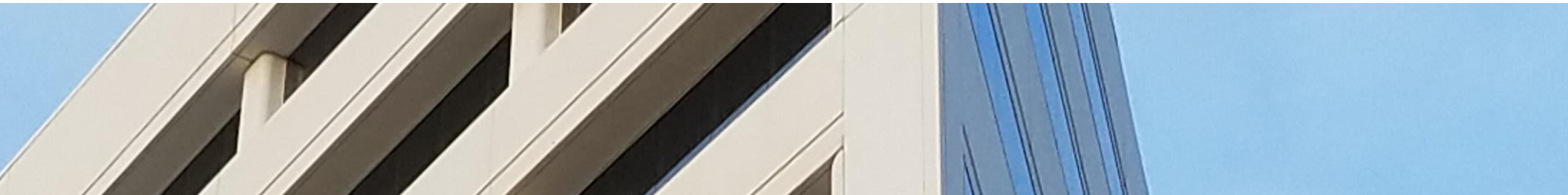




WILSHIRE ASSOCIATES

Wilshire Consulting



The City of Grand Rapids – Police & Fire Retirement System

Executive Summary of Investment Performance

September 30, 2019

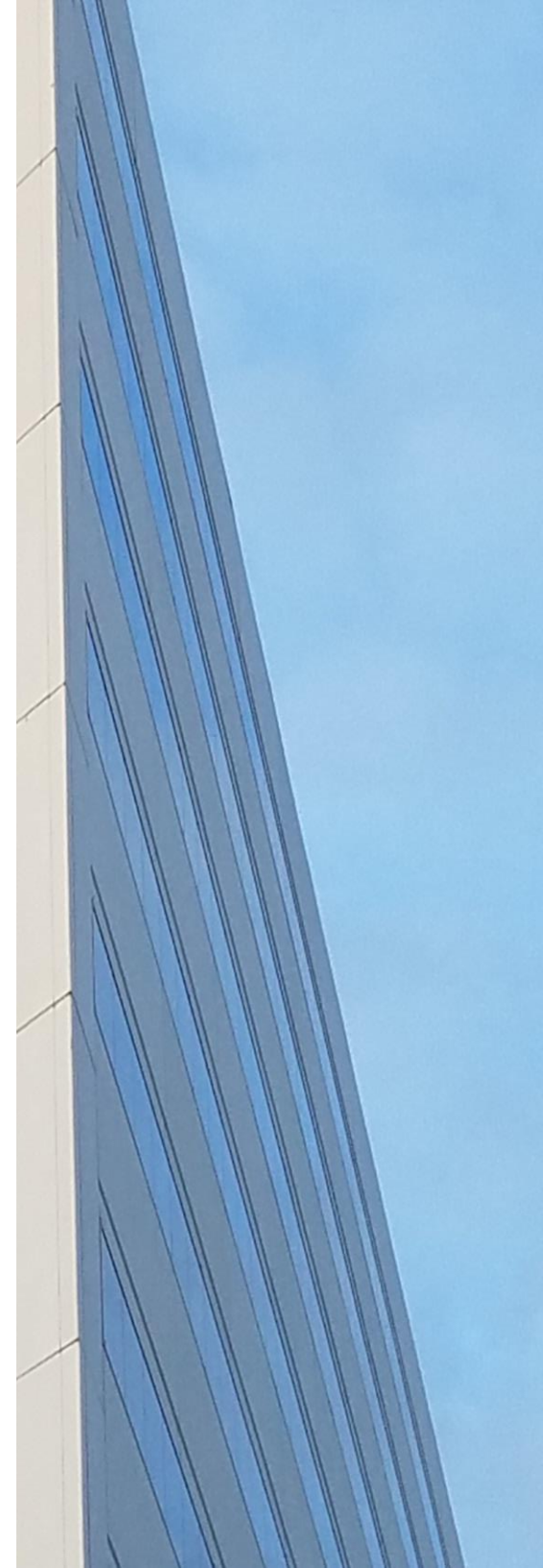
Wilshire Consulting
Contents

Capital Market Review

Tab 1

Investment Performance

Tab 2



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.



CAPITAL MARKET REVIEW

ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST						ANNUALIZED 5-YEAR AS OF 9/2019
2014	2015	2016	2017	2018	2019 YTD	
REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	REITs 27.2%	U.S. Equity 10.6%
U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	U.S. Equity 20.1%	REITs 10.2%
Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 13.4%	High Yield 5.4%
MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	High Yield 11.4%	Developed 3.8%
U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	MLPs 11.1%	Core Bond 3.4%
High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.5%	Emrg Mrkts 2.7%
T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 7.6%	U.S. TIPS 2.4%
Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Emrg Mrkts 6.2%	T-Bills 1.0%
Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	Commodities 3.1%	Commodities -7.2%
Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 1.8%	MLPs -8.6%

Data sources: Wilshire Compass

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

MARKET COMMENTARY

U.S. Equity

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

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

Non-U.S. Equity

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

Fixed Income

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

SEPTEMBER 2019 ASSET CLASS ASSUMPTIONS

	EQUITY						FIXED INCOME						REAL ASSETS					
	US Stock	Dev	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT		High Yield	Dev ex-US Bond (Hdg)	Real Estate			Comdty	Real Assets	US CPI
		ex-US Stock							Core Bond	Core Bond			TIPS	US RES	Global RES			
COMPOUND RETURN (%)	6.00	6.50	6.50	6.75	6.45	8.05	1.60	2.70	3.25	1.90	4.20	0.75	4.70	4.90	6.60	3.15	5.70	1.55
ARITHMETIC RETURN (%)	7.30	7.95	9.45	8.35	7.75	11.40	1.60	2.85	3.70	2.10	4.65	0.80	6.05	6.05	7.50	4.20	6.05	1.55
EXPECTED RISK (%)	17.00	18.00	26.00	18.80	17.05	28.00	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.75	1.75
CASH YIELD (%)	2.00	3.50	2.50	3.25	2.55	0.00	1.60	2.80	4.05	2.10	7.55	1.35	3.55	3.55	2.60	1.60	2.35	0.00
CORRELATIONS																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.81	1.00																
Emerging Mkt Stock	0.74	0.74	1.00															
Global ex-US Stock	0.83	0.96	0.86	1.00														
Global Stock	0.94	0.92	0.82	0.94	1.00													
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.93	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.60	0.47	1.00								
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.66	0.39	0.26	1.00						
US RE Securities	0.59	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
Global RE Securities	0.65	0.59	0.56	0.62	0.66	0.58	-0.05	0.17	0.22	0.11	0.62	0.03	0.94	1.00				
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.76	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.42	0.43	0.50	0.48	0.47	0.43	0.01	0.24	0.25	0.41	0.53	0.06	0.65	0.69	0.69	0.59	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

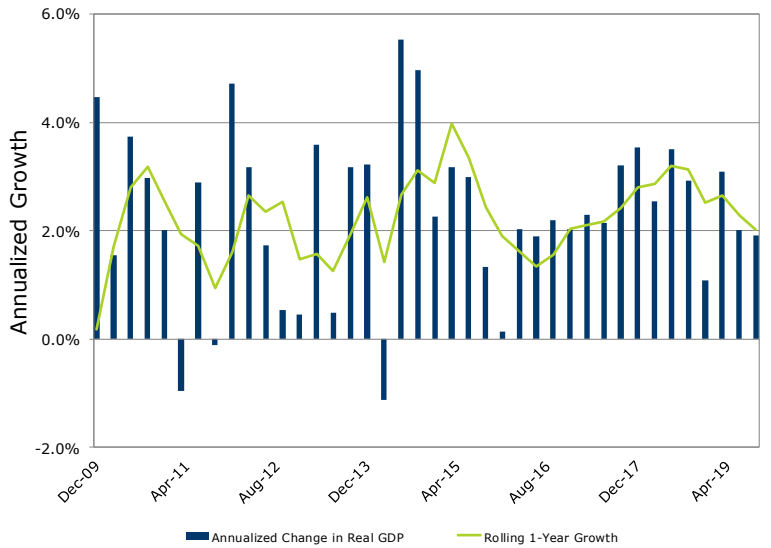
ECONOMIC REVIEW

AS OF SEPT 30, 2019 KEY ECONOMIC INDICATORS

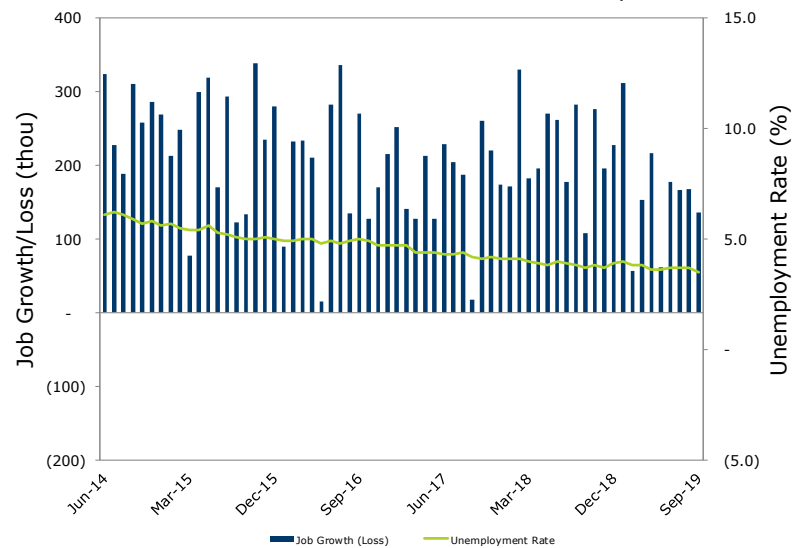
CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Sep-19	0.0	3-Mo.	0.4
	Aug-19	0.1	12-Mo.	1.7
	Jul-19	0.3	10-Yr. (Annual)	1.7
BREAKEVEN INFLATION	10-Yr.	1.5		
CONSUMER SENTIMENT	Sep-19	93.2		
U. OF MICHIGAN SURVEY	Aug-19	89.8		
	1-Yr. Ago	100.1	10-Yr. Avg	84.8
MANUFACTURING	Sep-19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

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

CHANGES IN REAL GDP (2012 BASE YEAR)



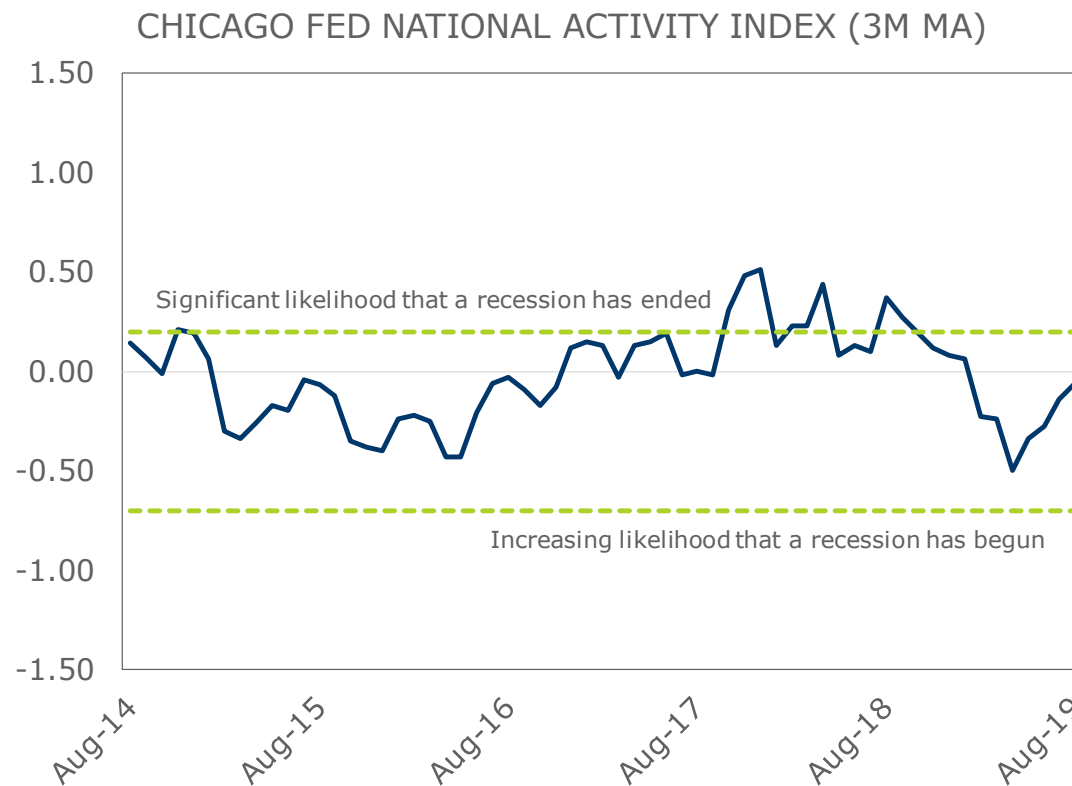
UNEMPLOYMENT RATE AND JOB GROWTH/LOSS



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

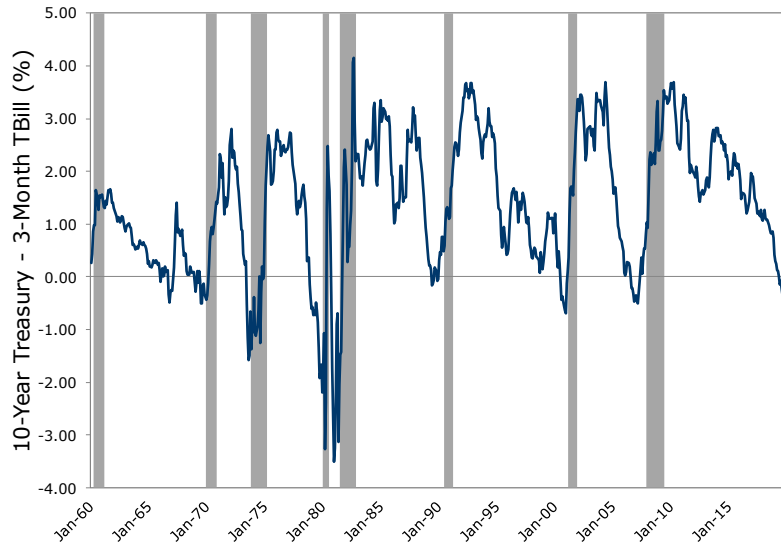
NATIONAL ACTIVITY INDEX

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

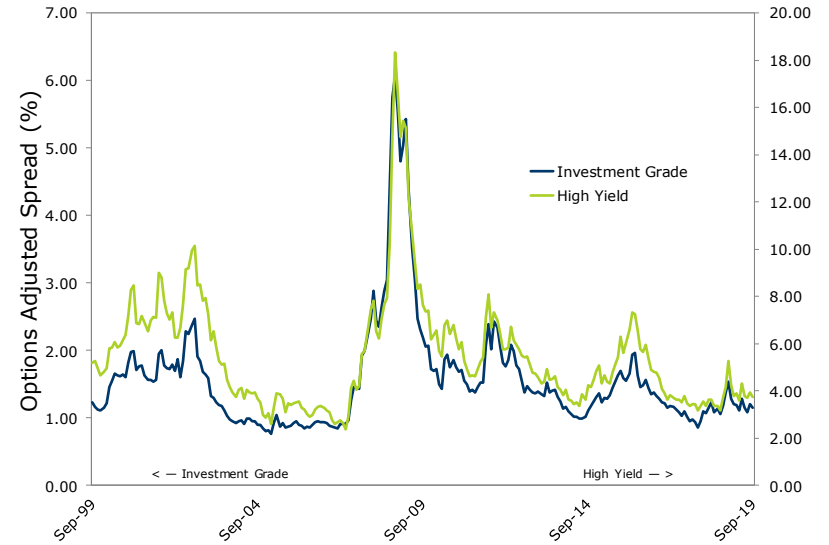


RISK MONITOR

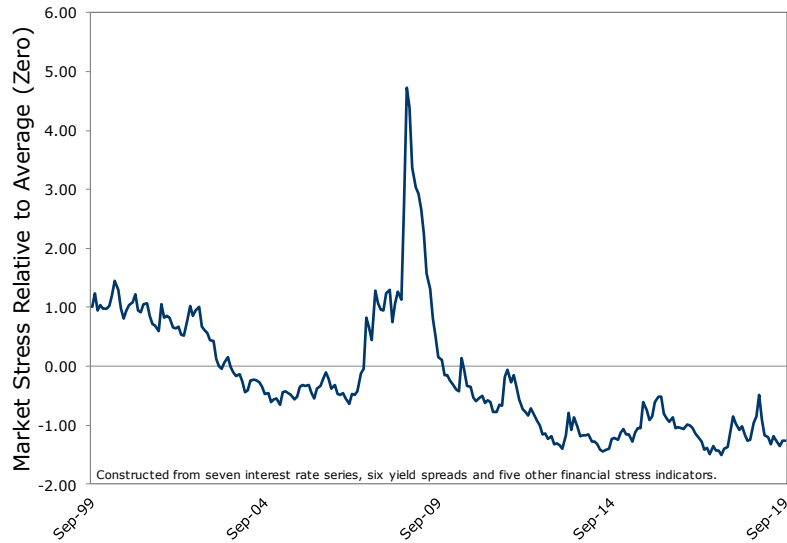
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



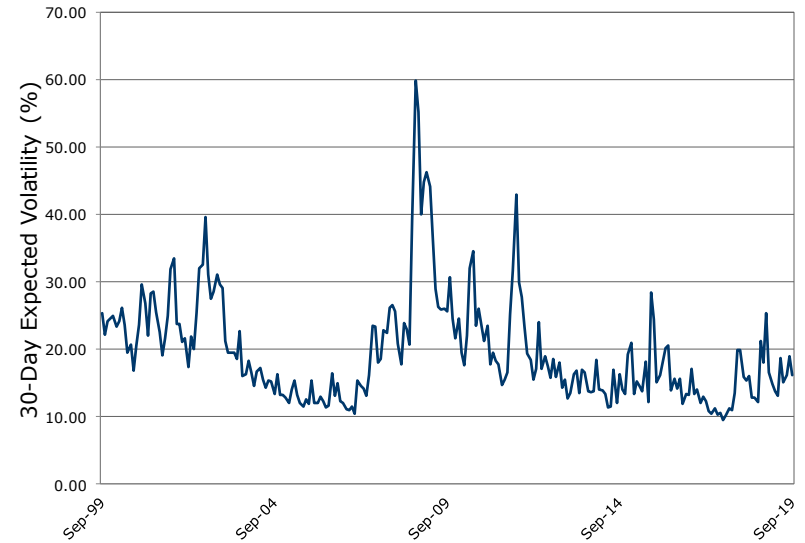
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



CBOE VOLATILITY INDEX

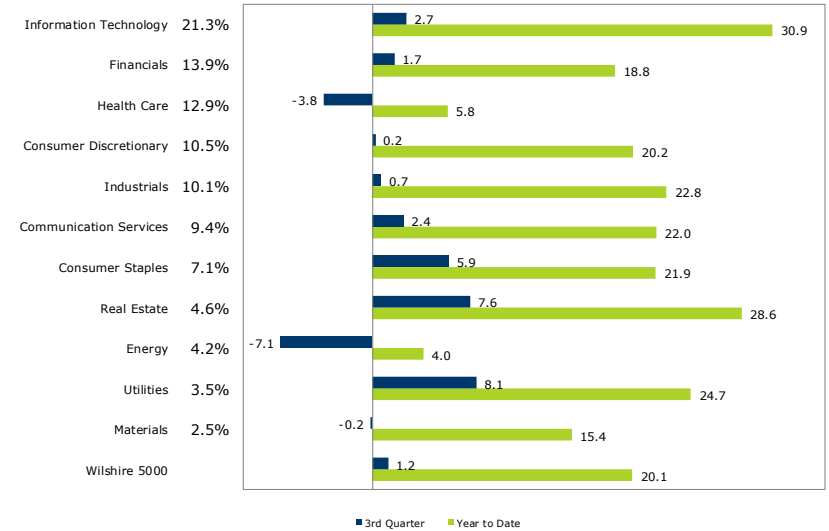


Data sources: Federal Reserve, Bloomberg Barclays

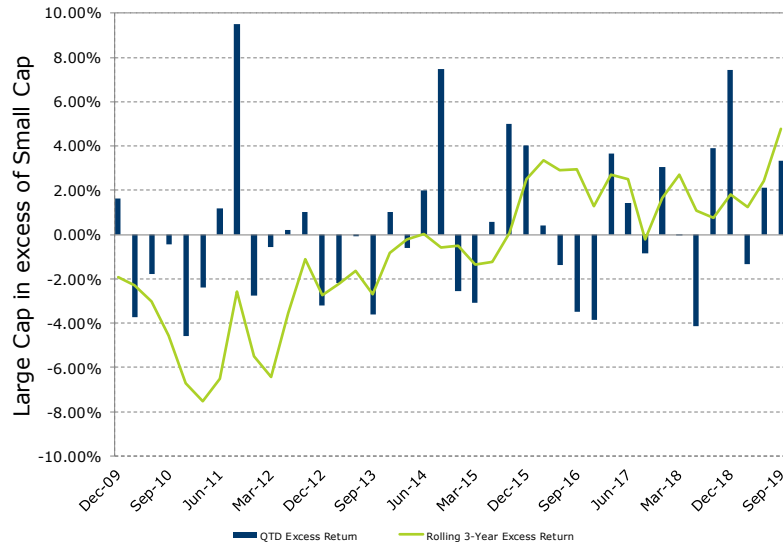
U.S. EQUITY MARKET

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

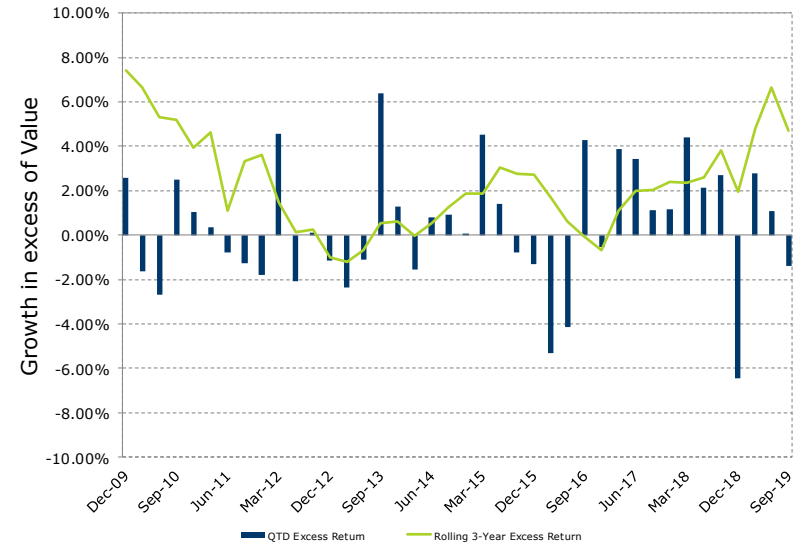
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



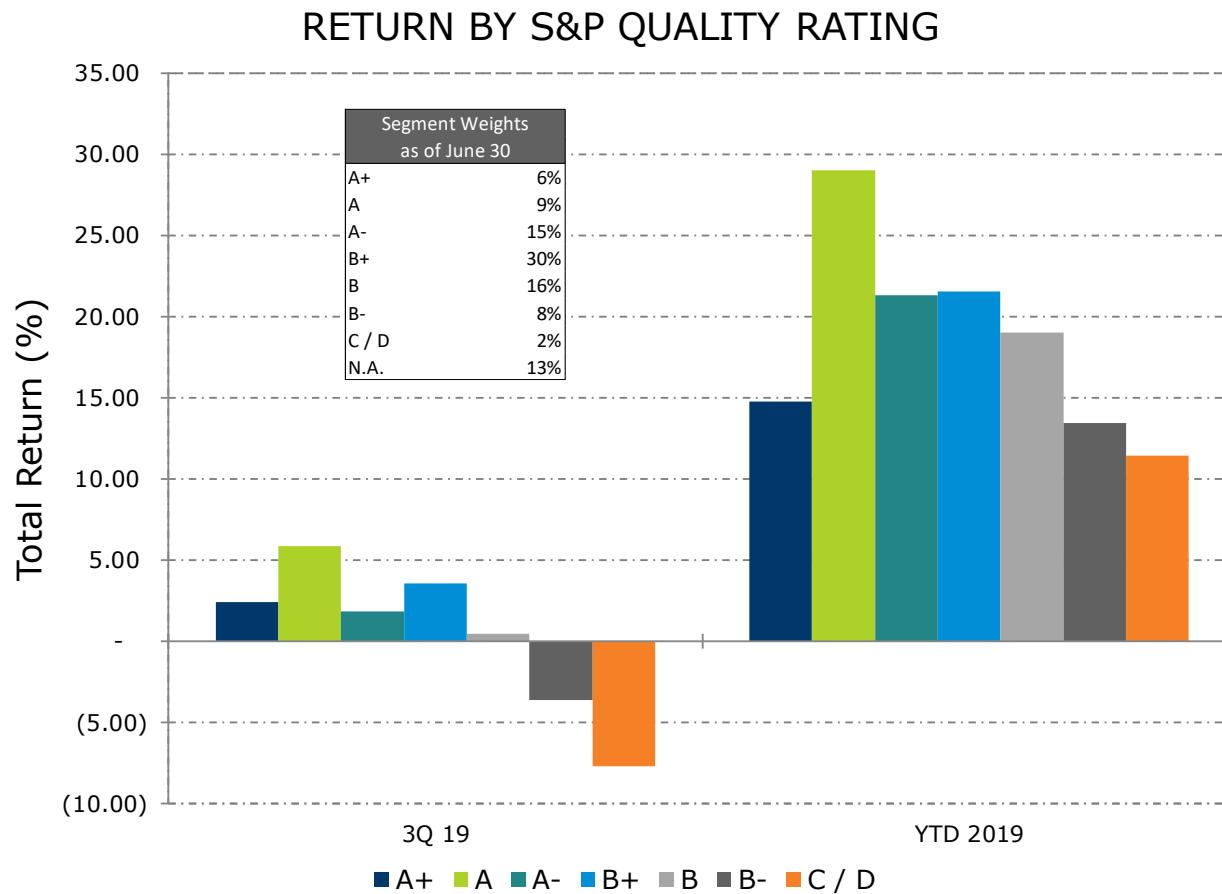
GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

RETURNS BY QUALITY SEGMENT

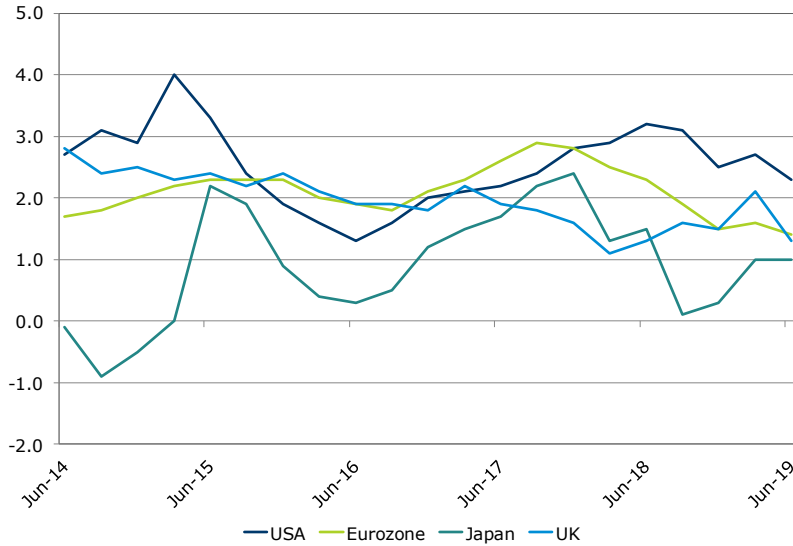
Higher quality names continue to lead the market during the third quarter



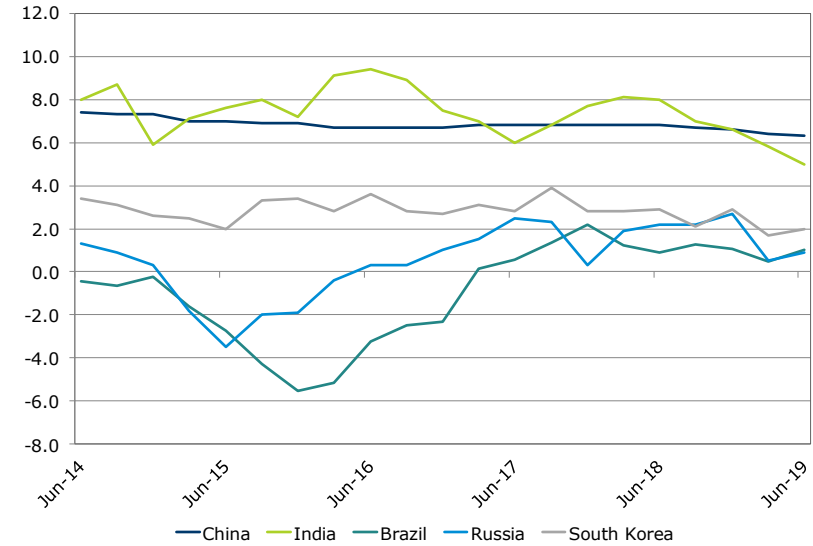
Data sources: Wilshire Atlas

NON-U.S. GROWTH AND INFLATION

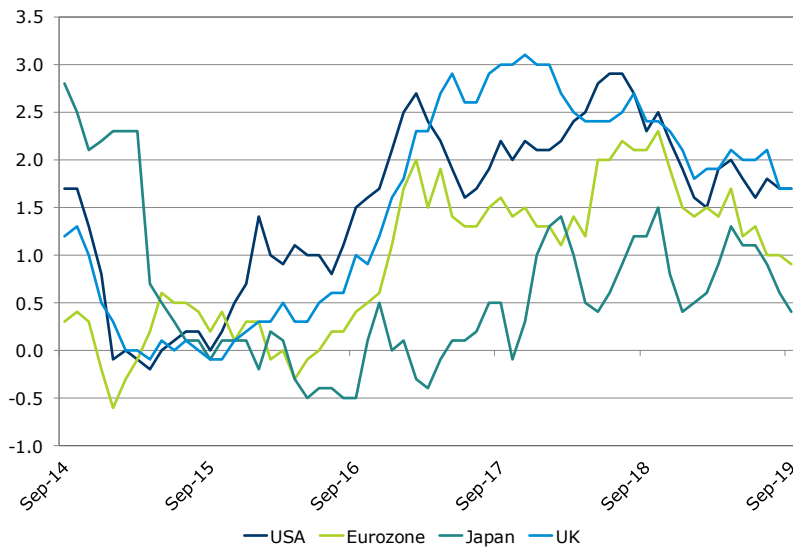
DEVELOPED MARKETS REAL GDP GROWTH YoY (%)



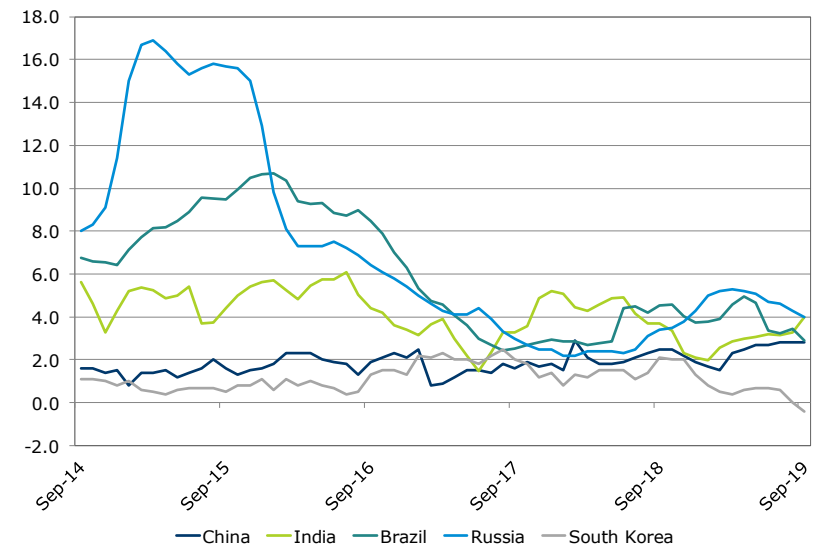
EMERGING MARKETS REAL GDP GROWTH YoY (%)



DEVELOPED MARKETS CPI GROWTH YoY (%)



EMERGING MARKETS CPI GROWTH YoY (%)



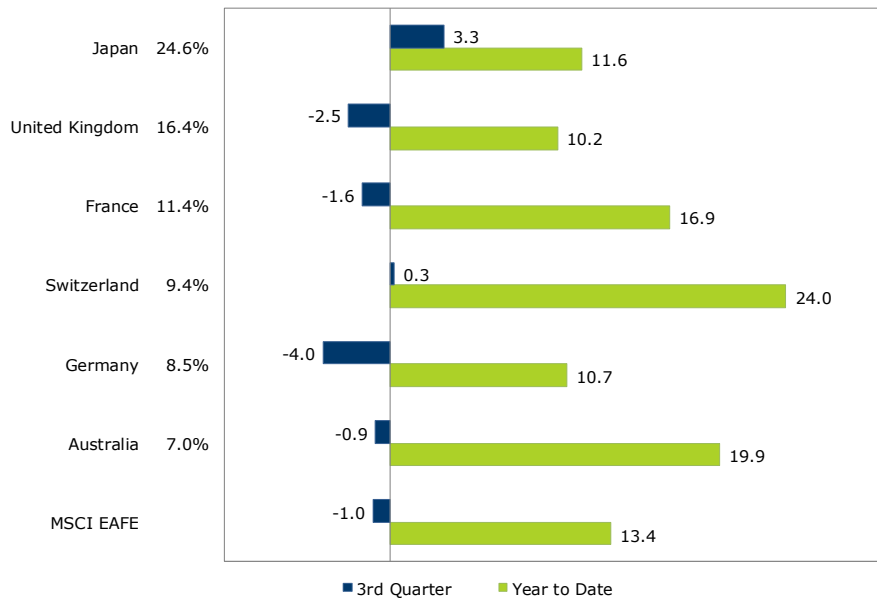
Data sources: Bloomberg

©2019 Wilshire Associates.

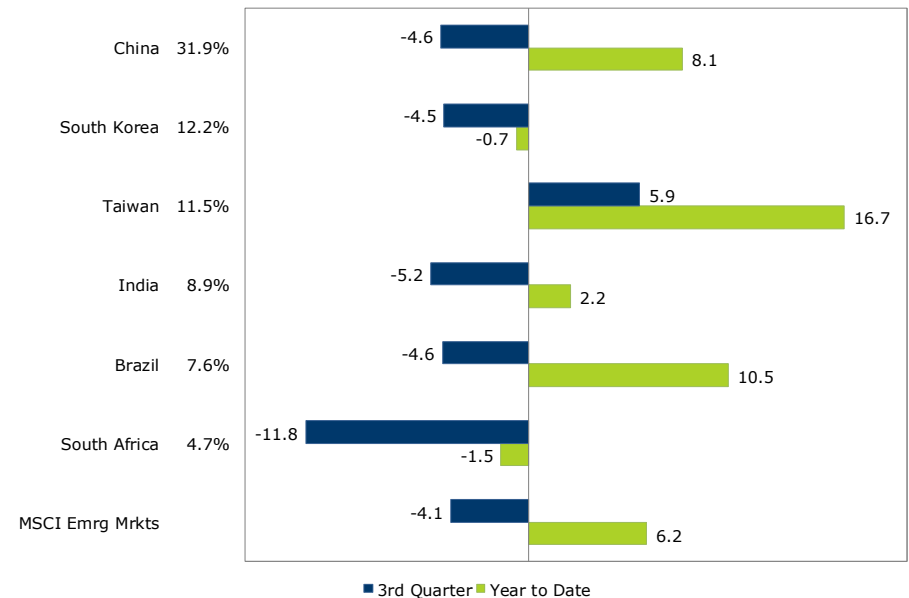
NON-U.S. EQUITY MARKET

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

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



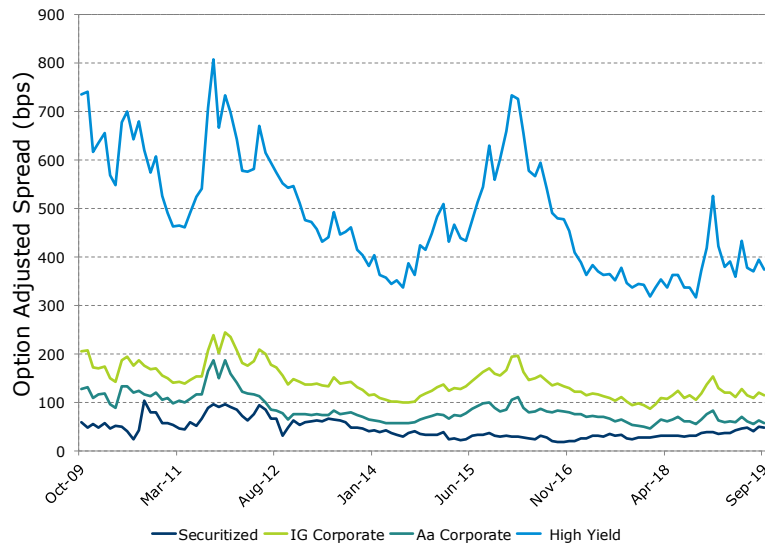
Data sources: Wilshire Compass

U.S. FIXED INCOME

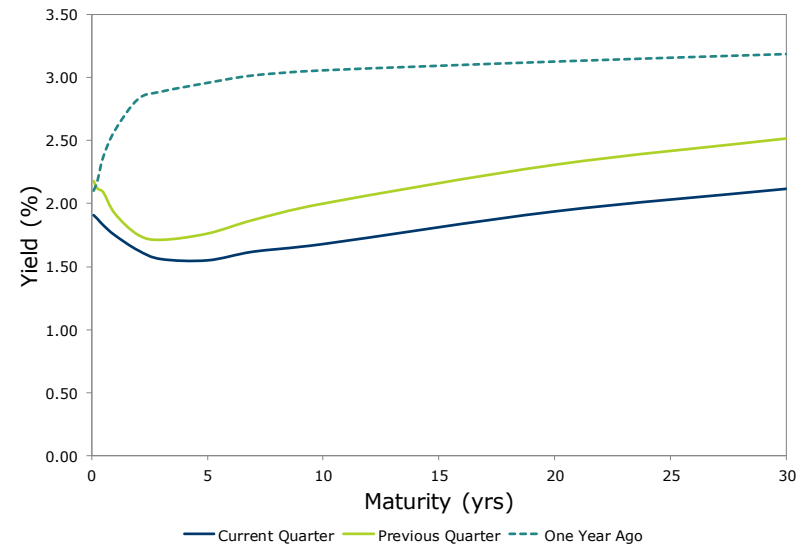
AS OF SEPT 30, 2019	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.3	5.8	2.3	8.5	10.3	2.9	3.4	3.7
BLOOMBERG BARCLAYS TREASURY	1.7	6.6	2.4	7.7	10.5	2.2	2.9	3.1
BLOOMBERG BARCLAYS GOV'T-REL.	2.4	5.8	2.4	8.8	10.1	3.2	3.4	3.5
BLOOMBERG BARCLAYS SECURITIZED	2.4	2.9	1.4	5.8	7.9	2.4	2.8	3.3
BLOOMBERG BARCLAYS CORPORATE	2.9	7.8	3.1	13.2	13.0	4.5	4.7	5.6
BLOOMBERG BARCLAYS LT G/C	3.0	15.9	6.6	20.9	21.9	5.6	6.8	7.4
BLOOMBERG BARCLAYS LT TREASURY	2.1	18.3	7.9	19.8	24.8	4.1	6.8	6.9
BLOOMBERG BARCLAYS LT GOV'T-REL.	3.5	12.7	5.6	18.8	18.8	6.0	6.5	7.3
BLOOMBERG BARCLAYS LT CORP.	3.6	14.4	5.6	22.3	20.1	6.5	7.0	7.8
BLOOMBERG BARCLAYS U.S. TIPS *	1.6	7.6	1.4	7.6	7.1	2.2	2.4	3.5
BLOOMBERG BARCLAYS HIGH YIELD	6.3	3.1	1.3	11.4	6.4	6.1	5.4	7.9
TREASURY BILLS	1.9	0.25	0.6	1.8	2.4	1.5	1.0	0.5

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

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



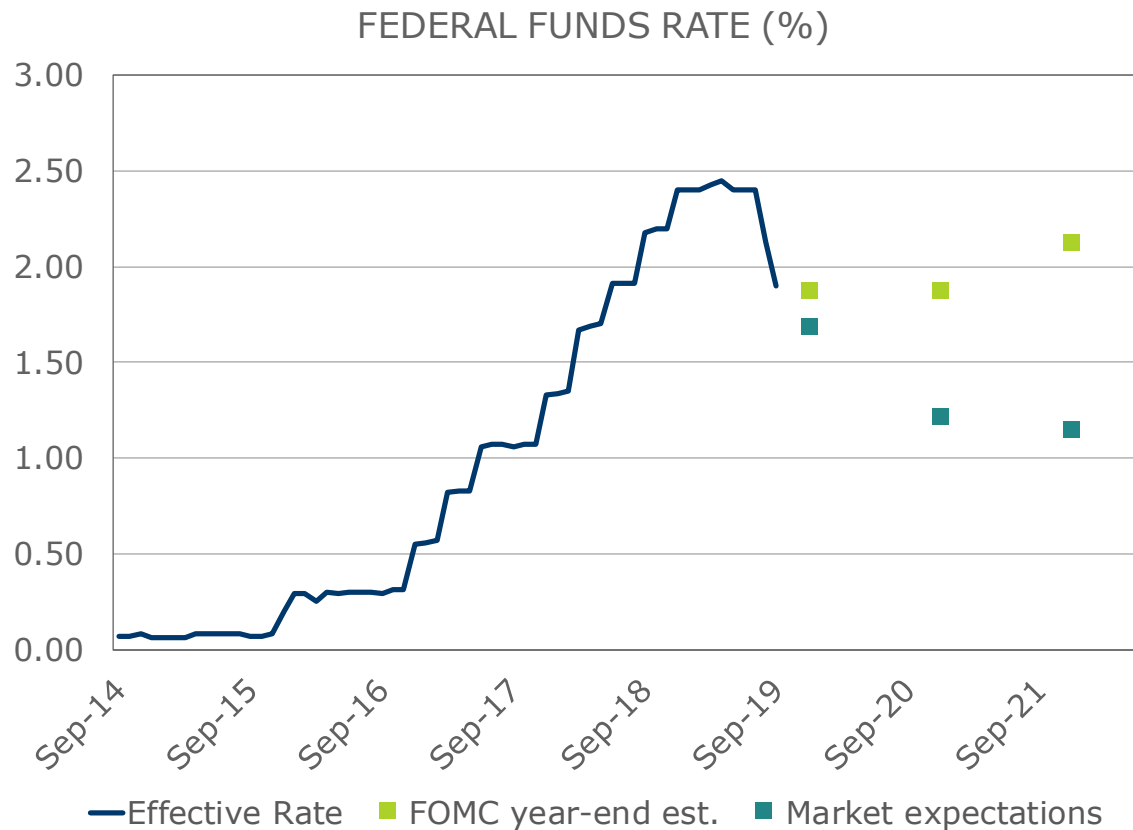
TREASURY YIELD CURVE



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

SHORT-TERM RATES

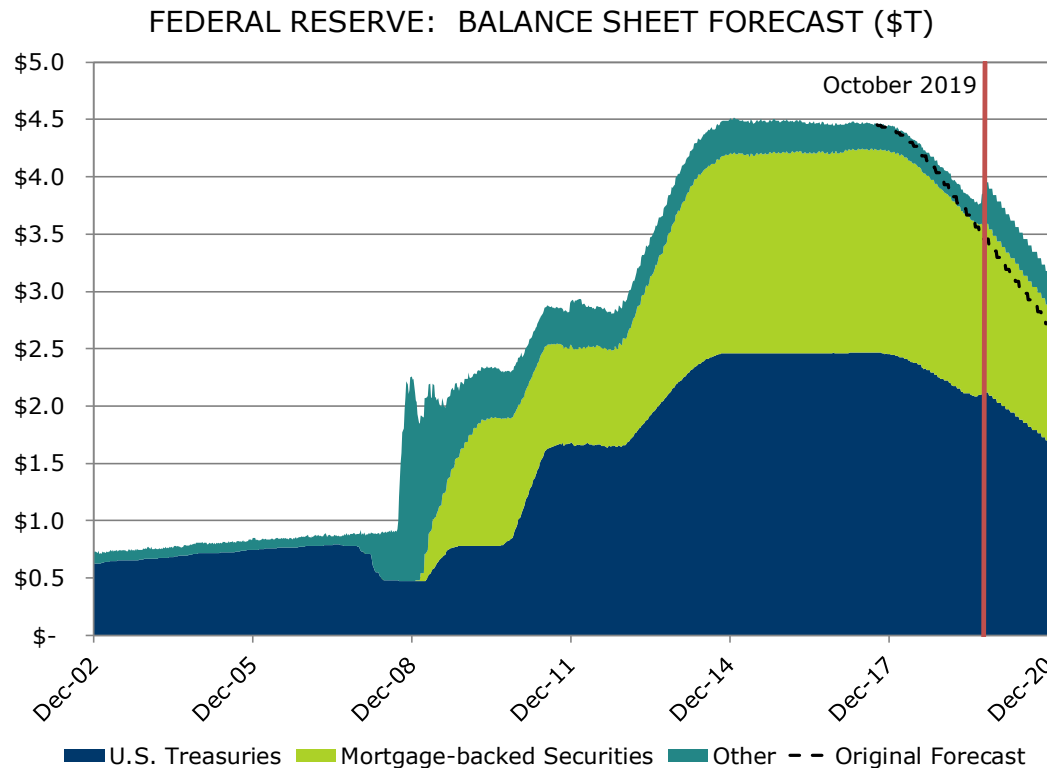
- Federal Reserve decreased their short-term rate twice during the 3rd quarter
- Markets are far more dovish, expecting additional decreases this year and next



Data sources: Federal Reserve, Bloomberg

FED BALANCE SHEET

- Federal Reserve began their balance sheet normalization program during October 2017; targeting \$10B in reductions per month while increasing to \$50B per month in Q4 2018
- A liquidity shortage in the repo market in September forced the Fed to supply cash to the market; will continue to offer liquidity to money markets when necessary

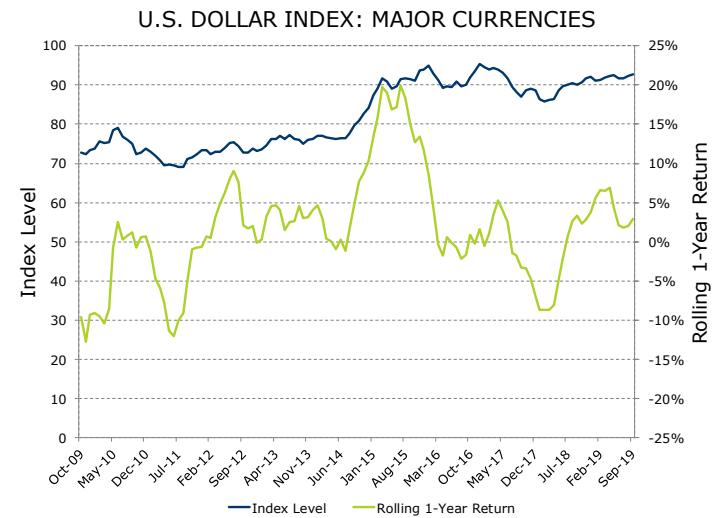
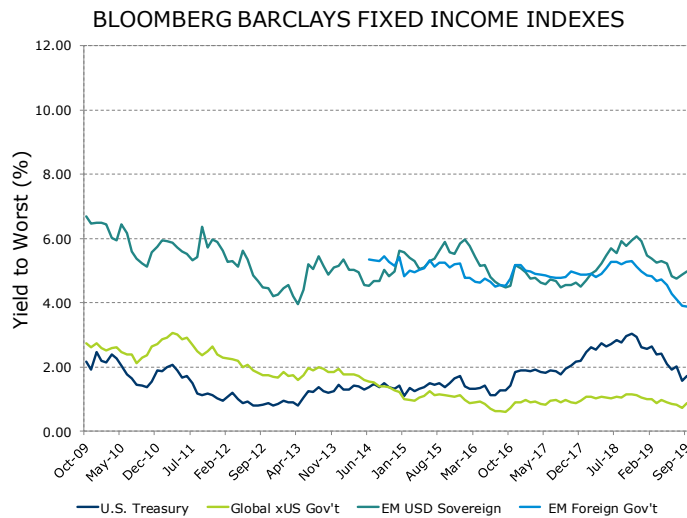


Data sources: Federal Reserve

NON-U.S. FIXED INCOME

AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GBL AGGREGATE xUS	-0.6	4.4	5.3	0.4	0.9	1.3
BLMBRG BRCLYS GBL AGGREGATE xUS *	2.8	8.8	10.8	4.1	4.6	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	2.0	8.4	7.2	2.1	1.9	3.3
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	6.0	13.9	15.4	5.5	7.3	6.5
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	1.3	10.8	10.6	4.4	5.0	6.7
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOVT	-0.6	5.3	7.9	2.4	1.1	3.3
BLMBRG BRCLYS EM LOCAL CURR. GOVT *	2.8	7.9	10.7	3.7	3.8	3.8
CURRENCY VS. DOLLAR						
EURO vs. DOLLAR	-4.3	-4.6	-6.1	-1.0	-2.9	-2.9
YEN vs. DOLLAR	-0.3	1.5	5.1	-2.1	0.3	-1.9
POUND vs. DOLLAR	-3.2	-3.2	-5.5	-1.7	-5.3	-2.6

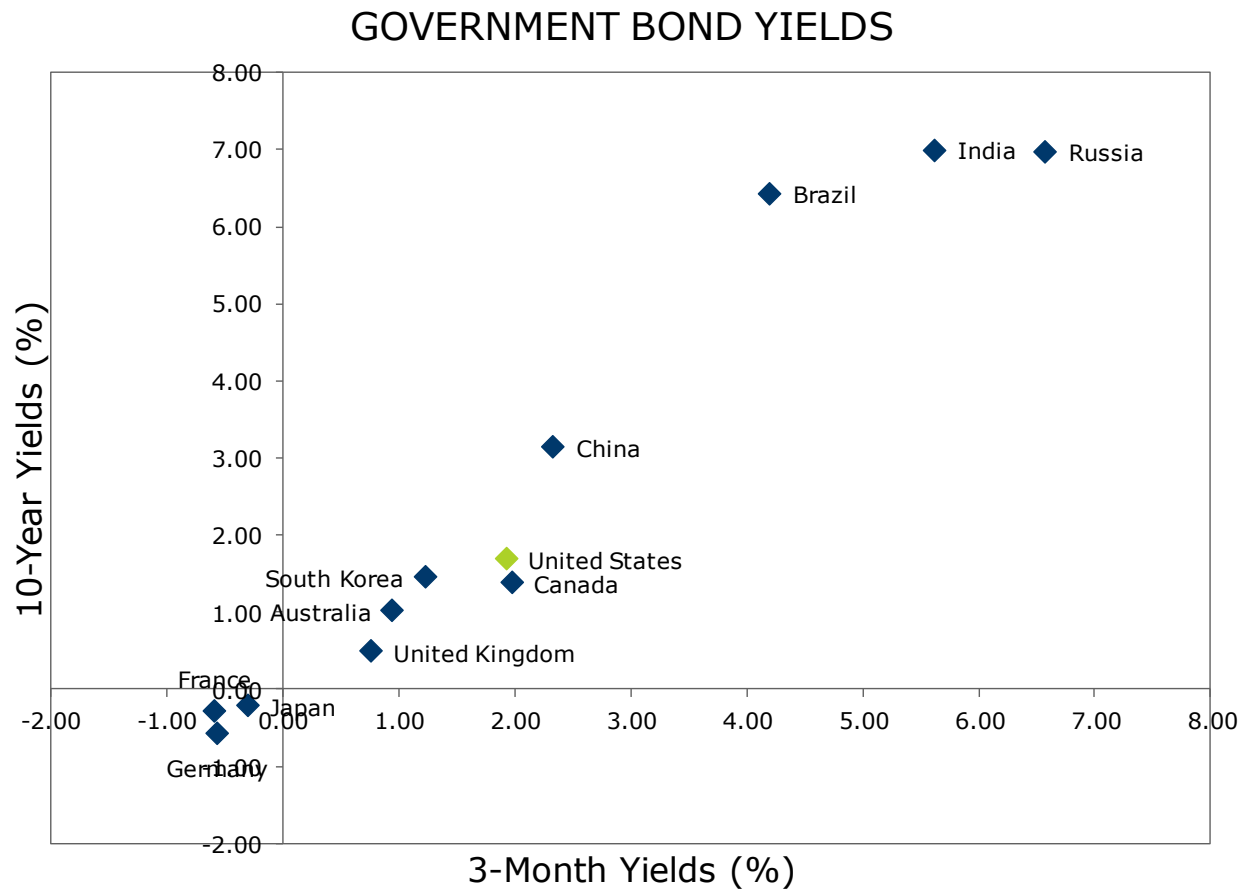
* Returns are reported in terms of local market investors, which removes currency effects.



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

GLOBAL INTEREST RATES

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



Data sources: Bloomberg

NEGATIVE RATES

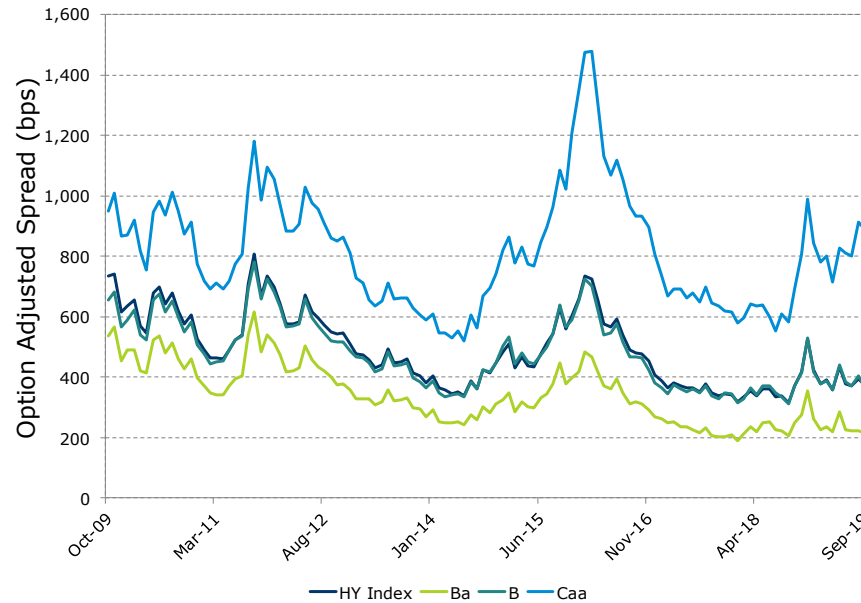
- Pricing in some markets is such that short-term rates are discounted to remain negative
- Main concern with negative rates is that market participants hold cash rather than bank deposits
 - Minimum deposit rates and tiered bank reserves partially protect against negative interest
 - However, this limits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

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

HIGH YIELD BOND MARKET

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

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



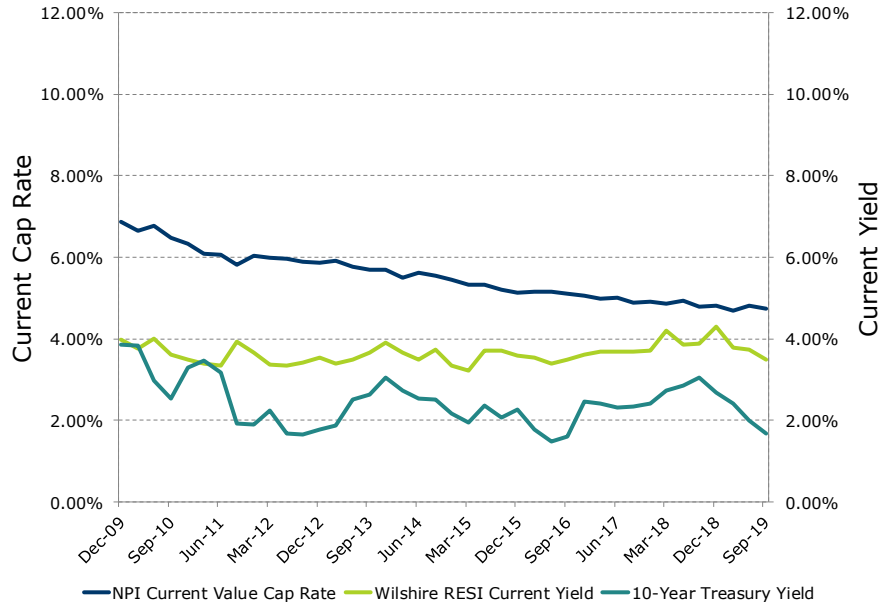
Data sources: Wilshire Compass, Bloomberg Barclays

Wilshire Consulting REAL ASSETS

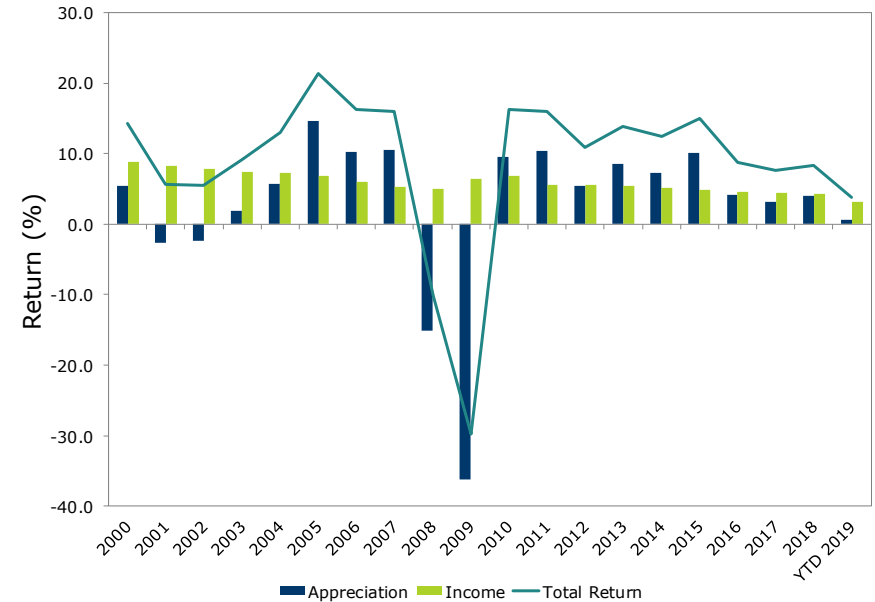


AS OF SEPT 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	1.4	7.6	7.1	2.2	2.4	3.5
BLOOMBERG COMMODITY INDEX	-1.8	3.1	-6.6	-1.5	-7.2	-4.3
WILSHIRE GLOBAL RESI INDEX	5.2	22.8	15.3	7.1	8.4	10.9
NCREIF ODCE FUND INDEX	1.3	3.8	5.6	7.3	9.3	10.9
NCREIF TIMBERLAND INDEX	0.2	1.3	2.1	3.1	4.4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

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN



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



TOTAL FUND

Proposed Policy Allocation vs Actual Allocation

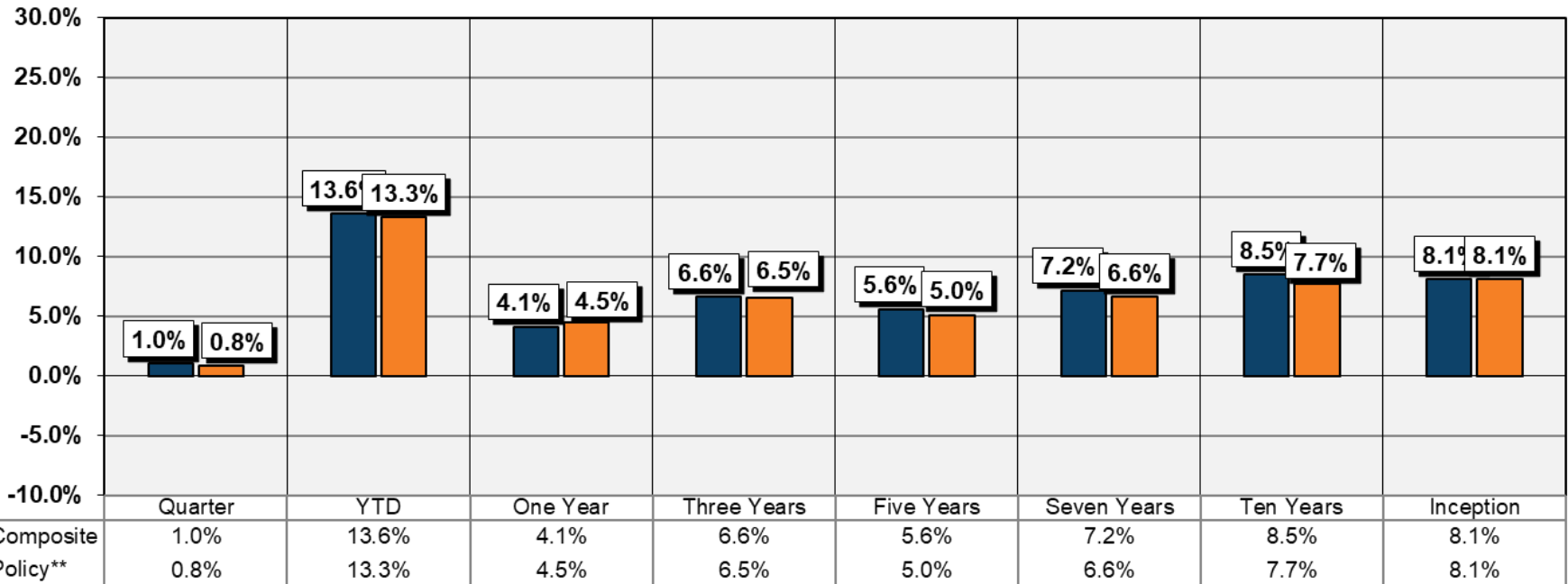
Total Fund Composite

As of September 30, 2019

	Market Value (in \$'000)	Asset Allocation		
		Actual	Approved Policy	Variance
US Equity	\$76,501	17.79%	17.75%	0.04%
Non - US Equity	\$74,899	17.41%	17.75%	-0.34%
Global Low Volatility Equity	\$41,942	9.75%	10.00%	-0.25%
Private Equity	\$22,433	5.22%	5.00%	0.22%
Private Credit	\$11,232	2.61%	5.00%	-2.39%
Total Growth Assets	\$227,007	52.78%	55.50%	-2.72%
Core Fixed Income	\$110,127	25.61%	24.50%	1.11%
Cash	\$3,189	0.74%	0.00%	0.74%
Total Diversifying Assets	\$113,317	26.35%	24.50%	1.85%
TIPS	\$28,664	6.66%	5.00%	1.66%
Commodities	\$18,806	4.37%	5.00%	-0.63%
Real Estate	\$22,406	5.21%	5.00%	0.21%
MLPs	\$19,888	4.62%	5.00%	-0.38%
Total Inflation Hedging Assets	\$89,763	20.87%	20.00%	0.87%
Total Fund	\$430,087	100.00%	100.00%	0.00%

Investment Performance Total Fund Composite*

As of September 30, 2019

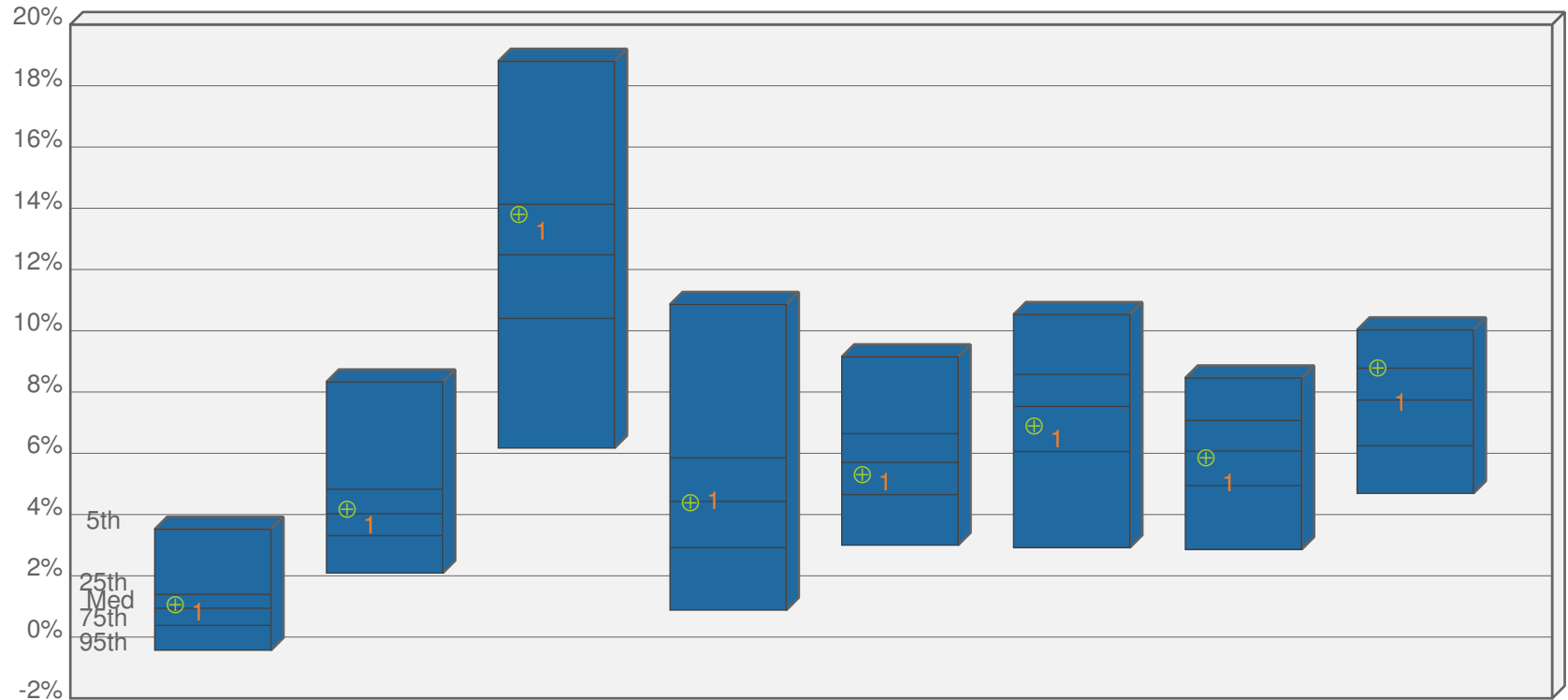


■ Total Fund Composite
■ Total Fund Policy**

*Returns are net of fees.

**Policy index = Wilshire 5000 (17.75%), MSCI ACWI ex U.S. (17.75%), MSCI ACWI Min Vol (10.00%), Bloomberg Barclays Aggregate (24.50%), Bloomberg Barclays U.S. TIPS (5.00%), FTSE EPRA NAREIT Dev RE (5.00%), Wilshire 5000 +2.5% (5.00%), Bloomberg Commodity Index (5.00%), Alerian MLP Index (5.00%), S&P LSTA Leveraged Loan (5.00%)

Wilshire Consulting
PERFORMANCE COMPARISON
 Total Fund Composite
 Periods Ended September 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ Total Fund	1.08 (39)	4.19 (44)	13.80 (30)	4.39 (51)	5.33 (60)	6.91 (62)	5.86 (55)	8.80 (23)
1 Policy Index	0.83 (54)	3.66 (65)	13.27 (39)	4.47 (46)	5.08 (66)	6.49 (69)	5.03 (74)	7.67 (54)
5th %tile	3.52	8.33	18.80	10.86	9.15	10.53	8.46	10.03
25th %tile	1.39	4.83	14.13	5.85	6.64	8.58	7.07	8.78
Median	0.94	4.03	12.48	4.43	5.70	7.53	6.07	7.74
75th %tile	0.38	3.31	10.40	2.92	4.65	6.06	4.95	6.25
95th %tile	-0.43	2.09	6.17	0.88	3.00	2.92	2.86	4.69
Number of Funds	299	291	288	284	276	270	265	217

*Wilcop Total Returns of Total Fund Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
U.S. Equity Composite									
Net of Fee Return	0.79	20.60	2.69	13.04	10.82	13.24	13.57	9/30/87	9.60
Wilshire 5000	1.23	20.11	2.95	12.91	10.58	13.04	13.09	9/30/87	9.58
Value Added	-0.44	0.49	-0.26	0.14	0.23	0.20	0.48	9/30/87	0.02
Non-U.S. Equity Composite									
Net of Fee Return	-1.41	14.15	-2.38	6.00	4.76	6.07	6.38	12/31/89	7.80
Policy Benchmark	-1.80	11.56	-1.23	6.33	2.90	5.01	4.45	12/31/89	4.40
Value Added	0.39	2.59	-1.15	-0.33	1.85	1.07	1.92	12/31/89	3.40
Global Min Vol Equity Composite									
Net of Fee Return	2.82							6/30/19	2.82
MSCI ACWI Min Vol (N)	2.74							6/30/19	2.74
Value Added	0.08							6/30/19	0.08
Private Equity Composite									
Net of Fee Return	5.31	11.43	17.18	16.55	13.64	12.46		6/30/10	9.85
Wilshire 5000 +2.5%	1.85	21.98	5.45	15.41	13.08	15.54		6/30/10	16.77
Value Added	3.46	-10.55	11.73	1.14	0.56	-3.09		6/30/10	-6.93
Private Credit Composite									
Net of Fee Return	0.33	1.73	1.20					9/30/18	1.20
S&P LSTA Leverage Loan Index	0.99	6.80	3.11					9/30/18	3.11
Value Added	-0.67	-5.07	-1.91					9/30/18	-1.91
Core Fixed Composite									
Net of Fee Return	2.40	9.84	11.32	3.92	4.22	3.75	5.55	9/30/87	6.84
Bloomberg Aggregate	2.27	8.52	10.30	2.92	3.38	2.72	3.75	9/30/87	6.41
Value Added	0.13	1.32	1.02	1.00	0.84	1.03	1.81	9/30/87	0.42

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Real Estate Composite									
Net of Fee Return	4.00	20.87	13.46	4.70	5.50	6.16	7.46	6/30/09	9.64
FTSE EPRA/NAREIT Dev (N)	4.63	19.82	13.00	5.61	6.81	7.15	8.63	6/30/09	10.79
Value Added	-0.63	1.06	0.46	-0.91	-1.30	-0.99	-1.18	6/30/09	-1.15
Commodities Composite									
Net of Fee Return	-1.84	6.52	-4.12	1.11	-5.48			3/31/13	-6.18
Bloomberg Commodity Index	-1.84	3.13	-6.57	-1.50	-7.18			3/31/13	-7.67
Value Added	0.00	3.39	2.45	2.61	1.70			3/31/13	1.49
MLP Composite									
Net of Fee Return	-5.23	13.86	-9.81	-2.07				3/31/15	-5.42
Alerian MLP Index	-5.02	11.08	-8.13	-1.19				3/31/15	-5.82
Value Added	-0.20	2.77	-1.68	-0.88				3/31/15	0.40
TIPS Composite									
Net of Fee Return	1.38	7.69	7.06	2.11				6/30/15	2.75
Barclays U.S. TIPS	1.35	7.58	7.13	2.21				6/30/15	2.81
Value Added	0.04	0.11	-0.06	-0.11				6/30/15	-0.07
Total Real Assets Composite									
Net of Fee Return	-0.19	11.67	2.35	1.51				3/31/15	0.27
Policy Index	0.29	10.38	2.93	1.81				3/31/15	0.40
Value Added	-0.48	1.30	-0.58	-0.30				3/31/15	-0.13
Total Fund									
Net of Fee Return	1.02	13.58	4.13	6.64	5.60	7.16	8.51	9/30/87	8.10
Policy Index	0.83	13.27	4.47	6.49	5.03	6.64	7.67	9/30/87	8.11
Value Added	0.19	0.31	-0.34	0.16	0.57	0.52	0.84	9/30/87	-0.01

CUSTOM BENCHMARK SPECIFICATION

Total Fund

September 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Index	12/79	6/98	55.00	Wilshire 5000
			40.00	Bloomberg Aggregate
			5.00	MSCI EAFE Index (N)
	9/98	9/02	50.00	Wilshire 5000
			40.00	Bloomberg Aggregate
			10.00	MSCI EAFE Index (N)
	12/02	3/06	50.00	Wilshire 5000
			35.00	Bloomberg Aggregate
			15.00	MSCI EAFE Index (N)
	6/06	6/06	55.00	Wilshire 5000
30.00			Bloomberg Aggregate	
15.00			MSCI EAFE Index (N)	
9/06	6/09	55.00	Wilshire 5000	
		30.00	Bloomberg Aggregate	
		15.00	MSCI ACWI ex US (N)	
9/09	3/10	5.00	FTSE EPRA/NAREIT Dev (N)	
		15.00	MSCI ACWI ex US (N)	
		30.00	Bloomberg Aggregate	
		50.00	Wilshire 5000	
6/10	12/12	5.00	FTSE EPRA/NAREIT Dev (N)	
		5.00	Wilshire 5000 + 2.5%	
		30.00	Bloomberg Aggregate	
		15.00	MSCI ACWI ex US (N)	
		45.00	Wilshire 5000	
3/13	3/15	5.00	FTSE EPRA/NAREIT Dev (N)	
		40.00	Wilshire 5000	
		15.00	MSCI ACWI ex US (N)	
		30.00	Bloomberg Aggregate	
		5.00	Wilshire 5000 + 2.5%	

CUSTOM BENCHMARK SPECIFICATION

Total Fund

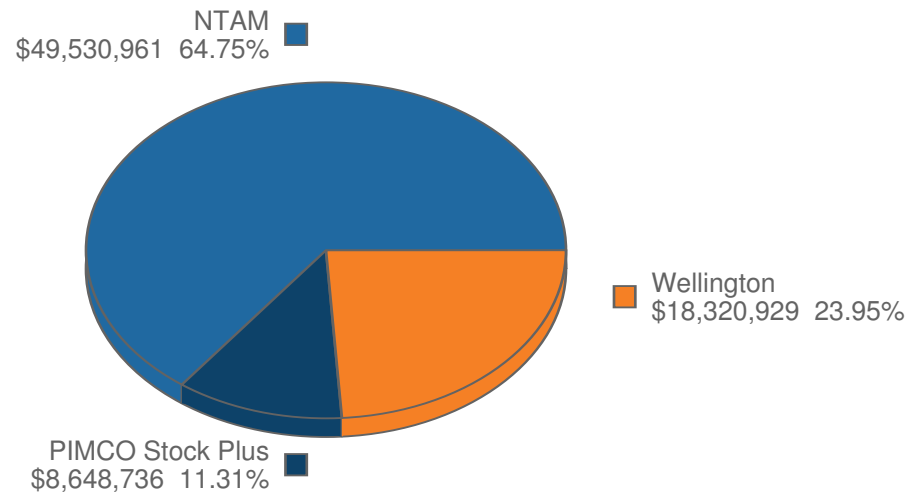
September 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)			5.00	Bloomberg Commodity Index
	6/15	3/19	22.50	Wilshire 5000
			5.00	Wilshire 5000 + 2.5%
			22.50	MSCI ACWI ex US (N)
			25.00	Bloomberg Aggregate
			5.00	FTSE EPRA/NAREIT Dev (N)
			5.00	Bloomberg Commodity Index
			10.00	Bloomberg U.S. TIPS
			5.00	S&P MLP Index
	6/19	9/19	17.75	MSCI ACWI ex US (N)
			17.75	Wilshire 5000
			5.00	Alerian MLP Index
			5.00	Bloomberg Commodity Index
			5.00	FTSE EPRA/NAREIT Dev (N)
			5.00	Bloomberg U.S. TIPS
24.50			Bloomberg Aggregate	
		5.00	S&P LSTA Leverage Loan Index	
		5.00	Wilshire 5000 + 2.5%	
		10.00	MSCI ACWI Min Vol (N)	



U.S. EQUITY

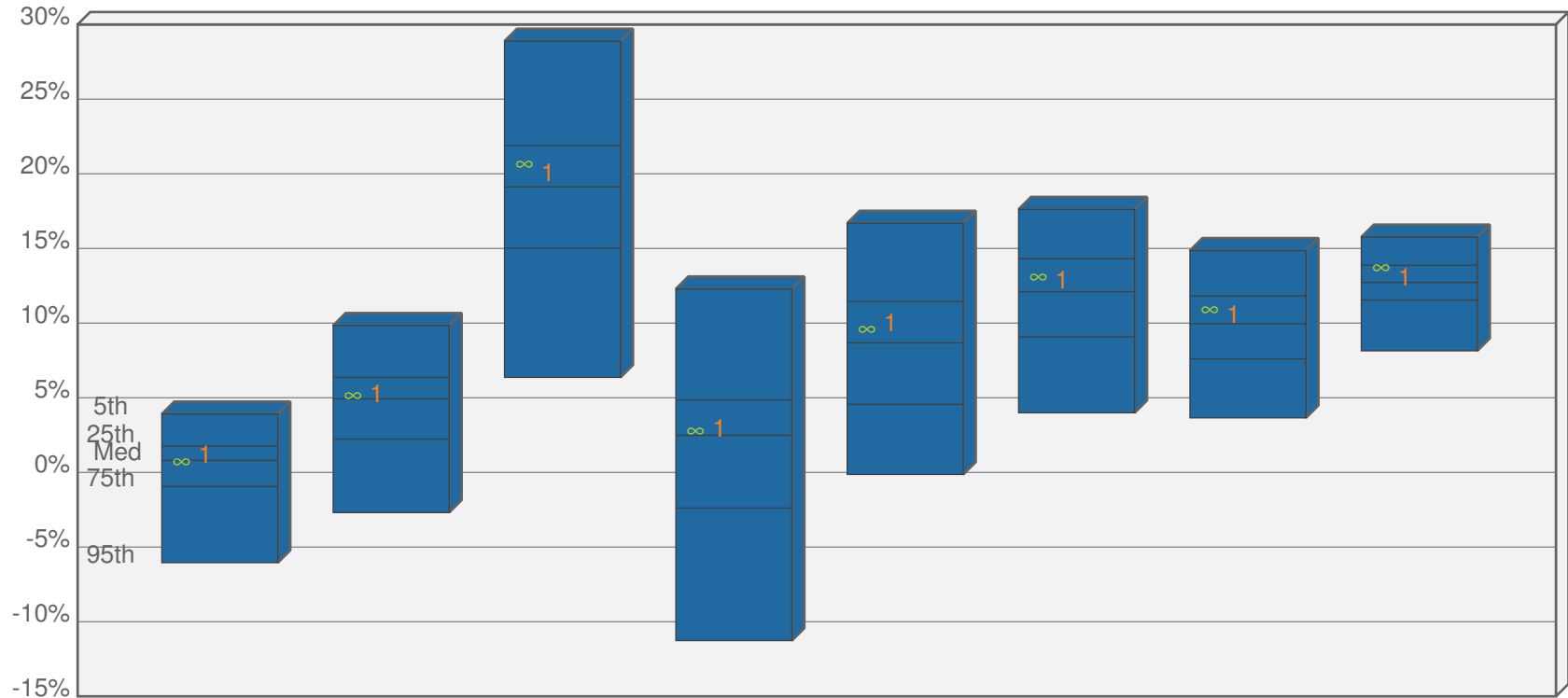
Wilshire Consulting
MANAGER ALLOCATION
U.S. Equity Composite
As of September 30, 2019



PERFORMANCE COMPARISON

U.S. Equity Composite

Periods Ended September 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ U.S. Equity Composite	0.84 (49)	5.27 (42)	20.79 (32)	2.90 (46)	9.74 (43)	13.24 (37)	11.02 (32)	13.84 (25)
1 Wilshire 5000	1.23 (43)	5.26 (42)	20.11 (42)	2.95 (46)	10.03 (41)	12.91 (41)	10.58 (41)	13.09 (42)
5th %tile	3.91	9.84	28.88	12.29	16.69	17.62	14.86	15.76
25th %tile	1.76	6.36	21.88	4.85	11.44	14.31	11.81	13.87
Median	0.80	4.92	19.12	2.48	8.67	12.10	9.96	12.72
75th %tile	-0.94	2.23	15.03	-2.39	4.56	9.07	7.60	11.54
95th %tile	-6.05	-2.69	6.36	-11.27	-0.14	3.99	3.65	8.14
Number of Funds	651	638	637	632	606	593	551	311

*Wilcop Total Returns of Equity Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

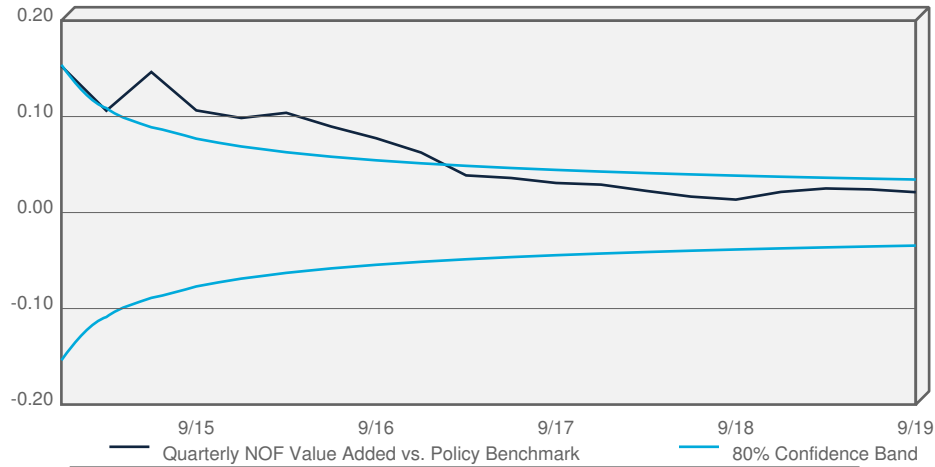
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
NTAM									
Net of Fee Return	1.69	20.57	4.31	13.38	10.86	13.28	13.25	9/30/98	7.49
Policy Benchmark	1.70	20.55	4.25	13.39	10.84	13.26	13.24	9/30/98	7.49
Value Added	-0.01	0.02	0.05	-0.02	0.02	0.02	0.01	9/30/98	0.00
PIMCO Stock Plus									
Net of Fee Return	1.66	21.53	4.25	13.64	10.61	13.40	14.26	9/30/00	6.51
Standard & Poor's 500	1.70	20.55	4.25	13.39	10.84	13.26	13.24	9/30/00	5.98
Value Added	-0.04	0.98	-0.00	0.24	-0.23	0.15	1.02	9/30/00	0.53
Wellington									
Net of Fee Return	-1.97	20.19	-1.89	11.96	10.78	13.38	14.67	9/30/99	11.21
Russell 2000	-2.40	14.18	-8.89	8.23	8.19	10.43	11.19	9/30/99	7.99
Value Added	0.43	6.01	7.00	3.73	2.60	2.95	3.47	9/30/99	3.22
U.S. Equity Composite									
Net of Fee Return	0.79	20.60	2.69	13.04	10.82	13.24	13.57	9/30/87	9.60
Wilshire 5000	1.23	20.11	2.95	12.91	10.58	13.04	13.09	9/30/87	9.58
Value Added	-0.44	0.49	-0.26	0.14	0.23	0.20	0.48	9/30/87	0.02

INVESTMENT MANAGER ANALYSIS

NTAM

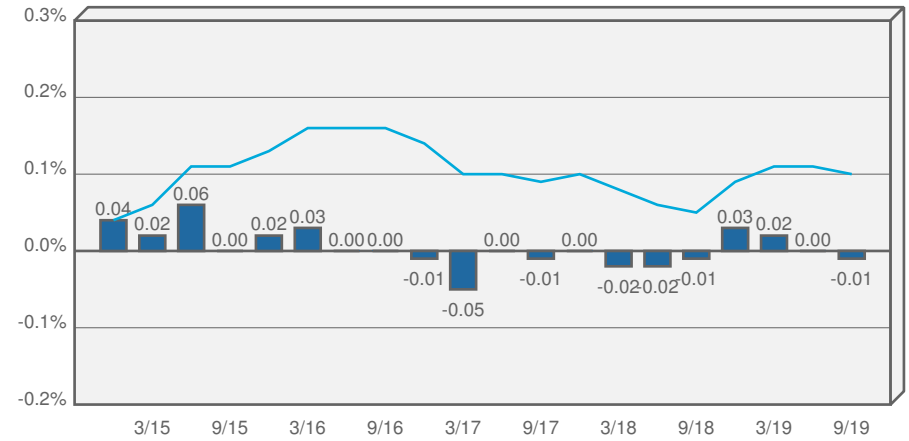
September 30, 2019

Cumulative Skill Analysis vs Benchmark



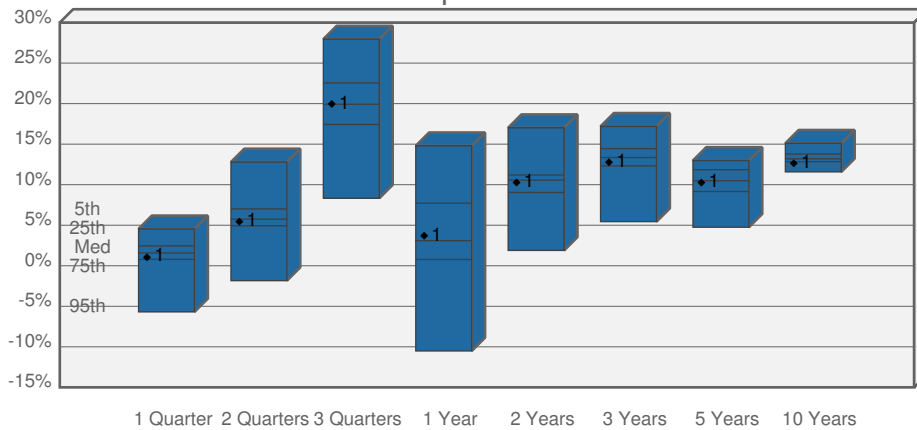
Excess Return:	0.02	Information Ratio:	0.45
Excess Risk:	0.05	T-Stat:	1.01

Value-Added Analysis vs Benchmark



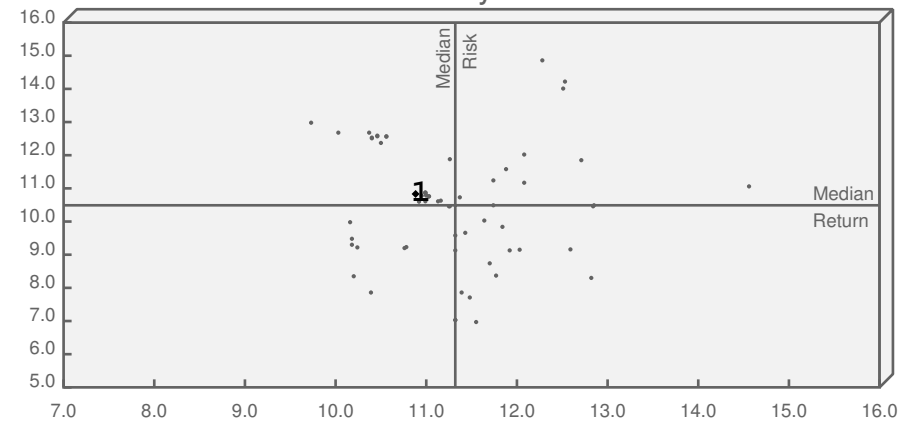
■ Quarterly NOF Value Added vs. Policy Benchmark
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◆ NTAM	1.70 (44)	6.10 (30)	20.62 (30)	4.36 (29)	10.93 (32)	13.43 (46)	10.92 (31)	13.30 (39)
1 Policy Benchmark	1.70 (44)	6.08 (36)	20.55 (35)	4.25 (35)	10.87 (37)	13.39 (46)	10.84 (35)	13.24 (46)
Median	1.58	5.75	19.92	3.09	10.56	13.35	10.49	13.19
Number of Funds	67	67	67	67	66	66	62	30

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NTAM	◆	10.92	31	11.00	61
Policy Benchmark	1	10.84	35	11.00	61
Median		10.49		11.32	

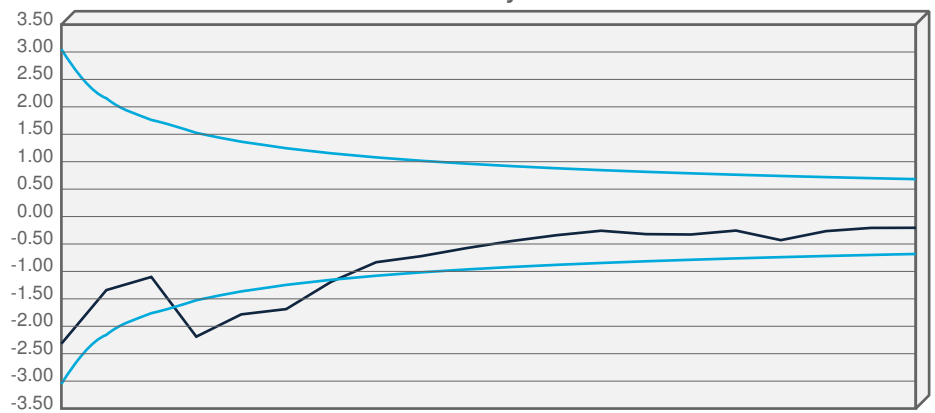
*Wilcop Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

PIMCO Stock Plus

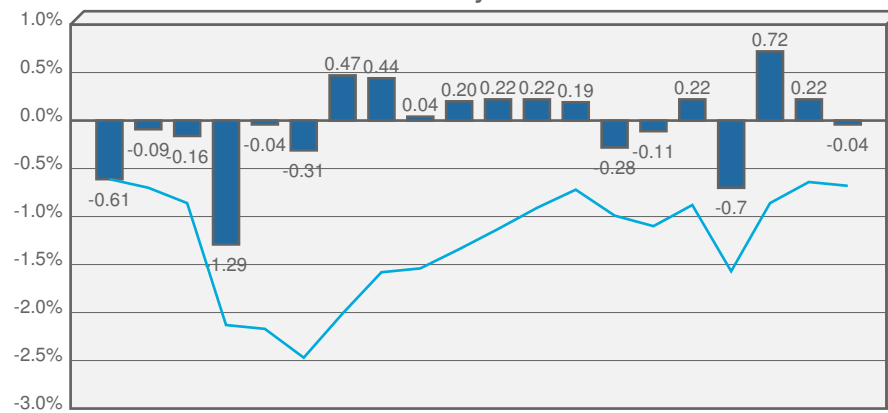
September 30, 2019

Cumulative Skill Analysis vs Benchmark



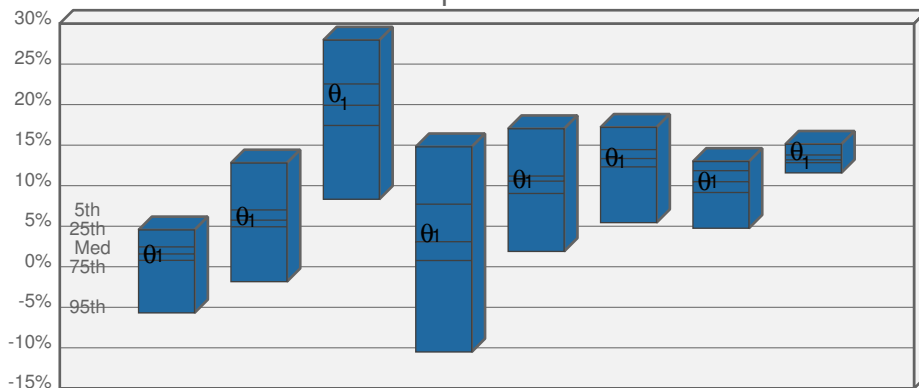
Quarterly NOF Value Added vs. Standard & Poor's 500		80% Confidence Band
Excess Return:	-0.20	Information Ratio: -0.22
Excess Risk:	0.93	T-Stat: -0.49

Value-Added Analysis vs Benchmark



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

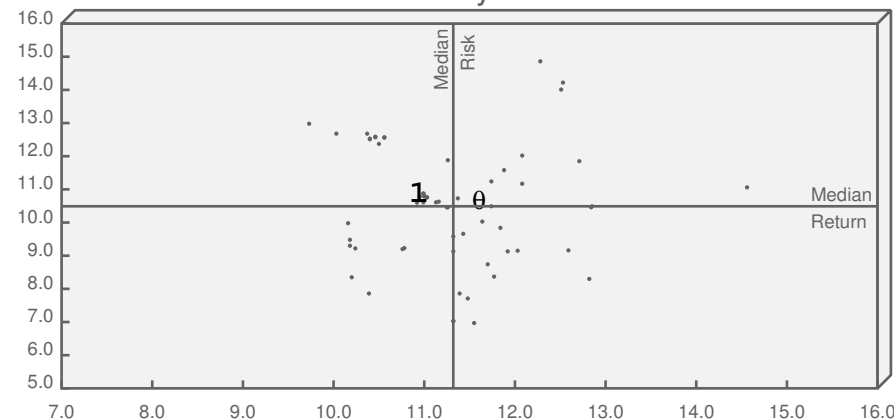
Performance Comparison vs Peer Universe*



1 Quarter 2 Quarters 3 Quarters 1 Year 2 Years 3 Years 5 Years 10 Years

θ PIMCO Stock Plus	1.66 (47)	6.26 (29)	21.53 (27)	4.25 (35)	10.87 (37)	13.64 (37)	10.61 (46)	14.26 (18)
1 Standard & Poor	1.70 (44)	6.08 (36)	20.55 (35)	4.25 (35)	10.87 (37)	13.39 (46)	10.84 (35)	13.24 (46)
Median	1.58	5.75	19.92	3.09	10.56	13.35	10.49	13.19
Number of Funds	67	67	67	67	66	66	62	30

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
PIMCO Stock Plus	θ	10.61	46	11.69	38
Standard & Poor's 500	1	10.84	35	11.00	61
Median		10.49		11.32	

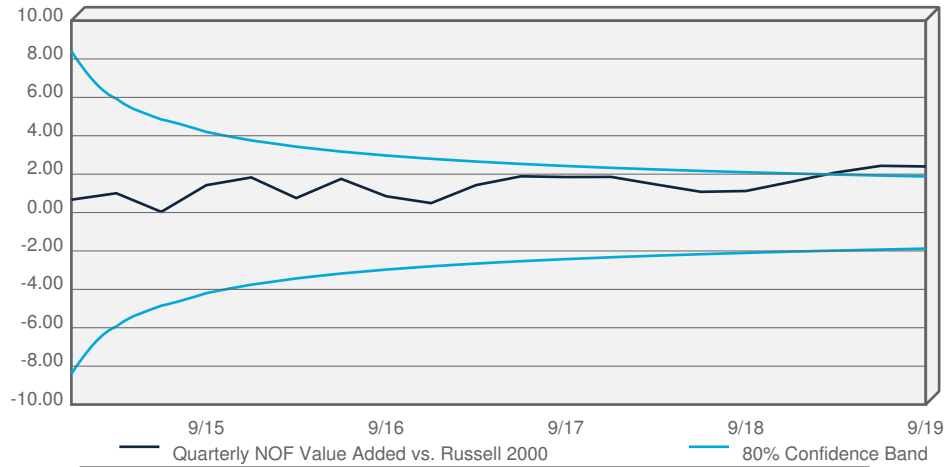
*Wilcop Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Wellington

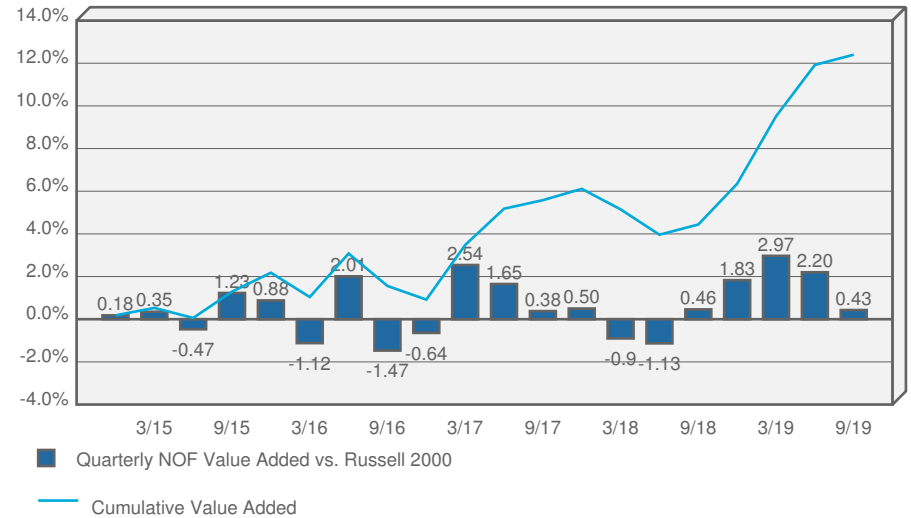
September 30, 2019

Cumulative Skill Analysis vs Benchmark

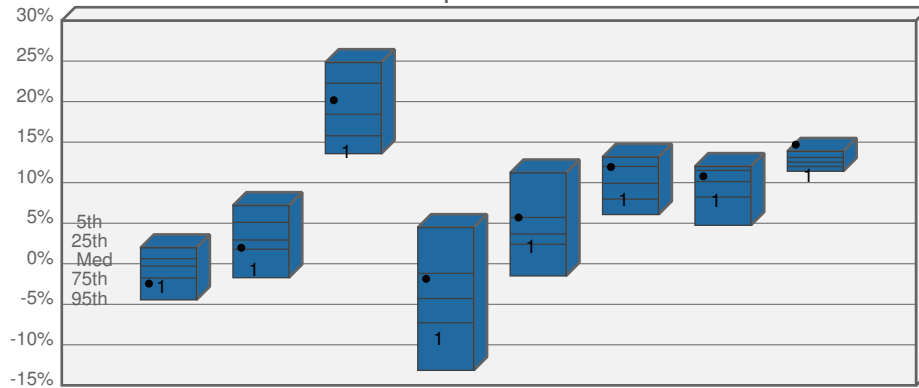


Excess Return:	2.40	Information Ratio:	0.94
Excess Risk:	2.55	T-Stat:	2.10

Value-Added Analysis vs Benchmark

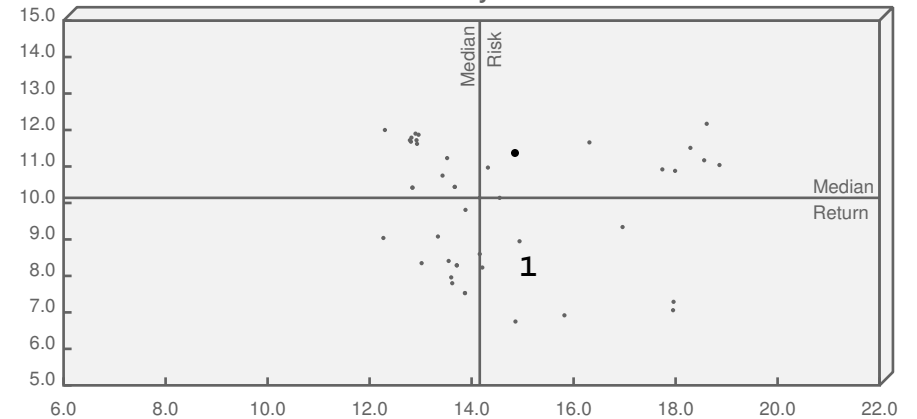


Performance Comparison vs Peer Universe*



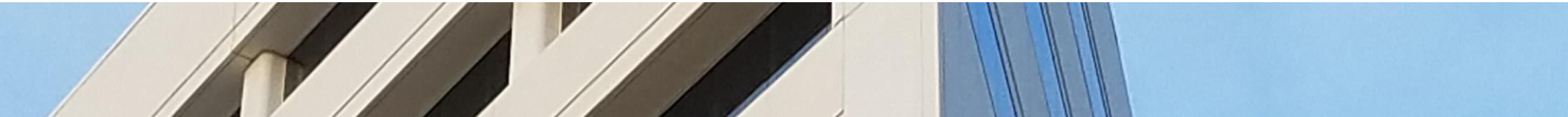
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Wellington	-1.79 (79)	2.63 (56)	20.83 (35)	-1.20 (25)	6.36 (19)	12.59 (19)	11.45 (25)	15.35 (1)
1 Russell 2000	-2.40 (83)	-0.36 (94)	14.18 (90)	-8.89 (85)	2.47 (72)	8.23 (70)	8.19 (75)	11.19 (95)
Median	-0.30	2.93	18.44	-4.29	3.67	9.91	10.14	12.54
Number of Funds	48	48	48	48	45	45	42	28

Five Year Risk/Return Analysis vs Peer Universe*



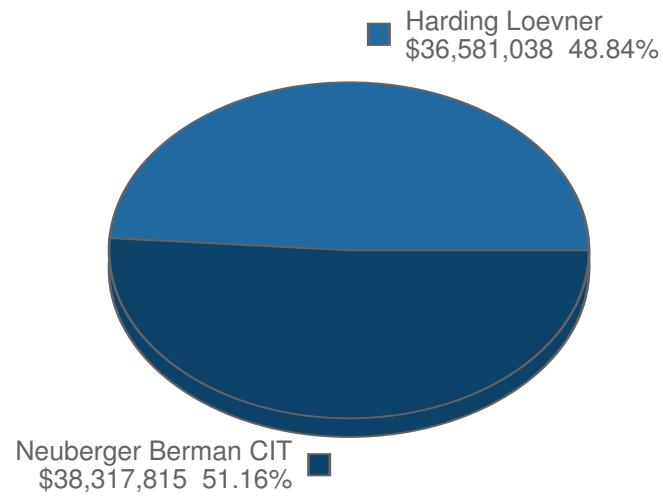
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Wellington	●	11.45	25	15.06	30
Russell 2000	1	8.19	75	15.22	30
Median		10.14		14.16	

*Wilcop Total Returns of Small Neutral Equity Portfolios Universe - Gross of Fees



NON-U.S. EQUITY

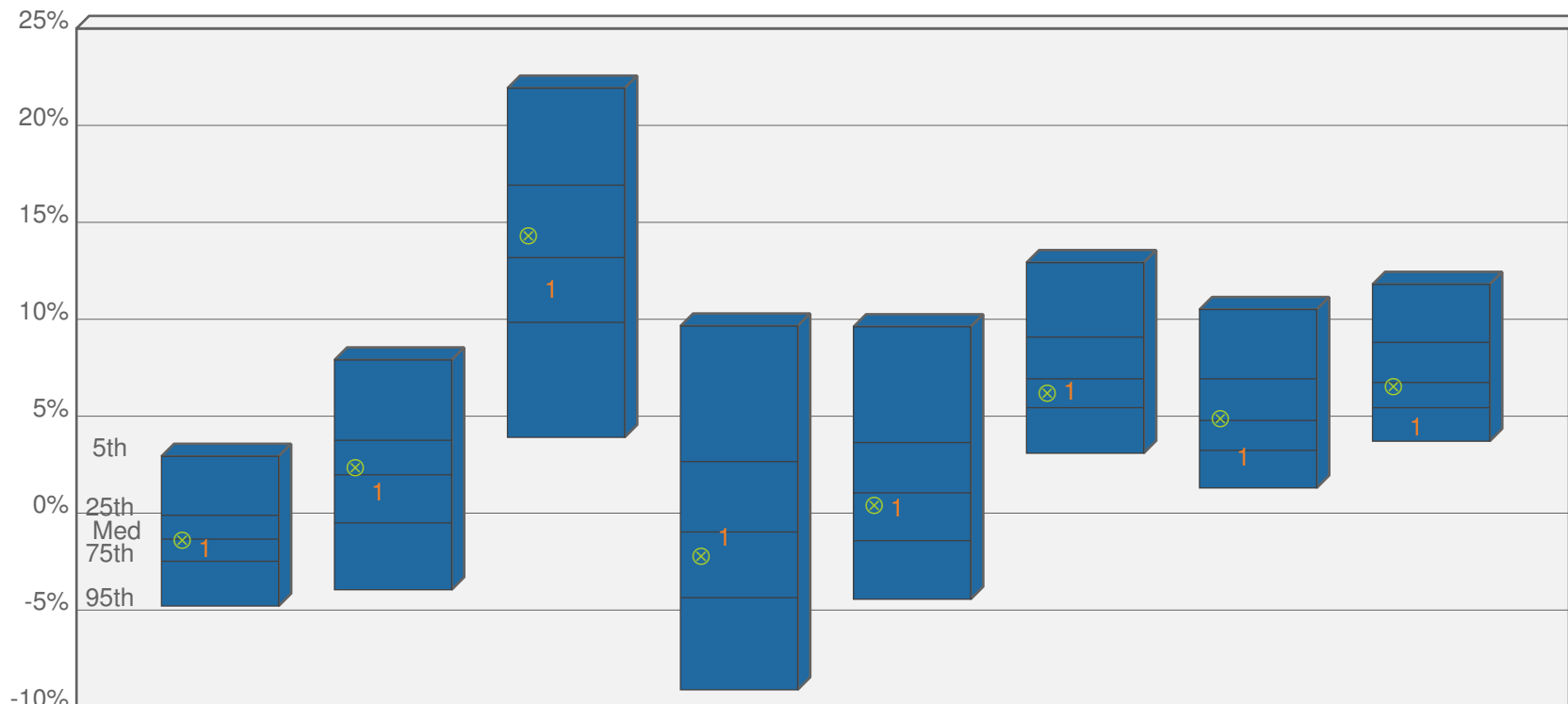
Wilshire Consulting
MANAGER ALLOCATION
Non-U.S. Equity Composite
As of September 30, 2019



PERFORMANCE COMPARISON

Non-U.S. Equity Composite

Periods Ended September 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Non-U.S. Equity Composite	-1.35 (51)	2.36 (44)	14.33 (41)	-2.18 (61)	0.45 (56)	6.20 (62)	4.91 (48)	6.57 (54)
1 Policy Benchmark	-1.80 (63)	1.13 (58)	11.56 (62)	-1.23 (53)	0.26 (59)	6.33 (60)	2.90 (80)	4.45 (88)
5th %tile	2.93	7.90	21.92	9.65	9.61	12.92	10.50	11.80
25th %tile	-0.11	3.76	16.92	2.66	3.64	9.08	6.93	8.81
Median	-1.34	1.98	13.18	-0.97	1.05	6.93	4.78	6.74
75th %tile	-2.48	-0.50	9.84	-4.36	-1.42	5.44	3.24	5.44
95th %tile	-4.79	-3.95	3.91	-9.11	-4.44	3.09	1.30	3.71
Number of Funds	949	933	928	916	866	841	804	573

*Wilcop Total Returns of International Equity Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

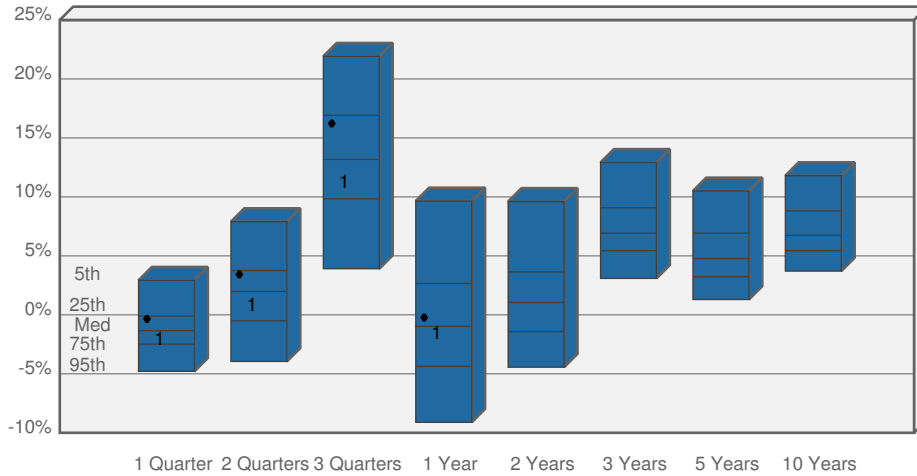
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Neuberger Berman CIT									
Net of Fee Return	0.10	16.68	0.22					6/30/18	-0.47
MSCI ACWI ex US (N)	-1.80	11.56	-1.23					6/30/18	-0.43
Value Added	1.90	5.12	1.44					6/30/18	-0.04
Neuberger Berman Composite									
Net of Fee Return	0.10	16.68	0.22	6.42	4.95	6.22	6.46	6/30/06	3.38
MSCI ACWI ex US (N)	-1.80	11.56	-1.23	6.33	2.90	5.01	4.45	6/30/06	3.35
Value Added	1.90	5.12	1.44	0.09	2.05	1.21	2.01	6/30/06	0.04
Harding Loevner									
Net of Fee Return	-2.94	11.47	-5.43	5.84				3/31/15	4.20
MSCI ACWI X US (N)	-1.80	11.56	-1.23	6.33				3/31/15	3.35
Value Added	-1.14	-0.09	-4.20	-0.49				3/31/15	0.85
Non-U.S. Equity Composite									
Net of Fee Return	-1.41	14.15	-2.38	6.00	4.76	6.07	6.38	12/31/89	7.80
Policy Benchmark	-1.80	11.56	-1.23	6.33	2.90	5.01	4.45	12/31/89	4.40
Value Added	0.39	2.59	-1.15	-0.33	1.85	1.07	1.92	12/31/89	3.40

INVESTMENT MANAGER ANALYSIS

Neuberger Berman CIT

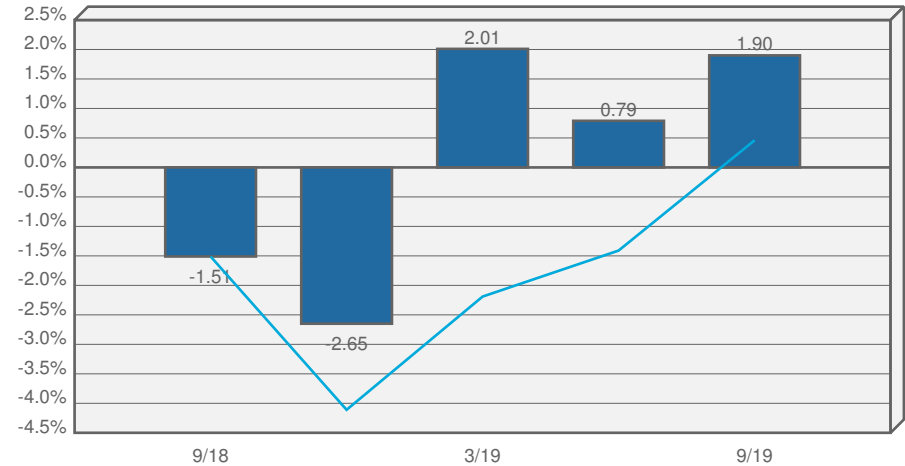
September 30, 2019

Performance Comparison vs Peer Universe*



● Neuberger Berm	0.10 (21)	3.88 (23)	16.68 (26)	0.22 (41)					
1 MSCI ACWI ex U	-1.80 (63)	1.13 (58)	11.56 (62)	-1.23 (53)					
Median	-1.34	1.98	13.18	-0.97	1.05	6.93	4.78	6.74	
Number of Funds	949	933	928	916	866	841	804	573	

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. MSCI ACWI ex US (N)
 — Cumulative Value Added

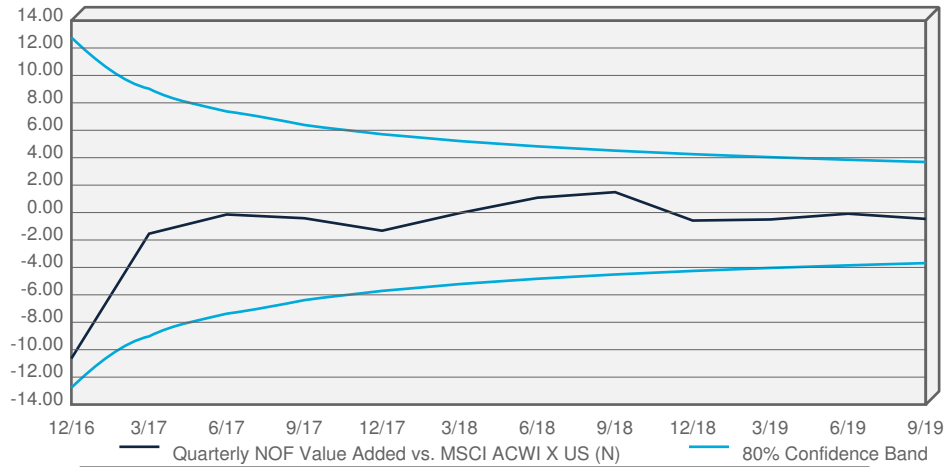
*Wilcop Total Returns of International Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Harding Loevner

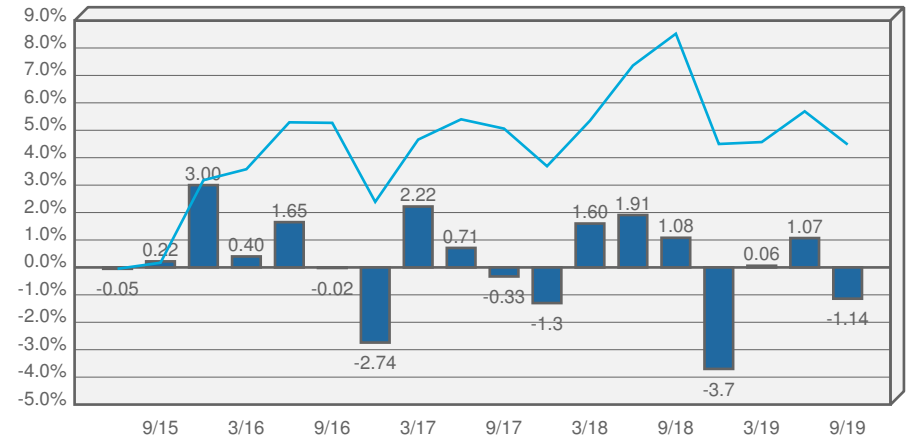
September 30, 2019

Cumulative Skill Analysis vs Benchmark



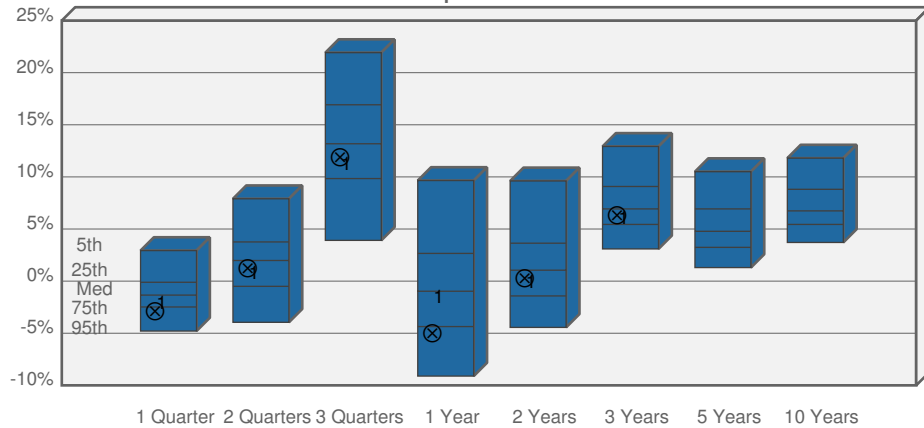
Excess Return:	-0.46	Information Ratio:	-0.12
Excess Risk:	3.88	T-Stat:	-0.21

Value-Added Analysis vs Benchmark



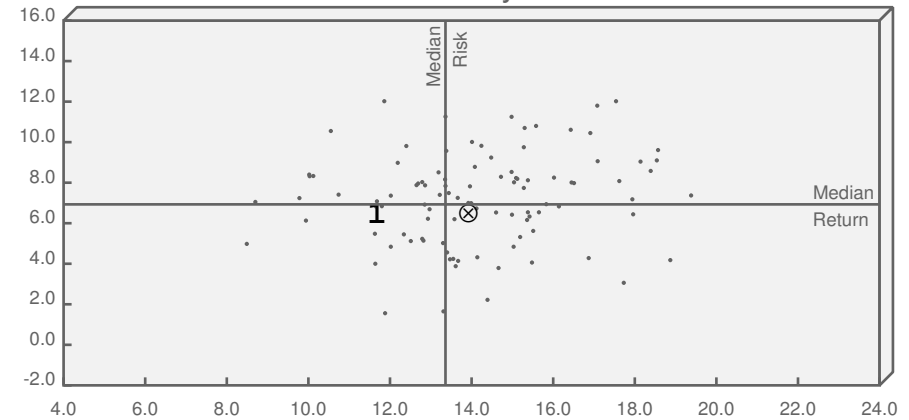
■ Quarterly NOF Value Added vs. MSCI ACWI X US (N)
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



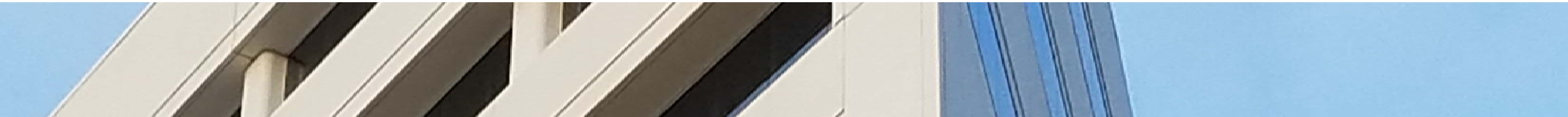
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Harding Loevne	-2.82 (78)	1.26 (56)	11.90 (60)	-4.93 (77)	0.29 (58)	6.39 (59)		
1 MSCI ACWI X US (N)	-1.80 (63)	1.13 (58)	11.56 (62)	-1.23 (53)	0.26 (59)	6.33 (60)		
Median	-1.34	1.98	13.18	-0.97	1.05	6.93	4.78	6.74
Number of Funds	949	933	928	916	866	841	804	573

Three Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Harding Loevner	⊗	6.39	59	14.03	37
MSCI ACWI X US (N)	1	6.33	60	11.81	80
Median		6.93		13.36	

*Wilcop Total Returns of International Equity Portfolios Universe - Gross of Fees

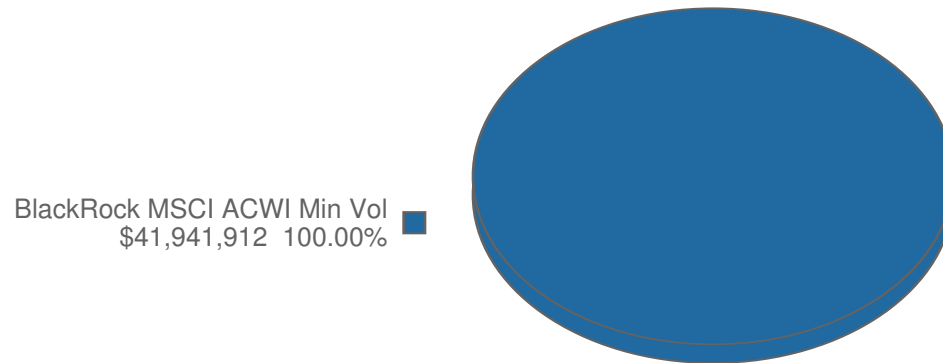


GLOBAL MIN VOL EQUITY

MANAGER ALLOCATION

Global Min Vol Equity Composite

As of September 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
BlackRock MSCI ACWI Min Vol									
Net of Fee Return	2.82							6/30/19	2.82
MSCI ACWI Min Vol (N)	2.74							6/30/19	2.74
Value Added	0.08							6/30/19	0.08
Global Min Vol Equity Composite									
Net of Fee Return	2.82							6/30/19	2.82
MSCI ACWI Min Vol (N)	2.74							6/30/19	2.74
Value Added	0.08							6/30/19	0.08



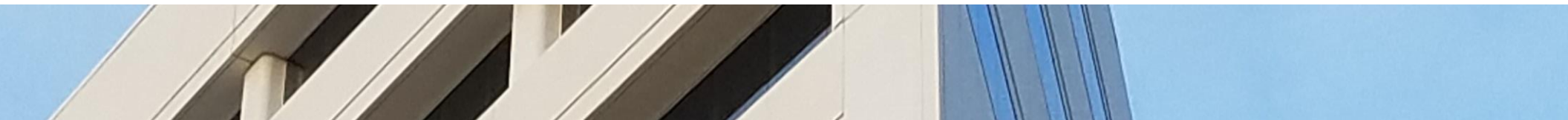
ALTERNATIVE INVESTMENTS

Investment Performance Private Partnerships

As of September 30, 2019

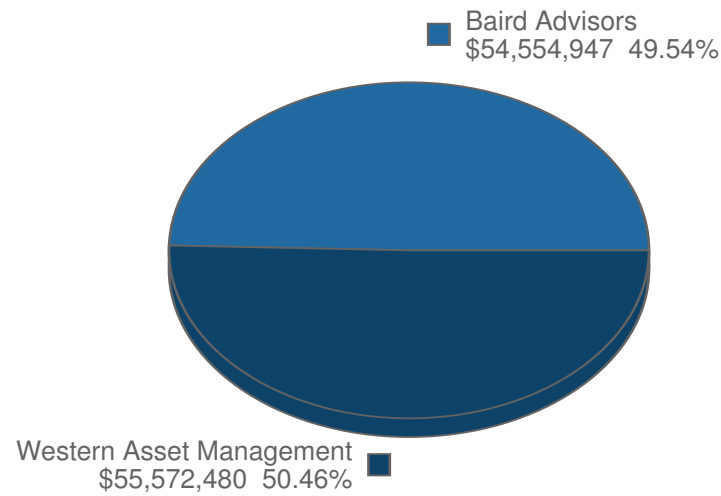
Partnership	Commitment Value	Inception Date	Capital Called		Capital Distributed		Fair Value	Total Value / Paid-In Capital ¹	Annualized IRR
			Amount	%	Amount	%			
Private Equity Program									
Adams Street Direct 2010 Fund	\$500,000	April 27, 2010	\$474,500	95%	\$565,349	113%	\$270,659	1.76	12.48%
Adams Street Non-US Dev. 2010 Fund	\$1,500,000	April 27, 2010	\$1,313,250	88%	\$1,130,420	75%	\$959,011	1.59	11.99%
Adams Street US 2010 Fund	\$2,500,000	April 27, 2010	\$2,202,500	88%	\$1,716,212	69%	\$2,255,613	1.80	14.36%
Adams Street Non-US EM 2010 Fund	\$500,000	January 3, 2011	\$449,000	90%	\$146,572	29%	\$593,969	1.65	10.92%
Adams Street 2013 Global Fund	\$5,000,000	July 3, 2013	\$4,090,000	82%	\$893,941	18%	\$5,063,008	1.46	11.52%
Aberdeen Global Partners	\$5,000,000	January 17, 2012	\$4,900,000	98%	\$2,029,004	41%	\$5,575,588	1.55	11.64%
Adams Street 2015 Global	\$6,500,000	September 30, 2015	\$4,222,868	65%	\$825,449	13%	\$5,158,968	1.42	23.34%
Adams Street 2017 Global	\$6,000,000	June 17, 2017	\$2,360,455	39%	\$0	0%	\$2,556,656	1.08	8.63%
Private Equity Composite	\$27,500,000	April 27, 2010	\$20,012,573	73%	\$7,306,947	27%	\$22,433,472	1.49	13.08%
Private Credit Managers									
Grosvenor Opportunistic Credit V	\$14,000,000	September 17, 2018	\$8,482,249	61%	\$0	\$0	\$8,696,434	1.03	3.45%
50 South Sponsor Backed Credit	\$7,000,000	October 4, 2018	\$2,628,126	38%	\$0	\$0	\$2,535,294	0.96	-5.44%
Private Credit Composite	\$21,000,000	September 17, 2018	\$11,110,375	53%	\$0	0%	\$11,231,728	1.01	1.70%

¹TVPI = Fair Value + Capital Distributed / Capital Called



CORE FIXED INCOME

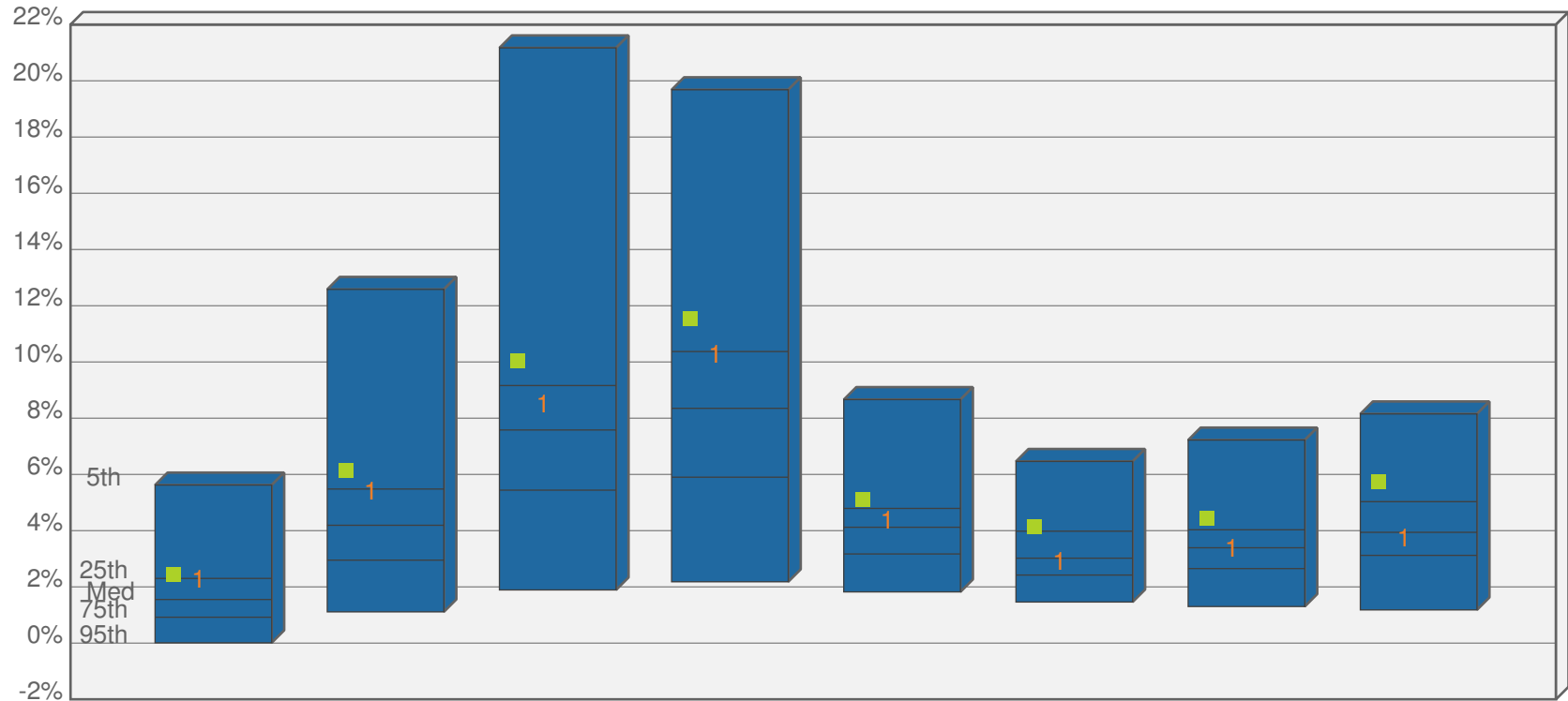
Wilshire Consulting
MANAGER ALLOCATION
Core Fixed Composite
As of September 30, 2019



PERFORMANCE COMPARISON

Core Fixed Composite

Periods Ended September 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Core Fixed Composite	2.47 (15)	6.18 (14)	10.08 (17)	11.59 (11)	5.14 (14)	4.17 (20)	4.47 (17)	5.80 (17)
↑ Bloomberg Aggreg	2.27 (27)	5.42 (27)	8.52 (36)	10.30 (28)	4.38 (41)	2.92 (55)	3.38 (50)	3.75 (55)
5th %tile	5.62	12.58	21.17	19.68	8.66	6.46	7.22	8.15
25th %tile	2.30	5.48	9.16	10.37	4.79	3.98	4.03	5.03
Median	1.55	4.19	7.58	8.35	4.12	3.02	3.39	3.94
75th %tile	0.92	2.95	5.44	5.90	3.17	2.42	2.65	3.12
95th %tile	0.01	1.11	1.89	2.18	1.82	1.46	1.30	1.18
Number of Funds	436	431	429	422	408	389	363	213

*Wilcop Total Returns of Fixed Income Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

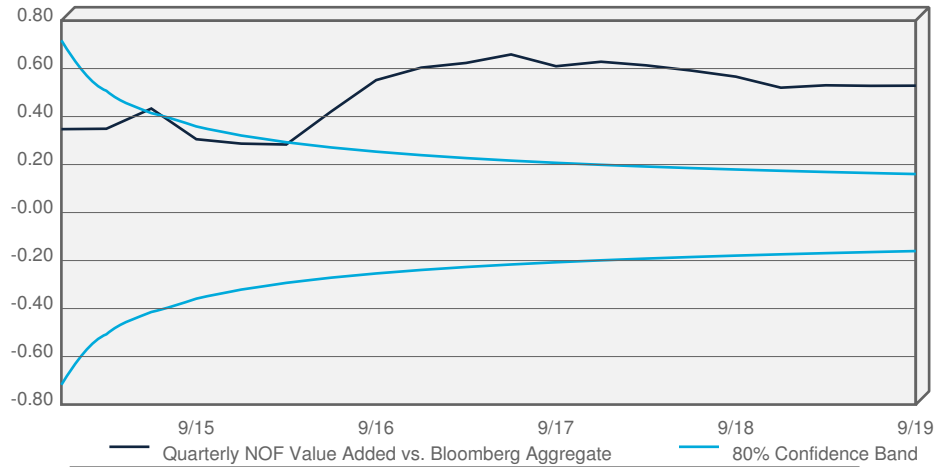
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Baird Advisors									
Net of Fee Return	2.41	8.99	10.71	3.45	3.92	3.30	4.74	3/31/03	4.57
Bloomberg Aggregate	2.27	8.52	10.30	2.92	3.38	2.72	3.75	3/31/03	4.19
Value Added	0.14	0.47	0.42	0.53	0.55	0.58	0.99	3/31/03	0.38
Western Asset Management									
Net of Fee Return	2.40	10.69	11.91	4.35	4.49	4.17	6.29	3/31/04	5.20
Bloomberg Aggregate	2.27	8.52	10.30	2.92	3.38	2.72	3.75	3/31/04	4.11
Value Added	0.13	2.17	1.62	1.43	1.11	1.45	2.54	3/31/04	1.09
Core Fixed Composite									
Net of Fee Return	2.40	9.84	11.32	3.92	4.22	3.75	5.55	9/30/87	6.84
Bloomberg Aggregate	2.27	8.52	10.30	2.92	3.38	2.72	3.75	9/30/87	6.41
Value Added	0.13	1.32	1.02	1.00	0.84	1.03	1.81	9/30/87	0.42

INVESTMENT MANAGER ANALYSIS

Baird Advisors

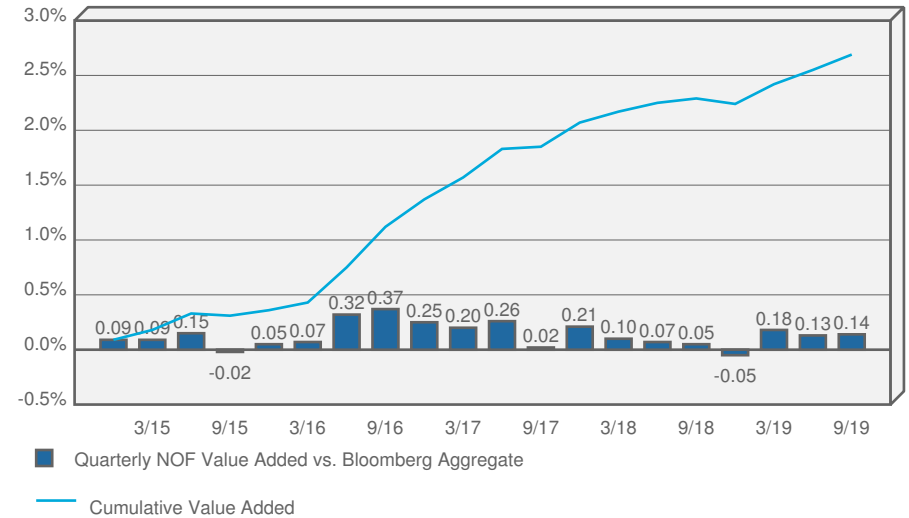
September 30, 2019

Cumulative Skill Analysis vs Benchmark

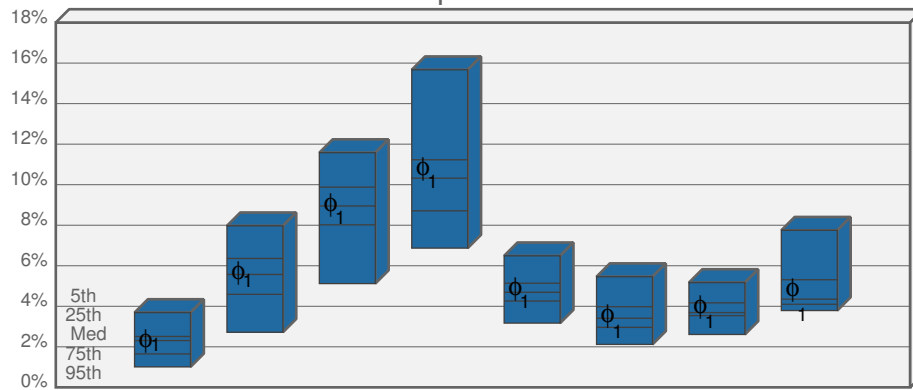


Excess Return:	0.53	Information Ratio:	2.42
Excess Risk:	0.22	T-Stat:	5.42

Value-Added Analysis vs Benchmark

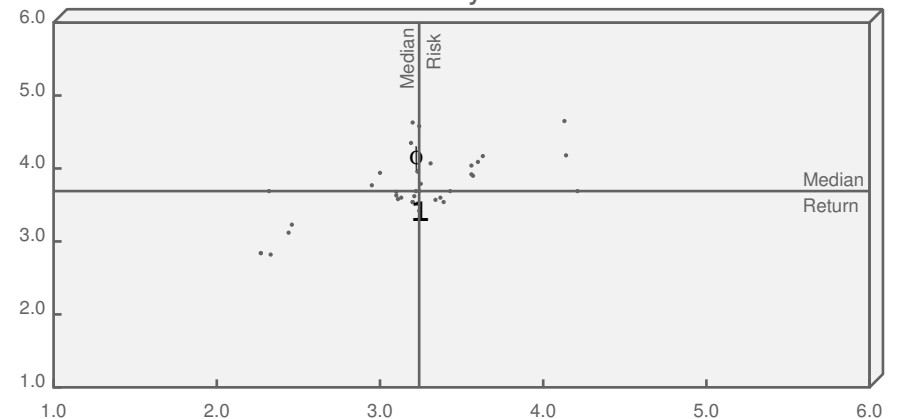


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
Φ Baird Advisors	2.46 (29)	5.80 (34)	9.16 (38)	10.95 (27)	5.03 (29)	3.67 (30)	4.15 (25)	4.96 (25)
$\mathbf{1}$ Bloomberg Aggr	2.27 (56)	5.42 (54)	8.52 (61)	10.30 (52)	4.38 (68)	2.92 (79)	3.38 (80)	3.75 (95)
Median	2.31	5.57	8.95	10.32	4.69	3.41	3.69	4.35
Number of Funds	45	45	45	45	44	42	39	30

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Baird Advisors	Φ	4.15	25	3.27	45
Bloomberg Aggregate	$\mathbf{1}$	3.38	80	3.28	45
Median		3.69		3.24	

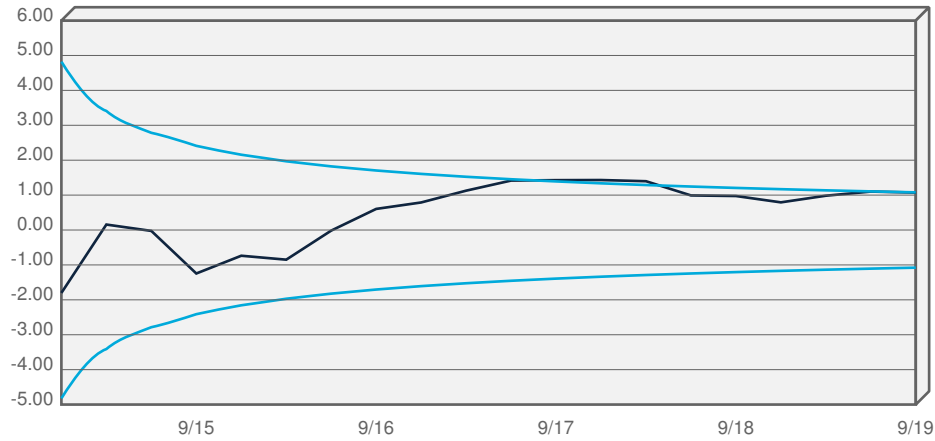
*Wilcop Total Returns of Fixed Income Core Fixed Income Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Western Asset Management

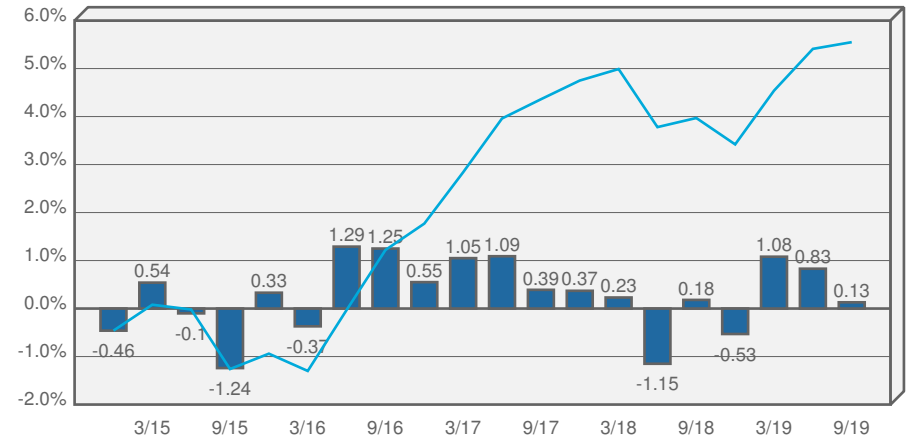
September 30, 2019

Cumulative Skill Analysis vs Benchmark



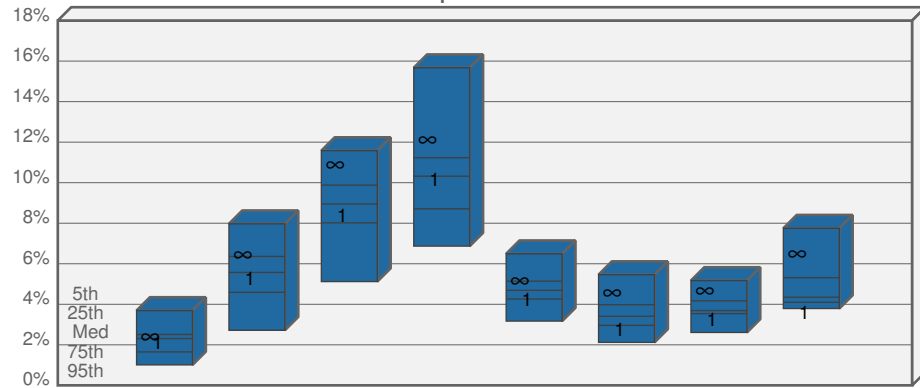
Excess Return:	1.07	Information Ratio:	0.73
Excess Risk:	1.47	T-Stat:	1.64

Value-Added Analysis vs Benchmark



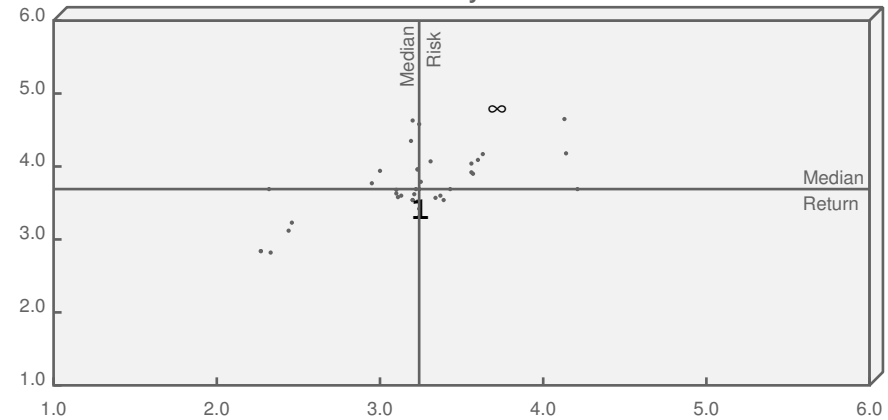
■ Quarterly NOF Value Added vs. Bloomberg Aggregate
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ Western Asset	2.48 (25)	6.56 (15)	11.01 (9)	12.23 (13)	5.25 (12)	4.66 (10)	4.79 (10)	6.60 (9)
1 Bloomberg Aggr	2.27 (56)	5.42 (54)	8.52 (61)	10.30 (52)	4.38 (68)	2.92 (79)	3.38 (80)	3.75 (95)
Median	2.31	5.57	8.95	10.32	4.69	3.41	3.69	4.35
Number of Funds	45	45	45	45	44	42	39	30

Five Year Risk/Return Analysis vs Peer Universe*



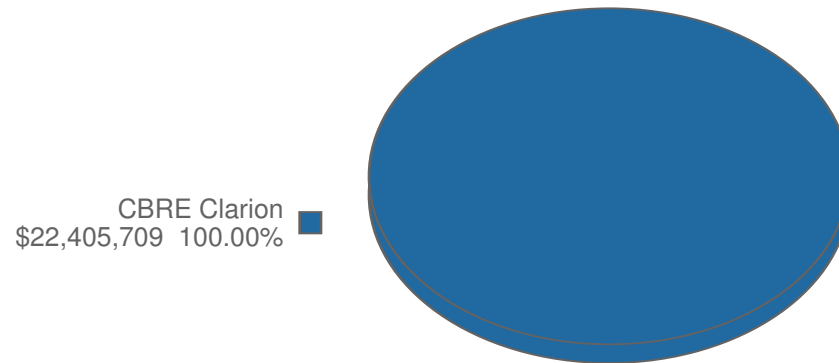
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Western Asset Management	∞	4.79	10	3.75	20
Bloomberg Aggregate	1	3.38	80	3.28	45
Median		3.69		3.24	

*Wilcop Total Returns of Fixed Income Core Fixed Income Portfolios Universe - Gross of Fees



REAL ESTATE

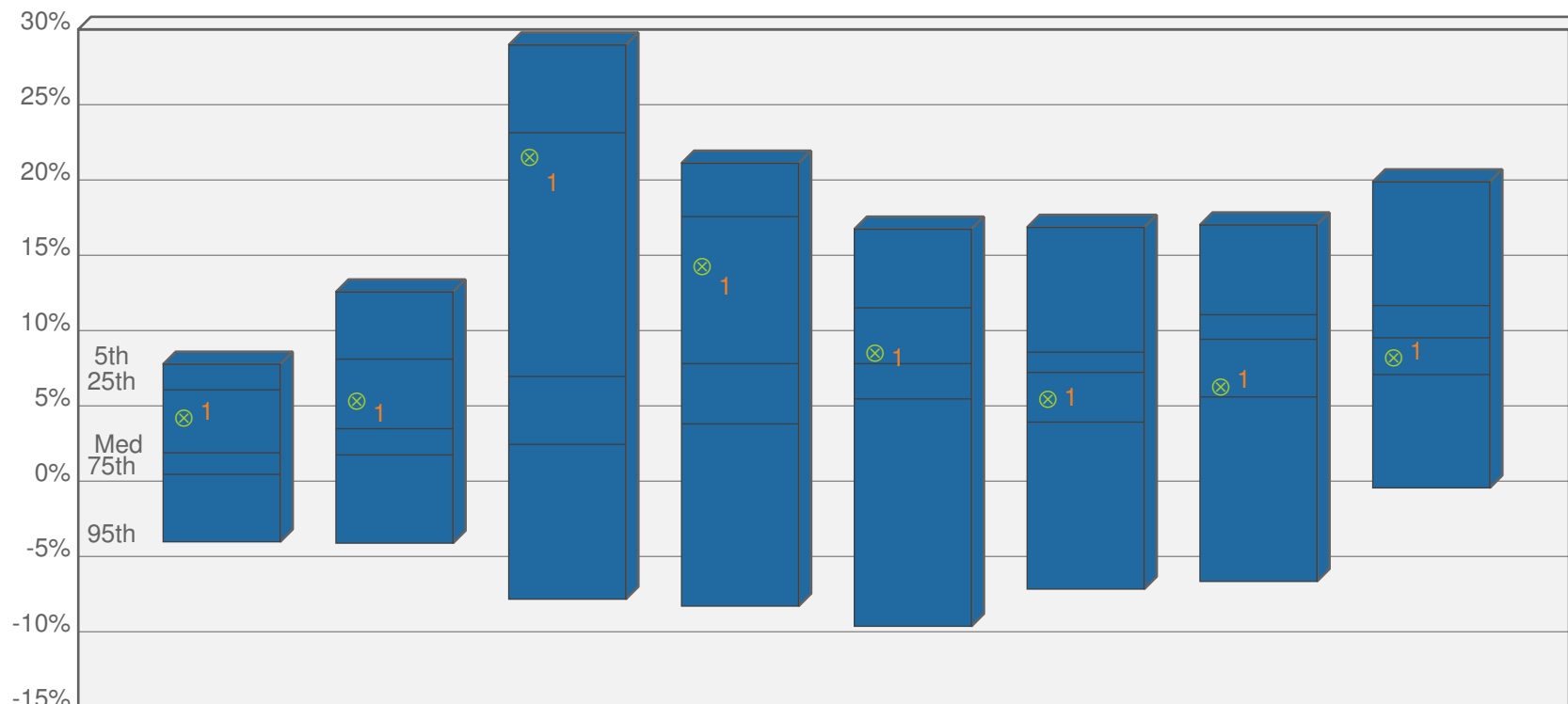
Wilshire Consulting
MANAGER ALLOCATION
Real Estate Composite
As of September 30, 2019



PERFORMANCE COMPARISON

Real Estate Composite

Periods Ended September 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Real Estate Composite	4.19 (32)	5.34 (40)	21.52 (26)	14.29 (33)	8.51 (45)	5.48 (70)	6.30 (72)	8.25 (65)
1 FTSE EPRA/NAREIT	4.63 (28)	4.56 (46)	19.82 (28)	13.00 (36)	8.23 (46)	5.61 (70)	6.81 (71)	8.63 (60)
5th %tile	7.76	12.56	28.96	21.11	16.73	16.85	17.01	19.87
25th %tile	6.06	8.10	23.14	17.56	11.51	8.56	11.05	11.66
Median	1.88	3.48	6.95	7.80	7.80	7.22	9.42	9.52
75th %tile	0.45	1.74	2.44	3.80	5.46	3.92	5.59	7.08
95th %tile	-4.03	-4.12	-7.84	-8.30	-9.64	-7.17	-6.66	-0.45
Number of Funds	182	179	176	175	172	166	161	88

*Wilcop Total Returns of Real Estate Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

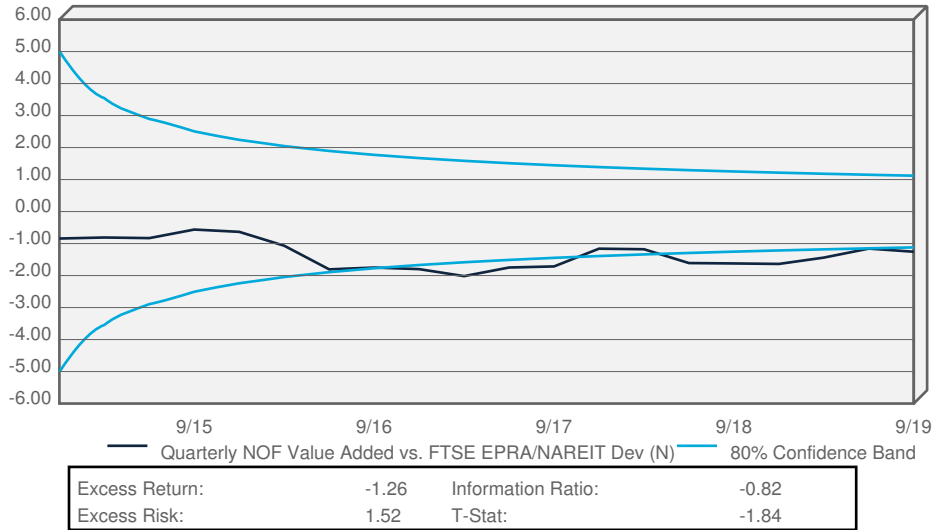
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
CBRE Clarion									
Net of Fee Return	3.81	20.65	13.25	4.63	5.46	6.14	7.44	6/30/09	9.63
FTSE EPRA/NAREIT Dev (N)	4.63	19.82	13.00	5.61	6.81	7.15	8.63	6/30/09	10.79
Value Added	-0.82	0.84	0.25	-0.98	-1.34	-1.01	-1.19	6/30/09	-1.16
Real Estate Composite									
Net of Fee Return	4.00	20.87	13.46	4.70	5.50	6.16	7.46	6/30/09	9.64
FTSE EPRA/NAREIT Dev (N)	4.63	19.82	13.00	5.61	6.81	7.15	8.63	6/30/09	10.79
Value Added	-0.63	1.06	0.46	-0.91	-1.30	-0.99	-1.18	6/30/09	-1.15

INVESTMENT MANAGER ANALYSIS

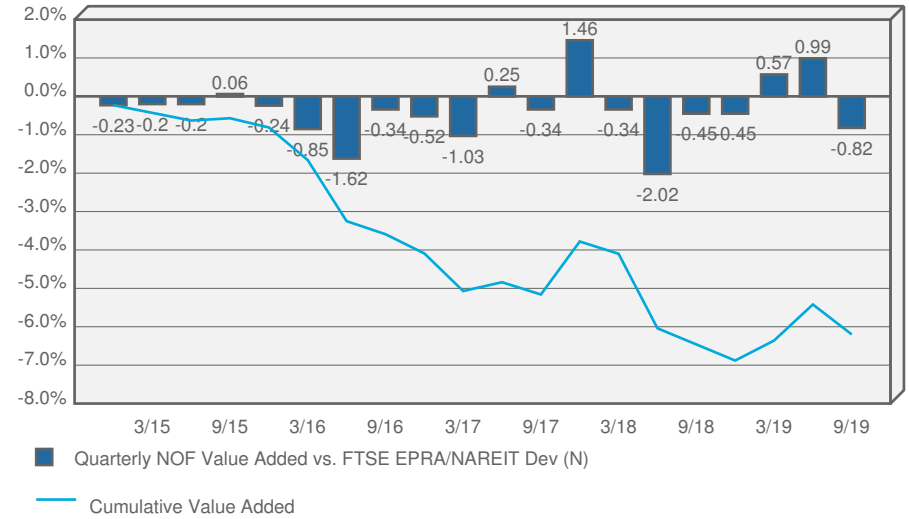
CBRE Clarion

September 30, 2019

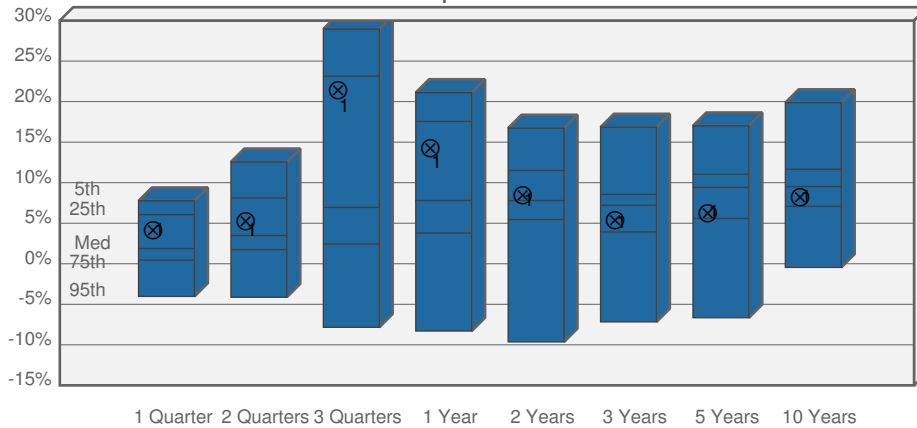
Cumulative Skill Analysis vs Benchmark



Value-Added Analysis vs Benchmark

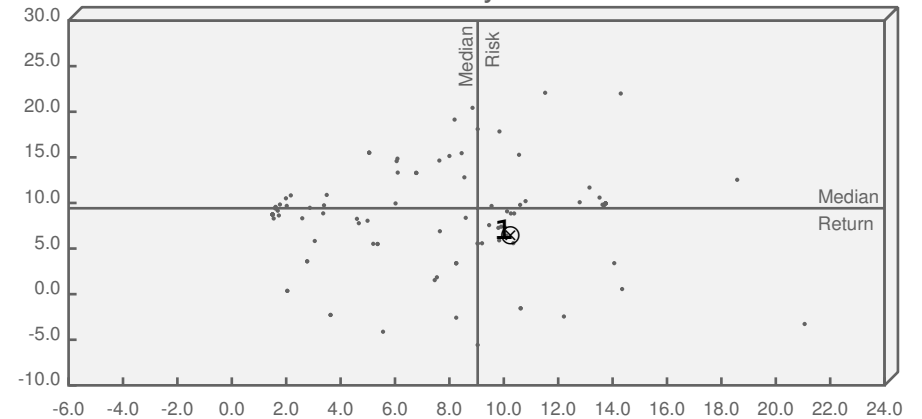


Performance Comparison vs Peer Universe*



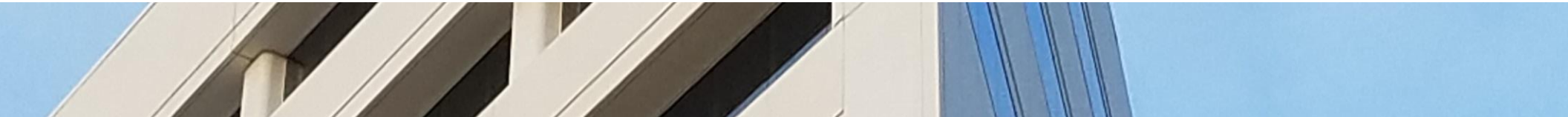
⊗ CBRE Clarion	4.19 (32)	5.34 (40)	21.52 (26)	14.29 (33)	8.51 (45)	5.48 (70)	6.30 (72)	8.26 (65)
1 FTSE EPRA/NAREIT Dev (N)	6.63 (28)	4.56 (46)	19.82 (28)	13.00 (36)	8.23 (46)	5.61 (70)	6.81 (71)	8.63 (60)
Median	1.88	3.48	6.95	7.80	7.80	7.22	9.42	9.52
Number of Funds	182	179	176	175	172	166	161	88

Five Year Risk/Return Analysis vs Peer Universe*



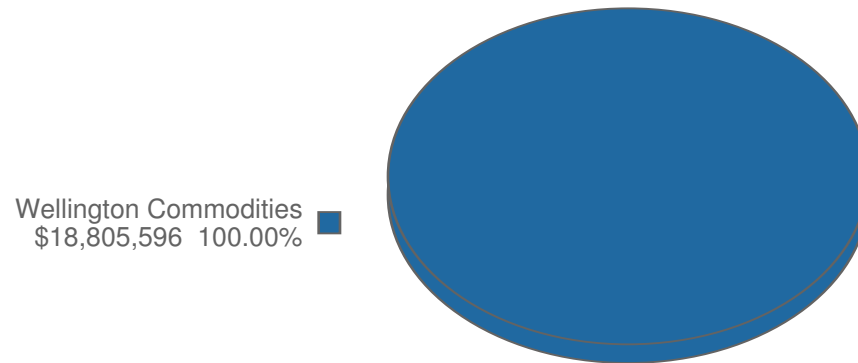
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
CBRE Clarion	⊗	6.30	72	10.41	40
FTSE EPRA/NAREIT Dev (N)	1	6.81	71	10.21	42
Median		9.42		9.04	

*Wilcop Total Returns of Real Estate Portfolios Universe - Gross of Fees



COMMODITIES

Wilshire Consulting
MANAGER ALLOCATION
Commodities Composite
As of September 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

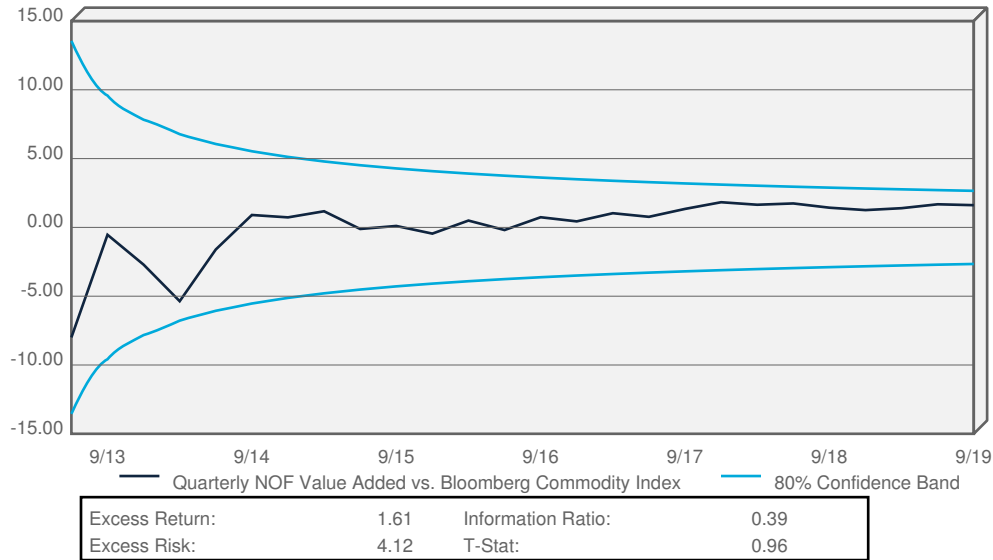
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Wellington Commodities									
Net of Fee Return	-1.84	6.52	-4.12	1.11	-5.48			3/31/13	-6.18
Bloomberg Commodity Index	-1.84	3.13	-6.57	-1.50	-7.18			3/31/13	-7.67
Value Added	0.00	3.39	2.45	2.61	1.70			3/31/13	1.49
Commodities Composite									
Net of Fee Return	-1.84	6.52	-4.12	1.11	-5.48			3/31/13	-6.18
Bloomberg Commodity Index	-1.84	3.13	-6.57	-1.50	-7.18			3/31/13	-7.67
Value Added	0.00	3.39	2.45	2.61	1.70			3/31/13	1.49

INVESTMENT MANAGER ANALYSIS

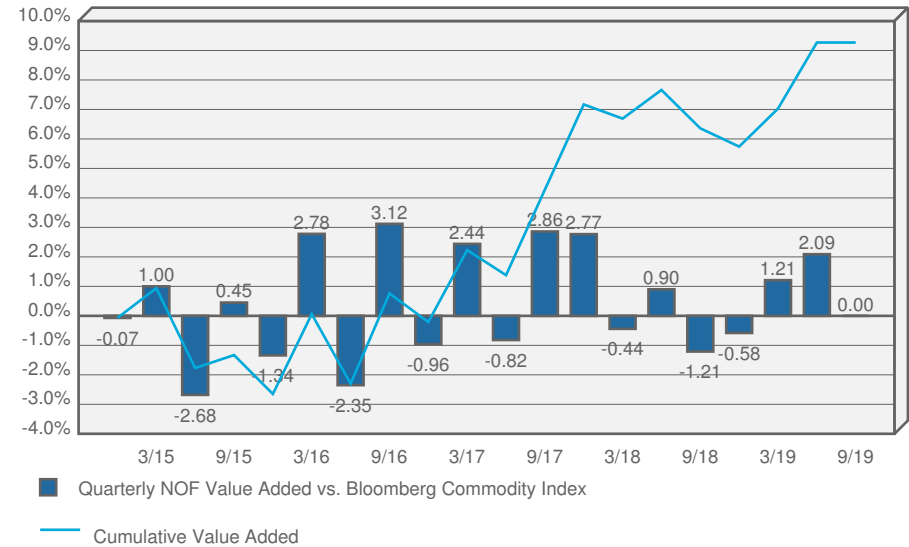
Wellington Commodities

September 30, 2019

Cumulative Skill Analysis vs Benchmark



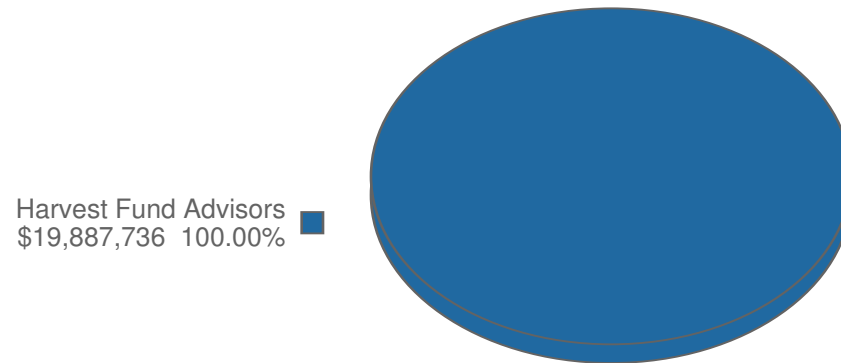
Value-Added Analysis vs Benchmark





MLP

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



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

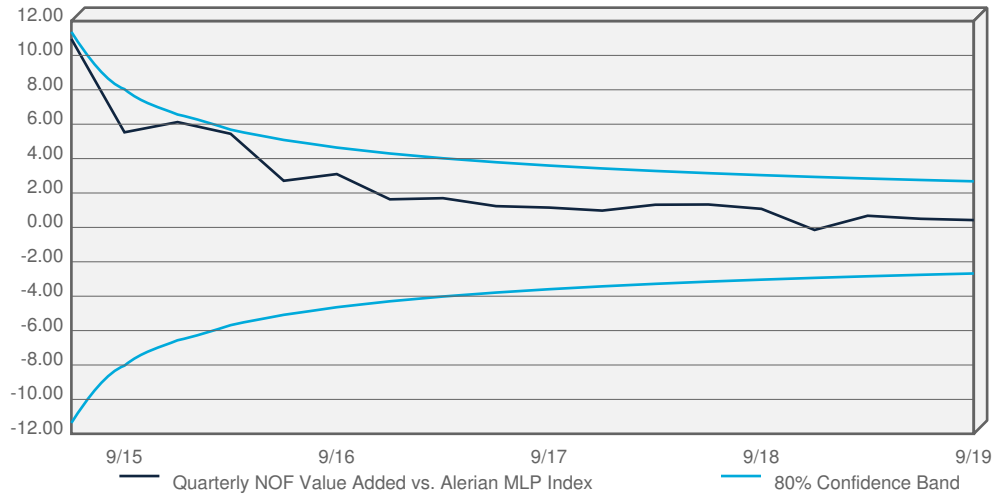
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Harvest Fund Advisors									
Net of Fee Return	-5.23	13.86	-9.81	-2.07				3/31/15	-5.42
Alerian MLP Index	-5.02	11.08	-8.13	-1.19				3/31/15	-5.82
Value Added	-0.20	2.77	-1.68	-0.88				3/31/15	0.40
MLP Composite									
Net of Fee Return	-5.23	13.86	-9.81	-2.07				3/31/15	-5.42
Alerian MLP Index	-5.02	11.08	-8.13	-1.19				3/31/15	-5.82
Value Added	-0.20	2.77	-1.68	-0.88				3/31/15	0.40

INVESTMENT MANAGER ANALYSIS

Harvest Fund Advisors

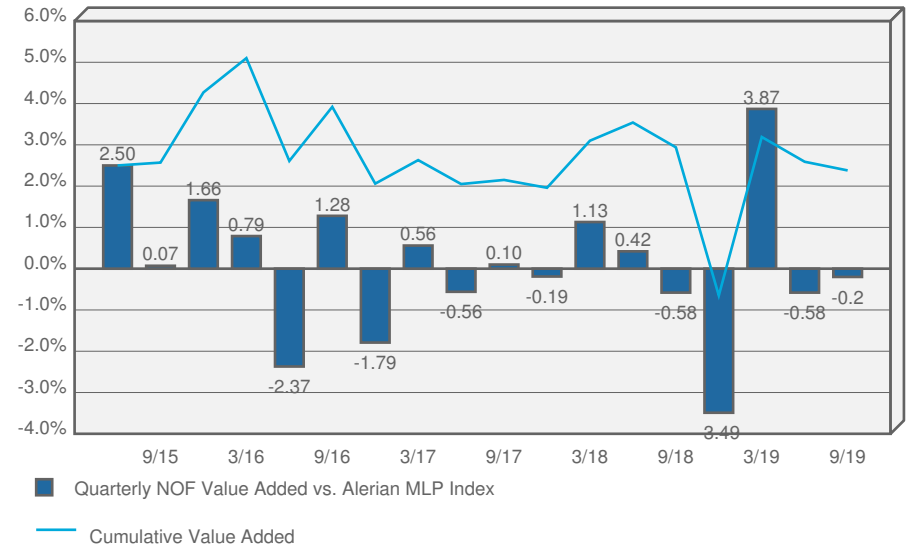
September 30, 2019

Cumulative Skill Analysis vs Benchmark



Excess Return:	0.42	Information Ratio:	0.12
Excess Risk:	3.45	T-Stat:	0.25

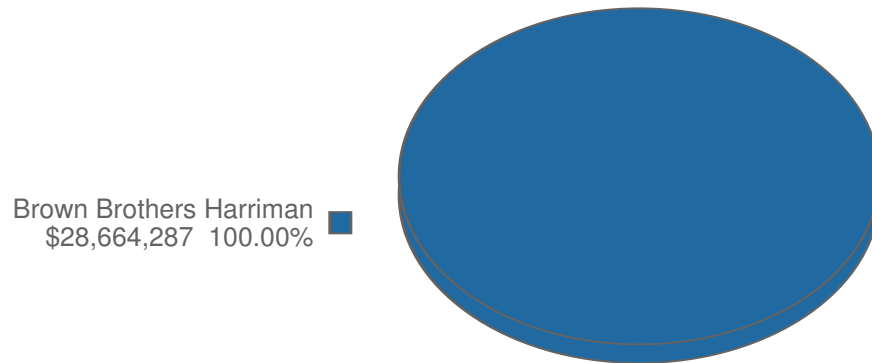
Value-Added Analysis vs Benchmark





TIPS

Wilshire Consulting
MANAGER ALLOCATION
TIPS Composite
As of September 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended September 30, 2019

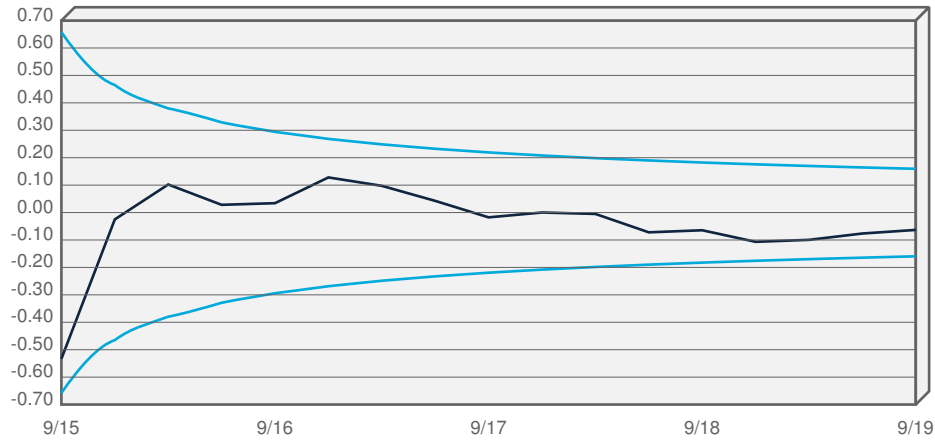
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Brown Brothers Harriman									
Net of Fee Return	1.38	7.69	7.06	2.11				6/30/15	2.75
Barclays U.S. TIPS	1.35	7.58	7.13	2.21				6/30/15	2.81
Value Added	0.04	0.11	-0.06	-0.11				6/30/15	-0.07
TIPS Composite									
Net of Fee Return	1.38	7.69	7.06	2.11				6/30/15	2.75
Barclays U.S. TIPS	1.35	7.58	7.13	2.21				6/30/15	2.81
Value Added	0.04	0.11	-0.06	-0.11				6/30/15	-0.07

INVESTMENT MANAGER ANALYSIS

Brown Brothers Harriman

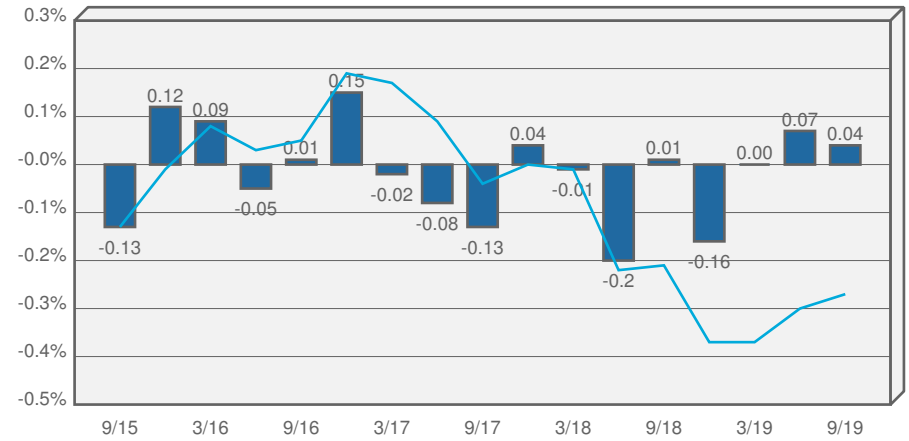
September 30, 2019

Cumulative Skill Analysis vs Benchmark



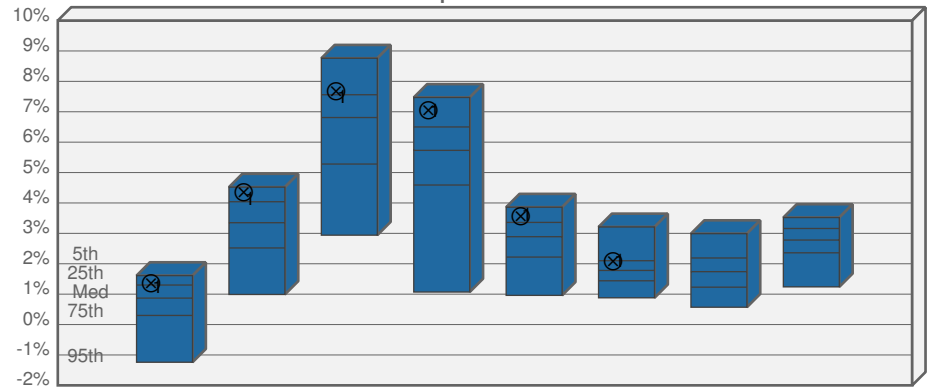
Excess Return:	-0.06	Information Ratio:	-0.32
Excess Risk:	0.20	T-Stat:	-0.63

Value-Added Analysis vs Benchmark



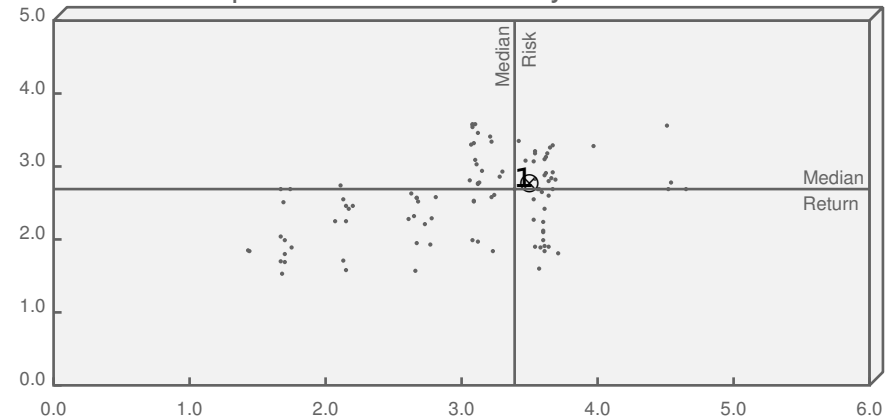
■ Quarterly NOF Value Added vs. Barclays U.S. TIPS
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Brown Brothers	1.38 (17)	4.36 (6)	7.69 (19)	7.06 (11)	3.59 (13)	2.11 (24)		
1 Barclays U.S.	1.35 (19)	4.25 (9)	7.58 (24)	7.13 (8)	3.71 (9)	2.21 (19)		
Median	0.87	3.35	6.81	5.73	2.89	1.78	1.74	2.78
Number of Funds	228	227	227	224	215	195	165	98

Since Inception Risk/Return Analysis vs Peer Universe*



Description	Legend	Net Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Brown Brothers Harriman	⊗	2.75	48	3.53	40
Barclays U.S. TIPS	1	2.81	44	3.50	42
Median		2.69		3.39	

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