# Callan

June 30, 2018

Illinois Municipal Retirement Fund Quarterly Performance Report

Investment Measurement Service Quarterly Review

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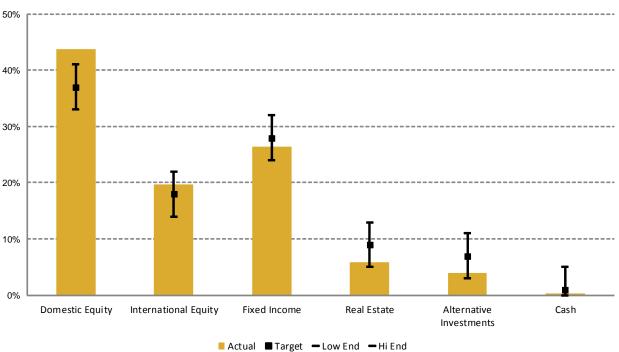


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Executive Summary

# Executive Summary As of June 30, 2018



#### Actual Asset Allocation vs. Target Asset Allocation

## **Total Fund**

The Fund returned 1.57% for the quarter, 33 basis points ahead of the benchmark and ranked 8th percentile in Callan's Large Public Fund Sponsor Database. In the public market portfolio, Domestic Equity (+4.62%) and International Equity (-2.60%) outperformed their respective benchmarks. Fixed Income (-0.35%) trailed for the quarter. For the trailing year, Private Equity (+14.87%) beat its benchmark, while Agriculture (-6.06%) and Timberland (+2.28%) trailed their benchmarks. Real Estate (+10.22%) outpaced its custom benchmark by 311 basis points over the last year ended March 31, 2018. Attribution for the quarter shows asset allocation added four basis points while implementation added 29 basis points. Over the last year, implementation added 126 basis points and asset allocation added 46 basis points.

Current policy states that when actual allocations differ by more than four percentage points from their policy targets, a recommendation for rebalancing will be made to the Board of Trustees. At the end of the quarter, Domestic Equity was 6.8 percentage points above target. The Chief Investment Officer and Consultant do not recommend rebalancing at this time.



# Executive Summary As of June 30, 2018

# U.S. Equity (\$18.1 billion, 43.8% of Total Fund)

The U.S. equity composite rose 4.62% for the quarter, outperforming the benchmark (Russell 3000 Index) return of 3.89%, ranking 25th percentile versus peers. Growth led value over the quarter with the Russell 1000 Growth and Value up up 5.76% and 1.18%, respectively. Small Caps (Russell 2000 Index: +7.75%) outperformed large caps (Russell 1000 Index: +3.57%).

*Large Cap:* The large cap composite returned 3.81% for the quarter. Large cap growth managers outperformed the index (Russell 1000 Growth: +5.76%) with a return of 8.00% and ranked 8th percentile. Large cap value managers gained 0.99% but trailed the benchmark (Russell 1000 Value Index: +1.18%) by 19 basis points. Sands (+10.84%) led large cap performance for the quarter and placed 1st percentile.

*Small Cap:* The small cap composite (+7.72%) trailed the Russell 2000 Index (+7.75%) by three basis points during the second quarter and ranked 38th percentile. Small cap growth managers (+7.42%) beat the Russell 2000 Growth Index (+7.23%) by 19 basis points. Small cap value managers (+7.95%) trailed the Russell 2000 Value Index (+8.30%) by 35 basis points. Frontier led small cap growth with a return of 12.02%. Investment Counselors of Maryland led small cap value managers, returning 9.07%. The micro cap composite rose 7.93% during the quarter. Ativo and DFA gained 5.05% and 8.82%, respectively.

*Public Real Assets:* The public real assets composite returned 3.97% for the quarter, outperforming its custom benchmark return (+3.32%) by 65 basis points. Brookfield increased 5.46%, beating its benchmark (Dow Jones Global Listed Infrastructure Composite Index) by 25 basis points. Cohen & Steers (+3.27%) outperformed its benchmark's (FTSE Global Core Infrastructure 50/50 Net Index) return of 2.70%.

# International Equity (\$8.2 billion, 19.7% of Total Fund)

The IMRF non-U.S. equity composite trailed its U.S. counterpart with a return of -2.60% for the quarter, finishing one basis point ahead of the MSCI ACWI ex-U.S. Index (-2.61%). The composite ranked 49th percentile versus peers. The international equity composite returned 8.58% over the last year, 130 basis points ahead of its benchmark (MSCI ACIW ex-U.S. Index: +7.28%).

*Large Cap:* The international large cap composite fell 2.07%, 54 basis points ahead of its benchmark (MSCI ACWI ex-U.S. Index) and ranking 57th percentile versus peers. Growth managers led value with returns of -2.09% and -2.38%, respectively. William Blair was the better performing growth manager, returning -1.50%. Brandes was the best performing value manager, down 0.81%. International large cap active core managers (-2.66%) trailed their bechmark (MSCI ACWI ex-U.S. Index) by five basis points.

*Small Cap:* The international small cap composite fell 3.13%, 53 basis points behind its benchmark (MSCI ACWI ex-U.S. Small Cap Index: -2.60%), and ranked 76th percentile. Franklin Templeton was the better performer but still lost 3.10% for the quarter.

*Emerging Markets:* Genesis fell 6.75%, 111 basis points ahead of the MSCI Emerging Markets Index (-7.86%), and ranking 23rd percentile versus peers. Genesis was up 9.55% over the last year, 96 basis points ahead of its benchmark (MSCI Emerging Markets Index: 8.59%).

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# Executive Summary As of June 30, 2018

# Fixed Income (\$10.9 billion, 26.4% of Total Fund)

The IMRF fixed income composite fell 0.35% during the seond quarter. The return was behind the Bloomberg Aggregate Index (-0.16%) by 19 basis points and ranked 89th percentile.

*Active Core:* The composite of active core managers returned 0.06%, 22 basis points ahead of the Bloomberg Aggregate Index (-0.16%). Garcia Hamilton led the way, up 0.42% for the quarter.

*Core Plus:* The composite of core plus managers posted a loss of 0.65%, ranking 88th percentile and trailing the Bloomberg Aggregate Index by 49 basis points. Progress led performance among core plus managers.

*Bank Loans:* The bank loan component managed by Barings gained 0.70% trailing its custom benchmark by six basis points.

*Emerging Markets:* The emerging market debt component managed by Standish lost 8.63% trailing the index by 210 basis points and ranking 67th percentile.

*Opportunistic:* The opportunistic allocation, managed by Crescent, increased 0.80% in the second quarter trailing the custom benchmark by five basis points.

*High Yield:* The high yield allocation, managed by Mackay Shields, returned 0.30% in the second quarter, 70 basis behined the return of the ML High Yield Cash Pay Index.

## Real Estate (\$2.4 billion, 5.8% of Total Fund)

Performance for the real estate portfolio is lagged one quarter and is taken from the Real Estate Report.. For the year ending March 31, 2018, the real estate portfolio gained 10.22%, beating the benchmark and ranking 34th percentile. For the trailing three year period, the real estate portfolio rose 10.81%. Core investment, representing 50.63% of the portfolio, returned 7.69% for the trailing year and 9.97% over the trailing three year period. Non-core, representing 49.37% of the portfolio, surged 13.27% over the trailing year and 11.87% over the trailing three year period.

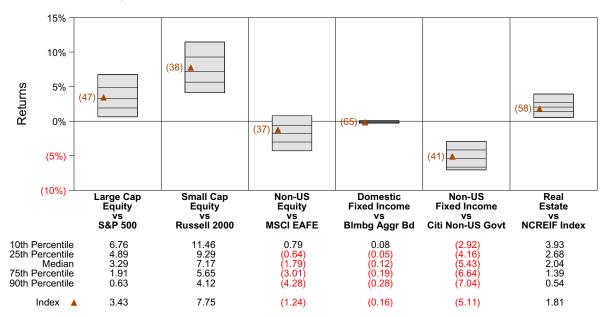
Market Overview

#### Market Overview Active Management vs Index Returns

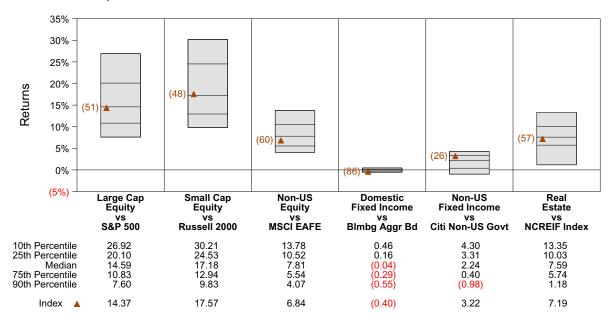
#### Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

#### Range of Separate Account Manager Returns by Asset Class One Quarter Ended June 30, 2018



#### Range of Separate Account Manager Returns by Asset Class One Year Ended June 30, 2018



# Market Environment As of July 31, 2018

Index	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:3000 Index	3.89	16.39	12.18	12.83	10.68
S&P:500	3.43	16.24	12.52	13.12	10.67
Russell:2000 Index	7.75	18.73	12.04	11.33	10.39
MSCI:ACWI ex US	(2.61)	5.94	6.00	5.59	3.16
MSCI:EM	(7.96)	4.36	8.94	5.25	2.87
Blmbg:Aggregate	(0.16)	(0.80)	1.49	2.25	3.73
NCREIF:Total Index	1.81	7.23	8.10	9.72	6.29
Dischar Osara a dita Daisa data	(0.07)	4.40			(0.00)
Blmbg:Commodity Price Idx	(0.07)	1.19	(2.38)	(7.51)	(8.39)

Trade policy emerged as the dominant narrative across global markets in the second quarter of 2018. Escalating trade rhetoric between the U.S. and China continued to intensify, while the sphere of nations impacted by the conflict expanded. The trade war has sparked inflation fears and raised volatility in the global markets.

Despite the turmoil, U.S. equities performed well on the back of healthy corporate earnings and strong economic data. Small capitalization equities outperformed large caps. Growth outpaced value, with the Tech and Consumer Discretionary sectors both performing well. Unhedged international equity indices were generally negative, while their local currency counterparts were mixed. Emerging markets were particularly challenged, affected by both a stronger U.S. dollar and lower global growth expectations.

The first estimate of second quarter GDP in the U.S. grew 4.1%. Despite exceeding first quarter growth by 1.9%, analysts' expectations were slightly higher. The healthy economic landscape compelled the Federal Reserve (Fed) to hike the Federal Funds target rate by 25 basis points to a range of 1.75% to 2.00% in June. Fed leadership also provided guidance to the possibility of two more hikes this year. In Europe, leadership at the European Central Bank (ECB) indicated that short term rates would likely remain subdued until the middle of 2019.

The labor market remains strong in the U.S. with low unemployment, healthy job growth and multigenerational lows in unemployment insurance claims. The unemployment rate dropped from March's 4.1% to 4.0% in June after reaching an intra-quarter low of 3.8% in May. Wages continued their glacial climb with hourly earnings maintaining the same year-over-year growth rate as last quarter-end's 2.7%.

Inflation is moving up but remains contained. The Producer Price Index was up 3.4% year-over-year in June on rising metals and energy prices. Consumer prices rose 2.9% with energy prices surging 12% (gasoline +24.3%). Core CPI (ex-food and energy) was up 2.3%, an increase of 0.2% over March. The Fed's favored inflation measure, the Core Personal Consumption Expenditures Index rose 2.7%, up from the first quarter reading of 2.4%.

<sup>\*</sup>Due to a lag in the reporting of NCREIF Property Index returns, the monthly return shown is deduced from the most recent quarterly return. This monthly return, when compounded over three months, equates to the quarterly return.

# Periodic Table of Returns As of June 30, 2018

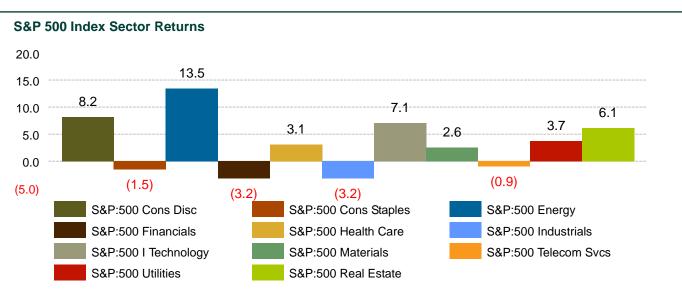
Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:2000 Index	Russell:2000 Index	S&P:500	S&P:500	Russell:2000 Index
7.8%	17.6%	11.9%	13.4%	10.6%
Russell:3000 Index				
Russell.5000 Index			Russell.5000 Index	Russen.0000 muex
3.9%	14.8%	11.6%	13.3%	10.2%
S&P:500	S&P:500	Russell:2000 Index	Russell:2000 Index	S&P:500
3.4%	14.4%	11.0%	12.5%	10.2%
NCREIF:NFI-ODCE Val	NCREIF:NFI-ODCE Val	NCREIF:NFI-ODCE Val	NCREIF:NFI-ODCE Val	ML:US High Yield Cash
Wt Gr	Wt Gr	Wt Gr	Wt Gr	Pay
0.40/	0.404	0.494	44.00/	0.00/
2.1%	8.4%	9.4%	11.0%	8.0%
ML:US High Yield Cash	MSCI:EM	MSCI:EM	MSCI:ACWI ex US	NCREIF:NFI-ODCE Val
Pay				Wt Gr
1.0%	8.2%	5.6%	6.0%	5.3%
3 Month T-Bill	MSCI:ACWI ex US	ML:US High Yield Cash	ML:US High Yield Cash	Blmbg:Aggregate
		Pay	Pay	
0.5%	7.3%	5.5%	5.5%	3.7%
Blmbg:Aggregate	ML:US High Yield Cash	MSCI:ACWI ex US	MSCI:EM	MSCI:ACWI ex US
Dimby.Aggregate	Pav			
	i dy			
(0.2%)	2.5%	5.1%	5.0%	2.5%
MSCI:ACWI ex US	3 Month T-Bill	Blmbg:Aggregate	Blmbg:Aggregate	MSCI:EM
(2.6%)	1.4%	1.7%	2.3%	2.3%
MSCI:EM	Blmbg:Aggregate	3 Month T-Bill	3 Month T-Bill	3 Month T-Bill
(8.0%)	(0.4%)	0.7%	0.4%	0.4%

# U.S. Equity Overview As of July 31, 2018

Index	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:3000 Index	3.89	16.39	12.18	12.83	10.68
Russell:1000 Index	3.57	16.19	12.20	12.96	10.70
Russell:1000 Growth	5.76	22.84	14.81	15.83	12.37
Russell:1000 Value	1.18	9.54	9.51	10.04	8.95
Russell:Midcap Index	2.82	13.45	10.21	11.51	10.79
Russell:2000 Index	7.75	18.73	12.04	11.33	10.39
Russell:2000 Growth	7.23	22.91	11.08	12.38	11.17
Russell:2000 Value	8.30	14.37	12.92	10.19	9.52

U.S. equities in the second quarter found themselves caught in the tug-of-war between strong macroeconomic data, strong company fundamentals, and troubling geopolitical developments. With above-consensus employment gains, growing but still subdued inflation, seven-year highs in corporate earnings growth, and trade tensions between the U.S. and its key trading partners all vying for investor attention, U.S. equities managed a respectable gain in the quarter despite a few blips along the way (Russell 3000 Index: +3.9%). As measured by the CBOE Volatility Index (VIX), stock market volatility in the quarter remained elevated relative to 2017 but receded when compared to the first quarter (2Q18 VIX Average: 15; 1Q18 VIX Average: 17; 2017 VIX Average: 11). Small caps (Russell 2000 Index: +7.8%) outperformed large caps (Russell 1000 Index: +3.6%) as smaller companies tend to source more revenue domestically, somewhat shielding them from trade tensions. Growth versus value performance was mixed as growth outperformed in the large cap space but value outperformed in small cap (Russell 1000 Growth Index: +5.8% vs. Russell 1000 Value Index: +1.2%; Russell 2000 Growth Index: +7.2% vs. Russell 2000 Value Index: +8.3%).

Energy (+13.5%) was the best performing sector as supply concerns drove oil prices higher. Growth sectors including Consumer Discretionary (+8.2%) and Technology (+7.1%) also performed well. Financials declined 3.2%, impacted by the flattening yield curve. Industrials also fell 3.2%, and Consumer Staples (-1.5%) and Telecom (-0.9%) posted losses as well.

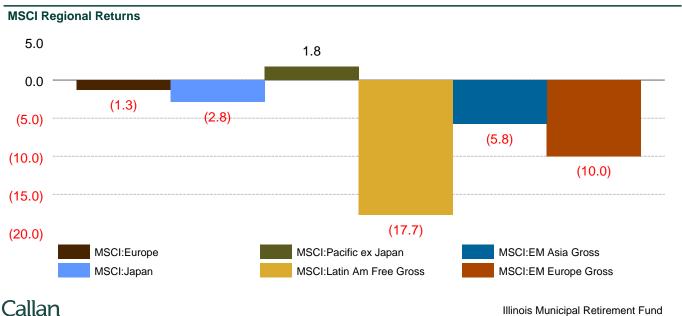


# Non-U.S. Equity Overview As of July 31, 2018

					Last 10
Index	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Years
MSCI:ACWI ex US	(2.61)	5.94	6.00	5.59	3.16
MSCI:EAFE	(1.24)	6.40	5.03	5.86	3.43
MSCI:EAFE Hedged Net	3.93	10.11	6.06	9.19	6.08
MSCI:EM	(7.96)	4.36	8.94	5.25	2.87
MSCI:ACWI ex US Small Cap	(2.60)	7.54	8.89	8.08	6.32

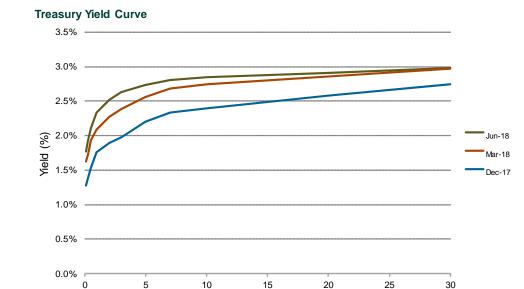
Equity markets outside the U.S. were fighting an uphill battle for much of the guarter. At the end of May, Italian President Sergio Mattarella blocked the formation of a government coalition that would include prominent figures with euro-skeptic views, leading to uncertainty around Italy's future in the Eurozone. Meanwhile, a political fundraising scandal roiled confidence in Spanish Prime Minister Mariano Rajoy. Although both situations were resolved in early June with outcomes that calmed Eurozone fears, markets also had to contend with increasing trade rhetoric targeting European trade partners in addition to China. Further, while the Fed has already begun to raise rates, the ECB and Bank of Japan both indicated that short-term rates would likely not be adjusted in the immediate future. As a result the U.S. dollar gained against most other currencies, erasing gains in local currency terms (MSCI EAFE Index: -1.2% vs. MSCI EAFE Hedged Net Index: +3.9%).

Emerging markets (EM) was the region most significantly impacted by trade tensions and dollar strength. The MSCI Emerging Markets Index fell 8.0%, snapping a five quarter streak of positive returns. All of the EM regions posted notable losses with Latin America as the standout detractor, falling 17.7% (MSCI Latin Am Free Gross Index). Brazil, with its 55% weight and 26.4% loss, dragged the region down as the country continues to struggle with political instability. The only region posting a gain was Pacific Ex Japan (MSCI Pacific Ex Japan Index: +1.8%), aided by Australia's 57% regional weight and return of 5.2%. Australia's declining unemployment and improving consumer sentiment drove its stock market higher.



# Fixed Income Overview As of July 31, 2018

					Last 10
Index	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Years
Blmbg:Aggregate	(0.16)	(0.80)	1.49	2.25	3.73
Blmbg:Long Gov/Credit	(1.45)	(0.80)	3.68	5.19	6.90
Blmbg:US Government	0.10	(1.20)	0.61	1.41	2.83
Blmbg:Credit	(0.88)	(0.66)	2.89	3.37	5.29
Blmbg:Mortgage Backed Sec	0.24	(0.41)	1.21	2.25	3.54
BImbg:US TIPS	0.77	1.17	1.69	1.43	3.04
ML:US High Yield Cash Pay	1.00	2.46	6.13	5.33	8.25
3 Month T-Bill	0.45	1.43	0.73	0.45	0.35
CS:Leveraged Loan	0.78	4.72	4.59	4.19	5.12



On June 14, the Fed Funds target rate increased by 25 bps for the second time this year and the Fed signaled two possible additional increases in 2018. Coming into the year, the consensus expectation was for three rate hikes so the addition of one more reflects the Fed's belief that "...the U.S. economy is in great shape" as Fed Chairman Jerome Powell stated. In conjunction with the Fed's actions, the yield curve flattened over the quarter, rising most in the 3-month to 3-year range. The biggest change was the 2-year Treasury rate that rose 25 bps to 2.52%. The 10-year Treasury settled at 2.85%, up only 11 bps for the quarter, though it crossed over the 3% threshold in late April and again in mid-May. On the long end, the 30-year Treasury rose by only one basis point to 2.98%.

Maturity (Years)

The Bloomberg Aggregate Index fell a modest 0.2% in the second quarter. Credit (Bloomberg Credit Index: -0.9%; Bloomberg Long Gov/Credit: -1.4%) was the biggest detractor from the broad benchmark's performance as rising rates combined with spread widening weighed on the sector. Investment grade corporate spreads widened 14 basis points to 1.23%, their highest level since December 2016, as an influx of corporate debt supply and increasing leverage among individual issuers concerned investors. High yield (ML US High Yield Cash Pay Index: +1.0%) was the best performing sector. High yield spreads did not widen as much as investment grade and the higher coupons of these securities more than offset increases in rates and spreads. On the back of rising inflation expectations, TIPS also performed well, gaining 0.8% (Bloomberg U.S. TIPS Index).

# Real Estate Overview As of June 30, 2018

A3 01 00110 00, 2010						
	Last	Year to		Last 3	Last 5	Last 10
Index	Quarter	Date	Last Year	Years	Years	Years
Private Real Estate:						
NCREIF:Total Index	1.81	3.54	7.19	8.25	9.77	6.22
NCREIF:Apartment Index	1.54	3.06	6.46	7.48	8.78	6.23
NCREIF:HOTEL	1.95	2.97	6.35	6.46	8.23	3.65
NCREIF:Industrial Idx	3.58	6.95	14.09	13.26	13.44	7.73
NCREIF:Office Index	1.54	3.37	6.55	7.13	8.88	5.19
NCREIF:Retail Index	1.32	2.05	4.60	7.85	10.09	7.54
NCREIF:NFI-ODCE Val Wt Gr	2.05	4.30	8.44	9.37	11.04	5.30
NCREIF:NFI-ODCE Gross Inc	1.05	2.11	4.29	4.44	4.68	5.20
NCREIF:NFI-ODCE Apprec	1.00	2.16	4.01	4.76	6.13	0.11
Public Real Estate:						
FTSE:NAREIT Equity Index	10.04	1.02	3.50	8.06	8.31	7.94
Other:						
Russell:3000 Index	3.89	3.22	14.78	11.58	13.29	10.23
BImbg:Aggregate	(0.16)	(1.62)	(0.40)	1.72	2.27	3.72
US DOL:CPI All Urban Cons	0.98	2.22	2.87	1.83	1.54	1.42

The NCREIF Property Index advanced 1.8% during the second quarter (1.1% from income and 0.7% from appreciation). This marked the 34th consecutive quarter of positive returns for the Index.

Industrial (+3.6%) was the best-performing sector for the ninth consecutive quarter, benefiting as structural shifts in the economy, property markets, and consumer habits continue to dampen demand for traditional retail space. The Hotel (+2.0%), Apartment (+1.5%), Office (+1.5%), and Retail (+1.3%) sectors also reported positive returns. The West (+2.2%) was the best performing region for the eighth quarter in a row, while the East (+1.3%) continued to lag. Broadly speaking, supply and demand fundamentals are balanced but peaking. Supply is in check and aided by strict commercial real estate lending standards. Demand continues on the back of synchronized U.S. growth. Transaction volumes have begun to take a step back in recent quarters from current cycle peak levels but have yet to substantially affect pricing, as property remains expensive.

The NCREIF Open End Diversified Core Equity Index rose 2.1% (1.1% from income and 1.0% from appreciation), a 15 bp decrease from the first quarter of 2018. The income return increased by one basis point from last quarter's 1.0% figure, while appreciation dropped to 1.0% from 1.2% last quarter. Leverage levels remained unchanged at 21.1%.

Global Real Estate Investment Trusts (REITs), tracked by the FTSE EPRA/NAREIT Developed REIT Index (USD), jumped 5.1% in the second quarter, versus the +4.5% return for the Callan Global Real Estate Style Group. The FTSE EPRA/NAREIT Developed ex US Index increased only 0.6%, while U.S equity REITs, as measured by the FTSE: NAREIT Equity REITs Index, spiked 10.0%.

# Capital Market Returns As of June 30, 2018 Last Year to Last Year to Last Quarter Date Last Years Years

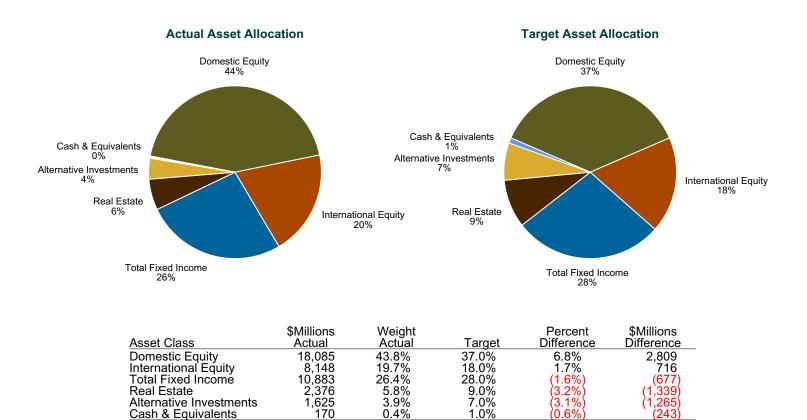
	Lasi	iear iu		Lasis	Lasis	Lasi IU
Index	Quarter	Date	Last Year	Years	Years	Years
U.S. Equity:						
DJ:US Total Mkt Ix	3.87	3.24	14.79	11.56	13.22	10.28
Russell:3000 Index	3.89	3.22	14.78	11.58	13.29	10.23
S&P:500	3.43	2.65	14.37	11.93	13.42	10.17
Russell:1000 Index	3.57	2.85	14.54	11.64	13.37	10.20
Russell:1000 Growth	5.76	7.25	22.51	14.98	16.36	11.83
Russell:1000 Value	1.18	(1.69)	6.77	8.26	10.34	8.49
Russell:Midcap Index	2.82	2.35	12.33	9.58	12.22	10.23
Russell:Midcap Growth	3.16	5.40	18.52	10.73	13.37	10.45
Russell:Midcap Value	2.41	(0.16)	7.60	8.80	11.27	10.06
Russell:2000 Index	7.75	7.66	17.57	10.96	12.46	10.60
Russell:2000 Growth	7.23	9.70	21.86	10.60	13.65	11.24
Russell:2000 Value	8.30	5.44	13.10	11.22	11.18	9.88
U.S. Fixed Income:						
Blmbg:Aggregate	(0.16)	(1.62)	(0.40)	1.72	2.27	3.72
Blmbg:Gov/Credit	(0.33)	(1.90)	(0.63)	1.83	2.29	3.78
Blmbg:Long Gov/Credit	(1.45)	(4.98)	(0.78)	4.34	5.10	6.79
Blmbg:Gov/Cred 1-3 Yr	0.28	0.08	0.21	0.71	0.84	1.65
Blmbg:Credit	(0.88)	(2.99)	(0.65)	2.86	3.37	5.15
Blmbg:Mortgage Backed Sec	0.24	(0.95)	0.15	1.46	2.25	3.54
Blmbg:Corporate High Yld	1.03	0.16	2.62	5.53	5.51	8.19
Blmbg:US Universal	(0.27)	(1.67)	(0.28)	2.12	2.62	4.07
Dimbg.00 Oniversal	(0.27)	(1.07)	(0.20)	2.12	2.02	4.07
Real Estate:						
NCREIF: Total Index	1.81	3.54	7.19	8.25	9.77	6.22
FTSE:NAREIT Composite Idx		3.54 1.22	4.87		9.77 8.86	
FISE.NAREIT Composite lux	8.27	1.22	4.07	9.30	0.00	8.28
Global Equity:	0.70	(0, 40)	44.04	0 70	10.00	C 07
MSCI:ACWI Gross	0.72	(0.13)	11.31	8.78	10.00	6.37
MSCI:ACWI IMI	0.72	(0.18)	11.14	8.34	9.60	6.14
Non-U.S. Equity:			0.04	4.00	0.44	0.04
MSCI:EAFE	(1.24)	(2.75)	6.84	4.90	6.44	2.84
MSCI:EAFE LC	3.47	(0.96)	6.12	5.18	8.93	4.98
MSCI:ACWIXUS Gross	(2.39)	(3.44)	7.79	5.56	6.48	3.01
MSCI:ACWI ex US LC	1.88	(1.25)	7.44	5.78	8.83	4.86
MSCI:ACWI ex US Small Cap	(2.60)	(2.94)	10.57	7.94	8.98	5.77
MSCI:EM	(7.96)	(6.66)	8.20	5.60	5.01	2.26
Other:						
3 Month T-Bill	0.45	0.81	1.36	0.68	0.42	0.35
US DOL:CPI All Urban Cons	0.98	2.22	2.87	1.83	1.54	1.42

Last 10

Asset Allocation

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

The top left chart shows the Fund's asset allocation for the period. The bottom pie chart shows the Fund's target asset allocation as outlined in the investment policy statement.



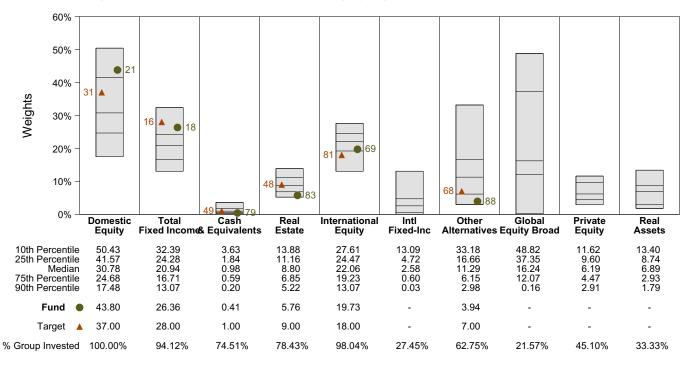
100.0%

100.0%

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

41,287

Total



\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2	2018			March 31, 2018		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight	
Domestic Equity	\$18,084,672,156	43.80%	\$(202,708,450)	\$806,090,218	\$17,481,290,388	42.77%	
Large Cap Growth							
NTGI S&P 500 Growth Idx	2,080,198,837	5.04%	35,368	103,170,372	1,976,993,097	4.84%	
Sands	2,153,948,585	5.22%	0	210,643,651	1,943,304,933	4.76%	
Large Cap Value							
Dodge & Cox	1,305,018,424	3.16%	(8,716,000)	32,688,255	1,281,046,169	3.13%	
BMO	1,432,070,893	3.47%	(83,764,877)	10,133,150	1,505,702,619	3.68%	
LSV	1,519,931,782	3.68%	(10,294,818)	(6,579,342)	1,536,805,942	3.76%	
NTGI S&P 500 Value Idx	1,631,489,526	3.95%	31,877	23,097,071	1,608,360,578	3.94%	
Large Cap Core NTGI MarketCap Index	3,686,513,187	8.93%	0	137,746,106	3,548,767,081	8.68%	
	0,000,010,101	0.0070	0	101,110,100	0,010,101,001	0.00 /0	
Small Cap Growth Frontier	534,572,811	1.29%	0	57,353,944	477,218,868	1.17%	
FIAM	1,116,505,831	2.70%	(100,000,000)	60,868,142	1,155,637,690	2.83%	
	1,110,000,001	2.1070	(100,000,000)	00,000,142	1,100,007,000	2.0070	
Small Cap Value Channing	238,176,303	0.58%	0	10,706,826	227,469,477	0.56%	
Dimensional Small Cap Value	627,054,090	1.52%	0	46,262,927	580,791,163	1.42%	
Inv. Counselors of Maryland	707,600,678	1.71%	0	58,875,243	648,725,435	1.59%	
Micro Cap							
Ativo	136,384,143	0.33%	0	6,553,581	129,830,562	0.32%	
Dimensional Micro Cap	457,839,564	1.11%	0	37,110,784	420,728,779	1.03%	
Public Real Assets							
Cohen & St Public Global Infrastru	308,933,484	0.75%	0	9,770,502	299,162,982	0.73%	
Brookfield Public Global Infrastru	148,434,020	0.36%	0	7,689,009	140,745,011	0.34%	
International Equity International Large Cap Growth	\$8,147,631,701	19.73%	\$(99,193,447)	\$(219,040,246)	\$8,465,865,394	20.71%	
EARNEST Partners	643,624,008	1.56%	339,235	(18,351,450)	661,636,224	1.62%	
William Blair	755,791,155	1.83%	0	(11,546,090)	767,337,245	1.88%	
International Large Cap Value							
Brandes	622,626,333	1.51%	0	(5,063,378)	627,689,711	1.54%	
Mondrian	520,950,762	1.26%	(50,000,000)	(21,735,995)	592,686,757	1.45%	
Lazard	112,454,004	0.27%	0	(4,487,690)	116,941,694	0.29%	
International Large Cap Core		4					
Arrowstreet	683,461,747	1.66% 0.84%	0 0	(25,991,568)	709,453,314	1.74%	
Brown GlobeFlex	346,045,950 666,764,921	1.61%	0	5,361,378 (28,335,155)	340,684,573 695,100,076	0.83% 1.70%	
NTGI MSCI EAFE Index	2,223,406,840	5.39%	0	(29,586,776)	2,252,993,616	5.51%	
Progress	307,793,497	0.75%	0	(5,876,067)	313,669,564	0.77%	
International Small Cap							
Franklin Templeton	200,205,846	0.48%	(49,532,682)	(7,861,689)	257,600,217	0.63%	
William Blair	291,602,928	0.71%	0	(9,633,378)	301,236,306	0.74%	
Emerging Markets							
Genesis	772,903,709	1.87%	0	(55,932,388)	828,836,097	2.03%	
Total Fixed Income	\$10,883,405,524	26.36%	\$(6,086,168)	\$(38,083,402)	\$10,927,575,095	26.74%	
Domestic Fixed Core	244 040 042	0.020/	0	045 060	240 004 044	0 0 0 0 0 /	
	341,840,813	0.83%	0 0	845,969 (803,686)	340,994,844 741,341,630	0.83% 1.81%	
Brandes Core	740 507 045			(803 080)	141.3410.30	181%	
EARNEST Partners	740,537,945	1.79% 1.79%					
EARNEST Partners Piedmont	740,821,963	1.79%	0	(1,589,310)	742,411,273	1.82%	
EARNEST Partners Piedmont Garcia Hamilton							
EARNEST Partners Piedmont	740,821,963	1.79%	0	(1,589,310)	742,411,273	1.82%	

#### **Asset Distribution Across Investment Managers**



## **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2	2018			March 31,	March 31, 2018		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight		
Domestic Fixed Core Plus		j						
BlackRock Core Plus	0	0.00%	(58,463)	(29,929)	88,392	0.00%		
LM Capital	842,142,802	2.04%	Ó	(5,128,369)	847,271,171	2.07%		
Progress Fixed Income	880,298,129	2.13%	0	(926,844)	881,224,973	2.16%		
BMO-TCH	868,186,361	2.10%	0	(3,199,990)	871,386,352	2.13%		
Western	1,016,720,126	2.46%	0	(14,240,634)	1,030,960,760	2.52%		
Bank Loans								
Barings Global Loan Fund	584,181,493	1.41%	(5,828,283)	4,080,111	585,929,665	1.43%		
Emerging Markets Debt Standish	195,778,117	0.47%	0	(18,484,574)	214,262,691	0.52%		
Opportunistic Fixed Income Crescent	114,490,837	0.28%	(199,419)	910,365	113,779,891	0.28%		
High Yield								
MacKay Shields	627,282,119	1.52%	0	1,890,634	625,391,485	1.53%		
Real Estate	\$2,376,293,510	5.76%	\$28,225,938	\$33,845,002	\$2,314,222,570	5.66%		
Real Estate Core TA Buckhead Ind. Prop.	408,333,110	0.99%	(5,187,045)	5,478,964	408,041,191	1.00%		
Barings Core Property Fund	113,039,011	0.27%	(16,256,850)	2,119,208	127,176,653	0.31%		
Barings European Core Property	30,512,788	0.07%	(10,230,030)	(1,628,151)	32,140,939	0.08%		
INVESCO Core RE	200,216,037	0.48%	(1,247,820)	4,439,882	197,023,975	0.48%		
Invesco Euro real estate	51,065,048	0.12%	53,825,809	(2,760,760)		0.4070		
AEW Core Property	229,725,050	0.56%	(2,291,195)	3,343,807	228,672,438	0.56%		
CBRE Core Partners	178,261,183	0.43%	0	4,696,149	173,565,034	0.42%		
Real Estate Non-Core								
Artemis MWBE Spruce	116,655,511	0.28%	1,348,495	610,416	114,696,600	0.28%		
Franklin Templeton EMREFF	25,954,554	0.06%	(1,382,942)	1,038,125	26,299,371	0.06%		
Security Capital	51,639,225	0.13%	(553,998)	5,518,555	46,674,668	0.11%		
Dune II	27,770,551	0.07%	0	747,545	27,023,006	0.07%		
Non-Core Real Estate Funds*	726,477,586	1.76%	(24,065,130)	20,779,227	729,763,489	1.79%		
Non-Core Intl Real Estate Funds**	91,475,734	0.22%	5,359,541	(8,272,343)	94,388,536	0.23%		
Rockwood Fund VIII	2,117,444	0.01%	(306,362)	(131,663)	2,555,469	0.01%		
Almanac ARS V	3,823,404	0.01%	0	891,497	2,931,907	0.01%		
TA Realty IX	305,466	0.00%	0	(18,733)	324,199	0.00%		
Alternative Investments Absolute Return	\$1,624,641,935	3.94%	\$61,640,400	\$55,232,174	\$1,507,769,361	3.69%		
Aurora	970,120	0.00%	(1,693,397)	41,729	2,621,788	0.01%		
Private Equity								
Abbott	332,159,783	0.80%	(8,000,024)	24,446,716	315,713,091	0.77%		
Muller & Monroe ILPEFF	1	0.00%	0	0	1	0.00%		
Muller & Monroe MPEFF	6,001,172	0.01%	(554,200)	435,080	6,120,292	0.01%		
Pantheon	223,051,736	0.54%	(3,500,030)	619,479	225,932,287	0.55%		
Private Equity Funds - Domestic Private Equity Funds - International	694,087,396 80,393,918	1.68% 0.19%	67,484,275 (2,831,601)	37,516,185 (4,409,155)	589,086,937 87,634,674	1.44% 0.21%		
Agriculture			· · · ·					
Premiere Partners IV	189,518,637	0.46%	11,150,000	(2,867,291)	181,235,928	0.44%		
Timberland								
Forest Investment Assoc.	75,059,049	0.18%	185,854	(865,989)	75,739,184	0.19%		
Unlisted Infrastructure	00 400 40-	0.000	(000 (77)	0.1- ····	00.007.175			
Unlisted Infrastructure	23,400,123	0.06%	(600,476)	315,420	23,685,178	0.06%		
Cash & Equivalents	\$169,873,080	0.41%	\$(2,808,968)	\$959,321	\$171,722,727	0.42%		
Total Fund	\$41,286,517,905	100.0%	\$(220,930,696)	\$639,003,068	\$40,868,445,534	100.0%		

#### **Asset Distribution Across Investment Managers**

\* Non-Core Real Estate Funds funded since September 2011. \*\* Non-Core International Real Estate Funds funded since August 2014.



# Second Quarter 2018 Asset Allocation Activity

				Completion			Completion	
Portfolio Name	rtfolio Name Asset Class		ithdrawals	Date		Deposits	Date	
Cash Flow Account	Cash Equivalents				\$	8,000,000	Various	
Abbott Capital	Private Equity	\$	5,000,000	4/30/18	·	, ,		
Abbott Capital	Private Equity	\$	3,000,000	5/31/18				
		Ŧ	-,,					
Cash Flow Account	Cash Equivalents	\$	2,283,707	Various				
ABRY Advanced Securities Fund III	Private Equity	Ŧ	_,, 0.		\$	442,603	4/3/18	
ABRY Advanced Securities Fund III	Private Equity				\$	830,581	5/15/18	
ABRY Advanced Securities Fund III	Private Equity				\$	835,501	5/18/18	
ABRY Advanced Securities Fund III	Private Equity				\$	175,023	6/21/18	
ADIAT Auvanceu Securites Fund III	Filvale Equity				φ	175,025	0/21/10	
Cash Flow Account	Cash Equivalents				\$	149,373	4/5/18	
ABRY Heritage Partners	Private Equity	\$	149,373	4/5/18				
Cash Flow Account	Cash Equivalents				\$	1,094,060	Various	
ABRY Senior Equity IV	Private Equity	\$	13,084	4/5/18	•	, ,		
ABRY Senior Equity IV	Private Equity	\$	81,160	5/4/18				
ABRY Senior Equity IV	Private Equity	\$	999,816	6/4/18				
	Thruto Equity	Ψ	000,010	0/ 1/ 10				
Cash Flow Account	Cash Equivalents	\$	2,472,957	6/27/18				
ABRY Senior Equity V	Private Equity				\$	2,472,957	6/27/18	
Cash Flow Account	Cash Equivalents				\$	2,743,662	Various	
ABRY VIII Capital Partners	Private Equity	\$	509,629	4/5/18	•	, -,		
ABRY VIII Capital Partners	Private Equity	\$	2,234,033	6/4/18				
		Ψ	2,201,000	0/ 1/ 10				
Cash Flow Account	Cash Equivalents				\$	2,291,195	5/4/18	
AEW Core Property	Real Estate	\$	2,291,195	5/4/18				
		¢	4 00 4 505					
Cash Flow Account	Cash Equivalents	\$	1,294,585	Various				
AEW VIII	Real Estate	\$	331,828	4/30/18	•			
AEW VIII	Real Estate				\$	1,626,413	6/28/18	
Cash Flow Account	Cash Equivalents				\$	562,471	4/30/18	
Almanac VI	Real Estate	\$	562,471	4/30/18				
Cash Flow Account	Cash Equivalents				\$	413,046	Various	
Almanac VII	Real Estate	\$	80,985	4/25/18				
Almanac VII	Real Estate	\$	244,203	4/30/18				
Almanac VII	Real Estate					\$543,255.00	05/04/2018	
Almanac VII	Real Estate	\$	721,994	5/7/18				
Almanac VII	Real Estate				\$	90,881	6/1/18	
					<b>ф</b>	0.005.000.00	Mariana	
Cash Flow Account	Cash Equivalents	۴	450.007	E/40/40	\$	2,385,992.00	various	
Ares Europe IV	Real Estate	\$	458,207	5/18/18				
Ares Europe IV	Real Estate	\$	1,927,785	6/29/18				
Cash Flow Account	Cash Equivalents	\$	5,359,541	Various				
Ares European Property Enhancement Parterns II	Real Estate	\$	514,968	6/20/18				
Ares European Property Enhancement Parterns II	Real Estate	\$	249,467	6/20/18				
Ares European Property Enhancement Partners II	Real Estate	\$	402,918	3/29/18				
Ares European Property Enhancement Partners II	Real Estate	\$	224,890	3/29/18				
Ares European Property Enhancement Partners II	Real Estate	Ŷ	,	0,20,10	\$	162,526	5/17/18	
Ares European Property Enhancement Partners II	Real Estate				\$	6,589,257	5/17/18	
Cash Flow Account	Cash Equivalents	*		o 16 - 11 -	\$	948,658	6/27/18	
Artemis Healthcare Fund I	Real Estate	\$	948,658	6/27/18				
Cash Flow Account	Cash Equivalents	\$	1,084,961	Various				
Artemis MWBE Spruce Program	Real Estate	Ψ	1,007,001	vanous	\$	364,028	4/13/18	
Artemis MWBE Spruce Program	Real Estate				э \$	3,578,111	4/13/18 6/15/18	
Artemis MWBE Spruce Program	Real Estate	¢	2 857 170	6/27/18	φ	5,570,111	0/13/10	
Alternis wwwbc opruce riogram	NEAL ESTATE	\$	2,857,178	0/21/10				

Cash Flow Account	Cash Equivalents	\$	928,111	6/20/18			
Artemis Real Estate Partners Healthcare Fund I	Real Estate	Ψ	520,111	0/20/10	\$	928,111	6/20/18
					Ψ	020,111	0/20/10
Cash Flow Account	Cash Equivalents	\$	4,448	4/12/18			
AUA Private Equity Fund	Private Equity	•	, -		\$	4,448	4/12/18
	1.7					, -	
Cash Flow Account	Cash Equivalents				\$	1,701,987	Various
Aurora Investment Management	Alternatives	\$	1,048,549	5/1/18	•	, ,	
Aurora Investment Management	Alternatives	\$	1,071	5/10/18			
Aurora Investment Management	Alternatives	\$	3,258	5/11/18			
Aurora Investment Management	Alternatives	\$	8,589	5/31/18			
Aurora Investment Management	Alternatives	\$	6,013	4/6/18			
Aurora Investment Management	Alternatives	\$	610,902	4/6/18			
Aurora Investment Management	Alternatives	\$	3,628	4/19/18			
Aurora Investment Management	Alternatives	\$	19,976	4/30/18			
<u> </u>		•	-,				
Cash Flow Account	Cash Equivalents				\$	5,825,569	4/25/18
Babson Global Loan Fund	Alternatives	\$	5,825,569	4/25/18	•	-,,	
		+	-,,				
Cash Flow Account	Cash Equivalents				\$	16,256,850	Various
Barings Core Property Fund	Real Estate	\$	15,359,199	4/3/18	Ŧ	,,	
Barings Core Property Fund	Real Estate	\$	897,651	6/29/18			
Danings Cole i Toperty i unu	itear Estate	Ψ	037,001	0/23/10			
Cash Flow Account	Cash Equivalents				¢	131,758.34	6/29/18
Barings Cornerstone VIII	Real Estate	\$	131,758.34	6/29/18	Ψ	101,700.04	0/23/10
Damigs Contensione vin	itear Estate	Ψ	101,700.04	0/23/10			
Cash Flow Account	Cash Equivalents				\$	3,015,502	Various
Beecken Petty O'keefe IV	Private Equity	¢	2,754,781	5/8/18	Ψ	3,013,302	vanous
Beecken Petty O'keefe IV	Private Equity	\$ \$	2,754,781	6/5/18			
Deecken Felly O keele IV	Filvate Equity	φ	200,722	0/3/10			
Cash Flow Account	Cash Equivalents	\$	3,730,129	6/11/18			
Blackstone Asia II	Real Estate	φ	3,730,129	0/11/10	¢	3,730,129	6/11/18
	Real Estate				\$	3,730,129	0/11/10
Cash Flow Account	Cash Equivalents				\$	1,552,768	5/29/18
Blackstone BREP Asia	Real Estate	¢٦	,552,768.00	5/29/18	φ	1,552,700	5/29/10
DIACKSIONE DREF ASIA	Real Estate	φI	,552,766.00	5/29/10			
Cash Flow Account	Coch Equivalanta				\$	1,074,250	Various
Blackstone BREP VII	Cash Equivalents Real Estate	¢	836,717	6/1/18	φ	1,074,250	vanous
		\$					
Blackstone BREP VII	Real Estate	\$	237,533	6/20/18			
Cash Flow Account	Cook Equivalanta	¢	1 770 200	Various			
	Cash Equivalents	\$	1,772,389	vanous	¢	000 575	4/0/40
Blackstone BREP VIII	Real Estate				\$	280,575	4/3/18
Blackstone BREP VIII	Real Estate				\$	298,990	4/30/18
Blackstone BREP VIII	Real Estate				\$	2,493,052	5/18/18
Blackstone BREP VIII	Real Estate	•			\$	488,941	6/11/18
Blackstone BREP VIII	Real Estate	\$	1,789,169	5/30/18			
	<b>•</b> • <b>•</b> • • •				•		
Cash Flow Account	Cash Equivalents				\$	8,986,865	Various
Blackstone Debt II	Real Estate	\$	112,225	6/4/18			
Blackstone Debt II	Real Estate	\$	8,874,640	6/20/18			
Cash Flow Account	Cash Equivalents	\$	2,572,468	Various			
Blackstone Debt III	Real Estate	\$	451,552	6/1/18			
Blackstone Debt III	Real Estate	\$	3,845,671	6/21/18			
Blackstone Debt III	Real Estate				\$	2,620,427	5/3/18
Blackstone Debt III	Real Estate				\$	4,249,264	5/17/18
Cash Flow Account	Cash Equivalents	\$	18,983,434	6/22/18			
Blackstone Property Partners Europe	Real Estate				\$	18,983,434	6/22/18
Cash Flow Account	Cash Equivalents				\$	83,764,877	Various
BMO	Domestic Equity	\$	1,055,549	4/6/18			
ВМО	Domestic Equity	\$	26,991	4/13/18			
ВМО	Domestic Equity	\$	823,409	4/20/18			
BMO	Domestic Equity	5	395,198	4/27/18			
BMO	Domestic Equity Domestic Equity	\$ \$	395,198 715,396	4/27/18 5/4/18			

BMO	Domestic Equity	\$	141,223	5/11/18			
BMO	Domestic Equity	\$	434,633	5/18/18			
BMO	Domestic Equity	\$	208,944	5/25/18			
BMO	Domestic Equity	\$	232,079	6/1/18			
BMO	Domestic Equity	\$	2,089,944	6/8/18			
BMO	Domestic Equity	\$	1,990,036	6/15/18			
BMO	Domestic Equity	\$	291,156	6/22/18			
BMO	Domestic Equity	\$	75,000,000	6/27/18			
BMO	Domestic Equity	\$	360,317	6/29/18			
	20000 = qu,	¥	000,011	0/20/10			
Cash Flow Account	Cash Equivalents				\$	1,188,861	6/22/18
CBRE Strategic Partners U.S. Value 7	Real Estate	\$	1,188,861	6/22/18	Ŧ	.,,	
		÷	.,,	0//.0			
Cash Flow Account	Cash Equivalents				\$	234,649	5/25/18
CBRE Strategic Partners U.S. Value 8	Real Estate	\$	234,649	5/25/18	Ŧ	,	
		+	,				
Cash Flow Account	Cash Equivalents	\$	1,506,047	6/15/18			
Clearlake Capital Partners V	Private Equity	+	.,,.		\$	1,506,047	6/15/18
					+	.,,.	
Cash Flow Account	Cash Equivalents				\$	1,438,547	4/27/18
Crescent	Alternatives	\$	1,438,547	4/27/18	Ŧ	.,,	
		÷	.,				
Cash Flow Account	Cash Equivalents				\$	2,556,027	Various
Crow Holdings Realty Partners VII	Real Estate	\$	1,861,030	4/26/18	Ŷ	2,000,021	vanouo
Crow Holdings Realty Partners VII	Real Estate	\$	694,997	5/29/18			
orow holdings really ranners vir		Ψ	054,557	5/25/10			
Cash Flow Account	Cash Equivalents				\$	1,569,293	6/27/18
Crow Holdings VIII	Real Estate	\$	1,569,293	6/27/18	Ψ	1,000,200	0/21/10
		Ψ	1,000,200	0/21/10			
Cash Flow Account	Cash Equivalents				\$	8,716,000	Various
Dodge & Cox	Domestic Equity	\$	772,765	4/6/18	Ψ	0,710,000	Vanous
Dodge & Cox	Domestic Equity	\$	503,373	4/13/18			
			681,476	4/20/18			
Dodge & Cox	Domestic Equity	\$					
Dodge & Cox	Domestic Equity	\$	1,763,095	4/27/18			
Dodge & Cox	Domestic Equity	\$	469,278	5/4/18			
Dodge & Cox	Domestic Equity	\$	892,421	5/11/18			
Dodge & Cox	Domestic Equity	\$	122,400	5/18/18			
Dodge & Cox	Domestic Equity	\$	296,260	5/25/18			
Dodge & Cox	Domestic Equity	\$	99,000	6/1/18			
Dodge & Cox	Domestic Equity	\$	1,633,314	6/8/18			
Dodge & Cox	Domestic Equity	\$	797,996	6/15/18			
Dodge & Cox	Domestic Equity	\$	33,300	6/22/18			
Dodge & Cox	Domestic Equity	\$	651,321	6/29/18			
Cash Flow Account	Cash Equivalents				\$	3,927,503	Various
Dune III	Real Estate	\$	2,088,893	6/27/18			
Dune III	Real Estate	\$	1,838,610	4/30/18			
Cash Flow Account	Cash Equivalents	\$	60,825	Various			
EnCap Energy Capital Fund IX	Private Equity				\$	255,595	4/4/18
EnCap Energy Capital Fund IX	Private Equity	\$	405,745	5/2/18			
EnCap Energy Capital Fund IX	Private Equity				\$	210,975	5/31/18
Cash Flow Account	Cash Equivalents		\$393,622.12	Various			
EnCap Energy Capital Fund X	Private Equity	\$	228,670	6/4/18			
EnCap Energy Capital Fund X	Private Equity				\$	346,215	6/5/18
EnCap Energy Capital Fund X	Private Equity				\$	276,077	6/27/18
· ·						,	
Cash Flow Account	Cash Equivalents	\$	436,420	6/25/18			
EnCap Energy Capital Fund XI	Private Equity		,		\$	436,420	6/25/18
					·	,	
Cash Flow Account	Cash Equivalents				\$	100,000,000	5/10/18
Fidelity small Cap	Domestic Equity	\$	100,000,000	5/10/18	т	. ,	-
	· · · · · · · · · · · · · · · · · · ·	+	, , , 0				
Cash Flow Account	Cash Equivalents				\$	300,000	6/28/18
Forest Investments	Alternatives	\$	300,000	6/28/18	Ψ	222,000	
		¥	222,000				

Cash Flow Account Franklin Templeton EMREFF Franklin Templeton EMREFF	Cash Equivalents Real Estate Real Estate	\$ \$	1,210,535 172,406	4/30/18 6/29/18	\$	1,382,942	Various
Cash Flow Account GTIS Brazil Real Estate Fund III	Cash Equivalents Real Estate	\$	648,937	5/1/18	\$	648,937	5/1/18
Cash Flow Account ICV IV	Cash Equivalents Private Equity	\$	2,875,578	5/30/18	\$	2,875,578	5/30/18
Cash Flow Account Inflexion Buyout Fund IV	Cash Equivalents Private Equity	\$	5,541,979	6/11/18	\$	5,541,979	6/11/18
Cash Flow Account Inflexion Buyout Fund V	Cash Equivalents Private Equity	\$	877,437	Various	\$	1,319,945	4/5/18
Inflexion Buyout Fund V Inflexion Buyout Fund V	Private Equity Private Equity	\$ \$	250,520 191,987	06/25/2018 6/25/18			
Cash Flow Account Inflexion Enterpise Fund IV	Cash Equivalents Private Equity	\$	1,313,807	4/26/18		\$1,313,807.40	04/26/2018
Cash Flow Account Inflexion Partnership Capital Fund II	Cash Equivalents Private Equity	\$	368,531	4/20/18	\$	368,531	4/20/18
Cash Flow Account Inflexion Supplemental Fund IV	Cash Equivalents Private Equity	\$	149,930	4/4/18	\$	149,930	4/4/18
Cash Flow Account Invesco Real Estate European Fund Invesco Real Estate European Fund Invesco Real Estate European Fund	Cash Equivalents Real Estate Real Estate Real Estate	\$ \$	53,825,802 407,975	Various 5/18/18	\$ \$	42,129,252 12,104,525	4/9/18 4/20/18
Cash Flow Account Invesco Core RE Fund	Cash Equivalents Real Estate	Ψ \$	1,247,820	4/23/18	\$	1,247,820	4/23/18
Cash Flow Account Lightspeed Select Lightspeed Select Lightspeed Select	Cash Equivalents Private Equity Private Equity Private Equity	\$ \$	1,195,042 382,852	5/9/18 5/17/18	\$ \$	1,390,394 187,500	Various 4/13/18
Cash Flow Account Lightspeed Venture Partners IX	Cash Equivalents Private Equity	\$	1,326,954	6/6/18	\$	1,326,954	6/6/18
Cash Flow Account Lightspeed Venture Partners Select II Lightspeed Venture Partners Select II Lightspeed Venture Partners Select II Lightspeed Venture Partners Select II	Cash Equivalents Private Equity Private Equity Private Equity Private Equity	\$	1,200,000	Various	\$ <del>\$</del> \$ \$	240,000 480,000 160,000 320,000	4/9/18 4/20/18 6/11/18 6/25/18
Cash Flow Account Lightspeed Venture Partners Select III	Cash Equivalents Private Equity	\$	2,500,000	6/25/18	\$	2,500,000	6/25/18
Cash Flow Account Lightspeed X	Cash Equivalents Private Equity	\$	375,000	4/6/18	\$	375,000	4/6/18
Cash Flow Account Lightspeed XI Lightspeed XI	Cash Equivalents Private Equity Private Equity	\$	1,540,000	Various	\$ \$	880,000 660,000	4/9/18 6/11/18
Cash Flow Account Lightspeed XII	Cash Equivalents Private Equity	\$	600,000	4/17/18	\$	600,000	4/17/18
Cash Flow Account Long Wharf Real Estate Partners V Long Wharf Real Estate Partners V	Cash Equivalents Real Estate Real Estate	\$ \$	2,810,465 1,028,219	Various 4/26/18	\$	1,233,863	5/4/18

Long Wharf Real Estate Partners V	Real Estate				\$	2,604,821	6/26/18
Cash Flow Account	Cash Equivalents				\$	10,294,818	Various
LSV	Domestic Equity	\$	1,099,426	4/6/18			
LSV	Domestic Equity	\$	186,954	4/13/18			
LSV	Domestic Equity	\$	722,091	4/20/18			
LSV	Domestic Equity	\$	370,389	4/27/18			
LSV	Domestic Equity	\$	1,340,595	5/4/18			
LSV	Domestic Equity	\$	145,178	5/11/18			
LSV	Domestic Equity	\$	620,583	5/18/18			
LSV	Domestic Equity	\$	260,088	5/25/18			
LSV	Domestic Equity	\$	293,614	6/1/18			
LSV	Domestic Equity	\$	2,139,600	6/8/18			
LSV	Domestic Equity	\$	1,857,509	6/15/18			
LSV LSV	Domestic Equity Domestic Equity	\$ \$	558,092 700,700	6/22/18 6/29/18			
Cash Flow Account	Cash Equivalents				\$	554,200	6/22/18
M2 Private Equity Fund of Funds	Private Equity	\$	554,200	6/22/18			
Cash Flow Account	Cash Equivalents	\$	900,000	Various	-		
Mayfield Select	Private Equity				\$	500,000	5/14/18
Mayfield Select	Private Equity				\$	400,000	5/30/18
Cash Flow Account	Cash Equivalents	\$	350,000	Various	<b>~</b>	450 000	
Mayfield XIV	Private Equity				\$	150,000	4/5/18
Mayfield XIV	Private Equity				\$	50,000	4/25/18
Mayfield XIV	Private Equity				\$	150,000	5/24/18
Cash Flow Account	Cash Equivalents	\$	700,000	Various	•		
Mayfield XV	Private Equity				\$	200,000	4/24/18
Mayfield XV	Private Equity				\$	300,000	5/14/18
Mayfield XV	Private Equity				\$	200,000	6/20/18
Cash Flow Account	Cash Equivalents				\$	50,000,000	Various
Mondrian	International Equity	\$	48,500,000	6/1/18			
Mondrian	International Equity	\$	1,500,000	6/4/18			
Cash Flow Account	Cash Equivalents	\$	2,846	5/11/18			
NMS Fund II	Private Equity				\$	2,846	5/11/18
Cash Flow Account	Cash Equivalents				\$	430,537	Various
Oak Street Real Estate Capital Fund III	Real Estate	\$	42,775	4/16/18			
Oak Street Real Estate Capital Fund III	Real Estate			05/15/2018			
Oak Street Real Estate Capital Fund III	Real Estate	\$	355,804	6/15/18			
Cash Flow Account	Cash Equivalents	\$	3,193,562	Various			
Oak Street Real Estate Capital Fund IV	Real Estate	\$	69,688	4/16/18			
Oak Street Real Estate Capital Fund IV	Real Estate	\$	67,440	5/15/18			
Oak Street Real Estate Capital Fund IV	Real Estate				\$	3,400,377	6/13/18
Oak Street Real Estate Capital Fund IV	Real Estate	\$	69,688	6/15/18			
Cash Flow Account	Cash Equivalents				\$	3,500,000	4/30/18
Pantheon Ventures	Private Equity	\$	3,500,000	4/30/18			
Cash Flow Account	Cash Equivalents				\$	600,358	Various
Partners Group Direct Infrastructure 2016 A	Alternatives	\$	600,000	4/13/18			
Partners Group Direct Infrastructure 2016 A	Alternatives	\$	358	5/7/18			
Cash Flow Account	Cash Equivalents	\$1	1,150,000.00	Various			
Premiere Partners IV	Alternatives				\$	8,900,000	5/22/18
Premiere Partners IV	Alternatives				\$	3,550,000	6/18/18
Premiere Partners IV	Alternatives	\$	1,300,000	6/29/18			
Cash Flow Account	Cash Equivalents	\$	184,366	4/6/18			
Rockwood Fund IX	Real Estate				\$	184,366	4/6/18

Cash Flow Account Rockwood Fund VIII	Cash Equivalents Real Estate	\$	306,362	4/24/18	\$	306,362	4/24/18
Cash Flow Account Rockwood Fund X	Cash Equivalents Real Estate	\$ \$	3,047,189 361,903	Various 4/17/18			
Rockwood Fund X Rockwood Fund X	Real Estate Real Estate				\$ \$	1,136,364 2,272,728	5/25/18 6/19/18
Cash Flow Account Security Capital	Cash Equivalents Real Estate	\$	553,998	4/3/18	\$	553,998	4/3/18
Cash Flow Account Starwood Fund IX Starwood Fund IX	Cash Equivalents Real Estate Real Estate	\$ \$	945,283 404,577	4/19/18 5/10/18	\$	1,349,860	Various
Cash Flow Account Starwood Fund X Starwood Fund X	Cash Equivalents Real Estate Real Estate	\$ \$	4,444,518 2,678,585	4/23/18 6/28/18	\$	7,123,103	Various
Cash Flow Account Sterling Group Credit Fund Sterling Group Credit Fund	Cash Equivalents Private Equity Private Equity	\$	1,202,038	Various	\$ \$	1,077,038 125,000	5/14/18 6/5/18
Cash Flow Account TA Buckhead	Cash Equivalents Real Estate	\$	5,187,045	6/25/18	\$	5,187,045	6/25/18
Cash Flow Account TA Fund X	Cash Equivalents Real Estate	\$	2,080,666	5/24/18	\$	2,080,666	5/24/18
Cash Flow Account Templeton	Cash Equivalents International Equity	\$	50,000,000	6/28/18	\$	50,000,000	6/28/18
Cash Flow Account Torchlight DOF IV Torchlight DOF IV	Cash Equivalents Real Estate Real Estate	\$	\$888,595.00 5,863,859	04/20/2018 5/31/18		6,752,454.00	Various
Cash Flow Account Torchlight DOF V	Cash Equivalents Real Estate	\$	344,149	4/20/18	\$	344,149	4/20/18
Cash Flow Account Torchlight DOF VI Torchlight DOF VI	Cash Equivalents Real Estate Real Estate	\$ \$	1,151,475 195,853	4/16/18 5/16/18	\$	1,347,328	Various
Cash Flow Account Valor Equity Partners III Valor Equity Partners III	Cash Equivalents Private Equity Private Equity	\$	481,892	Various	\$ \$	75,178 406,714	4/16/18 6/15/18
Cash Flow Account Valor Equity Partners IV	Cash Equivalents Private Equity	\$	3,390,327	5/8/18	\$	3,390,327	5/8/18
Cash Flow Account Valor M33 II Valor M33 II	Cash Equivalents Private Equity Private Equity	\$	44,000,000	Various	\$ \$	43,750,000 250,000	5/30/18 6/8/18
Cash Flow Account Versant Venture VI	Cash Equivalents Private Equity	\$	449,153	5/25/18	\$	449,153	5/25/18
Cash Flow Account Vista Credit Opportunities Fund I	Cash Equivalents Private Equity	\$	3,555,121	4/25/18	\$	2,538,446	Various
Vista Credit Opportunities Fund I	Private Equity				\$	1,016,675	6/7/18
Cash Flow Account Vista Credit Opportunities Fund II	Cash Equivalents Private Equity	\$	2,217,818	4/24/18	\$	2,217,818	4/24/18
Cash Flow Account	Cash Equivalents	\$	316,422	6/5/18			

Vista Equity Partners Fund VI	Private Equity			\$ 316,422	6/5/18
Cash Flow Account	Cash Equivalents	\$ 109,356	5/31/18		
Vista Foundation Fund II	Private Equity			\$ 109,356	5/31/18
Cash Flow Account	Cash Equivalents	\$ 3,258,846	Various		
Vista Foundation Fund III	Private Equity			\$ 2,123,538	5/15/18
Vista Foundation Fund III	Private Equity			\$ 1,135,308	5/31/18
Cash Flow Account	Cash Equivalents			\$ 2,249,443	Various
Vistria Fund	Private Equity	\$ 191,508	6/14/18		
Vistria Fund	Private Equity	\$ 2,057,935	5/7/18		
Cash Flow Account	Cash Equivalents	\$ 12,799,268	Various		
Vistria Fund II	Private Equity			\$ 8,600,819	5/1/18
Vistria Fund II	Private Equity			\$ 4,198,449	6/26/18

\$ 633,542,618

\$ 633,542,618

Performance Overview

The table below details the rates of return for the fund's asset class composites over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns and Ra	ankinas for	Periods	Ended	June 30.	2018
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	Last Quarter		Year to Date		Last Year		Last 3 Years	
Domestic Equity Custom Benchmark** Domestic Equity - Net Pub PIn- Dom Equity	<b>4.62%</b> 3.89% 4.57% 4.20%	<b>25</b> 63 27	<b>4.89%</b> 3.22% 4.79% 3.81%	<b>21</b> 67 24	<b>16.30%</b> 14.78% 16.07% 15.02%	<b>25</b> 58 27	<b>11.08%</b> 11.58% 10.84% 11.41%	<b>68</b> 39 75
International Equity MSCI ACWI x US (Net) International Equity - Net Pub PIn- Intl Equity	<b>(2.60%)</b> (2.61%) (2.65%) (2.61%)	<b>49</b> 51 54	<b>(2.55%)</b> (3.77%) (2.66%) (2.89%)	<b>32</b> 81 35	<b>8.58%</b> 7.28% 8.26% 8.05%	<b>35</b> 66 42	<b>6.30%</b> 5.07% 5.96% 6.22%	<b>45</b> 79 56
<b>Fotal Fixed Income</b> Blmbg Aggregate Index Total Fixed-Inc Net Pub Pln- Dom Fixed	(0.35%) (0.16%) (0.37%) 0.06%	<b>89</b> 80 90	<b>(1.36%)</b> (1.62%) (1.42%) (0.87%)	<b>73</b> 88 80	<b>0.39%</b> (0.40%) 0.26% 0.26%	<b>48</b> 89 51	<b>2.64%</b> 1.72% 2.49% 2.39%	<b>40</b> 77 45
Real Estate Custom Benchmark*** Real Estate - Net Pub Pln- Real Estate	<b>1.45%</b> 1.81% 1.45% 1.94%	<b>88</b> 81 88	<b>2.79%</b> 3.82% 2.79% 3.89%	<b>69</b> 61 69	<b>8.72%</b> 7.47% 8.72% 8.25%	<b>17</b> 81 17	<b>9.96%</b> 8.38% 9.93% 8.98%	<b>20</b> 76 20
Alternative Investments Alternatives Custom Benchmark**** Alternative Investments - Net	<b>3.63%</b> 2.18% 3.59%		<b>5.90%</b> 4.40% 5.82%		<b>11.27%</b> 9.00% 11.11%		<b>8.88%</b> 9.00% 8.61%	
Private Equity Alternatives Custom Benchmark**** Post Venture Cap Idx	<b>4.74%</b> 2.18% 8.63%		<b>7.65%</b> 4.40% 6.92%		<b>14.87%</b> 9.00% 14.94%		<b>11.64%</b> 9.00% 10.34%	
Agriculture NCREIF Farmland Index NCREIF Total Index	<mark>(1.58%)</mark> 1.32% 1.70%		<mark>(2.11%)</mark> 4.29% 3.53%		<mark>(6.06%)</mark> 7.07% 7.12%		<b>3.93%</b> 7.59% 8.72%	
Timberland NCREIF Timberland Index	<mark>(1.14%)</mark> 0.92%		<mark>(1.31%)</mark> 2.46%		<b>2.28%</b> 3.79%		<b>0.77%</b> 3.44%	
Unlisted Infrastructure Alternatives Custom Benchmark****	<b>1.37%</b> 2.18%		- 4.40%		9.00%		<b>-</b> 9.00%	
Total Fund Total Fund Benchmark* Total Fund - Net Callan Public Fund Lg DB	<b>1.57%</b> 1.24% 1.53% 0.89%	<b>8</b> 20 10	<b>1.58%</b> 0.75% 1.49% 0.93%	<b>22</b> 60 25	<b>9.54%</b> 7.82% 9.33% 8.68%	<b>22</b> 78 29	<b>7.49%</b> 7.17% 7.26% 7.33%	<b>42</b> 62 54

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.
\*\*\* The Blended Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.
\*\*\* The Blended Benchmark is currently ODCE Value Weigh Index. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.
\*\*\*\* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 15.0%.

13.0%. Prior to 2003, it was based on an annual return of 15.0%. Private Equity performance is lagged one quarter. Agriculture and Timberland performance is lagged one month.



The table below details the rates of return for the fund's asset class composites over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended June 30, 2018

	Last 5		Last 10		Since	
	Years		Years		Inceptior	ı
Domestic Equity Custom Benchmark** Domestic Equity - Net Pub PIn- Dom Equity	<b>13.25%</b> 13.24% 12.99% 13.14%	<b>43</b> 44 57	<b>10.37%</b> 10.29% 10.11% 10.14%	<b>39</b> 42 53	<b>11.73%</b> 11.46% 8.69%	(1/82) (1/82)
International Equity MSCI ACWI x US (Net) International Equity - Net Pub Pin- Intl Equity	<b>7.49%</b> 5.99% 7.14% 7.12%	<b>36</b> 78 48	<b>3.88%</b> 2.54% 3.55% 3.64%	<b>44</b> 85 59	<b>7.96%</b> - 5.90%	(9/86) (1/05)
<b>Total Fixed Income</b> Blmbg Aggregate Index Total Fixed-Inc Net Pub PIn- Dom Fixed	<b>3.15%</b> 2.27% 3.00% 2.82%	<b>36</b> 76 39	<b>4.95%</b> 3.72% 4.80% 4.42%	<b>28</b> 72 31	<b>8.24%</b> 7.70% 4.58% -	(1/82) (1/82) (1/05)
Real Estate Custom Benchmark*** Real Estate - Net Pub PIn- Real Estate	<b>10.63%</b> 10.03% 10.62% 10.40%	<b>39</b> 59 40	<b>5.28%</b> 6.89% 5.27% 5.44%	<b>57</b> 7 57	<b>5.35%</b> - 7.23% -	(5/85) (1/05)
Alternative Investments Alternatives Custom Benchmark**** Alternative Investments - Net	<b>9.61%</b> 9.00% 9.28%		<b>6.31%</b> 9.59% 6.02%		<b>10.73%</b> 12.83% 8.23%	(2/86) (2/86) (1/05)
Private Equity Alternatives Custom Benchmark**** Post Venture Cap Idx	<b>12.51%</b> 9.00% 8.27%		<b>7.96%</b> 9.59% 6.89%		<b>12.91%</b> 12.83% 7.87%	(2/86) (2/86) (2/86)
Agriculture NCREIF Farmland Index NCREIF Total Index	<b>8.60%</b> 10.43% 10.00%		<b>9.05%</b> 12.09% 6.09%		7.67% - -	(10/97)
Timberland NCREIF Timberland Index	<b>4.81%</b> 6.09%		<b>3.60%</b> 4.06%		7.84% -	(10/92)
Unlisted Infrastructure Alternatives Custom Benchmark****	- 9.00%		9.59%		<b>1.37%</b> 2.18%	(4/18) (4/18)
Total Fund Total Fund Benchmark*	<b>8.90%</b> 8.31%	<b>27</b> 57	<b>7.68%</b> 7.16%	<b>12</b> 24	9.96%	(1/82)
Total Fund - Net Callan Public Fund Lg DB	8.31% 8.66% 8.51%	57 39	7.16% 7.45% 6.70%	24 15	7.25% -	(1/05)

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.
\*\* The Blended Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.
\*\*\* The Blended Benchmark is currently ODCE Value Weigh Index. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.
\*\*\*\* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 15.0%.

13.0%. Prior to 2003, it was based on an annual return of 15.0%. Private Equity performance is lagged one quarter.

Agriculture and Timberland performance is lagged one month.



The table below details the rates of return for the fund's asset class composites over calendar years. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	12/2017- 6/2018		2017		2016		2015		2014	
Domestic Equity	4.89%	21	19.84%	65	12.62%	60	0.04%	56	9.81%	80
Custom Benchmark**	3.22%	67	21.13%	39	12.74%	54	0.48%	39	12.48%	16
Pub Pln- Dom Equity	3.81%		20.50%		12.86%		0.19%		11.32%	
International Equity	(2.55%)	32	27.93%	70	3.56%	58	(1.90%)	28	(2.80%)	40
MSCI ACWI x US (Net)	(3.77%)	81	27.19%	80	4.50%	41	(5.66%)	67	(3.87%)	67
Pub Pln- Intl Equity	(2.89%)		29.12%		4.09%		(3.83%)		(3.17%)	
Total Fixed Income	(1.36%)	73	4.81%	40	4.87%	41	0.25%	55	5.97%	36
Blmbg Aggregate Index	(1.62%)	88	3.54%	76	2.65%	76	0.55%	38	5.97%	36
Pub Pln- Dom Fixed	(0.87%)		4.49%		4.28%		0.33%		5.56%	
Real Estate	2.79%	69	10.03%	12	8.97%	36	12.54%	47	13.02%	47
Custom Benchmark***	3.82%	61	6.66%	75	7.79%	61	13.95%	26	11.46%	71
Pub Pln- Real Estate	3.89%		7.70%		8.50%		12.31%		12.66%	
Alternative Investments	5.90%		12.09%		5.32%		6.90%		11.63%	
Alt. Custom Benchmark****	4.40%		9.00%		9.00%		9.00%		9.00%	
Total Fund	1.58%	22	16.01%	54	8.01%	51	0.53%	38	6.15%	53
Total Fund Benchmark*	0.75%	<b></b> 60	14.35%	77	7.89%	57	1.43%	20	7.38%	23
Callan Public Fund Lg DB	0.93%		16.15%	-	8.02%		0.19%	-	6.25%	

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

\*\* The Blended Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.

\*\*\* The Blended Benchmark is currently ODCE Value Weigh Index+1%. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.

\*\*\*\* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%.

The table below details the rates of return for the fund's asset class composites over calendar years. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	2013		2012		2011		2010		2009	
Domestic Equity	37.65%	7	17.39%	11	(0.74%)	69	18.92%	33	31.39%	32
US Total Stock Market Idx	33.46%	66	16.38%	41	1.08%	34	17.49%	61	28.57%	64
Pub Pln- Dom Equity	34.39%		16.08%		0.33%		17.92%		29.51%	
International Equity	20.24%	27	19.11%	37	(12.27%)	32	12.98%	38	39.51%	35
MSCI ACWI x US (Net)	15.29%	69	16.83%	79	(13.71%)	57	11.15%	62	41.45%	28
Pub Pln- Intl Equity	17.91%		18.60%		(13.40%)		12.11%		37.39%	
Total Fixed Income	(0.59%)	40	7.41%	45	7.60%	43	8.59%	51	15.32%	32
Blmbg Aggregate Index	(2.02%)	77	4.21%	85	7.84%	34	6.54%	81	5.93%	79
Pub Pln- Dom Fixed	(1.02%)		7.21%		7.19%		8.60%		12.39%	
Real Estate	10.82%	57	12.85%	35	12.29%	68	6.56%	76	(24.52%)	46
Custom Benchmark*	12.90%	39	11.54%	57	15.26%	38	14.11%	45	(15.85%)	29
Pub Pln- Real Estate	12.28%		12.11%		13.48%		12.53%		(25.86%)	
Alternative Investments	12.11%		6.24%		5.05%		9.76%		(0.82%)	
Alt. Custom Benchmark**	9.00%		9.00%		9.00%		10.49%		12.00%	
Total Fund	20.20%	13	13.84%	30	(0.29%)	76	13.61%	45	24.51%	13
Total Fund Benchmark	15.78%	44	12.19%	79	1.47%	31	12.78%	64	19.93%	51
Callan Public Fund Lg DB	15.31%		13.18%		0.79%		13.54%		20.17%	

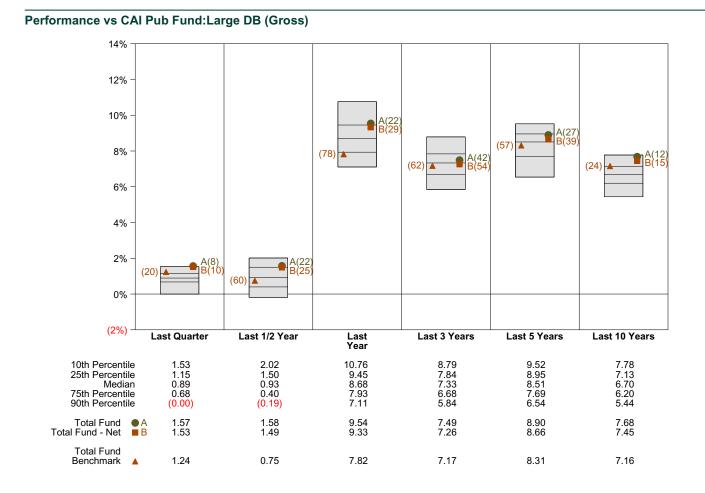
\* The Blended Benchmark is currently ODCE Value Weigh Index+1%. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.
\*\* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%.



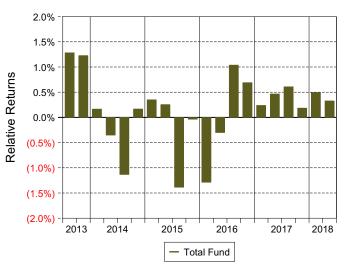
## Total Fund Period Ended June 30, 2018

#### **Investment Philosophy**

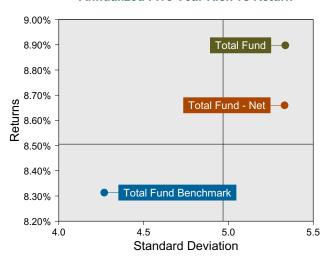
\* Current Quarter Target = 38.0% Russell 3000 Index, 27.0% Blmbg Barclays Aggregate Idx, 17.0% MSCI ACWI ex US, 9.0% 9% Annually, 8.0% NFI-ODCE Value Weight Net and 1.0% 3-month Treasury Bill. Large public fund members as of 12.31.2016 = 101.



**Relative Return vs Total Fund Benchmark** 

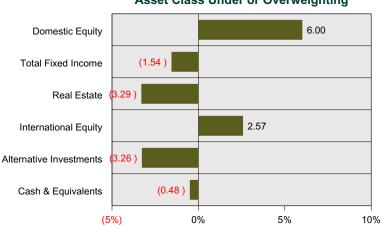


## CAI Pub Fund:Large DB (Gross) Annualized Five Year Risk vs Return



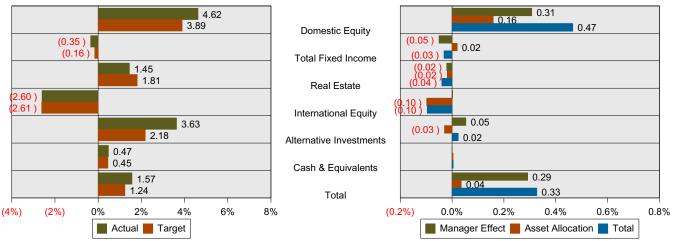
## **Quarterly Total Fund Relative Attribution - June 30, 2018**

In general, the actual return for the Total Fund will differ from the return for the Total Fund Benchmark. This deviation is caused by two factors: The managers outperforming or underperforming their targets (Manager Selection Effect); or the actual asset allocation being different from the target asset allocation (Asset Allocation Effect). The table and charts below dissect the Total Fund return into smaller components to quantify each of these effects over the most recent quarter



#### Asset Class Under or Overweighting

#### Actual vs Target Returns



#### **Relative Attribution Effects for Quarter ended June 30, 2018**

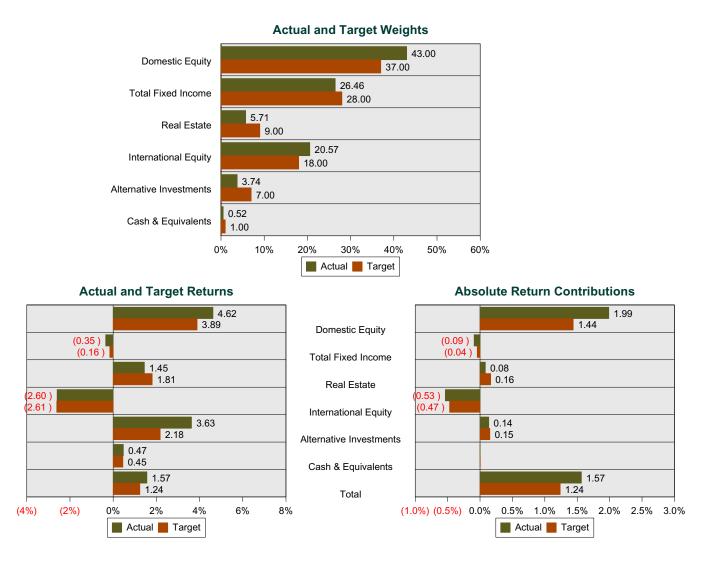
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	43%	37%	4.62%	3.89%	0.31%	0.16%	0.47%
Total Fixed Income	26%	28%	(0.35%)	(0.16%)	(0.05%)	0.02%	(0.03%)
Real Estate	6%	9%	`1.45%´	`1.81%´	(0.02%)	(0.02%)	(0.04%)
International Equity	21%	18%	(2.60%)	(2.61%)	0.00%	(0.10%)	(0.10%) 0.02%
Alternative Investment		7%	3.63%	2.18%	0.05%	(0.03%)	
Cash & Equivalents	1%	1%	0.47%	0.45%	0.00%	0.00%	0.00%
Total			1.57% =	1.24% ·	+ 0.29% +	0.04%	0.33%

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

**Relative Attribution by Asset Class** 

# **Quarterly Total Fund Absolute Attribution - June 30, 2018**

In general, the actual return for the Total Fund will differ from the return for the Total Fund Benchmark. This deviation is caused by two factors: The managers outperforming or underperforming their targets (Manager Selection Effect); or the actual asset allocation being different from the target asset allocation (Asset Allocation Effect). The table and charts below dissect the Total Fund return into smaller components to quantify each of these effects over the most recent quarter



Absolute Attribution Effects for Quarter ended June 30, 2018

Asset Class	Effective Actual Weight	Actual Return	Absolute Return Contribution	Effective Target Weight	Target Return	Target Return Contribution	Return Contribution Difference
Domestic Equity	43%	4.62%	1.99%	37%	3.89%	1.44%	0.55%
Total Fixed Income	26%	(0.35%)	(0.09%)	28%	(0.16%)	(0.04%)	(0.05%)
Real Estate	6%	1.45%	0.08%	9%	1.81%	0.16%	(0.08%)
International Equity	21%	(2.60%)	(0.53%)	18%	(2.61%)	(0.47%)	(0.06%)
Alternative Investments		3.63%	0.14%	7%	2.18%	0.15%	(0.02%)
Cash & Equivalents	1%	0.47%	0.00%	1%	0.45%	0.00%	(0.00%)
Total Fund Return			1.57%		<b>Target Return</b>	1.24%	0.33%

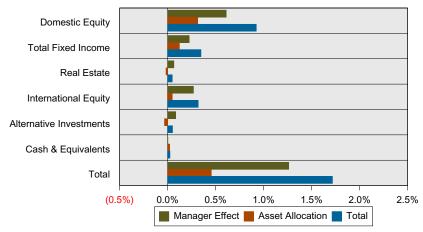
\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.



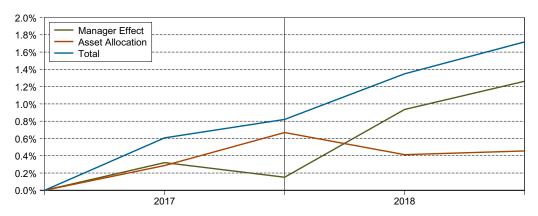
# **Cumulative Total Fund Relative Attribution - June 30, 2018**

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

#### **One Year Relative Attribution Effects**



#### **Cumulative Relative Attribution Effects**



#### **One Year Relative Attribution Effects**

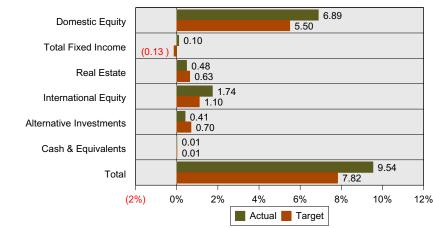
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	43%	38%	16.30%	14.78%	0.61%	0.31%	0.92%
Total Fixed Income	27%	29%	0.39%	(0.40%)	0.22%	0.12%	0.35%
Real Estate	5%	8%	8.72%	`7.47%´	0.07%	(0.02%)	0.05%
International Equity	21%	17%	8.58%	7.28%	0.27%	`0.05%´	0.32%
Alternative Investments	s 4%	8%	11.27%	9.00%	0.08%	(0.03%)	0.05%
Cash & Equivalents	1%	1%	1.88%	1.36%	0.00%	0.02%	0.02%
Total			9.54% =	7.82%	+ 1.26% +	0.46%	1.72%
IUlai			3.34 /0 -	1.02/0	T 1.20/0 T	0.40/0	1.1 2 /0

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

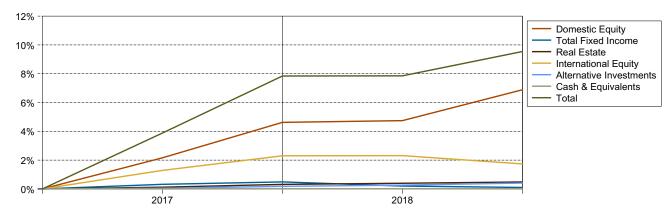
# Cumulative Total Fund Absolute Attribution - June 30, 2018

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of absolute total fund Performance and target performance. These cumulative results quantify the longer-term contribution of each asset class to absolute total fund return as well as the target return.





**Cumulative Absolute Return Contributions** 



#### **One Year Absolute Attribution Effects**

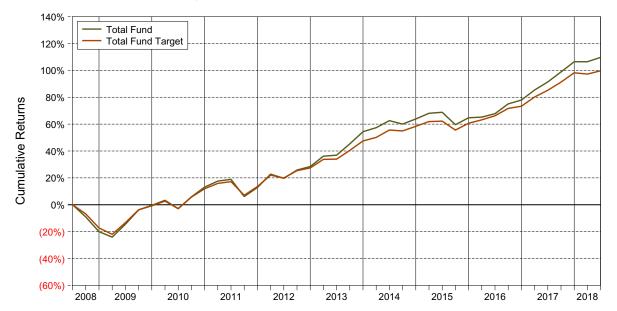
Asset Class	Effective Actual Weight	Actual Return	Absolute Return Contribution	Effective Target Weight	Target Return	Target Return Contribution	Return Contribution Difference
Domestic Equity	43%	16.30%	6.89%	38%	14.78%	5.50%	1.39%
Total Fixed Income	27%	0.39%	0.10%	29%	(0.40%)	(0.13%)	0.23%
Real Estate	5%	8.72%	0.48%	8%	7.47%	0.63%	(0.15%)
International Equity	21%	8.58%	1.74%	17%	7.28%	1.10%	0.63%
Alternative Investment	s 4%	11.27%	0.41%	8%	9.00%	0.70%	(0.29%)
Cash & Equivalents	1%	1.88%	0.01%	1%	1.36%	0.01%	(0.00%)
							. ,
	<b>Total Fu</b>	nd Return	9.54%	•	Target Return	7.82%	1.72%

\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.



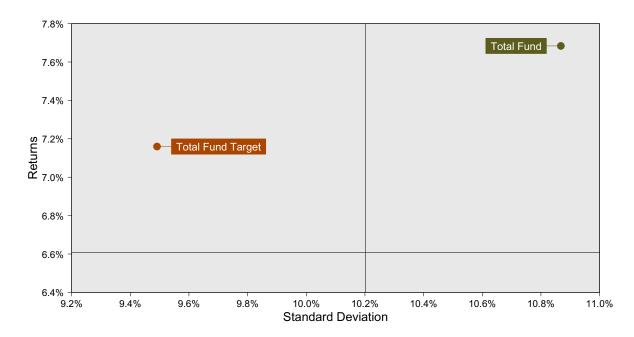
# **Cumulative Performance Relative to Target**

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.



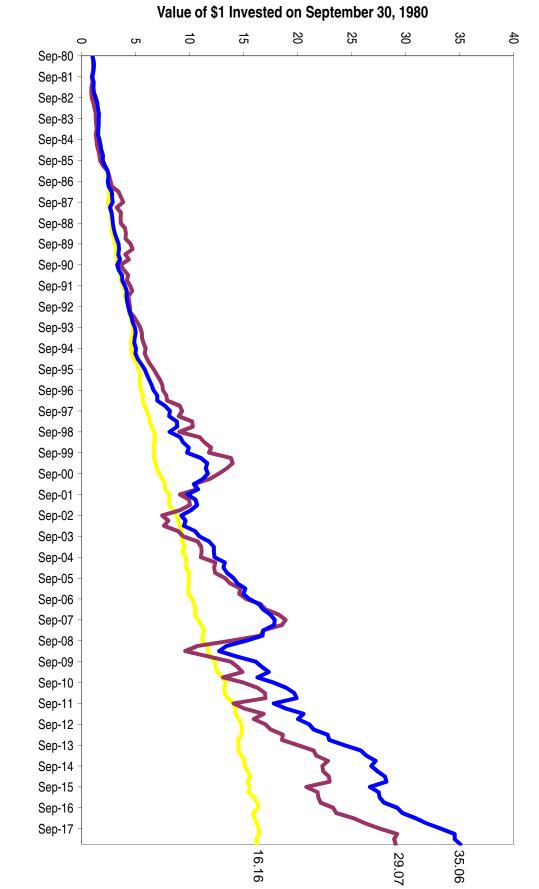
#### **Cumulative Returns Actual vs Target**

# Ten Year Annualized Risk vs Return



\* Current Quarter Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.





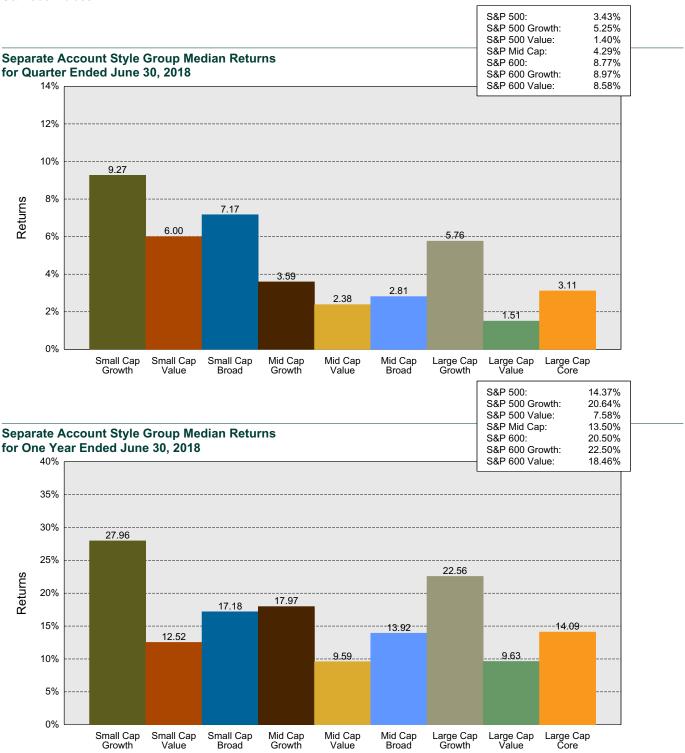
# Growth of a Dollar - As of June 30, 2018

Bloomberg Barclays U.S. Aggregate Index MSCI All-Country World Index

IMRF

# Domestic Equity Active Management Overview

The U.S. equity market posted solid returns in the second quarter on the back of strong first quarter earnings as well as record share buybacks fueled by the Trump Administration's \$1.5 trillion tax cut. The S&P 500 Index gained 3.4%. Small cap stocks, thought to be relatively immune to global trade spats, surged nearly 8% (Russell 2000: +7.8%) and large cap growth (Russell 1000 Growth: +5.8%) continued to dominate large cap value (Russell 1000 Value: +1.2%). Within the S&P 500, rising oil prices fueled the Energy sector (+13.5%), but Consumer Discretionary (+8.2%) and Technology stocks (+7.1%) were not far behind. In spite of a late quarter boost, Financials (-3.2%) were hurt by rising short rates and a flattening yield curve. Industrials (-3.2%) and Consumer Staples (-1.5%) also lost ground during the quarter. The oft-quoted "FANG" stocks plus Apple and Microsoft accounted for over half of the second quarter total returns for both the Russell 1000 Growth and S&P 500 indices.



# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2	2018			March 31,	2018
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Large Cap Growth	\$4,234,147,421	23.41%	\$35,368	\$313,814,023	\$3,920,298,031	22.43%
NTGI S&P 500 Growth Idx	2,080,198,837	11.50%	35,368	103,170,372	1,976,993,097	11.31%
Sands	2,153,948,585	11.91%	0	210,643,651	1,943,304,933	11.12%
Large Cap Value	\$5,888,510,624	32.56%	\$(102,743,818)	\$59,339,133	\$5,931,915,309	33.93%
Dodge & Cox	1,305,018,424	7.22%	(8,716,000)	32,688,255	1,281,046,169	7.33%
BMO	1,432,070,893	7.92%	(83,764,877)	10,133,150	1,505,702,619	8.61%
LSV	1,519,931,782	8.40%	(10,294,818)	(6,579,342)	1,536,805,942	8.79%
NTGI S&P 500 Value Idx	1,631,489,526	9.02%	31,877	23,097,071	1,608,360,578	9.20%
Large Cap Passive Core	\$3,686,513,187	20.38%	\$0	\$137,746,106	\$3,548,767,081	20.30%
NTGI MarketCap Index	3,686,513,187	20.38%	0	137,746,106	3,548,767,081	20.30%
Small Cap Growth	\$1,651,078,643	9.13%	\$(100,000,000)	\$118,222,085	\$1,632,856,557	9.34%
Frontier	534,572,811	2.96%	0	57,353,944	477,218,868	2.73%
FIAM (FKA Pyramis)	1,116,505,831	6.17%	(100,000,000)	60,868,142	1,155,637,690	6.61%
Small Cap Value	\$1,572,831,071	8.70%	\$0	\$115,844,995	\$1,456,986,075	8.33%
Channing	238,176,303	1.32%	0	10,706,826	227,469,477	1.30%
Dimensional Small Cap Value	627,054,090	3.47%	0	46,262,927	580,791,163	3.32%
Inv. Counselors of Maryland	707,600,678	3.91%	0	58,875,243	648,725,435	3.71%
Micro Cap	\$594,223,706	3.29%	\$0	\$43,664,365	\$550,559,342	3.15%
Ativo	136,384,143	0.75%	0	6,553,581	129,830,562	0.74%
Dimensional Micro Cap	457,839,564	2.53%	0	37,110,784	420,728,779	2.41%
Public Real Assets	\$457,367,503	2.53%	\$0	\$17,459,511	\$439,907,993	2.52%
Cohen & St Public Global Infrastru	308,933,484	1.71%	0	9,770,502	299,162,982	1.71%
Brookfield Public Global Infrastru	148,434,020	0.82%	0	7,689,009	140,745,011	0.81%
Domestic Equity (1)	\$18,084,672,156	100.0%	\$(202,708,450)	\$806,090,218	\$17,481,290,388	100.0%

#### **Asset Distribution Across Investment Managers**

(1) Includes value of Equity Transition Account.



# Large Cap Equity Returns

The table below details the rates of return for the fund's large cap growth and large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended June 30, 2018	<b>Returns and</b>	Rankings	for	Periods	Ended	June 30	. 2018
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			Year				Last	
	Last		to		Last		3	
	Quarter		Date		Year		Years	
_arge Cap Equity	3.81%	38	4.08%	39	16.23%	40	11.79%	42
Russell 1000 Index	3.57%	43	2.85%	51	14.54%	50	11.64%	44
Callan Large Cap	3.29%		2.94%		14.59%		11.20%	
arge Cap Growth	8.00%	8	14.07%	9	26.28%	30	15.10%	31
Callan Large Cap Growth	5.76%		8.83%		22.56%		13.98%	
NTGI S&P 500 Growth Idx	5.22%	61	7.20%	65	20.53%	65	14.44%	43
S&P/Citi 500 Growth Index	5.25%	59	7.28%	65	20.64%	64	14.48%	43
NTGI S&P 500 Growth Idx - Net	5.22%	61	7.19%	65	20.53%	65	14.43%	43
Callan Large Cap Growth	5.76%		8.83%		22.56%		13.98%	
Sands	10.84%	1	21.61%	1	34.75%	1	16.40%	13
LCG Blended Benchmark*	5.76%	50	7.25%	65	22.51%	51	14.98%	32
Russell 1000 Growth Index	5.76%	50	7.25%	65	22.51%	51	14.98%	32
Sands - Net	10.78%	1	21.48%	1	34.47%	2	16.14%	16
Callan Large Cap Growth	5.76%		8.83%		22.56%		13.98%	
arge Cap Value	0.99%	67	(1.42%)	57	10.62%	41	9.57%	40
Callan Large Cap Value	1.51%		(0.95%)		9.63%		9.24%	
odge & Cox	2.55%	23	0.90%	15	11.96%	25	11.25%	8
LCV Blended Benchmark**	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
Russell 1000 Value Index	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
Dodge & Cox - Net	2.49%	26	0.79%	20	11.72%	26	11.01%	13
Callan Large Cap Value	1.51%		(0.95%)		9.63%		9.24%	
BMO	0.65%	76	(2.24%)	80	11.87%	25	8.79%	63
LCV Blended Benchmark**	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
Russell 1000 Value Index	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
BMO - Net	0.60%	77	(2.35%)	81	11.63%	27	8.55%	68
Callan Large Cap Value	1.51%		(0.95%)		9.63%		9.24%	
sv	(0.44%)	96	(1.72%)	63	11.79%	26	9.95%	31
LCV Blended Benchmark**	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
Russell 1000 Value Index	1.18%	60	(1.69%)	63	6.77%	84	8.26%	72
LSV - Net	(0.50%)	96	(1.83%)	69	11.53%	29	9.69%	39
Callan Large Cap Value	1.51%		(0.95%)		9.63%		9.24%	
NTGI S&P 500 Value Idx	1.44%	54	(2.16%)	79	7.68%	73	8.93%	60
S&P/Citi 500 Value Index	1.40%	55	(2.22%)	80	7.58%	74	8.82%	61
NTGI S&P 500 Value Idx - Net	1.44%	54	(2.16%)	79	7.67%	73	8.92%	60
Callan Large Cap Value	1.51%		(0.95%)		9.63%		9.24%	
arge Cap Passive Core	3.88%	23	3.26%	35	14.84%	42	11.66%	33
NTGI MarketCap Idx	3.88%	23	3.26%	35	14.84%	42	11.66%	33
DJ U.S. Total Stock Market Index	3.87%	23	3.24%	35	14.79%	42	11.56%	38
NTGI MktCap Idx - Net	3.88%	23	3.25%	35	14.83%	42	11.65%	35
Callan Large Cap Core	3.11%		2.65%		14.09%		11.14%	

\* The LCG Blended Benchmark is currently the Russell 1000 Growth Index. Returns prior to January 1, 2006, reflect those the S&P 500/Citigroup Growth Index.

\*\* The LCV Blended Benchmark is currently the Russell 1000 Value Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Value Index.



# Large Cap Equity Returns

The table below details the rates of return for the fund's large cap growth and large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Last		Last			
	5		10		Since	
	Years		Years		Inception	
Large Cap Equity	13.74%	44	10.39%	48		(1/82)
Russell 1000 Index	13.37%	52	10.20%	53	11.64%	
Callan Large Cap	13.46%	52	10.23%	55	11.0470	(1/02)
Callan Large Cap	13.40 //		10.2376		-	
arge Cap Growth	16.15%	54	11.88%	35	12.00%	(1/82)
Callan Large Cap Growth	16.33%		11.46%		-	
NTGI S&P 500 Growth Idx	15.95%	58	11.71%	41	7.73%	(8/01)
S&P/Citi 500 Growth Index	15.99%	58	11.70%	41		(8/01)
NTGI S&P 500 Growth Idx - Net	15.94%	58	11.70%	41		(1/05)
Callan Large Cap Growth	16.33%		11.46%		-	()
Sanda	47.09%	14	14.97%	2	40 EC9/	
Sands	17.98%			2		(11/03)
LCG Blended Benchmark* Russell 1000 Growth Index	16.36% 16.36%	49 49	11.83% 11.83%	37 37		(11/03)
Sands - Net	16.36%	49 15	11.83%			(11/03)
		15		3	11.49%	(1/05)
Callan Large Cap Growth	16.33%		11.46%		-	
arge Cap Value	12.13%	19	9.41%	44	10.43%	(10/82)
Callan Large Cap Value	11.17%		9.14%		-	
Dodge & Cox	13.06%	9	10.11%	29	9.80%	(9/03)
LCV Blended Benchmark**	10.34%	80	8.49%	69		(9/03)
Russell 1000 Value Index	10.34%	80	8.49%	69		(9/03)
Dodge & Cox - Net	12.82%	11	9.87%	33		(1/05)
Callan Large Cap Value	11.17%		9.14%		-	(,
ВМО	12.31%	18	8.81%	62	8.28%	(2/01)
LCV Blended Benchmark**	10.34%	80	8.49%	69		(2/01)
Russell 1000 Value Index	10.34%	80	8.49%	69		(2/01)
BMO - Net	12.07%	20	8.56%	67		(1/05)
Callan Large Cap Value	11.17%	20	9.14%	07	-	(1/05)
	40.000/	40	40.45%	40	44.200/	
LSV	<b>12.62%</b>	12	10.45%	18		(2/03)
LCV Blended Benchmark**	10.34%	80	8.49%	69 60		(2/03)
Russell 1000 Value Index	10.34%	80	8.49%	69		(2/03)
LSV - Net	12.35%	17	10.16%	28	8.60%	(1/05)
Callan Large Cap Value	11.17%		9.14%		-	
NTGI S&P 500 Value Idx	10.56%	74	8.50%	68		(8/99)
S&P/Citi 500 Value Index	10.45%	76	8.44%	70		(8/99)
NTGI S&P 500 Value Idx - Net	10.55%	74	8.49%	68	6.96%	(1/05)
Callan Large Cap Value	11.17%		9.14%		-	
Large Cap Passive Core	13.31%	51	10.26%	45	11.21%	(1/85)
NTGI MarketCap Idx	13.31%	51	10.28%	45		(2/85)
DJ U.S. Total Stock Market Index	13.22%	59	10.28%	45		(2/85)
NTGI MktCap Idx - Net	13.31%	51	10.27%	45		(1/05)
Callan Large Cap Core	13.42%		10.21%		_	

Returns and Rankings for Periods Ended June 30, 2018

\* The LCG Blended Benchmark is currently the Russell 1000 Growth Index. Returns prior to January 1, 2006, reflect those the S&P 500/Citigroup Growth Index.

\*\* The LCV Blended Benchmark is currently the Russell 1000 Value Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Value Index.



The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

			Year				Last	
	Last		to		Last		3	
	Quarter		Date		Year		Years	
Small Cap Equity	7.72%	38	8.55%	43	18.15%	48	9.73%	74
Russell 2000 Index	7.75%	38	7.66%	49	17.57%	48	10.96%	55
Callan Small Cap	7.17%		7.41%		17.18%		11.20%	
Small Cap Growth	7.42%	79	11.28%	73	20.32%	87	8.93%	87
Callan Small Cap Growth	9.27%		14.16%		27.96%		12.29%	
Frontier	12.02%	17	19.08%	10	30.94%	22	10.86%	62
Russell 2000 Growth Index	7.23%	81	9.70%	82	21.86%	82	10.60%	68
Frontier - Net	11.89%	18	18.79%	11	30.31%	28	10.26%	72
Callan Small Cap Growth	9.27%		14.16%		27.96%		12.29%	
FIAM	5.51%	95	8.16%	92	16.16%	97	8.94%	87
Russell 2000 Growth Index	7.23%	81	9.70%	82	21.86%	82	10.60%	68
FIAM - Net	5.29%	95	7.93%	92	15.79%	97	8.35%	93
Callan Small Cap Growth	9.27%		14.16%		27.96%		12.29%	
Small Cap Value	7.95%	15	6.20%	16	16.63%	9	11.77%	36
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	
Channing	4.71%	76	3.32%	63	12.01%	61	9.49%	74
Russell 2000 Value Index	8.30%	12	5.44%	23	13.10%	41	11.22%	44
Channing - Net	4.58%	78	3.07%	64	11.46%	66	8.95%	82
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	
DFA Small Cap Value	7.97%	15	5.61%	19	15.63%	21	10.35%	61
Russell 2000 Value Index	8.30%	12	5.44%	23	13.10%	41	11.22%	44
DFA Small Cap Value - Net	7.83%	15	5.35%	24	14.98%	26	9.77%	70
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	
Inv. Counselors of Maryland	9.07%	9	7.74%	6	19.25%	6	14.97%	2
Russell 2000 Value Index	8.30%	12	5.44%	23	13.10%	41	11.22%	44
Inv. Couns. of Maryland - Net	8.97%	10	7.53%	6	18.60%	8	14.37%	4
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	

The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns	s and Rankings fo	or Periods	Ended June 30	), 2018	
	Last 5		Last 10		Since
	Years		Years		Inception
Small Cap Equity	12.30%	68	10.99%	74	<b>12.60%</b> (7/88)
Russell 2000 Index	12.46%	64	10.60%	79	9.85% (7/88)
Callan Small Cap	13.43%		11.93%		-
Small Cap Growth	13.26%	72	10.95%	73	<b>13.27%</b> (7/88)
Callan Small Cap Growth	14.58%		12.74%		-
Frontier	14.16%	57	12.07%	58	13.52% (8/88)
Russell 2000 Growth Index	13.65%	69	11.24%	69	8.56% (8/88)
Frontier - Net	13.54%	70	11.39%	64	10.34% (1/05)
Callan Small Cap Growth	14.58%		12.74%		-
FIAM	13.74%	67	11.24%	69	<b>13.84%</b> (8/88)
Russell 2000 Growth Index	13.65%	69	11.24%	69	8.56% (8/88)
FIAM - Net	13.16%	72	10.66%	74	11.33% (1/05)
Callan Small Cap Growth	14.58%		12.74%		-
Small Cap Value	12.59%	39	11.17%	72	<b>12.38%</b> (9/89)
Callan Small Cap Value	12.31%		11.90%		-
Channing	12.20%	55	-		<b>12.42%</b> (7/11)
Russell 2000 Value Index	11.18%	79	9.88%	89	11.10% (7/11)
Channing - Net	11.66%	71	-	00	11.81% (7/11)
Callan Small Cap Value	12.31%	,,	11.90%		-
DFA Small Cap Value	11.86%	66	12.00%	46	<b>12.84%</b> (2/96)
Russell 2000 Value Index	11.18%	79	9.88%	89	10.16% (2/96)
DFA Small Cap Value - Net	11.32%	77	11.45%	62	8.81% (1/05)
Callan Small Cap Value	12.31%		11.90%	-	-
Inv. Counselors of Maryland	14.47%	8	11.40%	65	<b>12.36%</b> (5/99)
Russell 2000 Value Index	11.18%	79	9.88%	89	9.77% (5/99)
Inv. Couns. of Maryland - Net	13.94%	13	10.86%	78	9.65% (1/05)
Callan Small Cap Value	12.31%	10	11.90%		-

# Returns and Rankings for Periods Ended June 30, 2018

The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

			Year				Last	
	Last		to		Last		3	
	Quarter		Date		Year		Years	
Micro Cap	7.93%	70	6.96%	96	15.95%	97	6.80%	95
Callan Small Cap Growth	9.27%		14.16%		27.96%		12.29%	
Ativo	5.05%	95	2.71%	98	6.82%	98	7.93%	94
Russell Microcap Index	9.97%	39	10.71%	74	20.21%	88	10.49%	70
Russell 2000 Growth Index	7.23%	81	9.70%	82	21.86%	82	10.60%	68
Russell 2000 Index	7.75%	71	7.66%	93	17.57%	96	10.96%	62
Ativo - Net	4.89%	96	2.38%	98	6.16%	98	7.22%	95
Callan Small Cap Growth	9.27%		14.16%		27.96%		12.29%	
DFA Micro Cap	8.82%	10	8.29%	4	18.98%	7	13.15%	9
Russell 2000 Value Index	8.30%	12	5.44%	23	13.10%	41	11.22%	44
Russell 2000 Index	7.75%	16	7.66%	6	17.57%	8	10.96%	46
DFA Micro Cap - Net	8.69%	11	8.03%	4	18.39%	8	12.59%	16
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	
Public Real Assets	3.97%	35	(0.41%)	17				
Public Real Assets Benchmark (1)	3.32%	58	(1.77%)	62	-		-	
Callan Publicly List Infr	3.79%		(1.41%)		3.40%		6.97%	
Brookfield Public Global Infrastru	5.46%	13	(0.33%)	16	-		-	
DJ Global Infra Comp Idx	5.21%	15	(1.31%)	47	1.18%	86	3.48%	85
Brookfield Public Global Infra - Net	5.32%	14	(0.59%)	19	-		-	
Callan Publicly List Infr	3.79%		(1.41%)		3.40%		6.97%	
Cohen & St Public Global Infrastru	3.27%	59	(0.45%)	17	-		-	
FTSE GI Core Infr 50/50 N	2.70%	72	(1.94%)	69	2.75%	56	7.11%	39
Cohen & St Public Global Infra - Net	3.15%	59	(0.67%)	22	-		-	
Callan Publicly List Infr	3.79%		(1.41%)		3.40%		6.97%	

(1) 1/3 Dow Jones Global Infrastructure Composite Index + 2/3 FTSE Global Core Infrastructure 50/50 Net Tax Index



The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Last 5 Years		Last 10 Years		Since Inception
l <b>icro Cap</b> Callan Small Cap Growth	<b>9.67%</b> 14.58%	97	<b>9.93%</b> 12.74%	86	<b>12.01%</b> (7/84) -
Ativo	12.93%	74	-		<b>13.84%</b> (10/10)
Russell Microcap Index	12.78%	78	10.63%	74	14.21% (10/10)
Russell 2000 Growth Index	13.65%	69	11.24%	69	14.73% (10/10)
Russell 2000 Index	12.46%	79	10.60%	75	13.68% (10/10)
Ativo - Net	12.15%	79	-		13.04% (10/10)
Callan Small Cap Growth	14.58%		12.74%		-
DFA Micro Cap	13.94%	13	12.54%	31	<b>11.69%</b> (8/87)
Russell 2000 Value Index	11.18%	79	9.88%	89	10.30% (8/87)
Russell 2000 Index	12.46%	41	10.60%	83	9.22% (8/87)
DFA Micro Cap - Net	13.37%	24	11.99%	47	8.96% (1/05)
Callan Small Cap Value	12.31%		11.90%		-
Public Real Assets	-		-		<b>1.85%</b> (8/17)
Public Real Assets Benchmark (1)	-		-		(0.47%)(8/17)
Callan Publicly List Infr	8.83%		6.63%		-
Brookfield Public Global Infrastru	-		-		(0.75%) <sub>(8/17)</sub>
DJ Global Infra Comp Idx	6.08%	88	7.91%	33	(1.65%)(8/17)
Brookfield Public Global Infra - Net	-		-		(1.12%)(8/17)
Callan Publicly List Infr	8.83%		6.63%		-
Cohen & St Public Global Infrastru	-		-		<b>3.15%</b> (8/17)
FTSE GI Core Infr 50/50 N	7.72%	74	-		(0.09%)(8/17)
Cohen & St Public Global Infra - Net	-		-		2.84% (8/17)
Callan Publicly List Infr	8.83%		6.63%		-

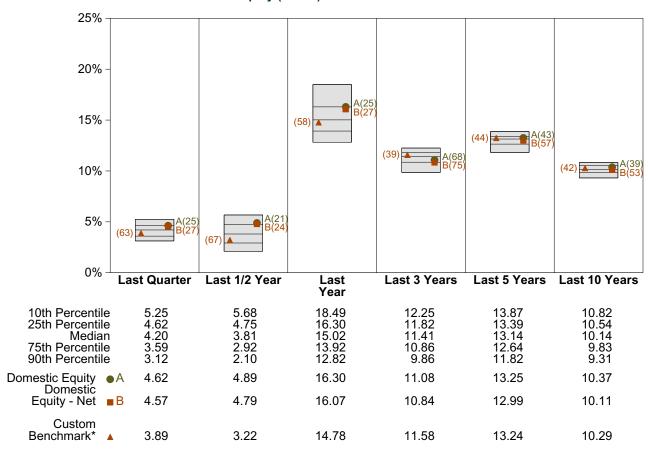
(1) 1/3 Dow Jones Global Infrastructure Composite Index + 2/3 FTSE Global Core Infrastructure 50/50 Net Tax Index



# Domestic Equity Period Ended June 30, 2018

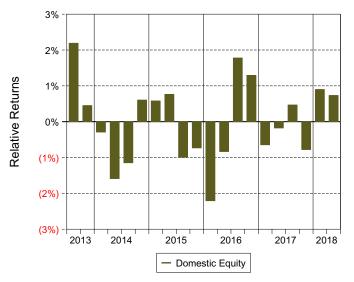
#### **Investment Philosophy**

\* The Custom Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.

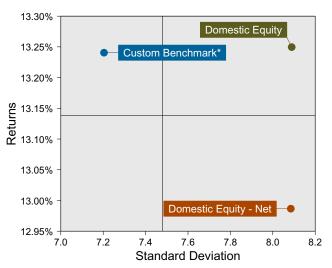




**Relative Return vs Custom Benchmark\*** 



#### Public Fund - Domestic Equity (Gross) Annualized Five Year Risk vs Return

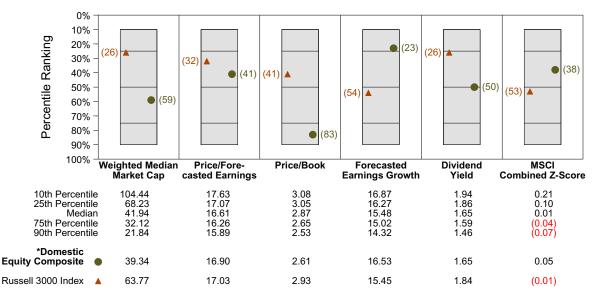


# Domestic Equity Composite Equity Characteristics Analysis Summary

#### **Portfolio Characteristics**

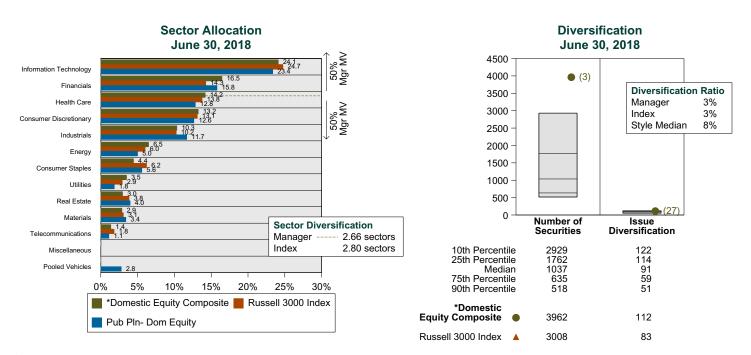
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

#### Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - Domestic Equity as of June 30, 2018



#### **Sector Weights**

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

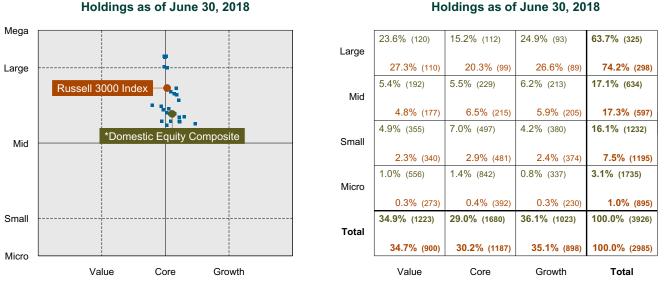




# Current Holdings Based Style Analysis Domestic Equity Composite As of June 30, 2018

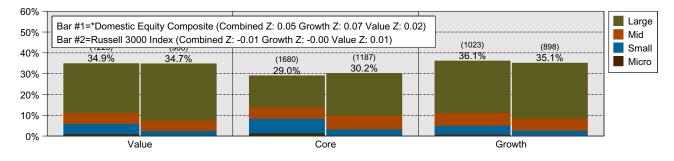
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

**Style Exposure Matrix** 

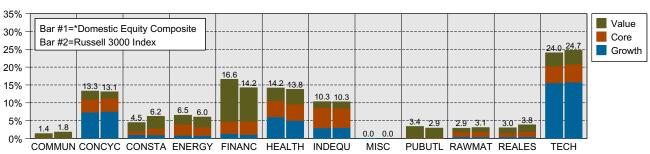


#### Style Map vs Pub Pln- Dom Equity Holdings as of June 30, 2018

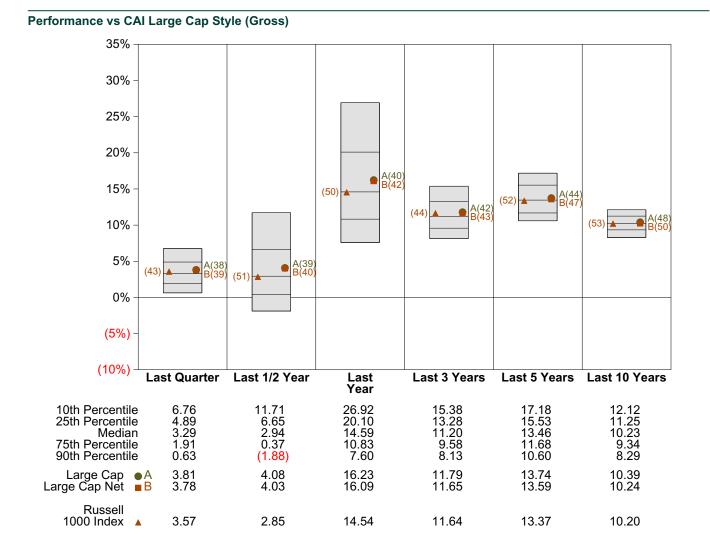
#### Combined Z-Score Style Distribution Holdings as of June 30, 2018



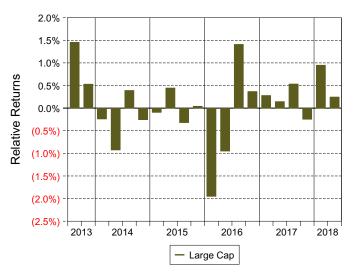
Sector Weights Distribution Holdings as of June 30, 2018



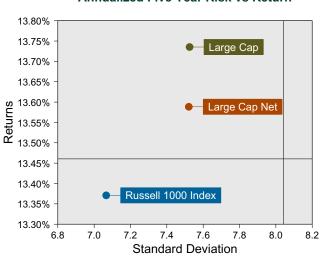
### Large Cap Period Ended June 30, 2018



**Relative Return vs Russell 1000 Index** 



CAI Large Cap Style (Gross) Annualized Five Year Risk vs Return

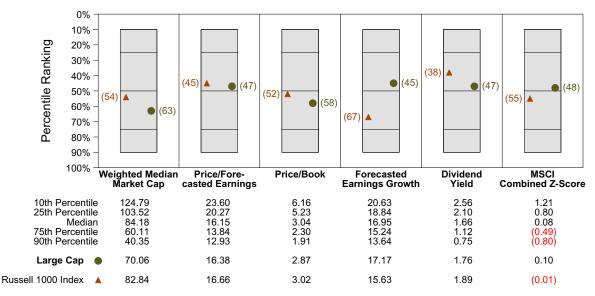


# Large Cap Equity Characteristics Analysis Summary

#### **Portfolio Characteristics**

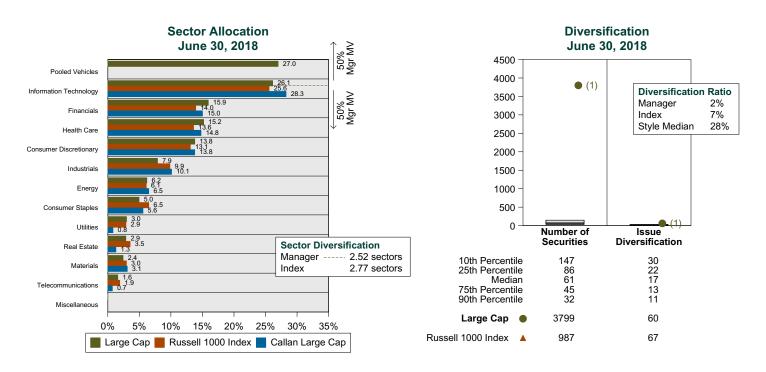
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

#### Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Capitalization as of June 30, 2018



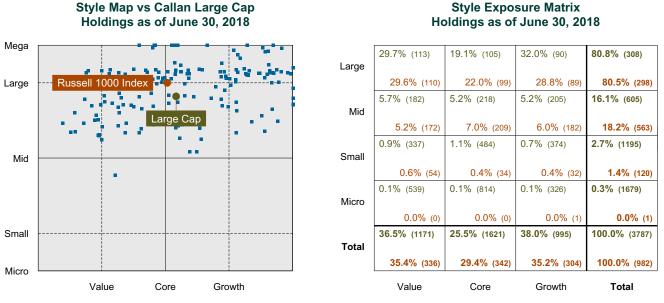
#### **Sector Weights**

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



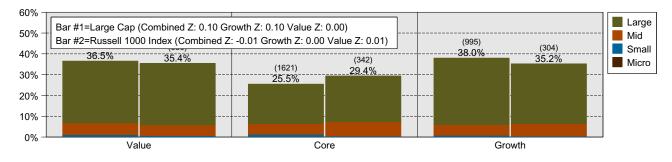
# **Current Holdings Based Style Analysis** Large Cap As of June 30, 2018

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

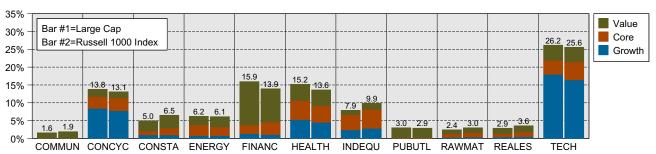


# Style Map vs Callan Large Cap

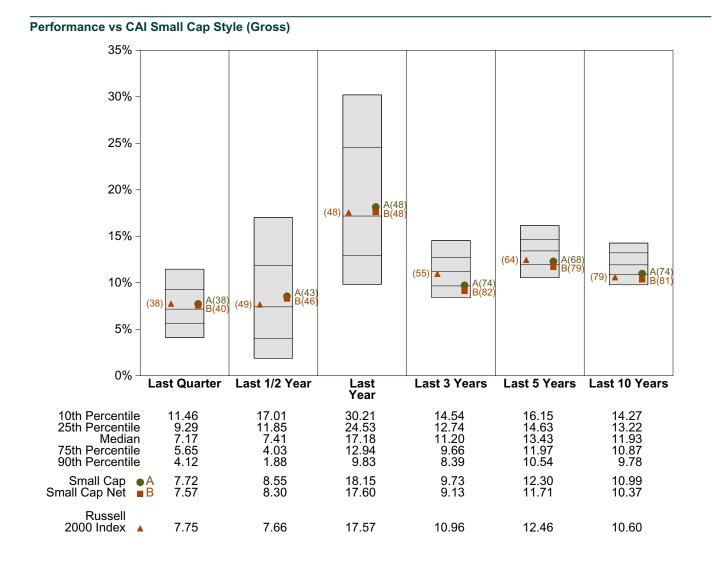
#### **Combined Z-Score Style Distribution** Holdings as of June 30, 2018



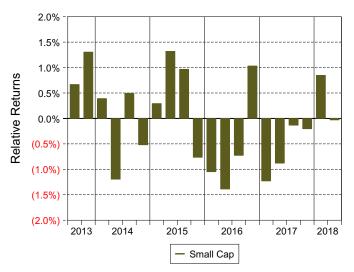
**Sector Weights Distribution** Holdings as of June 30, 2018



# Small Cap Period Ended June 30, 2018



**Relative Return vs Russell 2000 Index** 



CAI Small Cap Style (Gross) Annualized Five Year Risk vs Return



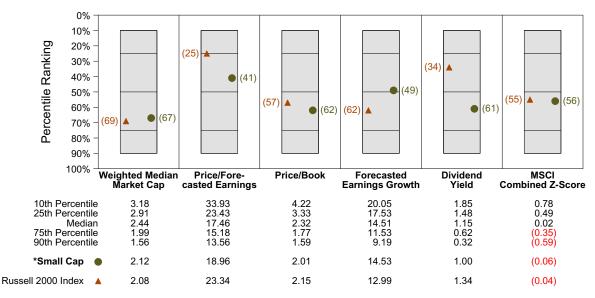
Callan

# Small Cap Equity Characteristics Analysis Summary

#### **Portfolio Characteristics**

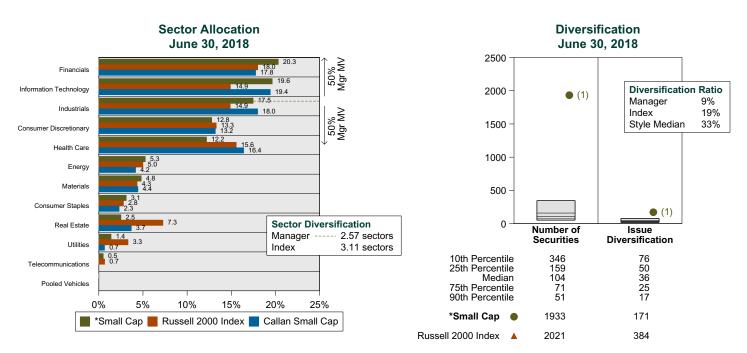
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

#### Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Capitalization as of June 30, 2018



#### **Sector Weights**

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

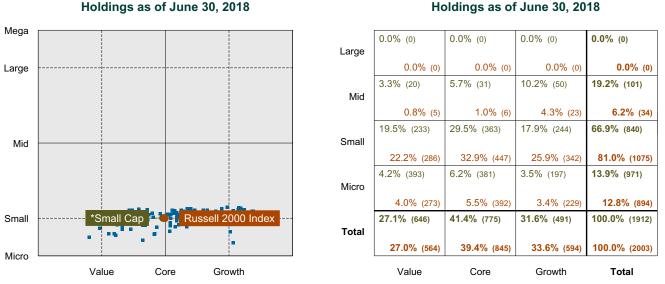




# Current Holdings Based Style Analysis Small Cap As of June 30, 2018

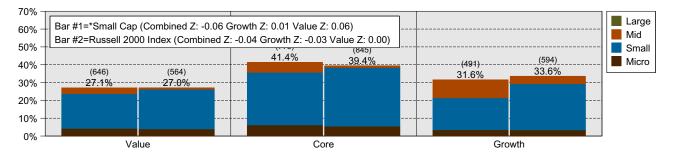
This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

**Style Exposure Matrix** 

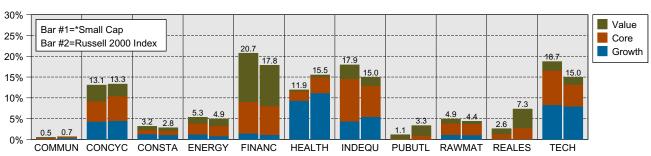


#### Style Map vs Callan Small Cap Holdings as of June 30, 2018

#### Combined Z-Score Style Distribution Holdings as of June 30, 2018



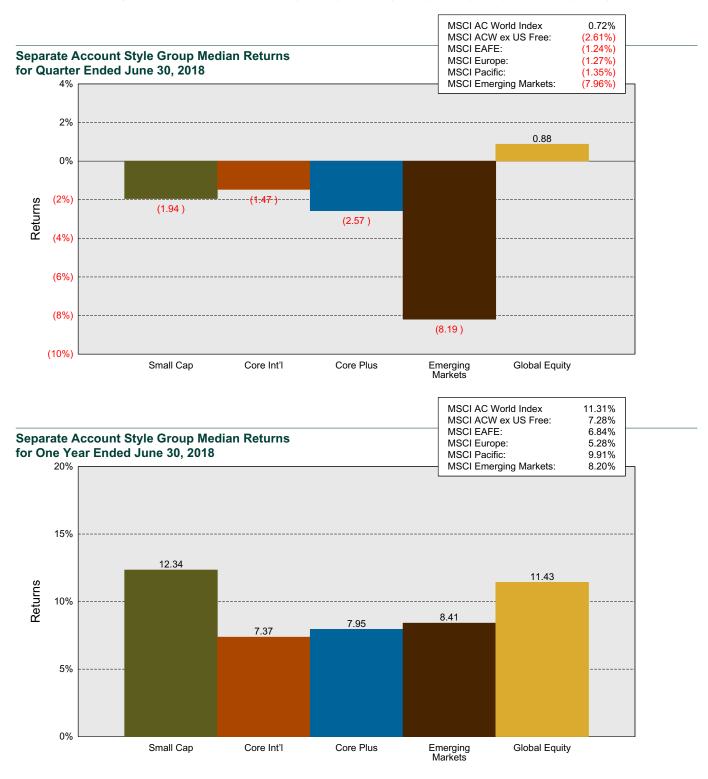
# Sector Weights Distribution Holdings as of June 30, 2018



International Equity

# International Equity Active Management Overview

Developed markets underperformed the U.S. in the second quarter (in U.S. dollar terms); the MSCI ACWI ex-U.S. Index returned -2.6% and the MSCI EAFE Index lost 1.2%. The U.S. dollar appreciated roughly 5% over the quarter (versus a basket of developed market currencies). As in the U.S., the Energy sector (+7.3%) was the top performer while Financials (-7.3%) lagged. Also mirroring U.S. results, growth outperformed value. Italy (-7.3%) was down sharply on political woes while the UK (+3.0%) and Australia (+5.2%) benefited from significant exposure to energy. Emerging markets underperformed developed; the MSCI Emerging Markets Index fell 8.0% with many countries posting double-digit declines. Regionally, Emerging Europe (-10.2%) and Latin America (-17.8%) fared the worst with Emerging Asia (-5.9%) dropping less. Results among the BRICs were mixed; Brazil (-26.4%); Russia (-6.0%), India (-0.6%) and China (-3.5%).



# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2	2018			March 31,	2018
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
International Large Cap Growth	\$1,399,415,163	17.18%	\$339,235	\$(29,897,540)	\$1,428,973,469	16.88%
EARNEST Partners	643,624,008	7.90%	339,235	(18,351,450)	661,636,224	7.82%
William Blair	755,791,155	9.28%	0	(11,546,090)	767,337,245	9.06%
International Large Cap Value	\$1,256,031,099	15.42%	\$(50,000,000)	\$(31,287,064)	\$1,337,318,163	15.80%
Brandes	622,626,333	7.64%	0	(5,063,378)	627,689,711	7.41%
Mondrian	520,950,762	6.39%	(50,000,000)	(21,735,995)	592,686,757	7.00%
Lazard	112,454,004	1.38%	0	(4,487,690)	116,941,694	1.38%
International LC Active Core	\$2,004,066,115	24.60%	\$0	\$(54,841,412)	\$2,058,907,527	24.32%
Arrowstreet	683,461,747	8.39%	0	(25,991,568)	709,453,314	8.38%
Brown	346,045,950	4.25%	0	5,361,378	340,684,573	4.02%
GlobeFlex	666,764,921	8.18%	0	(28,335,155)	695,100,076	8.21%
Progress	307,793,497	3.78%	0	(5,876,067)	313,669,564	3.71%
International LC Passive Core	\$2,223,406,840	27.29%	\$0	\$(29,586,776)	\$2,252,993,616	26.61%
NTGI MSCI EAFE Index	2,223,406,840	27.29%	0	(29,586,776)	2,252,993,616	26.61%
International Small Cap	\$491,808,775	6.04%	\$(49,532,682)	\$(17,495,066)	\$558,836,523	6.60%
Franklin Templeton	200,205,846	2.46%	(49,532,682)	(7,861,689)	257,600,217	3.04%
William Blair	291,602,928	3.58%	0	(9,633,378)	301,236,306	3.56%
Emerging Markets	\$772,903,709	9.49%	\$0	\$(55,932,388)	\$828,836,097	9.79%
Genesis	772,903,709	9.49%	0	(55,932,388)	828,836,097	9.79%
International Equity	\$8,147,631,701	100.0%	\$(99,193,447)	\$(219,040,246)	\$8,465,865,394	100.0%

#### **Asset Distribution Across Investment Managers**

The table below details the rates of return for the fund's international large cap growth and international large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns	s and Rankings	for Pe	eriods Ende	ed Ju	ne 30, 2018				
			Year				Last		
	Last		to		Last		3		
	Quarter		Date		Year		Years		
Intl Large Cap Equity	(2.07%)	57	(2.21%)	41	8.31%	44	6.09%	49	
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65	
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%		
'			× ,						
Intl Large Cap Growth	(2.09%)	58	(2.41%)	46	10.02%	29	6.66%	35	
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%		
	(0.77%)		(0.050()		7 400/		0.000/		
EARNEST Partners	(2.77%)	72	(3.95%)	69	7.12%	59	6.60%	37	
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65	
MSCI ACWI ex-US Growth	(1.23%)	37	(2.02%)	40	10.30%	26	6.95%	30	
EARNEST Partners - Net	(2.77%)	72	(3.95%)	69	7.07%	59	6.48%	39	
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%		
William Blair	(1.50%)	43	(1.06%)	28	12.61%	14	6.71%	34	
MSCI ACWI ex-US Index	(2.61%)	<b>-5</b> 68	(3.77%)	67	7.28%	56	5.07%	<b>54</b> 65	
MSCI ACWI ex-US Growth	(1.23%)	37	(2.02%)	40	10.30%	26	6.95%	30	
William Blair - Net	(1.59%)	46	(1.23%)	29	12.22%	15	6.32%	43	
Callan NonUS Eq	(1.79%)	40	(2.69%)	29	7.81%	15	6.02%	43	
	(1.7370)		(2.0370)		7.0170		0.02 /0		
Intl Large Cap Value	(2.38%)	64	(2.04%)	40	6.86%	60	4.65%	73	
Callan NonUS Eq	(1.79%)	04	(2.69%)	40	7.81%	00	6.02%	75	
	(1.7570)		(2.0070)		7.0170		0.0270		
Brandes	(0.81%)	28	1.43%	8	9.07%	35	5.11%	64	
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65	
MSCI ACWI ex-US Value	(3.59%)	84	(4.90%)	83	5.26%	79	4.12%	83	
Brandes - Net	(0.86%)	29	1.32%	9	8.84%	38	4.87%	70	
Callan NonUS Eq	(1.79%)	23	(2.69%)	3	7.81%	50	6.02%	10	
	(1.7370)		(2.0070)		7.0170		0.0270		
Mondrian	(3.82%)	86	(5.21%)	86	4.32%	87	4.19%	82	
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65	
MSCI ACWI ex-US Value	(3.59%)	84	(4.90%)	83	5.26%	79	4.12%	83	
Mondrian - Net	(3.94%)	87	(5.44%)	90	3.82%	91	3.68%	90	
Callan NonUS Eq	(1.79%)	0.	(2.69%)		7.81%	0.	6.02%		
	(		(,)				0.0270		
Lazard	(3.84%)	86	(4.23%)	74	7.70%	50	4.52%	76	
MSCI ACWI ex-US Index	(2.61%)	<b>6</b> 8	(3.77%)	67	7.28%	50 56	<b>4.32</b> %	65	
MSCI ACWI ex-US Value	(3.59%)	00 84	(4.90%)	83	5.26%	56 79	4.12%	83	
Lazard - Net	(3.90%)	87	(4.35%)	o3 75	5.20 <i>%</i> 7.44%	79 53	4.12%	84	
Callan NonUS Eq	(1.79%)	07	(4.35%)	10	7.81%	00	4.12% 6.02%	04	
	(1.13/0)		(2.03%)		1.01/0		0.02 /0		

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



The table below details the rates of return for the fund's international large cap growth and international large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Return	s and Rankings fo	r Periods	Ended June 30	), 2018		
	Last 5 Years		Last 10 Years		Since Inception	
Intl Large Cap Equity	7.55%	52	3.73%	69	7.96% (9/86)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	-	
Callan NonUS Eq	7.66%		4.20%		-	
Intl Large Cap Growth	7.34%	59	3.55%	73	<b>8.87%</b> (9/02)	
Callan NonUS Eq	7.66%		4.20%		-	
EARNEST Partners	6.30%		4.89%	25	<b>9.68%</b> (10/04)	
MSCI ACWI ex-US Index		84		35		
	5.99%	86	2.54%	91	6.23% (10/04)	
MSCI ACWI ex-US Growth	7.56%	52	3.36%	77	7.21% (10/04)	
EARNEST Partners - Net	6.14%	84	4.56%	42	8.34% (1/05)	
Callan NonUS Eq	7.66%		4.20%		-	
William Blair	8.28%	34	4.69%	39	<b>10.19%</b> (10/02)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	8.51% (10/02)	
MSCI ACWI ex-US Growth	7.56%	52	3.36%	77	8.88% (10/02)	
William Blair - Net	7.89%	43	4.30%	48	6.76% (1/05)	
Callan NonUS Eq	7.66%		4.20%		-	
Intl Large Cap Value	6.74%	72	3.26%	79	<b>9.02%</b> (10/95)	
Callan NonUS Eq	7.66%		4.20%		-	
Brandes	7.65%	50	3.79%	67	<b>9.34%</b> (1/96)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	5.31% (1/96)	
MSCI ACWI ex-US Value	5.33%	96	2.61%	90	-	
Brandes - Net	7.39%	57	3.53%	74	4.76% (1/05)	
Callan NonUS Eq	7.66%	01	4.20%		-	
<b></b>	40/				00/	
Mondrian	5.84%	88	-		<b>5.76%</b> (4/12)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	5.59% (4/12)	
MSCI ACWI ex-US Value	5.33%	96	2.61%	90	5.06% (4/12)	
Mondrian - Net	5.31%	96	-		5.25% (4/12)	
Callan NonUS Eq	7.66%		4.20%		-	
Lazard	6.40%	83	-		<b>6.95%</b> (4/12)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	5.59% (4/12)	
MSCI ACWI ex-US Value	5.33%	96	2.61%	90	5.06% (4/12)	
Lazard - Net	5.72%	89	-		6.36% (4/12)	
Callan NonUS Eq	7.66%		4.20%		-	
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# Returns and Rankings for Periods Ended June 30, 2018



The table below details the rates of return for the fund's international large cap core, international small cap, and emerging markets managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Retur	ns and Rankings			eu Jui	ie 30, 2010			
	Last		Year to		Last		Last 3	
	Quarter		Date		Last Year		Years	
ntl Large Cap Active Core MSCI ACWI ex-US Index Callan NonUS Eq	(2.66%) (2.61%) (1.79%)	<b>69</b> 68	(2.28%) (3.77%) (2.69%)	<b>43</b> 67	<b>9.24%</b> 7.28% 7.81%	<b>34</b> 56	<b>7.64%</b> 5.07% 6.02%	<b>22</b> 65
Arrowstreet MSCI ACWI ex-US Index Arrowstreet - Net Callan NonUS Eq	<b>(3.66%)</b> (2.61%) (3.78%) (1.79%)	<b>85</b> 68 86	<b>(2.16%)</b> (3.77%) (2.38%) (2.69%)	<b>40</b> 67 45	<b>8.73%</b> 7.28% 8.24% 7.81%	<b>39</b> 56 45	<b>7.26%</b> 5.07% 6.77% 6.02%	<b>25</b> 65 33
Brown MSCI ACWI ex-US Index Brown - Net Callan NonUS Eq	<b>1.57%</b> (2.61%) 1.51% (1.79%)	<b>6</b> 68 6	<b>0.12%</b> (3.77%) (0.00%) (2.69%)	<b>16</b> 67 17	<b>8.72%</b> 7.28% 7.85% 7.81%	<b>39</b> 56 50	<b>6.63%</b> 5.07% 5.50% 6.02%	<b>36</b> 65 56
GlobeFlex MSCI ACWI ex-US Index GlobeFlex - Net Callan NonUS Eq	<b>(4.08%)</b> (2.61%) (4.16%) (1.79%)	<b>88</b> 68 89	<b>(4.41%)</b> (3.77%) (4.57%) (2.69%)	<b>77</b> 67 79	<b>8.82%</b> 7.28% 8.44% 7.81%	<b>38</b> 56 43	<b>8.52%</b> 5.07% 8.11% 6.02%	<b>14</b> 65 18
Progress Intl Equity* Custom Benchmark Progress Intl Equity - Net Callan NonUS Eq	<b>(1.87%)</b> (2.61%) (2.00%) (1.79%)	<b>53</b> 68 55	<b>(0.46%)</b> (3.77%) (0.70%) (2.69%)	<b>20</b> 67 22	<b>11.96%</b> 8.54% 11.42% 7.81%	<b>16</b> 41 20	<b>7.79%</b> 6.36% 7.26% 6.02%	<b>21</b> 42 25
nti Large Cap Pass. Core Callan NonUS Eq	<b>(1.31%)</b> (1.79%)	39	<b>(2.12%)</b> (2.69%)	40	<b>7.31%</b> 7.81%	55	<b>5.33%</b> 6.02%	59
NTGI MSCI EAFE Idx MSCI EAFE Index NTGI EAFE Idx - Net Callan NonUS Eq	<b>(1.31%)</b> (1.24%) (1.32%) (1.79%)	<b>39</b> 37 39	<b>(2.12%)</b> (2.75%) (2.12%) (2.69%)	<b>40</b> 52 40	<b>7.31%</b> 6.84% 7.31% 7.81%	<b>55</b> 60 56	<b>5.33%</b> 4.90% 5.32% 6.02%	<b>59</b> 69 59
<b>nternational Small Cap</b> ACWI Sm Cap ex US Callan Intl Small Cap	<b>(3.13%)</b> (2.60%) (1.94%)	<b>76</b> 58	<b>(2.57%)</b> (2.94%) (1.72%)	<b>67</b> 73	<b>10.69%</b> 10.57% 12.34%	<b>68</b> 71	<b>8.63%</b> 7.94% 10.02%	<b>80</b> 86
Franklin Templeton ACWI Sm Cap ex US Franklin Templeton - Net Callan Intl Small Cap	<b>(3.10%)</b> (2.60%) (3.10%) (1.94%)	<b>74</b> 58 74	<b>(1.58%)</b> (2.94%) (1.75%) (1.72%)	<b>45</b> 73 51	<b>10.94%</b> 10.57% 10.36% 12.34%	<b>66</b> 71 72	<b>8.09%</b> 7.94% 7.38% 10.02%	<b>85</b> 86 89
William Blair ACWI Sm Cap ex US Intl SC Blended Benchmark William Blair - Net Callan Intl Small Cap	<b>(3.20%)</b> (2.60%) (2.60%) (3.39%) (1.94%)	<b>77</b> 58 58 79	<b>(3.45%)</b> (2.94%) (2.94%) (3.81%) (1.72%)	<b>80</b> 73 73 82	<b>10.44%</b> 10.57% 10.57% 9.62% 12.34%	<b>72</b> 71 71 77	<b>9.09%</b> 7.94% 7.94% 8.26% 10.02%	<b>74</b> 86 86 82
E <b>merging Markets</b> MSCI Emerging Mkts Idx Callan Emerging Core	<b>(6.75%)</b> (7.86%) (8.31%)	<b>23</b> 39	<b>(5.41%)</b> (6.51%) (6.94%)	<b>27</b> 43	<b>9.55%</b> 8.59% 9.04%	<b>48</b> 51	<b>6.71%</b> 5.98% 7.24%	<b>63</b> 70
Genesis** MSCI Emerging Markets Index Genesis - Net Callan Emerging Core	(6.75%) (7.86%) (6.75%) (8.31%)	<b>23</b> 39 23	<b>(5.41%)</b> (6.51%) (5.46%) (6.94%)	<b>27</b> 43 28	<b>9.55%</b> 8.59% 9.16% 9.04%	<b>48</b> 51 50	<b>6.71%</b> 5.98% 6.16% 7.24%	<b>63</b> 70 66

Returns and Rankings for Periods Ended June 30, 2018

\* Custom benchmark is calculated as a weighted average of each fund s respective benchmark until 201712. after 201712 the benchmark is MSCI ACWI ex US - Net. \*\* Genesis is NOF NAV commingled fund.



The table below details the rates of return for the fund's international large cap core, international small cap, and emerging markets managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

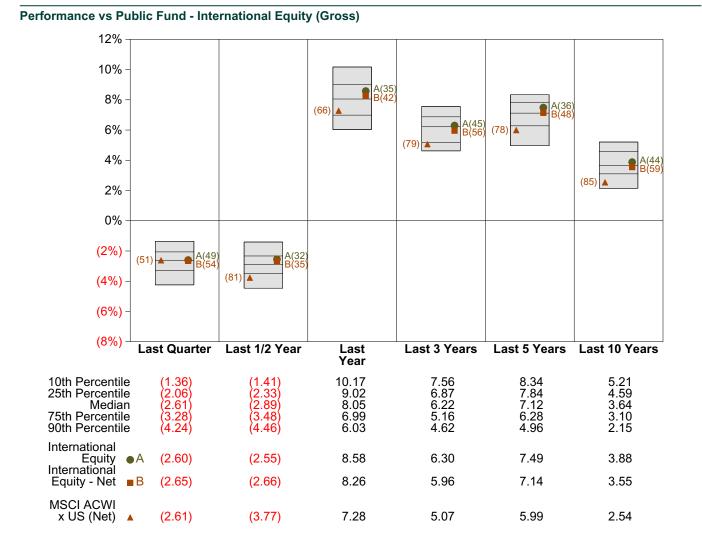
Returns and Rankings for Periods Ended June 30, 2018						
	Last 5 Years		Last 10 Years		Since Inception	
Intl Large Cap Active Core MSCI ACWI ex-US Index Callan NonUS Eq	<b>9.23%</b> 5.99% 7.66%	<b>15</b> 86	<b>5.88%</b> 2.54% 4.20%	<b>20</b> 91	5.21% (2/08) 2.39% (2/08)	
Arrowstreet MSCI ACWI ex-US Index Arrowstreet - Net Callan NonUS Eq	<b>9.53%</b> 5.99% 9.02% 7.66%	<b>12</b> 86 19	<b>5.93%</b> 2.54% 5.42% 4.20%	<b>19</b> 91 26	5.30% (3/08) 2.13% (3/08) 4.81% (3/08)	
Brown MSCI ACWI ex-US Index Brown - Net Callan NonUS Eq	<b>9.32%</b> 5.99% 8.17% 7.66%	<b>14</b> 86 37	<b>6.59%</b> 2.54% 5.83% 4.20%	<b>9</b> 91 21	<b>8.33%</b> (10/04) 6.23% (10/04) 6.72% (1/05)	
GlobeFlex MSCI ACWI ex-US Index GlobeFlex - Net Callan NonUS Eq	<b>9.06%</b> 5.99% 8.63% 7.66%	<b>19</b> 86 26	<b>3.87%</b> 2.54% 3.43% 4.20%	<b>66</b> 91 77	<b>5.47%</b> (3/06) 3.88% (3/06) 5.02% (3/06) -	
Progress Intl Equity* Custom Benchmark Progress Intl Equity - Net Callan NonUS Eq	- - 7.66%		- - 4.20%		<b>5.19%</b> (7/14) 3.74% (7/14) 4.73% (7/14)	
Inti Large Cap Pass. Core Callan NonUS Eq	<b>6.86%</b> 7.66%	69	<b>3.26%</b> 4.20%	79	<b>3.55%</b> (1/00)	
NTGI MSCI EAFE Idx MSCI EAFE Index NTGI EAFE Idx - Net Callan NonUS Eq	<b>6.86%</b> 6.44% 6.85% 7.66%	<b>69</b> 81 69	<b>3.25%</b> 2.84% 3.24% 4.20%	<b>79</b> 87 79	<b>3.93%</b> (2/00) 3.53% (2/00) 5.18% (1/05) -	
<b>International Small Cap</b> ACWI Sm Cap ex US Callan Intl Small Cap	<b>9.14%</b> 8.98% 12.07%	<b>89</b> 90	<b>4.10%</b> 5.77% 8.40%	<b>100</b> 98	<b>5.42%</b> (12/05) 6.83% (12/05)	
<b>Franklin Templeton</b> ACWI Sm Cap ex US Franklin Templeton - Net Callan Intl Small Cap	<b>9.14%</b> 8.98% 8.39% 12.07%	<b>89</b> 90 97	5.77% 8.40%	98	<b>7.72%</b> (8/11) 5.93% (8/11) 6.99% (8/11) -	
William Blair ACWI Sm Cap ex US Intl SC Blended Benchmark William Blair - Net Callan Intl Small Cap	<b>9.13%</b> 8.98% 8.98% 8.29% 12.07%	<b>89</b> 90 90 98	5.77% 4.78% 	98 99	<b>10.76%</b> (9/10) 8.42% (9/10) 8.84% (9/10) 9.92% (9/10)	
Emerging Markets MSCI Emerging Mkts Idx Callan Emerging Core	<b>5.73%</b> 5.39% 6.37%	<b>59</b> 65	<b>5.52%</b> 2.60% 3.54%	<b>16</b> 90	<b>9.17%</b> (2/92) 7.27% (2/92)	
Genesis MSCI Emerging Markets Index Genesis - Net Callan Emerging Core	<b>5.73%</b> 5.39% 5.18% 6.37%	<b>59</b> 65 71	<b>5.52%</b> 2.60% 4.93% 3.54%	<b>16</b> 90 20	<b>11.56%</b> (5/04) 9.38% (5/04) 9.50% (1/05)	

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

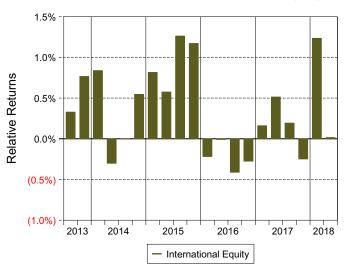
\* Custom benchmark is calculated as a weighted average of each fund s respective benchmark until 201712. after 201712 the benchmark is MSCI ACWI ex US - Net.



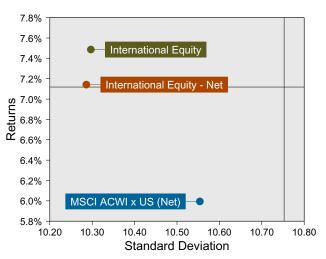
# International Equity Period Ended June 30, 2018



Relative Return vs MSCI ACWI x US (Net)



#### Public Fund - International Equity (Gross) Annualized Five Year Risk vs Return

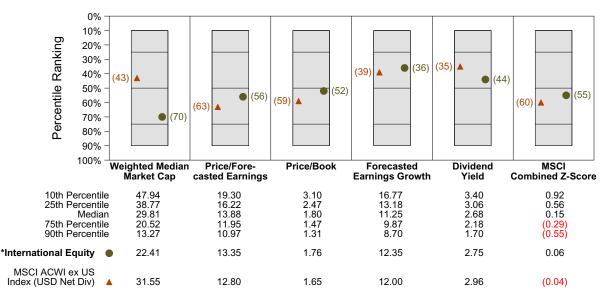


# International Equity Equity Characteristics Analysis Summary

#### **Portfolio Characteristics**

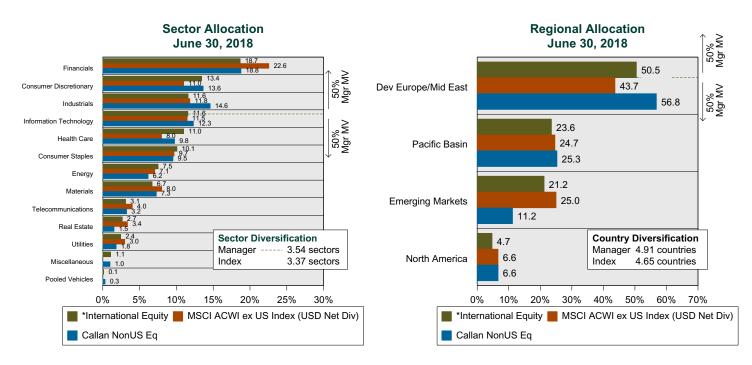
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

#### Portfolio Characteristics Percentile Rankings Rankings Against Callan Non-US Equity as of June 30, 2018



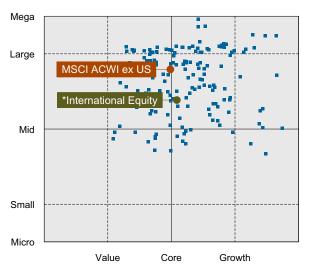
#### **Sector Weights**

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



# Current Holdings Based Style Analysis International Equity As of June 30, 2018

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

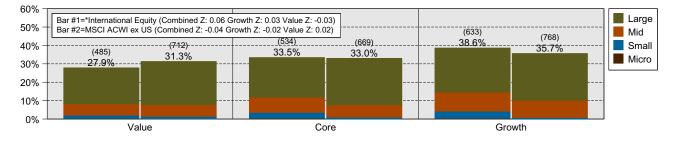


#### Style Map vs Callan NonUS Eq Holdings as of June 30, 2018

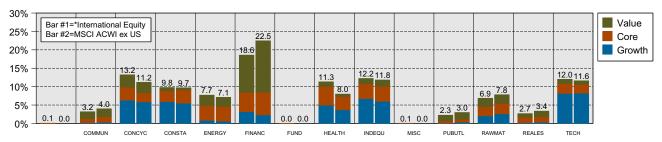
### Style Exposure Matrix Holdings as of June 30, 2018

	Value	Core	Growth	Total	
	31.3% (712)	33.0% (669)	35.7% (768)	100.0% (2149)	
Total	27.9% (485)	33.5% (534)	38.6% (633)	100.0% (1652)	
	0.0% (5)	0.0% (1)	0.0% (0)	0.0% (6)	
Micro	0.0,0 (20)				
	0.3% (20)	0.3% (19)	0.3% (18)	0.9% (57)	
Smail	1.3% (175)	0.9% (128)	0.8% (108)	<b>3.0%</b> (411)	
Small	1.9% (109)	3.2% (127)	3.9% (122)	8.9% (358)	
	6.5% (326)	6.7% (341)	9.5% (421)	22.7% (1088)	
Mid					
	6.1% (193)	8.4% (224)	10.4% (292)	24.8% (709)	
Large	23.5% (206)	25.3% (199)	25.4% (239)	<b>74.2%</b> (644)	
	19.7% (163)	21.6% (164)	24.1% (201)	65.4% (528)	

#### Combined Z-Score Style Distribution Holdings as of June 30, 2018





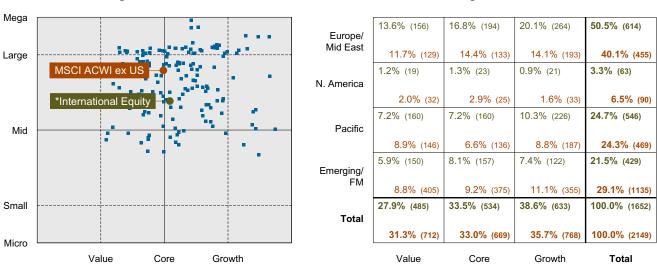


# Current Holdings Based Style Analysis International Equity As of June 30, 2018

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

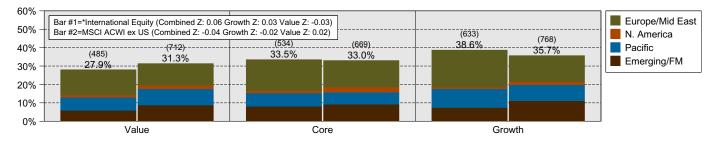
**Style Exposure Matrix** 

Holdings as of June 30, 2018

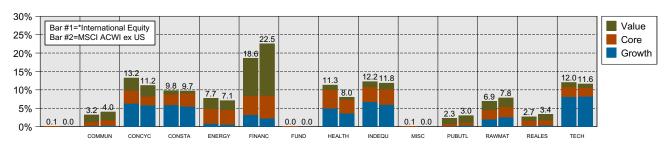


#### Style Map vs Callan NonUS Eq Holdings as of June 30, 2018

#### Combined Z-Score Style Distribution Holdings as of June 30, 2018



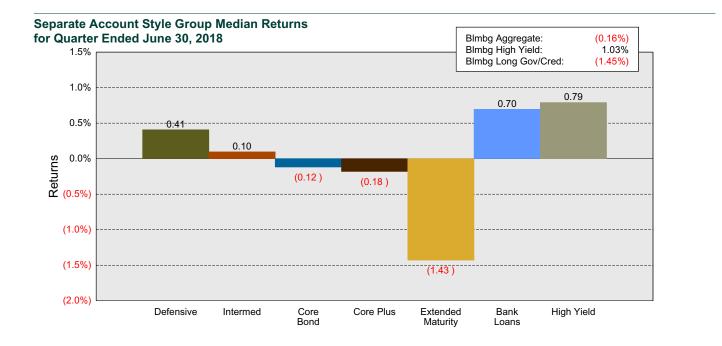
#### Sector Weights Distribution Holdings as of June 30, 2018

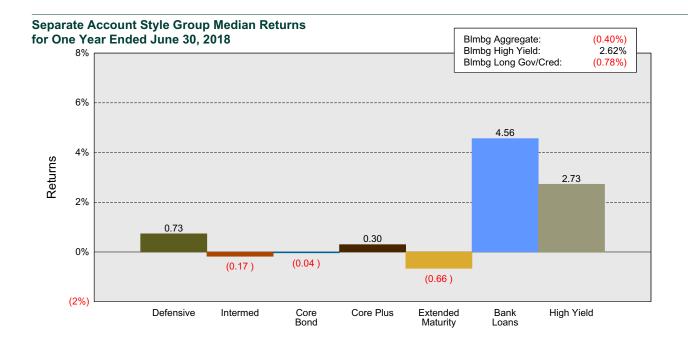


Total Fixed Income

## Domestic Fixed Income Active Management Overview

U.S. rates rose in the second quarter and the yield curve continued its flattening trend. The yield on the 10-year U.S. Treasury note hit an intra-quarter high of 3.11% in May but closed the quarter at 2.85%, only 11 bps higher than March 31. Concerns over mounting trade tensions and slower global growth pushed yields lower going into quarter-end. The 2-year U.S. Treasury note closed at 2.52%, up sharply from 2.27% as of March 31 and its highest level since August 2008. The yield curve continued to flatten and the spread between the 2-year and 10-year ended at its lowest level (33 bps) in more than 10 years. The Fed hiked rates in June, as was widely expected, and expects two more increases in 2018. The Bloomberg Barclays US Aggregate Bond Index returned -0.2%. Investment grade corporates underperformed Treasuries as heavy supply and concerns over heightened M&A activity weighed on the market. TIPS outperformed as inflation expectations climbed; the 10-year breakeven rate closed the quarter at 2.11%, up from 2.05% on 3/31. The Bloomberg Barclays TIPS Index gained 0.8%. High yield corporates (Blomberg Barclays High Yield: +1.0%) outperformed, and leveraged bank loans (S&P LSTA: +0.7%), which carry a floating rate coupon, also did well.



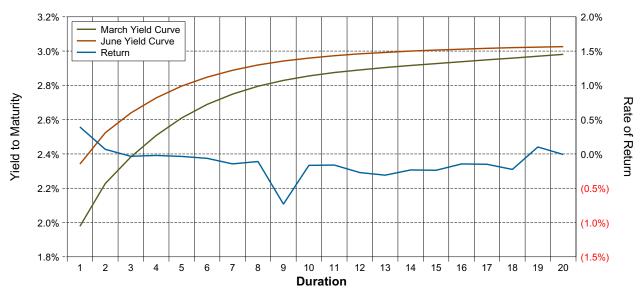


# **Bond Market Environment**

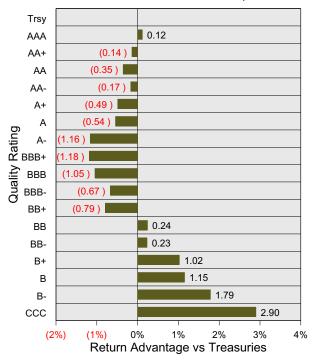
#### **Factors Influencing Bond Returns**

The charts below are designed to give you an overview of the factors that influenced bond market returns for the quarter. The first chart shows the shift in the Treasury yield curve and the resulting returns by duration. The second chart shows the average return premium (relative to Treasuries) for bonds with different quality ratings. The final chart shows the average return premium of the different sectors relative to Treasuries. These sector premiums are calculated after differences in quality and term structure have been accounted for across the sectors. They are typically explained by differences in convexity, sector specific supply and demand considerations, or other factors that influence the perceived risk of the sector.

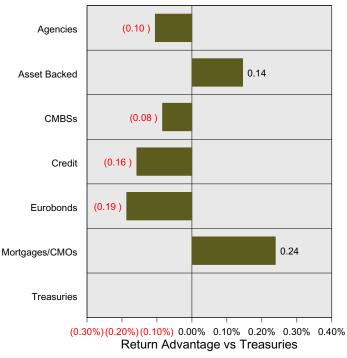
#### Yield Curve Change and Rate of Return One Quarter Ended June 30, 2018



Duration Adjusted Return Premium to Quality One Quarter Ended June 30, 2018



Quality and Duration Adjusted Return Premium by Sector One Quarter Ended June 30, 2018



# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2018				March 31, 2018		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight	
Domestic Fixed Active Core	\$2,550,378,983	23.43%	\$0	\$1,477,806	\$2,548,901,177	23.33%	
Brandes Core	341,840,813	3.14%	0	845,969	340,994,844	3.12%	
EARNEST Partners	740,537,945	6.80%	0	(803,686)	741,341,630	6.78%	
Piedmont	740,821,963	6.81%	0	(1,589,310)	742,411,273	6.79%	
Garcia Hamilton	727,178,263	6.68%	0	3,024,833	724,153,430	6.63%	
Domestic Fixed Passive Core	\$3,203,611,489	29.44%	\$(4)	\$(4,443,743)	\$3,208,055,236	29.36%	
NTGI Blmbg Aggregate Index	1,636,012,937	15.03%	(4)	(2,414,688)	1,638,427,628	14.99%	
BlackRock US Debt	1,567,598,553	14.40%	Ó	(2,029,055)	1,569,627,608	14.36%	
Domestic Fixed Core Plus	\$3,607,347,419	33.15%	\$(58,463)	\$(23,525,766)	\$3,630,931,647	33.23%	
BlackRock Core Plus	0	0.00%	(58,463)	(29,929)	88,392	0.00%	
LM Capital	842,142,802	7.74%	Ó	(5,128,369)	847,271,171	7.75%	
Progress Fixed Income	880,298,129	8.09%	0	(926,844)	881,224,973	8.06%	
BMO-TCH	868,186,361	7.98%	0	(3,199,990)	871,386,352	7.97%	
Western	1,016,720,126	9.34%	0	(14,240,634)	1,030,960,760	9.43%	
Bank Loans							
Barings Global Loan Fund	584,181,493	5.37%	(5,828,283)	4,080,111	585,929,665	5.36%	
Emerging Markets Debt Standish	195,778,117	1.80%	0	(18,484,574)	214,262,691	1.96%	
Opportunistic Fixed Income							
Crescent	114,490,837	1.05%	(199,419)	910,365	113,779,891	1.04%	
High Yield	\$627,617,186	5.77%	\$0	\$1,902,398	\$625,714,788	5.73%	
MacKay Shields	627,282,119	5.76%	0	1,890,634	625,391,485	5.72%	
Pyramis High Yield	335,067	0.00%	0	11,764	323,303	0.00%	
Total Fixed Income	\$10,883,405,524	100.0%	\$(6,086,168)	\$(38,083,402)	\$10,927,575,095	100.0%	

#### **Asset Distribution Across Investment Managers**

Taplin, Canida, Habacht moved to a core plus strategy effective 10/01/2010.



The table below details the rates of return for the fund's domestic fixed core managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	0								
			Year				Last		
	Last		to		Last		3		
	Quarter		Date		Year		Years		
Total Fixed Income	(0.35%)	89	(1.36%)	73	0.39%	48	2.64%	40	
Blmbg Aggregate Index	(0.16%)	80	(1.62%)	88	(0.40%)	89	1.72%	77	
Pub Pln- Dom Fixed	0.06%	00	(0.87%)	00	0.26%	00	2.39%		
	0.0070		(0.0770)		0.2070		2.0070		
Dom. Fixed Active Core	0.06%	11	(0.94%)	4	0.57%	6	2.31%	29	
Callan Core Bond FI				4		0		29	
	(0.12%)		(1.46%)		(0.04%)		2.11%		
Brandes Core	0.25%	3	(0.91%)	4	(0.13%)	60	-		
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91	
Brandes Core - Net	0.25%	3	(0.91%)	4	(0.13%)	60	-	51	
		3		4		60			
Callan Core Bond Fl	(0.12%)		(1.46%)		(0.04%)		2.11%		
EARNEST Partners	(0.11%)	45	(1.23%)	16	0.24%	19	2.14%	45	
Blmbg Aggregate Index	(0.16%)	<b>45</b>	(1.62%)	73	(0.40%)	86	1.72%	<b>43</b> 91	
EARNEST Partners - Net			•		• • •				
	(0.14%)	58	(1.30%)	26	0.09%	30	1.96%	71	
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%		
Piedmont	(0.21%)	81	(1.27%)	23	0.16%	25	2.22%	37	
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)		1.72%	91	
					• • •	86			
Piedmont - Net	(0.25%)	86	(1.35%)	31	0.02%	41	2.06%	58	
Callan Core Bond Fl	(0.12%)		(1.46%)		(0.04%)		2.11%		
Garcia Hamilton	0.42%	2	(0.28%)	2	1.33%	1	2.82%	5	
Blmbg Aggregate Index	(0.16%)	<b>6</b> 5	(1.62%)	73	(0.40%)	86	1.72%	91	
Garcia Hamilton - Net	0.39%	2		2	1.24%	00 1	2.72%		
		2	(0.33%)	2		1		9	
Callan Core Bond Fl	(0.12%)		(1.46%)		(0.04%)		2.11%		
Dom. Fixed Passive Core	(0.14%)	57	(1.59%)	70	(0.36%)	82	1.77%	89	
Callan Core Bond Fl	(0.12%)		(1.46%)		(0.04%)	02	2.11%		
NTGI BImbg Agg. Index	(0.15%)	59	(1.59%)	70	(0.40%)	86	1.72%	91	
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91	
NTGI BC Agg. Index - Net	(0.15%)	59	(1.60%)	70	(0.40%)	86	1.71%	91	
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%		
BlackRock US Debt	10 420/1	F 4	(1 60%)	70	(0.240/)	77	1 0 2 0/		
	<b>(0.13%)</b>	54 05	<b>(1.59%)</b>	70	<b>(0.31%)</b>	77	<b>1.83%</b>	86	
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91	
BlackRock US Debt -Net	(0.13%)	54	(1.59%)	70	(0.31%)	77	1.82%	86	
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%		

The table below details the rates of return for the fund's domestic fixed core managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Retur	), 2018				
	Last 5		Last 10		Since
	Years		Years		Inception
Total Fixed Income	3.15%	36	4.95%	28	8.24% (1/82)
Blmbg Aggregate Index	2.27%	76	3.72%	72	7.70% (1/82)
Pub Pln- Dom Fixed	2.82%		4.42%		-
Dom. Fixed Active Core	2.84%	31	4.44%	44	<b>4.43%</b> (4/01)
Callan Core Bond Fl	2.67%		4.39%		-
Brandes Core	-		-		<b>0.97%</b> (3/16)
Blmbg Aggregate Index	2.27%	93	3.72%	97	1.03% (3/16)
Brandes Core - Net	-		-		0.97% (3/16)
Callan Core Bond FI	2.67%		4.39%		-
EARNEST Partners	2.72%	41	4.43%	45	<b>4.35%</b> (5/05)
Blmbg Aggregate Index	2.27%	93	3.72%	<b>43</b> 97	3.88% (5/05)
EARNEST Partners - Net	2.53%	93 67	4.22%	97 66	4.15% (5/05)
Callan Core Bond FI	2.67%	07	4.39%	00	-
	2.07 /0		4.53%		-
Piedmont	2.81%	31	4.29%	63	<b>4.16%</b> (6/05)
Blmbg Aggregate Index	2.27%	93	3.72%	97	3.82% (6/05)
Piedmont - Net	2.66%	51	4.12%	73	3.97% (6/05)
Callan Core Bond Fl	2.67%		4.39%		-
Garcia Hamilton	-		-		<b>2.29%</b> (6/15)
Blmbg Aggregate Index	2.27%	93	3.72%	97	1.31% (6/15)
Garcia Hamilton - Net	-	00	-	01	2.19% (6/15)
Callan Core Bond FI	2.67%		4.39%		-
Dom. Fixed Passive Core	2.33%	88	3.68%	97	<b>5.87%</b> (1/90)
Callan Core Bond Fl	2.67%		4.39%		-
NTGI Blmbg Agg. Index	2.30%	92	3.67%	97	<b>5.93%</b> (2/90)
Bimbg Aggregate Index	2.27%	93	3.72%	97	5.92% (2/90)
NTGI BC Agg. Index - Net	2.30%	92	3.66%	97	3.82% (1/05)
Callan Core Bond Fl	2.67%	. –	4.39%		-
BlackRock US Debt	-		-		<b>2.41%</b> (10/13)
Blmbg Aggregate Index	2.27%	93	3.72%	97	<b>2.27%</b> (10/13)
BlackRock US Debt -Net	-	00	-	01	<b>2.40%</b> (10/13)
Callan Core Bond FI	2.67%		4.39%		-
	2.07 /0		T.00 /0		_

# Returns and Rankings for Periods Ended June 30, 2018

The table below details the rates of return for the fund's domestic, international and high yield fixed income managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

			Year				Last	
	Last		to		Last		3	
	Quarter		Date		Year		Years	
omestic Fixed Core Plus	(0.65%)	88	(1.93%)	87	(0.20%)	83	2.55%	51
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
Callan Core Plus Fl	(0.18%)	-1	(1.45%)	00	0.30%	07	2.56%	30
Gallari Gole Filds Fi	(0.1070)		(1.4370)		0.0070		2.00 /0	
-M Capital	(0.61%)	87	(2.13%)	91	(0.69%)	93	2.23%	73
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
LM Capital - Net	(0.65%)	88	(2.21%)	93	(0.85%)	98	2.07%	87
Callan Core Plus Fl	(0.18%)		(1.45%)		0.30%		2.56%	
Progress Fixed Income	(0.11%)	46	(1.32%)	44	0.35%	45	2.56%	50
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	<b>65</b>	(0.40%)	<b>43</b> 87	1.72%	98
Progress Fixed Inc Net	(0.10%)	51	(1.48%)	54	0.02%	72	2.23%	74
Callan Core Plus Fl	(0.18%)	51	(1.45%)	54	0.30%	12	2.56%	/ 4
	(0.1070)		(1.7070)		0.0070		2.0070	
змо-тсн	(0.37%)	73	(1.60%)	63	0.61%	33	3.20%	10
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
BMO-TCH - Net	(0.40%)	76	(1.69%)	74	0.47%	37	3.06%	20
Callan Core Plus Fl	(0.18%)		(1.45%)		0.30%		2.56%	
Vestern	(1.38%)	97	(2.56%)	98	(0.61%)	91	2.98%	28
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
Western - Net	(1.42%)	98	(2.62%)	99	(0.75%)	96	2.83%	36
Callan Core Plus Fl	(0.18%)		(1.45%)		0.30%		2.56%	
ink Loans	0.70%		1.88%		4.36%		4.83%	
Barings Global Loan Fund	0.70%		1.88%		4.36%		4.83%	
Custom Benchmark*	0.76%		2.34%		4.65%		4.46%	
Barings Global Loan Fund - Net	0.70%		1.88%		4.31%		4.40%	
Bannys Global Loan Fund - Met	0.70%		1.00 /6		4.51%		4.4176	
nerging Markets	(8.63%)	67	(7.03%)	84	(2.52%)	76	3.07%	65
Standish	(8.63%)	67	(7.03%)	84	(2.52%)	76	3.07%	65
Custom Benchmark**	(6.53%)	56	(5.12%)	35	(1.63%)	54	3.21%	63
Standish - Net	(8.71%)	68	(7.20%)	86	(2.86%)	80	2.71%	71
Emerging Debt Database	(5.79%)		(5.71%)		(1.44%)		3.93%	
pportunistic Fixed Income	0.80%		0.13%		2.39%		4.20%	
Crescent	0.80%		0.13%		2.39%		4.20%	
Custom Benchmark***	0.85%		1.12%		3.45%		4.89%	
Crescent - Net	0.62%		(0.22%)		1.74%		3.58%	
ah Yield	0.30%	89	0.08%	45	3.33%	30	6.04%	19
Callan High Yield Fix Inc	0.79%	09	(0.08%)	45	3.33% 2.73%	30	<b>6.04%</b> 5.14%	19
	0.79%		(0.00%)		2.13%		0.14%	
/lacKay Shields	0.30%	89	0.07%	46	3.24%	32	6.38%	13
ML High Yield Cash Pay Index	1.00%	30	0.06%	46	2.49%	62	5.53%	34
MacKay Shields - Net	0.21%	91	(0.10%)	53	2.88%	43	6.01%	19
Callan High Yield Fix Inc	0.79%		(0.08%)		2.73%		5.14%	

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

Taplin, Canida, Habacht switched from core to core plus effective 10/01/2010.

\* Custom Benchmark is Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index,

weighted by the portfolio's market value to each sector.

\*\* Custom Benchmark is 50% JPM GBI-EM Index, 25% JPM EMBI Global Index and 25% JPM Corporate EMBI Diversified Index.

\*\*\*\* Custom Benchmark is 50% S&P/LSTA Leveraged Loan Index and 50% US High Yield Master II Index.



The table below details the rates of return for the fund's domestic, international and high yield fixed income managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Last		Last				
	5		10		Since		
	Years		Years		Inceptior	<b>,</b>	
Domestic Fixed Core Plus	3.19%	46	4.89%	68	8.08%		
Blmbg Aggregate Index	2.27%	99	3.72%	99	7.70%		
Callan Core Plus Fl	3.15%	33	5.15%	55	1.1076	(1/62)	
Callan Core Plus FI	3.15%		5.15%		-		
LM Capital	2.92%	70	4.60%	85	4.65%	(5/05)	
Blmbg Aggregate Index	2.27%	99	3.72%	99	3.88%	(5/05)	
LM Capital - Net	2.76%	86	4.44%	93	4.48%	(5/05)	
Callan Core Plus Fl	3.15%		5.15%		-	()	
December Fixed Income	2.040/	<u> </u>	4.58%	05	4 740/		
Progress Fixed Income	3.01%	60		85	4.71%	(1/06)	
Blmbg Aggregate Index	2.27%	99	3.72%	99	3.97%	(1/06)	
Progress Fixed Inc Net	2.67%	93	4.23%	96	4.37%	(1/06)	
Callan Core Plus Fl	3.15%		5.15%		-		
вмо-тсн	3.75%	10	5.13%	52	4.83%	(5/05)	
Blmbg Aggregate Index	2.27%	99	3.72%	99	3.88%	(5/05)	
BMO-TCH - Net	3.62%	23	5.00%	60	4.70%	(5/05)	
Callan Core Plus Fl	3.15%	20	5.15%	00	-	(3/03)	
Callan Cole Flus I I	5.1576		5.1570		-		
Western	3.58%	25	5.47%	23	5.27%	(11/01)	
Blmbg Aggregate Index	2.27%	99	3.72%	99	4.10%	(11/01)	
Western - Net	3.44%	30	5.33%	44	4.64%	(1/05)	
Callan Core Plus Fl	3.15%		5.15%		-		
ank Loans	-		-		4.56%	(8/14)	
Barings Global Loan Fund	-		-		4.56%	(8/14)	
Custom Benchmark*	-				4.03%		
	-		-		4.03%	(8/14)	
Barings Global Loan Fund - Net	-		-		4.10%	(8/14)	
nerging Markets	-		-		1.18%	(8/14)	
Standish	-		-		1.18%	(8/14)	
Custom Benchmark**	1.62%	63	4.54%	64	0.45%	(8/14)	
Standish - Net	-		-		0.85%	(8/14)	
Emerging Debt Database	3.84%		6.13%		-		
pportunistic Fixed Income	-		-		3.19%	(0)11	
Crescent	-		-			(9/14)	
Crescent Custom Benchmark***	- 4.77%		-		3.19%	(9/14)	
			6.62%		3.94%	(9/14)	
Crescent - Net	-		-		2.70%	(9/14)	
igh Yield	6.00%	20	8.28%	34	9.59%	(4/86)	
Callan High Yield Fix Inc	5.46%		7.90%		-	•	
MaaKay Shialda	G 4E0/	17	7 0 40/	40	0 000/	(11/00)	
MacKay Shields	6.15% 5.49%	17 47	<b>7.94%</b> 7.96%	48	8.88%	(11/00)	
ML High Yield Cash Pay Index	5.48%	47		47	7.60%	(11/00)	
MacKay Shields - Net	5.78%	30	7.56%	66	6.84%	(1/05)	
Callan High Yield Fix Inc	5.46%		7.90%		-		

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

Taplin, Canida, Habacht switched from core to core plus effective 10/01/2010.

\* Custom Benchmark is Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index,

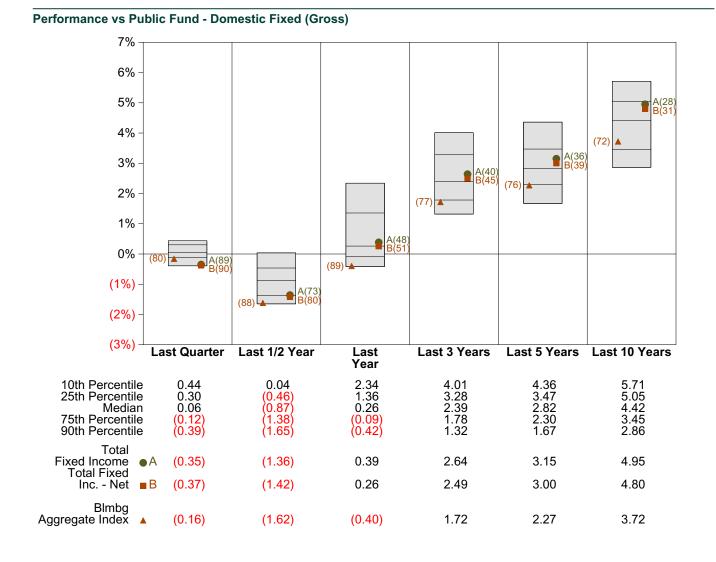
weighted by the portfolio's market value to each sector.

\*\* Custom Benchmark is 50% JPM GBI-EM Index, 25% JPM EMBI Global Index and 25% JPM Corporate EMBI Diversified Index.

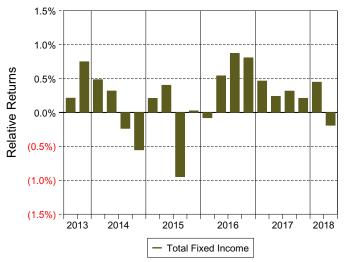
\*\*\*\* Custom Benchmark is 50% S&P/LSTA Leveraged Loan Index and 50% US High Yield Master II Index.



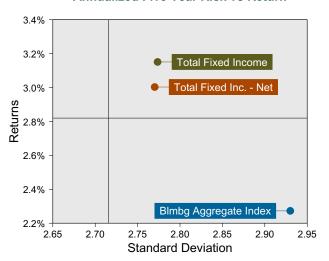
# Total Fixed Income Period Ended June 30, 2018



Relative Return vs Blmbg Aggregate Index



# Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return

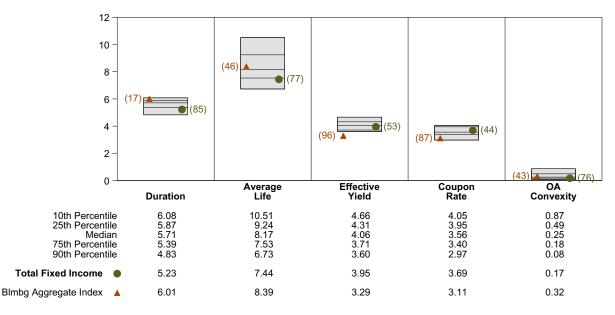


# Total Fixed Income Bond Characteristics Analysis Summary

#### **Portfolio Characteristics**

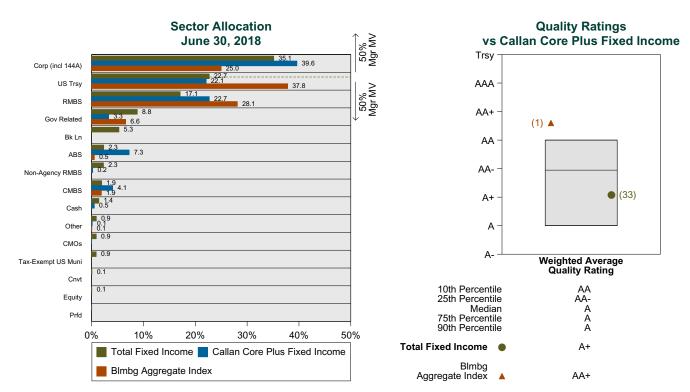
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

#### Fixed Income Portfolio Characteristics Rankings Against Callan Core Plus Fixed Income as of June 30, 2018



### Sector Allocation and Quality Ratings

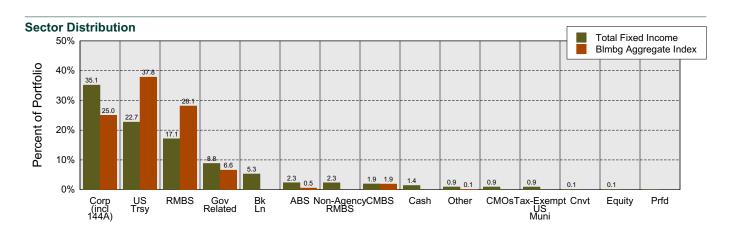
The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

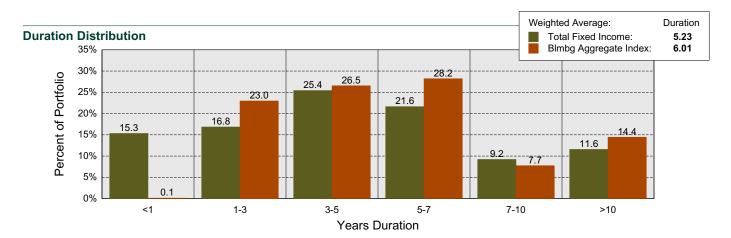


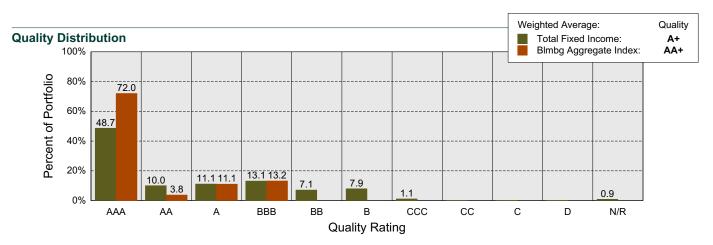
# Total Fixed Income Portfolio Characteristics Summary As of June 30, 2018

# Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.



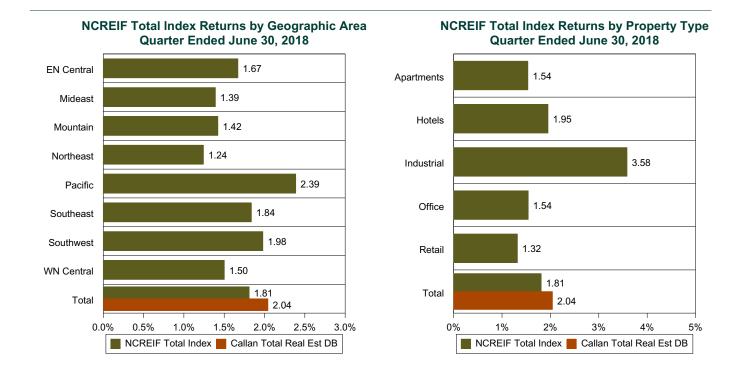




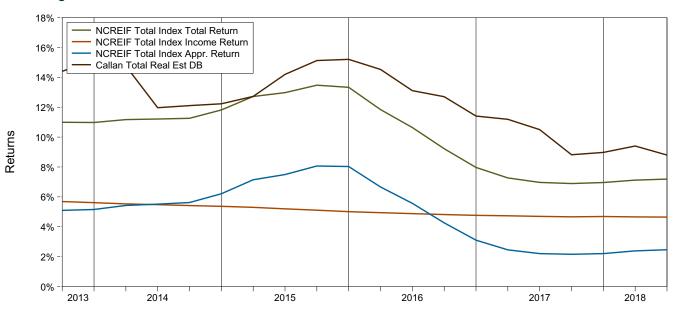
Real Estate

# Real Estate Market Overview

The NCREIF Property Index (NPI) gained 1.8% during the second quarter (1.1% from income and 0.7% from appreciation). This marked the 39th consecutive quarter of positive returns for the index. Industrial (+3.6%) was the best-performing sector for the ninth consecutive quarter with Office (+1.5%) and Apartments (+1.5%) also posting strong returns. Retail (+1.3%) properties were the worst performers. Hotels (+2.0%), had a strong quarter but experienced negative appreciation returns. The West region was the strongest performer for the eighth quarter in a row, up 2.2%, and the East trailed with a 1.3% return. The West also was the only region with an appreciation return above 1%. Transaction volume decreased more than 27% to \$6.50 billion, down from \$8.95 billion in the first quarter. Transaction volume was 16% lower than 2nd quarter 2017.



#### **Rolling 1 Year Returns**



# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2018				March 31, 2018		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight	
Real Estate Core	\$1,330,074,034	55.97%	\$47,826,333	\$12,682,377	\$1,269,565,324	54.86%	
TA Buckhead Ind. Prop.	408,333,110	17.18%	(5,187,045)	5,478,964	408,041,191	17.63%	
Barings Core Property Fund	113,039,011	4.76%	(16,256,850)	2,119,208	127,176,653	5.50%	
Barings European Core Property	30,512,788	1.28%	0	(1,628,151)	32,140,939	1.39%	
INVESCO Core RE	200,216,037	8.43%	(1,247,820)	4,439,882	197,023,975	8.51%	
Invesco Euro real estate	51,065,048	2.15%	53,825,809	(2,760,760)	-	-	
AEW Core Property Trust	229,725,050	9.67%	(2,291,195)	3,343,807	228,672,438	9.88%	
CBRE Core Partners	178,261,183	7.50%	0	4,696,149	173,565,034	7.50%	
Real Estate Non-Core	\$1,046,219,475	44.03%	\$(19,600,395)	\$21,162,626	\$1,044,657,245	45.14%	
Artemis MWBE Spruce	116,655,511	4.91%	1,348,495	610,416	114,696,600	4.96%	
Franklin Templeton EMREFF	25,954,554	1.09%	(1,382,942)	1,038,125	26,299,371	1.14%	
Security Capital	51.639.225	2.17%	(553,998)	5,518,555	46,674,668	2.02%	
Dune II	27,770,551	1.17%	0	747,545	27,023,006	1.17%	
Non-Core Real Estate Funds*	726,477,586	30.57%	(24,065,130)	20,779,227	729,763,489	31.53%	
Rockwood Fund VIII	2,117,444	0.09%	(306,362)	(131,663)	2,555,469	0.11%	
Almanac ARS V	3,823,404	0.16%	Ó	891.497	2,931,907	0.13%	
TA Realty IX	305,466	0.01%	0	(18,733)	324,199	0.01%	
Non-US Real Estate**	91,475,734	3.85%	5,359,541	(8,272,343)	94,388,536	4.08%	
Real Estate	\$2,376,293,510	100.0%	\$28,225,938	\$33,845,002	\$2,314,222,570	100.0%	

#### **Asset Distribution Across Investment Managers**

\*Non-Core Real Estate Funds funded since September 2011. \*\*Non-US Real Estate Funds funded since August 2014.



# **Real Estate Returns**

The table below details the rates of return for the fund's real estate opportunistic, real estate core, and real estate value added managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Returns for Period	s Ended June 30	), 2018		
		Year		Last	
	Last	to	Last	3	
	Quarter	Date	Year	Years	
Real Estate Core	0.98%	1.89%	6.87%	9.17%	
TA Buckhead Ind. Prop.	<b>1.34%</b>	<b>3.51%</b>	<b>7.95%</b>	<b>10.25%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Barings Core Property Fund	<b>1.90%</b>	<b>1.68%</b>	<b>7.51%</b>	<b>9.49%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Barings European Core Property	<mark>(5.07%)</mark>	<mark>(0.69%)</mark>	<b>4.53%</b>	-	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
INVESCO Core RE	<b>2.26%</b>	<b>2.05%</b>	<b>5.46%</b>	<b>9.23%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
AEW Core Property Trust	<b>1.47%</b>	<b>1.47%</b>	<b>6.74%</b>	<b>8.01%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
CBRE Core Partners	<b>2.71%</b>	<b>2.71%</b>	<b>9.50%</b>	<b>8.74%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
eal Estate Non-Core	2.04%	3.91%	11.04%	10.93%	
Artemis MWBE Spruce	<b>0.53%</b>	<b>1.83%</b>	<b>6.23%</b>	-	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Franklin Templeton EMREFF	<b>4.15%</b>	<b>10.07%</b>	<b>12.56%</b>	<b>16.99%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Security Capital	<b>11.96%</b>	<mark>(1.12%)</mark>	<b>5.39%</b>	<b>4.57%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Dune II	<b>2.77%</b>	<b>6.50%</b>	<b>12.47%</b>	<b>11.89%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Non-Core Real Estate Funds	<b>2.87%</b>	<b>5.68%</b>	<b>13.15%</b>	<b>12.73%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Rockwood Fund VIII	<b>(5.85%)</b>	<mark>(19.06%)</mark>	<b>(19.02%)</b>	<b>1.67%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Almanac ARS V	<b>30.41%</b>	<b>24.77%</b>	<b>54.10%</b>	<b>21.45%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
TA Realty IX	<b>(5.78%)</b>	<b>10.49%</b>	<b>8.99%</b>	<b>8.94%</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	
Non-US Real Estate	<mark>(8.51%)</mark>	<mark>(6.15%)</mark>	<b>4.03%</b>	<b>(3.28%)</b>	
Blended Benchmark**	1.81%	3.82%	7.47%	8.38%	

Returns are time-weighted and are reported net of fee for all real estate managers. \*\* The Blended Benchmark is currently ODCE Value Weigh Index+1%. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.



# **Real Estate Returns**

The table below details the rates of return for the fund's real estate opportunistic, real estate core, and real estate value added managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

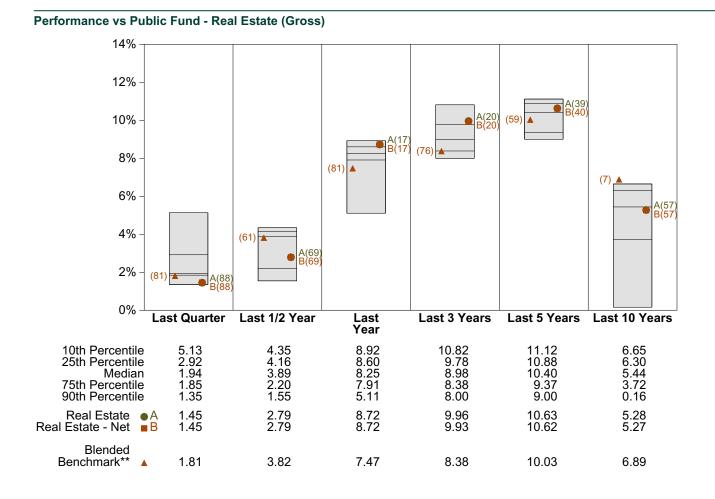
	Last	Last		
	5	10	Since	
	Years	Years	Inception	
Deal Fatata Carra				
teal Estate Core	10.04%	4.37%	<b>7.11%</b> (4/9	99)
A Buckhead Ind. Prop.	10.72%	6.72%	10.35% (8/9	95)
Blended Benchmark**	10.03%	6.89%	-	,
Barings Core Property Fund	9.52%	-	<b>9.50%</b> (8/1	11)
Blended Benchmark**	10.03%	6.89%	10.67% (8/1	
arings Euro Core Property	-	-	<b>10.92%</b> (3/1	17)
Barings Euro Core Property Blended Benchmark**	10.03%	6.89%	7.12% (3/1	
NVESCO Core RE	10.46%	-	<b>9.98%</b> (4/1	11)
Blended Benchmark**	10.03%	6.89%	10.95% (4/1	
AEW Core Property Trust		-	<b>8.99%</b> (10,	)/13)
Blended Benchmark**	10.03%	6.89%		)/13)
CBRE Core Partners			<b>10.12%</b> (12)	2/13)
Blended Benchmark**	10.03%	6.89%	9.73% (12)	
al Estate Non-Core	11.45%	-	<b>12.40%</b> (1/1	10)
temis MWBE Spruce	-	-	<b>0.70%</b> (6/1	16)
Blended Benchmark**	10.03%	6.89%	7.21% (6/1	
ranklin Templeton EMREFF	15.63%		<b>12.11%</b> (9/1	11)
Blended Benchmark**	10.03%	6.89%	10.62% (9/1	
Security Capital	3.18%	5.78%	<b>11.06%</b> (11)	/97)
Blended Benchmark**	10.03%	6.89%		
Dune II	14.06%	-	<b>6.82%</b> (2/0	09)
Blended Benchmark**	10.03%	6.89%	8.55% (2/0	
Ion-Core Real Estate Funds	12.06%	-	<b>11.56%</b> (10)	)/11)
Blended Benchmark**	10.03%	6.89%	10.57% (10	)/11)
Rockwood Fund VIII	14.93%	-	(19.84%) (4/0	09)
Blended Benchmark**	10.03%	6.89%	9.28% (4/0	
Imanac ARS V	22.27%	-	<b>11.97%</b> (10)	)/08)
Blended Benchmark**	10.03%	6.89%	7.06% (10	)/08)
A Realty IX	9.83%	-	<b>9.71%</b> (5/1	
Blended Benchmark**	10.03%	6.89%	11.64% (5/1	
Ion-US Real Estate	-	-	(4.94%) (8/1	14)
Blended Benchmark**	10.03%	6.89%	9.54% (8/1	14)

Returns are time-weighted and are reported net of fee for all real estate managers. \*\* The Blended Benchmark is currently ODCE Value Weigh Index+1%. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.

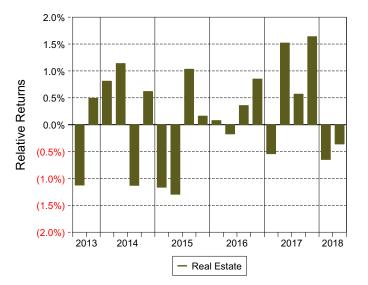
# Real Estate Period Ended June 30, 2018

#### **Investment Philosophy**

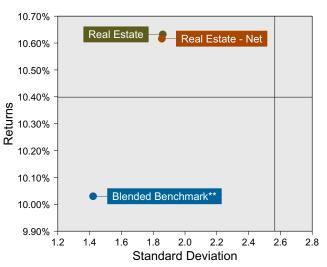
\*\* The Blended Benchmark is currently ODCE Value Weigh Index+1%. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%.



Relative Return vs Blended Benchmark\*\*



### Public Fund - Real Estate (Gross) Annualized Five Year Risk vs Return



Alternative Investments

# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2	June 30, 2018			March 31,	2018
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Absolute Return	\$970,120	0.06%	\$(1,693,397)	\$41,729	\$2,621,788	0.17%
Aurora	970,120	0.06%	(1,693,397)	41,729	2,621,788	0.17%
Private Equity	\$1,335,694,006	82.21%	\$52,598,419	\$58,608,304	\$1,224,487,282	81.21%
Abbott	332,159,783	20.45%	(8,000,024)	24,446,716	315,713,091	20.94%
Muller & Monroe ILPEFF	1	0.00%	0	0	1	0.00%
Muller & Monroe MPEFF	6,001,172	0.37%	(554,200)	435,080	6,120,292	0.41%
Pantheon	223,051,736	13.73%	(3,500,030)	619,479	225,932,287	14.98%
Private Equity Funds - Domestic	694,087,396	42.72%	67,484,275	37,516,185	589,086,937	39.07%
Private Equity Funds - International	80,393,918	4.95%	(2,831,601)	(4,409,155)	87,634,674	5.81%
Agriculture	\$189,518,637	11.67%	\$11,150,000	\$(2,867,291)	\$181,235,928	12.02%
Premiere Partners IV	189,518,637	11.67%	11,150,000	(2,867,291)	181,235,928	12.02%
Timberland	\$75,059,049	4.62%	\$185,854	\$(865,989)	\$75,739,184	5.02%
Forest Investment Assoc.	75,059,049	4.62%	185,854	(865,989)	75,739,184	5.02%
Unlisted Infrastructure	\$23,400,123	1.44%	\$(600,476)	\$315,420	\$23,685,178	1.57%
Alternative Investments	\$1,624,641,935	100.0%	\$61,640,400	\$55,232,174	\$1,507,769,361	100.0%

#### **Asset Distribution Across Investment Managers**

## **Alternative Investments Returns**

The table below details the rates of return for the fund's absolute return, private equity, agriculture, and timberland managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

		Year		Last	
	Last	to	Last	3	
	Quarter	Date	Year	Years	
Private Equity	4.74%	7.65%	14.87%	11.64%	
Abbott	7.84%	8.52%	19.41%	12.83%	
Alternatives Custom Benchmark* Abbott - Net	2.18% 7.73%	4.40% 8.31%	9.00% 18.93%	9.00% 12.41%	
Muller & Monroe ILPEFF	0.00%	0.00%	(8.93%)	(46.38%)	
Alternatives Custom Benchmark*	2.18%	4.40%	9.00%	9.00%	
Muller & Monroe MPEFF	7.30%	6.92%	17.85%	10.29%	
Alternatives Custom Benchmark*	2.18%	4.40%	9.00%	9.00%	
Pantheon	0.28%	0.14%	9.87%	9.44%	
Alternatives Custom Benchmark*	2.18%	4.40%	9.00%	9.00%	
Pantheon - Net	0.18%	(0.06%)	9.48%	9.14%	
Private Equity Fds- Domestic	6.29%	10.98%	13.45%	12.97%	
Alternatives Custom Benchmark*	2.18%	4.40%	9.00%	9.00%	
Private Eq Fds- Domestic - Net	6.29%	10.98%	13.45%	12.97%	
Private Equity Fds- International	(4.93%)	3.78%	27.24%	(19.95%)	
Alternatives Custom Benchmark*	2.18%	4.40%	9.00%	9.00%	
Agriculture	(1.58%)	(2.11%)	(6.06%)	3.93%	
Premiere Partners IV	(1.58%)	(2.11%)	(6.06%)	3.93%	
NCREIF Farmland Index (1Q lagged)	1.32%	4.29%	7.07%	7.59%	
NCREIF Total Index (1Q lagged)	1.70%	3.53%	7.12%	8.72%	
Callan RE Agri Funds	-	-	-	-	
ïmberland	(1.14%)	(1.31%)	2.28%	0.77%	
Forest Investment Assoc.	(1.14%)	(1.31%)	2.28%	0.77%	
NCREIF Timberland Index Callan Real Estate Timber	0.92%	2.46%	3.79%	3.44%	
Unlisted Infrastructure	<b>1.37%</b> 2.18%	- 4.40%	- 9.00%	- 9.00%	

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

Returns are reported net of fee for all alternative investment managers with the exception of Abbott and Pantheon. \* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of

13.0%. Prior to 2003, it was based on an annual return of 15.0%. Private Equity performance is lagged one quarter. Agriculture and Timberland performance is lagged one month.



## **Alternative Investments Returns**

The table below details the rates of return for the fund's absolute return, private equity, agriculture, and timberland managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Last 5	Last 10	Since	
	Years	Years	Inception	
de la companya de la				
rivate Equity	12.51%	7.96%	<b>12.91%</b> (2)	/86)
Abbott	13.11%	8.01%		/87)
Alternatives Custom Benchmark*	9.00%	9.59%		/87)
Abbott - Net	13.11%	8.01%	13.91% (7)	/87)
uller & Monroe ILPEFF	(30.12%)	(16.71%)	(18.01%) (7	/05)
Alternatives Custom Benchmark*	9.00%	9.59%	10.14% (7)	/05)
luller & Monroe MPEFF	11.68%	7.82%		/08)
Alternatives Custom Benchmark*	9.00%	9.59%	9.63% (5	/08)
Pantheon	11.54%	8.23%		1/00)
Alternatives Custom Benchmark*	9.00%	9.59%	11.05% (1	1/00)
Pantheon - Net	11.05%	-	11.21% (1	/10)
rivate Equity Fds- Domestic	13.23%	-	<b>10.16%</b> (6)	/12)
Alternatives Custom Benchmark*	9.00%	9.59%		/12)
Private Eq Fds- Domestic - Net	13.23%	-	8.88% (6)	/12)
ivate Equity Fds- International	-	-	<b>(19.95%)</b> (7)	/15)
riculture	8.60%	9.05%	<b>7.67%</b> (1	0/97)
remiere Partners IV			2 420/ (0	
NCREIF Farmland Index	- 10.43%	- 12.09%	<b>3.43%</b> (3)	/15)
NCREIF Farmand Index	10.43%	6.09%		
Callan RE Agri Funds	-	-	-	
nberland	4.81%	3.60%	<b>7.84%</b> (1	0/92
orest Investment Assoc.	5.02%	4.03%	<b>8.02%</b> (1	0/92)
NCREIF Timberland Index Callan Real Estate Timber	6.09% -	4.06%	-	
nlisted Infrastructure		-	<b>1.37%</b> (4)	/18)
Alternatives Custom Benchmark*	9.00%	9.59%		/18)

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

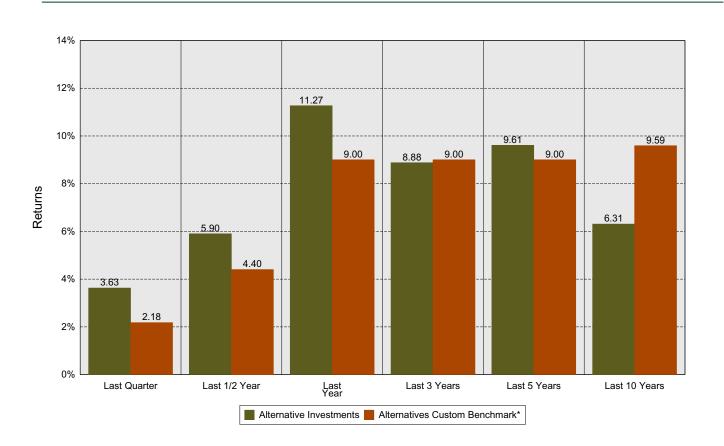
Returns are reported net of fee for all alternative investment managers with the exception of Abbott and Pantheon. \* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%. Private Equity performance is lagged one quarter. Agriculture and Timberland performance is lagged one month.

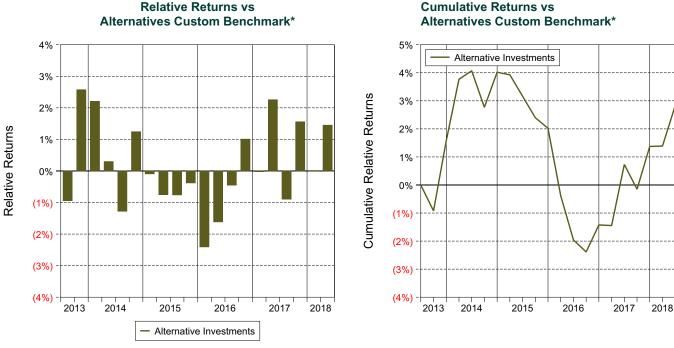


# **Alternative Investments** Period Ended June 30, 2018

#### **Investment Philosophy**

\* The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%.

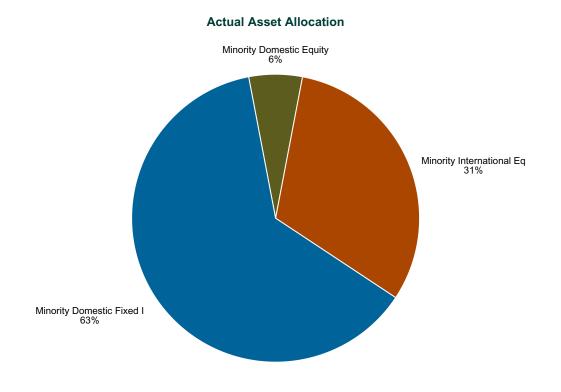




# **Cumulative Returns vs**

# Actual Asset Allocation As of June 30, 2018

The chart below shows Public Markets Minority asset allocation as of Current Quarter.



Asset Class	\$000s Actual	Weight Actual
Minority Domestic Equity	374.560	6.0%
Minority International Eq	1.964.228	31.3%
Minority Domestic Fixed I	3,930,979	62.7%
Total	6,269,768	100.0%

# **Investment Manager Asset Allocation**

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2018, with the distribution as of March 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

	June 30, 2018				March 31,	2018
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
PUBLIC MARKETS						
Minority Domestic Equity	\$374,560,446	5.97%	\$0	\$17,260,406	\$357,300,040	5.67%
Channing	238,176,303	3.80%	0	10,706,826	227,469,477	3.61%
Ativo	136,384,143	2.18%	0	6,553,581	129,830,562	2.06%
Minority International Equity	\$1,964,228,377	31.33%	\$339,235	\$(47,201,294)	\$2,011,090,436	31.90%
EARNEST Partners	643,624,008	10.27%	339,235	(18,351,450)	661,636,224	10.49%
Brown	346,045,950	5.52%	0	5,361,378	340,684,573	5.40%
GlobeFlex	666,764,921	10.63%	0	(28,335,155)	695,100,076	11.02%
Progress	307,793,497	4.91%	0	(5,876,067)	313,669,564	4.98%
Minority Domestic Fixed Income	\$3,930,979,102	62.70%	\$0	\$(5,423,376)	\$3,936,402,477	62.44%
EARNEST Partners	740,537,945	11.81%	0	(803,686)	741,341,630	11.76%
Piedmont	740,821,963	11.82%	0	(1,589,310)	742,411,273	11.78%
Garcia Hamilton	727,178,263	11.60%	0	3,024,833	724,153,430	11.49%
LM Capital	842,142,802	13.43%	0	(5,128,369)	847,271,171	13.44%
Progress Fixed Income	880,298,129	14.04%	0	(926,844)	881,224,973	13.98%
Total Minority	\$6,269,767,924	100.0%	\$339,235	\$(35,364,264)	\$6,304,792,953	100.0%

#### **Asset Distribution Across Investment Managers**

Excludes Real Estate and Alternative Investments.

\* Wall Street was added to the Minority Domestic Equity Comp. in 04.01.2016. IMRF initial investment date is 07/31/1990.



The table below details the rates of return for the fund's Minority domestic equity and Minority international equity managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Return	s and Rankings	for Pe	eriods End	ed Ju	ne 30, 2018			
	Last		Year to		Last		Last 3	
	Quarter		Date		Year		Years	
Minority Domestic Equity	4.83%	40	3.10%	53	12.10%	69	10.00%	63
Total Dom Equity DB	3.93%		3.41%		14.45%		10.89%	
Channing	4.71%	76	3.32%	63	12.01%	61	9.49%	74
Russell 2000 Value Index	8.30%	12	5.44%	23	13.10%	41	11.22%	44
Channing - Net	4.58%	78	3.07%	64	11.46%	66	8.95%	82
Callan Small Cap Value	6.00%		3.71%		12.52%		10.53%	
Ativo	5.05%	95	2.71%	98	6.82%	98	7.93%	94
Russell 2000 Growth Index	7.23%	81	9.70%	82	21.86%	82	10.60%	68
Russell 2000 Index	7.75%	71	7.66%	93	17.57%	96	10.96%	62
Russell Microcap Index	9.97%	39	10.71%	74	20.21%	88	10.49%	70
Ativo - Net	4.89%	96	2.38%	98	6.16%	98	7.22%	95
Callan Small Cap Growth	9.27%	20	14.16%	20	27.96%	20	12.29%	

### (1) Wall Street was added to the Minority Domestic Equity Comp. in 04.01.2016. IMRF initial investment date is 07/31/1990.

The table below details the rates of return for the fund's Minority domestic equity and Minority international equity managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended June 30, 2018								
	Last 5 Years		Last 10 Years		Since Inception			
Minority Domestic Equity	11.76%	68	9.74%	75	9.03% (7/06)			
Total Dom Equity DB	12.88%		10.71%		-			
Channing	12.20%	55	-		<b>12.42%</b> (7/11)			
Russell 2000 Value Index	11.18%	79	9.88%	89	11.10% (7/11)			
Channing - Net	11.66%	71	-		<b>11.81%</b> (7/11)			
Callan Small Cap Value	12.31%		11.90%		-			
Ativo	12.93%	74	-		<b>13.84%</b> (10/10)			
Russell 2000 Growth Index	13.65%	69	11.24%	69	14.73% (10/10)			
Russell 2000 Index	12.46%	79	10.60%	75	13.68% (10/10)			
Russell Microcap Index	12.78%	78	10.63%	74	14.21% (10/10)			
Ativo - Net	12.15%	79	-		13.04% (10/10)			
Callan Small Cap Growth	14.58%		12.74%		-			

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The table below details the rates of return for the fund's Minority domestic equity and Minority international equity managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Return	ns and Rankings	for Pe	eriods Ende	ed Ju	ne 30, 2018	}		
	Last		Year to		Last		Last 3	
	Quarter		Date		Year		Years	
Minority International Equity	(2.35%)	64	(2.88%)	53	8.69%	41	7.41%	25
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%	
EARNEST Partners	(2.77%)	72	(3.95%)	69	7.12%	59	6.60%	37
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65
MSCI ACWI ex-US Growth	(1.23%)	37	(2.02%)	40	10.30%	26	6.95%	30
EARNEST Partners - Net	(2.77%)	72	(3.95%)	69	7.07%	59	6.48%	39
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%	
Brown	1.57%	6	0.12%	16	8.72%	39	6.63%	36
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65
MSCI ACW ex US Growth	(1.23%)	37	(2.02%)	40	10.30%	26	6.95%	30
Brown - Net	1.51%	6	(0.00%)	17	7.85%	50	5.50%	56
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%	
GlobeFlex	(4.08%)	88	(4.41%)	77	8.82%	38	8.52%	14
MSCI ACWI ex-US Index	(2.61%)	68	(3.77%)	67	7.28%	56	5.07%	65
MSCI ACW ex US Growth	(1.23%)	37	(2.02%)	40	10.30%	26	6.95%	30
GlobeFlex - Net	(4.16%)	89	(4.57%)	79	8.44%	43	8.11%	18
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%	
Progress Intl Equity	(1.87%)	53	(0.46%)	20	11.96%	16	7.79%	21
Custom Benchmark	(2.61%)	68	(3.77%)	67	8.54%	41	6.36%	42
Progress Intl Equity - Net	(2.00%)	55	(0.70%)	22	11.42%	20	7.26%	25
Callan NonUS Eq	(1.79%)		(2.69%)		7.81%		6.02%	

# Returns and Rankings for Periods Ended June 30, 2018

The table below details the rates of return for the fund's Minority domestic equity and Minority international equity managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Return	s and Rankings fo	or Periods	Ended June 30	, 2018		
	Last 5 Years		Last 10 Years		Since Inception	
Minority International Equity	8.53%	28	5.27%	29	6.79% (7/06)	
Callan NonUS Eq	7.66%		4.20%		-	
EARNEST Partners	6.30%	84	4.89%	35	<b>9.68%</b> (10/04)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	6.23% (10/04)	
MSCI ACWI ex-US Growth	7.56%	52	3.36%	77	7.21% (10/04)	
EARNEST Partners - Net	6.14%	84	4.56%	42	8.34% (1/05)	
Callan NonUS Eq	7.66%		4.20%		-	
Brown	9.32%	14	6.59%	9	<b>8.33%</b> (10/04)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	6.23% (10/04)	
MSCI ACW ex US Growth	7.56%	52	3.36%	77	7.21% (10/04)	
Brown - Net	8.17%	37	5.83%	21	6.72% (1/05)	
Callan NonUS Eq	7.66%		4.20%		-	
GlobeFlex	9.06%	19	3.87%	66	5.47% (3/06)	
MSCI ACWI ex-US Index	5.99%	86	2.54%	91	3.88% (3/06)	
MSCI ACW ex US Growth	7.56%	52	3.36%	77	5.01% (3/06)	
GlobeFlex - Net	8.63%	26	3.43%	77	5.02% (3/06)	
Callan NonUS Eq	7.66%		4.20%		-	
Progress Intl Equity	-		-		<b>5.19%</b> (7/14)	
Custom Benchmark	-		-		3.74% (7/14)	
Progress Intl Equity - Net	-		-		4.73% (7/14)	
Callan NonUS Eq	7.66%		4.20%		-	

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The table below details the rates of return for the fund's Minority domestic fixed-income managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns a	nd Rankings	for Pe	eriods Ende	ed Jur	ne 30, 2018			
	Last Quarter		Year to Date		Last Year		Last 3 Years	
Minority Domestic Fixed Income	(0.14%)	57	(1.28%)	24	0.27%	18	2.38%	28
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%	
EARNEST Partners	(0.11%)	45	(1.23%)	16	0.24%	19	2.14%	45
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91
EARNEST Partners - Net	(0.14%)	58	(1.30%)	26	0.09%	30	1.96%	71
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%	
Piedmont	(0.21%)	81	(1.27%)	23	0.16%	25	2.22%	37
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91
Piedmont - Net	(0.25%)	86	(1.35%)	31	0.02%	41	2.06%	58
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%	
Garcia Hamilton	0.42%	2	(0.28%)	2	1.33%	1	2.82%	5
Blmbg Aggregate Index	(0.16%)	65	(1.62%)	73	(0.40%)	86	1.72%	91
Garcia Hamilton - Net	0.39%	2	(0.33%)	2	1.24%	1	2.72%	9
Callan Core Bond FI	(0.12%)		(1.46%)		(0.04%)		2.11%	
LM Capital	(0.61%)	87	(2.13%)	91	(0.69%)	93	2.23%	73
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
LM Capital - Net	(0.65%)	88	(2.21%)	93	(0.85%)	98	2.07%	87
Callan Core Plus Fl	(0.18%)		(1.45%)		0.30%		2.56%	
Progress Fixed Income	(0.11%)	46	(1.32%)	44	0.35%	45	2.56%	50
Blmbg Aggregate Index	(0.16%)	47	(1.62%)	65	(0.40%)	87	1.72%	98
Progress Fixed Inc Net Callan Core Plus FI	(0.19%) (0.18%)	51	(1.48%) (1.45%)	54	0.02% 0.30%	72	2.23% 2.56%	74

# Returns and Rankings for Periods Ended June 30, 2018

The table below details the rates of return for the fund's Minority domestic fixed-income managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	Last 5		Last 10		Since
	Years		Years		Inception
linority Domestic Fixed Income	2.92%	25	4.52%	40	4.72% (7/06)
Blmbg Aggregate Index	2.27%	93	3.72%	97	4.20% (7/06)
Callan Core Bond FI	2.67%		4.39%		-
EARNEST Partners	2.72%	41	4.43%	45	4.35% (5/05)
Blmbg Aggregate Index	2.27%	93	3.72%	97	3.88% (5/05)
EARNEST Partners - Net	2.53%	67	4.22%	66	4.15% (5/05)
Callan Core Bond FI	2.67%		4.39%		-
Piedmont	2.81%	31	4.29%	63	<b>4.16%</b> (6/05)
Blmbg Aggregate Index	2.27%	93	3.72%	97	3.82% (6/05)
Piedmont - Net	2.66%	51	4.12%	73	3.97% (6/05)
Callan Core Bond FI	2.67%		4.39%		-
Garcia Hamilton	-		-		<b>2.29%</b> (6/15)
Blmbg Aggregate Index	2.27%	93	3.72%	97	1.31% (6/15)
Garcia Hamilton	-		-		2.19% (6/15)
Callan Core Bond FI	2.67%		4.39%		-
LM Capital	2.92%	70	4.60%	85	<b>4.65%</b> (5/05)
Blmbg Aggregate Index	2.27%	99	3.72%	99	3.88% (5/05)
LM Capital - Net	2.76%	86	4.44%	93	4.48% (5/05)
Callan Core Plus Fl	3.15%		5.15%		-
Progress Fixed Income	3.01%	60	4.58%	85	<b>4.71%</b> (1/06)
Blmbg Aggregate Index	2.27%	99	3.72%	99	3.97% (1/06)
Progress Fixed Inc Net	2.67%	93	4.23%	96	4.37% (1/06)
Callan Core Plus Fl	3.15%		5.15%		-

### **Returns and Rankings for Periods Ended June 30, 2018**

Investment Manager Monitoring

# Organization

Investment Manager	Asset Class	Effective Date	Resolution
Progress	International Equity & Fixed Income	May 2017	Continue to monitor

# Performance

Investment Manager	Asset Class	Effective Date	Resolution



Appendices

# **Performance Definitions**

Annualized Return is the return an investment provides over a period of time, expressed as a time-weighted average.

Cumulative Return is the aggregate amount an investment has gained or lost over a given period of time.

# **Equity Market Indicators**

The market indicators included in this report are regarded as measures of equity or fixed income performance results. The returns shown reflect both income and capital appreciation.

**Russell 1000 Growth** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 1000 Value** measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

**Russell 2000 Growth** contains those Russell 2000 securities with a greater than average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earning ratios, lower dividend yields and higher forecasted growth values than the Value universe.

**Russell 2000 Index** is composed of the 2000 smallest stocks in the Russell 3000 Index, representing approximately 11% of the U.S. equity market capitalization.

**Russell 2000 Value** contains those Russell 2000 securities with a less than average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earning ratios, higher dividend yields and lower forecasted growth values than the Growth universe.

Standard & Poor's 500 Index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The index is capitalization-weighted, with each stock weighted by its proportion of the total market value of all 500 issues. Thus, larger companies have a greater effect on the index.

Standard & Poor's/Citi Growth Index is a composite of the firms in the S&P 500 Index which, based on three growth and four value factors, exhibit stronger growth characteristics. The index is designed so that it represents roughly fifty percent of the market capitalization of the S&P 500 Index. Generally, companies in the Growth Index have higher growth rates of earnings, sales and return on equity than those in the Value Index. Like the full S&P 500 Index, the Growth Index is capitalization-weighted.

Standard & Poor's/Citi Value Index is a composite of the firms in the S&P 500 Index which, based on three growth and four value factors, exhibit stronger value characteristics. The index is designed so that it represents roughly fifty percent of the market capitalization of the S&P 500 Index. Generally, companies in the Value Index have higher dividend yields and book value, cash flow, and sales to price ratios than those in the Growth Index. Like the full S&P 500 Index, the Value Index is capitalization-weighted.

# **International Equity Market Indicators**

The market indicators included in this report are regarded as measures of equity or fixed income performance results. The returns shown reflect both income and capital appreciation.

**Morgan Stanley Capital International (MSCI) EAFE Index** is composed of approximately 1000 equity securities representing the stock exchanges of Europe, Australia, New Zealand and the Far East. The index is capitalization-weighted and is expressed in terms of U.S. dollars.

**Morgan Stanley Capital Intl (MSCI) Emerging Markets Free Index** is composed of about 549 equity securities representing the stock exchanges of 13 countries in Central Asia and the Far East, Latin America, Europe, and the Middle East. Only 20% of Korea's market capitalization is included in this index. The index is market capitalization-weighted and is expressed in terms of U.S. dollars.



# **Fixed Income Market Indicators**

The market indicators included in this report are regarded as measures of equity or fixed income performance results. The returns shown reflect both income and capital appreciation.

**90-Day U.S. Treasury Bills** provide a measure of riskless return. The rate of return is the average interest rate available on the beginning of each month for a Treasury Bill maturing in ninety days.

**Bloomberg Barclays Aggregate Bond Index** is a combination of the Mortgage Backed Securities Index and the intermediate and long-term components of the Government/Credit Bond Index.

**Merrill Lynch High Yield Master** is composed of approximately 570 high yield securities rated BBB or below (excludes default issues). The index is market value-weighted.



## **Common Stock Portfolio Characteristics**

All Portfolio Characteristics are derived by first calculating the characteristics for each security, and then calculating the weighted average of these values for the portfolio.

**Dividend Yield** - The total amount of dividends paid out for a stock over the preceding twelve months divided by the closing price of a share of the common stock.

**Five Year Beta** - Beta measures the sensitivity of rates of return on a fund to general market movements. As such, the Beta for a portfolio is a reflection of the risk of the securities in the portfolio as compared to the broader market. This value is a composite of the individual Beta values within a portfolio. The Beta computation is based on the weighted average of the five year historical Betas of each security in a portfolio.

**Growth in Dividends** - This value represents a weighted average five year annual growth rate of dividends per common stock share. The rates of growth in dividends for trailing twelve month periods are calculated using the dividend-per-share values for each time period. The five-year growth in dividends figure is calculated for each security in a portfolio. From these individual values, a weighted average value is calculated for the portfolio. The number of shares in each time period is adjusted to reflect any splits, mergers, or other capital changes. In this case, dividends are ex-dividends, meaning that the dividend has been declared and a buyer of the stock after the ex-dividend date does not receive the dividend.

**Growth in Earnings** - This value represents a weighted average five year annual growth rate of earnings per common stock share. The rates of growth in earnings for trailing twelve month periods are calculated using the earnings-per-share values for each time period. The five-year growth in earnings figure is calculated for each security in a portfolio. From these individual values, a weighted average value is calculated for the portfolio. The number of shares in each time period is adjusted to reflect any splits, mergers, or other capital changes. In this case, the earnings per share is fully diluted and excludes extraordinary items and discontinued operations. Fully diluted earnings per share are earnings that are reduced, or diluted, by assuming the conversion of all securities that are convertible into equities.

**Issue Diversification** - A measure of portfolio concentration in individual issues (securities). This number represents how many different securities (names) comprise the most concentrated half of the portfolio assets (half of the assets are in how many names?). This measure is useful in evaluating the concentration/diversification of portfolios made up of many issues but concentrated in a small subset of those issues (e.g. 100 stocks with 50% of assets in 10 stocks, Issue Diversification = 10).

**Number of Securities** - This is a simple portfolio diversification measure representing the number of unique non-cash securities (names) currently held in the portfolio. This measure does not address potential concentration of assets within these securities (see Issue Concentration).

**Price/Book Value** - The Price to Book Value is a measure of value for a company. It is equal to the market value of all the shares of common stock divided by the book value of the company. The book value is the sum of capital surplus, common stock, and retained earnings.

**Price/Earnings Ratio** - The Price to Earnings Ratio (P/E) is a measure of value for a company. It is equal to the price of a share of common stock divided by the earnings per share for a twelve-month period.

**Return on Assets** - Return on Assets is a measure of a company's profitability, specifically relating profits to the total investments required to achieve the profits. It is equal to income divided by total assets. Income is after all expenses, including income taxes and minority interest, but before provision for dividends, extraordinary items, and discontinued operations. Total assets includes the sum of all current, non-current, and intangible assets.



# **Common Stock Portfolio Characteristics**

**Return on Equity** - Return on Equity is a measure of a company's profitability, specifically relating profits to the equity investment employed to achieve the profits. Return on Equity focuses on the returns accruing to the residual owners of a company, the equityholders. It is equal to income divided by total common equity. Income is after all expenses, including income taxes and minority interest, but before provision for dividends, extraordinary items, and discontinued operations. Common equity includes common stock outstanding, capital surplus, and retained earnings.

**Total Debt/Assets** - The Debt to Assets ratio is a measure of the level of total debt of a company as a portion of the assets of the company. It is equal to short-term and long-term debt divided by total assets. Total assets include the sum of all current, non-current, and intangible assets.

### **Fixed Income Portfolio Characteristics**

All Portfolio Characteristics are derived by first calculating the characteristics for each security, and then calculating the market value weighted average of these values for the portfolio.

Allocation by Sector - Sector allocation is one of the tools which managers often use to add value without impacting the duration of the portfolio. The sector weights exhibit can be used to contrast a portfolio's weights with those of the index to identify any significant sector bets.

**Average Coupon** - The average coupon is the market value weighted average coupon of all securities in the portfolio. The total portfolio coupon payments per year are divided by the total portfolio par value.

**Average Moody's Rating for Total Portfolio** - A measure of the credit quality as determined by the individual security ratings. The ratings for each security, from Moody's Investor Service, are compiled into a composite rating for the whole portfolio. Quality symbols range from Aaa+ (highest investment quality - lowest credit risk) to C (lowest investment quality - highest credit risk).

Average Option Adjusted (Effective) Convexity - Convexity is a measure of the portfolio's exposure to interest rate risk. It is a measure of how much the duration of the portfolio will change given a change in interest rates. Generally, securities with negative convexities are considered to be risky in that changes in interest rates will result in disadvantageous changes in duration. When a security's duration changes it indicates that the stream of expected future cash-flows has changed, generally having a significant impact on the value of the security. The option adjusted convexity for each security in the portfolio is calculated using models developed by Lehman Brothers and Salomon Brothers which determine the expected stream of cash-flows for the security based on various interest rate scenarios. Expected cash-flows take into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

Average Option Adjusted (Effective) Duration - Duration is one measure of the portfolio's exposure to interest rate risk. Generally, the higher a portfolio's duration, the more that its value will change in response to interest rate changes. The option adjusted duration for each security in the portfolio is calculated using models developed by Lehman Brothers and Salomon Brothers which determine the expected stream of cash-flows for the security based on various interest rate scenarios. Expected cash-flows take into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

**Average Price** - The average price is equal to the portfolio market value divided by the number of securities in the portfolio. Portfolios with an average price above par will tend to generate more current income than those with an average price below par.

Average Years to Expected Maturity - This is a measure of the market-value-weighted average of the years to expected maturity across all of the securities in the portfolio. Expected years to maturity takes into account any put or call options embedded in the security, any expected sinking-fund paydowns or any expected mortgage principal prepayments.

Average Years to Stated Maturity - The average years to stated maturity is the market value weighted average time to stated maturity for all securities in the portfolio. This measure does not take into account imbedded options, sinking fund paydowns, or prepayments.

**Current Yield** - The current yield is the current annual income generated by the total portfolio market value. It is equal to the total portfolio coupon payments per year divided by the current total portfolio market value.



### **Fixed Income Portfolio Characteristics**

**Duration Dispersion** - Duration dispersion is the market-value weighted standard deviation of the portfolio's individual security durations around the total portfolio duration. The higher the dispersion, the more variable the security durations relative to the total portfolio duration ("barbellness"), and the smaller the dispersion, the more concentrated the holdings' durations around the overall portfolio's ("bulletness"). The purpose of this statistic is to gauge the "bulletness" or "barbellness" of a portfolio relative to its total duration and to that of its benchmark index.

**Effective Yield** - The effective yield is the actual total annualized return that would be realized if all securities in the portfolio were held to their expected maturities. Effective yield is calculated as the internal rate of return, using the current market value and all expected future interest and principal cash flows. This measure incorporates sinking fund paydowns, expected mortgage principal prepayments, and the exercise of any "in-the-money" imbedded put or call options.

**Weighted Average Life** - The weighted average life of a security is the weighted average time to payment of all remaining principal. It is calculated by multiplying each expected future principal payment amount by the time left to the payment. This amount is then divided by the total amount of principal remaining. Weighted average life is commonly used as a measure of the investment life for pass-through security types for comparison to non-pass-through securities.

### **Risk/Reward Statistics**

The risk statistics used in this report examine performance characteristics of a manager or a portfolio relative to a benchmark (market indicator) which assumes to represent overall movements in the asset class being considered. The main unit of analysis is the excess return, which is the portfolio return minus the return on a risk free asset (3 month T-Bill).

**R-Squared** indicates the extent to which the variability of the portfolio returns are explained by market action. It can also be thought of as measuring the diversification relative to the appropriate benchmark. An r-squared value of .75 indicates that 75% of the fluctuation in a portfolio return is explained by market action. An r-squared of 1.0 indicates that a portfolio's returns are entirely related to the market and it is not influenced by other factors. An r-squared of zero indicates that no relationship exists between the portfolio's return and the market.

**Relative Standard Deviation** is a simple measure of a manager's risk (volatility) relative to a benchmark. It is calculated by dividing the manager's standard deviation of returns by the benchmark's standard deviation of returns. A relative standard deviation of 1.20, for example, means the manager has exhibited 20% more risk than the benchmark over that time period. A ratio of .80 would imply 20% less risk. This ratio is especially useful when analyzing the risk of investment grade fixed-income products where actual historical durations are not available. By using this relative risk measure over rolling time periods one can illustrate the "implied" historical duration patterns of the portfolio versus the benchmark.

**Residual Portfolio Risk** is the unsystematic risk of a fund, the portion of the total risk unique to the fund (manager) itself and not related to the overall market. This reflects the "bets" which the manager places in that particular asset market. These bets may reflect emphasis in particular sectors, maturities (for bonds), or other issue specific factors which the manager considers a good investment opportunity. Diversification of the portfolio will reduce or eliminate the residual risk of that portfolio.

**Rising and Declining Periods** refer to the sub-asset class cycles vis-a-vis the broader asset class. This is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, to determine the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class).

**Sharpe Ratio** is a commonly used measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

**Sortino Ratio** is a downside risk-adjusted measure of value-added. It measures excess return over a benchmark divided by downside risk. The natural appeal is that it identifies value-added per unit of truly bad risk. The danger of interpretation, however, lies in these two areas: (1) the statistical significance of the denominator, and (2) its reliance on the persistence of skewness in return distributions.

**Standard Deviation** is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (ie. has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

**Total Portfolio Risk** is a measure of the volatility of the quarterly excess returns of an asset. Total risk is composed of two measures of risk: market (non-diversifiable or systematic) risk and residual (diversifiable or unsystematic) risk. The purpose of portfolio diversification is to reduce the residual risk of the portfolio.

### **Risk/Reward Statistics**

**Tracking Error** is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

**Treynor Ratio** represents the portfolio's average excess return over a specified period divided by the beta relative to its benchmark over that same period. This measure reflects the reward over the risk-free rate relative to the systematic risk assumed.

Note: Alpha, Total Risk, and Residual Risk are annualized.



In order to provide comparative investment results for use in evaluating a fund's performance, Callan gathers rate of return data from investment managers. These data are then grouped by type of assets managed and by the type of investment manager. Except for mutual funds, the results are for tax-exempt fund assets. The databases, excluding mutual funds, represent investment managers who handle over 80% of all tax-exempt fund assets.

### **Equity Funds**

Equity funds concentrate their investments in common stocks and convertible securities. The funds included maintain well-diversified portfolios.

**Aggressive Growth** - Managers who invest in growth securities with significantly higher risk/return expectations than the broader market. Sometimes makes concentrated "bets" by selecting a small number of securities or by investing in only a few specific sectors. Selects from companies with market capitalizations significantly below the broader market. Invests in companies with P/E ratios, Price-to-Book values, and Growth-in-Earnings values above the broader market. The companies typically have zero dividends or dividend yields below the broader market. Invests in securities which exhibit greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation.

**Contrarian** - Managers who invest in stocks that are out of favor or which have little current market interest, on the premise that gain will be realized when they return to favor. Sometimes makes concentrated "bets" by selecting a small number of securities or by investing in only a few specific sectors. Invests in companies with Return-on-Assets values, Return-on-Equity values, Growth-in-Earnings values, and Growth-in-Dividend values below the broader market. Chooses securities that, due to their contrary status, do not move with the broader market, as measured by a low Beta and significant non-market risk.

**Core Equity** - Managers whose portfolio holdings and characteristics are similar to that of the broader market as represented by the Standard & Poor's 500 Index, with the objective of adding value over and above the index, typically from sector or issue selection. The core portfolio exhibits similar risk characteristics to the broad market as measured by low residual risk with Beta and R-Squared values close to 1.00 and combined growth and value z-score values close to 0.00.

**Core Growth International Equity Style** Generally benchmarked to the MSCI EAFE Index (and/or the MSCI EAFE Growth Index), Core Growth International managers focus on developed countries and invest mainly in large capitalization companies that are expected to have above average prospects for long-term growth in earnings. Future growth prospects take precedence over valuation levels in the stock selection process. Invests in companies with P/E, P/B ratios, ROE, and Growth-in-Earnings values generally above the broad developed market averages. The companies typically have zero dividends or dividend yields below the broader market. Invests in securities which exhibit greater volatility than the developed market as measured by the securities' Beta and Standard Deviation. Portfolios are broadly diversified and have high growth z-score and low value z-score and exposure to emerging markets and smaller capitalization stocks is limited.

**Core International Equity Style** Managers whose portfolio holdings and characteristics are similar to that of the broader developed market as represented by the MSCI EAFE Index, with the objective of adding value over and above the index, typically from country, sector, or issue selection. The Core portfolio is broadly diversified and exhibits similar risk characteristics to the developed market as measured by low residual risk with Beta and R-Squared values close to 1.00 and combined growth and value z-score values close to 0. Exposure to emerging markets and smaller capitalization stocks is limited.

**Core Plus Growth International Equity Style** Generally benchmarked to the MSCI ACWI ex-US Index (and/or the MSCI ACWI ex-US Growth Index), Core Plus Growth International managers focus on adding value through increased tactical or strategic exposure to stocks in the emerging markets and smaller market capitalizations. Such managers invest primarily in companies that are expected to have above average prospects for long-term growth in earnings. Future growth prospects take precedence over valuation levels in the stock selection process and the manager may undertake concentrated bets. Invests in companies with P/E, P/B ratios, ROE values, and Growth-in-Earnings values above the broad market. The companies typically have zero dividends or dividend yields below the broader market. Invests in securities which exhibit greater volatility than the broad market as measured by the securities' Beta and Standard Deviation. Portfolios have high growth z-score and low value z-score and higher potential exposure to emerging markets and small

**Core Plus International Equity Style** Managers whose portfolio holdings and characteristics are similar to that of the broader international market as represented by the MSCI ACWI ex-US Index, with the objective of adding value over and above the index, typically from increased tactical or strategic exposure to stocks in emerging markets and smaller capitalization. The Core Plus portfolio exhibits similar risk characteristics to the broad market as measured by low residual risk with Beta and R-Squared values close to 1.00, and combined growth and value z-score values close to 0. Portfolios may undertake concentrated bets.

**Core Plus Value International Equity Style** Generally benchmarked to the MSCI ACWI ex-US Index (and/or the MSCI ACWI ex-US Value Index), Core Plus Value International managers focus on adding value through increased tactical or strategic exposure to stocks in the emerging markets and smaller market capitalizations. Such managers invest primarily in companies believed to be currently undervalued in the general market and may undertake concentrated bets. Valuation issues take precedence over near term earnings prospect in the stock selection process. Invests in companies with P/E, P/B ratios, and ROE values below the broader market. Portfolios have low growth z-score and high value z-score, and higher potential exposure to emerging markets and small capitalization stocks.

**Core Value International Equity Style** Generally benchmarked to the MSCI EAFE Index (and/or the MSCI EAFE Value Index), Core Value International managers focus on developed countries with liquid markets. Such managers invest primarily in large capitalization companies believed to be currently undervalued in the general market. Valuation issues take precedence over near term earnings prospect in the stock selection process. Invests in companies with P/E, P/B ratios, and ROE values below the broader market. Portfolios are broadly diversified, have low growth z-score and high value z-score, and exposure to emerging markets and smaller capitalization stocks is limited.

**Current Ratio** - The Current Ratio is used for liquidity analysis in that it evaluates the adequacy of a firm's cash resources relative to its cash obligations. The Current Ratio is equal to Current Assets divided by Current Liabilities. Current Assets are those assets of a company which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business. Current Assets include cash, temporary investments, receivables, inventories, and prepaid expenses. Current Liabilities are monies owed and payable by a company, usually within one year, deposits and advances from customers, and dividends declared but unpaid.

**Domestic Equity Database** - The Domestic Equity Database is a broad collection of actively managed separate account domestic equity products.

**International Emerging Markets Equity** - The International Emerging Market Equity Database consists of all separate account international equity products that concentrate on newly emerging second and third world countries in the regions of the Far East, Africa, Europe, and Central and South America.

**International Equity - Global** - The Global International Equity Database consists of all actively managed separate account international equity that generally include U.S. equities in their investment mix.

**International Equity - Non-U.S.** - The Non-U.S. International Equity Database consists of separate account international equity products that do not generally invest in U.S. equities.

**Large Cap Broad** - Managers who concentrate their holdings in large capitalization domestic equity regardless of style (growth, value or core). The purpose of this group is to allow a comparison with the universe of large cap equity funds without focusing on a particular investment style. The Large Cap Broad Style consists of the Large Cap Growth, Large Cap Value and Large Cap Core managers, as well as large capitalization managers of undetermined style.

Large Cap Growth - Managers who invest mainly in large companies that are expected to have above average prospects for long-term growth in earnings and profitability. Future growth prospects take precedence over valuation levels in the stock selection process. Invests in companies with P/E ratios, Price-to-Book values, Return-on-Assets values, Growth-in-Earnings values above the broader market. The companies typically have zero dividends or dividend yields below the broader market. Invests in securities which exhibit greater volatility than the broader market as measured by the securities' Beta and Standard Deviation. Portfolios have high growth z-scores and low value z-scores.

Large Cap Growth Funds Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) greater than 300% of the dollar-weighted median market capitalization of the middle 1,000 securities of the S&P Super Composite 1500 Index. Large-cap growth funds typically have an above average price-to-earnings ratio, price-to-book ratio, and three-year sales per-share growth value compared to the S&P 500 Index.

Large Cap Value - Managers who invest primarily in large companies believed to be currently undervalued in the general market and whose shares are priced below the market compared to their peers. Valuation issues take precedence over near term earnings prospects in the stock selection process. The Large Cap Value Style invests in companies with P/E ratios, Return-on-Equity values, and Price-to-Book values below the broader market and the middle capitalization segment. This style invests in securities with risk/reward profiles in the lower risk range of the medium capitalization market. Portfolios have low growth z-scores and high value z-scores.

**Middle Capitalization** - Managers who invest primarily in mid-range companies with market capitalizations between core equity companies and small capitalization companies. The average market capitalization is approximately \$7 billion. Invests in securities with greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation. The Middle Capitalization Style Group consists of the Middle Capitalization Growth Equity and the Middle Capitalization Value Equity Style Groups.

**Middle Capitalization (Growth)** - Managers who invest primarily in mid-range companies that are expected to have above average prospects for long-term growth in earnings and profitability. Future growth prospects take precedence over valuation levels in the stock selection process. The average market capitalization is approximately \$7 billion with market capitalizations between core equity companies and small capitalization companies. Invests in companies with P/E ratios, Price-to-Book values, and Growth-in-Earnings values above the broader market as well as the middle capitalization market segment. Invests in securities with greater volatility than the broader market and the middle capitalization segment as measured by the risk statistics Beta and Standard Deviation.

**Middle Capitalization (Value)** - Managers who invest primarily in mid-range companies believed to be currently undervalued in the general market. Valuation issues take precedence over near-term earnings prospects in the stock selection process. The average market capitalization is approximately \$7 billion with market capitalizations between core equity companies and small capitalization companies. Invests in companies with P/E ratios, Return-on-Equity values, and Price-to-Book value below the broader market and the middle capitalization segment. Invests in securities with risk/reward profiles in the lower risk range of the medium capitalization market.

**Non-U.S. Equity** A broad array of active managers who employ various strategies to invest assets in a well-diversified portfolio of non-U.S. equity securities. This group consists of all Core, Core Plus, Growth, and Value international products, as well as products using various mixtures of these strategies. Region-specific, index, emerging market, or small cap products are excluded.

**Small Capitalization** - Managers who invest in companies with relatively small capitalization. The average market capitalization is approximately \$1.4 billion. The companies typically have zero dividends or dividend yields below the broader market. The securities exhibit greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation. The Small Capitalization Style Group consists of the Small Capitalization (Growth) Style Group and the Small Capitalization (Value) Style Group.

**Small Capitalization** Generally benchmarked to an international small cap index (like MSCI EAFE Small or MSCI ACWI ex-US Small or S&P/Citigroup EMI), International Small Cap managers focus on selecting smaller capitalization stocks. They may pursue any combination of Growth, Value, or Core, or "Plus" strategies. Portfolios are diversified across countries, and may have significant exposure to emerging markets.

**Small Capitalization** - Mutual funds that invest in companies with relatively small capitalization. The average market capitalization is approximately \$1.4 billion. The companies typically have zero dividends or dividend yields below the broader market. The securities exhibit greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation. The Small Capitalization Style Group consists of the Small Capitalization (Growth) Style Group and the Small Capitalization (Value) Style Group.

**Small Capitalization (Growth)** - Managers who invest mainly in small companies that are expected to have above average prospects for long-term growth in earnings and profitability. Future growth prospects take precedence over valuation levels in the stock selection process. The Small Cap Growth Style invests in companies with P/E ratios, Price-to Book values, and Growth-in Earnings values above the broader market, in addition to the small capitalization market segment. The companies typically have zero dividends or dividend yields below the broader market. The securities exhibit greater volatility than the broader market as well as the small capitalization market segment as measured by the risk statistics values Beta and Standard Deviation. Portfolios have high growth z-scores and low value z-scores.

**Small Capitalization (Value)** - Managers who invest in small capitalization companies that are believed to be currently undervalued in the general market. Valuation issues take precedence over near-term earnings prospects in the stock selection process. The companies are expected to have a near-term earnings rebound and eventual realization of expected value. The Small Cap Value Style invests in companies with P/E ratios, Return-on-Equity values, and Price-to-Book values below the broader market in addition to the small capitalization market segment. This style invests in securities with dividend yields in the high range for the small capitalization market. The Small Cap Value Style invests in securities with risk/reward profiles in the lower risk range of the small capitalization market. Portfolios have low growth z-scores and high value z-scores.

**Small Capitalization (Value)** - Mutual funds that invest in small capitalization companies that are believed to be currently undervalued in the general market. Valuation issues take precedence over near-term earnings prospects in the stock selection process. The companies are expected to have a near-term earnings rebound and eventual realization of expected value. Invests in companies with P/E ratios, Return-on-Equity values, and Price-to-Book values below the broader market as well as the small capitalization market segment. The companies typically have dividend yields in the high range for the small capitalization market. Invests in securities with risk/reward profiles in the lower risk range of the small capitalization market.

Small/Mid Cap (Value) - Managers who invest in small to medium cap companies that are believed to be currently undervalued in the general market. The companies are expected to have a near-term earnings rebound and eventual realization of expected value.

**Yield** - Managers whose primary objective is a high current dividend yield. Invests in companies with Price-to-Book values and Growth-in-Earnings values below the broader market. Invests in securities with dividend yields above the broader market. Invests in securities with significantly lower volatility than the broader market as measured by the risk statistics Beta and Standard Deviation.

#### **Fixed Income Funds**

Fixed Income funds concentrate their investments in bonds, preferred stocks, and money market securities. The funds included maintain well-diversified portfolios.

Active Cash - Managers whose objective is to achieve a maximum return on short-term financial instruments through active management. The average portfolio maturity is typically less than one year.

Active Duration - Managers who aggressively employ interest rate anticipation in setting portfolio duration. Portfolios are actively managed so that large changes in duration are made in anticipation of interest rate changes in hopes of profiting from downward rate movements and minimizing losses from upward rate movements.

**Cash Management Funds** - The Cash Management Funds Database consists of actively managed short-term funds, money market mutual funds, and short term bank funds. These funds invest in low-risk, highly liquid, short-term financial instruments.

**Convertible Bond** - Managers who invest in convertible bonds. Convertible bonds offer the downside floor price of a "straight" bond while potentially allowing the holder to share in price appreciation of the underlying common stock. This conversion feature makes it possible for the bondholder to convert the bond to shares of the issuer's common stock.

**Core Bond** - Mutual Funds that construct portfolios to approximate the investment results of the Bloomberg Barclays Capital Government/Credit Bond Index or the Bloomberg Barclays Capital Aggregate Bond Index with a modest amount of variability in duration around the index. The objective is to achieve value added from sector and/or issue selection.

**Core Bond** - Managers who construct portfolios to approximate the investment results of the Bloomberg Barclays Capital Government/Credit Bond Index or the Bloomberg Barclays Capital Aggregate Bond Index with a modest amount of variability in duration around the index. The objective is to achieve value added from sector and/or issue selection.

**Core Plus Bond** - Active managers whose objective is to add value by tactically allocating significant portions of their portfolios among non-benchmark sectors (e.g. high yield corporate, non-US\$ bonds, etc.) while maintaining majority exposure similar to the broad market.

**Defensive** - Managers whose objective is to minimize interest rate risk by investing predominantly in short to intermediate term securities. The average portfolio duration is similar to the duration of the Merrill Lynch 1-3 Year Bond Index.

**Domestic Fixed-Income Database** - The Domestic Fixed-Income Database is a broad collection of separate account domestic fixed-income products.

**Extended Maturity** - Managers whose average portfolio duration is greater than that of the Bloomberg Barclays Capital Government/Credit Bond Index. These portfolios exhibit risk/return characteristics similar to the long-bond portion of the Bloomberg Barclays Capital Government/Credit Index, called the Bloomberg Barclays Capital Government/Credit Long Bond Index. Variations in bond portfolio characteristics are made to enhance performance results. This results in an aggressive risk/return profile that embraces interest rate risk in search of both high yields as well as capital gains.

**High Yield** - Managers whose investment objective is to obtain high current income by investing primarily in non-investment grade fixed-income securities. Due to the increased level of default risk, security selection focuses on credit-risk analysis.

**Intermediate** - Managers whose objective is to lower interest rate risk while retaining reasonable yield levels by investing primarily in intermediate term securities. The average portfolio duration is similar to that of the duration of the Bloomberg Barclays Capital Intermediate Government/Credit Bond Index.

**International Emerging Markets Fixed Income** - The International Emerging Market Fixed-Income Database consists of all separate account international fixed-income products that concentrate on newly emerging second and third world countries in the regions of the Far East, Africa, Europe, and Central and South America.

**International Global Fixed-Income** - The International Global Fixed-Income Database consists of all actively managed separate account international fixed-income funds that generally include U.S. fixed-income securities in their investment mix.

International Non-U.S. Dollar Fixed-Income - The International Non-U.S. Dollar Fixed-Income Database consists of all separate account international fixed-income funds that do not generally invest in U.S. fixed-income securities.

**Mortgage** - Managers who invest primarily in mortgage-backed securities including agency (FHLMC, GNMA, FNMA) and private issue pass-throughs, asset-backed securities, and mortgage derivatives (REMICS/CMOs, IOs, POs). Funds may also contain a small percentage of U.S. Treasuries.

#### **Balanced Funds**

Balanced funds diversify their investments among common stocks, bonds, preferred stocks and money market securities. The funds included maintain well-diversified equity and fixed income portfolios.

**Bottom Up/Stock Selection** - Managers who primarily emphasize stock selection over country or currency selection in their portfolio construction. The country selection process is mainly a by-product of the stock selection decision, or can be passively set according to the index country weights.

**Domestic Balanced Database** - The Domestic Balanced Database consists of all separate account domestic balanced funds.

**Emerging Markets Equity** - Managers who primarily concentrate on investments in newly emerging second and third world countries in the regions of the Far East, Africa, Europe, and Central and South America. These portfolios are characterized by aggressive risk/return profiles that generate high volatility in search of high returns.

**Europe** - Managers who invest predominantly in the well developed stock markets of Europe. These products will exhibit risk/return profiles similar to the MSCI Europe Index.



**Global Balanced Database** - The Global Balanced Database consists of all separate account balanced funds that invest in international and domestic equity and fixed-income securities.

**Global Equity** - Managers who invest in both foreign and domestic equity securities in varying proportions. These products will exhibit risk/return profiles similar to the MSCI World Index.

**International Balanced Database** - The International Balanced Database consists of all actively managed separate account balanced funds that invest in international equity and international fixed-income securities. International Balanced managers do not generally invest in U.S. securities.

**International Growth Style Group** International Growth Equity Style managers invest predominantly in companies that are expected to have above average prospects for long-term growth in earnings and profitability. Future growth prospects take precedence over valuation levels in stock selection. The International Growth Equity Style group consists of broad developed market mandates with incidental exposure to the emerging markets.

**International Value Style Group** International Value Equity Style managers invest predominantly in companies believed to be currently undervalued in the general market. The companies are expected to have a near-term earnings rebound and eventual realization of expected value. The International Value Equity Style group consists of broad developed market mandates with incidental exposure to the emerging markets.

Japan - Managers who invest predominantly in the equity of companies in Japan.

Mutual Fund Balanced Funds - The Mutual Fund Balanced Fund Database consists of open-end mutual fund balanced products.

**Pacific Basin** - Managers who invest predominantly in Pacific Basin equities. Countries include: Japan, Hong Kong, Singapore, Malaysia, Australia, and New Zealand. These products will exhibit risk/return profiles similar to the MSCI Pacific Index.

**Pacific Rim** - Managers who invest predominantly in Pacific Basin equities excluding Japan. Countries include: Hong Kong, Singapore, Malaysia, Australia, and New Zealand. These products will exhibit risk/return profiles similar to the MSCI Pacific ex-Japan Index.

**Top Down/Country Allocator** - Managers who attempt to add value over an index such as the Morgan Stanley Capital International (MSCI) EAFE Index by emphasizing macroeconomic analysis in selecting allocations in countries with above average gain prospects. Stock selection plays a secondary role in the investment decision process, or can be passively matched to the index stock holdings within each country.

#### **Real Estate Funds**

Real estate funds consist of open or closed-end commingled funds. The returns are net of fees and represent the overall performance of commingled institutional capital invested in real estate properties.

**CAI Real Estate Daily Valued** The CAI Real Estate Daily Valued Peer Group is comprised of the members of The NCREIF Fund Index - Daily Priced (NFI - DP). This represents a small universe of open-end funds that are priced daily, offer investors some degree of daily liquidity and invest predominantly in private real estate. Most, but not all, of the underlying funds also maintain a liquidity sleeve of predominately publicly listed REITs and cash to help facilitate the funds' trading needs.

**Global Fixed-Income** - Managers who invest in both foreign and domestic fixed-income securities. These funds seek to take advantage of international currency and interest rate movements, differing bond yields, and/or international diversification.

**Non-U.S. Fixed-Income** - Managers who generally invest their assets only in non-U.S. fixed-income securities. These funds seek to take advantage of international currency and interest rate movements, bond yields, and/or international diversification.

#### **Other Funds**

Asset Allocator - Managers who try to capitalize on the cyclical behavior of both the economy and market price trends by moving in and out of the equity market, fixed-income, and cash markets in anticipation of these cycles. Quantitative as well as qualitative models and inputs are used in an attempt to be heavily weighted in the most undervalued sector of the capital markets and capitalize on those sectors forecasted to do well in the short term while avoiding those sectors forecasted to underperform in the short term.

Callan Research/Education

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CALLAN INSTITUTE

2nd Quarter 2018

### Education

### **Research and Educational Programs**

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

### New Research from Callan's Experts



Handle With Extreme Care: Callan's Take on Cryptocurrencies | In this paper, author Mark Wood provides a brief overview of cryptocurrencies and addresses primary considerations for potential investors.

He describes why Callan does not currently recommend our clients allocate to cryptocurrency investment strategies, and where we see the greatest future potential in this space.

**Risk Parity: Silver Bullet or a Bridge Too Far?** | In this chapter from the CFA Institute's book "Multi-Asset Strategies: The Future of Investment Management," Callan's Greg Allen describes risk parity strategies, a category of investment strategies in which capital is allocated across asset classes so that each contributes an equal amount of volatility to the portfolio's total volatility.

China A-Shares: Key Issues for Investors to Consider | China is opening up its securities markets to more non-Chinese institutional investors. In particular, expanded access to China A-shares creates new opportunities for investors. But investing in China presents a set of risks that range from the country's slowing GDP growth to stock trading suspensions. Although China A-shares present an attractive opportunity, implementation is challenged by a shallow manager universe and high fees.

June 2018 Regional Workshop Summary: Governance Alpha | Investment committees face complex challenges overseeing institutional investment funds. They must navigate myriad laws and regulations, select the right managers and strategies, monitor their portfolios, and ensure their funds can deliver the returns needed for their beneficiaries. Governance describes the policies and practices established to guide these decisions. What if implementing the astute governance required to meet these challenges also resulted in better portfolio performance? At this workshop, Callan experts described the most effective institutional fund governance practices and explored new research that connects strong plan governance with performance (i.e., governance alpha), and reviewed how investment managers fit into this framework.

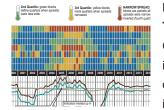
### **Quarterly Periodicals**

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

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

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

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



Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle? | Callan's Real Assets Consulting group identifies seven indicators—based on spreads in real estate and fixed income markets—that, combined with

an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.

### **Events**

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

Callan's **October Regional Workshops** will be held on October 16 in New York and October 18 in Atlanta. Please visit the Events page on our website (www.callan.com/events/) for additional information.

Callan's **2019 National Conference** will be held January 28-30, 2019. Mark your calendars for this upcoming event!

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

Chicago, October 2-3, 2018 Atlanta, October 23-24, 2018

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

#### **Customized Sessions**

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

Learn more at www.callan.com/events/callan-college-intro or contact Kathleen Cunnie: 415.274.3029 / cunnie@callan.com

### **Education: By the Numbers**

525	Attendees (on average) of the Institute's annual National Conference	50+	Unique pieces of research the Institute generates each year
3,700	Total attendees of the "Callan College" since 1994	1980	Year the Callan Institute was founded



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

Greg Allen, CEO and CRO

Disclosures

### List of Callan's Investment Manager Clients

Confidential - For Callan Client Use Only

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

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

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

Manager Name	Manager Name	
Acadian Asset Management LLC	ClearBridge Investments, LLC	
AEGON USA Investment Management	Cohen & Steers Capital Management, Inc.	
Affiliated Managers Group, Inc.	Columbia Threadneedle Investments	
Alcentra	Columbus Circle Investors	
AllianceBernstein	Credit Suisse Asset Management	
Allianz Global Investors	DePrince, Race & Zollo, Inc.	
Allianz Life Insurance Company of North America	Deutsche Asset Management	
American Century Investments	Diamond Hill Capital Management, Inc.	
Apollo Global Management	Dimensional Fund Advisors LP	
AQR Capital Management	Doubleline	
Ares Management LLC	Duff & Phelps Investment Management Co.	
Ariel Investments, LLC	EARNEST Partners, LLC	
Atlanta Capital Management Co., LLC	Eaton Vance Management	
Aviva Investors Americas	Epoch Investment Partners, Inc.	
AXA Investment Managers	Fayez Sarofim & Company	
Baillie Gifford International, LLC	Federated Investors	
Baird Advisors	Fidelity Institutional Asset Management	
Baron Capital Management, Inc.	Fiera Capital Corporation	
Barrow, Hanley, Mewhinney & Strauss, LLC	First Eagle Investment Management, LLC	
BlackRock	First Hawaiian Bank Wealth Management Division	
BMO Global Asset Management	Fisher Investments	
BNP Paribas Asset Management	Franklin Templeton	
BNY Mellon Asset Management	Fred Alger Management, Inc.	
Boston Partners	GAM (USA) Inc.	
Brandes Investment Partners, L.P.	Global Evolution USA	
Brandywine Global Investment Management, LLC	GlobeFlex Capital, L.P.	
BrightSphere Investment Group (FKA Old Mutual Asset)	GMO	
Brown Brothers Harriman & Company	Goldman Sachs Asset Management	
Cambiar Investors, LLC	Green Square Capital LLC	
Capital Group	Guggenheim Investments	
Carillon Tower Advisers	GW&K Investment Management	
CastleArk Management, LLC	Harbor Capital Group Trust	
Causeway Capital Management	Hartford Funds	
Chartwell Investment Partners	Hartford Investment Management Co.	

Callan Knowledge. Experience. Integrity.

### Manager Name

Heitman LLC
Henderson Global Investors
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus Henderson Investors
Jennison Associates LLC
Jensen Investment Management
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
Lincoln National Corporation
LMCG Investments, LLC
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (MIM)
Manulife Asset Management
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen Investments, Inc.
OFI Global Asset Management
O'Shaughnessy Asset Management, LLC
P/E Investments
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management

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