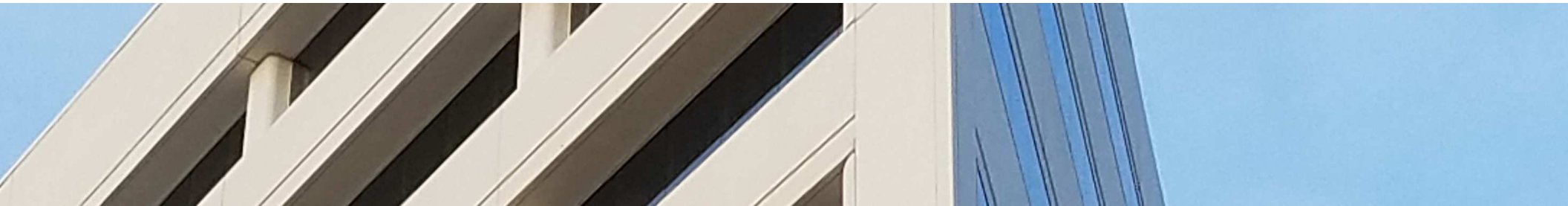




# WILSHIRE ASSOCIATES

Wilshire Consulting



## Kentucky Retirement Systems Pension

Executive Summary of Investment Performance

*December 31, 2017*



# MARKET ENVIRONMENT

# ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST						ANNUALIZED 5-YEAR AS OF 12/2017
2012	2013	2014	2015	2016	2017	
Emrg Mrkts 18.6%	U.S. Equity 33.1%	REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	U.S. Equity 15.7%
Developed 17.9%	MLPs 27.6%	U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	REITs 9.3%
REITs 17.6%	Developed 23.3%	Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	Developed 8.4%
U.S. Equity 16.1%	High Yield 7.4%	MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield 5.8%
High Yield 15.8%	REITs 1.9%	U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	Emrg Mrkts 4.7%
U.S. TIPS 7.0%	T-Bills 0.1%	High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	Core Bond 2.1%
MLPs 4.8%	Core Bond -2.0%	T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	T-Bills 0.3%
Core Bond 4.2%	Emrg Mrkts -2.3%	Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	U.S. TIPS 0.1%
T-Bills 0.1%	U.S. TIPS -8.6%	Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	MLPs -0.1%
Commodities -1.0%	Commodities -9.5%	Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Commodities -8.5%

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 6.4% for the fourth quarter of 2017. There was a relative lack of volatility during the year. The largest drawdown for the year was -2.75% and there were only 4 trading days where the market was down 1% or more. Several factors contributed to this success including a rebound in global economic growth and continued strength domestically.

The third quarter of 2017 was the second consecutive quarter of real GDP growth in excess of 3%, annualized. Businesses seem to be gaining confidence in the global economy and have been increasing spending on equipment while growing inventories during the quarter, contributing more than three-quarters of a percent to real GDP growth. Strong retail sales during the fourth quarter have helped raise expectations for economic growth during the final quarter of 2017.

## Non-U.S. Equity

Equity markets outside of the U.S. produced strong returns during the fourth quarter of 2017, in both developed and emerging markets. Japan was one of the strongest developed markets during the quarter due to stimulative policies by both the Bank of Japan and the national government. Emerging Markets led all global equities during 2017 and produced their second consecutive positive annual gain.

## Fixed Income

The U.S. Treasury yield curve continued to flatten during the quarter with short to intermediate term rates rising and long-term yields falling. The bellwether 10-year Treasury yield ended the quarter at 2.40%. The Federal Open Market Committee decided to increase its overnight rate by 25 basis points in December. Credit spreads continued to tighten during the quarter.

# DECEMBER 2017 ASSET CLASS ASSUMPTIONS

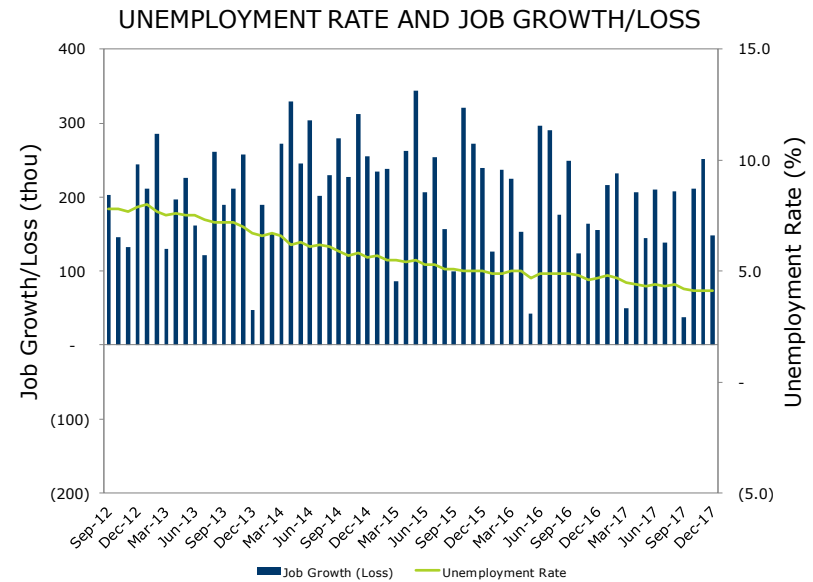
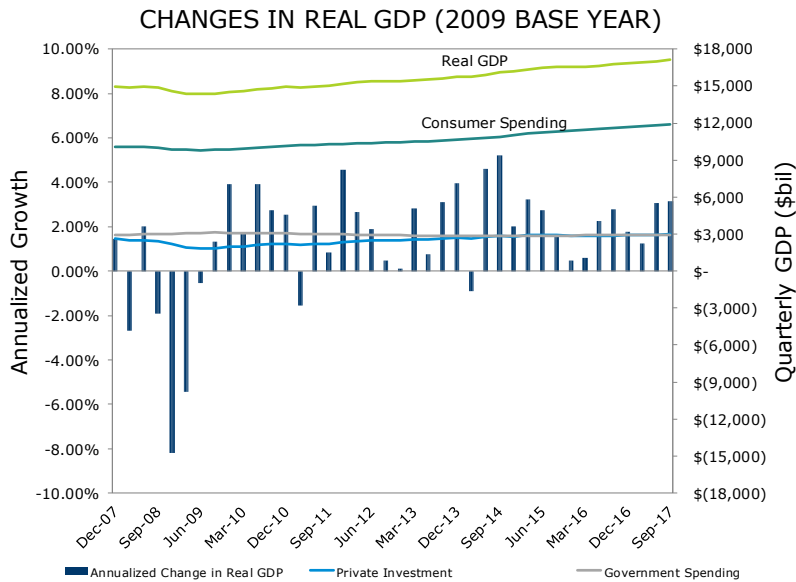
	EQUITY						FIXED INCOME						REAL ASSETS					
	US STOCK	DEV	EMG	GLOBAL		PRIVATE EQUITY	CASH	LT			NON-US BOND (HDG)	REAL ESTATE			COMDTY	REAL ASSETS	US CPI	
		EX-US STOCK	MRKT STOCK	EX-US STOCK	GLOBAL STOCK			CORE BOND	CORE BOND	US TIPS		HIGH YIELD	US RES	GLOBAL RES				PRIVATE RE
EXPECTED COMPOUND RETURN (%)	6.25	6.25	6.25	6.45	6.45	8.75	1.75	3.55	3.60	2.95	4.95	1.30	5.40	5.60	6.90	3.70	6.60	1.95
EXPECTED ARITHMETIC RETURN (%)	7.55	7.70	9.20	8.05	7.80	12.10	1.75	3.70	4.05	3.10	5.40	1.35	6.75	6.75	7.80	4.75	6.95	1.95
EXPECTED RISK (%)	17.00	18.00	26.00	18.75	17.15	28.00	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.40	1.75
CASH YIELD (%)	2.00	3.00	2.00	2.75	2.35	0.00	1.75	3.55	4.75	3.05	8.15	1.65	3.95	3.95	2.65	1.75	2.85	0.00
<b>CORRELATIONS</b>																		
US STOCK	1.00																	
DEV EX-US STOCK (USD)	0.81	1.00																
EMERGING MARKET 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									
US 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							
NON-US BOND (HDG)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.64	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 ASSET BASKET	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 DECEMBER 31, 2017 KEY ECONOMIC INDICATORS

CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Dec-17	0.1	3-Mo.	0.6
	Nov-17	0.4	12-Mo.	2.1
	Oct-17	0.1	10-Yr. (Annual)	1.6
	10-Yr.	2.0		
BREAKEVEN INFLATION				
CONSUMER SENTIMENT U. OF MICHIGAN SURVEY	Dec-17	95.9		
	Nov-17	98.5		
	1-Yr. Ago	98.2	10-Yr. Avg	79.1
MANUFACTURING INST. FOR SUPPLY MGMT PURCHASING MNGRS' IDX	Dec-17	59.7	CHANGE IN SECTOR	
	Nov-17	58.2	>50	Expansion
	1-Yr. Avg.	57.6	<50	Contraction

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

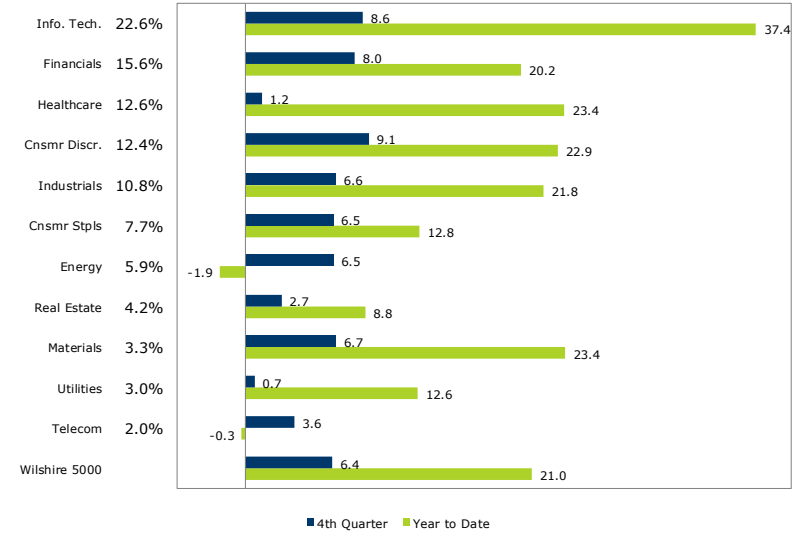


Data sources: Bureau of Labor Statistics, U.S. Treasury, University of Michigan, Institute for Supply Management, Bureau of Economic Analysis

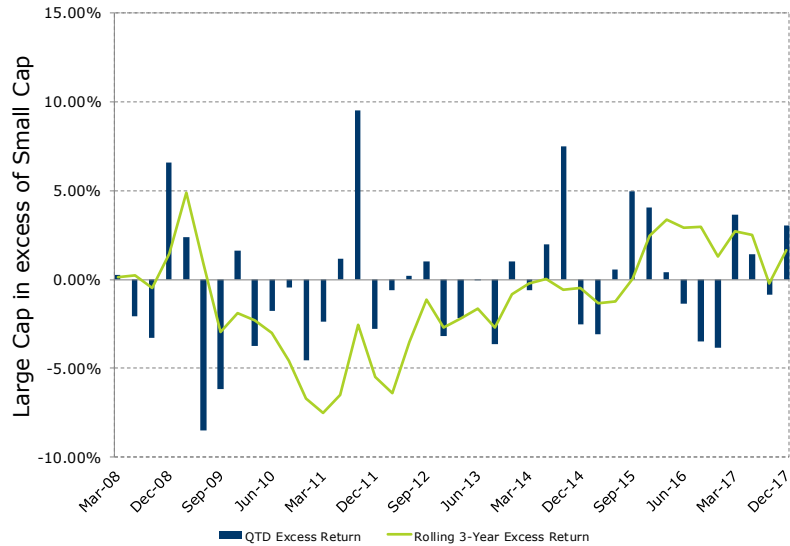
# U.S. EQUITY MARKET

AS OF DECEMBER 31, 2017	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	6.4	21.0	21.0	11.4	15.7	8.6
WILSHIRE U.S. LARGE CAP	6.7	21.8	21.8	11.5	15.8	8.5
WILSHIRE U.S. SMALL CAP	3.6	13.5	13.5	9.7	14.4	9.9
WILSHIRE U.S. LARGE GROWTH	7.3	27.7	27.7	12.9	17.3	9.7
WILSHIRE U.S. LARGE VALUE	6.1	16.3	16.3	10.0	14.4	7.2
WILSHIRE U.S. SMALL GROWTH	4.2	19.6	19.6	9.8	14.9	9.9
WILSHIRE U.S. SMALL VALUE	3.0	7.4	7.4	9.5	13.9	9.8
WILSHIRE REIT INDEX	1.7	4.2	4.2	5.2	9.3	7.3
MSCI USA MIN. VOL. INDEX	5.2	18.4	18.4	10.9	14.5	8.8
FTSE RAFI U.S. 1000 INDEX	6.5	16.4	16.4	10.1	15.3	9.4

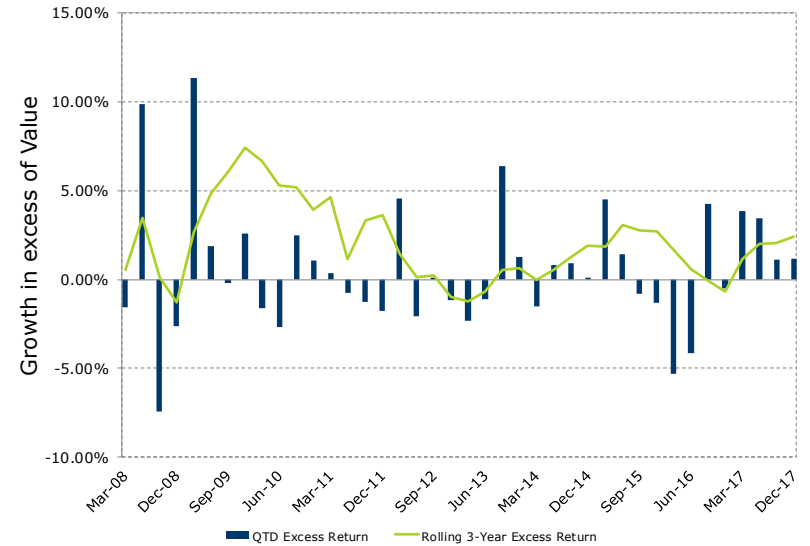
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



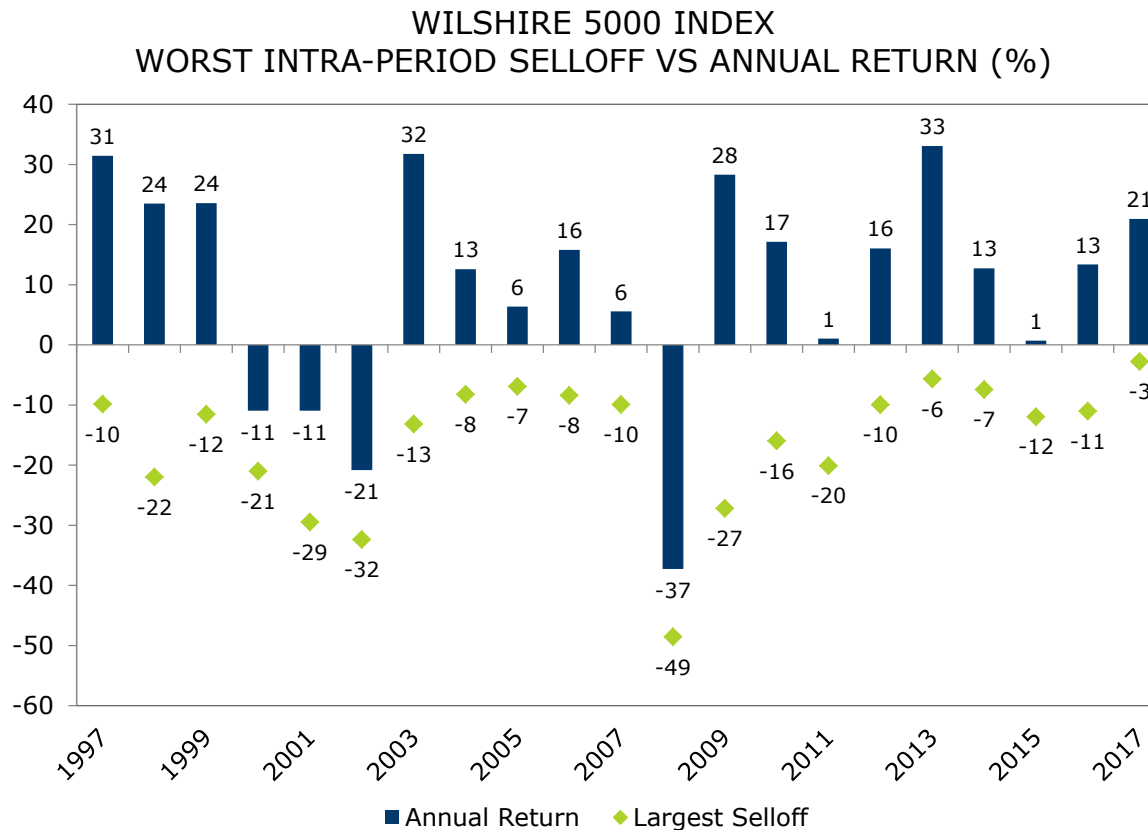
GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

# ANNUAL EQUITY RETURNS

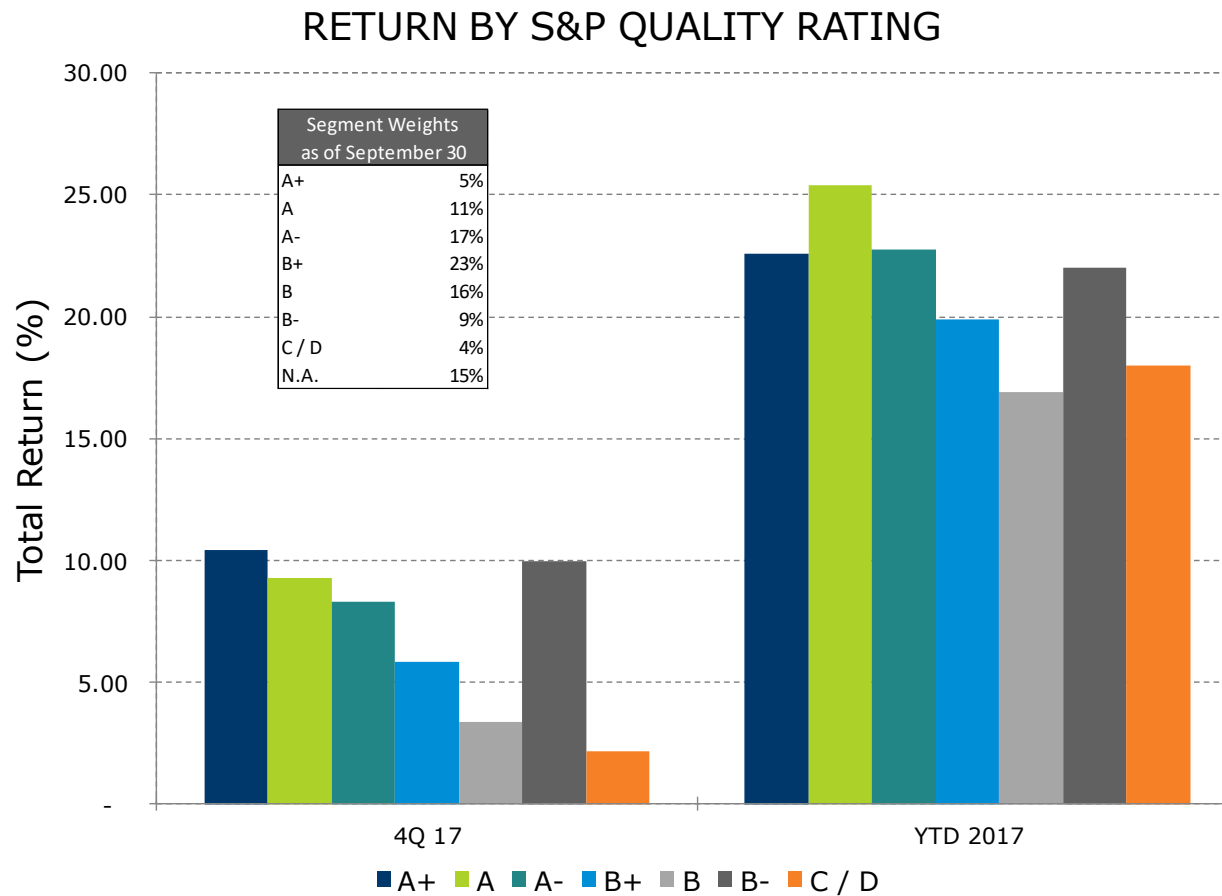
- U.S. Equity has now produced 9 straight years of positive returns since 2008
- 2017 was one of the least volatile years in nearly four decades
  - Largest drawdown for the year was -2.75%
  - Only 4 trading days where the market was down 1% or more





# RETURNS BY QUALITY SEGMENT

Generally speaking, higher quality names led the market for both the fourth quarter and 2017

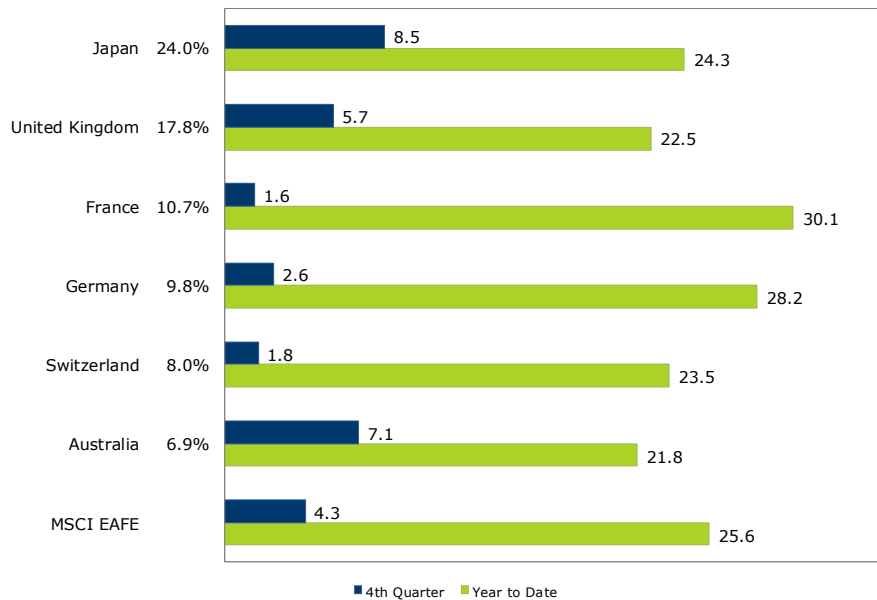


Data sources: Wilshire Atlas

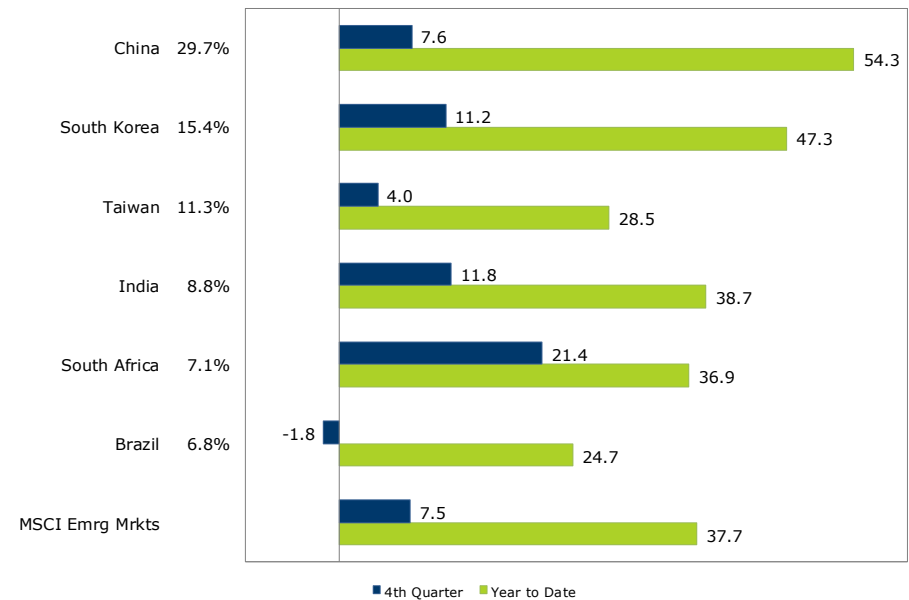
# NON-U.S. EQUITY MARKET

AS OF DECEMBER 31, 2017	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US (\$G)	5.1	27.8	27.8	8.3	7.3	2.3
MSCI EAFE (\$G)	4.3	25.6	25.6	8.3	8.4	2.4
MSCI EMERGING MARKETS (\$G)	7.5	37.7	37.7	9.5	4.7	2.0
MSCI FRONTIER MARKETS (\$G)	5.6	32.3	32.3	5.5	9.7	-0.7
MSCI ACWI EX-US GROWTH (\$G)	5.8	32.5	32.5	9.7	8.4	2.8
MSCI ACWI EX-US VALUE (\$G)	4.3	23.4	23.4	6.9	6.2	1.8
MSCI ACWI EX-US SMALL (\$G)	6.6	32.1	32.1	12.5	10.5	5.2
MSCI EAFE MINIMUM VOLATILITY	3.6	22.2	22.2	9.3	9.9	5.2
FTSE RAFI DEVELOPED EX-US	4.7	25.7	25.7	8.7	8.9	2.8
MSCI EAFE LC (G)	3.7	15.8	15.8	9.0	11.9	3.8
MSCI EMERGING MARKETS LC (G)	5.7	31.0	31.0	10.9	8.4	4.5

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



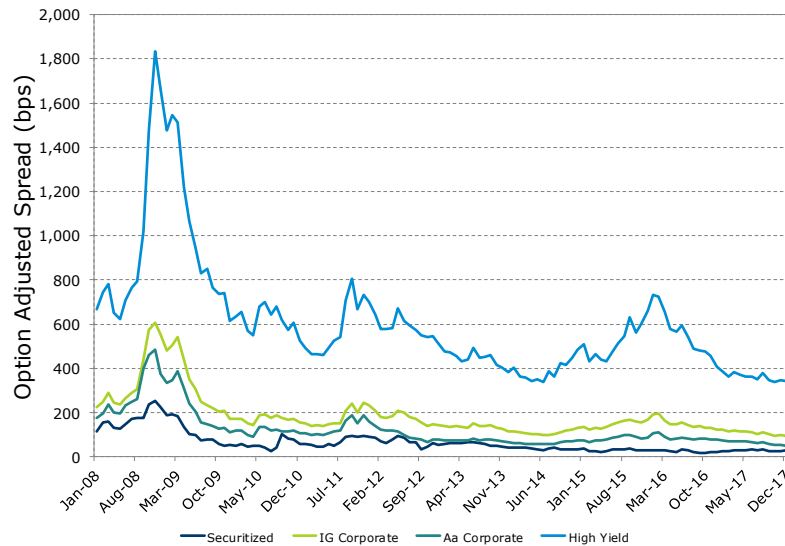
Data sources: Wilshire Compass

# U.S. FIXED INCOME

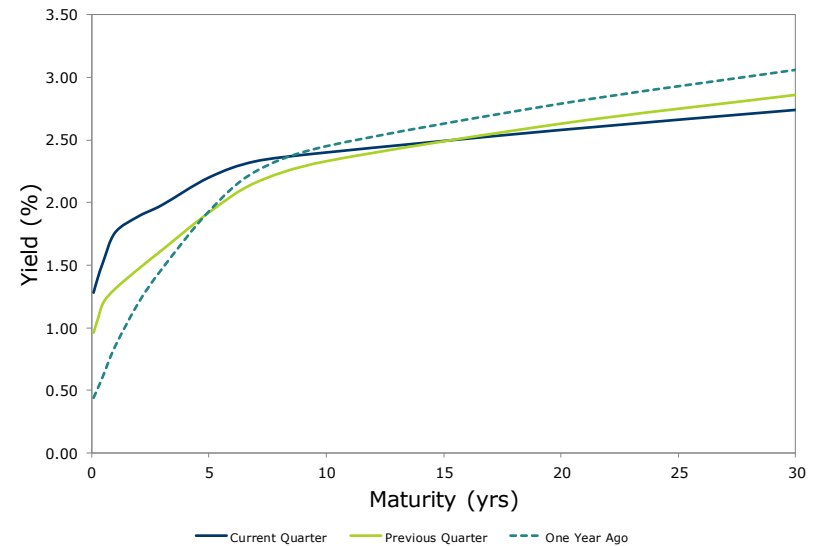
AS OF DECEMBER 31, 2017	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.7	6.0	0.4	3.6	3.6	2.2	2.1	4.0
BLOOMBERG BARCLAYS TREASURY	2.2	6.2	0.1	2.3	2.3	1.4	1.3	3.3
BLOOMBERG BARCLAYS GOV'T-REL.	2.7	5.5	0.3	4.2	4.2	2.2	1.9	3.7
BLOOMBERG BARCLAYS SECURITIZED	2.9	4.4	0.2	2.5	2.5	1.9	2.0	3.8
BLOOMBERG BARCLAYS CORPORATE	3.3	7.6	1.2	6.4	6.4	3.9	3.5	5.7
BLOOMBERG BARCLAYS LT G/C	3.5	15.4	2.8	10.7	10.7	4.5	4.4	7.3
BLOOMBERG BARCLAYS LT TREASURY	2.7	17.6	2.4	8.5	8.5	2.8	3.5	6.6
BLOOMBERG BARCLAYS LT GOV't-REL.	4.0	12.6	2.1	11.9	11.9	4.5	4.1	7.0
BLOOMBERG BARCLAYS LT CORP.	4.0	14.3	3.3	12.1	12.1	5.9	5.3	7.8
BLOOMBERG BARCLAYS U.S. TIPS *	2.4	7.7	1.3	3.0	3.0	2.0	0.1	3.5
BLOOMBERG BARCLAYS HIGH YIELD	6.2	3.9	0.5	7.5	7.5	6.3	5.8	8.0
TREASURY BILLS	1.4	0.25	0.3	0.8	0.8	0.4	0.3	0.4

\* 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



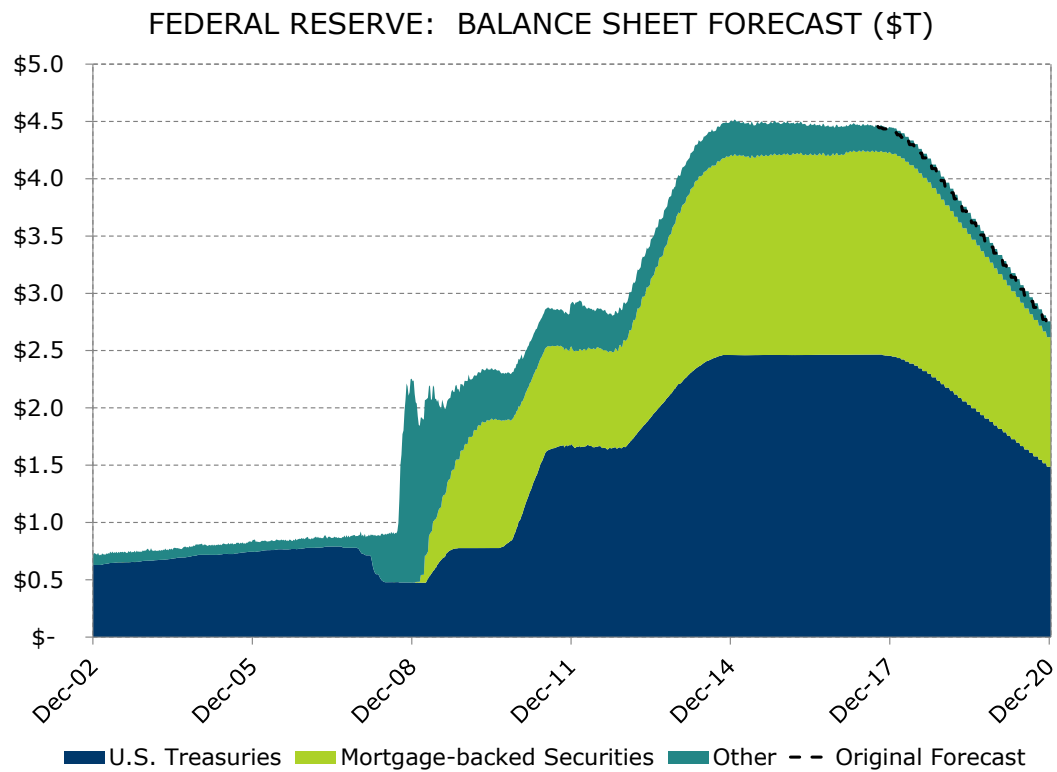
TREASURY YIELD CURVE



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

# FEDERAL RESERVE

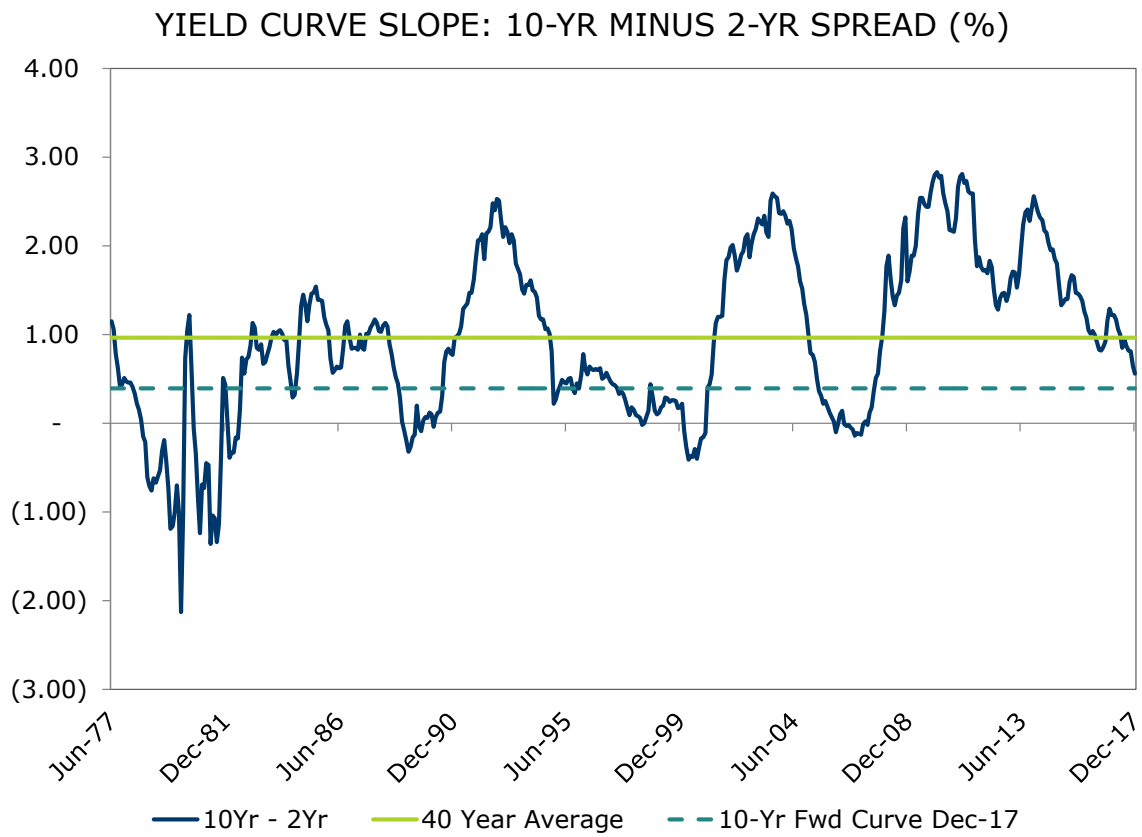
- Federal Reserve began their balance sheet normalization program during Q4; targeting \$10B in reductions per month with the goal of reaching \$50B per month in Q4 2018
- Total reductions have equaled only \$17B through mid-January 2018



Data sources: Federal Reserve

# U.S. YIELD CURVE

- Shape of the curve had been steep since the global financial crisis; has recently flattened
- Current spread between 10-year and 2-year Treasury is well below average (0.56% vs. 0.96%)
- Tight spread present in 10-year forward curve as well (0.39%)
- Continued strong economic growth will put upward pressure on the long end of the curve

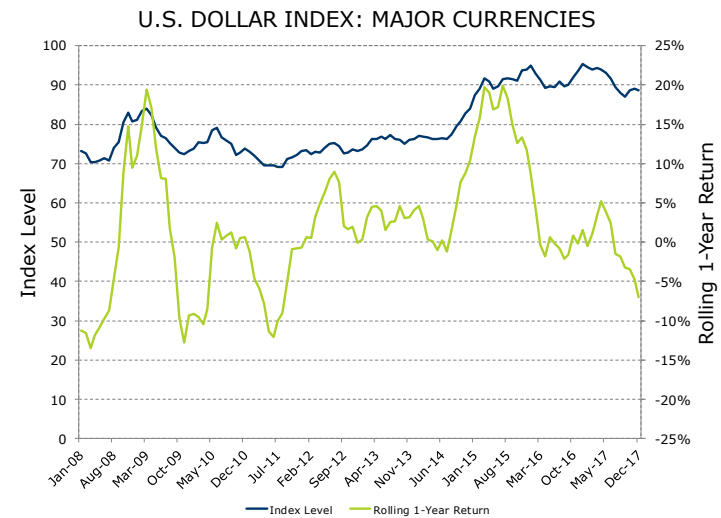
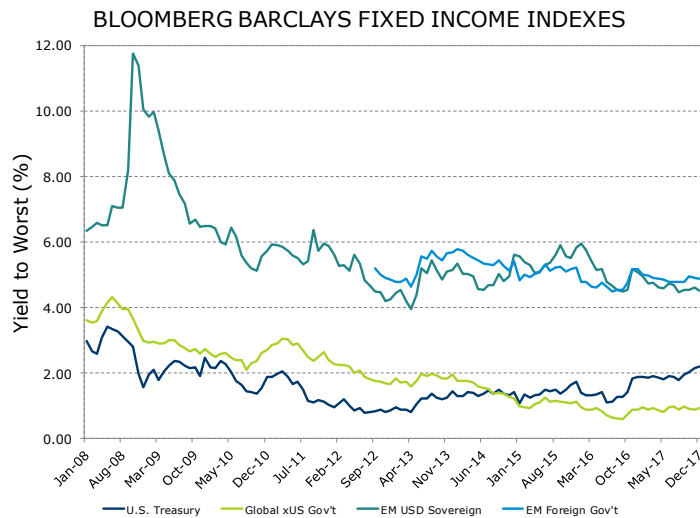


Data source: Federal Reserve

# NON-U.S. FIXED INCOME

AS OF DECEMBER 31, 2017	QTR	YTD	1 YR	3 YR	5 YR	10 YR
<b>DEVELOPED MARKETS</b>						
BLMBRG BRCLYS GLBL AGGREGATE xUS	1.6	10.5	10.5	1.8	-0.2	2.4
BLMBRG BRCLYS GLBL AGGREGATE xUS *	1.1	2.5	2.5	2.9	3.7	4.2
BLMBRG BRCLYS GLOBAL INF LNKD xUS	3.9	12.8	12.8	2.6	2.4	3.3
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	3.4	3.3	3.3	5.7	5.8	5.8
<b>EMERGING MARKETS (HARD CURRENCY)</b>						
BLMBRG BRCLYS EM USD AGGREGATE	0.6	8.2	8.2	6.4	3.9	7.0
<b>EMERGING MARKETS (FOREIGN CURRENCY)</b>						
BLMBRG BRCLYS EM LOCAL CURR. GOVT	2.2	14.3	14.3	2.7	0.3	n.a.
BLMBRG BRCLYS EM LOCAL CURR. GOVT *	0.0	3.6	3.6	2.3	1.8	n.a.
EURO vs. DOLLAR	1.6	13.8	13.8	-0.3	-1.9	-2.0
YEN vs. DOLLAR	-0.1	3.5	3.5	2.1	-5.2	-0.1
POUND vs. DOLLAR	0.8	9.5	9.5	-4.6	-3.6	-3.8

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

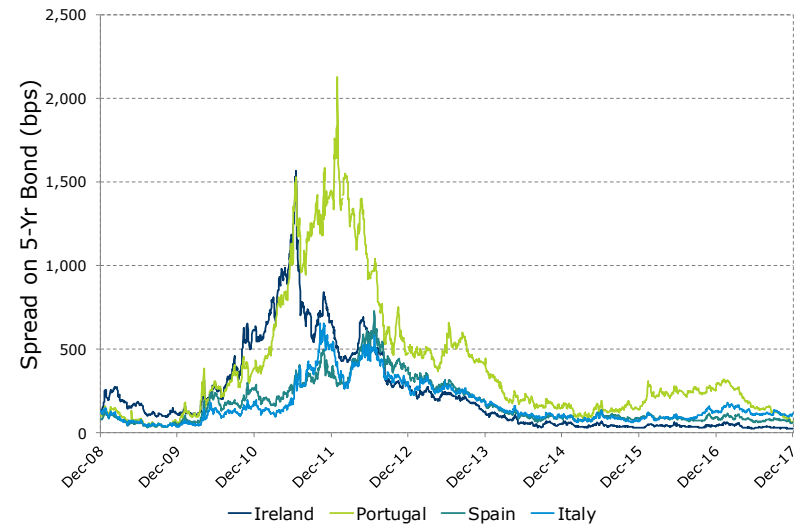


Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis

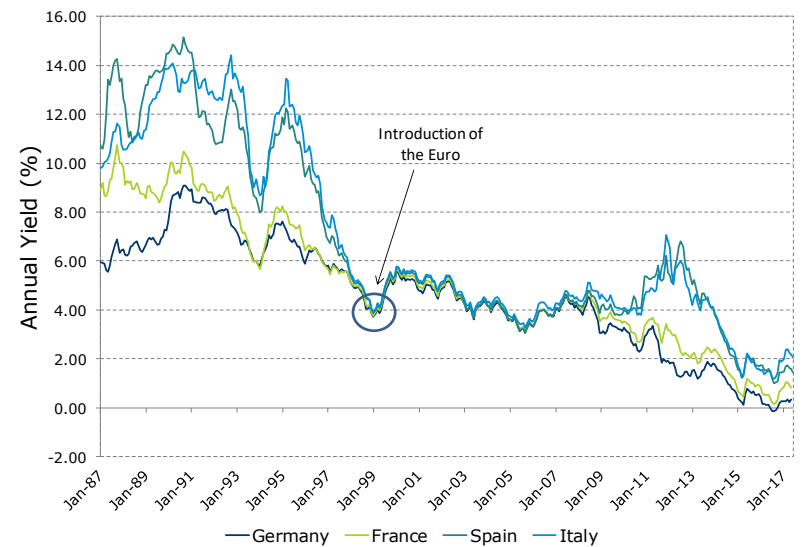
# EUROPEAN DEBT

- Yields on Portugal's debt are down in the midst of a strong economic recovery and rating upgrades during the fourth quarter
  
- Yields on government bonds remain low globally

GOVERNMENT BOND SPREADS  
Versus German Yield Curve



EUROPEAN GOVERNMENT BOND YIELDS

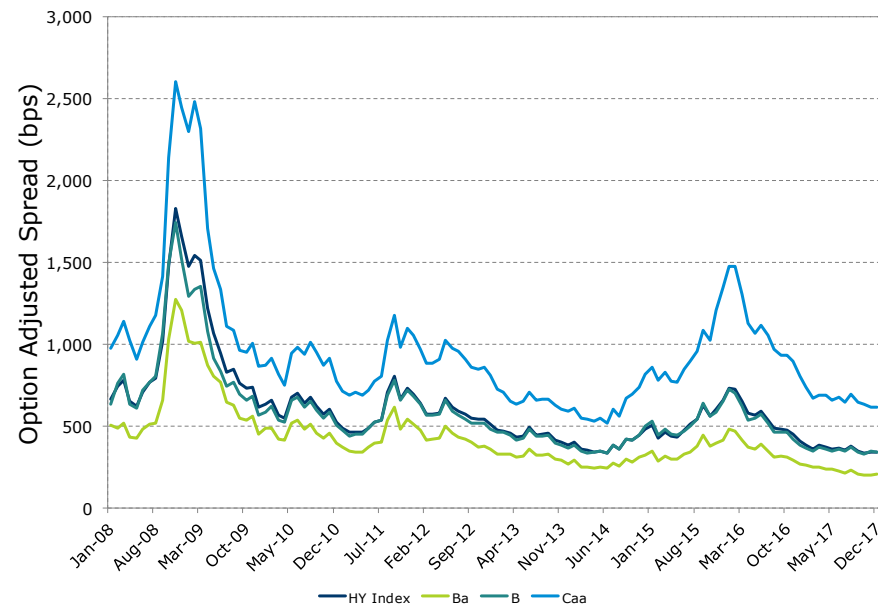


Data sources: Bloomberg Barclays, International Monetary Fund

# HIGH YIELD BOND MARKET

AS OF DECEMBER 31, 2017		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		0.5	7.5	7.5	6.3	5.8	8.0
CREDIT SUISSE LEVERAGED LOAN		1.2	4.2	4.2	4.5	4.3	4.6
<b>HIGH YIELD QUALITY DISTRIBUTION</b>	<b>WEIGHT</b>						
Ba U.S. HIGH YIELD	44.1%	0.4	7.3	7.3	6.2	5.8	8.4
B U.S. HIGH YIELD	40.3%	0.4	6.5	6.5	5.5	5.1	6.5
Caa U.S. HIGH YIELD	14.4%	1.0	10.4	10.4	8.4	7.5	7.8
Ca to D U.S. HIGH YIELD	1.1%	0.8	13.8	13.8	-3.0	-10.1	-0.4
Non-Rated U.S. HIGH YIELD	0.2%	-2.0	9.2	9.2	-2.5	0.9	1.3

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



Data sources: Wilshire Compass, Bloomberg Barclays

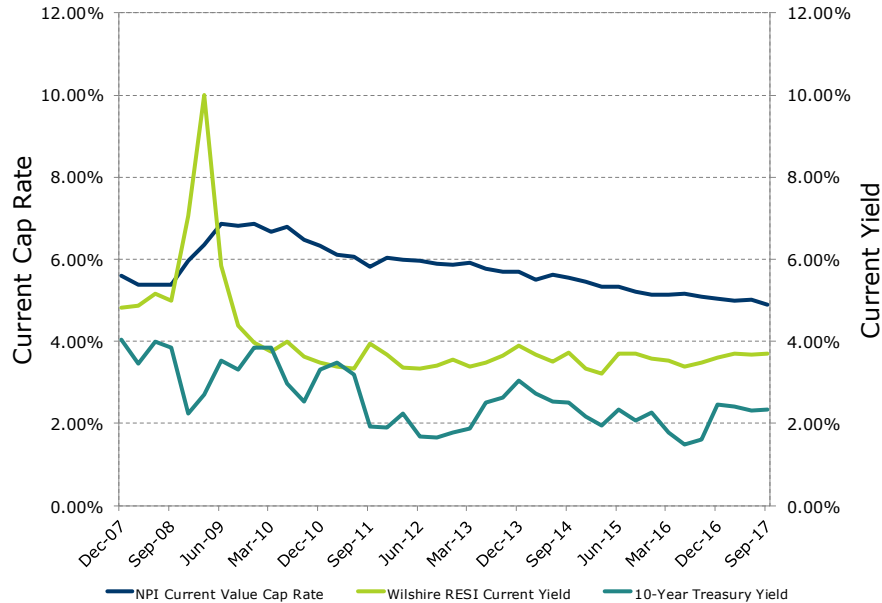


# Wilshire Consulting REAL ASSETS

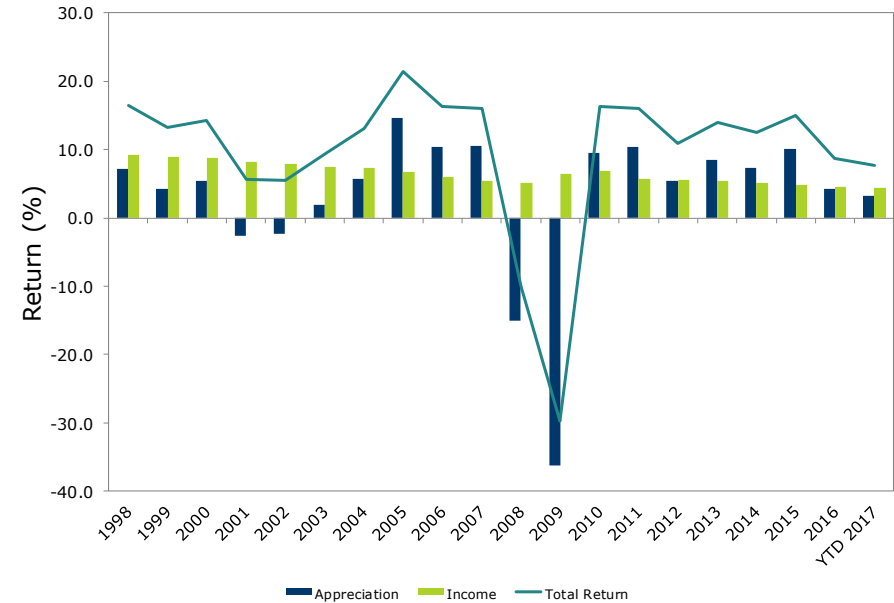


AS OF DECEMBER 31, 2017	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	1.3	3.0	3.0	2.0	0.1	3.5
BLOOMBERG COMMODITY INDEX	4.7	1.7	1.7	-5.0	-8.5	-6.8
WILSHIRE GLOBAL RESI INDEX	3.2	10.0	10.0	5.8	8.0	5.4
NCREIF ODCE FUND INDEX	2.1	7.6	7.6	10.4	11.5	5.0
NCREIF TIMBERLAND INDEX	1.5	3.6	3.6	3.7	6.2	4.4
ALERIAN MLP INDEX (OIL & GAS)	-1.0	-6.5	-6.5	-9.3	-0.1	6.0

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN

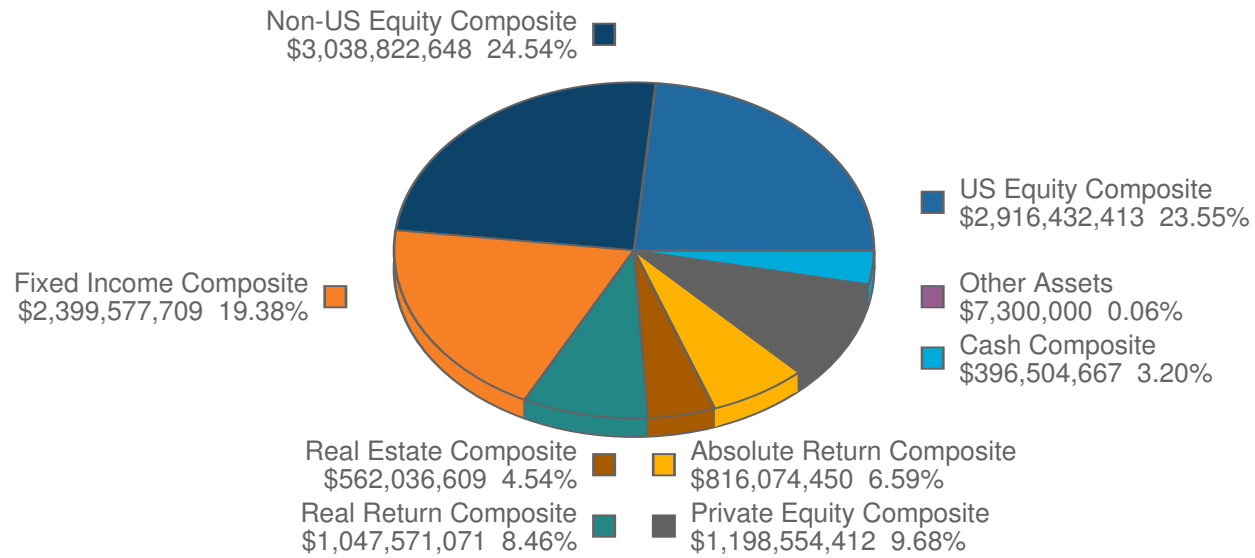


Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries



# TOTAL FUND

Wilshire Consulting  
**MANAGER ALLOCATION**  
 KRS Pension Plan Composite  
*As of December 31, 2017*



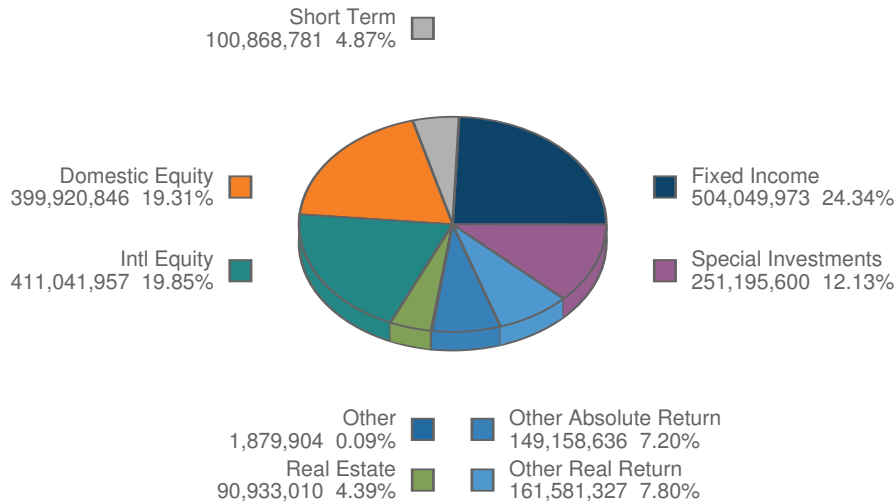
**\$12,382,873,980**

# ACTUAL ALLOCATION VS POLICY ALLOCATION

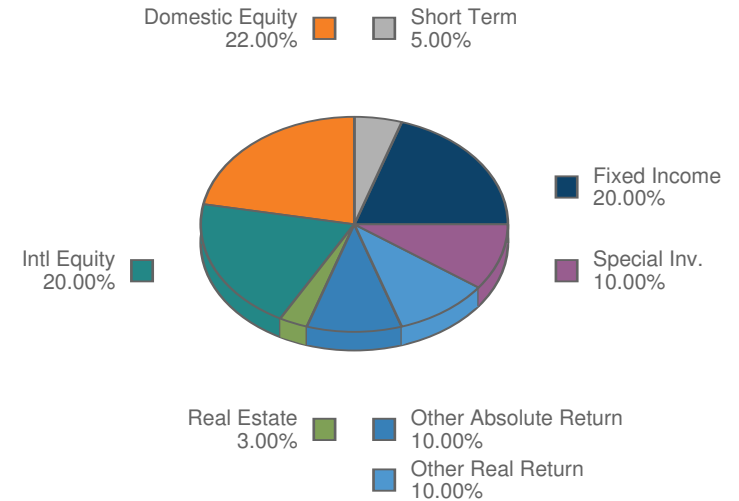
## KERS Pension Plan Composite

As of December 31, 2017

**Total Fund**



**Policy Index**



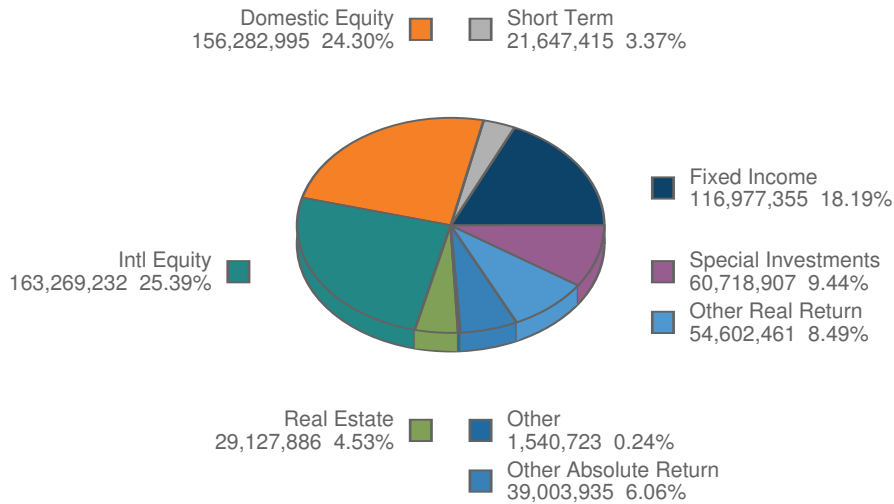
**\$2,070,630,034**

# ACTUAL ALLOCATION VS POLICY ALLOCATION

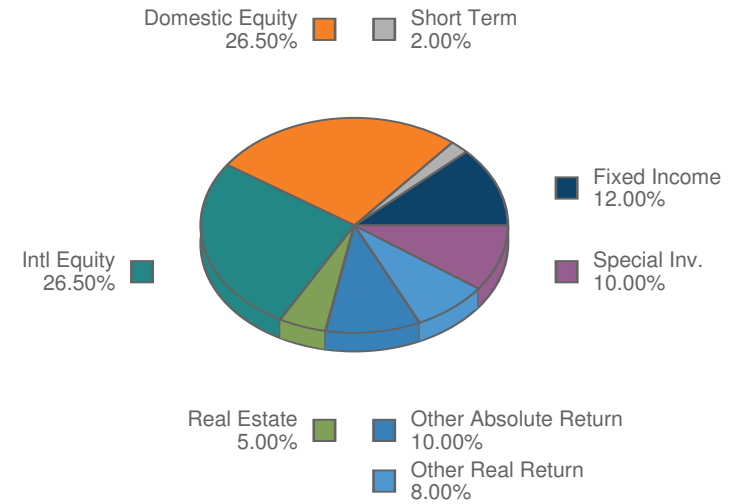
KERS (H) Pension Plan Composite

As of December 31, 2017

**Total Fund**



**Policy Index**



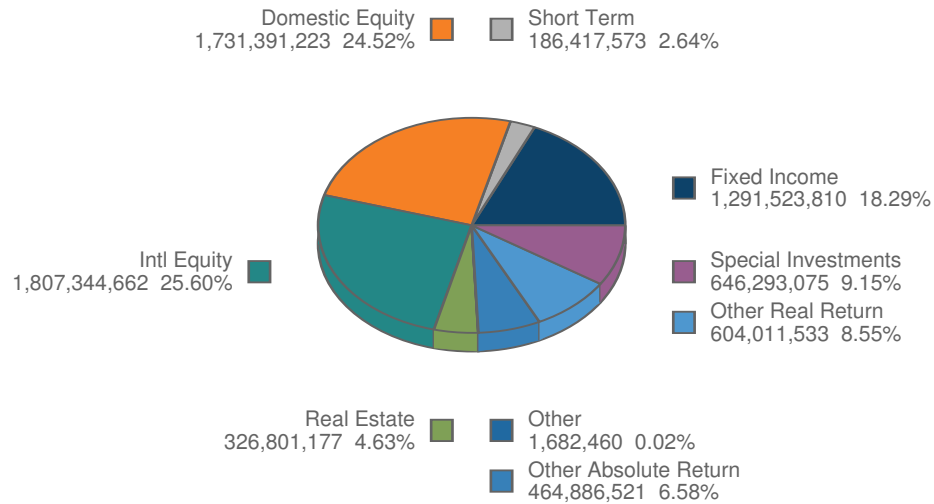
**\$643,170,908**

# ACTUAL ALLOCATION VS POLICY ALLOCATION

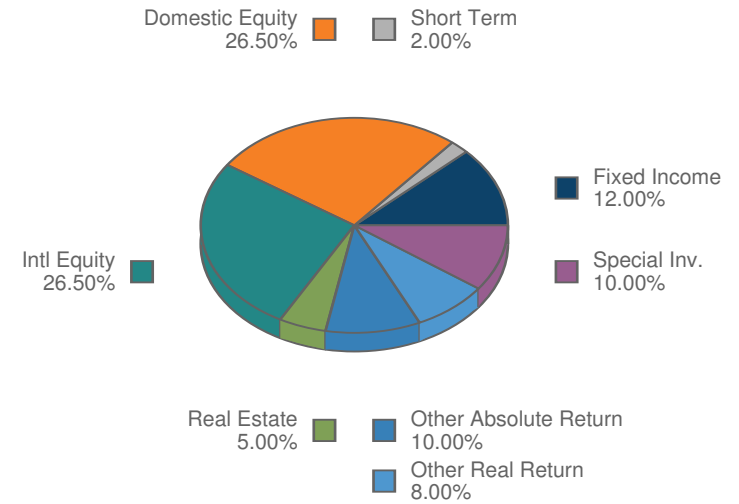
## CERS Pension Plan Composite

As of December 31, 2017

### Total Fund



### Policy Index



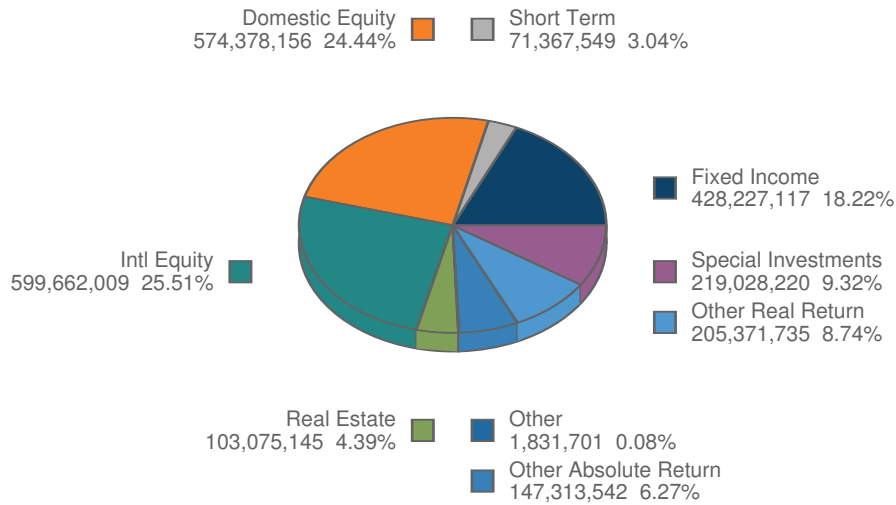
\$7,060,352,032

# ACTUAL ALLOCATION VS POLICY ALLOCATION

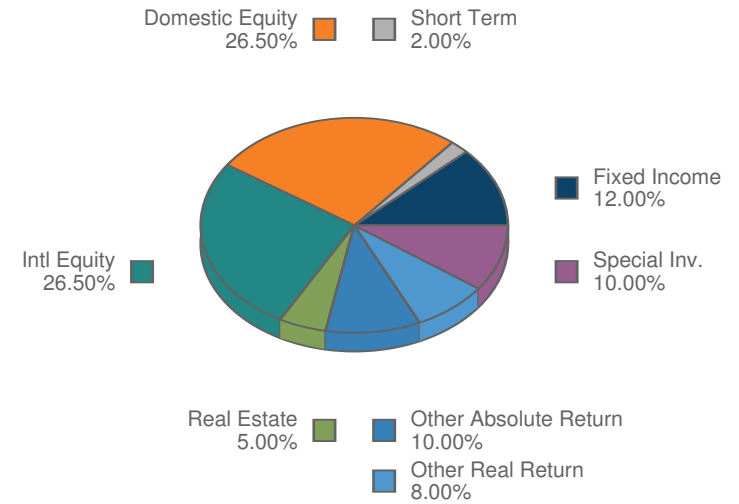
CERS (H) Pension Plan Composite

As of December 31, 2017

## Total Fund



## Policy Index



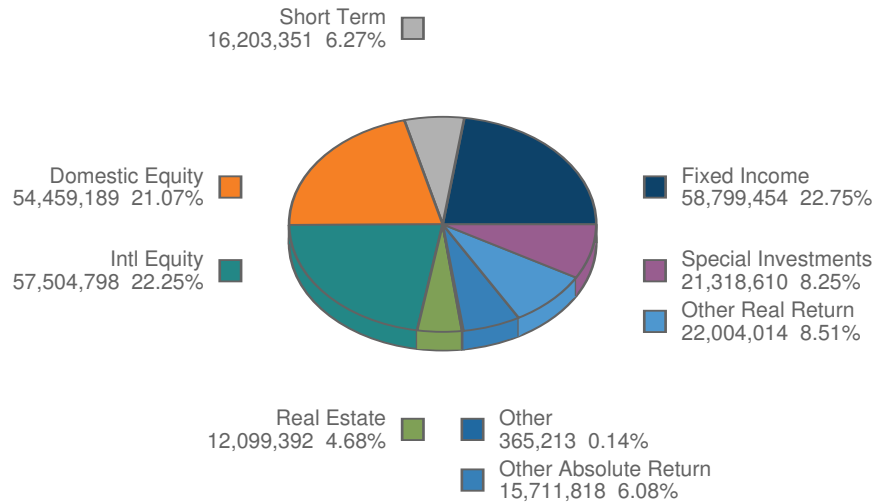
\$2,350,255,173

# ACTUAL ALLOCATION VS POLICY ALLOCATION

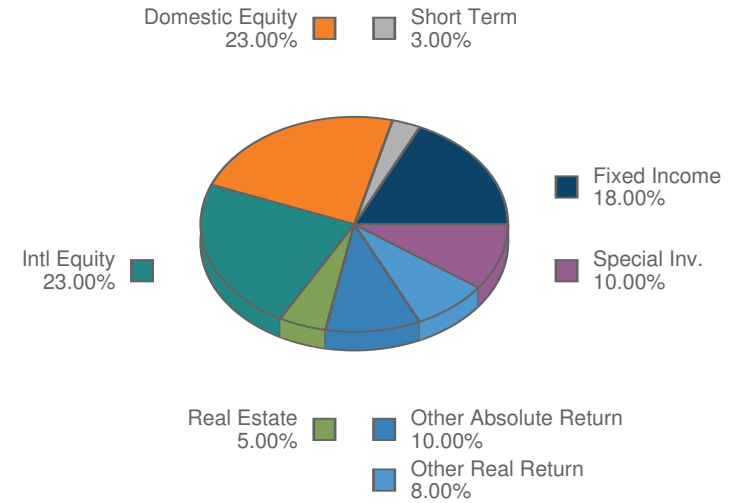
SPRS Pension Plan Composite

As of December 31, 2017

**Total Fund**



**Policy Index**



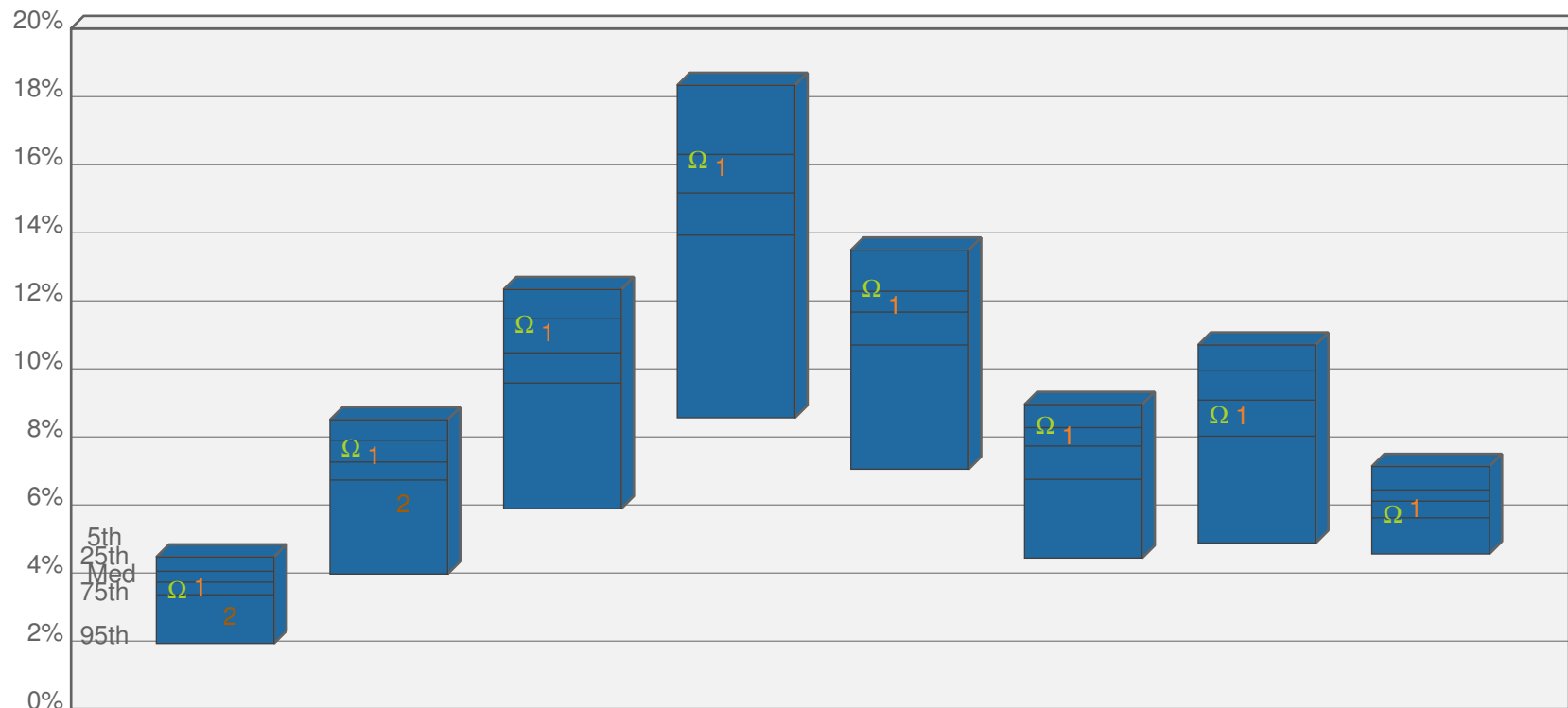
\$258,465,838



# PERFORMANCE COMPARISON

## KRS Pension Plan Composite

Periods Ended December 31, 2017



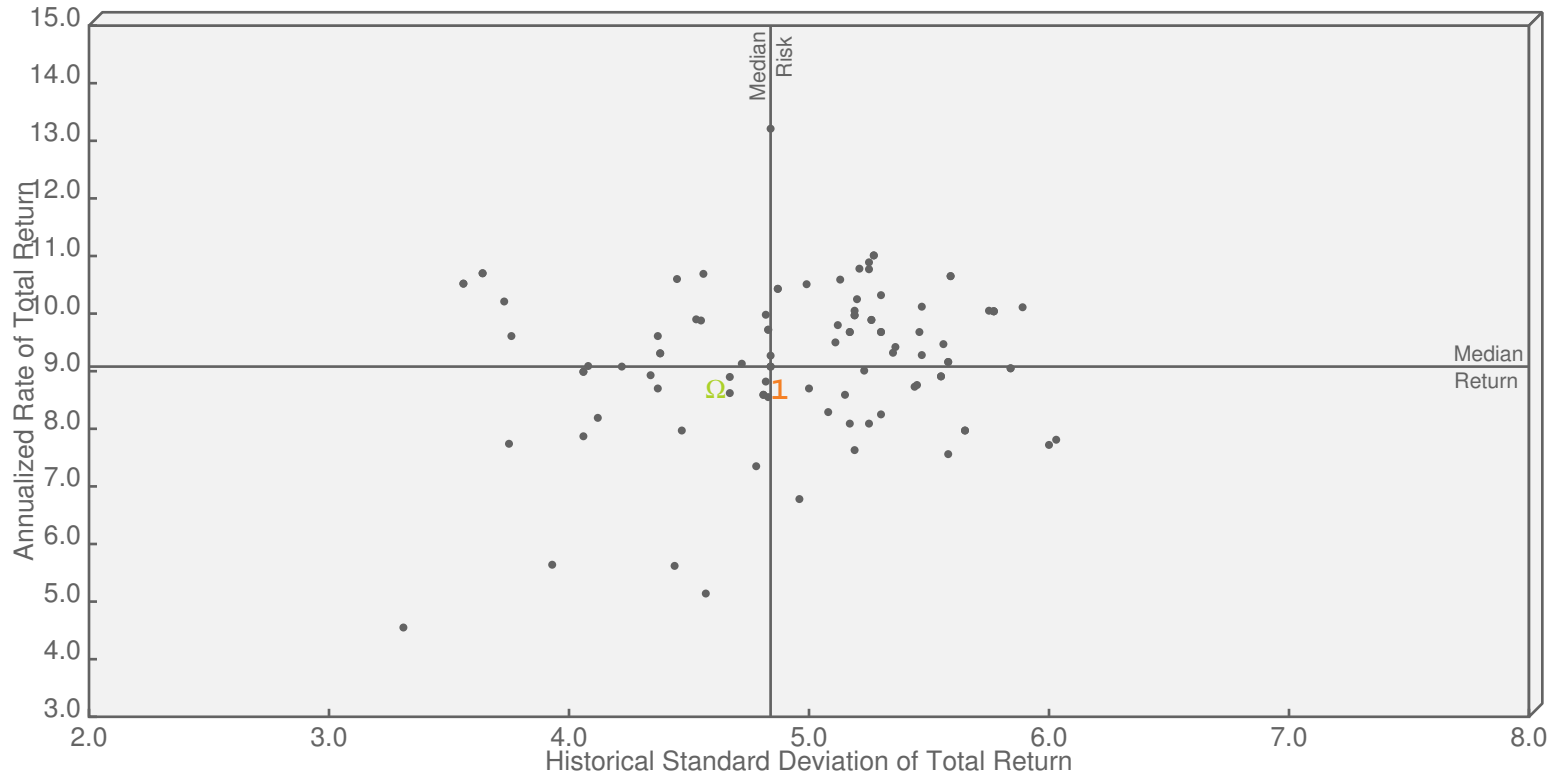
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
Ω KRS Pension Plan	3.52 (67)	7.67 (34)	11.33 (30)	16.16 (30)	12.37 (21)	8.36 (21)	8.65 (64)	5.75 (68)
1 KRS Target Alloc	3.59 (62)	7.47 (42)	11.08 (34)	15.93 (36)	11.88 (41)	8.04 (31)	8.63 (64)	5.91 (62)
2 KRS IPS Benchmark	2.75 (91)	6.03 (87)						
5th %tile	4.47	8.50	12.33	18.33	13.49	8.95	10.70	7.13
25th %tile	4.05	7.90	11.47	16.30	12.28	8.27	9.94	6.44
Median	3.73	7.26	10.47	15.17	11.67	7.73	9.08	6.11
75th %tile	3.36	6.73	9.58	13.93	10.70	6.75	8.02	5.62
95th %tile	1.93	3.97	5.89	8.56	7.05	4.44	4.88	4.56
Number of Funds	154	154	154	154	149	145	144	119

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

# RISK / RETURN ANALYSIS

## KRS Pension Plan

Five Years Ending December 31, 2017



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
KRS Pension Plan	Ω	8.65	64	4.63	61
KRS Target Allocation Index	1	8.63	64	4.90	48
Median		9.08		4.84	

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

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>KRS Pension Plan</b>									
<b>Net of Fee Return</b>	<b>3.38</b>	<b>7.28</b>	<b>10.74</b>	<b>15.72</b>	<b>7.66</b>	<b>8.13</b>	<b>5.45</b>	<b>3/31/84</b>	<b>9.24</b>
KRS Target Allocation Index	3.59	7.47	11.08	15.93	8.04	8.63	5.91	3/31/84	9.40
Value Added	-0.21	-0.19	-0.34	-0.20	-0.38	-0.50	-0.46	3/31/84	-0.16
KRS IPS Benchmark	2.75	6.03							
<b>KERS Pension Plan</b>									
<b>Net of Fee Return</b>	<b>2.92</b>	<b>7.11</b>	<b>10.39</b>	<b>14.66</b>	<b>7.10</b>	<b>7.87</b>	<b>5.32</b>	<b>3/31/84</b>	<b>9.20</b>
KERS Target Allocation Index	3.08	6.89	10.12	14.26	7.13	8.06	5.63	3/31/84	9.32
Value Added	-0.16	0.22	0.27	0.40	-0.03	-0.20	-0.31	3/31/84	-0.11
KERS IPS Benchmark	2.70	6.31							
Assumed Rate 5.25%	1.29	2.59							
<b>KERS (H) Pension Plan</b>									
<b>Net of Fee Return</b>	<b>3.44</b>	<b>7.96</b>	<b>11.47</b>	<b>16.58</b>	<b>7.99</b>	<b>8.31</b>	<b>5.54</b>	<b>3/31/84</b>	<b>9.27</b>
KERS (H) Target Allocation Index	3.71	8.10	11.80	16.81	8.10	8.65	5.92	3/31/84	9.40
Value Added	-0.28	-0.14	-0.33	-0.23	-0.11	-0.34	-0.38	3/31/84	-0.13
KERS (H) IPS Benchmark	2.76	6.45							
Assumed Rate 6.25%	1.53	3.08							
<b>CERS Pension Plan</b>									
<b>Net of Fee Return</b>	<b>3.47</b>	<b>7.99</b>	<b>11.50</b>	<b>16.69</b>	<b>8.00</b>	<b>8.32</b>	<b>5.55</b>	<b>3/31/84</b>	<b>9.27</b>
CERS Target Allocation Index	3.72	8.11	11.82	16.83	8.11	8.65	5.92	3/31/84	9.40
Value Added	-0.25	-0.12	-0.31	-0.14	-0.11	-0.33	-0.38	3/31/84	-0.13
CERS IPS Benchmark	2.77	6.46							
Assumed Rate 6.25%	1.53	3.08							

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>CERS (H) Pension Plan</b>									
<b>Net of Fee Return</b>	<b>3.45</b>	<b>7.98</b>	<b>11.49</b>	<b>16.64</b>	<b>8.03</b>	<b>8.33</b>	<b>5.55</b>	<b>3/31/84</b>	<b>9.27</b>
CERS (H) Target Allocation Index	3.72	8.12	11.82	16.83	8.11	8.65	5.92	3/31/84	9.40
Value Added	-0.27	-0.14	-0.34	-0.20	-0.08	-0.32	-0.37	3/31/84	-0.13
CERS (H) IPS Benchmark	2.77	6.47							
Assumed Rate 6.25%	1.53	3.08							
<b>SPRS Pension Plan</b>									
<b>Net of Fee Return</b>	<b>3.06</b>	<b>7.17</b>	<b>10.38</b>	<b>15.05</b>	<b>6.95</b>	<b>7.70</b>	<b>5.24</b>	<b>3/31/84</b>	<b>9.18</b>
SPRS Target Allocation Index	3.31	7.37	10.83	15.38	7.66	8.37	5.78	3/31/84	9.36
Value Added	-0.25	-0.20	-0.44	-0.33	-0.71	-0.67	-0.54	3/31/84	-0.18
SPRS IPS Benchmark	2.73	6.33							
Assumed Rate 5.25%	1.29	2.59							

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>5.99</b>	<b>10.61</b>	<b>13.54</b>	<b>19.20</b>	<b>10.44</b>	<b>14.82</b>	<b>8.34</b>	<b>3/31/84</b>	<b>11.43</b>
Russell 3000	6.34	11.20	14.55	21.13	11.12	15.58	8.71	3/31/84	11.46
Value Added	-0.34	-0.58	-1.01	-1.93	-0.68	-0.76	-0.36	3/31/84	-0.03
<b>Non-US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>5.53</b>	<b>12.62</b>	<b>19.69</b>	<b>29.24</b>	<b>9.09</b>	<b>8.05</b>	<b>3.02</b>	<b>6/30/00</b>	<b>3.61</b>
Policy Index	5.23	11.91	18.69	28.30	8.44	7.35	2.48	6/30/00	3.86
Value Added	0.31	0.71	1.00	0.94	0.65	0.70	0.53	6/30/00	-0.25
<b>Fixed Income Composite</b>									
<b>Net of Fee Return</b>	<b>0.44</b>	<b>1.52</b>	<b>3.20</b>	<b>4.85</b>	<b>4.54</b>	<b>3.78</b>	<b>5.07</b>	<b>3/31/84</b>	<b>7.62</b>
Policy Index	0.44	1.94	3.82	5.79	5.45	4.08	5.10	3/31/84	7.46
Value Added	0.01	-0.42	-0.62	-0.94	-0.91	-0.30	-0.04	3/31/84	0.16
Bloomberg Global Aggregate	1.08	2.86	5.54	7.39	2.02	0.79	3.09		
<b>Real Return Composite</b>									
<b>Net of Fee Return</b>	<b>0.77</b>	<b>2.31</b>	<b>2.95</b>	<b>8.01</b>	<b>3.91</b>	<b>2.06</b>		<b>6/30/11</b>	<b>4.05</b>
Real Return Index (P)	0.70	1.13	1.02	3.61	2.14	2.34		6/30/11	2.78
Value Added	0.07	1.17	1.93	4.40	1.77	-0.28		6/30/11	1.27
<b>Real Estate Composite</b>									
<b>Net of Fee Return</b>	<b>2.30</b>	<b>4.94</b>	<b>7.29</b>	<b>10.49</b>	<b>9.61</b>	<b>9.37</b>	<b>7.73</b>	<b>6/30/84</b>	<b>6.01</b>
NCREIF ODCE NOF 1 Quarter Lag	1.64	3.13	4.72	6.69	9.84	10.57	4.08		
Value Added	0.66	1.80	2.56	3.80	-0.23	-1.20	3.65		
<b>Absolute Return Composite</b>									
<b>Net of Fee Return</b>	<b>1.31</b>	<b>3.33</b>	<b>3.79</b>	<b>5.37</b>	<b>2.25</b>	<b>4.66</b>		<b>3/31/10</b>	<b>4.14</b>
HFRI FOF Div (1 Month Lag)	1.41	3.27	4.20	7.07	2.11	3.90		3/31/10	3.00
Value Added	-0.11	0.06	-0.41	-1.70	0.14	0.76		3/31/10	1.14

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Private Equity Composite</b>									
<b>Net of Fee Return</b>	<b>3.15</b>	<b>8.03</b>	<b>14.05</b>	<b>17.17</b>	<b>11.25</b>	<b>12.99</b>	<b>8.18</b>	<b>6/30/02</b>	<b>11.13</b>
KRS Short Term PE Index	3.15	8.03	14.05	17.17	11.25	12.99	8.18	6/30/02	11.13
Value Added	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	6/30/02	-0.00
Russell 3000 +3% Qtr Lag	5.35	9.54	16.77	25.02	15.14	18.48	11.30	6/30/02	10.83
<b>Cash Composite</b>									
<b>Net of Fee Return</b>	<b>0.65</b>	<b>0.94</b>	<b>1.18</b>	<b>1.36</b>	<b>0.83</b>	<b>0.66</b>	<b>0.88</b>	<b>12/31/87</b>	<b>3.62</b>
91-Day Treasury Bill	0.28	0.55	0.75	0.85	0.41	0.27	0.39	12/31/87	3.32
Value Added	0.37	0.40	0.43	0.50	0.42	0.39	0.49	12/31/87	0.30
<b>Other Assets</b>									
<b>Net of Fee Return</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.32</b>	<b>0.20</b>	<b>3/31/99</b>	<b>3.24</b>

# CUSTOM BENCHMARK SPECIFICATION

KRS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KRS Target Allocation Index	6/84	6/17	100.00	KRS Target Allocation Index
	9/17	9/17	2.20	91-Day Treasury Bill
			10.00	KRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			8.00	Real Return Index (P)
			7.00	Bloomberg High Yield
			7.00	Bloomberg Universal
			25.60	Russell 3000
	25.20	MSCI ACWI Ex USA IMI Index (\$G)		
	12/17	12/17	2.20	91-Day Treasury Bill
			10.00	KRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
8.00			Real Return Index (P)	
7.00			Bloomberg High Yield	
7.00			Bloomberg Universal	
25.60			Russell 3000	
25.20	MSCI ACWI Ex USA IMI Index (\$N)			
KRS IPS Benchmark	9/17	9/17	2.20	91-Day Treasury Bill
			10.00	KRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			5.10	Bloomberg Universal
			22.70	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI Index (\$G)
			17.50	Russell 3000

# CUSTOM BENCHMARK SPECIFICATION

KRS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KRS IPS Benchmark (cont.)	12/17	12/17	2.20	91-Day Treasury Bill
			10.00	KRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			5.10	Bloomberg Universal
			22.70	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
		17.50	Russell 3000	



# CUSTOM BENCHMARK SPECIFICATION

KERS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KERS Target Allocation Index	6/84	6/17	100.00	KERS Target Allocation Index
	9/17	9/17	20.00	MSCI ACWI Ex USA IMI Index (\$G)
			22.00	Russell 3000
			10.00	Bloomberg Aggregate
			5.00	Bloomberg High Yield
			5.00	Bloomberg Global Aggregate
			10.00	Real Return Index (P)
			3.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	HFRI FOF Div (1 Month Lag)
			10.00	KERS Short Term PE Benchmark
			5.00	91-Day Treasury Bill
	12/17	12/17	5.00	91-Day Treasury Bill
			10.00	KERS Short Term PE Benchmark
10.00			HFRI FOF Div (1 Month Lag)	
3.00			NCREIF ODCE NOF 1 Quarter Lag	
10.00			Real Return Index (P)	
5.00			Bloomberg Global Aggregate	
5.00			Bloomberg High Yield	
10.00			Bloomberg Aggregate	
22.00	Russell 3000			
20.00	MSCI ACWI Ex USA IMI (\$N)			
KERS IPS Benchmark	9/17	9/17	3.00	91-Day Treasury Bill
			10.00	KERS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			10.00	Bloomberg Universal
17.00	Bloomberg High Yield			

# CUSTOM BENCHMARK SPECIFICATION

KERS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KERS IPS Benchmark (cont.)			17.50	MSCI ACWI Ex USA IMI Index (\$G)
			17.50	Russell 3000
	12/17	12/17	3.00	91-Day Treasury Bill
			10.00	KERS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			10.00	Bloomberg Universal
			17.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
		17.50	Russell 3000	
Assumed Rate 5.25%	9/17	12/17	100.00	Assumed Rate 5.25%

# CUSTOM BENCHMARK SPECIFICATION

KERS (H) Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KERS (H) Target Allocation Index	6/84	6/17	100.00	KERS (H) Target Allocation Index
	9/17	9/17	26.50	MSCI ACWI Ex USA IMI Index (\$G)
			26.50	Russell 3000
			6.00	Bloomberg Universal
			6.00	Bloomberg High Yield
			8.00	Real Return Index (P)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	HFRI FOF Div (1 Month Lag)
			10.00	KERS (H) Short Term PE Benchmark
	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	KERS (H) Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
8.00			Real Return Index (P)	
9/17	9/17	6.00	Bloomberg High Yield	
		6.00	Bloomberg Universal	
		26.50	Russell 3000	
		26.50	MSCI ACWI Ex USA IMI (\$N)	
		2.00	91-Day Treasury Bill	
		10.00	KERS (H) Short Term PE Benchmark	
KERS (H) IPS Benchmark	9/17	10.00	HFRI FOF Div (1 Month Lag)	
		10.00	KERS (H) Short Term PE Benchmark	
		5.00	NCREIF ODCE NOF 1 Quarter Lag	
		10.00	Real Return Index (P)	
		4.00	Bloomberg Universal	
		24.00	Bloomberg High Yield	
		17.50	MSCI ACWI Ex USA IMI Index (\$G)	
		17.50	Russell 3000	

# CUSTOM BENCHMARK SPECIFICATION

KERS (H) Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
KERS (H) IPS Benchmark (cont.)	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	KERS (H) Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			4.00	Bloomberg Universal
			24.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
17.50	Russell 3000			
Assumed Rate 6.25%	9/17	12/17	100.00	Assumed Rate 6.25%

# CUSTOM BENCHMARK SPECIFICATION

## CERS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
CERS Target Allocation Index	6/84	6/17	100.00	CERS Target Allocation Index
	9/17	9/17	26.50	MSCI ACWI Ex USA IMI Index (\$G)
			26.50	Russell 3000
			6.00	Bloomberg Universal
			6.00	Bloomberg High Yield
			8.00	Real Return Index (P)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	HFRI FOF Div (1 Month Lag)
			10.00	CERS Short Term PE Benchmark
	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	CERS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			8.00	Real Return Index (P)
6.00			Bloomberg High Yield	
CERS IPS Benchmark	9/17	9/17	2.00	91-Day Treasury Bill
			10.00	CERS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			4.00	Bloomberg Universal
			24.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI Index (\$G)
17.50	Russell 3000			

# CUSTOM BENCHMARK SPECIFICATION

CERS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
CERS IPS Benchmark (cont.)	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	CERS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			4.00	Bloomberg Universal
			24.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
			17.50	Russell 3000
Assumed Rate 6.25%	9/17	12/17	100.00	Assumed Rate 6.25%

# CUSTOM BENCHMARK SPECIFICATION

CERS (H) Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
CERS (H) Target Allocation Index	6/84	6/17	100.00	CERS (H) Target Allocation Index
	9/17	9/17	26.50	MSCI ACWI Ex USA IMI Index (\$G)
			26.50	Russell 3000
			6.00	Bloomberg Universal
			6.00	Bloomberg High Yield
			8.00	Real Return Index (P)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	HFRI FOF Div (1 Month Lag)
			10.00	CERS (H) Short Term PE Benchmark
	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	CERS (H) Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			8.00	Real Return Index (P)
6.00			Bloomberg High Yield	
CERS (H) IPS Benchmark	9/17	9/17	6.00	Bloomberg Universal
			26.50	Russell 3000
			26.50	MSCI ACWI Ex USA IMI (\$N)
			2.00	91-Day Treasury Bill
			10.00	CERS (H) Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			4.00	Bloomberg Universal
			24.00	Bloomberg High Yield
17.50	MSCI ACWI Ex USA IMI Index (\$G)			
17.50	Russell 3000			

# CUSTOM BENCHMARK SPECIFICATION

CERS (H) Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
CERS (H) IPS Benchmark (cont.)	12/17	12/17	2.00	91-Day Treasury Bill
			10.00	CERS (H) Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			4.00	Bloomberg Universal
			24.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
			17.50	Russell 3000
Assumed Rate 6.25%	9/17	12/17	100.00	Assumed Rate 6.25%



# CUSTOM BENCHMARK SPECIFICATION

## SPRS Pension Plan

December 31, 2017

	Quarter Start	Quarter End	Percent	Description
SPRS Target Allocation Index	6/84	6/17	100.00	SPRS Target Allocation Index
	9/17	9/17	23.00	MSCI ACWI Ex USA IMI Index (\$G)
			23.00	Russell 3000
			9.00	Bloomberg Universal
			9.00	Bloomberg High Yield
			8.00	Real Return Index (P)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	HFRI FOF Div (1 Month Lag)
	12/17	12/17	10.00	SPRS Short Term PE Benchmark
			3.00	91-Day Treasury Bill
			3.00	91-Day Treasury Bill
			10.00	SPRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
5.00			NCREIF ODCE NOF 1 Quarter Lag	
SPRS IPS Benchmark	9/17	9/17	8.00	Real Return Index (P)
			9.00	Bloomberg High Yield
			9.00	Bloomberg Universal
			23.00	Russell 3000
			23.00	MSCI ACWI Ex USA IMI (\$N)
			3.00	91-Day Treasury Bill
			10.00	SPRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			10.00	Bloomberg Universal
			17.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI Index (\$G)
			17.50	Russell 3000

# CUSTOM BENCHMARK SPECIFICATION

SPRS Pension Plan

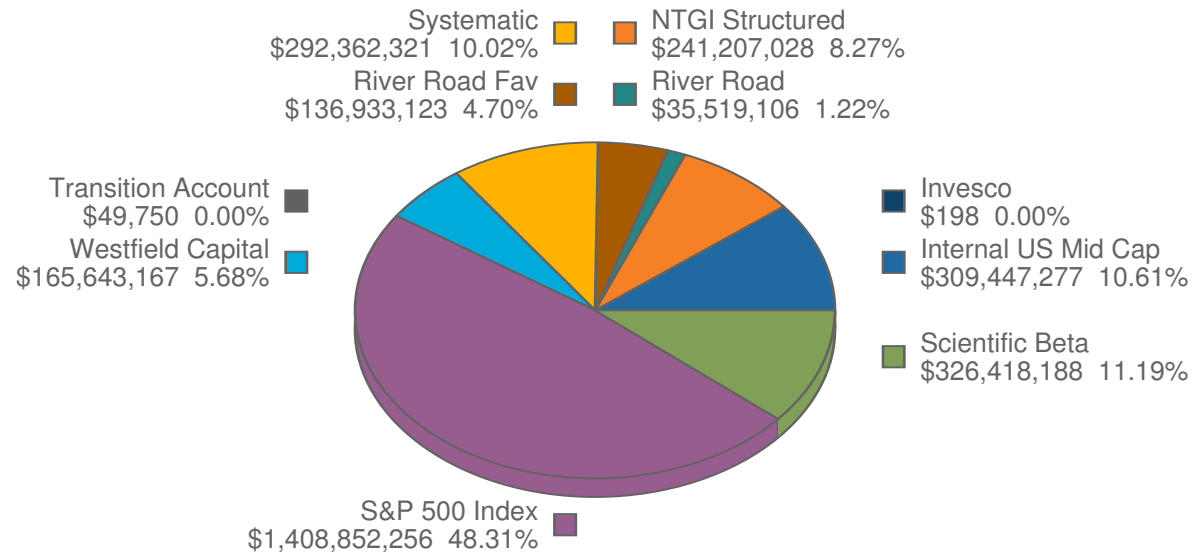
December 31, 2017

	Quarter Start	Quarter End	Percent	Description
SPRS IPS Benchmark (cont.)	12/17	12/17	3.00	91-Day Treasury Bill
			10.00	SPRS Short Term PE Benchmark
			10.00	HFRI FOF Div (1 Month Lag)
			5.00	NCREIF ODCE NOF 1 Quarter Lag
			10.00	Real Return Index (P)
			10.00	Bloomberg Universal
			17.00	Bloomberg High Yield
			17.50	MSCI ACWI Ex USA IMI (\$N)
			17.50	Russell 3000
Assumed Rate 5.25%	9/17	12/17	100.00	Assumed Rate 5.25%



# US EQUITY

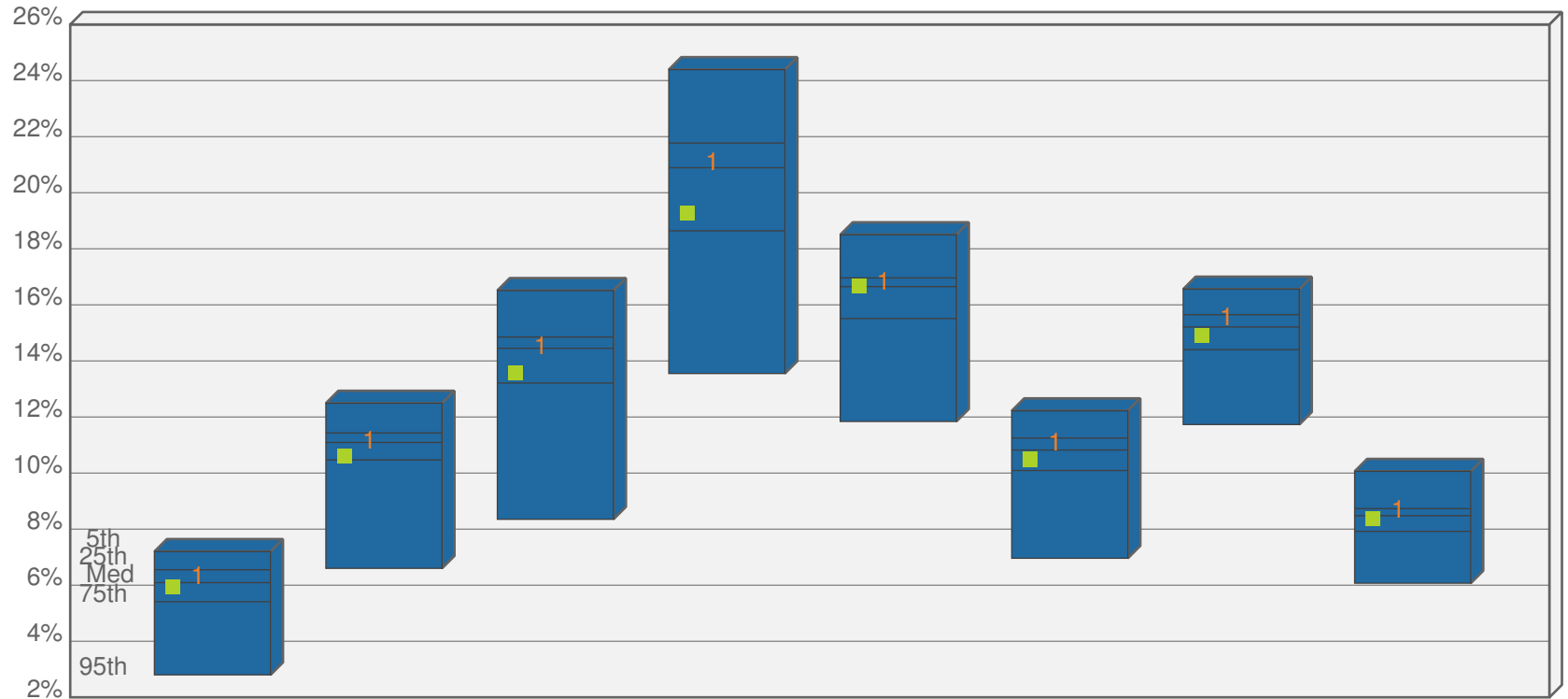
Wilshire Consulting  
**MANAGER ALLOCATION**  
 US Equity Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## US Equity Composite

Periods Ended December 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ US Equity Composite	6.00 (57)	10.65 (69)	13.62 (70)	19.32 (70)	16.73 (42)	10.55 (66)	14.96 (58)	8.43 (52)
┆ Russell 3000	6.34 (33)	11.20 (39)	14.55 (43)	21.13 (43)	16.86 (29)	11.12 (31)	15.58 (29)	8.71 (28)
5th %tile	7.20	12.49	16.51	24.39	18.50	12.22	16.56	10.06
25th %tile	6.55	11.43	14.85	21.77	16.96	11.25	15.65	8.73
Median	6.09	11.09	14.45	20.89	16.65	10.82	15.21	8.48
75th %tile	5.41	10.47	13.21	18.64	15.51	10.09	14.40	7.92
95th %tile	2.80	6.60	8.35	13.55	11.84	6.96	11.73	6.07
Number of Funds	128	125	122	117	115	107	103	83

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

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>S&amp;P 500 Index</b>									
<b>Net of Fee Return</b>	<b>6.60</b>	<b>11.37</b>	<b>14.72</b>	<b>21.79</b>	<b>11.31</b>	<b>15.70</b>	<b>8.80</b>	<b>6/30/01</b>	<b>7.38</b>
Standard & Poor's 500	6.64	11.42	14.86	21.83	11.41	15.79	8.49	6/30/01	6.97
Value Added	-0.05	-0.05	-0.15	-0.04	-0.10	-0.09	0.31	6/30/01	0.41
<b>Scientific Beta</b>									
<b>Net of Fee Return</b>	<b>5.90</b>	<b>9.12</b>	<b>12.74</b>	<b>18.98</b>				<b>6/30/16</b>	<b>16.24</b>
Standard & Poor's 500	6.64	11.42	14.86	21.83				6/30/16	19.95
Value Added	-0.74	-2.30	-2.13	-2.85				6/30/16	-3.70
<b>River Road</b>									
<b>Net of Fee Return</b>	<b>4.11</b>	<b>6.45</b>	<b>6.67</b>	<b>9.99</b>	<b>8.57</b>	<b>13.25</b>		<b>6/30/11</b>	<b>11.66</b>
Russell 3000 Value	5.08	8.51	9.91	13.19	8.71	13.95		6/30/11	12.37
Value Added	-0.97	-2.06	-3.24	-3.20	-0.14	-0.70		6/30/11	-0.71
<b>River Road FAV</b>									
<b>Net of Fee Return</b>	<b>1.16</b>	<b>4.73</b>	<b>8.64</b>	<b>11.52</b>				<b>6/30/16</b>	<b>20.41</b>
Russell 3000 Value	5.08	8.51	9.91	13.19				6/30/16	16.72
Value Added	-3.91	-3.78	-1.27	-1.67				6/30/16	3.69
<b>Westfield Capital</b>									
<b>Net of Fee Return</b>	<b>5.10</b>	<b>10.98</b>	<b>17.00</b>	<b>29.14</b>	<b>8.82</b>	<b>14.99</b>		<b>6/30/11</b>	<b>12.84</b>
Russell 3000 Growth	7.61	13.98	19.29	29.59	13.51	17.16		6/30/11	14.63
Value Added	-2.50	-3.00	-2.28	-0.45	-4.69	-2.17		6/30/11	-1.79
<b>Systematic</b>									
<b>Net of Fee Return</b>	<b>8.13</b>	<b>14.42</b>	<b>14.14</b>	<b>15.68</b>	<b>9.60</b>	<b>13.31</b>		<b>6/30/12</b>	<b>13.79</b>
Russell Mid Cap Value	5.50	7.76	9.24	13.34	9.00	14.68		6/30/12	15.23
Value Added	2.62	6.66	4.90	2.33	0.60	-1.36		6/30/12	-1.44

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

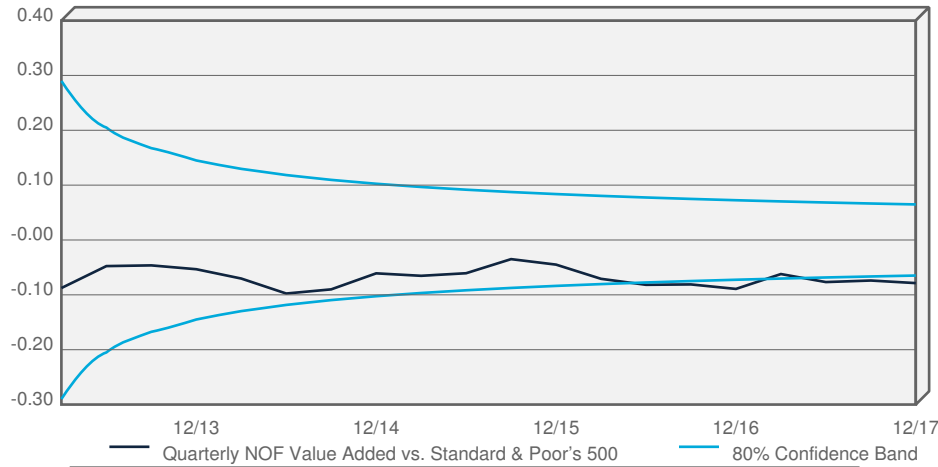
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Internal US Mid Cap</b>									
<b>Net of Fee Return</b>	<b>6.39</b>	<b>9.84</b>	<b>12.00</b>	<b>16.39</b>	<b>11.07</b>			<b>9/30/14</b>	<b>12.27</b>
S&P 400 Mid Cap	6.25	9.68	11.84	16.24	11.14			9/30/14	12.35
Value Added	0.14	0.16	0.16	0.14	-0.07			9/30/14	-0.08
<b>NTGI Structured</b>									
<b>Net of Fee Return</b>	<b>3.33</b>	<b>9.24</b>	<b>11.97</b>	<b>14.97</b>	<b>10.46</b>	<b>14.87</b>	<b>10.01</b>	<b>9/30/99</b>	<b>10.41</b>
Russell 2000	3.34	9.20	11.89	14.65	9.96	14.12	8.71	9/30/99	8.70
Value Added	-0.01	0.05	0.08	0.32	0.51	0.75	1.30	9/30/99	1.72
<b>US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>5.99</b>	<b>10.61</b>	<b>13.54</b>	<b>19.20</b>	<b>10.44</b>	<b>14.82</b>	<b>8.34</b>	<b>3/31/84</b>	<b>11.43</b>
Russell 3000	6.34	11.20	14.55	21.13	11.12	15.58	8.71	3/31/84	11.46
Value Added	-0.34	-0.58	-1.01	-1.93	-0.68	-0.76	-0.36	3/31/84	-0.03

# INVESTMENT MANAGER ANALYSIS

S&P 500 Index

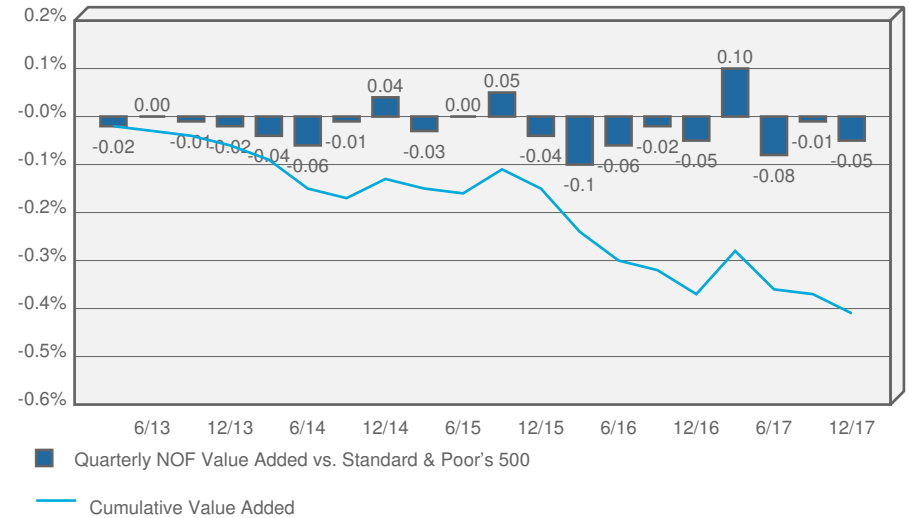
December 31, 2017

Cumulative Skill Analysis vs Benchmark

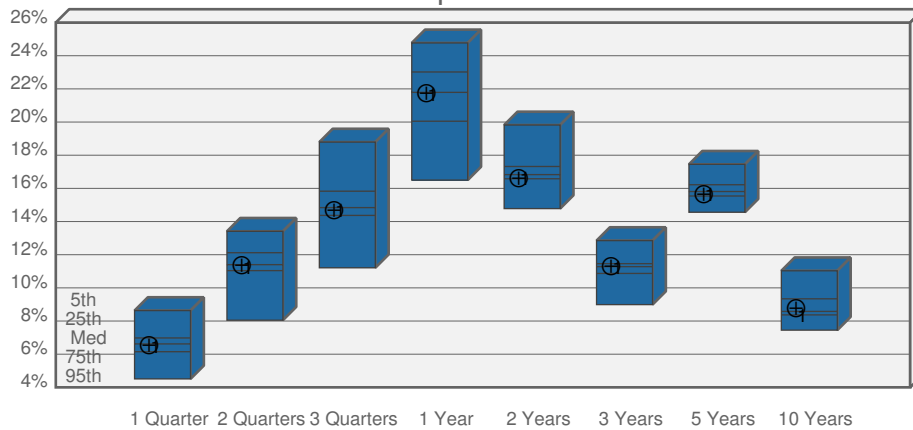


Excess Return:	-0.08	Information Ratio:	-0.89
Excess Risk:	0.09	T-Stat:	-1.99

Value-Added Analysis vs Benchmark

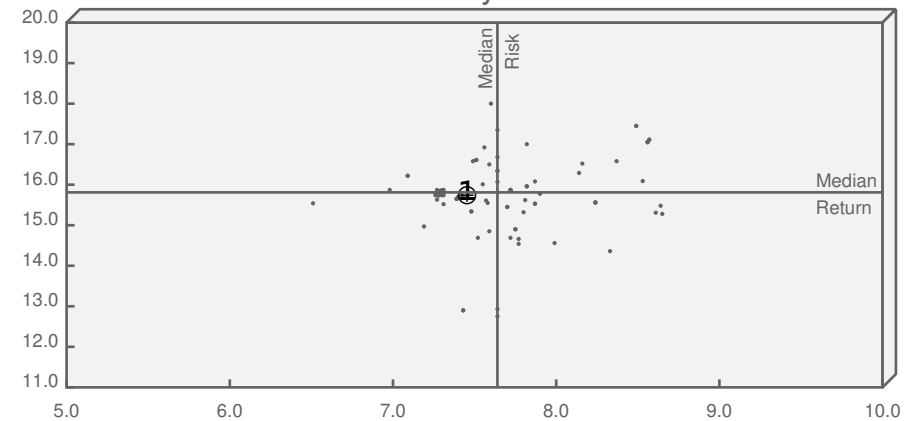


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ S&P 500 Index	6.60 (55)	11.37 (58)	14.72 (63)	21.79 (50)	16.64 (73)	11.31 (47)	15.70 (66)	8.80 (39)
1 Standard & Poo	6.64 (47)	11.42 (46)	14.86 (48)	21.83 (42)	16.79 (59)	11.41 (34)	15.79 (51)	8.49 (68)
Median	6.62	11.40	14.84	21.79	16.83	11.28	15.81	8.58
Number of Funds	162	161	161	160	159	156	138	75

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
S&P 500 Index	⊕	15.70	66	7.48	64
Standard & Poor's 500	1	15.79	51	7.49	64
Median		15.81		7.64	

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

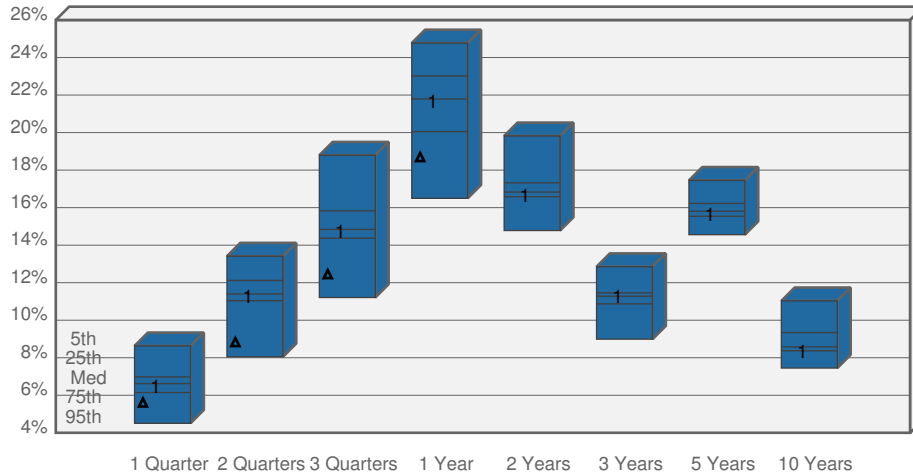


# INVESTMENT MANAGER ANALYSIS

Scientific Beta

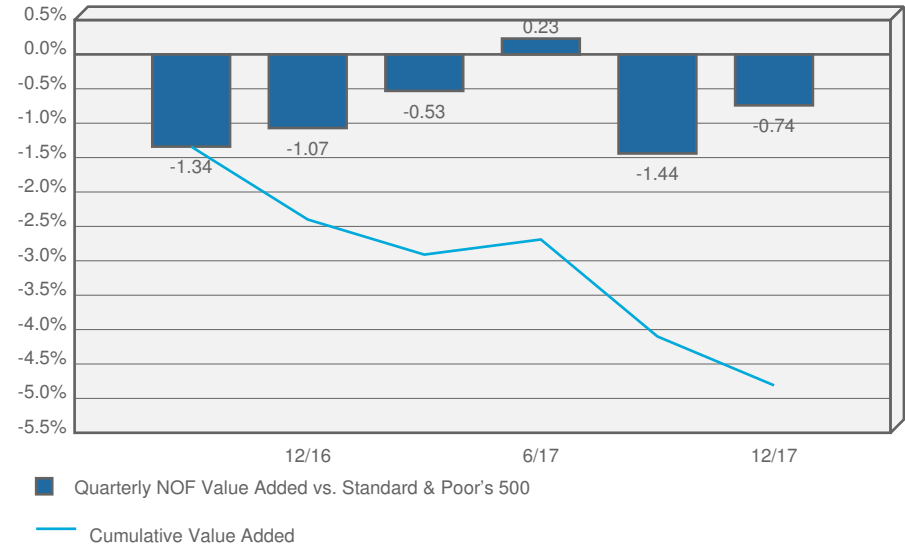
December 31, 2017

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▲ Scientific Bet	5.90 (77)	9.12 (86)	12.74 (88)	18.98 (85)				
┆ Standard & Poo	6.64 (47)	11.42 (46)	14.86 (48)	21.83 (42)	16.79 (59)	11.41 (34)	15.79 (51)	8.49 (68)
Median	6.62	11.40	14.84	21.79	16.83	11.28	15.81	8.58
Number of Funds	162	161	161	160	159	156	138	75

Value-Added Analysis vs Benchmark



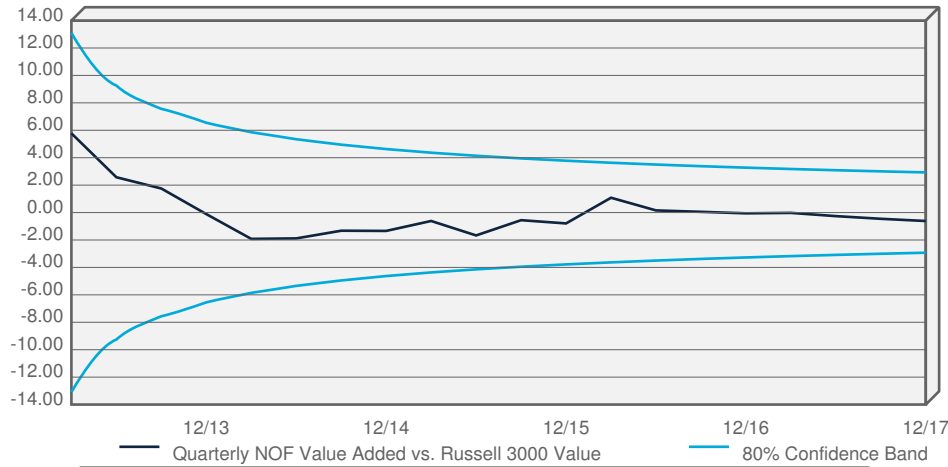
\*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

River Road

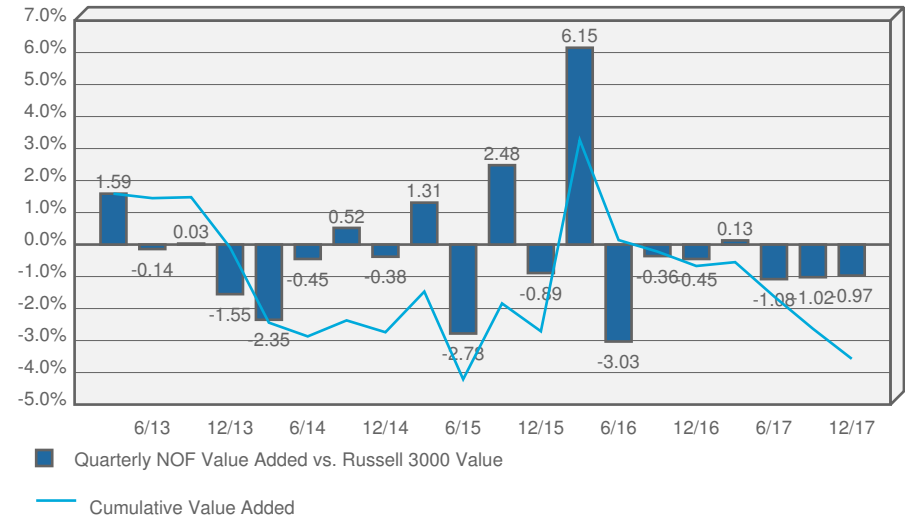
December 31, 2017

Cumulative Skill Analysis vs Benchmark

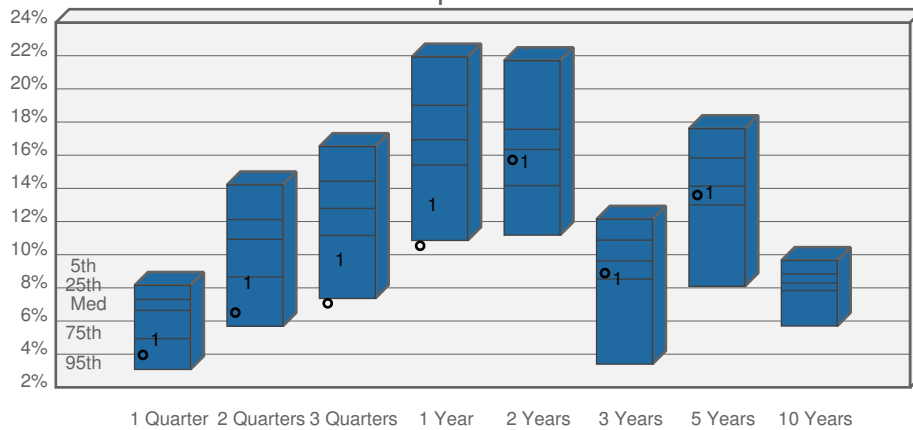


Excess Return:	-0.62	Information Ratio:	-0.15
Excess Risk:	3.98	T-Stat:	-0.35

Value-Added Analysis vs Benchmark

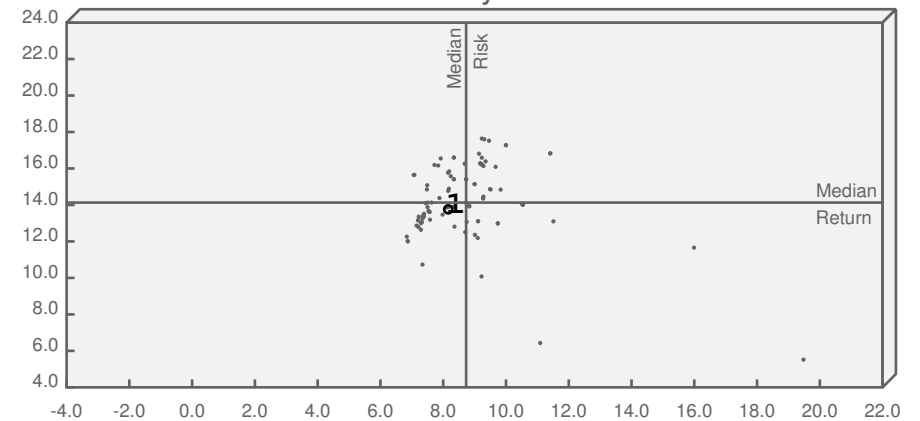


Performance Comparison vs Peer Universe\*



○ River Road	4.28 (81)	6.83 (90)	7.39 (94)	10.86 (95)	16.04 (55)	9.21 (56)	13.92 (57)
1 Russell 3000 V	5.08 (73)	8.51 (78)	9.91 (88)	13.19 (92)	15.77 (58)	8.71 (70)	13.95 (56)
Median	6.64	10.93	12.79	16.94	16.35	9.63	14.13
Number of Funds	147	147	147	147	141	136	122
							8.29
							66

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
River Road	○	13.92	57	8.50	52
Russell 3000 Value	1	13.95	56	8.56	52
Median		14.13		8.73	

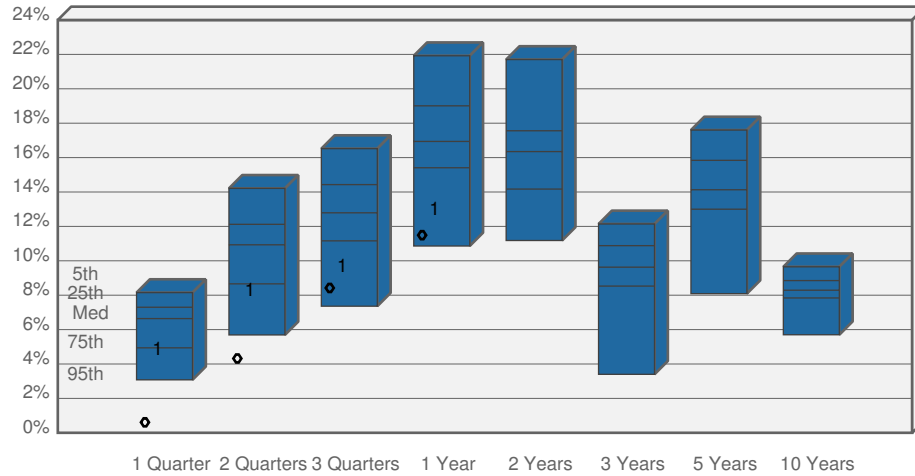
\*TUCS Total Returns of Large Value Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

River Road FAV

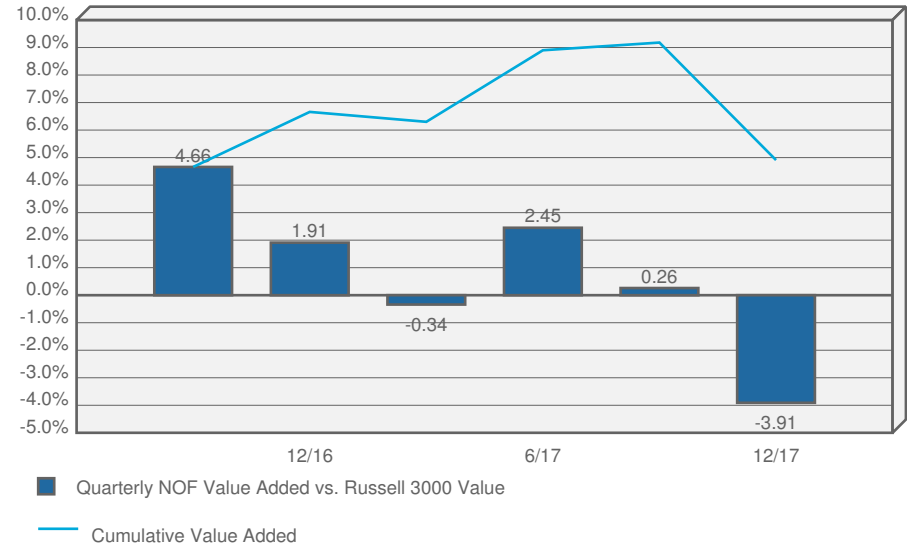
December 31, 2017

Performance Comparison vs Peer Universe\*



◆ River Road FA	0.92 (95)	4.63 (95)	8.73 (93)	11.80 (94)				
■ Russell 3000 V	5.08 (73)	8.51 (78)	9.91 (88)	13.19 (92)				
Median	6.64	10.93	12.79	16.94	16.35	9.63	14.13	8.29
Number of Funds	147	147	147	147	141	136	122	66

Value-Added Analysis vs Benchmark



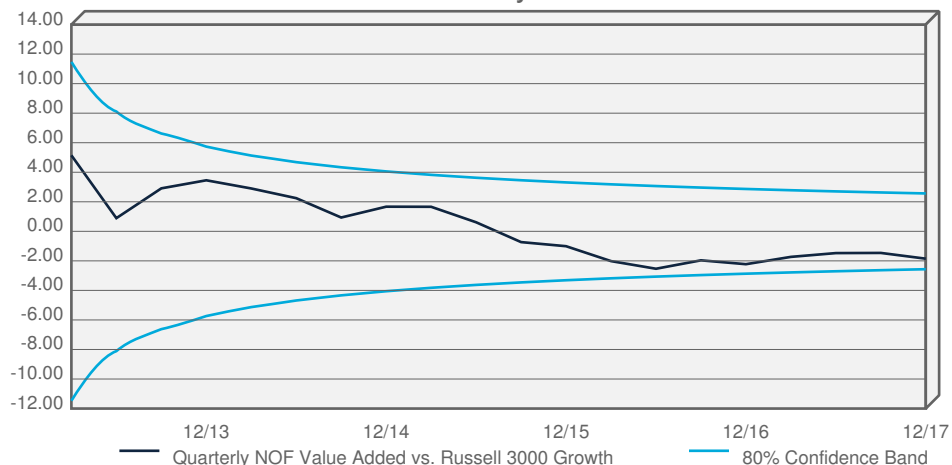
\*TUCS Total Returns of Large Value Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Westfield Capital

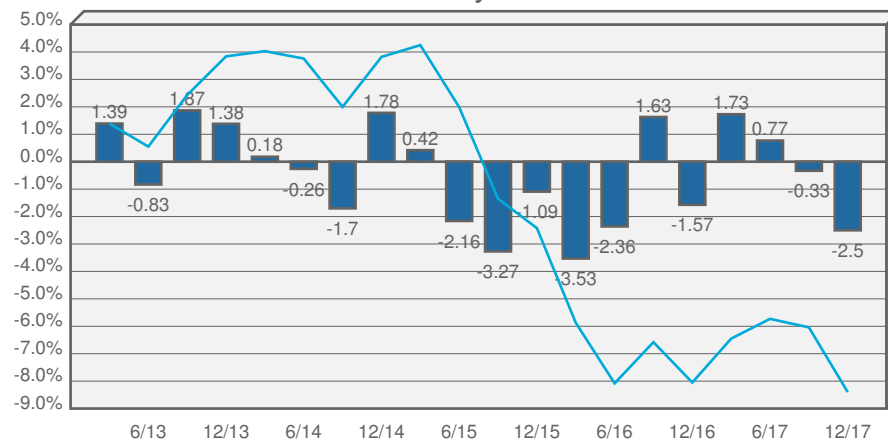
December 31, 2017

Cumulative Skill Analysis vs Benchmark



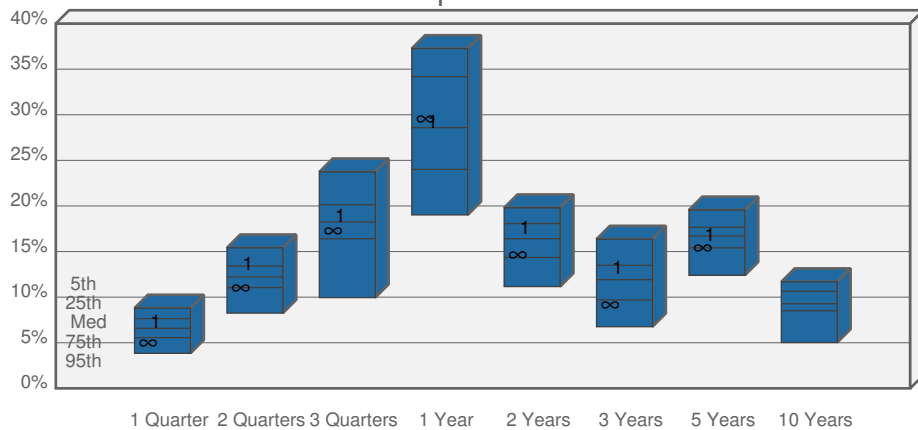
Excess Return:	-1.85	Information Ratio:	-0.53
Excess Risk:	3.49	T-Stat:	-1.19

Value-Added Analysis vs Benchmark



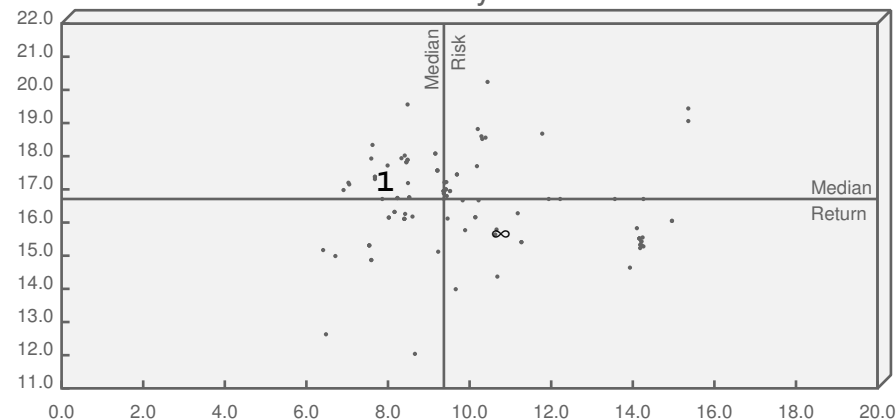
■ Quarterly NOF Value Added vs. Russell 3000 Growth  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ Westfield Capi	5.25 (80)	11.29 (71)	17.49 (56)	29.84 (48)	14.92 (70)	9.42 (80)	15.64 (71)	
1 Russell 3000 G	7.61 (25)	13.98 (17)	19.29 (37)	29.59 (48)	17.97 (25)	13.51 (24)	17.16 (35)	
Median	6.58	12.22	18.25	28.59	16.41	11.92	16.71	9.28
Number of Funds	172	172	171	170	168	163	119	61

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Westfield Capital	∞	15.64	71	10.90	21
Russell 3000 Growth	1	17.16	35	8.07	82
Median		16.71		9.37	

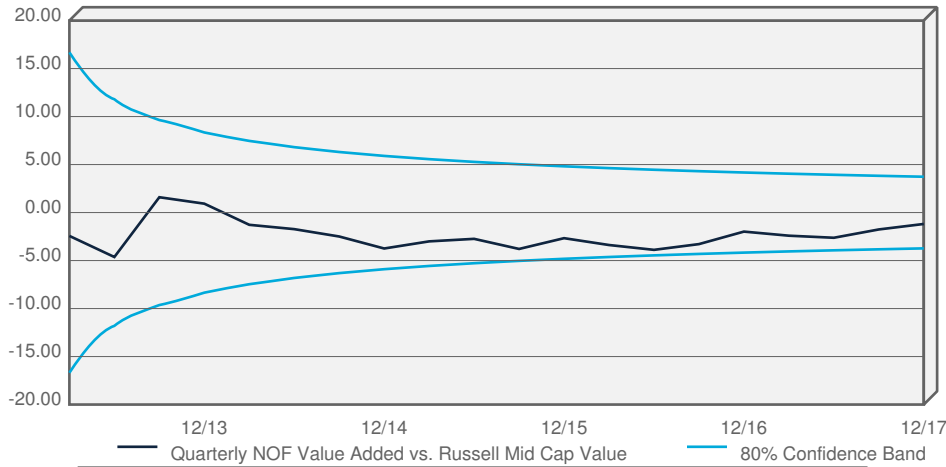
\*TUCS Total Returns of Large Growth Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

## Systematic

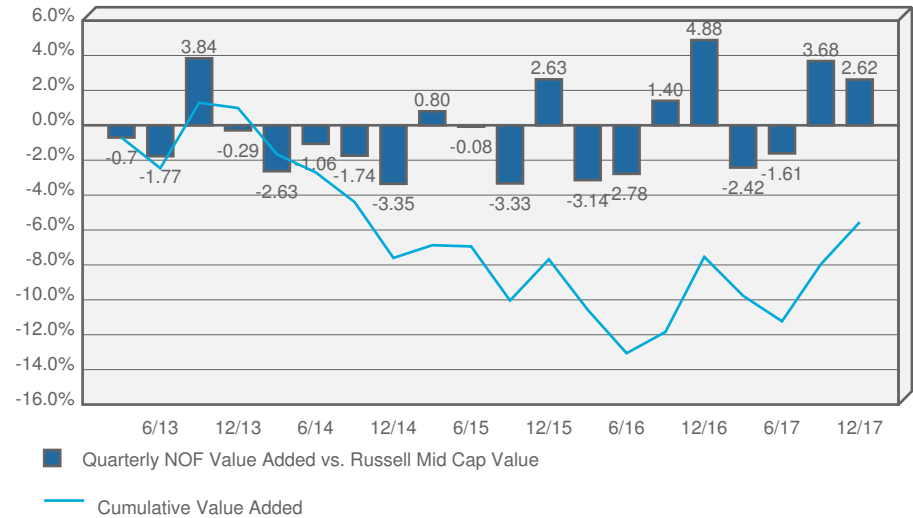
December 31, 2017

Cumulative Skill Analysis vs Benchmark

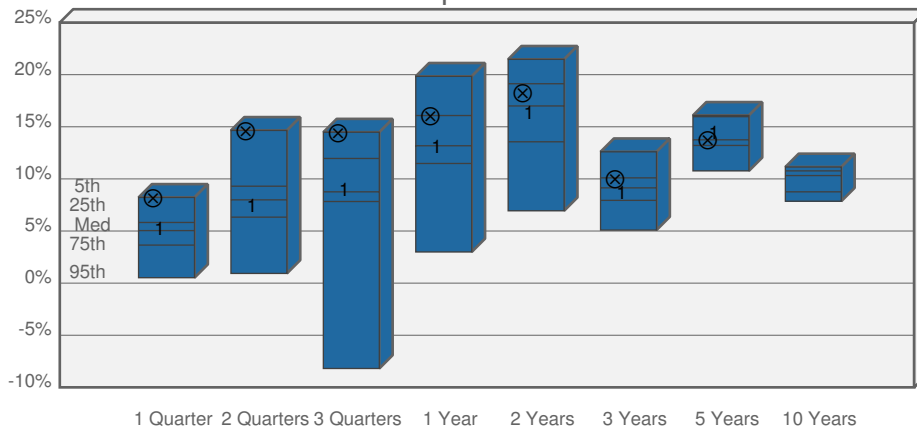


Excess Return:	-1.19	Information Ratio:	-0.23
Excess Risk:	5.07	T-Stat:	-0.52

Value-Added Analysis vs Benchmark

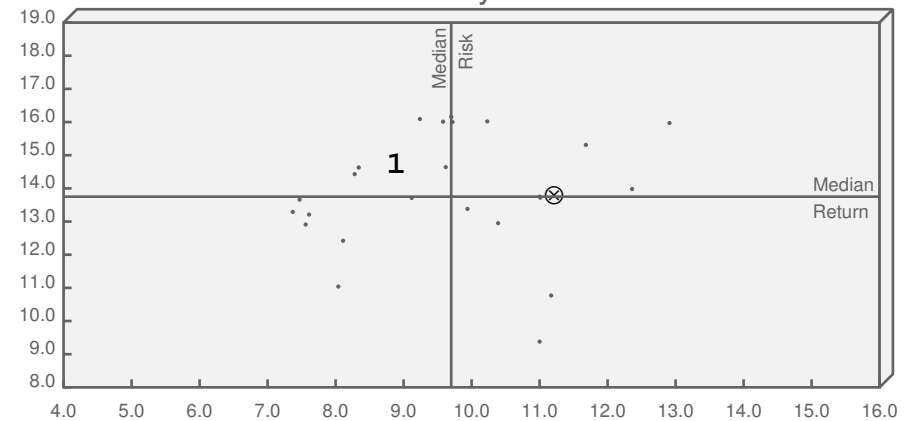


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Systematic	8.22 ( 8)	14.63 ( 8)	14.46 ( 8)	16.10 (22)	18.30 (32)	10.01 (30)	13.75 (50)	
1 Russell Mid Ca	5.50 (35)	7.76 (57)	9.24 (35)	13.34 (45)	16.62 (55)	9.00 (58)	14.68 (29)	
Median	5.04	7.99	8.76	13.18	17.00	9.14	13.75	10.32
Number of Funds	42	42	42	41	41	39	24	12

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Systematic	⊗	13.75	50	11.28	10
Russell Mid Cap Value	1	14.68	29	8.97	66
Median		13.75		9.70	

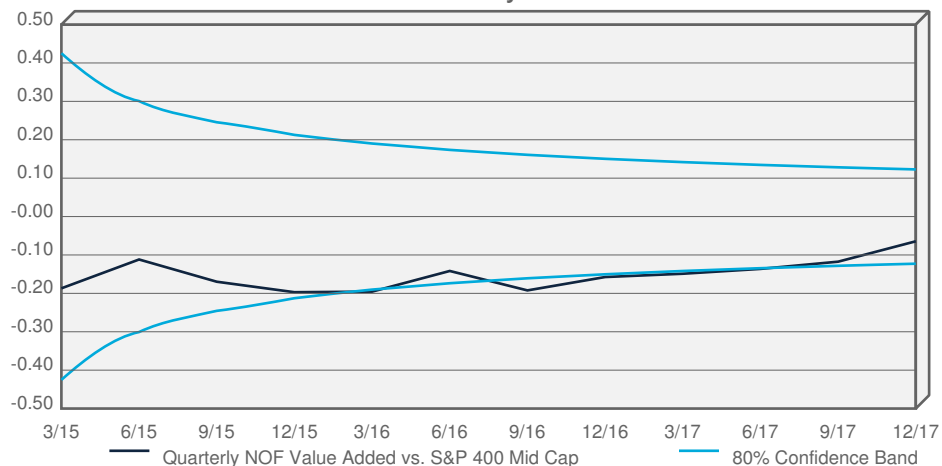
\*TUCS Total Returns of Mid Cap Value Equity Portfolios Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Internal US Mid Cap

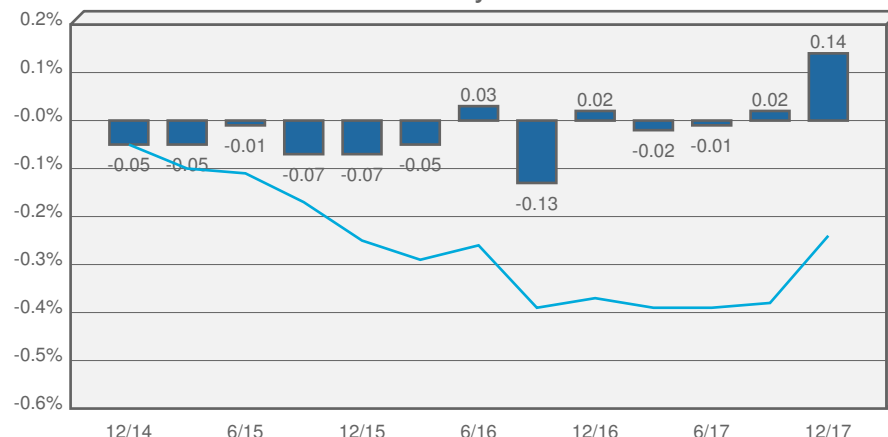
December 31, 2017

Cumulative Skill Analysis vs Benchmark



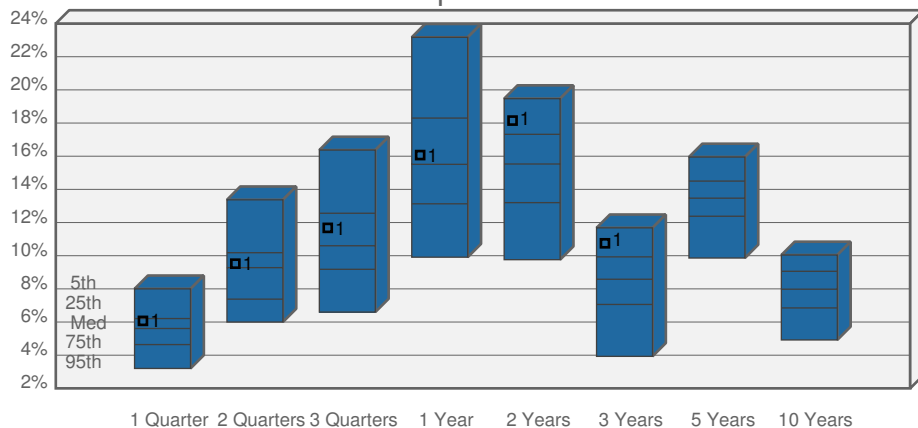
Excess Return:	-0.06	Information Ratio:	-0.50
Excess Risk:	0.13	T-Stat:	-0.86

Value-Added Analysis vs Benchmark



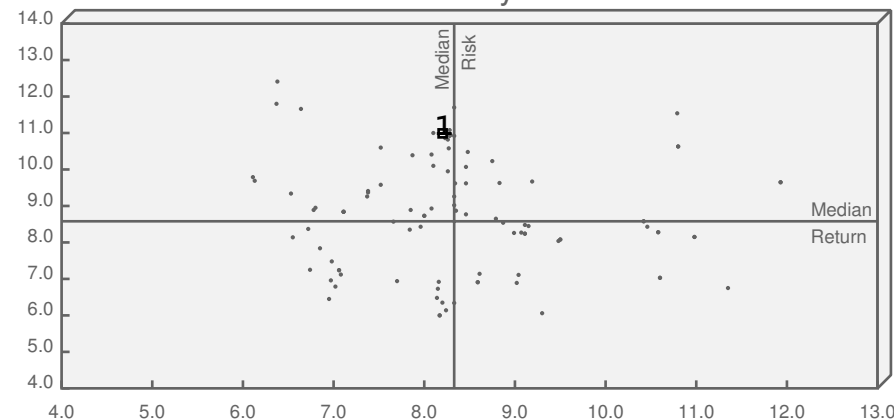
■ Quarterly NOF Value Added vs. S&P 400 Mid Cap  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
Internal US Mi	6.39 (20)	9.84 (31)	12.00 (30)	16.39 (36)	18.47 ( 9)	11.07 (10)		
S&P 400 Mid Ca	6.25 (23)	9.68 (34)	11.84 (31)	16.24 (36)	18.47 ( 9)	11.14 ( 8)		
Median	5.61	9.28	10.60	15.51	15.53	8.58	13.47	7.98
Number of Funds	449	446	440	431	378	344	297	206

Three Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Net Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Internal US Mid Cap	■	11.07	10	8.32	51
S&P 400 Mid Cap	1	11.14	8	8.28	52
Median		8.58		8.33	

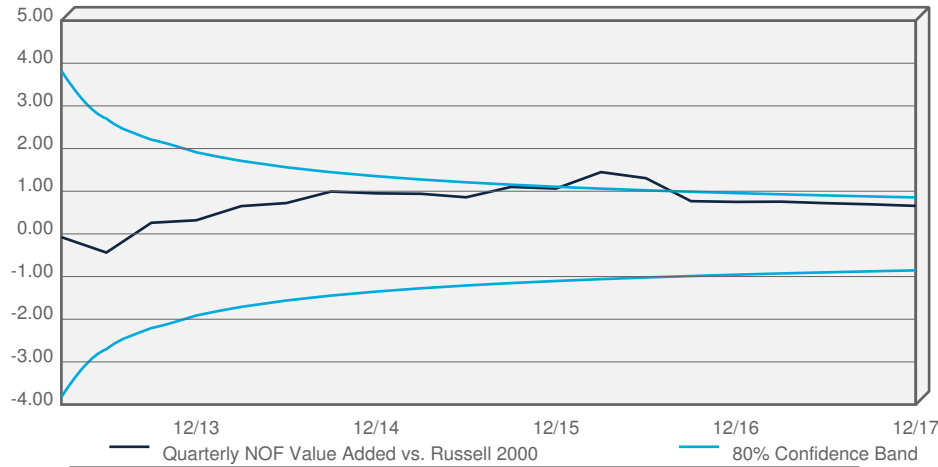
\*Lipper Total Returns of Mid Cap Core Mutual Funds Universe - Net of Fees

# INVESTMENT MANAGER ANALYSIS

NTGI Structured

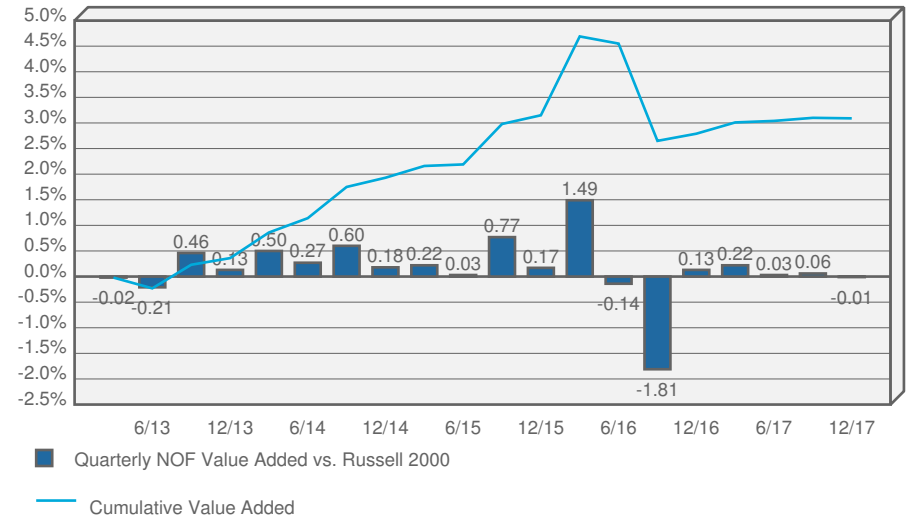
December 31, 2017

Cumulative Skill Analysis vs Benchmark

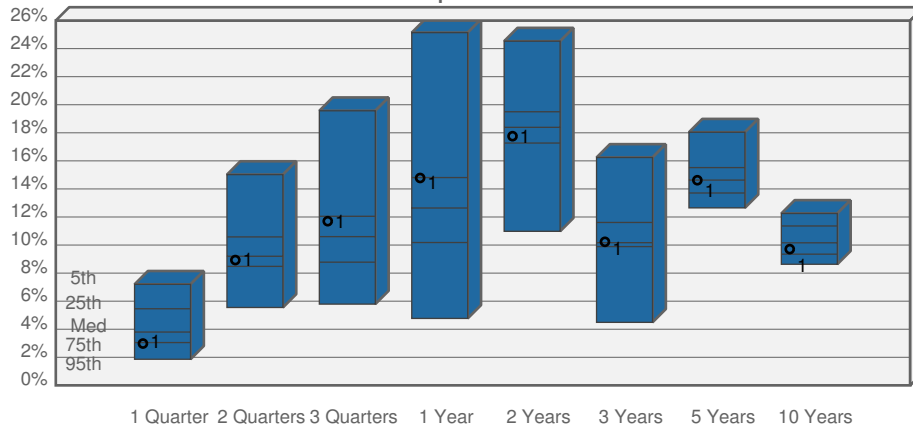


Excess Return:	0.66	Information Ratio:	0.56
Excess Risk:	1.16	T-Stat:	1.26

Value-Added Analysis vs Benchmark

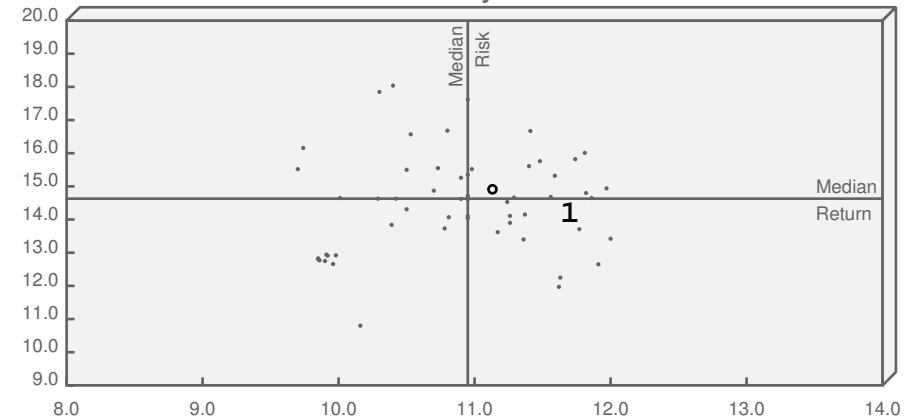


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
○ NTGI Structure	3.36 (64)	9.31 (47)	12.08 (23)	15.16 (21)	18.14 (52)	10.61 (45)	15.00 (33)	10.09 (50)
■ Russell 2000	3.34 (65)	9.20 (50)	11.89 (31)	14.65 (28)	17.93 (56)	9.96 (72)	14.12 (61)	8.71 (91)
Median	3.80	9.20	10.60	12.64	18.39	10.17	14.63	10.16
Number of Funds	79	79	79	79	77	72	60	29

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NTGI Structured	○	15.00	33	11.21	40
Russell 2000	■	14.12	61	11.74	18
Median		14.63		10.95	

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

# CUSTOM BENCHMARK SPECIFICATION

US Equity Composite

*December 31, 2017*

	Quarter Start	Quarter End	Percent	Description
Russell 3000	6/84	6/14	100.00	Blended US Equity Index
	9/14	12/17	100.00	Russell 3000



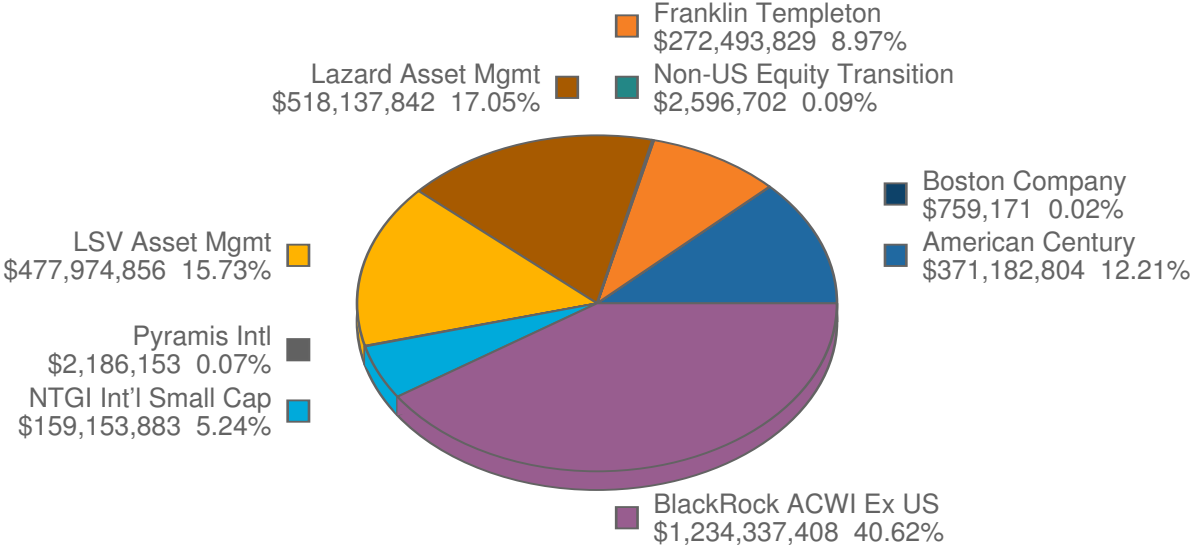


# NON-US EQUITY

# MANAGER ALLOCATION

## Non-US Equity Composite

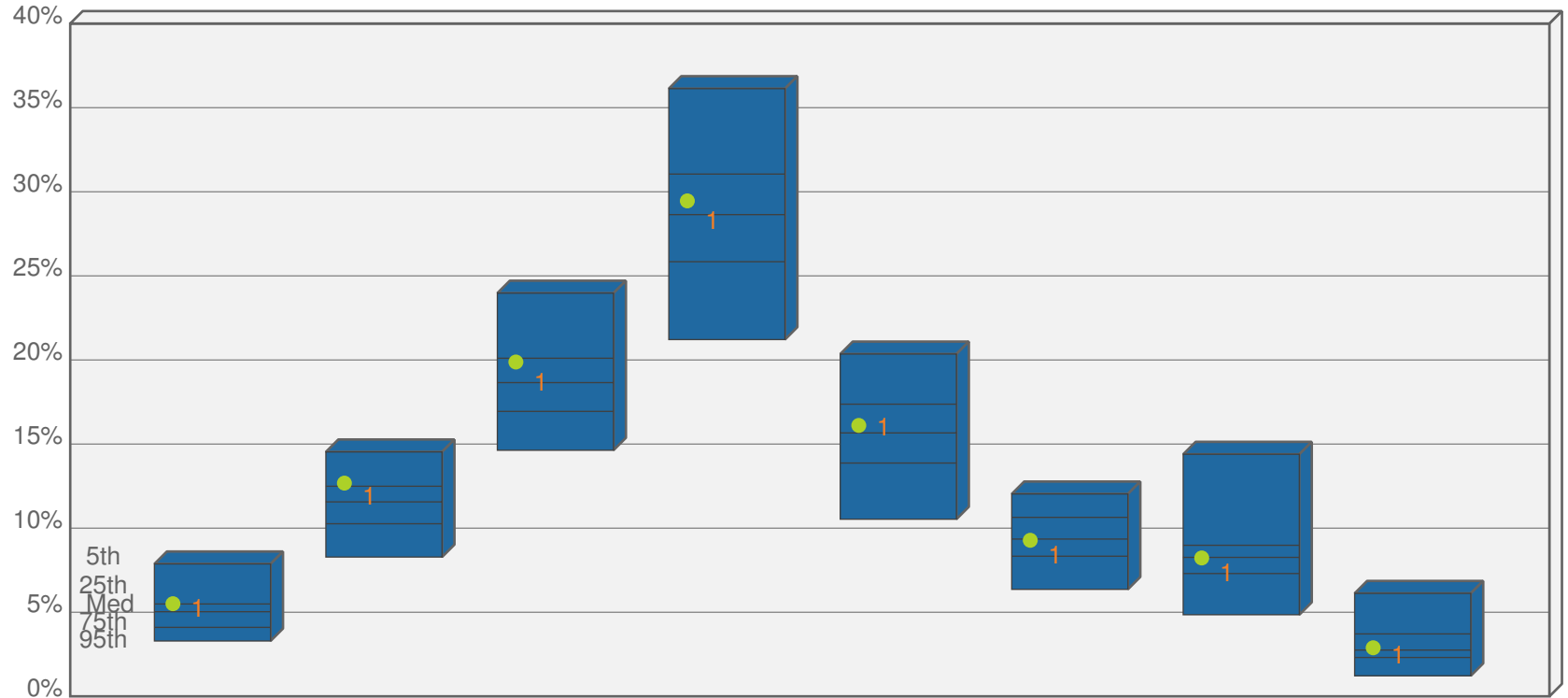
As of December 31, 2017



# PERFORMANCE COMPARISON

## Non-US Equity Composite

Periods Ended December 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Non-US Equity Composite	5.58 (23)	12.75 (20)	19.95 (28)	29.53 (38)	16.18 (38)	9.35 (51)	8.30 (46)	2.96 (41)
┆ Policy Index	5.23 (35)	11.91 (39)	18.69 (48)	28.30 (53)	16.02 (41)	8.44 (69)	7.35 (73)	2.48 (65)
5th %tile	7.87	14.53	23.97	36.13	20.35	12.03	14.39	6.12
25th %tile	5.49	12.49	20.10	31.05	17.37	10.64	8.98	3.71
Median	5.03	11.56	18.65	28.64	15.66	9.35	8.26	2.75
75th %tile	4.10	10.26	16.94	25.84	13.87	8.33	7.30	2.31
95th %tile	3.29	8.28	14.63	21.21	10.53	6.36	4.85	1.22
Number of Funds	115	114	112	111	109	100	95	74

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

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>BlackRock ACWI Ex US</b>									
<b>Net of Fee Return</b>	<b>5.04</b>	<b>11.55</b>	<b>18.11</b>	<b>27.60</b>	<b>8.15</b>	<b>7.05</b>		<b>6/30/09</b>	<b>8.29</b>
MSCI ACWI X US (N)	5.00	11.47	17.92	27.19	7.83	6.80		6/30/09	8.06
Value Added	0.03	0.07	0.19	0.41	0.32	0.24		6/30/09	0.22
<b>American Century</b>									
<b>Net of Fee Return</b>	<b>5.33</b>	<b>16.73</b>	<b>26.31</b>	<b>34.70</b>	<b>8.53</b>			<b>6/30/14</b>	<b>5.36</b>
Policy Index	5.23	11.80	18.50	27.96	8.38			6/30/14	4.36
Value Added	0.11	4.93	7.80	6.74	0.14			6/30/14	1.00
<b>Franklin Templeton</b>									
<b>Net of Fee Return</b>	<b>5.86</b>	<b>16.77</b>	<b>23.68</b>	<b>38.38</b>	<b>12.29</b>			<b>6/30/14</b>	<b>8.06</b>
Policy Index	5.23	11.80	18.50	27.96	8.38			6/30/14	4.36
Value Added	0.63	4.97	5.18	10.42	3.91			6/30/14	3.71
<b>Lazard Asset Mgmt</b>									
<b>Net of Fee Return</b>	<b>6.62</b>	<b>12.59</b>	<b>20.69</b>	<b>28.31</b>	<b>8.57</b>			<b>6/30/14</b>	<b>5.23</b>
Policy Index	5.23	11.80	18.50	27.96	8.38			6/30/14	4.36
Value Added	1.39	0.78	2.19	0.35	0.18			6/30/14	0.87
<b>LSV Asset Mgmt</b>									
<b>Net of Fee Return</b>	<b>5.46</b>	<b>10.12</b>	<b>15.95</b>	<b>25.60</b>	<b>8.14</b>			<b>6/30/14</b>	<b>4.46</b>
Policy Index	5.23	11.80	18.50	27.96	8.38			6/30/14	4.36
Value Added	0.24	-1.68	-2.56	-2.36	-0.24			6/30/14	0.10
<b>NTGI Int'l Small Cap</b>									
<b>Net of Fee Return</b>	<b>6.35</b>	<b>13.72</b>	<b>20.49</b>	<b>31.30</b>	<b>12.04</b>	<b>10.32</b>		<b>12/31/08</b>	<b>13.40</b>
MSCI ACWI X US Small Cap (N)	6.56	13.91	21.02	31.64	11.96	10.03		12/31/08	13.70
Value Added	-0.22	-0.20	-0.52	-0.34	0.08	0.29		12/31/08	-0.31

# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

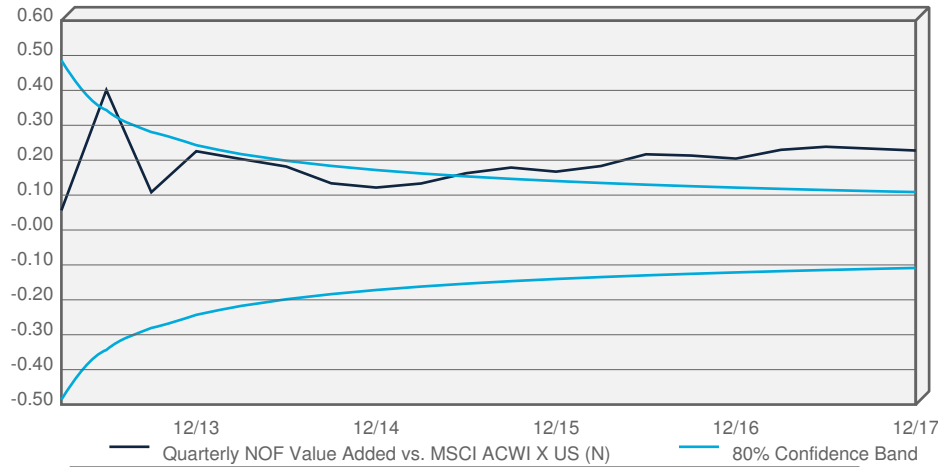
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Non-US Equity Composite</b>									
<b>Net of Fee Return</b>	<b>5.53</b>	<b>12.62</b>	<b>19.69</b>	<b>29.24</b>	<b>9.09</b>	<b>8.05</b>	<b>3.02</b>	<b>6/30/00</b>	<b>3.61</b>
Policy Index	5.23	11.91	18.69	28.30	8.44	7.35	2.48	6/30/00	3.86
Value Added	0.31	0.71	1.00	0.94	0.65	0.70	0.53	6/30/00	-0.25

# INVESTMENT MANAGER ANALYSIS

BlackRock ACWI Ex US

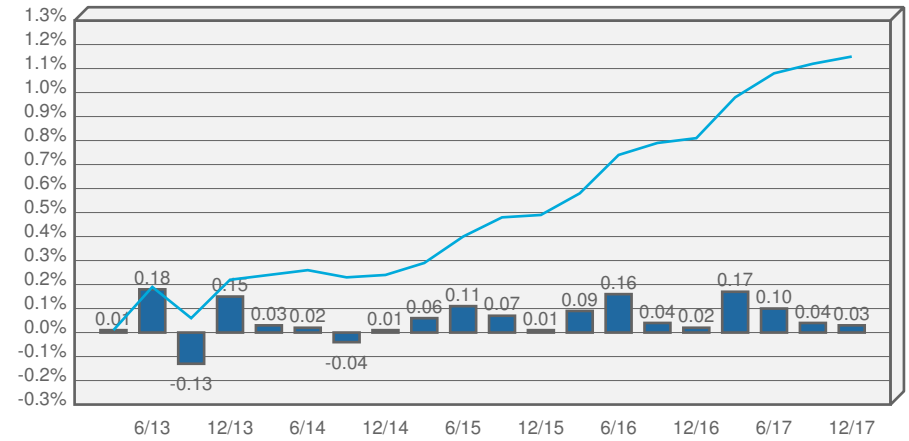
December 31, 2017

Cumulative Skill Analysis vs Benchmark



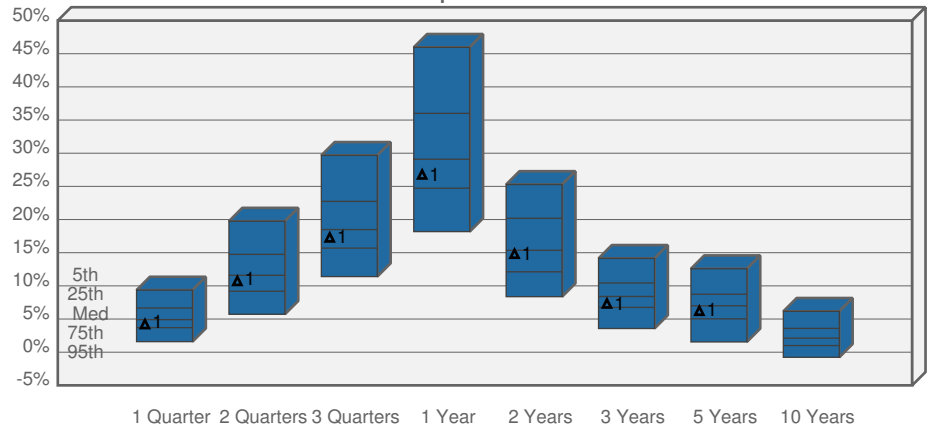
Excess Return:	0.23	Information Ratio:	1.54
Excess Risk:	0.15	T-Stat:	3.45

Value-Added Analysis vs Benchmark



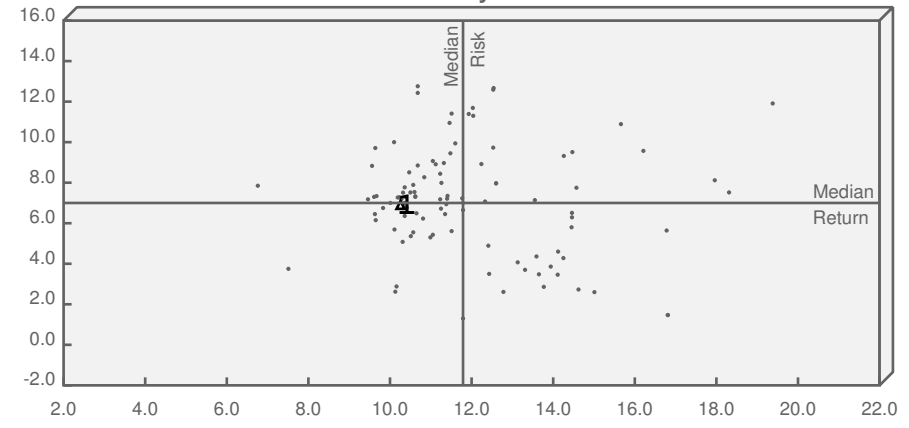
■ Quarterly NOF Value Added vs. MSCI ACWI X US (N)  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



▲ BlackRock ACWI	5.04 (48)	11.55 (50)	18.11 (53)	27.60 (57)	15.65 (47)	8.15 (54)	7.05 (49)
■ MSCI ACWI X US	5.00 (48)	11.47 (51)	17.92 (54)	27.19 (59)	15.29 (50)	7.83 (60)	6.80 (54)
Median	4.91	11.59	18.49	29.09	15.36	8.40	7.00
Number of Funds	2496	2455	2401	2354	2165	1888	1512

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Net Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
BlackRock ACWI Ex US	▲	7.05	49	10.52	73
MSCI ACWI X US (N)	■	6.80	54	10.54	73
Median		7.00		11.79	

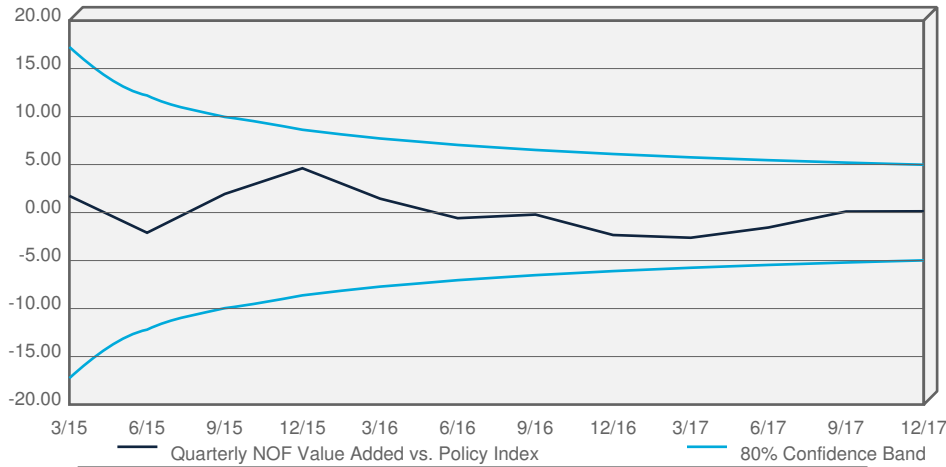
\*Lipper Total Returns of International Equity Mutual Funds Universe - Net of Fees

# INVESTMENT MANAGER ANALYSIS

American Century

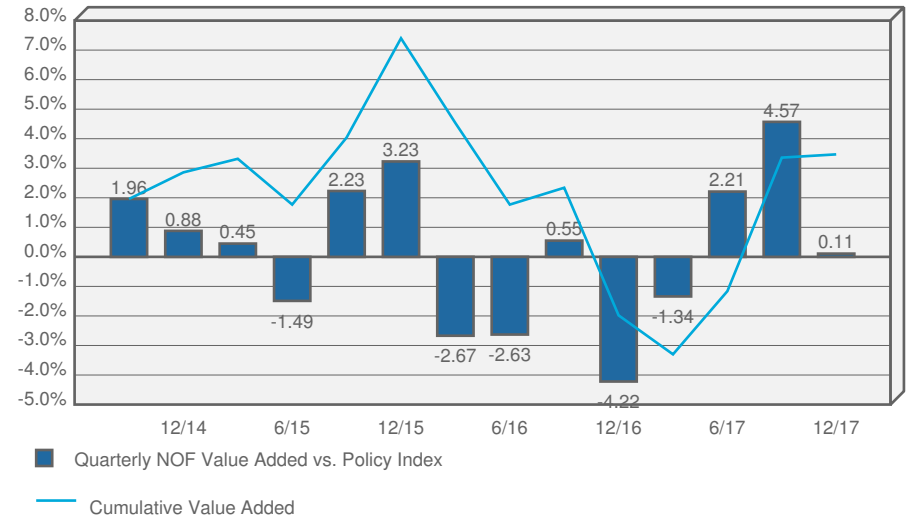
December 31, 2017

Cumulative Skill Analysis vs Benchmark

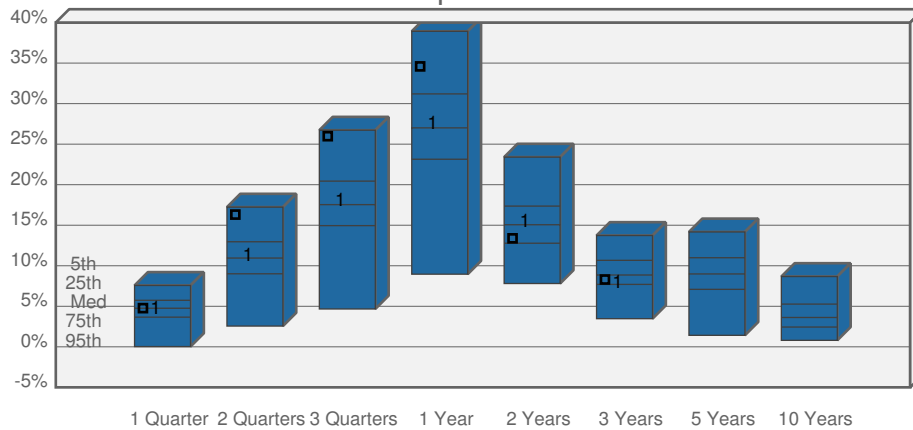


Excess Return:	0.13	Information Ratio:	0.03
Excess Risk:	5.24	T-Stat:	0.04

Value-Added Analysis vs Benchmark

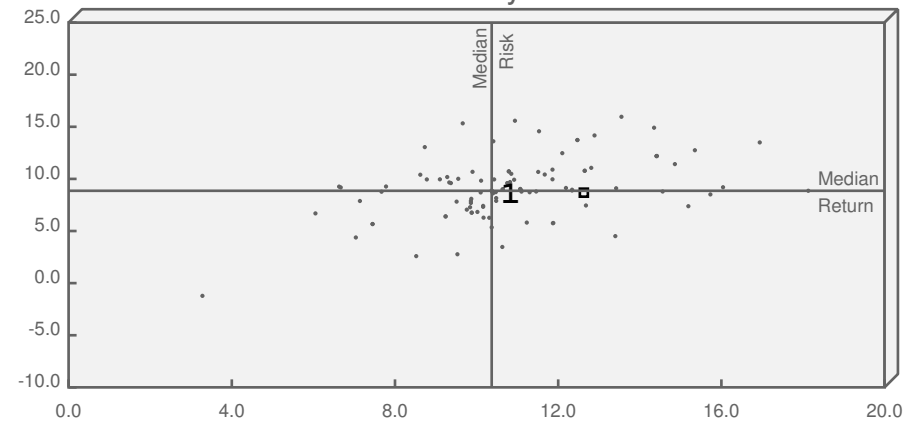


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ American Centu	5.43 (33)	16.97 ( 6)	26.64 ( 5)	35.25 (11)	14.04 (58)	8.96 (48)		
1 Policy Index	5.23 (37)	11.80 (36)	18.50 (39)	27.96 (38)	15.92 (39)	8.38 (61)		
Median	4.76	10.95	17.54	27.01	15.06	8.86	8.99	3.62
Number of Funds	414	408	400	393	376	355	309	161

Three Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
American Century	■	8.96	48	12.89	15
Policy Index	1	8.38	61	10.96	37
Median		8.86		10.37	

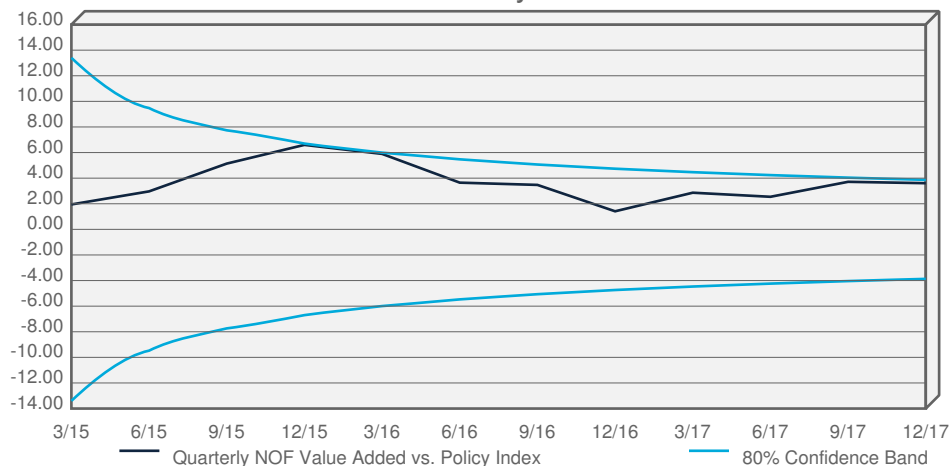
\*TUCS Total Returns of Intl Equity Portfolios - Non-US Equity Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Franklin Templeton

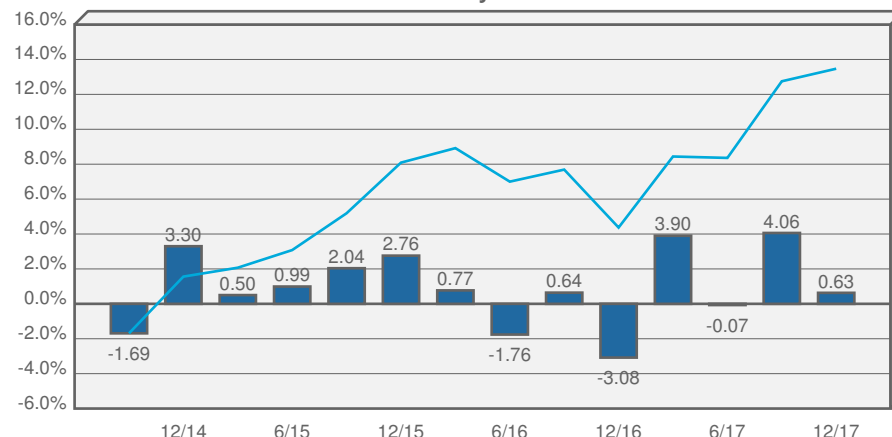
December 31, 2017

Cumulative Skill Analysis vs Benchmark



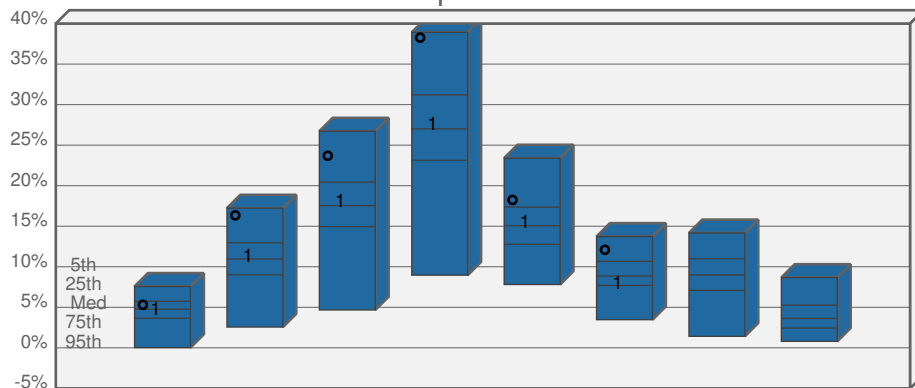
Excess Return:	3.61	Information Ratio:	0.89
Excess Risk:	4.07	T-Stat:	1.53

Value-Added Analysis vs Benchmark



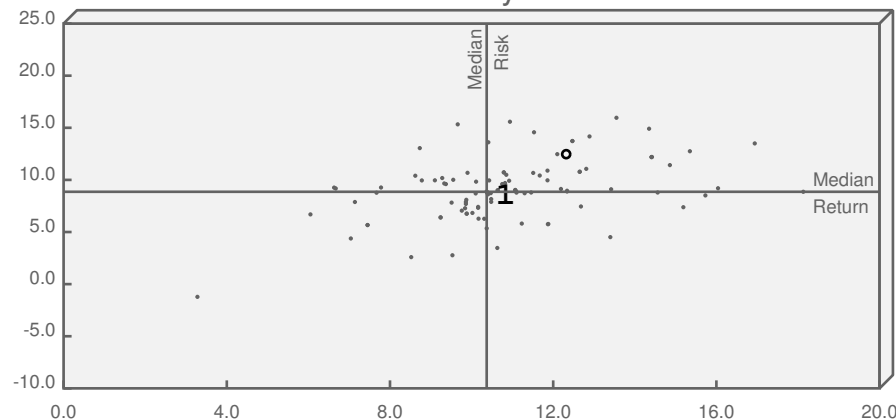
■ Quarterly NOF Value Added vs. Policy Index  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
○ Franklin Temp	5.96 (20)	17.00 ( 6)	24.35 ( 9)	38.92 ( 5)	18.90 (18)	12.75 ( 9)		
1 Policy Index	5.23 (37)	11.80 (36)	18.50 (39)	27.96 (38)	15.92 (39)	8.38 (61)		
Median	4.76	10.95	17.54	27.01	15.06	8.86	8.99	3.62
Number of Funds	414	408	400	393	376	355	309	161

Three Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Franklin Templeton	○	12.75	9	12.58	18
Policy Index	1	8.38	61	10.96	37
Median		8.86		10.37	

\*TUCS Total Returns of Intl Equity Portfolios - Non-US Equity Universe - Gross of Fees

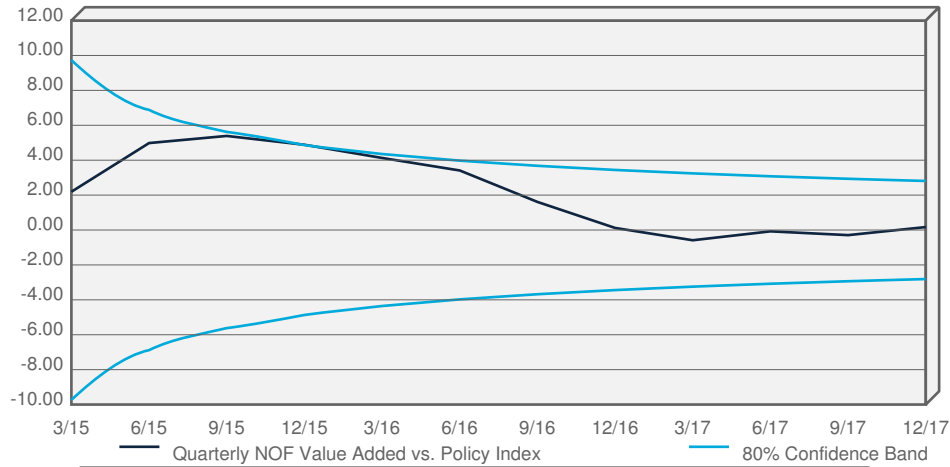


# INVESTMENT MANAGER ANALYSIS

Lazard Asset Mgmt

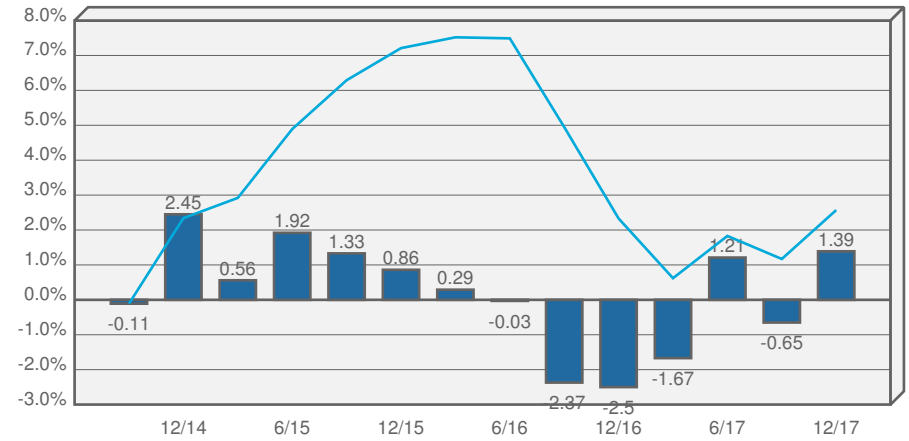
December 31, 2017

Cumulative Skill Analysis vs Benchmark



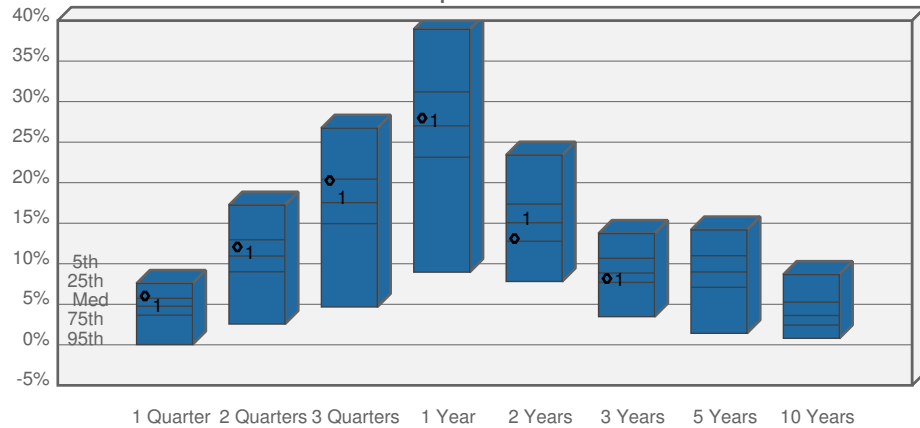
Excess Return:	0.17	Information Ratio:	0.06
Excess Risk:	2.96	T-Stat:	0.10

Value-Added Analysis vs Benchmark



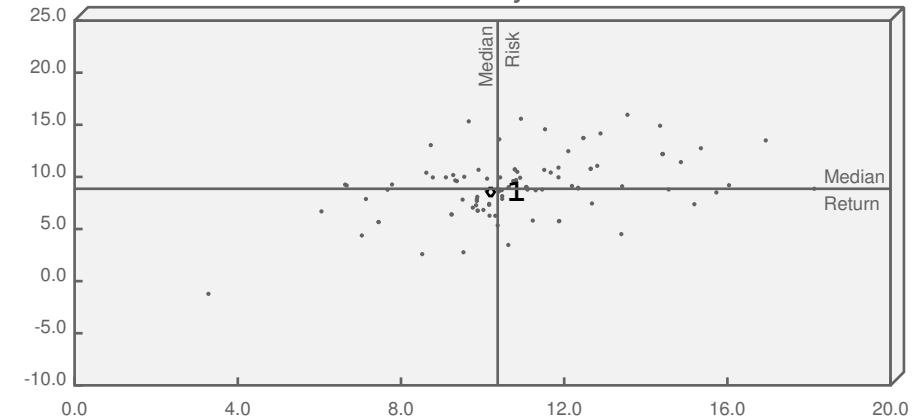
■ Quarterly NOF Value Added vs. Policy Index  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Lazard Asset Mgmt	6.68 (14)	12.73 (27)	20.93 (22)	28.63 (35)	13.76 (63)	8.83 (51)		
1 Policy Index	5.23 (37)	11.80 (36)	18.50 (39)	27.96 (38)	15.92 (39)	8.38 (61)		
Median	4.76	10.95	17.54	27.01	15.06	8.86	8.99	3.62
Number of Funds	414	408	400	393	376	355	309	161

Three Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Lazard Asset Mgmt	●	8.83	51	10.46	47
Policy Index	1	8.38	61	10.96	37
Median		8.86		10.37	

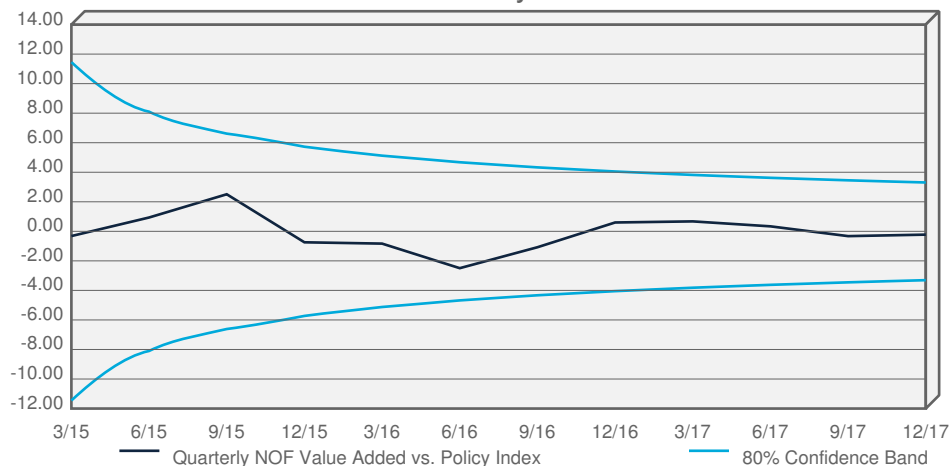
\*TUCS Total Returns of Intl Equity Portfolios - Non-US Equity Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

LSV Asset Mgmt

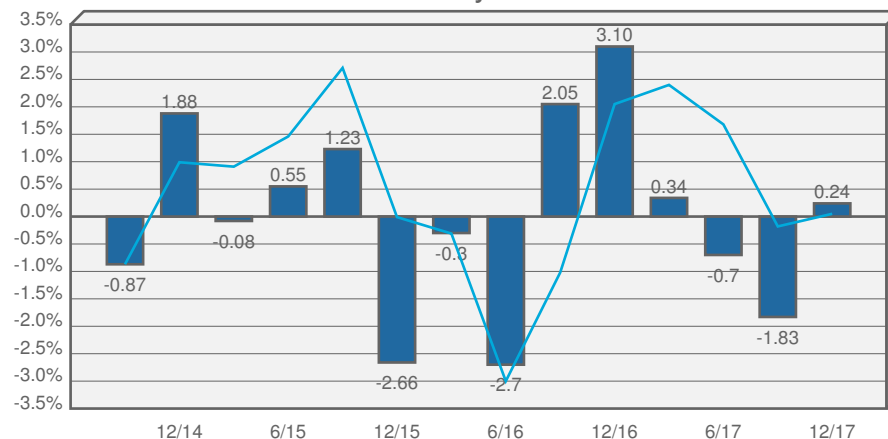
December 31, 2017

Cumulative Skill Analysis vs Benchmark



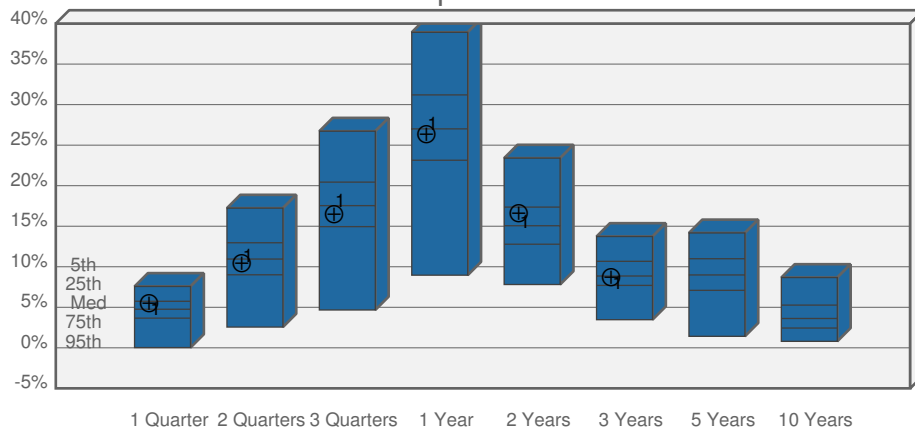
Excess Return:	-0.22	Information Ratio:	-0.06
Excess Risk:	3.48	T-Stat:	-0.11

Value-Added Analysis vs Benchmark



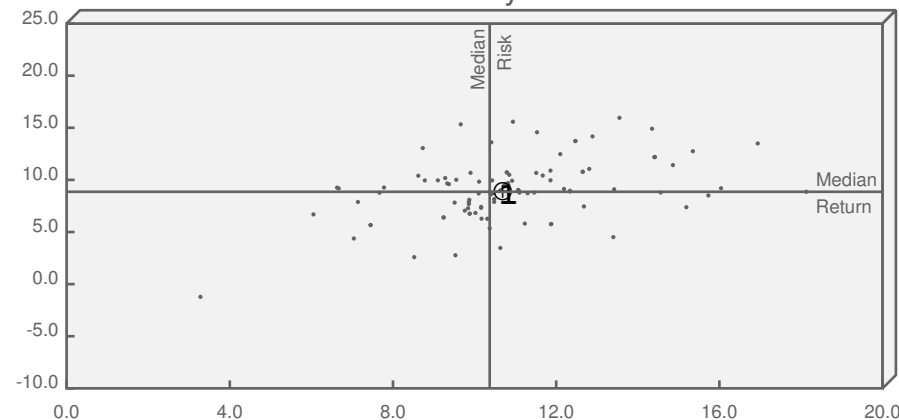
■ Quarterly NOF Value Added vs. Policy Index  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ LSV Asset Mgmt	5.62 (27)	10.47 (55)	16.60 (63)	26.37 (54)	16.64 (32)	8.76 (53)		
1 Policy Index	5.23 (37)	11.80 (36)	18.50 (39)	27.96 (38)	15.92 (39)	8.38 (61)		
Median	4.76	10.95	17.54	27.01	15.06	8.86	8.99	3.62
Number of Funds	414	408	400	393	376	355	309	161

Three Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
LSV Asset Mgmt	⊕	8.76	53	10.80	40
Policy Index	1	8.38	61	10.96	37
Median		8.86		10.37	

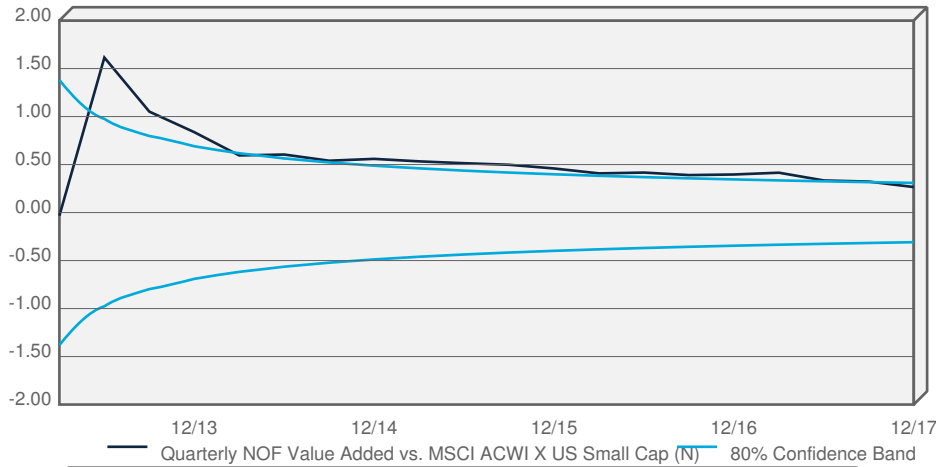
\*TUCS Total Returns of Intl Equity Portfolios - Non-US Equity Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

NTGI Int'l Small Cap

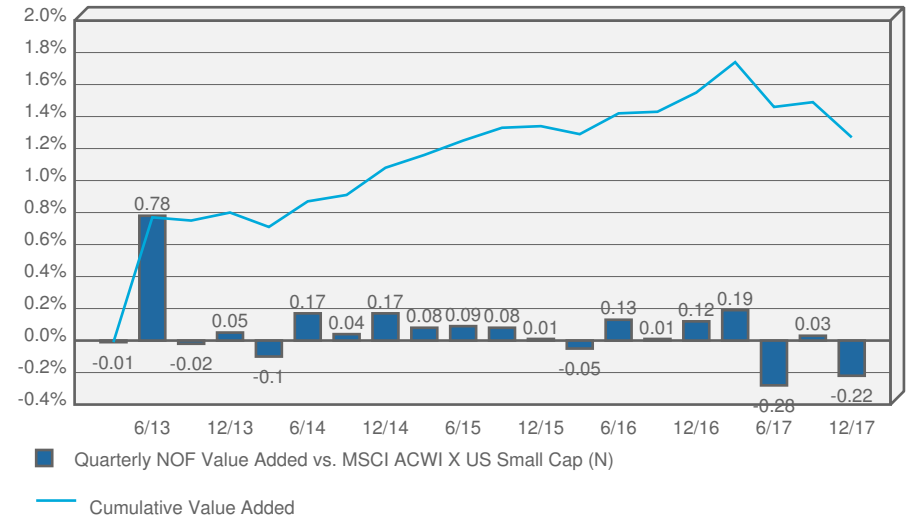
December 31, 2017

Cumulative Skill Analysis vs Benchmark

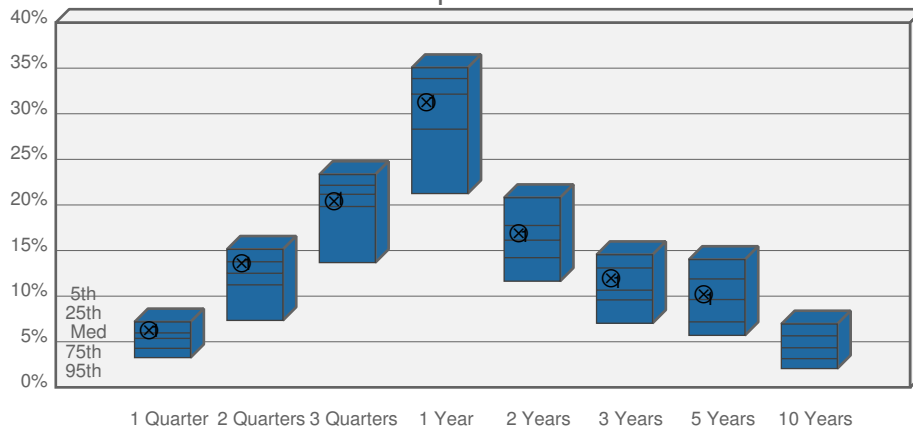


Excess Return:	0.27	Information Ratio:	0.63
Excess Risk:	0.42	T-Stat:	1.42

Value-Added Analysis vs Benchmark



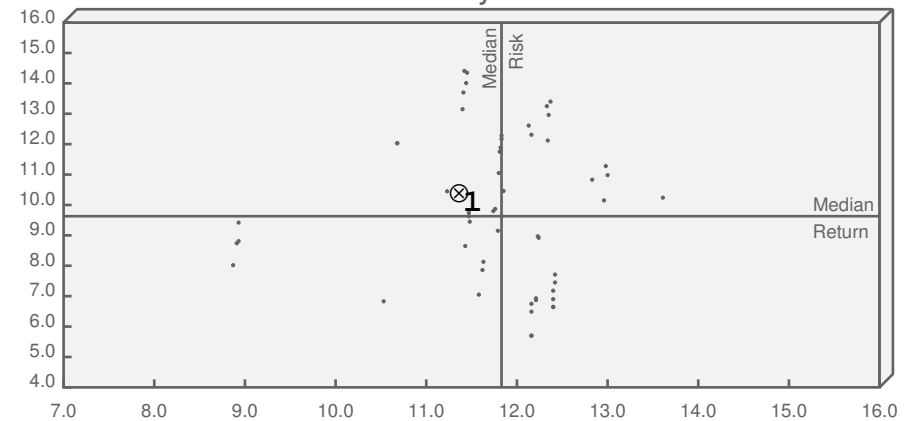
Performance Comparison vs Peer Universe\*



⊗ NTGI Int'l Sma	6.35 (11)	13.72 (25)	20.49 (62)	31.30 (57)	16.93 (31)	12.04 (29)	10.32 (39)
1 MSCI ACWI X US	6.56 ( 8)	13.91 (20)	21.02 (52)	31.64 (55)	16.96 (31)	11.96 (29)	10.03 (42)

Median	5.37	12.51	21.17	32.15	16.14	10.66	9.63	4.34
Number of Funds	90	89	89	88	78	66	57	35

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Net Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NTGI Int'l Small Cap	⊗	10.32	39	11.41	82
MSCI ACWI X US Small Cap (N)	1	10.03	42	11.57	67
Median		9.63		11.83	

\*Lipper Total Returns of Intl Equity Small/Mid Core Mutual Funds Universe - Net of Fees

# CUSTOM BENCHMARK SPECIFICATION

Non-US Equity Composite

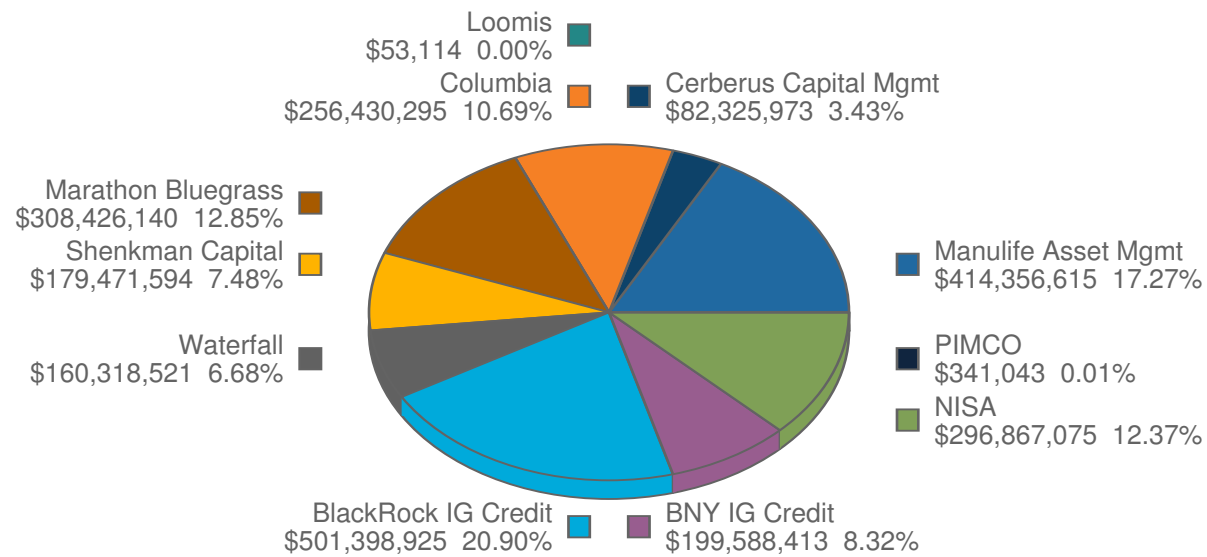
December 31, 2017

	Quarter Start	Quarter End	Percent	Description
Policy Index	9/00	6/17	100.00	Blended Non-US Benchmark
	9/17	9/17	100.00	MSCI ACWI Ex USA IMI Index (\$G)
	12/17	12/17	100.00	MSCI ACWI Ex USA IMI (\$N)



# FIXED INCOME

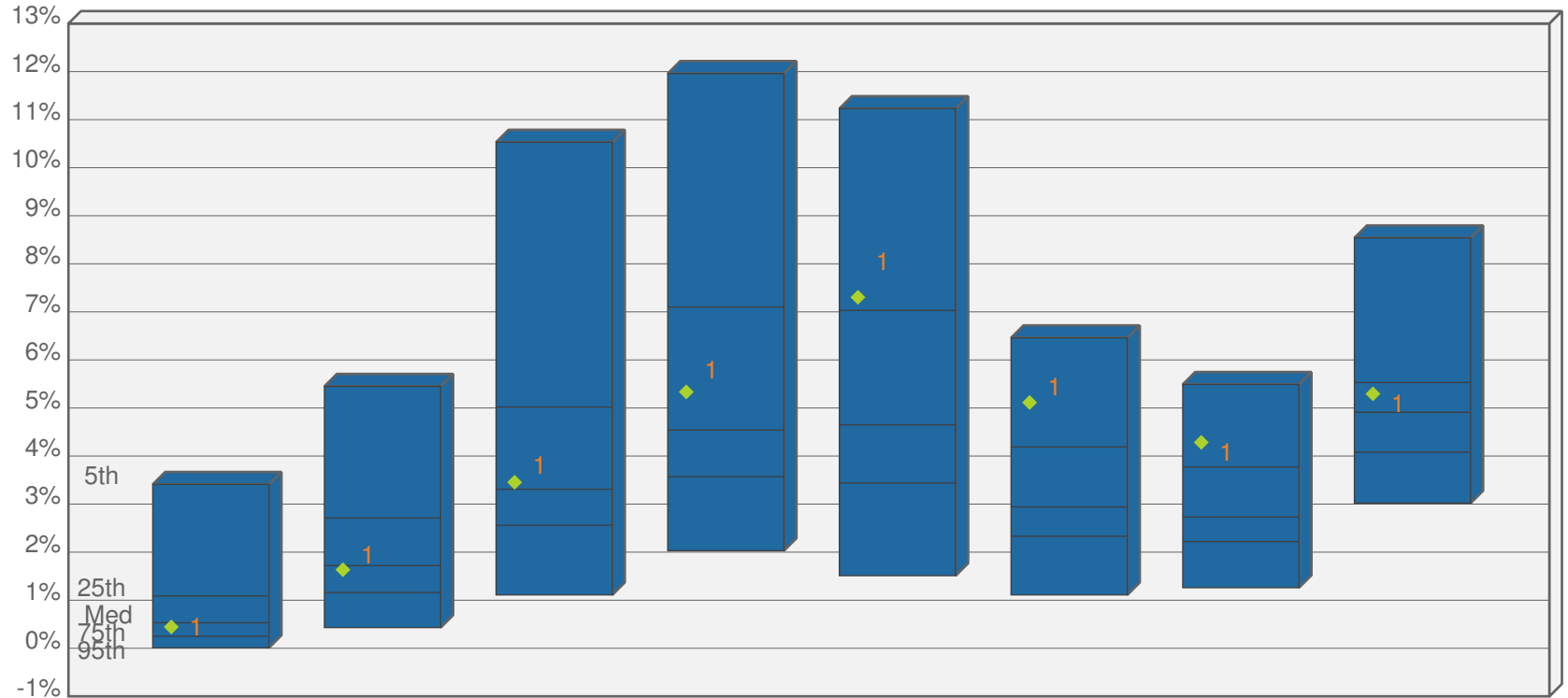
Wilshire Consulting  
**MANAGER ALLOCATION**  
 Fixed Income Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Fixed Income Composite

Periods Ended December 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◆ Fixed Income Composite	0.47 (58)	1.66 (52)	3.48 (47)	5.36 (43)	7.33 (20)	5.14 (15)	4.31 (17)	5.32 (33)
1 Policy Index	0.44 (63)	1.94 (45)	3.82 (43)	5.79 (38)	8.06 (15)	5.45 (10)	4.08 (19)	5.10 (41)
5th %tile	3.41	5.45	10.53	11.96	11.23	6.46	5.49	8.54
25th %tile	1.09	2.71	5.02	7.10	7.03	4.19	3.77	5.53
Median	0.53	1.72	3.31	4.54	4.65	2.94	2.73	4.91
75th %tile	0.25	1.16	2.56	3.57	3.44	2.33	2.22	4.08
95th %tile	0.01	0.43	1.11	2.03	1.51	1.11	1.26	3.02
Number of Funds	137	127	124	115	111	106	94	61

\*TUCS Total Ret of Fixed Income Investment Pools Universe - Gross of Fees

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>NISA</b>									
<b>Net of Fee Return</b>	<b>0.47</b>	<b>1.42</b>	<b>2.97</b>	<b>3.81</b>	<b>2.58</b>	<b>2.33</b>		<b>3/31/09</b>	<b>4.15</b>
Bloomberg Aggregate	0.39	1.24	2.70	3.54	2.24	2.10		3/31/09	3.97
Value Added	0.08	0.18	0.27	0.27	0.34	0.23		3/31/09	0.18
<b>Manulife Asset Mgmt</b>									
<b>Net of Fee Return</b>	<b>0.24</b>	<b>1.26</b>	<b>2.90</b>	<b>4.39</b>	<b>3.13</b>	<b>2.98</b>		<b>12/31/11</b>	<b>4.40</b>
Policy Index	0.41	1.42	2.96	4.09	1.51	0.55		12/31/11	1.26
Value Added	-0.17	-0.16	-0.06	0.30	1.62	2.43		12/31/11	3.15
<b>BlackRock IG Credit</b>									
<b>Net of Fee Return</b>	<b>0.11</b>	<b>1.12</b>	<b>2.29</b>					<b>3/31/17</b>	<b>2.29</b>
Bloomberg Int Credit	0.11	1.10	2.50					3/31/17	2.50
Value Added	0.00	0.02	-0.20					3/31/17	-0.20
<b>Columbia</b>									
<b>Net of Fee Return</b>	<b>0.20</b>	<b>2.32</b>	<b>4.83</b>	<b>7.10</b>	<b>6.05</b>	<b>5.79</b>		<b>12/31/11</b>	<b>7.43</b>
Bloomberg High Yield	0.47	2.45	4.68	7.50	6.35	5.78		12/31/11	7.39
Value Added	-0.27	-0.13	0.15	-0.40	-0.30	0.02		12/31/11	0.04
<b>Marathon Bluegrass</b>									
<b>Net of Fee Return</b>	<b>0.80</b>	<b>-0.06</b>	<b>0.42</b>	<b>1.06</b>				<b>12/31/15</b>	<b>8.45</b>
Bloomberg High Yield	0.47	2.45	4.68	7.50				12/31/15	12.21
Value Added	0.33	-2.51	-4.26	-6.44				12/31/15	-3.76



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

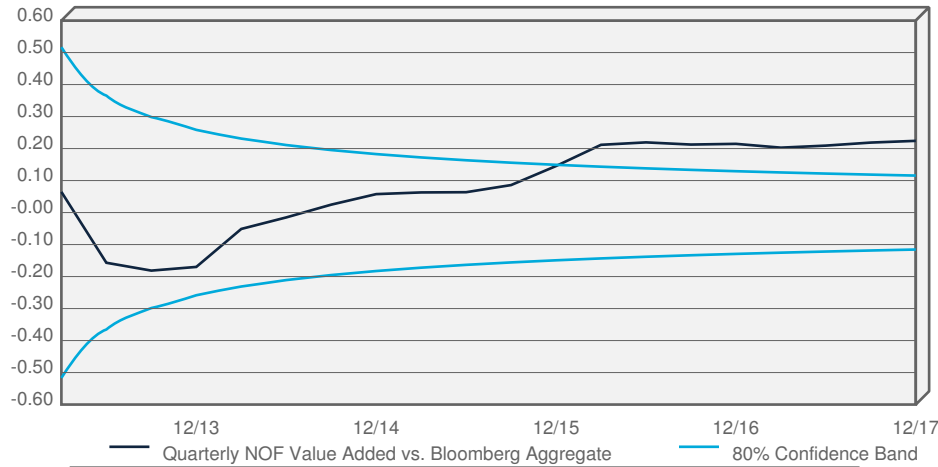
	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Shenkman Capital</b>									
<b>Net of Fee Return</b>	<b>0.71</b>	<b>1.16</b>	<b>2.22</b>	<b>3.06</b>	<b>3.72</b>	<b>3.69</b>		<b>9/30/10</b>	<b>4.73</b>
S&P LSTA Leverage Loan	1.12	2.17	2.95	4.12	4.44	4.54		9/30/10	5.76
Value Added	-0.41	-1.01	-0.72	-1.07	-0.71	-0.85		9/30/10	-1.04
<b>Cerberus Capital Mgmt</b>									
<b>Net of Fee Return</b>	<b>1.06</b>	<b>2.33</b>	<b>4.92</b>	<b>7.44</b>	<b>8.45</b>			<b>9/30/14</b>	<b>8.16</b>
S&P LSTA Leverage Loan	1.12	2.17	2.95	4.12	4.44			9/30/14	3.93
Value Added	-0.06	0.16	1.97	3.32	4.01			9/30/14	4.23
<b>Waterfall</b>									
<b>Net of Fee Return</b>	<b>1.72</b>	<b>5.67</b>	<b>9.72</b>	<b>14.47</b>	<b>9.06</b>	<b>10.14</b>		<b>3/31/10</b>	<b>11.94</b>
Policy Index	0.67	2.19	3.85	6.03	4.67	4.24		3/31/10	5.29
Value Added	1.05	3.48	5.86	8.44	4.39	5.89		3/31/10	6.66
<b>Fixed Income Composite</b>									
<b>Net of Fee Return</b>	<b>0.44</b>	<b>1.52</b>	<b>3.20</b>	<b>4.85</b>	<b>4.54</b>	<b>3.78</b>	<b>5.07</b>	<b>3/31/84</b>	<b>7.62</b>
Policy Index	0.44	1.94	3.82	5.79	5.45	4.08	5.10	3/31/84	7.46
Value Added	0.01	-0.42	-0.62	-0.94	-0.91	-0.30	-0.04	3/31/84	0.16
Bloomberg Global Aggregate	1.08	2.86	5.54	7.39	2.02	0.79	3.09		

# INVESTMENT MANAGER ANALYSIS

NISA

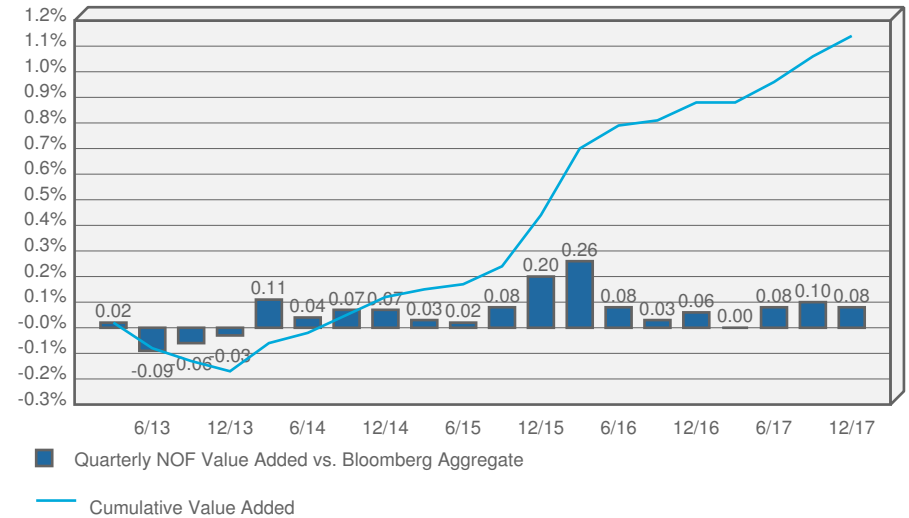
December 31, 2017

Cumulative Skill Analysis vs Benchmark

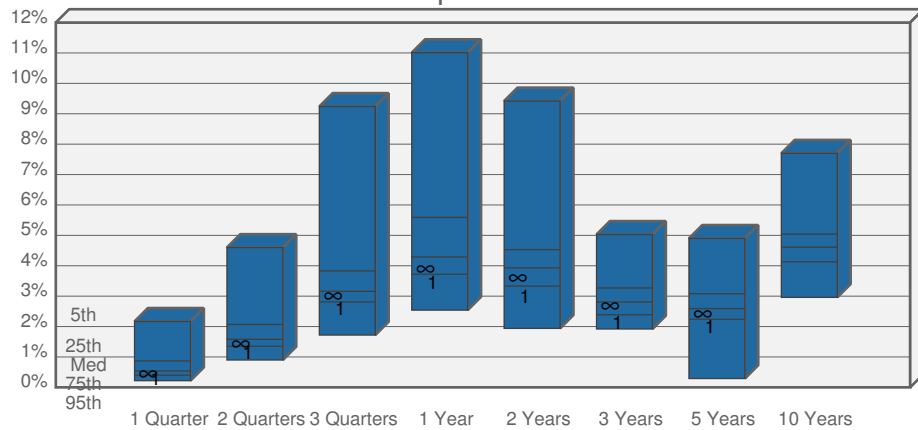


Excess Return:	0.22	Information Ratio:	1.43
Excess Risk:	0.16	T-Stat:	3.19

Value-Added Analysis vs Benchmark

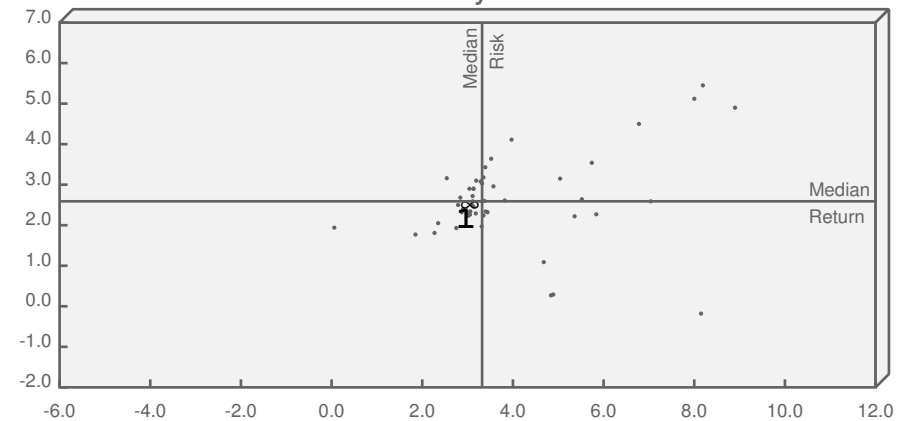


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ NISA	0.50 (59)	1.50 (56)	3.09 (55)	3.97 (58)	3.66 (60)	2.75 (52)	2.50 (53)	
1 Bloomberg Aggr	0.39 (79)	1.24 (83)	2.70 (82)	3.54 (86)	3.09 (82)	2.24 (84)	2.10 (79)	
Median	0.54	1.58	3.16	4.29	3.93	2.81	2.59	4.61
Number of Funds	74	73	70	70	69	68	53	31

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NISA	∞	2.50	53	3.17	59
Bloomberg Aggregate	1	2.10	79	3.08	71
Median		2.59		3.32	

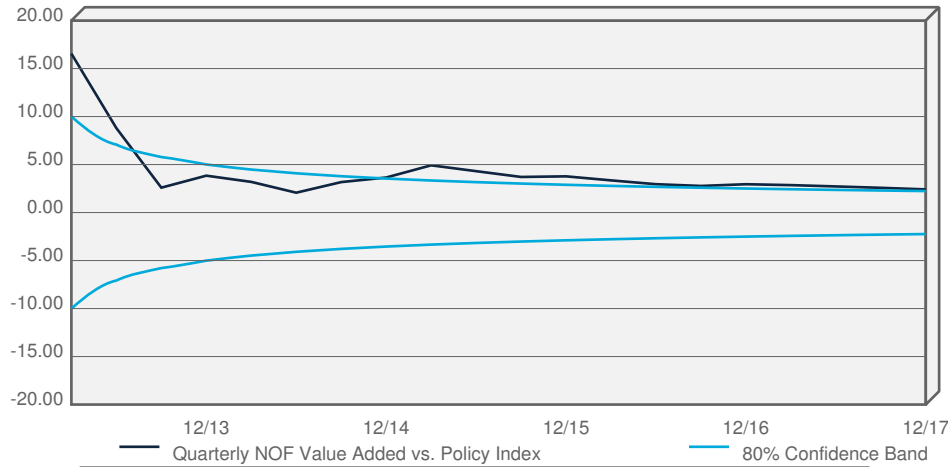
\*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Manulife Asset Mgmt

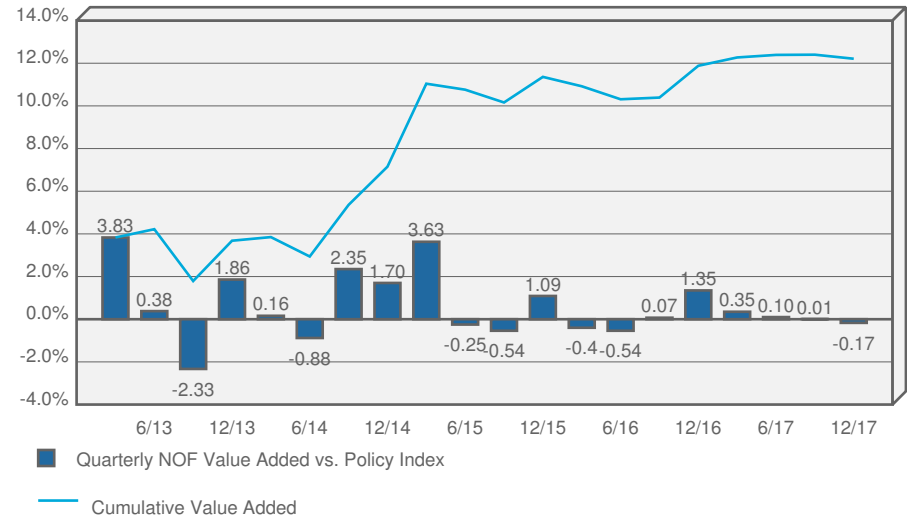
December 31, 2017

Cumulative Skill Analysis vs Benchmark

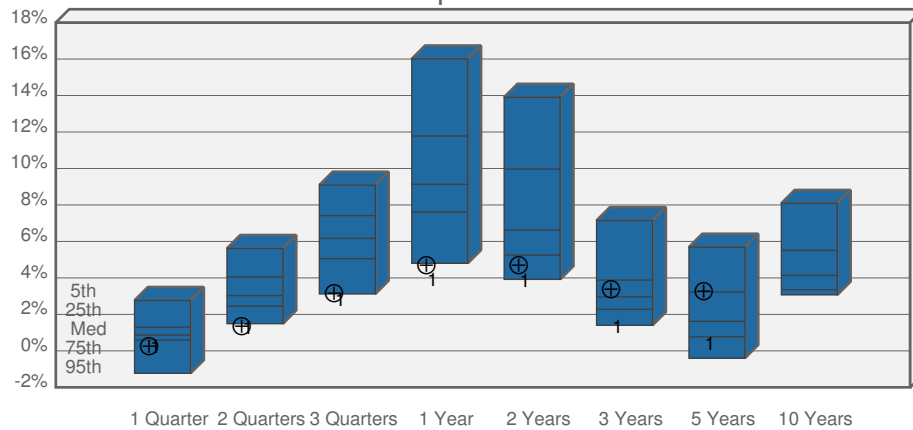


Excess Return:	2.41	Information Ratio:	0.79
Excess Risk:	3.04	T-Stat:	1.77

Value-Added Analysis vs Benchmark

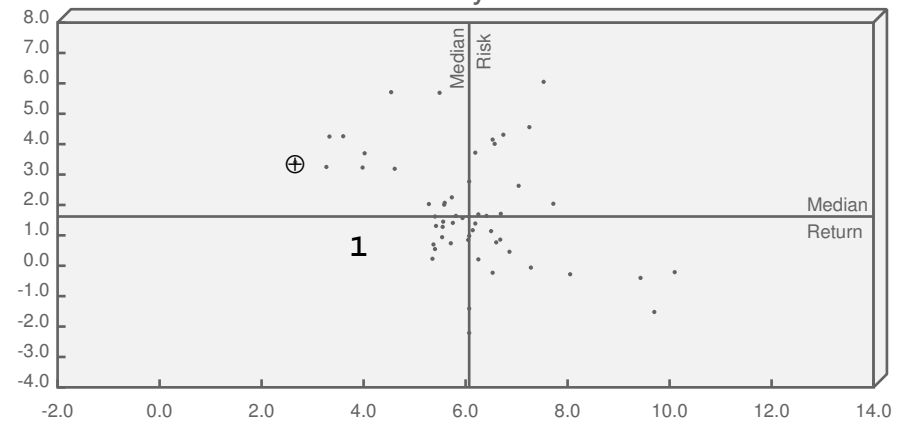


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ Manulife Asset	0.30 (80)	1.39 (95)	3.18 (93)	4.73 (95)	4.72 (80)	3.42 (30)	3.29 (21)	
1 Policy Index	0.41 (78)	1.42 (95)	2.96 (95)	4.09 (95)	4.00 (93)	1.51 (91)	0.55 (80)	
Median	0.87	3.03	6.17	9.13	6.62	2.96	1.62	4.14
Number of Funds	55	55	55	55	55	55	54	29

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Manulife Asset Mgmt	⊕	3.29	21	2.74	97
Policy Index	1	0.55	80	4.01	89
Median		1.62		6.07	

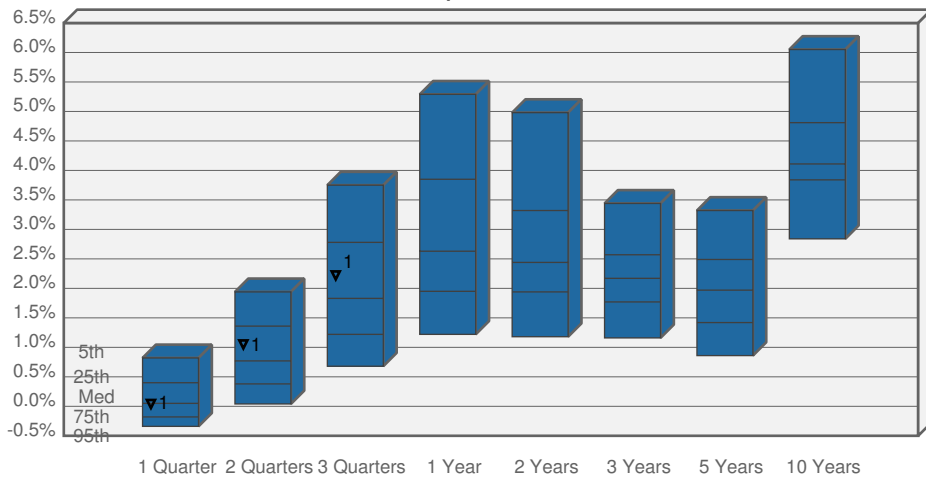
\*TUCS Total Returns of Global Fixed Portfolios - Unhedged Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

BlackRock IG Credit

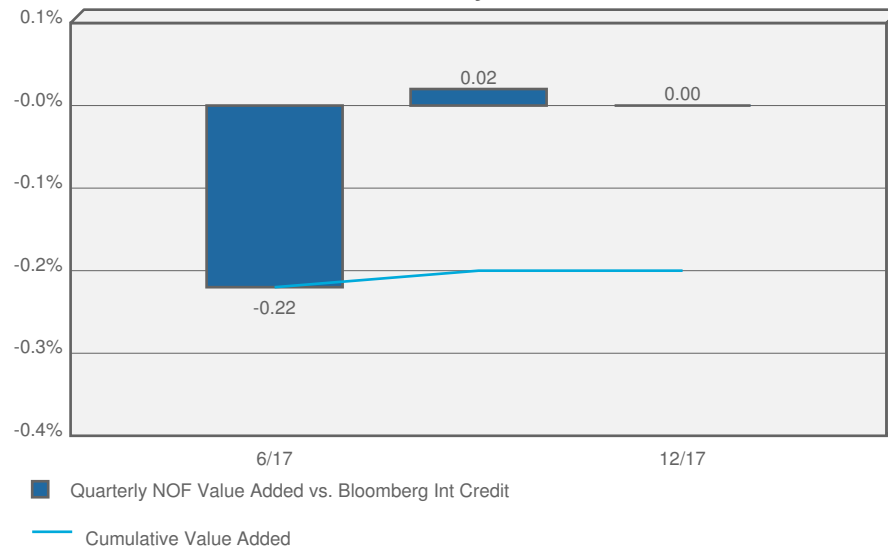
December 31, 2017

Performance Comparison vs Peer Universe\*



▼ BlackRock IG C	0.13 (42)	1.14 (36)	2.31 (39)					
1 Bloomberg Int	0.11 (42)	1.10 (37)	2.50 (36)					
Median	0.05	0.77	1.83	2.63	2.44	2.17	1.97	4.11
Number of Funds	157	157	155	154	149	142	117	59

Value-Added Analysis vs Benchmark



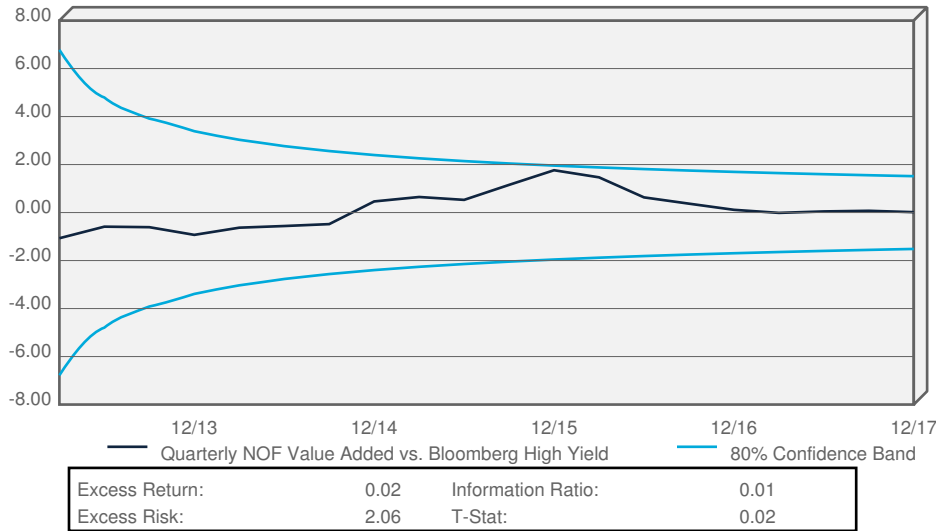
\*TUCS Total Returns of Fixed Income Portfolios - Intermediate Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

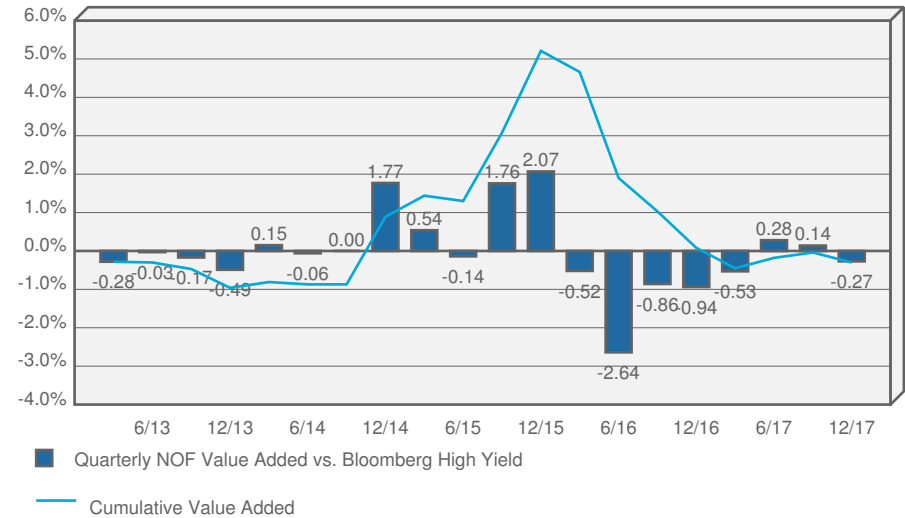
Columbia

December 31, 2017

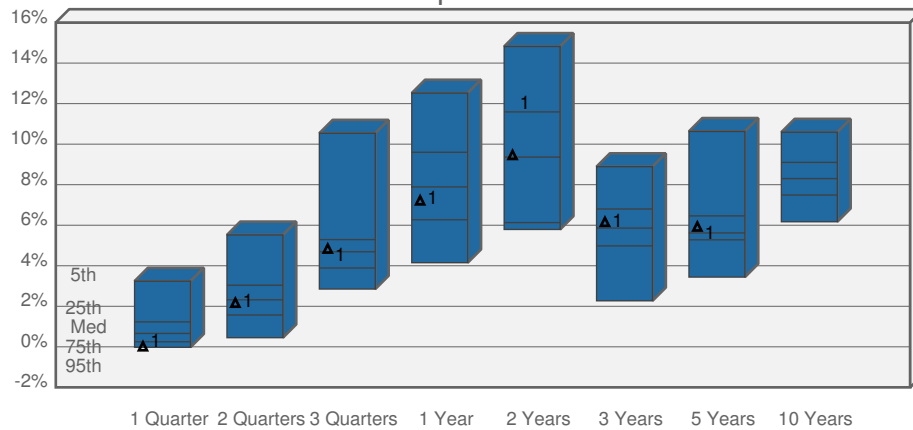
Cumulative Skill Analysis vs Benchmark



Value-Added Analysis vs Benchmark

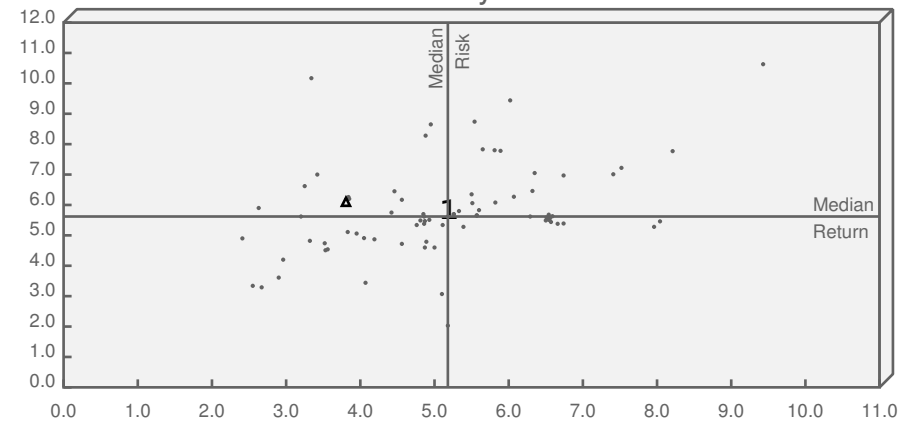


Performance Comparison vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▲ Columbia	0.29 (70)	2.44 (42)	5.11 (31)	7.49 (56)	9.73 (47)	6.43 (41)	6.20 (31)	
1 Bloomberg High	0.47 (59)	2.45 (41)	4.68 (50)	7.50 (55)	12.21 (17)	6.35 (41)	5.78 (38)	
Median	0.66	2.32	4.69	7.89	9.36	5.86	5.62	8.30
Number of Funds	116	116	116	115	112	103	79	31

Five Year Risk/Return Analysis vs Peer Universe\*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Columbia	▲	6.20	31	3.95	78
Bloomberg High Yield	1	5.78	38	5.27	46
Median		5.62		5.18	

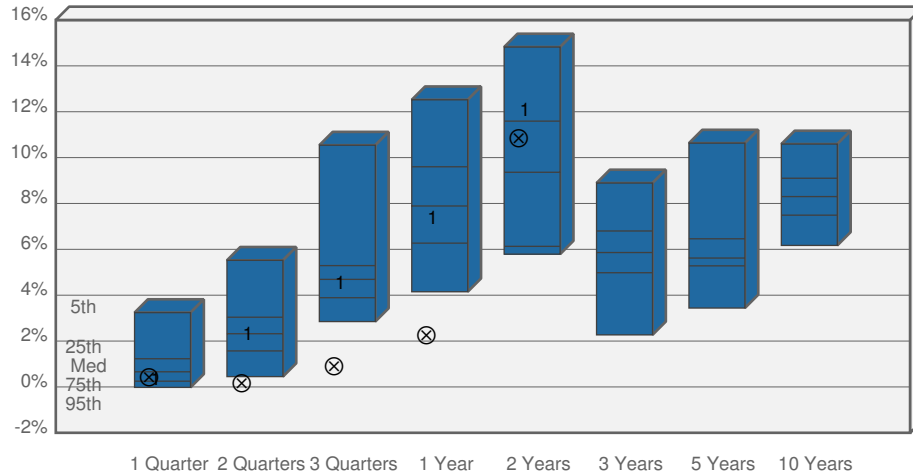
\*TUCS Total Returns of Fixed Income Portfolios - High Yield Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Marathon Bluegrass

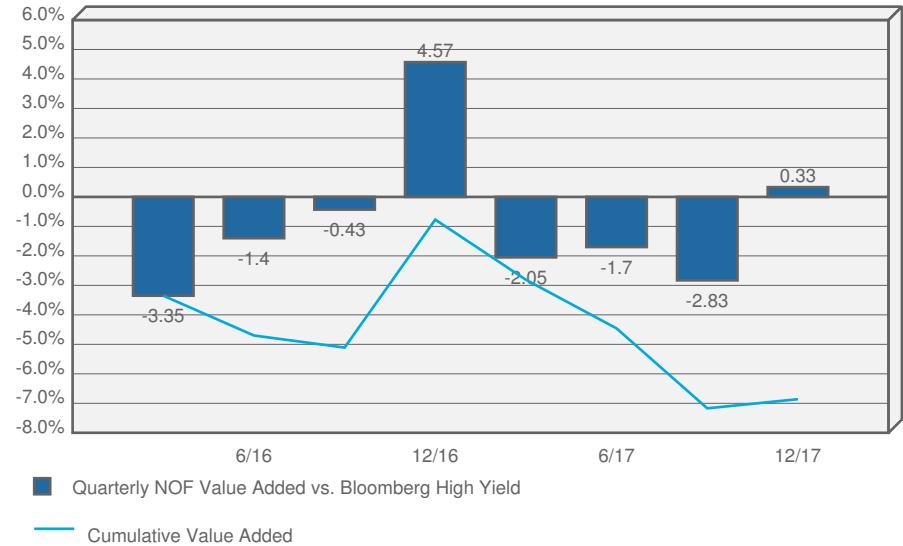
December 31, 2017

Performance Comparison vs Peer Universe\*



⊗ Marathon Bluegrass  
 1 Bloomberg High  
 Median  
 Number of Funds

Value-Added Analysis vs Benchmark



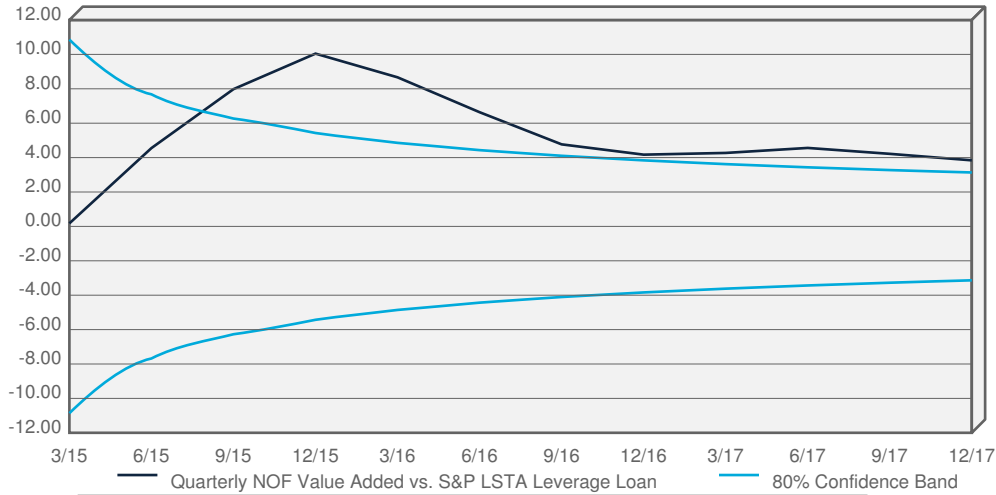
\*TUCS Total Returns of Fixed Income Portfolios - High Yield Universe - Gross of Fees

# INVESTMENT MANAGER ANALYSIS

Cerberus Capital Mgmt

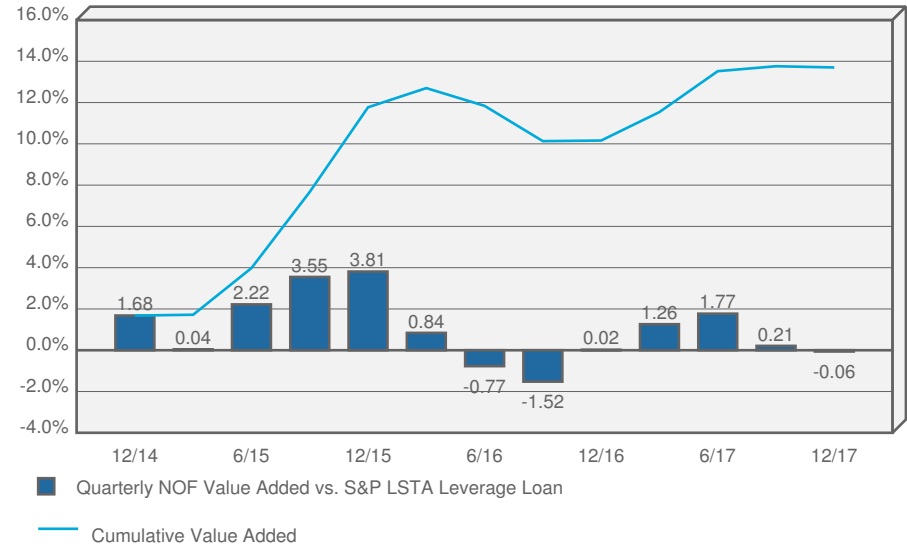
December 31, 2017

Cumulative Skill Analysis vs Benchmark



Excess Return:	3.84	Information Ratio:	1.16
Excess Risk:	3.30	T-Stat:	2.02

Value-Added Analysis vs Benchmark

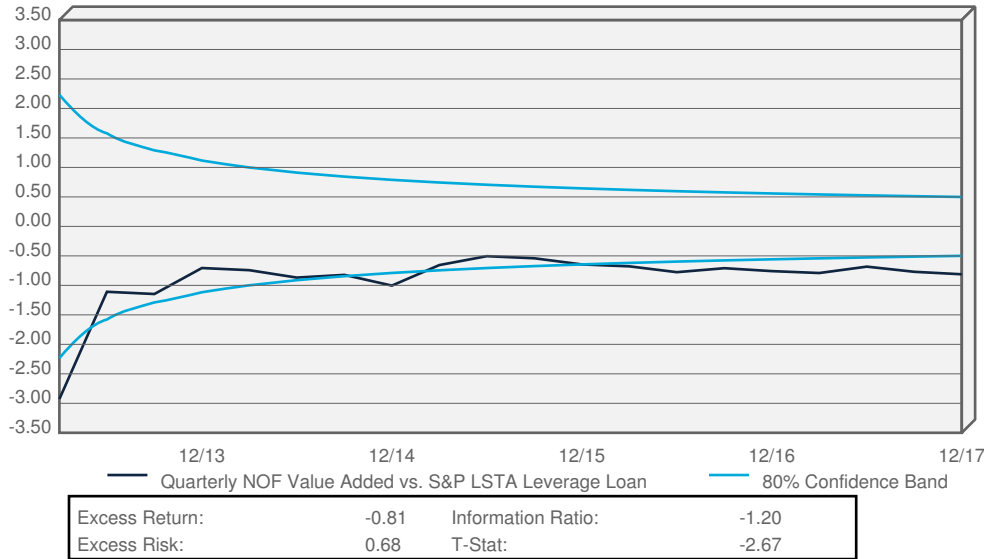


# INVESTMENT MANAGER ANALYSIS

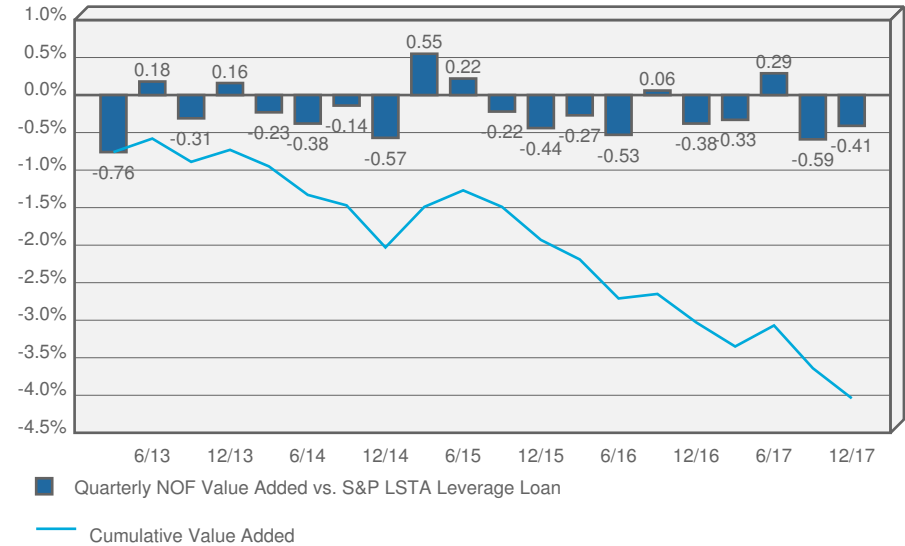
Shenkman Capital

December 31, 2017

Cumulative Skill Analysis vs Benchmark



Value-Added Analysis vs Benchmark



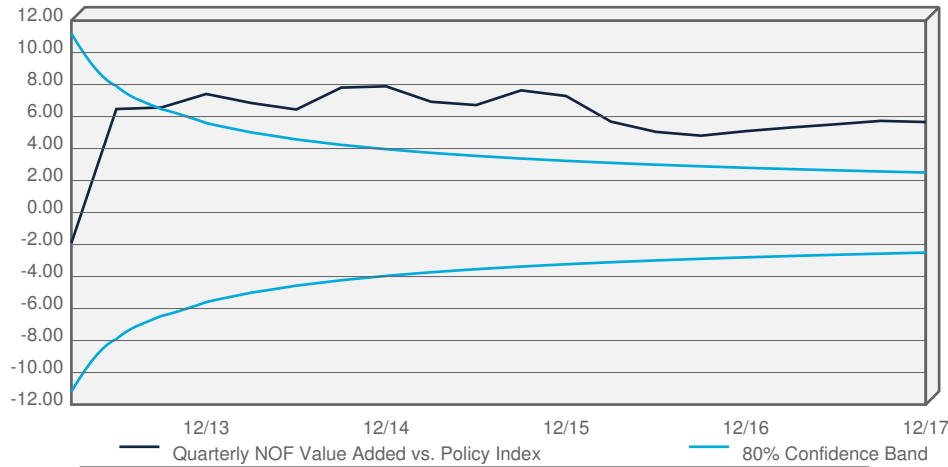


# INVESTMENT MANAGER ANALYSIS

## Waterfall

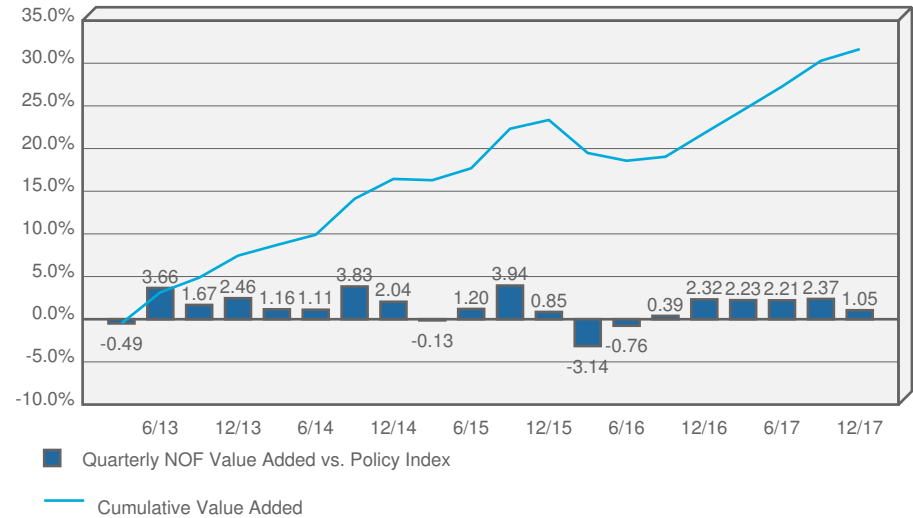
December 31, 2017

Cumulative Skill Analysis vs Benchmark

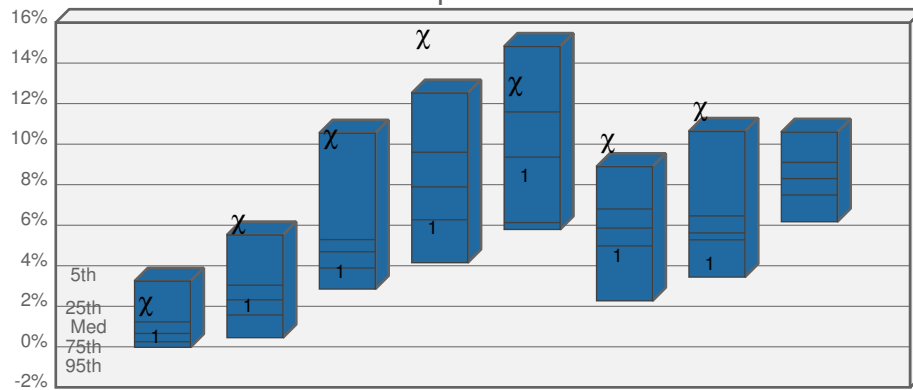


Excess Return:	5.66	Information Ratio:	1.66
Excess Risk:	3.40	T-Stat:	3.72

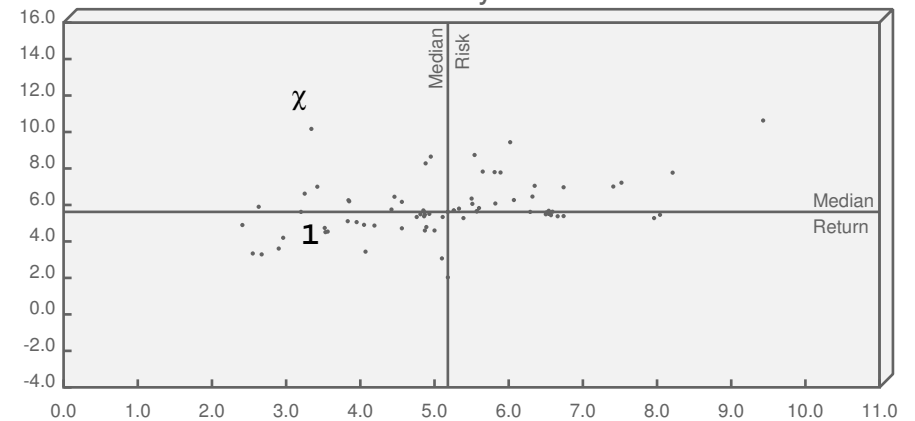
Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe\*



Five Year Risk/Return Analysis vs Peer Universe\*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
Waterfall	1.86 (11)	5.94 ( 3)	10.13 ( 9)	15.06 ( 3)	12.73 (17)	9.94 ( 3)	11.48 ( 2)	
Policy Index	0.67 (49)	2.19 (55)	3.85 (77)	6.03 (78)	8.59 (58)	4.67 (81)	4.24 (91)	
Median	0.66	2.32	4.69	7.89	9.36	5.86	5.62	8.30
Number of Funds	116	116	116	115	112	103	79	31

Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Waterfall	χ	11.48	2	3.28	90
Policy Index	1	4.24	91	3.40	87
Median		5.62		5.18	

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

# CUSTOM BENCHMARK SPECIFICATION

Fixed Income Composite

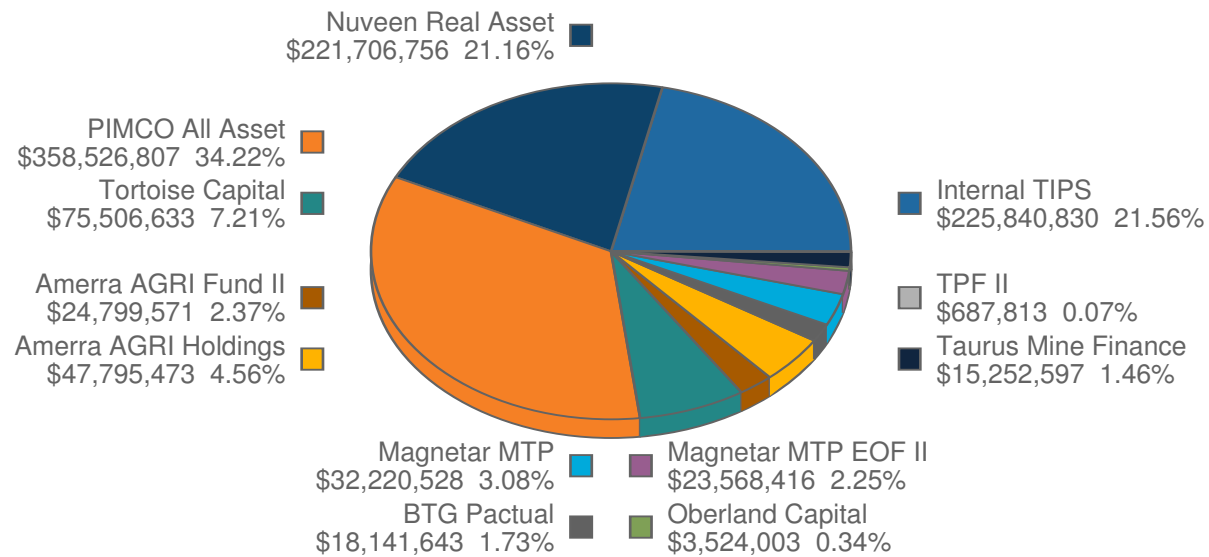
December 31, 2017

	Quarter Start	Quarter End	Percent	Description
Policy Index	6/84	6/17	100.00	Blended Fixed Benchmark
	9/17	12/17	50.00	Bloomberg Universal
			50.00	Bloomberg High Yield
Bloomberg Global Aggregate	6/84	12/17	100.00	Bloomberg Global Aggregate



# REAL RETURN

Wilshire Consulting  
**MANAGER ALLOCATION**  
 Real Return Composite  
 As of December 31, 2017



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Internal TIPS</b>									
Net of Fee Return	0.33	1.05	0.66	1.69	2.14	0.10	3.52	6/30/02	4.84
Bloomberg U.S. TIPS	1.26	2.14	1.73	2.80	2.08	-0.05	3.44	6/30/02	4.78
Value Added	-0.93	-1.09	-1.07	-1.11	0.06	0.15	0.09	6/30/02	0.06
<b>PIMCO All Asset</b>									
Net of Fee Return	1.00	4.28	6.22	14.21	5.90	3.26		12/31/11	5.87
Bloomberg 1-10 Yrs TIPS	0.53	1.24	0.83	1.90	1.78	0.09		12/31/11	0.90
Value Added	0.47	3.04	5.39	12.31	4.12	3.17		12/31/11	4.97
<b>Tortoise Capital</b>									
Net of Fee Return	-0.66	-2.59	-7.97	-3.30	-6.43	5.29		9/30/09	12.25
Alerian MLP	-0.95	-3.97	-10.07	-6.52	-9.33	-0.06		9/30/09	7.98
Value Added	0.29	1.38	2.10	3.22	2.89	5.36		9/30/09	4.27
<b>Nuveen Real Asset</b>									
Net of Fee Return	1.37	3.92	7.18	12.42				3/31/15	6.18
Policy Index	1.04	3.03	6.93	12.59				3/31/15	6.18
Value Added	0.34	0.89	0.25	-0.18				3/31/15	-0.00
<b>Amerra AGRI Fund II</b>									
Net of Fee Return	-2.02	-1.67	-0.60	-0.18	6.05	5.33		12/31/12	5.33
<b>Amerra AGRI Holdings</b>									
Net of Fee Return	-1.23	-2.73	-4.48	-2.07				9/30/15	-0.76
<b>BTG Pactual</b>									
Net of Fee Return	2.94	0.38	4.60	5.60	-9.92			12/31/14	-9.92

# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Magnetar MTP EOF II Net of Fee Return</b>	<b>5.03</b>	<b>0.86</b>	<b>4.68</b>	<b>5.45</b>				<b>9/30/15</b>	<b>0.66</b>
<b>Oberland Capital Net of Fee Return</b>	<b>8.17</b>	<b>38.40</b>	<b>45.35</b>	<b>50.60</b>	<b>18.82</b>			<b>9/30/14</b>	<b>16.09</b>
<b>Taurus Mine Finance Net of Fee Return</b>	<b>-1.53</b>	<b>0.24</b>	<b>2.55</b>	<b>8.88</b>				<b>3/31/15</b>	<b>14.04</b>
<b>TPF II Net of Fee Return</b>	<b>-0.22</b>	<b>0.19</b>	<b>3.30</b>	<b>3.30</b>	<b>-2.53</b>	<b>-5.19</b>		<b>9/30/08</b>	<b>-3.74</b>
<b>Real Return Composite Net of Fee Return</b>	<b>0.77</b>	<b>2.31</b>	<b>2.95</b>	<b>8.01</b>	<b>3.91</b>	<b>2.06</b>		<b>6/30/11</b>	<b>4.05</b>
Real Return Index (P)	0.70	1.13	1.02	3.61	2.14	2.34		6/30/11	2.78
Value Added	0.07	1.17	1.93	4.40	1.77	-0.28		6/30/11	1.27

# CUSTOM BENCHMARK SPECIFICATION

Real Return Composite

*December 31, 2017*

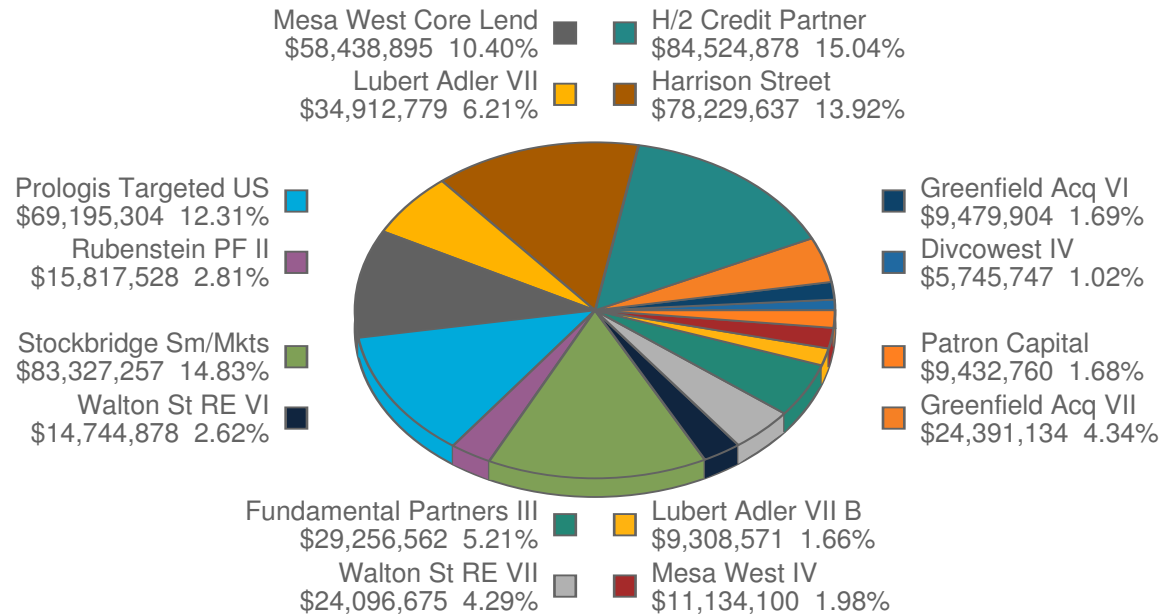
	Quarter Start	Quarter End	Percent	Description
Real Return Index (P)	9/11	12/17	100.00	Real Return Index (P)



# REAL ESTATE



Wilshire Consulting  
**MANAGER ALLOCATION**  
 Real Estate Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Divcowest IV Net of Fee Return</b>	<b>0.20</b>	<b>-0.62</b>	<b>9.36</b>	<b>16.06</b>	<b>27.39</b>			<b>3/31/14</b>	<b>22.83</b>
<b>Greenfield Acq VI Net of Fee Return</b>	<b>1.26</b>	<b>5.64</b>	<b>5.58</b>	<b>10.73</b>	<b>9.90</b>	<b>11.50</b>		<b>12/31/12</b>	<b>11.50</b>
<b>Greenfield Acq VII Net of Fee Return</b>	<b>0.81</b>	<b>8.46</b>	<b>9.06</b>	<b>14.91</b>	<b>14.32</b>			<b>6/30/14</b>	<b>11.45</b>
<b>H/2 Credit Partner Net of Fee Return</b>	<b>0.14</b>	<b>2.74</b>	<b>4.82</b>	<b>7.89</b>	<b>6.39</b>	<b>6.05</b>		<b>6/30/11</b>	<b>6.48</b>
<b>Harrison Street Net of Fee Return</b>	<b>2.81</b>	<b>5.25</b>	<b>7.83</b>	<b>10.29</b>	<b>10.00</b>	<b>9.96</b>		<b>6/30/12</b>	<b>9.11</b>
<b>Lubert Adler VII Net of Fee Return</b>	<b>4.31</b>	<b>6.07</b>	<b>7.38</b>	<b>9.19</b>	<b>4.28</b>			<b>6/30/14</b>	<b>-3.94</b>
<b>Mesa West Core Lend Net of Fee Return</b>	<b>1.63</b>	<b>3.33</b>	<b>5.23</b>	<b>7.25</b>	<b>7.67</b>			<b>6/30/13</b>	<b>6.81</b>
<b>Prologis Targeted US Net of Fee Return</b>	<b>6.23</b>	<b>9.85</b>	<b>14.27</b>	<b>20.61</b>	<b>16.20</b>			<b>9/30/14</b>	<b>14.87</b>
<b>Rubenstein PF II Net of Fee Return</b>	<b>5.44</b>	<b>8.34</b>	<b>12.33</b>	<b>13.59</b>	<b>8.57</b>			<b>6/30/13</b>	<b>13.74</b>
<b>Stockbridge Sm/Mkts Net of Fee Return</b>	<b>1.67</b>	<b>3.82</b>	<b>5.62</b>	<b>8.35</b>	<b>10.05</b>			<b>6/30/14</b>	<b>9.97</b>

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Walton St RE VI</b>									
<b>Net of Fee Return</b>	<b>2.57</b>	<b>4.62</b>	<b>6.11</b>	<b>7.02</b>	<b>5.17</b>	<b>9.31</b>		<b>6/30/09</b>	<b>-19.92</b>
<b>Walton St RE VII</b>									
<b>Net of Fee Return</b>	<b>2.12</b>	<b>6.14</b>	<b>8.65</b>	<b>11.58</b>	<b>13.54</b>			<b>6/30/13</b>	<b>13.68</b>
<b>Fundamental Partners III</b>									
<b>Net of Fee Return</b>	<b>1.91</b>	<b>1.87</b>						<b>6/30/17</b>	<b>1.87</b>
<b>Lubert Adler VII B</b>									
<b>Net of Fee Return</b>	<b>-4.11</b>	<b>-4.11</b>						<b>6/30/17</b>	<b>-4.11</b>
<b>Mesa West IV</b>									
<b>Net of Fee Return</b>	<b>1.27</b>	<b>3.10</b>	<b>0.47</b>					<b>3/31/17</b>	<b>0.47</b>
<b>Patron Capital</b>									
<b>Net of Fee Return</b>	<b>-0.90</b>	<b>7.02</b>	<b>12.10</b>	<b>15.79</b>				<b>9/30/16</b>	<b>-15.55</b>
<b>Real Estate Composite</b>									
<b>Net of Fee Return</b>	<b>2.30</b>	<b>4.94</b>	<b>7.29</b>	<b>10.49</b>	<b>9.61</b>	<b>9.37</b>	<b>7.73</b>	<b>6/30/84</b>	<b>6.01</b>
NCREIF ODCE NOF 1 Quarter Lag	1.64	3.13	4.72	6.69	9.84	10.57	4.08		
Value Added	0.66	1.80	2.56	3.80	-0.23	-1.20	3.65		

# CUSTOM BENCHMARK SPECIFICATION

Real Estate Composite

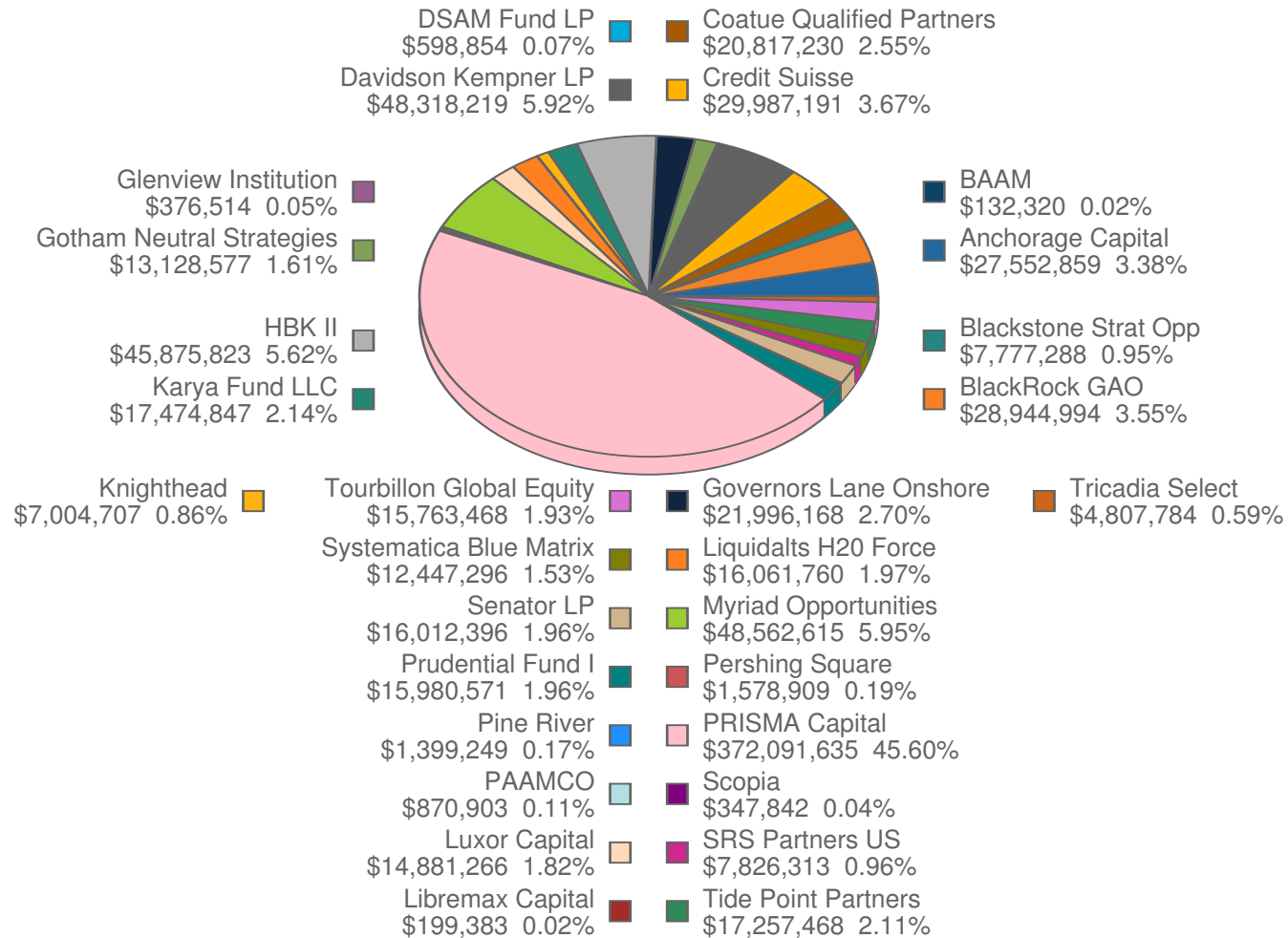
*December 31, 2017*

	Quarter Start	Quarter End	Percent	Description
NCREIF ODCE NOF 1 Quarter Lag	9/84	12/17	100.00	NCREIF ODCE NOF 1 Quarter Lag



# ABSOLUTE RETURN

Wilshire Consulting  
**MANAGER ALLOCATION**  
 Absolute Return Composite  
 As of December 31, 2017



# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Anchorage Capital Net of Fee Return</b>	<b>3.15</b>	<b>4.75</b>	<b>4.00</b>	<b>7.50</b>				<b>9/30/16</b>	<b>7.26</b>
<b>BAAM Net of Fee Return</b>	<b>0.00</b>	<b>0.08</b>	<b>1.05</b>	<b>1.17</b>	<b>2.63</b>	<b>5.42</b>		<b>9/30/11</b>	<b>5.62</b>
<b>BlackRock GAO Net of Fee Return</b>	<b>-0.69</b>	<b>1.37</b>	<b>1.91</b>	<b>5.55</b>				<b>9/30/16</b>	<b>-0.19</b>
<b>Blackstone Strat Opp Net of Fee Return</b>	<b>1.31</b>							<b>9/30/17</b>	<b>1.31</b>
<b>Coatue Qualified Partners Net of Fee Return</b>	<b>0.63</b>	<b>7.08</b>	<b>15.12</b>	<b>25.75</b>				<b>6/30/15</b>	<b>14.01</b>
<b>Credit Suisse Net of Fee Return</b>	<b>1.54</b>	<b>3.54</b>						<b>6/30/17</b>	<b>3.54</b>
<b>Davidson Kempner LP Net of Fee Return</b>	<b>0.79</b>	<b>2.25</b>	<b>4.31</b>	<b>6.44</b>				<b>3/31/16</b>	<b>7.84</b>
<b>DSAM Fund LP Net of Fee Return</b>	<b>0.00</b>	<b>0.00</b>	<b>0.45</b>	<b>4.47</b>				<b>6/30/16</b>	<b>1.76</b>
<b>Glenview Institution Net of Fee Return</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.06</b>	<b>9.69</b>				<b>12/31/15</b>	<b>3.01</b>
<b>Gotham Neutral Strategies Net of Fee Return</b>	<b>-0.10</b>	<b>-0.58</b>	<b>-4.62</b>					<b>3/31/17</b>	<b>-4.62</b>

# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Governors Lane Onshore Net of Fee Return</b>	-1.70	-0.29	2.44					3/31/17	2.44
<b>HBK II Net of Fee Return</b>	2.09	2.54	3.65	5.27	3.02			12/31/13	3.24
<b>Karya Fund LLC Net of Fee Return</b>	9.45	12.10	12.18					3/31/17	12.18
<b>Knighthead Net of Fee Return</b>	1.06	2.45	3.22	5.76	1.00			12/31/13	2.13
<b>Libremax Capital Net of Fee Return</b>	0.00	0.00	-0.04	1.16	1.17			9/30/14	1.41
<b>Liquidalts H20 Force Net of Fee Return</b>	-1.80	0.50	3.53	2.67				9/30/16	7.69
<b>Luxor Capital Net of Fee Return</b>	5.38	10.17	13.27	25.36	1.74			3/31/14	-0.21
<b>Myriad Opportunities Net of Fee Return</b>	3.52	8.65	13.73	14.61				6/30/16	12.27
<b>PAAMCO Net of Fee Return</b>	-15.94	-15.94	-15.94	-15.94	-6.84	-0.69		9/30/11	0.27
<b>Pershing Square Net of Fee Return</b>	1.37							9/30/17	1.37



# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Pine River</b>									
<b>Net of Fee Return</b>	<b>-0.51</b>	<b>0.84</b>	<b>0.11</b>	<b>-0.36</b>	<b>0.12</b>			<b>6/30/14</b>	<b>0.58</b>
<b>PRISMA Capital</b>									
<b>Net of Fee Return</b>	<b>1.20</b>	<b>2.95</b>	<b>3.14</b>	<b>4.20</b>	<b>1.93</b>	<b>3.73</b>		<b>9/30/11</b>	<b>3.74</b>
<b>Prudential Fund I</b>									
<b>Net of Fee Return</b>	<b>-0.03</b>	<b>0.99</b>	<b>4.26</b>					<b>3/31/17</b>	<b>4.26</b>
<b>Scopia</b>									
<b>Net of Fee Return</b>	<b>0.02</b>	<b>5.80</b>	<b>3.90</b>	<b>3.00</b>	<b>-0.23</b>			<b>12/31/14</b>	<b>-0.23</b>
<b>SRS Partners US</b>									
<b>Net of Fee Return</b>	<b>3.00</b>							<b>9/30/17</b>	<b>3.00</b>
<b>Senator LP</b>									
<b>Net of Fee Return</b>	<b>2.62</b>	<b>6.39</b>	<b>9.93</b>	<b>13.62</b>				<b>9/30/16</b>	<b>10.65</b>
<b>Systematica Blue Matrix</b>									
<b>Net of Fee Return</b>	<b>0.76</b>	<b>6.47</b>	<b>5.28</b>					<b>3/31/17</b>	<b>5.28</b>
<b>Tide Point Partners</b>									
<b>Net of Fee Return</b>	<b>7.67</b>	<b>10.14</b>	<b>1.15</b>					<b>3/31/17</b>	<b>1.15</b>
<b>Tourbillon Global Equity</b>									
<b>Net of Fee Return</b>	<b>-9.11</b>	<b>-10.20</b>	<b>-11.73</b>	<b>-12.54</b>				<b>12/31/15</b>	<b>-11.16</b>
<b>Tricadia Select</b>									
<b>Net of Fee Return</b>	<b>-4.00</b>							<b>9/30/17</b>	<b>-4.00</b>

# PERFORMANCE COMPARISON

## Trailing Returns

*Periods Ended December 31, 2017*

	Quarter	2 Quarters	3 Quarters	1 Year	3 Years	5 Years	10 Years	Incept Date	Incept Ret
<b>Absolute Return Composite</b>									
<b>Net of Fee Return</b>	<b>1.31</b>	<b>3.33</b>	<b>3.79</b>	<b>5.37</b>	<b>2.25</b>	<b>4.66</b>		<b>3/31/10</b>	<b>4.14</b>
HFRI FOF Div (1 Month Lag)	1.41	3.27	4.20	7.07	2.11	3.90		3/31/10	3.00
Value Added	-0.11	0.06	-0.41	-1.70	0.14	0.76		3/31/10	1.14

# CUSTOM BENCHMARK SPECIFICATION

Absolute Return Composite

*December 31, 2017*

	Quarter Start	Quarter End	Percent	Description
HFRI FOF Div (1 Month Lag)	6/10	12/17	100.00	HFRI FOF Div (1 Month Lag)