Callan

June 30, 2019
City of Milwaukee Employes'
Retirement System
Investment Measurement Service
Quarterly Review

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U.S. EQUITY

Markets continued to march upward, and U.S. equities neared record highs. Growth outpaced value, as the dovish stance of the Fed was a headwind for valuation-sensitive stocks. Small cap stocks lagged large caps, possibly from economic weakness.

Large Cap U.S. Equity (S&P 500: +4.3%; Russell 1000: +4.2%)

- U.S. equity showed strong gains as market participants anticipated another round of monetary easing from the Fed.
- Financials (+8.0%) was the best-performing sector; Energy (-2.8%) was the only sector to experience negative returns over the quarter.
- Trade rhetoric weighed on U.S. stocks in May followed by a June rebound.
- Given the increase in risk appetite, cyclicals outperformed while defensive sectors such as Utilities underperformed.

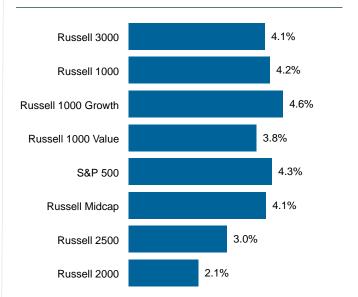
Growth vs. Value (Russell 1000 Growth: +4.6%; Russell 1000 Value: +3.8%)

 Value factors (P/B, P/E trailing, and yield) were mixed while growth factors (EPS growth, sales growth) were positive in the quarter.

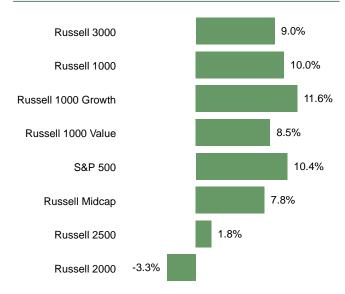
Small Cap (Russell 2000: +2.1%)

- Market conditions (e.g., more dovish Fed, strong U.S. dollar, trade tensions) should have benefited small cap companies, but did not.
- A slowing economy may explain weakness for small caps.
 Large caps tend to have stronger balance sheets and are more capable of weathering downturns.

U.S. Equity: Quarterly Returns

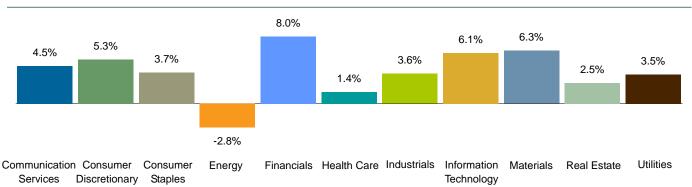


U.S. Equity: One-Year Returns



Sources: FTSE Russell, Standard & Poor's

S&P Sector Returns, Quarter Ended June 30, 2019



Source: Standard & Poor's



NON-U.S./GLOBAL EQUITY

Global equity markets were largely positive in the second quarter although investor sentiment was fairly muted as both U.S./China tariff fatigue and Brexit uncertainty continued. Some non-U.S. markets benefited from a weakening U.S. dollar relative to local currencies. Global equities were boosted by dovish central bank commentary that led to lower interest rates around the globe.

Global/Non-U.S. Developed (MSCI EAFE: +3.7%; MSCI World ex USA: +3.8%; MSCI ACWI ex USA: +3.0%; MSCI Europe: +4.5%; MSCI Japan: +1.0%)

- Developed markets rallied as central banks around the world expressed more accommodative paths with interest rates and quantitative easing.
- U.K. equities finished the quarter slightly up (+0.9%) as Brexit uncertainty continues. Prime Minister Theresa May announced her resignation during the quarter.
- Relative to other developed non-U.S. markets, Europe had a strong quarter fueled by robust returns from Germany, France, and Switzerland (30% combined weight), which benefited from declining bond yields.
- EAFE sector performance was positive across the board with the exception of real estate. Cyclicals drove the majority of returns as these are highly correlated with U.S. cyclicals, which benefited from declining interest rates.
- Factor performance in non-U.S. developed markets favored growth over value, large caps over small caps, and cyclicals over defensives.

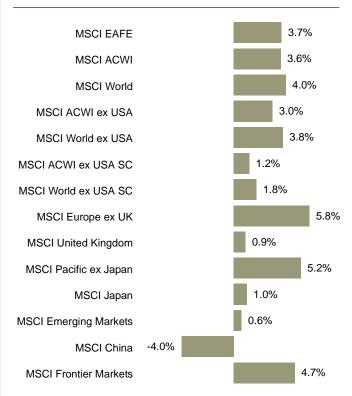
Emerging Markets (MSCI Emerging Markets Index: +0.6%)

- Emerging market returns were lackluster although, regionally, returns were bar-belled as many Asian countries were held back by trade concerns while EM ex-Asia tended to perform well. Russia (+16.9%) performed strongly with the help of the ruble appreciating by 4.2% relative to the U.S. dollar. Brazil (+7.2%) was also a top contributor due to the initial success of keeping pension reforms on track. China (-4.0%) faltered on tariff concerns.
- Argentina (+31.7%) was the top country performer, aided by MSCI's announcement of its inclusion in the MSCI Emerging Markets Index at the end of May (eight stocks in total).
- The MSCI EM Value Index outperformed the MSCI EM Growth Index as many growth-oriented sector and country returns were impacted by trade disputes.

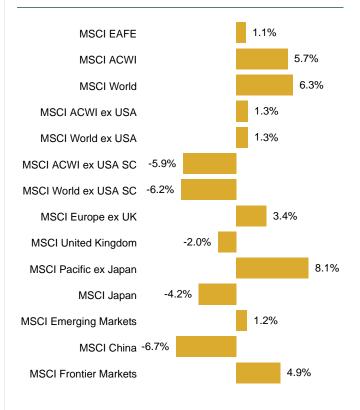
Non-U.S. Small Cap (MSCI World ex USA Small Cap: +1.8%; MSCI EM Small Cap: +1.0%; MSCI ACWI ex USA Small Cap: +1.2%)

 Non-U.S. small caps lagged large caps as investors preferred lower earnings risk and higher earnings momentum. Emerging market small caps lagged large caps as investors searched for a combination of lower volatility and higher growth that was absent in smaller companies as tariff uncertainty persisted.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI



FIXED INCOME

U.S. economic data continued to be mixed as a strong labor market and rising personal income offset waning business confidence and declining industrial production. The Federal Reserve's dovish statements and announced policy objective to "sustain the expansion" caused risk assets and U.S. Treasury yields to rally. Uncertainty surrounding trade policy and muted inflation data provided the Fed with additional cover for its rationale to potentially cut rates later this year.

U.S. Fixed Income (Bloomberg Barclays US Aggregate Bond Index: +3.1%)

- U.S. Treasuries gained 3.0% as the U.S. Treasury yield curve shifted lower across maturities, most dramatically at the 2-year key rate, as traders priced in expectations for the Fed to pre-emptively ease in order to boost domestic economic growth.
- The overall shape of the yield curve did not materially change during the quarter. The yield differential between the 10-year and 2-year key rates remained positive and widened 11 basis points during the quarter to close at 25 bps. However, the front-end of the curve remained inverted, with the 5-year offering less yield than the 2-year key rate.
- Nominal Treasuries outperformed TIPS as inflation expectations fell; the 10-year breakeven spread was only 1.69% as of quarter-end versus 1.88% at the end of the first quarter.

Investment Grade Corporates (Bloomberg Barclays Corporate: +4.5%)

- Credit spreads rallied on the back of dovish Fed policy.
- Gross new corporate supply this quarter was \$290.5 billion, which was 14% lower than a year ago. Year-to-date supply was 18% lower than in the first half of 2018. New issuance favored the 6-12 year maturities relative to last year.
- AAA-rated corporates (+5.0%) were the best performers in absolute return terms. BBB-rated lagged AAA by 18 bps, but posted a positive excess return over the index (+1.4%).

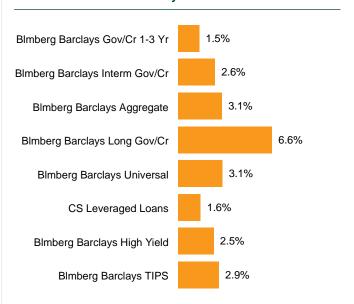
High Yield (Bloomberg Barclays Corporate High Yield: +2.5%)

- High yield corporates posted positive results for the quarter, but lagged investment grade corporates on both absolute and excess returns. High yield gained 9.9% for the first half of 2019.
- Interest rate sensitive BB-rated issues posted the highest return (+3.1%) while CCC-rated issues rose 0.3%.

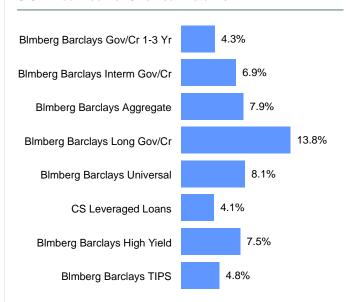
Leveraged Loans (CS Leveraged Loans: +1.6%)

 Bank loans participated in the risk-on rally, but lagged both longer duration IG and HY corporates as interest rates declined.

U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse



- Retail outflows remain unabated as the Fed's dovish tone dampened enthusiasm for floating rate assets. New CLO issuance running ahead of expectations has also put technical pressure on the sector as investors absorbed the new float.
- Bank loans have less sensitivity to interest rates, but may have a similar spread duration profile to that of high yield bonds.

NON-U.S. FIXED INCOME

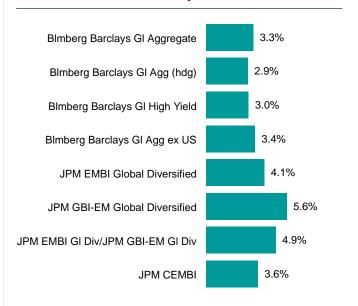
Global Fixed Income (Bloomberg Barclays Global Aggregate: +3.3%, unhedged)

 Other developed market sovereign bonds rose in tandem with the rally in Treasuries and have pushed European sovereigns further into negative yields. The U.S. dollar depreciated modestly versus the euro and yen, but gained versus the U.K. pound.

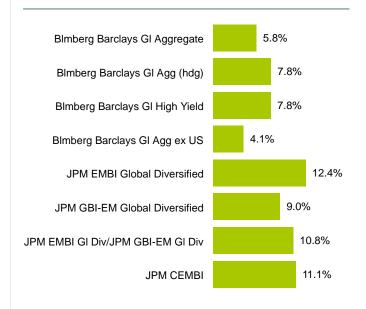
US\$ EMD (JPM EMBI Global Diversified: +4.1%), **Local Currency EMD** (JPM GBI-EM Global Diversified: +5.6%)

- Most emerging market currencies appreciated against the U.S. dollar.
- Top performers included Russia (+10.4%) and Turkey (+10.1%), while Argentina was the worst performer (-5.0%), and one of the few countries to post a negative result this quarter.

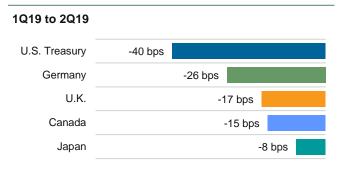
Global Fixed Income: Quarterly Returns



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 June 30, 2019, with the distribution as of March 31, 2019. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	June 30, 2	2019			March 31,	2019
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Total Domestic Equity	\$1,133,075,932	21.11%	\$(51,000,000)	\$42,154,320	\$1,141,921,612	21.60%
BlackRock Russell 1000 Value	165,934,990	3.09%	0	6,149,731	159,785,258	3.02%
DFA Large Cap Value	147,077,529	2.74%	(9,000,000)	5,152,959	150,924,570	2.85%
Northern Trust Global	291,979,994	5.44%	(17,000,000)	12,388,824	296,591,169	5.61%
Polen Capital Management	145,223,874	2.71%	(18,000,000)	9,350,977	153,872,897	2.91%
Earnest Partners LLC	122,951,901	2.29%	(4,000,000)	6,810,155	120,141,746	2.27%
DFA Small Cap Value	167,035,477	3.11%	0	(866,943)	167,902,420	3.18%
CastleArk Management	92,872,168	1.73%	(3,000,000)	3,168,617	92,703,551	1.75%
Total Global Equity	\$494,771,960	9.22%	\$(12,000,000)	\$23,826,965	\$482,944,995	9.13%
BlackRock Global Alpha Tilts	292,520,798	5.45%	0	11,442,745	281,078,053	5.32%
MFS Investment Management	202,251,162	3.77%	(12,000,000)	12,384,220	201,866,942	3.82%
Total International Equity	\$891,416,261	16.60%	\$(3,000,000)	\$15,016,025	\$879,400,236	16.63%
AQR Emerging Markets	96,893,225	1.80%	0	393,689	96,499,536	1.83%
Brandes Investment Partners	361,571,792	6.74%	0	(60,671)	361,632,463	6.84%
William Blair & Company	272,985,045	5.09%	(3,000,000)	14,437,296	261,547,749	4.95%
DFA International Small Cap	159,966,199	2.98%	0	245,711	159,720,488	3.02%
Total Fixed Income	\$1,294,503,067	24.11%	\$(40,000,000)	\$44,869,470	\$1,289,633,597	24.39%
Allianz US Fixed Income 250	508,452,497	9.47%	(20,000,000)	18.145.744	510,306,753	9.65%
BlackRock US Debt Idx Fd	209,129,698	3.90%	(5,000,000)	6,334,079	207,795,619	3.93%
Reams Asset Management	234,819,240	4.37%	(5,000,000)	6,930,456	232,888,784	4.40%
Loomis, Sayles & Company, L.P.	342,101,632	6.37%	(10,000,000)	13,459,191	338,642,441	6.41%
Total Private Equity	\$413,867,941	7.71%	\$6,584,228	\$26.702.708	\$380,581,005	7.20%
Abbott Capital Management 2010	27,041,388	0.50%	(1,225,000)	1,439,907	26,826,481	0.51%
Abbott Capital Management 2011	48,333,647	0.90%	(2,200,000)	3,117,521	47,416,126	0.90%
		0.90%	(2,200,000)			0.90%
Abbott Capital Management 2012 Abbott Capital Management 2013	37,955,422 34,746,957	0.71%	0	2,144,148 2,709,495	35,811,274 32,037,462	0.66%
			-			
Abbott Capital Management 2014	34,442,090	0.64%	1,050,000	2,731,361	30,660,729	0.58%
Abbott Capital Management 2015	17,197,193	0.32%	1,100,000	1,369,533	14,727,660	0.28%
Abbott Capital Management 2016	9,362,298	0.17%	1,265,000	482,167	7,615,131	0.14%
Abbott Capital Management 2018	3,382,481	0.06%	1,062,500	33,750	2,286,231	0.04%
Mesirow V	60,395,310	1.13%	(3,375,000)	4,538,704	59,231,606	1.12%
Mesirow VI	56,826,025	1.06%	900,000	4,390,486	51,535,539	0.97%
Mesirow VII	24,025,564	0.45%	4,500,000	682,292	18,843,272	0.36%
NB Secondary Opp Fund III	16,384,878	0.31%	(1,940,263)	950,262	17,374,879	0.33%
NB Secondary Opp Fund IV	8,609,172	0.16%	1,696,459	766,806	6,145,907	0.12%
Private Advisors VI	21,464,828	0.40%	1,635,385	931,241	18,898,202	0.36%
Private Advisors VII	8,220,171	0.15%	1,010,283	339,293	6,870,595	0.13%
Private Advisors VIII	5,480,517	0.10%	1,104,863	75,743	4,299,911	0.08%
Absolute Return	\$514,177,352	9.58%	\$0	\$17,438,502	\$496,738,850	9.40%
Allianz SA 1000	131,349,676	2.45%	0	4,160,563	127,189,113	2.41%
Newton	130,977,328	2.44%	0	5,622,099	125,355,229	2.37%
UBS A & Q	251,850,348	4.69%	0	7,655,840	244,194,508	4.62%
Real Assets	\$178,157,313	3.32%	\$0	\$2,416,238	\$175,741,074	3.32%
Principal DRA	178,157,313	3.32%	0	2,416,238	175,741,074	3.32%
Total Real Estate	\$411,577,477	7.67%	\$(5,298,055)	\$6,171,841	\$410,703,691	7.77%
Real Estate	411,577,477	7.67%	(5,298,055)	6,171,841	410,703,691	7.77%
Total Cash	\$36,841,236	0.69%	\$7,180,919	\$215,282	\$29,445,035	0.56%
Cash	36,841,236	0.69%	7,180,919	215,282	29,445,035	0.56%

\$5,368,388,539

100.0%

\$(97,532,907)

\$178,811,351



Total Fund

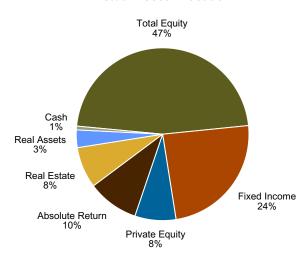
\$5,287,110,095

100.0%

Actual vs Target Asset Allocation As of June 30, 2019

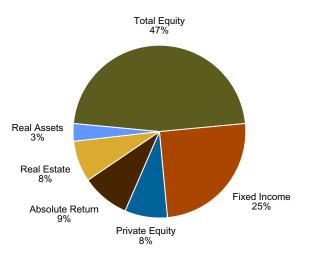
The first chart below shows the Fund's asset allocation as of June 30, 2019. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement. The last chart shows the average asset allocation for the Callan Public Fund Spons - Large (>1B).

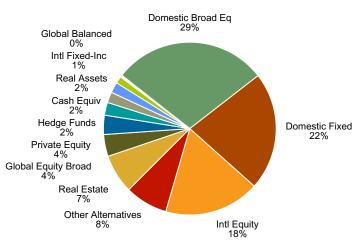




Target Asset Allocation

Callan Public Fund Spons - Large (>1B)





	\$000s	Weight		Percent	\$000s
Asset Class	Actual	Actual	Target	Difference	Difference
Total Equity	2,519,264	46.9%	47.0%	(0.1%)	(3,878)
Fixed Income	1,294,503	24.1%	25.0%	(0.9%)	(47,594)
Private Equity	413,868	7.7%	8.0%	(0.3%)	(15,603)
Absolute Return	514,177	9.6%	9.0%	`0.6%	`31,022
Real Estate	411,577	7.7%	7.7%	(0.0%)	(1,788)
Real Assets	178,157	3.3%	3.3%	`0.0%	1,000
Cash	36,841	0.7%	0.0%	0.7%	36,841
Total	5,368,389	100.0%	100.0%		

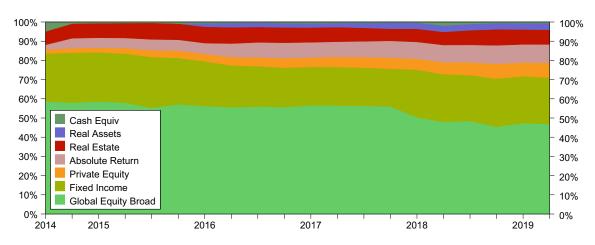
^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.



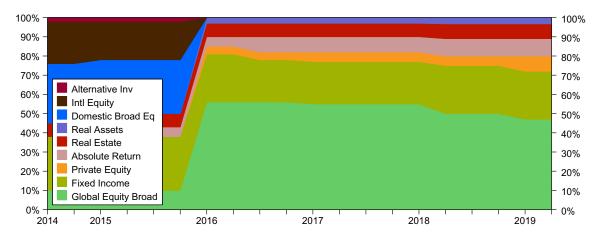
Actual vs Target Historical Asset Allocation

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

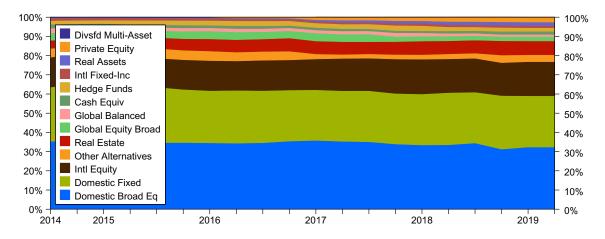
Actual Historical Asset Allocation



Target Historical Asset Allocation



Average Callan Public Fund Sponsor Database Historical Asset Allocation



^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.



Total Fund Period Ended June 30, 2019

Investment Philosophy

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

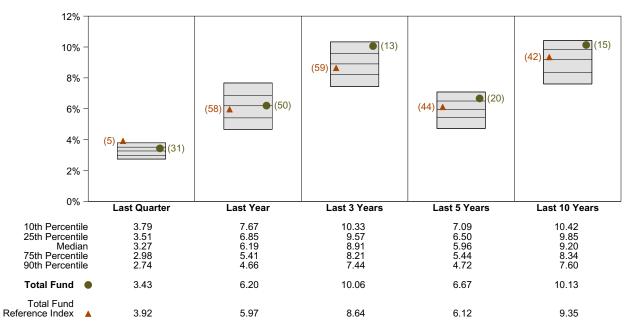
Quarterly Summary and Highlights

- Total Fund's portfolio posted a 3.43% return for the quarter placing it in the 31 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 50 percentile for the last year.
- Total Fund's portfolio underperformed the Total Fund Reference Index by 0.48% for the quarter and outperformed the Total Fund Reference Index for the year by 0.24%.

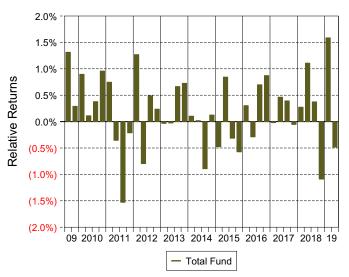
Quarterly Asset Growth

Beginning Market Value	\$5,287,110,095
Net New Investment	\$-97,532,907
Investment Gains/(Losses)	\$178,811,351
Ending Market Value	\$5,368,388,539

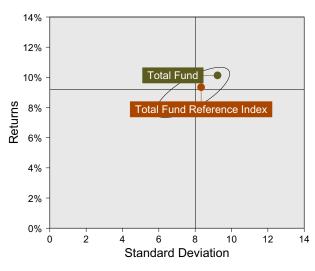
Performance vs Callan Public Fund Sponsor Database (Gross)



Relative Return vs Total Fund Reference Index



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



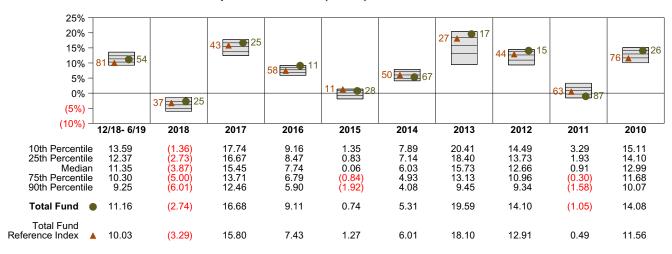


Total Fund Return Analysis Summary

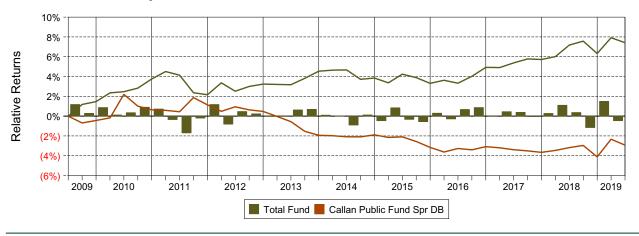
Return Analysis

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

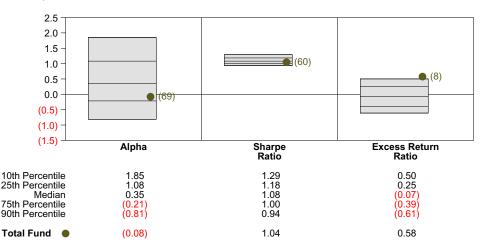
Performance vs Callan Public Fund Sponsor Database (Gross)



Cumulative and Quarterly Relative Return vs Total Fund Reference Index



Risk Adjusted Return Measures vs Total Fund Reference Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended June 30, 2019



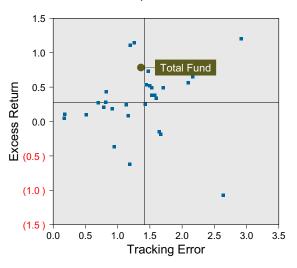


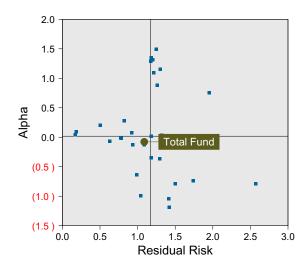
Total Fund Total Fund vs Target Risk Analysis

Risk Analysis

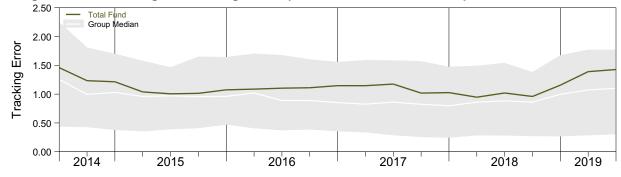
The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return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

Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended June 30, 2019

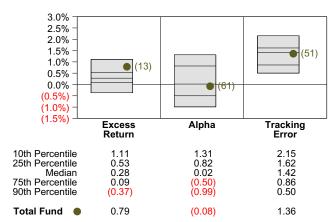


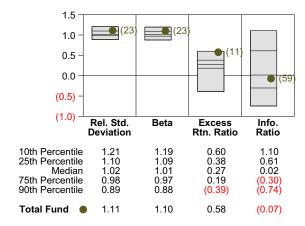


Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended June 30, 2019



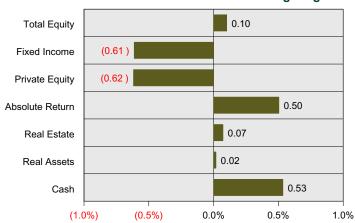




Quarterly Total Fund Relative Attribution - June 30, 2019

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.

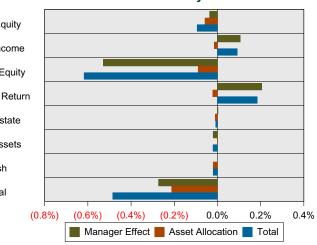




Actual vs Target Returns

3.28 **Total Equity** 3.37 3.53 Fixed Income 6.88 Private Equity 14.55 3.51 Absolute Return 1.37 1.51 Real Estate 1.48 1.54 2.12 Real Assets 0.74 Cash 3.43 Total 3.92 5% 0% 10% 15% 20% Actual Target

Relative Attribution by Asset Class



Relative Attribution Effects for Quarter ended June 30, 2019

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	47%	47%	3.28%	3.37%	(0.04%)	(0.06%)	(0.09%)
Fixed Income	24%	25%	3.53%	3.08%	0.11%	(0.01%)	`0.09%´
Private Equity	7%	8%	6.88%	14.55%	(0.53%)	(0.09%)	(0.62%)
Absolute Return	10%	9%	3.51%	1.37%	0.21%	(0.02%)	`0.18%´
Real Estate	8%	8%	1.51%	1.48%	0.00%	(0.01%)	(0.01%)
Real Assets	3%	3%	1.54%	2.12%	(0.02%)	(0.00%)	(0.02%)
Cash	1%	0%	0.74%	0.74%	0.00%	(0.02%)	(0.02%)
Total			3.43% =	3.92%	+ (0.27%) +	(0.21%)	(0.48%)

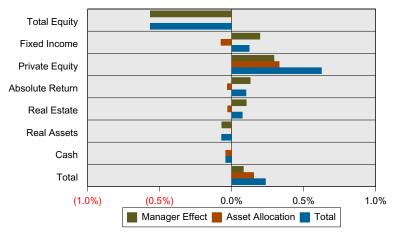
^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.



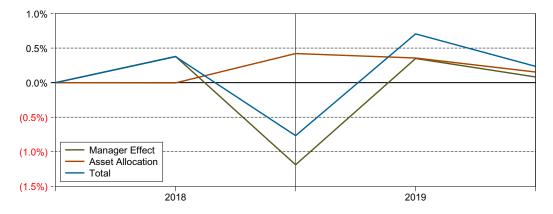
Cumulative Total Fund Relative Attribution - June 30, 2019

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	47%	49%	3.35%	4.56%	(0.56%)	(0.00%)	(0.56%) 0.12%
Fixed Income Private Equity	24% 7%	25% 6%	8.78% 17.22%	7.87% 12.07%	0.20% 0.29%	(<mark>0.07%)</mark> 0.33%	0.62%
Absolute Return Real Estate	9% 8%	9% 8%	6.77% 8.07%	5.31% 6.80%	0.13% 0.10%	(0.03%) (0.03%)	0.10% 0.07%
Real Assets	3%	3%	0.89%	2.87%	(0.07%)	(0.00%)	(0.07%)
Cash	1%	0%	2.65%	2.65%	0.00%	(0.04%)	(0.04%)
Total			6.20% =	5.97%	+ 0.08% +	0.15%	0.24%

^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% 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 June 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns and Rankings for Periods Ended June 30, 2019

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	<u>1</u>
Total Domestic Equity Russell 3000 Index	3.74% 4.10%		7.15% 8.98%		14.66% 14.02%		10.17% 10.19%		7.35% 6.92%	(7/98) (7/98)
BlackRock Russell 1000 Value Russell 1000 Value Index Callan Large Cap Value	3.85% 3.84% 3.77%	48 48	8.63% 8.46% 6.43%	28 28	- 10.19% 11.16%	76	- 7.46% 7.87%	64	7.59% 6.63% -	(3/17) (3/17)
DFA Large Cap Value Russell 1000 Value Index Callan Large Cap Value	3.44% 3.84% 3.77%	54 48	2.49% 8.46% 6.43%	81 28	- 10.19% 11.16%	76	7.46% 7.87%	64	4.64% 6.75% -	(11/17) (11/17)
Northern Trust Global S&P 500 Index Callan Large Cap Core	4.31% 4.30% 4.28%	49 49	10.51% 10.42% 9.25%	38 39	14.24% 14.19% 13.81%	37 40	10.78% 10.71% 10.32%	29 30	10.45% 10.40% -	(8/88) (8/88)
Polen Capital Management S&P 500 Index Callan Large Cap Growth	6.20% 4.30% 4.96%	19 72	20.33% 10.42% 12.47%	4 68	21.76% 14.19% 18.34%	14 97	17.94% 10.71% 13.19%	3 95	17.45% 13.98% -	(7/12) (7/12)
Earnest Partners LLC Russell MidCap Index Callan Mid Capitalization	5.74% 4.13% 4.54%	27 54	11.95% 7.83% 5.38%	28 40	17.06% 12.16% 12.49%	18 53	11.77% 8.63% 8.26%	14 45	11.04% 9.77% -	(5/05) (5/05)
DFA Small Cap Value Russell 2000 Value Index Callan Small Cap Value	(0. <mark>52%)</mark> 1.38% 2.45%	92 71	(10.85%) (6.24%) (5.85%)	92 53	8.16% 9.81% 9.93%	73 51	4.43% 5.39% 6.40%	86 71	11.40% 9.23% -	(11/96) (11/96)
CastleArk Management Russell 2000 Growth Index Callan Small Cap Growth	3.41% 2.75% 5.19%	73 84	11.62% (<mark>0.49%)</mark> 6.75%	22 86	20.01% 14.69% 18.99%	39 83	10.47% 8.63% 11.41%	65 84	12.69% 10.48% -	(9/13) (9/13)
Total Global Equity MSCI World	4.96% 4.00%		8.45% 6.33%		14.61% 11.77%		8.14% 6.60%		8.93% 8.86%	(4/10) (4/10)
BlackRock Global Alpha Tilts MSCI ACWI Gross Callan Global Equity	4.07% 3.80% 4.03%	48 56	4.88% 6.33% 5.40%	55 44	13.21% 12.22% 12.21%	38 50	- 6.74% 6.89%	52	14.46% 13.77% -	(3/16) (3/16)
MFS Investment Management MSCI ACWI Gross Callan Global Equity	6.19% 3.80% 4.03%	14 56	13.75% 6.33% 5.40%	5 44	16.54% 12.22% 12.21%	14 50	10.63% 6.74% 6.89%	13 52	12.73% 9.92% -	(12/12) (12/12)
Total International Equity MSCI EAFE	1.76% 3.68%		(3.86%) 1.08%		8.26% 9.11%		2.46% 2.25%		6.87% 4.52%	(5/96) (5/96)
AQR Emerging Markets MSCI EM Gross Callan Emerging Broad	0.60% 0.74% 1.65%	82 78	(2.59%) 1.62% 2.84%	93 61	- 11.07% 11.55%	56	- 2.87% 3.71%	64	7.87% 9.52% -	(8/16) (8/16)
Brandes Investment Partners MSCI EAFE Callan NonUS Eq	(0.02%) 3.68% 3.64%	98 47	(4.24%) 1.08% 0.46%	89 41	7.59% 9.11% 9.48%	83 55	1.51% 2.25% 3.40%	87 72	7.79% 4.59% -	(2/98) (2/98)
William Blair & Company MSCI ACWIxUS Gross Callan NonUS Eq	5.53% 3.22% 3.64%	15 58	1.19% 1.80% 0.46%	39 35	10.08% 9.91% 9.48%	37 39	4.22% 2.65% 3.40%	30 65	7.63% 6.86% -	(12/03) (12/03)
DFA International Small Cap Blended Benchmark Callan Intl Small Cap	0.32% 1.71% 2.63%	91 78	(11.39%) (6.35%) (6.40%)	89 47	6.35% 9.06% 8.87%	90 47	1.09% 4.40% 4.85%	95 62	4.18% 3.32% -	(5/06) (5/06)



The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended June 30, 2019. 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

Returns and Rankings for Periods Ended June 30, 2019

	Last Quarter	J	Last Year		Last 3 Years		Last 5 Years		Since Inception	n
Total Fixed Income Blmbg Aggregate	3.53% 3.08%		8.78% 7.87%		4.18% 2.31%		3.30% 2.95%		7.55% 6.28%	(12/87)
Allianz US Fixed Income 250 Blmbg Aggregate +2.5% Callan Core Bond Fl	3.60% 3.65% 3.16%	1	8.92% 10.37% 8.10%	4 1	4.82% 2.73%	1	5.45% 3.27%	1	7.19% 7.66%	(2/18) (2/18)
BlackRock US Debt ldx Fd Blmbg Aggregate Callan Core Bond Fl	3.08% 3.08% 3.16%	72 72	7.96% 7.87% 8.10%	73 78	2.36% 2.31% 2.73%	88 91	2.95% 3.27%	91	2.52% 2.84% -	(6/16) (6/16)
Reams Asset Management Blmbg Aggregate Callan Core Plus Fl	3.00% 3.08% 3.26%	85 81	8.88% 7.87% 8.33%	12 80	3.11% 2.31% 3.54%	79 99	3.55% 2.95% 3.47%	41 97	5.62% 4.69% -	(1/01) (1/01)
Loomis, Sayles & Company, L.P. Blmbg Aggregate Callan Core Plus Fl	4.06% 3.08% 3.26%	1 81	8.95% 7.87% 8.33%	11 80	6.80% 2.31% 3.54%	1 99	4.25% 2.95% 3.47%	6 97	9.04% 6.28% -	(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 Abbott Capital Management 2016 Abbott Capital Management 2018 Mesirow V Mesirow VI Mesirow VII NB Secondary Opp Fund III NB Secondary Opp Fund IV Private Advisors VI Private Advisors VII Private Advisors VIII Russell 3000 (1 Qtr in Arrears) + 3%	6.88% 5.46% 6.61% 5.99% 8.46% 8.77% 8.88% 5.70% 1.18% 7.89% 8.38% 3.34% 6.28% 11.33% 4.54% 4.31% 1.44%		17.22% 19.50% 19.77% 18.31% 20.09% 19.72% 16.85% (1.87%) 17.22% (20.26% (3.57%) 13.10% 46.15% 10.80% 8.28%		17.28% 19.81% 19.22% 18.12% 18.89% 15.73% 10.13% 4.92% - - 18.60% 16.31% - 17.03% - 11.21%		14.13% 15.94% 15.09% 12.42% 11.74% 8.44% - - - 16.77% 7.46% - - 17.89% - - - 13.44%		9.63% (4.63%) (1.65%) 7.27% 7.97% 5.82% 8.15% 3.95% (1.87%) 13.95% 7.42% 27.45% 2.69% 7.57% 15.35% 11.67%	(6/11) (7/12) (5/13) (4/14) (4/15) (3/16)
Absolute Return	3.51%		6.77%		5.74%		5.76%		5.67%	(6/14)
Allianz SA 1000 T-Bills + 10% Callan Abs Rtn Hedge FoF	3.27% 3.01% 1.13%	1	7.46% 12.31% 1.05%	2	8.37% 11.38% 4.42%	2	9.25% 10.87% 2.84%	1	9.09% 10.86% -	(6/14) (6/14)
Newton 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	4.48% 1.59% 1.13%	1 19	10.86% 6.43% 1.05%	1 2	4.03% 5.57% 4.42%	60 19	5.04% 2.84%	5	4.73% 5.05% -	(8/14) (8/14)
UBS A & Q 1-month LIBOR + 4% Callan Abs Rtn Hedge FoF	3.14% 1.59% 1.13%	1 19	4.41% 6.43% 1.05%	4 2	5.14% 5.57% 4.42%	24 19	- 5.04% 2.84%	5	4.06% 5.12% -	(12/14) (12/14)
Real Assets	1.54%		0.89%		4.27%		-		5.43%	(1/16)
Principal DRA Principal Blended Benchmark (1) Callan Alterntive Inv DB	1.54% 2.12% (0.41%)	27 20	0.89% 2.87% (0.17%)	41 30	4.27% 4.70% 1.52%	23 22	- (0.00%)		5.43% 5.68% -	(1/16) (1/16)
Total Real Estate	1.51%		8.07%		8.76%		10.45%		6.69%	(7/86)
Real Estate Blended Benchmark (2) Callan Tot Real Est DB	1.51% 1.48% 1.79%	65 66	8.07% 6.80% 6.98%	31 51	8.76% 7.26% 7.19%	26 49	10.45% 9.37% 9.02%	25 46	6.69% - -	(7/86)
Total Fund Total Fund Reference Index*	3.43% 3.92%		6.20% 5.97%		10.06% 8.64%		6.67% 6.12%		9.54% -	(1/79)

⁽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.



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.

	12/2018-									
	6/2019		2018		2017		2016		2015	
Total Domestic Equity Russell 3000 Index	18.50% 18.71%		(5.80%) (5.24%)		20.91% 21.13%		13.91% 12.74%		(0.07%) 0.48%	
BlackRock Russell 1000 Value	16.29%	37	(8.12%)	42	_		_		_	
Russell 1000 Value Index	16.24%	37	(8.27%)	44	13.66%	91	17.34%	26	(3.83%)	70
Callan Large Cap Value	15.48%		(8.76%)		17.10%		15.27%		(2.53%)	
DFA Large Cap Value	15.04%	61	(12.40%)	83	_		-		-	
Russell 1000 Value Index	16.24%	37	(8.27%)	44	13.66%	91	17.34%	26	(3.83%)	70
Callan Large Cap Value	15.48%		(8.76%)		17.10%		15.27%		(2.53%)	
Northern Trust Global	18.58%	48	(4.34%)	32	21.87%	47	12.01%	21	1.49%	46
S&P 500 Index	18.54%	49	(4.38%)	32	21.83%	48	11.96%	21	1.38%	51
Callan Large Cap Core	18.51%		(5.35%)		21.65%		10.42%		1.40%	
Polen Capital Management	24.39%	24	9.14%	4	27.67%	65	1.70%	72	15.51%	3
S&P 500 Index	18.54%	91	(4.38%)	91	21.83%	98	11.96%	2	1.38%	93
Callan Large Cap Growth	22.00%		0.51%		28.84%		3.39%		6.43%	
Earnest Partners LLC	26.97%	23	(9.80%)	45	26.16%	23	16.52%	29	1.25%	27
Russell MidCap Index	21.35%	44	(9.06%)	41	18.52%	55	13.80%	42	(2.44%)	67
Callan Mid Capitalization	20.49%		(10.55%)		19.58%		12.23%		(0.80%)	
DFA Small Cap Value	10.55%	90	(14.84%)	52	7.68%	66	29.36%	32	(6.06%)	76
Russell 2000 Value Index	13.47%	73	(12.86%)	23	7.84%	65	31.74%	14	(7.47%)	83
Callan Small Cap Value	15.86%		(14.79%)		9.19%		27.86%		(3.73%)	
CastleArk Management	22.55%	64	3.29%	15	23.93%	59	6.01%	68	(4.90%)	78
Russell 2000 Growth Index	20.36%	74	(9.31%)	85	22.17%	70	11.32%	36	(1.38%)	50
Callan Small Cap Growth	24.56%		(3.04%)		25.74%		8.62%		(1.29%)	
Total Global Equity	19.52%		(8.18%)		31.31%		8.65%		(2.08%)	
MSCI World	16.98%		(8.71%)		22.40%		7.51%		(0.87%)	
BlackRock Global Alpha Tilts	17.47%	48	(11.20%)	67	30.12%	22	-		-	
MSCI ACWI Gross	16.60%	54	(8.93%)	46	24.62%	56	8.48%	28	(1.84%)	70
Callan Global Equity	17.22%		(9.52%)		25.27%		6.21%		0.17%	
MFS Investment Management	22.45%	10	(3.75%)	11	33.16%	12	6.06%	52	(0.49%)	60
MSCI ACWI Gross	16.60%	54	(8.93%)	46	24.62%	56	8.48%	28	(1.84%)	70
Callan Global Equity	17.22%		(9.52%)		25.27%		6.21%		0.17%	
Total International Equity	11.37%		(15.19%)		25.03%		5.78%		(0.41%)	
MSCI EAFE	14.03%		(13.79%)		25.03%		1.00%		(0.81%)	
AQR Emerging Markets	10.61%	74	(18.31%)	86	35.53%	73	-		-	
MSCI EM Gross	10.78%	70	(14.24%)	28	37.75%	58	11.60%	49	(14.60%)	64
Callan Emerging Broad	13.18%		(15.34%)		39.31%		11.58%		(13.68%)	
Brandes Investment Partners	6.59%	99	(8.79%)	6	16.53%	99	8.50%	4	(1.25%)	66
MSCI EAFE	14.03%	57	(13.79%)	35	25.03%	75	1.00%	57	(0.81%)	62
Callan NonUS Eq	14.80%		(15.13%)		28.16%		1.50%		0.40%	
William Blair & Company	20.23%	10	(16.86%)	72	31.45%	22	(1.45%)	82	0.18%	53
MSCI ACWIXUS Gross	14.00%	57	(13.77%)	35	27.77%	56	5.01%	16	(5.25%)	92
Callan NonUS Eq	14.80%		(15.13%)		28.16%		1.50%		0.40%	
DFA International Small Cap	9.00%	91	(23.31%)	91	27.98%	92	8.00%	8	3.99%	86
Blended Benchmark	12.55%	69	(17.89%)	30	33.01%	74	2.18%	32	9.59%	56
Callan Intl Small Cap	13.66%		(19.66%)		35.27%		(0.03%)		10.09%	



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.

	12/2018-									
	6/2019		2018		2017		2016		2015	
Total Fixed Income Blmbg Aggregate	8.08% 6.11%		(<mark>0.33%)</mark> 0.01%		5.28% 3.54%		7.40% 2.65%		(2.49%) 0.55%	
BlackRock US Debt Idx Fd	6.16%	79	0.06%	57	3.68%	76	-		-	
Blmbg Aggregate_	6.11%	81	0.01%	62	3.54%	87	2.65%	87	0.55%	71
Callan Core Bond FI	6.43%		0.11%		3.96%		3.14%		0.84%	
Reams Asset Management	6.23%	94	1.91%	1	3.62%	95	4.38%	63	0.38%	49
Blmbg Aggregate	6.11%	95	0.01%	29	3.54%	95	2.65%	100	0.55%	38
Callan Core Plus FI	7.06%		(0.25%)		4.97%		4.66%		0.34%	
Loomis, Sayles & Company, L.P.	10.00%	1	(2.11%)	98	8.50%	1	13.97%	1	(6.10%)	100
Blmbg Aggregate	6.11%	95	0.01%	29	3.54%	95	2.65%	100	0.55%	38
Callan Core Plus FI	7.06%		(0.25%)		4.97%		4.66%		0.34%	
Total Private Equity	6.72%		21.48%		17.27%		9.09%		12.34%	
Abbott Capital Management 2010	5.46%		26.90%		19.98%		11.03%		12.32%	
Abbott Capital Management 2011	6.61%		25.70%		19.24%		10.43%		10.12%	
Abbott Capital Management 2012	5.99%		24.39%		17.97%		9.42%		2.45%	
Abbott Capital Management 2013 Abbott Capital Management 2014	8.46%		25.17% 22.58%		18.71% 13.50%		5.25% 2.86%		2.23%	
Abbott Capital Management 2014 Abbott Capital Management 2015	8.77% 8.88%		22.56% 13.57%		6.87%		(5.11%)		0.39%	
Abbott Capital Management 2016	5.35%		9.43%		(1.13%)		(5.11%)		-	
Mesirow V	7.89%		18.01%		21.00%		12.03%		19.41%	
Mesirow VI	7.94%		24.87%		12.50%		3.32%		(3.99%)	
Mesirow VII	2.34%		(7.82%)		12.50 /0		J.JZ /0		(3.3370)	
NB Secondary Opp Fund III	6.28%		16.65%		20.63%		12.83%		33.37%	
Private Advisors VI	4.54%		15.19%		13.15%		(1.34%)		-	
Private Advisors VII	4.31%		19.02%		(3.33%)		- (, , ,		_	
Private Advisors VIII	1.44%		-		-		-		-	
Russell 3000 (1 Qtr in Arrears) + 3%	(0.50%)		20.60%		21.71%		17.97%		2.56%	
Absolute Return	7.75%		1.61%		5.96%		5.16%		4.92%	
Allianz SA 1000	10.97%	1	(0.97%)	73	9.67%	10	11.15%	1	9.76%	1
T-Bills + 10%	6.07%	3	11.87%	1	10.86%	5	10.33%	1	10.05%	1
Callan Abs Rtn Hedge FoF	3.79%		0.51%		4.97%		3.35%		(0.75%)	
Newton	9.55%	1	2.18%	14	5.59%	39	3.31%	52	1.50%	29
1-month LIBOR + 4%	3.21%	76	6.07%	2	5.11%	47	4.49%	23	4.19%	8
Callan Abs Rtn Hedge FoF	3.79%		0.51%		4.97%		3.35%		(0.75%)	
UBS A & Q	5.26%	8	2.65%	12	4.16%	67	2.42%	71	4.09%	9
1-month LIBOR + 4%	3.21%	76	6.07%	2	5.11%	47	4.49%	23	4.19%	8
Callan Abs Rtn Hedge FoF	3.79%		0.51%		4.97%		3.35%		(0.75%)	
Real Assets	10.33%		(7.47%)		10.15%		7.00%		-	
Principal DRA	10.33%	18	(7.47%)	48	10.15%	16	7.00%	69	-	
Principal Blended Benchmark (1)	11.02%	18	(7.27%)	47	10.38%	15	6.77%	71	-	
Callan Alterntive Inv DB	4.18%		(8.24%)		4.44%		10.65%		(19.23%)	
Total Real Estate	2.65%		9.18%		9.20%		11.38%		13.44%	
Real Estate	2.65%	73	9.18%	34	9.20%	39	11.38%	29	13.44%	54
Blended Benchmark (2)	2.89%	67	7.89%	45	6.93%	58	9.69%	43	13.82%	53
Callan Tot Real Est DB	3.48%		7.49%		7.73%		8.67%		14.30%	
Total Fund	11.16%		(2.74%)		16.68%		9.11%		0.74%	
Total Fund Reference Index*	10.03%		(3.29%)		15.80%		7.43%		1.27%	
			(== /=/							

⁽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



^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2019

	Retuins for Fer	ious Eliueu Jui	le 30, 2019		
	Last	Last	Last 3	Last 5	Last 10
	Quarter	Year	Years	Years	Years
t of Fee Returns	Quartor	ı oui	10010	10010	10010
Total Domestic Equity Net	3.69%	6.84%	14.31%	9.82%	14.04%
Russell 3000 Index	4.10%	8.98%	14.02%	10.19%	14.67%
BlackRock Russell 1000 Value Russell 1000 Value Index	3.84% 3.84%	8.61% 8.46%	- 10.19%	- 7.46%	- 13.19%
DFA Large Cap Value	3.38%	2.25%	10.1976	7.4070	13.1970
Russell 1000 Value Index	3.84%	8.46%	10.19%	7.46%	13.19%
Northern Trust Global	4.30%	10.50%	14.21%	10.75%	14.76%
S&P 500 Index	4.30% 6.09%	10.42% 19.76%	14.19% 21.17%	10.71% 17.36%	14.70%
Polen Capital Management S&P 500 Index	4.30%	19.76%	14.19%	17.36%	14.70%
Earnest Partners LLC	5.60%	11.35%	16.44%	11.17%	15.71%
Russell MidCap Index	4.13%	7.83%	12.16%	8.63%	15.16%
DFA Small Cap Value	(0.52%)	(11.22%) (6.24%)	7.62% 9.81%	3.90% 5.39%	13.55% 12.40%
Russell 2000 Value Index CastleArk Management	1.38% 3.24%	10.88%	19.22%	9.74%	12.40%
Russell 2000 Growth Index	2.75%	(0.49%)	14.69%	8.63%	14.41%
Total Global Equity Net	4.85%	8.05%	14.19%	7.75%	_
MSCI World	4.00%	6.33%	11.77%	6.60%	10.72%
BlackRock Global Alpha Tilts	3.96%	4.73%	13.12%		-
MFS Investment Management	6.08%	13.27%	16.06%	10.18%	-
MSCI ACWI Gross	3.80%	6.33%	12.22%	6.74%	10.73%
Total International Equity Net	1.67%	(4.30%)	7.76%	1.98%	7.70%
MSCI EAFE Index AQR Emerging Markets	3.68% 0.41%	1.08% (3.33%)	9.11% 6.84%	2.25%	6.90%
MSCI EM Gross	0.74%	1.62%	11.07%	2.87%	6.17%
Brandes Investment Partners	(0.11%)	(4.63%)	7.15%	1.09%	6.13%
MSCI EAFE Index	3.68%	1.08%	9.11%	2.25%	6.90%
William Blair & Company MSCI ACWI ex-US Index	5.52% 3.22%	0.87% 1.80%	9.68% 9.91%	3.82% 2.65%	9.37% 7.03%
DFA International Small Cap	0.15%	(11.54%)	6.29%	1.05%	8.17%
Blended Benchmark	1.71%	(6.35%)	9.06%	4.40%	9.35%
Total Fixed Income Net	3.52%	8.64%	4.03%	3.15%	5.61%
Blmbg Aggregate	3.08%	7.87%	2.31%	2.95%	3.90%
Allianz US Fixed Income 250	3.60%	8.72%	4.82%	- 5.45%	- 6.409/
Blmbg Aggregate +2.5% BlackRock US Debt ldx Fd	3.65% 3.08%	10.37% 7.90%	2.30%	5.45%	6.40%
Reams Asset Management	2.96%	8.72%	2.95%	3.39%	5.11%
Loomis, Sayles & Company, L.P.	4.02%	8.79%	6.65%	4.12%	8.06%
Blmbg Aggregate	3.08%	7.87%	2.31%	2.95%	3.90%
Total Private Equity	6.88%	17.22%	17.28%	14.13%	-
Abbott Capital Management 2010	5.46% 6.61%	19.50% 19.77%	19.81% 19.22%	15.94% 15.09%	-
Abbott Capital Management 2011 Abbott Capital Management 2012	5.99%	18.31%	18.12%	12.42%	_
Abbott Capital Management 2013	8.46%	20.09%	18.89%	11.74%	_
Abbott Capital Management 2014	8.77%	19.72%	15.73%	8.44%	-
Abbott Capital Management 2015	8.88%	16.85%	10.13%	-	-
Abbott Capital Management 2016 Abbott Capital Management 2018	5.70% 1.18%	12.95% (1. <mark>87%</mark>)	4.92%	=	_
Mesirow V	7.89%	17.22%	18.60%	16.77%	_
Mesirow IV	8.38%	20.26%	16.31%	7.46%	-
Mesirow VII NB Secondary Opp Fund III	3.34% 6.28%	(3. <mark>57%)</mark> 13.10%	- 17.03%	- 17.89%	-
NB Secondary Opp Fund IV	11.33%	46.15%	-	-	-
Private Advisors VI	4.54%	10.80%	11.21%	-	-
Private Advisors VII	4.31%	8.28%	-	-	-
Private Advisors VIII Russell 3000 (1 Qtr in Arrears) + 3%	1.44% 14.55%	- 12.07%	16.60%	- 13.44%	-
Absolute Return	3.47%	6.72%	5.73%	5.75%	_
Allianz SA 1000	3.27%	7.46%	8.37%	9.25%	-
T-Bills + 10%	3.01%	12.31%	11.38%	10.87%	10.49%
Newton	4.33%	10.69%	3.97%	-	-
UBS A & Q 1-month LIBOR + 4%	3.14% 1.59%	4.41% 6.43%	5.14% 5.57%	5.04%	4.63%
Real Assets	1.37%	0.73%	4.22%	_	_
Principal DRA	1.37%	0.73%	4.22%	-	-
Principal Blended Benchmark (1)	2.12%	2.87%	4.70%	-	-
Total Real Estate	1.42%	7.86%	8.49%	10.18%	7.66%
Real Estate	1.42%	7.86%	8.49%	10.18%	7.66%
Blended Benchmark (2)	1.48%	6.80%	7.26%	9.37%	8.63%
Total Fund Net	3.38%	5.92%	9.76%	6.37%	9.81%
Total Fund Reference Index*	3.92%	5.97%	8.64%	6.12%	9.35%

^{*}Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used 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.

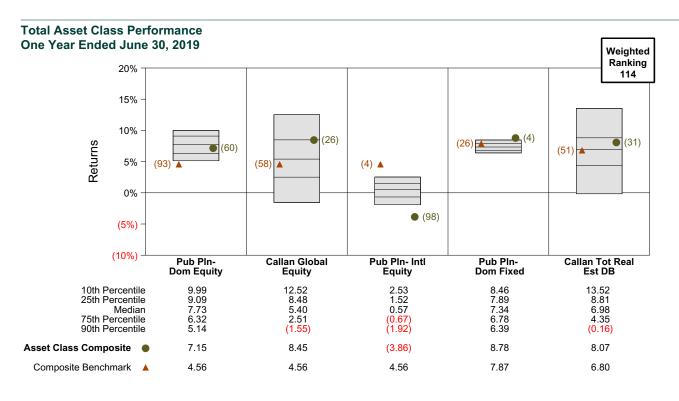
	12/2018-				
	6/2019	2018	2017	2016	2015
Net of Fee Returns Total Domestic Equity Net	18.35%	(6.10%)	20.53%	13.55%	(0.39%)
Russell 3000 Index	18.71%	(5.24%)	21.13%	12.74%	0.48%
BlackRock Russell 1000 Value Russell 1000 Value Index	16.28% 16.24%	(8.13%) (8.27%)	- 13.66%	- 17.34%	(3.83%)
DFA Large Cap Value	14 91%	(12.60%)	-	-	` -
Russell 1000 Value Index Northern Trust Global	16.24% 18.58%	(8.27%) (4.37%)	13.66% 21.83%	17.34% 11.98%	(<mark>3.83%)</mark> 1.46%
S&P 500 Index	18.54%	(4.38%)	21.83%	11.96%	1.38%
Polen Capital Management S&P 500 Index	24.12% 18.54%	8.60% (4.38%)	27.05% 21.83%	1.19% 11.96%	14.94% 1.38%
Earnest Partners LLC	26.64%	(10.29%)	25.50%	15.90%	0.71%
Russell MidCap Index DFA Small Cap Value	21.35% 10.40%	(9.06%) (15.30%)	18.52% 7.10%	13.80% 28.68%	(2.44%) (6.57%)
Russell 2000 Value Index	13.47%	(12.86%)	7.84%	31.74%	(7.47%)
CastleArk Management Russell 2000 Growth Index	22.15% 20.36%	2.60% (9.31%)	23.12% 22.17%	5.30% 11.32%	(5.54%) (1.38%)
		,			, ,
Total Global Equity Net MSCI World	19.29% 16.98%	(8.51%) (8.71%)	30.85% 22.40%	8.26% 7.51%	(2.44%) (0.87%)
BlackRock Global Alpha Tilts	17.33%	(11.24%)	30.06%	-	` -
MFS Investment Management MSCI ACWI Gross	22.20% 16.60%	(4.16%) (8.93%)	32.62% 24.62%	5.62% 8.48%	(0.89%) (1.84%)
		, ,			, ,
Total International Equity Net MSCI EAFE Index	11.13% 14.03%	(15.60%) (13.79%)	24.44% 25.03%	5.27% 1.00%	(0.89%) (0.81%)
AQR Emerging Markets	10.20%	(18.93%)	34.55%	-	`- ′
MSCI EM Gross Brandes Investment Partners	10.78% 6.38%	(14.24%) (9.17%)	37.75% 16.06%	11.60% 8.05%	(14.60%) (1.66%)
MSCI EAFE Index	14.03%	(13.79%)	25.03%	1.00%	(0.81%)
William Blair & Company MSCI ACWI ex-US Index	20.10% 14.00%	(17.20%) (13.77%)	30.94% 27.77%	(1. <mark>84%)</mark> 5.01%	(0.22%) (5.25%)
DFA International Small Cap	8.82%	(23.31%)	27.98%	8.00%	3.99%
Blended Benchmark	12.55%	(17.89%)	33.01%	2.18%	9.59%
Total Fixed Income Net	8.03%	(0.47%)	5.09%	7.21%	(2.63%)
Blmbg Aggregate Allianz US Fixed Income 250	6.11% 8.39%	0.01%	3.54%	2.65%	0.55%
Blmbg Aggregate +2.5%	7.28%	2.51%	6.04%	5.16%	3.05%
BlackRock US Debt Idx Fd Reams Asset Management	6.14% 6.15%	(0.00%) 1.76%	3.63% 3.46%	- 4.22%	0.23%
Loomis, Sayles & Company, L.P.	9.92%	(2.24%)	8.36%	13.82%	(6.20%)
Blmbg Aggregate	6.11%	0.01%	3.54%	2.65%	0.55%
Total Private Equity	6.72%	21.48%	17.27%	9.09%	12.34%
Abbott Capital Management 2010 Abbott Capital Management 2011	5.46% 6.61%	26.90% 25.70%	19.98% 19.24%	11.03% 10.43%	12.32% 10.12%
Abbott Capital Management 2012	5.99%	24.39%	17.97%	9.42%	2.45%
Abbott Capital Management 2013	8.46%	25.17%	18.71%	5.25%	2.23% 0.39%
Abbott Capital Management 2014 Abbott Capital Management 2015	8.77% 8.88%	22.58% 13.57%	13.50% 6.87%	2.86% (5.11%)	0.39%
Abbott Capital Management 2016	5.35%	9.43%	(1.13%)	-	-
Abbott Capital Management 2018 Mesirow V	0.53% 7.89%	- 18.01%	21.00%	- 12.03%	- 19.41%
Mesirow IV	7.94% 2.34%	24.87%	12.50%	3.32%	(3.99%)
Mesirow VII NB Secondary Opp Fund III	6.28%	<mark>(7.82%)</mark> 16.65%	20.63%	12.83%	33.37%
NB Secondary Opp Fund IV	8.12%	68.26%	- 12.150/	- (4.240/)	=
Private Advisors VI Private Advisors VII	4.54% 4.31%	15.19% 19.02%	13.15% (3.33%)	(1.34%)	-
Private Advisors VIII Russell 3000 (1 Qtr in Arrears) + 3%	1.44% (0.50%)	- 20.60%	- 21.71%	- 17.97%	- 2.56%
,	(0.50%)			17.97 %	
Absolute Return Allianz SA 1000	7.71% 10.97%	1.61% (0.97%)	5.96% 9.67%	5.16% 11.15%	4.92% 9.76%
T-Bills + 10%	6.07%	11.87%	10.86%	10.33%	10.05%
Newton UBS A & Q	9.39% 5.26%	2.18% 2.65%	5.59% 4.16%	3.31%	1.50% 4.09%
1-month LIBOR + 4%	3.21%	6.07%	5.11%	2.42% 4.49%	4.19%
Real Assets	10 160/	(7.47%)	10.15%	7.00%	_
Principal DRA	10.16% 10.16%	(7.47%) (7.47%)	10.15%	7.00%	-
Principal Blended Benchmark (1)	11.02%	(7.27%)	10.38%	6.77%	-
Total Real Estate	2.56%	8.94%	8.89%	11.09%	13.15%
Real Estate	2.56%	8.94%	8.89%	11.09%	13.15%
Blended Benchmark (2)	2.89%	7.89%	6.93%	9.69%	13.82%
Total Fund Net	11.02%	(3.01%)	16.36% 15.80%	8.80%	0.46%
Total Fund Reference Index*	10.03%	(3.29%)	15.80%	7.43%	1.27%

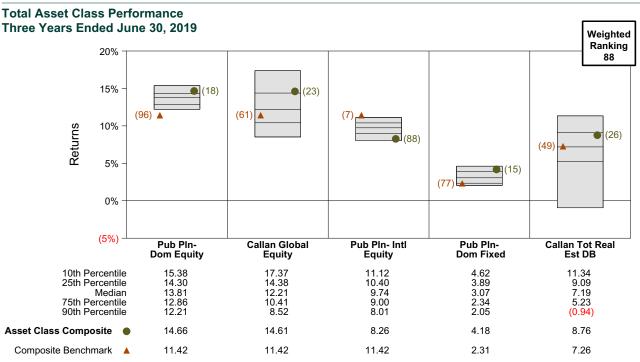
^{*}Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.



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.



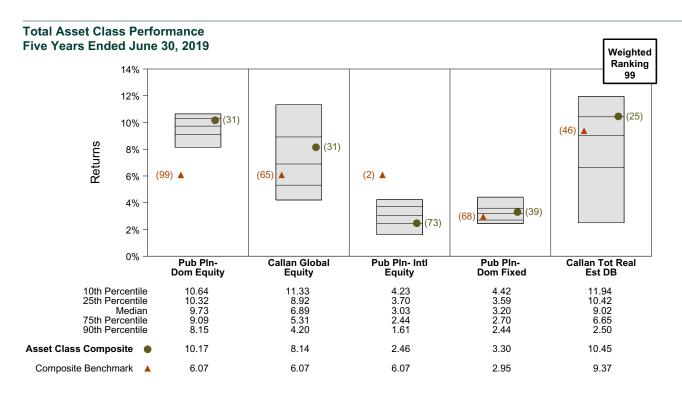


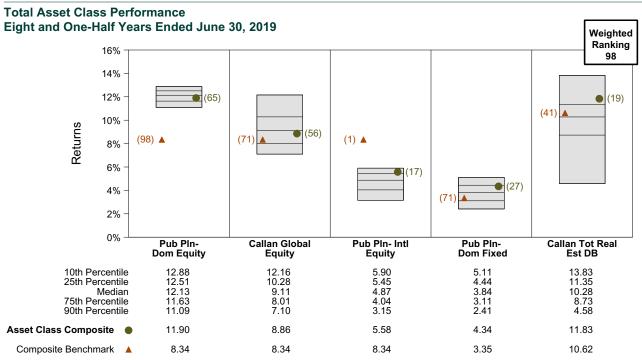
^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.



Asset Class Rankings

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





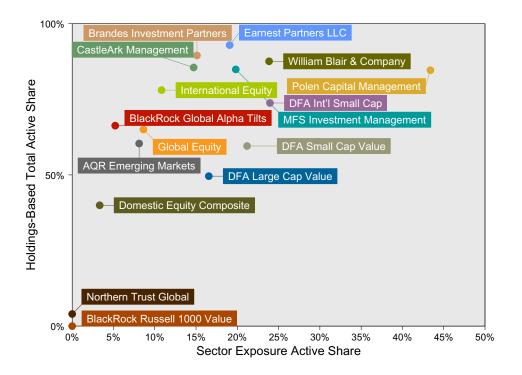
^{*} Current Quarter Target = 47.0% MSCI ACWI IMI, 25.0% Blmbg Aggregate, 9.0% 3-month Treasury Bill+3.0%, 8.0% Russell 3000 Index lagged 3 months+3.0%, 7.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.



Active Share Structure Analysis For One Quarter Ended June 30, 2019

This analysis compares multiple portfolios and composites in an active share context, illustrating the varying degrees of active risk taken by individual portfolios, and how they combine into active risk profiles for composites and the equity structure. Two sources of active share (active risk) are shown: 1) Total Holdings-Based Active Share based on individual position comparisons to the index (and the subcomponent from holding non-index securities), and 2) Sector Exposure Active Share that quantifies the more macro-level sector differences from the index.

Active Share Analysis Ended June 30, 2019



	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
Domestic Equity Composite	Russell 3000	39.96%	0.36%	3.33%	1921	65.77
BlackRock Russell 1000 Value	Russell 1000 Value	0.00%	0.00%	0.00%	755	54.45
DFA Large Cap Value	Russell 1000 Value	49.59%	0.93%	16.55%	251	27.87
Northern Trust Global	S&P 500	4.00%	0.03%	0.00%	505	48.66
Polen Capital Management	S&P 500	84.61%	1.80%	43.38%	21	6.95
Earnest Partners LLC	Russell MidCap	92.93%	14.07%	19.07%	59	20.76
DFA Small Cap Value	Russell 2000 Value	59.56%	11.65%	21.18%	995	113.08
CastleArk Management	Russell 2000 Growth	85.53%	18.30%	14.71%	106	40.33
Global Equity	MSCI World	65.03%	9.90%	8.62%	746	68.08
BlackRock Global Alpha Tilts	MSCI ACWI Gross	66.30%	6.15%	5.21%	693	62.10
MFS Investment Management	MSCI ACWI Gross	84.90%	4.44%	19.81%	87	29.12
International Equity	MSCI EAFE	78.04%	25.16%	10.82%	2611	66.83
AQR Emerging Markets	MSCI EM Gross	60.38%	0.41%	8.11%	262	36.29
Brandes Investment Partners	MSCI EAFE	89.49%	10.90%	15.11%	59	20.76
William Blair & Company	MSCI ACWIxUS Gross	87.57%	17.25%	23.85%	190	38.80
DFA Int'l Small Cap MS	SCI World ex US Sm Cap	73.79%	8.16%	23.95%	2148	180.82





2nd Quarter 2019

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 Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

The OCIO Model: How Do We Measure Success? | This paper outlines the key issues for evaluating the success of outsourced chief investment officer (OCIO) services.

Perspectives on Investing: The Evolution of Strategic Allocations | In this video, Callan experts discuss the key challenges of evaluating non-U.S. equity investments.

Opportunities & Challenges: Investing in Private Equity

Partnerships | In this video, Callan experts discuss investing directly in private equity partnerships.

Building a Pool of Transition Managers: Both an Art and a Science | Transition management is the restructuring of institutional portfolios from single or multiple investment managers/ asset classes to a new allocation over a short-term horizon. This paper offers guidance on building a pool of transition managers.

Callan's Periodic Table Explained | The popular Callan Periodic
Table of Investment Returns turned 20 this



Table of Investment Returns turned 20 this year. This animated feature discusses the benefits and some of the history of the table.

The Cobbler's Shoes: How Asset Managers Run Their Own 401(k) Plans | Can investment manager-sponsored DC plans provide insights on plan design and implementation? To help answer this question, Callan examined the 401(k) plans of investment



managers. The industry scored high on retirement savings metrics. But in contrast to the industry consensus, asset managers generally embraced complexity over simplicity in their investment designs.

How to Distinguish Between Growth Equity and Late-Stage VC



Both growth equity and latestage venture capital are growth-oriented but differ sig-

nificantly in the types of companies they invest in, the structure of their investments, the way in which they create value, and the tradeoffs between risk and return.

Nurturing Strong Cultures at Professional Firms | In this paper, Callan Executive Chairman Ron Peyton offers advice for building effective and transparent corporate cultures.

<u>Opening Doors of Opportunity</u> | This paper reviews the types of co-investment opportunities offered by hedge funds and funds-offunds (FOFs).

Quarterly Periodicals

<u>Private Equity Trends</u> | A newsletter on private equity activity, covering both the fundraising cycle and performance over time.

Market Pulse Flipbook | A market reference guide covering trends in the U.S. economy, developments for fund sponsors, and the latest data for U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution plans.

<u>Active vs. Passive Charts</u> | This series of charts compares active managers alongside relevant benchmarks over the long term.

<u>Capital Market Review</u> | A newsletter providing analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

Events

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

Please mark your calendar and look forward to upcoming invitations.

October Regional Workshops

October 22, 2019 – Denver October 24, 2019 – Chicago

2020 National Conference

January 27-29, 2020 - San Francisco

Please also keep your eye out for upcoming Webinars in 2019! We will be sending invitations for these and also will have registration links on our website at www.callan.com/events.

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 23-24, 2019 Atlanta, October 8-9, 2019 Chicago, October 22-23, 2019

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

"Callan College" on Alternative Investments

Chicago, October 29-30, 2019

The "Callan College" on Alternative Investments will cover: private equity, private credit, hedge funds, real estate, and real assets. Tuition for the "Callan College" on Alternative Investments session is \$2,500 per person. Tuition includes instruction, all materials, and breakfast and lunch on each day.

Learn more at www.callan.com/events/callan-college-intro

525

Education: By the Numbers

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 dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer







List of Callan's Investment Manager Clients

Confidential - For Callan Client Use Only

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

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

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		
Aberdeen Standard Investments		
Acadian Asset Management LLC		
AEGON USA Investment Management		
Alcentra		
AllianceBernstein		
Allianz Global Investors		
Allianz Life Insurance Company of North America		
American Century Investments		
Amundi Pioneer Asset Management		
AQR Capital Management		
Ares Management LLC		
Ariel Investments, LLC		
Atlanta Capital Management Co., LLC		
Aviva Investors Americas		
AXA Investment Managers		
Baillie Gifford International, LLC		
Baird Advisors		
Baron Capital Management, Inc.		
Barrow, Hanley, Mewhinney & Strauss, LLC		
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		
BrightSphere Investment Group		
Brown Brothers Harriman & Company		
Cambiar Investors, LLC		
Capital Group		
Carillon Tower Advisers		
CastleArk Management, LLC		
Causeway Capital Management		
Chartwell Investment Partners		

Manager Name			
ClearBridge Investments, LLC			
Cohen & Steers Capital Management, Inc.			
Columbia Threadneedle Investments			
Columbus Circle Investors			
Credit Suisse Asset Management			
DePrince, Race & Zollo, Inc.			
Diamond Hill Capital Management, Inc.			
Dimensional Fund Advisors LP			
Doubleline			
Duff & Phelps Investment Management Co.			
DWS			
EARNEST Partners, LLC			
Eaton Vance Management			
Epoch Investment Partners, Inc.			
Fayez Sarofim & Company			
Federated Investors			
Fidelity Institutional Asset Management			
Fiera Capital Corporation			
Financial Engines			
First Hawaiian Bank Wealth Management Division			
First State Investments			
Fisher Investments			
Franklin Templeton			
Fred Alger Management, Inc.			
GAM (USA) Inc.			
Glenmeade Investment Management, LP			
GlobeFlex Capital, L.P.			
Goldman Sachs			
Green Square Capital LLC			
Guggenheim Investments			
GW&K Investment Management			
Harbor Capital Group Trust			
Hartford Investment Management Co.			
Heitman LLC			

Manager Name Hotchkis & Wiley Capital Management, LLC **HSBC Global Asset Management** Income Research + Management, Inc. Insight Investment Management Limited Intech Investment Management, LLC Intercontinental Real Estate Corporation Invesco Investec Asset Management Ivy Investments J.P. Morgan Janus Jennison Associates LLC Jobs Peak Advisors KeyCorp Lazard Asset Management Legal & General Investment Management America Lincoln National Corporation Logan Circle Partners, L.P. Longview Partners Loomis, Sayles & Company, L.P. Lord Abbett & Company Los Angeles Capital Management LSV Asset Management MacKay Shields LLC Macquarie Investment Management (MIM) Manulife Asset Management Marathon Asset Management, L.P. McKinley Capital Management, LLC MFS Investment Management MidFirst Bank Mondrian Investment Partners Limited Montag & Caldwell, LLC Morgan Stanley Investment Management Mountain Lake Investment Management LLC Mountain Pacific Advisors, LLC MUFG Union Bank, N.A. **Natixis Investment Managers** Neuberger Berman **Newton Investment Management** Nikko Asset Management Co., Ltd. Northern Trust Asset Management Nuveen

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

Westfield Capital Management Company, LP

William Blair & Company LLC

OFI Global Asset Management

P/E Investments

Osterweis Capital Management, LLC