Wilshire

WILSHIRE ASSOCIATES

Wilshire Consulting

Retirement Board of Allegheny County

Quarterly Executive Summary

September 30, 2019

CAPITAL MARKET UPDATE

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YOU'RE INVITED!

38th Annual Client Conference

Sunday, April 5th – Tuesday, April 7th

The Ritz-Carlton
Marina del Rey, California

Designed to review the current market environment, propose thought-leading investment strategies, and provide networking opportunities for our clients.

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MARKET COMMENTARY

U.S. Equity

The U.S. stock market was up 1.2% for the third quarter of 2019 and 20.1% for the year. Trade talks with China continue to be an important unknown while the Federal Reserve's possible continued monetary easing has added to the uncertainty surrounding markets. Investors are encouraged, however, as the U.S. economy remains sound, especially compared to global economic conditions.

The 10-year U.S. Treasury yield has fallen a full 1% this year. The problem for investors in search of yield is the U.S. currently offers some of the best rates in the developed world. Also, some of the world's major economies such as France and Germany are experiencing negative rates both in the short and long-term portion of the curve. A recent study by the Bank for International Settlements shows there is a record $17 trillion in global debt that carries a negative yield, equal to approximately 20% of global GDP.

Non-U.S. Equity

Equity markets outside of the U.S. continue to enjoy a strong 2019. Germany's manufacturing recession worsened during the quarter to levels last seen during the global financial crisis. News out of Britain is more encouraging although the looming Brexit deadline of October 31 is rapidly approaching without an exit deal. Emerging Markets were down, in aggregate, largely due to a negative quarter for China, which comprises nearly one-third of the index.

Fixed Income

The U.S. Treasury yield curve fell across all maturities with the biggest decreases occurring in the long end of the curve. The Federal Open Market Committee decreased its overnight rate by 0.25% at both the July and September meetings. Credit spreads were little changed by quarter-end within both the investment grade and high yield markets.

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SEPTEMBER 2019 ASSET CLASS ASSUMPTIONS

	EQUITY						FIXED INCOME						REAL ASSETS					
													Real Estate					
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Dev ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
COMPOUND RETURN (%)	6.00	6.50	6.50	6.75	6.45	8.05	1.60	2.70	3.25	1.90	4.20	0.75	4.70	4.90	6.60	3.15	5.70	1.55
ARITHMETIC RETURN (%)	7.30	7.95	9.45	8.35	7.75	11.40	1.60	2.85	3.70	2.10	4.65	0.80	6.05	6.05	7.50	4.20	6.05	1.55
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	1.60	2.80	4.05	2.10	7.55	1.35	3.55	3.55	2.60	1.60	2.35	0.00
CORRELATIONS																		
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

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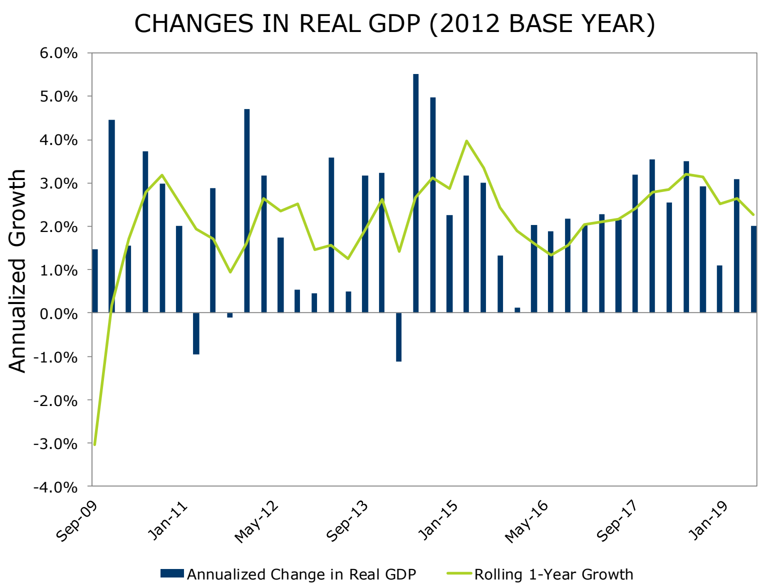
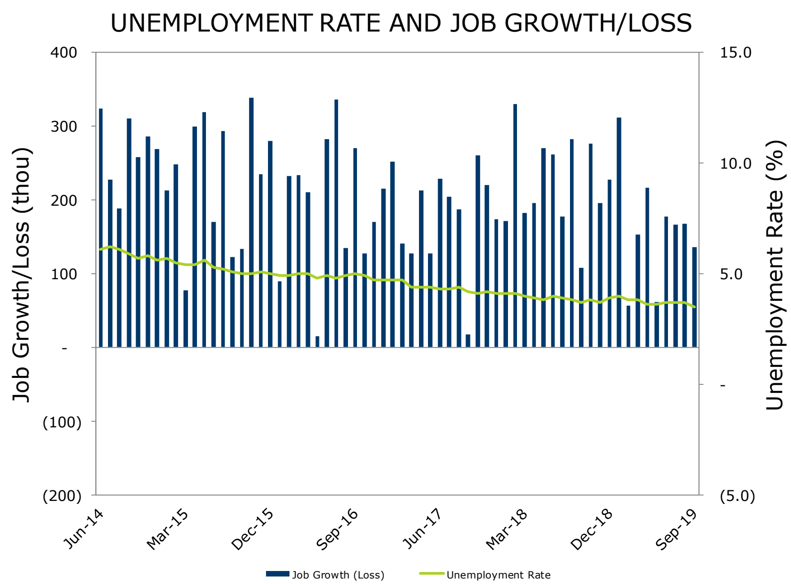
ECONOMIC REVIEW

AS OF SEPT 30, 2019	KEY ECONOMIC INDICATORS			
CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Sep-19	0.0	3-Mo.	0.4
	Aug-19	0.1	12-Mo.	1.7
	Jul-19	0.3	10-Yr. (Annual)	1.7
BREAKEVEN INFLATION	10-Yr.	1.5		
CONSUMER SENTIMENT	Sep-19	93.2		
U. OF MICHIGAN SURVEY	Aug-19	89.8		
	1-Yr. Ago	100.1	10-Yr. Avg	84.8
MANUFACTURING	Sep-19	47.8	CHANGE IN SECTOR	
INST. FOR SUPPLY MGMT	Aug-19	49.1	>50	Expansion
PURCHASING MNGRS' IDX	1-Yr. Avg.	53.5	<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

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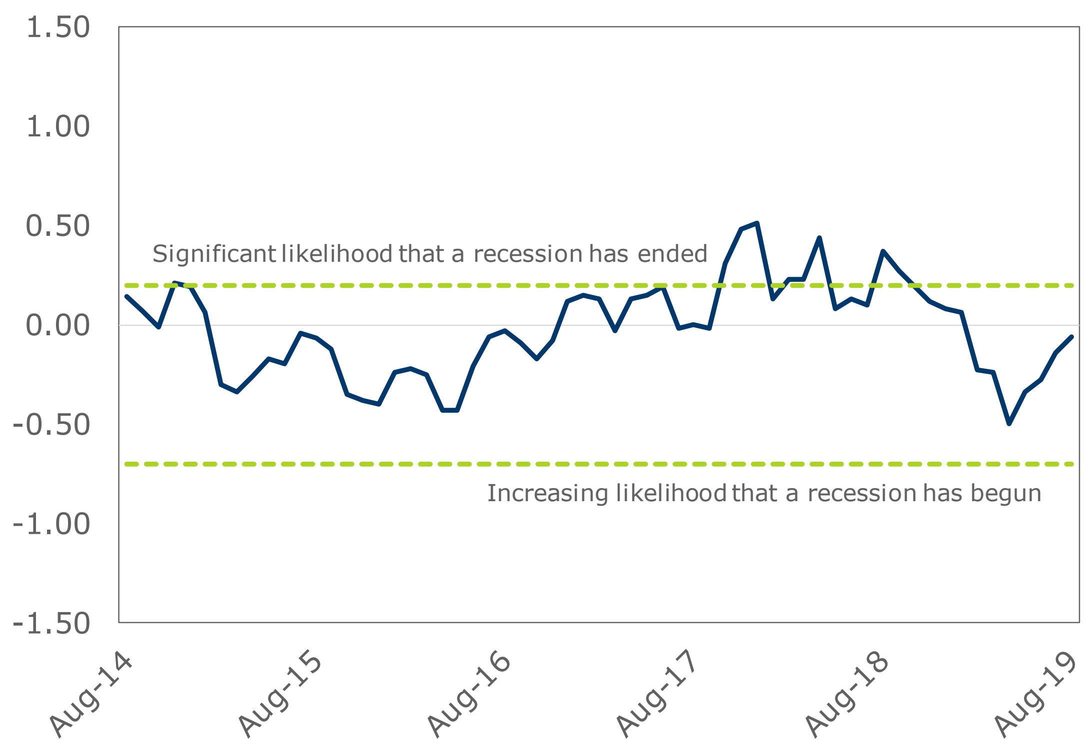
NATIONAL ACTIVITY INDEX

- Weighted average of 85 monthly indicators including 1) production and income, 2) employment, 3) consumption and housing and 4) sales, orders, and inventories (all inflation adjusted)
- Aims to identify when a recession may begin (during periods of growth) or end (when already experiencing a recession)

CHICAGO FED NATIONAL ACTIVITY INDEX (3M MA)



Data sources: Federal Reserve

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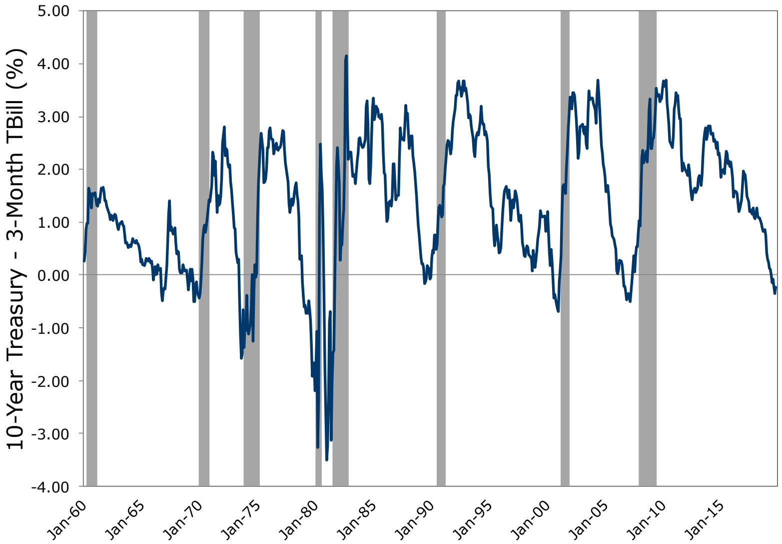
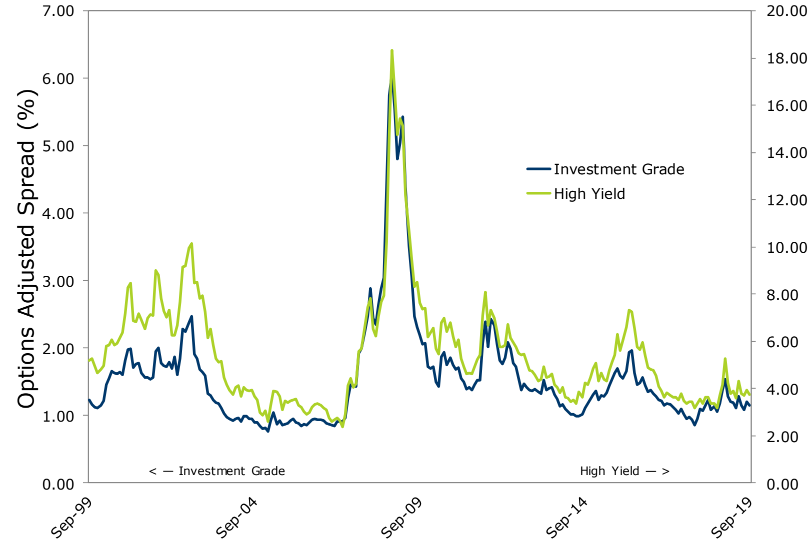
RISK MONITOR

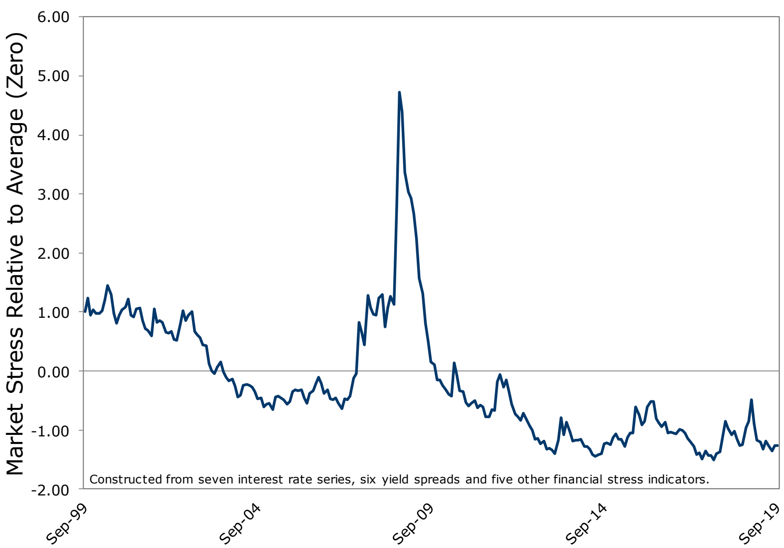
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



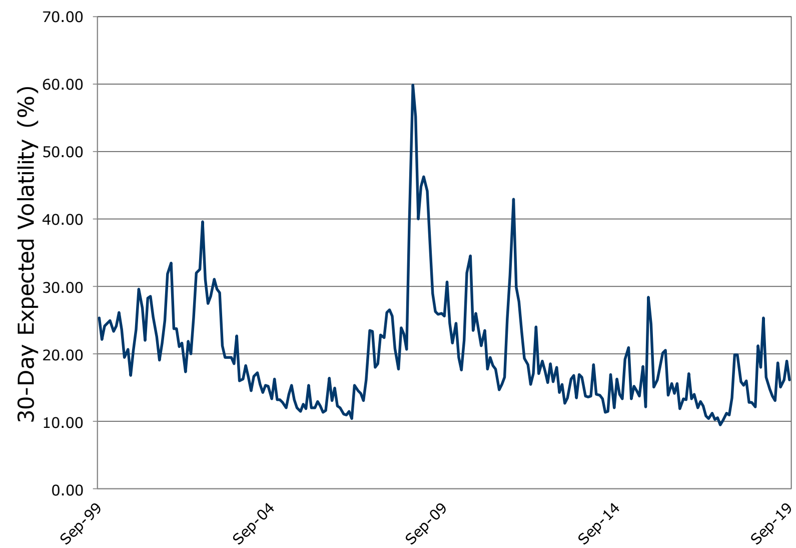
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



CBOE VOLATILITY INDEX



Data sources: Federal Reserve, Bloomberg Barclays

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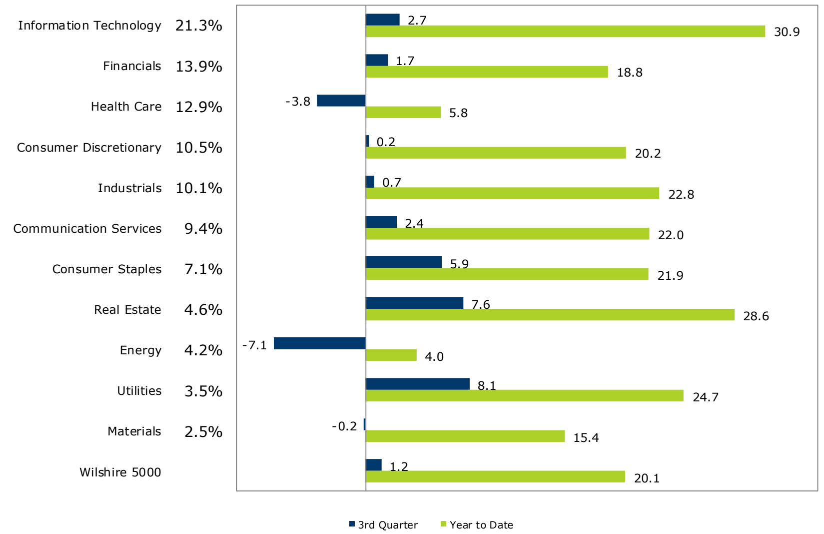
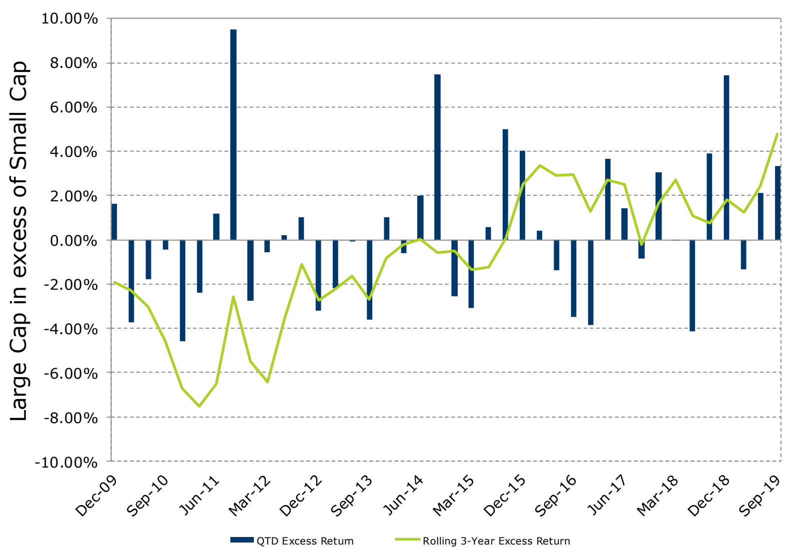
U.S. EQUITY MARKET

AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	1.2	20.1	3.0	12.9	10.6	13.1
WILSHIRE U.S. LARGE CAP	1.5	20.6	4.0	13.4	10.9	13.2
WILSHIRE U.S. SMALL CAP	-1.8	15.8	-7.0	8.2	8.0	12.1
WILSHIRE U.S. LARGE GROWTH	0.8	22.1	1.5	16.0	12.3	14.1
WILSHIRE U.S. LARGE VALUE	2.2	19.2	6.4	10.8	9.4	12.3
WILSHIRE U.S. SMALL GROWTH	-2.7	17.6	-6.6	11.0	8.5	12.7
WILSHIRE U.S. SMALL VALUE	-0.9	13.9	-7.4	5.5	7.4	11.4
WILSHIRE REIT INDEX	7.9	27.2	18.4	7.2	10.2	13.1
MSCI USA MIN. VOL. INDEX	4.1	23.5	14.0	13.8	12.9	13.7
FTSE RAFI U.S. 1000 INDEX	1.7	18.1	1.8	10.6	8.7	12.2

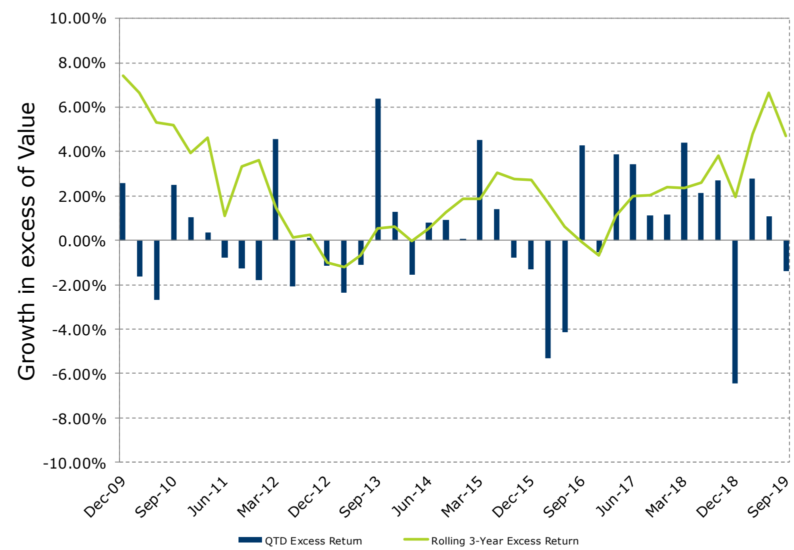
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



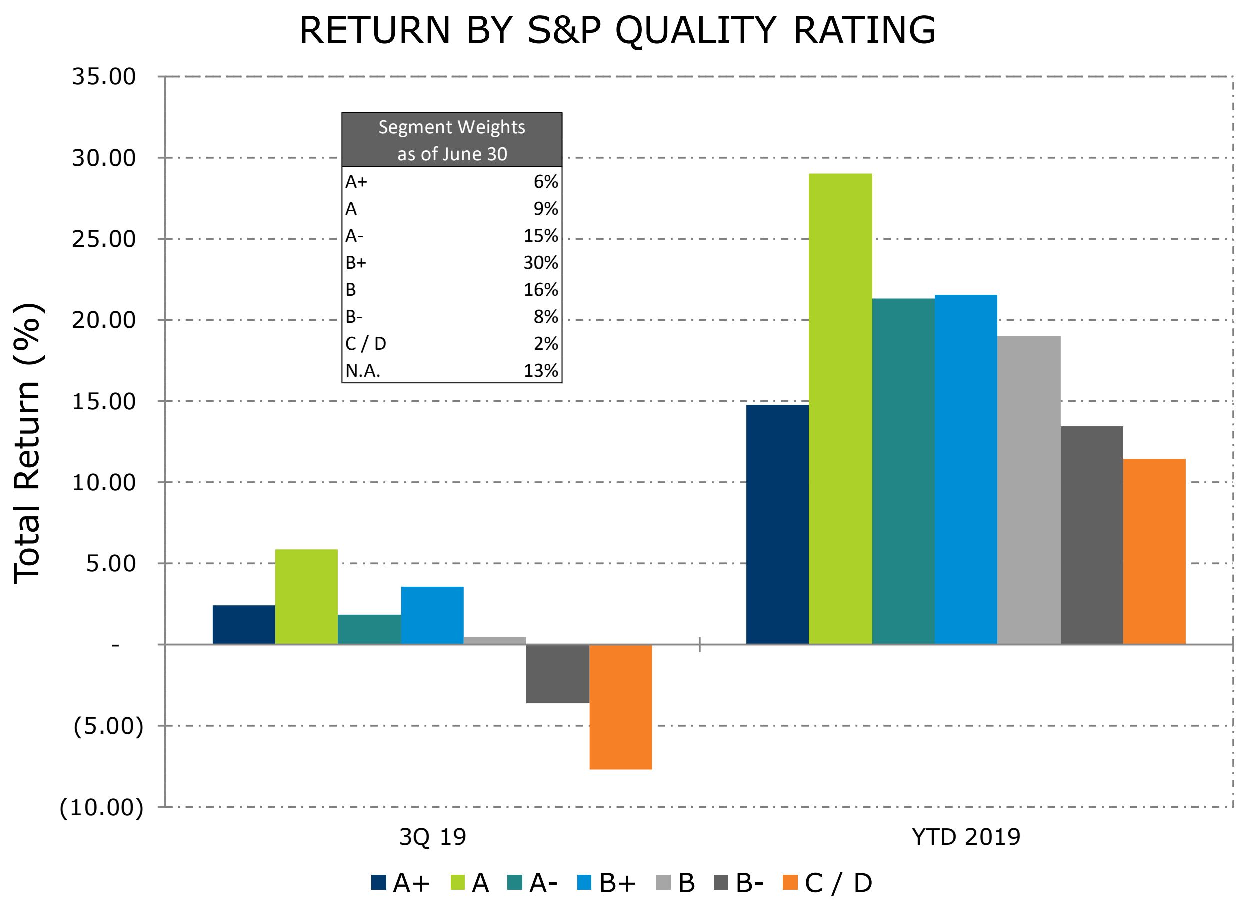
GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

RETURNS BY QUALITY SEGMENT

Higher quality names continue to lead the market during the third quarter



Data sources: Wilshire Atlas

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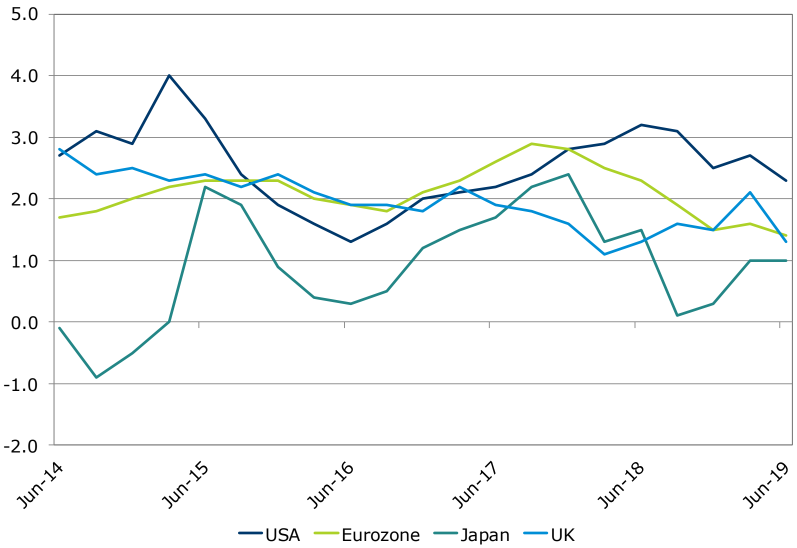
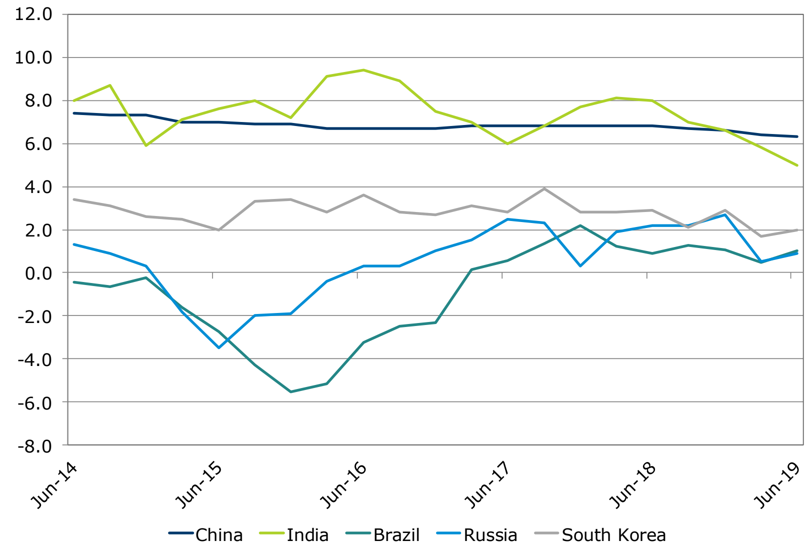
NON-U.S. GROWTH AND INFLATION

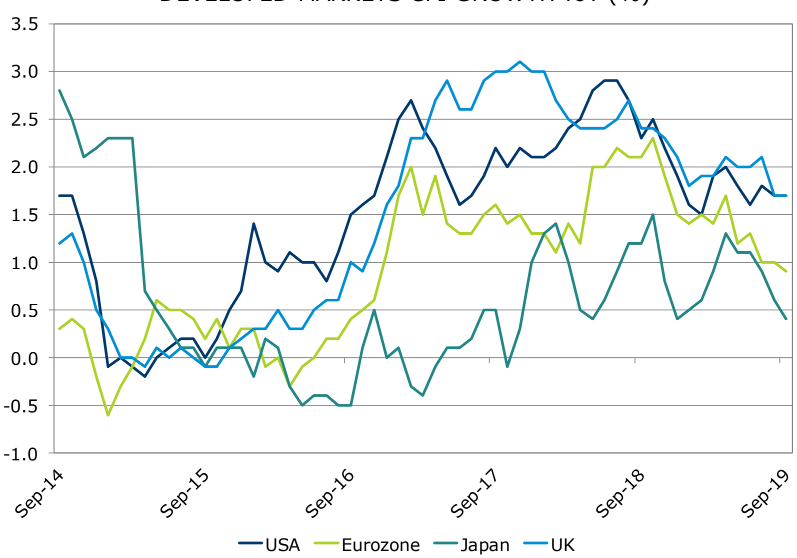
DEVELOPED MARKETS REAL GDP GROWTH YoY (%)



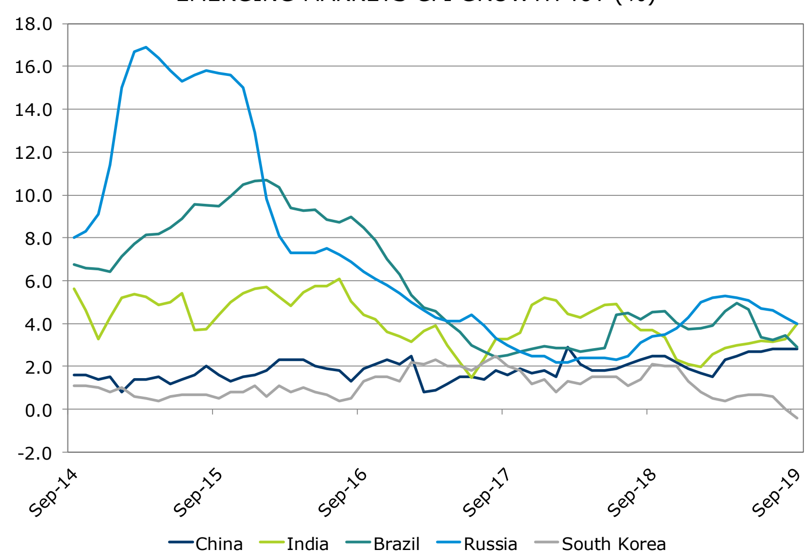
EMERGING MARKETS REAL GDP GROWTH YoY (%)



DEVELOPED MARKETS CPI GROWTH YoY (%)



EMERGING MARKETS CPI GROWTH YoY (%)



Data sources: Bloomberg

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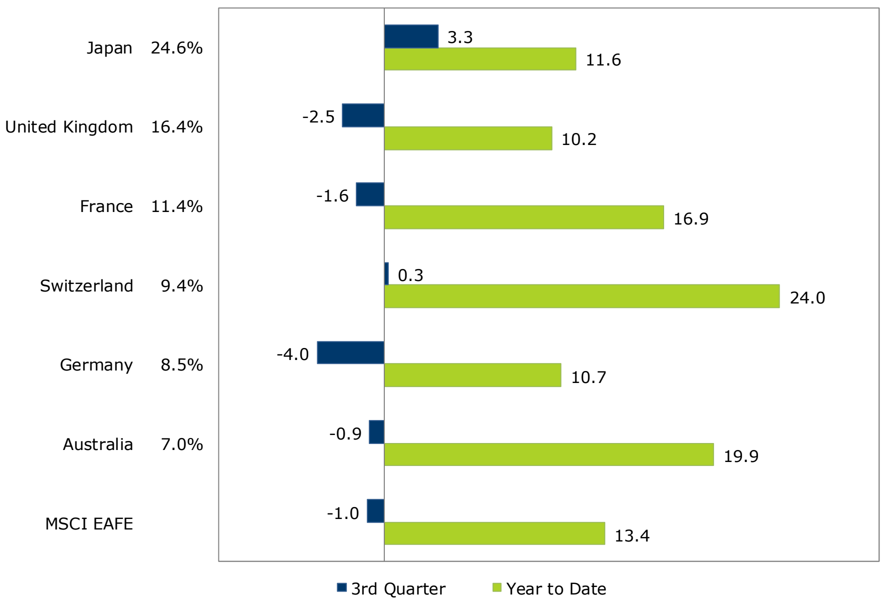
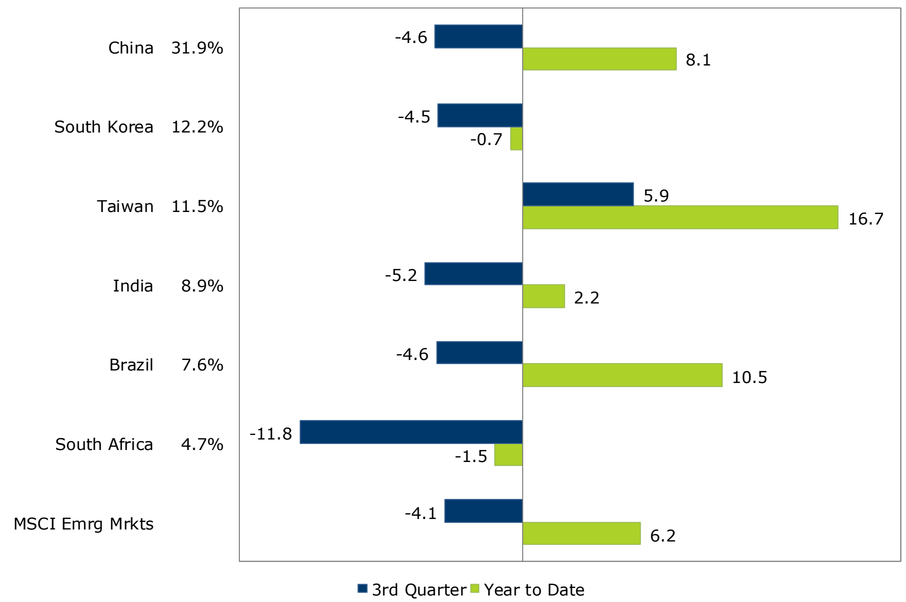
NON-U.S. EQUITY MARKET

AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US ($G)	-1.7	12.1	-0.7	6.8	3.4	4.9
MSCI EAFE ($G)	-1.0	13.4	-0.8	7.0	3.8	5.4
MSCI EMERGING MARKETS ($G)	-4.1	6.2	-1.6	6.4	2.7	3.7
MSCI FRONTIER MARKETS ($G)	-1.0	11.0	6.2	7.4	-0.9	4.0
MSCI ACWI EX-US GROWTH ($G)	-0.8	16.6	2.4	7.8	5.2	6.2
MSCI ACWI EX-US VALUE ($G)	-2.7	7.5	-3.9	5.9	1.5	3.6
MSCI ACWI EX-US SMALL ($G)	-1.1	10.7	-5.2	5.0	4.5	6.8
MSCI ACWI MINIMUM VOLATILITY	2.9	18.2	10.5	10.5	10.1	10.9
MSCI EAFE MINIMUM VOLATILITY	0.9	12.4	4.1	6.7	6.8	7.7
FTSE RAFI DEVELOPED EX-US	-1.3	9.9	-4.2	7.0	2.8	4.2
MSCI EAFE LC (G)	1.8	16.2	2.1	8.8	6.5	7.5

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



Data sources: Wilshire Compass

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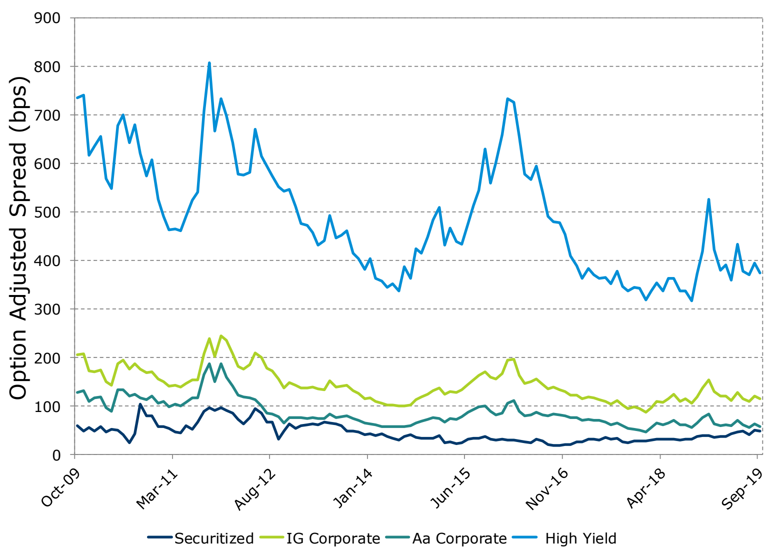
U.S. FIXED INCOME

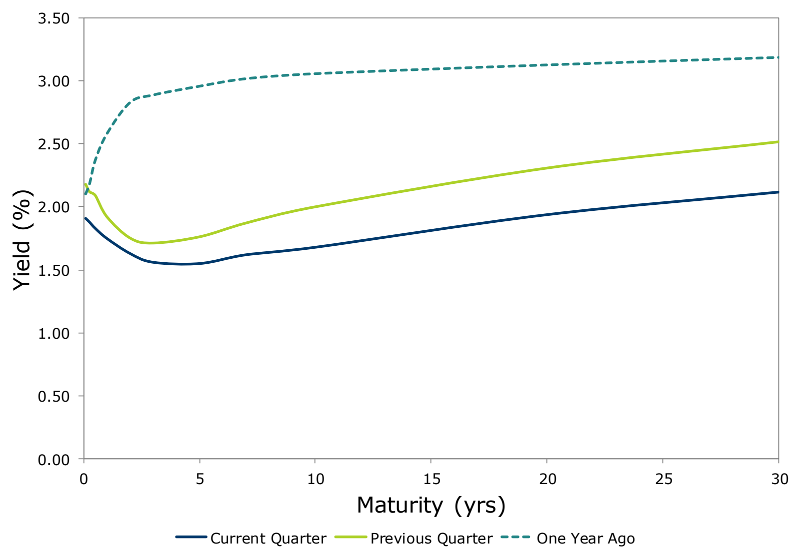
AS OF SEPT 30, 2019	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.3	5.8	2.3	8.5	10.3	2.9	3.4	3.7
BLOOMBERG BARCLAYS TREASURY	1.7	6.6	2.4	7.7	10.5	2.2	2.9	3.1
BLOOMBERG BARCLAYS GOV'T-REL.	2.4	5.8	2.4	8.8	10.1	3.2	3.4	3.5
BLOOMBERG BARCLAYS SECURITIZED	2.4	2.9	1.4	5.8	7.9	2.4	2.8	3.3
BLOOMBERG BARCLAYS CORPORATE	2.9	7.8	3.1	13.2	13.0	4.5	4.7	5.6
BLOOMBERG BARCLAYS LT G/C	3.0	15.9	6.6	20.9	21.9	5.6	6.8	7.4
BLOOMBERG BARCLAYS LT TREASURY	2.1	18.3	7.9	19.8	24.8	4.1	6.8	6.9
BLOOMBERG BARCLAYS LT GOV't-REL.	3.5	12.7	5.6	18.8	18.8	6.0	6.5	7.3
BLOOMBERG BARCLAYS LT CORP.	3.6	14.4	5.6	22.3	20.1	6.5	7.0	7.8
BLOOMBERG BARCLAYS U.S. TIPS *	1.6	7.6	1.4	7.6	7.1	2.2	2.4	3.5
BLOOMBERG BARCLAYS HIGH YIELD	6.3	3.1	1.3	11.4	6.4	6.1	5.4	7.9
TREASURY BILLS	1.9	0.25	0.6	1.8	2.4	1.5	1.0	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

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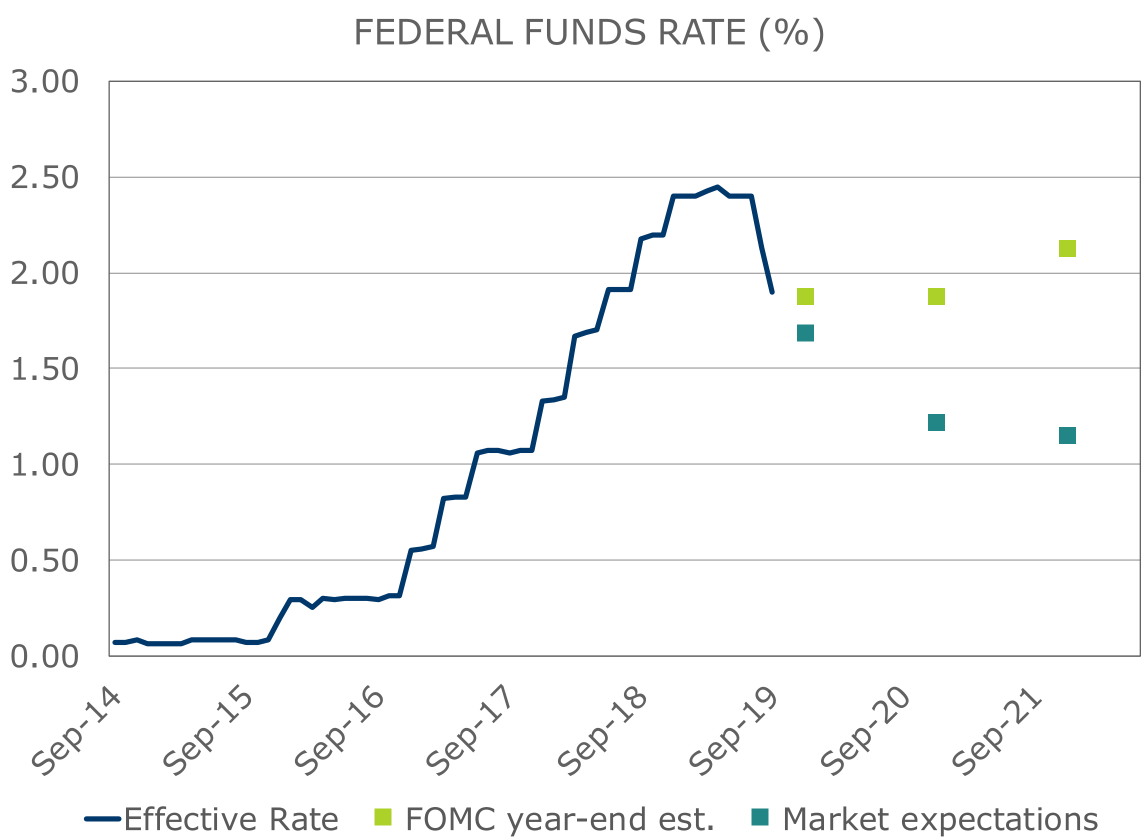
SHORT-TERM RATES

- Federal Reserve decreased their short-term rate twice during the 3rd quarter
- Markets are far more dovish, expecting additional decreases this year and next



Data sources: Federal Reserve, Bloomberg

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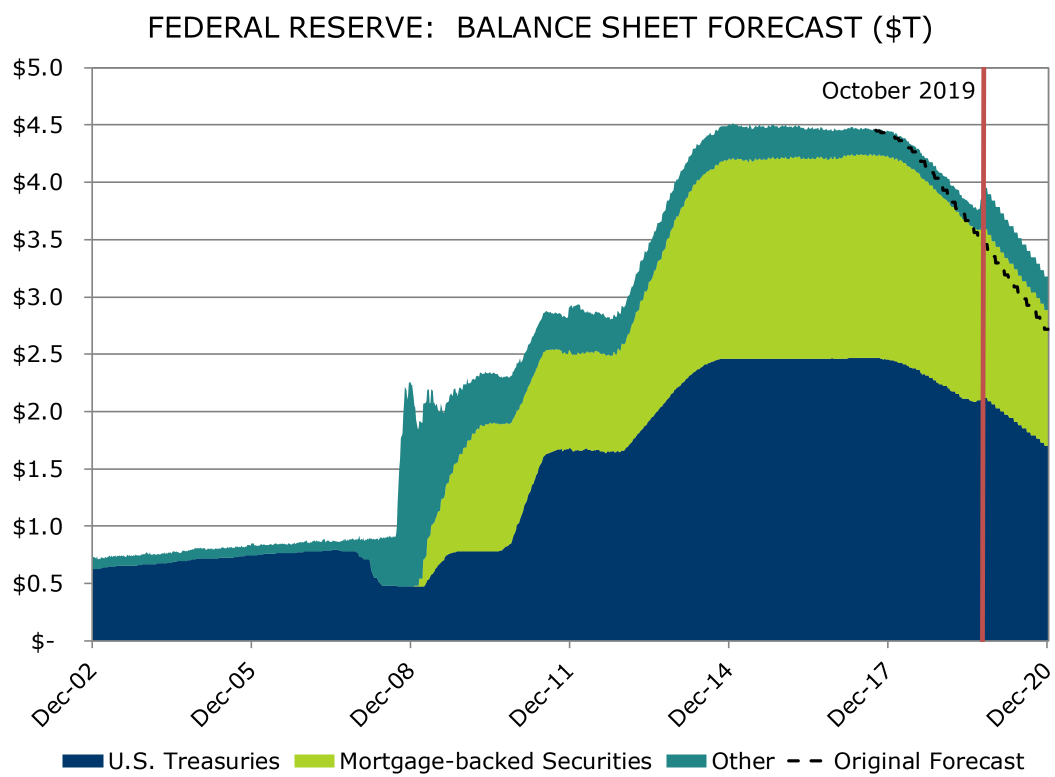
FED BALANCE SHEET

- 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

- A liquidity shortage in the repo market in September forced the Fed to supply cash to the market; will continue to offer liquidity to money markets when necessary



Data sources: Federal Reserve

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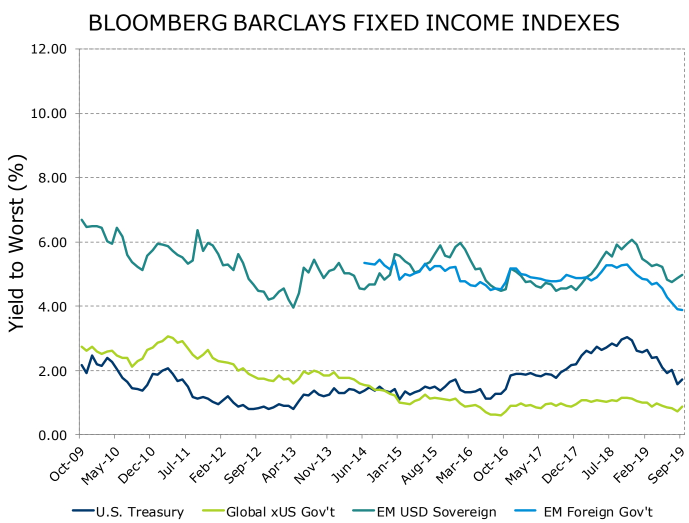
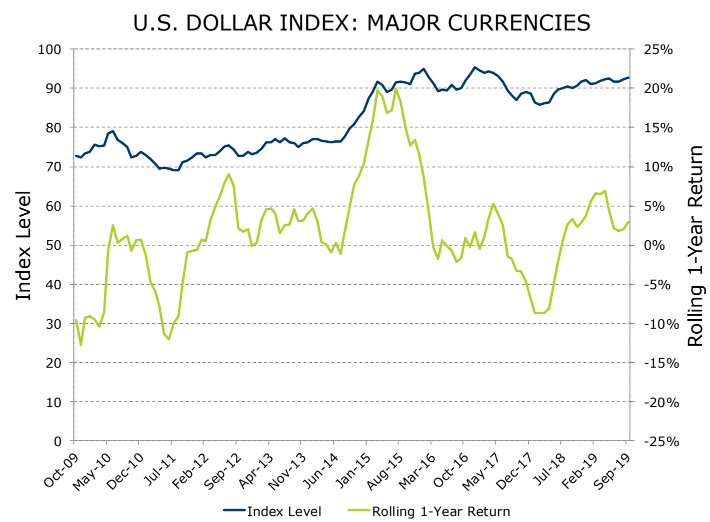
NON-U.S. FIXED INCOME

AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GLBL AGGREGATE xUS	-0.6	4.4	5.3	0.4	0.9	1.3
BLMBRG BRCLYS GLBL AGGREGATE xUS *	2.8	8.8	10.8	4.1	4.6	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	2.0	8.4	7.2	2.1	1.9	3.3
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	6.0	13.9	15.4	5.5	7.3	6.5
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	1.3	10.8	10.6	4.4	5.0	6.7
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	-0.6	5.3	7.9	2.4	1.1	3.3
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	2.8	7.9	10.7	3.7	3.8	3.8
EURO vs. DOLLAR	-4.3	-4.6	-6.1	-1.0	-2.9	-2.9
YEN vs. DOLLAR	-0.3	1.5	5.1	-2.1	0.3	-1.9
POUND vs. DOLLAR	-3.2	-3.2	-5.5	-1.7	-5.3	-2.6

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



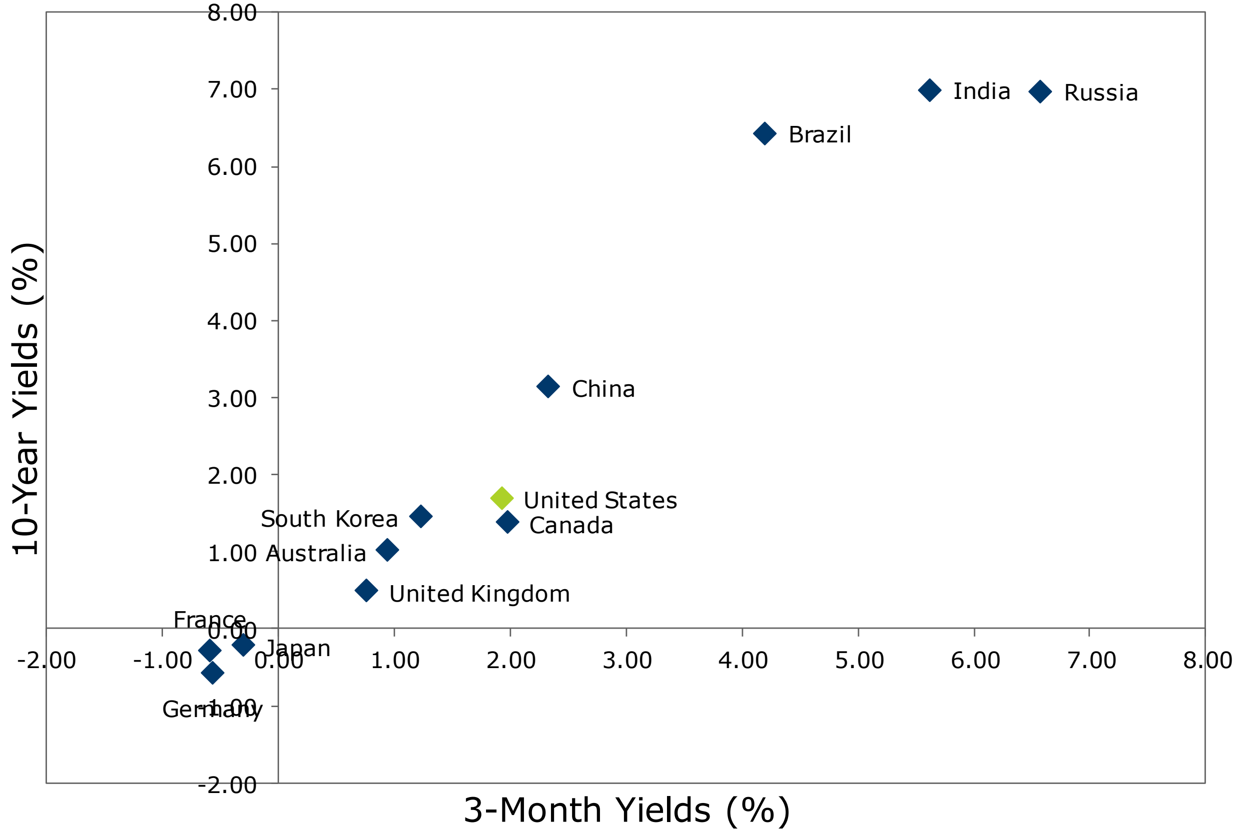


Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis

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

NEGATIVE RATES

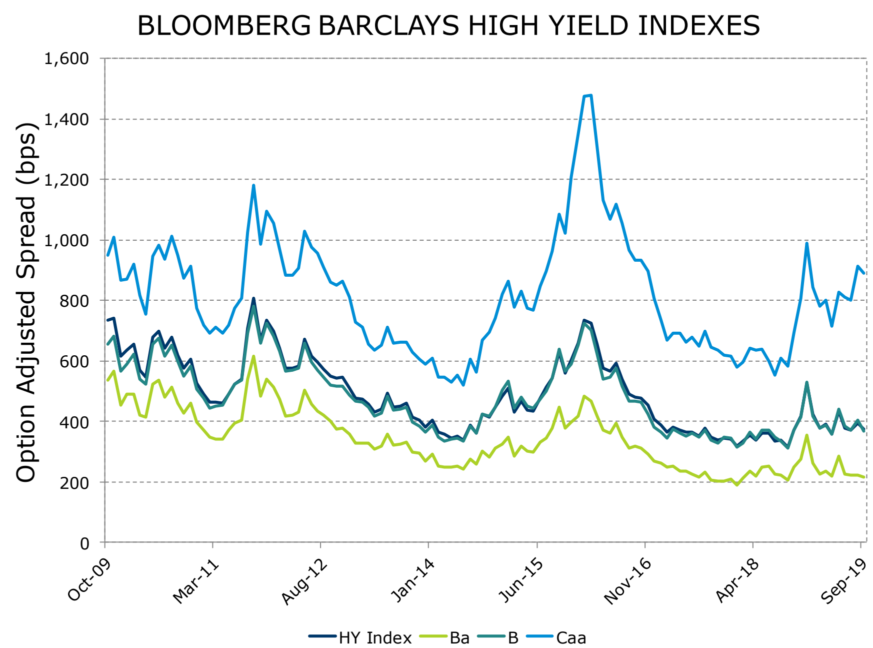
- Pricing in some markets is such that short-term rates are discounted to remain negative
- Main concern with negative rates is that market participants hold cash rather than bank deposits
  - Minimum deposit rates and tiered bank reserves partially protect against negative interest
  - However, this limits the effectiveness of rate cuts below zero
- Markets with negative rates are thought to provide less diversification benefits to a diversified portfolio, although low but positive yields can still lower overall portfolio risk

	Expected 1-Year Cash Rate (Years Forward)			
	0	1	2	3
Switzerland	-0.97%	-0.99%	-1.06%	-1.10%
Denmark	-0.86%	-0.91%	-0.94%	-0.93%
Germany	-0.71%	-0.91%	-1.00%	-0.98%
France	-0.65%	-0.79%	-0.80%	-0.72%
Sweden	-0.64%	-0.83%	-0.87%	-0.81%
Japan	-0.29%	-0.44%	-0.56%	-0.62%
United Kingdom	0.49%	0.16%	-0.01%	-0.07%
Australia	0.69%	0.47%	0.39%	0.44%
Canada	1.61%	1.29%	1.10%	1.00%
United States	1.69%	1.34%	1.21%	1.20%
China	2.76%	3.24%	3.10%	3.68%

Data sources: Bridgewater

HIGH YIELD BOND MARKET

AS OF SEPT 30, 2019		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		1.3	11.4	6.4	6.1	5.4	7.9
CREDIT SUISSE LEVERAGED LOAN		0.9	6.4	3.1	4.7	4.1	5.4
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT						
Ba U.S. HIGH YIELD	47.8%	2.0	12.8	9.5	5.8	5.9	7.9
B U.S. HIGH YIELD	38.7%	1.7	11.9	7.0	6.2	5.0	7.5
Caa U.S. HIGH YIELD	12.7%	-1.8	5.6	-4.2	5.5	4.5	8.2
Ca to D U.S. HIGH YIELD	0.6%	-6.7	7.6	-18.3	10.7	-5.8	0.7
Non-Rated U.S. HIGH YIELD	0.2%	-0.5	4.3	2.5	5.3	-1.0	5.6



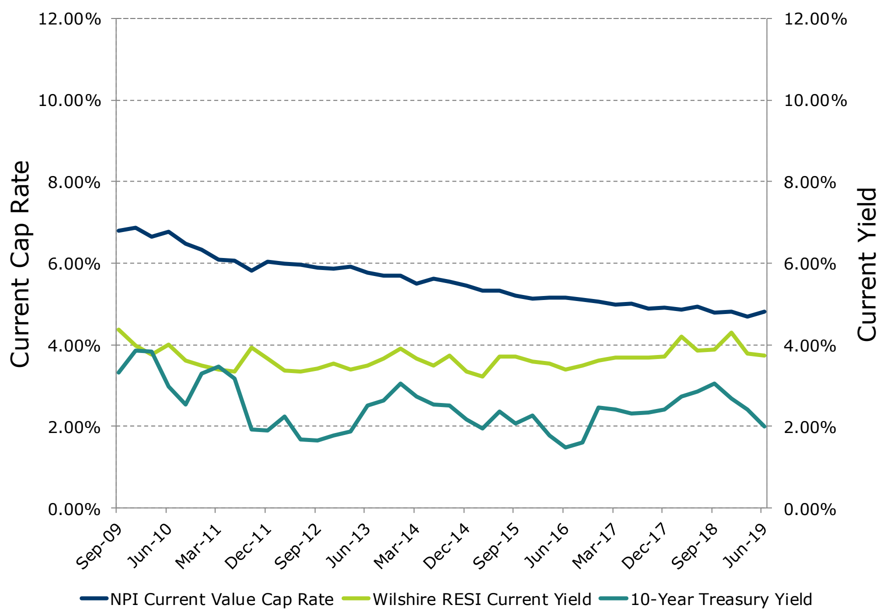
Data sources: Wilshire Compass, Bloomberg Barclays

Wilshire Consulting

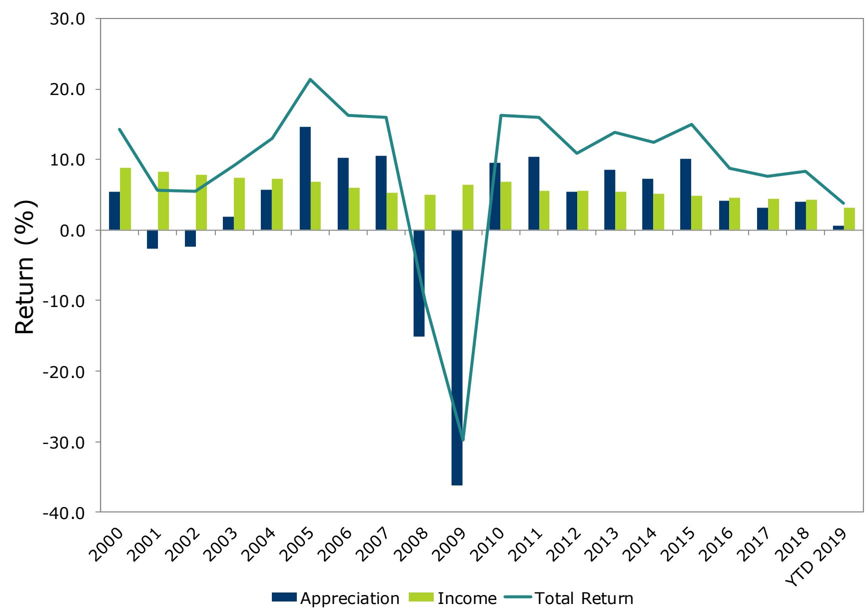
REAL ASSETS

AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	1.4	7.6	7.1	2.2	2.4	3.5
BLOOMBERG COMMODITY INDEX	-1.8	3.1	-6.6	-1.5	-7.2	-4.3
WILSHIRE GLOBAL RESI INDEX	5.2	22.8	15.3	7.1	8.4	10.9
NCREIF ODCE FUND INDEX	1.3	3.8	5.6	7.3	9.3	10.9
NCREIF TIMBERLAND INDEX	0.2	1.3	2.1	3.1	4.4	4.0
ALERIAN MLP INDEX (OIL & GAS)	-5.0	11.1	-8.1	-2.5	-8.6	6.3

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN



Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries

Wilshire Consulting

ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST							ANNUALIZED 5-YEAR AS OF 9/2019
2014	2015	2016	2017	2018	2019 YTD		
REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	REITs 27.2%		U.S. Equity 10.6%
U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	U.S. Equity 20.1%		REITs 10.2%
Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 13.4%		High Yield 5.4%
MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	High Yield 11.4%		Developed 3.8%
U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	MLPs 11.1%		Core Bond 3.4%
High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.5%		Emrg Mrkts 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 7.6%		U.S. TIPS 2.4%
Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Emrg Mrkts 6.2%		T-Bills 1.0%
Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	Commodities 3.1%		Commodities -7.2%
Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 1.8%		MLPs -8.6%

Data sources: Wilshire Compass

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

TOTAL FUND

Wilshire Consulting

MONTHLY SUMMARY

Actual Allocation vs. Policy Allocation

As of September 30, 2019

Asset Class	Market Value ($000)	Actual Allocation	Policy Target	Variance	Allowable Range[4]	Dollar Variance ($000)
U.S. Equity	158,147	16.9%	16.5%	0.4%	13.0 - 20.0%	4,037
Non-U.S. Equity	156,695	16.8%	16.5%	0.3%	13.0 - 20.0%	2,585
Global Equity	1,136	0.1%	0.0%	0.1%		1,136
Total Public Equity[1]	**315,978**	**33.8%**	**33.0%**	**0.8%**	**26.0 40.0%**	**7,758**
Private Equity Funds	164,601	17.6%	20.0%	-2.4%	15.0 - 25.0%	(22,199)
Life Settlement Investments	29,482	3.2%	0.0%	3.2%		29,482
Total Private Equity	**194,083**	**20.8%**	**20.0%**	**0.8%**	**15.0 - 25.0%**	**7,283**
Core Fixed Income[2]	93,344	10.0%	12.5%	-2.5%	10.0 - 15.0%	(23,406)
High Yield	111,555	11.9%	12.0%	-0.1%	10.0 - 14.0%	(525)
Total Fixed Income	**204,899**	**21.9%**	**24.5%**	**-2.6%**	**20.0 - 29.0%**	**(23,931)**
Real Estate[3]	110,907	11.9%	12.5%	-0.6%	10.0 - 15.0%	(5,843)
Total Private Real Assets	**110,907**	**11.9%**	**12.5%**	**-0.6%**	**10.0 - 15.0%**	**(5,843)**
TIPS	48,879	5.2%	5.0%	0.2%	4.0 - 6.0%	2,179
MLP's	41,817	4.5%	5.0%	-0.5%	4.0 - 6.0%	(4,883)
Total Public Real Assets	**90,696**	**9.7%**	**10.0%**	**-0.3%**	**8.0 - 12.0%**	**(2,704)**
Hedge Funds	**3,666**	**0.4%**	**0.0%**	**0.4%**		3,666
Cash	**13,771**	**1.5%**	**0.0%**	**1.5%**	**0.0 - 2.0%**	**13,771**
Total Assets	**933,999**	**100.0%**	**100.0%**			

[1]Uninvested private equity capital will remain invested in public equity and will not be considered to be outside of allowable range

[2]Core Fixed Income includes Israel Bond investments

[3]Real Estate includes ERECT Fund investment

[4]These ranges are preliminary pending the ratification of the updated IPS

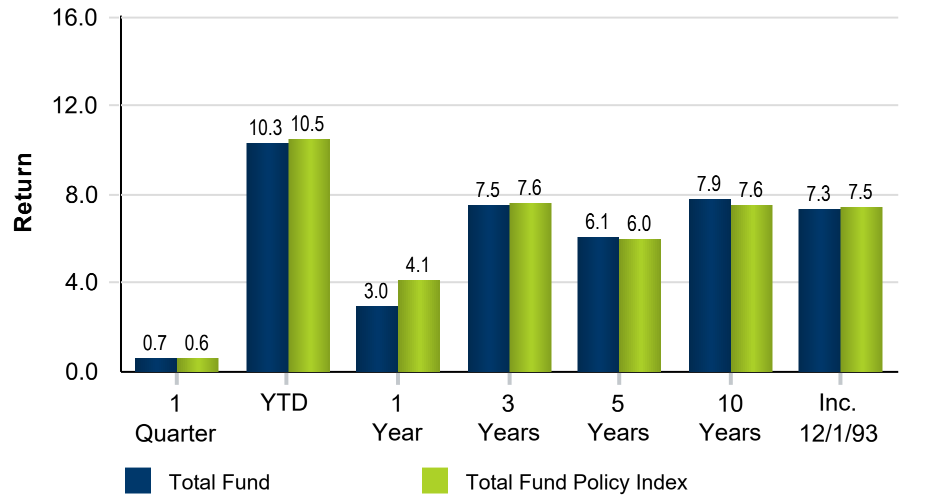
Wilshire Consulting

Total Fund Summary

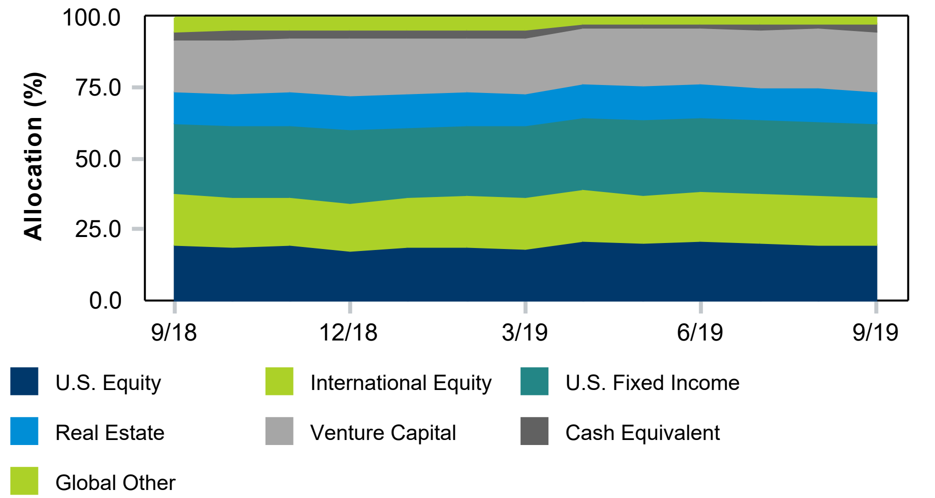
Total Fund

Periods Ended September 30, 2019

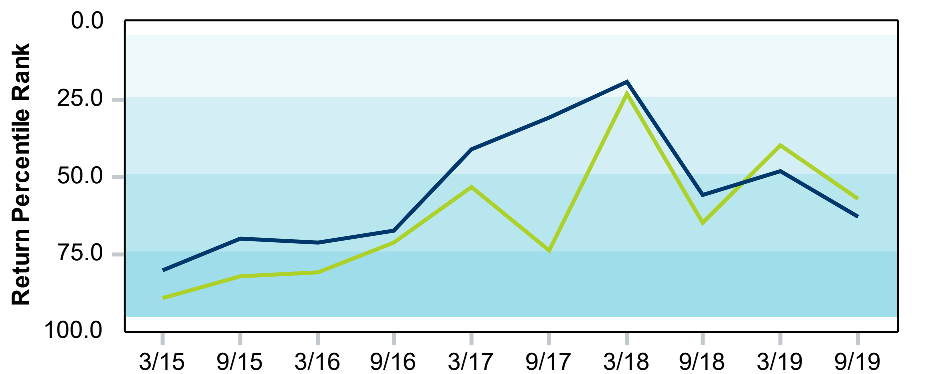
Comparative Performance



Historical Asset Allocation by Segment

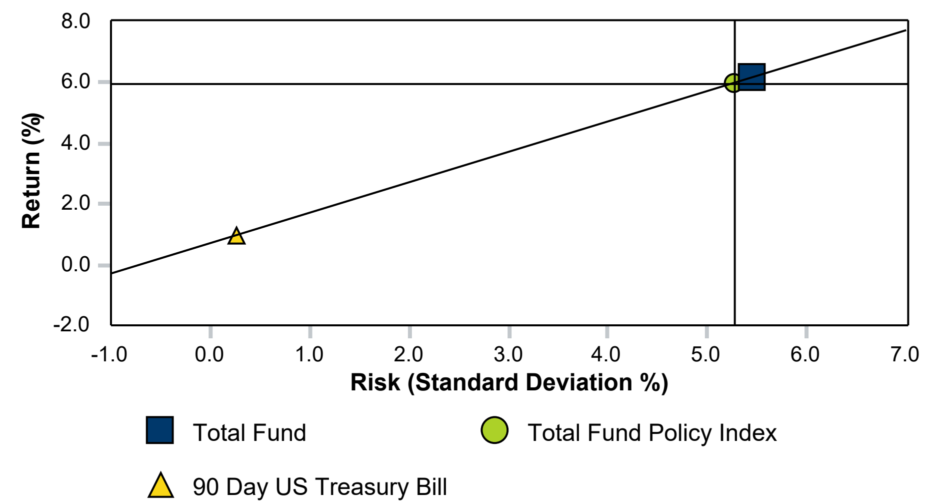


Rolling Percentile Rank: All Public Plans-Total Fund



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Total Fund	10	1 (10%)	3 (30%)	5 (50%)	1 (10%)
Benchmark	10	1 (10%)	1 (10%)	5 (50%)	3 (30%)

Risk and Return 10/1/14 - 09/30/19

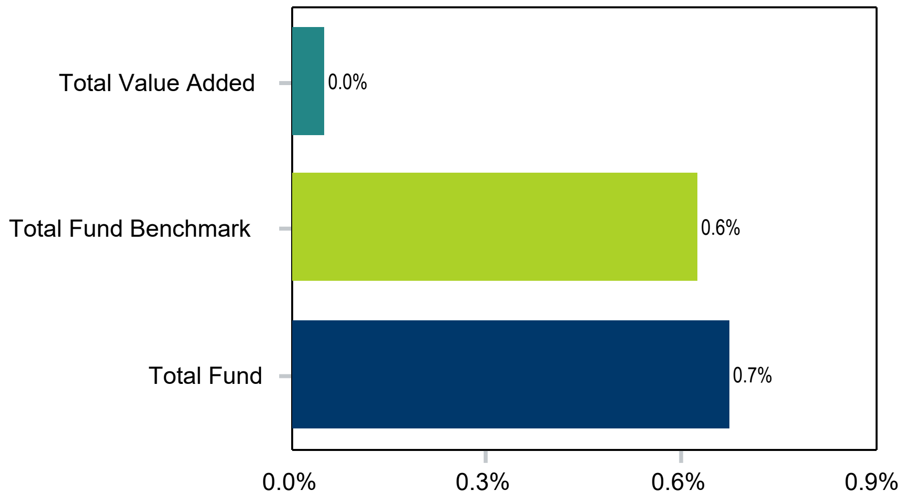


Total Fund Attribution

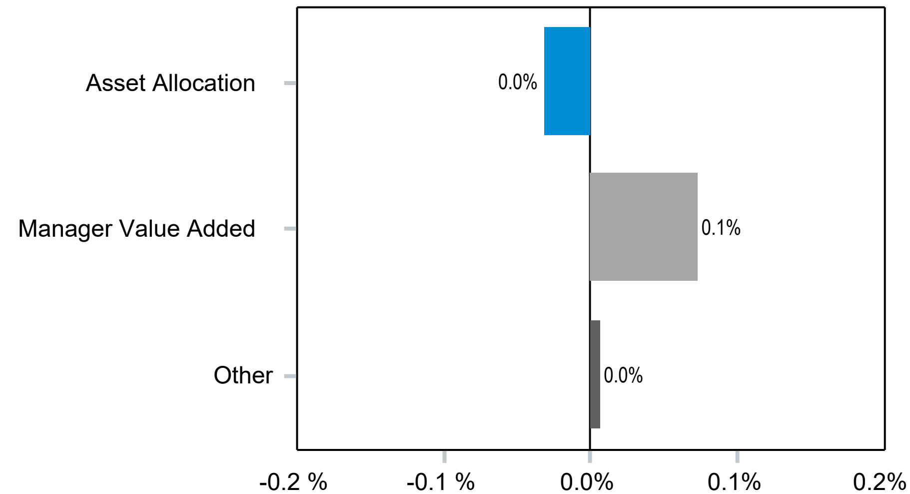
Total Fund

Periods Ended 1 Quarter Ending September 30, 2019

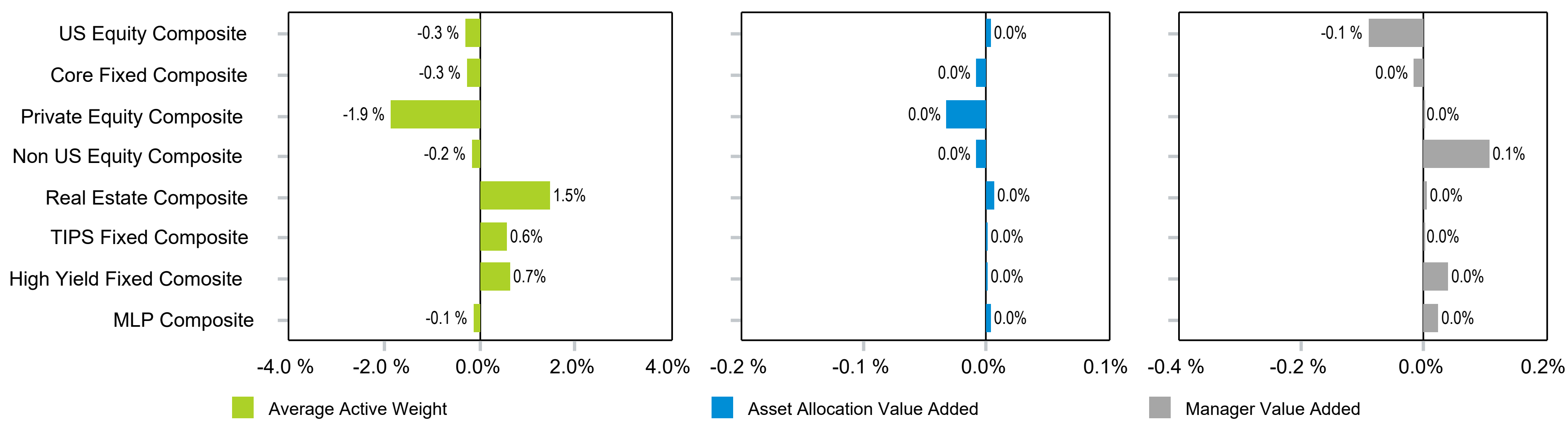
Total Fund Performance



Total Value Added:0.0%



Total Asset Allocation:0.0% **Asset Allocation Value Added:0.0%** **Total Manager Value Added:0.1%**



Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
US Equity Composite	**0.75**	**19.93**	**1.55**	**12.52**	**10.08**	**12.63**	**8.77**	**11/1/1993**	**158,146,853**	**16.91**
Wilshire 5000 Total Market TR Index	1.23	20.11	2.95	12.91	10.58	13.08	9.47			
Value Added	-0.48	-0.18	-1.40	-0.39	-0.50	-0.45	-0.70			
Non US Equity Composite	**-1.23**	**14.08**	**-2.19**	**6.46**	**4.55**	**5.28**	**4.79**	**2/1/2001**	**156,694,930**	**16.76**
Non US Equity Policy Index	-1.72	11.39	-1.84	6.10	3.05	4.53	3.88			
Value Added	0.49	2.69	-0.35	0.36	1.50	0.75	0.91			
Global Equity Composite	**-2.67**	**9.63**	**-0.95**	**5.05**			**4.02**	**12/1/2014**	**1,136,084**	**0.12**
MSCI AC World Index (Net)	-0.03	16.20	1.38	9.71			6.37			
Value Added	-2.64	-6.57	-2.33	-4.66			-2.35			
Core Fixed Composite	**2.11**	**8.52**	**9.29**	**2.95**	**3.21**	**3.80**	**7.03**	**1/1/1983**	**86,063,095**	**9.20**
Blmbg. Barc. U.S. Aggregate	2.27	8.52	10.30	2.92	3.38	3.75	7.11			
Value Added	-0.16	0.00	-1.01	0.03	-0.17	0.05	-0.08			
High Yield Fixed Composite	**1.23**	**9.85**	**4.31**	**4.95**	**3.41**	**6.69**	**6.93**	**4/1/2008**	**111,554,930**	**11.93**
FTSE High Yield Market Capped Index	0.92	10.89	5.64	5.73	4.91	7.51	7.45			
Value Added	0.31	-1.04	-1.33	-0.78	-1.50	-0.82	-0.52			
TIPS Fixed Composite	**1.35**	**7.58**	**7.12**	**2.85**	**2.32**	**3.46**	**3.20**	**4/1/2008**	**48,878,914**	**5.23**
Blmbg. Barc. U.S. TIPS	1.35	7.58	7.13	2.21	2.45	3.46	3.15			
Value Added	0.00	0.00	-0.01	0.64	-0.13	0.00	0.05			
ERECT Composite	**2.17**	**6.06**	**16.58**	**7.88**	**8.05**		**7.42**	**9/1/2010**	**9,663,362**	**1.03**
Real Estate Composite	**1.13**	**3.60**	**5.74**	**9.32**	**9.74**	**11.34**	**8.92**	**4/1/2003**	**101,243,617**	**10.83**
NCREIF Fund Index-ODCE (VW) (Net)	1.08	3.09	4.66	6.35	8.36	9.84	7.16			
Value Added	0.05	0.51	1.08	2.97	1.38	1.50	1.76			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
Private Equity Composite	**2.28**	**4.98**	**6.77**	**11.08**	**10.21**	**11.15**	**6.62**	**4/1/2003**	**165,601,453**	**17.71**
Private Equity Policy Index	2.28	4.98	6.77	11.08	10.21	11.15	6.62			
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Hedge Fund Composite	**1.35**	**3.95**	**-1.46**	**-3.62**	**-1.76**		**0.92**	**2/1/2011**	**3,666,099**	**0.39**
90 Day T-Bill Index + 3%	1.31	4.09	5.45	4.58	3.99		3.60			
Value Added	0.04	-0.14	-6.91	-8.20	-5.75		-2.68			
Life Settlement Composite	**0.33**	**0.53**	**-0.87**	**-3.50**	**-4.80**	**8.01**	**8.03**	**9/1/2009**	**29,482,288**	**3.15**
Israel Bonds and Cash	**0.46**	**1.88**	**2.86**	**1.67**	**1.46**	**2.12**	**2.88**	**3/1/1999**	**21,052,247**	**2.25**
MLP Composite	**-4.49**	**14.58**	**-7.84**				**-3.57**	**2/1/2018**	**41,816,562**	**4.47**
Alerian MLP Index	-5.02	11.08	-8.13				-4.89			
Value Added	0.53	3.50	0.29				1.32			
Total Fund	**0.67**	**10.32**	**2.97**	**7.51**	**6.15**	**7.86**	**7.34**	**12/1/1993**	**935,000,434**	**100.00**
Total Fund Policy Index	0.63	10.52	4.11	7.64	5.99	7.59	7.47			
Value Added	0.04	-0.20	-1.14	-0.13	0.16	0.27	-0.13			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
SSgA S&P 500 Index	**1.74**	**20.61**	**4.31**	**13.42**	**10.87**	**13.27**	**7.96**	**11/1/2007**	**86,774,603**	**9.28**
S&P 500	1.70	20.55	4.25	13.39	10.84	13.24	7.92			
Value Added	0.04	0.06	0.06	0.03	0.03	0.03	0.04			
Fragasso Large Core - Emg. Mgr.	**2.13**	**22.43**	**8.64**	**13.54**	**9.92**		**12.31**	**9/1/2012**	**5,930,525**	**0.63**
S&P 500	1.70	20.55	4.25	13.39	10.84		13.50			
Value Added	0.43	1.88	4.39	0.15	-0.92		-1.19			
Twin Capital Enhanced Equity	**1.58**	**19.08**	**2.69**	**12.12**	**10.04**	**12.82**	**8.63**	**1/1/2006**	**30,190,725**	**3.23**
S&P 500	1.70	20.55	4.25	13.39	10.84	13.24	8.78			
Value Added	-0.12	-1.47	-1.56	-1.27	-0.80	-0.42	-0.15			
Earnest Small Value	**0.82**	**19.94**	**-2.66**	**10.55**	**9.88**	**12.25**	**13.48**	**6/1/2009**	**13,300,600**	**1.42**
Russell 2000 Value Index	-0.57	12.82	-8.24	6.54	7.17	10.06	11.88			
Value Added	1.39	7.12	5.58	4.01	2.71	2.19	1.60			
Emerald Advisors Small Cap	**-7.14**	**16.21**	**-10.03**	**10.89**	**10.73**	**14.31**	**10.26**	**11/1/2004**	**12,444,519**	**1.33**
Russell 2000 Growth Index	-4.17	15.34	-9.63	9.79	9.08	12.25	8.92			
Value Added	-2.97	0.87	-0.40	1.10	1.65	2.06	1.34			
Emerald Advisors All Cap - Emg. Mgr.	**-3.72**	**20.49**	**-6.08**	**14.81**			**11.47**	**10/1/2015**	**3,137,187**	**0.34**
Russell 3000 Growth Index	1.10	22.75	2.70	16.37			15.68			
Value Added	-4.82	-2.26	-8.78	-1.56			-4.21			
Ethos - Emerg. Mgr.	**1.43**	**23.92**	**6.25**	**14.64**			**13.87**	**8/1/2016**	**1,353,863**	**0.14**
S&P 500	1.70	20.55	4.25	13.39			12.70			
Value Added	-0.27	3.37	2.00	1.25			1.17			
CIM Small Cap - Emerg. Mgr.	**0.64**	**18.59**	**-8.59**	**7.83**	**6.48**		**5.17**	**1/1/2014**	**4,449,065**	**0.48**
Russell 2000 Index	-2.40	14.18	-8.89	8.23	8.19		6.25			
Value Added	3.04	4.41	0.30	-0.40	-1.71		-1.08			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
Cookson Peirce - Emg. Mgr.	**-3.77**	**12.49**					**12.49**	**1/1/2019**	**565,767**	**0.06**
Russell 3000 Index	1.16	20.09					20.09			
Value Added	-4.93	-7.60					-7.60			
US Equity Composite	**0.75**	**19.93**	**1.55**	**12.52**	**10.08**	**12.63**	**8.77**	**11/1/1993**	**158,146,853**	**16.91**
Wilshire 5000 Total Market TR Index	1.23	20.11	2.95	12.91	10.58	13.08	9.47			
Value Added	-0.48	-0.18	-1.40	-0.39	-0.50	-0.45	-0.70			
SSgA ACWI ex US	**-0.85**	**13.97**	**-0.64**	**6.80**			**2.76**	**5/1/2015**	**32,299,649**	**3.45**
MSCI AC World ex USA (Net)	-1.80	11.56	-1.23	6.33			2.26			
Value Added	0.95	2.41	0.59	0.47			0.50			
Baillie Gifford Intl Equity	**-1.82**	**17.90**	**1.29**	**8.42**	**6.92**	**7.70**	**8.50**	**8/1/2009**	**62,563,707**	**6.69**
MSCI AC World ex USA (Net)	-1.80	11.56	-1.23	6.33	2.90	4.46	5.27			
Value Added	-0.02	6.34	2.52	2.09	4.02	3.24	3.23			
FIAM Select International Equity	**-0.25**	**14.06**	**-0.43**	**5.64**	**2.65**	**4.34**	**4.17**	**2/1/2001**	**32,056,353**	**3.43**
FIAM Policy Index	-1.80	11.56	-1.23	6.33	2.90	4.46	3.84			
Value Added	1.55	2.50	0.80	-0.69	-0.25	-0.12	0.33			
Segal, Bryant & Hamill	**-1.22**	**5.59**	**-12.83**	**2.41**			**2.65**	**5/1/2015**	**29,775,221**	**3.18**
MSCI EAFE Small Cap (Net)	-0.44	12.05	-5.93	5.94			5.02			
Value Added	-0.78	-6.46	-6.90	-3.53			-2.37			
Non US Equity Composite	**-1.23**	**14.08**	**-2.19**	**6.46**	**4.55**	**5.28**	**4.79**	**2/1/2001**	**156,694,930**	**16.76**
Non US Equity Policy Index	-1.72	11.39	-1.84	6.10	3.05	4.53	3.88			
Value Added	0.49	2.69	-0.35	0.36	1.50	0.75	0.91			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
Fusion - Emerg. Mgr.	**-2.67**	**9.63**	**-0.95**	**5.05**			**4.02**	**12/1/2014**	**1,136,084**	**0.12**
MSCI AC World Index (Net)	-0.03	16.20	1.38	9.71			6.37			
Value Added	-2.64	-6.57	-2.33	-4.66			-2.35			
Global Equity Composite	**-2.67**	**9.63**	**-0.95**	**5.05**			**4.02**	**12/1/2014**	**1,136,084**	**0.12**
MSCI AC World Index (Net)	-0.03	16.20	1.38	9.71			6.37			
Value Added	-2.64	-6.57	-2.33	-4.66			-2.35			
C S McKee	**2.52**	**8.98**	**10.46**	**3.22**	**3.69**	**4.20**	**7.47**	**1/1/1983**	**32,072,633**	**3.43**
Blmbg. Barc. U.S. Aggregate	2.27	8.52	10.30	2.92	3.38	3.75	7.11			
Value Added	0.25	0.46	0.16	0.30	0.31	0.45	0.36			
Federated	**2.30**	**9.63**	**10.01**	**3.51**	**3.61**	**4.26**	**4.98**	**9/1/2006**	**27,192,624**	**2.91**
Blmbg. Barc. U.S. Aggregate	2.27	8.52	10.30	2.92	3.38	3.75	4.40			
Value Added	0.03	1.11	-0.29	0.59	0.23	0.51	0.58			
CIM Investment Mgmt	**1.24**	**5.78**	**7.14**	**1.99**	**1.94**	**2.56**	**3.37**	**11/1/2005**	**13,055,479**	**1.40**
Blmbg. Barc. Intermed. U.S. Government/Credit	1.37	6.41	8.17	2.40	2.68	3.05	3.80			
Value Added	-0.13	-0.63	-1.03	-0.41	-0.74	-0.49	-0.43			
StoneRidge Partners - Emg. Mgr.	**1.10**	**4.77**	**6.08**	**2.27**			**2.60**	**8/1/2015**	**6,612,559**	**0.71**
StoneRidge Policy Index	1.49	7.14	8.57	2.72			3.06			
Value Added	-0.39	-2.37	-2.49	-0.45			-0.46			
Altair Fixed Income - Emg. Mgr.	**2.39**	**13.42**	**10.53**				**4.03**	**2/1/2017**	**4,456,297**	**0.48**
Blmbg. Barc. U.S. Aggregate	2.27	8.52	10.30				4.40			
Value Added	0.12	4.90	0.23				-0.37			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
FNB - Emerg. Mgr.	**1.59**	**7.21**	**7.41**				**2.94**	**7/1/2017**	**2,673,502**	**0.29**
Blmbg. Barc. U.S. Intermediate Aggregate	1.38	6.18	8.08				3.42			
Value Added	0.21	1.03	-0.67				-0.48			
Core Fixed Composite	**2.11**	**8.52**	**9.29**	**2.95**	**3.21**	**3.80**	**7.03**	**1/1/1983**	**86,063,095**	**9.20**
Blmbg. Barc. U.S. Aggregate	2.27	8.52	10.30	2.92	3.38	3.75	7.11			
Value Added	-0.16	0.00	-1.01	0.03	-0.17	0.05	-0.08			
Oaktree High Yield	**1.16**	**8.34**	**2.52**	**3.85**	**3.46**	**6.36**	**6.57**	**4/1/2008**	**60,718,489**	**6.49**
FTSE High Yield Market Capped Index	0.92	10.89	5.64	5.73	4.91	7.51	7.45			
Value Added	0.24	-2.55	-3.12	-1.88	-1.45	-1.15	-0.88			
Federated High Yield	**1.50**	**12.37**	**6.97**				**4.99**	**7/1/2017**	**47,574,622**	**5.09**
Blmbg. Barc. U.S. High Yield - 2% Issuer Cap	1.33	11.41	6.35				5.07			
Value Added	0.17	0.96	0.62				-0.08			
Sound Point	**-1.15**	**2.99**	**0.56**	**4.39**	**4.10**		**4.41**	**8/1/2013**	**3,261,819**	**0.35**
CSFB Leveraged Loan	0.92	6.39	3.11	4.68	4.11		4.09			
Value Added	-2.07	-3.40	-2.55	-0.29	-0.01		0.32			
High Yield Fixed Composite	**1.23**	**9.85**	**4.31**	**4.95**	**3.41**	**6.69**	**6.93**	**4/1/2008**	**111,554,930**	**11.93**
FTSE High Yield Market Capped Index	0.92	10.89	5.64	5.73	4.91	7.51	7.45			
Value Added	0.31	-1.04	-1.33	-0.78	-1.50	-0.82	-0.52			
MCM TIPS	**1.35**	**7.58**	**7.12**				**3.53**	**12/1/2016**	**48,878,914**	**5.23**
Blmbg. Barc. U.S. TIPS	1.35	7.58	7.13				3.19			
Value Added	0.00	0.00	-0.01				0.34			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
TIPS Fixed Composite	**1.35**	**7.58**	**7.12**	**2.85**	**2.32**	**3.46**	**3.20**	**4/1/2008**	**48,878,914**	**5.23**
Blmbg. Barc. U.S. TIPS	1.35	7.58	7.13	2.21	2.45	3.46	3.15			
Value Added	0.00	0.00	-0.01	0.64	-0.13	0.00	0.05			
ERECT Fund II	**2.17**	**6.06**	**16.58**	**7.88**	**8.05**	**9.92**	**7.25**	**6/1/2005**	**9,663,362**	**1.03**
CPI - All Urban Consumers (SA)	0.41	1.44	1.73	2.07	1.54	1.73	1.98			
Value Added	1.76	4.62	14.85	5.81	6.51	8.19	5.27			
ERECT Composite	**2.17**	**6.06**	**16.58**	**7.88**	**8.05**		**7.42**	**9/1/2010**	**9,663,362**	**1.03**
Morgan Stanley	**1.41**	**4.57**	**6.62**	**7.93**	**9.88**	**11.68**	**8.82**	**4/1/2003**	**71,100,854**	**7.60**
NCREIF Fund Index-ODCE (VW) (Net)	1.08	3.09	4.66	6.35	8.36	9.84	7.16			
Value Added	0.33	1.48	1.96	1.58	1.52	1.84	1.66			
Oaktree Real Estate	**-0.38**	**1.32**	**3.88**	**5.82**	**7.66**		**6.33**	**8/1/2013**	**7,760,148**	**0.83**
Washington Alliance - Emerg. Mgr.	**0.00**	**0.83**	**2.16**	**20.02**	**16.26**		**13.52**	**8/1/2013**	**12,033,045**	**1.29**
Siguler Guff Distressed RE	**1.77**	**2.15**	**5.15**	**13.55**	**8.53**		**8.38**	**3/1/2014**	**10,349,570**	**1.11**
Real Estate Composite	**1.13**	**3.60**	**5.74**	**9.32**	**9.74**	**11.34**	**8.92**	**4/1/2003**	**101,243,617**	**10.83**
NCREIF Fund Index-ODCE (VW) (Net)	1.08	3.09	4.66	6.35	8.36	9.84	7.16			
Value Added	0.05	0.51	1.08	2.97	1.38	1.50	1.76			
Private Equity Composite	**2.28**	**4.98**	**6.77**	**11.08**	**10.21**	**11.15**	**6.62**	**4/1/2003**	**165,601,453**	**17.71**
Private Equity Policy Index	2.28	4.98	6.77	11.08	10.21	11.15	6.62			
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

Wilshire Consulting

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
Altair	**0.91**	**4.30**	**-1.13**	**0.08**	**1.06**		**1.44**	**8/1/2013**	**2,641,000**	**0.28**
HFRI FoF Composite Lagged	1.04	3.88	0.20	3.40	1.99		2.91			
Value Added	-0.13	0.42	-1.33	-3.32	-0.93		-1.47			
Maplewood	**2.50**						**2.51**	**3/1/2019**	**1,025,099**	**0.11**
HFRX Macro Index	2.42						6.29			
Value Added	0.08						-3.78			
Hedge Fund Composite	**1.35**	**3.95**	**-1.46**	**-3.62**	**-1.76**		**0.92**	**2/1/2011**	**3,666,099**	**0.39**
90 Day T-Bill Index + 3%	1.31	4.09	5.45	4.58	3.99		3.60			
Value Added	0.04	-0.14	-6.91	-8.20	-5.75		-2.68			
Salient MLP Fund	**-3.73**	**14.69**	**-5.79**				**-0.60**	**1/1/2018**	**17,802,055**	**1.90**
Alerian MLP Index	-5.02	11.08	-8.13				-1.56			
Value Added	1.29	3.61	2.34				0.96			
Harvest MLP Fund	**-5.05**	**14.50**	**-9.30**				**-3.93**	**2/1/2018**	**24,014,508**	**2.57**
Alerian MLP Index	-5.02	11.08	-8.13				-4.89			
Value Added	-0.03	3.42	-1.17				0.96			
MLP Composite	**-4.49**	**14.58**	**-7.84**				**-3.57**	**2/1/2018**	**41,816,562**	**4.47**
Alerian MLP Index	-5.02	11.08	-8.13				-4.89			
Value Added	0.53	3.50	0.29				1.32			

PERFORMANCE SUMMARY

Investment Performance and Market Values

Periods Ended September 30, 2019

	Performance (%) net of fees								Allocation	
	1 Quarter	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value $	%
CCA Green - Emerg. Mgr.	**-1.10**	**-0.58**	**-2.88**	**-6.71**	**-8.25**	**6.25**	**6.25**	**10/1/2009**	**13,032,499**	**1.39**
CCA Blue - Emerg. Mgr.	**-1.36**	**-5.69**	**-10.56**	**-6.93**	**-4.60**		**-4.54**	**1/1/2013**	**2,777,570**	**0.30**
CCA Black - Emerg. Mgr.	**0.17**	**1.61**	**3.04**	**4.21**			**6.17**	**1/1/2015**	**8,406,954**	**0.90**
CCA Longevity Fund VI LP	**5.31**	**5.31**					**5.31**	**1/1/2019**	**5,265,265**	**0.56**
Life Settlement Composite	**0.33**	**0.53**	**-0.87**	**-3.50**	**-4.80**	**8.01**	**8.03**	**9/1/2009**	**29,482,288**	**3.15**
Israel Bonds	**0.14**	**1.64**	**3.29**	**1.65**	**2.14**		**2.88**	**1/1/2012**	**7,281,256**	**0.78**
Cash Account	**0.56**	**1.84**	**2.42**	**1.55**	**1.00**		**0.72**	**1/1/2012**	**13,770,990**	**1.47**
Total Fund	**0.67**	**10.32**	**2.97**	**7.51**	**6.15**	**7.86**	**7.34**	**12/1/1993**	**935,000,434**	**100.00**
Total Fund Policy Index	0.63	10.52	4.11	7.64	5.99	7.59	7.47			
Value Added	0.04	-0.20	-1.14	-0.13	0.16	0.27	-0.13			

Historical Hybrid Composition

Retirement Board of Allegheny County

Periods Ended September 30, 2019

Policy Index	Weight (%)
Jan-1979	
Russell 3000 Index	65.00
Blmbg. Barc. U.S. Aggregate	35.00
Mar-2007	
Wilshire 5000 Total Market TR Index	45.00
Blmbg. Barc. U.S. Aggregate	25.00
Private Equity Composite	5.00
MSCI EAFE Index (Net)	10.00
Bloomberg Commodity Index Total Return	5.00
90 Day US Treasury Bill	5.00
NCREIF Fund Index-ODCE (VW) (Net)	5.00
Sep-2008	
Wilshire 5000 Total Market TR Index	45.00
Blmbg. Barc. U.S. Aggregate	25.00
Private Equity Composite	5.00
MSCI AC World ex USA (Net)	10.00
Bloomberg Commodity Index Total Return	5.00
90 Day US Treasury Bill	5.00
NCREIF Fund Index-ODCE (VW) (Net)	5.00

Policy Index	Weight (%)
Dec-2008	
Wilshire 5000 Total Market TR Index	35.00
Blmbg. Barc. U.S. Aggregate	20.00
Private Equity Composite	5.00
MSCI AC World ex USA (Net)	15.00
Bloomberg Commodity Index Total Return	5.00
90 Day US Treasury Bill	2.50
NCREIF Fund Index-ODCE (VW) (Net)	7.50
Blmbg. Barc. U.S. TIPS	5.00
FTSE High Yield Market Capped Index	5.00
Sep-2009	
Wilshire 5000 Total Market TR Index	30.00
Blmbg. Barc. U.S. Aggregate	15.00
Private Equity Composite	5.00
MSCI AC World ex USA (Net)	20.00
Bloomberg Commodity Index Total Return	2.50
NCREIF Fund Index-ODCE (VW) (Net)	10.00
Blmbg. Barc. U.S. TIPS	7.50
FTSE High Yield Market Capped Index	10.00
Jun-2010	
Wilshire 5000 Total Market TR Index	20.00
Blmbg. Barc. U.S. Aggregate	14.00
Private Equity Composite	10.00
MSCI AC World ex USA (Net)	25.00
Bloomberg Commodity Index Total Return	5.00
NCREIF Fund Index-ODCE (VW) (Net)	10.00
Blmbg. Barc. U.S. TIPS	6.00
FTSE High Yield Market Capped Index	10.00

Historical Hybrid Composition

Retirement Board of Allegheny County

Periods Ended September 30, 2019

Policy Index	Weight (%)
Mar-2013	
Wilshire 5000 Total Market TR Index	16.10
Blmbg. Barc. U.S. Aggregate	10.00
Private Equity Composite	20.00
MSCI AC World ex USA (Net)	18.90
Bloomberg Commodity Index Total Return	8.00
NCREIF Fund Index-ODCE (VW) (Net)	10.00
Blmbg. Barc. U.S. TIPS	5.00
FTSE High Yield Market Capped Index	12.00
Jun-2018	
Wilshire 5000 Total Market TR Index	19.00
Blmbg. Barc. U.S. Aggregate	10.00
Private Equity Composite	20.00
MSCI AC World ex USA (Net)	19.00
NCREIF Fund Index-ODCE (VW) (Net)	10.00
Blmbg. Barc. U.S. TIPS	5.00
FTSE High Yield Market Capped Index	12.00
Alerian MLP Index	5.00

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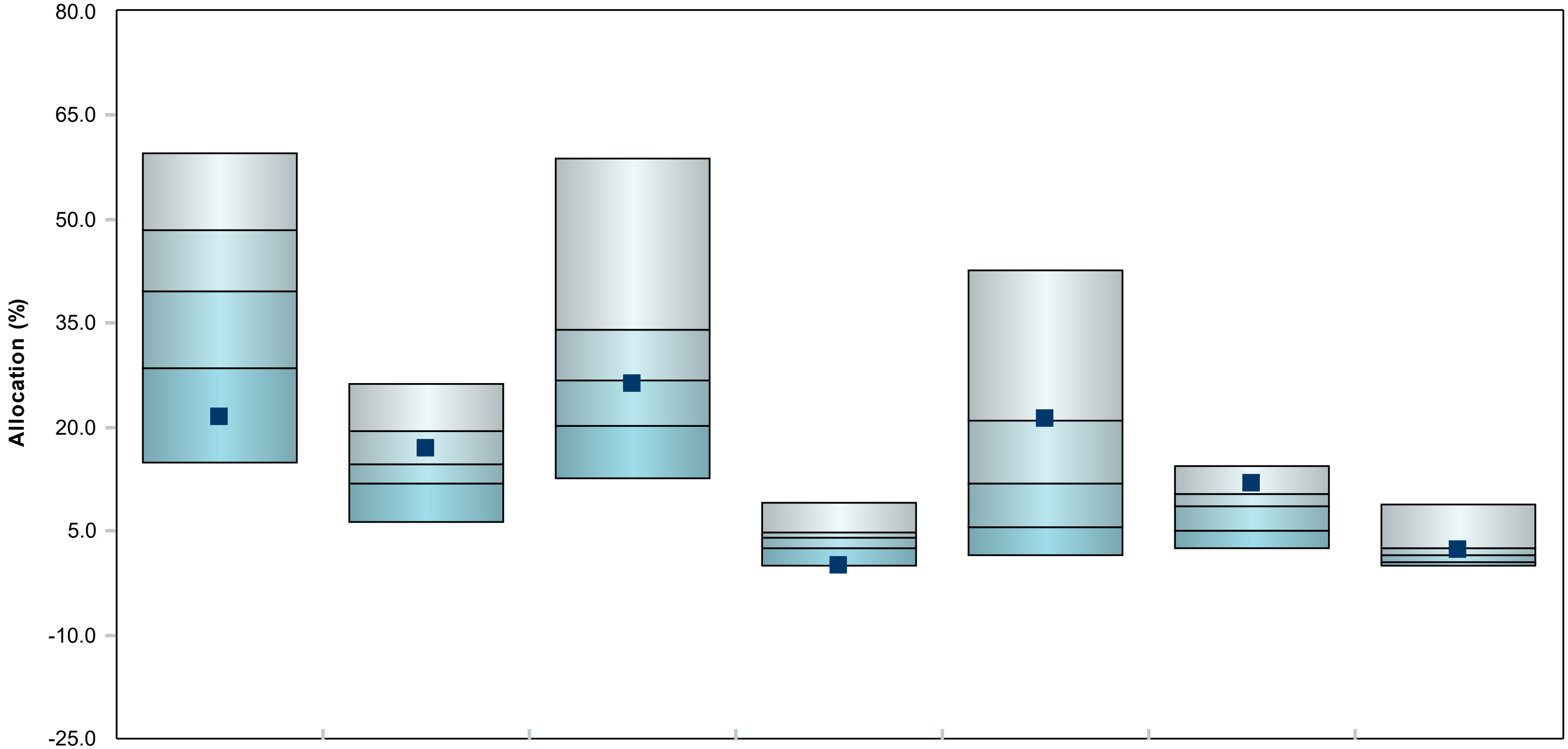
Plan Sponsor TF Asset Allocation

Total Fund vs All Public Plans-Total Fund

Periods Ended September 30, 2019



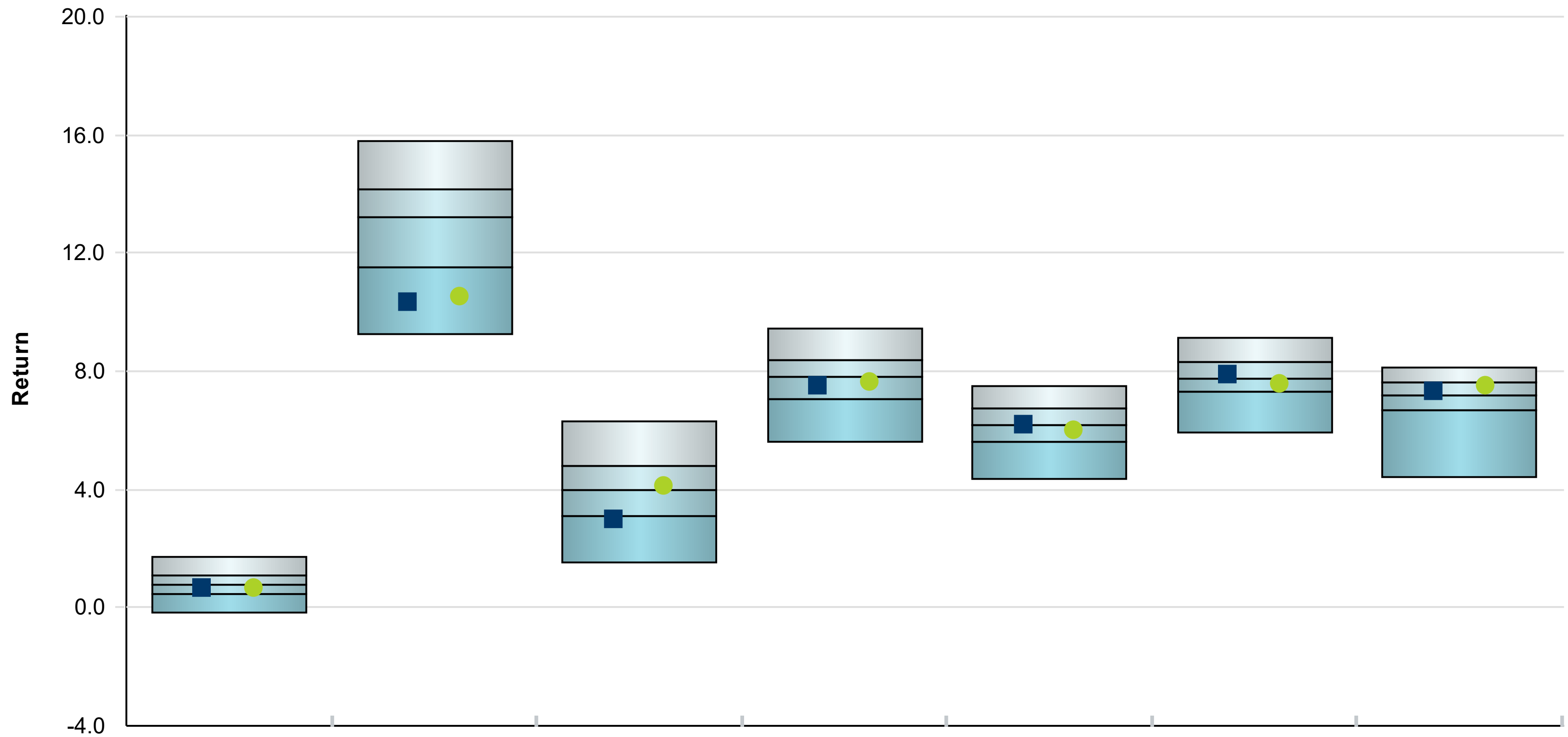
	US Equity	Intl. Equity	US Fixed Income	Intl. Fixed Income	Alternative Inv.	Real Estate	Cash
■ Total Fund	21.39	16.88	26.36	0.00	21.21	11.86	2.30
5th Percentile	59.58	26.12	58.86	9.20	42.63	14.37	8.85
1st Quartile	48.50	19.46	34.16	4.89	20.82	10.25	2.54
Median	39.72	14.55	26.82	4.15	11.93	8.55	1.40
3rd Quartile	28.59	11.88	20.14	2.48	5.54	5.14	0.60
95th Percentile	14.83	6.30	12.66	0.05	1.46	2.56	0.07

Wilshire Consulting

Plan Sponsor Peer Group Analysis

Total Fund vs All Public Plans-Total Fund

Periods Ended September 30, 2019



	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception
■ Total Fund	0.67 (61)	10.32 (89)	2.97 (79)	7.51 (63)	6.15 (52)	7.86 (46)	7.34 (41)
● Total Fund Policy Index	0.63 (64)	10.52 (88)	4.11 (45)	7.64 (57)	5.99 (59)	7.59 (60)	7.47 (33)
5th Percentile	1.70	15.81	6.29	9.46	7.49	9.11	8.12
1st Quartile	1.07	14.18	4.78	8.35	6.72	8.32	7.60
Median	0.80	13.21	4.00	7.79	6.19	7.76	7.20
3rd Quartile	0.46	11.53	3.11	7.06	5.61	7.28	6.70
95th Percentile	-0.14	9.28	1.50	5.61	4.37	5.92	4.45

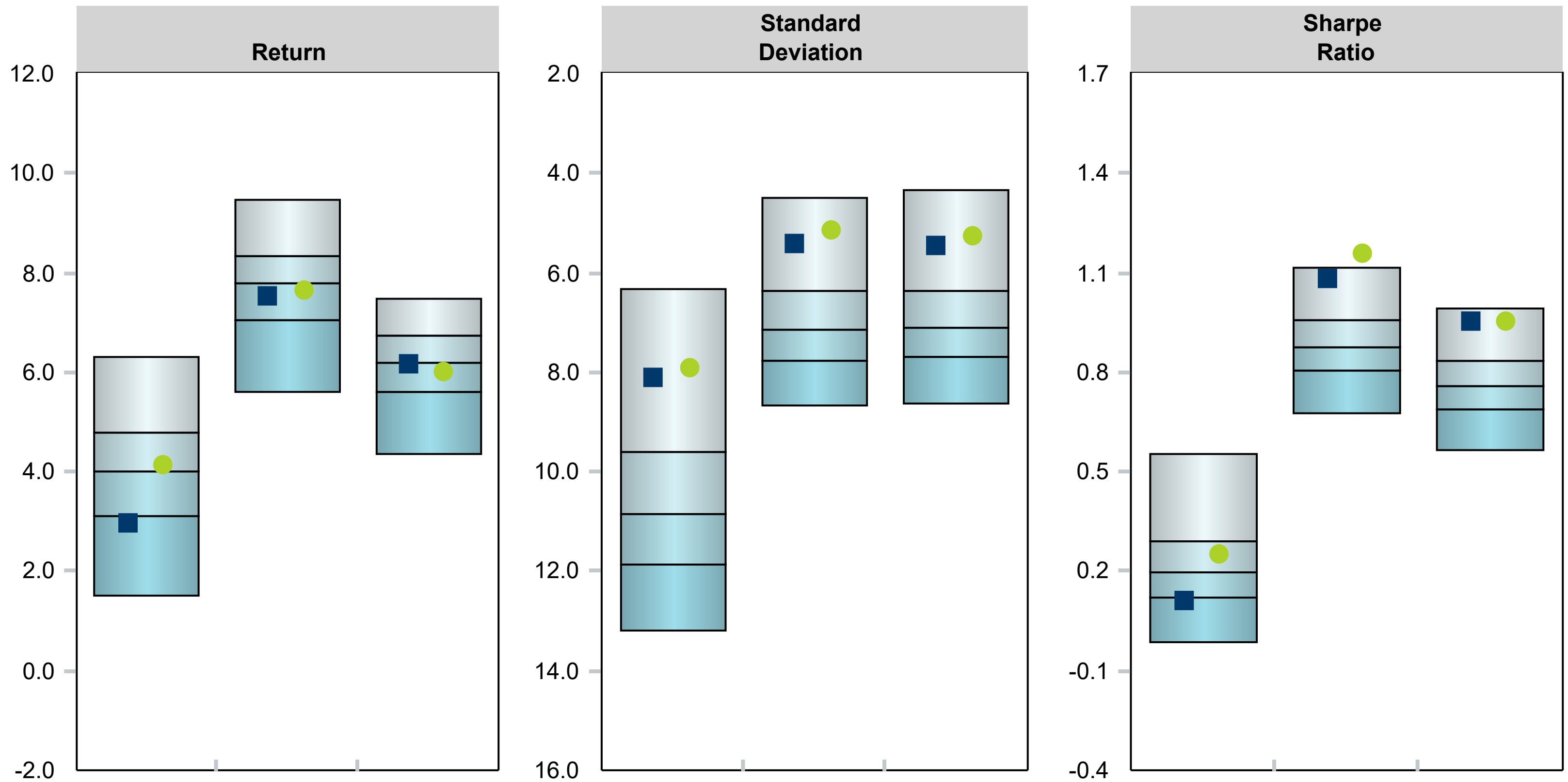
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Wilshire Consulting

Plan Sponsor Peer Group Analysis-Multi Statistics

Total Fund

Periods Ended September 30, 2019



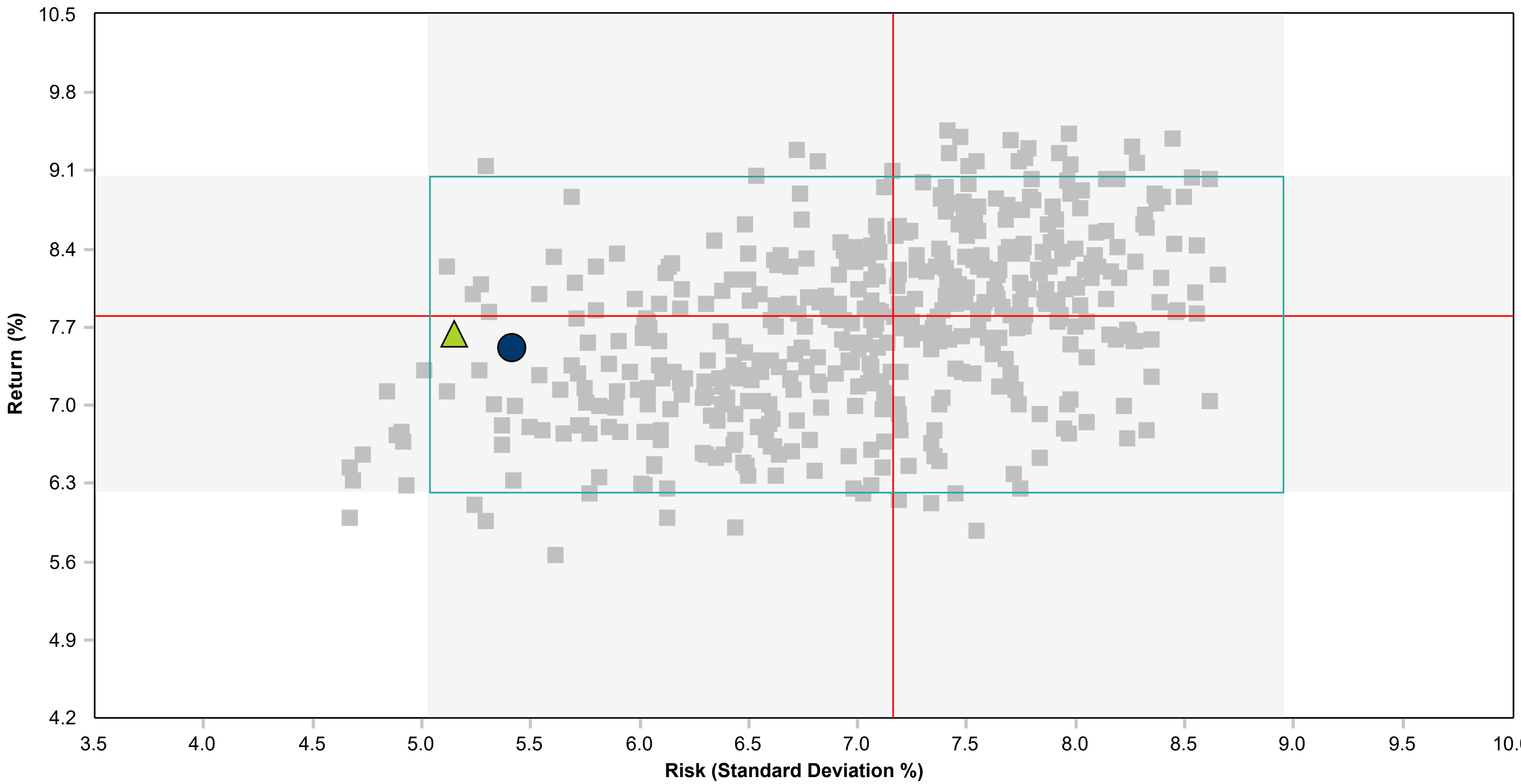
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
Total Fund	2.97 (79)	7.51 (63)	6.15 (52)	8.14 (10)	5.42 (9)	5.45 (8)	0.11 (78)	1.08 (7)	0.95 (9)
Total Fund Policy Index	4.11 (45)	7.64 (57)	5.99 (59)	7.91 (9)	5.15 (7)	5.27 (7)	0.25 (34)	1.16 (4)	0.95 (9)
5th Percentile	6.29	9.46	7.49	6.35	4.49	4.34	0.55	1.12	0.99
1st Quartile	4.78	8.35	6.72	9.62	6.39	6.38	0.29	0.95	0.84
Median	4.00	7.79	6.19	10.85	7.16	7.12	0.20	0.88	0.76
3rd Quartile	3.11	7.06	5.61	11.85	7.77	7.69	0.12	0.80	0.69
95th Percentile	1.50	5.61	4.37	13.21	8.68	8.63	-0.01	0.68	0.56

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Scattergram

Total Fund vs All Public Plans-Total Fund

Periods Ended October 1, 2016 To September 30, 2019



	Return	Standard Deviation
Total Fund	7.51	5.42
Total Fund Policy Index	7.64	5.15
Median	7.79	7.16

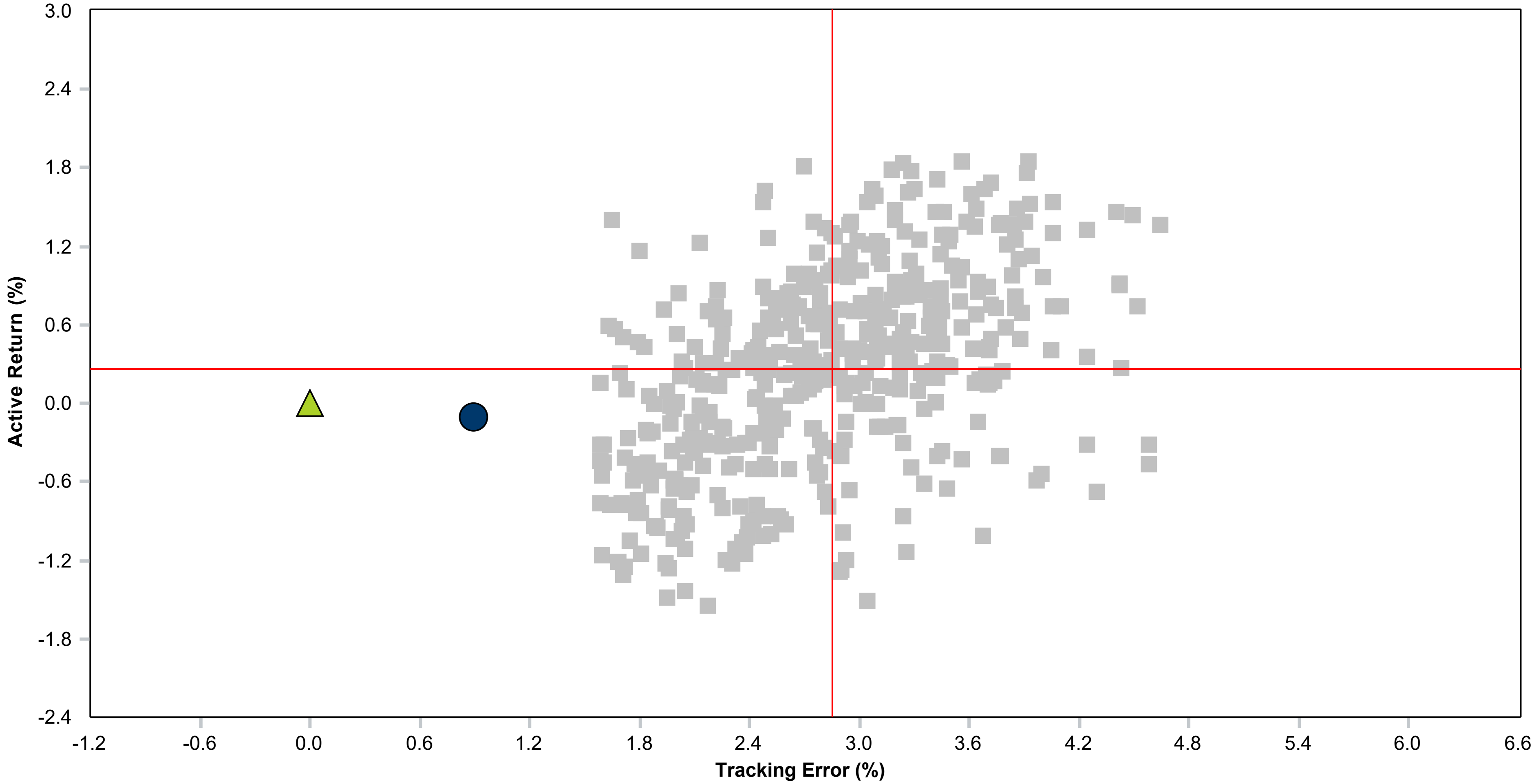
Calculation based on monthly periodicity.

Wilshire Consulting

Plan Sponsor Scattergram

Total Fund vs All Public Plans-Total Fund

Periods Ended October 1, 2016 To September 30, 2019



	Active Return	Tracking Error
Total Fund	-0.11	0.89
Total Fund Policy Index	0.00	0.00
Median	0.27	2.85

Calculation based on monthly periodicity.

Wilshire Consulting

Cash Flow Summary

Total Fund

1 Quarter Ending September 30, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Total Fund	**937,747,443**		**-8,925,000**	**-1,322,385**	**-100,654**	**7,601,029**	**935,000,434**
Total Fund x Private Equity	**783,035,945**		**-8,925,000**	**-667,966**	**-31,468**	**3,280,157**	**769,398,981**
US Equity Composite	**169,828,554**			**-109,565**	**-268**	**1,428,132**	**158,146,853**
SSgA S&P 500 Index	90,213,636			-5,078		1,566,046	86,774,603
Twin Capital Enhanced Equity	33,686,164			-28,850	-111	533,522	30,190,725
Earnest Small Value	13,932,139			-32,393		150,854	13,300,600
Emerald Advisors Small Cap	14,632,156			-28,110	-133	-909,394	12,444,519
Fragasso Large Core - Emg. Mgr.	7,762,751			-10,123		177,897	5,930,525
CIM Small Cap - Emerg. Mgr.	4,420,779				-24	28,310	4,449,065
Emerald Advisors All Cap - Emg. Mgr.	3,258,234			-4,314		-116,734	3,137,187
Ethos - Emerg. Mgr.	1,334,790					19,073	1,353,863
Cookson Peirce - Emg. Mgr.	587,904			-696		-21,442	565,767
Non US Equity Composite	**168,736,075**			**-90,136**		**-1,951,009**	**156,694,930**
Baillie Gifford Intl Equity	73,876,120					-1,312,413	62,563,707
FIAM Select International Equity	32,138,077			-25,645		-56,079	32,056,353
Segal, Bryant & Hamill	30,143,879			-48,787		-319,871	29,775,221
SSgA ACWI ex US	32,577,998			-15,703		-262,646	32,299,649
Global Equity Composite	**1,167,241**			**-3,964**		**-27,194**	**1,136,084**
Fusion - Emerg. Mgr.	1,167,241			-3,964		-27,194	1,136,084
Fixed Income Composite	**242,709,498**			**-209,883**		**3,997,324**	**246,496,939**
Core Fixed Composite	**84,284,810**			**-86,838**		**1,865,123**	**86,063,095**
C S McKee	31,284,196			-17,988		806,426	32,072,633
CIM Investment Mgmt	12,895,912			-20,159		179,725	13,055,479
Federated	26,580,116			-35,942		648,450	27,192,624
StoneRidge Partners - Emg. Mgr.	6,540,641			-3,413		75,331	6,612,559
Altair Fixed Income - Emg. Mgr.	4,352,360			-7,073		111,010	4,456,297
FNB - Emerg. Mgr.	2,631,584			-2,263		44,181	2,673,502
High Yield Fixed Composite	**110,195,603**			**-114,409**		**1,473,735**	**111,554,930**
Federated High Yield	46,872,604			-114,409		816,426	47,574,622

Wilshire Consulting

Cash Flow Summary

Total Fund

1 Quarter Ending September 30, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Oaktree High Yield	60,023,127					695,362	60,718,489
Sound Point	3,299,872					-38,053	3,261,819
TIPS Fixed Composite	**48,229,085**			**-8,636**		**658,466**	**48,878,914**
MCM TIPS	48,229,085			-8,636		658,466	48,878,914
ERECT Composite	**9,458,228**					**205,134**	**9,663,362**
ERECT Fund II	9,458,228					205,134	9,663,362
Real Estate Composite	**100,439,728**			**-91,838**	**-30,277**	**1,228,503**	**101,243,617**
Morgan Stanley	70,110,994					989,860	71,100,854
Oaktree Real Estate	8,223,664			-37,235	-24,329	5,939	7,760,148
Siguler Guff Distressed RE	10,072,024			-54,603	-5,948	232,705	10,349,570
Washington Alliance - Emerg. Mgr.	12,033,045						12,033,045
MLP Composite	**43,782,558**			**-126,423**		**-1,839,573**	**41,816,562**
Harvest MLP Fund	25,290,905			-92,149		-1,184,248	24,014,508
Salient MLP Fund	18,491,653			-34,274		-655,324	17,802,055
Life Settlement Composite	**29,605,609**			**-31,250**		**127,973**	**29,482,288**
CCA Black - Emerg. Mgr.	8,612,881					14,117	8,406,954
CCA Blue - Emerg. Mgr.	2,815,759					-38,188	2,777,570
CCA Green - Emerg. Mgr.	13,176,969					-144,470	13,032,499
CCA Longevity Fund VI LP	5,000,000			-31,250		296,515	5,265,265
Israel Bonds and Cash	**13,691,142**		**-8,925,000**		**-922**	**57,173**	**21,052,247**
Cash Account	6,419,928		-8,925,000		-922	47,130	13,770,990
Israel Bonds	7,271,213					10,043	7,281,256
Hedge Fund Composite	**3,617,311**			**-4,907**		**53,695**	**3,666,099**
Altair	**2,617,195**			**-4,907**		**28,712**	**2,641,000**
Altair Multi-Asset	2,617,195			-4,907		28,712	2,641,000
Maplewood	1,000,116					24,982	1,025,099
Private Equity Composite	**154,711,498**			**-654,419**	**-69,186**	**4,320,872**	**165,601,453**
Accolade V	3,087,879					323,102	3,485,981
Accolade Partners VI	494,840					-9,593	715,872

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Cash Flow Summary

Total Fund

1 Quarter Ending September 30, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Adams Street 2003	1,937,090					-10,710	1,548,765
Adams Street 2008 Global	6,501,820			-13,192		352,023	6,517,301
Adams Street 2009 Global	3,880,568			-7,978		188,798	3,917,455
Auldbrass Spec Opps II	1,287,455					-134,236	1,153,219
Birchmere Ventures	233,652						233,652
BlackRock Multi-Alternative Opps	783,356			-2,602	-3,453	19,867	753,692
Blackstone	1,046,655						815,806
Blackstone Tac Op II	1,879,637					-649	1,866,874
Blackstone Tac Op III	483,096					-9,686	806,953
Commonfund Venture Partners XII	530,539					38,819	756,858
Constitution	2,027,941			-11,250		246,020	1,861,175
Crestline Opportunity Fund III	2,833,004			-14,959		70,737	3,305,854
Crestline Recovery II	645,360				-2,992	7,609	632,250
DCM Fund IV	2,178,653			-13,412		77,004	2,426,323
Draper Triangle	359,928						359,928
Draper Triangle III	10,254,485			-47,373	-379	31,223	10,598,047
Emerald Advisors Fin Srv I	592,420					-8,593	583,827
Entrust	2,520,230			-7,517		-46,807	2,363,998
Entrust Special Opps IV	1,687,821						2,070,221
Five Points III	1,590,782					-1	1,740,817
Goldman Sachs	988,173			-1,394	-1,650	145,104	862,097
Greenspring	2,419,748					-11,675	2,408,073
Greenspring Early Stage I LP	705,533					4,802	1,030,335
Greenspring III	3,719,968			-215,353		1,076,766	4,581,381
Greenspring IV	3,057,119			-8,483		42,279	3,090,915
Greenspring Sec I	1,623,859			-7,852		168,353	1,759,360
Greenspring Sec II	2,627,931			-1,216		12,339	2,639,054
Greenspring V	2,118,068			-46,445		232,027	2,363,650
iNetworks	11,279,560			-18,101		18,101	11,795,291

Wilshire Consulting

Cash Flow Summary

Total Fund

1 Quarter Ending September 30, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
iNetworks II							2,776,136
INOF II	3,639,235						5,489,235
Ironside III	7,401,509			-10,077		371,256	7,762,689
Ironside IV	3,380,271			-112,237	-4,267	254,443	3,518,210
Ironside Opportunities Fund	1,613,598				-13,227	81,879	2,285,165
JMI Equity Fund IX-A	51,000			-18,261		-6,353	359,386
Mellon PAM Fund V	3,733,450			-6,250		219,082	3,549,082
Mesirow Partners Fund IV	7,344,824			-21,906		379,745	7,192,663
North Haven Capital Partners	2,455,235					121,271	2,486,184
North Haven Senior Loan Fund	743,433					1,692	1,275,460
Permal Capital Mgmt	783,289			-5,565		744	689,531
Pharos Capital	3,047,367					78,508	3,213,332
PLSG Accelerator Fund	242,644					-1,612	241,032
ValStone Partners IV	140,394			12,003		-60,013	13,240
ValStone Partners V	22,572,174					-30,352	22,541,822
ValStone Partners VI	9,856,009			-75,000	-43,217	44,700	10,790,510
Valstone Senior Living	12,231,304					141,449	12,372,753

US EQUITY

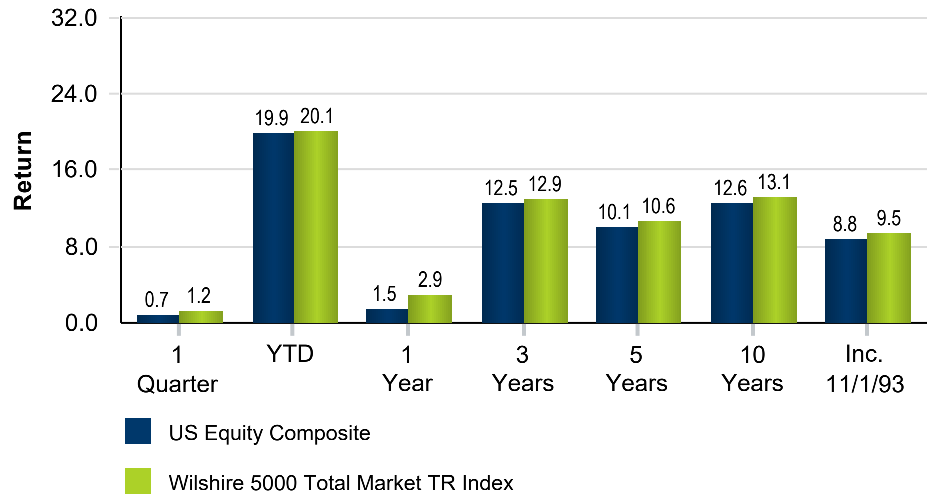
Wilshire Consulting

Composite Performance Summary

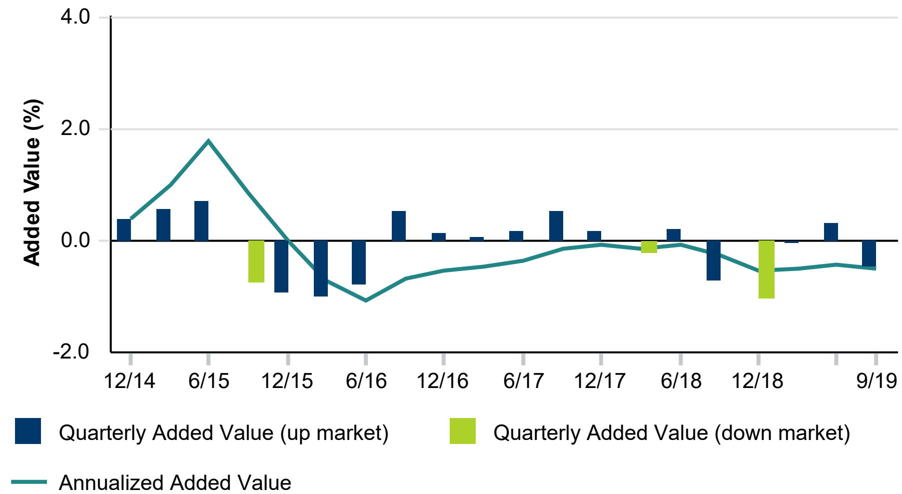
US Equity Composite

Periods Ended September 30, 2019

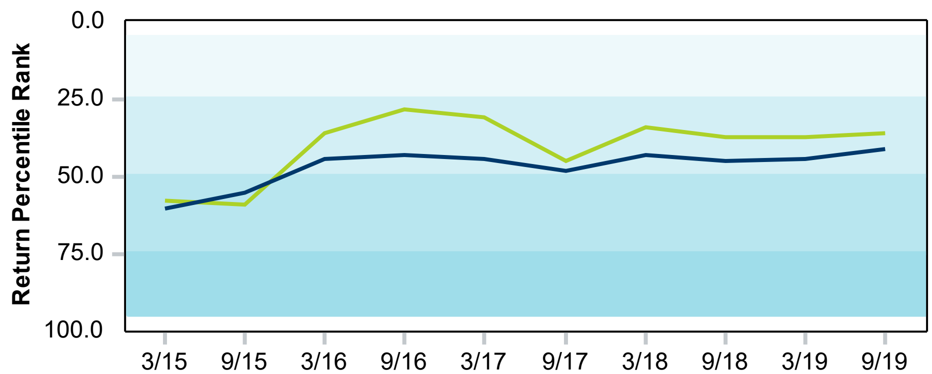
Comparative Performance



Added Value History

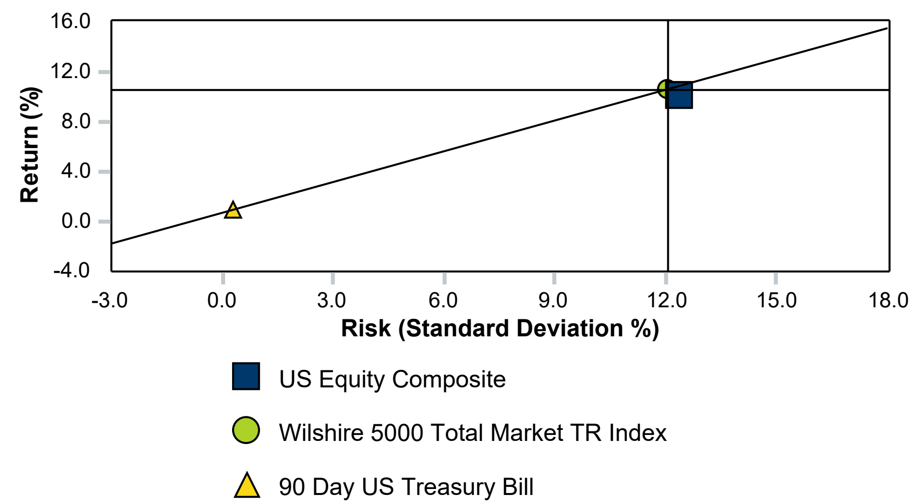


Rolling Percentile Rank: IM U.S. Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
US Equity Composite	10	0 (0%)	8 (80%)	2 (20%)	0 (0%)
Benchmark	10	0 (0%)	8 (80%)	2 (20%)	0 (0%)

Risk and Return 10/1/14 - 09/30/19



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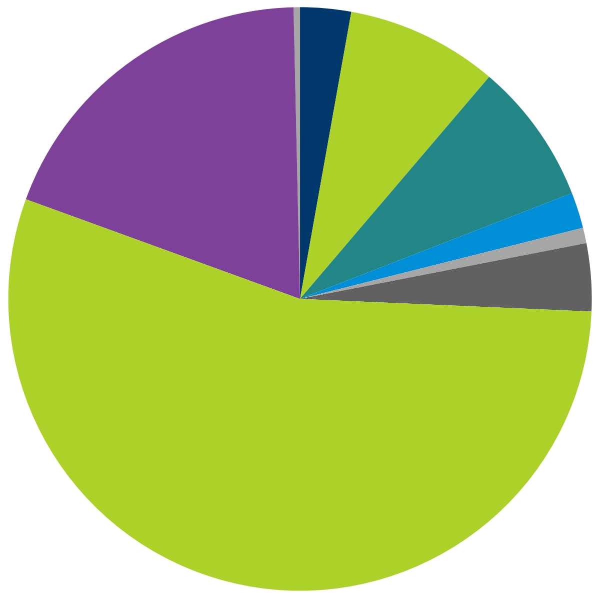
Asset Allocation By Manager

US Equity Composite

Periods Ended September 30, 2019

Sep-2019 : 158,146,853



	Market Value $	Allocation (%)
CIM Small Cap - Emerg. Mgr.	4,449,065	2.8
Earnest Small Value	13,300,600	8.4
Emerald Advisors Small Cap	12,444,519	7.9
Emerald Advisors All Cap - Emg. Mgr.	3,137,187	2.0
Ethos - Emerg. Mgr.	1,353,863	0.9
Fragasso Large Core - Emg. Mgr.	5,930,525	3.8
SSgA S&P 500 Index	86,774,603	54.9
Twin Capital Enhanced Equity	30,190,725	19.1
Cookson Peirce - Emg. Mgr.	565,767	0.4

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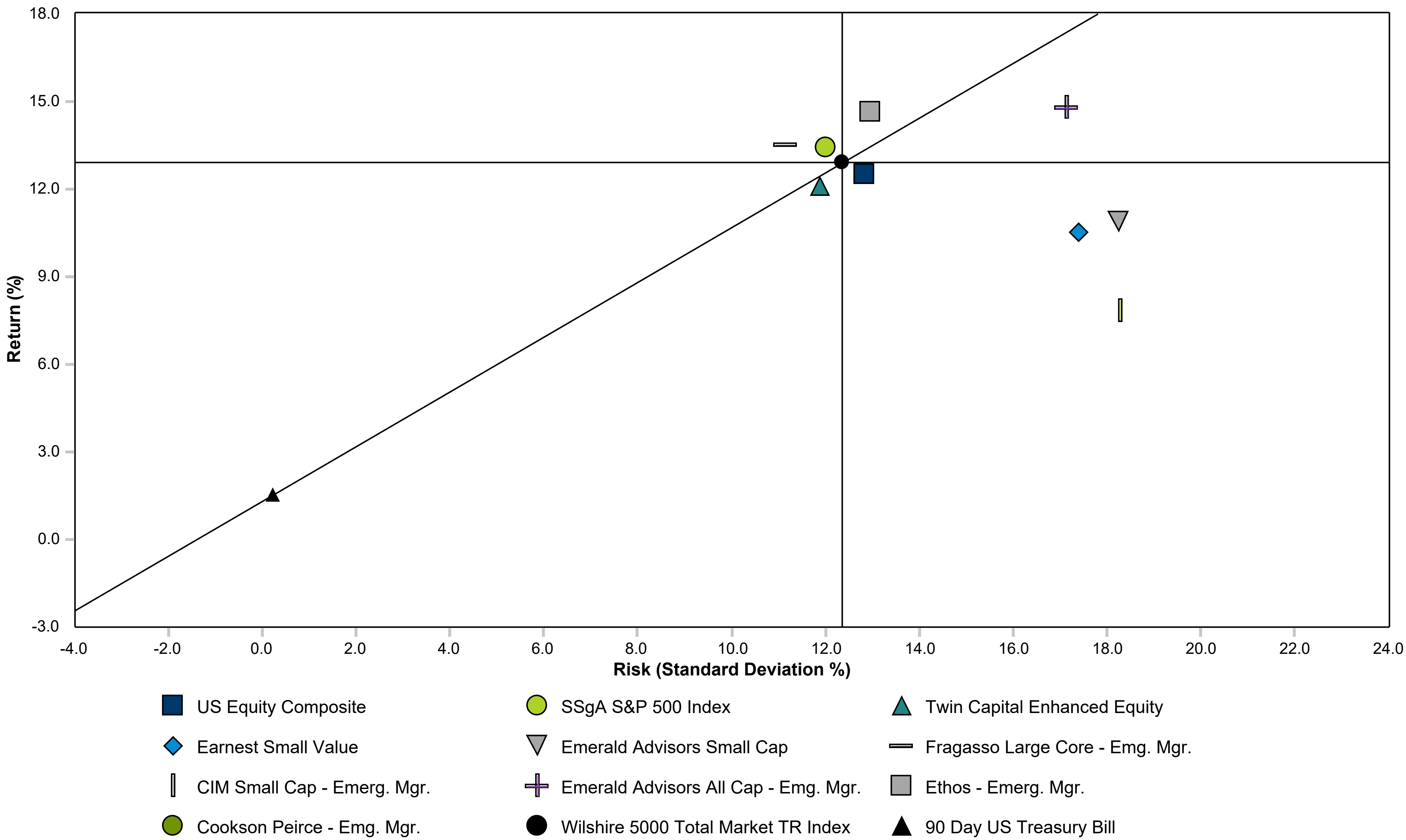
Risk vs. Return

US Equity Composite

Periods Ended 3 Years Ending September 30, 2019



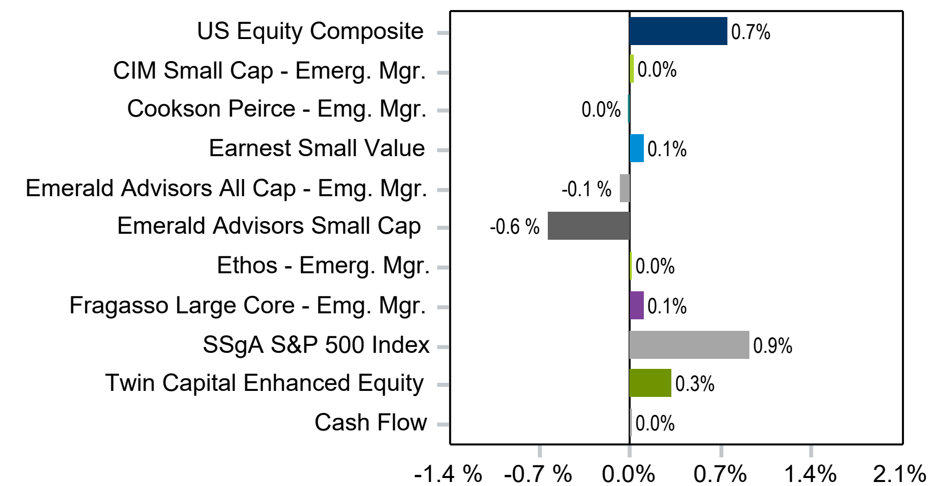
Calculation based on monthly periodicity.

Return and Risk Contribution

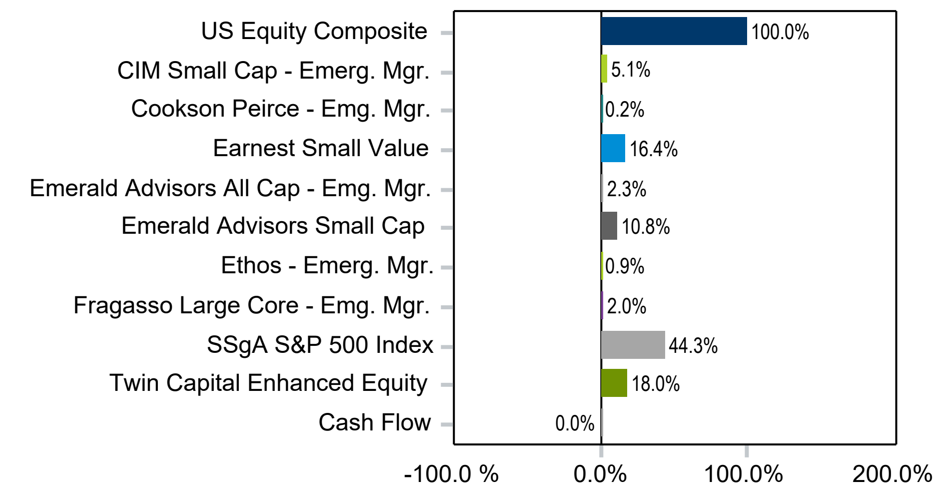
US Equity Composite

Periods Ended September 30, 2019

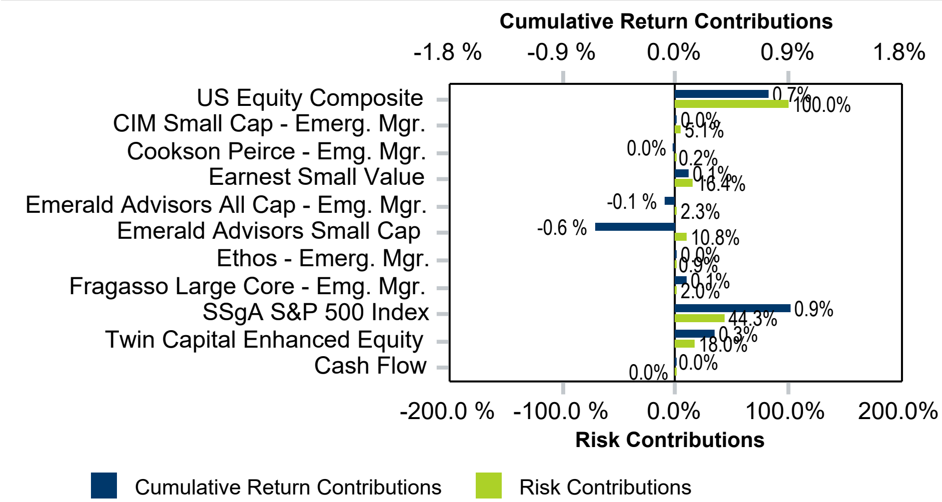
Cumulative Return Contributions



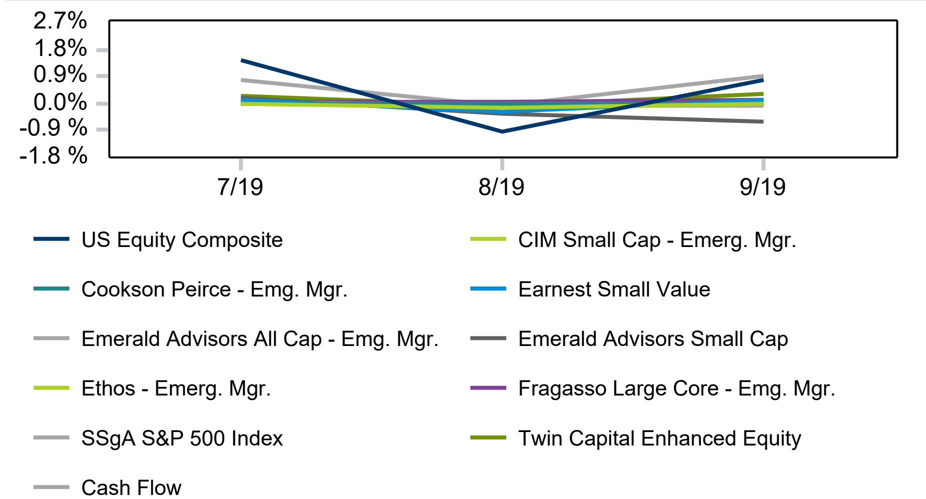
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History

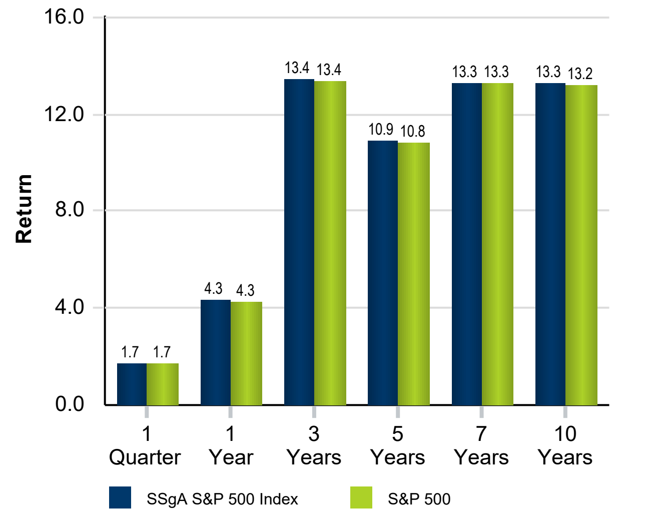


Performance Summary

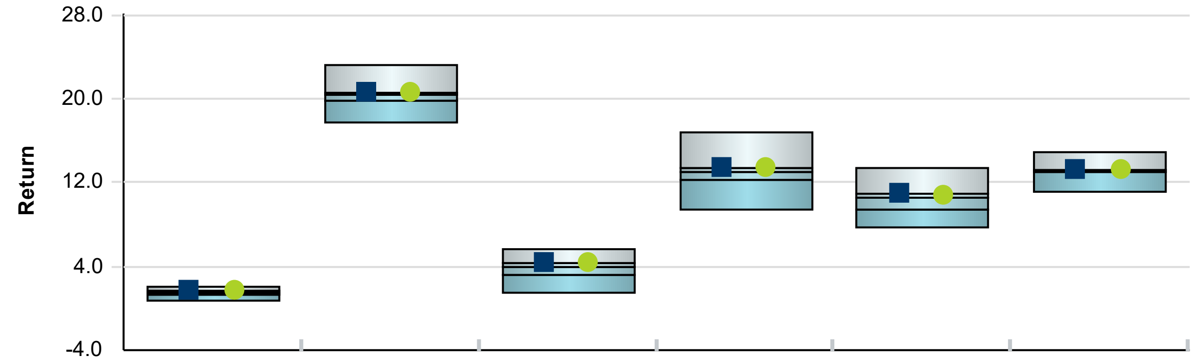
SSgA S&P 500 Index

Periods Ended September 30, 2019

Comparative Performance

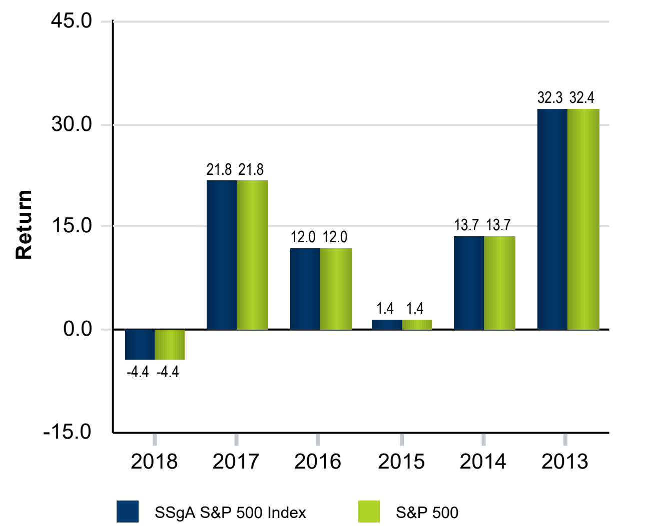


Peer Group Analysis: IM U.S. Large Cap Index Equity (SA+CF)

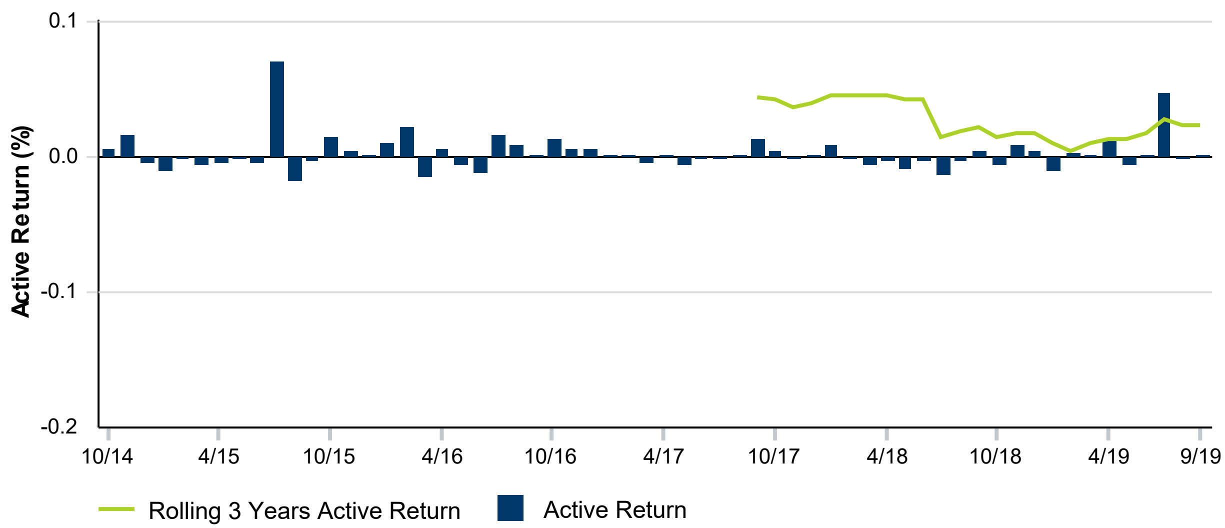


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.74 (12)	20.61 (26)	4.31 (17)	13.42 (29)	10.87 (25)	13.27 (33)
Benchmark	1.70 (26)	20.55 (36)	4.25 (25)	13.39 (34)	10.84 (32)	13.24 (41)
Median	1.45	20.47	3.89	13.09	10.64	13.20

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

SSgA S&P 500 Index

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	SSgA S&P 500 Index	S&P 500
Maximum Return	8.00	8.01
Minimum Return	-9.02	-9.03
Return	4.31	4.25
Cumulative Return	4.31	4.25
Active Return	0.06	0.00
Excess Return	3.51	3.45

Risk Summary Statistics

	SSgA S&P 500 Index	S&P 500
Upside Risk	3.59	3.58
Downside Risk	13.08	13.08
Beta	1.00	1.00

Risk/Return Summary Statistics

	SSgA S&P 500 Index	S&P 500
Standard Deviation	17.96	17.96
Alpha	0.06	0.00
Active Return/Risk	0.00	0.00
Tracking Error	0.05	0.00
Information Ratio	1.18	
Sharpe Ratio	0.20	0.19

Correlation Statistics

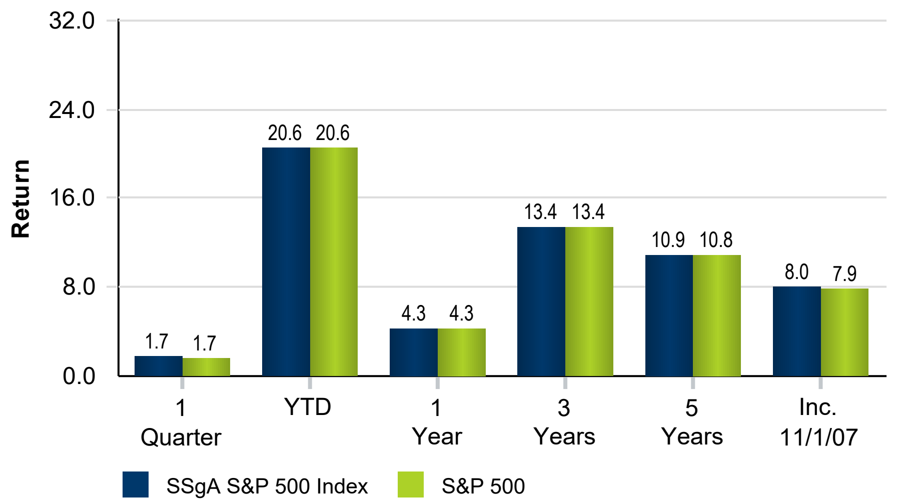
	SSgA S&P 500 Index	S&P 500
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

Manager Summary

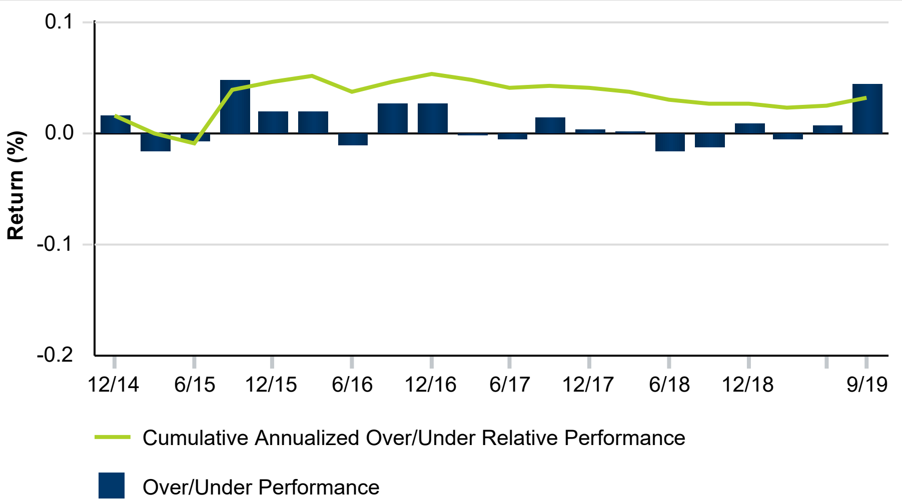
SSgA S&P 500 Index vs IM U.S. Large Cap Index Equity (SA+CF)

Periods Ended September 30, 2019

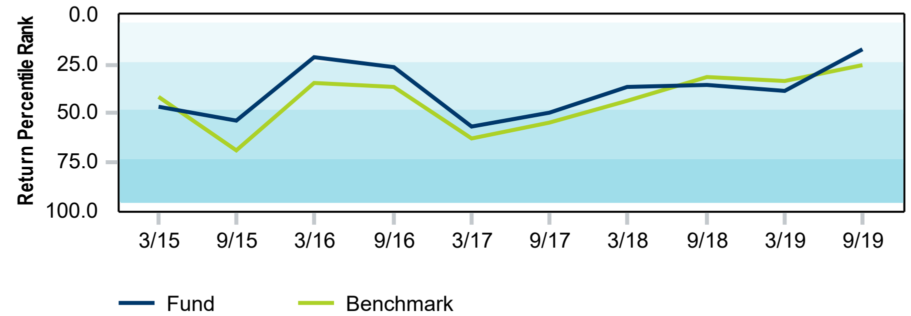
Comparative Performance



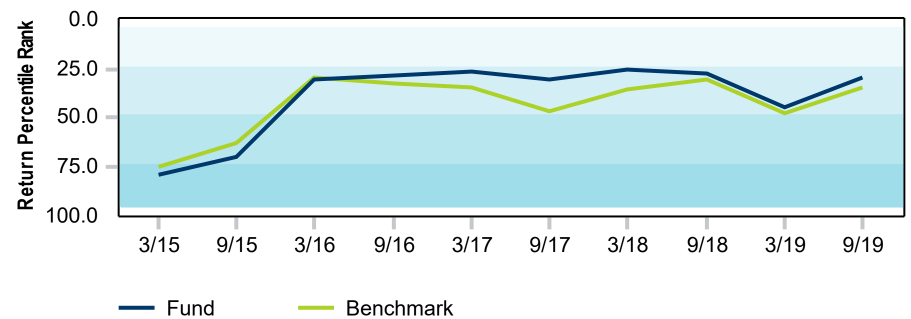
Relative Performance



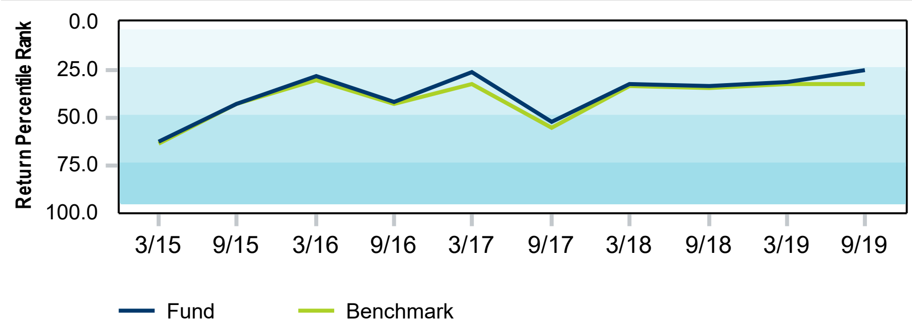
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



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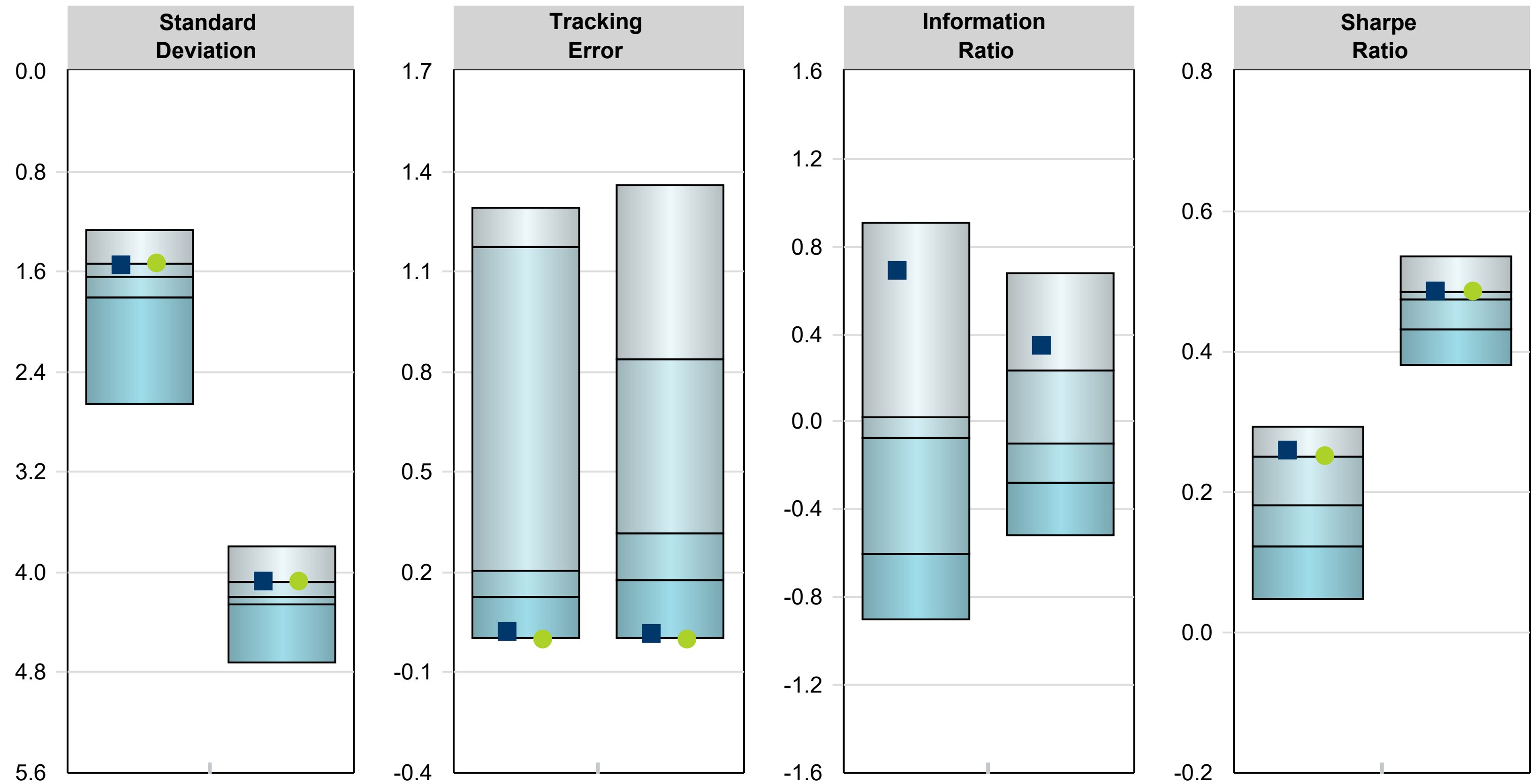
Peer Group Analysis - Multi Statistics

SSgA S&P 500 Index

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ SSgA S&P 500 Index	1.55 (37)	4.08 (22)	0.02 (85)	0.02 (86)	0.68 (11)	0.35 (15)	0.26 (10)	0.49 (23)
● S&P 500	1.54 (26)	4.08 (21)	0.00 (100)	0.00 (100)			0.25 (25)	0.48 (30)
5th Percentile	1.27	3.80	1.29	1.36	0.91	0.68	0.29	0.54
1st Quartile	1.54	4.08	1.17	0.84	0.03	0.23	0.25	0.49
Median	1.64	4.19	0.21	0.32	-0.07	-0.10	0.18	0.47
3rd Quartile	1.80	4.26	0.13	0.18	-0.60	-0.27	0.12	0.43
95th Percentile	2.66	4.72	0.00	0.00	-0.90	-0.52	0.05	0.38

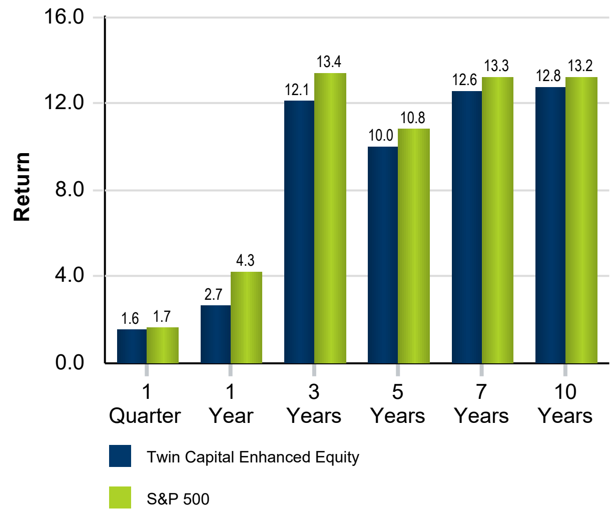
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

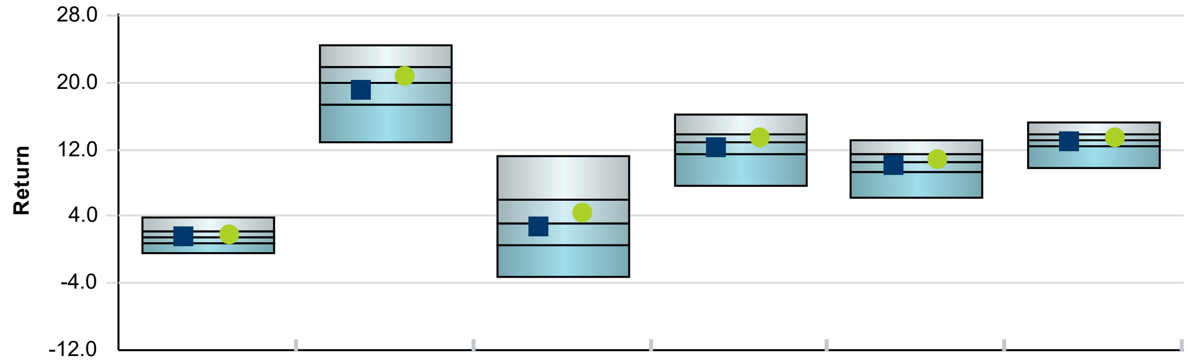
Twin Capital Enhanced Equity

Periods Ended September 30, 2019

Comparative Performance

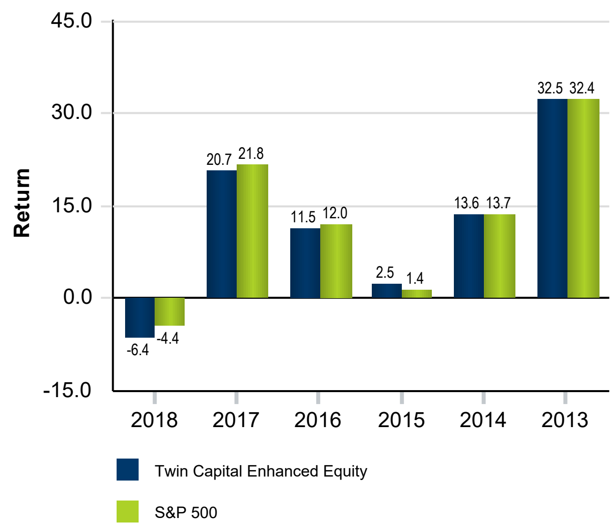


Peer Group Analysis: IM U.S. Large Cap Core Equity (SA+CF)

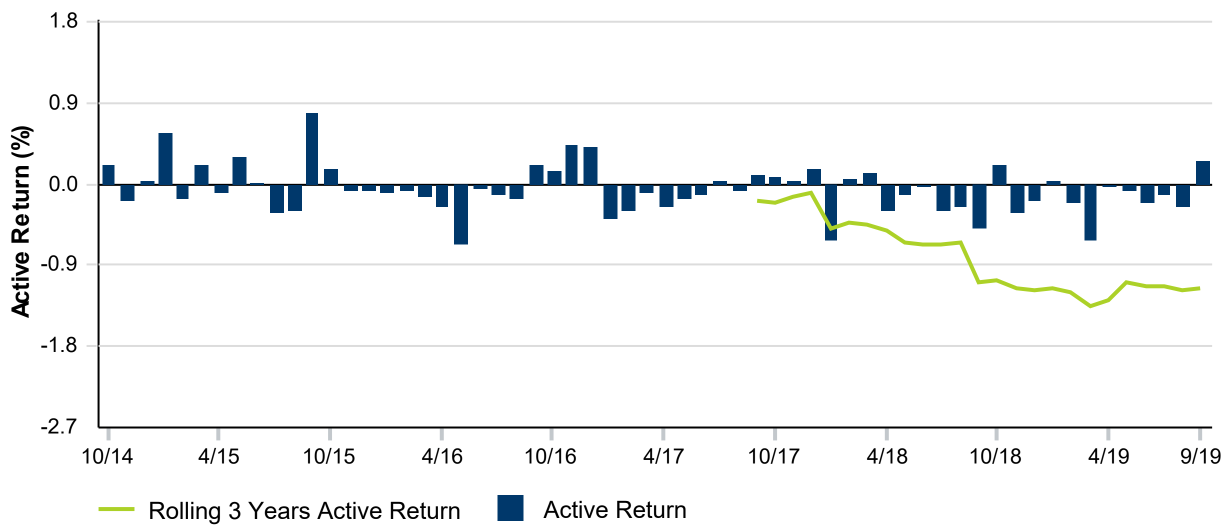


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Fund	1.58 (49)	19.08 (59)	2.69 (54)	12.12 (64)	10.04 (60)	12.82 (65)
● Benchmark	1.70 (43)	20.55 (40)	4.25 (39)	13.39 (34)	10.84 (37)	13.24 (45)
Median	1.54	19.91	3.15	12.77	10.40	13.12

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Twin Capital Enhanced Equity

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Twin Capital Enhanced Equity	S&P 500
Maximum Return	8.04	8.01
Minimum Return	-9.21	-9.03
Return	2.69	4.25
Cumulative Return	2.69	4.25
Active Return	-1.53	0.00
Excess Return	1.92	3.45

Risk Summary Statistics

	Twin Capital Enhanced Equity	S&P 500
Upside Risk	3.51	3.58
Downside Risk	13.17	13.08
Beta	0.99	1.00

Risk/Return Summary Statistics

	Twin Capital Enhanced Equity	S&P 500
Standard Deviation	17.87	17.96
Alpha	-1.49	0.00
Active Return/Risk	-0.09	0.00
Tracking Error	0.79	0.00
Information Ratio	-1.94	
Sharpe Ratio	0.11	0.19

Correlation Statistics

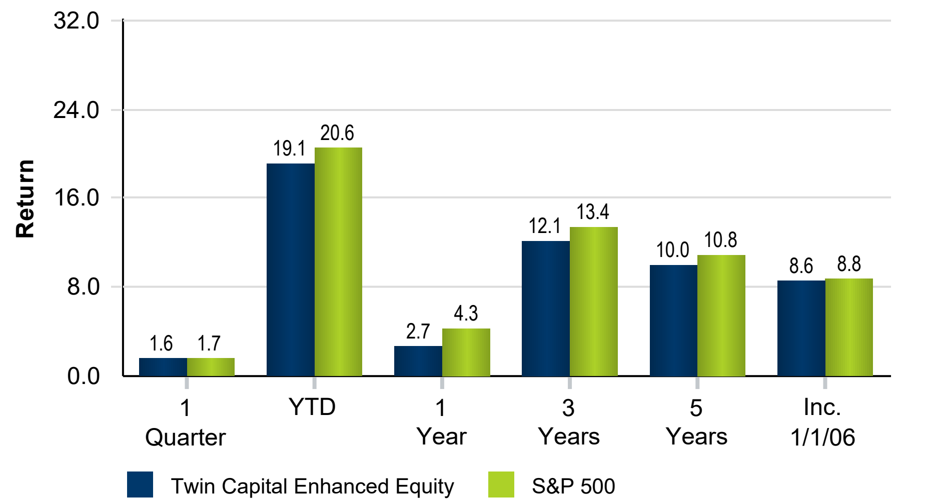
	Twin Capital Enhanced Equity	S&P 500
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

Manager Summary

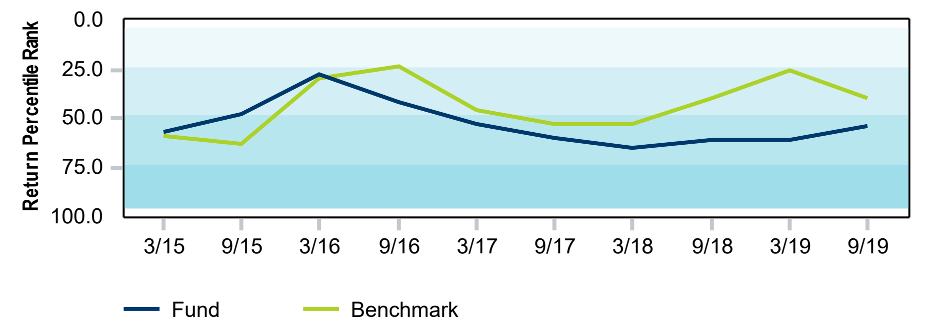
Twin Capital Enhanced Equity vs IM U.S. Large Cap Core Equity (SA+CF)

Periods Ended September 30, 2019

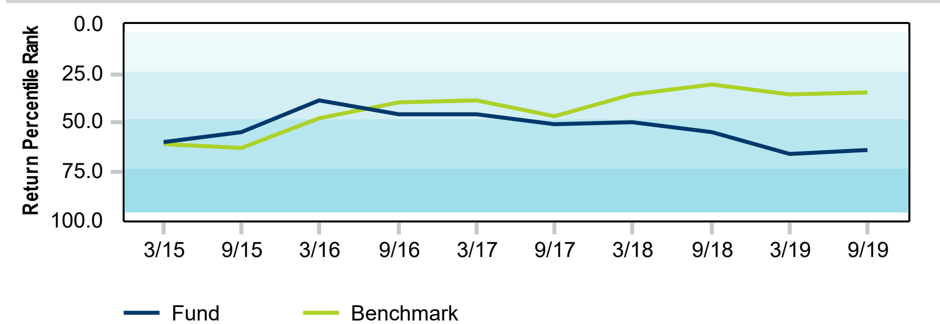
Comparative Performance



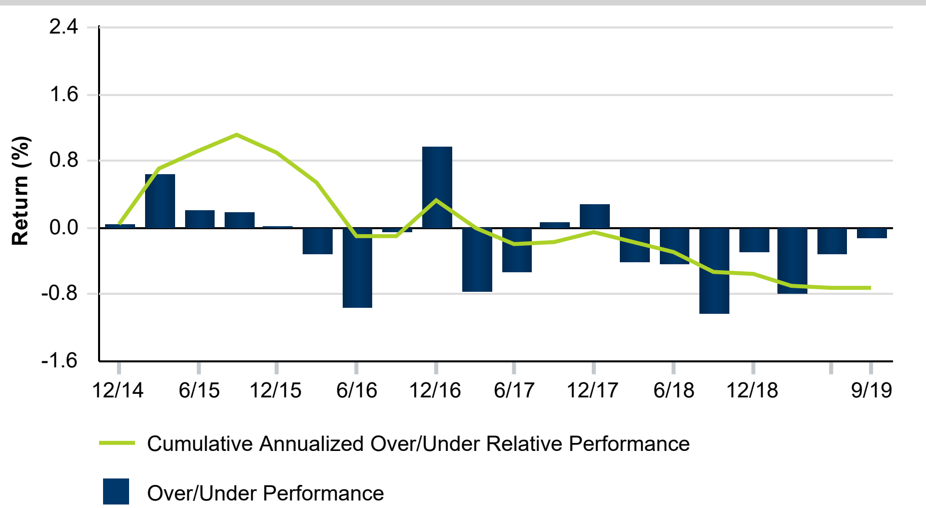
1 Year Rolling Percentile Ranking



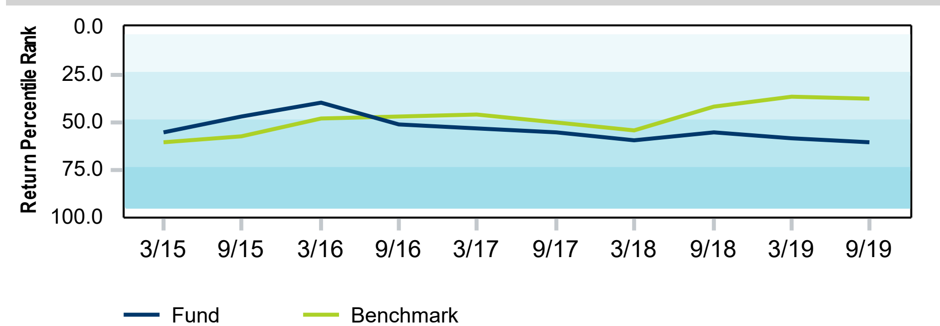
3 Year Rolling Percentile Ranking



Relative Performance



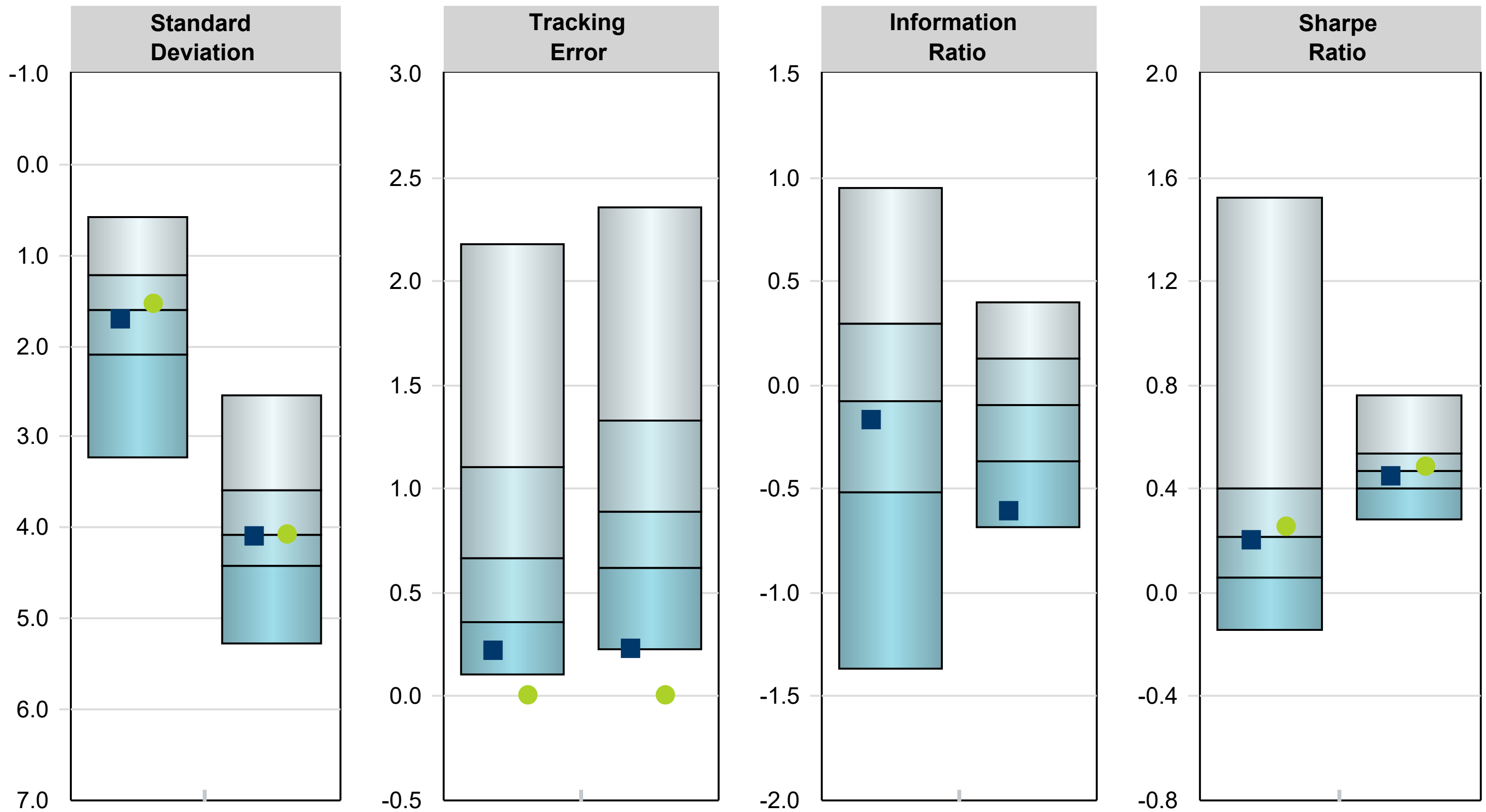
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Twin Capital Enhanced Equity

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Twin Capital Enhanced Equity	1.71 (57)	4.10 (53)	0.22 (86)	0.23 (95)	-0.17 (56)	-0.61 (92)	0.20 (52)	0.45 (59)
● S&P 500	1.54 (43)	4.08 (49)	0.00 (100)	0.00 (100)			0.25 (40)	0.48 (41)
5th Percentile	0.58	2.55	2.18	2.36	0.95	0.39	1.53	0.76
1st Quartile	1.23	3.60	1.10	1.33	0.30	0.13	0.40	0.54
Median	1.61	4.08	0.66	0.89	-0.08	-0.10	0.22	0.47
3rd Quartile	2.10	4.41	0.36	0.62	-0.51	-0.37	0.06	0.40
95th Percentile	3.21	5.28	0.10	0.23	-1.36	-0.68	-0.14	0.28

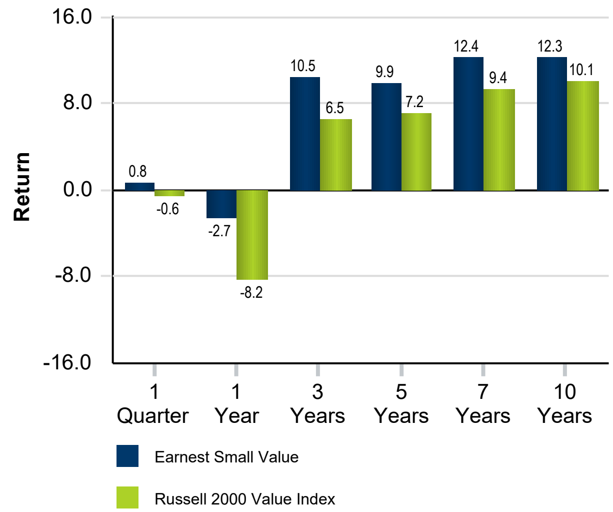
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

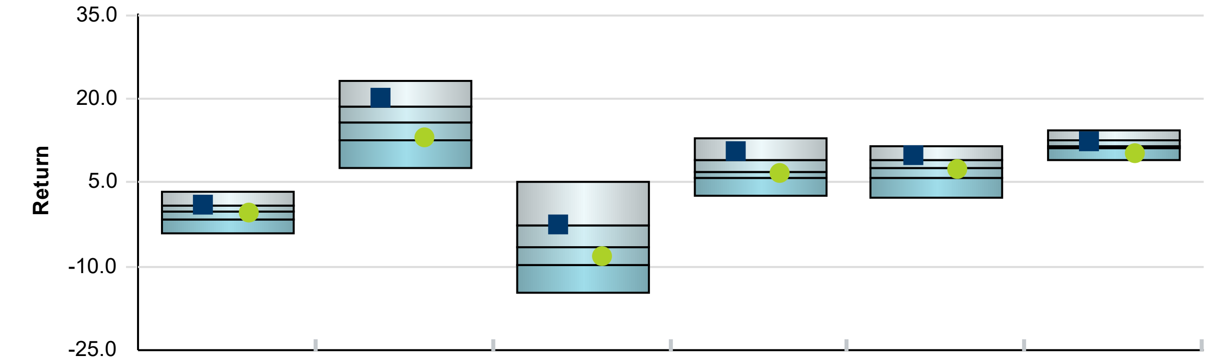
Earnest Small Value

Periods Ended September 30, 2019

Comparative Performance

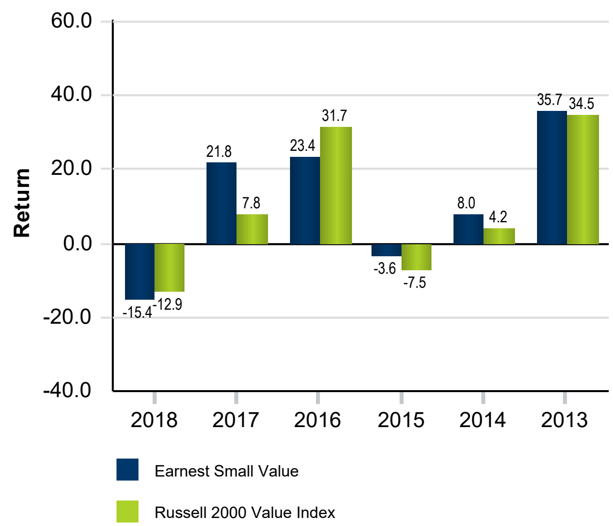


Peer Group Analysis: IM U.S. Small Cap Value Equity (SA+CF)

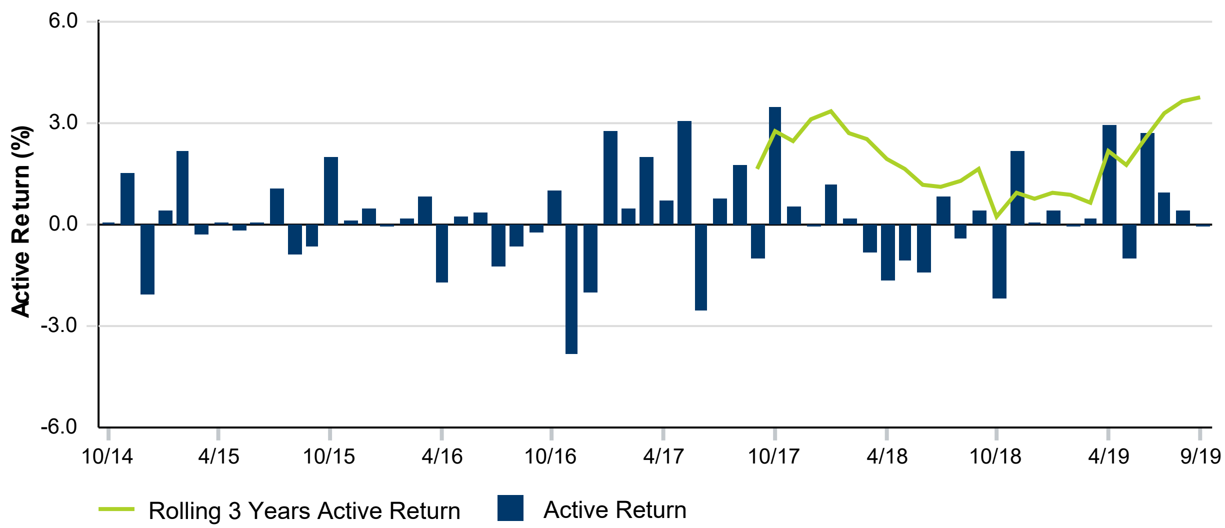


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	0.82 (31)	19.94 (15)	-2.66 (26)	10.55 (16)	9.88 (17)	12.25 (34)
Benchmark	-0.57 (58)	12.82 (75)	-8.24 (63)	6.54 (62)	7.17 (59)	10.06 (90)
Median	-0.26	15.74	-6.64	7.10	7.68	11.74

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Earnest Small Value

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Earnest Small Value	Russell 2000 Value Index
Maximum Return	11.37	10.94
Minimum Return	-12.02	-12.09
Return	-2.66	-8.24
Cumulative Return	-2.66	-8.24
Active Return	6.65	0.00
Excess Return	-1.50	-8.15

Risk Summary Statistics

	Earnest Small Value	Russell 2000 Value Index
Upside Risk	5.11	4.27
Downside Risk	19.64	18.23
Beta	1.12	1.00

Risk/Return Summary Statistics

	Earnest Small Value	Russell 2000 Value Index
Standard Deviation	26.44	23.41
Alpha	7.57	0.00
Active Return/Risk	0.25	0.00
Tracking Error	4.90	0.00
Information Ratio	1.36	
Sharpe Ratio	-0.06	-0.35

Correlation Statistics

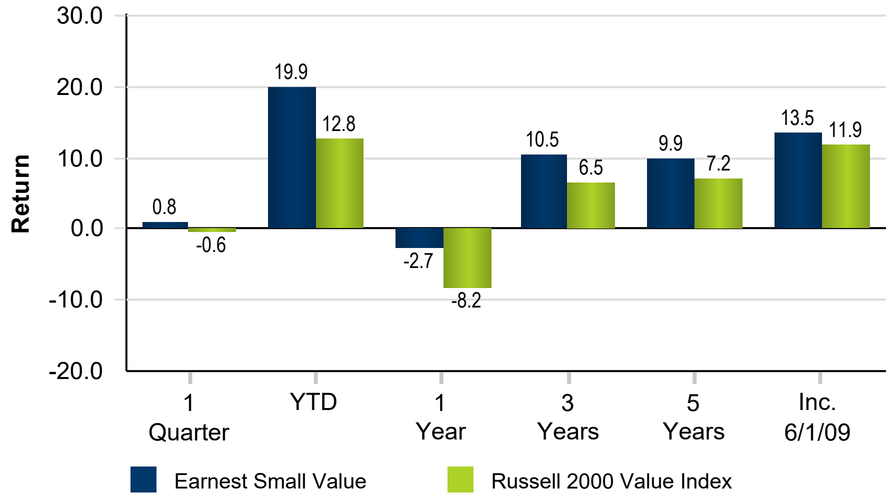
	Earnest Small Value	Russell 2000 Value Index
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

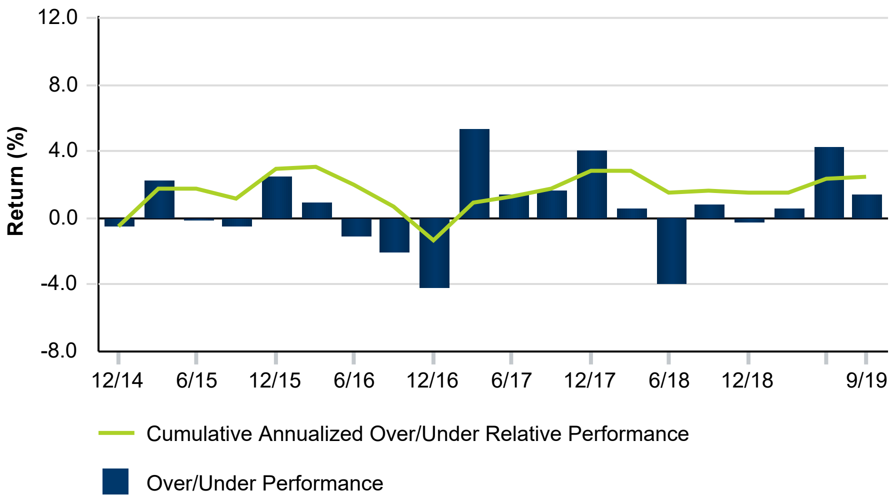
Earnest Small Value vs IM U.S. Small Cap Value Equity (SA+CF)

Periods Ended September 30, 2019

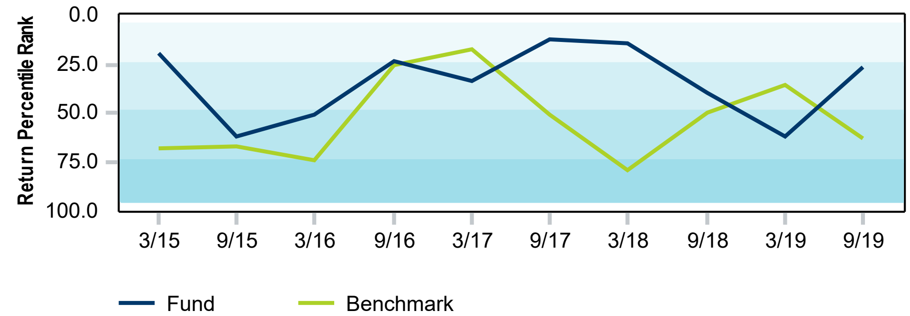
Comparative Performance



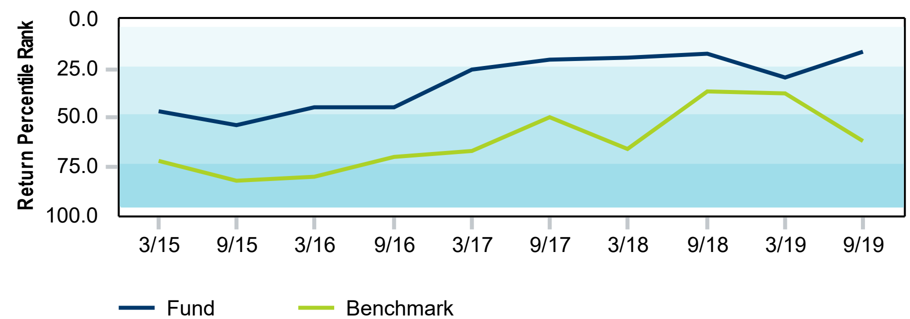
Relative Performance



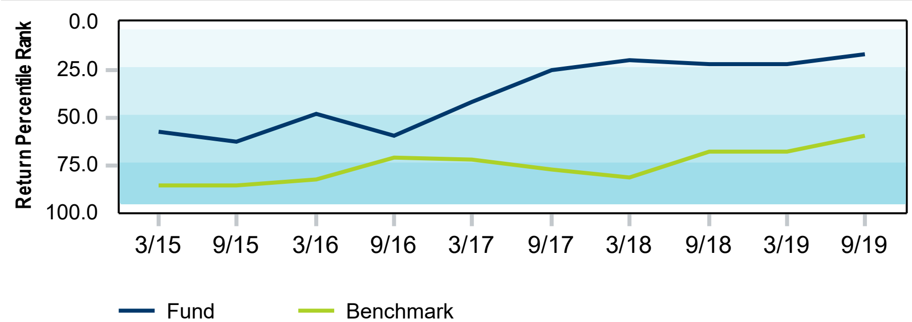
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

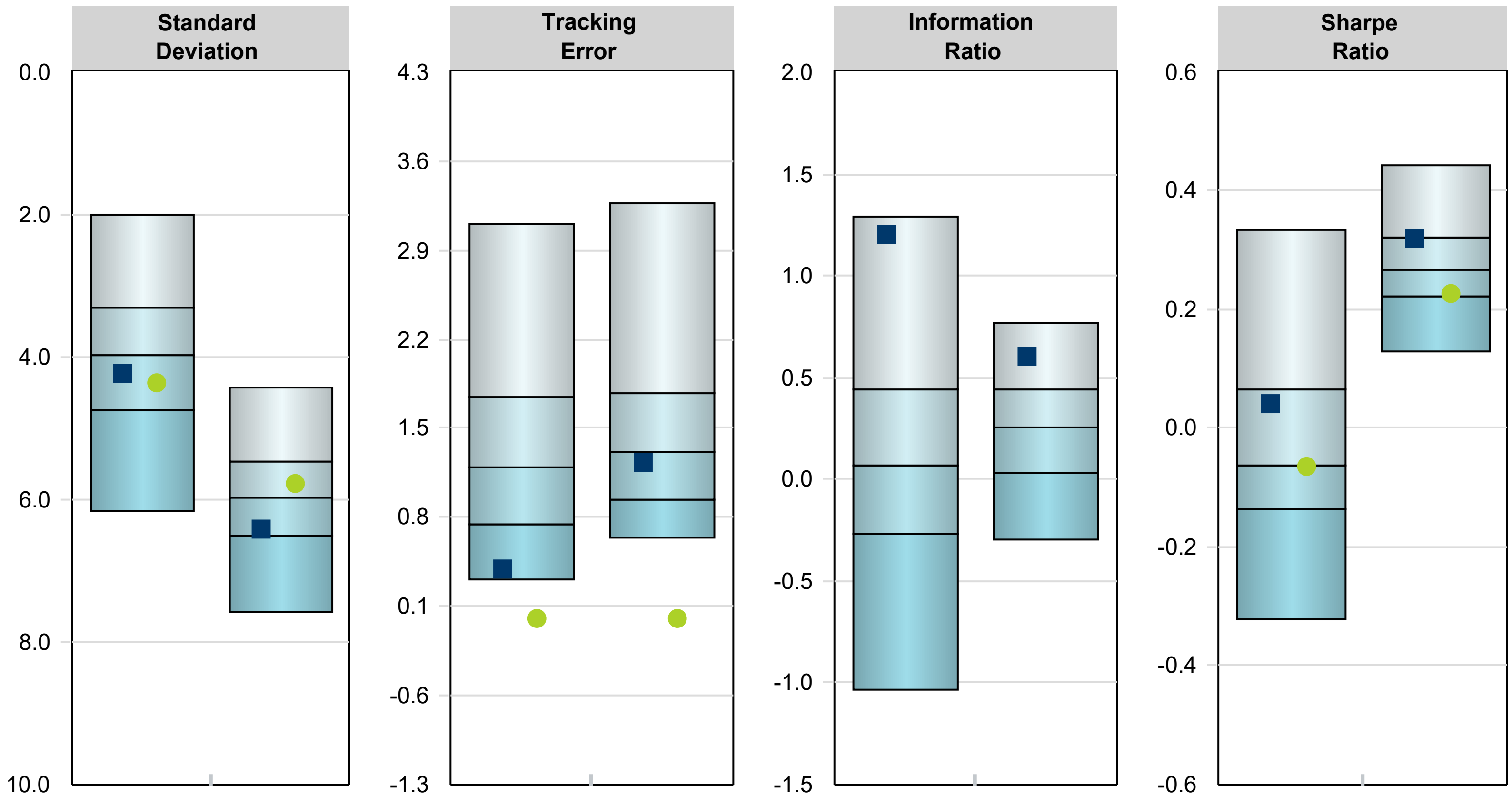


Wilshire Consulting

Peer Group Analysis - Multi Statistics

Earnest Small Value

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
Earnest Small Value	4.23 (60)	6.42 (70)	0.38 (93)	1.23 (54)	1.19 (8)	0.60 (11)	0.04 (31)	0.32 (27)
Russell 2000 Value Index	4.38 (68)	5.79 (39)	0.00 (100)	0.00 (100)			-0.06 (52)	0.23 (73)
5th Percentile	2.00	4.42	3.10	3.28	1.29	0.76	0.33	0.44
1st Quartile	3.31	5.46	1.75	1.78	0.44	0.44	0.07	0.32
Median	3.97	5.96	1.20	1.31	0.07	0.26	-0.06	0.27
3rd Quartile	4.74	6.50	0.75	0.94	-0.27	0.03	-0.13	0.22
95th Percentile	6.17	7.58	0.32	0.64	-1.03	-0.29	-0.32	0.13

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

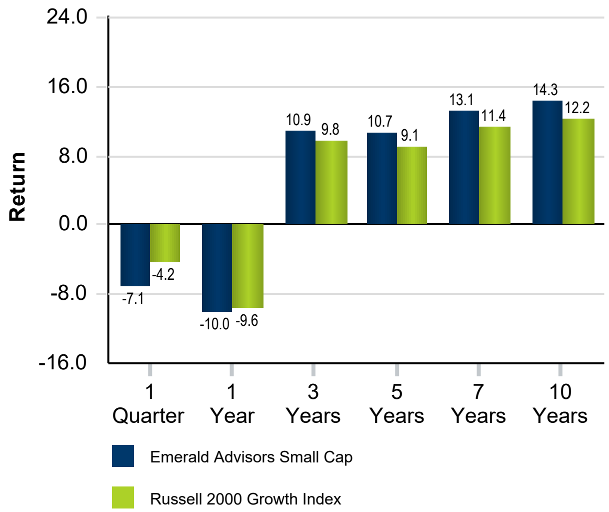
Wilshire Consulting

Performance Summary

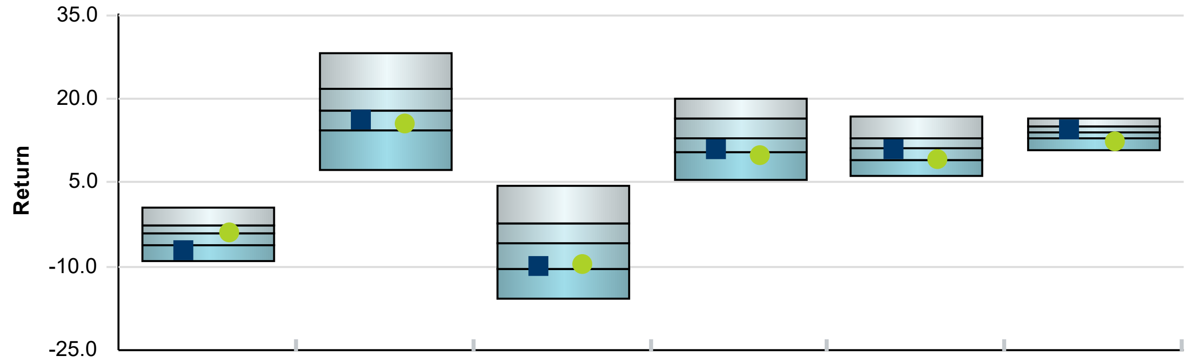
Emerald Advisors Small Cap

Periods Ended September 30, 2019

Comparative Performance

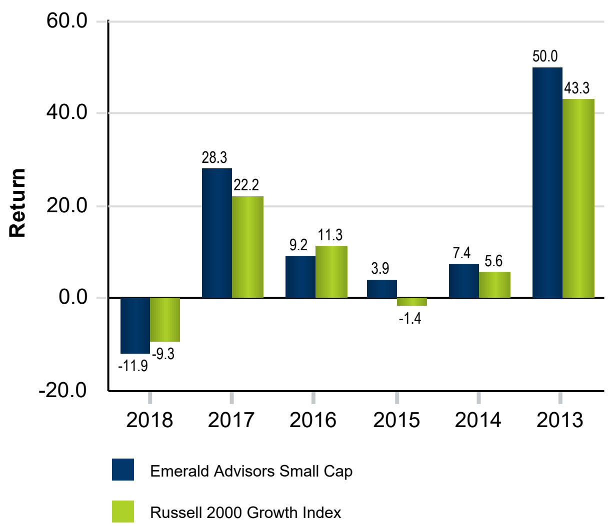


Peer Group Analysis: IM U.S. Small Cap Growth Equity (SA+CF)

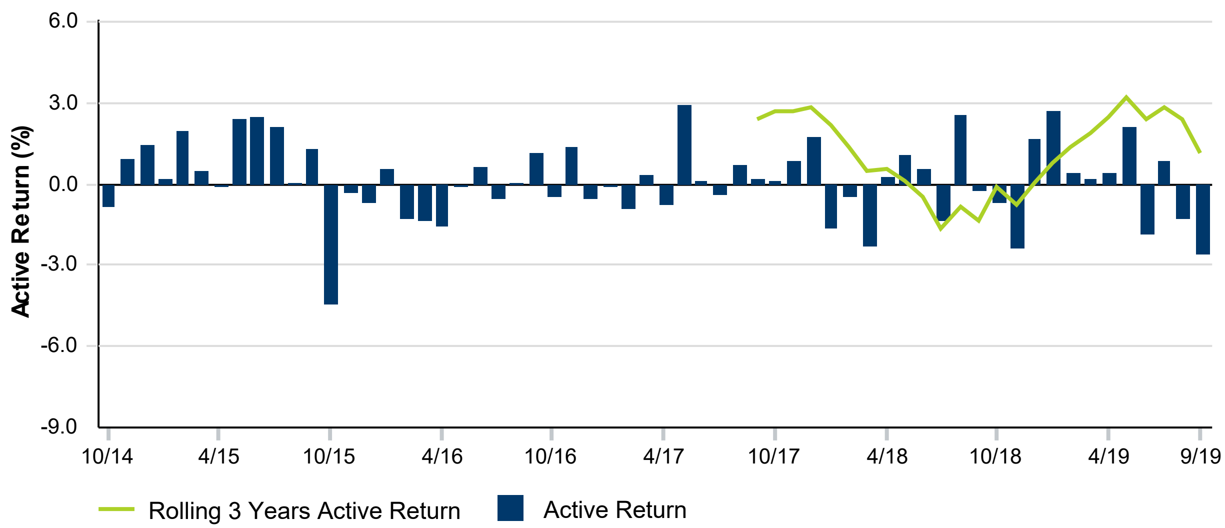


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-7.14 (81)	16.21 (62)	-10.03 (75)	10.89 (71)	10.73 (58)	14.31 (43)
Benchmark	-4.17 (53)	15.34 (66)	-9.63 (73)	9.79 (77)	9.08 (78)	12.25 (83)
Median	-3.95	17.99	-5.91	13.16	11.15	13.94

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Emerald Advisors Small Cap

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Emerald Advisors Small Cap	Russell 2000 Growth Index
Maximum Return	14.21	11.55
Minimum Return	-13.31	-12.65
Return	-10.03	-9.63
Cumulative Return	-10.03	-9.63
Active Return	-0.35	0.00
Excess Return	-9.66	-9.31

Risk Summary Statistics

	Emerald Advisors Small Cap	Russell 2000 Growth Index
Upside Risk	4.99	4.54
Downside Risk	18.70	19.31
Beta	1.00	1.00

Risk/Return Summary Statistics

	Emerald Advisors Small Cap	Russell 2000 Growth Index
Standard Deviation	25.38	24.82
Alpha	-0.38	0.00
Active Return/Risk	-0.01	0.00
Tracking Error	5.76	0.00
Information Ratio	-0.06	
Sharpe Ratio	-0.38	-0.38

Correlation Statistics

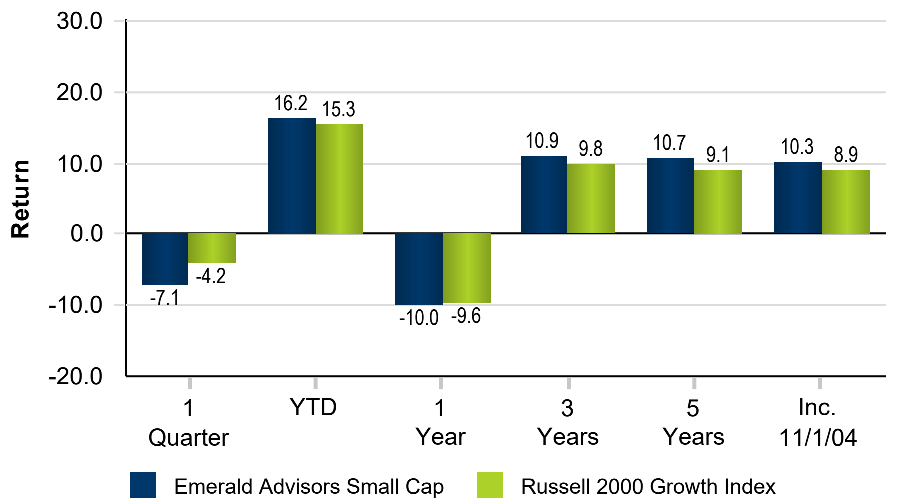
	Emerald Advisors Small Cap	Russell 2000 Growth Index
R-Squared	0.95	1.00
Actual Correlation	0.97	1.00

Manager Summary

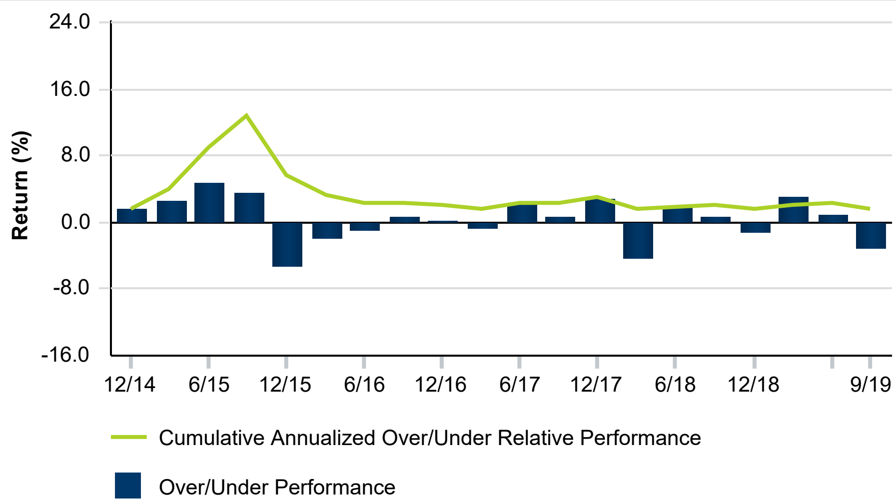
Emerald Advisors Small Cap vs IM U.S. Small Cap Growth Equity (SA+CF)

Periods Ended September 30, 2019

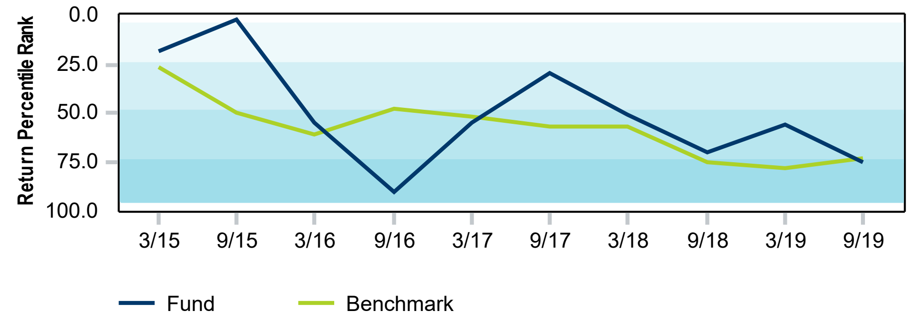
Comparative Performance



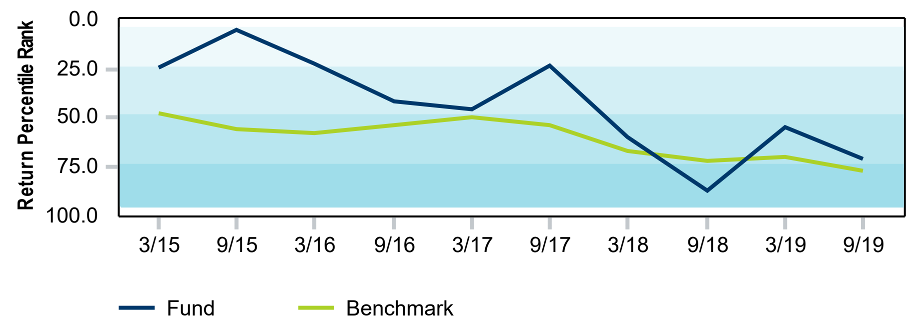
Relative Performance



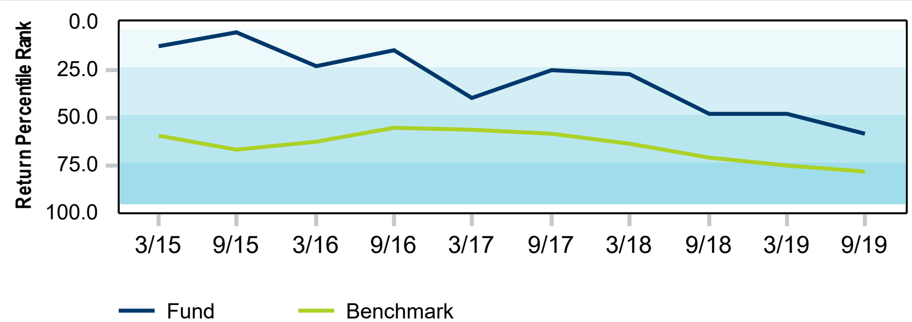
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



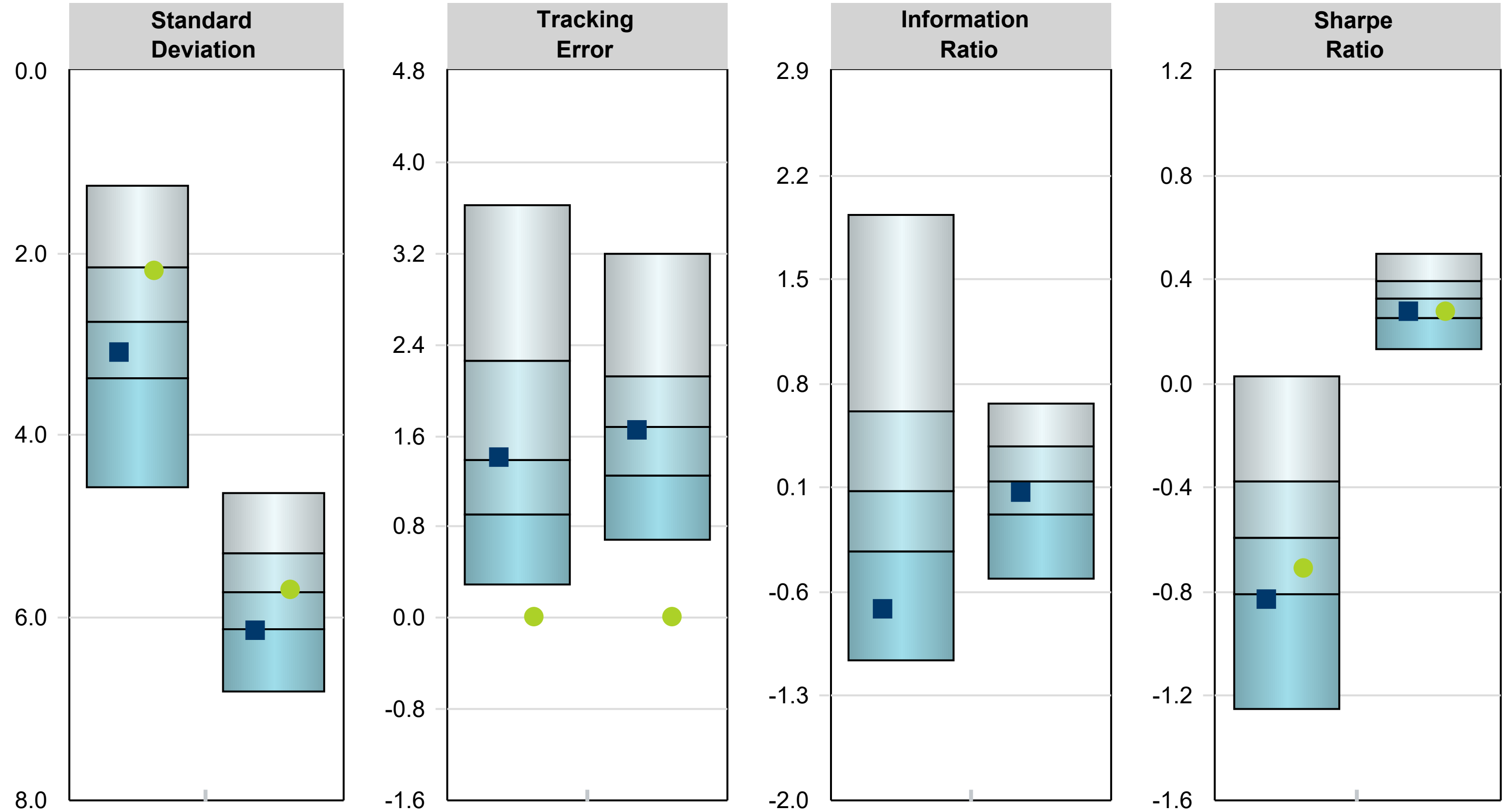
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Emerald Advisors Small Cap

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Emerald Advisors Small Cap	3.10 (66)	6.14 (76)	1.41 (49)	1.64 (52)	-0.72 (92)	0.06 (63)	-0.83 (79)	0.27 (66)
● Russell 2000 Growth Index	2.20 (26)	5.71 (49)	0.00 (100)	0.00 (100)			-0.71 (63)	0.27 (65)
5th Percentile	1.26	4.63	3.63	3.20	1.93	0.67	0.03	0.50
1st Quartile	2.15	5.29	2.25	2.12	0.62	0.37	-0.38	0.40
Median	2.75	5.72	1.39	1.68	0.07	0.14	-0.59	0.33
3rd Quartile	3.37	6.12	0.90	1.24	-0.32	-0.08	-0.81	0.25
95th Percentile	4.56	6.80	0.29	0.69	-1.06	-0.52	-1.25	0.13

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

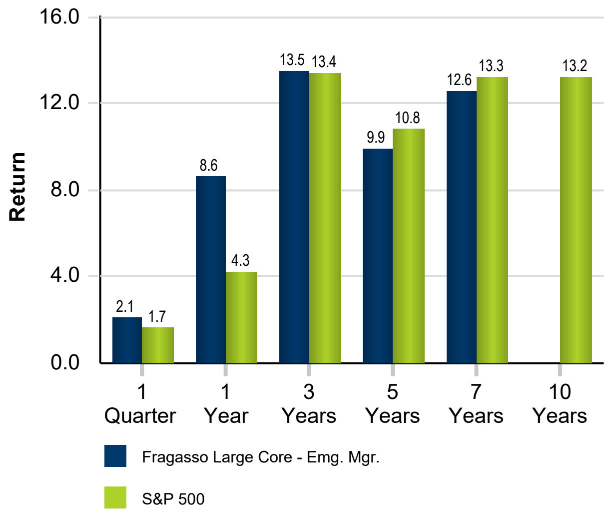
Wilshire Consulting

Performance Summary

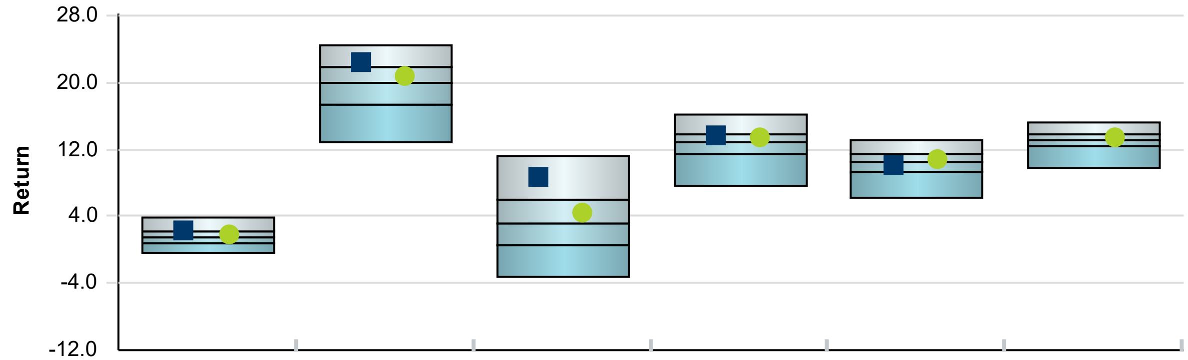
Fragasso Large Core - Emg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

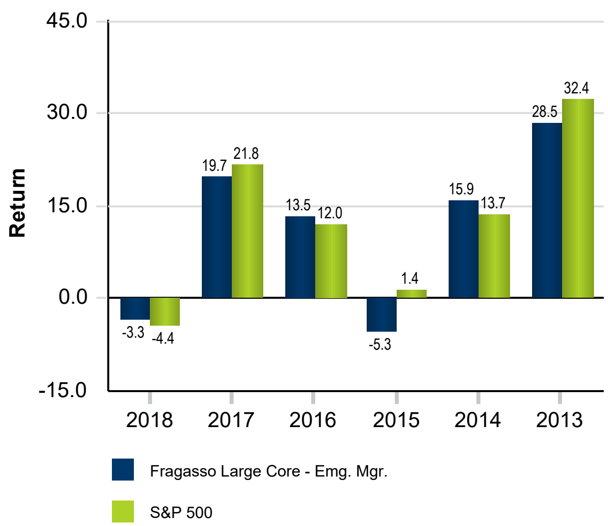


Peer Group Analysis: IM U.S. Large Cap Core Equity (SA+CF)

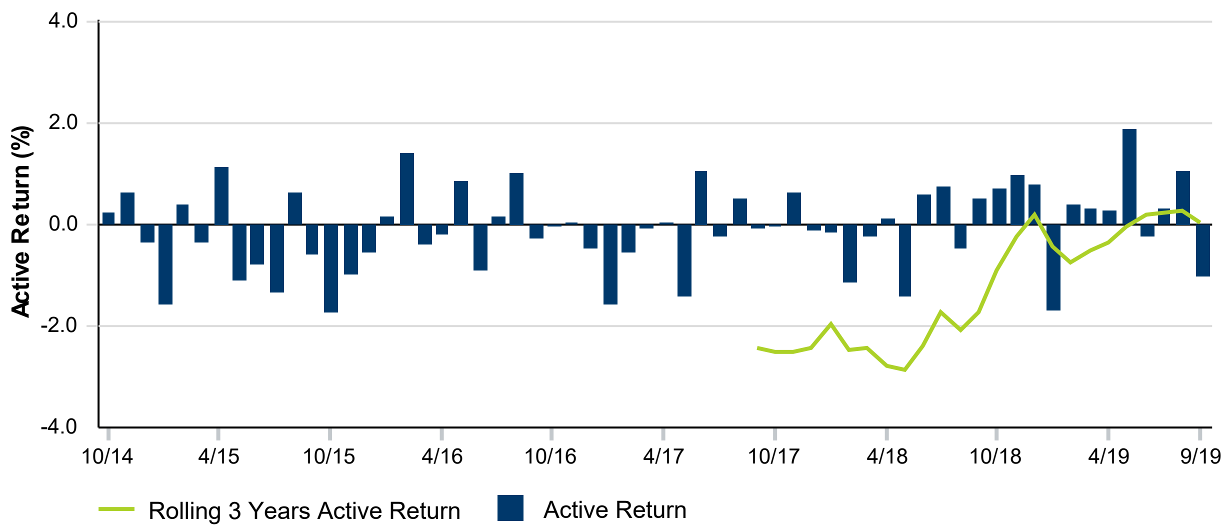


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	2.13 (31)	22.43 (19)	8.64 (13)	13.54 (30)	9.92 (62)	
Benchmark	1.70 (43)	20.55 (40)	4.25 (39)	13.39 (34)	10.84 (37)	13.24 (45)
Median	1.54	19.91	3.15	12.77	10.40	13.12

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Fragasso Large Core - Emg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Fragasso Large Core - Emg. Mgr.	S&P 500
Maximum Return	6.81	8.01
Minimum Return	-8.26	-9.03
Return	8.64	4.25
Cumulative Return	8.64	4.25
Active Return	3.80	0.00
Excess Return	7.25	3.45

Risk Summary Statistics

	Fragasso Large Core - Emg. Mgr.	S&P 500
Upside Risk	3.37	3.58
Downside Risk	11.22	13.08
Beta	0.88	1.00

Risk/Return Summary Statistics

	Fragasso Large Core - Emg. Mgr.	S&P 500
Standard Deviation	15.95	17.96
Alpha	4.59	0.00
Active Return/Risk	0.24	0.00
Tracking Error	3.15	0.00
Information Ratio	1.20	
Sharpe Ratio	0.45	0.19

Correlation Statistics

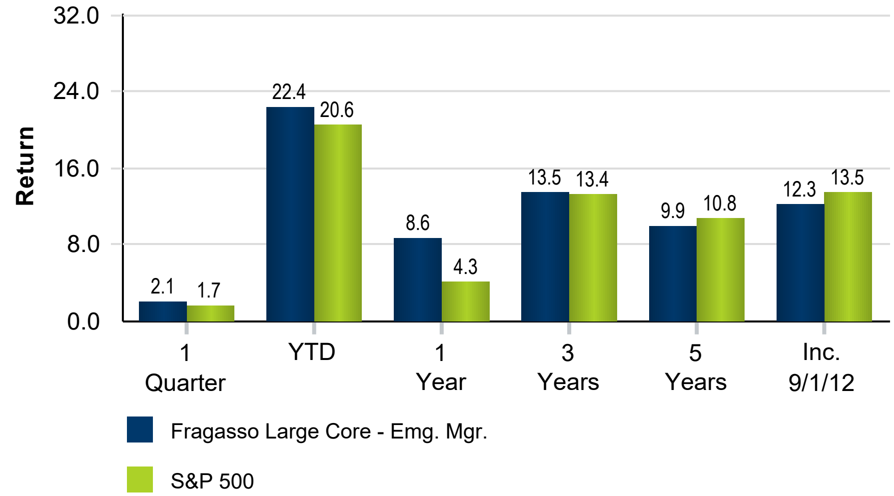
	Fragasso Large Core - Emg. Mgr.	S&P 500
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

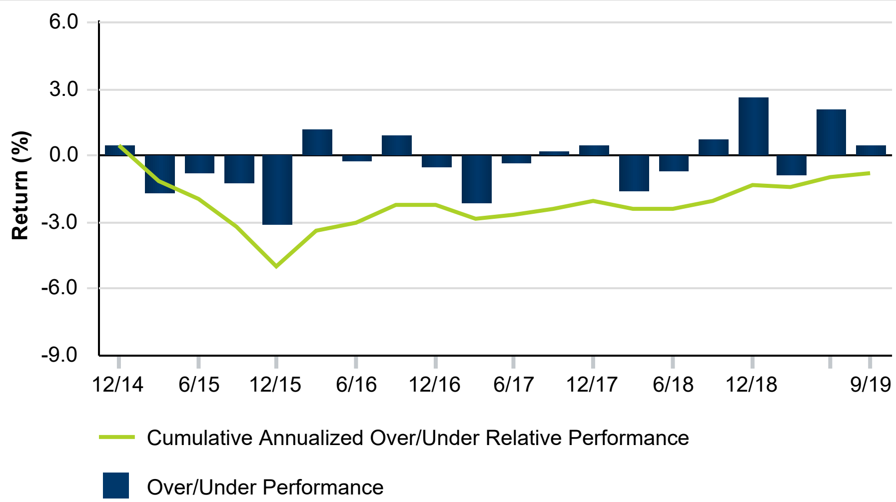
Fragasso Large Core - Emg. Mgr. vs IM U.S. Large Cap Core Equity (SA+CF)

Periods Ended September 30, 2019

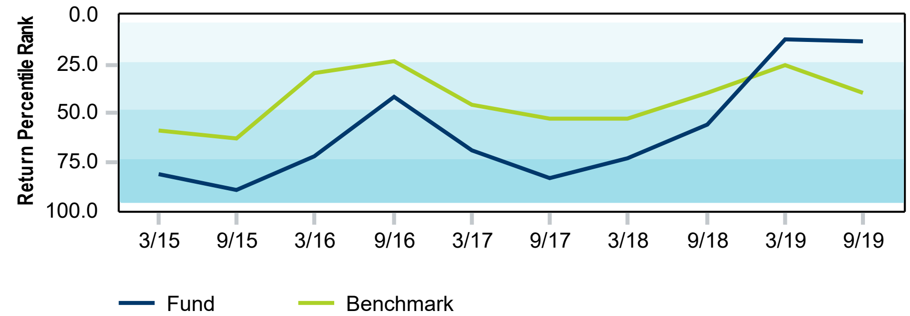
Comparative Performance



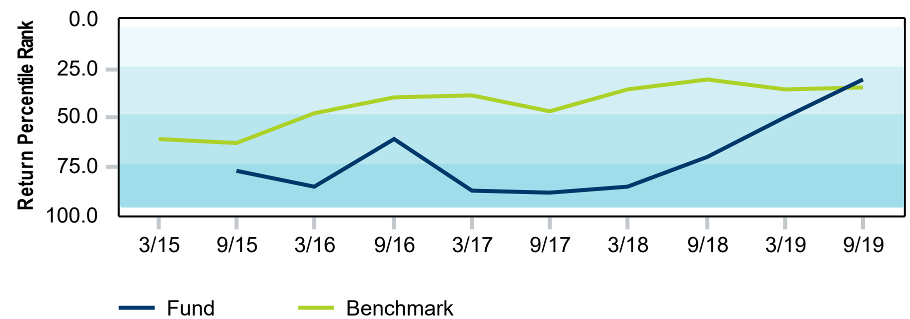
Relative Performance



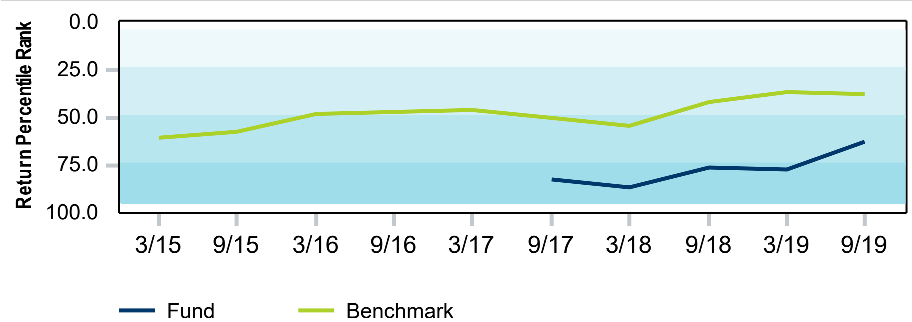
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



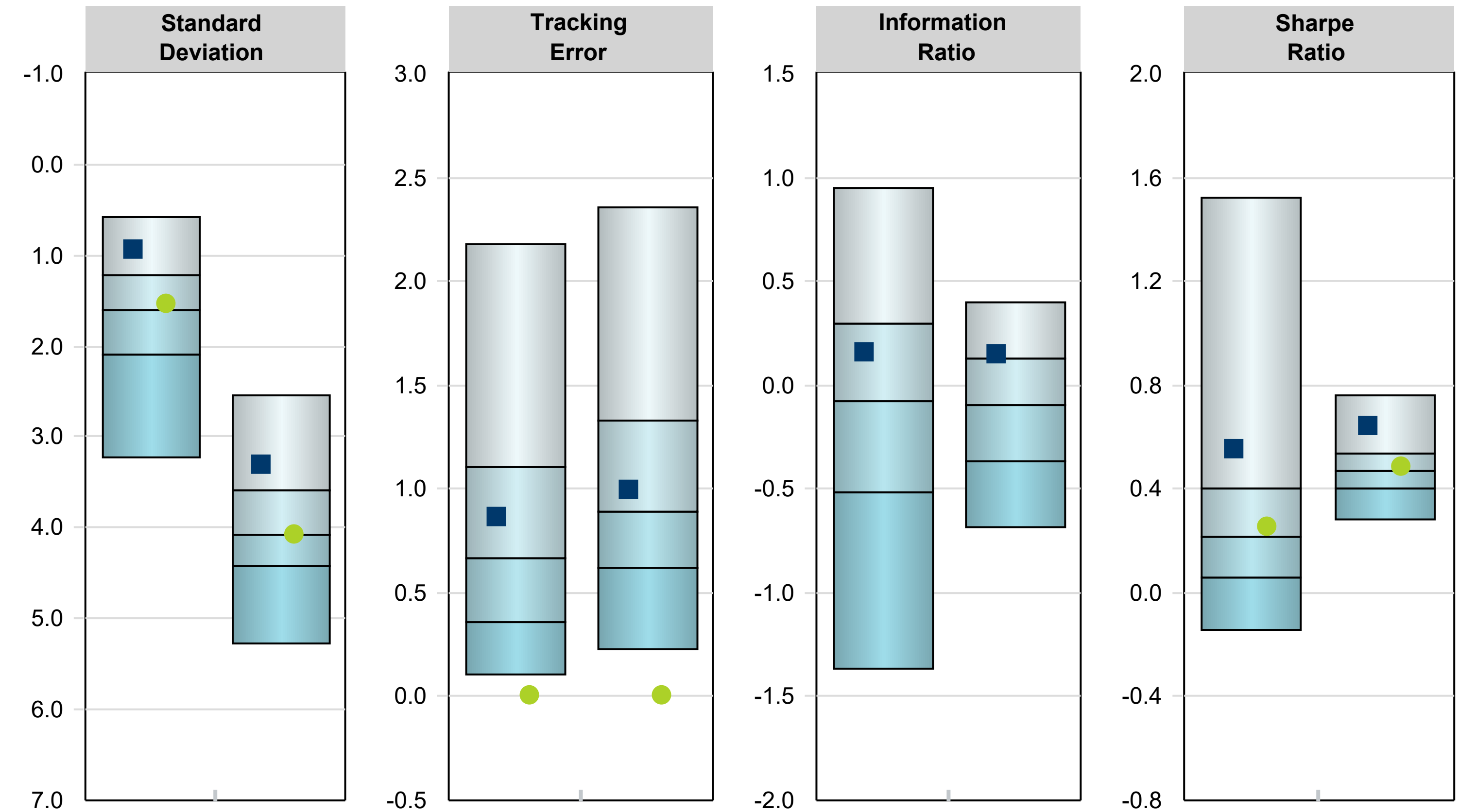
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Fragasso Large Core - Emg. Mgr.

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Fragasso Large Core - Emg. Mgr.	0.94 (10)	3.31 (15)	0.86 (35)	0.99 (39)	0.16 (35)	0.15 (21)	0.55 (17)	0.64 (11)
● S&P 500	1.54 (43)	4.08 (49)	0.00 (100)	0.00 (100)			0.25 (40)	0.48 (41)
5th Percentile	0.58	2.55	2.18	2.36	0.95	0.39	1.53	0.76
1st Quartile	1.23	3.60	1.10	1.33	0.30	0.13	0.40	0.54
Median	1.61	4.08	0.66	0.89	-0.08	-0.10	0.22	0.47
3rd Quartile	2.10	4.41	0.36	0.62	-0.51	-0.37	0.06	0.40
95th Percentile	3.21	5.28	0.10	0.23	-1.36	-0.68	-0.14	0.28

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

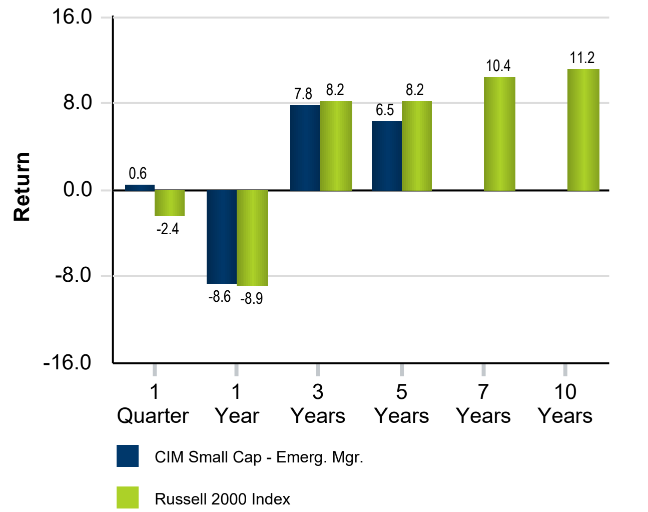
Wilshire Consulting

Performance Summary

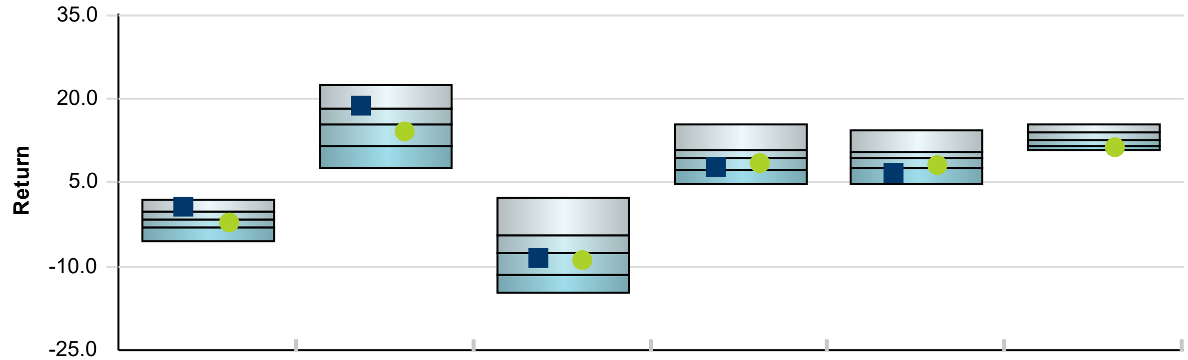
CIM Small Cap - Emerg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

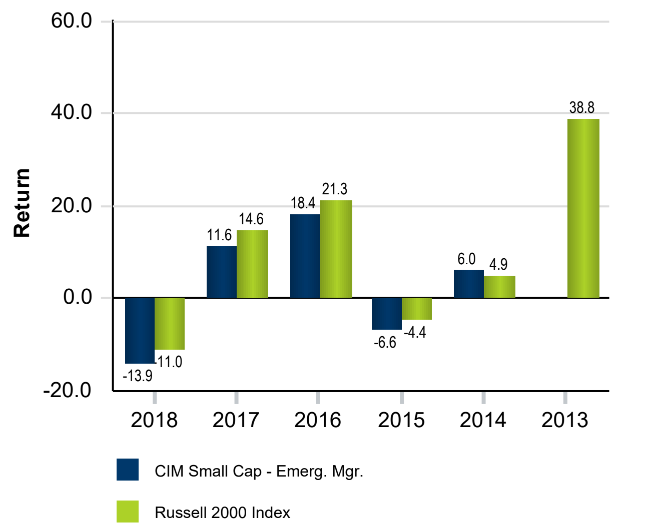


Peer Group Analysis: IM U.S. Small Cap Core Equity (SA+CF)

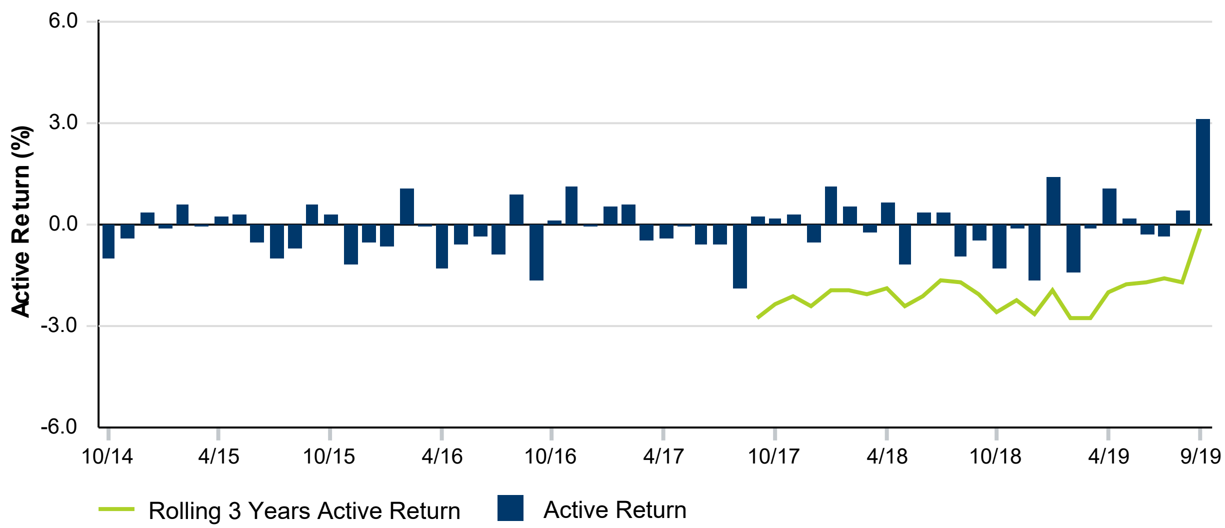


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	0.64 (13)	18.59 (21)	-8.59 (60)	7.83 (70)	6.48 (87)	
Benchmark	-2.40 (66)	14.18 (58)	-8.89 (64)	8.23 (68)	8.19 (71)	11.19 (87)
Median	-1.67	15.60	-7.60	9.28	9.39	12.72

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

CIM Small Cap - Emerg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	CIM Small Cap - Emerg. Mgr.	Russell 2000 Index
Maximum Return	12.67	11.25
Minimum Return	-13.53	-11.88
Return	-8.59	-8.89
Cumulative Return	-8.59	-8.89
Active Return	0.92	0.00
Excess Return	-7.82	-8.75

Risk Summary Statistics

	CIM Small Cap - Emerg. Mgr.	Russell 2000 Index
Upside Risk	4.74	4.30
Downside Risk	20.34	18.66
Beta	1.08	1.00

Risk/Return Summary Statistics

	CIM Small Cap - Emerg. Mgr.	Russell 2000 Index
Standard Deviation	26.09	23.82
Alpha	1.46	0.00
Active Return/Risk	0.04	0.00
Tracking Error	4.41	0.00
Information Ratio	0.21	
Sharpe Ratio	-0.30	-0.37

Correlation Statistics

	CIM Small Cap - Emerg. Mgr.	Russell 2000 Index
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

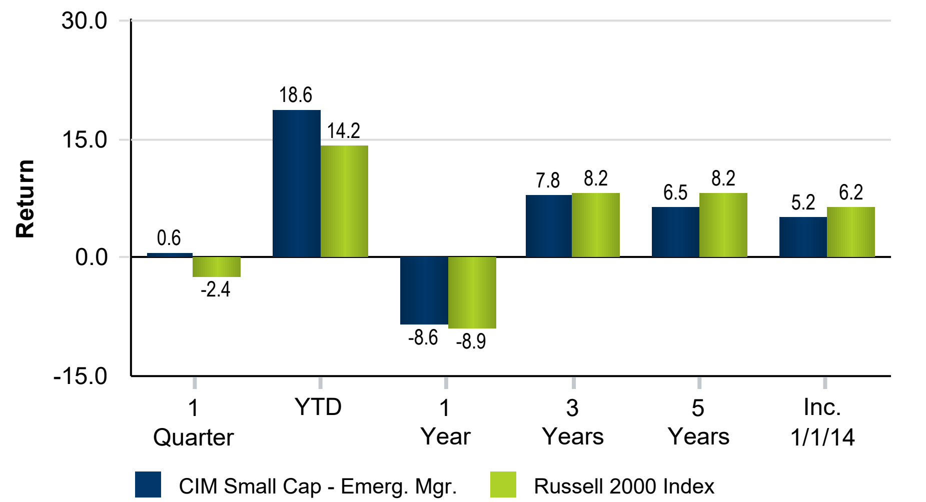
Wilshire Consulting

Manager Summary

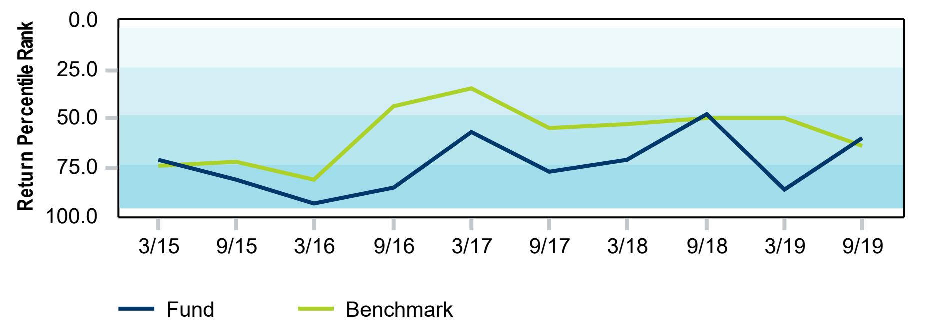
CIM Small Cap - Emerg. Mgr. vs IM U.S. Small Cap Core Equity (SA+CF)

Periods Ended September 30, 2019

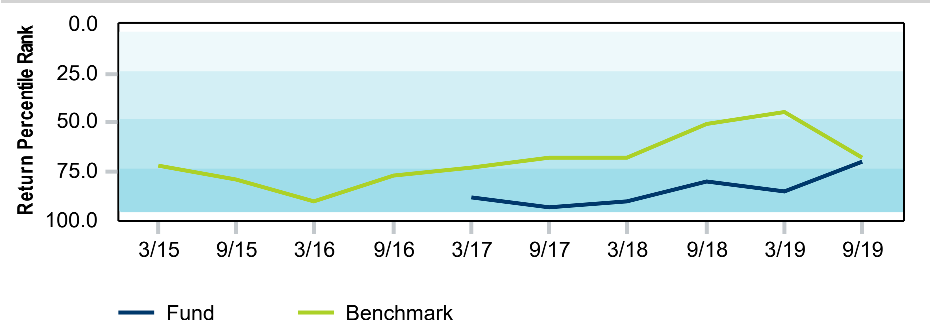
Comparative Performance



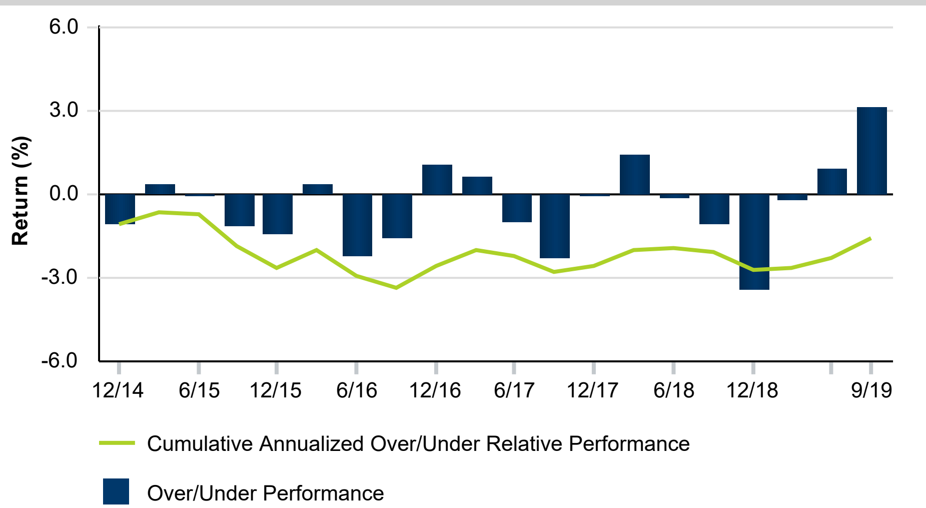
1 Year Rolling Percentile Ranking



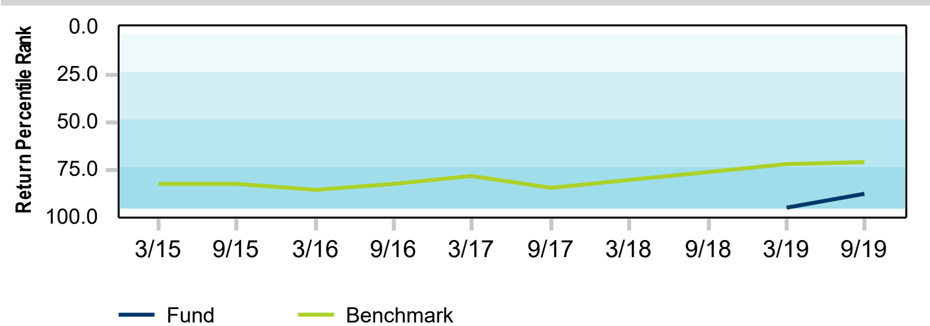
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

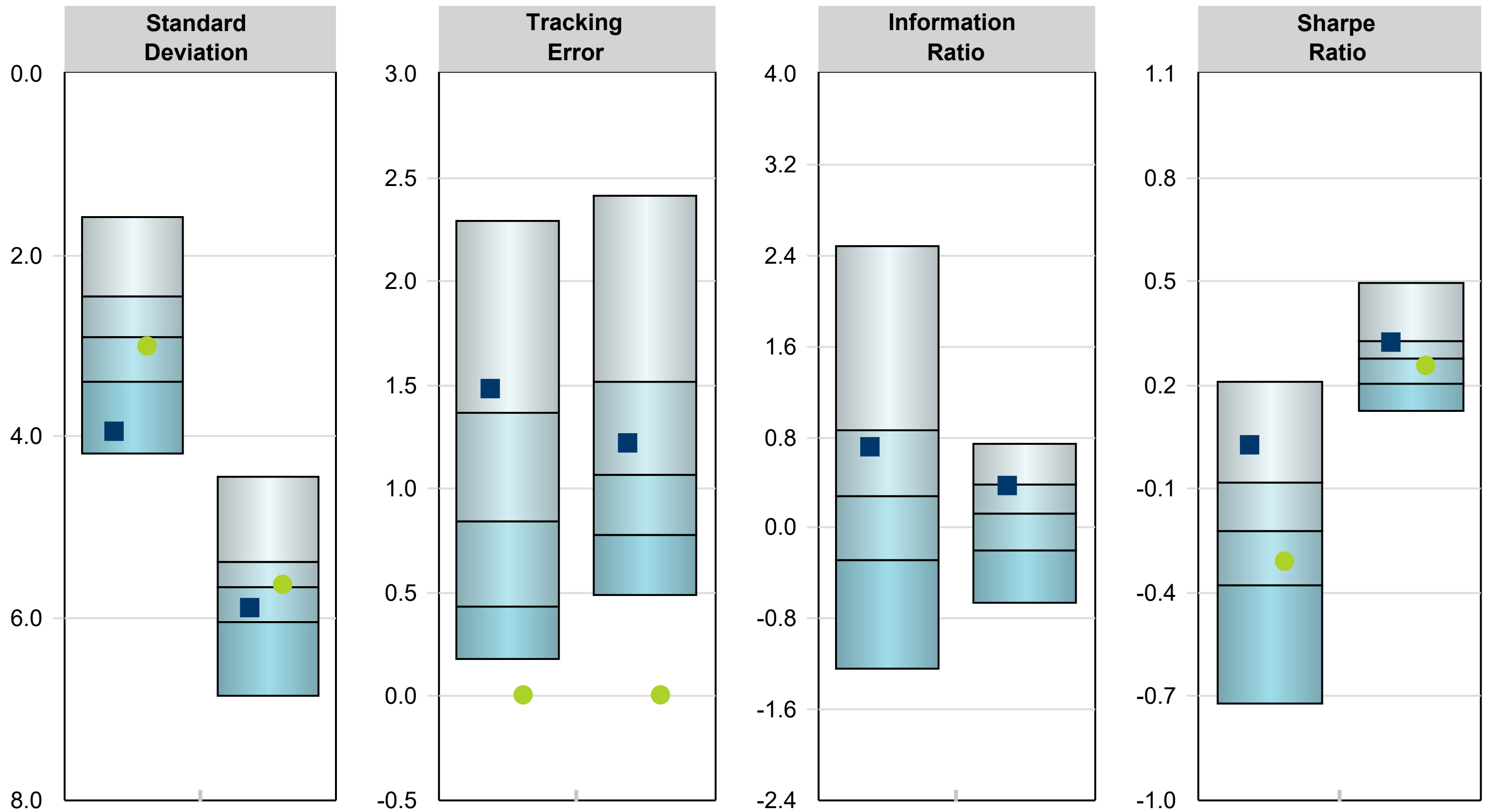


Wilshire Consulting

Peer Group Analysis - Multi Statistics

CIM Small Cap - Emerg. Mgr.

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
CIM Small Cap - Emerg. Mgr.	3.95 (87)	5.88 (67)	1.48 (20)	1.22 (41)	0.71 (30)	0.36 (27)	0.03 (13)	0.32 (28)
Russell 2000 Index	3.02 (59)	5.63 (44)	0.00 (100)	0.00 (100)			-0.31 (67)	0.26 (58)
5th Percentile	1.58	4.43	2.29	2.41	2.49	0.74	0.21	0.50
1st Quartile	2.45	5.37	1.37	1.52	0.87	0.39	-0.08	0.33
Median	2.91	5.66	0.84	1.07	0.29	0.13	-0.22	0.28
3rd Quartile	3.39	6.04	0.43	0.78	-0.28	-0.20	-0.38	0.21
95th Percentile	4.19	6.85	0.19	0.48	-1.24	-0.65	-0.72	0.13

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

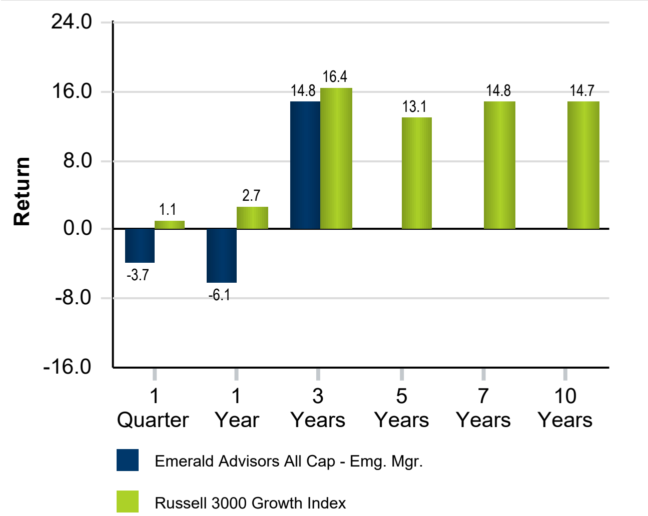
Wilshire Consulting

Performance Summary

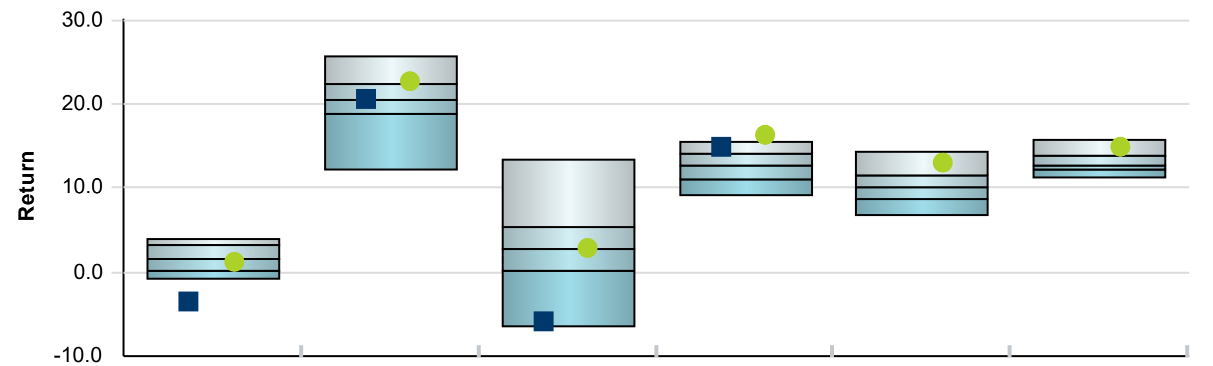
Emerald Advisors All Cap - Emg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

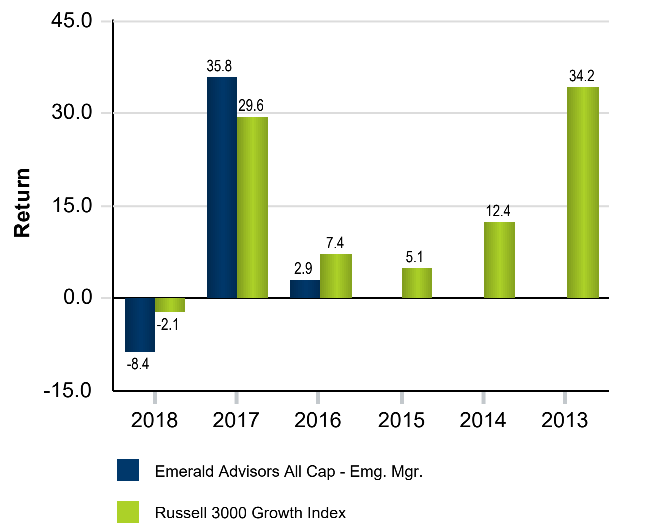


Peer Group Analysis: IM U.S. All Cap Core Equity (SA+CF)

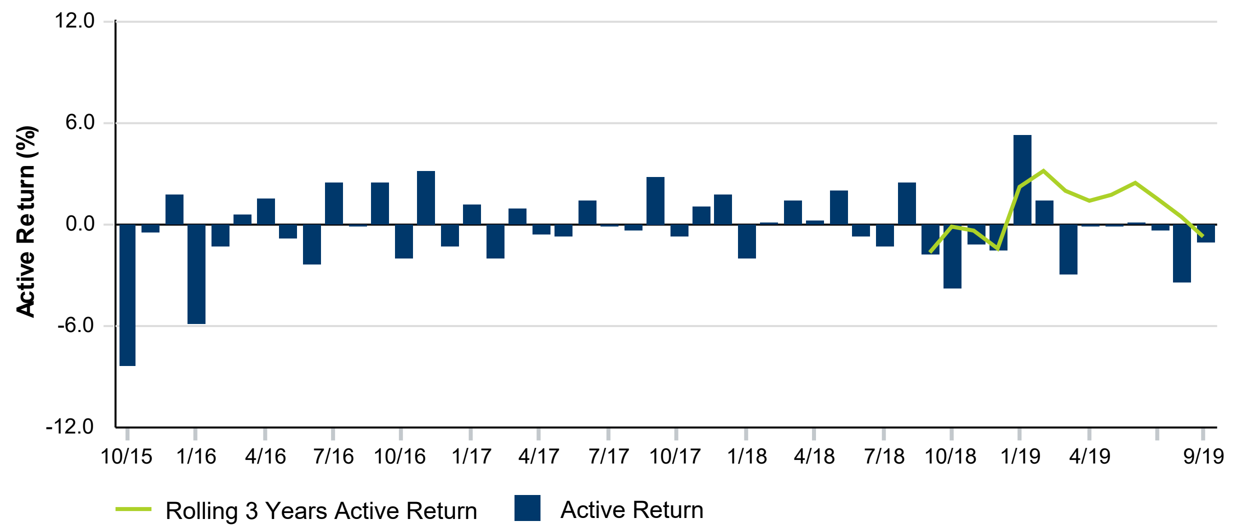


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-3.72 (100)	20.49 (50)	-6.08 (95)	14.81 (15)		
Benchmark	1.10 (61)	22.75 (21)	2.70 (51)	16.37 (3)	13.07 (7)	14.74 (16)
Median	1.60	20.49	2.76	12.80	10.12	12.75

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Emerald Advisors All Cap - Emg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Emerald Advisors All Cap - Emg. Mgr.	Russell 3000 Growth Index
Maximum Return	14.47	9.18
Minimum Return	-12.98	-9.23
Return	-6.08	2.70
Cumulative Return	-6.08	2.70
Active Return	-7.63	0.00
Excess Return	-5.38	2.25

Risk Summary Statistics

	Emerald Advisors All Cap - Emg. Mgr.	Russell 3000 Growth Index
Upside Risk	5.06	3.85
Downside Risk	18.41	14.32
Beta	1.26	1.00

Risk/Return Summary Statistics

	Emerald Advisors All Cap - Emg. Mgr.	Russell 3000 Growth Index
Standard Deviation	25.40	19.53
Alpha	-8.48	0.00
Active Return/Risk	-0.30	0.00
Tracking Error	8.02	0.00
Information Ratio	-0.95	
Sharpe Ratio	-0.21	0.12

Correlation Statistics

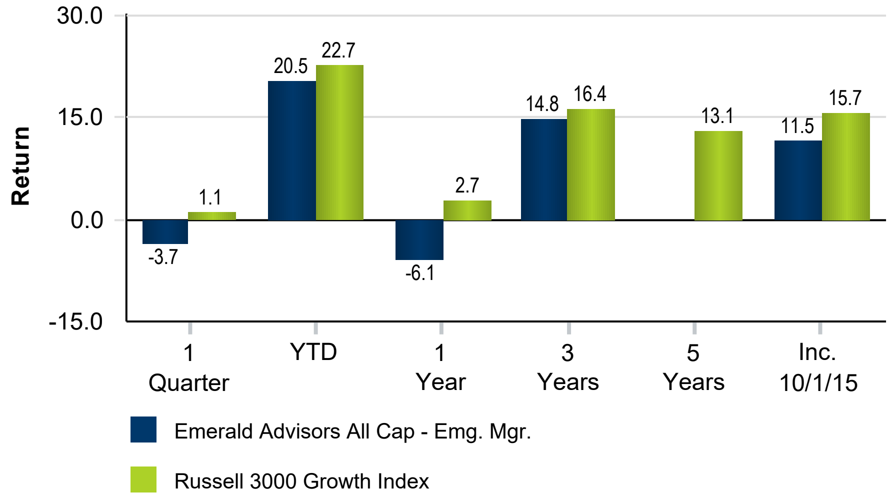
	Emerald Advisors All Cap - Emg. Mgr.	Russell 3000 Growth Index
R-Squared	0.94	1.00
Actual Correlation	0.97	1.00

Manager Summary

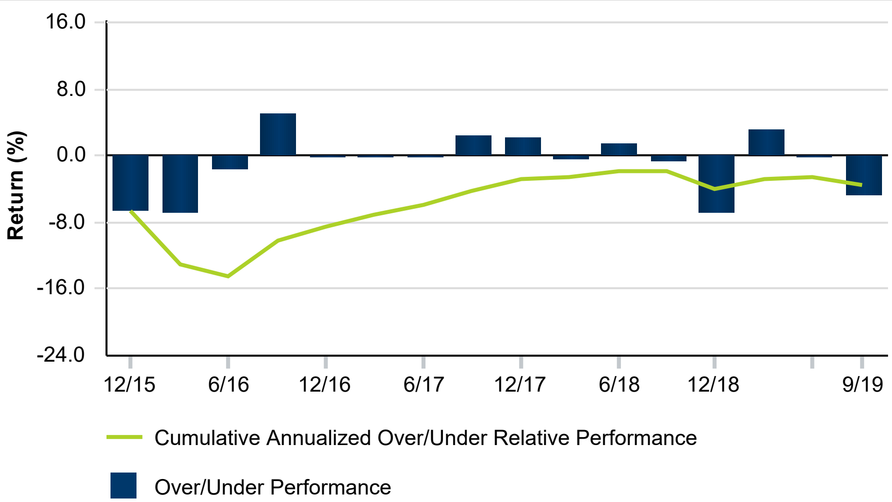
Emerald Advisors All Cap - Emg. Mgr. vs IM U.S. All Cap Core Equity (SA+CF)

Periods Ended September 30, 2019

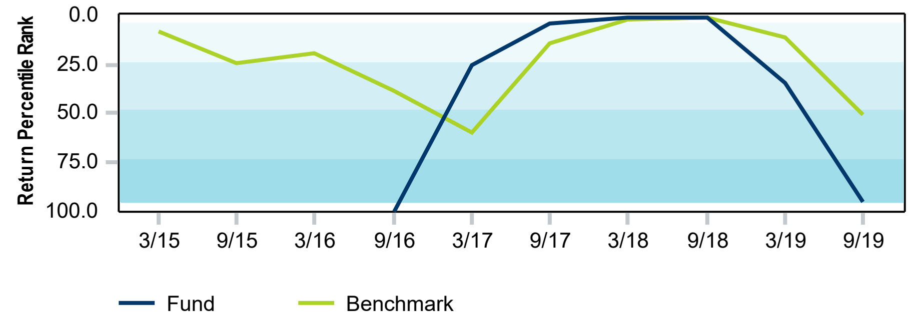
Comparative Performance



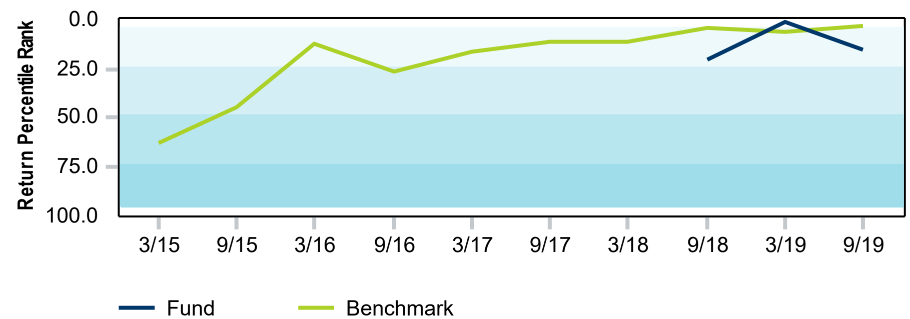
Relative Performance



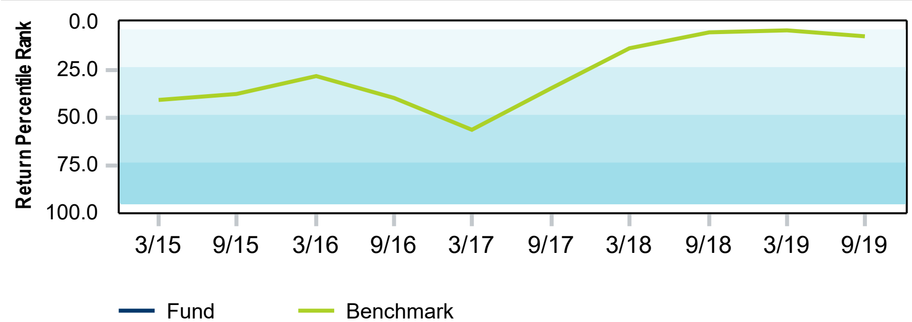
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



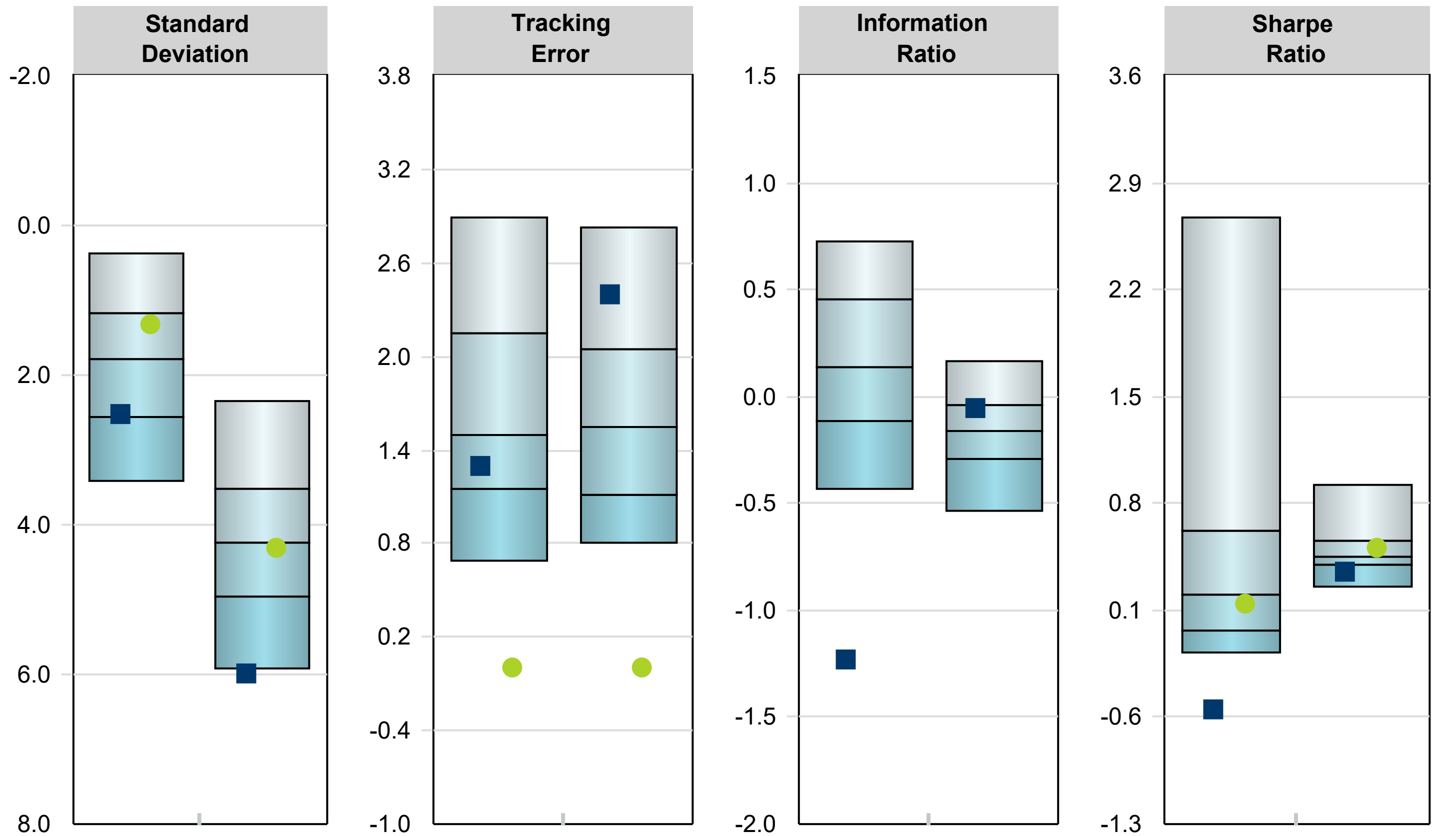
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Emerald Advisors All Cap - Emg. Mgr.

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Emerald Advisors All Cap - Emg. Mgr.	2.54 (74)	5.99 (95)	1.30 (62)	2.39 (9)	-1.23 (100)	-0.05 (28)	-0.55 (100)	0.34 (84)
● Russell 3000 Growth Index	1.33 (30)	4.31 (54)	0.00 (100)	0.00 (100)			0.14 (56)	0.51 (37)
5th Percentile	0.37	2.35	2.89	2.83	0.72	0.17	2.67	0.93
1st Quartile	1.18	3.53	2.15	2.05	0.46	-0.04	0.62	0.55
Median	1.78	4.25	1.50	1.55	0.14	-0.16	0.20	0.46
3rd Quartile	2.55	4.95	1.15	1.11	-0.12	-0.29	-0.04	0.40
95th Percentile	3.41	5.91	0.69	0.81	-0.43	-0.53	-0.18	0.26

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

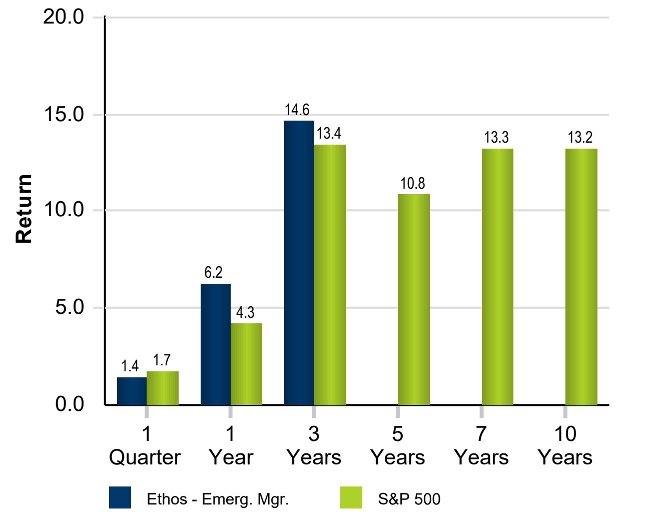
Wilshire Consulting

Performance Summary

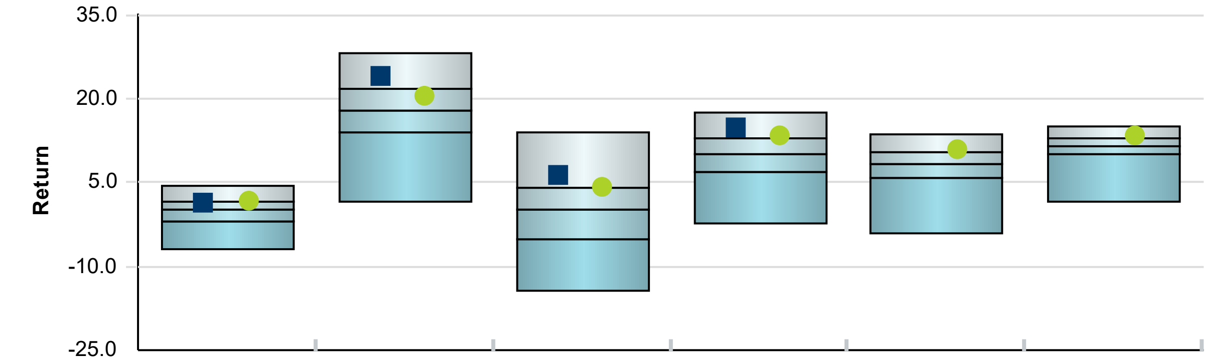
Ethos - Emerg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

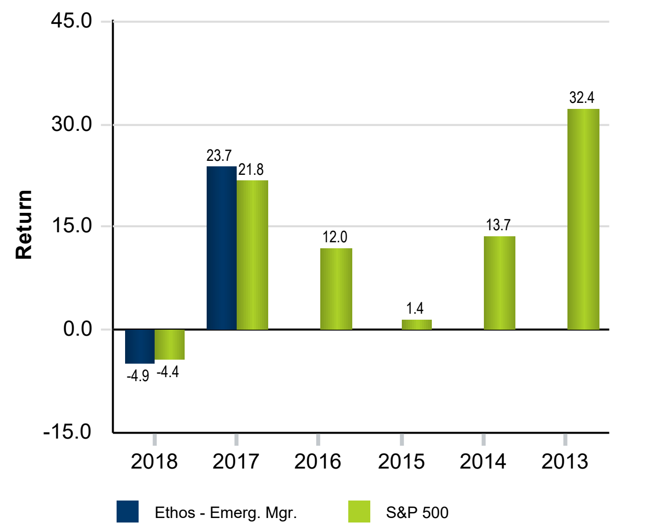


Peer Group Analysis: IM U.S. Equity (MF)

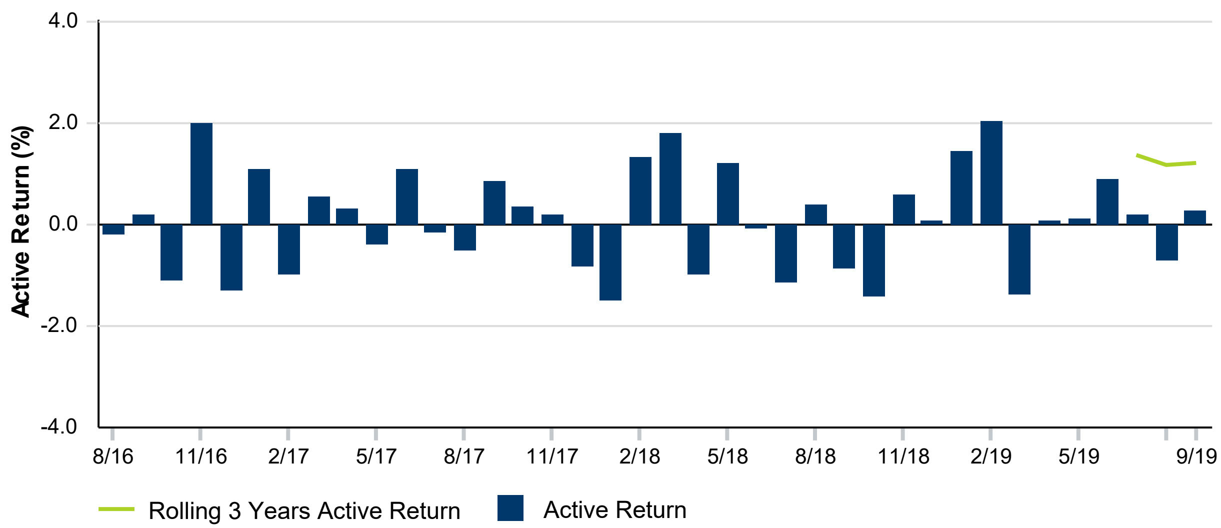


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.43 (32)	23.92 (14)	6.25 (17)	14.64 (16)		
Benchmark	1.70 (26)	20.55 (33)	4.25 (25)	13.39 (23)	10.84 (20)	13.24 (21)
Median	0.37	18.14	0.13	9.99	8.29	11.54

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Ethos - Emerg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Ethos - Emerg. Mgr.	S&P 500
Maximum Return	9.48	8.01
Minimum Return	-8.93	-9.03
Return	6.25	4.25
Cumulative Return	6.25	4.25
Active Return	2.28	0.00
Excess Return	5.73	3.45

Risk Summary Statistics

	Ethos - Emerg. Mgr.	S&P 500
Upside Risk	4.20	3.58
Downside Risk	13.86	13.08
Beta	1.10	1.00

Risk/Return Summary Statistics

	Ethos - Emerg. Mgr.	S&P 500
Standard Deviation	19.97	17.96
Alpha	1.71	0.00
Active Return/Risk	0.11	0.00
Tracking Error	3.39	0.00
Information Ratio	0.67	
Sharpe Ratio	0.29	0.19

Correlation Statistics

	Ethos - Emerg. Mgr.	S&P 500
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

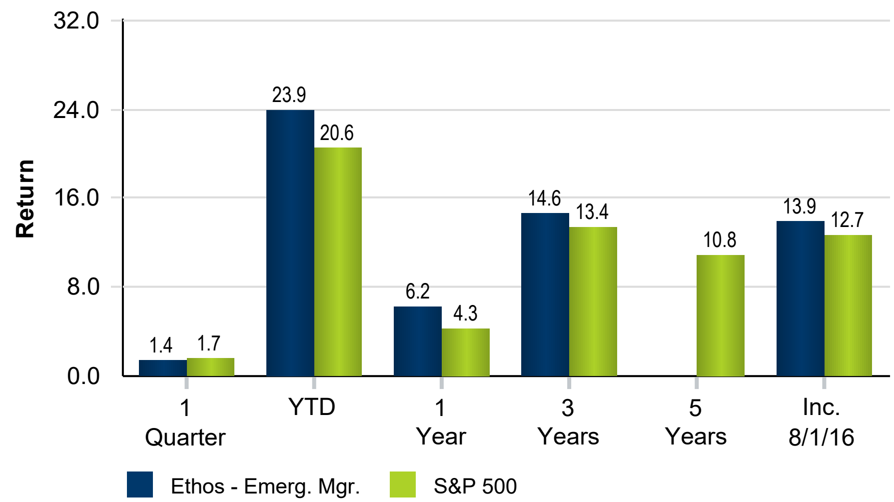
Wilshire Consulting

Manager Summary

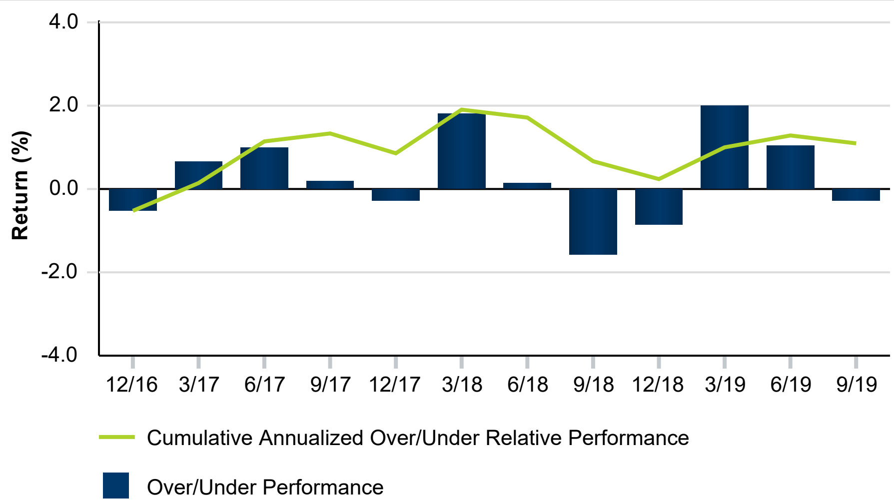
Ethos - Emerg. Mgr. vs IM U.S. Equity (MF)

Periods Ended September 30, 2019

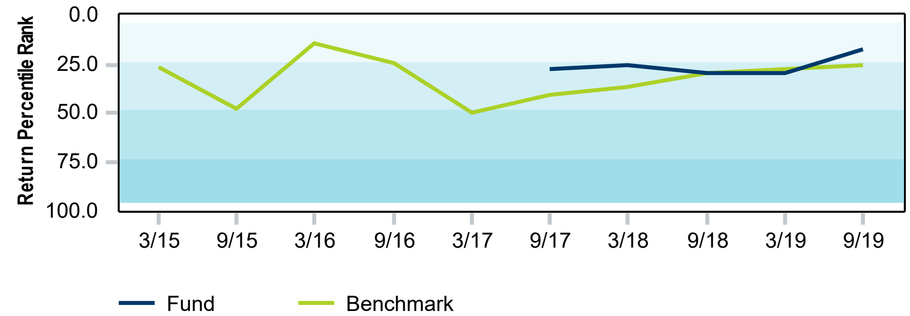
Comparative Performance



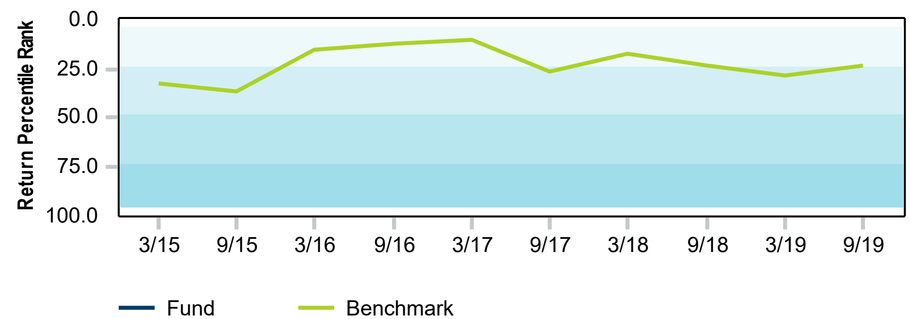
Relative Performance



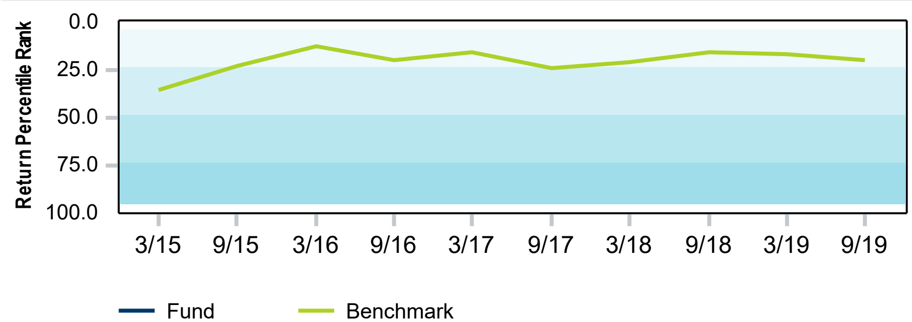
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



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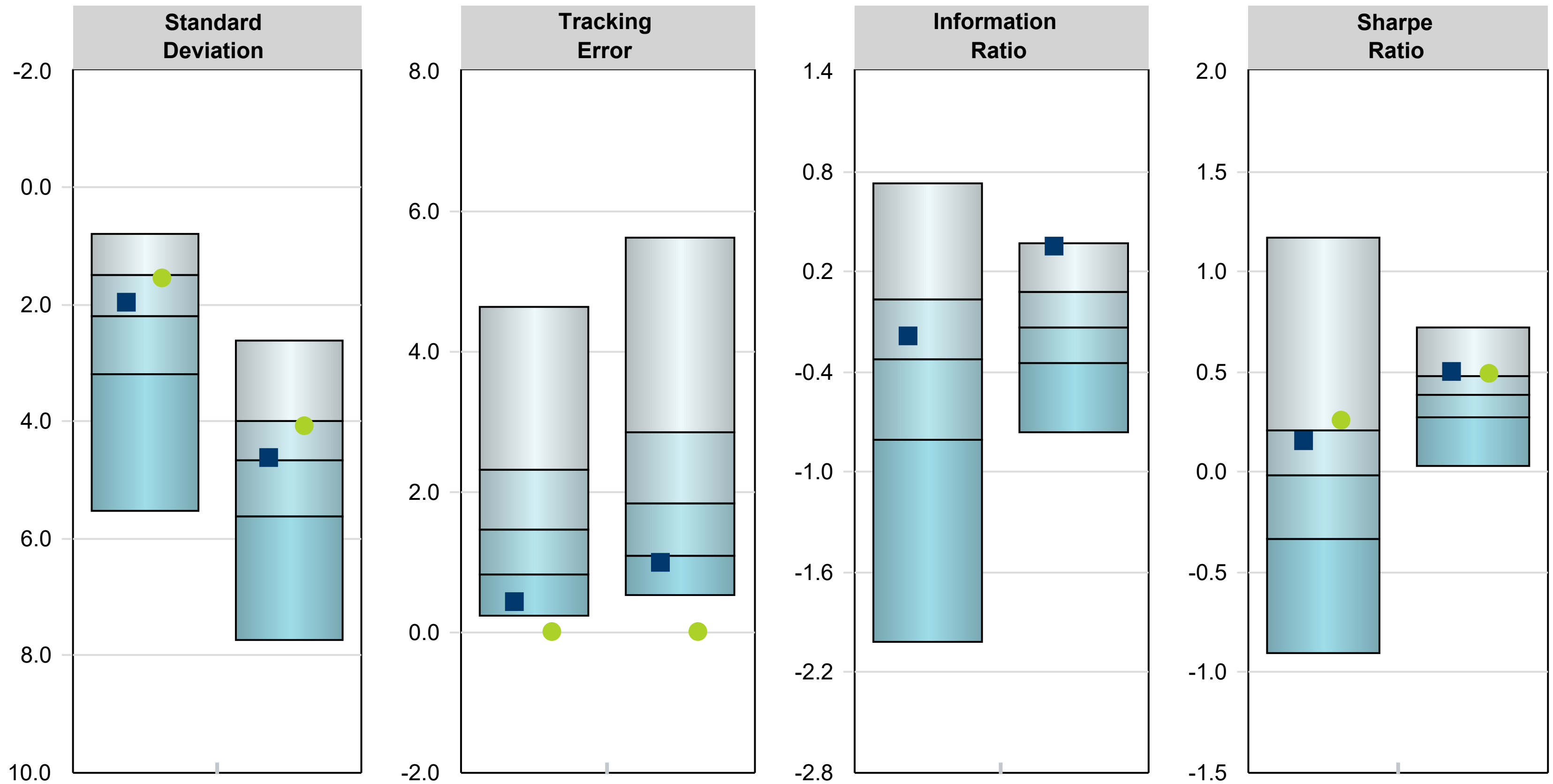
Peer Group Analysis - Multi Statistics

Ethos - Emerg. Mgr.

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Ethos - Emerg. Mgr.	1.97 (43)	4.62 (48)	0.44 (90)	0.97 (81)	-0.19 (40)	0.34 (6)	0.15 (31)	0.50 (21)
● S&P 500	1.54 (27)	4.08 (28)	0.00 (100)	0.00 (100)			0.25 (22)	0.48 (24)
5th Percentile	0.79	2.61	4.65	5.62	0.72	0.37	1.16	0.72
1st Quartile	1.49	3.99	2.32	2.84	0.03	0.08	0.21	0.48
Median	2.20	4.67	1.47	1.84	-0.33	-0.13	-0.01	0.38
3rd Quartile	3.17	5.62	0.83	1.10	-0.81	-0.34	-0.33	0.27
95th Percentile	5.51	7.72	0.23	0.53	-2.01	-0.76	-0.90	0.03

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Wilshire Consulting

Summary Statistics

Cookson Peirce - Emg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	Cookson Peirce - Emg. Mgr.	Russell 3000 Index
Maximum Return		8.58
Minimum Return		-9.31
Return		2.92
Cumulative Return		2.92
Active Return		0.00
Excess Return		2.28

Risk Summary Statistics	Cookson Peirce - Emg. Mgr.	Russell 3000 Index
Upside Risk		3.68
Downside Risk		13.67
Beta		1.00

Risk/Return Summary Statistics	Cookson Peirce - Emg. Mgr.	Russell 3000 Index
Standard Deviation		18.65
Alpha		0.00
Active Return/Risk		0.00
Tracking Error		0.00
Information Ratio		
Sharpe Ratio		0.12

Correlation Statistics	Cookson Peirce - Emg. Mgr.	Russell 3000 Index
R-Squared		1.00
Actual Correlation		1.00

NON US EQUITY

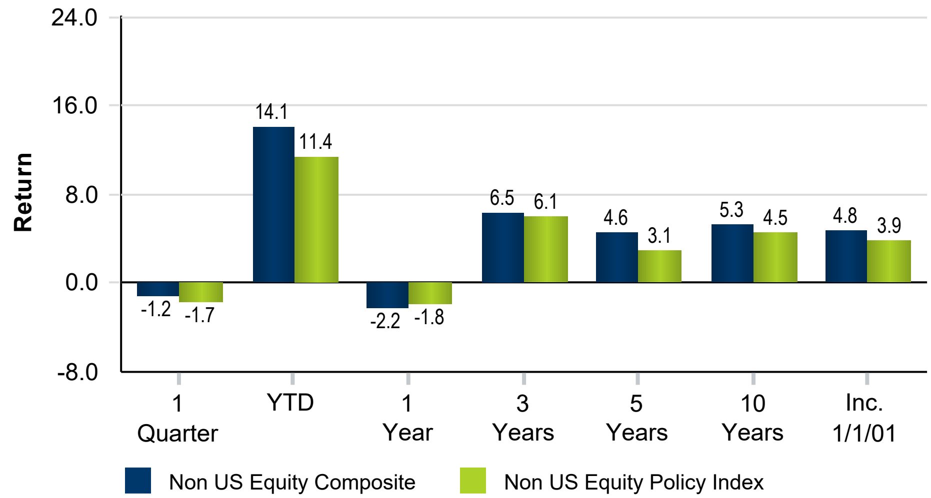
Wilshire Consulting

Composite Performance Summary

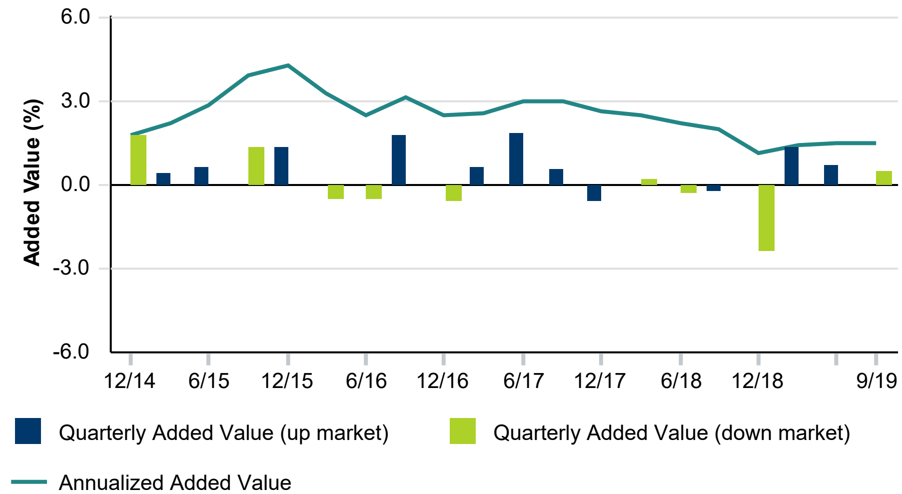
Non US Equity Composite

Periods Ended September 30, 2019

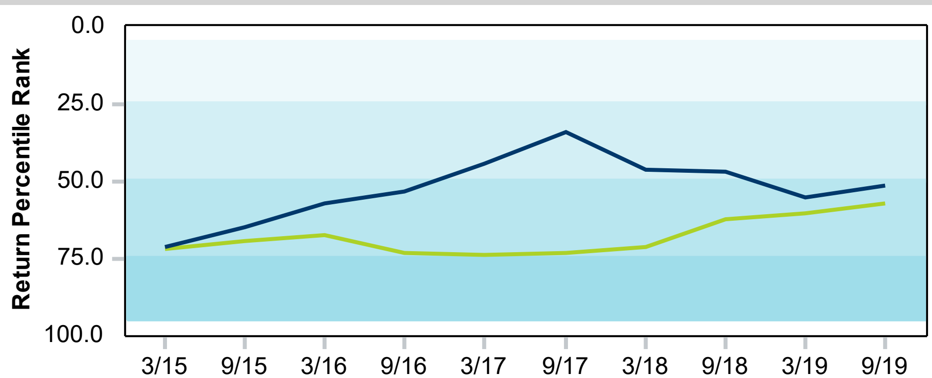
Comparative Performance



Added Value History

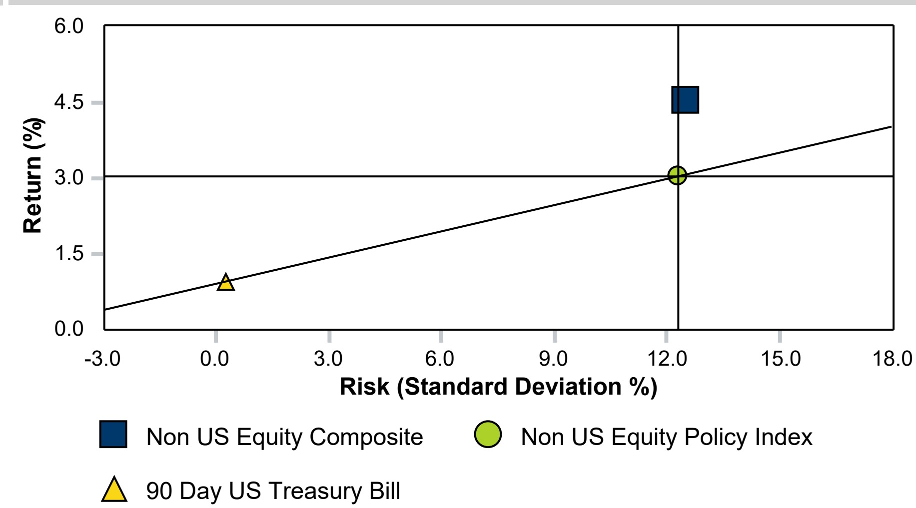


Rolling Percentile Rank: IM International Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Non US Equity Composite	10	0 (0%)	4 (40%)	6 (60%)	0 (0%)
Benchmark	10	0 (0%)	0 (0%)	10 (100%	0 (0%)

Risk and Return 10/1/14 - 09/30/19

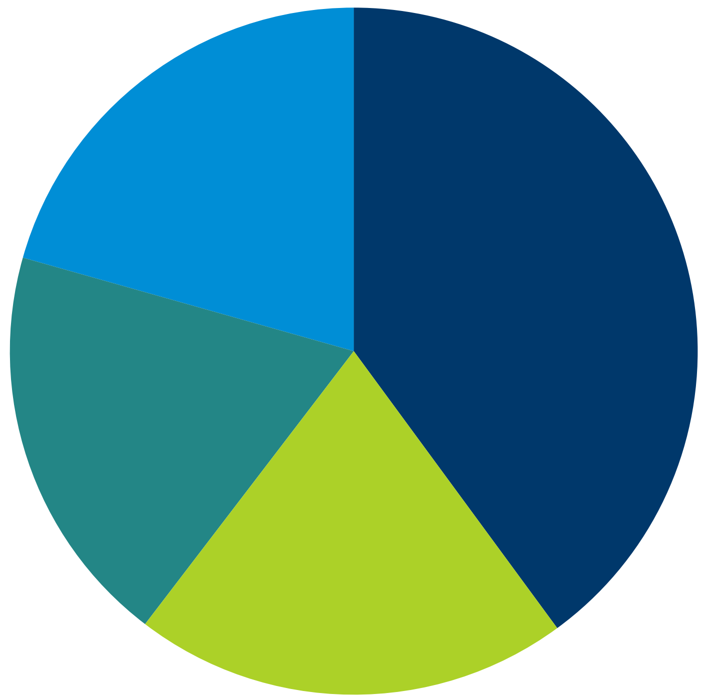


Asset Allocation By Manager

Non US Equity Composite

Periods Ended September 30, 2019

Sep-2019 : 156,694,930



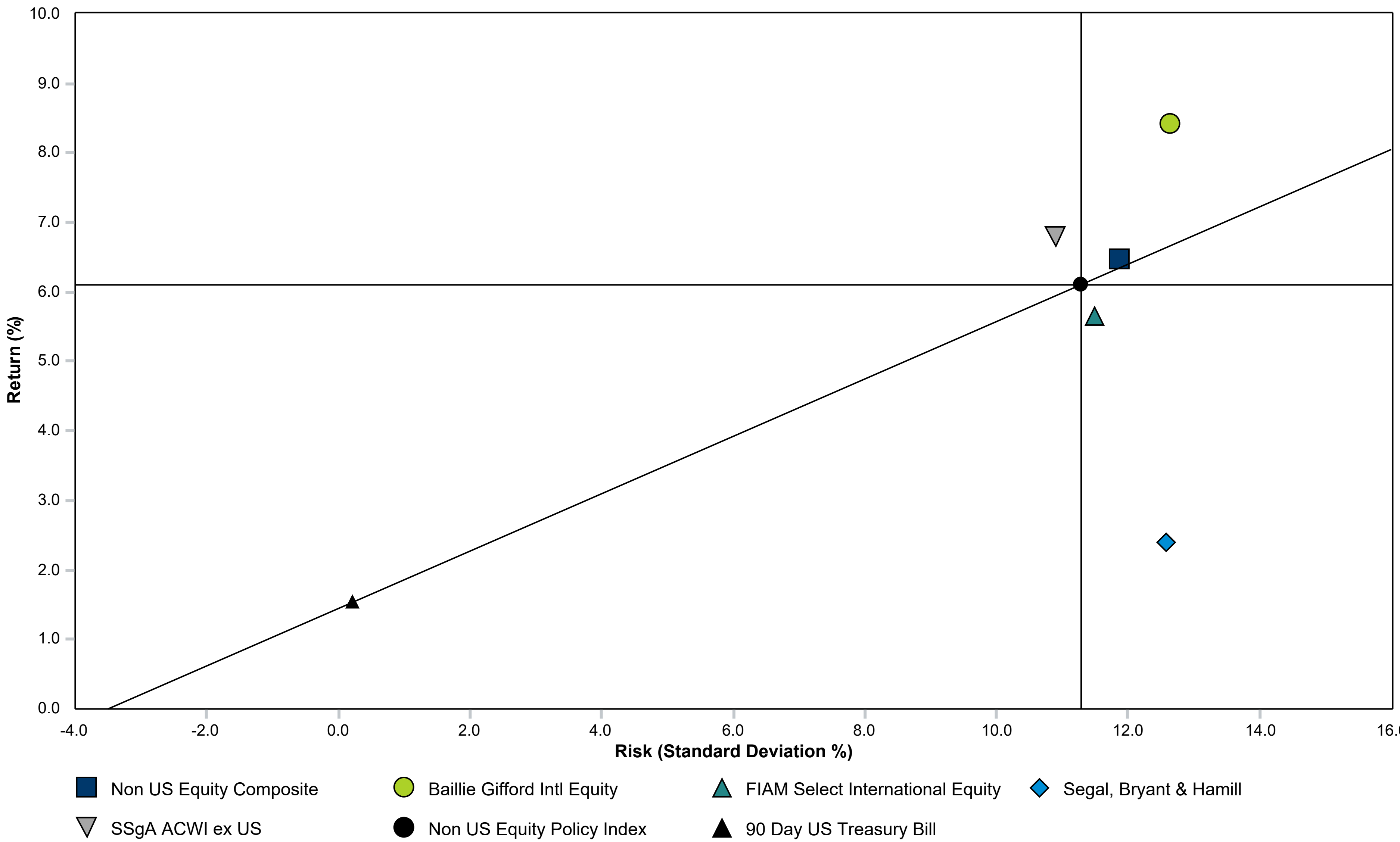
	Market Value $	Allocation (%)
Baillie Gifford Intl Equity	62,563,707	39.9
FIAM Select International Equity	32,056,353	20.5
Segal, Bryant & Hamill	29,775,221	19.0
SSgA ACWI ex US	32,299,649	20.6

Wilshire Consulting

Risk vs. Return

Non US Equity Composite

Periods Ended 3 Years Ending September 30, 2019



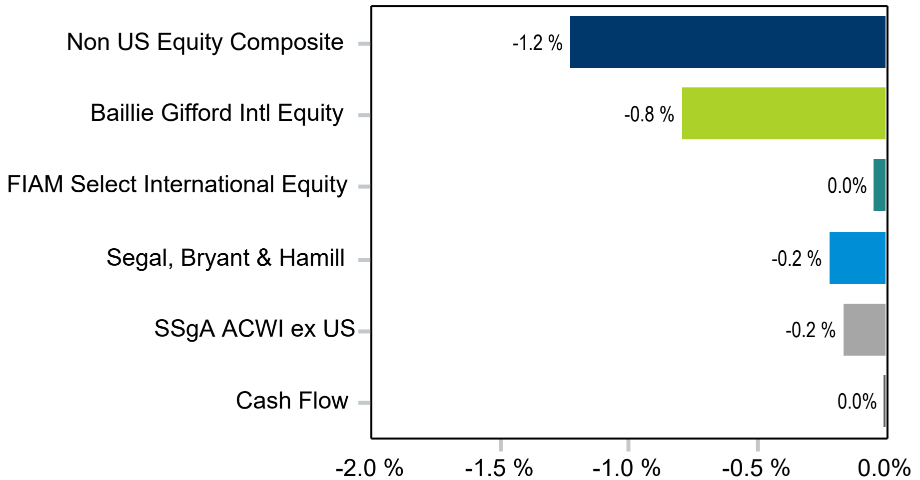
Calculation based on monthly periodicity.

Return and Risk Contribution

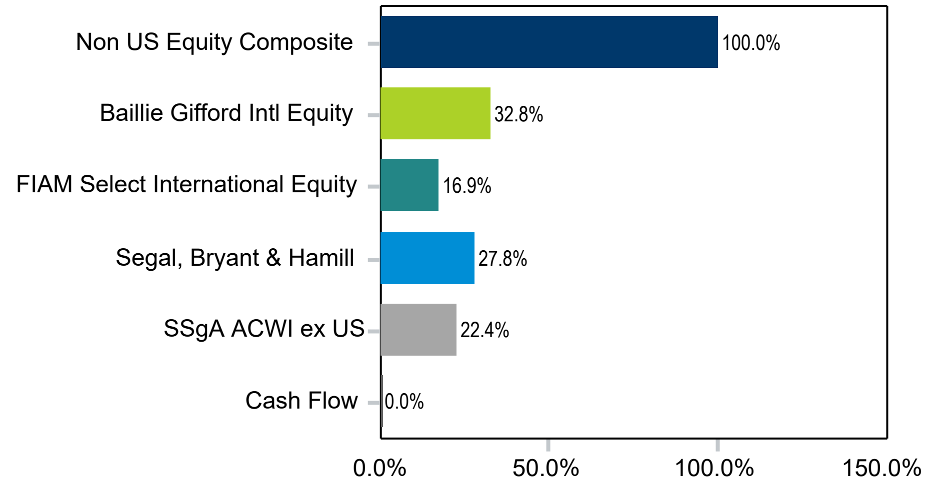
Non US Equity Composite

Periods Ended September 30, 2019

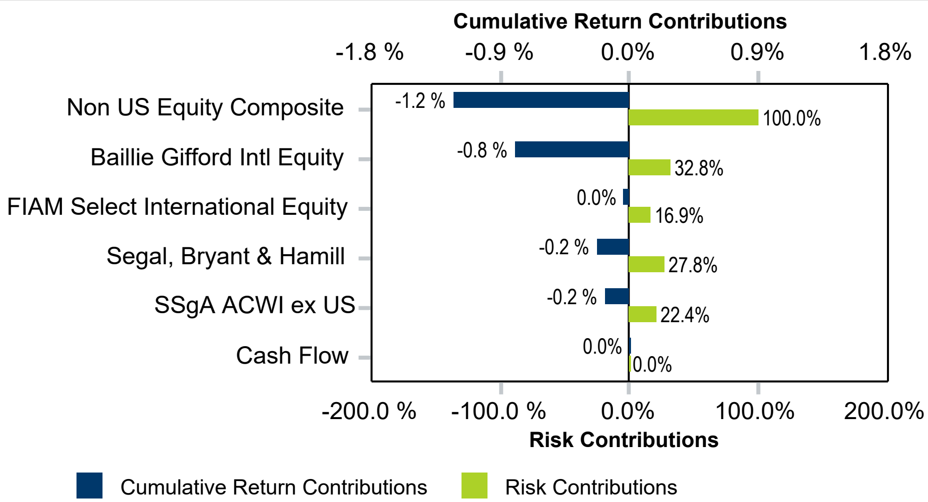
Cumulative Return Contributions



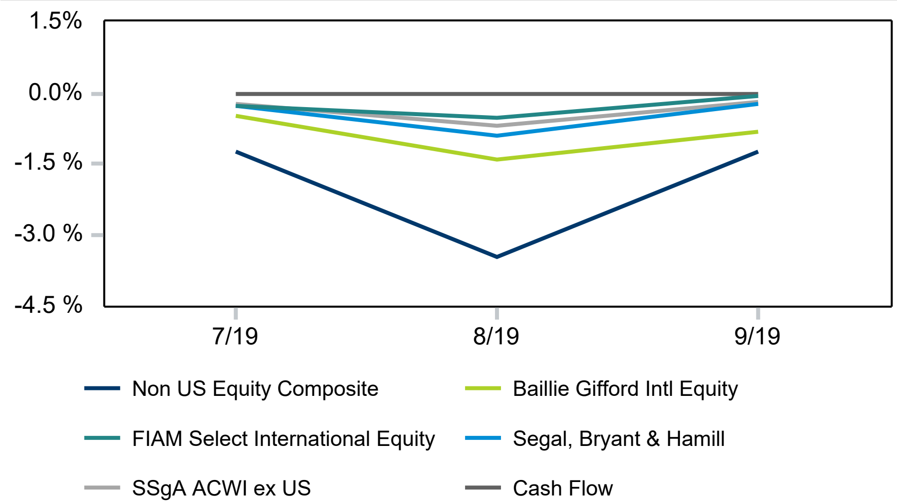
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History



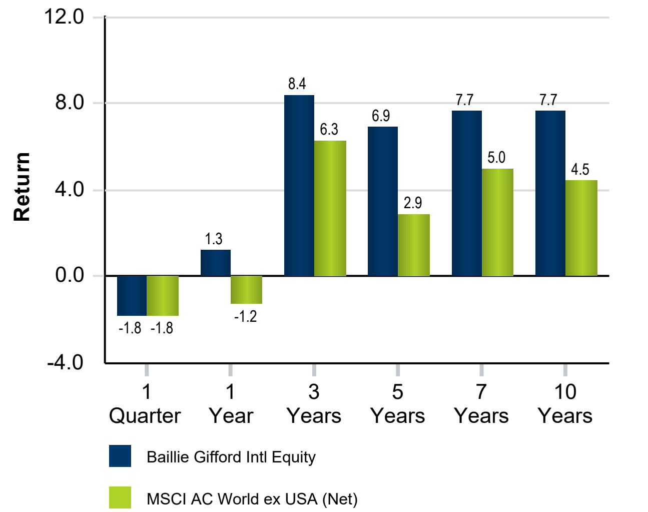
Wilshire Consulting

Performance Summary

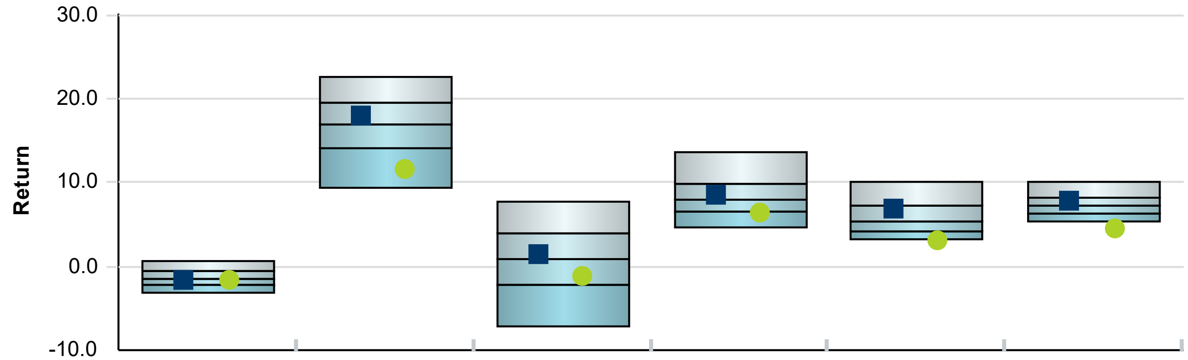
Baillie Gifford Intl Equity

Periods Ended September 30, 2019

Comparative Performance

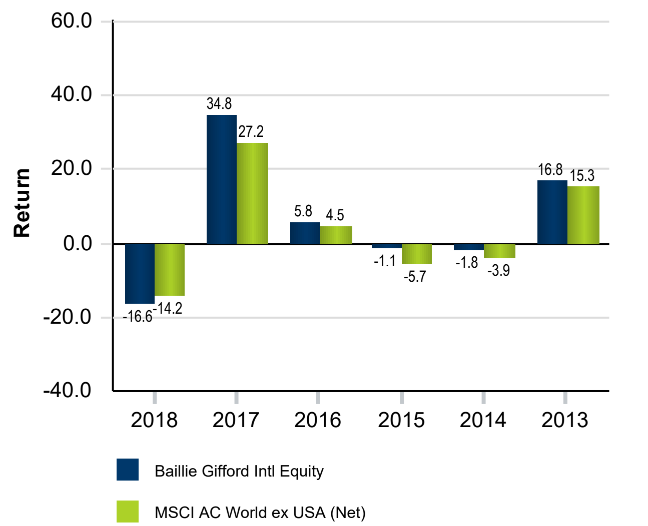


Peer Group Analysis: IM International Large Cap Growth Equity (SA+CF)

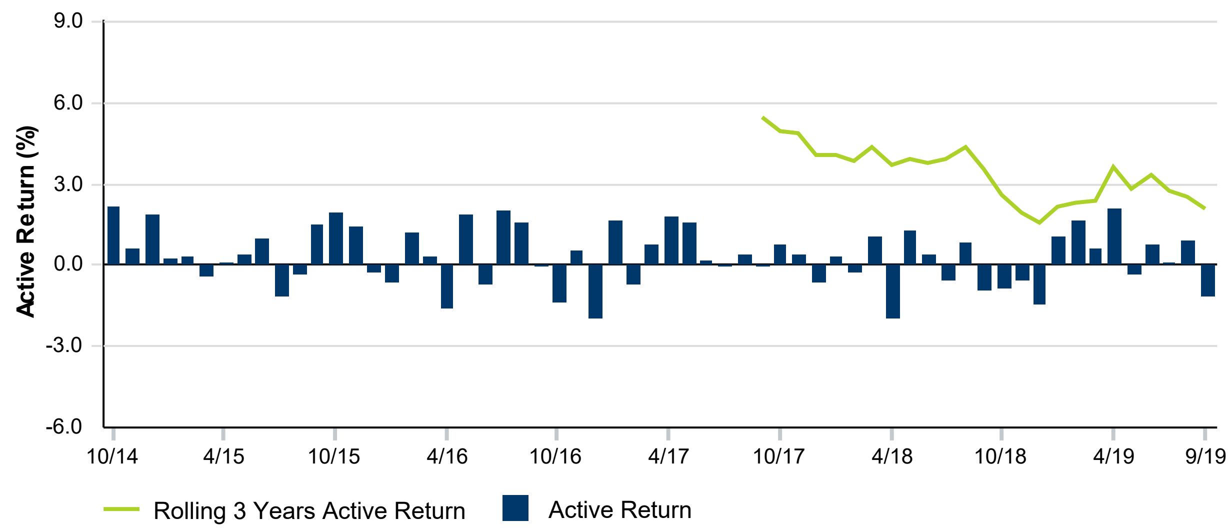


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-1.82 (67)	17.90 (40)	1.29 (46)	8.42 (44)	6.92 (27)	7.70 (37)
Benchmark	-1.80 (66)	11.56 (91)	-1.23 (69)	6.33 (79)	2.90 (98)	4.46 (100)
Median	-1.41	16.96	0.90	7.94	5.33	7.35

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Baillie Gifford Intl Equity

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	Baillie Gifford Intl Equity	MSCI AC World ex USA (Net)
Maximum Return	8.65	7.56
Minimum Return	-9.01	-8.13
Return	1.29	-1.23
Cumulative Return	1.29	-1.23
Active Return	2.89	0.00
Excess Return	0.50	-2.40

Risk Summary Statistics	Baillie Gifford Intl Equity	MSCI AC World ex USA (Net)
Upside Risk	3.65	3.06
Downside Risk	12.45	11.25
Beta	1.13	1.00

Risk/Return Summary Statistics	Baillie Gifford Intl Equity	MSCI AC World ex USA (Net)
Standard Deviation	17.73	15.44
Alpha	2.94	0.00
Active Return/Risk	0.16	0.00
Tracking Error	3.73	0.00
Information Ratio	0.78	
Sharpe Ratio	0.03	-0.16

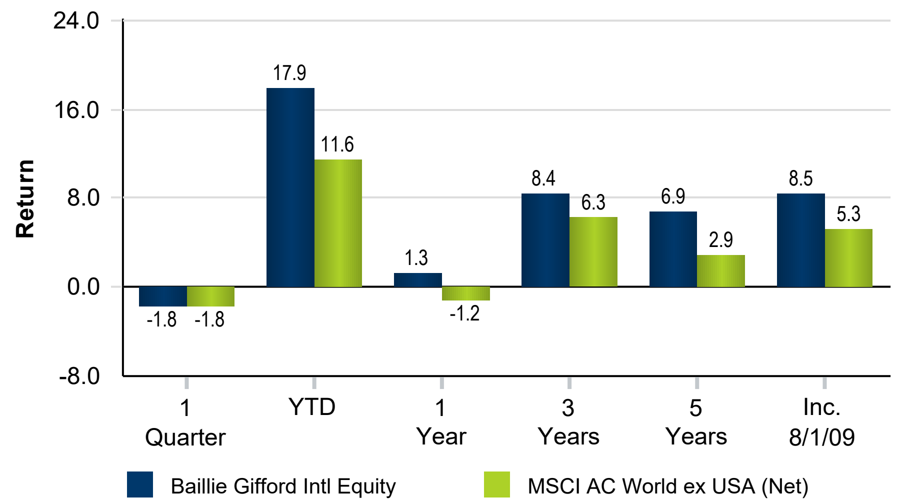
Correlation Statistics	Baillie Gifford Intl Equity	MSCI AC World ex USA (Net)
R-Squared	0.97	1.00
Actual Correlation	0.98	1.00

Manager Summary

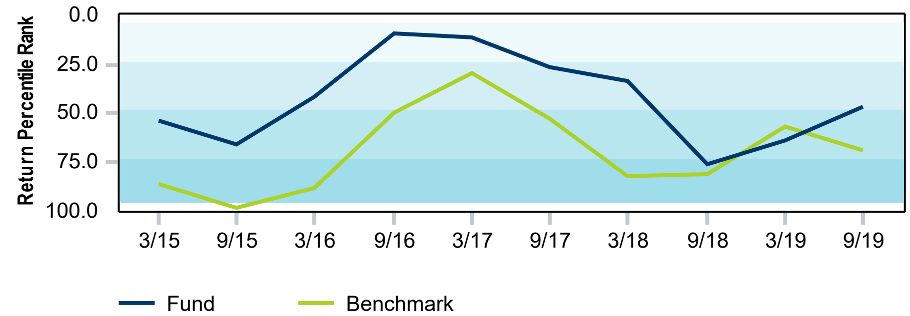
Baillie Gifford Intl Equity vs IM International Large Cap Growth Equity (SA+CF)

Periods Ended September 30, 2019

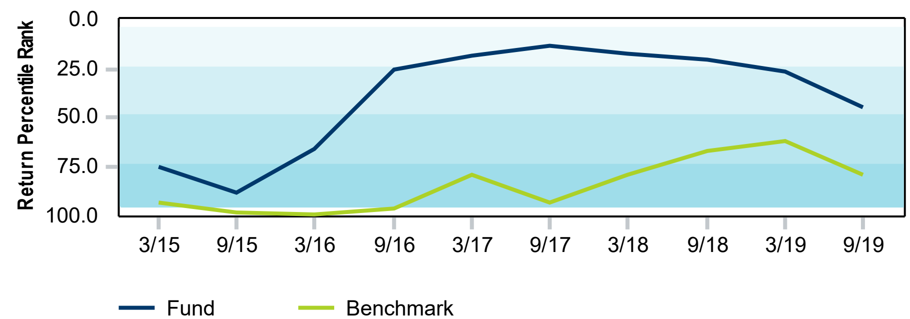
Comparative Performance



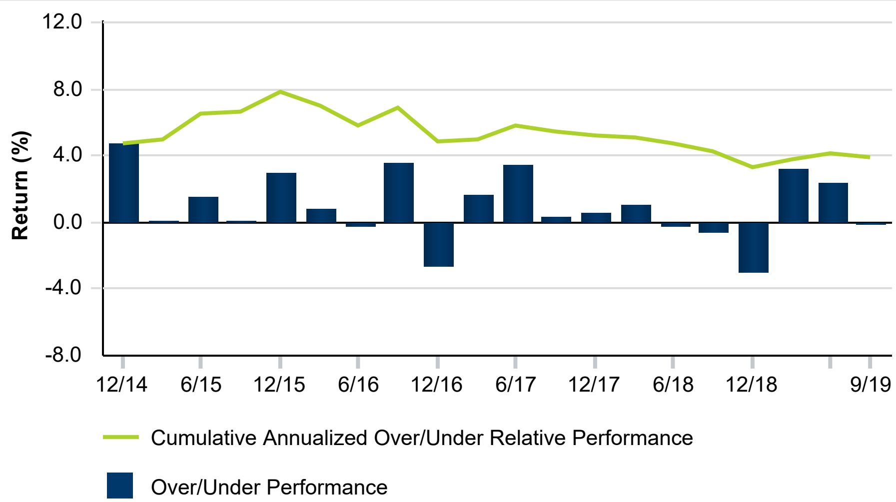
1 Year Rolling Percentile Ranking



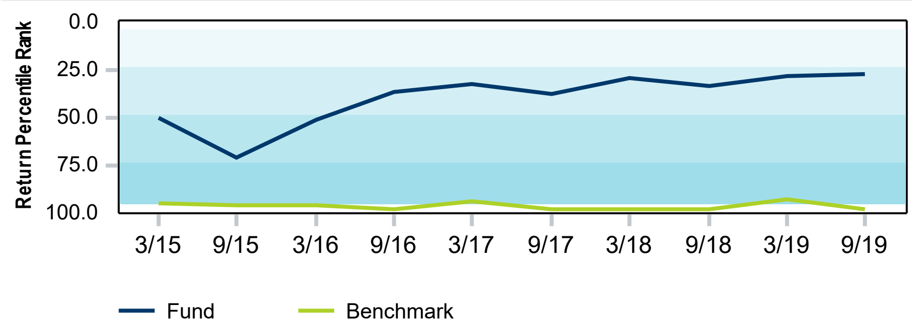
3 Year Rolling Percentile Ranking



Relative Performance



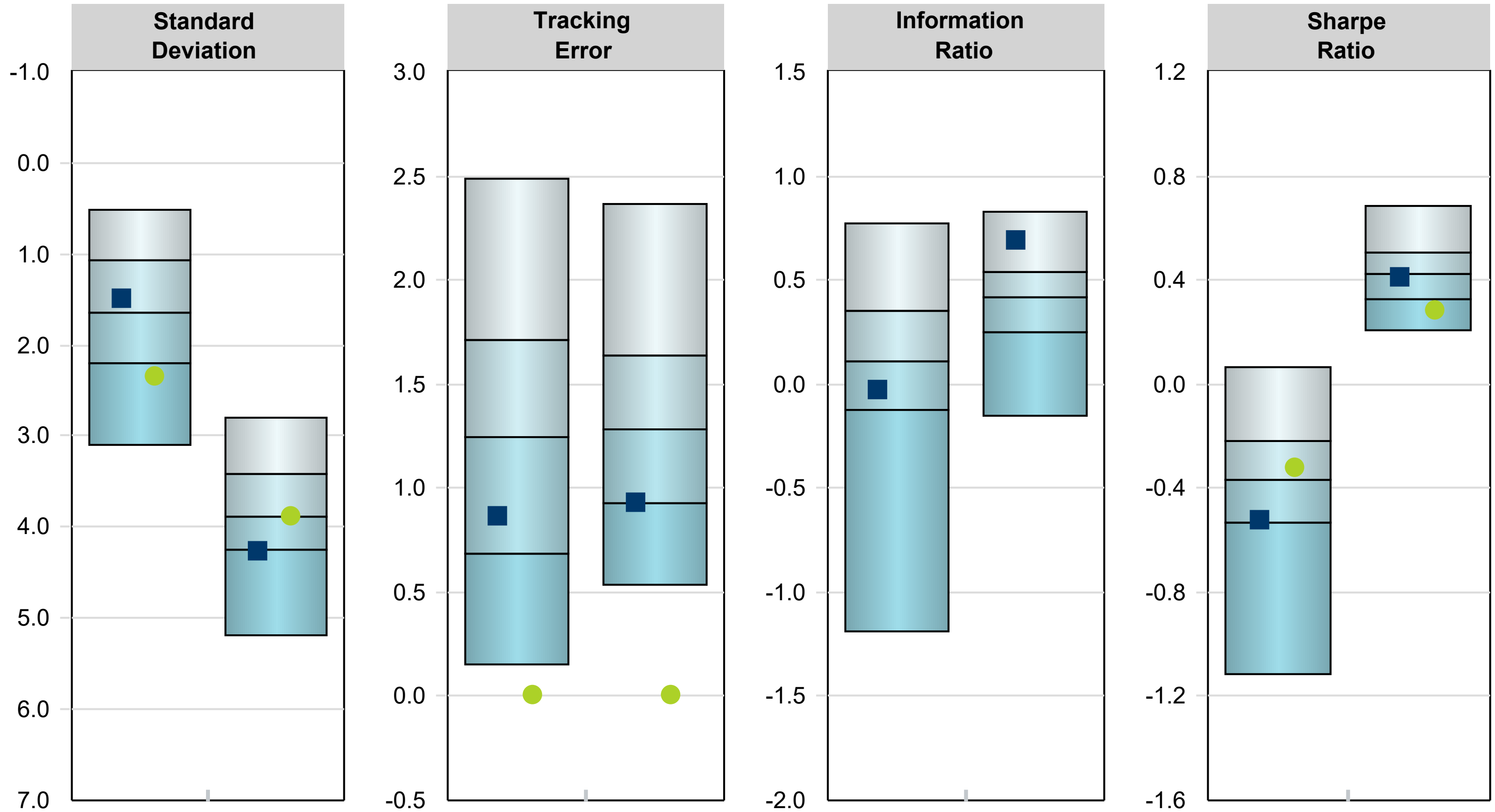
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Baillie Gifford Intl Equity

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Baillie Gifford Intl Equity	1.50 (45)	4.28 (76)	0.86 (68)	0.93 (75)	-0.03 (68)	0.69 (12)	-0.52 (73)	0.41 (59)
● MSCI AC World ex USA (Net)	2.35 (83)	3.88 (51)	0.00 (100)	0.00 (100)			-0.32 (45)	0.28 (91)
5th Percentile	0.51	2.79	2.49	2.37	0.78	0.83	0.07	0.68
1st Quartile	1.07	3.42	1.72	1.64	0.35	0.54	-0.22	0.50
Median	1.64	3.88	1.25	1.28	0.11	0.41	-0.37	0.43
3rd Quartile	2.21	4.25	0.68	0.93	-0.13	0.25	-0.53	0.33
95th Percentile	3.10	5.18	0.16	0.53	-1.19	-0.15	-1.11	0.21

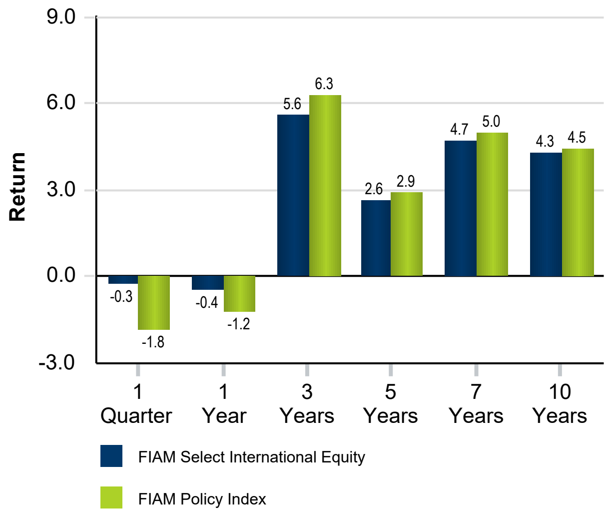
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

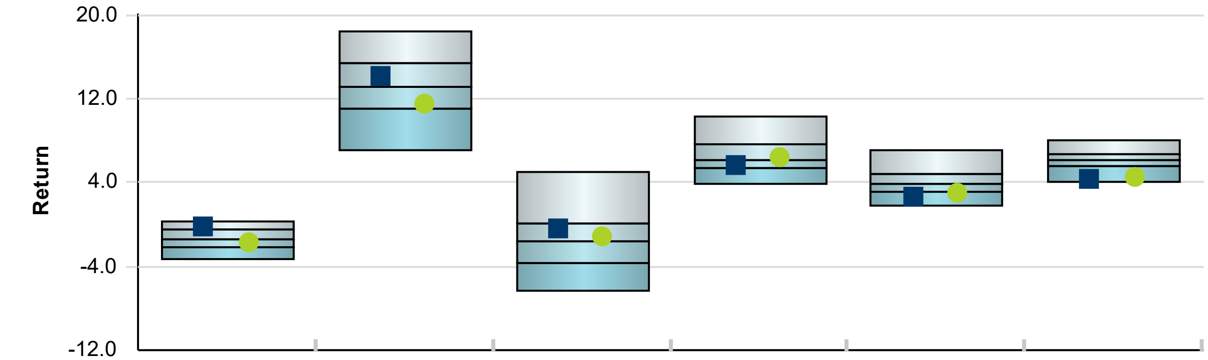
FIAM Select International Equity

Periods Ended September 30, 2019

Comparative Performance

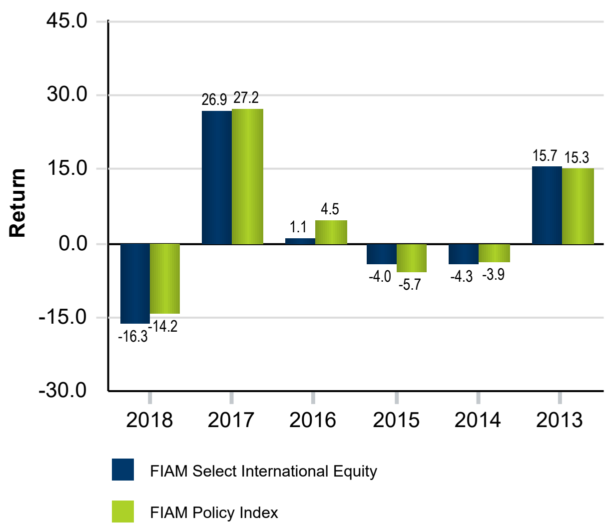


Peer Group Analysis: IM International Large Cap Core Equity (SA+CF)

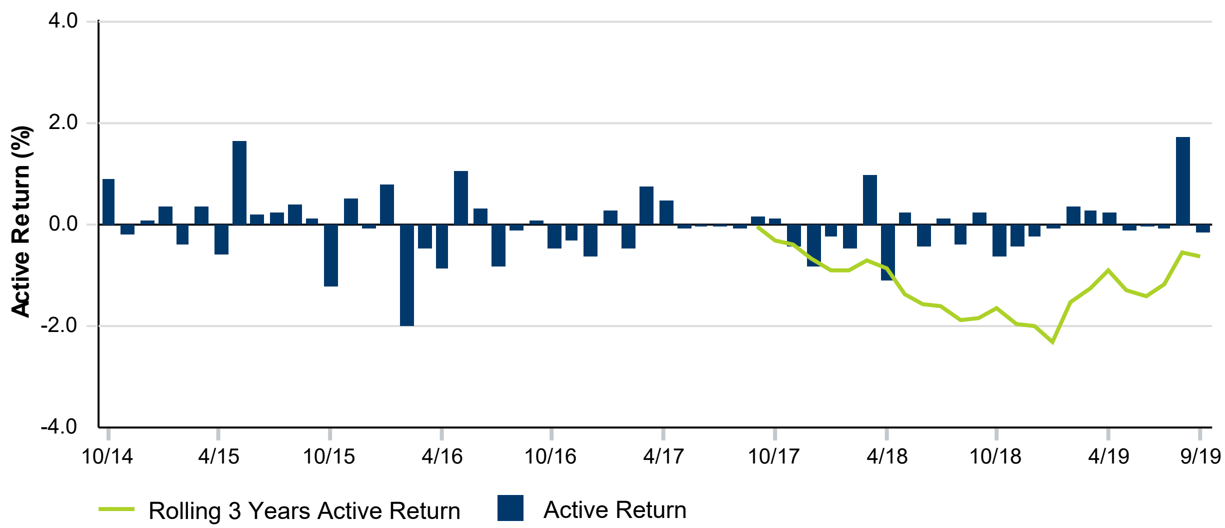


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-0.25 (21)	14.06 (41)	-0.43 (35)	5.64 (69)	2.65 (89)	4.34 (95)
Benchmark	-1.80 (63)	11.56 (71)	-1.23 (47)	6.33 (49)	2.90 (82)	4.46 (94)
Median	-1.47	13.09	-1.56	6.24	3.86	6.26

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

FIAM Select International Equity

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	FIAM Select International Equity	FIAM Policy Index
Maximum Return	7.50	7.56
Minimum Return	-8.78	-8.13
Return	-0.43	-1.23
Cumulative Return	-0.43	-1.23
Active Return	0.84	0.00
Excess Return	-1.55	-2.40

Risk Summary Statistics

	FIAM Select International Equity	FIAM Policy Index
Upside Risk	3.06	3.06
Downside Risk	11.55	11.25
Beta	1.01	1.00

Risk/Return Summary Statistics

	FIAM Select International Equity	FIAM Policy Index
Standard Deviation	15.68	15.44
Alpha	0.85	0.00
Active Return/Risk	0.05	0.00
Tracking Error	1.99	0.00
Information Ratio	0.42	
Sharpe Ratio	-0.10	-0.16

Correlation Statistics

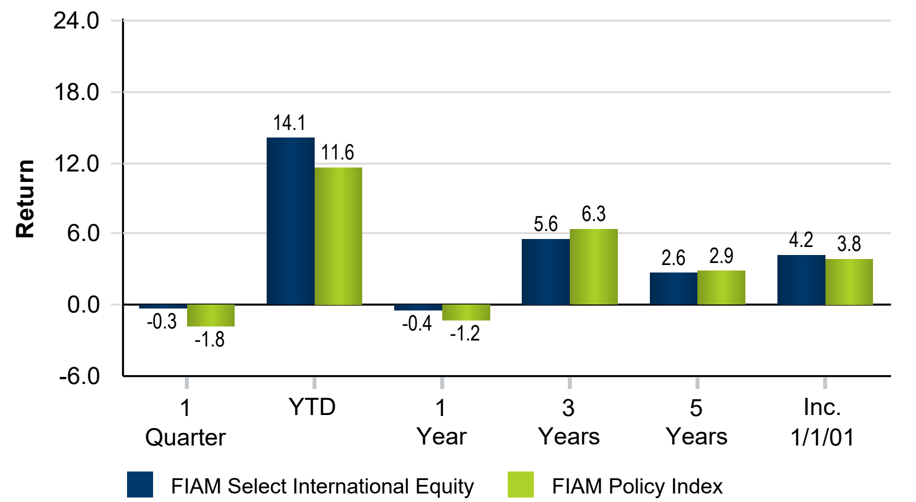
	FIAM Select International Equity	FIAM Policy Index
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

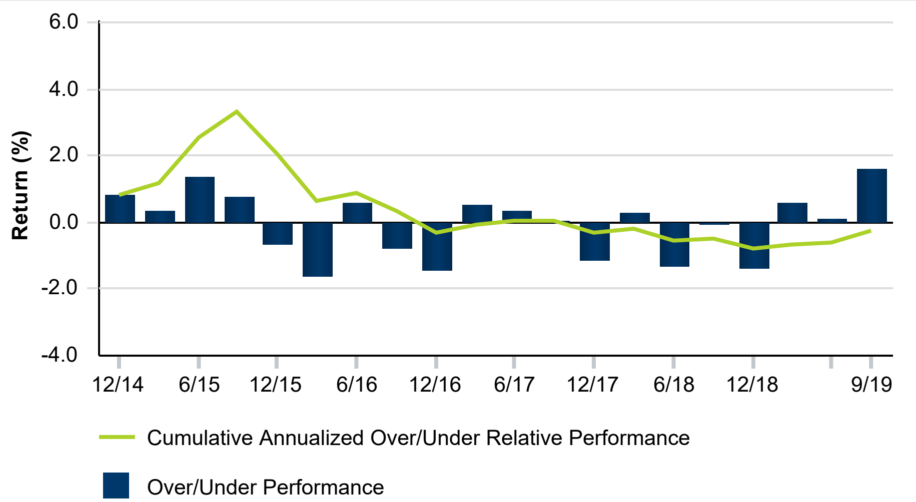
FIAM Select International Equity vs IM International Large Cap Core Equity (SA+CF

Periods Ended September 30, 2019

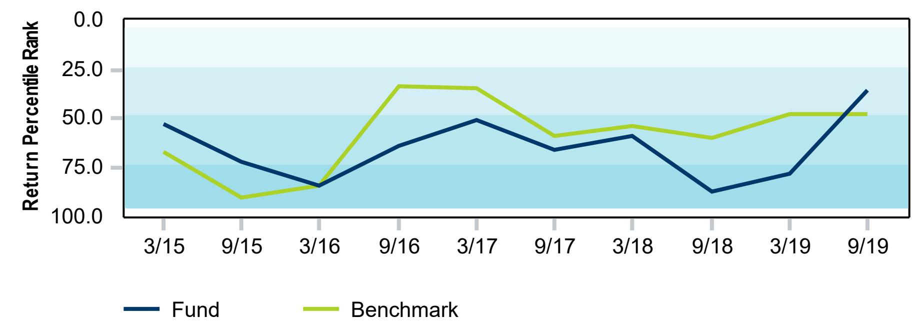
Comparative Performance



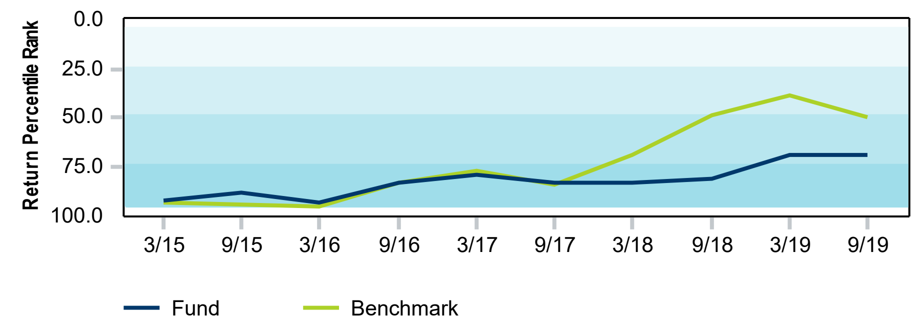
Relative Performance



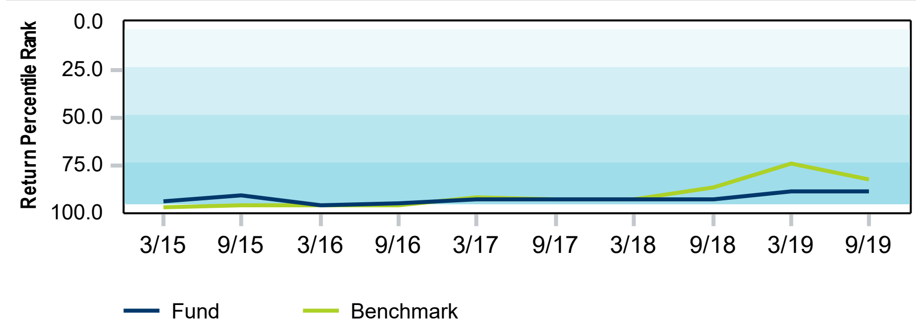
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

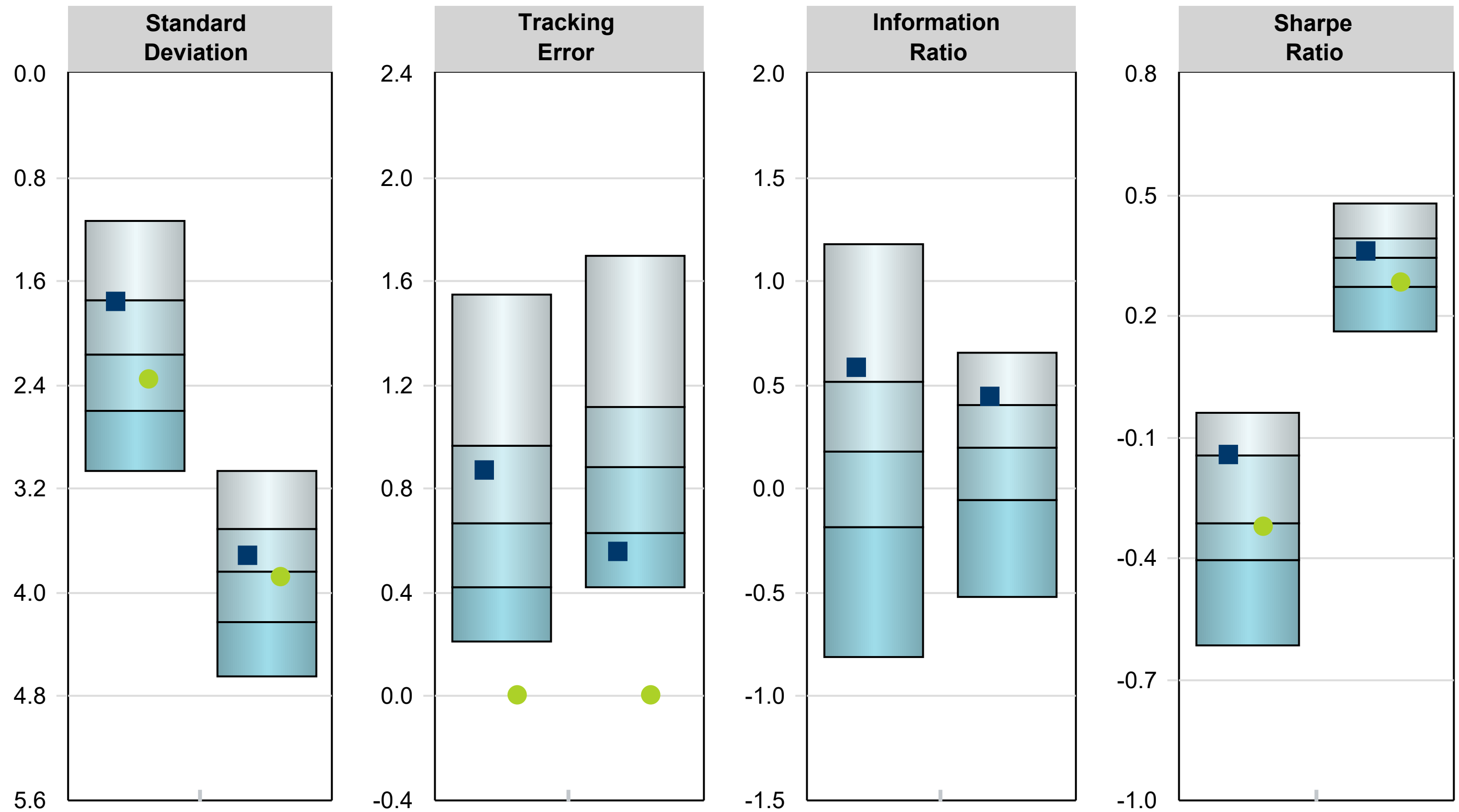


Wilshire Consulting

Peer Group Analysis - Multi Statistics

FIAM Select International Equity

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ FIAM Select International Equity	1.76 (27)	3.72 (43)	0.87 (35)	0.56 (84)	0.58 (22)	0.44 (22)	-0.15 (25)	0.36 (43)
● FIAM Policy Index	2.35 (61)	3.88 (53)	0.00 (100)	0.00 (100)			-0.32 (53)	0.28 (72)
5th Percentile	1.14	3.06	1.55	1.70	1.18	0.65	-0.04	0.48
1st Quartile	1.74	3.51	0.96	1.12	0.51	0.41	-0.15	0.39
Median	2.16	3.84	0.67	0.89	0.18	0.20	-0.31	0.34
3rd Quartile	2.60	4.23	0.42	0.63	-0.18	-0.05	-0.41	0.27
95th Percentile	3.06	4.64	0.22	0.42	-0.81	-0.52	-0.62	0.16

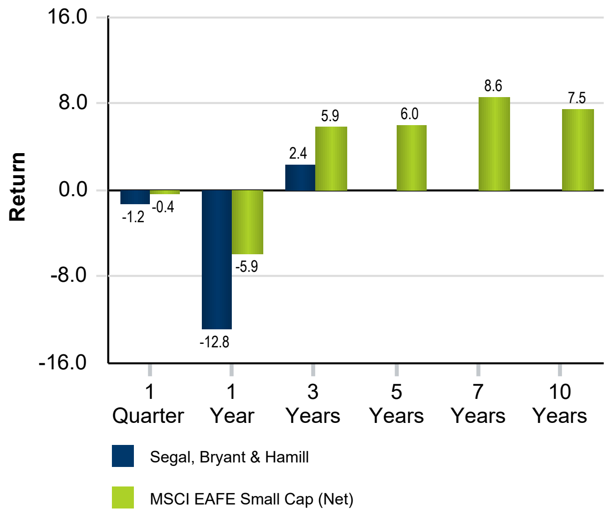
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

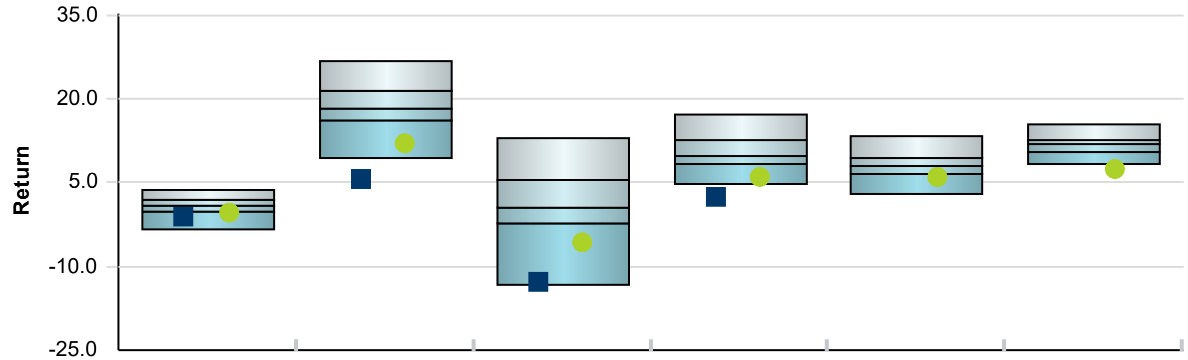
Segal, Bryant & Hamill

Periods Ended September 30, 2019

Comparative Performance

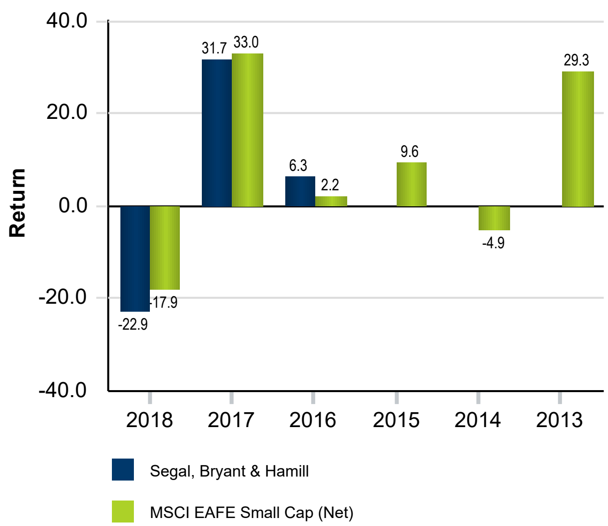


Peer Group Analysis: IM U.S. All Cap Value Equity (SA+CF)

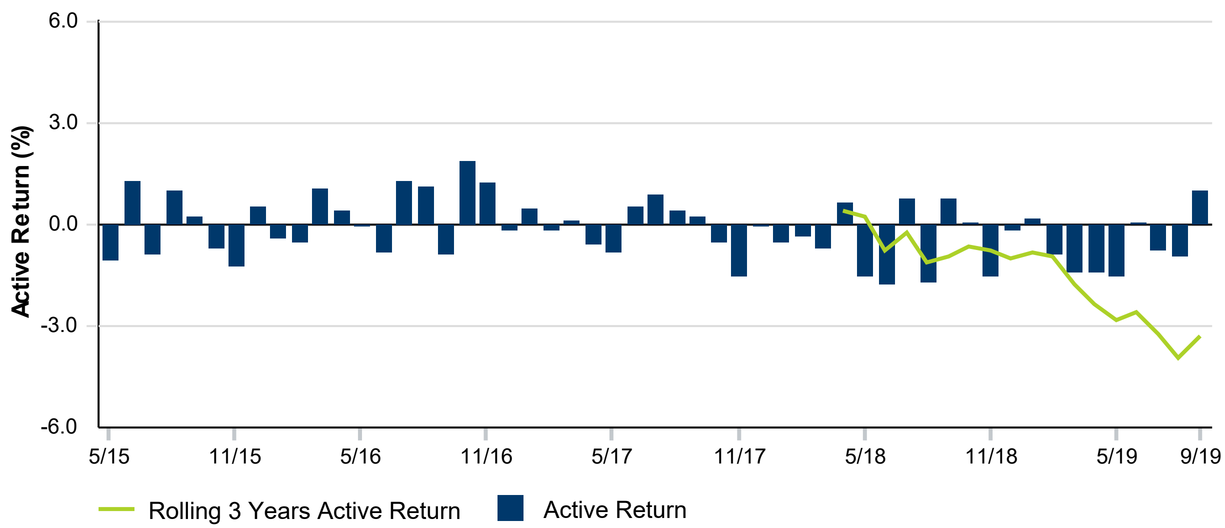


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-1.22 (86)	5.59 (97)	-12.83 (95)	2.41 (96)		
Benchmark	-0.44 (78)	12.05 (90)	-5.93 (87)	5.94 (91)	6.02 (82)	7.45 (97)
Median	1.02	18.22	0.43	9.80	8.19	11.99

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Segal, Bryant & Hamill

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	Segal, Bryant & Hamill	MSCI EAFE Small Cap (Net)
Maximum Return	8.26	8.06
Minimum Return	-9.58	-9.63
Return	-12.83	-5.93
Cumulative Return	-12.83	-5.93
Active Return	-7.44	0.00
Excess Return	-14.52	-7.07

Risk Summary Statistics	Segal, Bryant & Hamill	MSCI EAFE Small Cap (Net)
Upside Risk	2.96	2.96
Downside Risk	14.24	13.01
Beta	1.03	1.00

Risk/Return Summary Statistics	Segal, Bryant & Hamill	MSCI EAFE Small Cap (Net)
Standard Deviation	17.19	16.50
Alpha	-7.07	0.00
Active Return/Risk	-0.43	0.00
Tracking Error	2.75	0.00
Information Ratio	-2.70	
Sharpe Ratio	-0.84	-0.43

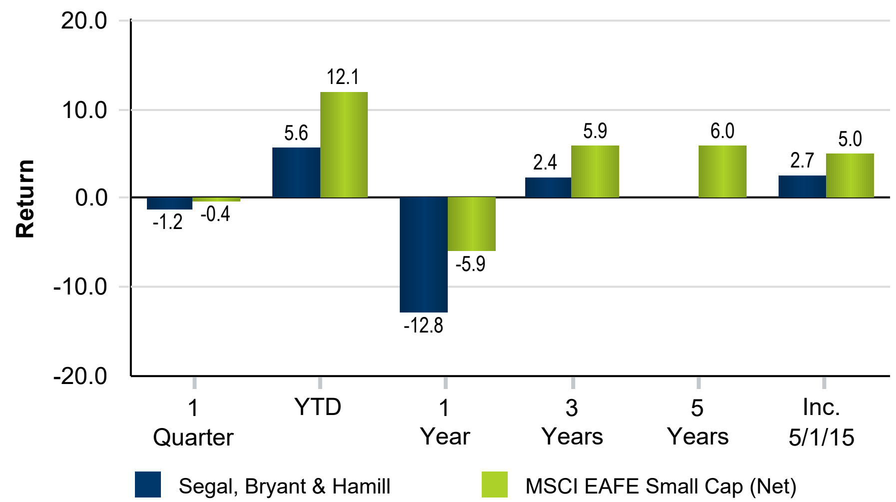
Correlation Statistics	Segal, Bryant & Hamill	MSCI EAFE Small Cap (Net)
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

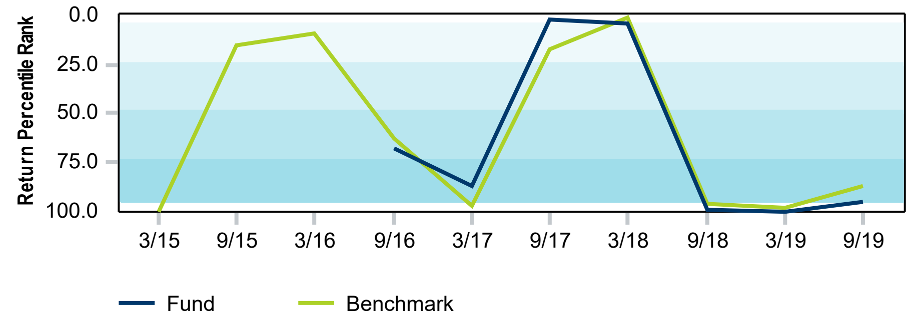
Segal, Bryant & Hamill vs IM U.S. All Cap Value Equity (SA+CF)

Periods Ended September 30, 2019

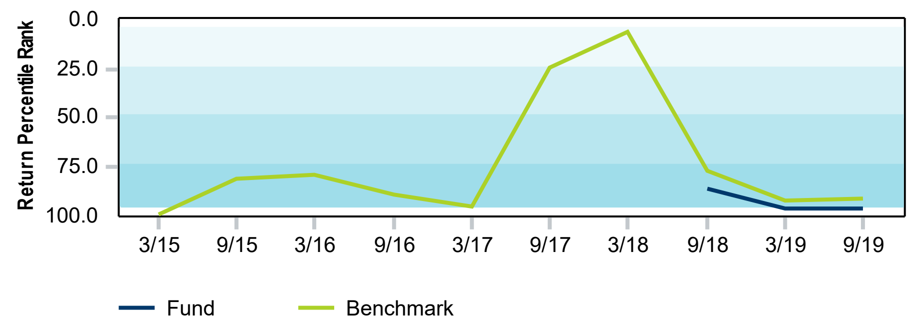
Comparative Performance



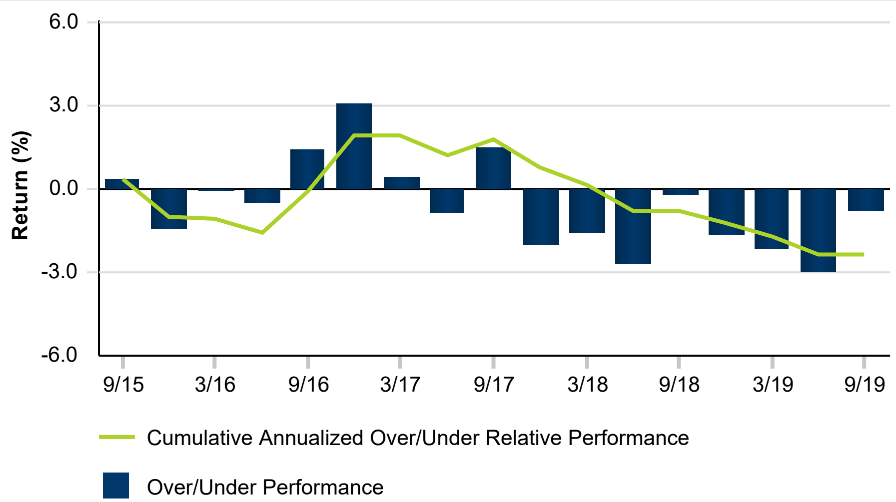
1 Year Rolling Percentile Ranking



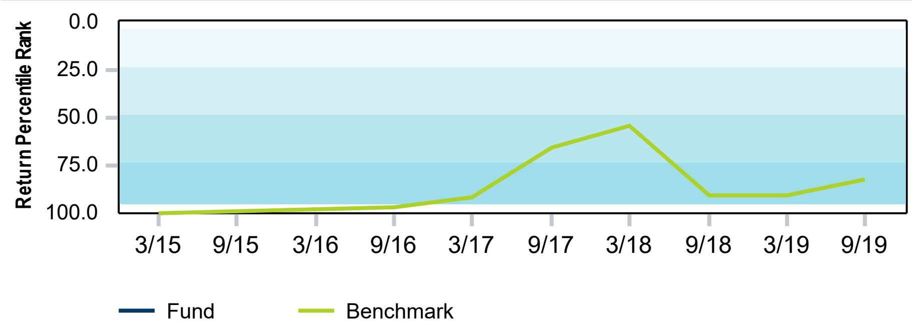
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

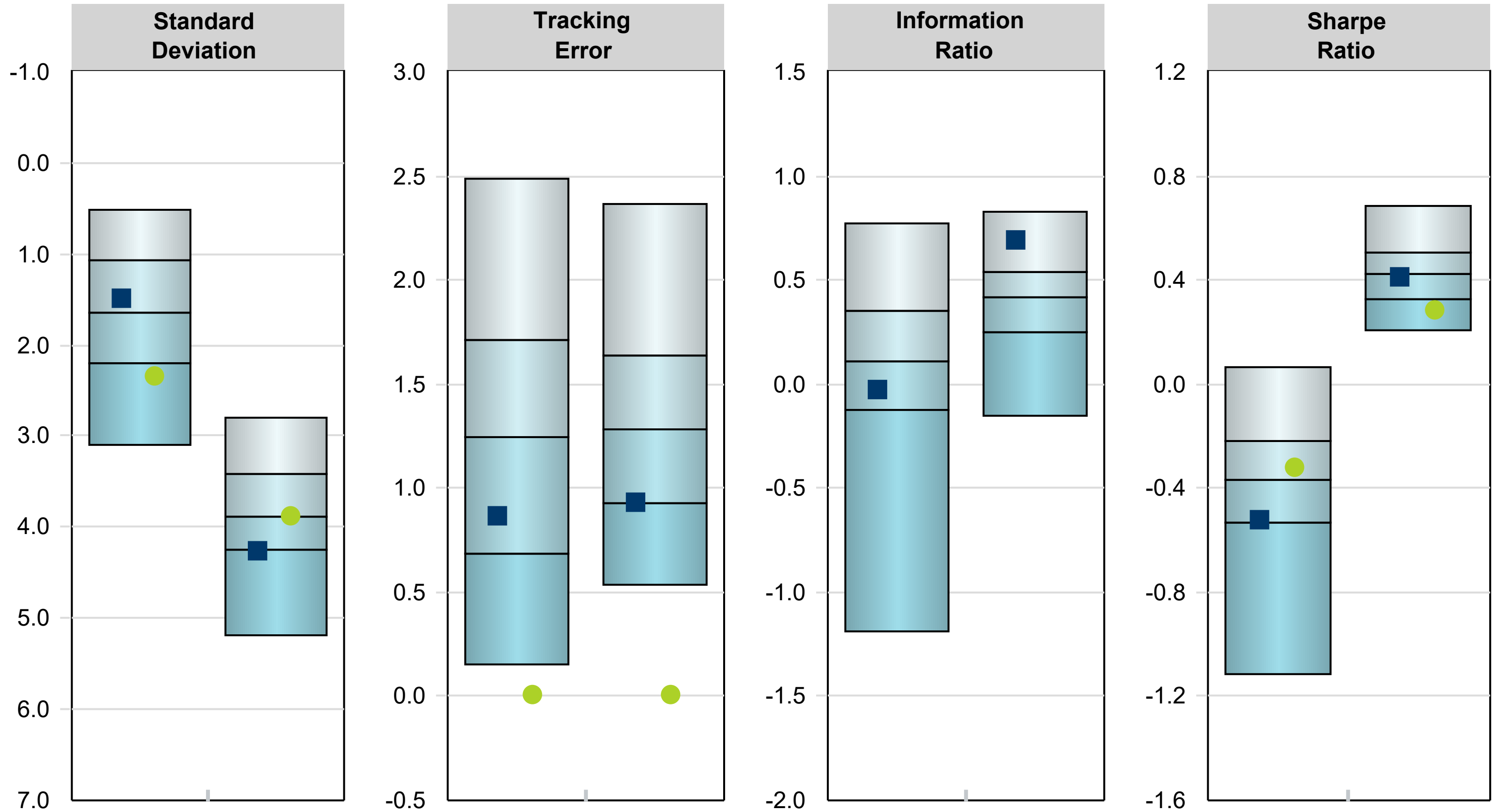


Wilshire Consulting

Peer Group Analysis - Multi Statistics

Baillie Gifford Intl Equity

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Baillie Gifford Intl Equity	1.50 (45)	4.28 (76)	0.86 (68)	0.93 (75)	-0.03 (68)	0.69 (12)	-0.52 (73)	0.41 (59)
● MSCI AC World ex USA (Net)	2.35 (83)	3.88 (51)	0.00 (100)	0.00 (100)			-0.32 (45)	0.28 (91)
5th Percentile	0.51	2.79	2.49	2.37	0.78	0.83	0.07	0.68
1st Quartile	1.07	3.42	1.72	1.64	0.35	0.54	-0.22	0.50
Median	1.64	3.88	1.25	1.28	0.11	0.41	-0.37	0.43
3rd Quartile	2.21	4.25	0.68	0.93	-0.13	0.25	-0.53	0.33
95th Percentile	3.10	5.18	0.16	0.53	-1.19	-0.15	-1.11	0.21

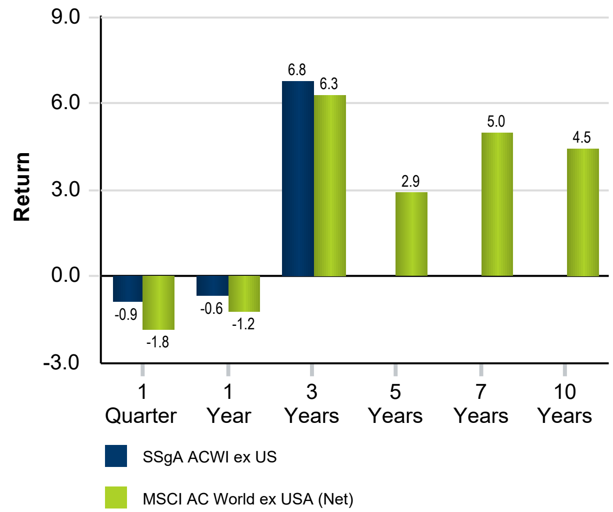
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

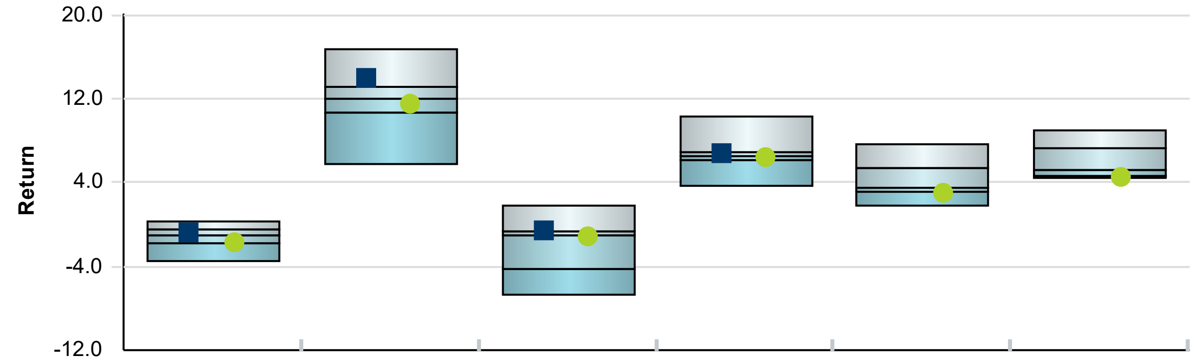
SSgA ACWI ex US

Periods Ended September 30, 2019

Comparative Performance

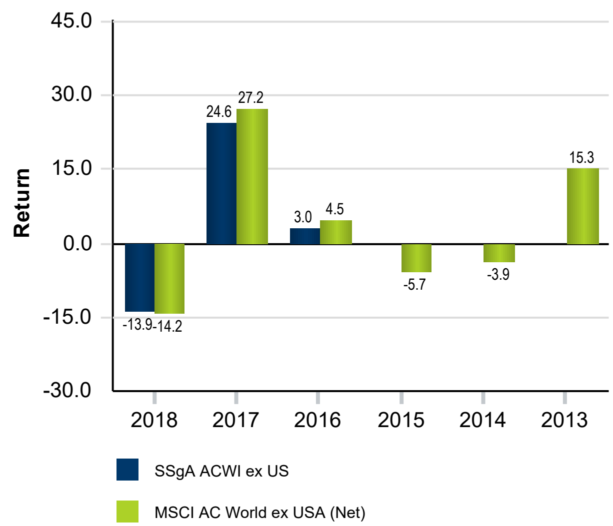


Peer Group Analysis: IM Enhanced and Indexed International Equity (SA+CF)

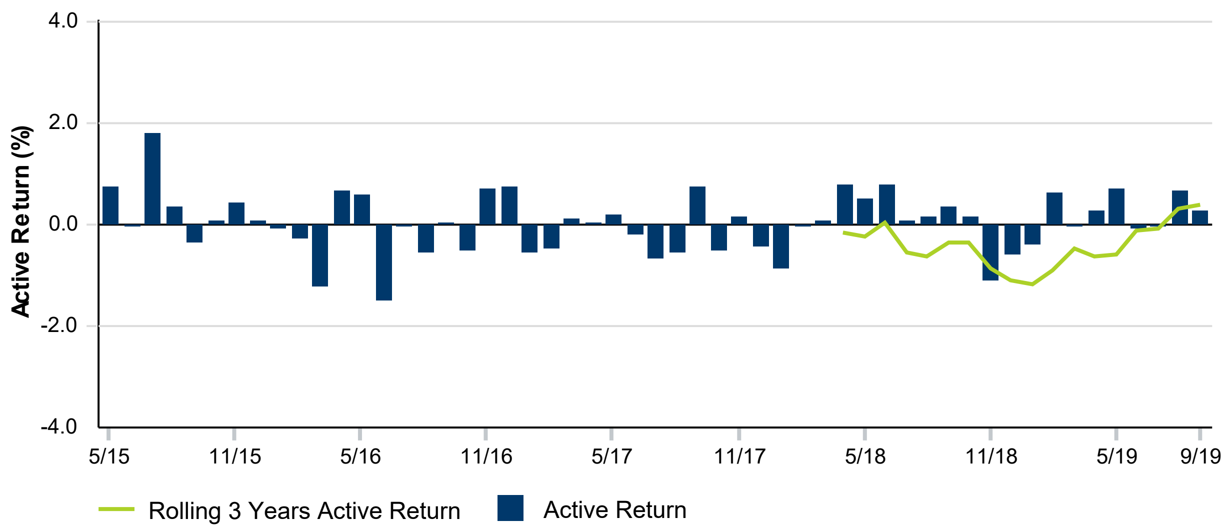


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-0.85 (27)	13.97 (17)	-0.64 (25)	6.80 (39)		
Benchmark	-1.80 (80)	11.56 (71)	-1.23 (59)	6.33 (67)	2.90 (86)	4.46 (95)
Median	-1.10	12.12	-0.99	6.62	3.62	5.31

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

SSgA ACWI ex US

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	SSgA ACWI ex US	MSCI AC World ex USA (Net)
Maximum Return	7.15	7.56
Minimum Return	-7.97	-8.13
Return	-0.64	-1.23
Cumulative Return	-0.64	-1.23
Active Return	0.55	0.00
Excess Return	-1.84	-2.40

Risk Summary Statistics

	SSgA ACWI ex US	MSCI AC World ex USA (Net)
Upside Risk	3.03	3.06
Downside Risk	10.90	11.25
Beta	0.97	1.00

Risk/Return Summary Statistics

	SSgA ACWI ex US	MSCI AC World ex USA (Net)
Standard Deviation	15.13	15.44
Alpha	0.55	0.00
Active Return/Risk	0.04	0.00
Tracking Error	1.79	0.00
Information Ratio	0.31	
Sharpe Ratio	-0.12	-0.16

Correlation Statistics

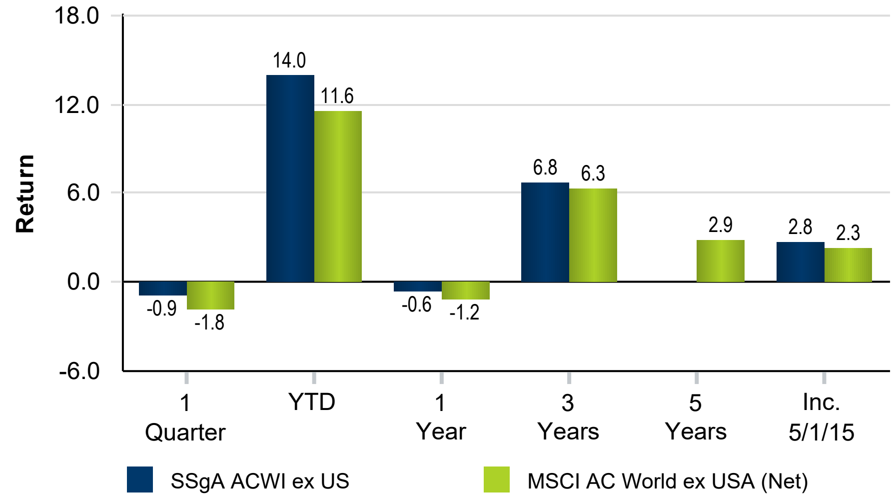
	SSgA ACWI ex US	MSCI AC World ex USA (Net)
R-Squared	0.99	1.00
Actual Correlation	0.99	1.00

Manager Summary

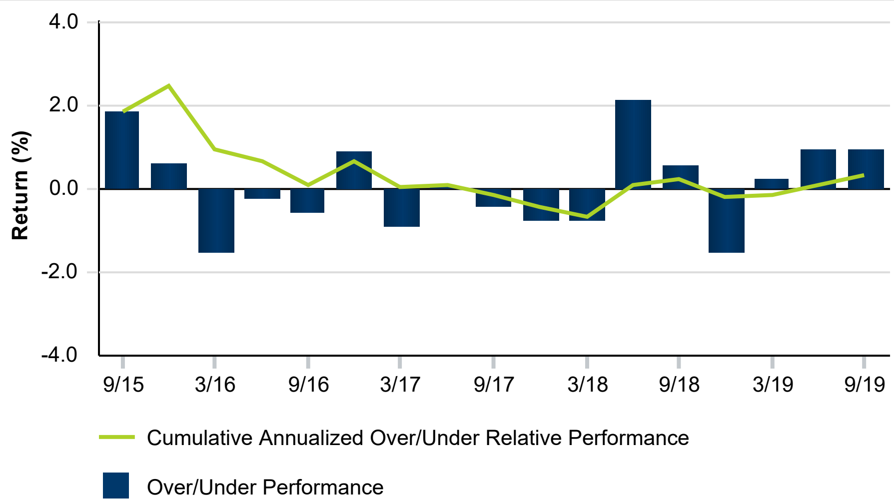
SSgA ACWI ex US vs IM Enhanced and Indexed International Equity (SA+CF)

Periods Ended September 30, 2019

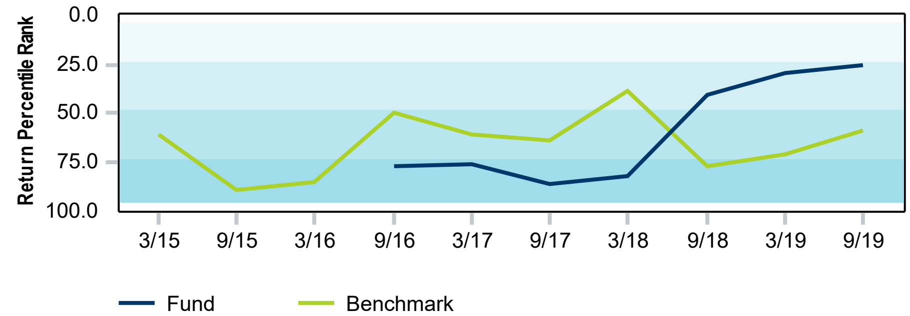
Comparative Performance



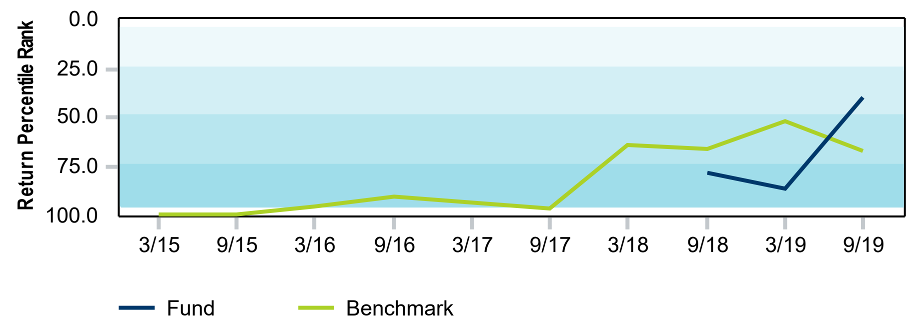
Relative Performance



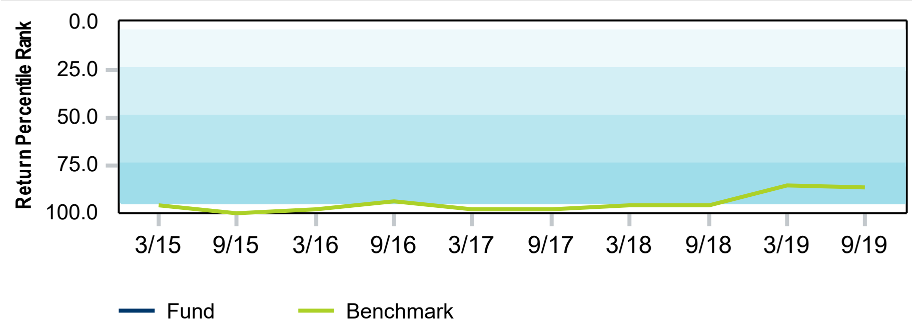
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



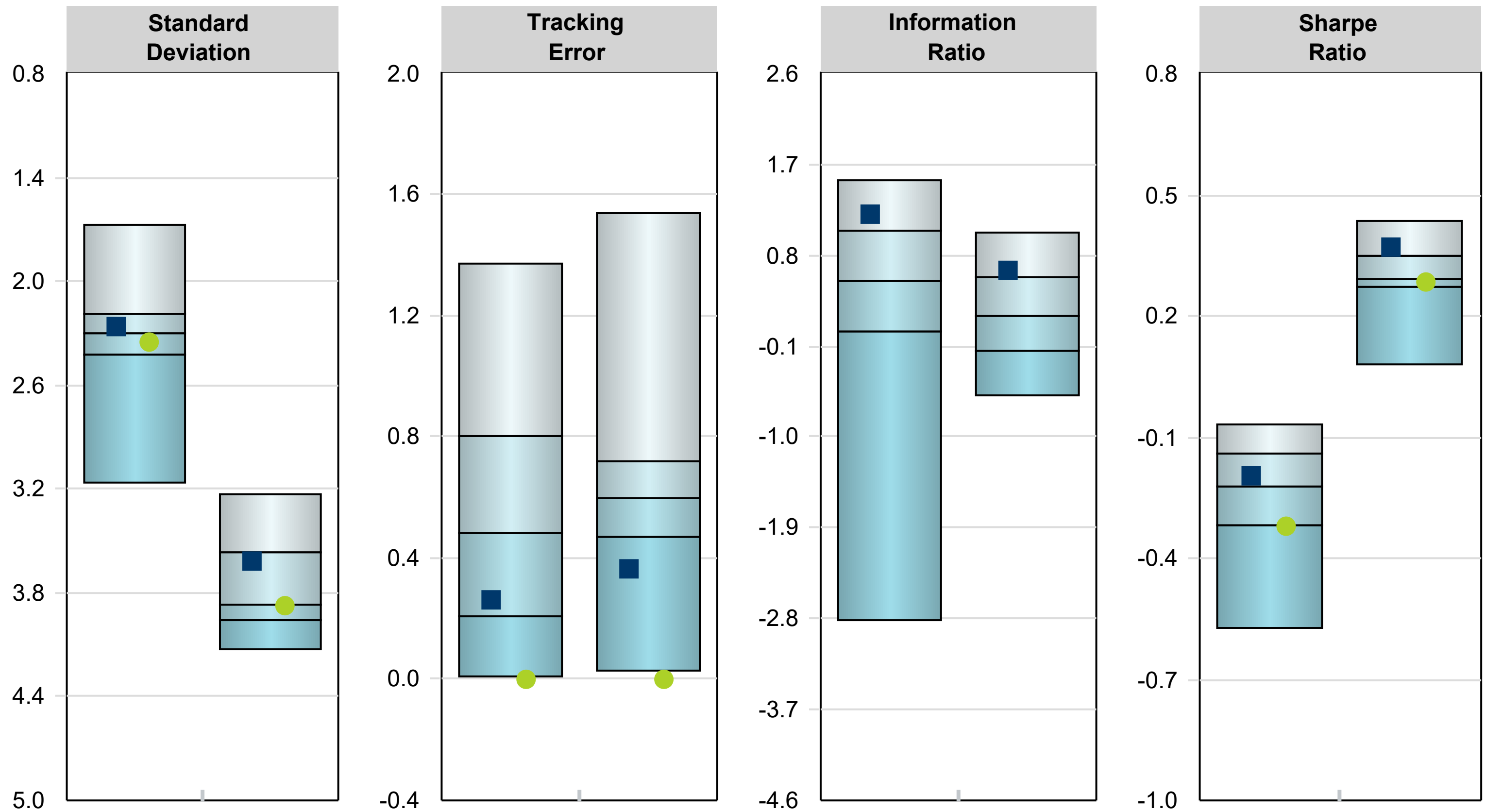
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

SSgA ACWI ex US

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ SSgA ACWI ex US	2.26 (36)	3.62 (31)	0.26 (61)	0.36 (81)	1.20 (8)	0.64 (25)	-0.20 (32)	0.37 (17)
● MSCI AC World ex USA (Net)	2.35 (64)	3.88 (65)	0.00 (100)	0.00 (100)			-0.32 (81)	0.28 (72)
5th Percentile	1.68	3.24	1.38	1.54	1.54	1.03	-0.07	0.44
1st Quartile	2.19	3.57	0.81	0.72	1.05	0.59	-0.14	0.35
Median	2.30	3.86	0.48	0.60	0.55	0.20	-0.22	0.29
3rd Quartile	2.43	3.96	0.21	0.47	0.05	-0.14	-0.32	0.27
95th Percentile	3.16	4.12	0.01	0.03	-2.82	-0.60	-0.57	0.08

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

GLOBAL EQUITY

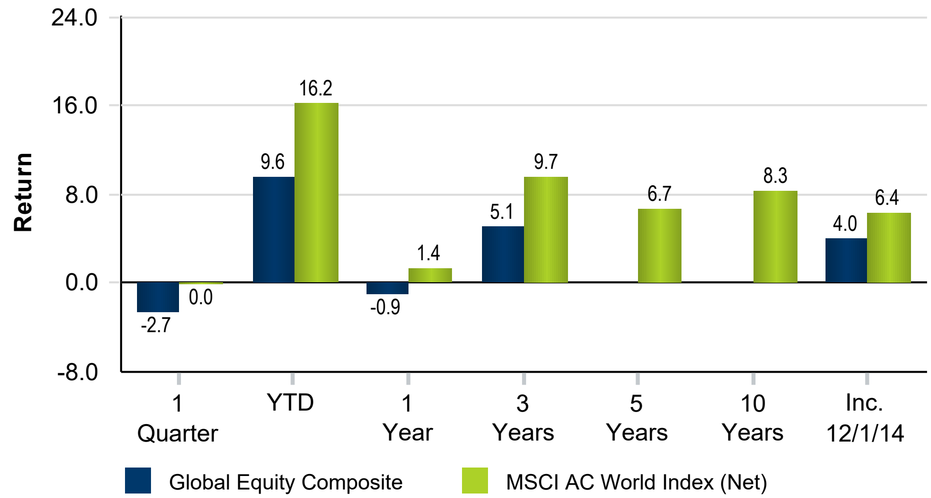
Wilshire Consulting

Composite Performance Summary

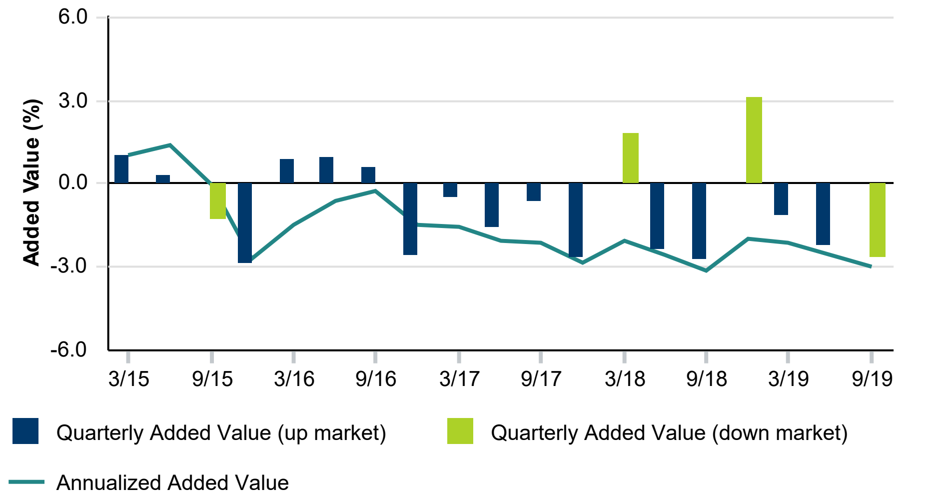
Global Equity Composite

Periods Ended September 30, 2019

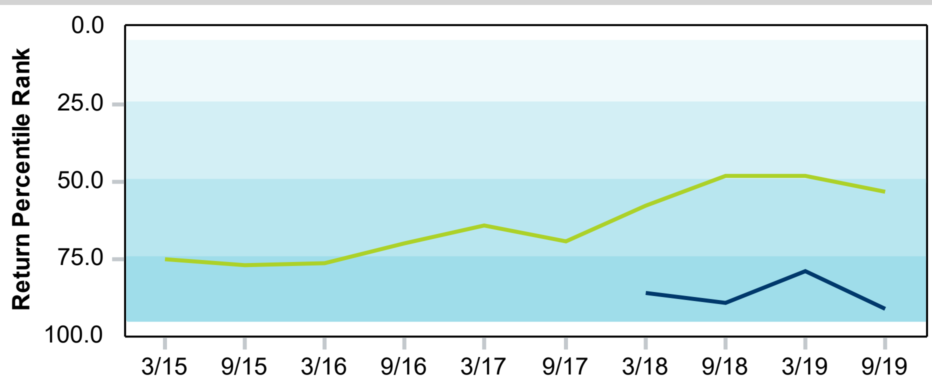
Comparative Performance



Added Value History

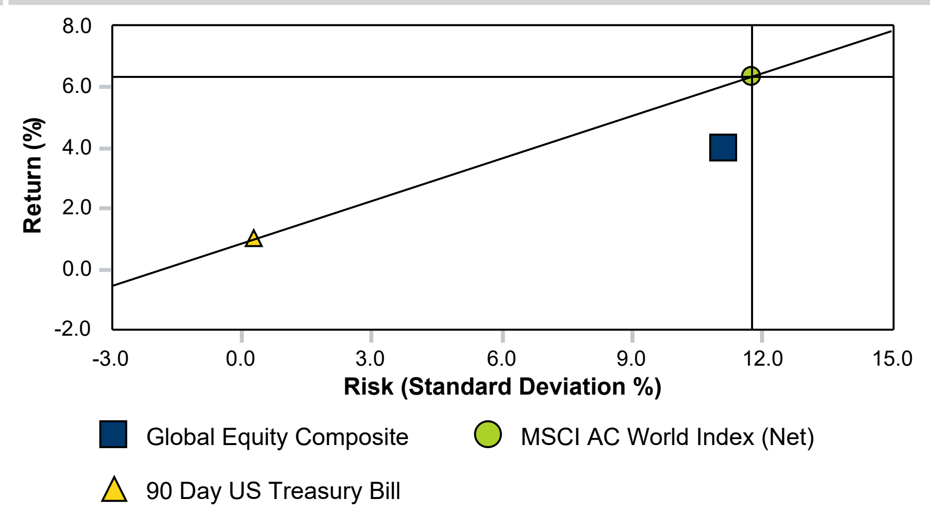


Rolling Percentile Rank: IM Global Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Global Equity Composite	4	0 (0%)	0 (0%)	0 (0%)	4 (100%
Benchmark	10	0 (0%)	2 (20%)	6 (60%)	2 (20%)

Risk and Return 12/1/14 - 09/30/19

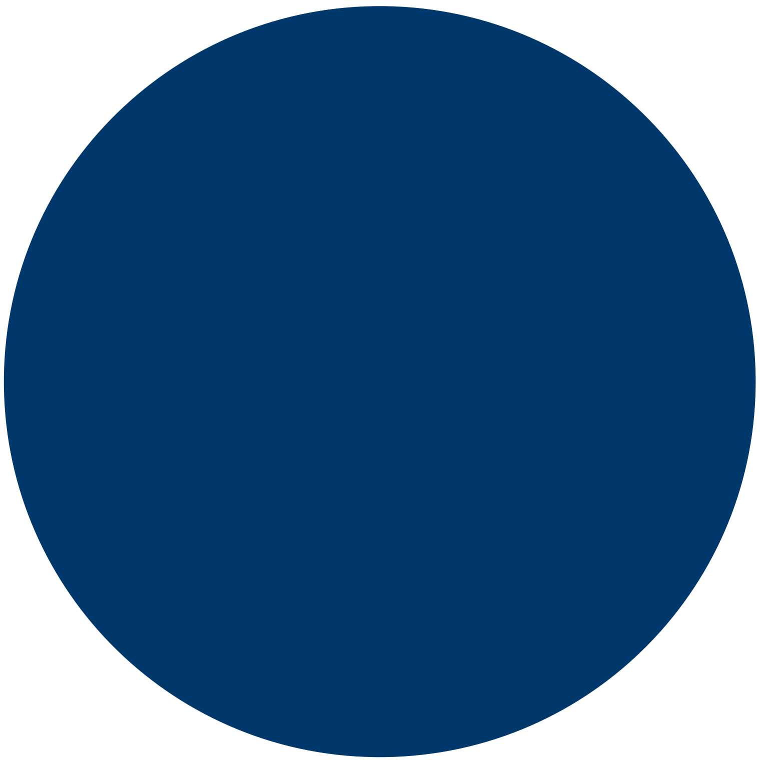


Asset Allocation By Manager

Global Equity Composite

Periods Ended September 30, 2019

Sep-2019 : 1,136,084



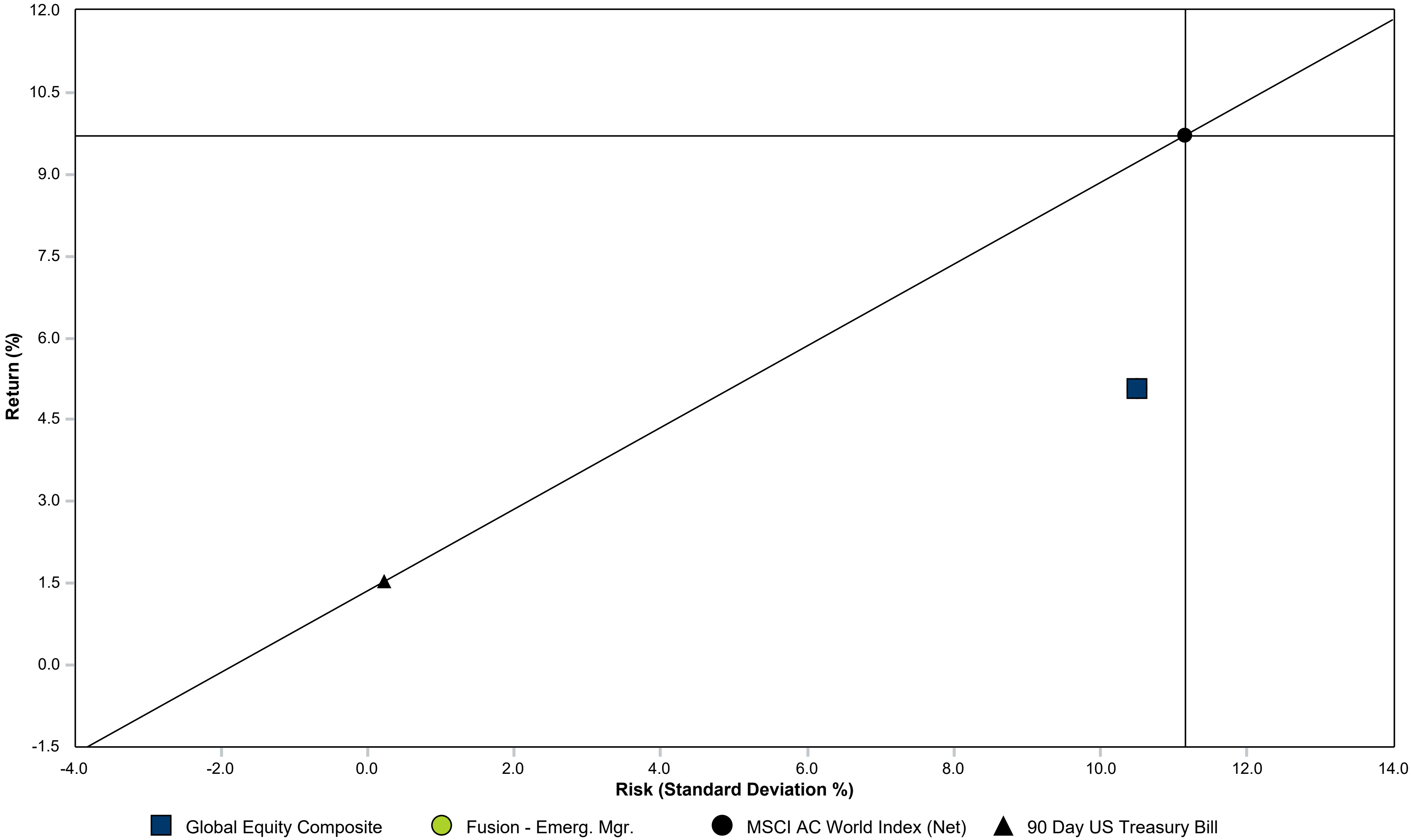
	Market Value $	Allocation (%)
Fusion - Emerg. Mgr.	1,136,084	100.0

Wilshire Consulting

Risk vs. Return

Global Equity Composite

Periods Ended 3 Years Ending September 30, 2019



Calculation based on monthly periodicity.

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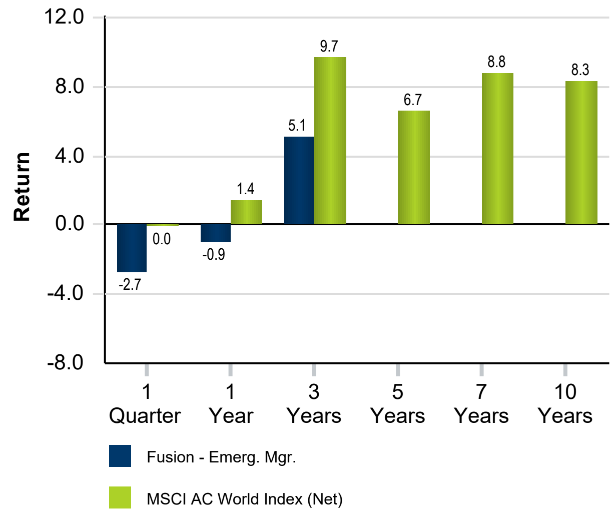
Performance Summary

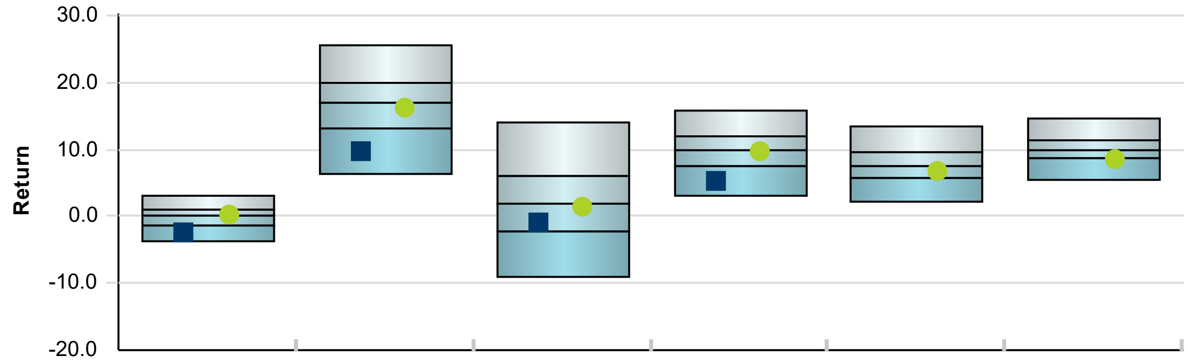
Fusion - Emerg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

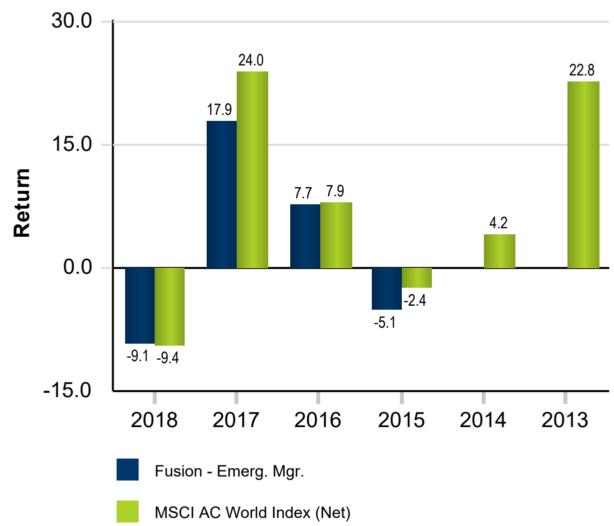


Peer Group Analysis: IM Global Equity (SA+CF)

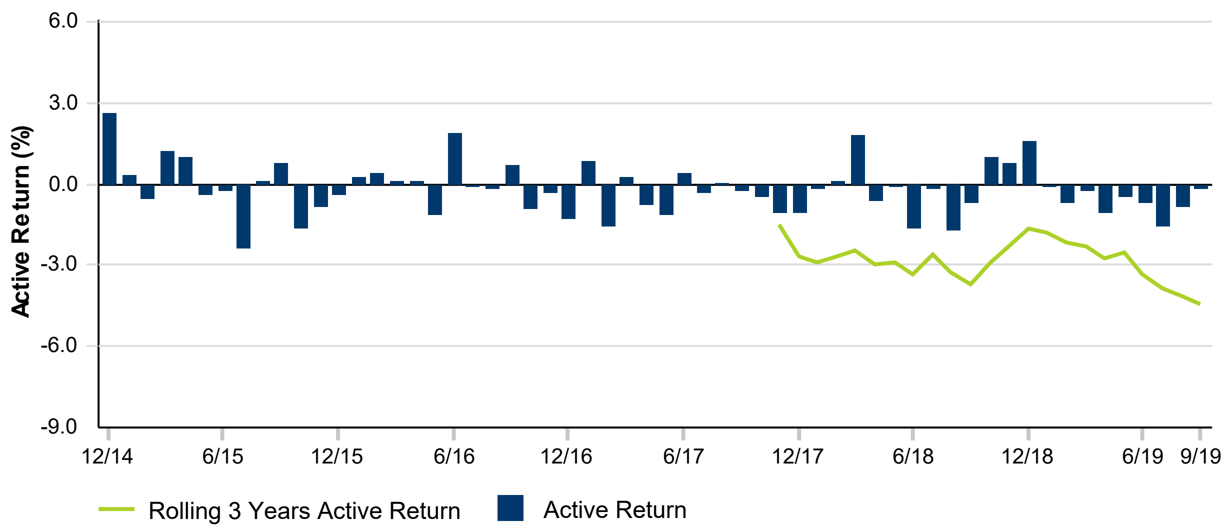


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-2.67 (91)	9.63 (90)	-0.95 (68)	5.05 (90)		
Benchmark	-0.03 (51)	16.20 (57)	1.38 (53)	9.71 (53)	6.65 (64)	8.35 (80)
Median	0.00	17.01	1.77	9.88	7.55	9.95

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Fusion - Emerg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Fusion - Emerg. Mgr.	MSCI AC World Index (Net)
Maximum Return	7.78	7.90
Minimum Return	-6.52	-7.49
Return	-0.95	1.38
Cumulative Return	-0.95	1.38
Active Return	-2.52	0.00
Excess Return	-2.11	0.41

Risk Summary Statistics

	Fusion - Emerg. Mgr.	MSCI AC World Index (Net)
Upside Risk	3.08	3.32
Downside Risk	11.19	12.11
Beta	0.91	1.00

Risk/Return Summary Statistics

	Fusion - Emerg. Mgr.	MSCI AC World Index (Net)
Standard Deviation	15.47	16.67
Alpha	-2.26	0.00
Active Return/Risk	-0.16	0.00
Tracking Error	3.02	0.00
Information Ratio	-0.84	
Sharpe Ratio	-0.14	0.02

Correlation Statistics

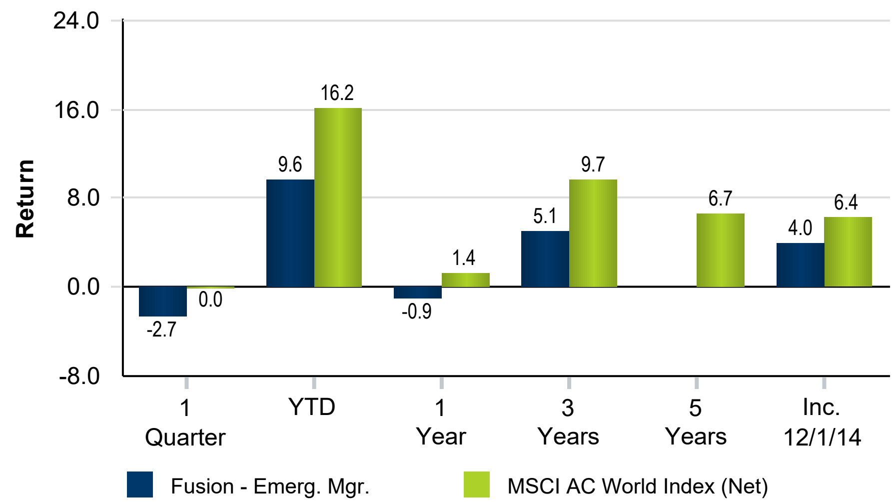
	Fusion - Emerg. Mgr.	MSCI AC World Index (Net)
R-Squared	0.97	1.00
Actual Correlation	0.99	1.00

Manager Summary

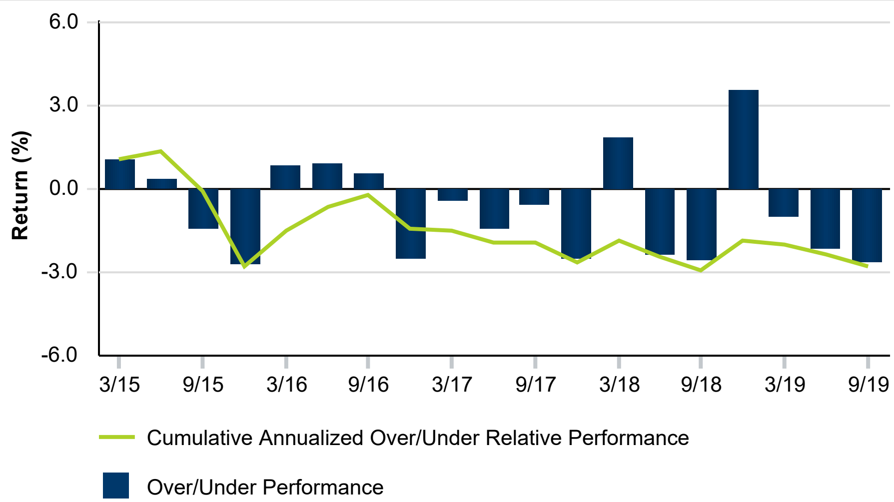
Fusion - Emerg. Mgr. vs IM Global Equity (SA+CF)

Periods Ended September 30, 2019

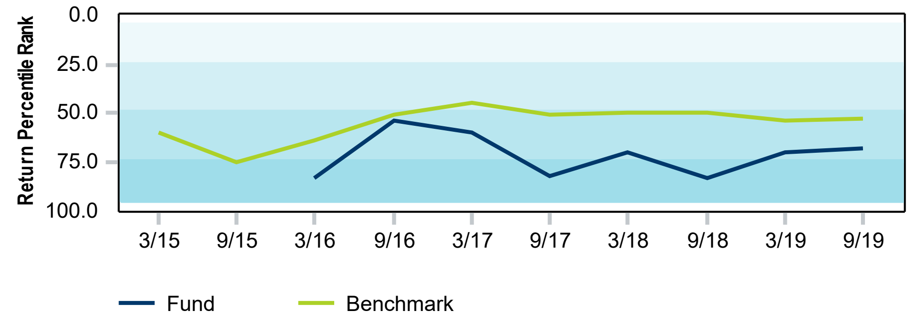
Comparative Performance



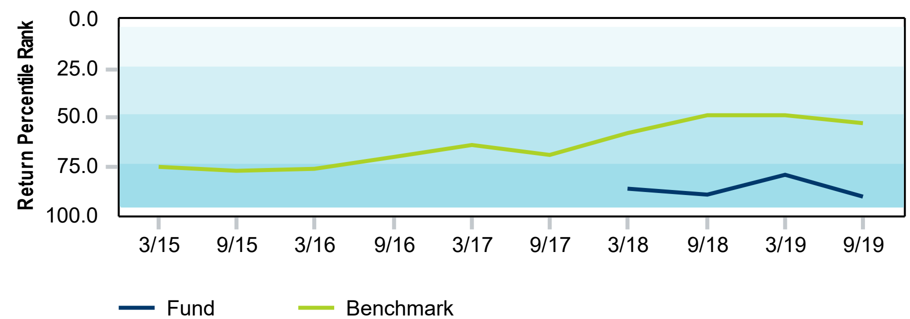
Relative Performance



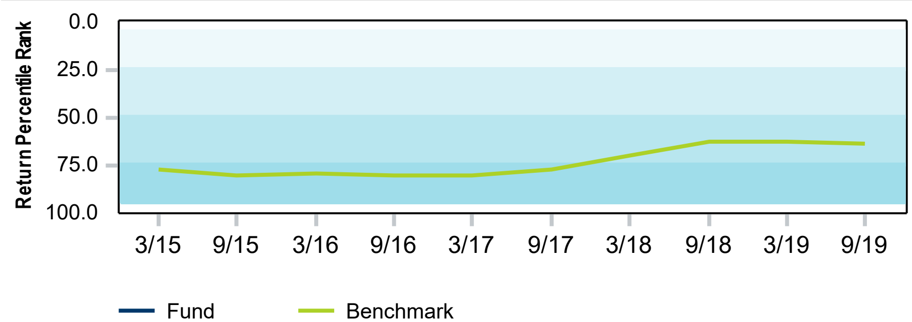
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



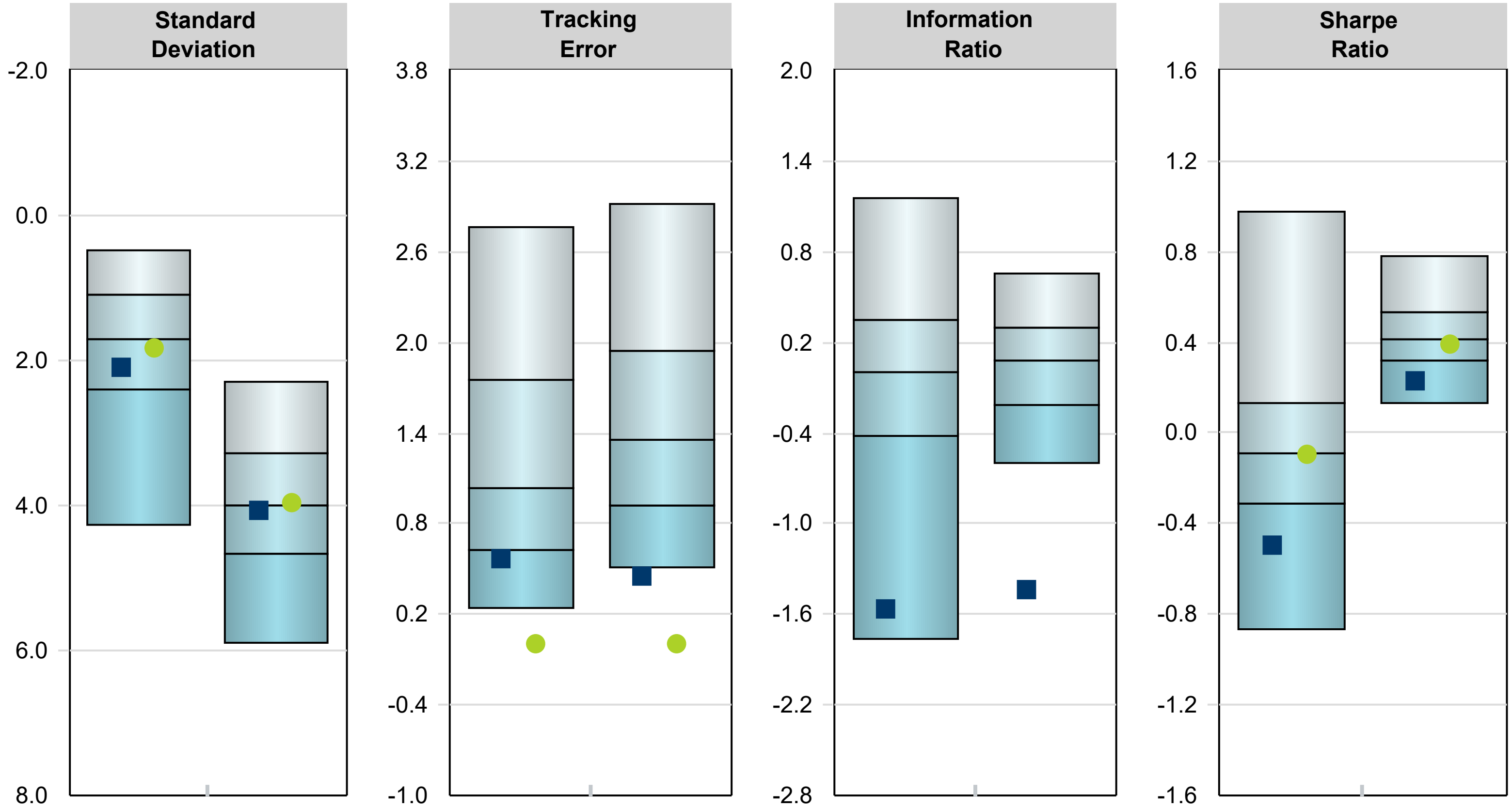
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Fusion - Emerg. Mgr.

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Fusion - Emerg. Mgr.	2.12 (65)	4.09 (54)	0.56 (81)	0.45 (97)	-1.58 (95)	-1.45 (100)	-0.50 (88)	0.22 (89)
● MSCI AC World Index (Net)	1.84 (54)	3.98 (48)	0.00 (100)	0.00 (100)			-0.10 (51)	0.39 (56)
5th Percentile	0.48	2.30	2.77	2.92	1.15	0.66	0.98	0.78
1st Quartile	1.09	3.27	1.75	1.94	0.34	0.29	0.13	0.53
Median	1.71	4.01	1.03	1.36	0.00	0.08	-0.09	0.41
3rd Quartile	2.40	4.67	0.62	0.93	-0.42	-0.21	-0.31	0.32
95th Percentile	4.26	5.88	0.24	0.52	-1.76	-0.60	-0.87	0.13

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

CORE FIXED INCOME

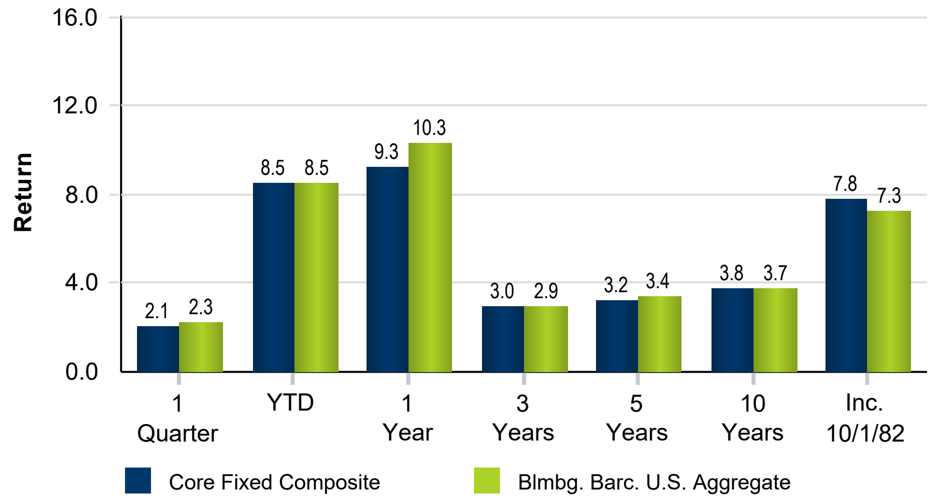
Wilshire Consulting

Composite Performance Summary

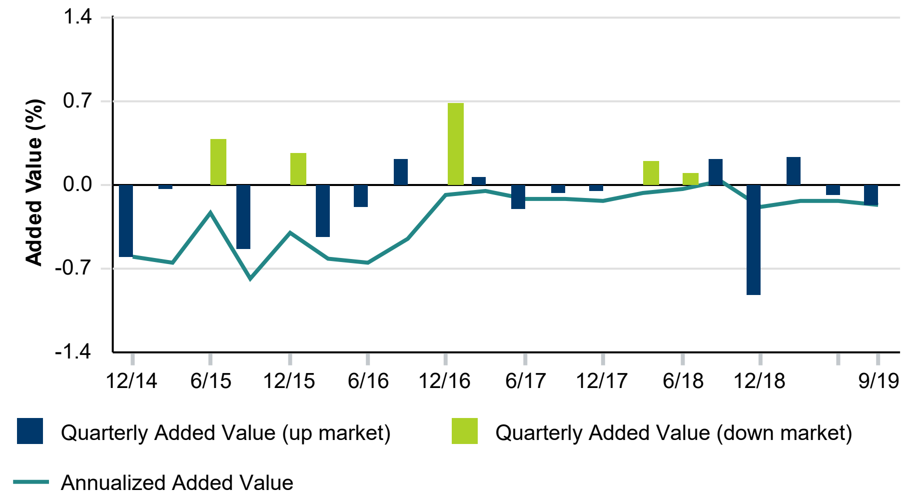
Core Fixed Composite

Periods Ended September 30, 2019

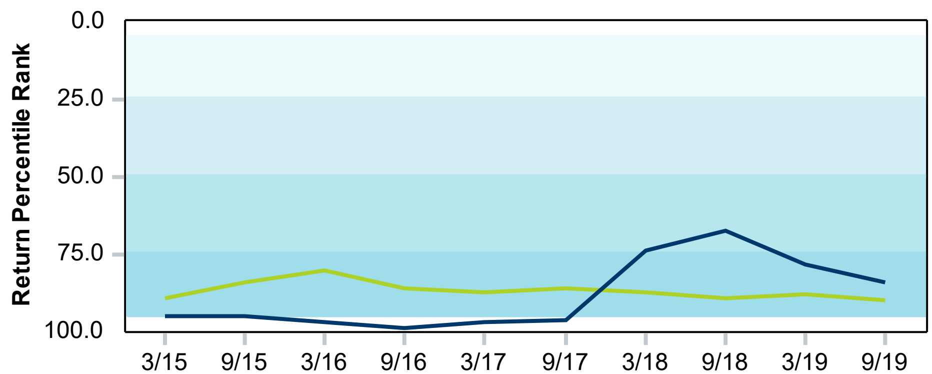
Comparative Performance



Added Value History

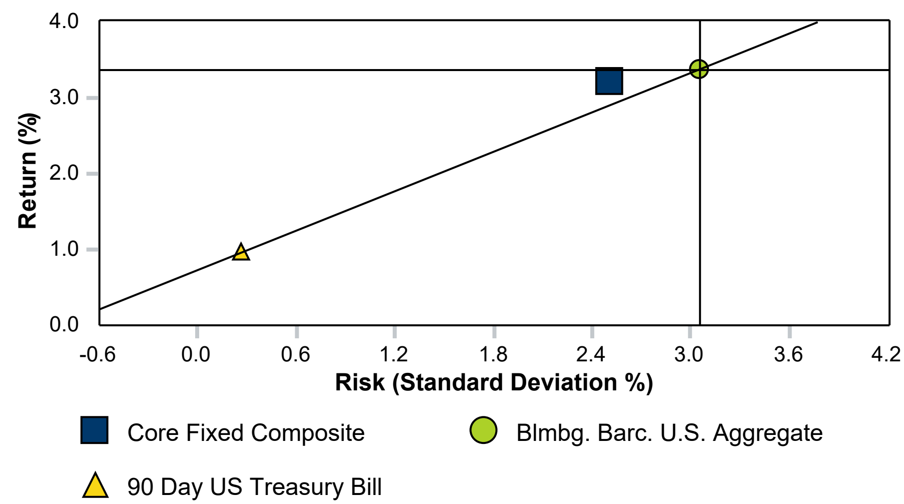


Rolling Percentile Rank: IM U.S. Broad Market Core Fixed Income (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Core Fixed Composite	10	0 (0%)	0 (0%)	2 (20%)	8 (80%)
Benchmark	10	0 (0%)	0 (0%)	0 (0%)	10 (100%

Risk and Return 10/1/14 - 09/30/19

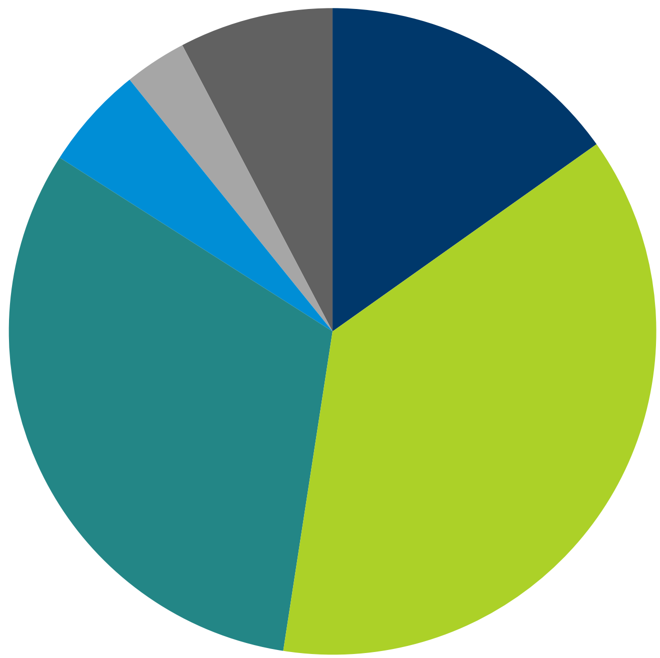


Asset Allocation By Manager

Core Fixed Composite

Periods Ended September 30, 2019

Sep-2019 : 86,063,095



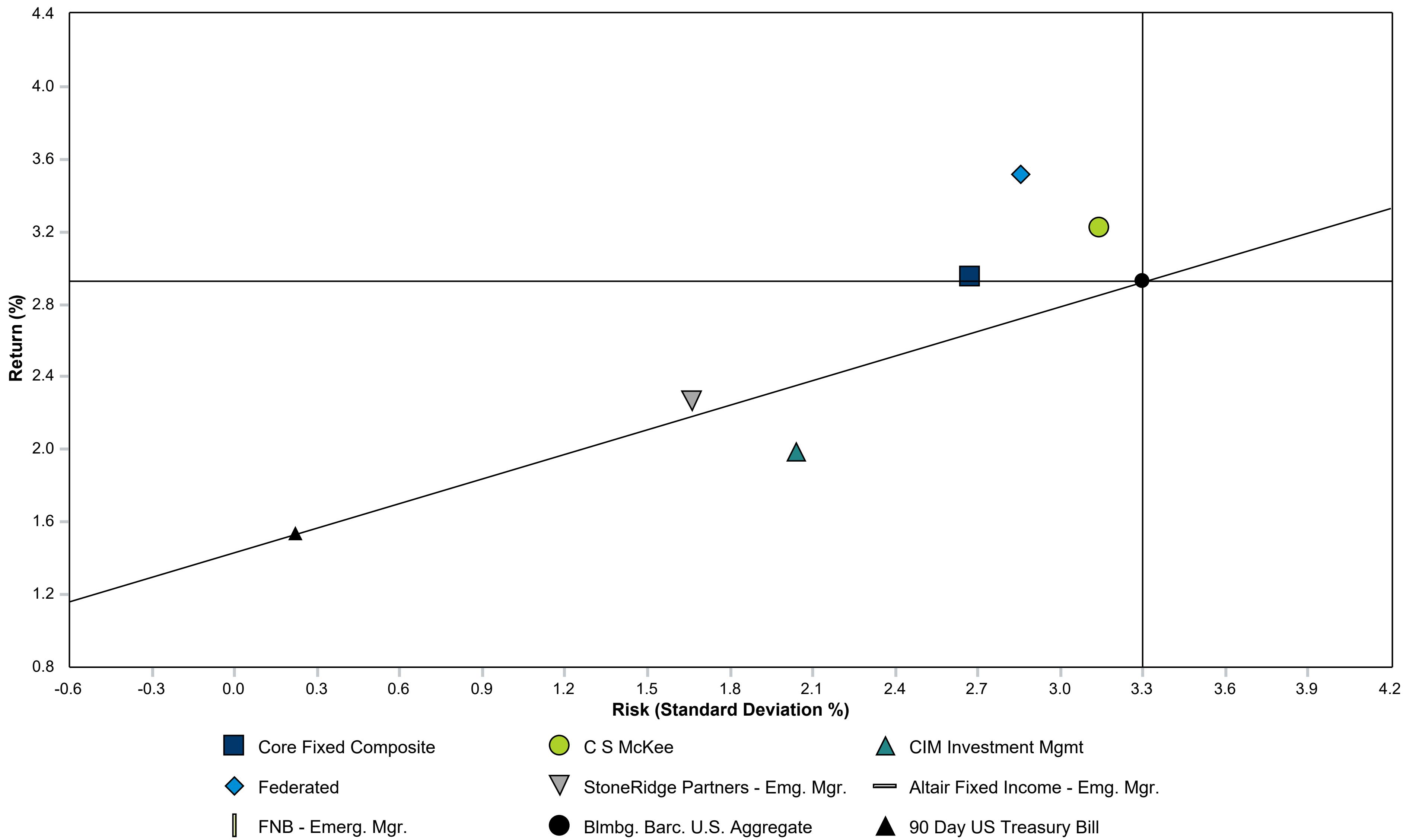
	Market Value $	Allocation (%)
CIM Investment Mgmt	13,055,479	15.2
C S McKee	32,072,633	37.3
Federated	27,192,624	31.6
Altair Fixed Income - Emg. Mgr.	4,456,297	5.2
FNB - Emerg. Mgr.	2,673,502	3.1
StoneRidge Partners - Emg. Mgr.	6,612,559	7.7

Wilshire Consulting

Risk vs. Return

Core Fixed Composite

Periods Ended 3 Years Ending September 30, 2019



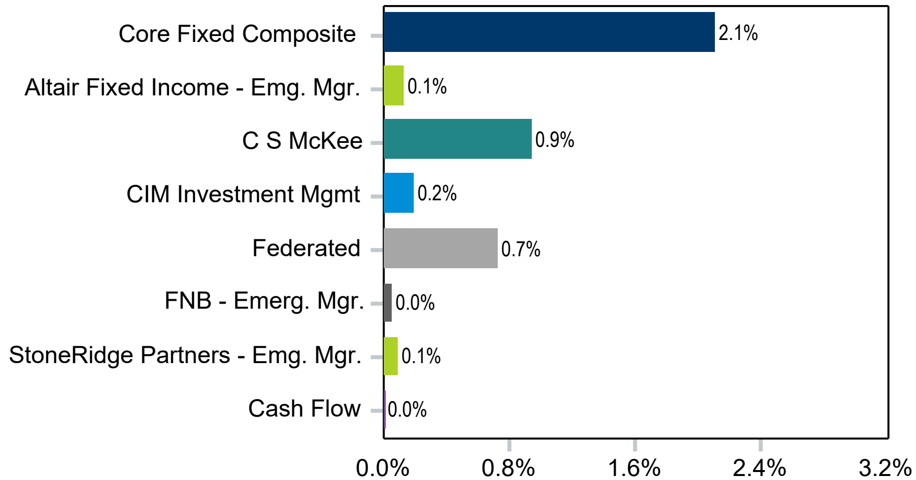
Calculation based on monthly periodicity.

Return and Risk Contribution

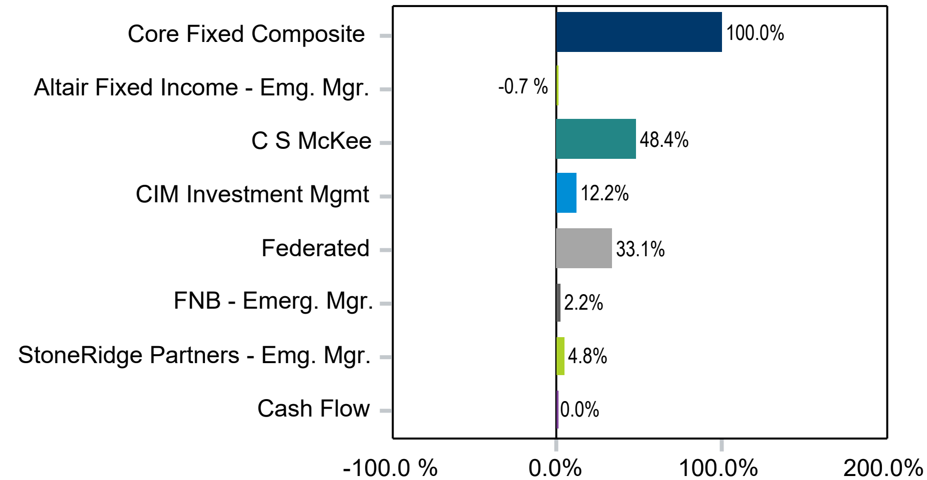
Core Fixed Composite

Periods Ended September 30, 2019

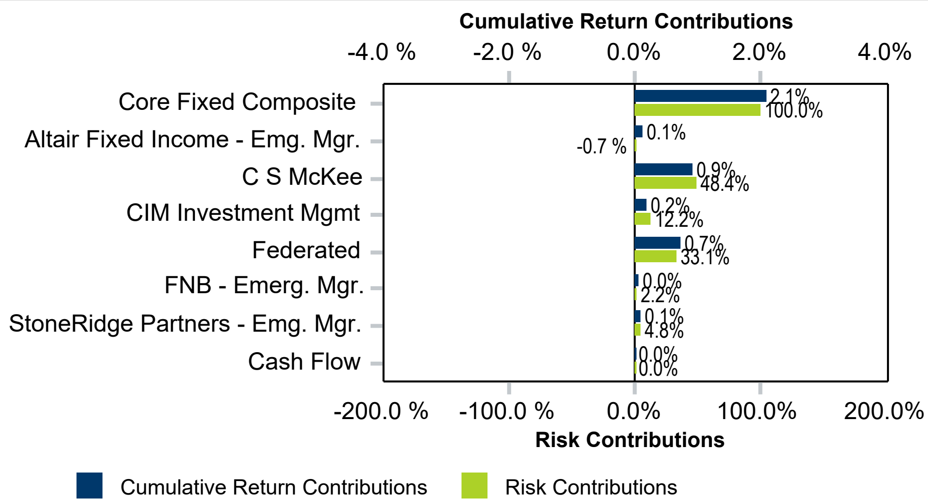
Cumulative Return Contributions



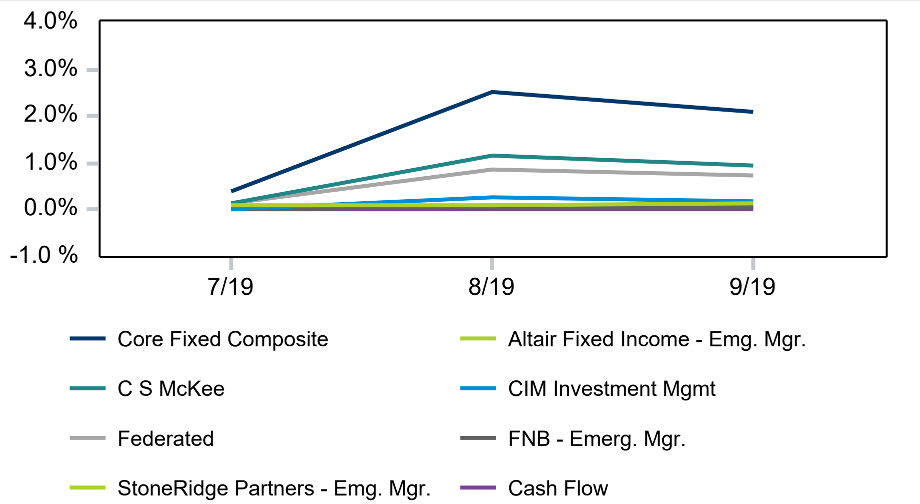
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History



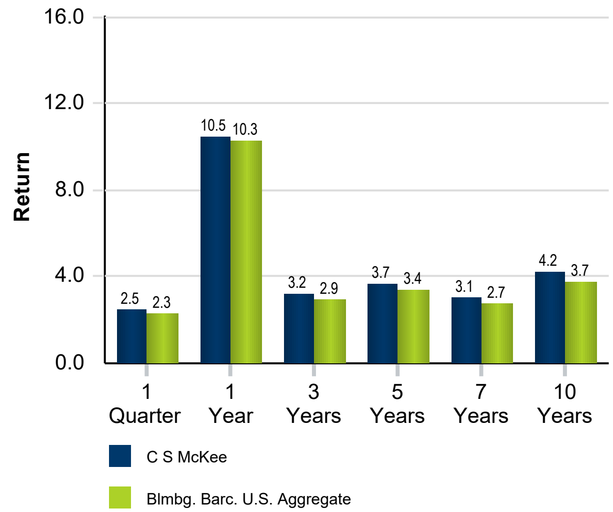
Wilshire Consulting

Performance Summary

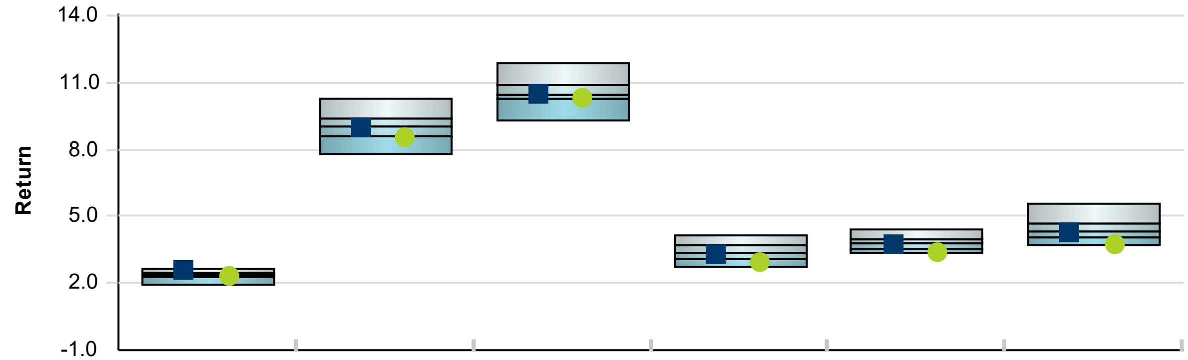
C S McKee

Periods Ended September 30, 2019

Comparative Performance

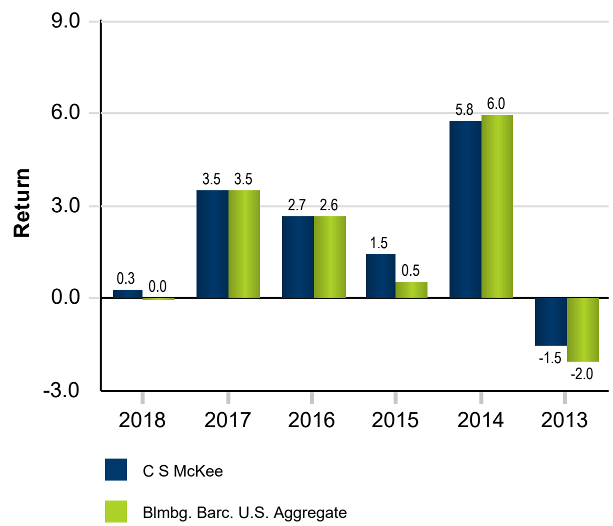


Peer Group Analysis: IM U.S. Broad Market Core Fixed Income (SA+CF)

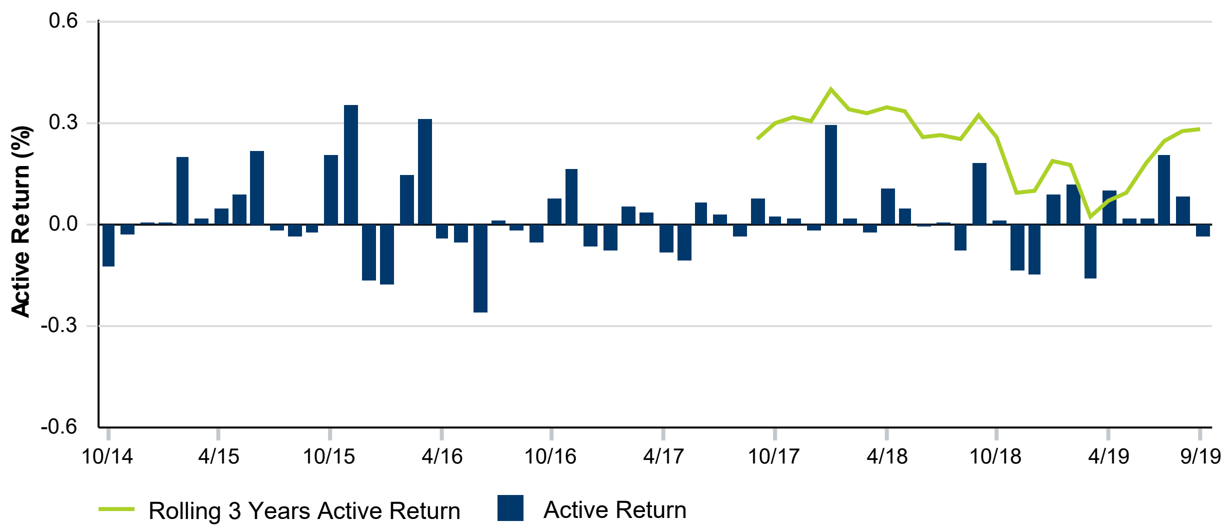


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	2.52 (13)	8.98 (53)	10.46 (52)	3.22 (65)	3.69 (59)	4.20 (63)
Benchmark	2.27 (72)	8.52 (82)	10.30 (69)	2.92 (90)	3.38 (91)	3.75 (92)
Median	2.34	9.01	10.48	3.35	3.75	4.36

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

C S McKee

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	C S McKee	Blmbg. Barc. U.S. Aggregate
Maximum Return	2.67	2.59
Minimum Return	-0.78	-0.79
Return	10.46	10.30
Cumulative Return	10.46	10.30
Active Return	0.15	0.00
Excess Return	7.70	7.55

Risk Summary Statistics	C S McKee	Blmbg. Barc. U.S. Aggregate
Upside Risk	1.28	1.29
Downside Risk	0.97	0.95
Beta	0.97	1.00

Risk/Return Summary Statistics	C S McKee	Blmbg. Barc. U.S. Aggregate
Standard Deviation	3.49	3.57
Alpha	0.45	0.00
Active Return/Risk	0.04	0.00
Tracking Error	0.38	0.00
Information Ratio	0.40	
Sharpe Ratio	2.24	2.14

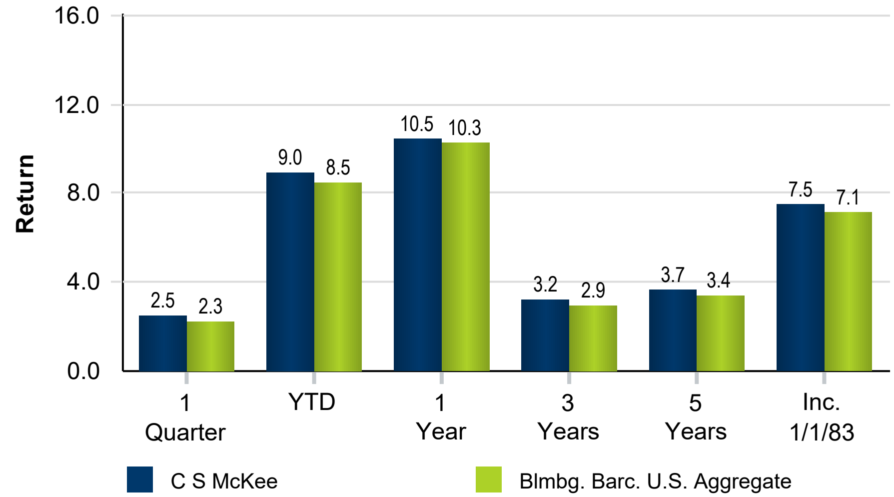
Correlation Statistics	C S McKee	Blmbg. Barc. U.S. Aggregate
R-Squared	0.99	1.00
Actual Correlation	0.99	1.00

Manager Summary

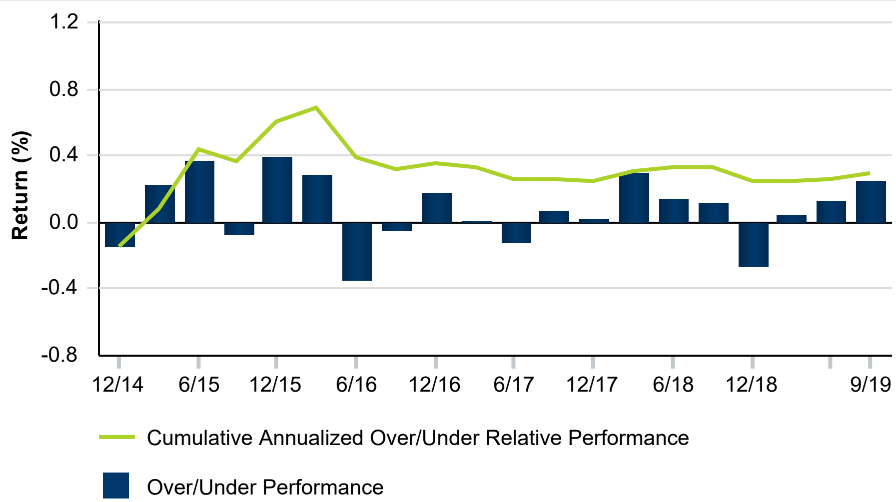
C S McKee vs IM U.S. Broad Market Core Fixed Income (SA+CF)

Periods Ended September 30, 2019

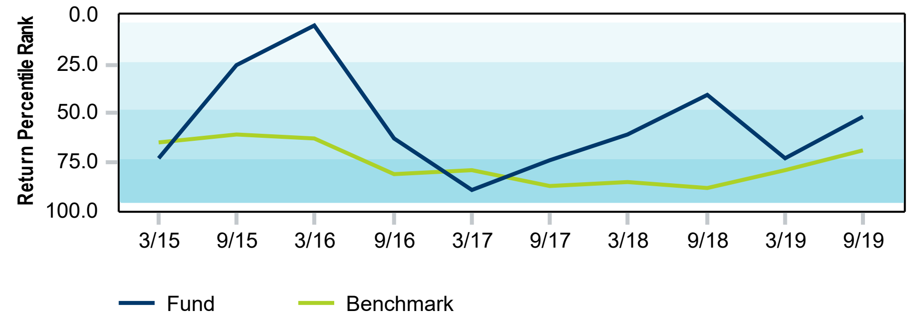
Comparative Performance



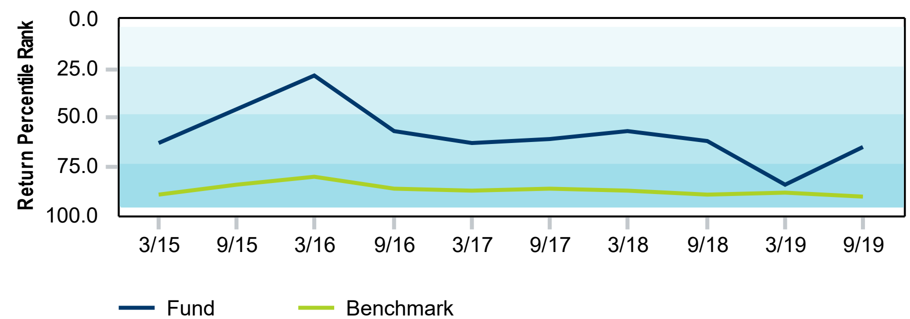
Relative Performance



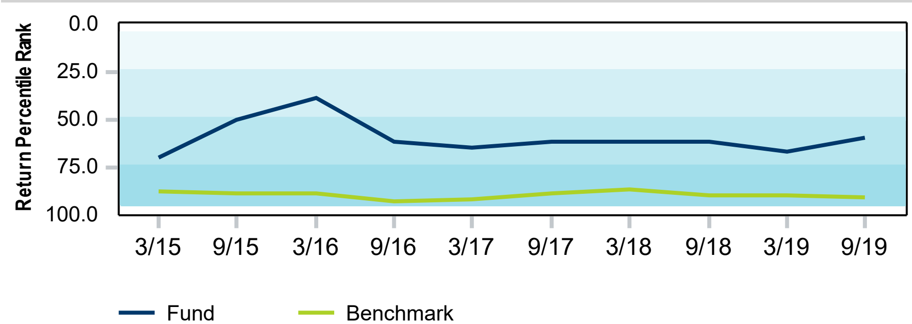
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

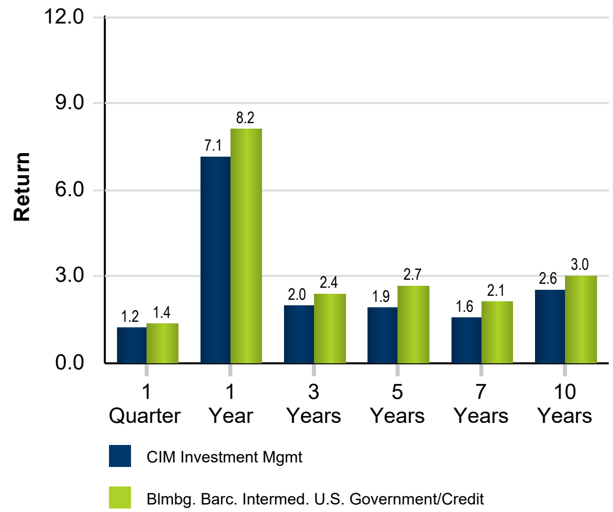


Performance Summary

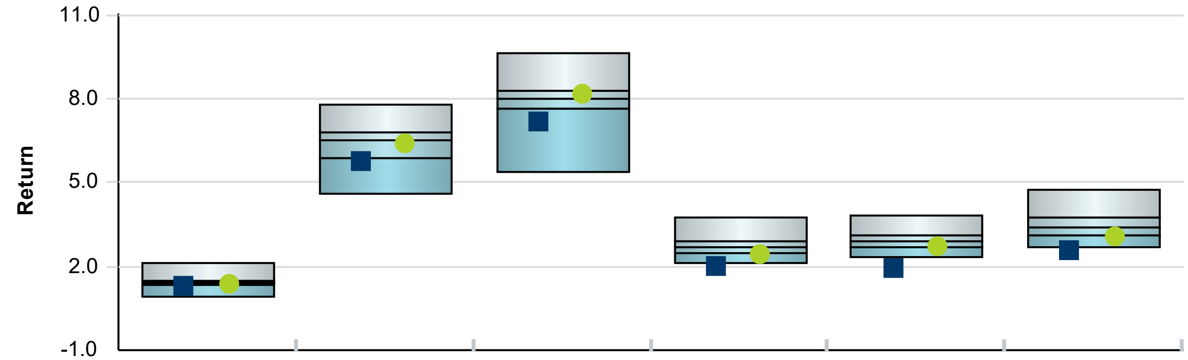
CIM Investment Mgmt

Periods Ended September 30, 2019

Comparative Performance

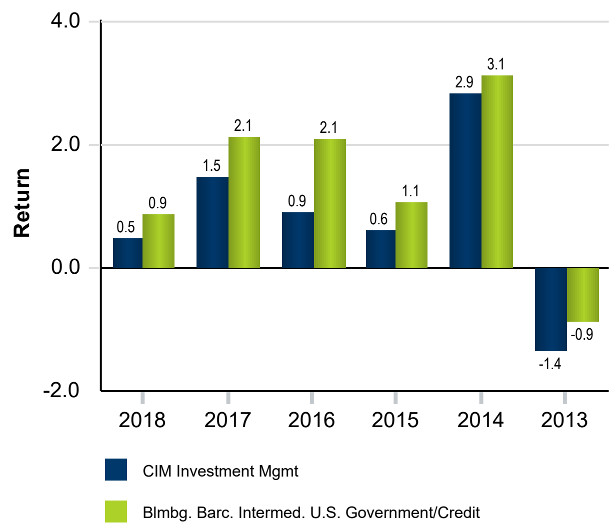


Peer Group Analysis: IM U.S. Intermediate Duration (SA+CF)

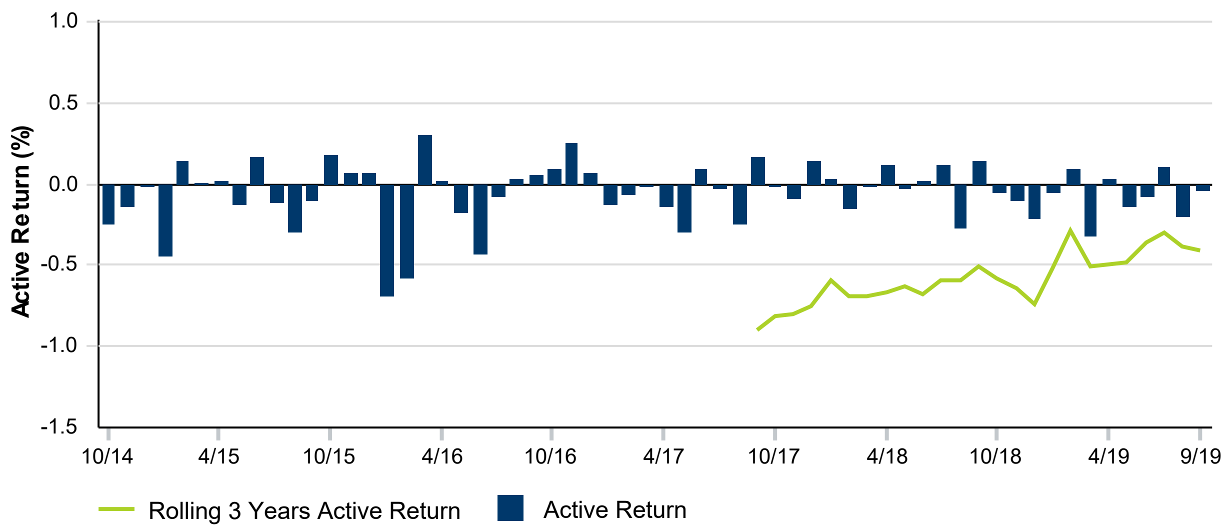


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.24 (81)	5.78 (78)	7.14 (82)	1.99 (98)	1.94 (99)	2.56 (97)
Benchmark	1.37 (62)	6.41 (59)	8.17 (38)	2.40 (85)	2.68 (81)	3.05 (84)
Median	1.42	6.51	7.99	2.68	2.93	3.40

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

CIM Investment Mgmt

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	CIM Investment Mgmt	Blmbg. Barc. Intermed. U.S. Government/Credit
Maximum Return	1.57	1.77
Minimum Return	-0.40	-0.36
Return	7.14	8.17
Cumulative Return	7.14	8.17
Active Return	-0.96	0.00
Excess Return	4.58	5.54

Risk Summary Statistics

	CIM Investment Mgmt	Blmbg. Barc. Intermed. U.S. Government/Credit
Upside Risk	0.82	0.94
Downside Risk	0.44	0.39
Beta	0.86	1.00

Risk/Return Summary Statistics

	CIM Investment Mgmt	Blmbg. Barc. Intermed. U.S. Government/Credit
Standard Deviation	2.05	2.36
Alpha	0.13	0.00
Active Return/Risk	-0.47	0.00
Tracking Error	0.42	0.00
Information Ratio	-2.27	
Sharpe Ratio	2.29	2.40

Correlation Statistics

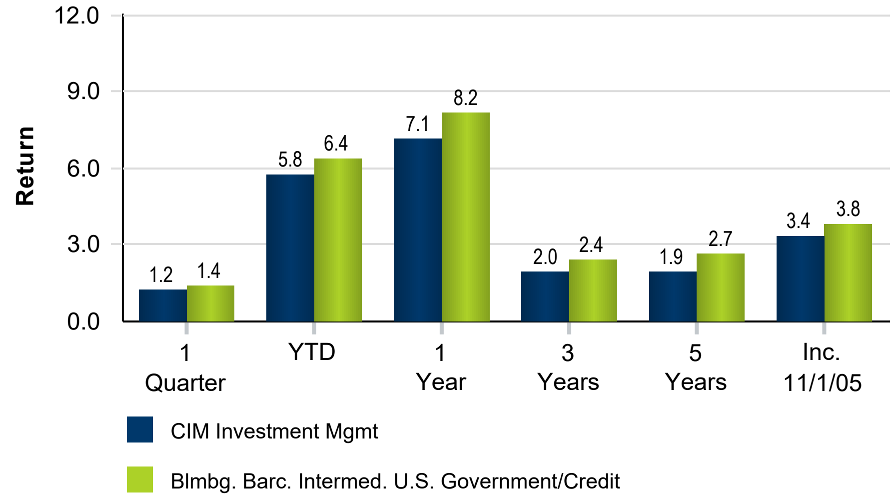
	CIM Investment Mgmt	Blmbg. Barc. Intermed. U.S. Government/Credit
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

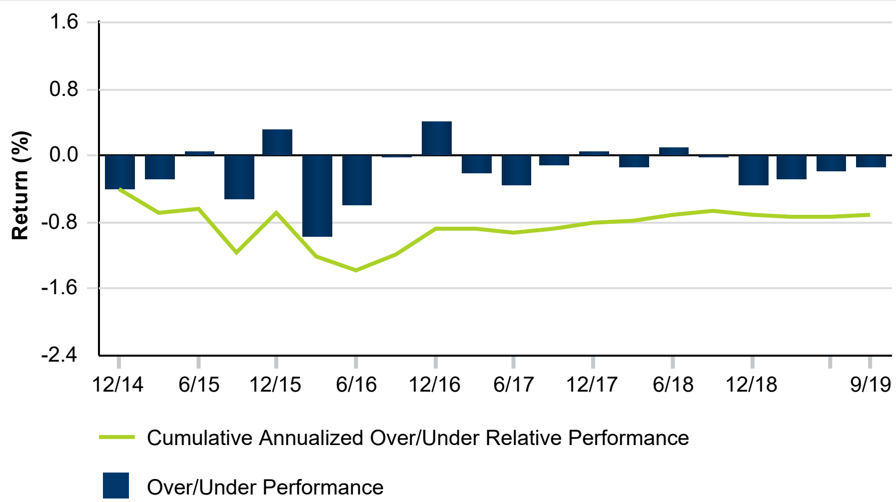
CIM Investment Mgmt vs IM U.S. Intermediate Duration (SA+CF)

Periods Ended September 30, 2019

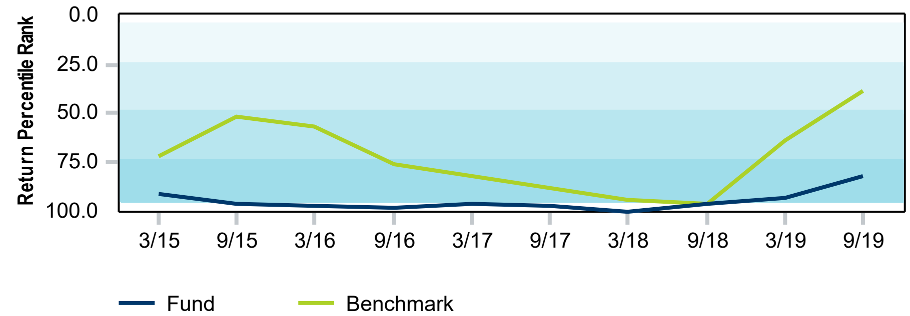
Comparative Performance



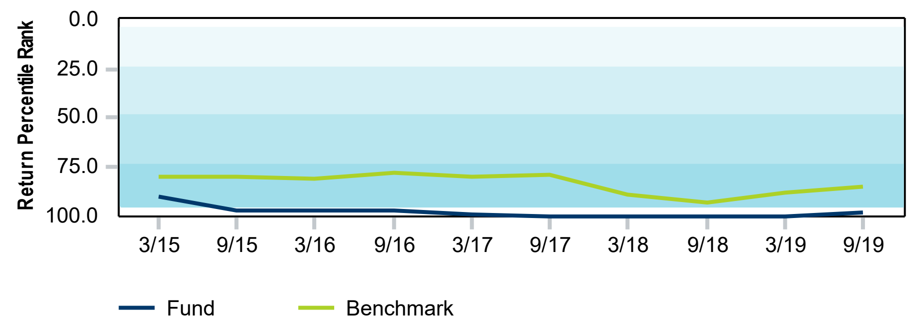
Relative Performance



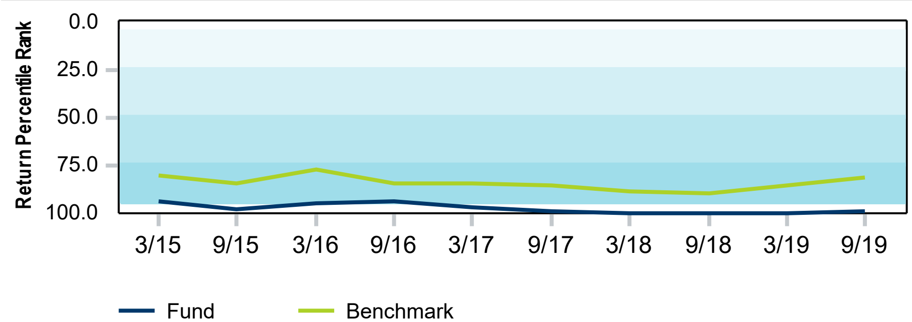
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

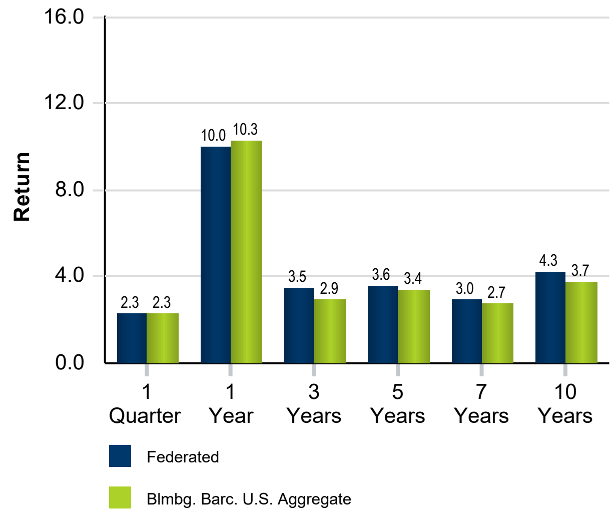


Performance Summary

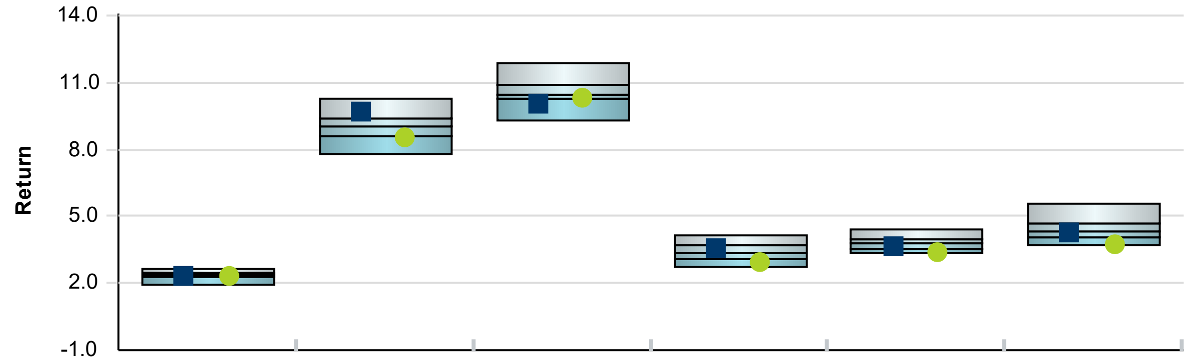
Federated

Periods Ended September 30, 2019

Comparative Performance

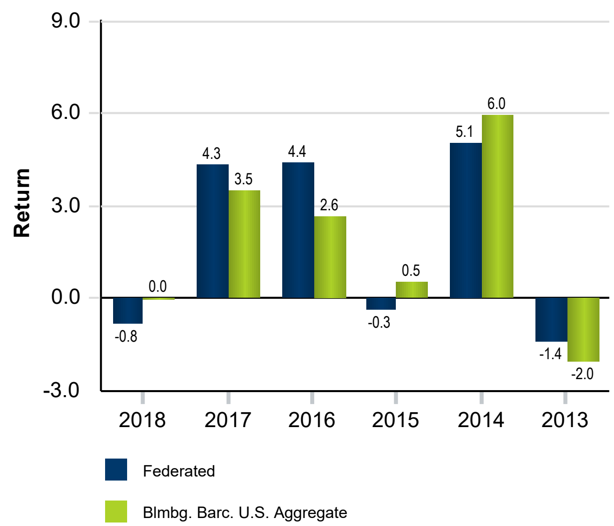


Peer Group Analysis: IM U.S. Broad Market Core Fixed Income (SA+CF)

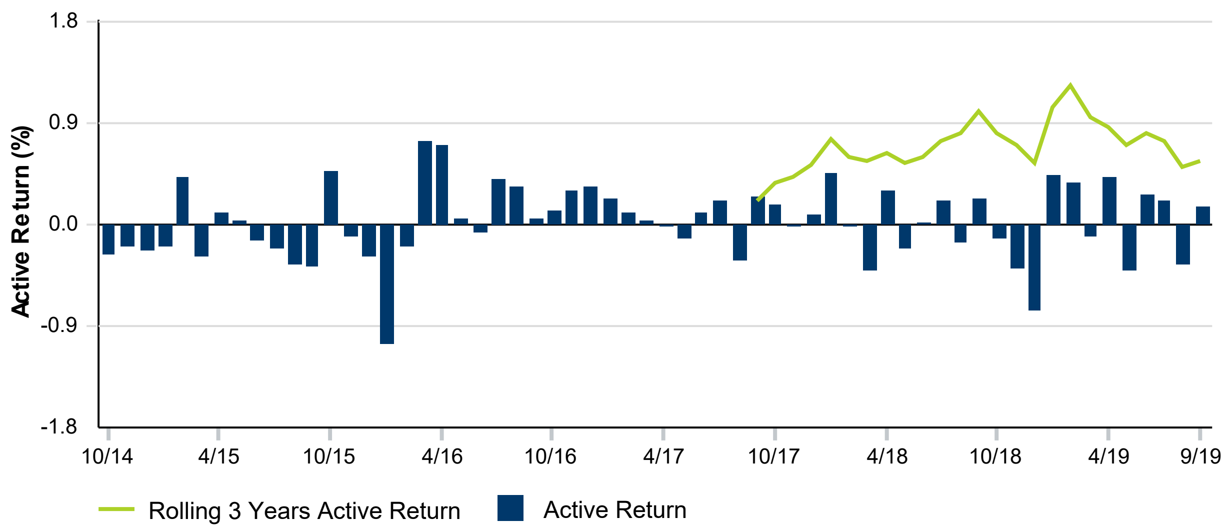


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	2.30 (62)	9.63 (15)	10.01 (82)	3.51 (38)	3.61 (67)	4.26 (59)
Benchmark	2.27 (72)	8.52 (82)	10.30 (69)	2.92 (90)	3.38 (91)	3.75 (92)
Median	2.34	9.01	10.48	3.35	3.75	4.36

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Federated

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Federated	Blmbg. Barc. U.S. Aggregate
Maximum Return	2.24	2.59
Minimum Return	-0.91	-0.79
Return	10.01	10.30
Cumulative Return	10.01	10.30
Active Return	-0.27	0.00
Excess Return	7.27	7.55

Risk Summary Statistics

	Federated	Blmbg. Barc. U.S. Aggregate
Upside Risk	1.17	1.29
Downside Risk	0.98	0.95
Beta	0.81	1.00

Risk/Return Summary Statistics

	Federated	Blmbg. Barc. U.S. Aggregate
Standard Deviation	3.10	3.57
Alpha	1.62	0.00
Active Return/Risk	-0.09	0.00
Tracking Error	1.31	0.00
Information Ratio	-0.21	
Sharpe Ratio	2.38	2.14

Correlation Statistics

	Federated	Blmbg. Barc. U.S. Aggregate
R-Squared	0.87	1.00
Actual Correlation	0.93	1.00

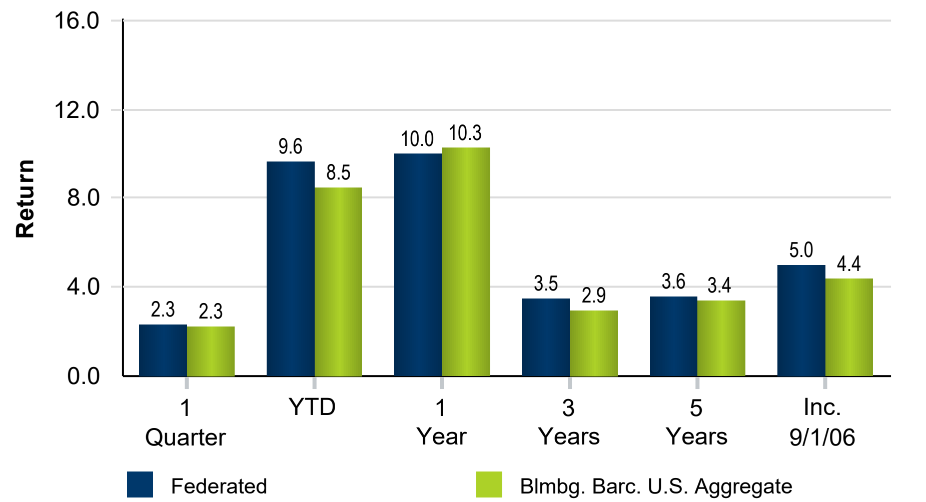
Wilshire Consulting

Manager Summary

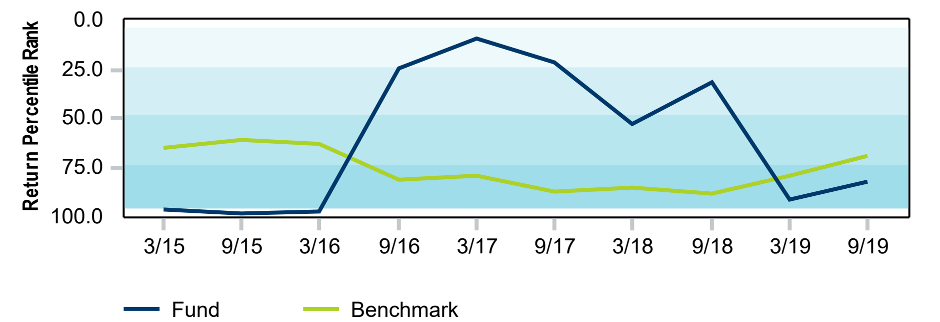
Federated vs IM U.S. Broad Market Core Fixed Income (SA+CF)

Periods Ended September 30, 2019

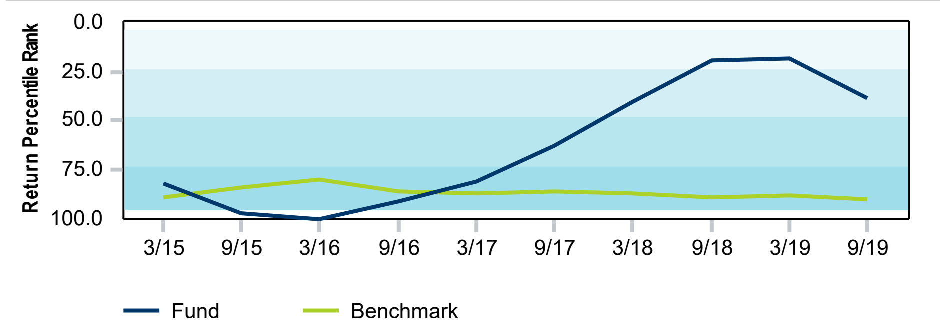
Comparative Performance



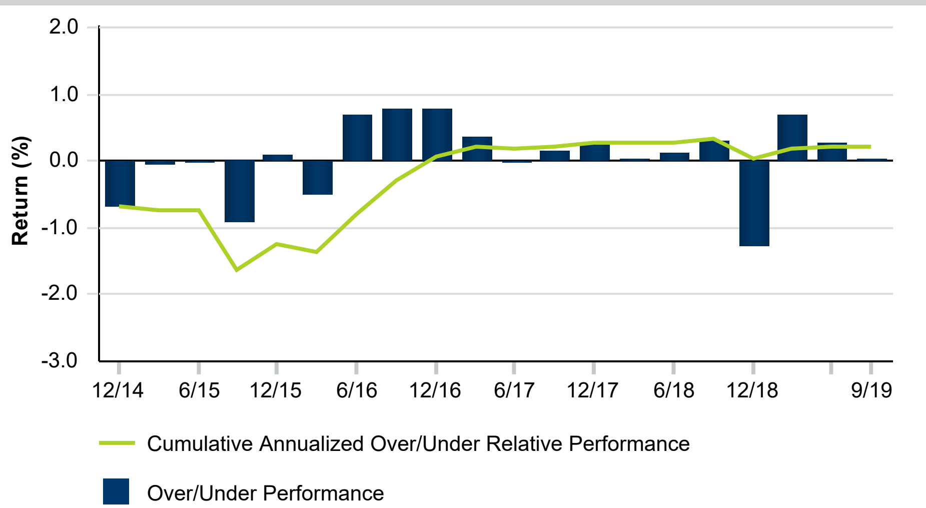
1 Year Rolling Percentile Ranking



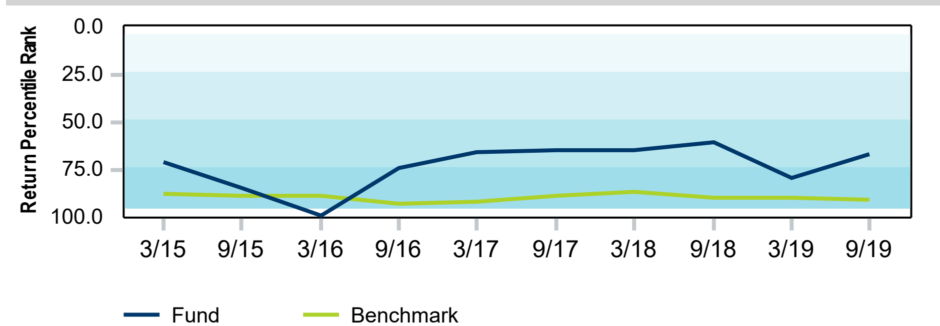
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

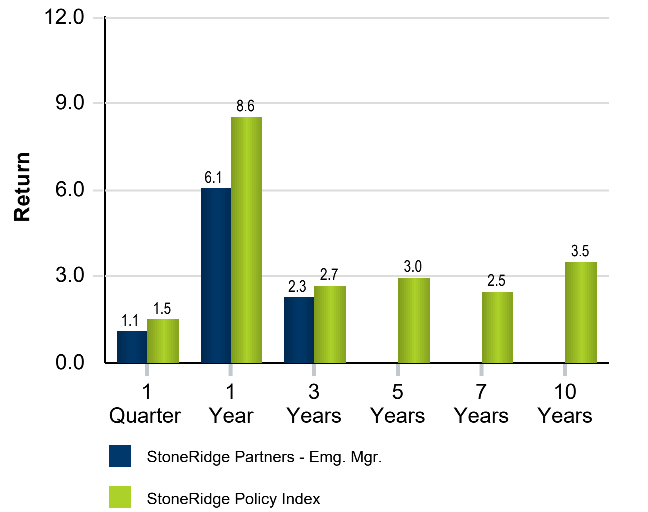


Performance Summary

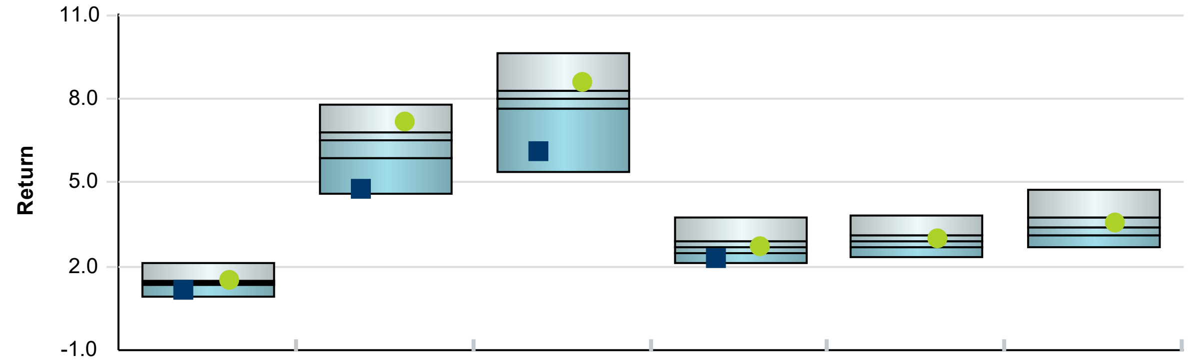
StoneRidge Partners - Emg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

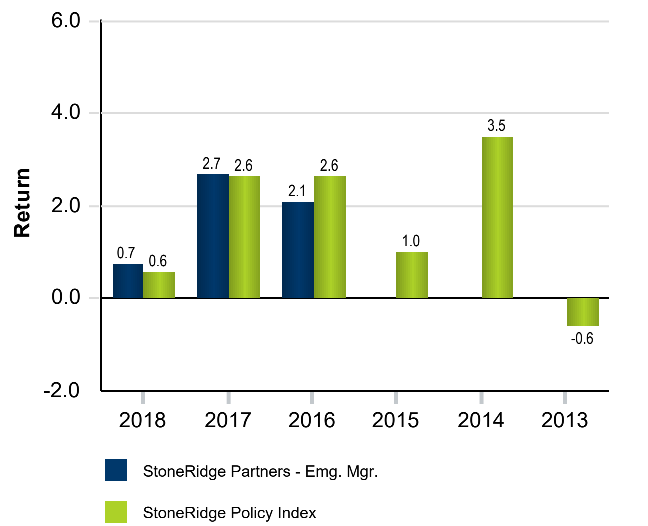


Peer Group Analysis: IM U.S. Intermediate Duration (SA+CF)

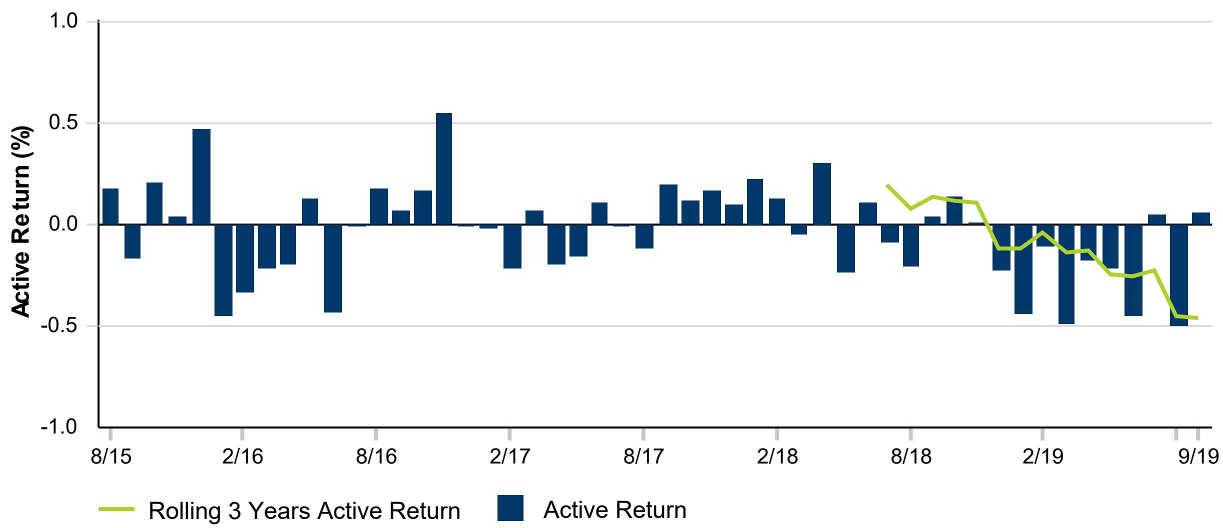


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.10 (88)	4.77 (95)	6.08 (92)	2.27 (93)		
Benchmark	1.49 (30)	7.14 (16)	8.57 (13)	2.72 (45)	2.95 (48)	3.52 (43)
Median	1.42	6.51	7.99	2.68	2.93	3.40

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

StoneRidge Partners - Emg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	StoneRidge Partners - Emg. Mgr.	StoneRidge Policy Index
Maximum Return	1.26	1.76
Minimum Return	-0.26	-0.32
Return	6.08	8.57
Cumulative Return	6.08	8.57
Active Return	-2.34	0.00
Excess Return	3.58	5.92

Risk Summary Statistics

	StoneRidge Partners - Emg. Mgr.	StoneRidge Policy Index
Upside Risk	0.69	0.96
Downside Risk	0.28	0.39
Beta	0.70	1.00

Risk/Return Summary Statistics

	StoneRidge Partners - Emg. Mgr.	StoneRidge Policy Index
Standard Deviation	1.69	2.37
Alpha	0.11	0.00
Active Return/Risk	-1.38	0.00
Tracking Error	0.77	0.00
Information Ratio	-3.06	
Sharpe Ratio	2.17	2.56

Correlation Statistics

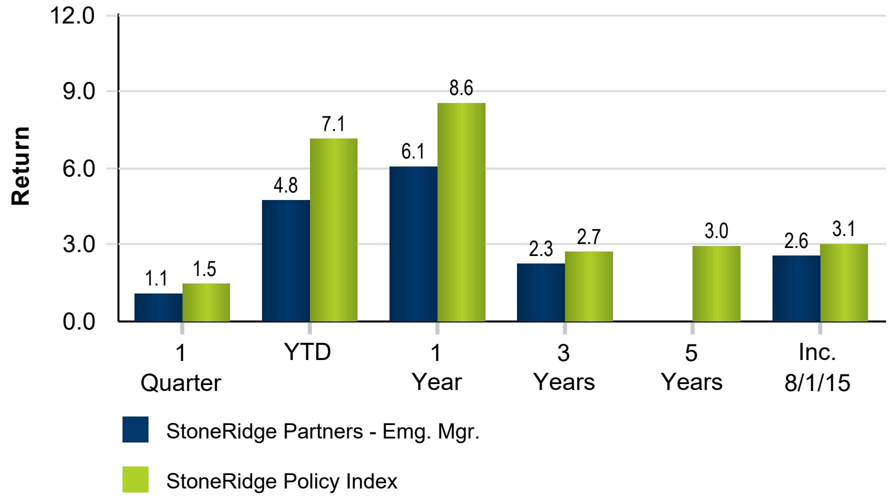
	StoneRidge Partners - Emg. Mgr.	StoneRidge Policy Index
R-Squared	0.97	1.00
Actual Correlation	0.98	1.00

Manager Summary

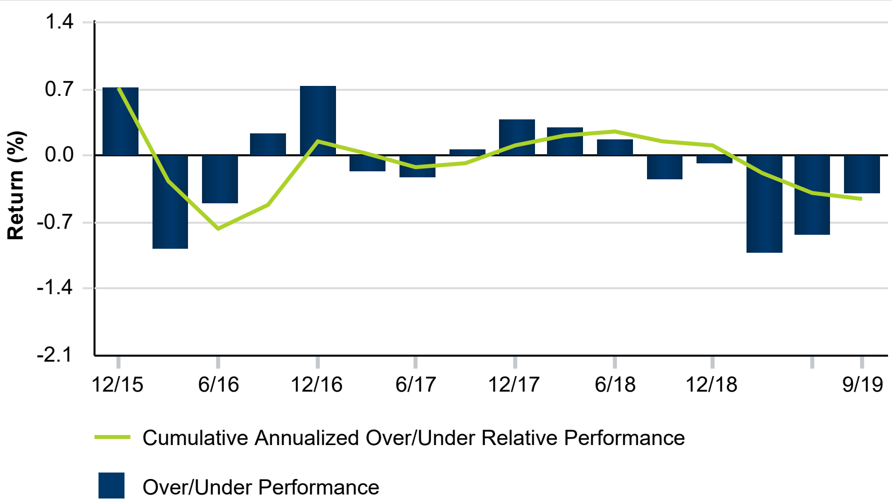
StoneRidge Partners - Emg. Mgr. vs IM U.S. Intermediate Duration (SA+CF)

Periods Ended September 30, 2019

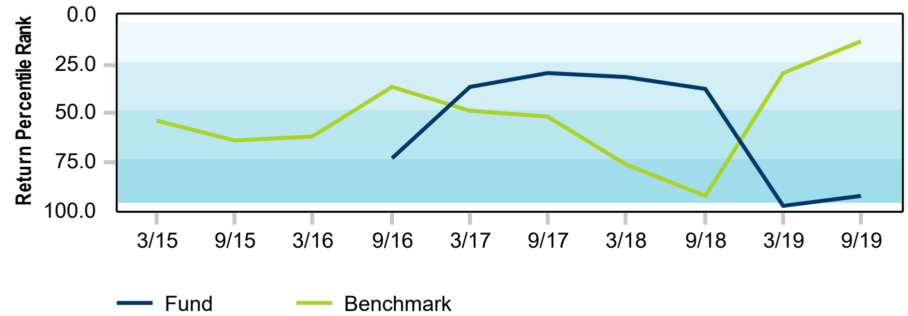
Comparative Performance



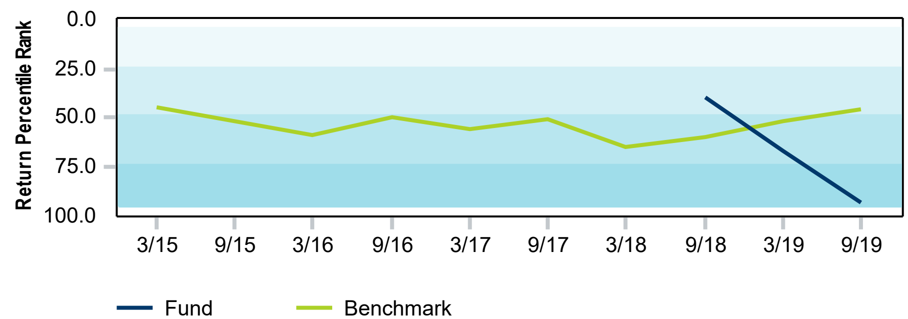
Relative Performance



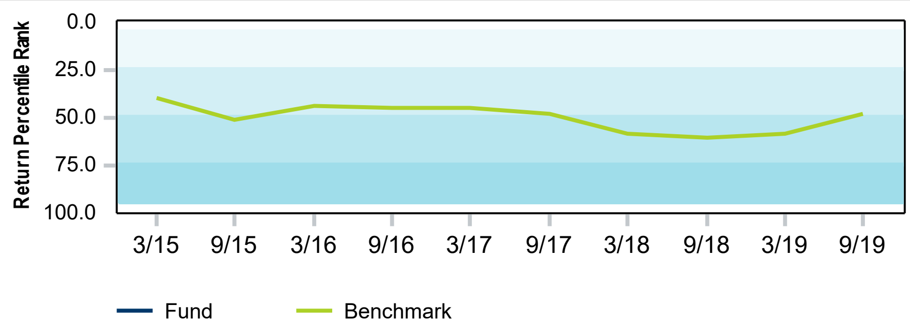
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



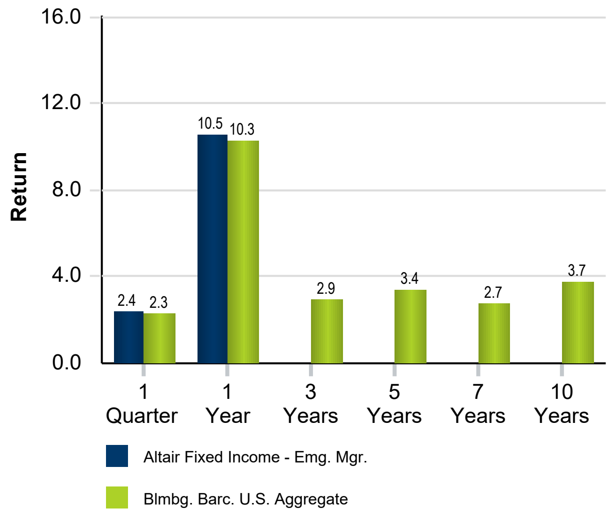
Wilshire Consulting

Performance Summary

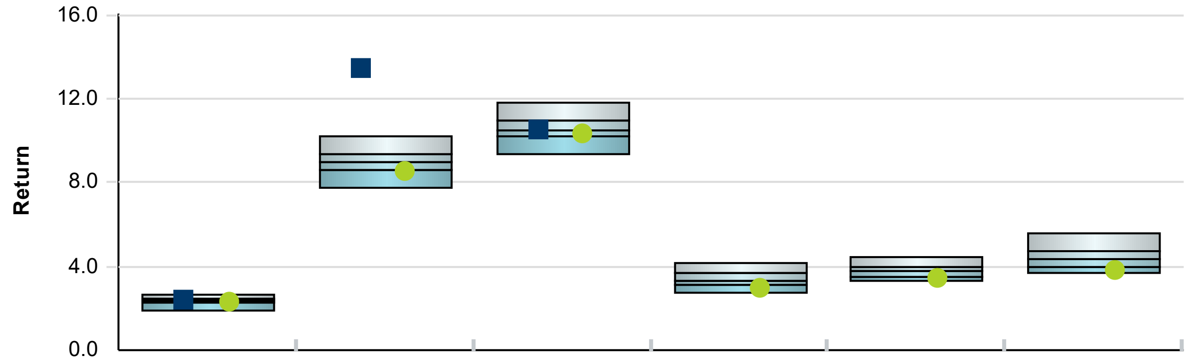
Altair Fixed Income - Emg. Mgr.

Periods Ended September 30, 2019

Comparative Performance

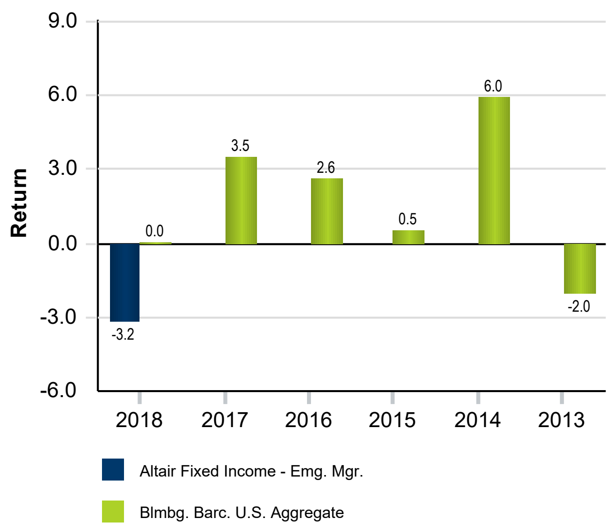


Peer Group Analysis: IM U.S. Broad Market Core Fixed Income (SA+CF)

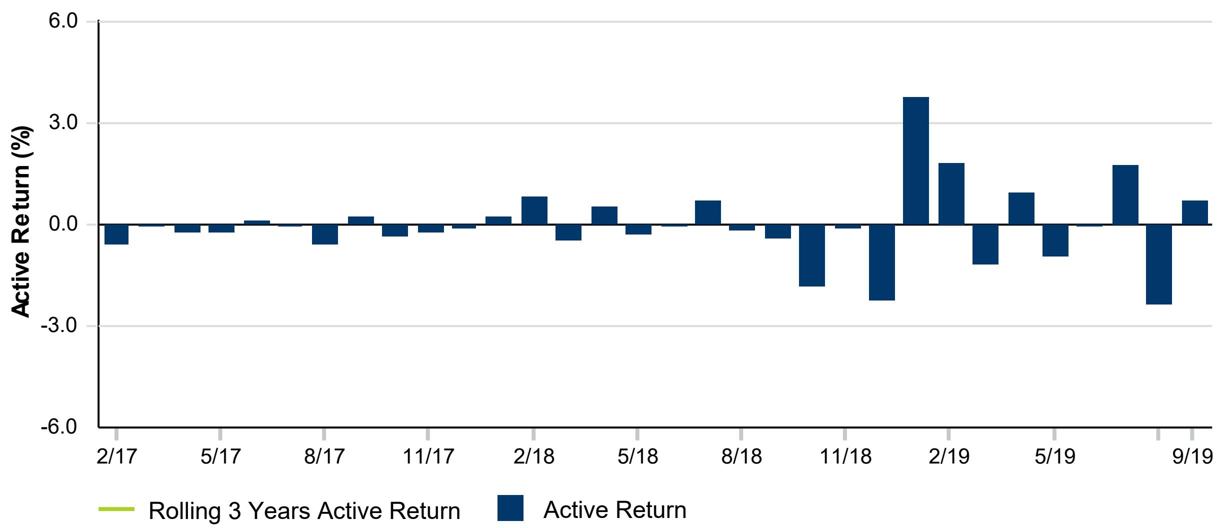


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	2.39 (38)	13.42 (1)	10.53 (46)			
Benchmark	2.27 (72)	8.52 (82)	10.30 (69)	2.92 (90)	3.38 (91)	3.75 (92)
Median	2.34	9.01	10.48	3.35	3.75	4.36

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Altair Fixed Income - Emg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Altair Fixed Income - Emg. Mgr.	Blmbg. Barc. U.S. Aggregate
Maximum Return	4.84	2.59
Minimum Return	-2.62	-0.79
Return	10.53	10.30
Cumulative Return	10.53	10.30
Active Return	0.32	0.00
Excess Return	7.86	7.55

Risk Summary Statistics

	Altair Fixed Income - Emg. Mgr.	Blmbg. Barc. U.S. Aggregate
Upside Risk	1.69	1.29
Downside Risk	2.65	0.95
Beta	0.28	1.00

Risk/Return Summary Statistics

	Altair Fixed Income - Emg. Mgr.	Blmbg. Barc. U.S. Aggregate
Standard Deviation	5.73	3.57
Alpha	7.68	0.00
Active Return/Risk	0.06	0.00
Tracking Error	6.20	0.00
Information Ratio	0.05	
Sharpe Ratio	1.38	2.14

Correlation Statistics

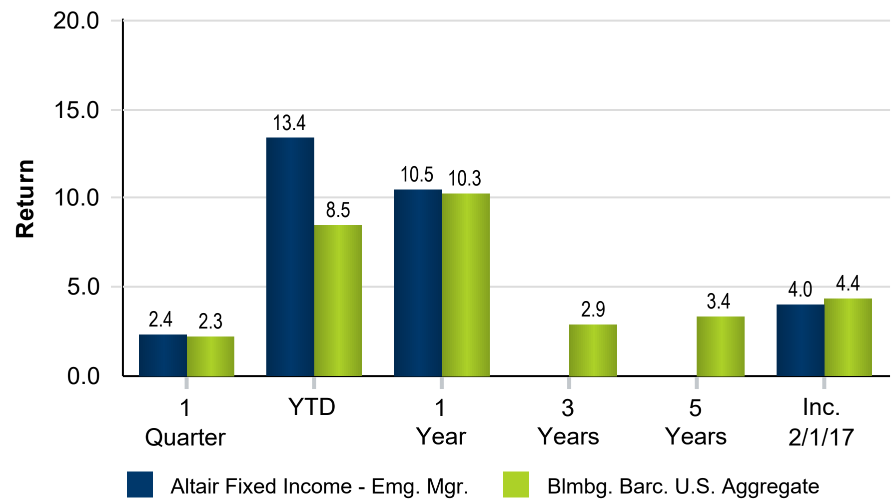
	Altair Fixed Income - Emg. Mgr.	Blmbg. Barc. U.S. Aggregate
R-Squared	0.03	1.00
Actual Correlation	0.18	1.00

Manager Summary

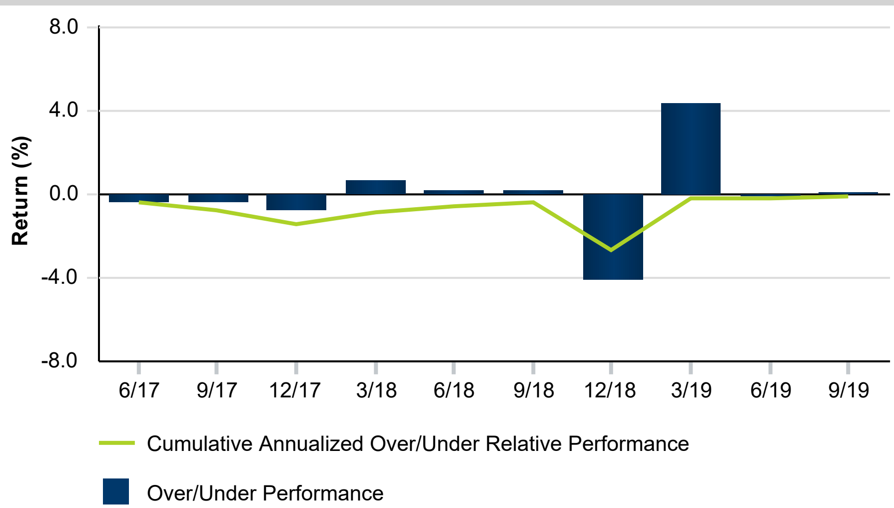
Altair Fixed Income - Emg. Mgr. vs IM U.S. Broad Market Core Fixed Income (SA+C

Periods Ended September 30, 2019

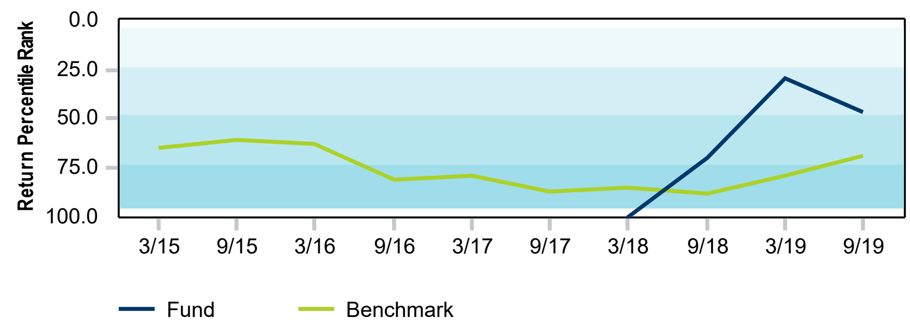
Comparative Performance



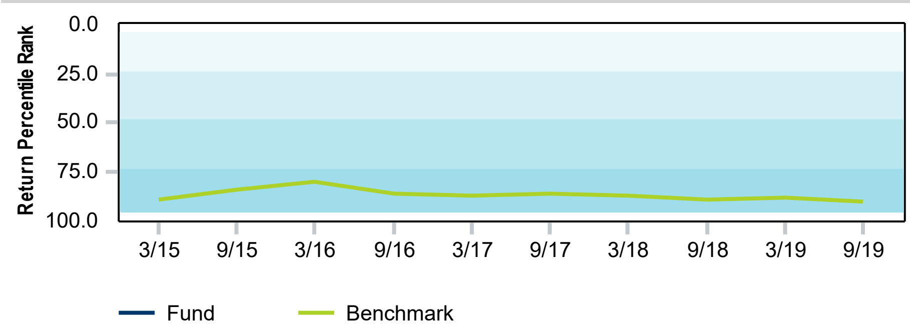
Relative Performance



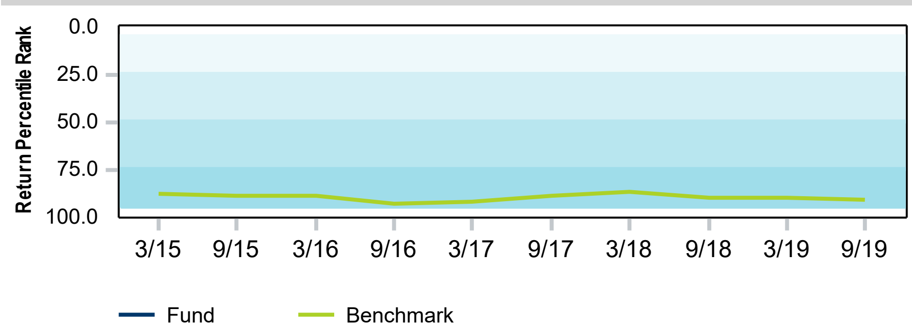
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Summary Statistics

FNB - Emerg. Mgr.

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	FNB - Emerg. Mgr.	Blmbg. Barc. U.S. Intermediate Aggregate
Maximum Return	1.58	1.50
Minimum Return	-0.43	-0.31
Return	7.41	8.08
Cumulative Return	7.41	8.08
Active Return	-0.63	0.00
Excess Return	4.84	5.47

Risk Summary Statistics

	FNB - Emerg. Mgr.	Blmbg. Barc. U.S. Intermediate Aggregate
Upside Risk	0.90	0.92
Downside Risk	0.44	0.38
Beta	0.88	1.00

Risk/Return Summary Statistics

	FNB - Emerg. Mgr.	Blmbg. Barc. U.S. Intermediate Aggregate
Standard Deviation	2.35	2.28
Alpha	0.35	0.00
Active Return/Risk	-0.27	0.00
Tracking Error	1.27	0.00
Information Ratio	-0.50	
Sharpe Ratio	2.10	2.45

Correlation Statistics

	FNB - Emerg. Mgr.	Blmbg. Barc. U.S. Intermediate Aggregate
R-Squared	0.72	1.00
Actual Correlation	0.85	1.00

HIGH YIELD

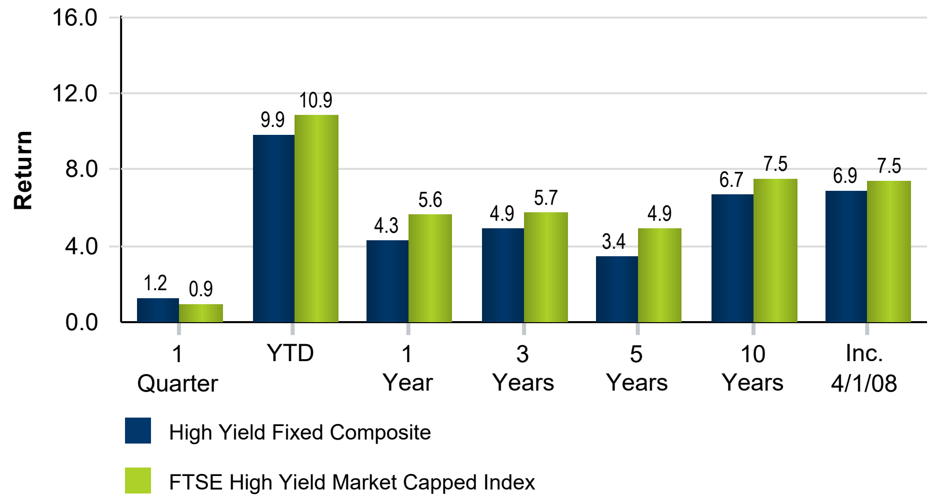
Wilshire Consulting

Composite Performance Summary

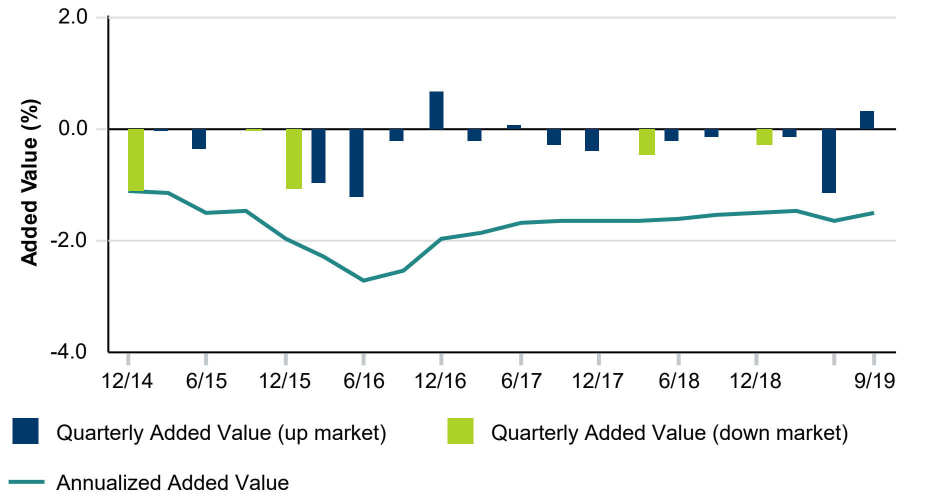
High Yield Fixed Composite

Periods Ended September 30, 2019

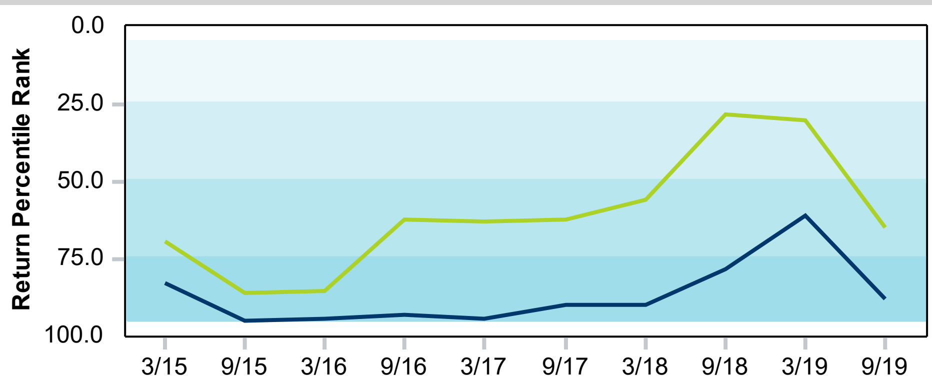
Comparative Performance



Added Value History

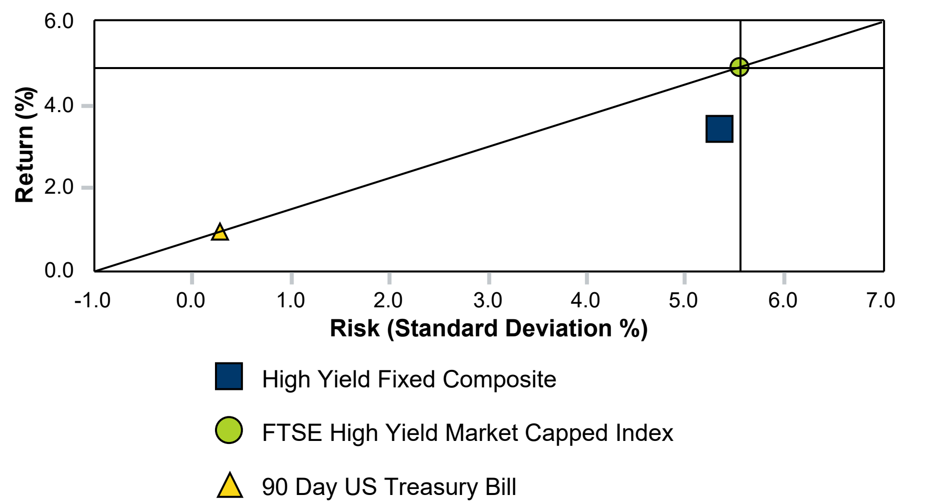


Rolling Percentile Rank: IM U.S. High Yield Bonds (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
High Yield Fixed Composite	10	0 (0%)	0 (0%)	1 (10%)	9 (90%)
Benchmark	10	0 (0%)	2 (20%)	6 (60%)	2 (20%)

Risk and Return 10/1/14 - 09/30/19



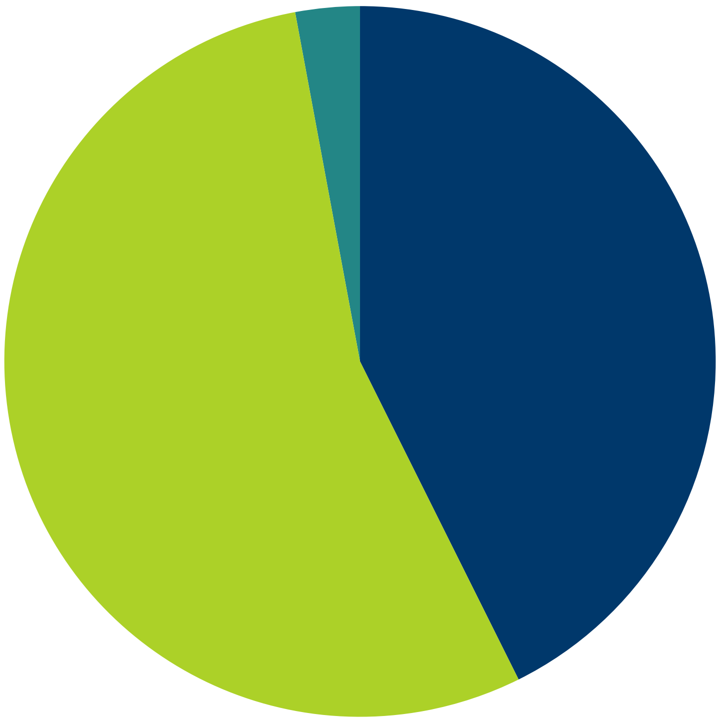
Wilshire Consulting

Asset Allocation By Manager

High Yield Fixed Composite

Periods Ended September 30, 2019

Sep-2019 : 111,554,930



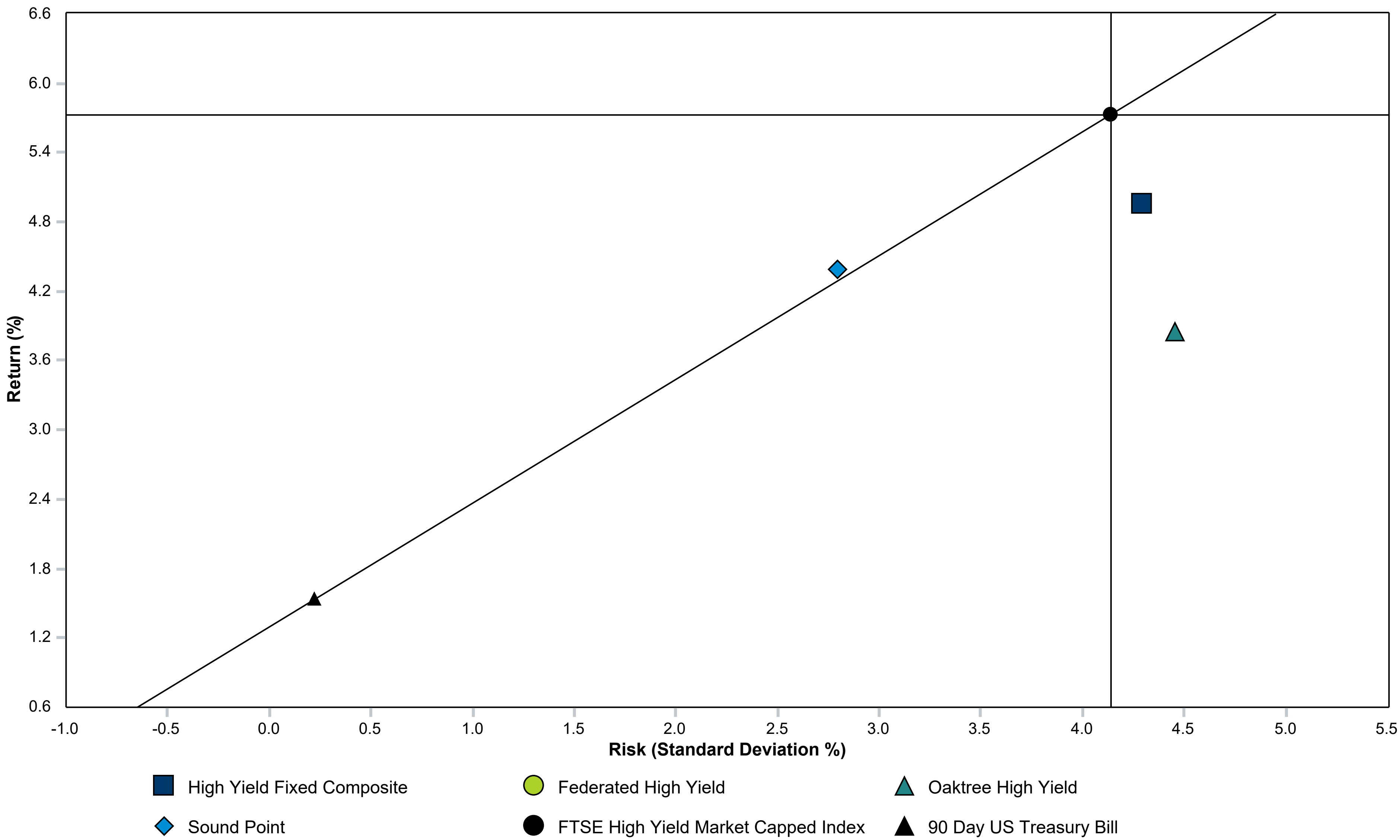
	Market Value $	Allocation (%)
Federated High Yield	47,574,622	42.6
Oaktree High Yield	60,718,489	54.4
Sound Point	3,261,819	2.9

Wilshire Consulting

Risk vs. Return

High Yield Fixed Composite

Periods Ended 3 Years Ending September 30, 2019



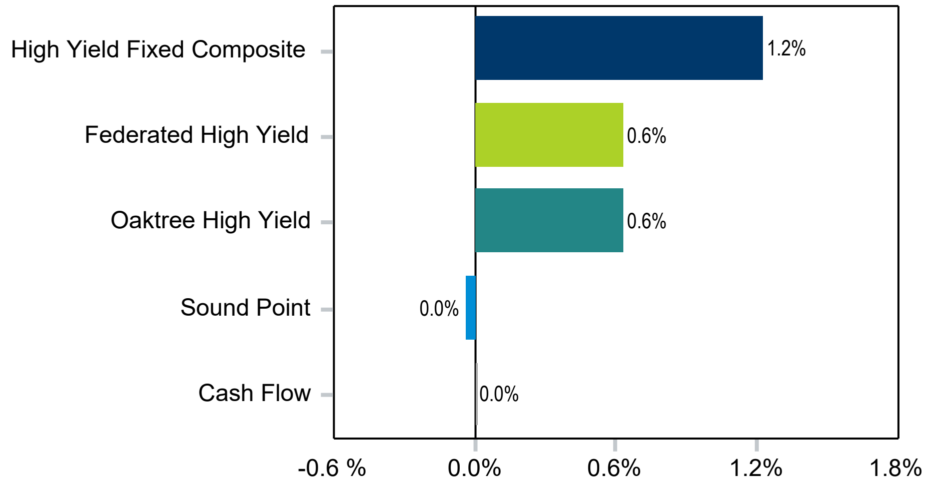
Calculation based on monthly periodicity.

Return and Risk Contribution

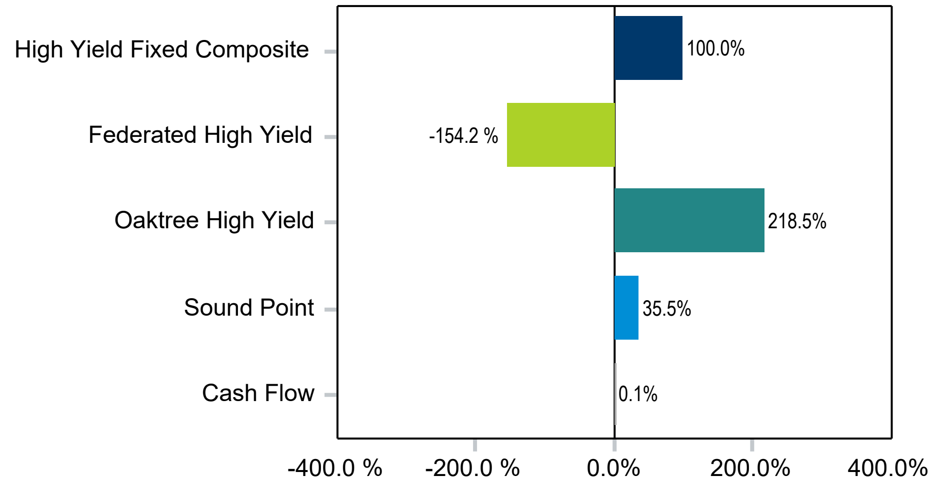
High Yield Fixed Composite

Periods Ended September 30, 2019

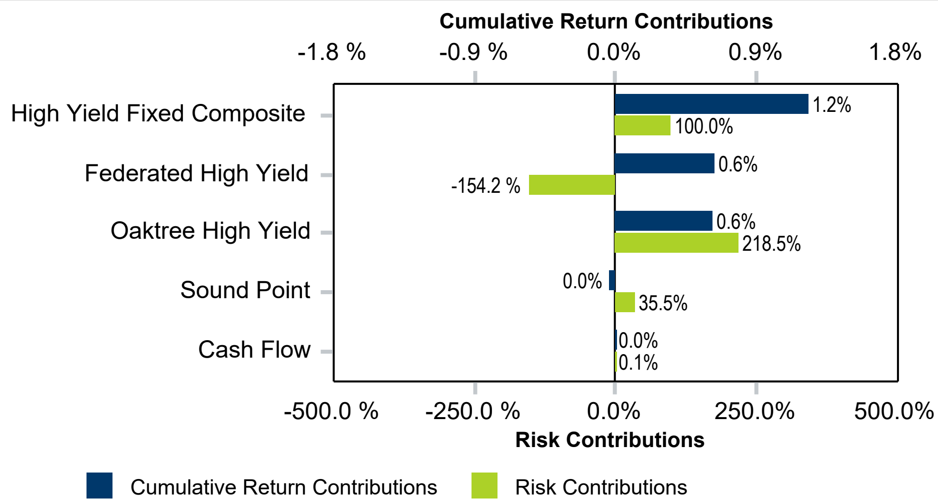
Cumulative Return Contributions



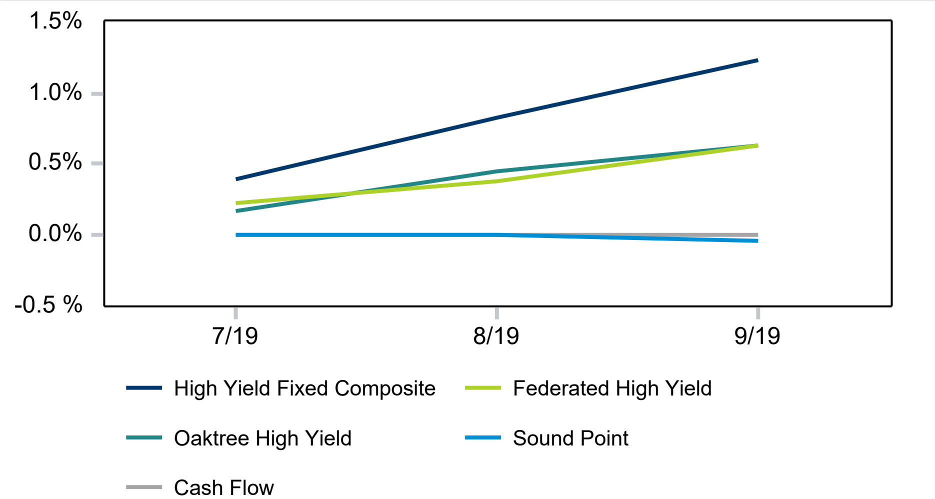
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History



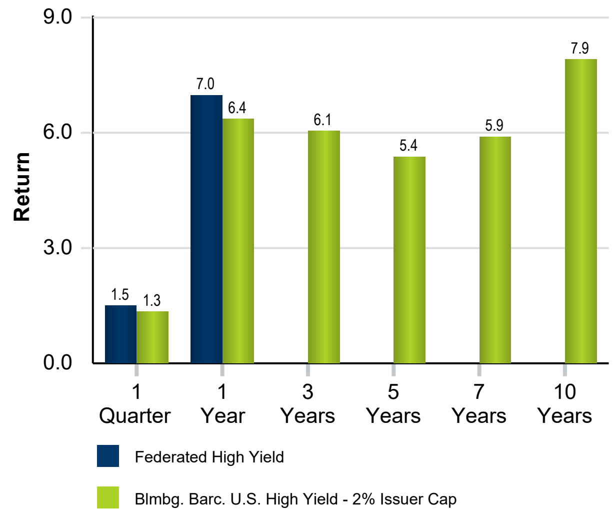
Wilshire Consulting

Performance Summary

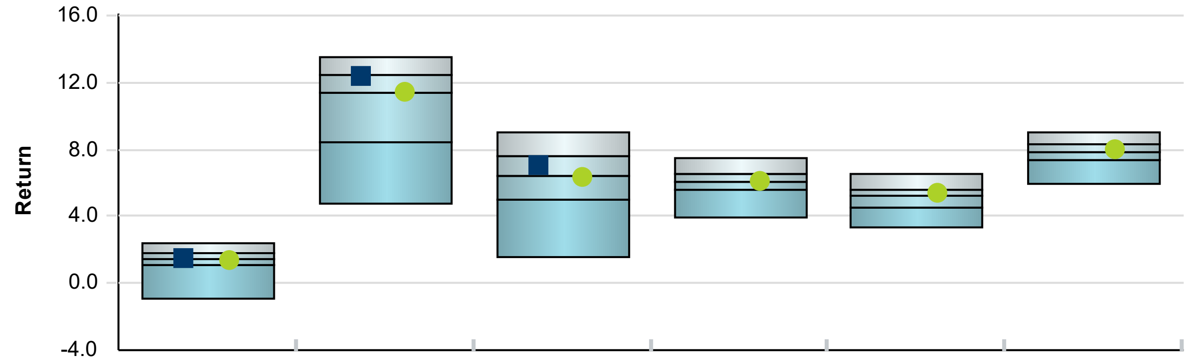
Federated High Yield

Periods Ended September 30, 2019

Comparative Performance

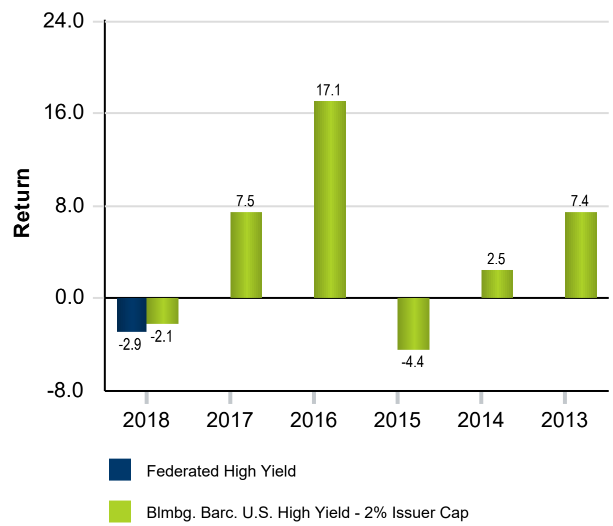


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

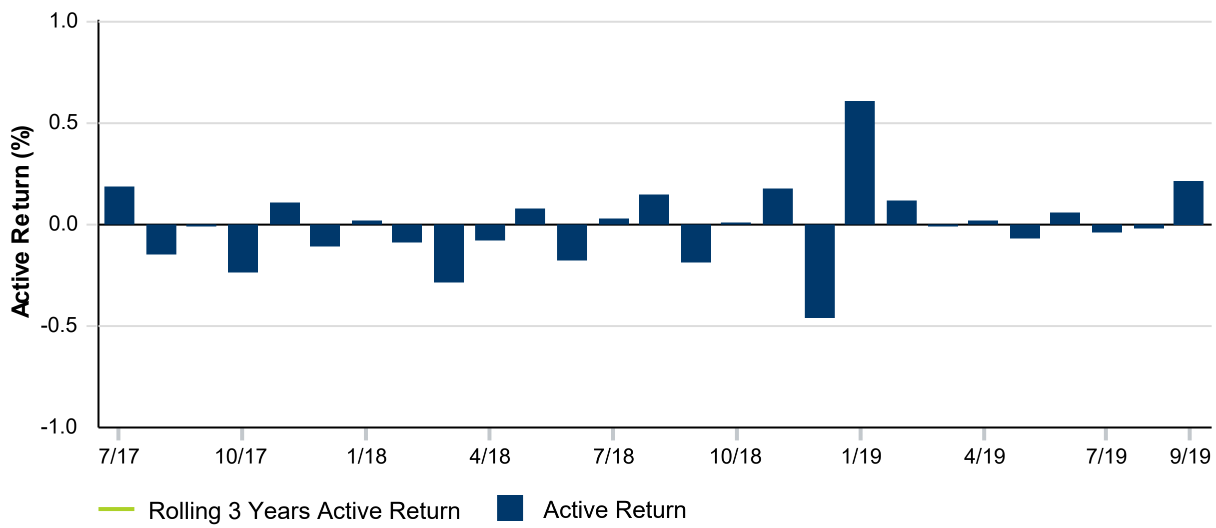


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.50 (45)	12.37 (26)	6.97 (40)			
Benchmark	1.33 (60)	11.41 (51)	6.35 (52)	6.07 (51)	5.38 (43)	7.92 (48)
Median	1.45	11.43	6.43	6.08	5.18	7.88

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Federated High Yield

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Federated High Yield	Blmbg. Barc. U.S. High Yield - 2% Issuer Cap
Maximum Return	5.13	4.52
Minimum Return	-2.61	-2.14
Return	6.97	6.35
Cumulative Return	6.97	6.35
Active Return	0.62	0.00
Excess Return	4.62	4.00

Risk Summary Statistics

	Federated High Yield	Blmbg. Barc. U.S. High Yield - 2% Issuer Cap
Upside Risk	1.79	1.63
Downside Risk	3.37	3.05
Beta	1.10	1.00

Risk/Return Summary Statistics

	Federated High Yield	Blmbg. Barc. U.S. High Yield - 2% Issuer Cap
Standard Deviation	6.78	6.15
Alpha	-0.01	0.00
Active Return/Risk	0.09	0.00
Tracking Error	0.81	0.00
Information Ratio	0.76	
Sharpe Ratio	0.68	0.65

Correlation Statistics

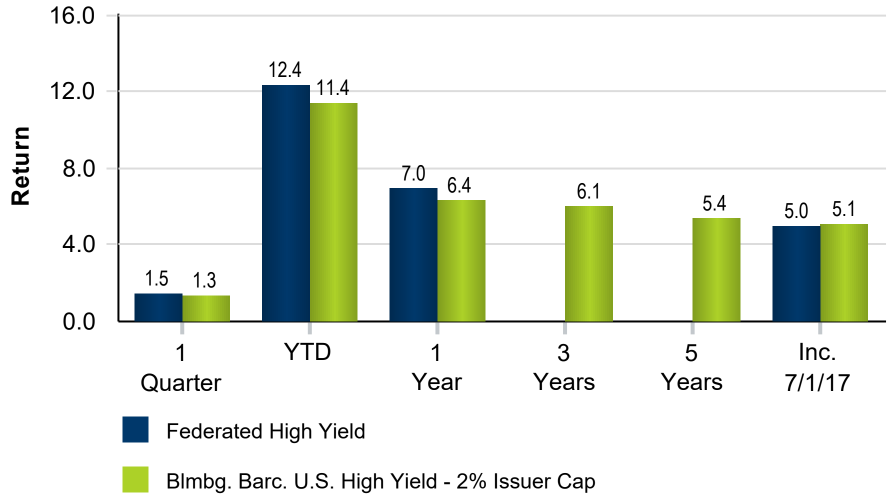
	Federated High Yield	Blmbg. Barc. U.S. High Yield - 2% Issuer Cap
R-Squared	0.99	1.00
Actual Correlation	1.00	1.00

Manager Summary

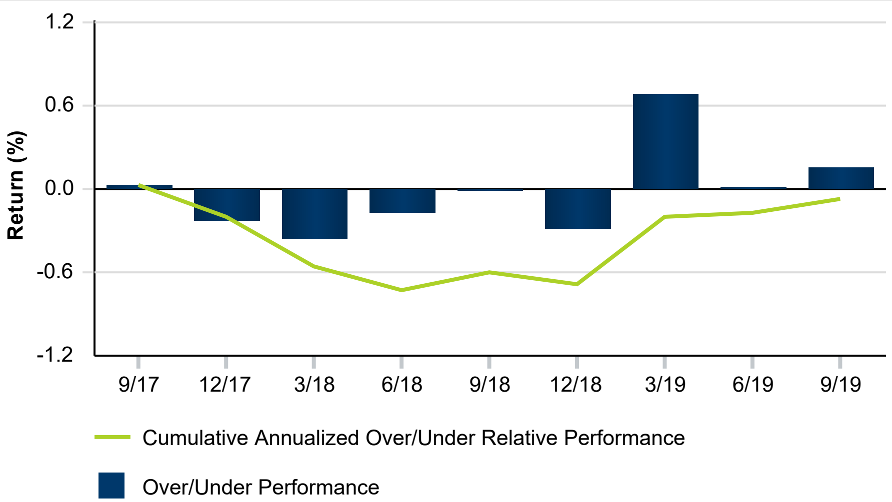
Federated High Yield vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended September 30, 2019

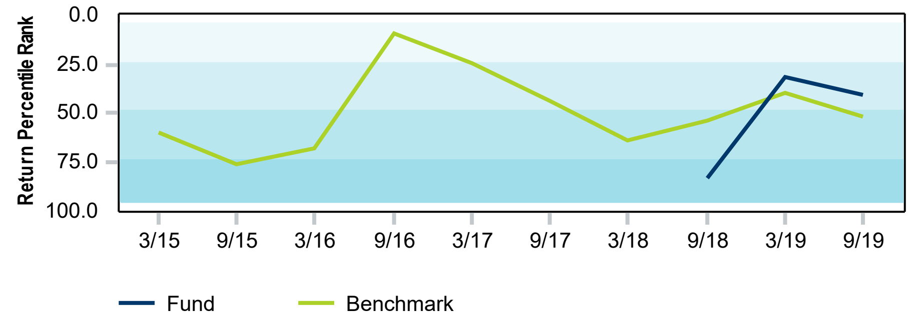
Comparative Performance



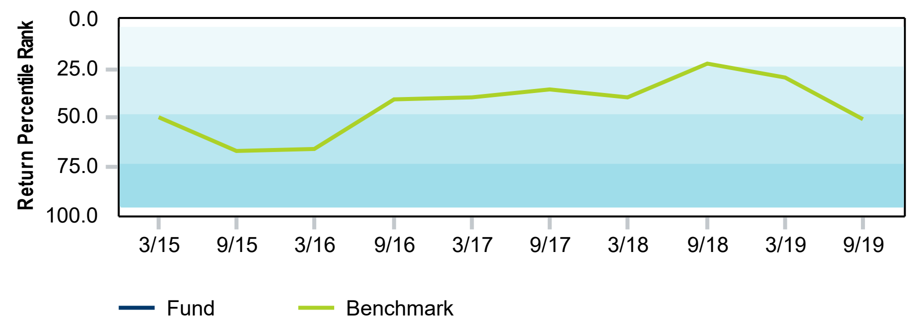
Relative Performance



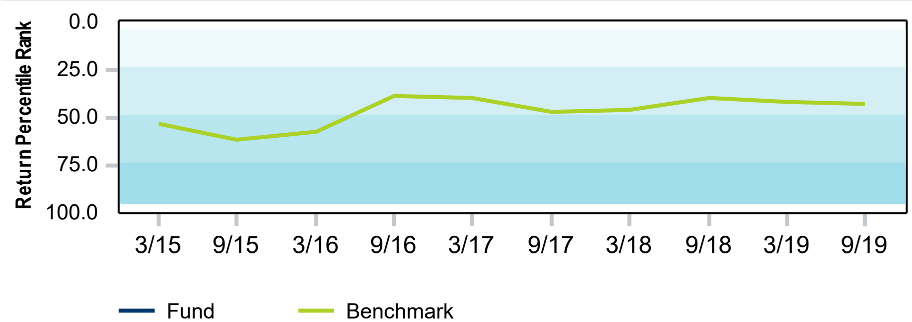
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



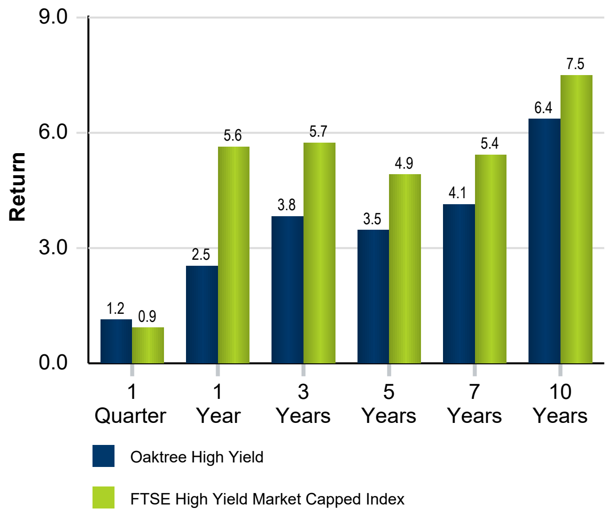
Wilshire Consulting

Performance Summary

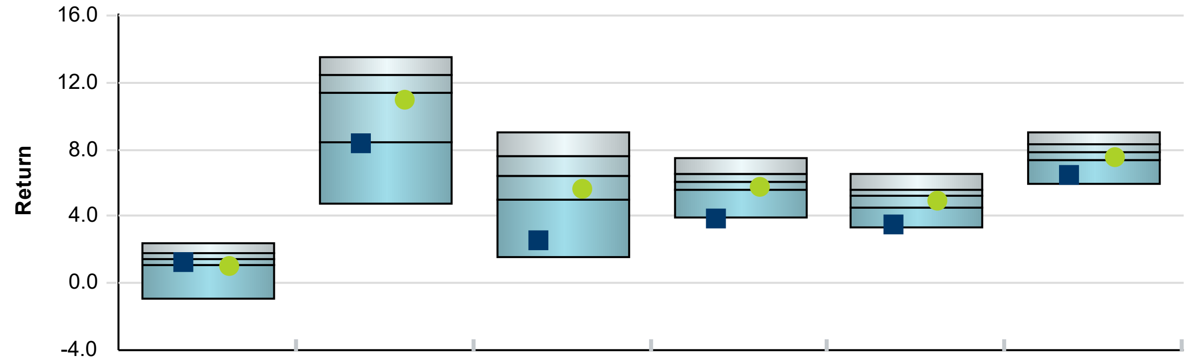
Oaktree High Yield

Periods Ended September 30, 2019

Comparative Performance

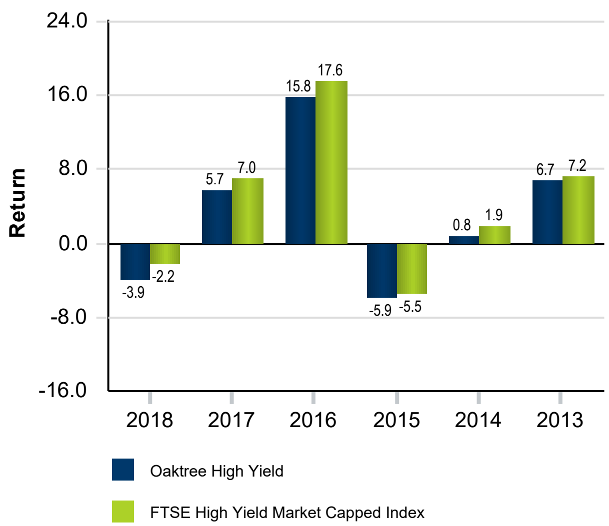


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

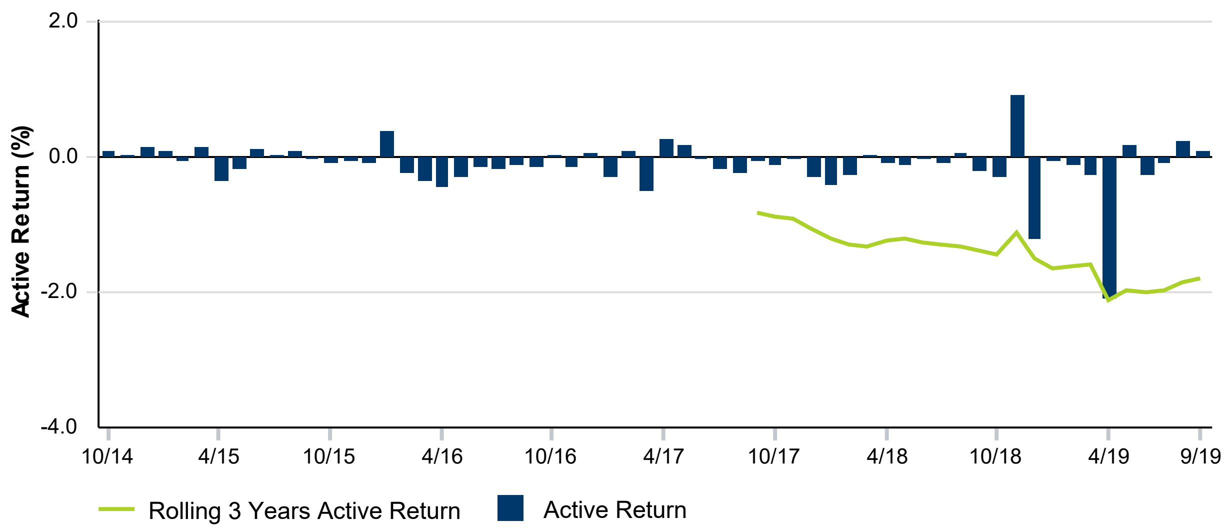


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.16 (74)	8.34 (76)	2.52 (92)	3.85 (96)	3.46 (95)	6.36 (93)
Benchmark	0.92 (81)	10.89 (57)	5.64 (68)	5.73 (65)	4.91 (64)	7.51 (71)
Median	1.45	11.43	6.43	6.08	5.18	7.88

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Oaktree High Yield

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Oaktree High Yield	FTSE High Yield Market Capped Index
Maximum Return	4.63	4.68
Minimum Return	-3.53	-2.32
Return	2.52	5.64
Cumulative Return	2.52	5.64
Active Return	-2.97	0.00
Excess Return	0.37	3.34

Risk Summary Statistics

	Oaktree High Yield	FTSE High Yield Market Capped Index
Upside Risk	1.56	1.66
Downside Risk	4.25	3.26
Beta	0.99	1.00

Risk/Return Summary Statistics

	Oaktree High Yield	FTSE High Yield Market Capped Index
Standard Deviation	6.82	6.41
Alpha	-2.88	0.00
Active Return/Risk	-0.44	0.00
Tracking Error	2.49	0.00
Information Ratio	-1.19	
Sharpe Ratio	0.05	0.52

Correlation Statistics

	Oaktree High Yield	FTSE High Yield Market Capped Index
R-Squared	0.87	1.00
Actual Correlation	0.93	1.00

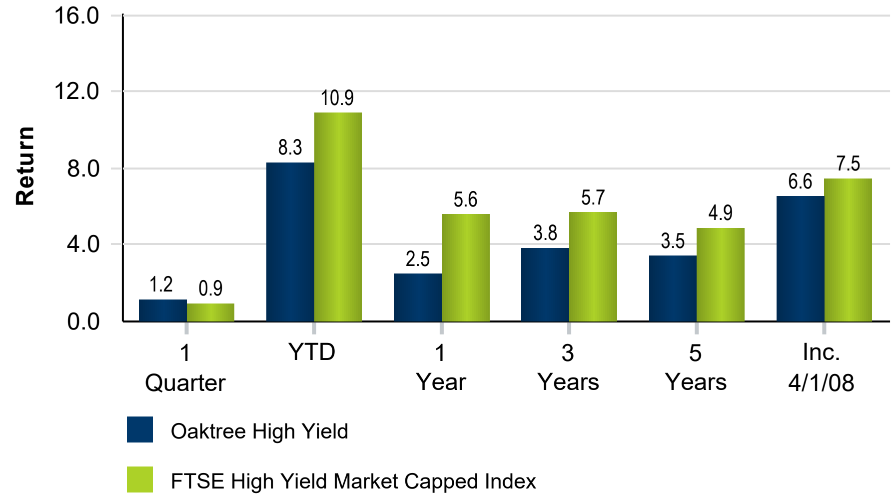
Wilshire Consulting

Manager Summary

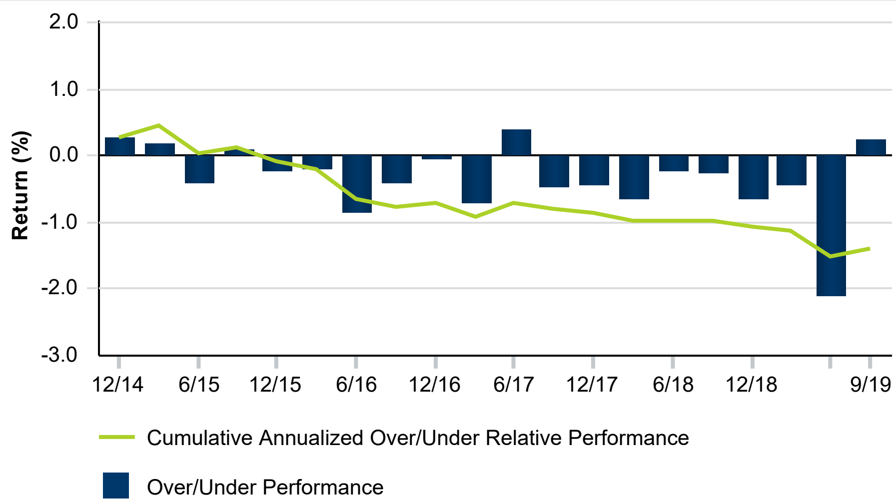
Oaktree High Yield vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended September 30, 2019

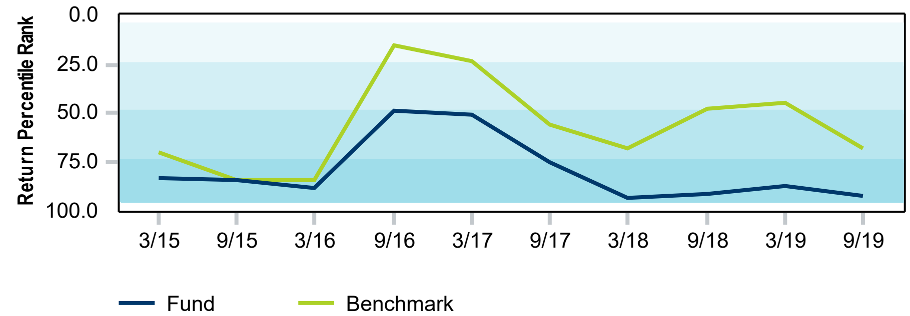
Comparative Performance



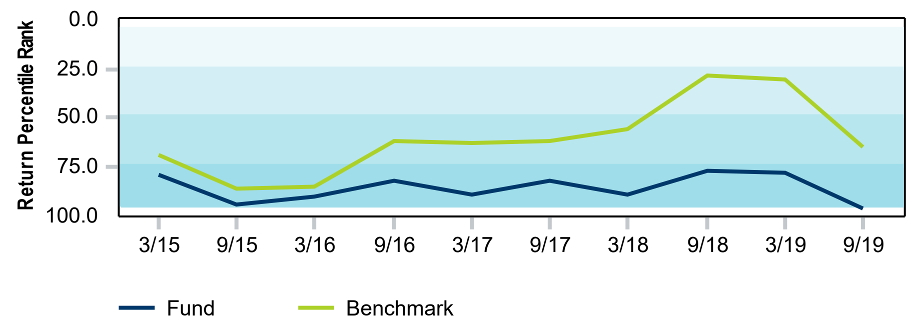
Relative Performance



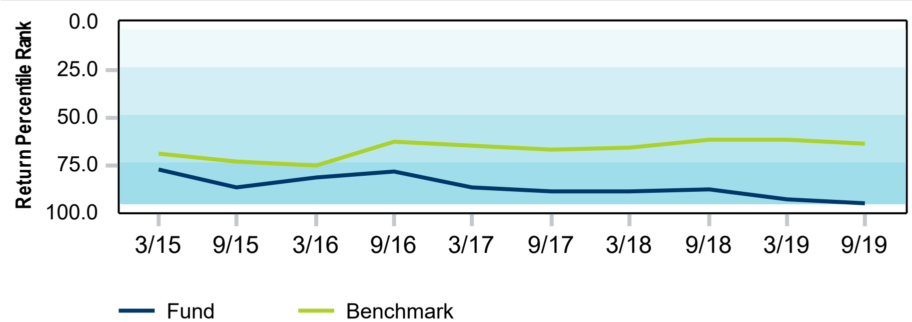
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

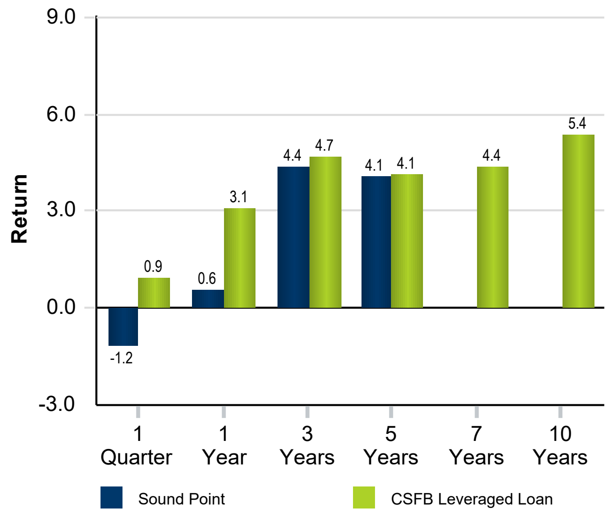


Performance Summary

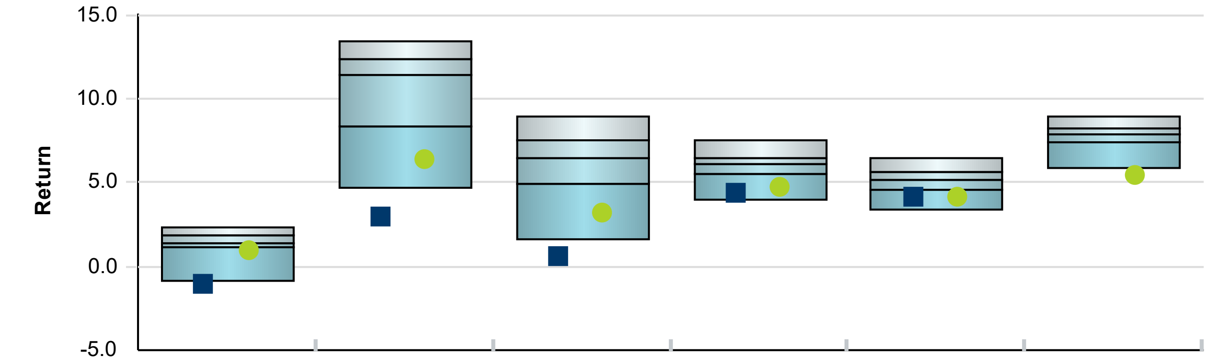
Sound Point

Periods Ended September 30, 2019

Comparative Performance

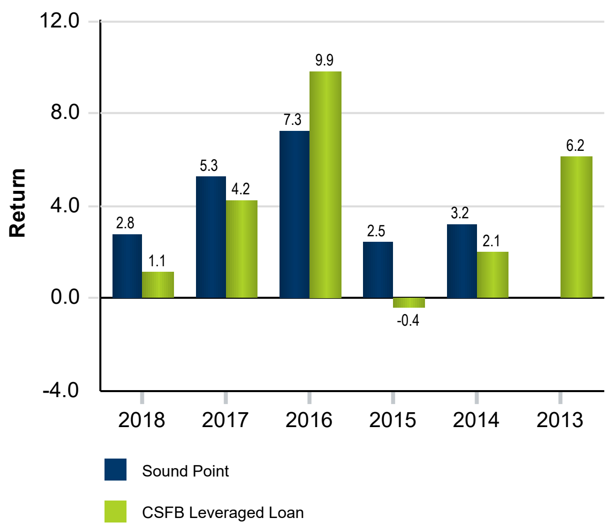


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

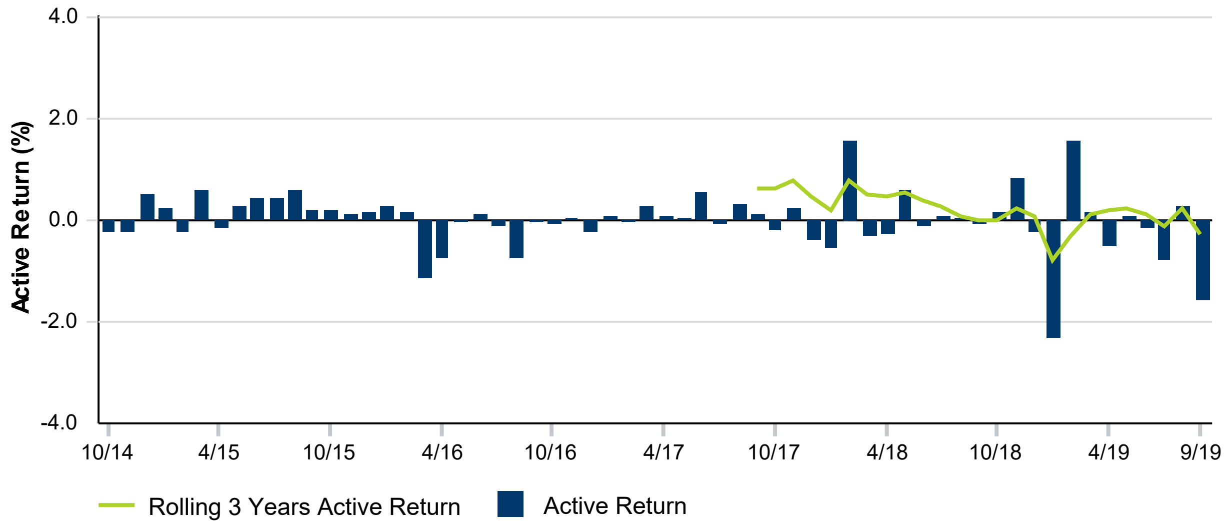


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-1.15 (97)	2.99 (98)	0.56 (97)	4.39 (93)	4.10 (87)	
Benchmark	0.92 (81)	6.39 (88)	3.11 (89)	4.68 (90)	4.11 (87)	5.38 (97)
Median	1.45	11.43	6.43	6.08	5.18	7.88

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Sound Point

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Sound Point	CSFB Leveraged Loan
Maximum Return	3.14	2.30
Minimum Return	-2.52	-2.29
Return	0.56	3.11
Cumulative Return	0.56	3.11
Active Return	-2.50	0.00
Excess Return	-1.70	0.79

Risk Summary Statistics

	Sound Point	CSFB Leveraged Loan
Upside Risk	0.96	0.96
Downside Risk	2.78	2.46
Beta	0.72	1.00

Risk/Return Summary Statistics

	Sound Point	CSFB Leveraged Loan
Standard Deviation	4.33	4.04
Alpha	-1.61	0.00
Active Return/Risk	-0.58	0.00
Tracking Error	3.39	0.00
Information Ratio	-0.74	
Sharpe Ratio	-0.39	0.20

Correlation Statistics

	Sound Point	CSFB Leveraged Loan
R-Squared	0.45	1.00
Actual Correlation	0.67	1.00

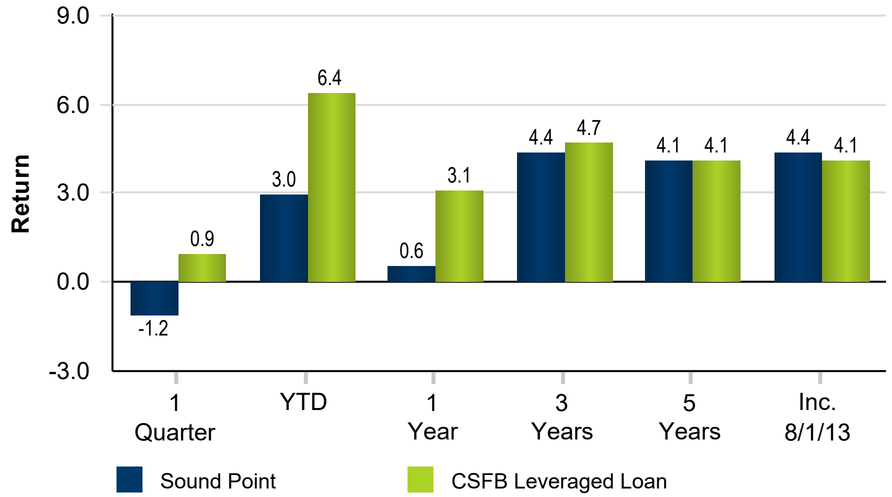
Wilshire Consulting

Manager Summary

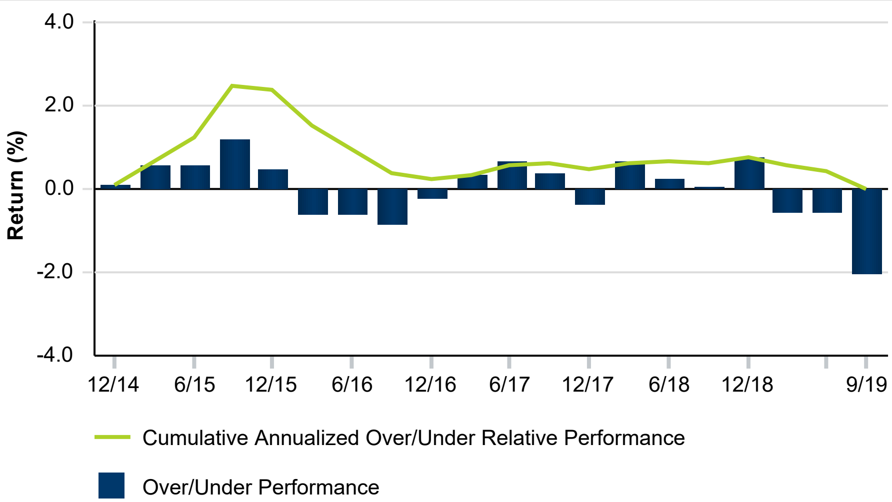
Sound Point vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended September 30, 2019

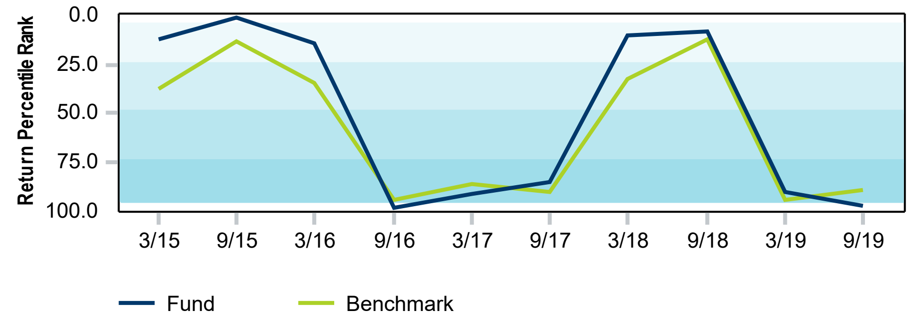
Comparative Performance



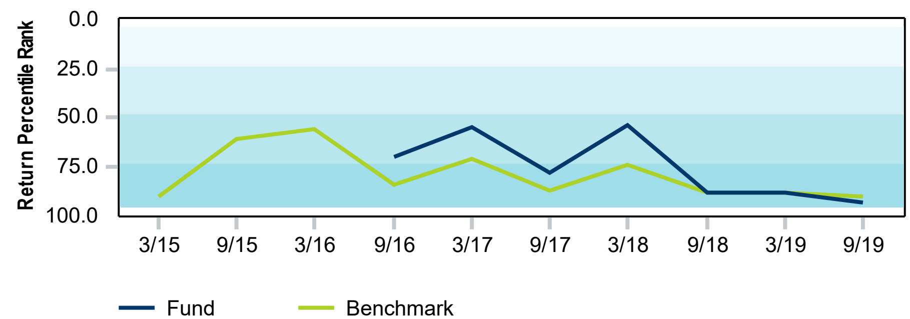
Relative Performance



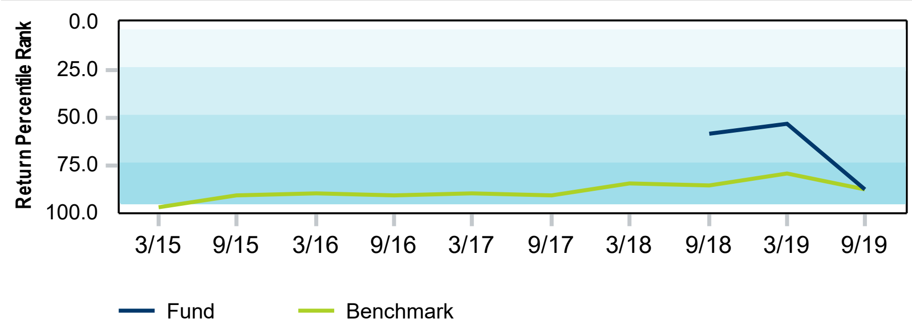
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



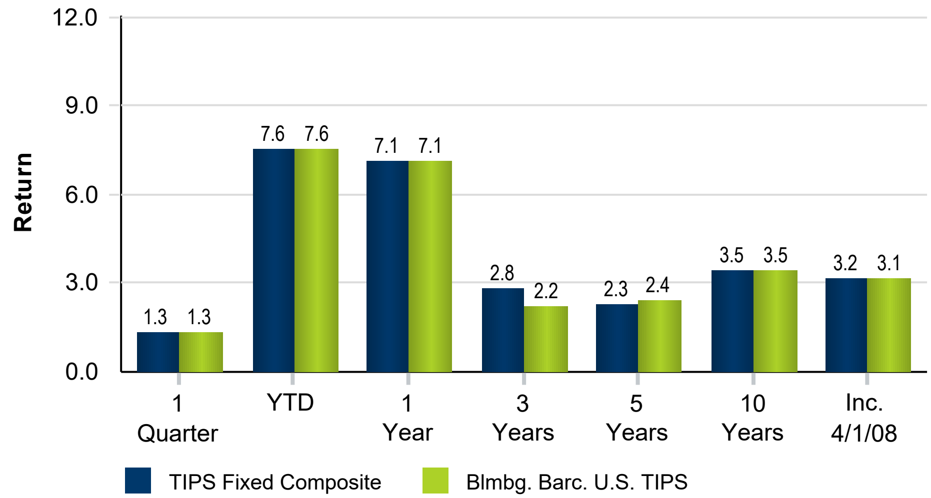
TIPS

Composite Performance Summary

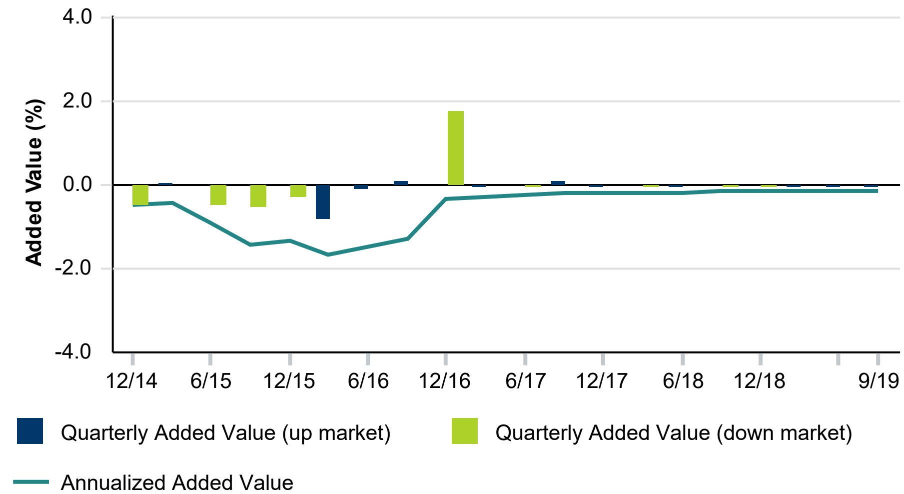
TIPS Fixed Composite

Periods Ended September 30, 2019

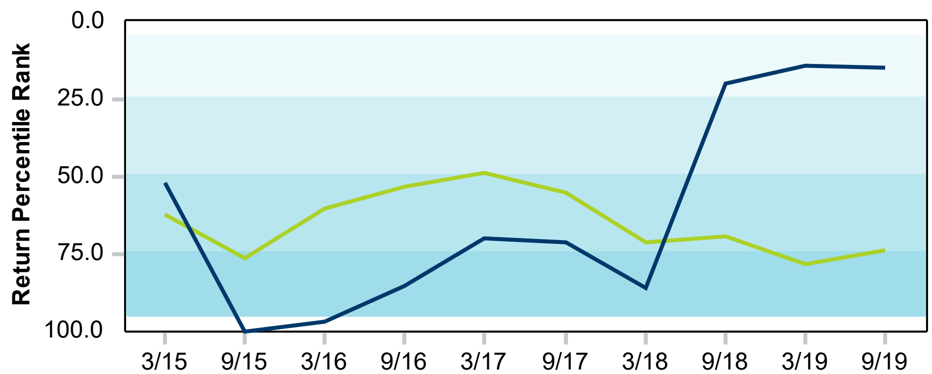
Comparative Performance



Added Value History

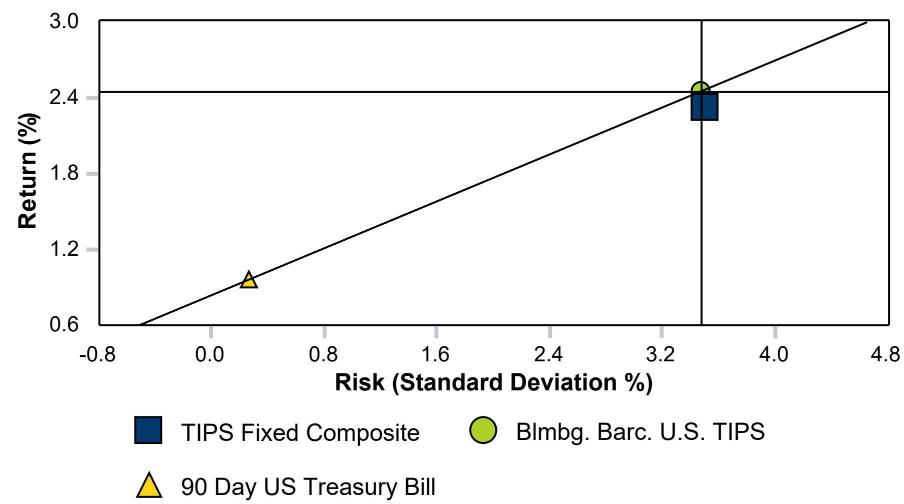


Rolling Percentile Rank: IM U.S. TIPS (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
TIPS Fixed Composite	10	3 (30%)	0 (0%)	3 (30%)	4 (40%)
Benchmark	10	0 (0%)	1 (10%)	7 (70%)	2 (20%)

Risk and Return 10/1/14 - 09/30/19

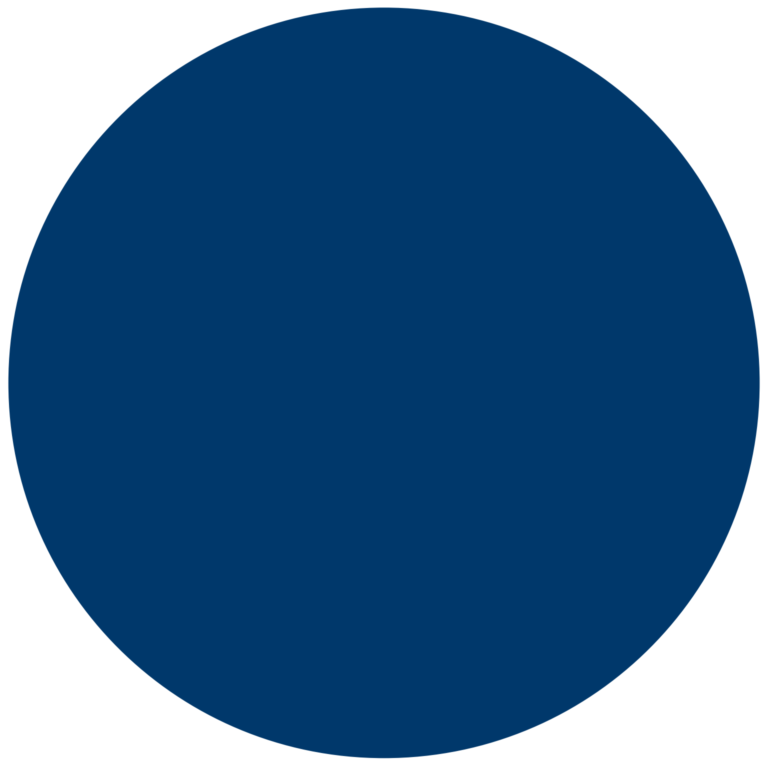


Asset Allocation By Manager

TIPS Fixed Composite

Periods Ended September 30, 2019

Sep-2019 : 48,878,914



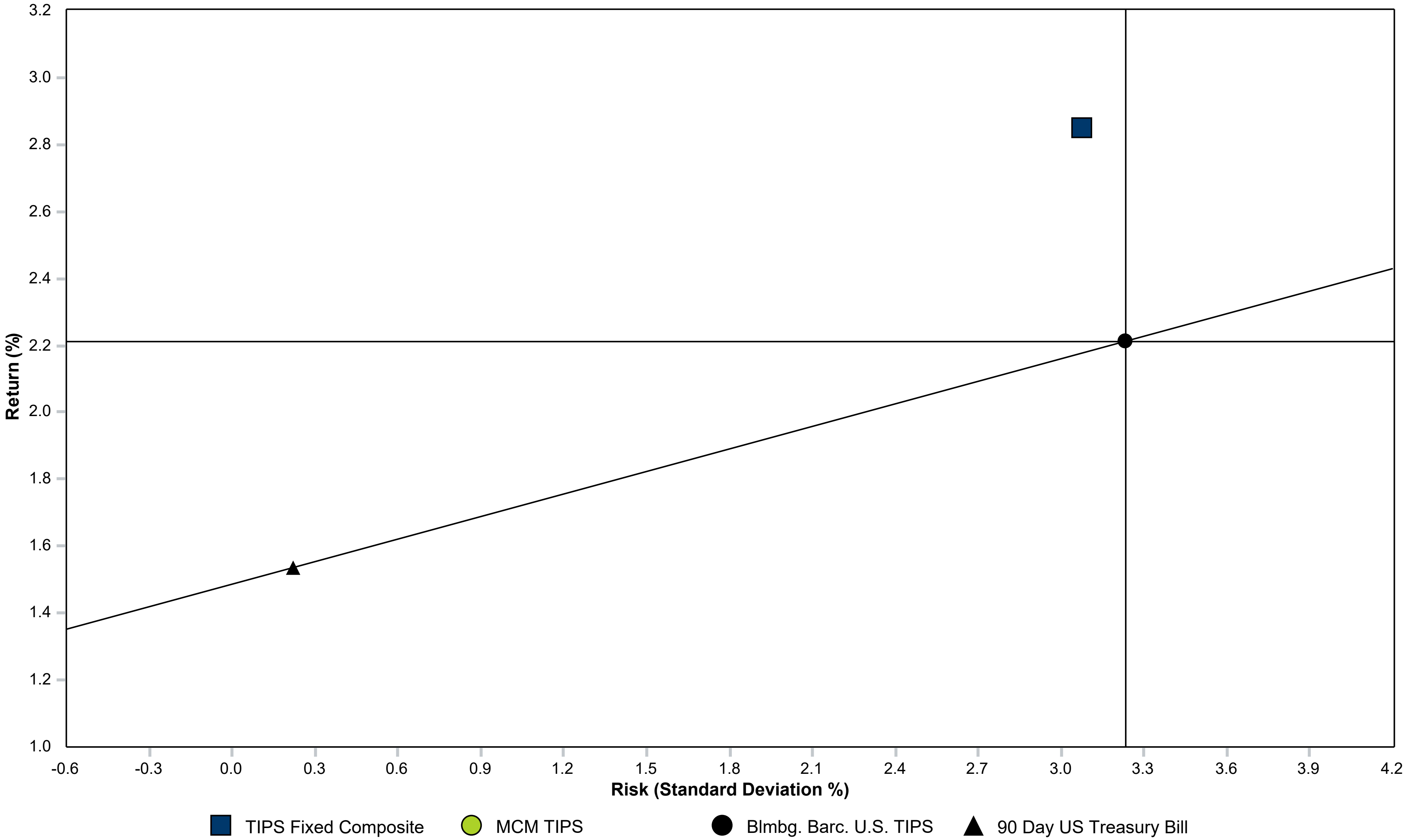
	Market Value $	Allocation (%)
MCM TIPS	48,878,914	100.0

Wilshire Consulting

Risk vs. Return

TIPS Fixed Composite

Periods Ended 3 Years Ending September 30, 2019



Calculation based on monthly periodicity.

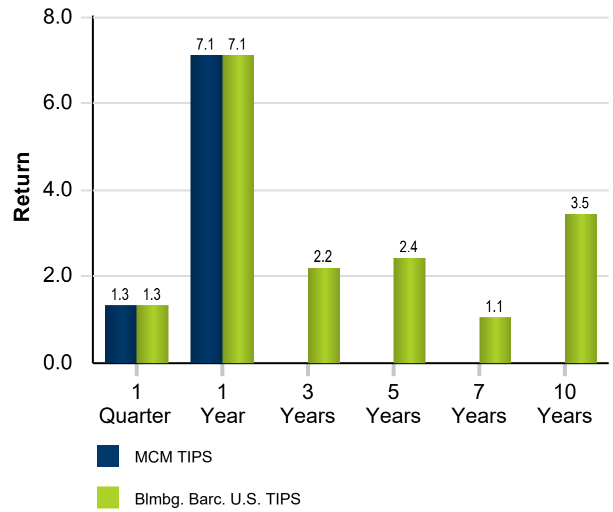
Wilshire Consulting

Performance Summary

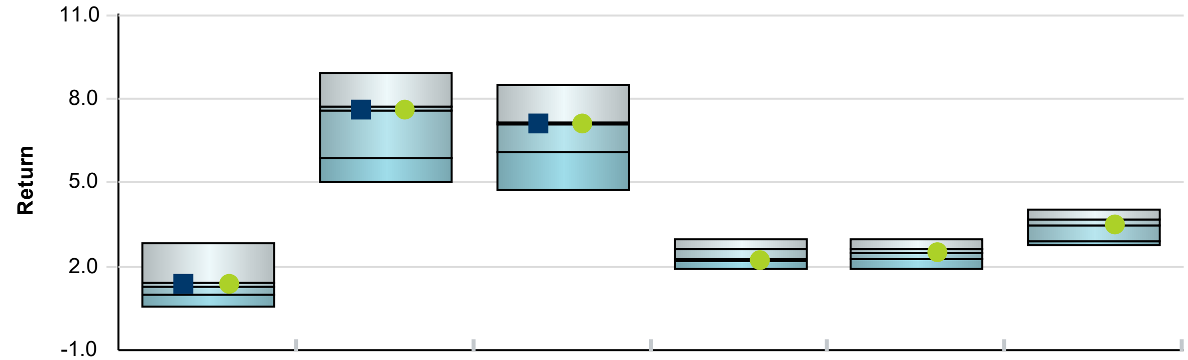
MCM TIPS

Periods Ended September 30, 2019

Comparative Performance

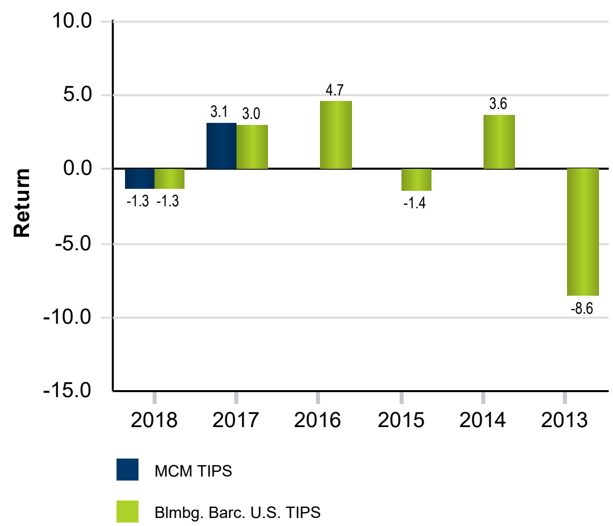


Peer Group Analysis: IM U.S. TIPS (SA+CF)

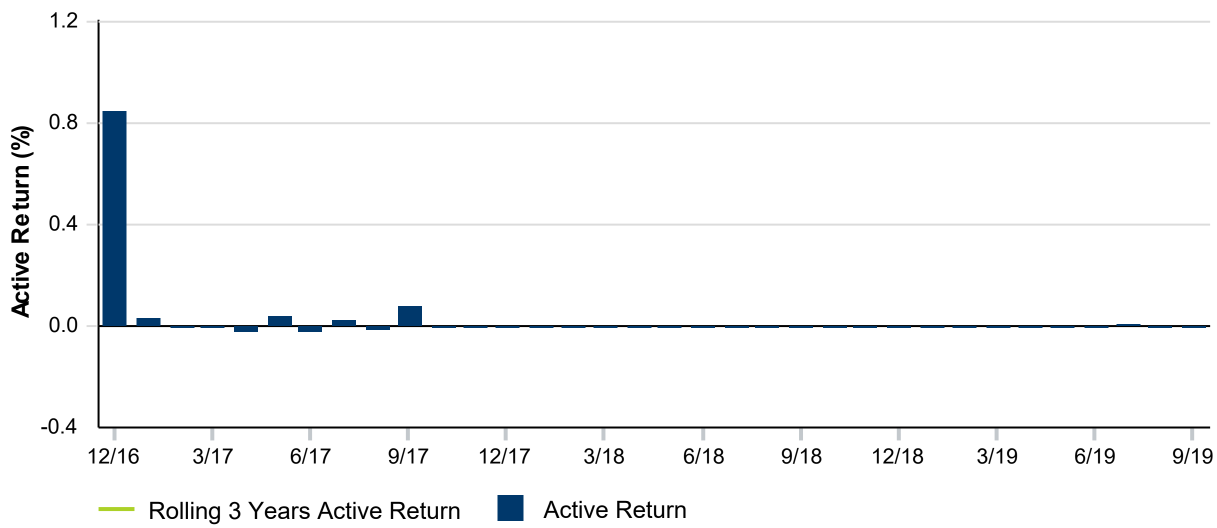


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.35 (43)	7.58 (61)	7.12 (44)			
Benchmark	1.35 (44)	7.58 (61)	7.13 (43)	2.21 (74)	2.45 (62)	3.46 (56)
Median	1.30	7.60	7.09	2.25	2.47	3.49

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

MCM TIPS

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	MCM TIPS	Blmbg. Barc. U.S. TIPS
Maximum Return	2.38	2.38
Minimum Return	-1.43	-1.43
Return	7.12	7.13
Cumulative Return	7.12	7.13
Active Return	0.00	0.00
Excess Return	4.62	4.62

Risk Summary Statistics

	MCM TIPS	Blmbg. Barc. U.S. TIPS
Upside Risk	1.12	1.12
Downside Risk	1.98	1.98
Beta	1.00	1.00

Risk/Return Summary Statistics

	MCM TIPS	Blmbg. Barc. U.S. TIPS
Standard Deviation	3.86	3.86
Alpha	0.00	0.00
Active Return/Risk	0.00	0.00
Tracking Error	0.01	0.00
Information Ratio	-0.44	
Sharpe Ratio	1.21	1.21

Correlation Statistics

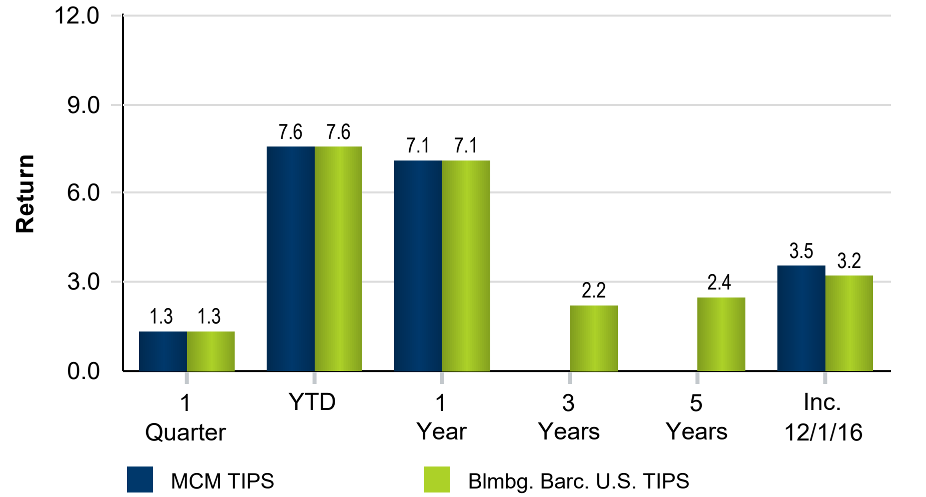
	MCM TIPS	Blmbg. Barc. U.S. TIPS
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

Manager Summary

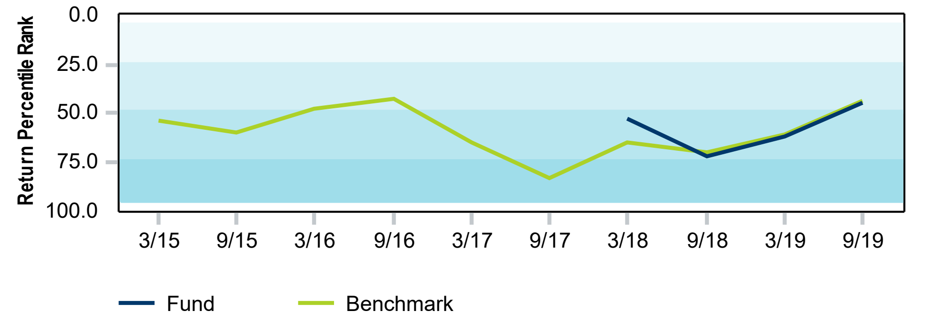
MCM TIPS vs IM U.S. TIPS (SA+CF)

Periods Ended September 30, 2019

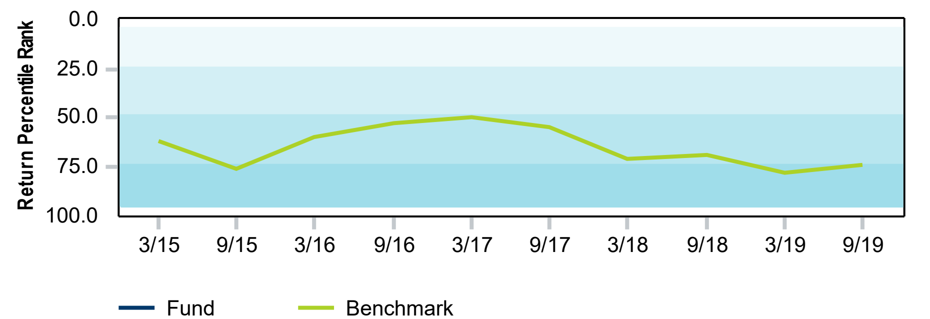
Comparative Performance



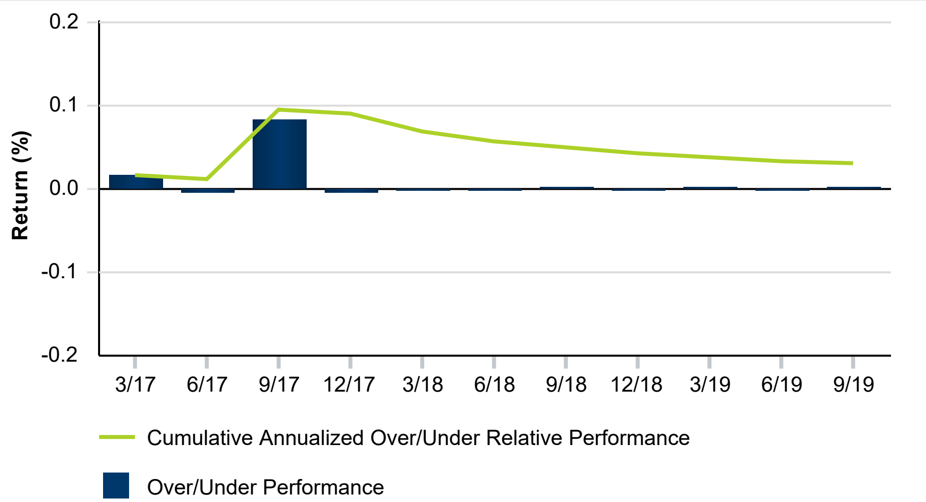
1 Year Rolling Percentile Ranking



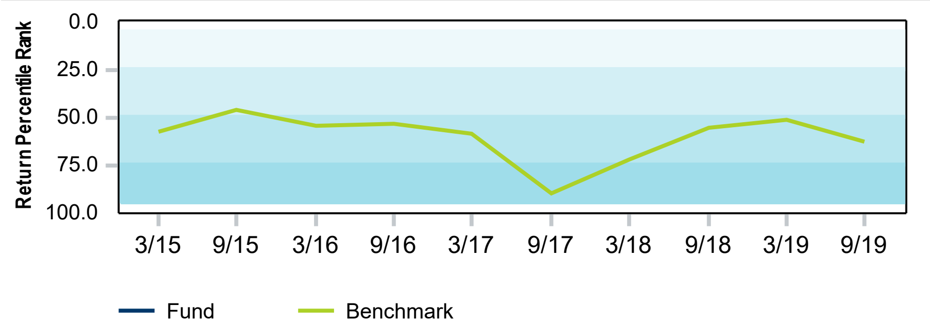
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking



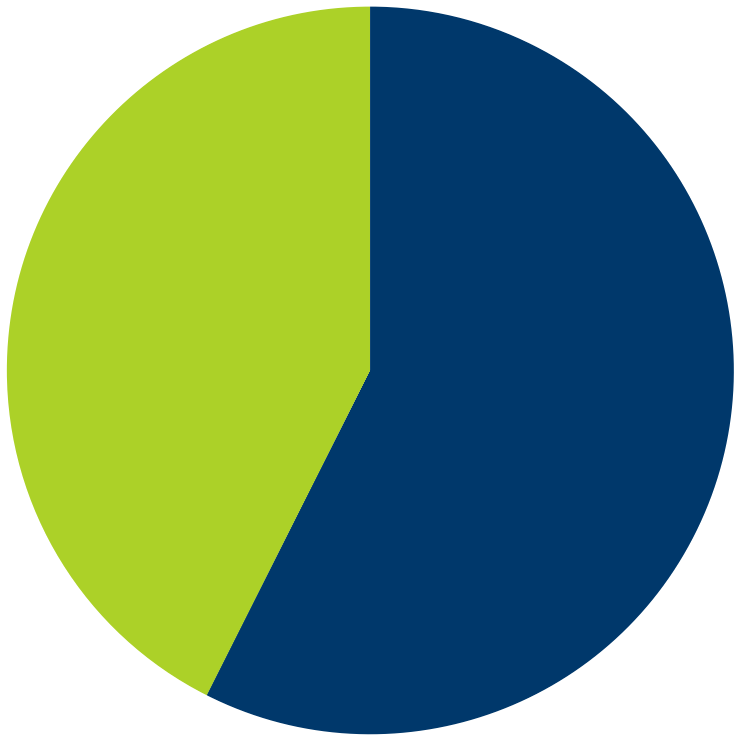
MLP

Asset Allocation By Manager

MLP Composite

Periods Ended September 30, 2019

Sep-2019 : 41,816,562



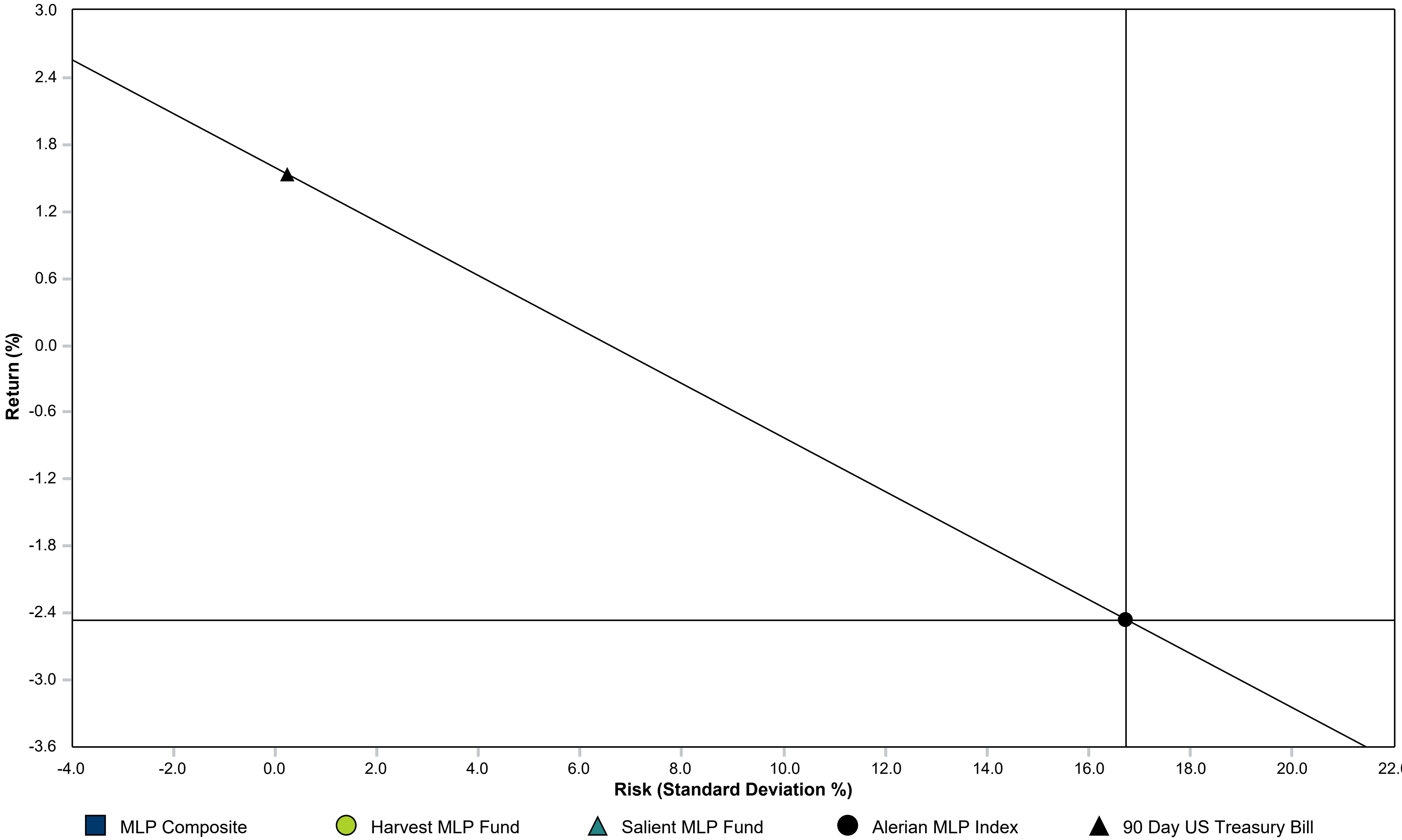
	Market Value $	Allocation (%)
Harvest MLP Fund	24,014,508	57.4
Salient MLP Fund	17,802,055	42.6

Wilshire Consulting

Risk vs. Return

MLP Composite

Periods Ended 3 Years Ending September 30, 2019



Calculation based on monthly periodicity.

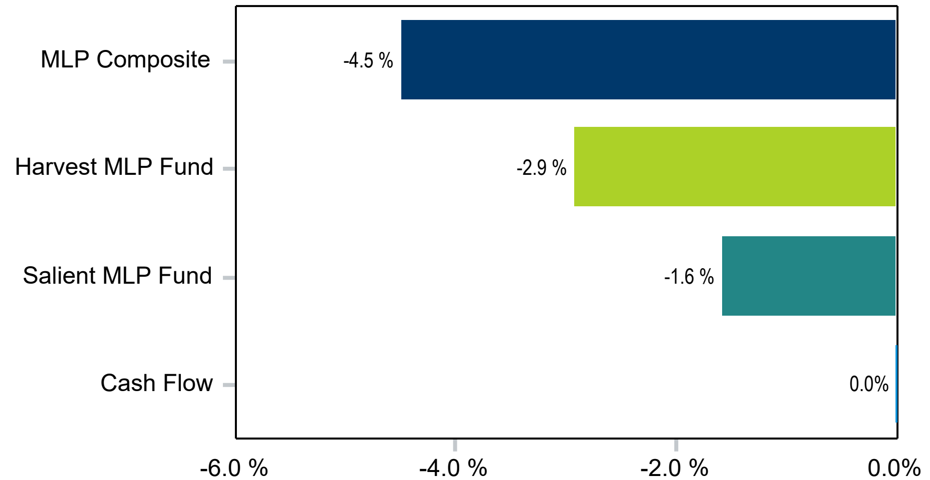
Wilshire Consulting

Return and Risk Contribution

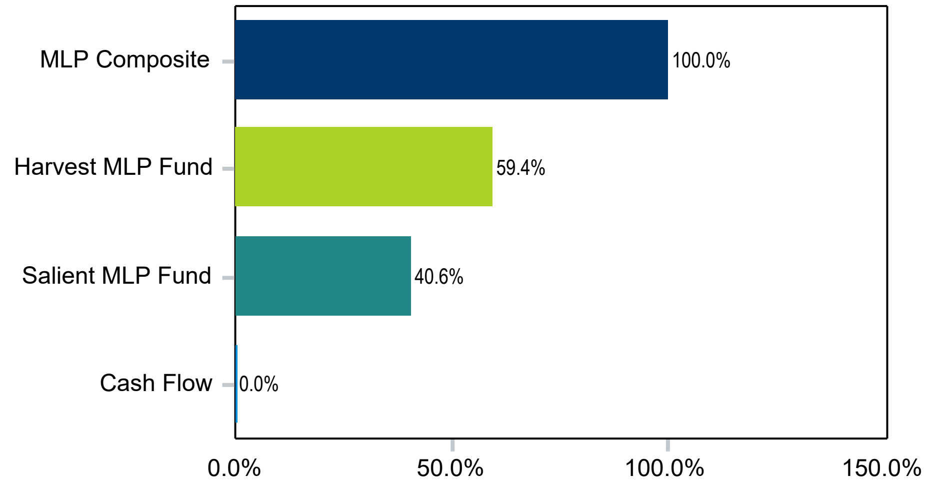
MLP Composite

Periods Ended September 30, 2019

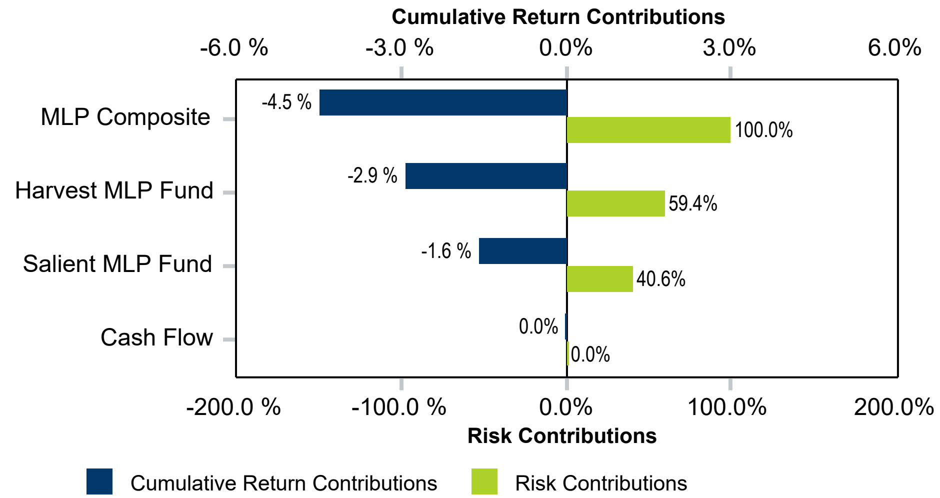
Cumulative Return Contributions



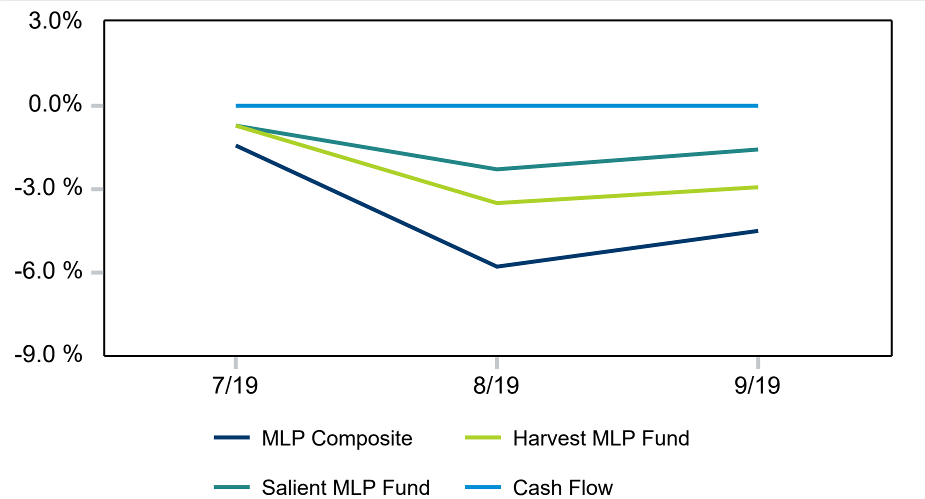
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History

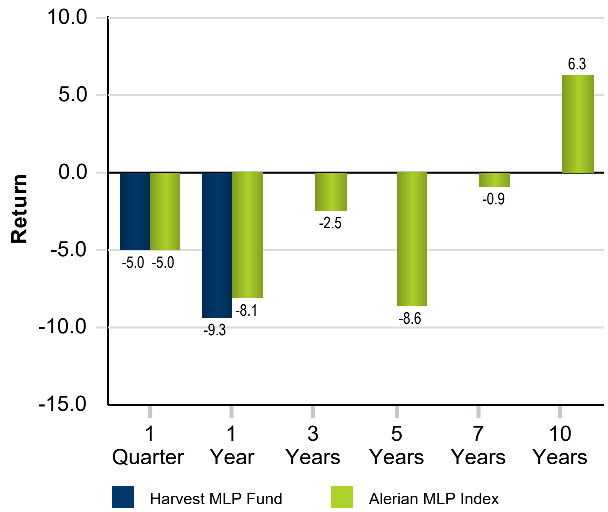


Performance Summary

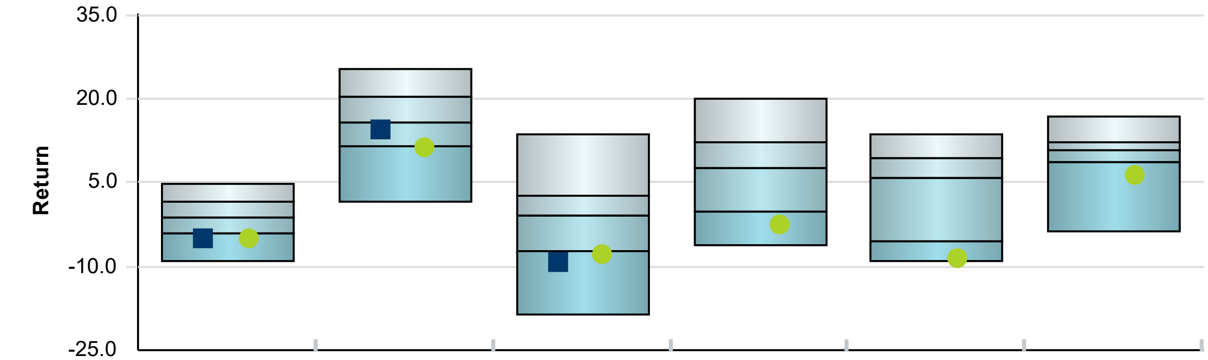
Harvest MLP Fund

Periods Ended September 30, 2019

Comparative Performance

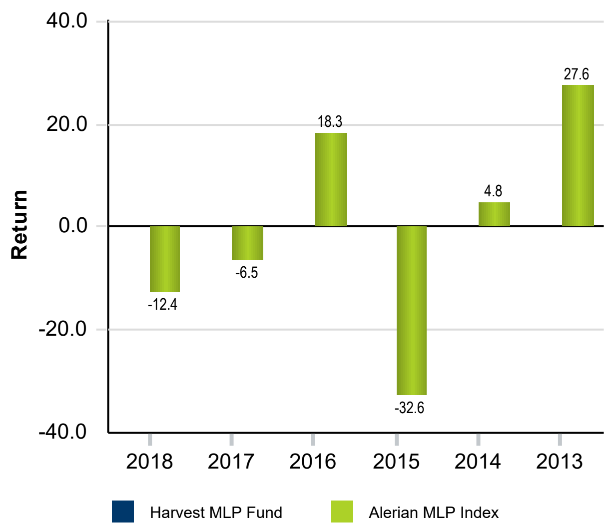


Peer Group Analysis: IM U.S. Other Equity (SA+CF)

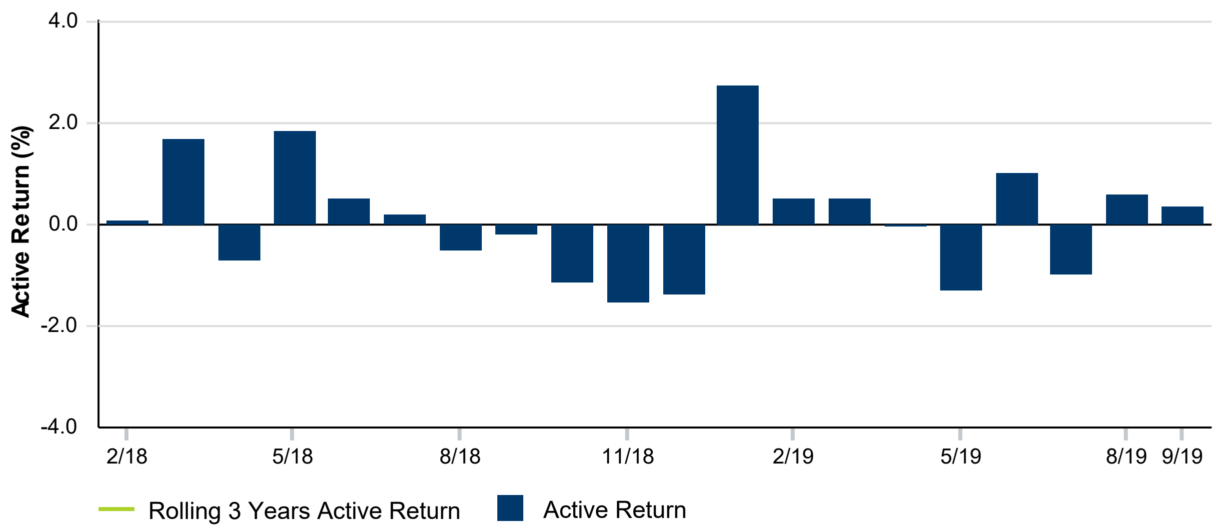


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-5.05 (86)	14.50 (59)	-9.30 (87)			
Benchmark	-5.02 (86)	11.08 (77)	-8.13 (84)	-2.46 (89)	-8.65 (94)	6.25 (88)
Median	-1.13	15.71	-0.96	7.50	5.90	10.90

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Harvest MLP Fund

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Harvest MLP Fund	Alerian MLP Index
Maximum Return	15.39	12.64
Minimum Return	-10.71	-9.36
Return	-9.30	-8.13
Cumulative Return	-9.30	-8.13
Active Return	-0.61	0.00
Excess Return	-9.63	-9.02

Risk Summary Statistics

	Harvest MLP Fund	Alerian MLP Index
Upside Risk	4.72	3.86
Downside Risk	15.40	13.62
Beta	1.17	1.00

Risk/Return Summary Statistics

	Harvest MLP Fund	Alerian MLP Index
Standard Deviation	22.37	19.00
Alpha	0.51	0.00
Active Return/Risk	-0.03	0.00
Tracking Error	4.22	0.00
Information Ratio	-0.14	
Sharpe Ratio	-0.43	-0.48

Correlation Statistics

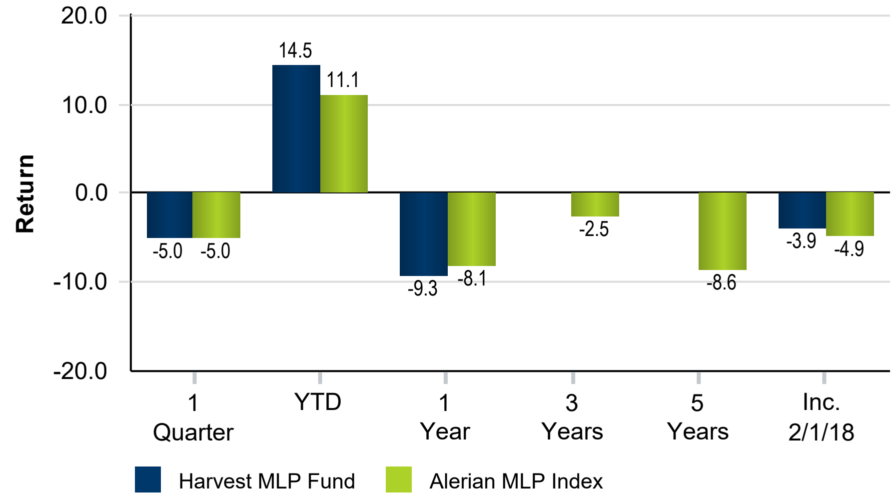
	Harvest MLP Fund	Alerian MLP Index
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

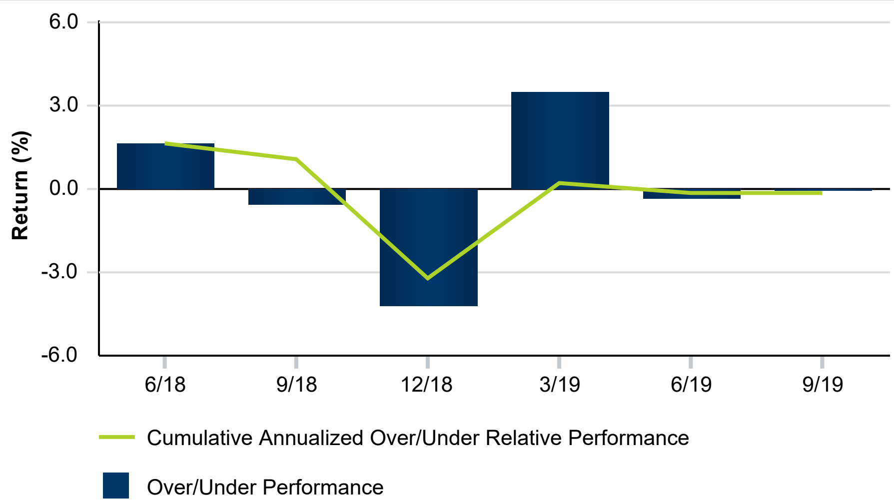
Harvest MLP Fund vs IM U.S. Other Equity (SA+CF)

Periods Ended September 30, 2019

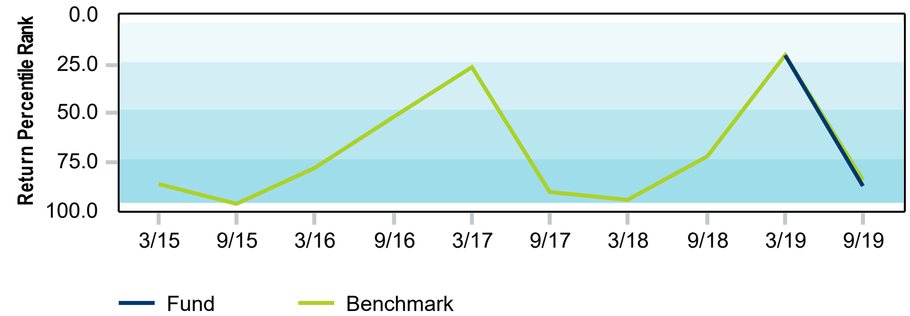
Comparative Performance



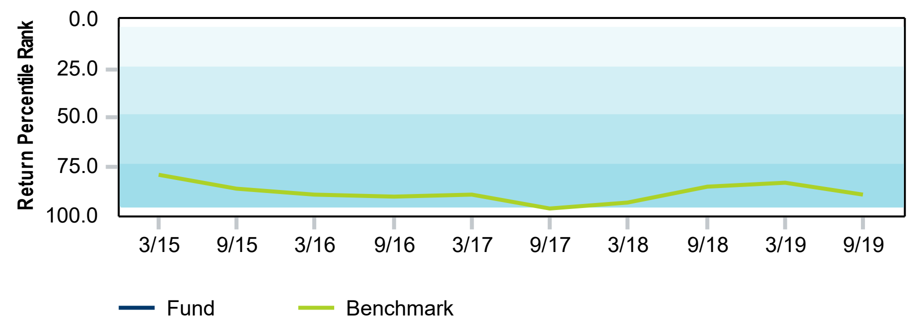
Relative Performance



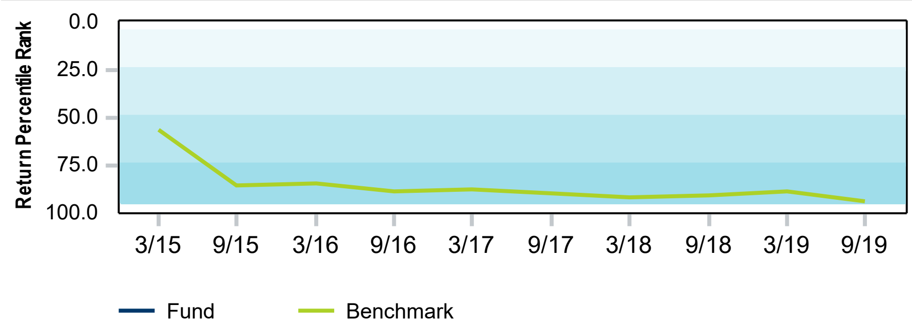
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

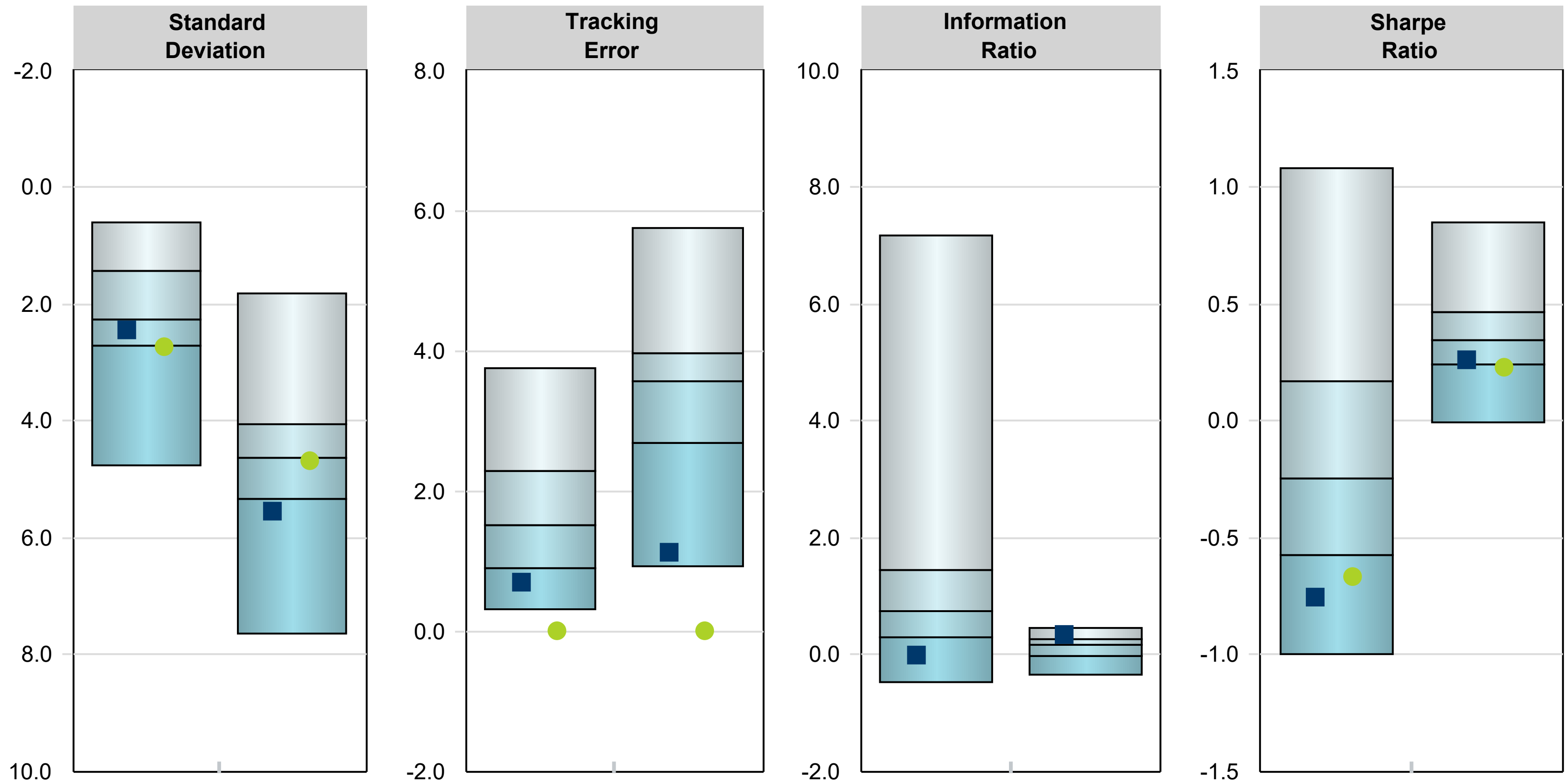


Wilshire Consulting

Peer Group Analysis - Multi Statistics

Harvest MLP Fund

Periods Ended September 30, 2019



	QTD	YTD	QTD	YTD	QTD	YTD	QTD	YTD
■ Harvest MLP Fund	2.45 (59)	5.54 (84)	0.70 (84)	1.11 (88)	-0.02 (86)	0.34 (14)	-0.76 (91)	0.26 (71)
● Alerian MLP Index	2.74 (75)	4.69 (50)	0.00 (100)	0.00 (100)			-0.67 (84)	0.23 (76)
5th Percentile	0.59	1.81	3.75	5.77	7.20	0.47	1.08	0.85
1st Quartile	1.43	4.06	2.28	3.97	1.45	0.28	0.17	0.47
Median	2.27	4.63	1.51	3.57	0.77	0.18	-0.24	0.35
3rd Quartile	2.71	5.34	0.91	2.70	0.30	-0.01	-0.57	0.24
95th Percentile	4.75	7.64	0.32	0.93	-0.46	-0.32	-1.00	0.00

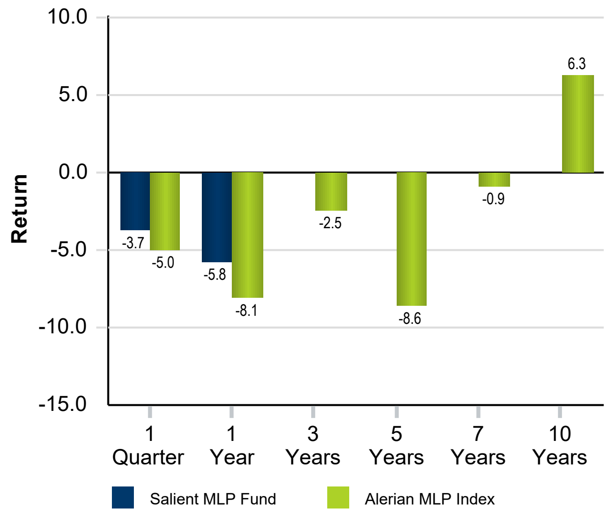
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

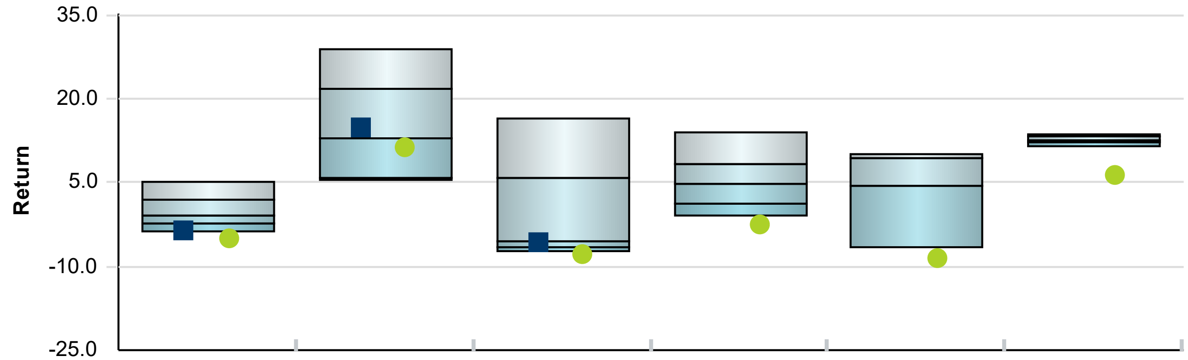
Salient MLP Fund

Periods Ended September 30, 2019

Comparative Performance

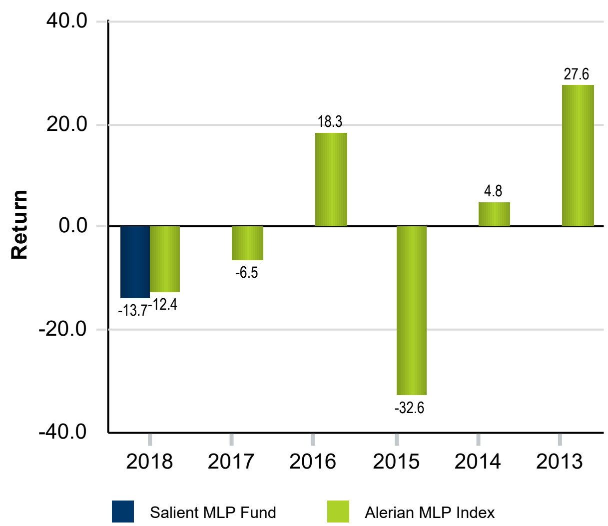


Peer Group Analysis: IM U.S. Other Equity (MA)

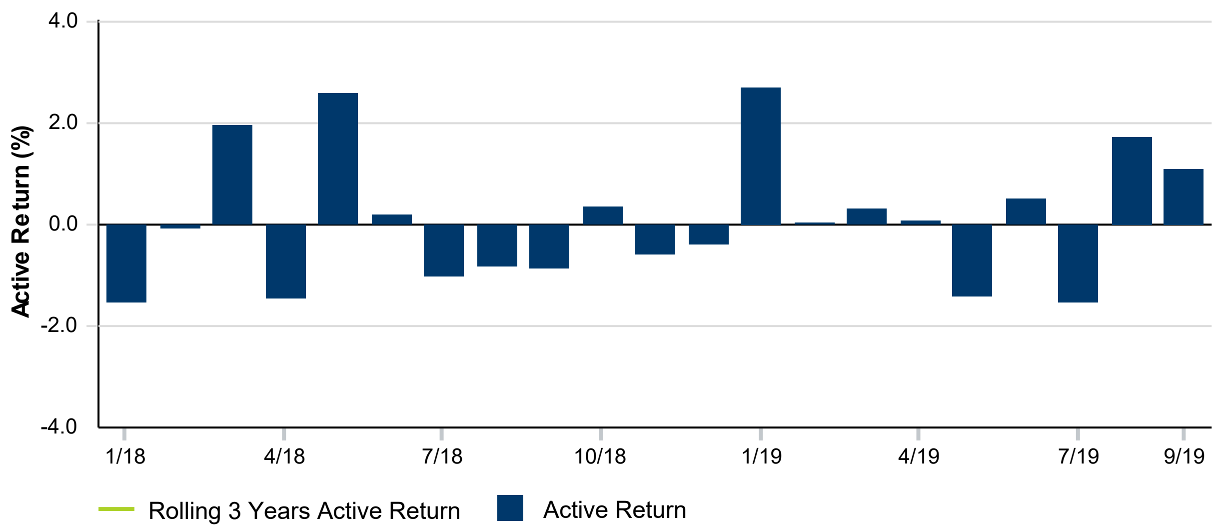


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	-3.73 (88)	14.69 (36)	-5.79 (64)			
Benchmark	-5.02 (100)	11.08 (55)	-8.13 (100)	-2.46 (100)	-8.65 (100)	6.25 (100)
Median	-0.81	12.87	-5.43	4.83	4.62	12.55

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Salient MLP Fund

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	Salient MLP Fund	Alerian MLP Index
Maximum Return	15.34	12.64
Minimum Return	-9.77	-9.36
Return	-5.79	-8.13
Cumulative Return	-5.79	-8.13
Active Return	2.86	0.00
Excess Return	-6.16	-9.02

Risk Summary Statistics	Salient MLP Fund	Alerian MLP Index
Upside Risk	4.68	3.86
Downside Risk	13.46	13.62
Beta	1.09	1.00

Risk/Return Summary Statistics	Salient MLP Fund	Alerian MLP Index
Standard Deviation	21.04	19.00
Alpha	3.52	0.00
Active Return/Risk	0.14	0.00
Tracking Error	4.01	0.00
Information Ratio	0.71	
Sharpe Ratio	-0.29	-0.48

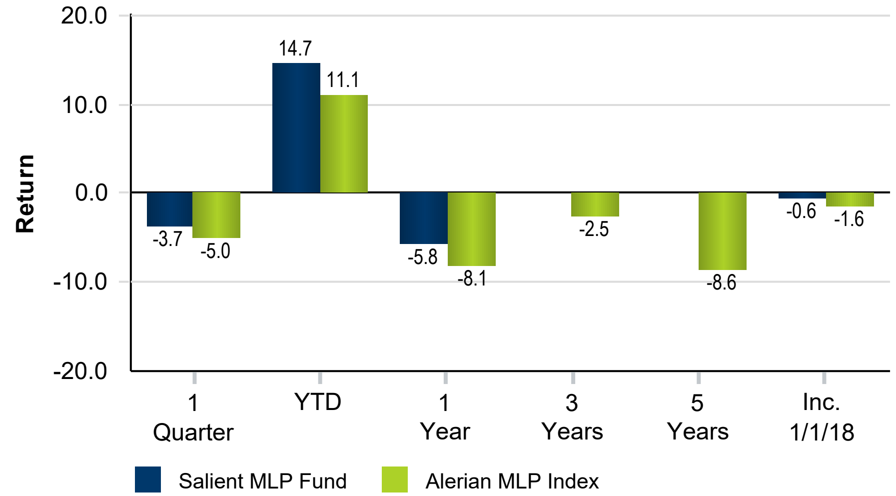
Correlation Statistics	Salient MLP Fund	Alerian MLP Index
R-Squared	0.97	1.00
Actual Correlation	0.99	1.00

Manager Summary

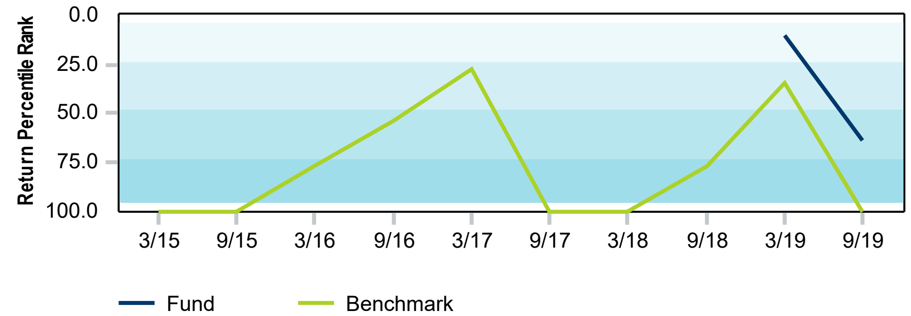
Salient MLP Fund vs IM U.S. Other Equity (MA)

Periods Ended September 30, 2019

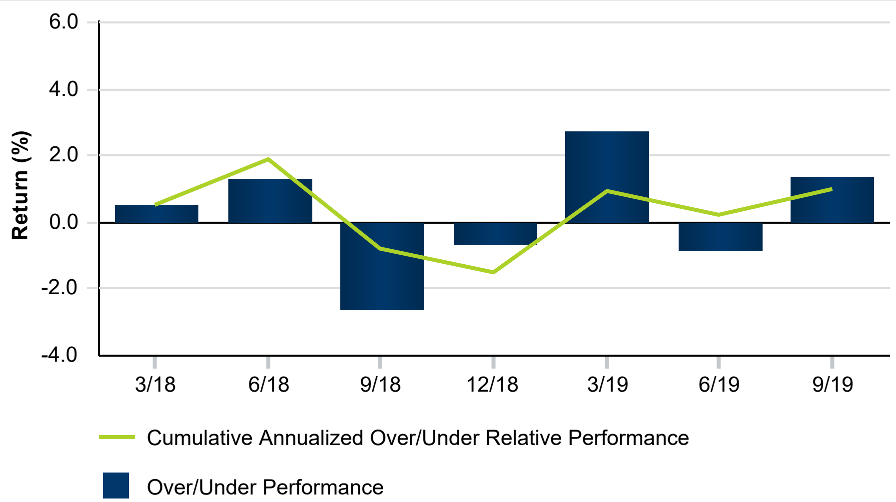
Comparative Performance



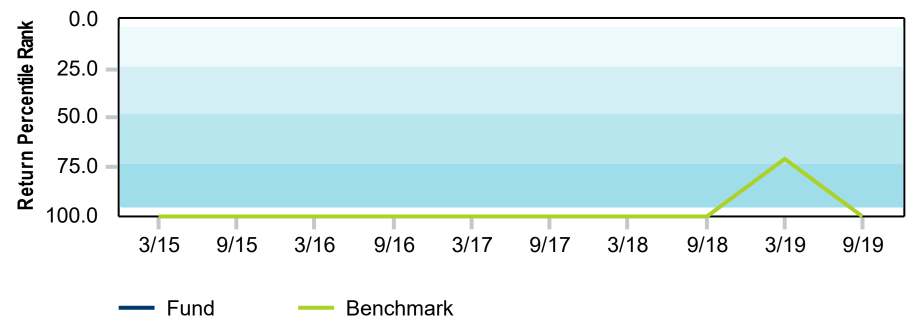
1 Year Rolling Percentile Ranking



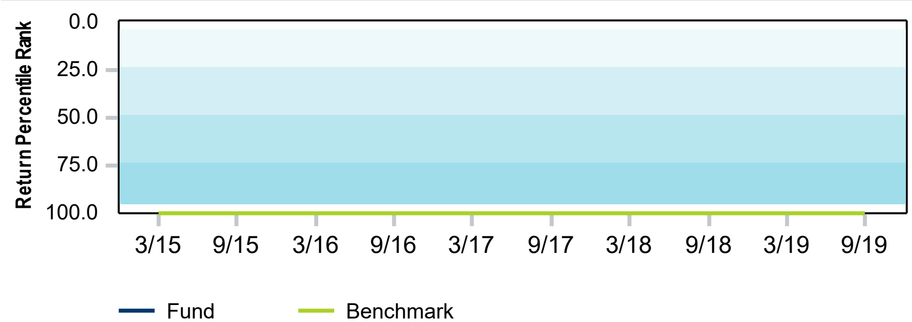
Relative Performance



3 Year Rolling Percentile Ranking



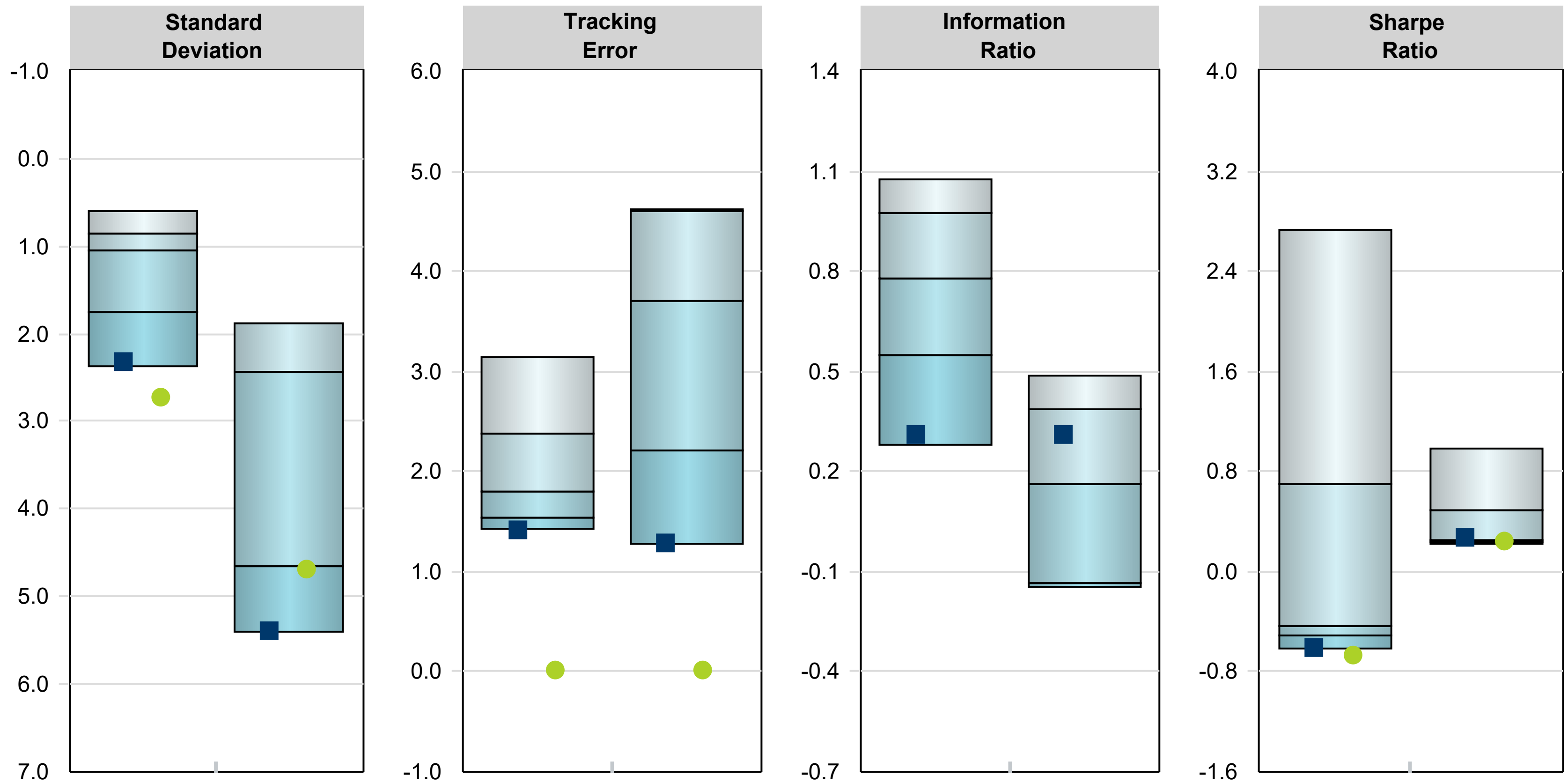
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Salient MLP Fund

Periods Ended September 30, 2019



	Standard Deviation QTD	Standard Deviation YTD	Tracking Error QTD	Tracking Error YTD	Information Ratio QTD	Information Ratio YTD	Sharpe Ratio QTD	Sharpe Ratio YTD
■ Salient MLP Fund	2.32 (85)	5.40 (100)	1.41 (100)	1.28 (92)	0.31 (87)	0.31 (36)	-0.61 (90)	0.27 (37)
● Alerian MLP Index	2.74 (100)	4.69 (75)	0.00 (100)	0.00 (100)			-0.67 (100)	0.23 (77)
5th Percentile	0.59	1.88	3.14	4.61	1.08	0.49	2.73	0.98
1st Quartile	0.87	1.89	2.38	4.59	0.98	0.39	0.70	0.49
Median	1.05	2.43	1.80	3.71	0.78	0.16	-0.43	0.25
3rd Quartile	1.75	4.65	1.54	2.21	0.55	-0.14	-0.52	0.23
95th Percentile	2.36	5.39	1.42	1.28	0.28	-0.14	-0.61	0.22

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

REAL ESTATE

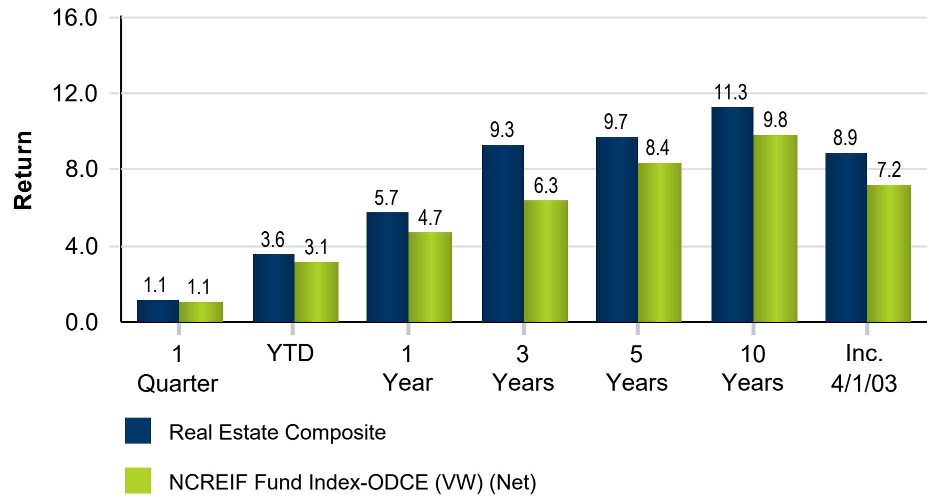
Wilshire Consulting

Composite Performance Summary

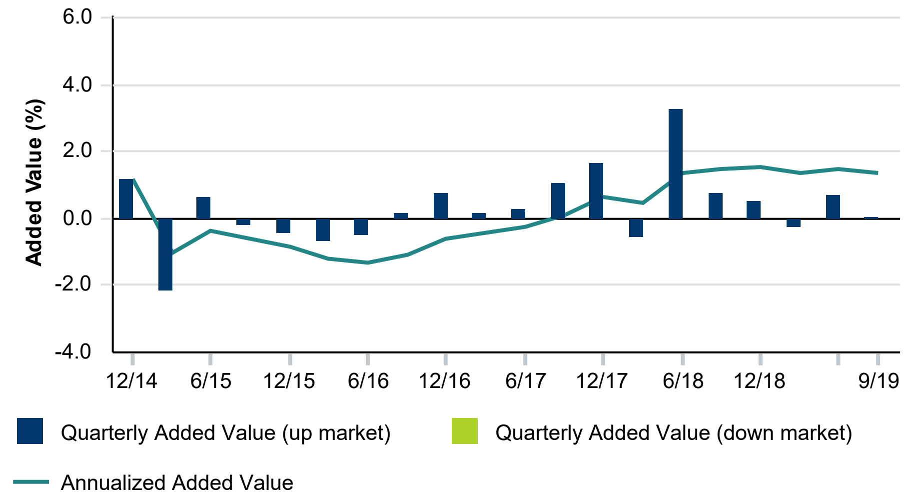
Real Estate Composite

Periods Ended September 30, 2019

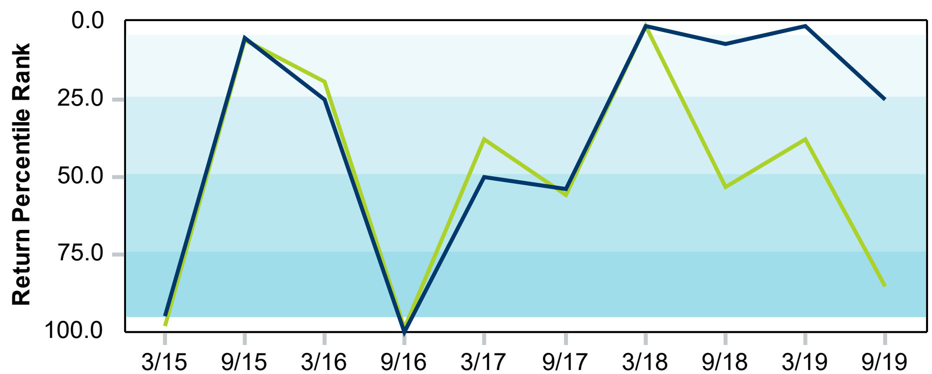
Comparative Performance



Added Value History

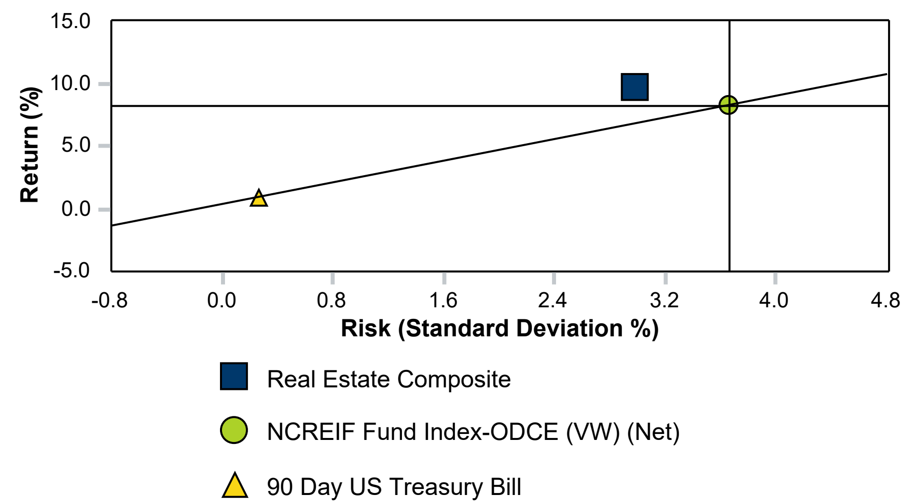


Rolling Percentile Rank: IM U.S. REIT (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Real Estate Composite	10	6 (60%)	1 (10%)	1 (10%)	2 (20%)
Benchmark	10	3 (30%)	2 (20%)	2 (20%)	3 (30%)

Risk and Return 10/1/14 - 09/30/19

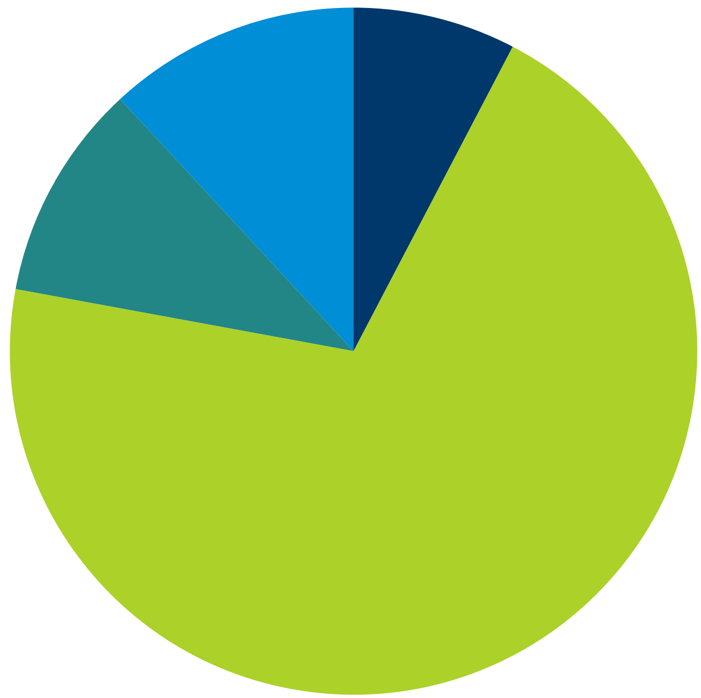


Asset Allocation By Manager

Real Estate Composite

Periods Ended September 30, 2019

Sep-2019 : 101,243,617



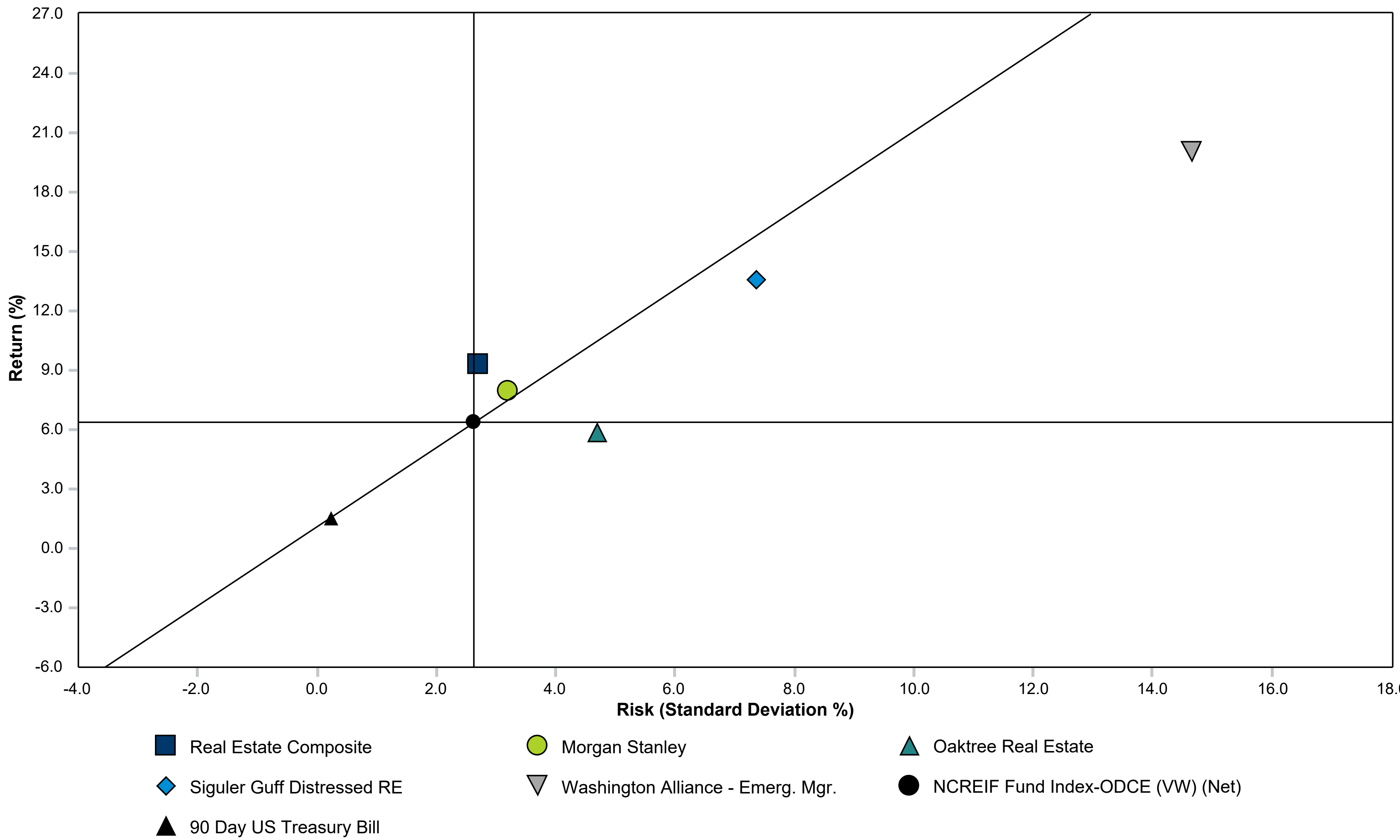
	Market Value $	Allocation (%)
Oaktree Real Estate	7,760,148	7.7
Morgan Stanley	71,100,854	70.2
Siguler Guff Distressed RE	10,349,570	10.2
Washington Alliance - Emerg. Mgr.	12,033,045	11.9

Wilshire Consulting

Risk vs. Return

Real Estate Composite

Periods Ended 3 Years Ending September 30, 2019



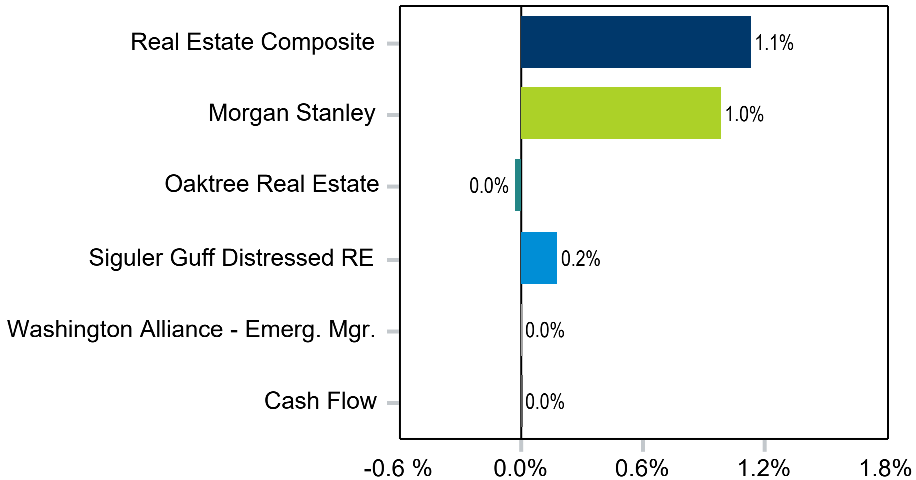
Calculation based on monthly periodicity.

Return and Risk Contribution

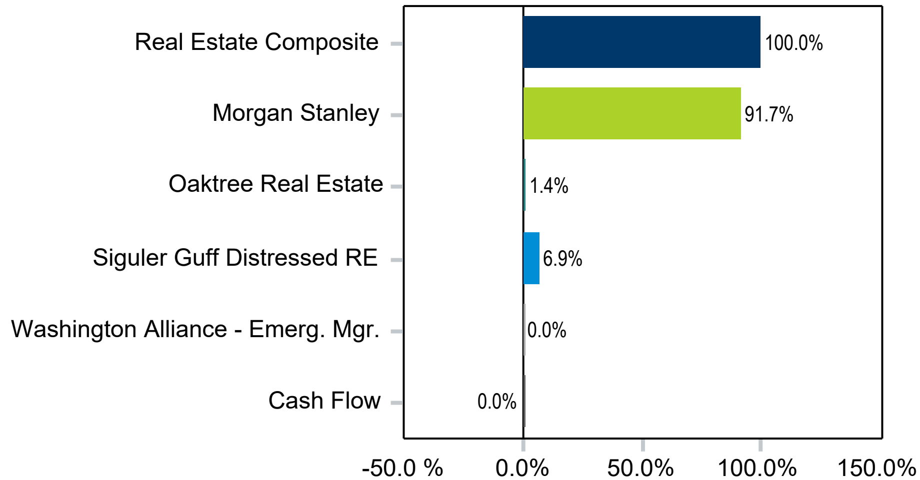
Real Estate Composite

Periods Ended September 30, 2019

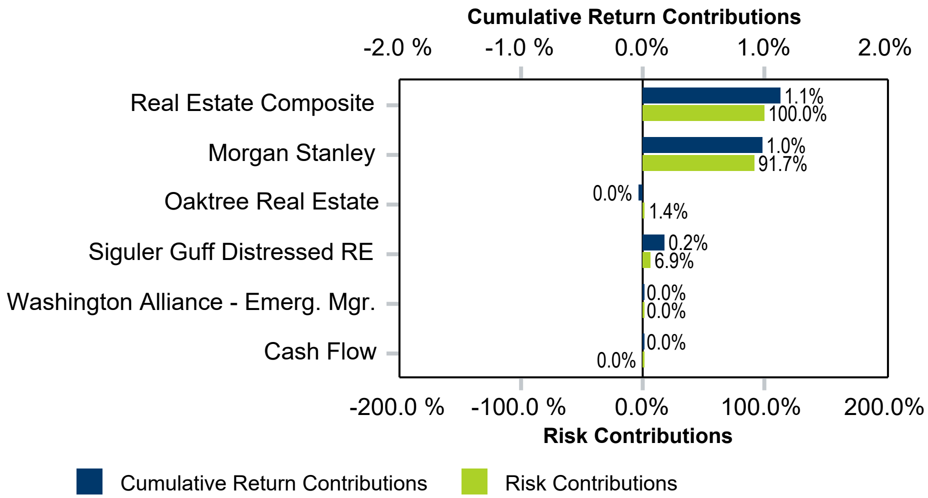
Cumulative Return Contributions



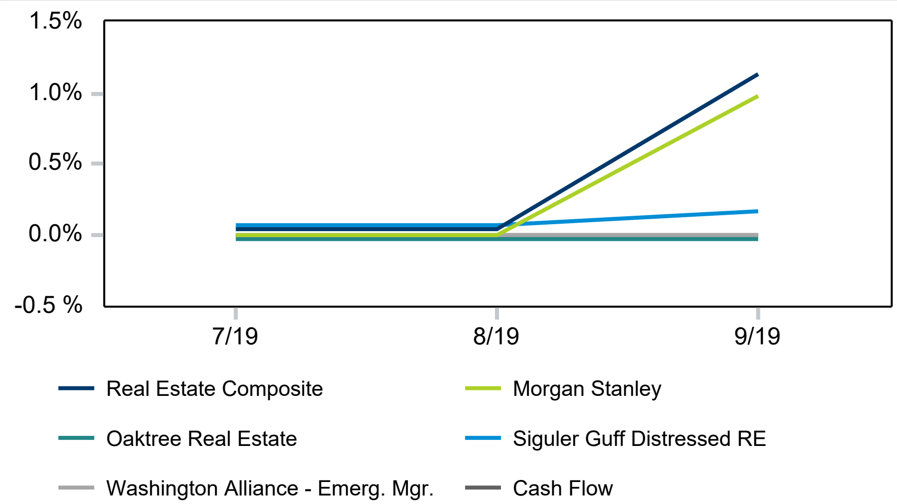
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History



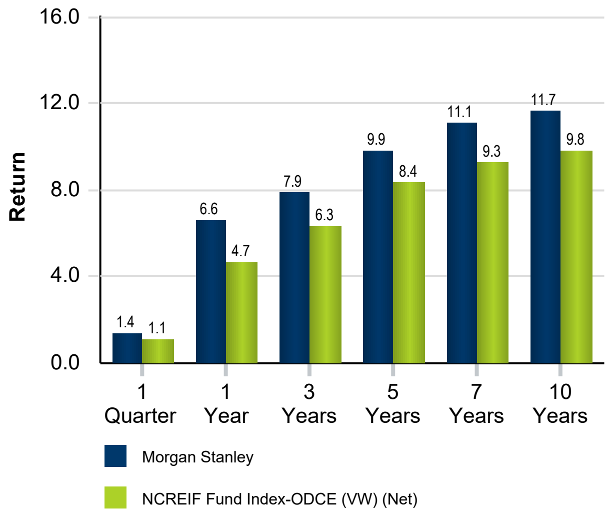
Wilshire Consulting

Performance Summary

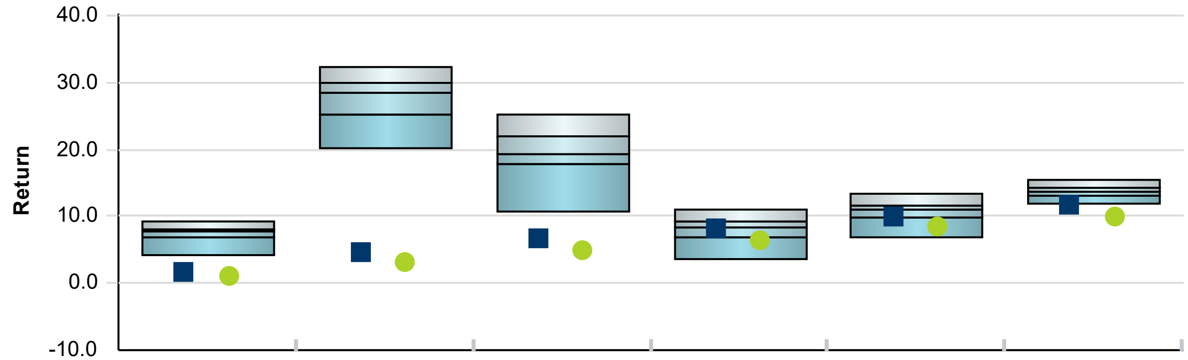
Morgan Stanley

Periods Ended September 30, 2019

Comparative Performance

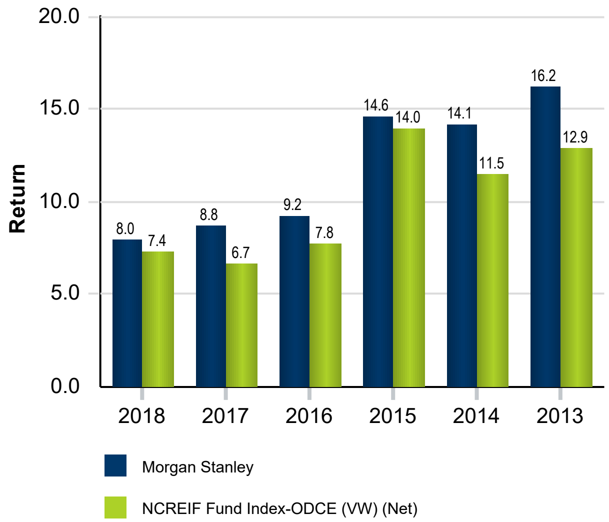


Peer Group Analysis: IM U.S. REIT (SA+CF)

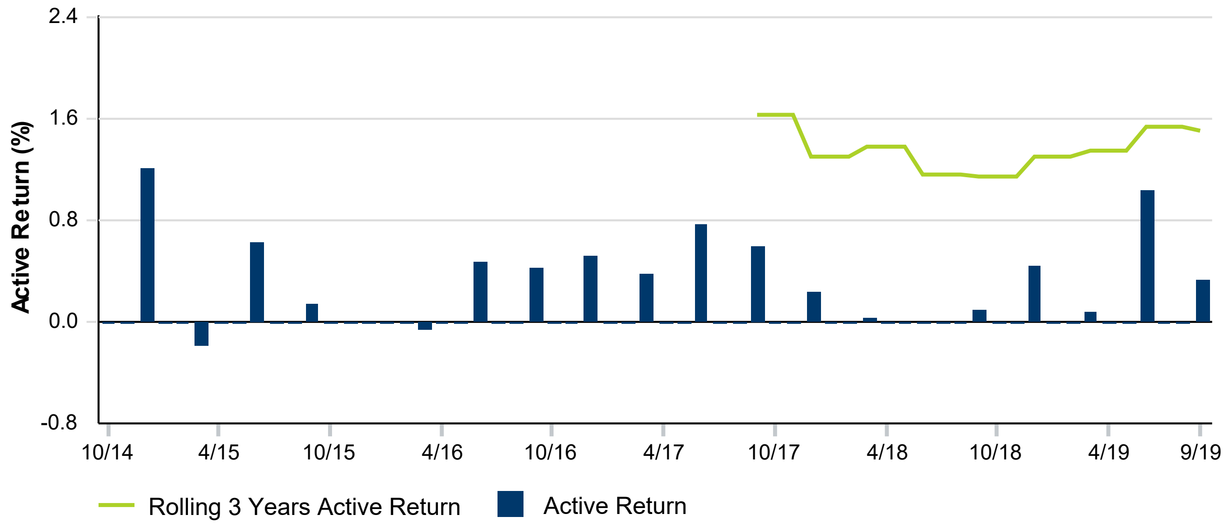


	Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
Fund	1.41 (100)	4.57 (100)	6.62 (99)	7.93 (54)	9.88 (74)	11.68 (96)
Benchmark	1.08 (100)	3.09 (100)	4.66 (100)	6.35 (85)	8.36 (89)	9.84 (99)
Median	7.62	28.40	19.21	8.22	10.91	13.65

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Morgan Stanley

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics	Morgan Stanley	NCREIF Fund Index-ODCE (VW) (Net)
Maximum Return	1.97	1.52
Minimum Return	0.00	0.00
Return	6.62	4.66
Cumulative Return	6.62	4.66
Active Return	1.89	0.00
Excess Return	4.11	2.22

Risk Summary Statistics	Morgan Stanley	NCREIF Fund Index-ODCE (VW) (Net)
Upside Risk	3.28	2.35
Downside Risk	0.00	0.00
Beta	1.32	1.00

Risk/Return Summary Statistics	Morgan Stanley	NCREIF Fund Index-ODCE (VW) (Net)
Standard Deviation	2.70	1.94
Alpha	0.42	0.00
Active Return/Risk	0.70	0.00
Tracking Error	1.05	0.00
Information Ratio	1.80	
Sharpe Ratio	1.53	1.14

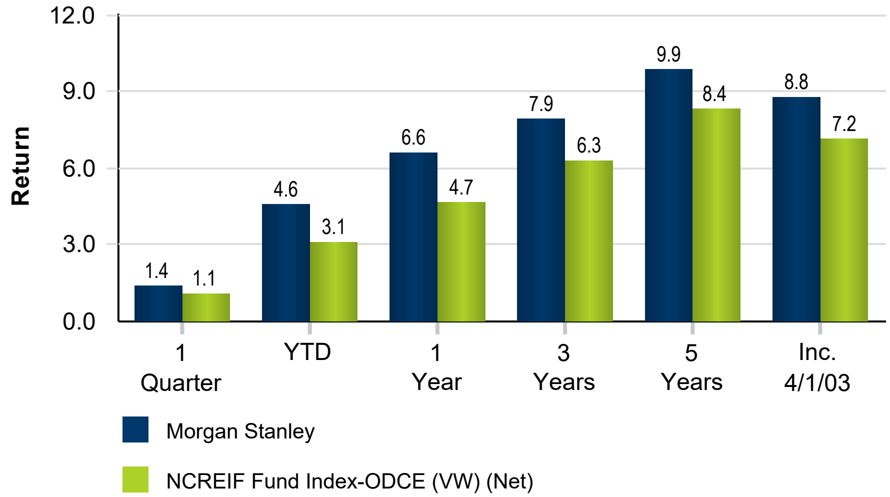
Correlation Statistics	Morgan Stanley	NCREIF Fund Index-ODCE (VW) (Net)
R-Squared	0.90	1.00
Actual Correlation	0.95	1.00

Manager Summary

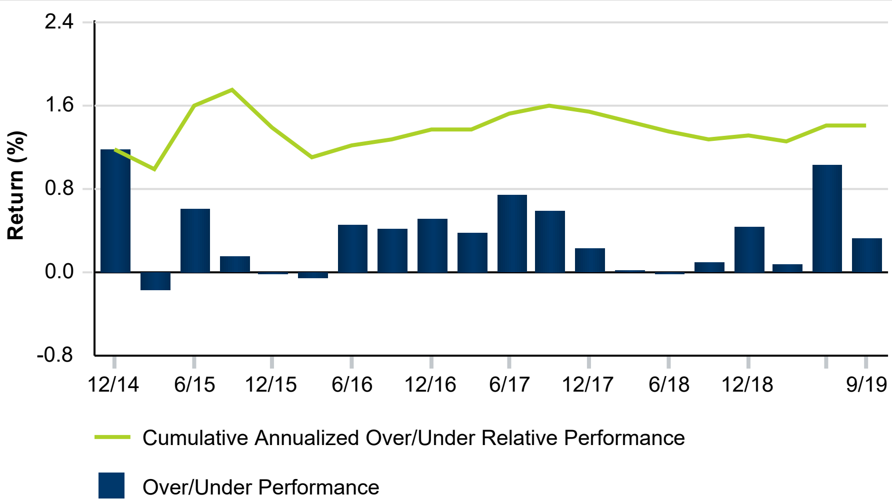
Morgan Stanley vs IM U.S. REIT (SA+CF)

Periods Ended September 30, 2019

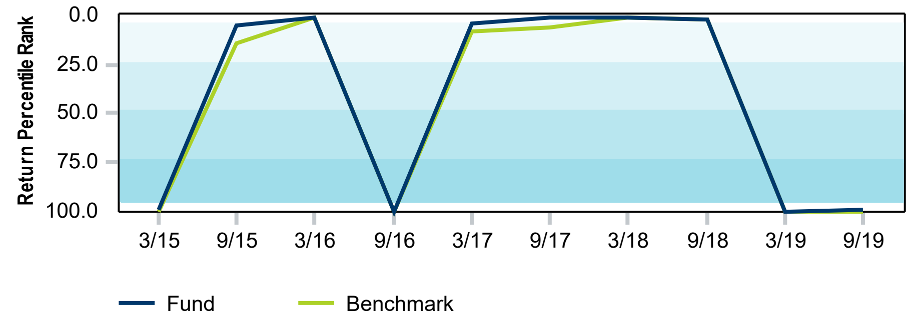
Comparative Performance



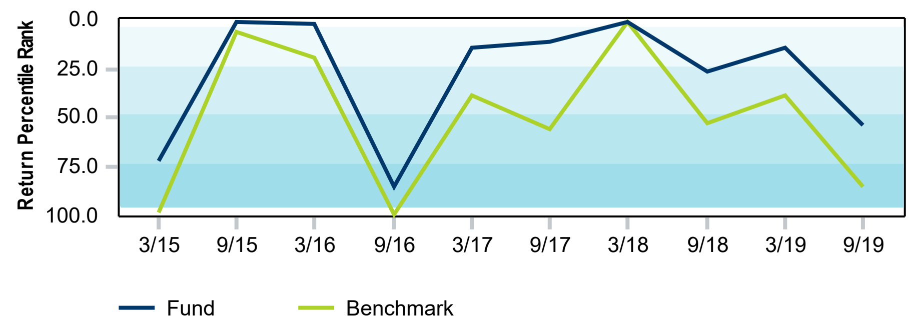
Relative Performance



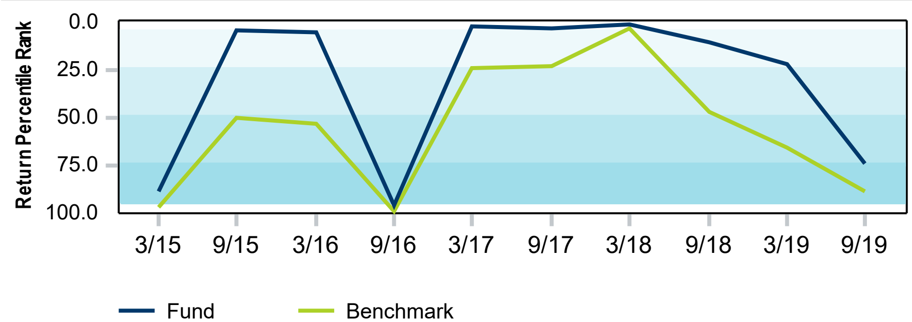
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



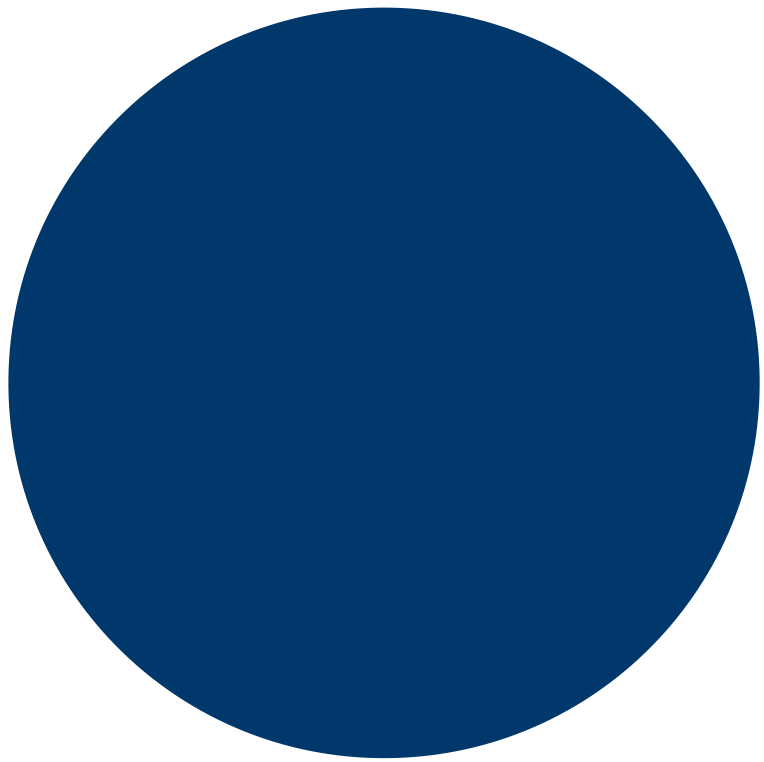
ERECT

Asset Allocation By Manager

ERECT Composite

Periods Ended September 30, 2019

Sep-2019 : 9,663,362

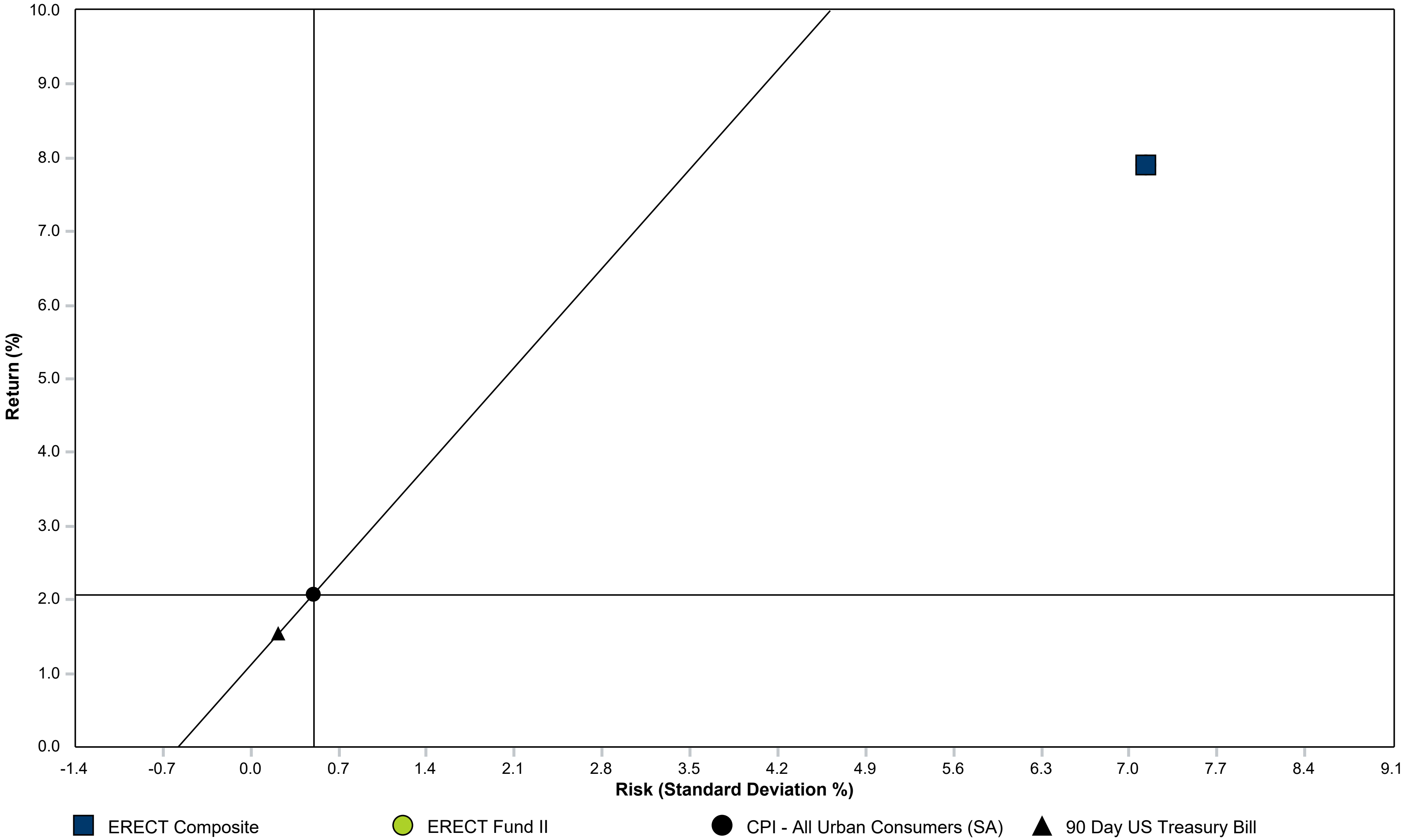


	Market Value $	Allocation (%)
ERECT Fund II	9,663,362	100.0

Risk vs. Return

ERECT Composite

Periods Ended 3 Years Ending September 30, 2019



Calculation based on monthly periodicity.

Wilshire Consulting

Summary Statistics

ERECT Fund II

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	ERECT Fund II	CPI - All Urban Consumers (SA)
Maximum Return	9.92	0.41
Minimum Return	-0.24	-0.02
Return	16.58	1.73
Cumulative Return	16.58	1.73
Active Return	14.20	0.00
Excess Return	13.55	-0.64

Risk Summary Statistics

	ERECT Fund II	CPI - All Urban Consumers (SA)
Upside Risk	3.16	0.21
Downside Risk	0.24	0.03
Beta	-2.60	1.00

Risk/Return Summary Statistics

	ERECT Fund II	CPI - All Urban Consumers (SA)
Standard Deviation	9.93	0.53
Alpha	22.38	0.00
Active Return/Risk	1.43	0.00
Tracking Error	10.02	0.00
Information Ratio	1.42	
Sharpe Ratio	1.36	-1.20

Correlation Statistics

	ERECT Fund II	CPI - All Urban Consumers (SA)
R-Squared	0.02	1.00
Actual Correlation	-0.14	1.00

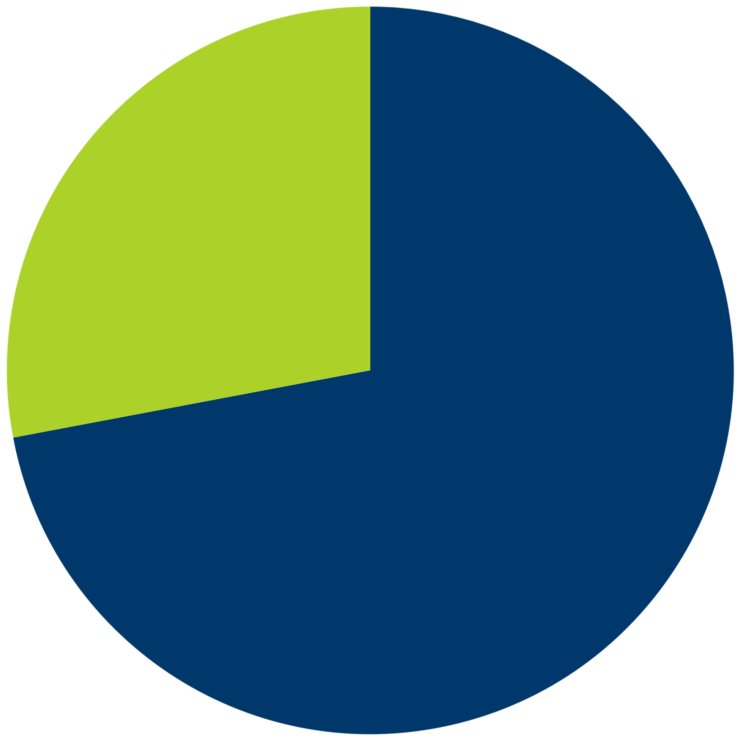
HEDGE FUND

Asset Allocation By Manager

Hedge Fund Composite

Periods Ended September 30, 2019

Sep-2019 : 3,666,099



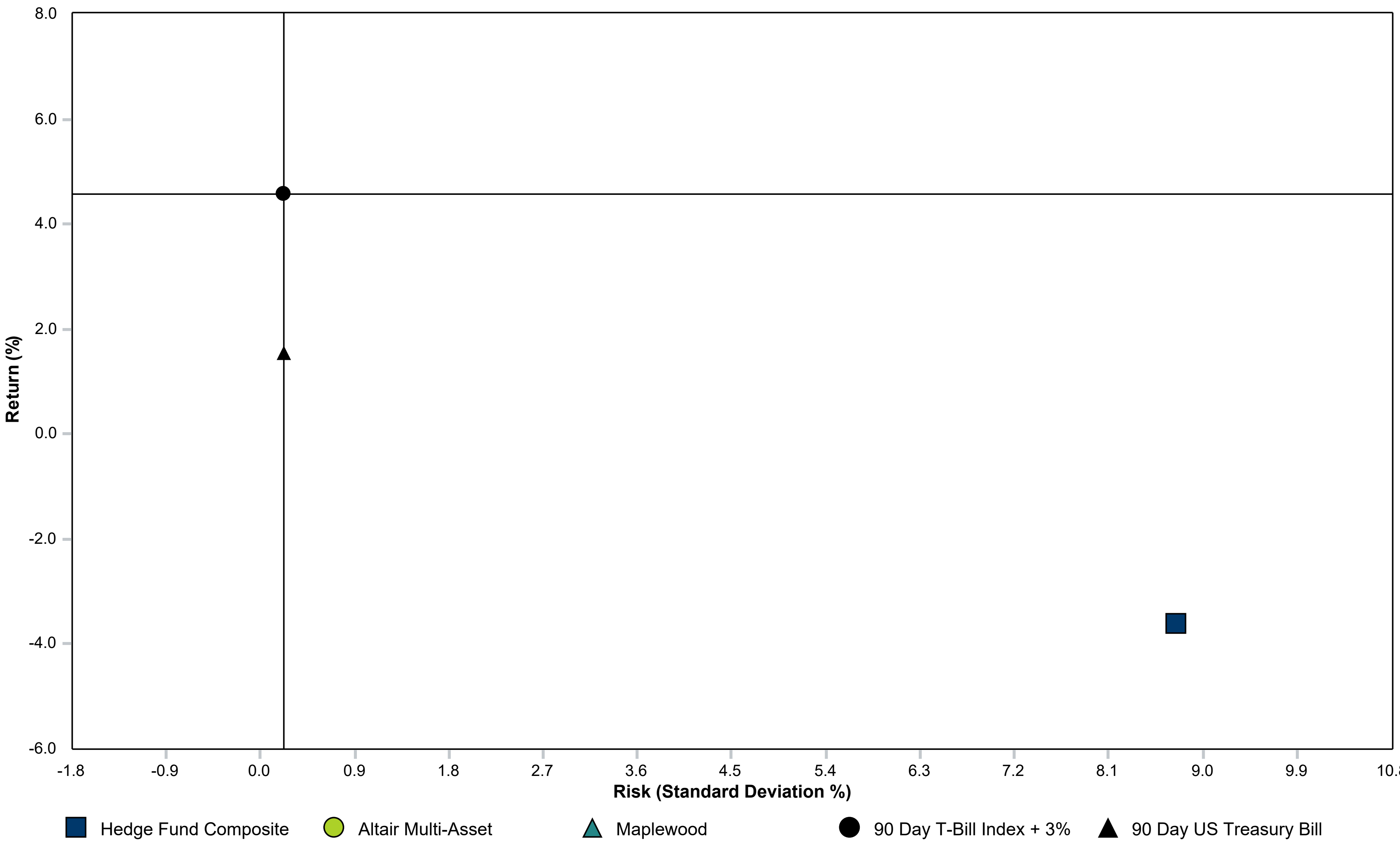
	Market Value $	Allocation (%)
Altair Multi-Asset	2,641,000	72.0
Maplewood	1,025,099	28.0

Wilshire Consulting

Risk vs. Return

Hedge Fund Composite

Periods Ended 3 Years Ending September 30, 2019



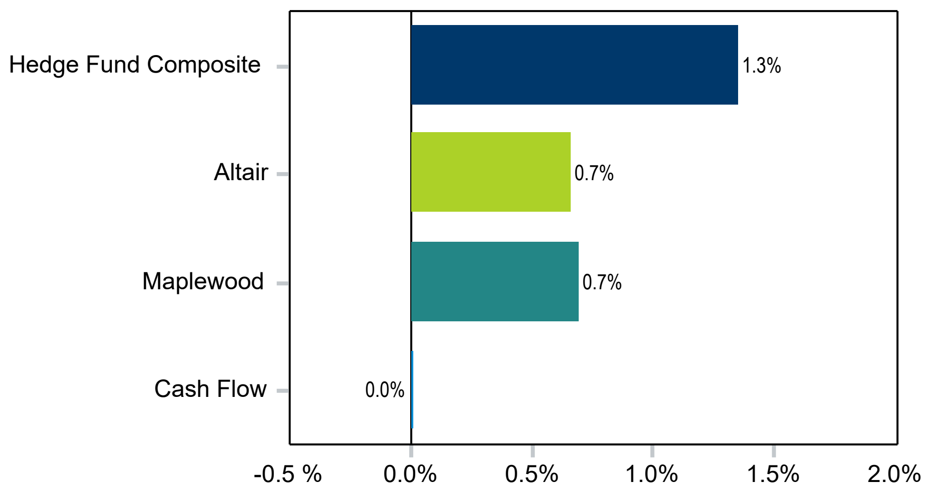
Calculation based on monthly periodicity.

Return and Risk Contribution

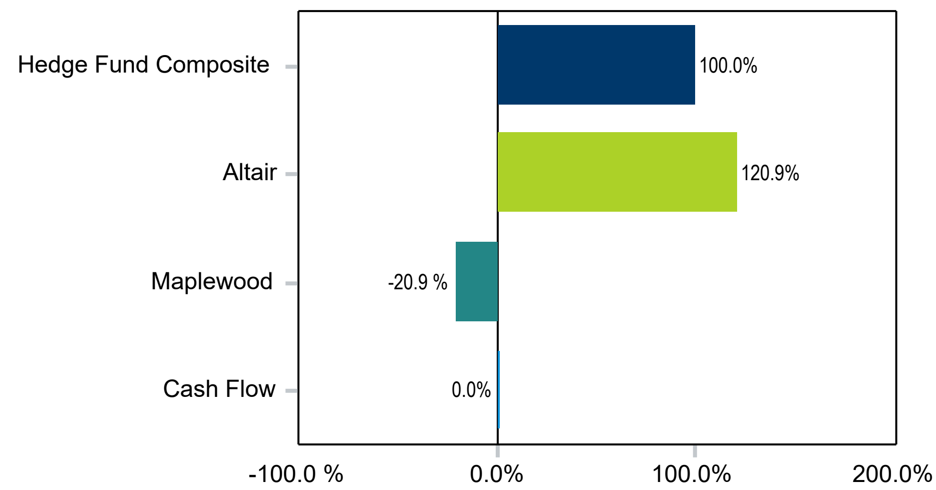
Hedge Fund Composite

Periods Ended September 30, 2019

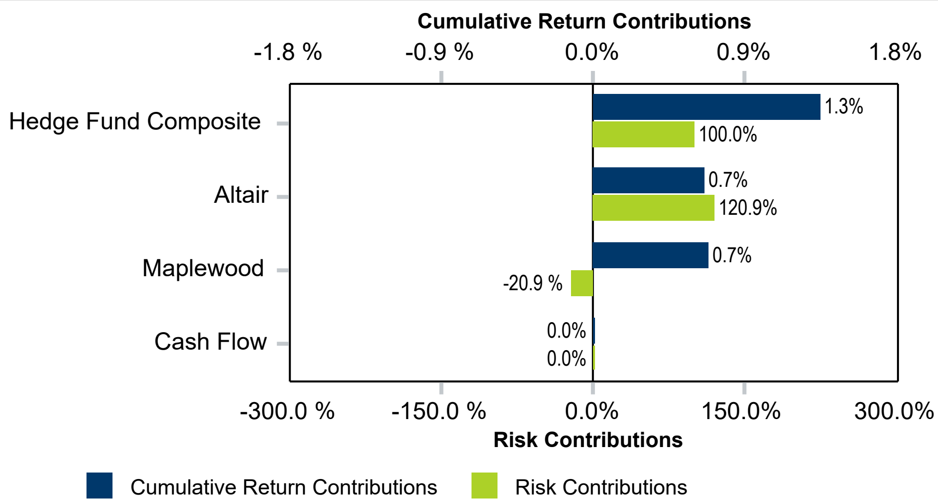
Cumulative Return Contributions



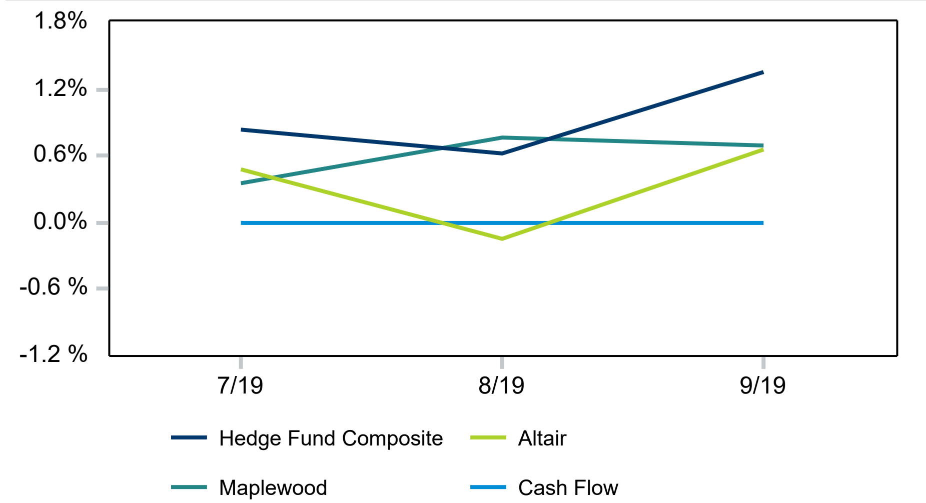
Risk Contributions



Cumulative Return and Risk Contributions



Cumulative Return Contributions History



Wilshire Consulting

Summary Statistics

Altair

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics

	Altair	HFRI FoF Composite Lagged
Maximum Return	2.85	2.56
Minimum Return	-4.13	-2.92
Return	-1.13	0.20
Cumulative Return	-1.13	0.20
Active Return	-1.26	0.00
Excess Return	-3.30	-2.03

Risk Summary Statistics

	Altair	HFRI FoF Composite Lagged
Upside Risk	1.10	0.99
Downside Risk	4.89	3.61
Beta	-0.07	1.00

Risk/Return Summary Statistics

	Altair	HFRI FoF Composite Lagged
Standard Deviation	6.18	4.98
Alpha	-0.91	0.00
Active Return/Risk	-0.20	0.00
Tracking Error	8.17	0.00
Information Ratio	-0.15	
Sharpe Ratio	-0.53	-0.41

Correlation Statistics

	Altair	HFRI FoF Composite Lagged
R-Squared	0.00	1.00
Actual Correlation	-0.06	1.00

Wilshire Consulting

Summary Statistics

Maplewood

Periods Ended 1 Year Ending September 30, 2019

Return Summary Statistics		
	Maplewood	**HFRX Macro Index**
Maximum Return		2.58
Minimum Return		-2.65
Return		2.86
Cumulative Return		2.86
Active Return		0.00
Excess Return		0.60

Risk Summary Statistics		
	Maplewood	**HFRX Macro Index**
Upside Risk		1.13
Downside Risk		3.46
Beta		1.00

Risk/Return Summary Statistics		
	Maplewood	**HFRX Macro Index**
Standard Deviation		5.16
Alpha		0.00
Active Return/Risk		0.00
Tracking Error		0.00
Information Ratio		
Sharpe Ratio		0.12

Correlation Statistics		
	Maplewood	**HFRX Macro Index**
R-Squared		1.00
Actual Correlation		1.00