

September 30, 2018



## City of Milwaukee Employees' Retirement System

### Investment Measurement Service Quarterly Review

---

Information contained herein includes confidential, trade secret and proprietary information. Neither this Report nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose or disseminated to any other person without Callan's permission. Certain information herein has been compiled by Callan and is based on information provided by a variety of sources believed to be reliable for which Callan has not necessarily verified the accuracy or completeness of or updated. This content may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. This content is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Past performance is no guarantee of future results. For further information, please see Appendix for Important Information and Disclosures.

---

## Table of Contents

### September 30, 2018

---

<b>Capital Markets Review</b>	1
<hr/>	
<b>Total Fund</b>	
Investment Manager Asset Allocation	7
Actual vs. Target Asset Allocation	8
Total Fund vs. Total Public Fund Database	10
Quarterly Total Fund Attribution	13
Cumulative Total Fund Attribution	14
Investment Manager Returns - Gross of Fee	15
Investment Manager Returns - Net of Fee	19
Asset Class Rankings	21
<hr/>	
<b>Callan Research/Education</b>	23
<hr/>	
<b>Disclosures</b>	26



**U.S. EQUITY**

The U.S. equity market posted broad-based gains in the third quarter fueled by strong economic growth, robust corporate earnings, and heightened stock buybacks. Several major indices hit record levels during the quarter, and the 7.7% gain for the S&P 500 was its biggest since the fourth quarter of 2013. Volatility was muted in spite of persistent headlines around trade war threats and the ever-changing negotiations.

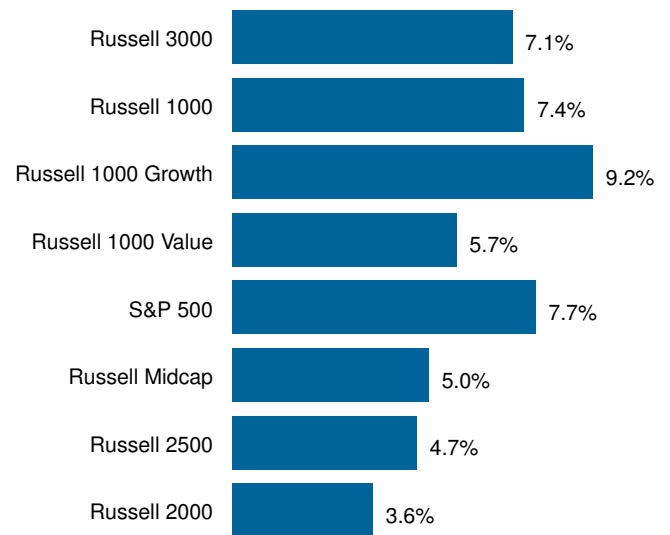
**Large Cap Outpaced Small Cap** (Russell 1000: +7.4%; Russell 2000: +3.6%)

- Tax reform and domestic prosperity contributed to an acceleration in corporate earnings growth, and valuations remained elevated as strong sentiment persisted given positive economic data.
- Amazon (+17.8%), Apple (+22.4%), and Microsoft (+16.4%) were strong contributors to large cap outperformance.
- FAANG stocks plus Microsoft had a more muted impact than in previous quarters, but still contributed nearly 25% of the S&P 500's quarterly return.
- All sectors landed in positive territory with Health Care (+14.5%), Industrials (+10%), and Communication Services (+9.9%) as the strongest performers.
- The new Communication Services sector represents 10% of the S&P 500 and includes several FAANG stocks such as Alphabet, Facebook, and Netflix; Tech and Consumer Discretionary now represent lower weightings in the index.

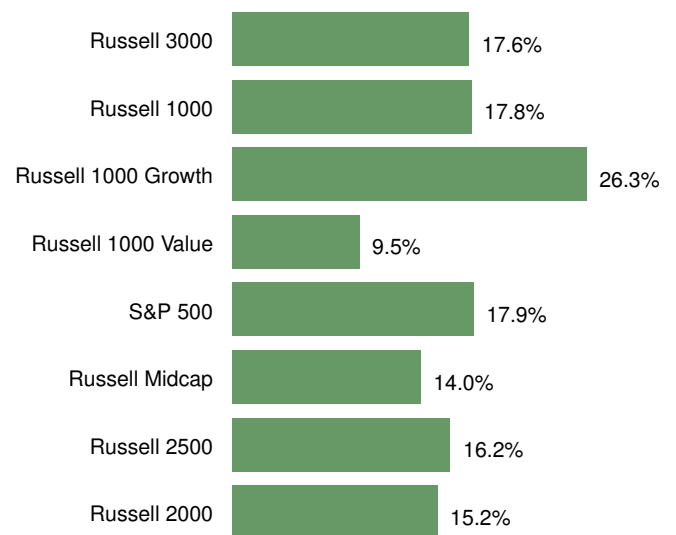
**Growth Continued to Outperform Value** (Russell 1000 Growth: +9.2%; Russell 1000 Value: +5.7%)

- Divergence between Growth and Value approaching historical high; Growth outpacing Value this year by the widest margin in 15 years within large cap (Russell 1000 Growth YTD: +17.1% vs. Russell 1000 Value YTD: +3.9%) due largely to ongoing euphoria of the FAANG stocks.
- Momentum continued as the leading factor for the quarter and year-to-date; value has been the worst-performing style for the last 18 months.

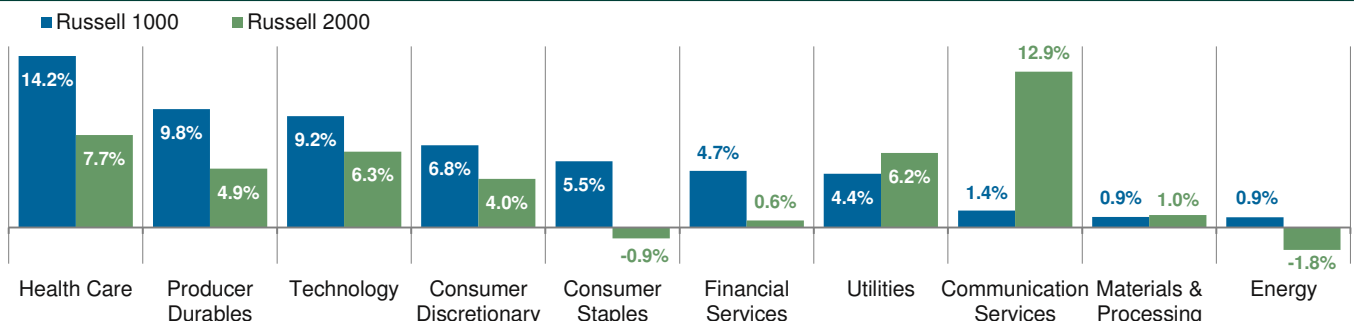
**U.S. Equity: Quarterly Returns**



**U.S. Equity: One-Year Returns**



**Russell Sector Returns, Quarter ended September 30, 2018**



Sources: FTSE Russell, Standard & Poor's

**NON-U.S./GLOBAL EQUITY**

Market divergence has emerged after synchronized growth in 2017. The U.S. continues to post positive returns while non-U.S. developed and emerging markets have rolled over year-to-date, dragged down by geopolitical and economic uncertainties.

**Global/Non-US Developed** (MSCI EAFE: +1.4%; MSCI Europe: +0.8%; MSCI Japan: +3.7%; MSCI World ex USA: +1.3%)

- The dollar rallied against the euro and yen given the fundamentals of the U.S. economy and Fed's contractionary monetary policy; other central banks maintained status quo
- Global trade tensions coupled with Brexit negotiation and Italy's populism concerns tempered the European market despite solid earnings growth; re-election of Prime Minister Shinzo Abe and GDP growth sparked the Japanese market
- Top sector performers were Health Care, Telecommunication Services, and Energy
- Real Estate, Financials, and Consumer Staples were hurt by rising interest rates and a flattening yield curve
- Style had a de minimis impact; however, Growth moderately outperformed Value. Volatility and small cap factors were out of favor given market uncertainties

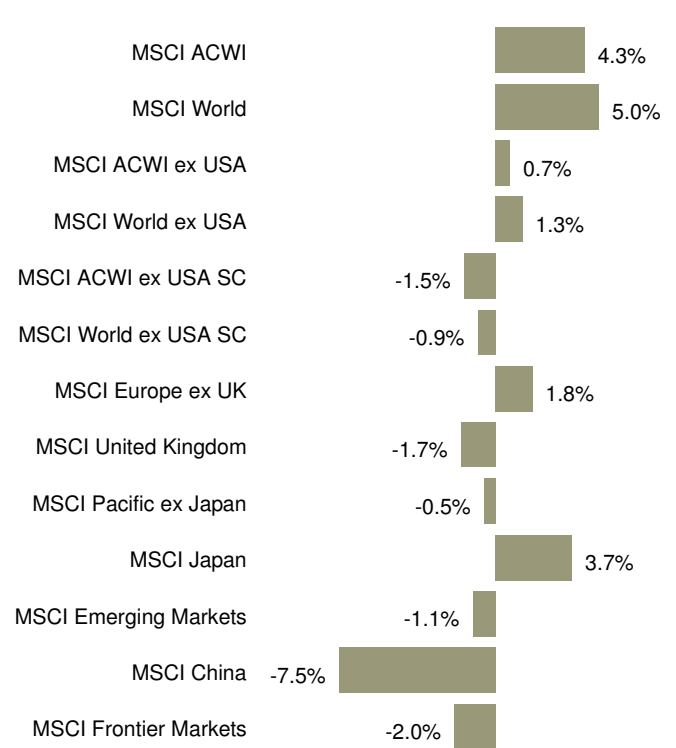
**Emerging Markets** (MSCI EM: -1.1%)

- Emerging markets were under pressure from a rising dollar, U.S. interest rates, and U.S.-China trade frictions
- Turkey was the worst-performing country within emerging markets as the lira and local currency bonds crashed due to the twin deficit, high level of dollar debt, and inflation
- The economic slowdown in China and trade tensions with the U.S. weakened the market
- Brazil and Russia were among the best performers due to climbing oil prices
- Energy was the best performer supported by rising oil prices; Consumer Discretionary was the worst sector performer weighed down by China and India
- Value and large cap factors were in favor as Energy gained traction with rising oil prices and momentum struggled as market leadership rotated away from Asian tech companies

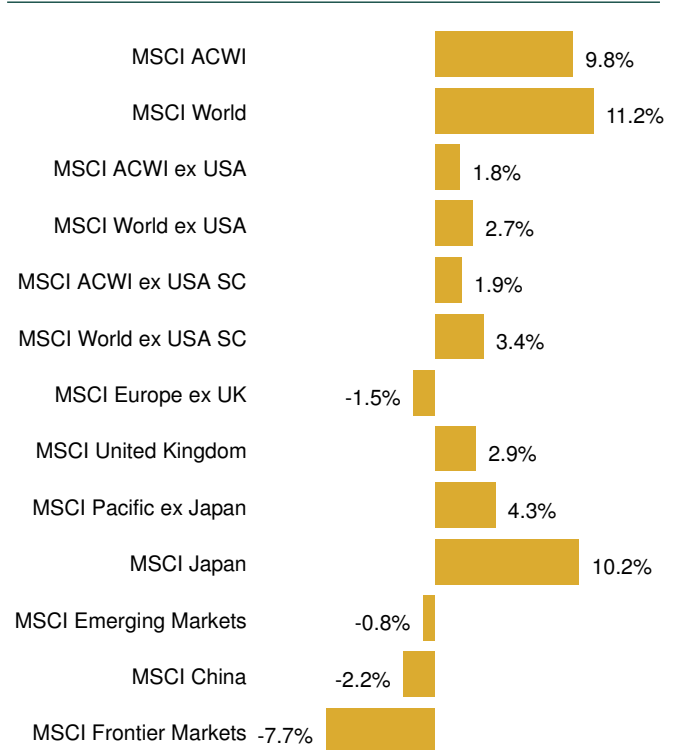
**International Small Cap** (MSCI World ex USA Small Cap: +0.9%; MSCI EM Small Cap: -4.2%)

- Both non-U.S. developed and emerging market small cap underperformed large cap as appetite for risk waned due to rising interest rates/dollar, global trade tensions, and geopolitical conflicts
- Value was favored in both non-U.S. developed and emerging market small cap as the value-oriented Energy sector thrived with rising oil prices

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

Fixed income performance was flat for the third quarter. The U.S. Treasury yield curve rose across the maturity spectrum on better-than-expected corporate earnings and solid U.S. economic data despite increased headline risks from U.S. trade tensions and European political uncertainties. Investors searching for shorter duration spreads helped both the commercial mortgage-backed securities (CMBS) and asset-backed securities (ABS) markets as well, but higher interest rates slowed prepayments and extended the duration of agency MBS, resulting in its underperformance.

In other markets, U.S. below-investment grade debt and bank loans also provided strong results this quarter as a lack of new high yield issuance and demand for bank loans from collateralized loan obligation (CLO) formation provided strong support.

**Bloomberg Barclays US Aggregate Bond Index: +0.02% in 3Q; -1.6% YTD**

- 10-year U.S. Treasury yield rose steadily, reaching a high of 3.10%, before settling at 3.06% as strong economic data repriced investors' inflation expectations and increased the probability of a December rate hike by the Federal Reserve
- The yield curve flattened with short-term interest rates rising quicker than the longer-term rate. The spread between the 2-year and 10-year key rates narrowed 9 bps to 24 bps from last quarter, the tightest in 10 years

**Investment Grade Corporates: +1.0% in 3Q; -2.3% YTD**

- New issuance remained strong with an average of 2-3x oversubscribed demand throughout the quarter
- Spreads continued to narrow this quarter despite leverages increasing within the sector
- Higher rates and weaker overall fundamentals caused this sector to post negative results year to date

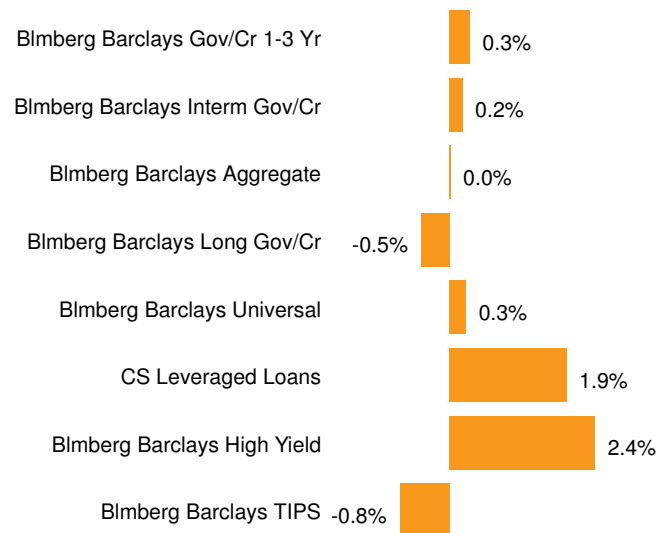
**High Yield: +2.4% in 3Q; +2.6% YTD**

- Low new issuance volume and stable fundamentals compressed spreads
- Bond issuance was \$41 billion, 33% lower than 3Q17

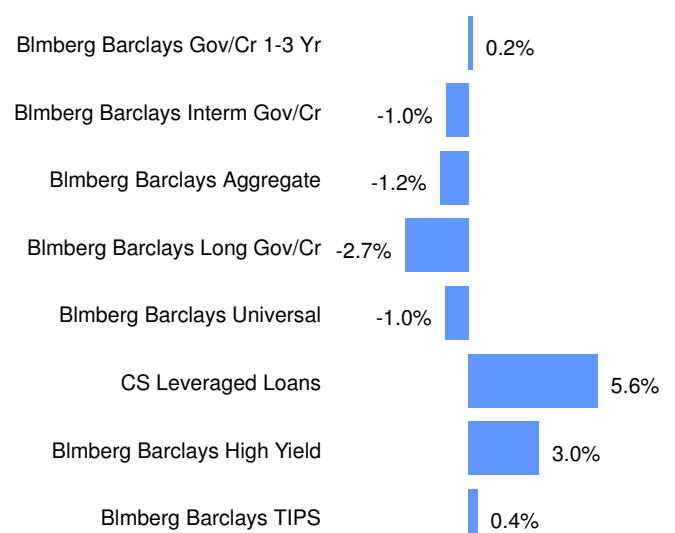
**Bank Loans: +1.8% in 3Q; +4.0% YTD**

- Demand continues for floating rate securities despite covenant-lite structures and higher spread duration
- Heavy issuance continued through the quarter; YTD leveraged loan issuance is above \$900 billion, driven by leveraged buyout and mergers-and-acquisitions activities
- CLO formation also increased demand in the third quarter

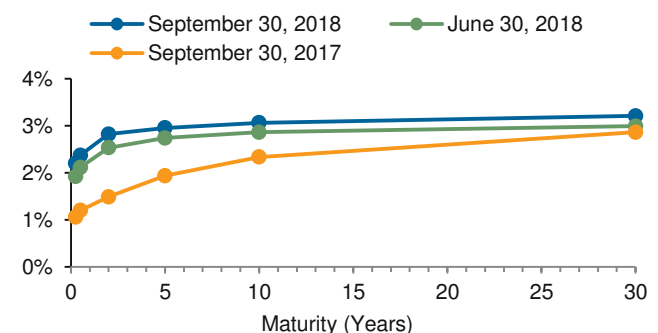
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



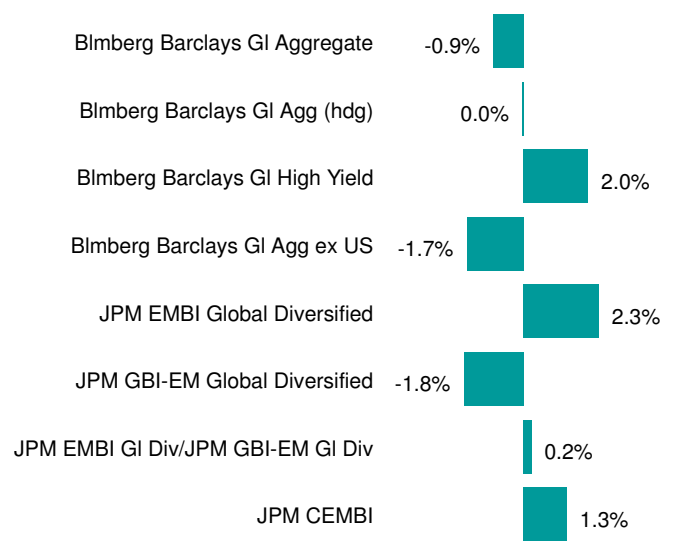
Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

**NON-U.S. FIXED INCOME**

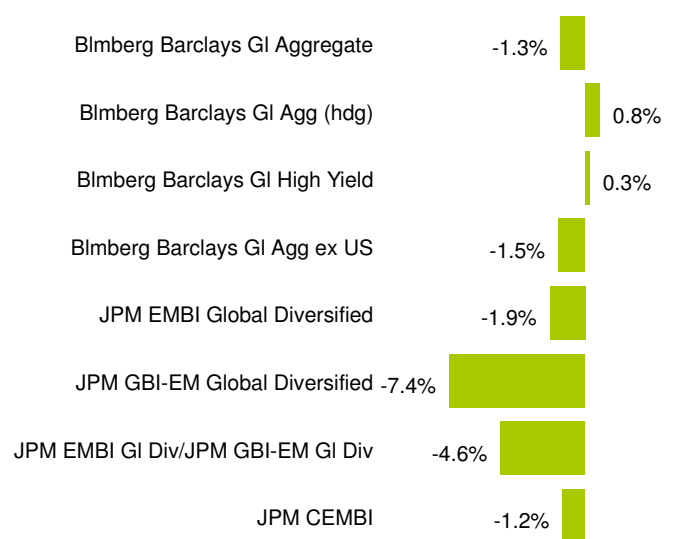
**Volatility Hinders Local EM Debt**

- The quarterly return for the JPM EMBI Global Diversified Index (USD denominated) was +2.3% with all sub-regions delivering positive results. Local currency emerging markets, however, fared more poorly. The JPM GBI-EM Global Diversified Index fell 1.8% for the quarter, but also endured significant intra-quarter volatility including a 6.1% drop in August.
- Further, return dispersion among countries was significant. Argentina (-35%) has seen its peso fall more than 50% this year to a record low as investors were spooked by previous currency debacles and worries over the economic picture. In addition to securing support from the International Monetary Fund, the country's central bank hiked short-term interest rates 15 percentage points to a global high of 60%. Turkey (-27%) endured a similar currency rout, though for different reasons. U.S.-imposed sanctions and concerns over central bank policy were the twin drivers of the lira's weakness. Turkey hiked short rates by 6.25 percentage points to 24% to stem its currency slide.
- Elsewhere, returns were far more modest (positive or negative) with only Russia (-6%) and Mexico (+6%) being noteworthy.
- Issuers in Europe faced a different challenge as political uncertainties surrounding Italy caused that market to weaken.

**Global Fixed Income: Quarterly Returns**

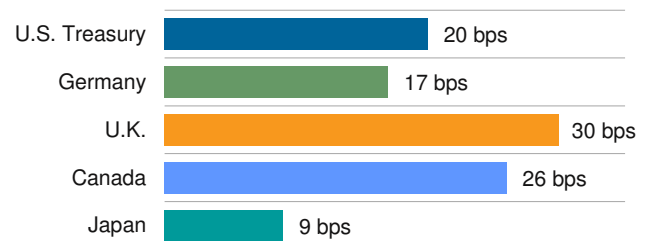


**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**2Q18 to 3Q18**



Sources: Bloomberg, Bloomberg Barclays, JP Morgan





## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of September 30, 2018, with the distribution as of June 30, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

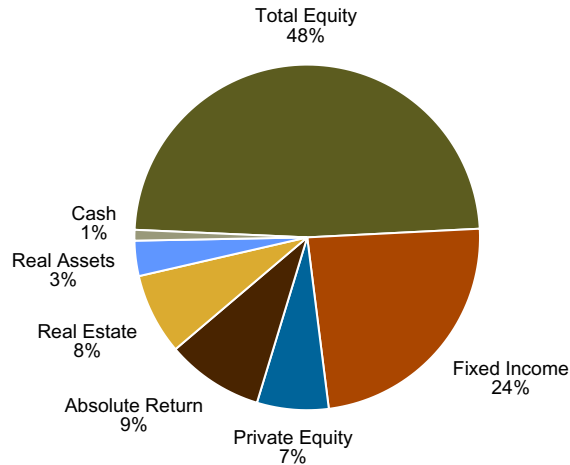
### Asset Distribution Across Investment Managers

	September 30, 2018			Inv. Return	June 30, 2018	
	Market Value	Weight	Net New Inv.		Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$1,203,917,940</b>	<b>22.23%</b>	<b>\$(46,000,000)</b>	<b>\$76,278,202</b>	<b>\$1,173,639,738</b>	<b>21.88%</b>
BlackRock Russell 1000 Value	161,547,192	2.98%	(5,000,000)	9,052,201	157,494,991	2.94%
DFA Large Cap Value	159,622,096	2.95%	0	7,300,094	152,322,001	2.84%
Northern Trust Global	310,778,972	5.74%	(7,000,000)	22,746,863	295,032,109	5.50%
Polen Capital Management	160,112,808	2.96%	(20,000,000)	16,709,544	163,403,264	3.05%
Earnest Partners LLC	123,233,249	2.28%	0	6,881,695	116,351,554	2.17%
DFA Small Cap Value	188,953,007	3.49%	0	1,578,137	187,374,870	3.49%
CastleArk Management	99,670,617	1.84%	(14,000,000)	12,009,667	101,660,950	1.90%
<b>Total Global Equity</b>	<b>\$488,960,876</b>	<b>9.03%</b>	<b>\$0</b>	<b>\$21,587,232</b>	<b>\$467,373,644</b>	<b>8.71%</b>
BlackRock Global Alpha Tilts	290,909,193	5.37%	0	11,994,236	278,914,956	5.20%
MFS Investment Management	198,051,683	3.66%	0	9,592,995	188,458,688	3.51%
<b>Total International Equity</b>	<b>\$932,464,857</b>	<b>17.21%</b>	<b>\$0</b>	<b>\$1,624,581</b>	<b>\$930,840,276</b>	<b>17.35%</b>
AQR Emerging Markets	99,283,737	1.83%	0	(376,966)	99,660,703	1.86%
Brandes Investment Partners	381,063,444	7.03%	0	3,501,072	377,562,372	7.04%
William Blair & Company	273,036,643	5.04%	0	259,410	272,777,233	5.08%
DFA International Small Cap	179,081,033	3.31%	0	(1,758,936)	180,839,968	3.37%
<b>Total Fixed Income</b>	<b>\$1,291,805,091</b>	<b>23.85%</b>	<b>\$(51,000,000)</b>	<b>\$8,944,271</b>	<b>\$1,333,860,820</b>	<b>24.86%</b>
Allianz US Fixed Income 250	490,335,376	9.05%	0	4,947,172	485,388,204	9.05%
BlackRock US Debt Idx Fd	214,407,096	3.96%	0	121,485	214,285,611	3.99%
Reams Asset Management	239,702,489	4.43%	(35,000,000)	(364,721)	275,067,210	5.13%
Loomis, Sayles & Company, L.P.	347,360,130	6.41%	(16,000,000)	4,240,334	359,119,796	6.69%
<b>Total Private Equity</b>	<b>\$363,270,650</b>	<b>6.71%</b>	<b>\$10,488,010</b>	<b>\$16,938,768</b>	<b>\$335,843,871</b>	<b>6.26%</b>
Abbott Capital Management 2010	29,418,670	0.54%	(1,225,000)	1,915,120	28,728,550	0.54%
Abbott Capital Management 2011	50,349,493	0.93%	(1,100,000)	2,878,937	48,570,556	0.91%
Abbott Capital Management 2012	35,511,705	0.66%	(600,000)	1,765,437	34,346,268	0.64%
Abbott Capital Management 2013	30,308,751	0.56%	(700,000)	1,374,999	29,633,752	0.55%
Abbott Capital Management 2014	30,223,332	0.56%	1,400,000	1,201,250	27,622,082	0.51%
Abbott Capital Management 2015	12,754,416	0.24%	1,525,000	305,737	10,923,679	0.20%
Abbott Capital Management 2016	5,409,395	0.10%	963,750	105,875	4,339,770	0.08%
Abbott Capital Management 2018	1,500,000	0.03%	1,425,000	0	75,000	0.00%
Mesirow V	64,578,579	1.19%	(2,625,000)	3,480,944	63,722,635	1.19%
Mesirow VI	48,581,250	0.90%	3,000,000	2,535,373	43,045,877	0.80%
Mesirow VII	10,017,891	0.18%	5,500,000	(161,996)	4,679,887	0.09%
NB Secondary Opp Fund III	18,021,310	0.33%	(542,721)	658,352	17,905,679	0.33%
NB Secondary Opp Fund IV	3,135,797	0.06%	0	583,359	2,552,438	0.05%
Private Advisors VI	17,531,078	0.32%	1,363,756	249,863	15,917,459	0.30%
Private Advisors VII	5,032,071	0.09%	1,206,314	45,518	3,780,239	0.07%
Private Advisors VIII	896,912	0.02%	896,912	0	-	-
<b>Absolute Return</b>	<b>\$491,542,046</b>	<b>9.07%</b>	<b>\$0</b>	<b>\$9,947,673</b>	<b>\$481,594,373</b>	<b>8.98%</b>
Allianz SA 1000	127,977,509	2.36%	0	5,751,254	122,226,255	2.28%
Newton	120,699,429	2.23%	0	2,547,513	118,151,916	2.20%
UBS A & Q	242,865,108	4.48%	0	1,648,906	241,216,202	4.50%
<b>Real Assets</b>	<b>\$176,546,487</b>	<b>3.26%</b>	<b>\$0</b>	<b>\$(322,165)</b>	<b>\$176,868,652</b>	<b>3.30%</b>
Principal DRA	176,546,487	3.26%	0	(322,165)	176,868,652	3.30%
<b>Total Real Estate</b>	<b>\$413,595,642</b>	<b>7.64%</b>	<b>\$35,204,357</b>	<b>\$13,329,329</b>	<b>\$365,061,957</b>	<b>6.81%</b>
Real Estate	413,595,642	7.64%	35,204,357	13,329,329	365,061,957	6.81%
<b>Total Cash</b>	<b>\$54,648,161</b>	<b>1.01%</b>	<b>\$(44,965,228)</b>	<b>\$170,316</b>	<b>\$99,443,073</b>	<b>1.85%</b>
Cash	54,648,161	1.01%	(44,965,228)	170,316	99,443,073	1.85%
<b>Total Fund</b>	<b>\$5,416,751,750</b>	<b>100.0%</b>	<b>\$(96,272,860)</b>	<b>\$148,498,206</b>	<b>\$5,364,526,404</b>	<b>100.0%</b>

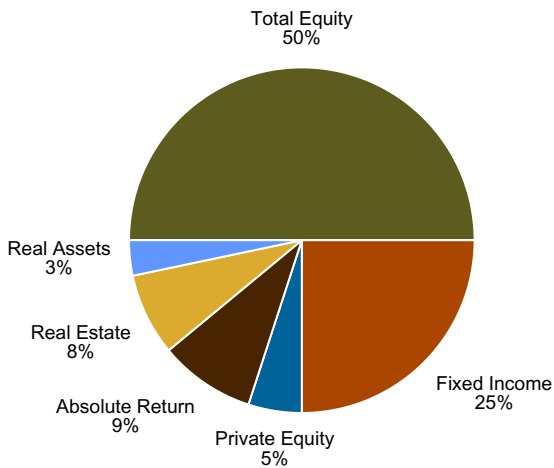
## Actual vs Target Asset Allocation As of September 30, 2018

The first chart below shows the Fund's asset allocation as of September 30, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement. The last chart shows the average asset allocation for the Callan Public Fund Sponsor - Large (>1B).

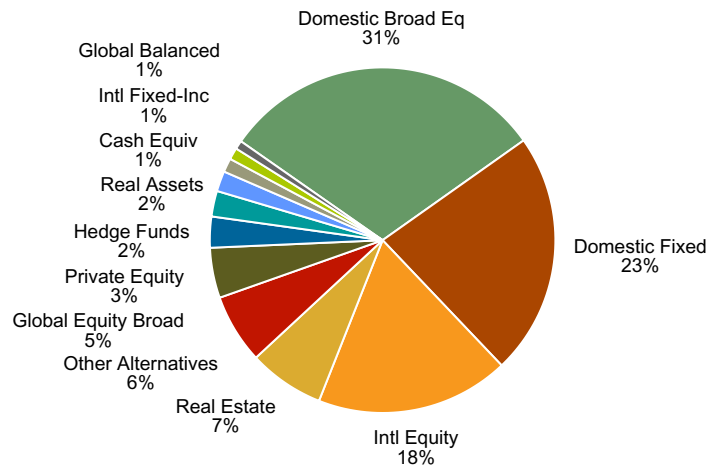
**Actual Asset Allocation**



**Target Asset Allocation**



**Callan Public Fund Sponsor - Large (>1B)**



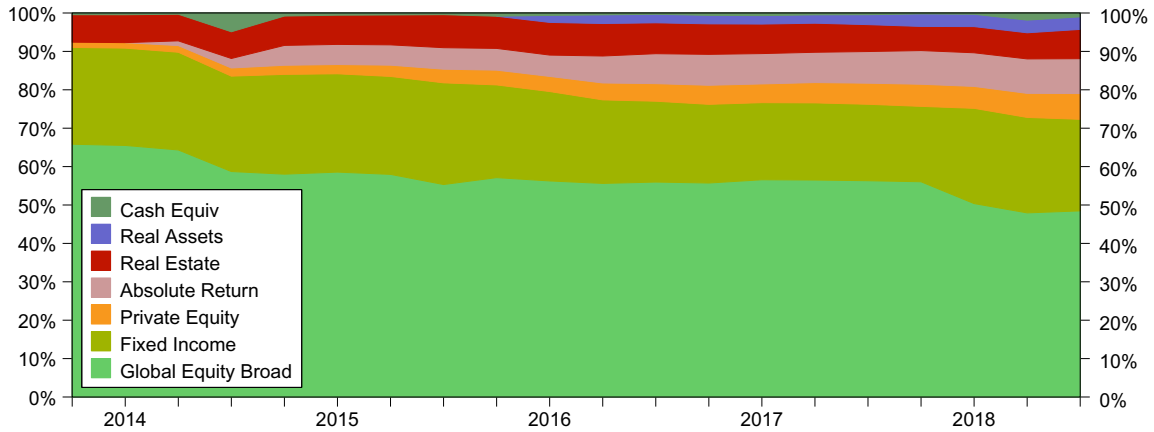
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Total Equity	2,625,344	48.5%	50.0%	(1.5%)	(83,032)
Fixed Income	1,291,805	23.8%	25.0%	(1.2%)	(62,383)
Private Equity	363,271	6.7%	5.0%	1.7%	92,433
Absolute Return	491,542	9.1%	9.0%	0.1%	4,034
Real Estate	413,596	7.6%	7.7%	(0.1%)	(3,494)
Real Assets	176,546	3.3%	3.3%	(0.0%)	(2,206)
Cash	54,648	1.0%	0.0%	1.0%	54,648
Total	5,416,752	100.0%	100.0%		

\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.

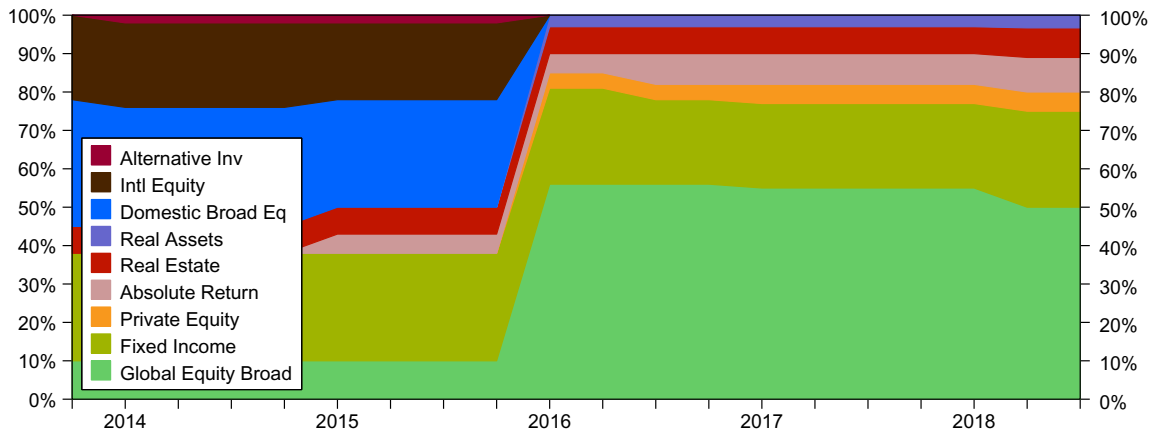
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

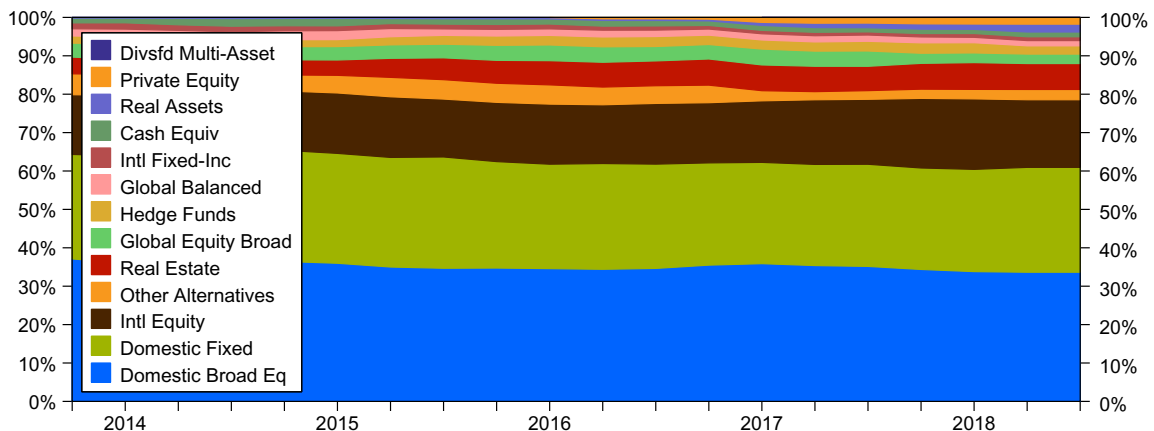
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation



\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.

# Total Fund

## Period Ended September 30, 2018

### Investment Philosophy

The Public Fund Sponsor Database consists of public employee pension total funds including both Callan Associates client and surveyed non-client funds. Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate Idx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.

### Quarterly Summary and Highlights

- Total Fund's portfolio posted a 2.78% return for the quarter placing it in the 45 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 27 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Reference Index by 0.37% for the quarter and outperformed the Total Fund Reference Index for the year by 1.86%.

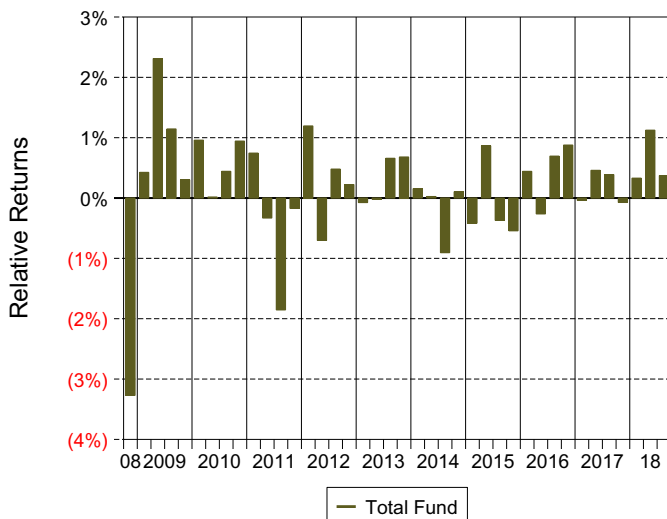
### Quarterly Asset Growth

Beginning Market Value	\$5,364,526,404
Net New Investment	\$-96,272,860
Investment Gains/(Losses)	\$148,498,206
Ending Market Value	\$5,416,751,750

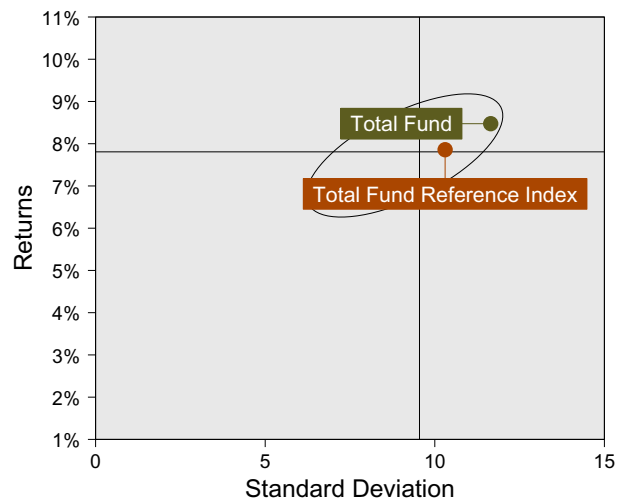
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Relative Return vs Total Fund Reference Index



### Callan Public Fund Sponsor Database (Gross) Annualized Ten Year Risk vs Return

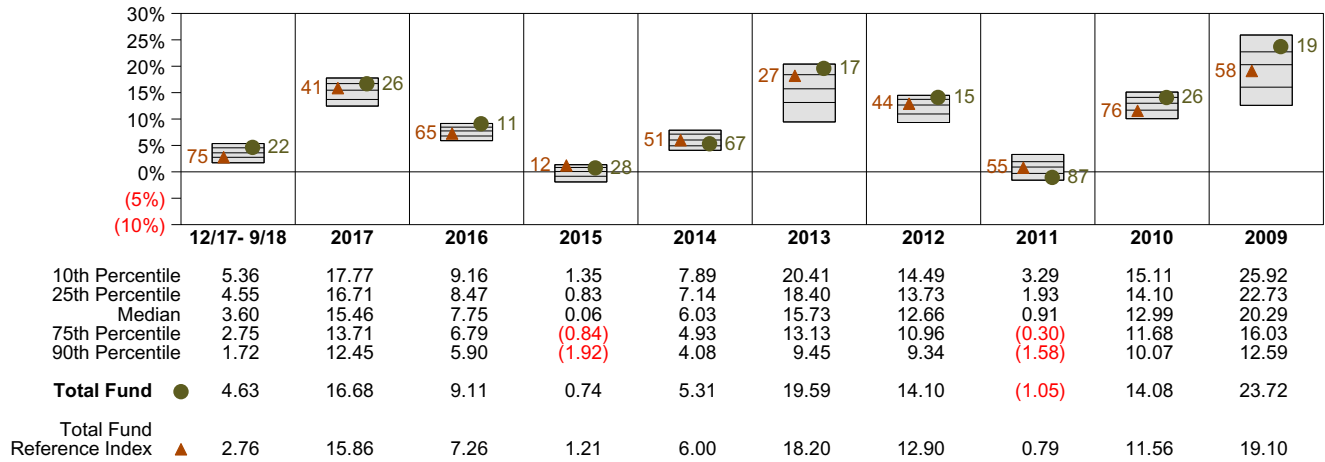


# Total Fund Return Analysis Summary

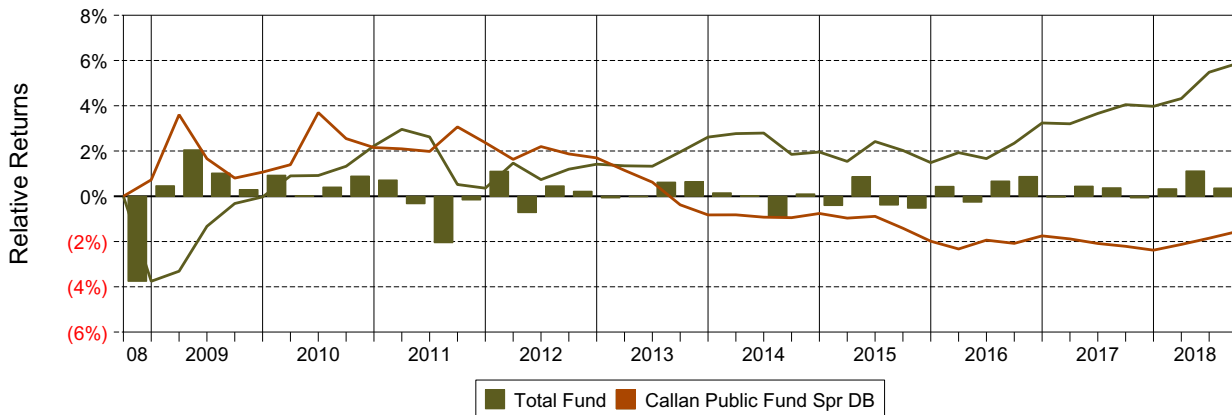
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

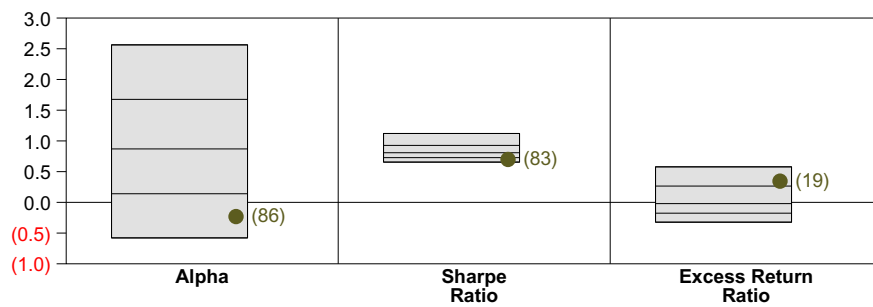
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Cumulative and Quarterly Relative Return vs Total Fund Reference Index



### Risk Adjusted Return Measures vs Total Fund Reference Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended September 30, 2018



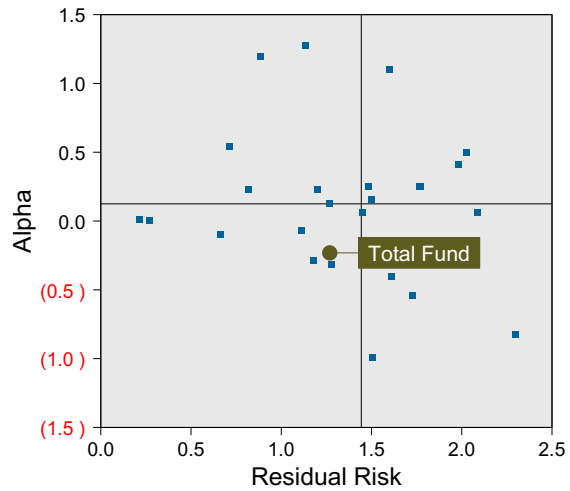
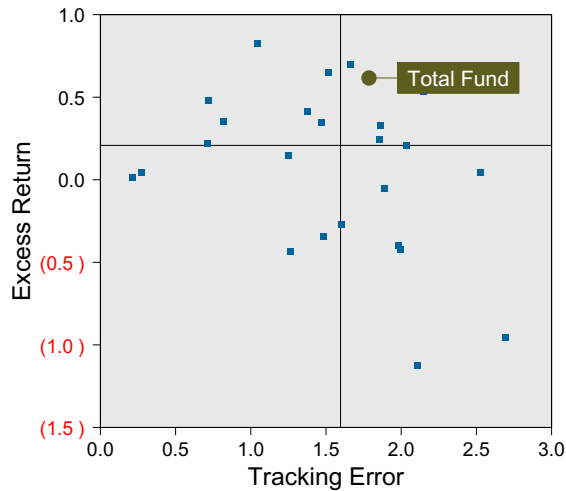
# Total Fund

## Total Fund vs Target Risk Analysis

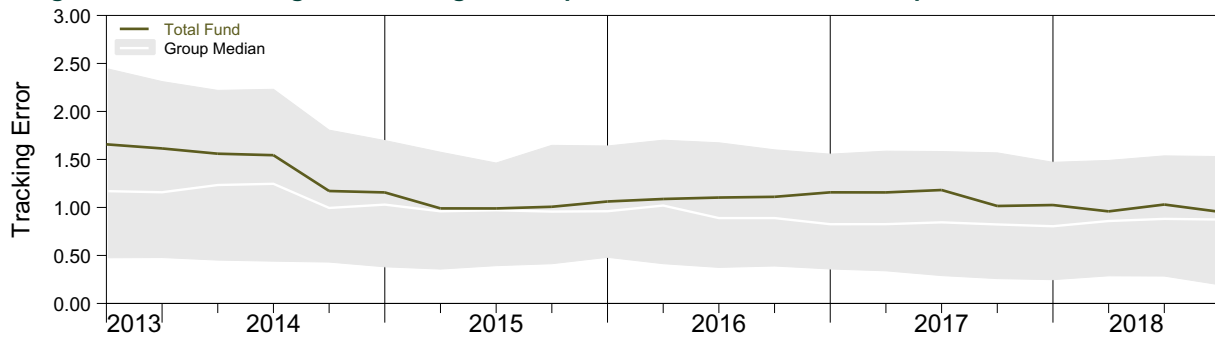
### Risk Analysis

The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the target. The second scatter chart displays the relationship, sometimes called Information Ratio, between alpha (market-risk or "beta" adjusted return) and residual risk (non-market or "unsystematic" risk). The third chart shows tracking error patterns over time compared to the range of tracking error patterns for the peer group. The last two charts show the ranking of the fund's risk statistics versus the peer group.

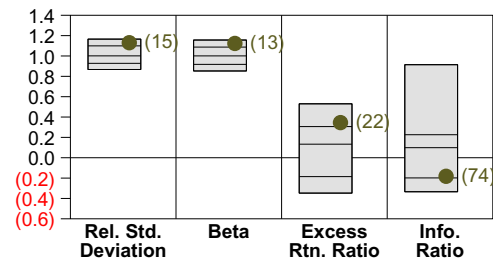
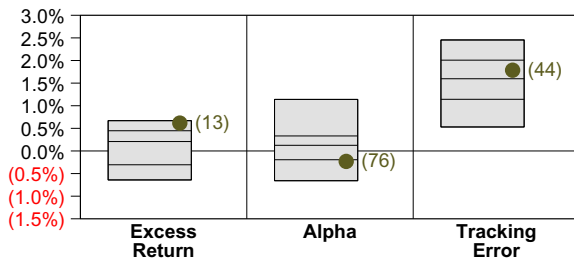
### Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended September 30, 2018



### Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



### Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended September 30, 2018



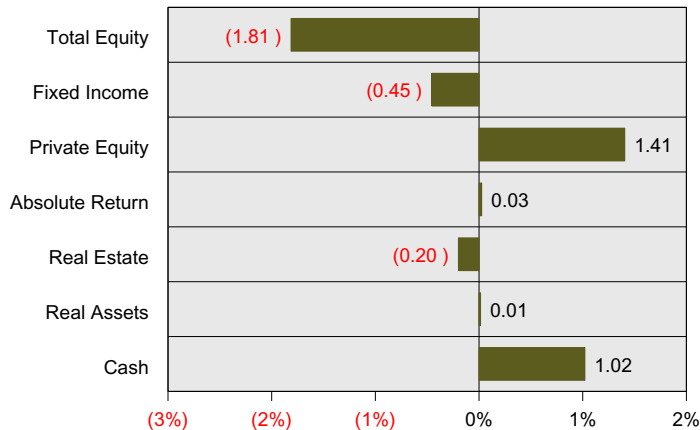
Statistic	Excess Return	Alpha	Tracking Error
10th Percentile	0.67	1.14	2.45
25th Percentile	0.45	0.33	2.01
Median	0.21	0.12	1.60
75th Percentile	(0.31)	(0.19)	1.14
90th Percentile	(0.64)	(0.66)	0.53
<b>Total Fund</b>	0.62	(0.23)	1.79

Statistic	Rel. Std. Deviation	Beta	Excess Rtn. Ratio	Info. Ratio
10th Percentile	1.17	1.16	0.53	0.91
25th Percentile	1.10	1.09	0.31	0.23
Median	1.00	1.00	0.13	0.10
75th Percentile	0.93	0.92	(0.19)	(0.20)
90th Percentile	0.87	0.85	(0.35)	(0.33)
<b>Total Fund</b>	1.13	1.12	0.35	(0.18)

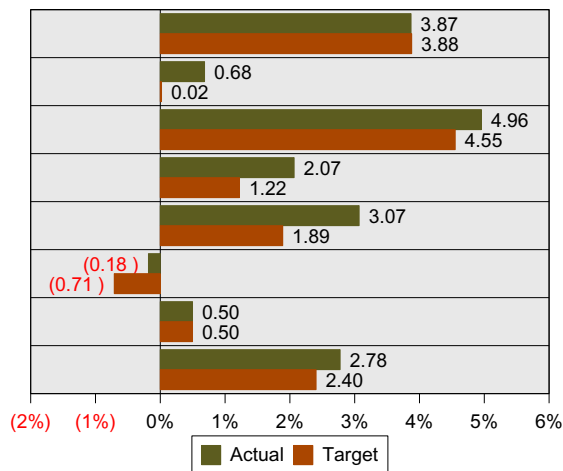
## Quarterly Total Fund Relative Attribution - September 30, 2018

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

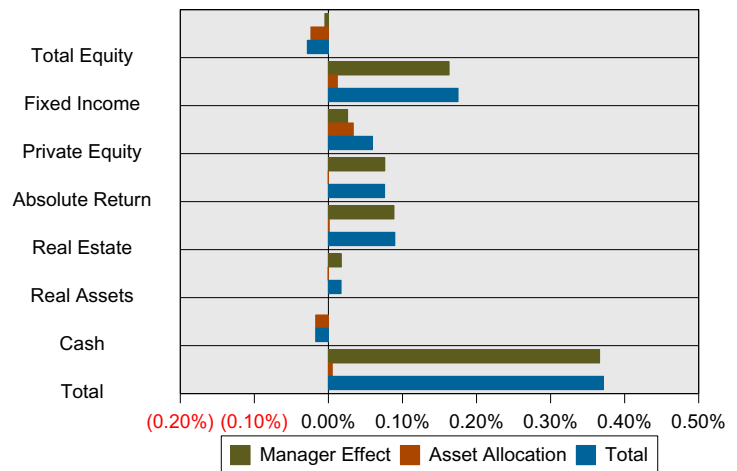
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended September 30, 2018

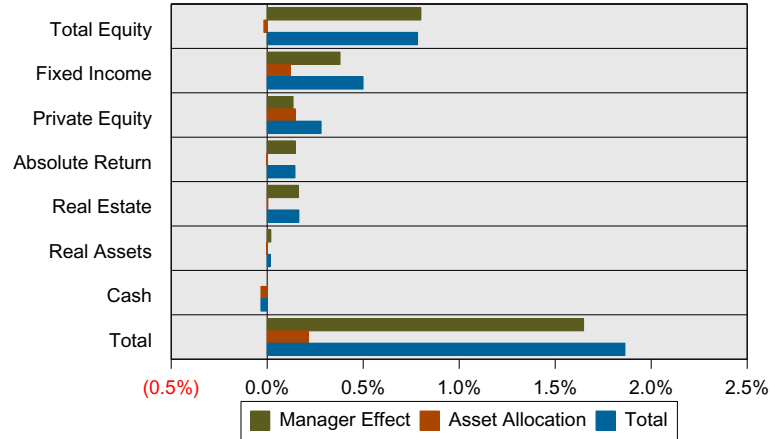
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	48%	50%	3.87%	3.88%	(0.00%)	(0.02%)	(0.03%)
Fixed Income	25%	25%	0.68%	0.02%	0.16%	0.01%	0.18%
Private Equity	6%	5%	4.96%	4.55%	0.03%	0.03%	0.06%
Absolute Return	9%	9%	2.07%	1.22%	0.08%	(0.00%)	0.08%
Real Estate	8%	8%	3.07%	1.89%	0.09%	0.00%	0.09%
Real Assets	3%	3%	(0.18%)	(0.71%)	0.02%	(0.00%)	0.02%
Cash	1%	0%	0.50%	0.50%	0.00%	(0.02%)	(0.02%)
<b>Total</b>			<b>2.78%</b>	<b>2.40%</b>	<b>0.37%</b>	<b>0.01%</b>	<b>0.37%</b>

\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.

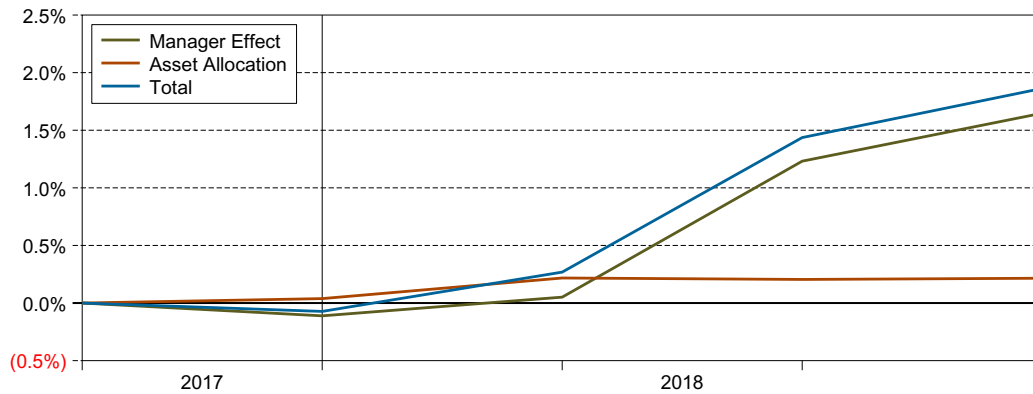
## Cumulative Total Fund Relative Attribution - September 30, 2018

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

### One Year Relative Attribution Effects



### Cumulative Relative Attribution Effects



### One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	52%	52%	11.19%	9.63%	0.80%	(0.02%)	0.78%
Fixed Income	22%	23%	0.32%	(1.22%)	0.38%	0.12%	0.50%
Private Equity	6%	5%	20.07%	17.79%	0.13%	0.15%	0.28%
Absolute Return	9%	8%	6.22%	4.59%	0.15%	(0.00%)	0.14%
Real Estate	7%	7%	10.14%	7.68%	0.16%	0.00%	0.16%
Real Assets	3%	3%	3.41%	2.86%	0.02%	(0.00%)	0.02%
Cash	1%	0%	1.87%	1.87%	0.00%	(0.03%)	(0.03%)
<b>Total</b>			<b>8.53%</b>	<b>6.67%</b>	<b>+ 1.65%</b>	<b>+ 0.22%</b>	<b>1.86%</b>

\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.



## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended September 30, 2018. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns and Rankings for Periods Ended September 30, 2018

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Domestic Equity</b>	<b>6.54%</b>		<b>17.73%</b>		<b>17.27%</b>		<b>13.60%</b>		<b>7.60%</b> (7/98)	
Russell 3000 Index	7.12%		17.58%		17.07%		13.46%		7.09% (7/98)	
BlackRock Russell 1000 Value	5.76%	52	9.60%	70	-	-	-	-	9.51%	(3/17)
Russell 1000 Value Index	5.70%	54	9.45%	77	13.55%	80	10.72%	75	8.15%	(3/17)
Callan Large Cap Value	5.83%		11.45%		14.51%		11.53%		-	
DFA Large Cap Value	4.79%	80	-		-		-		10.27%	(11/17)
Russell 1000 Value Index	5.70%	54	9.45%	77	13.55%	80	10.72%	75	8.66%	(11/17)
Callan Large Cap Value	5.83%		11.45%		14.51%		11.53%		-	
Northern Trust Global	7.72%	39	17.92%	49	17.34%	27	14.01%	30	10.63%	(8/88)
S&P 500 Index	7.71%	39	17.91%	49	17.31%	28	13.95%	31	10.58%	(8/88)
Callan Large Cap Core	7.46%		17.70%		16.25%		13.67%		-	
Polen Capital Management	10.61%	5	31.21%	14	20.47%	29	19.66%	4	18.14%	(7/12)
S&P 500 Index	7.71%	70	17.91%	98	17.31%	85	13.95%	93	15.33%	(7/12)
Callan Large Cap Growth	8.42%		25.81%		19.77%		16.00%		-	
Earnest Partners LLC	5.91%	38	16.78%	40	18.65%	9	14.31%	12	11.24%	(5/05)
Russell MidCap Index	5.00%	49	13.98%	56	14.52%	51	11.65%	51	10.13%	(5/05)
Callan Mid Capitalization	4.94%		14.94%		14.68%		11.67%		-	
DFA Small Cap Value	0.84%	73	9.72%	37	14.94%	52	10.31%	67	12.44%	(11/96)
Russell 2000 Value Index	1.60%	45	9.33%	40	16.12%	31	9.91%	78	9.97%	(11/96)
Callan Small Cap Value	1.53%		8.50%		15.21%		10.82%		-	
CastleArk Management	12.34%	4	32.78%	34	19.40%	63	13.34%	54	14.84%	(9/13)
Russell 2000 Growth Index	5.52%	86	21.06%	86	17.98%	75	12.14%	73	13.42%	(9/13)
Callan Small Cap Growth	7.95%		29.38%		20.31%		13.45%		-	
<b>Total Global Equity</b>	<b>4.62%</b>		<b>13.66%</b>		<b>16.50%</b>		<b>10.18%</b>		<b>9.29%</b> (4/10)	
MSCI World	4.98%		11.24%		13.54%		9.28%		9.52% (4/10)	
BlackRock Global Alpha Tilts	4.30%	43	11.53%	42	-	-	-	-	18.79%	(3/16)
MSCI ACWI Gross	4.40%	42	10.35%	52	14.02%	47	9.25%	61	17.27%	(3/16)
Callan Global Equity	3.99%		10.89%		13.83%		9.80%		-	
MFS Investment Management	5.09%	29	16.65%	13	17.32%	11	11.53%	20	12.94%	(12/12)
MSCI ACWI Gross	4.40%	42	10.35%	52	14.02%	47	9.25%	61	10.91%	(12/12)
Callan Global Equity	3.99%		10.89%		13.83%		9.80%		-	
<b>Total International Equity</b>	<b>0.17%</b>		<b>2.10%</b>		<b>10.58%</b>		<b>5.95%</b>		<b>7.30%</b> (5/96)	
MSCI EAFE	1.35%		2.74%		9.23%		4.42%		4.69% (5/96)	
AQR Emerging Markets	(0.38%)	23	(3.23%)	67	-	-	-	-	11.89%	(8/16)
MSCI EM Gross	(0.95%)	34	(0.44%)	27	12.77%	55	3.99%	70	11.70%	(8/16)
Callan Emerging Broad	(1.77%)		(2.00%)		13.30%		4.72%		-	
Brandes Investment Partners	0.93%	48	4.92%	26	10.02%	49	5.25%	59	8.36%	(2/98)
MSCI EAFE	1.35%	34	2.74%	46	9.23%	64	4.42%	83	4.77%	(2/98)
Callan NonUS Eq	0.91%		2.53%		9.96%		5.66%		-	
William Blair & Company	0.10%	81	4.03%	34	10.34%	43	6.30%	35	7.95%	(12/03)
MSCI ACWIxUS Gross	0.80%	56	2.25%	52	10.49%	42	4.60%	76	7.15%	(12/03)
Callan NonUS Eq	0.91%		2.53%		9.96%		5.66%		-	
DFA International Small Cap	(0.97%)	34	(3.00%)	89	10.34%	75	6.59%	80	5.38%	(5/06)
Blended Benchmark	(0.88%)	33	3.73%	39	12.39%	54	7.96%	68	4.00%	(5/06)
Callan Intl Small Cap	(1.35%)		2.11%		12.79%		8.89%		-	

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended September 30, 2018. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns and Rankings for Periods Ended September 30, 2018

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Fixed Income</b>	<b>0.68%</b>		<b>0.32%</b>		<b>3.56%</b>		<b>2.80%</b>		<b>7.47%</b>	(12/87)
Bimbg Aggregate	0.02%		(1.22%)		1.31%		2.16%		6.18%	(12/87)
Allianz US Fixed Income 250	1.02%	1	-		-		-		2.34%	(2/18)
Bimbg Aggregate +2.5%	0.64%	2	1.28%	1	3.82%	1	4.66%	1	1.22%	(2/18)
Callan Core Bond FI	0.17%		(0.81%)		1.81%		2.56%		-	
BlackRock US Debt Idx Fd	0.06%	80	(1.14%)	84	-		-		0.03%	(6/16)
Bimbg Aggregate	0.02%	83	(1.22%)	87	1.31%	93	2.16%	92	0.47%	(6/16)
Callan Core Bond FI	0.17%		(0.81%)		1.81%		2.56%		-	
Reams Asset Management	(0.09%)	95	(0.32%)	34	1.96%	84	2.37%	95	5.35%	(1/01)
Bimbg Aggregate	0.02%	95	(1.22%)	88	1.31%	99	2.16%	100	4.44%	(1/01)
Callan Core Plus FI	0.39%		(0.49%)		2.64%		3.10%		-	
Loomis, Sayles & Company, L.P.	1.18%	1	1.05%	1	6.48%	1	4.55%	2	9.01%	(12/87)
Bimbg Aggregate	0.02%	95	(1.22%)	88	1.31%	99	2.16%	100	6.18%	(12/87)
Callan Core Plus FI	0.39%		(0.49%)		2.64%		3.10%		-	
<b>Total Private Equity</b>	<b>4.96%</b>		<b>20.07%</b>		<b>14.49%</b>		<b>14.55%</b>		<b>9.09%</b>	(6/10)
Abbott Capital Management 2010	6.96%		26.06%		17.72%		15.65%		(6.29%)	(6/10)
Abbott Capital Management 2011	6.06%		24.31%		16.98%		13.92%		(3.43%)	(6/11)
Abbott Capital Management 2012	5.23%		22.65%		14.90%		10.86%		6.17%	(7/12)
Abbott Capital Management 2013	4.75%		23.85%		14.13%		7.85%		6.41%	(5/13)
Abbott Capital Management 2014	4.27%		20.30%		10.49%		-		3.59%	(4/14)
Abbott Capital Management 2015	2.54%		8.98%		4.40%		-		5.95%	(4/15)
Abbott Capital Management 2016	1.98%		3.24%		-		-		1.05%	(3/16)
Abbott Capital Management 2018	0.00%		-		-		-		-	
Mesirow V	5.61%		18.58%		16.37%		18.52%		13.86%	(6/10)
Mesirow VI	5.84%		20.90%		10.51%		6.22%		5.91%	(7/13)
Mesirow VII	(2.56%)		(11.59%)		-		-		-	
NB Secondary Opp Fund III	3.68%		18.27%		15.62%		-		12.63%	(12/13)
NB Secondary Opp Fund IV	22.86%		2.84%		-		-		28.15%	(4/17)
Private Advisors VI	1.45%		12.44%		6.45%		-		0.70%	(4/15)
Private Advisors VII	0.91%		14.45%		-		-		6.61%	(1/17)
Russell 3000 (1 Qtr in Arrears) + 3%	4.55%		17.79%		14.62%		16.32%		19.33%	(1/17)
<b>Absolute Return</b>	<b>2.07%</b>		<b>6.22%</b>		<b>6.08%</b>		<b>-</b>		<b>5.58%</b>	(6/14)
Allianz SA 1000	4.71%	1	10.22%	5	11.57%	1	-	2	10.09%	(6/14)
T-Bills + 10%	2.87%	1	11.59%	3	10.84%	1	10.52%	2	10.59%	(6/14)
Callan Abs Rtn Hedge FoF	0.42%		4.60%		3.73%		3.88%		-	
Newton	2.16%	1	4.33%	59	4.47%	35	-		3.55%	(8/14)
1-month LIBOR + 4%	1.52%	1	5.79%	22	5.04%	19	4.69%	19	4.79%	(8/14)
Callan Abs Rtn Hedge FoF	0.42%		4.60%		3.73%		3.88%		-	
UBS A & Q	0.68%	27	5.10%	36	3.83%	45	-		3.88%	(12/14)
1-month LIBOR + 4%	1.52%	1	5.79%	22	5.04%	19	4.69%	19	4.85%	(12/14)
Callan Abs Rtn Hedge FoF	0.42%		4.60%		3.73%		3.88%		-	
<b>Real Assets</b>	<b>(0.18%)</b>		<b>3.41%</b>		<b>-</b>		<b>-</b>		<b>6.55%</b>	(1/16)
Principal DRA	(0.18%)	54	3.41%	44	-		-		6.55%	(1/16)
Principal Blended Benchmark (1)	(0.71%)	58	2.86%	46	-		-		5.91%	(1/16)
Callan Alternative Inv DB	(0.04%)		2.59%		2.73%		0.50%		-	
<b>Total Real Estate</b>	<b>3.07%</b>		<b>10.14%</b>		<b>9.99%</b>		<b>11.68%</b>		<b>6.69%</b>	(7/86)
Real Estate	3.07%	2	10.14%	20	9.99%	23	11.68%	23	6.69%	(7/86)
Blended Benchmark (2)	1.89%	43	7.68%	48	8.70%	45	10.04%	45	-	
Callan Tot Real Est DB	1.71%		7.62%		8.50%		9.94%		-	
<b>Total Fund</b>	<b>2.78%</b>		<b>8.53%</b>		<b>10.99%</b>		<b>8.45%</b>		<b>9.63%</b>	(1/79)
Total Fund Reference Index*	2.40%		6.67%		9.63%		7.64%		-	

(1) Current Principal Blended Benchmark = 35% Barclays US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.  
(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	12/2017- 9/2018		2017		2016		2015		2014	
<b>Total Domestic Equity</b>	<b>10.99%</b>		<b>20.91%</b>		<b>13.91%</b>		<b>(0.07%)</b>		<b>11.63%</b>	
Russell 3000 Index	10.57%		21.13%		12.74%		0.48%		12.56%	
BlackRock Russell 1000 Value	4.02%	71	-		-		-		-	
Russell 1000 Value Index	3.92%	73	13.66%	91	17.34%	26	(3.83%)	70	13.45%	32
Callan Large Cap Value	4.94%		17.10%		15.27%		(2.53%)		12.63%	
DFA Large Cap Value	3.04%	80	-		-		-		-	
Russell 1000 Value Index	3.92%	73	13.66%	91	17.34%	26	(3.83%)	70	13.45%	32
Callan Large Cap Value	4.94%		17.10%		15.27%		(2.53%)		12.63%	
Northern Trust Global	10.56%	48	21.87%	47	12.01%	21	1.49%	46	13.77%	47
S&P 500 Index	10.56%	48	21.83%	48	11.96%	21	1.38%	51	13.69%	48
Callan Large Cap Core	10.22%		21.65%		10.42%		1.40%		13.63%	
Polen Capital Management	24.79%	6	27.67%	65	1.70%	73	15.51%	3	17.60%	6
S&P 500 Index	10.56%	100	21.83%	98	11.96%	2	1.38%	93	13.69%	25
Callan Large Cap Growth	18.34%		28.84%		3.39%		6.43%		11.82%	
Earnest Partners LLC	8.35%	46	26.16%	23	16.52%	29	1.25%	27	10.38%	46
Russell MidCap Index	7.46%	51	18.52%	55	13.80%	42	(2.44%)	67	13.22%	23
Callan Mid Capitalization	7.83%		19.58%		12.23%		(0.80%)		9.88%	
DFA Small Cap Value	6.50%	32	7.68%	66	29.36%	32	(6.06%)	76	5.04%	67
Russell 2000 Value Index	7.14%	28	7.84%	65	31.74%	14	(7.47%)	83	4.22%	82
Callan Small Cap Value	5.29%		9.19%		27.86%		(3.73%)		5.81%	
CastleArk Management	27.40%	28	23.93%	59	6.01%	68	(4.90%)	78	6.15%	31
Russell 2000 Growth Index	15.76%	87	22.17%	70	11.32%	36	(1.38%)	50	5.60%	32
Callan Small Cap Growth	22.67%		25.76%		8.62%		(1.29%)		3.40%	
<b>Total Global Equity</b>	<b>5.87%</b>		<b>31.31%</b>		<b>8.65%</b>		<b>(2.08%)</b>		<b>2.32%</b>	
MSCI World	5.43%		22.40%		7.51%		(0.87%)		4.94%	
BlackRock Global Alpha Tilts	3.74%	60	30.12%	22	-		-		-	
MSCI ACWI Gross	4.26%	54	24.62%	57	8.48%	28	(1.84%)	70	4.71%	48
Callan Global Equity	4.64%		25.31%		6.20%		0.17%		4.60%	
MFS Investment Management	8.88%	14	33.16%	13	6.06%	52	(0.49%)	60	5.59%	34
MSCI ACWI Gross	4.26%	54	24.62%	57	8.48%	28	(1.84%)	70	4.71%	48
Callan Global Equity	4.64%		25.31%		6.20%		0.17%		4.60%	
<b>Total International Equity</b>	<b>(1.59%)</b>		<b>25.03%</b>		<b>5.78%</b>		<b>(0.41%)</b>		<b>(3.63%)</b>	
MSCI EAFE	(1.43%)		25.03%		1.00%		(0.81%)		(4.90%)	
AQR Emerging Markets	(7.58%)	33	35.53%	73	-		-		-	
MSCI EM Gross	(7.39%)	31	37.75%	58	11.60%	49	(14.60%)	64	(1.82%)	62
Callan Emerging Broad	(8.56%)		39.31%		11.58%		(13.68%)		(1.09%)	
Brandes Investment Partners	2.46%	12	16.53%	99	8.50%	4	(1.25%)	66	(4.45%)	56
MSCI EAFE	(1.43%)	44	25.03%	75	1.00%	57	(0.81%)	62	(4.90%)	62
Callan NonUS Eq	(1.94%)		28.16%		1.50%		0.40%		(3.85%)	
William Blair & Company	(1.11%)	39	31.45%	22	(1.45%)	82	0.18%	53	(1.77%)	23
MSCI ACWIxUS Gross	(2.67%)	63	27.77%	56	5.01%	16	(5.25%)	92	(3.44%)	47
Callan NonUS Eq	(1.94%)		28.16%		1.50%		0.40%		(3.85%)	
DFA International Small Cap	(6.58%)	82	27.98%	92	8.00%	8	3.99%	86	(4.99%)	67
Blended Benchmark	(2.19%)	43	33.01%	74	2.18%	32	9.59%	56	(4.95%)	67
Callan Intl Small Cap	(3.26%)		35.27%		(0.03%)		10.09%		(3.42%)	

## Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	12/2017- 9/2018		2017		2016		2015		2014	
<b>Total Fixed Income</b>	<b>(0.29%)</b>		<b>5.28%</b>		<b>7.40%</b>		<b>(2.49%)</b>		<b>4.00%</b>	
Bimbg Aggregate	(1.60%)		3.54%		2.65%		0.55%		5.97%	
BlackRock US Debt Idx Fd	(1.54%)	81	3.68%	75	-		-		-	
Bimbg Aggregate	(1.60%)	85	3.54%	87	2.65%	86	0.55%	71	5.97%	70
Callan Core Bond FI	(1.29%)		3.96%		3.14%		0.84%		6.19%	
Reams Asset Management	(0.66%)	16	3.62%	95	4.38%	63	0.38%	49	4.09%	97
Bimbg Aggregate	(1.60%)	86	3.54%	95	2.65%	100	0.55%	38	5.97%	61
Callan Core Plus FI	(1.14%)		4.97%		4.67%		0.34%		6.18%	
Loomis, Sayles & Company, L.P.	0.01%	4	8.50%	1	13.97%	1	(6.10%)	100	5.94%	62
Bimbg Aggregate	(1.60%)	86	3.54%	95	2.65%	100	0.55%	38	5.97%	61
Callan Core Plus FI	(1.14%)		4.97%		4.67%		0.34%		6.18%	
<b>Total Private Equity</b>	<b>16.09%</b>		<b>17.27%</b>		<b>9.09%</b>		<b>12.34%</b>		<b>15.40%</b>	
Abbott Capital Management 2010	19.78%		19.98%		11.03%		12.32%		12.36%	
Abbott Capital Management 2011	18.67%		19.24%		10.43%		10.12%		9.17%	
Abbott Capital Management 2012	17.27%		17.97%		9.42%		2.45%		4.97%	
Abbott Capital Management 2013	18.42%		18.71%		5.25%		2.23%		(2.17%)	
Abbott Capital Management 2014	16.12%		13.50%		2.86%		0.39%		-	
Abbott Capital Management 2015	8.51%		6.87%		(5.11%)		-		-	
Abbott Capital Management 2016	4.09%		(1.13%)		-		-		-	
Mesirow V	14.70%		21.00%		12.03%		19.41%		21.07%	
Mesirow VI	18.61%		12.50%		3.32%		(3.99%)		2.22%	
Mesirow VII	(4.67%)		-		-		-		-	
NB Secondary Opp Fund III	13.65%		20.63%		12.83%		33.37%		19.77%	
Private Advisors VI	10.25%		13.15%		(1.34%)		-		-	
Private Advisors VII	15.70%		(3.33%)		-		-		-	
Russell 3000 (1 Qtr in Arrears) + 3%	11.95%		21.71%		17.97%		2.56%		20.79%	
<b>Absolute Return</b>	<b>4.67%</b>		<b>5.96%</b>		<b>5.16%</b>		<b>4.92%</b>		<b>-</b>	
Allianz SA 1000	7.07%	7	9.67%	10	11.15%	1	9.76%	1	-	
T-Bills + 10%	8.68%	4	10.86%	5	10.33%	1	10.05%	1	10.03%	1
Callan Abs Rtn Hedge FoF	3.16%		4.97%		3.35%		(0.75%)		3.78%	
Newton	3.15%	50	5.59%	39	3.31%	52	1.50%	29	-	
1-month LIBOR + 4%	4.42%	21	5.11%	47	4.49%	23	4.19%	8	4.16%	39
Callan Abs Rtn Hedge FoF	3.16%		4.97%		3.35%		(0.75%)		3.78%	
UBS A & Q	4.20%	23	4.16%	67	2.42%	71	4.09%	9	-	
1-month LIBOR + 4%	4.42%	21	5.11%	47	4.49%	23	4.19%	8	4.16%	39
Callan Abs Rtn Hedge FoF	3.16%		4.97%		3.35%		(0.75%)		3.78%	
<b>Real Assets</b>	<b>1.01%</b>		<b>10.15%</b>		<b>7.00%</b>		<b>-</b>		<b>-</b>	
Principal DRA	1.01%	40	10.15%	13	7.00%	69	-		-	
Principal Blended Benchmark (1)	(0.64%)	57	10.38%	12	6.77%	70	-		-	
Callan Alternative Inv DB	(0.03%)		4.44%		10.65%		(20.31%)		(2.44%)	
<b>Total Real Estate</b>	<b>6.89%</b>		<b>9.20%</b>		<b>11.38%</b>		<b>13.44%</b>		<b>13.87%</b>	
Real Estate	6.89%		9.20%		11.38%		13.44%		13.87%	
Blended Benchmark (2)	5.90%		6.93%		9.69%		13.82%		11.26%	
Callan Tot Real Est DB	-		-		-		-		-	
<b>Total Fund</b>	<b>4.63%</b>		<b>16.68%</b>		<b>9.11%</b>		<b>0.74%</b>		<b>5.31%</b>	
Total Fund Reference Index*	2.76%		15.86%		7.26%		1.21%		6.00%	

\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Bimbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.  
(1) Current Principal Blended Benchmark = 35% Barclays US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.  
(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended September 30, 2018. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended September 30, 2018

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception	
<b>Net of Fee Returns</b>						
Total Domestic Equity	6.46%	17.35%	16.90%	13.24%	7.26%	(7/98)
Russell 3000 Index	7.12%	17.58%	17.07%	13.46%	7.09%	(7/98)
BlackRock Russell 1000 Value	5.75%	9.59%	-	-	9.49%	(3/17)
Russell 1000 Value Index	5.70%	9.45%	13.55%	10.72%	8.15%	(3/17)
DFA Large Cap Value	4.73%	-	-	-	10.04%	(11/17)
Russell 1000 Value Index	5.70%	9.45%	13.55%	10.72%	8.66%	(11/17)
Northern Trust Global	7.71%	17.89%	17.32%	13.98%	9.90%	(9/94)
S&P 500 Index	7.71%	17.91%	17.31%	13.95%	9.92%	(9/94)
Polen Capital Management	10.48%	30.57%	19.88%	19.08%	17.56%	(7/12)
S&P 500 Index	7.71%	17.91%	17.31%	13.95%	15.33%	(7/12)
Earnest Partners LLC	5.77%	16.16%	18.02%	13.70%	10.41%	(5/05)
Russell MidCap Index	5.00%	13.98%	14.52%	11.65%	10.13%	(5/05)
DFA Small Cap Value	0.71%	9.14%	14.33%	9.72%	11.77%	(11/96)
Russell 2000 Value Index	1.60%	9.33%	16.12%	9.91%	9.97%	(11/96)
CastleArk Management	12.16%	31.92%	18.62%	12.59%	14.09%	(9/13)
Russell 2000 Growth Index	5.52%	21.06%	17.98%	12.14%	13.42%	(9/13)
Total Global Equity	4.53%	13.25%	16.08%	9.79%	8.84%	(4/10)
MSCI World	4.98%	11.24%	13.54%	9.28%	9.52%	(4/10)
BlackRock Global Alpha Tilts	4.29%	11.48%	-	-	18.73%	(3/16)
MFS Investment Management	4.98%	16.17%	16.83%	11.08%	12.48%	(12/12)
MSCI ACWI Gross	4.40%	10.35%	14.02%	9.25%	10.91%	(12/12)
Total International Equity	0.05%	1.61%	10.05%	5.44%	6.53%	(5/96)
MSCI EAFE Index	1.35%	2.74%	9.23%	4.42%	4.69%	(5/96)
AQR Emerging Markets	(0.57%)	(3.95%)	-	-	11.06%	(8/16)
MSCI EM Gross	(0.95%)	(0.44%)	12.77%	3.99%	11.70%	(8/16)
Brandes Investment Partners	0.82%	4.49%	9.57%	4.82%	7.61%	(2/98)
MSCI EAFE Index	1.35%	2.74%	9.23%	4.42%	4.77%	(2/98)
William Blair & Company	(0.00%)	3.62%	9.90%	5.88%	7.50%	(12/03)
MSCI ACWI ex-US Index	0.80%	2.25%	10.49%	4.60%	7.15%	(12/03)
DFA International Small Cap	(0.97%)	(3.00%)	10.34%	6.59%	4.99%	(5/06)
Blended Benchmark	(0.88%)	3.73%	12.39%	7.96%	4.00%	(5/06)
Total Fixed Income	0.65%	0.17%	3.39%	2.64%	6.52%	(9/94)
Bimbg Aggregate	0.02%	(1.22%)	1.31%	2.16%	5.30%	(9/94)
Allianz US Fixed Income 250	0.96%	-	-	-	2.17%	(2/18)
Bimbg Aggregate +2.5%	0.64%	1.28%	3.82%	4.66%	1.22%	(2/18)
BlackRock US Debt Idx Fd	0.04%	(1.21%)	-	-	(0.03%)	(6/16)
Reams Asset Management	(0.13%)	(0.47%)	1.80%	2.22%	5.11%	(1/01)
Loomis, Sayles & Company, L.P.	1.15%	0.91%	6.34%	4.42%	8.18%	(9/94)
Bimbg Aggregate	0.02%	(1.22%)	1.31%	2.16%	5.30%	(9/94)
Total Private Equity	4.96%	20.07%	14.49%	14.55%	9.09%	(6/10)
Abbott Capital Management 2010	6.96%	26.06%	17.72%	15.65%	(6.29%)	(6/10)
Abbott Capital Management 2011	6.06%	24.31%	16.98%	13.92%	(3.43%)	(6/11)
Abbott Capital Management 2012	5.23%	22.65%	14.90%	10.86%	6.17%	(7/12)
Abbott Capital Management 2013	4.75%	23.85%	14.13%	7.85%	6.41%	(5/13)
Abbott Capital Management 2014	4.27%	20.30%	10.49%	-	3.59%	(4/14)
Abbott Capital Management 2015	2.54%	8.98%	4.40%	-	5.95%	(4/15)
Abbott Capital Management 2016	1.98%	3.24%	-	-	1.05%	(3/16)
Abbott Capital Management 2018	0.00%	-	-	-	-	-
Mesirow V	5.61%	18.58%	16.37%	18.52%	13.86%	(6/10)
Mesirow IV	5.84%	20.90%	10.51%	6.22%	5.91%	(7/13)
Mesirow VII	(2.56%)	(11.59%)	-	-	-	-
NB Secondary Opp Fund III	3.68%	18.27%	15.62%	-	12.63%	(12/13)
NB Secondary Opp Fund IV	22.86%	2.84%	-	-	28.15%	(4/17)
Private Advisors VI	1.45%	12.44%	6.45%	-	0.70%	(4/15)
Private Advisors VII	0.91%	14.45%	-	-	6.61%	(1/17)
Russell 3000 (1 Qtr in Arrears) + 3%	4.55%	17.79%	14.62%	16.32%	19.33%	(1/17)
Absolute Return	2.07%	6.22%	6.08%	-	5.58%	(6/14)
Allianz SA 1000	4.71%	10.22%	11.57%	-	10.09%	(6/14)
T-Bills + 10%	2.87%	11.59%	10.84%	10.52%	10.59%	(6/14)
Newton	2.16%	4.33%	4.47%	-	3.55%	(8/14)
UBS A & Q	0.68%	5.10%	3.83%	-	3.88%	(12/14)
1-month LIBOR + 4%	1.52%	5.79%	5.04%	4.69%	4.85%	(12/14)
Real Assets	(0.18%)	3.41%	-	-	6.55%	(1/16)
Principal DRA	(0.18%)	3.41%	-	-	6.55%	(1/16)
Principal Blended Benchmark (1)	(0.71%)	2.86%	-	-	5.91%	(1/16)
Total Real Estate	3.02%	9.87%	9.71%	11.38%	5.55%	(7/86)
Real Estate	3.02%	9.87%	9.71%	11.38%	5.55%	(7/86)
Blended Benchmark (2)	1.89%	7.68%	8.70%	10.04%	-	-
Total Fund	2.70%	8.23%	10.68%	8.15%	9.26%	(1/79)
Total Fund Reference Index*	2.40%	6.67%	9.63%	7.64%	-	-

(1) Current Principal Blended Benchmark = 35% Barclays US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	12/2017- 9/2018	2017	2016	2015	2014
<b>Net of Fee Returns</b>					
Total Domestic Equity	10.73%	20.53%	13.55%	(0.39%)	11.28%
Russell 3000 Index	10.57%	21.13%	12.74%	0.48%	12.56%
BlackRock Russell 1000 Value	4.01%	-	-	-	-
Russell 1000 Value Index	3.92%	13.66%	17.34%	(3.83%)	13.45%
DFA Large Cap Value	2.87%	-	-	-	-
Russell 1000 Value Index	3.92%	13.66%	17.34%	(3.83%)	13.45%
Northern Trust Global	10.54%	21.84%	11.99%	1.47%	13.75%
S&P 500 Index	10.56%	21.83%	11.96%	1.38%	13.69%
Polen Capital Management	24.33%	27.05%	1.19%	14.94%	17.02%
S&P 500 Index	10.56%	21.83%	11.96%	1.38%	13.69%
Earnest Partners LLC	7.92%	25.50%	15.90%	0.71%	9.79%
Russell MidCap Index	7.46%	18.52%	13.80%	(2.44%)	13.22%
DFA Small Cap Value	6.07%	7.10%	28.68%	(6.57%)	4.47%
Russell 2000 Value Index	7.14%	7.84%	31.74%	(7.47%)	4.22%
CastleArk Management	26.79%	23.12%	5.30%	(5.54%)	5.45%
Russell 2000 Growth Index	15.76%	22.17%	11.32%	(1.38%)	5.60%
Total Global Equity	5.58%	30.85%	8.26%	(2.44%)	1.95%
MSCI World	5.43%	22.40%	7.51%	(0.87%)	4.94%
BlackRock Global Alpha Tilts	3.70%	30.06%	-	-	-
MSCI ACWI Gross	4.26%	24.62%	8.48%	(1.84%)	4.71%
MFS Investment Management	8.54%	32.62%	5.62%	(0.89%)	5.17%
MSCI ACWI Gross	4.26%	24.62%	8.48%	(1.84%)	4.71%
Total International Equity	(1.94%)	24.44%	5.27%	(0.89%)	(4.09%)
MSCI EAFE Index	(1.43%)	25.03%	1.00%	(0.81%)	(4.90%)
AQR Emerging Markets	(8.10%)	34.55%	-	-	-
MSCI EM Gross	(7.39%)	37.75%	11.60%	(14.60%)	(1.82%)
Brandes Investment Partners	2.15%	16.06%	8.05%	(1.66%)	(4.84%)
MSCI EAFE Index	(1.43%)	25.03%	1.00%	(0.81%)	(4.90%)
William Blair & Company	(1.41%)	30.94%	(1.84%)	(0.22%)	(2.17%)
MSCI ACWI ex-US Index	(2.67%)	27.77%	5.01%	(5.25%)	(3.44%)
DFA International Small Cap	(6.58%)	27.98%	8.00%	3.99%	(4.99%)
Blended Benchmark	(2.19%)	33.01%	2.18%	9.59%	(4.95%)
Total Fixed Income	(0.39%)	5.10%	7.21%	(2.63%)	3.85%
Blmbg Aggregate	(1.60%)	3.54%	2.65%	0.55%	5.97%
BlackRock US Debt Idx Fd	(1.59%)	3.63%	-	-	-
Reams Asset Management	(0.77%)	3.46%	4.22%	0.23%	3.94%
Loomis, Sayles & Company, L.P.	(0.09%)	8.36%	13.82%	(6.20%)	5.82%
Blmbg Aggregate	(1.60%)	3.54%	2.65%	0.55%	5.97%
Total Private Equity	16.09%	17.27%	9.09%	12.34%	15.40%
Abbott Capital Management 2010	19.78%	19.98%	11.03%	12.32%	12.36%
Abbott Capital Management 2011	18.67%	19.24%	10.43%	10.12%	9.17%
Abbott Capital Management 2012	17.27%	17.97%	9.42%	2.45%	4.97%
Abbott Capital Management 2013	18.42%	18.71%	5.25%	2.23%	(2.17%)
Abbott Capital Management 2014	16.12%	13.50%	2.86%	0.39%	-
Abbott Capital Management 2015	8.51%	6.87%	(5.11%)	-	-
Abbott Capital Management 2016	4.09%	(1.13%)	-	-	-
Mesirow V	14.70%	21.00%	12.03%	19.41%	21.07%
Mesirow VI	18.61%	12.50%	3.32%	(3.99%)	2.22%
Mesirow VII	(4.67%)	-	-	-	-
NB Secondary Opp Fund III	13.65%	20.63%	12.83%	33.37%	19.77%
Private Advisors VI	10.25%	13.15%	(1.34%)	-	-
Private Advisors VII	15.70%	(3.33%)	-	-	-
Russell 3000 (1 Qtr in Arrears) + 3%	11.95%	21.71%	17.97%	2.56%	20.79%
Absolute Return	4.67%	5.96%	5.16%	4.92%	-
Allianz SA 1000	7.07%	9.67%	11.15%	9.76%	-
T-Bills + 10%	8.68%	10.86%	10.33%	10.05%	10.03%
Newton	3.15%	5.59%	3.31%	1.50%	-
UBS A & Q	4.20%	4.16%	2.42%	4.09%	-
1-month LIBOR + 4%	4.42%	5.11%	4.49%	4.19%	4.16%
Real Assets	1.01%	10.15%	7.00%	-	-
Principal DRA	1.01%	10.15%	7.00%	-	-
Principal Blended Benchmark (1)	(0.64%)	10.38%	6.77%	-	-
Total Real Estate	6.72%	8.89%	11.09%	13.15%	13.54%
Real Estate	6.72%	8.89%	11.09%	13.15%	13.54%
Blended Benchmark (2)	5.90%	6.93%	9.69%	13.82%	11.26%
Total Fund	4.41%	16.36%	8.80%	0.46%	5.02%
Total Fund Reference Index*	2.76%	15.86%	7.26%	1.21%	6.00%

\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7%

NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.

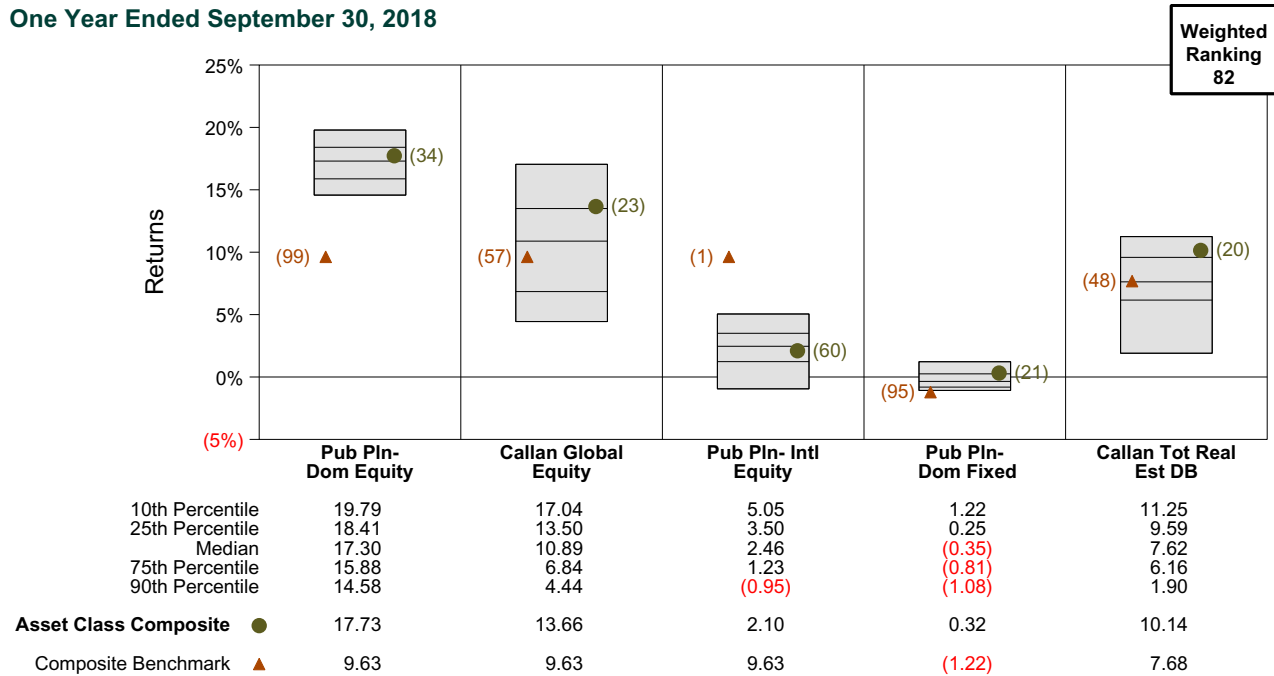
(1) Current Principal Blended Benchmark = 35% Barclays US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

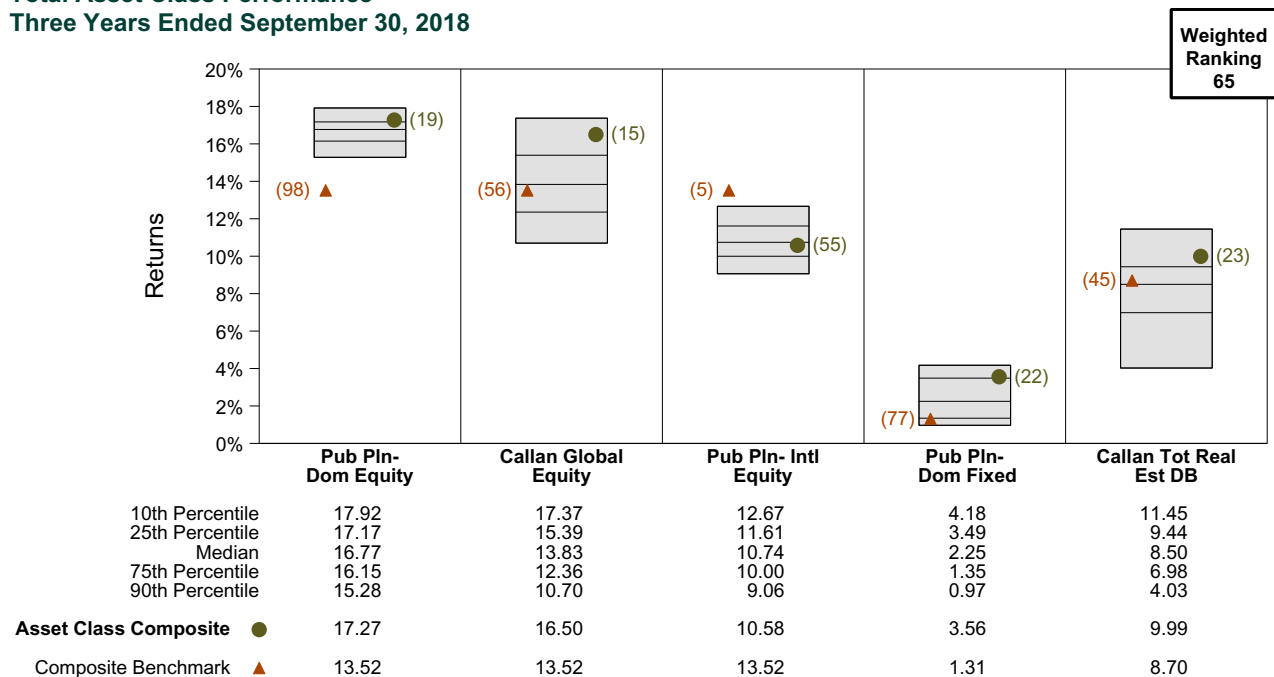
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended September 30, 2018



### Total Asset Class Performance Three Years Ended September 30, 2018

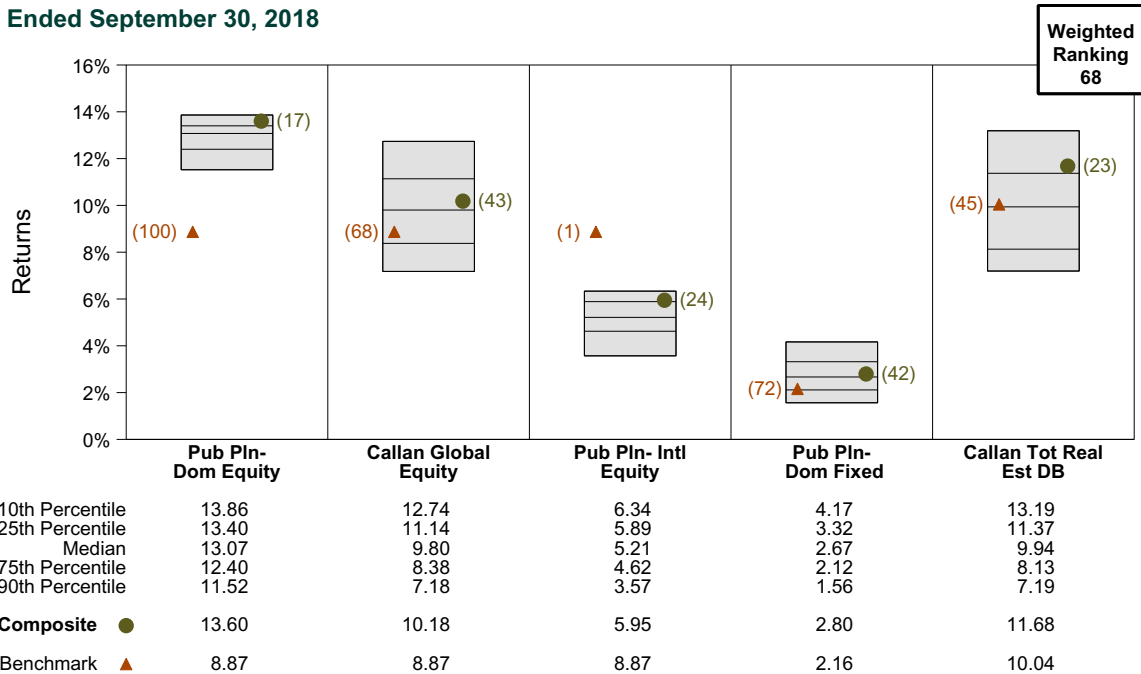


\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.

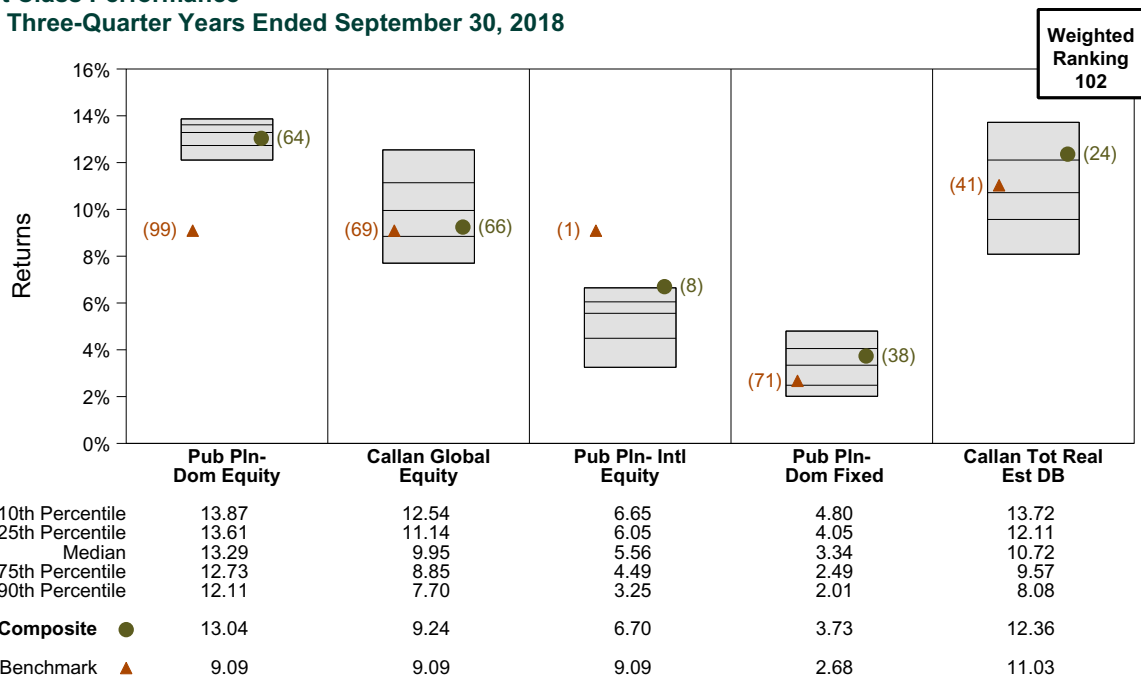
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance Five Years Ended September 30, 2018



### Total Asset Class Performance Seven and Three-Quarter Years Ended September 30, 2018



\* Current Quarter Target = 50.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 7.7% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.3% Principal Blended Benchmark.





## Research and Educational Programs

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/library](http://www.callan.com/library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog “Perspectives.” For more information contact Corry Walsh at 312.346.3536 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan’s Experts



**An Investor Framework for Addressing Climate Change** | Callan’s Anna West lays out the top issues for investors about this issue. We also identify solutions and areas of progress for those seeking to address climate-related risks as well as benefit from emerging opportunities.

**Promoting Gender Diversity in the Investment Industry** | Callan Executive Chairman Ron Peyton offers his observations on what has worked for gender inclusion at the firm over the last 45 years and what we have learned in the hope that it will inform others on how to progress toward equality in senior roles industry-wide.



**Helping DC Plan Participants in the “Distribution” Phase** | Callan’s Tom Shingler and James Veneruso discuss our research on the “distribution phase” of defined contribution plans, when participants are drawing down assets, and the issues that plan sponsors should address.

**Picking Through the Alpha Graveyard: Correcting for Survivorship Bias in Investment Product Universes** | In this paper from the *Journal of Investment Management*, Callan’s Greg Allen, Ivan Cliff, and Wally Meerschaert propose a technique to correct for survivorship bias in investment product universes. It uses all available data for survivors and non-survivors, corrects for bias across the full distribution (from 1st to 99th percentile), and can be applied to other return-based statistics such as the Sharpe ratio.

**Infrastructure: No Longer a Niche Option** | Callan’s Jan Mende discusses investing in infrastructure. Institutional investors are increasing allocations, managers are creating more investment options, and benchmarks are being refined.

**The Shape of Risk: Making Cents of the Irrational With Options** | In the third quarter’s *Hedge Fund Monitor*, Jim McKee discusses the use of options as insurance for institutional portfolios.

**2018 ESG Survey** | Callan’s sixth annual survey on the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market reveals more than 40% of investors are incorporating ESG factors into investment decisions.

**Your Plan Will Face a Cyberattack; Here’s How to Prepare** | The third quarter’s edition of the *DC Observer* is designed to assist plan sponsors with formulating and executing their cybersecurity strategy to protect their information and their assets.

## Quarterly Periodicals

**Private Equity Trends** | This newsletter offers the latest data on private equity fundraising, buyouts, venture capital, and returns.

**Market Pulse Flipbook** | A quarterly market reference guide covering investment and fund sponsor trends in the U.S. economy, U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution.

**Capital Market Review** | This quarterly publication provides analysis and a broad overview of the economy and public and private market activity across a wide range of asset classes.

**Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?** | Callan’s Real Assets Consulting group identifies seven indicators—based on spreads in real estate and fixed income markets—that, combined with an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.

## Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: [www.callan.com/library/](http://www.callan.com/library/)

Callan's **2019 National Conference** will be held January 28-30, 2019. Mark your calendars for this upcoming event! And please visit the Events page on our website ([www.callan.com/events/](http://www.callan.com/events/)) for additional information as it becomes available.

**For more information about events, please contact Barb Gerraty: 415.274.3093 / [gerraty@callan.com](mailto:gerraty@callan.com)**

## The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the "Callan College," provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next sessions are:

### Introduction to Investments

*San Francisco, April 16-17, 2019*

*San Francisco, July 16-17, 2019*

*Chicago, October 22-23, 2019*

This program familiarizes fund sponsor trustees, staff, and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory "Callan College" session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

### Customized Sessions

The "Callan College" is equipped to customize a curriculum to meet the training and educational needs of a specific organization. These tailored sessions range from basic to advanced and can take place anywhere—even at your office.

**Learn more at [www.callan.com/events/callan-college-intro](http://www.callan.com/events/callan-college-intro) or contact Kathleen Cunnie: 415.274.3029 / [cunnie@callan.com](mailto:cunnie@callan.com)**

## Education: By the Numbers

**525** Attendees (on average) of the Institute's annual National Conference

**50+** Unique pieces of research the Institute generates each year

**3,700** Total attendees of the "Callan College" since 1994

**1980** Year the Callan Institute was founded



**"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialog to raise the bar across the industry."**

Greg Allen, Chief Executive Officer and Chief Research Officer



## List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g. attending and educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
Acadian Asset Management LLC
AEGON USA Investment Management
Aether Investment Partners
AEW Capital Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Pioneer Asset Management
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
Black Creek Investment Management, Inc.
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Breckinridge Capital Advisors, Inc.
BrightSphere Investment Group (FKA Old Mutual Asset)
Brown Brothers Harriman & Company
Cambiar Investors, LLC

Manager Name
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management
CenterSquare Investment Management
Chartwell Investment Partners
Christian Brothers Investment Services
CIM Group
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
CS McKee, L.P.
DePrince, Race & Zollo, Inc.
D.E. Shaw Investment Management, L.L.C.
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
DWS (Formerly Deutsche Asset Management)
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
GAM (USA) Inc.

Manager Name
Gerding Edlen
GlobeFlex Capital, L.P.
GMO LLC
Goldman Sachs Asset Management
Green Square Capital LLC
Greenwich Investment Management, Inc.
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Harding Loevner L.P.
Hartford Funds
Hartford Investment Management Co.
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus
Jennison Associates LLC
Jensen Investment Management
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (MIM)
Manulife Asset Management
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
O'Shaughnessy Asset Management, LLC
P/E Investments

Manager Name
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management
PGIM
PGIM Fixed Income
PineBridge Investments
Pictet Asset Management Ltd.
PNC Capital Advisors, LLC
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
QMA
RBC Global Asset Management
Reaves Asset Management
Regions Financial Corporation
Riverbridge Partners LLC
Robeco Institutional Asset Management, US Inc.
Rockefeller & Co., Inc.
Rothschild Asset Management Inc.
Russell Investments
Santander Global Facilities
Schroder Investment Management North America Inc.
Smith Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management, Ltd.
Sprucegrove Investment Management Ltd.
Standard Life Investments Limited
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The Boston Company Asset Management, LLC
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Velanne Asset Management Ltd.
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wedgewood Partners, Inc.
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company LLC
Westfield Capital Management Company, LP
William Blair & Company LLC