# Callan

March 31, 2018

City of Milwaukee Employes'
Retirement System

Investment Measurement Service
Quarterly Review

# Table of Contents March 31, 2018

Capital Markets Review					
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				
Callan Research/Education	23				
Disclosures	26				

#### **U.S. EQUITY**

Volatility returned in the 1<sup>st</sup> quarter of 2018, with the Dow and S&P 500 both ending the quarter down—a first since the 3<sup>rd</sup> quarter of 2015. After starting strong on the back of solid earnings and tax reform, U.S. equities faltered in the second half over concerns about a more aggressive global trade policy and uncertainty over the pace of interest rate hikes. The S&P 500 (-0.8%) experienced a marked increase in volatility, with six days of movements greater than 2% during the quarter (versus none in 2017). Volatility as measured by the VIX index reached a quarterly high of 116% on Feb. 5 when the market sank 4%.

#### **Small Cap Outperforms Large Cap**

(Russell 1000: -0.7%; Russell 2000: -0.1%)

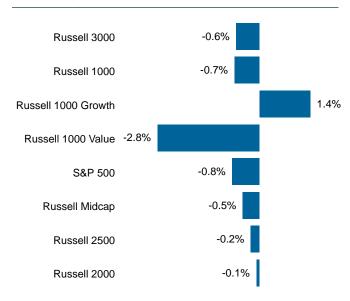
- The prospect of a trade war with China weighed on large caps since many of these companies are exposed to international markets (S&P 500 aggregate is ~40%) while small caps were less impacted as they tend to have a higher proportion of their revenue exposure from domestic markets (~80-90%) and benefit from a more protectionist policy.
- In mid-March, mega-cap Tech firms saw their stock prices drop in the wake of Facebook's Cambridge Analytica scandal, leading to declining trust for the industry and negative investor sentiment. The market began pricing in the potential for more regulatory oversight for these internet companies. Performance for the "FANGs" split during the quarter, with Facebook and Google down while Netflix and Amazon advanced.

#### **Value Continued to Trail Growth**

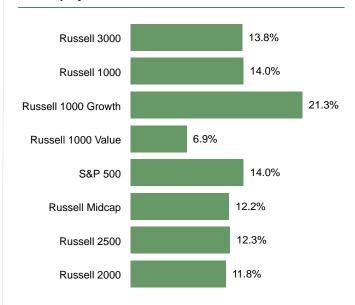
(Russell 1000 Growth: +1.4%; Russell 1000 Value: -2.8%)

- Value trailed as the prospect of increased inflation and accelerating interest rates weighed on interest rate-sensitive sectors (Financials: -1.0%, Real Estate: -5.0%, Utilities: -3.3%).
- Energy (-5.9%) also took a hit despite a more promising outlook for the sector as the Saudis agreed to continued oil production cuts into 2019; performance for 1Q18 was impacted by Exxon Mobil and Chevron missing 4Q17 earnings expectations.

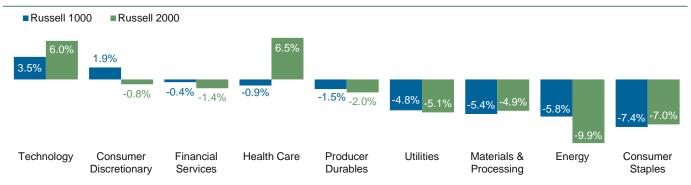
#### **U.S. Equity: Quarterly Returns**



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



#### Russell Sector Returns, Quarter ended March 31, 2018



Sources: FTSE Russell, Standard & Poor's



#### **Defensive Sectors Underperformed Cyclicals**

- Despite the increased volatility and price drop in the broader index, defensive sectors underperformed cyclicals due in large part to the rising interest rate environment. Technology (+3.5%) and Consumer Discretionary (+3.1%) were the only two sectors that posted positive returns.
- Telecommunications (-7.5%) and Staples (-7.1%) were the two worst-performing sectors.

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

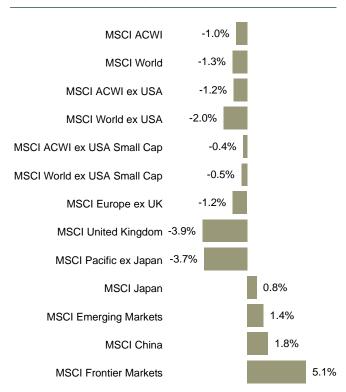
Non-U.S. developed equity underperformed U.S. as non-U.S. equity markets were spooked by geopolitical tension and market volatility along with fears of rising U.S. interest rates and inflation despite positive economic data. Emerging markets continued to outpace developed, fueled by a soft dollar and synchronized global growth; however, fears of inflation and its implication on the trajectory of U.S. monetary policy—as well as a potential trade war with China—weighed on the market. Developed non-U.S. small cap outperformed large cap given the risk-on market environment spurred by synchronized global growth.

#### Global/Non-U.S. Developed

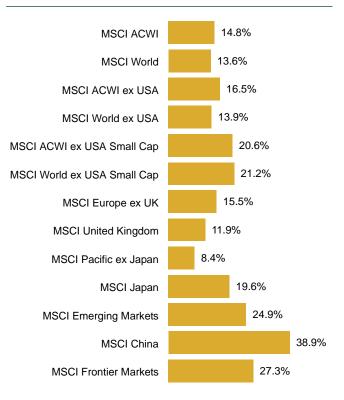
(MSCI EAFE: -1.5%; MSCI Europe: -2.0%; MSCI Japan: +0.8%; MSCI World ex USA: -2.0%)

- The dollar lost ground to the euro and yen, which buoyed returns for their respective regions.
- Euro-zone recovery continued, with GDP growth of 2.7% in the recent quarter year-over-year driving the currency up 2%—and the pound by nearly 4%—relative to the dollar.
- Japan's economy grew by 1.6% fueled by infrastructure development ahead of the 2020 Olympics, enabling the yen to surge by 6% relative to the dollar.
- The only sectors that posted positive returns were Consumer Discretionary, Tech, and Utilities.
- Positive earnings supported the Tech sector (top performer), and Utilities benefited as investors fled to safety amid market volatility and yield curve flattening in March.
- Telecom struggled as competition for wireless services within the euro-zone eroded profitability, and Staples was notably challenged due to fears of interest rate normalization and the prospect of beleaguered growth.
- Growth outpaced value and earnings growth and quality factors were in favor as markets were jittery in light of the aforementioned looming risks. As such, high beta cyclical sectors and factors struggled.

#### **Global Equity: Quarterly Returns**



#### Global Equity: One-Year Returns



Source: MSCI

#### Emerging Markets (MSCI EM: +1.4%)

- Brazil and Russia were among the best performers due to climbing oil prices and improving economic conditions.
- China continued to thrive despite U.S.-China trade tension and a slowdown for Chinese Tech companies; China's supply-side reforms are kicking in and economic growth in retail and home sales exceeded expectations, driving up returns for the Financials and Real Estate sectors.
- Although India announced better-than-expected GDP growth of 7.2%, the country notably lagged due to poor market sentiment surrounding asset-quality issues at large state-owned banks and relative valuations of Indian equities.
- Energy was the best performer supported by rising oil prices; conversely, Consumer Discretionary was the worst sector performer, weighed down by India.
- Value and sentiment factors were in favor as the economic recovery story gained traction and momentum; however, quality factors also added value given the mid-cycle of the recovery.

# International Small Cap (MSCI World ex USA Small Cap: -0.5%; MSCI EM Small Cap: +0.2%)

- Developed non-U.S. small cap outperformed large cap given the risk-on market environment spurred by synchronized global growth, although within Emerging Markets, small cap lagged large cap.
- Growth was favored in both developed and emerging market small cap as growth-oriented sectors such as Health Care and Consumer Staples outperformed cyclical sectors.

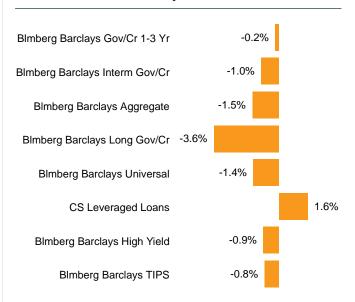
#### **FIXED INCOME**

Going into 2018, U.S. markets continued to rally higher due to solid economic data, passage of the U.S. tax reform, and rising expectations for corporate earnings growth. However, optimism quickly vanished as investors turned their focus to rising wage pressures, policy uncertainties surrounding the new incoming Fed Chair Jerome Powell, and escalating trade tensions between the U.S. and China. The 10-year U.S. Treasury yield steadily rose to nearly 3% from a low of 2.41% at the start of the year, before declining to close the quarter at 2.74%. Corporate risk premia similarly tightened then widened for both investment grade and high yield corporates. Strong investor demand and fewer new corporate issuances compared to the same period last year helped offset some of the declines from rising rates and increased spread volatility during the quarter.

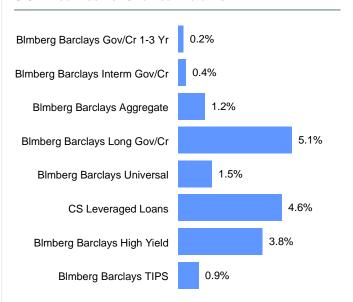
# The Bloomberg Barclays US Aggregate Bond Index returned -1.5%

- Volatility picked up across risk assets as geopolitical uncertainties took center stage; market expectations reflect the possibility of four rate hikes, up from three at the end of 2017.
- Interest rates rose ~30bps across the U.S. Treasury yield curve.
- The 10-year U.S. Treasury yield rose from 2.41% to 2.74%.

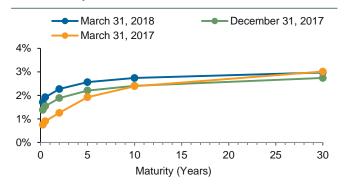
#### **U.S. Fixed Income: Quarterly Returns**



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



#### **U.S. Treasury Yield Curves**



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse



# **Investment grade corporates** returned -2.3% and underperformed the Aggregate Index

- Investors were fairly sanguine as they reassessed fairly healthy balance sheets juxtaposed with fair/rich valuations.
- New issuance was down 13% when compared to a similar time period a year ago, yet demand remained strong with 2-3x oversubscriptions.

# **High yield** corporates returned -0.9% and outperformed the US Aggregate Index

- Corporate fundamentals remained healthy as earnings growth supported debt coverage.
- Default rates remained benign because many companies had already reorganized debt in 2016.
- Approx. 75% of new issuance proceeds were used for refinancing.
- Valuations remained near historical highs.

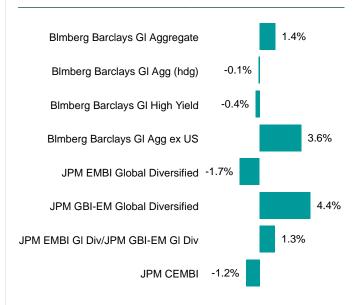
#### Bank loans returned +1.4% and outperformed the Aggregate.

- Healthy balance sheets, strong demand for CLO formation, and higher short-term interest rates bode well for the sector this quarter.
- Demand from CLO formation continued to lead to interest in bank loans.

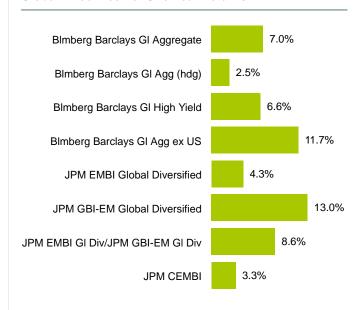
# **EMD** returned +4.4% as returns were positive for most countries in local currency terms.

- Mexico, 10% by weight of the Index, returned 11% due mostly to strong appreciation of the Mexican peso on speculation that an agreement would be reached on NAFTA.
- South Africa, also 10% of the Index, returned 13% from the rand hitting a multi-year high after scandal-ridden President Zuma resigned. Falling rates also supported performance.

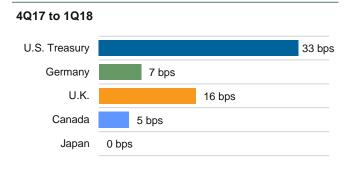
#### **Global Fixed Income: Quarterly Returns**



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



## Change in 10-Year Global Government Bond Yields



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 March 31, 2018, with the distribution as of December 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**

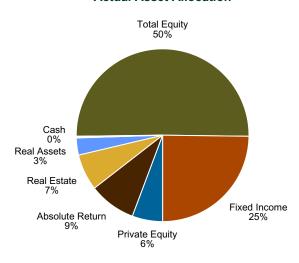
	March 31,	2018			December 3	1, 2017
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Total Domestic Equity	\$1,214,837,190	22.66%	\$(154,000,105)	\$(4,481,046)	\$1,373,318,341	25.64%
BlackRock Russell 1000 Value	155,613,926	2.90%	(17,000,000)	(4,702,380)	177,316,306	3.31%
DFA Large Cap Value	159,881,604	2.98%	(17,000,000)	(4,265,140)	181,146,744	3.38%
Northern Trust Global	305,685,703	5.70%	(56,000,105)	(1,262,730)	362,948,538	6.78%
Polen Capital Management	164,637,994	3.07%	(20,000,000)	6,142,758	178,495,236	3.33%
Earnest Partners LLC	129,514,218	2.42%	(12,000,000)	92,557	141,421,661	2.64%
DFA Small Cap Value	192,215,799	3.59%	(22,000,000)	(4,722,716)	218,938,514	4.09%
CastleArk Management	107,287,947	2.00%	(10,000,000)	4,236,606	113,051,341	2.11%
Total Global Equity	\$508,926,639	9.49%	\$(41,000,000)	\$2,850,235	\$547,076,404	10.21%
BlackRock Global Alpha Tilts	304,227,329	5.68%	(21,000,000)	69,895	325,157,434	6.07%
MFS Investment Management	204,699,310	3.82%	(20,000,000)	2,780,339	221,918,970	4.14%
Total International Equity	\$976,292,505	18.21%	\$(113,000,000)	\$7,601,798	\$1,081,690,707	20.19%
AQR Emerging Markets	110,274,884	2.06%	0	2,845,271	107,429,613	2.01%
Brandes Investment Partners	392,033,105	7.31%	(49,000,000)	9,037,739	431,995,366	8.07%
William Blair & Company	281,761,227	5.26%	(44,000,000)	229,105	325,532,122	6.08%
DFA International Small Cap	192,223,289	3.59%	(20,000,000)	(4,510,318)	216,733,607	4.05%
Total Fixed Income	\$1,329,953,824	24.81%	\$290,000,000	\$(12,045,498)	\$1,051,999,322	19.64%
Allianz US Fixed Income 250	481,474,155	8.98%	480,000,000	1,474,155	-	-
BlackRock US Debt Idx Fd	214,562,976	4.00%	(150,000,000)	(6,420,113)	370,983,089	6.93%
Reams Asset Management	274,112,754	5.11%	(40,000,000)	(3,556,428)	317,669,182	5.93%
Loomis, Sayles & Company, L.P.	359,803,939	6.71%	0	(3,543,112)	363,347,051	6.78%
Total Private Equity	\$306,066,196	5.71%	\$(1,970,451)	\$(401,638)	\$308,438,285	5.76%
Abbott Capital Management 2010	27,714,060	0.52%	(1,575,052)	52	29,289,060	0.55%
Abbott Capital Management 2011	46,136,091	0.86%	(1,650,061)	61	47,786,091	0.89%
Abbott Capital Management 2012	30,820,657	0.57%	(400,044)	44	31,220,657	0.58%
Abbott Capital Management 2013	26,214,549	0.49%	350,000	0	25,864,549	0.48%
Abbott Capital Management 2014	23,410,604	0.44%	700,000	0	22,710,604	0.42%
Abbott Capital Management 2015	8,566,561	0.16%	343,750	0	8,222,811	0.15%
Abbott Capital Management 2016	3,114,212	0.06%	218,750	(18,750)	2,914,212	0.05%
Mesirow V	61,385,231	1.15%	(4,125,578)	(97,508)	65,608,317	1.22%
Mesirow VI	36,482,048	0.68%	0	0	36,482,048	0.68%
Mesirow VII	4,751,003	0.09%	2,500,000	(25,000)	2,276,003	0.04%
NB Secondary Opp Fund III	17,212,478	0.32%	(1,060,526)	(113,876)	18,386,880	0.34%
NB Secondary Opp Fund IV	1,934,293	0.04%	0	0	1,934,293	0.04%
Private Advisors VI	14,910,262	0.28%	1,904,736	(88,804)	13,094,330	0.24%
Private Advisors VII	3,414,147	0.06%	823,575	(57,858)	2,648,430	0.05%
Absolute Return	\$469,138,386	8.75%	\$0	\$(479,434)	\$469,617,821	8.77%
Allianz SA 1000	114,687,504	2.14%	0	(4,839,571)	119,527,075	2.23%
Newton	115,692,247	2.16%	0	(1,317,679)	117,009,927	2.18%
UBS A & Q	238,758,635	4.45%	0	5,677,816	233,080,819	4.35%
Real Assets	\$172,680,506	3.22%	\$0	\$(2,094,073)	\$174,774,579	3.26%
Principal DRA	172,680,506	3.22%	0	(2,094,073)	174,774,579	3.26%
Total Real Estate	\$365,501,147	6.82%	\$20,541,237	\$8,283,651	\$336,676,259	6.29%
Real Estate	365,501,147	6.82%	20,541,237	8,283,651	336,676,259	6.29%
Total Cash Cash	<b>\$17,367,448</b> 17,367,448	<b>0.32%</b> 0.32%	<b>\$4,288,668</b> 4,288,668	<b>\$253,573</b> 253,573	<b>\$12,825,206</b> 12,825,206	<b>0.24%</b> 0.24%
	17,307,448	U.3Z70	4,200,000	253,573	12,020,200	U.Z470
Total Fund	\$5,360,763,842	100.0%	\$4,859,350	\$(512,432)	\$5,356,416,924	100.0%



# Actual vs Target Asset Allocation As of March 31, 2018

The first chart below shows the Fund's asset allocation as of March 31, 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).

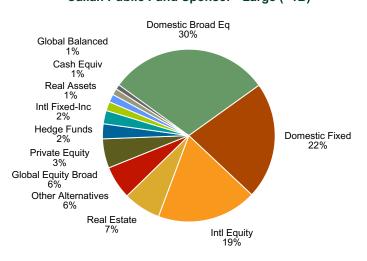




## **Target Asset Allocation**

# Real Assets 3% Real Estate 7% Absolute Return 8% Private Equity 5%

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



	\$000s	Weight		Percent	\$000s
Asset Class	Actual	Actual	Target	Difference	Difference
Total Equity	2,700,056	50.4%	55.0%	(4.6%)	(248, 364)
Fixed Income	1,329,954	24.8%	22.0%	2.8%	150,586
Private Equity	306,066	5.7%	5.0%	0.7%	38,028
Absolute Return	469,138	8.8%	8.0%	0.8%	40,277
Real Estate	365,501	6.8%	7.0%	(0.2%)	(9,752)
Real Assets	172,681	3.2%	3.0%	0.2%	11,858
Cash	17,367	0.3%	0.0%	0.3%	17,367
Total	5,360,764	100.0%	100.0%		

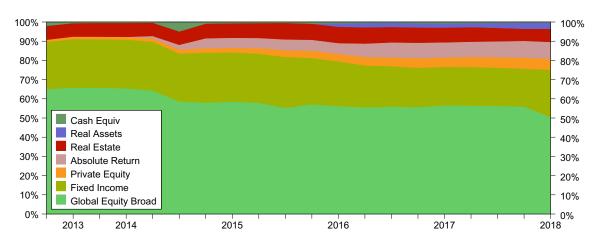
<sup>\*</sup> Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



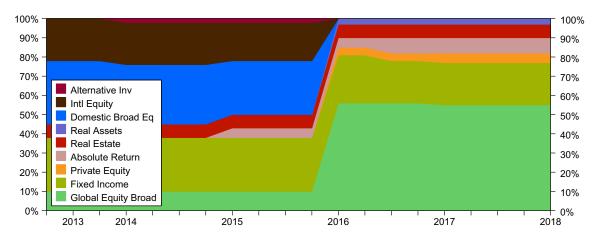
## **Actual vs Target Historical Asset Allocation**

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.

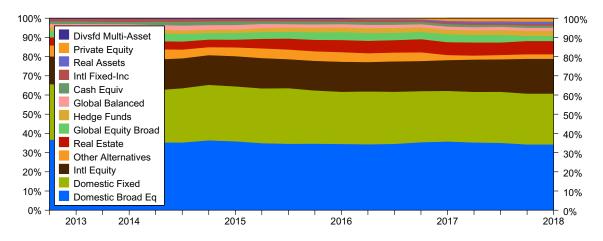
#### **Actual Historical Asset Allocation**



#### **Target Historical Asset Allocation**



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



<sup>\*</sup> 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 March 31, 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 0.02% return for the quarter placing it in the 20 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 15 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Reference Index by 0.33% for the quarter and outperformed the Total Fund Reference Index for the year by 1.20%.

#### **Quarterly Asset Growth**

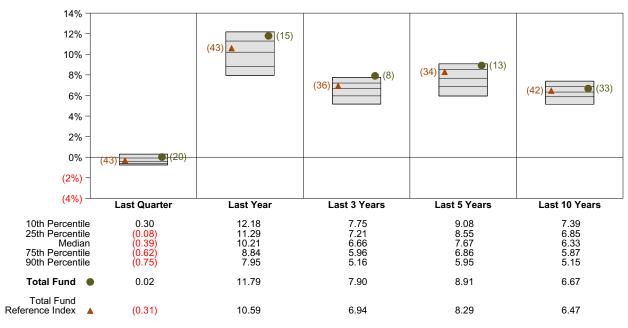
 Beginning Market Value
 \$5,356,416,924

 Net New Investment
 \$4,859,350

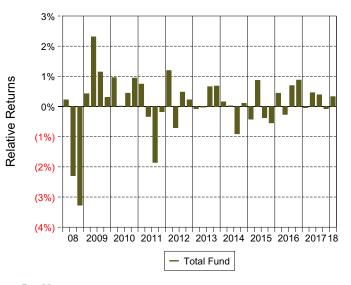
 Investment Gains/(Losses)
 \$-512,432

 Ending Market Value
 \$5,360,763,842

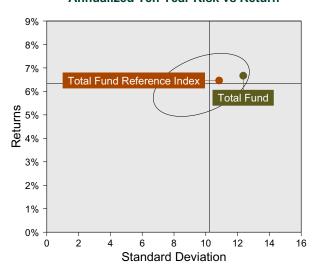
#### Performance vs Callan Public Fund Sponsor Database (Gross)



#### Relative Return vs Total Fund Reference Index



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



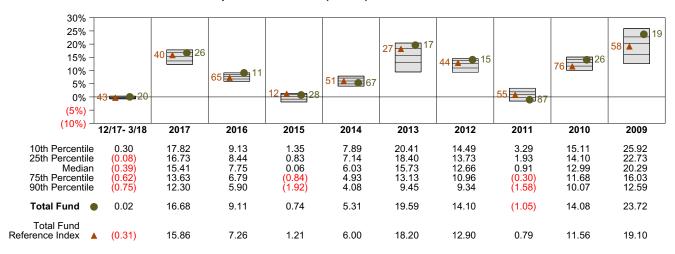


# Total Fund Return Analysis Summary

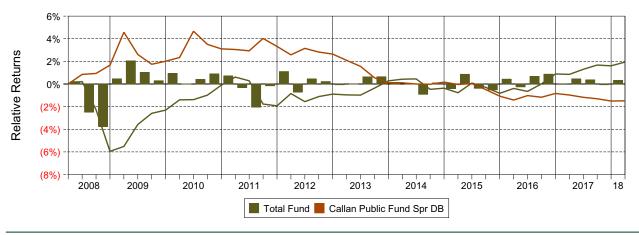
#### **Return Analysis**

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.

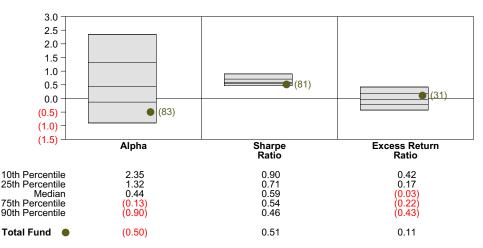
#### Performance vs Callan Public Fund Sponsor Database (Gross)



#### **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 March 31, 2018



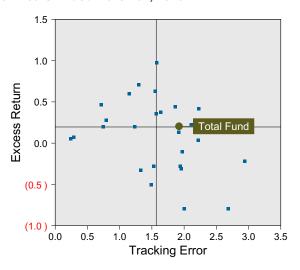


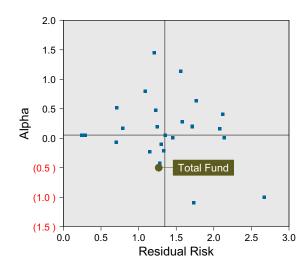
# Total Fund Total Fund vs Target Risk Analysis

#### **Risk Analysis**

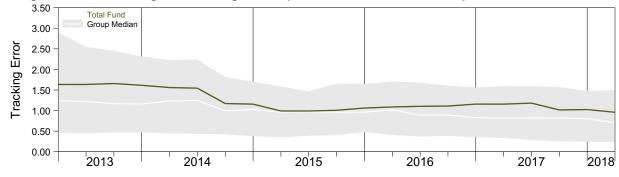
The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return 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 March 31, 2018

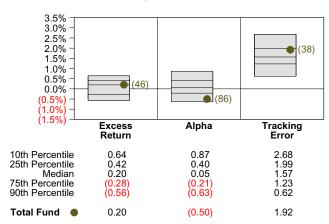


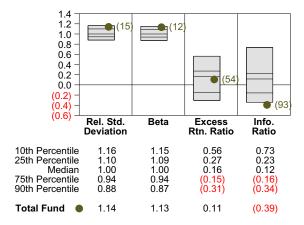


Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended March 31, 2018



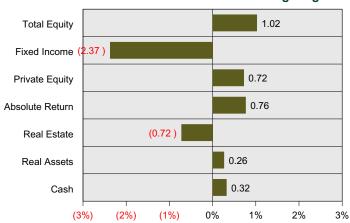




## **Quarterly Total Fund Relative Attribution - March 31, 2018**

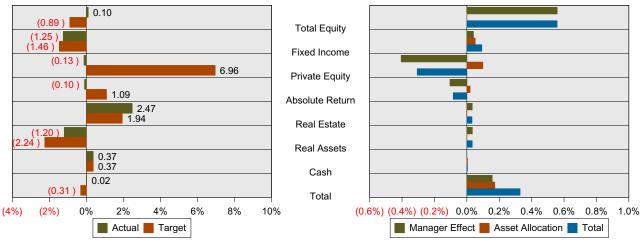
The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation 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.





## **Actual vs Target Returns**

# Relative Attribution by Asset Class



#### Relative Attribution Effects for Quarter ended March 31, 2018

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	56%	55%	0.10%	(0.89%)	0.56%	(0.00%)	0.56%
Fixed Income	20%	22%	(1.25%)	(1.46%)	0.04%	0.05%	0.09%
Private Equity	6%	5%	(0.13%)	`6.96%´	(0.41%)	0.10%	(0.31%)
Absolute Return	9%	8%	(0.10%)	1.09%	(0.10%)	0.02%	(0.08%)
Real Estate	6%	7%	`2.47%′	1.94%	`0.03%′	(0.00%)	0.03%
Real Assets	3%	3%	(1.20%)	(2.24%)	0.03%	(0.00%)	0.03%
Cash	0%	0%	0.37%	0.37%	0.00%	0.00%	0.00%
Total			0.02% =	(0.31%) +	0.16% +	0.17%	0.33%

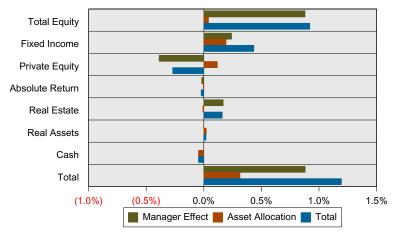
<sup>\*</sup> Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



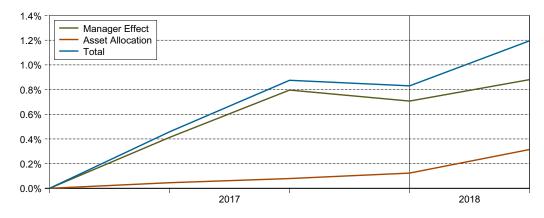
# **Cumulative Total Fund Relative Attribution - March 31, 2018**

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	56%	55%	16.66%	15.03%	0.88%	0.04%	0.92%
Fixed Income	20%	22%	2.33%	1.20%	0.24%	0.19%	0.43%
Private Equity Absolute Return	5% 8%	5% 8%	17.34% 4.01%	24.13% 4.11%	(0.39%) (0.02%)	0.12% (0.00%)	(0.27%) (0.02%)
Real Estate	7%	7%	9.46%	6.92%	0.17%	(0.01%)	0.16%
Real Assets	3%	3%	5.30%	5.37%	(0.00%)	0.02%	0.02%
Cash	0%	0%	2.04%	2.04%	`0.00%	(0.05%)	(0.05%)
Total			11.79% =	= 10.59%	+ 0.88% +	0.31%	1.20%

<sup>\*</sup> 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.



The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended March 31, 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 March 31, 2018

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
Total Domestic Equity Russell 3000 Index	(0.48%) (0.64%)		<b>14.05%</b> 13.81%		<b>10.56%</b> 10.22%		<b>13.13%</b> 13.03%		<b>7.20%</b> (7/98) 6.70% (7/98)
BlackRock Russell 1000 Value Russell 1000 Value Index Callan Large Cap Value	(2.82%) (2.83%) (2.34%)	66 67	7.06% 6.95% 10.27%	90 91	- 7.88% 8.81%	74	- 10.78% 11.85%	81	7.25% (3/17) 5.40% (3/17) -
DFA Large Cap Value Russell 1000 Value Index Callan Large Cap Value	(2.57%) (2.83%) (2.34%)	56 67	- 6.95% 10.27%	91	- 7.88% 8.81%	74	- 10.78% 11.85%	81	4.27% (11/17) 1.60% (11/17) -
Northern Trust Global S&P 500 Index Callan Large Cap Core	(0.76%) (0.76%) (0.47%)	67 67	14.02% 13.99% 13.84%	46 46	10.84% 10.78% 10.01%	27 29	13.37% 13.31% 13.34%	46 51	10.41% (8/88) 10.36% (8/88) -
Polen Capital Management S&P 500 Index Callan Large Cap Growth	3.35% (0.76%) 3.00%	43 100	20.76% 13.99% 22.13%	67 99	14.34% 10.78% 12.15%	12 86	16.20% 13.31% 15.48%	25 91	16.00% (7/12) 14.59% (7/12) -
Earnest Partners LLC Russell MidCap Index Callan Mid Capitalization	0.01% (0.46%) (0.07%)	49 57	17.31% 12.20% 13.59%	33 53	12.75% 8.01% 8.14%	4 51	14.20% 12.09% 12.45%	18 55	11.00% (5/05) 9.89% (5/05) -
DFA Small Cap Value Russell 2000 Value Index Callan Small Cap Value	(2.18%) (2.64%) (2.20%)	48 64	6.93% 5.13% 7.40%	56 69	7.66% 7.87% 8.69%	71 66	11.02% 9.96% 11.78%	70 86	12.30% (11/96) 9.72% (11/96)
CastleArk Management Russell 2000 Growth Index Callan Small Cap Growth	3.82% 2.30% 4.29%	57 77	21.86% 18.63% 22.14%	54 73	7.77% 8.77% 9.91%	78 67	- 12.90% 13.71%	63	11.50% (9/13) 11.93% (9/13) -
Total Global Equity MSCI World	<b>0.43%</b> (1.28%)		<b>21.23%</b> 13.59%		<b>11.24%</b> 7.97%		<b>11.03%</b> 9.70%		<b>9.18%</b> (4/10) 9.24% (4/10)
BlackRock Global Alpha Tilts MSCI ACWI Gross Callan Global Equity	(0.10%) (0.84%) (0.50%)	40 60	20.52% 15.44% 16.84%	25 62	- 8.71% 9.02%	59	- 9.79% 10.78%	73	21.58% (3/16) 18.94% (3/16) -
MFS Investment Management MSCI ACWI Gross Callan Global Equity	1.18% (0.84%) (0.50%)	21 60	22.20% 15.44% 16.84%	18 62	11.61% 8.71% 9.02%	15 59	11.64% 9.79% 10.78%	30 73	12.67% (12/12) 10.95% (12/12) -



The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended March 31, 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 March 31, 2018

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	•
Total International Equity  MSCI EAFE Index	0.64% (1.53%)		17.55% 14.80%		7.99% 5.55%		8.84% 6.50%		7.59% 4.80%	(5/96) (5/96)
AQR Emerging Markets MSCI EM Gross Callan Emerging Broad	2.65% 1.47% 1.62%	17 55	23.53% 25.37% 26.03%	63 57	- 9.21% 10.49%	75	5.37% 6.53%	74	23.24% 21.98% -	(8/16) (8/16)
Brandes Investment Partners MSCI EAFE Index Callan NonUS Eq	2.25% (1.53%) (0.85%)	2 74	13.34% 14.80% 17.40%	88 77	6.33% 5.55% 7.10%	65 84	8.51% 6.50% 7.94%	31 86	8.56% 4.89% -	(2/98) (2/98)
William Blair & Company MSCI ACWI ex-US Index Callan NonUS Eq	(0.12%) (1.08%) (0.85%)	28 61	22.42% 17.05% 17.40%	14 55	7.30% 6.68% 7.10%	46 63	8.05% 6.37% 7.94%	46 87	8.31% 7.53% -	(12/03) (12/03)
DFA International Small Cap Blended Benchmark Callan Intl Small Cap	(2.26%) 0.24% 0.36%	94 51	16.11% 23.49% 24.53%	94 60	10.30% 12.25% 13.00%	86 62	10.37% 11.10% 12.45%	78 70	6.01% 4.38% -	(5/06) (5/06)
<b>Total Fixed Income</b> Blmbg Aggregate	<b>(1.25%)</b> (1.46%)		<b>2.33%</b> 1.20%		<b>2.74%</b> 1.20%		<b>2.32%</b> 1.82%		<b>7.56%</b> 6.29%	(12/87) (12/87)
BlackRock US Debt ldx Fd Blmbg Aggregate Callan Core Bond Fl	(1.47%) (1.46%) (1.36%)	79 77	1.30% 1.20% 1.65%	82 85	- 1.20% 1.62%	94	- 1.82% 2.20%	92	0.08% 0.67% -	(6/16) (6/16)
Reams Asset Management Blmbg Aggregate Callan Core Plus FI	(0.91%) (1.46%) (1.20%)	15 81	1.80% 1.20% 2.31%	78 96	1.99% 1.20% 2.21%	65 100	2.01% 1.82% 2.69%	99 100	5.49% 4.58% -	(1/01) (1/01)
Loomis, Sayles & Company, L.P. Blmbg Aggregate Callan Core Plus Fl	(0.98%) (1.46%) (1.20%)	21 81	4.24% 1.20% 2.31%	2 96	4.60% 1.20% 2.21%	2 100	3.99% 1.82% 2.69%	3 100	9.13% 6.29% -	(12/87) (12/87)
Total Private Equity Abbott Capital Management 2010 Abbott Capital Management 2011 Abbott Capital Management 2012 Abbott Capital Management 2013 Abbott Capital Management 2014 Abbott Capital Management 2015 Abbott Capital Management 2016 Mesirow V Mesirow VI Mesirow VII	(0.13%) 0.00% 0.00% 0.00% 0.00% 0.00% (0.60%) (0.16%) 0.00% (0.69%)		17.34% 19.98% 19.24% 17.97% 18.71% 13.50% 6.87% (0.54%) 21.02% 13.00% (32.91%)		12.62% 14.38% 13.19% 9.76% 8.50% 5.43% 4.10% - 17.35% 3.73%		12.47% 12.53% 9.88% 6.24% - - - 17.45%		7.61% (8.80%) (6.06%) 3.81% 3.46% 0.23% 4.10% (0.92%) 12.80% 2.79%	(6/11) (7/12) (5/13) (4/14) (4/15)
NB Secondary Opp Fund III NB Secondary Opp Fund IV Private Advisors VI Private Advisors VII Russell 3000 (1 Qtr in Arrears) + 3% Absolute Return	(0.62%) 0.00% (0.67%) (1.88%) 6.96% (0.10%)		21.32% (5.14%) 13.10% (5.14%) 24.13% <b>4.01%</b>		18.30% (2.63%) - 14.15% <b>4.26</b> %		- - - - 18.61% -		10.71% (5.14%) (2.63%) (4.14%) 23.49% <b>5.04%</b>	(4/15)
Allianz SA 1000 T-Bills + 10% Callan Abs Rtn Hedge FoF	(4.05%) 2.74% 1.23%	96 1	3.08% 11.11% 4.82%	74 2	7.22% 10.53% 2.67%	1 1	- 10.34% 4.18%	1	8.33% 10.42% -	(6/14) (6/14)
Newton 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	(1.13%) 1.38% 1.23%	92 31	1.89% 5.31% 4.82%	86 31	2.02% 4.72% 2.67%	74 18	- 4.50% 4.18%	40	2.85% 4.62%	(8/14) (8/14)
UBS A & Q 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	2.44% 1.38% 1.23%	1 31	5.35% 5.31% 4.82%	31 31	3.55% 4.72% 2.67%	29 18	- 4.50% 4.18%	40	3.94% 4.66% -	(12/14) (12/14)
Real Assets	(1.20%)		5.30%		-		-		7.00%	(1/16)
Principal DRA Principal Blended Benchmark (1) Callan Alterntive Inv DB Total Real Estate	(1.20%) (2.24%) (0.75%)	57 68	5.30% 5.37% 2.57%	30 30	(0.36%)		- 0.08%		7.00% 6.49% -	(1/16) (1/16)
	2.47%	4.5	9.46%	4.5	11.21%	0.	12.20%		6.66%	(7/86)
Real Estate Blended Benchmark (2) Callan Total Real Est DB	2.47% 1.94% 1.63%	13 33	9.46% 6.92% 6.87%	19 49	11.21% 9.77% 8.84%	21 35	12.20% 10.39% 10.06%	24 47	6.66% - -	(7/86)
Total Fund Total Fund Reference Index*	<b>0.02%</b> (0.31%)		<b>11.79%</b> 10.59%		<b>7.90%</b> 6.94%		<b>8.91%</b> 8.29%		9.64% -	(1/79)

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



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- 3/2018		2017		2016		2015		2014	
Total Domestic Equity Russell 3000 Index	<b>(0.48%)</b> (0.64%)		<b>20.91%</b> 21.13%		<b>13.91%</b> 12.74%		(0.07%) 0.48%		<b>11.63%</b> 12.56%	
BlackRock Russell 1000 Value	(2.82%)	66	-		-		-		-	
Russell 1000 Value Index	(2.83%)	67	13.66%	90	17.34%	26	(3.83%)	70	13.45%	31
Callan Large Cap Value	(2.34%)		17.09%		15.25%		(2.56%)		12.54%	
DFA Large Cap Value	(2.57%)	56	-		-		-		-	
Russell 1000 Value Index	(2.83%)	67	13.66%	90	17.34%	26	(3.83%)	70	13.45%	31
Callan Large Cap Value	(2.34%)		17.09%		15.25%		(2.56%)		12.54%	
Northern Trust Global	(0.76%)	67	21.87%	47	12.01%	21	1.49%	46	13.77%	47
S&P 500 Index	(0.76%)	67	21.83%	48	11.96%	21	1.38%	51	13.69%	48
Callan Large Cap Core	(0.47%)		21.65%		10.42%		1.40%		13.63%	
Polen Capital Management	3.35%	43	27.67%	65	1.70%	72	15.51%	3	17.60%	6
S&P 500 Index	(0.76%)	100	21.83%	98	11.96%	2	1.38%	93	13.69%	25
Callan Large Cap Growth	3.00%		28.84%		3.39%		6.43%		11.82%	
Earnest Partners LLC	0.01%	49	26.16%	23	16.52%	29	1.25%	27	10.38%	46
Russell MidCap Index	(0.46%)	57	18.52%	55	13.80%	42	(2.44%)	67	13.22%	23
Callan Mid Capitalization	(0.07%)		19.58%		12.23%		(0.80%)		9.88%	
DFA Small Cap Value	(2.18%)	48	7.68%	66	29.36%	32	(6.06%)	76	5.04%	67
Russell 2000 Value Index	(2.64%)	64	7.84%	65	31.74%	14	(7.47%)	83	4.22%	82
Callan Small Cap Value	(2.20%)		9.18%		27.86%		(3.73%)		5.81%	
CastleArk Management	3.82%	57	23.93%	59	6.01%	68	(4.90%)	78	6.15%	31
Russell 2000 Growth Index	2.30%	77	22.17%	70	11.32%	36	(1.38%)	50	5.60%	32
Callan Small Cap Growth	4.29%		25.76%		8.62%		(1.29%)		3.40%	
Total Global Equity	0.43%		31.31%		8.65%		(2.08%)		2.32%	
MSCI World	(1.28%)		22.40%		7.51%		(0.87%)		4.94%	
BlackRock Global Alpha Tilts	(0.10%)	40	30.12%	22	-		-		-	
MSCI ACWI Gross	(0.84%)	60	24.62%	57	8.48%	27	(1.84%)	71	4.71%	47
Callan Global Equity	(0.50%)		25.37%		6.21%		0.17%		4.57%	
MFS Investment Management	1.18%	21	33.16%	12	6.06%	52	(0.49%)	60	5.59%	34
MSCI ACWI Gross	(0.84%)	60	24.62%	57	8.48%	27	(1.84%)	71	4.71%	47
Callan Global Equity	(0.50%)		25.37%		6.21%		0.17%		4.57%	



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- 3/2018		2017		2016		2015		2014	
Total International Equity MSCI EAFE Index	0.64% (1.53%)		<b>25.03%</b> 25.03%		<b>5.78%</b> 1.00%		(0.41%) (0.81%)		(3.63%) (4.90%)	
AQR Emerging Markets MSCI EM Gross Callan Emerging Broad	2.65% 1.47% 1.62%	17 55	35.53% 37.75% 39.25%	72 57	- 11.60% 11.55%	49	(14.60%) (13.71%)	63	(1.82%) (1.09%)	62
Brandes Investment Partners MSCI EAFE Index Callan NonUS Eq	2.25% (1.53%) (0.85%)	2 74	16.53% 25.03% 28.18%	99 74	8.50% 1.00% 1.50%	4 57	(1.25%) (0.81%) 0.47%	67 62	(4.45%) (4.90%) (3.88%)	56 61
William Blair & Company MSCI ACWI ex-US Index Callan NonUS Eq	(0.12%) (1.08%) (0.85%)	28 61	31.45% 27.77% 28.18%	22 56	(1.45%) 5.01% 1.50%	82 16	0.18% (5.25%) 0.47%	53 92	(1.77%) (3.44%) (3.88%)	23 47
DFA International Small Cap Blended Benchmark Callan Intl Small Cap	(2.26%) 0.24% 0.36%	94 51	27.98% 33.01% 35.25%	92 74	8.00% 2.18% (0.03%)	8 32	3.99% 9.59% 10.09%	86 56	(4.99%) (4.95%) (3.42%)	67 67
Total Fixed Income Blmbg Aggregate	<b>(1.25%)</b> (1.46%)		<b>5.28%</b> 3.54%		<b>7.40%</b> 2.65%		<b>(2.49%)</b> 0.55%		<b>4.00%</b> 5.97%	
BlackRock US Debt ldx Fd Blmbg Aggregate Callan Core Bond Fl	(1.47%) (1.46%) (1.36%)	79 77	3.68% 3.54% 3.96%	74 85	- 2.65% 3.14%	86	- 0.55% 0.84%	72	- 5.97% 6.19%	69
Reams Asset Management Blmbg Aggregate Callan Core Plus FI	(0.91%) (1.46%) (1.20%)	15 81	3.62% 3.54% 4.97%	95 95	4.38% 2.65% 4.67%	63 100	0.38% 0.55% 0.34%	49 38	4.09% 5.97% 6.18%	97 61
Loomis, Sayles & Company, L.P. Blmbg Aggregate Callan Core Plus Fl	(0.98%) (1.46%) (1.20%)	21 81	8.50% 3.54% 4.97%	1 95	13.97% 2.65% 4.67%	1 100	(6.10%) 0.55% 0.34%	100 38	5.94% 5.97% 6.18%	62 61
Total Private Equity Abbott Capital Management 2010 Abbott Capital Management 2011 Abbott Capital Management 2012 Abbott Capital Management 2013 Abbott Capital Management 2014 Abbott Capital Management 2015 Abbott Capital Management 2016	(0.13%) 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% (0.60%)		17.27% 19.98% 19.24% 17.97% 18.71% 13.50% 6.87% (1.13%)		9.09% 11.03% 10.43% 9.42% 5.25% 2.86% (5.11%)		12.34% 12.32% 10.12% 2.45% 2.23% 0.39%		15.40% 12.36% 9.17% 4.97% (2.17%)	
Mesirow V Mesirow VI Mesirow VII	(0.16%) 0.00% (0.69%)		21.00% 12.50% -		12.03% 3.32% -		19.41% (3.99%)		21.07% 2.22%	
NB Secondary Opp Fund III Private Advisors VI Private Advisors VII Russell 3000 (1 Qtr in Arrears) + 3%	(0.62%) (0.67%) (1.88%) 6.96%		20.63% 13.15% ( <mark>3.33%)</mark> 21.71%		12.83% (1.34%) - 17.97%		33.37% - - 2.56%		19.77% - - 20.79%	
Absolute Return	(0.10%)		5.96%		5.16%		4.92%		-	
Allianz SA 1000 T-Bills + 10% Callan Abs Rtn Hedge FoF	(4.05%) 2.74% 1.23%	96 1	9.67% 10.86% 4.98%	10 5	11.15% 10.33% 3.35%	1 1	9.76% 10.05% (0.75%)	1	- 10.03% 3.78%	1
Newton 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	(1.13%) 1.38% 1.23%	92 31	5.59% 5.11% 4.98%	40 47	3.31% 4.49% 3.35%	52 23	1.50% 4.19% (0.75%)	29 8	- 4.16% 3.78%	39
UBS A & Q 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	2.44% 1.38% 1.23%	1 31	4.16% 5.11% 4.98%	67 47	2.42% 4.49% 3.35%	71 23	4.09% 4.19% (0.75%)	9 8	- 4.16% 3.78%	39
Real Assets	(1.20%)		10.15%		7.00%		-		-	
Principal DRA Principal Blended Benchmark (1) Callan Alterntive Inv DB	(1.20%) (2.24%) (0.75%)	57 68	10.15% 10.38% 4.59%	13 12	7.00% 6.77% 10.65%	69 71	(20.31%)		- (2.44%)	
Total Real Estate	2.47%		9.20%		11.38%		13.44%	_	13.87%	
Real Estate Blended Benchmark (1) Callan Total Real Est DB	2.47% 1.94% 1.63%	13 33	9.20% 6.93% 7.42%	37 55	11.38% 9.69% 8.91%	29 43	13.44% 13.82% 14.21%	54 52	13.87% 11.26% 13.27%	46 62
Total Fund Total Fund Reference Index*	<b>0.02%</b> (0.31%)		<b>16.68%</b> 15.86%		<b>9.11%</b> 7.26%		<b>0.74%</b> 1.21%		<b>5.31%</b> 6.00%	

<sup>\*</sup> 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.



## **Investment Manager Returns**

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 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 March 31, 2018

	Last	Last	Last 3	Last 5	Since
t of Fee Returns	Quarter	Year	Years	Years	Inception
Total Domestic Equity	(0.56%)	13.69%	10.21%	12.77%	6.87% (7/98
Russell 3000 Index	(0.64%)	13.81%	10.22%	13.03%	6.70% (7/98
BlackRock Russell 1000 Value Russell 1000 Value Index	(2.82%) (2.83%)	7.05% 6.95%	7.88%	- 10.78%	7.23% (3/17 5.40% (3/17
DFA Large Cap Value	(2.62%)	0.95%	7.00%	10.76%	5.40% (3/17 4.17% (11/1
Russell 1000 Value Index	(2.83%)	6.95%	7.88%	10.78%	1.60% (11/1
Northern Trust Global	(0.77%)	13.99%	10.82%	13.35%	9.61% (9/94
S&P 500 Index Polen Capital Management	( <mark>0.76%)</mark> 3.22%	13.99% 20.17%	10.78% 13.77%	13.31% 15.63%	9.64% (9/94 15.42% (7/12
S&P 500 Index	(0.76%)	13.99%	10.78%	13.31%	14.59% (7/12
Earnest Partners LLC	(0.12%)	16.69%	12.15%	13.59%	10.18% (5/05
Russell MidCap Index DFA Small Cap Value	(0.46%)	12.20% 6.35%	8.01% 7.08%	12.09% 10.43%	9.89% (5/05 11.63% (11/9
Russell 2000 Value Index	(2.32%) (2.64%)	5.13%	7.06%	9.96%	11.63% (11/9 9.72% (11/9
CastleArk Management	3.65%	21.07%	7.06%	-	10.76% (9/13
Russell 2000 Growth Index	2.30%	18.63%	8.77%	12.90%	11.93% (9/13
Total Global Equity	0.34%	20.80%	10.84%	10.64%	8.73% (4/10
MSCI World BlackRock Global Alpha Tilts	(1.28%) (0.11%)	13.59% 20.46%	7.97%	9.70%	9.24% (4/10 21.52% (3/16
MSCI ACWI Gross	(0.11%)	15.44%	8.71%	9.79%	21.52% (3/16 18.94% (3/16
MFS Investment Management	1.08%	21.71%	11.15%	11.19%	12.22% (12/
MSCI ACWI Gross	(0.84%)	15.44%	8.71%	9.79%	10.95% (12/1
Total International Equity	0.52%	16.99%	7.48%	8.33%	6.80% (5/96
MSCI EAFE Index AQR Emerging Markets	(1. <mark>53%)</mark> 2.46%	14.80% 22.63%	5.55%	6.50%	4.80% (5/96 22.34% (8/16
MSCI EM Gross	1.47%	25.37%	9.21%	5.37%	22.34% (8/16 21.98% (8/16
Brandes Investment Partners	2.14%	12.88%	5.89%	8.06%	7.81% (2/98
MSCI EAFE Index	(1.53%)	14.80%	5.55%	6.50%	4.89% (2/98
William Blair & Company MSCI ACWI ex-US Index	(0.22%) (1.08%)	21.94% 17.05%	6.88% 6.68%	7.63% 6.37%	7.87% (12/ 7.53% (12/
DFA International Small Cap	(2.26%)	16.11%	10.30%	10.37%	5.60% (5/0
Blended Benchmark	0.24%	23.49%	12.25%	11.10%	4.38% (5/06
Total Fixed Income	(1.29%)	2.16%	2.57%	2.16%	6.62% (9/94
Blmbg Aggregate BlackRock US Debt ldx Fd	(1.46%) (1.49%)	1.20% 1.24%	1.20%	1.82%	5.42% (9/94 0.02% (6/16
Reams Asset Management	(0.95%)	1.65%	1.84%	1.86%	5.25% (1/0
Loomis, Sayles & Company, L.P.	(1.01%)	4.10%	4.46%	3.87%	8.32% (9/9
Blmbg Aggregate	(1.46%)	1.20%	1.20%	1.82%	5.42% (9/94
Total Private Equity	(0.13%)	17.34%	12.62%	12.47%	7.61% (6/10
Abbott Capital Management 2010	0.00%	19.98%	14.38%	12.53%	(8.80%) (6/1
Abbott Capital Management 2011 Abbott Capital Management 2012	0.00% 0.00%	19.24% 17.97%	13.19% 9.76%	9.88% 6.24%	(6.06%) (6/1 3.81% (7/1
Abbott Capital Management 2013	0.00%	18.71%	8.50%	-	3.46% (5/1
Abbott Capital Management 2014	0.00%	13.50%	5.43%	-	0.23% (4/1
Abbott Capital Management 2015	0.00% (0.60%)	6.87% (0.54%)	4.10%	-	4.10% (4/1 (0.92%) (3/1
Abbott Capital Management 2016 Mesirow V	(0.16%)	21.02%	17.35%	17.45%	(0.92%) (3/1 12.80% (6/1
Mesirow IV	0.00%	13.00%	3.73%	-	2.79% (7/1
Mesirow VII	(0.69%)	(32.91%)	-	-	- 40.740/
NB Secondary Opp Fund III NB Secondary Opp Fund IV	( <mark>0.62%)</mark> 0.00%	21.32% (5.14%)	18.30%	-	10.71% (12/ (5.14%) (4/1
Private Advisors VI	(0.67%)	13.10%	(2.63%)	- -	(2.63%) (4/1)
Private Advisors VII Russell 3000 (1 Qtr in Arrears) + 3%	(1.88%) 6.96%	<mark>(5.14%)</mark> 24.13%	- 14.15%	- 18.61%	(4.14%) (1/1) 23.49% (1/1)
,					
Absolute Return Allianz SA 1000	(0.10%) (4.05%)	4.01% 3.08%	4.26% 7.22%	-	5.04% (6/14 8.33% (6/14
T-Bills + 10%	2.74%	11.11%	10.53%	10.34%	10.42% (6/1
Newton	(1.13%)	1.89%	2.02%		2.85% (8/14
1-month LIBOR + 4% UBS A & Q	1.38% 2.44%	5.31% 5.35%	4.72% 3.55%	4.50%	4.62% (8/1 3.94% (12/
1-month LIBOR + 4%	1.38%	5.31%	4.72%	4.50%	3.94% (12/ 4.66% (12/
Real Assets	(1.20%)	5.30%	-	-	7.00% (1/1
Principal DRA Principal Blended Benchmark (1)	(1.20%) (2.24%)	5.30% 5.37%	-	-	7.00% (1/10
. ,	, ,		40.000	-	
Total Real Estate	2.42% 2.42%	9.15% 9.15%	10.92% 10.92%	11.88% 11.88%	5.50% (7/86 5.50% (7/86
Real Estate Blended Benchmark (2)	2.42% 1.94%	9.15% 6.92%	9.77%	10.39%	5.50% (7/86 -
Total Fund	(0.05%)	11.48%	7.60%	8.61%	9.26% (1/79
Total Fund Reference Index*	(0.31%)	10.59%	6.94%	8.29%	J.2570 (1/78

<sup>(1)</sup> 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.

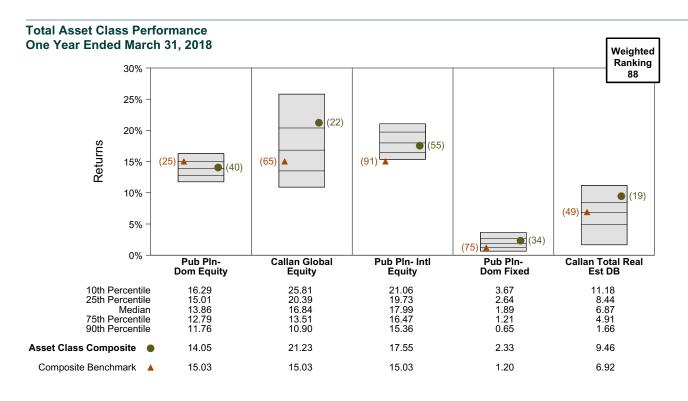
	12/2017- 3/2018	2017	2016	2015	2014
Net of Fee Returns	3/2010	2017	2010	2013	2014
Total Domestic Equity	(0.56%)	20.53%	13.55%	( <mark>0.39%)</mark>	11.28%
Russell 3000 Index	(0.64%)	21.13%	12.74%	0.48%	12.56%
BlackRock Russell 1000 Value Russell 1000 Value Index DFA Large Cap Value	(2.82%) (2.83%) (2.62%)	13.66%	17.34%	(3.83%)	13.45%
Russell 1000 Value Index	(2.83%)	13.66%	17.34%	( <mark>3.83%)</mark>	13.45%
Northern Trust Global	(0.77%)	21.84%	11.99%	1.47%	13.75%
S&P 500 Index	(0.76%)	21.83%	11.96%	1.38%	13.69%
Polen Capital Management	`3.22% <sup>'</sup>	27.05%	1.19%	14.94%	17.02%
S&P 500 Index	(0.76%)	21.83%	11.96%	1.38%	13.69%
Earnest Partners LLC	(0.12%)	25.50%	15.90%	0.71%	9.79%
Russell MidCap Index	(0.46%)	18.52%	13.80%	(2.44%)	13.22%
DFA Small Cap Value	(2.32%)	7.10%	28.68%	(6.57%)	4.47%
Russell 2000 Value Index	(2.64%)	7.84%	31.74%	(7.47%)	4.22%
CastleArk Management	3.65%	23.12%	5.30%	(5.54%)	5.45%
Russell 2000 Growth Index	2.30%	22.17%	11.32%	(1.38%)	5.60%
Total Global Equity MSCI World BlackRock Global Alpha Tilts	0.34% (1.28%) (0.11%)	30.85% 22.40% 30.06%	8.26% 7.51%	(2.44%) (0.87%)	1.95% 4.94%
MSCI ACWI Gross MFS Investment Management MSCI ACWI Gross	(0.84%)	24.62%	8.48%	(1.84%)	4.71%
	1.08%	32.62%	5.62%	(0.89%)	5.17%
	(0.84%)	24.62%	8.48%	(1.84%)	4.71%
Total International Equity MSCI EAFE Index AQR Emerging Markets	0.52% (1.53%) 2.46%	24.44% 25.03% 34.55%	5.27% 1.00%	(0.89%) (0.81%)	(4.09%) (4.90%)
MSCI EM Gross Brandes Investment Partners MSCI EAFE Index	1.47%	37.75%	11.60%	(14.60%)	(1.82%)
	2.14%	16.06%	8.05%	(1.66%)	(4.84%)
	(1.53%)	25.03%	1.00%	(0.81%)	(4.90%)
William Blair & Company MSCI ACWI ex-US Index DFA International Small Cap	(0.22%)	30.94%	(1.84%)	(0.22%)	(2.17%)
	(1.08%)	27.77%	5.01%	(5.25%)	(3.44%)
	(2.26%)	27.98%	8.00%	3.99%	(4.99%)
Blended Benchmark	0.24%	33.01%	2.18%	9.59%	(4.95%)
Total Fixed Income Blmbg Aggregate BlackRock US Debt Idx Fd	(1.29%) (1.46%) (1.49%)	5.10% 3.54% 3.63%	7.21% 2.65%	(2.63%) 0.55%	3.85% 5.97%
Reams Asset Management	(0.95%)	3.46%	4.22%	0.23%	3.94%
Loomis, Sayles & Company, L.P.	(1.01%)	8.36%	13.82%	(6.20%)	5.82%
Blmbg Aggregate	(1.46%)	3.54%	2.65%	0.55%	5.97%
Total Private Equity	(0.13%)	17.27%	9.09%	12.34%	15.40%
Abbott Capital Management 2010	0.00%	19.98%	11.03%	12.32%	12.36%
Abbott Capital Management 2011	0.00%	19.24%	10.43%	10.12%	9.17%
Abbott Capital Management 2012 Abbott Capital Management 2013	0.00%	17.97%	9.42%	2.45%	4.97%
	0.00%	18.71%	5.25%	2.23%	(2.17%)
Abbott Capital Management 2014 Abbott Capital Management 2015 Abbott Capital Management 2016	0.00% 0.00% (0.60%)	13.50% 6.87% (1.13%)	2.86% (5.11%)	0.39%	- - -
Mesirow V	(0.16%)	21.00%	12.03%	19.41%	21.07%
Mesirow VI	0.00%	12.50%	3.32%	(3.99%)	2.22%
Mesirow VII	(0.69%)	-	-	-	-
NB Secondary Opp Fund III	(0.62%)	20.63%	12.83%	33.37%	19.77%
Private Advisors VI	(0.67%)	13.15%	(1.34%)	-	-
Private Advisors VII	(1.88%)	( <mark>3.33%)</mark>	-	-	-
Russell 3000 (1 Qtr in Arrears) + 3% Absolute Return	6.96% (0.10%)	21.71% 5.96%	17.97% 5.16%	2.56% 4.92%	20.79%
Allianz SA 1000 T-Bills + 10% Newton	(4.05%) 2.74% (1.13%)	9.67% 10.86% 5.59%	11.15% 10.33% 3.31%	9.76% 10.05% 1.50%	10.03% -
1-month LIBOR + 4%	1.38%	5.11%	4.49%	4.19%	4.16%
UBS A & Q	2.44%	4.16%	2.42%	4.09%	-
1-month LIBOR + 4%	1.38%	5.11%	4.49%	4.19%	4.16%
Real Assets	(1.20%)	10.15%	7.00%	-	-
Principal DRA	(1.20%)	10.15%	7.00%	-	-
Principal Blended Benchmark (1)	(2.24%)	10.38%	6.77%	-	-
Total Real Estate	2.42%	8.89%	11.09%	13.15%	13.54%
Real Estate	2.42%	8.89%	11.09%	13.15%	13.54%
Blended Benchmark (2)	1.94%	6.93%	9.69%	13.82%	11.26%
Total Fund	(0.05%)	16.36%	8.80%	0.46%	5.02%
Total Fund Reference Index*	(0.31%)	15.86%	7.26%	1.21%	6.00%

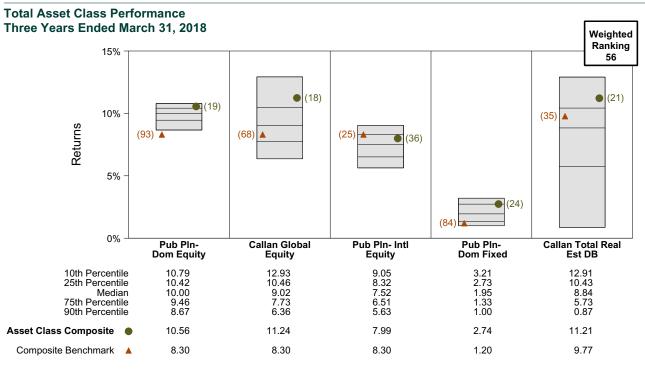
<sup>\*</sup> Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark. (1) Current Principal Blended Benchmark = 35% Barclays US Treasury US TIPS ldx, 15% Bloomberg Commodity ldx, 20% S&P Global Infrastructure ldx, 20% S&P Global Natural Resources ldx and 10% FTSE EPRA/NAREIT Developed Market ldx. (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.



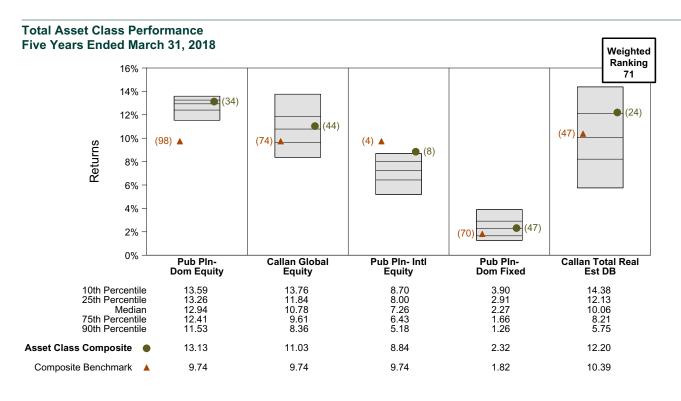


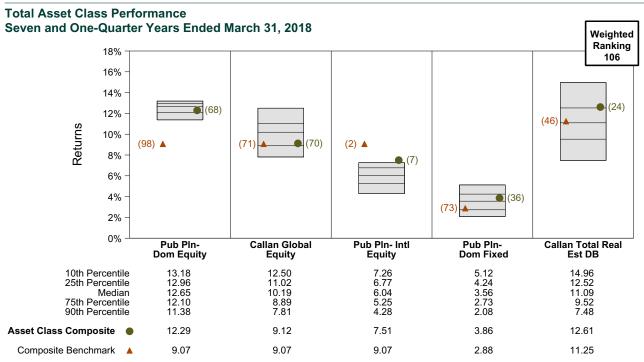
<sup>\*</sup> Current Quarter Target = 55.0% MSCI ACWI IMI, 22.0% Blmbg Aggregate, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 5.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



## **Asset Class Rankings**

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.





<sup>\*</sup> 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 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 to see all of our publications, and www.callan.com/blog to view our blog "Perspectives." For more information contact Corry Walsh at 312.346.3536 / institute@callan.com.

## **New Research from Callan's Experts**



The Callan Periodic Table of Investment Returns | We are pleased to offer both our Classic Periodic Table, depicting annual returns for 10 asset classes ranked from best to worst performance for each calendar year,

and our Collection, offering 10 additional versions, including real estate indices, hedge fund strategy indices, and key indices ranked relative to inflation.

Callan's 2018-2027 Capital Market Projections | Callan develops long-term capital market projections at the start of each year, detailing our expectations for return, volatility, and correlation for broad asset classes. These projections represent our best thinking regarding a longer-term outlook and are critical for strategic planning as our investor clients set investment expectations over five-year, tenyear, and longer time horizons.



How Callan Categorizes Multi-Asset Class Strategies | In the wake of the Global Financial Crisis, a new generation of multi-asset class (MAC) products emerged that emphasized risk manage-

ment and expanded their toolkits to include shorting and derivatives. Callan groups these "outcome-oriented" MACs into four broad categories: Risk Parity, Risk Premia, Absolute Return, and Long Biased.

Treasuries for the Long Run | Callan's James Van Heuit analyzed whether long-term Treasuries can serve as an effective hedge against equity losses. He concluded that long-term Treasuries have a mixed record of offsetting equity risk. The potential protection offered by long-term Treasuries comes with the risk of underperformance over some time periods. Other types of bonds, he found, may offer less protection, but also have less volatility.

**2018 DC Trends Survey** | Callan's 11th Annual DC Trends Survey from our Defined Contribution Group highlights plan sponsors' key themes from 2017 and expectations for 2018.

#### **Periodicals**

**Hedge Fund Monitor, 1st Quarter 2018** | Jim McKee explains Form ADV changes and how to use them to evaluate advisers.

**DC** Observer, 1st Quarter 2018 | Non-qualified deferred compensation plans (NQDCs) may look and sound like qualified defined contribution (DC) plans, but the two are actually quite different. This quarter's commentary explores approaches to designing the NQDC plan investment menu as well as some of the considerations around informally funding the liabilities.

Active vs. Passive Report, 4th Quarter 2017 | This series of charts maps active managers alongside relevant benchmarks over the last two decades.

Market Pulse Flipbook, 4th 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, 4th Quarter 2017 | This quarterly publication provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

**Private Markets Trends, Winter 2018** | This newsletter offers the latest data on activity in private equity fundraising, buyouts, venture capital, and returns for this asset class.

#### **Events**

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

Callan's June **Regional Workshops** will be held on June 12 in San Francisco and June 13 in Denver. Please visit our Event page on our website (https://www.callan.com/events/) for additional information on these workshops.

We've added on-demand webinars to our online research library. Access our library of pre-recorded webinars on specific investment-related topics at www.callan.com/ondemandwebinar/.

For more information about events, please contact Barb Gerraty: 415.274.3093 / 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, July 24-25, 2018 Chicago, October 2-3, 2018

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 or contact Kathleen Cunnie: 415.274.3029 / 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, CEO and CRO





# **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

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
Affiliated Managers Group, Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Artisan Holdings
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
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
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management

Manager Name
Chartwell Investment Partners
Citi US Pension Investments
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Management Investment Advisers, LLC
Columbus Circle Investors
Cove Street Capital LLC
Credit Suisse Asset Management
DePrince, Race & Zollo, Inc.
D.E. Shaw Investment Management, L.L.C.
Deutsche Asset Management
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Mgmt. Co.
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fidelity Management & Research
Fiera Capital Corporation
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments
Franklin Templeton
Franklin Templeton Institutional
Fred Alger Management, Inc.
GAM (USA) Inc.
Geode Capital Management, LLC
GlobeFlex Capital, L.P.
GMO
Goldman Sachs Asset Management

Manager Name Manager Name Green Square Capital LLC Pacific Investment Management Company Pathway Capital Management Guggenheim Investments **Gurtin Municipal Bond Management** Peregrine Capital Management, Inc. **GW&K Investment Management** Perkins Investment Management Harbor Capital Group Trust PGIM **PGIM Fixed Income** Hartford Funds Hartford Investment Management Co. Pier Capital, LLC Heitman LLC PineBridge Investments Henderson Global Investors Pioneer Investments Hotchkis & Wiley Capital Management, LLC PNC Capital Advisors, LLC **HSBC Global Asset Management** Principal Global Investors Income Research + Management, Inc. Private Advisors, LLC IndexIQ/Mainstay Putnam Investments, LLC Insight Investment Management Limited QMA Intech Investment Management, LLC **RBC Global Asset Management** Invesco Regions Financial Corporation **Investec Asset Management** Robeco Institutional Asset Management, US Inc. Ivy Investments Rockefeller & Co., Inc. Janus Henderson Investors Rothschild Asset Management, Inc. Jennison Associates LLC Russell Investments Jensen Investment Management S&P Global, Inc. Jobs Peak Advisors Sands Capital Management J.P. Morgan Asset Management Santander Global Facilities J.P. Morgan Chase & Company Schroder Investment Management North America Inc. KeyCorp **Shelton Capital Management** Lazard Asset Management Smith Graham & Co. Investment Advisors, L.P. Legal & General Investment Management America Smith Group Asset Management Lincoln Advisors South Texas Money Management, Ltd. Lincoln National Corporation Standard Life Investments Limited LMCG Investments, LLC State Street Global Advisors **Longview Partners** Stone Harbor Investment Partners, L.P. Loomis, Sayles & Company, L.P. Sun Life Investment Management Lord Abbett & Company T. Rowe Price Associates. Inc. Los Angeles Capital Management The Boston Company Asset Management, LLC LSV Asset Management The Hartford MacKay Shields LLC The London Company Macquarie Investment Management The TCW Group, Inc. Manulife Asset Management Thompson, Siegel & Walmsley LLC Marathon Asset Management Thornburg Investment Management, Inc. McKinley Capital Management, LLC Tri-Star Trust Bank MFS Investment Management **UBS** Asset Management MidFirst Bank Van Eck Global Mondrian Investment Partners Limited Velanne Asset Management Ltd. Montag & Caldwell, LLC Versus Capital Group Morgan Stanley Investment Management Victory Capital Management Inc. Mountain Lake Investment Management LLC Virtus Investment Partners, Inc. MUFG Union Bank, N.A. Vontobel Asset Management, Inc. Natixis Investment Managers Voya Financial Neuberger Berman Voya Investment Management Newton Investment Management WCM Investment Management Nikko Asset Management Co., Ltd. WEDGE Capital Management Northern Trust Asset Management Wellington Management Company, LLP Nuveen Investments, Inc. Wells Capital Management OFI Global Asset Management Western Asset Management Company Old Mutual Asset Management Westfield Capital Management Company, LP O'Shaughnessy Asset Management, LLC William Blair & Company



P/E Investments