



# WILSHIRE ASSOCIATES

Wilshire Consulting



## Retirement Board of Allegheny County

Executive Summary of Investment Performance

*June 30, 2019*



# MARKET REVIEW

# ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST						ANNUALIZED 5-YEAR AS OF 6/2019
2014	2015	2016	2017	2018	2019 YTD	
REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 18.7%	U.S. Equity 10.3%
U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	REITs 17.9%	REITs 7.8%
Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	MLPs 17.0%	High Yield 4.7%
MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	Developed 14.5%	Core Bond 3.0%
U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	Emrg Mrkts 10.8%	Emrg Mrkts 2.9%
High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	High Yield 9.9%	Developed 2.7%
T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 6.1%	U.S. TIPS 1.8%
Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Core Bond 6.1%	T-Bills 0.9%
Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	Commodities 5.1%	MLPs -7.2%
Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 1.2%	Commodities -9.1%

Data sources: Wilshire Compass

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

# MARKET COMMENTARY

## U.S. Equity

The U.S. stock market was up 4.0% for the second quarter of 2019 and 18.66% for the year. This marks the strongest first half-year for U.S. equities in 24 years. Markets have been quite volatile this year as trade concerns and a possible global economic slowdown continue to sway the markets. Equity prices are also responding to actions and statements by the Federal Reserve, who has softened its monetary policy stance in the past few months.

Talk of what the Federal Open Market Committee will do at their next meeting is likely to dominate headlines during July. After three years of steady increases in the federal funds rate, the Fed appears to be at a pivotal moment. They have left the rate unchanged during 2019 and are forecasting no changes for the second half of the year. The open market, however, is currently far more aggressive on monetary policy and expects two or three 0.25% reductions.

## Non-U.S. Equity

Equity markets outside of the U.S. continue to enjoy a strong 2019. Indicators out of Europe are still gloomy as recent data show that the manufacturing sector in Germany has weakened. News out of Japan is also troubling as consumption and capital spending shows little or no growth. Trade negotiations between the U.S. and China, the world's two largest economies, continue with both countries maintaining firm stances before the G20.

## Fixed Income

The U.S. Treasury yield curve fell across all maturities during the quarter. The 10-year Treasury yield ended the quarter at 2.00%, down 41 basis points from March. The FOMC left its overnight rate unchanged during the quarter at a range of 2.25% to 2.50%. The committee softened some of their messaging to indicate that they are at least willing to ease should conditions deteriorate.

# JUNE 2019 ASSET CLASS ASSUMPTIONS

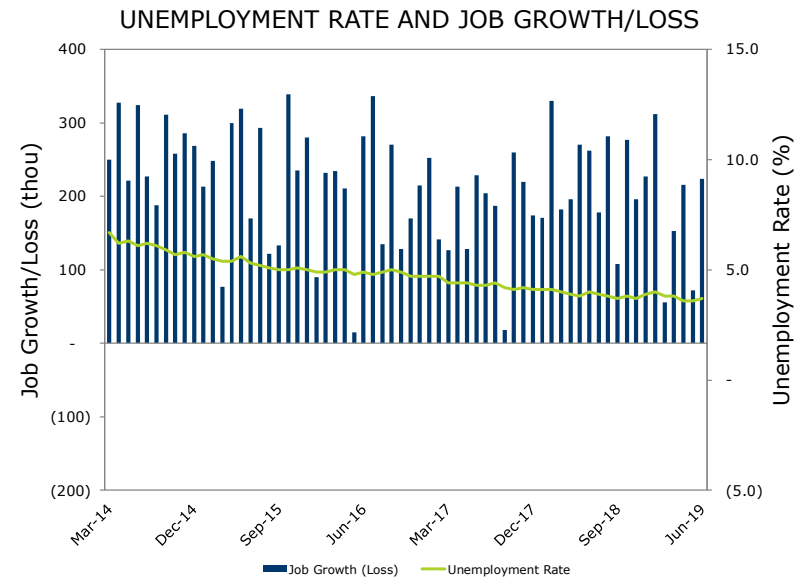
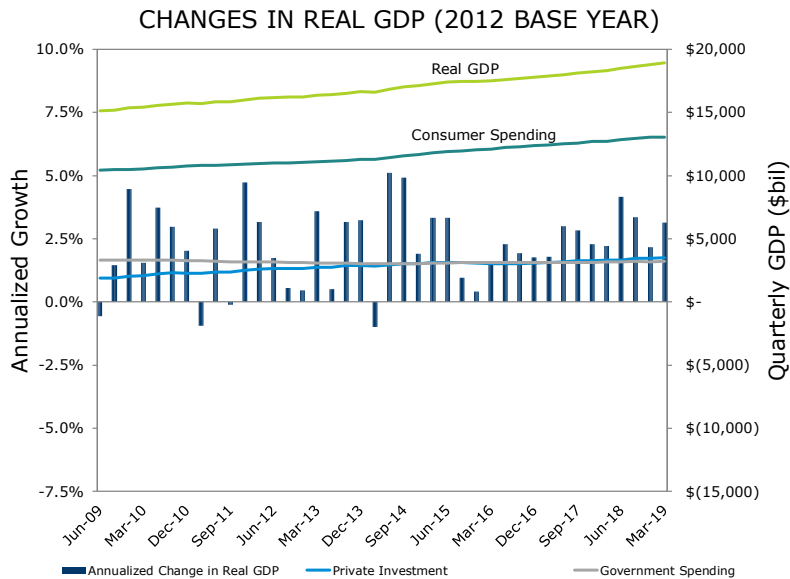
	EQUITY						FIXED INCOME						REAL ASSETS					
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT		High Yield	Dev ex-US Bond (Hdg)	Real Estate			Comdty	Real Assets	US CPI
		US RES	Global RES	Private RE	Core Bond	TIPS			US RES	Global RES			Private RE					
COMPOUND RETURN (%)	6.00	6.50	6.50	6.75	6.45	8.35	1.90	3.05	3.45	2.00	4.30	0.90	5.05	5.25	6.55	3.60	5.80	1.70
ARITHMETIC RETURN (%)	7.30	7.95	9.45	8.35	7.75	11.70	1.90	3.20	3.90	2.20	4.75	0.95	6.40	6.40	7.45	4.65	6.15	1.70
EXPECTED RISK (%)	17.00	18.00	26.00	18.80	17.05	28.00	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.75	1.75
CASH YIELD (%)	2.00	3.50	2.50	3.25	2.55	0.00	1.90	3.30	4.50	2.80	7.55	1.60	3.75	3.75	2.55	1.90	2.50	0.00
<b>CORRELATIONS</b>																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.81	1.00																
Emerging Mkt Stock	0.74	0.74	1.00															
Global ex-US Stock	0.83	0.96	0.86	1.00														
Global Stock	0.94	0.92	0.82	0.94	1.00													
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.93	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.60	0.47	1.00								
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.66	0.39	0.26	1.00						
US RE Securities	0.59	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
Global RE Securities	0.65	0.59	0.56	0.62	0.66	0.58	-0.05	0.17	0.22	0.11	0.62	0.03	0.94	1.00				
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.76	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.42	0.43	0.50	0.48	0.47	0.43	0.01	0.24	0.25	0.41	0.53	0.06	0.65	0.69	0.69	0.59	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

# ECONOMIC REVIEW

AS OF JUNE 30, 2019 KEY ECONOMIC INDICATORS

CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Jun-19	0.1	3-Mo.	0.5
	May-19	0.1	12-Mo.	1.7
	Apr-19	0.3	10-Yr. (Annual)	1.7
BREAKEVEN INFLATION	10-Yr.	1.7		
CONSUMER SENTIMENT	Jun-19	98.2		
U. OF MICHIGAN SURVEY	May-19	100.0		
	1-Yr. Ago	98.2	10-Yr. Avg	84.2
MANUFACTURING	Jun-19	51.7	CHANGE IN SECTOR	
INST. FOR SUPPLY MGMT	May-19	52.1	>50	Expansion
PURCHASING MNGRS' IDX	1-Yr. Avg.	56.0	<50	Contraction

Note: Seasonally adjusted CPI data is utilized to better reflect short-term pricing activity.

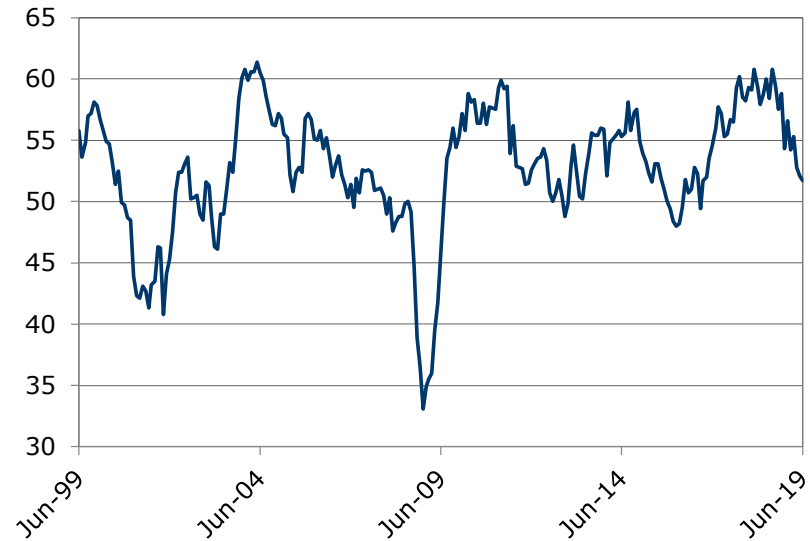


Data sources: Bureau of Labor Statistics, U.S. Treasury, University of Michigan, Institute for Supply Management, Bureau of Economic Analysis

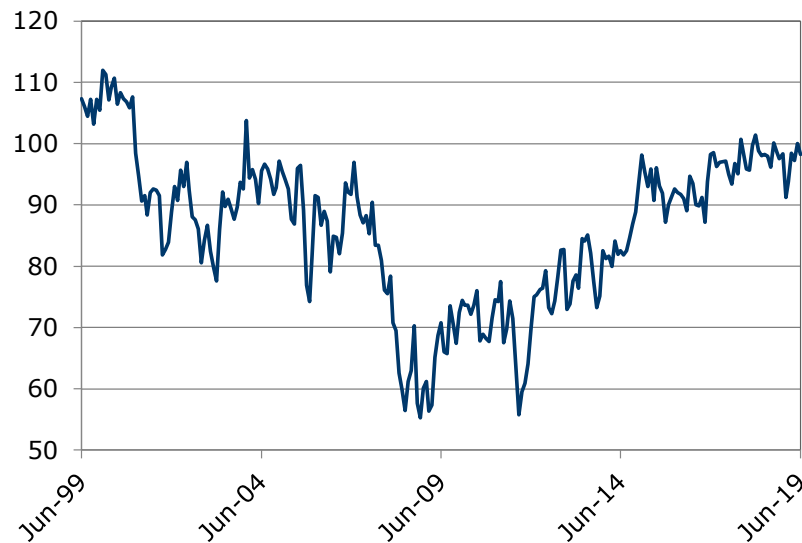
# SIGNS OF SLOWING

- Surveys provide up-to-date proxy for economic activity
- Business activity continues to grow but has slowed; Consumer confidence proxies future demand
- Rate-sensitive sectors are slowing

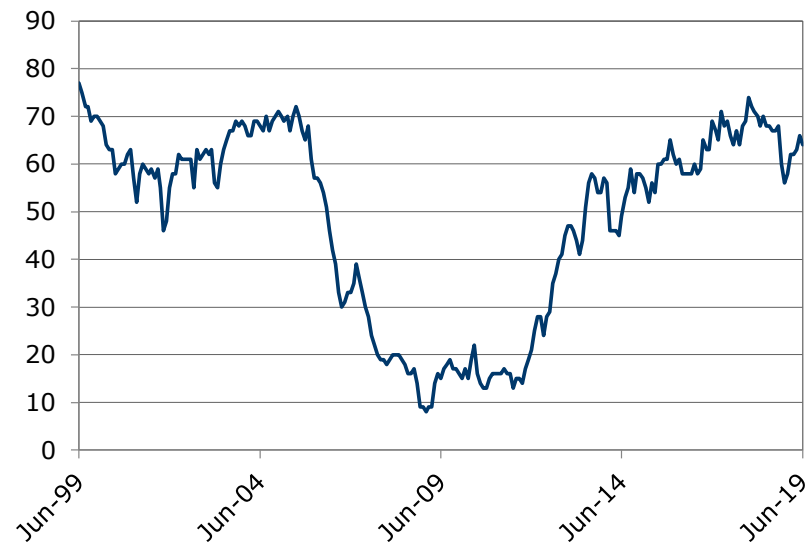
ISM MANUFACTURING INDEX



U. OF MI CONSUMER SENTIMENT INDEX

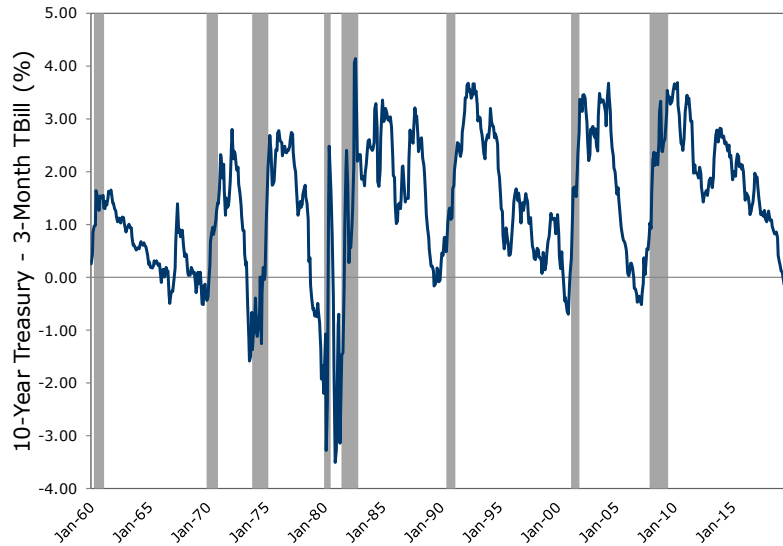


HOME BUILDERS HOME MARKET INDEX

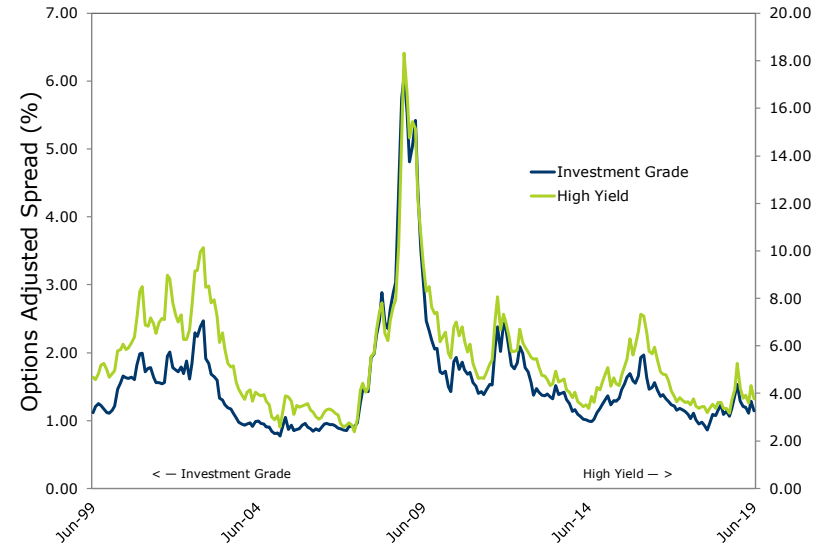


# RISK MONITOR

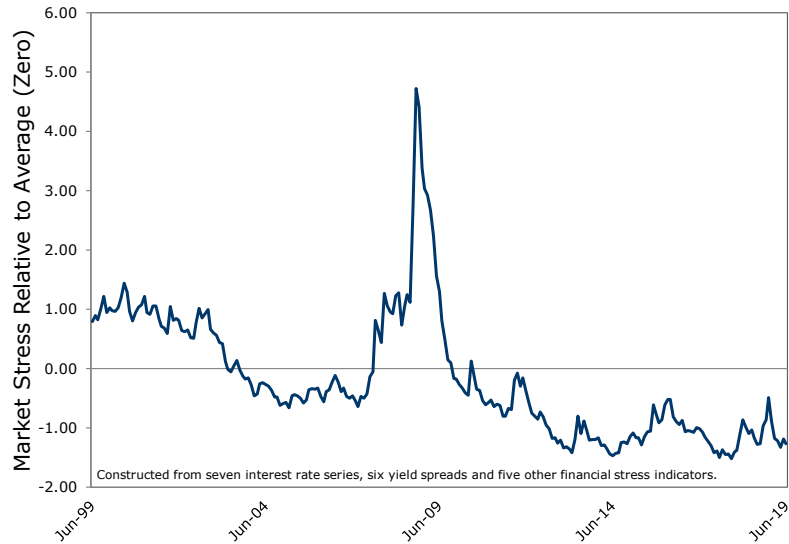
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



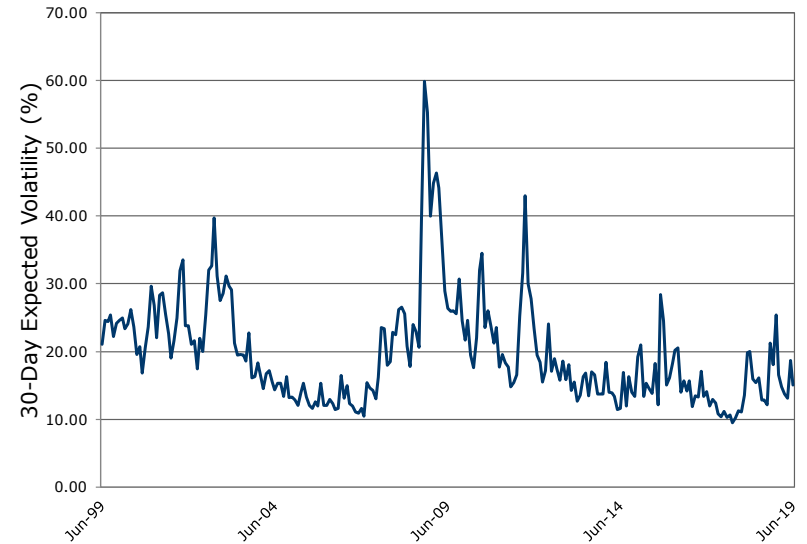
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



CBOE VOLATILITY INDEX



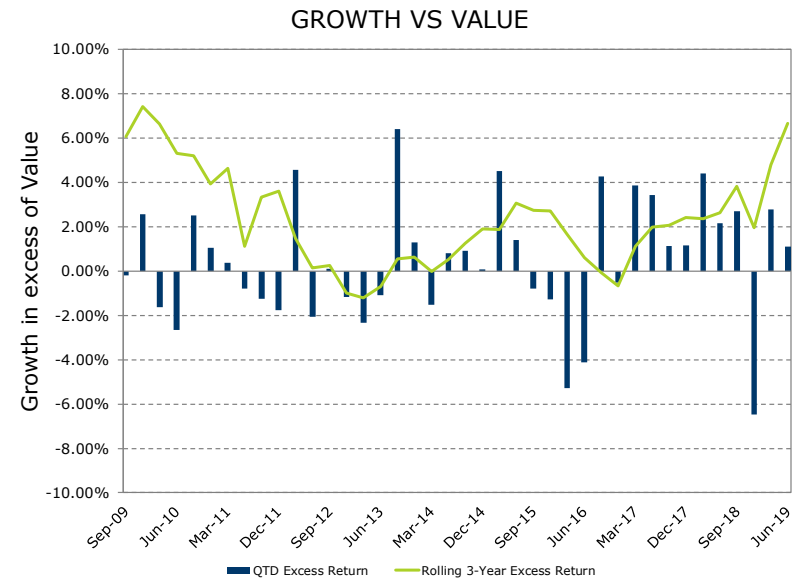
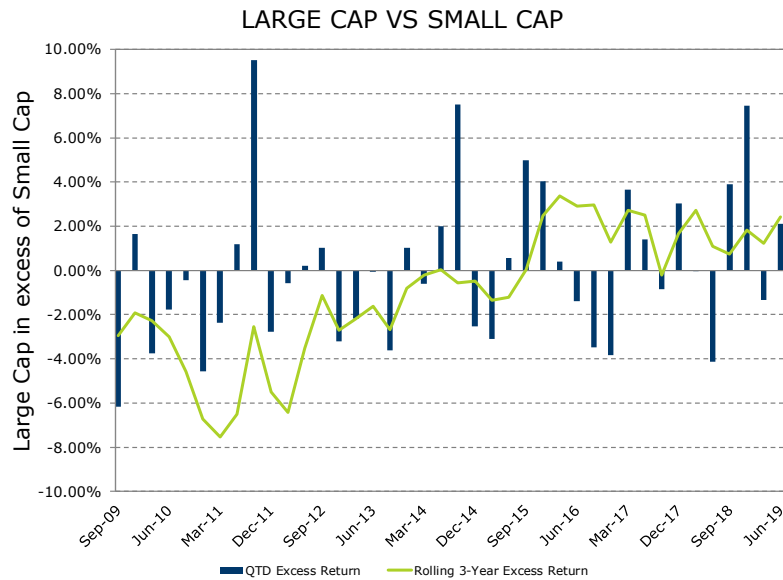
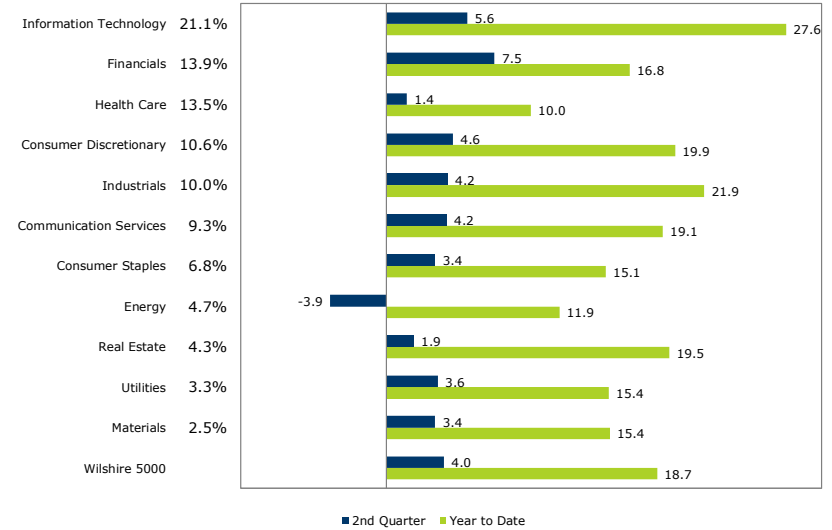
Data sources: Federal Reserve, Bloomberg Barclays



# U.S. EQUITY MARKET

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	4.0	18.7	9.1	14.0	10.3	14.7
WILSHIRE U.S. LARGE CAP	4.2	18.7	10.4	14.3	10.7	14.7
WILSHIRE U.S. SMALL CAP	2.0	17.9	-1.9	11.6	7.0	14.6
WILSHIRE U.S. LARGE GROWTH	4.7	21.1	10.0	18.1	12.4	15.7
WILSHIRE U.S. LARGE VALUE	3.8	16.7	10.7	10.7	9.0	13.6
WILSHIRE U.S. SMALL GROWTH	3.9	20.9	1.1	15.4	7.6	15.0
WILSHIRE U.S. SMALL VALUE	0.3	14.9	-4.7	7.9	6.3	14.0
WILSHIRE REIT INDEX	1.6	17.9	10.5	4.1	7.8	15.7
MSCI USA MIN. VOL. INDEX	5.5	18.6	18.0	11.8	12.3	14.6
FTSE RAFI U.S. 1000 INDEX	3.5	16.2	6.2	11.5	8.3	14.7

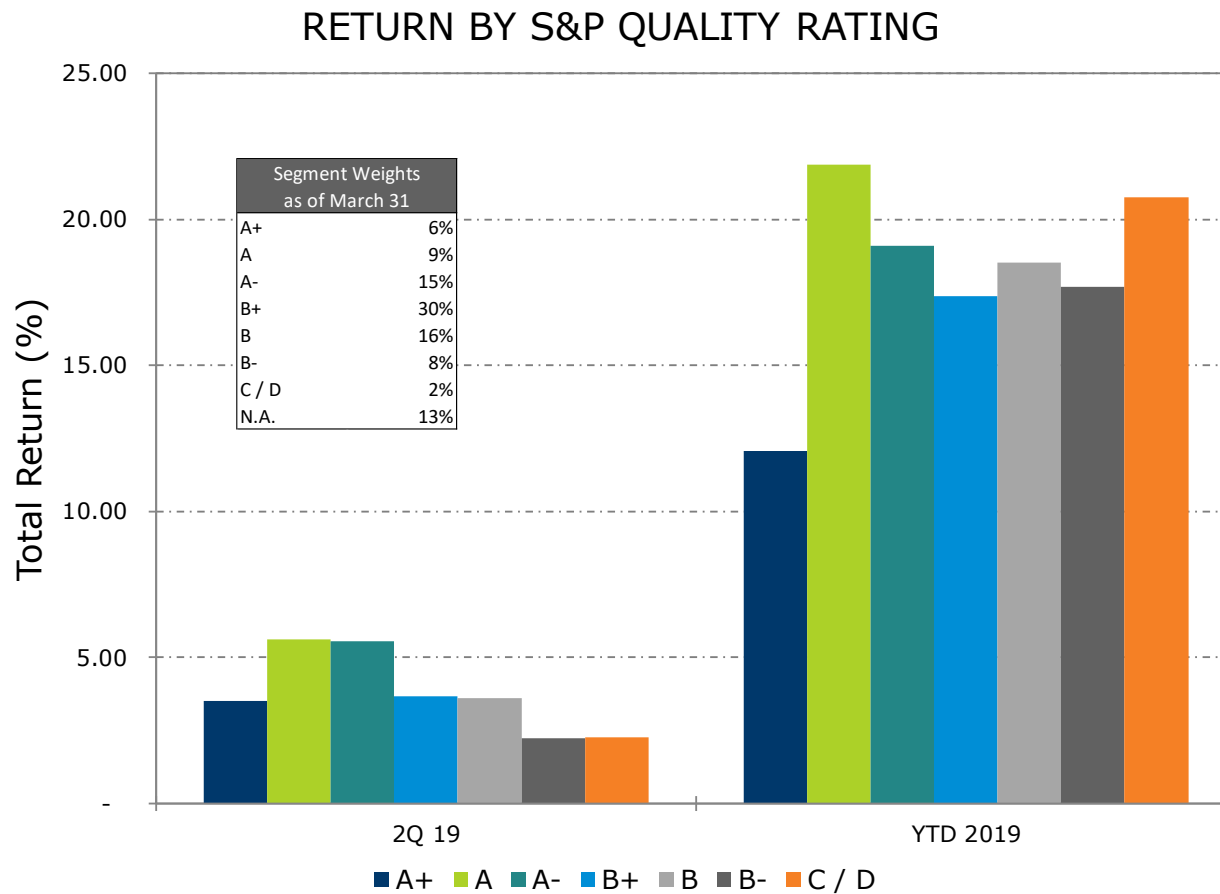
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



Data sources: Wilshire Compass, Wilshire Atlas

# RETURNS BY QUALITY SEGMENT

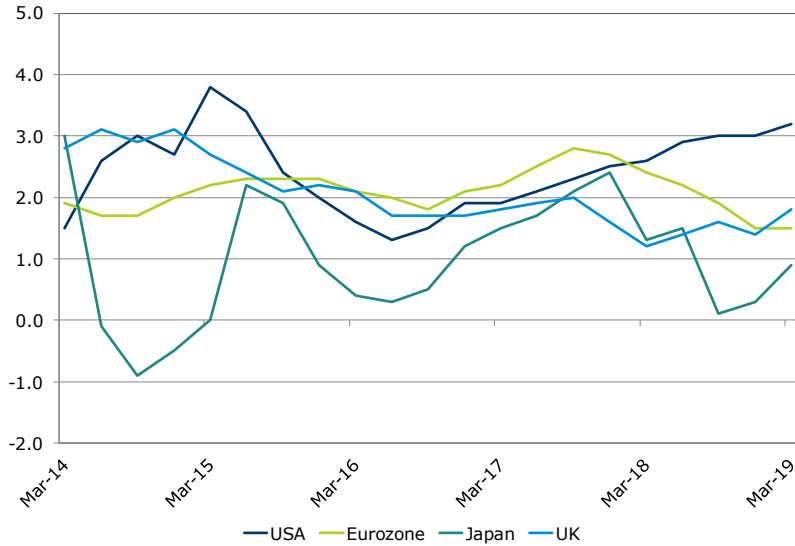
Higher quality names led the market during the second quarter



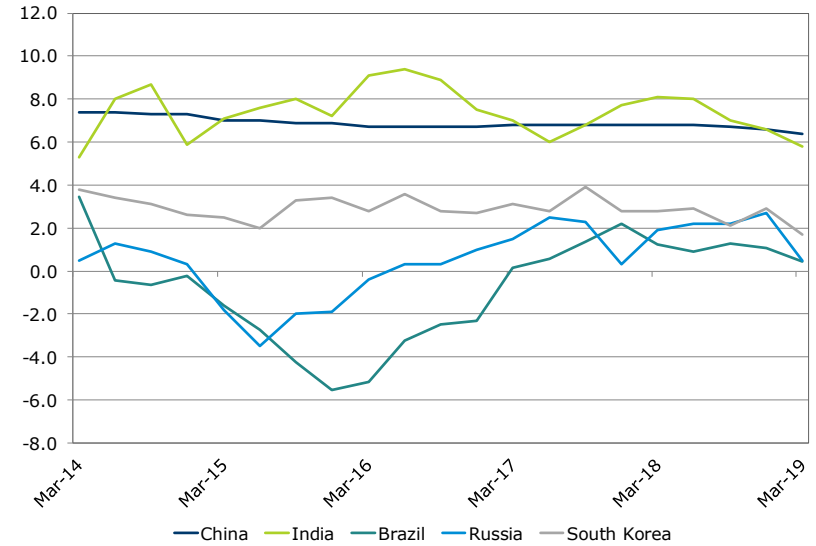
Data sources: Wilshire Atlas

# NON-U.S. GROWTH AND INFLATION

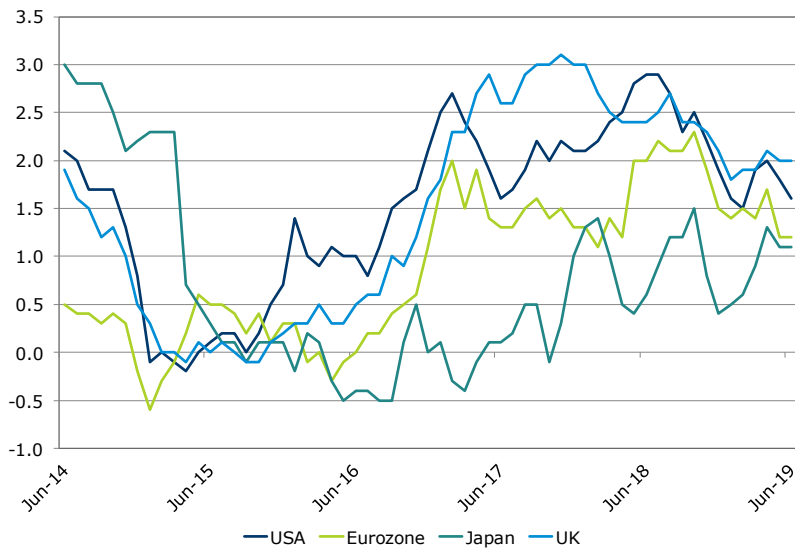
DEVELOPED MARKETS REAL GDP GROWTH YoY (%)



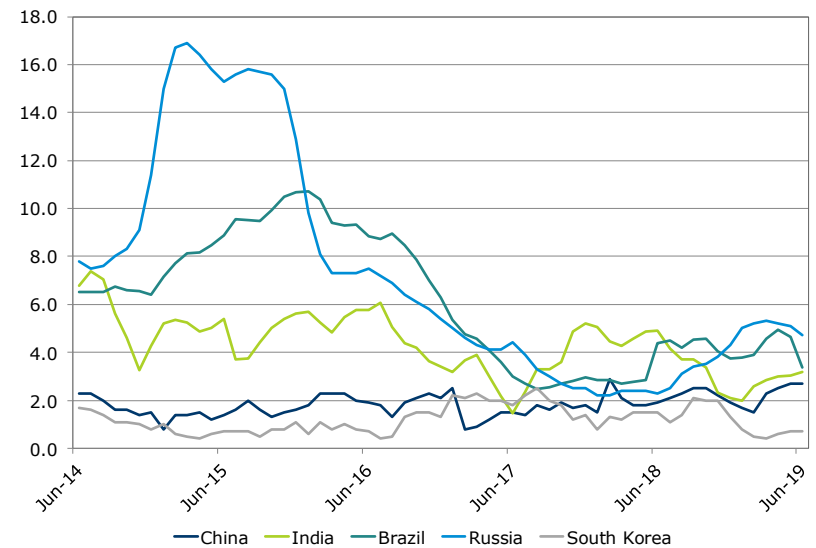
EMERGING MARKETS REAL GDP GROWTH YoY (%)



DEVELOPED MARKETS CPI GROWTH YoY (%)



EMERGING MARKETS CPI GROWTH YoY (%)

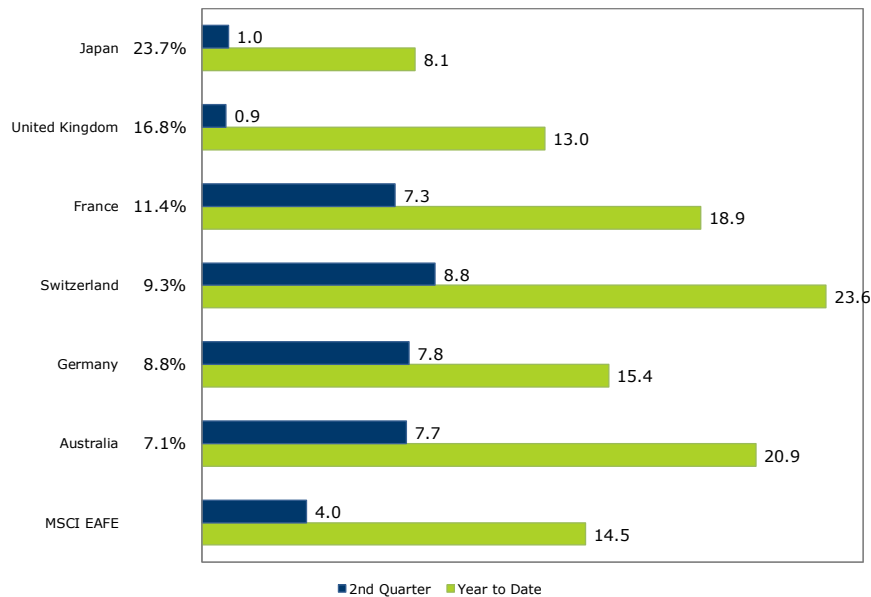


Data sources: Bloomberg

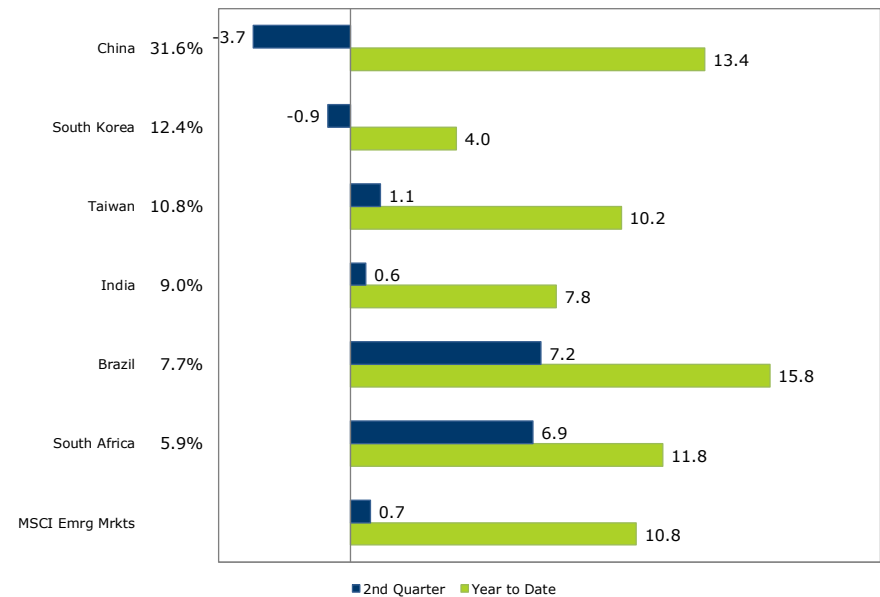
# NON-U.S. EQUITY MARKET

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US (\$G)	3.2	14.0	1.8	9.9	2.6	7.0
MSCI EAFE (\$G)	4.0	14.5	1.6	9.6	2.7	7.4
MSCI EMERGING MARKETS (\$G)	0.7	10.8	1.6	11.1	2.9	6.2
MSCI FRONTIER MARKETS (\$G)	4.9	12.1	5.2	8.7	-0.4	5.5
MSCI ACWI EX-US GROWTH (\$G)	4.6	17.5	3.0	10.2	4.4	8.0
MSCI ACWI EX-US VALUE (\$G)	1.9	10.5	0.6	9.6	0.9	6.0
MSCI ACWI EX-US SMALL (\$G)	1.4	11.9	-5.5	8.3	3.2	9.0
MSCI ACWI MINIMUM VOLATILITY	4.3	14.8	13.7	9.4	9.5	12.0
MSCI EAFE MINIMUM VOLATILITY	3.1	11.4	5.5	7.2	5.8	9.2
FTSE RAFI DEVELOPED EX-US	2.4	11.3	-1.5	10.2	1.7	6.9
MSCI EAFE LC (G)	3.1	14.2	2.7	10.3	6.4	8.8

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



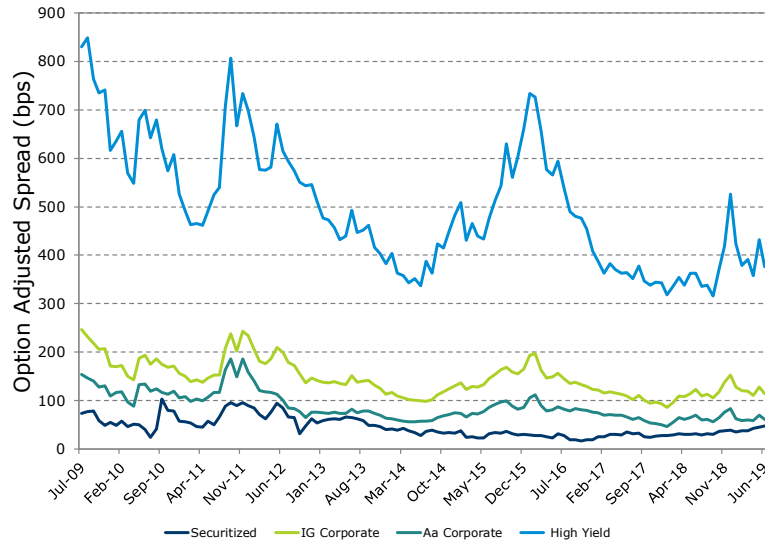
Data sources: Wilshire Compass

# U.S. FIXED INCOME

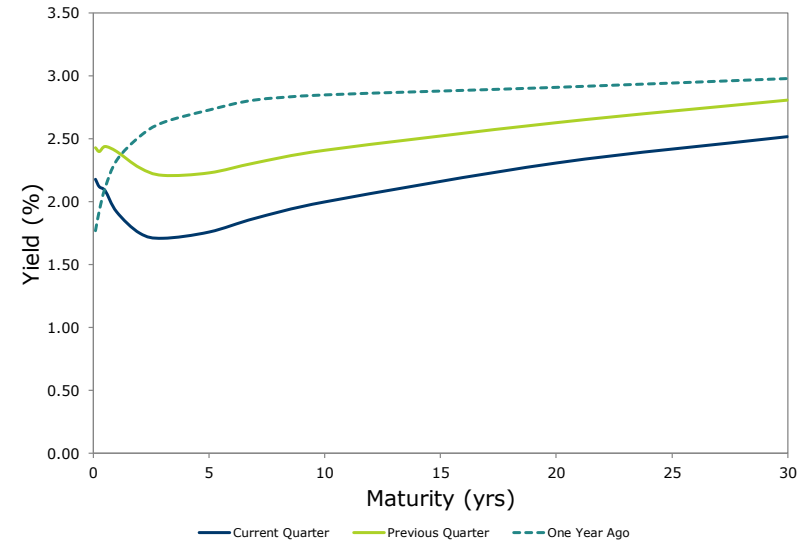
AS OF JUNE 30, 2019	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.5	5.7	3.1	6.1	7.9	2.3	3.0	3.9
BLOOMBERG BARCLAYS TREASURY	1.9	6.4	3.0	5.2	7.3	1.3	2.5	3.0
BLOOMBERG BARCLAYS GOV'T-REL.	2.6	5.6	3.0	6.2	7.9	2.5	2.9	3.5
BLOOMBERG BARCLAYS SECURITIZED	2.7	3.3	2.0	4.3	6.4	2.1	2.6	3.5
BLOOMBERG BARCLAYS CORPORATE	3.2	7.6	4.5	9.9	10.7	3.9	4.1	6.1
BLOOMBERG BARCLAYS LT G/C	3.3	15.6	6.6	13.5	13.8	3.8	5.7	7.6
BLOOMBERG BARCLAYS LT TREASURY	2.5	18.0	6.0	11.0	12.3	1.3	5.7	6.5
BLOOMBERG BARCLAYS LT GOV't-REL.	3.8	12.5	5.5	12.5	13.2	4.4	5.5	7.5
BLOOMBERG BARCLAYS LT CORP.	4.0	14.2	7.2	15.8	15.2	5.5	5.8	8.5
BLOOMBERG BARCLAYS U.S. TIPS *	1.9	7.6	2.9	6.1	4.8	2.1	1.8	3.6
BLOOMBERG BARCLAYS HIGH YIELD	6.3	3.2	2.5	9.9	7.5	7.5	4.7	9.2
TREASURY BILLS	2.1	0.25	0.6	1.2	2.3	1.4	0.9	0.5

\* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



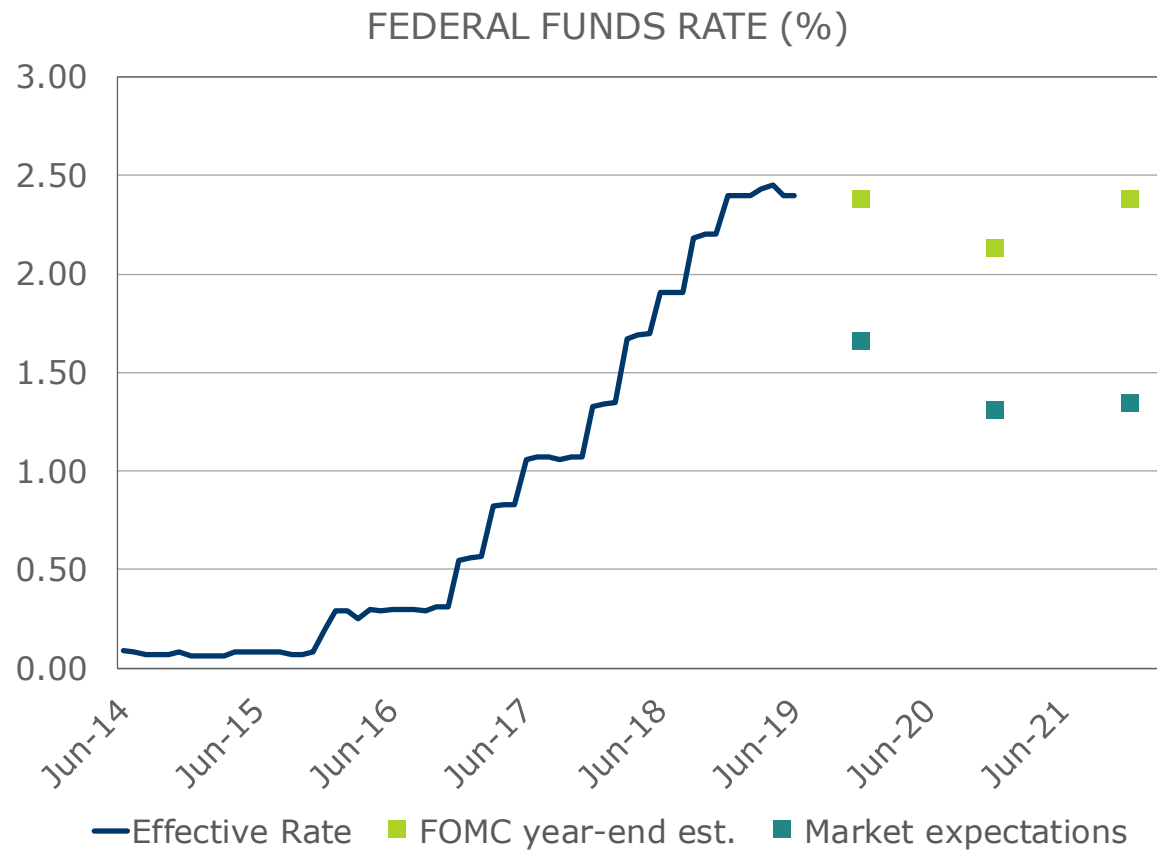
TREASURY YIELD CURVE



Data sources: Wilshire Compass, Bloomberg Barclays, U.S. Treasury

# SHORT-TERM RATES

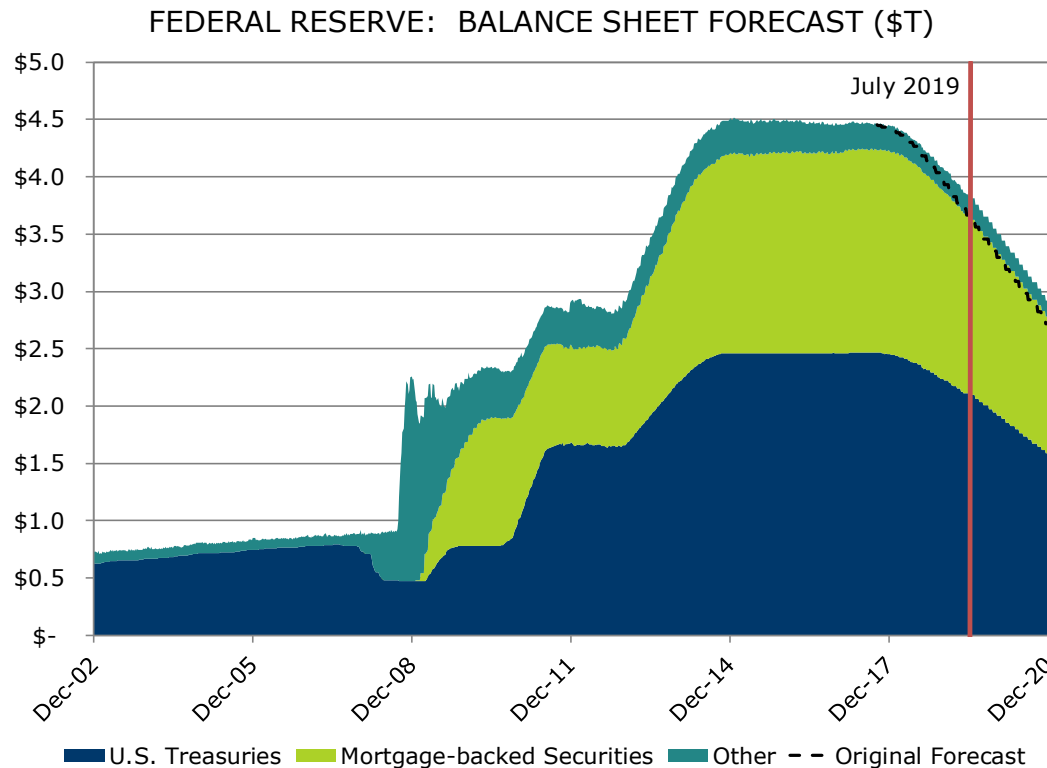
- Federal Reserve maintained their forecast for rate increases for 2019 at zero
- Markets are far more dovish, expecting rate decreases to equal ~ 0.75% in 2019



Data sources: U.S. Treasury, J.P. Morgan

# FED BALANCE SHEET

- Federal Reserve began their balance sheet normalization program during October 2017; targeting \$10B in reductions per month while increasing to \$50B per month in Q4 2018
- Fed stated in early January that future reductions will be data dependent; total reductions so far equal \$640 billion

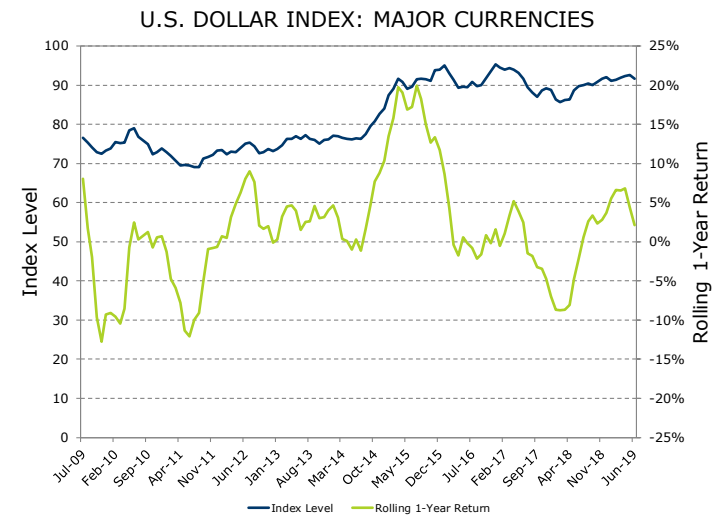
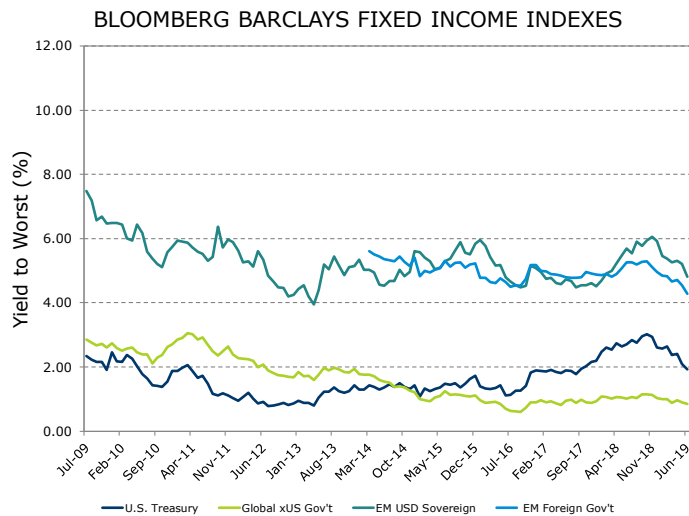


Data sources: Federal Reserve

# NON-U.S. FIXED INCOME

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
<b>DEVELOPED MARKETS</b>						
BLMBRG BRCLYS GLBL AGGREGATE xUS	3.4	5.0	4.1	1.0	-0.1	2.1
BLMBRG BRCLYS GLBL AGGREGATE xUS *	2.8	5.8	7.6	3.3	4.4	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	1.8	6.2	2.9	3.0	0.8	3.7
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	2.9	7.4	8.0	5.4	6.7	6.3
<b>EMERGING MARKETS (HARD CURRENCY)</b>						
BLMBRG BRCLYS EM USD AGGREGATE	3.8	9.4	10.9	5.0	4.6	7.7
<b>EMERGING MARKETS (FOREIGN CURRENCY)</b>						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	3.4	5.9	8.2	3.7	0.3	4.2
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	2.8	5.0	8.3	3.1	3.3	3.7
<b>EURO vs. DOLLAR</b>						
EURO vs. DOLLAR	1.4	-0.4	-2.5	0.8	-3.6	-2.1
<b>YEN vs. DOLLAR</b>						
YEN vs. DOLLAR	2.7	1.8	2.8	-1.6	-1.2	-1.1
<b>POUND vs. DOLLAR</b>						
POUND vs. DOLLAR	-2.3	-0.1	-3.6	-1.6	-5.7	-2.5

\* Returns are reported in terms of local market investors, which removes currency effects.



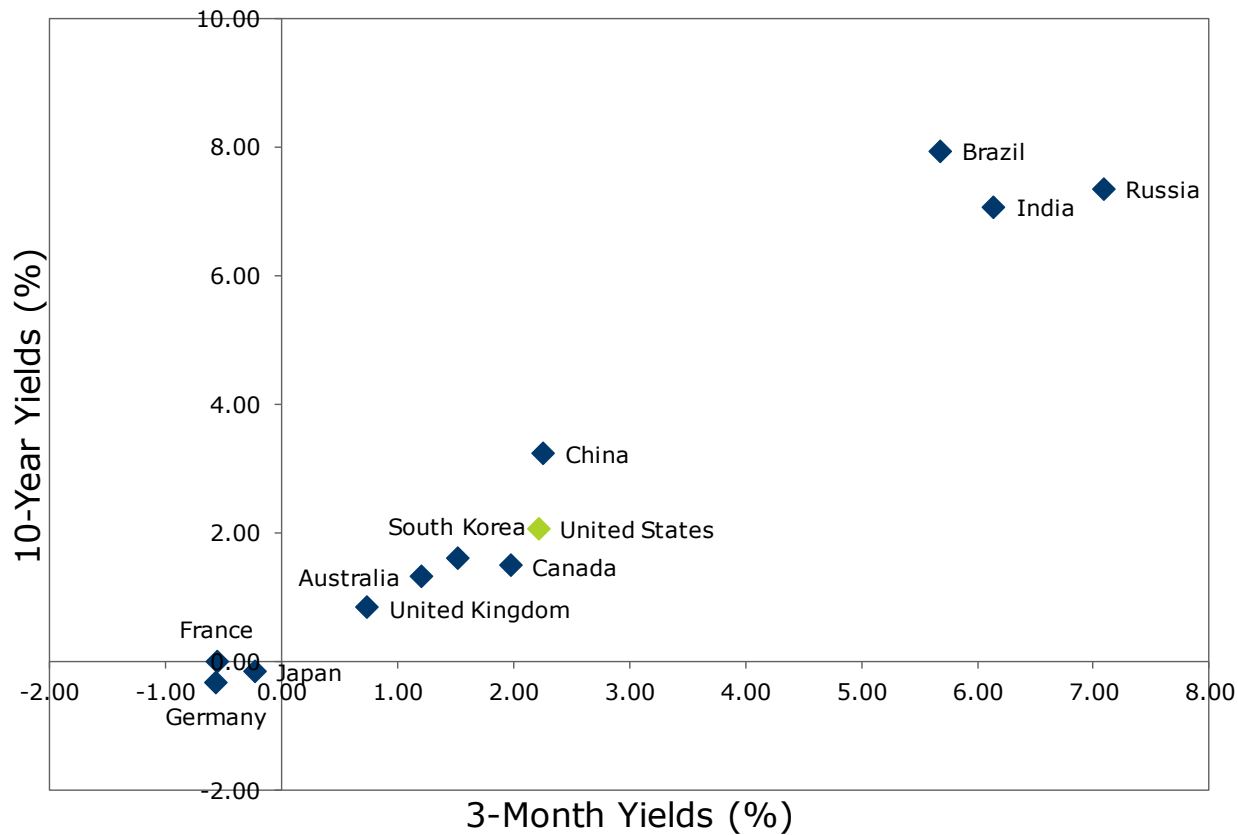
Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis



# GLOBAL INTEREST RATES

Much of Europe and Japan exhibit negative rates; Long rates are down globally during the past six months

### GOVERNMENT BOND YIELDS

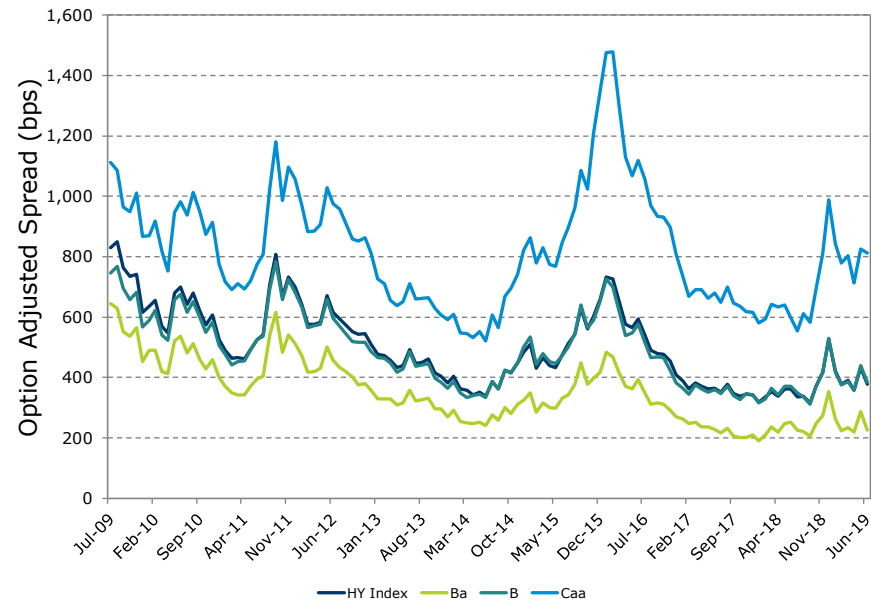


Data sources: Bloomberg

# HIGH YIELD BOND MARKET

AS OF JUNE 30, 2019		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		2.5	9.9	7.5	7.5	4.7	9.2
CREDIT SUISSE LEVERAGED LOAN		1.6	5.4	4.1	5.4	3.9	6.3
<b>HIGH YIELD QUALITY DISTRIBUTION</b>	<b>WEIGHT</b>						
Ba U.S. HIGH YIELD	47.0%	3.1	10.5	9.8	6.6	5.2	8.8
B U.S. HIGH YIELD	39.5%	2.7	10.1	7.7	7.6	4.3	8.3
Caa U.S. HIGH YIELD	12.4%	0.3	7.5	0.1	8.9	4.3	10.5
Ca to D U.S. HIGH YIELD	0.8%	-1.8	15.4	-6.3	19.4	-8.0	4.4
Non-Rated U.S. HIGH YIELD	0.2%	1.2	4.8	4.5	4.8	-1.4	6.8

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



Data sources: Wilshire Compass, Bloomberg Barclays



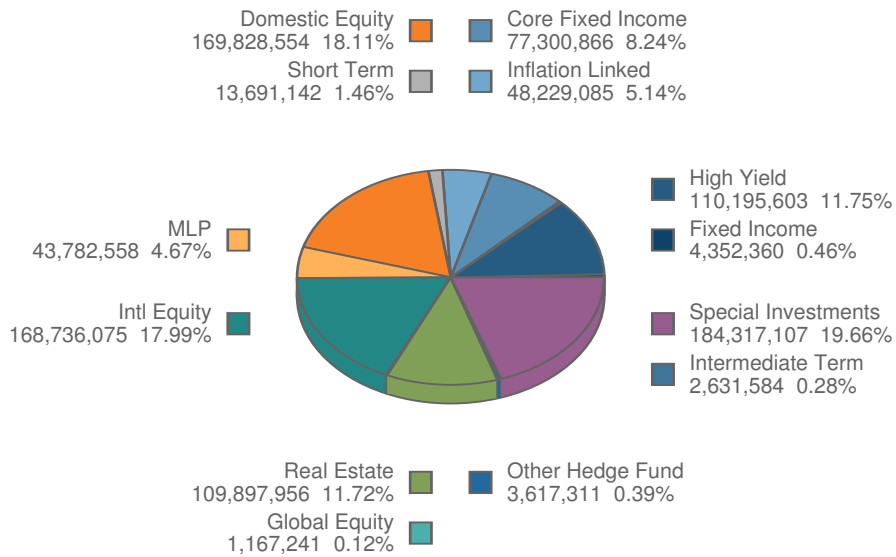
# TOTAL FUND

# ACTUAL ALLOCATION VS POLICY ALLOCATION

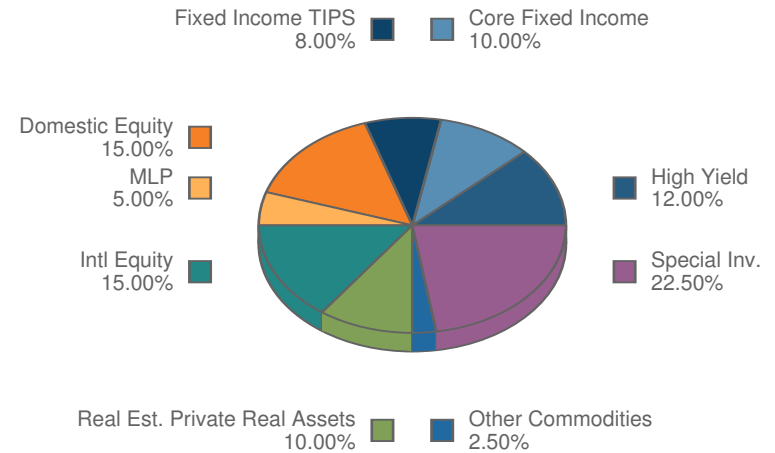
Total Fund Composite

As of June 30, 2019

## Total Fund



## Policy Index



**\$937,747,442**

# MONTHLY SUMMARY

Actual Allocation vs. Policy Allocation

As of June 30, 2019



Asset Class	Market Value (\$000)	Actual Allocation	Policy Target	Variance	Allowable Range <sup>4</sup>	Dollar Variance (\$000)
U.S. Equity	169,829	18.1%	16.5%	1.6%	13.0 - 20.0%	15,101
Non-U.S. Equity	168,736	18.0%	16.5%	1.5%	13.0 - 20.0%	14,008
Global Equity	1,167	0.1%	0.0%	0.1%		1,167
<b>Total Public Equity<sup>1</sup></b>	<b>339,732</b>	<b>36.2%</b>	<b>33.0%</b>	<b>3.2%</b>	<b>26.0 40.0%</b>	<b>30,275</b>
Private Equity Funds	154,711	16.5%	20.0%	-3.5%	15.0 - 25.0%	(32,838)
Life Settlement Investments	29,606	3.2%	0.0%	3.2%		29,606
<b>Total Private Equity</b>	<b>184,317</b>	<b>19.7%</b>	<b>20.0%</b>	<b>-0.3%</b>	<b>18.5 - 28.5%</b>	<b>(3,232)</b>
Core Fixed Income <sup>2</sup>	91,556	9.8%	12.5%	-2.7%	10.0 - 15.0%	(25,662)
High Yield	110,196	11.8%	12.0%	-0.2%	10.0 - 14.0%	(2,334)
<b>Total Fixed Income</b>	<b>201,752</b>	<b>21.5%</b>	<b>24.5%</b>	<b>-3.0%</b>	<b>20.0 - 30.0%</b>	<b>(27,996)</b>
Real Estate <sup>3</sup>	109,898	11.7%	12.5%	-0.8%	10.0 - 15.0%	(7,320)
<b>Total Private Real Assets</b>	<b>109,898</b>	<b>11.7%</b>	<b>12.5%</b>	<b>-0.8%</b>	<b>10.0 - 15.0%</b>	<b>(7,320)</b>
TIPS	48,229	5.1%	5.0%	0.1%	4.0 - 6.0%	1,342
MLP's	43,783	4.7%	5.0%	-0.3%	4.0 - 6.0%	(3,104)
<b>Total Public Real Assets</b>	<b>92,012</b>	<b>9.8%</b>	<b>10.0%</b>	<b>-0.2%</b>	<b>8.0 - 12.0%</b>	<b>(1,763)</b>
<b>Hedge Funds</b>	<b>3,617</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.4%</b>		3,617
<b>Cash</b>	<b>6,420</b>	<b>0.7%</b>	<b>0.0%</b>	<b>0.7%</b>	<b>0.0 - 2.0%</b>	<b>6,420</b>
<b>Total Assets</b>	<b>937,747</b>	<b>100.0%</b>	<b>100.0%</b>			

<sup>1</sup>Uninvested private equity capital will remain invested in public equity and will not be considered to be outside of allowable range

<sup>2</sup>Core Fixed Income includes Israel Bond investments

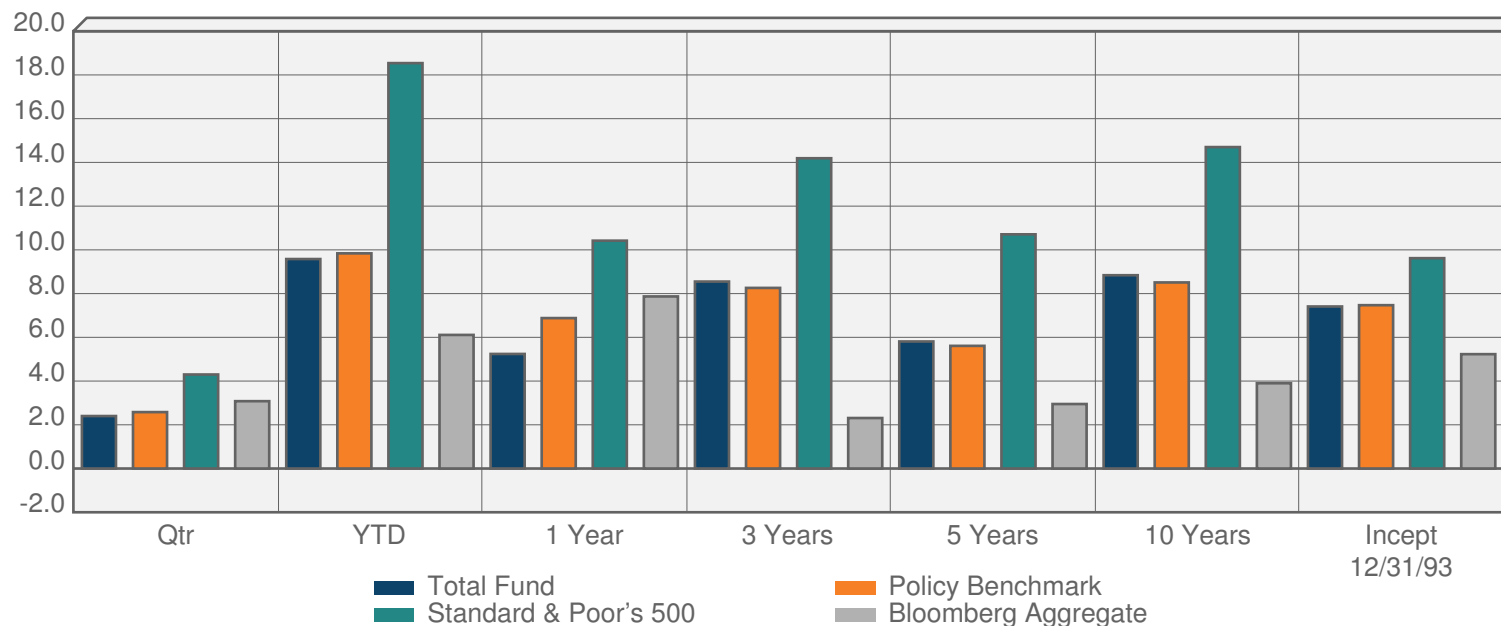
<sup>3</sup>Real Estate includes ERECT Fund investment

<sup>4</sup>These ranges are preliminary pending the ratification of the updated IPS

# INVESTMENT PERFORMANCE

Total Fund Composite

Periods Ended June 30, 2019

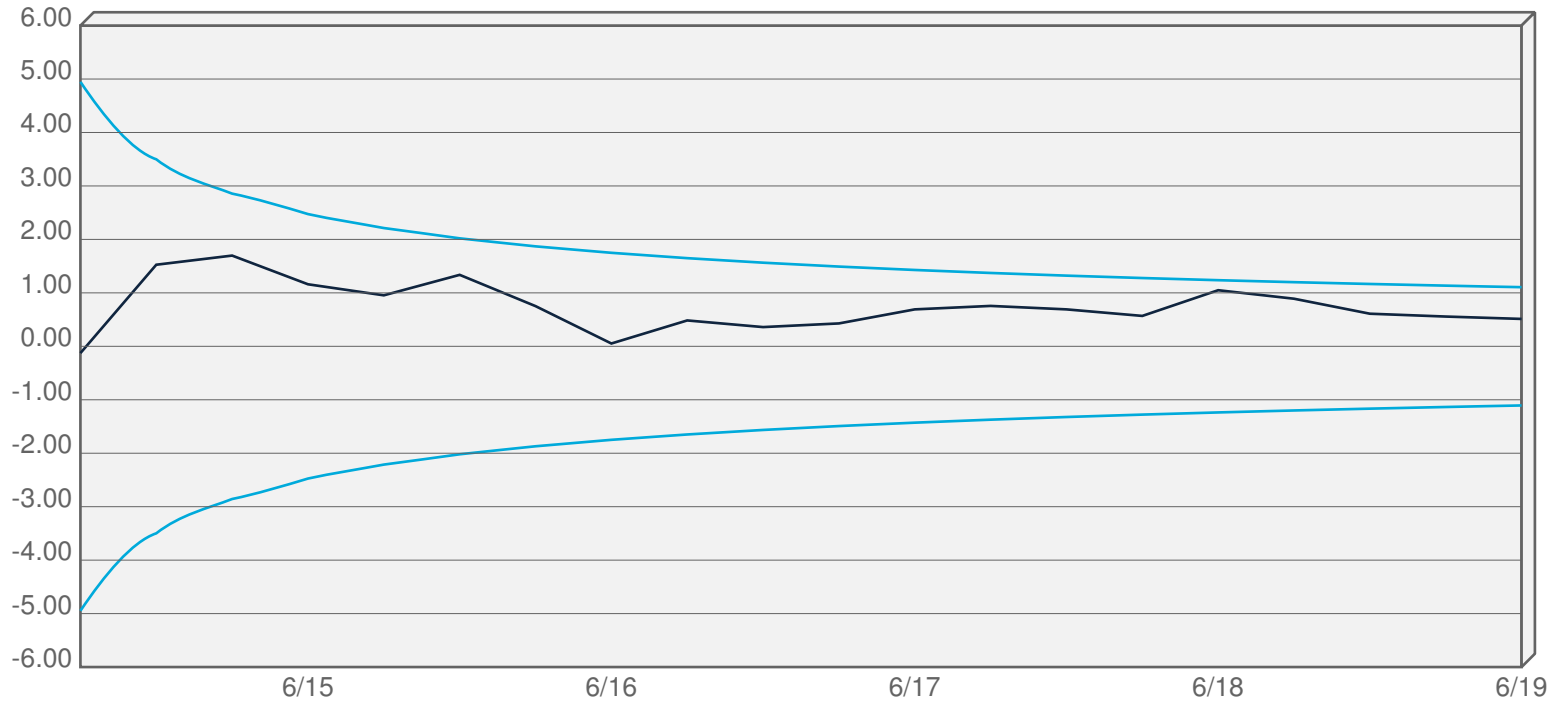


Total Returns	Qtr	YTD	1 Year	3 Years	5 Years	10 Years	Incept 12/31/93
Total Fund	2.40	9.58	5.24	8.55	5.81	8.84	7.41
Policy Benchmark	2.58	9.84	6.88	8.26	5.61	8.51	7.47
Standard & Poor's 500	4.30	18.54	10.42	14.19	10.71	14.70	9.62
Bloomberg Aggregate	3.08	6.11	7.87	2.31	2.95	3.90	5.23

# CUMULATIVE SKILL ANALYSIS

Total Fund Composite

Five Years Ending June 30, 2019



— Quarterly NOF Value Added vs. Policy Benchmark

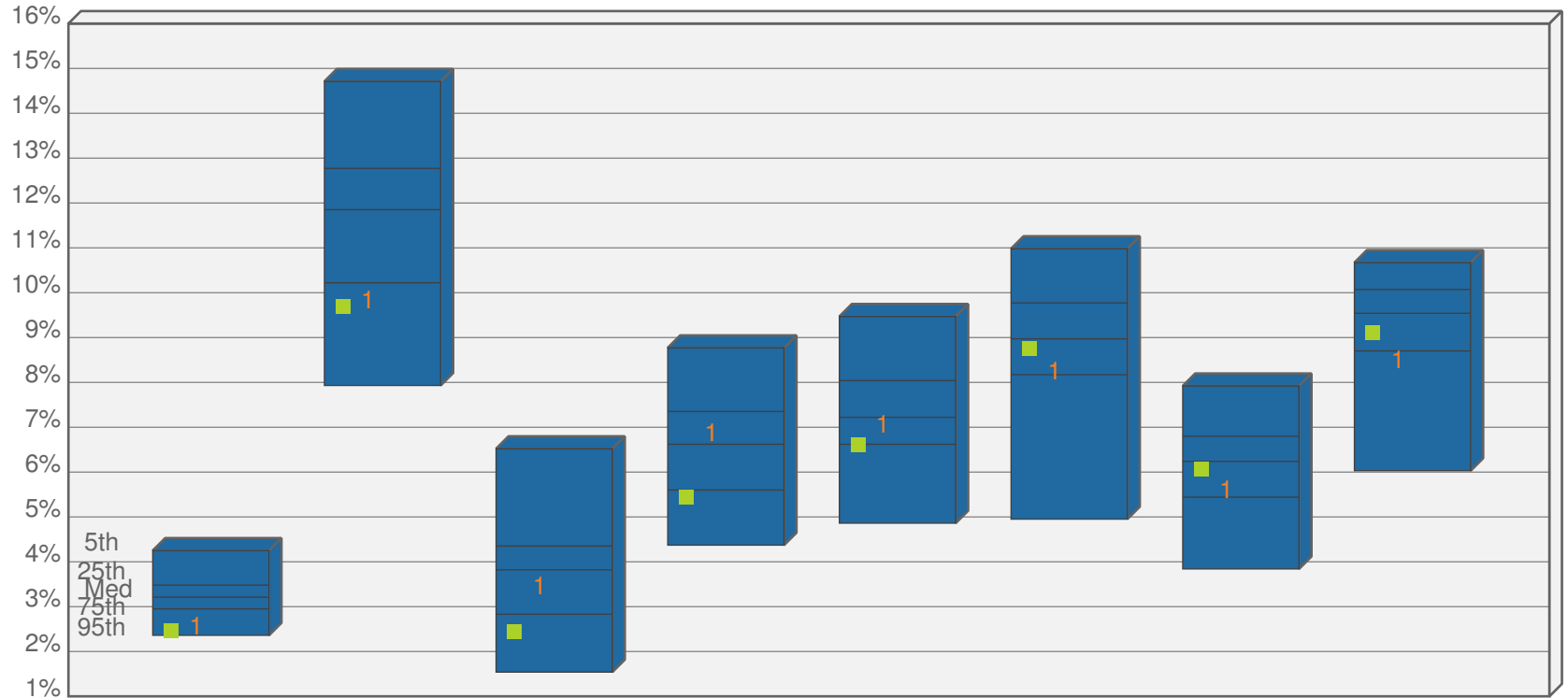
— 80% Confidence Band

Excess Return:	0.51	Information Ratio:	0.34
Excess Risk:	1.50	T-Stat:	0.76

# PERFORMANCE COMPARISON

Total Fund Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Total Fund	2.48 (92)	9.72 (79)	2.46 (79)	5.47 (79)	6.64 (74)	8.79 (56)	6.09 (54)	9.13 (67)
1 Policy Benchmark	2.58 (90)	9.84 (79)	3.46 (62)	6.88 (42)	7.07 (58)	8.26 (71)	5.61 (70)	8.51 (77)
5th %tile	4.25	14.71	6.52	8.77	9.47	10.98	7.92	10.67
25th %tile	3.48	12.77	4.35	7.35	8.04	9.77	6.80	10.07
Median	3.21	11.85	3.82	6.62	7.22	8.97	6.24	9.54
75th %tile	2.95	10.22	2.83	5.60	6.62	8.17	5.44	8.70
95th %tile	2.36	7.93	1.54	4.37	4.86	4.95	3.84	6.03
Number of Funds	148	147	146	146	141	140	132	123

\*TUCS Total Ret of Master Trusts - Public Universe - Gross of Fees



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>4.32</b>	<b>19.05</b>	<b>0.81</b>	<b>7.43</b>	<b>14.03</b>	<b>9.88</b>	<b>14.18</b>	<b>12/31/93</b>	<b>8.89</b>
Wilshire 5000	3.99	18.66	1.70	9.09	14.03	10.33	14.66	12/31/93	9.58
Value Added	0.34	0.39	-0.89	-1.66	0.00	-0.45	-0.48	12/31/93	-0.69
<b>Non US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>3.45</b>	<b>15.49</b>	<b>-0.97</b>	<b>-0.79</b>	<b>9.94</b>	<b>3.73</b>	<b>7.27</b>	<b>12/31/00</b>	<b>4.92</b>
Policy Index	2.74	13.33	-0.13	0.26	9.16	2.29	6.61	12/31/00	3.95
Value Added	0.71	2.16	-0.85	-1.05	0.78	1.44	0.66	12/31/00	0.97
<b>Global Equity</b>									
<b>Net of Fee Return</b>	<b>1.40</b>	<b>12.64</b>	<b>1.77</b>	<b>3.40</b>	<b>8.05</b>			<b>12/31/14</b>	<b>4.80</b>
MSCI ACWI (N)	3.61	16.23	1.41	5.74	11.62			12/31/14	7.33
Value Added	-2.21	-3.59	0.36	-2.34	-3.57			12/31/14	-2.53
<b>Core Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>3.00</b>	<b>6.28</b>	<b>7.04</b>	<b>7.28</b>	<b>2.47</b>	<b>2.79</b>	<b>3.99</b>	<b>9/30/82</b>	<b>7.68</b>
Bloomberg Aggregate	3.08	6.11	7.85	7.87	2.31	2.95	3.90	9/30/82	7.28
Value Added	-0.08	0.16	-0.81	-0.59	0.15	-0.16	0.09	9/30/82	0.40
<b>High Yield Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>1.18</b>	<b>8.51</b>	<b>3.04</b>	<b>5.31</b>	<b>6.30</b>	<b>2.67</b>	<b>7.94</b>	<b>3/31/08</b>	<b>6.97</b>
Citi High Yield Market Capped	2.34	9.88	4.67	7.10	7.27	4.30	8.81	3/31/08	7.54
Value Added	-1.15	-1.37	-1.63	-1.80	-0.97	-1.63	-0.88	3/31/08	-0.57
<b>TIPS Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>2.86</b>	<b>6.15</b>	<b>5.70</b>	<b>4.83</b>	<b>2.75</b>	<b>1.66</b>	<b>3.80</b>	<b>3/31/08</b>	<b>3.15</b>
Bloomberg U.S. TIPS	2.86	6.15	5.70	4.84	2.08	1.76	3.64	3/31/08	3.10
Value Added	0.00	0.00	0.00	-0.00	0.66	-0.09	0.16	3/31/08	0.05

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>ERECT Composite</b>									
<b>Net of Fee Return</b>	<b>-0.24</b>	<b>3.81</b>	<b>14.11</b>	<b>15.79</b>	<b>7.68</b>	<b>7.89</b>		<b>9/30/10</b>	<b>7.45</b>
<b>Real Estate Composite</b>									
<b>Net of Fee Return</b>	<b>1.49</b>	<b>2.44</b>	<b>4.55</b>	<b>7.29</b>	<b>9.64</b>	<b>10.31</b>	<b>10.15</b>	<b>3/31/03</b>	<b>8.92</b>
NCREIF ODCE NOF	0.77	1.98	3.53	5.47	6.61	8.76	8.87	3/31/03	7.21
Value Added	0.72	0.46	1.03	1.82	3.04	1.54	1.28	3/31/03	1.71
<b>Hedge Fund Composite</b>									
<b>Net of Fee Return</b>	<b>2.13</b>	<b>2.57</b>	<b>-2.77</b>	<b>-2.21</b>	<b>-0.48</b>	<b>-1.87</b>		<b>9/30/11</b>	<b>0.44</b>
91 Day T-Bill Index + 3%	1.38	2.73	4.06	5.32	4.38	3.87		9/30/11	3.59
Value Added	0.75	-0.16	-6.83	-7.52	-4.86	-5.74		9/30/11	-3.15
<b>MLP Composite</b>									
<b>Net of Fee Return</b>	<b>-0.47</b>	<b>19.96</b>	<b>-3.51</b>	<b>1.37</b>				<b>3/31/18</b>	<b>11.84</b>
Alerian MLP Index	0.12	16.96	-3.27	3.09				3/31/18	12.03
Value Added	-0.59	3.00	-0.24	-1.72				3/31/18	-0.18
<b>Life Settlement Composite</b>									
<b>Net of Fee Return</b>	<b>0.02</b>	<b>0.21</b>	<b>-1.19</b>	<b>-0.64</b>	<b>-4.16</b>	<b>-5.52</b>		<b>9/30/09</b>	<b>8.19</b>
<b>Israel Bonds and Cash</b>									
<b>Net of Fee Return</b>	<b>0.89</b>	<b>1.44</b>	<b>2.44</b>	<b>3.27</b>	<b>1.61</b>	<b>1.41</b>	<b>2.13</b>	<b>3/31/99</b>	<b>2.90</b>
<b>Private Equity Composite</b>									
<b>Net of Fee Return</b>	<b>1.70</b>	<b>2.64</b>	<b>4.39</b>	<b>9.80</b>	<b>10.23</b>	<b>10.84</b>	<b>11.15</b>	<b>3/31/03</b>	<b>6.58</b>
RBAC Custom Private Equity Bench	1.70	2.64	4.39	9.80	10.23	10.84	11.15	3/31/03	6.58
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3/31/03	0.00

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Total Fund</b>									
<b>Net of Fee Return</b>	<b>2.40</b>	<b>9.58</b>	<b>2.29</b>	<b>5.24</b>	<b>8.55</b>	<b>5.81</b>	<b>8.84</b>	<b>12/31/93</b>	<b>7.41</b>
Policy Benchmark	2.58	9.84	3.46	6.88	8.26	5.61	8.51	12/31/93	7.47
Value Added	-0.18	-0.25	-1.18	-1.64	0.28	0.20	0.33	12/31/93	-0.06

# CUSTOM BENCHMARK SPECIFICATION

Total Fund

June 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Benchmark	12/93	12/06	65.00	Russell 3000
			35.00	Bloomberg Aggregate
	3/07	6/08	5.00	RBAC Custom Private Equity Benchmark
			45.00	Wilshire 5000
			25.00	Bloomberg Aggregate
			10.00	MSCI EAFE Index (N)
			5.00	Bloomberg Commodity Index
			5.00	91-Day T-Bill + 3.0% Ann (Monthly)
			5.00	NCREIF ODCE NOF
	9/08	9/08	5.00	RBAC Custom Private Equity Benchmark
			5.00	NCREIF ODCE NOF
			5.00	91-Day T-Bill + 3.0% Ann (Monthly)
			5.00	Bloomberg Commodity Index
			10.00	MSCI ACWI ex US (N)
25.00			Bloomberg Aggregate	
12/08	6/09	45.00	Wilshire 5000	
		5.00	RBAC Custom Private Equity Benchmark	
		2.50	91-Day T-Bill + 3.0% Ann (Monthly)	
		5.00	FTSE High Yield Market Capped	
		5.00	Bloomberg U.S. TIPS	
		5.00	Bloomberg Commodity Index	
		7.50	NCREIF ODCE NOF	
		15.00	MSCI ACWI ex US (N)	
9/09	3/10	20.00	Bloomberg Aggregate	
		35.00	Wilshire 5000	
		5.00	RBAC Custom Private Equity Benchmark	
		30.00	Wilshire 5000	
		20.00	MSCI ACWI ex US (N)	
		15.00	Bloomberg Aggregate	

# CUSTOM BENCHMARK SPECIFICATION

Total Fund

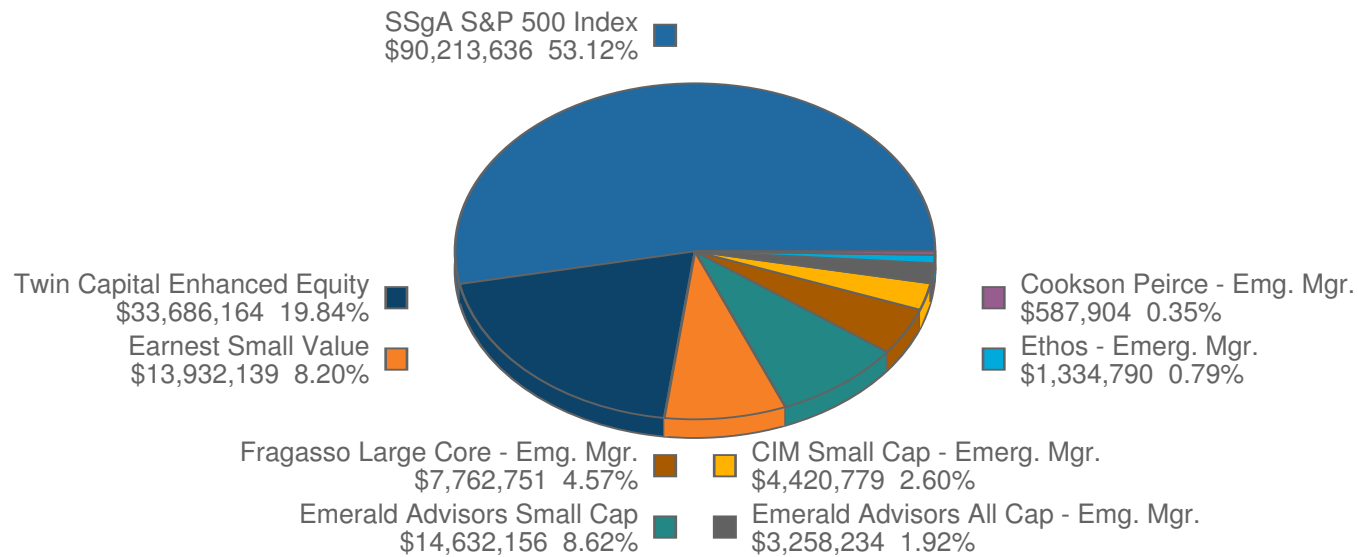
June 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Benchmark (cont.)			10.00	FTSE High Yield Market Capped
			10.00	NCREIF ODCE NOF
			7.50	Bloomberg U.S. TIPS
			2.50	Bloomberg Commodity Index
	6/10	12/12	10.00	RBAC Custom Private Equity Benchmark
			5.00	Bloomberg Commodity Index
			6.00	Bloomberg U.S. TIPS
			10.00	NCREIF ODCE NOF
			10.00	FTSE High Yield Market Capped
			14.00	Bloomberg Aggregate
			20.00	Wilshire 5000
			25.00	MSCI ACWI ex US (N)
	3/13	12/17	5.00	Bloomberg U.S. TIPS
			8.00	Bloomberg Commodity Index
			10.00	NCREIF ODCE NOF
			10.00	Bloomberg Aggregate
			12.00	FTSE High Yield Market Capped
		16.10	Wilshire 5000	
		18.90	MSCI ACWI ex US (N)	
		20.00	RBAC Custom Private Equity Benchmark	
3/18	3/18	100.00	RBAC Custom Transition Benchmark	
6/18	6/19	10.00	NCREIF ODCE NOF	
		5.00	Alerian MLP Index	
		12.00	FTSE High Yield Market Capped	
		10.00	Bloomberg Aggregate	
		20.00	RBAC Custom Private Equity Benchmark	
		19.00	MSCI ACWI ex US (N)	
		19.00	Wilshire 5000	
		5.00	Bloomberg U.S. TIPS	



# US EQUITY

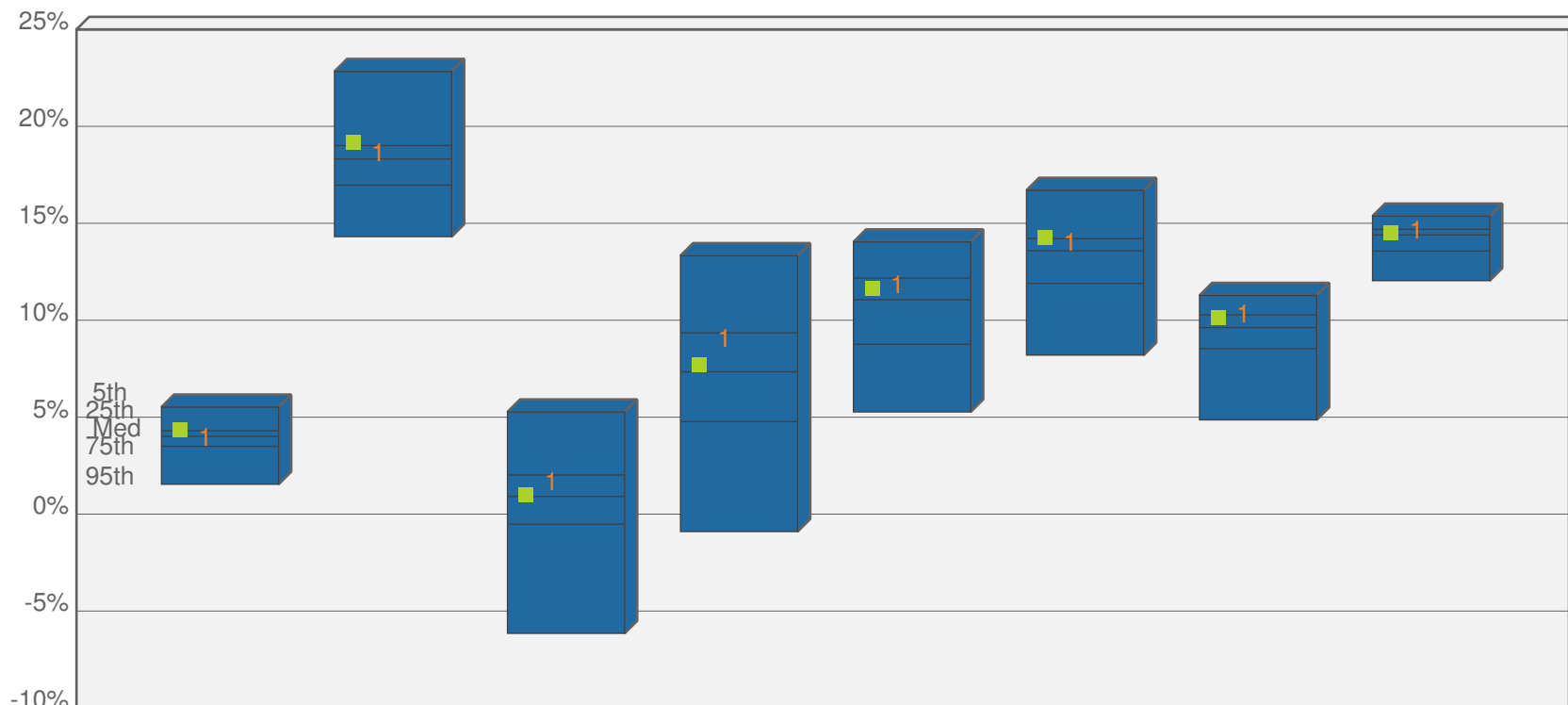
Wilshire Consulting  
**MANAGER ALLOCATION**  
 US Equity Composite  
*As of June 30, 2019*



# PERFORMANCE COMPARISON

## US Equity Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ US Equity Composite	4.41 (17)	19.24 (19)	1.04 (46)	7.77 (44)	11.71 (34)	14.35 (20)	10.21 (28)	14.57 (33)
┆ Wilshire 5000	3.99 (52)	18.66 (37)	1.70 (33)	9.09 (25)	11.84 (32)	14.03 (37)	10.33 (22)	14.66 (27)
5th %tile	5.52	22.83	5.27	13.33	14.04	16.70	11.28	15.37
25th %tile	4.30	19.01	2.02	9.35	12.17	14.21	10.28	14.69
Median	4.01	18.32	0.91	7.34	11.06	13.58	9.62	14.40
75th %tile	3.50	16.97	-0.52	4.77	8.76	11.90	8.54	13.57
95th %tile	1.54	14.31	-6.15	-0.90	5.27	8.20	4.86	12.04
Number of Funds	128	128	128	127	113	104	94	73

\*TUCS Total Ret of US Equity Investment Pools Universe - Gross of Fees



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>SSgA S&amp;P 500 Index</b>									
<b>Net of Fee Return</b>	<b>4.31</b>	<b>18.54</b>	<b>2.52</b>	<b>10.42</b>	<b>14.21</b>	<b>10.74</b>	<b>14.72</b>	<b>12/31/07</b>	<b>8.56</b>
Standard & Poor's 500	4.30	18.54	2.51	10.42	14.19	10.71	14.70	12/31/07	8.52
Value Added	0.01	0.00	0.01	0.00	0.02	0.02	0.03	12/31/07	0.04
<b>Twin Capital Enhanced Equity</b>									
<b>Net of Fee Return</b>	<b>3.98</b>	<b>17.23</b>	<b>1.09</b>	<b>7.77</b>	<b>12.93</b>	<b>9.93</b>	<b>14.31</b>	<b>12/31/05</b>	<b>8.67</b>
Standard & Poor's 500	4.30	18.54	2.51	10.42	14.19	10.71	14.70	12/31/05	8.82
Value Added	-0.32	-1.31	-1.42	-2.65	-1.26	-0.78	-0.39	12/31/05	-0.15
<b>Earnest Small Value</b>									
<b>Net of Fee Return</b>	<b>5.72</b>	<b>18.95</b>	<b>-3.46</b>	<b>-1.08</b>	<b>12.64</b>	<b>8.59</b>	<b>13.87</b>	<b>6/30/09</b>	<b>13.87</b>
Russell 2000 Value	1.38	13.47	-7.72	-6.24	9.81	5.39	12.40	6/30/09	12.40
Value Added	4.35	5.48	4.26	5.15	2.83	3.21	1.47	6/30/09	1.47
<b>Emerald Advisors Small Cap</b>									
<b>Net of Fee Return</b>	<b>3.70</b>	<b>25.15</b>	<b>-3.11</b>	<b>3.03</b>	<b>17.32</b>	<b>11.24</b>	<b>17.05</b>	<b>9/30/04</b>	<b>10.93</b>
Russell 2000 Growth	2.75	20.36	-5.70	-0.49	14.69	8.63	14.40	9/30/04	9.52
Value Added	0.95	4.78	2.58	3.52	2.63	2.61	2.65	9/30/04	1.42
<b>Fragasso Large Core - Emg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>6.44</b>	<b>19.88</b>	<b>6.38</b>	<b>15.45</b>	<b>14.51</b>	<b>9.89</b>		<b>9/30/12</b>	<b>12.76</b>
Standard & Poor's 500	4.30	18.54	2.51	10.42	14.19	10.71		9/30/12	13.50
Value Added	2.14	1.34	3.86	5.03	0.32	-0.83		9/30/12	-0.74
<b>Ethos - Emerg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>5.42</b>	<b>22.17</b>	<b>4.75</b>	<b>11.06</b>				<b>9/30/16</b>	<b>15.47</b>
Standard & Poor's 500	4.30	18.54	2.51	10.42				9/30/16	14.00
Value Added	1.11	3.63	2.24	0.65				9/30/16	1.47

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

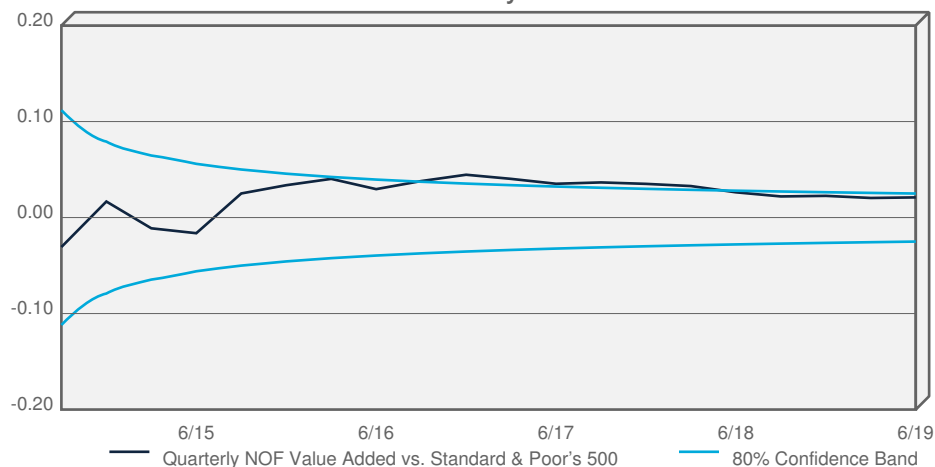
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Ethos - Emerg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>5.42</b>	<b>22.17</b>	<b>4.75</b>	<b>11.06</b>				<b>9/30/16</b>	<b>15.47</b>
Standard & Poor's 500	4.30	18.54	2.51	10.42				9/30/16	14.00
Value Added	1.11	3.63	2.24	0.65				9/30/16	1.47
<b>CIM Small Cap - Emerg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>3.05</b>	<b>17.83</b>	<b>-9.17</b>	<b>-6.94</b>	<b>10.16</b>	<b>4.72</b>		<b>12/31/13</b>	<b>5.29</b>
Russell 2000	2.10	16.98	-6.65	-3.31	12.30	7.06		12/31/13	7.01
Value Added	0.96	0.84	-2.53	-3.63	-2.14	-2.34		12/31/13	-1.72
<b>Emerald Advisors All Cap - Emg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>4.37</b>	<b>25.14</b>	<b>-2.46</b>	<b>5.53</b>	<b>20.06</b>			<b>9/30/15</b>	<b>13.42</b>
Russell 3000 Growth	4.50	21.41	1.58	10.60	17.81			9/30/15	16.47
Value Added	-0.13	3.73	-4.04	-5.07	2.25			9/30/15	-3.04
<b>Cookson Peirce - Emg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>2.20</b>	<b>16.89</b>						<b>12/31/18</b>	<b>16.89</b>
Russell 3000	4.10	18.71						12/31/18	18.71
Value Added	-1.90	-1.82						12/31/18	-1.82
<b>US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>4.32</b>	<b>19.05</b>	<b>0.81</b>	<b>7.43</b>	<b>14.03</b>	<b>9.88</b>	<b>14.18</b>	<b>12/31/93</b>	<b>8.89</b>
Wilshire 5000	3.99	18.66	1.70	9.09	14.03	10.33	14.66	12/31/93	9.58
Value Added	0.34	0.39	-0.89	-1.66	0.00	-0.45	-0.48	12/31/93	-0.69

# INVESTMENT MANAGER ANALYSIS

SSgA S&P 500 Index

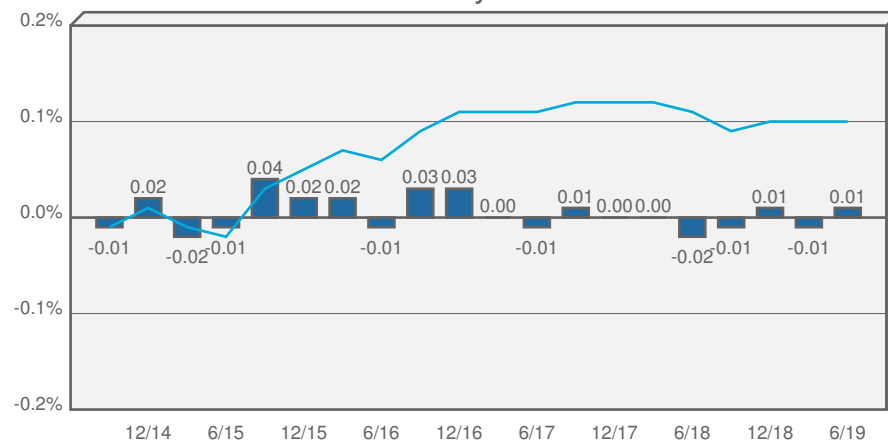
June 30, 2019

Cumulative Skill Analysis vs Benchmark



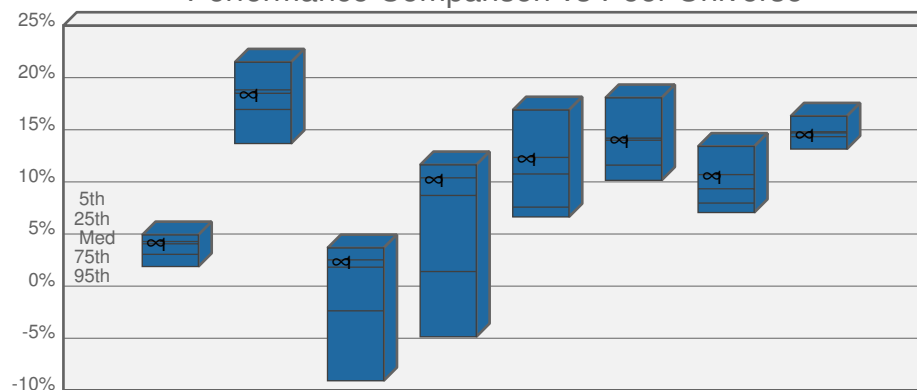
Excess Return:	0.02	Information Ratio:	0.62
Excess Risk:	0.03	T-Stat:	1.38

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Standard & Poor's 500  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ SSgA S&P 500 I	4.32 (13)	18.55 (46)	2.54 (22)	10.44 (15)	12.40 (16)	14.22 (21)	10.76 (17)	14.74 (35)
1 Standard & Poo	4.30 (22)	18.54 (48)	2.51 (29)	10.42 (19)	12.38 (22)	14.19 (29)	10.71 (22)	14.70 (50)
Median	4.06	18.50	1.82	8.70	10.76	14.00	9.34	14.70
Number of Funds	136	136	136	136	136	133	123	106

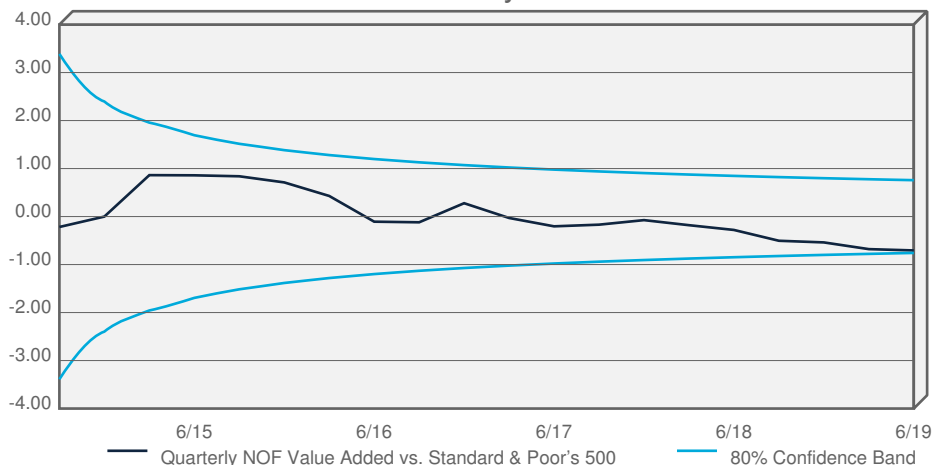
\*Compass Total Returns of Passive U.S. Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

## Twin Capital Enhanced Equity

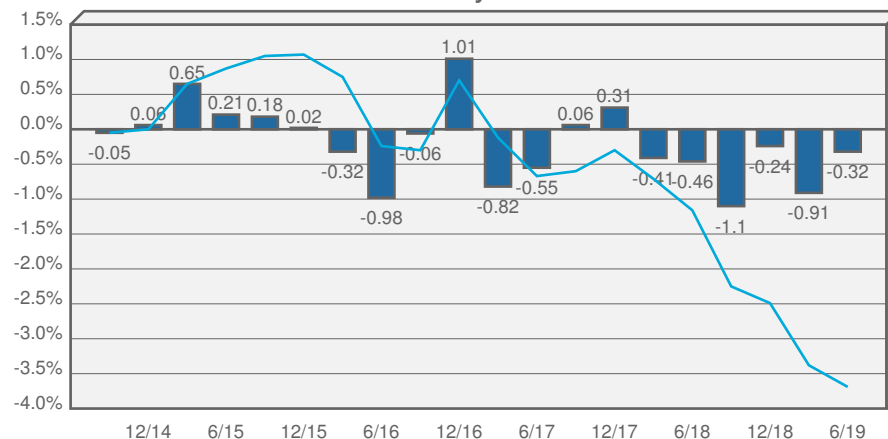
June 30, 2019

Cumulative Skill Analysis vs Benchmark



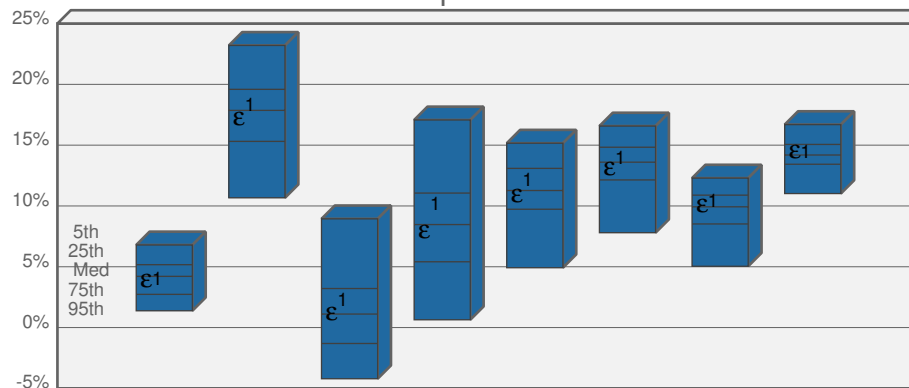
Excess Return:	-0.71	Information Ratio:	-0.69
Excess Risk:	1.03	T-Stat:	-1.53

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Standard & Poor's 500  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
€ Twin Capital E	4.07 (52)	17.43 (53)	1.36 (48)	8.14 (54)	11.12 (53)	13.31 (55)	10.29 (39)	14.69 (35)
1 Standard & Poo	4.30 (49)	18.54 (41)	2.51 (32)	10.42 (32)	12.38 (35)	14.19 (34)	10.71 (28)	14.70 (35)
Median	4.21	17.86	1.11	8.47	11.27	13.60	9.93	14.19
Number of Funds	148	148	148	148	147	146	140	120

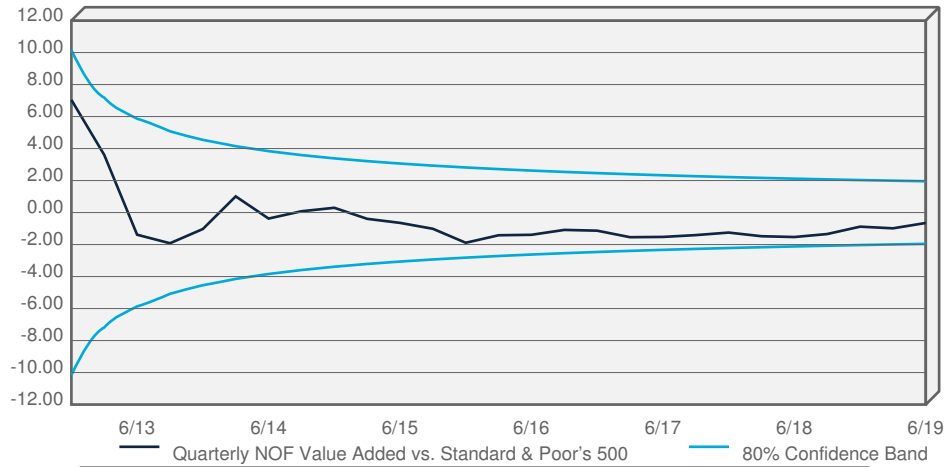
\*Compass Total Returns of Active Large Core Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Fragasso Large Core - Emg. Mgr.

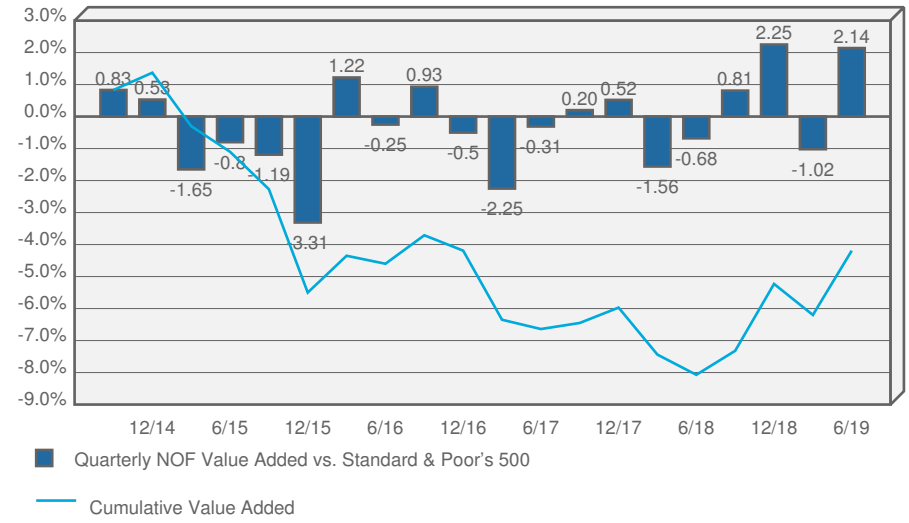
June 30, 2019

Cumulative Skill Analysis vs Benchmark

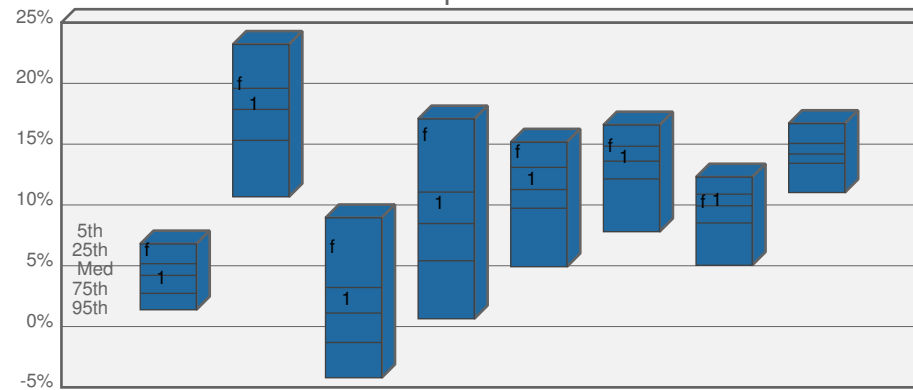


Excess Return:	-0.65	Information Ratio:	-0.21
Excess Risk:	3.09	T-Stat:	-0.52

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
f Fragasso Large	6.58 ( 6)	20.20 (18)	6.81 (10)	16.06 ( 7)	14.63 ( 9)	15.13 (22)	10.51 (34)	
1 Standard & Poo	4.30 (49)	18.54 (41)	2.51 (32)	10.42 (32)	12.38 (35)	14.19 (34)	10.71 (28)	
Median	4.21	17.86	1.11	8.47	11.27	13.60	9.93	14.19
Number of Funds	148	148	148	148	147	146	140	120

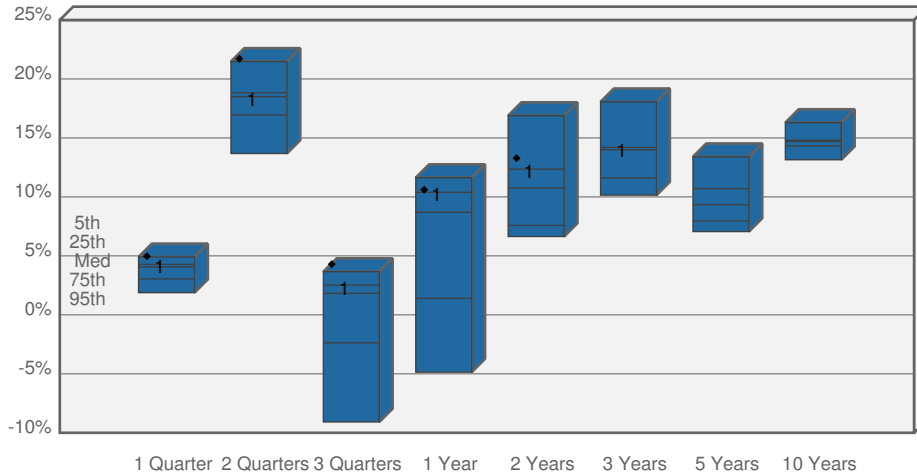
\*Compass Total Returns of Active Large Core Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Ethos - Emerg. Mgr.

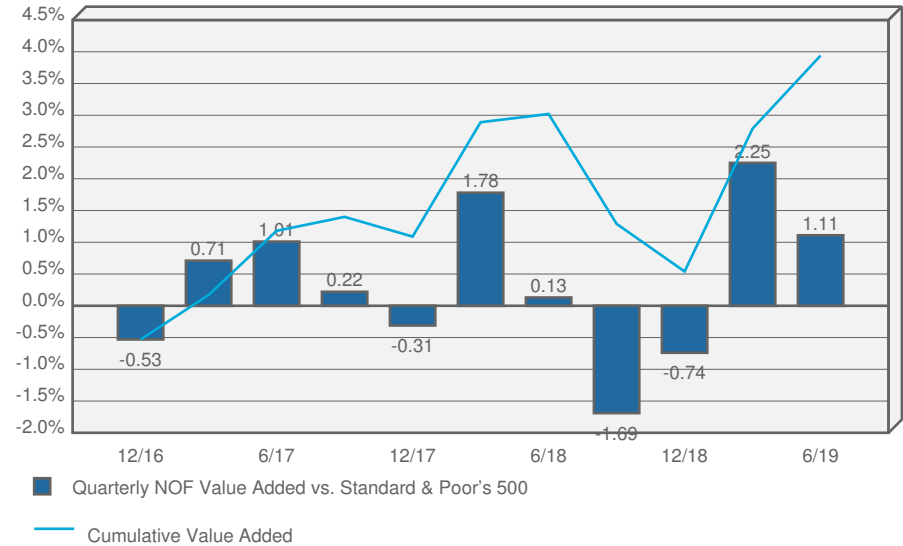
June 30, 2019

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◆ Ethos - Emerg.	5.42 ( 1)	22.17 ( 2)	4.75 ( 2)	11.06 (11)	13.74 (10)			
1 Standard & Poo	4.30 (22)	18.54 (48)	2.51 (29)	10.42 (19)	12.38 (22)	14.19 (29)		
Median	4.06	18.50	1.82	8.70	10.76	14.00	9.34	14.70
Number of Funds	136	136	136	136	136	133	123	106

Value-Added Analysis vs Benchmark



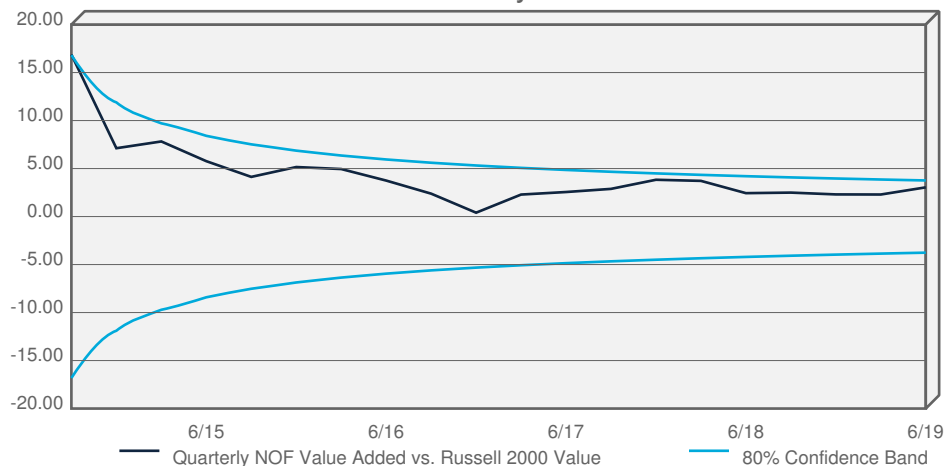
\*Compass Total Returns of Passive U.S. Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

## Earnest Small Value

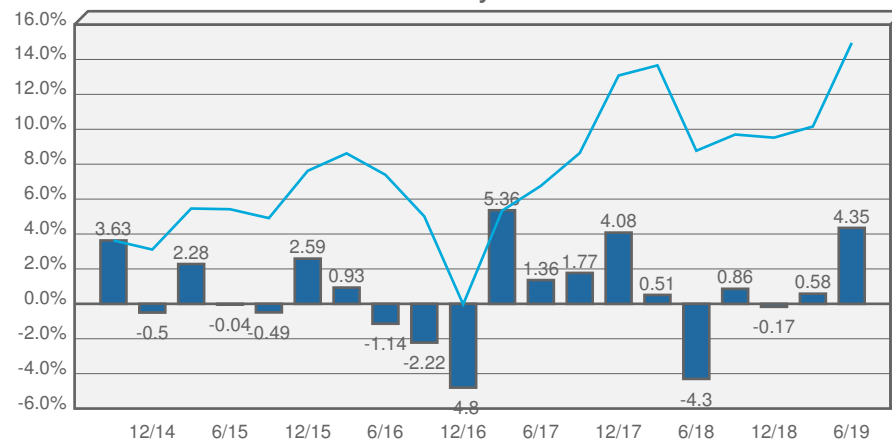
June 30, 2019

Cumulative Skill Analysis vs Benchmark



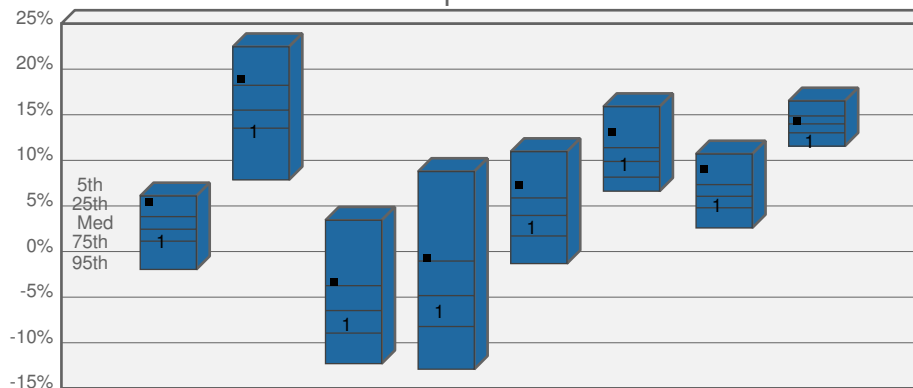
Excess Return:	3.04	Information Ratio:	0.60
Excess Risk:	5.11	T-Stat:	1.33

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Russell 2000 Value  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Earnest Small	6.00 ( 6)	19.55 (12)	-2.73 (19)	-0.12 (19)	7.86 (15)	13.66 (13)	9.60 ( 8)	14.95 (21)
1 Russell 2000 V	1.38 (71)	13.47 (76)	-7.72 (64)	-6.24 (59)	2.98 (63)	9.81 (51)	5.39 (65)	12.40 (85)
Median	2.45	15.51	-6.47	-4.83	3.96	9.88	6.06	14.00
Number of Funds	164	164	164	164	164	161	156	138

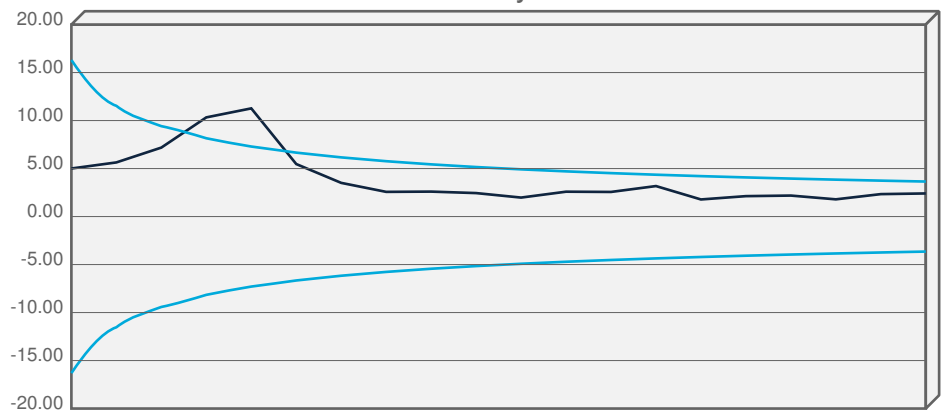
\*Compass Total Returns of Active Small Cap Value Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Emerald Advisors Small Cap

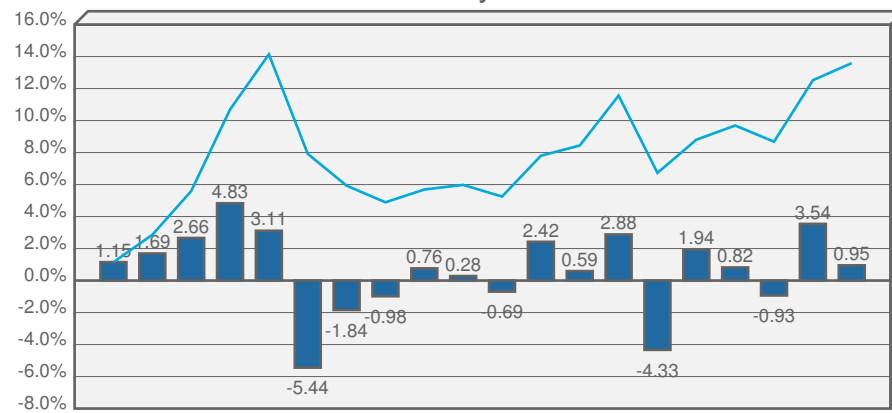
June 30, 2019

Cumulative Skill Analysis vs Benchmark



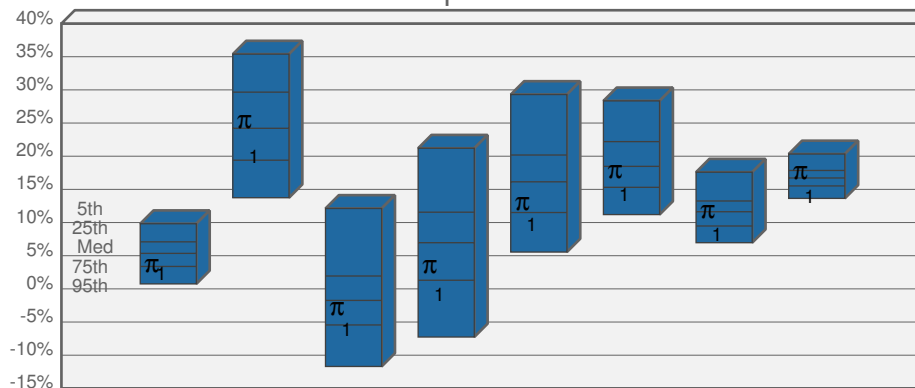
Excess Return:	2.41	Information Ratio:	0.49
Excess Risk:	4.96	T-Stat:	1.09

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Russell 2000 Growth  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
$\pi$ Emerald Adviso	3.92 (64)	25.61 (44)	-2.55 (59)	3.83 (64)	13.31 (65)	18.17 (55)	12.05 (41)	17.91 (23)
$\mathbf{1}$ Russell 2000 G	2.75 (82)	20.36 (68)	-5.70 (76)	-0.49 (82)	10.12 (80)	14.69 (78)	8.63 (83)	14.40 (87)
Median	5.35	24.21	-1.74	6.96	16.14	18.47	11.63	16.72
Number of Funds	134	134	134	134	134	133	131	123

\*Compass Total Returns of Active Small Cap Growth Equity Portfolios Universe - Gross of Fees

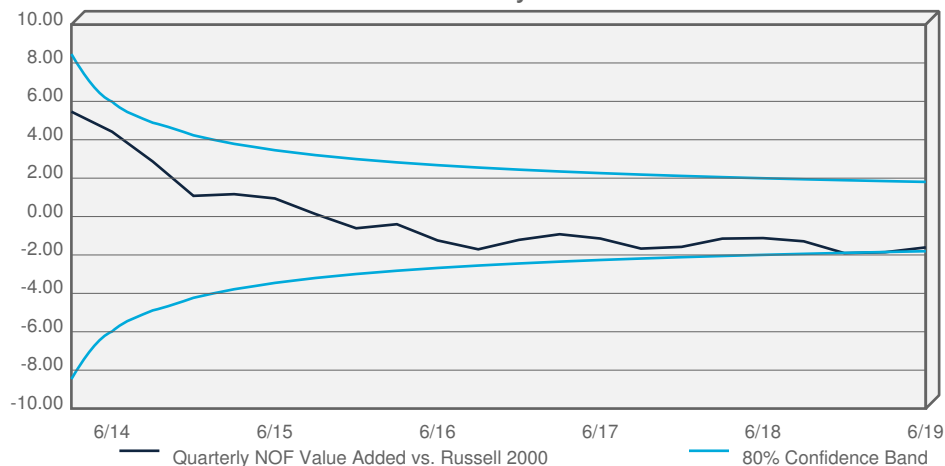


# INVESTMENT MANAGER ANALYSIS

CIM Small Cap - Emerg. Mgr.

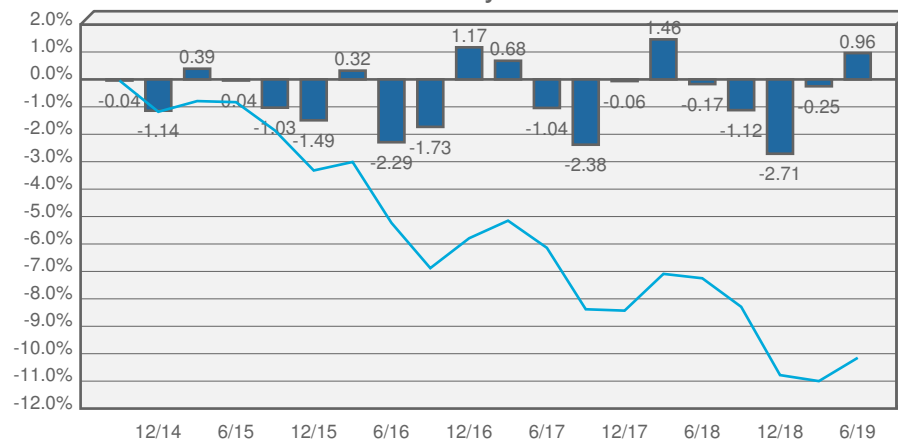
June 30, 2019

Cumulative Skill Analysis vs Benchmark



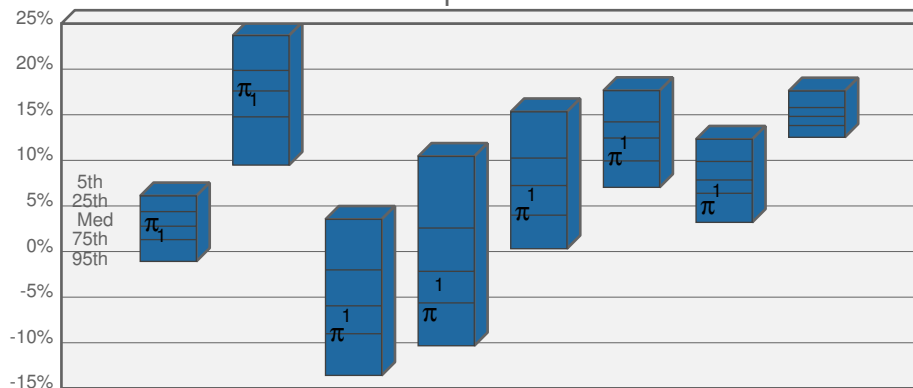
Excess Return:	-1.61	Information Ratio:	-0.62
Excess Risk:	2.57	T-Stat:	-1.40

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Russell 2000  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
$\pi$ CIM Small Cap	3.26 (44)	18.07 (45)	-8.81 (74)	-6.57 (79)	4.45 (73)	10.51 (72)	5.12 (88)	
<b>1</b> Russell 2000	2.10 (59)	16.98 (56)	-6.65 (57)	-3.31 (59)	6.62 (56)	12.30 (50)	7.06 (67)	
Median	2.78	17.61	-5.95	-2.17	7.24	12.45	7.85	14.82
Number of Funds	121	121	120	120	119	119	117	105

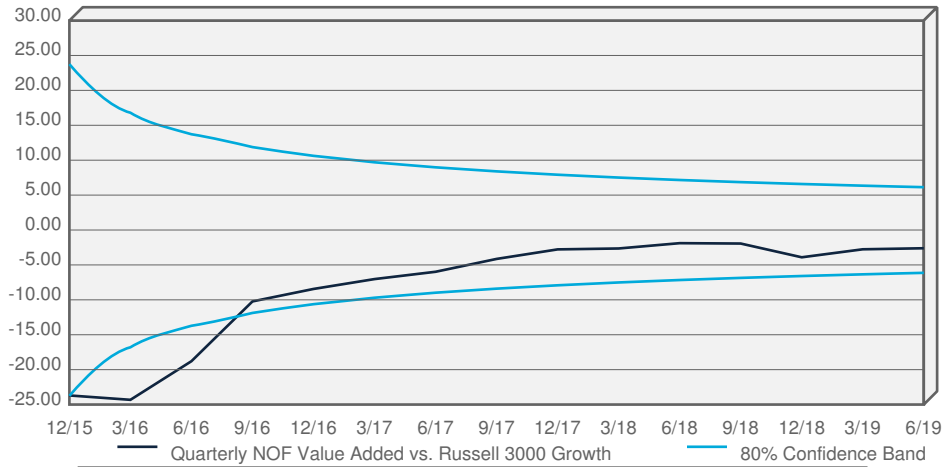
\*Compass Total Returns of Active Small Cap Core Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Emerald Advisors All Cap - Emg. Mgr.

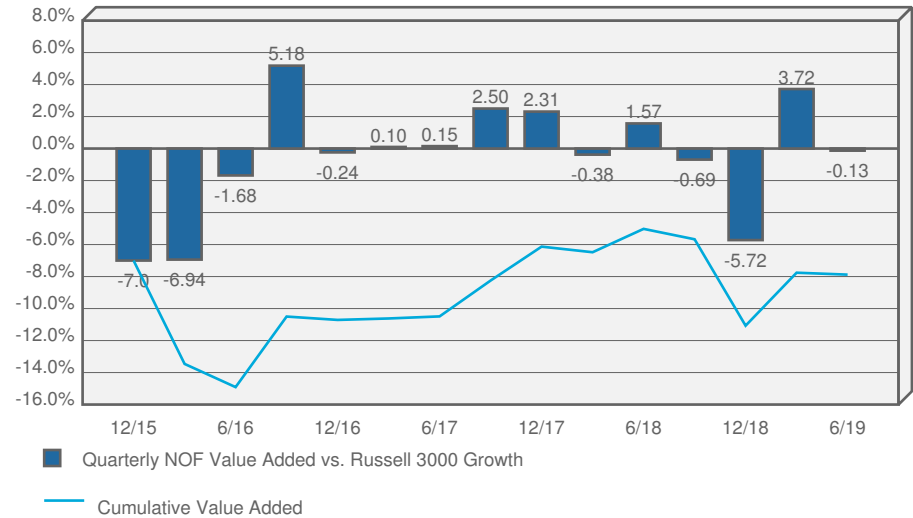
June 30, 2019

Cumulative Skill Analysis vs Benchmark

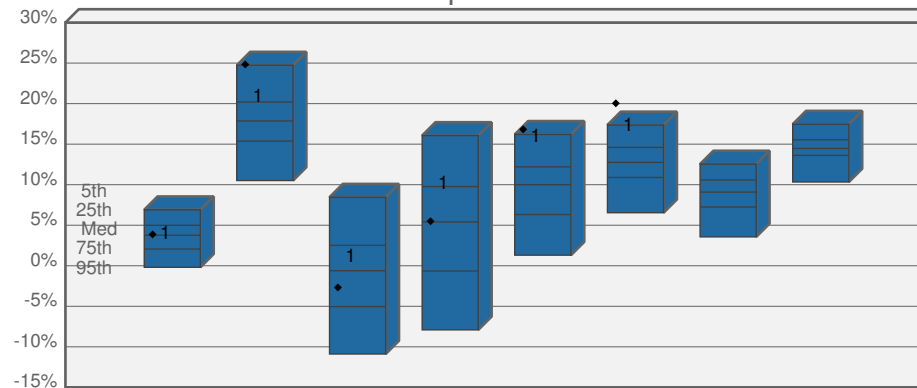


Excess Return:	-2.61	Information Ratio:	-0.36
Excess Risk:	7.22	T-Stat:	-0.63

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◆ Emerald Adviso	4.52 (34)	25.49 ( 3)	-2.02 (60)	6.15 (45)	17.48 ( 2)	20.70 ( 1)		
■ Russell 3000 G	4.50 (35)	21.41 (16)	1.58 (31)	10.60 (20)	16.39 ( 4)	17.81 ( 3)		
Median	3.76	17.86	-0.61	5.41	10.00	12.75	9.09	14.47
Number of Funds	445	445	443	443	440	433	419	353

\*Compass Total Returns of Active Core Equity Portfolios Universe - Gross of Fees

# CUSTOM BENCHMARK SPECIFICATION

US Equity Composite

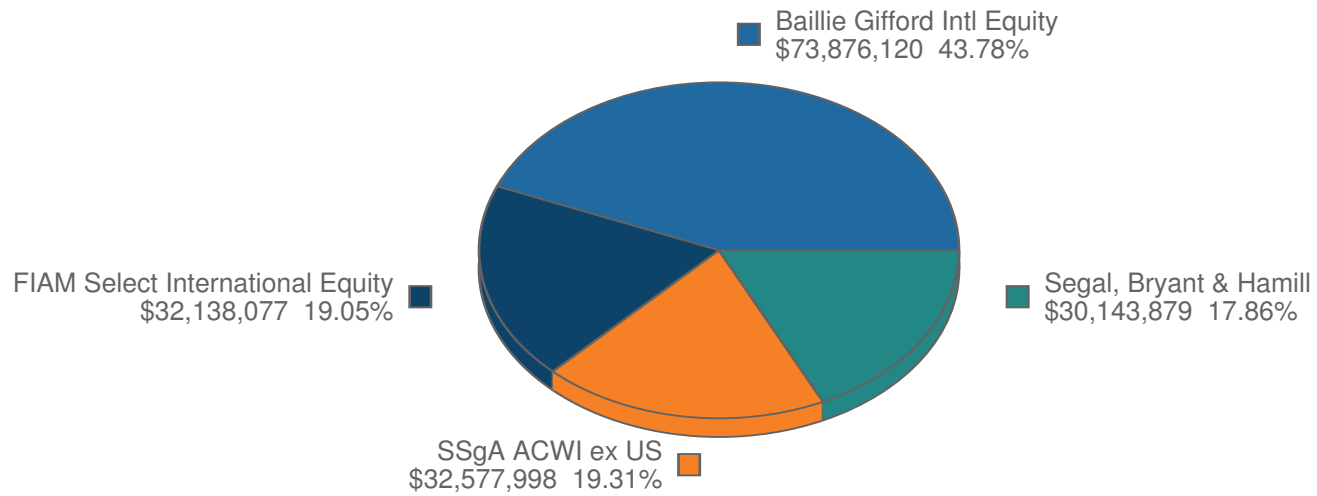
June 30, 2019

	Quarter Start	Quarter End	Percent	Description
Wilshire 5000	9/93	6/19	100.00	Wilshire 5000



# NON US EQUITY

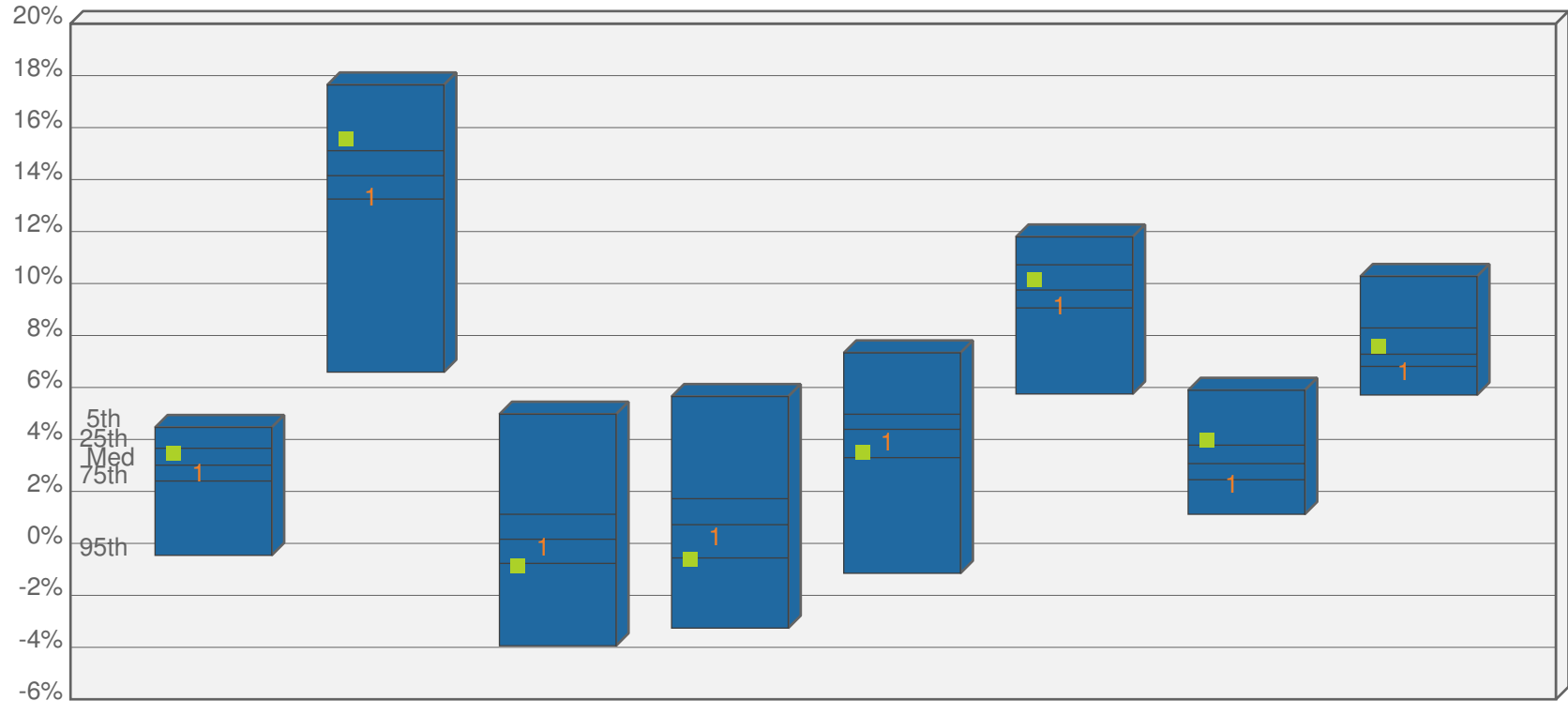
Wilshire Consulting  
MANAGER ALLOCATION  
Non US Equity Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Non US Equity Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Non US Equity Composite	3.50 (26)	15.61 (13)	-0.81 (75)	-0.56 (75)	3.55 (68)	10.20 (39)	4.02 (18)	7.65 (37)
┆ Policy Index	2.74 (61)	13.33 (73)	-0.13 (56)	0.26 (58)	3.93 (59)	9.16 (68)	2.29 (76)	6.61 (83)
5th %tile	4.46	17.64	4.97	5.65	7.33	11.79	5.89	10.27
25th %tile	3.66	15.11	1.12	1.72	4.97	10.72	3.78	8.29
Median	3.01	14.15	0.16	0.72	4.39	9.75	3.07	7.28
75th %tile	2.40	13.25	-0.77	-0.56	3.30	9.06	2.45	6.81
95th %tile	-0.46	6.59	-3.94	-3.26	-1.15	5.75	1.12	5.71
Number of Funds	73	73	73	72	65	63	58	47

\*TUCS Total Ret of Non-US Equity Investment Pools Universe - Gross of Fees

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

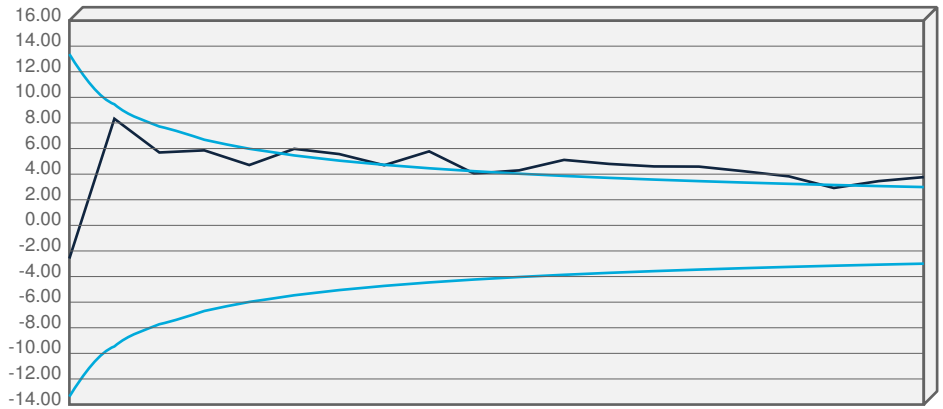
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Baillie Gifford Intl Equity</b>									
<b>Net of Fee Return</b>	<b>5.44</b>	<b>20.09</b>	<b>3.17</b>	<b>3.27</b>	<b>12.84</b>	<b>6.02</b>		<b>9/30/09</b>	<b>8.11</b>
MSCI ACWI X US (N)	2.98	13.60	0.58	1.29	9.39	2.16		9/30/09	4.77
Value Added	2.45	6.48	2.59	1.99	3.45	3.85		9/30/09	3.34
<b>FIAM Select International Equity</b>									
<b>Net of Fee Return</b>	<b>3.08</b>	<b>14.35</b>	<b>-0.18</b>	<b>0.47</b>	<b>7.83</b>	<b>1.61</b>	<b>6.23</b>	<b>12/31/00</b>	<b>4.25</b>
Policy Benchmark	2.98	13.60	0.58	1.29	9.39	2.16	6.54	12/31/00	3.91
Value Added	0.10	0.75	-0.76	-0.82	-1.56	-0.56	-0.31	12/31/00	0.33
<b>SSgA ACWI ex US</b>									
<b>Net of Fee Return</b>	<b>3.95</b>	<b>14.95</b>	<b>0.22</b>	<b>1.52</b>	<b>9.31</b>			<b>6/30/15</b>	<b>4.23</b>
MSCI World X-US (N)	3.79	14.64	-0.02	1.29	9.01			6/30/15	3.96
Value Added	0.16	0.32	0.24	0.23	0.30			6/30/15	0.27
<b>Segal, Bryant &amp; Hamill</b>									
<b>Net of Fee Return</b>	<b>-1.31</b>	<b>6.90</b>	<b>-11.75</b>	<b>-12.73</b>	<b>6.22</b>			<b>6/30/15</b>	<b>3.25</b>
MSCI EAFE Small Cap (N)	1.71	12.55	-5.52	-6.35	9.06			6/30/15	5.73
Value Added	-3.02	-5.65	-6.23	-6.38	-2.84			6/30/15	-2.48
<b>Non US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>3.45</b>	<b>15.49</b>	<b>-0.97</b>	<b>-0.79</b>	<b>9.94</b>	<b>3.73</b>	<b>7.27</b>	<b>12/31/00</b>	<b>4.92</b>
Policy Index	2.74	13.33	-0.13	0.26	9.16	2.29	6.61	12/31/00	3.95
Value Added	0.71	2.16	-0.85	-1.05	0.78	1.44	0.66	12/31/00	0.97

# INVESTMENT MANAGER ANALYSIS

Baillie Gifford Intl Equity

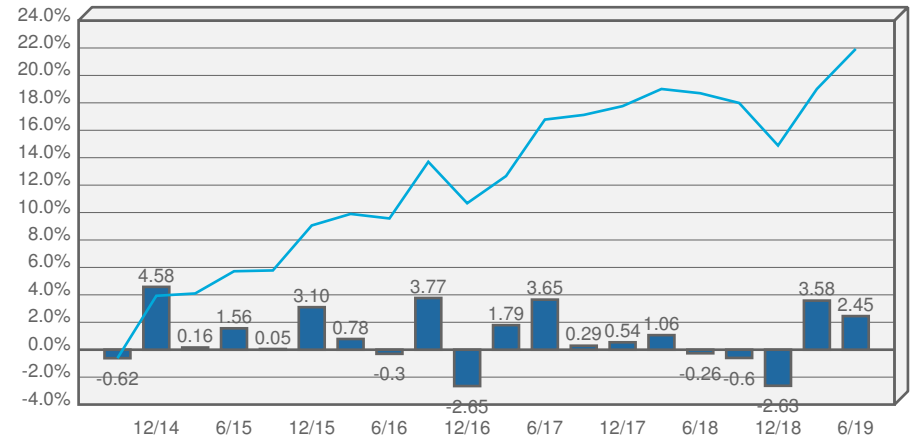
June 30, 2019

Cumulative Skill Analysis vs Benchmark



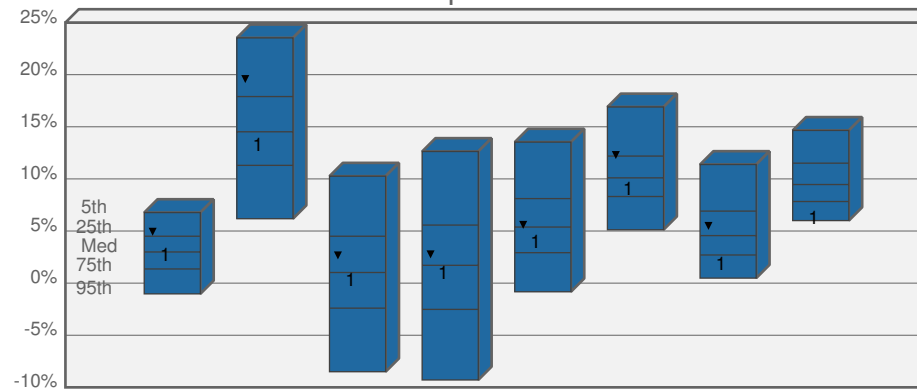
Excess Return:	3.77	Information Ratio:	0.93
Excess Risk:	4.07	T-Stat:	2.07

Value-Added Analysis vs Benchmark



Quarterly NOF Value Added vs. MSCI ACWI X US (N)  
Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▼ Baillie Gifford	5.44 (13)	20.09 (13)	3.17 (33)	3.27 (38)	6.10 (42)	12.80 (20)	6.00 (34)	
▮ MSCI ACWI X US	2.98 (50)	13.60 (58)	0.58 (53)	1.29 (53)	4.24 (61)	9.38 (60)	2.16 (83)	6.54 (91)
Median	2.99	14.52	1.02	1.71	5.38	10.10	4.56	9.46
Number of Funds	1563	1560	1551	1536	1498	1465	1320	889

\*Compass Total Returns of International Equity Portfolios Universe - Gross of Fees

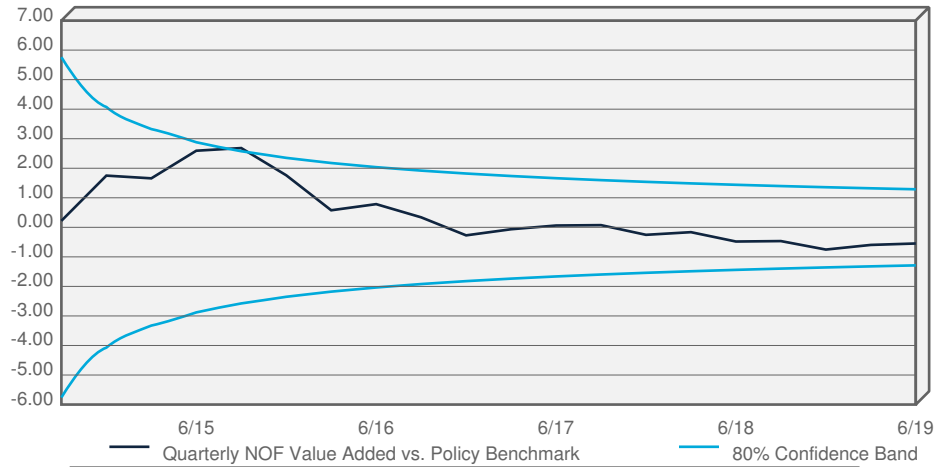


# INVESTMENT MANAGER ANALYSIS

## FIAM Select International Equity

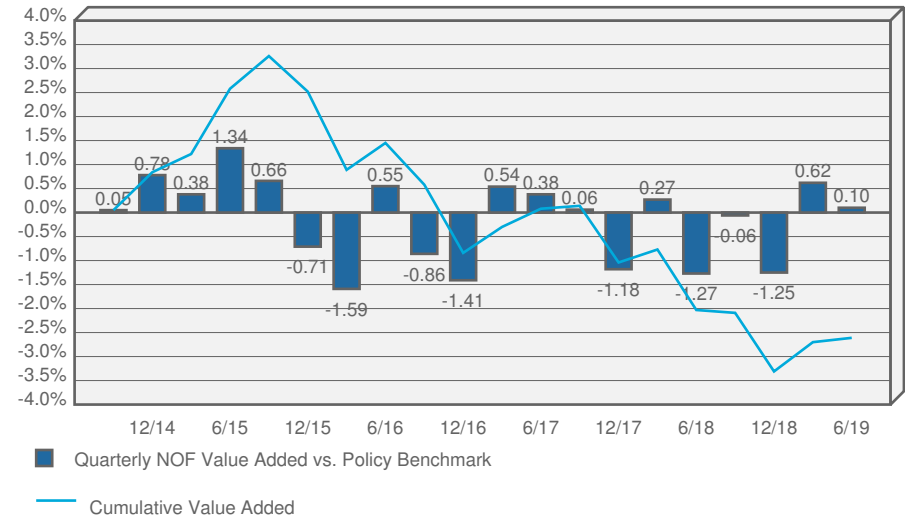
June 30, 2019

Cumulative Skill Analysis vs Benchmark

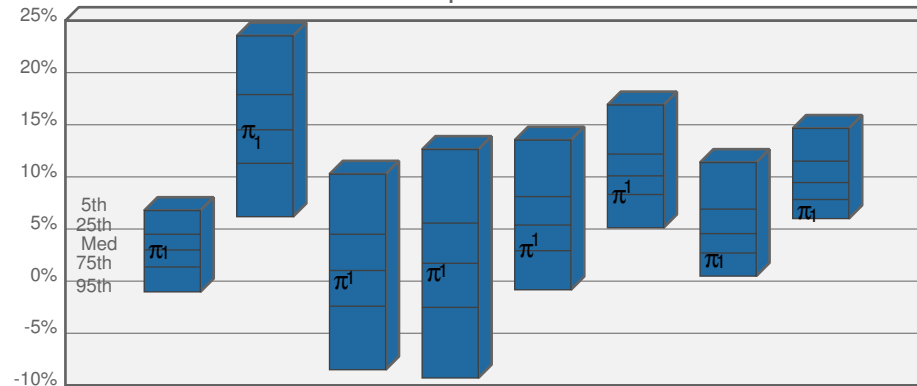


Excess Return:	-0.55	Information Ratio:	-0.31
Excess Risk:	1.75	T-Stat:	-0.70

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
$\pi$ FIAM Select In	3.16 (46)	14.58 (49)	0.14 (58)	0.92 (55)	3.24 (72)	8.43 (73)	2.26 (82)	6.89 (87)
$\pi$ Policy Benchma	2.98 (50)	13.60 (58)	0.58 (53)	1.29 (53)	4.24 (61)	9.38 (60)	2.16 (83)	6.54 (91)
Median	2.99	14.52	1.02	1.71	5.38	10.10	4.56	9.46
Number of Funds	1563	1560	1551	1536	1498	1465	1320	889

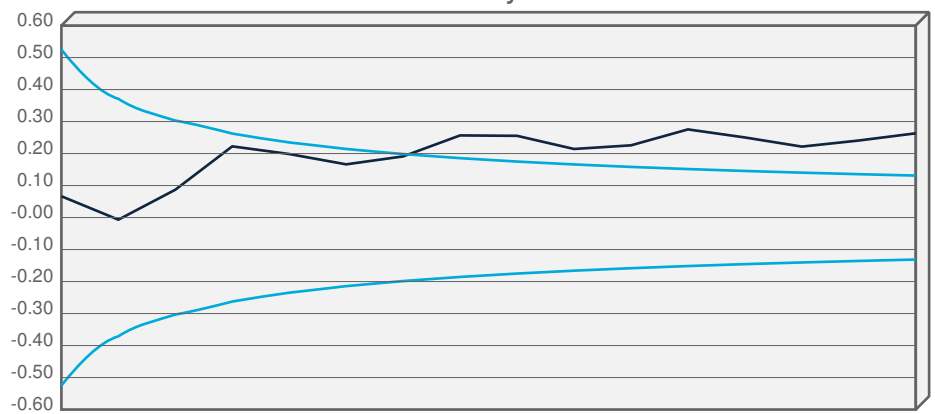
\*Compass Total Returns of International Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

SSgA ACWI ex US

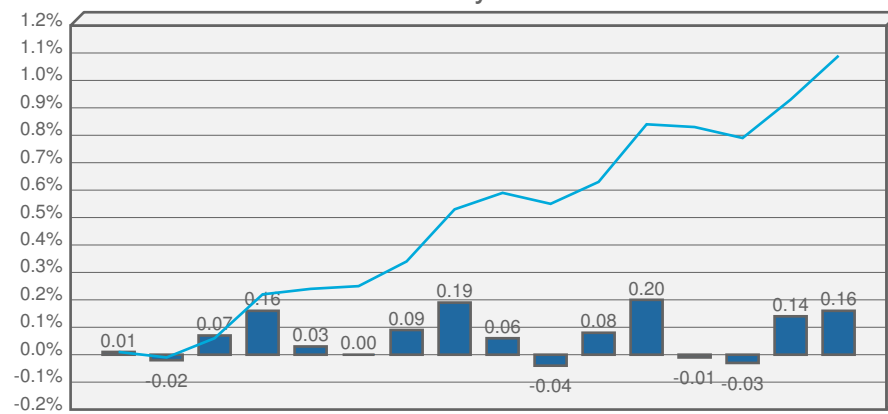
June 30, 2019

Cumulative Skill Analysis vs Benchmark



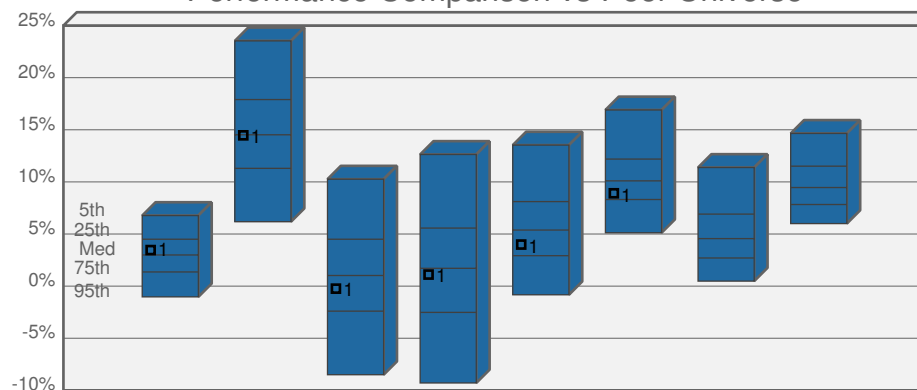
Excess Return:	0.26	Information Ratio:	1.65
Excess Risk:	0.16	T-Stat:	3.30

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. MSCI World X-US (N)  
— Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
□ SSgA ACWI ex U	3.97 (32)	14.98 (45)	0.27 (57)	1.62 (50)	4.50 (58)	9.42 (59)		
■ MSCI World X-U	3.79 (35)	14.64 (48)	-0.02 (59)	1.29 (53)	4.12 (62)	9.01 (65)		
Median	2.99	14.52	1.02	1.71	5.38	10.10	4.56	9.46
Number of Funds	1563	1560	1551	1536	1498	1465	1320	889

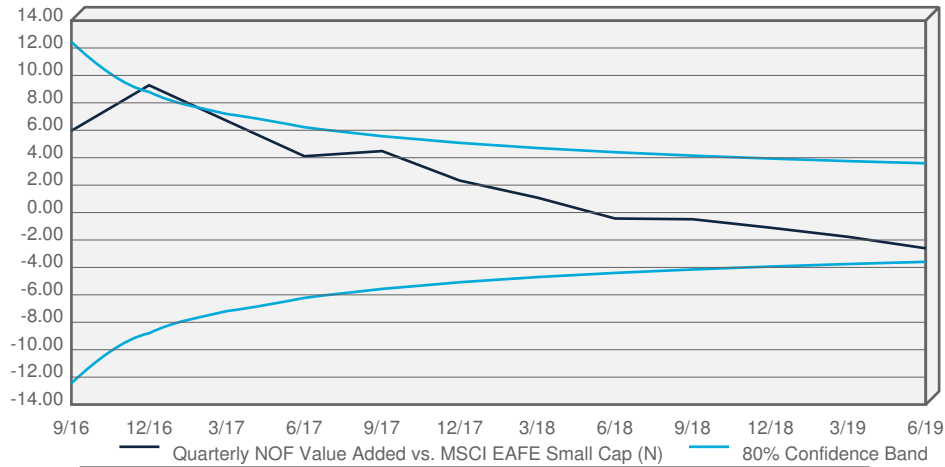
\*Compass Total Returns of International Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Segal, Bryant & Hamill

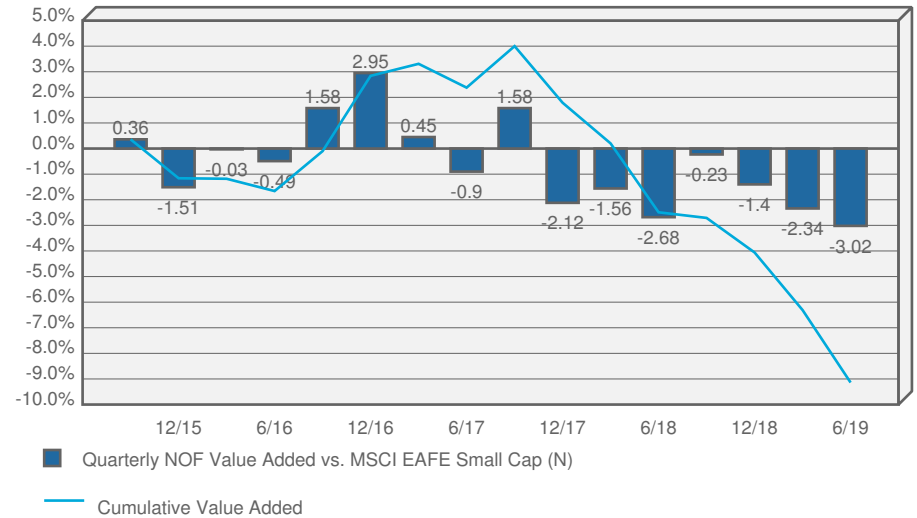
June 30, 2019

Cumulative Skill Analysis vs Benchmark

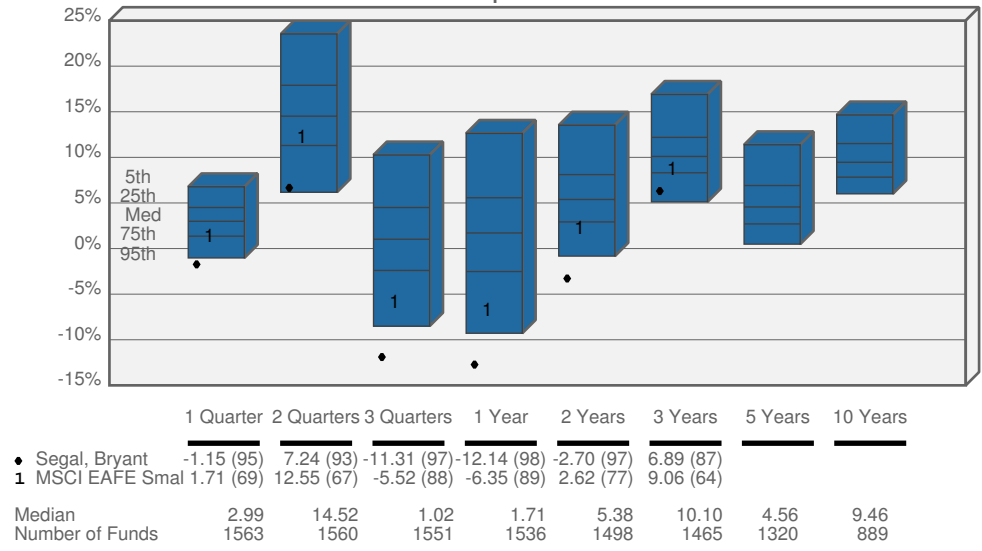


Excess Return:	-2.61	Information Ratio:	-0.69
Excess Risk:	3.78	T-Stat:	-1.19

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



\*Compass Total Returns of International Equity Portfolios Universe - Gross of Fees

# CUSTOM BENCHMARK SPECIFICATION

Non US Equity Composite

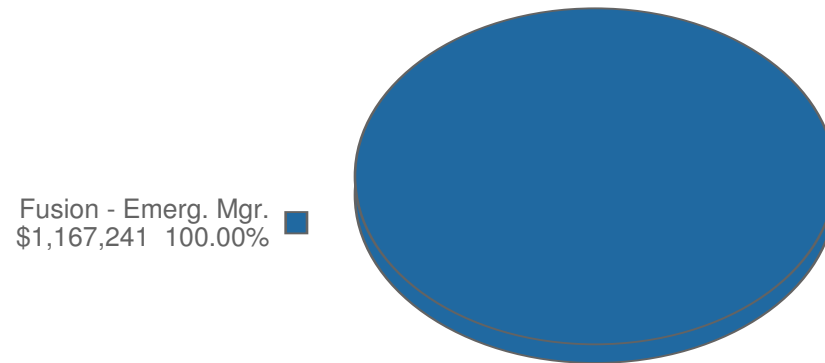
June 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Index	12/00	6/08	100.00	MSCI EAFE Index (N)
	9/08	12/14	100.00	MSCI ACWI ex US (N)
	3/15	6/19	100.00	MSCI ACWI X US IMI Index (N)



# GLOBAL EQUITY

Wilshire Consulting  
MANAGER ALLOCATION  
Global Equity Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

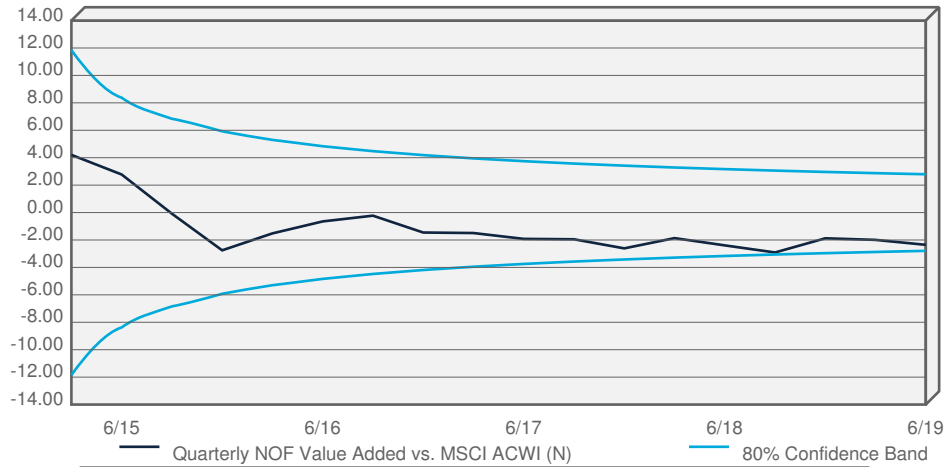
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Fusion - Emerg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>1.40</b>	<b>12.64</b>	<b>1.77</b>	<b>3.40</b>	<b>8.05</b>			<b>12/31/14</b>	<b>4.80</b>
MSCI ACWI (N)	3.61	16.23	1.41	5.74	11.62			12/31/14	7.33
Value Added	-2.21	-3.59	0.36	-2.34	-3.57			12/31/14	-2.53
<b>Global Equity</b>									
<b>Net of Fee Return</b>	<b>1.40</b>	<b>12.64</b>	<b>1.77</b>	<b>3.40</b>	<b>8.05</b>			<b>12/31/14</b>	<b>4.80</b>
MSCI ACWI (N)	3.61	16.23	1.41	5.74	11.62			12/31/14	7.33
Value Added	-2.21	-3.59	0.36	-2.34	-3.57			12/31/14	-2.53

# INVESTMENT MANAGER ANALYSIS

Fusion - Emerg. Mgr.

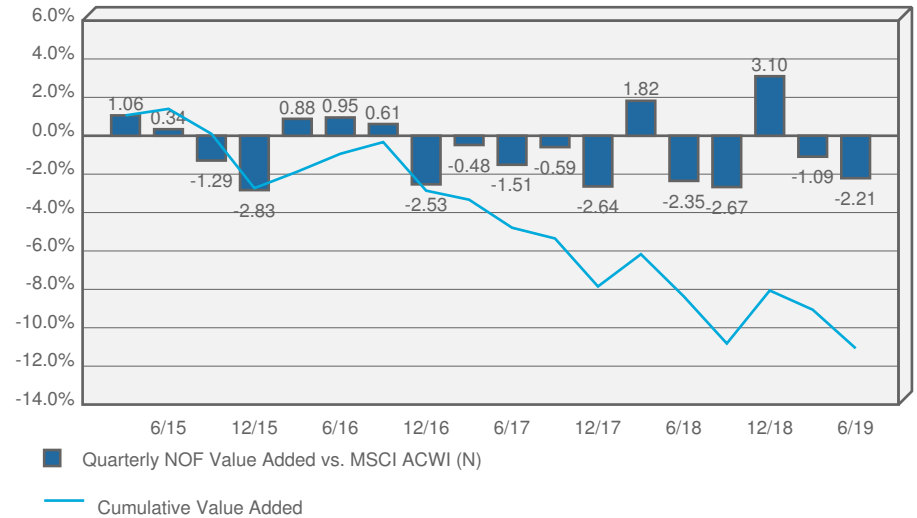
June 30, 2019

Cumulative Skill Analysis vs Benchmark

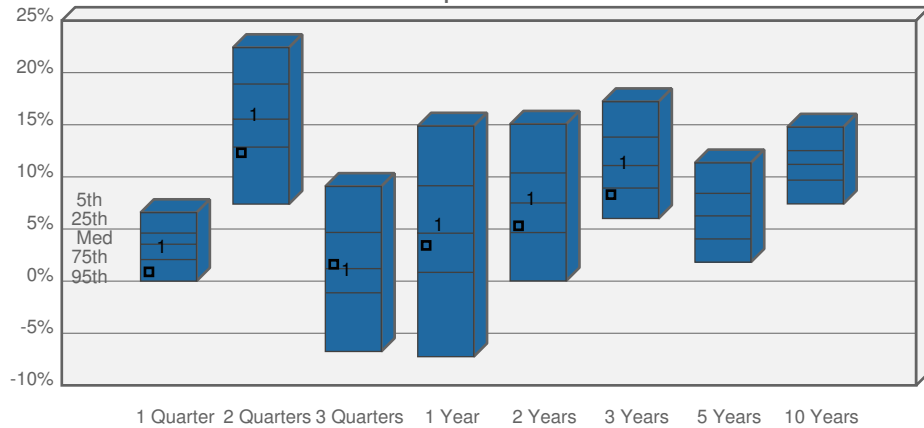


Excess Return:	-2.35	Information Ratio:	-0.65
Excess Risk:	3.60	T-Stat:	-1.31

Value-Added Analysis vs Benchmark

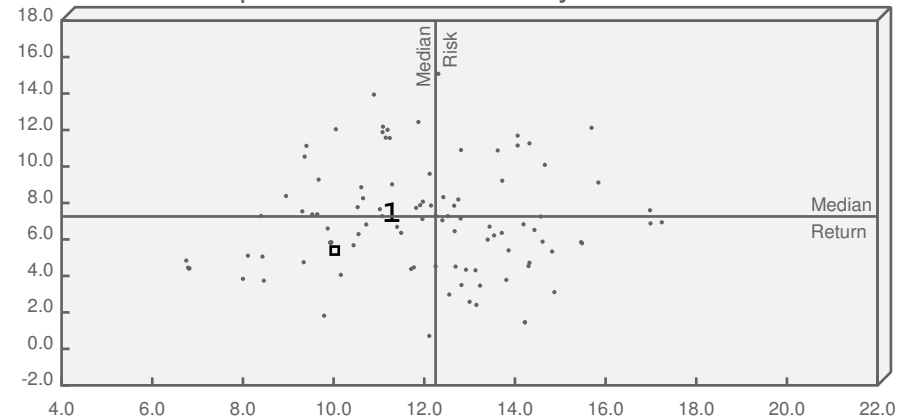


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Fusion - Emerg	1.40 (82)	12.83 (75)	2.13 (38)	3.94 (55)	5.82 (62)	8.81 (77)		
1 MSCI ACWI (N)	3.61 (48)	16.23 (46)	1.41 (47)	5.74 (43)	8.21 (45)	11.62 (45)		
Median	3.54	15.54	1.20	4.60	7.50	11.09	6.26	11.20
Number of Funds	279	273	271	265	245	243	228	153

Since Inception Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Fusion - Emerg. Mgr.	■	5.55	76	10.26	80
MSCI ACWI (N)	1	7.33	47	11.40	67
Median		7.26		12.25	

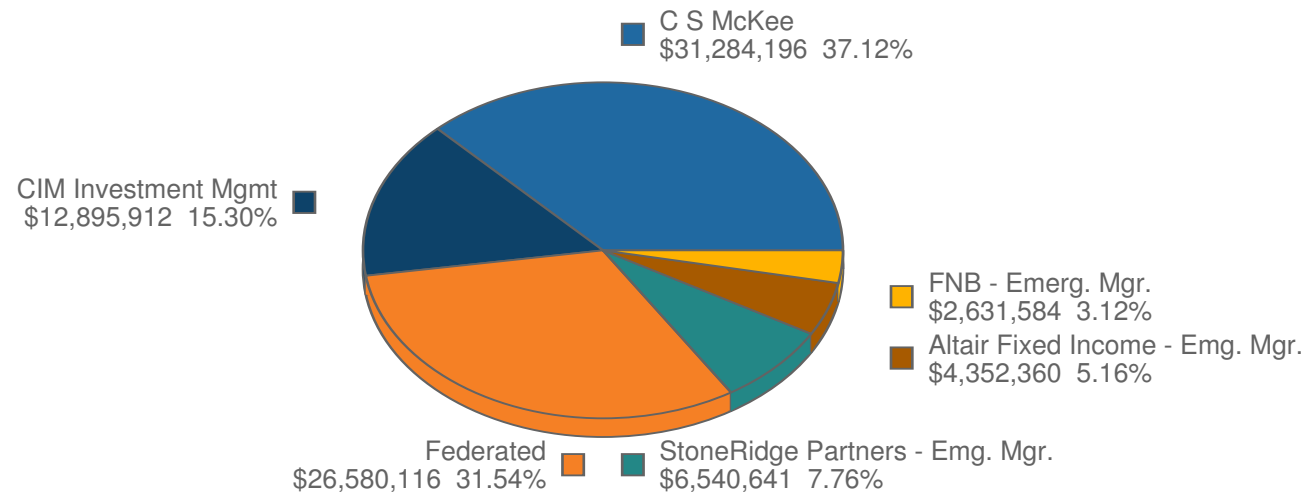
\*TUCS Total Returns of Global Equity Portfolios Universe - Gross of Fees





# CORE FIXED INCOME

Wilshire Consulting  
MANAGER ALLOCATION  
Core Fixed Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Altair Fixed Income - Emg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>3.08</b>	<b>10.78</b>	<b>7.96</b>	<b>8.15</b>				<b>3/31/17</b>	<b>3.70</b>
Bloomberg Aggregate	3.08	6.11	7.85	7.87				3/31/17	3.90
Value Added	-0.00	4.66	0.11	0.28				3/31/17	-0.20
<b>C S McKee</b>									
<b>Net of Fee Return</b>	<b>3.22</b>	<b>6.30</b>	<b>7.75</b>	<b>7.89</b>	<b>2.51</b>	<b>3.23</b>	<b>4.32</b>	<b>12/31/82</b>	<b>7.45</b>
Bloomberg Aggregate	3.08	6.11	7.85	7.87	2.31	2.95	3.90	12/31/82	7.09
Value Added	0.14	0.19	-0.10	0.03	0.19	0.28	0.42	12/31/82	0.36
<b>CIM Investment Mgmt</b>									
<b>Net of Fee Return</b>	<b>2.40</b>	<b>4.49</b>	<b>5.83</b>	<b>6.04</b>	<b>1.62</b>	<b>1.65</b>	<b>2.75</b>	<b>12/31/05</b>	<b>3.29</b>
Bloomberg Int Govt/Credit Index	2.59	4.97	6.70	6.93	1.99	2.39	3.24	12/31/05	3.74
Value Added	-0.19	-0.48	-0.87	-0.90	-0.36	-0.74	-0.49	12/31/05	-0.45
<b>Federated</b>									
<b>Net of Fee Return</b>	<b>3.37</b>	<b>7.16</b>	<b>7.54</b>	<b>7.87</b>	<b>3.15</b>	<b>3.12</b>	<b>4.63</b>	<b>9/30/06</b>	<b>4.84</b>
Bloomberg Aggregate	3.08	6.11	7.85	7.87	2.31	2.95	3.90	9/30/06	4.26
Value Added	0.29	1.04	-0.31	-0.00	0.84	0.17	0.74	9/30/06	0.58
<b>StoneRidge Partners - Emg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>1.88</b>	<b>3.63</b>	<b>4.93</b>	<b>5.08</b>	<b>2.10</b>			<b>9/30/15</b>	<b>2.46</b>
Policy Index	2.73	5.57	6.98	7.40	2.34			9/30/15	2.87
Value Added	-0.85	-1.94	-2.05	-2.32	-0.24			9/30/15	-0.40
<b>FNB - Emerg. Mgr.</b>									
<b>Net of Fee Return</b>	<b>2.42</b>	<b>5.53</b>	<b>5.72</b>	<b>6.21</b>				<b>6/30/17</b>	<b>2.51</b>
Bloomberg Intermediate Agg.	2.39	4.73	6.61	6.73				6/30/17	3.14
Value Added	0.03	0.80	-0.89	-0.52				6/30/17	-0.64

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

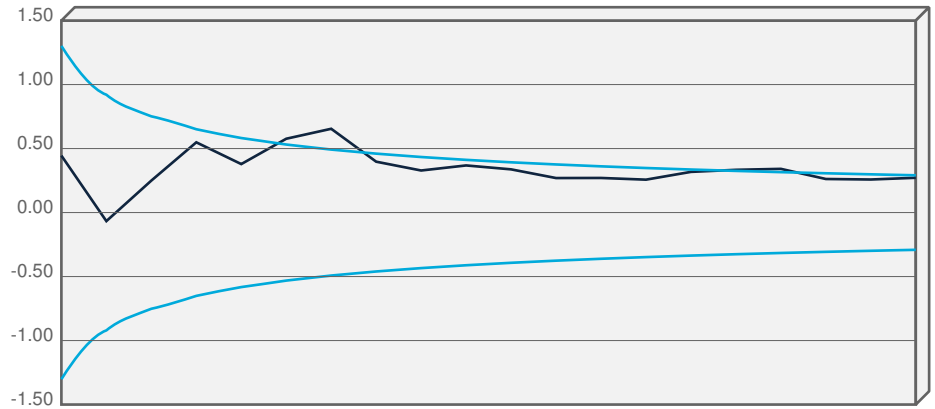
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Core Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>3.00</b>	<b>6.28</b>	<b>7.04</b>	<b>7.28</b>	<b>2.47</b>	<b>2.79</b>	<b>3.99</b>	<b>9/30/82</b>	<b>7.68</b>
Bloomberg Aggregate	3.08	6.11	7.85	7.87	2.31	2.95	3.90	9/30/82	7.28
Value Added	-0.08	0.16	-0.81	-0.59	0.15	-0.16	0.09	9/30/82	0.40

# INVESTMENT MANAGER ANALYSIS

C S McKee

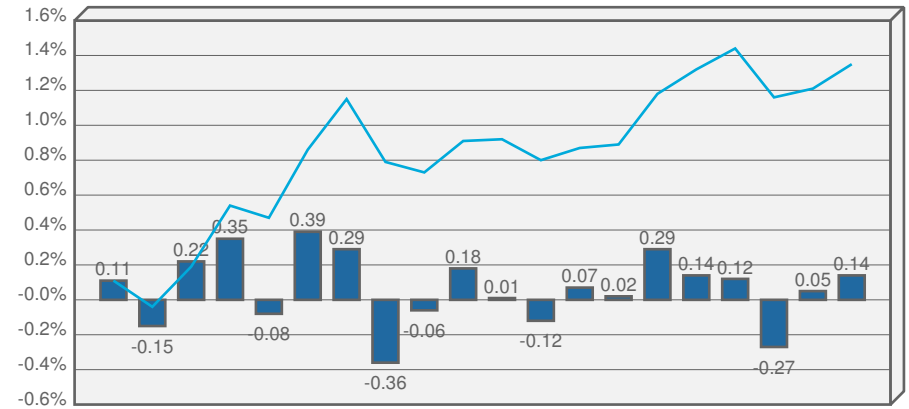
June 30, 2019

Cumulative Skill Analysis vs Benchmark



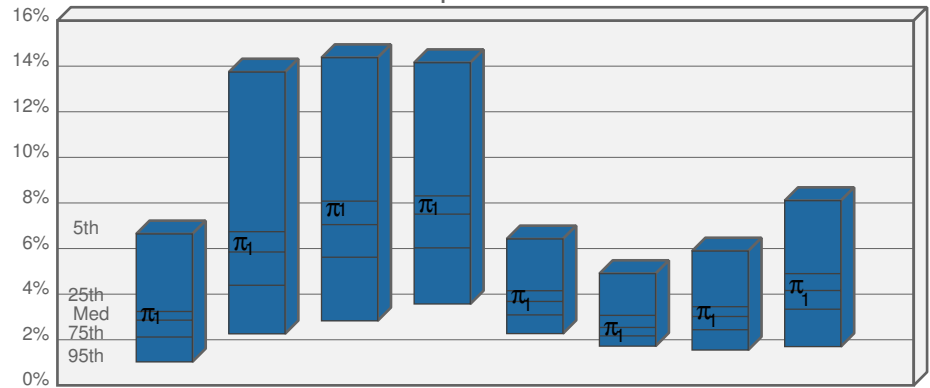
Excess Return:	0.27	Information Ratio:	0.69
Excess Risk:	0.40	T-Stat:	1.54

Value-Added Analysis vs Benchmark



Quarterly NOF Value Added vs. Bloomberg Aggregate  
Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
$\pi$ C S McKee	3.22 (27)	6.36 (36)	7.82 (36)	8.03 (34)	4.03 (29)	2.63 (44)	3.34 (31)	4.46 (38)
$\pi$ Bloomberg Aggr	3.08 (37)	6.11 (45)	7.85 (35)	7.87 (41)	3.65 (52)	2.31 (66)	2.95 (52)	3.90 (59)
Median	2.86	5.85	7.05	7.51	3.68	2.54	3.02	4.16
Number of Funds	435	434	434	434	428	421	409	352

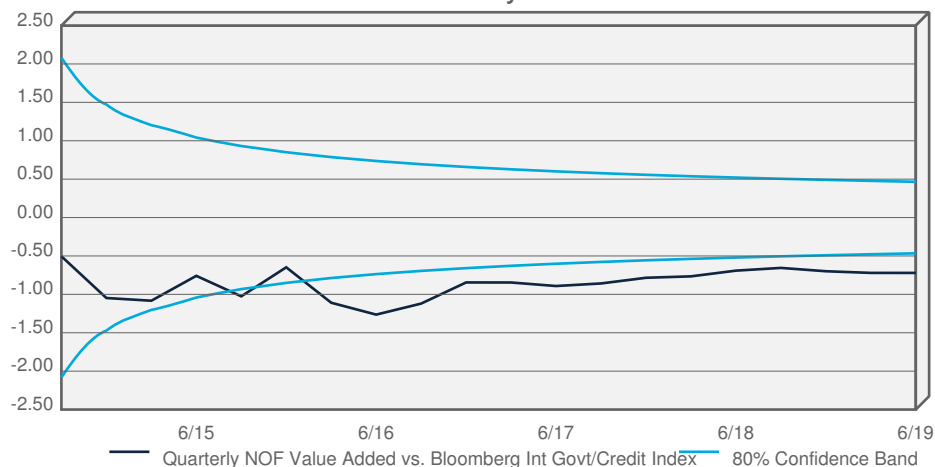
\*Compass Total Returns of Active Core Fixed Income Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

CIM Investment Mgmt

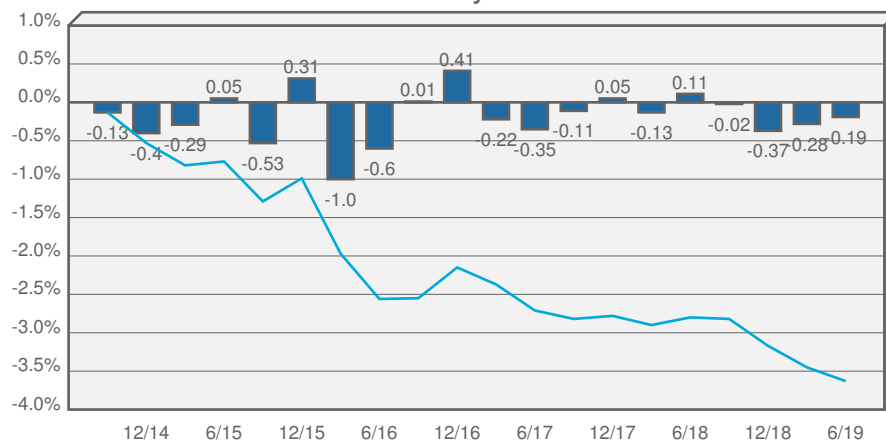
June 30, 2019

Cumulative Skill Analysis vs Benchmark



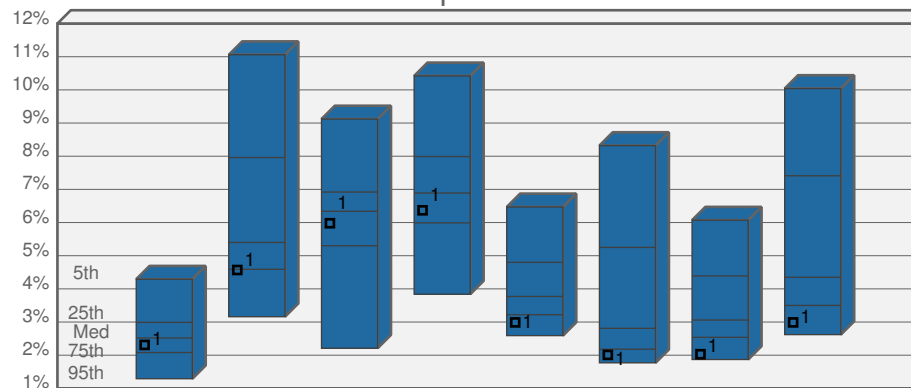
Excess Return:	-0.72	Information Ratio:	-1.14
Excess Risk:	0.63	T-Stat:	-2.55

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Bloomberg Int Govt/Credit Index  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ CIM Investment	2.47 (55)	4.73 (71)	6.14 (58)	6.53 (61)	3.15 (80)	2.17 (77)	2.19 (89)	3.15 (84)
■ Bloomberg Int	2.59 (44)	4.97 (65)	6.70 (33)	6.93 (48)	3.11 (82)	1.99 (88)	2.39 (83)	3.24 (82)
Median	2.52	5.40	6.34	6.89	3.77	2.81	3.06	4.35
Number of Funds	453	453	451	450	443	443	425	365

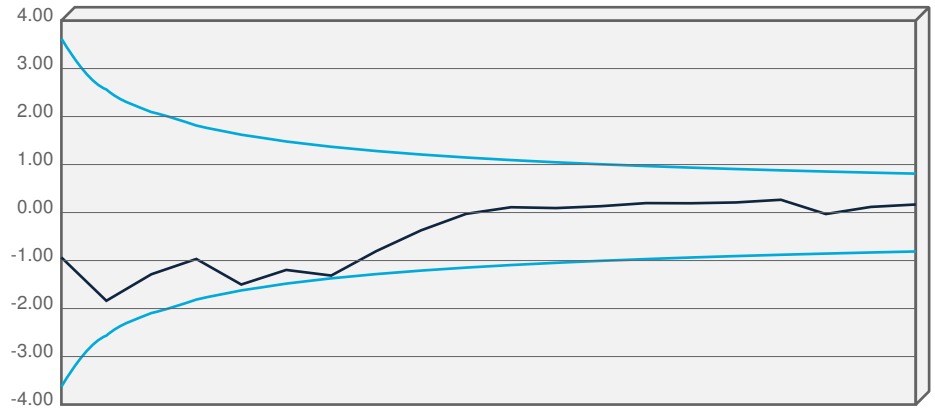
\*Compass Total Returns of Active Intermediate Fixed Income Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Federated

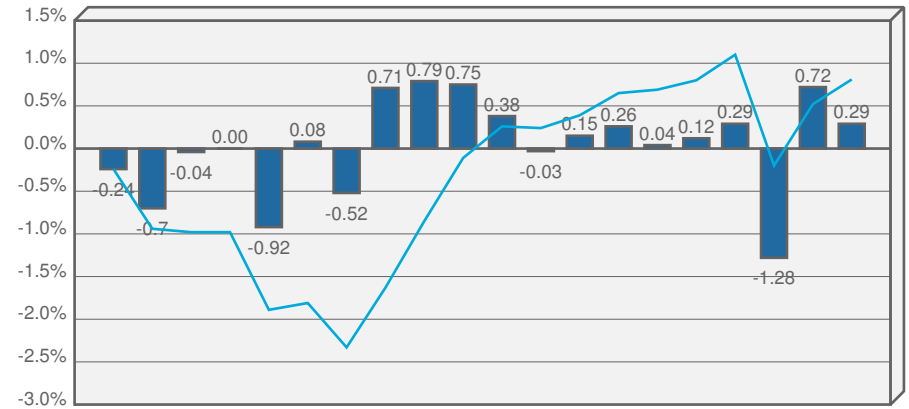
June 30, 2019

Cumulative Skill Analysis vs Benchmark



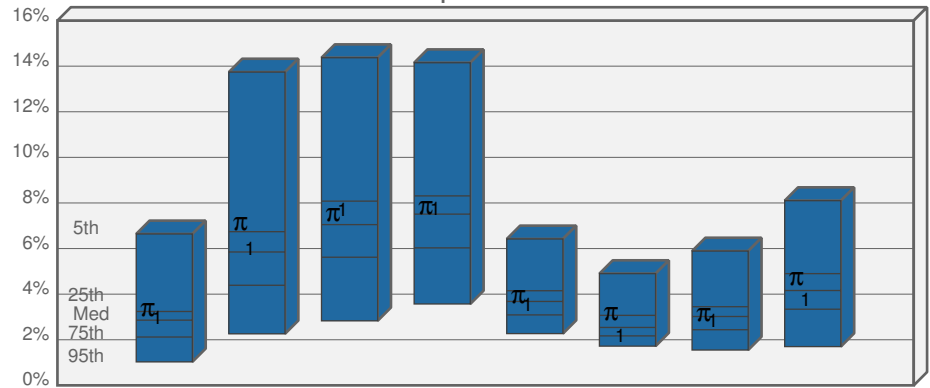
Excess Return:	0.17	Information Ratio:	0.15
Excess Risk:	1.10	T-Stat:	0.34

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Bloomberg Aggregate  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
$\pi$ Federated	3.44 (16)	7.23 (14)	7.61 (43)	7.94 (39)	4.01 (30)	3.27 (19)	3.24 (36)	4.81 (26)
$\pi_1$ Bloomberg Aggr	3.08 (37)	6.11 (45)	7.85 (35)	7.87 (41)	3.65 (52)	2.31 (66)	2.95 (52)	3.90 (59)
Median	2.86	5.85	7.05	7.51	3.68	2.54	3.02	4.16
Number of Funds	435	434	434	434	428	421	409	352

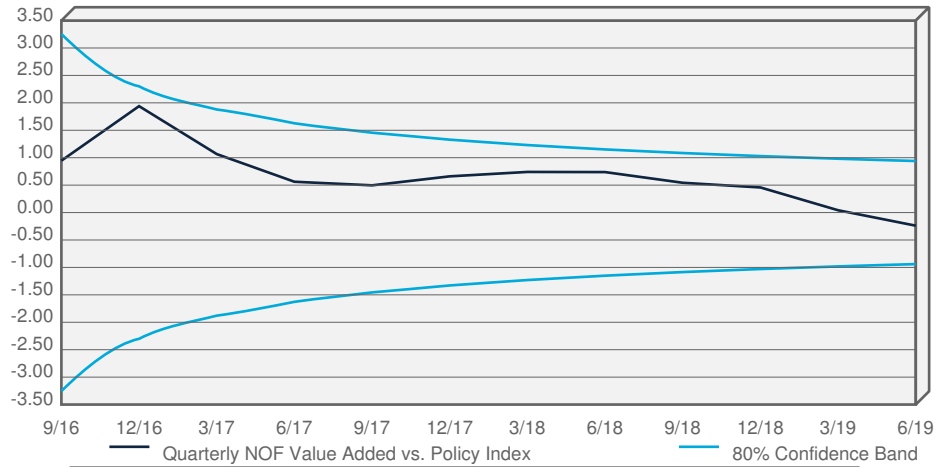
\*Compass Total Returns of Active Core Fixed Income Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

StoneRidge Partners - Emg. Mgr.

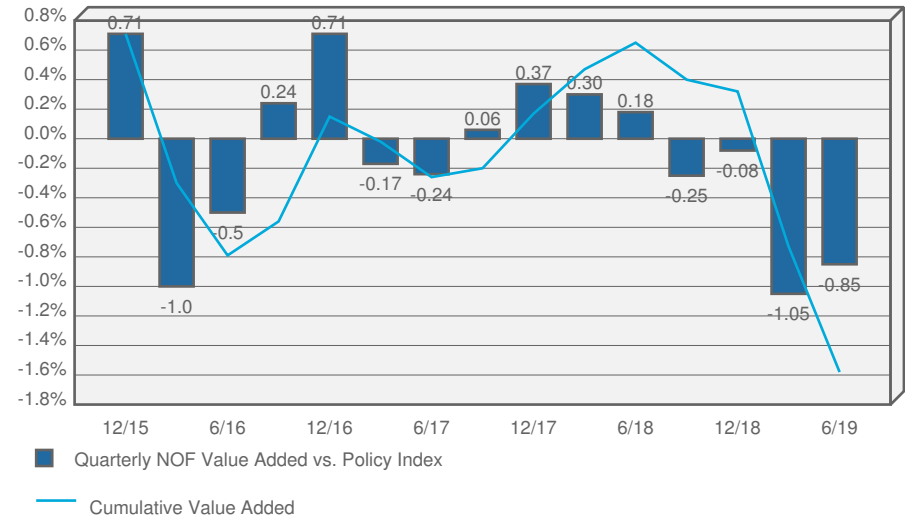
June 30, 2019

Cumulative Skill Analysis vs Benchmark

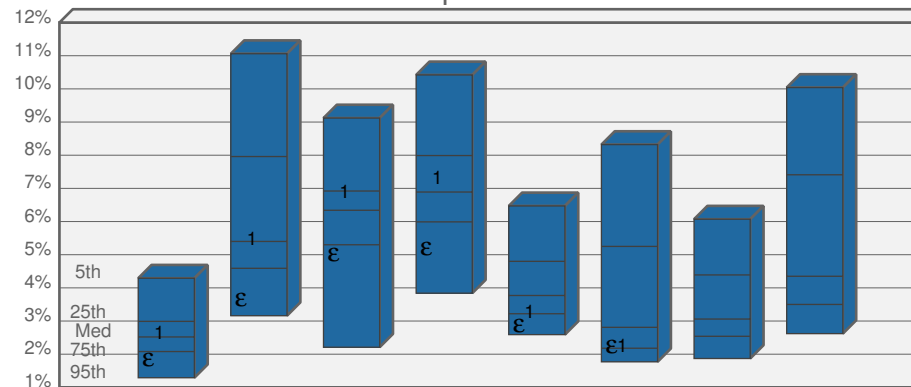


Excess Return:	-0.24	Information Ratio:	-0.24
Excess Risk:	0.99	T-Stat:	-0.42

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
StoneRidge Par	1.93 (81)	3.73 (90)	5.09 (77)	5.28 (83)	2.95 (89)	2.33 (65)		
Policy Index	2.73 (34)	5.57 (47)	6.98 (23)	7.40 (32)	3.37 (65)	2.34 (65)		
Median	2.52	5.40	6.34	6.89	3.77	2.81	3.06	4.35
Number of Funds	453	453	451	450	443	443	425	365

\*Compass Total Returns of Active Intermediate Fixed Income Portfolios Universe - Gross of Fees

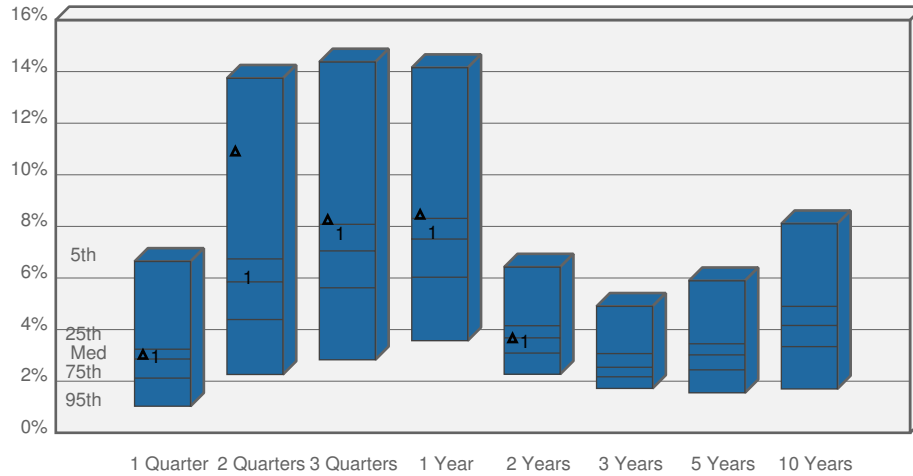


# INVESTMENT MANAGER ANALYSIS

Altair Fixed Income - Emg. Mgr.

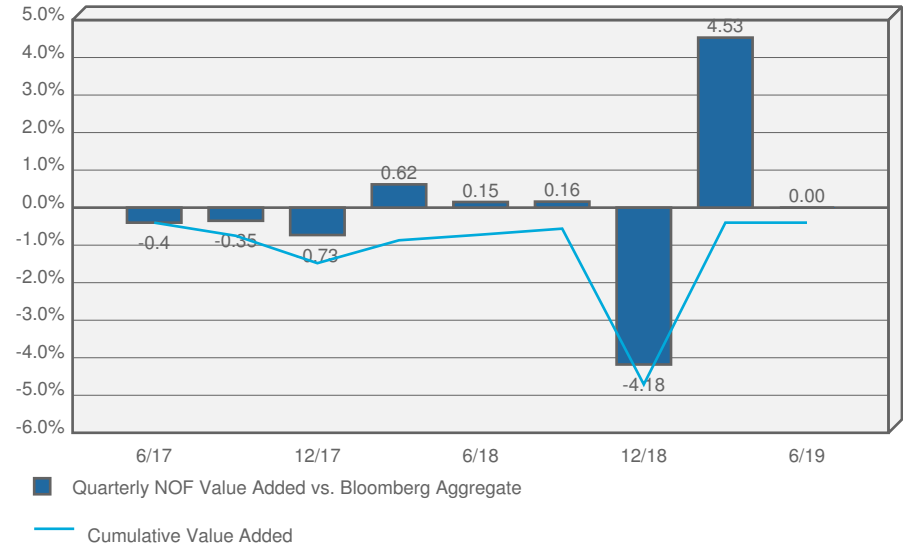
June 30, 2019

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▲ Altair Fixed I	3.24 (25)	11.12 ( 8)	8.47 (15)	8.67 (15)	3.88 (37)	-	-	-
■ Bloomberg Aggr	3.08 (37)	6.11 (45)	7.85 (35)	7.87 (41)	3.65 (52)	-	-	-
Median	2.86	5.85	7.05	7.51	3.68	2.54	3.02	4.16
Number of Funds	435	434	434	434	428	421	409	352

Value-Added Analysis vs Benchmark

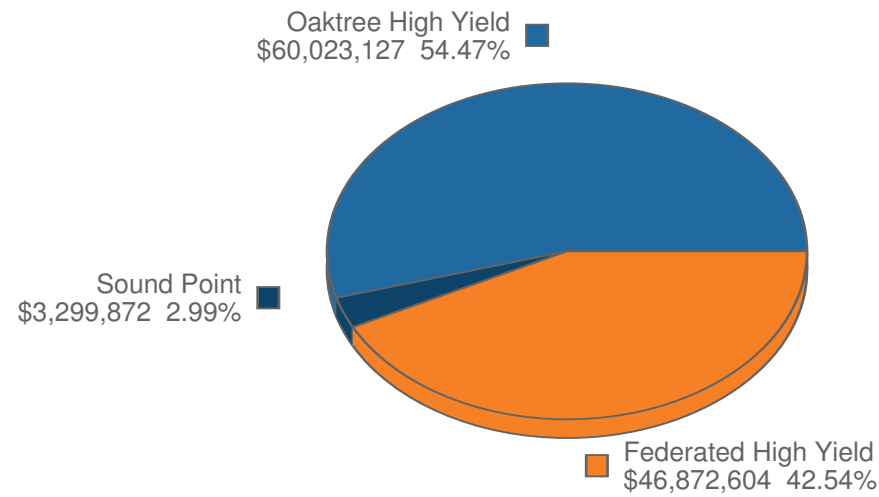


\*Compass Total Returns of Active Core Fixed Income Portfolios Universe - Gross of Fees



HIGH YIELD

Wilshire Consulting  
MANAGER ALLOCATION  
High Yield Fixed Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

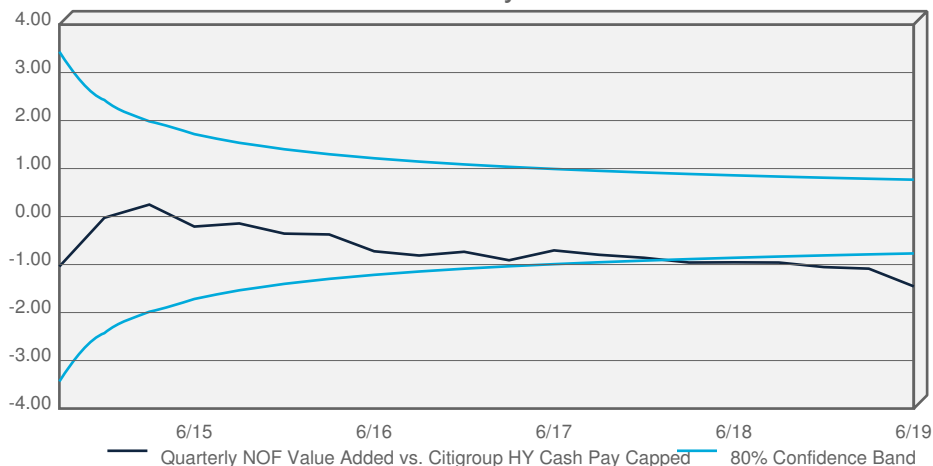
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Oaktree High Yield</b>									
<b>Net of Fee Return</b>	<b>0.17</b>	<b>7.09</b>	<b>1.35</b>	<b>3.44</b>	<b>5.14</b>	<b>2.76</b>	<b>7.67</b>	<b>3/31/08</b>	<b>6.89</b>
Citigroup HY Cash Pay Capped	2.34	9.88	4.68	7.12	7.21	4.28	8.70	3/31/08	7.48
Value Added	-2.17	-2.78	-3.33	-3.68	-2.08	-1.52	-1.03	3/31/08	-0.59
<b>Sound Point</b>									
<b>Net of Fee Return</b>	<b>0.98</b>	<b>4.19</b>	<b>1.74</b>	<b>3.75</b>	<b>5.55</b>	<b>4.38</b>	<b>9/30/13</b>	<b>4.83</b>	
CSFB Leveraged Loan	1.58	5.42	2.17	4.15	5.43	3.85	9/30/13	4.16	
Value Added	-0.60	-1.23	-0.43	-0.40	0.13	0.52	9/30/13	0.67	
<b>Federated High Yield</b>									
<b>Net of Fee Return</b>	<b>2.52</b>	<b>10.71</b>	<b>5.39</b>	<b>7.91</b>			<b>6/30/17</b>	<b>4.84</b>	
Bloomberg US HY 2% Capped Index	2.50	9.94	4.95	7.48			6/30/17	5.02	
Value Added	0.02	0.77	0.44	0.43			6/30/17	-0.18	
<b>High Yield Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>1.18</b>	<b>8.51</b>	<b>3.04</b>	<b>5.31</b>	<b>6.30</b>	<b>2.67</b>	<b>7.94</b>	<b>3/31/08</b>	<b>6.97</b>
Citi High Yield Market Capped	2.34	9.88	4.67	7.10	7.27	4.30	8.81	3/31/08	7.54
Value Added	-1.15	-1.37	-1.63	-1.80	-0.97	-1.63	-0.88	3/31/08	-0.57

# INVESTMENT MANAGER ANALYSIS

Oaktree High Yield

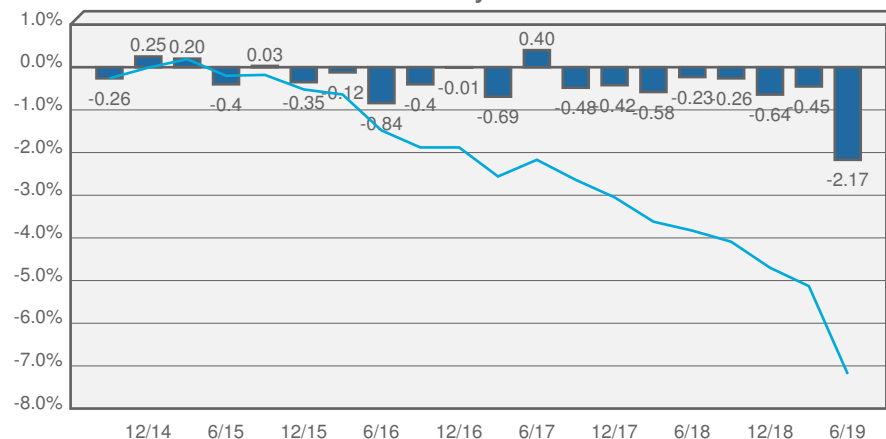
June 30, 2019

Cumulative Skill Analysis vs Benchmark



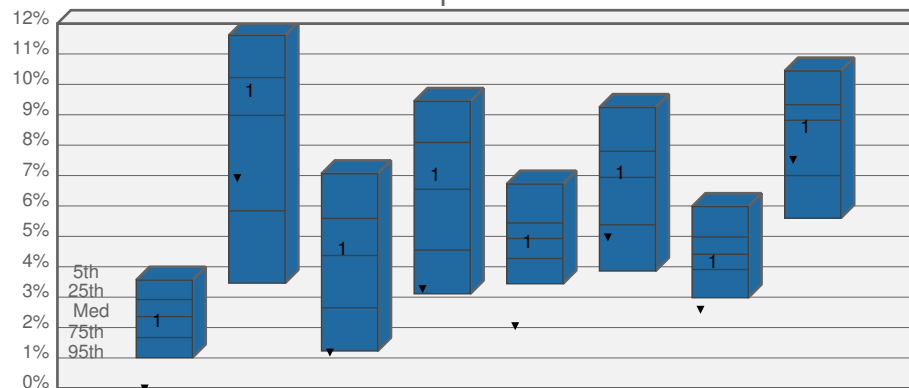
Excess Return:	-1.45	Information Ratio:	-1.39
Excess Risk:	1.04	T-Stat:	-3.12

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Citigroup HY Cash Pay Capped  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▼ Oaktree High Y	0.17 (99)	7.09 (58)	1.35 (94)	3.44 (92)	2.22 (99)	5.14 (78)	2.76 (95)	7.69 (69)
▲ Citigroup HY C	2.34 (51)	9.88 (32)	4.68 (44)	7.12 (42)	4.91 (51)	7.21 (44)	4.28 (57)	8.70 (51)
Median	2.36	8.98	4.37	6.55	4.93	6.94	4.41	8.82
Number of Funds	245	244	242	240	239	231	216	145

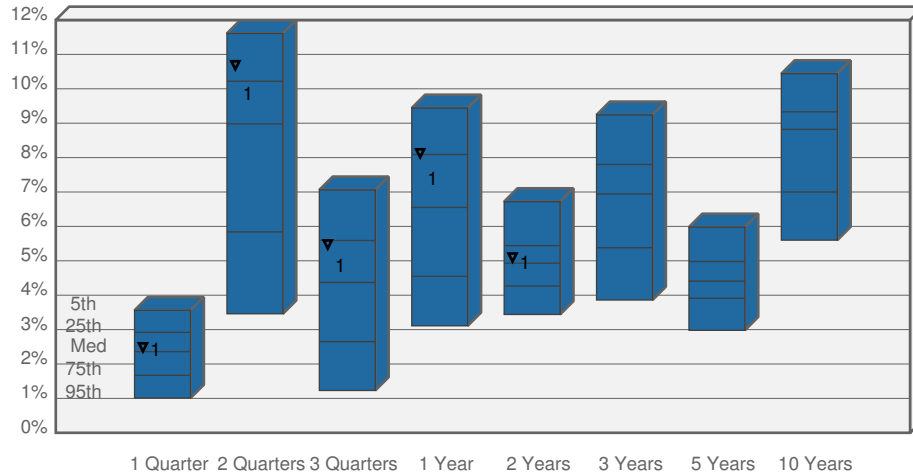
\*Compass Total Returns of Active High Yield Fixed Income Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Federated High Yield

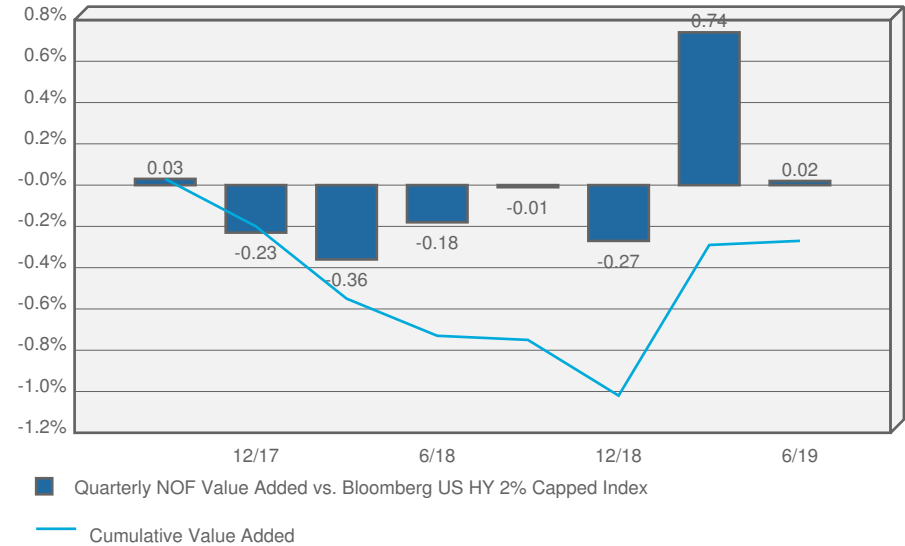
June 30, 2019

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▼ Federated High	2.64 (37)	10.84 (12)	5.63 (22)	8.28 (22)	5.25 (35)			
1 Bloomberg US H	2.50 (44)	9.94 (31)	4.95 (36)	7.48 (35)	5.02 (45)			
Median	2.36	8.98	4.37	6.55	4.93	6.94	4.41	8.82
Number of Funds	245	244	242	240	239	231	216	145

Value-Added Analysis vs Benchmark



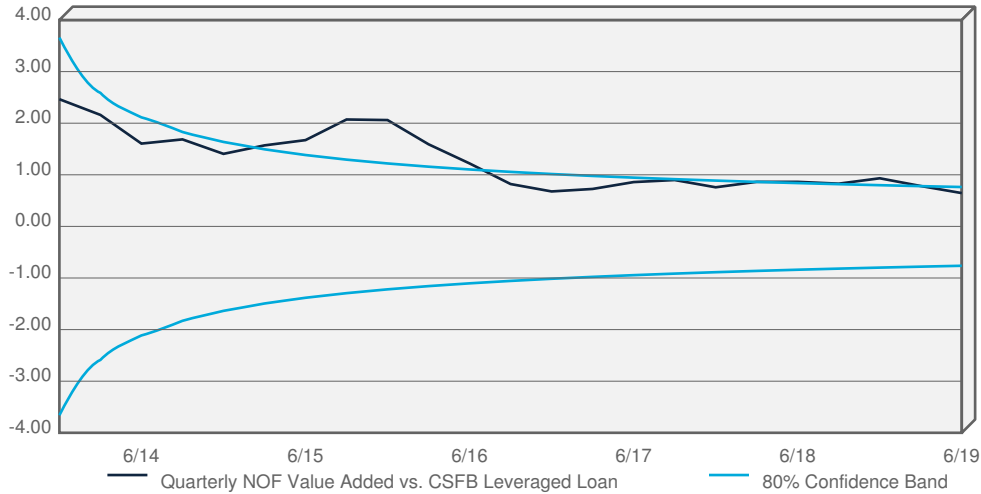
\*Compass Total Returns of Active High Yield Fixed Income Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Sound Point

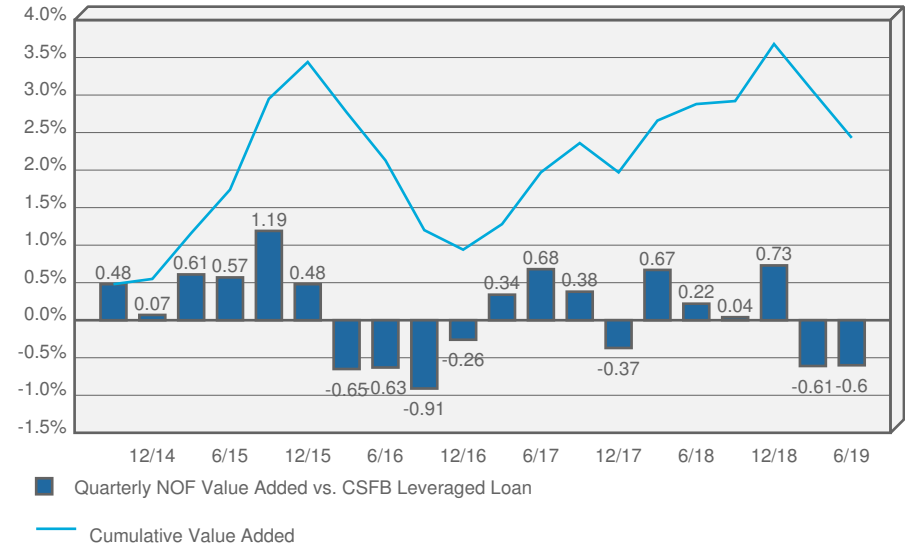
June 30, 2019

Cumulative Skill Analysis vs Benchmark



Excess Return:	0.65	Information Ratio:	0.58
Excess Risk:	1.11	T-Stat:	1.30

Value-Added Analysis vs Benchmark

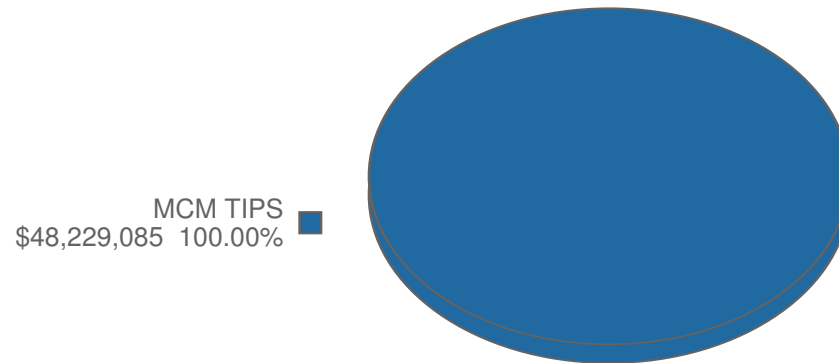




# TIPS



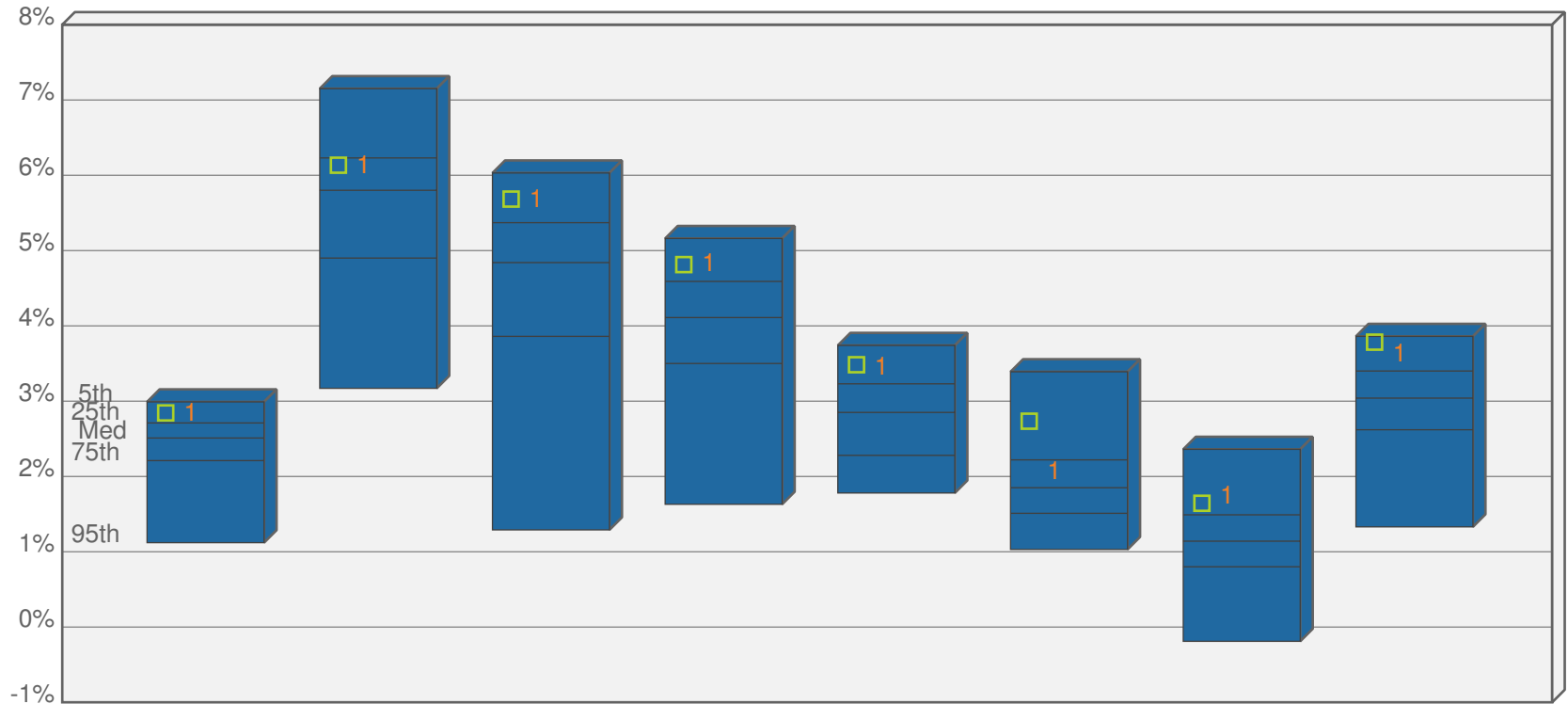
Wilshire Consulting  
MANAGER ALLOCATION  
TIPS Fixed Composite  
*As of June 30, 2019*



# PERFORMANCE COMPARISON

## TIPS Fixed Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
<span style="color: blue;">■</span> TIPS Fixed Composite <span style="color: orange;">1</span> Bloomberg U.S. T	2.86 (11) 2.86 (11)	6.15 (34) 6.15 (34)	5.70 (12) 5.70 (12)	4.83 (14) 4.84 (13)	3.50 (10) 3.47 (10)	2.75 (12) 2.08 (31)	1.66 (18) 1.76 (11)	3.80 ( 5) 3.64 ( 6)
5th %tile	2.99	7.15	6.03	5.16	3.74	3.39	2.36	3.86
25th %tile	2.71	6.23	5.37	4.59	3.23	2.22	1.49	3.40
Median	2.51	5.80	4.84	4.11	2.85	1.85	1.14	3.04
75th %tile	2.21	4.90	3.86	3.50	2.28	1.51	0.80	2.62
95th %tile	1.12	3.17	1.29	1.63	1.78	1.03	-0.19	1.33
Number of Funds	227	227	221	219	209	192	165	92

\*Total Returns of TIPS Mutual Funds Universe - Net of Fees

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

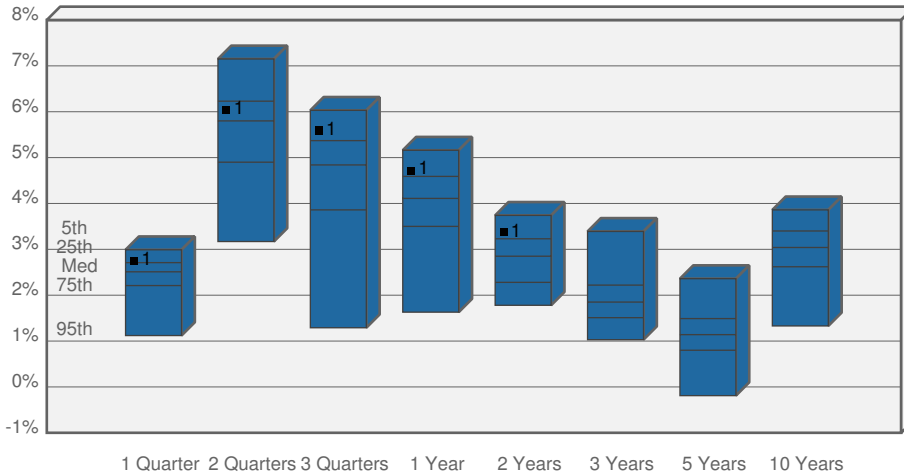
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>MCM TIPS</b>									
<b>Net of Fee Return</b>	<b>2.86</b>	<b>6.15</b>	<b>5.70</b>	<b>4.83</b>				<b>12/31/16</b>	<b>3.15</b>
Bloomberg U.S. TIPS	2.86	6.15	5.70	4.84				12/31/16	3.11
Value Added	-0.00	-0.00	-0.00	-0.00				12/31/16	0.03
<b>TIPS Fixed Composite</b>									
<b>Net of Fee Return</b>	<b>2.86</b>	<b>6.15</b>	<b>5.70</b>	<b>4.83</b>	<b>2.75</b>	<b>1.66</b>	<b>3.80</b>	<b>3/31/08</b>	<b>3.15</b>
Bloomberg U.S. TIPS	2.86	6.15	5.70	4.84	2.08	1.76	3.64	3/31/08	3.10
Value Added	-0.00	-0.00	-0.00	-0.00	0.66	-0.09	0.16	3/31/08	0.05

# INVESTMENT MANAGER ANALYSIS

## MCM TIPS

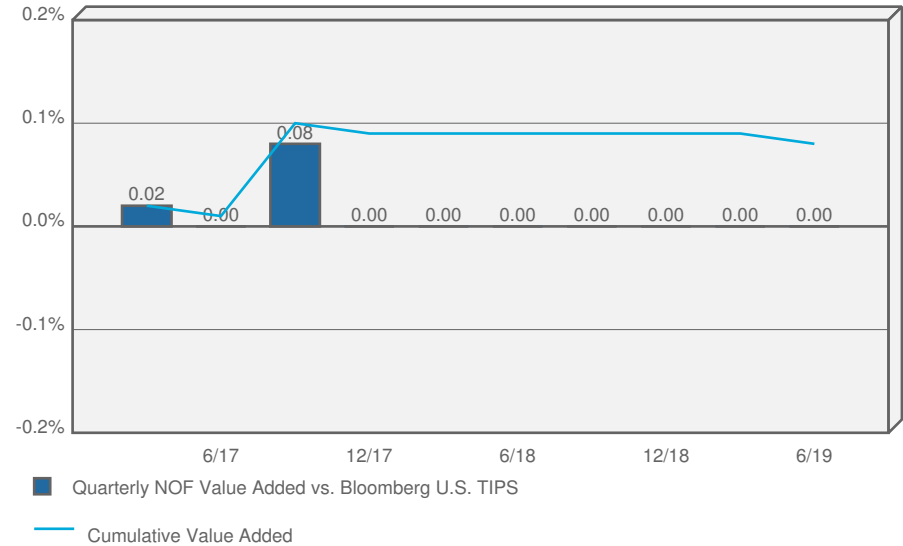
June 30, 2019

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ MCM TIPS	2.86 (11)	6.15 (34)	5.70 (12)	4.83 (14)	3.50 (10)			
1 Bloomberg U.S.	2.86 (11)	6.15 (34)	5.70 (12)	4.84 (13)	3.47 (10)			
Median	2.51	5.80	4.84	4.11	2.85	1.85	1.14	3.04
Number of Funds	227	227	221	219	209	192	165	92

Value-Added Analysis vs Benchmark

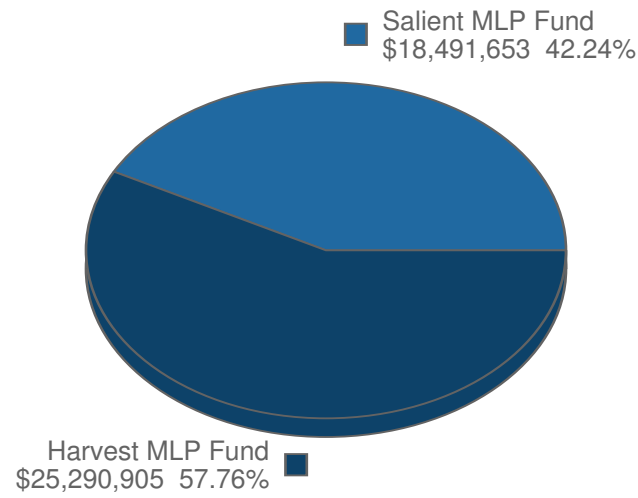


\*Lipper Total Returns of TIPS Mutual Funds Universe - Net of Fees



MLP

Wilshire Consulting  
MANAGER ALLOCATION  
MLP Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

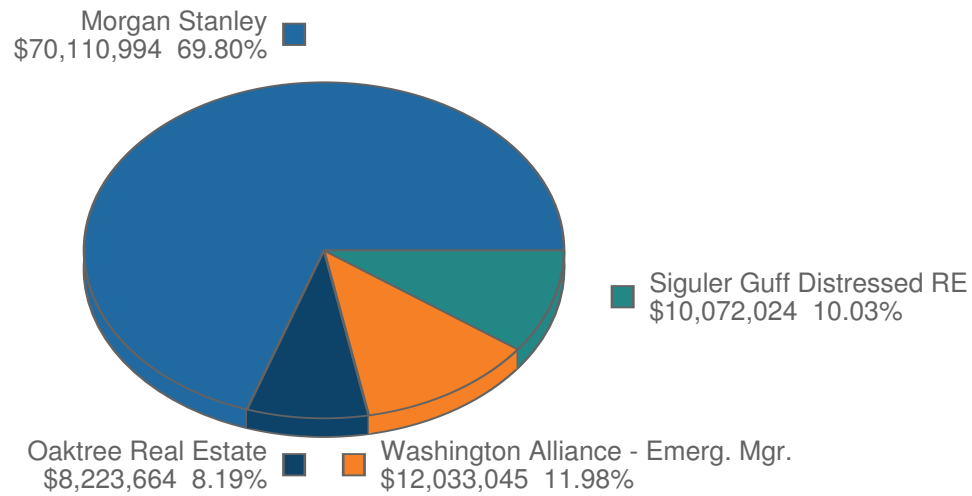
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Salient MLP Fund</b>									
<b>Net of Fee Return</b>	<b>-0.74</b>	<b>19.13</b>	<b>-2.14</b>	<b>1.54</b>				<b>12/31/17</b>	<b>1.85</b>
Alerian MLP Index	0.12	16.96	-3.27	3.09				12/31/17	1.62
Value Added	-0.86	2.17	1.13	-1.55				12/31/17	0.23
<b>Harvest MLP Fund</b>									
<b>Net of Fee Return</b>	<b>-0.26</b>	<b>20.58</b>	<b>-4.48</b>	<b>1.24</b>				<b>3/31/18</b>	<b>11.85</b>
Alerian MLP Index	0.12	16.96	-3.27	3.09				3/31/18	12.03
Value Added	-0.38	3.62	-1.21	-1.84				3/31/18	-0.18
<b>MLP Composite</b>									
<b>Net of Fee Return</b>	<b>-0.47</b>	<b>19.96</b>	<b>-3.51</b>	<b>1.37</b>				<b>3/31/18</b>	<b>11.84</b>
Alerian MLP Index	0.12	16.96	-3.27	3.09				3/31/18	12.03
Value Added	-0.59	3.00	-0.24	-1.72				3/31/18	-0.18



# REAL ESTATE



Wilshire Consulting  
MANAGER ALLOCATION  
Real Estate Composite  
As of June 30, 2019



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

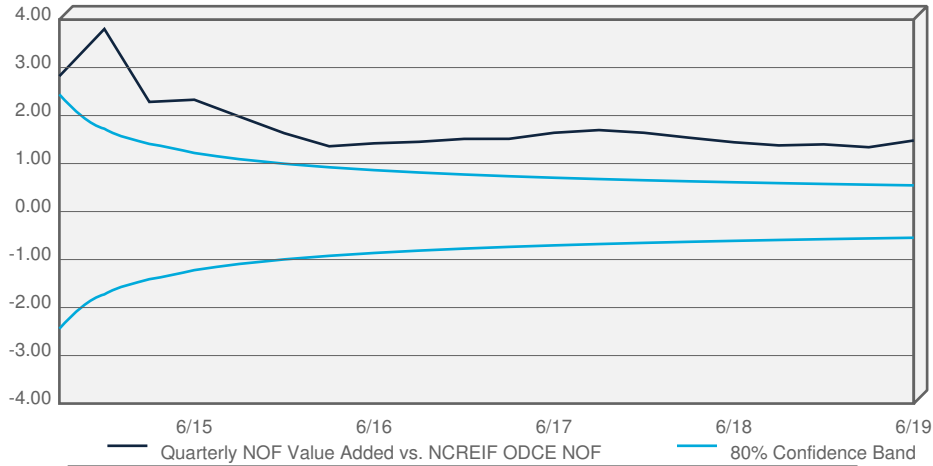
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Morgan Stanley</b>									
Net of Fee Return	1.82	3.11	5.14	7.20	8.23	10.38	10.41	3/31/03	8.81
NCREIF ODCE NOF	0.77	1.98	3.53	5.47	6.61	8.76	8.87	3/31/03	7.21
Value Added	1.05	1.13	1.61	1.73	1.62	1.61	1.54	3/31/03	1.60
<b>Oaktree Real Estate</b>									
Net of Fee Return	1.11	1.71	4.28	6.96	5.96	8.46		9/30/13	6.87
<b>Siguler Guff Distressed RE</b>									
Net of Fee Return	0.37	0.37	3.32	10.03	15.17	9.02		3/31/14	8.57
<b>Washington Alliance - Emerg. Mgr.</b>									
Net of Fee Return	0.83	0.83	2.16	4.83	20.02	18.26		9/30/13	14.57
<b>Real Estate Composite</b>									
Net of Fee Return	1.49	2.44	4.55	7.29	9.64	10.31	10.15	3/31/03	8.92
NCREIF ODCE NOF	0.77	1.98	3.53	5.47	6.61	8.76	8.87	3/31/03	7.21
Value Added	0.72	0.46	1.03	1.82	3.04	1.54	1.28	3/31/03	1.71
<b>ERECT Fund II</b>									
Net of Fee Return	-0.24	3.81	14.11	15.79	7.68	7.89	8.66	6/30/05	7.26
Consumer Price Index	0.76	1.95	1.47	1.65	2.05	1.45	1.73	6/30/05	1.99
Value Added	-1.01	1.85	12.64	14.14	5.63	6.44	6.93	6/30/05	5.27
<b>ERECT Composite</b>									
Net of Fee Return	-0.24	3.81	14.11	15.79	7.68	7.89		9/30/10	7.45

# INVESTMENT MANAGER ANALYSIS

Morgan Stanley

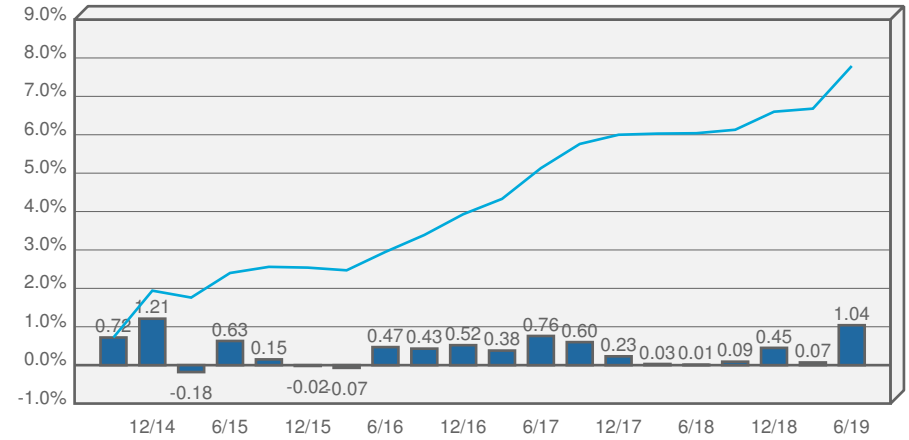
June 30, 2019

Cumulative Skill Analysis vs Benchmark



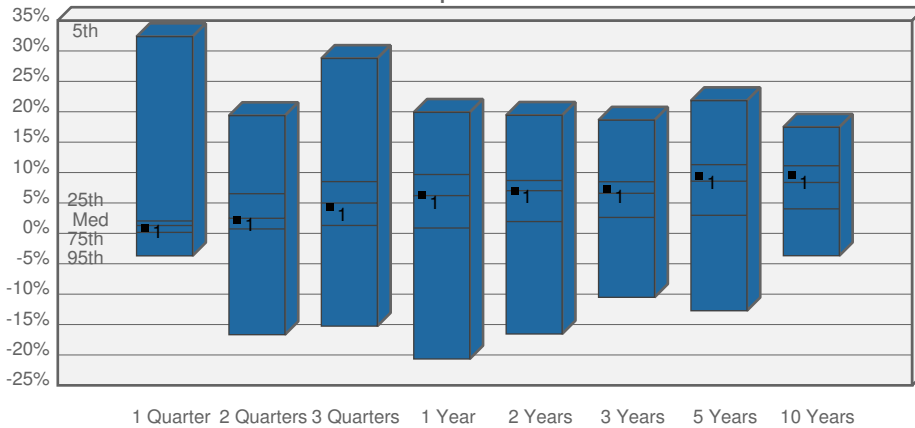
Excess Return:	1.48	Information Ratio:	2.00
Excess Risk:	0.74	T-Stat:	4.46

Value-Added Analysis vs Benchmark



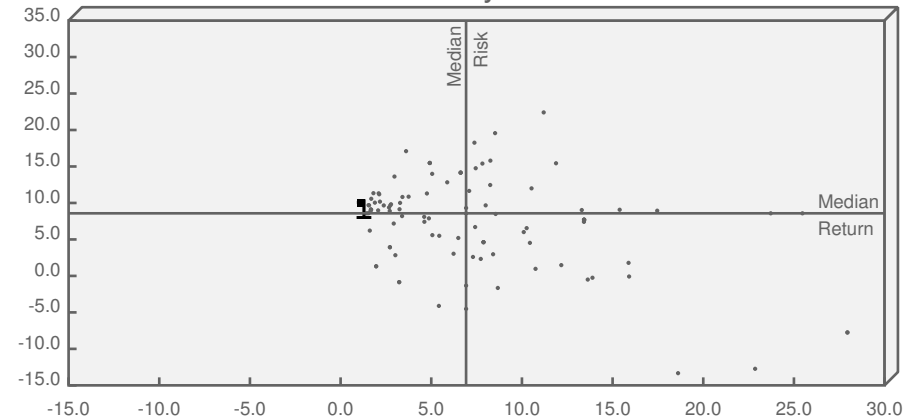
Quarterly NOF Value Added vs. NCREIF ODCE NOF	Cumulative Value Added
---	------------------------

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Morgan Stanley	1.82 (34)	3.11 (42)	5.14 (49)	7.20 (42)	7.79 (34)	8.23 (28)	10.38 (29)	10.41 (27)
1 NCREIF ODCE NOF	0.78 (60)	1.99 (59)	3.54 (60)	5.48 (56)	6.47 (57)	6.61 (49)	8.76 (49)	8.87 (43)
Median	1.29	2.48	4.99	6.21	7.02	6.59	8.58	8.37
Number of Funds	106	113	113	113	112	109	107	73

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Morgan Stanley	■	10.38	29	1.69	92
NCREIF ODCE NOF	1	8.76	49	1.58	96
Median		8.58		6.92	

\*TUCS Total Returns of Real Estate Portfolios Universe - Gross of Fees

# PORTFOLIO RATE OF RETURN

Oaktree Real Estate\*

As of June 30, 2019

Quarter	Commitment Value \$	Beginning Capital Account	Contribution	Distribution	Appreciation	Expenses	Investment Fees	Ending Capital Account	Internal Rate of Return	Annualized IRR
09/13	20,000	0	9,400	0	0	0	0	9,400	0.00	NA
12/13		9,400	309	1,410	-19	0	309	7,971	-3.76	NA
03/14		7,971	4,000	0	-64	0	0	11,907	-4.16	NA
06/14		11,907	2,074	0	316	0	74	14,223	-1.39	NA
09/14		14,223	74	0	552	0	74	14,775	2.81	2.72
12/14		14,775	1,275	0	925	0	75	16,900	9.56	7.36
03/15		16,900	1,875	0	944	0	75	19,643	15.85	10.08
06/15		19,643	1,075	0	946	0	75	21,590	21.58	11.60
09/15		21,590	2,075	0	771	0	75	24,361	25.63	11.88
12/15		24,361	75	2,490	493	0	75	22,364	27.44	11.20
03/16		22,364	385	600	105	310	75	21,869	27.02	9.90
06/16		21,869	0	913	0	287	0	20,669	26.64	8.85
09/16		20,669	0	0	0	0	0	20,669	26.43	8.03
12/16		20,669	214	2,821	513	0	214	18,362	28.46	7.91
03/17		18,362	200	400	-15	139	61	17,947	28.08	7.25
06/17		17,947	0	964	0	236	0	16,747	28.27	6.80
09/17		16,747	0	524	0	76	0	16,147	28.54	6.42
12/17		16,147	0	2,738	1,103	0	0	14,511	36.38	7.50
03/18		14,511	0	2,082	134	67	0	12,497	38.03	7.37
06/18		12,497	0	725	251	186	0	11,836	40.69	7.40
09/18		11,836	0	1,464	304	0	0	10,677	43.92	7.50
12/18		10,677	0	913	269	185	0	9,848	47.13	7.58
03/19		9,848	0	856	58	60	0	8,991	48.90	7.46
06/19		8,991	0	867	100	0	0	8,224	51.12	7.40
<b>Total</b>	<b>20,000</b>		<b>23,032</b>	<b>19,765</b>	<b>7,686</b>	<b>1,546</b>	<b>1,182</b>	<b>8,224</b>	<b>51.12</b>	<b>7.40</b>

\*Dollar values are shown in thousands

# PORTFOLIO RATE OF RETURN

Washington Alliance - Emerg. Mgr.\*

As of June 30, 2019

Quarter	Commitment Value \$	Beginning Capital Account	Contribution	Distribution	Appreciation	Expenses	Investment Fees	Ending Capital Account	Internal Rate of Return	Annualized IRR
09/13	5,000	0	1,376	0	0	0	0	1,376	0.00	NA
12/13		1,376	203	0	0	0	0	1,579	0.00	NA
03/14		1,579	819	0	0	0	0	2,397	0.00	NA
06/14		2,397	7	27	-124	0	7	2,246	-6.89	NA
09/14		2,246	1,810	90	200	0	0	4,166	3.25	3.21
12/14		4,166	0	152	95	0	0	4,109	6.55	5.14
03/15		4,109	0	0	0	0	0	4,109	6.00	3.93
06/15		4,109	803	0	462	0	11	5,363	20.84	11.34
09/15		5,363	0	200	355	0	0	5,519	31.06	14.38
12/15		5,519	0	214	160	0	0	5,465	34.65	14.03
03/16		5,465	0	0	0	0	0	5,465	33.58	12.20
06/16		5,465	829	0	0	0	0	6,294	32.68	10.77
09/16		6,294	0	200	0	0	0	6,094	31.56	9.52
12/16		6,094	0	0	778	0	0	6,872	52.51	13.78
03/17		6,872	371	227	0	0	0	7,016	51.32	12.51
06/17		7,016	0	0	364	0	0	7,380	60.03	13.30
09/17		7,380	0	226	530	0	0	7,683	73.24	14.66
12/17		7,683	384	256	185	0	0	7,997	76.78	14.28
03/18		7,997	1,213	0	0	0	0	9,210	75.28	13.23
06/18		9,210	0	329	2,446	0	0	11,327	136.99	19.85
09/18		11,327	0	0	296	0	0	11,622	141.97	19.26
12/18		11,622	0	2,016	131	0	0	9,738	144.01	18.45
03/19		9,738	683	0	0	0	0	10,421	143.48	17.51
06/19		10,421	1,695	183	100	0	0	12,033	143.92	16.73
<b>Total</b>	<b>5,000</b>		<b>10,193</b>	<b>4,121</b>	<b>5,978</b>	<b>0</b>	<b>18</b>	<b>12,033</b>	<b>143.92</b>	<b>16.73</b>

\*Dollar values are shown in thousands

# PORTFOLIO RATE OF RETURN

Siguler Guff Distressed RE\*

As of June 30, 2019

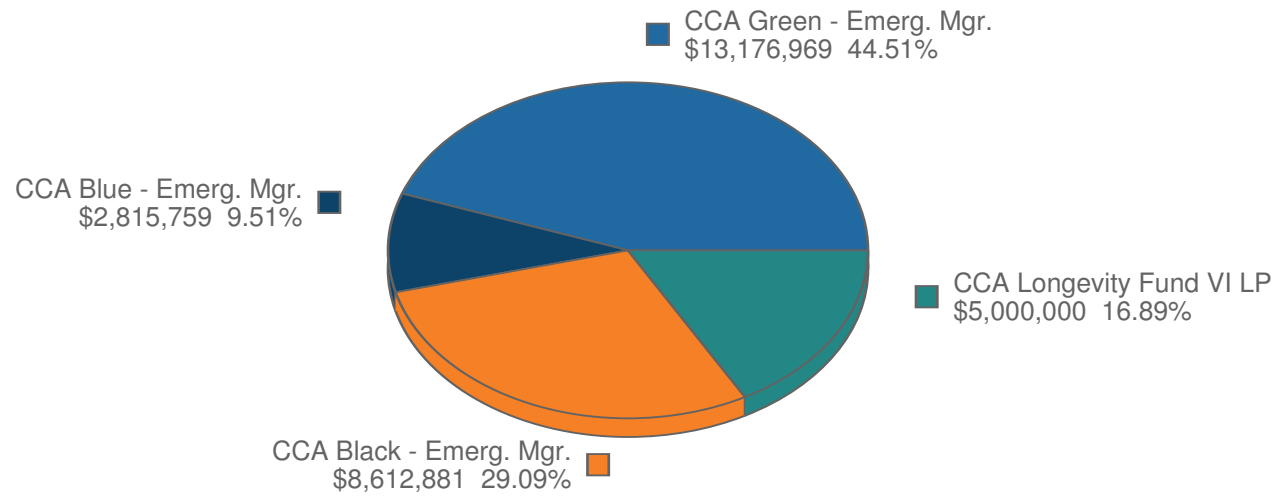
Quarter	Commitment Value \$	Beginning Capital Account	Contribution	Distribution	Appreciation	Expenses	Investment Fees	Ending Capital Account	Internal Rate of Return	Annualized IRR
03/14	15,000	0	4,200	0	0	0	0	4,200	0.00	NA
06/14		4,200	0	900	0	0	0	3,300	0.00	NA
09/14		3,300	900	0	141	0	0	4,341	3.60	NA
12/14		4,341	900	0	-8	0	0	5,233	3.28	NA
03/15		5,233	0	462	0	0	0	4,771	3.13	2.83
06/15		4,771	690	2	-61	0	0	5,398	1.67	1.23
09/15		5,398	2,250	2	-182	0	0	7,465	-2.36	-1.48
12/15		7,465	375	2	108	0	0	7,946	-0.03	-0.02
03/16		7,946	465	2	0	0	0	8,409	-0.03	-0.01
06/16		8,409	1,163	2	0	0	0	9,570	-0.03	-0.01
09/16		9,570	264	2	609	0	0	10,441	9.88	3.67
12/16		10,441	570	186	0	0	0	10,826	9.37	3.18
03/17		10,826	0	2	450	0	0	11,273	15.70	4.80
06/17		11,273	0	369	0	0	0	10,904	15.15	4.29
09/17		10,904	0	2	694	0	0	11,597	24.61	6.28
12/17		11,597	0	406	785	0	0	11,976	35.15	8.11
03/18		11,976	0	541	0	0	0	11,434	34.55	7.49
06/18		11,434	0	1,514	1,039	0	0	10,960	48.88	9.56
09/18		10,960	180	429	710	0	0	11,421	58.77	10.55
12/18		11,421	0	1,485	303	0	0	10,239	63.26	10.61
03/19		10,239	428	129	0	0	0	10,537	63.71	10.13
06/19		10,537	0	497	72	5	36	10,072	64.67	9.75
<b>Total</b>	<b>15,000</b>		<b>12,384</b>	<b>6,933</b>	<b>4,661</b>	<b>5</b>	<b>36</b>	<b>10,072</b>	<b>64.67</b>	<b>9.75</b>

\*Dollar values are shown in thousands



# LIFE SETTLEMENTS

Wilshire Consulting  
**MANAGER ALLOCATION**  
Life Settlement Composite  
*As of June 30, 2019*





# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended June 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>CCA Green Net of Fee Return</b>	<b>-0.07</b>	<b>0.52</b>	<b>-1.80</b>	<b>-0.85</b>	<b>-7.09</b>	<b>-8.70</b>		<b>9/30/09</b>	<b>6.53</b>
<b>CCA Blue Net of Fee Return</b>	<b>-3.12</b>	<b>-4.39</b>	<b>-9.33</b>	<b>-9.24</b>	<b>-7.13</b>	<b>-4.84</b>		<b>12/31/12</b>	<b>-4.51</b>
<b>CCA Black Net of Fee Return</b>	<b>1.23</b>	<b>1.43</b>	<b>2.86</b>	<b>2.93</b>	<b>4.14</b>			<b>12/31/14</b>	<b>6.48</b>
<b>CCA Longevity Fund VI LP Net of Fee Return</b>	<b>0.00</b>	<b>0.00</b>						<b>12/31/18</b>	<b>0.00</b>
<b>Life Settlement Composite Net of Fee Return</b>	<b>0.02</b>	<b>0.21</b>	<b>-1.19</b>	<b>-0.64</b>	<b>-4.16</b>	<b>-5.52</b>		<b>9/30/09</b>	<b>8.19</b>



# PRIVATE EQUITY

Wilshire Consulting  
**MANAGER ALLOCATION**  
 Private Equity Composite  
 As of June 30, 2019

