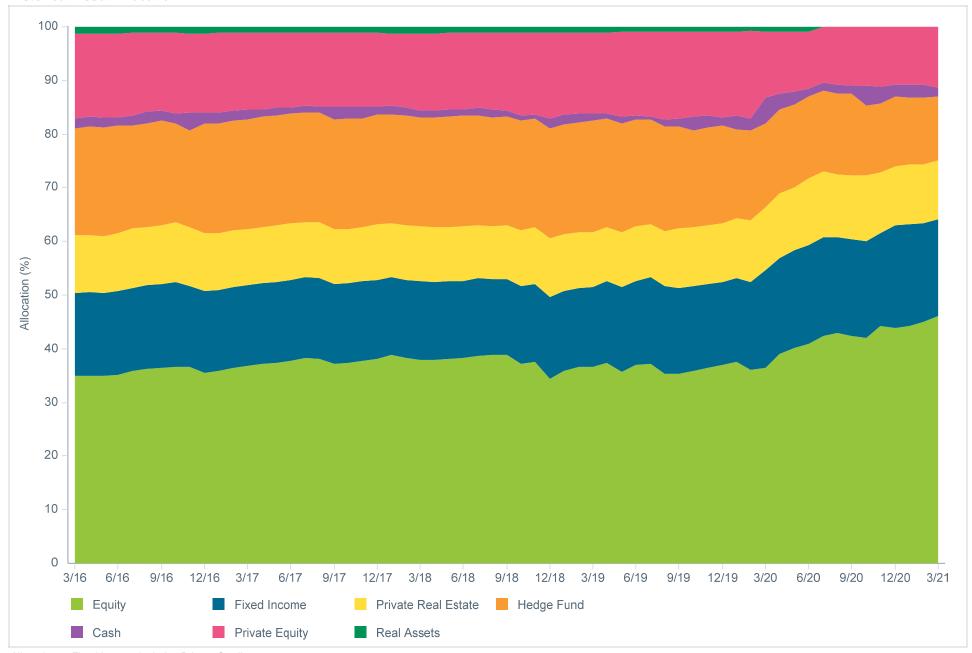




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Police Pension & Retirement Fund Historical Asset Allocation



Allocation to Fixed Income includes Private Credit.



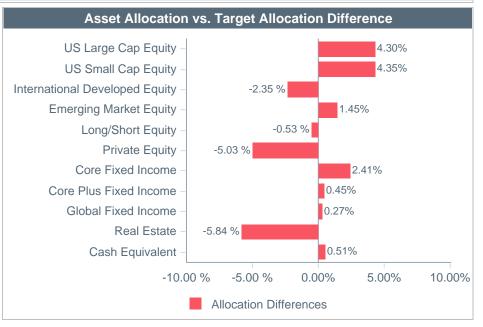
Oklahoma Law Enforcement Retirement System (OLERS)



Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System Total Fund Summary

	Performance (%)													
			Trailin	ıg						Calenda	r Year			
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	
OLERS Total Fund (Net)	4.49	4.49	21.50	35.17	9.27	9.99	7.64	8.12	11.83	17.49	-4.75	14.53	7.16	
OLERS Policy Index	3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	12.77	19.12	-3.67	13.36	8.64	
Difference	0.88	0.88	1.95	0.52	-1.16	-0.38	-0.71	-0.54	-0.94	-1.63	-1.08	1.17	-1.48	
OLERS Actual Allocation Index	3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	14.70	17.33	-3.47	14.63	8.27	
Difference	0.58	0.58	0.55	0.55	-1.36	-0.54	-0.85	-0.43	-2.87	0.16	-1.28	-0.10	-1.11	
Actuarial Discount Rate (7.5%)	1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	
Difference	2.67	2.67	15.93	27.67	1.77	2.49	0.14	0.62	4.33	9.99	-12.25	7.03	-0.34	
OLERS Total Fund (Gross)	4.54	4.54	21.68	35.42	9.48	10.18	7.83	8.22	12.03	17.70	-4.55	14.71	7.32	
OLERS Policy Index	3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	12.77	19.12	-3.67	13.36	8.64	
Difference	0.93	0.93	2.13	0.77	-0.95	-0.19	-0.52	-0.44	-0.74	-1.42	-0.88	1.35	-1.32	
OLERS Actual Allocation Index	3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	14.70	17.33	-3.47	14.63	8.27	
Difference	0.63	0.63	0.73	0.80	-1.15	-0.35	-0.66	-0.33	-2.67	0.37	-1.08	0.08	-0.95	
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67	
Rank	8	8	25	42	60	51	55	50	58	62	59	62	62	

Asset Alloc	ation vs. Target A	Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OLERS (Law Enforcement)	1,183,155,373	100.00	100.00
US Large Cap Equity	287,474,246	24.30	20.00
US Small Cap Equity	169,796,227	14.35	10.00
International Developed Equity	149,700,457	12.65	15.00
Emerging Market Equity	76,306,089	6.45	5.00
Long/Short Equity	52,850,827	4.47	5.00
Private Equity	58,819,880	4.97	10.00
Core Fixed Income	87,680,923	7.41	5.00
Core Plus Fixed Income	123,695,898	10.45	10.00
Global Fixed Income	62,362,085	5.27	5.00
Real Estate	108,395,682	9.16	15.00
Cash Equivalent	6,073,059	0.51	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocatio	n					Perfor	mance (%	5)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OLERS Total Fund	1,183,155,373	100.00	4.49	4.49	21.50	35.17	9.27	9.99	7.64	8.12	12.02	10/01/1990
OLERS Policy Index			3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	N/A	
Difference			0.88	0.88	1.95	0.52	-1.16	-0.38	-0.71	-0.54	N/A	
OLERS Actual Allocation Index			3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	8.72	
Difference			0.58	0.58	0.55	0.55	-1.36	-0.54	-0.85	-0.43	3.30	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			2.67	2.67	15.93	27.67	1.77	2.49	0.14	0.62	4.52	
US Equity	457,270,473	38.65	9.97	9.97	42.49	76.57	16.84	17.44	13.01	13.52	N/A	10/01/1990
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	11.04	
Difference			3.80	3.80	12.78	20.22	0.06	1.15	-0.58	-0.39	N/A	
Hotchkis Wiley Large Cap Value Equity (SA)	97,736,892	8.26	18.62	18.62	56.18	86.75	11.89	14.28	10.43	12.60	12.33	11/01/1990
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	10.80	
Difference			7.36	7.36	19.61	30.66	0.93	2.54	1.03	1.61	1.53	
Kennedy Capital Small Cap Value Equity (SA)	86,625,144	7.32	22.14	22.14	62.91	101.32	11.43	13.66	10.06	11.41	22.80	02/01/1996
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.08	
Difference			0.97	0.97	-2.81	4.27	-0.14	0.10	1.13	1.35	12.72	
NTGI S&P 500 Index (CF)	108,957,529	9.21	6.17	6.17	29.69	56.32	16.75	16.27	13.59	13.87	11.35	08/01/2008
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	11.76	
Difference			0.00	0.00	-0.02	-0.03	-0.03	-0.02	0.00	-0.04	-0.41	
Polen Focus Growth (CF)	80,779,825	6.83	1.77	1.77	23.22	56.80	N/A	N/A	N/A	N/A	32.69	01/01/2019
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	33.22	
Difference			0.83	0.83	-4.08	-5.94	N/A	N/A	N/A	N/A	-0.53	
Wellington Small Cap Growth (CF)	83,171,083	7.03	2.79	2.79	44.10	86.39	17.69	N/A	N/A	N/A	18.16	08/01/2016
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	17.64	
Difference			-2.09	-2.09	-1.55	-3.81	0.53	N/A	N/A	N/A	0.52	



	Allocation	n		Performance (%)									
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
International Equity	226,006,545	19.10	4.25	4.25	30.06	52.86	7.85	10.56	6.60	5.63	N/A	10/01/1990	
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A		
Difference			0.76	0.76	1.39	3.45	1.34	0.80	1.34	0.70	N/A		
International Developed Equity	149,700,457	12.65	5.20	5.20	25.50	40.51	4.86	7.84	4.74	4.47	N/A	11/01/1995	
MSCI EAFE Index (USD) (Net)			3.48	3.48	25.84	44.57	6.02	8.85	4.80	5.52	5.36		
Difference			1.72	1.72	-0.34	-4.06	-1.16	-1.01	-0.06	-1.05	N/A		
Barings Focused Intl Equity (SA)	74,292,550	6.28	3.68	3.68	23.82	42.11	6.94	9.87	6.61	N/A	6.63	02/01/2012	
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.72		
Difference			0.19	0.19	-4.85	-7.30	0.43	0.11	1.35	N/A	-0.09		
Mondrian International Equity (SA)	75,407,907	6.37	6.93	6.93	27.39	38.57	2.87	6.07	2.93	4.55	4.76	01/01/2005	
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.72		
Difference			3.44	3.44	-1.28	-10.84	-3.64	-3.69	-2.33	-0.38	-0.96		
Emerging Market Equity	76,306,089	6.45	1.96	1.96	36.19	74.11	12.52	14.92	9.50	N/A	8.39	07/01/2012	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.42		
Difference			-0.33	-0.33	2.06	15.72	6.04	2.85	2.92	N/A	1.97		
Wasatch EM Small Cap CI A (CF)	20,126,508	1.70	4.77	4.77	39.11	84.72	14.53	14.79	9.41	N/A	8.32	07/01/2012	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.42		
Difference			2.48	2.48	4.98	26.33	8.05	2.72	2.83	N/A	1.90		
William Blair Emerging Markets Leaders (CF)	56,179,581	4.75	0.98	0.98	35.18	70.60	11.85	N/A	N/A	N/A	14.99	09/01/2016	
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	11.27		
Difference			-1.31	-1.31	1.05	12.21	5.37	N/A	N/A	N/A	3.72		
Fixed Income	273,738,906	23.14	-3.06	-3.06	-1.19	2.15	3.00	3.10	2.90	3.57	N/A	10/01/1990	
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.82		
Difference			0.32	0.32	0.94	1.44	-1.65	0.00	-0.41	0.13	N/A		
NTGI Aggregate Index (SA)	87,680,923	7.41	-3.51	-3.51	-2.26	0.47	4.63	3.08	3.32	3.45	4.03	04/01/2004	
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.99		
Difference			-0.13	-0.13	-0.13	-0.24	-0.02	-0.02	0.01	0.01	0.04		
TCW Core Plus Fixed Income (SA)	123,695,898	10.45	-2.64	-2.64	0.25	5.22	6.16	4.57	4.45	5.01	6.28	03/01/1996	
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.04		
Difference			0.74	0.74	2.38	4.51	1.51	1.47	1.14	1.57	1.24		

Performance shown is net of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation	1		Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date		
Franklin Templeton Global Bonds (SA)	62,362,085	5.27	-3.23	-3.23	-2.48	-1.22	-3.49	0.65	0.06	N/A	0.57	06/01/2013		
Bloomberg Gbl Agg Bond Index			-4.46	-4.46	1.31	4.67	2.80	2.66	2.00	2.23	2.24			
Difference			1.23	1.23	-3.79	-5.89	-6.29	-2.01	-1.94	N/A	-1.67			
Long/Short Equity	52,850,827	4.47	5.85	5.85	18.48	26.26	6.38	7.65	5.42	5.63	N/A	01/01/2008		
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	6.12			
Difference			1.28	1.28	-11.20	-28.34	-5.69	-5.56	-3.98	-3.51	N/A			
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	2.21			
Difference			4.24	4.24	-0.68	-5.88	0.22	0.76	0.93	1.68	N/A			
Grosvenor (CF)	3,789,684	0.32	-1.27	-1.27	10.29	17.54	3.87	6.12	4.34	4.88	4.16	01/01/2008		
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	6.12			
Difference			-5.84	-5.84	-19.39	-37.06	-8.20	-7.09	-5.06	-4.26	-1.96			
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	2.21			
Difference			-2.88	-2.88	-8.87	-14.60	-2.29	-0.77	-0.15	0.93	1.95			
Mauna Kea (CF)	49,061,143	4.15	7.10	7.10	18.14	N/A	N/A	N/A	N/A	N/A	18.14	08/01/2020		
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	23.16			
Difference			2.53	2.53	-11.54	N/A	N/A	N/A	N/A	N/A	-5.02			
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	15.60			
Difference			5.49	5.49	-1.02	N/A	N/A	N/A	N/A	N/A	2.54			
Real Estate	108,395,682	9.16	1.46	1.46	2.45	0.20	1.95	3.80	3.85	5.17	N/A	04/01/1999		
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.47			
Difference			-0.26	-0.26	-1.19	-2.41	-2.94	-2.01	-3.77	-3.65	N/A			
JPMCB Strategic Property (CF)	88,974,706	7.52	1.60	1.60	3.03	0.70	3.54	4.87	6.81	N/A	8.18	04/01/2012		
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.33			
Difference			-0.12	-0.12	-0.61	-1.91	-1.35	-0.94	-0.81	N/A	-0.15			
UBS Trumbull Property (SA)	14,860,976	1.26	1.10	1.10	-1.34	-3.85	-0.85	1.66	4.51	N/A	4.92	01/01/2013		
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.13			
Difference			-0.62	-0.62	-4.98	-6.46	-5.74	-4.15	-3.11	N/A	-3.21			
Colcord Center (CF)	4,560,000	0.39	0.00	0.00	3.77	3.78	5.06	3.53	4.99	3.30	3.42	05/01/2008		





	Allocation	1		Performance (%)									
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
Private Equity	58,819,880	4.97	4.98	4.98	19.59	12.83	10.66	9.40	10.55	10.39	N/A	10/01/1990	
S&P 500 Index+5%			7.48	7.48	34.54	64.17	22.62	22.11	19.27	19.61	16.60		
Difference			-2.50	-2.50	-14.95	-51.34	-11.96	-12.71	-8.72	-9.22	N/A		
Cambridge US Prvt Eq Index			0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	14.50		
Difference			4.98	4.98	-3.58	-21.75	-3.32	-5.88	-2.25	-2.95	N/A		
American Private Equity II LP	621,590	0.05	-1.36	-1.36	-19.69	-25.69	-11.22	-6.74	-3.44	1.11	2.00	02/01/2006	
Apollo IX LP	2,172,318	0.18	11.91	11.91	22.45	17.61	N/A	N/A	N/A	N/A	-5.81	03/01/2019	
Apollo VIII LP	7,438,792	0.63	8.62	8.62	27.31	3.45	3.99	12.38	10.31	N/A	3.34	02/01/2014	
Carval CR Value (CF)	1,502,500	0.13	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	0.00	08/01/2020	
FirstMark Capital Opportunity III LP	1,912,031	0.16	8.42	8.42	11.12	N/A	N/A	N/A	N/A	N/A	11.12	06/01/2020	
FirstMark V LP	1,322,365	0.11	-2.67	-2.67	-16.64	N/A	N/A	N/A	N/A	N/A	-16.64	07/01/2020	
Francisco PTRS-AGI-SL (CF)	1,181,070	0.10	-2.29	-2.29	N/A	N/A	N/A	N/A	N/A	N/A	-13.47	10/01/2020	
Francisco Partners SL (CF)	-	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	02/01/2021	
Knightsbridge VI LP	2,196,063	0.19	0.00	0.00	23.69	22.82	17.34	10.33	11.81	11.68	7.21	12/01/2004	
Knightsbridge VII LP	7,357,611	0.62	0.00	0.00	38.26	38.28	25.14	15.81	17.64	15.02	8.77	09/01/2008	
Oaktree Opp XI LP	1,554,623	0.13	5.74	5.74	N/A	N/A	N/A	N/A	N/A	N/A	4.36	08/01/2020	
Warburg Pincus Global Growth LP	19,928,191	1.68	3.34	3.34	6.30	5.57	N/A	N/A	N/A	N/A	-18.14	03/01/2019	
Warburg Pincus XII LP	11,632,726	0.98	10.45	10.45	27.85	22.34	17.78	7.20	N/A	N/A	2.15	12/01/2015	



	Allocatio	n					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OLERS Total Fund	1,183,155,373	100.00	4.54	4.54	21.68	35.42	9.48	10.18	7.83	8.22	11.52	10/01/1990
OLERS Policy Index			3.61	3.61	19.55	34.65	10.43	10.37	8.35	8.66	N/A	
Difference			0.93	0.93	2.13	0.77	-0.95	-0.19	-0.52	-0.44	N/A	
OLERS Actual Allocation Index			3.91	3.91	20.95	34.62	10.63	10.53	8.49	8.55	8.72	
Difference			0.63	0.63	0.73	0.80	-1.15	-0.35	-0.66	-0.33	2.80	
Actuarial Discount Rate (7.5%)			1.82	1.82	5.57	7.50	7.50	7.50	7.50	7.50	7.50	
Difference			2.72	2.72	16.11	27.92	1.98	2.68	0.33	0.72	4.02	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	8.63	
Rank			8	8	25	42	60	51	55	50	1	
US Equity	457,270,473	38.65	9.97	9.97	42.49	76.58	16.85	17.44	13.02	13.52	N/A	10/01/1990
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	11.04	
Difference			3.80	3.80	12.78	20.23	0.07	1.15	-0.57	-0.39	N/A	
IM U.S. Equity (SA+CF) Median			9.26	9.26	38.41	69.78	15.45	15.91	12.33	13.17	12.43	
Rank			47	47	41	40	41	36	43	46	N/A	
Hotchkis Wiley Large Cap Value Equity (SA)	97,736,892	8.26	18.62	18.62	56.18	86.75	11.89	14.28	10.43	12.60	11.91	11/01/1990
Russell 1000 Val Index			11.26	11.26	36.57	56.09	10.96	11.74	9.40	10.99	10.80	
Difference			7.36	7.36	19.61	30.66	0.93	2.54	1.03	1.61	1.11	
IM U.S. Large Cap Value Equity (SA+CF) Median			11.56	11.56	37.24	61.36	11.93	13.05	10.42	11.85	11.80	
Rank			4	4	4	5	51	33	49	32	48	
Kennedy Capital Small Cap Value Equity (SA)	86,625,144	7.32	22.14	22.14	62.91	101.32	11.43	13.66	10.06	11.41	22.80	02/01/1996
Russell 2000 Val Index			21.17	21.17	65.72	97.05	11.57	13.56	8.93	10.06	10.08	
Difference			0.97	0.97	-2.81	4.27	-0.14	0.10	1.13	1.35	12.72	
IM U.S. Small Cap Value Equity (SA+CF) Median			18.86	18.86	59.27	92.55	11.19	13.22	9.42	11.11	12.51	
Rank			23	23	42	36	46	43	38	39	1	
NTGI S&P 500 Index (CF)	108,957,529	9.21	6.18	6.18	29.71	56.34	16.78	16.30	13.61	13.89	11.77	08/01/2008
S&P 500 Index (Cap Wtd)			6.17	6.17	29.71	56.35	16.78	16.29	13.59	13.91	11.76	
Difference			0.01	0.01	0.00	-0.01	0.00	0.01	0.02	-0.02	0.01	
IM U.S. Large Cap Index Equity (SA+CF) Median			6.19	6.19	31.61	59.38	16.87	16.49	13.59	13.90	11.85	
Rank			57	57	67	69	56	58	41	56	69	
Polen Focus Growth (CF)	80,779,825	6.83	1.77	1.77	23.22	56.80	N/A	N/A	N/A	N/A	32.69	01/01/2019
Russell 1000 Grth Index			0.94	0.94	27.30	62.74	22.80	21.05	17.50	16.63	33.22	
Difference			0.83	0.83	-4.08	-5.94	N/A	N/A	N/A	N/A	-0.53	
IM U.S. Large Cap Growth Equity (SA+CF) Median			2.25	2.25	27.20	60.48	21.53	20.13	16.53	15.89	31.34	
Rank			58	58	88	68	N/A	N/A	N/A	N/A	39	

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation	1					Perfor	mance (%)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Wellington Small Cap Growth (CF)	83,171,083	7.03	2.79	2.79	44.10	86.39	17.69	N/A	N/A	N/A	18.16	08/01/2016
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	17.64	
Difference			-2.09	-2.09	-1.55	-3.81	0.53	N/A	N/A	N/A	0.52	
IM U.S. Small Cap Growth Equity (SA+CF) Median			5.87	5.87	46.37	96.34	22.40	21.86	15.11	15.30	21.64	
Rank			73	73	62	68	76	N/A	N/A	N/A	73	
International Equity	226,006,545	19.10	4.34	4.34	30.48	53.47	8.29	11.04	7.08	5.50	N/A	10/01/1990
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	N/A	
Difference			0.85	0.85	1.81	4.06	1.78	1.28	1.82	0.57	N/A	
IM International Equity (SA+CF) Median			3.79	3.85	32.89	57.57	7.11	11.12	6.96	6.89	8.82	
Rank			44	44	63	64	40	51	48	77	N/A	
International Developed Equity	149,700,457	12.65	5.35	5.35	26.17	41.42	5.55	8.59	5.41	4.49	N/A	11/01/1995
MSCI EAFE Index (USD) (Net)			3.48	3.48	25.84	44.57	6.02	8.85	4.80	5.52	5.36	
Difference			1.87	1.87	0.33	-3.15	-0.47	-0.26	0.61	-1.03	N/A	
IM International Equity Developed Markets (SA+CF) Median			4.04	4.05	30.77	54.60	7.18	10.58	6.79	7.49	8.11	
Rank			36	37	76	87	69	76	72	96	N/A	
Barings Focused Intl Equity (SA)	74,292,550	6.28	3.77	3.77	24.54	43.05	7.69	10.74	7.44	N/A	7.45	02/01/2012
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.72	
Difference			0.28	0.28	-4.13	-6.36	1.18	0.98	2.18	N/A	0.73	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	8.78	
Rank			43	43	85	89	57	54	40	N/A	75	
Mondrian International Equity (SA)	75,407,907	6.37	7.14	7.14	27.98	39.41	3.49	6.71	3.56	5.18	5.31	01/01/2005
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.72	
Difference			3.65	3.65	-0.69	-10.00	-3.02	-3.05	-1.70	0.25	-0.41	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	7.44	
Rank			15	15	74	93	92	94	96	93	91	



	Allocation	n					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Emerging Market Equity	76,306,089	6.45	1.96	1.96	36.19	74.11	12.52	14.93	9.51	N/A	8.39	07/01/2012
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.42	
Difference			-0.33	-0.33	2.06	15.72	6.04	2.86	2.93	N/A	1.97	
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	7.98	
Rank			74	74	58	23	14	29	24	N/A	45	
Wasatch EM Small Cap CI A (CF)	20,126,508	1.70	4.77	4.77	39.11	84.72	14.53	14.79	9.41	N/A	8.32	07/01/2012
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	6.42	
Difference			2.48	2.48	4.98	26.33	8.05	2.72	2.83	N/A	1.90	
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	7.98	
Rank			39	39	36	6	8	30	27	N/A	45	
William Blair Emerging Markets Leaders (CF)	56,179,581	4.75	0.98	0.98	35.18	70.60	11.85	N/A	N/A	N/A	14.99	09/01/2016
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	11.27	
Difference			-1.31	-1.31	1.05	12.21	5.37	N/A	N/A	N/A	3.72	
IM Emerging Markets Equity (SA+CF) Median			3.46	3.43	37.42	64.70	7.03	12.77	7.39	5.29	11.74	
Rank			83	83	68	32	15	N/A	N/A	N/A	21	
Fixed Income	273,738,906	23.14	-3.03	-3.03	-1.11	2.25	3.13	3.19	2.96	3.61	N/A	10/01/1990
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.82	
Difference			0.35	0.35	1.02	1.54	-1.52	0.09	-0.35	0.17	N/A	
IM Global Fixed Income (SA+CF) Median			-1.95	-1.95	5.92	13.92	4.62	4.91	3.93	3.94	N/A	
Rank			63	64	98	96	79	84	69	56	N/A	
NTGI Aggregate Index (SA)	87,680,923	7.41	-3.50	-3.50	-2.24	0.51	4.66	3.11	3.34	3.47	4.04	04/01/2004
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.99	
Difference			-0.12	-0.12	-0.11	-0.20	0.01	0.01	0.03	0.03	0.05	
IM U.S. Broad Market Core Fixed Income (SA+CF) Median			-3.18	-3.18	-0.98	3.33	5.26	3.74	3.81	3.97	4.47	
Rank			87	87	92	93	90	90	88	89	89	
TCW Core Plus Fixed Income (SA)	123,695,898	10.45	-2.64	-2.64	0.25	5.22	6.16	4.57	4.45	5.01	6.28	03/01/1996
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.04	
Difference			0.74	0.74	2.38	4.51	1.51	1.47	1.14	1.57	1.24	
IM U.S. Broad Market Core+ Fixed Income (SA+CF) Median			-2.75	-2.75	0.87	7.02	5.77	4.50	4.18	4.51	5.80	
Rank			44	44	67	71	25	46	30	25	21	
Franklin Templeton Global Bonds (SA)	62,362,085	5.27	-3.12	-3.12	-2.15	-0.78	-3.05	0.94	0.27	N/A	0.75	06/01/2013
Bloomberg Gbl Agg Bond Index			-4.46	-4.46	1.31	4.67	2.80	2.66	2.00	2.23	2.24	
Difference			1.34	1.34	-3.46	-5.45	-5.85	-1.72	-1.73	N/A	-1.49	
IM Global Fixed Income (SA+CF) Median			-1.95	-1.95	5.92	13.92	4.62	4.91	3.93	3.94	3.72	
Rank			64	65	100	99	100	100	97	N/A	95	

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation	ı					Perfor	mance (%))			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Long/Short Equity	52,850,827	4.47	5.85	5.85	18.48	26.26	6.38	7.65	5.42	5.63	N/A	01/01/2008
MSCI ACW Index (USD) (Net)			4.57	4.57	29.68	54.60	12.07	13.21	9.40	9.14	6.12	
Difference			1.28	1.28	-11.20	-28.34	-5.69	-5.56	-3.98	-3.51	N/A	
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	2.21	
Difference			4.24	4.24	-0.68	-5.88	0.22	0.76	0.93	1.68	N/A	
Grosvenor (CF)	3,789,684	0.32	-1.27	-1.27	10.29	17.54	3.87	6.12	4.34	4.88	3.59	01/01/2008
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	2.21	
Difference			-2.88	-2.88	-8.87	-14.60	-2.29	-0.77	-0.15	0.93	1.38	
Mauna Kea (CF)	49,061,143	4.15	7.10	7.10	18.14	N/A	N/A	N/A	N/A	N/A	18.14	08/01/2020
HFRI FOF: Strategic Index			1.61	1.61	19.16	32.14	6.16	6.89	4.49	3.95	15.60	
Difference			5.49	5.49	-1.02	N/A	N/A	N/A	N/A	N/A	2.54	
Real Estate	108,395,682	9.16	1.69	1.69	3.16	1.11	2.79	4.63	4.69	6.62	5.83	04/01/1999
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.47	
Difference			-0.03	-0.03	-0.48	-1.50	-2.10	-1.18	-2.93	-2.20	-2.64	
JPMCB Strategic Property (CF)	88,974,706	7.52	1.85	1.85	3.81	1.72	4.55	5.90	7.85	N/A	9.15	04/01/2012
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.33	
Difference			0.13	0.13	0.17	-0.89	-0.34	0.09	0.23	N/A	0.82	
UBS Trumbull Property (SA)	14,860,976	1.26	1.28	1.28	-0.83	-3.19	-0.01	2.62	5.61	N/A	5.97	01/01/2013
NCREIF Property Index			1.72	1.72	3.64	2.61	4.89	5.81	7.62	8.82	8.13	
Difference			-0.44	-0.44	-4.47	-5.80	-4.90	-3.19	-2.01	N/A	-2.16	
Colcord Center (CF)	4,560,000	0.39	0.00	0.00	3.77	3.78	5.06	3.53	4.99	3.30	3.42	05/01/2008
Private Equity	58,819,880	4.97	4.96	4.96	19.58	12.82	10.65	9.40	10.55	10.39	N/A	10/01/1990
S&P 500 Index+5%			7.48	7.48	34.54	64.17	22.62	22.11	19.27	19.61	16.60	
Difference			-2.52	-2.52	-14.96	-51.35	-11.97	-12.71	-8.72	-9.22	N/A	
Cambridge US Prvt Eq Index			0.00	0.00	23.17	34.58	13.98	15.28	12.80	13.34	14.50	
Difference			4.96	4.96	-3.59	-21.76	-3.33	-5.88	-2.25	-2.95	N/A	
American Private Equity II LP	621,590	0.05	-1.36	-1.36	-19.69	-25.69	-11.22	-6.74	-3.44	1.11	2.00	02/01/2006
Apollo IX LP	2,172,318	0.18	11.91	11.91	22.45	17.61	N/A	N/A	N/A	N/A	-5.81	03/01/2019
Apollo VIII LP	7,438,792	0.63	8.53	8.53	27.20	3.37	3.96	12.36	10.29	N/A	3.33	02/01/2014
Carval CR Value (CF)	1,502,500	0.13	0.00	0.00	0.00	N/A	N/A	N/A	N/A	N/A	0.00	08/01/2020
FirstMark Capital Opportunity III LP	1,912,031	0.16	8.42	8.42	11.12	N/A	N/A	N/A	N/A	N/A	11.12	06/01/2020

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
FirstMark V LP	1,322,365	0.11	-2.67	-2.67	-16.64	N/A	N/A	N/A	N/A	N/A	-16.64	07/01/2020	
Francisco Partners SL (CF)	-	0.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	02/01/2021	
Francisco PTRS-AGI-SL (CF)	1,181,070	0.10	-2.29	-2.29	N/A	N/A	N/A	N/A	N/A	N/A	-13.47	10/01/2020	
Knightsbridge VI LP	2,196,063	0.19	0.00	0.00	23.69	22.82	17.34	10.33	11.81	11.68	7.21	12/01/2004	
Knightsbridge VII LP	7,357,611	0.62	0.00	0.00	38.26	38.28	25.14	15.81	17.64	15.02	8.21	09/01/2008	
Oaktree Opp XI LP	1,554,623	0.13	5.74	5.74	N/A	N/A	N/A	N/A	N/A	N/A	4.36	08/01/2020	
Warburg Pincus Global Growth LP	19,928,191	1.68	3.34	3.34	6.30	5.57	N/A	N/A	N/A	N/A	-18.14	03/01/2019	
Warburg Pincus XII LP	11,632,726	0.98	10.45	10.45	27.85	22.34	17.78	7.20	N/A	N/A	2.15	12/01/2015	



Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



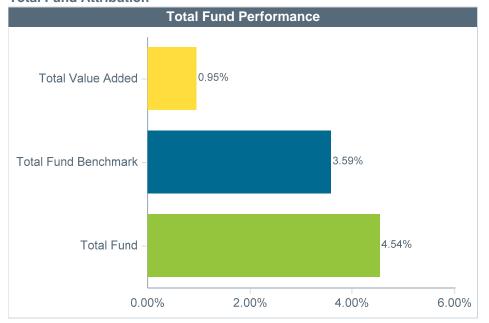
Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

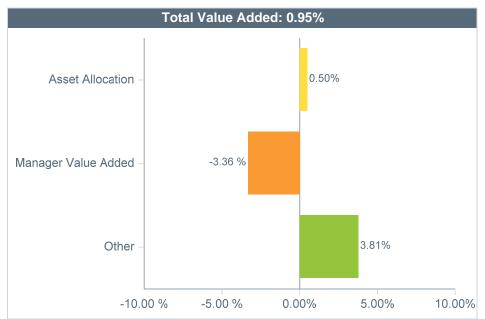


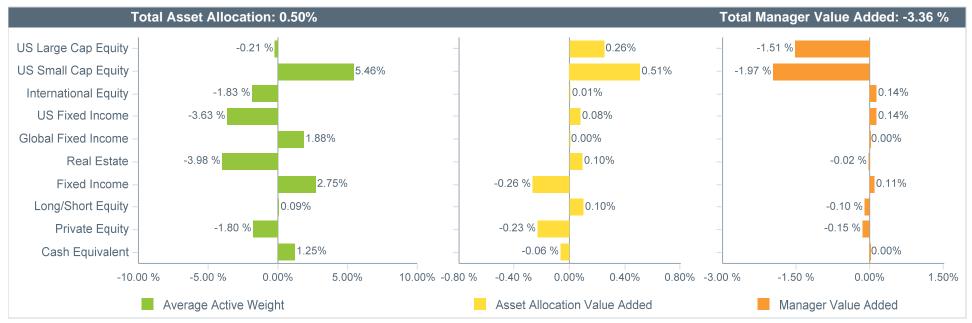
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System Total Fund Attribution







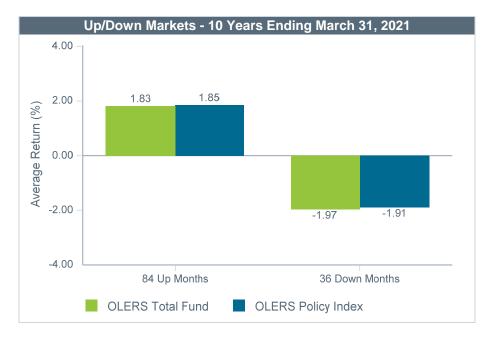
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation.

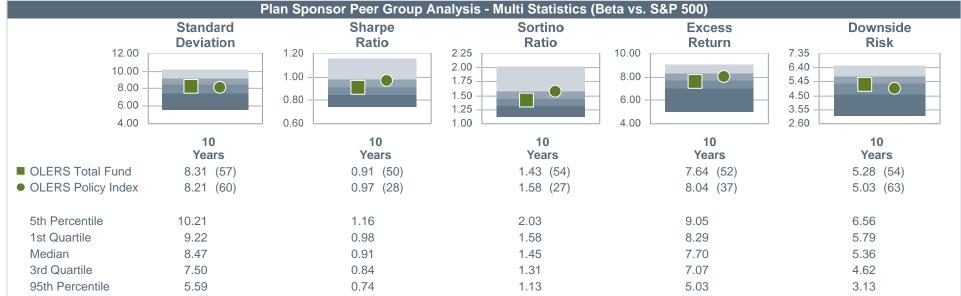


Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



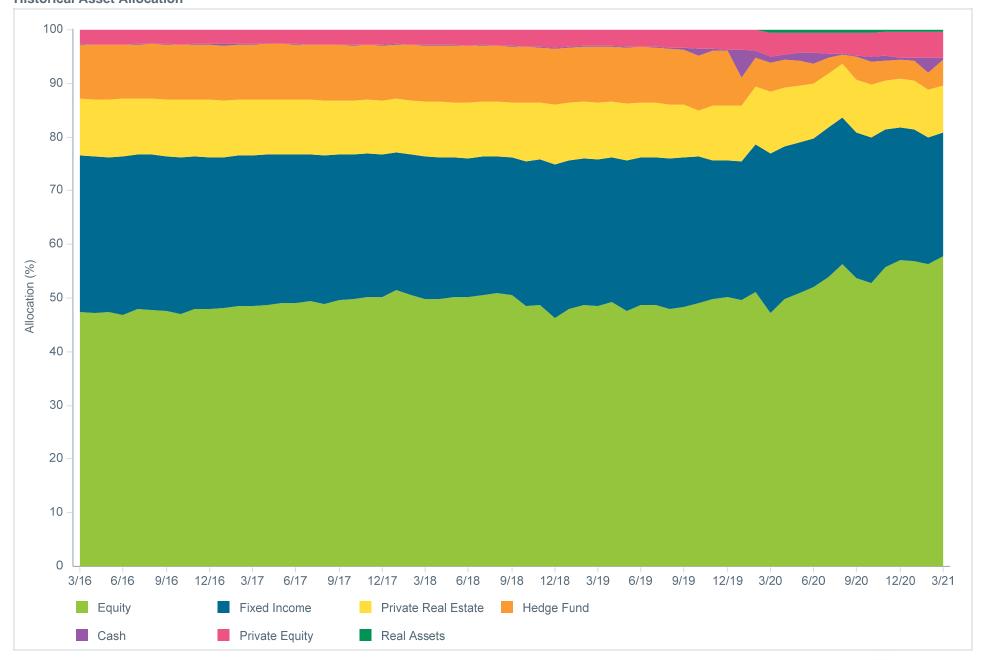




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Law Enforcement Retirement System Historical Asset Allocation





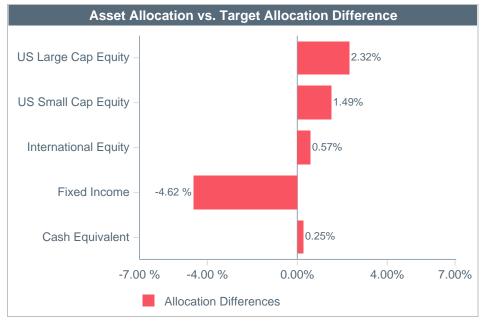
Oklahoma Uniform Retirement System for Justices & Judges (OURSJJ)



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Total Fund Summary

	Performance (%)													
			Trailir	ng						Calenda	r Year			
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016	
OURSJJ Total Fund (Net)	2.69	2.69	20.76	37.29	10.69	10.79	8.42	8.57	15.06	21.36	-6.43	16.85	8.05	
OURSJJ Policy Index	2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	15.06	21.51	-6.09	16.86	8.12	
Difference	0.41	0.41	0.60	0.09	0.00	-0.01	-0.05	-0.02	0.00	-0.15	-0.34	-0.01	-0.07	
OURSJJ Actual Allocation Index	2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	14.47	21.01	-6.52	16.63	7.90	
Difference	0.06	0.06	0.29	0.63	0.36	0.29	0.24	0.19	0.59	0.35	0.09	0.22	0.15	
Actuarial Discount Rate (6.5%)	1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	
Difference	1.10	1.10	15.92	30.79	4.19	4.29	1.92	2.07	8.56	14.86	-12.93	10.35	1.55	
OURSJJ Total Fund (Gross)	2.70	2.70	20.79	37.34	10.73	10.83	8.46	8.62	15.10	21.40	-6.38	16.89	8.09	
OURSJJ Policy Index	2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	15.06	21.51	-6.09	16.86	8.12	
Difference	0.42	0.42	0.63	0.14	0.04	0.03	-0.01	0.03	0.04	-0.11	-0.29	0.03	-0.03	
OURSJJ Actual Allocation Index	2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	14.47	21.01	-6.52	16.63	7.90	
Difference	0.07	0.07	0.32	0.68	0.40	0.33	0.28	0.24	0.63	0.39	0.14	0.26	0.19	
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67	
Rank	66	66	37	30	28	31	32	36	22	11	92	21	38	

Asse	t Allocation vs. Ta	rget Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OURSJJ (Judges)	412,623,769	100.00	100.00
US Large Cap Equity	149,852,813	36.32	34.00
US Small Cap Equity	30,913,995	7.49	6.00
International Equity	117,867,458	28.57	28.00
Fixed Income	112,965,138	27.38	32.00
Cash Equivalent	1,024,366	0.25	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Asset Allocation & Performance - Net of Fees

	Allocation	Allocation Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OURSJJ Total Fund	412,623,769	100.00	2.69	2.69	20.76	37.29	10.69	10.79	8.42	8.57	N/A	06/01/1986
OURSJJ Policy Index			2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	9.06	
Difference			0.41	0.41	0.60	0.09	0.00	-0.01	-0.05	-0.02	N/A	
OURSJJ Actual Allocation Index			2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	8.51	
Difference			0.06	0.06	0.29	0.63	0.36	0.29	0.24	0.19	N/A	
Actuarial Discount Rate (6.5%)			1.59	1.59	4.84	6.50	6.50	6.50	6.50	6.50	6.50	
Difference			1.10	1.10	15.92	30.79	4.19	4.29	1.92	2.07	N/A	
US Equity	180,766,808	43.81	7.08	7.08	35.49	65.76	17.01	16.67	13.33	13.67	N/A	10/01/1989
OURSJJ US Equity Custom Index			6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	N/A	
Difference			0.14	0.14	0.27	0.30	0.00	0.01	-0.02	-0.08	N/A	
BlackRock Russell 1000 Index (SA)	149,852,813	36.32	5.91	5.91	31.83	60.62	17.33	16.68	13.67	14.00	15.14	07/01/2009
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.82	
Difference			0.00	0.00	0.01	0.03	0.02	0.02	0.03	0.03	-0.68	
BlackRock Russell 2000 Index (CF)	30,913,995	7.49	12.73	12.73	55.53	95.08	14.88	16.54	11.25	11.87	15.09	07/01/2009
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	14.92	
Difference			0.03	0.03	0.17	0.23	0.12	0.19	0.20	0.19	0.17	
International Equity	117,867,458	28.57	3.58	3.58	28.80	49.73	6.83	10.04	5.52	5.18	N/A	05/01/1994
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.64	
Difference			0.09	0.09	0.13	0.32	0.32	0.28	0.26	0.25	N/A	
BlackRock MSCI ACWI Ex US (SA)	117,867,458	28.57	3.58	3.58	28.80	49.73	6.83	10.04	5.52	5.18	6.24	10/01/2009
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.88	
Difference			0.09	0.09	0.13	0.32	0.32	0.28	0.26	0.25	0.36	



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Asset Allocation & Performance - Net of Fees

	Allocatio	on			Performance (%)							
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Fixed Income	112,965,138	27.38	-4.46	-4.46	-2.84	0.42	5.60	3.71	3.98	4.28	N/A	10/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.87	
Difference			-1.08	-1.08	-0.71	-0.29	0.95	0.61	0.67	0.84	N/A	
BlackRock US Fixed Income (SA)	54,432,752	13.19	-3.44	-3.44	-1.74	2.29	5.09	3.45	3.60	3.72	N/A	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.06	-0.06	0.39	1.58	0.44	0.35	0.29	0.28	N/A	
MetWest US Fixed Income (SA)	34,600,058	8.39	-2.79	-2.79	-0.47	3.52	5.75	3.96	3.86	4.12	N/A	09/01/2001
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.39	
Difference			0.59	0.59	1.66	2.81	1.10	0.86	0.55	0.68	N/A	
Hoisington US Long Duration Fixed Income (SA)	11,661,860	2.83	-15.66	-15.66	-18.01	-19.29	6.40	3.35	6.19	7.50	N/A	10/01/1991
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.49	
Difference			-12.28	-12.28	-15.88	-20.00	1.75	0.25	2.88	4.06	N/A	
BlackRock TIPS (SA)	12,270,468	2.97	-1.46	-1.46	3.26	7.83	5.81	4.02	3.55	3.56	3.87	03/01/2010
Bloomberg US Trsy US TIPS Index			-1.47	-1.47	3.16	7.54	5.68	3.86	3.42	3.44	3.82	
Difference			0.01	0.01	0.10	0.29	0.13	0.16	0.13	0.12	0.05	



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Asset Allocation & Performance - Gross of Fees

	Allocation	on			Performance (%)							
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OURSJJ Total Fund	412,623,769	100.00	2.70	2.70	20.79	37.34	10.73	10.83	8.46	8.62	8.76	06/01/1986
OURSJJ Policy Index			2.28	2.28	20.16	37.20	10.69	10.80	8.47	8.59	9.06	
Difference			0.42	0.42	0.63	0.14	0.04	0.03	-0.01	0.03	-0.30	
OURSJJ Actual Allocation Index			2.63	2.63	20.47	36.66	10.33	10.50	8.18	8.38	8.51	
Difference			0.07	0.07	0.32	0.68	0.40	0.33	0.28	0.24	0.25	
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	
Difference			0.99	0.99	15.58	30.34	3.73	3.83	1.46	1.62	1.76	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	8.41	
Rank			66	66	37	30	28	31	32	36	24	
US Equity	180,766,808	43.81	7.08	7.08	35.49	65.77	17.02	16.68	13.34	13.69	10.12	10/01/1989
OURSJJ US Equity Custom Index			6.94	6.94	35.22	65.46	17.01	16.66	13.35	13.75	N/A	
Difference			0.14	0.14	0.27	0.31	0.01	0.02	-0.01	-0.06	N/A	
All Public Plans-US Equity Segment Median			6.78	6.78	33.78	63.57	15.98	16.09	12.75	13.32	N/A	
Rank			41	41	35	36	23	23	26	32	N/A	
BlackRock Russell 1000 Index (SA)	149,852,813	36.32	5.91	5.91	31.84	60.62	17.34	16.69	13.68	14.01	15.15	07/01/2009
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	15.82	
Difference			0.00	0.00	0.02	0.03	0.03	0.03	0.04	0.04	-0.67	
IM U.S. Large Cap Core Equity (SA+CF) Median			6.75	6.75	30.50	57.08	15.94	16.10	13.25	13.76	15.47	
Rank			67	67	39	35	29	36	36	37	62	
BlackRock Russell 2000 Index (CF)	30,913,995	7.49	12.73	12.73	55.54	95.09	14.91	16.57	11.28	11.91	15.12	07/01/2009
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	14.92	
Difference			0.03	0.03	0.18	0.24	0.15	0.22	0.23	0.23	0.20	
IM U.S. Small Cap Core Equity (SA+CF) Median			13.74	13.74	53.94	93.00	15.05	16.12	12.10	12.86	16.29	
Rank			59	59	39	42	53	44	66	75	76	



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Asset Allocation & Performance - Gross of Fees

	Allocatio	on	Performance (%)									
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
International Equity	117,867,458	28.57	3.58	3.58	28.82	49.75	6.85	10.08	5.56	5.22	6.03	05/01/1994
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.64	
Difference			0.09	0.09	0.15	0.34	0.34	0.32	0.30	0.29	0.39	
All Public Plans-Intl. Equity Segment Median			4.23	4.23	31.61	54.76	8.18	10.96	6.72	6.62	N/A	
Rank			70	70	84	84	78	82	95	93	N/A	
BlackRock MSCI ACWI Ex US (SA)	117,867,458	28.57	3.58	3.58	28.82	49.75	6.85	10.08	5.56	5.22	6.33	11/01/2009
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	6.04	
Difference			0.09	0.09	0.15	0.34	0.34	0.32	0.30	0.29	0.29	
IM All ACWI Ex US (SA+CF) Median			3.25	3.25	31.26	55.53	8.38	11.07	6.58	7.06	8.30	
Rank			45	45	65	73	65	64	71	92	88	
Fixed Income	112,965,138	27.38	-4.45	-4.45	-2.77	0.52	5.70	3.80	4.06	4.38	6.58	10/01/1989
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.87	
Difference			-1.07	-1.07	-0.64	-0.19	1.05	0.70	0.75	0.94	0.71	
BlackRock US Fixed Income (SA)	54,432,752	13.19	-3.42	-3.42	-1.68	2.40	5.18	3.54	3.68	3.81	5.20	06/01/2000
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.92	
Difference			-0.04	-0.04	0.45	1.69	0.53	0.44	0.37	0.37	0.28	
IM U.S. Broad Market Fixed Income (SA+CF) Median			-2.96	-2.96	-0.19	4.70	5.43	4.00	3.95	4.19	5.55	
Rank			80	80	81	81	67	76	70	78	78	
MetWest US Fixed Income (SA)	34,600,058	8.39	-2.79	-2.79	-0.36	3.65	5.86	4.05	3.95	4.25	5.42	09/01/2001
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.39	
Difference			0.59	0.59	1.77	2.94	1.21	0.95	0.64	0.81	1.03	
IM U.S. Broad Market Fixed Income (SA+CF) Median			-2.96	-2.96	-0.19	4.70	5.43	4.00	3.95	4.19	5.05	
Rank			38	38	53	64	27	47	51	47	26	
Hoisington US Long Duration Fixed Income (SA)	11,661,860	2.83	-15.63	-15.63	-17.93	-19.19	6.54	3.49	6.34	7.65	8.09	10/01/1991
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	5.49	
Difference			-12.25	-12.25	-15.80	-19.90	1.89	0.39	3.03	4.21	2.60	
IM U.S. Long Duration (SA+CF) Median			-9.63	-9.63	-5.46	2.46	7.95	6.37	6.75	7.59	N/A	
Rank			100	100	100	100	92	100	82	45	N/A	





Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Asset Allocation & Performance - Gross of Fees

	Allocatio	n	Performance (%)										
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date	
BlackRock TIPS (SA)	12,270,468	2.97	-1.46	-1.46	3.27	7.84	5.82	4.03	3.56	3.57	3.88	03/01/2010	
Bloomberg US Trsy US TIPS Index			-1.47	-1.47	3.16	7.54	5.68	3.86	3.42	3.44	3.82		
Difference			0.01	0.01	0.11	0.30	0.14	0.17	0.14	0.13	0.06		
IM U.S. TIPS (SA+CF) Median			-1.42	-1.42	3.27	7.75	5.66	3.89	3.43	3.46	3.85		
Rank			55	55	51	46	27	31	26	35	40		



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



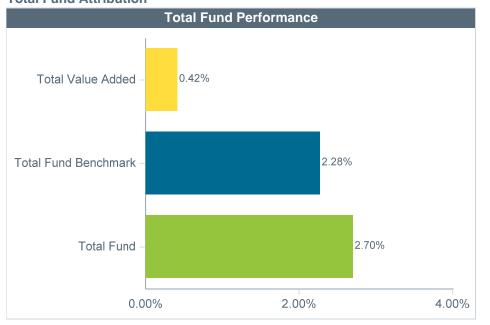
Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

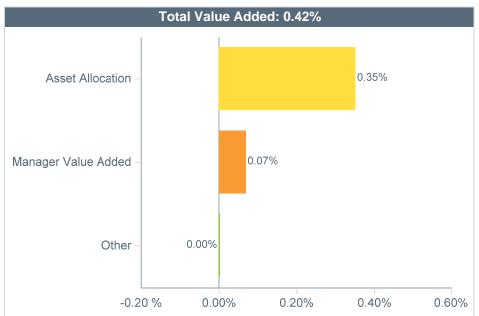


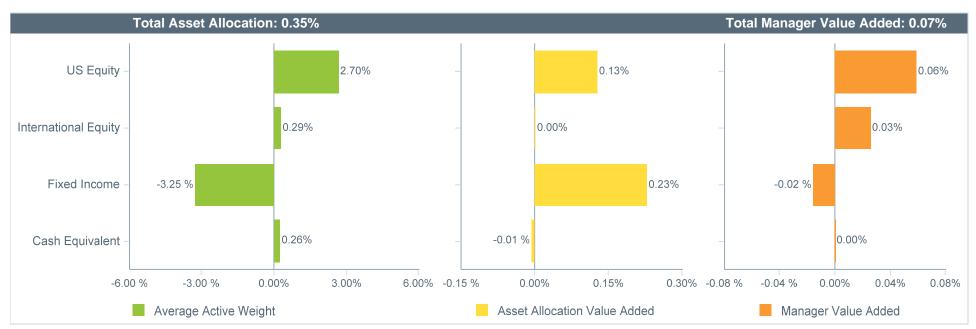
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Total Fund Attribution



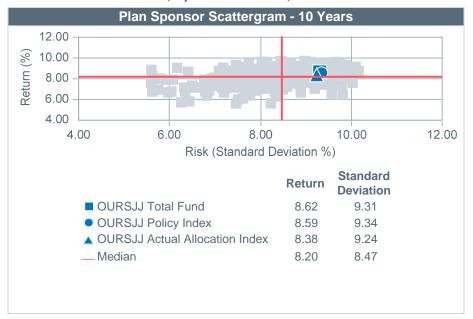


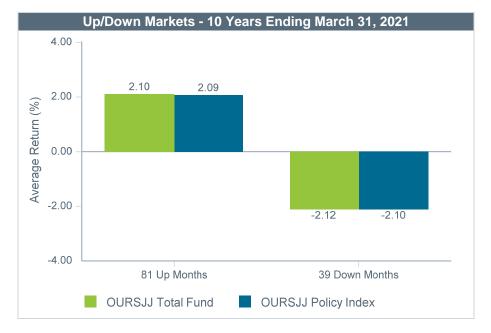


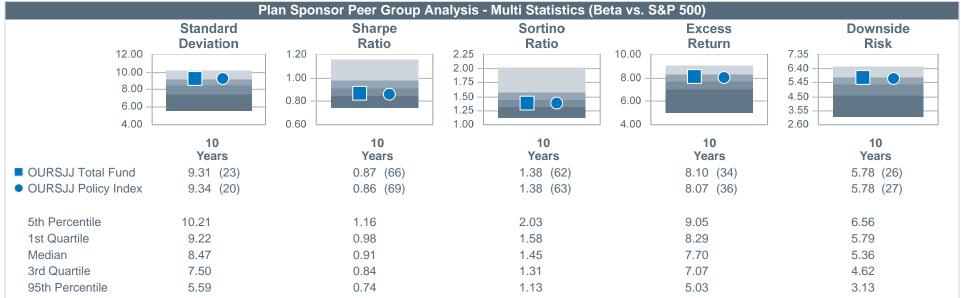
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation.



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



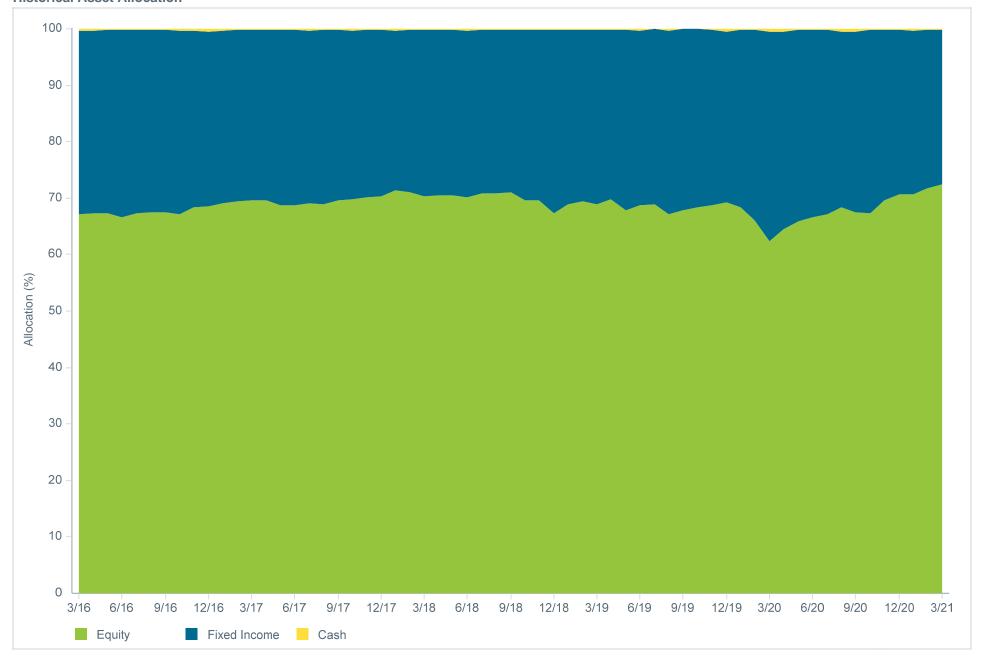




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Uniform Retirement System for Justices & Judges Historical Asset Allocation





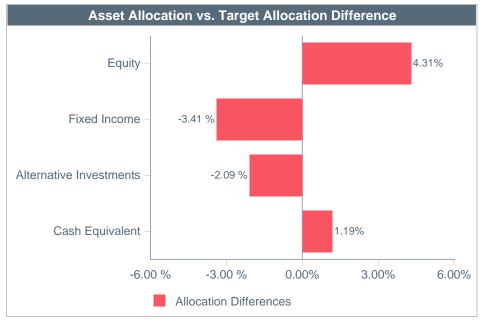
Oklahoma Wildlife Conservation Retirement System (OWCRS)



Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System Total Fund Summary

Performance (%)													
			Trailir	ng						Calenda	r Year		
	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2020	2019	2018	2017	2016
OWCRS Total Fund (Net)	2.62	2.62	17.20	32.57	10.03	9.75	7.83	7.93	13.05	19.21	-3.85	13.93	6.18
OWCRS Policy Index	3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	12.67	17.53	-4.95	12.96	7.34
Difference	-0.60	-0.60	-1.90	-1.26	0.58	0.64	0.73	0.21	0.38	1.68	1.10	0.97	-1.16
OWCRS Actual Allocation Index	3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	13.22	20.53	-3.71	14.38	8.04
Difference	-1.13	-1.13	-3.64	-3.29	-1.19	-0.88	-0.76	-0.56	-0.17	-1.32	-0.14	-0.45	-1.86
Actuarial Discount Rate (7.0%)	1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Difference	0.91	0.91	11.99	25.57	3.03	2.75	0.83	0.93	6.05	12.21	-10.85	6.93	-0.82
OWCRS Total Fund (Gross)	2.70	2.70	17.48	33.01	10.29	9.99	8.05	8.15	13.39	19.46	-3.68	14.13	6.39
OWCRS Policy Index	3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	12.67	17.53	-4.95	12.96	7.34
Difference	-0.52	-0.52	-1.62	-0.82	0.84	0.88	0.95	0.43	0.72	1.93	1.27	1.17	-0.95
OWCRS Actual Allocation Index	3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	13.22	20.53	-3.71	14.38	8.04
Difference	-1.05	-1.05	-3.36	-2.85	-0.93	-0.64	-0.54	-0.34	0.17	-1.07	0.03	-0.25	-1.65
All Public Plans-Total Fund Median	3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	12.56	18.59	-4.16	15.30	7.67
Rank	66	66	77	58	40	57	48	52	39	38	41	71	85

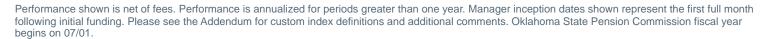
Asset	Allocation vs. Tar	get Allocation	
	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)
OWCRS (Wildlife)	136,132,323	100.00	100.00
Equity	73,934,049	54.31	50.00
Fixed Income	49,815,283	36.59	40.00
Alternative Investments	10,761,684	7.91	10.00
Cash Equivalent	1,621,308	1.19	0.00



Parentheses contain percentile ranks. Allocations shown may not sum up to 100% exactly due to rounding. Please see the Addendum for custom index definitions and additional Oklahoma State Pension Commission fiscal year begins on 07/01.

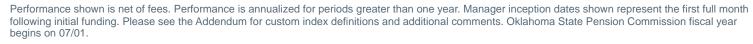


	Allocati	on					Perfor	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OWCRS Total Fund	136,132,323	100.00	2.62	2.62	17.20	32.57	10.03	9.75	7.83	7.93	6.50	01/01/2006
OWCRS Policy Index			3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	6.81	
Difference			-0.60	-0.60	-1.90	-1.26	0.58	0.64	0.73	0.21	-0.31	
OWCRS Actual Allocation Index			3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	7.21	
Difference			-1.13	-1.13	-3.64	-3.29	-1.19	-0.88	-0.76	-0.56	-0.71	
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	
Difference			0.91	0.91	11.99	25.57	3.03	2.75	0.83	0.93	-0.50	
Equity	73,934,049	54.31	5.83	5.83	29.58	56.64	12.90	14.50	11.38	11.95	9.11	01/01/2006
OWCRS Equity Custom Index			8.94	8.94	39.37	68.95	12.87	13.75	N/A	N/A	N/A	
Difference			-3.11	-3.11	-9.79	-12.31	0.03	0.75	N/A	N/A	N/A	
iShares:Russ 1000 ETF (IWB)	6,287,832	4.62	6.01	6.01	31.74	60.45	17.18	16.52	13.51	13.83	35.73	03/01/2020
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	35.85	
Difference			0.10	0.10	-0.08	-0.14	-0.13	-0.14	-0.13	-0.14	-0.12	
Vanguard SC V I;Ins (VSIIX)	1,423,185	1.05	16.78	16.78	N/A	N/A	N/A	N/A	N/A	N/A	46.62	11/01/2020
Vanguard Spl Sm Cap Val Index			16.83	16.83	57.12	89.72	10.77	12.41	9.55	11.06	46.65	
Difference			-0.05	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
Vanguard S-C Id;Inst (VSCIX)	1,370,381	1.01	10.21	10.21	48.21	87.76	14.98	15.61	11.23	12.16	10.30	12/01/2005
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	9.53	
Difference			-2.49	-2.49	-7.15	-7.09	0.22	-0.74	0.18	0.48	0.77	
T Rowe Price NH;I (PRJIX)	1,331,490	0.98	-1.84	-1.84	28.44	76.78	27.95	26.95	19.35	19.38	18.90	01/01/2014
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.38	
Difference			-6.72	-6.72	-17.21	-13.42	10.79	8.34	6.58	6.36	6.52	
Bank of Oklahoma Managed Equity (SA)	45,381,084	33.34	6.43	6.43	27.29	52.37	N/A	N/A	N/A	N/A	52.37	04/01/2020
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	62.53	
Difference			0.08	0.08	-5.90	-10.16	N/A	N/A	N/A	N/A	-10.16	
Vanguard Dev Mkt;Adm (VTMGX)	6,186,493	4.54	3.96	3.96	28.45	50.96	6.56	9.60	5.48	6.00	4.68	09/01/1999
MSCI Wrld Ex US Index (USD) (Net)			4.04	4.04	26.46	45.86	6.34	8.92	4.75	5.21	4.56	
Difference			-0.08	-0.08	1.99	5.10	0.22	0.68	0.73	0.79	0.12	





	Allocation	n					Perfor	mance (%	b)			
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Dodge & Cox Intl Stock (DODFX)	3,982,589	2.93	7.16	7.16	34.17	57.47	4.04	8.97	3.55	5.10	3.69	03/01/2014
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.24	
Difference			3.67	3.67	5.50	8.06	-2.47	-0.79	-1.71	0.17	-1.55	
MFS Intl New Discv;R6 (MIDLX)	4,038,084	2.97	0.47	0.47	23.54	47.62	6.18	10.04	7.09	7.97	7.05	03/01/2014
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.66	
Difference			0.55	0.55	-1.86	-1.74	-4.13	-1.99	-0.65	1.28	-0.61	
Invesco Dev Mkt;R6 (ODVIX)	3,932,911	2.89	0.86	0.86	29.99	53.75	8.16	12.94	6.85	5.48	6.89	06/01/2013
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	5.91	
Difference			-1.43	-1.43	-4.14	-4.64	1.68	0.87	0.27	1.83	0.98	
Fixed Income	49,815,283	36.59	-2.03	-2.03	0.91	4.28	5.24	3.17	3.20	3.32	3.54	01/01/2006
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.18	
Difference			1.35	1.35	3.04	3.57	0.59	0.07	-0.11	-0.12	-0.64	
Bank of Oklahoma Managed Fixed Income (SA)	23,385,875	17.18	-2.38	-2.38	-0.48	2.40	4.69	2.74	2.82	2.94	3.37	12/01/2005
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.22	
Difference			1.00	1.00	1.65	1.69	0.04	-0.36	-0.49	-0.50	-0.85	
MetWest:Total Rtn;I (MWTIX)	6,841,517	5.03	-2.91	-2.91	-0.51	3.54	5.46	3.67	3.59	4.27	4.30	08/01/2017
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60	
Difference			0.47	0.47	1.62	2.83	0.81	0.57	0.28	0.83	0.70	
PIMCO:Income;Inst (PIMIX)	8,463,541	6.22	-0.17	-0.17	7.43	14.38	4.81	5.90	5.42	6.92	4.56	08/01/2017
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60	
Difference			3.21	3.21	9.56	13.67	0.16	2.80	2.11	3.48	0.96	
PIMCO:Intl Bd (DH);Inst (PFORX)	4,316,997	3.17	-1.33	-1.33	2.90	6.79	4.41	4.46	4.83	5.48	2.64	03/01/2020
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	0.11	
Difference			2.05	2.05	5.03	6.08	-0.24	1.36	1.52	2.04	2.53	





	Allocatio	Allocation				Performance (%)								
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date		
Alternative Investments	10,761,684	7.91	2.70	2.70	13.87	25.85	4.93	5.98	3.40	3.06	3.41	12/01/2010		
OWCRS Alternatives Custom Index			2.00	2.00	14.96	23.99	5.47	5.67	N/A	N/A	N/A			
Difference			0.70	0.70	-1.09	1.86	-0.54	0.31	N/A	N/A	N/A			
First Eagle:Global;I (SGIIX)	5,395,306	3.96	4.11	4.11	22.26	40.33	8.10	8.78	6.67	7.40	7.65	08/01/2017		
MSCI Wrld Index (USD) (Net)			4.92	4.92	29.05	54.03	12.81	13.36	9.73	9.88	12.32			
Difference			-0.81	-0.81	-6.79	-13.70	-4.71	-4.58	-3.06	-2.48	-4.67			
Calamos:Mkt Neut Inc;I (CMNIX)	5,366,378	3.94	1.36	1.36	5.67	11.04	4.61	4.96	3.99	4.14	4.55	08/01/2017		
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60			
Difference			4.74	4.74	7.80	10.33	-0.04	1.86	0.68	0.70	0.95			



	Allocation	Allocation			Performance (%)							
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
OWCRS Total Fund	136,132,323	100.00	2.70	2.70	17.48	33.01	10.29	9.99	8.05	8.15	6.71	01/01/2006
OWCRS Policy Index			3.22	3.22	19.10	33.83	9.45	9.11	7.10	7.72	6.81	
Difference			-0.52	-0.52	-1.62	-0.82	0.84	0.88	0.95	0.43	-0.10	
OWCRS Actual Allocation Index			3.75	3.75	20.84	35.86	11.22	10.63	8.59	8.49	7.21	
Difference			-1.05	-1.05	-3.36	-2.85	-0.93	-0.64	-0.54	-0.34	-0.50	
Actuarial Discount Rate (7.0%)			1.71	1.71	5.21	7.00	7.00	7.00	7.00	7.00	7.00	
Difference			0.99	0.99	12.27	26.01	3.29	2.99	1.05	1.15	-0.29	
All Public Plans-Total Fund Median			3.13	3.13	19.79	33.90	9.77	10.19	7.98	8.20	7.17	
Rank			66	66	77	58	40	57	48	52	75	
Equity	73,934,049	54.31	5.91	5.91	29.84	57.02	13.00	14.55	11.42	11.98	9.13	01/01/2006
OWCRS Equity Custom Index			8.94	8.94	39.37	68.95	12.87	13.75	N/A	N/A	N/A	
Difference			-3.03	-3.03	-9.53	-11.93	0.13	0.80	N/A	N/A	N/A	
iShares:Russ 1000 ETF (IWB)	6,287,832	4.62	6.05	6.05	31.89	60.69	17.35	16.69	13.68	14.00	35.94	03/01/2020
Russell 1000 Index			5.91	5.91	31.82	60.59	17.31	16.66	13.64	13.97	35.85	
Difference			0.14	0.14	0.07	0.10	0.04	0.03	0.04	0.03	0.09	
IM U.S. Large Cap Equity (MF) Median			5.91	5.91	29.35	57.30	16.10	15.75	12.63	12.81	33.91	
Rank			50	50	32	33	41	41	39	35	40	
Vanguard SC V I;Ins (VSIIX)	1,423,185	1.05	16.80	16.80	N/A	N/A	N/A	N/A	N/A	N/A	46.66	11/01/2020
Vanguard Spl Sm Cap Val Index			16.83	16.83	57.12	89.72	10.77	12.41	9.55	11.06	46.65	
Difference			-0.03	-0.03	N/A	N/A	N/A	N/A	N/A	N/A	0.01	
IM U.S. Small Cap Value Equity (MF) Median			21.38	21.38	65.44	100.51	9.89	11.67	7.64	9.08	53.44	
Rank			88	88	N/A	N/A	N/A	N/A	N/A	N/A	88	
Vanguard S-C Id;Inst (VSCIX)	1,370,381	1.01	10.22	10.22	48.25	87.84	15.02	15.66	11.28	12.20	10.34	12/01/2005
Russell 2000 Index			12.70	12.70	55.36	94.85	14.76	16.35	11.05	11.68	9.53	
Difference			-2.48	-2.48	-7.11	-7.01	0.26	-0.69	0.23	0.52	0.81	
IM U.S. Small Cap Core Equity (MF) Median			15.25	15.25	53.63	90.34	11.95	13.38	9.47	10.28	8.80	
Rank			92	92	79	57	13	16	10	11	3	
T Rowe Price NH;I (PRJIX)	1,331,490	0.98	-1.66	-1.66	29.08	77.91	28.77	27.77	20.15	20.21	19.70	01/01/2014
Russell 2000 Grth Index			4.88	4.88	45.65	90.20	17.16	18.61	12.77	13.02	12.38	
Difference			-6.54	-6.54	-16.57	-12.29	11.61	9.16	7.38	7.19	7.32	
IM U.S. Small Cap Growth Equity (MF) Median			4.82	4.82	44.83	89.46	18.46	19.66	13.28	13.35	12.90	
Rank			95	95	98	88	7	7	4	1	4	

Performance shown is gross of fees. Performance is annualized for periods greater than one year. Manager inception dates shown represent the first full month following initial funding. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



	Allocatio	Allocation			Performance (%)							
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Bank of Oklahoma Managed Equity (SA)	45,381,084	33.34	6.48	6.48	27.45	52.57	N/A	N/A	N/A	N/A	52.57	04/01/2020
Russell 3000 Index			6.35	6.35	33.19	62.53	17.12	16.64	13.44	13.79	62.53	
Difference			0.13	0.13	-5.74	-9.96	N/A	N/A	N/A	N/A	-9.96	
Vanguard Dev Mkt;Adm (VTMGX)	6,186,493	4.54	3.98	3.98	28.51	51.06	6.63	9.68	5.55	6.08	4.75	09/01/1999
MSCI Wrld Ex US Index (USD) (Net)			4.04	4.04	26.46	45.86	6.34	8.92	4.75	5.21	4.56	
Difference			-0.06	-0.06	2.05	5.20	0.29	0.76	0.80	0.87	0.19	
IM All ACWI Ex US (MF) Median			3.00	3.00	29.76	53.37	8.23	10.37	6.20	5.96	5.62	
Rank			38	38	65	70	66	63	60	48	69	
Dodge & Cox Intl Stock (DODFX)	3,982,589	2.93	7.34	7.34	34.81	58.45	4.70	9.66	4.20	5.76	4.35	03/01/2014
MSCI ACW Ex US Index (USD) (Net)			3.49	3.49	28.67	49.41	6.51	9.76	5.26	4.93	5.24	
Difference			3.85	3.85	6.14	9.04	-1.81	-0.10	-1.06	0.83	-0.89	
IM ACWI Ex US Core (MF) Median			4.46	4.46	30.91	52.62	6.92	9.87	5.43	5.40	5.35	
Rank			4	4	24	25	86	60	80	38	77	
MFS Intl New Discv;R6 (MIDLX)	4,038,084	2.97	0.71	0.71	24.38	48.94	7.16	11.06	8.08	8.99	8.04	03/01/2014
MSCI ACW Ex US Grth Index (USD) (Net)			-0.08	-0.08	25.40	49.36	10.31	12.03	7.74	6.69	7.66	
Difference			0.79	0.79	-1.02	-0.42	-3.15	-0.97	0.34	2.30	0.38	
IM ACWI Ex US Growth (MF) Median			0.39	0.39	27.79	54.79	10.74	12.53	7.74	7.29	7.52	
Rank			43	43	78	83	95	82	40	16	32	
Invesco Dev Mkt;R6 (ODVIX)	3,932,911	2.89	1.07	1.07	30.78	54.98	9.06	13.87	7.74	6.39	7.78	06/01/2013
MSCI Emg Mkts Index (USD) (Net)			2.29	2.29	34.13	58.39	6.48	12.07	6.58	3.65	5.91	
Difference			-1.22	-1.22	-3.35	-3.41	2.58	1.80	1.16	2.74	1.87	
IM Emerging Markets Equity (MF) Median			2.86	2.86	34.46	63.01	6.19	11.71	6.39	3.73	5.70	
Rank			75	75	74	79	27	26	28	12	20	



	Allocation			Performance (%)								
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Fixed Income	49,815,283	36.59	-1.96	-1.96	1.15	4.62	5.35	3.24	3.25	3.36	3.56	01/01/2006
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.18	
Difference			1.42	1.42	3.28	3.91	0.70	0.14	-0.06	-0.08	-0.62	
Bank of Oklahoma Managed Fixed Income (SA)	23,385,875	17.18	-2.34	-2.34	-0.35	2.60	4.88	2.97	3.04	3.15	3.57	12/01/2005
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	4.22	
Difference			1.04	1.04	1.78	1.89	0.23	-0.13	-0.27	-0.29	-0.65	
IM U.S. Broad Market Fixed Income (SA+CF) Median			-2.96	-2.96	-0.19	4.70	5.43	4.00	3.95	4.19	4.93	
Rank			22	22	53	77	80	98	98	99	100	
MetWest:Total Rtn;I (MWTIX)	6,841,517	5.03	-2.81	-2.81	-0.19	3.98	5.92	4.13	4.05	4.73	4.76	08/01/2017
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60	
Difference			0.57	0.57	1.94	3.27	1.27	1.03	0.74	1.29	1.16	
IM U.S. Broad Market Core+ Fixed Income (MF) Median			-2.95	-2.95	0.49	6.75	5.04	3.98	3.52	3.89	3.97	
Rank			41	41	65	81	18	45	17	9	17	
PIMCO:Income;Inst (PIMIX)	8,463,541	6.22	-0.04	-0.04	7.87	15.15	5.79	6.93	6.47	8.01	5.56	08/01/2017
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60	
Difference			3.34	3.34	10.00	14.44	1.14	3.83	3.16	4.57	1.96	
IM Multi-Sector General Bond (MF) Median			-0.62	-0.62	6.80	15.18	4.82	4.98	3.79	4.39	4.13	
Rank			37	37	37	51	25	8	2	1	11	
PIMCO:Intl Bd (DH);Inst (PFORX)	4,316,997	3.17	-1.19	-1.19	3.34	7.39	4.99	5.04	5.41	6.07	3.22	03/01/2020
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	0.11	
Difference			2.19	2.19	5.47	6.68	0.34	1.94	2.10	2.63	3.11	
IM International Fixed Income (MF) Median			-4.64	-4.64	2.90	7.10	1.03	2.15	0.89	1.48	2.54	
Rank			2	2	49	48	4	2	2	1	41	



	Allocation	Allocation			Performance (%)							
	Market Value (\$)	%	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Alternative Investments	10,761,684	7.91	2.89	2.89	14.52	26.81	5.19	6.14	3.51	3.14	3.49	12/01/2010
OWCRS Alternatives Custom Index			2.00	2.00	14.96	23.99	5.47	5.67	N/A	N/A	N/A	
Difference			0.89	0.89	-0.44	2.82	-0.28	0.47	N/A	N/A	N/A	
First Eagle:Global;I (SGIIX)	5,395,306	3.96	4.33	4.33	23.03	41.49	9.02	9.71	7.57	8.31	8.57	08/01/2017
MSCI Wrld Index (USD) (Net)			4.92	4.92	29.05	54.03	12.81	13.36	9.73	9.88	12.32	
Difference			-0.59	-0.59	-6.02	-12.54	-3.79	-3.65	-2.16	-1.57	-3.75	
Calamos:Mkt Neut Inc;I (CMNIX)	5,366,378	3.94	1.61	1.61	6.45	12.14	5.66	6.01	5.04	5.20	5.60	08/01/2017
Bloomberg US Agg Bond Index			-3.38	-3.38	-2.13	0.71	4.65	3.10	3.31	3.44	3.60	
Difference			4.99	4.99	8.58	11.43	1.01	2.91	1.73	1.76	2.00	



Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis



Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments. Oklahoma State Pension Commission fiscal year begins on 07/01.



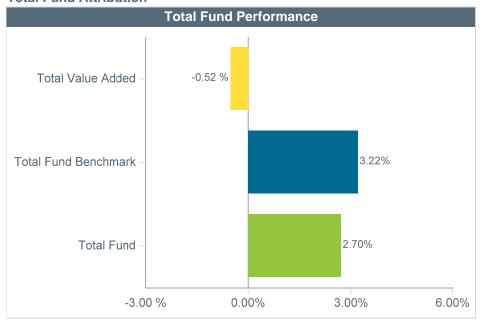
Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System vs. All Public Plans-Total Fund Plan Sponsor Peer Group Analysis

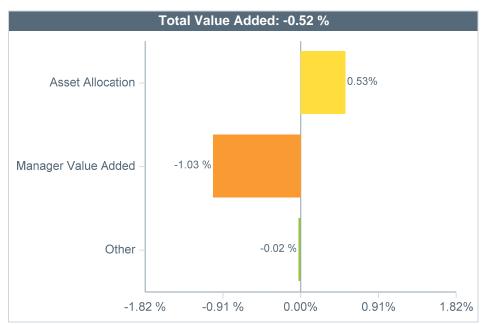


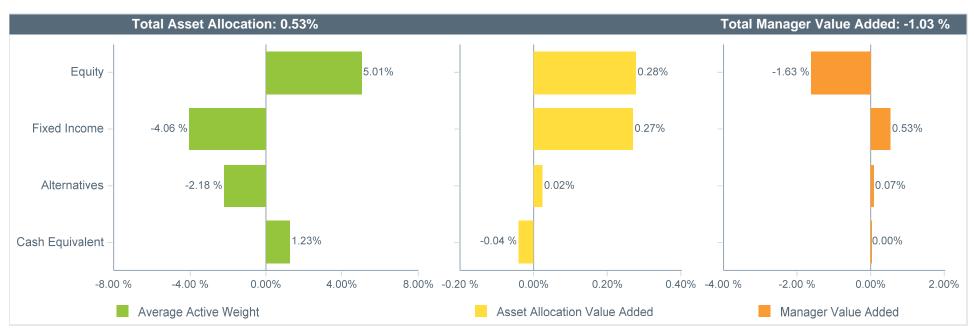
Performance shown is gross of fees. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System Total Fund Attribution





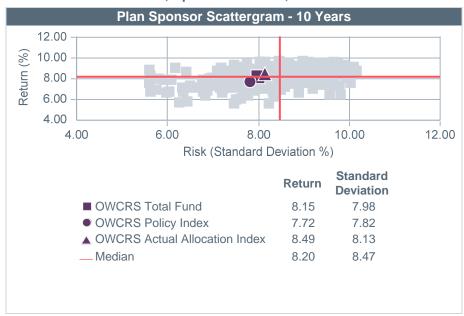


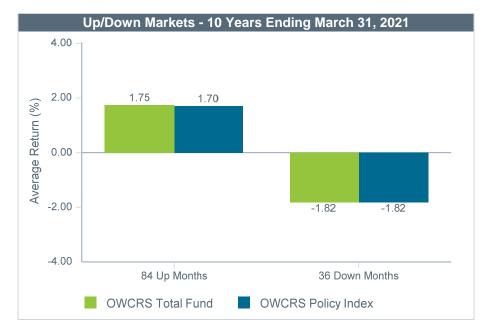
Performance shown is gross of fees. Calculation is based on monthly periodicity. See Glossary for additional information regarding the Total Fund Attribution calculation.

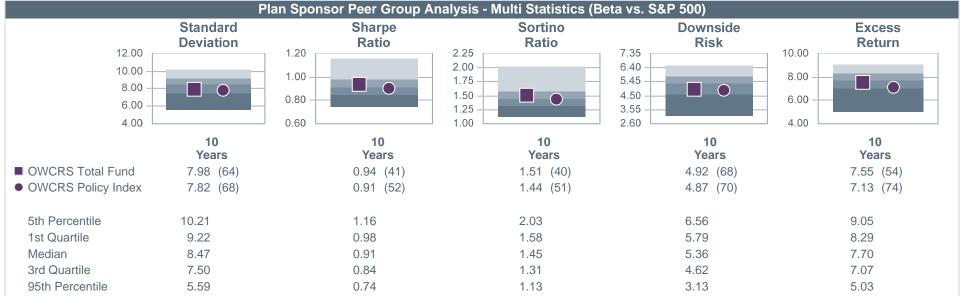


Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System

Total Fund Risk & Return, Up/Down Markets, and Multi Statistics



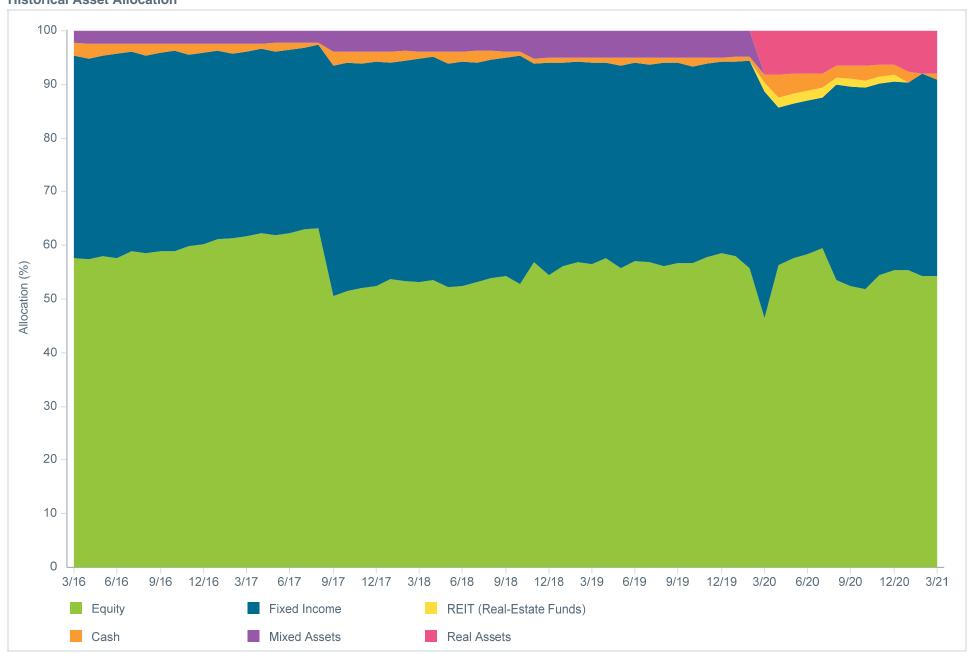




Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Please see the Addendum for custom index definitions and additional comments.



Oklahoma State Pension Commission Oklahoma Wildlife Conservation Retirement System Historical Asset Allocation





Addendum & Glossary



Oklahoma State Pension Commission

As of March 31, 2021
Addendum

Performance Comments:

- Fiscal year begins on 07/01.
- RVK began monitoring the assets of Oklahoma State Pension Commission as of 07/01/2020. Prior historical data on market values and performance was provided by the prior investment consultant and/or custodian bank.
- Manager inception dates shown reflect the first full month of performance following initial funding.
- Mutual fund performance prior to 07/01/2020 or client inception is product specific.
- Manager inception dates shown represent the first full month following initial funding.
- Indices show N/A for since inception returns when the fund contains more history than the corresponding benchmark.
- Net of fees performance show N/A for since inception returns when the fund contains more gross of fees performance history.

Custom Index Comments:

- The active Actual Allocation Index of each plan is calculated monthly based on beginning of period investment weights applied to the corresponding primary benchmark return.
- OTRS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 43.5% Russell 3000 Index, 19% MSCI ACW ex US IMI (USD) (Net), 22% Bloomberg US Universal Bond Index, 9% NCREIF Property Index (Monthly), and 6.5% Russell 2000 Index+4%. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OPERS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 40% OPERS US Equity Custom Index, 28% MSCI ACW ex US Index (USD) (Net), and 32% OPERS Fixed Income Custom Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OPERS US Equity Custom Index is calculated monthly and current consists of 85% Russell 1000 Index and 15% Russell 2000 Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OPERS Fixed Income Custom Index is calculated monthly and current consists of 78% Bloomberg US Agg Bond Index, 11% FTSE Treasury Index 20+ Yr Index, and 11% Bloomberg US Treasury US TIPS Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OFPRS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 47% Russell 3000 Index, 15% MSCI ACW ex US Index (USD) (Net), 13% Bloomberg US Agg Bond Index, 7% Bloomberg Global Agg ex US Index (USD) (Unhedged), 10% NCREIF ODCE Index (AWA) (Net) (Monthly), and 8% Cambridge US Private Equity Index (Monthly). Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OPPRS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 65% MSCI ACW Index (USD) (Net), 20% Bloomberg US Universal Bond Index, and 15% NCREIF ODCE Index (AWA) (Net) (Monthly). From 07/01/2020 through 01/31/2021, it consisted of 60% MSCI ACW Index (USD) (Net), 25% Bloomberg US Universal Bond Index, and 15% NCREIF ODCE Index (AWA) (Net) (Monthly). Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OPPRS Real Assets Blended Index: is calculated monthly and current consists of 100% NCREIF ODCE Index (AWA) (Net) (Monthly). From 01/01/2016 through 08/31/2019, it consisted of 67% NCREIF ODCE Index (AWA) (Net) (Monthly) and 33% Bloomberg Commodity Index (TR). From 08/01/2014 through 12/31/2015, it consisted of 50% NCREIF ODCE Index (AWA) (Net) (Monthly) and 50% Bloomberg Commodity Index (TR). Prior to 08/01/2014, the index consisted of 100% NCREIF ODCE Index (AWA) (Net) (Monthly).
- Oaktree Global Credit Custom Index is calculated monthly and current consists of 50% ICE BofAML Global High Yield Index and 50% Credit Suisse Leveraged Loan Index.
- OLERS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 35% S&P 500 Index (Cap Weighted), 10% Russell 2000 Index, 20% MSCI ACW ex US Index (USD) (Net), 20% Bloomberg US Agg Bond Index, and 15% NCREIF ODCE Index (AWA) (Net) (Monthly). From 07/01/2020 through 01/31/2021, it consisted of 35% S&P 500 Index (Cap Weighted), 10% Russell 2000 Index, 15% MSCI ACW ex US Index (USD) (Net), 30% Bloomberg US Agg Bond Index, and 10% NCREIF ODCE Index (AWA) (Net) (Monthly). Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OURSJJ Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 40% OURSJJ US Equity Custom Index, 28% MSCI ACW ex US Index (USD) (Net), and 32% OURSJJ Fixed Income Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OURSJJ US Equity Custom Index is calculated monthly and current consists of 85% Russell 1000 Index and 15% Russell 2000 Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OURSJJ Fixed Income Custom Index is calculated monthly and current consists of 78% Bloomberg US Agg Bond Index, 11% FTSE Treasury Index 20+ Yr Index, and 11% Bloomberg US Treasury US TIPS Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OWCRS Policy Index: OTRS's passive, policy index is calculated monthly and currently consists of 50% OWCRS Equity Custom Index, 40% Bloomberg US Agg Bond Index, and 10% HFRI FoF Composite Index. Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OWCRS Equity Custom Index is calculated monthly and current consists of 25% MSCI EAFE Index (USD) (Net), 25% S&P 500 Index (Cap Weighted), 25% Russell 2000 Index, and 25% S&P Mid Cap 400 Index (Gross) (Cap Weighted). Performance prior to 07/01/2020 was calculated by the prior investment consultant.
- OWCRS Alternatives Custom Index is calculated monthly and currently consists of 100% HFRI FoF Composite Index. Performance prior to 07/01/2020 was calculated by the



Oklahoma State Pension Commission
As of March 31, 2021
Addendum

prior investment consultant.

• Vanguard Spi Sm Cap Val Index consists of S&P Sm Cap 600 Val Index through 05/16/03; MSCI US Sm Cap Val Index through 04/16/13; and CRSP US Sm Cap Val Index thereafter.



Active Return - The difference between the investment manager/composite performance relative to the performance of an appropriate market benchmark

Active Share - Measures the degree to which the holdings of a fund differ from the holdings of the benchmark. Active share is calculated by taking the sum of the absolute value of the differences of the weight of each holding in the fund versus the weight of each holding in the benchmark and dividing by two.

Alpha - A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market or a portfolio's non-systematic return.

Alpha Ratio - A measure of a portfolio's non-systematic return per unit of downside risk. It is measured by dividing the alpha of a portfolio by the downside risk. The non-systematic return is a measure of a portfolio's historical performance not explained by movements of the market.

Average Quality - Bond quality ratings are reported using the investment managers' and the index providers' preferred rating agency. *Average Quality for managers unable to provide this statistic is instead provided by Morningstar; if unavailable on Morningstar, it has been estimated using a credit quality distribution provided by the manager.* There are two primary rating agencies in the US. *Moody's* assigns ratings on a system that employs up to four symbols (consisting of letters and numbers), such as, Aaa, Aa2, etc., with Aaa being the highest or safest rating. *Standard & Poor's (S&P)* employs a system that uses + and - along with letters, such as AAA, AA+, etc. The two rating agencies' systems are summarized below:

S&P	Moody's	Explanation	S&P	Moody's	Explanation
Higher Cr	edit Quality – I	nvestment Grade	Lower Cr	edit Quality – E	Below Investment Grade
AAA	Aaa	Prime/Highest credit quality	BB+	Ba1	Speculative/Low credit quality
AA+	Aa1	High credit quality	BB	Ba2	
AA	Aa2		BB-	Ba3	
AA-	Aa3		B+	B1	Highly speculative
A+	A1	Upper-medium credit quality	В	B2	
Α	A2		B-	B3	
A-	A3		CCC+	Caa1	Substantial credit/default risk
BBB+	Baa1	Lower-medium credit quality	CCC	Caa2	Extremely speculative
BBB	Baa2		CCC-	Caa3	
BBB-	Baa3		CC	Ca	Vulnerable to default
			С	Ca	
			D	С	In default

Benchmark Effect - The difference between the blended return of each respective managers' benchmark within a composite and the composite's benchmark return.

Beta - A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.

Box Plots - A graphical representation of the distribution of observations. From top to bottom, the four boxes represent the spread between the maximum value and the minimum value in each quartile. A quartile represents the values that divide the observations into four quarters (i.e., 1st quartile, 2nd quartile, 3rd quartile, and 4th quartile). The median observation is where the 2nd quartile and 3rd quartile meet.

Buy and Hold Attribution - At the beginning of the time period under analysis, the manager and benchmark portfolios are broken down into segments (i.e., styles, sectors, countries, and regions) based on the desired type of attribution. The formula assumes zero turn-over to the manager and benchmark portfolios throughout the period and calculates the segment returns ("buy and hold returns") to arrive at performance attribution. Due to portfolio turnover, buy and hold attribution may not accurately represent quarterly performance relative to the benchmark. Country, region, sector, and style allocations are as of the date one quarter prior to the reporting date, and the returns shown are for those segments throughout the quarter reported. Due to disclosure guidelines set by each investment manager, equity characteristics shown are as of the most recent date available. The following is the methodology for segment classification:

Sector - Attribution is calculated using the Global Industry Classification Standard (GICS), which is a detailed and comprehensive structure for sector and industry analysis. Stocks are classified by their primary sector as defined by S&P Capital IQ data.

Country/Region - Attribution is calculated using the Morgan Stanley Capital International (MSCI) region standards. Stocks are classified by their domicile country/region, as defined by S&P Capital IQ data, and thus may differ from the classification of the investment manager and/or index provider.

Style - Stocks are classified into the following style boxes: large/mid/small vs. growth/neutral/value. Stocks are classified along large/mid/small categories at the time of the Russell index rebalancing, using the index market cap boundaries as cutoff points. Stocks are classified along growth/neutral/value categories at the time of the Russell index rebalancing, using the price/book ratio as supplied by S&P Capital IQ. Stocks in the Russell 3000 Index portfolio are sorted by price/book ratio; names with the highest price/book ratio that make up 1/3 of the total market capitalization are assigned to the growth category, and names that make up the subsequent 1/3 of the total market capitalization are assigned to the names are assigned to the value category. Stocks are unclassified when there is not enough data to determine a size and style metric.

Portfolio Characteristics and Buy and Hold Attribution reports utilize product-specific data for all mutual funds and commingled funds.

Capital Markets Review -

Breakeven Inflation - Measures the expected inflation rate at each stated maturity by taking the difference between the real yield of the inflation-linked maturity curve and the yield of the closest nominal Treasury maturity.

Consumer Confidence - Measures domestic consumer confidence as defined by the degree of optimism on the state of the economy that consumers express through saving and spending.

Consumer Price Index (CPI) - Measures the change in the price level of consumer goods and services.



Federal Funds Rate - The interest rate at which a depository institution lends funds maintained at the Federal Reserve to another depository institution overnight. It is one of the most influential interest rates in the US economy, since it affects monetary and financial conditions, which in turn have a bearing on key aspects of the broad economy including employment, growth and inflation.

Option-Adjusted Spread - Measures the flat spread of an index or bond to the Treasury yield curve after removing the effect of any embedded options.

Purchasing Managers Index (PMI) - Measures economic activity by surveying purchasing managers on a monthly basis as to whether business conditions have improved, worsened, or stayed the same.

Real Gross Domestic Product (Real GDP) - An inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year.

Unemployment Rate - The percentage of the total labor force that is unemployed but actively seeking employment.

US Dollar Total Weighted Index - Measures the value of the US Dollar relative to a basket of other world currencies. It is calculated as the weighted geometric mean of the dollar's value versus the EUR, GBP, CAD, SEK, CHF, and JPY.

VIX - Measures the implied volatility of S&P 500 Index options by looking at the market's expectation of the S&P 500 Index volatility over the next 30 day period. Commonly referred to as the "fear index" or the "fear gauge."

Cash Flow Effect - The composite's active return minus the sum of each managers' active return minus the benchmark effect.

Consistency - The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.

Convexity - A measure of the shape of the curve that describes the relationship between bond prices and bond yields.

Correlation - A statistical measure of the relationship between asset class returns. A value of 1.00 is a perfect correlation; that is, the asset classes always move in the same direction. A value of -1.00 indicates a perfect negative correlation, in which the asset classes always move in opposite directions of each other. A value of 0 indicates there is no relationship between the direction of returns of the two asset classes. Correlation calculations only consider the direction of changes relative to two variables and not the magnitude of those changes.

Coupon Rate - The percentage rate of interest paid on a bond or fixed income security; it is typically paid twice per year.

Current Yield - The annual income of a security divided by the security's current price.

Down Market Capture - Down market by definition is negative benchmark return and down market capture represents the ratio in % terms of the average portfolios return over the benchmark during the down market period. The lower the value of the down market capture the better the product's performance.

Downside Risk - A measure similar to standard deviation that focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative returns for the selected periodicity. The higher the factor, the riskier the product.

Earnings Per Share - It is backward looking, calculated using the one year current EPS divided by the one year EPS five years ago.

Effective Duration - The approximate percentage change in a bond's price for a 100 basis point change in yield.

Excess Return vs. Market - Average of the monthly arithmetic difference between the manager's return and the benchmark return over a specified time period, shown on an annualized basis.

Excess Return vs. Risk Free - Average of the monthly arithmetic difference between the manager's return and the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) over a specified time period, shown on an annualized basis.

Excess Risk - A measure of the standard deviation of a portfolio's performance relative to the risk-free return.

Expense Ratios - Morningstar is the source for mutual fund expense ratios.

Gain/Loss - The net increase or decrease in the market value of a portfolio excluding its Net Cash Flow for a given period.

Indices - All indices and related information are considered intellectual property and are licensed by each index provider. The indices may not be copied, used, or distributed without the index provider's prior written approval. Index providers make no warranties and bear no liability with respect to the indices, any related data, their quality, accuracy, suitability, and/or completeness.

Information Ratio - Measured by dividing the active rate of return by the tracking error. The higher the information ratio, the more value-added contribution by the manager.

Liability Driven Investing (LDI) - A method to optimally structure asset investments relative to liabilities. The change in liabilities is estimated by the Ryan Labs Generic PPA Index of appropriate duration for that Plan. This benchmark is based on generic data and is therefore an approximation. RVK is not an actuarial firm, and does not have actuarial expertise.

Estimated Funded Status - The estimated ratio of a Plan's assets relative to its future liabilities. This is calculated by dividing the Plan's asset market value by the estimated present value of its liabilities. The higher the estimated funded status, the better the Plan's ability to cover its projected benefit obligations. An estimated funded status of 100% indicates a Plan that is fully funded.

Estimated PV of Liabilities - An estimate of a Plan's future liabilities in present value terms. The beginning of the period liability is provided by the Plan's actuary. The period-end present value liability estimate provided in this report is derived by applying the estimated percentage change generated using the Ryan Labs Generic PPA Index with duration similar to that reported on the most recent actuarial valuation report.

Duration of Liabilities - The sensitivity of the value of a Plan's liabilities to changes in interest rates, as calculated by the Plan's actuary.

Duration of Assets - The dollar-weighted average duration of all the individual Plan assets.

Estimated Plan Hedge Ratio - The estimate of how well a Plan's investment portfolio is hedged against changes in interest rates - a primary driver of funded status movements. This is calculated by dividing the dollar-weighted values of both the Plan asset duration by the liability duration and



multiplying by the estimated funded status. An estimated plan hedge ratio of zero indicates that the Plan's liabilities have not been hedged, whereas a value of one indicates fully hedged.

Modified Duration - The approximate percentage change in a bond's price for a 100 basis point change in yield, assuming the bonds' expected cash flows do not change.

Mutual Fund Performance - Whenever possible, manager performance is extended for any share class that does not have 10 years of history. Using Morningstar's methodology, a single ticker within the same fund family (often the oldest share class) is chosen to append historical performance.

Net Cash Flow - The sum, in dollars, of a portfolio's contributions and withdrawals. This includes all management fees and expenses only when performance shown is gross of fees.

Peer Groups -

Plan Sponsor Peer Groups - RVK utilizes the Mellon Analytical Solutions Trust Universe along with the Investment Metrics Plan Sponsor Universe. The combined Mellon Analytical Solutions Trust Universe and Investment Metrics Plan Sponsor Universe is used for comparison of total fund composite results and utilizes actual client performance compiled from consultant and custodian data. The Plan Sponsor Peer Group database includes performance and other quantitative data for over 2,100 plans which include corporate, endowment, foundation, public, and Taft Hartley plans.

Investment Manager Peer Groups - RVK utilizes Investment Metrics' Peer Groups for investment manager peer comparison and ranking. The Investment Metrics Peer Group database includes performance and other quantitative data for over 840 investment management firms and 29,000 investments products, across more than 160 standard peer groups. Mutual Fund Peer Groups are net of fees.

Percentile Rankings - Percentile rank compares an individual fund's performance with those of other funds within a defined peer group of managers possessing a similar investment style. Percentile rank identifies the percentage of a fund's peer group that has a higher return (or other comparative measurement) than the fund being ranked. Conversely, 100 minus the individual fund's ranking will identify the percentage of funds within the peer group that have a lower return than the fund being ranked.

1 - Highest Statistical Value 100 - Lowest Statistical Value

Example: American Funds AMCP;R-4 (RAFEX) is ranked in the 4th percentile within the IM US Equity Large-Cap Growth Funds (MF) Peer Group for the Sharpe Ratio. Within the IM US Equity Large-Cap Growth Funds peer group, 4% of the other funds performed better than American Funds AMCP;R-4 (RAFEX), while 96% of the funds performed worse.

Performance Methodology - RVK calculates performance for investment managers and composites using different methodologies.

Investment Managers - Performance is calculated for interim periods between all large external cash flows for a given month and geometrically linked to calculate period returns. An external cash flow is defined as cash, securities, or assets that enter or exit a portfolio. RVK defines a "large cash flow" as a net aggregate cash flow of ≥10% of the beginning-period portfolio market value or any cash flow that causes RVK calculated performance to deviate from manager/custodian reported performance in excess of 5 basis points for a given month.

Composites - The Modified Dietz methodology is utilized to calculate asset class, sub-asset class, and total fund composite performance. The Modified Dietz method calculates a time-weighted total rate of return that considers the timing of external cash flows; however, it does not utilize interim period performance to mitigate the impact of significant cash in- and outflows to the composite.

RVK calculates performance beginning with the first full month following inception. Since inception performance may vary from manager reported performance due to RVK using the first full month of returns as the inception date. Performance for both managers and composites is annualized for periods greater than one year.

Portfolio Characteristics - Due to disclosure guidelines set by each investment manager, portfolio characteristics shown are as of the most recent date available

Price to Earnings Ratio - The ratio valuing a company's current share price relative to its trailing 12-month per-share earnings (EPS).

Private Equity Quartile Ranks - Private Equity quartile ranks are generated using vintage year peer group data provided by Thomson Reuters, and are based on each fund's annualized, since inception internal rate of return (IRR). Three Private Equity peer groups are available via Thomson Reuters: Buyout, Venture, and All Private Equity. Ranks are available quarterly, at a one-quarter lag.

R-Squared - The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.

Return - Compounded rate of return for the period.

% Return - The time-weighted rate of return of a portfolio for a given period.

Risk Free Benchmark - ICE BofAML 3 Mo US T-Bill Index unless specified otherwise.



RVK Liquidity Rating - A qualitative method for determining the relative amount of liquidity in a portfolio. The characteristics considered when determining relative liquidity include trading volume, gates for redemption, leverage, nature of transactions, and pricing mechanisms. The RVK Liquidity Rating is calculated using beginning of month investment weights applied to each corresponding asset class liquidity rating.

Asset Class	RVK Liquidity Rating	Asset Class	RVK Liquidity Rating
<u>Liquid Investments</u>		Less Liquid Investments	
T-Bills and Treasurys	100	Fixed Income Plus Sector	50
Cash Equivalents	98	Stable Value (Plan Sponsor Directed)	50
TIPS	95	Hedge Funds of Funds	35
US Large Cap Equity	95	-	
Diversified Real Return	93		
Stable Value (Participant Directed)	91		
Global Equity	90	Not Liquid Investments	
Non-US Large Cap Equity	90	Core Real Estate	25
Global Tactical Asset Allocation	88	Core Plus Real Estate	15
MLPs	85	Non-Core Real Estate	5
US Mid Cap Equity	85	Private Equity Funds of Funds	5
US SMid Cap Equity	85		
US Small Cap Equity	85		
REITs	85		
Non-US Small Cap Equity	85		
Emerging Markets Equity	85		
Core Fixed Income	85		
Core Plus Fixed Income	80		

Sector Allocation - Negative fixed income sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps.

Sharpe Ratio - Represents the excess rate of return over the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise), divided by the standard deviation of the excess return to the risk free asset. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

Simple Alpha - The difference between the manager's return and the benchmark's return.

Spread Duration - The approximate percentage change in a bond's price for a 100 basis point change in its spread over a Treasury of the same maturity.

Standard Deviation - A statistical measure of the range of a portfolio's performance. The variability of a return around its average return over a specified time period.

Thematic Classification - Represents dedicated manager allocations; as such, thematic allocations are approximations. RVK categorizes the following asset classes as Alpha, Capital Appreciation, Capital Preservation, and Inflation:

Alpha	Capital Appreciation	Capital Preservation	<u>Inflation</u>
Absolute Return Strategies	Public Equity	Core Fixed Income	TIPS
Currency Overlay	Private Equity	CMBS Fixed Income	Bank Loans
	Preferred Securities	Asset Backed Fixed Income	Core Real Estate
	High Yield	Domestic Core Plus Fixed Income	Real Return
	Convertible Fixed Income	Mortgage Backed Fixed Income	Inflation Hedges
	TALF Funds	International Developed Fixed Income	REITs
	Distressed Debt	Cash Equivalents	Commodities
	Emerging Market Fixed Income	Stable Value	
	Value Added Real Estate		
	Opportunistic Real Estate		

Time Period Abbreviations - QTD - Quarter-to-Date. CYTD - Calendar Year-to-Date. FYTD - Fiscal Year-to-Date. YOY - Year Over Year.

Total Fund Attribution – The Investment Decision Process (IDP) model provides an approach to evaluating investment performance that applies to all asset classes and investment styles. The IDP model is based on a top-down hierarchy framework of investment decisions, with each decision contributing to the overall profit or loss. The IDP approach starts from the strategic asset allocation and follows the flow of the investments down to the manager's skill.

Strategic Asset Allocation (SAA) – The percentage return gained or lost from the long-term strategic asset allocation decision, the most significant determinant of long-term performance. SAA is the product of the target asset allocation multiplied by the corresponding benchmark returns.

Tactical Asset Allocation (TAA) – The percentage return gained or lost from not having been precisely allocated at the target asset allocation mix, whether by deviations that are tactical in nature or a by-product of moving towards the target mix. TAA is the product of the actual asset allocation multiplied by the broad asset class benchmarks, less the SAA.

Style Selection (SS) – The percentage return gained or lost from intentional style biases within each asset class (e.g. value rather than core or overweight to emerging markets relative to benchmark). SS is the product of the actual manager allocation within each asset class multiplied by their specific benchmark, less TAA.

Manager's Skill (MS) – The percentage return gained or lost from manager value added relative to their specific benchmark. MS is the product of the actual manager allocation multiplied by their achieved excess return.

Total Fund Beta - Total Fund Beta is calculated using the S&P 500 as the benchmark. It represents a measure of the sensitivity of the total fund to movements in the S&P 500 and is a measure of the Total Fund's non-diversifiable or systematic risk.

Tracking Error - A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.

Treynor Ratio - Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Treynor ratio represents the excess rate of return over the risk-free rate (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better historical risk-adjusted performance.

Unit Value - The dollar value of a portfolio, assuming an initial nominal investment of \$100, growing at the compounded rate of %Return for a given period.

Up Market Capture - Up market by definition is positive benchmark return and up market capture represents the ratio in % terms of the average portfolio's return over the benchmark during the up market period. The higher the value of the up market capture the better the product's performance.

Yield to Maturity - The rate of return achieved on a bond or other fixed income security assuming the security is bought and held to maturity and that the coupon interest paid over the life of the bond will be reinvested at the same rate of return. The 30-Day SEC Yield is similar to the Yield to Maturity and is reported for mutual funds.

Yield to Worst - The bond yield calculated by using the worst possible yield taking into consideration all call, put, and optional sink dates.





Executive Summary

Active Management in Traditional Asset Classes

Active management refers to an investment strategy in which an investment manager's holdings differ from the holdings of a broad, investable index with a comparable set of securities. The fundamental thesis of active management is that the investment manager can outperform the reference index by selecting securities that have superior return expectations and/or avoiding securities that have inferior return expectations. The alternative to active management is to invest in an index fund, which replicates the holdings of the reference index and charges a fee that is much lower than the those charged by active managers.

The use of active managers in traditional asset classes (e.g., US equity, international equity, and fixed income) is a topic of considerable debate among institutional investors. The objective of this presentation is not to provide an absolute verdict on when and where active managers should be used. Instead, it highlights the important trade-offs that institutional investors may benefit from considering before making such decisions. It is quite conceivable (and justifiable) that two organizations may arrive at different conclusions based on their unique objectives, constraints, and competitive advantages.

Use of Alternative Asset Classes

In addition to the active management decision, the presentation also highlights specific challenges related to the use of alternative asset classes, such as private equity, private real estate, and hedge funds. In alternative asset classes, active management is the <u>only</u> investment option, yet the stakes related to manager selection are considerably greater. Successful investment in alternative asset classes can add meaningful diversification and return enhancement to institutional investment portfolios, but failure can cause the opposite effect.



Active Management in Traditional Asset Classes



Thesis of Active Management Usage

Optimism Bias of Institutional Investors Results of Greenwich Associates 41st Annual Survey of Institutional Investors

"On average, they [survey respondents] expected their managers to beat the market by an astounding 100 basis points. Since over 1,000 pension & endowment funds collectively retain the services of virtually all managers – and hardly any investment managers regularly outperform the market by 100 basis points – this is of course a statistical impossibility."

- Charles D. Ellis, ex-Chairman of the Yale University Endowment

Implicit Assumptions of Investors Using Active Management

- 1. Our Manager Selection Skill is *Currently* Above Average Given that the average manager in most asset classes is unable to outperform a comparable index net of fees, investors who choose active management make the implicit assumption that their *current* manager selection skills (or those of their advisors) are better than average.
- 2. Our Manager Selection Skill is Durable Investors who use active managers rather than low-cost index funds make the implicit assumption that they <u>will maintain</u> the ability to identify sufficiently talented investment managers over an extended time horizon.
- 3. Allocating Time to Active Management Does Not Force Us to Neglect Projects that Offer Greater Value to Beneficiaries Selecting, monitoring, and occasionally replacing active managers is a costly activity both in terms of actual trading costs and, often more importantly, investment committee time. Investors who use active managers implicitly make the assumption that the reward from active management is greater than the reward that may be obtainable from allocating scarce resources to other activities.



¹ Ellis, Charles D. (2016). The Index Revolution. New Jersey: John Wiley & Sons. pp. 115.

How Do Active Managers Generate Value?

Active Manager Value Creation

Active managers generally claim that their ability to outperform derives from one or more competitive advantages. When evaluating active managers, it is important to understand which of these four arguments they are making, and whether the manager has an edge that is credible, durable, and sufficiently robust to warrant the higher fees and opportunity costs.

1. Superior Information Analysis & Synthesis – This is the most frequent claim by active managers. The power of this argument often correlates to the relative efficiency of the asset class. For example, all else being equal, an active manager investing in small cap U.S. stocks (which have less analyst coverage) generally has a greater opportunity to develop insights that are both valuable and different than the market consensus in comparison to an active manager investing in U.S. large cap stocks.

Example: LSV Large Cap Value

2. Superior Index Construction – This argument rests on the premise that indexes themselves (which are generally weighted by market capitalization) are flawed. Managers making this argument claim that they have discovered a superior indexing methodology, which will outperform the reference index after factoring in a comparatively higher fee.

Example: DFA US Targeted Value

3. Access to Securities Outside the Index – The premise of this argument is that the manager has unique and durable access to securities that are both valuable and inaccessible to indexed investors.

Example: T. Rowe Price QM U.S. Small & Mid-Cap Core Equity Fund

Superior Information Access – The premise of this argument is that the manager has access to information that is unobtainable by most professional investors. This is generally the weakest of all of the arguments, as the availability of most data relevant to security valuation is accessible at relatively low cost and insider trading was outlawed nearly 100 years ago.

Example: Renaissance Technologies



Three Venues for Active Management

Low-Cost Index Fund Viability



Traditional Asset Classes

Traditional asset classes generally consist of publicly-traded securities with markets that are deep and broad. Listed below are the primary asset classes that are generally considered "traditional." These can be (and often are) broken down into sub-asset classes as well.

- U.S. Equity
- International Equity
- Publicly-Traded REITs
- Core Fixed Income

Low-Cost Index Fund Viability



Alternative Asset Classes

Alternative asset classes generally consist of private assets that lack an investable index. Examples of alternative asset classes include:

- Private equity
- □ Private credit
- Hedge funds
- Private real estate

Low-Cost Index Fund Viability



Hybrid Asset Classes

Hybrid asset classes may contain elements of both alternative and traditional asset classes. Although an investable index may be available for these asset classes, it may be expensive and unattractive from a risk/return perspective. Examples of hybrid asset classes include:

- ☐ High yield fixed income
- Preferred securities
- Natural Resource Equities
- MLPs



Active Management Decision Drivers

The use of management only presents a potentially attractive investment proposition if (a) the opportunity set is sufficiently rewarding, and (b) the investor possesses unique organizational capabilities and objectives that favor active manager usage. Key elements to consider in each of these areas include:

Strength of Opportunity Set

The opportunity set for active managers varies by asset and sub-asset class. A few important factors that can help gauge the relative strength of the opportunity set include:

- Probability of Manager Outperformance
- Magnitude of Potential Outperformance
- Attributes of the Reference Index
- ☐ Capacity of Highly-Rated Investment Managers

Organizational Factors

Independent of the opportunity set, investors must consider attributes of their specific investment program to determine the suitability of active management. Important factors to consider are:

- Strategic Stability of Governance
- ☐ Staff/Advisor Skill & Stability
- Time Horizon
- Magnitude of Opportunity Costs



Common Drivers of Active Management Underperformance in Traditional Asset Classes

Overestimation of Manager Selection Skill

If we assume that the average active manager underperforms a comparable index fund, an investor who uses active managers makes the implicit assumption that they are better than average at selecting active managers. They also make the implicit assumption that this skill is durable. In reality, many investors express an optimism bias when making this determination. In other words, many investors assume they are and sufficiently skilled when in reality they will not.

Dilution of Active Manager Exposure¹

Some investors possess sufficient skill to choose active managers, yet they dilute this skill by picking **too many** managers. It is important to weigh the benefits of manager diversification against the dilution of using too many managers. The primary detractors from the benefits include higher fees, greater monitoring costs, and the offsetting of underlying positions.

Strategic Instability

It is difficult enough for investors to adhere to a long-term investment strategy, but it is even more difficult to ensure that one's successors exhibit the same consistency. It is quite common for a Committee to hire a talented group of managers, only to have the decision reversed in later years by a new Committee that subscribes to a different investment philosophy.

Talent Instability

Selection of skilled active managers is a rare gift, and it is one that becomes increasingly valuable once a substantial track record is established. Therefore, the inability of an investor to retain talented staff can compromise an otherwise successful active management strategy.

Magnitude of Opportunity Costs

By choosing to engage in active management, an investor simultaneously chooses not to allocate scarce resources to other activities, some of which could generate greater value. For example, by allocating scarce committee member time to the frequent review and replacement of active managers, a University Endowment may neglect important activities, such as setting a sustainable spending rate, fundraising, or even the management of other pools of capital in the organization.



¹ RVK published a research paper describing this risk in the April 2020 Issue of the Journal of Portfolio Management. The Commission can access the article at the following link: https://eprints.pm-research.com/17511/32501/index.html?10806

Use of Alternative Asset Classes



Overview of Alternative Asset Classes

Fundamental Principle

The Use of Alternative Investments is a Skill-Based Decision – Not an Allocation Decision

The value of alternative investments derives almost entirely from an investor's skill in identifying and securing access to premium managers. If investors lack such skill, the use of alternative investments is generally not advisable. This is because if investors are only capable of identifying an/or accessing average (or below average) managers, the risks and costs usually outweigh the benefits. Therefore, the use of alternative investments is best viewed as an assessment of one's skill. Investors who possess sufficient skill are likely to add substantial value, while those who lack it risk destroying value.

Types of Alternative Asset Classes

Generally speaking, alternative asset classes provide investors with asset exposures that cannot be obtained through traditional, publicly traded vehicles. Common alternative asset classes that are found in institutional portfolios are listed below.

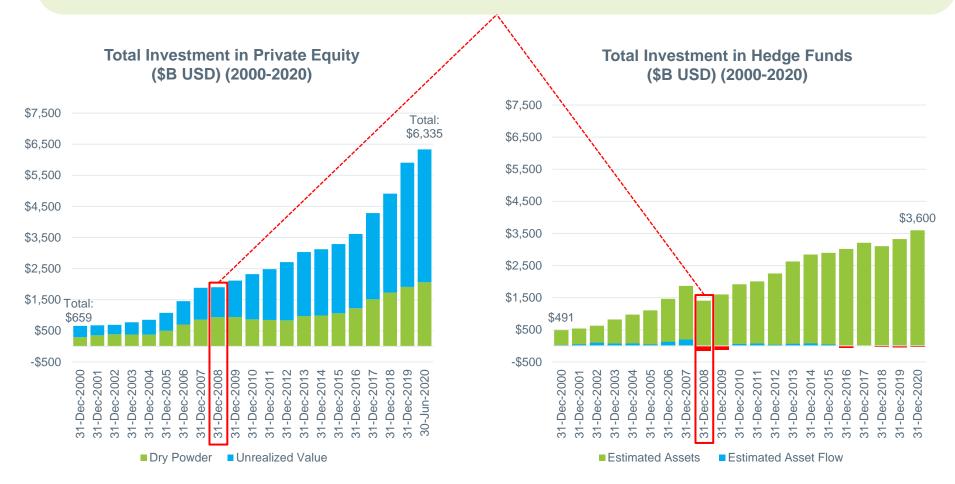
- 1. Private Equity
- 2. Private Debt
- 3. Venture Capital
- 4. Hedge Funds
- 5. Real Estate
- 6. Real Assets



Key Challenge in Alternative Asset Classes

"In the last 5 years, the endowed institutions have looked down the valley and seen the hordes storming up. Other organizations have caught on and everybody wants to reverse-engineer the Yale portfolio. They're pouring up the valley, stripping the trees, overplanting the fields...Endowments have looked up the valley for the next place to go and haven't found new fields of assets that can take the huge amounts of money we have to invest. That's the dilemma we face...One has to predict that it's going to be much tougher for endowed institutions to preserve their performance advantage."

- Laurie Hoagland, Chief Investment Officer of the Hewlett Foundation



¹ Kochard, Lawrence E. and Rittereiser, Cathleen M. (2008). Foundation & Endowment Investing. New Jersey: John Wiley and Sons. pp. 73.



Common Drivers of Underperformance in Alternative Assets

Overestimation of Manager Selection Skill

All else being equal, the stakes are much higher in alternative asset classes. Although the same investors must select above average managers in both traditional and alternative asset classes, the penalty for failure in alternatives can be quite severe. The reason is that the range of returns between top and bottom performing managers is much wider. Therefore, overestimating manager skill proves much more costly in alternative asset classes.

Discounting the Reality of Constraints

There are some market segments in which access to oversubscribed managers is essential to success. U.S. venture capital is the best example of this. If investors do not have pre-existing relationships with the top 10-15 venture firms, they are at a substantial disadvantage relative to investors who do. The degree of one's access to top managers in an alternative asset class should be considered before entering it.

Opportunity Costs

The opportunity costs in alternative asset classes are similar to those in traditional asset classes, although the magnitude is often greater. The reason is that investing successfully in alternative asset classes requires considerably more specialization and often larger supporting staff and analytical resources. All else being equal, this raises the level of performance required to justify these asset classes. Organizations that neglect projects that offer the potential for greater value may negatively impact beneficiaries in way that is not detectable through performance analysis of the portfolio alone.



Closing Thoughts

- 1. Successful Use of Active Management in Traditional Asset Classes is Often More Challenging than Investors Assume.
- 2. Unique Organizational Needs and Constraints are Often Overlooked When Making Active Management Decisions.
- 3. The Use of Alternative Asset Classes is Generally Not an Allocation Decision; Rather, it is a Judgement of an Investor's Skill in Identifying and Accessing Top-Performing Managers.
- 4. The Most Commonly Overlooked Challenges of Active Management and Alternative Investment Usage are the Durability of an Investor's Competitive Advantage and Stability of Their Investment Strategy.



PORTLAND BOISE CHICAGO NEW YORK

Disclaimer of Warranties and Limitation of Liability - This document was prepared by RVK, Inc. (RVK) and may include information and data from some or all of the following sources: client staff; custodian banks; investment managers; specialty investment consultants; actuaries; plan administrators/record-keepers; index providers; as well as other third-party sources as directed by the client or as we believe necessary or appropriate. RVK has taken reasonable care to ensure the accuracy of the information or data, but makes no warranties and disclaims responsibility for the accuracy or completeness of information or data provided or methodologies employed by any external source. This document is provided for the client's internal use only and does not constitute a recommendation by RVK or an offer of, or a solicitation for, any particular security and it is not intended to convey any guarantees as to the future performance of the investment products, asset classes, or capital markets.

