# Callan

September 30, 2016

City of Milwaukee Employes' Retirement System

Investment Measurement Service Quarterly Review

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# Callan



**Third Quarter 2016** 

This "Preview" contains excerpts from the upcoming *Capital Market Review* (CMR) newsletter, which will be published in several weeks.

## Sell in May? No Way!

#### U.S. EQUITY | Mark Wood, CFA

The **S&P 500 Index** rose every month of the third quarter, ending up 3.85%. Small-capitalization companies trounced large cap (**Russell 2000 Index**: +9.05% vs. **Russell 1000 Index**: +4.03%), while growth outpaced value in all capitalizations (**Russell 1000 Growth Index**: +4.58% vs. **Russell 1000 Value Index**: +3.48%; **Russell 2000 Growth Index**: +9.22% vs. **Russell 2000 Value Index**: +8.87%).

The S&P 500 climbed to its all-time high of 2,193 on August 15, ending in positive territory for the fourth quarter in a row.

Continued on pg. 2

## **Calm After the Storm**

#### NON-U.S. EQUITY | Irina Sushch

Following two highly volatile quarters, the third quarter of 2016 bucked the trend—volatility was exceptionally low as investors appeared complacent about continued accommodative central bank policies and steady, albeit slow, economic growth. A risk-on rally led to stock market highs as anxieties about the U.K.'s vote to exit the European Union ("Brexit") dwindled.

In this environment, the **MSCI ACWI ex USA Index** rose 6.91%. In contrast to the previous quarter, economically sensitive sectors fared best, particularly Information Technology (+15.50%) and Materials (+12.56%). Health Care was the only sector in

Continued on pg. 3

## **Broad Market Quarterly Returns**



Sources: Bloomberg Barclays, Citigroup, Merrill Lynch, MSCI, Russell Investment Group

## **Quantity, not Quality**

#### U.S. FIXED INCOME | Rufash Lama

During the third quarter, bond investors shook off concerns about the economy and developed a strong appetite for risk in their pursuit of yield. Companies took advantage of low rates and issued record supplies of new bonds. The Fed continued to push off a rate hike, citing a desire for further evidence of continued economic recovery.

Continued on pg. 4

## **Short End of the Stick**

#### NON-U.S. FIXED INCOME | Kyle Fekete

Sovereign bond markets strengthened during the third quarter, with emerging market bonds outmuscling the developed markets as investors sought yield. Major currencies were mixed as the British pound suffered following the Brexit.

In an extraordinary effort to stimulate economic growth and inflation, the Bank of Japan introduced a 0% yield-target for 10-year bonds, aiming to exceed its 2% inflation objective. The central bank also intends to maintain its negative short rate stance in an

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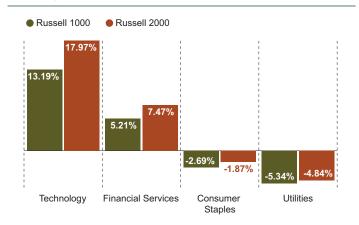
## U.S. Equity: Sell in May? No Way!

Continued from pg. 1

The early days of the quarter were characterized by a strong rebound in equity markets following the late June vote in the U.K. to leave the European Union ("Brexit"). Market volatility (as measured by VIX) spiked in the immediate aftermath but retreated just as quickly as investors absorbed the shock. The swift pivot, coupled with optimism over U.S. economic prospects and easing fears on China, led to a risk-on environment. July produced the strongest returns of the quarter across market capitalizations; August and September traded in a narrow (but ultimately positive) range as markets anticipated the Fed's interest rate decision in mid-September, which was to forego a rate hike. Foreign developed market indices outperformed the S&P 500 and, consistent with the quarter's risk-on theme, emerging markets were the top performers.

Size was the single biggest determinant of performance. Smaller companies did better—micro, small, and mid-capitalization companies outpaced large-cap stocks (**Russell Microcap Index**: +11.25%, Russell 2000 Index: +9.05%, **Russell Midcap Index**: +4.52%, and Russell 1000 Index: +4.03%). Additionally, after two strong quarters value underperformed growth in all capitalizations (Russell 2000 Value Index: +8.87% and Russell 2000 Growth Index: +9.22%). The dispersion in style returns was narrow across market capitalizations, with the widest (110 bps) in large cap (Russell

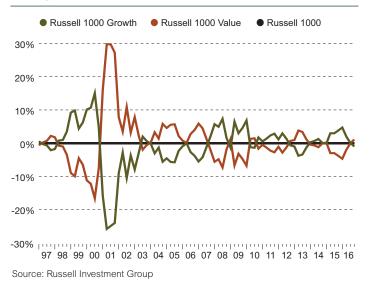
#### **Quarterly Performance of Select Sectors**



Source: Russell Investment Group

#### **Rolling One-Year Relative Returns**

(vs. Russell 1000)



1000 Growth minus Russell 1000 Value). Defensive and highdividend yield exposures sold off during the third quarter but have performed well year-to-date due to the increased global economic uncertainty earlier in 2016.

Sector performance reflected the shift in risk attitudes. Among the worst-performing sectors in the S&P 500 during the quarter were Utilities (-0.7%), Consumer Staples (-0.7%), and Telecom (+1.0)—all sectors associated with lower volatility and higher dividend yields. After a strong performance in the second quarter, Energy retreated, posting a 1.9% loss for the quarter. The more growth-oriented, risk-on sectors, Technology (+7.9%) and Health Care (+4.9%), were the top performers. In a new development, REITs and other listed real estate companies were extracted from the Financials sector and elevated to a new Real Estate sector in the Global Industry Classification Standard (GICS). The new sector, representing 3.1% of the S&P 500, had a tough start, finishing down 2.1%.

The U.S. equity market continued to rise, even as investor sentiment wavered between positive and negative over the course of the quarter. Active managers continue to find it a difficult environment to outperform as macro factors dominated price activity and performance in equity markets.

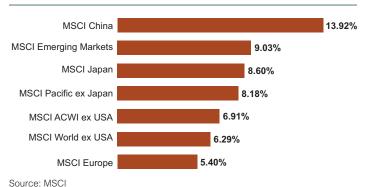
## Non-U.S. Equity: Calm After the Storm

Continued from pg. 1

the red (-1.96%), although its defensive counterparts, Utilities (+0.20%) and Telecommunications (+0.43%), faltered as well. Consistent with the quarter's risk-on theme, emerging markets (MSCI Emerging Markets Index: +9.03%) outpaced their developed peers (MSCI World ex USA Index: +6.29%), even excluding Canada (MSCI EAFE Index: +6.43%). The MSCI ACWI ex USA Value Index (+7.79%) overcame the MSCI ACWI ex USA Growth Index (+6.06%) for the first time since the second quarter of 2014. Small-cap stocks shot up into the black (MSCI ACWI ex USA Small Cap Index: +7.91%), finishing near the top among major non-U.S. indices.

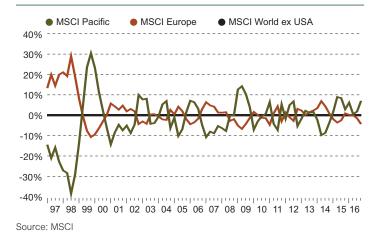
Equity markets across Europe crashed following the unexpected vote for Brexit but regained ground quickly as it became clear the aftermath of the referendum was not immediately catastrophic. British Prime Minister David Cameron resigned and was replaced by Theresa May, who pledged that the U.K. would go through with exiting the European Union, but not hastily. The Bank of England sprang into action to support the economy, and the European Central Bank offered reassurance that it too would work to bolster growth. The MSCI Europe Index climbed 5.40%, with the strong performers including Austria (+16.66%), Germany (+10.01%), Spain (+9.32%), the Netherlands (+9.11%), and even the U.K. (+3.98%). Their vigor was attributed to better-than-expected earnings from Information Technology giants, improving commodity prices, rallying financial stocks, and a swell of M&A activity. European Health Care stocks stumbled (-3.09%) due to intensified global scrutiny during the U.S. election; Denmark, where a large





#### **Rolling One-Year Relative Returns**

(vs. MSCI World ex USA, USD hedged)



health care company makes up approximately 20% of the country's index, was particularly hard hit, dropping 6.27%.

Southeast Asia and the Pacific enjoyed a buoyant quarter as well; the MSCI Pacific Index was up 8.46%. Japanese equities rallied during the quarter, ascending 8.60% due to new central bank policies and a fresh stimulus package. Additionally, Consumer Discretionary, IT, and Materials stocks surged due to strong earnings growth in several gaming and automobile companies. Australia (+7.91%) and New Zealand (+12.44%) also performed well as megabanks and commodities gained ground.

Emerging markets shot up in the accommodative macroeconomic environment (MSCI Emerging Markets Index: +9.03%). The top sector was IT, surging 16.08%. The stocks of smartphone manufacturers and technology component suppliers soared, boosting the Asian markets, including Taiwan (+11.70%) and South Korea (+10.98%). China was one of the biggest beneficiaries (+13.92%), thanks to its burgeoning internet giants. Latin America was relatively sluggish this quarter (+5.37%) but was propped up by Brazil, which shot up another 11.31%, skyrocketing 62.90% year-to-date. Hopes for economic change run high under Michel Temer, who replaced the impeached Dilma Rousseff as president. Russia did not miss out on the rally, up 8.43%. However, Turkey, the Philippines, and Malaysia were all in the red as political turmoil continued to afflict the countries (-5.26%, -5.33%, and -1.52%, respectively). Mexico also dwindled -2.24% as the peso fell 5% against the dollar.

## U.S. Fixed Income: Quantity, not Quality

Continued from pg. 1

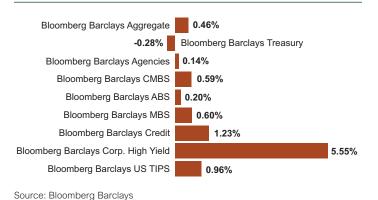
For the quarter, the **Bloomberg Barclays High Yield Index** returned 5.55% while the **Bloomberg Barclays U.S. Aggregate Index** managed to rise a mere 0.46%.

Driven by Brexit-induced concerns, the yield on the benchmark 10-year Treasury note hit a record low of 1.37% in July; however, it rose for the remainder of the quarter and closed at 1.60%. While the Fed left the federal funds rate unchanged (between 0.25% and 0.50%), its announcement was noteworthy because of the high level of disagreement; the three dissenting votes were the most since December 2014. Based on federal funds futures contracts, traders are betting there is a 17% chance of a rate hike at the next meeting in November but a 67% chance at the meeting after that, in December.

Yields varied across the maturity spectrum during the quarter: While Treasury rates rose along the entire yield curve in August, the curve steepened in September as the 2-year fell by 4 basis points to 0.76% and the 30-year rose by 8 basis points to end at 2.32%. Intermediate Treasuries (-0.26%) outperformed long Treasuries (-0.36%) during the quarter.

Credit spreads tightened during the quarter and yields inched toward historic lows. High-yield corporates were the strongest performer with a 5.55% jump. Despite record issuances in August, the credit sector gained 1.23% for the quarter and

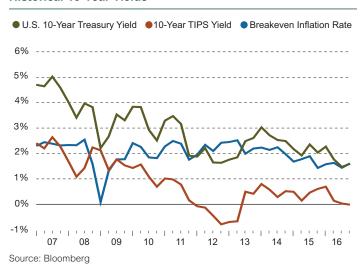
**Fixed Income Index Quarterly Returns** 



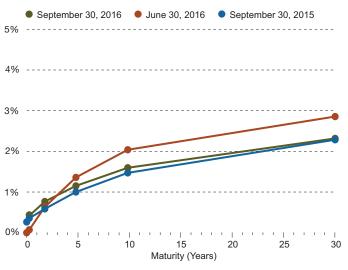
outperformed MBS (+0.60%) and CMBS (+0.59%). Industrials beat Utilities and Financials on a duration-adjusted basis. Treasuries ended the quarter in the red (-0.28%).

Investment-grade corporate issuance totaled \$340 billion for the quarter, setting a record. CMBS and municipal markets also demonstrated robust supply. By the end of September, year-todate corporate investment-grade bond issuance was 8% ahead of last year's pace. And the record supplies in issuances were met with strong demand as investors snapped up bonds.

#### **Historical 10-Year Yields**



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



Source: Bloomberg

# Non-U.S. Fixed Income: Short End of the Stick

Continued from pg. 1

effort to steepen the yield curve and thus help increase profitability for banks. The bank's governor termed the new policy a "reinforcement" of its quantitative easing (QE) program. Central banks have typically targeted short-term rates in QE programs, focusing on maturities of less than a year. Yield on the 10-year government bond settled at -0.09% at the end of the quarter.

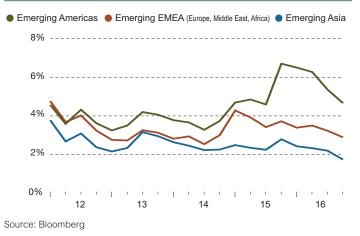
Overall, the European sovereign bond market was flat as the European Central Bank left interest rates unchanged. The Bloomberg Barclays Global Aggregate Index rose 0.82% (+0.53% hedged). The ECB committed to a monthly QE program of buying €80 billion in government bonds, asset-backed securities, and corporate debt through March 2017; however, President Mario Draghi announced a review of the program to ensure investable assets would not dry up. Yield on the German 10-year bund notched up a basis point to -0.12%. There is now over \$12 trillion of negative-yielding debt globally, with Japan accounting for nearly half and Western Europe—namely France, Germany, and the Netherlands—the other half. Investors' sustained hunt for yield was evident in European bond pricing as periphery government Treasuries tended to decline more than their core euro zone counterparts. The Spanish and Italian 10-year yields declined 28 bps and 7 bps to 0.88% and 1.91%, respectively. The euro increased 1.16% against the U.S. dollar.

The Brexit vote loomed over the market—the British pound plummeted 2.83%—but despite the economic and political uncertainty the "leave" vote left in its wake, data released showed no immediate negative effect on confidence or productivity. Yield on the 10-year gilt fell 12 bps to 0.75%.

The developing markets advanced for the fourth straight quarter in spite of multiple political headwinds. The hard currency **J.P. Morgan EMBI Global Index** climbed 4.04%. In Brazil, Michel Temer took the office of president after the impeachment and removal of his predecessor, Dilma Rousseff, for budgetary indiscretions. Turkey endured a failed coup attempt as well as

## **Emerging Spreads Over Developed**

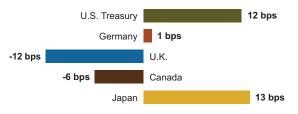
(By Region)



#### 10-Year Global Government Bond Yields



Change in 10-Year Yields from 2Q16 to 3Q16



Source: Bloomberg

a downgrade by Moody's to junk status, which cited Turkey's heavy reliance on external financing. Local currency debt, as measured by the **J.P. Morgan GBI-EM Global Diversified Index**, ticked up 2.68%.

## **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of September 30, 2016, with the distribution as of June 30, 2016.

## **Asset Distribution Across Investment Managers**

	September 30	, <b>2016</b>	June 30, 20	016
	Market Value	Weight	Market Value	Weight
Total Domestic Equity	\$1,255,617,513	25.74%	\$1,233,000,259	25.94%
Northern Trust Global	483.496.098	9.91%	478.083.026	10.06%
Cornerstone Investment Partners	174,360,576	3.57%	174,909,611	3.68%
Polen Capital Management	173,446,777	3.55%	176,032,135	3.70%
Earnest Partners LLC				
	127,856,412	2.62%	125,916,316	2.65%
Dimensional Fund Advisors Inc.	201,274,475	4.13%	190,619,451	4.01%
CastleArk Management	95,183,176	1.95%	87,439,719	1.84%
Total Global Equity	\$493,785,833	10.12%	\$507,511,198	10.68%
BlackRock Global Alpha Tilts	295,337,198	6.05%	280.020.508	5.89%
MFS Investment Management	198,448,635	4.07%	227,490,689	4.79%
Гotal International Equity	\$981,508,726	20.12%	\$903,265,773	19.00%
Plack Pack Emerging Markets	Ψ301,300,720	20.12/0		1.24%
BlackRock Emerging Markets	404.074.407	-	59,048,893	1.24%
AQR Emergring Markets	104,074,187	2.13%	<del>_</del>	
Brandes Investment Partners	391,921,338	8.03%	393,213,463	8.27%
William Blair & Company	295,035,454	6.05%	278,692,302	5.86%
Dimensional Fund Advisors Inc.	190,477,748	3.90%	172,311,123	3.63%
Total Fixed Income	\$1,027,144,263	21.05%	\$1,034,272,018	21.76%
BlackRock US Debt Idx Fd	121,246,285	2.49%	120,808,518	2.54%
BlackRock Intermediate Agg	247,525,195	5.07%	246,649,282	5.19%
Reams Asset Management	315,124,926	6.46%	313,757,815	6.60%
Loomis, Sayles & Company, L.P.	343,247,857	7.04%	352,855,903	7.42%
Wellington Management Company	-	=	200,500	0.00%
Total Private Equity	\$223,305,977	4.58%	\$209,090,903	4.40%
Abbott Capital Management 2010	26,305,398	0.54%	25,343,212	0.53%
Abbott Capital Management 2011	38,358,844	0.79%	36,279,805	0.76%
Abbott Capital Management 2012	20,978,293	0.43%	20,840,250	0.44%
Abbott Capital Management 2013	15,125,437	0.31%	14,393,843	0.30%
Abbott Capital Management 2014	11,674,514	0.24%	10,715,262	0.23%
Abbott Capital Management 2015	3,681,372	0.08%	3,375,904	0.07%
Abbott Capital Management 2016	709,379	0.01%	793,125	0.02%
Mesirow V	66,891,354	1.37%	64,578,599	1.36%
Mesirow VI	19,543,889	0.40%	15,235,980	0.32%
NB Secondary Opp Fund III	13,306,162	0.27%	12,988,003	0.27%
Private Advisors	6,731,335	0.14%	4,546,920	0.10%
Absolute Return	\$380,676,454	7.80%	\$333,727,136	7.02%
Allianz SA 1000	105,797,044	2.17%	91,490,830	1.92%
Newton	92,991,182	1.91%	93,202,206	1.96%
UBS A & Q	181,888,227	3.73%	149,034,100	3.14%
Real Assets	\$108,476,923	2.22%	\$106,621,684	2.24%
Principal DRA	108,476,923	2.22%	106,621,684	2.24%
Total Real Estate	\$392,267,801	8.04%	\$402,286,332	8.46%
Real Estate	392,267,801	8.04%	402,286,332	8.46%
Total Cash	\$16,179,584	0.33%	\$23,600,718	0.50%
Cash	16,179,584	0.33%	23,600,718	0.50%

\$4,878,963,074

100.0%



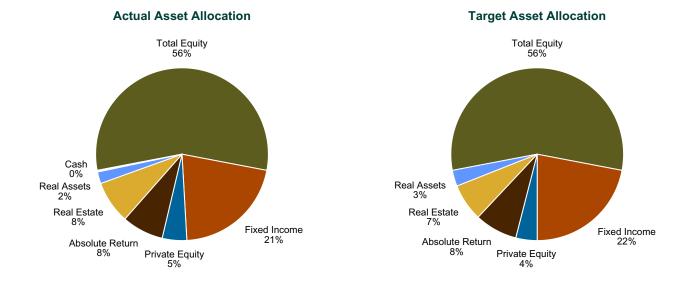
**Total Fund** 

\$4,753,376,021

100.0%

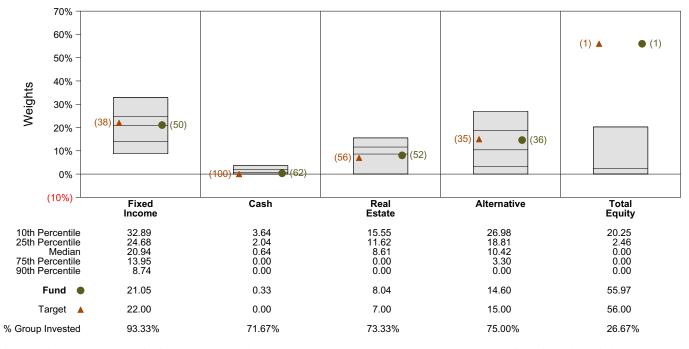
# Actual vs Target Asset Allocation As of September 30, 2016

The top left chart shows the Fund's asset allocation as of September 30, 2016. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the CAI Public Fund Sponsor - Large (>1B).



	\$000s	Weight		Percent	\$000s
Asset Class	Actual	Actual	Target	Difference	Difference
Total Equity	2,730,912	56.0%	56.0%	0.0%	(1,307)
Fixed Income	1,027,144	21.1%	22.0%	(0.9%)	(46,228)
Private Equity	223,306	4.6%	4.0%	`0.6%	28,147
Absolute Return	380,676	7.8%	8.0%	(0.2%)	(9,641)
Real Estate	392,268	8.0%	7.0%	`1.0%´	50,740
Real Assets	108,477	2.2%	3.0%	(0.8%)	(37,892)
Cash	16,180	0.3%	0.0%	0.3%	16,180
Total	4,878,963	100.0%	100.0%		

#### Asset Class Weights vs CAI Public Fund Sponsor - Large (>1B)



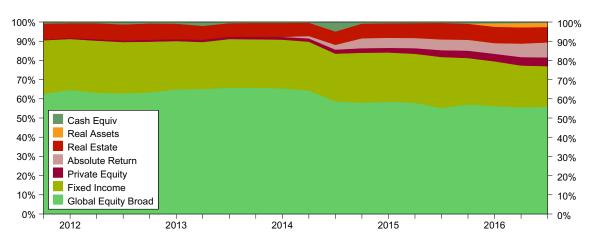
<sup>\*</sup> Current Quarter Target = 56.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate Idx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



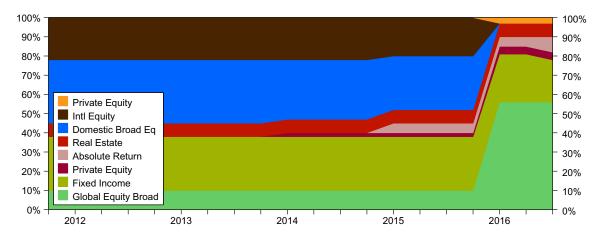
### **Actual vs Target Historical Asset Allocation**

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 CAI Public Fund Sponsor Database.

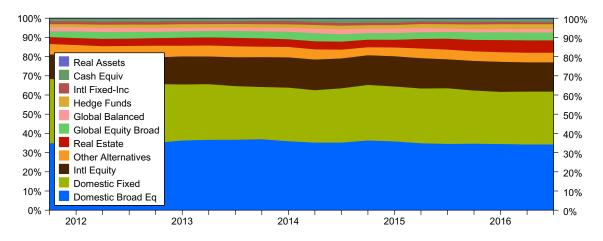
#### **Actual Historical Asset Allocation**



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



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



<sup>\*</sup> Current Quarter Target = 56.0% 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), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



## Total Fund Period Ended September 30, 2016

#### **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 = 56.0% 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), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.

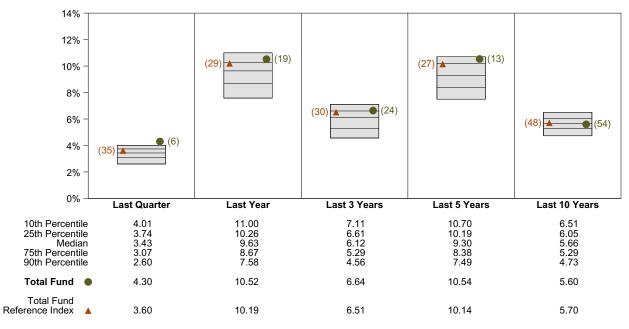
#### **Quarterly Summary and Highlights**

- Total Fund's portfolio posted a 4.30% return for the quarter placing it in the 6 percentile of the CAI Public Fund Sponsor Database group for the quarter and in the 19 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Reference Index by 0.69% for the quarter and outperformed the Total Fund Reference Index for the year by 0.33%.

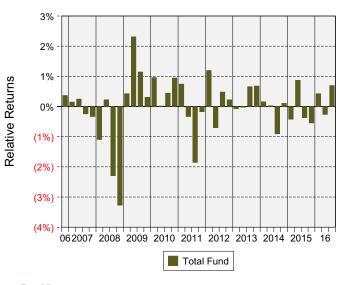
#### **Quarterly Asset Growth**

Beginning Market Value	\$4,753,376,021
Net New Investment	\$-78,152,529
Investment Gains/(Losses)	\$203,739,582
Ending Market Value	\$4,878,963,074

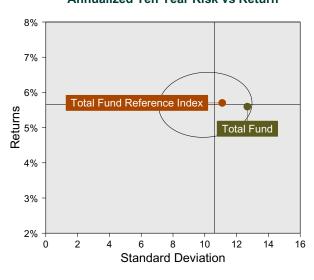
#### Performance vs CAI Public Fund Sponsor Database (Gross)



#### **Relative Return vs Total Fund Reference Index**



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



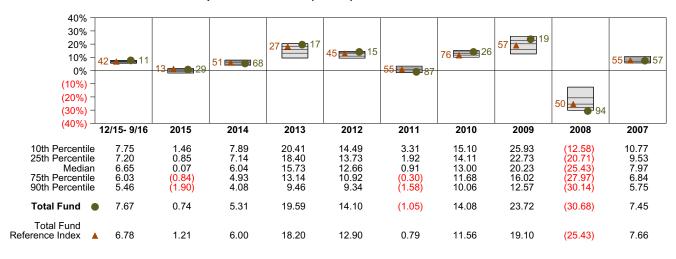


## Total Fund Return Analysis Summary

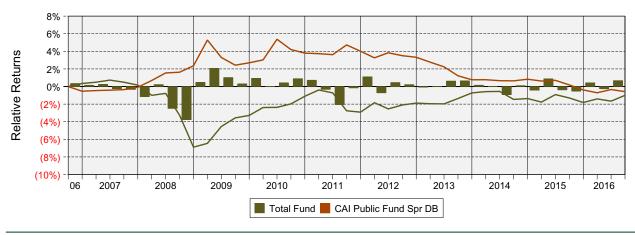
#### **Return Analysis**

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 two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

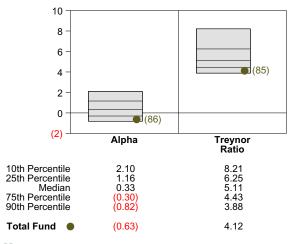
#### Performance vs CAI Public Fund Sponsor Database (Gross)

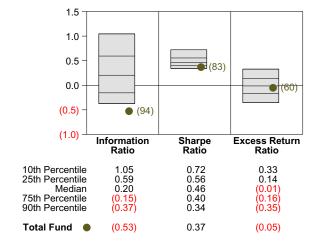


#### Cumulative and Quarterly Relative Return vs Total Fund Reference Index



Risk Adjusted Return Measures vs Total Fund Reference Index Rankings Against CAI Public Fund Sponsor Database (Gross) Ten Years Ended September 30, 2016





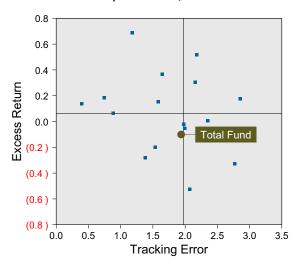


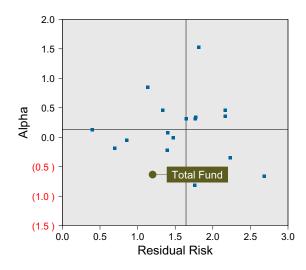
# Total Fund Total Fund vs Target Risk Analysis

#### **Risk Analysis**

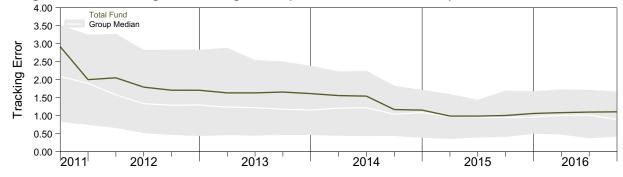
The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return 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 CAI Public Fund Sponsor Database Ten Years Ended September 30, 2016

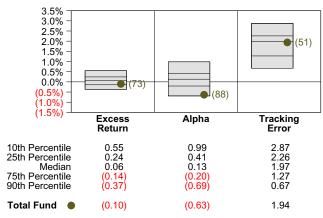


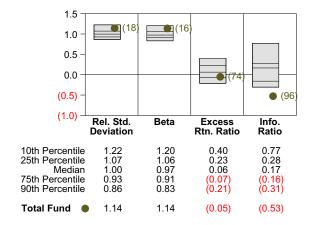


Rolling 12 Quarter Tracking Error vs Targets Compared to CAI Public Fund Sponsor Database



Risk Statistics Rankings vs Targets Rankings Against CAI Public Fund Sponsor Database Ten Years Ended September 30, 2016



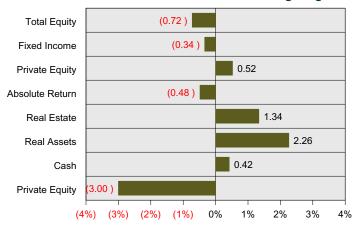




## Quarterly Total Fund Relative Attribution - September 30, 2016

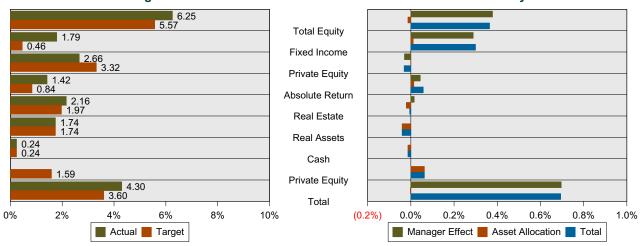
The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation 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 September 30, 2016

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity Fixed Income	55% 22%	56% 22%	6.25% 1.79%	5.57% 0.46%	0.38% 0.29%	( <mark>0.01%)</mark> 0.01%	0.36% 0.30%
Private Equity	5%	4%	2.66%	3.32%	(0.03%)	(0.00%)	(0.03%)
Absolute Return Real Estate	8% 8%	8% 7%	1.42% 2.16%	0.84% 1.97%	0.04% 0.02%	0.01% (0.02%)	`0.06%´ ( <mark>0.01%</mark> )
Real Assets Cash	2% 0%	0% 0%	1.74% 0.24%	1.74% 0.24%	0.00% 0.00%	(0.04%) (0.01%)	(0.04%) (0.01%)
Private Equity	0%	3%	0.00%	1.59%	0.00%	0.06%	0.06%
Total			4.30% =	3.60%	+ 0.70% +	(0.00%)	0.69%

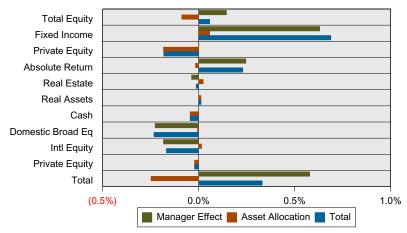
<sup>\*</sup> Current Quarter Target = 56.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate Idx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



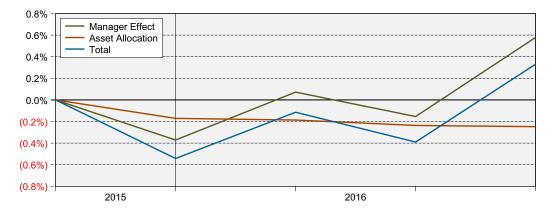
## **Cumulative Total Fund Relative Attribution - September 30, 2016**

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	44%	44%	12.31%	12.38%	0.15%	(0.09%)	0.06%
Fixed Income	23%	25%	8.00%	5.19%	0.63%	0.06%	0.69%
Private Equity	4%	3%	6.24%	5.20%	0.00%	(0.18%)	(0.18%)
Absolute Return	6%	6%	7.10%	3.27%	0.25%	(0.02%)	0.23%
Real Estate	8%	7%	10.80%	11.24%	(0.04%)	0.02%	(0.01%)
Real Assets	1%	0%	-	-	`0.00%	0.01%	`0.01%´
Cash	1%	0%	1.88%	1.88%	0.00%	(0.04%)	(0.04%)
Domestic Broad Eq	7%	7%	-	-	(0.23%)	(0.01%)	(0.23%)
Intl Equity .	5%	5%	-	-	(0.18%)	0.02%	(0.17%)
Private Equity	0%	2%	-	-	0.00%	(0.02%)	(0.02%)
Total			10.52% =	10.19% +	0.58% +	(0.25%)	0.33%

<sup>\*</sup> Current Quarter Target = 56.0% 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), 4.0% 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 September 30, 2016. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns and Rankings for Periods Ended September 30, 2016

					Last		Last		0.
	Last Quarter		Last Year		3 Years		5 Years		Since Inception
Total Domestic Equity	5.68%		13.72%		10.08%		15.87%		6.41% <sub>(7/98)</sub>
Russell 3000 Index	4.40%		14.96%		10.44%		16.36%		5.95% (7/98)
Northern Trust Global	3.86%	65	15.50%	16	11.24%	28	16.45%	41	10.10% (8/88)
S&P 500 Index	3.85%	65	15.43%	16	11.16%	31	16.37%	44	10.05% (8/88)
CAI Large Cap Core	4.55%		12.77%		10.64%		16.13%		-
Cornerstone Investment Partners	7.22%	4	11.03%	73	4.03%	100	-		10.14% (6/12)
S&P 500 Index	3.85%	48	15.43%	20	11.16%	6	16.37%	36	14.75% (6/12)
CAI Large Cap Value	3.78%		13.71%		8.99%		15.88%		-
Polen Capital Management	4.79%	62	10.42%	68	15.72%	3	-		14.68% (7/12)
S&P 500 Index	3.85%	80	15.43%	8	11.16%	44	16.37%	49	13.97% (7/12)
CAI Large Cap Growth	5.28%		11.27%		10.85%		16.24%		-
Earnest Partners LLC	5.52%	31	16.13%	13	10.71%	16	16.71%	36	9.78% (5/05)
Russell MidCap Index	4.52%	52	14.25%	25	9.70%	35	16.67%	36	9.36% (5/05)
CAI Mid Capitalization	4.61%		10.59%		8.66%		15.73%		-
Dimensional Fund Advisors Inc.	8.23%	29	14.84%	62	7.30%	63	17.52%	39	12.19% (11/96)
Russell 2000 Value Index	8.87%	21	18.81%	18	6.77%	80	15.45%	75	9.49% (11/96)
CAI Small Cap Value	7.64%		15.90%		7.92%		17.11%		-
CastleArk Management	8.86%	41	6.53%	70	5.38%	53	-		7.91% (9/13)
Russell 2000 Growth Index	9.22%	36	12.12%	35	6.58%	38	16.15%	47	8.75% (9/13)
CAI Small Cap Growth	7.85%		8.73%		5.47%		15.82%		-
Total Global Equity	5.22%		14.56%		5.57%		11.25%		6.89% (4/10)
MSCI World Index	4.87%		11.36%		5.85%		11.63%		7.98% (4/10)
BlackRock Global Alpha Tilts	5.47%	55	-		-		-		14.03% (3/16)
MSCI World Index	4.87%	68	11.36%	48	5.85%	60	11.63%	64	13.11% (3/16)
CAI Global Eq Broad Style	5.75%		11.23%		6.25%		12.38%		-
MFS Investment Management	4.89%	68	15.80%	12	7.37%	27	-		10.34% (12/12)
MSCI ACWI Idx	5.43%	55	12.60%	34	5.74%	62	11.23%	72	8.97% (12/12)
CAI Global Eq Broad Style	5.75%		11.23%		6.25%		12.38%		-



The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended September 30, 2016. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns and Rankings for Periods Ended September 30, 2016

					Last		Last			
	Last		Last		3		5		Since	
Total lutamentianal Familia	Quarter		Year		Years		Years		Inception	
Total International Equity  MSCI EAFE Index	<b>7.56%</b> 6.43%		<b>9.99%</b> 6.52%		<b>2.78%</b> 0.48%		<b>9.60%</b> 7.39%		<b>6.96%</b> 4.13%	(5/96) (5/96)
Brandes Investment Partners MSCI EAFE Index CAI Non-U.S. Eq. Style	7.14% 6.43% 6.77%	38 62	8.72% 6.52% 7.94%	41 62	1.78% 0.48% 2.16%	55 80	8.35% 7.39% 8.75%	61 80	8.11% 4.17% -	(2/98) (2/98)
William Blair & Company MSCI ACWI ex-US Index CAI Non-U.S. Eq. Style	5.86% 7.00% 6.77%	73 42	7.77% 9.80% 7.94%	51 32	2.88% 0.64% 2.16%	32 77	9.82% 6.52% 8.75%	29 90	7.38% 6.59% -	(12/03) (12/03)
Dimensional Fund Advisors Inc. Blended Benchmark CAI Intl Small Cap	10.54% 8.64% 7.99%	6 35	10.46% 12.33% 11.38%	62 38	4.19% 5.08% 6.12%	79 71	11.65% 11.07% 12.77%	73 79	4.46% 2.45% -	(5/06) (5/06)
Total Fixed Income BB Barclays Capital Aggregate	<b>1.79%</b> 0.46%		<b>8.00%</b> 5.19%		<b>3.73%</b> 4.03%		<b>4.19%</b> 3.08%		<b>7.90%</b> 6.66%	(12/87) (12/87)
BlackRock US Debt ldx Fd BB Barclays Aggregate ldx CAI Core Bond FI	0.36% 0.46% 0.70%	87 84	- 5.19% 5.65%	83	4.03% 4.36%	84	3.08% 3.73%	97	0.36% 0.46% -	(7/16) (7/16)
BlackRock Intermediate Agg BB Barclays Capital Int Aggregate CAI Intermediate FI	0.36% 0.31% 0.26%	39 42	3.68% 3.57% 3.83%	66 70	3.23% 3.09% 3.05%	25 40	2.70% 2.56% 2.85%	70 81	5.09% 4.98% -	(7/99) (7/99)
Reams Asset Management BB Barclays Capital Aggregate CAI Core Plus FI	0.44% 0.46% 1.36%	100 100	5.83% 5.19% 6.55%	81 96	3.93% 4.03% 4.61%	98 95	4.12% 3.08% 4.55%	77 100	6.04% 5.10% -	(1/01) (1/01)
Loomis, Sayles & Company, L.P. BB Barclays Capital Aggregate CAI Core Plus FI	4.69% 0.46% 1.36%	1 100	11.70% 5.19% 6.55%	2 96	4.95% 4.03% 4.61%	26 95	6.85% 3.08% 4.55%	1 100	9.37% 6.66% -	(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	2.66% 3.10% 2.63% 2.63% 1.38% 0.76% 0.66% 2.71%		6.24% 9.28% 9.50% 6.20% 2.81% 0.69% (2.29%)		11.77% 11.50% 9.49% 5.43% 0.31%		8.04% 6.31% 0.21% - - - -		6.18% (13.82%) (11.24%) 0.41% (0.94%) (5.21%) 3.39%	(6/11) (7/12) (5/13)
Mesirow V Mesirow VI NB Secondary Opp Fund III Private Advisors Russell 3000 (1 Qtr in Arrears) + 3%	4.19% 2.34% 0.13% (1.20%) 3.38%		7.94% (0.25%) 5.32% (5.04%) 5.20%		17.01% (0.03%) - - 14.40%		12.72% - - - 14.89%		11.75% (0.02%) 6.99% (13.34%) 15.31%	(12/13)
Absolute Return	1.42%		7.10%		-		-		5.58%	(6/14)
Allianz SA 1000 T-Bills + 10% CAI Abs Return Hedge FoF	2.50% 2.50% 2.10%	35 35	14.80% 10.27% 0.97%	1	- 10.11% 3.00%	1	- 10.10% 4.44%	1	10.18% 10.13% -	(6/14) (6/14)
Newton 1-month LIBOR + 4% CAI Abs Return Hedge FoF	( <mark>0.23%)</mark> 1.11% 2.10%	100 84	9.66% 4.41% 0.97%	1	4.25% 3.00%	23	- 4.24% 4.44%	55	5.04% 4.28% -	(8/14) (8/14)
UBS A & Q 1-month LIBOR + 4% CAI Abs Return Hedge FoF	1.71% 1.11% 2.10%	66 84	1.57% 4.41% 0.97%	42 1	4.25% 3.00%	23	- 4.24% 4.44%	55	2.70% 4.30% -	(12/14) (12/14)
Real Assets	1.74%		-		-		-		-	
Principal DRA Principal Blended Benchmark (1) CAI Alternative Invest DB	1.74% 1.57% (0.43%)	35 38	- 6.95% 2.43%	32	0.59% (0.50%)	47	- 3.14% 0.10%	43	12.10% 9.69% -	(2/16) (2/16)
Total Real Estate	2.16%		10.80%		13.10%		11.90%		6.50%	(7/86)
Real Estate Blended Benchmark (2) CAI Total Real Estate DB	2.16% 1.97% 1.62%	30 36	10.80% 11.24% 9.34%	33 31	13.10% 11.81% 11.64%	31 46	11.90% 11.63% 11.74%	47 52	6.50% - -	(7/86)
Total Fund Total Fund Reference Index*	<b>4.30%</b> 3.60%		<b>10.52%</b> 10.19%		<b>6.64%</b> 6.51%		<b>10.54%</b> 10.14%		9.55% -	(1/79)

<sup>\*</sup> Current Quarter Target = 56.0% 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), 4.0% 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.



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.

	12/2015- 9/2016		2015		2014		2013		2012	
Total Domestic Equity	7.78%		(0.07%)		11.63%		33.86%		16.12%	
Russell 3000 Index	8.18%		0.48%		12.56%		33.55%		16.42%	
Northern Trust Global	7.88%	17	1.49%	46	13.77%	47	32.46%	77	16.07%	48
S&P 500 Index	7.84%	17	1.38%	51	13.69%	48	32.39%	77	16.00%	48
CAI Large Cap Core	5.71%		1.41%		13.63%		34.49%		15.89%	
Cornerstone Investment Partners	6.96%	59	(13.54%)	99	8.32%	95	34.87%	46	-	
S&P 500 Index	7.84%	46	1.38%	3	13.69%	27	32.39%	75	16.00%	59
CAI Large Cap Value	7.61%		(2.56%)		12.54%		34.59%		16.78%	
Polen Capital Management	2.32%	64	15.51%	3	17.60%	6	23.45%	99	-	
S&P 500 Index	7.84%	6	1.38%	93	13.69%	25	32.39%	79	16.00%	55
CAI Large Cap Growth	3.69%		6.43%		11.83%		35.60%		16.14%	
Earnest Partners LLC	10.74%	20	1.25%	27	10.38%	46	31.29%	90	16.53%	47
Russell MidCap Index	10.26%	23	(2.44%)	67	13.22%	23	34.76%	63	17.28%	41
CAI Mid Capitalization	6.51%		(0.69%)		9.88%		35.84%		16.26%	
Dimensional Fund Advisors Inc.	12.18%	54	(6.06%)	76	5.04%	67	42.70%	23	22.43%	20
Russell 2000 Value Index	15.49%	15	(7.47%)	83	4.22%	82	34.52%	81	18.05%	50
CAI Small Cap Value	12.74%		(3.73%)		5.93%		38.72%		18.12%	
CastleArk Management	4.75%	63	(4.90%)	78	6.15%	31	-		-	
Russell 2000 Growth Index	7.48%	39	(1.38%)	50	5.60%	32	43.30%	74	14.59%	50
CAI Small Cap Growth	6.52%		(1.29%)		3.41%		46.83%		14.56%	
Total Global Equity	9.44%		(2.08%)		2.32%		24.81%		15.39%	
MSCI The World Index	5.55%		(0.87%)		4.94%		26.68%		15.83%	
MFS Investment Management	10.28%	9	(0.49%)	60	5.59%	34	23.08%	79	-	
MSCI ACWI Idx	7.09%	31	(1.84%)	72	4.71%	47	23.44%	78	16.80%	59
CAI Global Eq Broad Style	5.48%		0.17%		4.57%		27.98%		17.49%	



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.

	12/2015-									
	9/2016		2015		2014		2013		2012	
Total International Equity MSCI EAFE Index	<b>5.87%</b> 1.73%		<b>(0.41%)</b> (0.81%)		<b>(3.63%)</b> (4.90%)		<b>26.26%</b> 22.78%		<b>18.88%</b> 17.32%	
Brandes Investment Partners MSCI EAFE Index CAI Non-U.S. Eq. Style	5.75% 1.73% 3.14%	24 65	(1.25%) (0.81%) 0.48%	67 62	(4.45%) (4.90%) (3.88%)	56 61	29.45% 22.78% 22.49%	8 47	11.97% 17.32% 19.25%	97 70
William Blair & Company MSCI ACWI ex-US Index CAI Non-U.S. Eq. Style	2.77% 6.29% 3.14%	54 20	0.18% (5.25%) 0.48%	53 92	(1.77%) (3.44%) (3.88%)	23 47	21.92% 15.78% 22.49%	54 89	23.79% 17.39% 19.25%	10 69
Dimensional Fund Advisors Inc. Blended Benchmark CAI Intl Small Cap	6.18% 5.19% 4.51%	33 42	3.99% 9.59% 10.05%	86 56	(4.99%) (4.95%) (3.42%)	67 67	32.60% 29.30% 31.13%	35 67	22.79% 20.00% 23.55%	63 79
Total Fixed Income BB Barclays Capital Aggregate	<b>9.64%</b> 5.80%		<b>(2.49%)</b> 0.55%		<b>4.00%</b> 5.97%		<b>(0.53%)</b> (2.02%)		<b>8.82%</b> 4.21%	
BlackRock Intermediate Agg BB Barclays Capital Int Aggregate CAI Intermediate FI	4.21% 4.10% 4.31%	59 67	1.31% 1.21% 1.28%	43 64	4.37% 4.12% 3.47%	9 13	(0.93%) (1.02%) (0.49%)	67 74	3.68% 3.56% 4.89%	86 87
Reams Asset Management BB Barclays Capital Aggregate CAI Core Plus FI	7.29% 5.80% 7.16%	45 94	0.38% 0.55% 0.34%	49 38	4.09% 5.97% 6.18%	97 61	(1.08%) (2.02%) (0.68%)	75 96	7.94% 4.21% 8.29%	61 100
Loomis, Sayles & Company, L.P. BB Barclays Capital Aggregate CAI Core Plus FI	14.44% 5.80% 7.16%	1 94	(6.10%) 0.55% 0.34%	100 38	5.94% 5.97% 6.18%	61 61	2.41% (2.02%) (0.68%)	4 96	15.47% 4.21% 8.29%	1 100
Wellington Management Company CG WGBI Index CAI Global FI (Unhedged)	- 11.07% 9.70%	21	(3.20%) (3.57%) (3.38%)	43 59	(0.55%) (0.48%) 1.29%	90 88	(5.38%) (4.00%) (2.66%)	95 76	3.21% 1.65% 6.61%	90 97
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 Mesirow V Mesirow VI NB Secondary Opp Fund III	5.14% 6.90% 6.89% 5.97% 2.32% 1.17% (5.50%) 6.49% 1.91% 5.41%		12.34% 12.32% 10.12% 2.45% 2.23% 0.39% - 19.41% (3.99%) 33.37%		15.40% 12.36% 9.17% 4.97% (2.17%) - - 21.07% 2.22% 19.77%		8.66% 7.33% 1.20% (2.50%) - - 14.22%		3.44% (1.66%) (5.63%) - - - - 6.65%	
Private Advisors Russell 3000 (1 Qtr in Arrears) + 3%	(3.11%) 12.51%		2.53%		21.19%		- 25.11%		33.90%	
Absolute Return	4.65%		4.92%		-		-		-	
Allianz SA 1000 T-Bills + 10% CAI Abs Return Hedge FoF	7.90% 7.65% 1.45%	1	9.76% 10.05% (0.33%)	1 1	- 10.03% 3.78%	1	- 10.07% 8.92%	34	- 10.11% 6.42%	9
Newton 1-month LIBOR + 4% CAI Abs Return Hedge FoF	8.22% 3.33% 1.45%	1	1.50% 4.19% (0.33%)	29 8	- 4.16% 3.78%	39	- 4.19% 8.92%	89	- 4.24% 6.42%	79
UBS A & Q 1-month LIBOR + 4% CAI Abs Return Hedge FoF	0.87% 3.33% 1.45%	63 1	4.09% 4.19% (0.33%)	9 8	- 4.16% 3.78%	39	- 4.19% 8.92%	89	- 4.24% 6.42%	79
Total Real Estate	8.26%		13.44%		13.87%		13.58%		9.22%	
Real Estate Blended Benchmark (1) CAI Total Real Estate DB	8.26% 7.58% 5.85%	19 26	13.44% 13.82% 14.70%	57 56	13.87% 11.26% 12.61%	45 62	13.58% 10.99% 11.87%	41 59	9.22% 11.00% 10.35%	58 47
Total Fund Total Fund Reference Index*	<b>7.67%</b> 6.78%		<b>0.74%</b> 1.21%		<b>5.31%</b> 6.00%		<b>19.59%</b> 18.20%		<b>14.10%</b> 12.90%	

<sup>\*</sup> Current Quarter Target = 56.0% 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), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark. (1) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.



## **Investment Manager Returns**

The table below details the rates of return for the Fund's investment managers over various time periods ended September 30, 2016. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

#### Returns for Periods Ended September 30, 2016

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
et of Fee Returns	Quarter	i eai	Tears	Tears	псериоп
Total Domestic Equity	5.60%	13.36%	9.73%	15.52%	6.07% (7/98)
Russell 3000 Index	4.40%	14.96%	10.44%	16.36%	5.95% (7/98)
Northern Trust Global	3.86%	15.47%	11.22%	16.43%	9.17% (9/94)
S&P 500 Index	3.85%	15.43%	11.16%	16.37%	9.20% (9/94)
Cornerstone Investment Partners S&P 500 Index	7.11% 3.85%	10.59% 15.43%	3.62% 11.16%	- 16.37%	9.71% (6/12) 14.75% (6/12)
Polen Capital Management	4.66%	9.87%	15.15%	10.37 %	14.75% (6/12)
S&P 500 Index	3.85%	15.43%	11.16%	16.37%	13.97% (7/12)
Earnest Partners LLC	5.38%	15.52%	10.12%	16.08%	8.93% (5/05)
Russell MidCap Index	4.52%	14.25%	9.70%	16.67%	9.36% (5/05)
Dimensional Fund Advisors Inc. Russell 2000 Value Index	8.09%	14.23%	6.73%	16.88%	11.51% (11/96)
CastleArk Management	8.87% 8.68%	18.81% 5.82%	6.77% 4.68%	15.45%	9.49% (11/96) 7.20% (9/13)
Russell 2000 Growth Index	9.22%	12.12%	6.58%	16.15%	8.75% (9/13)
Total Global Equity	5.13%	14.15%	5.19%	10.83%	6.43% (4/10)
MSCI World Index	4.87%	11.36%	5.85%	11.63%	6.43% (4/10) 7.98% (4/10)
BlackRock Global Alpha Tilts	5.46%	-	-	-	14.00% (3/16)
MSCI World	4.87%	11.36%	5.85%	11.63%	13.11% (3/16)
MFS Investment Management	4.78%	15.33%	6.94%	-	9.90% (12/12)
MSCI ACWI Idx	5.43%	12.60%	5.74%	11.23%	8.97% (12/12)
Total International Equity	7.43%	9.47%	2.29%	9.03%	6.16% (5/96)
MSCI EAFE Index Brandes Investment Partners	6.43% 7.03%	6.52% 8.28%	0.48% 1.37%	7.39% 7.91%	4.13% (5/96)
MSCI EAFE Index	6.43%	6.52%	0.48%	7.39%	7.34% (2/98) 4.17% (2/98)
William Blair & Company	5.76%	7.34%	2.47%	9.38%	6.94% (12/03)
MSCI ACWI ex-US Index	7.00%	9.80%	0.64%	6.52%	6.59% (12/03)
Dimensional Fund Advisors Inc.	10.54%	10.46%	4.19%	11.47%	4.01% (5/06)
Blended Benchmark	8.64%	12.33%	5.08%	11.07%	2.45% (5/06)
Total Fixed Income	1.75%	7.81%	3.57%	4.03%	7.01% (9/94)
BB Barclays Capital Aggregate	0.46%	5.19%	4.03%	3.08%	5.85% (9/94)
BlackRock US Debt ldx Fd	0.34% 0.46%	- 5.19%	4.03%	3.08%	0.34% (7/16) 0.46% (7/16)
BB Barclays Aggregate ldx BlackRock Intermediate Agg	0.46%	3.65%	3.20%	2.67%	0.46% (7/16) 5.05% (7/99)
BB Barclays Capital Int Aggregate	0.31%	3.57%	3.09%	2.56%	4.98% (7/99)
Reams Asset Management	0.40%	5.68%	3.77%	3.97%	5.79% (1/01)
Loomis, Sayles & Company, L.P.	4.65%	11.56%	4.83%	6.72%	8.58% (9/94)
BB Barclays Capital Aggregate	0.46%	5.19%	4.03%	3.08%	5.85% (9/94)
Total Private Equity	2.66%	6.24%	11.77%	8.04%	6.18% (6/10)
Abbott Capital Management 2010	3.10%	9.28%	11.50%	6.31%	(13.82%) (6/10)
Abbott Capital Management 2011 Abbott Capital Management 2012	2.63% 2.63%	9.50% 6.20%	9.49% 5.43%	0.21%	(11.24%) (6/11) 0.41% (7/12)
Abbott Capital Management 2013	1.38%	2.81%	0.31%	-	(0.94%) (5/13)
Abbott Capital Management 2014	0.76%	0.69%	-	-	(5.21%) (4/14)
Abbott Capital Management 2015	0.66%	(2.29%)	-	-	3.39% (4/15)
Abbott Capital Management 2016	2.71%	7.040/	- 17.01%	-	- 44.750/
Mesirow V Mesirow IV	4.19% 2.34%	7.94% (0.25%)	(0.03%)	12.72%	11.75% (6/10) (0.02%) (7/13)
NB Secondary Opp Fund III	0.13%	5.32%	(0.0370)	-	6.99% (12/13)
Private Advisors	(1.20%)	(5.04%)	-	-	(13.34%) (4/15)
Russell 3000 (1 Qtr in Arrears) + 3%	3.38%	5.20%	14.40%	14.89%	15.31% (9/10)
Absolute Return	1.42%	7.10%	-	-	5.58% (6/14)
Allianz SA 1000	2.50%	14.80%	-	-	10.18% (6/14)
T-Bills + 10% Newton	2.50% (0.23%)	10.27% 9.66%	10.11%	10.10%	10.13% (6/14) 5.04% (8/14)
1-month LIBOR + 4%	1.11%	4.41%	4.25%	4.24%	5.04% (8/14) 4.28% (8/14)
UBS A & Q	1.71%	1.57%	-	-	2.70% (12/14)
1-month LIBOR + 4%	1.11%	4.41%	4.25%	4.24%	4.30% (12/14)
Real Assets	1.74%	-	-	=	-
Principal DRA Principal Blended Benchmark (1)	1.74% 1.57%	- 6.95%	0.59%	- 3.14%	12.10% (2/16) 9.69% (2/16)
	2.08%		12.79%		
Total Real Estate Real Estate	2.08%	10.52% 10.52%	12.79%	11.56% 11.56%	5.30% (7/86) 5.30% (7/86)
Blended Benchmark (2)	1.97%	11.24%	11.81%	11.63%	J.3U /0 (//86) -
Total Fund	4.23%	10.21%	6.34%	10.23%	9.17% (1/79)
Total Fund Reference Index*	3.60%	10.19%	6.51%	10.14%	- (1/18)

<sup>\*</sup> Current Quarter Target = 56.0% 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), 4.0% 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 consists of 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.

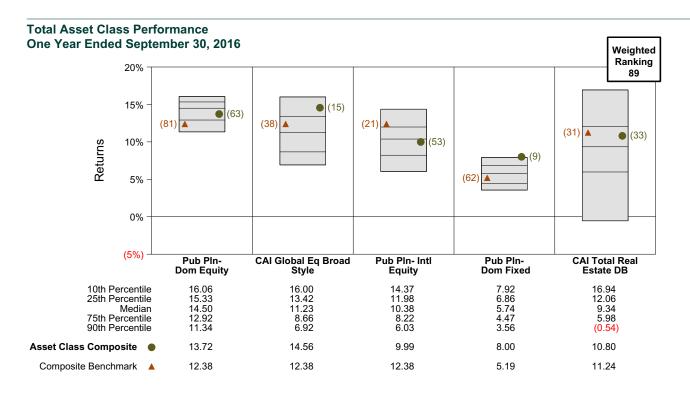
	12/2015-				
	9/2016	2015	2014	2013	2012
Net of Fee Returns					
Total Domestic Equity	7.53%	(0.39%)	11.28%	33.44%	15.82%
Russell 3000 Index	8.18%	0.48%	12.56%	33.55%	16.42%
Northern Trust Global	7.86%	1.47%	13.75%	32.43%	16.04%
S&P 500 Index	7.84%	1.38%	13.69%	32.39%	16.00%
Cornerstone Investment Partners	6.64%	(13.89%)	7.89%	34.35%	-
S&P 500 Index	7.84% 1.94%	1.38%	13.69%	32.39%	16.00%
Polen Capital Management	1.94%	14.94%	17.02%	22.84%	- 16 00%
S&P 500 Index	7.84% 10.30%	1.38% 0.71%	13.69%	32.39%	16.00%
Earnest Partners LLC Russell MidCap Index	10.30%	(2.44%)	9.79% 13.22%	30.60% 34.76%	15.87% 17.28%
Dimensional Fund Advisors Inc.	11.73%	(6.57%)	4.47%	41.95%	21.77%
Russell 2000 Value Index	15.49%	(7.47%)	4.22%	34.52%	18.05%
CastleArk Management	4.22%	(5.54%)	5.45%	34.32 %	10.05%
Russell 2000 Growth Index	7.48%	(1.38%)	5.60%	43.30%	14.59%
Russell 2000 Growth Index	7.40%	(1.30%)	5.00 %	43.30%	14.59%
Total Global Equity	9.15%	(2.44%)	1.95%	24.37%	14.88%
MSCI The World Index	5.55%	(0.87%)	4.94%	26.68%	15.83%
MFS Investment Management	9.95%	(0.89%)	5.17%	22.47%	-
MSCI ACWI	7.09%	(1.84%)	4.71%	23.44%	16.80%
Total International Equity	5.49%	(0.89%)	(4.09%)	25.66%	18.32%
MSCI EAFE Index	1.73%	(0.81%)	(4.90%)	22.78%	17.32%
Brandes Investment Partners	5.42%	(1.66%)	(4.84%)	28.93%	11.51%
MSCI EAFE Index	1.73%	(0.81%)	(4.90%)	22.78%	17.32%
William Blair & Company	2.46%	(0.22%)	(2.17%)	21.36%	23.38%
MSCI ACWI ex-US Index	6.29%	(5.25%)	(3.44%)	15.78%	17.39%
Dimensional Fund Advisors Inc.	6.18%	3.99%	(4.99%)	32.39%	22.26%
Blended Benchmark	5.19%	9.59%	(4.95%)	29.30%	20.00%
Total Fixed Income	9.48%	(2.63%)	3.85%	(0.69%)	8.65%
BB Barclays Capital Aggregate	5.80%	0.55%	5.97%	(2.02%)	4.21%
BlackRock Intermediate Agg	4.18%	1.28%	4.34%	(0.96%)	3.65%
BB Barclays Capital Int Aggregate	4.10%	1.21%	4.12%	(1.02%)	3.56%
Reams Asset Management	7.17%	0.23%	3.94%	(1.23%)	7.78%
Loomis, Sayles & Company, L.P.	14.33%	(6.20%)	5.82%	2.29%	15.33%
BB Barclays Capital Aggregate	5.80%	0.55%	5.97%	(2.02%)	4.21%
Total Private Equity	5.14%	12.34%	15.40%	8.66%	3.44%
Abbott Capital Management 2010	6.90%	12.32%	12.36%	7.33%	(1.66%)
Abbott Capital Management 2011	6.89%	10.12%	9.17%	1.20%	(5.63%)
Abbott Capital Management 2012	5.97%	2.45%	4.97%	(2.50%)	-
Abbott Capital Management 2013	2.32%	2.23%	(2.17%)	` - '	-
Abbott Capital Management 2014	1.17%	0.39%	` <b>-</b>	-	-
Abbott Capital Management 2015	(5.50%)	-	-	-	-
Mesirow V	6.49%	19.41%	21.07%	14.22%	6.65%
Mesirow VI	1.91%	(3.99%)	2.22%	-	-
NB Secondary Opp Fund III	5.41%	33.37%	19.77%	-	-
Private Advisors	(3.11%)	-	-	-	-
Russell 3000 (1 Qtr in Arrears) + 3%	12.51%	2.53%	21.19%	25.11%	33.90%
Absolute Return	4.65%	4.92%	-	-	-
Allianz SA 1000	7.90%	9.76%	-	=	-
T-Bills + 10%	7.65%	10.05%	10.03%	10.07%	10.11%
Newton	8.22%	1.50%	-	-	-
1-month LIBOR + 4%	3.33%	4.19%	4.16%	4.19%	4.24%
UBS A & Q	0.87%	4.09%	-	-	-
1-month LIBOR + 4%	3.33%	4.19%	4.16%	4.19%	4.24%
Total Real Estate	8.05%	13.15%	13.54%	13.15%	8.83%
Real Estate	8.05%	13.15%	13.54%	13.15%	8.83%
Blended Benchmark (1)	7.58%	13.82%	11.26%	10.99%	11.00%
Total Fund	7.44%	0.46%	5.02%	19.26%	13.78%
Total Fund Reference Index*	6.78%	1.21%	6.00%	18.20%	12.90%
Total I und Neierende IIIuex	0.7070	1.41/0	0.00 /0	10.20 /0	12.30 /0

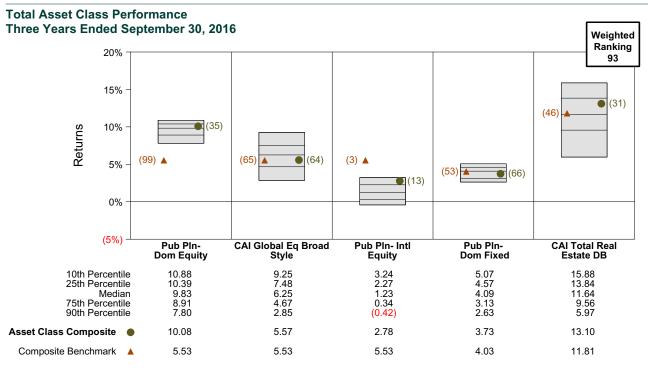
<sup>\*</sup> Current Quarter Target = 56.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate Idx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark. (1) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (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.



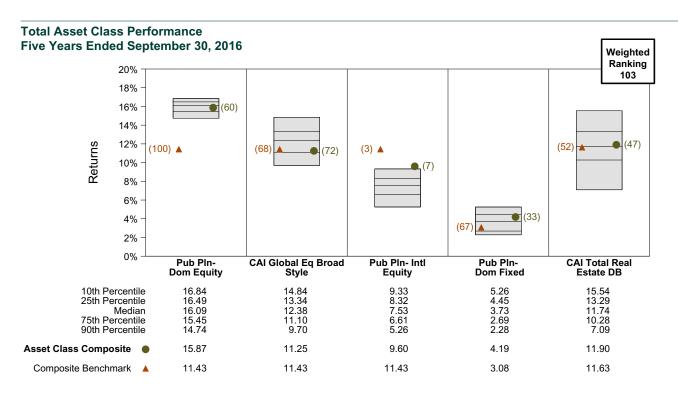


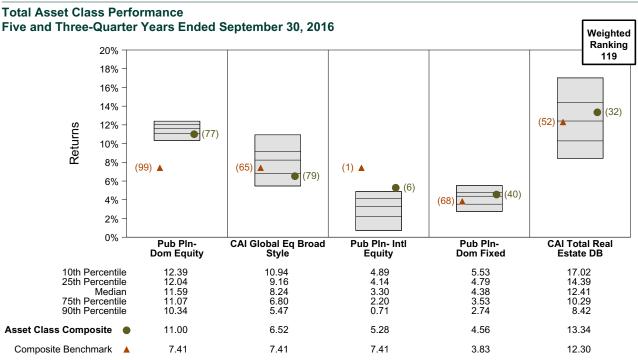
<sup>\*</sup> Current Quarter Target = 56.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate Idx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



### **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 = 56.0% MSCI ACWI IMI, 22.0% BB Barclays Aggregate ldx, 8.0% 3-month Treasury Bill+3.0%, 7.0% NFI-ODCE (1 Qtr in Arrears), 4.0% Russell 3000 (1 Qtr in Arrears)+3.0% and 3.0% Principal Blended Benchmark.



## **Research and Educational Programs**

The Callan Institute provides research that updates clients on the latest industry trends while helping them learn through carefully structured educational programs. Visit www.callan.com/research to see all of our publications, or for more information contact Anna West at 415.974.5060 / institute@callan.com.

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

Built to Last: Strategic Guidance for Effective Investment Committees | Callan offers our high-level strategic advice for investment committees, touching on membership, investment policy statements, review processes, and fiduciary training and ongoing education.

**10 Tips From Successful Investment Committees** | Callan Chairman and CEO Ron Peyton and Consultant Brady O'Connell, CFA, CAIA, offer 10 tips based on their work with successful investment committees.

**Risky Business** | Callan research that found investors over the last 20 years have



had to take on three times as much risk to earn the same return electrified the institutional investing community. We interviewed Jay Kloepfer and Julia Moriarty, CFA, about how the research was done and its implications.

Managing DC Plan Investments: A Fiduciary Handbook Lori Lucas, CFA, covers responsibilities for DC plan fiduciaries, including investment structure, investment policy statements, QDIA oversight, and manager performance.

Ethics 101 for Investment Professionals | Callan Chairman and CEO Ron Peyton outlines his thoughts on how to create, instill, and maintain ethical standards for investment professionals. His advice: the right culture creates the best environment to maintain these standards. Firms should develop ethical guidelines that are based on principles, not rules, since the former offer better guidance for employees across the organization.

#### 2016 Nuclear Decommissioning Funding Study | A report



by Julia Moriarty, CFA, covers 27 investor-owned and 27 public power utilities with an ownership interest in the 99 operating nuclear reactors (and 10 of the non-operating reactors) in the U.S.

How Green Is Your Bond? | Callan Analyst Rufash Lama tackles the area of green bonds, which are fixed income instruments issued specifically to support or finance environmental initiatives.

#### **Periodicals**

**Real Assets Reporter, Summer/Fall 2016 |** This edition explores if the boom in commercial real estate may be ending.

**Private Markets Trends, Summer 2016** | Author Gary Robertson discusses the recent surge in private equity fundraising, an indication that some investors are establishing a defensive hedge as the five-year bull market pulls in its horns.

**DC Observer, 2nd Quarter 2016** | Callan's Defined Contribution Practice Team outlines a framework to evaluate DC transaction fees. We explain how common they are, what they typically cost, and how they are generally paid.

**Hedge Fund Monitor, 2nd Quarter 2016** | Jim McKee, director of Callan's Hedge Fund Research group, discusses the appeal of momentum-based investing strategies in the current climate of considerable economic uncertainty.

#### **Events**

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

Mark your calendars for our fall **Regional Workshop**, October 25 in New York and October 26 in Chicago, and our **National Conference**, January 23–25, 2017, at the Palace Hotel in San Francisco.

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 session is:

#### Introduction to Investments

San Francisco, April 18-19, 2017 San Francisco, July 25-26, 2017 Chicago, October 24-25, 2017

This session familiarizes fund sponsor trustees, staff, and asset management advisors 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 https://www.callan.com/education/college/ or contact Kathleen Cunnie: 415.274.3029 / cunnie@callan.com

## **Education: By the Numbers**

**500** 

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. 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.

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Manager Name
1607 Capital Partners, LLC
Aberdeen Asset Management PLC
Acadian Asset Management LLC
ACR – Alpine Capital Research
AEGON USA Investment Management
AEW Capital Management
Affiliated Managers Group, Inc.
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investment Management
Amundi Smith Breeden LLC
Analytic Investors
Angelo, Gordon & Co.
Apollo Global Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Artisan Holdings
ASB Capital Management Inc.
Ativo Capital Management
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Babson Capital Management
Baillie Gifford Overseas Limited
Baird Advisors
Bank of America
Baring Asset Management
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Asset Management, Corp.
BNP Paribas Investment Partners
BNY Mellon Asset Management
Boston Partners

Manager Name
Brandes Investment Partners, L.P.
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
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbia Wanger Asset Management
Columbus Circle Investors
Conestoga Capital Advisors
Corbin Capital Partners, L.P.
Cornerstone Capital Management
Cramer Rosenthal McGlynn, LLC
Credit Suisse Asset Management
Crestline Investors, Inc.
D.E. Shaw Investment Management, LLC
Delaware Investments
DePrince, Race & Zollo, Inc.
Deutsche Asset Management
Diamond Hill Investments
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 Global Asset Management
First Eagle Investment Management, LLC
First Hawaiian Bank Wealth Management Division
Fisher Investments

Manager Name Manager Name Fort Washington Investment Advisors, Inc. O'Shaughnessy Asset Management, LLC Franklin Templeton Institutional Pacific Alternative Asset Management Co. Fred Alger Management, Inc. Pacific Current Group Fuller & Thaler Asset Management, Inc. Pacific Investment Management Company GAM (USA) Inc. Parametric Portfolio Associates **GE Asset Management** P/E Investments **GMO** Peregrine Capital Management, Inc. Goldman Sachs Asset Management **PGIM** Grand-Jean Capital Management PineBridge Investments Guggenheim Investments Pinnacle Asset Management L.P. **GW&K Investment Management** Pioneer Investments PNC Capital Advisors, LLC Harbor Capital Group Trust Hartford Funds Principal Global Investors Hartford Investment Management Co. Private Advisors, LLC Henderson Global Investors Putnam Investments, LLC Hotchkis & Wiley Capital Management, LLC QMA (Quantitative Management Associates) **HSBC Global Asset Management RBC Global Asset Management** Impax Asset Management Limited Regions Financial Corporation Income Research + Management, Inc. RidgeWorth Capital Management, Inc. Insight Investment Management Limited Riverbridge Partners LLC Institutional Capital LLC Rockefeller & Co., Inc. INTECH Investment Management, LLC Rothschild Asset Management, Inc. Invesco Russell Investments **Investec Asset Management** Santander Global Facilities Investment Counselors of Maryland, LLC Schroder Investment Management North America Inc. Janus Capital Management, LLC Scout Investments Jarislowsky Fraser Global Investment Management SEI Investments Jensen Investment Management Shenkman Capital Management, Inc. J.P. Morgan Asset Management Smith, Graham & Co. Investment Advisors, L.P. KeyCorp Smith Group Asset Management Lazard Asset Management Standard Life Investments Limited Legal & General Investment Management America Standish **Lincoln National Corporation** State Street Global Advisors LMCG Investments, LLC Stone Harbor Investment Partners, L.P. **Longview Partners** Systematic Financial Management Loomis, Sayles & Company, L.P. T. Rowe Price Associates, Inc. Lord Abbett & Company Taplin, Canida & Habacht Los Angeles Capital Management The Boston Company Asset Management, LLC LSV Asset Management The Hartford MacKay Shields LLC The London Company Man Investments Inc. The TCW Group, Inc. Manulife Asset Management Tri-Star Trust Bank Martin Currie Inc. **UBS** Asset Management McDonnell Investment Management, LLC Van Eck Global MFS Investment Management Versus Capital Group MidFirst Bank Victory Capital Management Inc. Mondrian Investment Partners Limited Vontobel Asset Management, Inc. Montag & Caldwell, LLC Voya Financial Morgan Stanley Investment Management Voya Investment Management (fka ING) Mountain Lake Investment Management LLC Waddell & Reed Asset Management Group MUFG Union Bank, N.A. WCM Investment Management Neuberger Berman Wasatch Advisors, Inc. Newton Investment Management (fka Newton Capital Management) WEDGE Capital Management Nikko Asset Management Co., Ltd. Wellington Management Company, LLP Northern Trust Asset Management Wells Capital Management Nuveen Investments, Inc. Western Asset Management Company **OFI Global Asset Management** William Blair & Company Old Mutual Asset Management

Opus Capital Management Inc.