

# QUARTERLY PERFORMANCE REPORT

## OKLAHOMA STATE PENSION COMMISSION



**March 31, 2019**

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

## **MARKET ENVIRONMENT UPDATE AND OUTLOOK**

NEPC, LLC

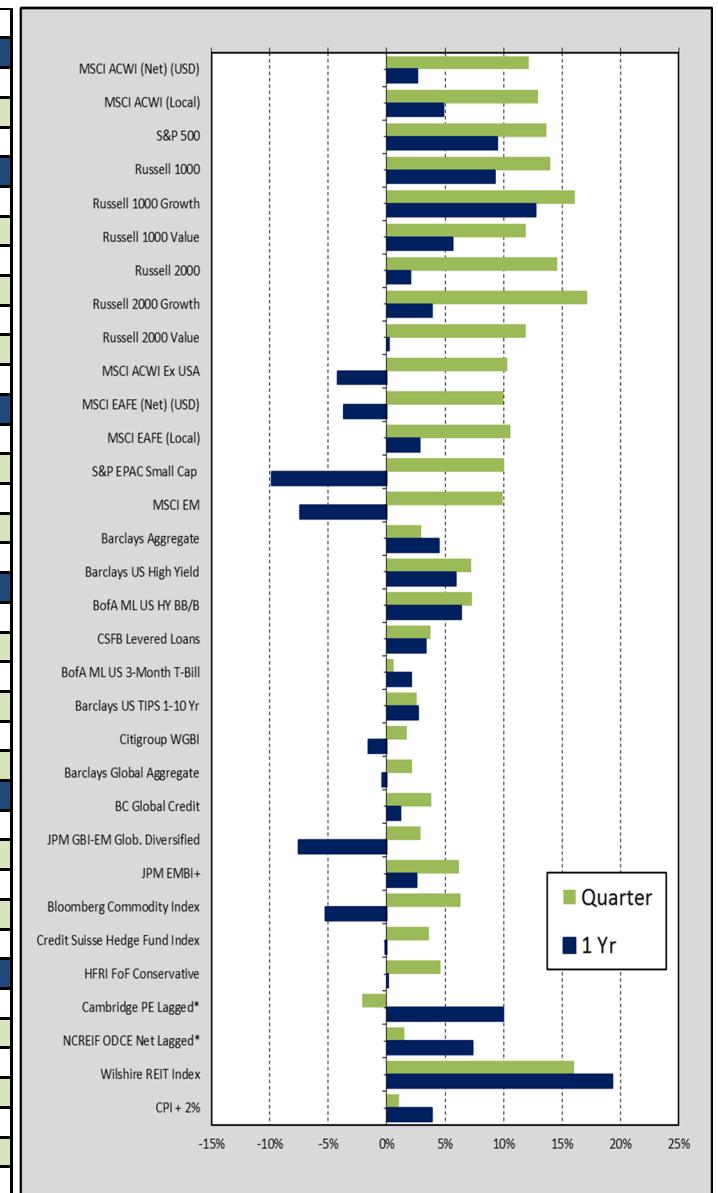
# ECONOMIC ENVIRONMENT

- **Real GDP (advance estimate Q1 2019) increased at an annual rate of 3.2%.**
  - Retail sales ended February at +1.8% on a YoY basis. In the same period last year the YoY growth rate was 5.1%.
  - Corporate profits (ended October) as a percent of GDP decreased to 9.33% from 9.59% (in July) and remain elevated relative to historical levels.
  - The inventory-to-sales ratio ended February flat at 1.4 from December levels and has remained relatively constant since early 2010.
  - The U.S. trade deficit narrowed ended February as exports increased at a greater pace than imports amidst China trade tensions
- **The unemployment rate decreased slightly to 3.8% from 3.9% ended Q1; U-6, a broader measure of unemployment, decreased to 7.3% from 7.6% during the first quarter.**
- **The Case-Shiller Home Price Index (ended January) decreased to 204.7 from 205.1 and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw a down-tick to 1.87% from 1.94% ended Q1; Capacity Utilization decreased to 78.8% from 79.5% in Q1.**
- **Fed Funds rate remained unchanged at a targeted range of 2.25% -to- 2.50%. The 10-year Treasury Yield (constant maturity) finished Q1 down to 2.6% from 2.8%.**
- **The Fed continues its planned reduction in balance sheet size, while the European Central Bank balance sheet continues to grow.**
  - The Fed announced it will end the reduction of its balance sheet in September 2019, with assets totaling more than \$3.5 trillion
- **S&P valuations decreased in Q1, remaining above the 10-year and long-term averages.**
  - Cyclically adjusted Shiller PE ratio (29.91x) is above the long-term average of 16.6x and above the 10-year average of 24.7x.



# MARKET ENVIRONMENT – Q1 2019 OVERVIEW

		<u>Qtr.</u>	<u>1 Yr.</u>	<u>3 Yr.</u>	<u>5 Yr.</u>	<u>10 Yr.</u>
<b>World Equity Benchmarks</b>						
MSCI ACWI (Net) (USD)	World w/o Small Cap	12.2%	2.6%	10.7%	6.5%	12.0%
MSCI ACWI (Local)	World (Local Currency)	12.9%	4.9%	10.9%	8.0%	12.2%
MSCI ACWI IMI (Net)	World with Small Cap	12.3%	1.9%	10.6%	6.3%	12.3%
<b>Domestic Equity Benchmarks</b>						
S&P 500	Large Core	13.7%	9.5%	13.5%	10.9%	15.9%
Russell 1000	Large Core	14.0%	9.3%	13.5%	10.6%	16.1%
Russell 1000 Growth	Large Growth	16.1%	12.8%	16.5%	13.5%	17.5%
Russell 1000 Value	Large Value	11.9%	5.7%	10.5%	7.7%	14.5%
Russell 2000	Small Core	14.6%	2.1%	12.9%	7.1%	15.4%
Russell 2000 Growth	Small Growth	17.1%	3.9%	14.9%	8.4%	16.5%
Russell 2000 Value	Small Value	11.9%	0.2%	10.9%	5.6%	14.1%
<b>International Equity Benchmarks</b>						
MSCI ACWI Ex USA	World ex-US	10.3%	-4.2%	8.1%	2.6%	8.9%
MSCI EAFE (Net) (USD)	Int'l Developed	10.0%	-3.7%	7.3%	2.3%	9.0%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	10.6%	2.8%	8.5%	6.0%	9.8%
S&P EPAC Small Cap	Small Cap Int'l	10.0%	-9.9%	7.2%	4.5%	12.6%
MSCI EM	Emerging Equity	9.9%	-7.4%	10.7%	3.7%	8.9%
<b>Domestic Fixed Income Benchmarks</b>						
Barclays Aggregate	Core Bonds	2.9%	4.5%	2.0%	2.7%	3.8%
Barclays US High Yield	High Yield	7.3%	5.9%	8.6%	4.7%	11.3%
BofA ML US HY BB/B	High Yield	7.3%	6.4%	7.8%	4.7%	10.1%
CSFB Levered Loans	Bank Loans	3.8%	3.3%	5.9%	3.8%	8.0%
BofA ML US 3-Month T-Bill	Cash	0.6%	2.1%	1.2%	0.7%	0.4%
Barclays US TIPS 1-10 Yr	Inflation	2.6%	2.7%	1.5%	1.5%	2.7%
<b>Global Fixed Income Benchmarks</b>						
Citigroup WGBI	World Gov. Bonds	1.7%	-1.6%	1.0%	0.6%	2.2%
Barclays Global Aggregate	Global Core Bonds	2.2%	-0.4%	1.5%	1.0%	3.1%
BC Global Credit	Global Bonds	3.8%	1.2%	2.8%	1.9%	5.2%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	2.9%	-7.6%	3.3%	-0.8%	4.4%
JPM EMBI+	Em. Mkt. Bonds	6.2%	2.6%	4.0%	4.5%	7.7%
<b>Alternative Benchmarks</b>						
Bloomberg Commodity Index	Commodities	6.3%	-5.3%	2.2%	-8.9%	-2.6%
Credit Suisse Hedge Fund Index	Hedge Fund	3.6%	-0.2%	3.6%	2.2%	5.4%
HFRI FoF Conservative	Fund of Hedge Funds	4.6%	0.1%	3.9%	2.2%	3.5%
Cambridge PE Lagged*	Private Equity	-2.1%	10.0%	13.5%	11.4%	13.7%
NCREIF ODCE Net Lagged*	Real Estate	1.5%	7.4%	7.3%	9.4%	6.0%
Wilshire REIT Index	REIT	16.0%	19.3%	5.5%	9.0%	18.7%
CPI + 2%	Inflation/Real Assets	1.1%	3.9%	4.3%	3.5%	3.8%

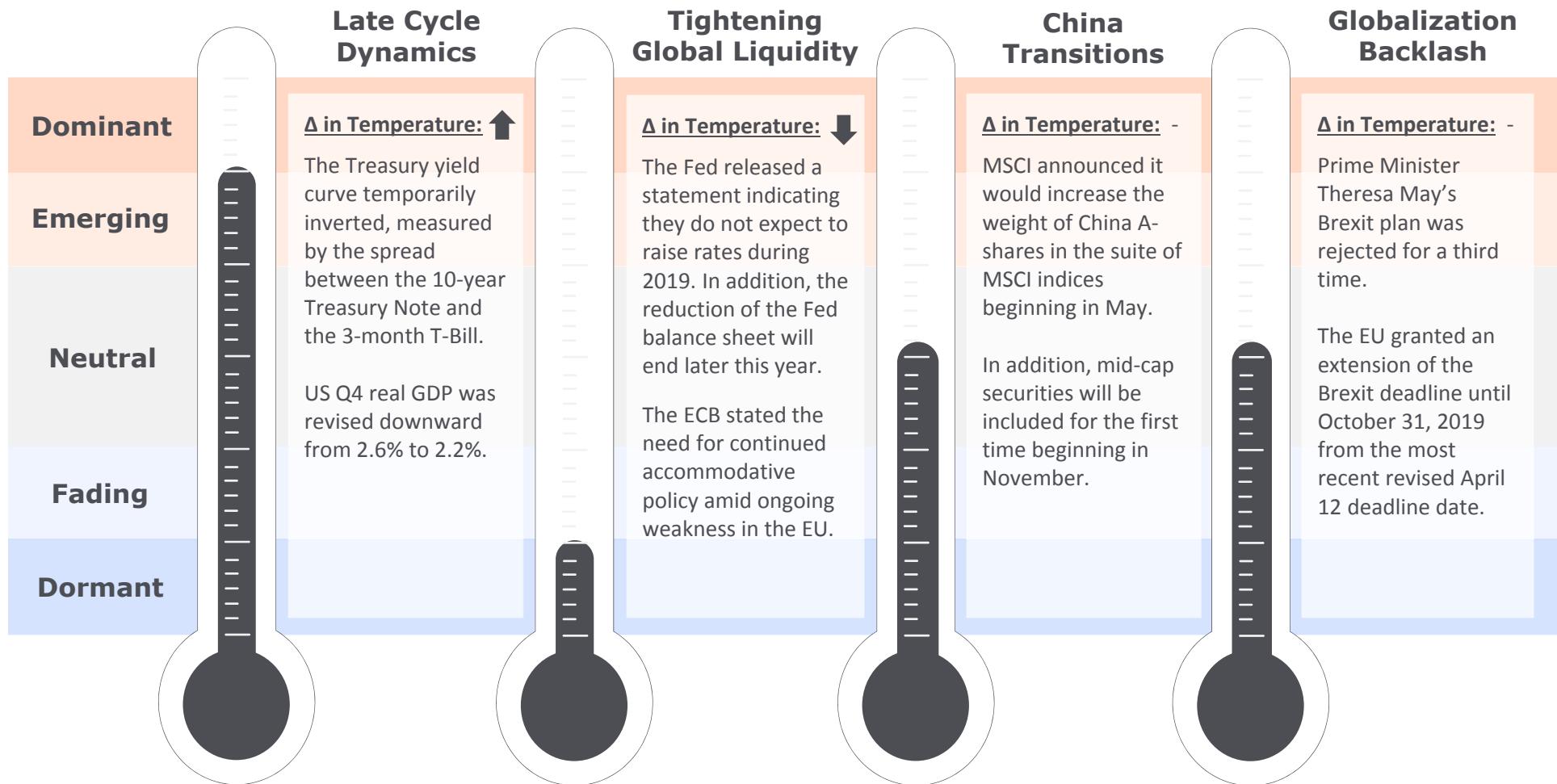


\* As of 9/30/2018



# ASSESSING THE KEY MARKET THEMES

## Current Temperature



# KEY MARKET THEMES

## Late Cycle Dynamics

### The US economy has transitioned from a mid- to late-cycle environment

Late-cycle does not mean end of cycle; equity markets can offer strong returns and abandoning risk assets early may detract from long-term results

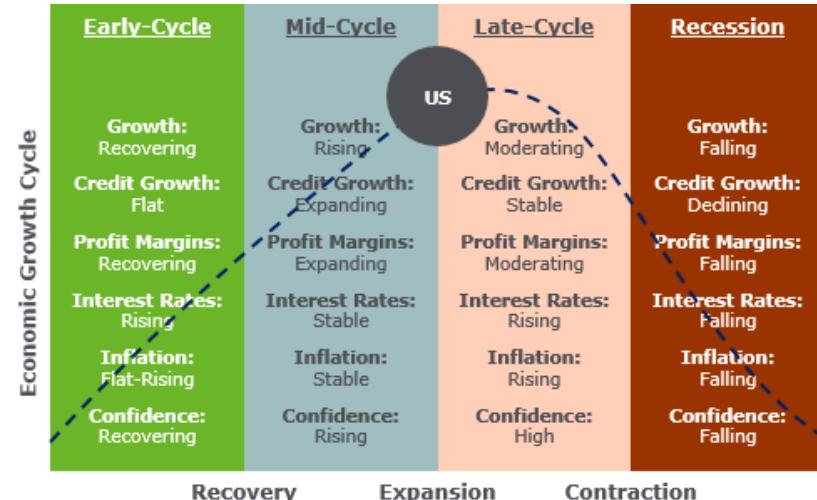
Positive economic data can support continued US economic expansion and further equity gains

However, moving into a late cycle negatively skews the range of outcomes and our investment outlook reflects a more risk-averse posture with a bias toward selling low-quality credit and increasing safe-haven fixed income exposure

### Trends among key indicators suggest a transition to late-cycle has occurred

These indicators provide a useful guide to recognize changes in the economic cycle

Despite the recent trend, there is minimal evidence in economic/financial indicators to suggest that a US recession is imminent



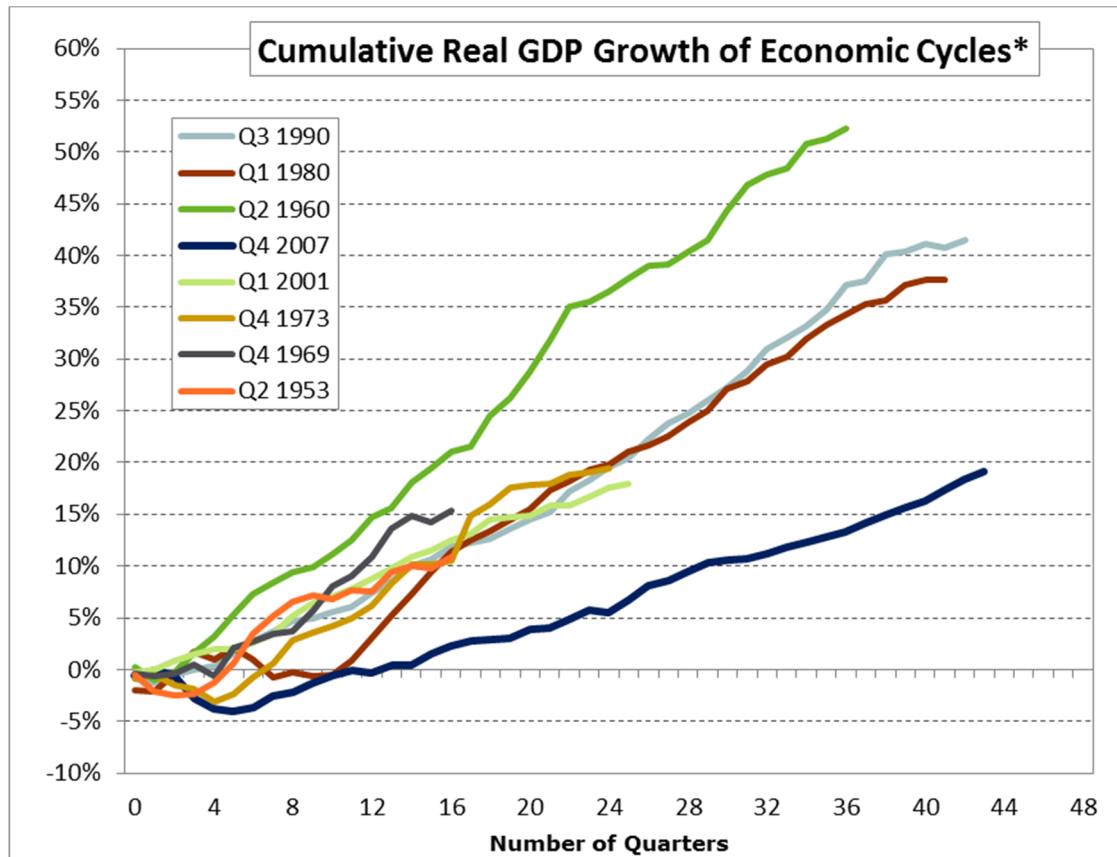
US Indicators	Late-Cycle Trend	Current Trend*
Equities	Peaking	Rising
Interest Rates	Rising	Rising
Yield Curve	Flattening	Flattening
Inflation	Rising	Falling
GDP Growth	Moderating	Rising
Credit Spreads	Stable/Rising	Rising
Output Gap	Near/Above Potential	Rising
Unemployment	Falling/Bottoming	Falling

Source: (Top) NEPC

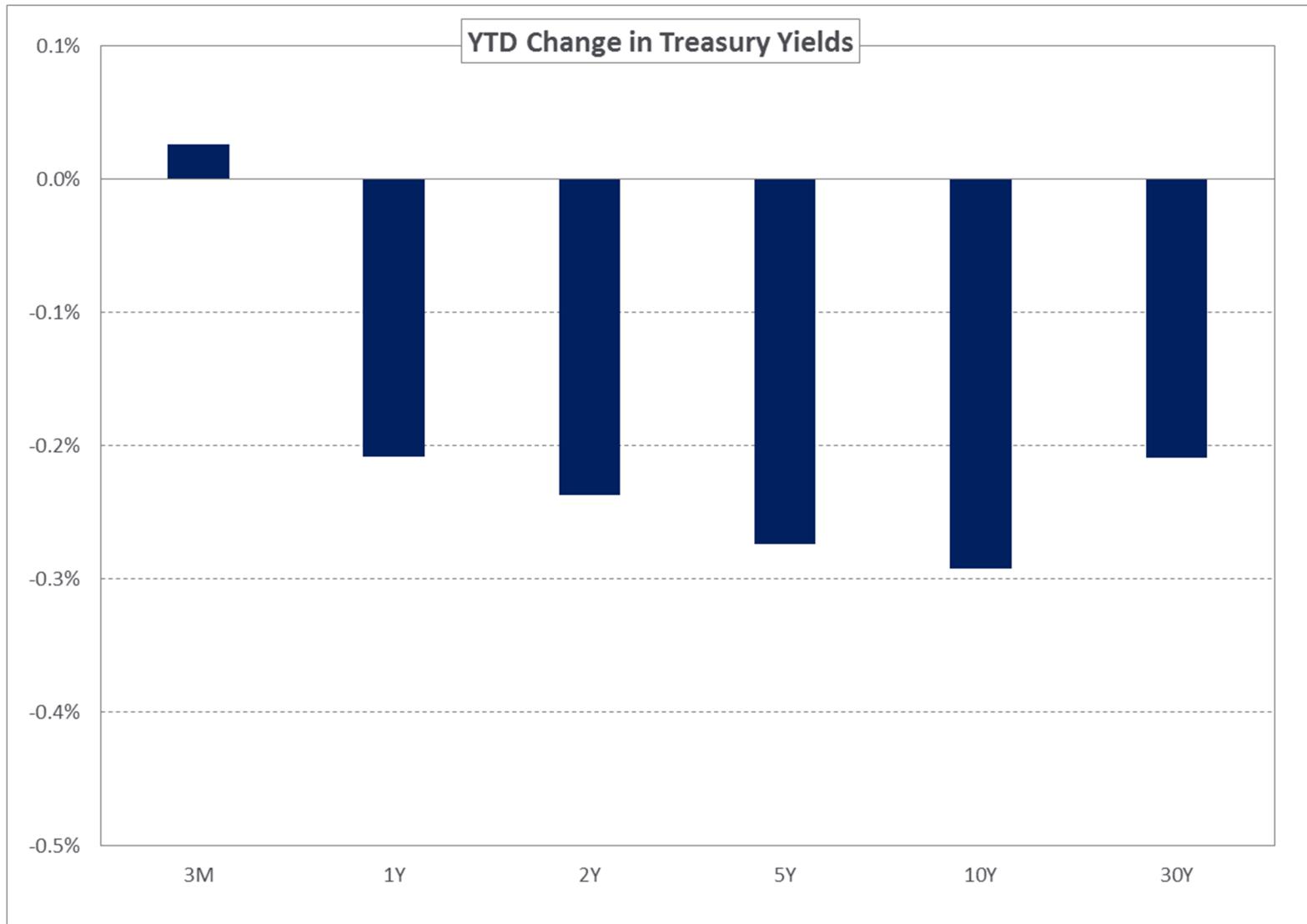
Source: (Bottom) NEPC; \*Trend represents changes over the previous two quarters



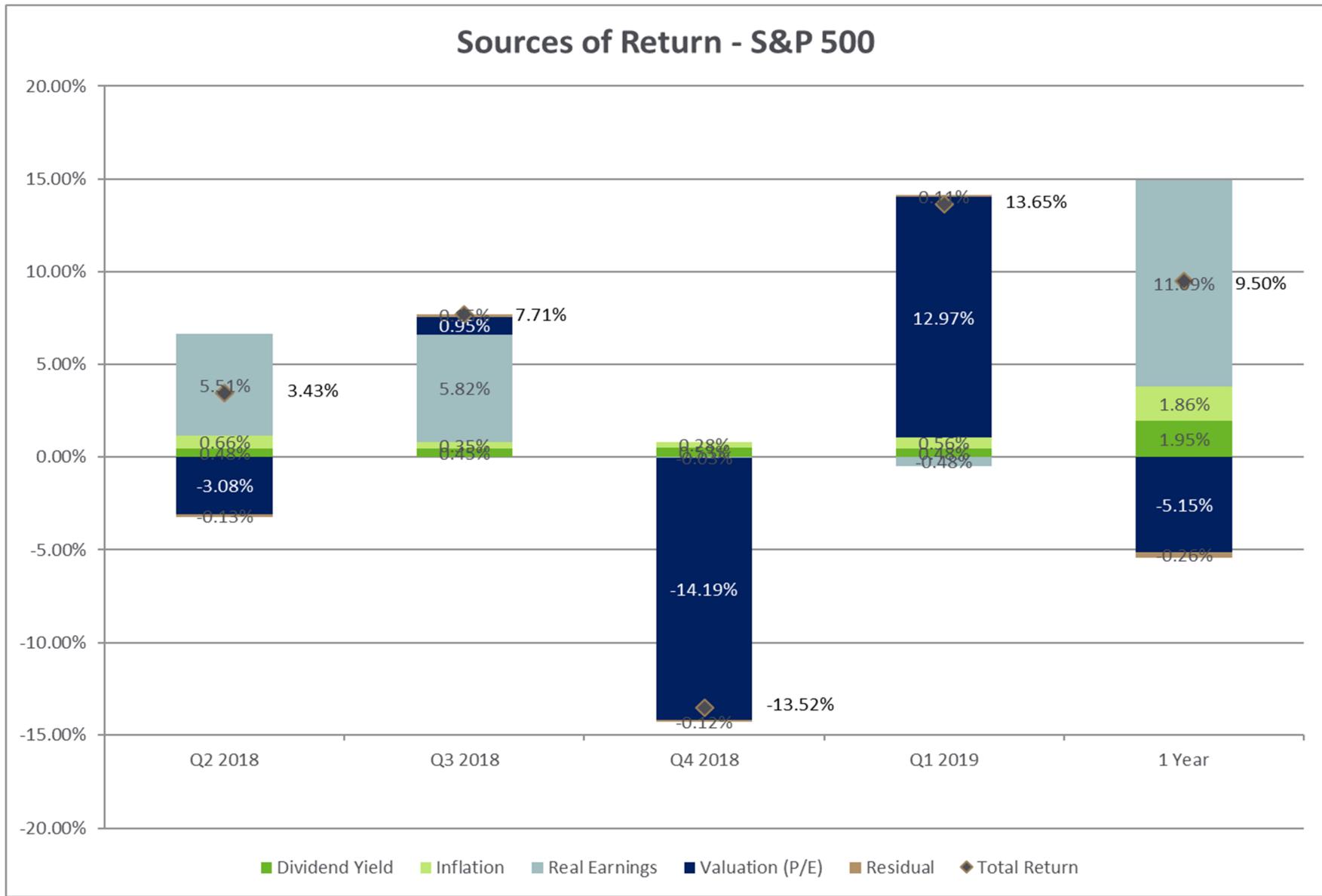
# CUMULATIVE REAL GDP GROWTH OVER VARIOUS CYCLES



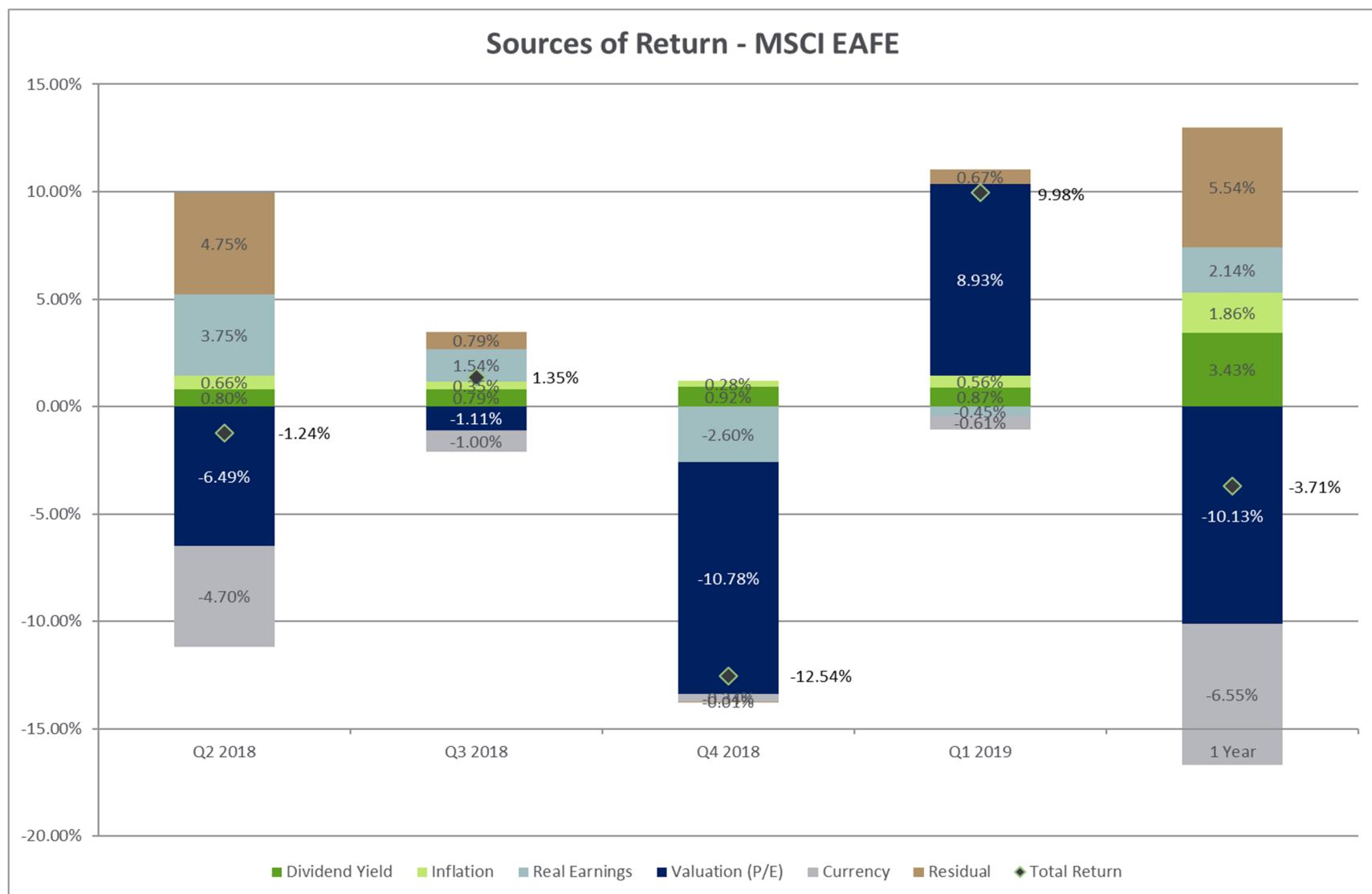
# THE US YIELD CURVE TEMPORARILY INVERTED



# 1 YEAR ATTRIBUTION OF S&P 500 RETURNS



# 1 YEAR ATTRIBUTION OF MSCI EAFE RETURNS



**Spot Rates**

1 USD = 0.855 Euro

1 USD = 0.861 Euro

1 USD = 0.874 Euro

1 USD = 0.891 Euro



# **OK Pension Commission**

NEPC, LLC —

# OKLAHOMA STATE PENSION COMMISSION ASSET ALLOCATION SUMMARY

Key Policy Items		Teachers ^	TRS 3/31/18	PERS*	PERS 3/31/18	Firefighters	FTRS 3/31/18	Police **	POLICE 3/31/18
TOTAL EQUITY		Target <b>57.5%</b> Actual <b>56.9%</b> Range 37.5-73.5	57.5% <b>58.5%</b> 37.5-73.5	68.0% <b>68.5%</b> 59.2-76.8	68.0% <b>69.8%</b> 59.2-76.8	57.0% <b>64.5%</b> 42-62	57.0% <b>66.1%</b> 42-62	50.0% <b>53.3%</b> 25-80	50.0% <b>54.60%</b> 25-80
Large Cap		Target <b>17.0%</b> Actual <b>18.6%</b> Range 12-23	17.0% <b>18.2%</b> 12-23	34.0% <b>34.3%</b> 31.2-36.8	34.0% <b>34.3%</b> 31.2-36.8	29.4% <b>35.1%</b> 24.4-34.4	29.4% <b>34.3%</b> 24.4-34.4	15.0% <b>17.5%</b> 10-20	15.0% <b>17.5%</b> 10-20
MidCap		Target <b>13.0%</b> Actual <b>10.8%</b> Range 8-18	13.0% <b>10.6%</b> 8-18	- -	- -	- -	- -	- -	- -
Small Cap		Target <b>10.0%</b> Actual <b>9.5%</b> Range 5-15	10.0% <b>9.6%</b> 5-15	6.0% <b>6.7%</b> 3.2-8.8	6.0% <b>6.8%</b> 3.2-8.8	12.6% <b>13.6%</b> 7.6-17.6	12.6% <b>16.7%</b> 7.6-17.6	5.0% <b>7.0%</b> 0-15	5.0% <b>7.3%</b> 0-15
International / Equity		Target <b>17.5%</b> Actual <b>18.0%</b> Range 12.5-22.5	17.5% <b>20.1%</b> 12.5-22.5	28.0% <b>27.5%</b> 25-31	28.0% <b>28.7%</b> 25-31	15.0% <b>15.8%</b> 10-20	15.0% <b>15.1%</b> 10-20	15.0% <b>14.4%</b> 5-25	15.0% <b>15.6%</b> 5-25
Long/Short Equity		Target <b>-</b> Actual <b>-</b> Range -	- -	- -	- -	- -	- -	15.0% <b>0.0%</b> 10-20	15.0% <b>14.4%</b> 10-20
TOTAL FIXED INCOME		Target <b>23.5%</b> Actual <b>21.8%</b> Range 18.5-28.5	23.5% <b>21.4%</b> 18.5-28.5	32.0% <b>31.3%</b> 27.5-36.5	32.0% <b>29.9%</b> 27.5-36.5	20.0% <b>17.1%</b> 10-30	20.0% <b>14.5%</b> 10-30	15.0% <b>15.8%</b> 10-20	15.0% <b>15.7%</b> 10-20
Dom. Fixed Income/High Yield		Target <b>23.5%</b> Actual <b>21.8%</b> Range 18.5-28.5	23.5% <b>21.4%</b> 18.5-28.5	32.0% <b>31.3%</b> 27.5-36.5	32.0% <b>29.9%</b> 27.5-36.5	13.0% <b>11.0%</b> 0-28	13.0% <b>8.3%</b> 0-28	- -	- -
Int'l & Global Fixed Income		Target <b>-</b> Actual <b>-</b> Range -	- -	- -	- -	7.0% <b>6.1%</b> 2-12	7.0% <b>6.2%</b> 2-12	7.5% <b>15.8%</b> 10-20	7.5% <b>15.7%</b> 10-20
TOTAL ALTERNATIVES		Target <b>19.0%</b> Actual <b>20.3%</b> Range 17.1-20.9	19% <b>19.2%</b> 17.1-20.9	0% <b>0.1%</b> 0-5	0% <b>0.1%</b> 0-5	23.0% <b>18.0%</b> 5-40	23% <b>19.0%</b> 5-40	35.0% <b>29.5%</b> 10-60	35.0% <b>28.5%</b> 10-60
Low Volatility Hedge Funds		Target <b>-</b> Actual <b>-</b> Range -	- -	- -	- -	5.0% <b>3.0%</b> 0-10	5.0% <b>3.1%</b> 0-10	10.0% <b>7.6%</b> 5-15	10.0% <b>7.6%</b> 5-15
Private Equity/MLP's		Target <b>12.0%</b> Actual <b>12.7%</b> Range 7-17	12.0% <b>11.9%</b> 7-17	- -	- -	8.0% <b>3.6%</b> 0-15	8.0% <b>2.9%</b> 0-15	10.0% <b>9.9%</b> 5-15	10.0% <b>8.8%</b> 5-15
Real Estate/Real Assets		Target <b>7.0%</b> Actual <b>7.6%</b> Range 2-12	7% <b>7.3%</b> 2-12	0% <b>0.1%</b> 0-5	0% <b>0.1%</b> 0-5	10.0% <b>11.4%</b> 5-15	10% <b>13.0%</b> 5-15	15.0% <b>12.0%</b> 0-30	15.0% <b>12.1%</b> 0-30
CASH	Actual	0.9%	0.9%	0.2%	0.2%	0.5%	0.4%	1.4%	1.3%
Actuarial Assumed Rates		7.5%		7.0%		7.5%		7.5%	

^Master Limited Partnerships included in Private Equity allocation.

\*The Russell 3000 index was broken down into Large Cap & Small Cap allocations for the PERS retirement plan

\*\*Real Assets are included in Real Estate

Please note that allocations may not add to 100% due to rounding.

Out of Range



# OKLAHOMA STATE PENSION COMMISSION ASSET ALLOCATION SUMMARY

Key Policy Items		Law	Law 3/31/18	Judges	Judges 3/31/18	Wildlife	Wildlife 3/31/18
<b>TOTAL EQUITY</b>	<b>Target</b>	55.0%	55.0%	68.0%	68.0%	50.0%	50.0%
	<b>Actual</b>	<b>58.9%</b>	<b>60.1%</b>	<b>68.9%</b>	<b>70.2%</b>	<b>56.5%</b>	<b>53.1%</b>
	<b>Range</b>	55-65	55-65	59.2-76.8	59.2-76.8	40-65	40-65
<i>Large Cap</i>	<b>Target</b>	20.0%	20.0%	34.0%	34.0%	50.0%	50.0%
	<b>Actual</b>	<b>28.7%</b>	<b>29.0%</b>	<b>34.7%</b>	<b>34.6%</b>	<b>36.4%</b>	<b>40.4%</b>
	<b>Range</b>	15-25	15-25	31.2-36.8	31.2-36.8	40-65	40-65
<i>MidCap</i>	<b>Target</b>	-	-	-	-	0.0%	0.0%
	<b>Actual</b>	-	-	-	-	<b>9.4%</b>	<b>4.8%</b>
	<b>Range</b>	-	-	-	-	0-10	0-10
<i>Small Cap</i>	<b>Target</b>	10.0%	10.0%	6.0%	6.0%	0.0%	0.0%
	<b>Actual</b>	<b>5.9%</b>	<b>6.1%</b>	<b>6.7%</b>	<b>6.6%</b>	<b>4.6%</b>	<b>1.5%</b>
	<b>Range</b>	5-15	5-15	3.2-8.8	3.2-8.8	0-10	0-10
<i>International Equity</i>	<b>Target</b>	15.0%	15.0%	28.0%	28.0%	0.0%	0.0%
	<b>Actual</b>	<b>13.9%</b>	<b>14.6%</b>	<b>27.5%</b>	<b>29.0%</b>	<b>6.1%</b>	<b>6.4%</b>
	<b>Range</b>	5-15	5-15	25-31	25-31	0-15	0-15
<i>Long/Short Equity</i>	<b>Target</b>	10.0%	10.0%	-	-	-	-
	<b>Actual</b>	<b>10.4%</b>	<b>10.4%</b>	-	-	-	-
	<b>Range</b>	5-15	5-15	-	-	-	-
<b>TOTAL FIXED INCOME</b>	<b>Target</b>	30.0%	30.0%	32.0%	32.0%	40.0%	40.0%
	<b>Actual</b>	<b>27.3%</b>	<b>26.6%</b>	<b>30.8%</b>	<b>29.6%</b>	<b>37.6%</b>	<b>41.8%</b>
	<b>Range</b>	25-35	25-35	27.5-36.5	27.5-36.5	35-55	35-55
<i>Dom. Fixed Income/High Yield</i>	<b>Target</b>	20.0%	20.0%	32.0%	32.0%	40.0%	40.0%
	<b>Actual</b>	<b>19.2%</b>	<b>18.8%</b>	<b>30.8%</b>	<b>29.6%</b>	<b>37.6%</b>	<b>41.8%</b>
	<b>Range</b>	15-25	15-25	27.5-36.5	27.5-36.5	35-55	35-55
<i>Int'l &amp; Global Fixed Income</i>	<b>Target</b>	10.0%	10.0%	-	-	-	-
	<b>Actual</b>	<b>8.1%</b>	<b>7.8%</b>	-	-	-	-
	<b>Range</b>	5-15	5-15	-	-	-	-
<b>TOTAL ALTERNATIVES</b>	<b>Target</b>	15.0%	15.0%	-	-	10.0%	10.0%
	<b>Actual</b>	<b>13.7%</b>	<b>13.2%</b>	-	-	<b>5.1%</b>	<b>3.8%</b>
	<b>Range</b>	5-15	5-15	-	-	0-10	0-10
<i>Low Volatility Hedge Funds</i>	<b>Target</b>	-	-	-	-	-	-
	<b>Actual</b>	-	-	-	-	-	-
	<b>Range</b>	-	-	-	-	-	-
<i>Private Equity/MLP's</i>	<b>Target</b>	5.0%	5.0%	-	-	-	-
	<b>Actual</b>	<b>3.1%</b>	<b>2.9%</b>	-	-	-	-
	<b>Range</b>	0-5	0-5	-	-	-	-
<i>Real Estate/Real Assets</i>	<b>Target</b>	10.0%	0.10	-	-	-	-
	<b>Actual</b>	<b>10.6%</b>	<b>10.3%</b>	-	-	-	-
	<b>Range</b>	2-12	2-12	-	-	-	-
<b>CASH</b>	<b>Actual</b>	<b>0.2%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.9%</b>	<b>1.3%</b>
<b>Actuarial Assumed Rates</b>		<b>7.5%</b>		<b>7.0%</b>		<b>7.0%</b>	

^Master Limited Partnerships included in Private Equity allocation.

\*The Russell 3000 index was broken down into Large Cap & Small Cap allocations for the PERS retirement plan

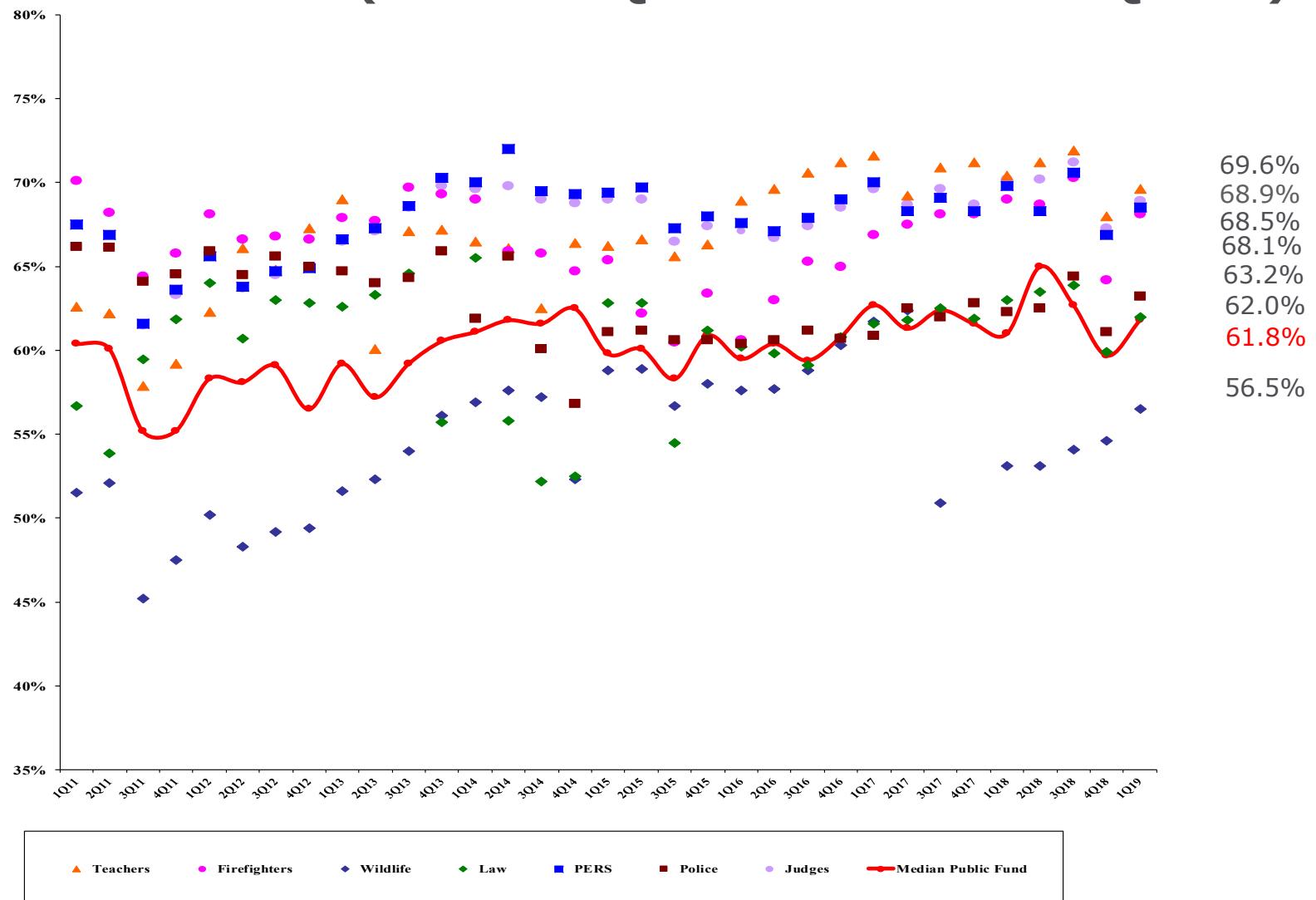
\*\*Real Assets are included in Real Estate

Please note that allocations may not add to 100% due to rounding.

Out of Range



# OKLAHOMA STATE PENSION COMMISSION EQUITY COMMITMENT (PUBLIC EQUITY + PRIVATE EQUITY)



\*Cash allocations not broken out for individual managers.

\*Before Q2 2012, the Median Public Fund assumes 4.6% allocation to private equity



## Oklahoma State Pension Commission

# Total Fund Attribution Analysis

### Performance Attribution

	Last 3 Mo.	1 Yr	3 Yrs	5 Yrs
<b>Teachers Attribution Analysis</b>				
Wtd. Actual Return	9.2%	4.5%	9.9%	6.5%
Wtd. Index Return *	9.9%	5.5%	9.1%	6.1%
<b>Excess Return</b>	-0.7%	-1.0%	0.9%	0.4%
Selection Effect	0.1%	-0.4%	0.5%	0.5%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	-0.7%	-0.6%	0.4%	0.0%
<b>PERS Attribution Analysis</b>				
Wtd. Actual Return	9.6%	3.4%	8.4%	6.1%
Wtd. Index Return *	9.6%	3.9%	8.6%	6.2%
<b>Excess Return</b>	0.0%	-0.5%	-0.2%	-0.1%
Selection Effect	0.1%	-0.2%	-0.1%	0.0%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	-0.1%	-0.3%	0.0%	-0.1%
<b>Firefighters Attribution Analysis</b>				
Wtd. Actual Return	9.3%	5.3%	10.5%	8.0%
Wtd. Index Return *	9.6%	6.2%	9.6%	7.6%
<b>Excess Return</b>	-0.3%	-1.0%	0.9%	0.3%
Selection Effect	-0.3%	-1.0%	0.9%	0.3%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	0.0%	0.0%	0.0%	0.0%
<b>Police Attribution Analysis</b>				
Wtd. Actual Return	7.1%	3.7%	8.1%	5.7%
Wtd. Index Return *	8.7%	3.5%	7.9%	5.1%
<b>Excess Return</b>	-1.6%	0.2%	0.2%	0.6%
Selection Effect	-2.3%	0.6%	0.0%	0.5%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	0.7%	-0.4%	0.2%	0.1%



March 31, 2019

## Oklahoma State Pension Commission

# Total Fund Attribution Analysis

Law Attribution Analysis	Last 3 Mo.	1 Yr	3 Yrs	5 Yrs
Wtd. Actual Return	8.3%	2.5%	8.2%	5.7%
Wtd. Index Return *	8.3%	4.8%	8.4%	6.4%
Excess Return	0.1%	-2.2%	-0.2%	-0.7%
Selection Effect	-0.4%	-2.0%	-0.4%	-0.6%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	0.4%	-0.3%	0.2%	-0.1%
Judges Attribution Analysis	Last 3 Mo.	1 Yr	3 Yrs	5 Yrs
Wtd. Actual Return	9.6%	3.7%	8.5%	6.1%
Wtd. Index Return *	9.6%	3.9%	8.6%	6.2%
Excess Return	0.1%	-0.2%	-0.1%	-0.1%
Selection Effect	0.1%	0.1%	0.0%	0.0%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	0.0%	-0.3%	-0.1%	-0.1%
Wildlife Attribution Analysis	Last 3 Mo.	1 Yr	3 Yrs	5 Yrs
Wtd. Actual Return	10.3%	6.6%	8.7%	6.6%
Wtd. Index Return *	8.5%	4.3%	7.2%	6.3%
Excess Return	1.8%	2.3%	1.5%	0.2%
Selection Effect	-0.3%	-1.2%	0.0%	-1.5%
Allocation Effect	0.0%	0.0%	0.0%	0.0%
Interaction Effect	2.1%	3.5%	1.5%	1.8%

Returns are gross of manager fees.

Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result the total returns shown may vary from the calculated returns shown on the performance summary.



## Oklahoma State Pension Commission

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Oklahoma State Pension Commission	31,528,128,578	100.0	9.1	29	2.1	83	4.1	52	9.3	15	6.4	32	11.1	11
S&P 500			13.6	1	5.9	1	9.5	1	13.5	1	10.9	1	15.9	1
BBgBarc US Aggregate TR			2.9	99	4.6	5	4.5	41	2.0	99	2.7	99	3.8	99
60% S&P 500 / 40% BBgBarc Aggregate			9.3	22	5.7	1	7.8	1	8.9	24	7.7	3	11.1	9
MSCI EAFE			10.0	9	-2.5	99	-3.7	99	7.3	91	2.3	99	9.0	82
Teachers	16,527,422,081	52.4	9.2	27	1.7	89	4.5	41	10.0	5	6.5	27	12.0	2
TEACHERS Allocation Index			8.6	44	2.1	82	4.4	43	9.2	17	6.4	33	11.1	11
TEACHERS Policy Index			9.9	10	3.1	45	5.5	14	9.1	22	6.1	51	11.1	9
PERS	9,669,764,728	30.7	9.6	16	2.4	76	3.4	72	8.4	55	6.1	49	10.4	32
PERS Allocation Index			9.4	20	2.4	76	3.4	72	8.3	60	6.1	52	10.0	51
PERS Policy Index			9.6	16	2.9	56	3.9	58	8.6	48	6.2	44	10.3	37
Firefighters	1,334,413,378	4.2	9.1	28	3.5	30	5.2	23	10.4	3	7.9	2	10.8	19
FIREFIGHTERS Allocation Index			9.0	29	2.3	77	4.8	31	9.5	11	6.9	15	10.9	15
FIREFIGHTERS Policy Index			9.6	16	4.2	9	6.2	7	9.6	11	7.6	3	11.7	3
Police	2,555,424,526	8.1	7.0	86	2.1	82	3.8	64	8.1	67	5.8	70	9.1	80
POLICE Allocation Index			6.6	91	1.2	95	2.3	92	7.4	88	5.1	91	10.0	49
POLICE Policy Index			8.7	42	2.9	55	3.5	69	7.9	79	5.1	90	9.9	52
Law	988,302,349	3.1	8.3	52	1.6	92	3.1	81	8.4	53	5.8	66	9.9	53
LAW Allocation Index			7.3	80	2.5	71	3.8	59	8.2	66	6.3	41	10.0	50
LAW Policy Index			8.3	55	2.6	69	4.8	34	8.4	54	6.4	33	10.1	43
Judges	337,737,972	1.1	9.6	14	2.5	71	3.7	66	8.5	51	6.1	49	10.4	33
JUDGES Allocation Index			9.5	18	2.4	74	3.4	72	8.3	59	6.0	58	9.8	55
JUDGES Policy Index			9.6	16	2.9	56	3.9	58	8.6	48	6.2	44	10.3	39
Wildlife	115,063,543	0.4	9.2	27	3.8	16	5.4	15	8.3	60	6.3	41	9.1	78
WILDLIFE Allocation Index			9.1	28	4.3	7	6.0	7	8.5	50	6.5	26	9.2	75
WILDLIFE Policy Index			8.5	48	2.6	69	4.3	44	7.2	93	6.3	40	9.7	59
InvestorForce Public DB Gross Median			8.4		3.0		4.1		8.5		6.1		10.0	

Returns are gross of manager fees.



March 31, 2019

## Oklahoma State Pension Commission

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	2018 (%)	Rank	2017 (%)	Rank	2016 (%)	Rank	2015 (%)	Rank	2014 (%)	Rank
<b>Oklahoma State Pension Commission</b>	<b>31,528,128,578</b>	<b>100.0</b>	<b>-5.0</b>	<b>79</b>	<b>16.4</b>	<b>28</b>	<b>9.5</b>	<b>5</b>	<b>-1.5</b>	<b>83</b>	<b>7.5</b>	<b>12</b>
S&P 500			-4.4	61	21.8	1	12.0	1	1.4	11	13.7	1
BBgBarc US Aggregate TR			0.0	2	3.5	99	2.6	99	0.5	35	6.0	45
60% S&P 500 / 40% BBgBarc Aggregate			-2.3	12	14.2	72	8.3	27	1.3	13	10.6	1
MSCI EAFE			-13.8	99	25.0	1	1.0	99	-0.8	75	-4.9	99
Teachers	16,527,422,081	52.4	-5.0	78	16.1	34	11.4	1	-2.9	98	8.1	4
TEACHERS Allocation Index			-4.7	71	14.3	70	11.0	1	-2.0	89	8.2	4
TEACHERS Policy Index			-5.1	80	14.1	74	10.6	1	-2.5	95	6.7	28
PERS	9,669,764,728	30.7	-6.5	97	17.1	17	7.7	52	-0.8	74	7.4	15
PERS Allocation Index			-6.5	97	16.5	26	8.1	34	-0.9	77	7.0	21
PERS Policy Index			-6.1	94	16.9	21	8.1	34	-0.9	76	7.0	21
Firefighters	1,334,413,378	4.2	-2.4	13	18.7	4	7.3	61	2.1	6	6.9	24
FIREFIGHTERS Allocation Index			-4.0	49	15.6	44	9.4	5	0.5	35	6.1	40
FIREFIGHTERS Policy Index			-3.8	45	16.4	28	8.7	15	1.6	10	8.7	3
Police	2,555,424,526	8.1	-2.4	14	13.2	86	7.5	57	1.0	21	5.1	68
POLICE Allocation Index			-3.7	43	13.8	77	6.7	80	-0.4	63	5.0	70
POLICE Policy Index			-5.3	83	15.5	48	7.1	70	-1.9	89	4.5	79
Law	988,302,349	3.1	-4.6	65	14.6	63	7.2	66	-0.4	65	6.8	28
LAW Allocation Index			-3.5	35	14.6	63	8.3	29	0.3	42	7.1	20
LAW Policy Index			-3.7	40	13.4	86	8.6	18	1.0	22	7.0	21
Judges	337,737,972	1.1	-6.4	96	16.9	21	8.1	36	-1.1	79	7.0	22
JUDGES Allocation Index			-6.5	97	16.7	24	7.9	44	-1.2	81	6.7	29
JUDGES Policy Index			-6.1	94	16.9	21	8.1	34	-0.9	76	7.0	21
Wildlife	115,063,543	0.4	-3.5	36	14.3	71	6.6	82	0.1	49	7.9	7
WILDLIFE Allocation Index			-3.7	42	14.4	69	8.0	37	-0.3	61	7.7	10
WILDLIFE Policy Index			-4.6	68	12.8	89	7.2	67	1.0	22	9.5	1
InvestorForce Public DB Gross Median			-4.0		15.3		7.7		0.1		5.8	

Returns are gross of manager fees.

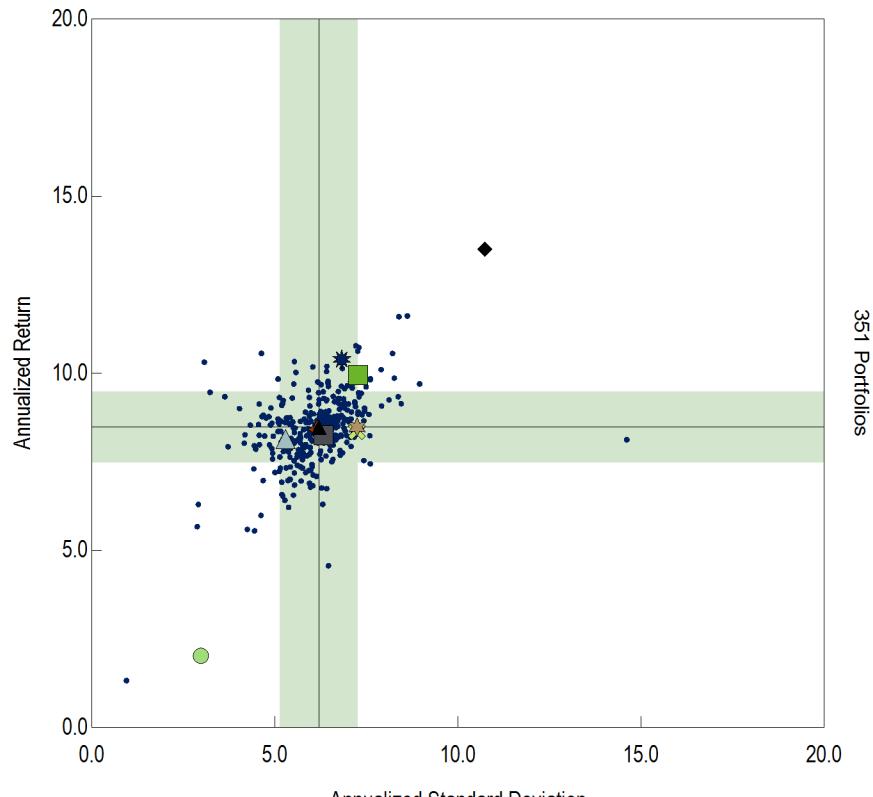


March 31, 2019

## Oklahoma State Pension Commission

# TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending March 31, 2019



- Teachers
- ✖ PERS
- \* Firefighters
- ▲ Police
- ◆ Law
- \* Judges
- Wildlife
- ◆ S&P 500
- BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

3 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Oklahoma State Pension Commission	9.29%	15	6.97%	84
Teachers	9.95%	5	7.28%	93
PERS	8.37%	55	7.24%	92
Firefighters	10.39%	3	6.82%	80
Police	8.14%	67	5.29%	18
Law	8.42%	53	6.15%	48
Judges	8.48%	51	7.24%	92
Wildlife	8.26%	60	6.32%	57

3 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
Oklahoma State Pension Commission	1.16	50	1.21	64
Teachers	1.20	39	1.28	47
PERS	0.99	92	1.09	89
Firefighters	1.34	17	1.35	37
Police	1.31	21	1.36	36
Law	1.17	47	1.20	68
Judges	1.00	91	1.09	90
Wildlife	1.11	67	1.24	59

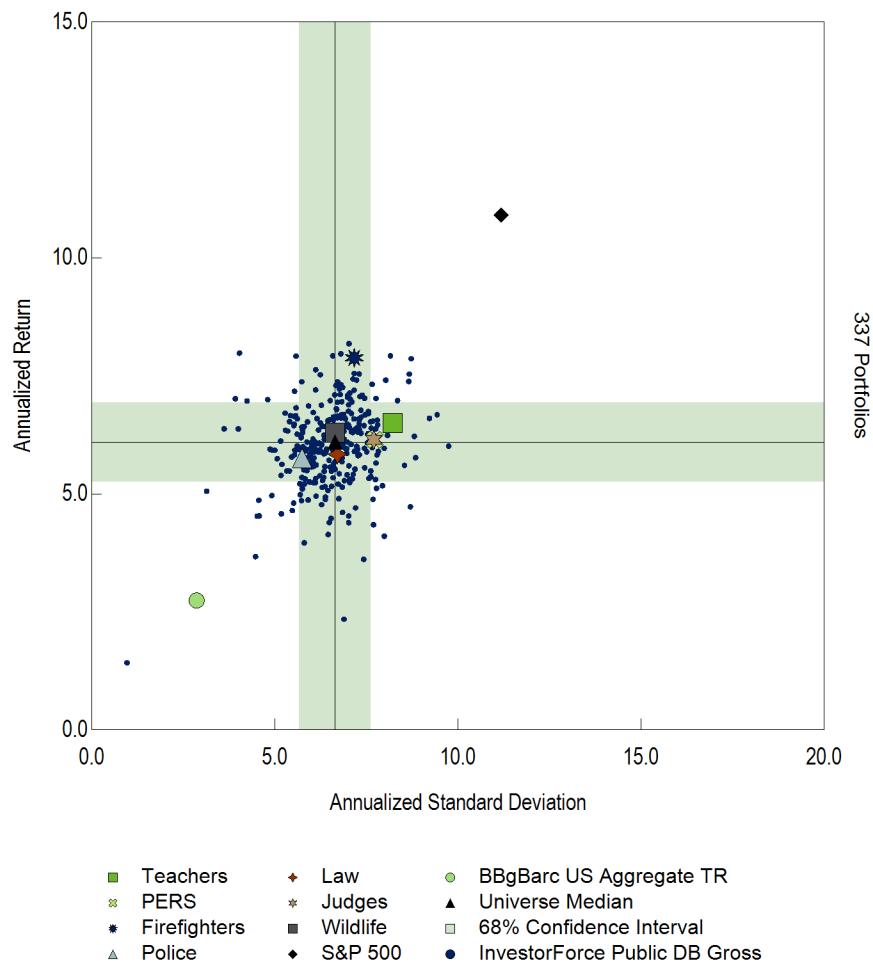


March 31, 2019

## Oklahoma State Pension Commission

# TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending March 31, 2019



5 Years Ending March 31, 2019				
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Oklahoma State Pension Commission	6.42%	32	7.67%	91
Teachers	6.50%	27	8.22%	97
PERS	6.15%	49	7.73%	92
Firefighters	7.88%	2	7.17%	77
Police	5.76%	70	5.74%	17
Law	5.84%	66	6.71%	54
Judges	6.15%	49	7.70%	91
Wildlife	6.29%	41	6.63%	50

5 Years Ending March 31, 2019				
	Sharpe Ratio	Rank	Sortino Ratio	Rank
Oklahoma State Pension Commission	0.74	72	1.07	73
Teachers	0.70	82	1.02	81
PERS	0.70	82	1.02	82
Firefighters	0.99	10	1.37	19
Police	0.87	31	1.31	29
Law	0.76	67	1.11	65
Judges	0.70	81	1.02	83
Wildlife	0.83	43	1.21	46

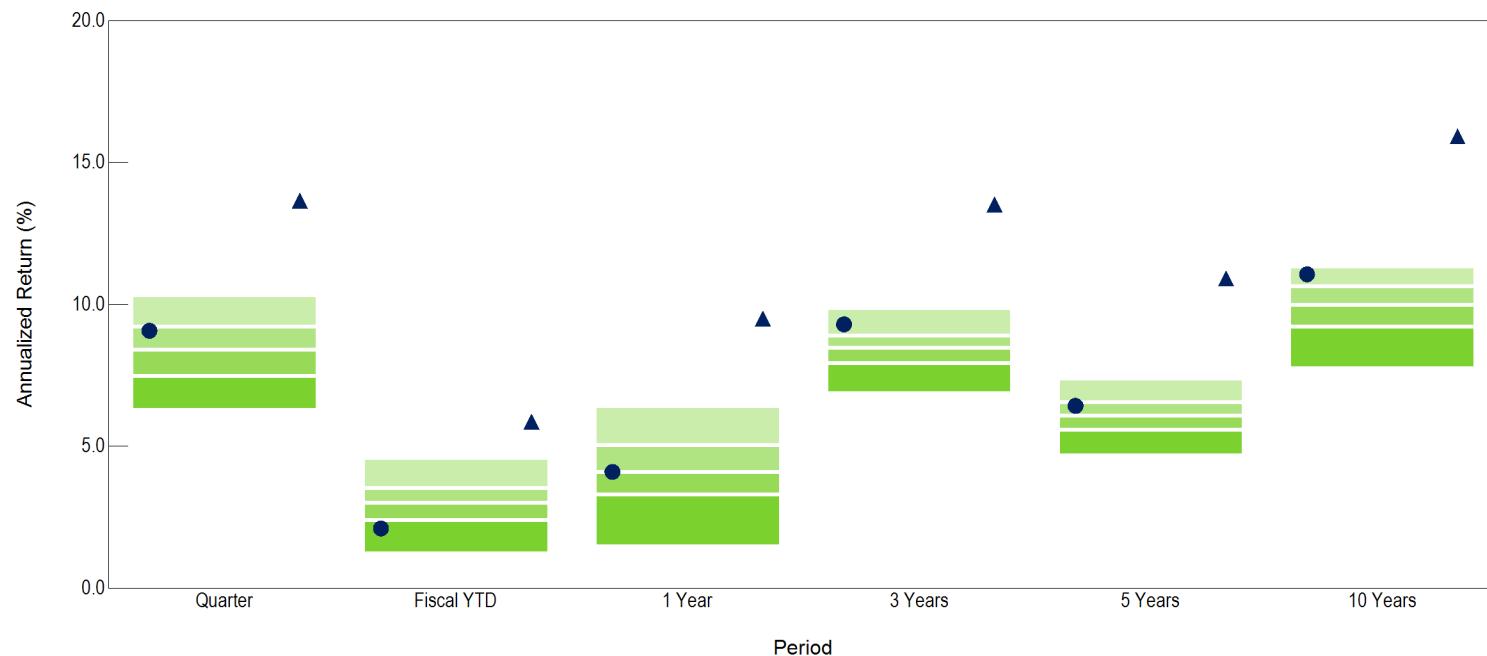


March 31, 2019

## Oklahoma State Pension Commission

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Oklahoma State Pension Commission vs. InvestorForce Public DB Gross



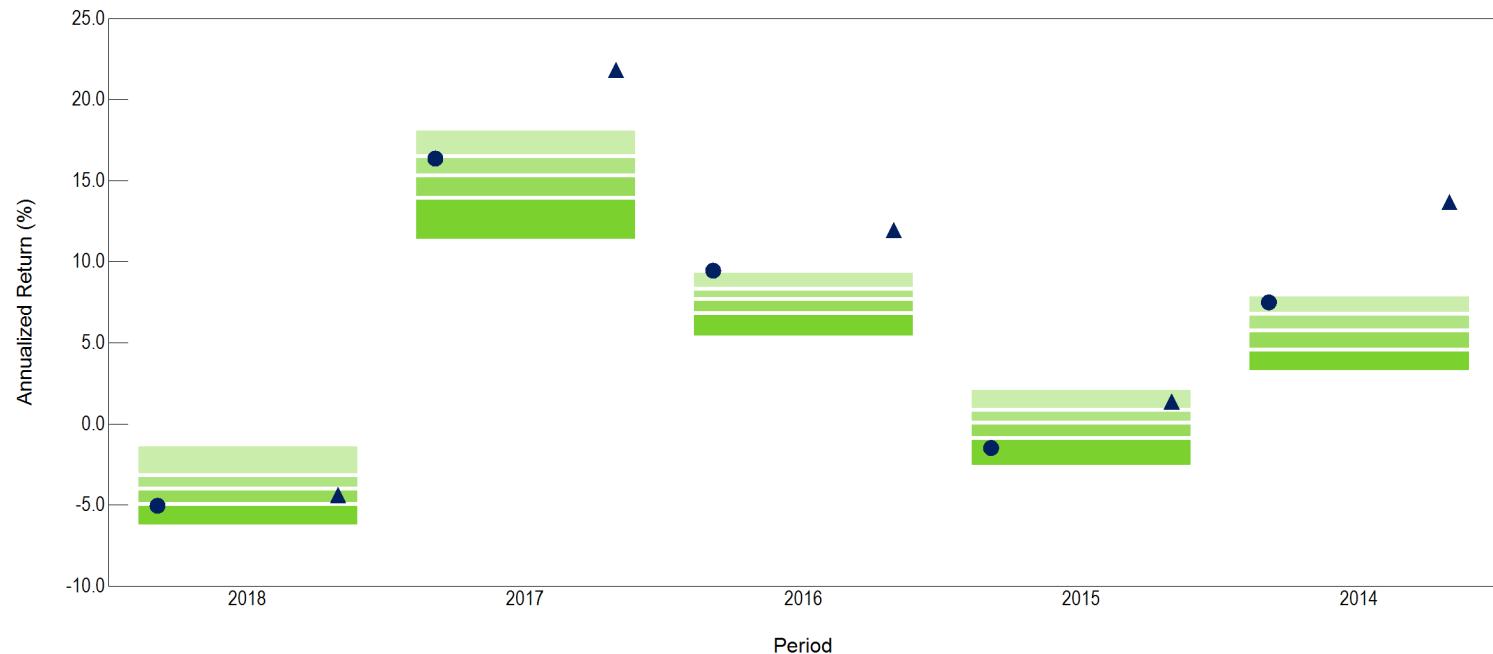
	Return (Rank)					
5th Percentile	10.3	4.6	6.4	9.9	7.4	11.3
25th Percentile	9.2	3.5	5.0	8.9	6.6	10.6
Median	8.4	3.0	4.1	8.5	6.1	10.0
75th Percentile	7.5	2.4	3.3	7.9	5.6	9.2
95th Percentile	6.3	1.2	1.5	6.9	4.7	7.8
# of Portfolios	366	362	362	351	337	290
● Oklahoma State Pension Commission	9.1	(29)	2.1	(83)	4.1	(52)
▲ S&P 500	13.6	(1)	5.9	(1)	9.5	(1)
					13.5	(1)
					9.3	(15)
					6.4	(32)
					10.9	(1)
					11.1	(11)
					15.9	(1)



March 31, 2019

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Oklahoma State Pension Commission vs. InvestorForce Public DB Gross



	Return (Rank)									
5th Percentile	-1.3		18.2		9.4		2.2		8.0	
25th Percentile	-3.1		16.5		8.4		0.9		6.8	
Median	-4.0		15.3		7.7		0.1		5.8	
75th Percentile	-4.9		14.0		6.9		-0.9		4.6	
95th Percentile	-6.3		11.3		5.3		-2.6		3.2	
# of Portfolios	319		304		305		316		248	
● Oklahoma State Pension Commission	-5.0	(79)	16.4	(28)	9.5	(5)	-1.5	(83)	7.5	(12)
▲ S&P 500	-4.4	(61)	21.8	(1)	12.0	(1)	1.4	(11)	13.7	(1)



March 31, 2019

# OKLAHOMA TEACHERS

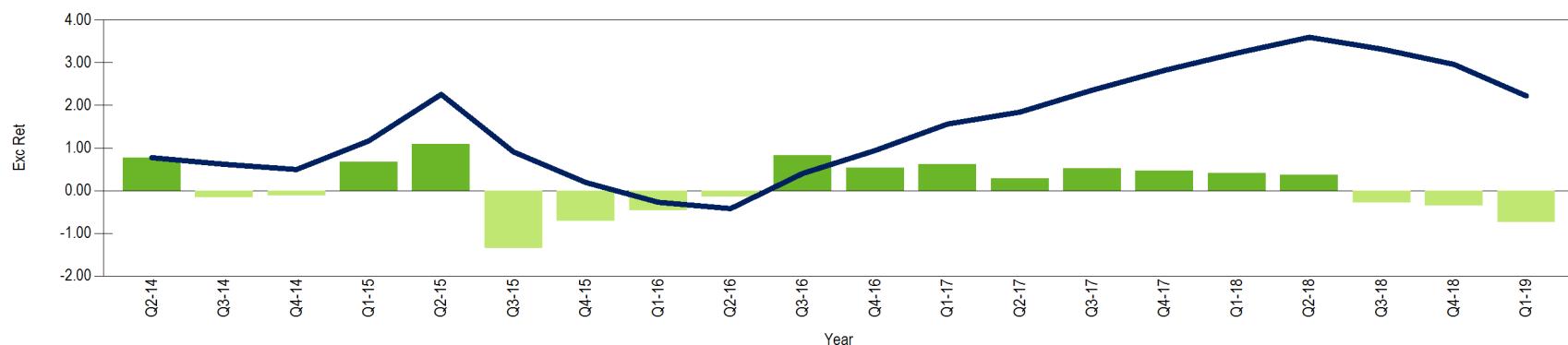


March 31, 2019

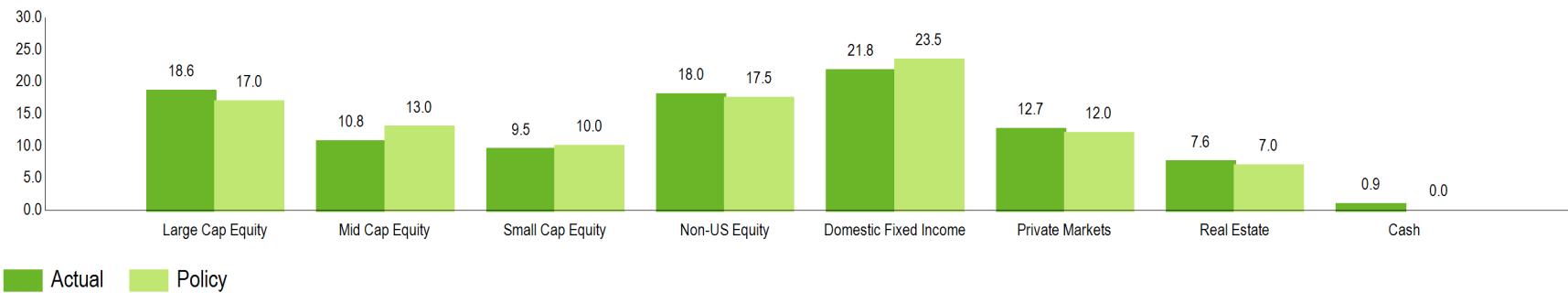
# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK TEACHERS</b>	<b>\$16,527,422,081</b>	<b>9.2%</b>	<b>27</b>	<b>1.7%</b>	<b>89</b>	<b>4.5%</b>	<b>41</b>	<b>10.0%</b>	<b>5</b>	<b>6.5%</b>	<b>27</b>	<b>12.0%</b>	<b>2</b>
TEACHERS Allocation Index		8.6%	44	2.2%	82	4.4%	41	9.3%	17	6.4%	32	11.1%	11
TEACHERS Policy Index		9.9%	10	3.1%	45	5.5%	14	9.1%	22	6.1%	51	11.1%	9
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

Quarterly and Cumulative Excess Performance



Actual vs Target Allocation (%)



Returns are gross of manager fees.

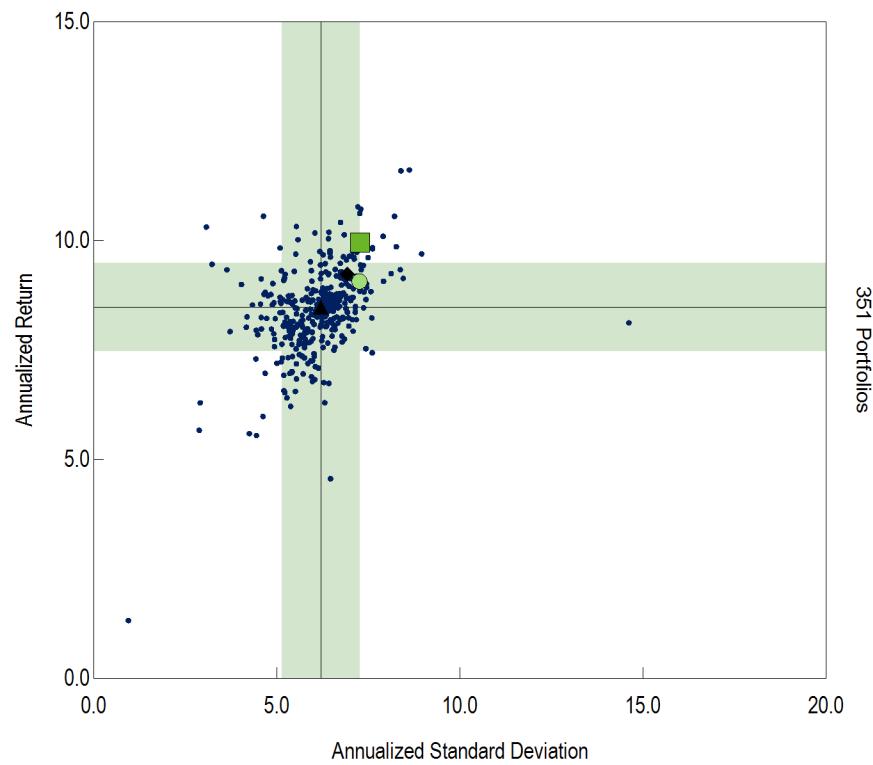


March 31, 2019

## Oklahoma Teachers

# TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending March 31, 2019



3 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK TEACHERS	9.95%	5	7.28%	93
TEACHERS Allocation Index	9.24%	17	6.91%	83
TEACHERS Policy Index	9.07%	22	7.25%	92

3 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK TEACHERS	1.20	39	1.28	47
TEACHERS Allocation Index	1.16	50	1.24	59
TEACHERS Policy Index	1.08	75	1.17	77

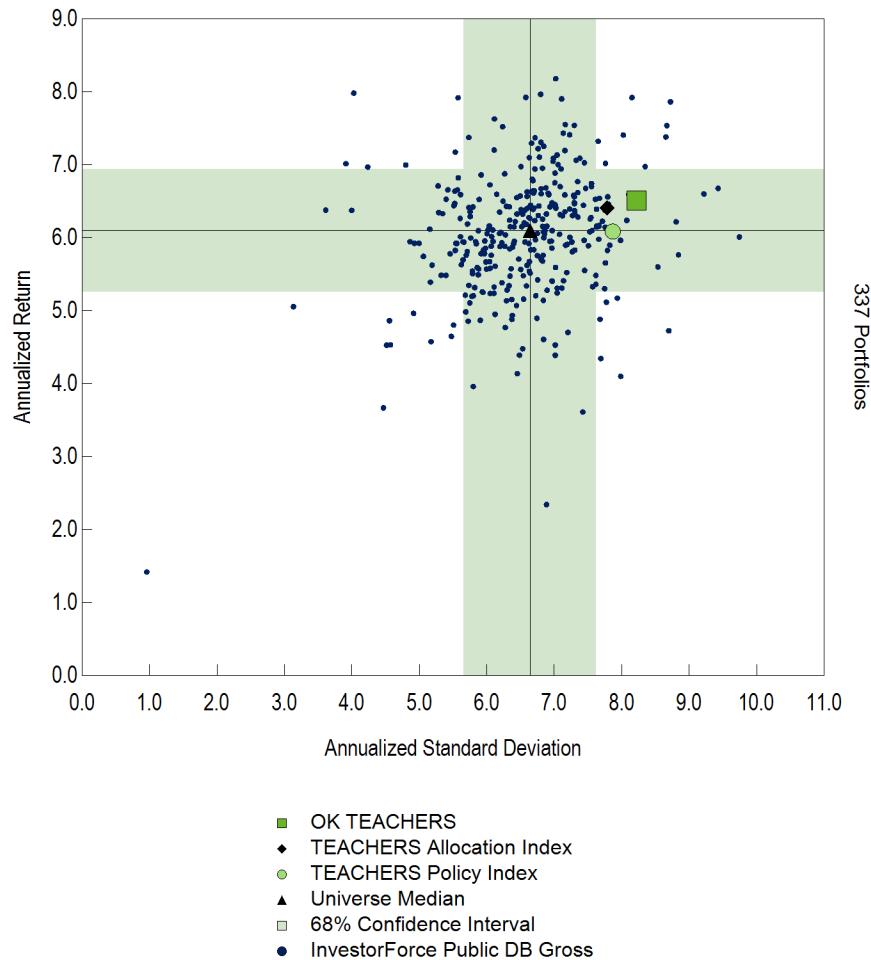
March 31, 2019



## Oklahoma Teachers

# TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending March 31, 2019



5 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK TEACHERS	6.51%	27	8.22%	97
TEACHERS Allocation Index	6.41%	33	7.78%	94
TEACHERS Policy Index	6.09%	51	7.87%	95

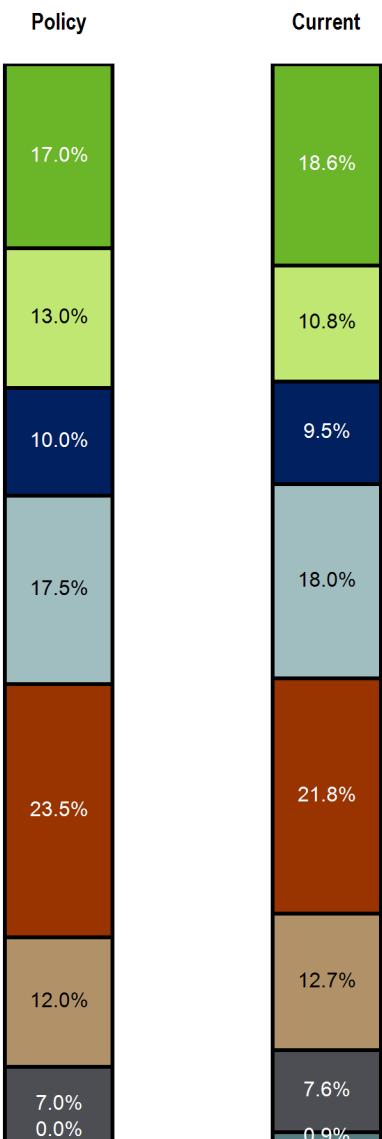
5 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK TEACHERS	0.70	81	1.02	81
TEACHERS Allocation Index	0.73	75	1.07	73
TEACHERS Policy Index	0.68	86	1.02	81

March 31, 2019



# TOTAL FUND ASSET ALLOCATION VS. POLICY

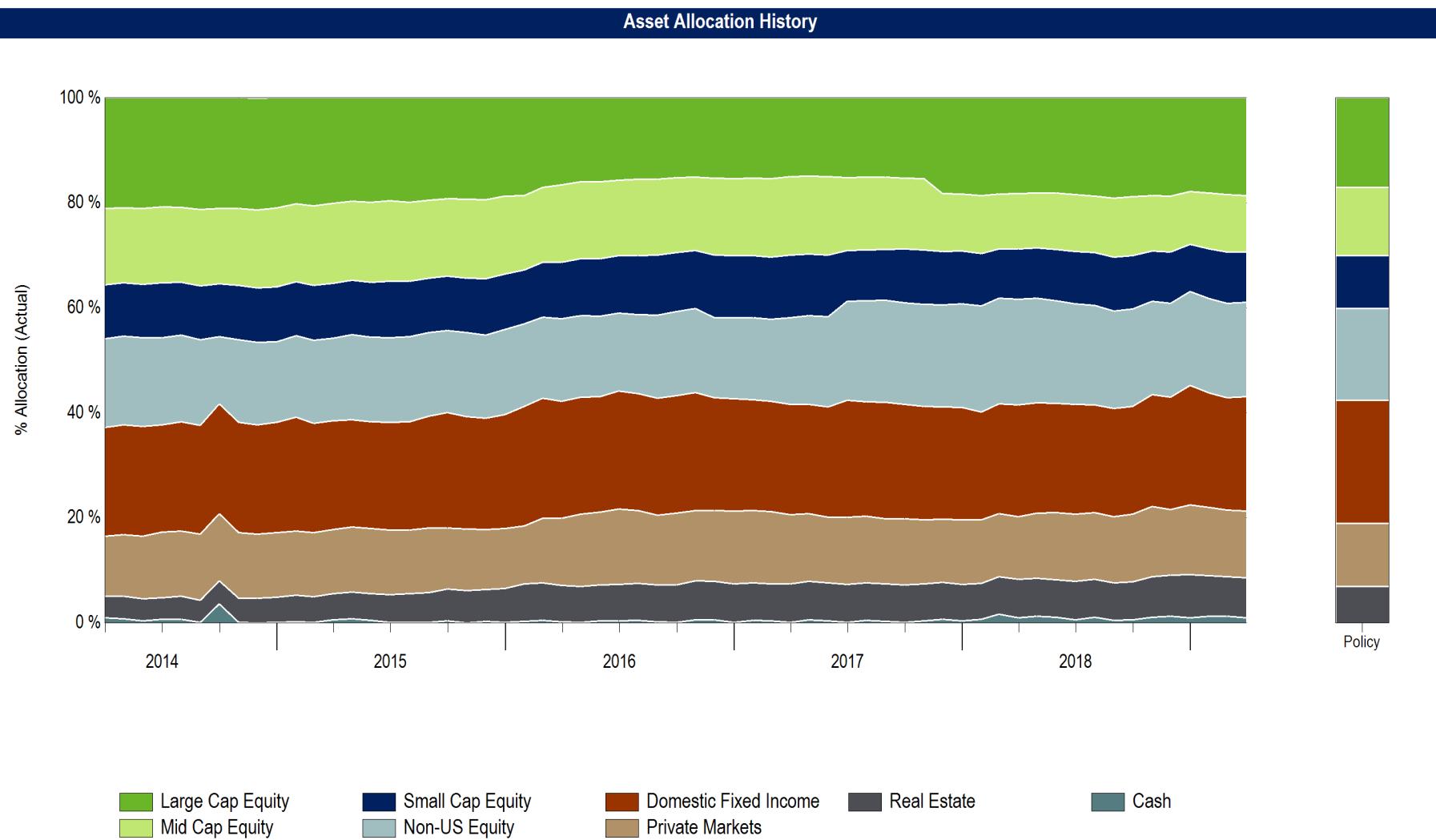


Asset Allocation vs. Target						
	Current	Policy	Current Difference*	Policy Range		Within Range
Large Cap Equity	\$3,075,303,096	17.0%	18.6%	1.6%	12.0% - 23.0%	Yes
Mid Cap Equity	\$1,783,545,836	13.0%	10.8%	-2.2%	8.0% - 18.0%	Yes
Small Cap Equity	\$1,573,803,227	10.0%	9.5%	-0.5%	5.0% - 15.0%	Yes
Non-US Equity	\$2,981,421,380	17.5%	18.0%	0.5%	12.5% - 22.5%	Yes
Domestic Fixed Income	\$3,602,206,214	23.5%	21.8%	-1.7%	18.5% - 28.5%	Yes
Private Markets	\$2,101,198,796	12.0%	12.7%	0.7%	7.0% - 17.0%	Yes
Real Estate	\$1,256,345,731	7.0%	7.6%	0.6%	2.0% - 12.0%	Yes
Cash	\$153,597,801	0.0%	0.9%	0.9%	0.0% - 5.0%	Yes
<b>Total</b>	<b>\$16,527,422,081</b>	<b>100.0%</b>	<b>100.0%</b>			

\*Difference between Policy and Current Allocation



# TOTAL FUND ASSET ALLOCATION HISTORY



Large Cap Equity  
Mid Cap Equity

Small Cap Equity  
Non-US Equity

Domestic Fixed Income  
Private Markets

Real Estate  
Cash



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>OK TEACHERS</b>	16,527,422,081	100.0	9.2	27	1.7	89	4.5	41	10.0	5	6.5	27	12.0	2
TEACHERS Allocation Index			8.6	44	2.1	82	4.4	43	9.2	17	6.4	33	11.1	11
Over/Under			0.6		-0.4		0.1		0.8		0.1		0.9	
TEACHERS Policy Index			9.9	10	3.1	45	5.5	14	9.1	22	6.1	51	11.1	9
InvestorForce Public DB Gross Median			8.4		3.0		4.1		8.5		6.1		10.0	
<b>Total Equity Composite</b>	9,414,073,539	57.0	13.7	36	-0.5	72	1.7	61	11.7	31	7.4	44	14.3	30
Russell 3000			14.0	32	4.7	27	8.8	18	13.5	16	10.4	12	16.0	14
Over/Under			-0.3		-5.2		-7.1		-1.8		-3.0		-1.7	
eV All Global Equity Gross Median			12.5		2.0		3.1		10.3		7.1		13.1	
<b>U.S. Equity Comp</b>	6,432,652,159	38.9	15.2	34	1.8	55	6.6	49	13.4	40	9.1	52	16.0	55
S&P 500			13.6	54	5.9	26	9.5	32	13.5	38	10.9	26	15.9	57
Over/Under			1.6		-4.1		-2.9		-0.1		-1.8		0.1	
eV All US Equity Gross Median			13.9		2.6		6.3		12.4		9.2		16.2	
Sawgrass Large Growth	731,990,728	4.4	13.1	90	11.7	7	16.8	13	14.1	79	11.9	68	16.2	71
Russell 1000 Growth			16.1	49	6.6	51	12.7	47	16.5	49	13.5	38	17.5	34
Over/Under			-3.0		5.1		4.1		-2.4		-1.6		-1.3	
eV US Large Cap Growth Equity Gross Median			16.1		6.6		12.4		16.4		12.9		17.0	
Hotchkis & Wiley Large Cap Value	708,474,726	4.3	14.8	8	-1.1	85	2.3	72	12.3	19	7.7	60	16.8	7
Russell 1000 Value			11.9	43	4.4	35	5.7	36	10.5	65	7.7	60	14.5	55
Over/Under			2.9		-5.5		-3.4		1.8		0.0		2.3	
eV US Large Cap Value Equity Gross Median			11.6		2.7		4.4		11.0		8.2		14.7	
Aronson Mid Cap	426,460,175	2.6	14.0	78	-1.0	69	1.8	68	9.9	74	7.5	69	16.5	55
Russell MidCap			16.5	42	3.6	45	6.5	45	11.8	54	8.8	51	16.9	44
Over/Under			-2.5		-4.6		-4.7		-1.9		-1.3		-0.4	
eV US Mid Cap Equity Gross Median			15.7		2.7		5.0		12.1		8.8		16.6	
Frontier	475,506,059	2.9	20.4	32	9.5	25	12.1	45	14.9	63	10.7	52	16.3	80
Russell MidCap Growth			19.6	44	8.1	46	11.5	51	15.1	59	10.9	49	17.6	43
Over/Under			0.8		1.4		0.6		-0.2		-0.2		-1.3	

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Wellington	479,540,144	2.9	19.7	43	8.2	44	15.3	22	18.0	26	10.3	61	17.7	38
Russell MidCap Growth			19.6	44	8.1	46	11.5	51	15.1	59	10.9	49	17.6	43
Over/Under			0.1		0.1		3.8		2.9		-0.6		0.1	
eV US Mid Cap Growth Equity Gross Median			19.1		7.4		11.8		15.7		10.8		17.2	
Hotchkis & Wiley Mid Cap	402,039,458	2.4	16.2	13	-10.3	98	-3.1	81	7.9	84	3.9	95	17.9	7
Russell MidCap Value			14.4	44	0.5	28	2.9	32	9.5	55	7.2	51	16.4	38
Over/Under			1.8		-10.8		-6.0		-1.6		-3.3		1.5	
eV US Mid Cap Value Equity Gross Median			14.1		-1.8		0.9		9.8		7.3		16.0	
Shapiro Capital	726,313,171	4.4	16.2	8	-8.0	61	-0.6	45	15.8	5	8.2	15	18.3	14
Russell 2000 Value			11.9	69	-7.5	56	0.2	39	10.9	33	5.6	66	14.1	88
Over/Under			4.3		-0.5		-0.8		4.9		2.6		4.2	
Frontier Capital Management Small Cap Value	203,970,578	1.2	14.5	21	-7.4	54	-1.5	54	10.0	44	7.1	29	--	--
Russell 2000 Value			11.9	69	-7.5	56	0.2	39	10.9	33	5.6	66	14.1	88
Over/Under			2.6		0.1		-1.7		-0.9		1.5			
Neumeier Poma Investment Counsel Small Cap Value	241,076,083	1.5	12.6	52	-2.4	16	3.0	18	14.4	9	11.5	1	--	--
Russell 2000 Value			11.9	69	-7.5	56	0.2	39	10.9	33	5.6	66	14.1	88
Over/Under			0.7		5.1		2.8		3.5		5.9			
eV US Small Cap Value Equity Gross Median			12.7		-7.1		-1.0		9.7		6.2		16.1	
Geneva Capital Management Small Cap Growth	201,543,557	1.2	15.9	66	3.4	31	9.8	54	17.7	51	12.7	16	--	--
Russell 2000 Growth			17.1	56	-3.2	78	3.9	82	14.9	75	8.4	77	16.5	83
Over/Under			-1.2		6.6		5.9		2.8		4.3			

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Wasatch Advisors Small Cap Growth	200,899,838	1.2	16.5	60	3.1	34	10.8	46	18.9	43	12.7	16	--	--
Russell 2000 Growth			17.1	56	-3.2	78	3.9	82	14.9	75	8.4	77	16.5	83
Over/Under			-0.6		6.3		6.9		4.0		4.3			
eV US Small Cap Growth Equity Gross Median			17.6		1.2		10.2		17.7		9.8			18.1
<b>Domestic Passive Equity</b>	<b>1,634,837,642</b>	<b>9.9</b>	<b>13.5</b>	--	<b>5.6</b>	--	<b>8.3</b>	--	<b>12.6</b>	--	<b>9.9</b>	--	--	--
S&P 500			13.6		5.9		9.5		13.5		10.9		--	15.9
Over/Under			-0.1		-0.3		-1.2		-0.9		-1.0			
Northern Trust Russell 1000	647,248,272	3.9	14.0	--	5.5	--	9.3	--	--	--	--	--	--	--
Russell 1000			14.0		5.5		9.3		13.5		10.6		--	16.0
Over/Under			0.0		0.0		0.0							
Sci Beta US HFE MBMS	987,589,370	6.0	13.2	--	5.6	--	7.7	--	--	--	--	--	--	--
S&P 500			13.6		5.9		9.5		13.5		10.9		--	15.9
Over/Under			-0.4		-0.3		-1.8							
<b>International Equity Composite</b>	<b>2,981,421,380</b>	<b>18.0</b>	<b>10.7</b>	<b>60</b>	<b>-5.2</b>	<b>73</b>	<b>-7.6</b>	<b>75</b>	<b>7.8</b>	<b>65</b>	<b>3.3</b>	<b>61</b>	<b>9.8</b>	<b>72</b>
MSCI ACWI ex USA			10.3		-1.6		-4.2		38		2.6		79	8.8
Over/Under			0.4		-3.6		-3.4		-0.3		0.7			1.0
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9			11.1
Causeway - Value	448,972,123	2.7	10.9	9	-3.4	31	-6.6	48	8.1	31	2.3	56	10.4	47
MSCI EAFE			10.0		-2.5		-3.7		7.3		2.3		54	9.0
Over/Under			0.9		-0.9		-2.9		0.8		0.0			1.4
eV EAFE Value Equity Gross Median			9.1		-4.7		-7.1		7.3		2.5			10.0
Allianz Intl	973,797,719	5.9	9.1	82	-1.9	40	-6.0	58	--	--	--	--	--	--
MSCI ACWI ex USA			10.3		-1.6		-4.2		39		8.1		60	2.6
Over/Under			-1.2		-0.3		-1.8							
eV ACWI ex-US Equity Unhedged Gross Median			11.2		-2.5		-5.2		8.4		3.9			11.3
Wellington Intl	490,323,123	3.0	13.7	20	-1.0	26	-1.6	18	--	--	--	--	--	--
MSCI ACWI ex USA			10.3		-1.6		-4.2		39		8.1		60	2.6
Over/Under			3.4		0.6		2.6							
eV ACWI ex-US Equity Unhedged Gross Median			11.2		-2.5		-5.2		8.4		3.9			11.3
Northern Trust Intl - Liquidating	15,487	0.0												

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>International Small Cap Equity</b>	<b>1,068,312,928</b>	<b>6.5</b>	<b>10.7</b>	<b>63</b>	<b>-10.3</b>	<b>87</b>	<b>-11.9</b>	<b>69</b>	<b>5.9</b>	<b>84</b>	<b>3.1</b>	<b>73</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex USA</i>			<u>10.3</u>	69	<u>-1.6</u>	8	<u>-4.2</u>	14	<u>8.1</u>	63	<u>2.6</u>	90	<u>8.8</u>	99
Over/Under			0.4		<u>-8.7</u>		<u>-7.7</u>		<u>-2.2</u>		0.5			
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			11.6		-7.8		-9.7		8.7		5.1			14.5
<i>Advisory Research Int'l Small Cap</i>	<u>900,453</u>	<u>0.0</u>	<u>-1.4</u>	<u>99</u>	<u>-2.5</u>	<u>13</u>	<u>-6.9</u>	<u>27</u>	<u>5.4</u>	<u>85</u>	<u>2.2</u>	<u>92</u>	<u>--</u>	<u>--</u>
<i>MSCI ACWI ex USA</i>			<u>10.3</u>	69	<u>-1.6</u>	8	<u>-4.2</u>	14	<u>8.1</u>	63	<u>2.6</u>	90	<u>8.8</u>	99
Over/Under			<u>-11.7</u>		<u>-0.9</u>		<u>-2.7</u>		<u>-2.7</u>		<u>-0.4</u>			
<i>EPOCH Int'l Small Cap</i>	<u>253,652,490</u>	<u>1.5</u>	<u>10.0</u>	<u>71</u>	<u>-13.8</u>	<u>98</u>	<u>-13.5</u>	<u>88</u>	<u>5.2</u>	<u>85</u>	<u>1.5</u>	<u>98</u>	<u>--</u>	<u>--</u>
<i>MSCI ACWI ex USA</i>			<u>10.3</u>	69	<u>-1.6</u>	8	<u>-4.2</u>	14	<u>8.1</u>	63	<u>2.6</u>	90	<u>8.8</u>	99
Over/Under			<u>-0.3</u>		<u>-12.2</u>		<u>-9.3</u>		<u>-2.9</u>		<u>-1.1</u>			
<i>Wasatch Int'l Small Cap</i>	<u>294,134,478</u>	<u>1.8</u>	<u>15.3</u>	<u>9</u>	<u>-8.1</u>	<u>57</u>	<u>-6.5</u>	<u>26</u>	<u>8.3</u>	<u>59</u>	<u>6.5</u>	<u>33</u>	<u>--</u>	<u>--</u>
<i>MSCI ACWI ex USA</i>			<u>10.3</u>	69	<u>-1.6</u>	8	<u>-4.2</u>	14	<u>8.1</u>	63	<u>2.6</u>	90	<u>8.8</u>	99
Over/Under			5.0		<u>-6.5</u>		<u>-2.3</u>		0.2		3.9			
<i>Wellington Int'l Small Cap</i>	<u>249,561,439</u>	<u>1.5</u>	<u>10.1</u>	<u>70</u>	<u>-14.9</u>	<u>99</u>	<u>-17.9</u>	<u>98</u>	<u>3.6</u>	<u>95</u>	<u>1.5</u>	<u>98</u>	<u>--</u>	<u>--</u>
<i>MSCI ACWI ex USA</i>			<u>10.3</u>	69	<u>-1.6</u>	8	<u>-4.2</u>	14	<u>8.1</u>	63	<u>2.6</u>	90	<u>8.8</u>	99
Over/Under			<u>-0.2</u>		<u>-13.3</u>		<u>-13.7</u>		<u>-4.5</u>		<u>-1.1</u>			
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			11.6		-7.8		-9.7		8.7		5.1			14.5
<i>SSGA Emerging Market Small Cap</i>	<u>270,064,068</u>	<u>1.6</u>	<u>7.4</u>	<u>90</u>	<u>-4.3</u>	<u>16</u>	<u>-9.8</u>	<u>51</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
<i>MSCI Emerging Markets Small Cap Gross</i>			<u>7.8</u>	88	<u>-3.9</u>	15	<u>-12.1</u>	73	<u>6.3</u>	82	<u>2.1</u>	94	<u>10.7</u>	99
Over/Under			<u>-0.4</u>		<u>-0.4</u>		2.3							
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			11.6		-7.8		-9.7		8.7		5.1			14.5
<b>Fixed Composite</b>	<b>3,602,206,214</b>	<b>21.8</b>	<b>4.6</b>	<b>27</b>	<b>4.7</b>	<b>36</b>	<b>4.7</b>	<b>40</b>	<b>4.6</b>	<b>27</b>	<b>3.9</b>	<b>31</b>	<b>6.8</b>	<b>29</b>
<i>BBgBarc US Aggregate TR</i>			2.9	55	<u>4.6</u>	40	<u>4.5</u>	54	<u>2.0</u>	69	<u>2.7</u>	61	<u>3.8</u>	63
Over/Under			1.7		0.1		0.2		2.6		1.2		3.0	
<i>eV All US Fixed Inc Gross Median</i>			3.1		4.3		4.5		2.7		3.1		4.5	
<i>Loomis Sayles Core Plus</i>	<u>1,007,395,829</u>	<u>6.1</u>	<u>4.0</u>	<u>30</u>	<u>3.5</u>	<u>99</u>	<u>3.2</u>	<u>99</u>	<u>3.9</u>	<u>27</u>	<u>3.1</u>	<u>73</u>	<u>6.9</u>	<u>22</u>
<i>BBgBarc US Aggregate TR</i>			<u>2.9</u>	95	<u>4.6</u>	76	<u>4.5</u>	75	<u>2.0</u>	99	<u>2.7</u>	97	<u>3.8</u>	99
Over/Under			1.1		<u>-1.1</u>		<u>-1.3</u>		1.9		0.4		3.1	

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Mackay Shields Core Plus	1,006,184,183	6.1	5.1	3	4.7	73	4.2	87	3.2	63	2.5	99	5.4	73
BBgBarc US Aggregate TR			2.9	95	4.6	76	4.5	75	2.0	99	2.7	97	3.8	99
Over/Under			2.2		0.1		-0.3		1.2		-0.2		1.6	
Lord Abbett Core Plus	1,021,157,382	6.2	4.2	20	4.5	84	4.2	87	3.0	73	3.3	67	5.7	59
BBgBarc US Aggregate TR			2.9	95	4.6	76	4.5	75	2.0	99	2.7	97	3.8	99
Over/Under			1.3		-0.1		-0.3		1.0		0.6		1.9	
eV US Core Plus Fixed Inc Gross Median			3.7		4.9		4.7		3.4		3.4		6.0	
Hoisington Long Bonds	567,470,412	3.4	5.3	90	5.6	99	6.5	10	1.2	99	6.1	20	5.6	98
BBgBarc US Aggregate TR			2.9	99	4.6	99	4.5	93	2.0	95	2.7	99	3.8	99
Over/Under			2.4		1.0		2.0		-0.8		3.4		1.8	
eV US Long Duration Fixed Inc Gross Median			7.2		7.2		5.2		4.6		5.6		8.7	
Loomis High Yield - Liquidating	-1,948	0.0												
Lord Abbott High Yield - Liquidating	356	0.0												
<b>Total Private Equity</b>	<b>1,463,922,758</b>	<b>8.9</b>	<b>-0.7</b>	<b>--</b>	<b>9.7</b>	<b>--</b>	<b>20.2</b>	<b>--</b>	<b>15.5</b>	<b>--</b>	<b>14.2</b>	<b>--</b>	<b>--</b>	<b>--</b>
Cambridge Associates US All PE			0.0	--	1.6	--	7.1	--	13.4	--	10.7	--	14.1	--
Over/Under			-0.7		8.1		13.1		2.1		3.5			
Legacy LP - Aldus PE	16,499,121	0.1	0.0	--	2.7	--	-2.5	--	4.2	--	4.6	--	5.4	--
Pimco Bravo	2,451,710	0.0	-25.0	--	-31.0	--	59.5	--	11.6	--	12.9	--	--	--
PIMCO Bravo 2	84,673,443	0.5	-6.8	--	-2.7	--	-1.0	--	6.4	--	8.2	--	--	--
OK - OTRS/Franklin Park	1,184,440,069	7.2	0.0	--	11.6	--	24.1	--	17.4	--	15.2	--	--	--
Pimco COF II	59,518,141	0.4	-4.7	--	2.4	--	2.9	--	--	--	--	--	--	--
PIMCO Bravo 3	116,340,274	0.7	-0.5	--	7.5	--	9.8	--	--	--	--	--	--	--
<b>Master Limited Partnerships</b>	<b>637,276,038</b>	<b>3.9</b>	<b>18.8</b>	<b>--</b>	<b>-1.6</b>	<b>--</b>	<b>11.6</b>	<b>--</b>	<b>7.1</b>	<b>--</b>	<b>-2.9</b>	<b>--</b>	<b>--</b>	<b>--</b>
Alerian MLP Index			16.8	--	3.0	--	15.1	--	5.7	--	-4.7	--	10.1	--
Over/Under			2.0		-4.6		-3.5		1.4		1.8			

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Chickasaw Capital Management	215,033,669	1.3	21.0	--	-1.5	--	10.6	--	6.7	--	-2.5	--	--	--
<i>Alerian MLP Index</i>			<u>16.8</u>	--	<u>3.0</u>	--	<u>15.1</u>	--	<u>5.7</u>	--	<u>-4.7</u>	--	<u>10.1</u>	--
Over/Under			4.2		<u>-4.5</u>		<u>-4.5</u>		1.0		2.2			
Swank Capital Cushing	422,242,369	2.6	17.6	--	-1.6	--	12.4	--	7.7	--	-2.4	--	--	--
<i>Alerian MLP Index</i>			<u>16.8</u>	--	<u>3.0</u>	--	<u>15.1</u>	--	<u>5.7</u>	--	<u>-4.7</u>	--	<u>10.1</u>	--
Over/Under			0.8		<u>-4.6</u>		<u>-2.7</u>		2.0		2.3			
<b>Total Core Real Estate</b>	<b>1,256,345,731</b>	<b>7.6</b>	<b>0.6</b>	--	<b>4.6</b>	--	<b>6.0</b>	--	<b>7.1</b>	--	<b>9.3</b>	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.2</u>		<u>-0.3</u>		<u>-0.8</u>		0.0		0.2			
L & B Real Estate	287,784,278	1.7	0.2	--	4.4	--	6.0	--	7.4	--	10.2	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-1.2</u>		<u>-1.0</u>		<u>-1.5</u>		<u>-0.6</u>		0.0			
Heitman Real Estate	322,149,661	1.9	0.8	--	4.1	--	7.5	--	8.5	--	10.0	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-0.6</u>		<u>-1.3</u>		0.0		0.5		<u>-0.2</u>			
AEW Real Estate	311,436,264	1.9	0.7	--	5.4	--	5.9	--	6.9	--	9.0	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-0.7</u>		0.0		<u>-1.6</u>		<u>-1.1</u>		<u>-1.2</u>			
L & B Gold Driller	72,073,771	0.4	0.0	--	0.0	--	0.0	--	1.8	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-1.4</u>		<u>-5.4</u>		<u>-7.5</u>		<u>-6.2</u>					
Greenoak Real Estate II	37,001,695	0.2	2.4	--	10.6	--	10.2	--	7.0	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			1.0		5.2		2.7		<u>-1.0</u>					
Greenoak Real Estate III	11,223,011	0.1	0.7	--	-29.6	--	--	--	--	--	--	--	--	--
Lyrical-OTRS Realty Partner IV	41,092,684	0.2	0.0	--	-3.1	--	-4.5	--	-5.4	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-1.4</u>		<u>-8.5</u>		<u>-12.0</u>		<u>-13.4</u>					

Returns are gross of manager fees.



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## Oklahoma Teachers

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Dune Real Estate	58,795,704	0.4	2.7	--	14.0	--	12.6	--	13.0	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			1.3		8.6		5.1		5.0					
Landmark Realty	19,064,856	0.1	0.0	--	2.0	--	3.6	--	11.0	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-1.4</u>		<u>-3.4</u>		<u>-3.9</u>		3.0					
American Realty	62,519,053	0.4	1.8	--	6.9	--	9.5	--	10.4	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			0.4		1.5		2.0		2.4					
Starwood Capital	22,211,916	0.1	0.8	--	12.0	--	14.7	--	15.2	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-0.6</u>		6.6		7.2		7.2					
Starwood Opportunity XI	5,329,381	0.0	4.8	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			3.4											
FCP Realty Fund IV, L.P.	1,831,126	0.0	-21.2	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-22.6</u>											

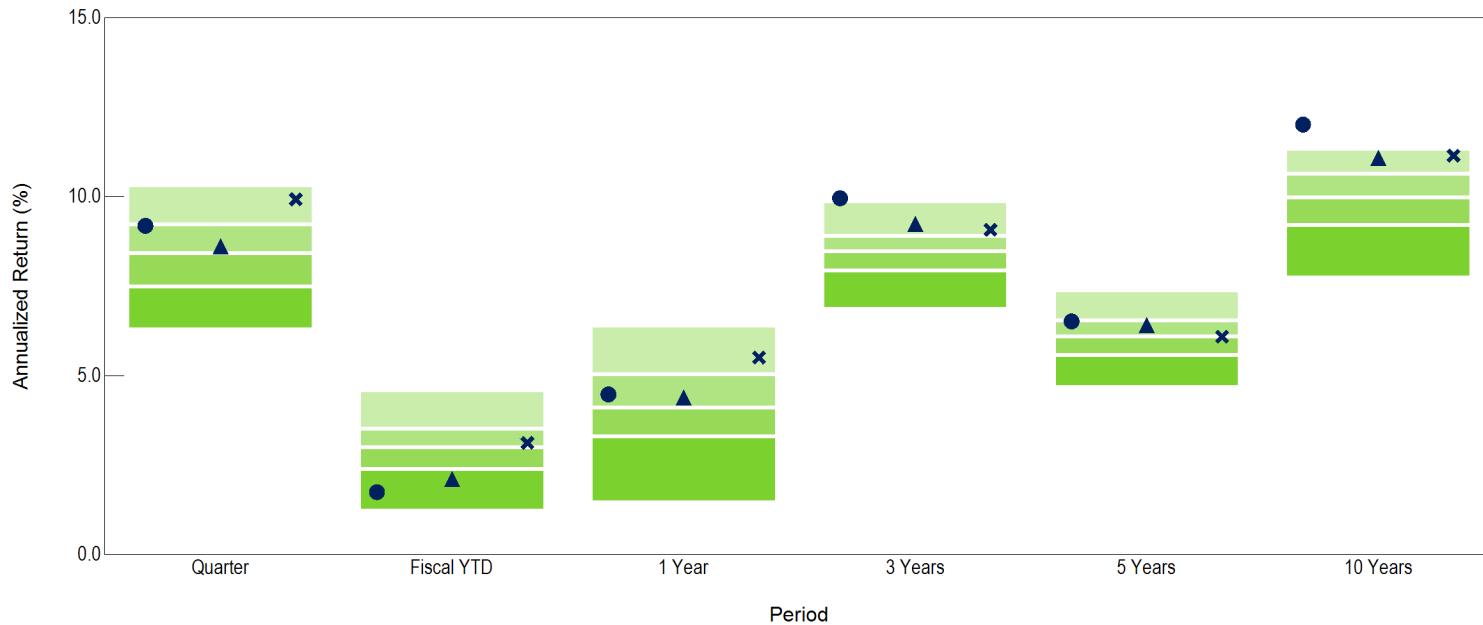
Returns are gross of manager fees.



March 31, 2019

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

OK TEACHERS vs. InvestorForce Public DB Gross



	Return (Rank)								
5th Percentile	10.3	4.6	6.4	9.9	7.4	11.3			
25th Percentile	9.2	3.5	5.0	8.9	6.6	10.6			
Median	8.4	3.0	4.1	8.5	6.1	10.0			
75th Percentile	7.5	2.4	3.3	7.9	5.6	9.2			
95th Percentile	6.3	1.2	1.5	6.9	4.7	7.8			
# of Portfolios	366	362	362	351	337	290			
● OK TEACHERS	9.2	(27)	1.7	(89)	4.5	(41)	10.0	(5)	6.5
▲ TEACHERS Allocation Index	8.6	(44)	2.1	(82)	4.4	(43)	9.2	(17)	6.4
✖ TEACHERS Policy Index	9.9	(10)	3.1	(45)	5.5	(14)	9.1	(22)	6.1



March 31, 2019

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

OK TEACHERS vs. InvestorForce Public DB Gross



	Return (Rank)								
5th Percentile	-1.3		18.2		9.4		2.2		8.0
25th Percentile	-3.1		16.5		8.4		0.9		6.8
Median	-4.0		15.3		7.7		0.1		5.8
75th Percentile	-4.9		14.0		6.9		-0.9		4.6
95th Percentile	-6.3		11.3		5.3		-2.6		3.2
# of Portfolios	319		304		305		316		248
● OK TEACHERS	-5.0	(78)	16.1	(34)	11.4	(1)	-2.9	(97)	8.1 (4)
▲ TEACHERS Allocation Index	-4.7	(71)	14.3	(70)	11.0	(1)	-2.0	(89)	8.2 (4)
✖ TEACHERS Policy Index	-5.1	(80)	14.1	(74)	10.6	(1)	-2.5	(95)	6.7 (28)

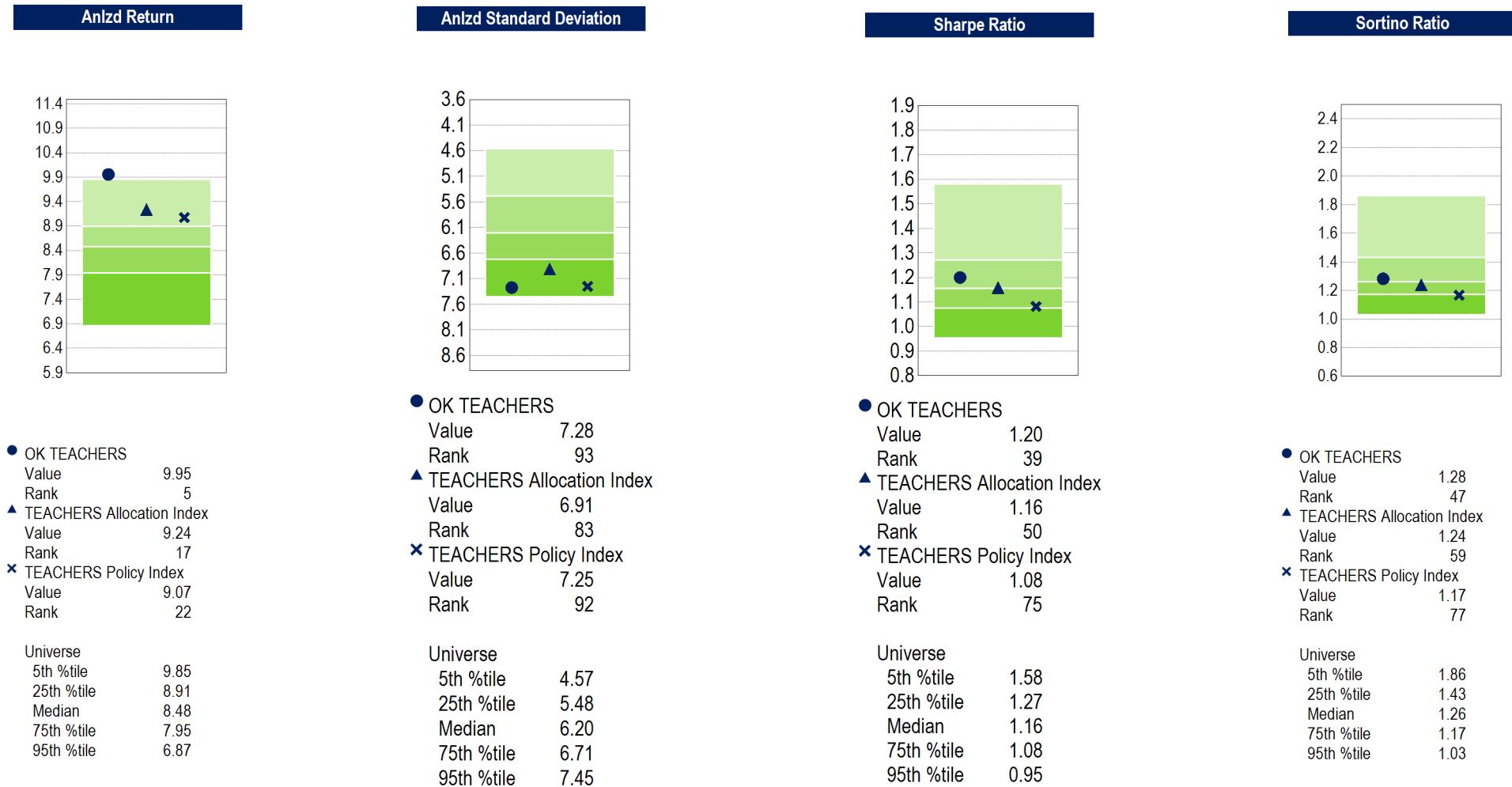


March 31, 2019

## Oklahoma Teachers

# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

OK TEACHERS vs. InvestorForce Public DB Gross  
3 Years



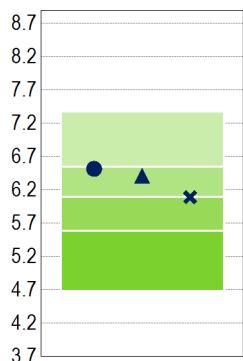
March 31, 2019

## Oklahoma Teachers

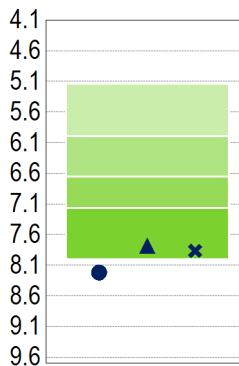
# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

OK TEACHERS vs. InvestorForce Public DB Gross  
5 Years

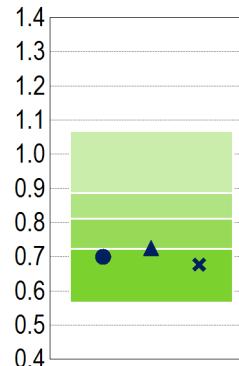
Anlzd Return



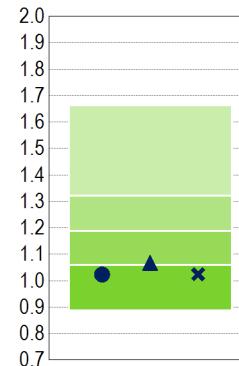
Anlzd Standard Deviation



Sharpe Ratio



Sortino Ratio



● OK TEACHERS	
Value	6.51
Rank	27
▲ TEACHERS Allocation Index	
Value	6.41
Rank	33
✖ TEACHERS Policy Index	
Value	6.09
Rank	51

Universe	
5th %tile	7.38
25th %tile	6.55
Median	6.10
75th %tile	5.59
95th %tile	4.69

● OK TEACHERS	Value 8.22
Rank	97
▲ TEACHERS Allocation Index	Value 7.78
Rank	94
✖ TEACHERS Policy Index	Value 7.87
Rank	95

Universe	
5th %tile	5.14
25th %tile	5.99
Median	6.64
75th %tile	7.16
95th %tile	7.99

● OK TEACHERS	Value 0.70
Rank	81
▲ TEACHERS Allocation Index	Value 0.73
Rank	75
✖ TEACHERS Policy Index	Value 0.68
Rank	86

Universe	
5th %tile	1.07
25th %tile	0.89
Median	0.81
75th %tile	0.72
95th %tile	0.57

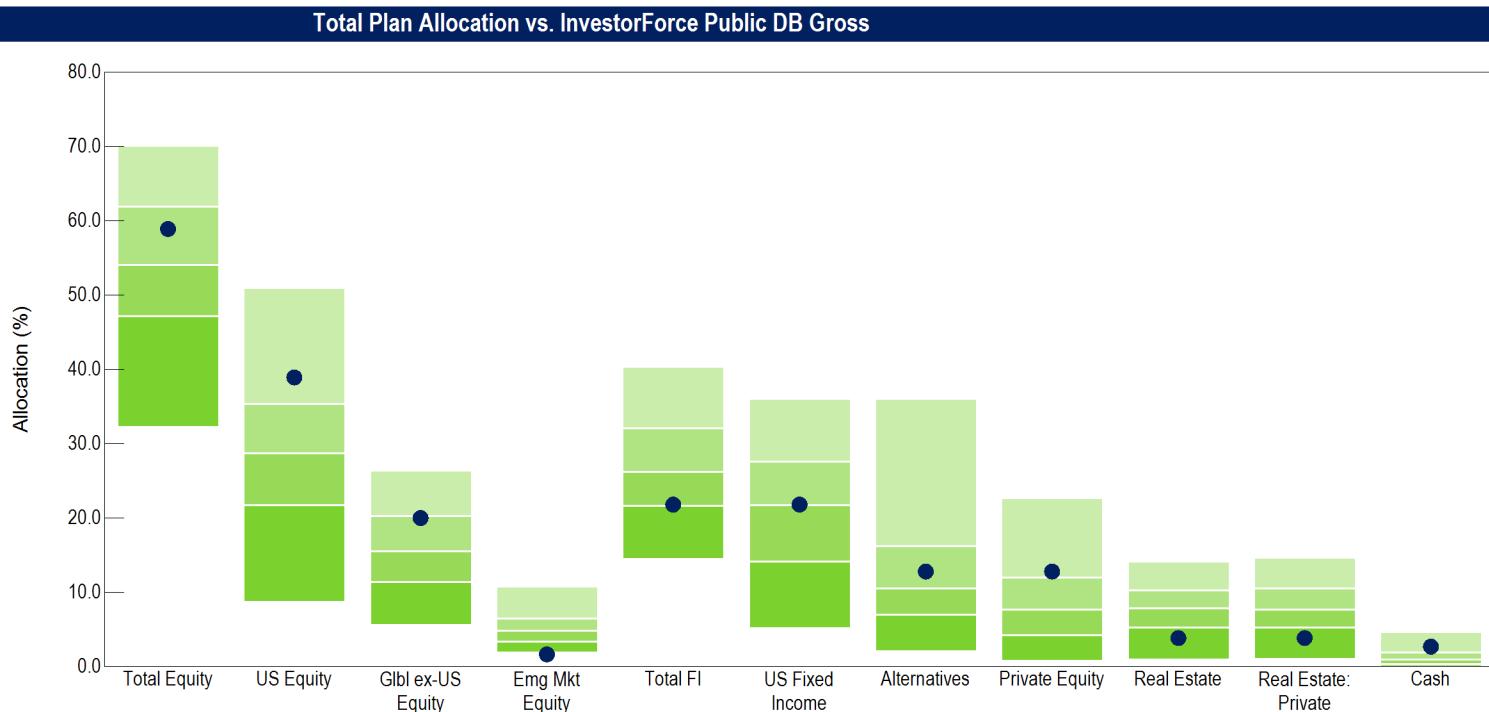
● OK TEACHERS	Value 1.02
Rank	81
▲ TEACHERS Allocation Index	Value 1.07
Rank	73
✖ TEACHERS Policy Index	Value 1.02
Rank	81

Universe	
5th %tile	1.66
25th %tile	1.32
Median	1.19
75th %tile	1.06
95th %tile	0.89



March 31, 2019

# TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE



	Allocation (Rank)												
5th Percentile	70.1	50.9	26.4	10.8	40.3	36.0	36.1	22.7	14.1	14.7	4.6	--	
25th Percentile	62.0	35.4	20.4	6.5	32.1	27.7	16.3	12.1	10.3	10.6	2.0	--	
Median	54.1	28.8	15.6	4.9	26.3	21.8	10.6	7.7	7.9	7.7	1.0	--	
75th Percentile	47.2	21.8	11.4	3.4	21.7	14.2	7.1	4.3	5.3	5.3	0.4	--	
95th Percentile	32.4	8.8	5.7	2.0	14.5	5.2	2.1	0.9	1.0	1.1	0.0	--	
# of Portfolios	265	188	224	122	263	173	174	122	183	134	243	--	
● OK TEACHERS	58.9 (38)	38.9 (20)	20.0 (27)	1.6 (97)	21.8 (74)	21.8 (50)	12.8 (39)	12.8 (22)	3.8 (86)	3.8 (87)	2.7 (15)	--	



March 31, 2019

# OK TEACHERS

Performance Attribution		
	Last 3 Mo.	1 Yr
Wtd. Actual Return	9.2%	4.5%
Wtd. Index Return *	9.9%	5.5%
<b>Excess Return</b>	<b>-0.7%</b>	<b>-1.1%</b>
Selection Effect	0.1%	-0.4%
Allocation Effect	-0.1%	-0.1%
Interaction Effect	-0.7%	-0.6%
 Returns by Asset Class		
OK TEACHERS	9.2%	4.5%
Total Equity Composite	13.7%	1.7%
U.S. Equity Comp	15.2%	6.6%
Domestic Passive Equity	13.5%	8.3%
International Equity Composite	10.7%	-7.6%
International Small Cap Equity	10.7%	-11.9%
Fixed Composite	4.6%	4.7%
Total Private Equity	-0.7%	20.2%
Master Limited Partnerships	18.8%	11.6%
Total Core Real Estate	0.6%	6.0%
Other	0.6%	2.1%

\*Calculated from benchmark returns and weightings of each component.



# OKLAHOMA PERS



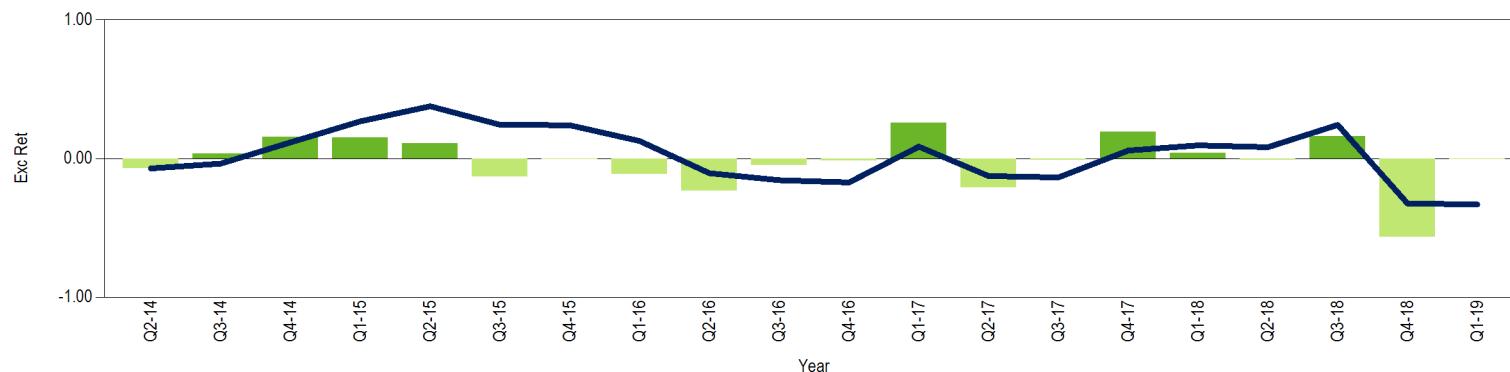
March 31, 2019

## Oklahoma PERS

# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK PERS</b>	<b>\$9,669,764,728</b>	<b>9.5%</b>	<b>16</b>	<b>2.4%</b>	<b>76</b>	<b>3.4%</b>	<b>72</b>	<b>8.4%</b>	<b>55</b>	<b>6.2%</b>	<b>48</b>	<b>10.4%</b>	<b>32</b>
PERS Allocation Index		9.4%	20	2.4%	76	3.4%	72	8.3%	60	6.1%	52	10.0%	51
PERS Policy Index		9.6%	16	2.9%	56	3.9%	58	8.6%	48	6.2%	44	10.3%	37
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

Quarterly and Cumulative Excess Performance



Actual vs Target Allocation (%)



Actual      Policy

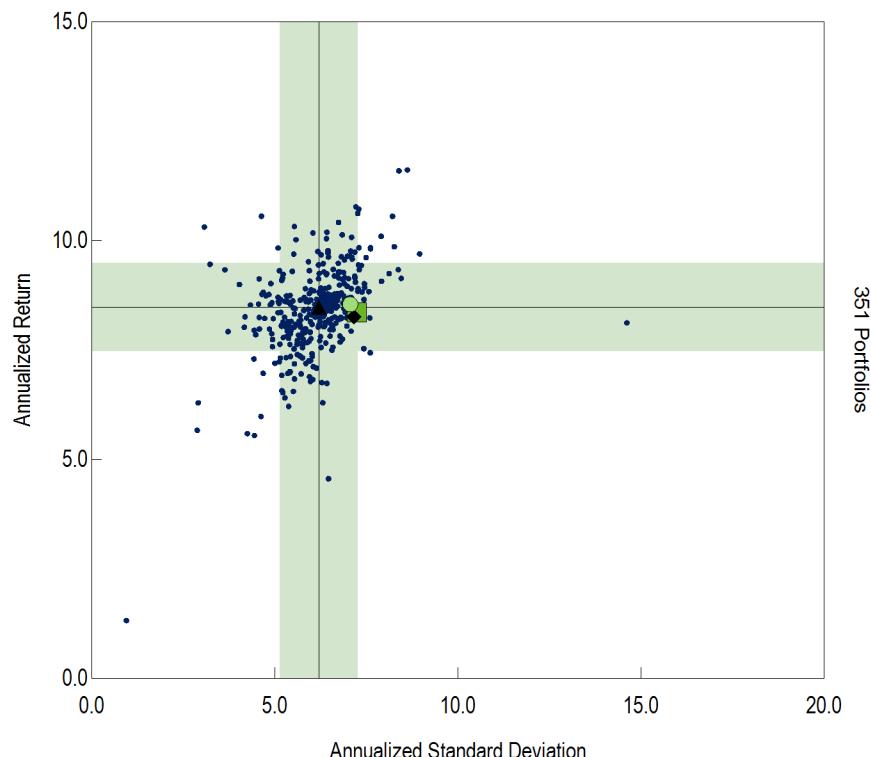
Returns are gross of manager fees.



March 31, 2019

# TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending March 31, 2019



3 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK PERS	8.36%	55	7.24%	92
PERS Allocation Index	8.26%	60	7.16%	90
PERS Policy Index	8.55%	48	7.05%	86

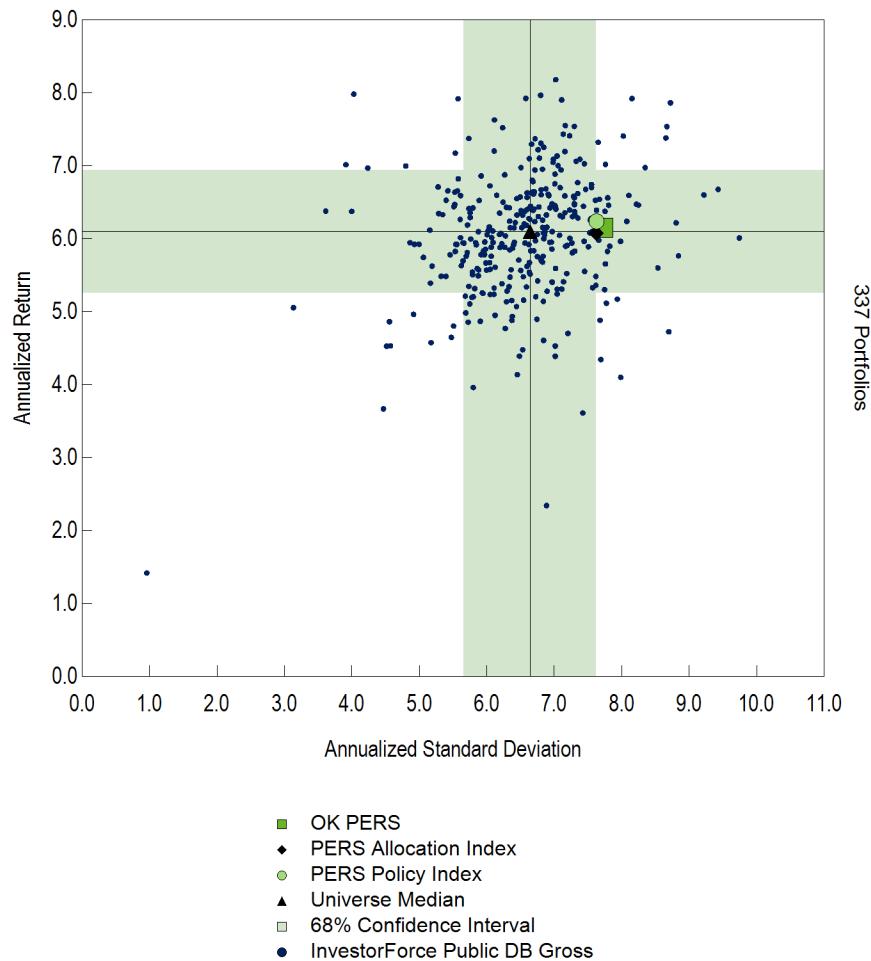
3 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK PERS	0.99	92	1.09	89
PERS Allocation Index	0.98	93	1.07	93
PERS Policy Index	1.04	82	1.15	79



# TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending March 31, 2019



5 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK PERS	6.15%	48	7.73%	92
PERS Allocation Index	6.08%	52	7.62%	88
PERS Policy Index	6.24%	44	7.63%	89

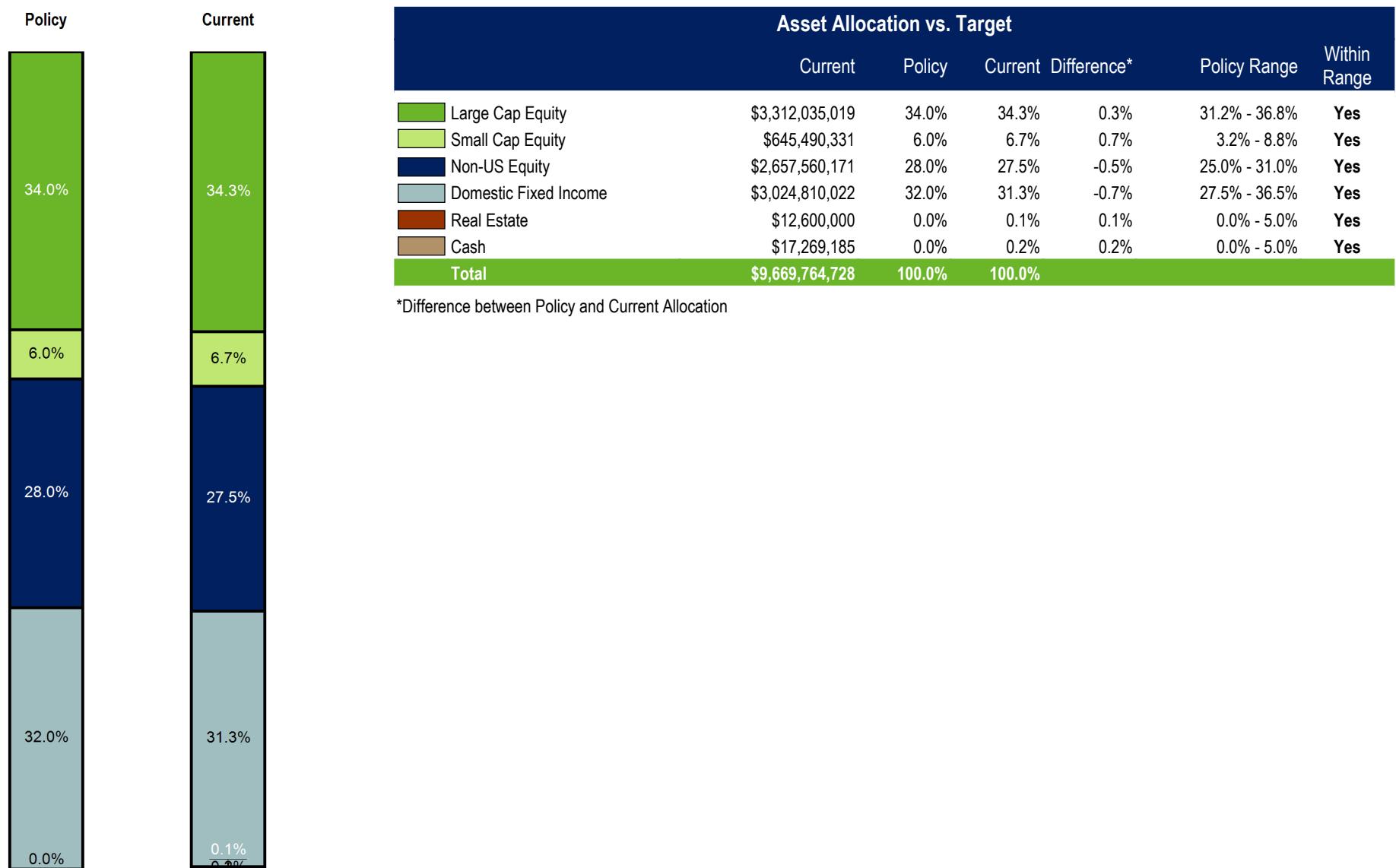
5 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK PERS	0.70	82	1.02	82
PERS Allocation Index	0.70	82	1.02	83
PERS Policy Index	0.72	77	1.07	73

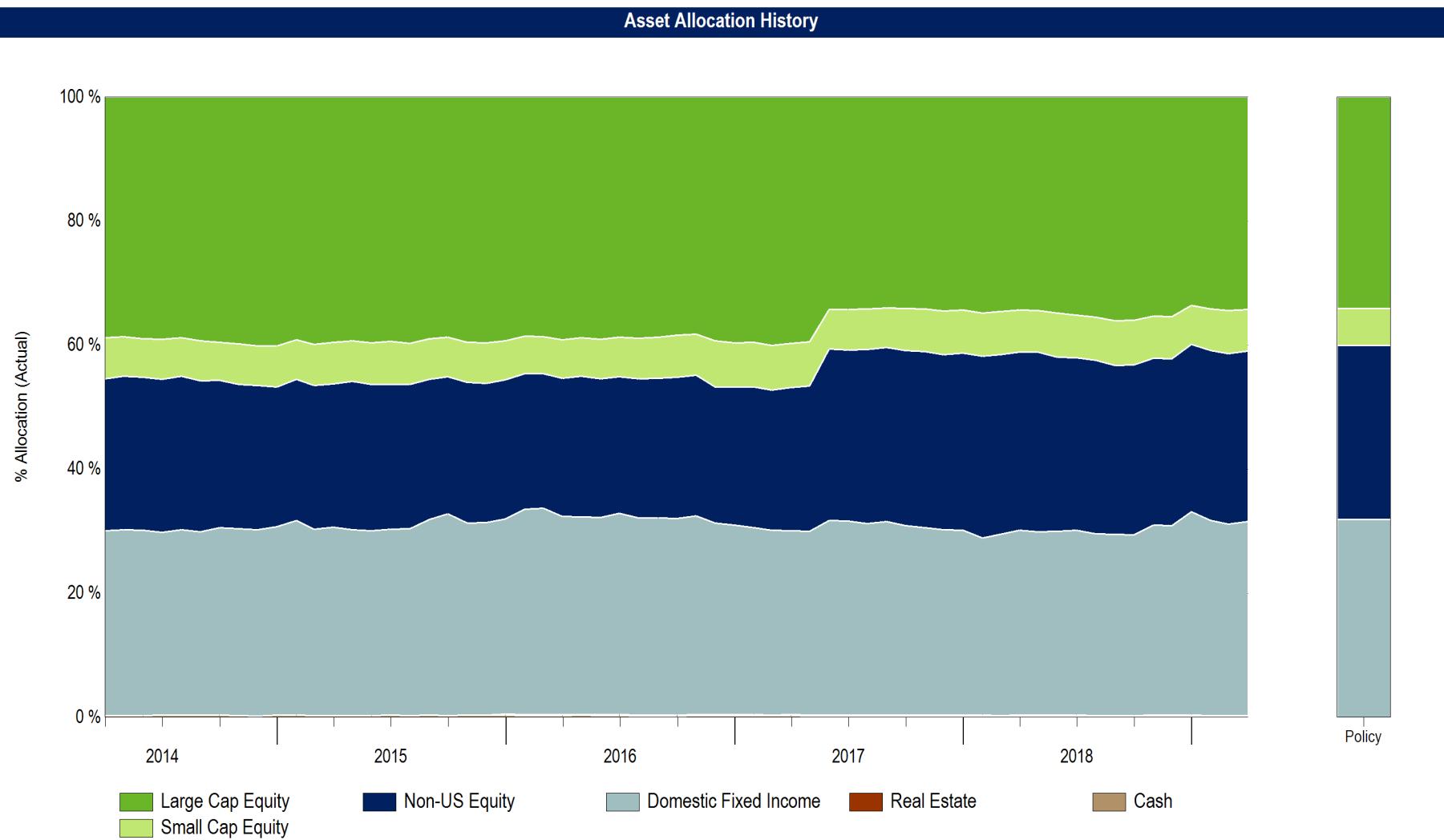


March 31, 2019

# TOTAL FUND ASSET ALLOCATION VS. POLICY



# TOTAL FUND ASSET ALLOCATION HISTORY



March 31, 2019

## Oklahoma PERS

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>OK PERS</b>	<b>9,669,764,728</b>	<b>100.0</b>	<b>9.5</b>	<b>16</b>	<b>2.4</b>	<b>76</b>	<b>3.4</b>	<b>72</b>	<b>8.4</b>	<b>55</b>	<b>6.2</b>	<b>48</b>	<b>10.4</b>	<b>32</b>
PERS Allocation Index			9.4	20	2.4	76	3.4	72	8.3	60	6.1	52	10.0	51
Over/Under			0.1		0.0		0.0		0.1		0.1		0.4	
PERS Policy Index			9.6	16	2.9	56	3.9	58	8.6	48	6.2	44	10.3	37
InvestorForce Public DB Gross Median			8.4		3.0		4.1		8.5		6.1		10.0	
<b>Domestic Equity Composite</b>	<b>3,957,525,350</b>	<b>40.9</b>	<b>13.8</b>	<b>51</b>	<b>3.1</b>	<b>47</b>	<b>7.0</b>	<b>47</b>	<b>13.2</b>	<b>42</b>	<b>9.9</b>	<b>40</b>	<b>16.0</b>	<b>54</b>
Domestic Equity Benchmark			14.1	47	4.2	40	8.4	39	13.5	38	10.2	36	16.0	55
Over/Under			-0.3		-1.1		-1.4		-0.3		-0.3		0.0	
eV All US Equity Gross Median			13.9		2.6		6.3		12.4		9.2		16.2	
Aronson Johnson & Ortiz	294,291,661	3.0	10.4	82	-1.1	85	0.5	85	8.9	87	6.2	84	13.9	75
Russell 1000 Value			11.9	43	4.4	35	5.7	36	10.5	65	7.7	60	14.5	55
Over/Under			-1.5		-5.5		-5.2		-1.6		-1.5		-0.6	
eV US Large Cap Value Equity Gross Median			11.6		2.7		4.4		11.0		8.2		14.7	
Mellon	543,101,986	5.6	12.3	67	2.6	79	5.3	78	11.7	76	9.5	72	15.7	43
Russell 1000			14.0	27	5.5	43	9.3	36	13.5	36	10.6	38	16.0	32
Over/Under			-1.7		-2.9		-4.0		-1.8		-1.1		-0.3	
State Street Enhanced Index	551,532,427	5.7	13.0	55	5.3	46	8.4	44	13.0	47	10.7	38	16.1	30
Russell 1000			14.0	27	5.5	43	9.3	36	13.5	36	10.6	38	16.0	32
Over/Under			-1.0		-0.2		-0.9		-0.5		0.1		0.1	
Blackrock Russell 1000	1,607,335,069	16.6	14.0	26	5.5	43	9.3	35	13.5	35	10.7	38	--	--
Russell 1000			14.0	27	5.5	43	9.3	36	13.5	36	10.6	38	16.0	32
Over/Under			0.0		0.0		0.0		0.0		0.1		0.1	
eV US Large Cap Core Equity Gross Median			13.2		4.7		8.0		12.9		10.3		15.5	
UBS Global Asset Mgmt	222,141,740	2.3	20.7	30	0.5	54	11.2	45	19.3	39	9.3	64	19.0	30
Russell 2000 Growth			17.1	56	-3.2	78	3.9	82	14.9	75	8.4	77	16.5	83
Over/Under			3.6		3.7		7.3		4.4		0.9		2.5	
eV US Small Cap Growth Equity Gross Median			17.6		1.2		10.2		17.7		9.8		18.1	

Domestic Equity Benchmark is 86.4% Russell 1000 and 13.6% Russell 2000.

Returns are gross of manager fees.



March 31, 2019

## Oklahoma PERS

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Barrow Hanley	200,453,535	2.1	13.2	41	-10.4	86	-5.9	89	10.8	33	6.0	55	18.9	7
Russell 2000 Value Over/Under			11.9 1.3	69	-7.5 -2.9	56	0.2 -6.1	39	10.9 -0.1	33	5.6 0.4	66	14.1 4.8	88
DePrince Race & Zollo	222,895,055	2.3	13.6	35	0.2	10	2.4	22	13.9	11	6.9	35	--	--
Russell 2000 Value Over/Under			11.9 1.7	69	-7.5 7.7	56	0.2 2.2	39	10.9 3.0	33	5.6 1.3	66	14.1 16.1	88
eV US Small Cap Value Equity Gross Median			12.7		-7.1		-1.0		9.7		6.2			
Westfield	315,773,875	3.3	16.7	39	6.0	58	11.7	57	--	--	--	--	--	--
Russell 1000 Growth Over/Under			16.1 0.6	49	6.6 -0.6	51	12.7 -1.0	47	16.5 12.4	49	13.5 16.4	38	17.5 12.9	34
eV US Large Cap Growth Equity Gross Median			16.1		6.6									17.0
<b>Domestic Fixed Income Composite</b>	<b>3,024,810,022</b>	<b>31.3</b>	<b>3.5</b>	<b>40</b>	<b>4.8</b>	<b>36</b>	<b>4.9</b>	<b>33</b>	<b>2.3</b>	<b>58</b>	<b>3.3</b>	<b>44</b>	<b>4.7</b>	<b>47</b>
BBgBarc US Aggregate TR Over/Under			2.9 0.6	55	4.6 0.2	40	4.5 0.4	54	2.0 0.3	69	2.7 0.6	61	3.8 0.9	63
eV All US Fixed Inc Gross Median			3.1		4.3		4.5		2.7		3.1			4.5
Blackrock	1,475,535,992	15.3	3.3	40	5.0	30	4.9	26	2.4	58	3.1	49	4.6	51
BBgBarc US Aggregate TR Over/Under			2.9 0.4	79	4.6 0.4	77	4.5 0.4	75	2.0 0.4	86	2.7 0.4	89	3.8 0.8	93
Met West	896,305,447	9.3	3.3	48	5.1	22	5.1	10	2.7	36	3.1	44	5.9	12
BBgBarc US Aggregate TR Over/Under			2.9 0.4	79	4.6 0.5	77	4.5 0.6	75	2.0 0.7	86	2.7 0.4	89	3.8 2.1	93
eV US Core Fixed Inc Gross Median			3.2		4.8		4.7		2.5		3.0			4.6
Hoisington	337,380,841	3.5	5.2	91	5.6	98	6.5	9	1.5	99	6.5	9	5.7	95
BBgBarc US Treasury Long TR Over/Under			4.7 0.5	96	5.9 -0.3	94	6.2 0.3	12	1.5 0.0	99	5.4 0.0	75	5.1 1.1	99
eV US Long Duration Fixed Inc Gross Median			7.2		7.2		5.2		4.6		5.6			8.7
Blackrock TIPS	315,587,743	3.3	3.2	7	2.0	99	2.9	99	1.9	62	2.1	87	--	--
BBgBarc US TIPS TR Over/Under			3.2 0.0	7	1.9 0.1	99	2.7 0.2	99	1.7 0.2	85	1.9 0.2	95	3.4 0.2	67
eV US Interim Duration Fixed Inc Gross Median			2.5		4.3		4.4		2.0		2.4			3.7

Returns are gross of manager fees.



## Oklahoma PERS

# TOTAL FUND PERFORMANCE DETAIL

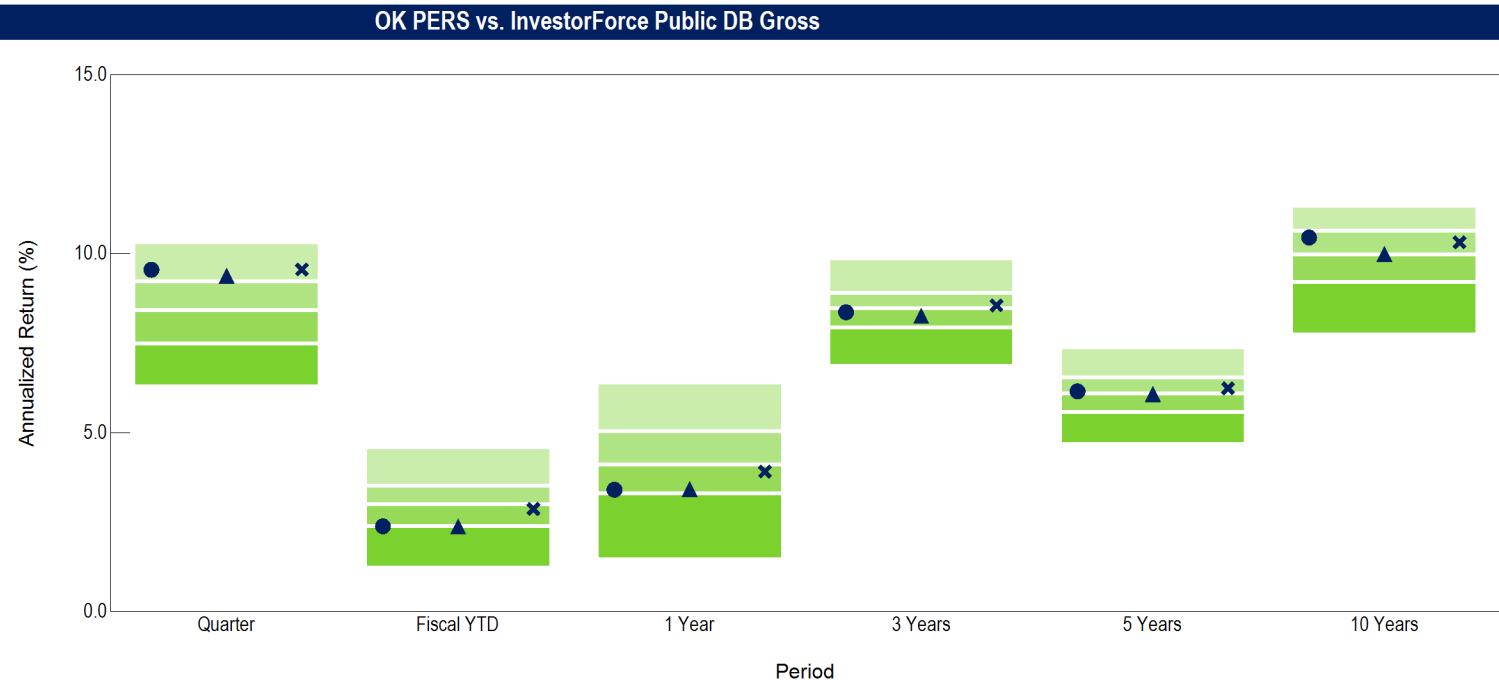
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>International Equity Composite</b>	<b>2,657,560,171</b>	<b>27.5</b>	<b>10.7</b>	<b>61</b>	<b>-1.3</b>	<b>30</b>	<b>-3.4</b>	<b>29</b>	<b>8.0</b>	<b>59</b>	<b>3.1</b>	<b>64</b>	<b>9.2</b>	<b>79</b>
MSCI ACWI ex USA			10.3	66	-1.6	35	-4.2	38	8.1	58	2.6	79	8.8	83
Over/Under			0.4		0.3		0.8		-0.1		0.5		0.4	
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
Baillie Gifford	332,852,831	3.4	13.9	54	-5.0	68	-4.7	60	8.1	68	4.3	63	--	--
MSCI ACWI ex USA Growth			12.3	68	-1.6	30	-3.0	41	8.4	62	4.0	75	9.5	95
Over/Under			1.6		-3.4		-1.7		-0.3		0.3			
eV ACWI ex-US All Cap Growth Eq Gross Median			14.1		-3.6		-3.9		8.9		5.1		12.1	
BlackRock ACWI Ex US	1,407,678,849	14.6	10.4	65	-1.5	34	-3.8	35	8.4	49	2.9	71	--	--
MSCI ACWI ex USA			10.3	66	-1.6	35	-4.2	38	8.1	58	2.6	79	8.8	83
Over/Under			0.1		0.1		0.4		0.3		0.3			
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
BlackRock ACWI Ex US Growth	316,446,799	3.3	11.8	73	-0.8	18	-2.2	38	8.5	61	3.9	78	--	--
MSCI ACWI ex USA Growth			12.3	68	-1.6	30	-3.0	41	8.4	62	4.0	75	9.5	95
Over/Under			-0.5		0.8		0.8		0.1		-0.1			
eV ACWI ex-US All Cap Growth Eq Gross Median			14.1		-3.6		-3.9		8.9		5.1		12.1	
Mondrian	600,581,693	6.2	9.1	82	1.2	8	-2.2	22	7.0	76	2.6	79	8.8	83
MSCI ACWI ex USA Value			8.3	89	-1.6	35	-5.4	53	7.7	66	1.1	94	8.2	94
Over/Under			0.8		2.8		3.2		-0.7		1.5		0.6	
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
<b>Real Estate</b>	<b>12,600,000</b>	<b>0.1</b>	<b>3.4</b>	<b>--</b>	<b>1.9</b>	<b>--</b>	<b>-1.8</b>	<b>--</b>	<b>2.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			2.0		-3.5		-9.3		-5.7					
Grand Centre	12,600,000	0.1	3.4	--	1.9	--	-1.8	--	2.3	--	--	--	--	--
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			2.0		-3.5		-9.3		-5.7					

New Policy Index effective as of November 1, 2013 consist of 38% Large Cap Equity, 6% Small Cap Equity, 24% International Equity, and 32% Domestic Fixed Income. Returns are gross of manager fees.



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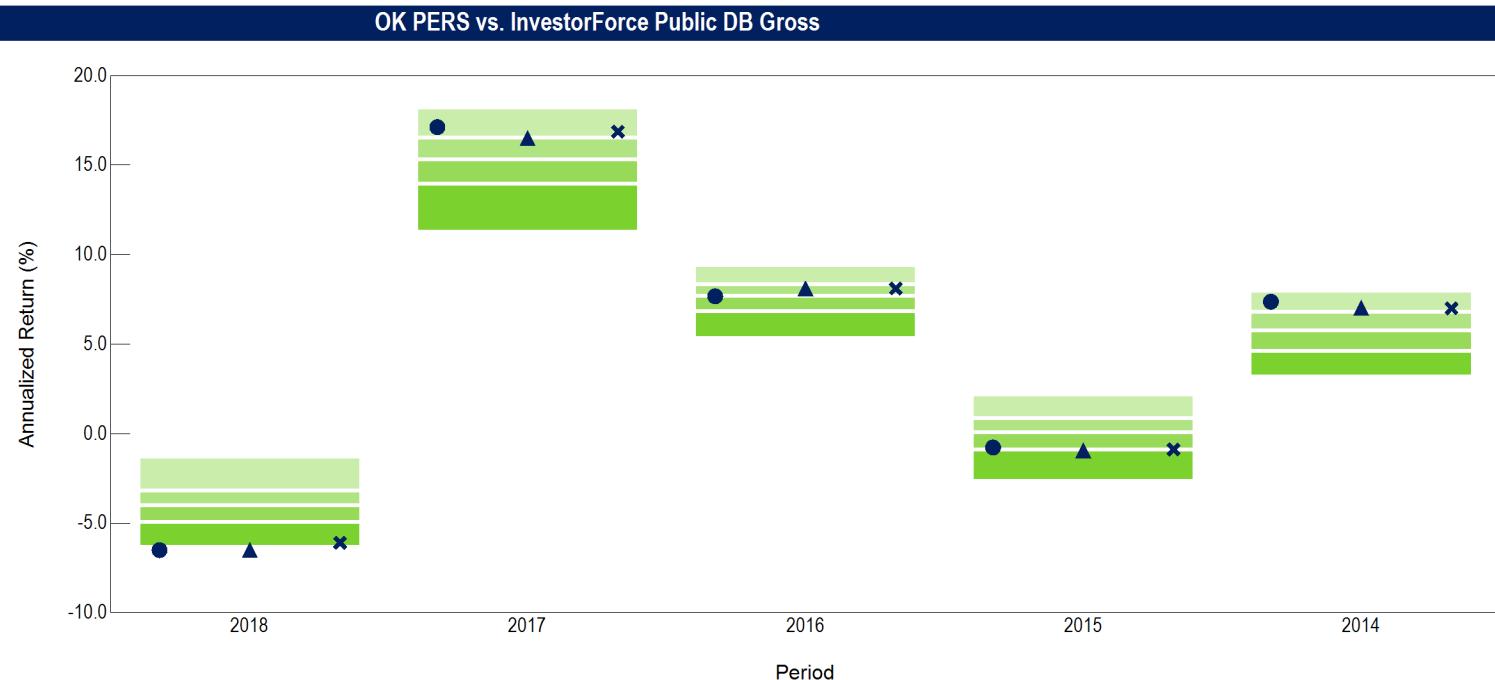
# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE



	Return (Rank)									
5th Percentile	10.3		4.6		6.4		9.9		7.4	11.3
25th Percentile	9.2		3.5		5.0		8.9		6.6	10.6
Median	8.4		3.0		4.1		8.5		6.1	10.0
75th Percentile	7.5		2.4		3.3		7.9		5.6	9.2
95th Percentile	6.3		1.2		1.5		6.9		4.7	7.8
# of Portfolios	366		362		362		351		337	290
● OK PERS	9.5	(16)	2.4	(76)	3.4	(72)	8.4	(55)	6.2	(48)
▲ PERS Allocation Index	9.4	(20)	2.4	(76)	3.4	(72)	8.3	(60)	6.1	(52)
✖ PERS Policy Index	9.6	(16)	2.9	(56)	3.9	(58)	8.6	(48)	6.2	(44)



# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE



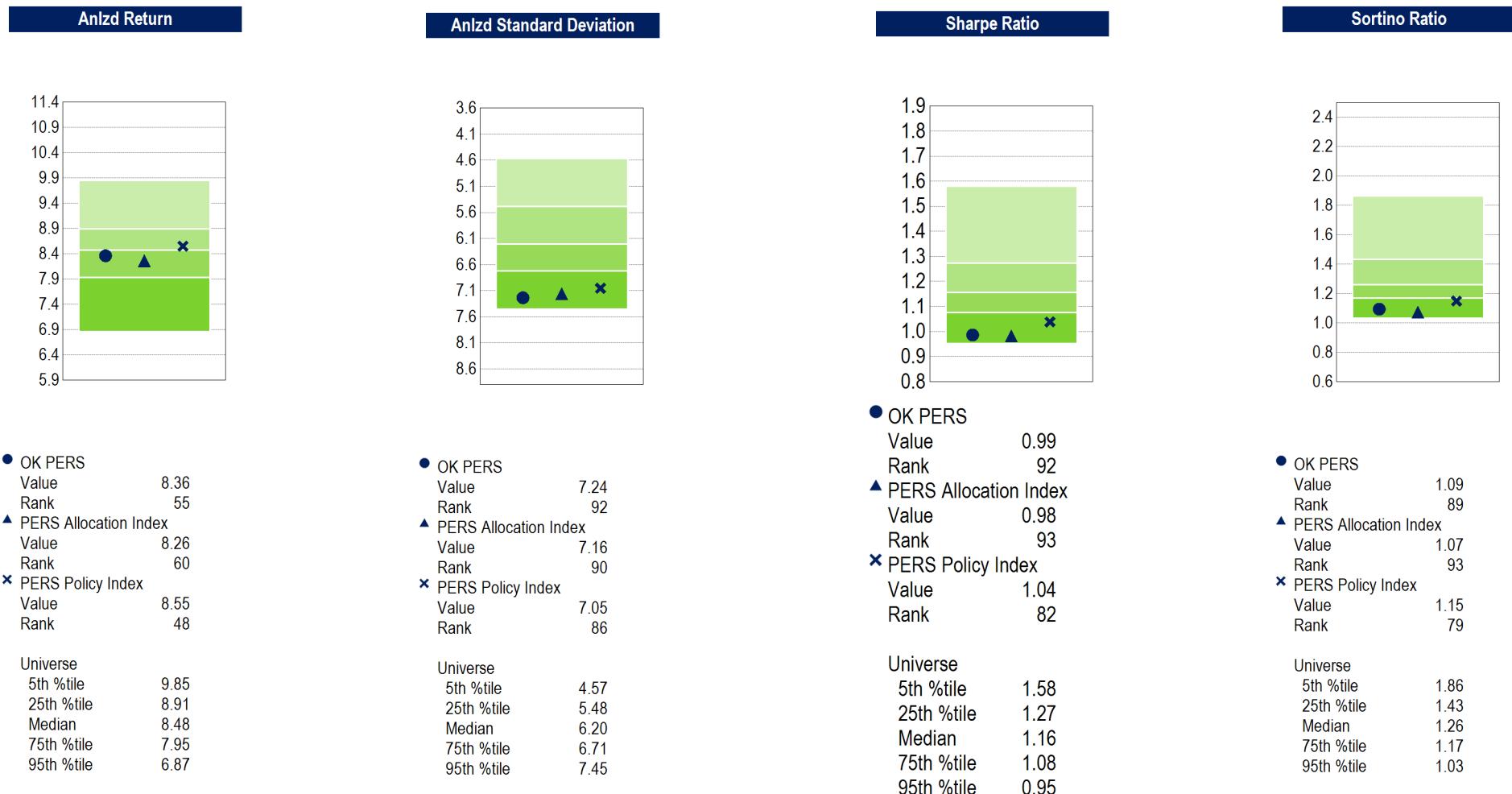
	Return (Rank)								
5th Percentile	-1.3		18.2		9.4		2.2		8.0
25th Percentile	-3.1		16.5		8.4		0.9		6.8
Median	-4.0		15.3		7.7		0.1		5.8
75th Percentile	-4.9		14.0		6.9		-0.9		4.6
95th Percentile	-6.3		11.3		5.3		-2.6		3.2
# of Portfolios	319		304		305		316		248
● OK PERS	-6.5	(97)	17.1	(17)	7.7	(52)	-0.8	(73)	7.4 (15)
▲ PERS Allocation Index	-6.5	(97)	16.5	(26)	8.1	(34)	-0.9	(77)	7.0 (21)
✖ PERS Policy Index	-6.1	(94)	16.9	(21)	8.1	(34)	-0.9	(76)	7.0 (21)



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

OK PERS vs. InvestorForce Public DB Gross

3 Years

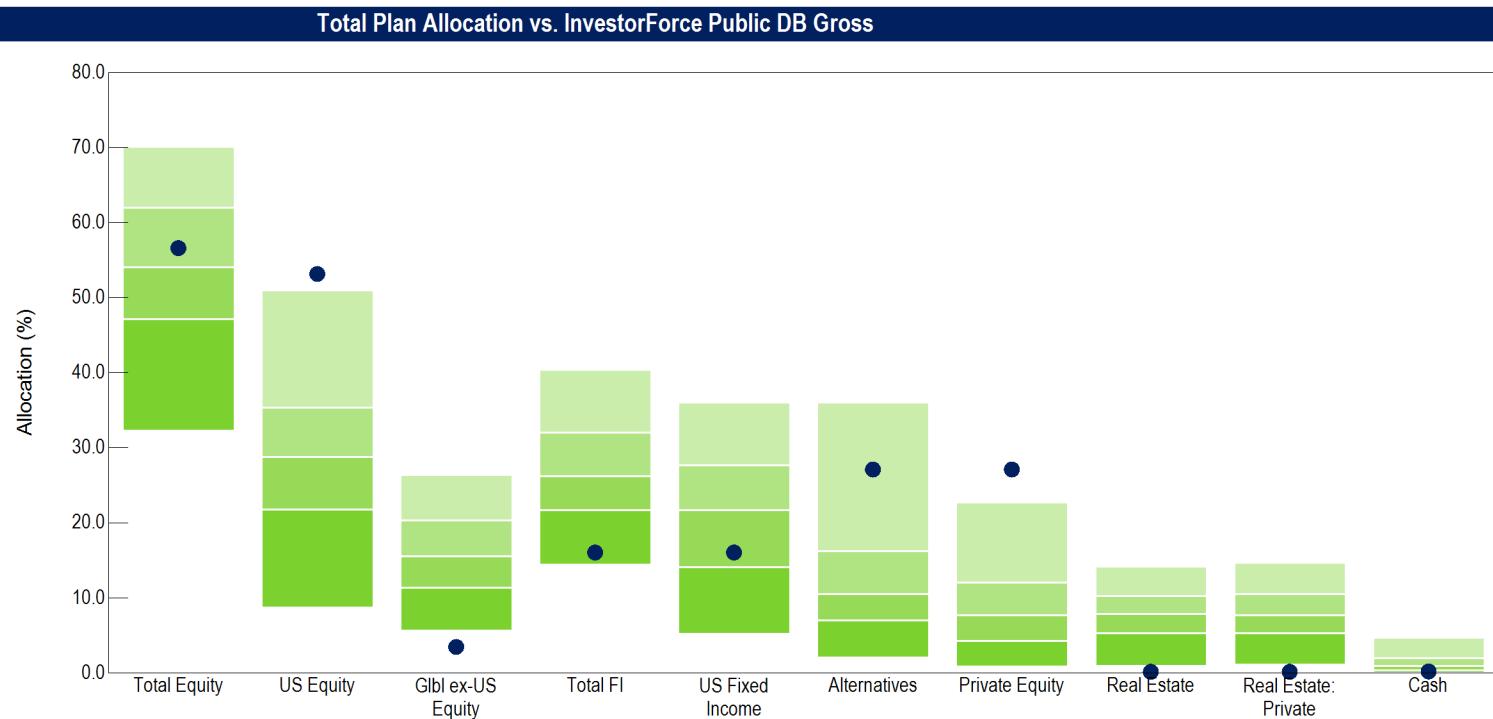


# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

OK PERS vs. InvestorForce Public DB Gross  
5 Years



# TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE



	Allocation (Rank)											
5th Percentile	70.1	50.9	26.4	40.3	36.0	36.1	22.7	14.1	14.7	4.6	-	-
25th Percentile	62.0	35.4	20.4	32.1	27.7	16.3	12.1	10.3	10.6	2.0	-	-
Median	54.1	28.8	15.6	26.3	21.8	10.6	7.7	7.9	7.7	1.0	-	-
75th Percentile	47.2	21.8	11.4	21.7	14.2	7.1	4.3	5.3	5.3	0.4	-	-
95th Percentile	32.4	8.8	5.7	14.5	5.2	2.1	0.9	1.0	1.1	0.0	-	-
# of Portfolios	265	188	224	263	173	174	122	183	134	243	-	-
● OK PERS	56.6	(43)	53.1	(4)	3.4	(99)	16.0	(92)	16.0	(71)	27.1	(8)
											0.1	(99)
											0.1	(99)
											0.2	(87)



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# TOTAL FUND ATTRIBUTION ANALYSIS

Performance Attribution		
	Last 3 Mo.	1 Yr
Wtd. Actual Return	9.6%	3.4%
Wtd. Index Return *	9.6%	3.9%
<b>Excess Return</b>	<b>0.0%</b>	<b>-0.5%</b>
Selection Effect	0.1%	-0.2%
Allocation Effect	0.0%	0.0%
Interaction Effect	-0.1%	-0.3%
 Asset Class Returns		
OK PERS	9.5%	3.4%
Domestic Equity Composite	13.8%	7.0%
Domestic Fixed Income Composite	3.5%	4.9%
International Equity Composite	10.7%	-3.4%
Cash Composite	0.6%	2.3%
Z TERMINATED - R/E Composite		
Real Estate	3.4%	-1.8%

\*Calculated from benchmark returns and weightings of each component.

Z TERMINATED represents Composite that fully liquidated.



# OKLAHOMA FIREFIGHTERS



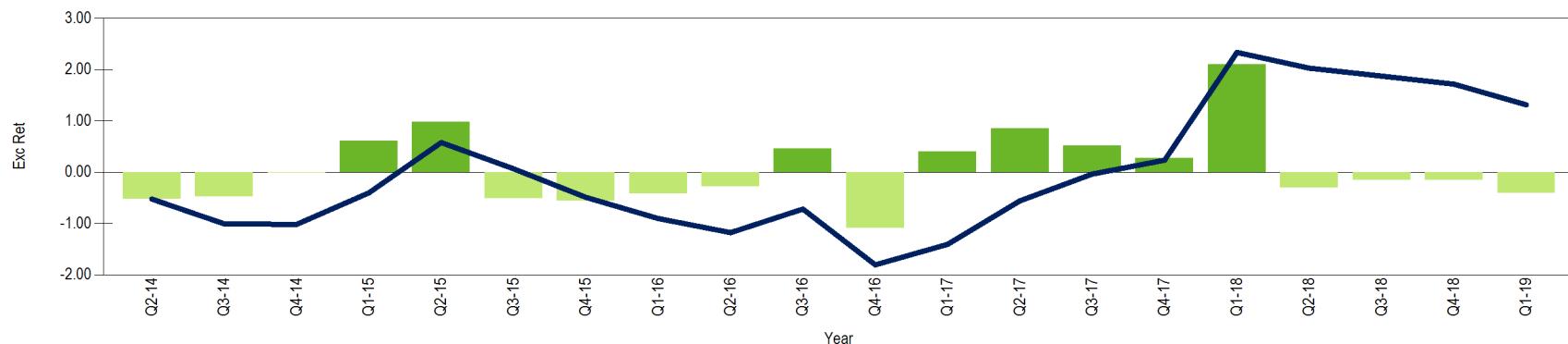
March 31, 2019

## Oklahoma Firefighters

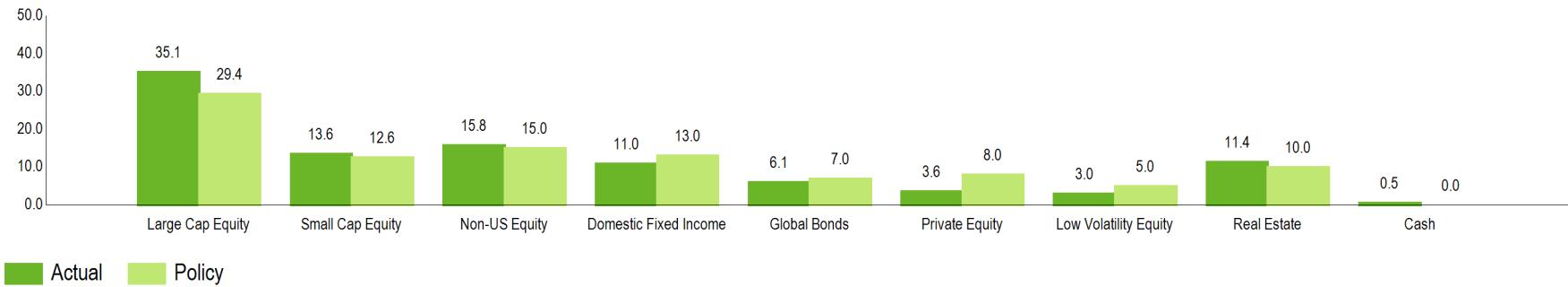
# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK FIREFIGHTERS</b>	<b>\$2,740,032,560</b>	<b>9.1%</b>	<b>28</b>	<b>3.5%</b>	<b>30</b>	<b>5.2%</b>	<b>23</b>	<b>10.4%</b>	<b>3</b>	<b>7.9%</b>	<b>2</b>	<b>10.8%</b>	<b>19</b>
<i>FIREFIGHTERS Allocation Index</i>		9.0%	29	2.3%	77	4.9%	31	9.5%	11	6.9%	14	10.9%	15
<i>FIREFIGHTERS Policy Index</i>		9.6%	16	4.2%	9	6.2%	7	9.6%	11	7.6%	3	11.7%	3
<i>InvestorForce Public DB Gross Median</i>		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

### Quarterly and Cumulative Excess Performance



### Actual vs Target Allocation (%)



Returns are gross of manager fees.

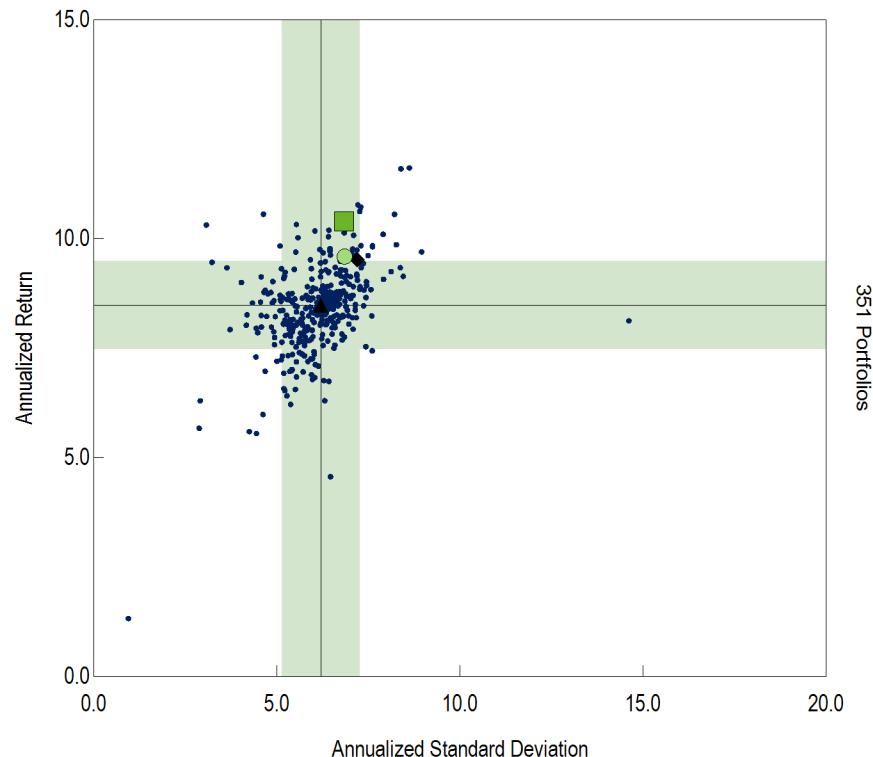


March 31, 2019

## Oklahoma Firefighters

# TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending March 31, 2019



- OK FIREFIGHTERS
- ◆ FIREFIGHTERS Allocation Index
- FIREFIGHTERS Policy Index
- ▲ Universe Median
- ▨ 68% Confidence Interval
- InvestorForce Public DB Gross

3 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK FIREFIGHTERS	10.39%	3	6.82%	80
FIREFIGHTERS Allocation Index	9.52%	11	7.18%	91
FIREFIGHTERS Policy Index	9.60%	11	6.85%	81

3 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK FIREFIGHTERS	1.34	17	1.35	37
FIREFIGHTERS Allocation Index	1.15	51	1.26	50
FIREFIGHTERS Policy Index	1.22	35	1.49	22

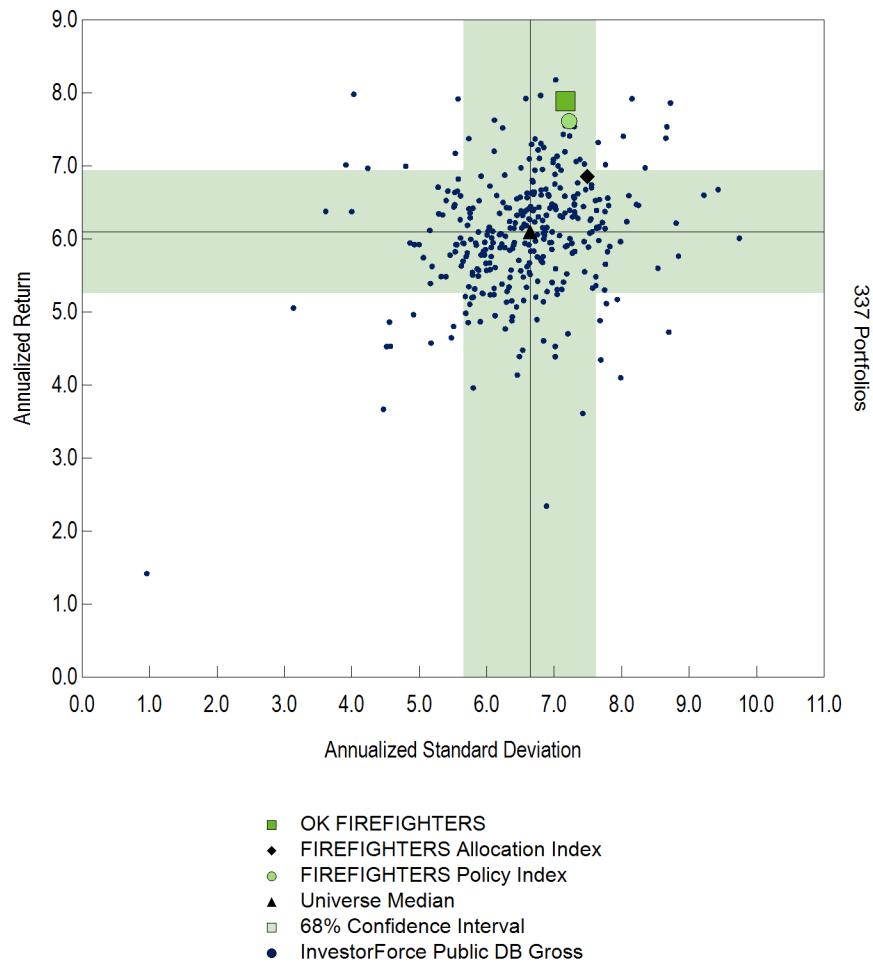


March 31, 2019

## Oklahoma Firefighters

# TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending March 31, 2019



5 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK FIREFIGHTERS	7.89%	2	7.16%	76
FIREFIGHTERS Allocation Index	6.86%	15	7.49%	85
FIREFIGHTERS Policy Index	7.62%	3	7.22%	78

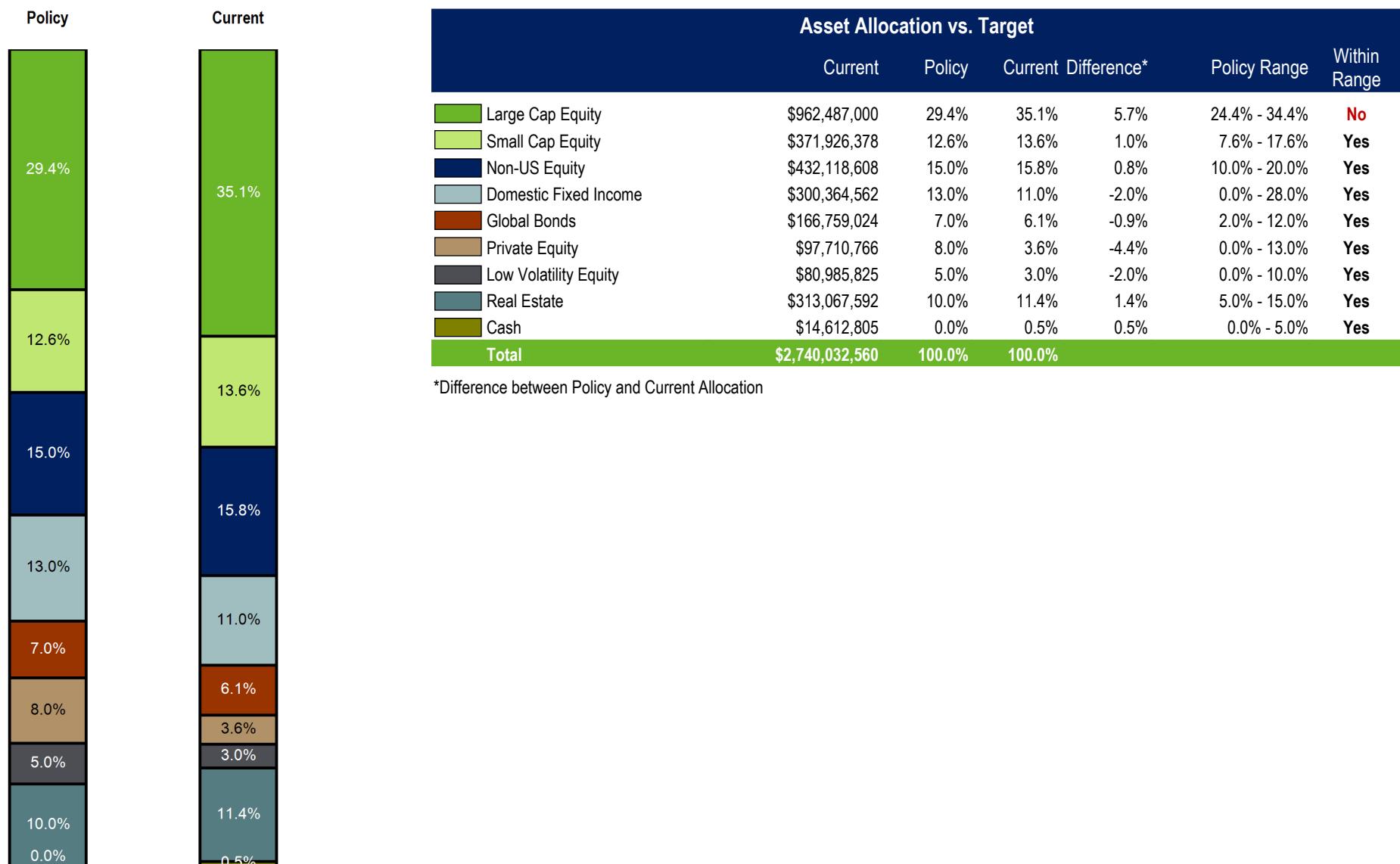
5 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK FIREFIGHTERS	0.99	10	1.37	19
FIREFIGHTERS Allocation Index	0.81	50	1.09	71
FIREFIGHTERS Policy Index	0.95	15	1.36	20



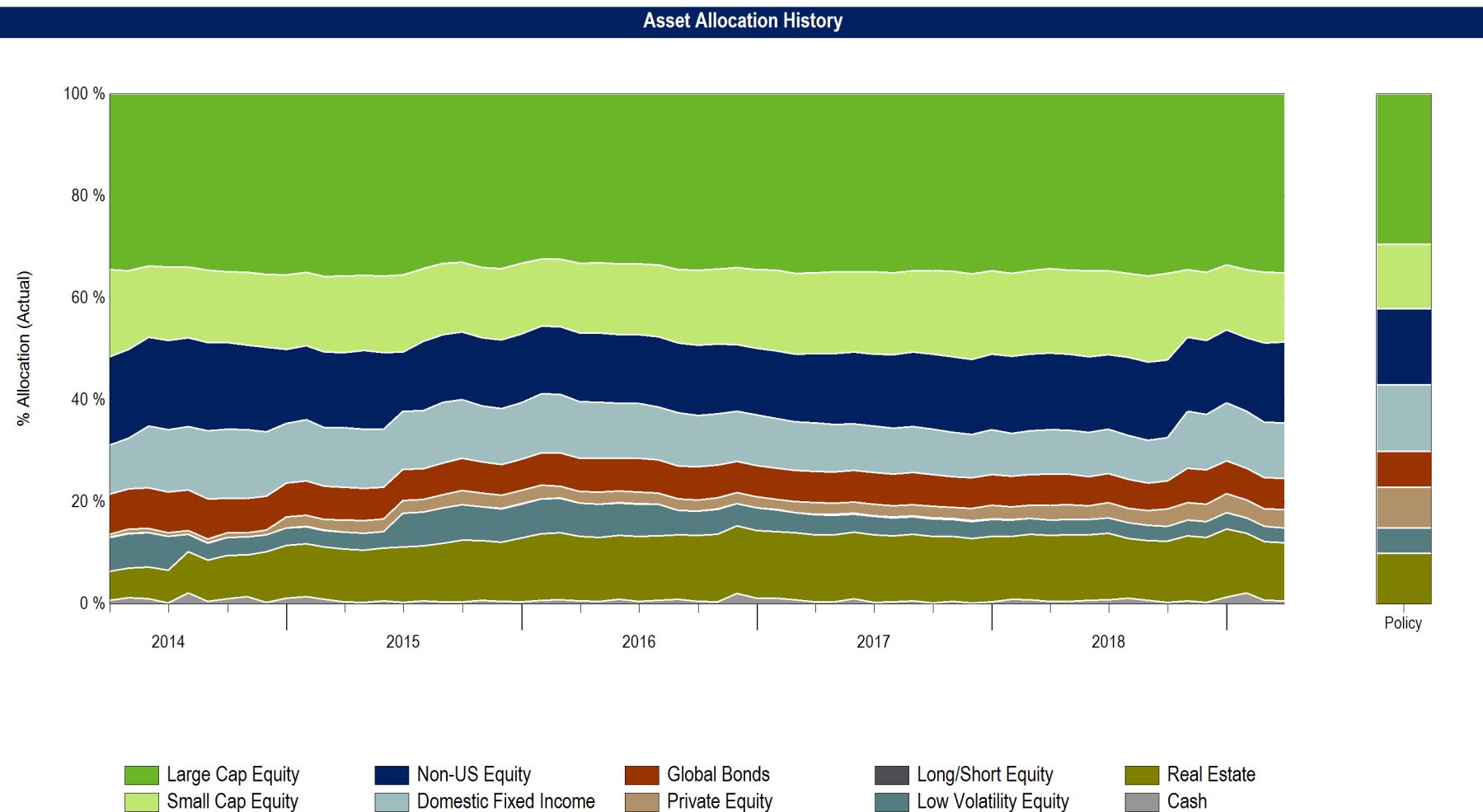
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# TOTAL PLAN ASSET ALLOCATION VS. POLICY



March 31, 2019

# TOTAL PLAN ASSET ALLOCATION HISTORY



## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>OK FIREFIGHTERS</b>	<b>2,740,032,560</b>	<b>100.0</b>	<b>9.1</b>	<b>28</b>	<b>3.5</b>	<b>30</b>	<b>5.2</b>	<b>23</b>	<b>10.4</b>	<b>3</b>	<b>7.9</b>	<b>2</b>	<b>10.8</b>	<b>19</b>
<i>FIREFIGHTERS Allocation Index</i>			<u>9.0</u>	29	<u>2.3</u>	77	<u>4.8</u>	31	<u>9.5</u>	11	<u>6.9</u>	15	<u>10.9</u>	15
Over/Under			0.1		1.2		0.4		0.9		1.0		<u>-0.1</u>	
<i>FIREFIGHTERS Policy Index</i>			9.6	16	4.2	9	6.2	7	9.6	11	7.6	3	11.7	3
InvestorForce Public DB Gross Median			8.4		3.0		4.1		8.5		6.1		10.0	
<b>Domestic Equity Composite</b>	<b>1,334,413,378</b>	<b>48.7</b>	<b>15.0</b>	<b>35</b>	<b>5.1</b>	<b>33</b>	<b>9.0</b>	<b>35</b>	<b>14.3</b>	<b>30</b>	<b>10.3</b>	<b>34</b>	<b>14.9</b>	<b>76</b>
<i>Russell 3000</i>			<u>14.0</u>	48	<u>4.7</u>	36	<u>8.8</u>	36	<u>13.5</u>	38	<u>10.4</u>	34	<u>16.0</u>	55
Over/Under			1.0		0.4		0.2		0.8		<u>-0.1</u>		<u>-1.1</u>	
eV All US Equity Gross Median			13.9		2.6		6.3		12.4		9.2		16.2	
<b>Large Cap Equity Composite</b>	<b>962,487,000</b>	<b>35.1</b>	<b>13.9</b>	<b>49</b>	<b>4.6</b>	<b>37</b>	<b>7.9</b>	<b>42</b>	<b>13.2</b>	<b>43</b>	<b>10.3</b>	<b>35</b>	<b>15.6</b>	<b>64</b>
<i>Russell 1000</i>			<u>14.0</u>	49	<u>5.5</u>	29	<u>9.3</u>	33	<u>13.5</u>	37	<u>10.6</u>	30	<u>16.0</u>	53
Over/Under			<u>-0.1</u>		<u>-0.9</u>		<u>-1.4</u>		<u>-0.3</u>		<u>-0.3</u>		<u>-0.4</u>	
eV All US Equity Gross Median			13.9		2.6		6.3		12.4		9.2		16.2	
Aronson	90,021,601	3.3	10.9	71	-0.9	82	0.8	83	9.1	85	6.3	82	13.8	75
<i>Russell 1000 Value</i>			<u>11.9</u>	43	<u>4.4</u>	35	<u>5.7</u>	36	<u>10.5</u>	65	<u>7.7</u>	60	<u>14.5</u>	55
Over/Under			<u>-1.0</u>		<u>-5.3</u>		<u>-4.9</u>		<u>-1.4</u>		<u>-1.4</u>		<u>-0.7</u>	
<b>SSgA Equity Index</b>	<b>200,907,489</b>	<b>7.3</b>	<b>13.7</b>	<b>36</b>	<b>5.9</b>	<b>38</b>	<b>9.5</b>	<b>33</b>	<b>13.5</b>	<b>35</b>	<b>11.0</b>	<b>30</b>	<b>16.0</b>	<b>35</b>
<i>S&amp;P 500</i>			<u>13.6</u>	36	<u>5.9</u>	38	<u>9.5</u>	33	<u>13.5</u>	36	<u>10.9</u>	32	<u>15.9</u>	36
Over/Under			0.1		0.0		0.0		0.0		0.1		0.1	
<b>SSgA EQ Wtd S&amp;P</b>	<b>197,471,627</b>	<b>7.2</b>	<b>15.0</b>	<b>10</b>	<b>4.2</b>	<b>58</b>	<b>7.2</b>	<b>59</b>	<b>12.1</b>	<b>69</b>	<b>9.5</b>	<b>72</b>	<b>17.8</b>	<b>4</b>
<i>S&amp;P 500</i>			<u>13.6</u>	36	<u>5.9</u>	38	<u>9.5</u>	33	<u>13.5</u>	36	<u>10.9</u>	32	<u>15.9</u>	36
Over/Under			1.4		<u>-1.7</u>		<u>-2.3</u>		<u>-1.4</u>		<u>-1.4</u>		1.9	
<b>Intech</b>	<b>192,362,090</b>	<b>7.0</b>	<b>14.5</b>	<b>18</b>	<b>3.6</b>	<b>66</b>	<b>4.9</b>	<b>80</b>	<b>12.2</b>	<b>66</b>	<b>10.6</b>	<b>38</b>	<b>15.9</b>	<b>35</b>
<i>S&amp;P 500</i>			<u>13.6</u>	36	<u>5.9</u>	38	<u>9.5</u>	33	<u>13.5</u>	36	<u>10.9</u>	32	<u>15.9</u>	36
Over/Under			0.9		<u>-2.3</u>		<u>-4.6</u>		<u>-1.3</u>		<u>-0.3</u>		0.0	
eV US Large Cap Core Equity Gross Median			13.2		4.7		8.0		12.9		10.3		15.5	

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Fred Alger Management	184,389,240	6.7	15.6	59	5.5	64	13.0	45	17.2	37	13.7	33	--	--
Russell 1000 Growth			16.1	49	6.6	51	12.7	47	16.5	49	13.5	38	17.5	34
Over/Under			-0.5		-1.1		0.3		0.7		0.2			
eV US Large Cap Growth Equity Gross Median			16.1		6.6		12.4		16.4		12.9		17.0	
Beutel Goodman Company	97,334,952	3.6	11.2	--	8.1	--	8.9	--	--	--	--	--	--	--
Russell 1000 Value			11.9	--	4.4	--	5.7	--	10.5	--	7.7	--	14.5	--
Over/Under			-0.7		3.7		3.2							
<b>Small Cap Equity Composite</b>	<b>349,757,672</b>	<b>12.8</b>	<b>21.1</b>	<b>8</b>	<b>8.2</b>	<b>4</b>	<b>15.3</b>	<b>7</b>	<b>18.3</b>	<b>15</b>	<b>11.2</b>	<b>11</b>	<b>17.2</b>	<b>43</b>
Russell 2000			14.6	44	-5.3	55	2.0	49	12.9	43	7.1	59	15.4	78
Over/Under			6.5		13.5		13.3		5.4		4.1		1.8	
eV US Small Cap Equity Gross Median			14.0		-4.5		1.8		12.2		7.6		16.8	
Earnest Partner	84,292,321	3.1	17.3	5	1.7	7	2.6	21	14.0	11	9.2	6	16.4	42
Russell 2000 Value			11.9	69	-7.5	56	0.2	39	10.9	33	5.6	66	14.1	88
Over/Under			5.4		9.2		2.4		3.1		3.6		2.3	
River Road	81,220,940	3.0	15.3	15	4.1	3	8.6	6	14.1	10	9.2	6	14.4	84
Russell 2000 Value			11.9	69	-7.5	56	0.2	39	10.9	33	5.6	66	14.1	88
Over/Under			3.4		11.6		8.4		3.2		3.6		0.3	
eV US Small Cap Value Equity Gross Median			12.7		-7.1		-1.0		9.7		6.2		16.1	
Lord Abbet	87,407,596	3.2	27.4	4	9.1	11	26.2	5	24.8	12	10.5	42	--	--
Russell 2000 Growth			17.1	56	-3.2	78	3.9	82	14.9	75	8.4	77	16.5	83
Over/Under			10.3		12.3		22.3		9.9		2.1			
Delaware Small Growth	96,836,815	3.5	24.6	7	11.1	8	17.7	16	19.7	35	15.2	6	--	--
Russell 2500 Growth			19.0	44	1.9	41	7.5	64	15.6	69	9.7	53	17.5	64
Over/Under			5.6		9.2		10.2		4.1		5.5			
eV US Small Cap Growth Equity Gross Median			17.6		1.2		10.2		17.7		9.8		18.1	

Returns are gross of manager fees.



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## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Tortoise Direct Opportunities	22,168,706	0.8	-11.5	--	-10.0	--	-18.3	--	--	--	--	--	--	--
Alerian MLP Index			16.8	--	3.0	--	15.1	--	5.7	--	-4.7	--	10.1	--
Over/Under			-28.3		-13.0		-33.4							
<b>International Equity Composite</b>	<b>383,794,004</b>	<b>14.0</b>	<b>12.0</b>	<b>36</b>	<b>-2.7</b>	<b>50</b>	<b>-4.6</b>	<b>40</b>	<b>10.1</b>	<b>27</b>	<b>5.6</b>	<b>23</b>	<b>9.0</b>	<b>82</b>
MSCI ACWI ex USA			10.3	66	-1.6	35	-4.2	38	8.1	58	2.6	79	8.8	83
Over/Under			1.7		-1.1		-0.4		2.0		3.0		0.2	
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
Chautauqua	130,359,920	4.8	13.8	19	-6.4	82	-7.5	74	8.9	41	5.4	24	--	--
MSCI EAFE			10.0	71	-2.5	50	-3.7	34	7.3	72	2.3	82	9.0	82
Over/Under			3.8		-3.9		-3.8		1.6		3.1			
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
WCM	150,221,875	5.5	13.4	23	2.6	4	4.3	2	12.6	6	9.0	5	--	--
MSCI EAFE			10.0	71	-2.5	50	-3.7	34	7.3	72	2.3	82	9.0	82
Over/Under			3.4		5.1		8.0		5.3		6.7			
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
<b>Emerging Markets Equity Composite</b>	<b>103,183,283</b>	<b>3.8</b>	<b>8.3</b>	<b>79</b>	<b>-4.5</b>	<b>91</b>	<b>-12.7</b>	<b>92</b>	<b>8.3</b>	<b>84</b>	<b>2.0</b>	<b>94</b>	<b>--</b>	<b>--</b>
MSCI Emerging Markets			9.9	56	0.6	49	-7.4	46	10.7	54	3.7	74	8.9	91
Over/Under			-1.6		-5.1		-5.3		-2.4		-1.7			
eV Emg Mkts Equity Gross Median			10.3		0.5		-7.7		10.9		4.7		10.6	
Wasatch - Liquidating	3,722	0.0	4.3	99	-9.4	99	-15.2	97	6.6	95	1.3	97	--	--
MSCI Emerging Markets			9.9	56	0.6	49	-7.4	46	10.7	54	3.7	74	8.9	91
Over/Under			-5.6		-10.0		-7.8		-4.1		-2.4			
eV Emg Mkts Equity Gross Median			10.3		0.5		-7.7		10.9		4.7		10.6	
ClariVest Emerging Market Equity	866,570	0.0	6.8	92	-5.2	93	-14.3	95	7.9	87	1.7	97	--	--
MSCI Emerging Markets			9.9	56	0.6	49	-7.4	46	10.7	54	3.7	74	8.9	91
Over/Under			-3.1		-5.8		-6.9		-2.8		-2.0			
eV Emg Mkts Equity Gross Median			10.3		0.5		-7.7		10.9		4.7		10.6	
RBC GAM EMERGING MARKETS	50,710,900	1.9	--	--	--	--	--	--	--	--	--	--	--	--
MSCI Emerging Markets			9.9	56	0.6	49	-7.4	46	10.7	54	3.7	74	8.9	91
Over/Under														
eV Emg Mkts Equity Gross Median			10.3		0.5		-7.7		10.9		4.7		10.6	

Returns are gross of manager fees.



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## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Wellington Emerging Markets	51,602,091	1.9	--	--	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			9.9	56	0.6	49	-7.4	46	10.7	54	3.7	74	8.9	91
Over/Under														
<i>eV Emg Mkts Equity Gross Median</i>			10.3		0.5		-7.7		10.9		4.7		10.6	
<b>Fixed Income Composite</b>	<b>467,123,587</b>	<b>17.0</b>	<b>2.3</b>	<b>73</b>	<b>2.4</b>	<b>87</b>	<b>-1.0</b>	<b>99</b>	<b>2.2</b>	<b>63</b>	<b>2.6</b>	<b>65</b>	<b>4.4</b>	<b>53</b>
<i>BBgBarc US Aggregate TR</i>			2.9	55	4.6	40	4.5	54	2.0	69	2.7	61	3.8	63
Over/Under			-0.6		-2.2		-5.5		0.2		-0.1		0.6	
<i>eV All US Fixed Inc Gross Median</i>			3.1		4.3		4.5		2.7		3.1		4.5	
<b>Core Bonds Composite</b>	<b>217,537,473</b>	<b>7.9</b>	<b>2.9</b>	<b>85</b>	<b>4.1</b>	<b>95</b>	<b>4.3</b>	<b>91</b>	<b>2.2</b>	<b>73</b>	<b>3.0</b>	<b>60</b>	--	--
<i>BBgBarc US Aggregate TR</i>			2.9	79	4.6	77	4.5	75	2.0	86	2.7	89	3.8	93
Over/Under			0.0		-0.5		-0.2		0.2		0.3			
<i>eV US Core Fixed Inc Gross Median</i>			3.2		4.8		4.7		2.5		3.0		4.6	
Orleans Capital Management	69,190,248	2.5	3.8	9	5.3	11	5.3	8	2.6	42	--	--	--	--
<i>BBgBarc US Aggregate TR</i>			2.9	79	4.6	77	4.5	75	2.0	86	2.7	89	3.8	93
Over/Under			0.9		0.7		0.8		0.6					
<i>eV US Core Fixed Inc Gross Median</i>			3.2		4.8		4.7		2.5		3.0		4.6	
Garcia Hamilton Associates	148,347,225	5.4	2.4	97	3.6	99	4.3	89	2.5	51	--	--	--	--
<i>BBgBarc US Aggregate TR</i>			2.9	79	4.6	77	4.5	75	2.0	86	2.7	89	3.8	93
Over/Under			-0.5		-1.0		-0.2		0.5					
<i>eV US Core Fixed Inc Gross Median</i>			3.2		4.8		4.7		2.5		3.0		4.6	
<b>Intermediate Bonds Composite</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Govt/Credit Int TR</i>			2.3	75	4.2	62	4.2	68	1.7	87	2.1	87	3.1	87
Over/Under														
<i>eV US Interim Duration Fixed Inc Gross Median</i>			2.5		4.3		4.4		2.0		2.4		3.7	
Garrison Middle Market Funding	8,496,594	0.3	0.1	99	1.1	99	1.3	99	1.9	99	3.4	49	--	--
<i>Credit Suisse Leveraged Loans</i>			3.8	45	2.5	99	3.3	99	5.9	1	3.8	14	8.0	7
Over/Under			-3.7		-1.4		-2.0		-4.0		-0.4			
<i>eV US Core Plus Fixed Inc Gross Median</i>			3.7		4.9		4.7		3.4		3.4		6.0	

Returns are gross of manager fees.



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## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Medley Opportunity Fund II	19,942,268	0.7	0.0	99	-8.2	99	-13.3	99	-2.3	99	0.0	99	--	--
Credit Suisse Leveraged Loans			3.8	71	2.5	43	3.3	35	5.9	31	3.8	64	8.0	40
Over/Under			-3.8		-10.7		-16.6		-8.2		-3.8			
eV US Float-Rate Bank Loan Fixed Inc Gross Median			3.9		2.5		3.2		5.5		3.9		7.7	
PIMCO Corporate Opp Fund II	21,187,847	0.8	-4.7	99	3.2	99	3.6	99	--	--	--	--	--	--
BBgBarc US High Yield TR			7.3	1	4.9	96	5.9	2	8.6	1	4.7	9	11.3	1
Over/Under			-12.0		-1.7		-2.3							
eV US Corporate Fixed Inc Gross Median			5.3		6.0		5.1		4.0		4.1		7.3	
PIMCO Bravo III	33,200,381	1.2	-0.5	99	7.4	1	9.8	1	--	--	--	--	--	--
Cambridge Associates US All PE			0.0	99	1.6	99	7.1	1	13.4	1	10.7	1	14.1	1
Over/Under			-0.5		5.8		2.7							
eV US Corporate Fixed Inc Net Median			5.2		5.7		4.7		3.8		3.8		7.0	
<b>Global Fixed Composite</b>	<b>166,759,024</b>	<b>6.1</b>	<b>3.2</b>	<b>56</b>	<b>1.6</b>	<b>77</b>	<b>-6.0</b>	<b>94</b>	<b>2.5</b>	<b>63</b>	<b>1.9</b>	<b>59</b>	<b>--</b>	<b>--</b>
FTSE WGBI TR			1.7	87	1.8	75	-1.6	77	1.0	91	0.6	83	2.2	95
Over/Under			1.5		-0.2		-4.4		1.5		1.3			
eV All Global Fixed Inc Gross Median			3.4		3.2		1.9		3.3		2.5		5.0	
Brandywine	166,759,024	6.1	3.2	56	1.6	77	-6.0	94	2.5	63	1.9	59	--	--
FTSE WGBI TR			1.7	87	1.8	75	-1.6	77	1.0	91	0.6	83	2.2	95
Over/Under			1.5		-0.2		-4.4		1.5		1.3			
eV All Global Fixed Inc Gross Median			3.4		3.2		1.9		3.3		2.5		5.0	
<b>Real Estate Composite</b>	<b>313,067,592</b>	<b>11.4</b>	<b>1.1</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>7.9</b>	<b>--</b>	<b>8.4</b>	<b>--</b>	<b>10.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
NCREIF Property Index			1.8	--	4.9	--	6.8	--	7.1	--	9.1	--	8.5	--
Over/Under			-0.7		0.5		1.1		1.3		1.5			
JP Morgan RE	107,313,791	3.9	0.4	--	4.1	--	6.2	--	7.4	--	9.5	--	9.0	--
NCREIF Property Index			1.8	--	4.9	--	6.8	--	7.1	--	9.1	--	8.5	--
Over/Under			-1.4		-0.8		-0.6		0.3		0.4		0.5	
Portfolio Advisors RE III	3,777,954	0.1	0.3	--	-1.1	--	-1.3	--	4.0	--	10.9	--	2.4	--
NCREIF Property Index			1.8	--	4.9	--	6.8	--	7.1	--	9.1	--	8.5	--
Over/Under			-1.5		-6.0		-8.1		-3.1		1.8		-6.1	

Returns are gross of manager fees.



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## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Realty Associates IX Corp	4,469	0.0	-20.5	--	-23.5	--	-15.5	--	-3.9	--	3.3	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-22.3</u>		<u>-28.4</u>		<u>-22.3</u>		<u>-11.0</u>		<u>-5.8</u>			
Portfolio Advisors RE IV	2,796,156	0.1	0.7	--	13.3	--	13.5	--	12.4	--	14.6	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.1</u>		8.4		6.7		5.3		5.5			
Angelo Gordon Net Lease Realty III LP	24,206,593	0.9	2.7	--	6.4	--	8.5	--	7.9	--	4.3	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			0.9		1.5		1.7		0.8		<u>-4.8</u>			
Mesirow	25,800,675	0.9	0.0	--	1.8	--	11.0	--	7.5	--	6.1	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.8</u>		<u>-3.1</u>		4.2		0.4		<u>-3.0</u>			
Dune Real Estate Fund III	27,346,815	1.0	2.7	--	12.4	--	12.4	--	13.8	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			0.9		7.5		5.6		6.7					
OK FF Portfolio Advisors	9,704,582	0.4	0.1	--	4.7	--	4.0	--	4.3	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.7</u>		<u>-0.2</u>		<u>-2.8</u>		<u>-2.8</u>					
Landmark RE VII	13,699,205	0.5	0.6	--	2.5	--	4.2	--	7.4	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.2</u>		<u>-2.4</u>		<u>-2.6</u>		0.3					
JP Morgan Special Situation Property	68,925,109	2.5	2.0	--	7.2	--	10.6	--	10.5	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			0.2		2.3		3.8		3.4					
Hall Capital III	11,387,173	0.4	0.0	--	2.2	--	4.3	--	7.4	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.8</u>		<u>-2.7</u>		<u>-2.5</u>		0.3					

Returns are gross of manager fees.



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## Oklahoma Firefighters

# TOTAL PLAN PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Portfolio Advisors RE VI	14,387,045	0.5	0.7	--	10.2	--	9.0	--	--	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-1.1</u>		5.3		2.2							
Hall Capital Real Estate Fund	3,718,023	0.1	-0.5	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF Property Index</i>			<u>1.8</u>	--	<u>4.9</u>	--	<u>6.8</u>	--	<u>7.1</u>	--	<u>9.1</u>	--	<u>8.5</u>	--
Over/Under			<u>-2.3</u>											
<b>Hedge Fund Composite</b>	<b>129,310,429</b>	<b>4.7</b>	<b>3.2</b>	--	<b>-0.9</b>	--	<b>-0.8</b>	--	<b>4.6</b>	--	<b>2.0</b>	--	<b>4.7</b>	--
<i>HFRI FOF: Conservative Index</i>			<u>3.2</u>	--	<u>0.6</u>	--	<u>1.7</u>	--	<u>3.5</u>	--	<u>2.1</u>	--	<u>3.4</u>	--
Over/Under			<u>0.0</u>		<u>-1.5</u>		<u>-2.5</u>		1.1		<u>-0.1</u>		1.3	
Permal	80,985,825	3.0	0.5	--	-1.0	--	1.0	--	3.8	--	--	--	--	--
<i>HFRI Fund of Funds Composite Index</i>			<u>4.6</u>	--	<u>-0.3</u>	--	<u>0.1</u>	--	<u>3.9</u>	--	<u>2.2</u>	--	<u>3.5</u>	--
Over/Under			<u>-4.1</u>		<u>-0.7</u>		0.9		<u>-0.1</u>					
Allianz Global Investors DMAP	48,324,604	1.8	8.0	--	-0.2	--	-2.7	--	6.3	--	--	--	--	--
<i>Russell 2500 Growth</i>			<u>19.0</u>	--	<u>1.9</u>	--	<u>7.5</u>	--	<u>15.6</u>	--	<u>9.7</u>	--	<u>17.5</u>	--
Over/Under			<u>-11.0</u>		<u>-2.1</u>		<u>-10.2</u>		<u>-9.3</u>					
<b>Private Equity Composite</b>	<b>97,710,766</b>	<b>3.6</b>	<b>-1.5</b>	--	<b>6.6</b>	--	<b>13.6</b>	--	<b>13.1</b>	--	<b>16.2</b>	--	<b>-</b>	<b>-</b>
<i>Cambridge Associates US All PE</i>			<u>0.0</u>	--	<u>1.6</u>	--	<u>7.1</u>	--	<u>13.4</u>	--	<u>10.7</u>	--	<u>14.1</u>	--
Over/Under			<u>-1.5</u>		5.0		6.5		<u>-0.3</u>		5.5			
Pomona Capital Fund VIII	4,669,883	0.2	0.0	--	17.9	--	21.6	--	17.9	--	19.3	--	--	--
<i>Cambridge Associates US All PE</i>			<u>0.0</u>	--	<u>1.6</u>	--	<u>7.1</u>	--	<u>13.4</u>	--	<u>10.7</u>	--	<u>14.1</u>	--
Over/Under			<u>0.0</u>		16.3		14.5		4.5		8.6			
Ardian	24,228,962	0.9	-3.9	--	5.6	--	7.3	--	10.5	--	12.8	--	--	--
<i>Cambridge Associates US All PE</i>			<u>0.0</u>	--	<u>1.6</u>	--	<u>7.1</u>	--	<u>13.4</u>	--	<u>10.7</u>	--	<u>14.1</u>	--
Over/Under			<u>-3.9</u>		4.0		0.2		<u>-2.9</u>		2.1			
Dynamics Global Secondaries IV	32,402,525	1.2	-0.5	--	9.9	--	23.8	--	13.4	--	--	--	--	--
<i>Cambridge Associates US All PE</i>			<u>0.0</u>	--	<u>1.6</u>	--	<u>7.1</u>	--	<u>13.4</u>	--	<u>10.7</u>	--	<u>14.1</u>	--
Over/Under			<u>-0.5</u>		8.3		16.7		0.0					
AESF VI	21,112,629	0.8	-1.8	--	-0.9	--	-2.6	--	--	--	--	--	--	--
<i>Cambridge Associates US All PE</i>			<u>0.0</u>	--	<u>1.6</u>	--	<u>7.1</u>	--	<u>13.4</u>	--	<u>10.7</u>	--	<u>14.1</u>	--
Over/Under			<u>-1.8</u>		<u>-2.5</u>		<u>-9.7</u>							

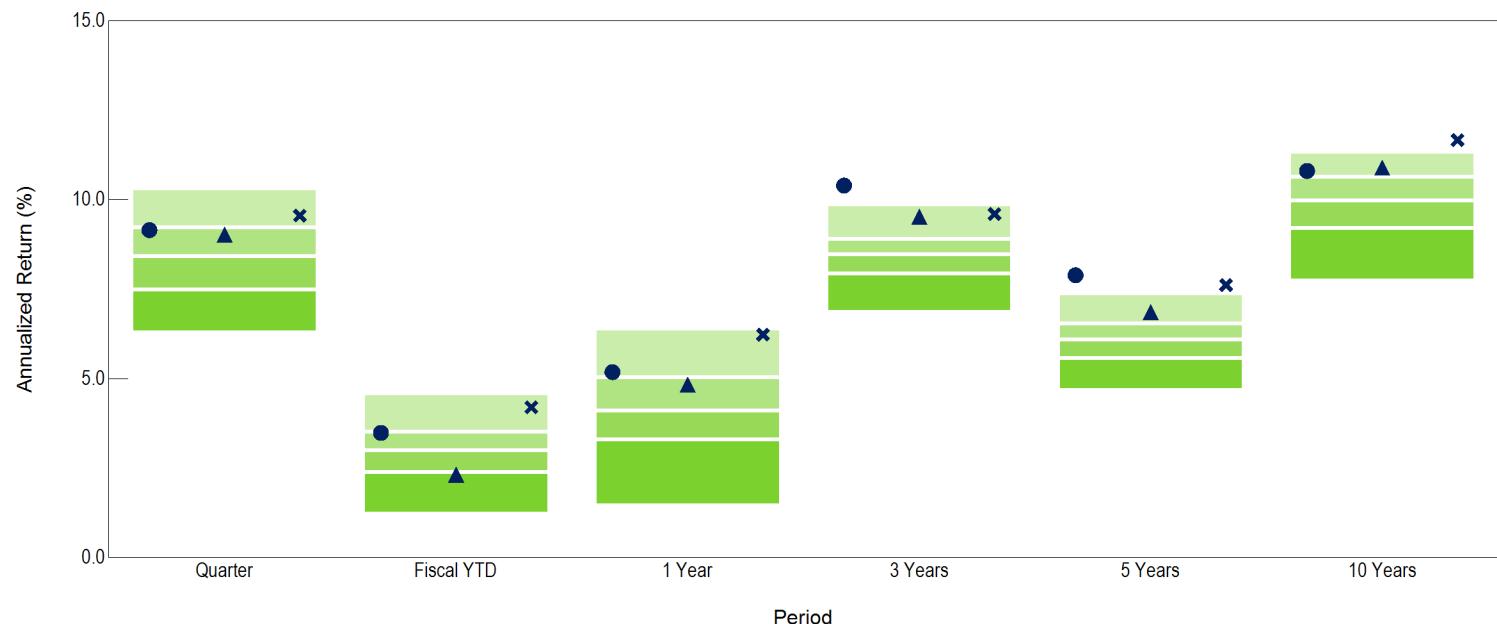
Returns are gross of manager fees.



March 31, 2019

# TOTAL PLAN RETURN SUMMARY VS. PEER UNIVERSE

OK FIREFIGHTERS vs. InvestorForce Public DB Gross



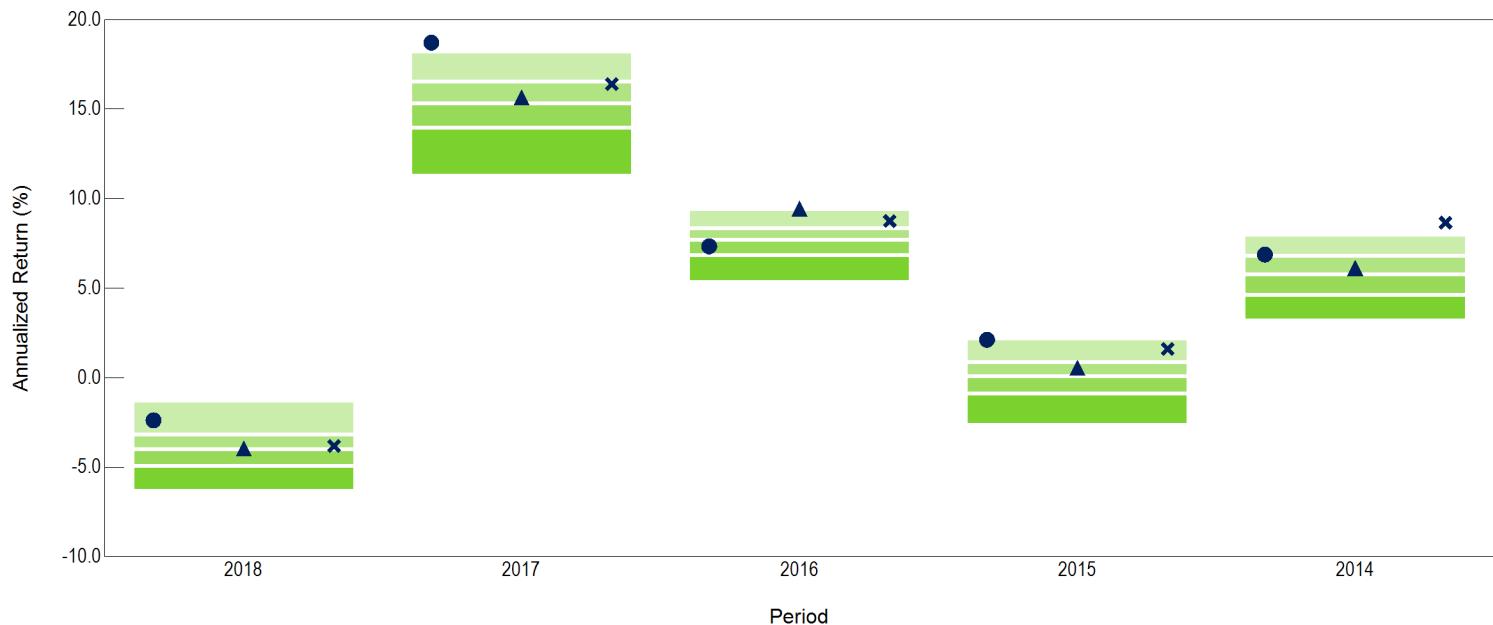
	Return (Rank)						
5th Percentile	10.3	4.6	6.4	9.9	7.4	11.3	
25th Percentile	9.2	3.5	5.0	8.9	6.6	10.6	
Median	8.4	3.0	4.1	8.5	6.1	10.0	
75th Percentile	7.5	2.4	3.3	7.9	5.6	9.2	
95th Percentile	6.3	1.2	1.5	6.9	4.7	7.8	
# of Portfolios	366	362	362	351	337	290	
● OK FIREFIGHTERS	9.1	(28)	3.5	(30)	5.2	(23)	10.8
▲ FIREFIGHTERS Allocation Index	9.0	(29)	2.3	(77)	4.8	(31)	10.9
✖ FIREFIGHTERS Policy Index	9.6	(16)	4.2	(9)	6.2	(7)	(3)



March 31, 2019

# TOTAL PLAN RETURN SUMMARY VS. PEER UNIVERSE

OK FIREFIGHTERS vs. InvestorForce Public DB Gross



	Return (Rank)								
5th Percentile	-1.3		18.2		9.4		2.2		8.0
25th Percentile	-3.1		16.5		8.4		0.9		6.8
Median	-4.0		15.3		7.7		0.1		5.8
75th Percentile	-4.9		14.0		6.9		-0.9		4.6
95th Percentile	-6.3		11.3		5.3		-2.6		3.2
# of Portfolios	319		304		305		316		248
● OK FIREFIGHTERS	-2.4	(13)	18.7	(4)	7.3	(61)	2.1	(6)	6.9
▲ FIREFIGHTERS Allocation Index	-4.0	(49)	15.6	(44)	9.4	(5)	0.5	(35)	6.1
✖ FIREFIGHTERS Policy Index	-3.8	(45)	16.4	(28)	8.7	(15)	1.6	(10)	8.7



March 31, 2019

## Oklahoma Firefighters

# TOTAL PLAN RISK STATISTICS VS. PEER UNIVERSE

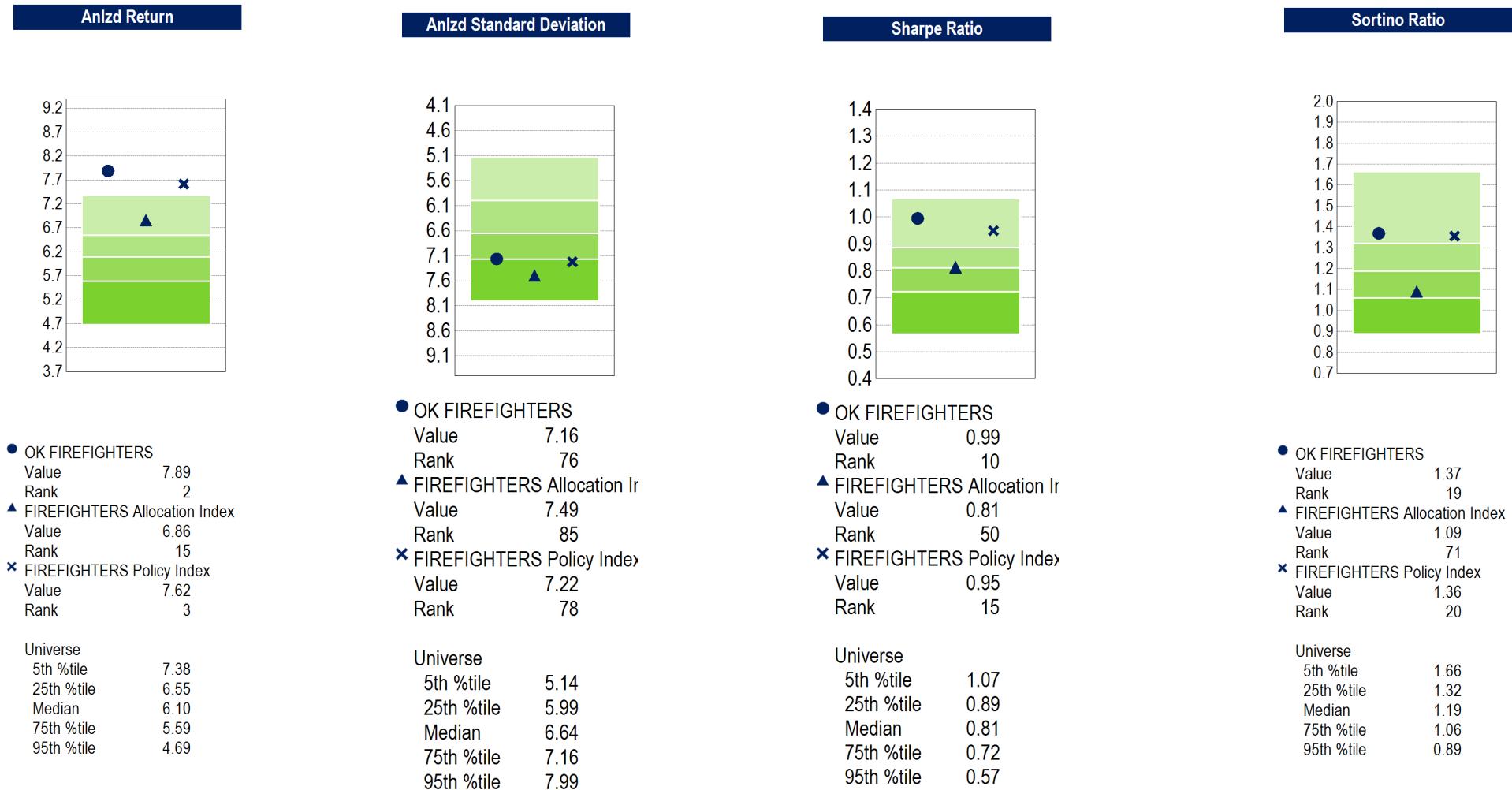
OK FIREFIGHTERS vs. InvestorForce Public DB Gross  
3 Years



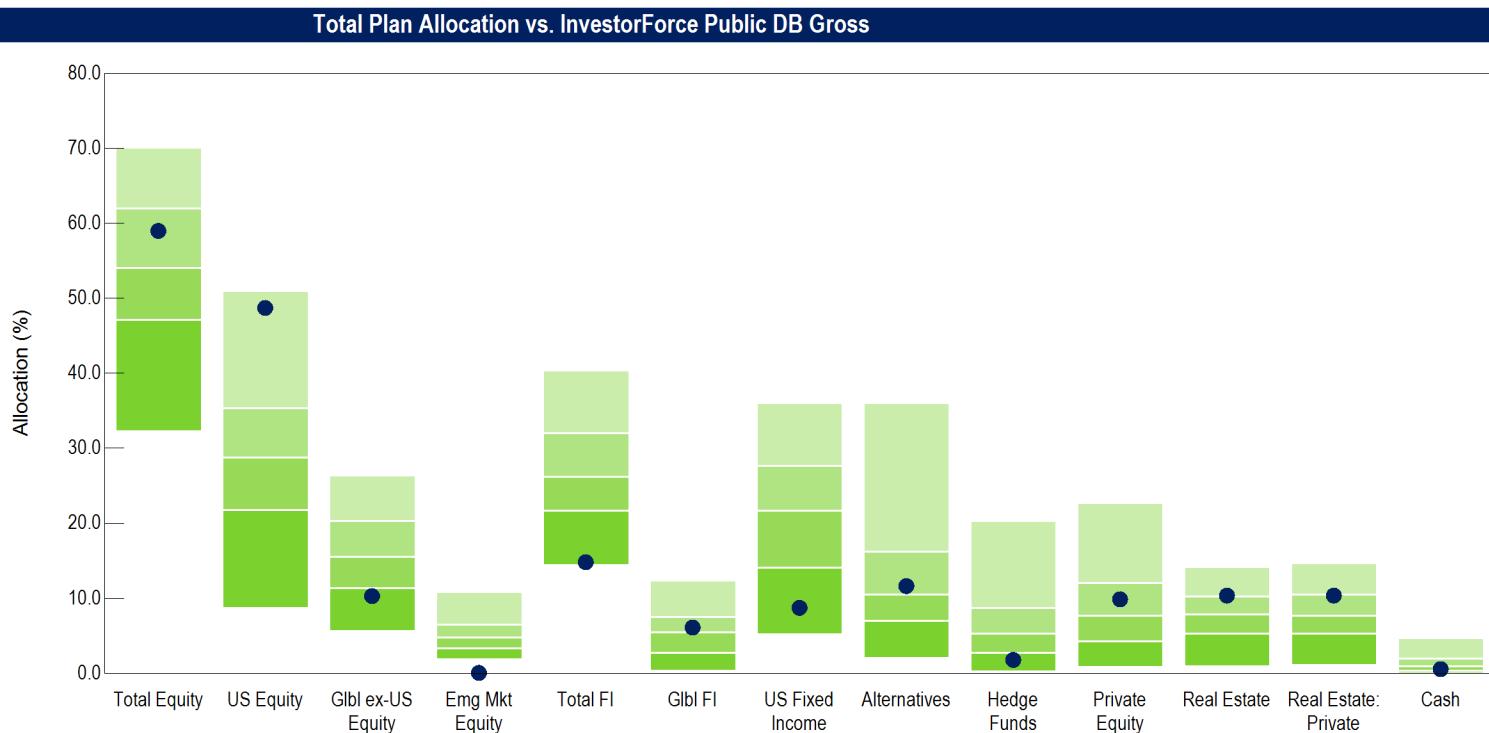
March 31, 2019

# TOTAL PLAN RISK STATISTICS VS. PEER UNIVERSE

OK FIREFIGHTERS vs. InvestorForce Public DB Gross  
5 Years



# TOTAL PLAN ALLOCATIONS VS. PEER UNIVERSE



	Allocation (Rank)													
5th Percentile	70.1	50.9	26.4	10.8	40.3	12.4	36.0	36.1	20.3	22.7	14.1	14.7	4.6	--
25th Percentile	62.0	35.4	20.4	6.5	32.1	7.5	27.7	16.3	8.8	12.1	10.3	10.6	2.0	--
Median	54.1	28.8	15.6	4.9	26.3	5.5	21.8	10.6	5.4	7.7	7.9	7.7	1.0	--
75th Percentile	47.2	21.8	11.4	3.4	21.7	2.8	14.2	7.1	2.8	4.3	5.3	5.3	0.4	--
95th Percentile	32.4	8.8	5.7	2.0	14.5	0.4	5.2	2.1	0.3	0.9	1.0	1.1	0.0	--
# of Portfolios	265	188	224	122	263	42	173	174	90	122	183	134	243	--
● OK FIREFIGHTERS	59.0	(38)	48.7	(7)	10.3	(82)	0.0	(99)	14.8	(95)	6.1	(37)	8.7	(90)



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# TOTAL PLAN ATTRIBUTION ANALYSIS

Performance Attribution		
	Last 3 Mo.	1 Yr
Wtd. Actual Return	9.3%	5.2%
Wtd. Index Return *	9.6%	6.2%
<b>Excess Return</b>	<b>-0.3%</b>	<b>-1.0%</b>
Selection Effect	-0.3%	-1.0%
Allocation Effect	0.0%	0.0%
Interaction Effect	0.0%	0.0%
Asset Class Returns		
OK FIREFIGHTERS	9.1%	5.2%
Domestic Equity Composite	15.0%	9.0%
Large Cap Equity Composite	13.9%	7.9%
Small Cap Equity Composite	21.1%	15.3%
Z TERMINATED - Long/Short Equity Composite		
International Equity Composite	12.0%	-4.6%
Emerging Markets Equity Composite	8.3%	-12.7%
Fixed Income Composite	2.3%	-1.0%
Domestic Fixed Income	1.7%	2.5%
Core Bonds Composite	2.9%	4.3%
Intermediate Bonds Composite		
Global Fixed Composite	3.2%	-6.0%
Real Estate Composite	1.1%	7.9%
Hedge Fund Composite	3.2%	-0.8%
Private Equity Composite	-1.5%	13.6%

\*Calculated from benchmark returns and weightings of each component.

Z TERMINATED represents Composite that fully liquidated.



# OKLAHOMA POLICE

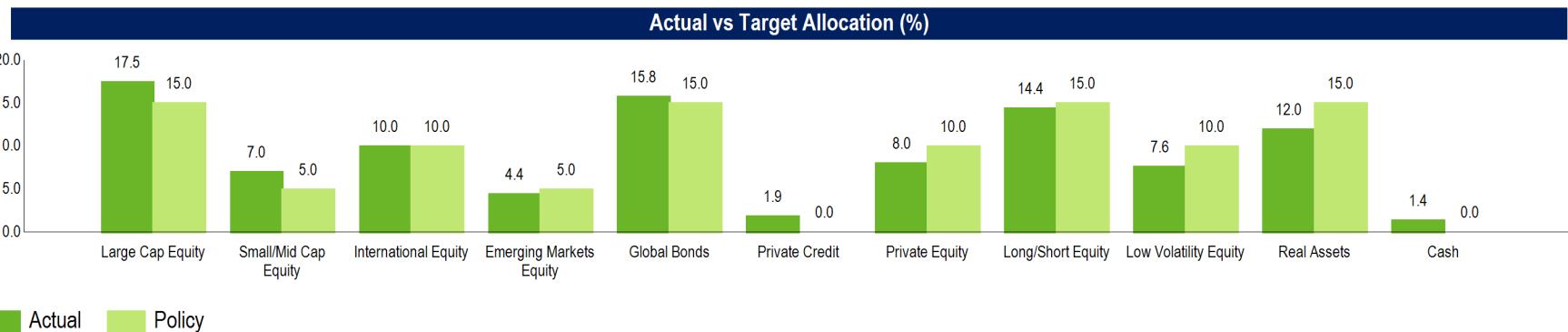
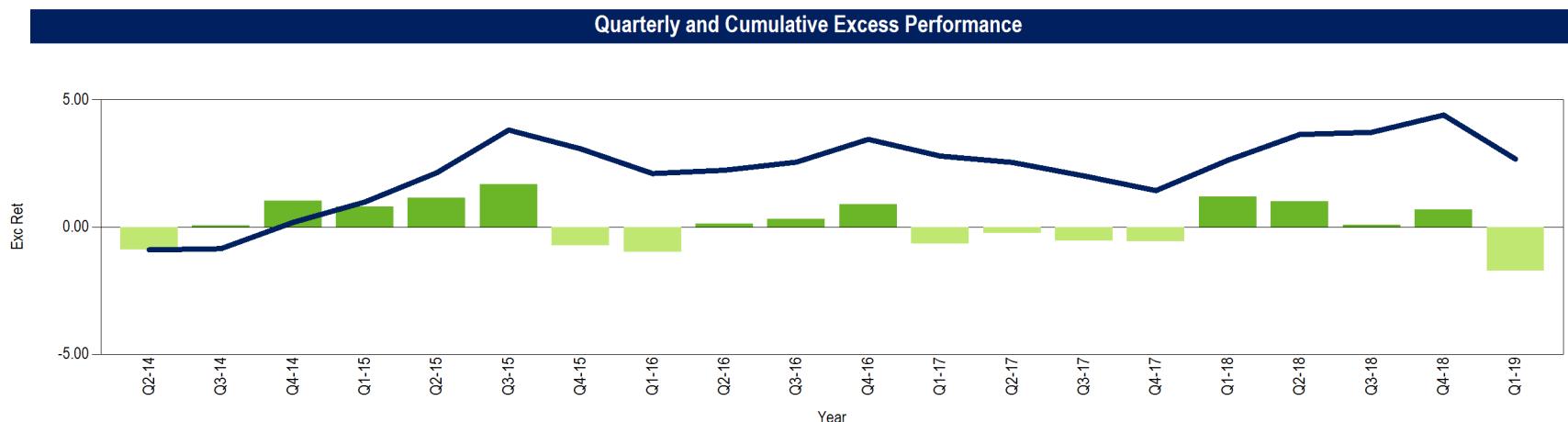


March 31, 2019

## Oklahoma Police

# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK POLICE</b>	<b>\$2,555,424,526</b>	<b>7.0%</b>	<b>86</b>	<b>2.1%</b>	<b>82</b>	<b>3.8%</b>	<b>64</b>	<b>8.1%</b>	<b>67</b>	<b>5.8%</b>	<b>70</b>	<b>9.1%</b>	<b>80</b>
POLICE Allocation Index		6.6%	91	1.3%	95	2.3%	91	7.4%	88	5.1%	91	10.0%	49
POLICE Policy Index		8.7%	42	2.9%	55	3.5%	69	7.9%	79	5.1%	90	9.9%	52
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	



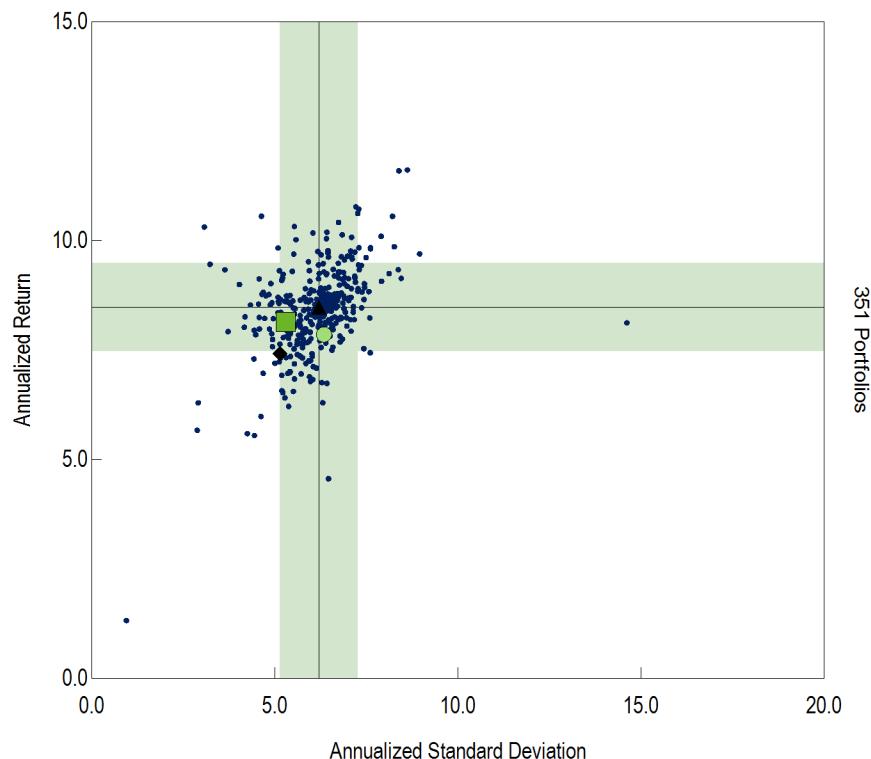
Returns are gross of manager fees.



March 31, 2019

# TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending March 31, 2019



- OK POLICE
- ◆ POLICE Allocation Index
- POLICE Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

3 Years Ending March 31, 2019

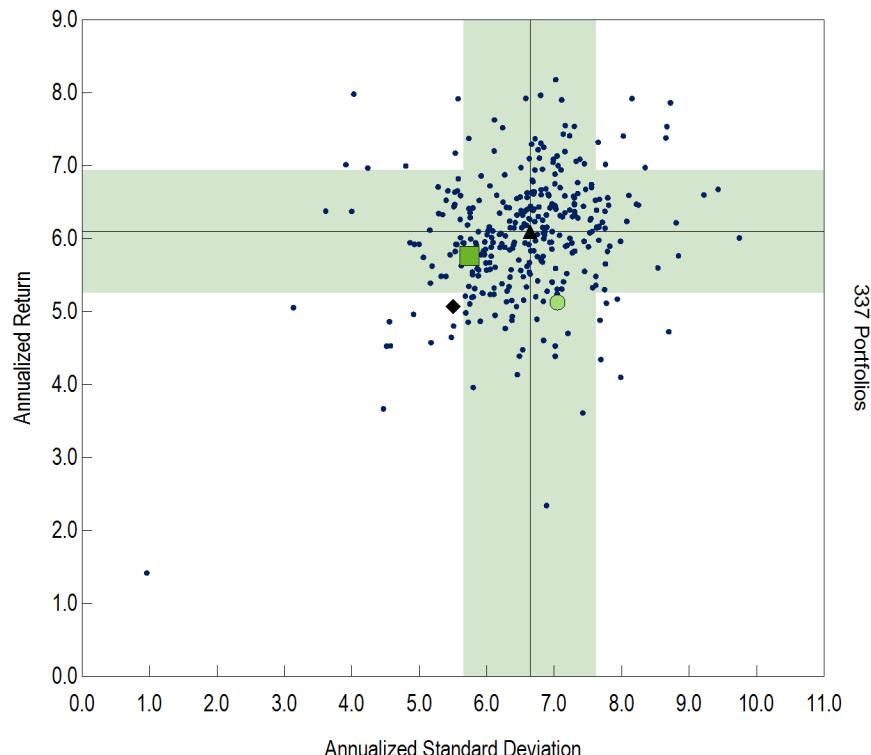
	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK POLICE	8.14%	67	5.29%	18
POLICE Allocation Index	7.43%	88	5.14%	13
POLICE Policy Index	7.86%	79	6.34%	59

3 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK POLICE	1.31	21	1.36	36
POLICE Allocation Index	1.21	37	1.30	44
POLICE Policy Index	1.05	81	1.19	69

# TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending March 31, 2019



5 Years Ending March 31, 2019

	Anlzd Ret	Rank	Anlzd Std Dev	Rank
OK POLICE	5.76%	70	5.74%	17
POLICE Allocation Index	5.08%	91	5.50%	9
POLICE Policy Index	5.13%	90	7.05%	72

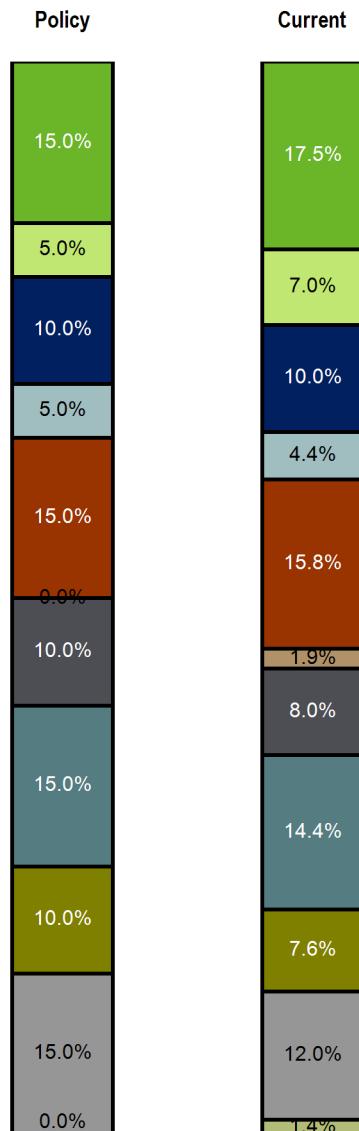
5 Years Ending March 31, 2019

	Sharpe Ratio	Rank	Sortino Ratio	Rank
OK POLICE	0.87	31	1.31	29
POLICE Allocation Index	0.78	58	1.10	69
POLICE Policy Index	0.62	94	1.03	80



March 31, 2019

# TOTAL FUND ASSET ALLOCATION VS. POLICY

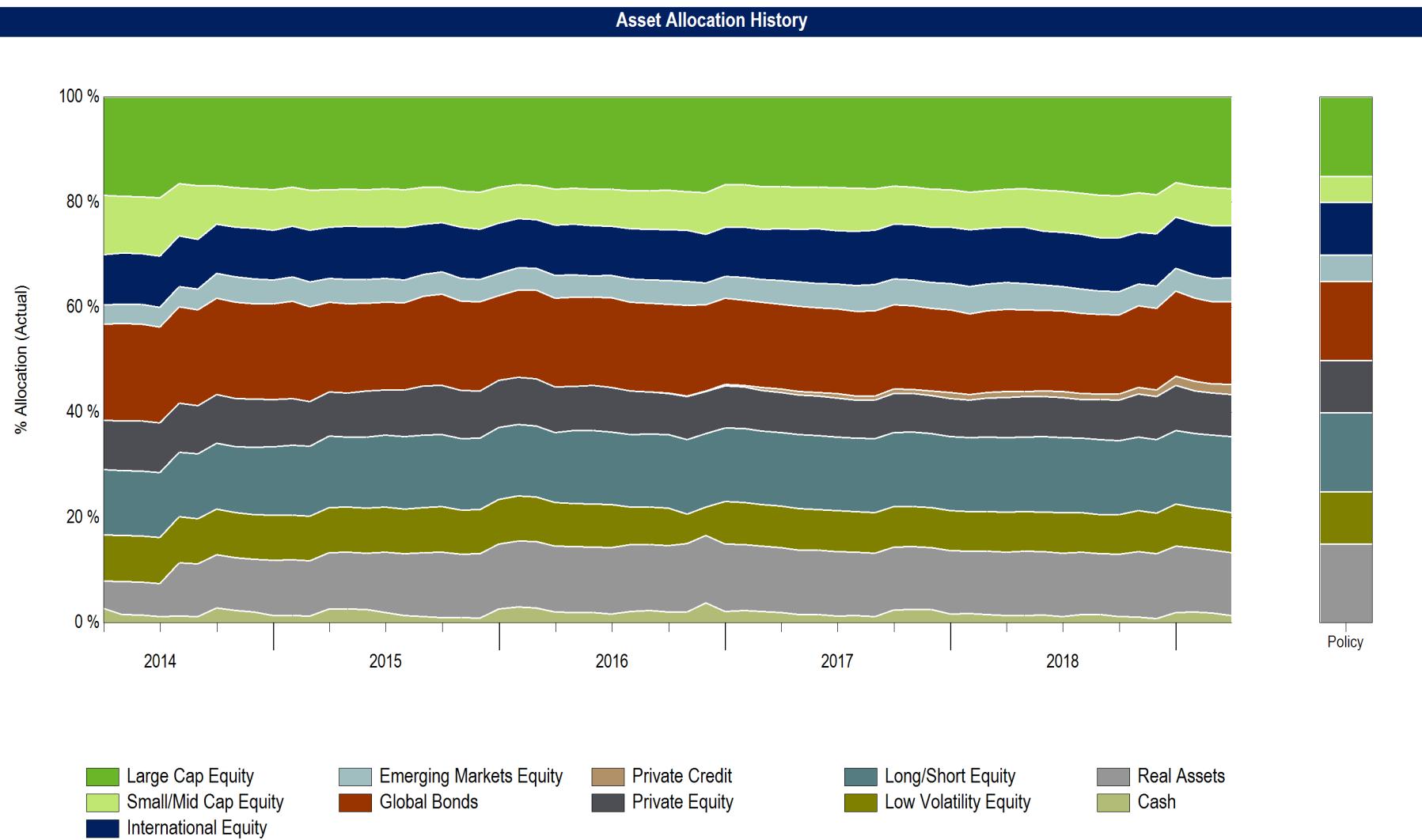


	Asset Allocation vs. Target					
	Current	Policy	Current	Difference*	Policy Range	Within Range
Large Cap Equity	\$446,539,154	15.0%	17.5%	2.5%	10.0% - 20.0%	Yes
Small/Mid Cap Equity	\$178,899,808	5.0%	7.0%	2.0%	0.0% - 15.0%	Yes
International Equity	\$255,302,719	10.0%	10.0%	0.0%	5.0% - 15.0%	Yes
Emerging Markets Equity	\$113,703,797	5.0%	4.4%	-0.6%	0.0% - 10.0%	Yes
Global Bonds	\$403,627,285	15.0%	15.8%	0.8%	10.0% - 20.0%	Yes
Private Credit	\$47,722,757	0.0%	1.9%	1.9%	0.0% - 5.0%	Yes
Private Equity	\$204,948,786	10.0%	8.0%	-2.0%	5.0% - 15.0%	Yes
Long/Short Equity	\$368,884,524	15.0%	14.4%	-0.6%	10.0% - 20.0%	Yes
Low Volatility Equity	\$195,369,346	10.0%	7.6%	-2.4%	5.0% - 15.0%	Yes
Real Assets	\$305,723,216	15.0%	12.0%	-3.0%	0.0% - 30.0%	Yes
Cash	\$34,703,133	0.0%	1.4%	1.4%	0.0% - 5.0%	Yes
<b>Total</b>	<b>\$2,555,424,526</b>	<b>100.0%</b>	<b>100.0%</b>			

\*Difference between Policy and Current Allocation



# TOTAL FUND ASSET ALLOCATION HISTORY



March 31, 2019

## Oklahoma Police

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>OK POLICE</b>	<b>2,555,424,526</b>	<b>100.0</b>	<b>7.0</b>	<b>86</b>	<b>2.1</b>	<b>82</b>	<b>3.8</b>	<b>64</b>	<b>8.1</b>	<b>67</b>	<b>5.8</b>	<b>70</b>	<b>9.1</b>	<b>80</b>
POLICE Allocation Index			6.6	91	1.2	95	2.3	92	7.4	88	5.1	91	10.0	49
Over/Under			0.4		0.9		1.5		0.7		0.7		-0.9	
POLICE Policy Index			8.7	42	2.9	55	3.5	69	7.9	79	5.1	90	9.9	52
InvestorForce Public DB Gross Median			8.4		3.0		4.1		8.5		6.1		10.0	
<b>Equity Composite</b>	<b>994,445,478</b>	<b>38.9</b>	<b>12.3</b>	<b>53</b>	<b>0.8</b>	<b>59</b>	<b>2.8</b>	<b>52</b>	<b>11.5</b>	<b>32</b>	<b>7.4</b>	<b>44</b>	<b>12.0</b>	<b>75</b>
Russell 3000			14.0	32	4.7	27	8.8	18	13.5	16	10.4	12	16.0	14
Over/Under			-1.7		-3.9		-6.0		-2.0		-3.0		-4.0	
eV All Global Equity Gross Median			12.5		2.0		3.1		10.3		7.1		13.1	
<b>Domestic Equity Composite</b>	<b>625,438,962</b>	<b>24.5</b>	<b>14.1</b>	<b>47</b>	<b>2.6</b>	<b>51</b>	<b>8.0</b>	<b>41</b>	<b>13.8</b>	<b>34</b>	<b>9.6</b>	<b>44</b>	<b>16.2</b>	<b>50</b>
S&P 500			13.6	54	5.9	26	9.5	32	13.5	38	10.9	26	15.9	57
Over/Under			0.5		-3.3		-1.5		0.3		-1.3		0.3	
eV All US Equity Gross Median			13.9		2.6		6.3		12.4		9.2		16.2	
Northern Trust Russell 1000 Index Fund	446,539,154	17.5	14.0	27	5.6	42	9.3	35	13.5	36	10.6	38	16.1	31
Russell 1000			14.0	27	5.5	43	9.3	36	13.5	36	10.6	38	16.0	32
Over/Under			0.0		0.1		0.0		0.0		0.0		0.1	
eV US Large Cap Core Equity Gross Median			13.2		4.7		8.0		12.9		10.3		15.5	
Boston Partners	84,664,522	3.3	13.8	55	-7.8	83	-5.4	91	8.3	77	5.4	75	15.6	60
Russell 2500 Value			13.1	67	-3.7	50	1.8	36	9.9	44	6.0	59	15.0	69
Over/Under			0.7		-4.1		-7.2		-1.6		-0.6		0.6	
eV US Small-Mid Cap Value Equity Gross Median			13.9		-3.8		0.0		9.6		6.5		16.0	
Cortina Small Cap Growth	94,235,286	3.7	15.0	76	-1.2	65	14.8	23	21.7	25	8.5	76	--	--
Russell 2000 Growth			17.1	56	-3.2	78	3.9	82	14.9	75	8.4	77	16.5	83
Over/Under			-2.1		2.0		10.9		6.8		0.1			
eV US Small Cap Growth Equity Gross Median			17.6		1.2		10.2		17.7		9.8		18.1	

Northern Trust Russell 1000 Index fund was Mellon Capital Passive Index fund before 10/30/2014.

Returns are gross of manager fees.



March 31, 2019

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>International Equity Composite</b>	369,006,516	14.4	9.4	79	-2.1	41	-5.2	51	7.7	66	3.7	56	7.8	98
MSCI ACWI ex USA			10.3	66	-1.6	35	-4.2	38	8.1	58	2.6	79	8.8	83
Over/Under			-0.9		-0.5		-1.0		-0.4		1.1		-1.0	
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
<b>Mondrian Int'l Value</b>	138,944,212	5.4	9.0	43	0.4	7	-1.6	2	7.1	51	2.6	45	8.9	50
MSCI ACWI ex USA			10.3	19	-1.6	24	-4.2	23	8.1	36	2.6	45	8.8	50
Over/Under			-1.3		2.0		2.6		-1.0		0.0		0.1	
eV ACWI ex-US Value Equity Gross Median			8.6		-4.1		-7.4		7.1		2.3		8.8	
<b>Baring Focused Intl Equity</b>	116,358,507	4.6	10.4	63	-3.9	62	-3.3	29	8.8	43	5.1	28	--	--
MSCI ACWI ex USA			10.3	66	-1.6	35	-4.2	38	8.1	58	2.6	79	8.8	83
Over/Under			0.1		-2.3		0.9		0.7		2.5			
eV All ACWI ex-US Equity Gross Median			11.1		-2.7		-5.2		8.4		3.9		11.1	
<b>Wasatch EM Small Cap</b>	34,971,012	1.4	10.5	40	-3.3	52	-9.2	39	7.4	78	3.6	71	--	--
MSCI Emerging Markets Small Cap			7.8	84	-4.2	61	-12.4	67	5.9	85	1.8	87	10.4	99
Over/Under			2.7		0.9		3.2		1.5		1.8			
eV Emg Mkts Small Cap Equity Gross Median			9.7		-3.1		-10.0		9.1		4.8		14.7	
<b>AB EM Strategic Core Equity</b>	78,732,785	3.1	8.0	--	-2.9	--	-11.8	--	--	--	--	--	--	--
MSCI Emerging Markets			9.9	--	0.6	--	-7.4	--	10.7	--	3.7	--	8.9	--
Over/Under			-1.9		-3.5		-4.4							
<b>Fixed Income Composite</b>	403,627,285	15.8	3.7	47	3.6	43	2.9	43	3.9	43	2.9	46	6.3	38
BBgBarc US Aggregate TR			2.9	61	4.6	25	4.5	26	2.0	71	2.7	49	3.8	76
Over/Under			0.8		-1.0		-1.6		1.9		0.2		2.5	
eV All Global Fixed Inc Gross Median			3.4		3.2		1.9		3.3		2.5		5.0	
<b>Oaktree</b>	126,238,843	4.9	4.6	27	2.2	91	3.4	79	6.7	13	3.9	31	9.1	15
BBgBarc US Aggregate TR			2.9	55	4.6	40	4.5	54	2.0	69	2.7	61	3.8	63
Over/Under			1.7		-2.4		-1.1		4.7		1.2		5.3	

Returns are gross of manager fees.



## Oklahoma Police

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Agincourt	198,703,058	7.8	3.4	42	5.3	21	5.1	27	2.7	51	3.2	47	5.0	43
BBgBarc US Aggregate TR			2.9	55	4.6	40	4.5	54	2.0	69	2.7	61	3.8	63
Over/Under			0.5		0.7		0.6		0.7		0.5		1.2	
eV All US Fixed Inc Gross Median			3.1		4.3		4.5		2.7		3.1		4.5	
Loomis Sayles	78,685,384	3.1	2.8	67	2.5	65	-1.7	78	2.7	61	1.4	70	4.8	56
FTSE WGBI TR			1.7	87	1.8	75	-1.6	77	1.0	91	0.6	83	2.2	95
Over/Under			1.1		0.7		-0.1		1.7		0.8		2.6	
eV All Global Fixed Inc Gross Median			3.4		3.2		1.9		3.3		2.5		5.0	
<b>Total Long/Short</b>	<b>368,884,524</b>	<b>14.4</b>	<b>9.1</b>	<b>39</b>	<b>1.1</b>	<b>35</b>	<b>3.4</b>	<b>35</b>	<b>7.3</b>	<b>49</b>	<b>5.0</b>	<b>46</b>	<b>--</b>	<b>--</b>
HFRI FOF: Strategic Index			6.3	57	-1.2	47	-1.2	56	4.9	67	2.4	70	4.0	91
Over/Under			2.8		2.3		4.6		2.4		2.6			
eV Alt Fundamental - Long/Short Equity Median			7.2		-1.8		0.0		7.1		4.5		9.4	
Grosvenor	368,884,524	14.4	9.1	39	1.1	35	3.4	35	7.3	49	5.0	46	6.5	75
HFRI FOF: Strategic Index			6.3	57	-1.2	47	-1.2	56	4.9	67	2.4	70	4.0	91
Over/Under			2.8		2.3		4.6		2.4		2.6		2.5	
eV Alt Fundamental - Long/Short Equity Median			7.2		-1.8		0.0		7.1		4.5		9.4	
<b>Total Real Assets</b>	<b>305,723,216</b>	<b>12.0</b>	<b>2.0</b>	<b>--</b>	<b>2.1</b>	<b>--</b>	<b>4.1</b>	<b>--</b>	<b>6.5</b>	<b>--</b>	<b>5.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Total Core Real Estate</b>	<b>175,625,087</b>	<b>6.9</b>	<b>0.8</b>	<b>--</b>	<b>5.0</b>	<b>--</b>	<b>7.3</b>	<b>--</b>	<b>8.3</b>	<b>--</b>	<b>10.2</b>	<b>--</b>	<b>--</b>	<b>--</b>
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			-0.6		-0.4		-0.2		0.3		0.0			
Columbus Square	4,719,790	0.2	1.7	--	7.1	--	10.4	--	9.8	--	13.3	--	14.9	--
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			0.3		1.7		2.9		1.8		3.1		6.2	
JP Morgan	128,241,416	5.0	0.5	--	4.2	--	6.2	--	7.4	--	9.5	--	9.0	--
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			-0.9		-1.2		-1.3		-0.6		-0.7		0.3	
Blackstone Property Partners	42,663,881	1.7	1.7	--	7.4	--	10.2	--	11.0	--	--	--	--	--
NCREIF ODCE			1.4		5.4		7.5		8.0		10.2		8.7	
Over/Under			0.3		2.0		2.7		3.0					

\*The Private Real Estate returns are time weighted.

Returns are gross of manager fees.



March 31, 2019

## Oklahoma Police

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Private Real Estate</b>	<b>51,941,662</b>	<b>2.0</b>	<b>2.4</b>	--	<b>8.6</b>	--	<b>13.5</b>	--	<b>8.3</b>	--	<b>11.7</b>	--	--	--
Siguler Guff Distressed RE	4,573,711	0.2	4.3	--	6.6	--	15.0	--	13.7	--	16.7	--	--	--
TA Associates Realty X	10,313,028	0.4	2.9	--	9.7	--	12.2	--	8.9	--	11.4	--	--	--
Cerberus Real Estate Fund III	11,149,923	0.4	4.3	--	9.4	--	12.4	--	6.2	--	12.1	--	--	--
NCREIF ODCE			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			2.9		4.0		4.9		-1.8		1.9			
Hall Capital Fund III	5,228,395	0.2	0.0	--	2.2	--	4.3	--	8.4	--	--	--	--	--
NCREIF ODCE			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-1.4</u>		<u>-3.2</u>		<u>-3.2</u>		0.4					
Siguler Guff Distressed RE II	7,150,931	0.3	2.0	--	9.2	--	21.7	--	14.8	--	--	--	--	--
NCREIF ODCE			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			0.6		3.8		14.2		6.8					
Cerberus Real Estate Partners IV	7,965,222	0.3	4.0	--	10.4	--	11.3	--	--	--	--	--	--	--
NCREIF ODCE			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			2.6		5.0		3.8							
Siguler Guff Dist. Real Estate Opp. II B	5,560,452	0.2	-2.8	--	21.4	--	35.1	--	--	--	--	--	--	--
NCREIF ODCE			<u>1.4</u>	--	<u>5.4</u>	--	<u>7.5</u>	--	<u>8.0</u>	--	<u>10.2</u>	--	<u>8.7</u>	--
Over/Under			<u>-4.2</u>		16.0		27.6							
Mt Lucas Peak	28,473,062	1.1	-0.2	--	-9.5	--	-12.2	--	-0.5	--	3.6	--	1.0	--
Gresham Tap Fund	49,683,405	1.9	7.4	--	-6.5	--	-4.7	--	3.5	--	--	--	--	--

\*Returns are gross of manager fees.



March 31, 2019

## Oklahoma Police

# TOTAL FUND PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Low Volatility Strategies</b>	<b>195,369,346</b>	<b>7.6</b>	<b>2.7</b>	--	<b>1.6</b>	--	<b>3.8</b>	--	<b>4.1</b>	--	<b>1.4</b>	--	--	--
HFRI FOF: Conservative Index			3.2	--	0.6	--	1.7	--	3.5	--	2.1	--	3.4	--
Over/Under			-0.5		1.0		2.1		0.6		-0.7			
PAAAMCO	130,049,045	5.1	3.7	58	0.4	24	2.4	24	3.8	62	1.2	78	4.8	60
HFRI FOF: Conservative Index			3.2	62	0.6	22	1.7	32	3.5	65	2.1	61	3.4	81
Over/Under			0.5		-0.2		0.7		0.3		-0.9			1.4
eV Alt Fund of Funds - All Single Strategy Median			5.2		-1.5		-0.6		4.8		2.7		5.3	
Wellington Global Total Return	65,320,301	2.6	0.8	90	4.1	6	6.7	3	--	--	--	--	--	--
HFRI FOF Conservative (1 Mo Lag)			1.8	78	0.2	29	1.3	35	3.4	65	1.9	62	3.3	81
Over/Under			-1.0		3.9		5.4							
eV Alt Fund of Funds - All Single Strategy Median			5.2		-1.5		-0.6		4.8		2.7		5.3	
<b>Private Credit</b>	<b>47,722,757</b>	<b>1.9</b>	<b>1.3</b>	--	<b>5.9</b>	--	<b>8.6</b>	--	--	--	--	--	--	--
Cambridge Associates US All PE			0.0	--	1.6	--	7.1	--	13.4	--	10.7	--	14.1	--
Over/Under			1.3		4.3		1.5							
<b>Private Equity</b>	<b>204,948,786</b>	<b>8.0</b>	<b>0.9</b>	--	<b>10.5</b>	--	<b>12.4</b>	--	<b>9.9</b>	--	<b>10.7</b>	--	<b>10.6</b>	--
Cambridge Associates US All PE			0.0	--	1.6	--	7.1	--	13.4	--	10.7	--	14.1	--
Over/Under			0.9		8.9		5.3		-3.5		0.0		-3.5	

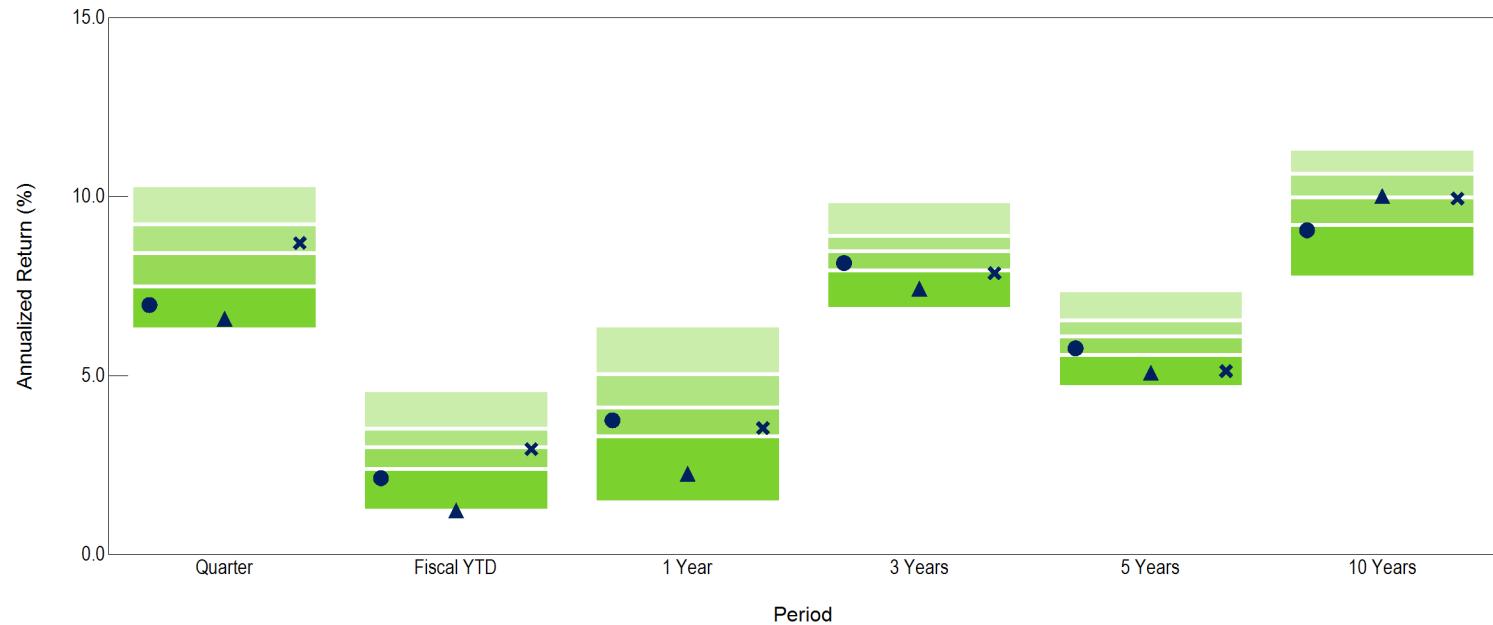
\*Returns are gross of manager fees.



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# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

OK POLICE vs. InvestorForce Public DB Gross



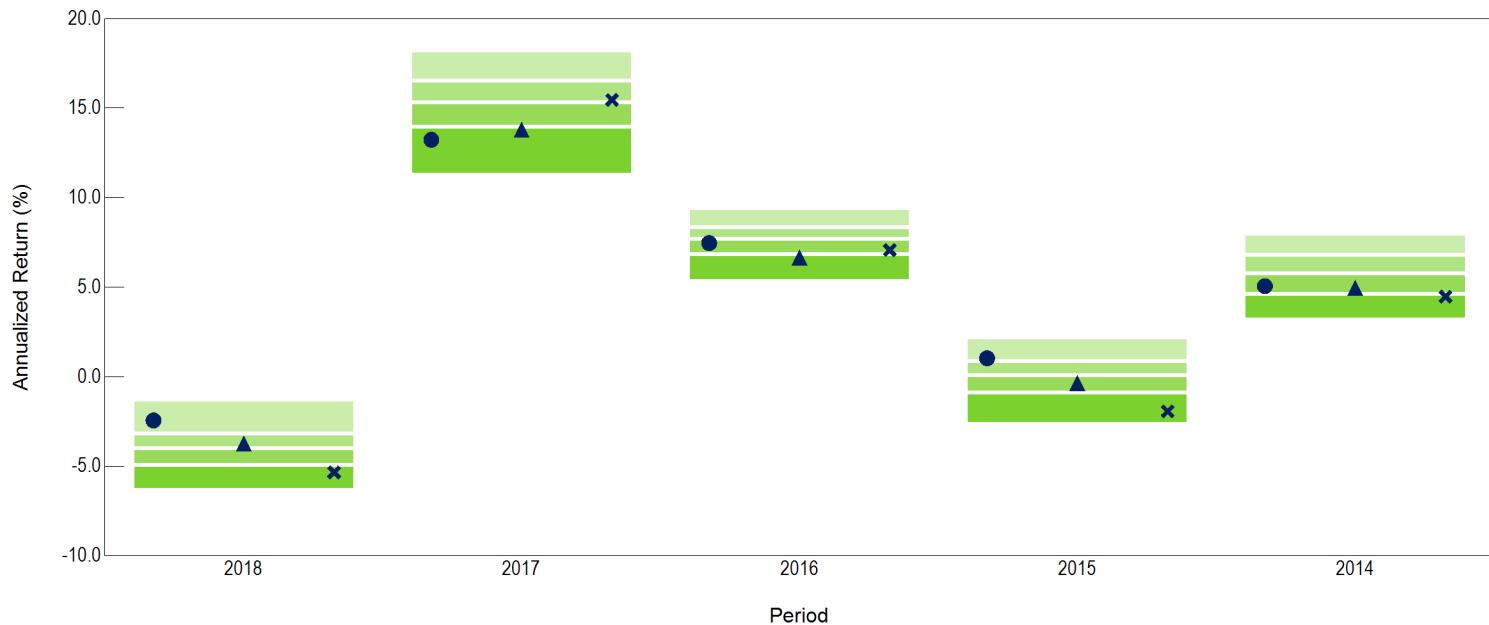
	Return (Rank)					
5th Percentile	10.3	4.6	6.4	9.9	7.4	11.3
25th Percentile	9.2	3.5	5.0	8.9	6.6	10.6
Median	8.4	3.0	4.1	8.5	6.1	10.0
75th Percentile	7.5	2.4	3.3	7.9	5.6	9.2
95th Percentile	6.3	1.2	1.5	6.9	4.7	7.8
# of Portfolios	366	362	362	351	337	290
● OK POLICE	7.0 (86)	2.1 (82)	3.8 (64)	8.1 (67)	5.8 (70)	9.1 (80)
▲ POLICE Allocation Index	6.6 (91)	1.2 (95)	2.3 (92)	7.4 (88)	5.1 (91)	10.0 (49)
✖ POLICE Policy Index	8.7 (42)	2.9 (55)	3.5 (69)	7.9 (79)	5.1 (90)	9.9 (52)



March 31, 2019

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

OK POLICE vs. InvestorForce Public DB Gross



	Return (Rank)							
5th Percentile	-1.3	18.2	9.4	2.2	8.0			
25th Percentile	-3.1	16.5	8.4	0.9	6.8			
Median	-4.0	15.3	7.7	0.1	5.8			
75th Percentile	-4.9	14.0	6.9	-0.9	4.6			
95th Percentile	-6.3	11.3	5.3	-2.6	3.2			
# of Portfolios	319	304	305	316	248			
● OK POLICE	-2.4	(14)	13.2	(86)	7.5	(57)	1.0	(21)
▲ POLICE Allocation Index	-3.7	(43)	13.8	(77)	6.7	(80)	-0.4	(63)
✖ POLICE Policy Index	-5.3	(83)	15.5	(48)	7.1	(70)	-1.9	(89)

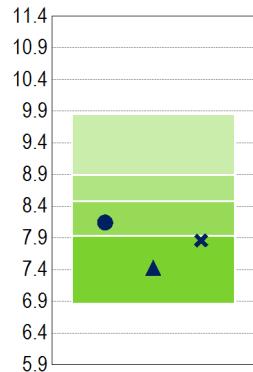


# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

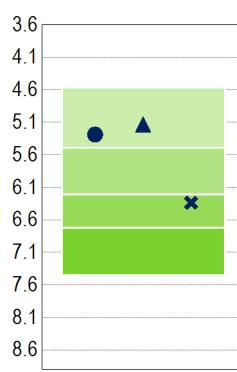
OK POLICE vs. InvestorForce Public DB Gross

3 Years

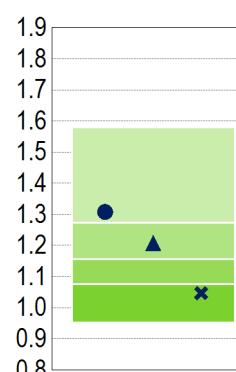
Anlzd Return



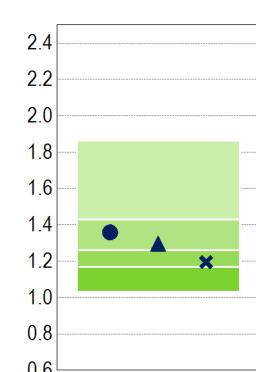
Anlzd Standard Deviation



Sharpe Ratio



Sortino Ratio



● OK POLICE	
Value	8.14
Rank	67
▲ POLICE Allocation Index	
Value	7.43
Rank	88
✖ POLICE Policy Index	
Value	7.86
Rank	79

Universe	
5th %tile	9.85
25th %tile	8.91
Median	8.48
75th %tile	7.95
95th %tile	6.87

● OK POLICE	
Value	5.29
Rank	18
▲ POLICE Allocation Index	
Value	5.14
Rank	13
✖ POLICE Policy Index	
Value	6.34
Rank	59

Universe	
5th %tile	4.57
25th %tile	5.48
Median	6.20
75th %tile	6.71
95th %tile	7.45

● OK POLICE	
Value	1.31
Rank	21
▲ POLICE Allocation Index	
Value	1.21
Rank	37
✖ POLICE Policy Index	
Value	1.05
Rank	81

Universe	
5th %tile	1.58
25th %tile	1.27
Median	1.16
75th %tile	1.08
95th %tile	0.95

● OK POLICE	
Value	1.36
Rank	36
▲ POLICE Allocation Index	
Value	1.30
Rank	44
✖ POLICE Policy Index	
Value	1.19
Rank	69

Universe	
5th %tile	1.86
25th %tile	1.43
Median	1.26
75th %tile	1.17
95th %tile	1.03



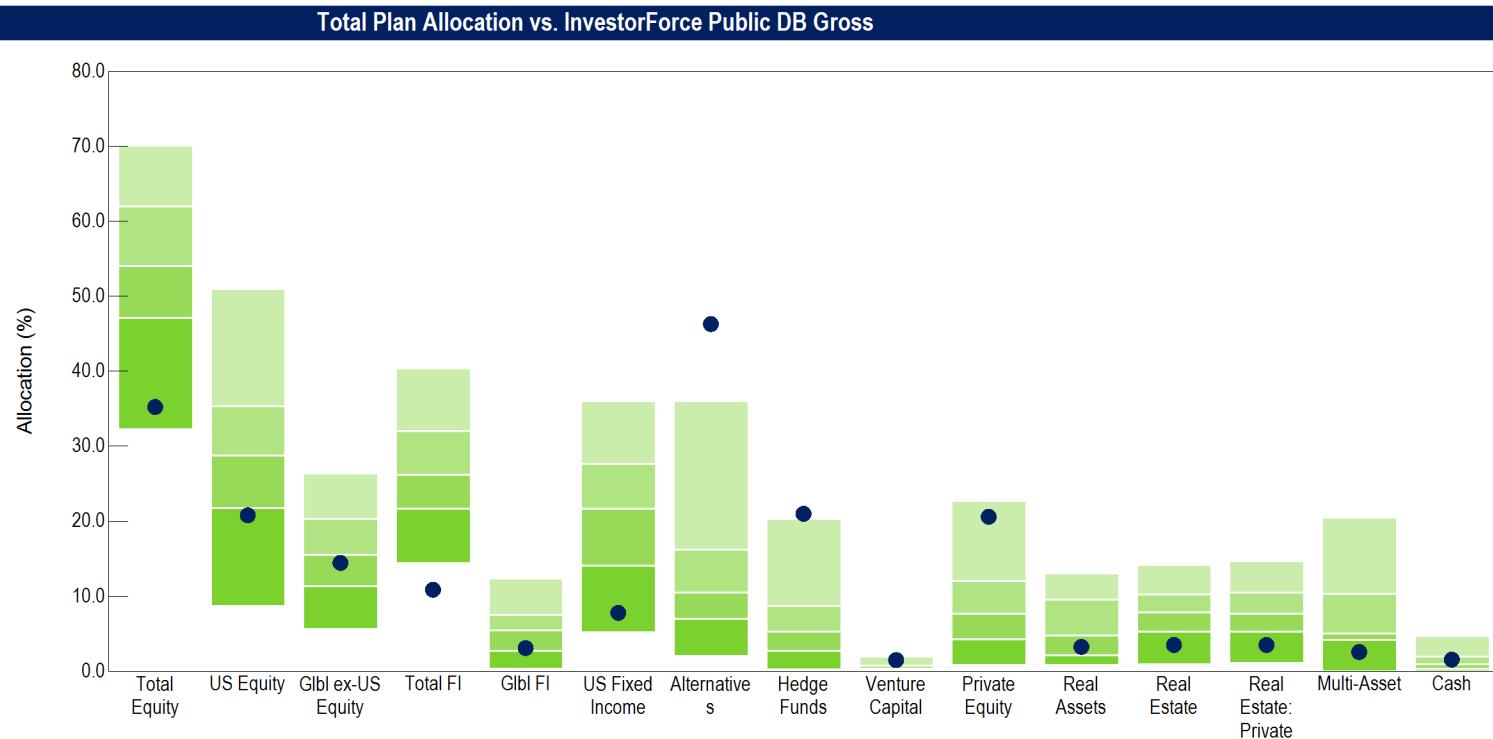
# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

OK POLICE vs. InvestorForce Public DB Gross

5 Years



# TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE



	Allocation (Rank)																	
5th Percentile	70.1	50.9	26.4	40.3	12.4	36.0	36.1	20.3	2.0	22.7	13.0	14.1	14.7	20.4	4.6	--	--	
25th Percentile	62.0	35.4	20.4	32.1	7.5	27.7	16.3	8.8	0.8	12.1	9.7	10.3	10.6	10.4	2.0	--	--	
Median	54.1	28.8	15.6	26.3	5.5	21.8	10.6	5.4	0.4	7.7	4.9	7.9	7.7	5.1	1.0	--	--	
75th Percentile	47.2	21.8	11.4	21.7	2.8	14.2	7.1	2.8	0.2	4.3	2.2	5.3	5.3	4.3	0.4	--	--	
95th Percentile	32.4	8.8	5.7	14.5	0.4	5.2	2.1	0.3	0.0	0.9	0.9	1.0	1.1	0.1	0.0	--	--	
# of Portfolios	265	188	224	263	42	173	174	90	27	122	87	183	134	93	243	--	--	
● OK POLICE	35.2	(94)	20.8	(80)	14.4	(57)	10.9	(99)	3.1	(69)	7.8	(92)	46.3	(2)	21.0	(5)	1.5	(37)



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# TOTAL FUND ATTRIBUTION ANALYSIS

Performance Attribution		
	Last 3 Mo.	1 Yr
Wtd. Actual Return	7.1%	3.7%
Wtd. Index Return *	8.7%	3.5%
<b>Excess Return</b>	<b>-1.6%</b>	<b>0.2%</b>
Selection Effect	-2.3%	0.6%
Allocation Effect	0.0%	0.0%
Interaction Effect	0.7%	-0.4%
Asset Class Returns		
OK POLICE	7.0%	3.8%
Equity Composite	12.3%	2.8%
Domestic Equity Composite	14.1%	8.0%
International Equity Composite	9.4%	-5.2%
Fixed Income Composite	3.7%	2.9%
Total Long/Short	9.1%	3.4%
Total Real Assets	2.0%	4.1%
Total Core Real Estate	0.8%	7.3%
Private Real Estate	2.4%	13.5%
Total Low Volatility Strategies	2.7%	3.8%
Private Credit	1.3%	8.6%
Private Equity	0.9%	12.4%
Cash	0.6%	2.3%

\*Calculated from benchmark returns and weightings of each component.



# OKLAHOMA LAW

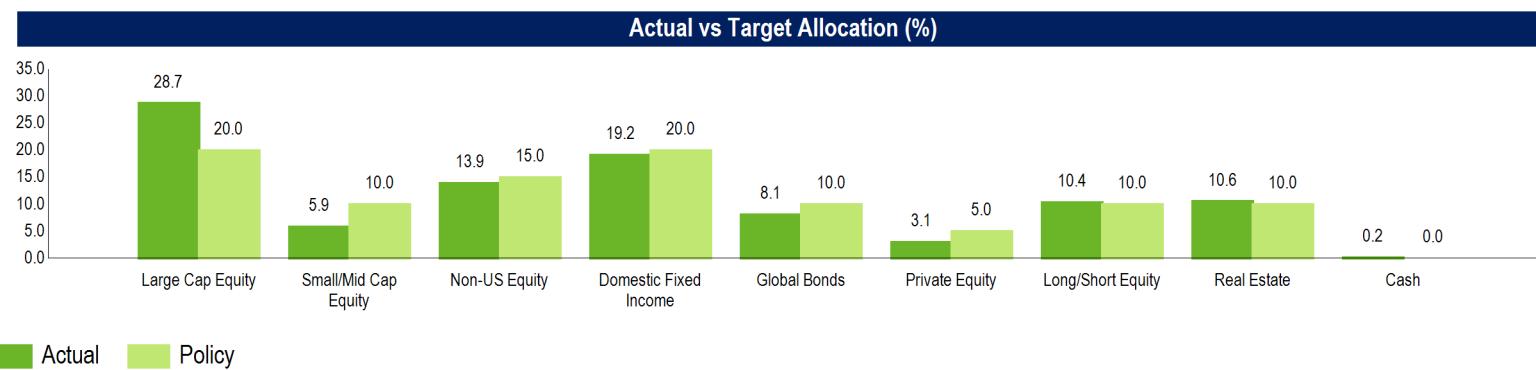


March 31, 2019

## Oklahoma Law

# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK LAW</b>	<b>\$988,302,349</b>	<b>8.3%</b>	<b>52</b>	<b>1.6%</b>	<b>92</b>	<b>3.1%</b>	<b>81</b>	<b>8.4%</b>	<b>53</b>	<b>5.8%</b>	<b>67</b>	<b>9.9%</b>	<b>53</b>
LAW Allocation Index		7.3%	80	2.5%	70	3.9%	59	8.2%	66	6.3%	41	10.0%	50
LAW Policy Index		8.3%	55	2.6%	69	4.8%	34	8.4%	54	6.4%	33	10.1%	43
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

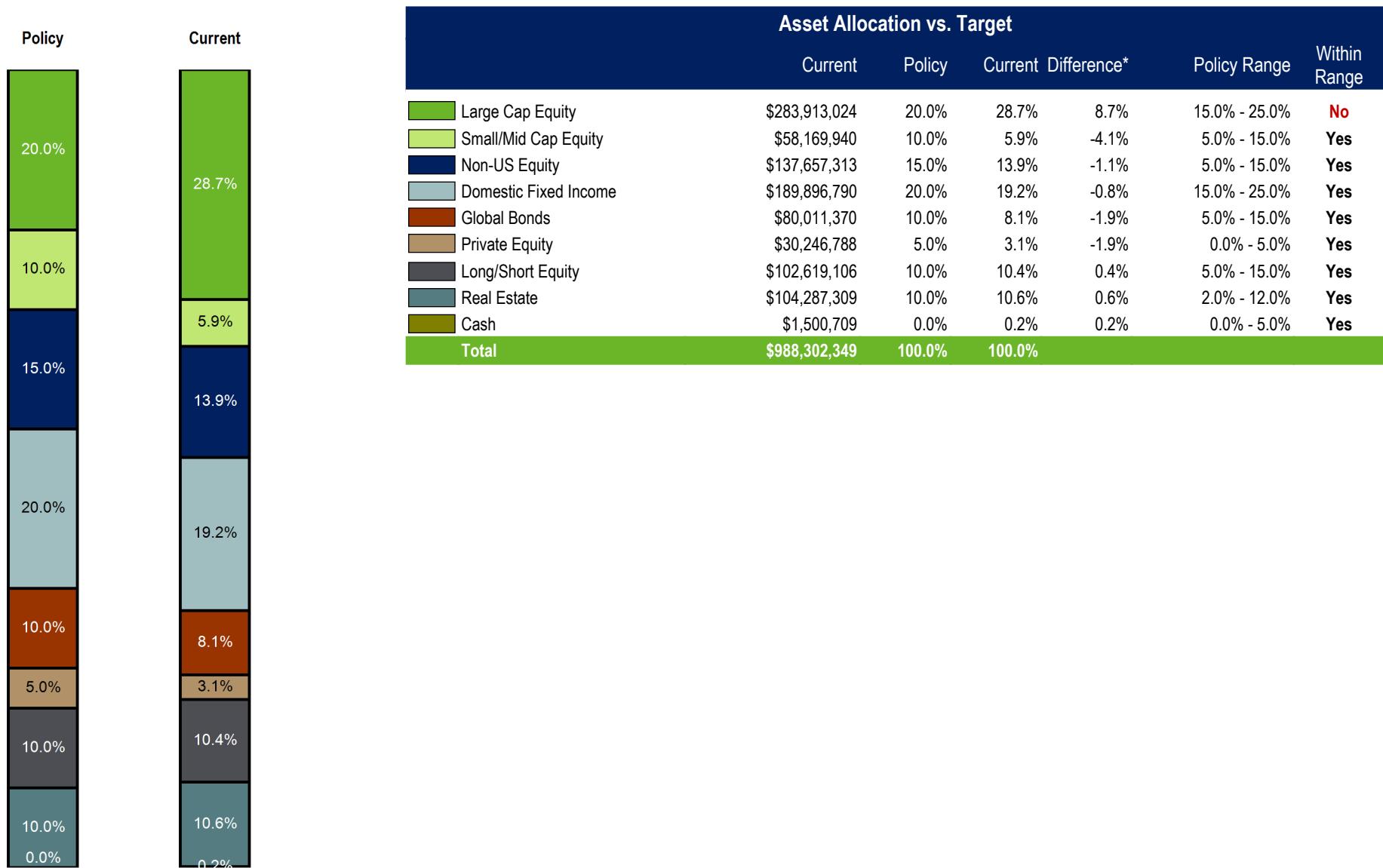


Returns are gross of manager fees.



March 31, 2019

# TOTAL FUND ASSET ALLOCATION VS. POLICY



# OKLAHOMA JUDGES



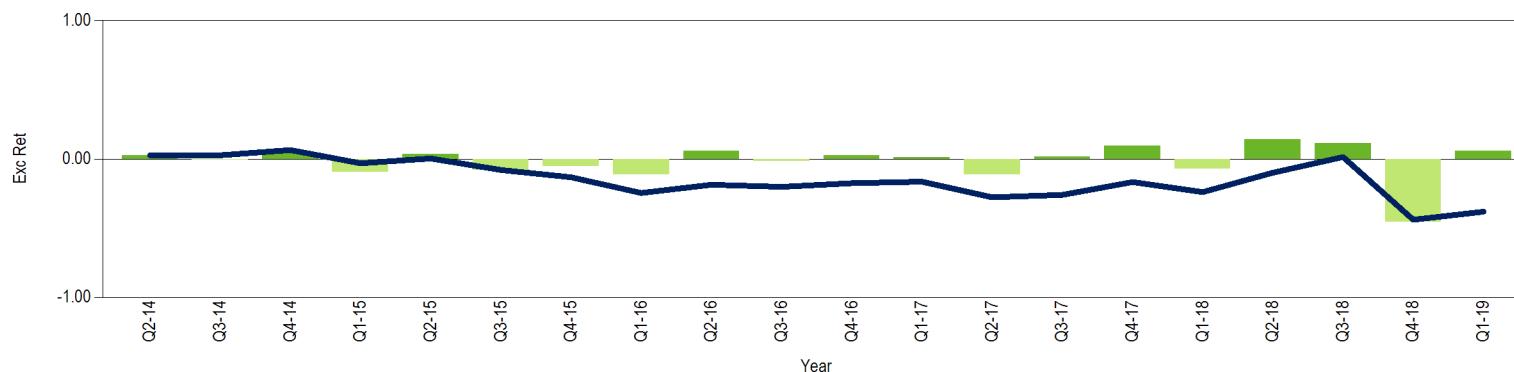
March 31, 2019

## Oklahoma Judges

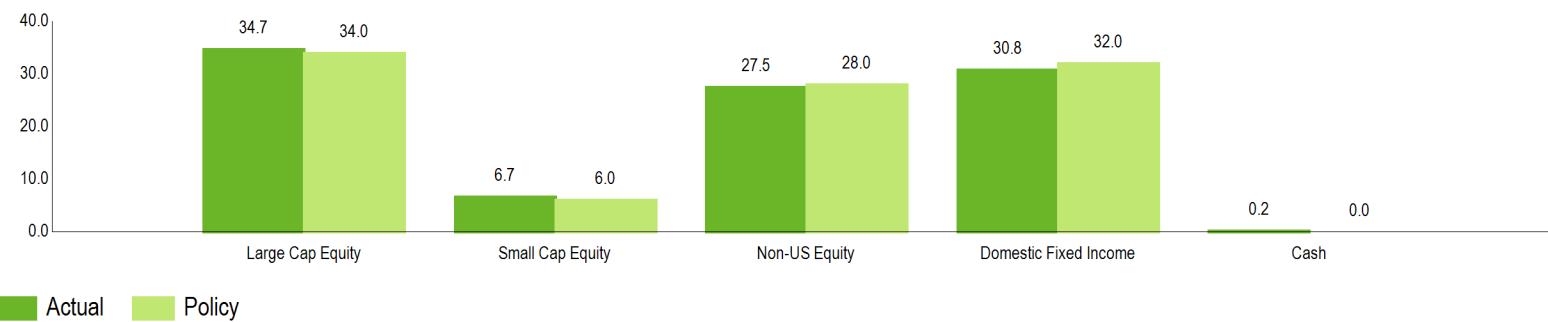
# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK JUDGES</b>	<b>\$337,737,972</b>	<b>9.6%</b>	<b>14</b>	<b>2.5%</b>	<b>71</b>	<b>3.7%</b>	<b>66</b>	<b>8.5%</b>	<b>51</b>	<b>6.1%</b>	<b>49</b>	<b>10.4%</b>	<b>33</b>
JUDGES Allocation Index		9.5%	18	2.4%	74	3.4%	72	8.3%	59	6.0%	58	9.8%	55
JUDGES Policy Index		9.6%	16	2.9%	56	3.9%	58	8.6%	48	6.2%	44	10.3%	39
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

Quarterly and Cumulative Excess Performance



Actual vs Target Allocation (%)



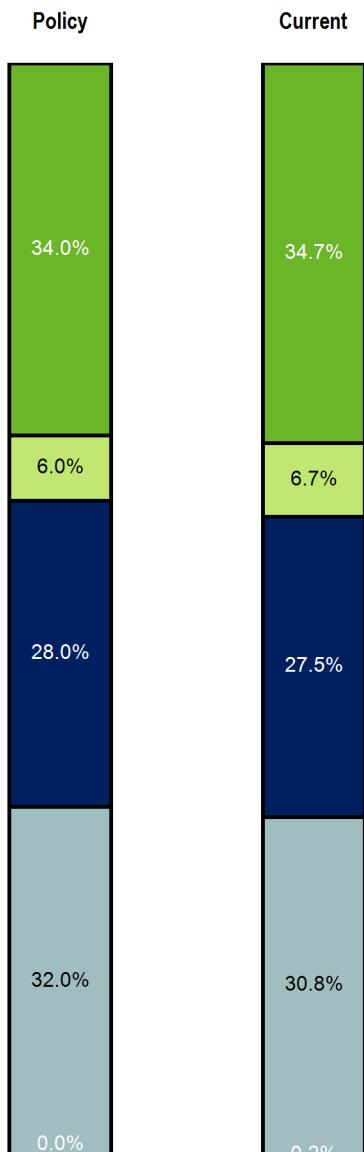
Actual      Policy

Returns are gross of manager fees.



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# TOTAL FUND ASSET ALLOCATION VS. POLICY



	Asset Allocation vs. Target					Within Range
	Current	Policy	Current Difference*	Policy Range		
Large Cap Equity	\$117,351,119	34.0%	34.7%	0.7%	31.2% - 36.8%	Yes
Small Cap Equity	\$22,598,562	6.0%	6.7%	0.7%	3.2% - 8.8%	Yes
Non-US Equity	\$92,974,563	28.0%	27.5%	-0.5%	25.0% - 31.0%	Yes
Domestic Fixed Income	\$104,062,978	32.0%	30.8%	-1.2%	27.5% - 36.5%	Yes
Cash	\$750,750	0.0%	0.2%	0.2%	0.0% - 5.0%	Yes
<b>Total</b>	<b>\$337,737,972</b>	<b>100.0%</b>	<b>100.0%</b>			

\*Difference between Policy and Current Allocation



# OKLAHOMA WILDLIFE

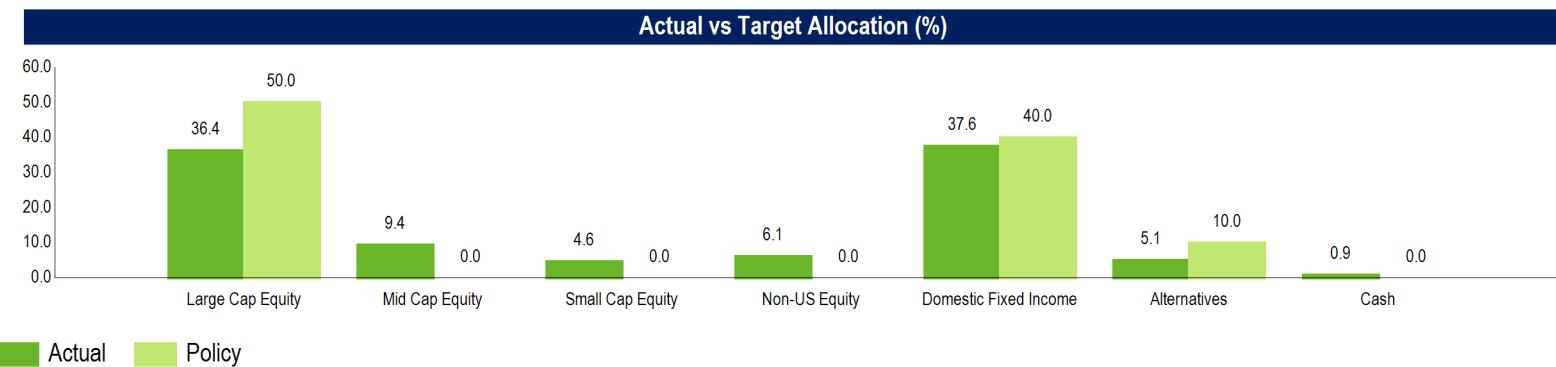


March 31, 2019

## OKLAHOMA WILDLIFE

# TOTAL FUND PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>OK WILDLIFE</b>	<b>\$115,063,543</b>	<b>9.2%</b>	<b>27</b>	<b>3.8%</b>	<b>16</b>	<b>5.4%</b>	<b>15</b>	<b>8.3%</b>	<b>60</b>	<b>6.3%</b>	<b>40</b>	<b>9.1%</b>	<b>78</b>
WILDLIFE Allocation Index		9.1%	28	4.3%	7	6.0%	7	8.5%	50	6.5%	26	9.2%	75
WILDLIFE Policy Index		8.5%	48	2.6%	69	4.3%	44	7.2%	93	6.3%	40	9.7%	59
InvestorForce Public DB Gross Median		8.4%		3.0%		4.1%		8.5%		6.1%		10.0%	

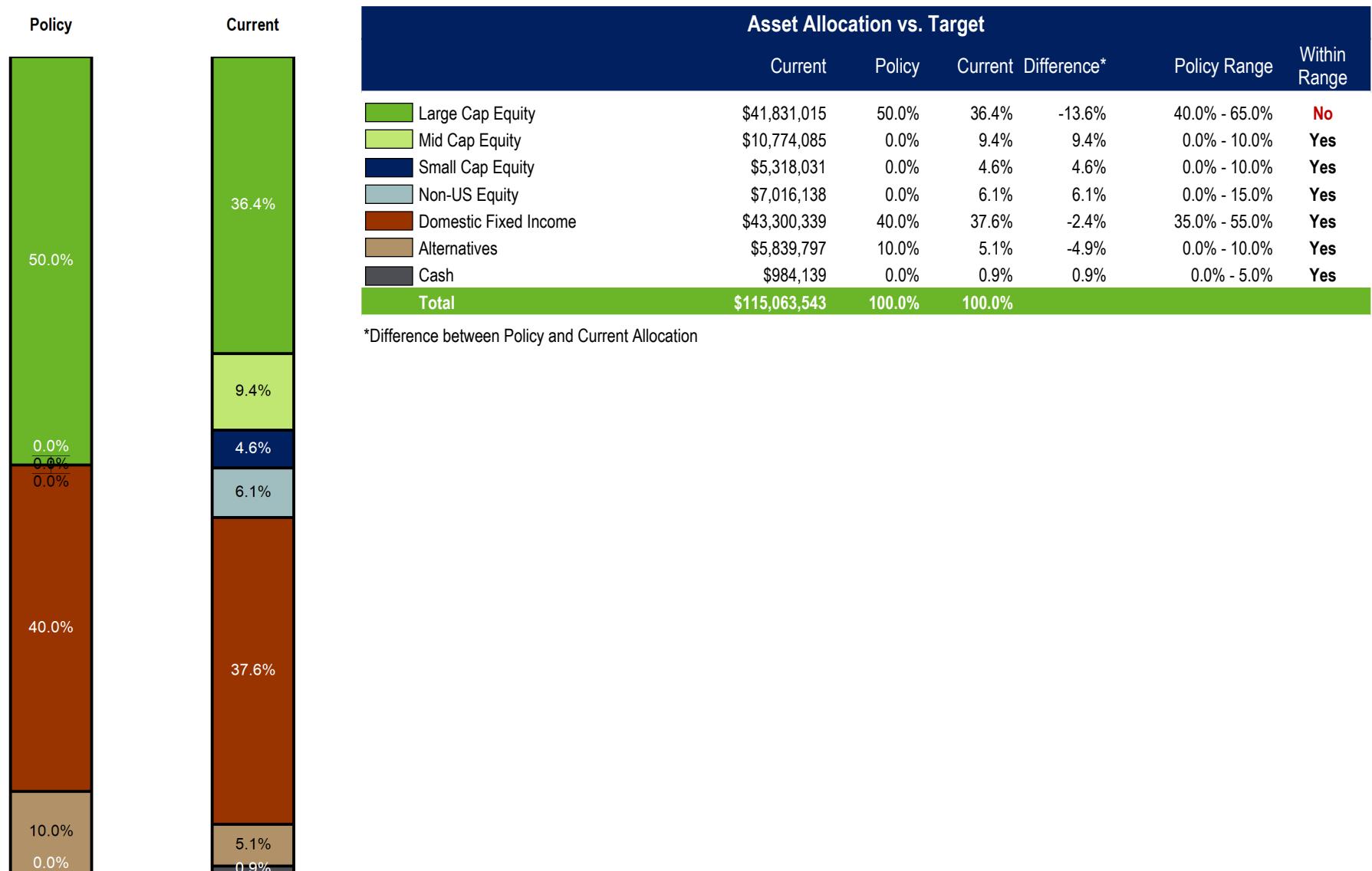


Returns are gross of manager fees.



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# TOTAL FUND ASSET ALLOCATION VS. POLICY

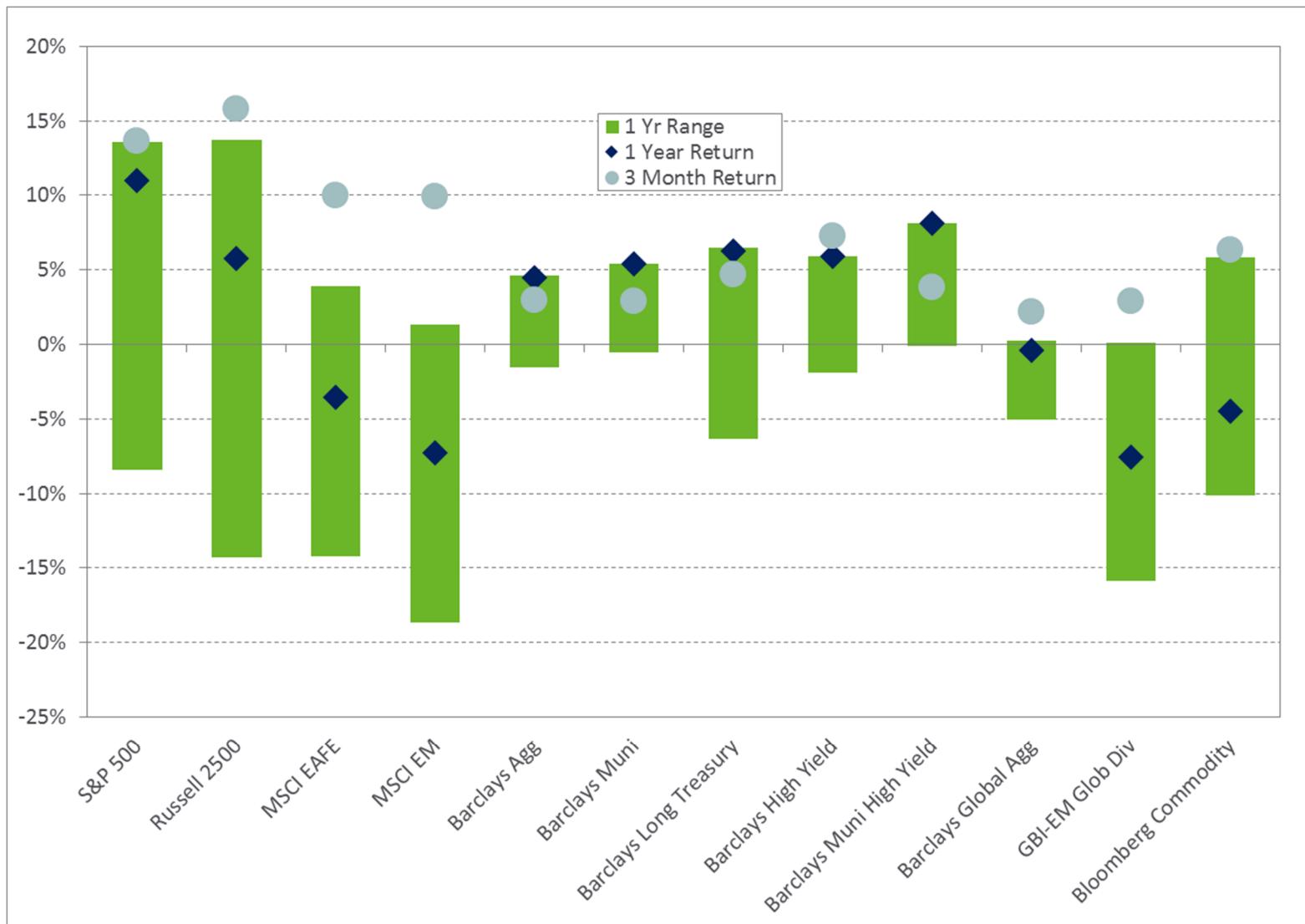


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# APPENDIX

NEPC, LLC

# SHORT-TERM PERFORMANCE SUMMARY

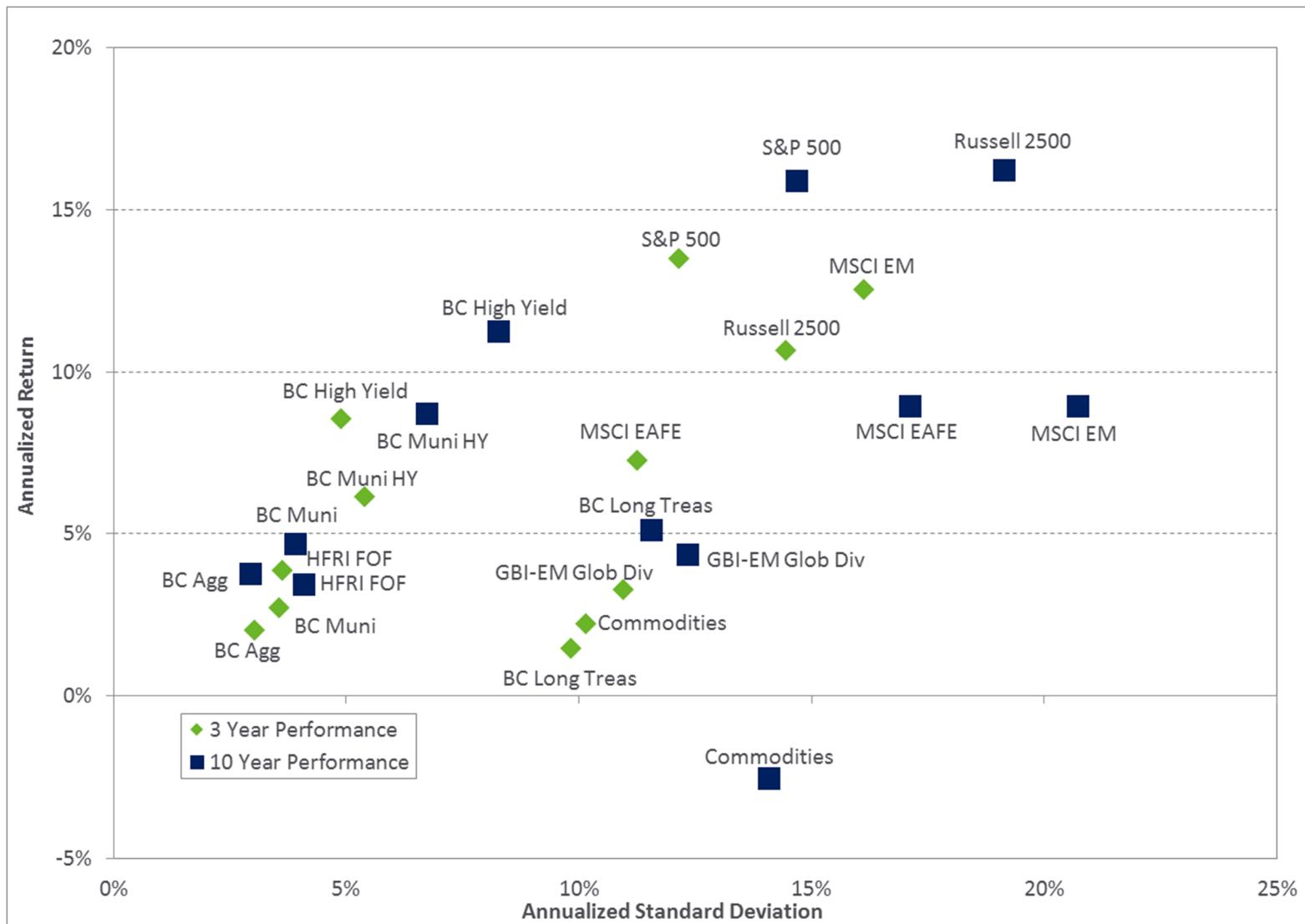


Source: Bloomberg, Standard and Poor's, Russell, MSCI, Barclays, JP Morgan

\*1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago



# LONG-TERM PERFORMANCE SUMMARY



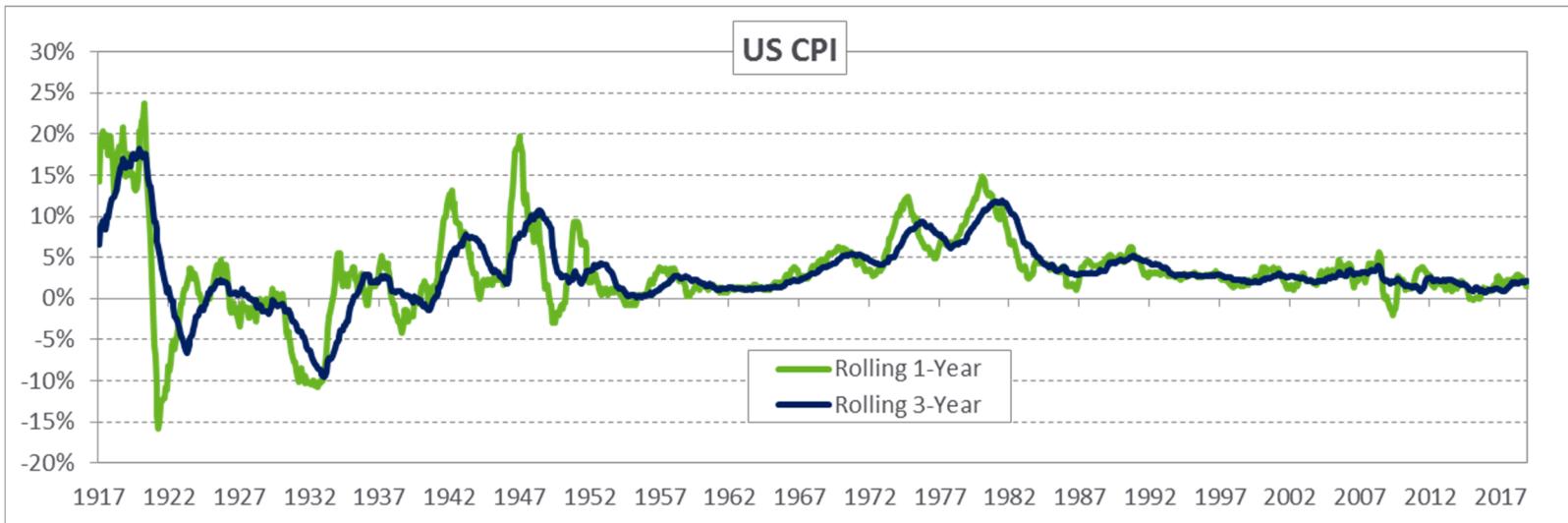
Source: Bloomberg, Standard and Poor's, Russell, MSCI, Barclays, JP Morgan



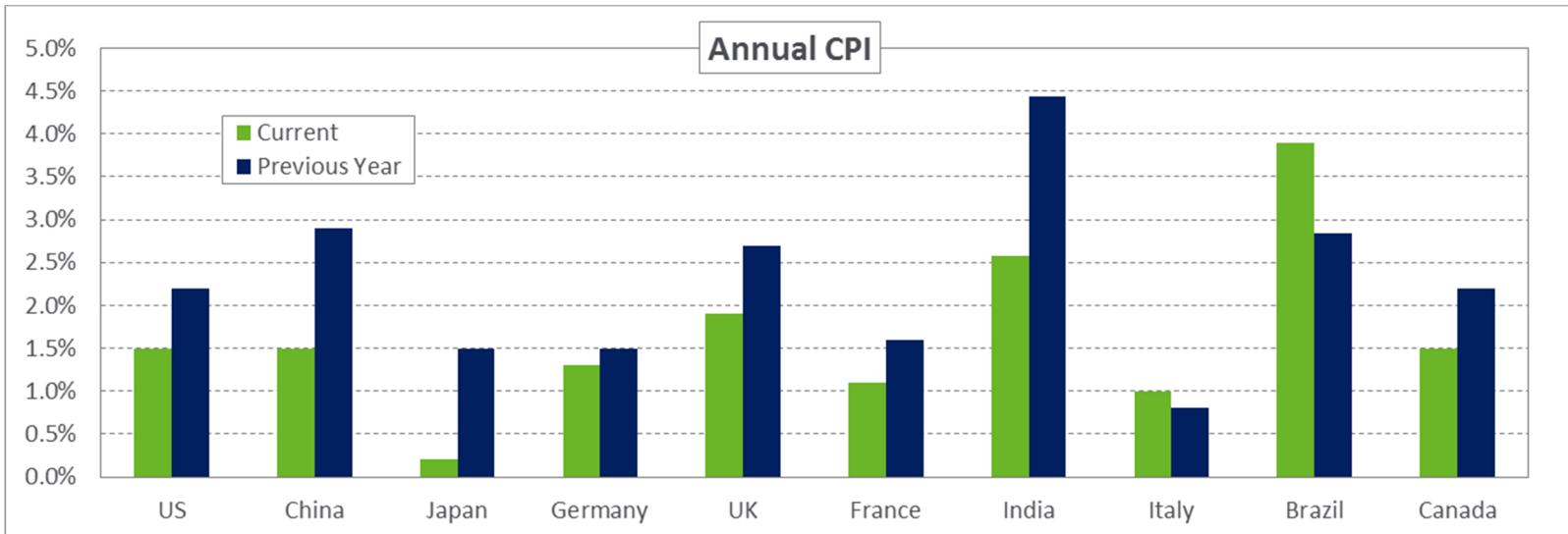
# MACRO

NEPC, LLC

# INFLATION



Source: Bureau of Labor Statistics, Bloomberg, NEPC



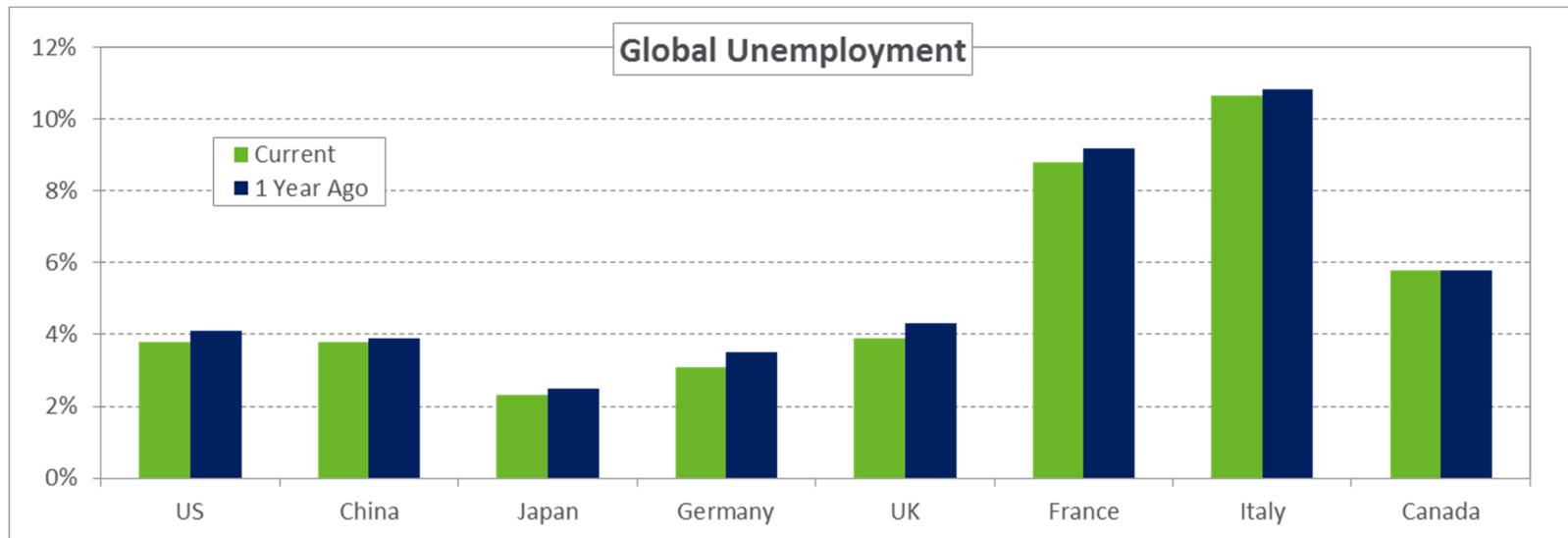
Source: Bureau of Labor Statistics, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, India Central Statistical Organization, ISTAT, IBGE, STCA, Bloomberg



# UNEMPLOYMENT



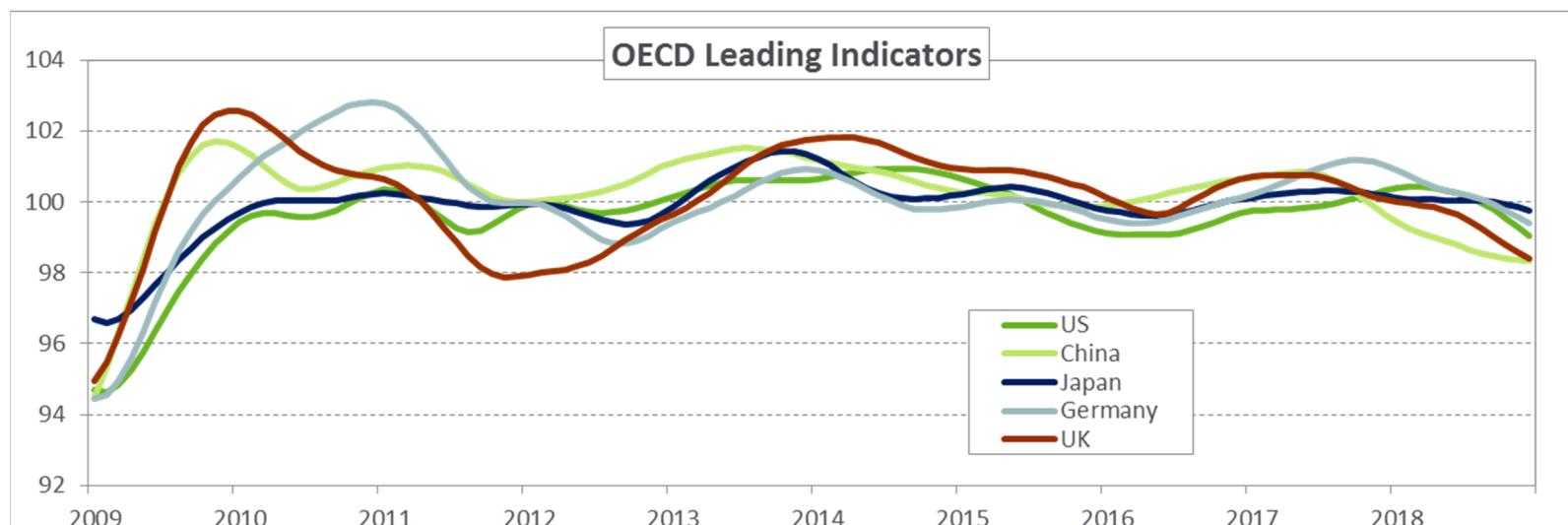
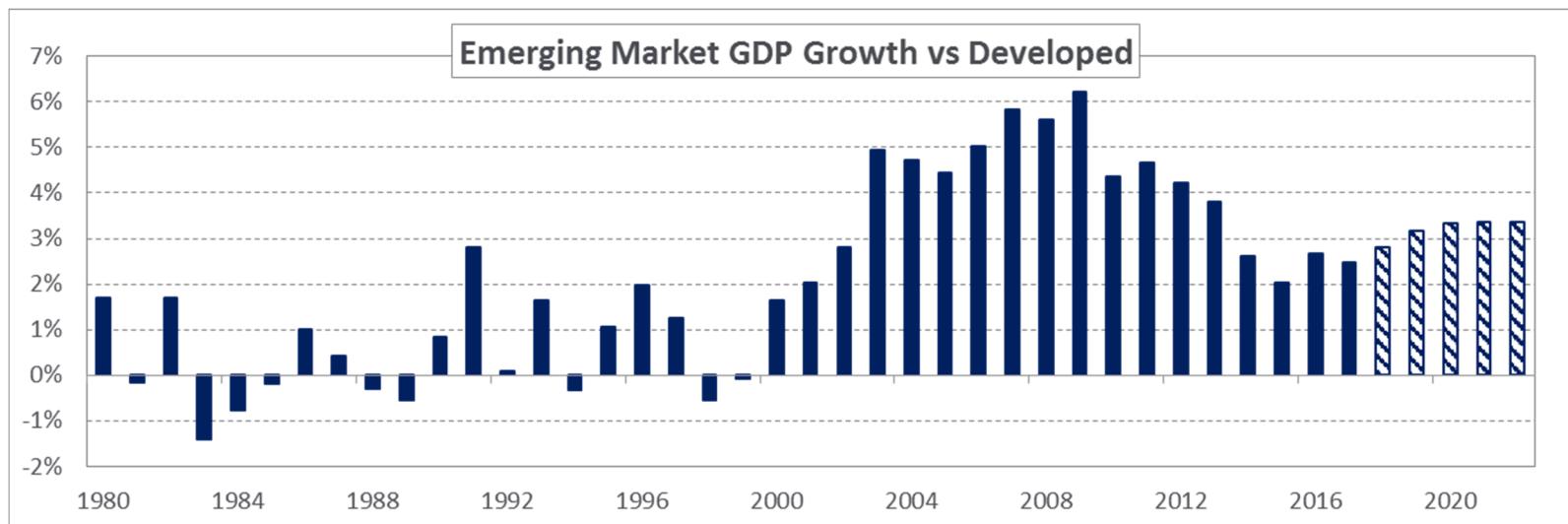
Source: Bureau of Labor Statistics, Bloomberg



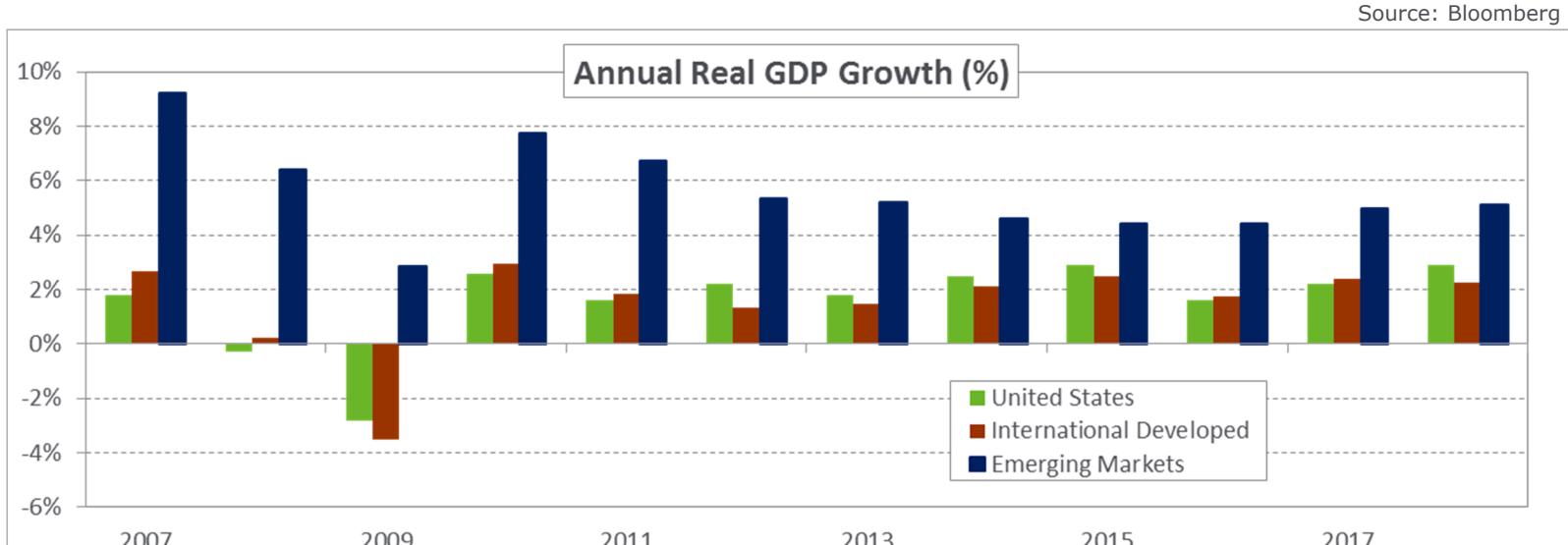
Source: Bureau of Labor Statistics, STA, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, ISTAT, IBGE, Bloomberg



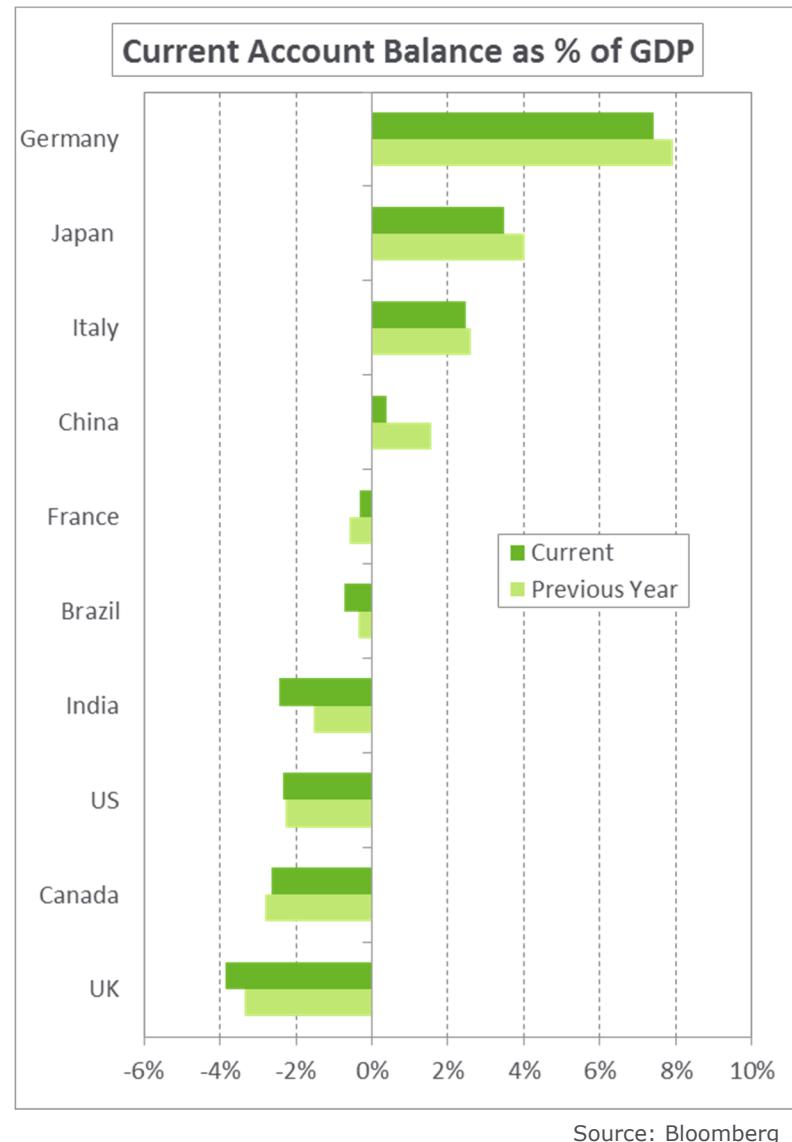
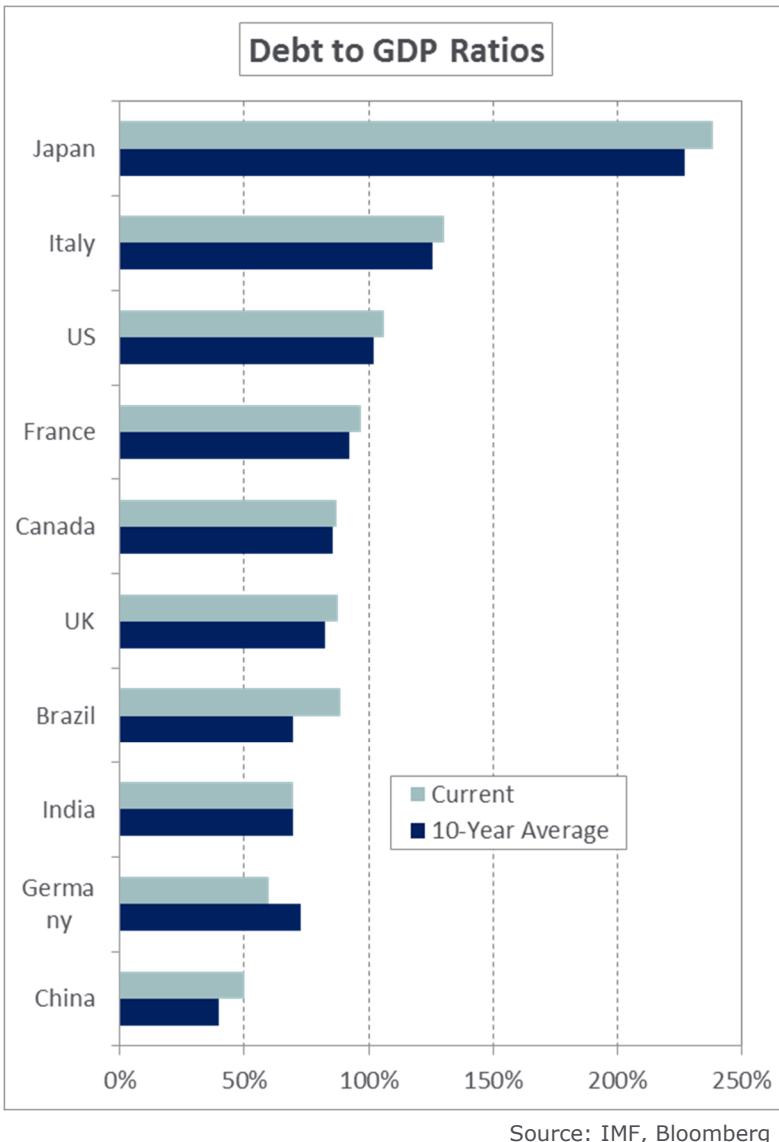
# ECONOMIC INDICATORS



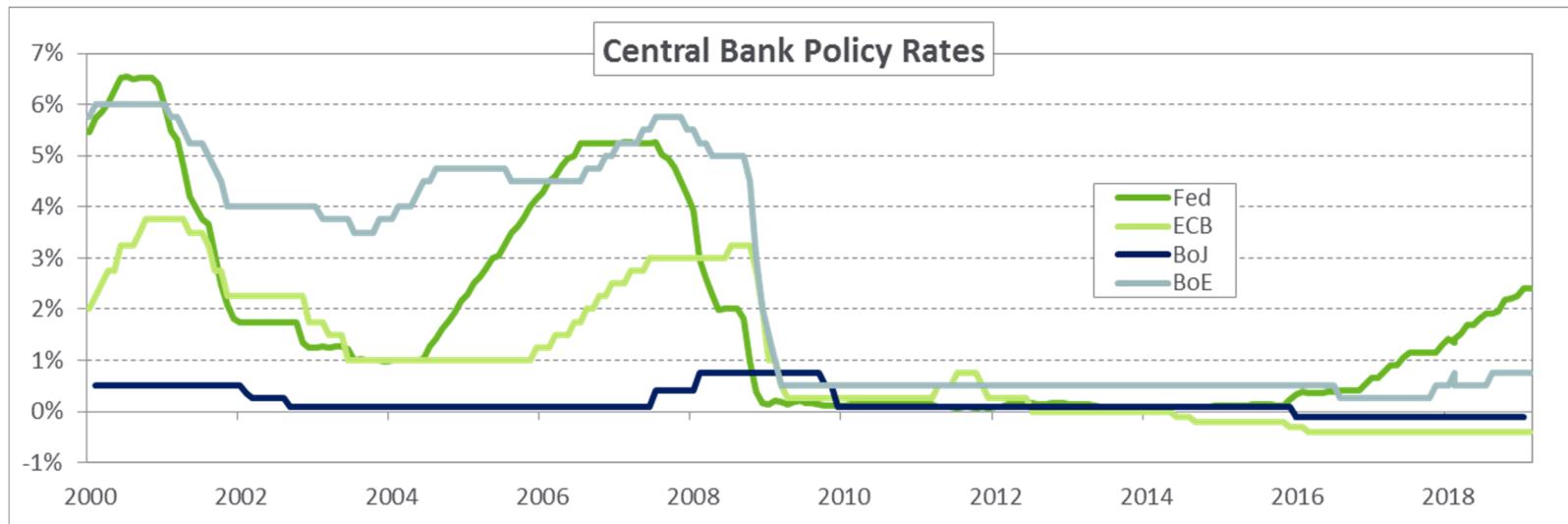
# GROSS DOMESTIC PRODUCT



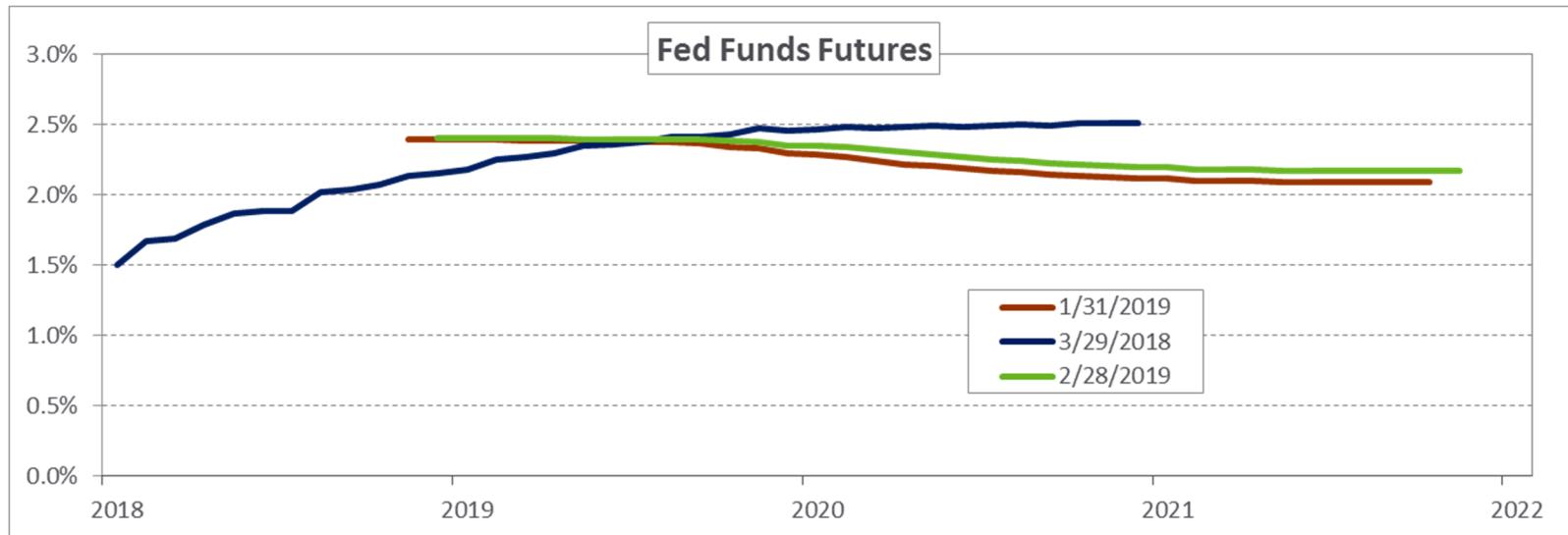
# GROSS DOMESTIC PRODUCT METRICS



# CENTRAL BANK RATES



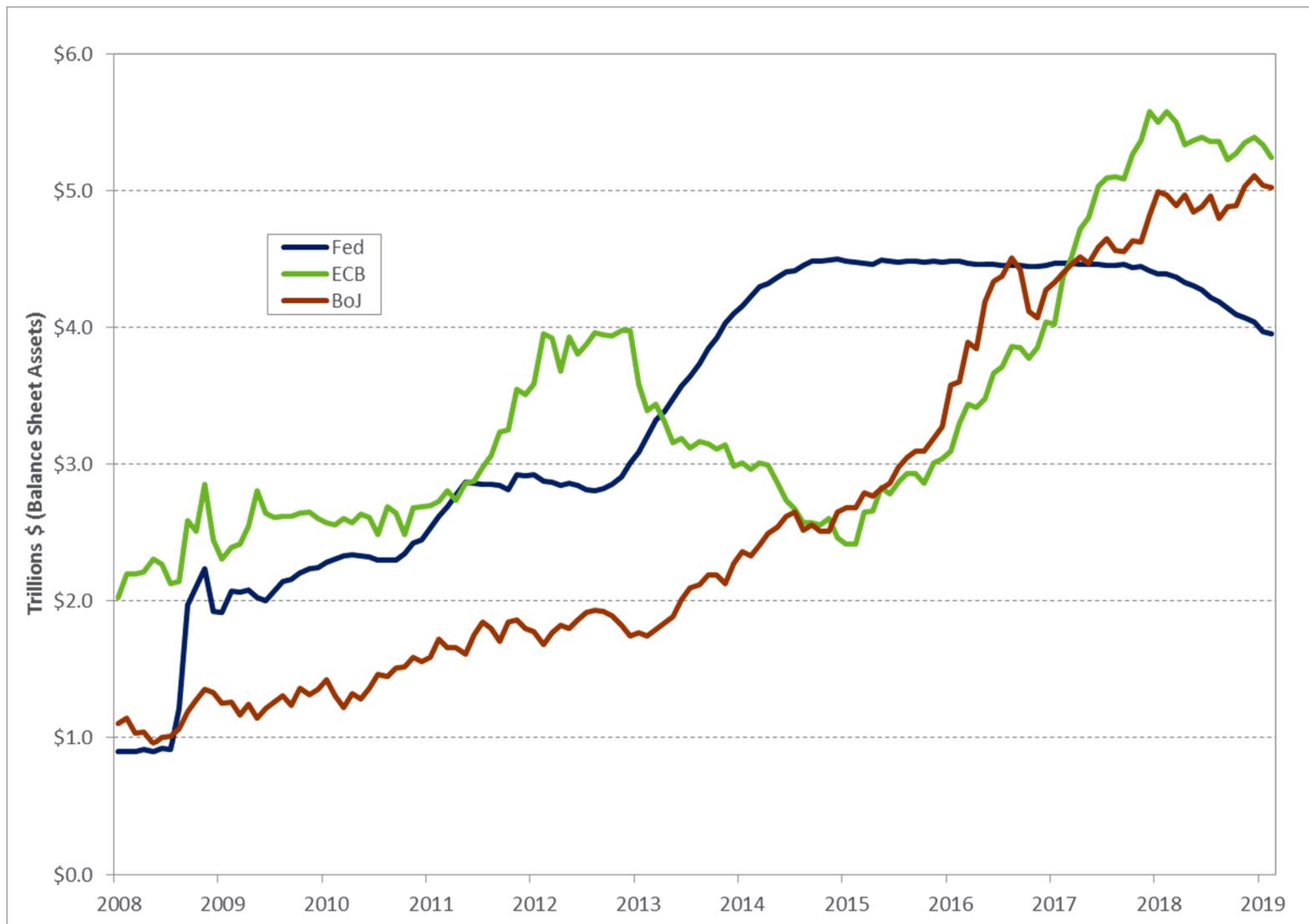
Source: Federal Reserve, ECB, Bank of Japan, Bank of England, Bloomberg



Source: Bloomberg



# CENTRAL BANK BALANCE SHEETS



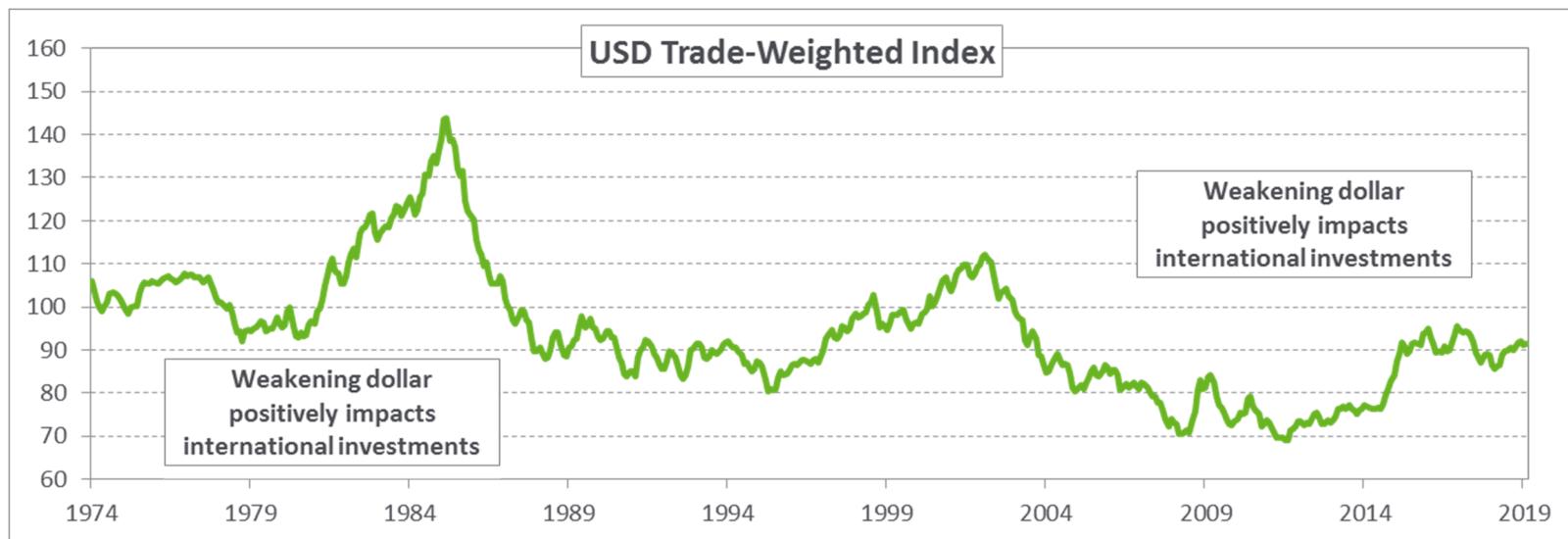
Source: Federal Reserve, Bank of Japan, ECB, Bloomberg, NEPC



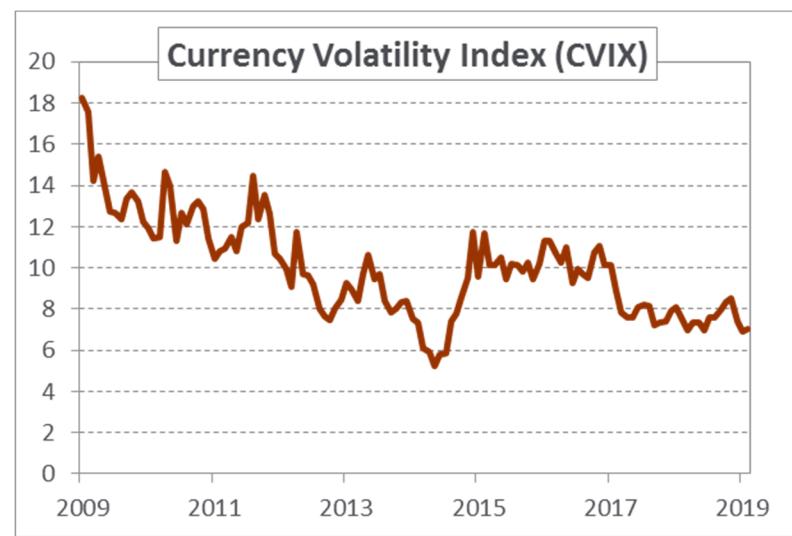
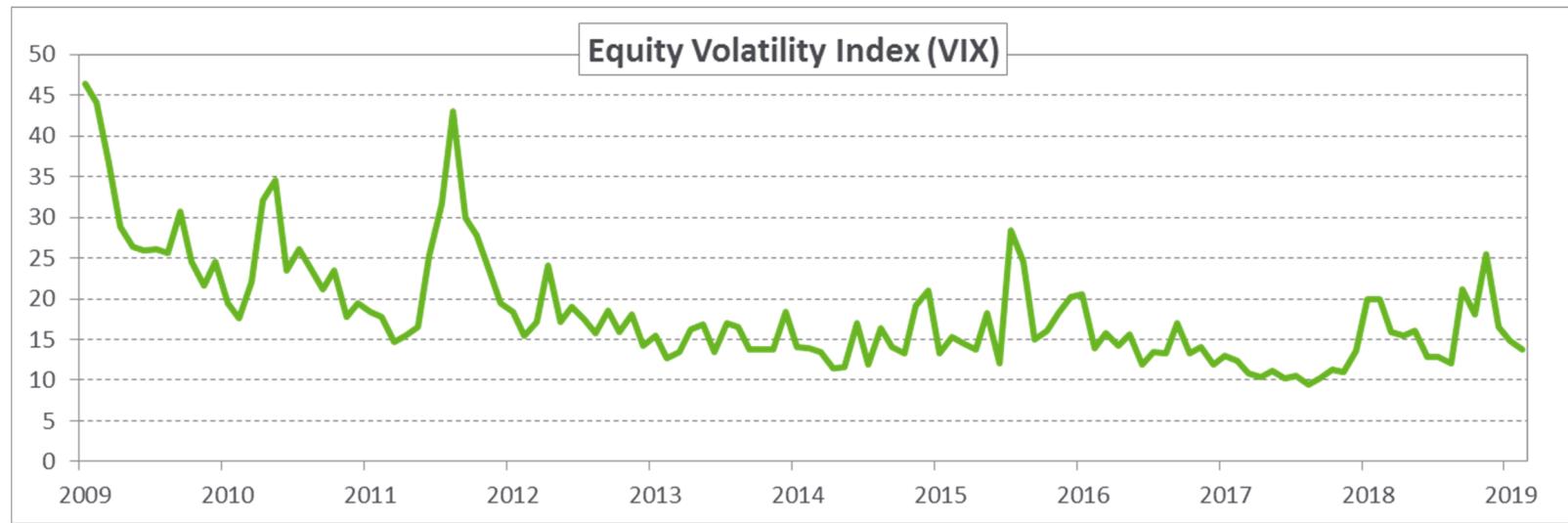
# CURRENCIES

Currencies	Spot	% Change Relative to USD		
		1 Month	YTD	1 Year
Euro	1.12	-1.3%	-2.2%	-9.0%
British Pound	1.30	-1.7%	2.2%	-7.0%
Japanese Yen	110.86	0.5%	-1.1%	-4.1%
Swiss Franc	1.00	0.3%	-1.3%	-4.1%
Australian Dollar	0.71	0.0%	0.7%	-7.6%
Chinese Yuan	6.71	-0.3%	2.5%	-6.5%
Brazilian Real	3.92	-4.2%	-1.2%	-15.7%
Russian Ruble	65.63	0.4%	6.2%	-13.0%
Indian Rupee	69.15	2.3%	0.9%	-5.7%
Mexican Peso	19.43	-0.8%	1.1%	-6.4%
South African Rand	14.50	-2.9%	-1.1%	-18.3%

Source: Bloomberg



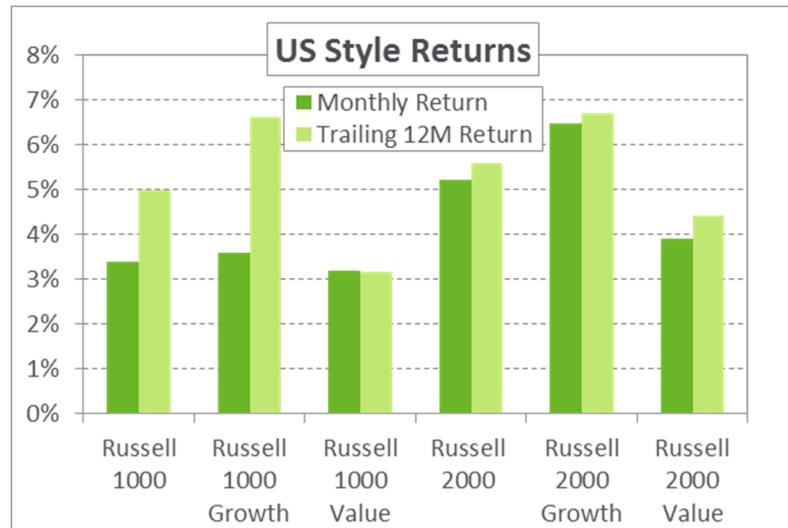
# VOLATILITY



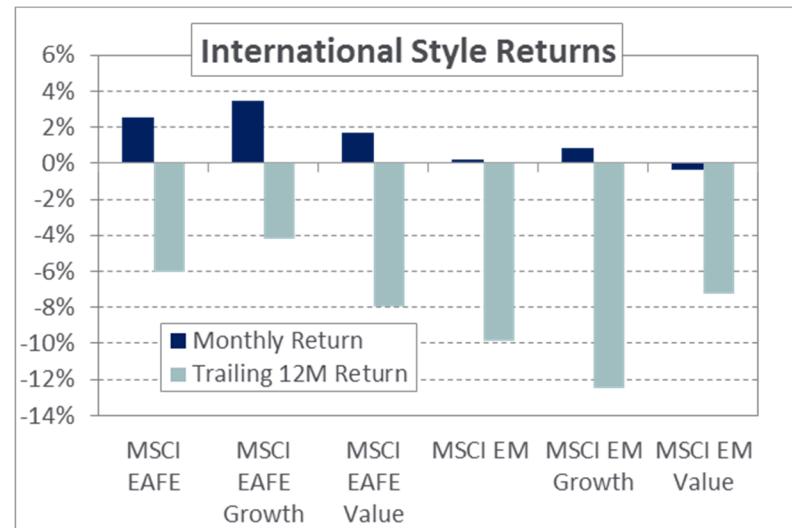
# EQUITY

NEPC, LLC

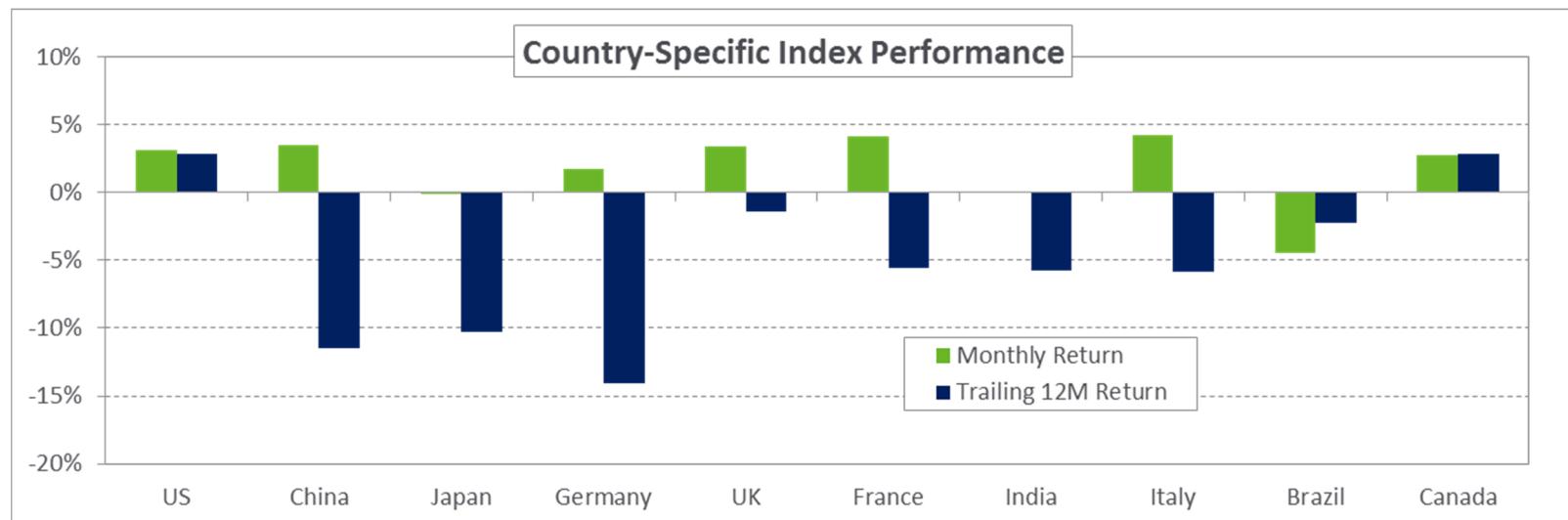
# EQUITY INDEX PERFORMANCE



Source: Russell, Bloomberg



Source: MSCI, Bloomberg



Source: MSCI, Bloomberg  
Represents returns in USD

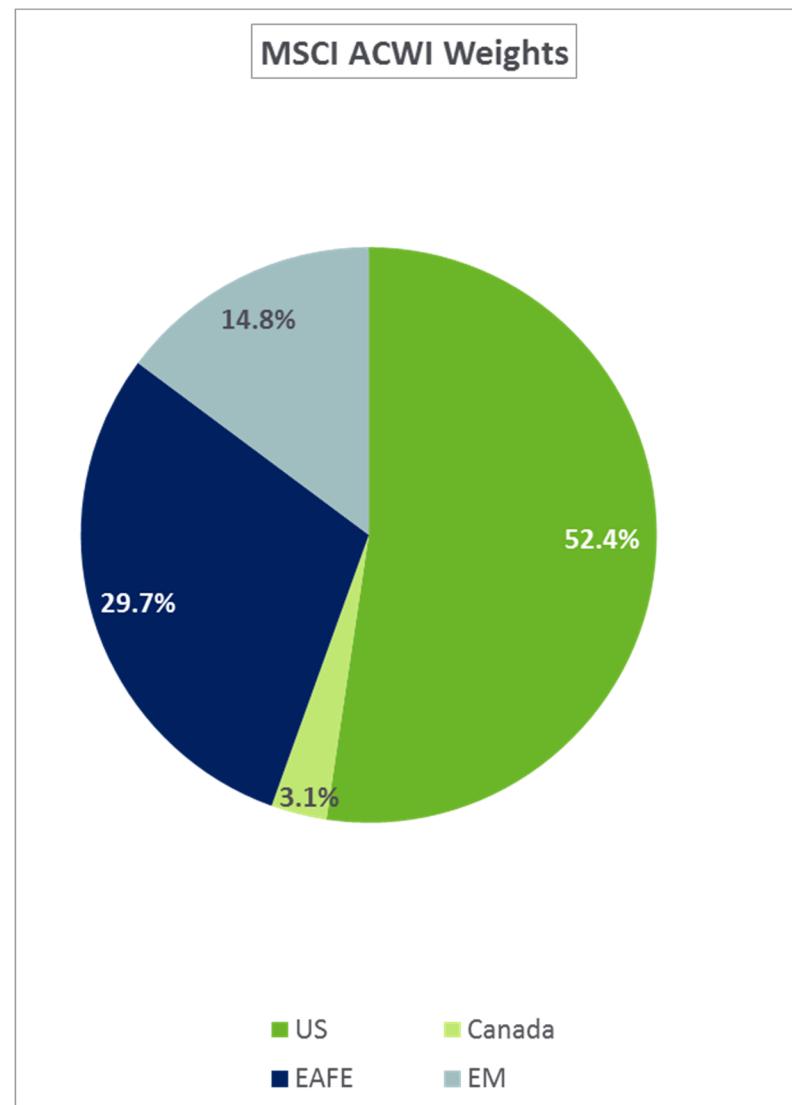


# INDEX COMPOSITION

	MTD	QTD	YTD	Index Weight
<b>S&amp;P 500</b>	<b>3.2%</b>	<b>11.5%</b>	<b>11.5%</b>	<b>100%</b>
Cons Disc	0.7%	11.1%	11.1%	10.0%
Cons Staples	2.2%	7.5%	7.5%	7.3%
Energy	2.4%	13.8%	13.8%	5.5%
Financials	2.3%	11.3%	11.3%	12.7%
Health Care	1.1%	6.0%	6.0%	15.0%
Industrials	6.3%	18.4%	18.4%	9.9%
Info Tech	6.8%	14.2%	14.2%	20.4%
Materials	3.2%	8.9%	8.9%	2.7%
Real Estate	1.0%	11.9%	11.9%	3.0%
Telecom	0.8%	11.2%	11.2%	10.2%
Utilities	4.0%	7.5%	7.5%	3.3%

	MTD	QTD	YTD	Index Weight
<b>MSCI ACWI</b>	<b>2.7%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>100%</b>
Cons Disc	1.6%	11.4%	11.4%	11.1%
Cons Staples	1.9%	7.1%	7.1%	8.1%
Energy	2.2%	12.8%	12.8%	6.1%
Financials	2.4%	10.8%	10.8%	17.7%
Health Care	1.9%	7.1%	7.1%	11.4%
Industrials	4.4%	14.2%	14.2%	10.9%
Info Tech	6.0%	14.3%	14.3%	14.5%
Materials	2.4%	10.0%	10.0%	4.9%
Real Estate	0.0%	10.5%	10.5%	3.3%
Telecom	0.3%	8.9%	8.9%	8.7%
Utilities	2.2%	7.5%	7.5%	3.3%

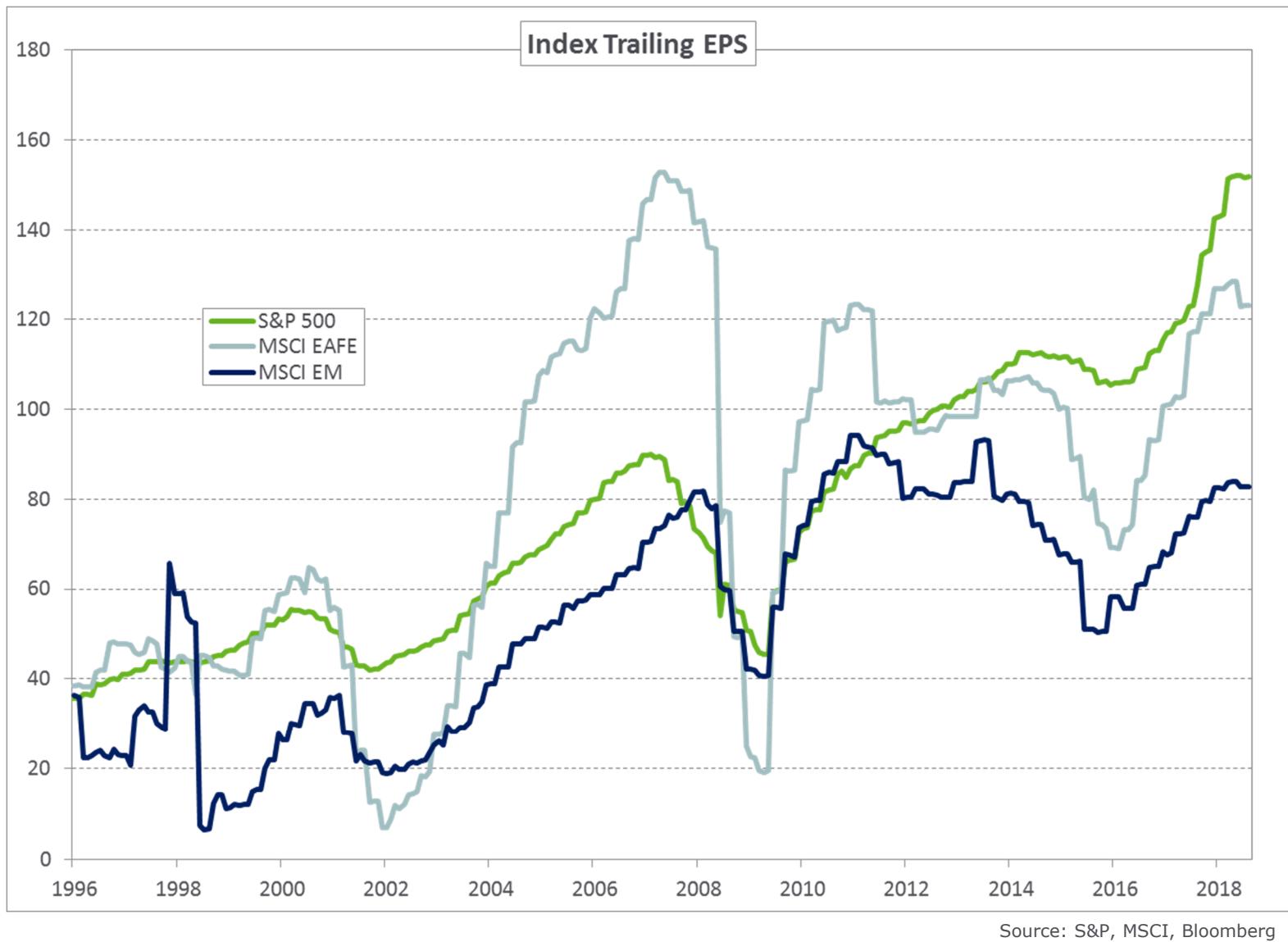
Source: S&P, MSCI, Bloomberg



Source: MSCI, Bloomberg



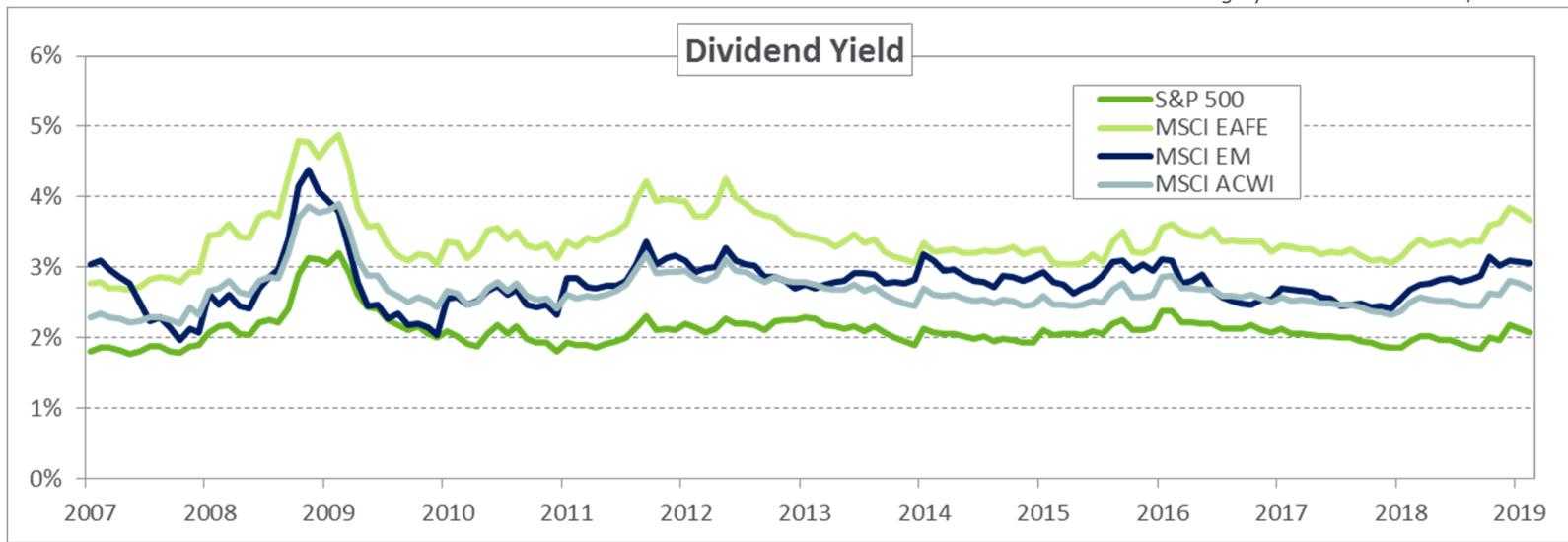
# EARNINGS



# YIELDS



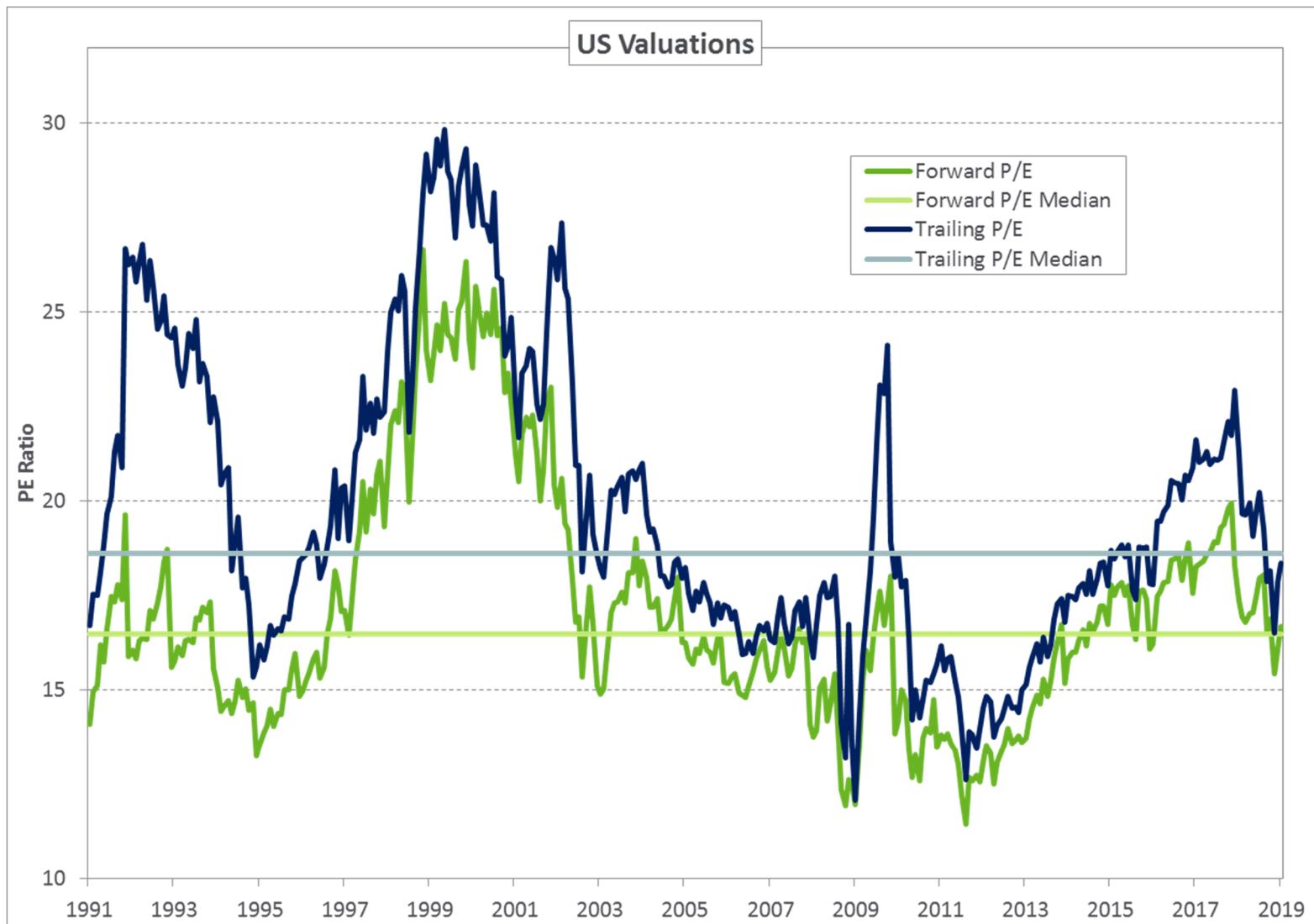
Source: S&P, MSCI, Bloomberg  
Earnings yield calculated as 1/PE Ratio



Source: S&P, MSCI, Bloomberg



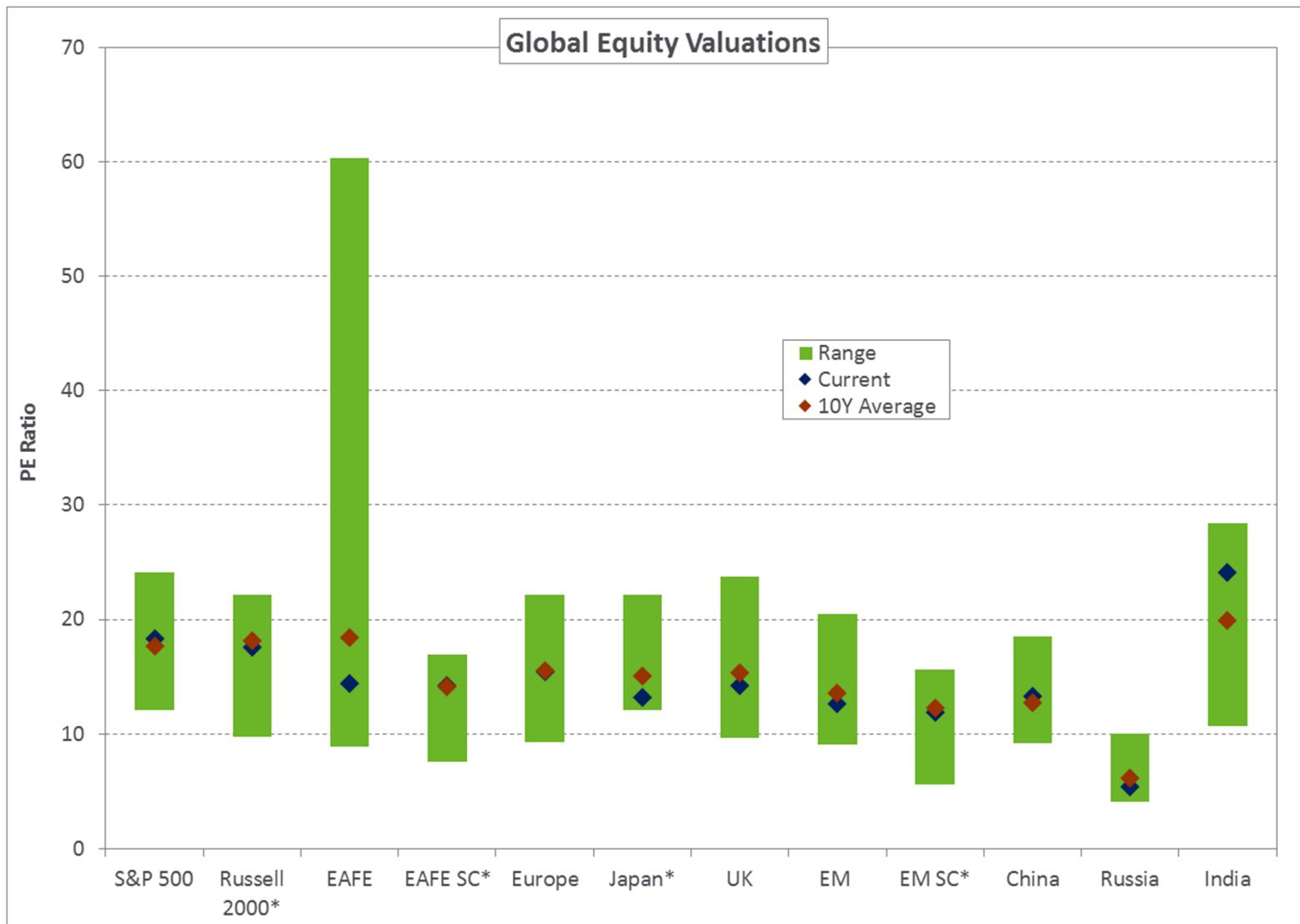
# US EQUITY VALUATIONS



Source: S&P, Bloomberg  
Medians calculated as of 01/31/1990



# GLOBAL EQUITY VALUATIONS



Source: S&P, Russell, MSCI, Bloomberg, NEPC

\*Denotes the use of index-adjusted positive PE ratio  
Ranges calculated using trailing 10-year figures



# CREDIT

NEPC, LLC

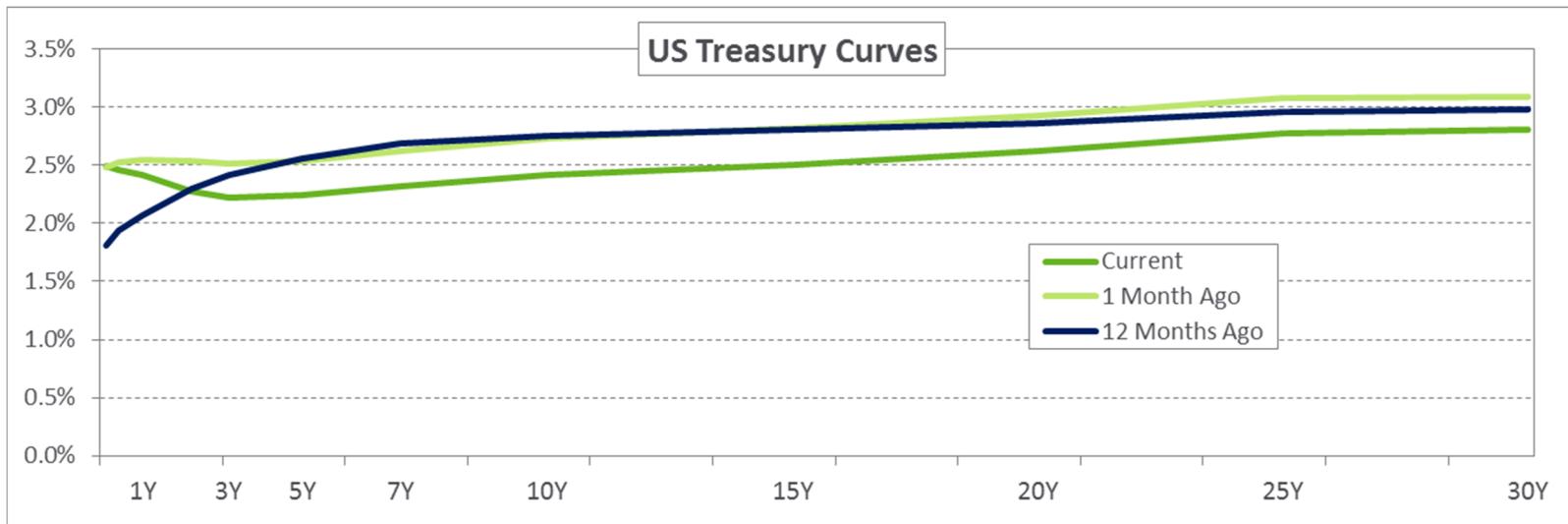
# FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	2.9%	44	5.8	1.9%	2.9%	4.5%
Barclays Treasury	2.4%	-	6.2	1.9%	2.1%	4.2%
Barclays Agency	2.5%	13	4.1	1.4%	1.8%	3.7%
Barclays MBS	3.1%	35	4.0	1.5%	2.2%	4.4%
Barclays ABS	2.6%	33	2.4	0.7%	1.5%	3.7%
Barclays CMBS	3.0%	69	5.3	1.8%	3.2%	5.4%
Barclays Corp IG	3.6%	119	7.4	2.5%	5.1%	4.9%
Barclays Muni	2.3%	-	5.8	1.6%	2.9%	5.4%
Barclays HY Muni	4.7%	-	8.8	2.6%	3.8%	8.1%
Barclays TIPS	2.6%	-	5.2	1.8%	3.2%	2.7%
Barclays HY	6.4%	391	3.4	0.9%	7.3%	5.9%
Barclays Global Agg	1.8%	48	7.0	1.3%	2.2%	-0.4%
JPM EMBI Glob Div	6.1%	372.77	7.4	1.4%	7.0%	4.2%
JPM CEMBI Broad	4.5%	282.7	4.5	1.3%	5.2%	4.6%
JPM GBI - EM	6.2%	-	5.2	-1.3%	2.9%	-7.6%

Source: Barclays, JPM, Bloomberg



# TREASURIES



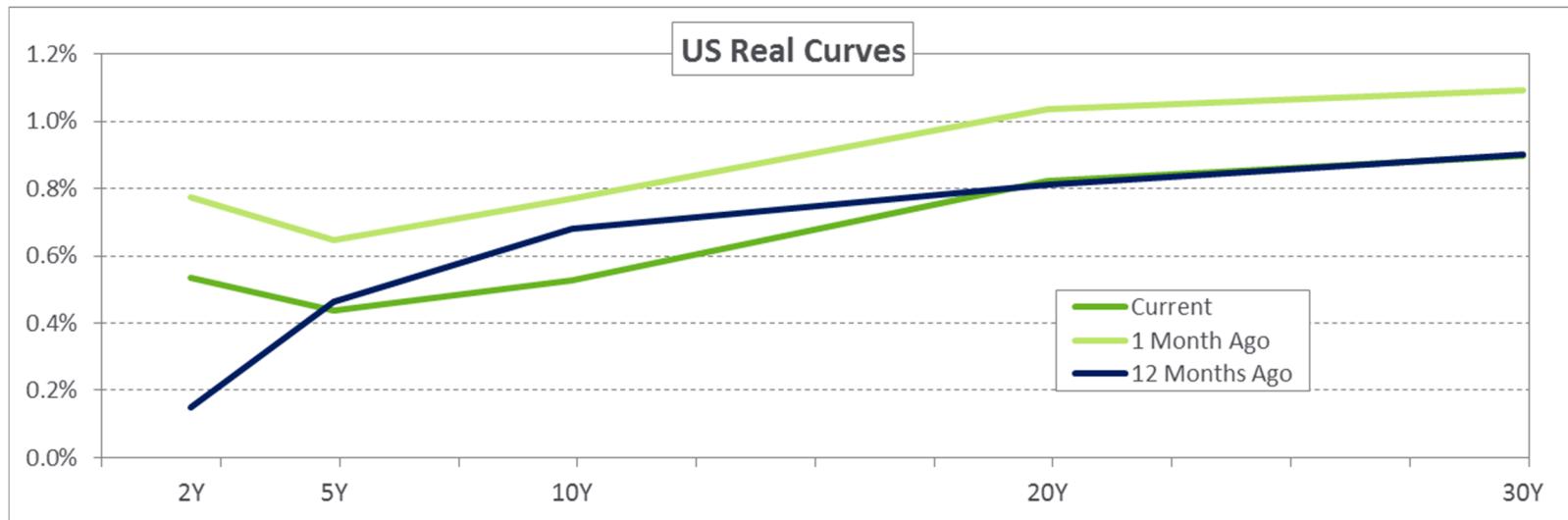
Source: Bloomberg

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	2.49%	2.49%	1.81%	0.21%	2.09%
6M Treasury	2.46%	2.52%	1.94%	0.23%	2.22%
2Y Treasury	2.28%	2.54%	2.30%	0.63%	2.56%
5Y Treasury	2.24%	2.54%	2.56%	1.49%	4.37%
10Y Treasury	2.41%	2.73%	2.75%	2.84%	5.60%
30Y Treasury	2.81%	3.09%	2.98%	5.60%	6.26%

Source: Barclays, Bloomberg



# REAL YIELDS



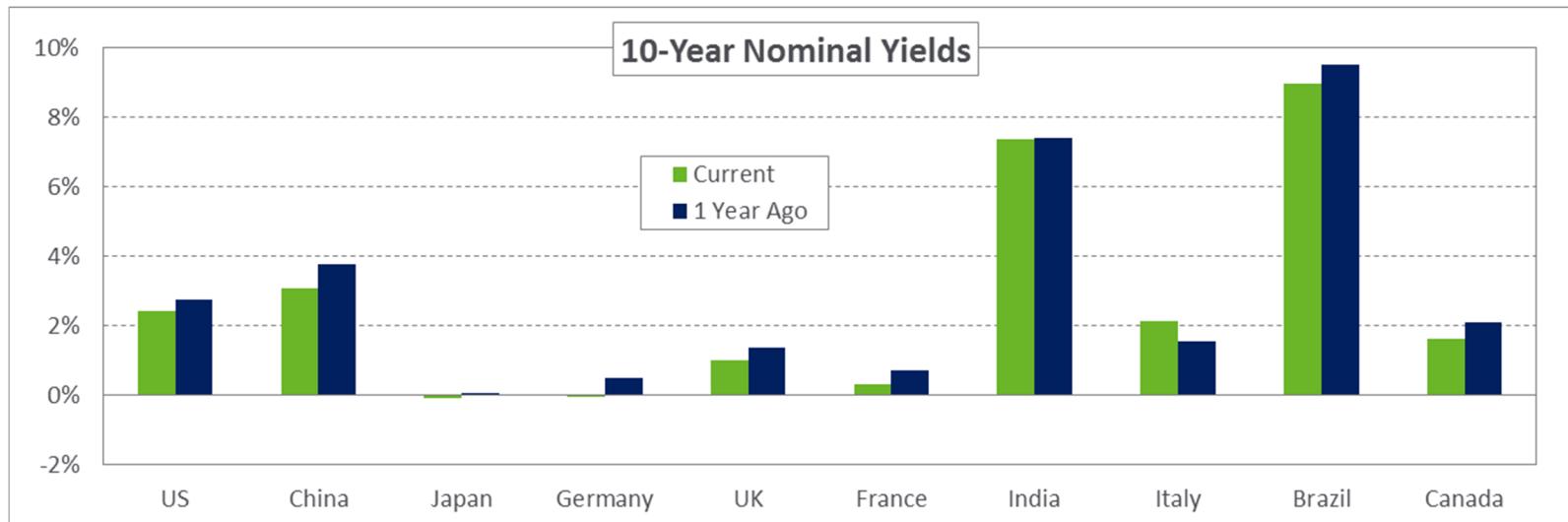
Source: Bloomberg

	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months Ago
2Y Treasury	0.53%	0.78%	0.15%	1.83%	1.98%
5Y Treasury	0.44%	0.65%	0.47%	1.79%	2.04%
10Y Treasury	0.53%	0.77%	0.68%	1.87%	2.06%
20Y Treasury	0.82%	1.04%	0.81%	1.85%	2.00%
30Y Treasury	0.90%	1.09%	0.90%	1.92%	2.07%

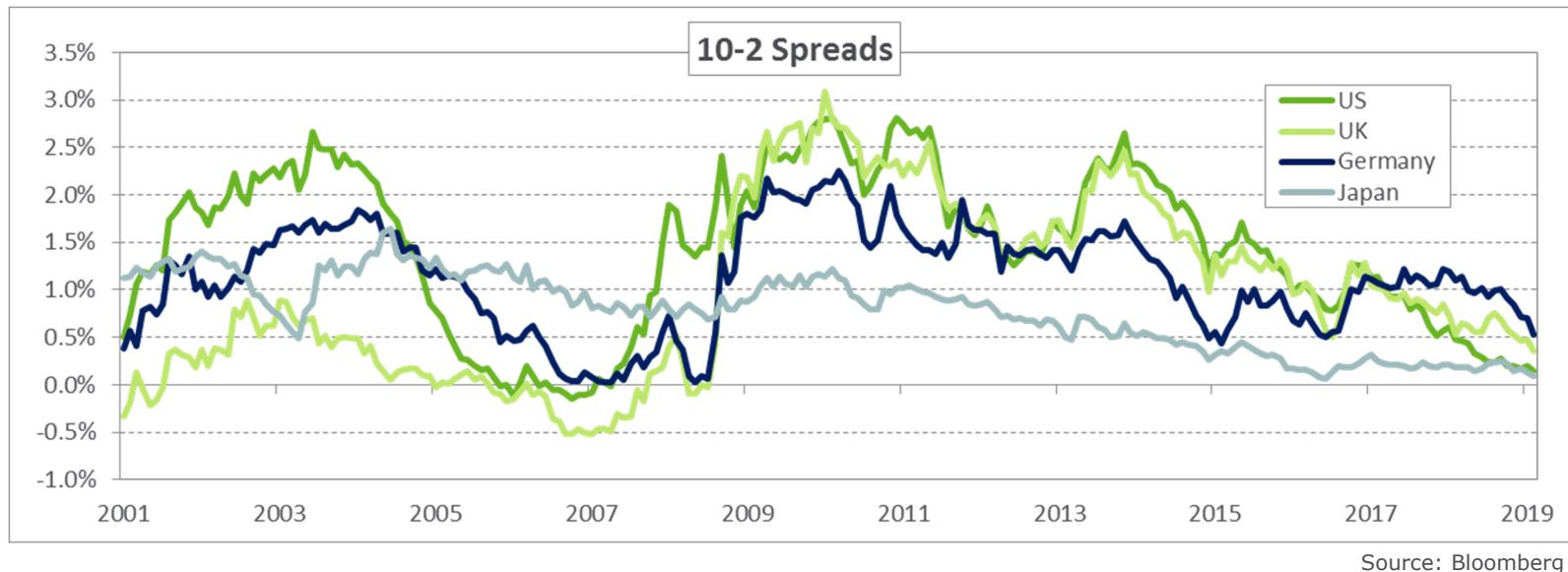
Source: Barclays, Bloomberg



# NOMINAL YIELDS



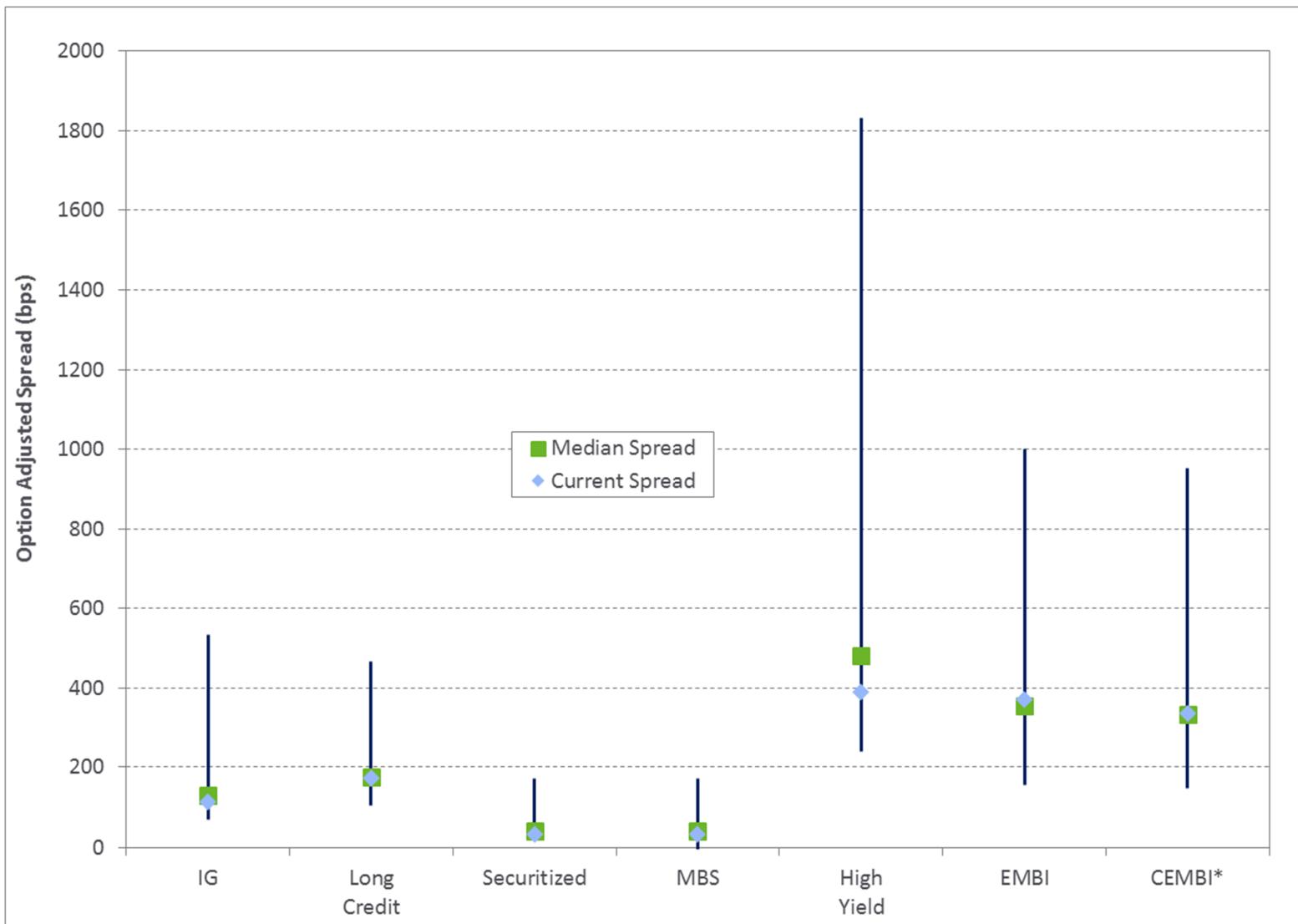
Source: Bloomberg



Source: Bloomberg



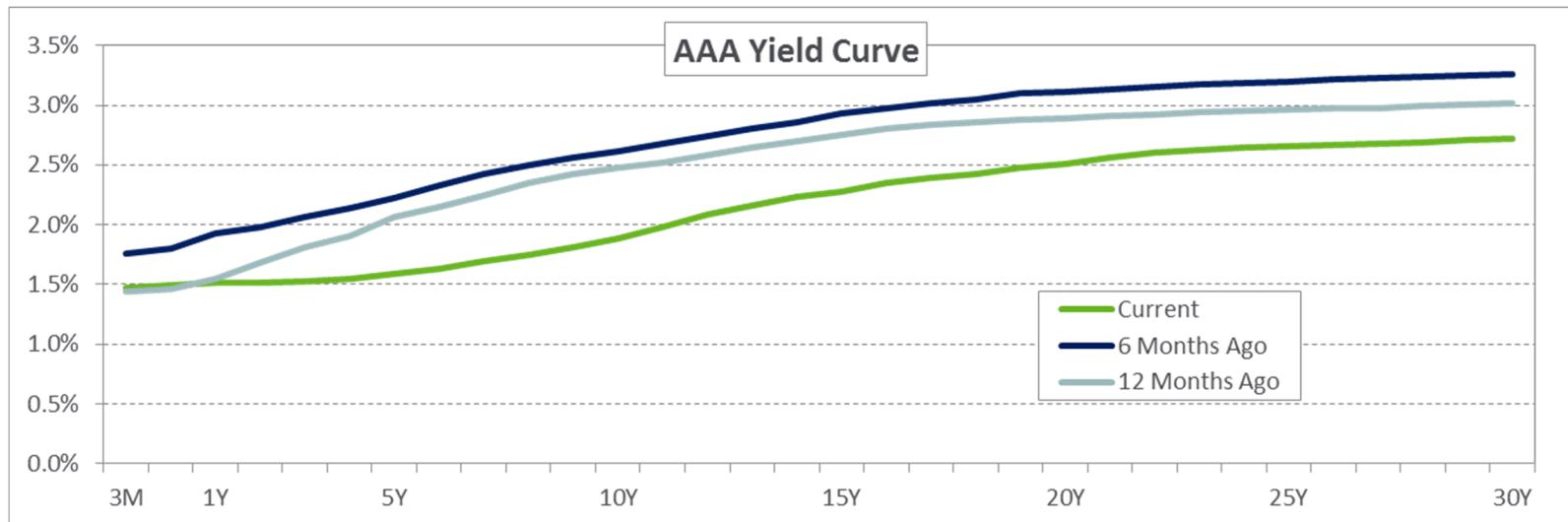
# CREDIT SPREADS



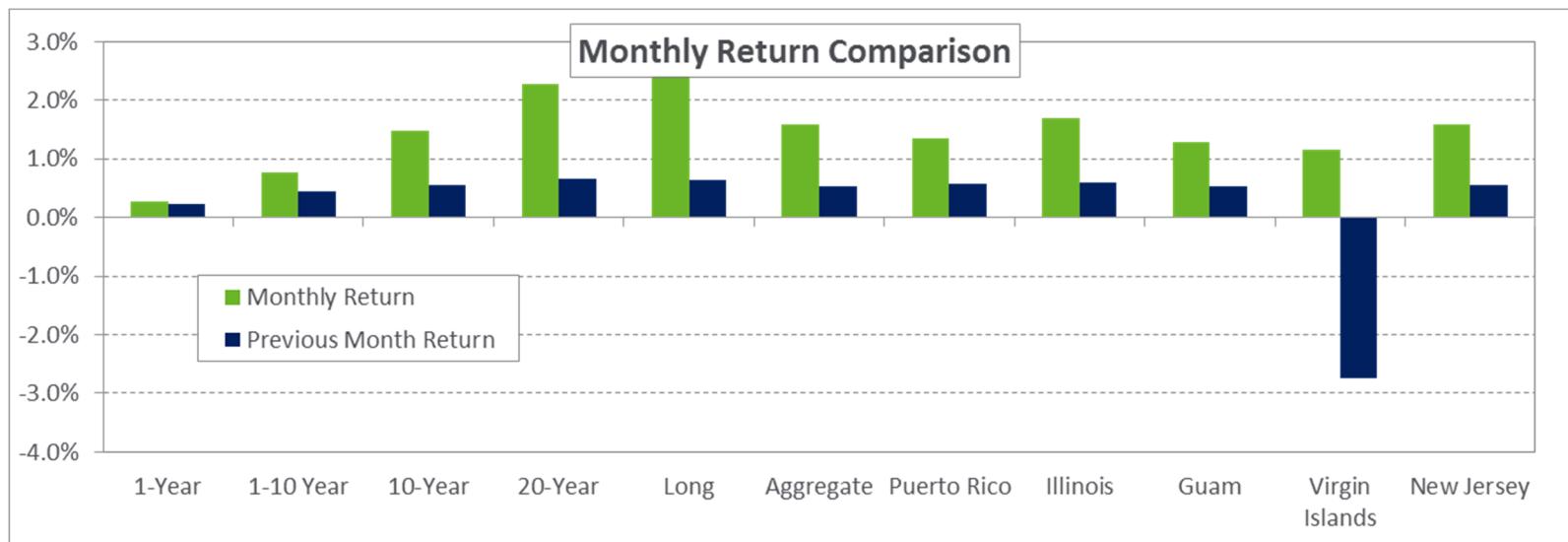
Source: Barclays, JPM, Bloomberg  
Data range: 01/31/2000 through month-end  
\*JPM CEMBI calculated since 12/31/2001



# MUNICIPAL BONDS



Source: Bloomberg



Source: Barclays, Bloomberg



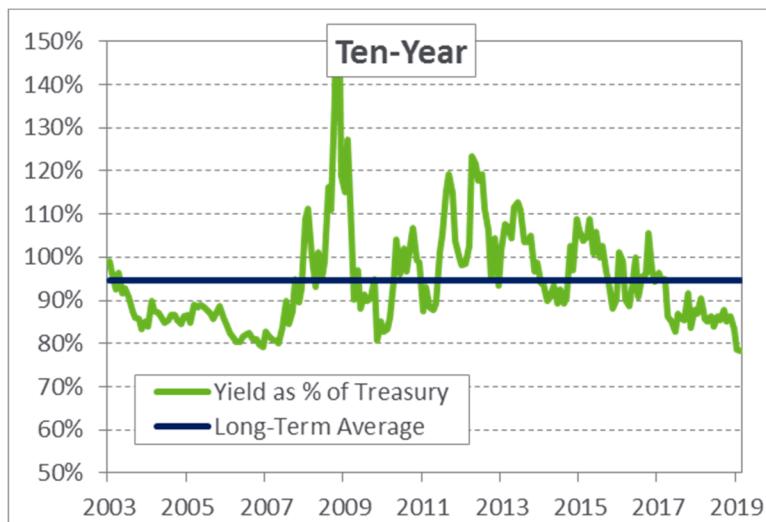
# MUNICIPAL BOND YIELDS



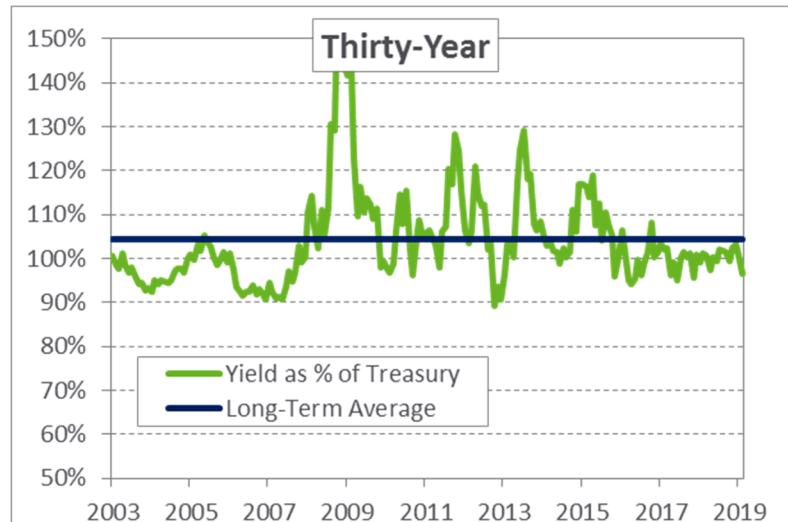
Source: Bloomberg  
Long-term average calculated since 2/28/2003



Source: Bloomberg  
Long-term average calculated since 2/28/2003



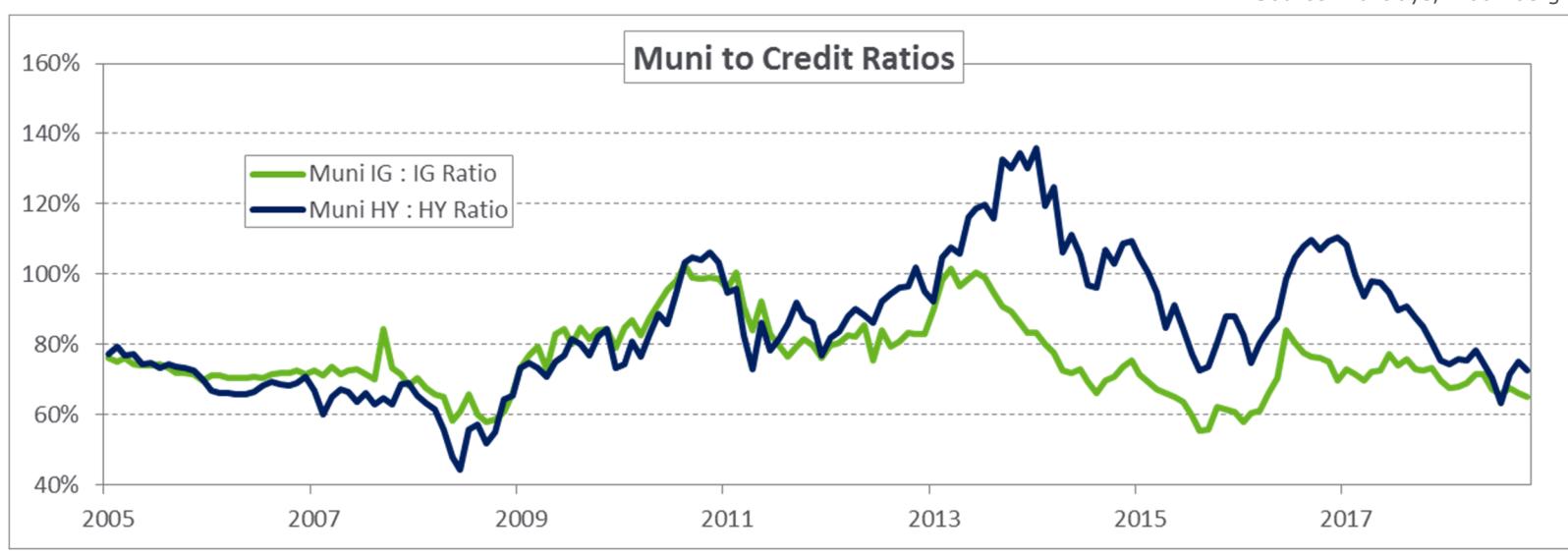
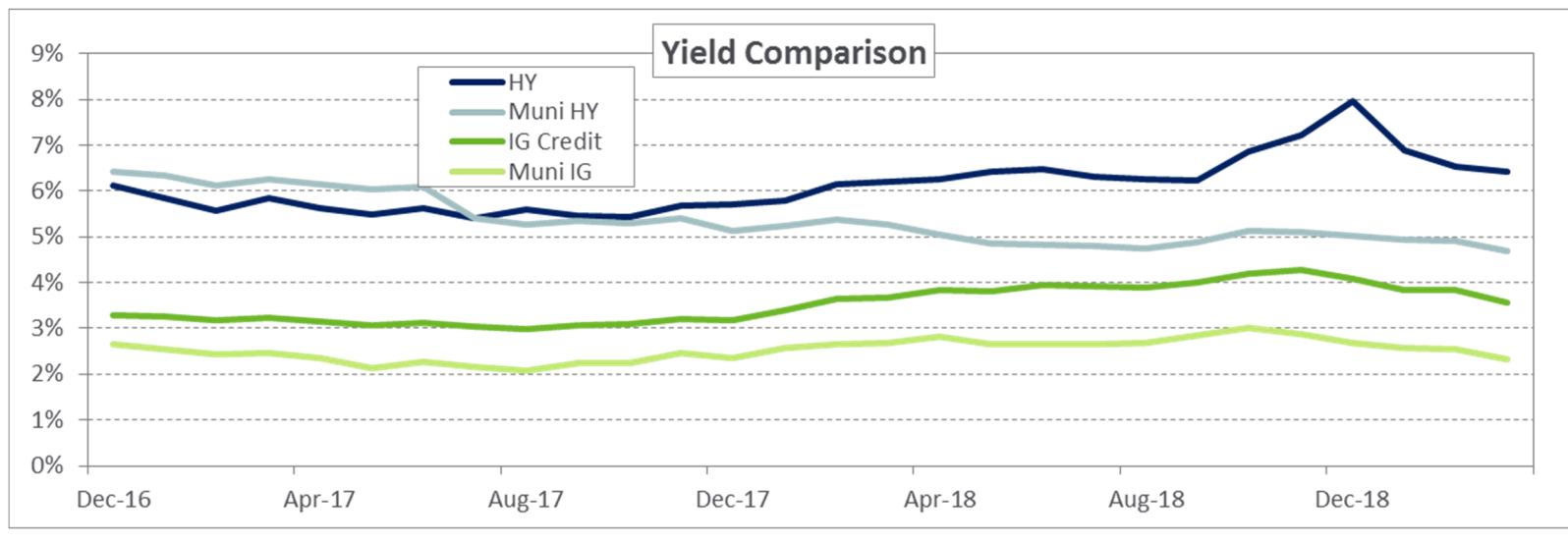
Source: Bloomberg  
Long-term average calculated since 2/28/2003



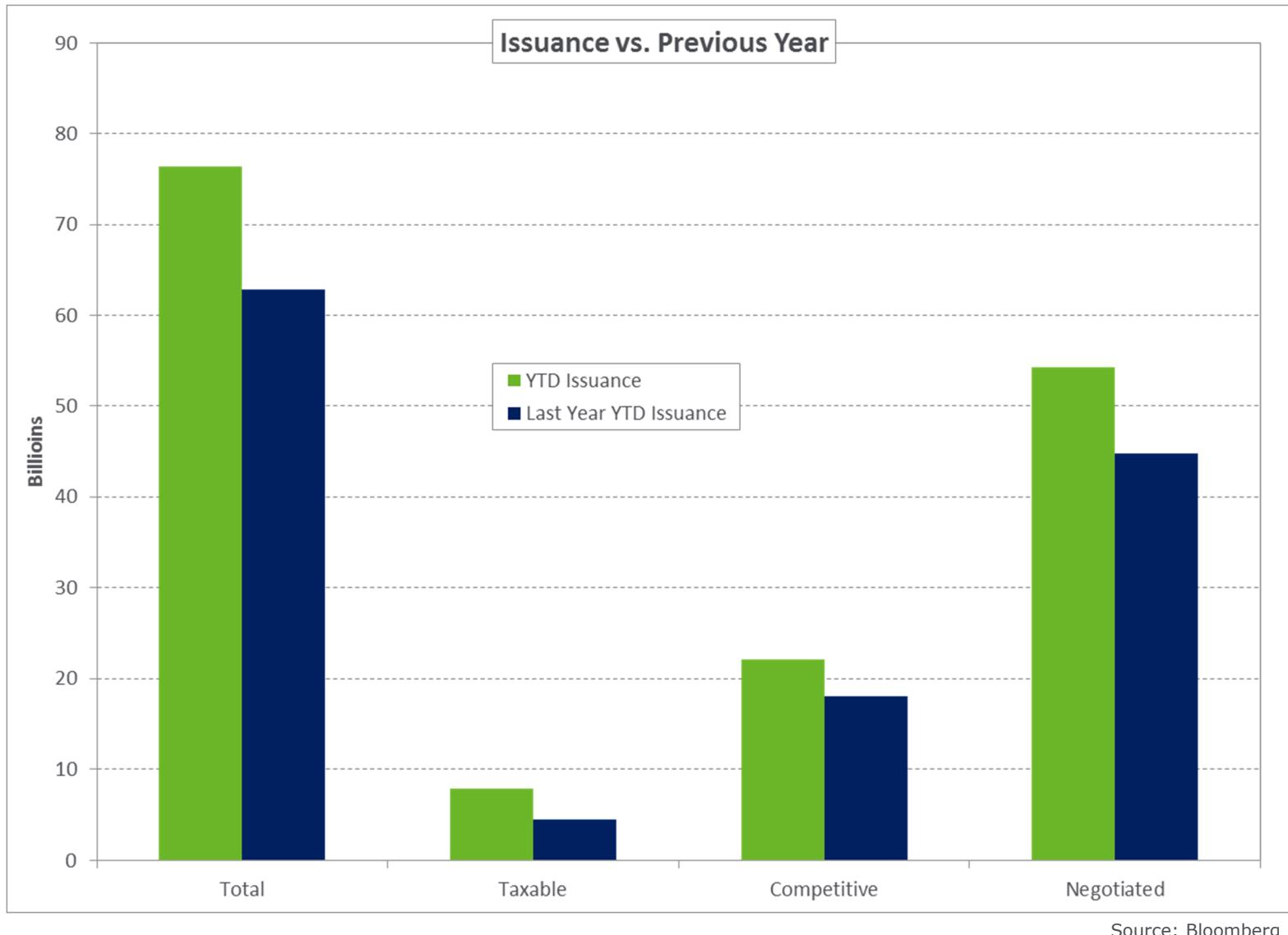
Source: Bloomberg  
Long-term average calculated since 2/28/2003



# MUNICIPAL BOND RATIOS



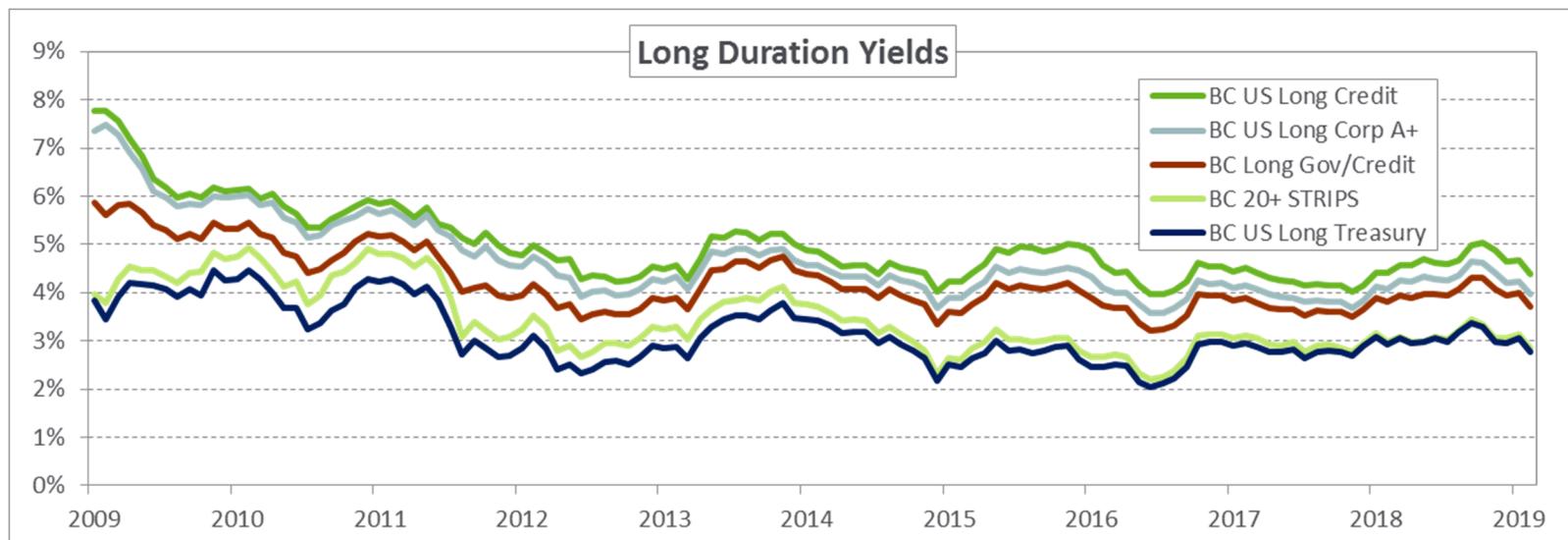
# MUNICIPAL BOND ISSUANCE



# LONG DURATION

Index	Month-End Yield	1 Month Prior Yield	1 Year Prior Yield	Duration
Barclays Long Treasury	2.8%	3.1%	2.9%	17.7
Barclays 20+ STRIPS	2.9%	3.1%	3.0%	25.9
Barclays Long Gov/Credit	3.7%	4.0%	3.8%	15.3
Barclays Long Credit	4.4%	4.7%	4.4%	13.7
Barclays Long Corp A+	4.0%	4.2%	4.1%	14.5

Source: Barclays, Bloomberg



Source: Barclays, Bloomberg



# REAL ASSETS

NEPC, LLC

# REAL ASSETS INDEX PERFORMANCE

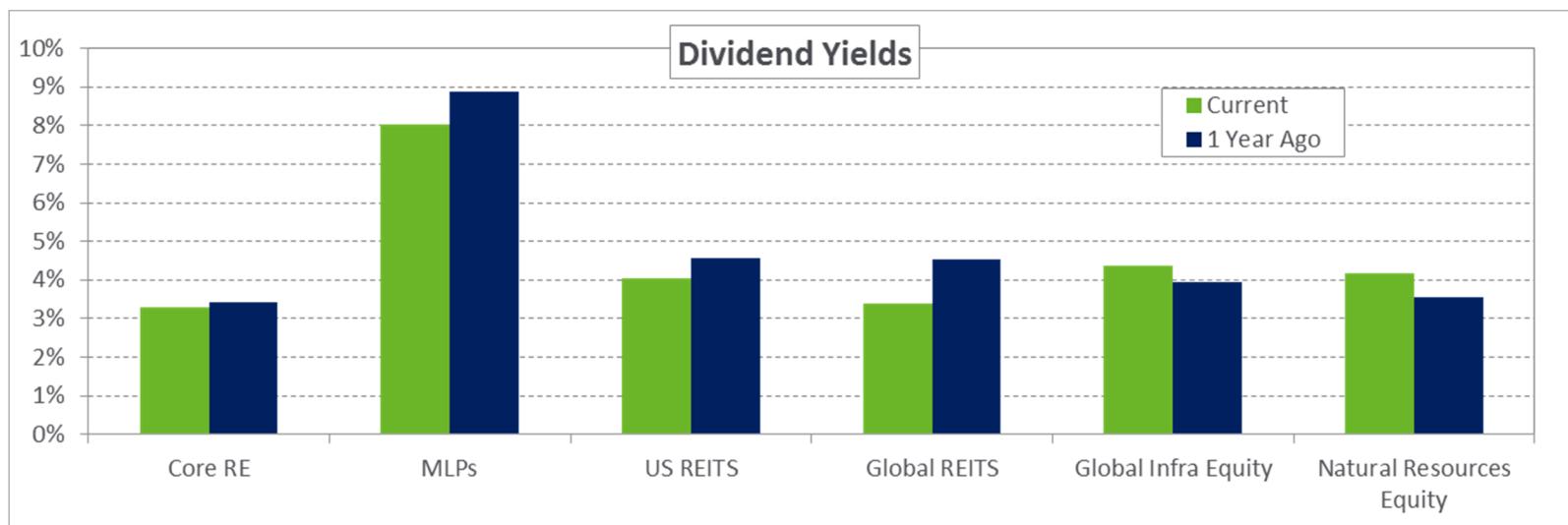
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	-0.2%	6.3%	6.3%	-5.3%	2.2%	-8.9%
Bloomberg Sub Agriculture Index	-2.2%	-3.2%	-3.2%	-16.3%	-8.0%	-12.4%
Coffee	-3.8%	-9.5%	-9.5%	-28.0%	-17.7%	-19.9%
Corn	-3.7%	-6.3%	-6.3%	-17.8%	-9.8%	-15.8%
Cotton	6.8%	6.2%	6.2%	-4.0%	10.2%	-2.0%
Soybean	-2.9%	-2.7%	-2.7%	-21.6%	-5.8%	-9.2%
Soybean Oil	-6.2%	0.7%	0.7%	-16.2%	-10.7%	-10.9%
Sugar	-1.8%	5.8%	5.8%	-4.8%	-10.9%	-15.0%
Wheat	-0.2%	-9.0%	-9.0%	-8.7%	-14.4%	-17.5%
Bloomberg Sub Energy	0.7%	15.9%	15.9%	-0.5%	7.5%	-16.7%
Brent Crude	1.9%	25.2%	25.2%	1.1%	15.3%	-15.0%
Heating Oil	-2.3%	19.3%	19.3%	0.9%	15.3%	-11.2%
Natural Gas	-5.5%	-7.9%	-7.9%	-1.3%	-6.2%	-24.8%
Unleaded Gas	6.8%	26.7%	26.7%	-9.9%	4.1%	-13.1%
WTI Crude Oil	4.6%	30.2%	30.2%	-4.9%	9.6%	-18.4%
Bloomberg Sub Industrial Metals	0.9%	12.8%	12.8%	-3.1%	11.3%	0.1%
Aluminum	-0.2%	3.2%	3.2%	-2.5%	7.3%	-1.0%
Copper	-0.2%	12.0%	12.0%	-3.6%	8.9%	-1.6%
Nickel	-0.5%	21.5%	21.5%	-2.5%	14.2%	-5.1%
Zinc	6.1%	20.6%	20.6%	-4.4%	19.9%	8.5%
Bloomberg Sub Precious Metals	-2.0%	0.0%	0.0%	-4.0%	0.2%	-1.9%
Gold	-1.6%	0.9%	0.9%	-2.8%	0.8%	-0.4%
Silver	-3.2%	-2.8%	-2.8%	-7.9%	-2.0%	-6.4%
Bloomberg Sub Livestock	6.3%	4.7%	4.7%	14.4%	0.7%	-4.3%
Lean Hogs	23.7%	6.8%	6.8%	6.5%	-4.0%	-12.6%
Live Cattle	-1.9%	2.4%	2.4%	17.2%	2.8%	0.7%

Source: Bloomberg

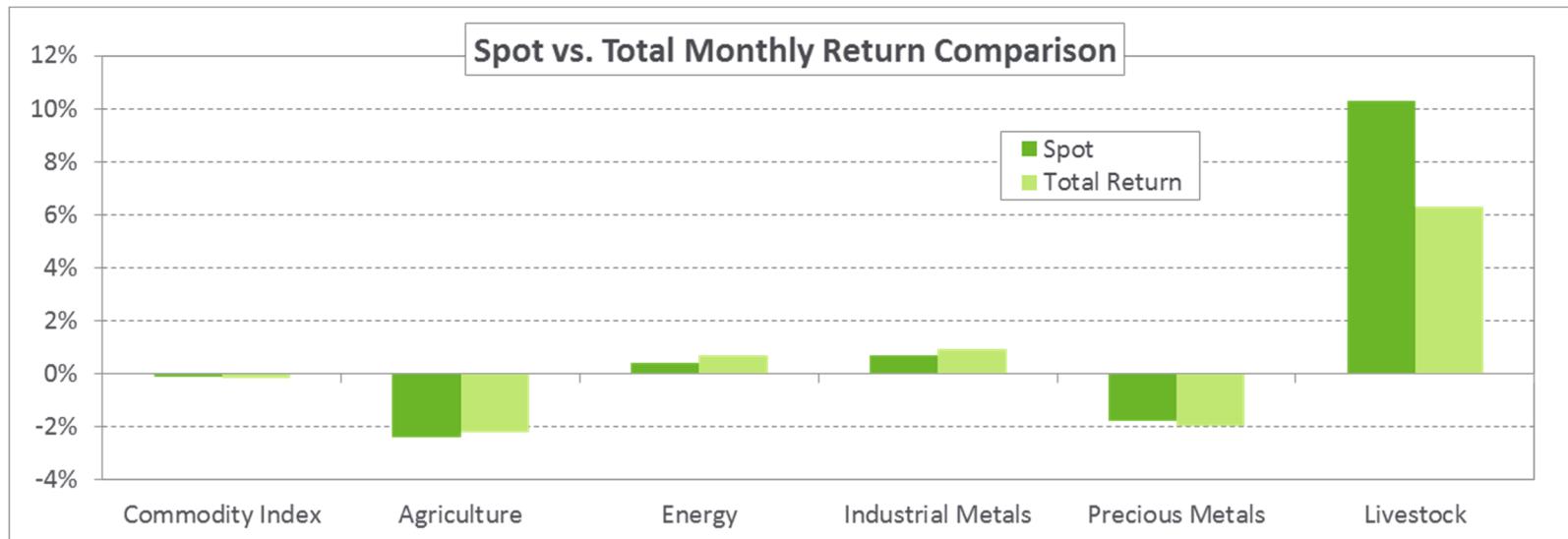
Bloomberg subindex total return indices reflects the return of the underlying one month commodity futures price movements



# INCOME YIELD



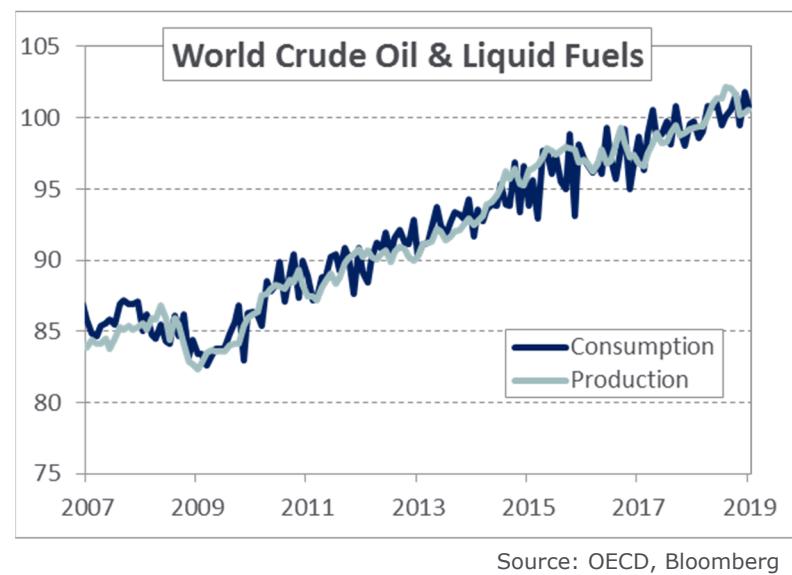
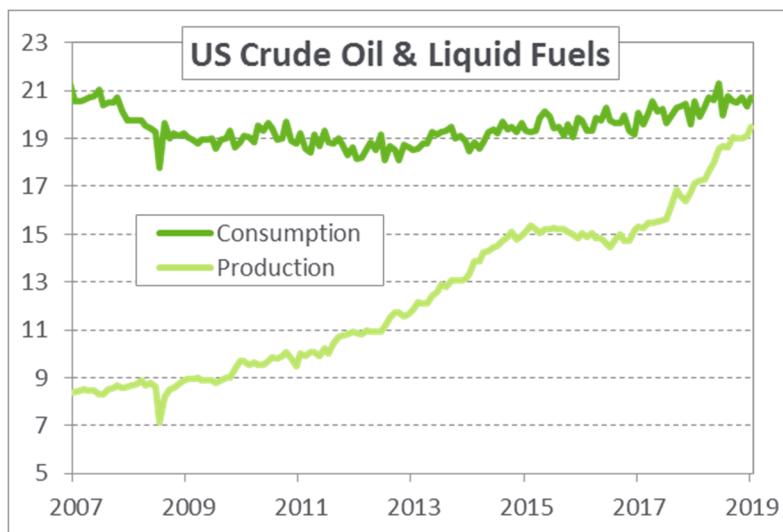
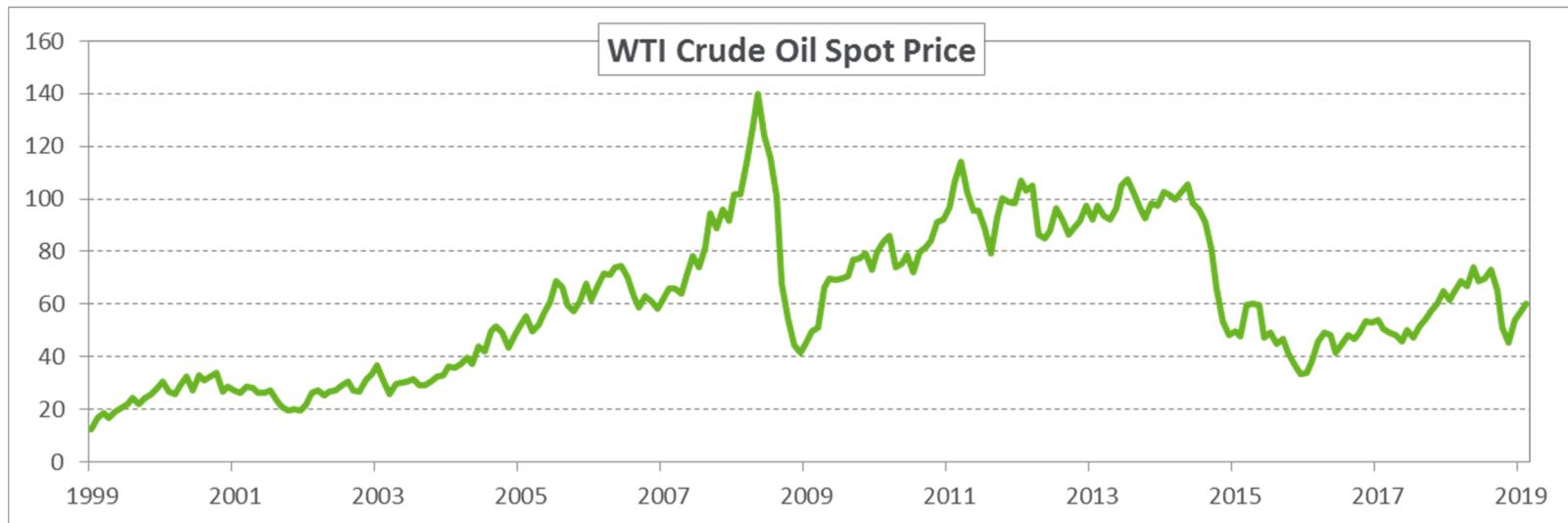
Source: Alerian, NAREIT, S&P, Bloomberg



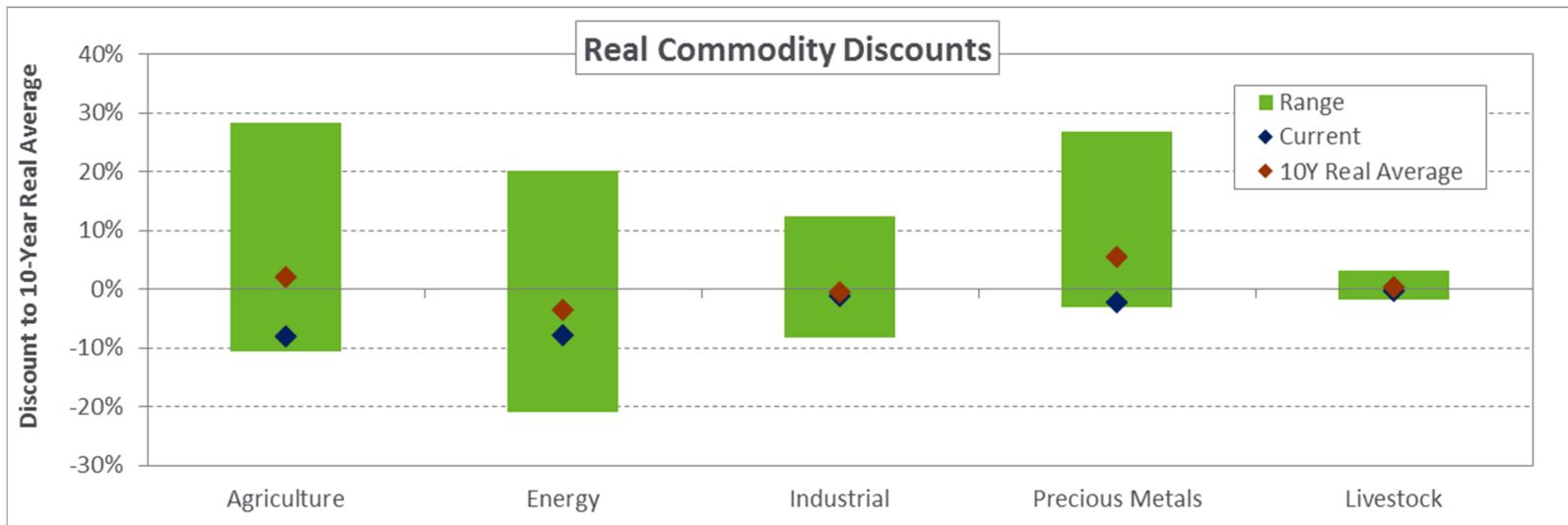
Source: Bloomberg, NEPC



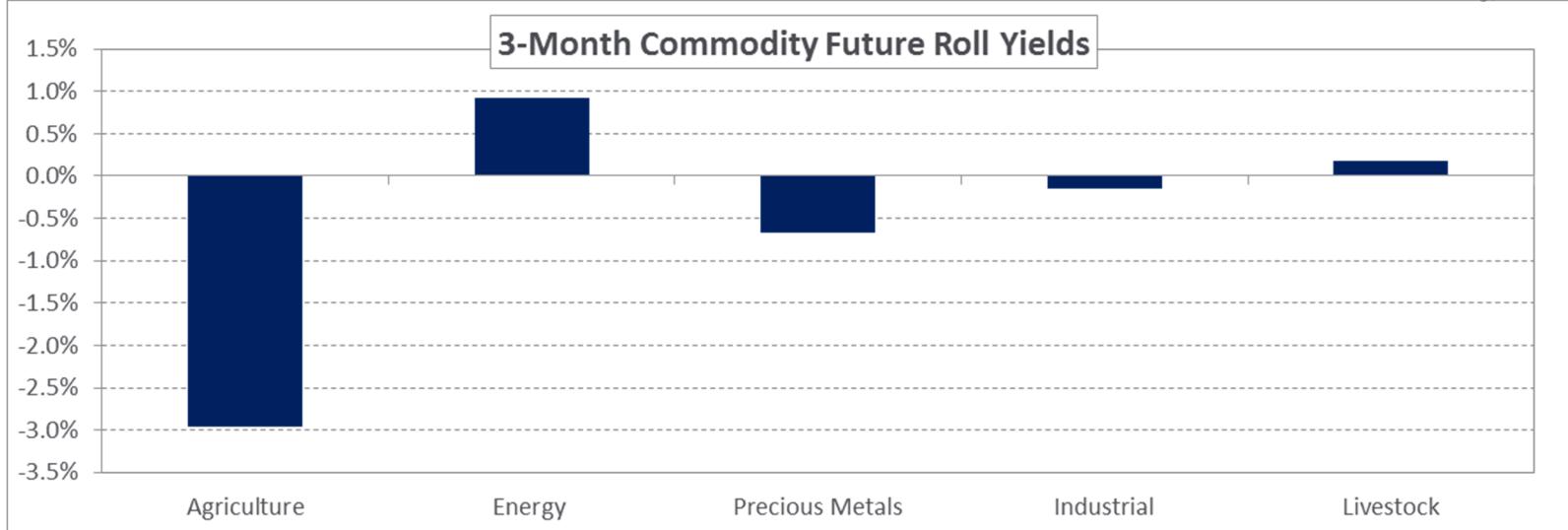
# OIL MARKETS



# VALUATIONS



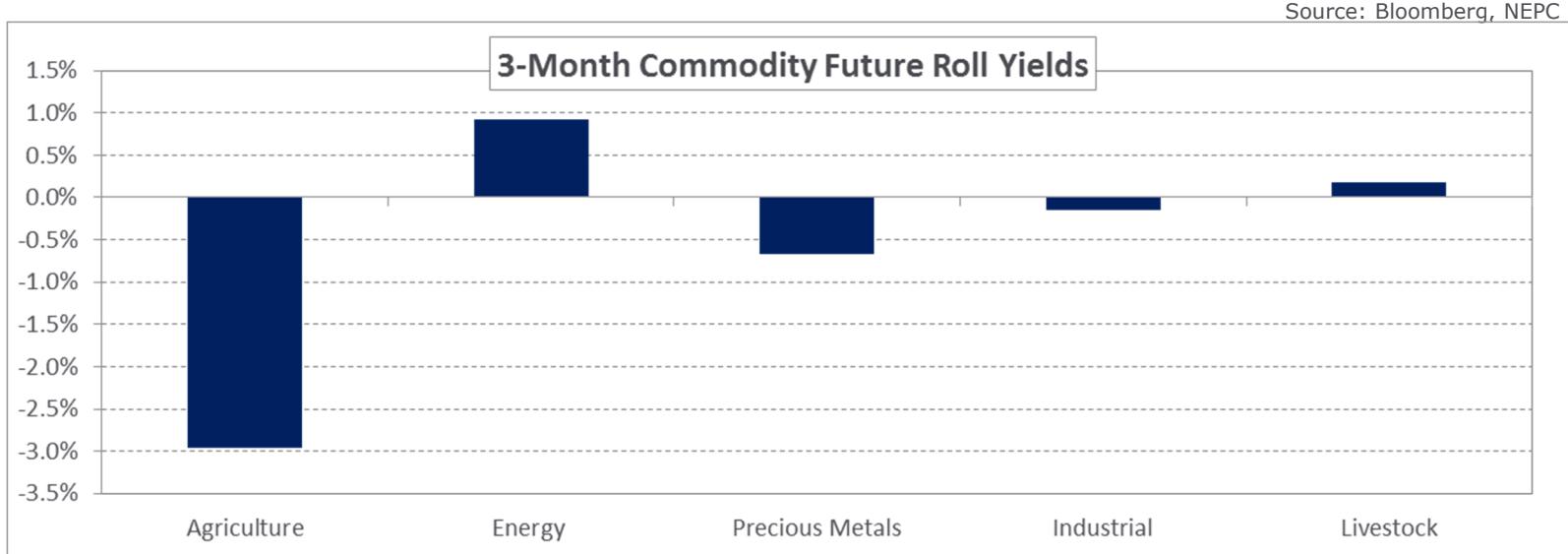
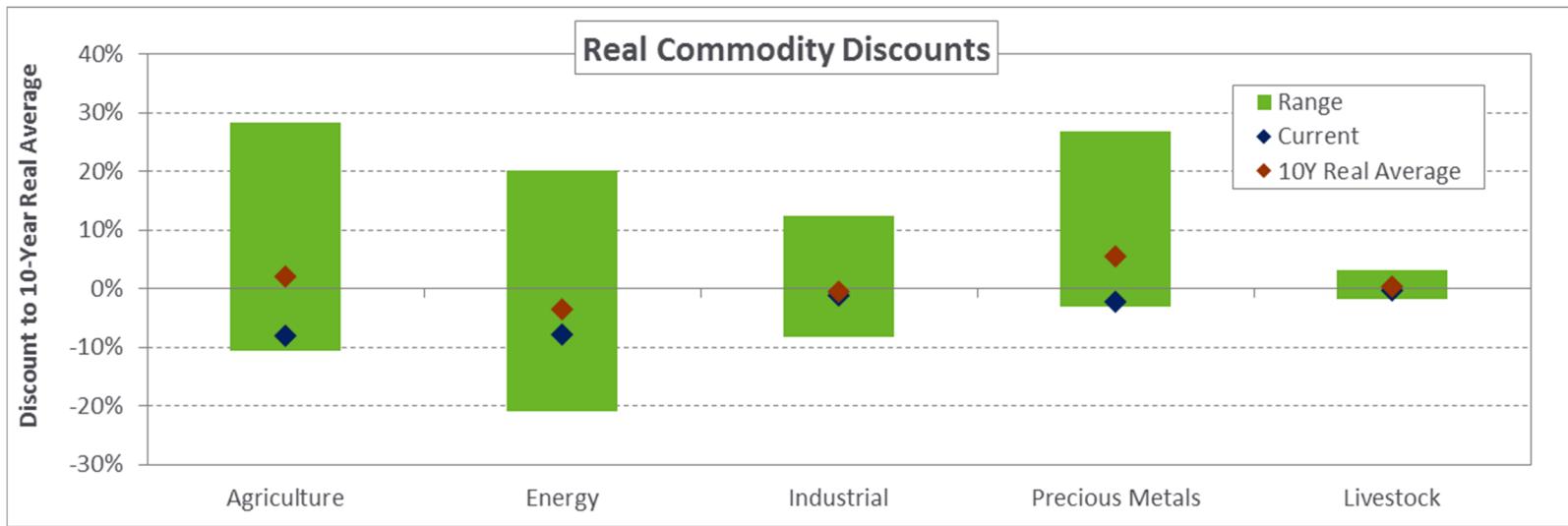
Source: Bloomberg, NEPC



Source: Bloomberg



# VALUATIONS



Source: Bloomberg



## **Information Disclaimer**

- Past performance is no guarantee of future results.
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- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

