

June 30, 2017



## City of Milwaukee Employees' Retirement System

### Investment Measurement Service Quarterly Review

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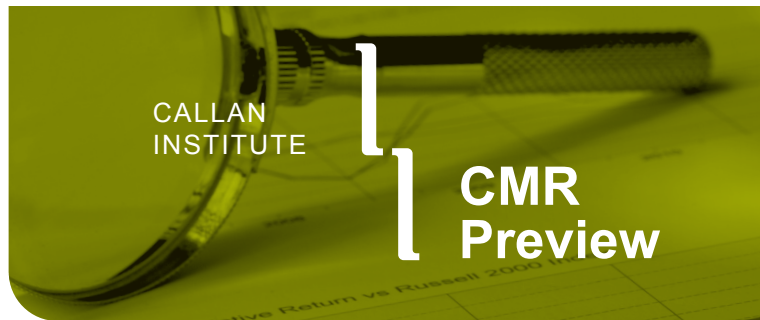
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Second Quarter 2017

## Overseas Stocks Lead the Charge

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U.S. AND NON-U.S. EQUITY

PAGE

- The S&P 500 Index rose 3.1% and hit a high during the quarter
- Large cap outperformed smaller capitalizations—again
- Growth outperformed value across large and small capitalizations
- The MSCI World ex USA Index jumped 5.6%
- Europe’s economic recovery fueled non-U.S. developed markets
- Once again, emerging markets outpaced developed ones
- Developed non-U.S. small cap outperformed large cap

## Yield Hunt, Weak Dollar Drove Returns

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U.S. AND NON-U.S. FIXED INCOME

PAGE

- The Bloomberg Barclays US Aggregate Bond Index gained 1.4%
- Corporate bonds performed best, driven by strong demand
- Low rates kept pushing investors out on the risk spectrum for higher yields
- Municipal bonds outperformed Treasuries
- The Bloomberg Barclays Global Aggregate ex-US (unhdg.) jumped 3.5%
- Unhedged non-U.S. bonds were helped by a weaker dollar
- The dollar-denominated JPM EMBI Global Diversified Index rose 2.2%

## Additional Callan Newsletters and Resources

### Hedge Fund Monitor

An analysis of hedge fund managers and marketplace issues

### Private Markets Trends

The latest news and trends in private equity investing

### DC Observer

A look at the issues and challenges facing DC plan sponsors

### Real Assets Reporter

A review of real estate and other real assets

### Callan DC Index™

A Web tool tracking performance and fund flows of over 90 DC plans

### Callan Target Date Index™

An online feature tracking returns and allocations of target date funds

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## Coming Soon to Our Blog ‘Perspectives’

### Economy

While the initial read on first quarter GDP growth was disappointing, at 0.7%, later revisions bumped it up to 1.4%. The second quarter figure is due later this month, with consensus estimates putting it at 2.4%. That would place the economy back on track for solid—if unspectacular—growth.

### Fund Sponsor

Each quarter we track the median return for all fund types, including endowments and foundations, public plans, corporate plans, and Taft-Hartley plans. Our analysis offers insight into the factors that drove performance and how various types of funds fared relative to each other.

Find even more on our blog at [callan.com/blog](http://callan.com/blog)

## Broad Market Quarterly Returns

**U.S. Equity**  
Russell 3000

**+3.0%**

**Non-U.S. Equity**  
MSCI ACWI ex USA

**+5.8%**

**U.S. Fixed Income**  
Bloomberg Barclays Agg

**+1.4%**

**Non-U.S. Fixed Income**  
Bloomberg Barclays Gbl ex US

**+3.5%**

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

# Global Equity

## U.S. Stocks: Shocks, but No Slowing

**+3.0%**

RUSSELL 3000

Despite an increase in interest rates and turbulent events in the news, including disruptions within the Trump administration and terrorist attacks in the U.K., U.S. stocks continued to inch higher during the second quarter. Amid this volatile macro backdrop, S&P 500 companies reported the strongest quarterly earnings growth rate in six years (70% reported profits above expectations), and the **S&P 500 Index** hit a record high during the quarter.

Large cap stocks outperformed mid and small caps (S&P 500 Index: +3.1%; **Russell 2000 Index**: +2.5%). Strong earnings reports out of large cap stocks contributed to their leg up over small cap. Large cap was also buoyed by the continued flow of assets into passively managed strategies, especially ETF vehicles.

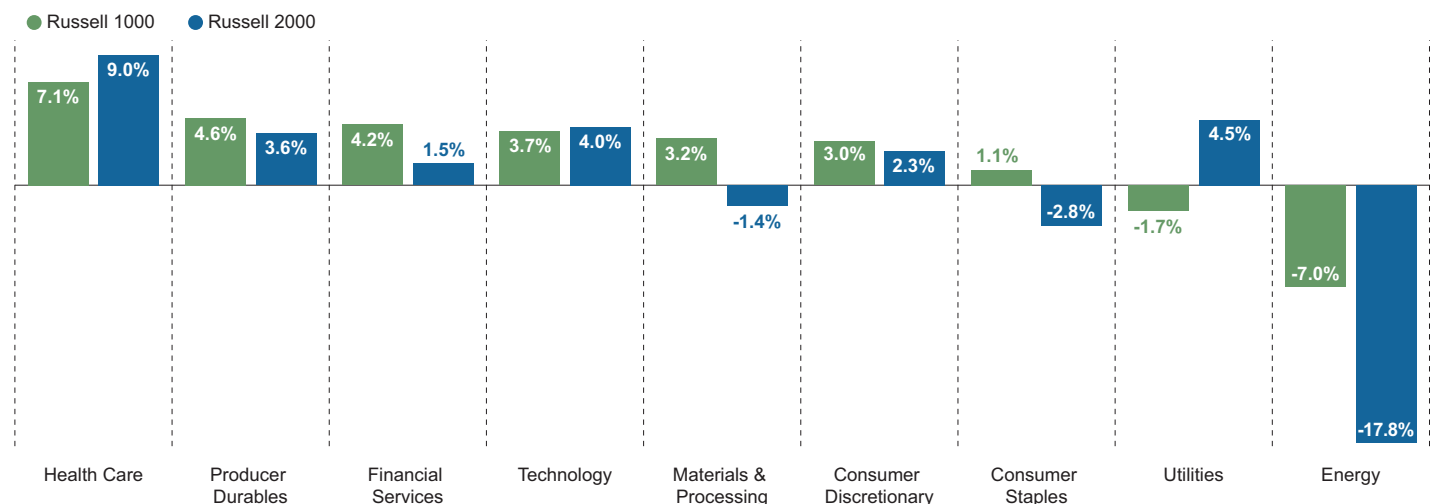
Small cap valuations kept stretching higher and, as a result, investors continued to take profits following a boon year in 2016. The continued expansion in small cap multiples may be giving some investors pause, particularly as the current economic upturn is nearing nine years.

Growth outperformed value across large and small caps (**Russell 1000 Growth**: +4.7% vs. **Russell 1000 Value**: +1.3%; **Russell 2000 Growth**: +4.4% vs. **Russell 2000 Value**: +0.7%). The strong-performing “FAAMG” stocks (Facebook, Amazon, Apple, Microsoft, and Google) comprised 22% of the S&P 500’s return in the second quarter versus 32% in the first. Investors continued to be drawn to the top-line growth prospects and market share gains at these large, established firms.

Investor sentiment broadened across sectors in the second quarter compared to the first, as a wider range of firms reported positive results. Top sectors in the S&P 500 included Health Care (+7.1%), which rallied on the Trump administration’s prospect of change to the Affordable Care Act; Industrials (+4.7%), which benefited from declining commodity prices; Financials (+4.2%), spurred by the Fed’s announcement that 34 of the largest banks passed their stress tests, the largest cohort to do so since the tests began; and Tech (+4.1%), on the continued rise of those FAAMG stocks.

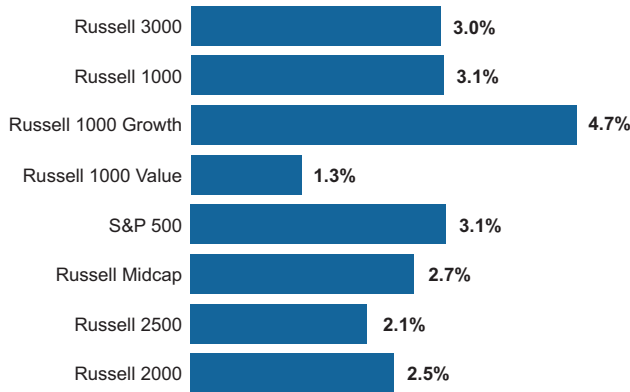
Energy (-6.4%) and Telecom (-7.0%) were the laggards. Crude oil prices fell due to an increase in supply, the result of a milder winter. In addition, improving efficiency within the U.S. fracking

## Quarterly Performance of Select Sectors



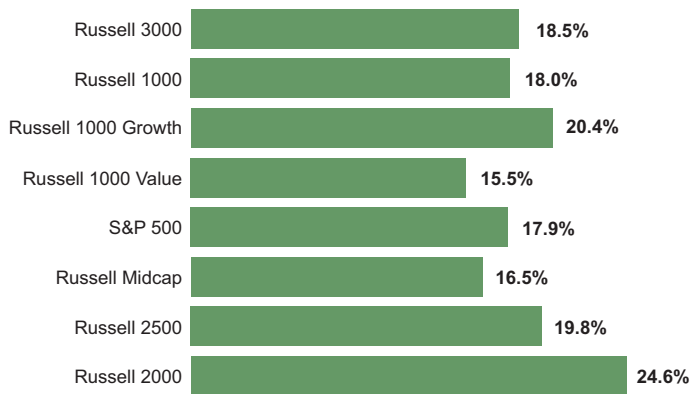
Source: Russell Investment Group

## U.S. Equity: Quarterly Returns



Source: Russell Investment Group and Standard & Poors'

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



Source: Russell Investment Group and Standard & Poors'

industry impacted prices. Within Telecom, competition for market share intensified in the increasingly commoditized (and consolidated) space.

Value stocks were hurt by Consumer Staples companies resetting to more sensible valuations following the strong rally in 2016 that resulted from the "yield trade," as investors sought the safety of strong dividends and lower-volatility stocks.

From a factor perspective, Momentum (+7.9%) was the top-performing factor while Enhanced Value (weighted to the forward price-earnings ratio, enterprise value/cash flow from operations, and price-to-book value of stocks in the factor) was the worst performer (+1.3%). Momentum was favored as investors sought stocks with demonstrated earnings growth.

## Non-U.S. Stocks: Europe's Recovery a Boost

**+5.8%**

MSCI ACWI ex USA

Non-U.S. developed equity outperformed the U.S. for the second consecutive quarter, fueled by economic recovery in Europe and market-friendly outcomes in European elections. The **MSCI Europe Index** jumped 7.4% and the **MSCI World ex USA Index** notched a 5.6% gain, compared to the 3.1% rise in the S&P 500.

Gains were broad-based and helped by weakness in the U.S. dollar, which lost about 7% versus the euro and 5% versus a broad basket of currencies.

The euro rallied as a result of hawkish comments from the European Central Bank, coupled with improving European economic and sentiment indicators. European Financials benefited from expectations of higher rates, and European Industrials were propped up by stronger economic expectations.

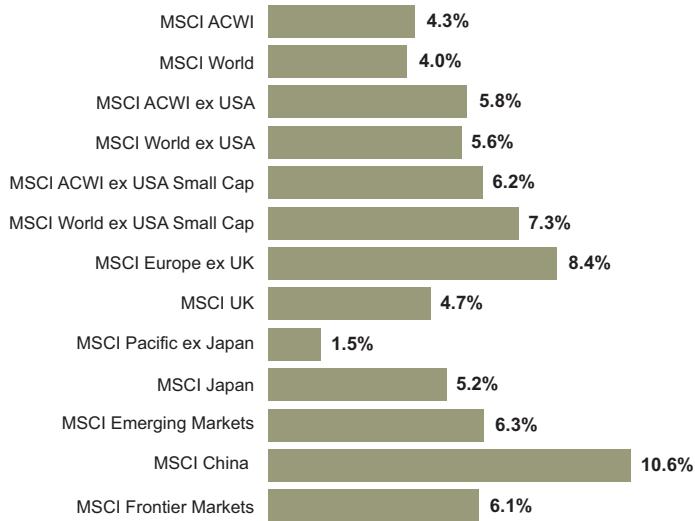
Energy and Telecom Services were the only sectors in developed markets with negative second quarter returns. Energy fell as oil prices continue to languish due to an imbalance between supply and demand despite OPEC's efforts to cut production. Telecom Services were buffeted by pricing pressure.

Within the MSCI indices, Europe ex-U.K. was up 8.4%, the U.K. gained 4.7%, and Japan returned 5.2%. Small caps outperformed; the **MSCI EAFE Small Cap Index** rose 8.1%.

Looking at the global picture for stocks, the **MSCI ACWI Index** gained 4.3%, and developed and emerging markets outperformed the U.S. (**MSCI ACWI ex USA Index: +5.8%**), due largely to broad-based weakness in the U.S. dollar.

## Non-U.S. Equity: Quarterly Returns

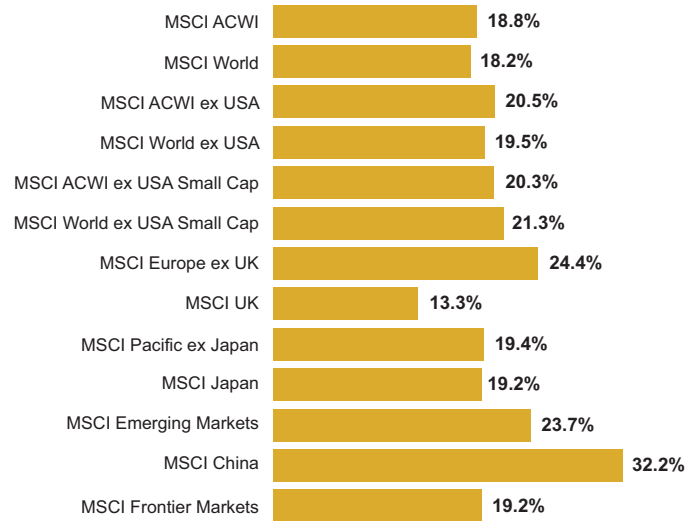
(U.S. Dollar)



Source: MSCI

## Non-U.S. Equity: One-Year Returns

(U.S. Dollar)



Source: MSCI

## Emerging Markets: Tech Triumphs

**+6.3%**

MSCI EM

Emerging markets outpaced the developed markets for the second straight quarter, propelled by Technology companies in China, South Korea, and Taiwan. The **MSCI Emerging Markets Index** gained 6.3%. Industry leaders in online and mobile commerce, payments, digital media, cloud computing, and smartphones are monopolizing the markets. That includes Tencent and Alibaba in China; Samsung in South Korea; and Taiwan Semiconductor Manufacturing in Taiwan.

Positive economic momentum and European election results placed Greece (+33.8%) and Hungary (+19.4%) as the top two performing countries in emerging markets. China rose 10.6%, while India's gain was muted at +2.9%, though it remains a top performer year-to-date (+21%). The three worst-performing countries were Qatar (-10.9%), Russia (-10.0%), and Brazil (-6.7%). Qatar was hit after four Arab nations (Saudi Arabia, the United Arab Emirates, Egypt, and Bahrain) imposed an embargo, accusing the country of backing terrorism. Russia slumped because of declining oil prices and looming new sanctions. And continuing political instability

in Brazil (including President Michel Temer's bribery scandal) and commodity prices weighed on the country.

Quality, growth, and momentum factors dominated the market given the returns of large cap technology companies.

## Non-U.S. Small Cap: All Over the Map

**+6.2%**

MSCI ACWI ex USA SC

Developed non-U.S. small cap stocks outperformed large cap equity, as they were better positioned for the local economic recovery in Europe. But small cap equity lagged large cap in emerging markets, due to the performance of the large cap tech companies. The **MSCI World ex USA Small Cap Index** climbed 7.3% while the **MSCI Emerging Markets Small Cap Index** increased 2.6%.

Energy was the worst-performing sector in developed and emerging markets due to declining oil prices, which also caused growth to outperform value in developed small cap. Financials, the top performing sector for the quarter, offset Energy; on the heels of positive economic data and election results, Eastern European Financials rallied.

# Global Fixed Income

## U.S. Bonds: On the Hunt for Yield

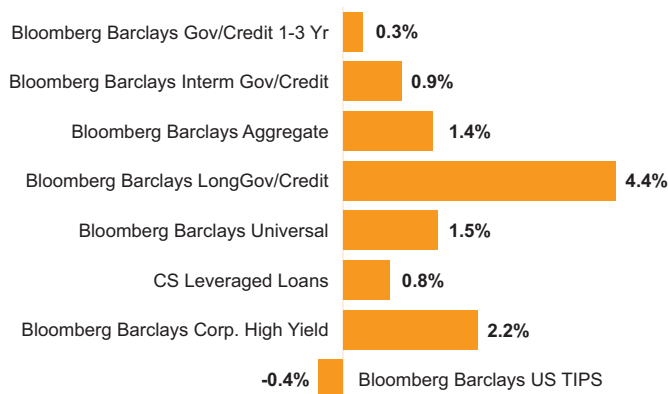
**+1.4%**

BB AGGREGATE

Corporate bonds performed best in the second quarter on strong demand. Investors continued their hunt for stable yields that are higher than what is available for like-duration government bonds. The **Bloomberg Barclays US Corporate Bond Index** was up 2.5% (+3.8% year to date), while the **Bloomberg Barclays US Aggregate Bond Index** rose 1.4% (+2.3% YTD). Credit fundamentals remained strong with solid earnings growth and a modest (but acceptable) economic growth environment; corporate balance sheets appeared to be in good shape. And although rates have moved higher on the front end, overall the curve has flattened; the demand for yield is providing support for spread sectors broadly.

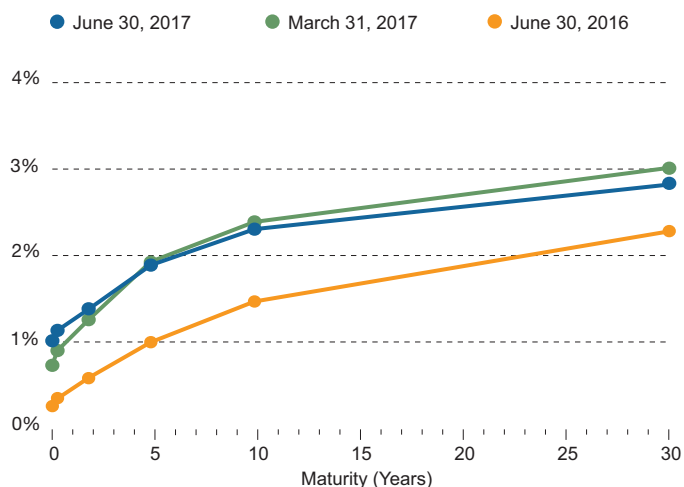
The **Bloomberg Barclays High Yield Corporate Index** increased 2.2%. Low interest rates continued to be a catalyst pushing investors out the risk spectrum in search of higher yields. Default expectations are low across most sectors, providing some comfort to investors. Energy was the only high-yield sector to decline (-0.66%). Rising inventories and concern over OPEC policy put pressure on oil prices, which have fallen approximately 17% so far this year.

## U.S. Fixed Income: Quarterly Returns



Source: Bloomberg Barclays, Credit Suisse

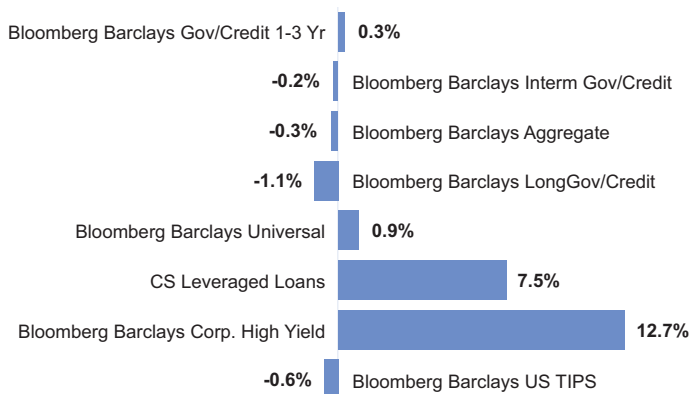
## U.S. Treasury Yield Curves



Source: Bloomberg

In the government market, municipal bonds outperformed Treasuries. The **Bloomberg Barclays Municipal Bond Index** was up 2.0%, compared to the **Bloomberg Barclays US Treasury Index** (+1.2%). Results were bolstered by lowered expectations for tax reform and favorable supply/demand technicals. The Fed, viewing inflation weakness as temporary, raised rates by 25 basis points, as expected. The yield curve flattened over the quarter, with short rates rising and longer

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



Source: Bloomberg Barclays, Credit Suisse



rates falling. The 10-year U.S. Treasury yield closed the quarter at 2.31%, down from 2.40% as of March 31, though it hit a 2017 low of 2.12% earlier in June. The 2-year U.S. Treasury yield climbed 11 bps to close at 1.38%.

TIPS underperformed as expectations for inflation sank, a reversal from the previous quarter; the **Bloomberg Barclays US TIPS Index** fell 0.4%. The 10-year breakeven spread (the difference between nominal and real yields) was 1.73% as of quarter-end, down from 1.97% at the end of the first quarter, as inflation came in below expectations for the third consecutive month.

### Non-U.S. Bonds: Our Pain, Their Gain

**+3.5%**

BB GBL AGG EX US

A weaker U.S. dollar helped unhedged non-U.S. bonds and hindered hedged bonds. The **Bloomberg Barclays Global Aggregate ex-US Bond**

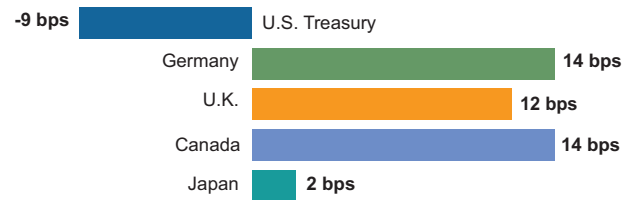
**Index** (unhedged) jumped 3.5%, while the hedged index rose only 0.6%. The U.S. dollar lost nearly 7% versus the euro and almost 5% versus a broad basket of developed market currencies. Positive economic growth and hawkish rhetoric from the European Central Bank (ECB) and the Bank of England drove strong results in the euro and the British pound compared to the U.S. dollar. The quarter closed with an upbeat assessment of the euro zone's recovery from the president of the ECB, Mario Draghi, fueling speculation that the tapering of ECB asset purchases may be on the horizon. This change

in tone spooked investors and sent global yields higher and stocks lower going into quarter-end.

Despite growing geopolitical tension and pressure on energy and commodity prices, the demand for yield drove returns in emerging market (EM) debt amid a strong technical climate supported by robust investor flows. The dollar-denominated **JPM EMBI Global Diversified Index** was up 2.2%, and the local currency-denominated **JPM GBI-EM Global Diversified Index** jumped even more sharply, rising 3.6%. The weaker U.S. dollar and relatively higher local yields pushed EM local debt returns higher for the quarter and the year, continuing the post-election rebound.

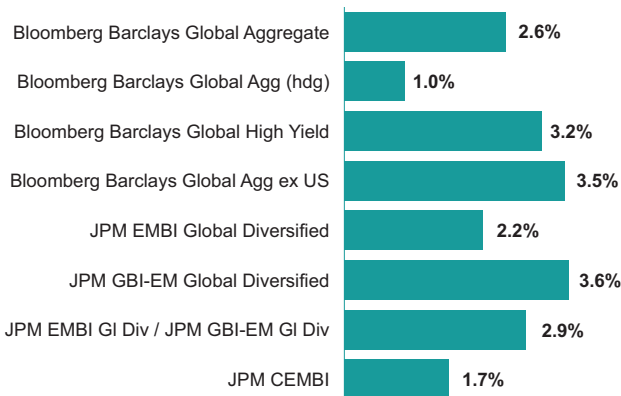
### Change in 10-Year Global Government Bond Yields

1Q17 to 2Q17



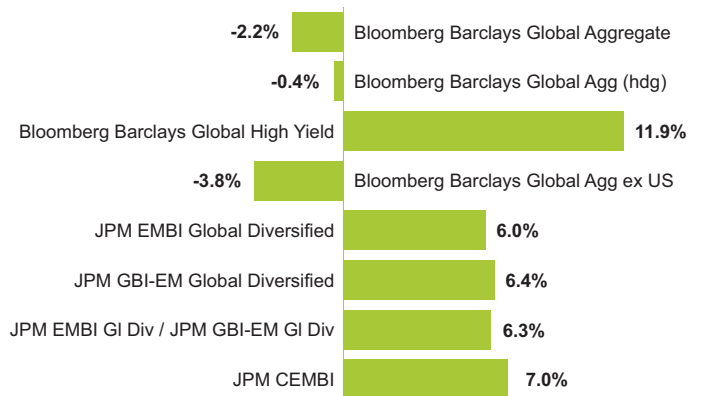
Source: Bloomberg Barclays

### Non-U.S. Fixed Income: Quarterly Returns



Source: Bloomberg Barclays, JP Morgan

### Non-U.S. Fixed Income: One-Year Returns



Source: Bloomberg Barclays, JP Morgan



## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2017, with the distribution as of March 31, 2017. 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.

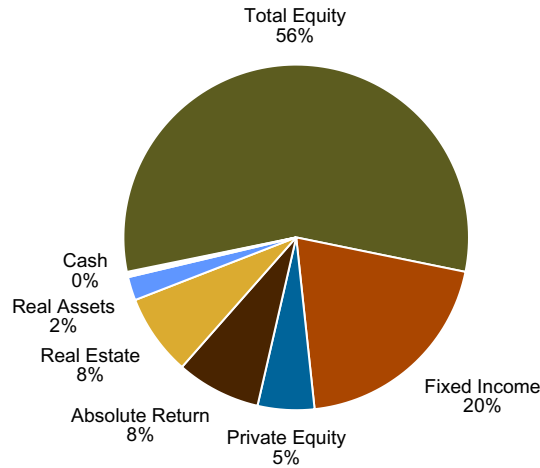
### Asset Distribution Across Investment Managers

	June 30, 2017		Net New Inv.	Inv. Return	March 31, 2017	
	Market Value	Weight			Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$1,305,014,440</b>	<b>25.38%</b>	<b>\$(30,023,793)</b>	<b>\$40,654,862</b>	<b>\$1,294,383,371</b>	<b>25.61%</b>
BlackRock Russell 1000 Value	163,183,427	3.17%	0	2,227,357	160,956,070	3.18%
Northern Trust Global	511,803,607	9.95%	(14,000,000)	15,746,022	510,057,585	10.09%
Cornerstone Investment Partners	0	0.00%	(23,793)	10,028	13,765	0.00%
Polen Capital Management	179,317,414	3.49%	(10,000,000)	11,819,937	177,497,477	3.51%
Earnest Partners LLC	136,118,999	2.65%	(4,000,000)	5,526,861	134,592,138	2.66%
Dimensional Fund Advisors Inc.	209,200,911	4.07%	0	(360,998)	209,561,909	4.15%
CastleArk Management	105,390,082	2.05%	(2,000,000)	5,685,655	101,704,427	2.01%
<b>Total Global Equity</b>	<b>\$544,406,579</b>	<b>10.59%</b>	<b>\$(15,000,000)</b>	<b>\$33,845,379</b>	<b>\$525,561,200</b>	<b>10.40%</b>
BlackRock Global Alpha Tilts	326,876,566	6.36%	(10,000,000)	18,460,541	318,416,025	6.30%
MFS Investment Management	217,530,013	4.23%	(5,000,000)	15,384,837	207,145,175	4.10%
<b>Total International Equity</b>	<b>\$1,055,540,575</b>	<b>20.53%</b>	<b>\$(39,000,000)</b>	<b>\$55,572,354</b>	<b>\$1,038,968,221</b>	<b>20.56%</b>
AQR Emerging Markets	114,092,496	2.22%	(8,000,000)	7,404,771	114,687,725	2.27%
Brandes Investment Partners	414,483,753	8.06%	(15,000,000)	13,185,477	416,298,277	8.24%
William Blair & Company	309,183,828	6.01%	(12,000,000)	21,919,565	299,264,262	5.92%
Dimensional Fund Advisors Inc.	217,780,498	4.24%	(4,000,000)	13,062,541	208,717,957	4.13%
<b>Total Fixed Income</b>	<b>\$1,033,184,625</b>	<b>20.09%</b>	<b>\$2,881</b>	<b>\$17,985,796</b>	<b>\$1,015,195,947</b>	<b>20.09%</b>
BlackRock US Debt Idx Fd	366,238,108	7.12%	0	5,405,746	360,832,362	7.14%
Reams Asset Management	313,415,015	6.10%	2,881	4,222,163	309,189,971	6.12%
Loomis, Sayles & Company, L.P.	353,531,501	6.88%	0	8,357,887	345,173,614	6.83%
<b>Total Private Equity</b>	<b>\$271,856,816</b>	<b>5.29%</b>	<b>\$4,922,758</b>	<b>\$20,699,662</b>	<b>\$246,234,395</b>	<b>4.87%</b>
Abbott Capital Management 2010	27,632,204	0.54%	(1,050,030)	1,881,534	26,800,701	0.53%
Abbott Capital Management 2011	42,968,217	0.84%	(1,650,094)	3,036,062	41,582,248	0.82%
Abbott Capital Management 2012	25,956,314	0.50%	400,000	1,843,946	23,712,368	0.47%
Abbott Capital Management 2013	20,783,201	0.40%	1,049,967	1,049,158	18,237,076	0.36%
Abbott Capital Management 2014	17,649,709	0.34%	1,400,000	1,030,752	15,218,957	0.30%
Abbott Capital Management 2015	6,453,867	0.13%	1,150,000	272,815	5,031,052	0.10%
Abbott Capital Management 2016	1,425,039	0.03%	297,500	(13,636)	1,141,175	0.02%
Mesirow V	67,297,669	1.31%	(3,000,165)	7,710,483	62,587,352	1.24%
Mesirow VI	28,957,995	0.56%	2,400,000	1,718,837	24,839,158	0.49%
Mesirow VII	396,000	0.01%	400,000	(4,000)	-	-
NB Secondary Opp Fund III	17,466,453	0.34%	0	1,538,618	15,927,835	0.32%
NB Secondary Opp Fund IV	500,000	0.01%	500,000	0	-	-
Private Advisors VI	11,026,848	0.21%	2,132,773	497,601	8,396,474	0.17%
Private Advisors VII	3,343,299	0.07%	892,807	(309,508)	2,760,000	0.05%
<b>Absolute Return</b>	<b>\$405,870,927</b>	<b>7.89%</b>	<b>\$0</b>	<b>\$6,359,799</b>	<b>\$399,511,128</b>	<b>7.91%</b>
Allianz SA 1000	114,347,803	2.22%	0	3,091,246	111,256,557	2.20%
Newton	92,569,135	1.80%	0	1,617,850	90,951,285	1.80%
UBS A & Q	198,953,989	3.87%	0	1,650,704	197,303,286	3.90%
<b>Real Assets</b>	<b>\$112,078,269</b>	<b>2.18%</b>	<b>\$0</b>	<b>\$982,185</b>	<b>\$111,096,084</b>	<b>2.20%</b>
Principal DRA	112,078,269	2.18%	0	982,185	111,096,084	2.20%
<b>Total Real Estate</b>	<b>\$389,096,394</b>	<b>7.57%</b>	<b>\$(5,650,215)</b>	<b>\$6,348,361</b>	<b>\$388,398,247</b>	<b>7.69%</b>
Real Estate	389,096,394	7.57%	(5,650,215)	6,348,361	388,398,247	7.69%
<b>Total Cash</b>	<b>\$24,601,538</b>	<b>0.48%</b>	<b>\$(10,189,727)</b>	<b>\$237,827</b>	<b>\$34,553,438</b>	<b>0.68%</b>
Cash	24,601,538	0.48%	(10,189,727)	237,827	34,553,438	0.68%
<b>Total Fund</b>	<b>\$5,141,650,162</b>	<b>100.0%</b>	<b>\$(94,938,096)</b>	<b>\$182,686,227</b>	<b>\$5,053,902,031</b>	<b>100.0%</b>

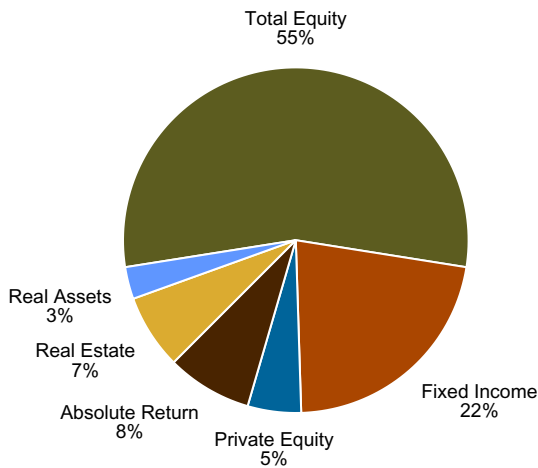
## Actual vs Target Asset Allocation As of June 30, 2017

The first chart below shows the Fund's asset allocation as of June 30, 2017. 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 Datab.

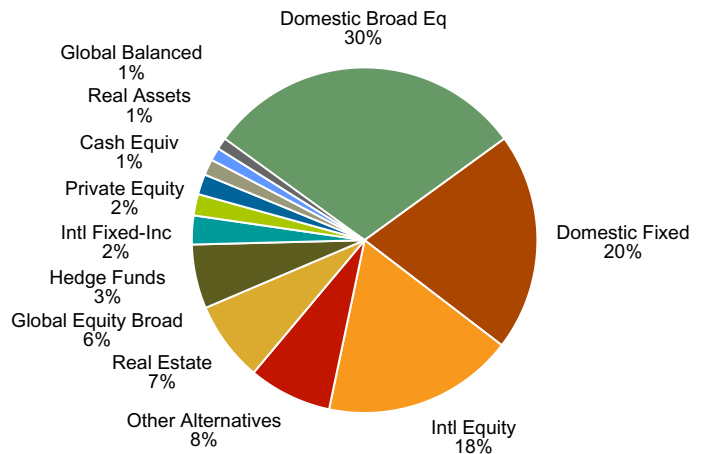
### Actual Asset Allocation



### Target Asset Allocation



### Callan Public Fund Sponsor - Large Datab



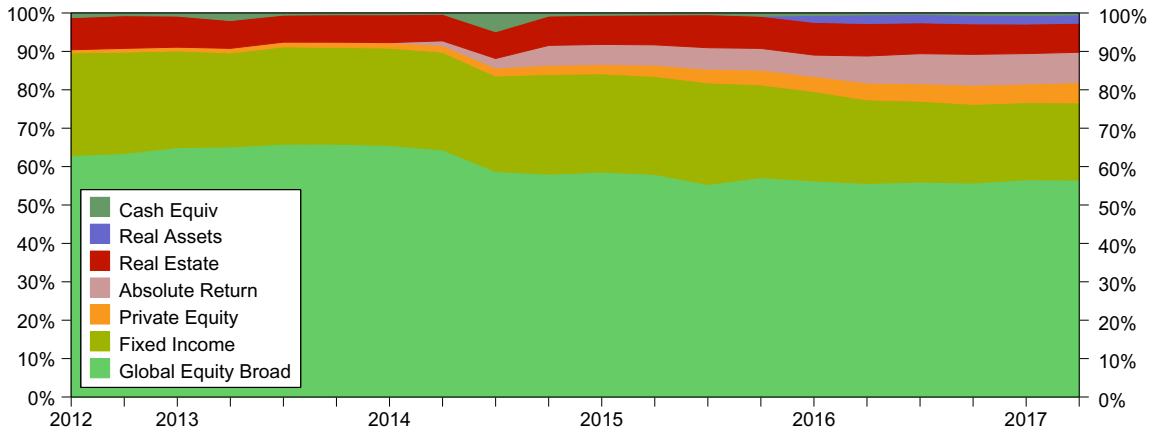
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Total Equity	2,904,962	56.5%	55.0%	1.5%	77,054
Fixed Income	1,033,185	20.1%	22.0%	(1.9%)	(97,978)
Private Equity	271,857	5.3%	5.0%	0.3%	14,774
Absolute Return	405,871	7.9%	8.0%	(0.1%)	(5,461)
Real Estate	389,096	7.6%	7.0%	0.6%	29,181
Real Assets	112,078	2.2%	3.0%	(0.8%)	(42,171)
Cash	24,602	0.5%	0.0%	0.5%	24,602
Total	5,141,650	100.0%	100.0%		

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.

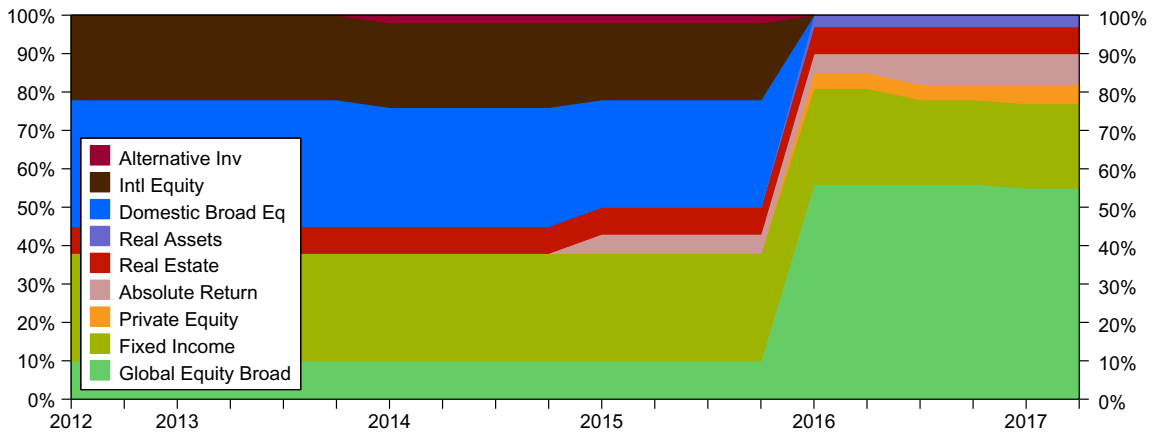
## Actual vs Target Historical Asset Allocation

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.

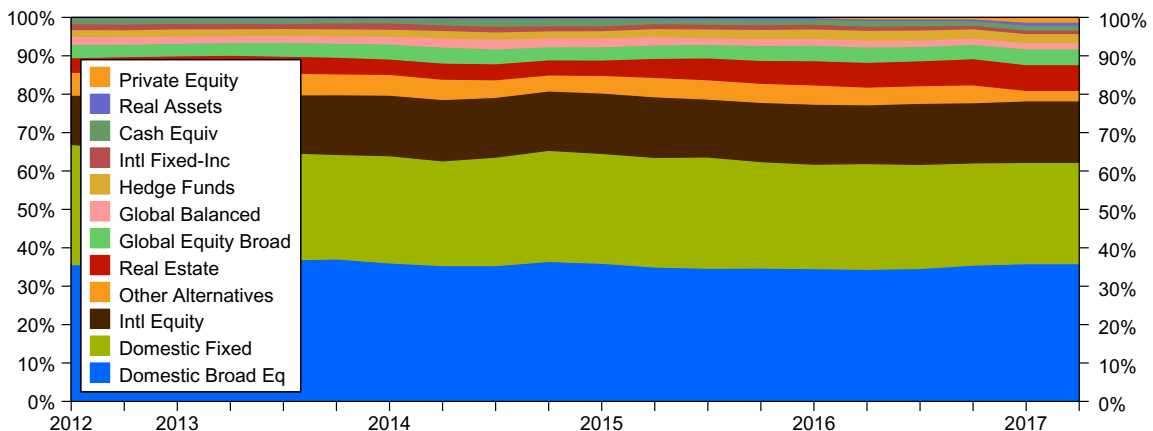
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



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



\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.

# Total Fund

## Period Ended June 30, 2017

### 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.

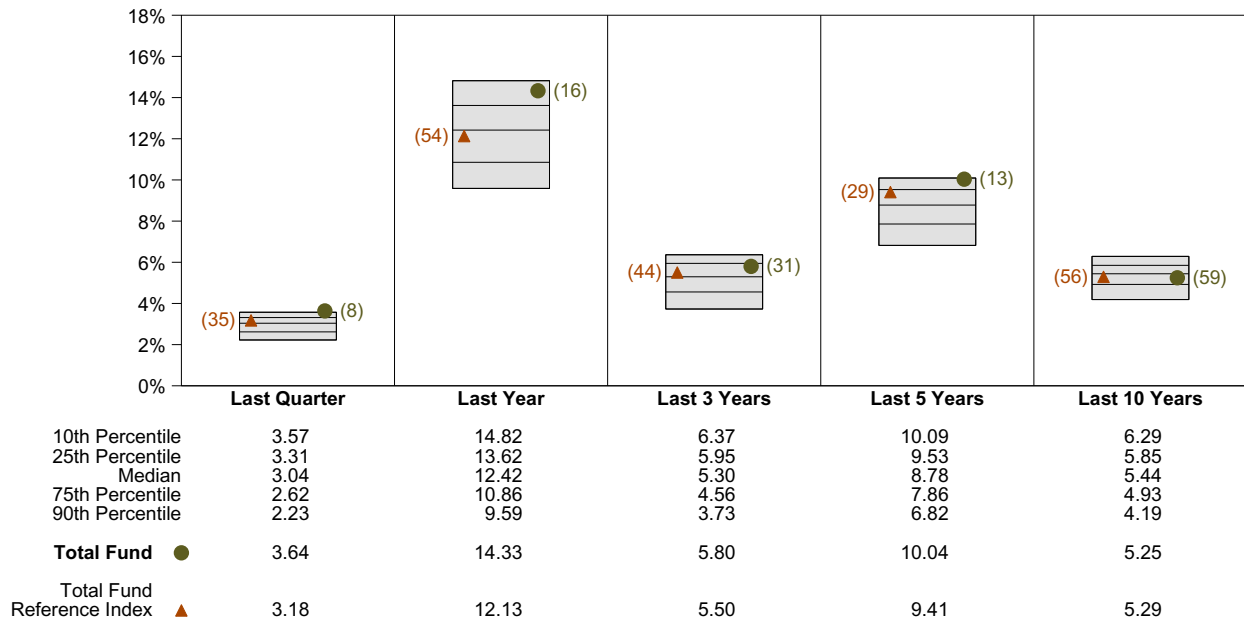
### Quarterly Summary and Highlights

- Total Fund's portfolio posted a 3.64% return for the quarter placing it in the 8 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 16 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Reference Index by 0.46% for the quarter and outperformed the Total Fund Reference Index for the year by 2.20%.

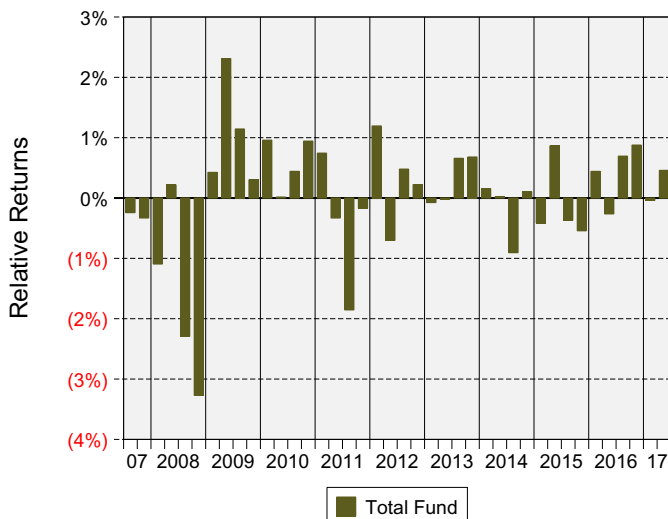
### Quarterly Asset Growth

Beginning Market Value	\$5,053,902,031
Net New Investment	\$-94,938,096
Investment Gains/(Losses)	\$182,686,227
Ending Market Value	\$5,141,650,162

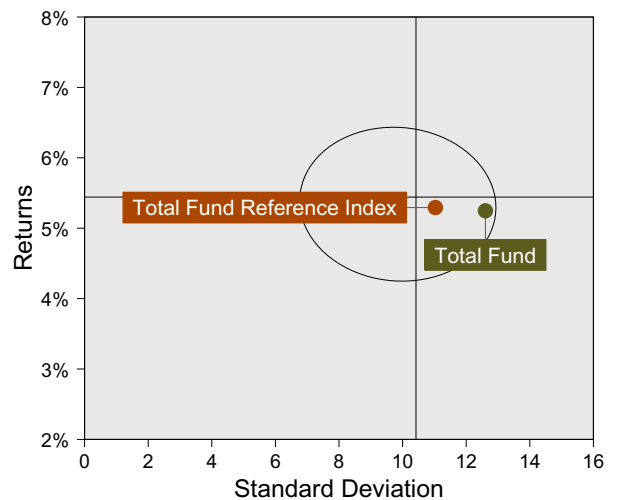
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Relative Return vs Total Fund Reference Index



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

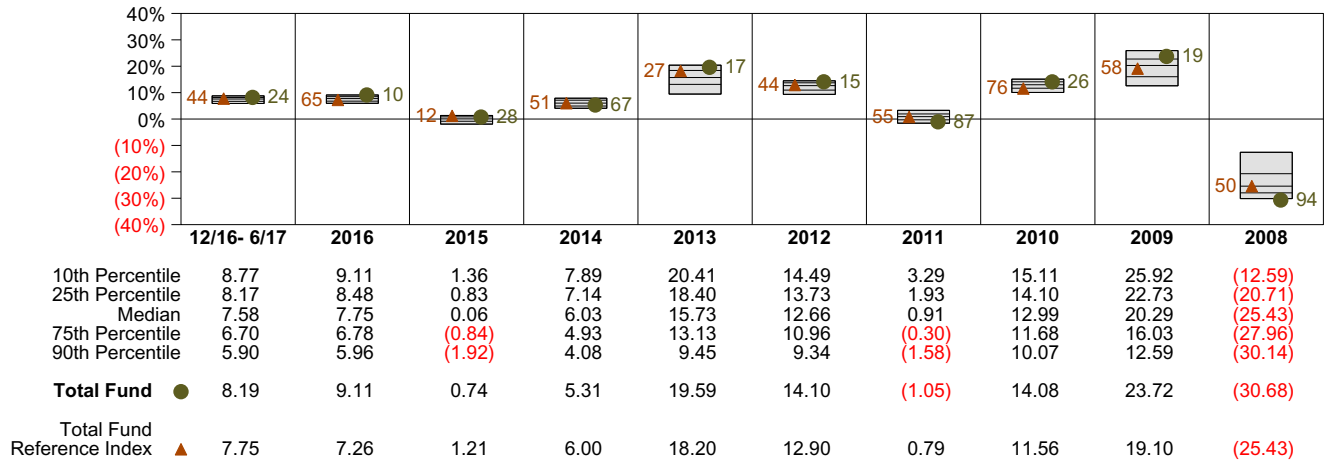


# Total Fund Return Analysis Summary

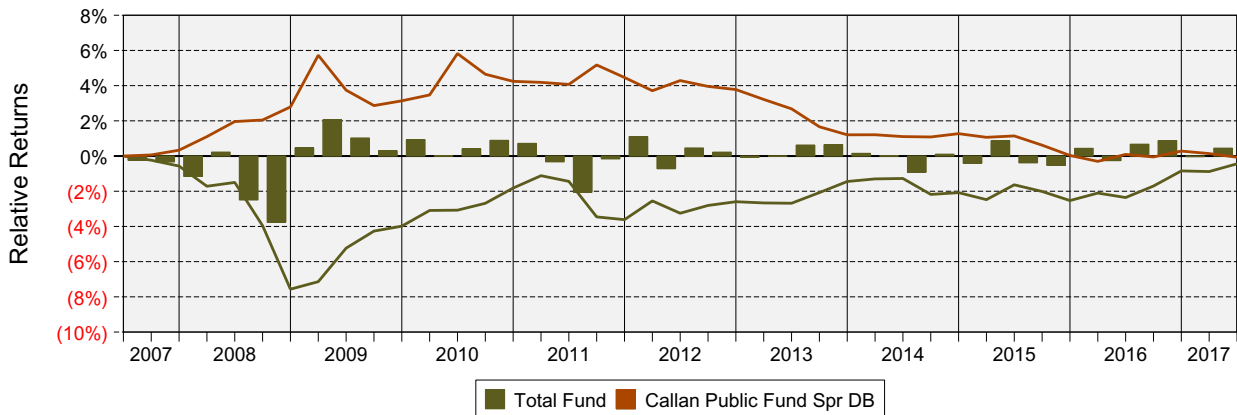
## Return Analysis

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.

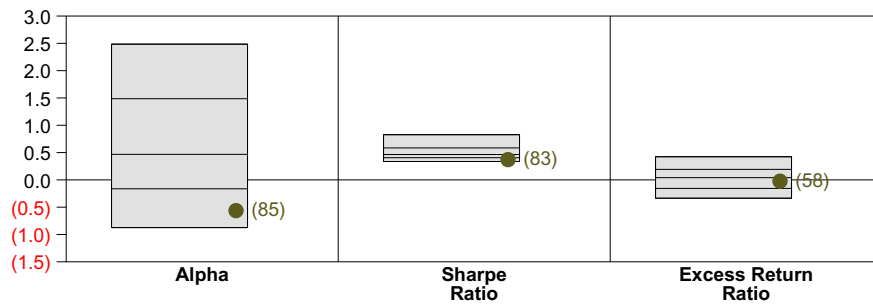
### Performance vs Callan Public Fund Sponsor Database (Gross)



### 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 June 30, 2017



10th Percentile	2.49	0.83	0.42
25th Percentile	1.49	0.58	0.19
Median	0.47	0.46	0.04
75th Percentile	(0.16)	0.41	(0.16)
90th Percentile	(0.87)	0.34	(0.34)
<b>Total Fund</b>	● (0.56)	0.37	(0.02)

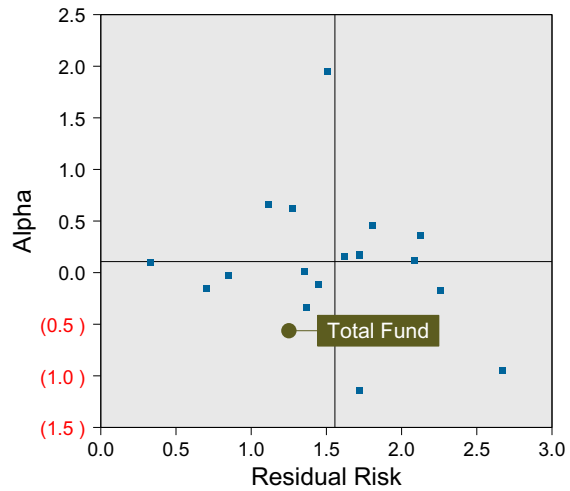
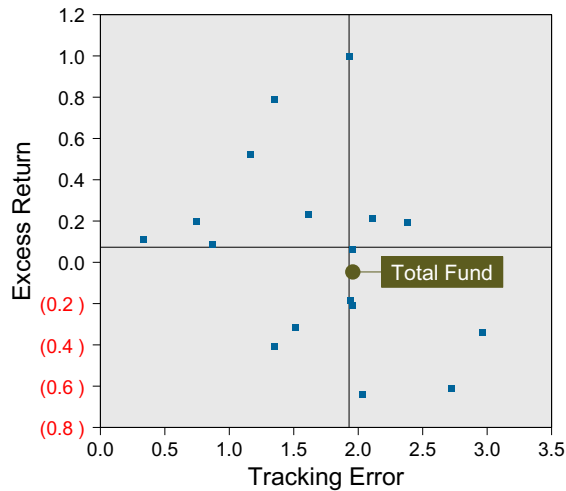
# Total Fund

## Total Fund vs Target Risk Analysis

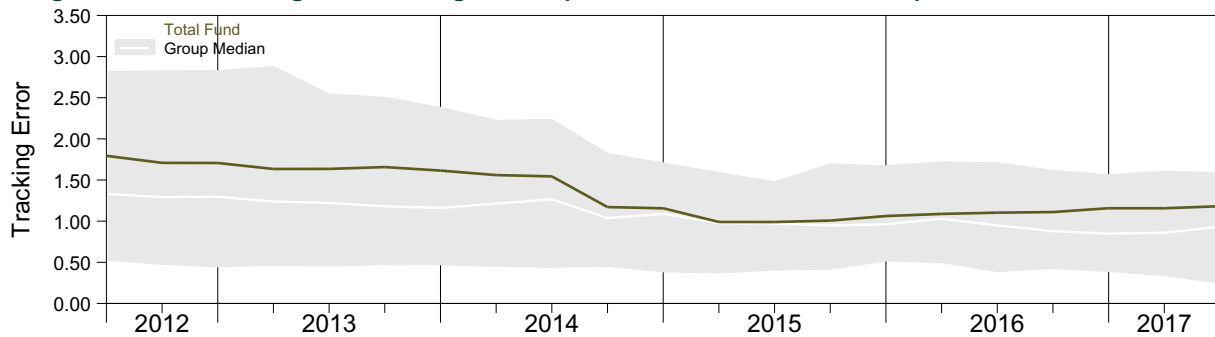
### Risk Analysis

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.

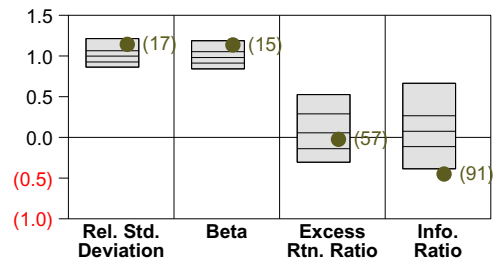
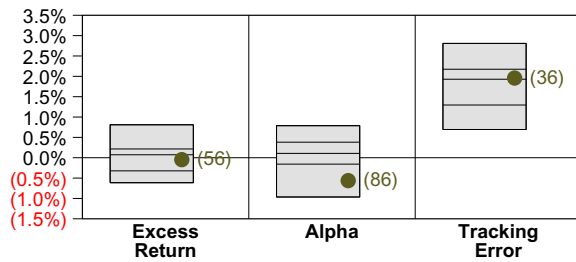
### Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended June 30, 2017



### 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 June 30, 2017



10th Percentile	0.81	0.79	2.81
25th Percentile	0.22	0.38	2.17
Median	0.07	0.11	1.93
75th Percentile	(0.32)	(0.16)	1.30
90th Percentile	(0.61)	(0.97)	0.69

**Total Fund** ● (0.05) (0.56) 1.96

10th Percentile	1.21	1.19	0.53	0.66
25th Percentile	1.06	1.05	0.29	0.27
Median	1.00	0.98	0.06	0.07
75th Percentile	0.93	0.91	(0.14)	(0.11)
90th Percentile	0.86	0.84	(0.31)	(0.39)

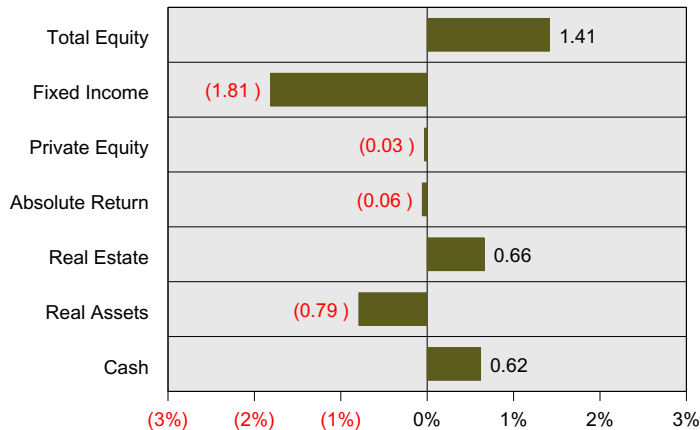
**Total Fund** ● 1.14 1.14 (0.02) (0.45)



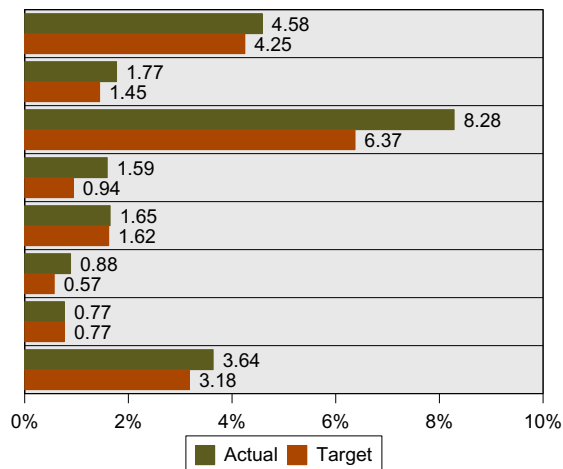
## Quarterly Total Fund Relative Attribution - June 30, 2017

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.

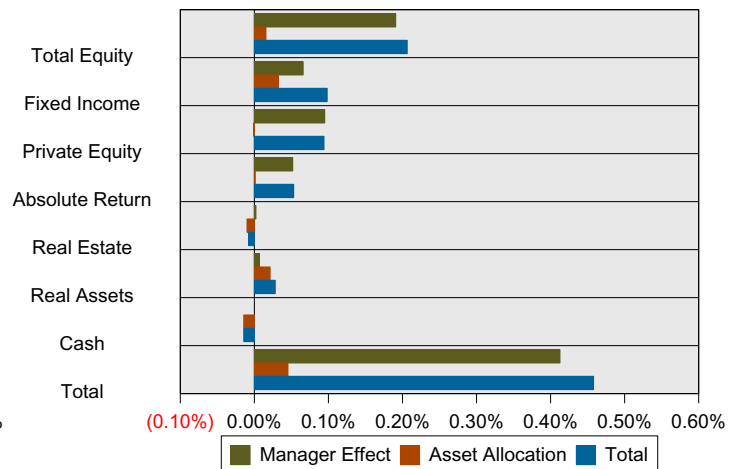
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended June 30, 2017

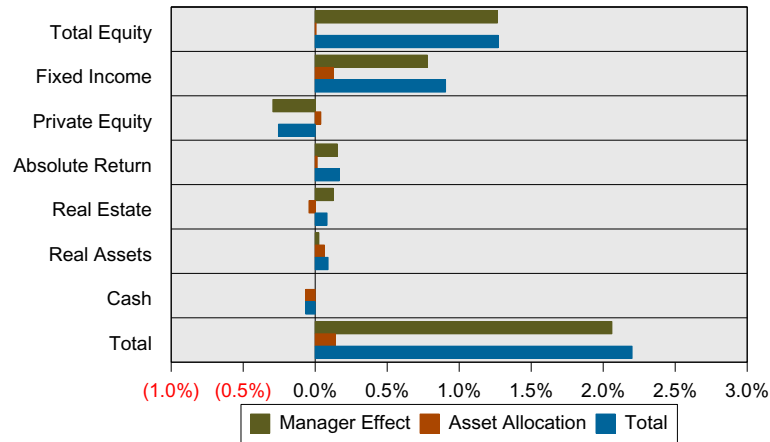
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	56%	55%	4.58%	4.25%	0.19%	0.02%	0.21%
Fixed Income	20%	22%	1.77%	1.45%	0.07%	0.03%	0.10%
Private Equity	5%	5%	8.28%	6.37%	0.10%	(0.00%)	0.09%
Absolute Return	8%	8%	1.59%	0.94%	0.05%	0.00%	0.05%
Real Estate	8%	7%	1.65%	1.62%	0.00%	(0.01%)	(0.01%)
Real Assets	2%	3%	0.88%	0.57%	0.01%	0.02%	0.03%
Cash	1%	0%	0.77%	0.77%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>3.64%</b>	<b>3.18%</b>	<b>0.41%</b>	<b>0.05%</b>	<b>0.46%</b>

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.

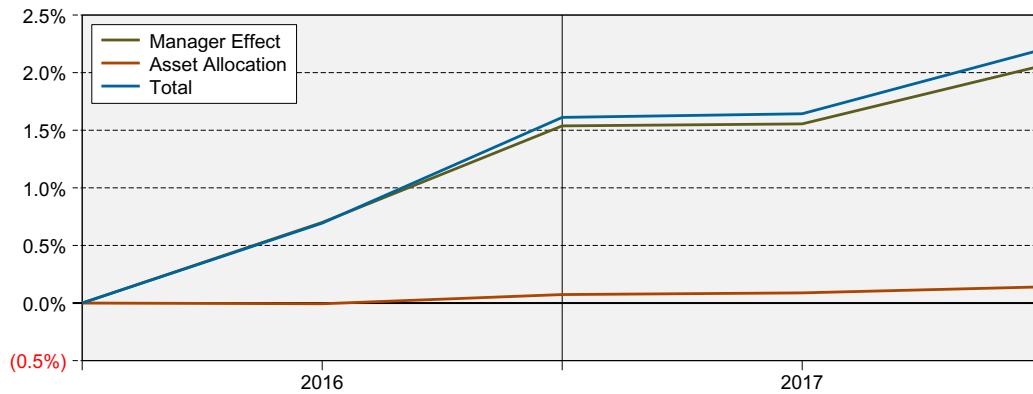
## Cumulative Total Fund Relative Attribution - June 30, 2017

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	56%	55%	21.42%	19.01%	1.27%	0.01%	1.27%
Fixed Income	21%	22%	3.09%	(0.31%)	0.78%	0.13%	0.91%
Private Equity	5%	4%	14.66%	21.07%	(0.29%)	0.04%	(0.25%)
Absolute Return	8%	8%	5.36%	3.49%	0.15%	0.01%	0.17%
Real Estate	8%	7%	9.23%	7.72%	0.13%	(0.04%)	0.08%
Real Assets	2%	3%	5.12%	4.02%	0.03%	0.06%	0.09%
Cash	1%	0%	1.37%	1.37%	0.00%	(0.07%)	(0.07%)
<b>Total</b>			<b>14.33%</b>	<b>12.13%</b>	<b>+ 2.06%</b>	<b>+ 0.14%</b>	<b>2.20%</b>

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.

## 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 June 30, 2017. 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 June 30, 2017

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
<b>Total Domestic Equity</b>	<b>3.17%</b>		<b>21.57%</b>		<b>9.38%</b>		<b>14.68%</b>		<b>6.93%</b> <sup>(7/98)</sup>
Russell 3000 Index	3.02%		18.51%		9.10%		14.58%		6.42% <sup>(7/98)</sup>
BlackRock Russell 1000 Value	1.38%	69	-	-	-	-	-	-	2.16% <sup>(3/17)</sup>
Russell 1000 Value Index	1.34%	69	15.53%	76	7.36%	60	13.94%	56	0.31% <sup>(3/17)</sup>
Callan Large Cap Value	1.85%		17.82%		7.59%		14.06%		-
Northern Trust Global	3.10%	34	17.93%	56	9.69%	32	14.70%	47	10.31% <sup>(8/88)</sup>
S&P 500 Index	3.09%	35	17.90%	56	9.61%	35	14.63%	48	10.26% <sup>(8/88)</sup>
Callan Large Cap Core	2.90%		18.62%		9.13%		14.52%		-
Polen Capital Management	6.82%	19	21.56%	44	15.39%	3	15.74%	31	15.74% <sup>(7/12)</sup>
S&P 500 Index	3.09%	96	17.90%	76	9.61%	68	14.63%	59	14.63% <sup>(7/12)</sup>
Callan Large Cap Growth	5.25%		20.68%		10.45%		14.91%		-
Earnest Partners LLC	4.18%	30	24.40%	11	10.59%	10	15.89%	23	10.64% <sup>(5/05)</sup>
Russell MidCap Index	2.70%	49	16.48%	66	7.69%	49	14.72%	41	9.73% <sup>(5/05)</sup>
Callan Mid Capitalization	2.59%		18.12%		7.65%		14.15%		-
Dimensional Fund Advisors Inc.	(0.17%)	68	22.72%	63	6.41%	78	15.09%	53	12.40% <sup>(11/96)</sup>
Russell 2000 Value Index	0.67%	46	24.86%	37	7.02%	72	13.39%	83	9.86% <sup>(11/96)</sup>
Callan Small Cap Value	0.62%		24.03%		8.07%		15.17%		-
CastleArk Management	5.62%	38	22.85%	55	5.35%	70	-	-	9.72% <sup>(9/13)</sup>
Russell 2000 Growth Index	4.39%	61	24.40%	47	7.64%	49	13.98%	52	10.67% <sup>(9/13)</sup>
Callan Small Cap Growth	5.09%		24.06%		7.53%		14.02%		-
<b>Total Global Equity</b>	<b>6.51%</b>		<b>21.04%</b>		<b>5.95%</b>		<b>11.63%</b>		<b>8.22%</b> <sup>(4/10)</sup>
MSCI World	4.03%		18.20%		5.24%		11.38%		8.91% <sup>(4/10)</sup>
BlackRock Global Alpha Tilts	5.90%	34	22.10%	31	-	-	-	-	23.16% <sup>(3/16)</sup>
MSCI ACWI Gross	4.45%	69	19.42%	59	5.39%	63	11.14%	73	21.66% <sup>(3/16)</sup>
Callan Global Equity	5.13%		20.14%		5.91%		12.03%		-
MFS Investment Management	7.43%	11	19.48%	58	7.75%	20	-	-	11.71% <sup>(12/12)</sup>
MSCI ACWI Gross	4.45%	69	19.42%	59	5.39%	63	11.14%	73	10.41% <sup>(12/12)</sup>
Callan Global Equity	5.13%		20.14%		5.91%		12.03%		-

## 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 June 30, 2017. 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 June 30, 2017

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total International Equity</b>	<b>5.36%</b>		<b>21.20%</b>		<b>2.56%</b>		<b>10.35%</b>		<b>7.31%</b> (5/96)	
MSCI EAFE Index	6.12%		20.27%		1.15%		8.69%		4.58% (5/96)	
AQR Emerging Markets	6.62%	60	-	-	-	-	-	-	22.28%	(8/16)
MSCI EM Gross	6.38%	63	24.17%	68	1.44%	76	4.33%	88	18.16%	(8/16)
Callan Emerging Broad	7.14%		25.71%		2.60%		5.47%		-	
Brandes Investment Partners	3.14%	98	19.18%	69	1.04%	80	9.68%	46	8.38%	(2/98)
MSCI EAFE Index	6.12%	73	20.27%	58	1.15%	78	8.69%	71	4.66%	(2/98)
Callan NonUS Eq	6.75%		21.05%		2.63%		9.57%		-	
William Blair & Company	7.32%	36	16.86%	83	2.50%	52	9.22%	59	7.74%	(12/03)
MSCI ACWI ex-US Index	5.99%	78	21.00%	51	1.27%	77	7.70%	89	7.18%	(12/03)
Callan NonUS Eq	6.75%		21.05%		2.63%		9.57%		-	
Dimensional Fund Advisors Inc.	6.33%	91	28.80%	11	4.16%	82	13.84%	56	5.59%	(5/06)
Blended Benchmark	8.10%	59	23.18%	52	5.60%	56	12.94%	70	3.44%	(5/06)
Callan Intl Small Cap	8.50%		23.39%		5.88%		14.00%		-	
<b>Total Fixed Income</b>	<b>1.77%</b>		<b>3.09%</b>		<b>2.36%</b>		<b>3.18%</b>		<b>7.74%</b> (12/87)	
Bimbg Aggregate	1.45%		(0.31%)		2.48%		2.21%		6.46% (12/87)	
BlackRock US Debt Idx Fd	1.50%	63	(0.33%)	87	-	-	-	-	0.32%	(6/16)
Bimbg Aggregate	1.45%	75	(0.31%)	86	2.48%	89	2.21%	98	1.36%	(6/16)
Callan Core Bond FI	1.54%		0.37%		2.90%		2.70%		-	
Reams Asset Management	1.37%	93	(0.11%)	99	2.76%	81	2.65%	99	5.72%	(1/01)
Bimbg Aggregate	1.45%	90	(0.31%)	99	2.48%	93	2.21%	100	4.81%	(1/01)
Callan Core Plus FI	1.79%		2.29%		2.98%		3.48%		-	
Loomis, Sayles & Company, L.P.	2.42%	4	10.07%	1	3.63%	14	5.72%	1	9.31%	(12/87)
Bimbg Aggregate	1.45%	90	(0.31%)	99	2.48%	93	2.21%	100	6.46%	(12/87)
Callan Core Plus FI	1.79%		2.29%		2.98%		3.48%		-	
<b>Total Private Equity</b>	<b>8.28%</b>		<b>14.66%</b>		<b>11.25%</b>		<b>10.87%</b>		<b>7.22%</b> (6/10)	
Abbott Capital Management 2010	7.08%		14.67%		11.79%		9.54%		(11.13%) (6/10)	
Abbott Capital Management 2011	7.45%		13.93%		10.74%		7.48%		(8.36%) (6/11)	
Abbott Capital Management 2012	7.66%		14.09%		7.51%		2.50%		2.50% (7/12)	
Abbott Capital Management 2013	7.88%		12.50%		5.25%		-		1.73% (5/13)	
Abbott Capital Management 2014	6.30%		8.88%		1.74%		-		(1.71%) (4/14)	
Abbott Capital Management 2015	4.61%		5.74%		-		-		4.51% (4/15)	
Abbott Capital Management 2016	(1.03%)		(0.91%)		-		-		(1.80%) (3/16)	
Mesirov V	12.67%		21.81%		16.59%		16.32%		13.10% (6/10)	
Mesirov VI	6.91%		10.43%		0.20%		-		1.90% (7/13)	
NB Secondary Opp Fund III	9.66%		16.14%		18.17%		-		9.95% (12/13)	
Private Advisors VI	5.22%		5.55%		-		-		(6.54%) (4/15)	
Private Advisors VII	(8.47%)		-		-		-		(8.47%) (1/17)	
Russell 3000 (1 Qtr in Arrears) + 3%	6.37%		21.07%		12.79%		16.22%		11.55% (1/17)	
<b>Absolute Return</b>	<b>1.59%</b>		<b>5.36%</b>		<b>5.65%</b>		<b>-</b>		<b>5.49%</b> (6/14)	
Allianz SA 1000	2.78%		10.79%		10.66%		1		10.36% (6/14)	
T-Bills + 10%	2.60%		10.49%		10.23%		1		10.23% (6/14)	
Callan Abs Rtn Hedge FoF	0.87%		6.79%		1.60%		4		4.62%	
Newton	1.78%		(0.68%)		-		-		3.56% (8/14)	
1-month LIBOR + 4%	1.23%		4.73%		4.41%		5		4.32% (8/14)	
Callan Abs Rtn Hedge FoF	0.87%		6.79%		1.60%		4.62%		-	
UBS A & Q	0.84%		5.47%		-		-		3.35% (12/14)	
1-month LIBOR + 4%	1.23%		4.73%		4.41%		5		4.32% (12/14)	
Callan Abs Rtn Hedge FoF	0.87%		6.79%		1.60%		4.62%		-	
<b>Real Assets</b>	<b>0.88%</b>		<b>5.12%</b>		<b>-</b>		<b>-</b>		<b>7.57%</b> (1/16)	
Principal DRA	0.88%		5.12%		-		-		7.57% (1/16)	
Principal Blended Benchmark (1)	0.57%		4.02%		-		-		6.53% (1/16)	
Callan Alternative Inv DB	(1.19%)		0.84%		(3.87%)		1.77%		-	
<b>Total Real Estate</b>	<b>1.65%</b>		<b>9.23%</b>		<b>11.76%</b>		<b>12.14%</b>		<b>6.57%</b> (7/86)	
Real Estate	1.65%		9.23%		11.76%		37		12.14% (7/86)	
Blended Benchmark (2)	1.62%		7.72%		10.96%		47		10.91%	
Callan Total Real Est DB	1.74%		7.41%		10.69%		11.13%		-	
<b>Total Fund</b>	<b>3.64%</b>		<b>14.33%</b>		<b>5.80%</b>		<b>10.04%</b>		<b>9.62%</b> (1/79)	
Total Fund Reference Index*	3.18%		12.13%		5.50%		9.41%		-	

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Bimbg Aggregate, 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.

(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.

	12/2016- 6/2017		2016		2015		2014		2013	
<b>Total Domestic Equity</b>	<b>8.85%</b>		<b>13.91%</b>		<b>(0.07%)</b>		<b>11.63%</b>		<b>33.86%</b>	
Russell 3000 Index	8.93%		12.74%		0.48%		12.56%		33.55%	
Northern Trust Global	9.36%	46	12.01%	21	1.49%	46	13.77%	47	32.46%	77
S&P 500 Index	9.34%	46	11.96%	21	1.38%	51	13.69%	48	32.39%	77
Callan Large Cap Core	9.26%		10.42%		1.40%		13.63%		34.49%	
Polen Capital Management	16.71%	28	1.70%	72	15.51%	3	17.60%	6	23.45%	99
S&P 500 Index	9.34%	100	11.96%	2	1.38%	93	13.69%	25	32.39%	79
Callan Large Cap Growth	14.65%		3.39%		6.43%		11.82%		35.60%	
Earnest Partners LLC	12.05%	29	16.52%	29	1.25%	27	10.38%	46	31.29%	90
Russell MidCap Index	7.99%	50	13.80%	42	(2.44%)	67	13.22%	23	34.76%	63
Callan Mid Capitalization	7.90%		12.23%		(0.80%)		9.88%		35.85%	
Dimensional Fund Advisors Inc.	(1.67%)	83	29.36%	32	(6.06%)	76	5.04%	67	42.70%	23
Russell 2000 Value Index	0.54%	53	31.74%	14	(7.47%)	83	4.22%	82	34.52%	81
Callan Small Cap Value	1.13%		27.86%		(3.73%)		5.81%		38.72%	
CastleArk Management	11.51%	54	6.01%	68	(4.90%)	78	6.15%	31	-	-
Russell 2000 Growth Index	9.97%	65	11.32%	36	(1.38%)	50	5.60%	32	43.30%	74
Callan Small Cap Growth	12.15%		8.62%		(1.29%)		3.40%		46.83%	
<b>Total Global Equity</b>	<b>15.88%</b>		<b>8.65%</b>		<b>(2.08%)</b>		<b>2.32%</b>		<b>24.81%</b>	
MSCI World	10.66%		7.51%		(0.87%)		4.94%		26.68%	
BlackRock Global Alpha Tilts	14.22%	31	-	-	-	-	-	-	-	-
MSCI ACWI Gross	11.82%	58	8.48%	28	(1.84%)	71	4.71%	47	23.44%	78
Callan Global Equity	12.62%		6.21%		0.17%		4.57%		27.96%	
MFS Investment Management	18.45%	9	6.06%	52	(0.49%)	60	5.59%	34	23.08%	79
MSCI ACWI Gross	11.82%	58	8.48%	28	(1.84%)	71	4.71%	47	23.44%	78
Callan Global Equity	12.62%		6.21%		0.17%		4.57%		27.96%	

## 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.

	12/2016- 6/2017		2016		2015		2014		2013	
<b>Total International Equity</b>	<b>12.78%</b>		<b>5.78%</b>		<b>(0.41%)</b>		<b>(3.63%)</b>		<b>26.26%</b>	
MSCI EAFE Index	13.81%		1.00%		(0.81%)		(4.90%)		22.78%	
AQR Emerging Markets	20.07%	58	-		-		-		-	
MSCI EM Gross	18.60%	74	11.60%	49	(14.60%)	63	(1.82%)	62	(2.27%)	69
Callan Emerging Broad	20.38%		11.55%		(13.71%)		(1.09%)		0.25%	
Brandes Investment Partners	8.43%	100	8.50%	3	(1.25%)	67	(4.45%)	56	29.45%	8
MSCI EAFE Index	13.81%	78	1.00%	56	(0.81%)	62	(4.90%)	61	22.78%	47
Callan NonUS Eq	15.18%		1.49%		0.47%		(3.88%)		22.49%	
William Blair & Company	15.11%	52	(1.45%)	82	0.18%	53	(1.77%)	23	21.92%	53
MSCI ACWI ex-US Index	14.45%	64	5.01%	15	(5.25%)	92	(3.44%)	47	15.78%	89
Callan NonUS Eq	15.18%		1.49%		0.47%		(3.88%)		22.49%	
Dimensional Fund Advisors Inc.	14.55%	93	8.00%	8	3.99%	86	(4.99%)	67	32.60%	35
Blended Benchmark	16.72%	72	2.18%	34	9.59%	56	(4.95%)	67	29.30%	67
Callan Intl Small Cap	18.20%		0.14%		10.09%		(3.43%)		31.13%	
<b>Total Fixed Income</b>	<b>3.39%</b>		<b>7.40%</b>		<b>(2.49%)</b>		<b>4.00%</b>		<b>(0.53%)</b>	
Blimbg Aggregate	2.27%		2.65%		0.55%		5.97%		(2.02%)	
BlackRock US Debt Idx Fd	2.36%	69	-		-		-		-	
Blimbg Aggregate	2.27%	80	2.65%	85	0.55%	72	5.97%	69	(2.02%)	85
Callan Core Bond FI	2.50%		3.14%		0.84%		6.19%		(1.47%)	
Reams Asset Management	2.23%	99	4.38%	63	0.38%	49	4.09%	97	(1.08%)	75
Blimbg Aggregate	2.27%	98	2.65%	100	0.55%	38	5.97%	61	(2.02%)	96
Callan Core Plus FI	3.05%		4.66%		0.34%		6.23%		(0.67%)	
Loomis, Sayles & Company, L.P.	5.57%	1	13.97%	1	(6.10%)	100	5.94%	62	2.41%	4
Blimbg Aggregate	2.27%	98	2.65%	100	0.55%	38	5.97%	61	(2.02%)	96
Callan Core Plus FI	3.05%		4.66%		0.34%		6.23%		(0.67%)	
<b>Total Private Equity</b>	<b>8.08%</b>		<b>9.09%</b>		<b>12.34%</b>		<b>15.40%</b>		<b>8.66%</b>	
Abbott Capital Management 2010	7.08%		11.03%		12.32%		12.36%		7.33%	
Abbott Capital Management 2011	7.45%		10.43%		10.12%		9.17%		1.20%	
Abbott Capital Management 2012	7.66%		9.42%		2.45%		4.97%		(2.50%)	
Abbott Capital Management 2013	7.88%		5.25%		2.23%		(2.17%)		-	
Abbott Capital Management 2014	6.30%		2.86%		0.39%		-		-	
Abbott Capital Management 2015	4.61%		(5.11%)		-		-		-	
Abbott Capital Management 2016	(2.20%)		-		-		-		-	
Mesirow V	12.48%		12.03%		19.41%		21.07%		14.22%	
Mesirow VI	6.44%		3.32%		(3.99%)		2.22%		-	
NB Secondary Opp Fund III	8.36%		12.83%		33.37%		19.77%		-	
Private Advisors VI	4.56%		(1.34%)		-		-		-	
Russell 3000 (1 Qtr in Arrears) + 3%	11.55%		17.97%		2.56%		20.79%		24.63%	
<b>Absolute Return</b>	<b>3.39%</b>		<b>5.16%</b>		<b>4.92%</b>		<b>-</b>		<b>-</b>	
Allianz SA 1000	4.92%	10	11.15%	1	9.76%	1	-		-	
T-Bills + 10%	5.17%	9	10.33%	1	10.05%	1	10.03%	1	10.07%	34
Callan Abs Rtn Hedge FoF	2.10%		3.35%		(0.33%)		3.78%		8.92%	
Newton	4.28%	12	3.31%	52	1.50%	29	-		-	
1-month LIBOR + 4%	2.43%	45	4.49%	23	4.19%	8	4.16%	39	4.19%	89
Callan Abs Rtn Hedge FoF	2.10%		3.35%		(0.33%)		3.78%		8.92%	
UBS A & Q	2.13%	49	2.42%	71	4.09%	9	-		-	
1-month LIBOR + 4%	2.43%	45	4.49%	23	4.19%	8	4.16%	39	4.19%	89
Callan Abs Rtn Hedge FoF	2.10%		3.35%		(0.33%)		3.78%		8.92%	
<b>Real Assets</b>	<b>4.26%</b>		<b>7.00%</b>		<b>-</b>		<b>-</b>		<b>-</b>	
Principal DRA	4.26%	19	7.00%	69	-		-		-	
Principal Blended Benchmark (1)	2.98%	27	6.77%	71	-		-		-	
Callan Alternative Inv DB	(1.10%)		10.65%		(20.93%)		(2.44%)		(0.19%)	
<b>Total Real Estate</b>	<b>3.92%</b>		<b>11.38%</b>		<b>13.44%</b>		<b>13.87%</b>		<b>13.58%</b>	
Real Estate	3.92%	34	11.38%	28	13.44%	55	13.87%	46	13.58%	42
Blended Benchmark (1)	3.60%	40	9.69%	43	13.82%	53	11.26%	62	10.99%	59
Callan Total Real Est DB	3.34%		8.91%		14.47%		13.27%		11.87%	
<b>Total Fund</b>	<b>8.19%</b>		<b>9.11%</b>		<b>0.74%</b>		<b>5.31%</b>		<b>19.59%</b>	
Total Fund Reference Index*	7.75%		7.26%		1.21%		6.00%		18.20%	

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blimg Aggregate, 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.  
(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 June 30, 2017. 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 June 30, 2017

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception	
<b>Net of Fee Returns</b>						
Total Domestic Equity	3.09%	21.19%	9.03%	14.32%	6.60%	(7/98)
Russell 3000 Index	3.02%	18.51%	9.10%	14.58%	6.42%	(7/98)
BlackRock Russell 1000 Value	1.38%	-	-	-	2.15%	(3/17)
Russell 1000 Value Index	1.34%	15.53%	7.36%	13.94%	0.31%	(3/17)
Northern Trust Global	3.10%	17.91%	9.67%	14.68%	9.46%	(9/94)
S&P 500 Index	3.09%	17.90%	9.61%	14.63%	9.49%	(9/94)
Polen Capital Management	6.69%	20.96%	14.82%	15.16%	15.16%	(7/12)
S&P 500 Index	3.09%	17.90%	9.61%	14.63%	14.63%	(7/12)
Earnest Partners LLC	4.04%	23.74%	10.00%	15.27%	9.80%	(5/05)
Russell MidCap Index	2.70%	16.48%	7.69%	14.72%	9.73%	(5/05)
Dimensional Fund Advisors Inc.	(0.31%)	22.07%	5.84%	14.49%	11.73%	(11/96)
Russell 2000 Value Index	0.67%	24.86%	7.02%	13.39%	9.86%	(11/96)
CastleArk Management	5.44%	22.04%	4.65%	-	9.00%	(9/13)
Russell 2000 Growth Index	4.39%	24.40%	7.64%	13.98%	10.67%	(9/13)
Total Global Equity	6.42%	20.61%	5.57%	11.23%	7.77%	(4/10)
MSCI World	4.03%	18.20%	5.24%	11.38%	8.91%	(4/10)
BlackRock Global Alpha Tilts	5.88%	22.04%	-	-	23.10%	(3/16)
MSCI ACWI Gross	4.45%	19.42%	5.39%	11.14%	21.66%	(3/16)
MFS Investment Management	7.32%	18.98%	7.31%	-	11.26%	(12/12)
MSCI ACWI Gross	4.45%	19.42%	5.39%	11.14%	10.41%	(12/12)
Total International Equity	5.24%	20.62%	2.07%	9.80%	6.52%	(5/96)
MSCI EAFE Index	6.12%	20.27%	1.15%	8.69%	4.58%	(5/96)
AQR Emerging Markets	6.42%	-	-	-	21.46%	(8/16)
MSCI EM Gross	6.38%	24.17%	1.44%	4.33%	18.16%	(8/16)
Brandes Investment Partners	3.04%	18.70%	0.62%	9.24%	7.62%	(2/98)
MSCI EAFE Index	6.12%	20.27%	1.15%	8.69%	4.66%	(2/98)
William Blair & Company	7.22%	16.40%	2.09%	8.77%	7.30%	(12/03)
MSCI ACWI ex-US Index	5.99%	21.00%	1.27%	7.70%	7.18%	(12/03)
Dimensional Fund Advisors Inc.	6.33%	28.80%	4.16%	13.74%	5.16%	(5/06)
Blended Benchmark	8.10%	23.18%	5.60%	12.94%	3.44%	(5/06)
Total Fixed Income	1.73%	2.91%	2.20%	3.01%	6.82%	(9/94)
Bimbg Aggregate	1.45%	(0.31%)	2.48%	2.21%	5.61%	(9/94)
BlackRock US Debt Idx Fd	1.48%	(0.39%)	-	-	0.25%	(6/16)
Bimbg Aggregate	1.45%	(0.31%)	2.48%	2.21%	1.36%	(6/16)
Reams Asset Management	1.33%	(0.26%)	2.60%	2.50%	5.48%	(1/01)
Bimbg Aggregate	1.45%	(0.31%)	2.48%	2.21%	4.81%	(1/01)
Loomis, Sayles & Company, L.P.	2.39%	9.92%	3.50%	5.59%	8.52%	(9/94)
Bimbg Aggregate	1.45%	(0.31%)	2.48%	2.21%	5.61%	(9/94)
Total Private Equity	8.28%	14.66%	11.25%	10.87%	7.22%	(6/10)
Abbott Capital Management 2010	7.08%	14.67%	11.79%	9.54%	(11.13%)	(6/10)
Abbott Capital Management 2011	7.45%	13.93%	10.74%	7.48%	(8.36%)	(6/11)
Abbott Capital Management 2012	7.66%	14.09%	7.51%	2.50%	2.50%	(7/12)
Abbott Capital Management 2013	7.88%	12.50%	5.25%	-	1.73%	(5/13)
Abbott Capital Management 2014	6.30%	8.88%	1.74%	-	(1.71%)	(4/14)
Abbott Capital Management 2015	4.61%	5.74%	-	-	4.51%	(4/15)
Abbott Capital Management 2016	(1.03%)	(0.91%)	-	-	(1.80%)	(3/16)
Mesirow V	12.67%	21.81%	16.59%	16.32%	13.10%	(6/10)
Mesirow IV	6.91%	10.43%	0.20%	-	1.90%	(7/13)
NB Secondary Opp Fund III	9.66%	16.14%	18.17%	-	9.95%	(12/13)
Private Advisors VI	5.22%	5.55%	-	-	(6.54%)	(4/15)
Private Advisors VII	(8.47%)	-	-	-	(8.47%)	(1/17)
Russell 3000 (1 Qtr in Arrears) + 3%	6.37%	21.07%	12.79%	16.22%	11.55%	(1/17)
Absolute Return	1.59%	5.36%	5.65%	-	5.49%	(6/14)
Allianz SA 1000	2.78%	10.79%	10.66%	-	10.36%	(6/14)
T-Bills + 10%	2.60%	10.49%	10.23%	10.17%	10.23%	(6/14)
Newton	1.78%	(0.68%)	-	-	3.56%	(8/14)
1-month LIBOR + 4%	1.23%	4.73%	4.41%	4.32%	4.41%	(8/14)
UBS A & Q	0.84%	5.47%	-	-	3.35%	(12/14)
1-month LIBOR + 4%	1.23%	4.73%	4.41%	4.32%	4.45%	(12/14)
Real Assets	0.88%	5.12%	-	-	7.57%	(1/16)
Principal DRA	0.88%	5.12%	-	-	7.57%	(1/16)
Principal Blended Benchmark (1)	0.57%	4.02%	-	-	6.53%	(1/16)
Total Real Estate	1.57%	8.93%	11.47%	11.81%	5.39%	(7/86)
Real Estate	1.57%	8.93%	11.47%	11.81%	5.39%	(7/86)
Blended Benchmark (2)	1.62%	7.72%	10.96%	10.91%	-	
Total Fund	3.56%	14.01%	5.51%	9.73%	9.24%	(1/79)
Total Fund Reference Index*	3.18%	12.13%	5.50%	9.41%	-	

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Bimbg Aggregate, 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.

(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.

	12/2016- 6/2017	2016	2015	2014	2013
<b>Net of Fee Returns</b>					
Total Domestic Equity	8.68%	13.55%	(0.39%)	11.28%	33.44%
Russell 3000 Index	8.93%	12.74%	0.48%	12.56%	33.55%
Northern Trust Global	9.35%	11.99%	1.47%	13.75%	32.43%
S&P 500 Index	9.34%	11.96%	1.38%	13.69%	32.39%
Polen Capital Management	16.43%	1.19%	14.94%	17.02%	22.84%
S&P 500 Index	9.34%	11.96%	1.38%	13.69%	32.39%
Earnest Partners LLC	11.75%	15.90%	0.71%	9.79%	30.60%
Russell MidCap Index	7.99%	13.80%	(2.44%)	13.22%	34.76%
Dimensional Fund Advisors Inc.	(1.93%)	28.68%	(6.57%)	4.47%	41.95%
Russell 2000 Value Index	0.54%	31.74%	(7.47%)	4.22%	34.52%
CastleArk Management	11.14%	5.30%	(5.54%)	5.45%	-
Russell 2000 Growth Index	9.97%	11.32%	(1.38%)	5.60%	43.30%
Total Global Equity	15.67%	8.26%	(2.44%)	1.95%	24.37%
MSCI World	10.66%	7.51%	(0.87%)	4.94%	26.68%
BlackRock Global Alpha Tilts	14.20%	-	-	-	-
MSCI ACWI Gross	11.82%	8.48%	(1.84%)	4.71%	23.44%
MFS Investment Management	18.21%	5.62%	(0.89%)	5.17%	22.47%
MSCI ACWI Gross	11.82%	8.48%	(1.84%)	4.71%	23.44%
Total International Equity	12.52%	5.27%	(0.89%)	(4.09%)	25.66%
MSCI EAFE Index	13.81%	1.00%	(0.81%)	(4.90%)	22.78%
AQR Emerging Markets	19.64%	-	-	-	-
MSCI EM Gross	18.60%	11.60%	(14.60%)	(1.82%)	(2.27%)
Brandes Investment Partners	8.21%	8.05%	(1.66%)	(4.84%)	28.93%
MSCI EAFE Index	13.81%	1.00%	(0.81%)	(4.90%)	22.78%
William Blair & Company	14.88%	(1.84%)	(0.22%)	(2.17%)	21.36%
MSCI ACWI ex-US Index	14.45%	5.01%	(5.25%)	(3.44%)	15.78%
Dimensional Fund Advisors Inc.	14.55%	8.00%	3.99%	(4.99%)	32.39%
Blended Benchmark	16.72%	2.18%	9.59%	(4.95%)	29.30%
Total Fixed Income	3.30%	7.21%	(2.63%)	3.85%	(0.69%)
Blmbg Aggregate	2.27%	2.65%	0.55%	5.97%	(2.02%)
BlackRock US Debt Idx Fd	2.33%	-	-	-	-
Reams Asset Management	2.15%	4.22%	0.23%	3.94%	(1.23%)
Blmbg Aggregate	2.27%	2.65%	0.55%	5.97%	(2.02%)
Loomis, Sayles & Company, L.P.	5.50%	13.82%	(6.20%)	5.82%	2.29%
Blmbg Aggregate	2.27%	2.65%	0.55%	5.97%	(2.02%)
Total Private Equity	8.08%	9.09%	12.34%	15.40%	8.66%
Abbott Capital Management 2010	7.08%	11.03%	12.32%	12.36%	7.33%
Abbott Capital Management 2011	7.45%	10.43%	10.12%	9.17%	1.20%
Abbott Capital Management 2012	7.66%	9.42%	2.45%	4.97%	(2.50%)
Abbott Capital Management 2013	7.88%	5.25%	2.23%	(2.17%)	-
Abbott Capital Management 2014	6.30%	2.86%	0.39%	-	-
Abbott Capital Management 2015	4.61%	(5.11%)	-	-	-
Abbott Capital Management 2016	(2.20%)	-	-	-	-
Mesirov V	12.48%	12.03%	19.41%	21.07%	14.22%
Mesirov VI	6.44%	3.32%	(3.99%)	2.22%	-
NB Secondary Opp Fund III	8.36%	12.83%	33.37%	19.77%	-
Private Advisors VI	4.56%	(1.34%)	-	-	-
Russell 3000 (1 Qtr in Arrears) + 3%	11.55%	17.97%	2.56%	20.79%	24.63%
Absolute Return	3.39%	5.16%	4.92%	-	-
Allianz SA 1000	4.92%	11.15%	9.76%	-	-
T-Bills + 10%	5.17%	10.33%	10.05%	10.03%	10.07%
Newton	4.28%	3.31%	1.50%	-	-
1-month LIBOR + 4%	2.43%	4.49%	4.19%	4.16%	4.19%
UBS A & Q	2.13%	2.42%	4.09%	-	-
1-month LIBOR + 4%	2.43%	4.49%	4.19%	4.16%	4.19%
Real Assets	4.26%	7.00%	-	-	-
Principal DRA	4.26%	7.00%	-	-	-
Principal Blended Benchmark (1)	2.98%	6.77%	-	-	-
Total Real Estate	3.78%	11.09%	13.15%	13.54%	13.15%
Real Estate	3.78%	11.09%	13.15%	13.54%	13.15%
Blended Benchmark (2)	3.60%	9.69%	13.82%	11.26%	10.99%
Total Fund	8.04%	8.80%	0.46%	5.02%	19.26%
Total Fund Reference Index*	7.75%	7.26%	1.21%	6.00%	18.20%

\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.

(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.

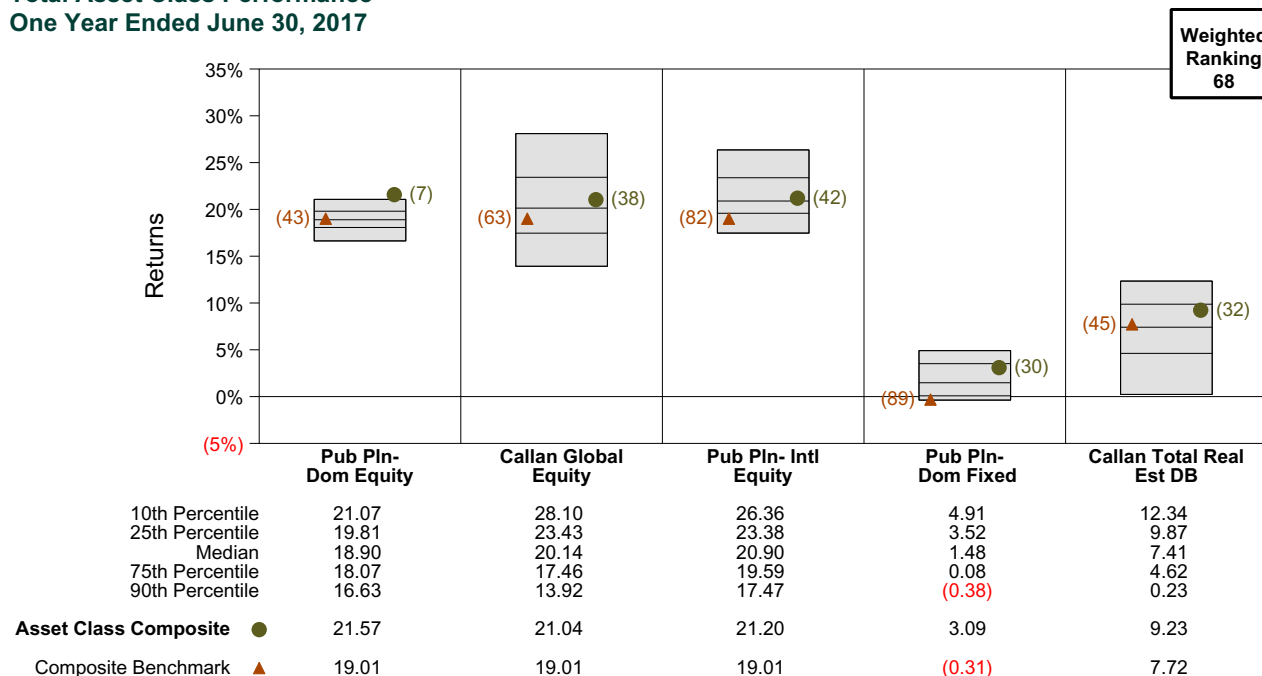
(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.



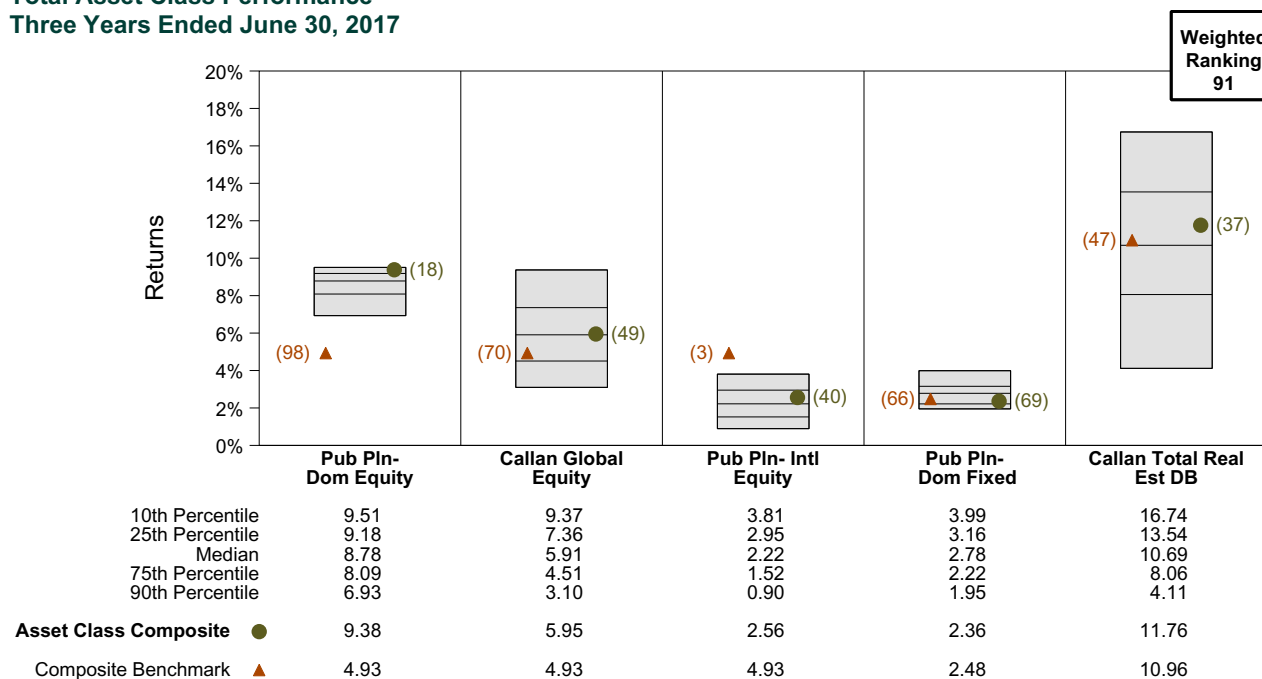
## Asset Class Rankings

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 June 30, 2017



### Total Asset Class Performance Three Years Ended June 30, 2017

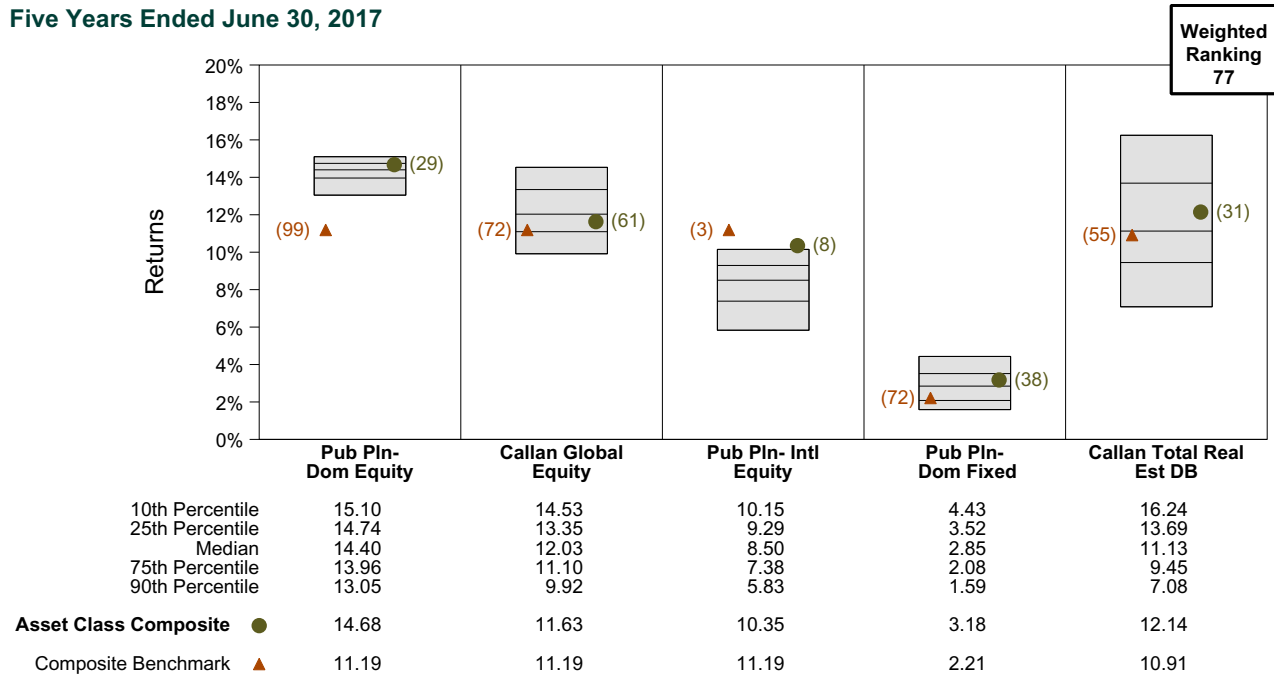


\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.

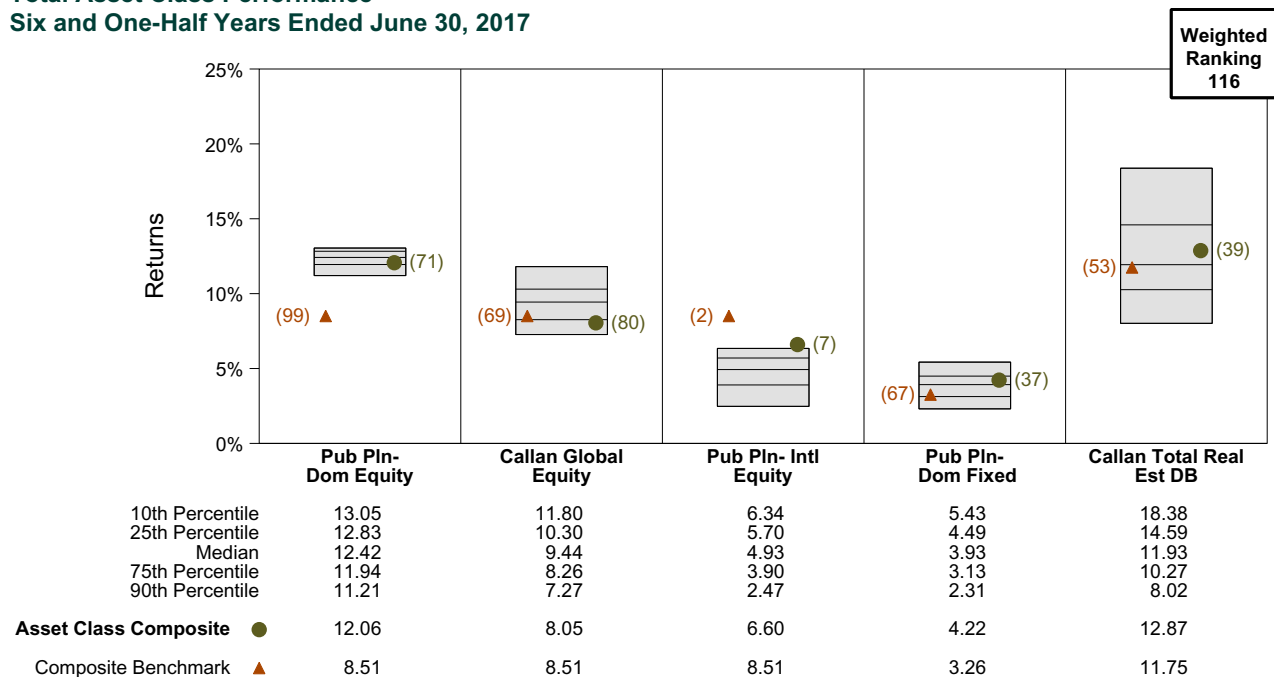
## Asset Class Rankings

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### Total Asset Class Performance Five Years Ended June 30, 2017



### Total Asset Class Performance Six and One-Half Years Ended June 30, 2017



\* Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 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.



## Research and Educational Programs

The Callan Institute provides both 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 Anna West at 415.974.5060 / [institute@callan.com](mailto:institute@callan.com).

## New Research from Callan’s Experts

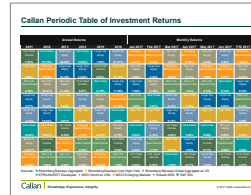


**The Hedge Fund Edge: Still Sharp or Too Dull? |** Why should investors bother with hedge funds? The original proposition behind them was their differentiated performance: better risk-adjusted returns with a lower correlation to traditional capital markets. Do hedge funds still have their inherent advantage? This white paper looks at the key traits in the DNA of hedge funds—and why they still offer an advantage for investors.

**White Label Funds: A No-Nonsense Design Handbook |** In a paper published in *The Journal of Retirement*, Callan’s Rod Bare, Jay Kloepfer, Lori Lucas, and Jimmy Veneruso offer a guide to plan sponsors considering adding these funds to their lineup.

**Survivorship Bias Presentation Summary, 2017 National Conference |** In this presentation, Greg Allen and Butch Cliff discussed an algorithm they developed with Walter J. Meerschaert, Callan’s manager of Information Technology, to measure and correct for survivorship bias, the logical flaw of looking only at the results for the survivors in a universe, rather than the results for all members of the universe. Their algorithm, called SUBICO (for SURvivorship Bias CORrection), uses all of the underlying data for both surviving and non-surviving members of the universe to correct for survivorship bias.

**Next Generation QDIAs, 2017 National Conference |** The workshop “The Future of DC Is Here: The Next Generation of QDIAs,” hosted by Ben Taylor, James Veneruso, and Brianne Weymouth, discussed new approaches to qualified default investment alternatives as they become the primary savings vehicle for defined contribution plans.



**June 2017 Monthly Periodic Table of Returns |** A monthly update for Callan’s Periodic Table of Investment Returns, covering the major public equity asset classes.

## Periodicals

**Private Markets Trends, Spring 2017 |** Gary Robertson reports that the private equity market is off to a roaring start in 2017, and new partnership commitments may exceed the level of 2016.

**Hedge Fund Monitor, 2nd Quarter 2017 |** Jim McKee looks at “false charges,” or bear markets that come and go quickly but can leave unprepared investors at significant risk.

**DC Observer, 2nd Quarter 2017 |** Lori Lucas discusses how to manage DC plan recordkeepers, explaining that one of the best ways is to conduct periodic searches.

**Market Pulse Flipbook, 1st Quarter 2017 |** 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, 1st Quarter 2017 |** A quarterly macroeconomic newsletter providing thoughtful insights on the economy and recent performance in equity, fixed income, alternatives, international, real estate, and other capital markets.

## 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/)

Mark your calendars for our fall **Regional Workshop**, October 24 in New York and October 26 in Chicago, where we'll cover highlights from our soon-to-be published *Investment Management Fee Survey* and cover other aspects of fees. Callan's **National Conference** will be held January 29–31, 2018, at the Palace Hotel in San Francisco.

**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 session is:

### Introduction to Investments

*Chicago, October 24-25, 2017*

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

**3,500** Total attendees of the “Callan College” since 1994

**1980** Year the Callan Institute was founded



“We think the best way to learn something is to teach it. Entrusting client education to our consultants and specialists ensures that they have a total command of their subject matter. This is one reason why education and research have been cornerstones of our firm for more than 40 years.”

Ron Peyton, Chairman and CEO



## 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. 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
1607 Capital Partners, LLC
Aberdeen Asset Management PLC
Acadian Asset Management LLC
AEGON USA Investment Management
AEW Capital Management
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Smith Breeden LLC
Angelo, Gordon & Co.
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Artisan Holdings
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Barings LLC
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
Black Creek Investment Management Inc.
BlackRock
BMO Global Asset Management
BNP Paribas Investment Partners
BNY Mellon Asset Management
Boston Partners
Boyd Watterson Asset Management, LLC
Brandes Investment Partners, L.P.

Manager Name
Brandywine Global Investment Management, LLC
Brown Brothers Harriman & Company
Brown Investment Advisory & Trust Company
Cambiar Investors, LLC
Capital Group
CastleArk Management, LLC
Causeway Capital Management
Chartwell Investment Partners
Chicago Equity Partners, LLC
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Management Investment Advisers, LLC
Columbus Circle Investors
Cornerstone Capital Management
Cramer Rosenthal McGlynn, LLC
Credit Suisse Asset Management
Crestline Investors, Inc.
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Mgmt. Co.
Eagle Asset Management, Inc.
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

Manager Name
Franklin Templeton Institutional
Fred Alger Management, Inc.
Fuller & Thaler Asset Management, Inc.
GAM (USA) Inc.
Global Evolution USA
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management
Gryphon International Investment Corporation
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Harding Loevner LP
Hartford Funds
Hartford Investment Management Co.
Heitman LLC
Henderson Global Investors
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
Jacobs Levy Equity Management, Inc.
Janus Capital Management, LLC
Jensen Investment Management
Jobs Peak Advisors
J.P. Morgan Asset Management
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Logan Circle Partners, L.P.
Longfellow Investment Management Co.
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (formerly Delaware Investments)
Man Investments Inc.
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.
Neuberger Berman
New York Life Investment Management LLC
Newfleet Asset Management LLC
Newton Investment Management (fka Newton Capital Mgmt)
Nikko Asset Management Co., Ltd.

Manager Name
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
Old Mutual Asset Management
O'Shaughnessy Asset Management, LLC
Pacific Investment Management Company
Peregrine Capital Management, Inc.
PGIM
PGIM Fixed Income
PineBridge Investments
Pioneer Investments
PNC Capital Advisors, LLC
PPM America
Principal Global Investors
Private Advisors, LLC
Putnam Investments, LLC
Pzena Investment Management, LLC
QMA (Quantitative Management Associates)
RBC Global Asset Management
Record Currency Management Ltd.
Regions Financial Corporation
RidgeWorth Capital Management, 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.
Standard Life Investments Limited
Standish
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Strategic Global Advisors
T. Rowe Price Associates, Inc.
Taplin, Canida & Habacht
Teachers Insurance & Annuity Association of America
The Boston Company Asset Management, LLC
The Hartford
The London Company
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
Van Eck Global
Versus Capital Group
Victory Capital Management Inc.
Vontobel Asset Management, Inc.
Voya Financial
Voya Investment Management (fka ING)
Vulcan Value Partners, LLC
Wasatch Advisors, Inc.
WCM Investment Management
WEDGE Capital Management
Wedgewood Partners, Inc.
Wellington Management Company, LLP
Wells Capital Management
Western Asset Management Company



Manager Name

William Blair & Company

Manager Name

WisdomTree Asset Management