WILSHIRE ASSOCIATES

Wilshire Consulting

Kentucky Retirement Systems Pension

Quarterly Executive Summary

December 31, 2019

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Capital Market Update

Wilshire Consulting

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.

MARKET COMMENTARY

U.S. Equity

The U.S. stock market was up 9.1% for the fourth quarter of 2019 and 31.0% for the full year. This marks the strongest year for U.S. equities since 2013. In December, the U.S. and China agreed to terms on a “Phase One” trade deal that is reported to reduce U.S. tariffs and increase Chinese purchases of some U.S. products.

The year 2019 was a sensational year for investing. U.S. equities were as strong as they have been in six years – while international equities also produced double-digit returns. U.S. core bonds were even more remarkable with returns not seen since 2002. Of course, the important question is what can we expect from here? The curve is no longer inverted so there is some reward for taking duration risk. The equity risk premium is higher than what is typical but the absolute equity forecast is still quite depressed.

Non-U.S. Equity

News out of Britain is mixed with notable economic weakness in the manufacturing and services sectors. However, consumer sentiment surveys are improving after a fourth-quarter election resulted in strong support for a pro-Brexit government. Japan experienced its fourth consecutive quarter of expansion during 2019, while also beating forecasts. China benefitted from good news on the trade front although the country’s economic growth has cooled to near 30-year lows.

Fixed Income

The U.S. Treasury yield curve fell in the short portion of the curve but rose across intermediate and long-term maturities. The FOMC decreased its overnight rate by 0.25% at the October meeting. The committee members are nearly unanimous about not changing rates at all during 2020.

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DECEMBER 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 (%)	5.75	6.25	6.25	6.50	6.20	7.95	1.85	2.85	3.25	2.15	4.30	1.05	5.00	5.20	6.60	3.60	5.90	1.75
ARITHMETIC RETURN (%)	7.05	7.70	9.20	8.10	7.55	11.30	1.85	3.00	3.70	2.35	4.75	1.10	6.35	6.35	7.50	4.65	6.25	1.75
EXPECTED RISK (%)	17.00	18.00	26.00	18.95	17.10	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 (%)	1.75	3.25	2.50	3.05	2.30	0.00	1.85	3.10	4.30	2.45	7.80	1.70	3.70	3.70	2.55	1.85	2.50	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	0.87	1.00														
Global Stock	0.95	0.92	0.83	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	0.78	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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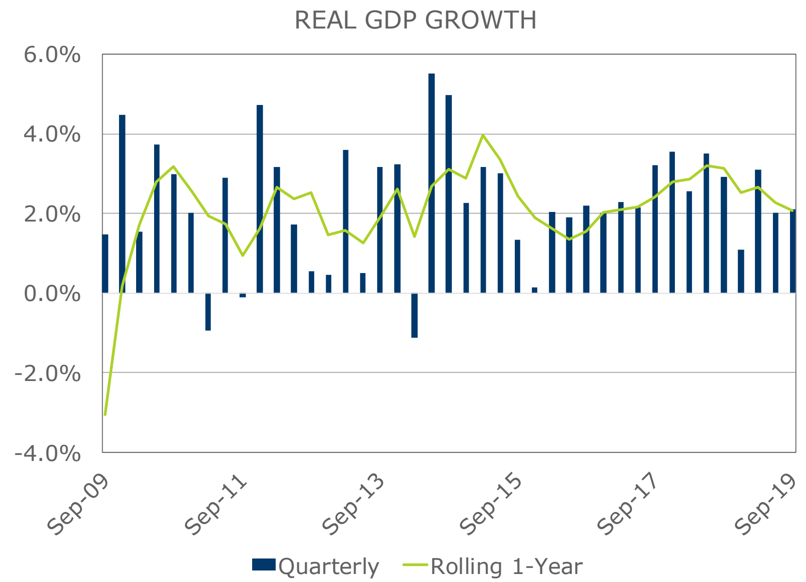
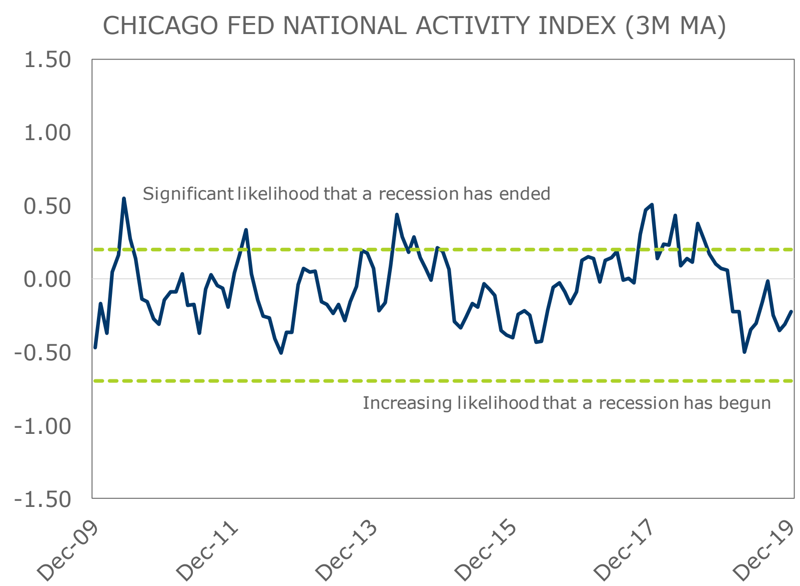
ECONOMIC GROWTH





Data source: Bloomberg

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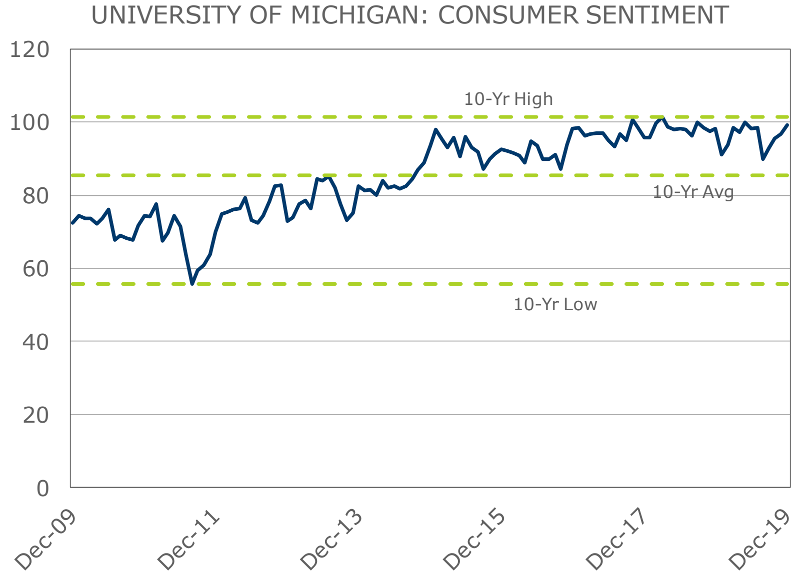
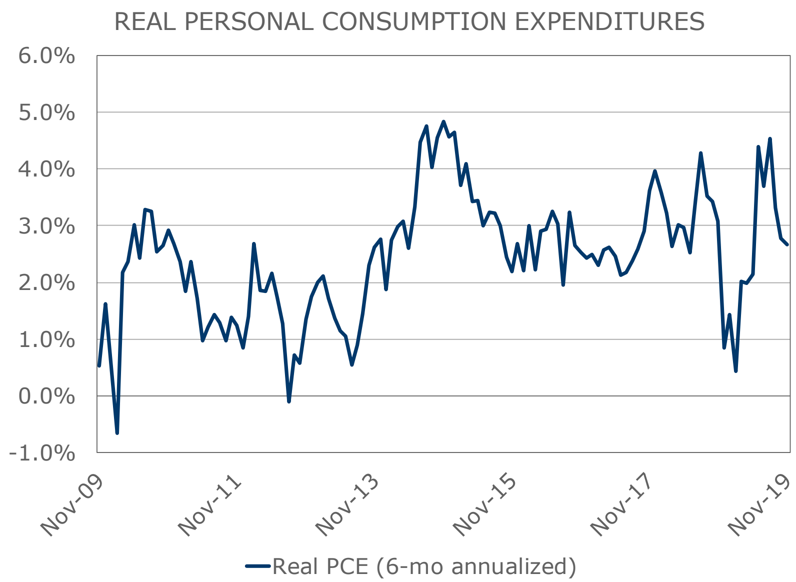
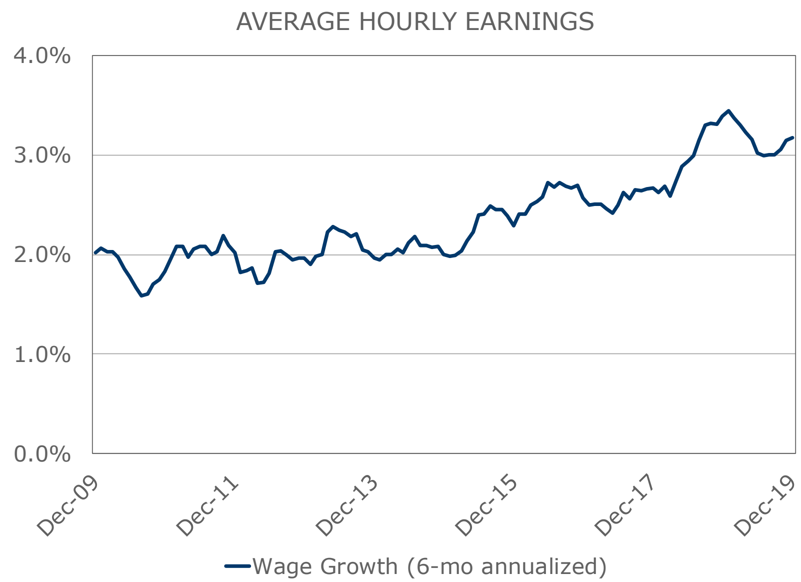
CONSUMER ACTIVITY







Data source: Bloomberg

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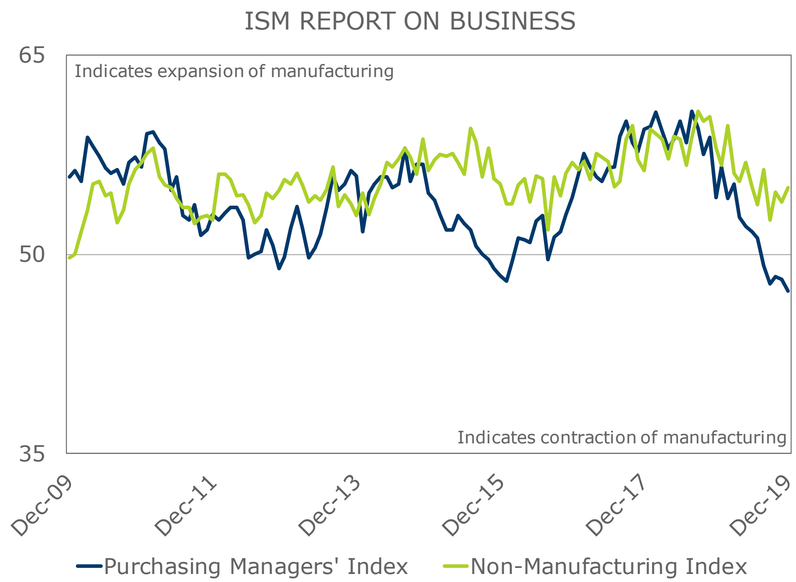
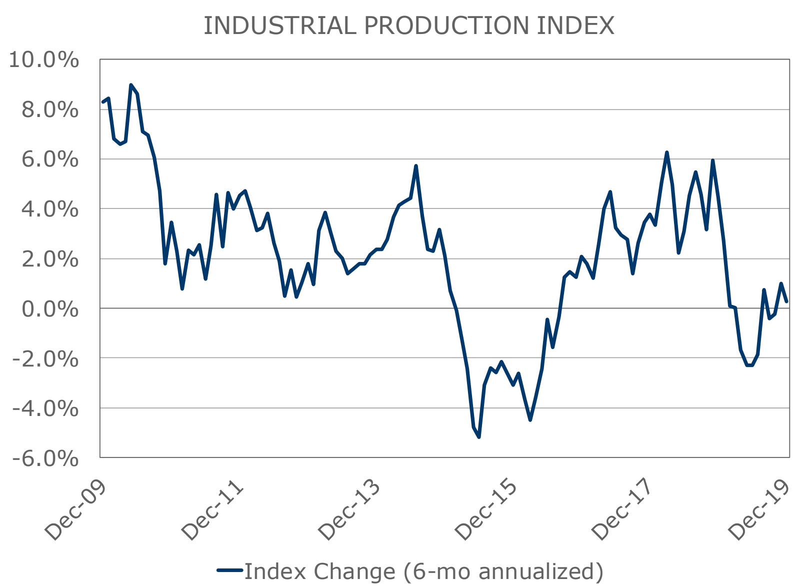
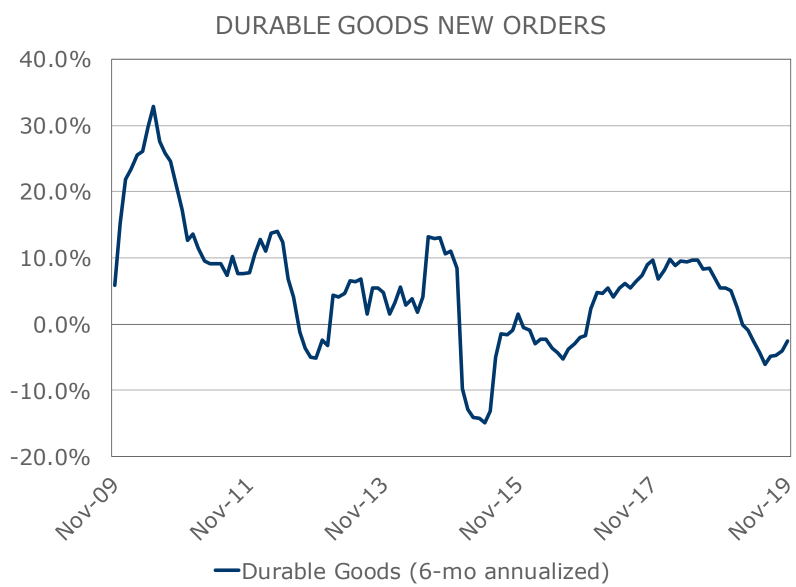
BUSINESS ACTIVITY







Data source: Bloomberg

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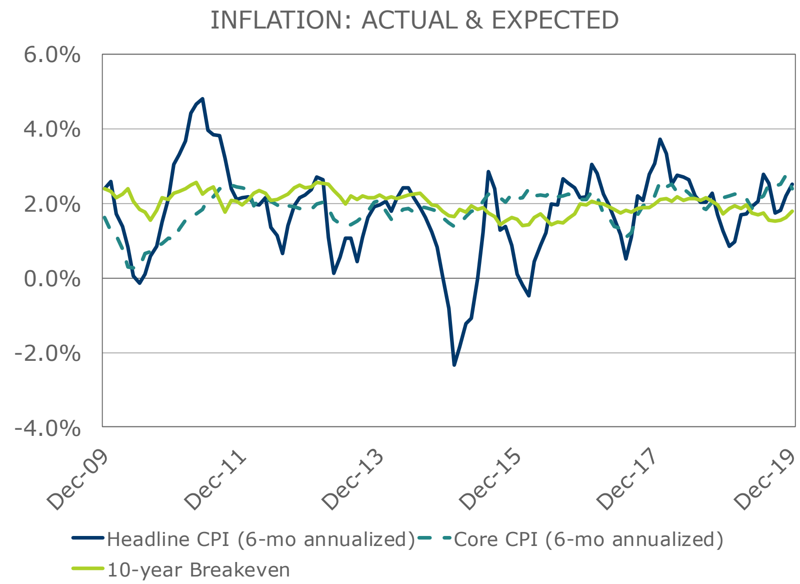
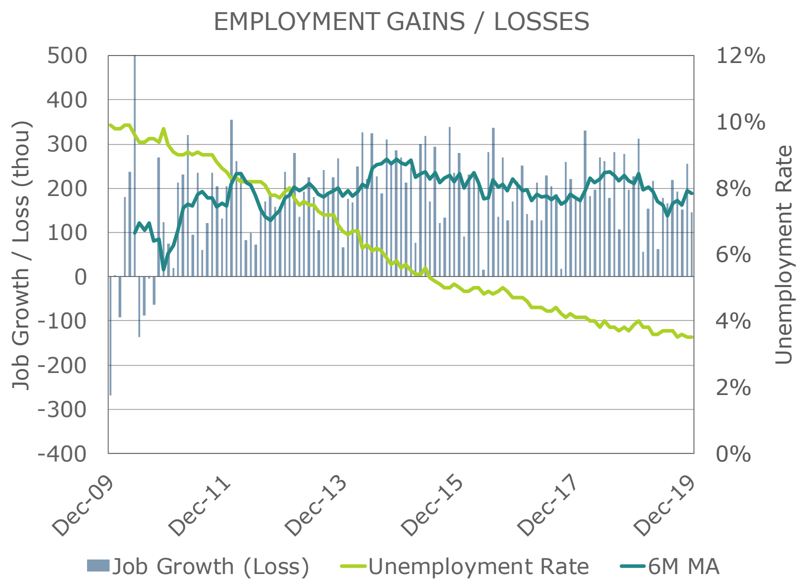
INFLATION AND EMPLOYMENT





Data source: Bloomberg

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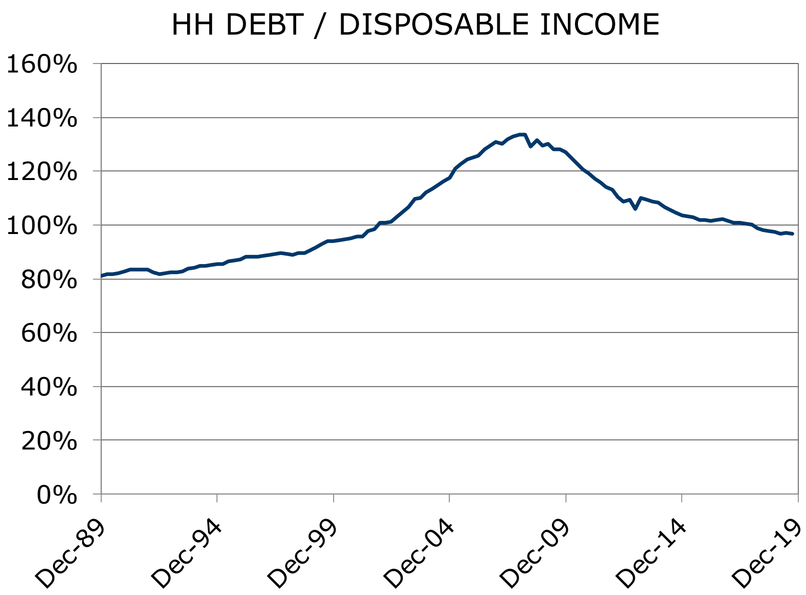
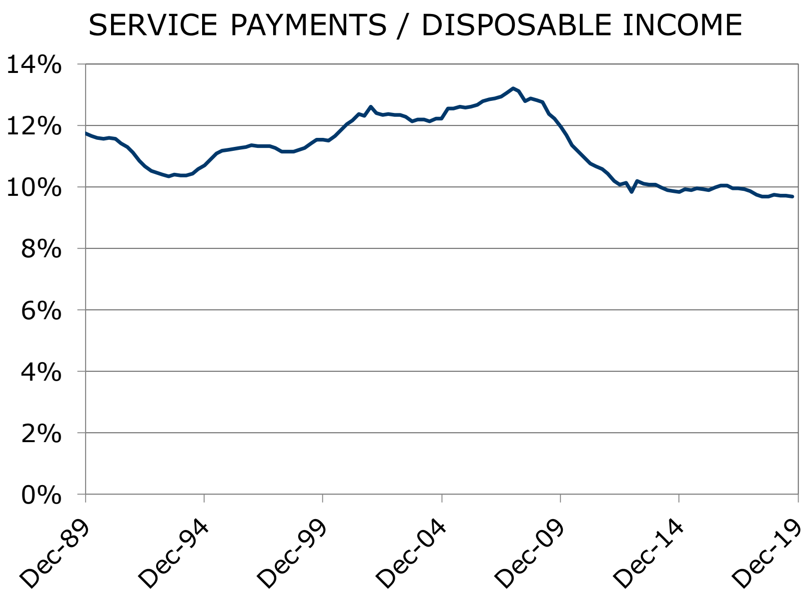
HOUSEHOLD DEBT

- Consumers continue to improve their outstanding debt conditions, now holding less debt than their disposable personal income



- Service payments – the amount necessary to pay interest and principal on outstanding debt – are as low as they have been in decades, again as a percent of disposable income



Data sources: Federal Reserve

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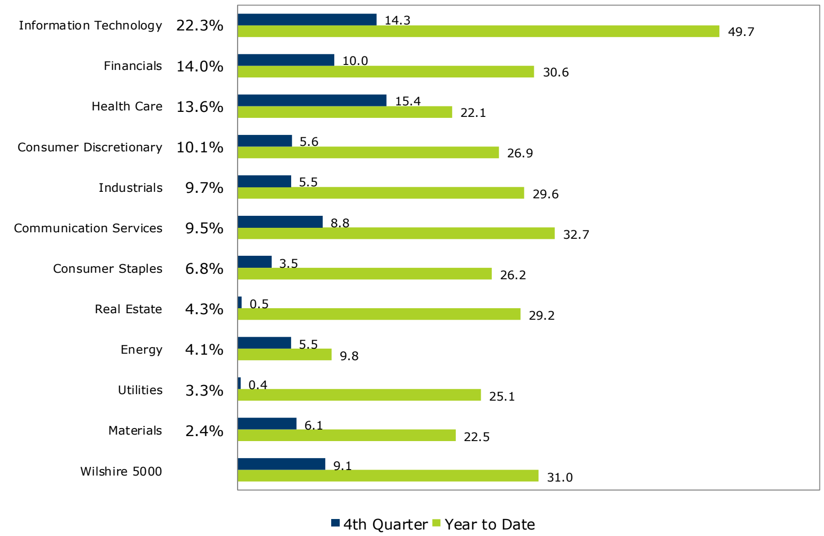
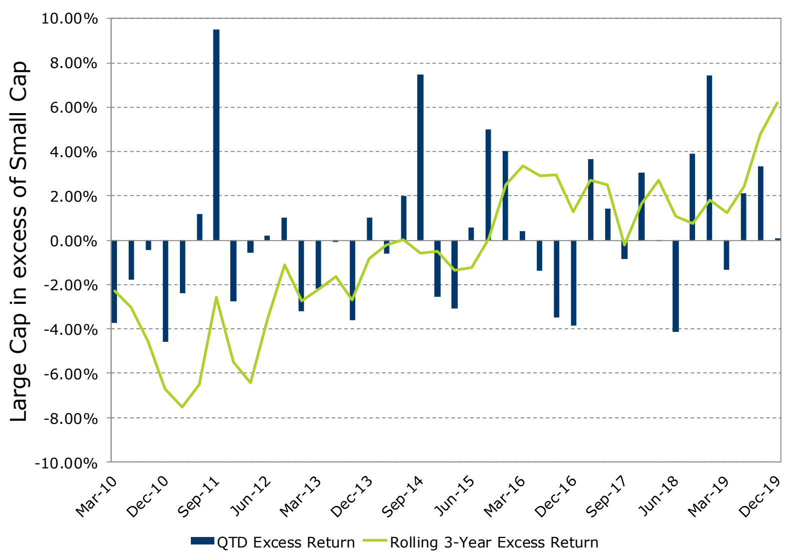
U.S. EQUITY MARKET

AS OF DEC 31, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	9.1	31.0	31.0	14.5	11.4	13.4
WILSHIRE U.S. LARGE CAP	9.1	31.5	31.5	15.2	11.7	13.5
WILSHIRE U.S. SMALL CAP	9.0	26.2	26.2	8.5	8.3	12.6
WILSHIRE U.S. LARGE GROWTH	11.2	35.8	35.8	18.7	13.5	14.5
WILSHIRE U.S. LARGE VALUE	7.1	27.7	27.7	11.8	9.9	12.6
WILSHIRE U.S. SMALL GROWTH	10.1	29.5	29.5	11.8	9.1	13.3
WILSHIRE U.S. SMALL VALUE	8.0	23.1	23.1	5.2	7.3	11.7
WILSHIRE REIT INDEX	-1.1	25.8	25.8	7.6	6.9	11.9
MSCI USA MIN. VOL. INDEX	2.9	27.1	27.1	14.9	11.8	13.5
FTSE RAFI U.S. 1000 INDEX	8.3	28.0	28.0	11.0	9.4	12.9

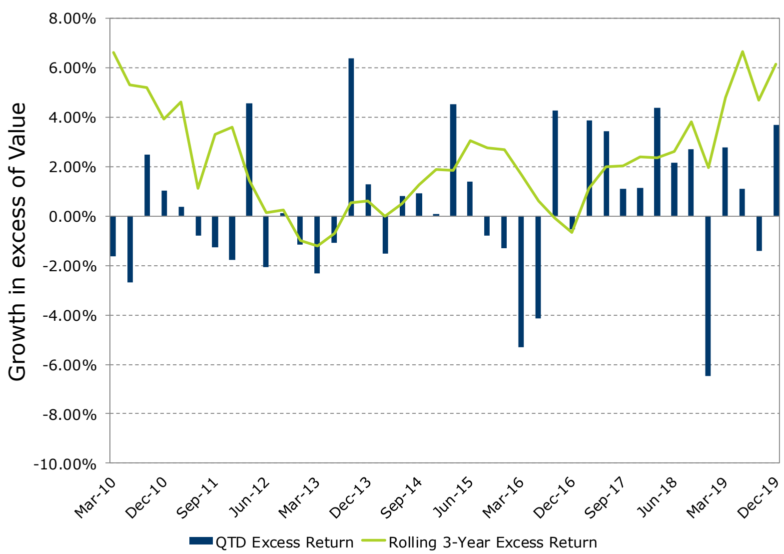
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

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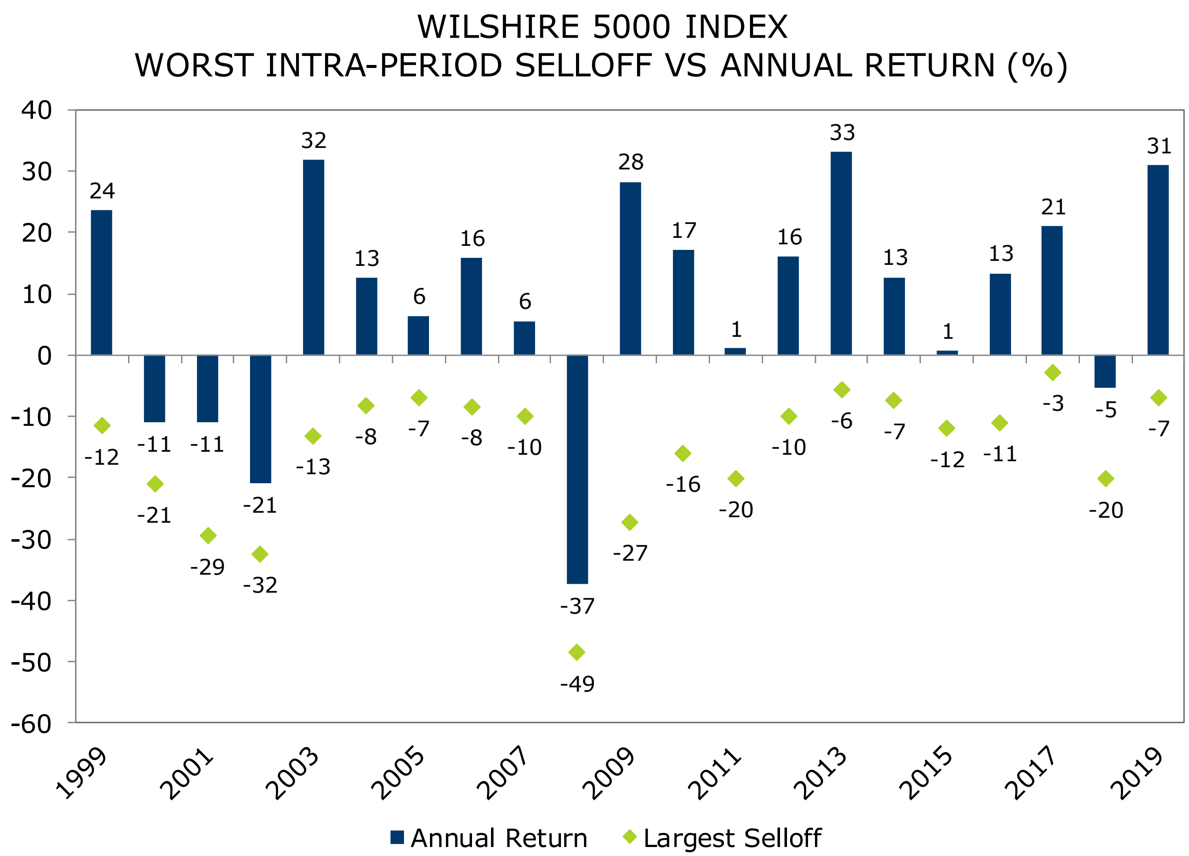
ANNUAL RETURNS

- Last year was the strongest year for equities since 2013
- Worst sell-off last year was relatively mild compared to the past 20 years



Data sources: Wilshire Associates

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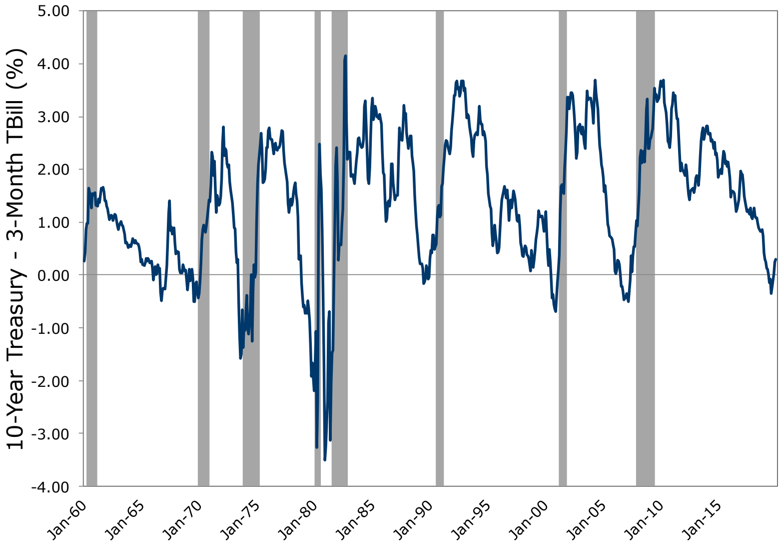
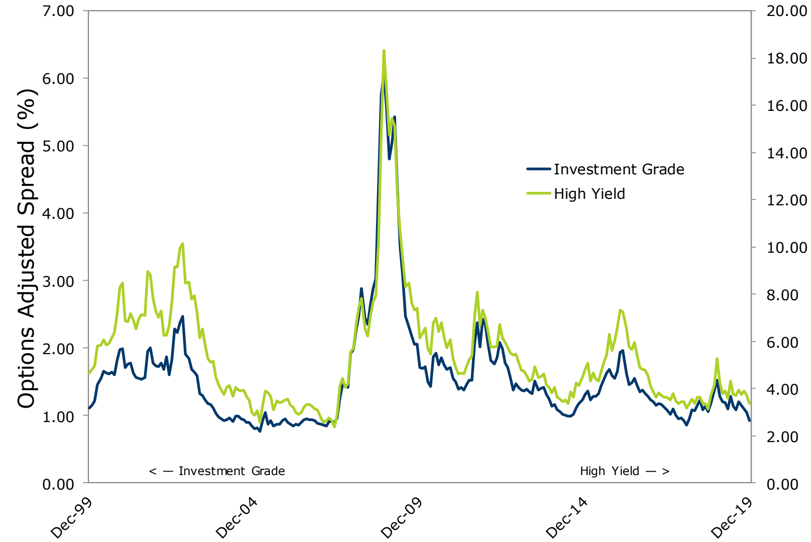
RISK MONITOR

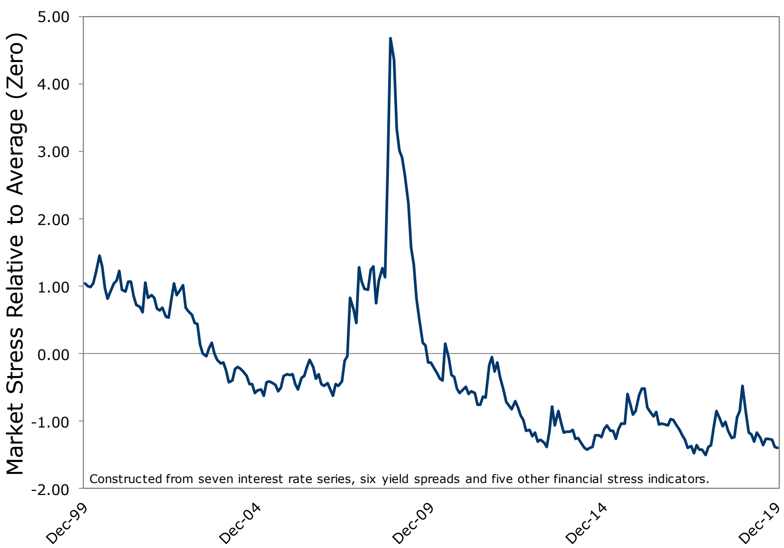
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



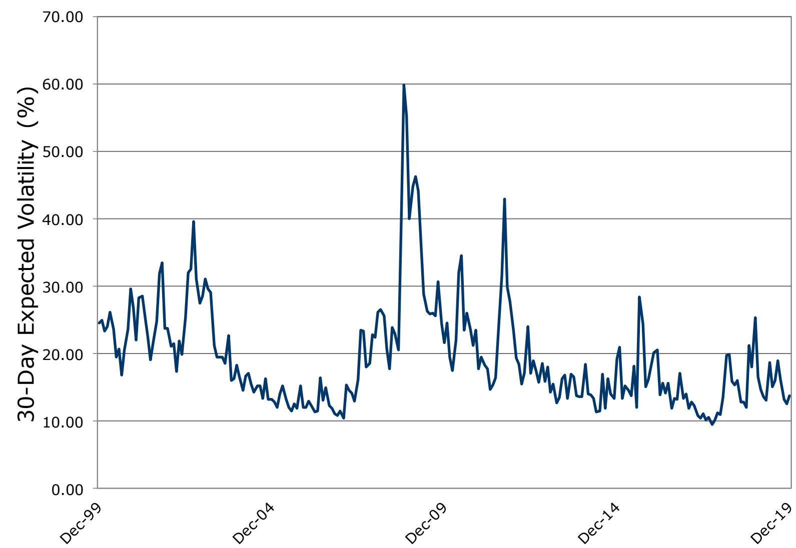
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



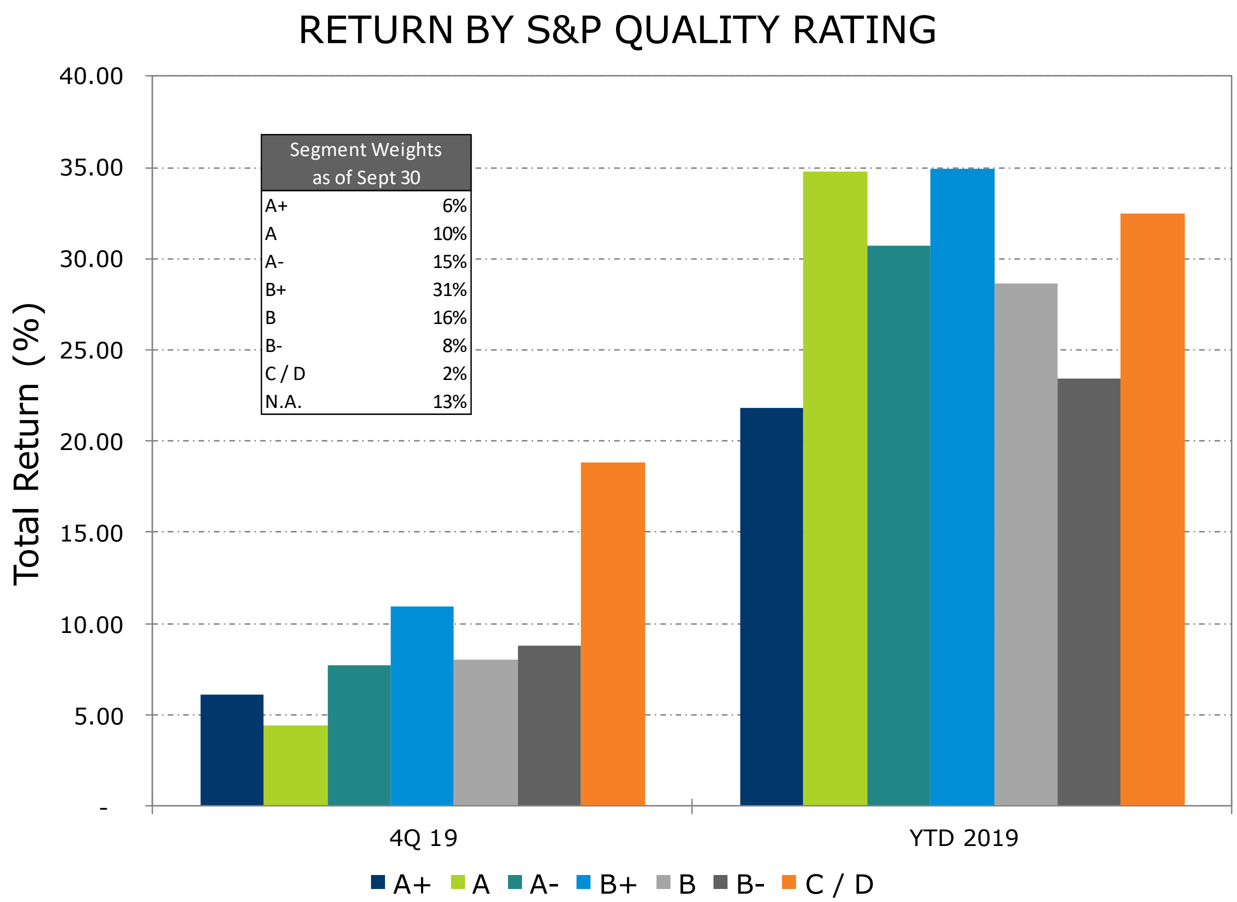
CBOE VOLATILITY INDEX



Data sources: Federal Reserve, Bloomberg Barclays

RETURNS BY QUALITY SEGMENT

Higher quality names trailed for the fourth quarter but were strong for the year



Segment Weights as of Sept 30	
A+	6%
A	10%
A-	15%
B+	31%
B	16%
B-	8%
C / D	2%
N.A.	13%

Data sources: Wilshire Atlas

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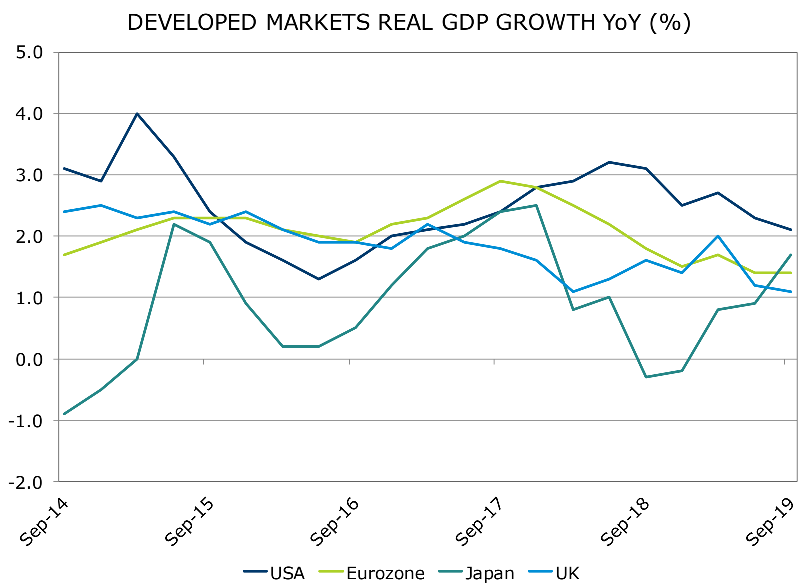
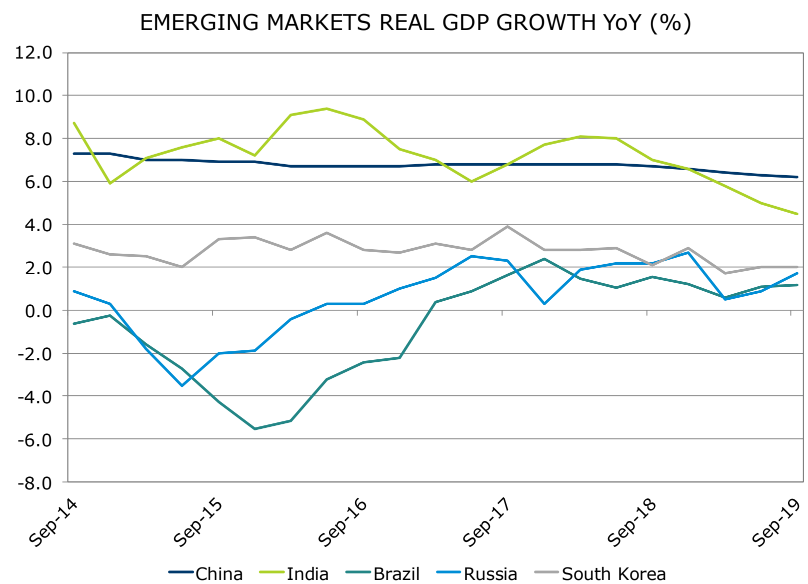
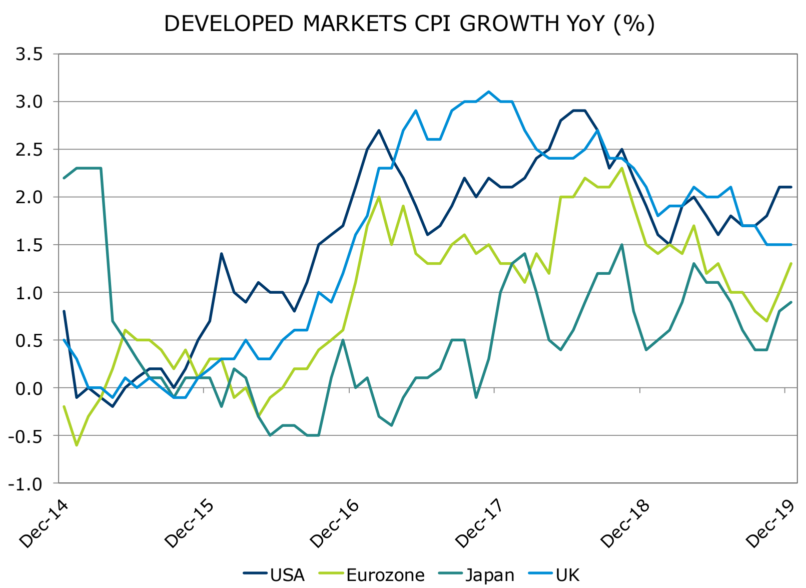
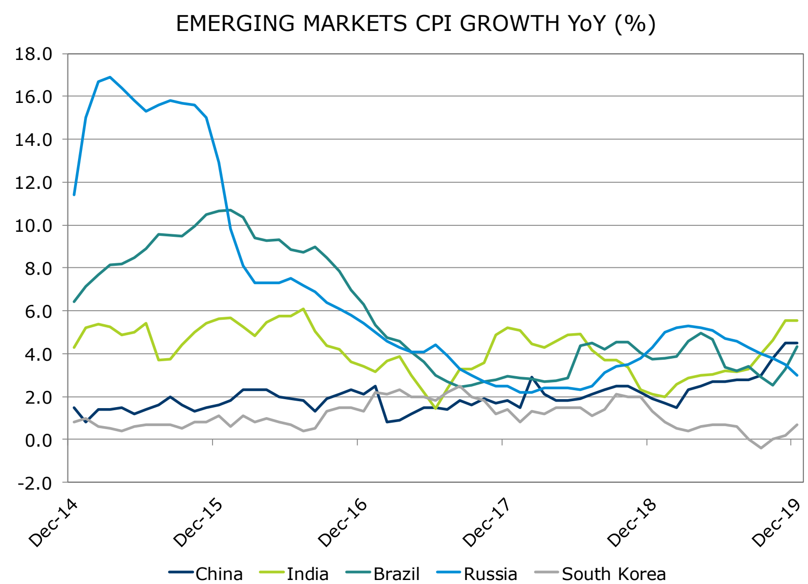
NON-U.S. GROWTH AND INFLATION









Data sources: Bloomberg

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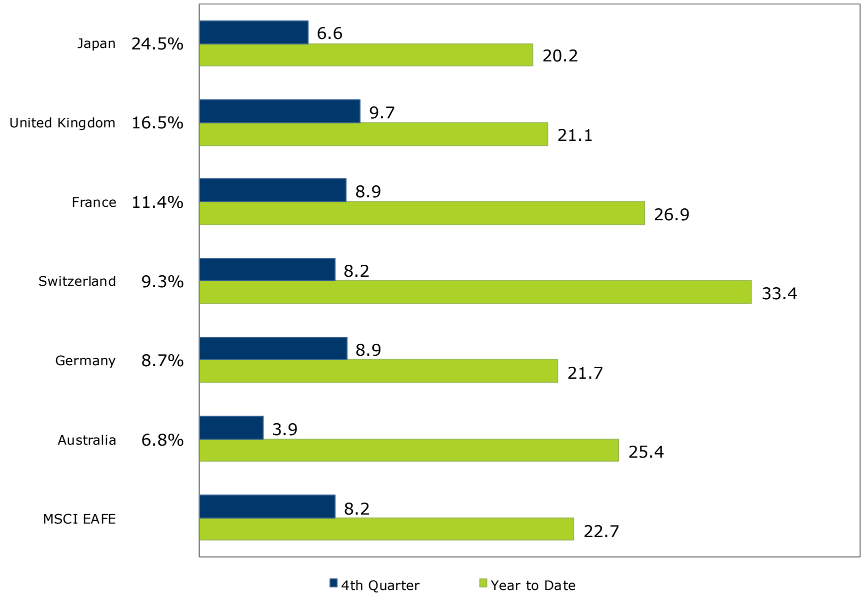
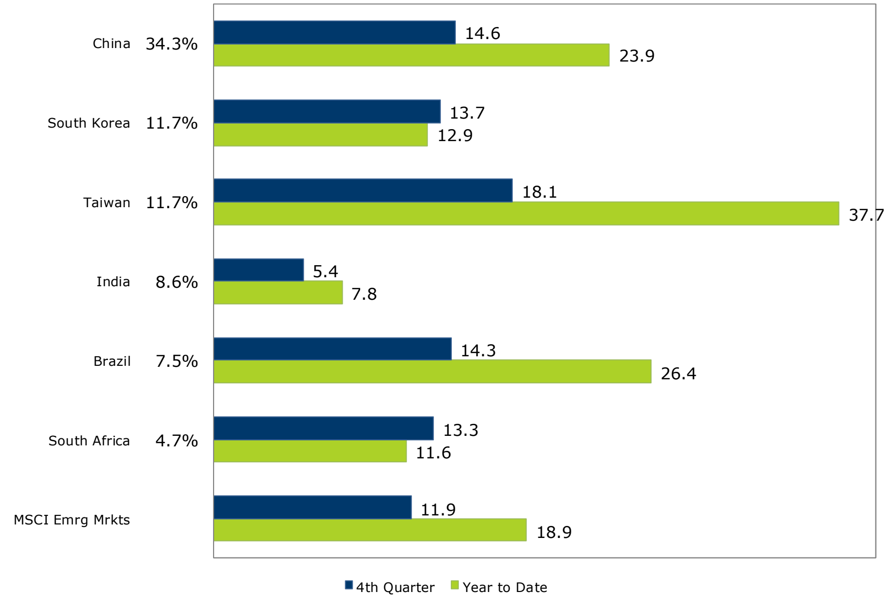
NON-U.S. EQUITY MARKET

AS OF DEC 31, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US ($G)	9.0	22.1	22.1	10.4	6.0	5.4
MSCI EAFE ($G)	8.2	22.7	22.7	10.1	6.2	6.0
MSCI EMERGING MARKETS ($G)	11.9	18.9	18.9	12.0	6.0	4.0
MSCI FRONTIER MARKETS ($G)	6.6	18.3	18.3	9.5	3.1	5.7
MSCI ACWI EX-US GROWTH ($G)	9.6	27.8	27.8	13.3	7.7	6.6
MSCI ACWI EX-US VALUE ($G)	8.3	16.5	16.5	7.5	4.3	4.2
MSCI ACWI EX-US SMALL ($G)	11.1	22.9	22.9	10.1	7.5	7.4
MSCI ACWI MINIMUM VOLATILITY	3.1	21.8	21.8	12.7	9.9	10.9
MSCI EAFE MINIMUM VOLATILITY	4.5	17.4	17.4	10.8	7.7	8.1
FTSE RAFI DEVELOPED EX-US	8.2	18.8	18.8	8.5	5.5	5.2
MSCI EAFE LC (G)	5.2	22.3	22.3	8.2	7.2	7.7

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



Data sources: Wilshire Compass

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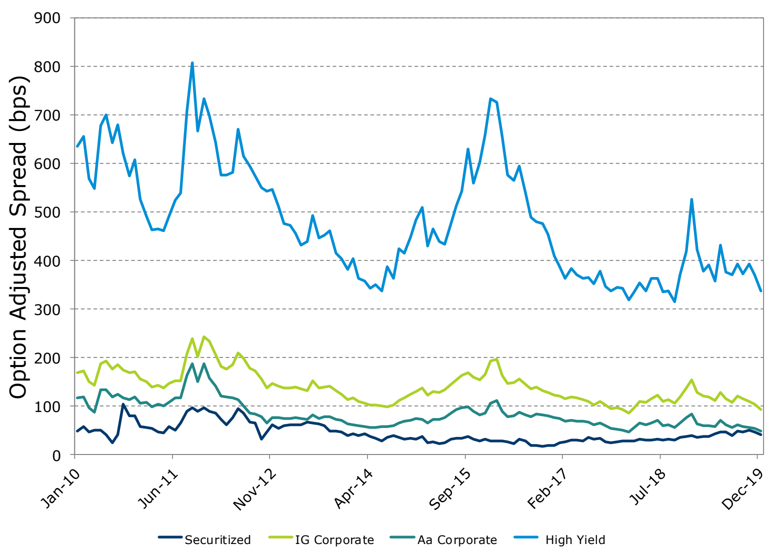
U.S. FIXED INCOME

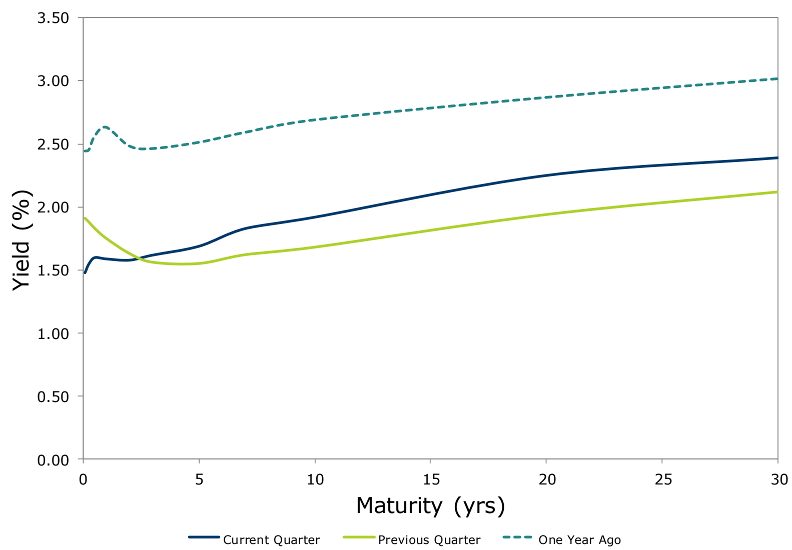
AS OF DEC 31, 2019	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.3	5.9	0.2	8.7	8.7	4.0	3.1	3.7
BLOOMBERG BARCLAYS TREASURY	1.8	6.5	-0.8	6.9	6.9	3.3	2.4	3.1
BLOOMBERG BARCLAYS GOV'T-REL.	2.4	5.9	0.2	9.0	9.0	4.4	3.1	3.5
BLOOMBERG BARCLAYS SECURITIZED	2.5	3.3	0.6	6.4	6.4	3.3	2.6	3.3
BLOOMBERG BARCLAYS CORPORATE	2.9	7.9	1.2	14.5	14.5	5.9	4.6	5.5
BLOOMBERG BARCLAYS LT G/C	3.1	15.8	-1.1	19.6	19.6	8.1	5.4	7.6
BLOOMBERG BARCLAYS LT TREASURY	2.3	18.1	-4.1	14.8	14.8	7.0	4.1	7.0
BLOOMBERG BARCLAYS LT GOV't-REL.	3.6	12.7	-0.1	18.7	18.7	8.8	5.6	7.7
BLOOMBERG BARCLAYS LT CORP.	3.6	14.5	1.3	23.9	23.9	8.8	6.4	8.0
BLOOMBERG BARCLAYS U.S. TIPS *	1.9	7.6	0.8	8.4	8.4	3.3	2.6	3.4
BLOOMBERG BARCLAYS HIGH YIELD	6.0	3.0	2.6	14.3	14.3	6.4	6.1	7.6
TREASURY BILLS	1.6	0.25	0.5	2.3	2.3	1.7	1.1	0.6

* 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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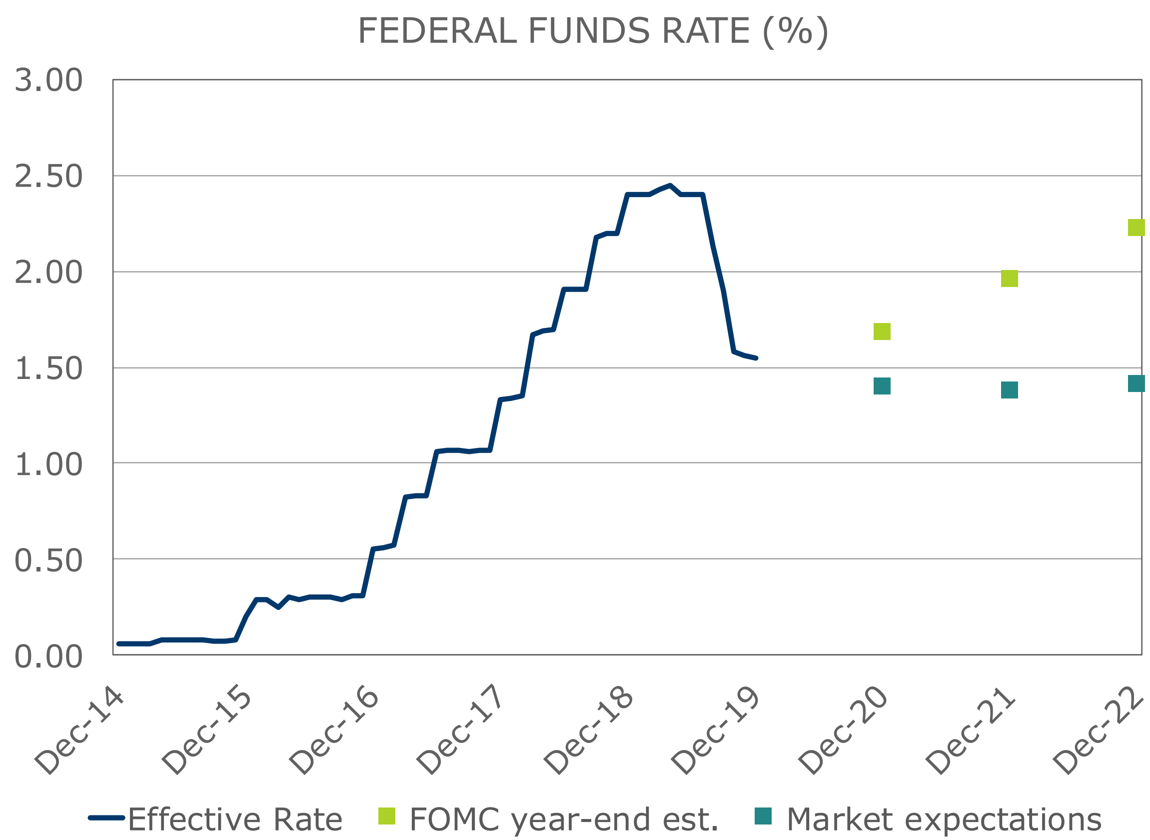
SHORT-TERM RATES

- Federal Reserve decreased their short-term rate 3 times during the second half of 2019
- Markets aren't expecting the overnight rate to move at all during the next few years



Data sources: Federal Reserve, Bloomberg

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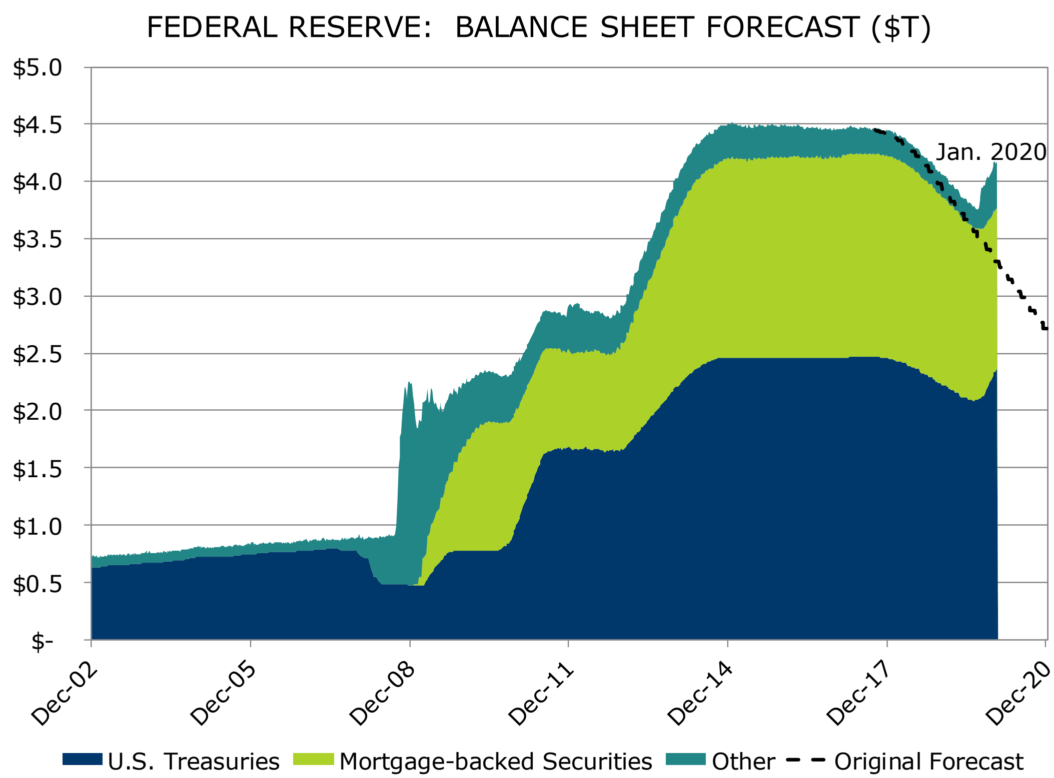
FED BALANCE SHEET

- 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
- Began buying Treasury bills in September to address a liquidity shortage in the repo market
- Fed stated purchases will continue “at least into the second quarter,” potentially reversing their previous balance sheet contraction efforts



Data sources: Federal Reserve

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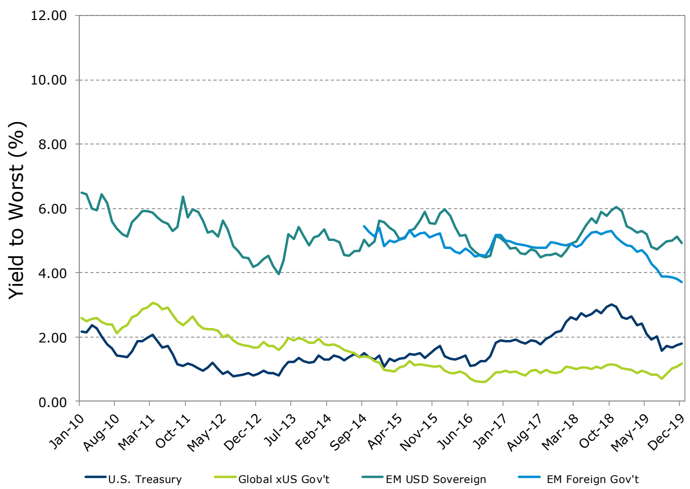
NON-U.S. FIXED INCOME

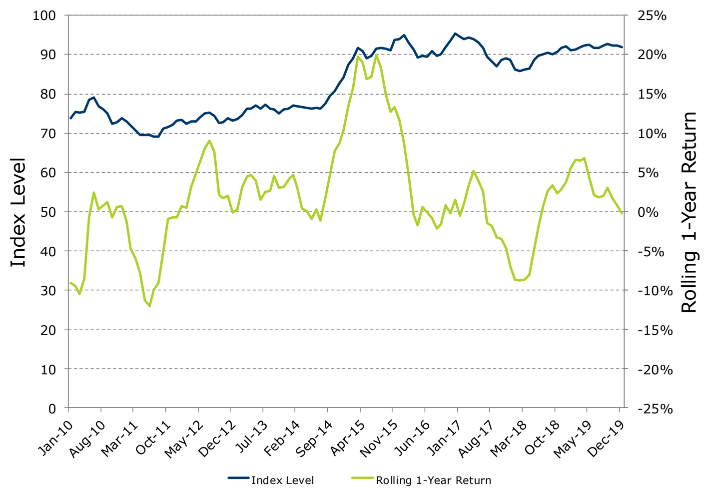
AS OF DEC 31, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GLBL AGGREGATE xUS	0.7	5.1	5.1	4.4	1.6	1.5
BLMBRG BRCLYS GLBL AGGREGATE xUS *	-1.1	7.6	7.6	4.4	3.9	4.3
BLMBRG BRCLYS GLOBAL INF LNKD xUS	-0.6	7.8	7.8	4.6	1.8	3.2
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	-5.2	8.0	8.0	4.2	5.3	5.8
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	2.1	13.1	13.1	6.1	5.8	6.6
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	4.0	9.5	9.5	6.5	2.8	3.4
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	0.5	8.5	8.5	4.9	3.6	3.7
EURO vs. DOLLAR	3.0	-1.8	-1.8	2.1	-1.5	-2.4
YEN vs. DOLLAR	-0.6	1.0	1.0	2.4	2.0	-1.5
POUND vs. DOLLAR	7.5	4.0	4.0	2.4	-3.2	-2.0

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

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



U.S. DOLLAR INDEX: MAJOR CURRENCIES



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

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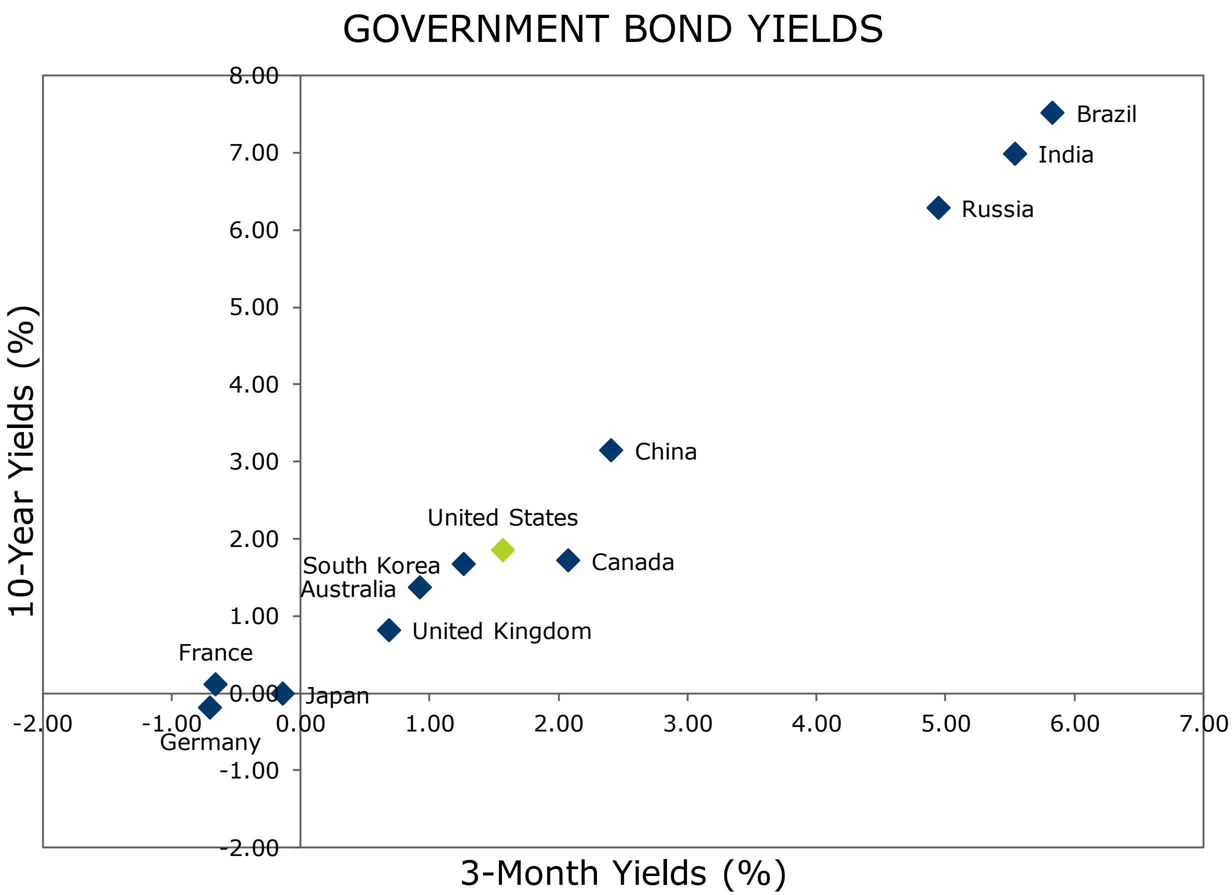
GLOBAL INTEREST RATES

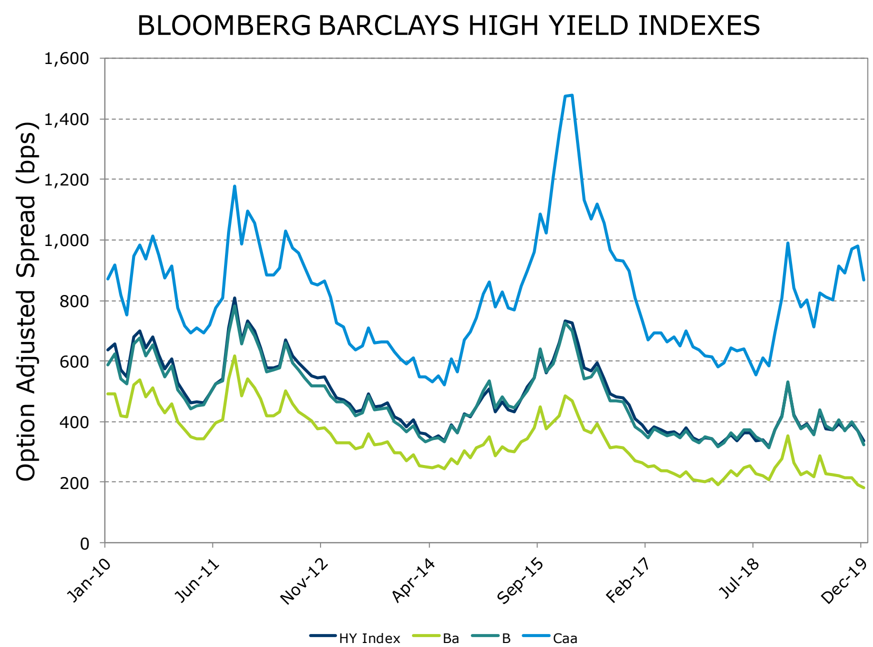
Much of Europe and Japan exhibit negative rates; Long rates are up, however, in those same regions during the past six months



Data sources: Bloomberg

HIGH YIELD BOND MARKET

AS OF DEC 31, 2019		YTW	QTR	YTD	1 YR	3 YR	5 YR
BLOOMBERG BARCLAYS HIGH YIELD		5.2	2.6	14.3	14.3	6.4	6.1
S&P LSTA LEVERAGE LOAN INDEX		0.0	0.0	8.2	8.2	3.6	3.7
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT						
Ba U.S. HIGH YIELD	47.7%	3.6	2.5	15.5	15.5	6.6	6.2
B U.S. HIGH YIELD	38.8%	5.1	2.6	14.8	14.8	6.5	5.9
Caa U.S. HIGH YIELD	12.5%	10.4	3.7	9.5	9.5	5.1	6.1
Ca to D U.S. HIGH YIELD	0.7%	21.0	-7.3	-0.3	-0.3	3.9	-2.1
Non-Rated U.S. HIGH YIELD	0.3%	6.6	1.9	6.3	6.3	5.5	-0.1

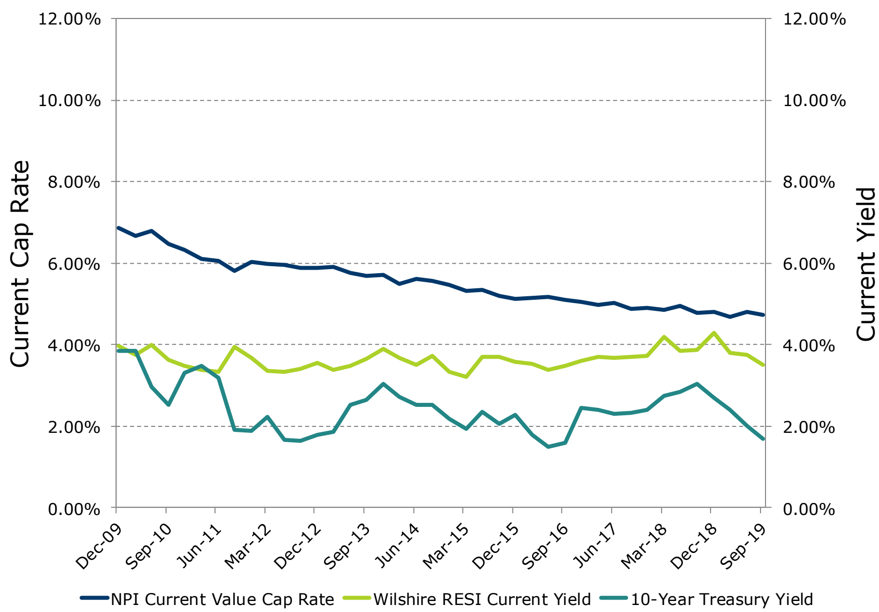


Data sources: Wilshire Compass, Bloomberg Barclays

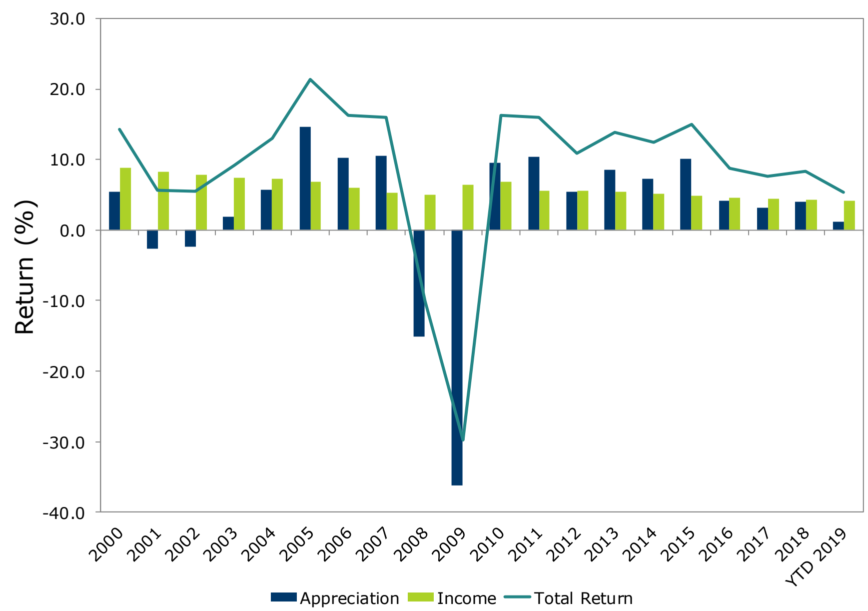
REAL ASSETS

AS OF DEC 31, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	0.8	8.4	8.4	3.3	2.6	3.4
BLOOMBERG COMMODITY INDEX	4.4	7.7	7.7	-0.9	-3.9	-4.7
WILSHIRE GLOBAL RESI INDEX	1.2	24.2	24.2	9.0	6.8	10.5
NCREIF ODCE FUND INDEX	1.5	5.4	5.4	7.1	9.0	11.4
ALERIAN MLP INDEX (OIL & GAS)	-4.1	6.6	6.6	-4.4	-7.0	4.2

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
2014	2015	2016	2017	2018	2019 YTD		AS OF 12/2019
REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%		U.S. Equity 11.4%
U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	REITs 25.8%		REITs 6.9%
Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%		Developed 6.2%
MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%		High Yield 6.1%
U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	High Yield 14.3%		Emrg Mrkts 6.0%
High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%		Core Bond 3.1%
T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%		U.S. TIPS 2.6%
Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Commodities 7.7%		T-Bills 1.1%
Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	MLPs 6.6%		Commodities -3.9%
Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 2.3%		MLPs -7.0%

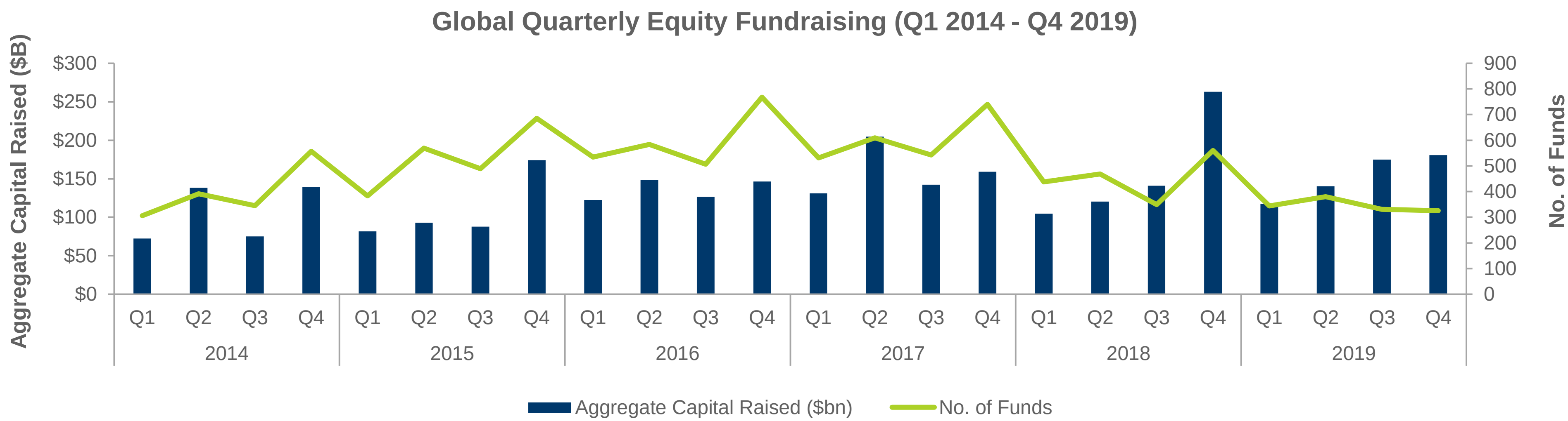
Data sources: Wilshire Compass

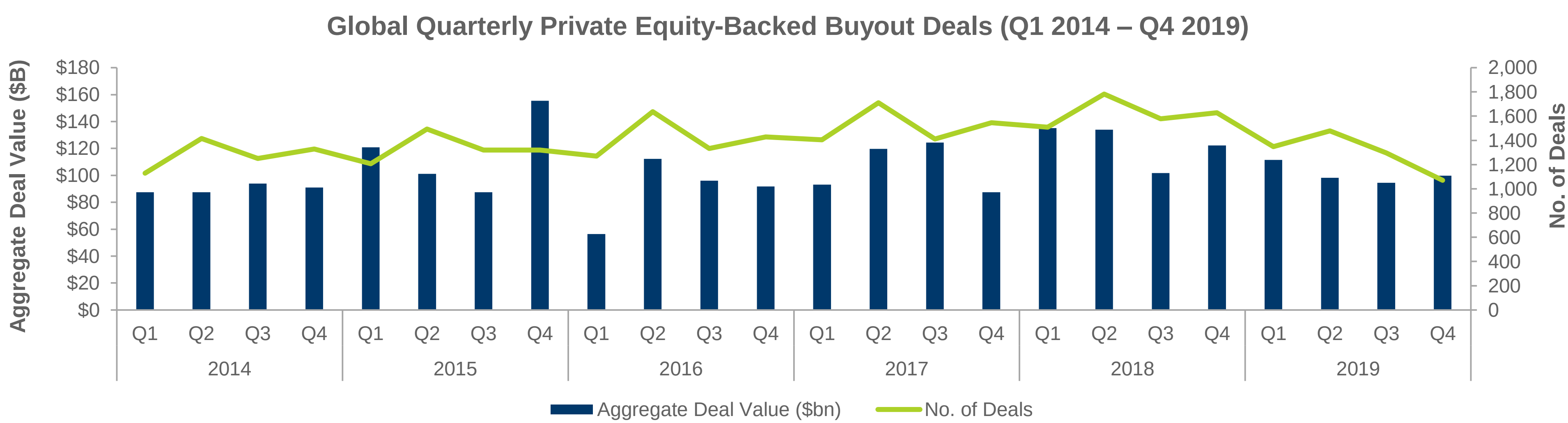
Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

APPENDIX: PRIVATE MARKETS UPDATE

Wilshire Private Markets

PRIVATE EQUITY – FUNDRAISING & INVESTMENT ACTIVITY

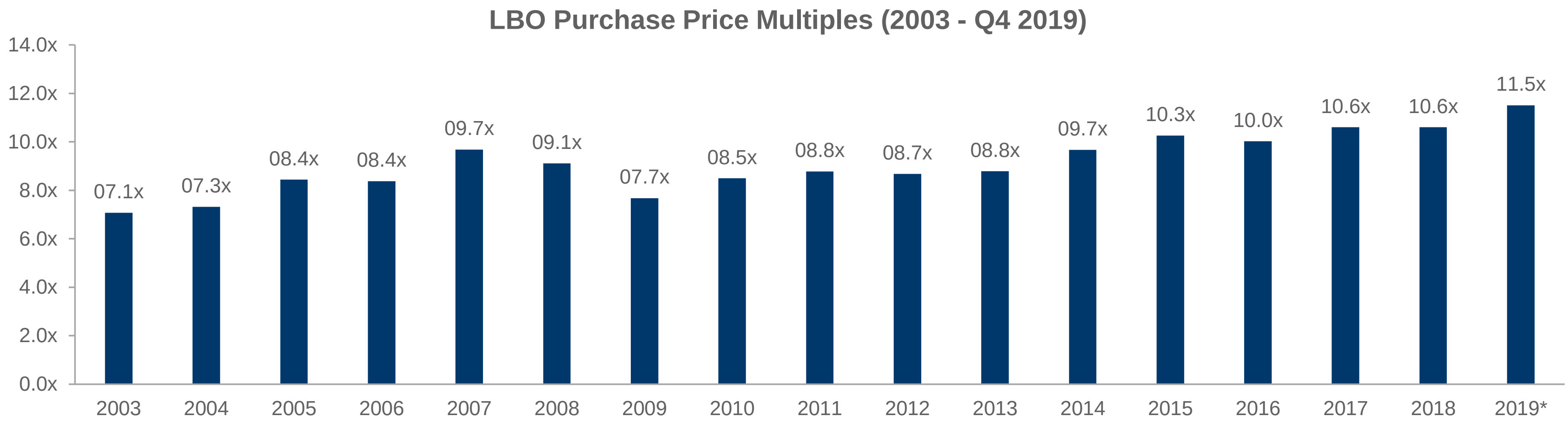


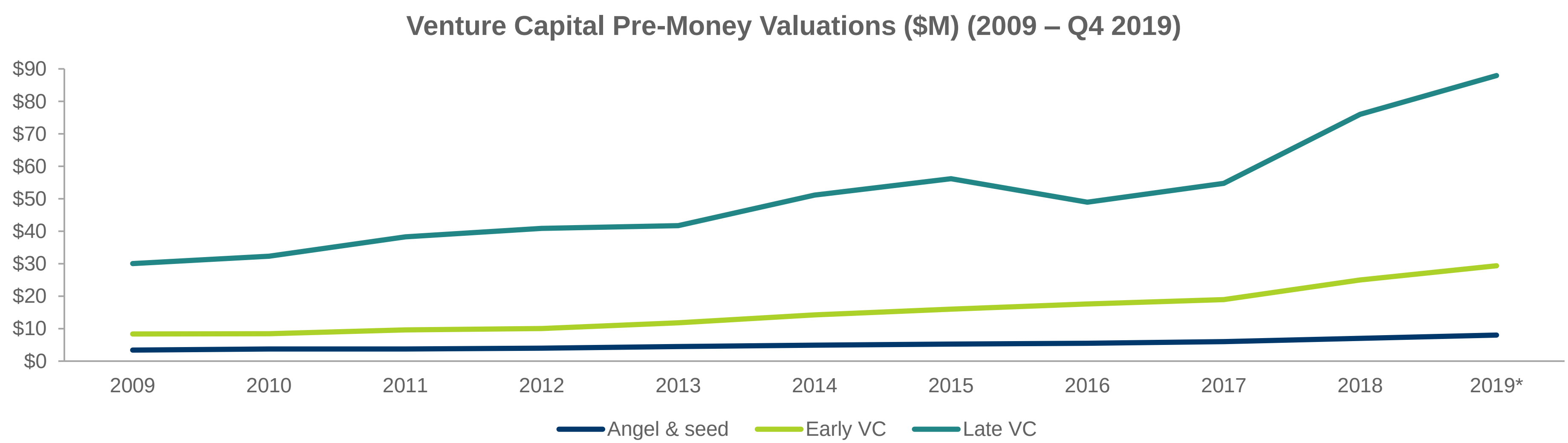


Source: Preqin, as of December 31, 2019.

Wilshire Private Markets

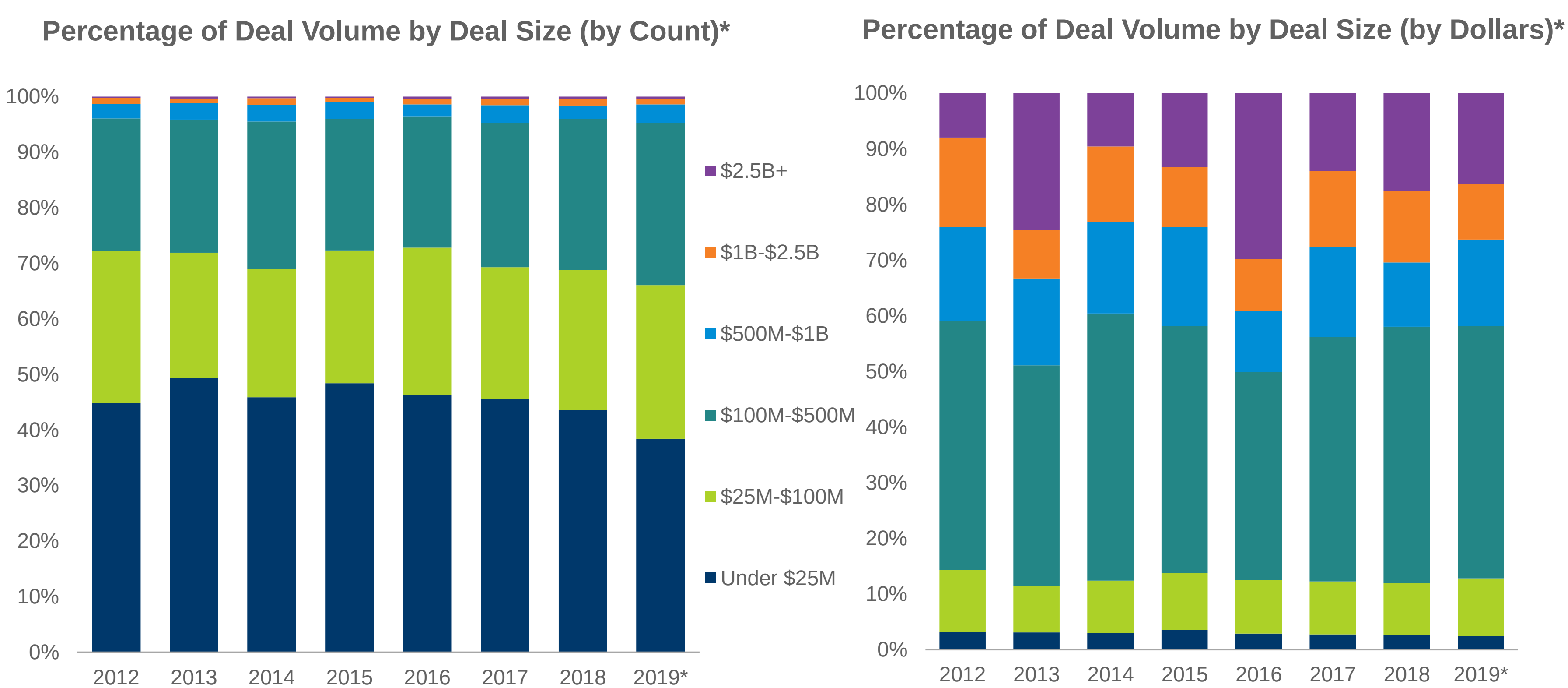
PRIVATE EQUITY – PRICING & VALUATIONS





Source: S&P LBO; PitchBook, *as of December 31, 2019.

U.S. INVESTMENT ACTIVITY BY DEAL SIZE

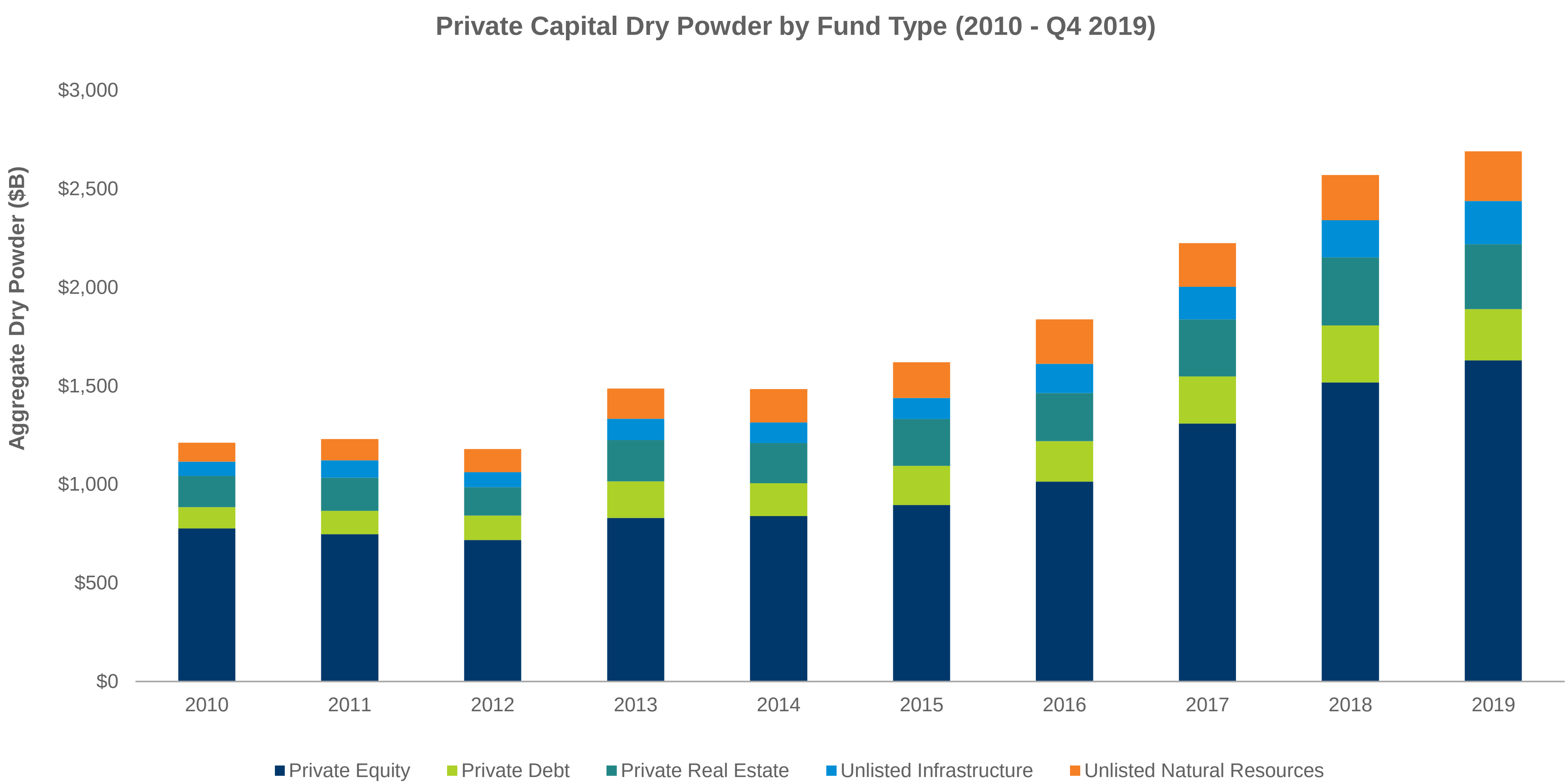


- Deal volume continues to be dominated by lower middle market deals with investment sizes below $100 million through the fourth quarter of 2019
- However, deals with below $100 million check sizes comprised only 12% of all deal volume by amount of capital invested in the fourth quarter of 2019

Source: PitchBook, *as of December 31, 2019.

Wilshire Private Markets

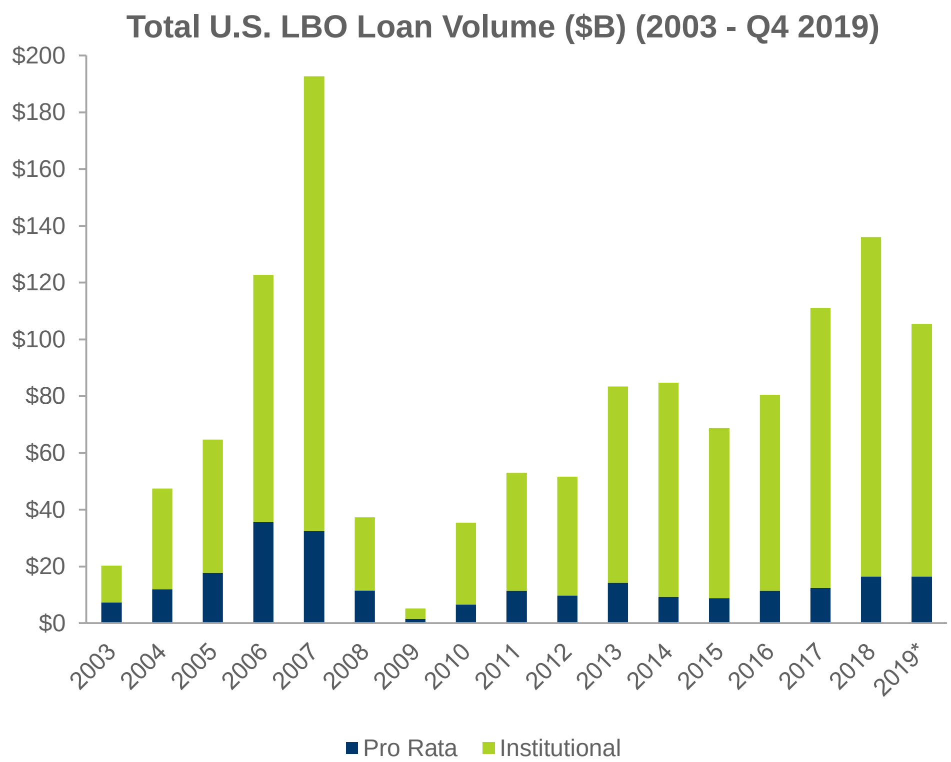
PRIVATE CAPITAL DRY POWDER

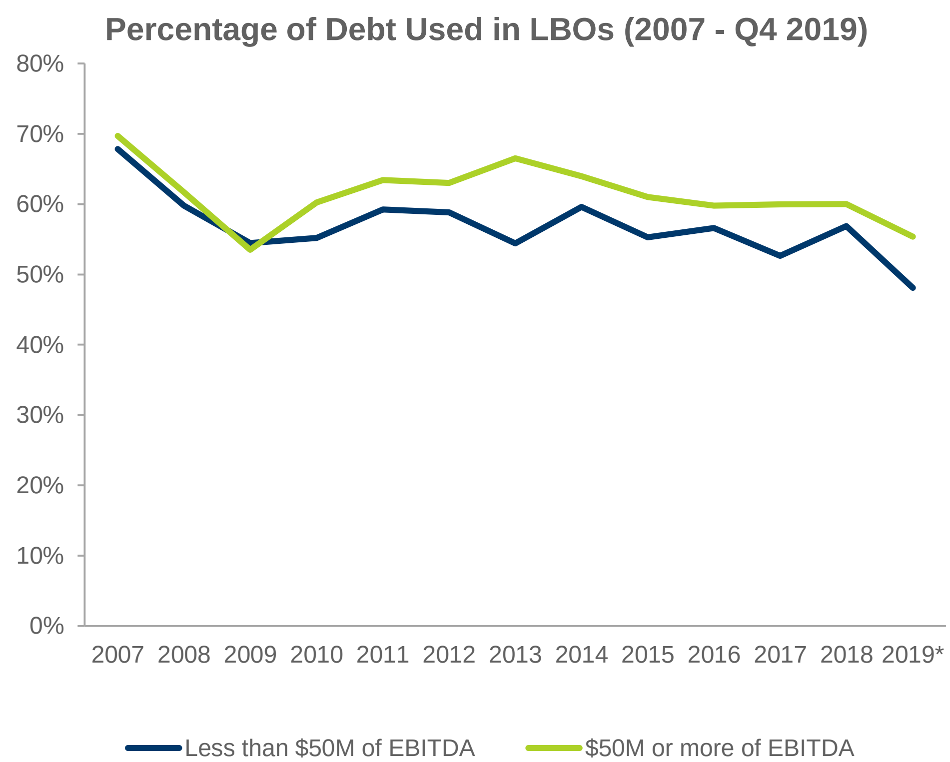


- Global private capital dry powder continues to increase, topping $2.6 trillion across all fund types
- Private equity comprises just over 60% of total dry powder in the market as of Q4 2019

Source: Preqin, as of December 31, 2019.

PRIVATE EQUITY - U.S. DEBT MARKETS



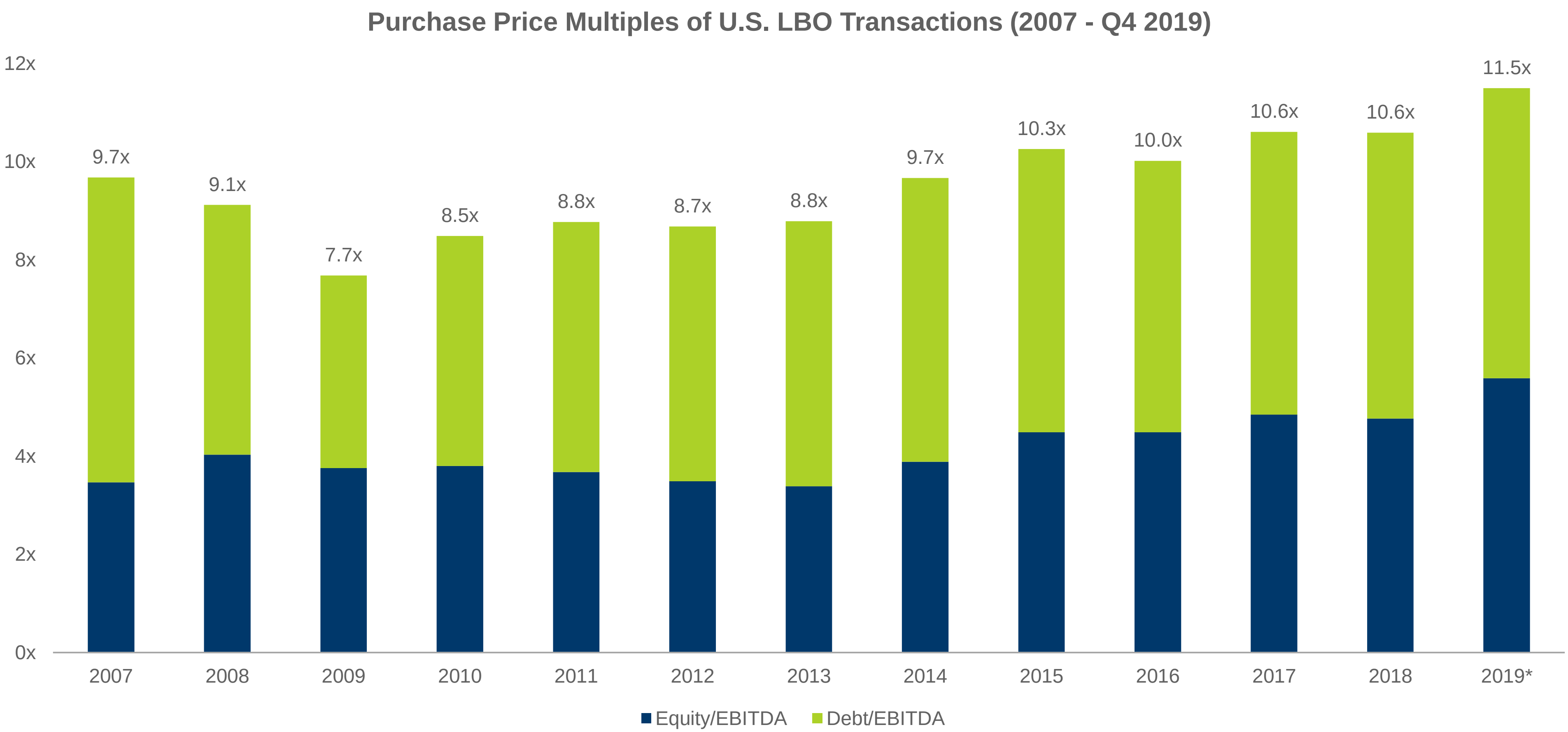


- 2019 has generated approximately $106 billion in loan volume and for the first time since 2015, LBO's did not see an increase in loan volume from the prior year
- As debt capital becomes less available, the percentage of debt used to finance leveraged buyouts through the fourth quarter of 2019 has dropped from 2018 marks

Source: S&P LBO, *as of December 31, 2019.

Wilshire Private Markets

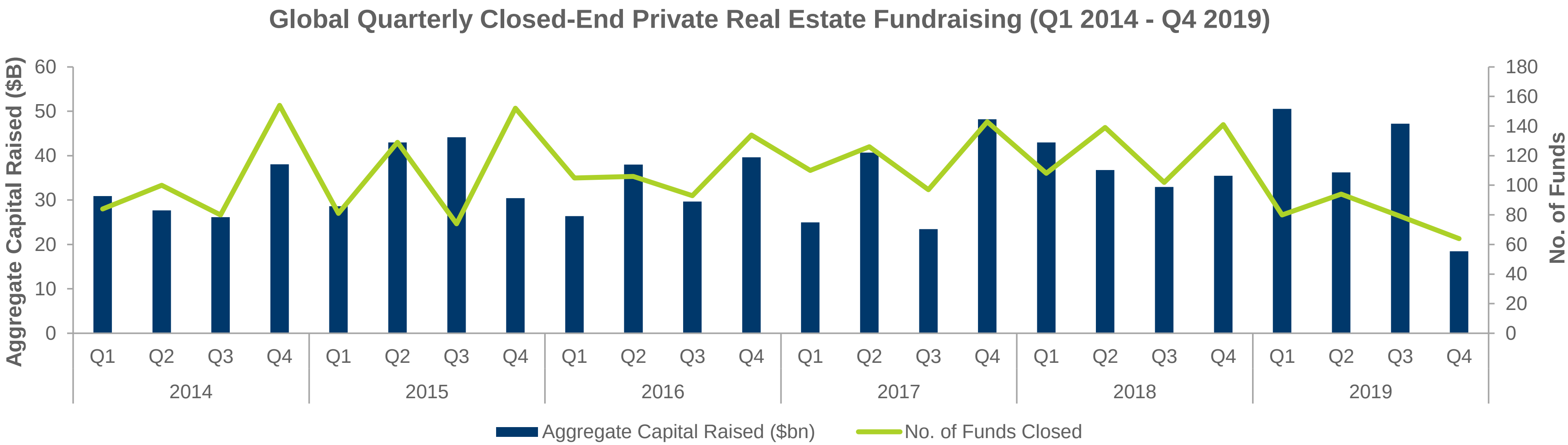
PRIVATE EQUITY - U.S. LBO PURCHASE PRICE MULTIPLES

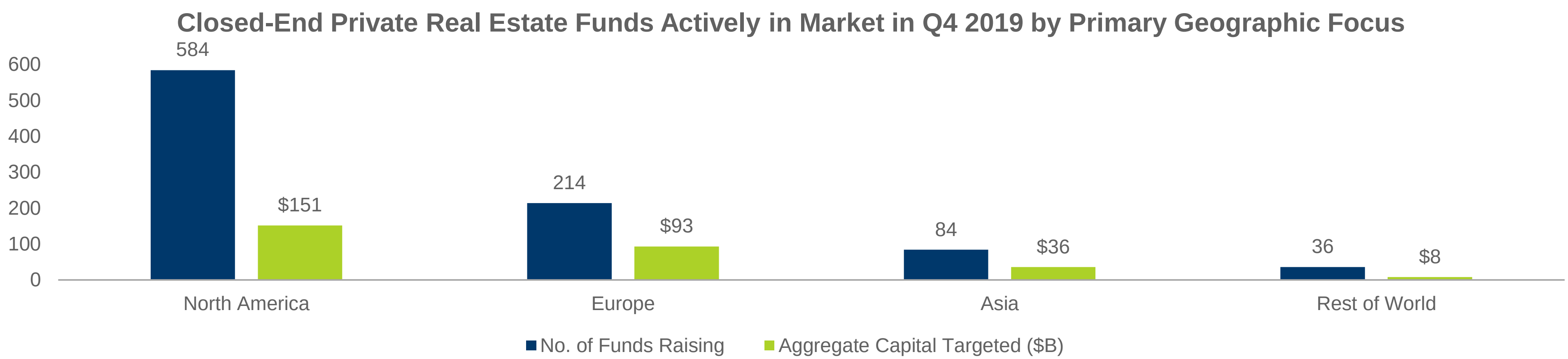


- Due to the amount of equity that is readily available, purchase price multiples for U.S. LBOs have continued to rise through Q4 2019, relative to 2018 levels

Source: S&P LBO, *as of December 31, 2019.

PRIVATE REAL ESTATE – FUNDRAISING ACTIVITY





Source: Preqin, as of December 31, 2019.

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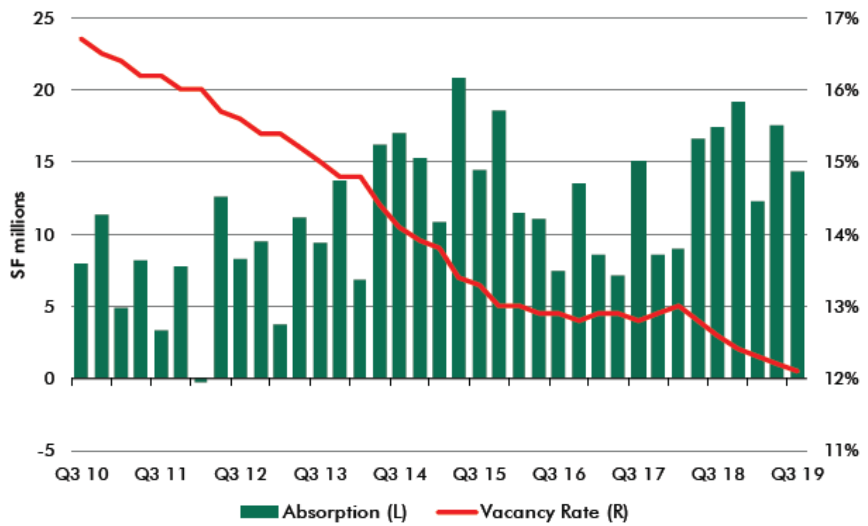
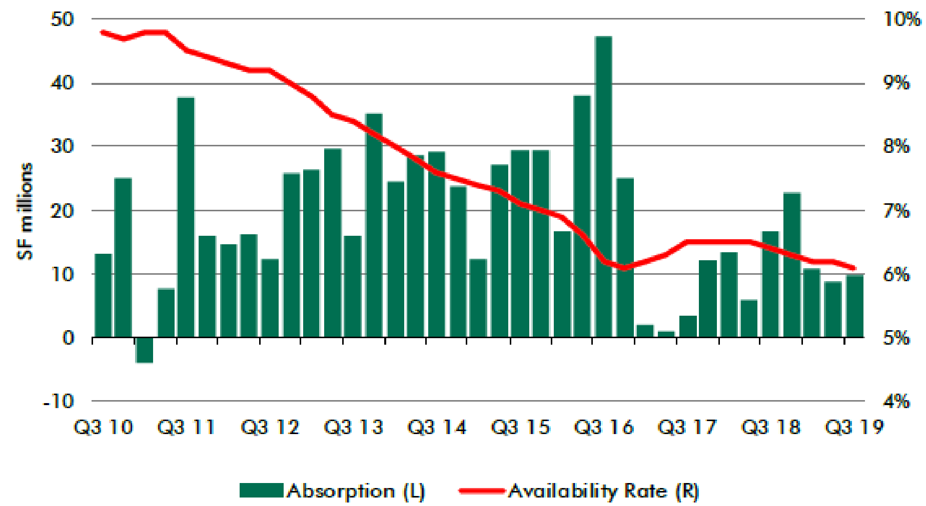
COMMERCIAL PROPERTY

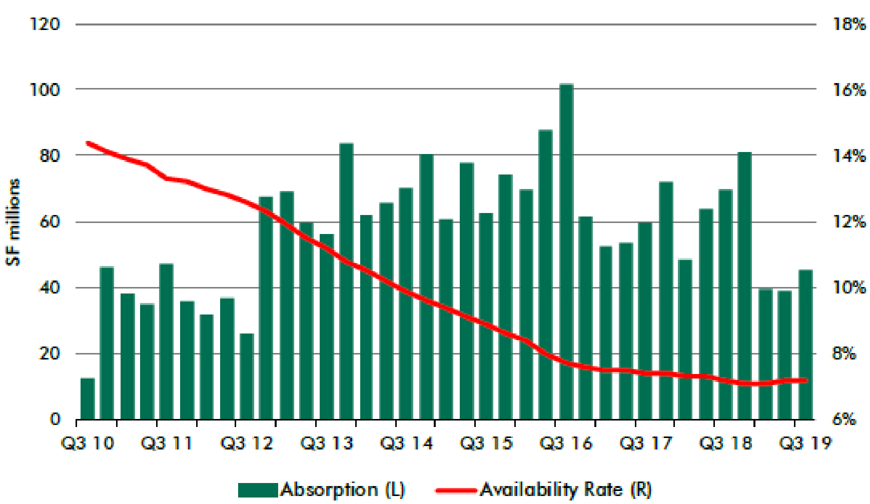
OFFICE



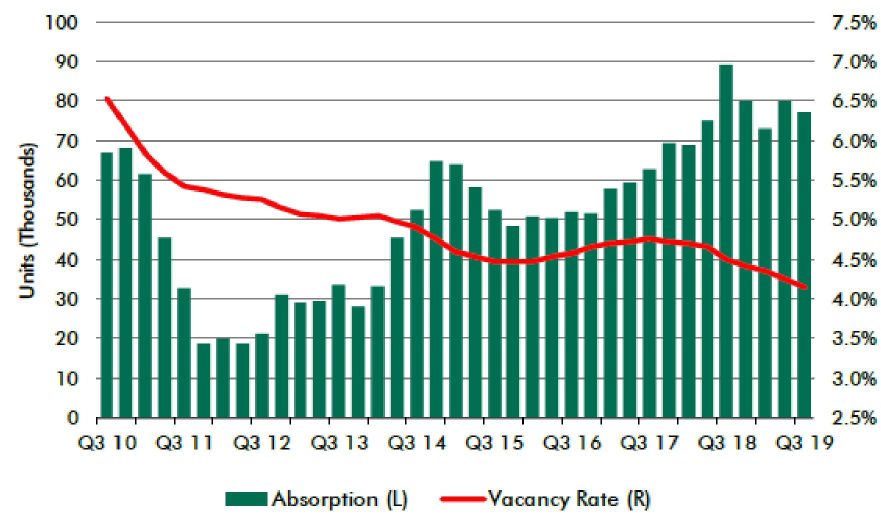
RETAIL



INDUSTRIAL



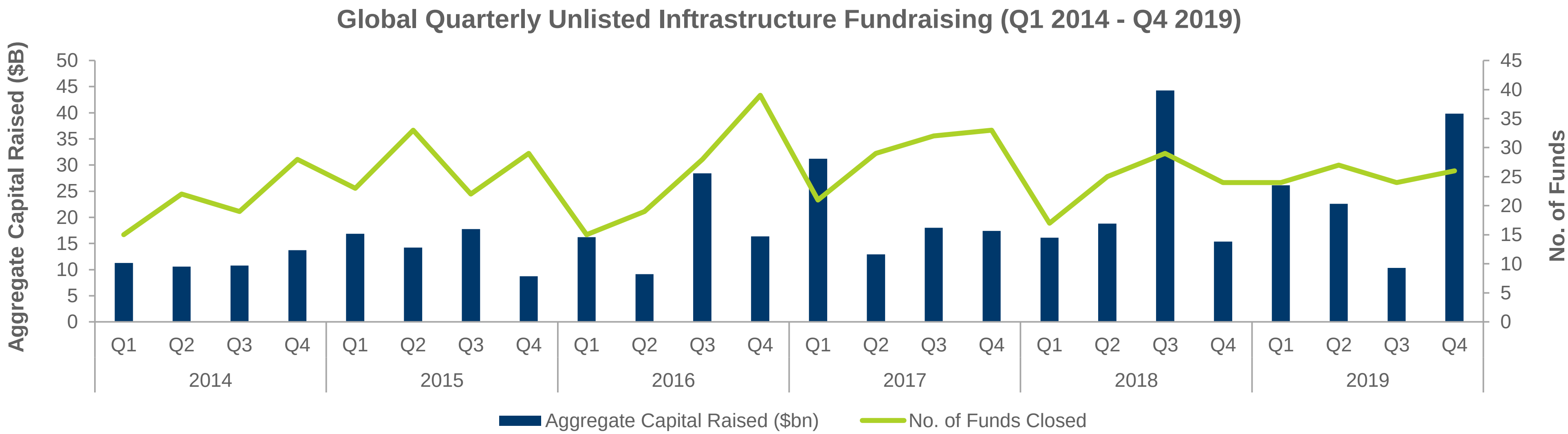
APARTMENTS

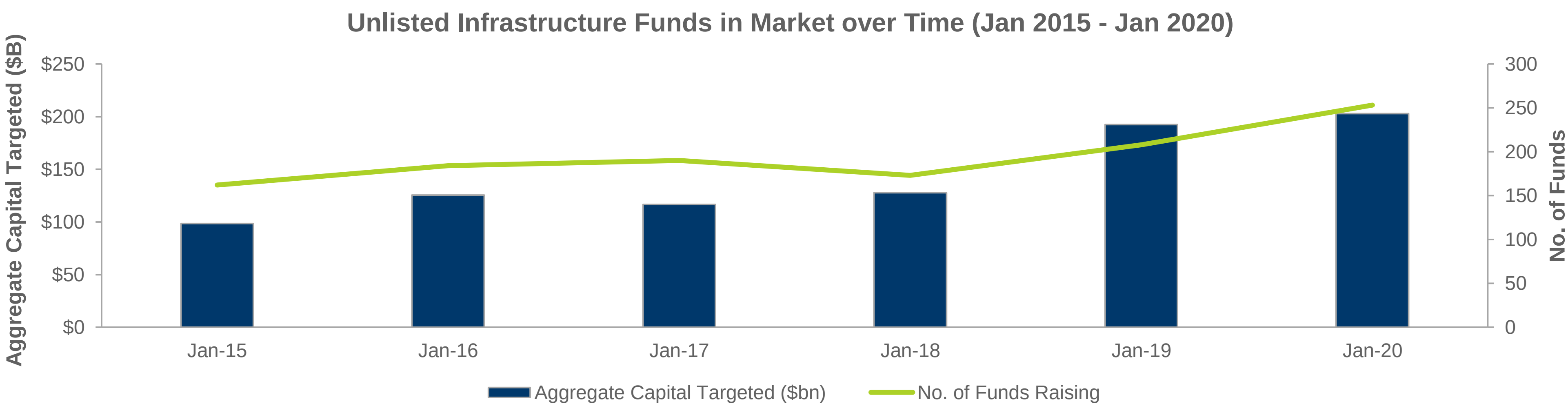


Data sources: CB Richard Ellis

Wilshire Private Markets

UNLISTED INFRASTRUCTURE – FUNDRAISING & INVESTMENT ACTIVITY



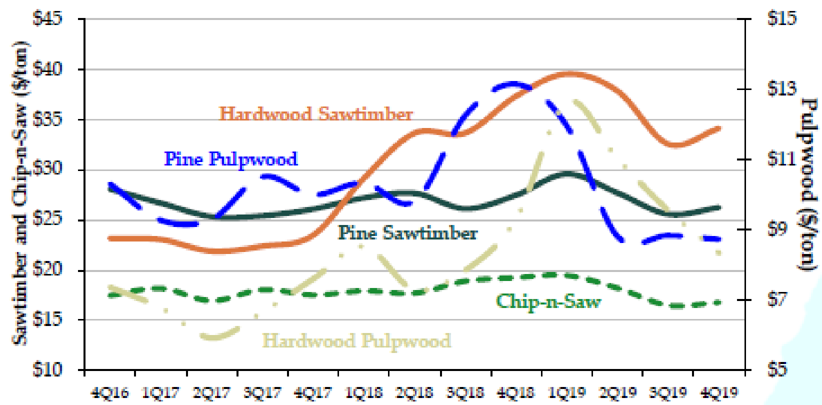


Source: Preqin, as of December 31, 2019.

Wilshire Consulting

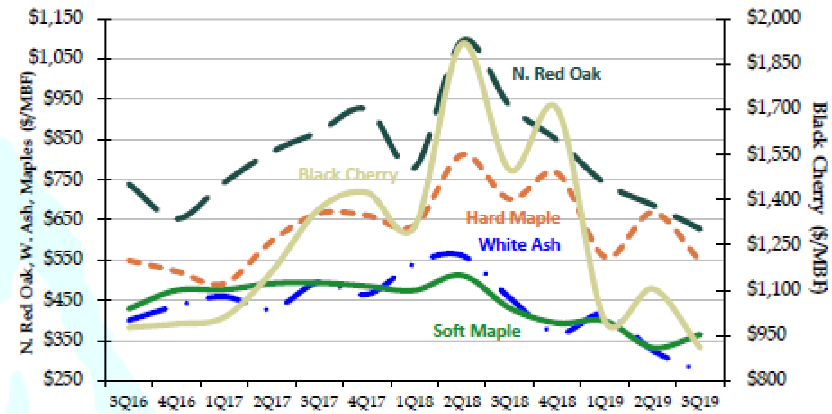
TIMBER

Southeastern Timber Prices



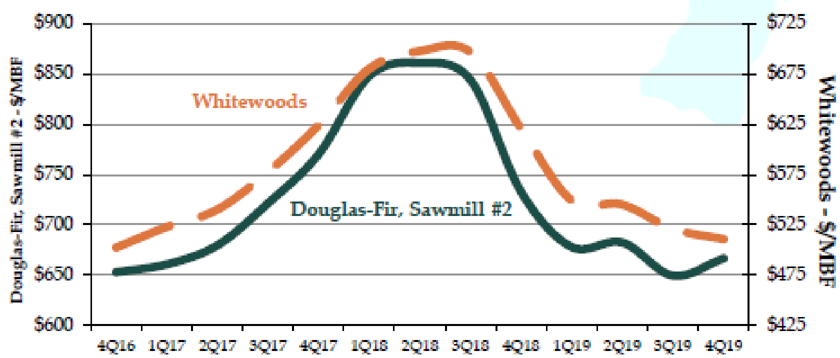
Source: Forest2Market®

Northeastern Hardwood Timber Prices



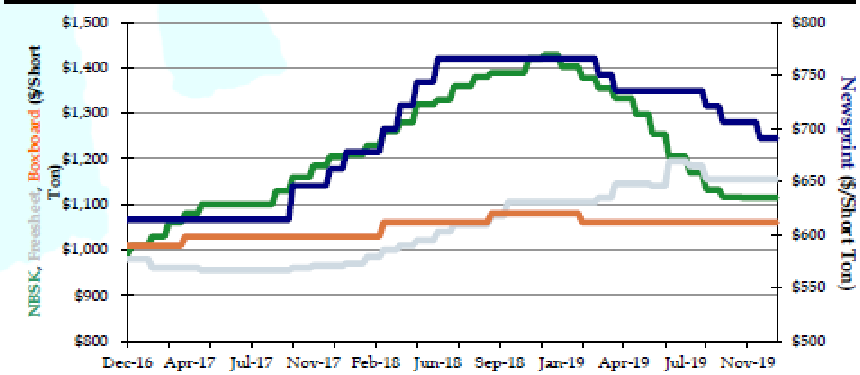
Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Fastmarkets RISI - Log Lines®

Pulp and Paper



Source: Fastmarkets RISI

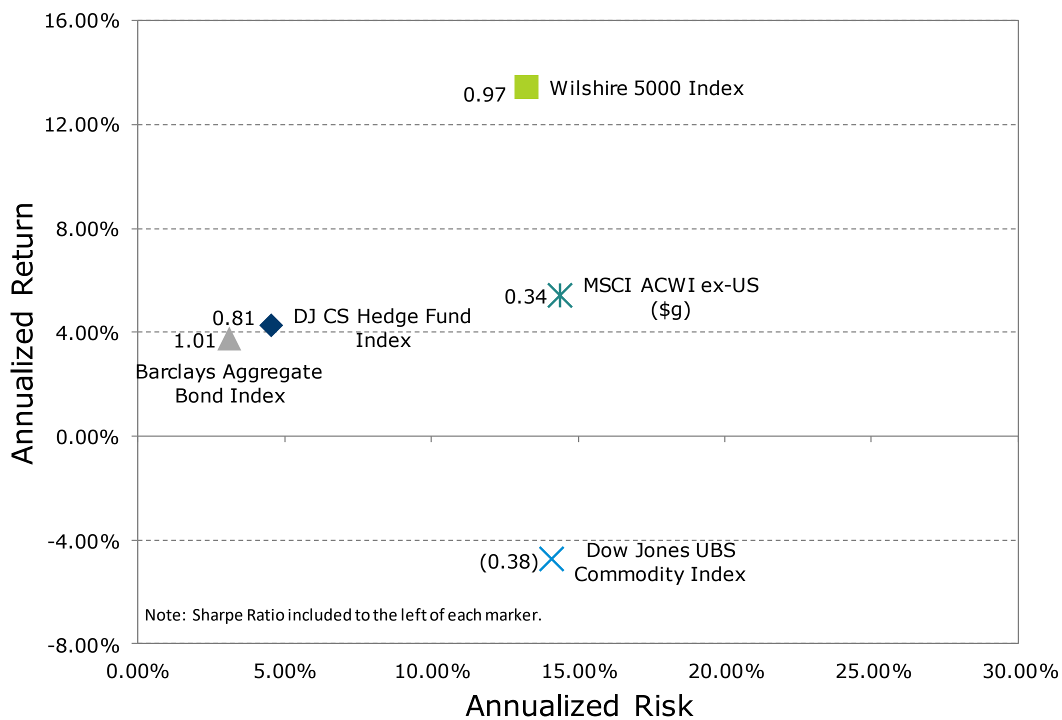
Data sources: Forest Investment Associates

Wilshire Consulting

HEDGE FUND PERFORMANCE

AS OF DECEMBER 31, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DJ CS HEDGE FUND INDEX	2.4	9.3	9.3	4.3	2.6	4.3
EVENT DRIVEN	2.2	8.2	8.2	3.4	1.2	3.5
GLOBAL MACRO	0.8	10.4	10.4	4.0	3.2	4.7
LONG/SHORT EQUITY	5.1	12.2	12.2	6.7	3.9	5.2
MULTI-STRATEGY	1.3	7.2	7.2	4.3	4.2	6.0
WILSHIRE 5000	9.1	31.0	31.0	14.5	11.4	13.4
MSCI ACWI EX-US ($G)	9.0	22.1	22.1	10.4	6.0	5.4
BLOOMBERG BARCLAYS AGGREGATE	0.2	8.7	8.7	4.0	3.1	3.7
DOW JONES UBS COMMODITY	4.4	7.7	7.7	-0.9	-3.9	-4.7

HEDGE FUND 10-YEAR RISK/RETURN



Data sources: Wilshire Compass

KRS Pension Plan

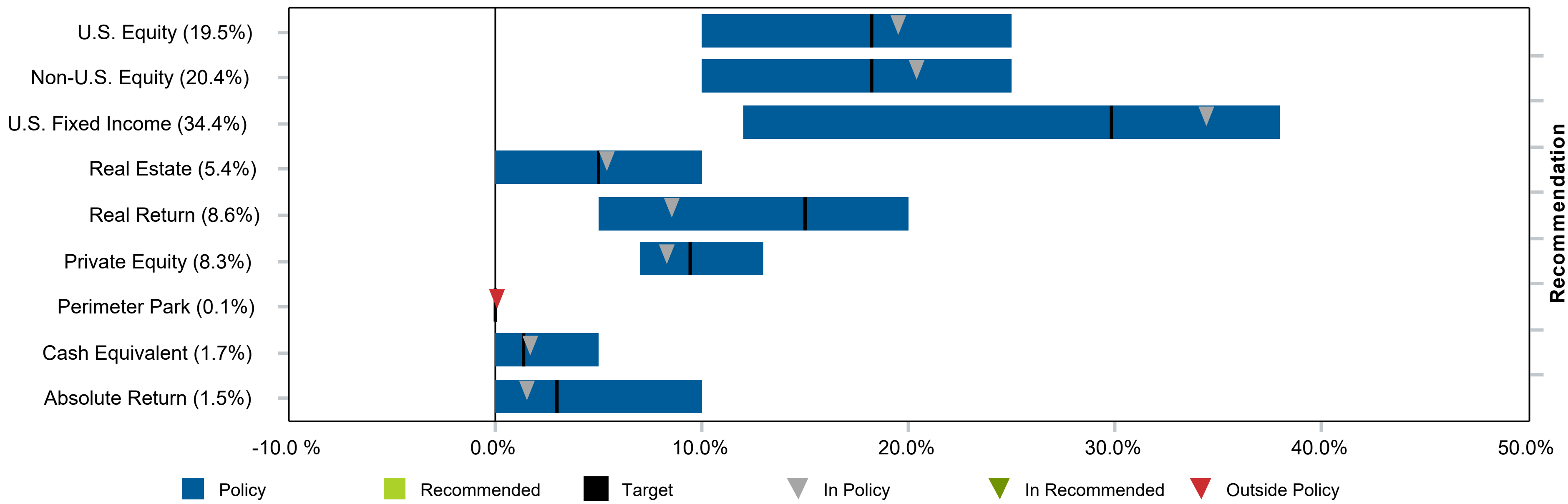
Wilshire Consulting

Asset Allocation Compliance

KRS Pension Plan

Periods Ended As of December 31, 2019

Executive Summary



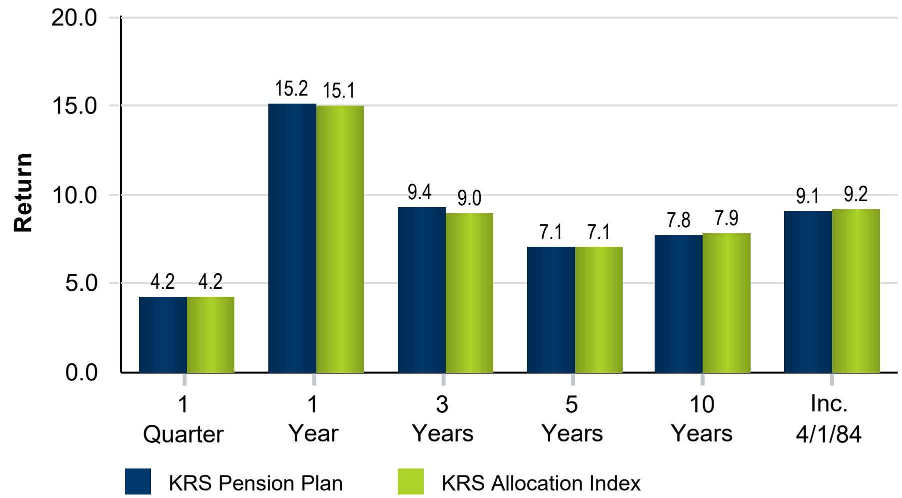
	Asset Allocation $	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance $
U.S. Equity	2,613,928,930	19.5	10.0	25.0	18.2	-177,753,733
Non-U.S. Equity	2,735,016,510	20.4	10.0	25.0	18.2	-298,841,313
U.S. Fixed Income	4,607,061,527	34.4	12.0	38.0	29.9	-611,466,493
Real Estate	727,192,570	5.4	0.0	10.0	5.0	-57,913,670
Real Return	1,147,108,341	8.6	5.0	20.0	15.0	860,728,359
Private Equity	1,116,015,335	8.3	7.0	13.0	9.4	142,228,998
Perimeter Park	7,300,000	0.1	0.0	0.0	0.0	-7,300,000
Cash Equivalent	231,805,380	1.7	0.0	5.0	1.4	-51,100,077
Absolute Return	200,149,411	1.5	0.0	10.0	3.0	201,417,929
Total Fund	13,385,578,004	100.0			100.0	

Total Fund Summary

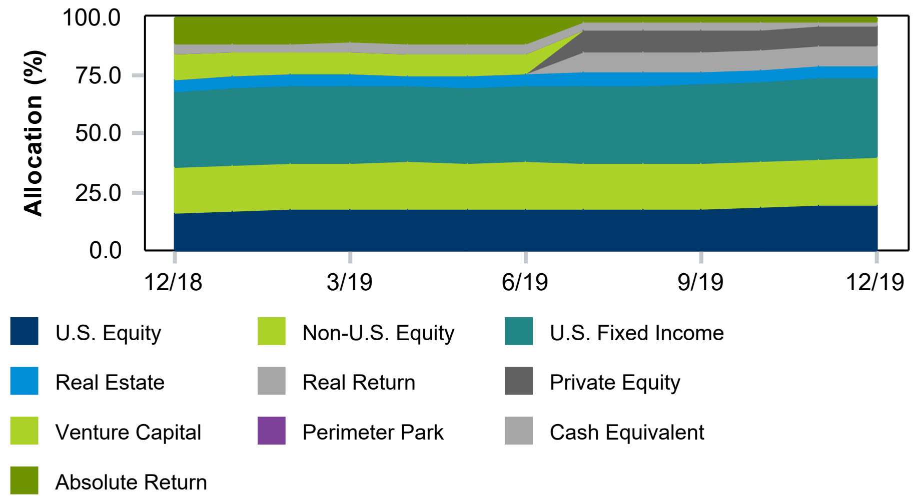
KRS Pension Plan

Periods Ended December 31, 2019

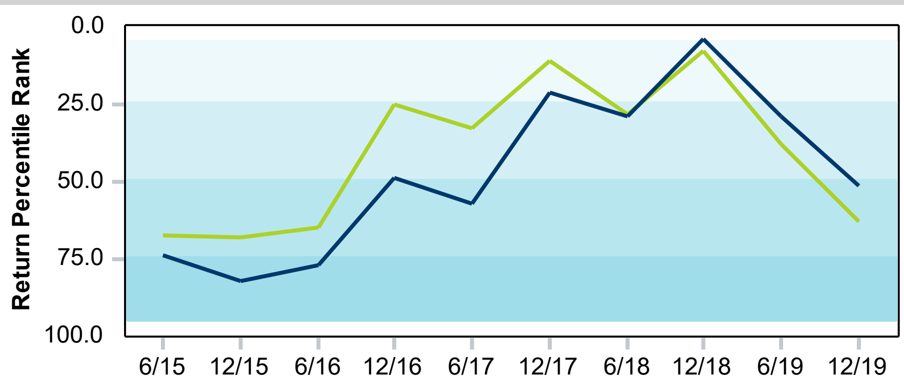
Comparative Performance



Historical Asset Allocation by Segment

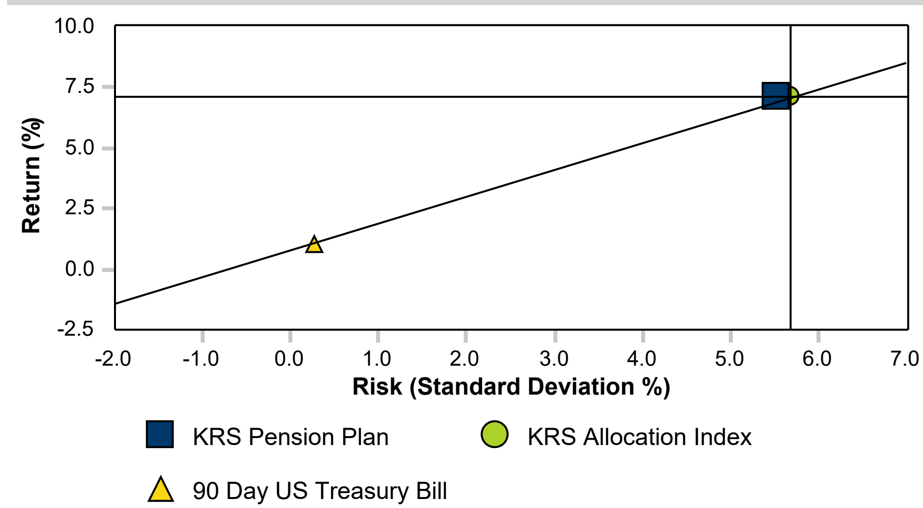


Rolling Percentile Rank: All Public Plans-Total Fund



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
KRS Pension Plan	10	2 (20%)	3 (30%)	3 (30%)	2 (20%)
Benchmark	10	3 (30%)	3 (30%)	4 (40%)	0 (0%)

Risk and Return 01/1/15 - 12/31/19



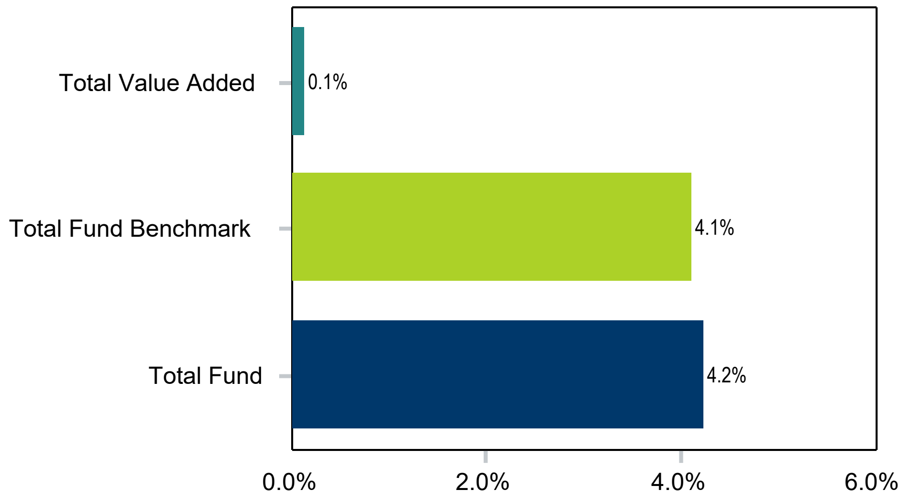
Wilshire Consulting

Total Fund Attribution

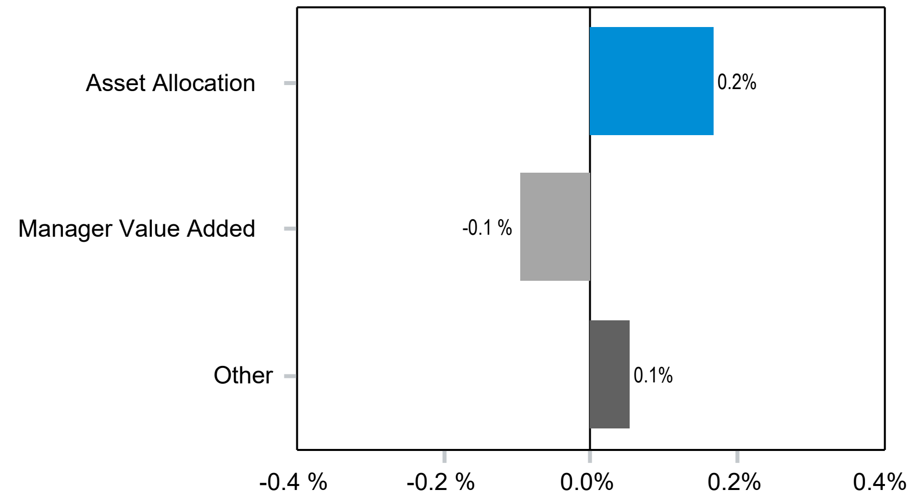
KRS Pension Plan

Periods Ended 1 Quarter Ending December 31, 2019

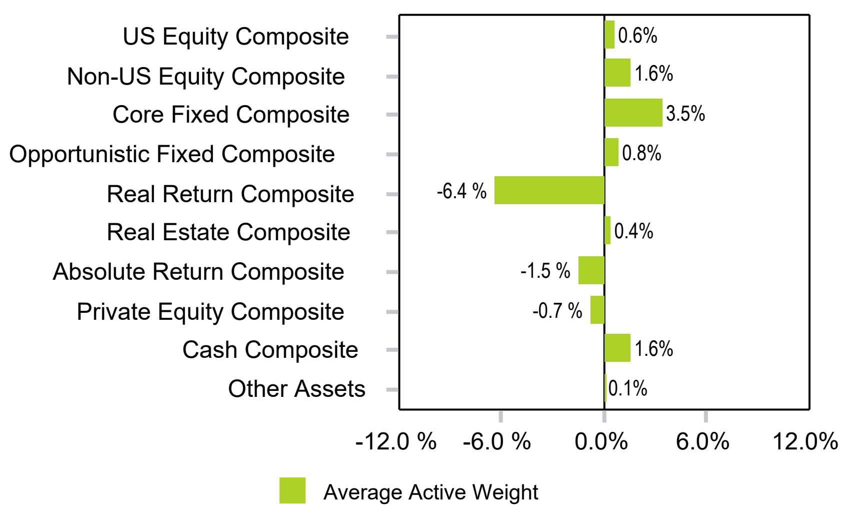
Total Fund Performance



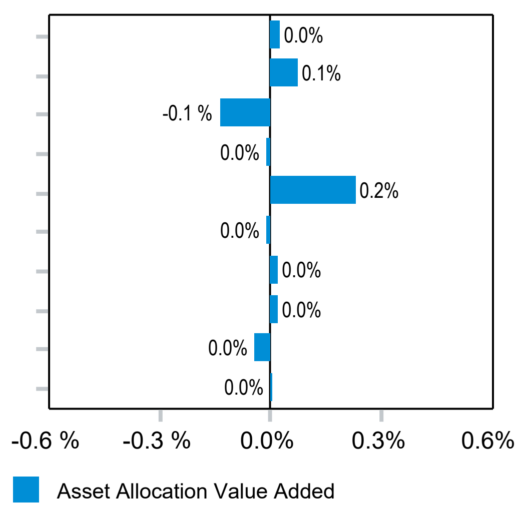
Total Value Added:0.1%



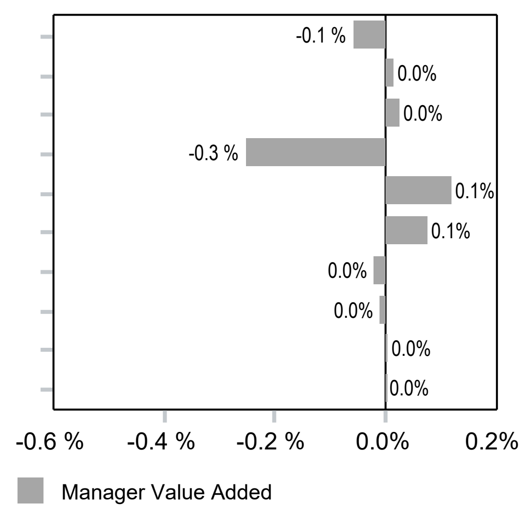
Total Asset Allocation:0.2%



Asset Allocation Value Added:0.2%



Total Manager Value Added:-0.1 %



Wilshire Consulting

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees							
	Market Value $	%	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
KRS Pension Plan	**13,385,578,004**	**100.00**	**1.96**	**4.23**	**5.56**	**15.16**	**9.37**	**7.12**	**9.08**	**4/1/1984**
KRS Allocation Index			2.14	4.24	5.09	15.07	9.00	7.09	9.19	
Value Added			-0.18	-0.01	0.47	0.09	0.37	0.03	-0.11	
KRS IPS Index			2.08	3.98	5.07	15.22				
Value Added			-0.12	0.25	0.49	-0.06				
KERS Pension Plan	**2,364,463,359**	**17.66**	**1.63**	**3.54**	**4.99**	**13.21**	**8.51**	**6.48**	**9.00**	**4/1/1984**
KERS Allocation Index			1.96	3.77	4.95	14.21	8.35	6.47	9.10	
Value Added			-0.33	-0.23	0.04	-1.00	0.16	0.01	-0.10	
KERS IPS Index			1.88	3.54	4.73	14.25				
Value Added			-0.25	0.00	0.26	-1.04				
Assumed Rate 5.25%			0.43	1.29	2.59	5.25				
Value Added			1.20	2.25	2.40	7.96				
KERS (H) Pension Plan	**722,414,923**	**5.40**	**1.96**	**4.25**	**5.54**	**15.17**	**9.38**	**7.17**	**9.08**	**4/1/1984**
KERS (H) Allocation Index			2.18	4.32	5.15	15.26	9.32	7.16	9.20	
Value Added			-0.22	-0.07	0.39	-0.09	0.06	0.01	-0.12	
KERS (H) IPS Index			2.11	4.07	5.15	15.42				
Value Added			-0.15	0.18	0.39	-0.25				
Assumed Rate 6.25%			0.51	1.53	3.08	6.25				
Value Added			1.45	2.72	2.46	8.92				
CERS Pension Plan	**7,480,622,061**	**55.89**	**2.00**	**4.36**	**5.64**	**15.48**	**9.50**	**7.22**	**9.09**	**4/1/1984**
CERS Allocation Index			2.19	4.33	5.13	15.26	9.33	7.17	9.20	
Value Added			-0.19	0.03	0.51	0.22	0.17	0.05	-0.11	
CERS IPS Index			2.12	4.08	5.13	15.42				
Value Added			-0.12	0.28	0.51	0.06				
Assumed Rate 6.25%			0.51	1.53	3.08	6.25				
Value Added			1.49	2.83	2.56	9.23				

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees							
	Market Value $	%	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
CERS (H) Pension Plan	**2,521,569,353**	**18.84**	**1.98**	**4.31**	**5.56**	**15.42**	**9.48**	**7.24**	**9.09**	**4/1/1984**
CERS (H) Allocation Index			2.18	4.32	5.10	15.26	9.36	7.18	9.20	
Value Added			-0.20	-0.01	0.46	0.16	0.12	0.06	-0.11	
CERS (H) IPS Index			2.11	4.07	5.10	15.43				
Value Added			-0.13	0.24	0.46	-0.01				
Assumed Rate 6.25%			0.51	1.53	3.08	6.25				
Value Added			1.47	2.78	2.48	9.17				
SPRS Pension Plan	**296,508,406**	**2.22**	**1.70**	**3.68**	**5.08**	**13.91**	**8.69**	**6.42**	**8.98**	**4/1/1984**
SPRS Allocation Index			2.12	3.95	5.37	14.42	9.01	6.98	9.17	
Value Added			-0.42	-0.27	-0.29	-0.51	-0.32	-0.56	-0.19	
SPRS IPS Index			1.95	3.61	4.83	14.46				
Value Added			-0.25	0.07	0.25	-0.55				
Assumed Rate 5.25%			0.43	1.29	2.59	5.25				
Value Added			1.27	2.39	2.49	8.66				

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
KRS Pension Plan	**13,385,578,004**	**100.00**	**4.23**	**5.56**	**15.16**	**9.37**	**7.12**	**9.08**	**4/1/1984**
KRS Allocation Index			4.24	5.09	15.07	9.00	7.09	9.19	
Value Added			-0.01	0.47	0.09	0.37	0.03	-0.11	
KRS IPS Index			3.98	5.07	15.22				
Value Added			0.25	0.49	-0.06				
US Equity Composite	**2,613,928,930**	**19.53**	**8.78**	**10.16**	**31.19**	**13.56**	**10.60**	**11.39**	**4/1/1984**
Russell 3000 Index			9.10	10.37	31.02	14.57	11.24	11.27	
Value Added			-0.32	-0.21	0.17	-1.01	-0.64	0.12	
S&P 500 Index	**1,376,139,105**	**10.28**	**9.07**	**10.90**	**31.52**	**15.41**	**11.72**	**7.91**	**7/1/2001**
S&P 500			9.07	10.92	31.49	15.27	11.70	7.52	
Value Added			0.00	-0.02	0.03	0.14	0.02	0.39	
Scientific Beta	**448,776,579**	**3.35**	**5.62**	**8.02**	**28.36**	**13.02**		**12.73**	**7/1/2016**
S&P 500			9.07	10.92	31.49	15.27		15.41	
Value Added			-3.45	-2.90	-3.13	-2.25		-2.68	
River Road FAV	**182,528,196**	**1.36**	**11.11**	**12.41**	**36.52**	**13.96**		**17.41**	**7/1/2016**
Russell 3000 Value Index			7.48	8.80	26.26	9.32		11.32	
Value Added			3.63	3.61	10.26	4.64		6.09	
Westfield Capital	**178,878,314**	**1.34**	**13.36**	**14.25**	**43.21**	**21.38**	**12.28**	**13.96**	**7/1/2011**
Russell 3000 Growth Index			10.67	11.89	35.85	19.89	14.23	14.79	
Value Added			2.69	2.36	7.36	1.49	-1.95	-0.83	
Internal US Mid Cap	**170,657,629**	**1.27**	**7.08**	**7.06**	**26.49**	**9.86**	**9.32**	**9.86**	**8/1/2014**
S&P MidCap 400 Index			7.06	6.97	26.20	9.26	9.03	9.61	
Value Added			0.02	0.09	0.29	0.60	0.29	0.25	

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
NTGI Structured	**197,645,830**	**1.48**	**9.23**	**7.69**	**26.16**	**9.91**	**9.25**	**10.12**	**10/1/1999**
Russell 2000 Index			9.94	7.30	25.53	8.59	8.23	8.40	
Value Added			-0.71	0.39	0.63	1.32	1.02	1.72	
Next Century Growth	**59,223,918**	**0.44**							
Invesco	**40,786**	**0.00**							
Transition Account	**38,572**	**0.00**							
Non-US Equity Composite	**2,735,016,510**	**20.43**	**9.29**	**8.02**	**24.03**	**11.60**	**6.90**	**3.62**	**7/1/2000**
Policy Index			9.20	7.33	21.63	9.98	5.75	3.65	
Value Added			0.09	0.69	2.40	1.62	1.15	-0.03	
BlackRock World Ex US	**784,834,541**	**5.86**	**8.10**	**6.16**	**20.82**	**9.87**	**5.63**	**7.05**	**7/1/2009**
Policy Index			8.12	6.18	20.62	9.60	5.35	6.83	
Value Added			-0.02	-0.02	0.20	0.27	0.28	0.22	
American Century	**390,385,910**	**2.92**	**10.61**	**11.30**	**33.79**	**16.39**	**8.39**	**6.38**	**7/1/2014**
Policy Index			9.20	7.33	21.63	9.88	5.71	3.43	
Value Added			1.41	3.97	12.16	6.51	2.68	2.95	
Franklin Templeton	**283,953,757**	**2.12**	**10.93**	**11.91**	**34.66**	**16.88**	**10.32**	**7.83**	**7/1/2014**
Policy Index			9.20	7.33	21.63	9.88	5.71	3.43	
Value Added			1.73	4.58	13.03	7.00	4.61	4.40	
Lazard Asset Mgmt	**493,619,441**	**3.69**	**8.49**	**6.40**	**22.04**	**11.36**	**6.61**	**4.69**	**7/1/2014**
Policy Index			9.20	7.33	21.63	9.88	5.71	3.43	
Value Added			-0.71	-0.93	0.41	1.48	0.90	1.26	

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
LSV Asset Mgmt	**426,843,898**	**3.19**	**10.65**	**8.82**	**20.01**	**9.45**	**5.71**	**3.62**	**7/1/2014**
Policy Index			9.20	7.33	21.63	9.88	5.71	3.43	
Value Added			1.45	1.49	-1.62	-0.43	0.00	0.19	
NTGI Int'l Small Cap	**85,425,462**	**0.64**	**10.99**	**9.83**	**22.96**	**9.96**	**7.33**	**11.55**	**12/1/2008**
MSCI AC World ex USA Small Cap (Net)			11.01	9.69	22.42	9.65	7.04	11.76	
Value Added			-0.02	0.14	0.54	0.31	0.29	-0.21	
JP Morgan Emerging Markets	**133,214,713**	**1.00**							
Pzena Emerging Markets	**132,383,319**	**0.99**							
Boston Company	**722,107**	**0.01**							
Pyramis Intl	**2,093,279**	**0.02**							
Non-US Equity Transition	**1,540,081**	**0.01**							
Fixed Income Composite	**4,607,061,527**	**34.42**	**0.79**	**2.53**	**8.68**	**4.68**	**4.56**	**7.44**	**4/1/1984**
Policy Index			1.18	2.92	10.12	5.00	5.12	7.30	
Value Added			-0.39	-0.39	-1.44	-0.32	-0.56	0.14	
Blmbg. Barc. Global Aggregate			0.49	1.20	6.84	4.27	2.31		
Value Added			0.30	1.33	1.84	0.41	2.25		
Core Fixed Composite	**2,489,660,834**	**18.60**	**0.60**	**2.04**	**7.62**			**6.84**	**10/1/2018**
Blmbg. Barc. U.S. Aggregate			0.18	2.45	8.72			8.31	
Value Added			0.42	-0.41	-1.10			-1.47	

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
BNY IG Credit	**105,289,397**	**0.79**	**0.90**	**2.63**	**9.51**			**4.37**	**12/1/2017**
Blmbg. Barc. U.S. Intermediate Credit			0.98	2.70	9.52			4.59	
Value Added			-0.08	-0.07	-0.01			-0.22	
Loomis Sayles Intmd	**581,463,547**	**4.34**	**0.50**	**1.88**				**5.99**	**2/1/2019**
Blmbg. Barc. U.S. Intermediate Aggregate			0.47	1.85				5.78	
Value Added			0.03	0.03				0.21	
Lord Abbett	**1,180,647,658**	**8.82**	**0.83**	**1.77**	**5.86**			**5.10**	**10/1/2018**
ICE BofAML 1-3 Year U.S. Corporate			0.87	1.88	5.42			4.99	
Value Added			-0.04	-0.11	0.44			0.11	
NISA	**622,260,233**	**4.65**	**0.22**	**2.49**	**8.91**	**4.15**	**3.27**	**4.25**	**2/1/2009**
Blmbg. Barc. U.S. Aggregate			0.18	2.45	8.72	4.03	3.05	4.06	
Value Added			0.04	0.04	0.19	0.12	0.22	0.19	
Opportunistic Fixed Composite	**2,117,400,693**	**15.82**	**1.04**	**3.13**	**9.92**			**6.72**	**10/1/2018**
Policy Index			2.17	3.36	11.46			5.57	
Value Added			-1.13	-0.23	-1.54			1.15	
Arrowmark	**183,538,333**	**1.37**	**2.48**	**5.05**	**10.88**			**9.95**	**6/1/2018**
S&P/LSTA Leverage Loan Index			1.73	2.74	8.64			4.33	
Value Added			0.75	2.31	2.24			5.62	
BSP Private Credit	**66,708,252**	**0.50**	**0.43**	**2.11**	**3.73**			**3.25**	**2/1/2018**
S&P/LSTA Leverage Loan Index			1.73	2.74	8.64			4.14	
Value Added			-1.30	-0.63	-4.91			-0.89	

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
BSP Coinvestment	**11,495,821**	**0.09**	**0.00**					**0.00**	**10/1/2019**
S&P/LSTA Leverage Loan Index			1.73					1.73	
Value Added			-1.73					-1.73	
Cerberus Capital Mgmt	**119,630,876**	**0.89**	**1.68**	**4.35**	**9.00**	**8.74**	**8.83**	**8.49**	**9/1/2014**
S&P/LSTA Leverage Loan Index			1.73	2.74	8.64	4.35	4.45	3.95	
Value Added			-0.05	1.61	0.36	4.39	4.38	4.54	
Columbia	**366,068,949**	**2.73**	**3.00**	**5.29**	**17.65**	**6.91**	**6.36**	**7.24**	**11/1/2011**
Blmbg. Barc. U.S. Corp: High Yield			2.61	3.98	14.32	6.37	6.13	6.90	
Value Added			0.39	1.31	3.33	0.54	0.23	0.34	
Manulife Asset Mgmt	**474,831,526**	**3.55**	**1.27**	**3.39**	**11.05**	**4.13**	**3.48**	**4.29**	**12/1/2011**
Policy Index			0.45	2.58	9.29	4.30	2.66	2.10	
Value Added			0.82	0.81	1.76	-0.17	0.82	2.19	
Marathon Bluegrass	**347,554,125**	**2.60**	**-2.45**	**-0.29**	**3.57**	**3.23**		**6.37**	**1/1/2016**
Blmbg. Barc. U.S. Corp: High Yield			2.61	3.98	14.32	6.37		8.96	
Value Added			-5.06	-4.27	-10.75	-3.14		-2.59	
Shenkman Capital	**241,519,305**	**1.80**	**1.55**	**2.72**	**8.92**	**4.15**	**4.11**	**4.72**	**10/1/2010**
S&P/LSTA Leverage Loan Index			1.73	2.74	8.64	4.35	4.45	4.69	
Value Added			-0.18	-0.02	0.28	-0.20	-0.34	0.03	
Waterfall	**213,520,507**	**1.60**	**1.25**	**3.73**	**9.22**	**10.18**	**8.68**	**11.38**	**2/1/2010**
Policy Index			1.67	2.71	9.43	4.97	4.58	5.25	
Value Added			-0.42	1.02	-0.21	5.21	4.10	6.13	
White Oak Yield Spectrum	**92,492,948**	**0.69**	**1.38**	**3.04**	**5.59**			**4.55**	**3/1/2018**
S&P/LSTA Leverage Loan Index			1.73	2.74	8.64			4.22	
Value Added			-0.35	0.30	-3.05			0.33	

Wilshire Consulting

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Loomis	**40,051**	**0.00**							
Real Return Composite	**1,147,108,341**	**8.57**	**1.83**	**2.49**	**11.73**	**5.05**	**3.79**	**3.95**	**7/1/2011**
Real Return Index (P)			0.47	1.26	9.72	3.25	2.51	2.85	
Value Added			1.36	1.23	2.01	1.80	1.28	1.10	
Internal TIPS	**212,997,151**	**1.59**	**1.18**	**1.47**	**5.47**	**2.40**	**2.39**	**4.74**	**5/1/2002**
Blmbg. Barc. U.S. TIPS 1-10 Year			1.00	1.61	6.85	2.79	2.36	4.14	
Value Added			0.18	-0.14	-1.38	-0.39	0.03	0.60	
PIMCO All Asset	**355,846,561**	**2.66**	**3.52**	**3.80**	**12.32**	**7.57**	**5.30**	**5.01**	**12/1/2011**
Blmbg. Barc. U.S. TIPS 1-10 Year			1.00	1.61	6.85	2.79	2.36	1.44	
Value Added			2.52	2.19	5.47	4.78	2.94	3.57	
Tortoise Capital	**139,689,859**	**1.04**	**-1.37**	**-7.42**	**8.97**	**-3.12**	**-5.09**	**9.05**	**8/1/2009**
Alerian MLP Index			-4.08	-8.90	6.56	-4.45	-7.00	5.71	
Value Added			2.71	1.48	2.41	1.33	1.91	3.34	
Nuveen Real Asset	**228,991,465**	**1.71**	**3.49**	**7.42**	**23.11**	**9.55**		**6.78**	**2/1/2015**
Policy Index			2.37	5.15	21.50	8.63		6.19	
Value Added			1.12	2.27	1.61	0.92		0.59	
Amerra AGRI Fund II	**23,561,458**	**0.18**	**10.18**	**11.20**	**12.97**	**3.01**	**5.48**	**5.07**	**12/1/2012**
Amerra AGRI Holdings	**43,399,118**	**0.32**	**-0.76**	**1.29**	**1.05**	**-1.69**		**-1.07**	**8/1/2015**
BTG Pactual	**25,046,495**	**0.19**	**-1.75**	**-1.23**	**2.35**	**0.26**	**-6.95**	**-6.84**	**12/1/2014**
IFM Infrastructure	**40,643,468**	**0.30**	**1.78**	**2.86**				**2.86**	**7/1/2019**

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Magnetar MTP EOF II	33,040,234	0.25	0.74	3.43	5.09	6.69		3.59	8/1/2015
Oberland Capital	7,615,550	0.06	0.17	19.36	11.12			11.92	8/1/2018
Taurus Mine Finance	35,501,150	0.27	-5.80	4.49	13.88	12.31		14.05	4/1/2015
TPF II	775,832	0.01	-0.09	-0.17	14.16	5.23	0.88	-2.04	10/1/2008
Real Estate Composite	727,192,570	5.43	2.48	5.79	8.57	9.39	9.30	6.17	7/1/1984
NCREIF ODCE NOF 1 Quarter Lag			1.08	1.86	4.64	6.34	8.36		
Value Added			1.40	3.93	3.93	3.05	0.94		
Baring	61,924,738	0.46	6.45	31.95	31.44			31.44	1/1/2019
Divcowest IV	3,014,943	0.02	-6.13	13.34	13.00	19.12	24.66	21.49	3/1/2014
Fundamental Partners III	46,527,759	0.35	5.19	10.53	15.85			9.70	5/1/2017
Greenfield Acq VI	1,438,532	0.01	-3.05	-27.38	-40.02	-18.97	-8.60	-2.63	12/1/2012
Greenfield Acq VII	18,872,415	0.14	0.99	11.42	16.97	14.93	14.57	12.70	7/1/2014
H/2 Credit Partner	85,110,301	0.64	1.64	1.49	-0.72	2.81	3.93	5.00	7/1/2011
Harrison Street	82,441,852	0.62	1.96	3.22	4.61	8.25	8.89	8.42	5/1/2012
Lubert Adler VII	28,659,028	0.21	-0.21	0.01	9.72	9.06	6.14	0.58	7/1/2014
Lubert Adler VII B	27,279,854	0.20	1.15	4.72	13.22			4.79	7/1/2017
Mesa West IV	20,145,215	0.15	1.97	4.72	6.21			5.49	3/1/2017
Mesa West Core Lend	59,673,457	0.45	1.68	5.14	7.09	7.79	7.83	7.01	5/1/2013

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Patron Capital	**19,494,400**	**0.15**	**2.43**	**3.53**	**10.41**	**17.19**		**3.41**	**8/1/2016**
Prologis Targeted US	**142,158,826**	**1.06**	**4.66**	**7.68**	**14.59**	**17.86**	**16.33**	**15.49**	**10/1/2014**
Rubenstein PF II	**16,367,756**	**0.12**	**-4.94**	**0.65**	**3.12**	**10.79**	**8.91**	**12.39**	**7/1/2013**
Stockbridge Sm/Mkts	**89,800,254**	**0.67**	**1.67**	**3.04**	**7.16**	**8.18**	**9.26**	**9.00**	**5/1/2014**
Walton St RE VI	**12,633,912**	**0.09**	**-0.14**	**-0.51**	**-2.71**	**4.44**	**4.37**	**-15.73**	**5/1/2009**
Walton St RE VII	**11,649,330**	**0.09**	**-1.71**	**-2.69**	**-4.14**	**3.79**	**7.96**	**9.32**	**7/1/2013**
Absolute Return Composite	**200,149,411**	**1.50**	**1.34**	**0.90**	**1.40**	**2.61**	**1.85**	**3.54**	**4/1/2010**
HFRI FOF Div 1 Month Lag			0.52	1.86	4.85	3.62	2.04	2.78	
Value Added			0.82	-0.96	-3.45	-1.01	-0.19	0.76	
Blackstone Strat Opp	**2,819,807**	**0.02**	**0.60**	**-1.40**	**-6.02**			**0.07**	**8/1/2017**
Credit Suisse	**415,818**	**0.00**	**0.00**	**0.67**	**3.99**			**6.04**	**6/1/2017**
Gotham Neutral Strategies	**13,242,738**	**0.10**	**2.58**	**2.57**	**-0.50**			**-1.39**	**4/1/2017**
Governors Lane Onshore	**11,020,765**	**0.08**	**1.84**	**2.95**	**5.77**			**1.03**	**4/1/2017**
Liquidalts H20 Force	**18,015,854**	**0.13**	**5.37**	**6.67**	**6.89**	**4.82**		**6.93**	**8/1/2016**
Luxor Capital	**1,384,403**	**0.01**	**-13.64**	**-16.89**	**-9.17**	**10.43**	**2.50**	**1.12**	**4/1/2014**
Myriad Opportunities	**44,186,540**	**0.33**	**1.80**	**0.19**	**-3.89**	**1.42**		**2.60**	**5/1/2016**
PAAMCO	**7,095**	**0.00**	**0.00**	**0.05**	**28.02**	**-29.23**	**-19.37**	**-9.66**	**9/1/2011**
Pine River	**192,565**	**0.00**	**10.48**	**17.65**	**30.19**	**8.26**	**5.03**	**4.52**	**5/1/2014**

Asset Allocation & Performance

KRS Pension Plan

Periods Ended December 31, 2019

	Allocation		Performance (%) net of fees						
	Market Value $	%	1 Quarter	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
PRISMA Capital	**96,376,598**	**0.72**	**0.00**	**-0.48**	**0.95**	**2.65**	**1.91**	**3.25**	**9/1/2011**
SRS Partners US	**8,922,436**	**0.07**	**6.85**	**6.04**	**11.27**			**11.36**	**8/1/2017**
Tricadia Select	**3,564,792**	**0.03**	**0.00**	**1.05**	**2.21**			**-10.38**	**9/1/2017**
Private Equity Composite	**1,116,015,335**	**8.34**	**1.33**	**6.48**	**7.91**	**13.85**	**11.64**	**11.26**	**7/1/2002**
KRS Short-Term PE Index			1.33	6.48	7.91	13.85	11.64	11.26	
Value Added			0.00	0.00	0.00	0.00	0.00	0.00	
Russell 3000 +3% 1 Quarter Lag			1.91	6.87	6.01	16.22	13.76	11.20	
Value Added			-0.58	-0.39	1.90	-2.37	-2.12	0.06	
Cash Composite	**231,805,380**	**1.73**	**0.78**	**1.41**	**2.83**	**2.11**	**1.49**	**3.55**	**1/1/1988**
90 Day US Treasury Bill			0.46	1.02	2.28	1.67	1.05	3.16	
Value Added			0.32	0.39	0.55	0.44	0.44	0.39	
Perimeter Park	**7,300,000**	**0.05**							

Wilshire Consulting

Historical Hybrid Composition

Kentucky Retirement Systems Pension

Periods Ended December 31, 2019

Policy Index	Weight (%)
KRS Allocation Index : Apr-1984	
KRS Allocation Index	100.00
KRS Allocation Index : Jul-2017	
Russell 3000 Index	25.60
MSCI AC World ex USA IMI	25.20
KRS Short-Term PE Index	10.00
HFRI FOF: Diversified Index	10.00
Real Return Index (P)	8.00
Blmbg. Barc. U.S. Corp: High Yield	7.00
Blmbg. Barc. U.S. Universal Index	7.00
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20
KRS Allocation Index : Oct-2017	
Russell 3000 Index	23.60
MSCI AC World ex USA IMI (Net)	23.20
KRS Short-Term PE Index	10.00
HFRI FOF: Diversified Index	10.00
Real Return Index (P)	8.00
Blmbg. Barc. U.S. Corp: High Yield	9.00
Blmbg. Barc. U.S. Universal Index	9.00
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20

Policy Index	Weight (%)
KRS Allocation Index : Apr-2018	
Russell 3000 Index	17.00
MSCI AC World ex USA IMI (Net)	21.00
KRS Short-Term PE Index	9.40
HFRI FOF: Diversified Index	10.00
Real Return Index (P)	10.00
Blmbg. Barc. U.S. Corp: High Yield	12.40
Blmbg. Barc. U.S. Universal Index	13.00
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20
KRS Allocation Index : Oct-2018	
Russell 3000 Index	17.00
MSCI AC World ex USA IMI (Net)	21.00
KRS Short-Term PE Index	9.40
HFRI FOF: Diversified Index	10.00
Real Return Index (P)	10.00
Blmbg. Barc. U.S. Aggregate	12.70
Blmbg. Barc. U.S. Corp: High Yield	6.35
S&P/LSTA Leverage Loan Index	6.35
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20

Historical Hybrid Composition

Kentucky Retirement Systems Pension

Periods Ended December 31, 2019

Policy Index	Weight (%)
KRS IPS Index : Jul-2017	
Russell 3000 Index	17.50
MSCI AC World ex USA IMI	17.50
KRS Short-Term PE Index	10.00
HFRI FOF Div 1 Month Lag	10.00
Real Return Index (P)	10.00
Blmbg. Barc. U.S. Corp: High Yield	22.70
Blmbg. Barc. U.S. Universal Index	5.10
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20

Policy Index	Weight (%)
KRS IPS Index : Oct-2017	
Russell 3000 Index	17.50
MSCI AC World ex USA IMI (Net)	17.50
KRS Short-Term PE Index	10.00
HFRI FOF Div 1 Month Lag	10.00
Real Return Index (P)	10.00
Blmbg. Barc. U.S. Corp: High Yield	22.70
Blmbg. Barc. U.S. Universal Index	5.10
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	2.20

Historical Hybrid Composition

Kentucky Retirement Systems Pension

Periods Ended December 31, 2019

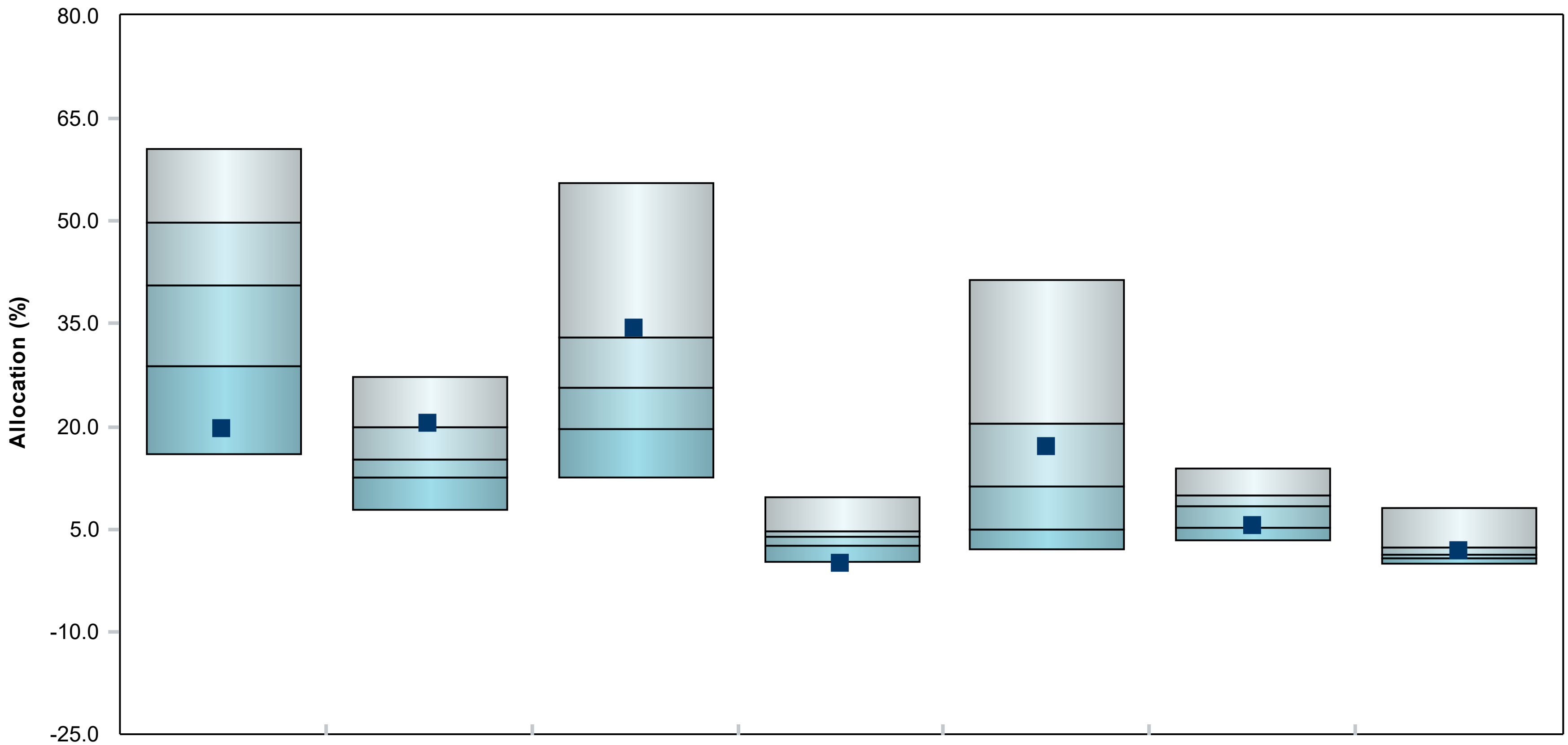
Policy Index	Weight (%)
KRS IPS Index : Jul-2018	
Russell 3000 Index	18.25
MSCI AC World ex USA IMI (Net)	18.25
KRS Short-Term PE Index	9.50
HFRI FOF: Diversified Index	3.00
Real Return Index (P)	15.00
Blmbg. Barc. U.S. Corp: High Yield	15.00
Blmbg. Barc. U.S. Universal Index	14.75
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	1.25

Policy Index	Weight (%)
KRS IPS Index : Oct-2018	
Russell 3000 Index	18.25
MSCI AC World ex USA IMI (Net)	18.25
KRS Short-Term PE Index	9.50
HFRI FOF: Diversified Index	3.00
Real Return Index (P)	15.00
Blmbg. Barc. U.S. Aggregate	14.88
Blmbg. Barc. U.S. Corp: High Yield	7.44
S&P/LSTA Leverage Loan Index	7.44
NCREIF ODCE NOF 1 Quarter Lag	5.00
90 Day US Treasury Bill	1.25

Plan Sponsor TF Asset Allocation

KRS Pension Plan vs All Public Plans-Total Fund

Periods Ended December 31, 2019



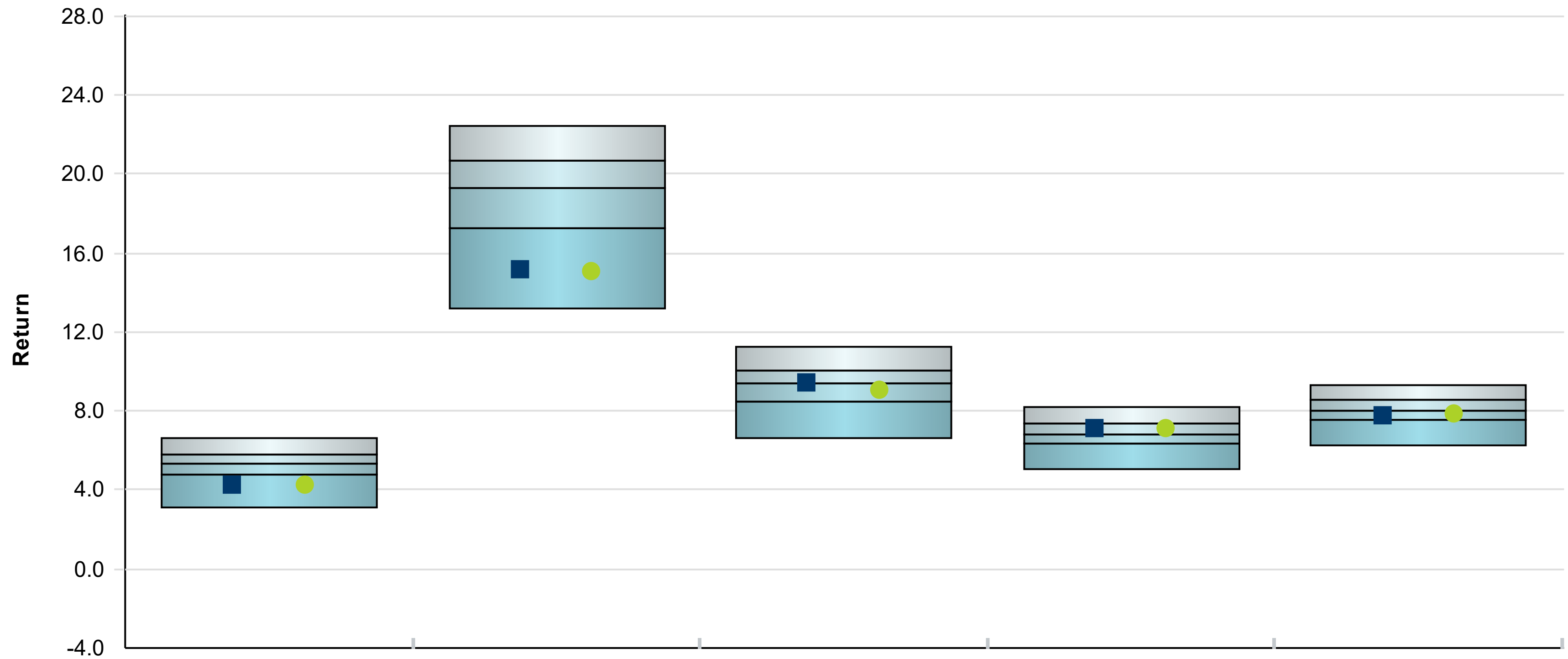
	US Equity	Intl. Equity	US Fixed Income	Intl. Fixed Income	Alternative Inv.	Real Estate	Cash
■ KRS Pension Plan	19.53	20.43	34.42	0.00	16.91	5.49	1.73
5th Percentile	60.45	27.27	55.68	9.61	41.32	13.95	7.97
1st Quartile	49.78	19.91	32.92	4.75	20.46	9.88	2.42
Median	40.60	15.20	25.69	3.94	11.28	8.34	1.38
3rd Quartile	28.92	12.43	19.51	2.44	4.93	5.24	0.60
95th Percentile	16.05	7.70	12.44	0.07	1.99	3.37	0.06

Wilshire Consulting

Plan Sponsor Peer Group Analysis

KRS Pension Plan vs All Public Plans-Total Fund

Periods Ended December 31, 2019



	QTD	1 Year	3 Years	5 Years	10 Years
KRS Pension Plan	4.23 (89)	15.16 (90)	9.37 (51)	7.12 (36)	7.76 (63)
KRS Allocation Index	4.24 (89)	15.07 (91)	9.00 (63)	7.09 (37)	7.86 (59)
5th Percentile	6.62	22.46	11.22	8.19	9.31
1st Quartile	5.84	20.65	10.06	7.33	8.62
Median	5.37	19.33	9.39	6.86	8.06
3rd Quartile	4.79	17.25	8.53	6.39	7.54
95th Percentile	3.15	13.18	6.65	5.07	6.22
Population	581	575	549	508	422

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

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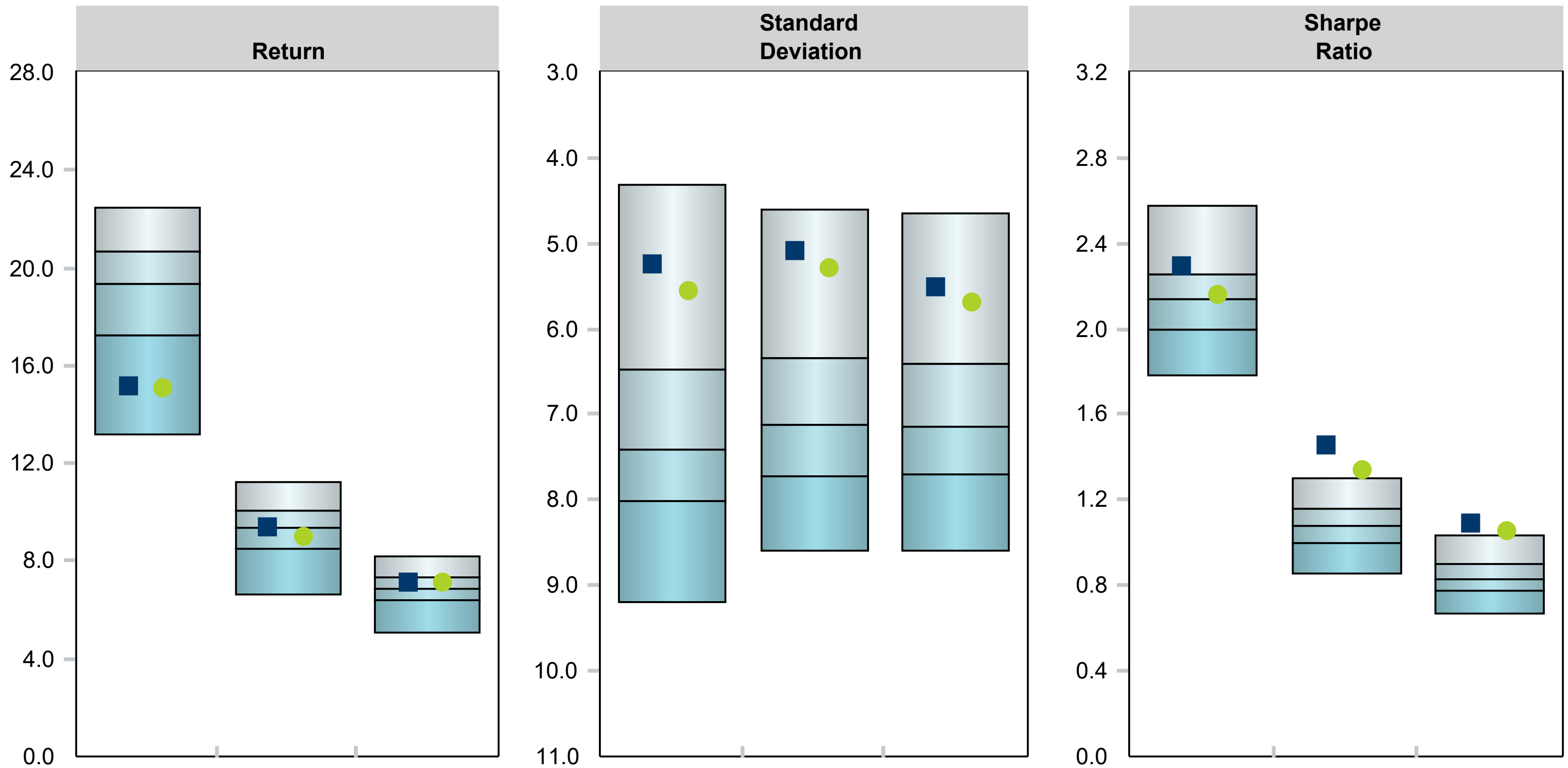
Plan Sponsor Peer Group Analysis-Multi Statistics

KRS Pension Plan

Periods Ended December 31, 2019



	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ KRS Pension Plan	15.16 (90)	9.37 (51)	7.12 (36)	5.26 (8)	5.10 (7)	5.52 (8)	2.29 (20)	1.45 (2)	1.09 (3)
● KRS Allocation Index	15.07 (91)	9.00 (63)	7.09 (37)	5.56 (11)	5.30 (8)	5.69 (10)	2.15 (48)	1.34 (4)	1.05 (4)
5th Percentile	22.46	11.22	8.19	4.32	4.60	4.64	2.57	1.30	1.03
1st Quartile	20.65	10.06	7.33	6.49	6.35	6.42	2.25	1.16	0.90
Median	19.33	9.39	6.86	7.41	7.13	7.15	2.14	1.08	0.83
3rd Quartile	17.25	8.53	6.39	8.02	7.71	7.70	2.00	0.99	0.77
95th Percentile	13.18	6.65	5.07	9.19	8.60	8.60	1.78	0.86	0.67

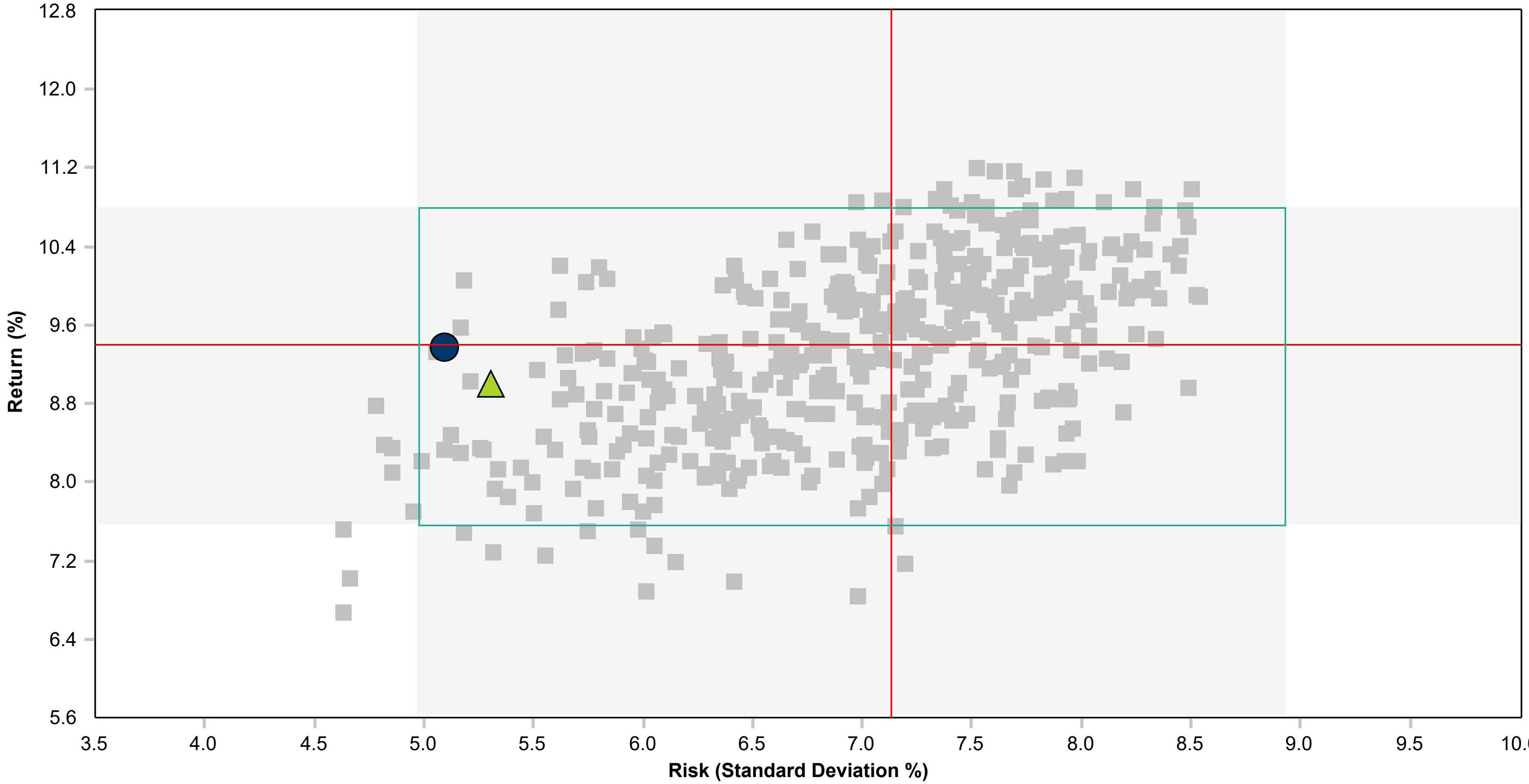
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Wilshire Consulting

Plan Sponsor Scattergram

KRS Pension Plan vs All Public Plans-Total Fund

Periods Ended January 1, 2017 To December 31, 2019



	Return	Standard Deviation
KRS Pension Plan	9.37	5.10
KRS Allocation Index	9.00	5.30
Median	9.39	7.13

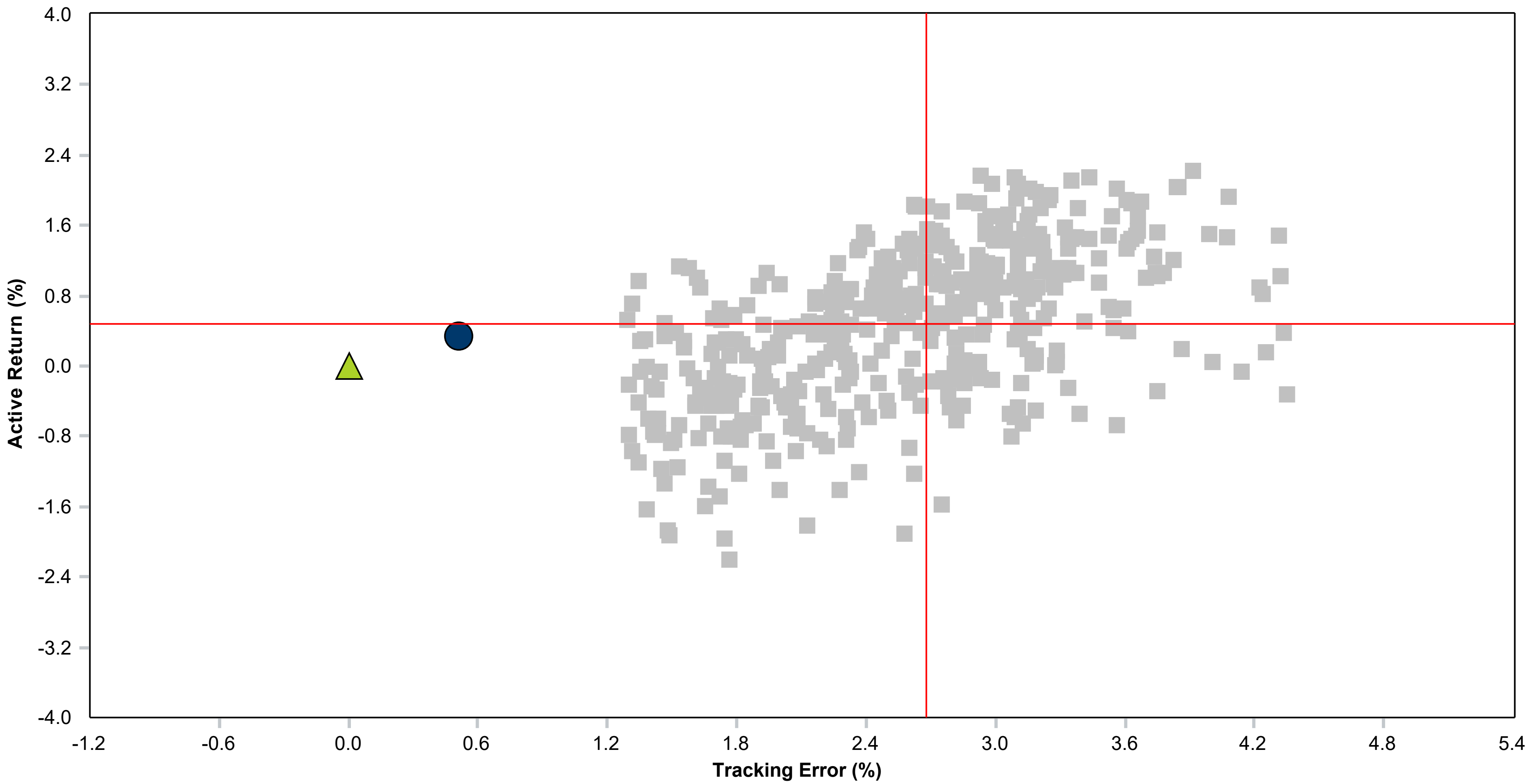
Calculation based on monthly periodicity.

Wilshire Consulting

Plan Sponsor Scattergram

KRS Pension Plan vs All Public Plans-Total Fund

Periods Ended January 1, 2017 To December 31, 2019



	Active Return	Tracking Error
KRS Pension Plan	0.33	0.51
KRS Allocation Index	0.00	0.00
Median	0.47	2.68

Calculation based on monthly periodicity.

Wilshire Consulting

Cash Flow Summary

KRS Pension Plan

1 Quarter Ending December 31, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
KRS Pension Plan	**12,902,082,442**	**1,519,719,874**	**-1,575,589,965**	**-11,834,073**	**-5,940,811**	**557,140,538**	**13,385,578,004**
US Equity Composite	**2,355,442,991**	**62,650,000**	**-13,887,542**	**-475,467**	**-437,844**	**210,636,792**	**2,613,928,930**
S&P 500 Index	1,262,163,454	7,650,000	-8,100,001		-62,655	114,488,307	1,376,139,105
Scientific Beta	427,223,516		-2,320,211		-73,997	23,947,271	448,776,579
River Road FAV	164,931,412		-612,259	-123,525	-59,526	18,392,094	182,528,196
Westfield Capital	158,259,148		-463,966	-238,676	-34,161	21,355,968	178,878,314
Internal US Mid Cap	160,948,473		-1,493,847		-93,919	11,296,921	170,657,629
NTGI Structured	181,863,990		-848,819	-68,815	-111,735	16,811,210	197,645,830
Next Century Growth		55,000,000	-48,311	-44,451	-1,851	4,318,531	59,223,918
Invesco	40,203					584	40,786
Transition Account	12,795		-129			25,906	38,572
Non-US Equity Composite	**2,511,768,194**	**253,500,000**	**-262,934,902**	**-1,872,701**	**-4,693**	**234,560,612**	**2,735,016,510**
BlackRock World Ex US	981,045,631		-259,494,378	-106,393		63,389,681	784,834,541
American Century	353,734,413		-785,744	-395,620	-20,219	37,853,080	390,385,910
Franklin Templeton	256,545,583		-669,361	-274,805	38,720	28,313,620	283,953,757
Lazard Asset Mgmt	453,356,512	3,500,000	-1,752,579	-284,731	-5,571	38,805,810	493,619,441
LSV Asset Mgmt	385,877,672		-151,465	-643,162	-10,957	41,771,810	426,843,898
NTGI Int'l Small Cap	76,963,971			-19,110		8,480,602	85,425,462
JP Morgan Emerging Markets		125,000,000	-33,866	-81,923	-4,165	8,334,668	133,214,713
Pzena Emerging Markets		125,000,000	-47,345	-66,956	-1,940	7,499,560	132,383,319
Boston Company	722,107						722,107
Pyramis Intl	2,093,233					46	2,093,279
Non-US Equity Transition	1,429,071		-164		-561	111,735	1,540,081
Fixed Income Composite	**4,374,498,036**	**236,516,069**	**-41,417,854**	**-2,387,411**	**-1,287,111**	**41,139,799**	**4,607,061,527**
Core Fixed Composite	**2,341,871,101**	**150,118,704**	**-17,580,050**	**-690,057**	**-301,029**	**16,242,165**	**2,489,660,834**
BNY IG Credit	104,227,673	118,704		-118,704		1,061,725	105,289,397

Wilshire Consulting

Cash Flow Summary

KRS Pension Plan

1 Quarter Ending December 31, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Loomis Sayles Intmd	583,305,068		-4,644,143	-87,342	-76,940	2,966,903	581,463,547
Lord Abbett	1,028,423,837	150,000,000	-7,985,193	-285,032	-161,105	10,655,151	1,180,647,658
NISA	625,914,524		-4,950,714	-198,980	-62,984	1,558,386	622,260,233
Opportunistic Fixed Composite	**2,032,626,935**	**86,397,365**	**-23,837,804**	**-1,697,354**	**-986,082**	**24,897,634**	**2,117,400,693**
Arrowmark	139,104,289	40,630,349		-529,986		4,333,681	183,538,333
BSP Coinvestment	11,495,821						11,495,821
BSP Private Credit	61,295,948	6,600,660	-1,446,079	-174,294		432,017	66,708,252
Cerberus Capital Mgmt	93,159,808	24,500,000		-603,588	-347,836	2,922,492	119,630,876
Columbia	360,549,944		-4,915,760	-312,553	-239,704	10,987,021	366,068,949
Manulife Asset Mgmt	472,827,632		-3,913,177	-230,550	-81,601	6,229,223	474,831,526
Marathon Bluegrass	356,299,792			804,995		-9,550,662	347,554,125
Shenkman Capital	239,509,838		-2,776,386	-195,813	-9,346	4,991,013	241,519,305
Waterfall	200,975,287	10,000,000	-8,161	-212,281	-5,266	2,770,929	213,520,507
White Oak Yield Spectrum	97,368,516	4,666,356	-10,778,079	-243,284	-302,329	1,781,768	92,492,948
Loomis	40,061		-162			152	40,051
Real Return Composite	**1,106,599,987**	**25,603,826**	**-5,598,008**	**-1,665,885**	**-1,171,851**	**23,340,272**	**1,147,108,341**
Internal TIPS	210,530,378		-25,057		-5,060	2,496,889	212,997,151
PIMCO All Asset	343,782,355		-214			12,064,420	355,846,561
Tortoise Capital	141,673,384		-23,248	-90,802	-18,208	-1,851,267	139,689,859
Nuveen Real Asset	224,178,763		-2,881,970	-363,914	-45,466	8,104,052	228,991,465
Amerra AGRI Fund II	21,647,385		-262,178	-47,425	-813,557	3,037,234	23,561,458
Amerra AGRI Holdings	44,217,010		-485,977	-231,977	-68,610	-31,328	43,399,118
BTG Pactual	23,572,456	2,719,303	-789,505	-105,433	-11,740	-338,586	25,046,495
IFM Infrastructure	23,803,439	16,830,838	-700,114	-35,817	82,080	663,041	40,643,468
Magnetar MTP EOF II	33,226,933		-429,746	-111,074	-60,762	414,883	33,040,234
Oberland Capital	3,635,301	3,967,500		-62,616	-79,237	154,602	7,615,550
Taurus Mine Finance	35,556,058	2,086,185		-616,827	-151,292	-1,372,974	35,501,150

Wilshire Consulting

Cash Flow Summary

KRS Pension Plan

1 Quarter Ending December 31, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
TPF II	776,526					-694	775,832
Real Estate Composite	**699,947,105**	**18,730,478**	**-8,968,325**	**-5,212,456**	**-713,108**	**23,408,875**	**727,192,570**
Baring	51,086,992	7,247,686				3,590,060	61,924,738
Divcowest IV	3,808,507		-596,660	-8,439	15,733	-204,198	3,014,943
Fundamental Partners III	40,066,147	5,287,009	-1,057,402	-262,500	-686,998	3,181,503	46,527,759
Greenfield Acq VI	1,905,919		-422,158	-65,619	11,307	9,083	1,438,532
Greenfield Acq VII	18,903,450		-218,070	-99,876	-4,715	291,626	18,872,415
H/2 Credit Partner	83,735,494					1,374,808	85,110,301
Harrison Street	81,659,384		-817,486	-154,578		1,754,532	82,441,852
Lubert Adler VII	28,719,606			-66,826	-92,961	99,209	28,659,028
Lubert Adler VII B	26,970,962			-58,815	132,708	234,999	27,279,854
Mesa West IV	16,196,875	3,600,000		-121,500	-19,646	489,486	20,145,215
Mesa West Core Lend	59,668,309		-978,965	-120,308		1,104,420	59,673,457
Patron Capital	16,632,302	2,595,784	-150,447	-269,793	-68,535	755,090	19,494,400
Prologis Targeted US	136,728,647		-922,245	-3,626,558		9,978,982	142,158,826
Rubenstein PF II	18,022,367		-804,027	-53,184		-797,400	16,367,756
Stockbridge Sm/Mkts	89,198,631		-872,678	-190,418		1,664,718	89,800,254
Walton St RE VI	13,586,368		-935,273	-34,760		17,577	12,633,912
Walton St RE VII	13,057,144		-1,192,914	-79,282		-135,618	11,649,330
Absolute Return Composite	**204,193,864**		**-6,696,496**	**-377,091**		**3,029,134**	**200,149,411**
Blackstone Strat Opp	3,958,199		-1,160,488			22,096	2,819,807
Credit Suisse	415,818						415,818
Gotham Neutral Strategies	12,908,852			-32,864		366,751	13,242,738
Governors Lane Onshore	16,247,946		-5,456,166	-68,200		297,184	11,020,765
Liquidalts H20 Force	17,097,306					918,549	18,015,854
Luxor Capital	1,603,029					-218,625	1,384,403
Myriad Opportunities	43,411,239			-105,517		880,818	44,186,540

Wilshire Consulting

Cash Flow Summary

KRS Pension Plan

1 Quarter Ending December 31, 2019

	Begin Value	Contributions	Distributions	Fees	Expenses	Capital Apprec./ Deprec.	End Value
PAAMCO	7,095						7,095
Pine River	253,596		-79,841	-286		19,095	192,565
PRISMA Capital	96,376,598						96,376,598
SRS Partners US	8,349,395			-170,225		743,266	8,922,436
Tricadia Select	3,564,792						3,564,792
Private Equity Composite	**1,153,844,068**	**5,503,879**	**-60,679,915**	**156,939**	**-1,620,281**	**18,810,645**	**1,116,015,335**
Cash Composite	**488,488,198**	**917,215,621**	**-1,175,406,923**		**-705,923**	**2,214,408**	**231,805,380**
Perimeter Park	7,300,000						7,300,000

US Equity Composite

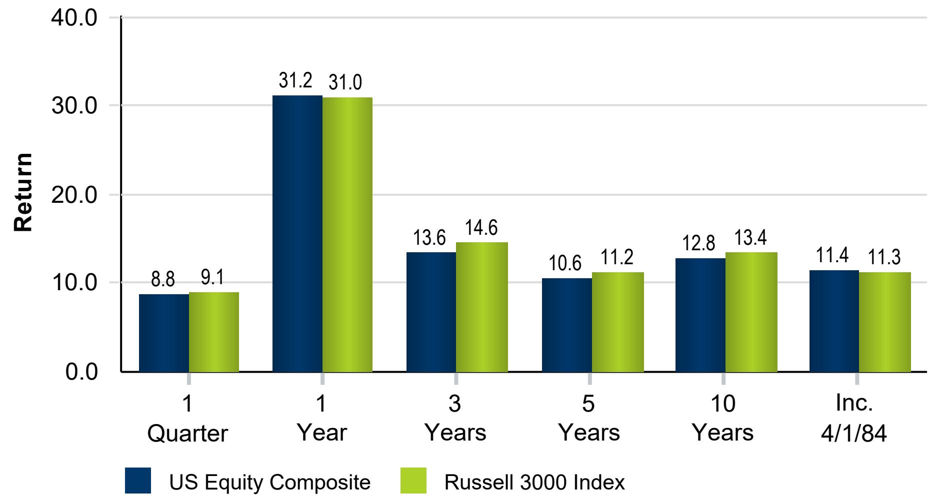
Wilshire Consulting

Composite Performance Summary

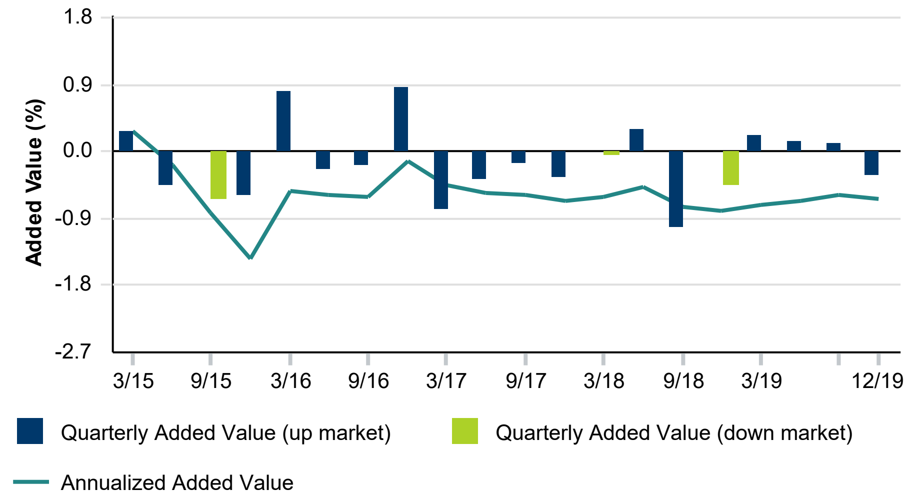
US Equity Composite

Periods Ended December 31, 2019

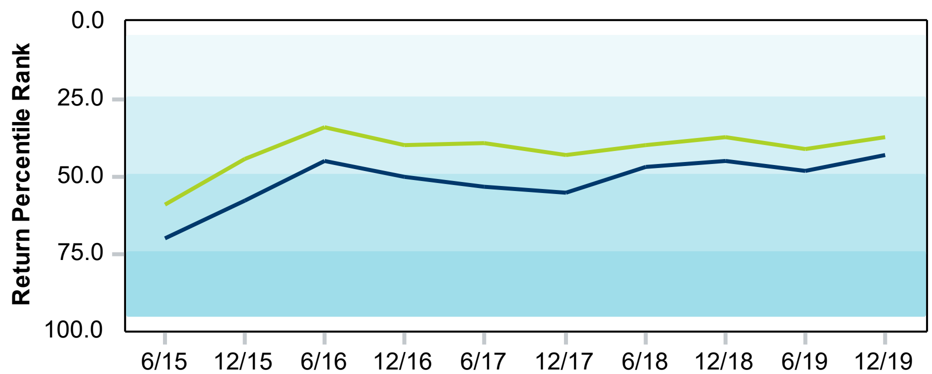
Comparative Performance



Added Value History

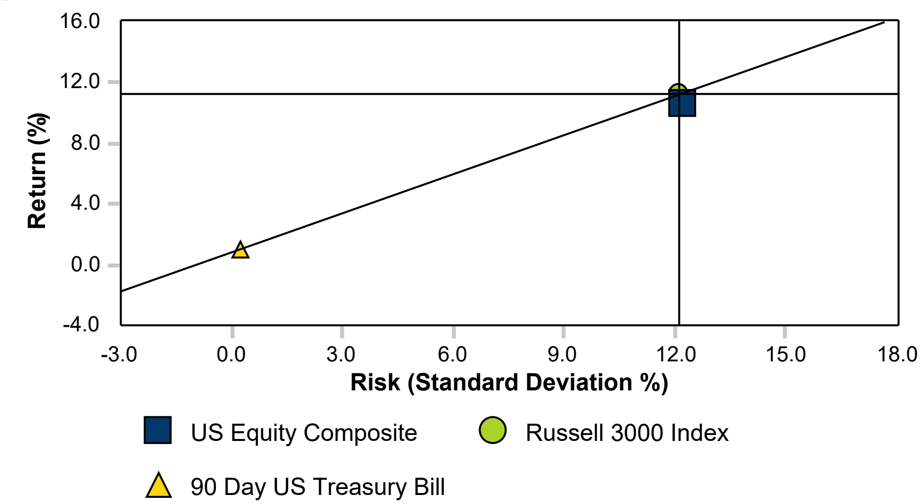


Rolling Percentile Rank: IM U.S. Equity (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
US Equity Composite	10	0 (0%)	6 (60%)	4 (40%)	0 (0%)
Benchmark	10	0 (0%)	9 (90%)	1 (10%)	0 (0%)

Risk and Return 01/1/15 - 12/31/19

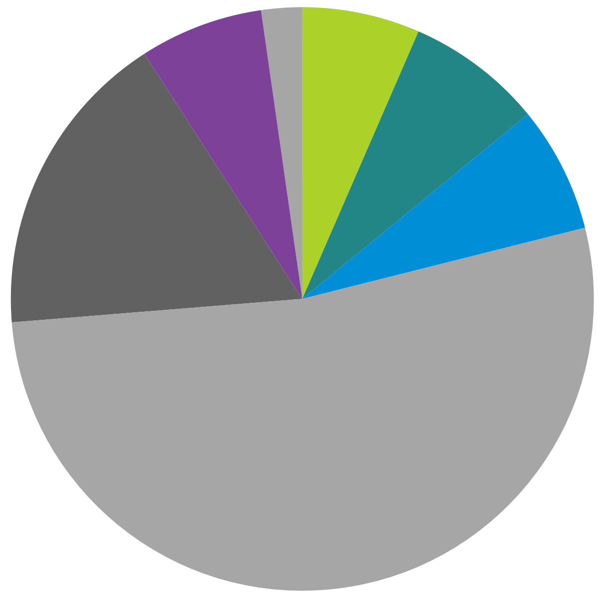


Asset Allocation By Manager

US Equity Composite

Periods Ended December 31, 2019

Dec-2019 : 2,613,928,930

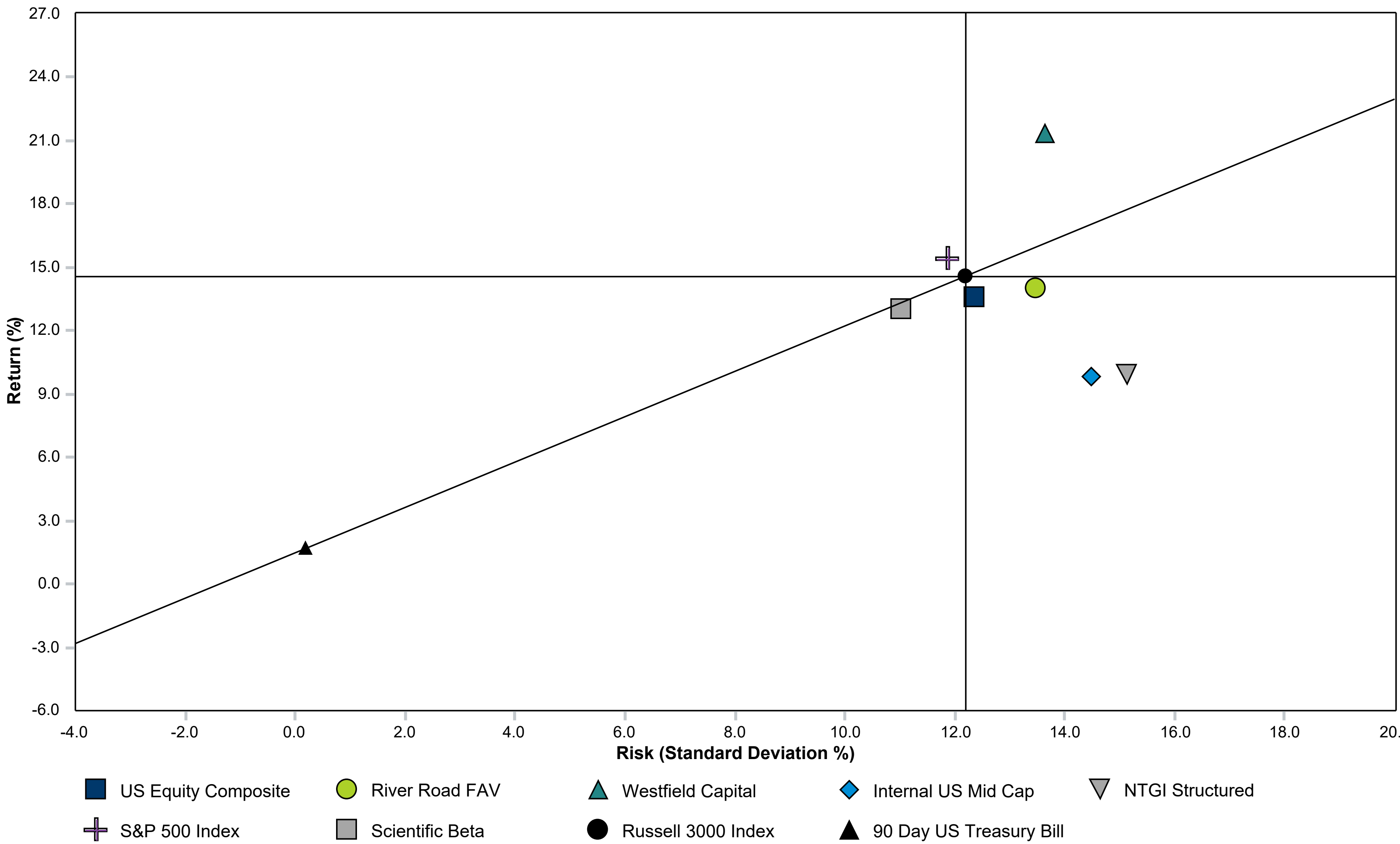


	Market Value $	Allocation (%)
Invesco	40,786	0.0
Internal US Mid Cap	170,657,629	6.5
NTGI Structured	197,645,830	7.6
River Road FAV	182,528,196	7.0
S&P 500 Index	1,376,139,105	52.6
Scientific Beta	448,776,579	17.2
Transition Account	38,572	0.0
Westfield Capital	178,878,314	6.8
Next Century Growth	59,223,918	2.3

Risk vs. Return

US Equity Composite

Periods Ended 3 Years Ending December 31, 2019



Calculation based on monthly periodicity.

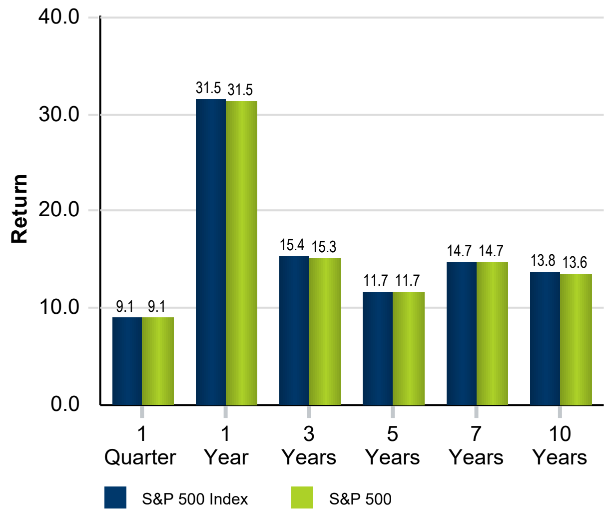
Wilshire Consulting

Performance Summary

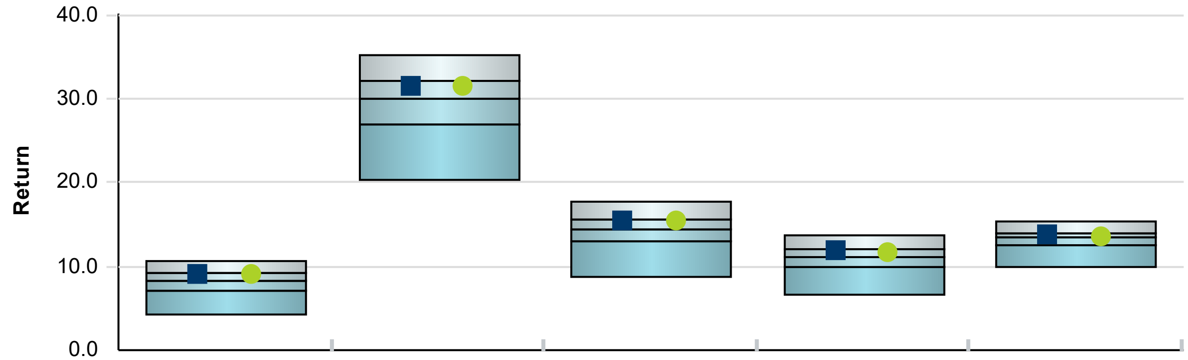
S&P 500 Index

Periods Ended December 31, 2019

Comparative Performance

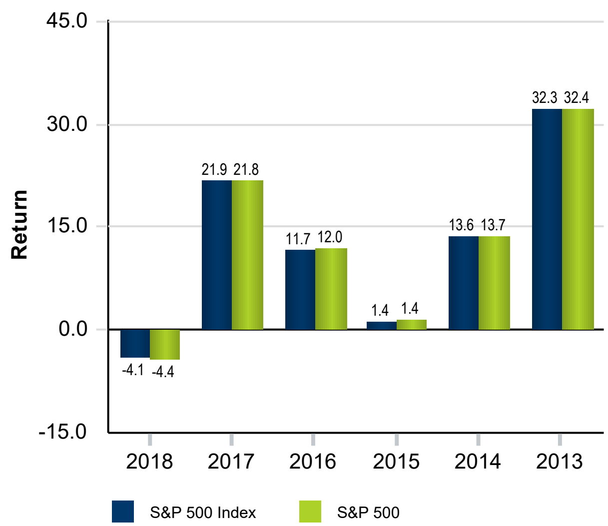


Peer Group Analysis: IM U.S. Large Cap Core Equity (SA+CF)

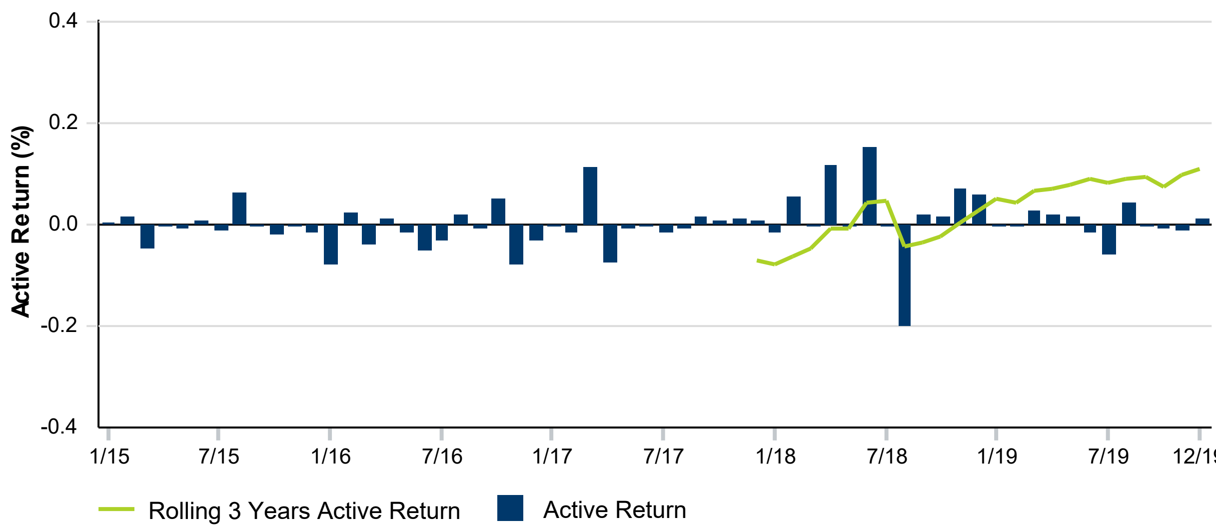


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	9.07 (32)	31.52 (33)	15.41 (27)	11.72 (34)	13.75 (29)
Benchmark	9.07 (31)	31.49 (35)	15.27 (32)	11.70 (35)	13.56 (42)
Median	8.20	29.96	14.32	11.17	13.39

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

S&P 500 Index

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics	S&P 500 Index	S&P 500
Maximum Return	8.01	8.01
Minimum Return	-6.34	-6.35
Return	31.52	31.49
Cumulative Return	31.52	31.49
Active Return	0.02	0.00
Excess Return	26.22	26.19

Risk Summary Statistics	S&P 500 Index	S&P 500
Upside Risk	3.84	3.84
Downside Risk	6.52	6.55
Beta	1.00	1.00

Risk/Return Summary Statistics	S&P 500 Index	S&P 500
Standard Deviation	12.32	12.34
Alpha	0.08	0.00
Active Return/Risk	0.00	0.00
Tracking Error	0.08	0.00
Information Ratio	0.26	
Sharpe Ratio	2.12	2.12

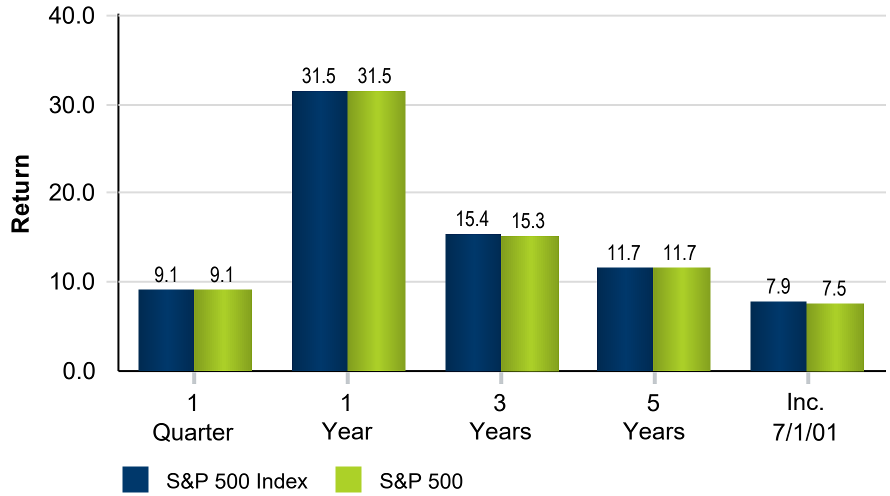
Correlation Statistics	S&P 500 Index	S&P 500
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

Manager Summary

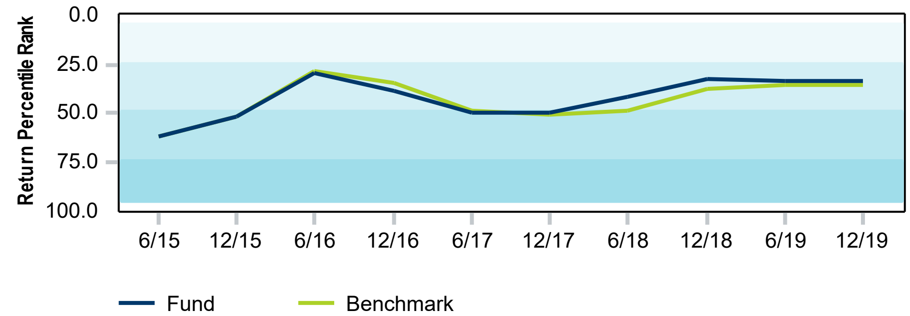
S&P 500 Index vs IM U.S. Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

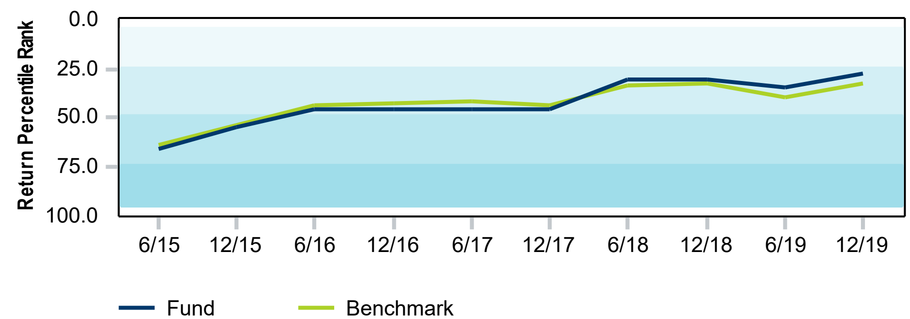
Comparative Performance



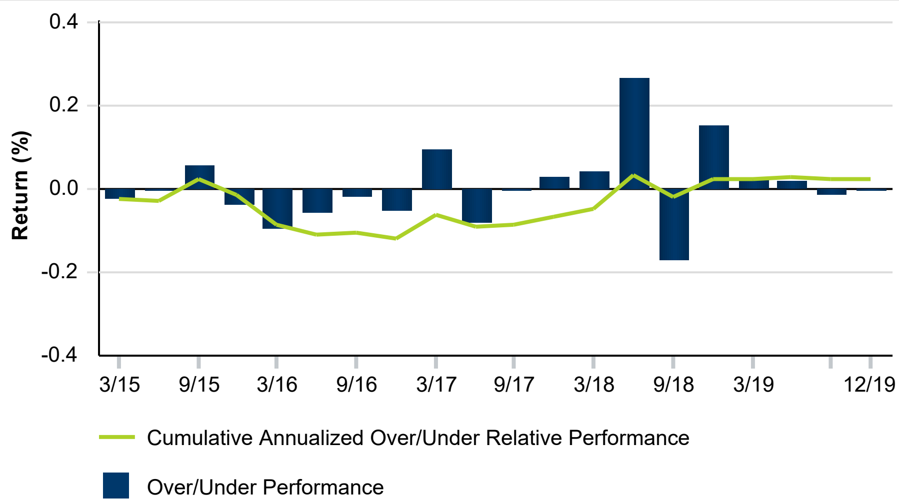
1 Year Rolling Percentile Ranking



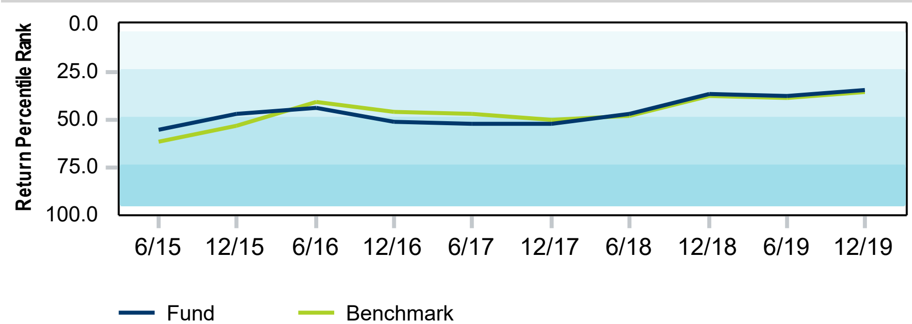
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

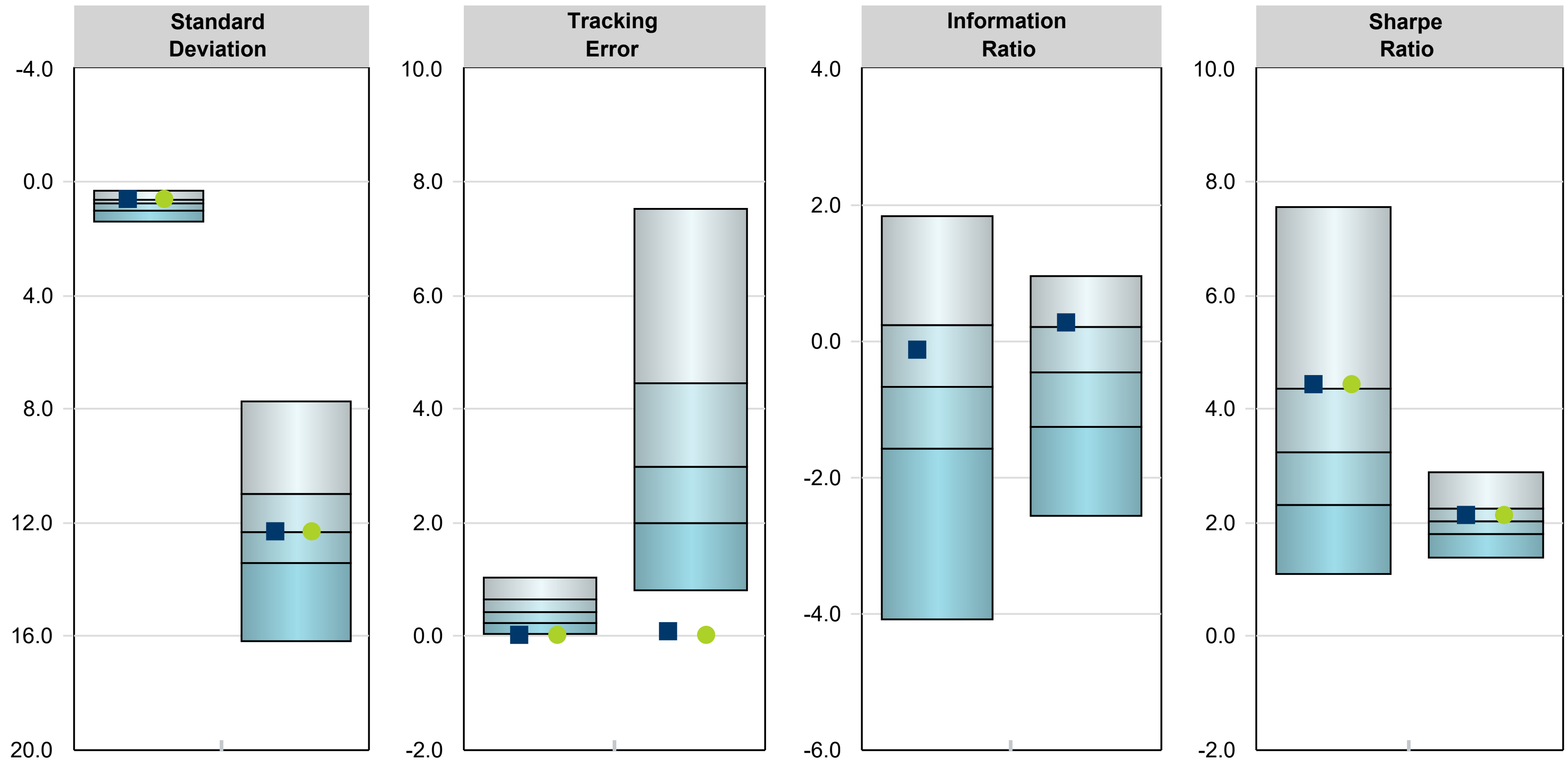


Wilshire Consulting

Peer Group Analysis - Multi Statistics

S&P 500 Index

Periods Ended December 31, 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
■ S&P 500 Index	0.60 (27)	12.32 (48)	0.01 (98)	0.08 (98)	-0.14 (34)	0.26 (23)	4.43 (22)	2.12 (36)
● S&P 500	0.60 (28)	12.34 (50)	0.00 (100)	0.00 (100)			4.43 (23)	2.12 (37)
5th Percentile	0.30	7.72	1.04	7.53	1.84	0.95	7.57	2.90
1st Quartile	0.59	10.97	0.66	4.47	0.24	0.23	4.37	2.26
Median	0.74	12.34	0.42	3.00	-0.66	-0.46	3.24	2.03
3rd Quartile	0.98	13.41	0.23	1.99	-1.57	-1.24	2.33	1.79
95th Percentile	1.37	16.14	0.06	0.83	-4.07	-2.55	1.09	1.38

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

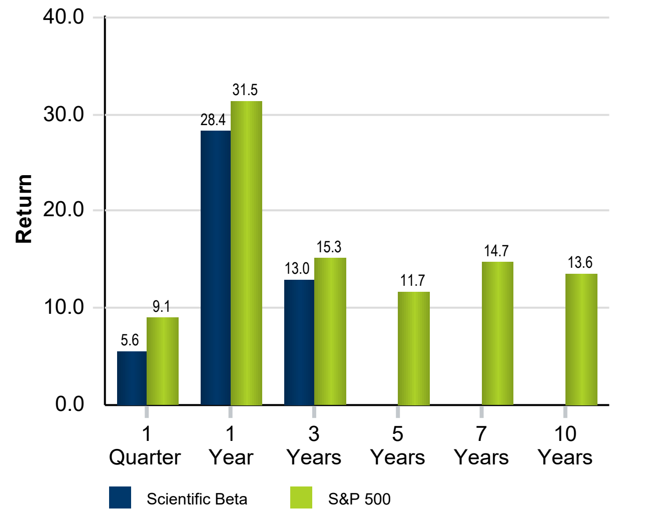
Wilshire Consulting

Performance Summary

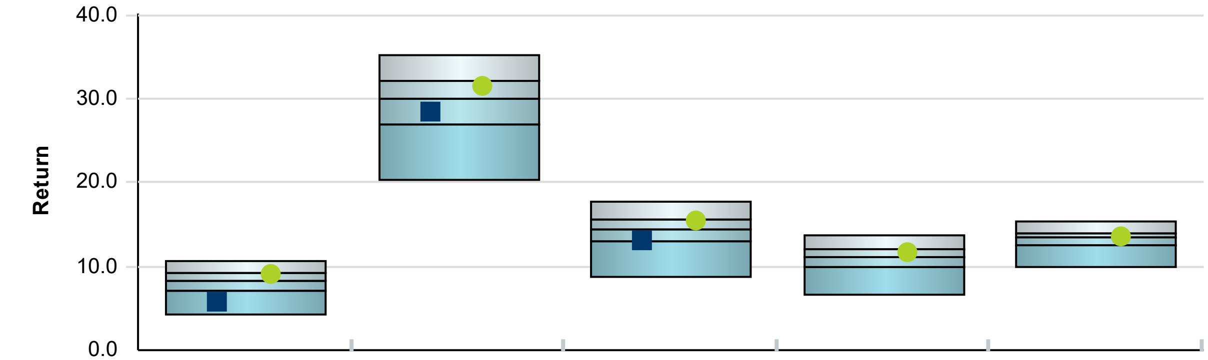
Scientific Beta

Periods Ended December 31, 2019

Comparative Performance

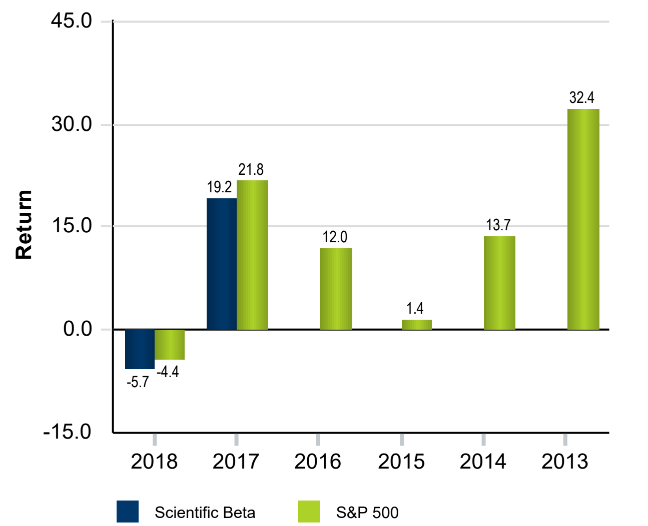


Peer Group Analysis: IM U.S. Large Cap Core Equity (SA+CF)

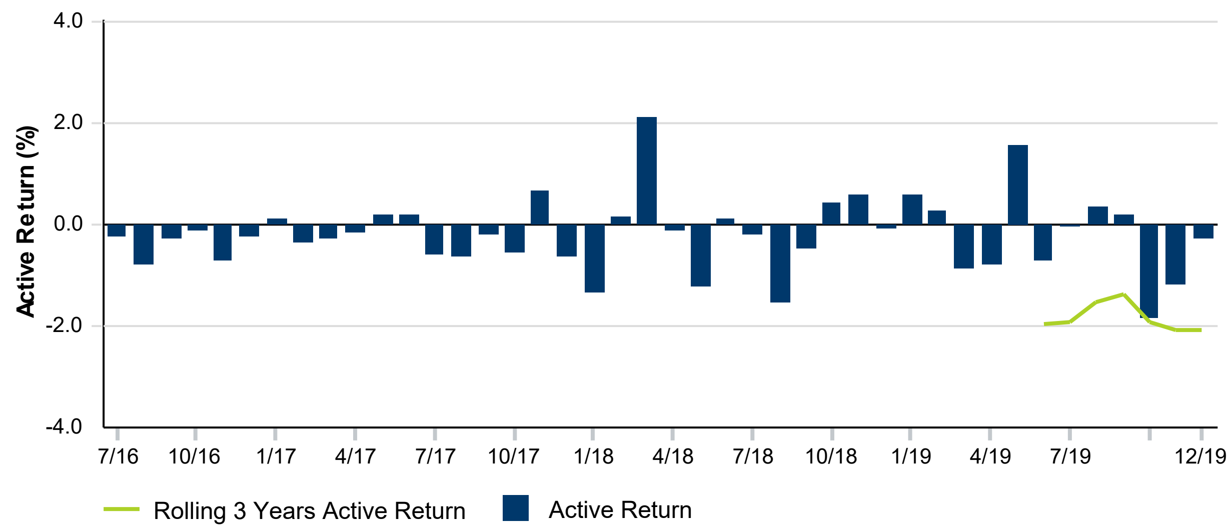


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	5.62 (89)	28.36 (65)	13.02 (75)		
Benchmark	9.07 (31)	31.49 (35)	15.27 (32)	11.70 (35)	13.56 (42)
Median	8.20	29.96	14.32	11.17	13.39

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Scientific Beta

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Scientific Beta	S&P 500
Maximum Return	8.61	8.01
Minimum Return	-4.77	-6.35
Return	28.36	31.49
Cumulative Return	28.36	31.49
Active Return	-2.60	0.00
Excess Return	23.60	26.19

Risk Summary Statistics

	Scientific Beta	S&P 500
Upside Risk	3.63	3.84
Downside Risk	4.92	6.55
Beta	0.89	1.00

Risk/Return Summary Statistics

	Scientific Beta	S&P 500
Standard Deviation	11.27	12.34
Alpha	0.64	0.00
Active Return/Risk	-0.23	0.00
Tracking Error	3.03	0.00
Information Ratio	-0.86	
Sharpe Ratio	2.09	2.12

Correlation Statistics

	Scientific Beta	S&P 500
R-Squared	0.94	1.00
Actual Correlation	0.97	1.00

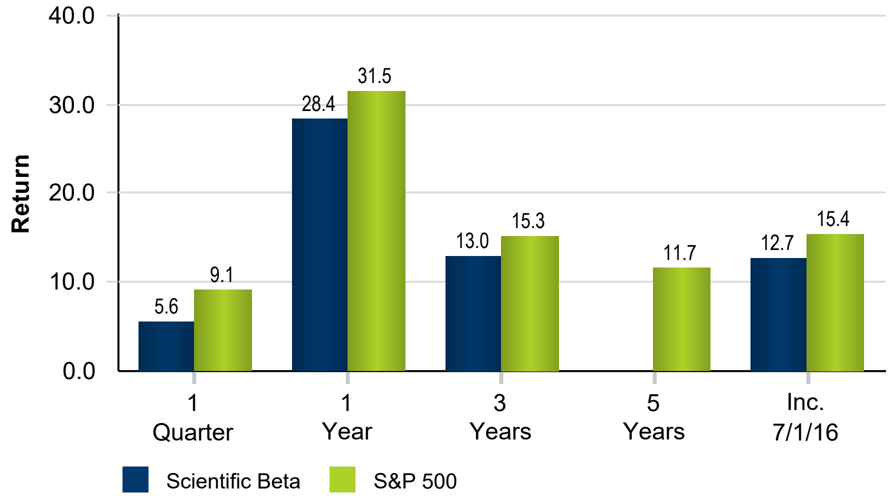
Wilshire Consulting

Manager Summary

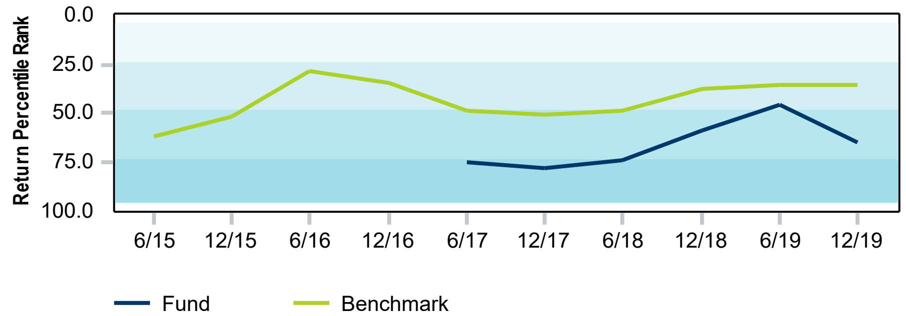
Scientific Beta vs IM U.S. Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

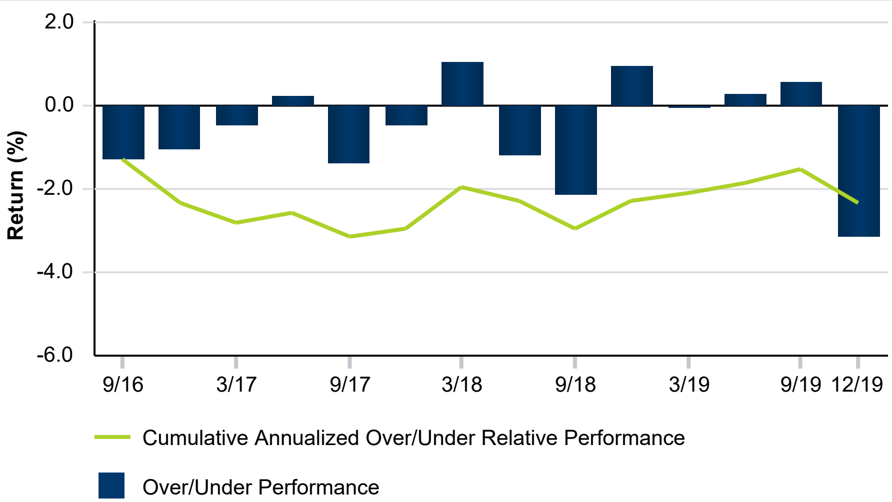
Comparative Performance



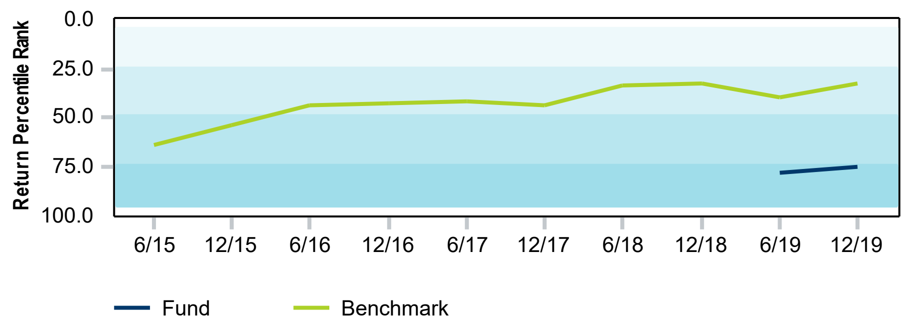
1 Year Rolling Percentile Ranking



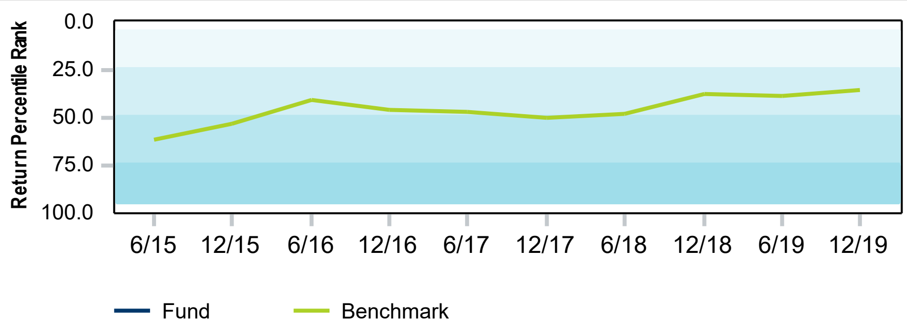
Relative Performance



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

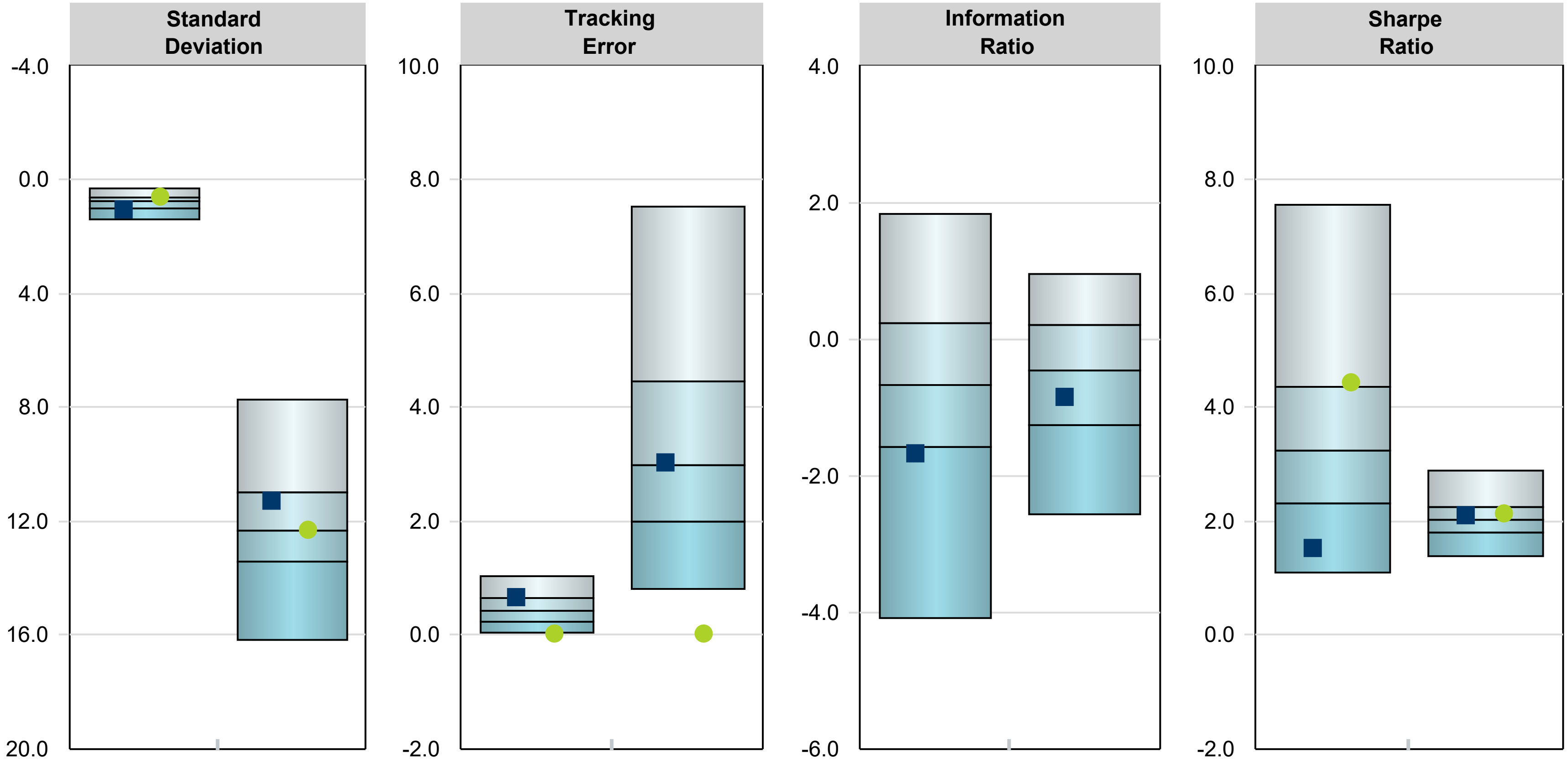


Wilshire Consulting

Peer Group Analysis - Multi Statistics

Scientific Beta

Periods Ended December 31, 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
■ Scientific Beta	1.09 (80)	11.27 (28)	0.65 (26)	3.03 (49)	-1.69 (77)	-0.86 (67)	1.52 (92)	2.09 (44)
● S&P 500	0.60 (28)	12.34 (50)	0.00 (100)	0.00 (100)			4.43 (23)	2.12 (37)
5th Percentile	0.30	7.72	1.04	7.53	1.84	0.95	7.57	2.90
1st Quartile	0.59	10.97	0.66	4.47	0.24	0.23	4.37	2.26
Median	0.74	12.34	0.42	3.00	-0.66	-0.46	3.24	2.03
3rd Quartile	0.98	13.41	0.23	1.99	-1.57	-1.24	2.33	1.79
95th Percentile	1.37	16.14	0.06	0.83	-4.07	-2.55	1.09	1.38

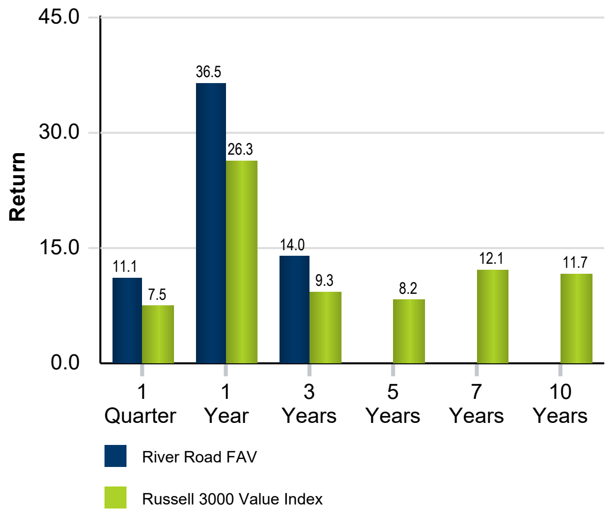
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

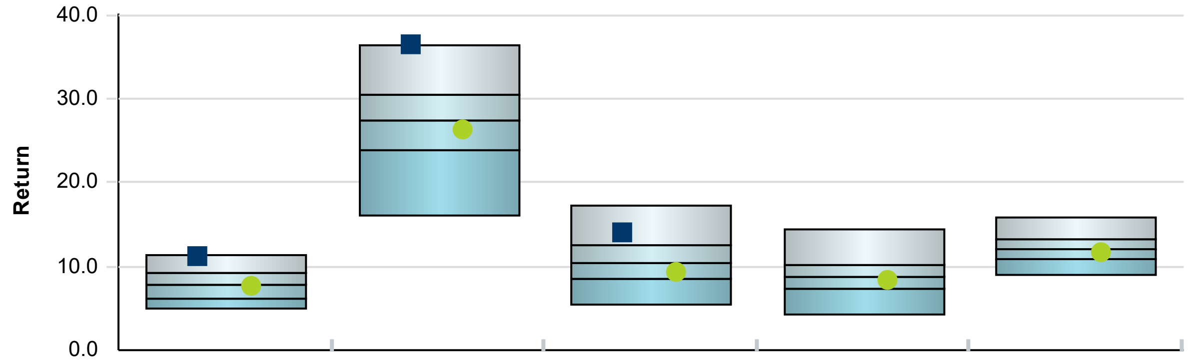
River Road FAV

Periods Ended December 31, 2019

Comparative Performance

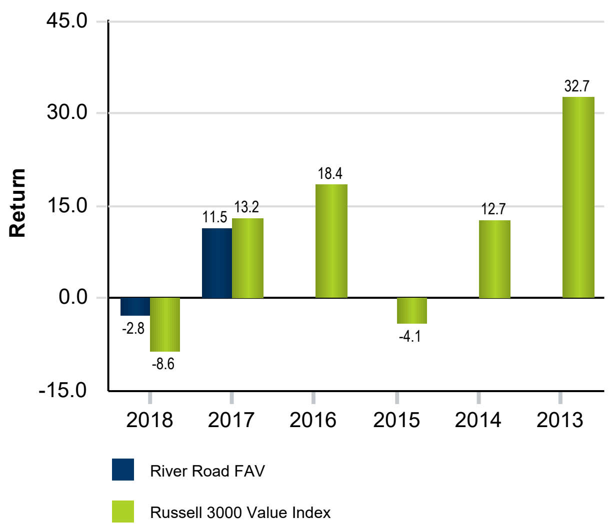


Peer Group Analysis: IM U.S. All Cap Value Equity (SA+CF)

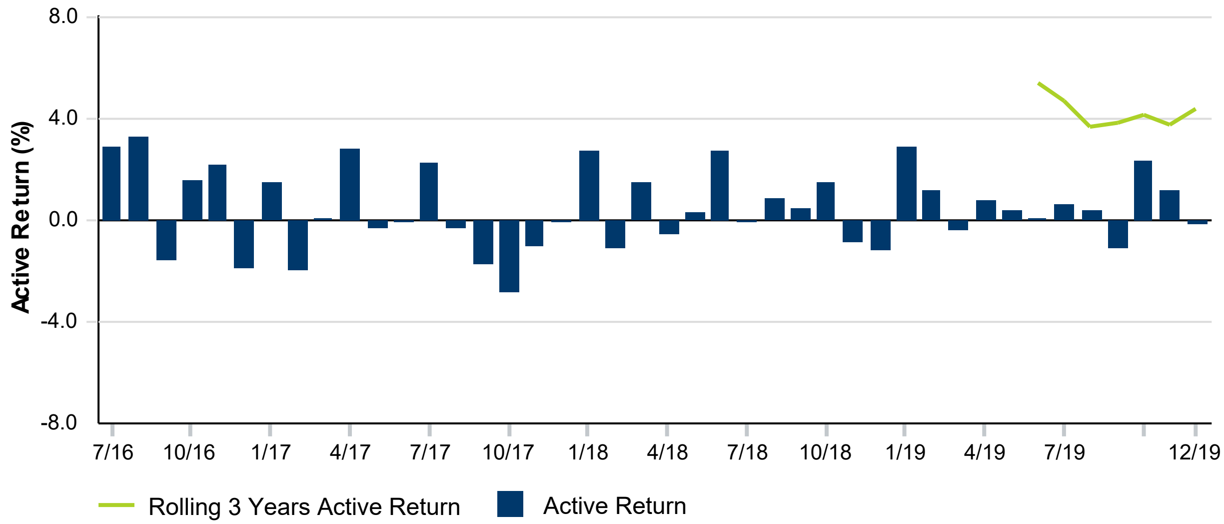


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	11.11 (6)	36.52 (5)	13.96 (15)		
Benchmark	7.48 (56)	26.26 (63)	9.32 (59)	8.20 (57)	11.71 (60)
Median	7.74	27.51	10.43	8.81	12.08

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

River Road FAV

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics	River Road FAV	Russell 3000 Value Index
Maximum Return	10.88	8.00
Minimum Return	-6.18	-6.55
Return	36.52	26.26
Cumulative Return	36.52	26.26
Active Return	8.18	0.00
Excess Return	30.34	22.16

Risk Summary Statistics	River Road FAV	Russell 3000 Value Index
Upside Risk	4.63	3.78
Downside Risk	6.74	7.25
Beta	1.07	1.00

Risk/Return Summary Statistics	River Road FAV	Russell 3000 Value Index
Standard Deviation	14.63	13.21
Alpha	6.56	0.00
Active Return/Risk	0.56	0.00
Tracking Error	3.71	0.00
Information Ratio	2.20	
Sharpe Ratio	2.07	1.67

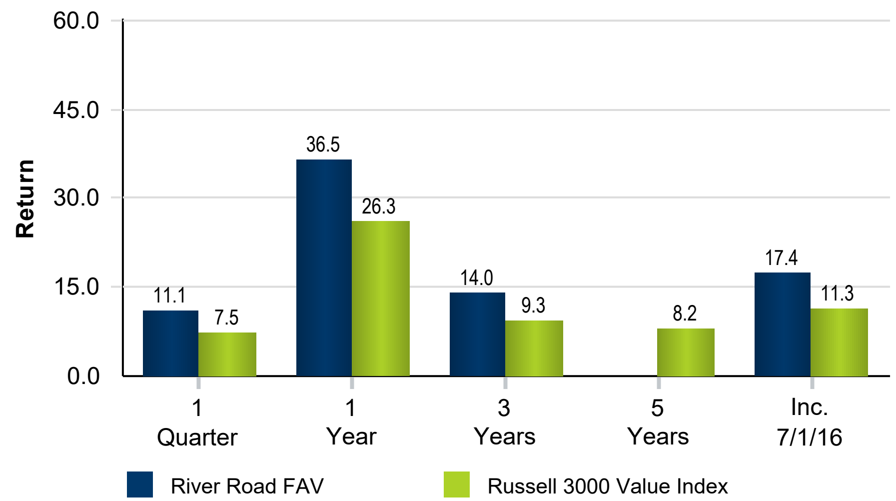
Correlation Statistics	River Road FAV	Russell 3000 Value Index
R-Squared	0.94	1.00
Actual Correlation	0.97	1.00

Manager Summary

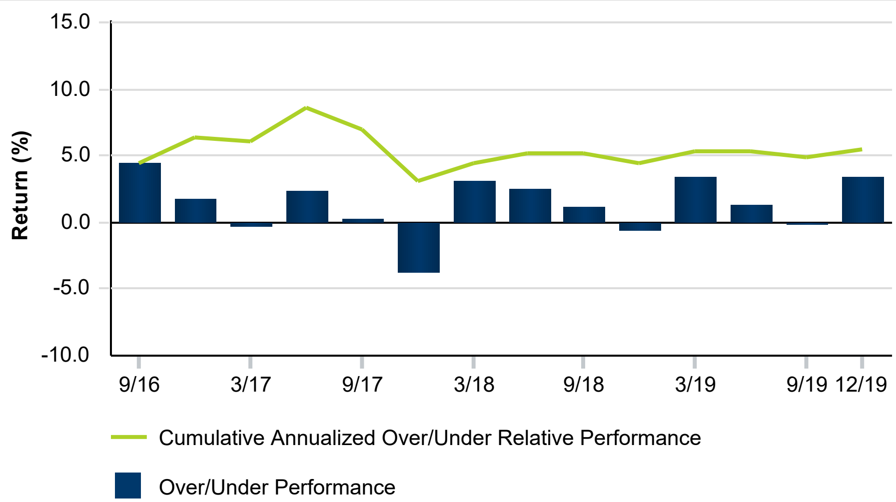
River Road FAV vs IM U.S. All Cap Value Equity (SA+CF)

Periods Ended December 31, 2019

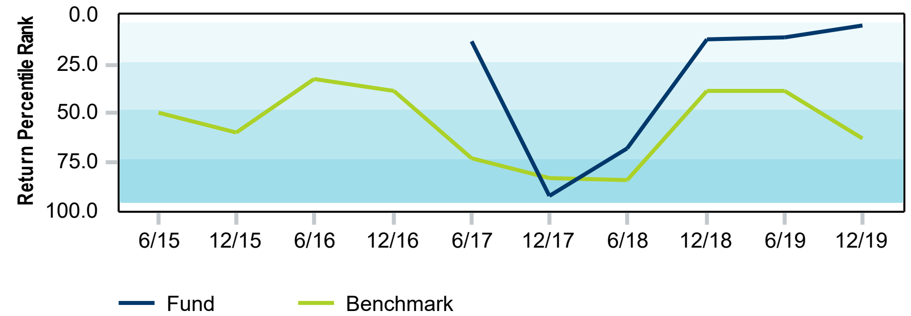
Comparative Performance



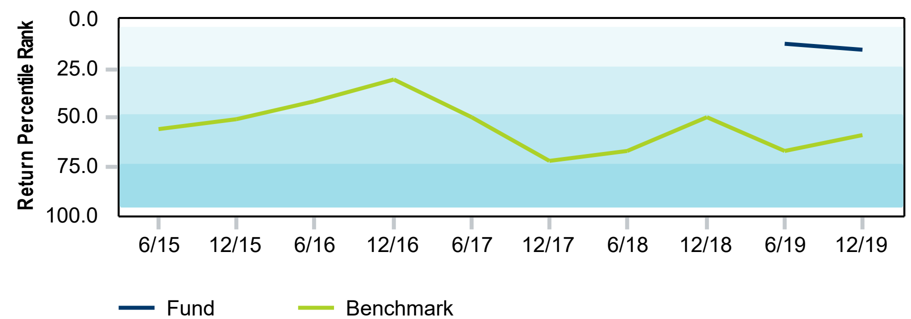
Relative Performance



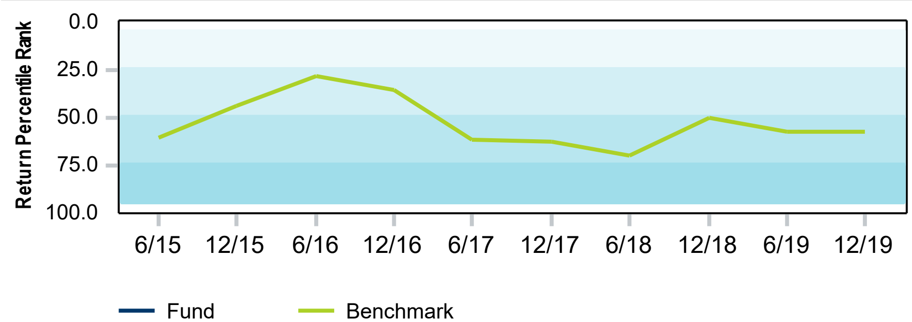
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

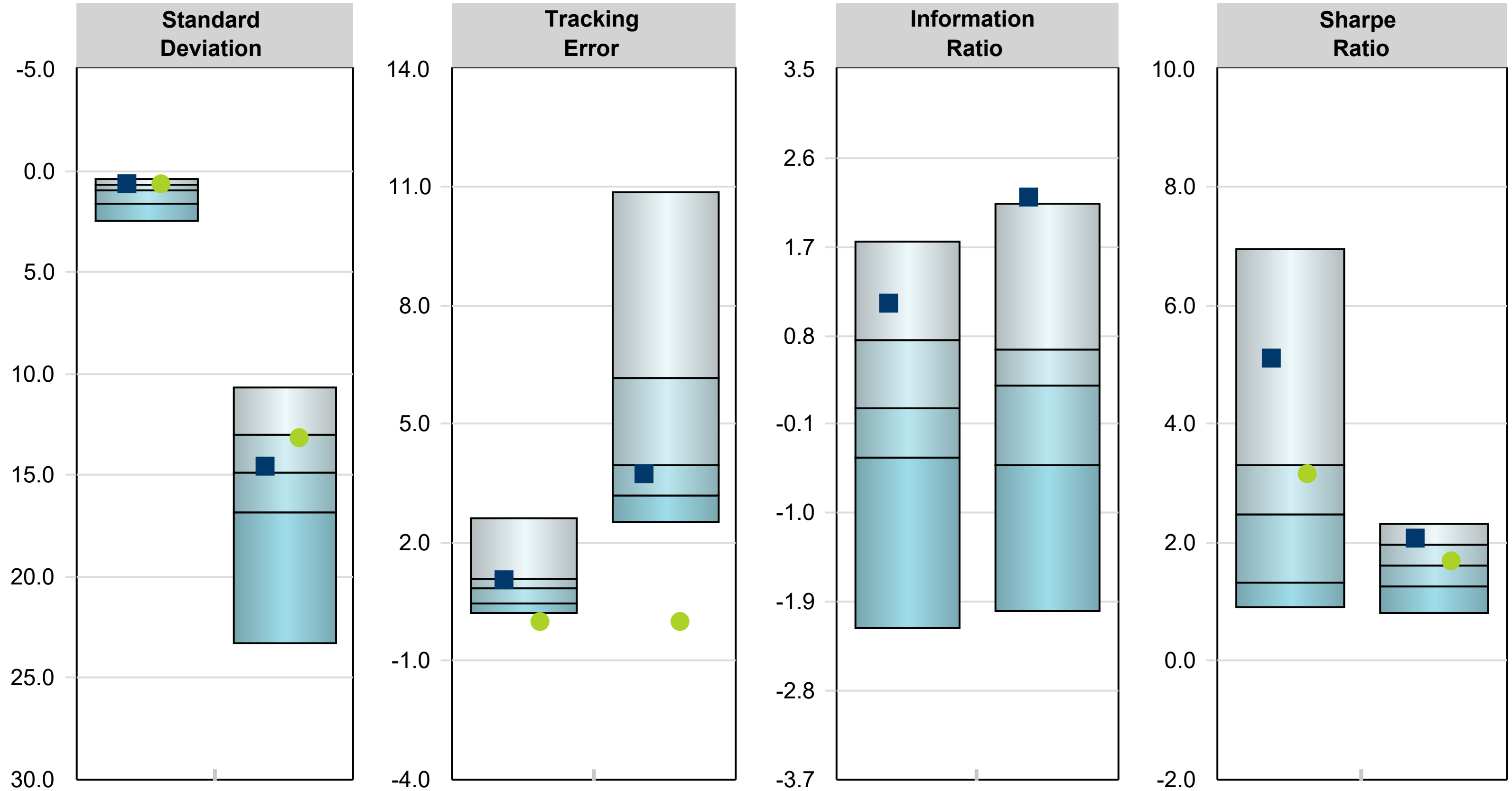


Wilshire Consulting

Peer Group Analysis - Multi Statistics

River Road FAV

Periods Ended December 31, 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
■ River Road FAV	0.67 (24)	14.63 (45)	1.02 (34)	3.71 (58)	1.11 (17)	2.20 (5)	5.11 (10)	2.07 (17)
● Russell 3000 Value Index	0.69 (28)	13.21 (28)	0.00 (100)	0.00 (100)			3.16 (28)	1.67 (46)
5th Percentile	0.45	10.72	2.62	10.90	1.74	2.14	6.96	2.34
1st Quartile	0.67	13.02	1.11	6.19	0.76	0.67	3.32	1.98
Median	1.00	14.87	0.84	3.96	0.07	0.30	2.48	1.62
3rd Quartile	1.59	16.84	0.44	3.22	-0.44	-0.51	1.34	1.26
95th Percentile	2.43	23.25	0.24	2.54	-2.16	-1.99	0.92	0.82

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

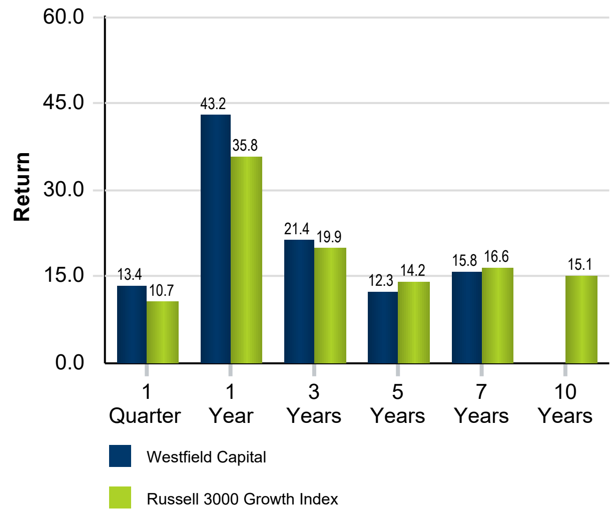
Wilshire Consulting

Performance Summary

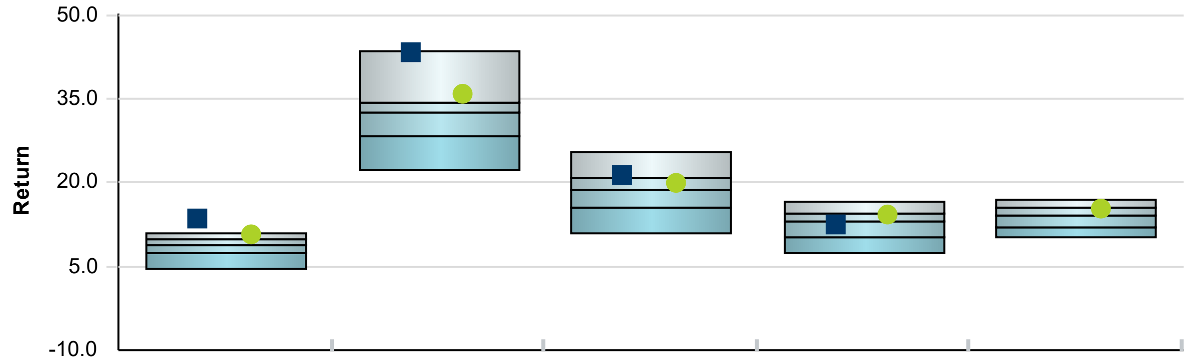
Westfield Capital

Periods Ended December 31, 2019

Comparative Performance

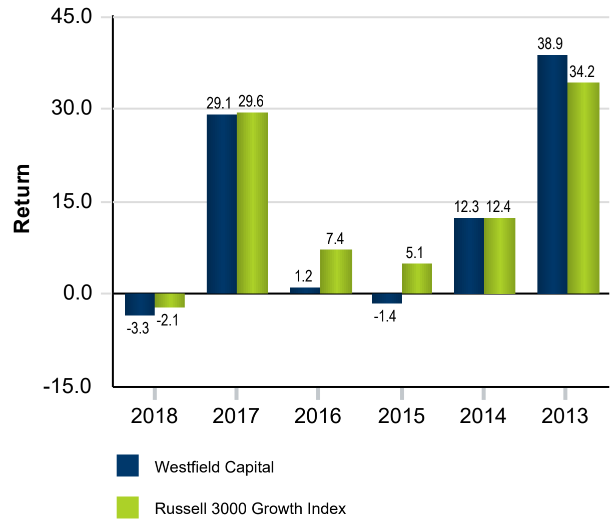


Peer Group Analysis: IM U.S. All Cap Growth Equity (SA+CF)

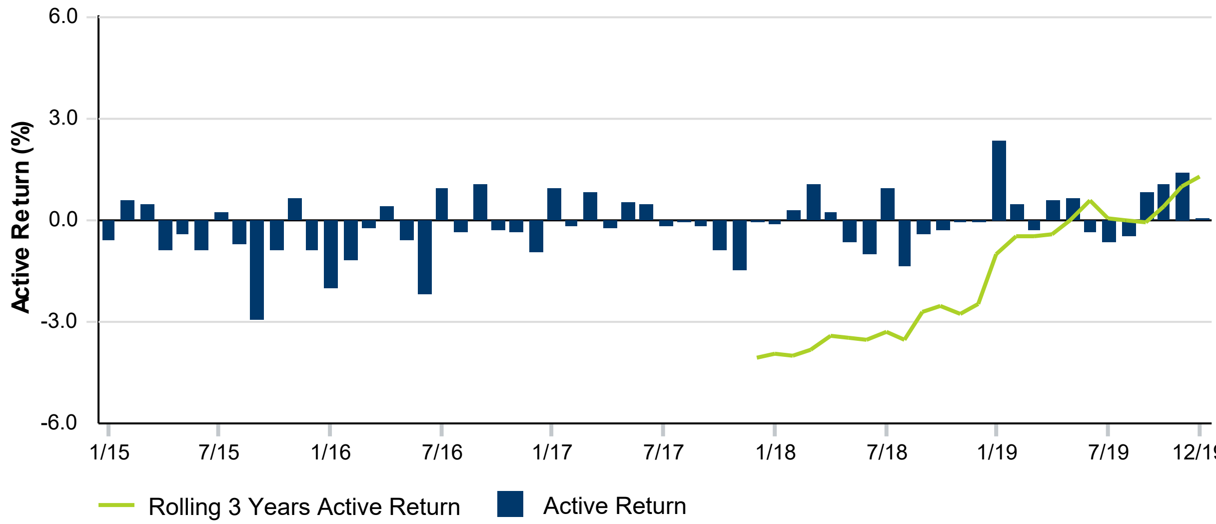


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	13.36 (2)	43.21 (6)	21.38 (18)	12.28 (60)	
Benchmark	10.67 (13)	35.85 (17)	19.89 (36)	14.23 (31)	15.05 (37)
Median	8.74	32.68	18.69	12.97	14.25

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Westfield Capital

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Westfield Capital	Russell 3000 Growth Index
Maximum Return	11.54	9.18
Minimum Return	-5.75	-6.40
Return	43.21	35.85
Cumulative Return	43.21	35.85
Active Return	5.58	0.00
Excess Return	35.21	29.63

Risk Summary Statistics

	Westfield Capital	Russell 3000 Growth Index
Upside Risk	4.89	4.23
Downside Risk	5.93	6.47
Beta	1.07	1.00

Risk/Return Summary Statistics

	Westfield Capital	Russell 3000 Growth Index
Standard Deviation	14.31	13.10
Alpha	3.35	0.00
Active Return/Risk	0.39	0.00
Tracking Error	2.94	0.00
Information Ratio	1.90	
Sharpe Ratio	2.45	2.26

Correlation Statistics

	Westfield Capital	Russell 3000 Growth Index
R-Squared	0.96	1.00
Actual Correlation	0.98	1.00

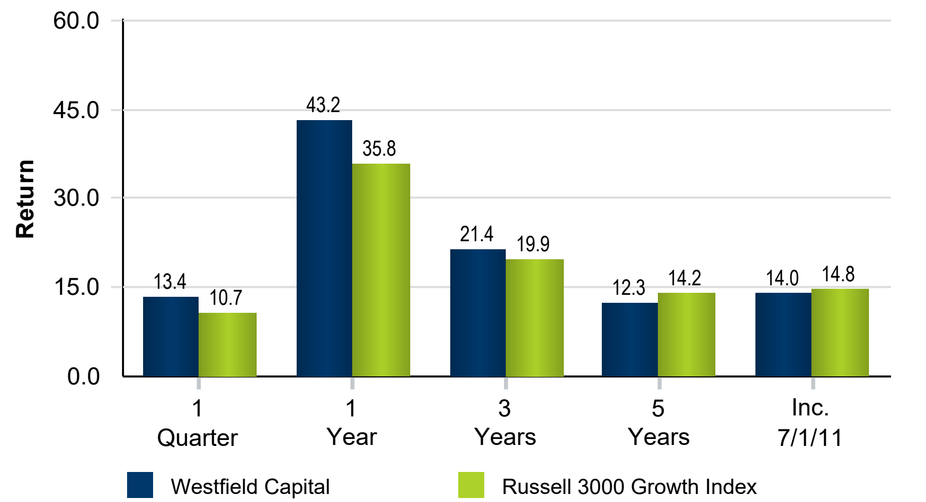
Wilshire Consulting

Manager Summary

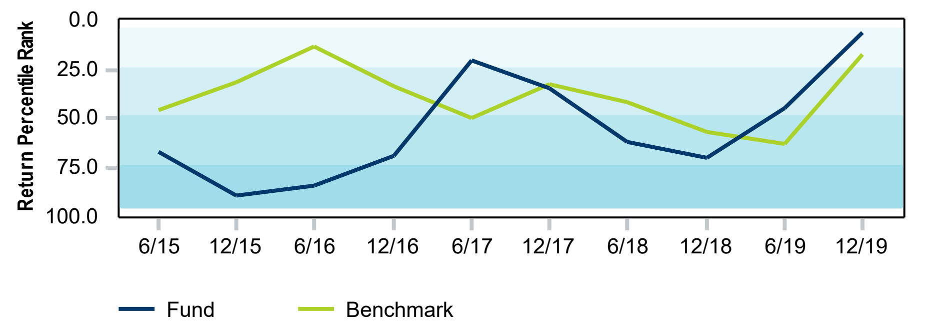
Westfield Capital vs IM U.S. All Cap Growth Equity (SA+CF)

Periods Ended December 31, 2019

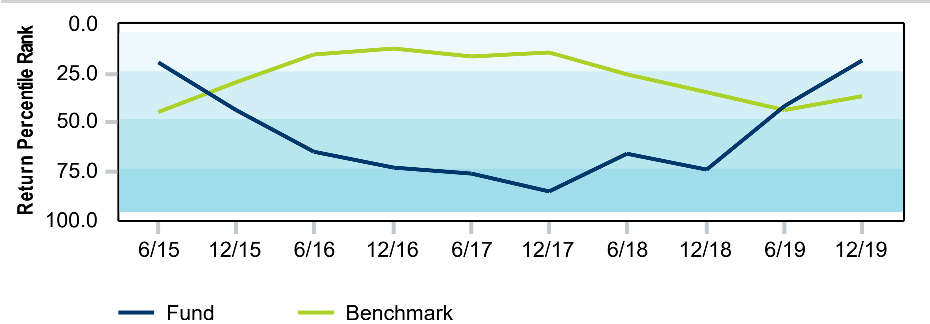
Comparative Performance



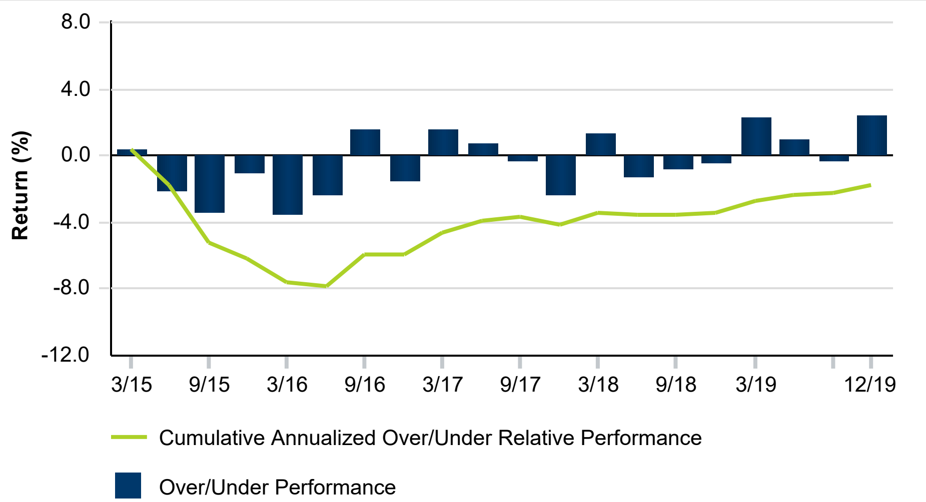
1 Year Rolling Percentile Ranking



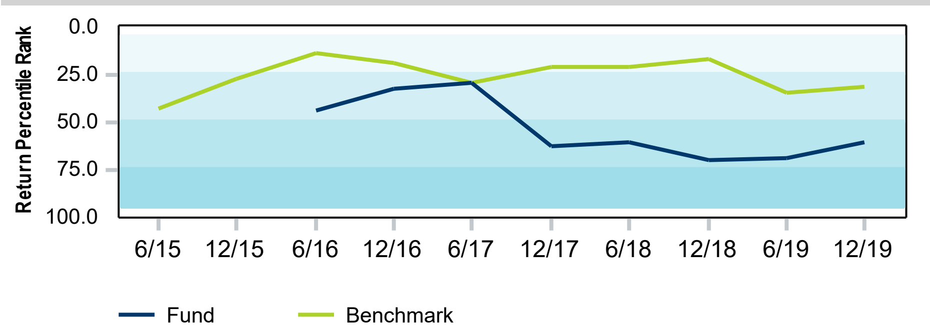
3 Year Rolling Percentile Ranking



Relative Performance



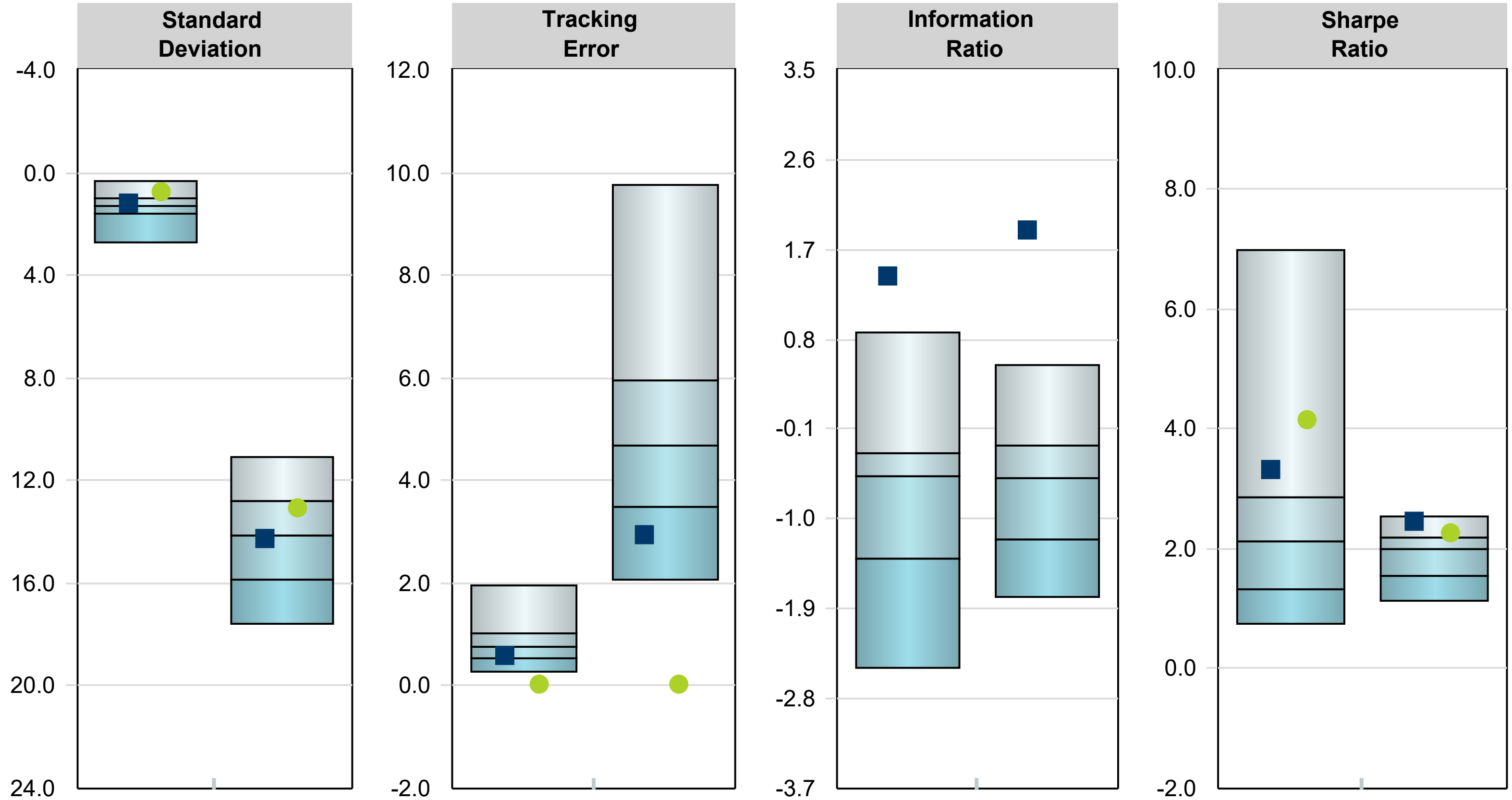
5 Year Rolling Percentile Ranking



Peer Group Analysis - Multi Statistics

Westfield Capital

Periods Ended December 31, 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
■ Westfield Capital	1.23 (45)	14.31 (52)	0.59 (73)	2.94 (85)	1.43 (3)	1.90 (1)	3.33 (19)	2.45 (8)
● Russell 3000 Growth Index	0.77 (21)	13.10 (30)	0.00 (100)	0.00 (100)			4.13 (15)	2.26 (16)
5th Percentile	0.33	11.08	1.95	9.75	0.87	0.55	7.00	2.54
1st Quartile	0.97	12.80	1.01	5.97	-0.33	-0.27	2.87	2.20
Median	1.27	14.18	0.78	4.68	-0.57	-0.60	2.14	1.99
3rd Quartile	1.64	15.84	0.54	3.50	-1.39	-1.20	1.34	1.56
95th Percentile	2.73	17.55	0.28	2.09	-2.49	-1.78	0.74	1.14

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

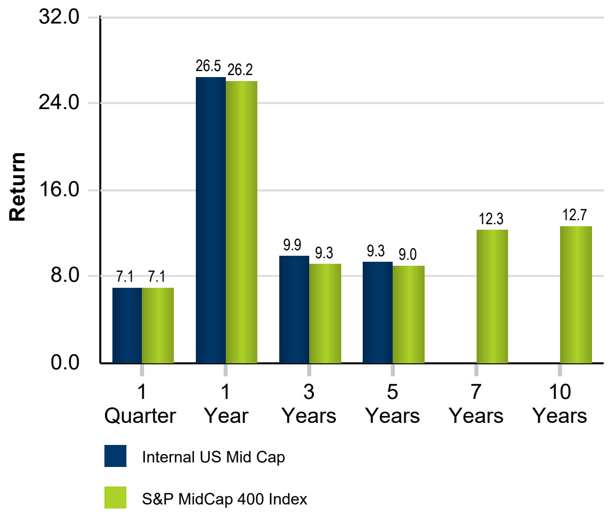
Wilshire Consulting

Performance Summary

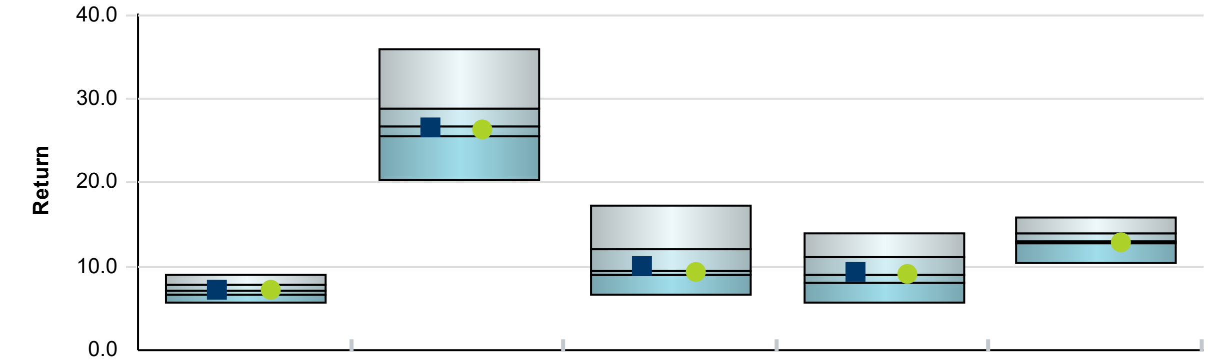
Internal US Mid Cap

Periods Ended December 31, 2019

Comparative Performance

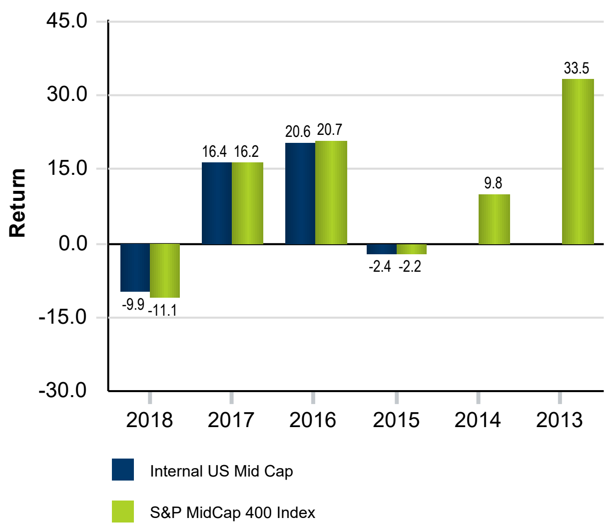


Peer Group Analysis: IM U.S. Mid Cap Core Equity (SA+CF)

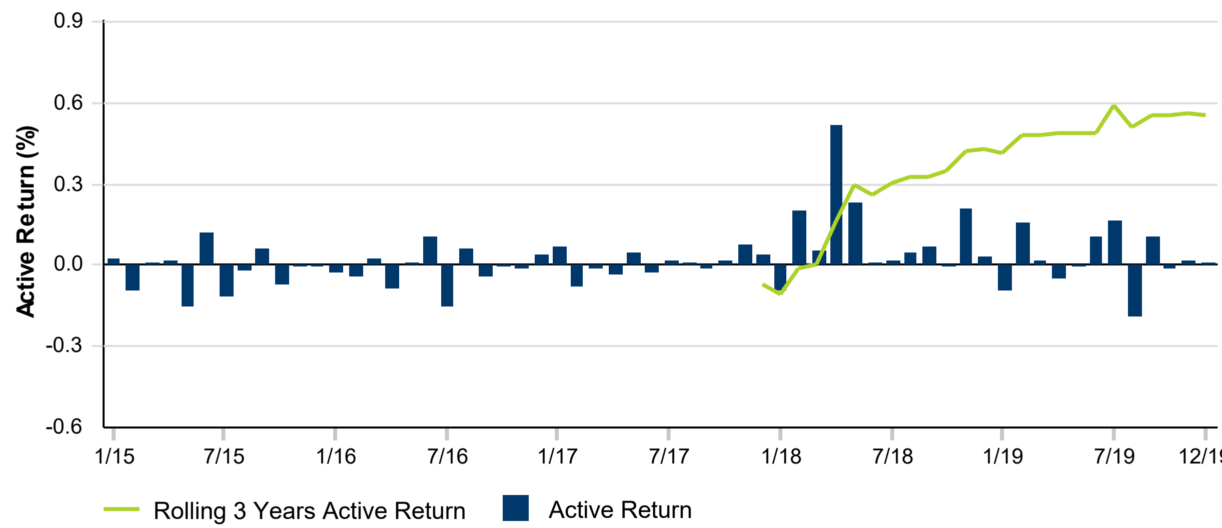


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	7.08 (53)	26.49 (54)	9.86 (46)	9.32 (41)	
Benchmark	7.06 (56)	26.20 (69)	9.26 (70)	9.03 (58)	12.72 (73)
Median	7.09	26.78	9.51	9.06	13.00

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Internal US Mid Cap

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Internal US Mid Cap	S&P MidCap 400 Index
Maximum Return	10.37	10.46
Minimum Return	-7.97	-7.97
Return	26.49	26.20
Cumulative Return	26.49	26.20
Active Return	0.25	0.00
Excess Return	22.79	22.54

Risk Summary Statistics

	Internal US Mid Cap	S&P MidCap 400 Index
Upside Risk	4.40	4.39
Downside Risk	9.11	9.03
Beta	1.00	1.00

Risk/Return Summary Statistics

	Internal US Mid Cap	S&P MidCap 400 Index
Standard Deviation	16.23	16.16
Alpha	0.13	0.00
Active Return/Risk	0.02	0.00
Tracking Error	0.34	0.00
Information Ratio	0.72	
Sharpe Ratio	1.40	1.39

Correlation Statistics

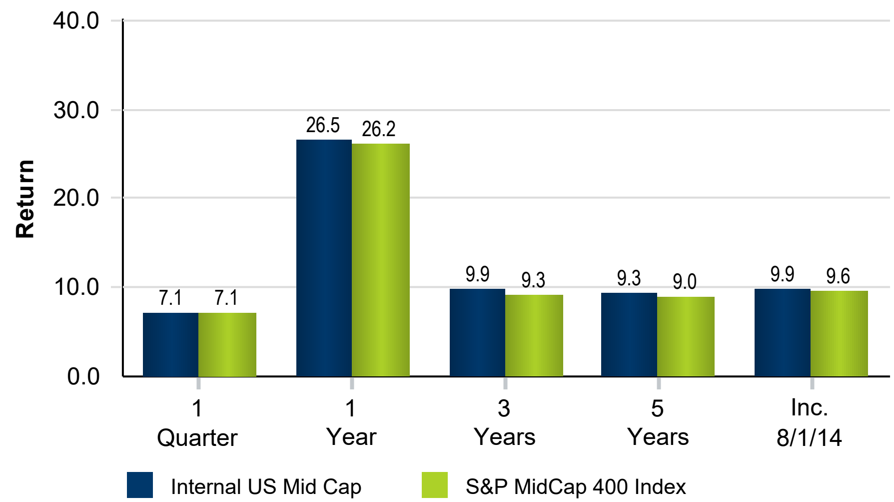
	Internal US Mid Cap	S&P MidCap 400 Index
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

Manager Summary

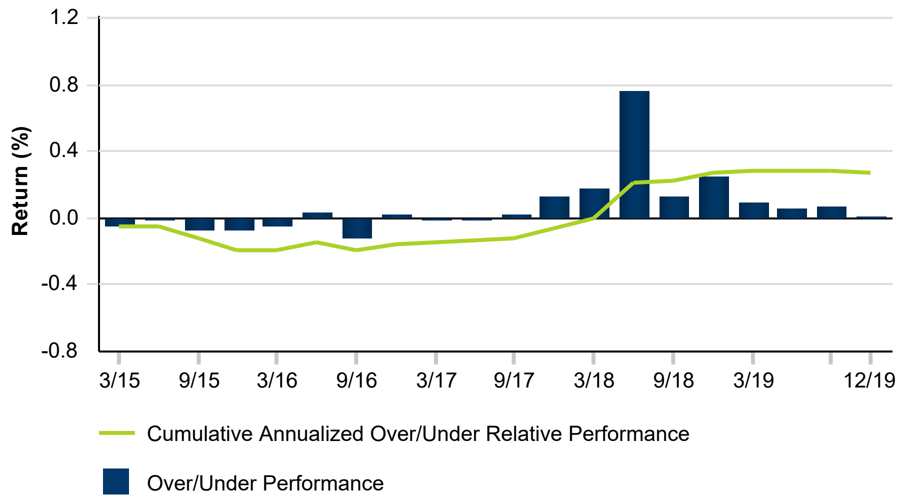
Internal US Mid Cap vs IM U.S. Mid Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

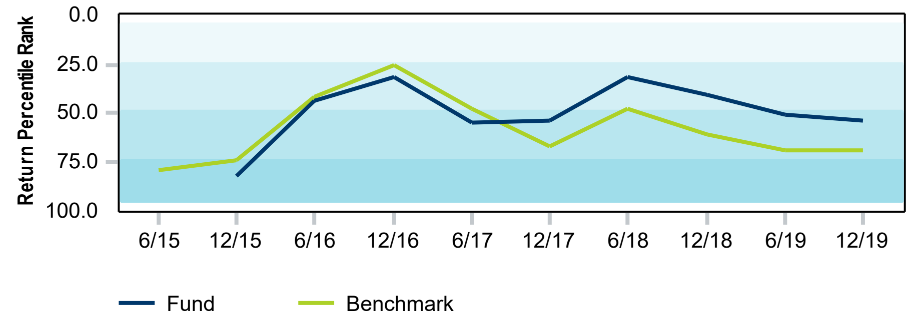
Comparative Performance



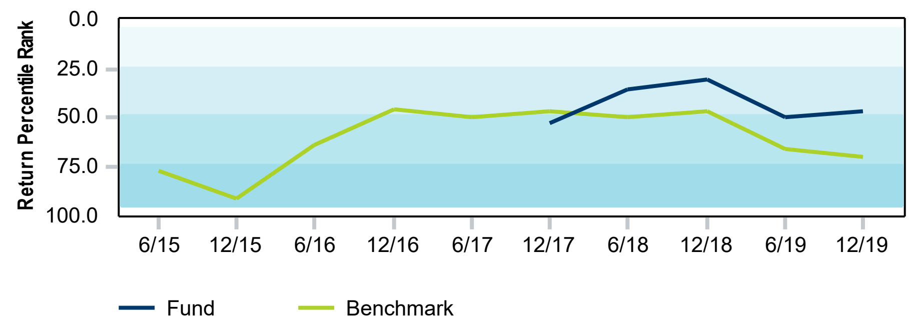
Relative Performance



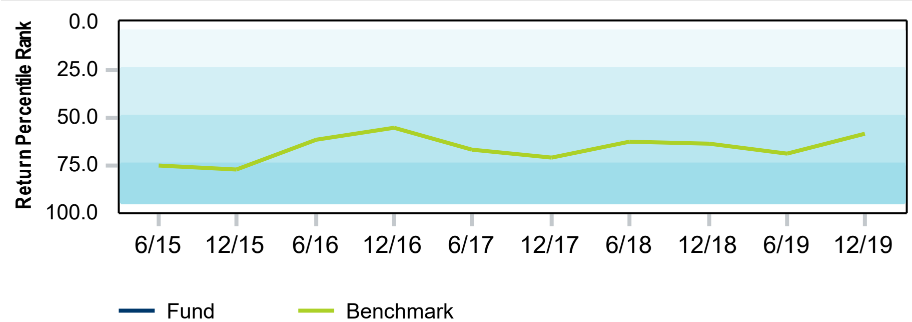
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

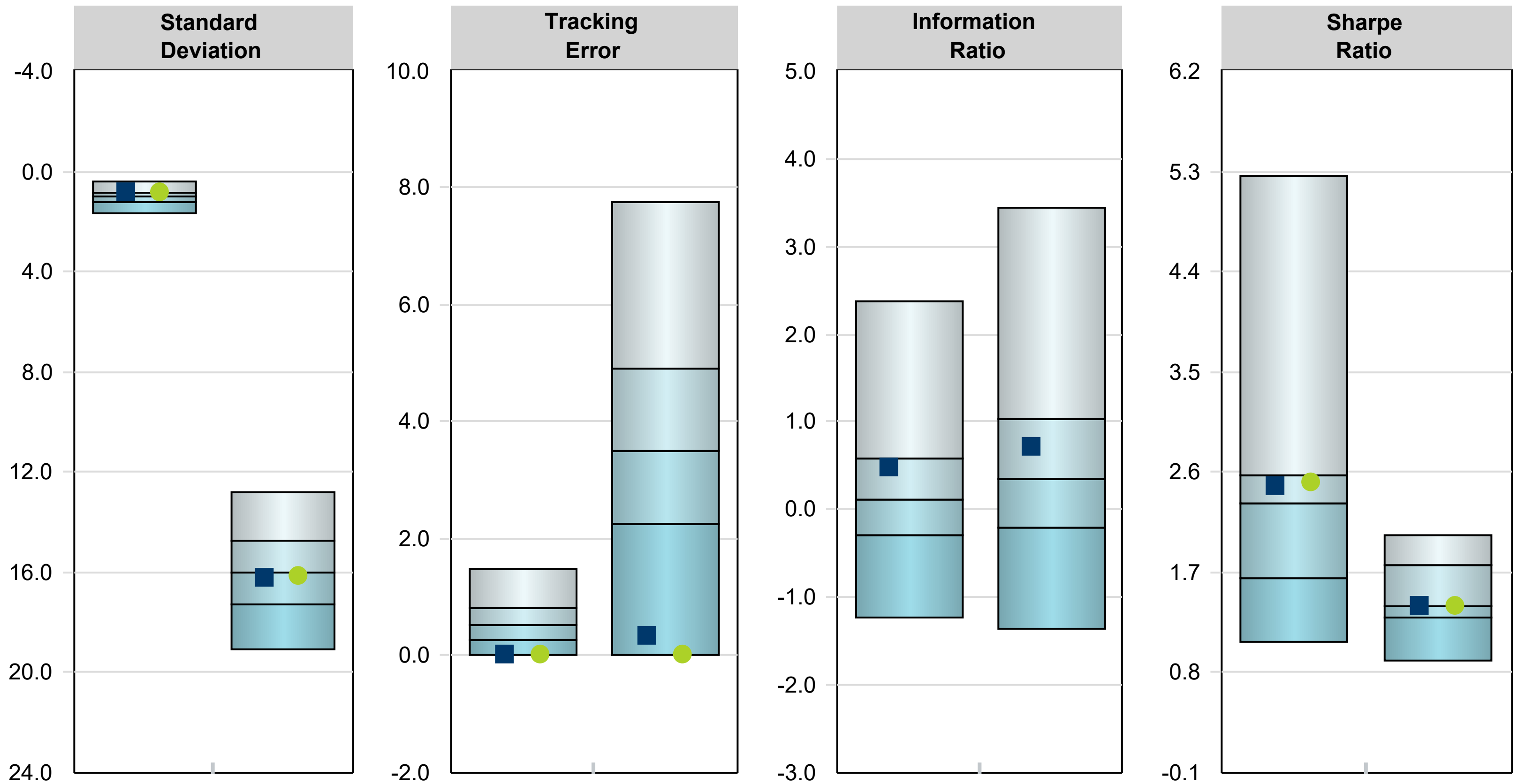


Wilshire Consulting

Peer Group Analysis - Multi Statistics

Internal US Mid Cap

Periods Ended December 31, 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
■ Internal US Mid Cap	0.84 (40)	16.23 (69)	0.01 (89)	0.34 (84)	0.47 (30)	0.72 (31)	2.47 (44)	1.40 (45)
● S&P MidCap 400 Index	0.83 (29)	16.16 (61)	0.00 (100)	0.00 (100)			2.50 (35)	1.39 (58)
5th Percentile	0.42	12.79	1.48	7.76	2.38	3.44	5.27	2.04
1st Quartile	0.82	14.71	0.82	4.91	0.58	1.04	2.57	1.77
Median	0.97	16.04	0.53	3.51	0.11	0.34	2.32	1.40
3rd Quartile	1.23	17.30	0.26	2.27	-0.30	-0.21	1.64	1.29
95th Percentile	1.68	19.09	0.00	0.01	-1.24	-1.36	1.08	0.91

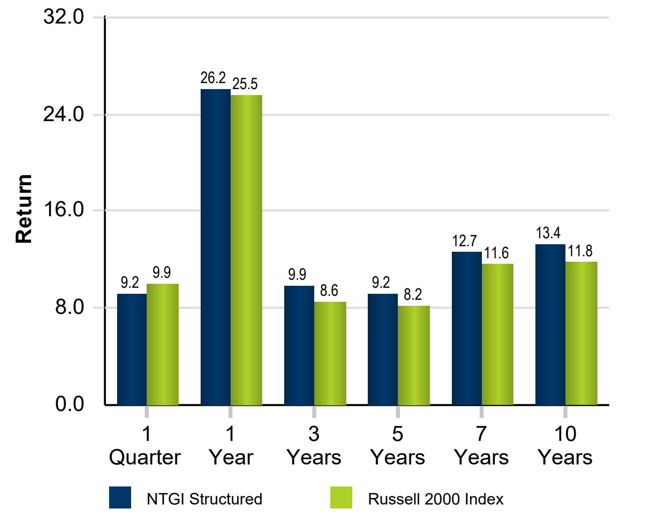
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance Summary

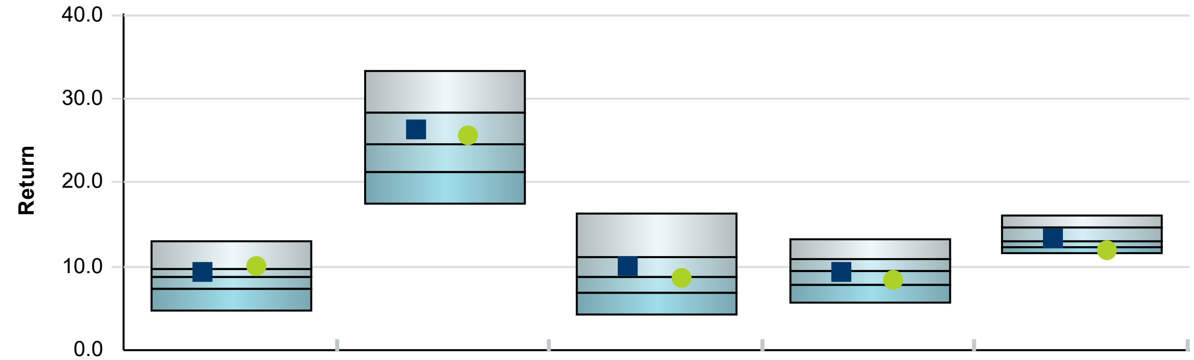
NTGI Structured

Periods Ended December 31, 2019

Comparative Performance

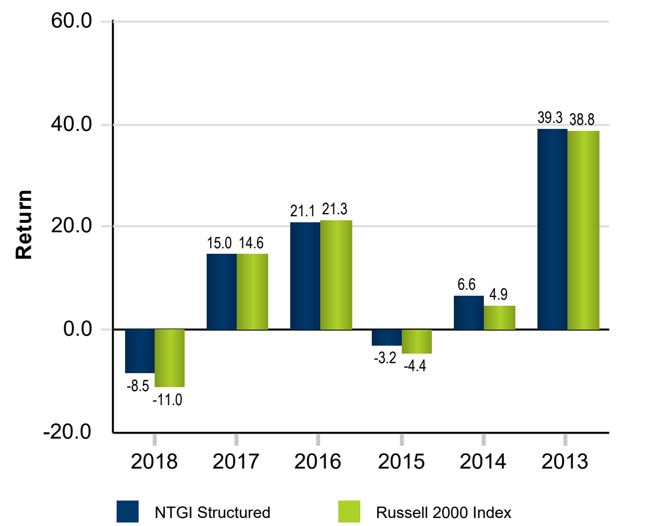


Peer Group Analysis: IM U.S. Small Cap Core Equity (SA+CF)

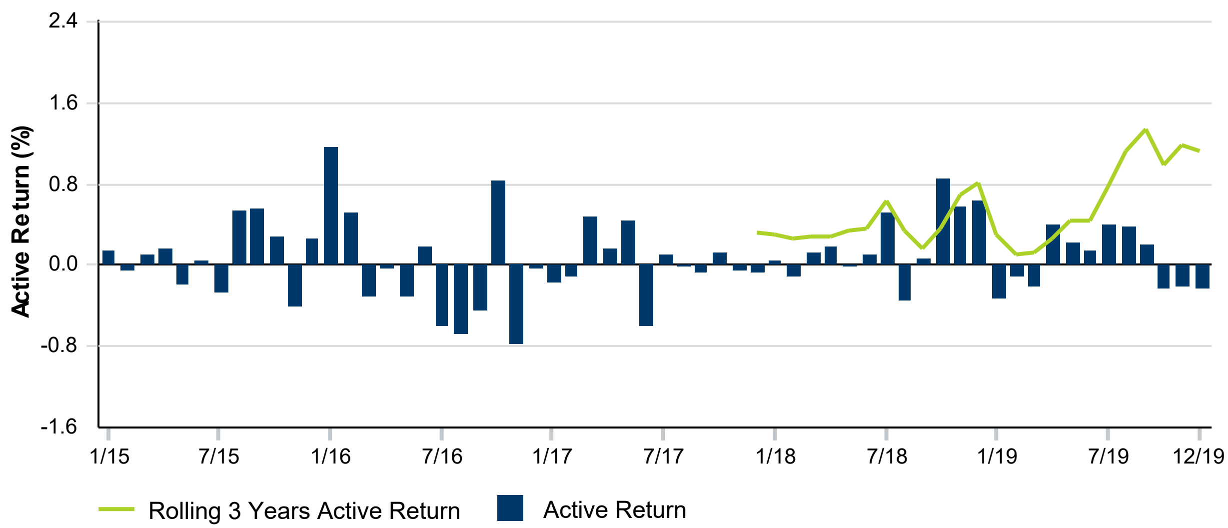


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	9.23 (34)	26.16 (45)	9.91 (41)	9.25 (54)	13.36 (44)
Benchmark	9.94 (22)	25.53 (49)	8.59 (56)	8.23 (69)	11.83 (88)
Median	8.67	24.72	8.81	9.42	13.04

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

NTGI Structured

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	NTGI Structured	Russell 2000 Index
Maximum Return	10.92	11.25
Minimum Return	-7.55	-7.78
Return	26.16	25.53
Cumulative Return	26.16	25.53
Active Return	0.44	0.00
Excess Return	22.59	22.14

Risk Summary Statistics

	NTGI Structured	Russell 2000 Index
Upside Risk	4.53	4.58
Downside Risk	9.11	9.45
Beta	0.97	1.00

Risk/Return Summary Statistics

	NTGI Structured	Russell 2000 Index
Standard Deviation	16.66	17.08
Alpha	1.07	0.00
Active Return/Risk	0.03	0.00
Tracking Error	0.94	0.00
Information Ratio	0.47	
Sharpe Ratio	1.35	1.29

Correlation Statistics

	NTGI Structured	Russell 2000 Index
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

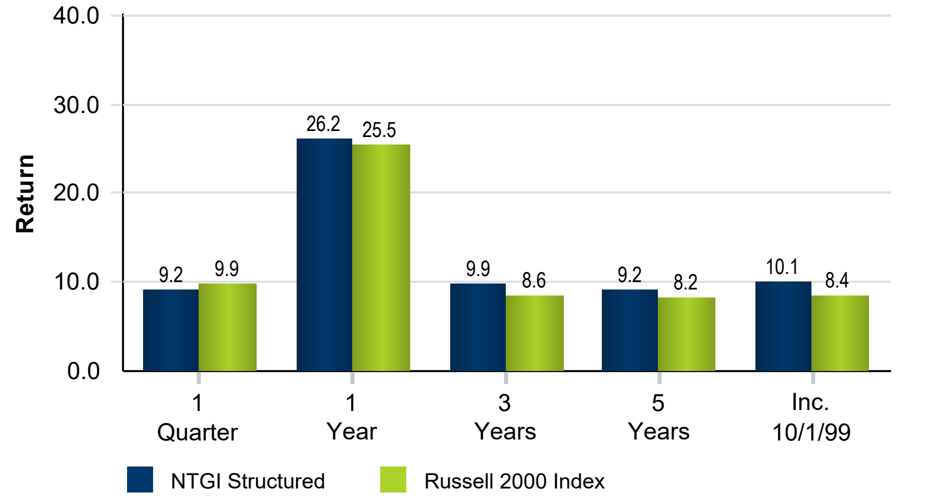
Wilshire Consulting

Manager Summary

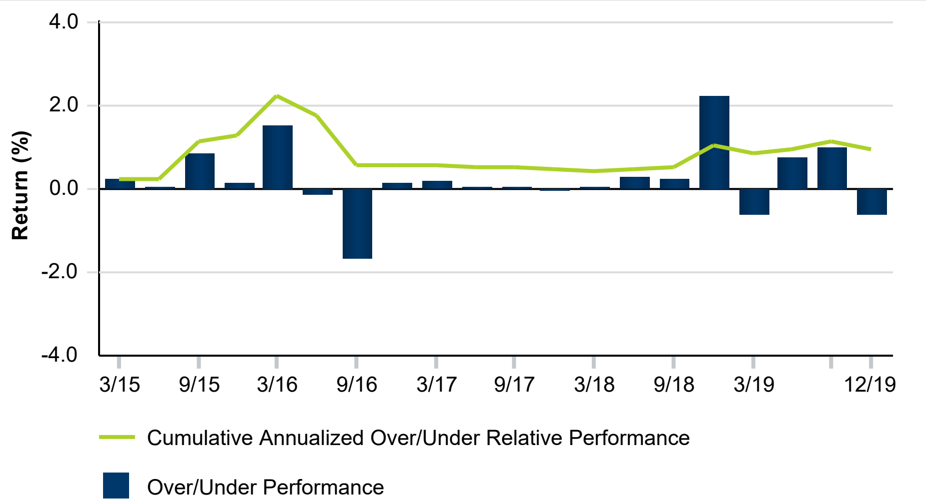
NTGI Structured vs IM U.S. Small Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

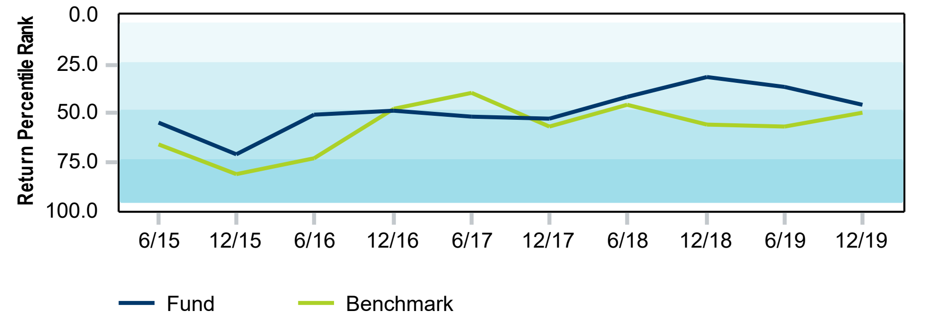
Comparative Performance



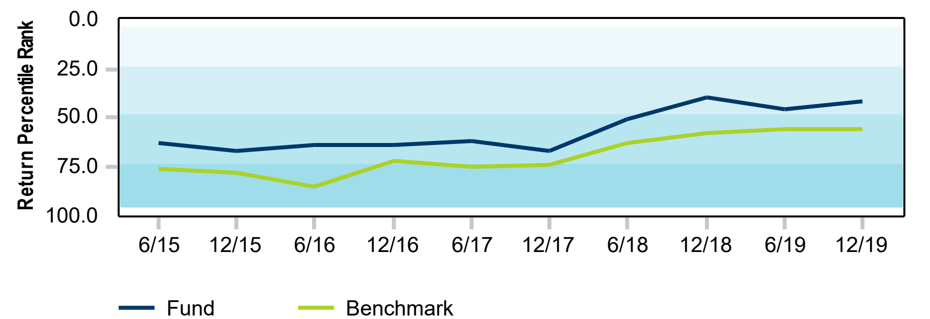
Relative Performance



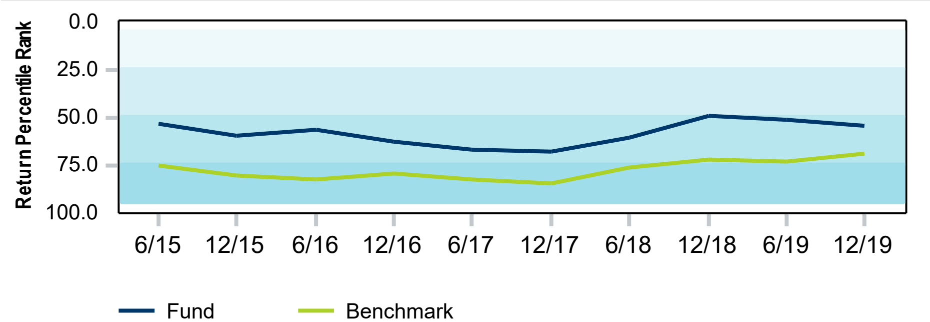
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

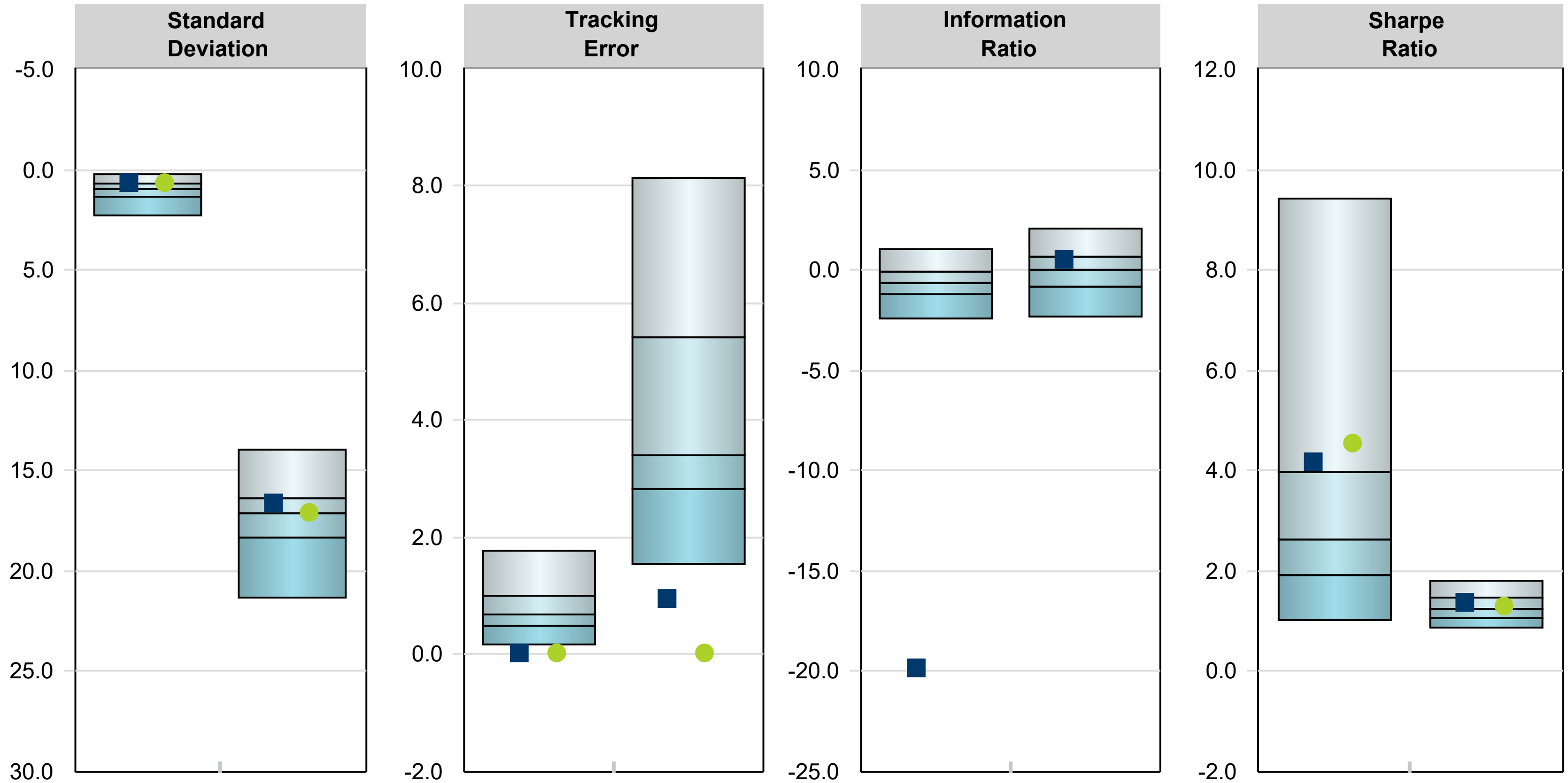


Wilshire Consulting

Peer Group Analysis - Multi Statistics

NTGI Structured

Periods Ended December 31, 2019



	QTD	YTD	QTD	YTD	QTD	YTD	QTD	YTD
■ NTGI Structured	0.66 (24)	16.66 (31)	0.01 (100)	0.94 (99)	-19.83 (100)	0.47 (31)	4.16 (24)	1.35 (35)
● Russell 2000 Index	0.65 (23)	17.08 (45)	0.00 (100)	0.00 (100)			4.55 (22)	1.29 (46)
5th Percentile	0.24	13.99	1.78	8.14	1.00	2.08	9.43	1.80
1st Quartile	0.67	16.36	1.00	5.41	-0.06	0.67	3.97	1.47
Median	1.01	17.15	0.69	3.40	-0.68	-0.02	2.65	1.26
3rd Quartile	1.36	18.34	0.49	2.85	-1.23	-0.87	1.91	1.04
95th Percentile	2.25	21.34	0.17	1.55	-2.41	-2.31	1.01	0.89

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Non-US Equity Composite

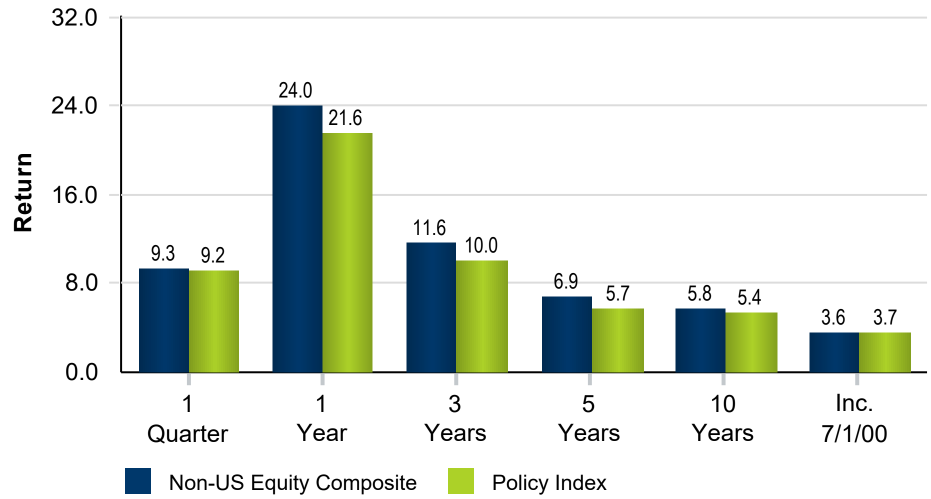
Wilshire Consulting

Composite Performance Summary

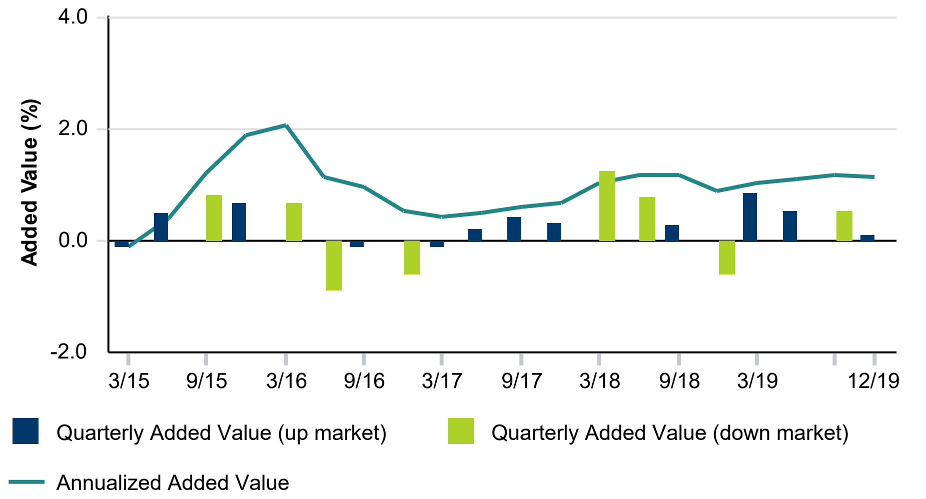
Non-US Equity Composite

Periods Ended December 31, 2019

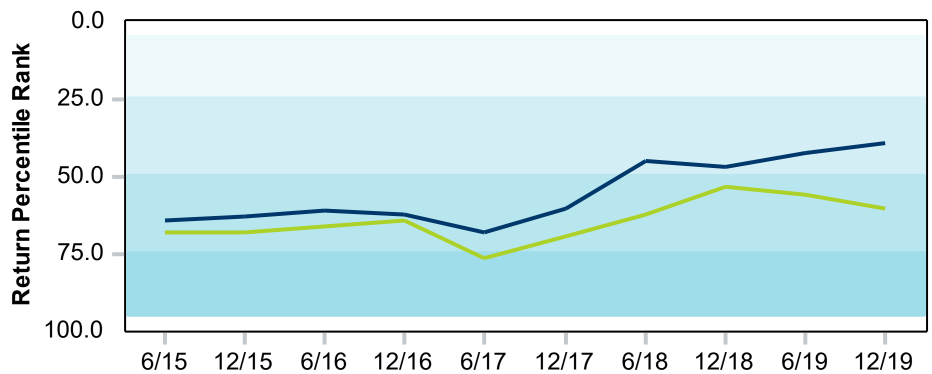
Comparative Performance



Added Value History

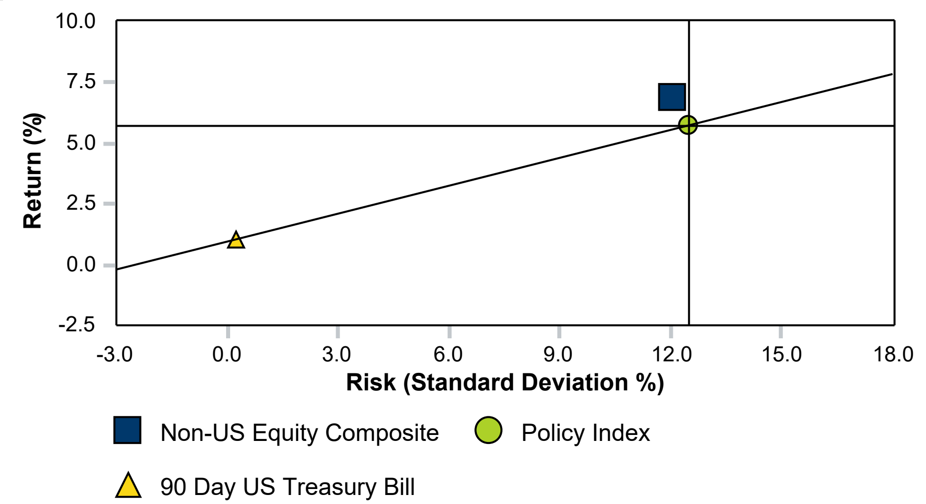


Rolling Percentile Rank: IM International Equity (SA+CF)



	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%)	9 (90%)	1 (10%)

Risk and Return 01/1/15 - 12/31/19



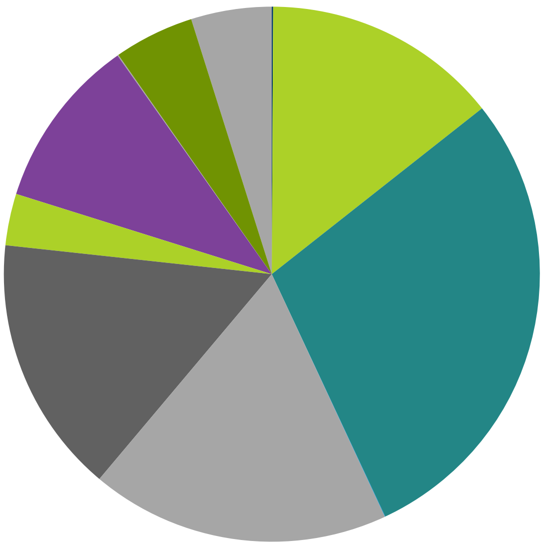
Wilshire Consulting

Asset Allocation By Manager

Non-US Equity Composite

Periods Ended December 31, 2019

Dec-2019 : 2,735,016,510



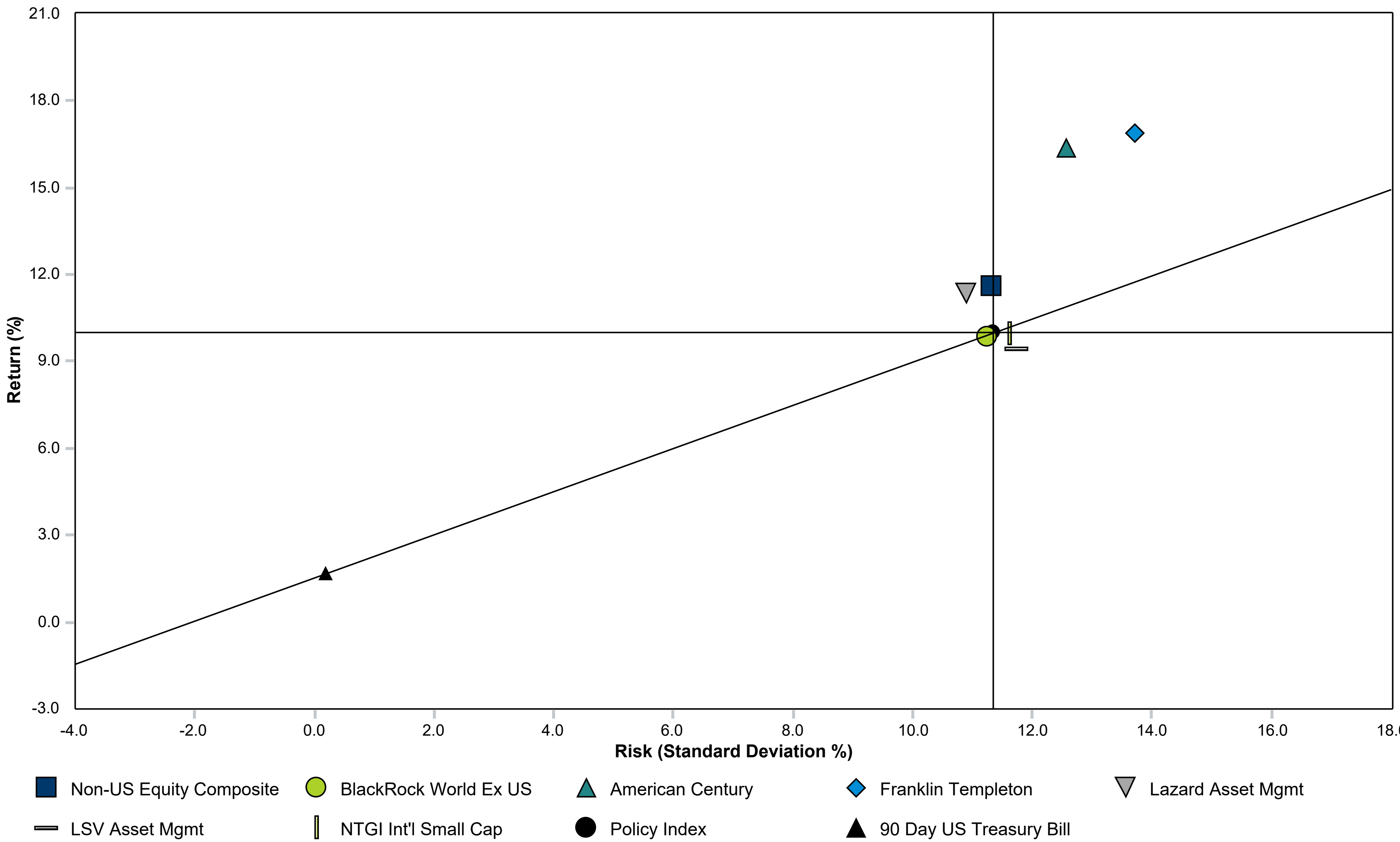
	Market Value $	Allocation (%)
Pyramis Intl	2,093,279	0.1
American Century	390,385,910	14.3
BlackRock World Ex US	784,834,541	28.7
Boston Company	722,107	0.0
Lazard Asset Mgmt	493,619,441	18.0
LSV Asset Mgmt	426,843,898	15.6
NTGI Int'l Small Cap	85,425,462	3.1
Franklin Templeton	283,953,757	10.4
Non-US Equity Transition	1,540,081	0.1
Pzena Emerging Markets	132,383,319	4.8
JP Morgan Emerging Markets	133,214,713	4.9

Wilshire Consulting

Risk vs. Return

Non-US Equity Composite

Periods Ended 3 Years Ending December 31, 2019



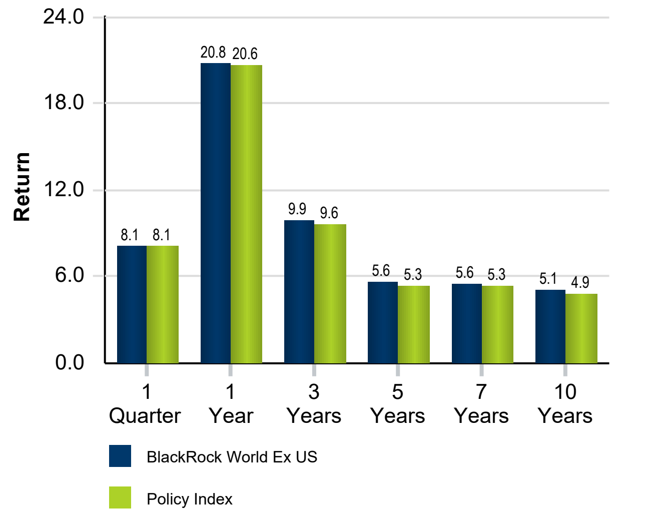
Calculation based on monthly periodicity.

Performance Summary

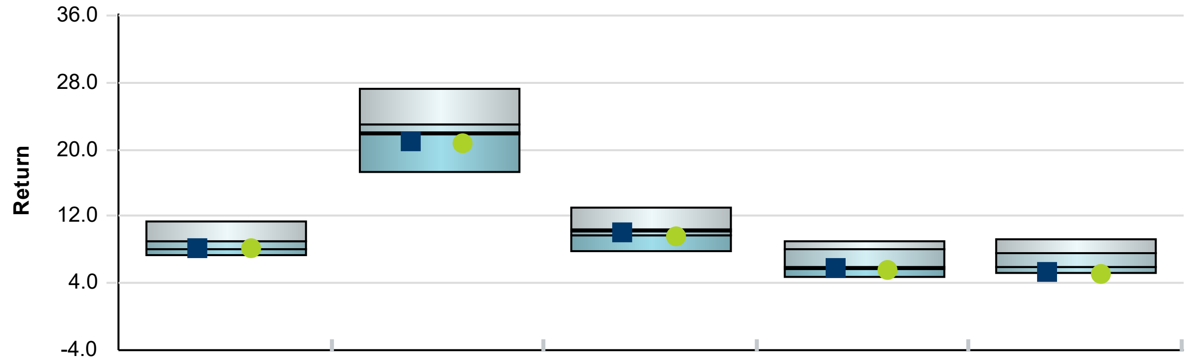
BlackRock World Ex US

Periods Ended December 31, 2019

Comparative Performance

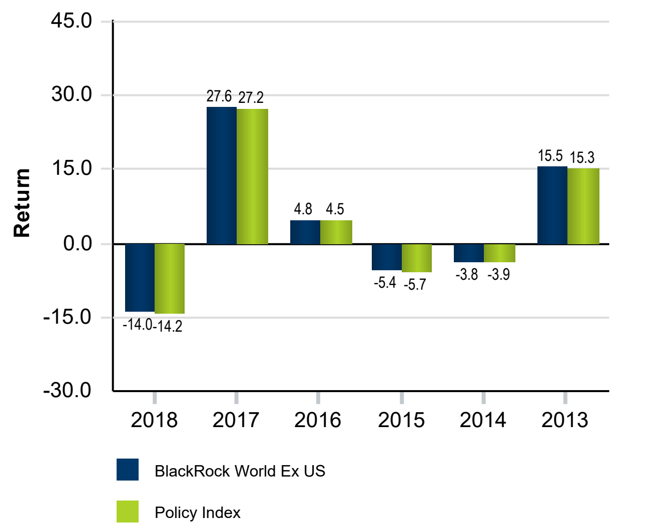


Peer Group Analysis: IM Enhanced and Indexed International Equity (SA+CF)

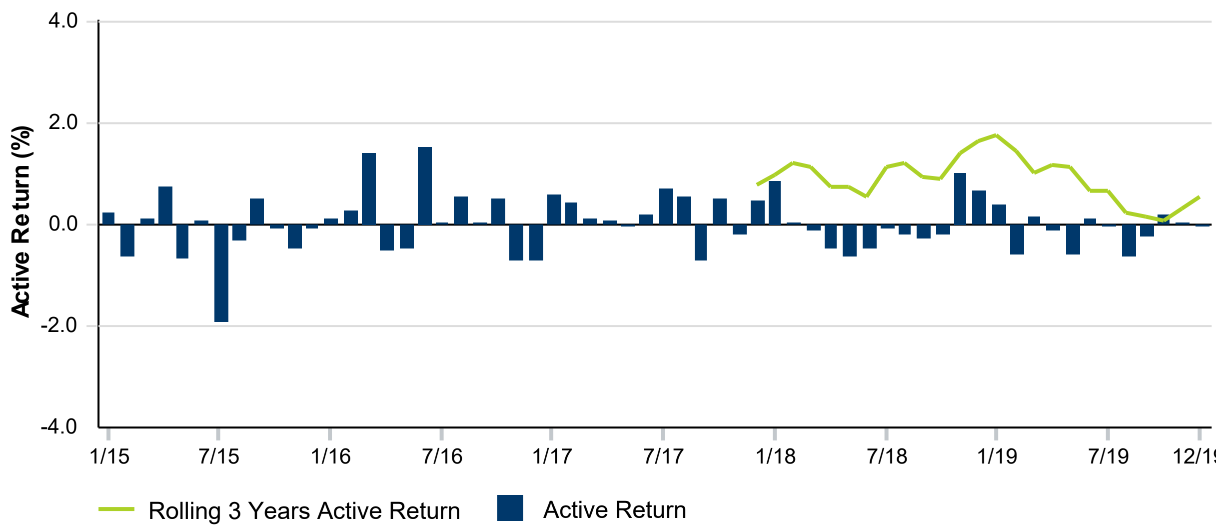


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	8.10 (76)	20.82 (82)	9.87 (71)	5.63 (88)	5.12 (97)
Benchmark	8.12 (75)	20.62 (82)	9.60 (79)	5.35 (90)	4.89 (98)
Median	8.93	21.99	10.14	6.00	5.88

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

BlackRock World Ex US

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	BlackRock World Ex US	Policy Index
Maximum Return	7.52	7.56
Minimum Return	-5.31	-5.37
Return	20.82	20.62
Cumulative Return	20.82	20.62
Active Return	-1.30	-1.47
Excess Return	17.52	17.35

Risk Summary Statistics

	BlackRock World Ex US	Policy Index
Upside Risk	3.36	3.36
Downside Risk	6.27	6.31
Beta	1.07	1.07

Risk/Return Summary Statistics

	BlackRock World Ex US	Policy Index
Standard Deviation	11.91	11.95
Alpha	-2.67	-2.91
Active Return/Risk	-0.11	-0.12
Tracking Error	1.12	1.16
Information Ratio	-1.17	-1.26
Sharpe Ratio	1.47	1.45

Correlation Statistics

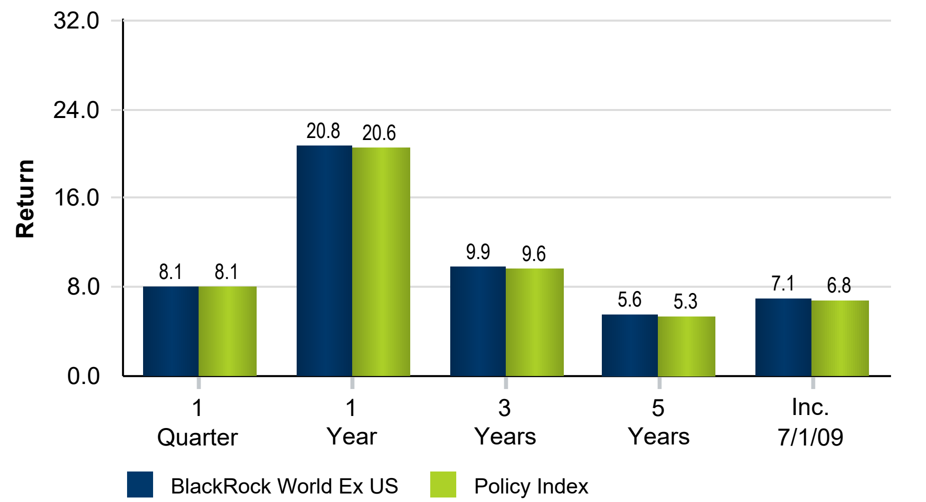
	BlackRock World Ex US	Policy Index
R-Squared	1.00	0.99
Actual Correlation	1.00	1.00

Manager Summary

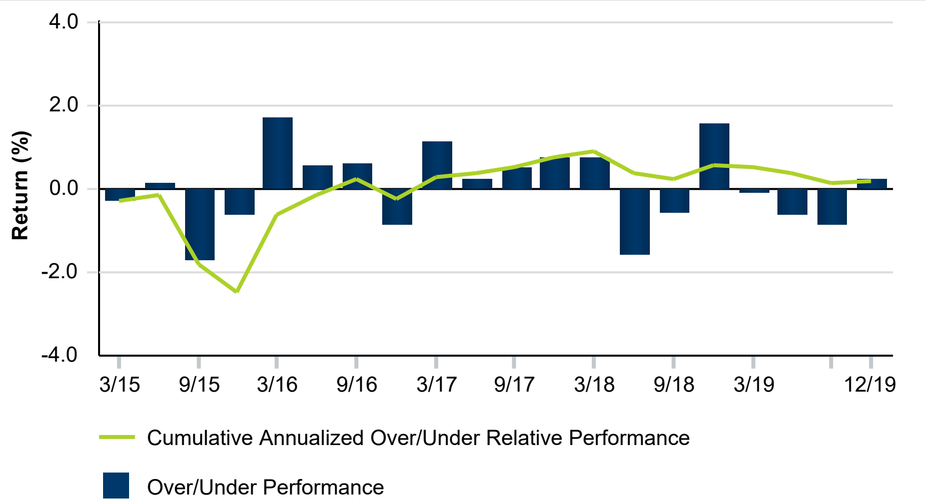
BlackRock World Ex US vs IM Enhanced and Indexed International Equity (SA+CF)

Periods Ended December 31, 2019

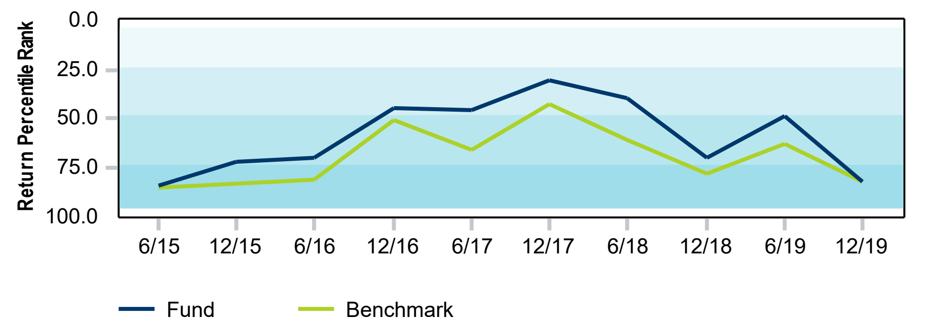
Comparative Performance



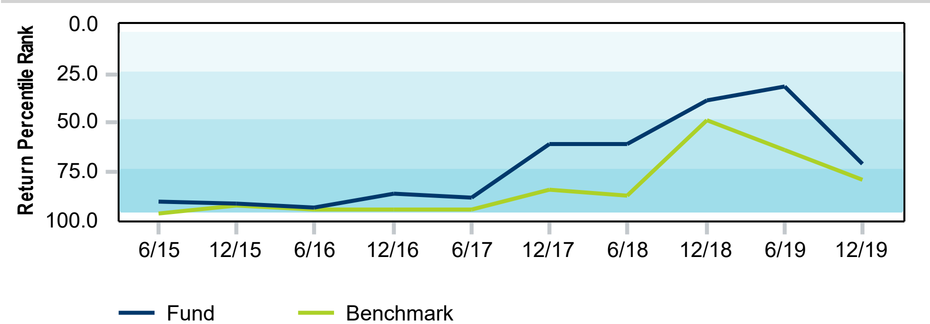
Relative Performance



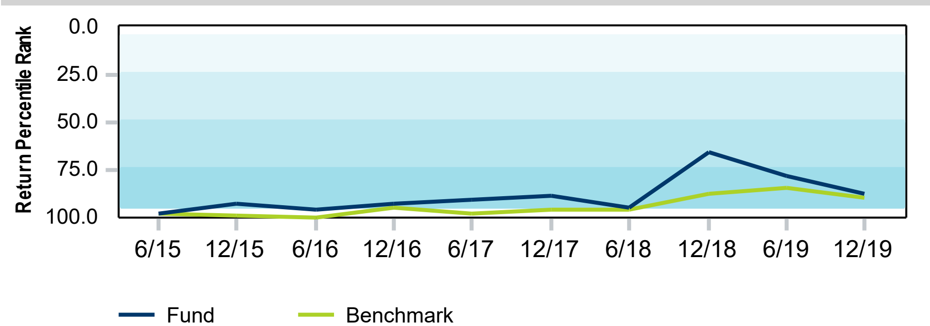
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

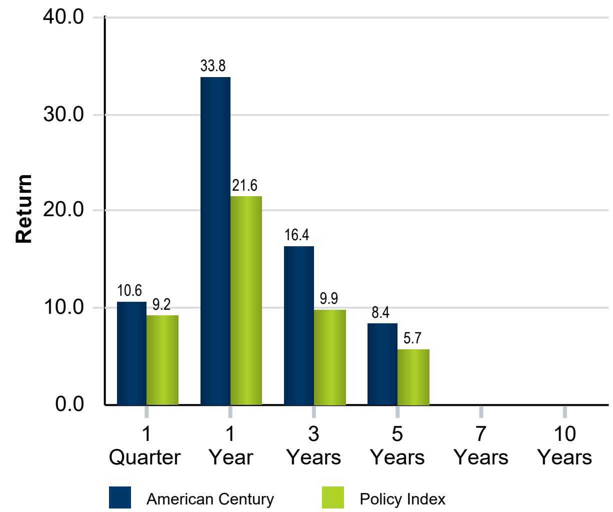


Performance Summary

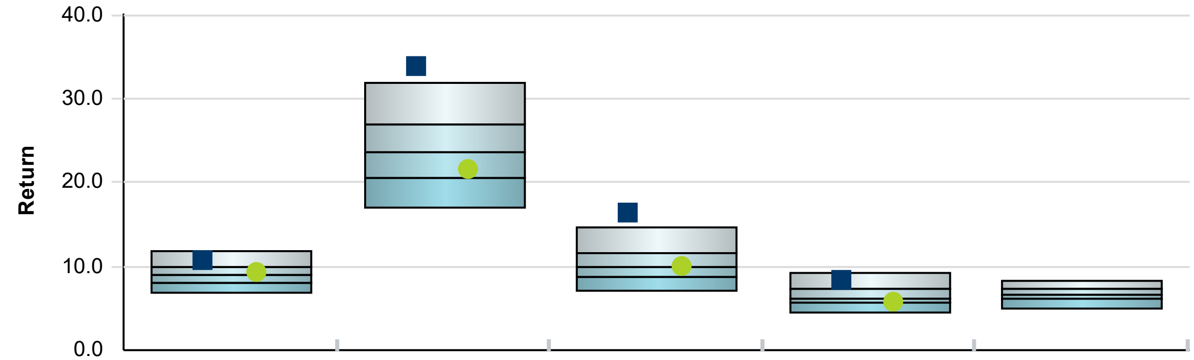
American Century

Periods Ended December 31, 2019

Comparative Performance

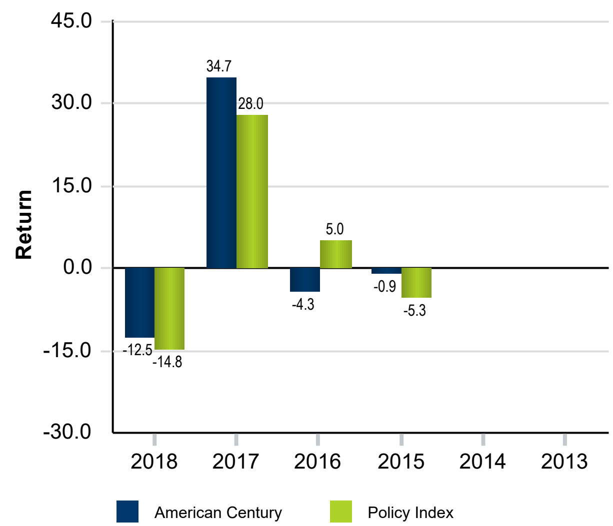


Peer Group Analysis: IM International Large Cap Core Equity (SA+CF)

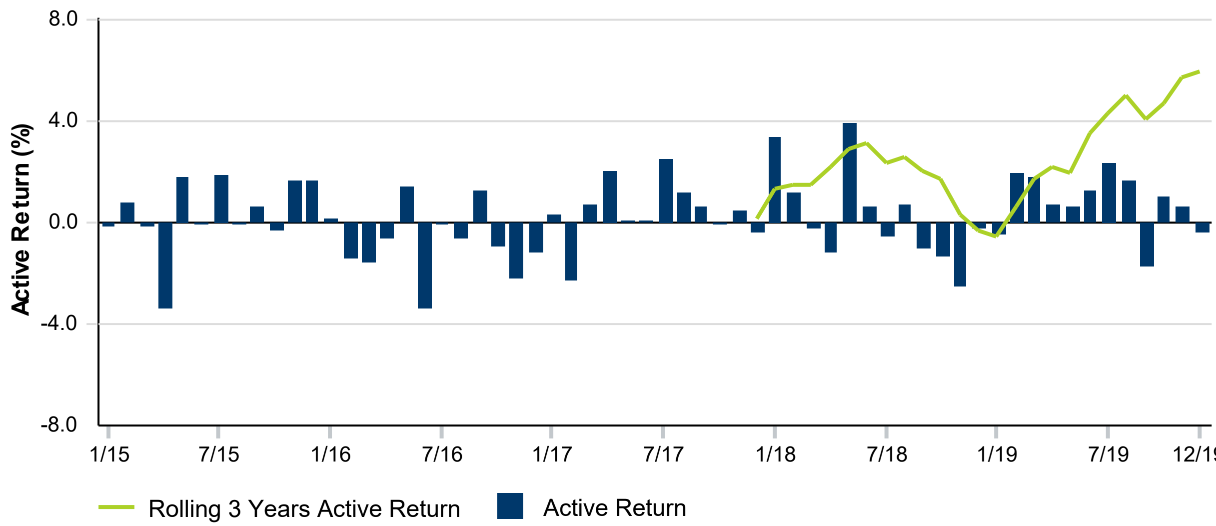


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	10.61 (17)	33.79 (3)	16.39 (2)	8.39 (11)	
Benchmark	9.20 (45)	21.63 (69)	9.88 (51)	5.71 (70)	
Median	9.06	23.73	9.88	6.16	6.70

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

American Century

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics	American Century	Policy Index
Maximum Return	7.13	7.60
Minimum Return	-4.68	-5.34
Return	33.79	21.63
Cumulative Return	33.79	21.63
Active Return	9.61	0.00
Excess Return	27.83	18.22

Risk Summary Statistics	American Century	Policy Index
Upside Risk	3.83	3.44
Downside Risk	4.89	6.26
Beta	0.87	1.00

Risk/Return Summary Statistics	American Century	Policy Index
Standard Deviation	11.14	12.09
Alpha	12.91	0.00
Active Return/Risk	0.86	0.00
Tracking Error	3.88	0.00
Information Ratio	2.48	
Sharpe Ratio	2.49	1.50

Correlation Statistics	American Century	Policy Index
R-Squared	0.90	1.00
Actual Correlation	0.95	1.00

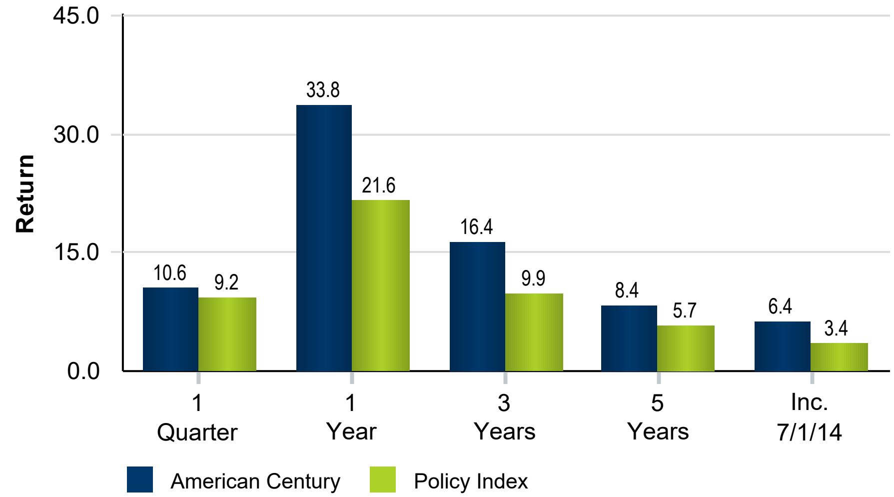
Wilshire Consulting

Manager Summary

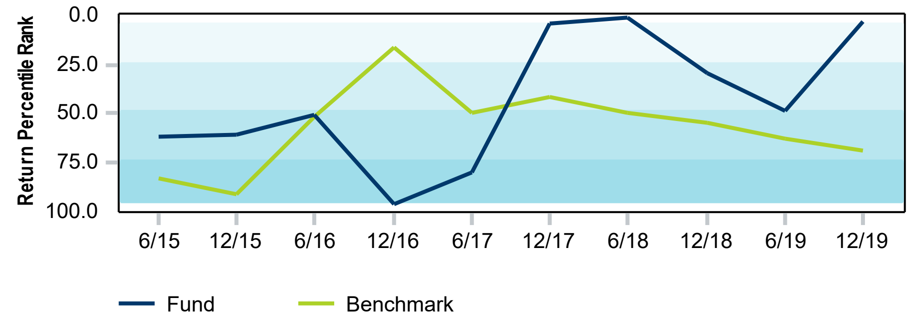
American Century vs IM International Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

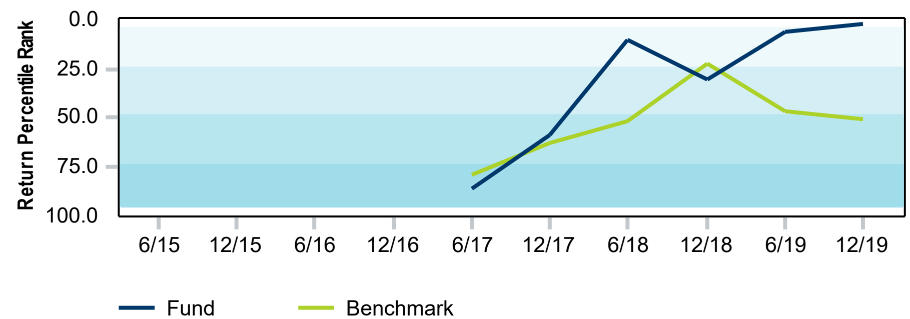
Comparative Performance



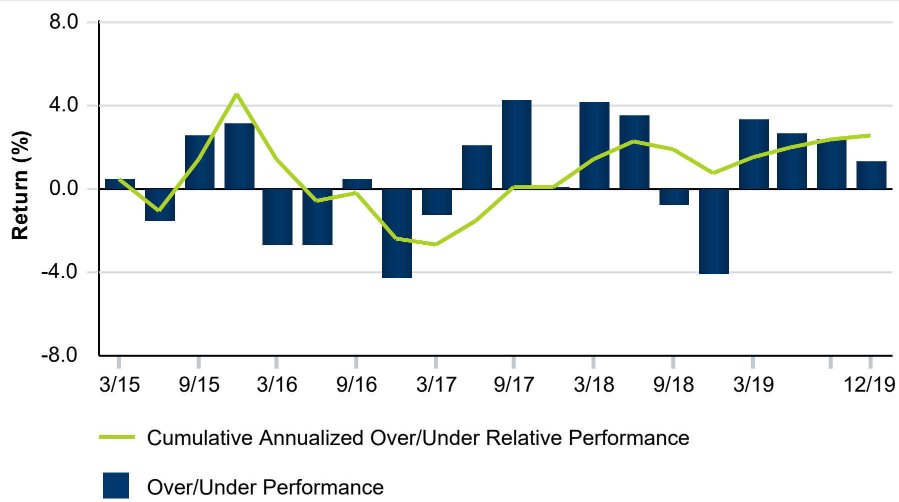
1 Year Rolling Percentile Ranking



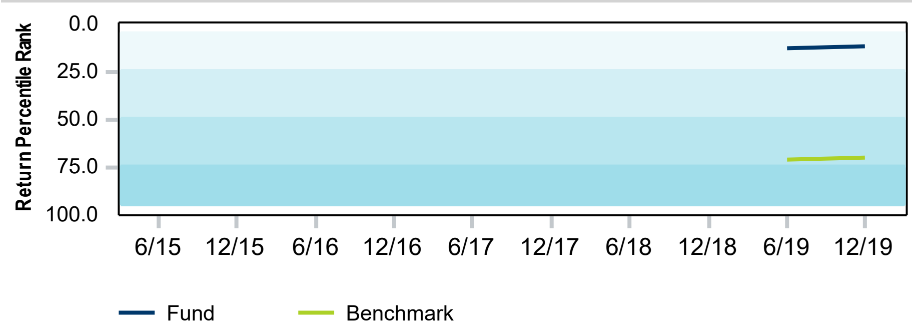
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

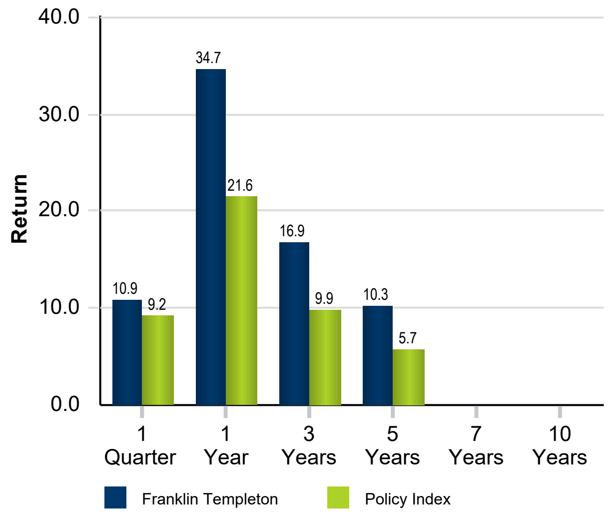


Performance Summary

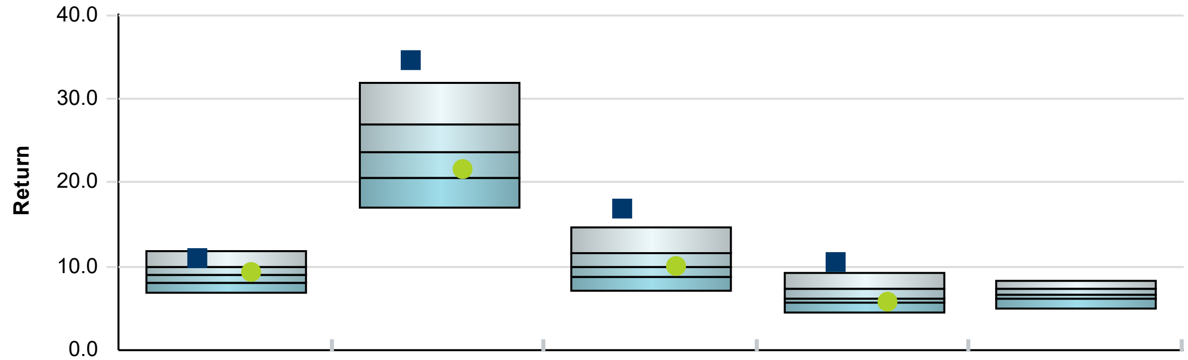
Franklin Templeton

Periods Ended December 31, 2019

Comparative Performance

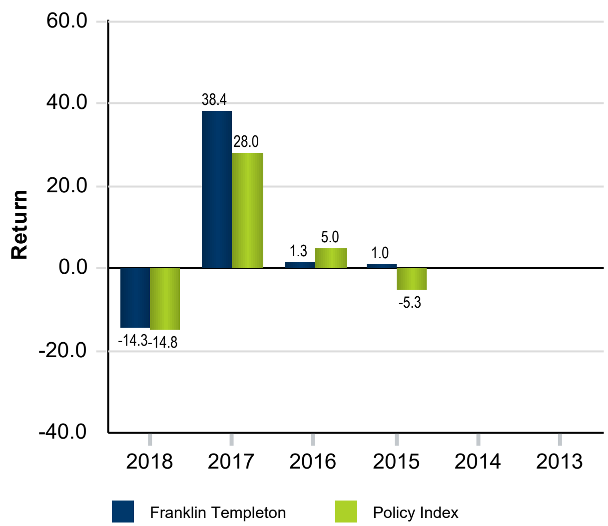


Peer Group Analysis: IM International Large Cap Core Equity (SA+CF)

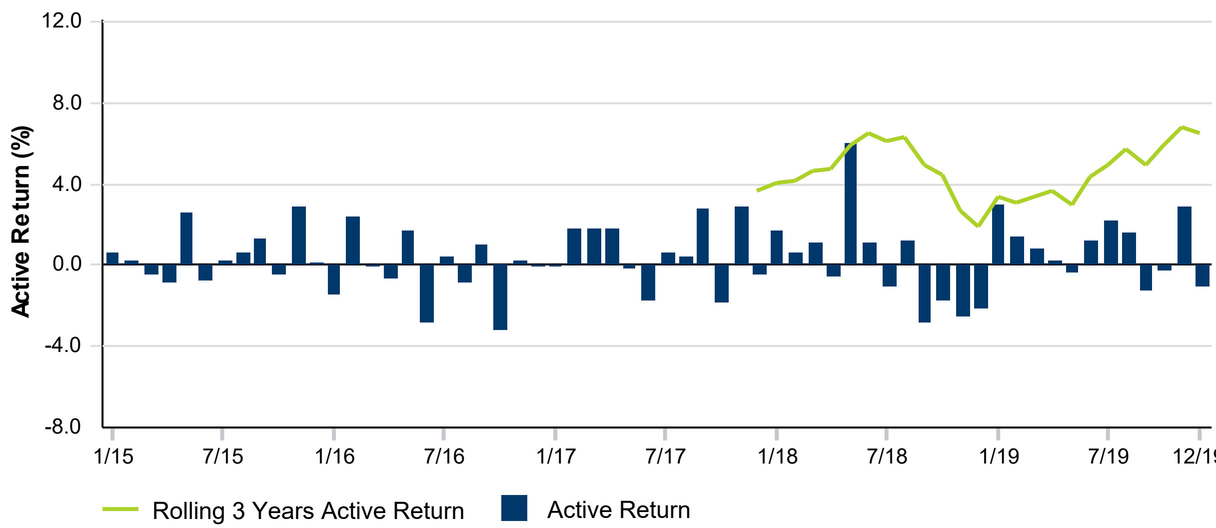


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	10.93 (14)	34.66 (2)	16.88 (2)	10.32 (2)	
Benchmark	9.20 (45)	21.63 (69)	9.88 (51)	5.71 (70)	
Median	9.06	23.73	9.88	6.16	6.70

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Franklin Templeton

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Franklin Templeton	Policy Index
Maximum Return	10.58	7.60
Minimum Return	-5.67	-5.34
Return	34.66	21.63
Cumulative Return	34.66	21.63
Active Return	10.53	0.00
Excess Return	28.75	18.22

Risk Summary Statistics

	Franklin Templeton	Policy Index
Upside Risk	4.31	3.44
Downside Risk	5.84	6.26
Beta	1.03	1.00

Risk/Return Summary Statistics

	Franklin Templeton	Policy Index
Standard Deviation	13.31	12.09
Alpha	10.42	0.00
Active Return/Risk	0.79	0.00
Tracking Error	4.76	0.00
Information Ratio	2.21	
Sharpe Ratio	2.16	1.50

Correlation Statistics

	Franklin Templeton	Policy Index
R-Squared	0.87	1.00
Actual Correlation	0.93	1.00

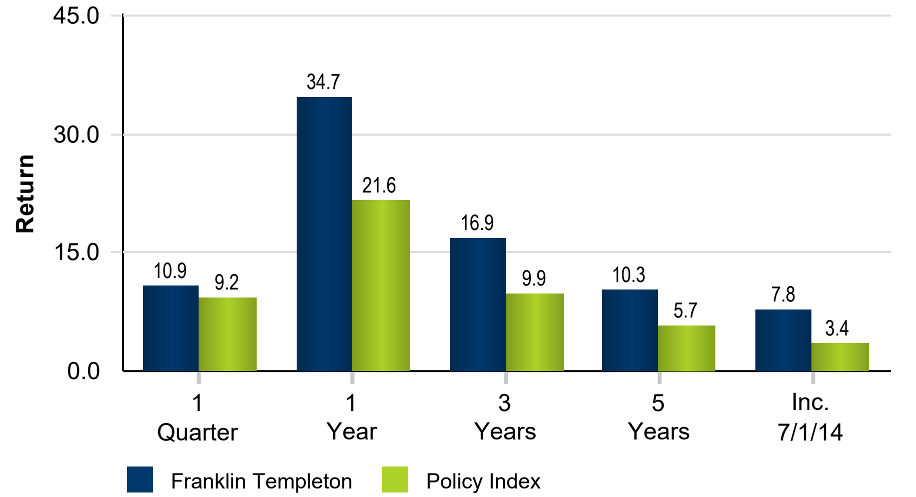
Wilshire Consulting

Manager Summary

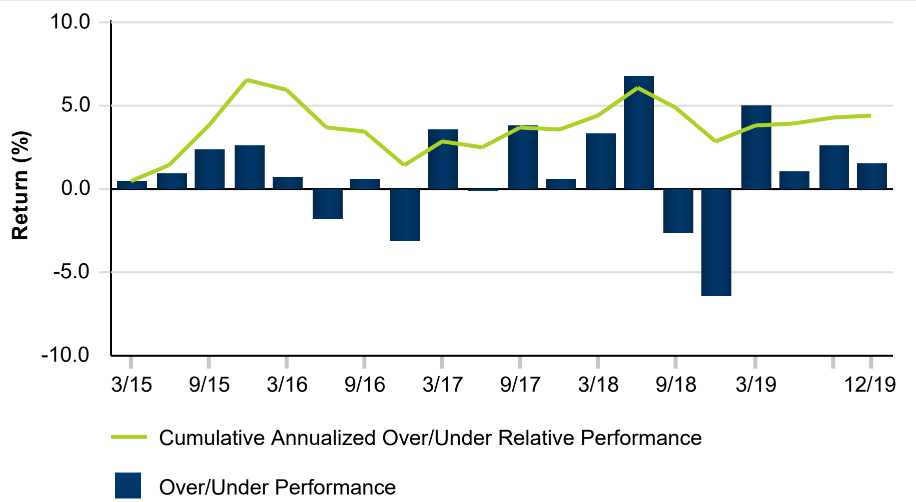
Franklin Templeton vs IM International Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

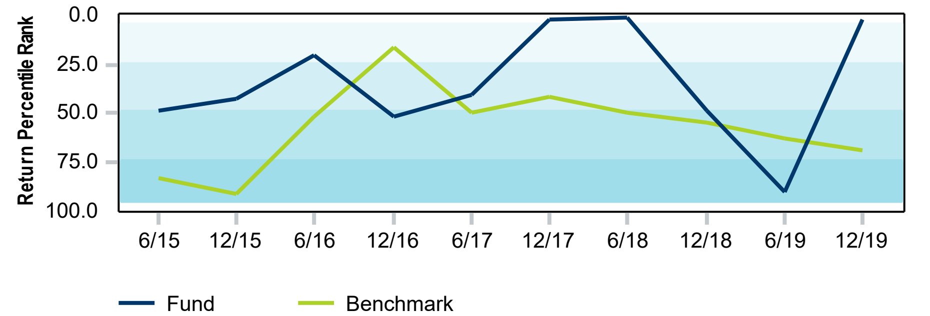
Comparative Performance



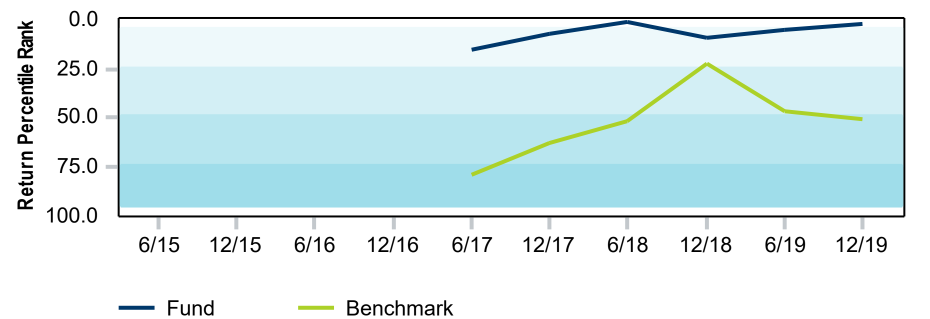
Relative Performance



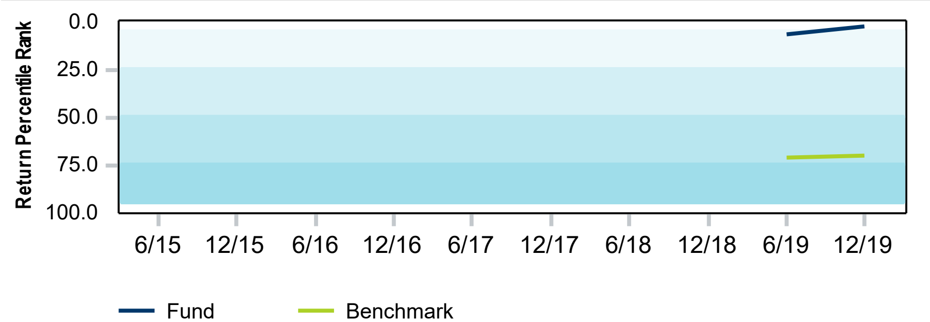
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



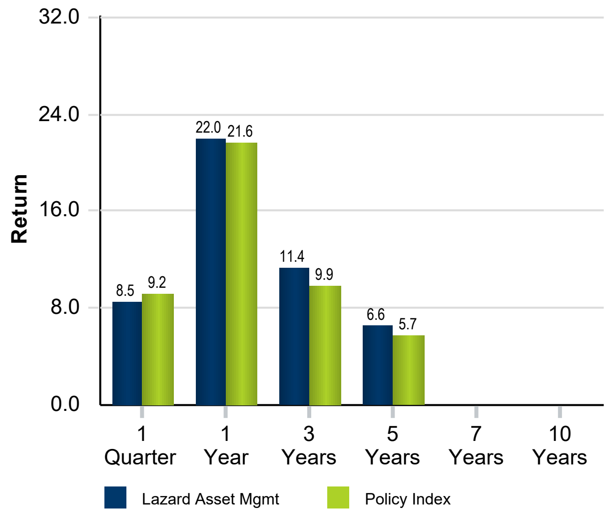
Wilshire Consulting

Performance Summary

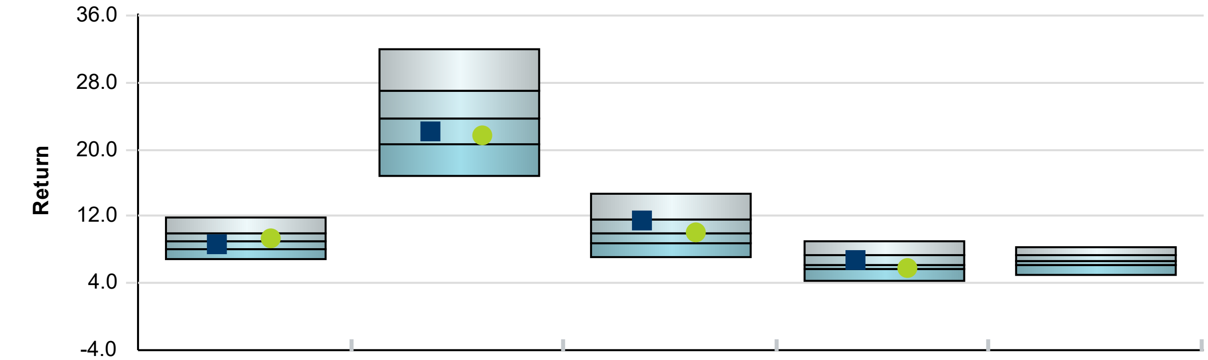
Lazard Asset Mgmt

Periods Ended December 31, 2019

Comparative Performance

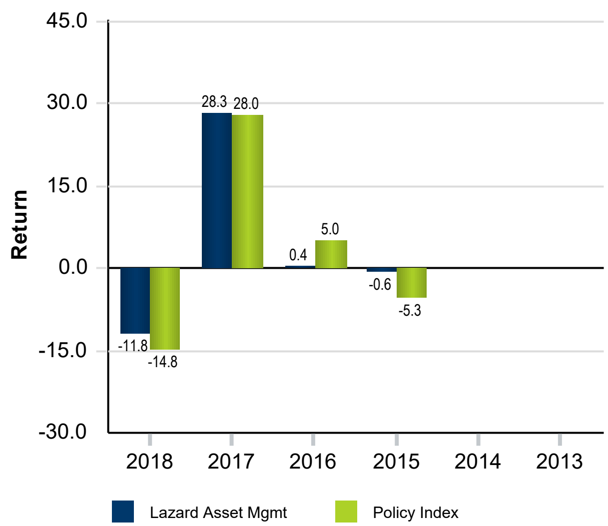


Peer Group Analysis: IM International Large Cap Core Equity (SA+CF)

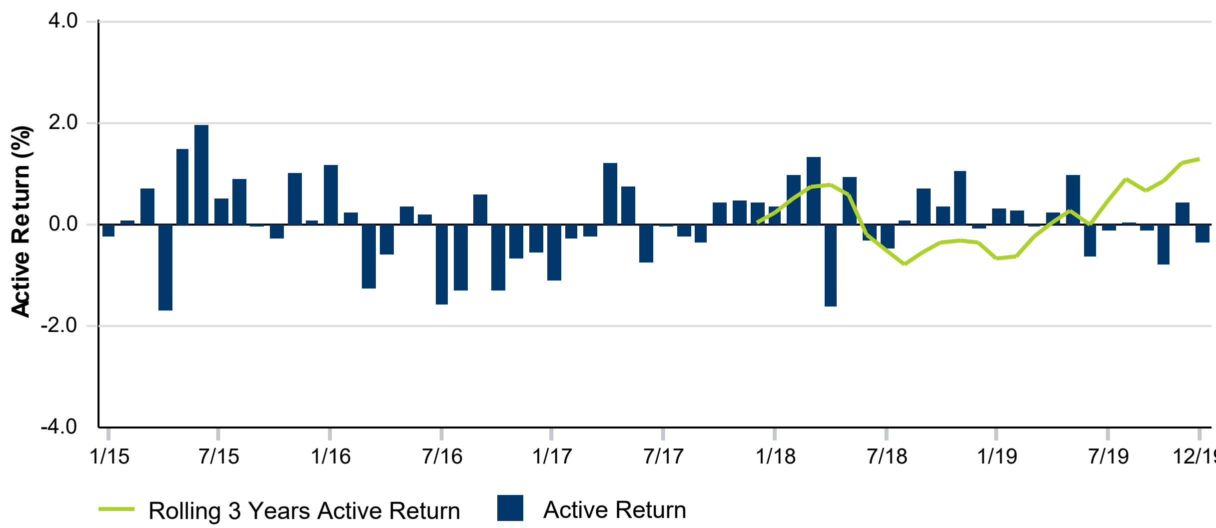


	Quarter	1 Year	3 Years	5 Years	10 Years
■ Fund	8.49 (69)	22.04 (63)	11.36 (31)	6.61 (38)	
● Benchmark	9.20 (45)	21.63 (69)	9.88 (51)	5.71 (70)	
Median	9.06	23.73	9.88	6.16	6.70

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Lazard Asset Mgmt

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Lazard Asset Mgmt	Policy Index
Maximum Return	7.91	7.60
Minimum Return	-4.37	-5.34
Return	22.04	21.63
Cumulative Return	22.04	21.63
Active Return	0.25	0.00
Excess Return	18.47	18.22

Risk Summary Statistics

	Lazard Asset Mgmt	Policy Index
Upside Risk	3.35	3.44
Downside Risk	5.46	6.26
Beta	0.93	1.00

Risk/Return Summary Statistics

	Lazard Asset Mgmt	Policy Index
Standard Deviation	11.35	12.09
Alpha	1.65	0.00
Active Return/Risk	0.02	0.00
Tracking Error	1.58	0.00
Information Ratio	0.16	
Sharpe Ratio	1.62	1.50

Correlation Statistics

	Lazard Asset Mgmt	Policy Index
R-Squared	0.99	1.00
Actual Correlation	0.99	1.00

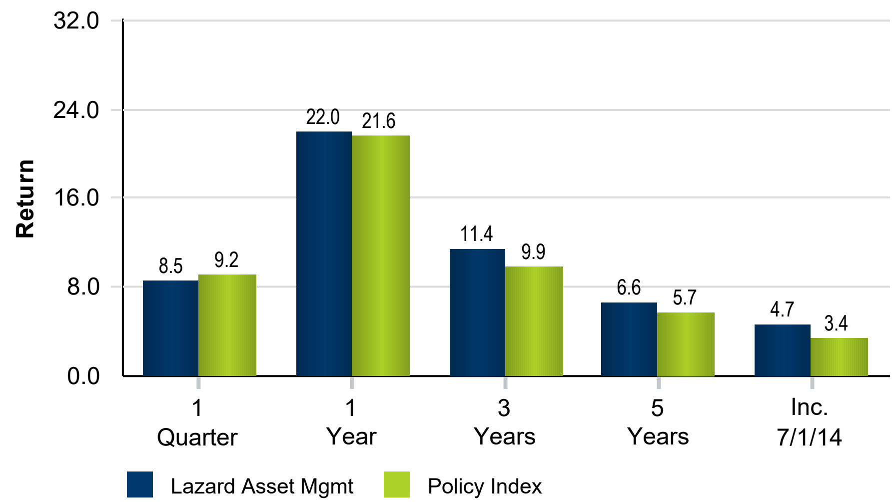
Wilshire Consulting

Manager Summary

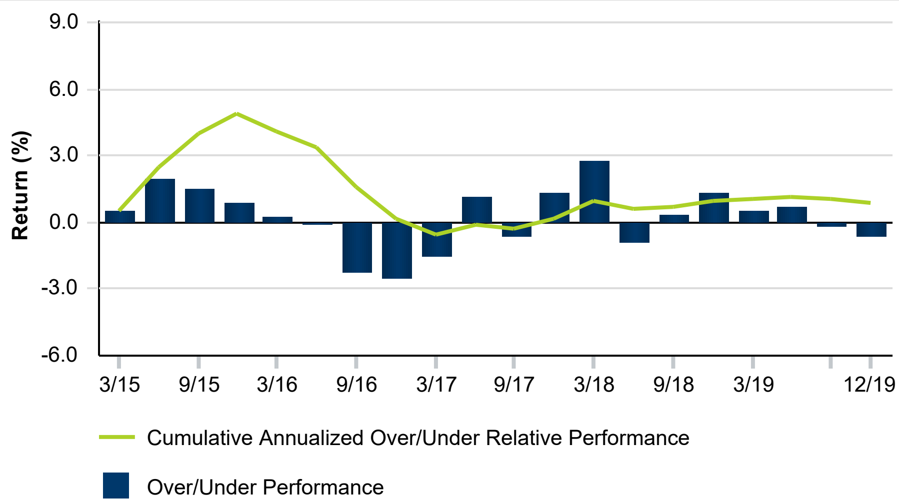
Lazard Asset Mgmt vs IM International Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

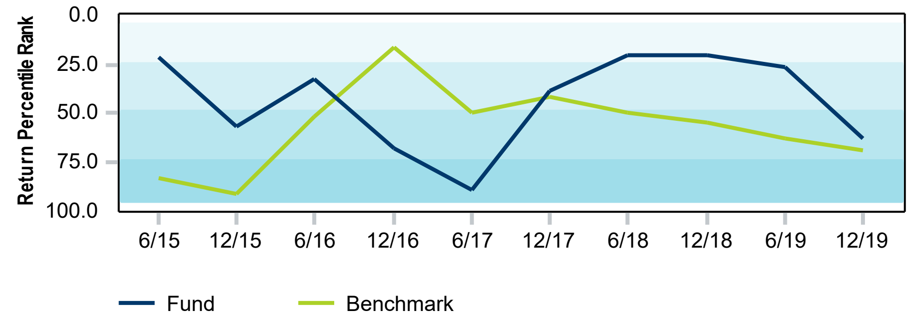
Comparative Performance



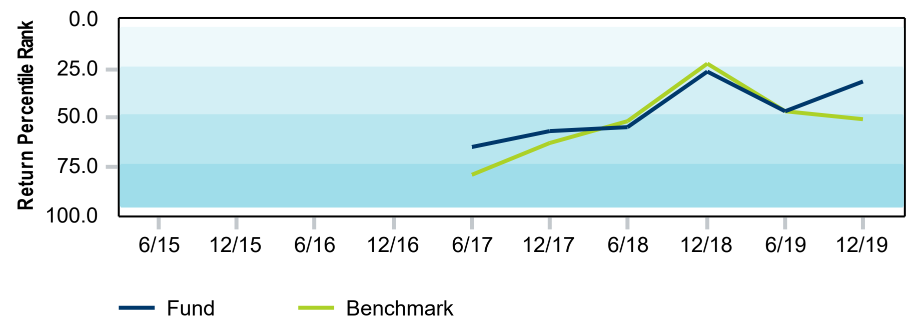
Relative Performance



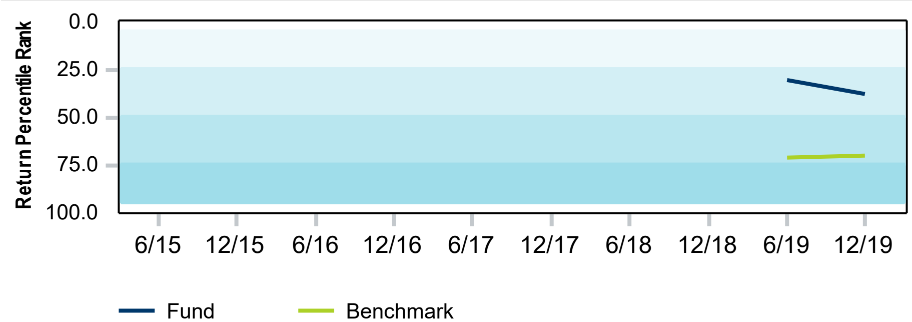
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

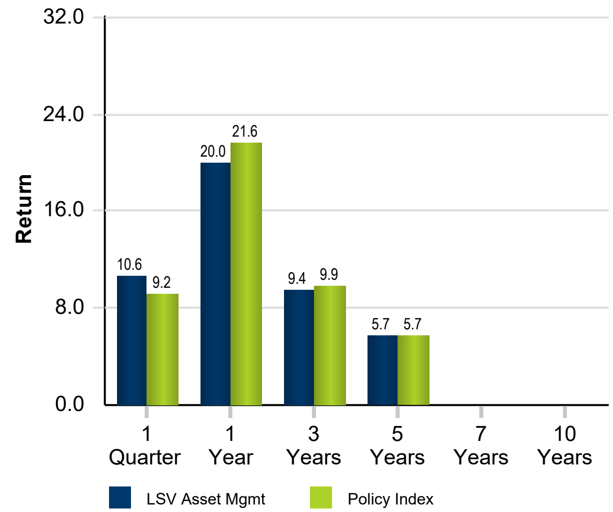


Performance Summary

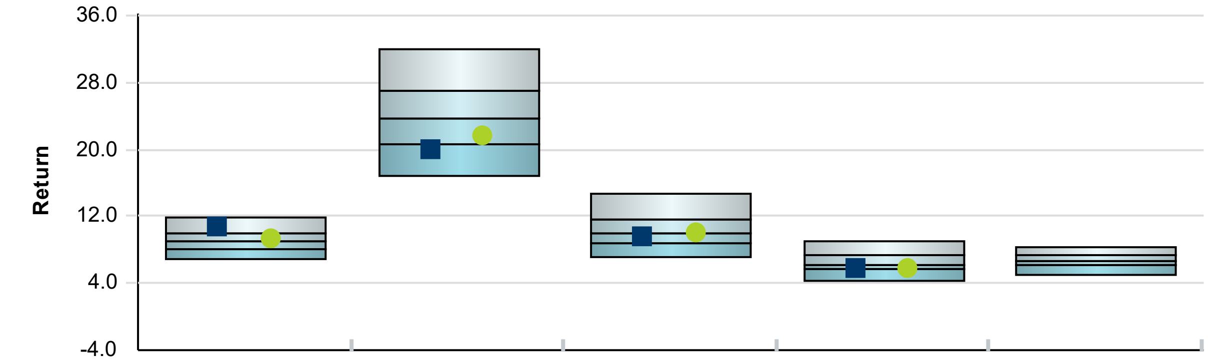
LSV Asset Mgmt

Periods Ended December 31, 2019

Comparative Performance

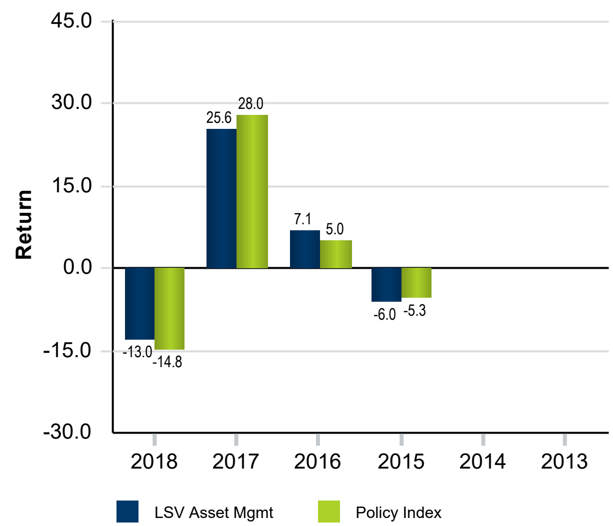


Peer Group Analysis: IM International Large Cap Core Equity (SA+CF)

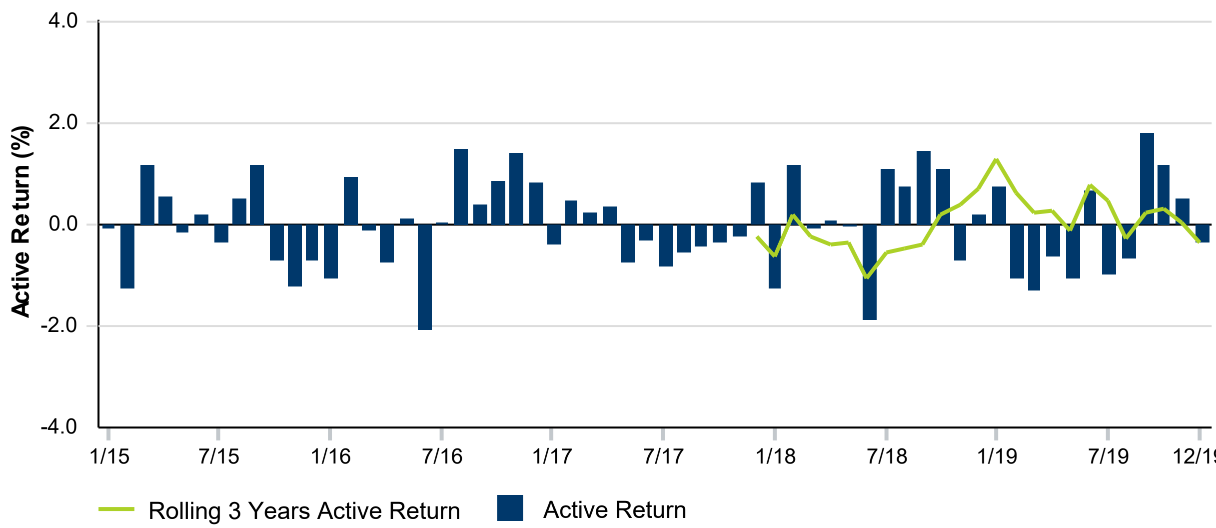


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	10.65 (17)	20.01 (80)	9.45 (65)	5.71 (70)	
Benchmark	9.20 (45)	21.63 (69)	9.88 (51)	5.71 (70)	
Median	9.06	23.73	9.88	6.16	6.70

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

LSV Asset Mgmt

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	LSV Asset Mgmt	Policy Index
Maximum Return	8.36	7.60
Minimum Return	-6.39	-5.34
Return	20.01	21.63
Cumulative Return	20.01	21.63
Active Return	-1.07	0.00
Excess Return	17.15	18.22

Risk Summary Statistics

	LSV Asset Mgmt	Policy Index
Upside Risk	3.84	3.44
Downside Risk	7.73	6.26
Beta	1.16	1.00

Risk/Return Summary Statistics

	LSV Asset Mgmt	Policy Index
Standard Deviation	14.33	12.09
Alpha	-4.31	0.00
Active Return/Risk	-0.07	0.00
Tracking Error	3.43	0.00
Information Ratio	-0.31	
Sharpe Ratio	1.19	1.50

Correlation Statistics

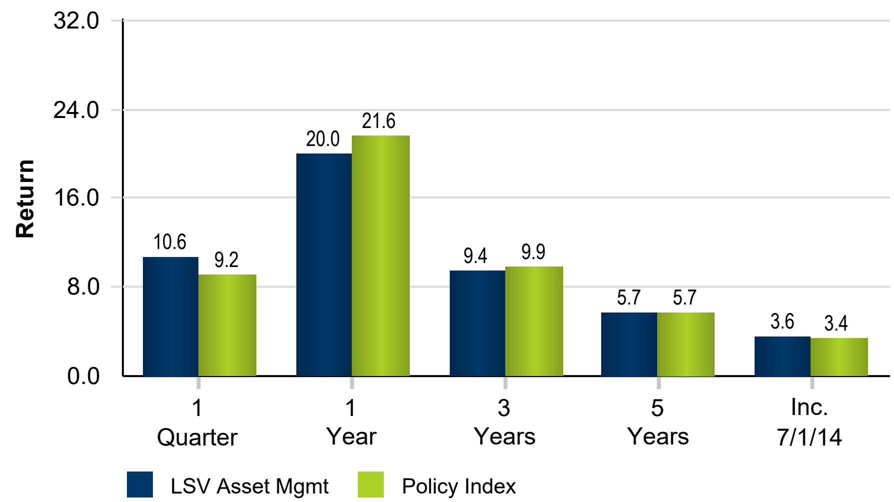
	LSV Asset Mgmt	Policy Index
R-Squared	0.96	1.00
Actual Correlation	0.98	1.00

Manager Summary

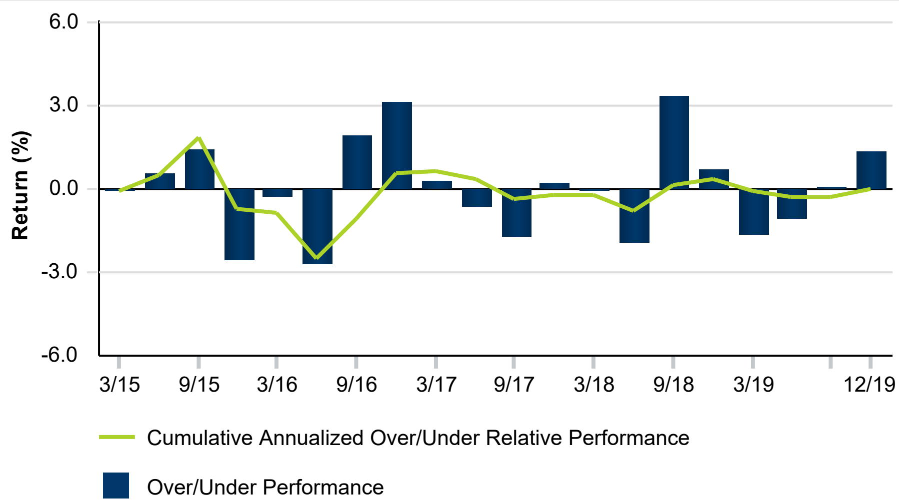
LSV Asset Mgmt vs IM International Large Cap Core Equity (SA+CF)

Periods Ended December 31, 2019

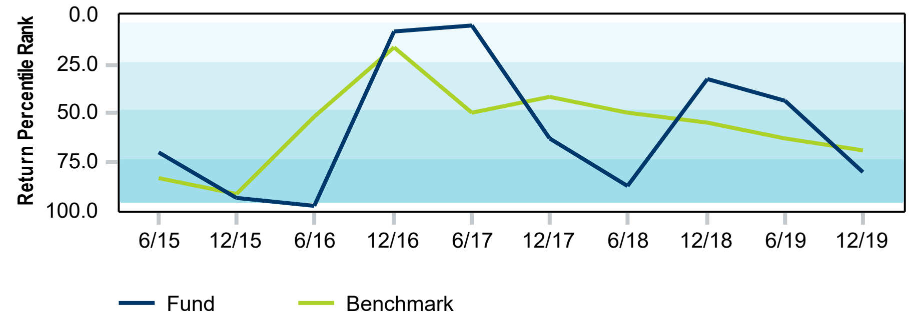
Comparative Performance



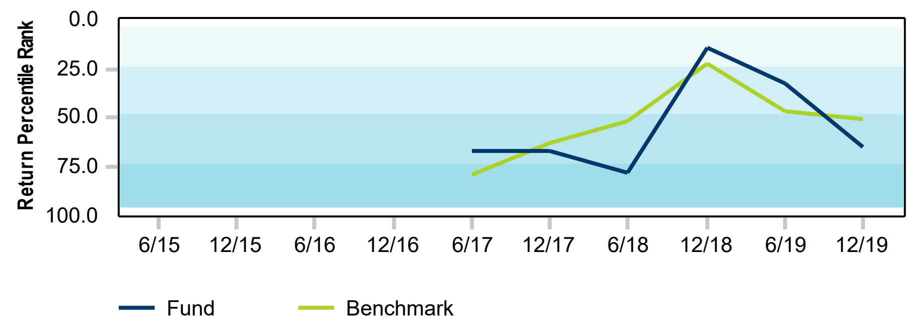
Relative Performance



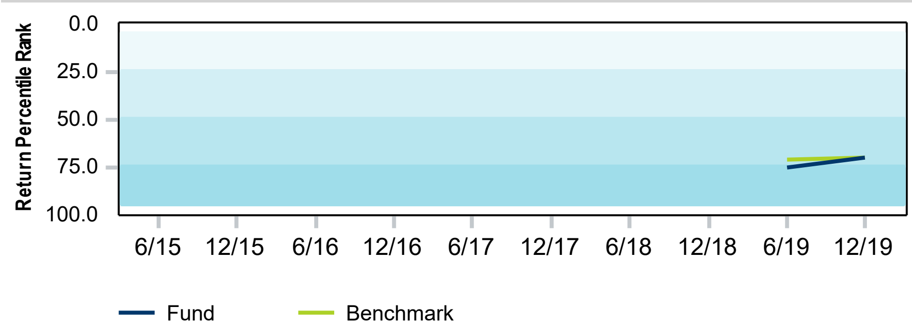
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



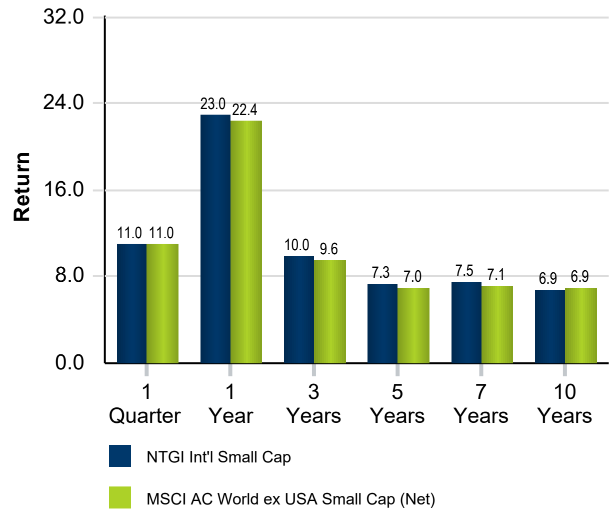
Wilshire Consulting

Performance Summary

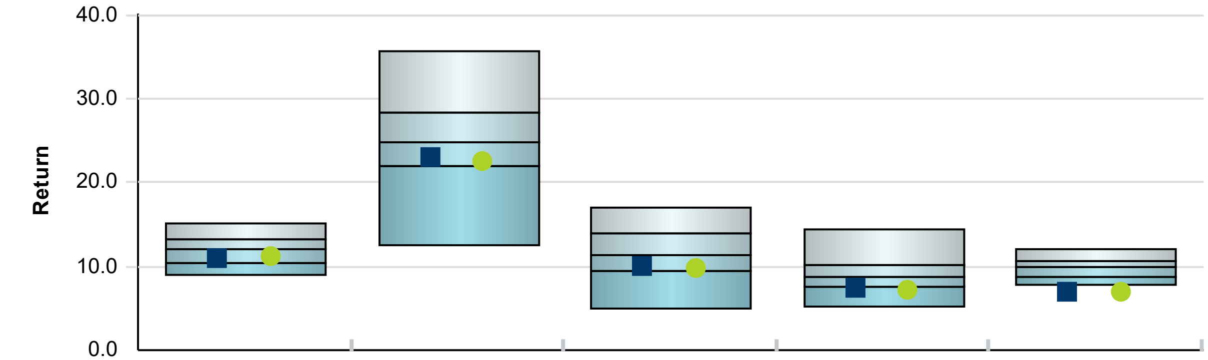
NTGI Int'l Small Cap

Periods Ended December 31, 2019

Comparative Performance

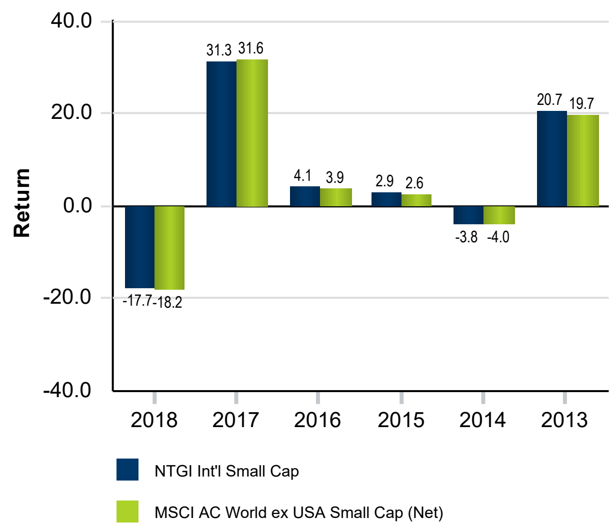


Peer Group Analysis: IM International Small Cap Equity (SA+CF)

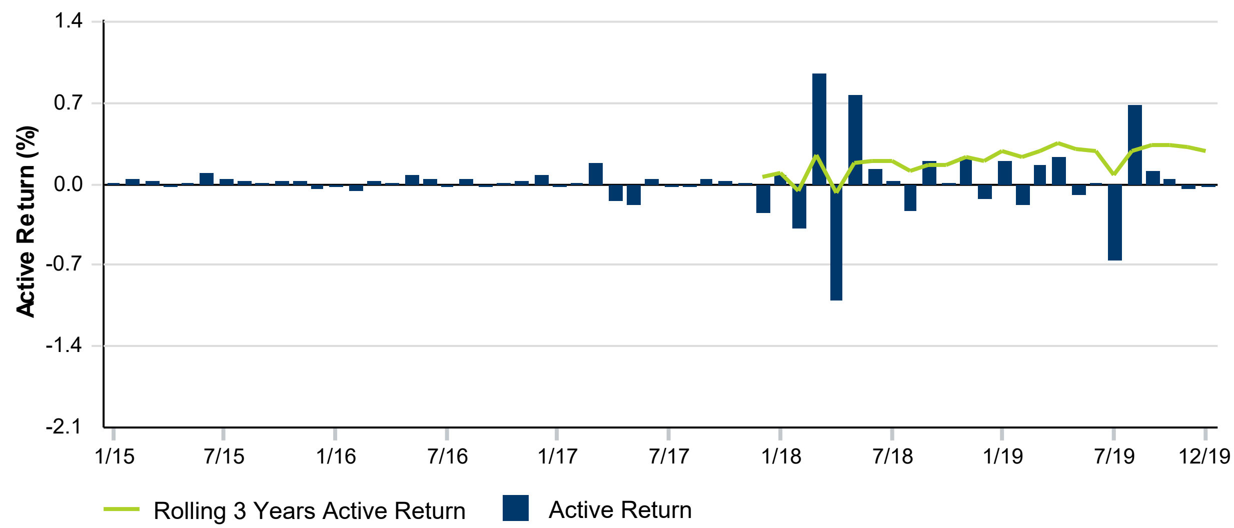


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	10.99 (67)	22.96 (67)	9.96 (66)	7.33 (79)	6.88 (99)
Benchmark	11.01 (67)	22.42 (71)	9.65 (73)	7.04 (82)	6.92 (99)
Median	12.11	24.86	11.39	8.77	9.90

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

NTGI Int'l Small Cap

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	NTGI Int'l Small Cap	MSCI AC World ex USA Small Cap (Net)
Maximum Return	8.04	7.83
Minimum Return	-5.25	-5.16
Return	22.96	22.42
Cumulative Return	22.96	22.42
Active Return	0.46	0.00
Excess Return	19.29	18.83

Risk Summary Statistics

	NTGI Int'l Small Cap	MSCI AC World ex USA Small Cap (Net)
Upside Risk	3.46	3.41
Downside Risk	5.85	5.95
Beta	1.00	1.00

Risk/Return Summary Statistics

	NTGI Int'l Small Cap	MSCI AC World ex USA Small Cap (Net)
Standard Deviation	11.81	11.74
Alpha	0.42	0.00
Active Return/Risk	0.04	0.00
Tracking Error	1.03	0.00
Information Ratio	0.44	
Sharpe Ratio	1.63	1.60

Correlation Statistics

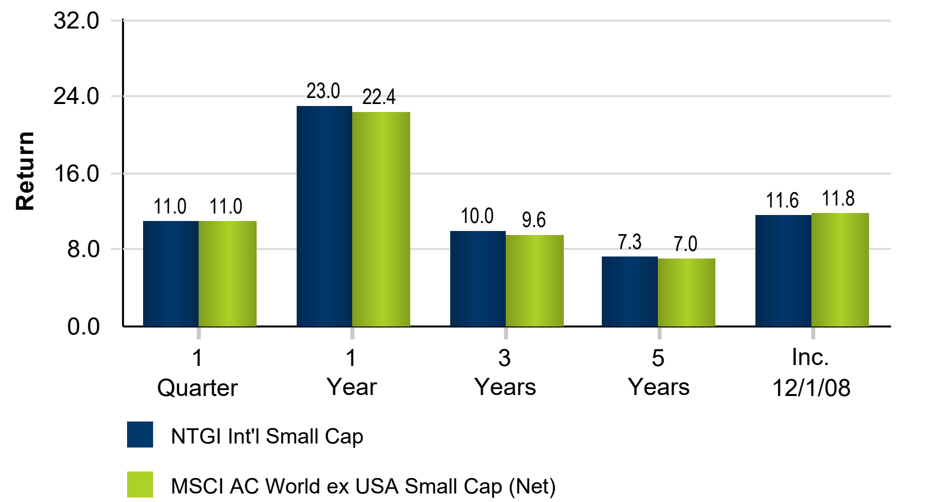
	NTGI Int'l Small Cap	MSCI AC World ex USA Small Cap (Net)
R-Squared	0.99	1.00
Actual Correlation	1.00	1.00

Manager Summary

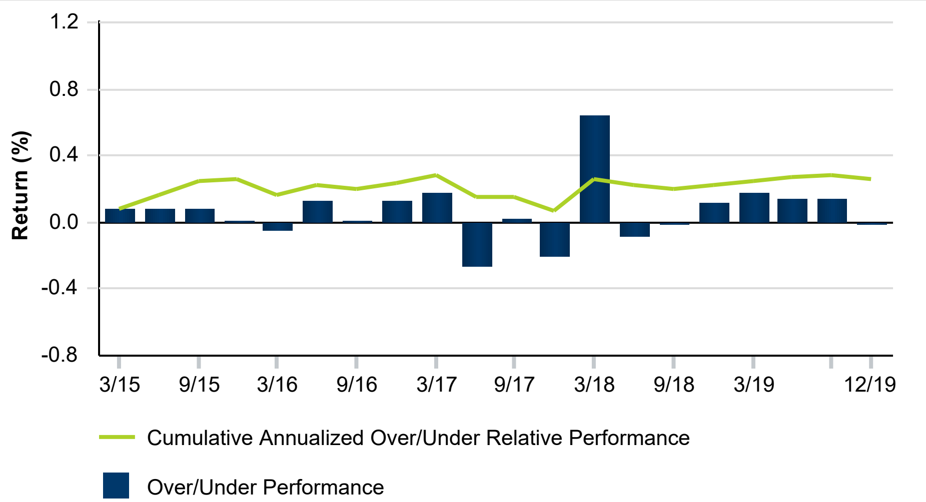
NTGI Int'l Small Cap vs IM International Small Cap Equity (SA+CF)

Periods Ended December 31, 2019

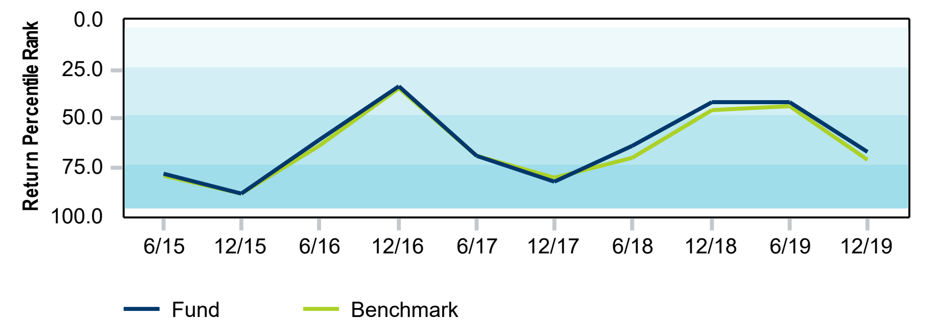
Comparative Performance



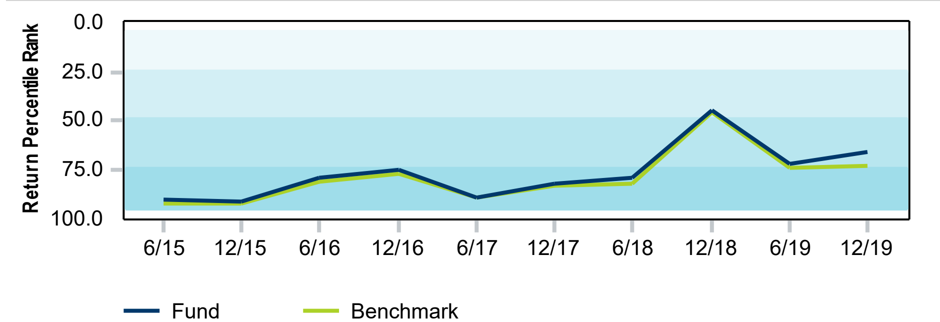
Relative Performance



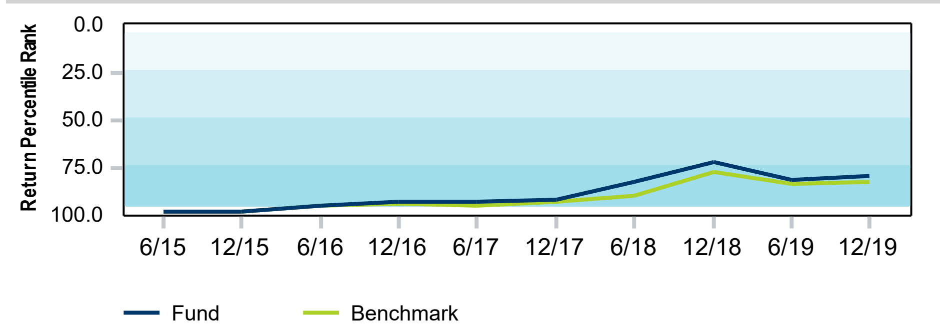
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Fixed Income Composite

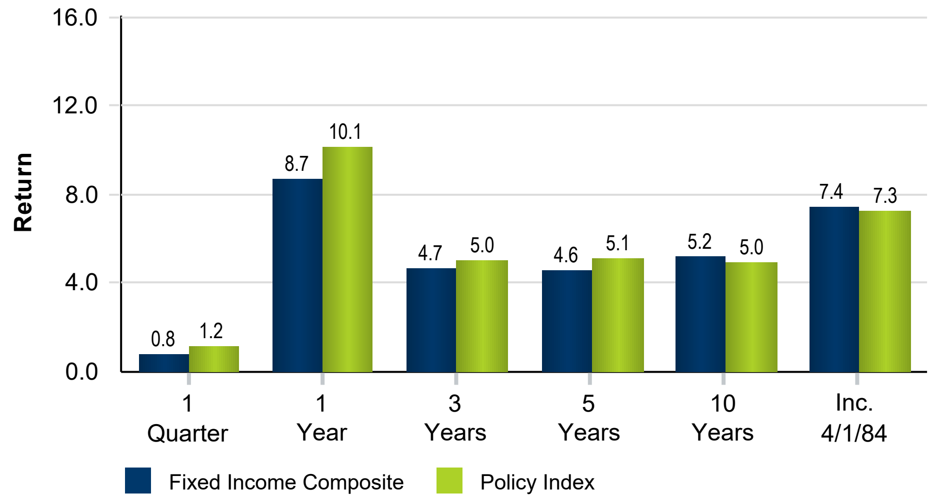
Wilshire Consulting

Composite Performance Summary

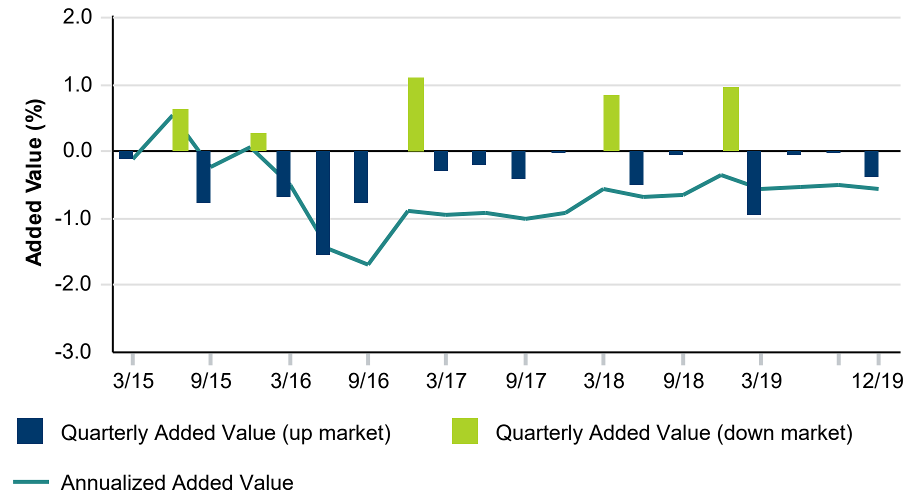
Fixed Income Composite

Periods Ended December 31, 2019

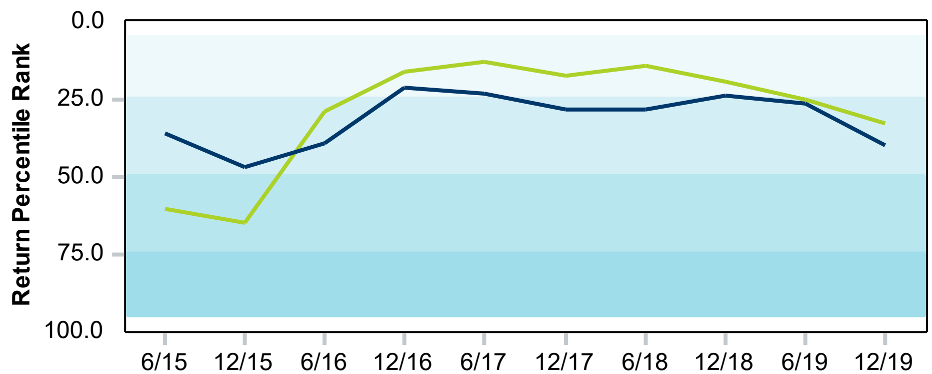
Comparative Performance



Added Value History

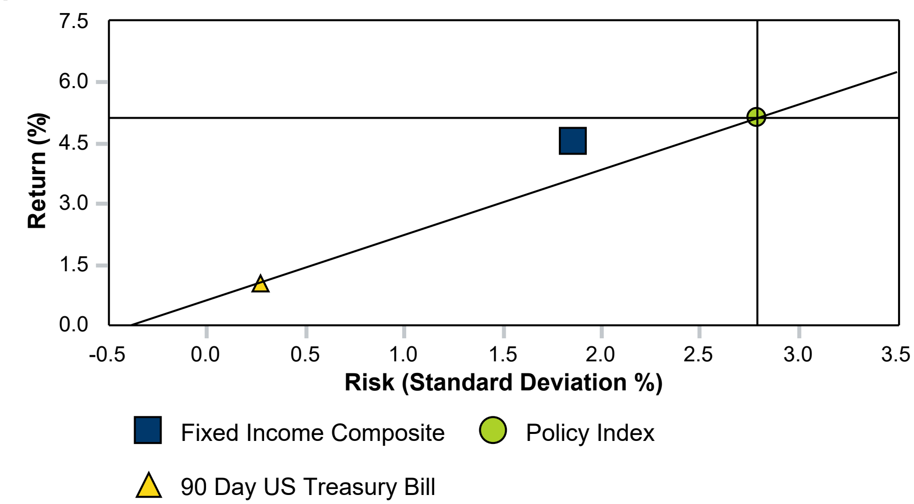


Rolling Percentile Rank: IM U.S. Fixed Income (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Fixed Income Composite	10	3 (30%)	7 (70%)	0 (0%)	0 (0%)
Benchmark	10	6 (60%)	2 (20%)	2 (20%)	0 (0%)

Risk and Return 01/1/15 - 12/31/19



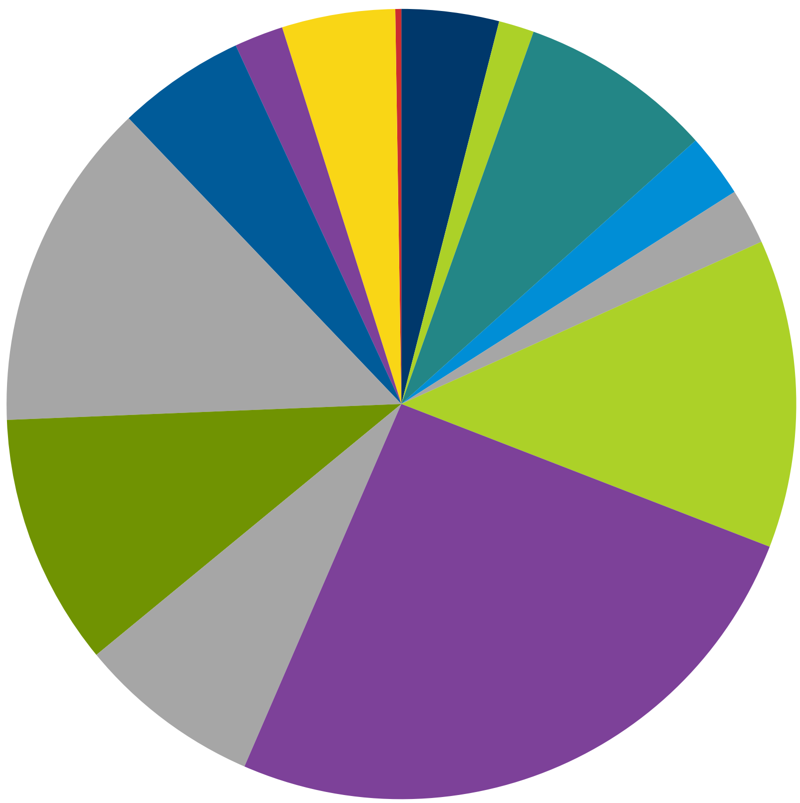
Wilshire Consulting

Asset Allocation By Manager

Fixed Income Composite

Periods Ended December 31, 2019

Dec-2019 : 4,607,061,527



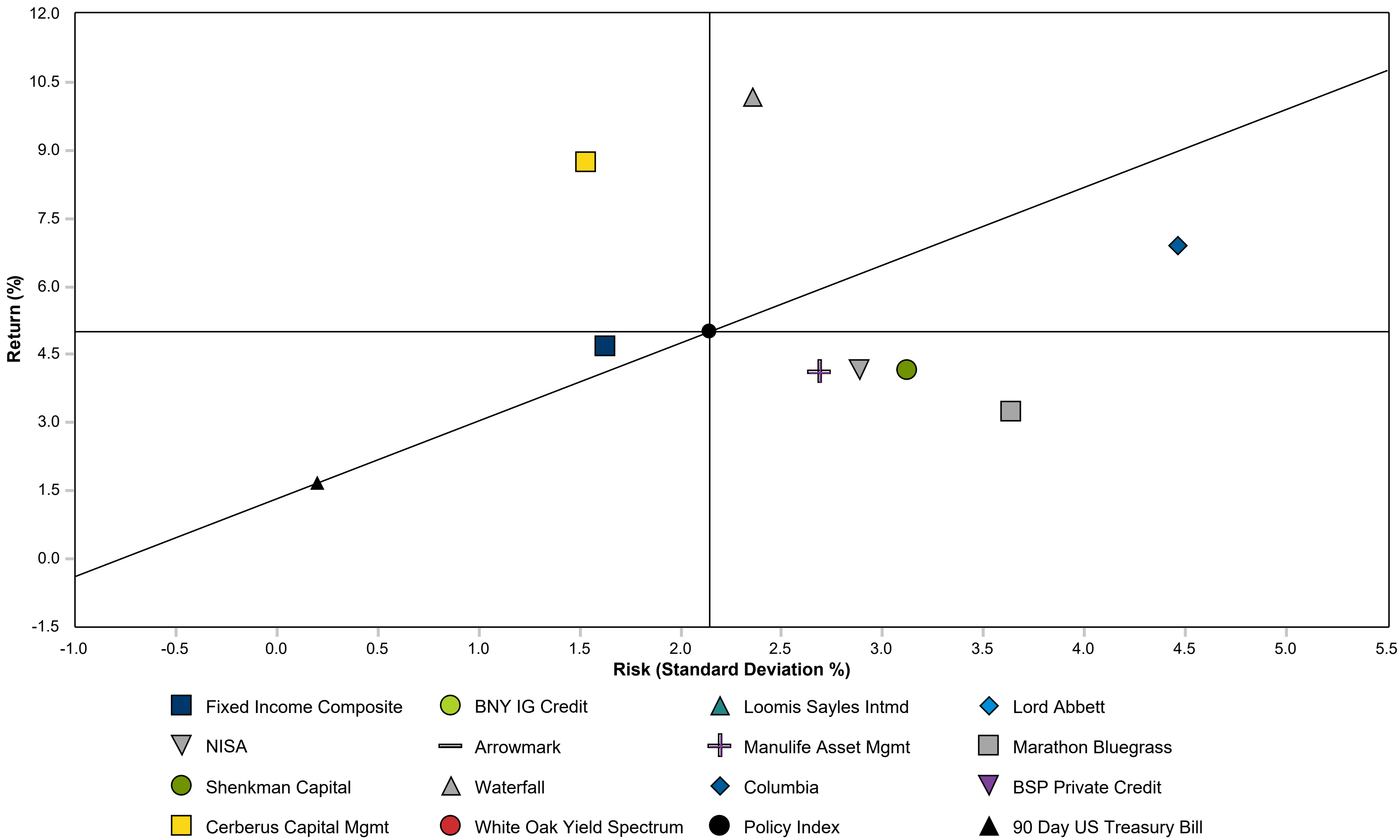
	Market Value $	Allocation (%)
Arrowmark	183,538,333	4.0
BSP Private Credit	66,708,252	1.4
Columbia	366,068,949	7.9
Cerberus Capital Mgmt	119,630,876	2.6
BNY IG Credit	105,289,397	2.3
Loomis	40,051	0.0
Loomis Sayles Intmd	581,463,547	12.6
Lord Abbett	1,180,647,658	25.6
Marathon Bluegrass	347,554,125	7.5
Manulife Asset Mgmt	474,831,526	10.3
NISA	622,260,233	13.5
Shenkman Capital	241,519,305	5.2
White Oak Yield Spectrum	92,492,948	2.0
Waterfall	213,520,507	4.6
BSP Coinvestment	11,495,821	0.2

Wilshire Consulting

Risk vs. Return

Fixed Income Composite

Periods Ended 3 Years Ending December 31, 2019



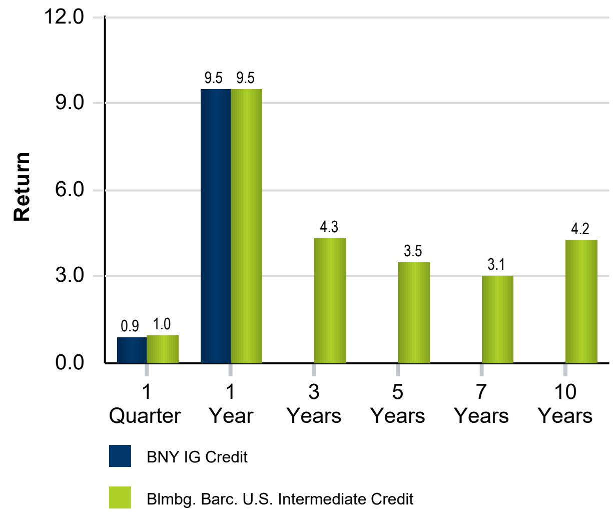
Calculation based on monthly periodicity.

Performance Summary

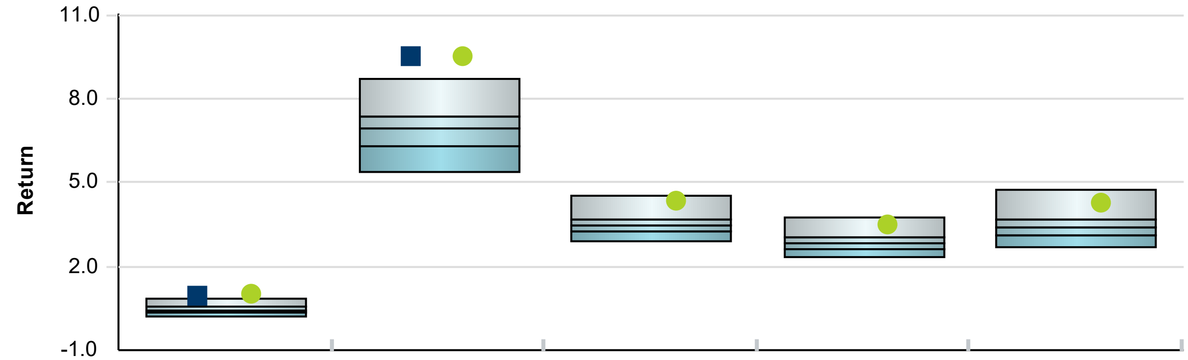
BNY IG Credit

Periods Ended December 31, 2019

Comparative Performance

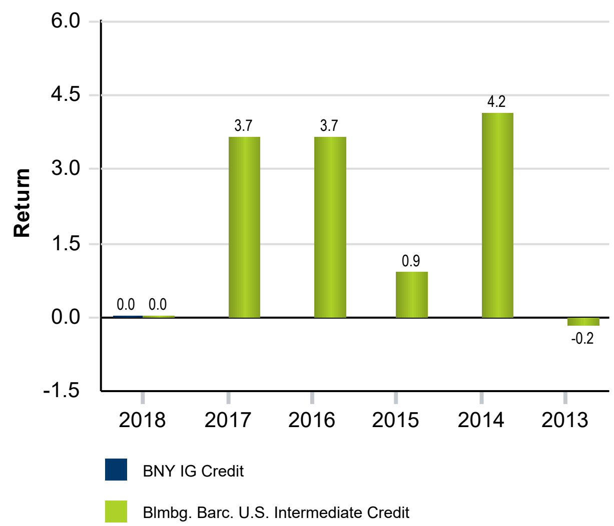


Peer Group Analysis: IM U.S. Intermediate Duration (SA+CF)

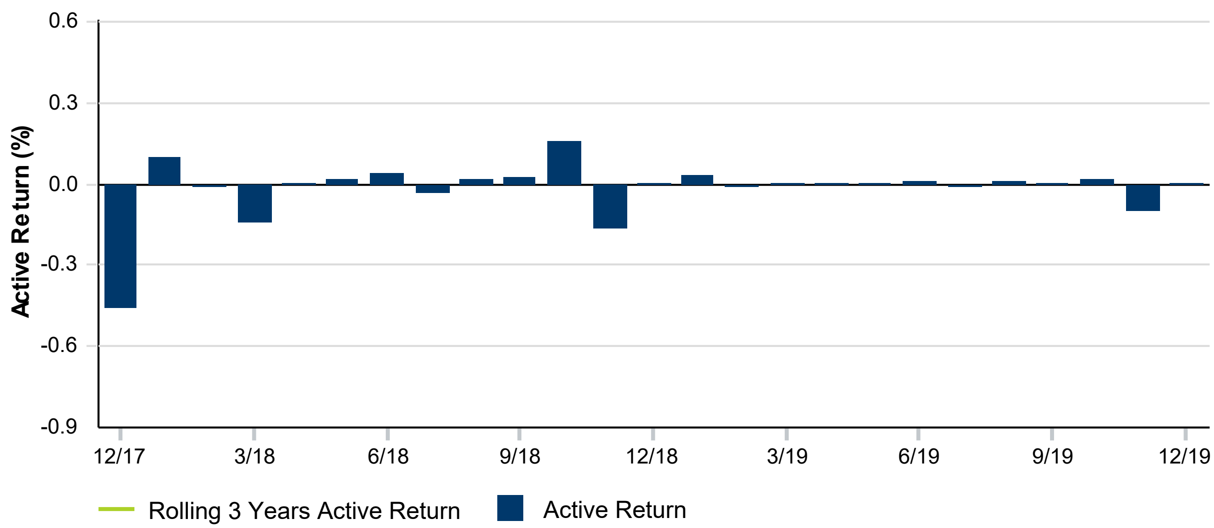


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	0.90 (4)	9.51 (3)			
Benchmark	0.98 (3)	9.52 (3)	4.33 (7)	3.50 (7)	4.25 (10)
Median	0.44	6.93	3.45	2.83	3.40

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

BNY IG Credit

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	BNY IG Credit	Blmbg. Barc. U.S. Intermediate Credit
Maximum Return	1.74	1.73
Minimum Return	-0.23	-0.23
Return	9.51	9.52
Cumulative Return	9.51	9.52
Active Return	-0.01	0.00
Excess Return	6.90	6.90

Risk Summary Statistics

	BNY IG Credit	Blmbg. Barc. U.S. Intermediate Credit
Upside Risk	1.02	1.01
Downside Risk	0.25	0.23
Beta	1.02	1.00

Risk/Return Summary Statistics

	BNY IG Credit	Blmbg. Barc. U.S. Intermediate Credit
Standard Deviation	2.34	2.29
Alpha	-0.22	0.00
Active Return/Risk	0.00	0.00
Tracking Error	0.11	0.00
Information Ratio	-0.06	
Sharpe Ratio	3.05	3.12

Correlation Statistics

	BNY IG Credit	Blmbg. Barc. U.S. Intermediate Credit
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

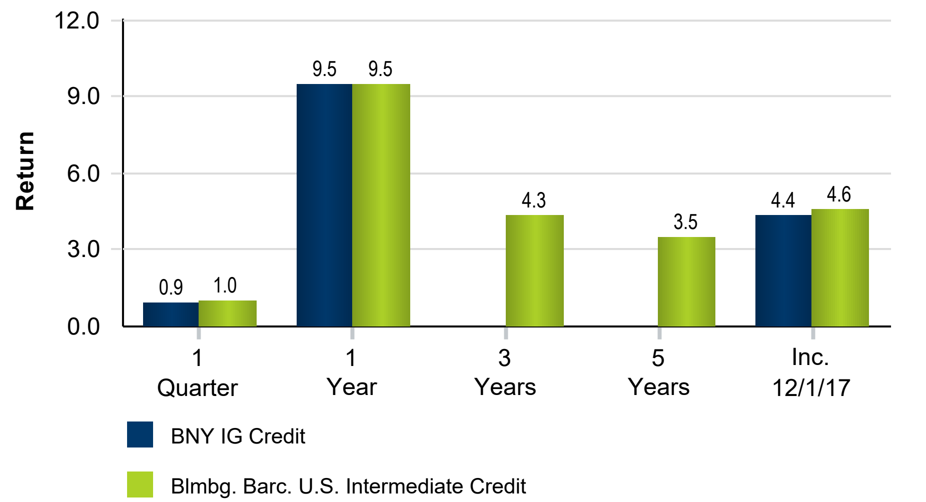
Wilshire Consulting

Manager Summary

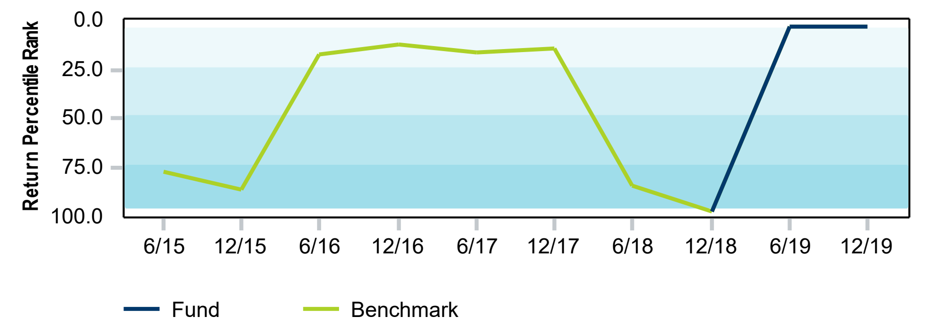
BNY IG Credit vs IM U.S. Intermediate Duration (SA+CF)

Periods Ended December 31, 2019

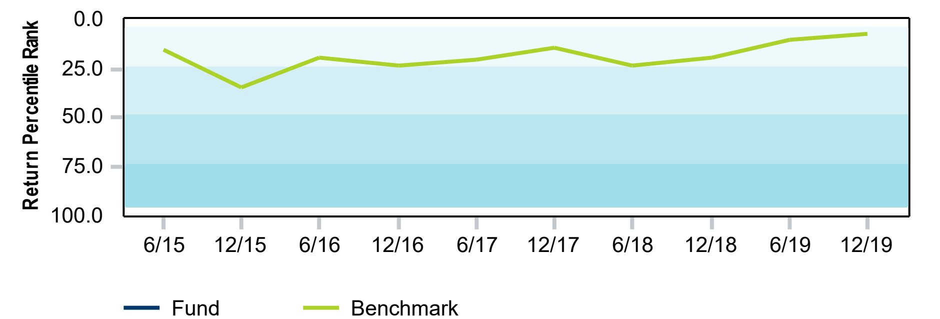
Comparative Performance



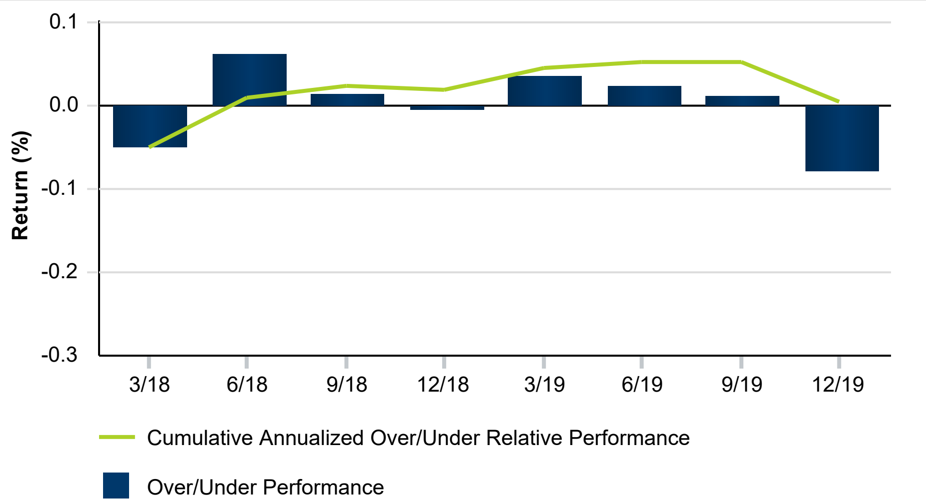
1 Year Rolling Percentile Ranking



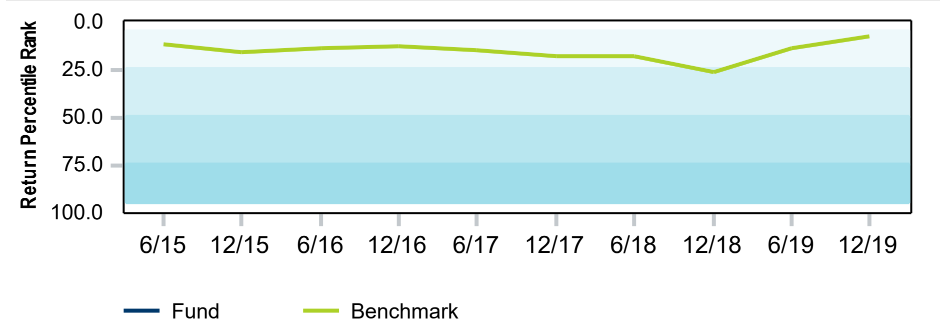
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking



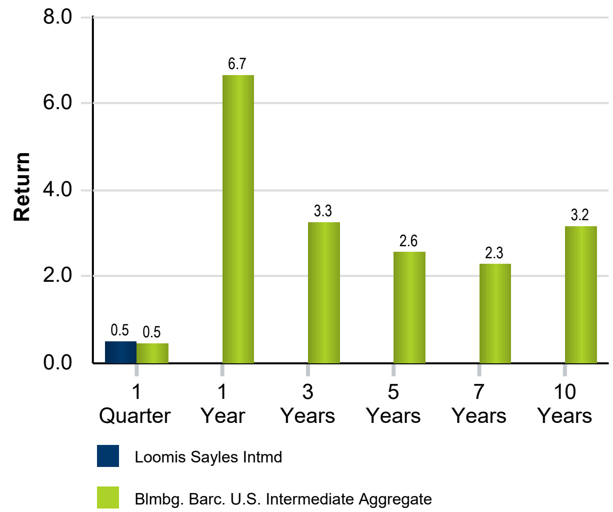
Wilshire Consulting

Performance Summary

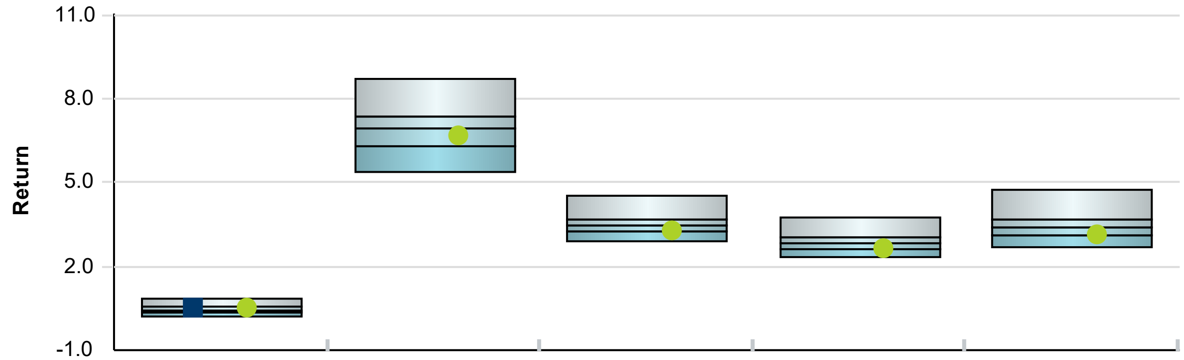
Loomis Sayles Intmd

Periods Ended December 31, 2019

Comparative Performance

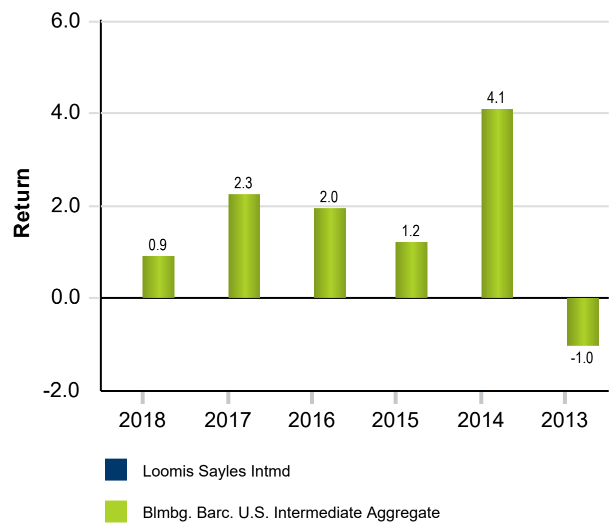


Peer Group Analysis: IM U.S. Intermediate Duration (SA+CF)

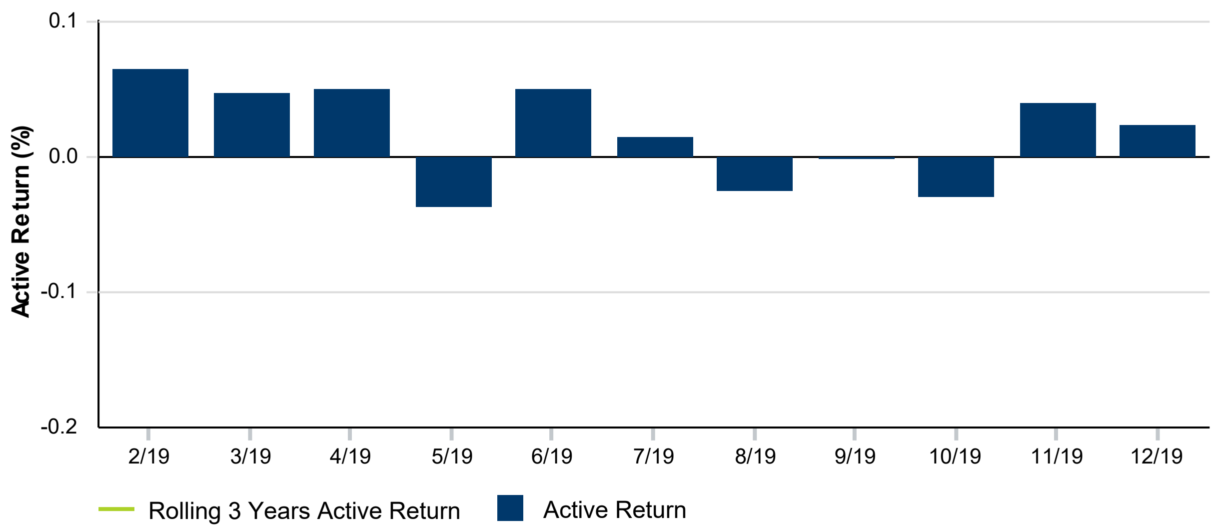


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	0.50 (37)				
Benchmark	0.47 (46)	6.67 (64)	3.26 (76)	2.59 (82)	3.15 (75)
Median	0.44	6.93	3.45	2.83	3.40

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Loomis Sayles Intmd

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Loomis Sayles Intmd	Blmbg. Barc. U.S. Intermediate Aggregate
Maximum Return		1.49
Minimum Return		-0.23
Return		6.67
Cumulative Return		6.67
Active Return		0.00
Excess Return		4.24

Risk Summary Statistics

	Loomis Sayles Intmd	Blmbg. Barc. U.S. Intermediate Aggregate
Upside Risk		0.80
Downside Risk		0.24
Beta		1.00

Risk/Return Summary Statistics

	Loomis Sayles Intmd	Blmbg. Barc. U.S. Intermediate Aggregate
Standard Deviation		2.06
Alpha		0.00
Active Return/Risk		0.00
Tracking Error		0.00
Information Ratio		
Sharpe Ratio		2.14

Correlation Statistics

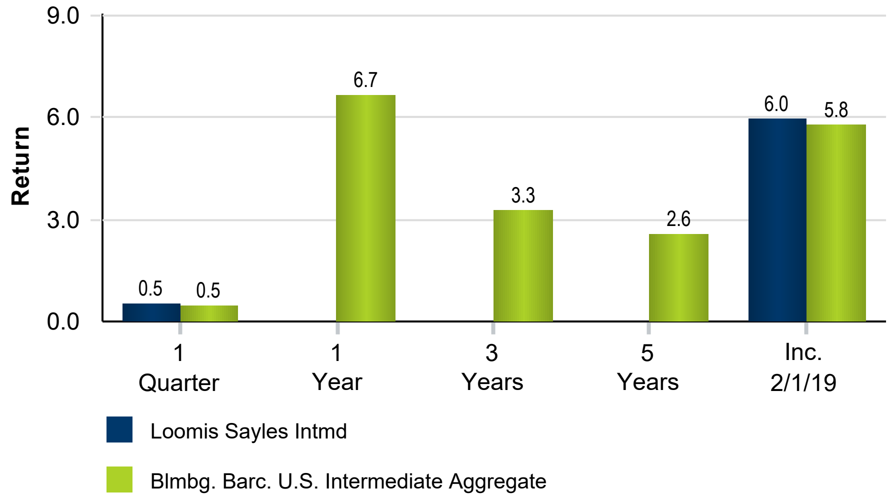
	Loomis Sayles Intmd	Blmbg. Barc. U.S. Intermediate Aggregate
R-Squared		1.00
Actual Correlation		1.00

Manager Summary

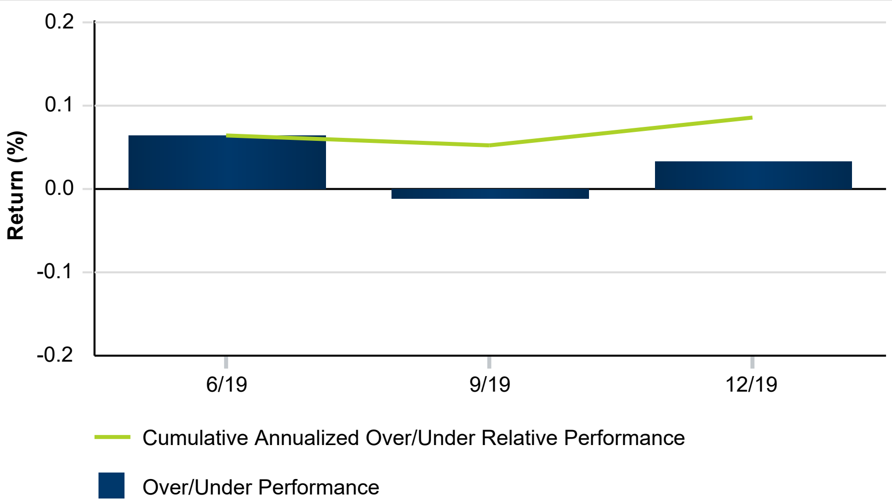
Loomis Sayles Intmd vs IM U.S. Intermediate Duration (SA+CF)

Periods Ended December 31, 2019

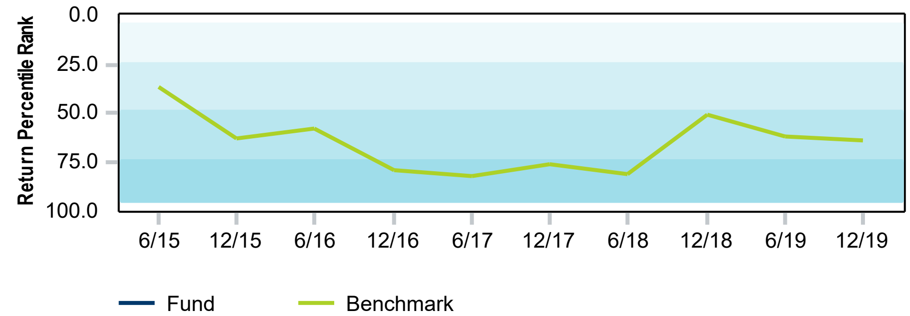
Comparative Performance



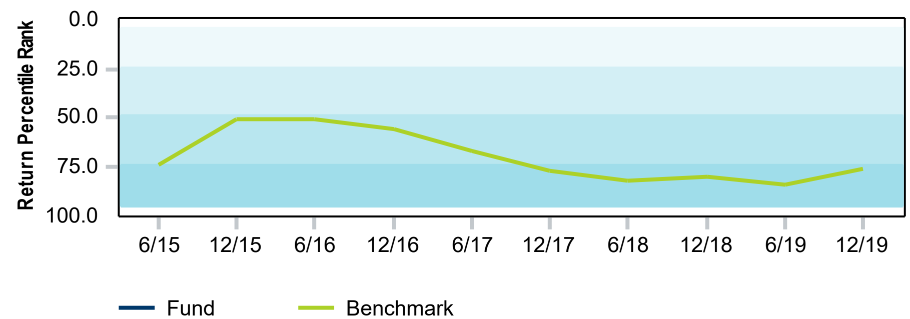
Relative Performance



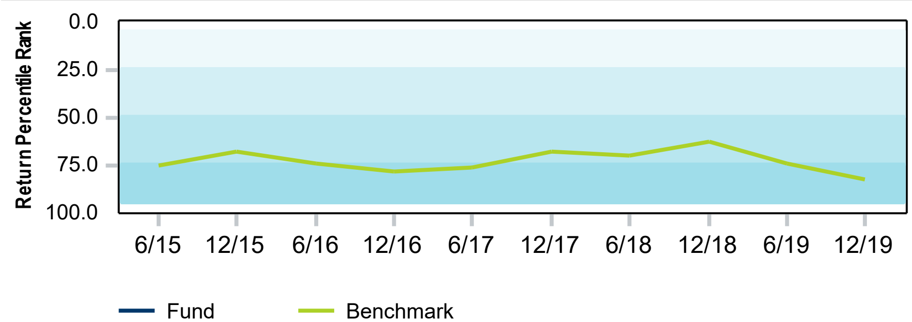
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



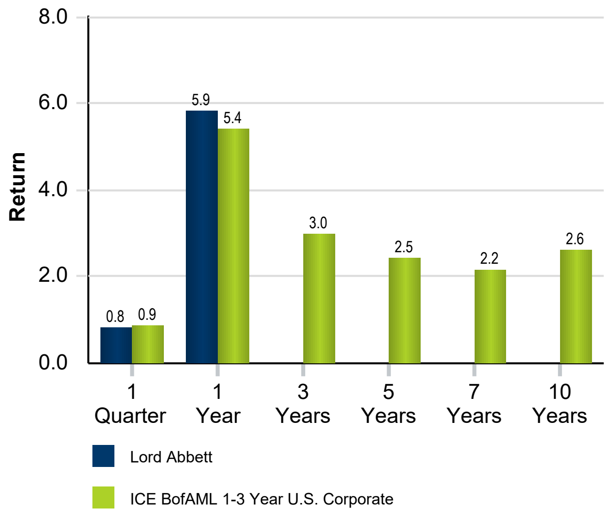
Wilshire Consulting

Performance Summary

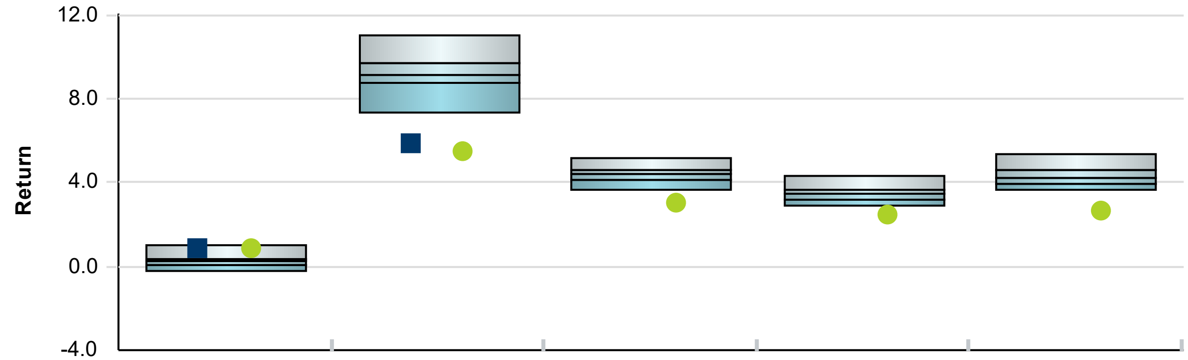
Lord Abbett

Periods Ended December 31, 2019

Comparative Performance

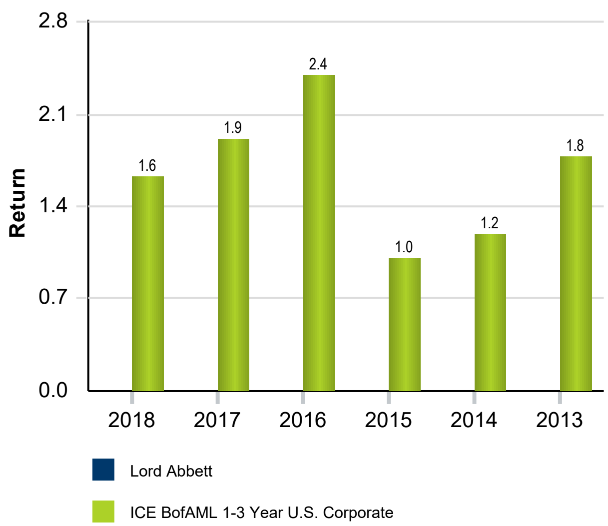


Peer Group Analysis: IM U.S. Broad Market Core Fixed Income (SA+CF)

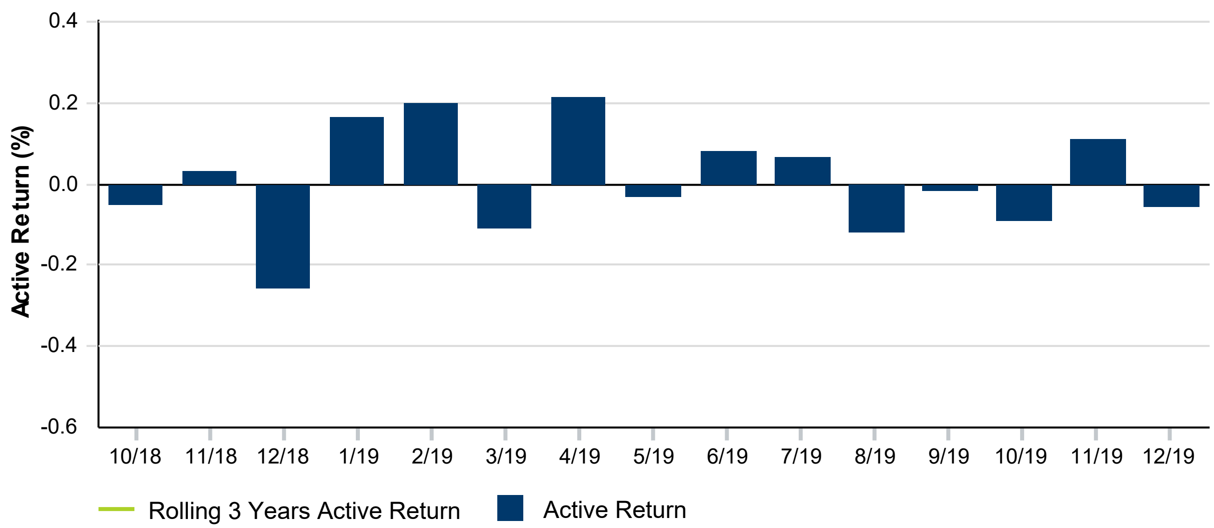


	Quarter	1 Year	3 Years	5 Years	10 Years
■ Fund	0.83 (6)	5.86 (99)			
● Benchmark	0.87 (6)	5.42 (99)	2.97 (99)	2.46 (100)	2.63 (100)
Median	0.22	9.20	4.40	3.46	4.27

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Lord Abbett

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Lord Abbett	ICE BofAML 1-3 Year U.S. Corporate
Maximum Return	0.87	0.78
Minimum Return	0.10	0.08
Return	5.86	5.42
Cumulative Return	5.86	5.42
Active Return	0.42	0.00
Excess Return	3.46	3.04

Risk Summary Statistics

	Lord Abbett	ICE BofAML 1-3 Year U.S. Corporate
Upside Risk	1.84	1.75
Downside Risk	0.00	0.00
Beta	0.86	1.00

Risk/Return Summary Statistics

	Lord Abbett	ICE BofAML 1-3 Year U.S. Corporate
Standard Deviation	0.83	0.86
Alpha	1.19	0.00
Active Return/Risk	0.50	0.00
Tracking Error	0.40	0.00
Information Ratio	1.03	
Sharpe Ratio	4.54	3.89

Correlation Statistics

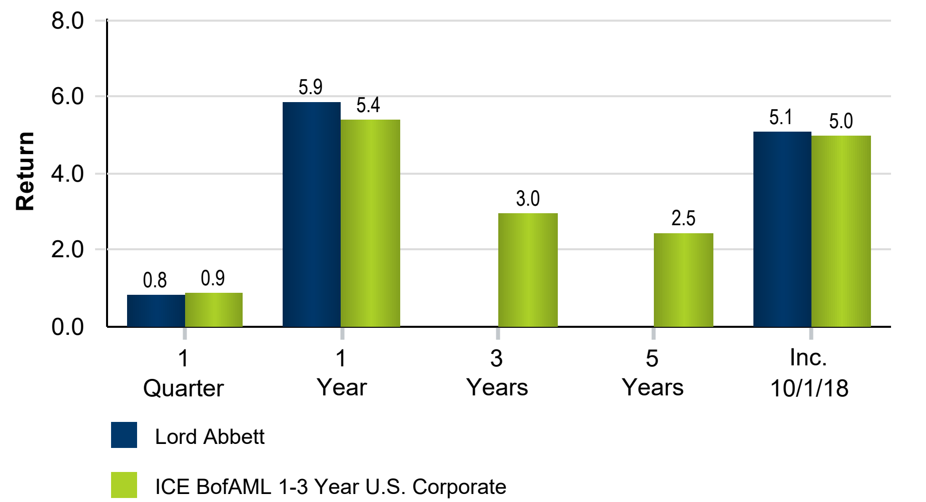
	Lord Abbett	ICE BofAML 1-3 Year U.S. Corporate
R-Squared	0.79	1.00
Actual Correlation	0.89	1.00

Manager Summary

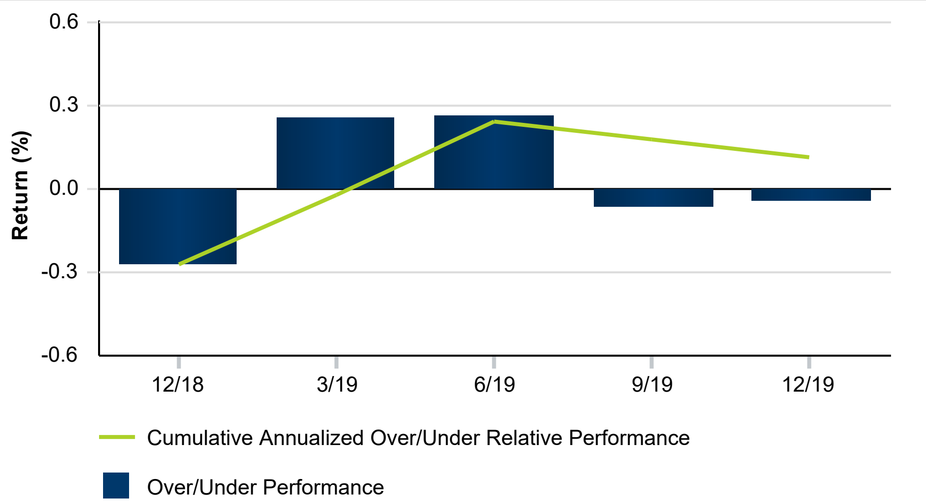
Lord Abbett vs IM U.S. Broad Market Core Fixed Income (SA+CF)

Periods Ended December 31, 2019

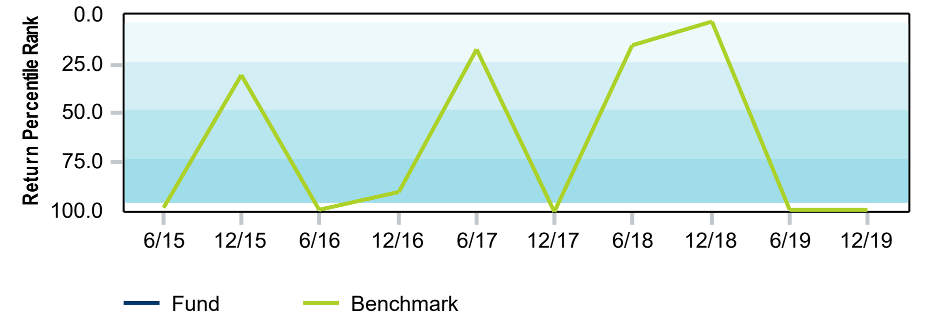
Comparative Performance



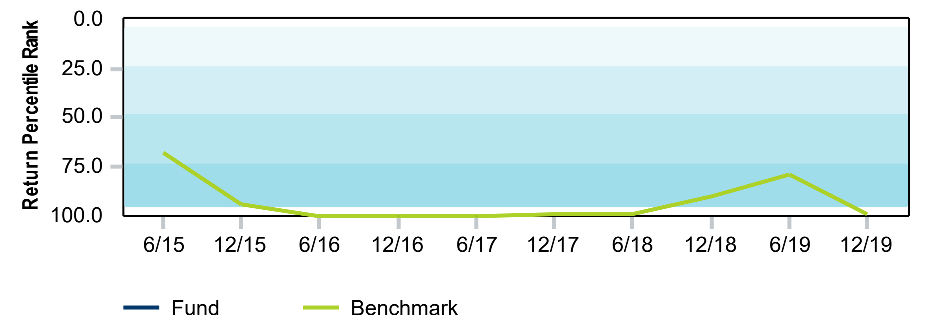
Relative Performance



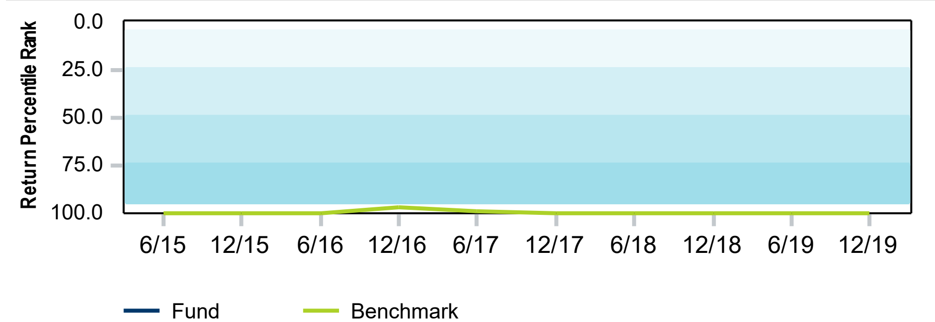
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



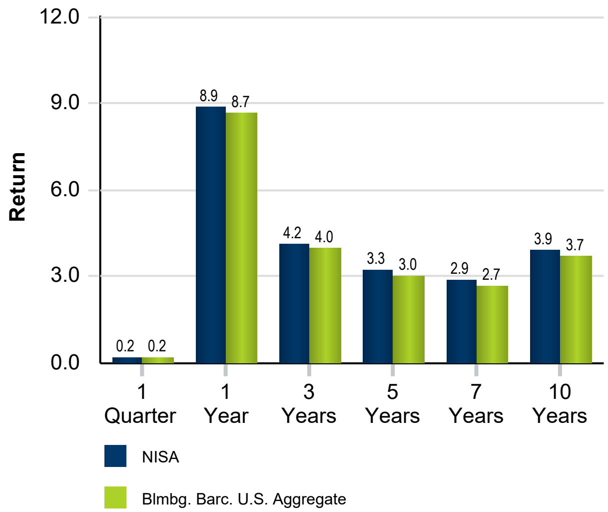
Wilshire Consulting

Performance Summary

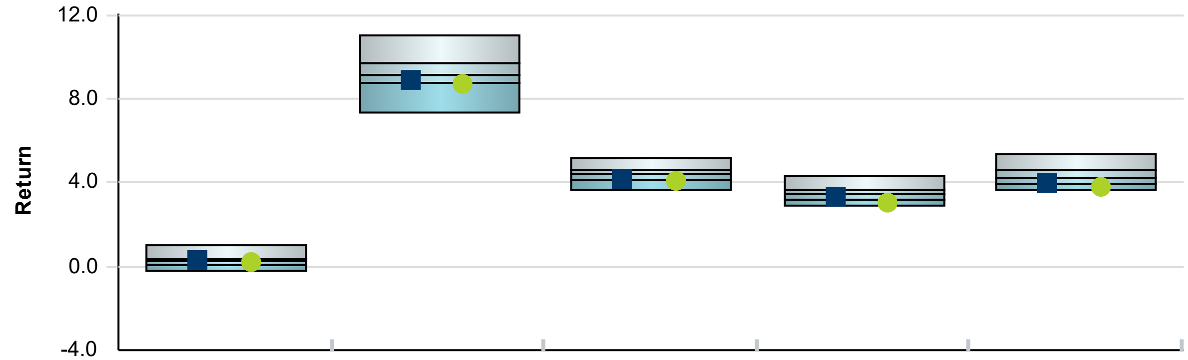
NISA

Periods Ended December 31, 2019

Comparative Performance

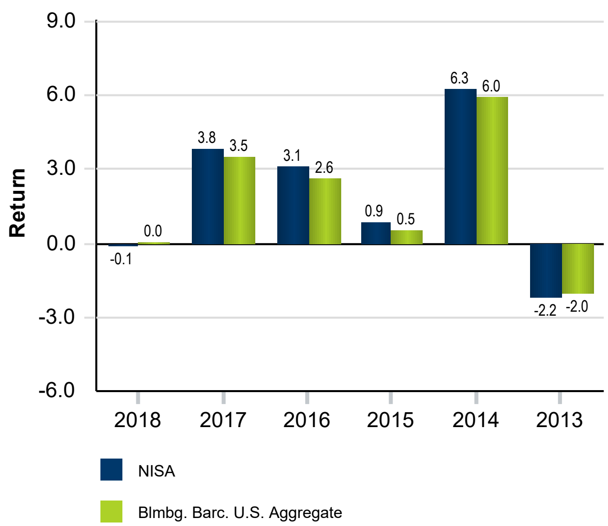


Peer Group Analysis: IM U.S. Broad Market Core Fixed Income (SA+CF)

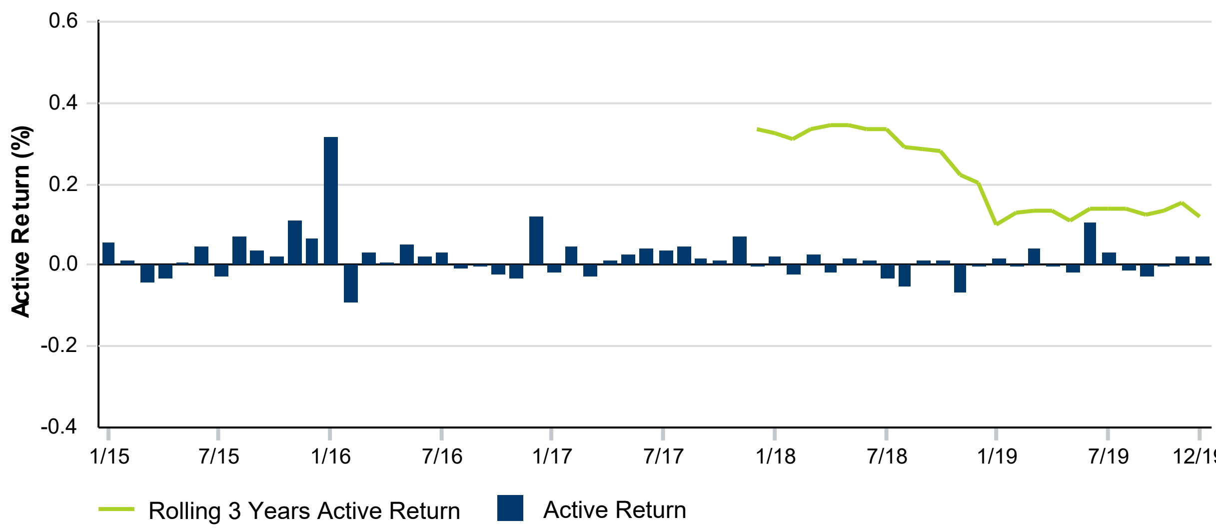


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	0.22 (50)	8.91 (67)	4.15 (71)	3.27 (65)	3.93 (79)
Benchmark	0.18 (57)	8.72 (77)	4.03 (85)	3.05 (89)	3.75 (91)
Median	0.22	9.20	4.40	3.46	4.27

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

NISA

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	NISA	Blmbg. Barc. U.S. Aggregate
Maximum Return	2.58	2.59
Minimum Return	-0.56	-0.53
Return	8.91	8.72
Cumulative Return	8.91	8.72
Active Return	0.18	0.00
Excess Return	6.37	6.19

Risk Summary Statistics

	NISA	Blmbg. Barc. U.S. Aggregate
Upside Risk	1.18	1.17
Downside Risk	0.57	0.54
Beta	1.01	1.00

Risk/Return Summary Statistics

	NISA	Blmbg. Barc. U.S. Aggregate
Standard Deviation	3.30	3.28
Alpha	0.13	0.00
Active Return/Risk	0.05	0.00
Tracking Error	0.11	0.00
Information Ratio	1.58	
Sharpe Ratio	1.97	1.93

Correlation Statistics

	NISA	Blmbg. Barc. U.S. Aggregate
R-Squared	1.00	1.00
Actual Correlation	1.00	1.00

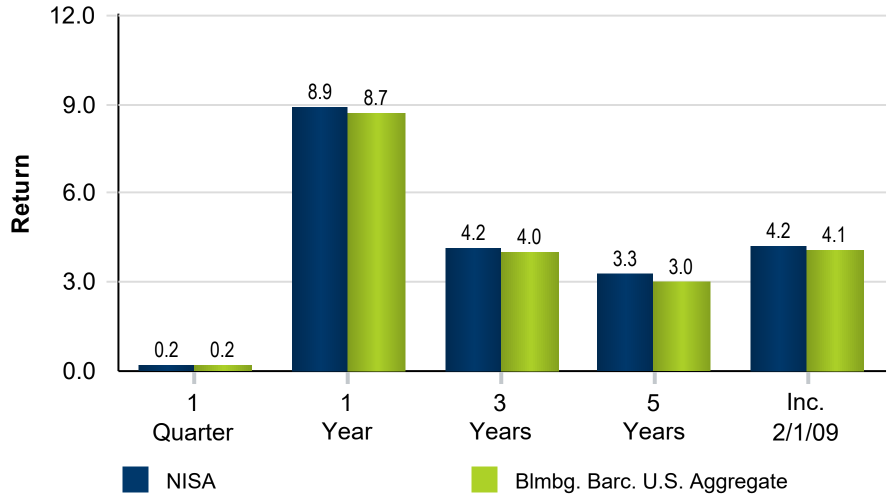
Wilshire Consulting

Manager Summary

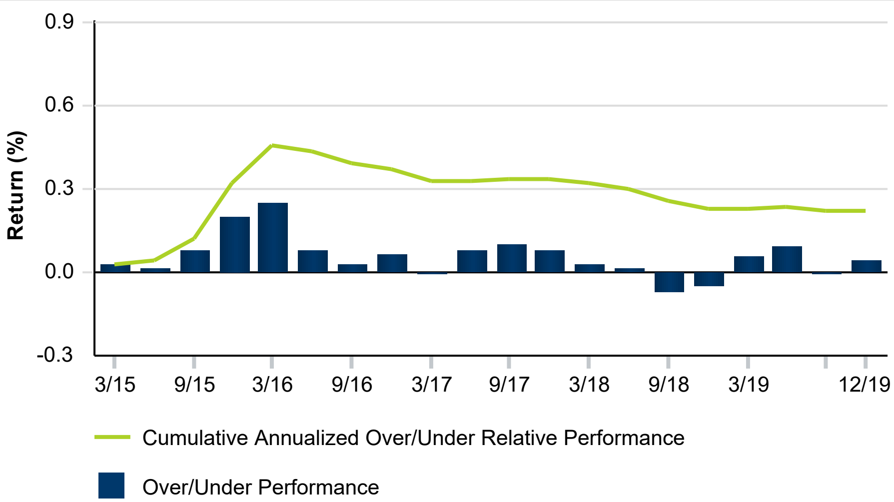
NISA vs IM U.S. Broad Market Core Fixed Income (SA+CF)

Periods Ended December 31, 2019

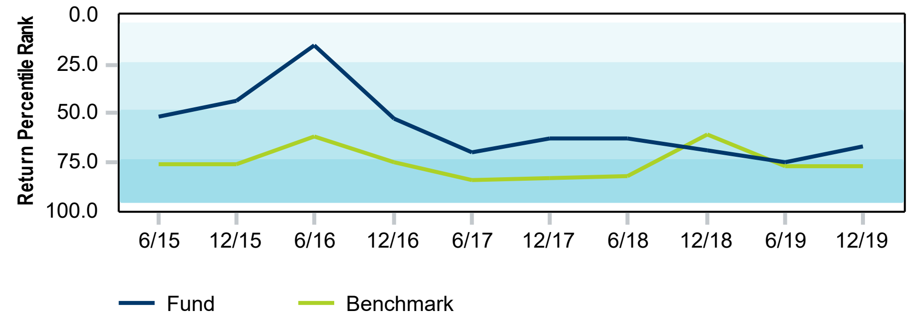
Comparative Performance



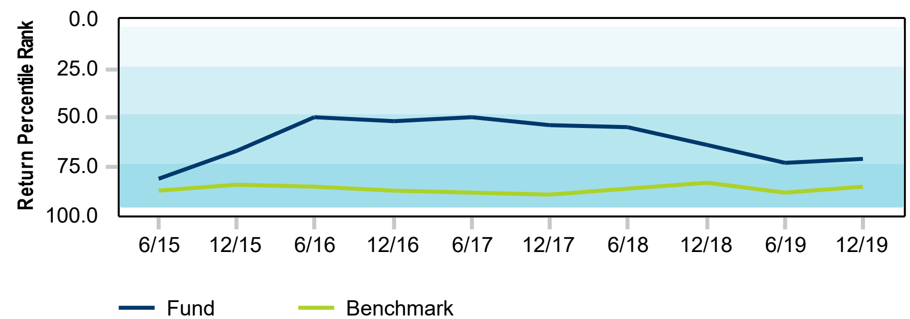
Relative Performance



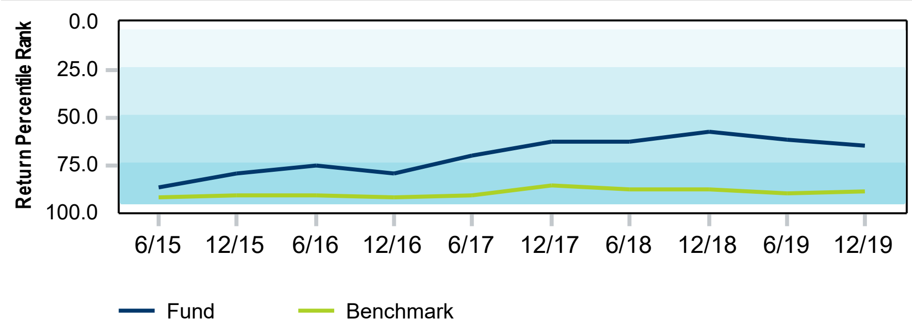
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

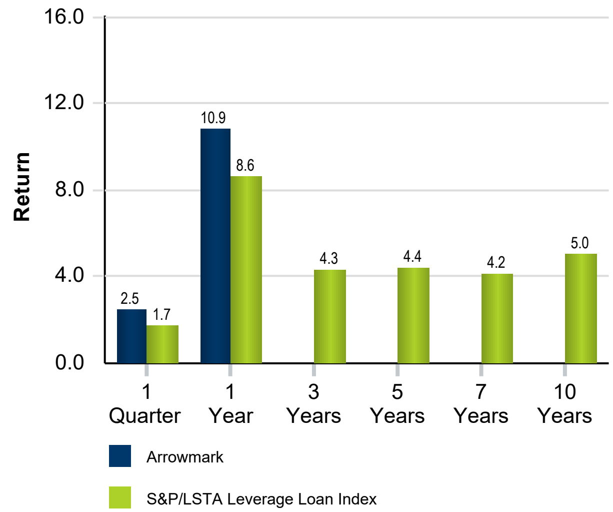


Performance Summary

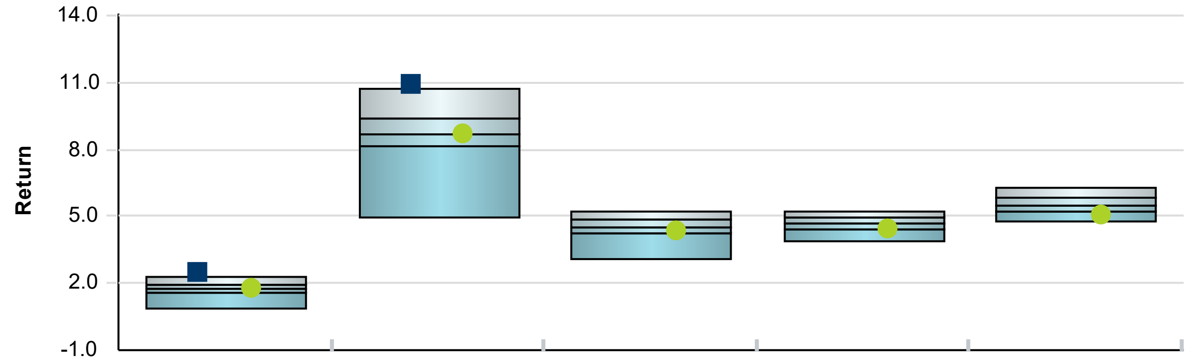
Arrowmark

Periods Ended December 31, 2019

Comparative Performance

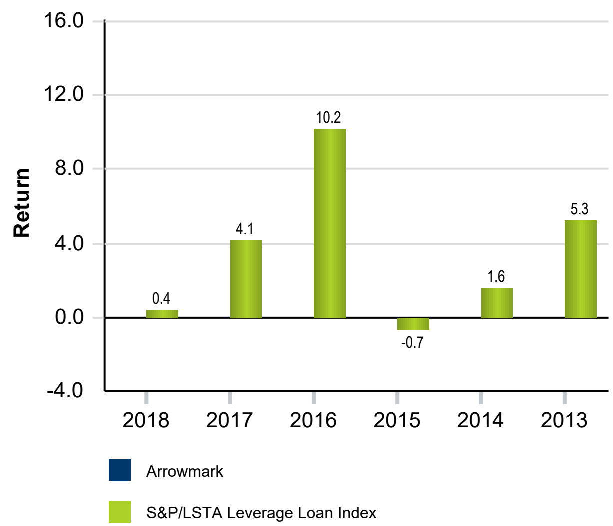


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

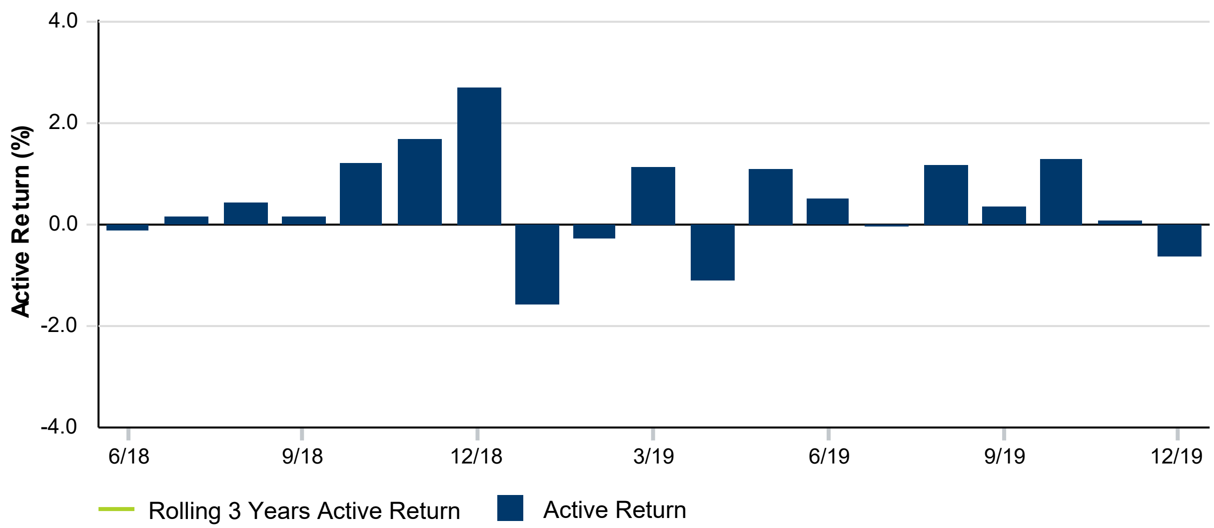


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	2.48 (1)	10.88 (1)			
Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Arrowmark

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Arrowmark	S&P/LSTA Leverage Loan Index
Maximum Return	1.33	2.55
Minimum Return	0.56	-0.45
Return	10.88	8.64
Cumulative Return	10.88	8.64
Active Return	2.00	0.00
Excess Return	8.12	6.11

Risk Summary Statistics

	Arrowmark	S&P/LSTA Leverage Loan Index
Upside Risk	3.06	1.14
Downside Risk	0.00	0.60
Beta	0.03	1.00

Risk/Return Summary Statistics

	Arrowmark	S&P/LSTA Leverage Loan Index
Standard Deviation	0.64	3.17
Alpha	10.57	0.00
Active Return/Risk	3.11	0.00
Tracking Error	3.13	0.00
Information Ratio	0.64	
Sharpe Ratio	12.66	1.90

Correlation Statistics

	Arrowmark	S&P/LSTA Leverage Loan Index
R-Squared	0.03	1.00
Actual Correlation	0.17	1.00

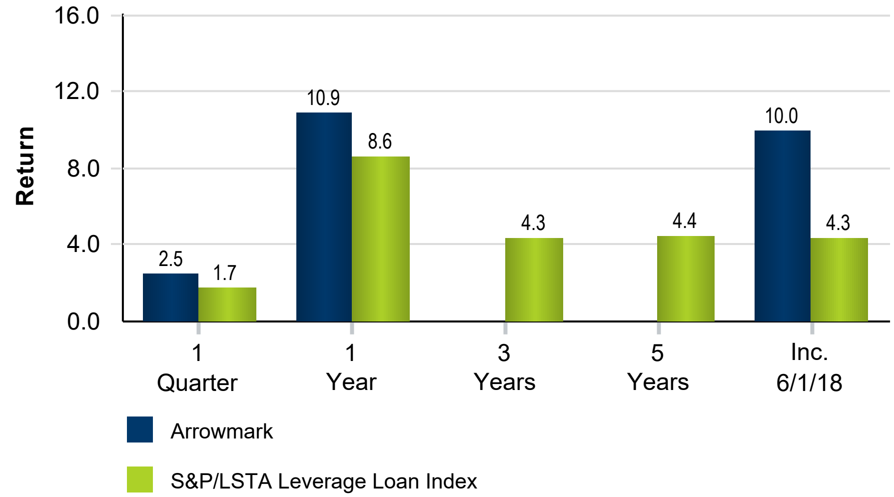
Wilshire Consulting

Manager Summary

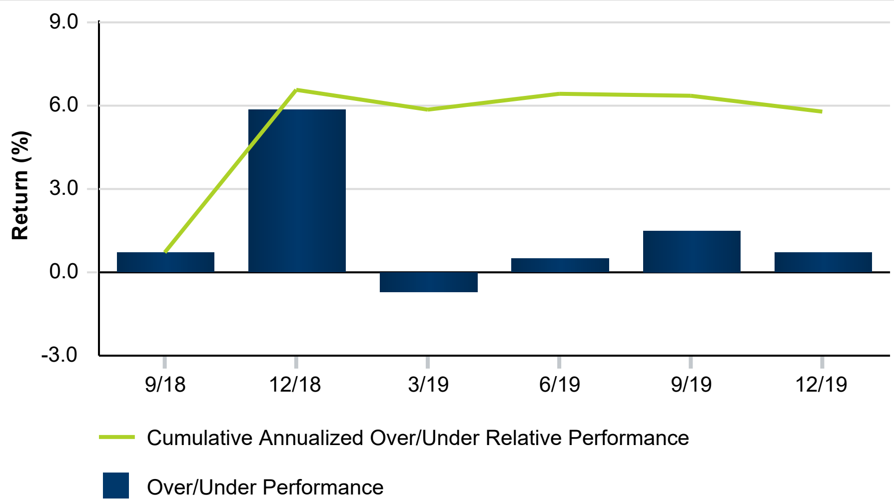
Arrowmark vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

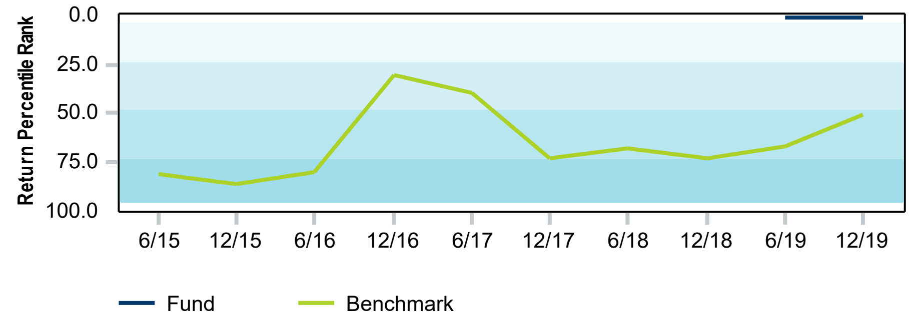
Comparative Performance



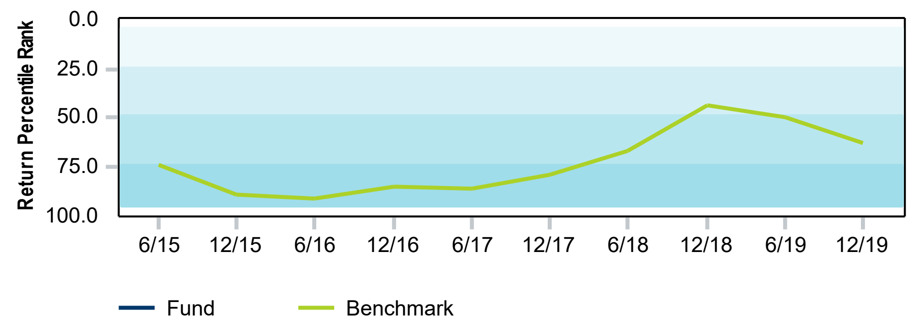
Relative Performance



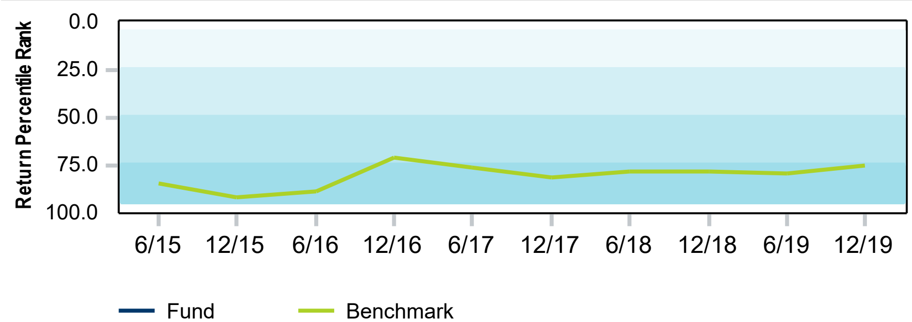
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

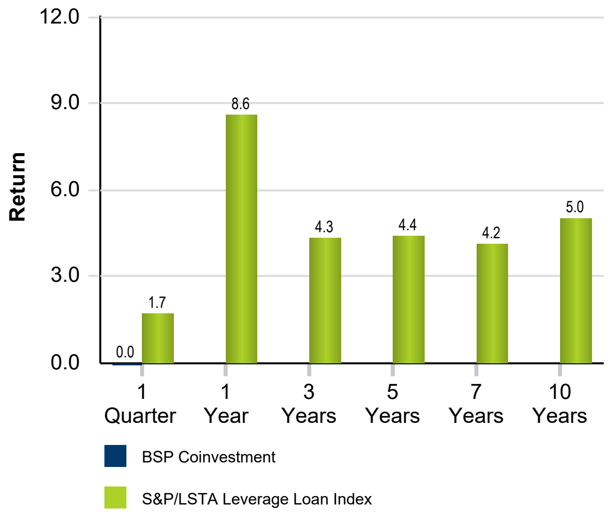


Performance Summary

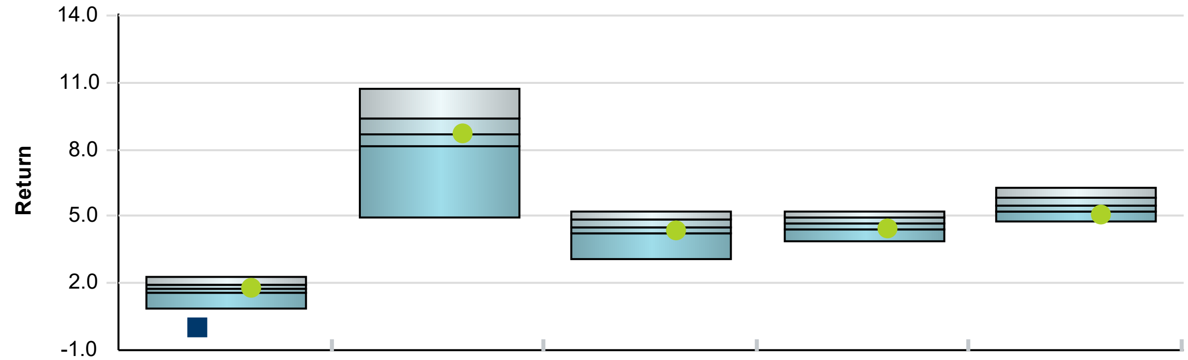
BSP Coinvestment

Periods Ended December 31, 2019

Comparative Performance

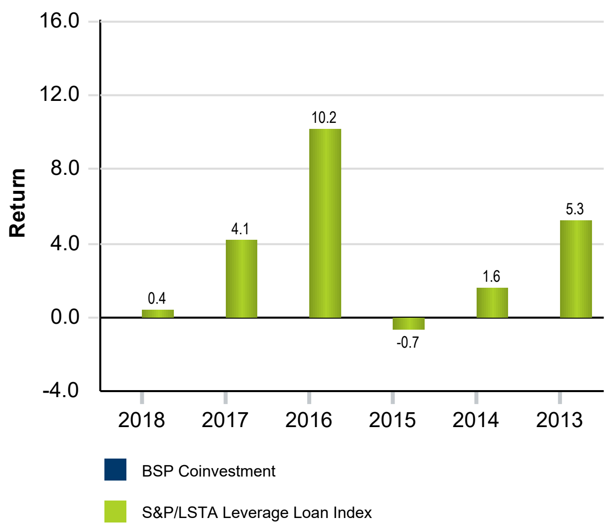


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

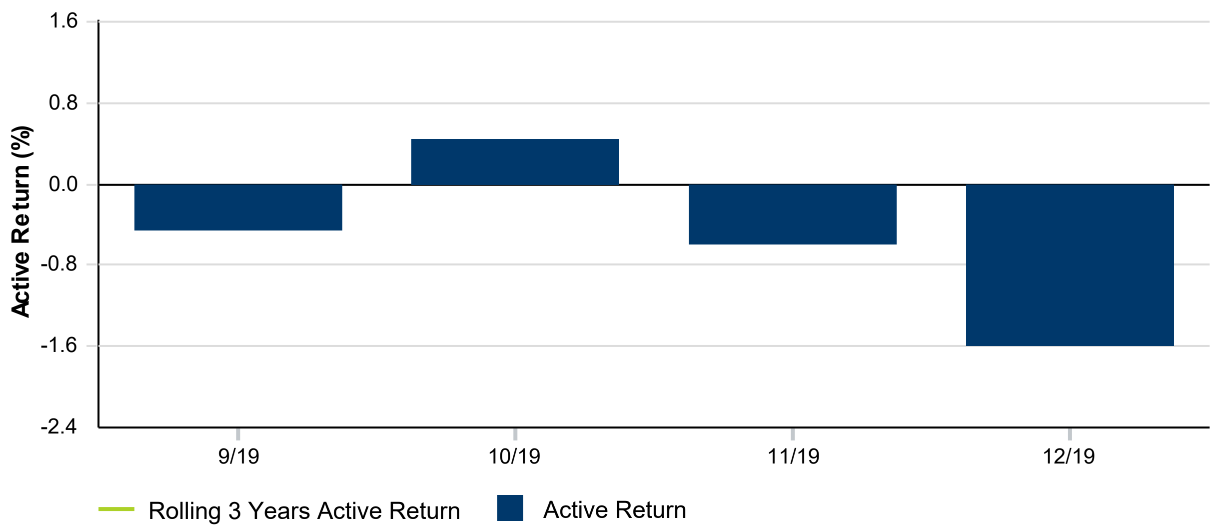


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	0.00 (100)				
Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

BSP Coinvestment

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	BSP Coinvestment	S&P/LSTA Leverage Loan Index
Maximum Return		2.55
Minimum Return		-0.45
Return		8.64
Cumulative Return		8.64
Active Return		0.00
Excess Return		6.11

Risk Summary Statistics

	BSP Coinvestment	S&P/LSTA Leverage Loan Index
Upside Risk		1.14
Downside Risk		0.60
Beta		1.00

Risk/Return Summary Statistics

	BSP Coinvestment	S&P/LSTA Leverage Loan Index
Standard Deviation		3.17
Alpha		0.00
Active Return/Risk		0.00
Tracking Error		0.00
Information Ratio		
Sharpe Ratio		1.90

Correlation Statistics

	BSP Coinvestment	S&P/LSTA Leverage Loan Index
R-Squared		1.00
Actual Correlation		1.00

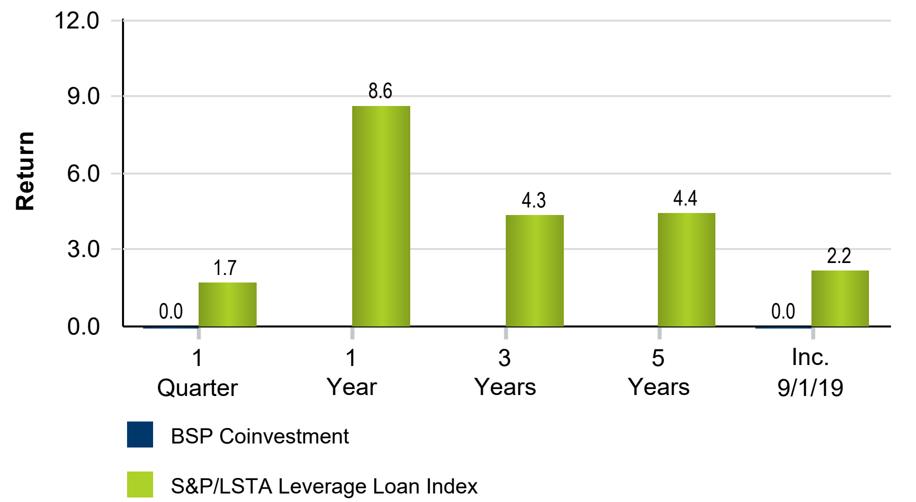
Wilshire Consulting

Manager Summary

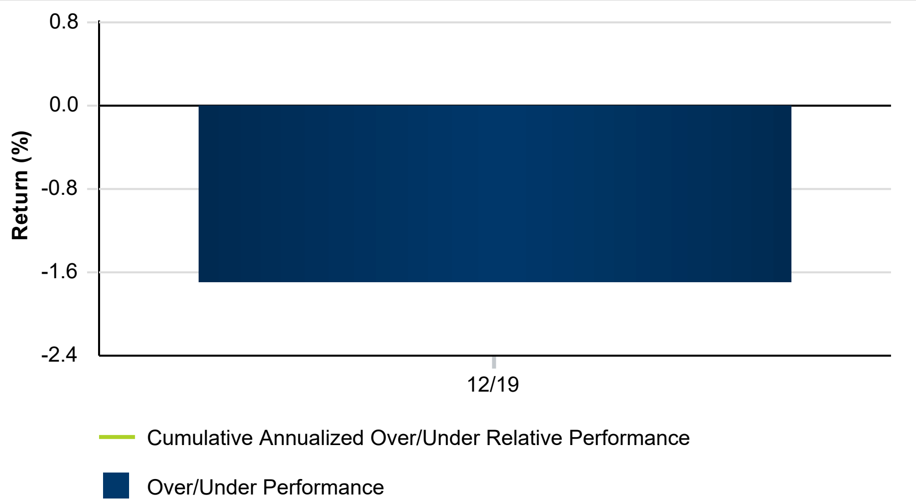
BSP Coinvestment vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

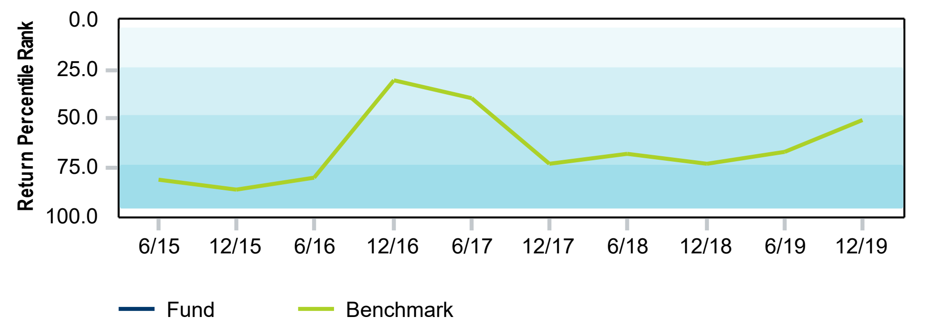
Comparative Performance



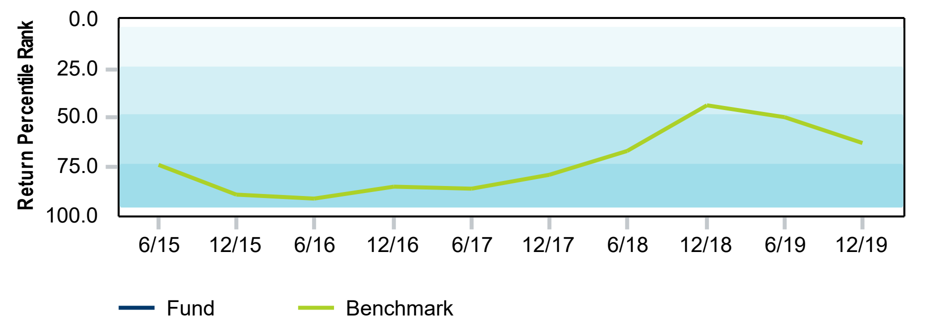
Relative Performance



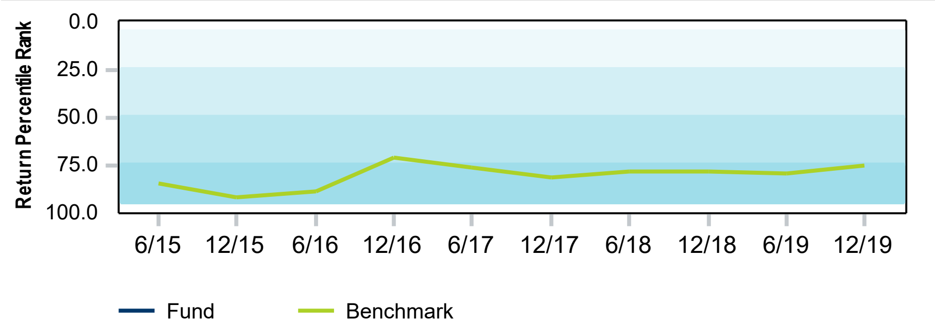
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

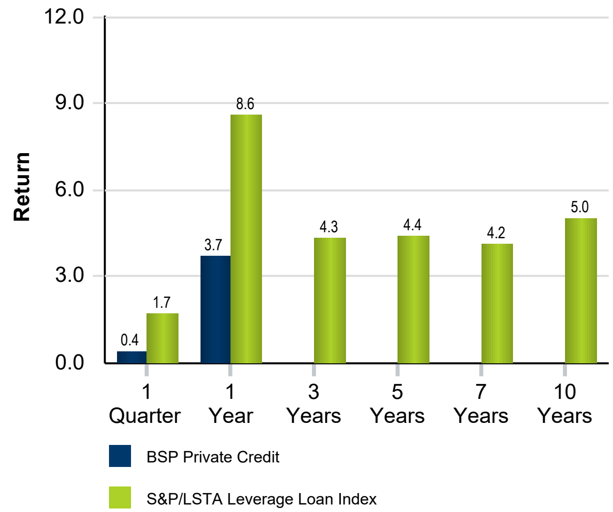


Performance Summary

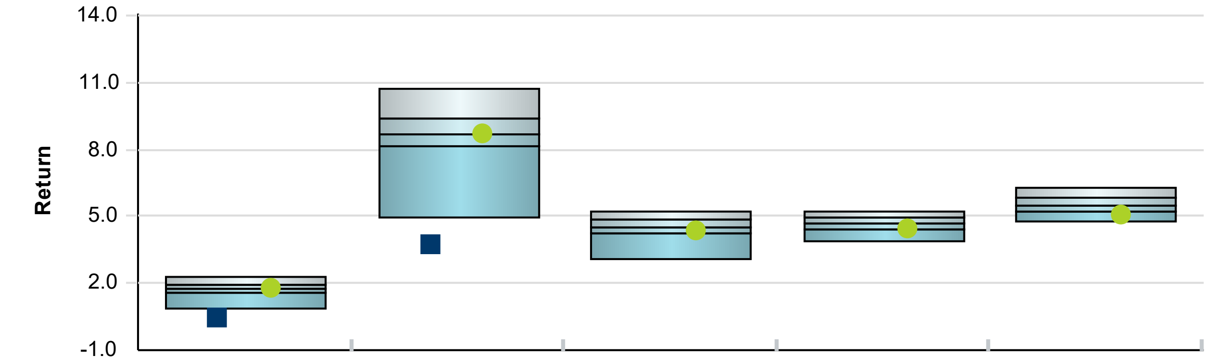
BSP Private Credit

Periods Ended December 31, 2019

Comparative Performance

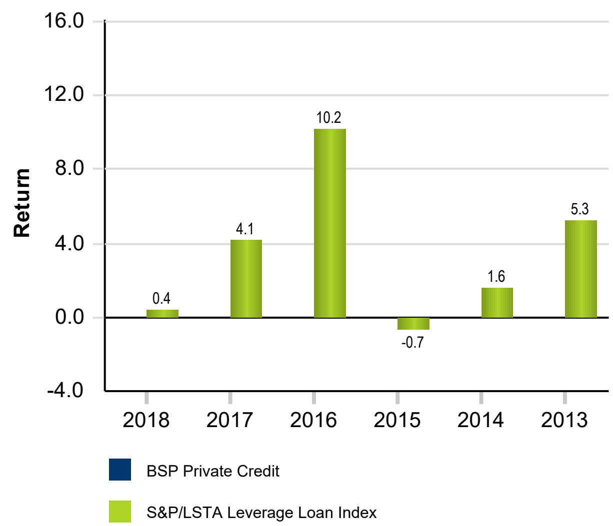


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

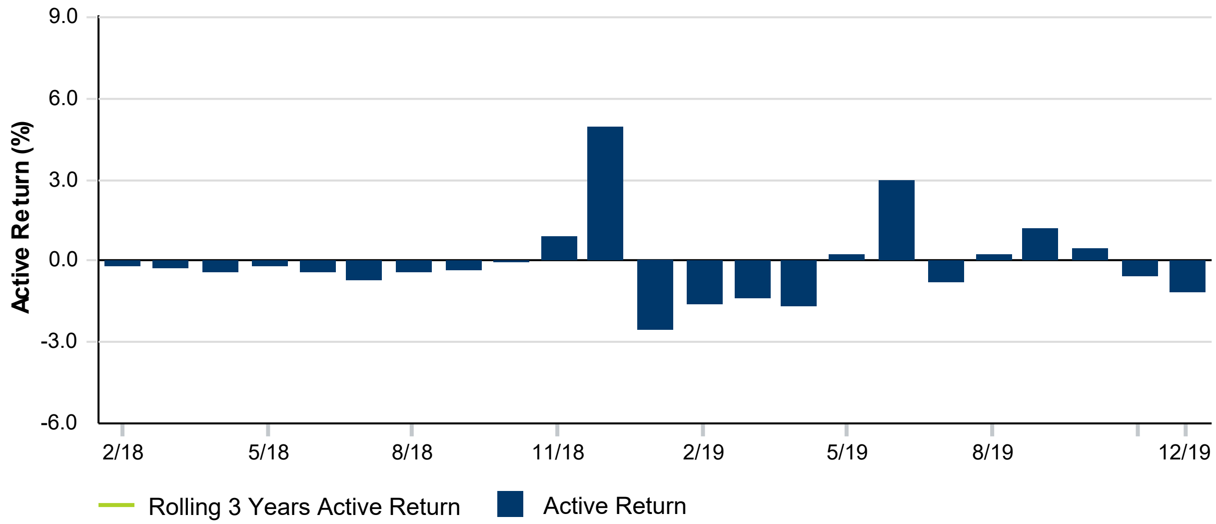


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	0.43 (100)	3.73 (98)			
Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

BSP Private Credit

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	BSP Private Credit	S&P/LSTA Leverage Loan Index
Maximum Return	3.20	2.55
Minimum Return	-1.56	-0.45
Return	3.73	8.64
Cumulative Return	3.73	8.64
Active Return	-4.63	0.00
Excess Return	1.49	6.11

Risk Summary Statistics

	BSP Private Credit	S&P/LSTA Leverage Loan Index
Upside Risk	1.05	1.14
Downside Risk	1.56	0.60
Beta	-0.01	1.00

Risk/Return Summary Statistics

	BSP Private Credit	S&P/LSTA Leverage Loan Index
Standard Deviation	3.81	3.17
Alpha	3.89	0.00
Active Return/Risk	-1.22	0.00
Tracking Error	4.97	0.00
Information Ratio	-0.93	
Sharpe Ratio	0.39	1.90

Correlation Statistics

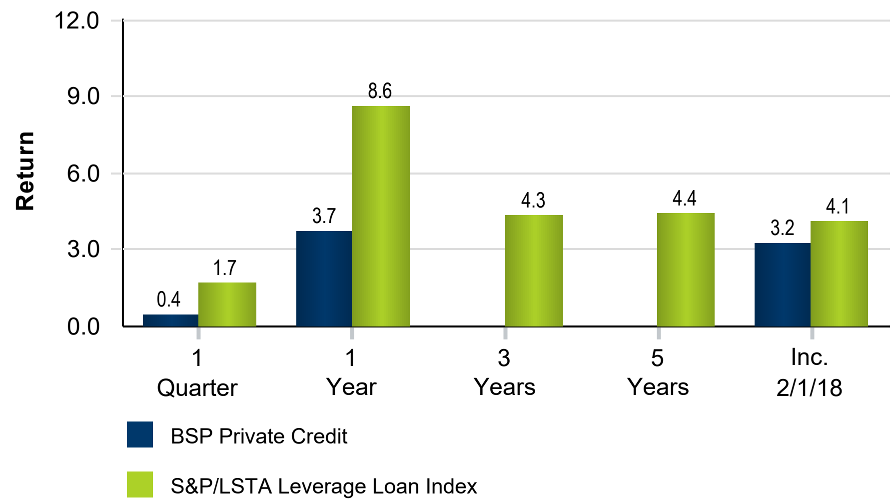
	BSP Private Credit	S&P/LSTA Leverage Loan Index
R-Squared	0.00	1.00
Actual Correlation	-0.01	1.00

Manager Summary

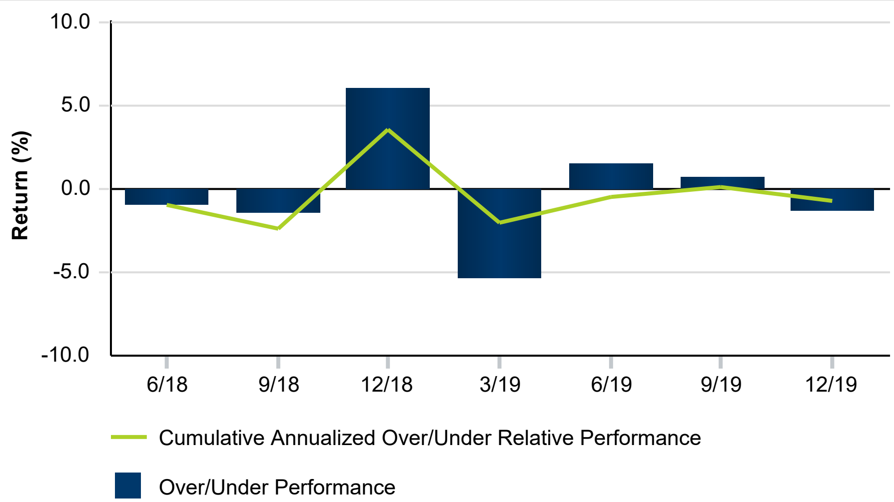
BSP Private Credit vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

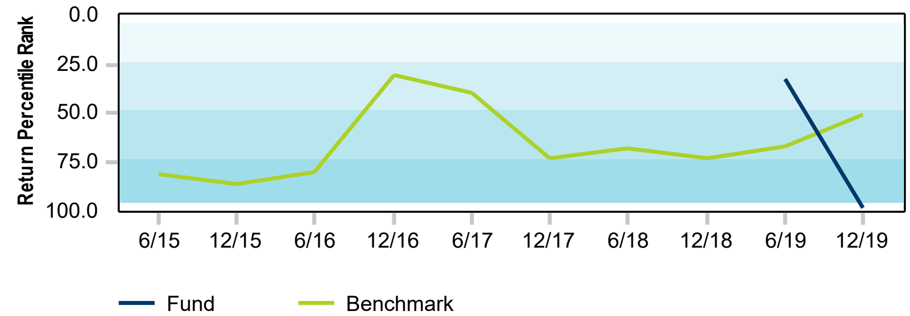
Comparative Performance



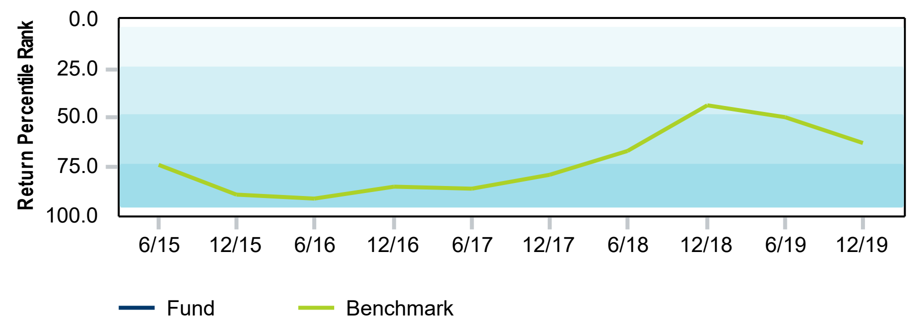
Relative Performance



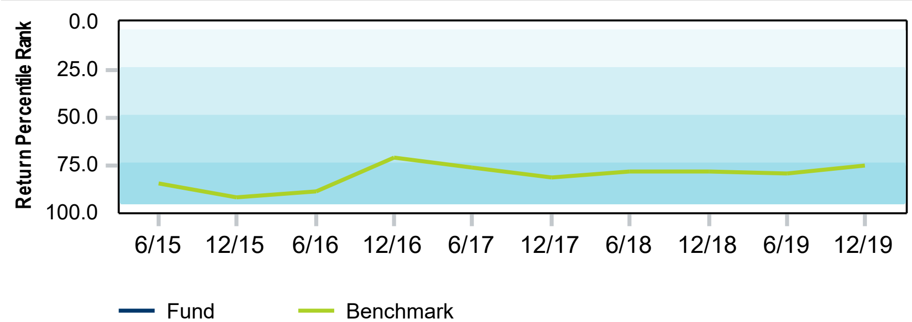
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



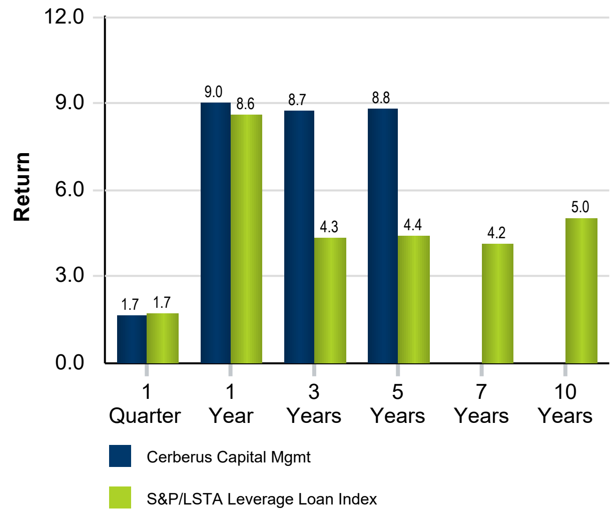
Wilshire Consulting

Performance Summary

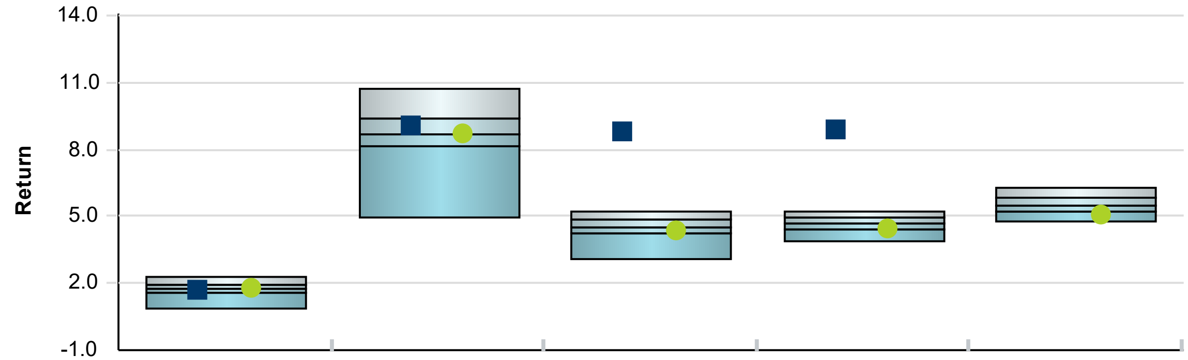
Cerberus Capital Mgmt

Periods Ended December 31, 2019

Comparative Performance

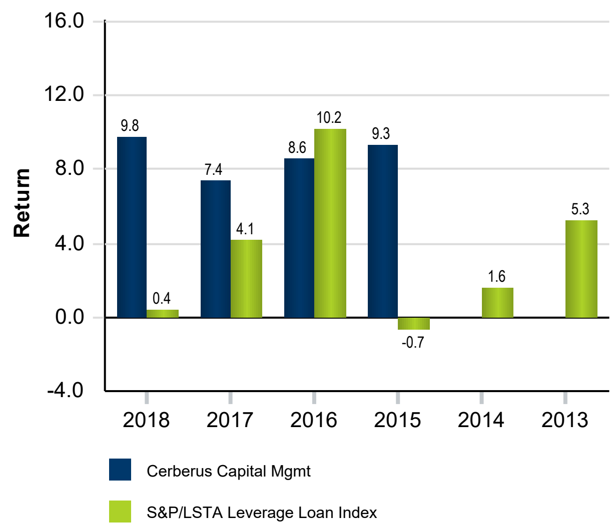


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

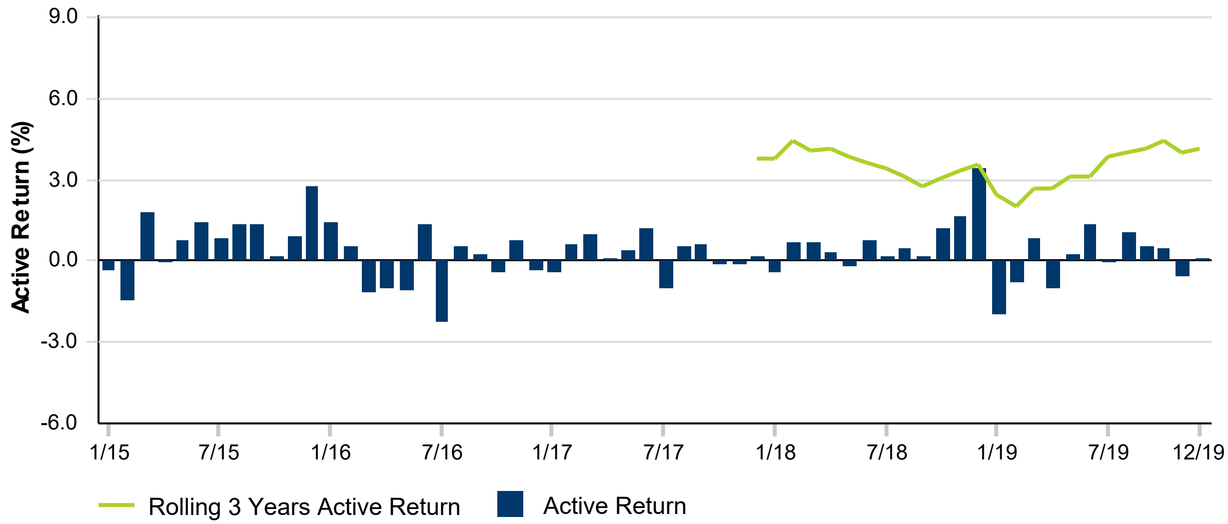


	Quarter	1 Year	3 Years	5 Years	10 Years
■ Fund	1.68 (71)	9.00 (40)	8.74 (1)	8.83 (1)	
● Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Cerberus Capital Mgmt

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Cerberus Capital Mgmt	S&P/LSTA Leverage Loan Index
Maximum Return	1.68	2.55
Minimum Return	0.00	-0.45
Return	9.00	8.64
Cumulative Return	9.00	8.64
Active Return	0.30	0.00
Excess Return	6.42	6.11

Risk Summary Statistics

	Cerberus Capital Mgmt	S&P/LSTA Leverage Loan Index
Upside Risk	3.12	1.14
Downside Risk	0.00	0.60
Beta	0.17	1.00

Risk/Return Summary Statistics

	Cerberus Capital Mgmt	S&P/LSTA Leverage Loan Index
Standard Deviation	1.86	3.17
Alpha	7.47	0.00
Active Return/Risk	0.16	0.00
Tracking Error	3.17	0.00
Information Ratio	0.10	
Sharpe Ratio	3.45	1.90

Correlation Statistics

	Cerberus Capital Mgmt	S&P/LSTA Leverage Loan Index
R-Squared	0.09	1.00
Actual Correlation	0.29	1.00

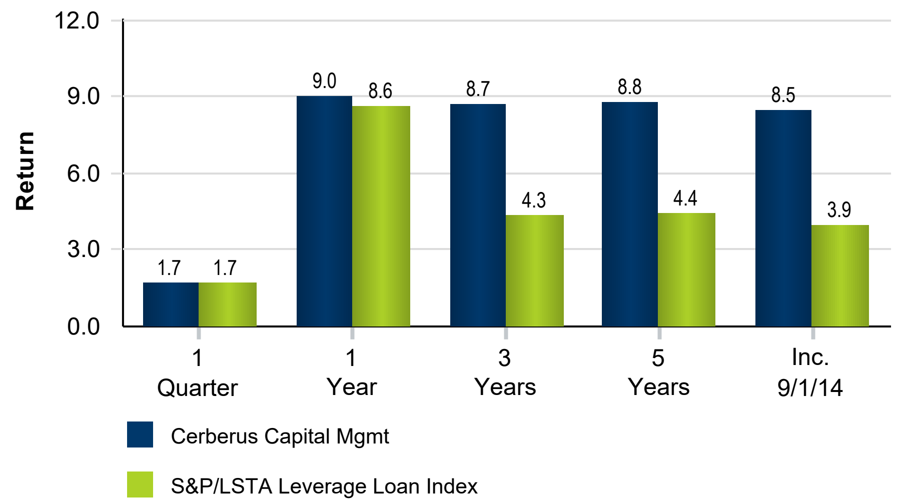
Wilshire Consulting

Manager Summary

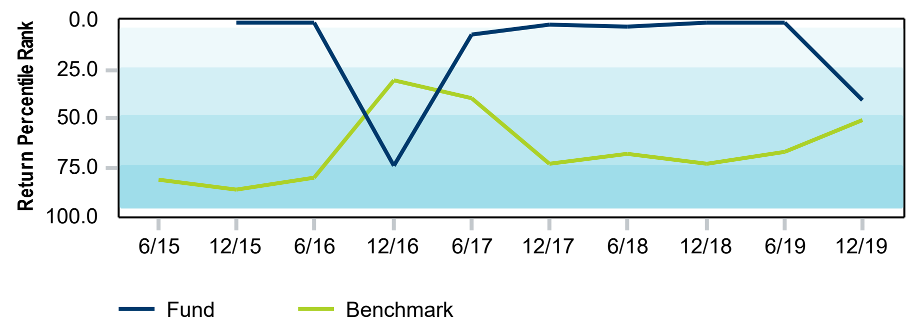
Cerberus Capital Mgmt vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

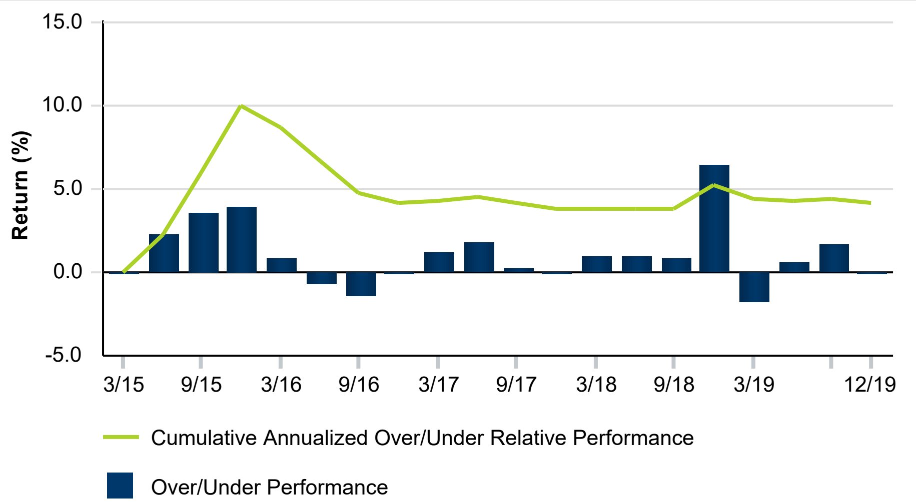
Comparative Performance



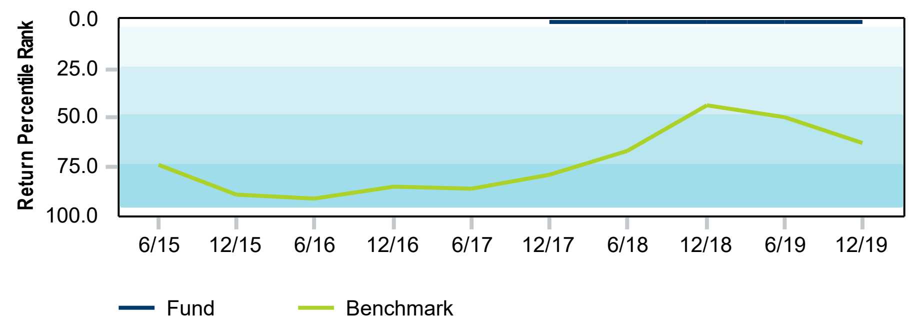
1 Year Rolling Percentile Ranking



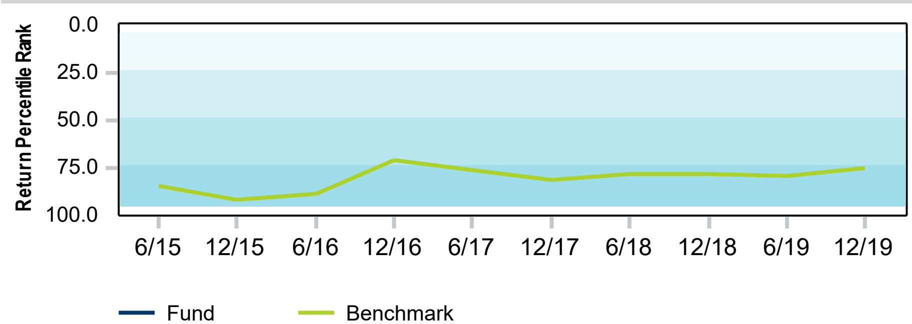
Relative Performance



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

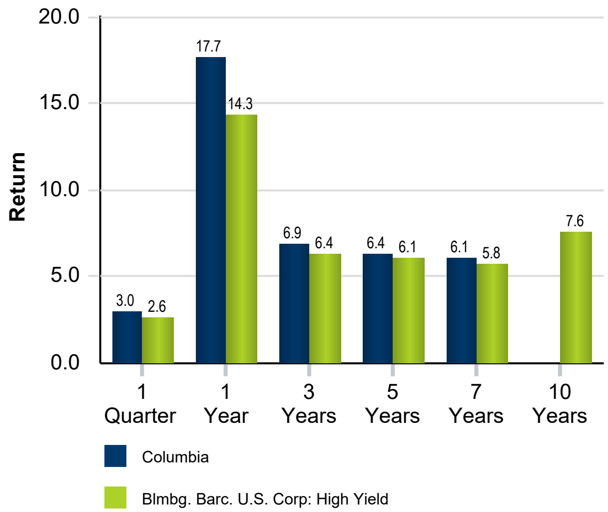


Performance Summary

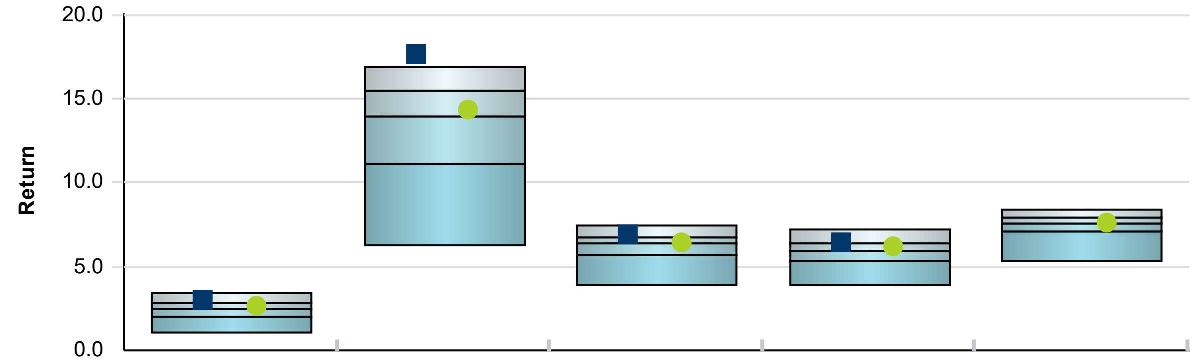
Columbia

Periods Ended December 31, 2019

Comparative Performance

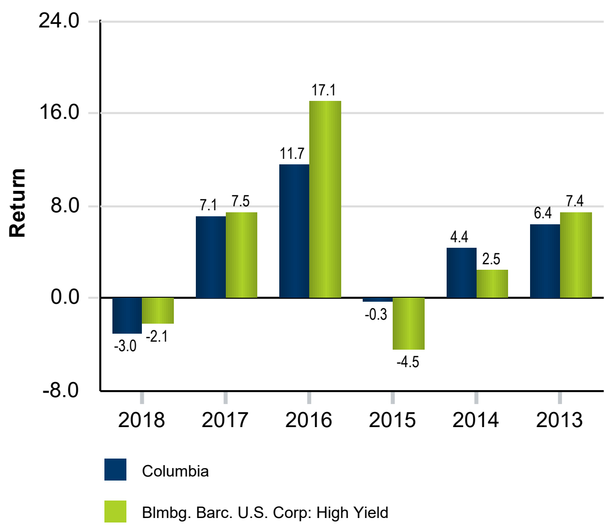


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

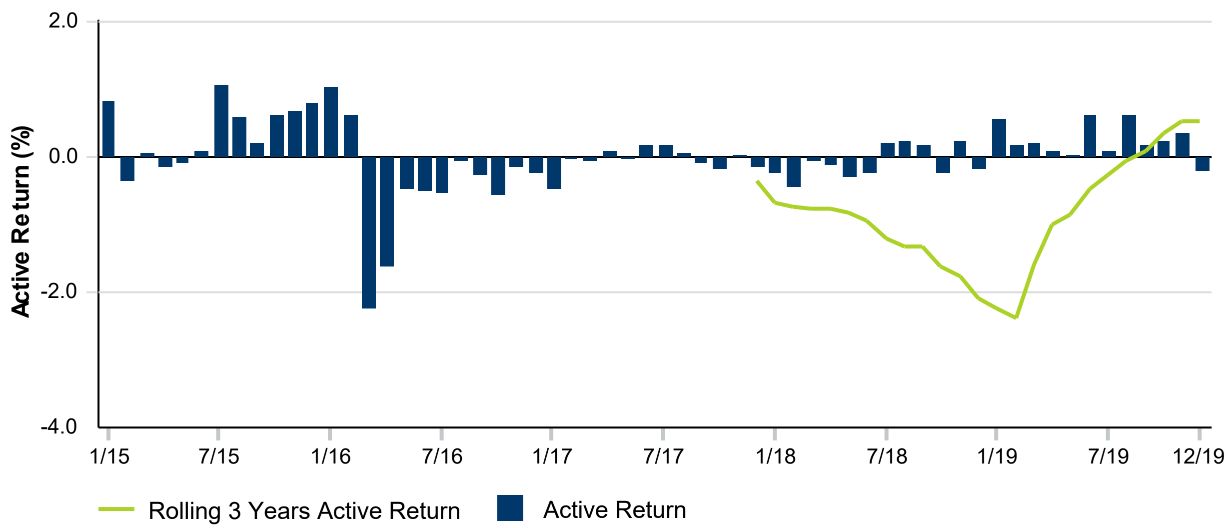


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	3.00 (19)	17.65 (3)	6.91 (18)	6.36 (25)	
Benchmark	2.61 (41)	14.32 (47)	6.37 (48)	6.13 (40)	7.57 (52)
Median	2.51	14.01	6.33	5.96	7.61

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Columbia

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Columbia	Blmbg. Barc. U.S. Corp: High Yield
Maximum Return	5.07	4.52
Minimum Return	-1.16	-1.19
Return	17.65	14.32
Cumulative Return	17.65	14.32
Active Return	2.92	0.00
Excess Return	14.24	11.31

Risk Summary Statistics

	Columbia	Blmbg. Barc. U.S. Corp: High Yield
Upside Risk	1.97	1.73
Downside Risk	1.16	1.19
Beta	1.06	1.00

Risk/Return Summary Statistics

	Columbia	Blmbg. Barc. U.S. Corp: High Yield
Standard Deviation	5.05	4.71
Alpha	2.15	0.00
Active Return/Risk	0.58	0.00
Tracking Error	0.83	0.00
Information Ratio	3.50	
Sharpe Ratio	2.82	2.40

Correlation Statistics

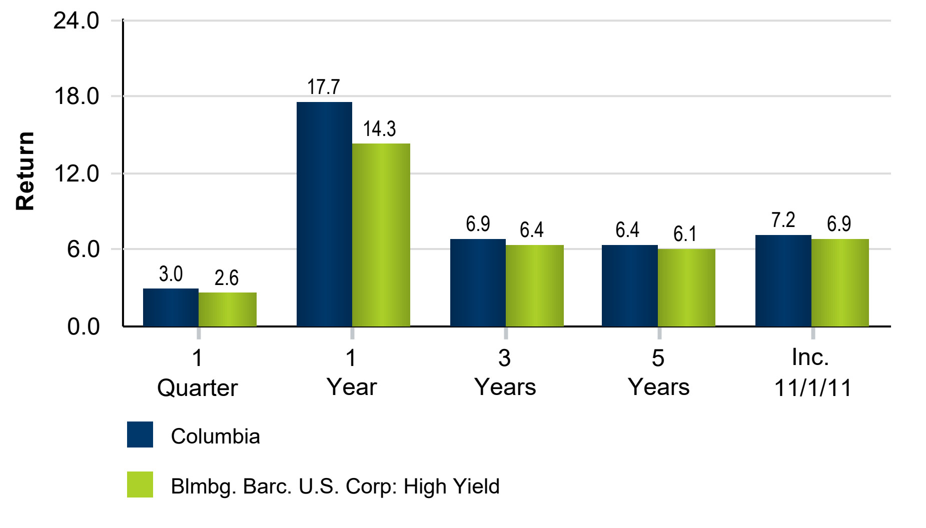
	Columbia	Blmbg. Barc. U.S. Corp: High Yield
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

Manager Summary

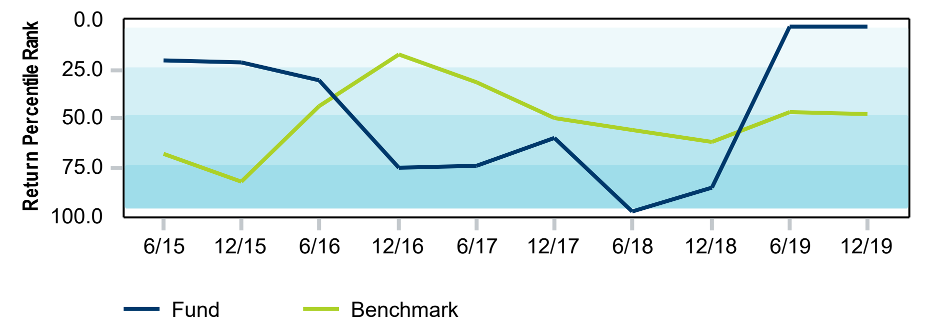
Columbia vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended December 31, 2019

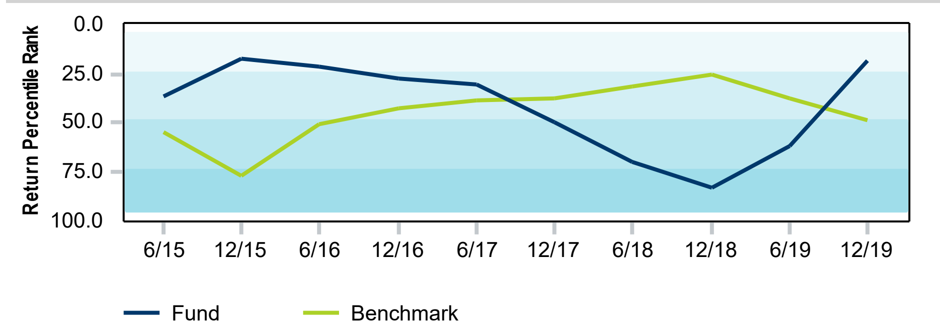
Comparative Performance



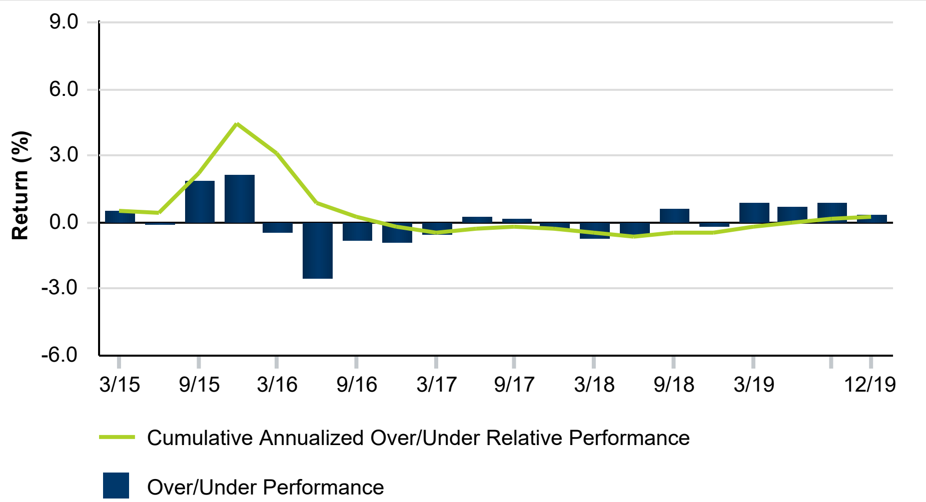
1 Year Rolling Percentile Ranking



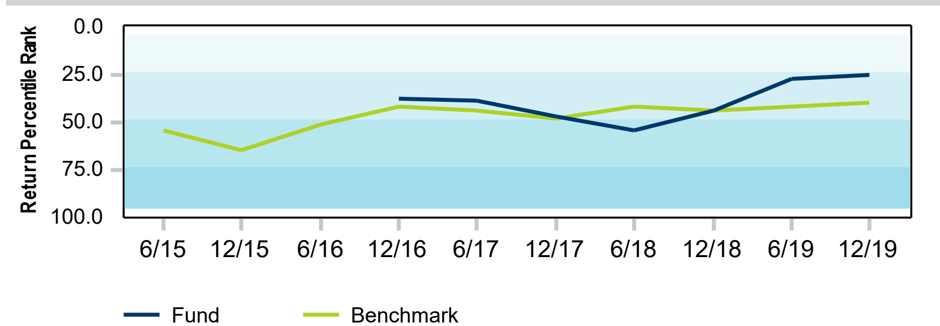
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking



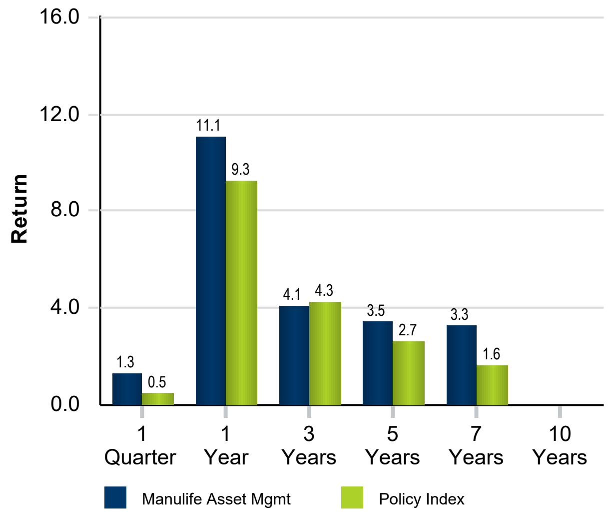
Wilshire Consulting

Performance Summary

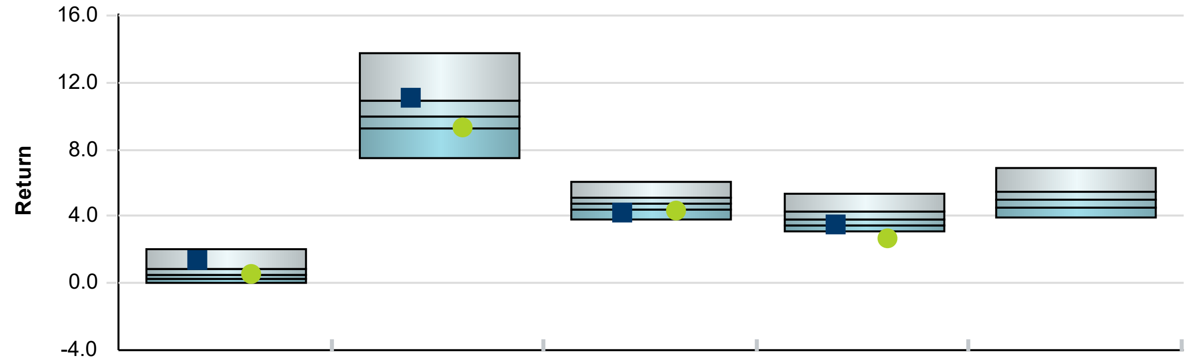
Manulife Asset Mgmt

Periods Ended December 31, 2019

Comparative Performance

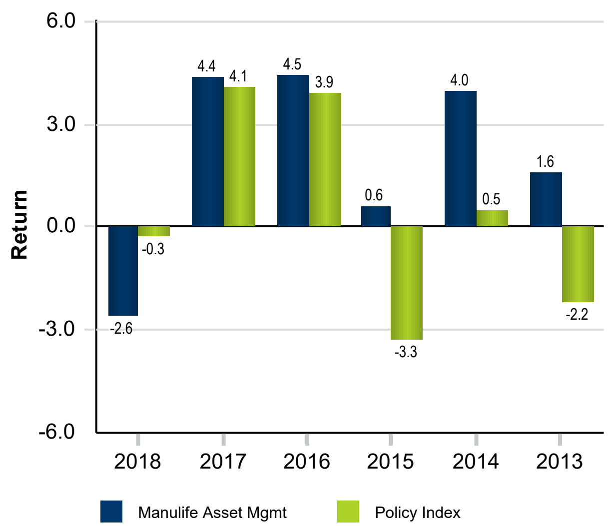


Peer Group Analysis: IM U.S. Broad Market Core+ Fixed Income (SA+CF)

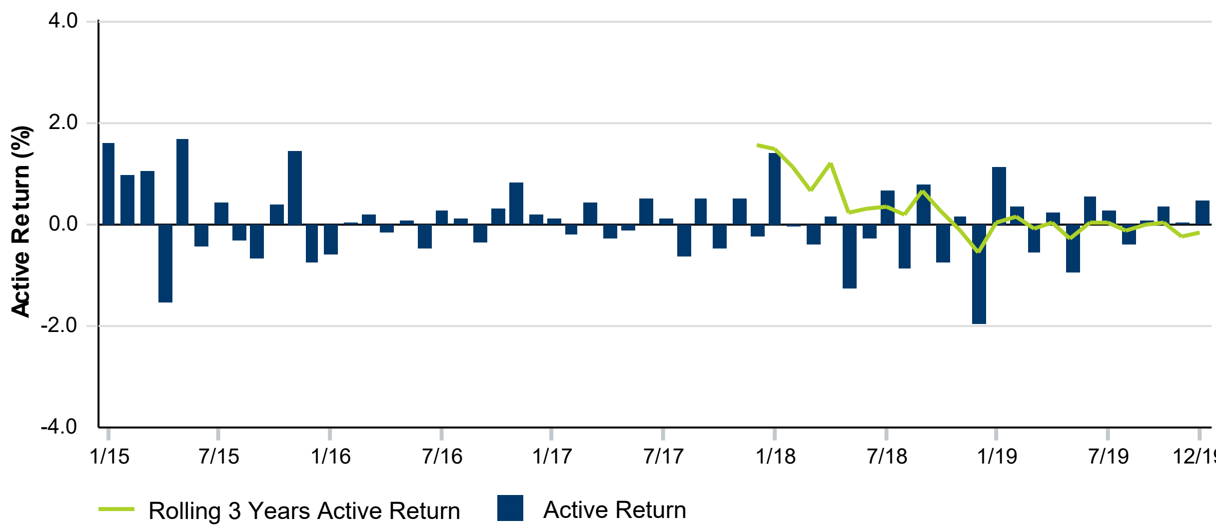


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	1.27 (13)	11.05 (24)	4.13 (90)	3.48 (73)	
Benchmark	0.45 (56)	9.29 (73)	4.30 (83)	2.66 (98)	
Median	0.51	9.92	4.72	3.83	4.94

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Manulife Asset Mgmt

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Manulife Asset Mgmt	Policy Index
Maximum Return	2.52	2.26
Minimum Return	-0.35	-0.43
Return	11.05	9.29
Cumulative Return	11.05	9.29
Active Return	1.61	0.00
Excess Return	8.32	6.71

Risk Summary Statistics

	Manulife Asset Mgmt	Policy Index
Upside Risk	1.20	1.11
Downside Risk	0.35	0.43
Beta	0.78	1.00

Risk/Return Summary Statistics

	Manulife Asset Mgmt	Policy Index
Standard Deviation	2.83	2.89
Alpha	3.63	0.00
Active Return/Risk	0.57	0.00
Tracking Error	1.82	0.00
Information Ratio	0.89	
Sharpe Ratio	3.00	2.38

Correlation Statistics

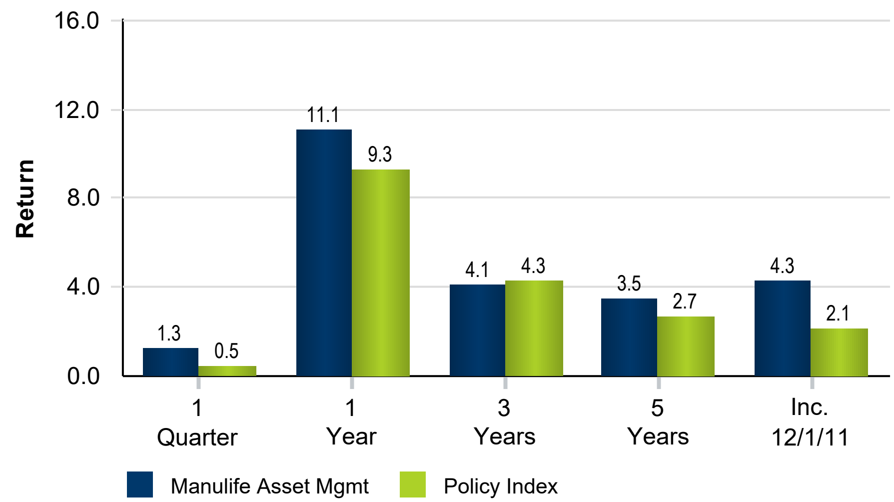
	Manulife Asset Mgmt	Policy Index
R-Squared	0.64	1.00
Actual Correlation	0.80	1.00

Manager Summary

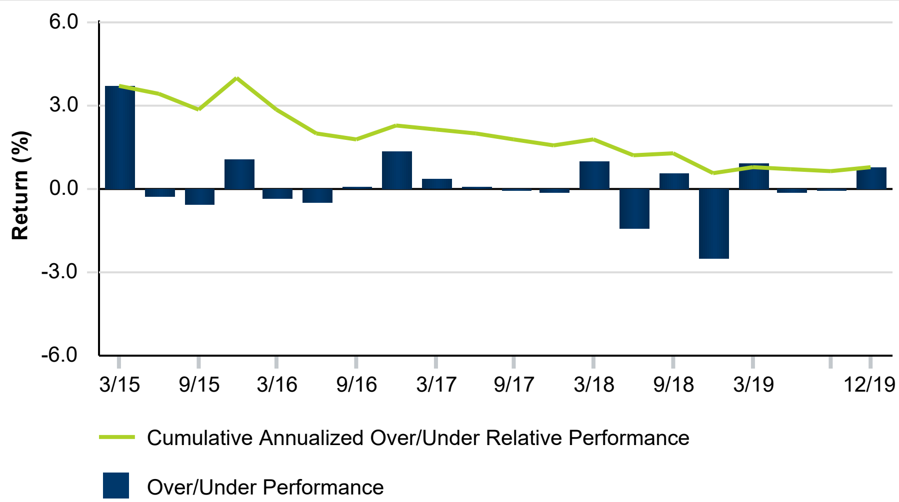
Manulife Asset Mgmt vs IM U.S. Broad Market Core+ Fixed Income (SA+CF)

Periods Ended December 31, 2019

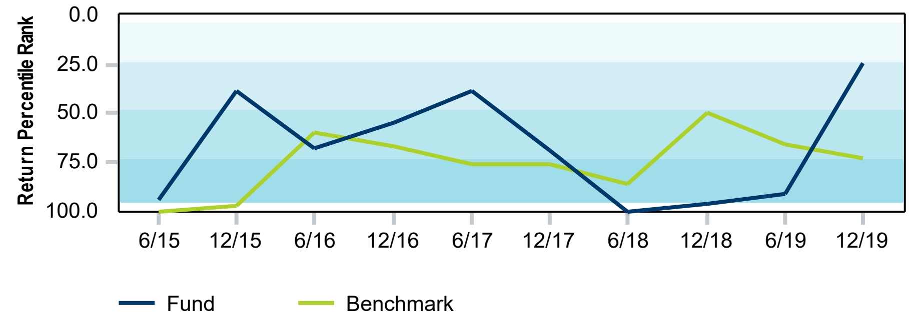
Comparative Performance



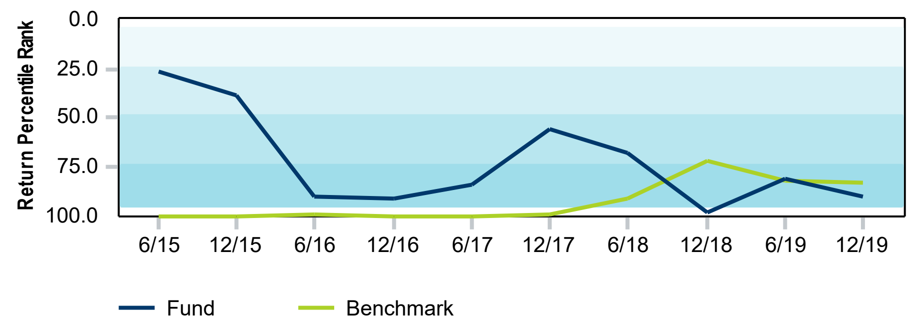
Relative Performance



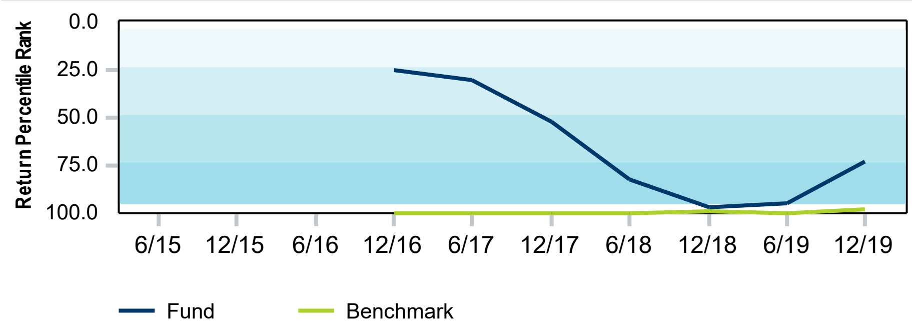
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



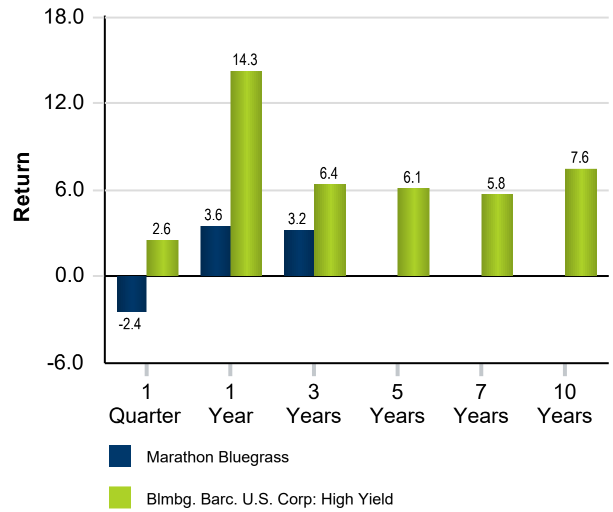
Wilshire Consulting

Performance Summary

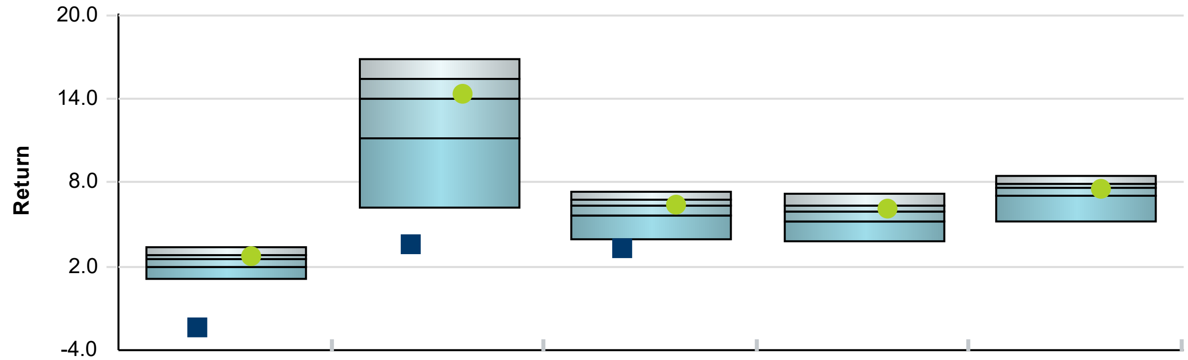
Marathon Bluegrass

Periods Ended December 31, 2019

Comparative Performance

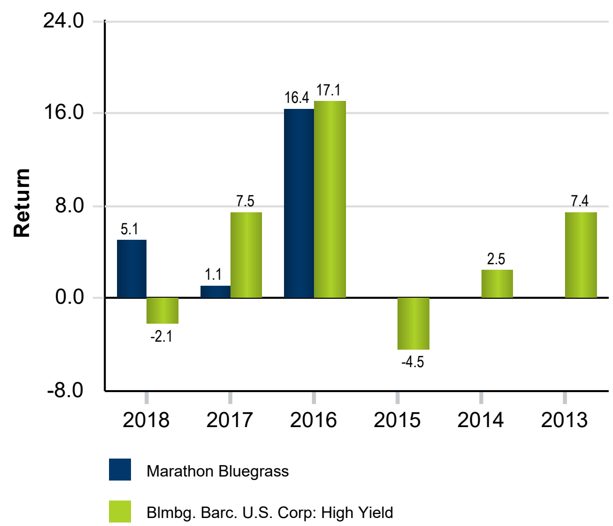


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

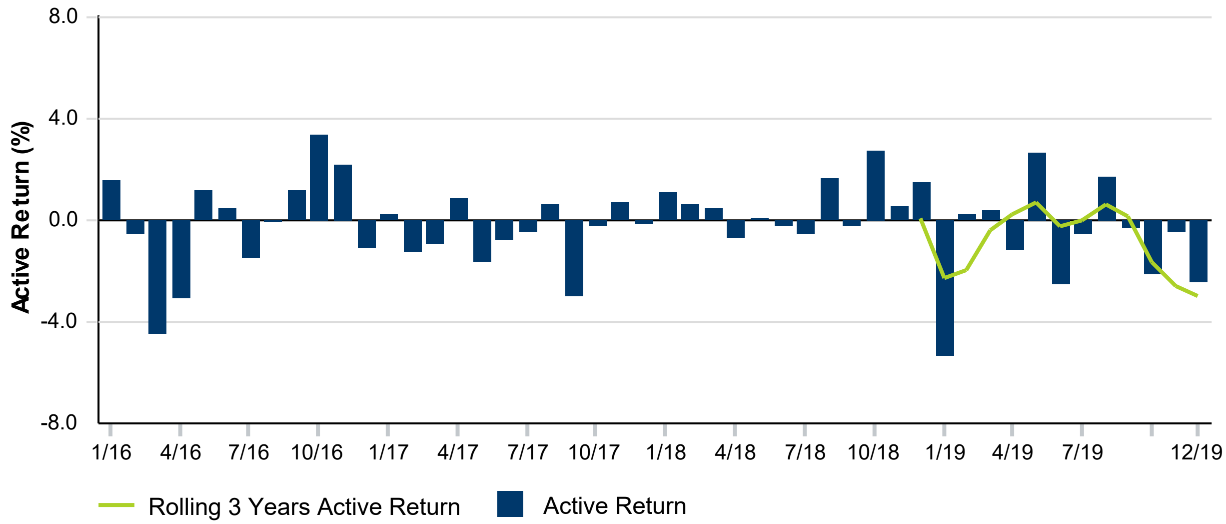


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	-2.45 (100)	3.57 (99)	3.23 (99)		
Benchmark	2.61 (41)	14.32 (47)	6.37 (48)	6.13 (40)	7.57 (52)
Median	2.51	14.01	6.33	5.96	7.61

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Marathon Bluegrass

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Marathon Bluegrass	Blmbg. Barc. U.S. Corp: High Yield
Maximum Return	2.15	4.52
Minimum Return	-1.87	-1.19
Return	3.57	14.32
Cumulative Return	3.57	14.32
Active Return	-9.98	0.00
Excess Return	1.34	11.31

Risk Summary Statistics

	Marathon Bluegrass	Blmbg. Barc. U.S. Corp: High Yield
Upside Risk	1.00	1.73
Downside Risk	2.10	1.19
Beta	-0.26	1.00

Risk/Return Summary Statistics

	Marathon Bluegrass	Blmbg. Barc. U.S. Corp: High Yield
Standard Deviation	3.92	4.71
Alpha	7.37	0.00
Active Return/Risk	-2.55	0.00
Tracking Error	7.01	0.00
Information Ratio	-1.42	
Sharpe Ratio	0.34	2.40

Correlation Statistics

	Marathon Bluegrass	Blmbg. Barc. U.S. Corp: High Yield
R-Squared	0.10	1.00
Actual Correlation	-0.31	1.00

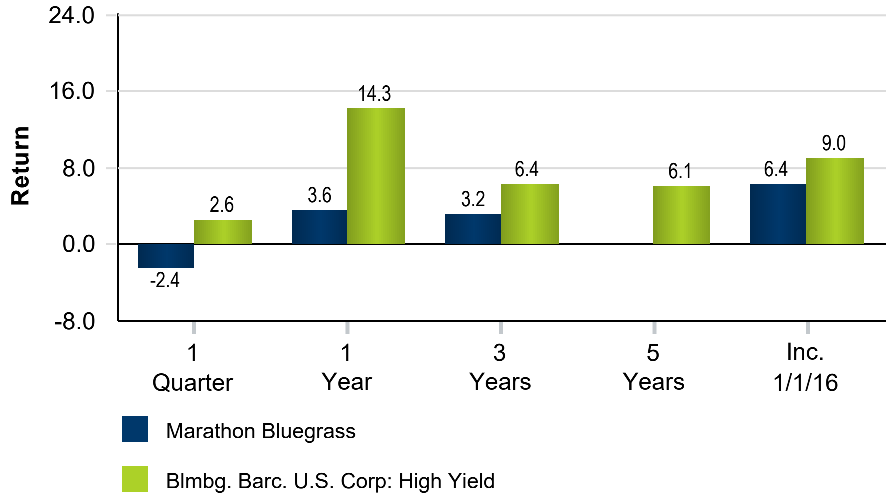
Wilshire Consulting

Manager Summary

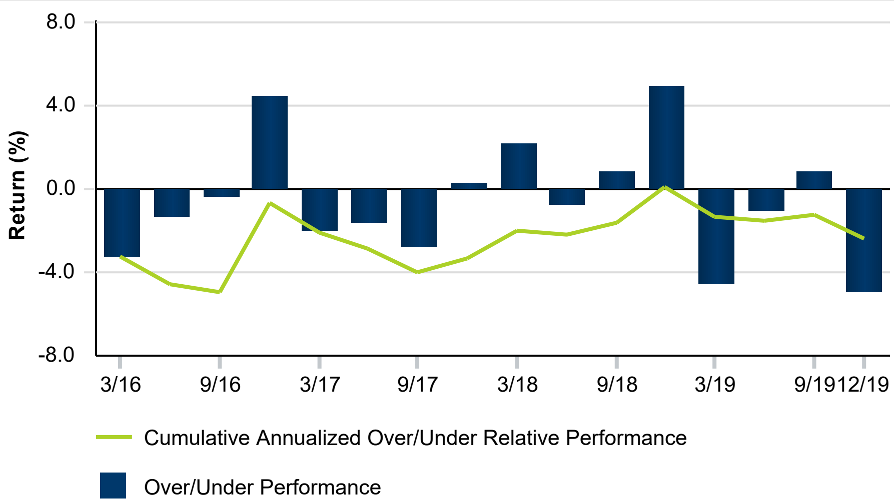
Marathon Bluegrass vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended December 31, 2019

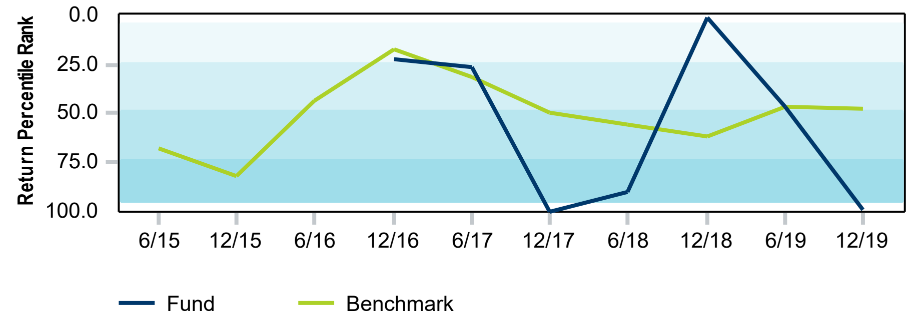
Comparative Performance



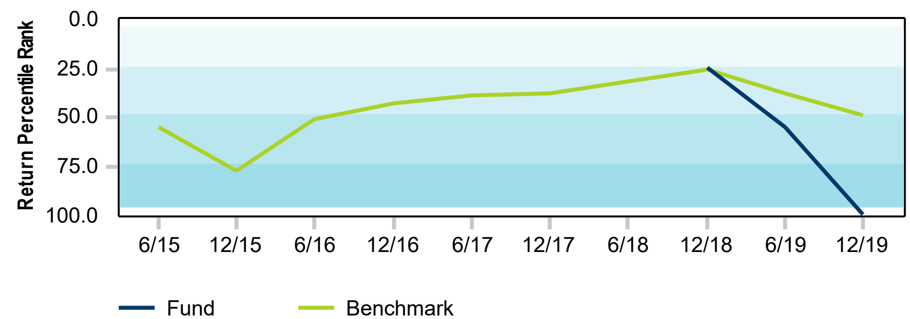
Relative Performance



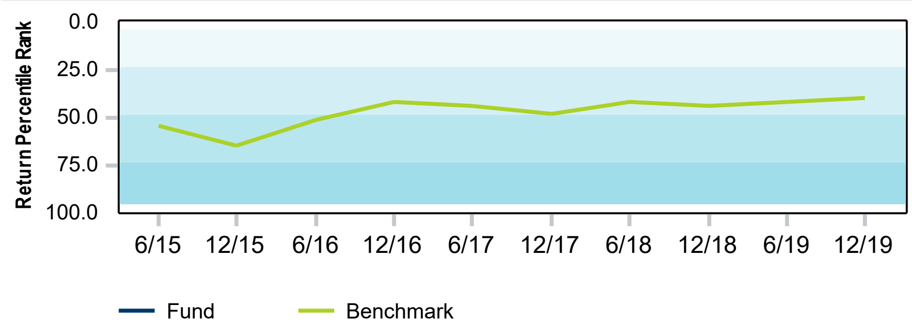
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

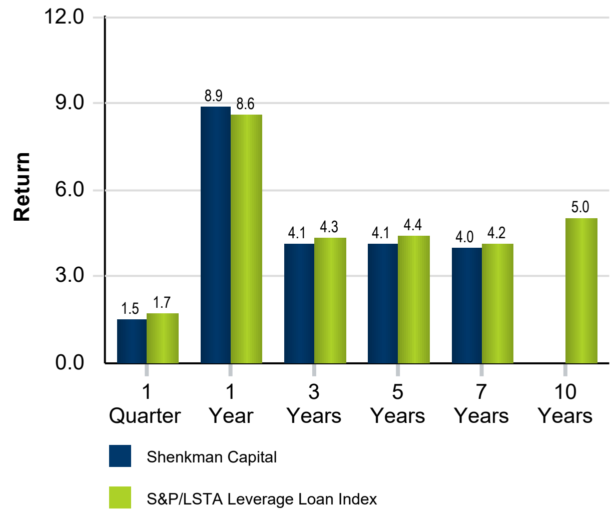


Performance Summary

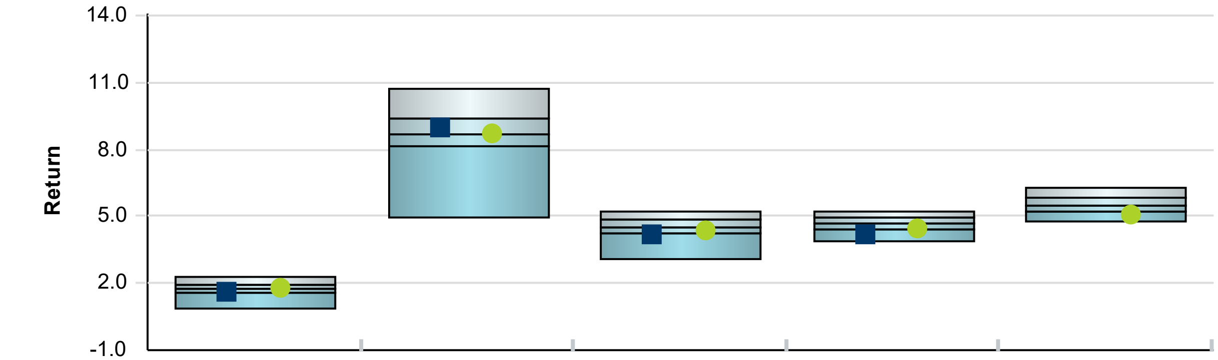
Shenkman Capital

Periods Ended December 31, 2019

Comparative Performance

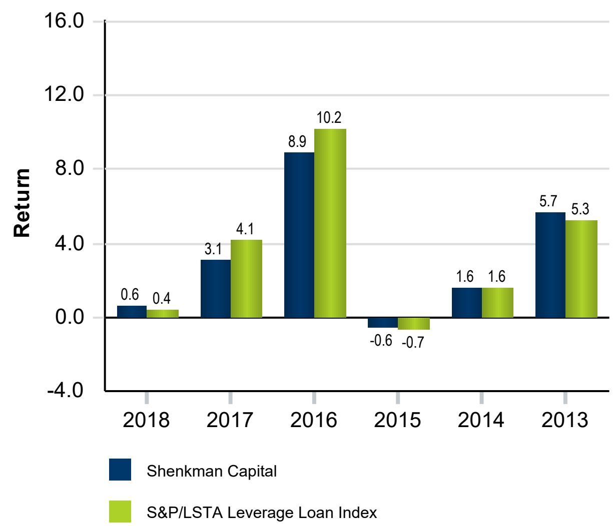


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

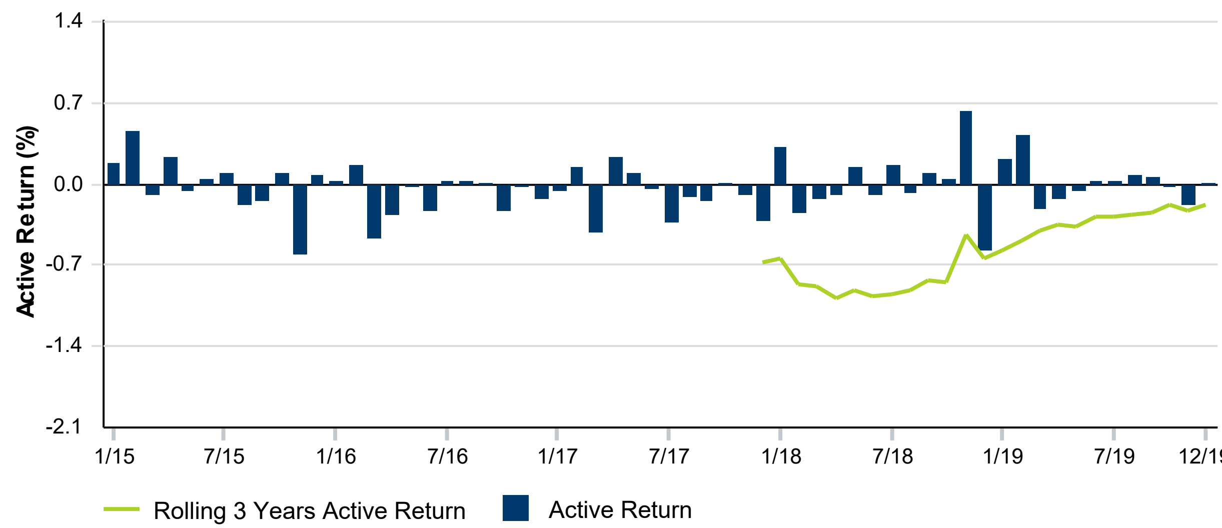


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	1.55 (76)	8.92 (41)	4.15 (83)	4.11 (88)	
Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Shenkman Capital

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Shenkman Capital	S&P/LSTA Leverage Loan Index
Maximum Return	2.76	2.55
Minimum Return	-0.47	-0.45
Return	8.92	8.64
Cumulative Return	8.92	8.64
Active Return	0.27	0.00
Excess Return	6.38	6.11

Risk Summary Statistics

	Shenkman Capital	S&P/LSTA Leverage Loan Index
Upside Risk	1.22	1.14
Downside Risk	0.69	0.60
Beta	1.08	1.00

Risk/Return Summary Statistics

	Shenkman Capital	S&P/LSTA Leverage Loan Index
Standard Deviation	3.48	3.17
Alpha	-0.44	0.00
Active Return/Risk	0.08	0.00
Tracking Error	0.57	0.00
Information Ratio	0.46	
Sharpe Ratio	1.81	1.90

Correlation Statistics

	Shenkman Capital	S&P/LSTA Leverage Loan Index
R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

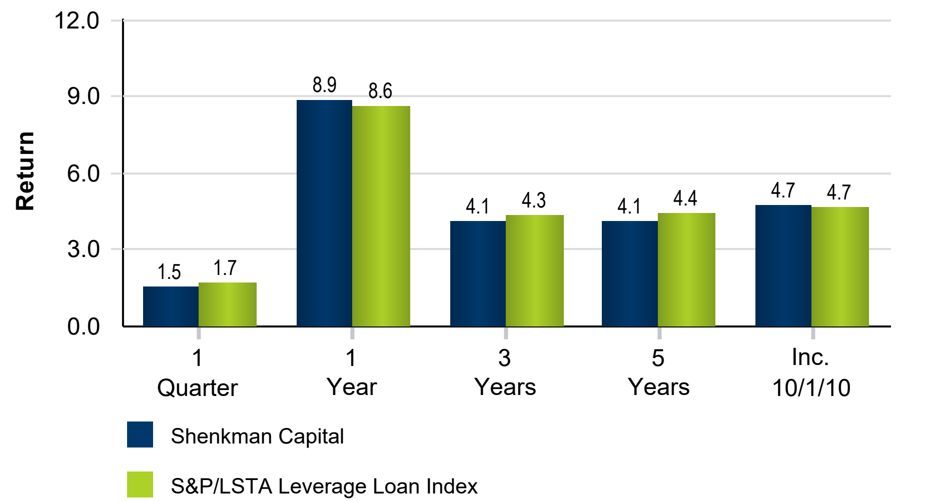
Wilshire Consulting

Manager Summary

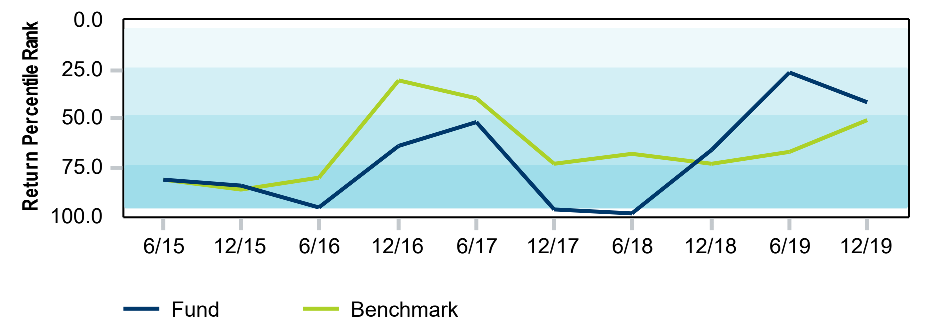
Shenkman Capital vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

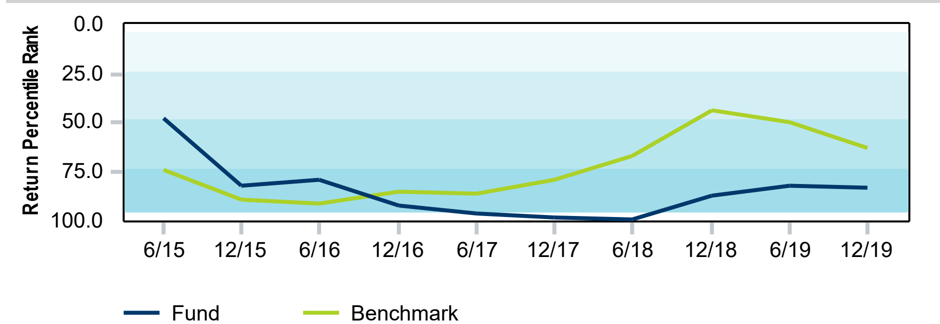
Comparative Performance



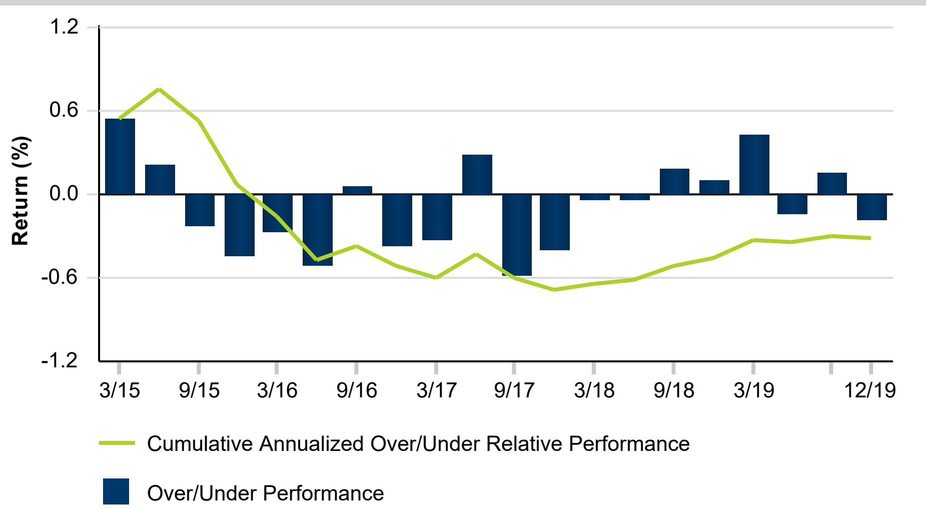
1 Year Rolling Percentile Ranking



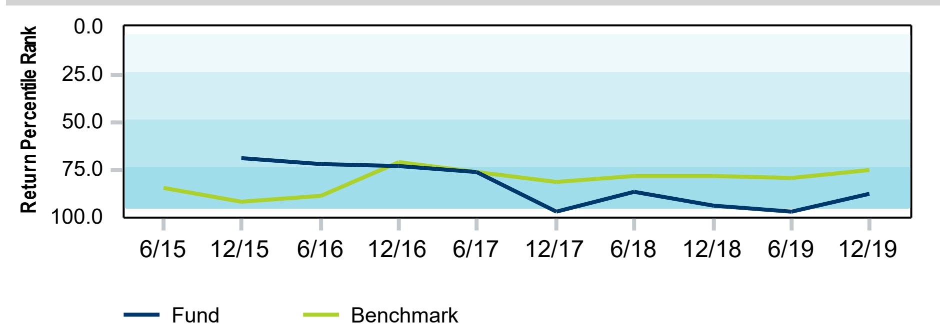
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

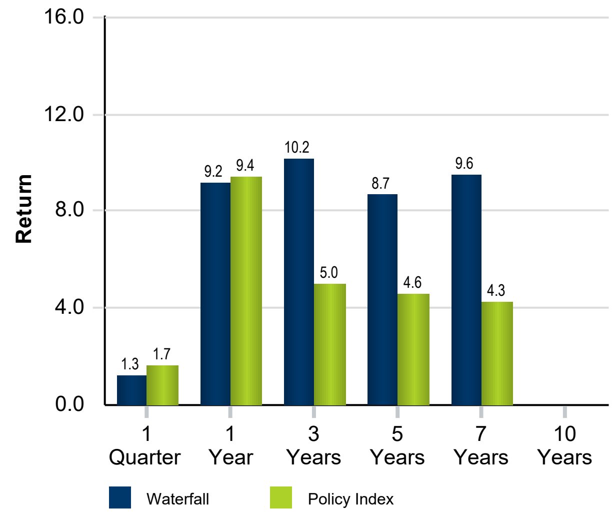


Performance Summary

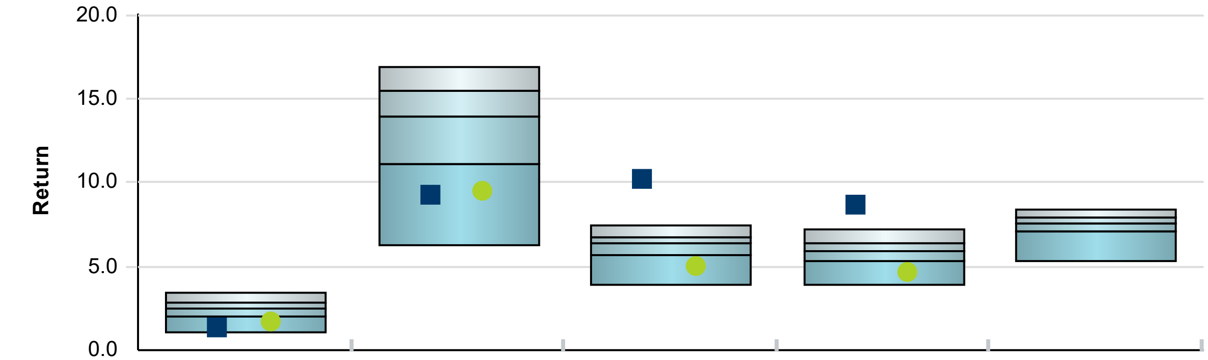
Waterfall

Periods Ended December 31, 2019

Comparative Performance

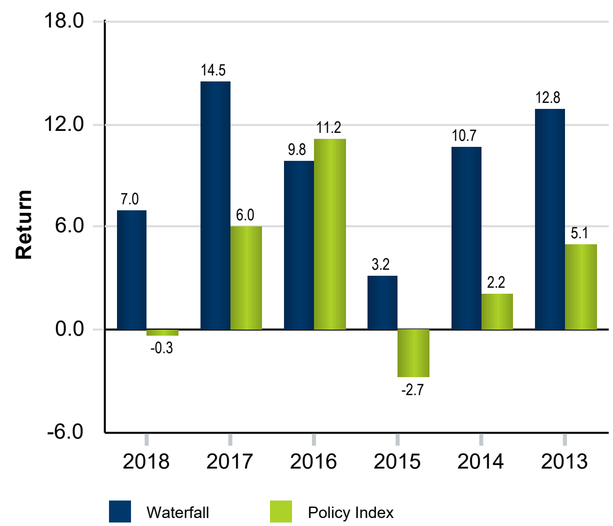


Peer Group Analysis: IM U.S. High Yield Bonds (SA+CF)

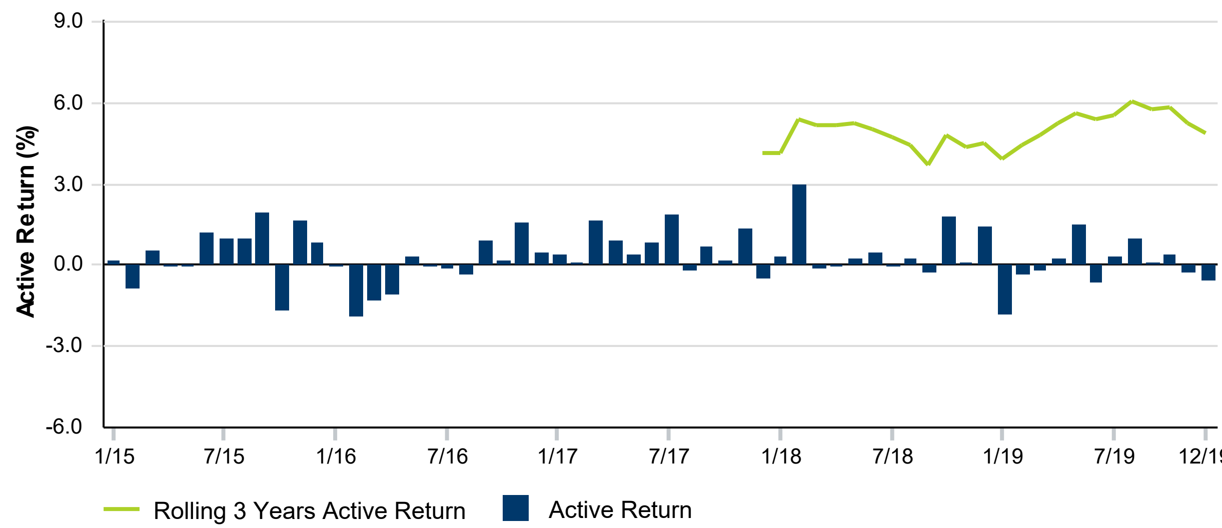


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	1.25 (93)	9.22 (83)	10.18 (1)	8.68 (1)	
Benchmark	1.67 (83)	9.43 (82)	4.97 (85)	4.58 (88)	
Median	2.51	14.01	6.33	5.96	7.61

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Waterfall

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics	Waterfall	Policy Index
Maximum Return	1.27	2.85
Minimum Return	-0.03	-0.68
Return	9.22	9.43
Cumulative Return	9.22	9.43
Active Return	-0.23	0.00
Excess Return	6.61	6.84

Risk Summary Statistics	Waterfall	Policy Index
Upside Risk	0.82	1.12
Downside Risk	0.03	0.68
Beta	0.12	1.00

Risk/Return Summary Statistics	Waterfall	Policy Index
Standard Deviation	1.20	2.92
Alpha	8.05	0.00
Active Return/Risk	-0.19	0.00
Tracking Error	2.81	0.00
Information Ratio	-0.08	
Sharpe Ratio	5.76	2.34

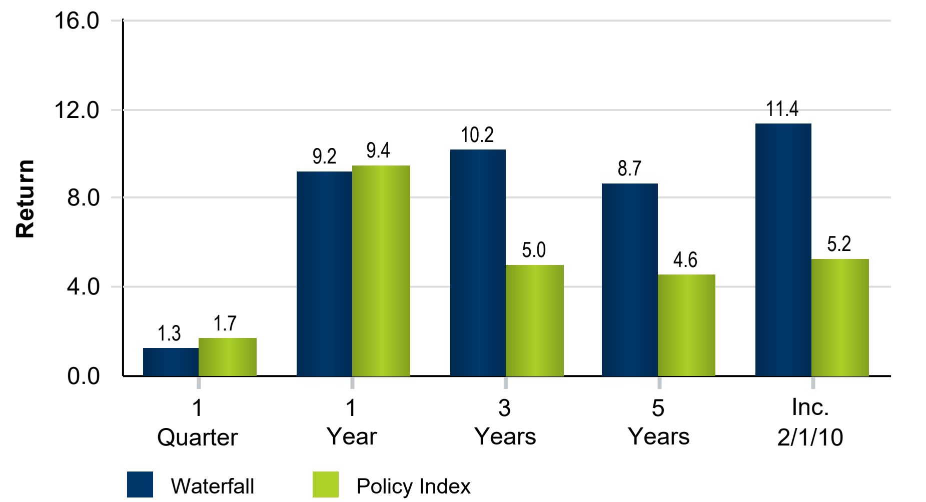
Correlation Statistics	Waterfall	Policy Index
R-Squared	0.09	1.00
Actual Correlation	0.29	1.00

Manager Summary

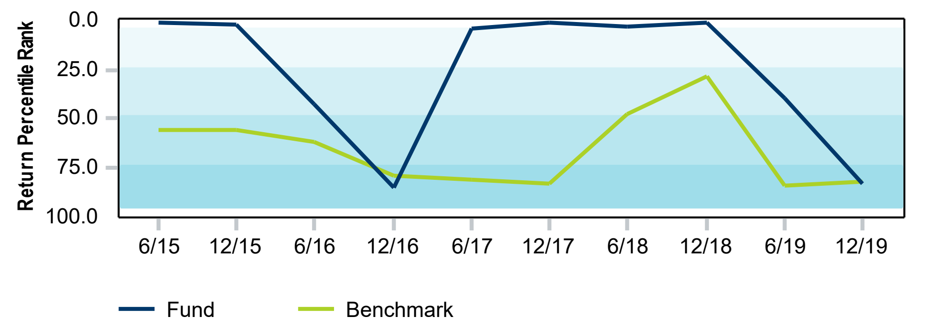
Waterfall vs IM U.S. High Yield Bonds (SA+CF)

Periods Ended December 31, 2019

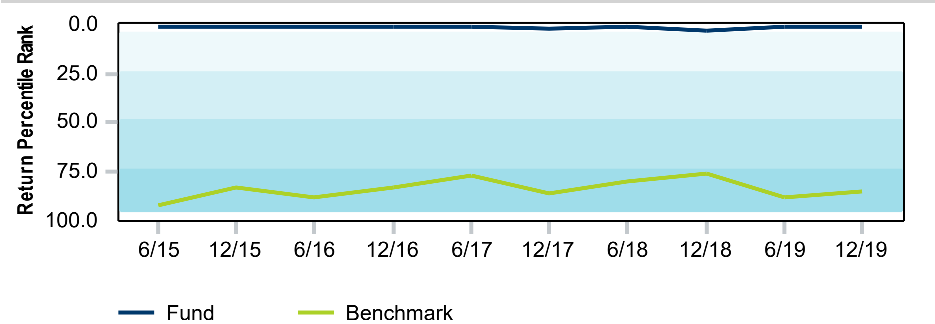
Comparative Performance



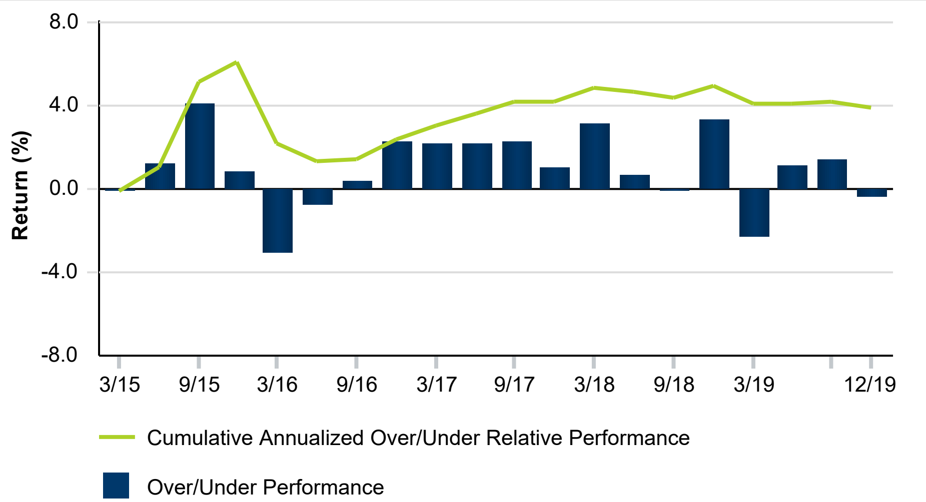
1 Year Rolling Percentile Ranking



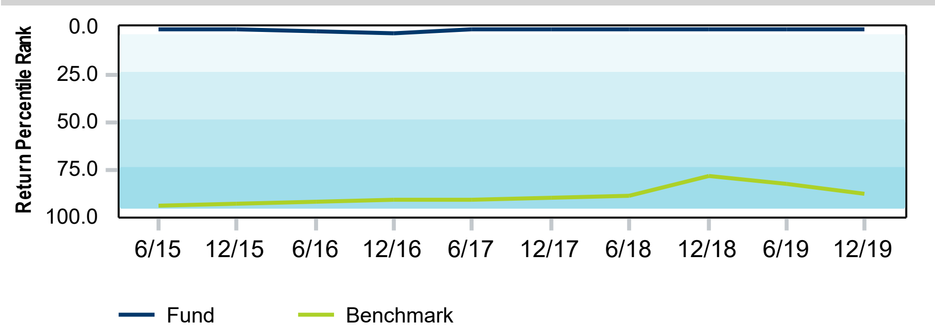
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking

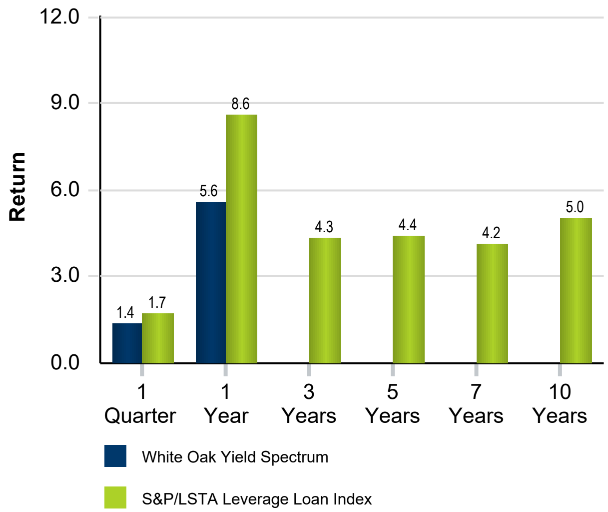


Performance Summary

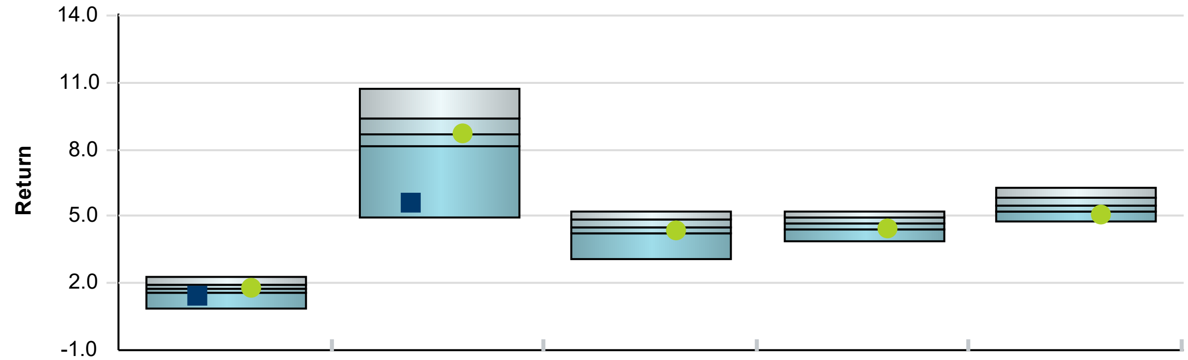
White Oak Yield Spectrum

Periods Ended December 31, 2019

Comparative Performance

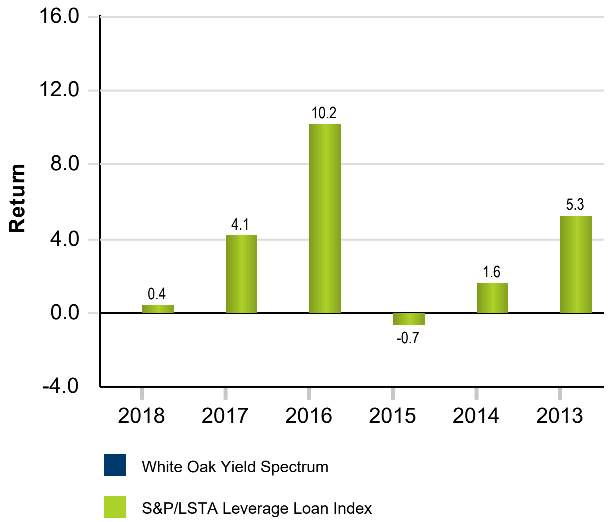


Peer Group Analysis: IM U.S. Bank Loans (SA+CF)

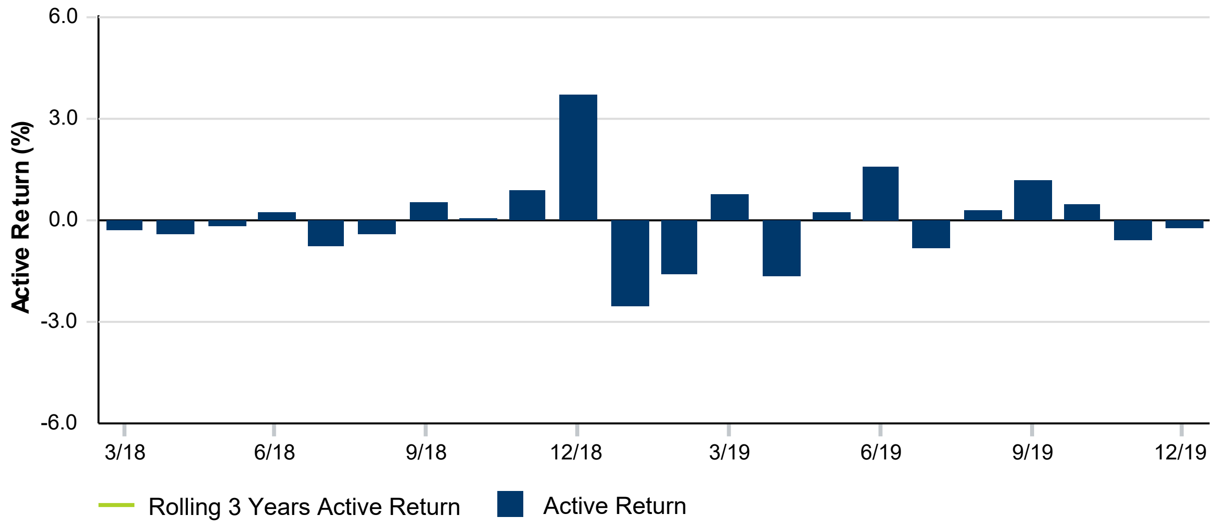


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	1.38 (84)	5.59 (94)			
Benchmark	1.73 (65)	8.64 (51)	4.35 (63)	4.45 (75)	5.01 (85)
Median	1.79	8.69	4.48	4.64	5.44

Comparative Performance



Rolling 3 Years Performance



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Summary Statistics

White Oak Yield Spectrum

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	White Oak Yield Spectrum	S&P/LSTA Leverage Loan Index
Maximum Return	1.85	2.55
Minimum Return	0.00	-0.45
Return	5.59	8.64
Cumulative Return	5.59	8.64
Active Return	-2.89	0.00
Excess Return	3.23	6.11

Risk Summary Statistics

	White Oak Yield Spectrum	S&P/LSTA Leverage Loan Index
Upside Risk	2.90	1.14
Downside Risk	0.00	0.60
Beta	-0.05	1.00

Risk/Return Summary Statistics

	White Oak Yield Spectrum	S&P/LSTA Leverage Loan Index
Standard Deviation	2.43	3.17
Alpha	6.07	0.00
Active Return/Risk	-1.19	0.00
Tracking Error	4.12	0.00
Information Ratio	-0.70	
Sharpe Ratio	1.33	1.90

Correlation Statistics

	White Oak Yield Spectrum	S&P/LSTA Leverage Loan Index
R-Squared	0.00	1.00
Actual Correlation	-0.07	1.00

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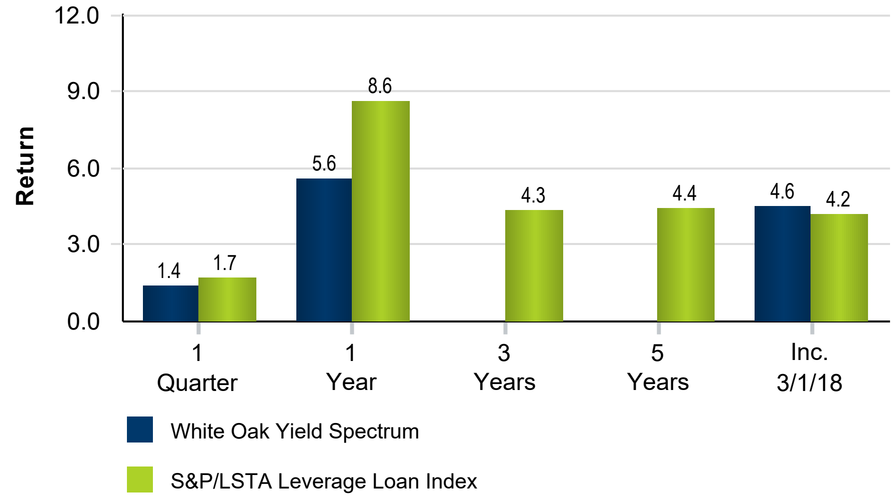
Manager Summary

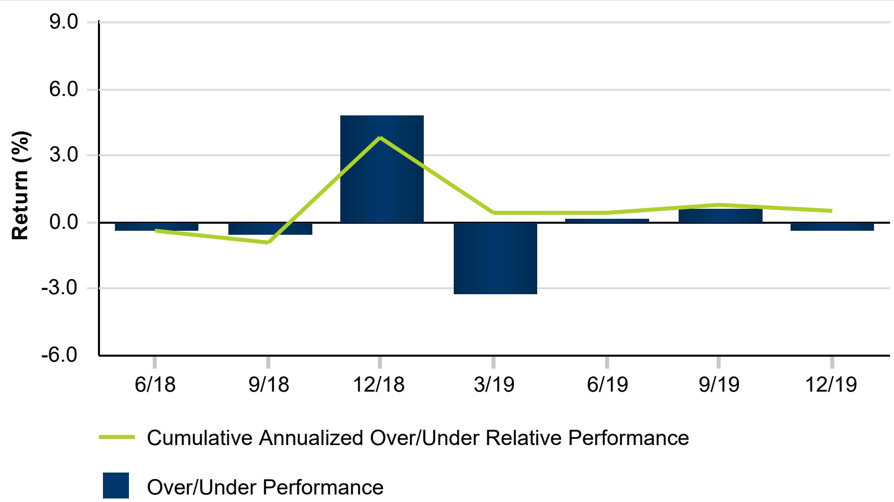
White Oak Yield Spectrum vs IM U.S. Bank Loans (SA+CF)

Periods Ended December 31, 2019

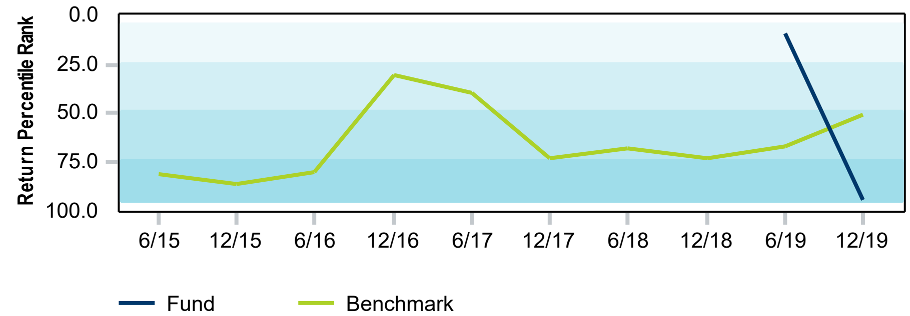
Comparative Performance



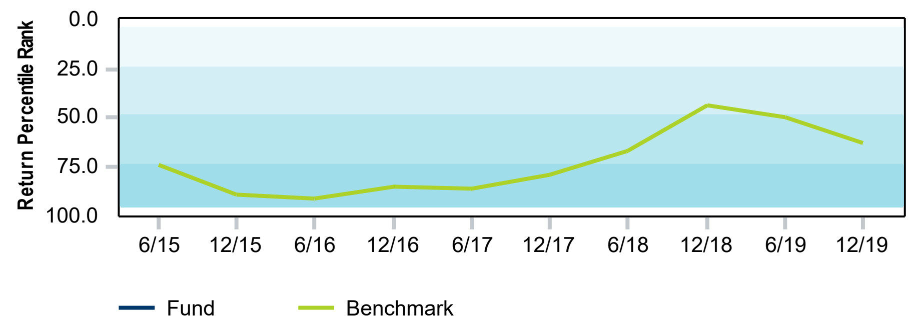
Relative Performance



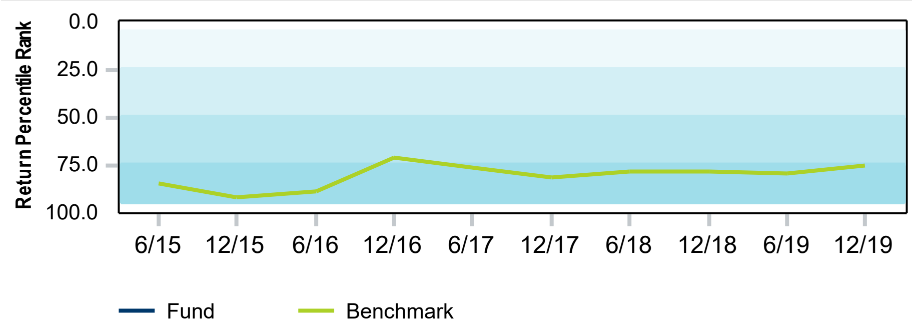
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Real Return Composite

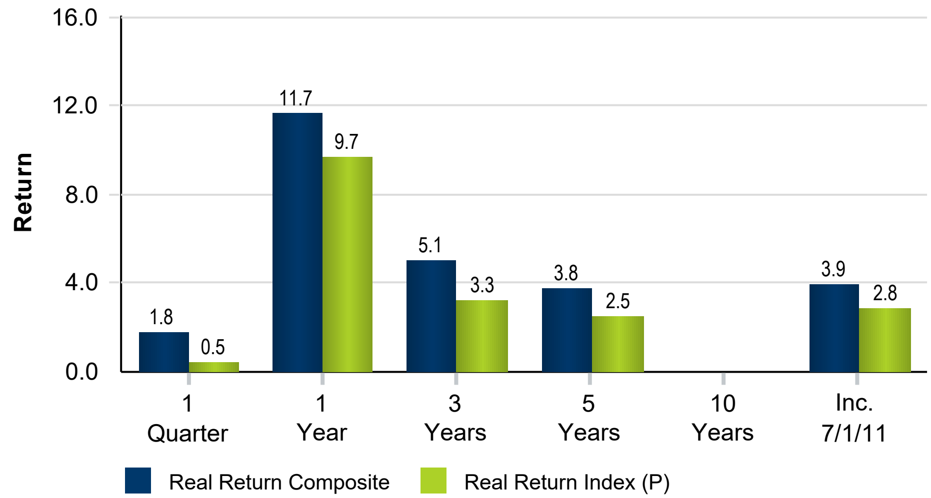
Wilshire Consulting

Composite Performance Summary

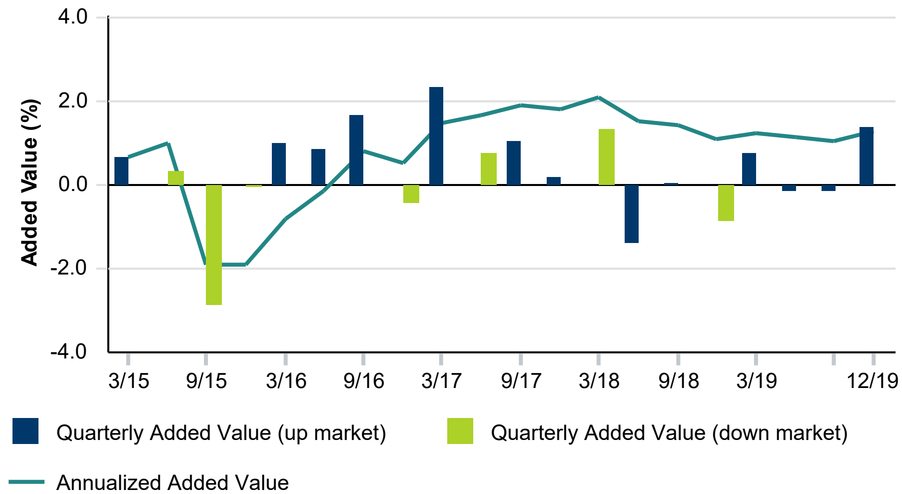
Real Return Composite

Periods Ended December 31, 2019

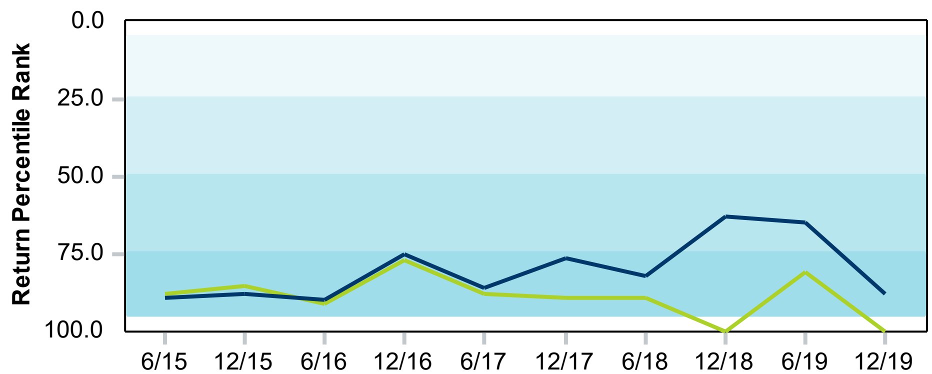
Comparative Performance



Added Value History

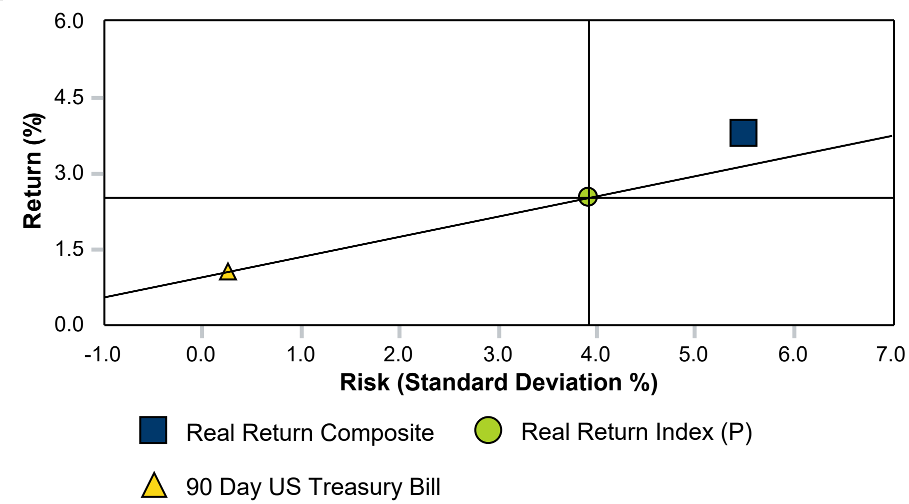


Rolling Percentile Rank: IM U.S. Tactical Asset Allocation (TAA) (SA+CF)



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Real Return Composite	10	0 (0%)	0 (0%)	3 (30%)	7 (70%)
Benchmark	10	0 (0%)	0 (0%)	0 (0%)	10 (100%

Risk and Return 01/1/15 - 12/31/19



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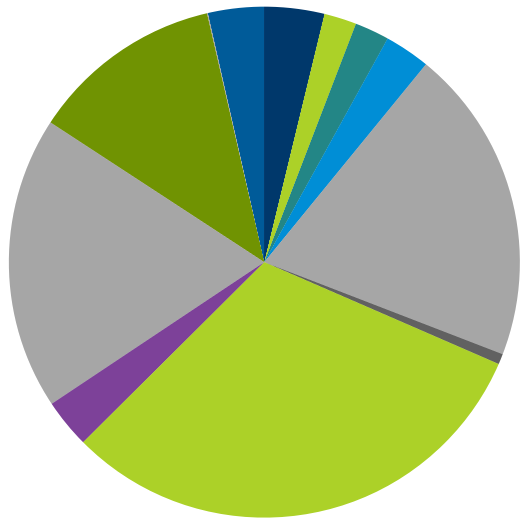
Asset Allocation By Manager

Real Return Composite

Periods Ended December 31, 2019

Dec-2019 : 1,147,108,341



	Market Value $	Allocation (%)
Amerra AGRI Holdings	43,399,118	3.8
Amerra AGRI Fund II	23,561,458	2.1
BTG Pactual	25,046,495	2.2
Magnetar MTP EOF II	33,040,234	2.9
Nuveen Real Asset	228,991,465	20.0
Oberland Capital	7,615,550	0.7
PIMCO All Asset	355,846,561	31.0
Taurus Mine Finance	35,501,150	3.1
Internal TIPS	212,997,151	18.6
Tortoise Capital	139,689,859	12.2
TPF II	775,832	0.1
IFM Infrastructure	40,643,468	3.5

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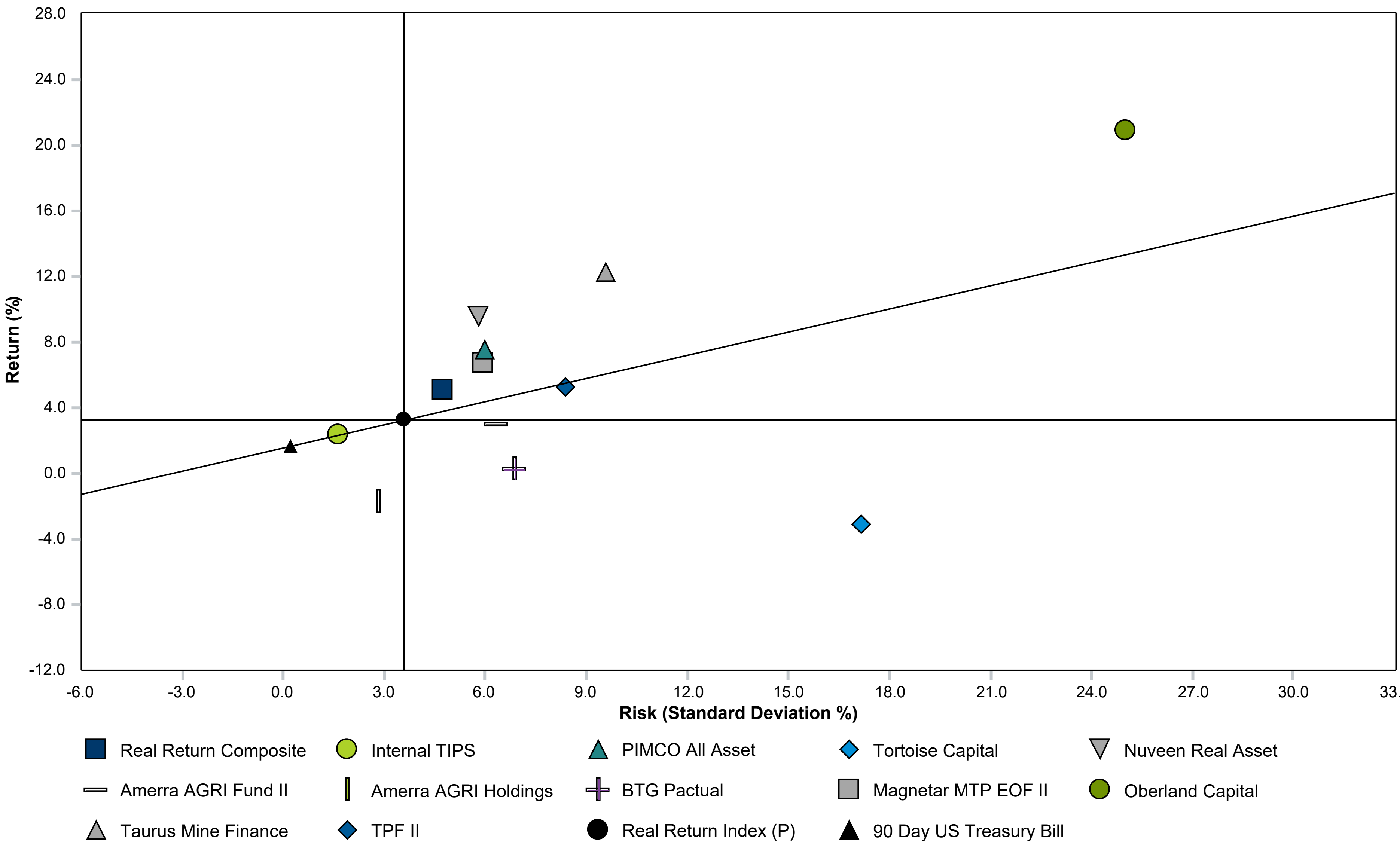
Risk vs. Return

Real Return Composite

Periods Ended 3 Years Ending December 31, 2019



Calculation based on monthly periodicity.

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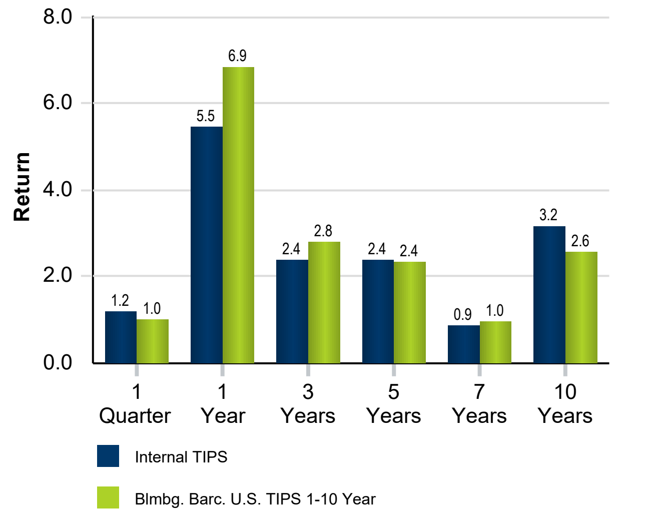
Performance Summary

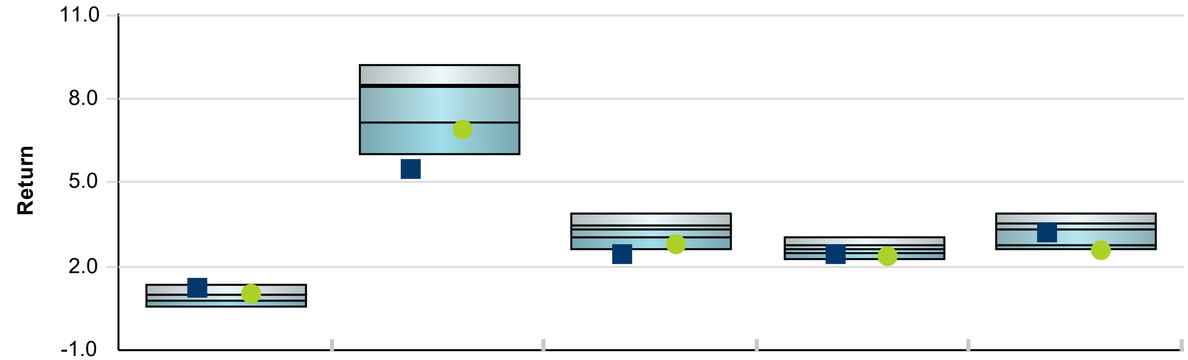
Internal TIPS

Periods Ended December 31, 2019

Comparative Performance

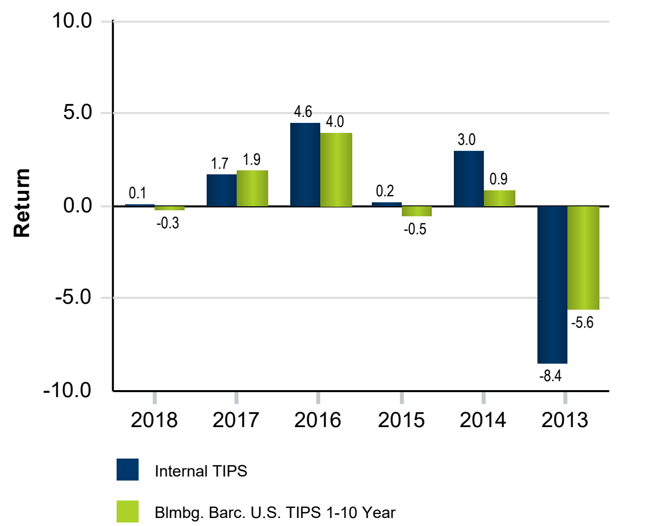


Peer Group Analysis: IM U.S. TIPS (SA+CF)

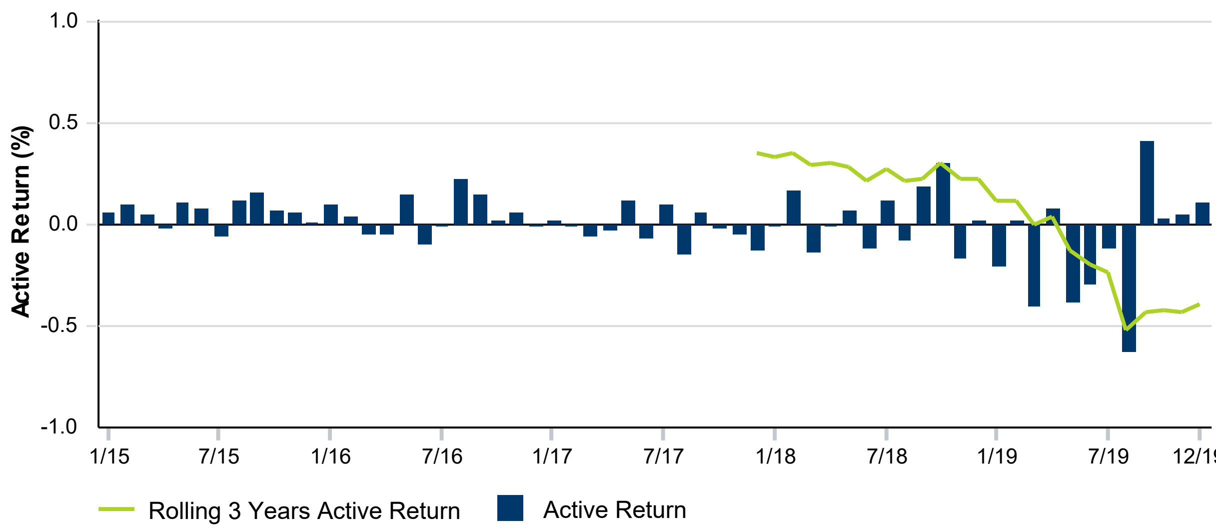


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	1.18 (10)	5.47 (100)	2.40 (98)	2.39 (86)	3.19 (69)
Benchmark	1.00 (26)	6.85 (88)	2.79 (94)	2.36 (94)	2.57 (100)
Median	0.80	8.43	3.34	2.62	3.36

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

Internal TIPS

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Internal TIPS	Blmbg. Barc. U.S. TIPS 1-10 Year
Maximum Return	0.93	1.33
Minimum Return	-0.41	-0.82
Return	5.47	6.85
Cumulative Return	5.47	6.85
Active Return	-1.32	0.00
Excess Return	3.10	4.42

Risk Summary Statistics

	Internal TIPS	Blmbg. Barc. U.S. TIPS 1-10 Year
Upside Risk	0.59	0.80
Downside Risk	0.41	0.82
Beta	0.61	1.00

Risk/Return Summary Statistics

	Internal TIPS	Blmbg. Barc. U.S. TIPS 1-10 Year
Standard Deviation	1.39	2.15
Alpha	1.26	0.00
Active Return/Risk	-0.95	0.00
Tracking Error	0.94	0.00
Information Ratio	-1.40	
Sharpe Ratio	2.30	2.12

Correlation Statistics

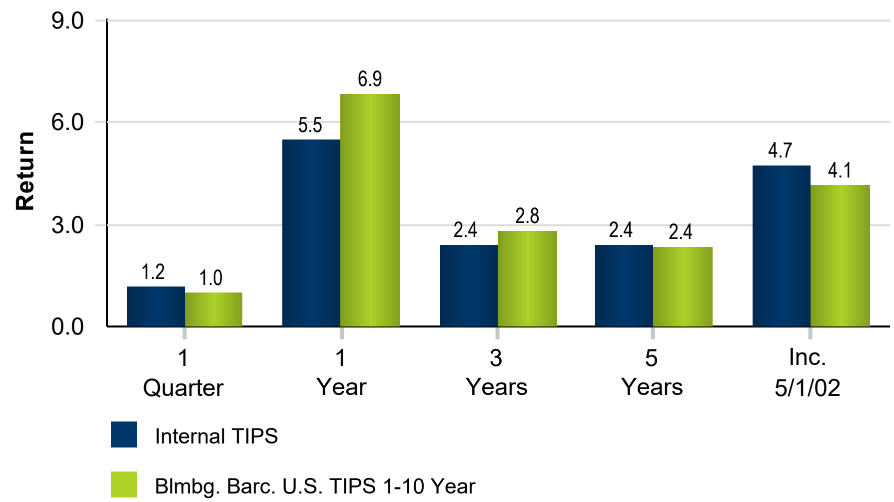
	Internal TIPS	Blmbg. Barc. U.S. TIPS 1-10 Year
R-Squared	0.90	1.00
Actual Correlation	0.95	1.00

Manager Summary

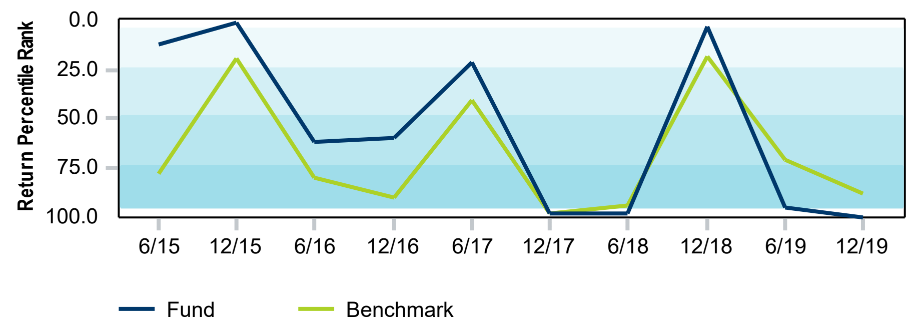
Internal TIPS vs IM U.S. TIPS (SA+CF)

Periods Ended December 31, 2019

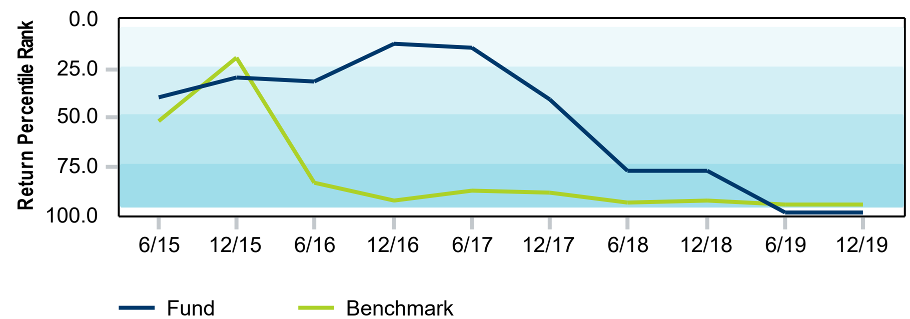
Comparative Performance



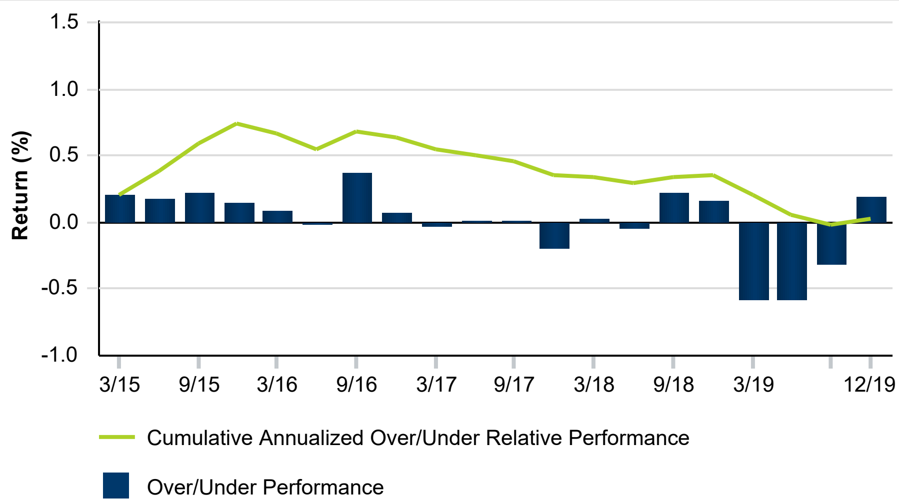
1 Year Rolling Percentile Ranking



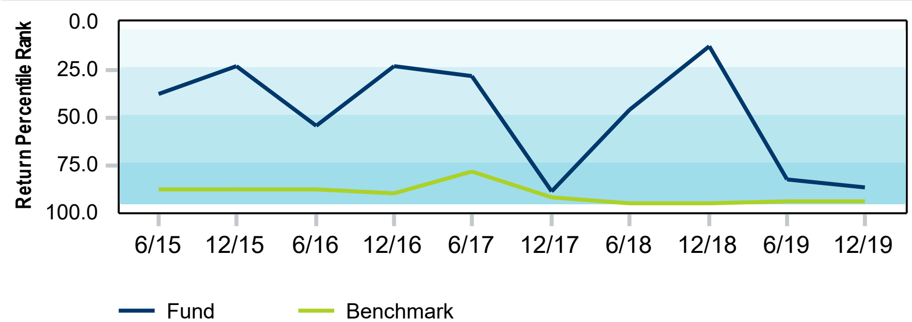
3 Year Rolling Percentile Ranking



Relative Performance



5 Year Rolling Percentile Ranking



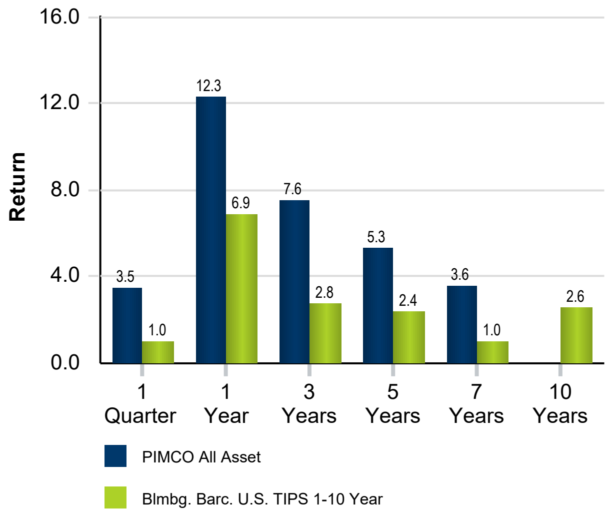
Wilshire Consulting

Performance Summary

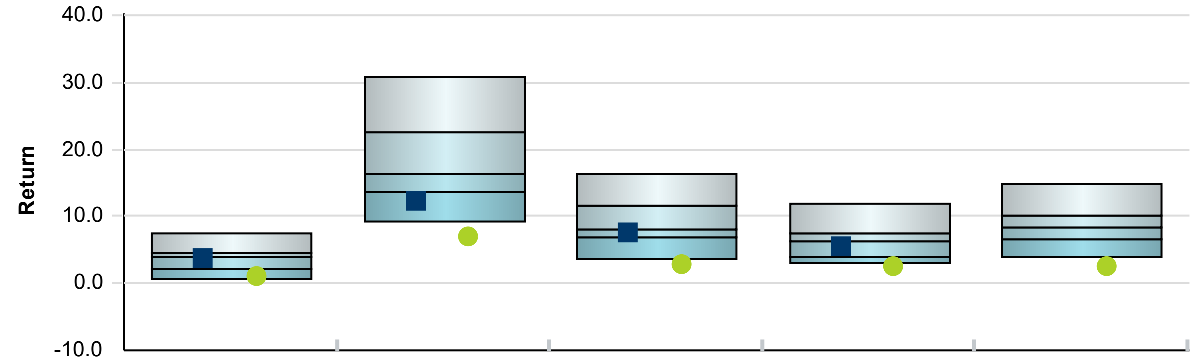
PIMCO All Asset

Periods Ended December 31, 2019

Comparative Performance

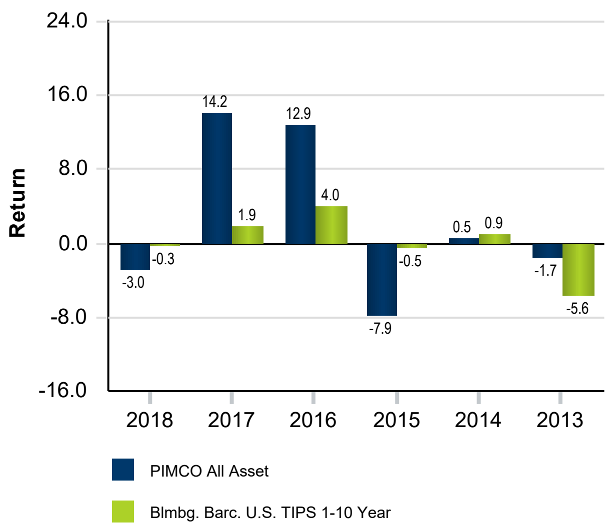


Peer Group Analysis: IM U.S. Tactical Asset Allocation (TAA) (SA+CF)

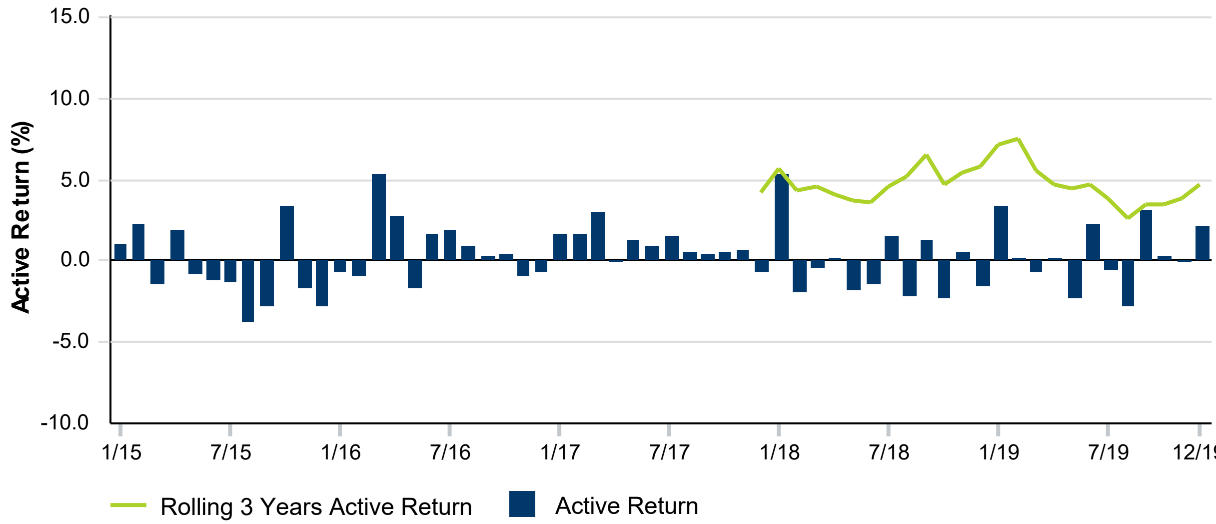


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	3.52 (60)	12.32 (85)	7.57 (65)	5.30 (66)	
Benchmark	1.00 (92)	6.85 (100)	2.79 (100)	2.36 (100)	2.57 (99)
Median	3.88	16.22	8.12	6.24	8.48

Comparative Performance



Rolling 3 Years Performance



Summary Statistics

PIMCO All Asset

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	PIMCO All Asset	Blmbg. Barc. U.S. TIPS 1-10 Year
Maximum Return	4.48	1.33
Minimum Return	-1.54	-0.82
Return	12.32	6.85
Cumulative Return	12.32	6.85
Active Return	5.19	0.00
Excess Return	9.61	4.42

Risk Summary Statistics

	PIMCO All Asset	Blmbg. Barc. U.S. TIPS 1-10 Year
Upside Risk	1.93	0.80
Downside Risk	1.96	0.82
Beta	-0.06	1.00

Risk/Return Summary Statistics

	PIMCO All Asset	Blmbg. Barc. U.S. TIPS 1-10 Year
Standard Deviation	6.07	2.15
Alpha	13.01	0.00
Active Return/Risk	0.86	0.00
Tracking Error	6.48	0.00
Information Ratio	0.80	
Sharpe Ratio	1.58	2.12

Correlation Statistics

	PIMCO All Asset	Blmbg. Barc. U.S. TIPS 1-10 Year
R-Squared	0.00	1.00
Actual Correlation	-0.02	1.00

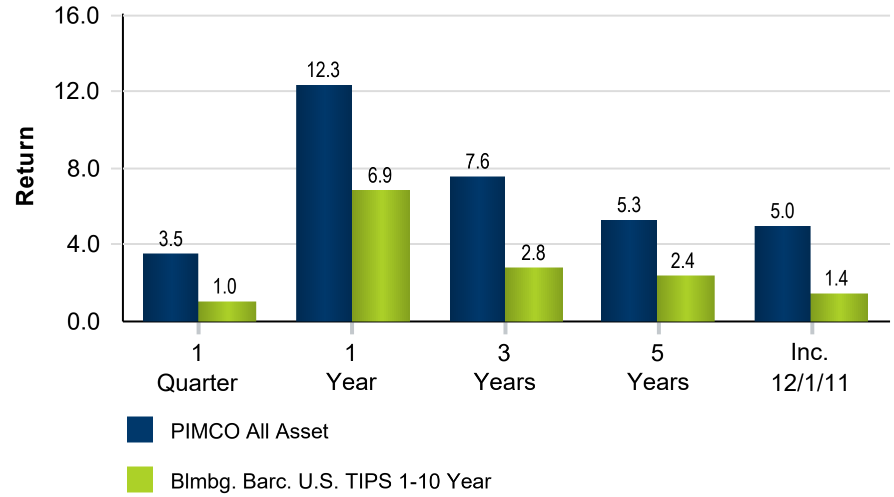
Wilshire Consulting

Manager Summary

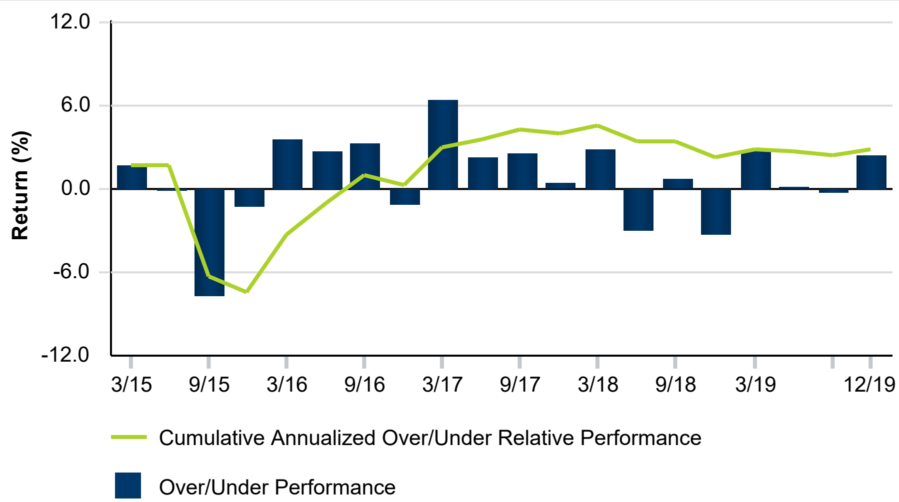
PIMCO All Asset vs IM U.S. Tactical Asset Allocation (TAA) (SA+CF)

Periods Ended December 31, 2019

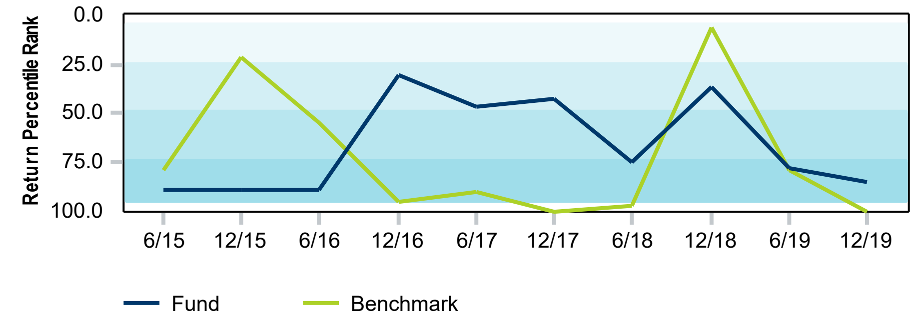
Comparative Performance



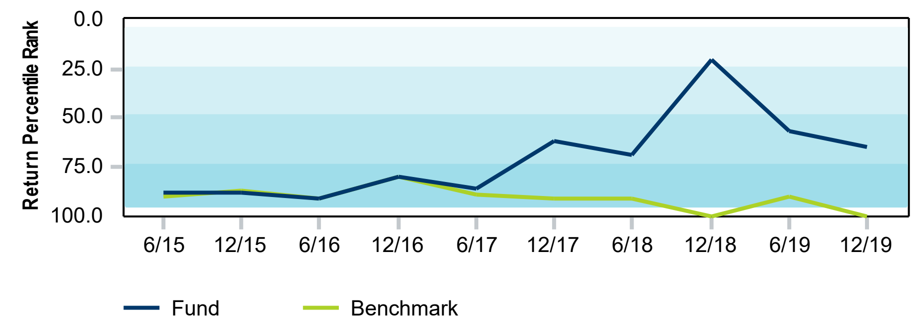
Relative Performance



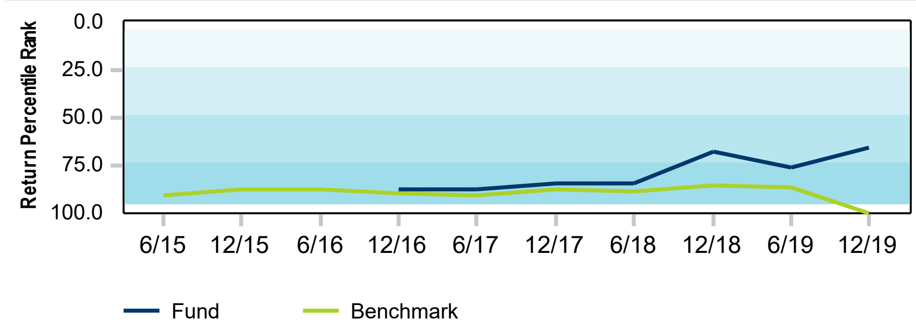
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

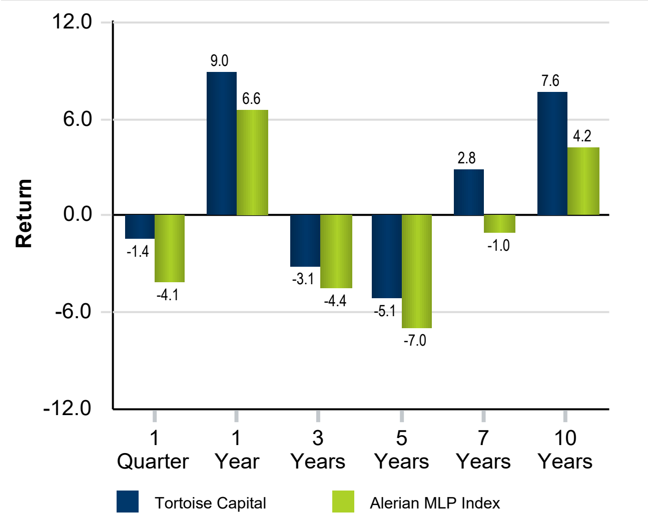


Performance Summary

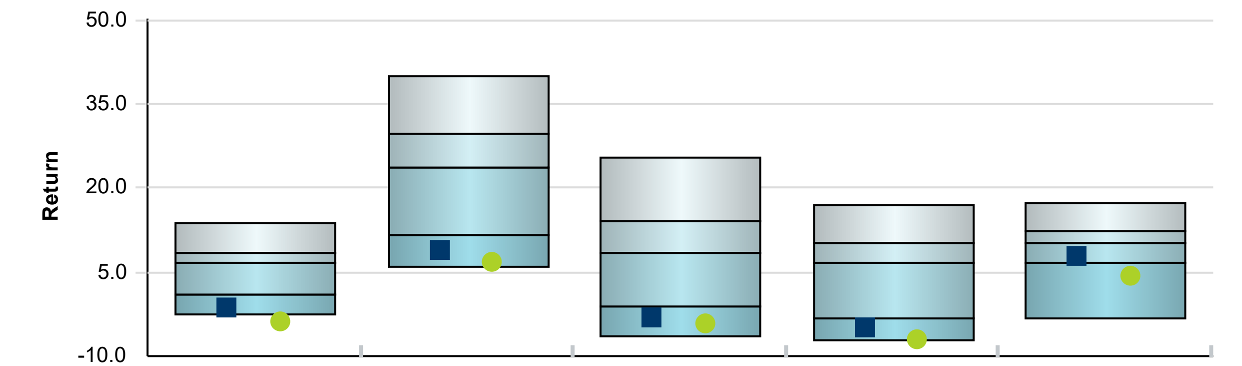
Tortoise Capital

Periods Ended December 31, 2019

Comparative Performance

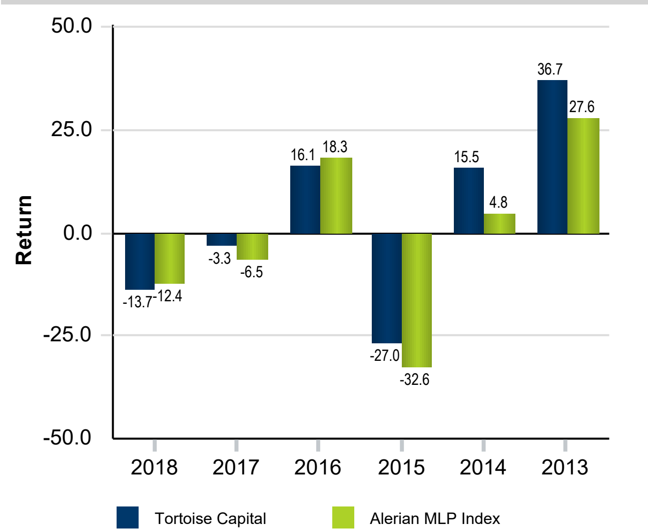


Peer Group Analysis: IM U.S. Other Equity (SA+CF)

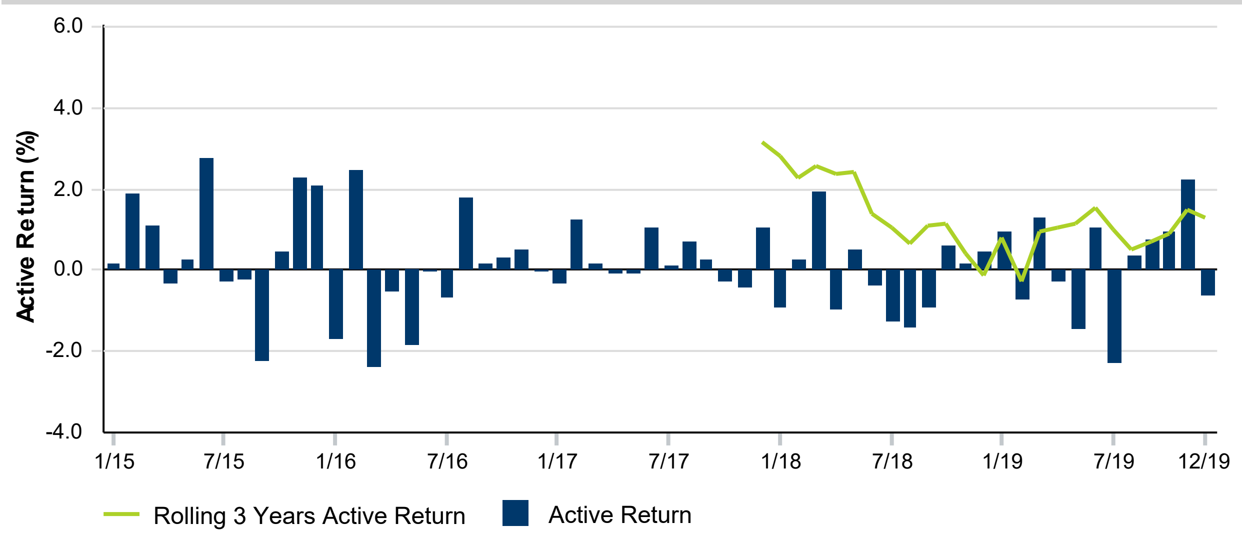


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	-1.37 (89)	8.97 (89)	-3.12 (86)	-5.09 (85)	7.64 (70)
Benchmark	-4.08 (100)	6.56 (94)	-4.45 (89)	-7.00 (93)	4.19 (89)
Median	6.56	23.74	8.39	6.69	10.34

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Tortoise Capital

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Tortoise Capital	Alerian MLP Index
Maximum Return	13.59	12.64
Minimum Return	-5.25	-6.22
Return	8.97	6.56
Cumulative Return	8.97	6.56
Active Return	2.27	0.00
Excess Return	8.09	5.82

Risk Summary Statistics

	Tortoise Capital	Alerian MLP Index
Upside Risk	4.88	4.58
Downside Risk	9.05	10.26
Beta	0.98	1.00

Risk/Return Summary Statistics

	Tortoise Capital	Alerian MLP Index
Standard Deviation	18.93	18.75
Alpha	2.42	0.00
Active Return/Risk	0.12	0.00
Tracking Error	4.24	0.00
Information Ratio	0.54	
Sharpe Ratio	0.43	0.31

Correlation Statistics

	Tortoise Capital	Alerian MLP Index
R-Squared	0.95	1.00
Actual Correlation	0.97	1.00

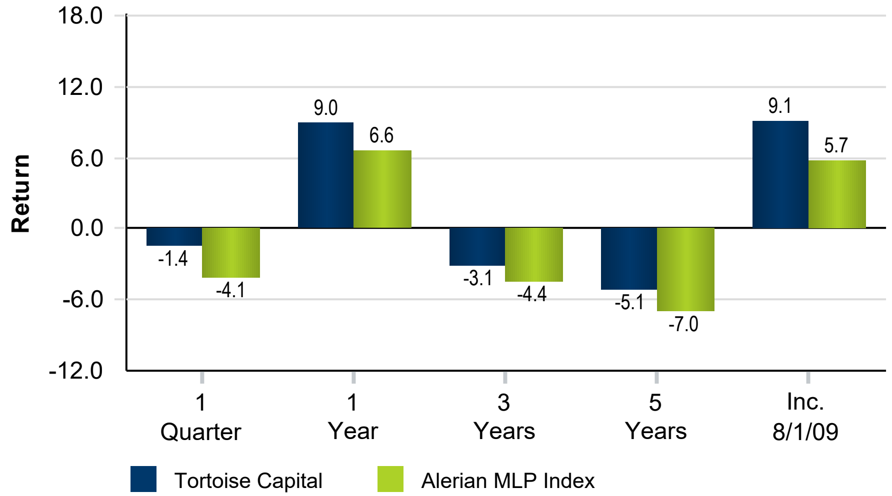
Wilshire Consulting

Manager Summary

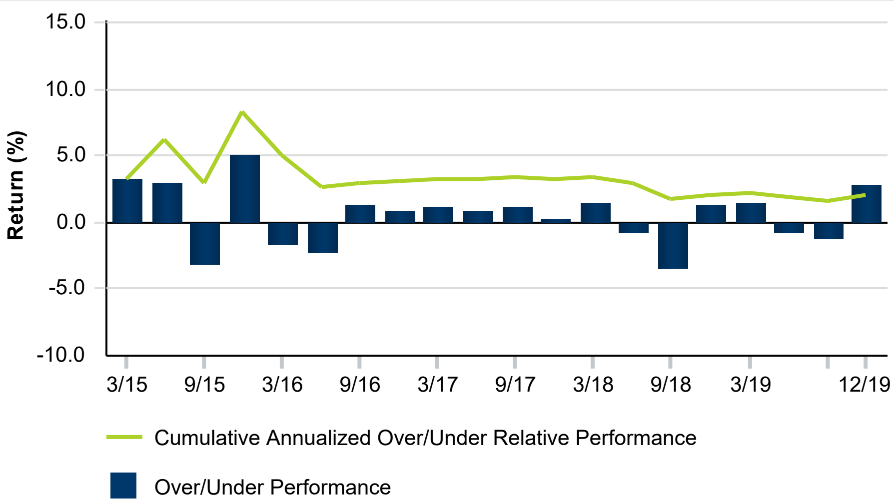
Tortoise Capital vs IM U.S. Other Equity (SA+CF)

Periods Ended December 31, 2019

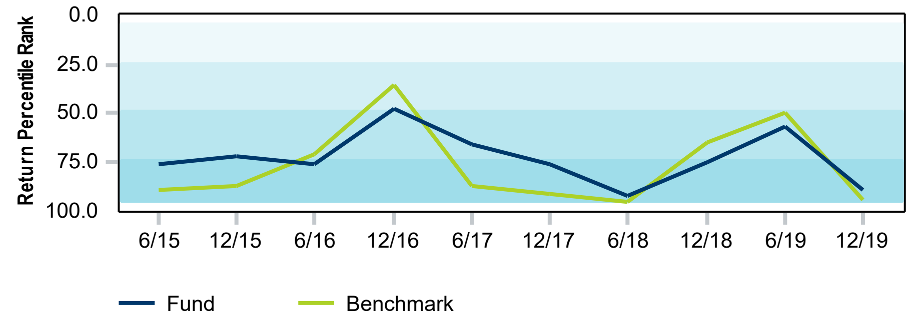
Comparative Performance



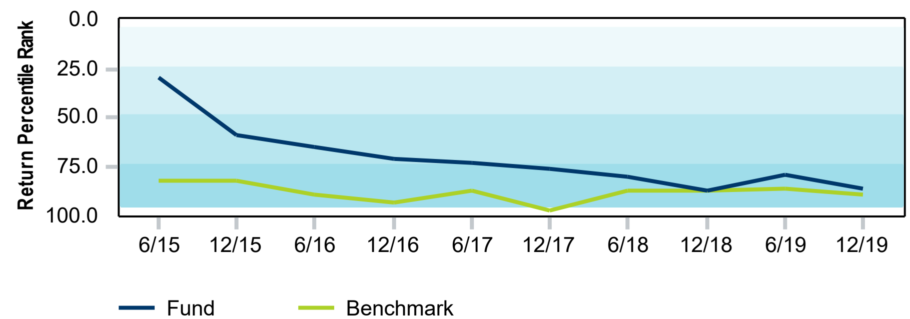
Relative Performance



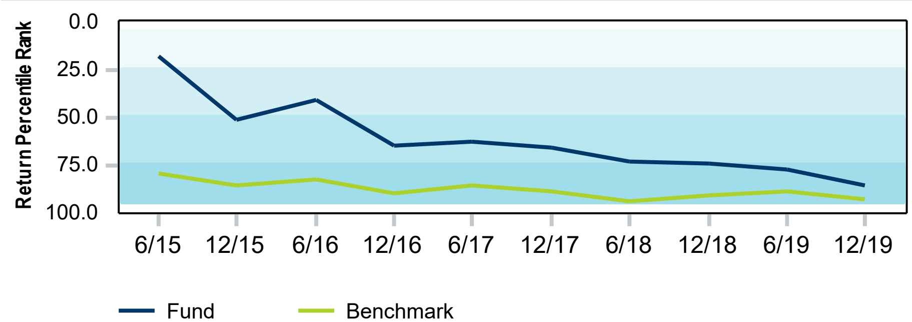
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking

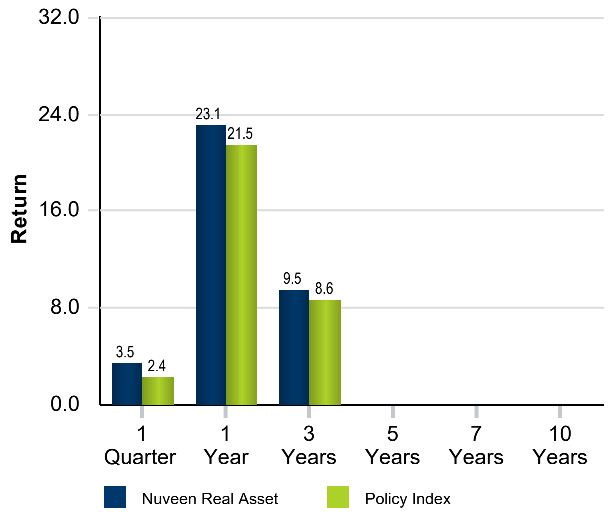


Performance Summary

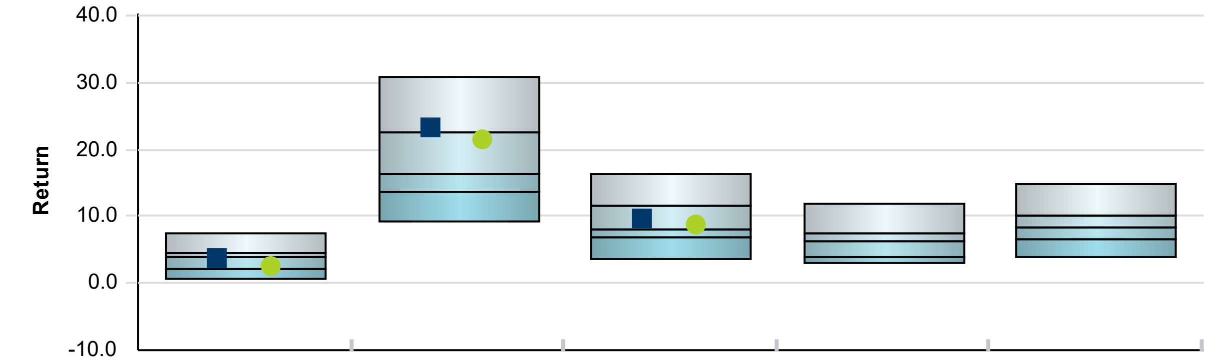
Nuveen Real Asset

Periods Ended December 31, 2019

Comparative Performance

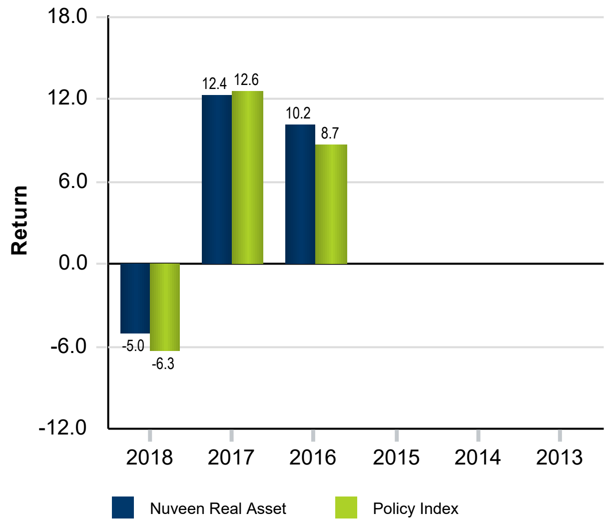


Peer Group Analysis: IM U.S. Tactical Asset Allocation (TAA) (SA+CF)

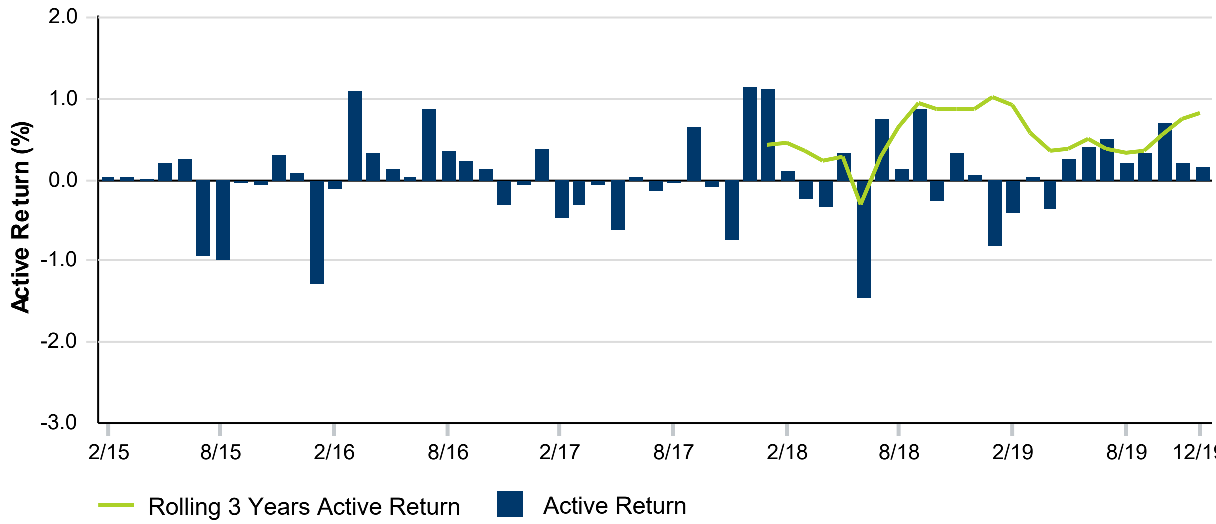


	Quarter	1 Year	3 Years	5 Years	10 Years
Fund	3.49 (61)	23.11 (21)	9.55 (35)		
Benchmark	2.37 (71)	21.50 (31)	8.63 (41)		
Median	3.88	16.22	8.12	6.24	8.48

Comparative Performance



Rolling 3 Years Performance



Wilshire Consulting

Summary Statistics

Nuveen Real Asset

Periods Ended 1 Year Ending December 31, 2019

Return Summary Statistics

	Nuveen Real Asset	Policy Index
Maximum Return	6.64	7.46
Minimum Return	-0.46	-0.68
Return	23.11	21.50
Cumulative Return	23.11	21.50
Active Return	1.29	0.00
Excess Return	18.91	17.62

Risk Summary Statistics

	Nuveen Real Asset	Policy Index
Upside Risk	2.51	2.61
Downside Risk	0.49	0.80
Beta	0.87	1.00

Risk/Return Summary Statistics

	Nuveen Real Asset	Policy Index
Standard Deviation	6.22	7.05
Alpha	3.96	0.00
Active Return/Risk	0.21	0.00
Tracking Error	1.43	0.00
Information Ratio	0.90	
Sharpe Ratio	3.05	2.51

Correlation Statistics

	Nuveen Real Asset	Policy Index
R-Squared	0.97	1.00
Actual Correlation	0.98	1.00

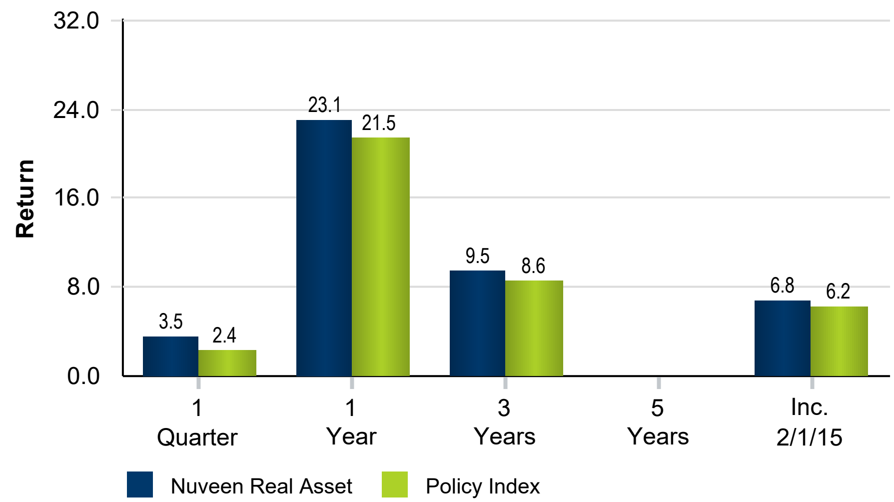
Wilshire Consulting

Manager Summary

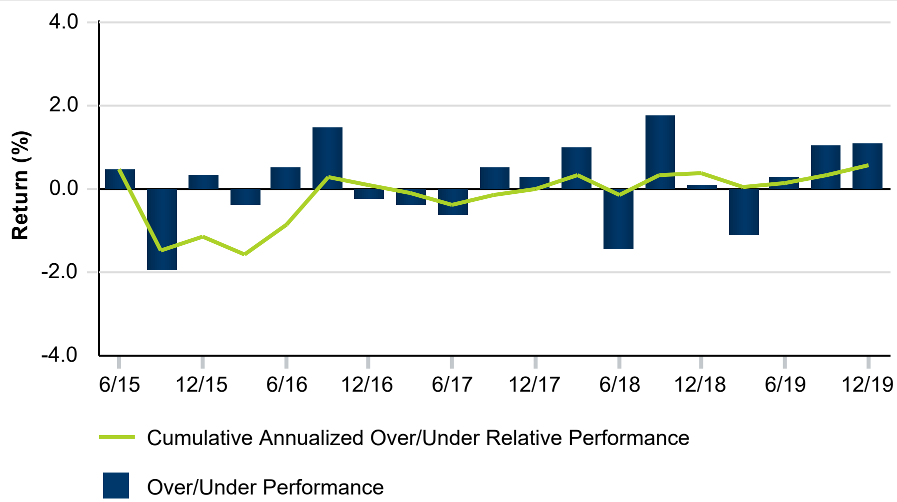
Nuveen Real Asset vs IM U.S. Tactical Asset Allocation (TAA) (SA+CF)

Periods Ended December 31, 2019

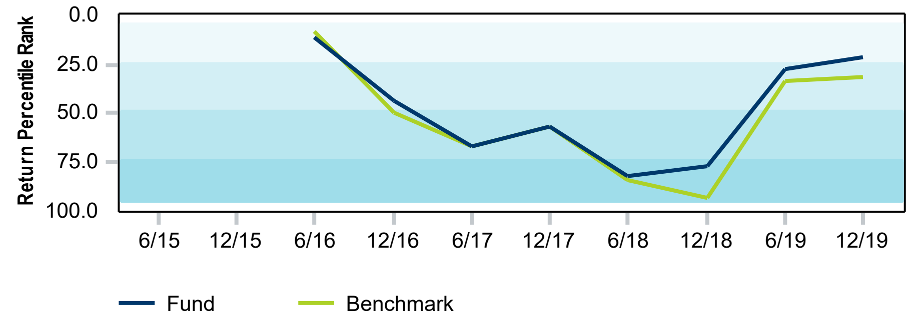
Comparative Performance



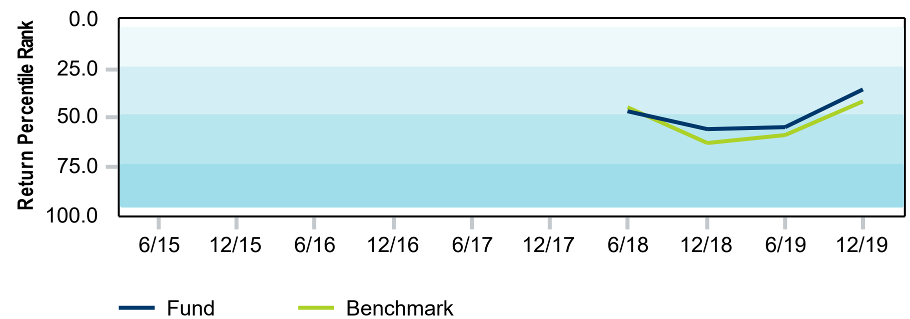
Relative Performance



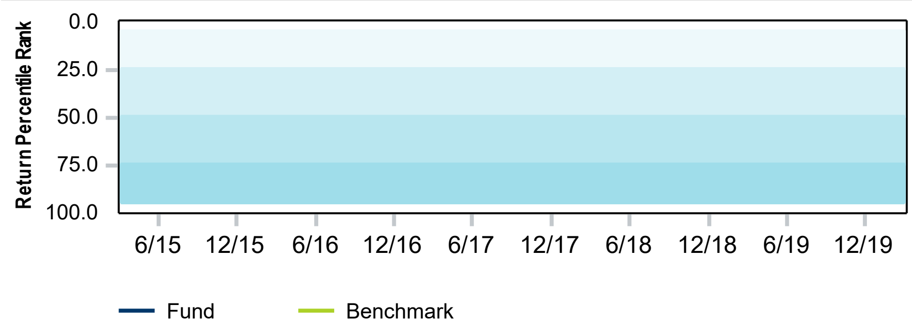
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Real Estate Composite

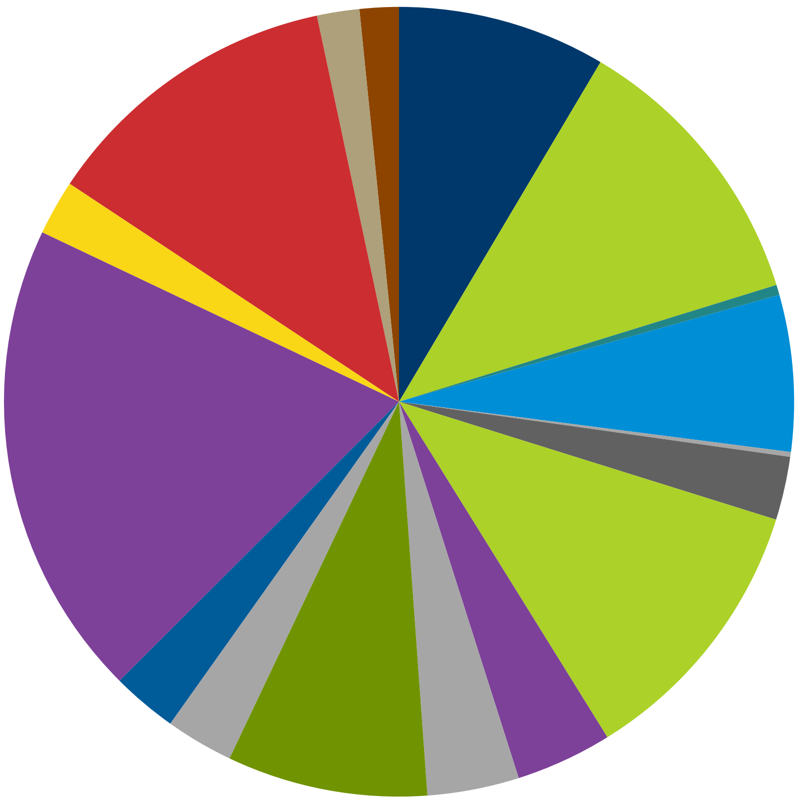
Wilshire Consulting

Asset Allocation By Manager

Real Estate Composite

Periods Ended December 31, 2019

Dec-2019 : 727,192,570



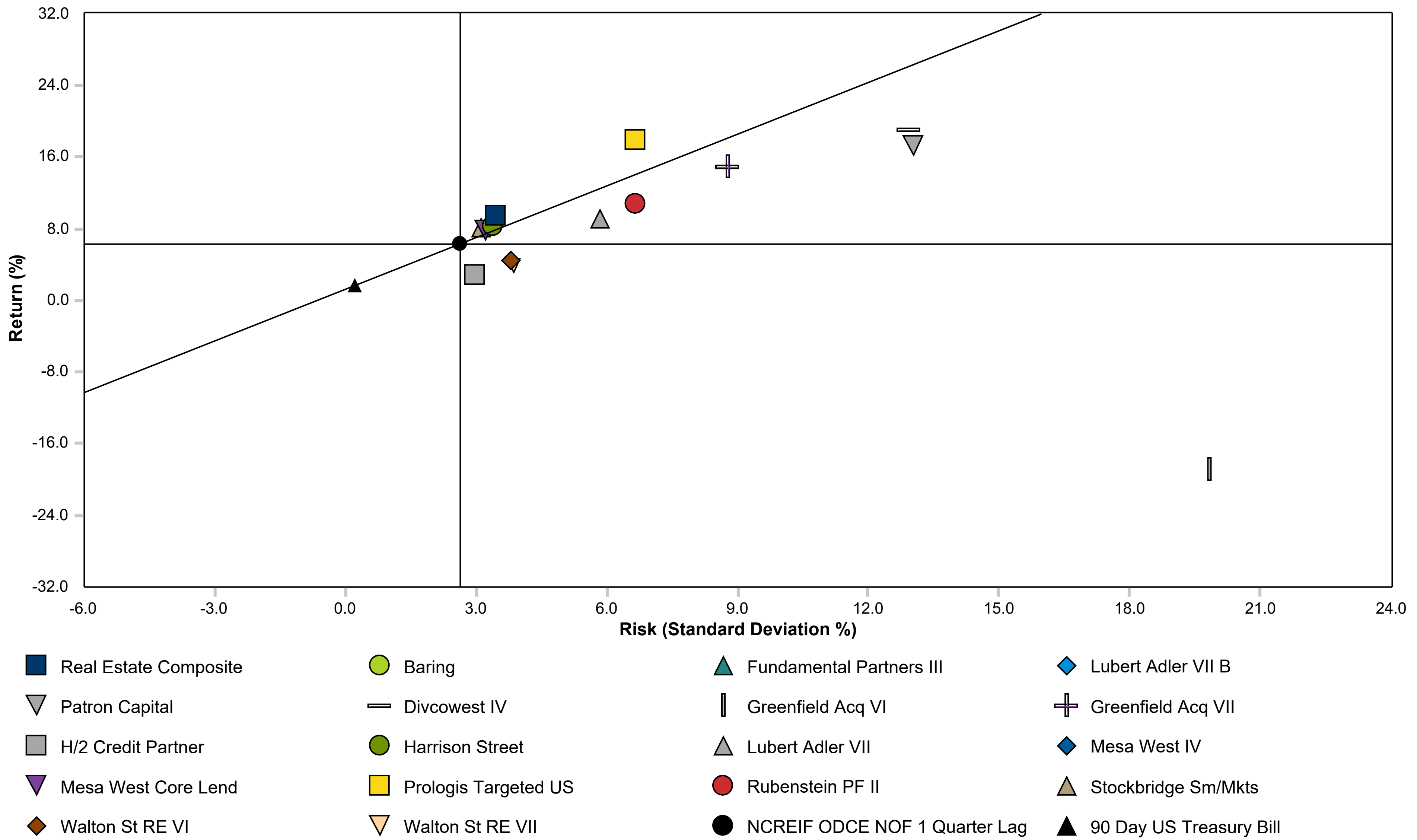
	Market Value $	Allocation (%)
Baring	61,924,738	8.5
H/2 Credit Partner	85,110,301	11.7
Divcowest IV	3,014,943	0.4
Fundamental Partners III	46,527,759	6.4
Greenfield Acq VI	1,438,532	0.2
Greenfield Acq VII	18,872,415	2.6
Harrison Street	82,441,852	11.3
Lubert Adler VII	28,659,028	3.9
Lubert Adler VII B	27,279,854	3.8
Mesa West Core Lend	59,673,457	8.2
Mesa West IV	20,145,215	2.8
Patron Capital	19,494,400	2.7
Prologis Targeted US	142,158,826	19.5
Rubenstein PF II	16,367,756	2.3
Stockbridge Sm/Mkts	89,800,254	12.3
Walton St RE VI	12,633,912	1.7
Walton St RE VII	11,649,330	1.6

Wilshire Consulting

Risk vs. Return

Real Estate Composite

Periods Ended 3 Years Ending December 31, 2019



Calculation based on monthly periodicity.

Absolute Return Composite

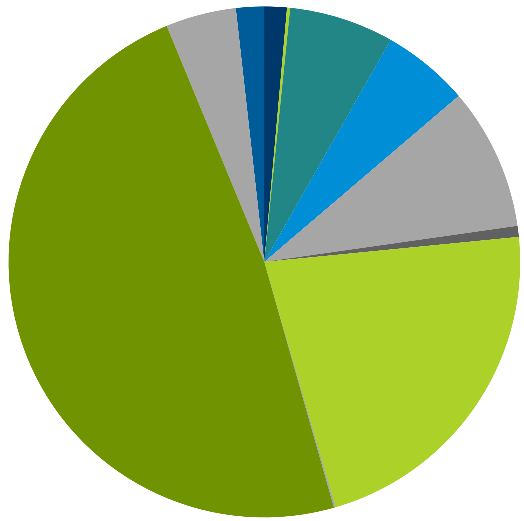
Wilshire Consulting

Asset Allocation By Manager

Absolute Return Composite

Periods Ended December 31, 2019

Dec-2019 : 200,149,411

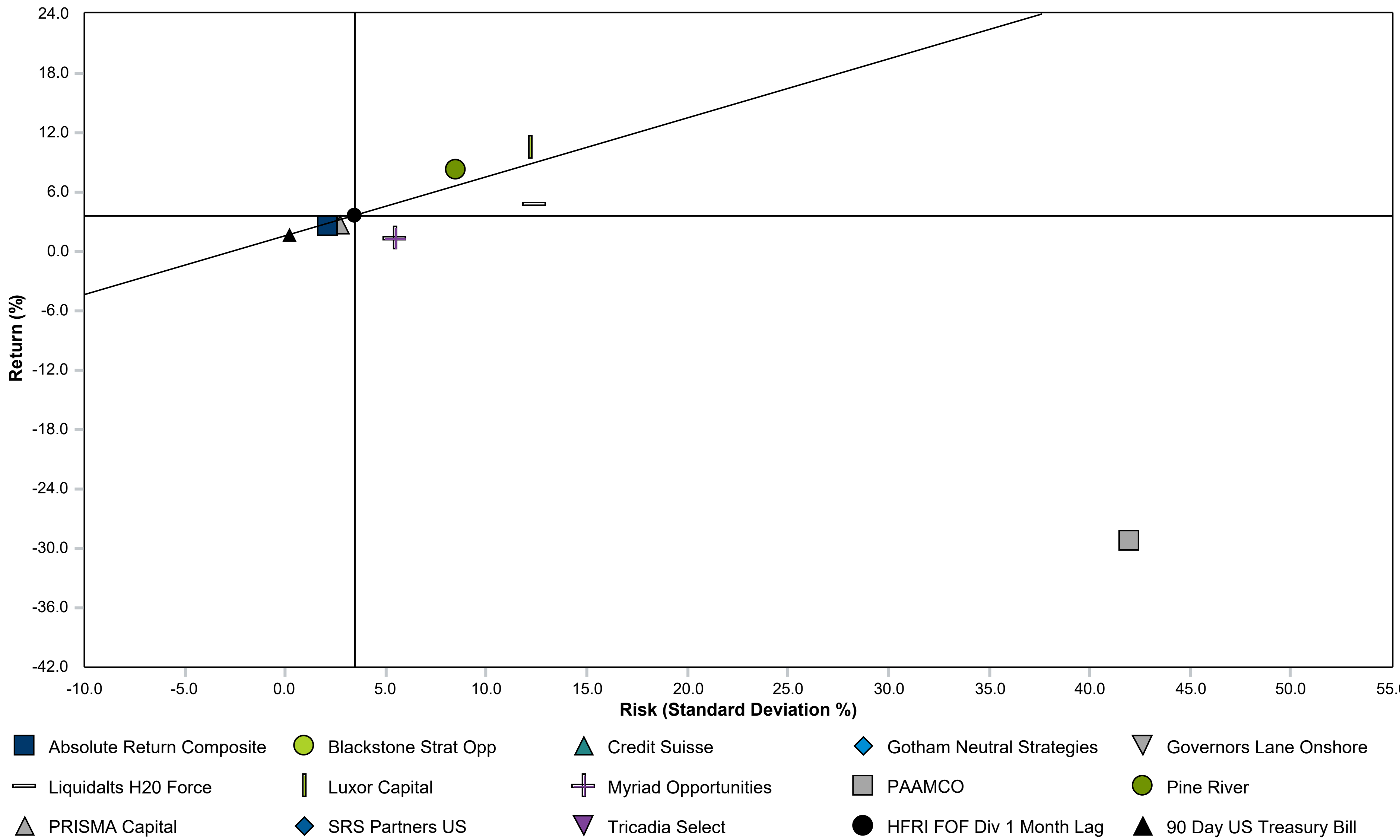


	Market Value $	Allocation (%)
Blackstone Strat Opp	2,819,807	1.4
Credit Suisse	415,818	0.2
Gotham Neutral Strategies	13,242,738	6.6
Governors Lane Onshore	11,020,765	5.5
Liquidalts H20 Force	18,015,854	9.0
Luxor Capital	1,384,403	0.7
Myriad Opportunities	44,186,540	22.1
PAAMCO	7,095	0.0
Pine River	192,565	0.1
PRISMA Capital	96,376,598	48.2
SRS Partners US	8,922,436	4.5
Tricadia Select	3,564,792	1.8

Risk vs. Return

Absolute Return Composite

Periods Ended 3 Years Ending December 31, 2019



Calculation based on monthly periodicity.

Private Equity Composite

Wilshire Consulting

Private Equity Composite Overview

Private Equity Composite

Periods Ended As of December 31, 2019

Cash Flow Analysis