

**Oklahoma Police Pension & Retirement System**

***Investment Performance Review***

*September 30, 2017*



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**Market Overview**

## Global Long-Only Equity

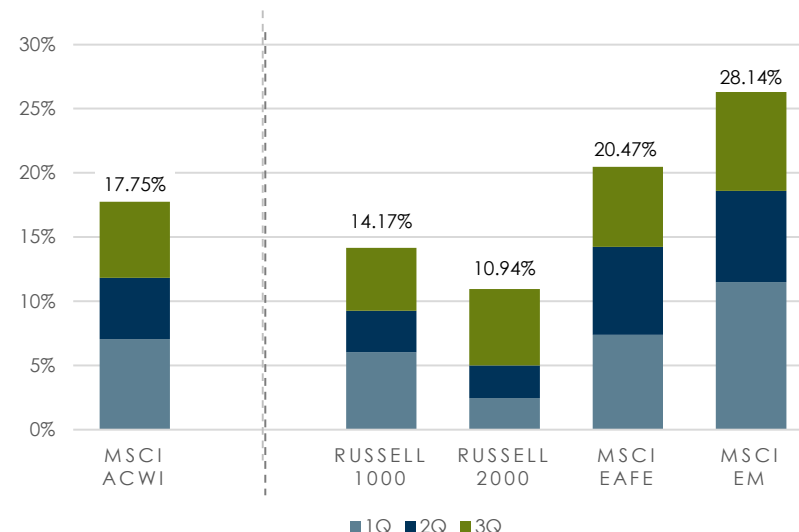
Equity markets continued to experience **strong positive performance** in 3Q-17 as accommodative monetary policy, potential fiscal stimulus, optimistic sentiment, and company earnings growth help sustain the current **global economic expansion** despite bellicose geopolitical events, contentious elections, and devastating natural disasters.

Domestic Large Cap indices were positive for the quarter. However, the performance was not as robust as seen in 1Q-17 and the drastic **outperformance of Growth over Value** stocks was not as pronounced in 3Q as it was in the first half or 2017.

Domestic **Small Cap sentiment was buoyed by progress toward potentially passing Federal tax reform** measures (including lower corporate tax rates) which would aid small companies that have fewer opportunities for OUS tax sheltering and engineering. This resulted in a strong rally in performance that was **heavily weighted to the month of September**.

Both **International Developed and Emerging Markets indices continued to lead global equity performance** in the quarter. Cyclical sectors did well in Q3, as Information Technology strength continued, while Materials growth accelerated during the period. Energy names rebounded significantly in both developed and emerging geographies. Following a strong 1H, defensive sectors such as Consumer Staples and Healthcare were flat.

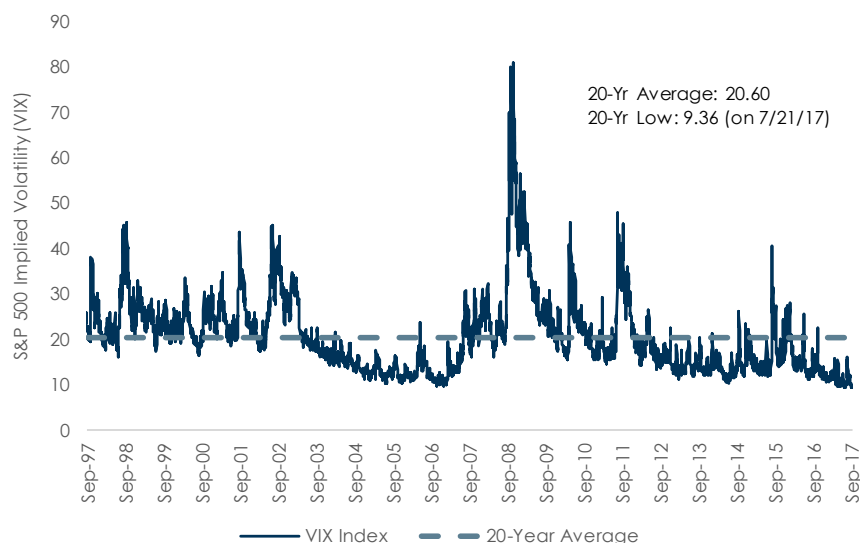
### YTD Index Returns



Sources: Bloomberg, ACG Research

## Global Long/Short Equity

### Volatility Remains Muted



Sources: Bloomberg, ACG Research

Investor complacency is high as **volatility** continues to be at **historical lows**. As measured by VIX, volatility dropped to its lowest level since 1990. Since 1990 VIX has had only 33 days of being in single digits, and 24 of those days have been in 2017. This is not expected to continue, and the **anticipation of increased volatility** has prompted managers to reduce their net exposure to below historical averages. Gross exposure has remained on the high end of historical averages, hitting near-peak levels since 2010. This low net/high gross position signifies optimism that fundamentals will matter and the gap between winners and losers will get wider (the combination of an **increase in volatility** as well as dispersion in the market provides managers the **opportunity to potentially make money on both longs and shorts**).

**Growth opportunities in Europe** have prompted equity long/short managers to continue increasing their European investments. For the first time since before 2010 the net **exposure** of managers is now **higher in Europe than in North America**. Eurozone consumer confidence remains high and we anticipate this to remain an area of opportunity for the foreseeable future.

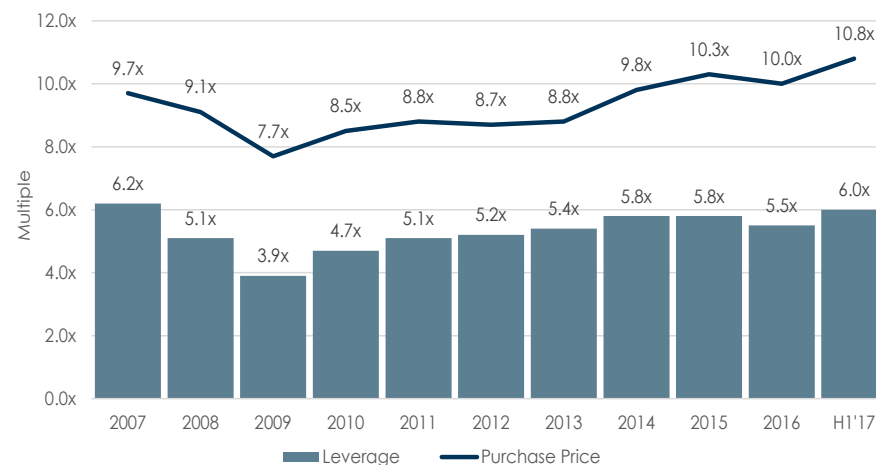
There is a positive reaction to the President's **tax reform** proposal as investors anticipate the plan will improve corporate profitability and stimulate economic growth. M&A activity has continued, especially in sectors of **health care** and **technology**, prompting managers to have increased exposure in both of these areas.

## Global Private Equity

Much like public markets, valuations remain high for new deals in private markets. The **median acquisition price for a private equity-backed company purchased in H1 2017 was 10.8x EBITDA**. This is up from 10.0x EBITDA in 2016, and higher than the transaction multiples of 2007, the end of the last buyout boom. Although purchase price multiples are a full turn higher than 2007, the composition of the price is much different today. The average buyout in 2007 was financed with 69% debt compared to the 60% debt used in buyouts completed in H1 2017. Factoring in the much lower debt servicing costs (average 3-month LIBOR was 1.1% in H1 2017 compared to 5.3% in 2007), the buyouts of 2017 should be in better position to weather a downturn than the buyouts of 2007. Still, **high purchase prices today are likely to translate into lower returns going forward**. The best managers recognize that **high multiples are unlikely to continue indefinitely and that asset selection is key to driving good investment outcomes** in this environment.

Private equity fundraising continued its torrid pace in 2Q 2017. Preqin reported that **206 private equity funds secured a final close during the quarter, raising an aggregate \$121 billion** in capital commitments. Buyout funds were particularly successful, raising \$88 billion, the largest amount of any second quarter in the last five years. Venture capital funds were less successful and saw the smallest amount of capital raised of any second quarter in the last three years (\$16 billion). Including the \$23.5 billion Apollo buyout fund that closed shortly after quarter-end, **2017 could exceed the fundraising high water mark of \$267 billion set in 2007**.

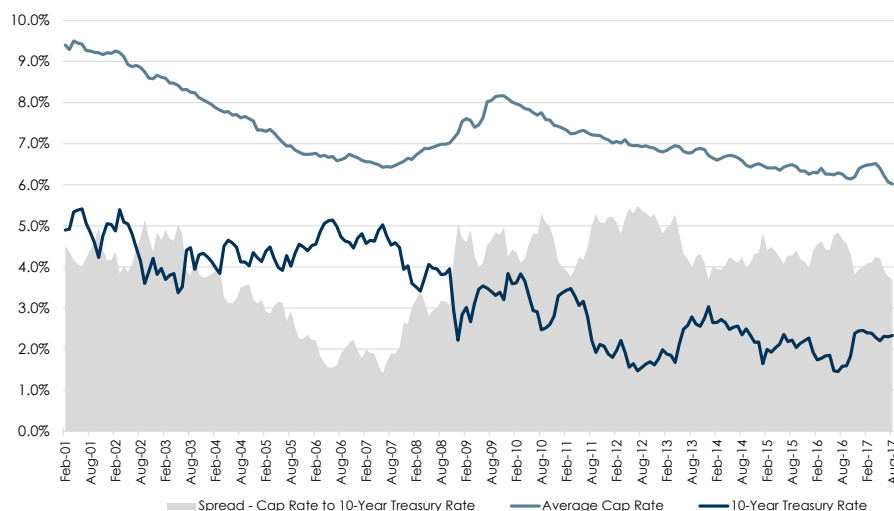
## U.S. LBO Purchase Price Multiples



Sources: S&P Capital IQ, ACG Research

## Global Real Assets

### U.S. Real Estate Cap Rate Spread to Treasuries



**Real estate assets continued their impressive streak of gains** even as many investors question whether the momentum is sustainable in the face of a rising rate environment. After a post-election rise to 2.45% at year-end, 10-year Treasuries were yielding 2.33% at the end of 3Q 2017 even as the Fed raised short-term rates twice during this period. The majority of investors view real estate as a longer-term asset class, making comparisons to 10-year rates more meaningful than comparisons to short-term rates. Fundamental indicators remain strong as **occupancy, lease rates and NOI continue to support real estate returns**. **Strong investor appetite for yield-oriented investments has driven average cap rates down 32 basis points since year-end 2016**. The current spread of 369 bps is 230 bps higher than the pre-recession low suggesting that **U.S. real estate still has room to run**.

A weakening US dollar provided a tailwind for commodities during the quarter as most commodities are priced in USD. **OPEC's production cuts have been more rigidly adhered to than most observers thought possible and global demand growth appears to remain solid**. The result is that oil prices increased 12.2% in 3Q, closing at \$51.67 per barrel. Potential supply disruptions in the Middle East could also provide support for oil prices going forward. Gold, which peaked at \$1,350 per ounce, closed the quarter at \$1,282, up 3.2% during the quarter. **Future gold prices will likely be driven by two competing forces – Fed interest rate hikes (bearish) and geopolitical volatility (bullish)**.

Sources: Bloomberg, Real Capital Analytics, ACG Research

## Global Traditional Bond Markets

The **Federal Reserve's** rate hiking campaign was put on hold in 3Q-17, with ongoing policy normalization transitioning toward quantitative tightening (QT). Beginning in October, the Fed's \$4.5 trillion stockpile of assets will begin to dwindle in accordance with a well-telegraphed schedule of reinvestment caps. As **projections still include a 25 bps hike in December along with three more in 2018**, the US Treasury market adjusted meaningfully in the final weeks of the quarter. The domestic yield curve continued to flatten, as two-year rates progressed higher even as longer-term rates stayed relatively well anchored by muted growth/inflation assumptions. Unanticipated eagerness on the part of the FOMC, or other prominent central bankers, remains a tail risk that could prompt a shift in asset prices.

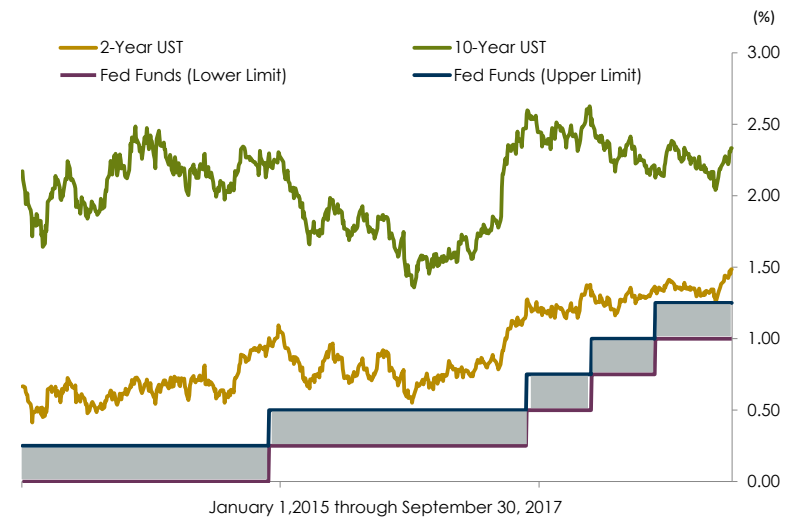
The **BloomBar Aggregate** was solidly positive during the quarter. All categories contributed, but IG corporates continue to lead as credit spreads ended at year-to-date tight.

**High Yield** encountered some resistance in August, but finished the period well as investors adopted a more risk-on posture. Spreads are now more than 60 bps tighter since the end of 2016, and careful security selection is warranted with sub-5.5% yields overall.

**Municipal Bonds** continued to pace ahead, with tax-exempt issues benefitting from steady demand and low issuance fueled by a collapse in re-financing deals. The yield ratio versus US Treasury bonds is especially rich for shorter-dated issues, and credit spreads are thin.

**Unhedged Global** government bonds outperformed domestic counterparts as the US dollar's decline aided returns. Outcomes in **Emerging Markets** remained particularly strong.

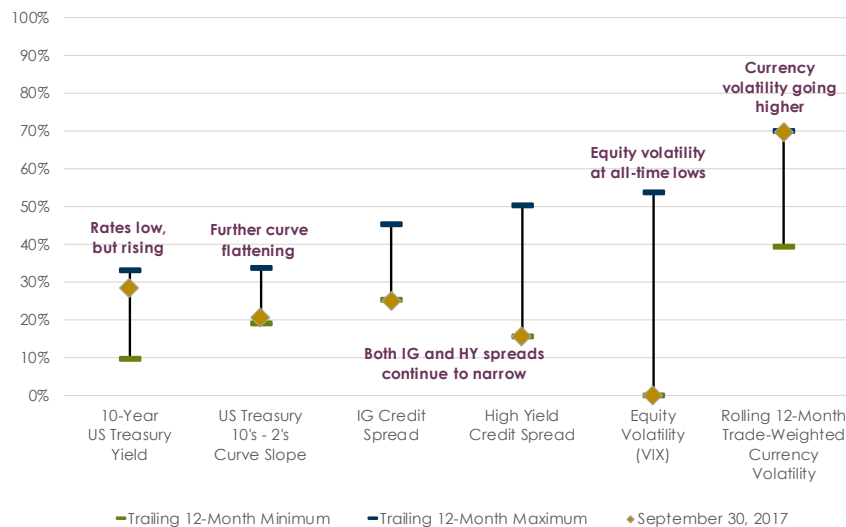
### Current Rate Hiking Cycle



Sources: Bloomberg, ACG Research

## Global Nontraditional Fixed Income

### Percentile Rankings of Observations for Past 15-Years



Sources: Bloomberg, ACG Research

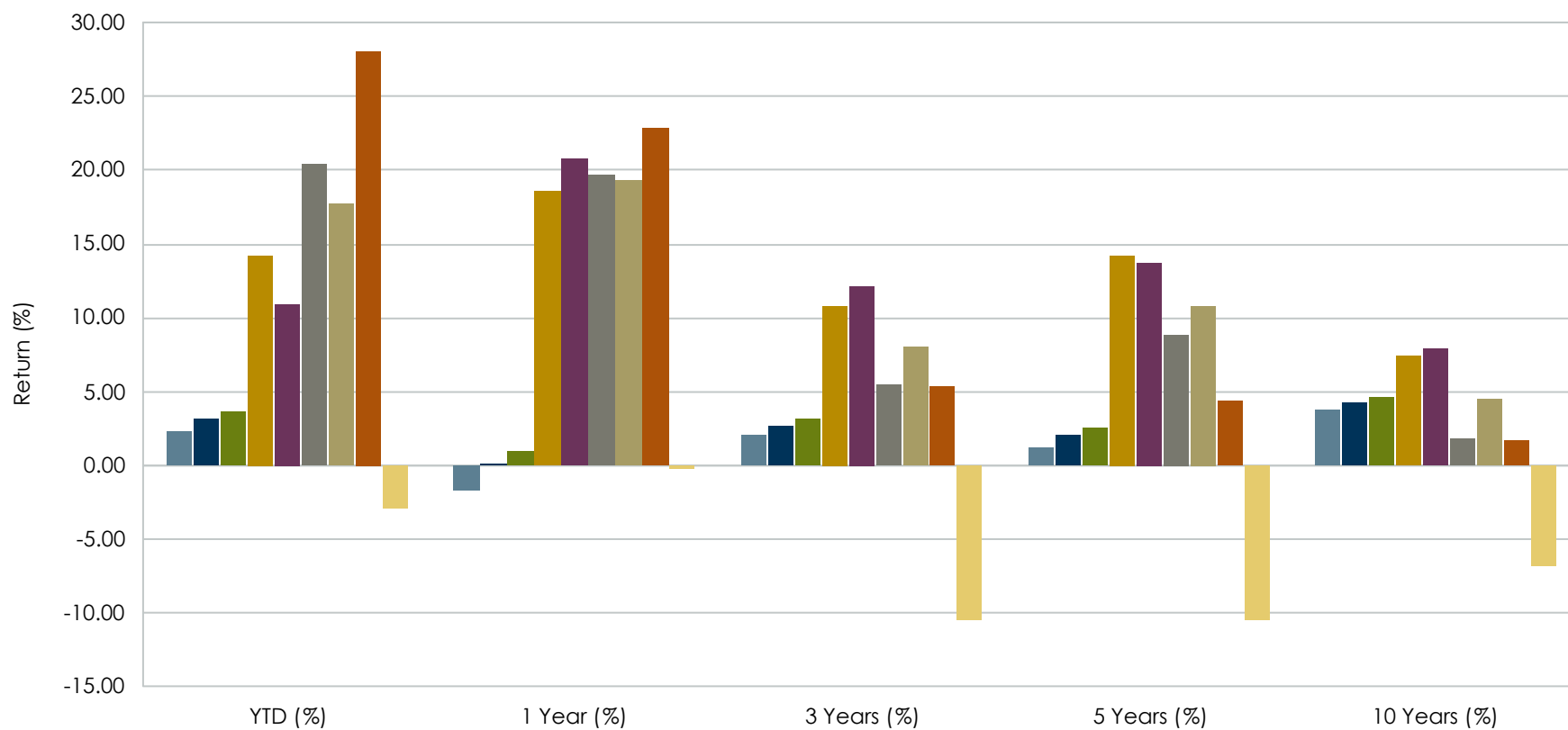
**Liquid Absolute Return** strategies collectively outperformed traditional bond benchmarks during 3Q-17, with the median manager exceeding the BloomBar Aggregate by about 30 bps. The diversification of risk factors remains valuable within portfolios, and trailing 12-month returns have been comfortably within the commonly referenced 90-Day T-Bills +3% to +6% objective. The potential for **enhanced volatility in rates, spreads, and currency should provide opportunities** for tactical managers with a wide range of implementation options.

As investors contemplate limited beta opportunities in the maturing credit cycle, **idiosyncratic alpha generation will be key**. Some credit and event managers have moved cautiously into stressed areas of retail, expressing both constructive and negative views that reflect a dispersion of situations across issuers. While idiosyncratic opportunities have so far been limited by market buoyancy, **we expect absolute return managers will find increasing opportunities in challenged sectors of the market** if valuations stretch higher. Eventually, we expect relative value trading and alpha-focused strategies to become more prominent in attribution.

**Private Credit** strategies offer the opportunity to earn both a credit spread and an illiquidity premium (typically five-ten year terms) versus publicly traded fixed income strategies. **Fundraising in the sector remains very strong**. Continuing the theme of traditional banks leaving non-core business lines, direct lending strategies enjoyed the greatest fundraising success in the quarter. Distressed strategies have not seen much opportunity as the overall default environment remains well below crisis levels. However, economic expansions historically last five years and we are eight years into the current expansion. **The proliferation of covenant-life leveraged loans, in addition to an aging economic expansion, could lead to a robust opportunity set for distressed strategies in the coming quarters.**

## Market Environment

For the Periods Ending September 30, 2017



BloomBar US Treasury	2.26
BloomBar US Aggregate	3.14
BloomBar Universal	3.67
S&P 500	14.24
Russell 2000	10.94
MSCI EAFE	20.47
MSCI ACWI	17.75
MSCI Emerging Markets	28.14
Bloomberg Commodity	-2.87

2.26
3.14
3.67
14.24
10.94
20.47
17.75
28.14
-2.87

-1.67
0.07
0.96
18.61
20.74
19.65
19.29
22.91
-0.29

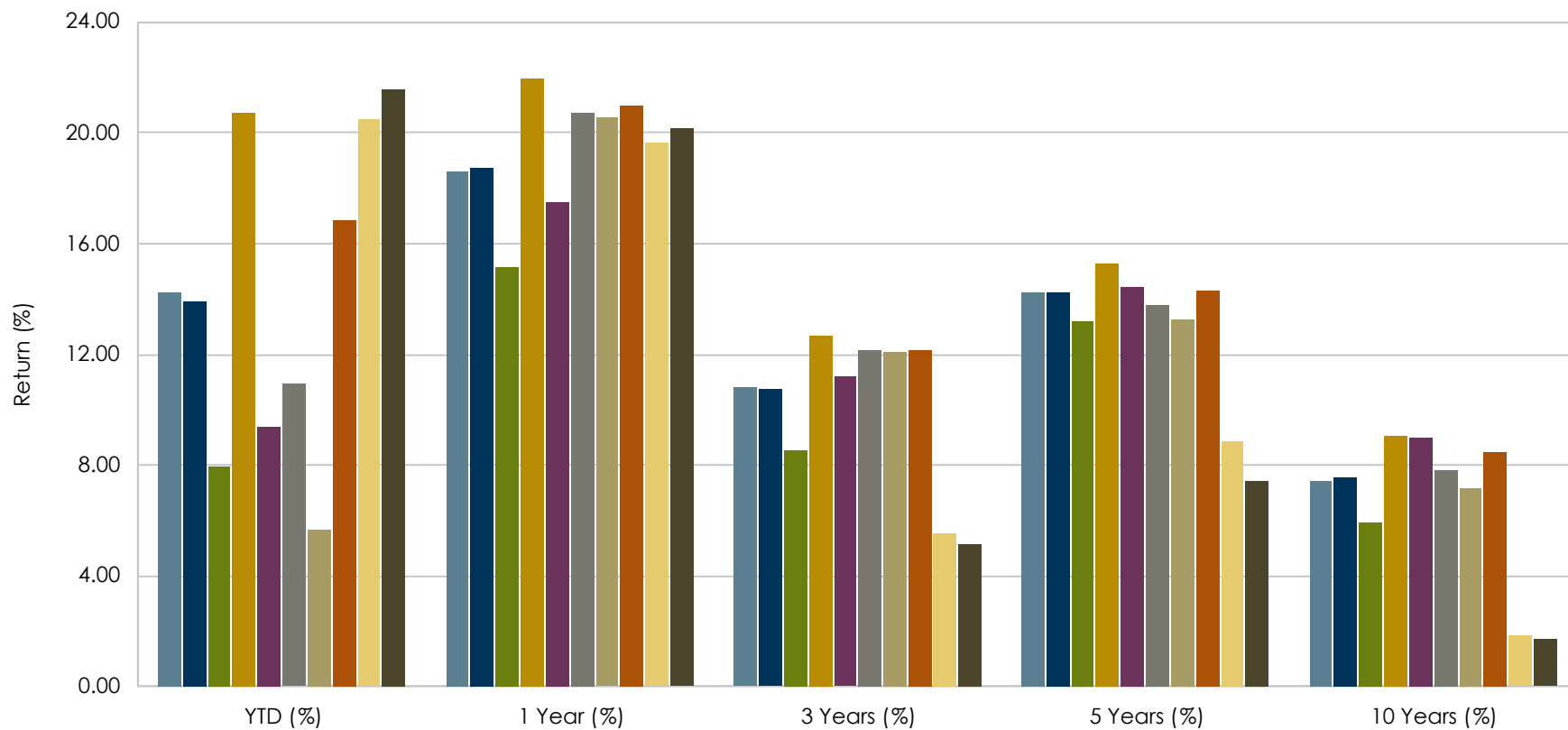
2.03
2.71
3.11
10.81
12.18
5.53
8.02
5.28
-10.41

1.24
2.06
2.53
14.22
13.79
8.87
10.79
4.36
-10.47

3.71
4.27
4.56
7.44
7.85
1.82
4.45
1.65
-6.83

## Equity Index Returns

For the Periods Ending September 30, 2017

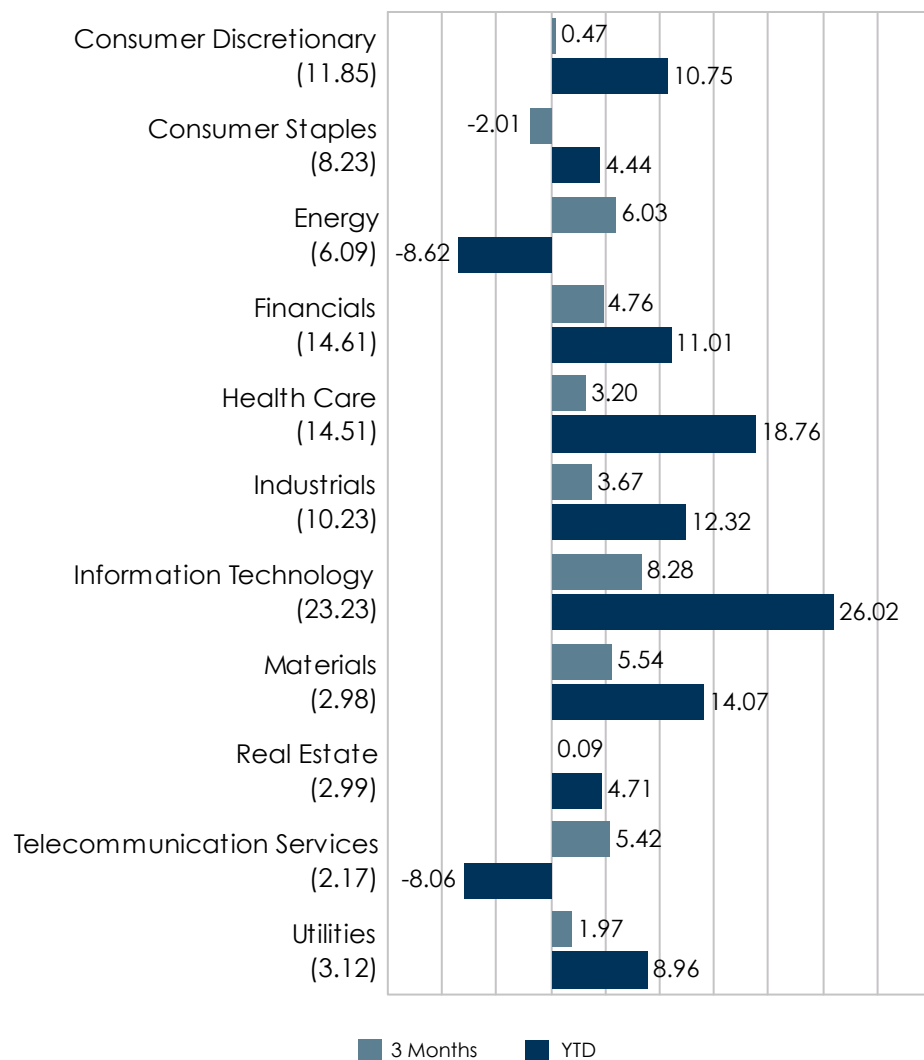


S&P 500	14.24	18.61	10.81	14.22	7.44
Russell 3000	13.91	18.71	10.74	14.23	7.57
Russell 1000 Value	7.92	15.12	8.53	13.20	5.92
Russell 1000 Growth	20.72	21.94	12.69	15.26	9.08
S&P Mid Cap 400	9.40	17.52	11.18	14.43	9.00
Russell 2000	10.94	20.74	12.18	13.79	7.85
Russell 2000 Value	5.68	20.55	12.12	13.27	7.14
Russell 2000 Growth	16.81	20.98	12.17	14.28	8.47
MSCI EAFE	20.47	19.65	5.53	8.87	1.82
MSCI ACWI ex US	21.61	20.15	5.19	7.45	1.74

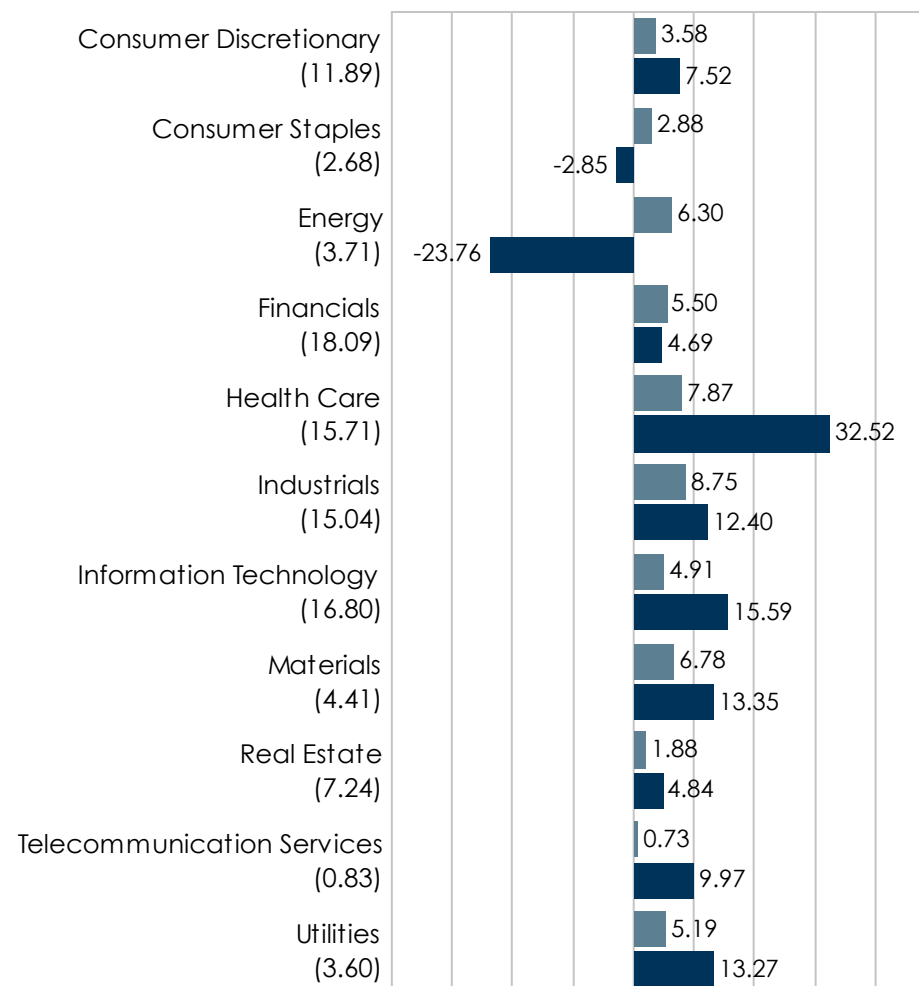
## US Markets - Performance Breakdown

For the Periods Ending September 30, 2017

### S&P 500 - Sector Returns (%)



### Russell 2000 - Sector Returns (%)

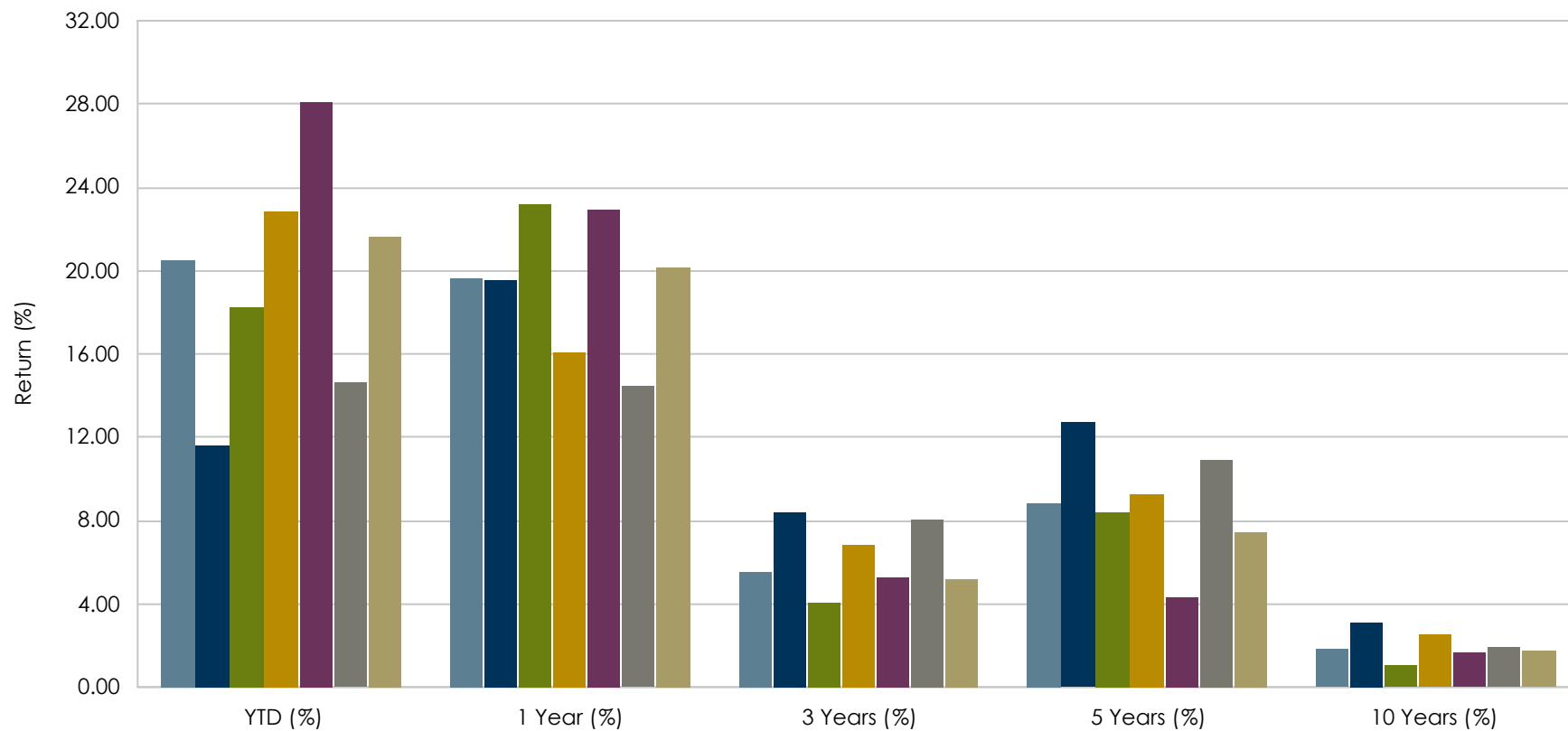


Numbers in parenthesis represent sector weightings of the index. Sector weights may not add to 100% due to rounding or securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Source: ACG Research, Bloomberg

## Non-US Equity Index Returns

For the Periods Ending September 30, 2017



MSCI EAFE	20.47
MSCI EAFE Local Currency	11.63
MSCI EAFE Value	18.23
MSCI EAFE Growth	22.86
MSCI Emerging Markets	28.14
MSCI Japan	14.63
MSCI ACWI ex US	21.61

19.65
19.57
23.22
16.11
22.91
14.46
20.15

5.53
8.37
4.07
6.89
5.28
8.10
5.19

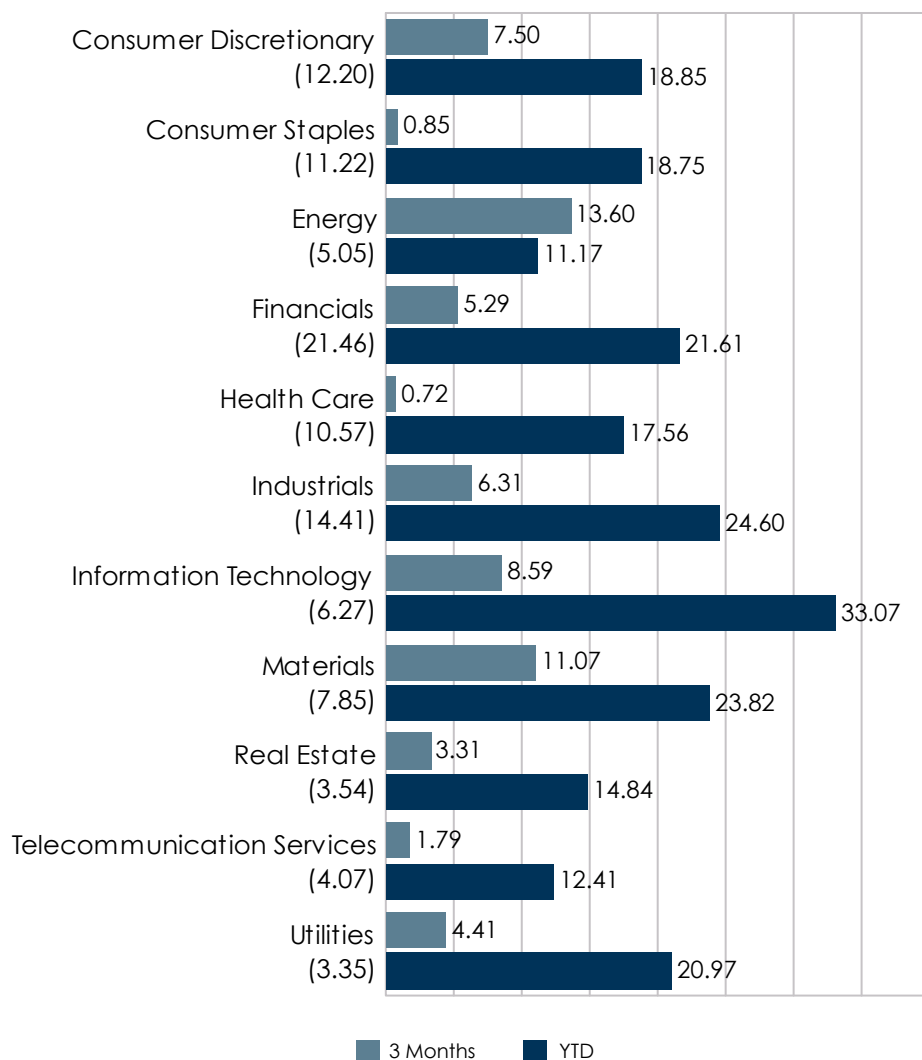
8.87
12.77
8.38
9.29
4.36
10.91
7.45

1.82
3.10
1.07
2.49
1.65
1.91
1.74

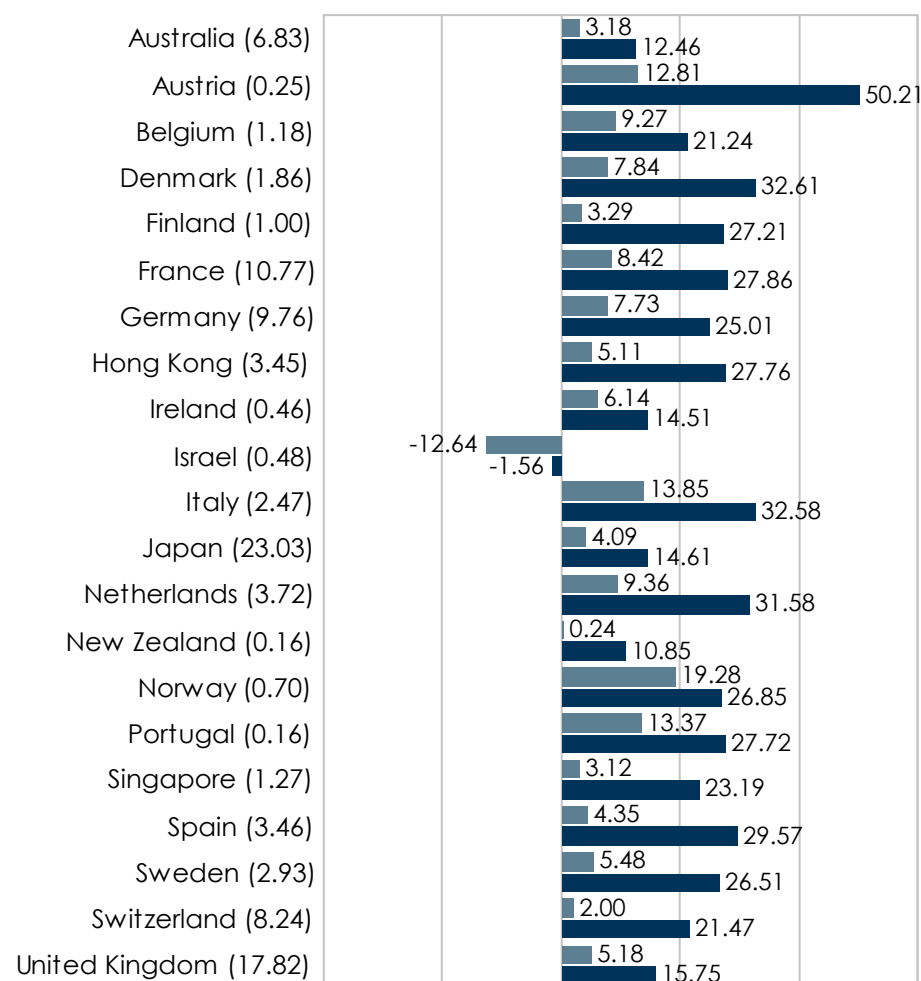
## Non-US Equity - Performance Breakdown

For the Periods Ending September 30, 2017

### MSCI EAFE - Sector Returns (%)



### MSCI EAFE - Country Returns (%)



Numbers in parenthesis represent sector or country weights of the index. Sector or country weights may not add to 100% due to rounding.

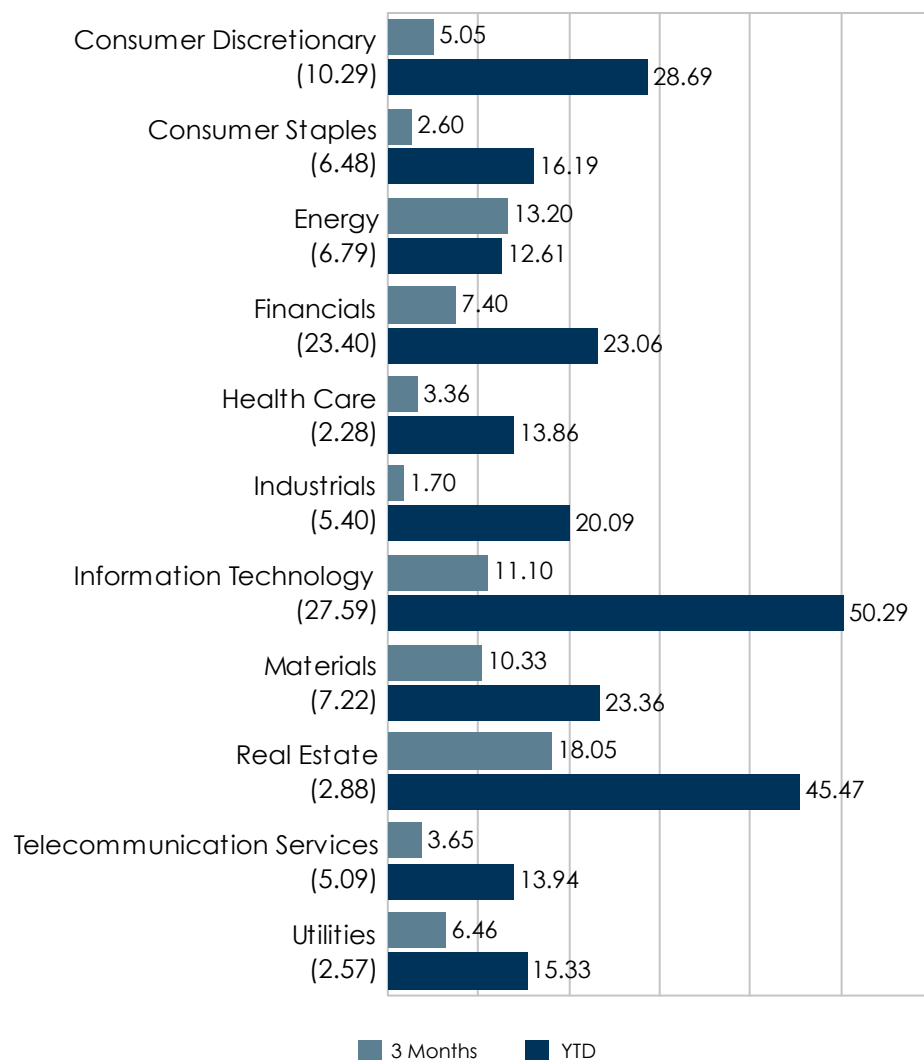
Source: ACG Research, Bloomberg

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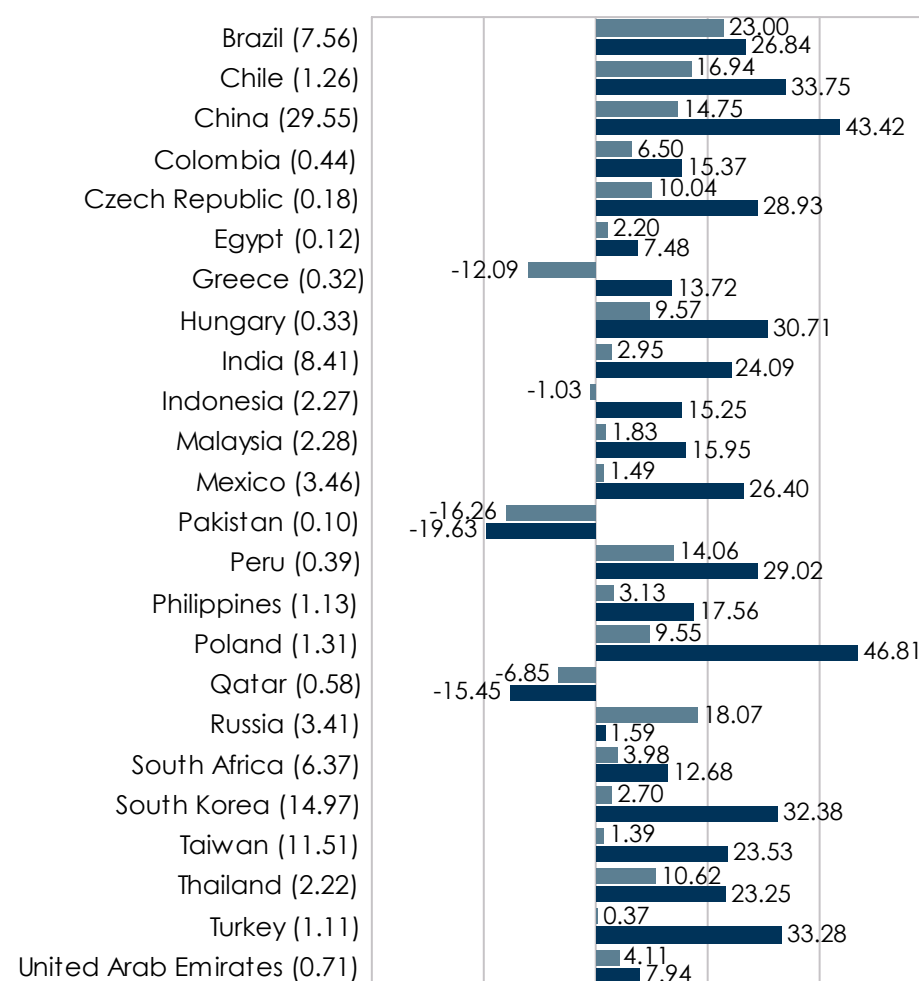
## Emerging Markets - Performance Breakdown

For the Periods Ending September 30, 2017

### MSCI Emerging Markets - Sector Returns (%)



### MSCI Emerging Markets - Country Returns (%)



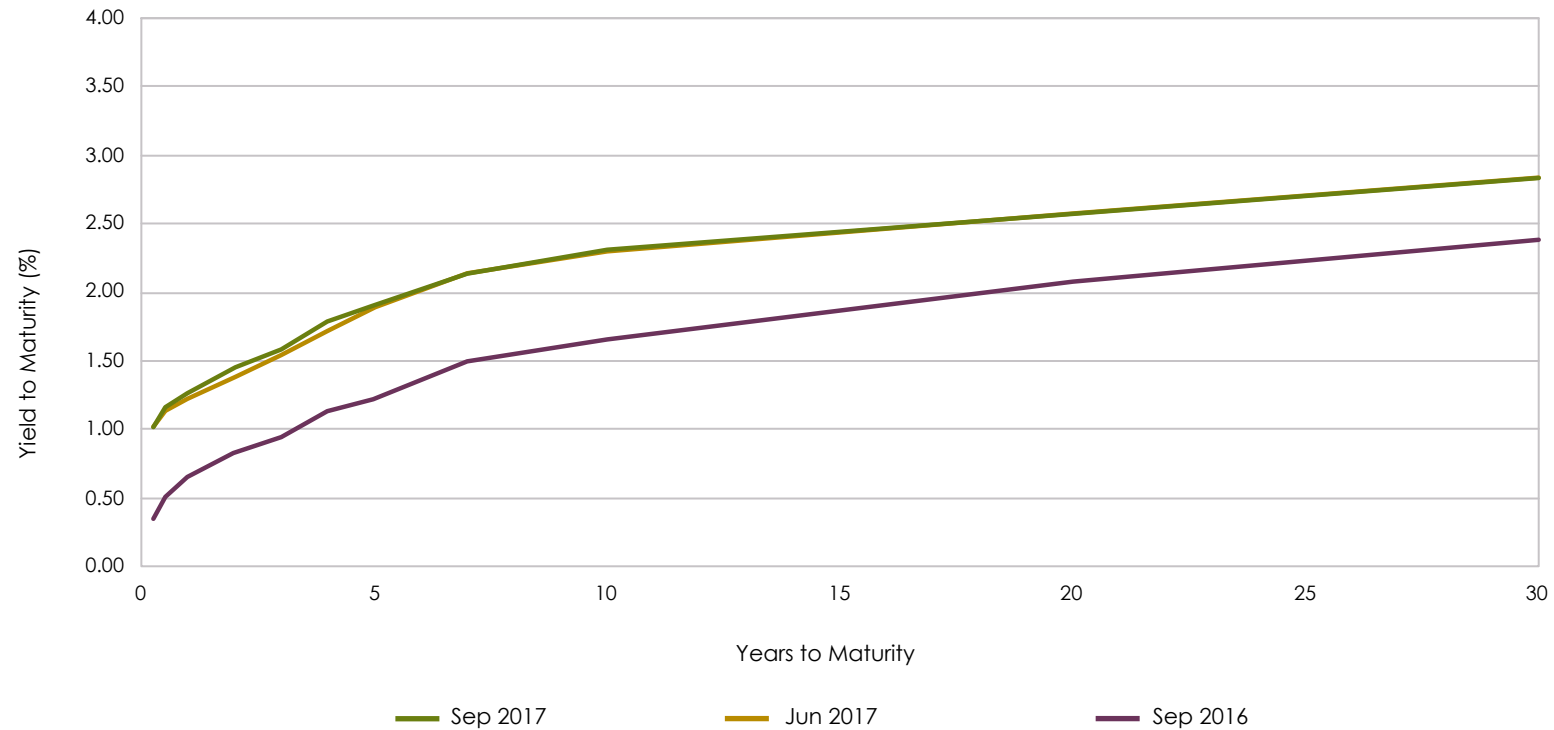
Numbers in parenthesis represent sector or country weights of the index. Sector or country weights may not add to 100% due to rounding.

Source: ACG Research, Bloomberg

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## Interest Rate Term Structure

Government Issues - 3 Months to 30 Years Maturity

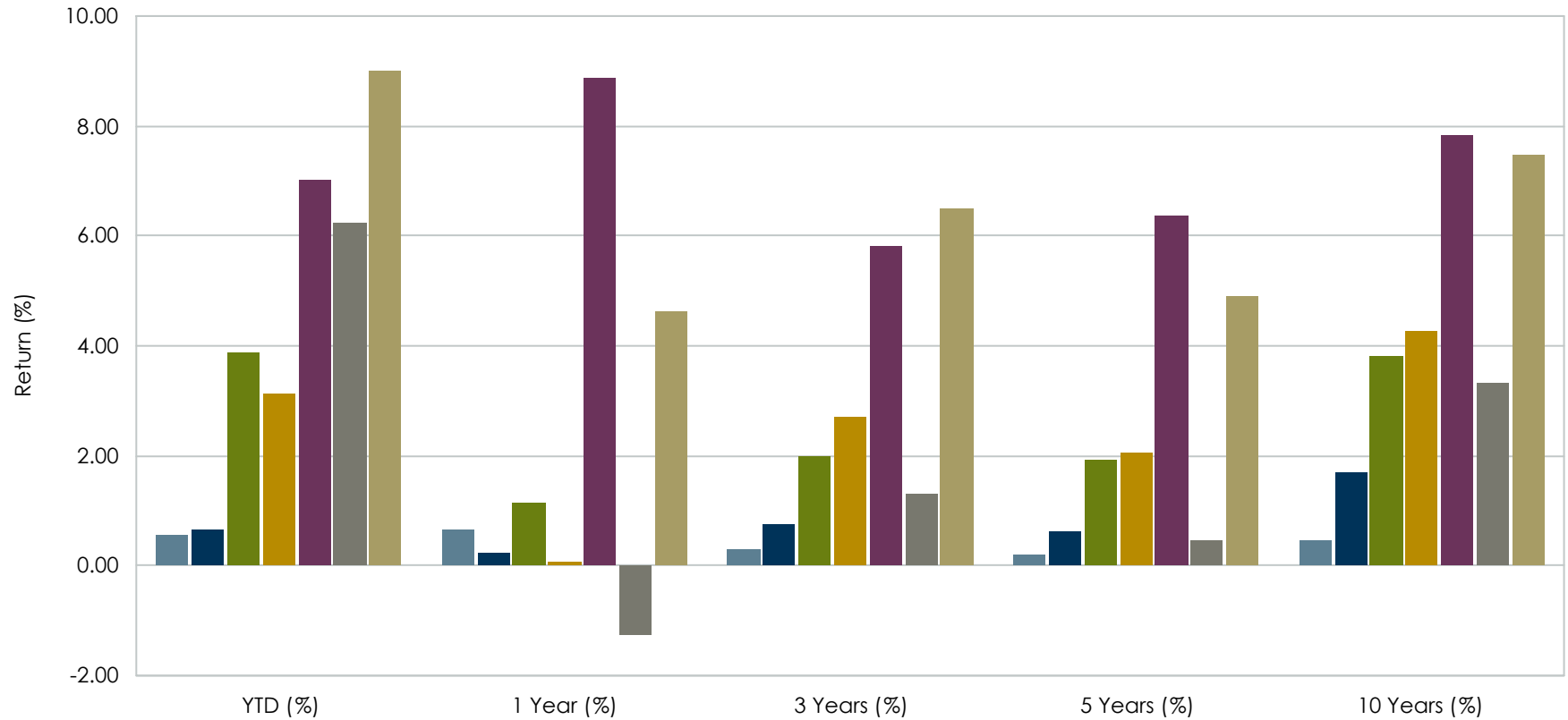


90 Days	1.05	1.01	0.28
180 Days	1.19	1.13	0.43
1 Year	1.29	1.23	0.59
2 Years	1.49	1.38	0.76
3 Years	1.62	1.55	0.88
4 Years	1.82	1.72	1.07
5 Years	1.94	1.89	1.15
7 Years	2.17	2.14	1.42
10 Years	2.33	2.30	1.60
20 Years	2.60	2.57	2.02
30 Years	2.86	2.84	2.32

Source: Bloomberg

## Fixed Income Index Returns

For the Periods Ending September 30, 2017



US T-Bills 90 Day	0.57	0.66	0.32	0.22	0.47
BofA ML 1-3 Yr Treasury	0.67	0.23	0.76	0.63	1.70
BloomBar 5 Yr Municipal	3.87	1.14	1.99	1.93	3.81
BloomBar US Aggregate	3.14	0.07	2.71	2.06	4.27
BloomBar US Corp High Yield	7.00	8.88	5.83	6.36	7.84
BloomBar Global Aggregate	6.25	-1.26	1.30	0.48	3.31
JPM EMBI Global Diversified	8.99	4.61	6.50	4.91	7.46

## US Fixed Income Market Environment

For the Periods Ending September 30, 2017

### Nominal Returns By Sector (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
US Aggregate	0.85	3.14	0.07	2.72
US Treasury	0.38	2.25	-1.68	2.02
US Agg: Gov't-Related	1.14	3.86	0.60	2.56
US Corporate IG	1.34	5.21	2.24	4.10
MBS	0.96	2.33	0.32	2.44
CMBS	0.79	2.99	-0.13	2.91
ABS	0.42	1.57	0.86	1.79
US Corp High Yield	1.98	7.01	8.90	5.84

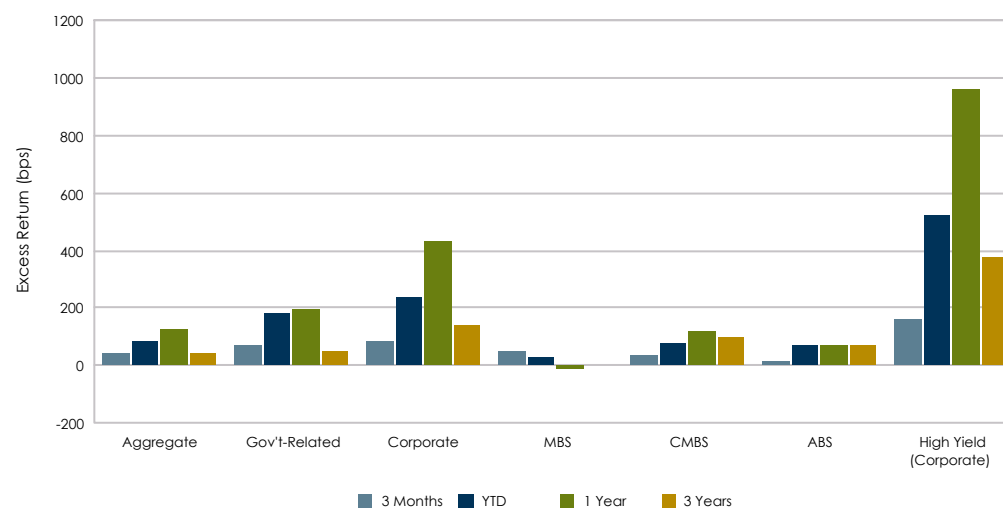
### Nominal Returns by Quality (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
AAA	0.64	2.32	-0.73	2.22
AA	0.97	3.62	0.44	3.18
A	1.26	4.78	1.44	4.07
BAA	1.63	6.14	3.23	4.09
BA	2.01	6.89	7.35	6.38
B	1.75	6.11	8.25	4.87
CAA	2.50	9.27	14.41	6.66

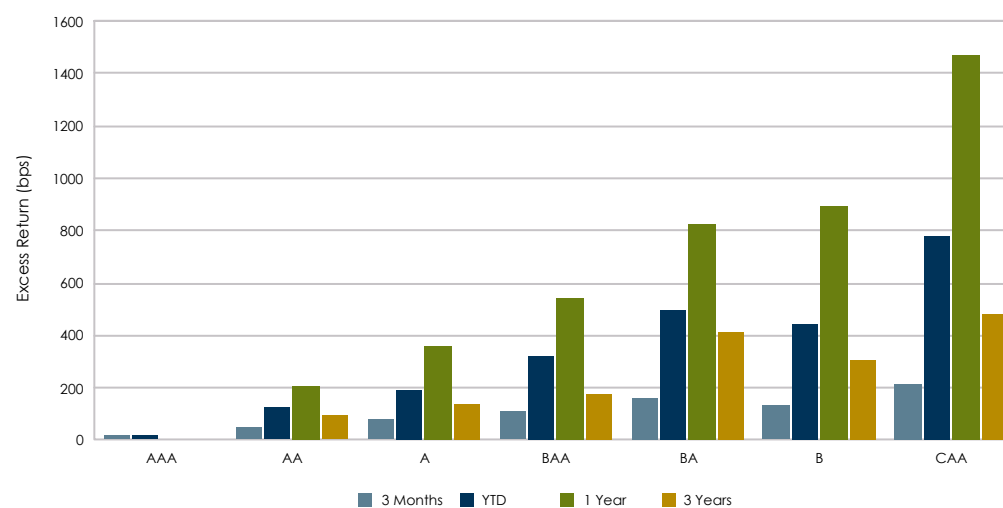
### Nominal Returns by Maturity (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
1-3 Yr.	0.34	1.06	0.69	1.08
3-5 Yr.	0.58	2.14	0.42	2.21
5-7 Yr.	0.86	2.69	0.03	2.45
7-10 Yr.	0.99	3.20	-1.24	3.00
10+ Yr.	1.52	7.43	-1.00	5.40

### Excess Returns by Sector



### Excess Returns by Quality



Source: Bloomberg

Excess returns are relative to the duration-neutral Treasury.

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## Monthly Index Returns

For the Periods Ending September 30, 2017

Index Name	3 Months (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	4.48	14.24	18.61	10.81	14.22	14.38	7.44
Russell 1000	4.48	14.17	18.54	10.63	14.27	14.35	7.55
Russell 1000 Growth	5.90	20.72	21.94	12.69	15.26	15.41	9.08
Russell 1000 Value	3.11	7.92	15.12	8.53	13.20	13.24	5.92
Russell 2500	4.74	11.00	17.79	10.60	13.86	13.66	8.19
Russell 2000	5.67	10.94	20.74	12.18	13.79	13.51	7.85
Russell 2000 Growth	6.22	16.81	20.98	12.17	14.28	14.17	8.47
Russell 2000 Value	5.11	5.68	20.55	12.12	13.27	12.80	7.14
Wilshire 5000 Cap Wtd	4.59	13.72	18.89	10.96	14.27	14.28	7.61
MSCI ACWI	5.31	17.75	19.29	8.02	10.79	9.76	4.45
MSCI ACWI ex US	6.25	21.61	20.15	5.19	7.45	5.72	1.74
MSCI EAFE	5.47	20.47	19.65	5.53	8.87	6.87	1.82
MSCI EAFE Local Currency	3.42	11.63	19.57	8.37	12.77	9.30	3.10
MSCI EAFE Growth	4.98	22.86	16.11	6.89	9.29	7.36	2.49
MSCI EAFE Value	5.95	18.23	23.22	4.07	8.38	6.31	1.07
MSCI Emerging Markets	8.04	28.14	22.91	5.28	4.36	2.90	1.65
<b>Fixed Income</b>							
BofA ML 1-3 Yr Treasury	0.23	0.67	0.23	0.76	0.63	0.70	1.70
BloomBar 5 Yr Municipal	0.68	3.87	1.14	1.98	1.93	2.58	3.81
BloomBar US Aggregate	0.85	3.14	0.07	2.71	2.06	2.95	4.27
BloomBar Gov't Bond	0.38	2.25	-1.56	2.01	1.25	2.10	3.61
BloomBar US Credit	1.35	5.08	1.96	3.87	3.23	4.38	5.54
BloomBar 10 Yr Municipal	1.06	5.28	0.77	3.42	3.18	4.13	4.98
BloomBar US Corp High Yield	1.98	7.00	8.88	5.83	6.36	7.45	7.84
Citigroup World Govt Bond	1.81	6.38	-2.69	0.88	-0.43	0.80	2.95
BloomBar Global Aggregate	1.76	6.25	-1.26	1.30	0.48	1.62	3.31
BloomBar Multiverse	1.88	6.55	-0.56	1.56	0.76	1.87	3.50
JPM EMBI Global Diversified	2.63	8.99	4.61	6.50	4.91	6.28	7.46
<b>Real Assets</b>							
NCREIF Property	1.70	5.08	6.90	9.83	10.35	11.25	6.23
NFI ODCE Net	1.64	4.72	6.69	9.83	10.56	11.47	4.08
FTSE NAREIT US Real Estate	0.94	3.67	0.67	9.86	9.69	11.38	5.83
Bloomberg Commodity	2.52	-2.87	-0.29	-10.41	-10.47	-6.82	-6.83
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.26	0.57	0.66	0.32	0.22	0.19	0.47

## Monthly Index Returns

For the Periods Ending October 31, 2017

Index Name	1 Month (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	2.33	16.91	23.63	10.77	15.18	14.14	7.51
Russell 1000	2.29	16.78	23.67	10.58	15.18	14.10	7.61
Russell 1000 Growth	3.87	25.40	29.71	13.15	16.83	15.27	9.13
Russell 1000 Value	0.73	8.70	17.78	7.99	13.48	12.88	5.99
Russell 2500	1.55	12.72	24.68	9.58	14.45	13.30	8.08
Russell 2000	0.85	11.89	27.85	10.12	14.49	13.00	7.63
Russell 2000 Growth	1.55	18.62	31.00	10.51	15.36	13.73	8.16
Russell 2000 Value	0.13	5.81	24.81	9.67	13.58	12.21	7.04
Wilshire 5000 Cap Wtd	1.96	15.94	23.72	10.67	15.12	13.97	7.62
MSCI ACWI	2.10	20.22	23.86	8.51	11.40	9.52	4.26
MSCI ACWI ex US	1.89	23.91	24.20	6.20	7.77	5.50	1.38
MSCI EAFE	1.53	22.31	24.01	6.58	9.01	6.56	1.58
MSCI EAFE Local Currency	2.97	14.95	21.67	9.54	13.16	9.48	3.16
MSCI EAFE Growth	2.28	25.66	24.09	8.01	9.69	7.20	2.32
MSCI EAFE Value	0.78	19.16	23.89	5.06	8.27	5.84	0.77
MSCI Emerging Markets	3.51	32.64	26.91	6.08	5.21	2.98	0.93
<b>Fixed Income</b>							
BofA ML 1-3 Yr Treasury	-0.06	0.62	0.24	0.65	0.63	0.66	1.66
BloomBar Municipal	0.24	4.92	2.19	3.04	3.00	3.95	4.50
BloomBar US Aggregate	0.06	3.20	0.90	2.40	2.04	2.91	4.19
BloomBar Gov't Bond	-0.11	2.13	-0.62	1.65	1.26	2.09	3.52
BloomBar US Credit	0.34	5.43	3.18	3.62	3.07	4.41	5.45
BloomBar 10 Yr Municipal	0.22	5.51	2.23	3.24	3.17	4.23	4.97
BloomBar US Corp High Yield	0.42	7.45	8.92	5.56	6.27	7.13	7.82
Citigroup World Govt Bond	--	--	--	--	--	--	--
BloomBar Global Aggregate	-0.38	5.85	1.18	1.17	0.43	1.39	3.11
BloomBar Multiverse	-0.36	6.16	1.74	1.42	0.70	1.63	3.29
<b>Real Assets</b>							
Bloomberg Commodity	2.14	-0.79	2.35	-9.54	-9.37	-7.18	-6.93
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.09	0.66	0.72	0.35	0.24	0.20	0.45

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**Total Portfolio Summary**

**Total Portfolio**

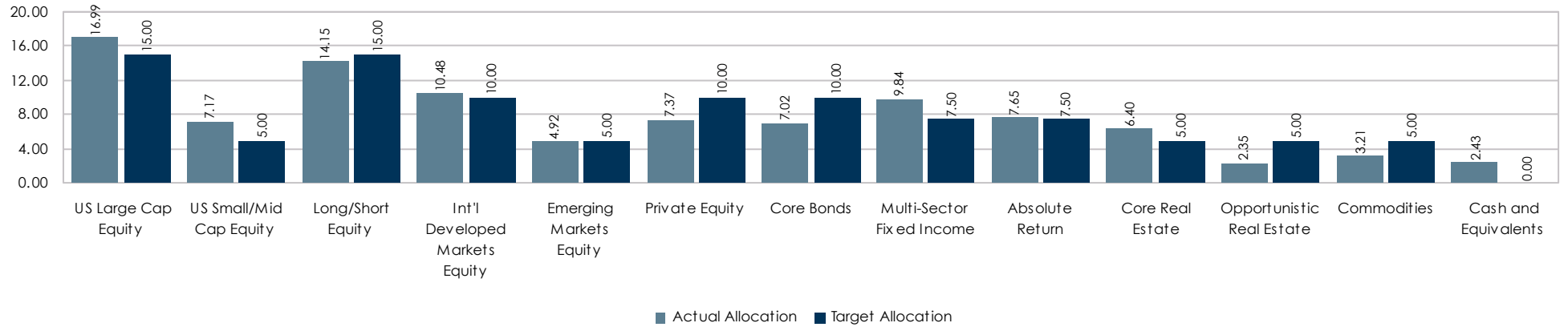
**Dollar Reconciliation (\$000s)**

*For the Periods Ending September 30, 2017*

	<b>FYTD</b>	<b>YTD</b>	<b>1 Year</b>	<b>5 Years</b>
<b>Beginning Market Value</b>	<b>2,389,563</b>	<b>2,264,618</b>	<b>2,258,137</b>	<b>1,845,606</b>
Net Additions	-18,653	-39,736	-59,055	-247,190
Return on Investment	72,385	218,412	244,212	844,879
<b>Ending Market Value</b>	<b>2,443,294</b>	<b>2,443,294</b>	<b>2,443,294</b>	<b>2,443,294</b>

## Total Portfolio

For the Period Ending September 30, 2017

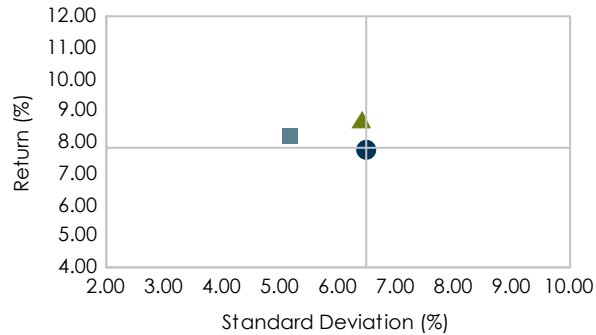


	Market Value (\$000s)	Actual Allocation (%)	Target Allocation (%)	Over/Under Target (%)	Range Min-Max (%)
<b>Total Portfolio</b>	<b>2,443,294</b>	<b>100.00</b>	<b>100.00</b>		
<b>Equity</b>	<b>1,492,602</b>	<b>61.09</b>	<b>60.00</b>	<b>1.09</b>	<b>50.00 - 70.00</b>
US Large Cap Equity	415,134	16.99	15.00	1.99	10.00 - 20.00
US Small/Mid Cap Equity	175,230	7.17	5.00	2.17	0.00 - 15.00
Long/Short Equity	345,810	14.15	15.00	-0.85	10.00 - 20.00
Int'l Developed Markets Equity	256,120	10.48	10.00	0.48	5.00 - 15.00
Emerging Markets Equity	120,211	4.92	5.00	-0.08	0.00 - 10.00
Private Equity	180,097	7.37	10.00	-2.63	5.00 - 15.00
<b>Fixed Income</b>	<b>599,078</b>	<b>24.52</b>	<b>25.00</b>	<b>-0.48</b>	<b>15.00 - 35.00</b>
Core Bonds	171,629	7.02	10.00	-2.98	7.50 - 20.00
Multi-Sector Fixed Income	240,477	9.84	7.50	2.34	5.00 - 10.00
Absolute Return	186,973	7.65	7.50	0.15	5.00 - 10.00
<b>Real Assets</b>	<b>292,201</b>	<b>11.96</b>	<b>15.00</b>	<b>-3.04</b>	<b>0.00 - 20.00</b>
Core Real Estate	156,330	6.40	5.00	1.40	0.00 - 10.00
Opportunistic Real Estate	57,492	2.35	5.00	-2.65	0.00 - 10.00
Commodities	78,379	3.21	5.00	-1.79	0.00 - 10.00
<b>Cash and Equivalents</b>	<b>59,413</b>	<b>2.43</b>	<b>0.00</b>	<b>2.43</b>	

## Oklahoma Police Pension & Retirement System

For the Periods Ending September 30, 2017

### 5 Year Risk / Return



■ Total Portfolio  
● Total Fund Policy  
▲ IF TF Between 55 - 70% Equity

### 5 Year Relative Statistics

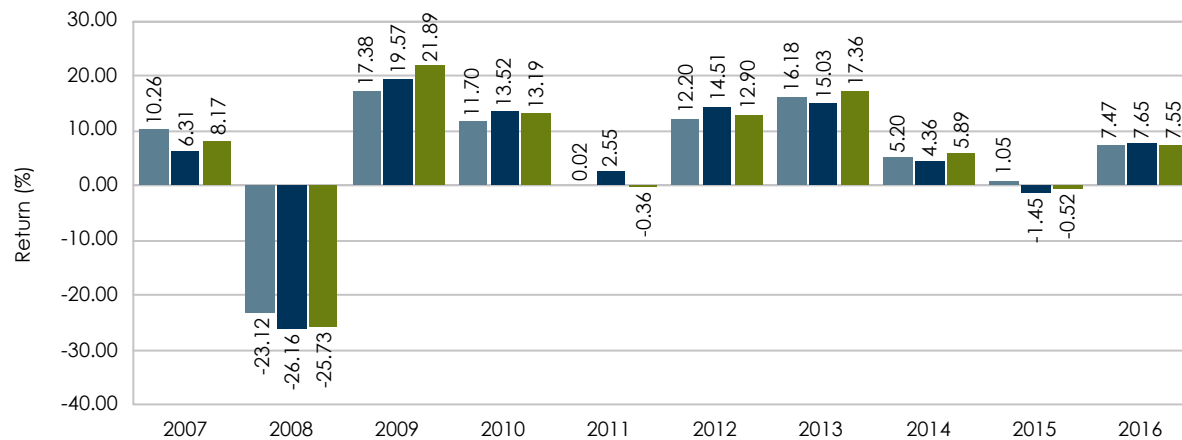
Total Fund Policy	
Beta	0.76
Up Capture (%)	85.72
Down Capture (%)	64.16

	Return (%)	Rank	Std Dev (%)	Sharpe Ratio
FYTD				
Total Portfolio	3.17	86	--	--
Total Fund Policy	3.72		--	--
IF TF Between 55 - 70% Equity	3.60		--	--

YTD				
Total Portfolio	9.83	93	--	--
Total Fund Policy	11.70		--	--
IF TF Between 55 - 70% Equity	11.87		--	--

1 Year				
Total Portfolio	11.10	87	2.78	3.77
Total Fund Policy	12.20		3.22	3.60
IF TF Between 55 - 70% Equity	12.73		3.22	3.70

### Calendar Year Returns



3 Years				
Total Portfolio	6.45	67	5.23	1.18
Total Fund Policy	5.91		6.64	0.85
IF TF Between 55 - 70% Equity	6.91		6.51	1.03

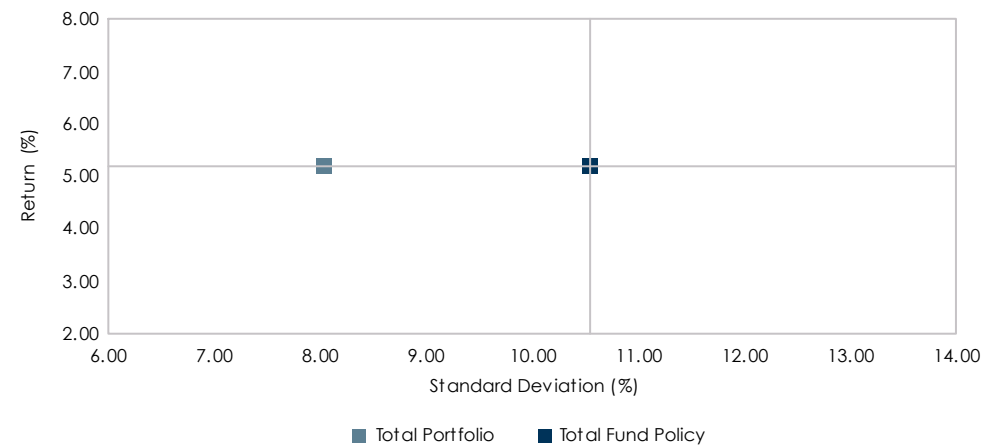
5 Years				
Total Portfolio	8.21	67	5.18	1.55
Total Fund Policy	7.78		6.47	1.18
IF TF Between 55 - 70% Equity	8.68		6.40	1.33

The rankings represent the portfolio's gross of fee returns versus a gross of fee peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

Total Portfolio

For the Periods Ending September 30, 2017

10 Year Risk / Return



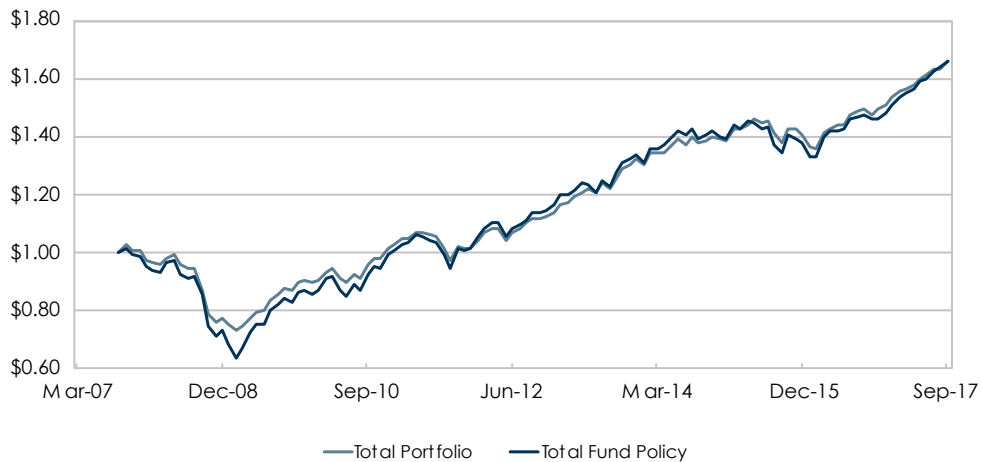
10 Year Portfolio Statistics

	Total Portfolio	Total Fund Policy
Return (%)	5.19	5.18
Standard Deviation (%)	8.03	10.54
Sharpe Ratio	0.60	0.46

Benchmark Relative Statistics

Beta	0.73
Up Capture (%)	77.18
Down Capture (%)	73.06

10 Year Growth of a Dollar

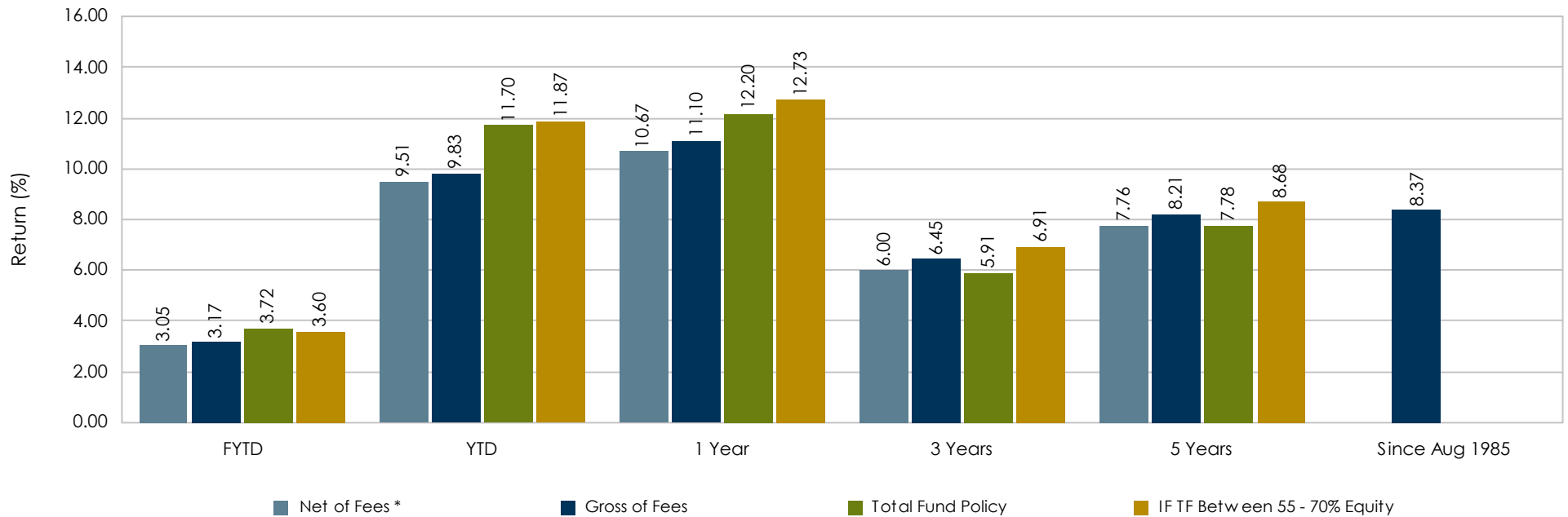


10 Year Return Analysis

	Total Portfolio	Total Fund Policy
Number of Months	120	120
Highest Monthly Return (%)	5.31	7.47
Lowest Monthly Return (%)	-9.92	-12.85
Number of Positive Months	79	73
Number of Negative Months	41	47
% of Positive Months	65.83	60.83

### Total Portfolio

For the Periods Ending September 30, 2017



Ranking	86	93	87	67	67
5th Percentile	4.28	14.59	15.25	8.42	10.30
25th Percentile	3.88	13.03	13.70	7.51	9.41
50th Percentile	3.60	11.87	12.73	6.91	8.68
75th Percentile	3.32	10.84	11.74	6.13	7.87
95th Percentile	2.90	9.41	10.27	4.84	6.38
Observations	599	594	578	524	470

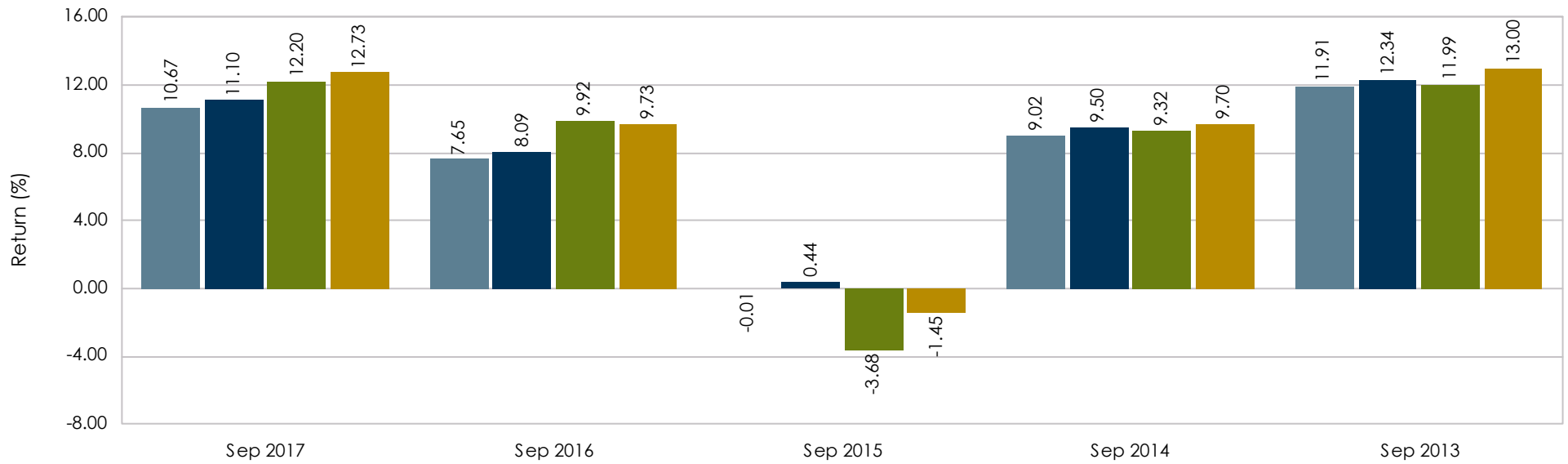
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

\* Performance is calculated using net of fee returns.

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## Total Portfolio

For the One Year Periods Ending September



	Net of Fees *	Gross Of Fees	Total Fund Policy	IF TF Between 55 - 70% Equity
Ranking	87	86	18	54
5th Percentile	15.25	12.34	1.62	12.47
25th Percentile	13.70	10.50	-0.12	10.63
50th Percentile	12.73	9.73	-1.45	9.70
75th Percentile	11.74	8.83	-3.13	8.62
95th Percentile	10.27	7.13	-6.27	7.06
Observations	578	601	492	465

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending September 30, 2017

	Market Value (\$000s)	Actual Allocation (%)	FYTD (%)	Rank	YTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Total Portfolio * (06/05) <sup>1</sup></b>	<b>2,443,294</b>	<b>100.00</b>	<b>3.05</b>		<b>9.51</b>		<b>10.67</b>		<b>6.00</b>		<b>7.76</b>		<b>4.86</b>
<b>Total Portfolio (08/85)</b>			<b>3.17</b>	<b>86</b>	<b>9.83</b>	<b>93</b>	<b>11.10</b>	<b>87</b>	<b>6.45</b>	<b>67</b>	<b>8.21</b>	<b>67</b>	<b>5.19</b>
<i>Total Fund Policy <sup>2</sup></i>			3.72		11.70		12.20		5.91		7.78		5.18
<i>IF TF Between 55 - 70% Equity</i>			3.60		11.87		12.73		6.91		8.68		5.57
<b>Equity (01/98)</b>	<b>1,492,602</b>	<b>61.09</b>	<b>4.59</b>		<b>13.90</b>		<b>15.96</b>		<b>8.62</b>		<b>10.70</b>		<b>5.58</b>
<i>MSCI ACWI</i>			5.31		17.75		19.29		8.02		10.79		4.45
<b>US Large Cap Equity</b>	<b>415,134</b>	<b>16.99</b>											
<b>Northern Trust Russell 1000 Index (08/98) <sup>3</sup></b>	<b>415,134</b>	<b>16.99</b>	<b>4.48</b>	<b>53</b>	<b>14.16</b>	<b>48</b>	<b>18.54</b>	<b>50</b>	<b>10.64</b>	<b>40</b>	<b>14.28</b>	<b>40</b>	<b>7.57</b>
<i>Russell 1000</i>			4.48		14.17		18.54		10.63		14.27		7.55
<i>eA US Large Cap Core Equity</i>			4.56		13.94		18.49		10.27		13.93		7.87
<b>US Small/Mid Cap Equity</b>	<b>175,230</b>	<b>7.17</b>											
<b>Boston Partners (01/98)</b>	<b>87,899</b>	<b>3.60</b>	<b>3.90</b>	<b>37 / 75</b>	<b>8.42</b>	<b>61 / 32</b>	<b>20.00</b>	<b>24 / 53</b>	<b>11.50</b>	<b>25 / 61</b>	<b>14.37</b>	<b>57 / 56</b>	<b>9.74</b>
<i>Russell 2500 Value</i>			3.83		5.86		15.75		9.94		13.25		7.59
<i>eA US Mid Cap Value Equity</i>			3.50		9.07		16.39		10.06		14.73		8.70
<i>eA US Small Cap Value Equity</i>			5.18		6.98		20.34		11.93		14.73		9.00
<b>Cortina (02/14)</b>	<b>87,330</b>	<b>3.57</b>	<b>3.06</b>	<b>92</b>	<b>14.22</b>	<b>78</b>	<b>21.73</b>	<b>53</b>	<b>12.72</b>	<b>49</b>	<b>--</b>		<b>--</b>
<i>Russell 2000 Growth</i>			6.22		16.81		20.98		12.17		14.28		8.47
<i>eA US Small Cap Growth Equity</i>			6.11		18.61		21.79		12.67		14.68		8.80
<b>Long/Short Equity</b>	<b>345,810</b>	<b>14.15</b>											
<b>Grosvenor Long/Short Equity (11/03)</b>	<b>345,810</b>	<b>14.15</b>	<b>3.15</b>		<b>9.46</b>		<b>10.27</b>		<b>5.69</b>		<b>7.58</b>		<b>3.55</b>
<i>MSCI ACWI</i>			5.31		17.75		19.29		8.02		10.79		4.45
<i>HFRI FOF: Strategic</i>			2.92		8.65		8.91		2.92		4.55		1.05

FYTD: Fiscal year ending June.

\* Net of fee return data.

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## Rates of Return Summary & Universe Rankings

For the Periods Ending September 30, 2017

	Market Value (\$000s)	Actual Allocation (%)	FYTD (%)	Rank	YTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>International Developed Market</b>	<b>256,120</b>	<b>10.48</b>											
<b>Mondrian International (05/04)</b>	<b>138,905</b>	<b>5.69</b>	<b>5.59</b>	<b>53</b>	<b>18.33</b>	<b>70</b>	<b>17.83</b>	<b>67</b>	<b>4.51</b>	<b>78</b>	<b>8.53</b>	<b>66</b>	<b>2.14</b>
MSCI EAFE			5.47		20.47		19.65		5.53		8.87		1.82
eA EAFE All Cap Value Equity			5.68		20.17		19.98		6.78		9.78		3.20
<b>Baring Focused International (03/12)</b>	<b>117,215</b>	<b>4.80</b>	<b>5.28</b>	<b>65</b>	<b>22.87</b>	<b>37</b>	<b>18.11</b>	<b>64</b>	<b>8.88</b>	<b>24</b>	<b>7.50</b>	<b>95</b>	<b>--</b>
MSCI EAFE			5.47		20.47		19.65		5.53		8.87		1.82
eA EAFE All Cap Equity			5.92		21.66		19.65		7.19		9.85		2.94
<b>Emerging Markets Equity</b>	<b>120,211</b>	<b>4.92</b>											
<b>Wasatch Emerging Markets (09/12)</b>	<b>36,108</b>	<b>1.48</b>	<b>7.32</b>	<b>59</b>	<b>29.18</b>	<b>43</b>	<b>13.17</b>	<b>93</b>	<b>4.13</b>	<b>81</b>	<b>4.31</b>	<b>79</b>	<b>--</b>
MSCI EM SC			5.78		22.81		15.22		3.43		4.90		2.03
eA Global Emerging Mkts Equity			7.84		28.27		22.67		6.10		5.71		2.83
<b>AB EM Strategic Core Equity Fund (11/16)</b>	<b>84,103</b>	<b>3.44</b>	<b>6.63</b>	<b>68</b>	<b>27.62</b>	<b>58</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MSCI Emerging Markets			8.04		28.14		22.91		5.28		4.36		1.65
eA Global Emerging Mkts Equity			7.84		28.27		22.67		6.10		5.71		2.83
<b>Private Equity (07/03)</b>	<b>180,097</b>	<b>7.37</b>	<b>3.05</b>		<b>5.91</b>		<b>8.16</b>		<b>8.72</b>		<b>9.91</b>		<b>8.30</b>
<b>Fixed Income (01/98)</b>	<b>599,078</b>	<b>24.52</b>	<b>1.29</b>		<b>4.73</b>		<b>2.90</b>		<b>2.46</b>		<b>3.51</b>		<b>4.50</b>
BloomBar Universal			1.01		3.67		0.96		3.11		2.53		4.56
<b>Core Bonds</b>	<b>171,629</b>	<b>7.02</b>											
<b>Agincourt Core Fixed Income (10/99)</b>	<b>171,629</b>	<b>7.02</b>	<b>0.98</b>	<b>33</b>	<b>3.54</b>	<b>43</b>	<b>0.70</b>	<b>43</b>	<b>3.13</b>	<b>44</b>	<b>2.52</b>	<b>48</b>	<b>4.71</b>
BloomBar US Aggregate			0.85		3.14		0.07		2.71		2.06		4.27
eA US Core Fixed Income			0.92		3.48		0.62		3.08		2.50		4.88

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending September 30, 2017

	Market Value (\$000s)	Actual Allocation (%)	FYTD (%)	Rank	YTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Multi Sector Fixed Income</b>	<b>240,477</b>	<b>9.84</b>											
<b>Oaktree Capital Management (02/98)</b>	<b>122,632</b>	<b>5.02</b>	<b>1.86</b>		<b>6.39</b>		<b>8.59</b>		<b>5.65</b>		<b>6.38</b>		<b>6.98</b>
BloomBar US Aggregate			0.85		3.14		0.07		2.71		2.06		4.27
<b>Loomis Sayles (06/08)</b>	<b>97,253</b>	<b>3.98</b>	<b>2.57</b>	<b>34</b>	<b>8.77</b>	<b>33</b>	<b>0.00</b>	<b>86</b>	<b>1.97</b>	<b>58</b>	<b>0.83</b>	<b>75</b>	--
Citigroup World Govt Bond			1.81		6.38		-2.69		0.88		-0.43		2.95
eA All Global Fixed Income			2.03		7.09		4.17		2.56		2.97		4.37
<b>Private Credit (10/16)</b>	<b>20,591</b>	<b>0.84</b>	<b>3.89</b>		<b>9.02</b>		<b>7.91</b>		--		--		--
<b>Absolute Return</b>	<b>186,973</b>	<b>7.65</b>											
<b>PAAMCO (10/02)</b>	<b>127,060</b>	<b>5.20</b>	<b>0.38</b>		<b>3.42</b>		<b>4.80</b>		<b>0.89</b>		<b>4.57</b>		<b>2.70</b>
BloomBar US Aggregate			0.85		3.14		0.07		2.71		2.06		4.27
HFRI FOF: Conservative			1.19		2.83		4.52		1.77		3.49		0.96
<b>Wellington Global Total Return (12/16)</b>	<b>59,913</b>	<b>2.45</b>	<b>0.12</b>	<b>98</b>	<b>0.23</b>	<b>98</b>	--		--		--		--
LIBOR 3 Month			0.32		0.85		1.07		0.63		0.48		0.81
eA Global Unconstrained Fixed Income			1.90		5.95		5.60		2.43		2.70		3.82
<b>Real Assets (01/98)</b>	<b>292,201</b>	<b>11.96</b>	<b>1.53</b>		<b>3.42</b>		<b>6.83</b>		<b>4.60</b>		<b>6.72</b>		<b>4.16</b>
Real Assets Blended Index <sup>4</sup>			1.94		2.19		4.38		-0.31		3.26		0.58
<b>Core Real Estate</b>	<b>156,330</b>	<b>6.40</b>											
<b>JP Morgan Strategic Property (12/07)</b>	<b>117,637</b>	<b>4.81</b>	<b>1.72</b>		<b>5.31</b>		<b>7.58</b>		<b>10.55</b>		<b>11.73</b>		--
NFI ODCE Net			1.64		4.72		6.69		9.83		10.56		4.08
NCREIF Property			1.70		5.08		6.90		9.83		10.35		6.23
<b>Blackstone Property Partners (01/15)</b>	<b>38,694</b>	<b>1.58</b>	<b>2.20</b>		<b>7.41</b>		<b>11.39</b>		--		--		--
NFI ODCE Net			1.64		4.72		6.69		9.83		10.56		4.08
NCREIF Property			1.70		5.08		6.90		9.83		10.35		6.23

## Rates of Return Summary & Universe Rankings

For the Periods Ending September 30, 2017

	Market Value (\$000s)	Actual Allocation (%)	FYTD (%)	Rank	YTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Opportunistic Real Estate</b>	<b>57,492</b>	<b>2.35</b>											
<b>Private Real Estate (08/11)</b>	<b>52,884</b>	<b>2.16</b>	<b>-0.18</b>		<b>6.04</b>		<b>7.01</b>		<b>10.79</b>		<b>10.57</b>		<b>--</b>
<b>Private Real Estate Direct</b>													
<b>Columbus Square (01/98)</b>	<b>4,608</b>	<b>0.19</b>	<b>1.92</b>		<b>9.08</b>		<b>11.24</b>		<b>9.76</b>		<b>9.01</b>		<b>11.73</b>
NCREIF Property			1.70		5.08		6.90		9.83		10.35		6.23
NFI ODCE Net			1.64		4.72		6.69		9.83		10.56		4.08
<b>Commodities</b>	<b>78,379</b>	<b>3.21</b>											
<b>Mount Lucas Peak Partners (01/98)</b>	<b>29,215</b>	<b>1.20</b>	<b>-0.93</b>		<b>-5.76</b>		<b>4.36</b>		<b>1.84</b>		<b>5.47</b>		<b>4.33</b>
CS Hedge - Global Macro			1.83		0.26		4.86		1.48		2.53		4.82
<b>Gresham Tap Fund (08/14)</b>	<b>49,164</b>	<b>2.01</b>	<b>3.95</b>		<b>-1.44</b>		<b>2.63</b>		<b>-10.99</b>		<b>--</b>		<b>--</b>
Bloomberg Commodity			2.52		-2.87		-0.29		-10.41		-10.47		-6.83
<b>Cash and Equivalents</b>	<b>59,413</b>	<b>2.43</b>											

**Notes:**

<sup>1</sup> Total Fund Policy Index history available in appendix.

<sup>2</sup> Total Fund Policy: Effective April 2016, the index consists of 60.0% MSCI ACWI, 25.0% BloomBar Universal, 10.0% NFI ODCE Net, 5.0% Bloomberg Commodity.

<sup>3</sup> Performance data prior to October 31, 2014 is reflective of the Mellon Capital Passive Index fund. Due to contributions and withdrawals in this account, the returns may differ from the performance of the fund.

<sup>4</sup> Real Assets Blended Index: Effective January 2016, the index consists of 67.0% NFI ODCE Net, 33.0% Bloomberg Commodity.

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## **Equity Manager Performance**

## Northern Trust Russell 1000 Index

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** US Large Cap Core
- **Vehicle** Non-Mutual Commingled
- **Benchmark** Russell 1000
- **Performance Inception Date** August 1998
- **Fees** 1 bps

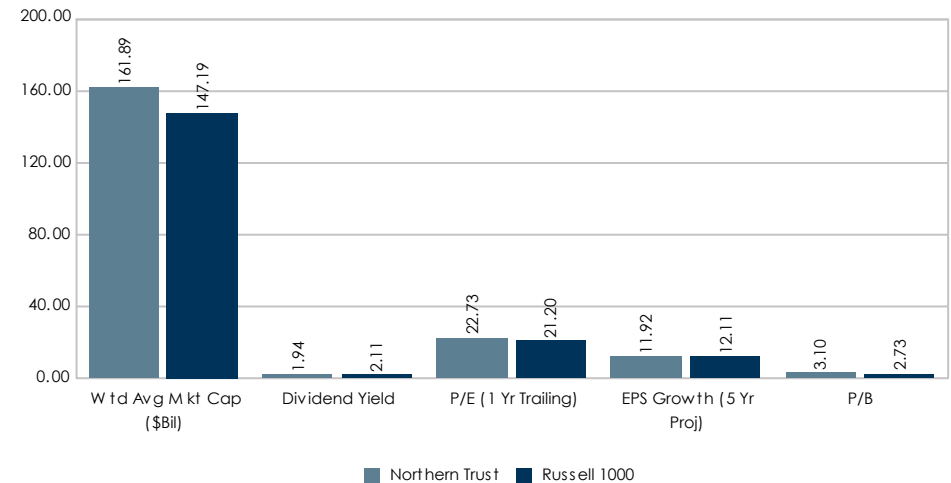
### Performance Goals

- Mirror the risk/return profile of the Russell 1000.
- Over rolling three year periods, rank above the median in the eA US Large Cap Core Equity universe.

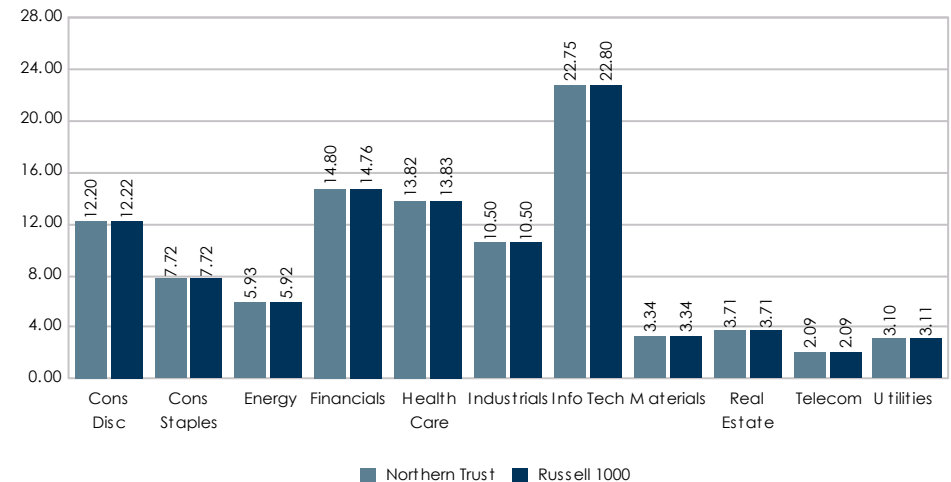
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>412,054</b>	<b>401,521</b>
Net Additions	-15,030	-55,039
Return on Investment	18,110	68,653
<b>Ending Market Value</b>	<b>415,134</b>	<b>415,134</b>

### Characteristics



### Sector Allocation



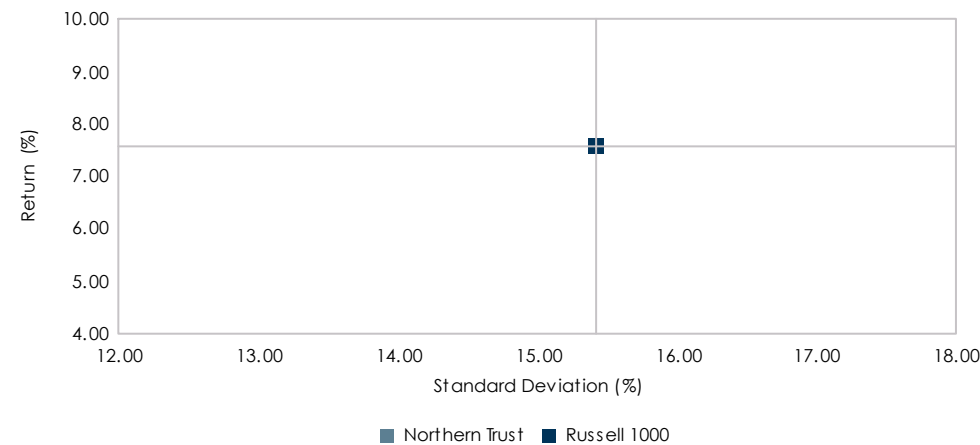
Characteristic and allocation charts represents data of the EB Daily Valued Large Cap Stock Index Fund (Non-Mutual Commingled).

Sector weights may not add to 100% due to securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Northern Trust Russell 1000 Index

For the Periods Ending September 30, 2017

10 Year Risk / Return



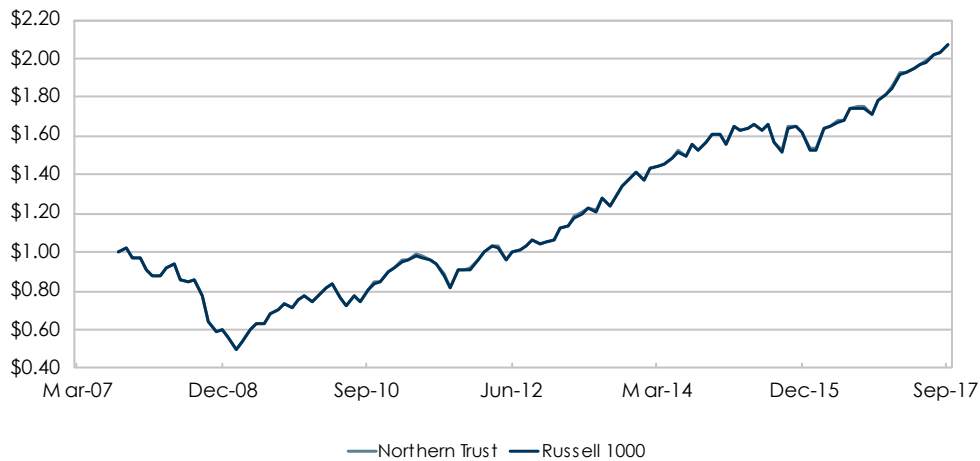
10 Year Portfolio Statistics

	Northern Trust	Russell 1000
Return (%)	7.57	7.55
Standard Deviation (%)	15.42	15.42
Sharpe Ratio	0.47	0.47

Benchmark Relative Statistics

Beta	1.00
R Squared (%)	100.00
Alpha (%)	0.02
Tracking Error (%)	0.05
Batting Average (%)	65.00
Up Capture (%)	99.99
Down Capture (%)	99.92

10 Year Growth of a Dollar

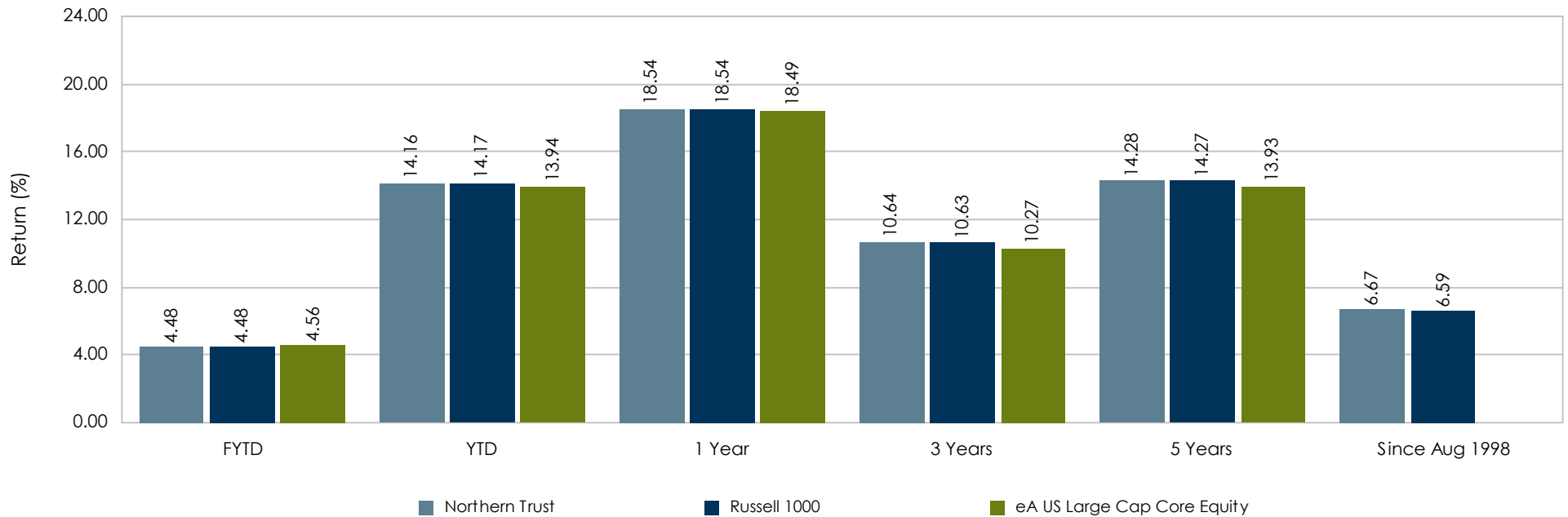


10 Year Return Analysis

	Northern Trust	Russell 1000
Number of Months	120	120
Highest Monthly Return (%)	11.20	11.21
Lowest Monthly Return (%)	-17.49	-17.46
Number of Positive Months	79	79
Number of Negative Months	41	41
% of Positive Months	65.83	65.83

## Northern Trust Russell 1000 Index

For the Periods Ending September 30, 2017

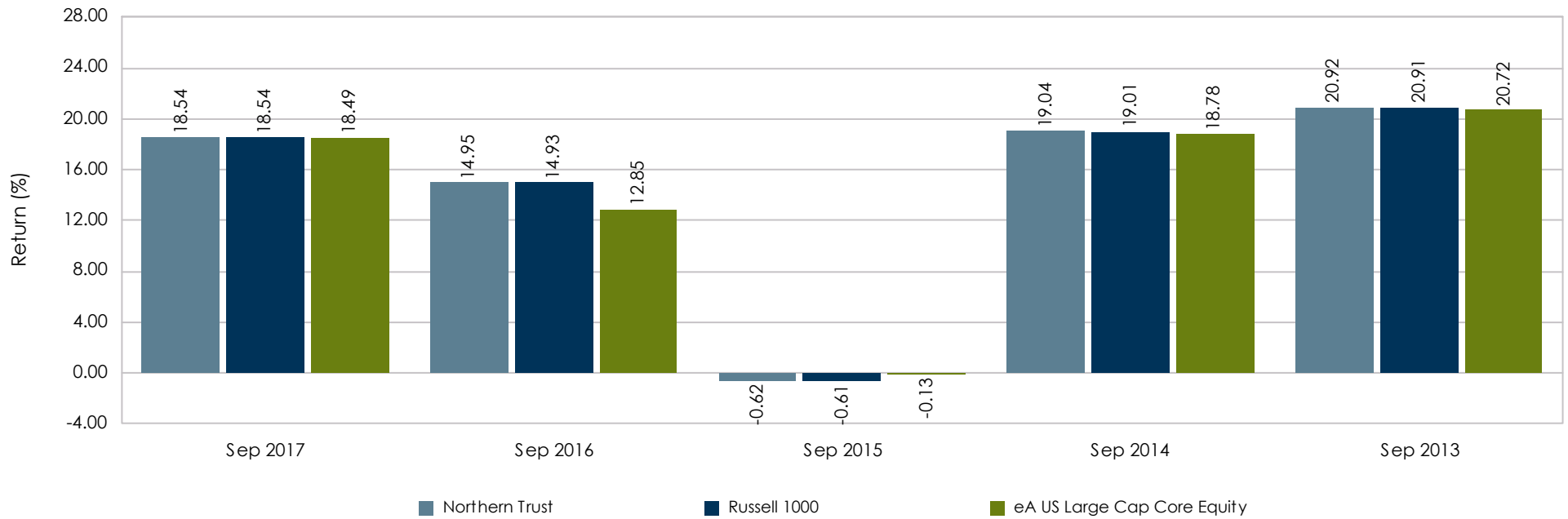


Ranking	53	48	50	40	40
5th Percentile	6.44	18.90	23.72	12.90	16.47
25th Percentile	5.35	16.16	20.53	11.19	14.86
50th Percentile	4.56	13.94	18.49	10.27	13.93
75th Percentile	3.63	12.33	16.28	9.11	13.03
95th Percentile	2.56	8.48	12.25	6.93	10.94
Observations	350	350	350	338	309

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

### Northern Trust Russell 1000 Index

For the One Year Periods Ending September



Ranking	50	25	57	47	47
5th Percentile	23.72	19.07	6.37	23.99	27.82
25th Percentile	20.53	14.89	2.11	20.60	23.10
50th Percentile	18.49	12.85	-0.13	18.78	20.72
75th Percentile	16.28	10.66	-1.98	16.78	18.33
95th Percentile	12.25	5.87	-6.45	11.82	12.62
Observations	350	384	372	394	415

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Boston Partners

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** US Small/Mid Cap Value
- **Vehicle** Separately Managed Account
- **Benchmarks** Russell 2500 Value and Russell 2000 Value
- **Performance Inception Date** January 1998
- **Fees** 60 bps base fee with annual performance fee

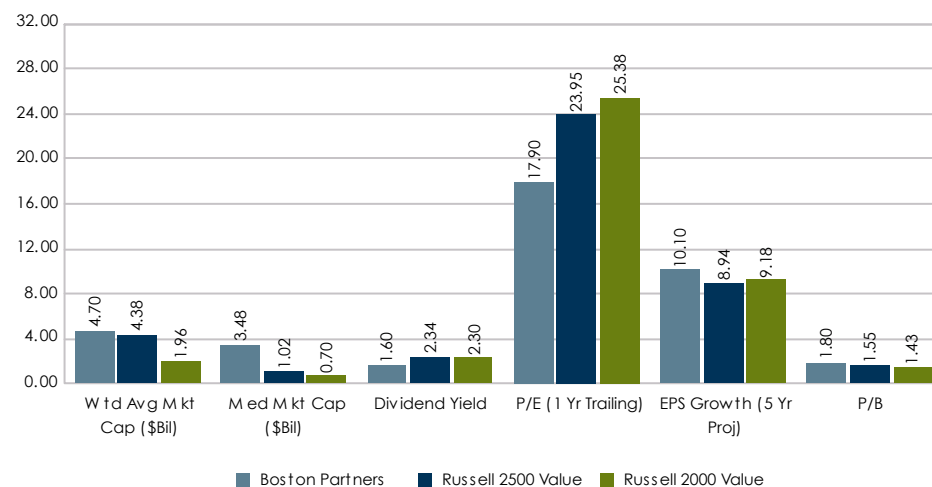
### Performance Goals

- Outperform the Russell 2500 Value and Russell 2000 Value.
- Over rolling three year periods, rank above the median in the eA US Mid Cap Value Equity universe.

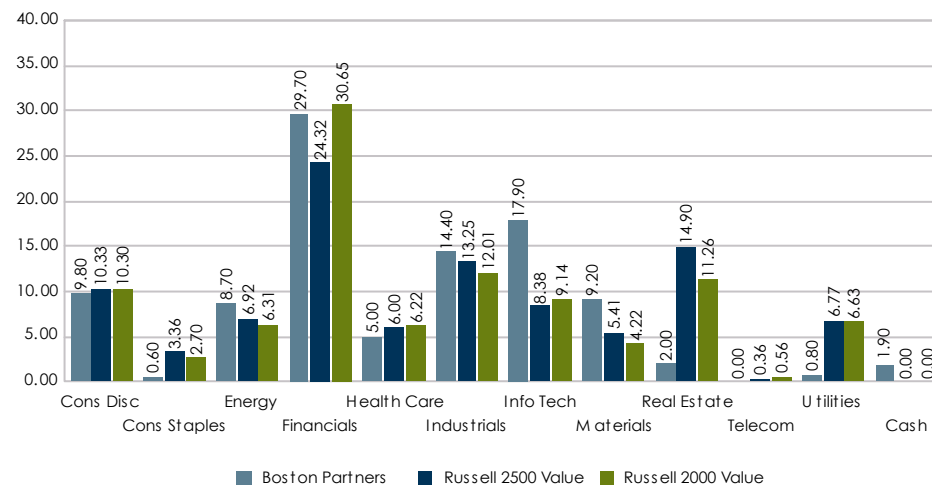
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>110,411</b>	<b>96,029</b>
Net Additions	-25,152	-25,623
Return on Investment	2,640	17,493
Income	388	1,964
Gain/Loss	2,252	15,530
<b>Ending Market Value</b>	<b>87,899</b>	<b>87,899</b>

### Characteristics



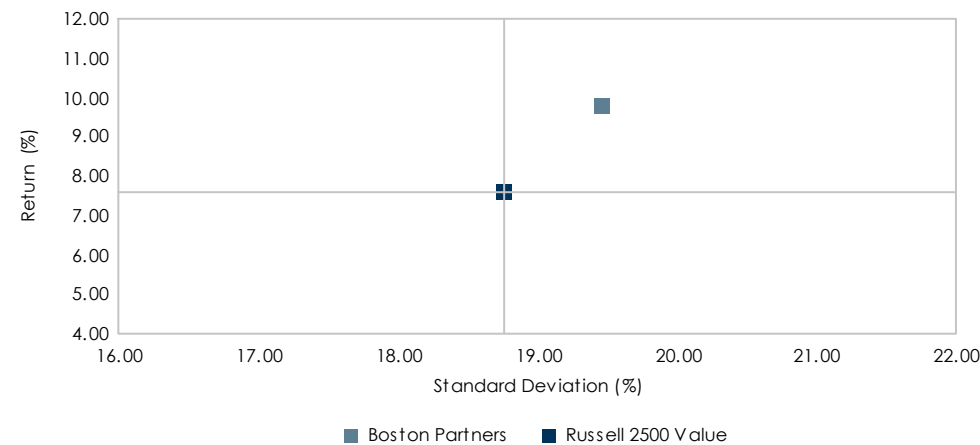
### Sector Allocation



Boston Partners

For the Periods Ending September 30, 2017

10 Year Risk / Return



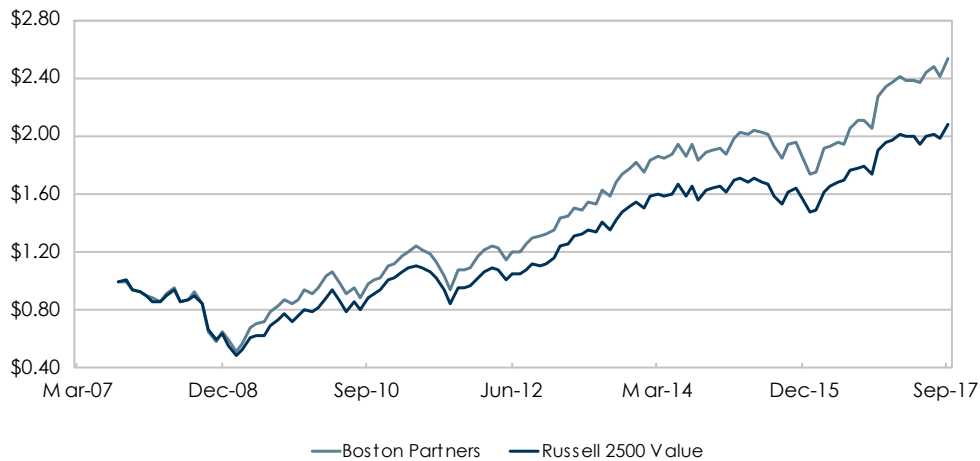
10 Year Portfolio Statistics

	Boston Partners	Russell 2500 Value
Return (%)	9.74	7.59
Standard Deviation (%)	19.46	18.76
Sharpe Ratio	0.48	0.39

Benchmark Relative Statistics

Beta	1.02
R Squared (%)	96.02
Alpha (%)	2.00
Tracking Error (%)	3.90
Batting Average (%)	55.00
Up Capture (%)	104.40
Down Capture (%)	96.51

10 Year Growth of a Dollar

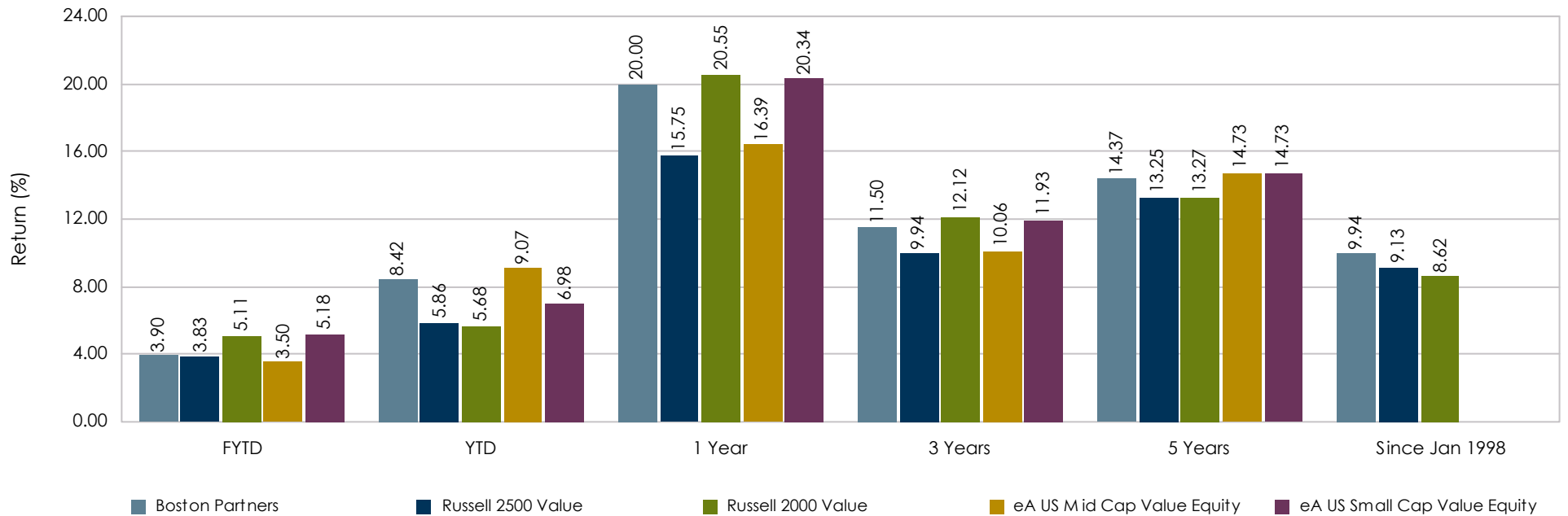


10 Year Return Analysis

	Boston Partners	Russell 2500 Value
Number of Months	120	120
Highest Monthly Return (%)	19.35	15.95
Lowest Monthly Return (%)	-22.79	-20.65
Number of Positive Months	75	74
Number of Negative Months	45	46
% of Positive Months	62.50	61.67

## Boston Partners

For the Periods Ending September 30, 2017

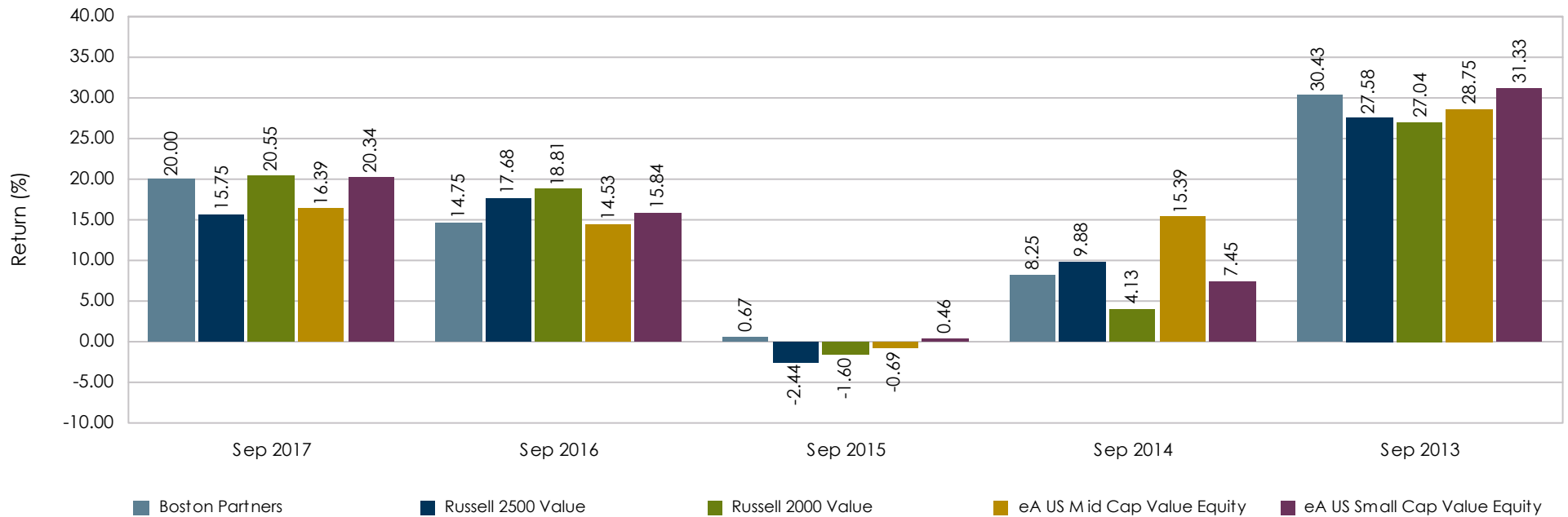


Ranking	37 / 75	61 / 32	24 / 53	25 / 61	57 / 56
5th Percentile	6.02 / 8.47	14.71 / 14.21	25.38 / 27.95	12.92 / 15.32	17.05 / 17.80
25th Percentile	4.45 / 6.32	10.84 / 9.23	19.63 / 22.89	11.48 / 13.64	15.61 / 15.90
50th Percentile	3.50 / 5.18	9.07 / 6.98	16.39 / 20.34	10.06 / 11.93	14.73 / 14.73
75th Percentile	2.78 / 3.89	7.32 / 4.39	14.81 / 17.38	8.58 / 10.26	13.46 / 13.32
95th Percentile	0.32 / 1.70	4.86 / 1.48	10.60 / 11.57	5.14 / 3.80	11.08 / 9.55
Observations	103 / 232	103 / 232	103 / 232	103 / 220	97 / 212

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Boston Partners

For the One Year Periods Ending September



Ranking	24 / 53	49 / 60	31 / 48	93 / 42	39 / 59
5th Percentile	25.38 / 27.95	20.61 / 25.32	5.49 / 6.68	21.47 / 13.30	36.47 / 41.91
25th Percentile	19.63 / 22.89	17.71 / 18.95	1.35 / 3.53	17.53 / 10.24	32.14 / 35.11
50th Percentile	16.39 / 20.34	14.53 / 15.84	-0.69 / 0.46	15.39 / 7.45	28.75 / 31.33
75th Percentile	14.81 / 17.38	11.40 / 12.69	-3.58 / -3.91	12.45 / 5.20	26.17 / 28.39
95th Percentile	10.60 / 11.57	7.33 / 7.10	-9.89 / -13.28	7.57 / 0.54	21.04 / 21.47
Observations	103 / 232	109 / 246	110 / 250	117 / 255	120 / 255

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Cortina

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** US Small/Mid Cap Growth
- **Vehicle** Separately Managed Account
- **Benchmark** Russell 2000 Growth
- **Performance Inception Date** February 2014
- **Fees** First \$25M at 100 bps, next \$25M at 90 bps, balance at 80 bps

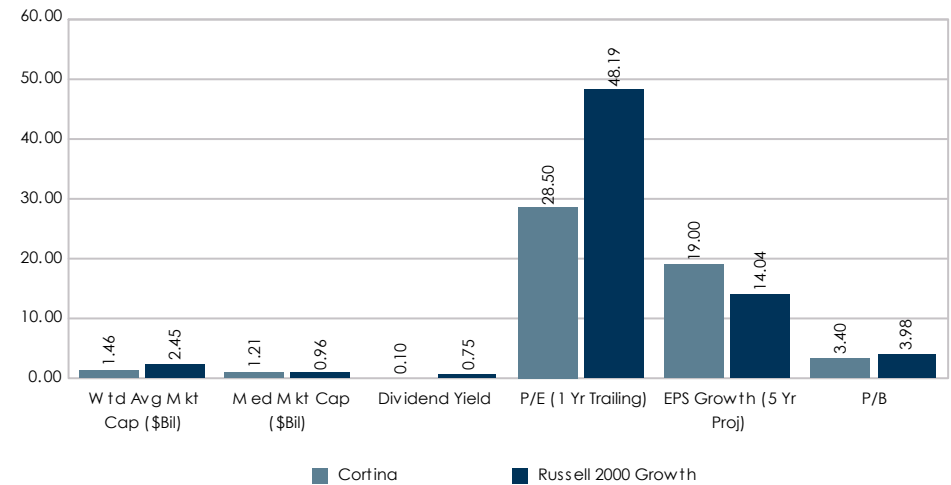
### Performance Goals

- Outperform the Russell 2000 Growth.
- Over rolling three year periods, rank above median in the eA US Small Cap Growth Equity universe.

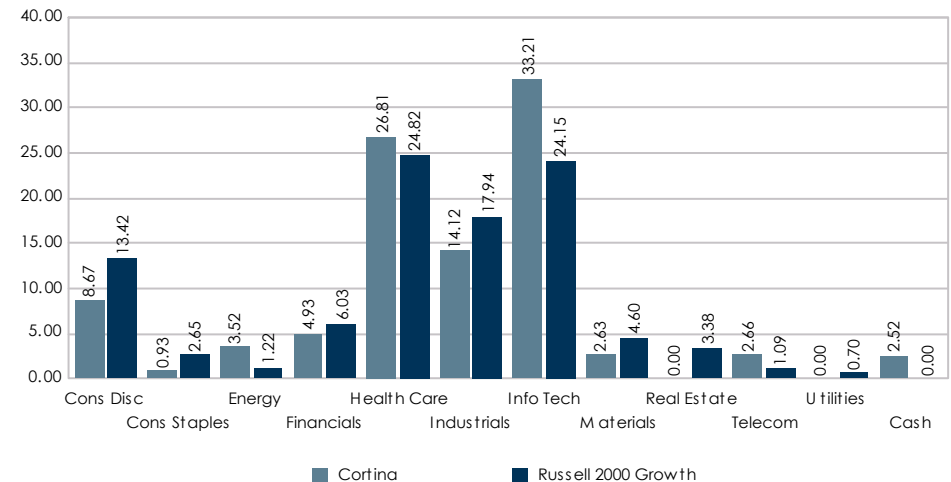
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>84,927</b>	<b>72,548</b>
Net Additions	-189	-861
Return on Investment	2,592	15,643
Income	22	94
Gain/Loss	2,570	15,548
<b>Ending Market Value</b>	<b>87,330</b>	<b>87,330</b>

### Characteristics



### Sector Allocation

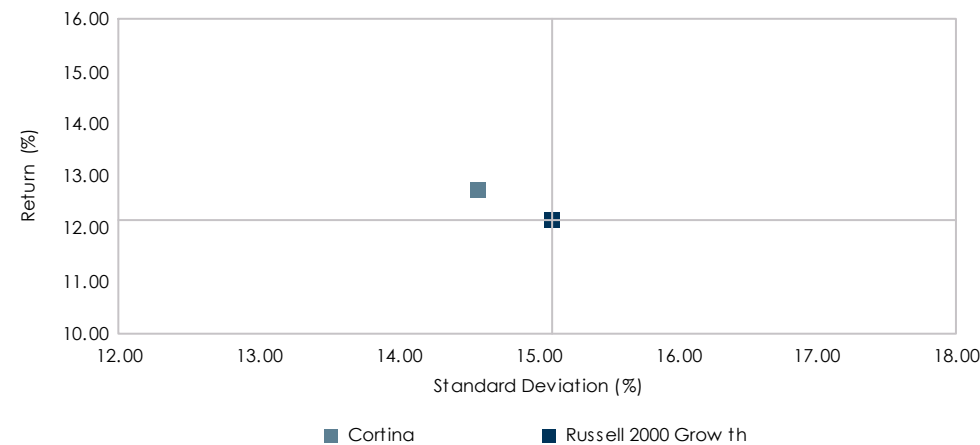


Sector weights may not add to 100% due to securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Cortina

For the Periods Ending September 30, 2017

3 Year Risk / Return



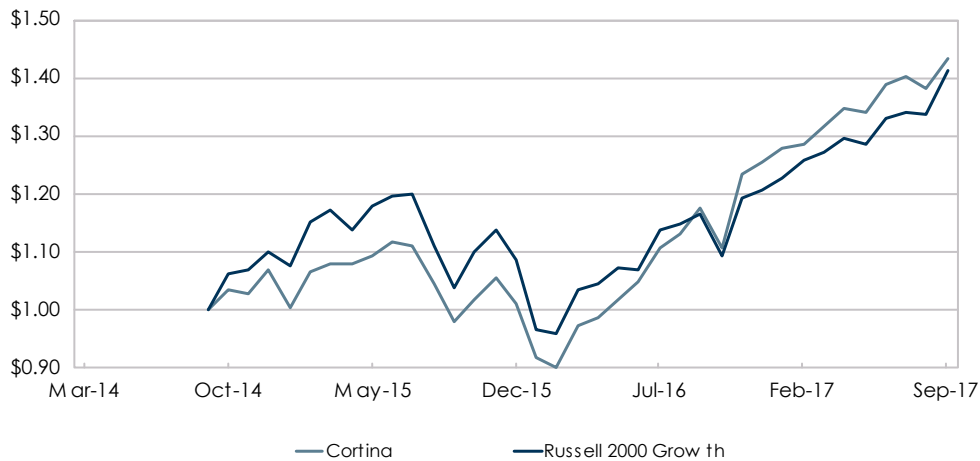
3 Year Portfolio Statistics

	Cortina	Russell 2000 Growth
Return (%)	12.72	12.17
Standard Deviation (%)	14.58	15.11
Sharpe Ratio	0.85	0.79

Benchmark Relative Statistics

Beta	0.90
R Squared (%)	86.56
Alpha (%)	1.72
Tracking Error (%)	5.56
Batting Average (%)	61.11
Up Capture (%)	94.51
Down Capture (%)	90.68

3 Year Growth of a Dollar

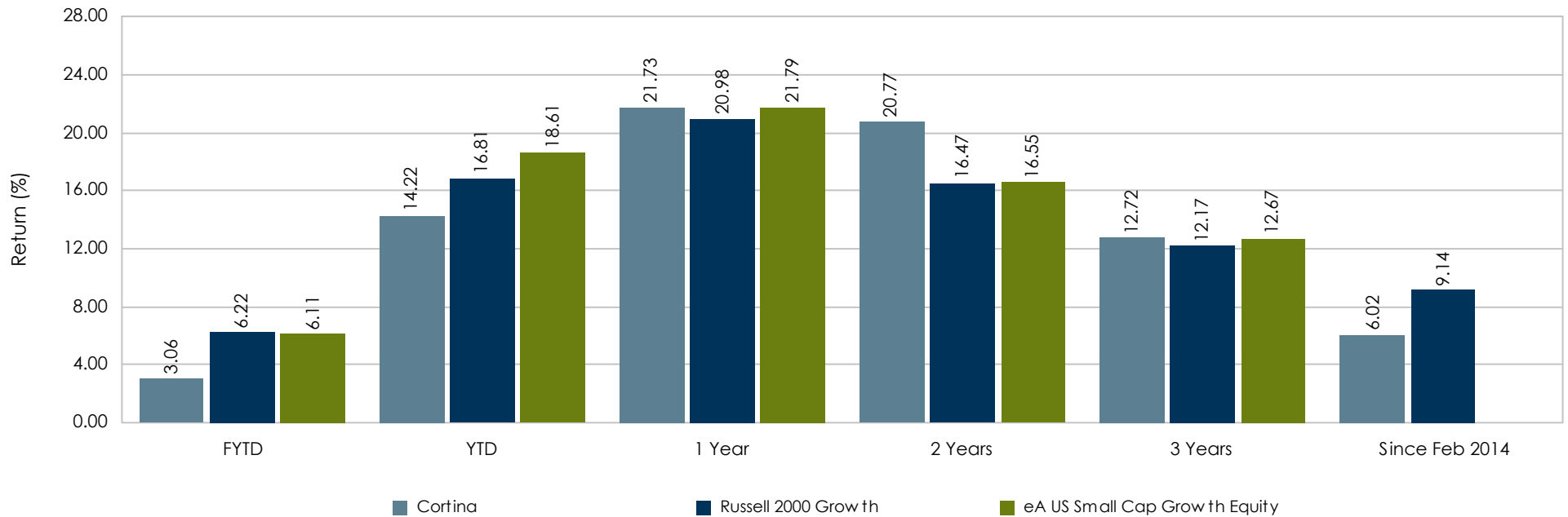


3 Year Return Analysis

	Cortina	Russell 2000 Growth
Number of Months	36	36
Highest Monthly Return (%)	11.26	8.95
Lowest Monthly Return (%)	-9.33	-10.83
Number of Positive Months	24	25
Number of Negative Months	12	11
% of Positive Months	66.67	69.44

## Cortina

For the Periods Ending September 30, 2017

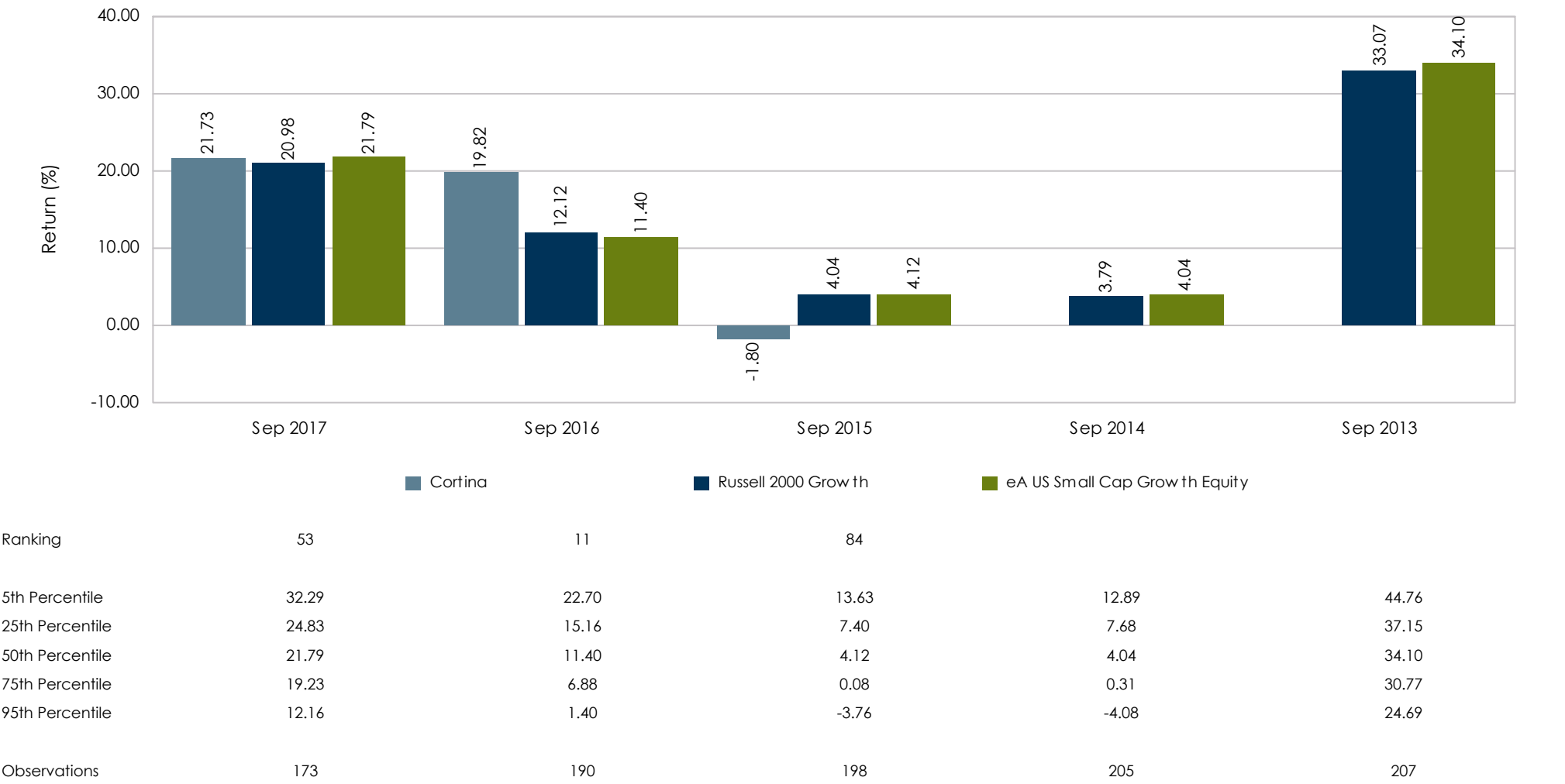


Ranking	92	78	53	17	49
5th Percentile	9.91	29.31	32.29	25.59	17.71
25th Percentile	7.21	21.96	24.83	19.10	14.74
50th Percentile	6.11	18.61	21.79	16.55	12.67
75th Percentile	4.82	14.97	19.23	13.82	10.13
95th Percentile	1.83	9.16	12.16	8.52	5.54
Observations	173	173	173	170	166

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

Cortina

For the One Year Periods Ending September



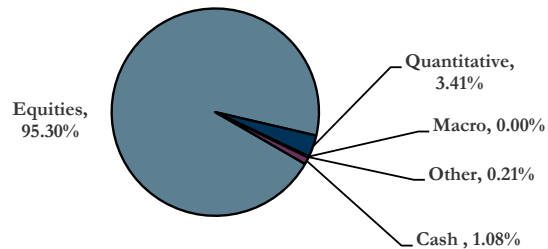
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Grosvenor Long/Short Equity

For the Periods Ending September 30, 2017

### Strategy Allocation

**Market Value: \$345,810,156**



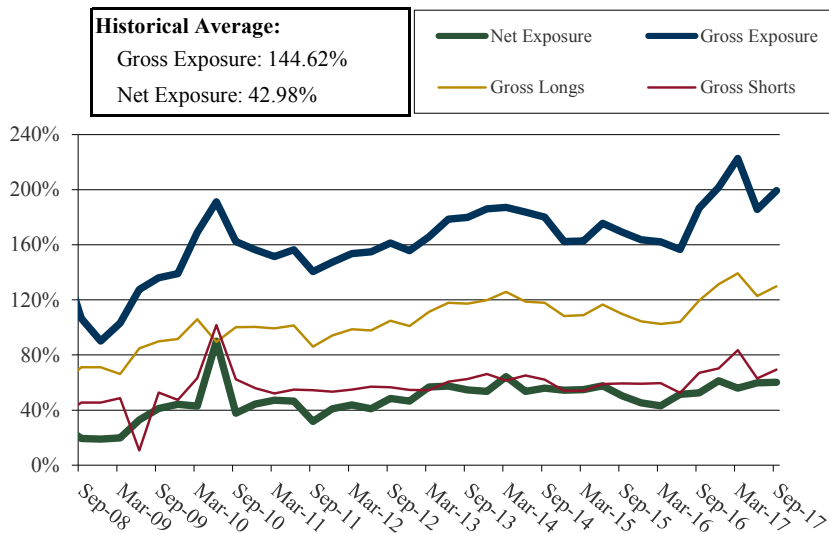
### Strategy

- Equity Long/Short Hedge Fund of Funds
- Performance Inception Date: November 2003

### Exposure

- Net Exposure: 60.31%
- Gross Exposure: 199.3%

### Historical Net & Gross Exposure



### Performance Goals

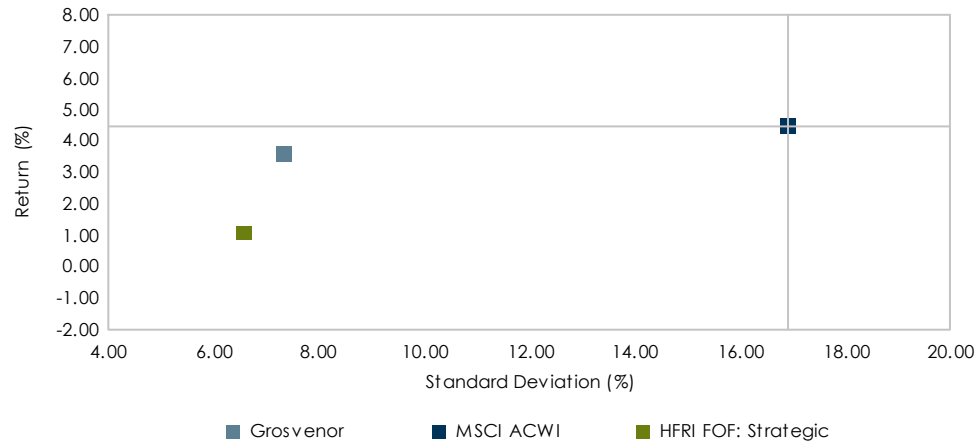
- Meet or exceed the return of the MSCI All Country World, over extended time periods (5 to 10 years).
- The volatility (standard deviation) of the portfolio should be less than two-thirds the volatility of the MSCI All Country World.
- The Beta of the portfolio relative to the MSCI All Country World Index should be < 0.7.

Characteristics provided by manager are the weighted average of GLSEF and GLSEF-B data.

## Grosvenor Long/Short Equity

For the Periods Ending September 30, 2017

### 10 Year Risk / Return



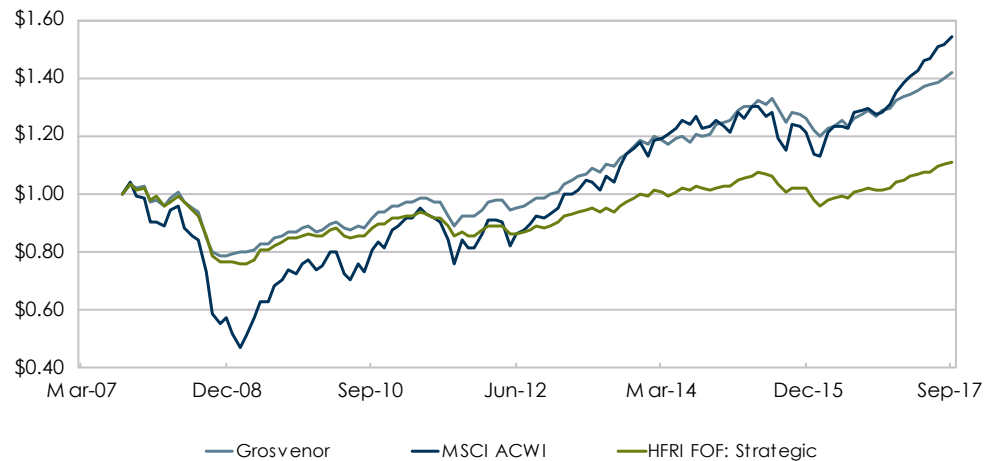
### 10 Year Portfolio Statistics

	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Return (%)	3.55	4.45	1.05
Standard Deviation (%)	7.35	16.90	6.60
Sharpe Ratio	0.44	0.24	0.11

### Benchmark Relative Statistics

Beta	0.34	1.02
R Squared (%)	61.62	83.31
Alpha (%)	1.80	2.51
Tracking Error (%)	12.02	3.01
Batting Average (%)	50.00	65.00
Up Capture (%)	38.15	121.98
Down Capture (%)	40.30	92.49

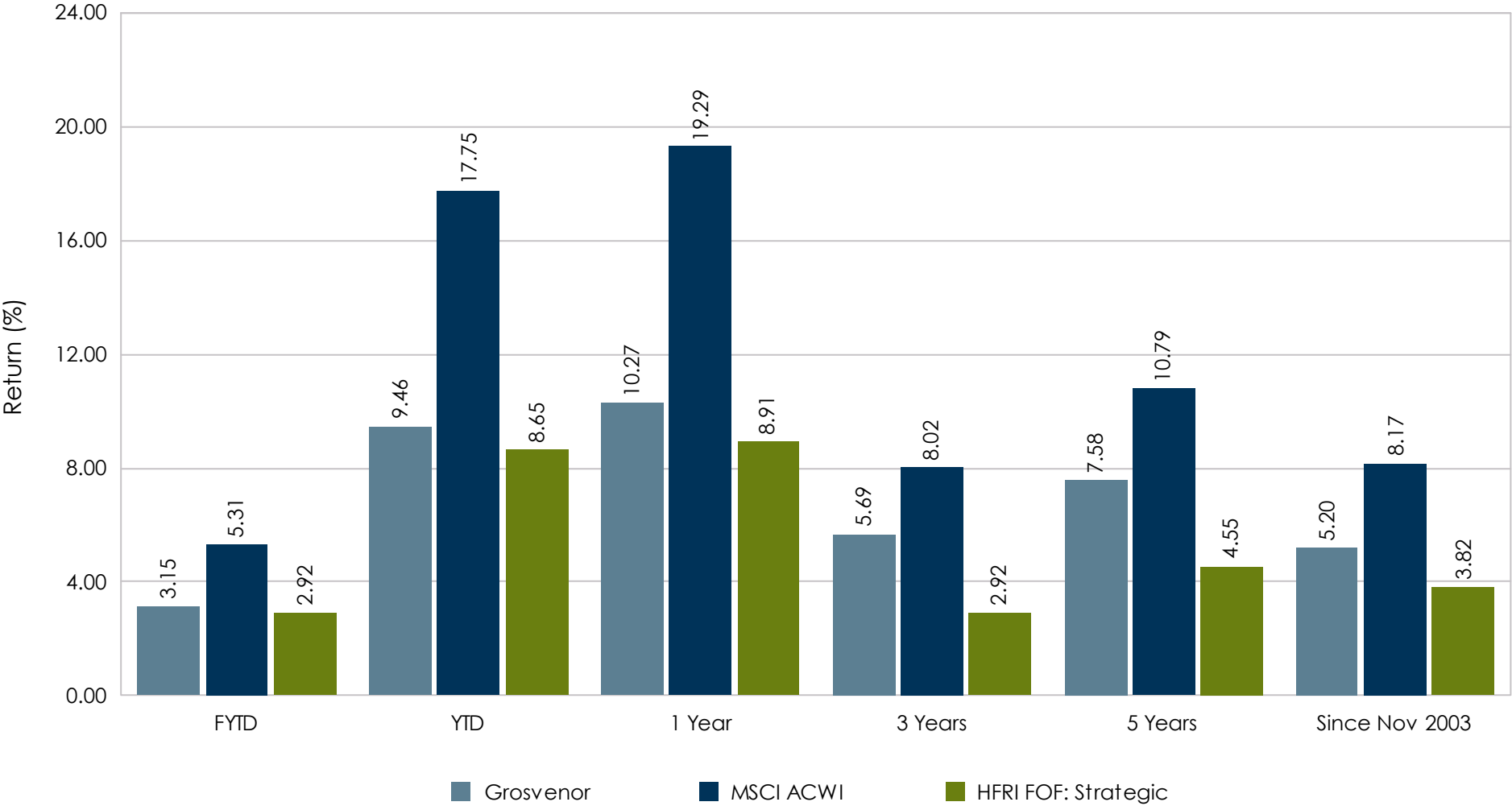
### 10 Year Growth of a Dollar



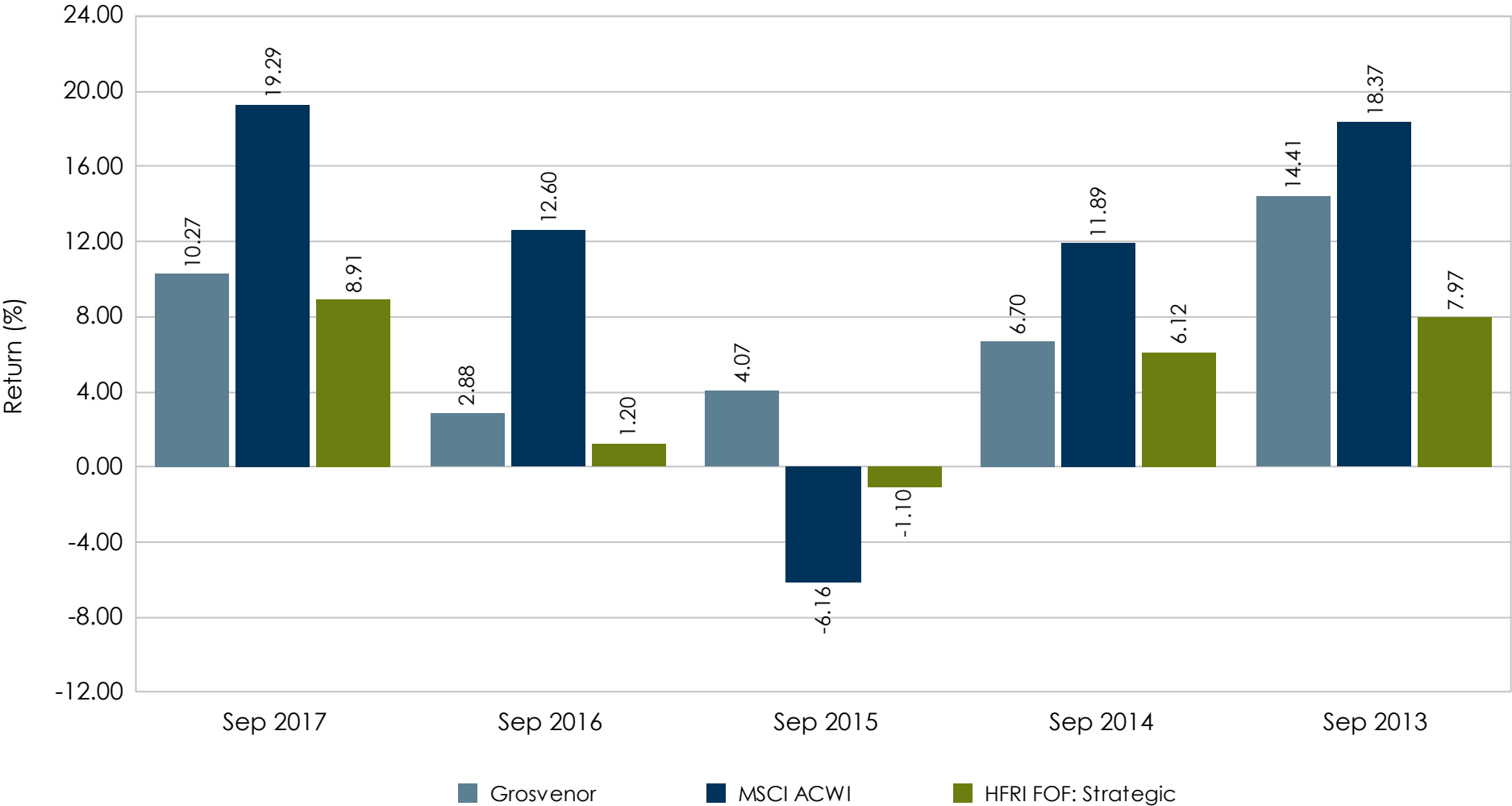
### 10 Year Return Analysis

	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Number of Months	120	120	120
Highest Monthly Return (%)	4.12	11.90	4.25
Lowest Monthly Return (%)	-10.06	-19.79	-7.66
Number of Positive Months	78	71	71
Number of Negative Months	42	49	49
% of Positive Months	65.00	59.17	59.17

**Grosvenor Long/Short Equity**  
*For the Periods Ending September 30, 2017*



**Grosvenor Long/Short Equity**  
*For the One Year Periods Ending September*



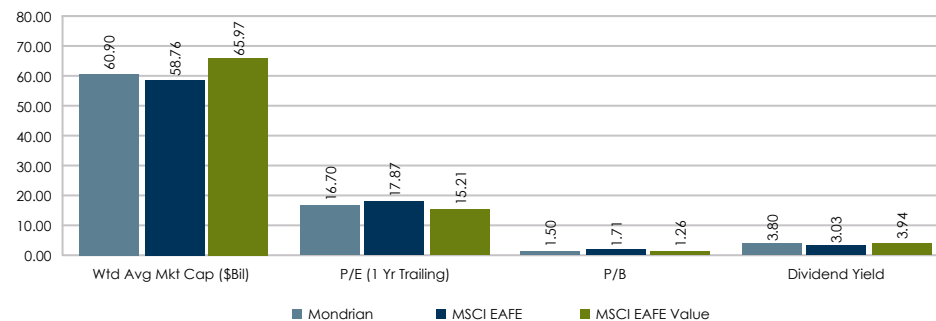
## Mondrian International

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Int'l Developed Markets Equity
- **Vehicle** Limited Partnership
- **Benchmarks** MSCI EAFE and MSCI EAFE Value
- **Performance Inception Date** May 2004
- **Fees** 70 bps on the first \$20 million, 50 bps on the next \$30 million, 40 bps on the next \$50 million, 30 bps thereafter

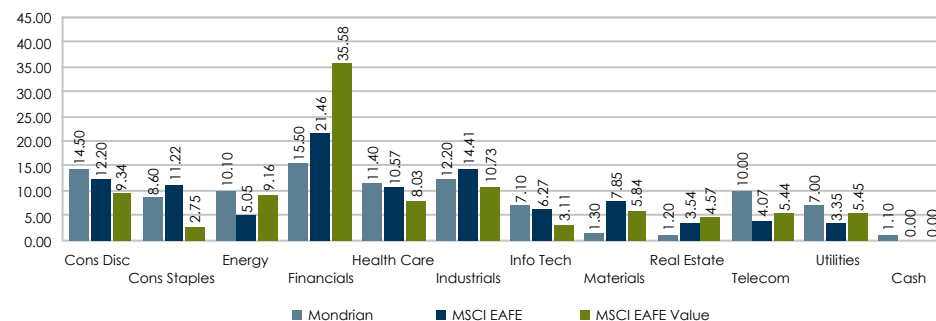
### Characteristics



### Performance Goals

- Outperform the MSCI EAFE and MSCI EAFE Value.
- Over rolling three year periods, rank above the median in the eA EAFE All Cap Value Equity universe.

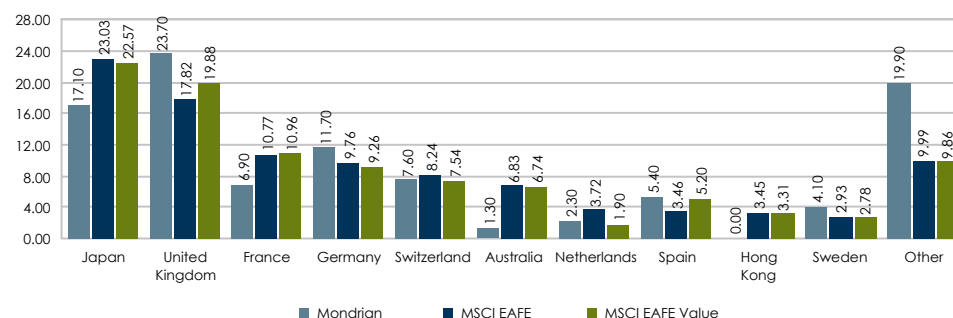
### Sector Allocation



### Dollar Growth Summary (\$000s)

	FYTD	1 Year
Beginning Market Value	131,552	117,882
Net Additions	0	0
Return on Investment	7,353	21,022
Ending Market Value	138,905	138,905

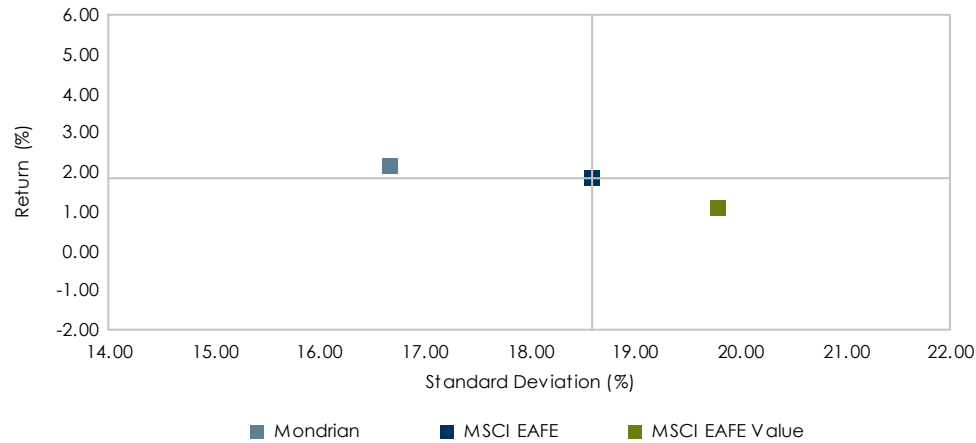
### Country Allocation



## Mondrian International

For the Periods Ending September 30, 2017

### 10 Year Risk / Return



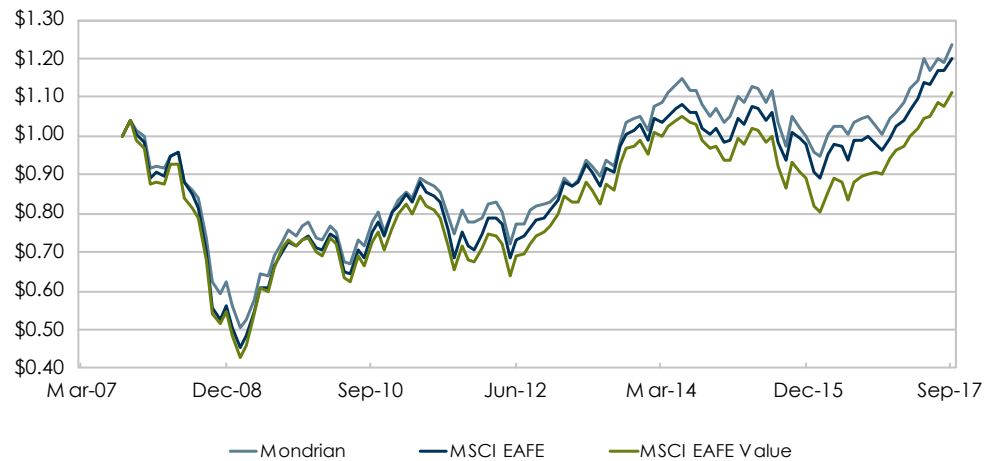
### 10 Year Portfolio Statistics

	Mondrian	MSCI EAFE	MSCI EAFE Value
Return (%)	2.14	1.82	1.07
Standard Deviation (%)	16.67	18.60	19.80
Sharpe Ratio	0.11	0.08	0.04

### Benchmark Relative Statistics

Beta	0.88	0.82
R Squared (%)	95.31	94.28
Alpha (%)	0.40	1.03
Tracking Error (%)	4.29	5.38
Batting Average (%)	50.00	53.33
Up Capture (%)	90.11	81.49
Down Capture (%)	92.14	84.21

### 10 Year Growth of a Dollar

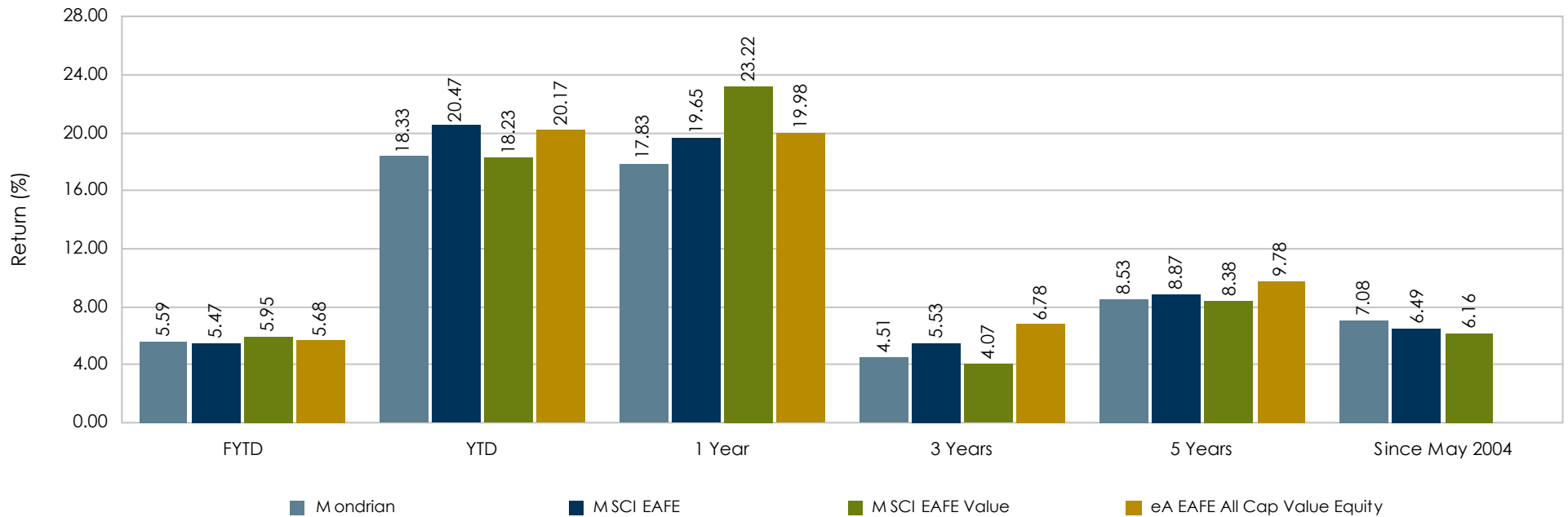


### 10 Year Return Analysis

	Mondrian	MSCI EAFE	MSCI EAFE Value
Number of Months	120	120	120
Highest Monthly Return (%)	11.12	12.96	17.46
Lowest Monthly Return (%)	-15.52	-20.17	-20.56
Number of Positive Months	63	62	62
Number of Negative Months	57	58	58
% of Positive Months	52.50	51.67	51.67

## Mondrian International

For the Periods Ending September 30, 2017

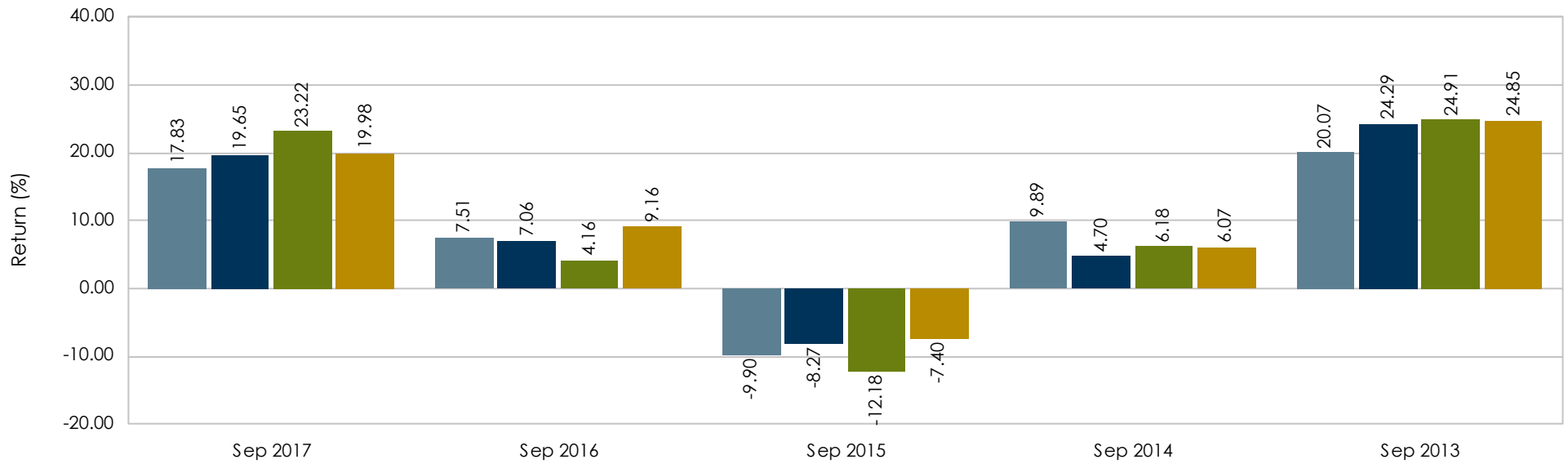


Ranking	53	70	67	78	66
5th Percentile	7.47	28.47	28.79	11.04	13.16
25th Percentile	6.26	20.97	23.40	8.81	12.52
50th Percentile	5.68	20.17	19.98	6.78	9.78
75th Percentile	3.60	17.90	16.88	4.78	8.05
95th Percentile	2.38	13.42	12.62	3.28	6.60
Observations	34	34	34	32	31

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Mondrian International

For the One Year Periods Ending September



	Mondrian	MSCI EAFE	MSCI EAFE Value	eA EAFE All Cap Value Equity	
Ranking	67	60	72	12	79
5th Percentile	28.79	15.57	-0.05	10.26	31.19
25th Percentile	23.40	11.42	-4.46	8.36	27.55
50th Percentile	19.98	9.16	-7.40	6.07	24.85
75th Percentile	16.88	5.98	-10.65	4.53	21.72
95th Percentile	12.62	3.16	-13.66	1.66	16.55
Observations	34	35	37	37	38

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

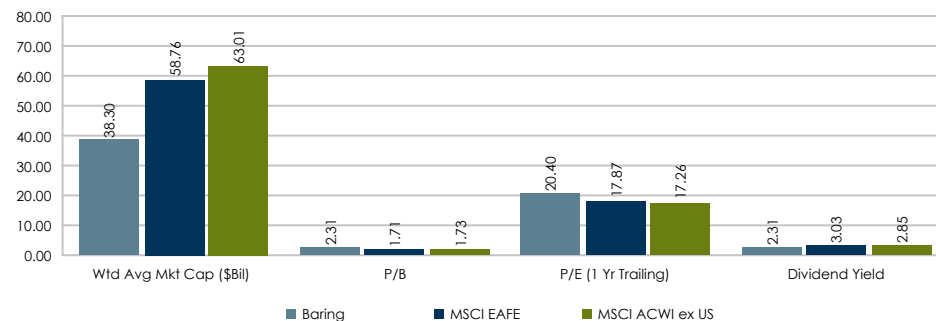
## Baring Focused International

For the Periods Ending September 30, 2017

## Account Description

- **Strategy** Int'l Developed Markets Equity
- **Vehicle** Non-Mutual Commingled
- **Benchmarks** MSCI EAFE and MSCI ACWI ex US
- **Performance Inception Date** March 2012
- **Fees** 40 bps base fee plus performance based fee

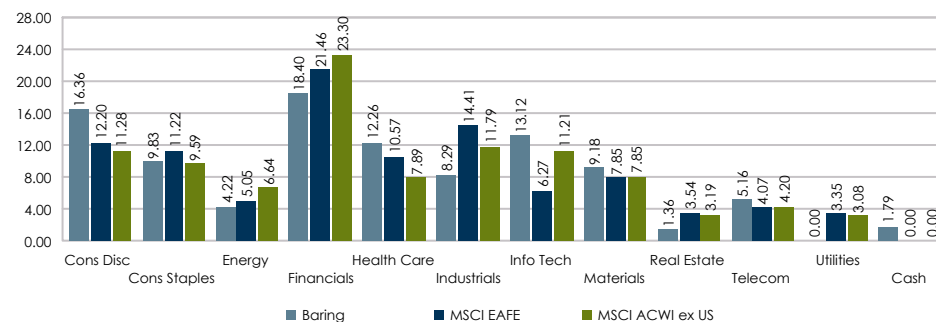
## Characteristics



## Performance Goals

- Outperform the MSCI EAFE and MSCI ACWI ex US.
- Over rolling three year periods, rank above the median in the eA EAFE All Cap Equity universe.

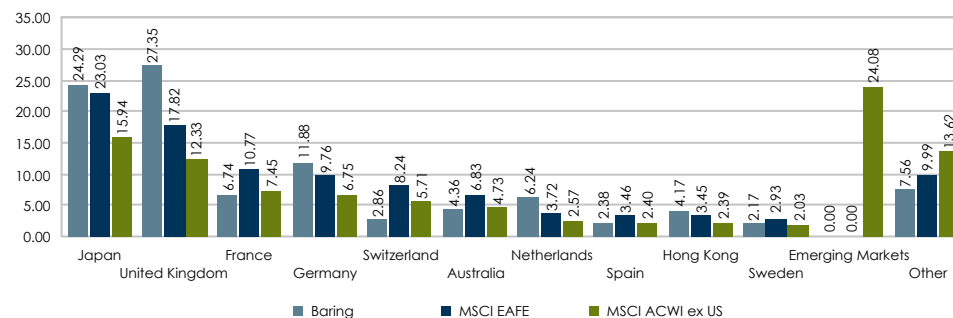
## Sector Allocation



## Dollar Growth Summary (\$000s)

	FYTD	1 Year
Beginning Market Value	112,010	100,129
Net Additions	-689	-985
Return on Investment	5,894	18,071
Ending Market Value	117,215	117,215

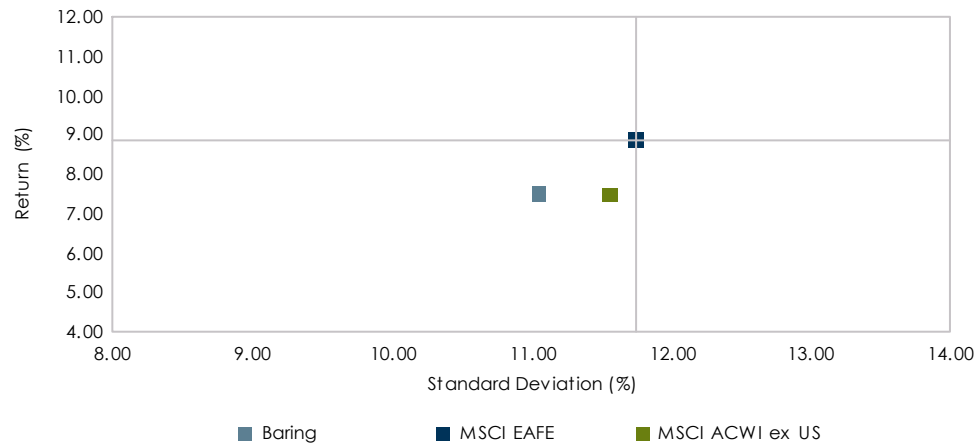
## Country Allocation



## Baring Focused International

For the Periods Ending September 30, 2017

### 5 Year Risk / Return



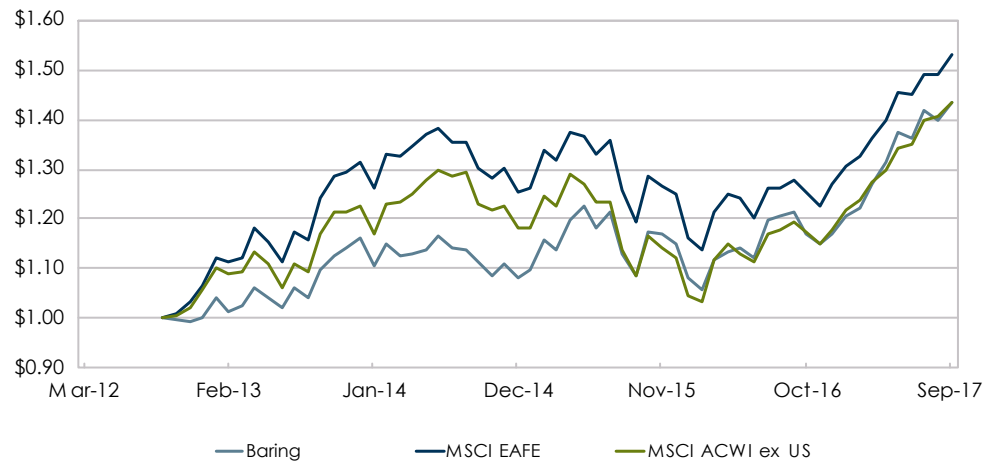
### 5 Year Portfolio Statistics

	Baring	MSCI EAFE	MSCI ACWI ex US
Return (%)	7.50	8.87	7.45
Standard Deviation (%)	11.05	11.75	11.56
Sharpe Ratio	0.66	0.74	0.63

### Benchmark Relative Statistics

Beta	0.88	0.87
R Squared (%)	87.33	82.14
Alpha (%)	-0.24	1.04
Tracking Error (%)	4.18	4.92
Batting Average (%)	50.00	48.33
Up Capture (%)	88.79	85.59
Down Capture (%)	94.86	82.24

### 5 Year Growth of a Dollar

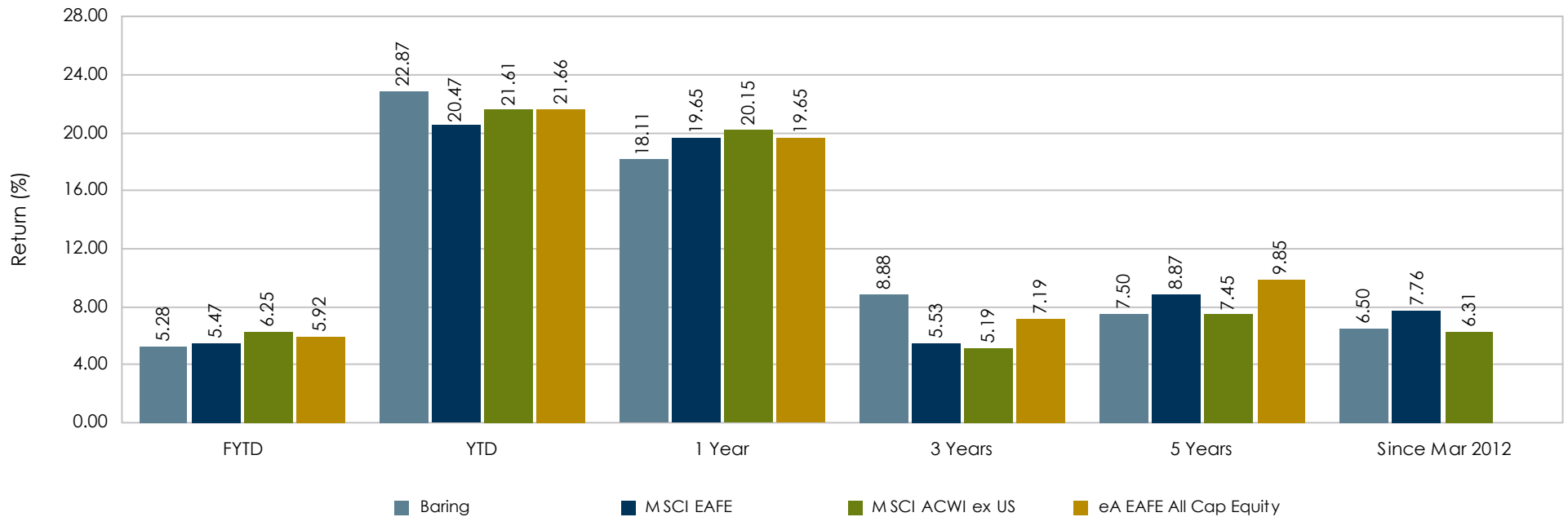


### 5 Year Return Analysis

	Baring	MSCI EAFE	MSCI ACWI ex US
Number of Months	60	60	60
Highest Monthly Return (%)	8.27	7.82	8.21
Lowest Monthly Return (%)	-7.13	-7.35	-7.63
Number of Positive Months	34	34	36
Number of Negative Months	26	26	24
% of Positive Months	56.67	56.67	60.00

### Baring Focused International

For the Periods Ending September 30, 2017

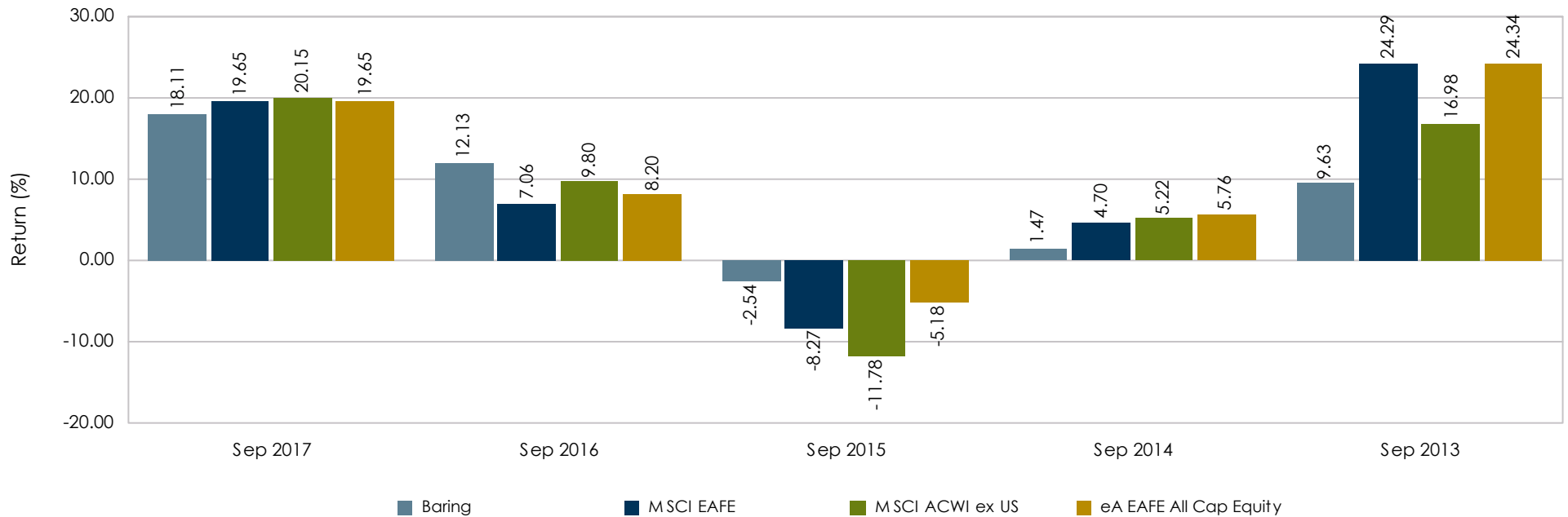


Ranking	65	37	64	24	95
5th Percentile	9.06	30.49	28.49	10.90	13.36
25th Percentile	7.06	23.43	22.05	8.73	11.32
50th Percentile	5.92	21.66	19.65	7.19	9.85
75th Percentile	4.84	19.96	16.88	5.85	8.78
95th Percentile	2.99	15.03	12.51	4.02	7.45
Observations	115	115	115	108	97

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Baring Focused International

For the One Year Periods Ending September



Ranking	64	19	19	94	99
5th Percentile	28.49	16.41	-0.32	9.99	32.25
25th Percentile	22.05	10.99	-3.28	7.26	27.00
50th Percentile	19.65	8.20	-5.18	5.76	24.34
75th Percentile	16.88	5.60	-7.79	4.17	20.94
95th Percentile	12.51	3.35	-12.48	1.41	14.05
Observations	115	123	130	132	128

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

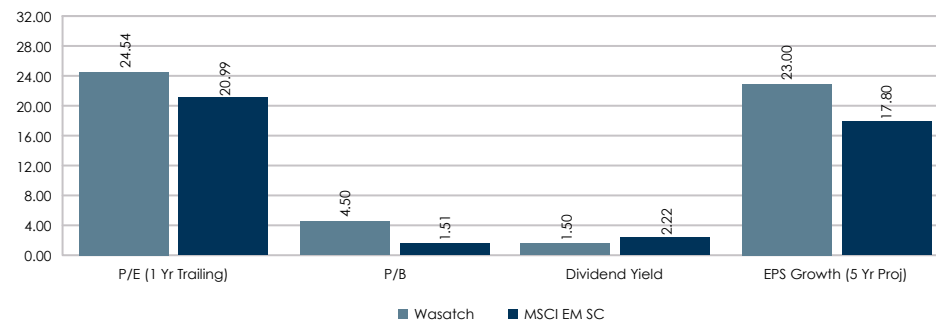
## Wasatch Emerging Markets

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Emerging Markets Equity
- **Vehicle** Non-Mutual Commingled
- **Benchmark** MSCI EM SC
- **Performance Inception Date** September 2012
- **Fees** 150 bps

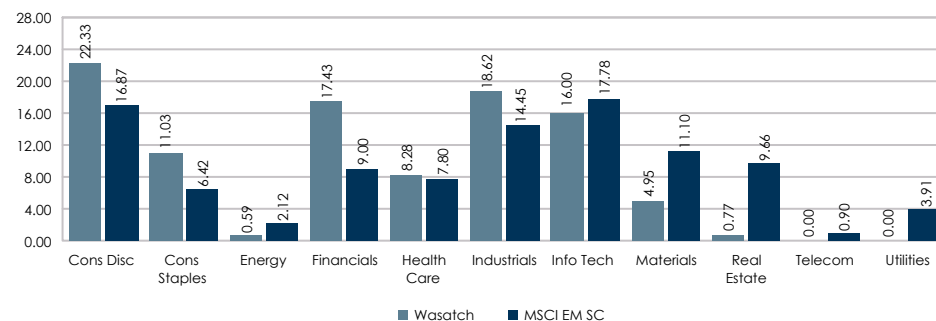
### Characteristics



### Performance Goals

- Outperform the MSCI EM SC over a market cycle.
- Rank above median in the eA Global Emerging Mkts Equity universe over a market cycle.

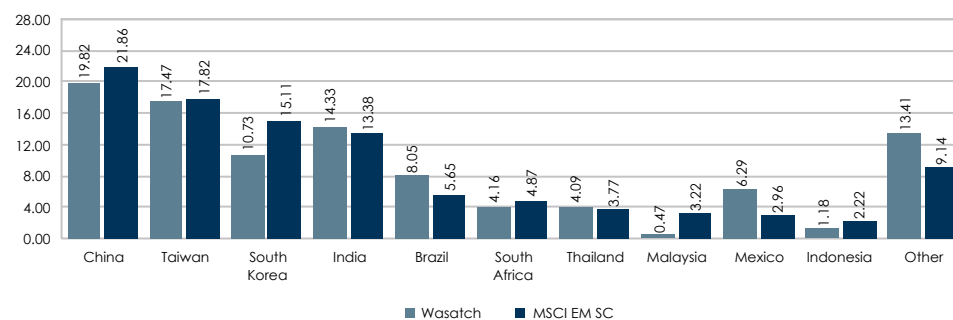
### Sector Allocation



### Dollar Growth Summary (\$000s)

	FYTD	1 Year
Beginning Market Value	33,773	32,390
Net Additions	-135	-485
Return on Investment	2,471	4,203
Ending Market Value	36,108	36,108

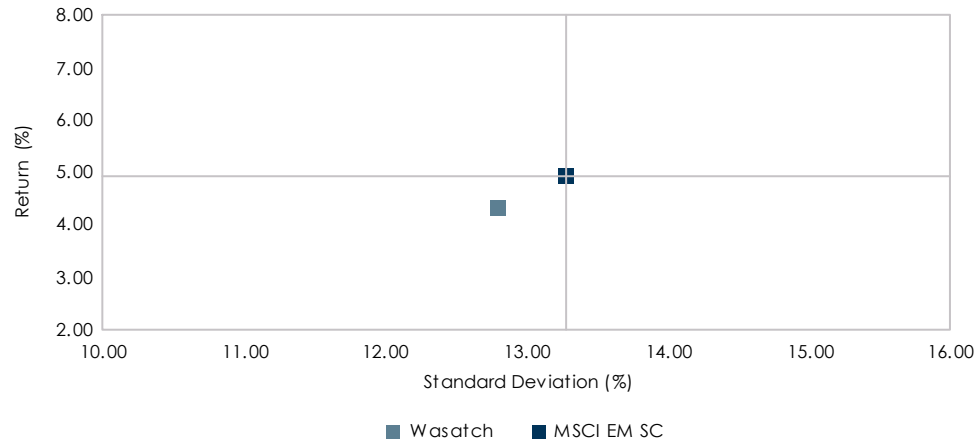
### Country Allocation



## Wasatch Emerging Markets

For the Periods Ending September 30, 2017

### 5 Year Risk / Return



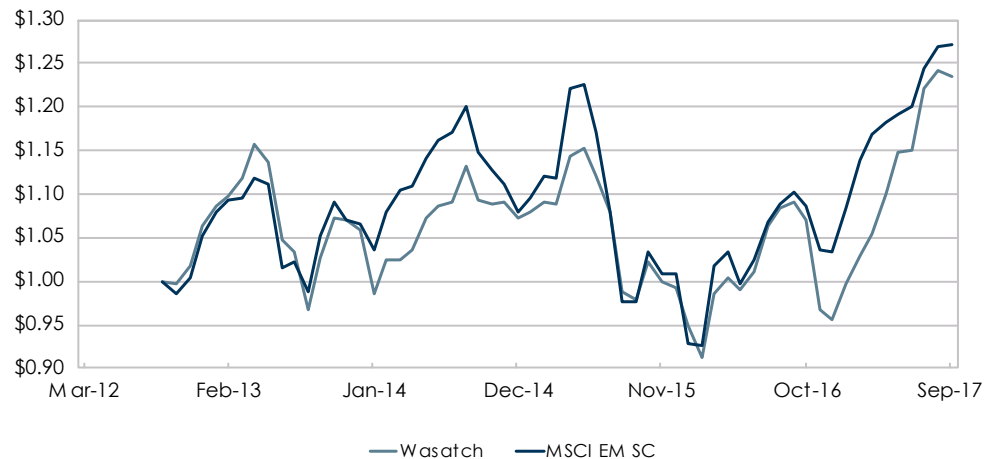
### 5 Year Portfolio Statistics

	Wasatch	MSCI EM SC
Return (%)	4.31	4.90
Standard Deviation (%)	12.79	13.27
Sharpe Ratio	0.32	0.36

### Benchmark Relative Statistics

Beta	0.85
R Squared (%)	78.38
Alpha (%)	0.21
Tracking Error (%)	6.26
Batting Average (%)	45.00
Up Capture (%)	94.06
Down Capture (%)	97.55

### 5 Year Growth of a Dollar

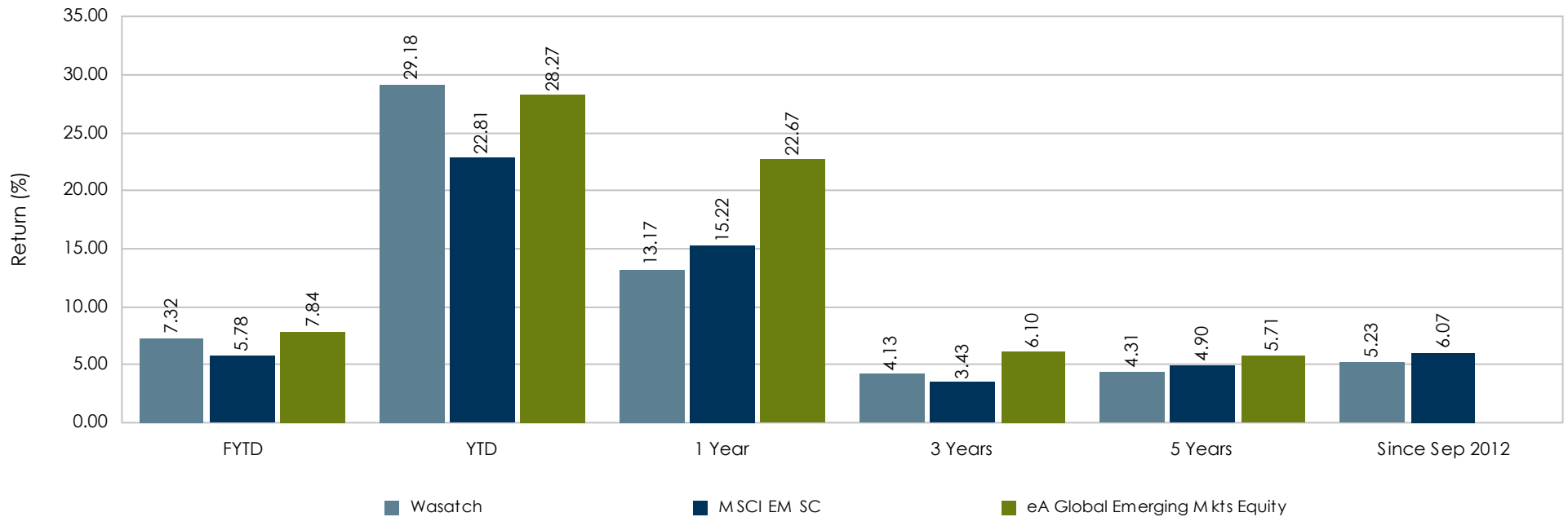


### 5 Year Return Analysis

	Wasatch	MSCI EM SC
Number of Months	60	60
Highest Monthly Return (%)	8.10	10.01
Lowest Monthly Return (%)	-9.57	-9.60
Number of Positive Months	35	38
Number of Negative Months	25	22
% of Positive Months	58.33	63.33

## Wasatch Emerging Markets

For the Periods Ending September 30, 2017

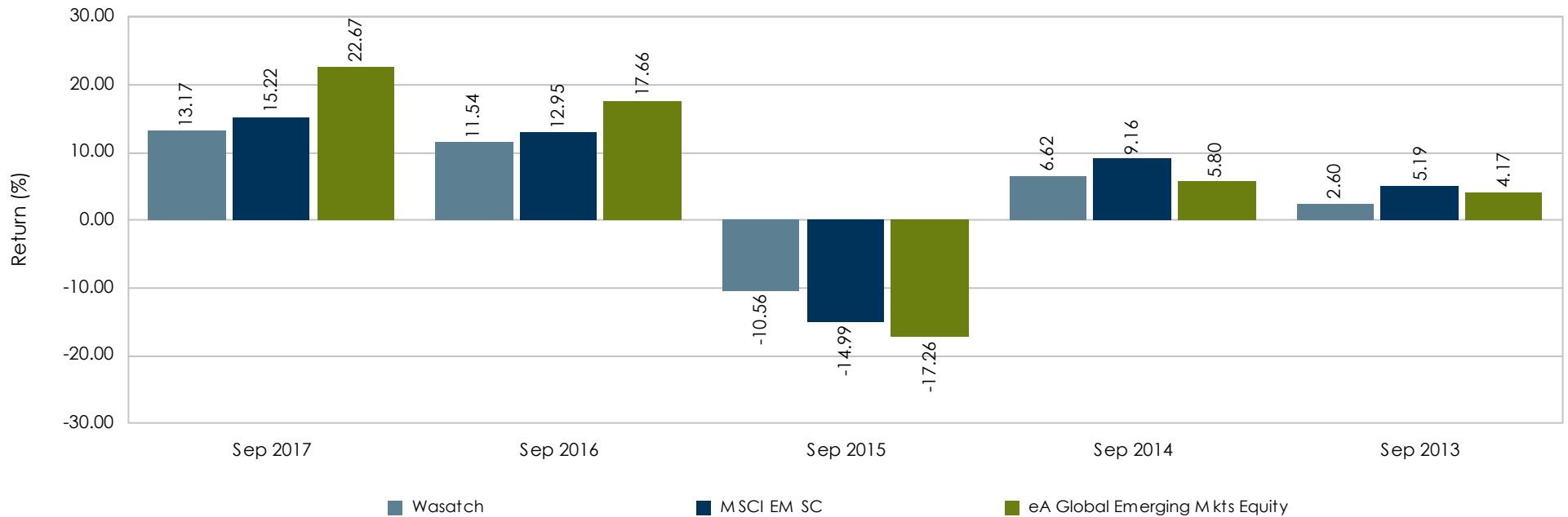


Ranking	59	43	93	81	79
5th Percentile	12.19	37.77	31.29	10.80	10.26
25th Percentile	9.39	32.24	26.20	7.77	7.54
50th Percentile	7.84	28.27	22.67	6.10	5.71
75th Percentile	5.72	24.11	18.66	4.71	4.59
95th Percentile	3.25	19.69	12.39	1.53	2.48
Observations	444	444	444	406	334

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Wasatch Emerging Markets

For the One Year Periods Ending September



Ranking	93	91	9	44	66
5th Percentile	31.29	26.96	-8.75	14.25	14.49
25th Percentile	26.20	21.10	-14.36	8.74	7.55
50th Percentile	22.67	17.66	-17.26	5.80	4.17
75th Percentile	18.66	15.24	-19.67	3.75	1.26
95th Percentile	12.39	9.87	-24.88	0.12	-1.84
Observations	444	480	441	438	407

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

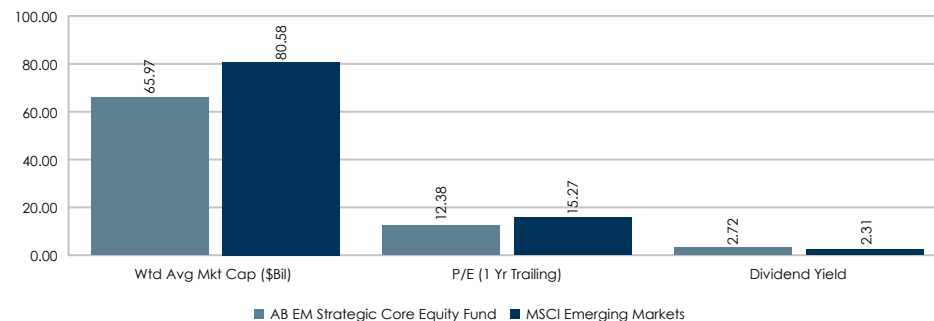
## AB EM Strategic Core Equity Fund

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Emerging Markets Equity
- **Vehicle** Non-Mutual Commingled
- **Benchmark** MSCI Emerging Markets
- **Performance Inception Date** November 2016
- **Fees** 65 bps (preferred fee)

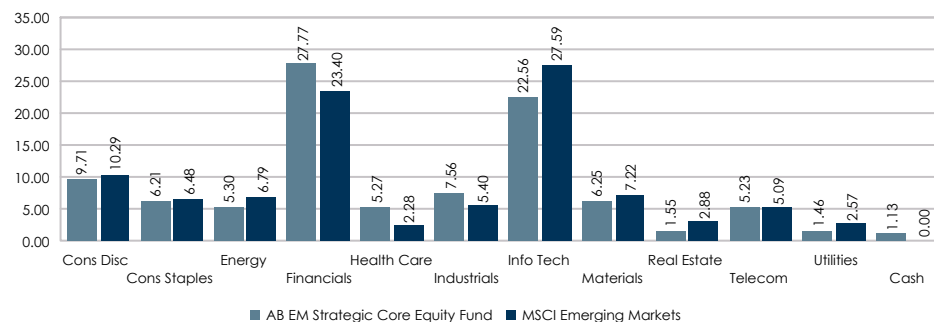
### Characteristics



### Performance Goals

- Outperform the MSCI Emerging Markets.
- Over rolling three year periods, rank above the median in the eA Global Emerging Mkts Equity universe.

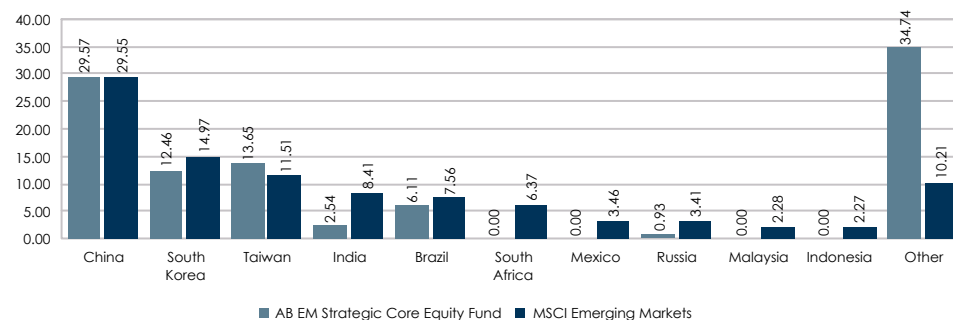
### Sector Allocation



### Dollar Growth Summary (\$000s)

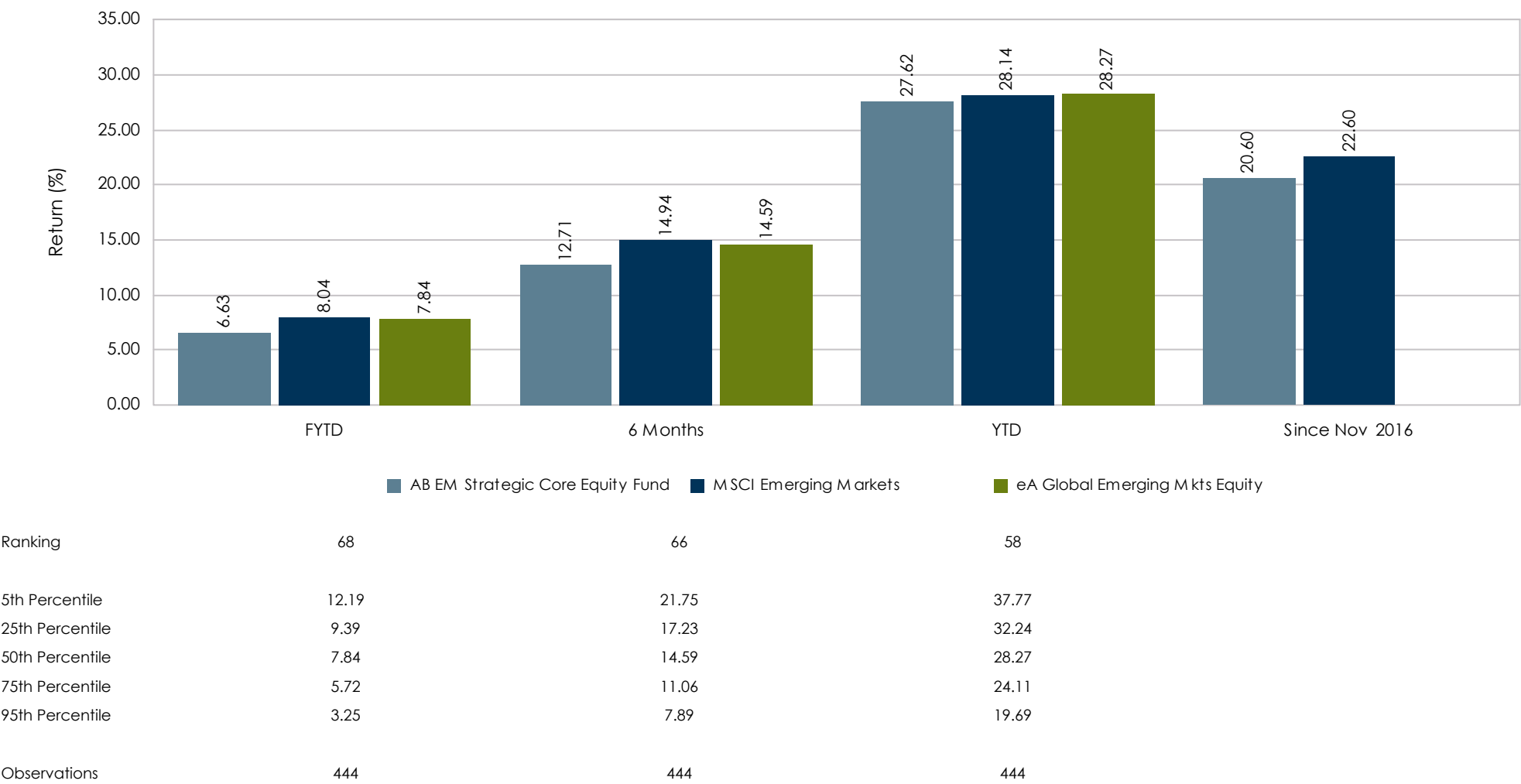
	FYTD	1 Year
Beginning Market Value	78,872	0
Net Additions	0	69,666
Return on Investment	5,230	14,436
Ending Market Value	84,103	84,103

### Country Allocation



AB EM Strategic Core Equity Fund

For the Periods Ending September 30, 2017



The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Private Equity

For the Period Ending September 30, 2017

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-15,322,730	21,328,074	6,005,344

### Summary of Portfolio Inception to Date

	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Total</b>		<b>623,000,000</b>	<b>508,179,042</b>	<b>137,619,739</b>	<b>567,054,960</b>	<b>180,096,917</b>	<b>747,151,877</b>	<b>1.47x</b>
<b>Buyout</b>		<b>215,500,000</b>	<b>177,847,117</b>	<b>52,627,838</b>	<b>222,341,666</b>	<b>50,800,995</b>	<b>273,142,661</b>	<b>1.54x</b>
Marathon IV	Apr-99	7,000,000	7,462,426	-	10,188,872	-	10,188,872	1.37x
Hicks, Muse	Oct-01	15,000,000	16,211,210	-	28,272,306	-	28,272,306	1.74x
Calera Capital (Fremont III)	Jan-02	10,000,000	10,998,419	271,104	10,210,986	39,067	10,250,053	0.93x
Arsenal Capital Partners	Jan-03	15,000,000	16,154,576	-	28,622,510	-	28,622,510	1.77x
Levine Leichtman	Jan-03	10,000,000	10,612,096	439,719	18,215,398	146,507	18,361,905	1.73x
Marathon Fund Limited Partnership V	Dec-04	10,000,000	10,557,584	9,301	19,621,324	1,786	19,623,110	1.86x
Arsenal Capital Partners II	Sep-06	15,000,000	14,898,996	668,860	24,805,969	6,342,477	31,148,446	2.09x
Thompson Street C.P. II	Dec-06	10,000,000	10,579,171	970,164	18,526,048	2,309,980	20,836,028	1.97x
Sun Capital Partners V	Apr-07	12,500,000	12,638,656	2,132,039	8,486,360	7,757,267	16,243,627	1.29x
HM Capital Sector Performance Fund	May-07	15,000,000	15,604,226	647,720	14,690,140	-	14,690,140	0.94x
Calera Capital Fund IV	Jan-08	10,000,000	8,750,484	1,249,516	12,569,574	1,271,684	13,841,258	1.58x
Levine Leichtman IV	Aug-08	10,000,000	9,233,896	1,092,138	13,444,706	3,255,500	16,700,206	1.81x
Thompson Street Capital III	Aug-11	7,500,000	7,363,701	136,299	7,152,961	3,985,313	11,138,274	1.51x
Arsenal Capital Partners III	Apr-12	7,500,000	7,914,948	1,809,271	6,133,492	7,053,583	13,187,075	1.67x
Apollo Investment Fund VIII	Oct-13	7,500,000	5,706,404	2,758,792	1,297,781	5,420,033	6,717,814	1.18x
Francisco Partners Fund IV	Nov-14	8,000,000	5,660,000	2,340,000	-	6,438,906	6,438,906	1.14x
CenterOak Equity Fund I	Aug-15	7,500,000	2,806,984	4,693,016	-	2,003,102	2,003,102	0.71x
Thompson Street Capital Partners IV	Jan-16	7,500,000	3,541,088	4,040,227	81,315	3,705,368	3,786,683	1.07x
Leonard Green Equity Investors VII	Feb-16	7,500,000	1,152,252	6,369,672	21,924	1,070,422	1,092,346	0.95x
Apollo Investment Fund IX	May-17	13,000,000	-	13,000,000	-	-	-	-
Francisco Partners Fund V	Sep-17	10,000,000	-	10,000,000	-	-	-	-

## Private Equity

For the Period Ending September 30, 2017

## Summary of Portfolio Inception to Date

	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Distressed</b>		<b>143,500,000</b>	<b>116,644,534</b>	<b>27,314,456</b>	<b>154,550,749</b>	<b>18,458,990</b>	<b>173,009,739</b>	<b>1.48x</b>
Oaktree Opportunities Fund II	Feb-98	3,000,000	3,000,000	-	4,525,923	-	4,525,923	1.51x
Oaktree Opportunities Fund III	Sep-99	5,000,000	5,000,000	-	7,534,416	893	7,535,309	1.51x
Oaktree Opportunities Fund IV	Dec-01	10,000,000	10,000,000	-	16,802,931	1,912	16,804,843	1.68x
Siguler Guff Dist Opp I	Jan-03	20,000,000	19,568,416	-	30,991,330	-	30,991,330	1.58x
Oaktree Opportunities Fund V	Jun-04	4,000,000	4,000,000	-	6,458,089	93,490	6,551,579	1.64x
Oaktree Opportunities Fund VI	Aug-05	4,000,000	4,000,000	-	6,317,103	953	6,318,056	1.58x
Siguler Guff Dist Opp II	Sep-05	20,000,000	20,006,044	-	27,656,609	763,137	28,419,746	1.42x
Oaktree Opportunities VII A	Mar-07	7,500,000	7,554,219	-	9,687,042	677,972	10,365,014	1.37x
Oaktree Opportunities VII B	May-08	7,500,000	6,750,000	750,000	11,101,022	563,028	11,664,050	1.73x
Siguler Guff Dist Opp III	Aug-08	15,000,000	14,480,311	600,000	19,314,194	3,533,251	22,847,445	1.58x
Oaktree Opportunities VIII	Nov-09	7,500,000	6,750,000	750,000	8,074,484	1,752,064	9,826,548	1.46x
Oaktree Opportunities IX	Jun-12	7,500,000	7,500,000	-	1,641,513	6,260,260	7,901,773	1.05x
Oaktree European Dislocation Fund	Oct-13	7,500,000	4,285,544	3,214,456	3,696,093	1,094,010	4,790,103	1.12x
Oaktree Opportunities Fund X	Mar-15	7,500,000	3,750,000	4,500,000	750,000	3,718,020	4,468,020	1.19x
Oaktree Opportunities Fund Xb	Jun-15	7,500,000	-	7,500,000	-	-	-	-
Apollo EPF III	Dec-16	10,000,000	-	10,000,000	-	-	-	-
<b>Emerging Markets Focused</b>		<b>7,500,000</b>	<b>5,895,216</b>	<b>2,121,067</b>	<b>980,182</b>	<b>5,361,000</b>	<b>6,341,182</b>	<b>1.08x</b>
Actis EM IV	Jan-12	7,500,000	5,895,216	2,121,067	980,182	5,361,000	6,341,182	1.08x
<b>Mezzanine</b>		<b>49,500,000</b>	<b>49,629,213</b>	<b>5,519,655</b>	<b>66,515,197</b>	<b>4,520,050</b>	<b>71,035,247</b>	<b>1.43x</b>
TCW Crescent II	Mar-99	7,000,000	6,726,192	-	9,793,612	-	9,793,612	1.46x
TCW Crescent Mezzanine Partner III	Jul-01	10,000,000	10,188,852	200,324	20,545,737	324,580	20,870,317	2.05x
TCW Crescent IV	Jun-06	10,000,000	9,873,180	1,921,076	11,036,326	94,081	11,130,407	1.13x
Newstone Capital Partners	Oct-06	5,000,000	5,697,863	116,709	6,599,304	435,551	7,034,855	1.23x
TCW Mezzanine Fund V	Jan-08	10,000,000	7,336,349	2,663,651	9,228,323	1,272,318	10,500,641	1.43x
Newstone Capital Partners II	Jan-10	7,500,000	9,806,777	617,895	9,311,895	2,393,520	11,705,415	1.19x
<b>Other</b>		<b>31,500,000</b>	<b>16,999,484</b>	<b>15,740,575</b>	<b>5,433,723</b>	<b>13,966,118</b>	<b>19,399,841</b>	<b>1.14x</b>
EnCap Energy Fund IX	Jan-13	6,500,000	6,641,397	532,514	3,370,517	4,987,519	8,358,036	1.26x
EnCap Energy Fund X	Mar-15	7,500,000	4,625,565	3,440,583	1,149,636	3,822,185	4,971,821	1.07x
ArcLight Energy Partners VI	Mar-15	7,500,000	5,563,522	1,936,478	913,570	4,987,414	5,900,984	1.06x
EnCap Energy Fund XI	Dec-16	10,000,000	169,000	9,831,000	-	169,000	169,000	1.00x
<b>Secondary Fund of Funds</b>		<b>20,000,000</b>	<b>21,439,062</b>	<b>326,939</b>	<b>25,241,693</b>	<b>3,642,836</b>	<b>28,884,529</b>	<b>1.35x</b>
Lexington VI	Dec-05	20,000,000	21,439,062	326,939	25,241,693	3,642,836	28,884,529	1.35x

## Private Equity

For the Period Ending September 30, 2017

## Summary of Portfolio Inception to Date

	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Venture Capital</b>		<b>155,500,000</b>	<b>119,724,416</b>	<b>33,969,209</b>	<b>91,991,750</b>	<b>83,346,928</b>	<b>175,338,678</b>	<b>1.46x</b>
Weiss, Peck & Greer V, LLC	Jul-99	7,000,000	6,932,406	67,594	4,507,097	-	4,507,097	0.65x
Firstmark Venture Partners II (Pequot)	Feb-00	1,000,000	955,000	-	322,553	-	322,553	0.34x
Lightspeed Venture Partners VI (WPG)	Oct-00	12,000,000	11,010,270	989,730	10,396,934	124,546	10,521,480	0.96x
Midtown Fund III (Firstmark III, Pequot)	Oct-00	15,000,000	14,738,625	-	12,141,249	-	12,141,249	0.82x
Venture Lending & Leasing Fund	May-01	6,000,000	4,500,000	-	5,496,840	103,455	5,600,295	1.24x
Accel Europe	Jun-01	10,000,000	10,000,000	-	10,893,985	2,638,093	13,532,078	1.35x
Knightsbridge Fund VI	Dec-04	12,000,000	11,232,000	768,000	8,052,368	7,389,123	15,441,491	1.37x
Firstmark I (Pequot, Firstmark IV)	Nov-05	5,000,000	4,950,000	50,000	13,247,395	20,147,575	33,394,970	6.75x
Weathergage Venture Capital	Mar-07	7,500,000	6,862,500	637,500	6,579,343	6,465,595	13,044,938	1.90x
Warburg Pincus	Sep-07	15,000,000	15,000,000	-	15,378,160	6,984,996	22,363,156	1.49x
Weathergage Venture Cap II	Mar-11	7,500,000	6,900,000	600,000	1,609,636	9,851,329	11,460,965	1.66x
Firstmark II (Firstmark V)	Jul-11	5,000,000	4,822,365	177,635	497,531	7,252,200	7,749,731	1.61x
Warburg Pincus XI	Oct-12	7,500,000	7,061,250	438,750	2,400,161	7,262,603	9,662,764	1.37x
Firstmark Capital Fund III	Oct-13	5,000,000	4,100,000	900,000	-	4,715,457	4,715,457	1.15x
Firstmark Capital Opportunity Fund I	May-14	5,000,000	4,500,000	500,000	441,498	4,597,673	5,039,171	1.12x
Warburg Pincus XII	Dec-15	10,000,000	4,335,000	5,665,000	27,000	4,237,671	4,264,671	0.98x
FirstMark Capital Fund IV	May-16	7,500,000	525,000	6,975,000	-	479,793	479,793	0.91x
FirstMark Capital Opportunity Fund II	May-16	7,500,000	-	7,500,000	-	-	-	-
Weathergage Venture Capital IV	Dec-16	10,000,000	1,300,000	8,700,000	-	1,096,819	1,096,819	0.84x

## **Fixed Income Manager Performance**

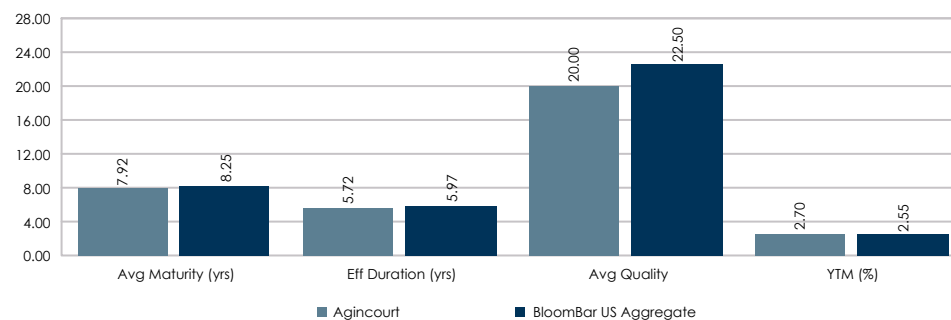
## Agincourt Core Fixed Income

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Core Bonds
- **Vehicle** Separately Managed Account
- **Benchmark** BloomBar US Aggregate
- **Performance Inception Date** October 1999
- **Fees** 25 bps on the first \$25 million, 20 bps on the next \$75 million, 15 bps on the next \$50 million, and 10 bps on the next \$50 million

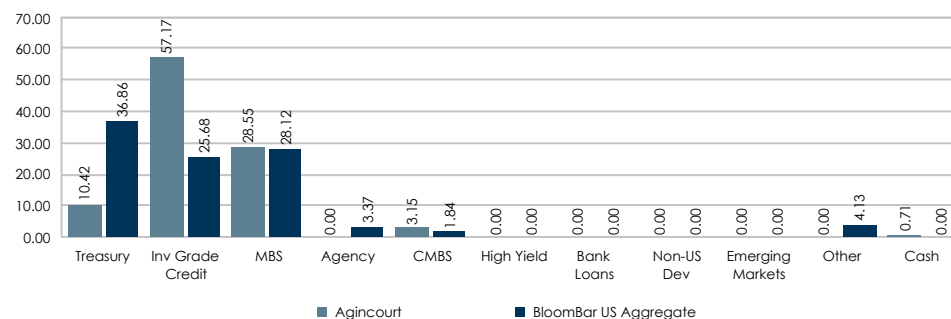
### Characteristics



### Performance Goals

- Outperform the BloomBar US Aggregate.
- Over rolling three year periods, rank above the median in the eA US Core Fixed Income universe.

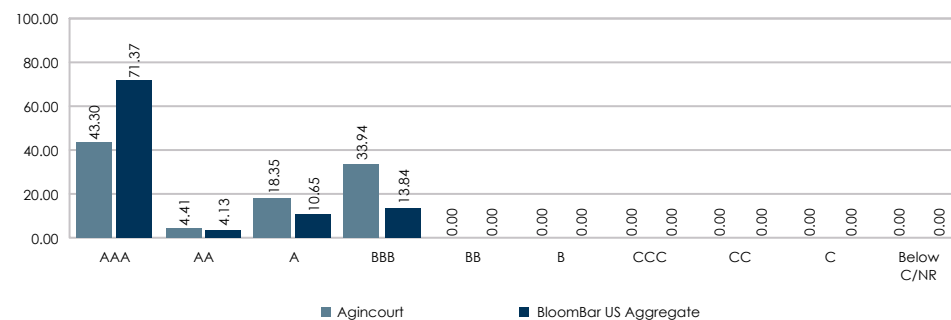
### Sector Allocation



### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>170,040</b>	<b>170,734</b>
Net Additions	-75	-291
Return on Investment	1,664	1,185
Income	1,767	6,573
Gain/Loss	-103	-5,387
<b>Ending Market Value</b>	<b>171,629</b>	<b>171,629</b>

### Quality Allocation

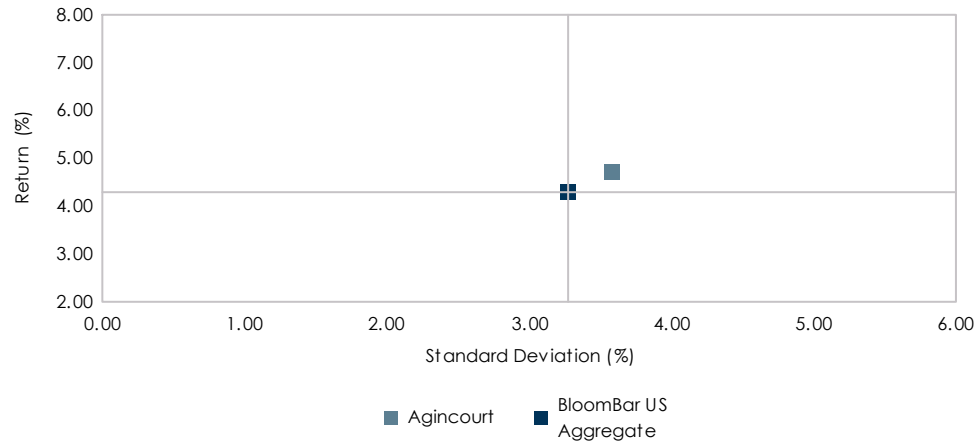


The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

## Agincourt Core Fixed Income

For the Periods Ending September 30, 2017

### 10 Year Risk / Return



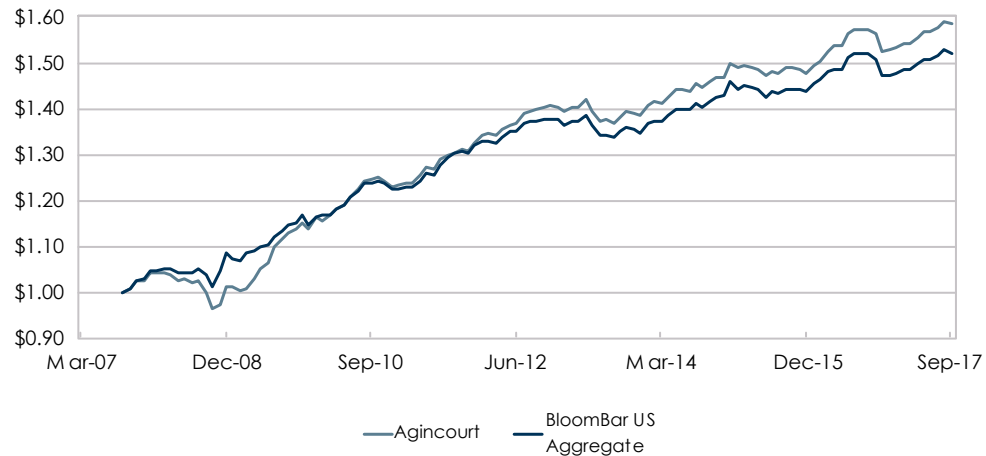
### 10 Year Portfolio Statistics

	Agincourt	BloomBar US Aggregate
Return (%)	4.71	4.27
Standard Deviation (%)	3.58	3.27
Sharpe Ratio	1.22	1.20

### Benchmark Relative Statistics

Beta	0.99
R Squared (%)	81.58
Alpha (%)	0.48
Tracking Error (%)	1.54
Batting Average (%)	60.83
Up Capture (%)	107.00
Down Capture (%)	101.01

### 10 Year Growth of a Dollar

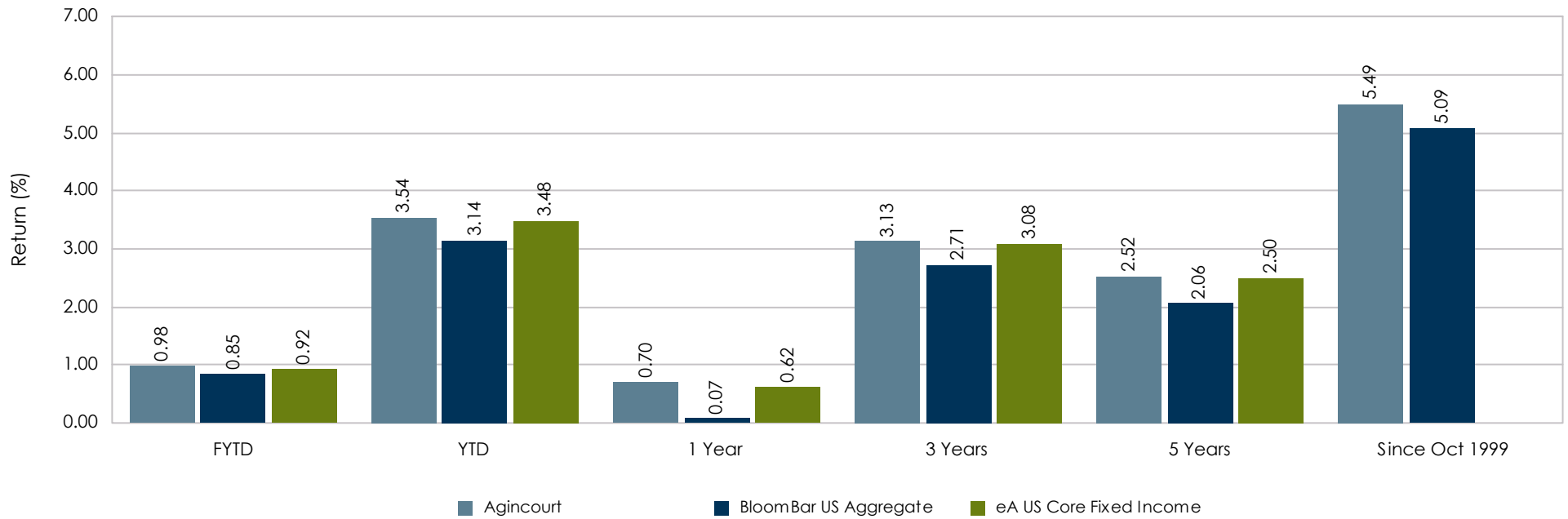


### 10 Year Return Analysis

	Agincourt	BloomBar US Aggregate
Number of Months	120	120
Highest Monthly Return (%)	3.80	3.73
Lowest Monthly Return (%)	-3.54	-2.37
Number of Positive Months	80	80
Number of Negative Months	40	40
% of Positive Months	66.67	66.67

## Agincourt Core Fixed Income

For the Periods Ending September 30, 2017

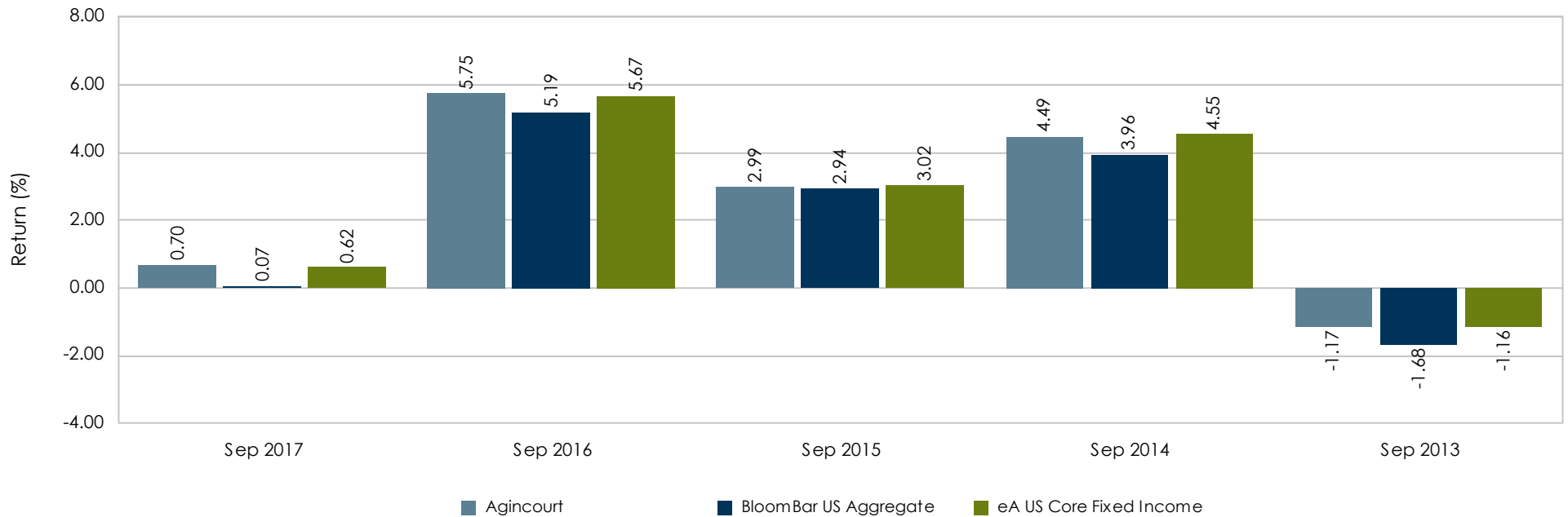


Ranking	33	43	43	44	48
5th Percentile	1.20	4.50	2.07	4.02	3.54
25th Percentile	1.02	3.81	1.13	3.36	2.85
50th Percentile	0.92	3.48	0.62	3.08	2.50
75th Percentile	0.83	3.20	0.25	2.83	2.22
95th Percentile	0.62	2.74	-0.23	2.46	1.88
Observations	235	235	235	229	226

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Agincourt Core Fixed Income

For the One Year Periods Ending September



Ranking	43	46	54	54	51
5th Percentile	2.07	7.34	3.99	6.38	0.76
25th Percentile	1.13	6.20	3.37	5.11	-0.66
50th Percentile	0.62	5.67	3.02	4.55	-1.16
75th Percentile	0.25	5.19	2.62	4.04	-1.56
95th Percentile	-0.23	4.11	1.81	2.97	-2.31
Observations	235	256	259	276	290

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Oaktree Capital Management

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Multi-Sector Fixed Income
- **Vehicle** Non-Mutual Commingled
- **Benchmark** BloomBar US Aggregate
- **Performance Inception Date** February 1998
- **Fees** 50 bps

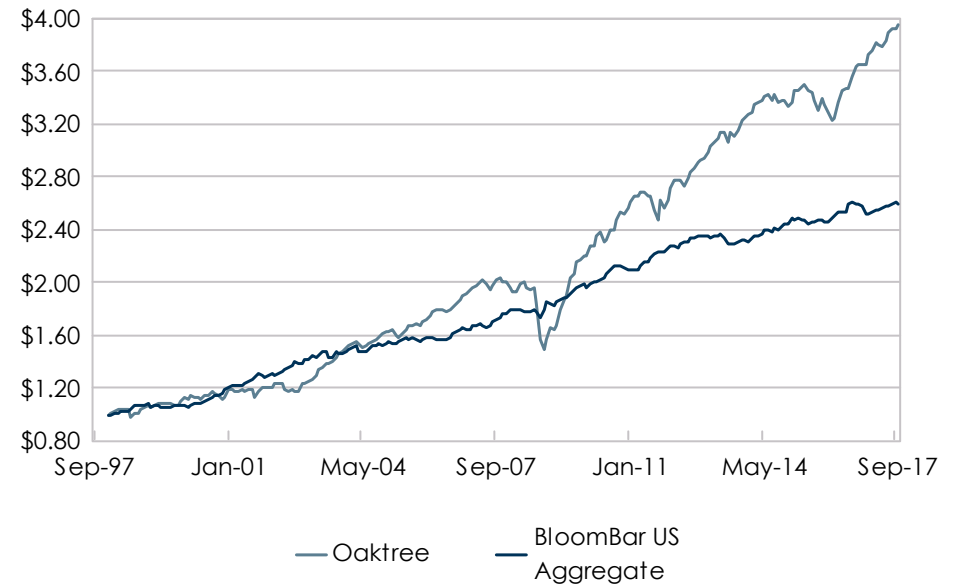
### Performance Goals

- Outperform the BloomBar US Aggregate.
- Each underlying strategy should outperform its relevant benchmark.

### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>120,555</b>	<b>113,552</b>
Net Additions	-170	-657
Return on Investment	2,247	9,737
<b>Ending Market Value</b>	<b>122,632</b>	<b>122,632</b>

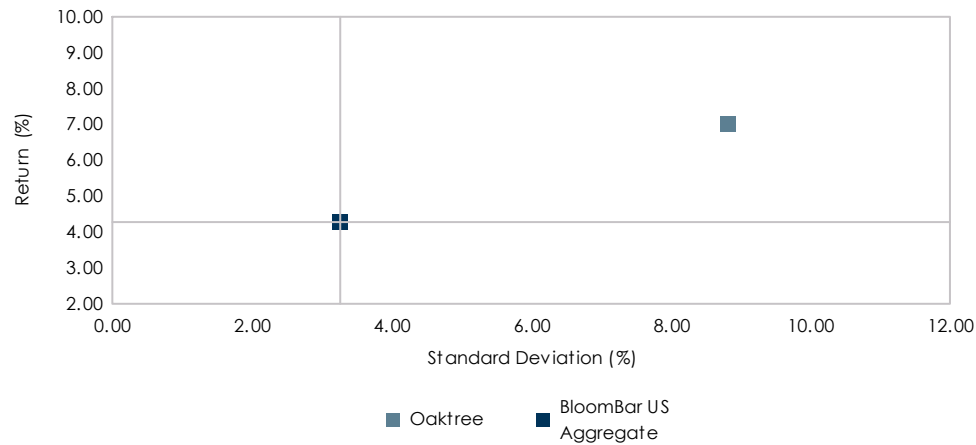
### Growth of a Dollar



## Oaktree Capital Management

For the Periods Ending September 30, 2017

### 10 Year Risk / Return



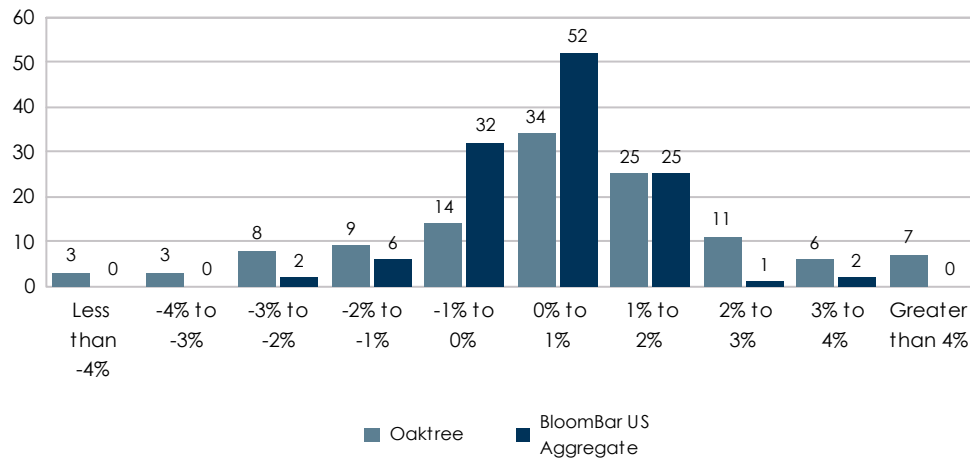
### 10 Year Portfolio Statistics

	Oaktree	BloomBar US Aggregate
Return (%)	6.98	4.27
Standard Deviation (%)	8.82	3.27
Sharpe Ratio	0.75	1.20

### Benchmark Relative Statistics

Beta	0.65
R Squared (%)	5.75
Alpha (%)	4.51
Tracking Error (%)	8.64
Batting Average (%)	57.50
Up Capture (%)	123.09
Down Capture (%)	55.10

### 10 Year Return Histogram

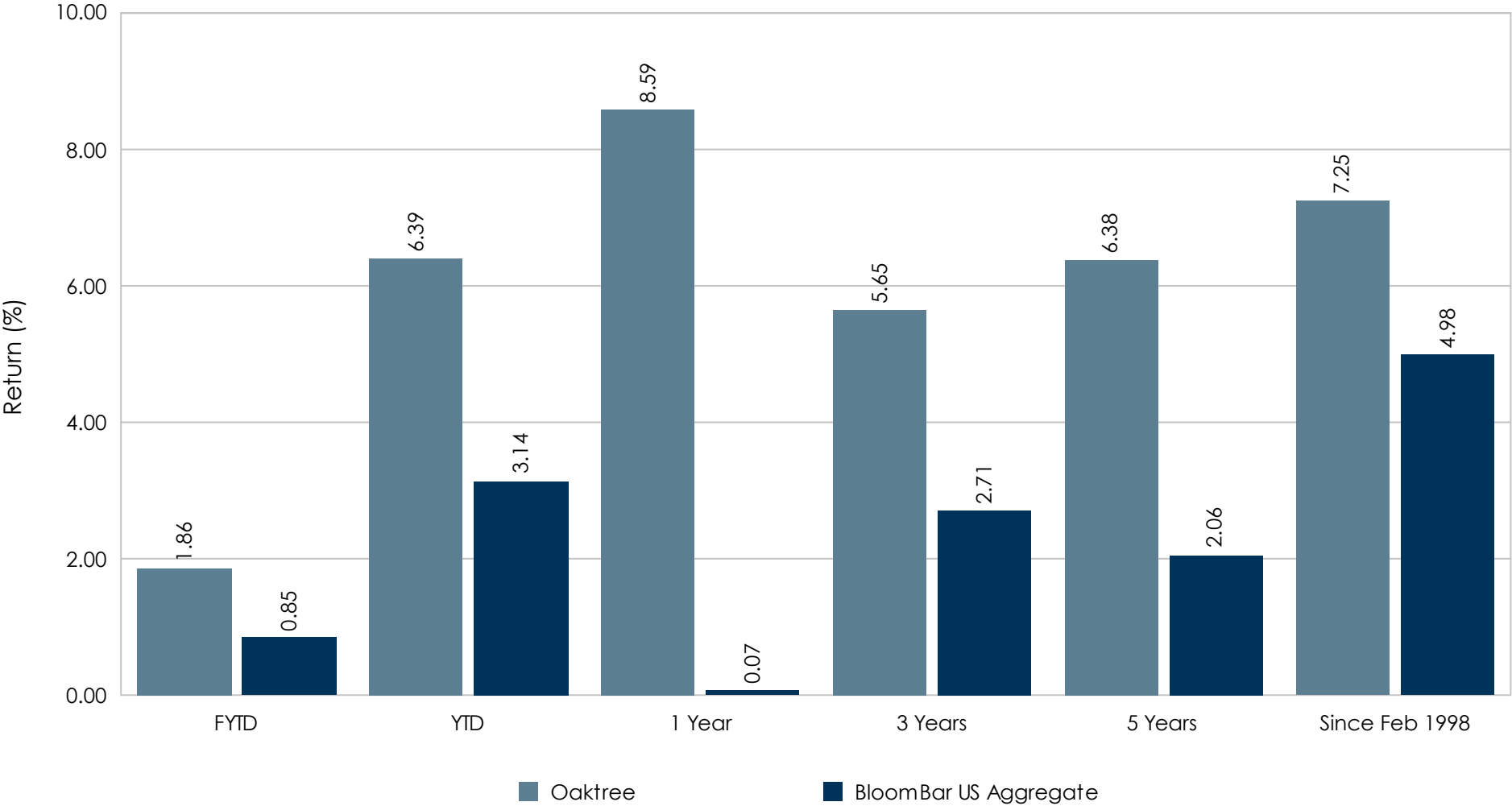


### 10 Year Return Analysis

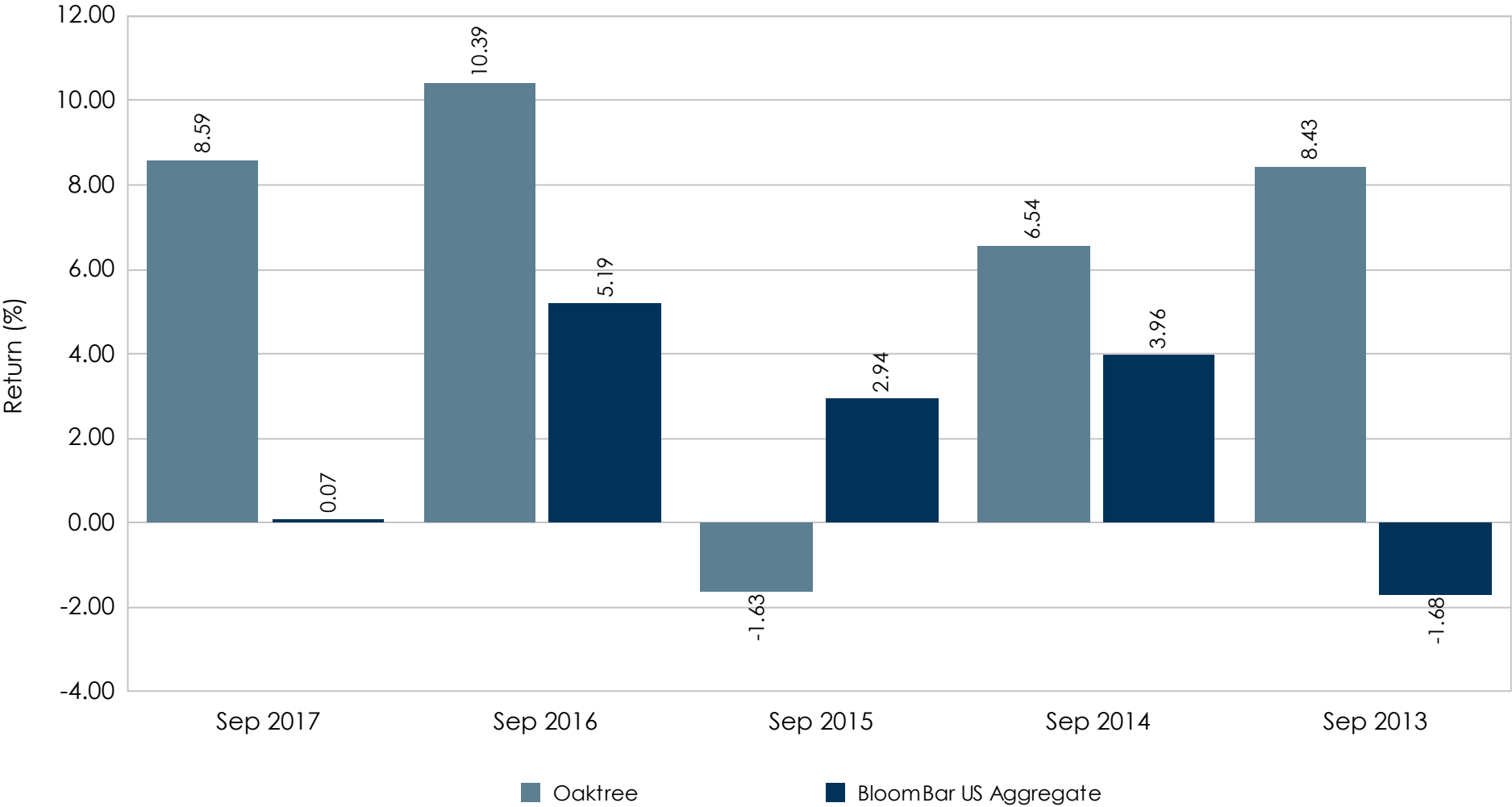
	Oaktree	BloomBar US Aggregate
Number of Months	120	120
Highest Monthly Return (%)	7.58	3.73
Lowest Monthly Return (%)	-14.86	-2.37
Number of Positive Months	83	80
Number of Negative Months	37	40
% of Positive Months	69.17	66.67

Oaktree Capital Management

For the Periods Ending September 30, 2017



**Oaktree Capital Management**  
*For the One Year Periods Ending September*



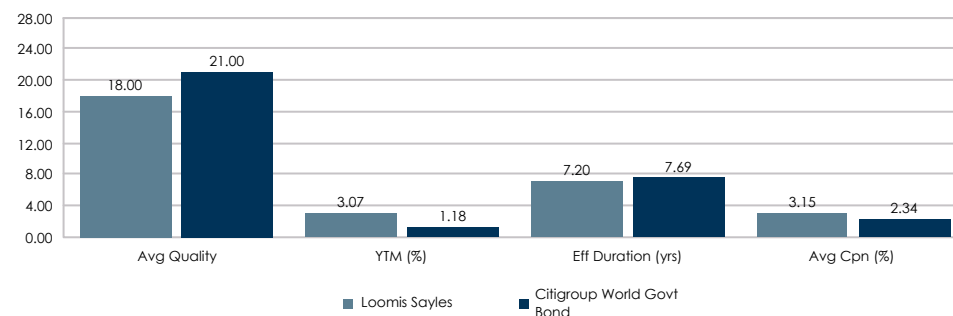
## Loomis Sayles

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Multi-Sector Fixed Income
- **Vehicle** Non-Mutual Commingled
- **Benchmark** Citigroup World Govt Bond
- **Performance Inception Date** June 2008
- **Fees** First \$75M at 35 bps, balance at 25 bps

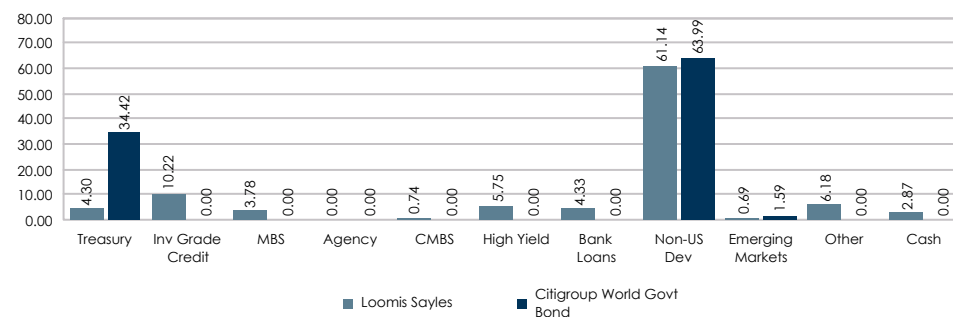
### Characteristics



### Performance Goals

- Outperform the Citigroup World Govt Bond.
- Over rolling three year periods, rank above the median in the eA All Global Fixed Income universe.

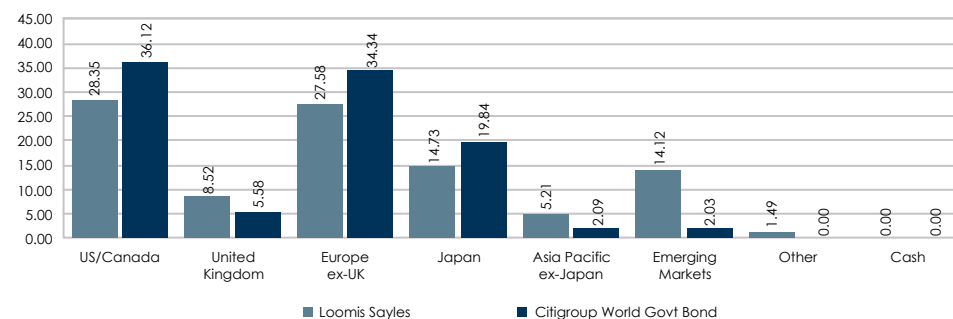
### Sector Allocation



### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>94,897</b>	<b>97,575</b>
Net Additions	-77	-308
Return on Investment	2,433	-13
<b>Ending Market Value</b>	<b>97,253</b>	<b>97,253</b>

### Regional Allocation



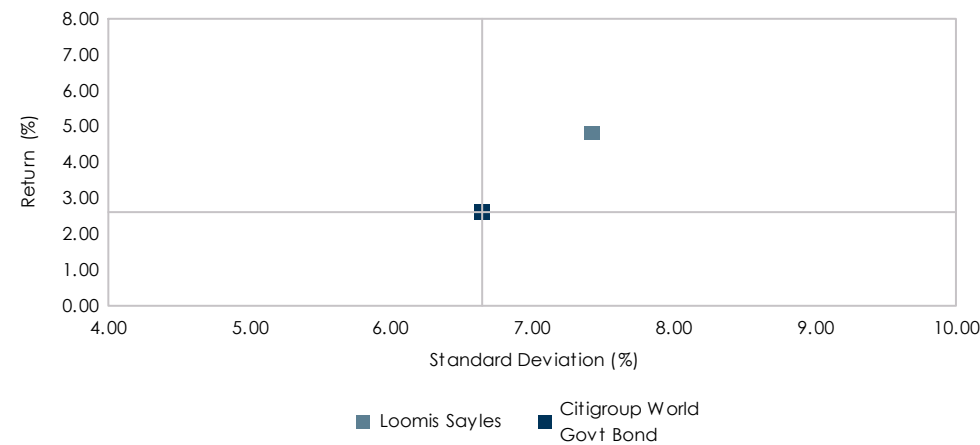
Characteristic and allocation charts represents data of the Loomis World Bond NH Trust (Non-Mutual Commingled).

The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

Loomis Sayles

For the Periods Ending September 30, 2017

9 Year Risk / Return



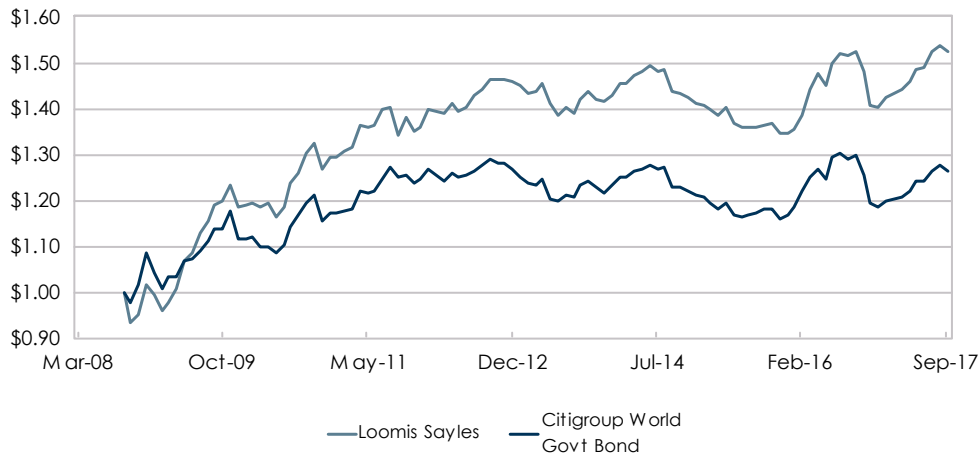
9 Year Portfolio Statistics

	Loomis Sayles	Citigroup World Govt Bond
Return (%)	4.80	2.63
Standard Deviation (%)	7.43	6.64
Sharpe Ratio	0.63	0.38

Benchmark Relative Statistics

Beta	1.01
R Squared (%)	81.11
Alpha (%)	2.16
Tracking Error (%)	3.23
Batting Average (%)	67.59
Up Capture (%)	121.29
Down Capture (%)	97.65

9 Year Growth of a Dollar

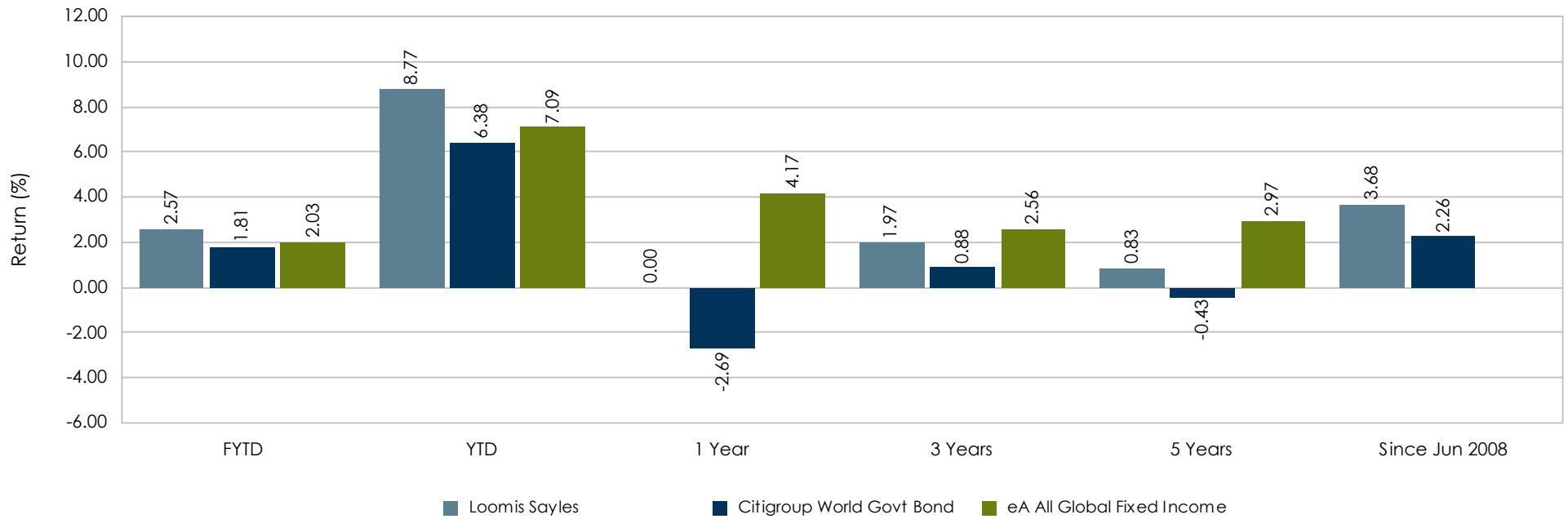


9 Year Return Analysis

	Loomis Sayles	Citigroup World Govt Bond
Number of Months	108	108
Highest Monthly Return (%)	7.16	7.11
Lowest Monthly Return (%)	-6.59	-5.03
Number of Positive Months	69	62
Number of Negative Months	39	46
% of Positive Months	63.89	57.41

## Loomis Sayles

For the Periods Ending September 30, 2017

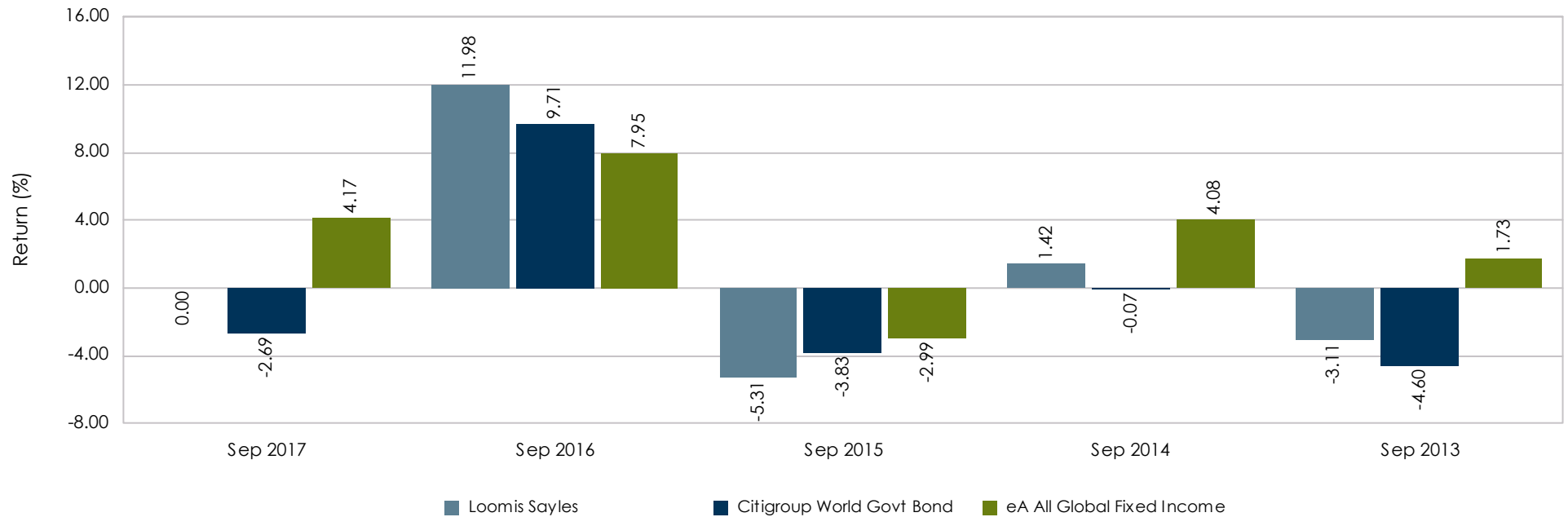


Ranking	34	33	86	58	75
5th Percentile	4.95	15.91	11.99	6.52	7.14
25th Percentile	3.02	10.04	7.59	4.35	4.67
50th Percentile	2.03	7.09	4.17	2.56	2.97
75th Percentile	1.39	5.00	1.33	1.09	0.81
95th Percentile	0.47	1.69	-2.16	-1.35	-1.13
Observations	599	598	597	553	472

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Loomis Sayles

For the One Year Periods Ending September



Ranking	86	13	68	72	83
5th Percentile	11.99	15.31	3.23	9.41	14.34
25th Percentile	7.59	10.15	0.28	6.77	6.21
50th Percentile	4.17	7.95	-2.99	4.08	1.73
75th Percentile	1.33	4.94	-7.07	1.06	-1.72
95th Percentile	-2.16	-1.67	-15.37	-2.66	-6.84
Observations	597	688	672	673	642

The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## Private Credit

For the Period Ending September 30, 2017

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-5,072,993	1,443,508	-3,629,485

### Summary of Portfolio Inception to Date

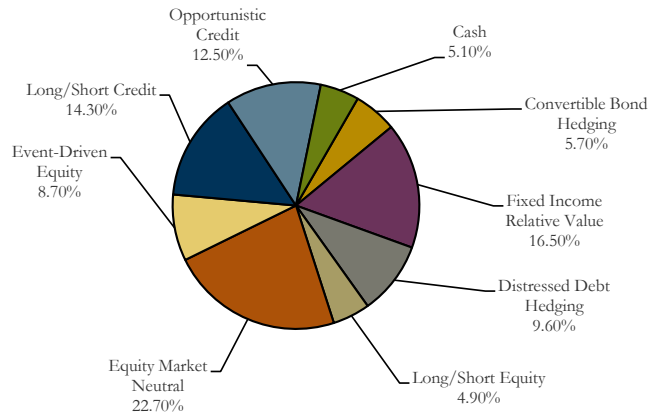
	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Total</b>		<b>60,000,000</b>	<b>20,757,596</b>	<b>39,242,404</b>	<b>1,617,063</b>	<b>20,590,974</b>	<b>22,208,037</b>	<b>1.07x</b>
<b>Mezzanine</b>		<b>20,000,000</b>	<b>8,757,596</b>	<b>11,242,404</b>	<b>611,008</b>	<b>8,940,837</b>	<b>9,551,845</b>	<b>1.09x</b>
Newstone Capital Partners III	Jan-17	20,000,000	8,757,596	11,242,404	611,008	8,940,837	9,551,845	1.09x
<b>Other</b>		<b>40,000,000</b>	<b>12,000,000</b>	<b>28,000,000</b>	<b>1,006,055</b>	<b>11,650,137</b>	<b>12,656,192</b>	<b>1.05x</b>
LBC Credit Partners Fund IV	Sep-16	40,000,000	12,000,000	28,000,000	1,006,055	11,650,137	12,656,192	1.05x

## PAAMCO

For the Periods Ending September 30, 2017

### Sector Allocation

Market Value: \$127,060,093



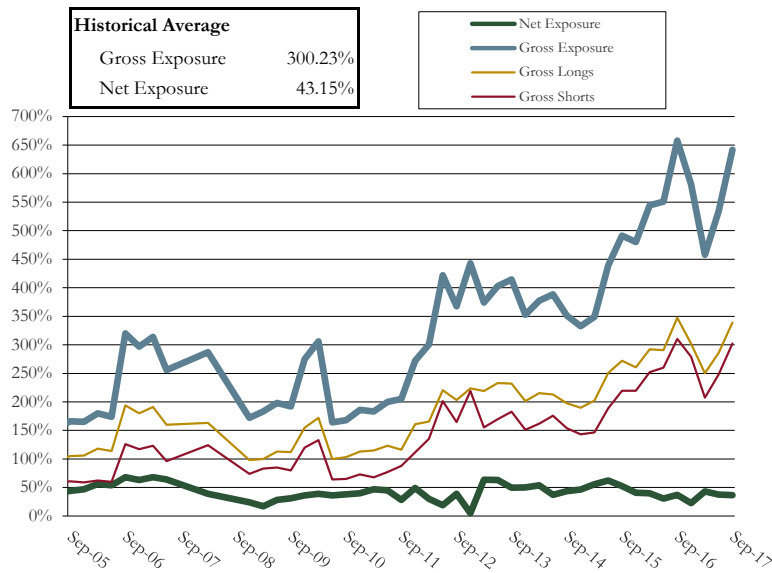
### Strategy

- Low Volatility Hedge Fund of Funds
- Performance Inception Date: October 2002
- Redemption: Quarterly with 60 days written notice

### Objectives and Constraints

- Target annualized return: 10-12%
- Target annualized standard deviation: approximate the standard deviation of the Barclays Capital Aggregate
- Maximum number of managers: 55
- Allocation to any manager: not to exceed 5% at cost or 7% at market value
- Allocation to Convertible Bond Hedging: 20-40%
- Allocation to Sovereign Debt & Mortgage Hedging: 0-10%
- Allocation to Credit Hedging & Distressed Debt Hedging: 0-25%
- Allocation to Merger Arbitrage: 0-20%
- Allocation to Equity Market Neutral & Long/Short Equity: 20-45%
- Allocation to Short Biased: 0-5%
- Allocation to Cash: 0-5%

### Historical Net & Gross Exposure



### Exposure

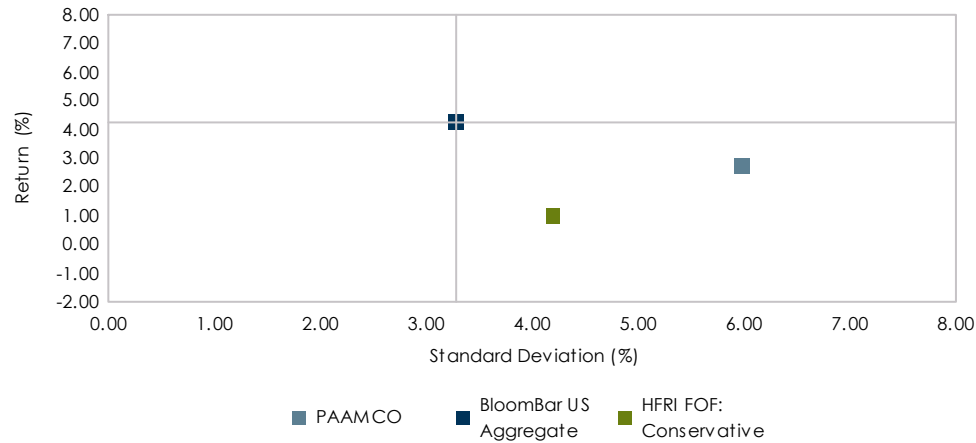
- Net Exposure: 36.70%
- Gross Exposure: 641.70%

Characteristic data provided by manager.

## PAAMCO

For the Periods Ending September 30, 2017

### 10 Year Risk / Return



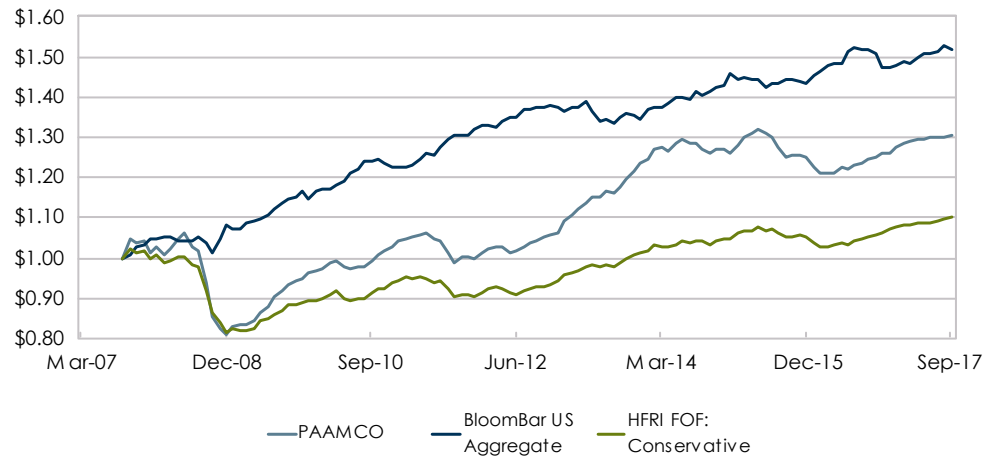
### 10 Year Portfolio Statistics

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Return (%)	2.70	4.27	0.96
Standard Deviation (%)	5.98	3.27	4.19
Sharpe Ratio	0.39	1.20	0.15

### Benchmark Relative Statistics

Beta	-0.03	1.34
R Squared (%)	0.03	87.96
Alpha (%)	3.02	1.46
Tracking Error (%)	6.87	2.51
Batting Average (%)	57.50	62.50
Up Capture (%)	36.44	145.30
Down Capture (%)	-7.06	113.04

### 10 Year Growth of a Dollar

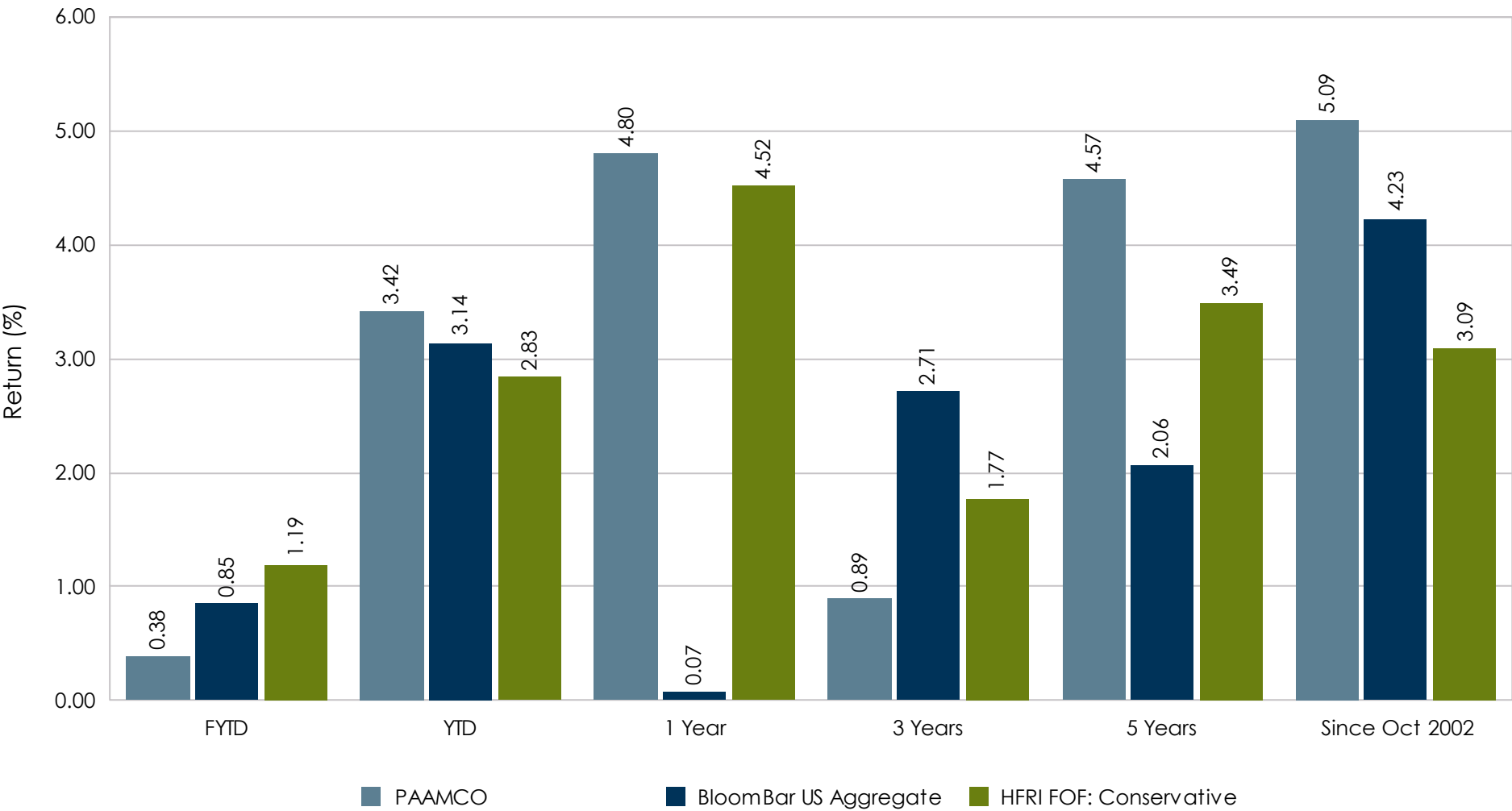


### 10 Year Return Analysis

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Number of Months	120	120	120
Highest Monthly Return (%)	4.90	3.73	2.42
Lowest Monthly Return (%)	-9.06	-2.37	-5.91
Number of Positive Months	81	80	81
Number of Negative Months	39	40	39
% of Positive Months	67.50	66.67	67.50

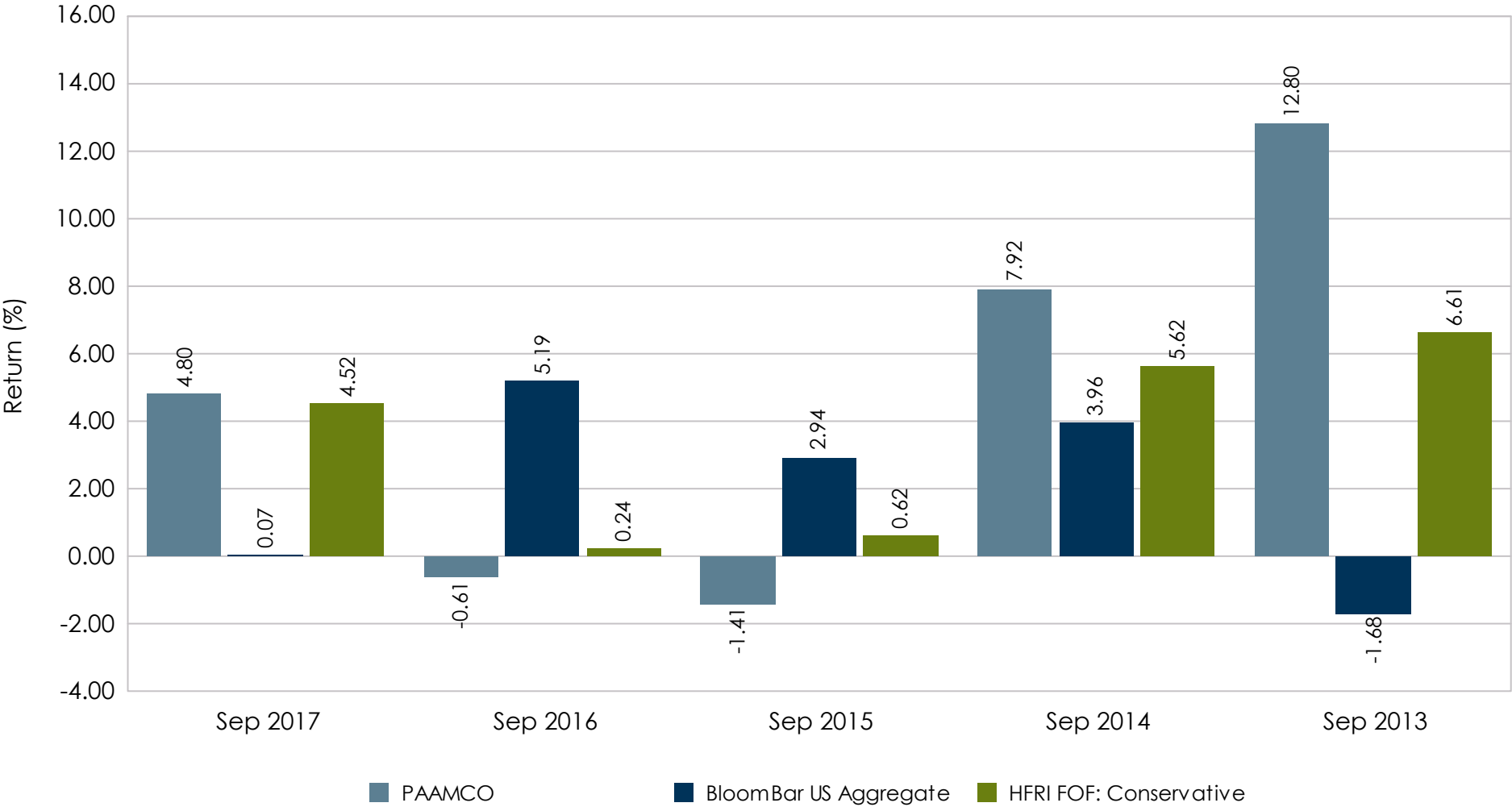
PAAMCO

For the Periods Ending September 30, 2017



PAAMCO

For the One Year Periods Ending September



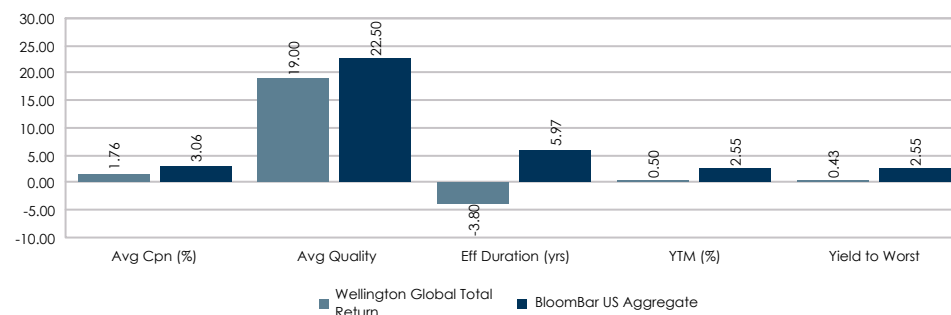
## Wellington Global Total Return

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Absolute Return
- **Vehicle** Non-Mutual Commingled
- **Benchmark** BloomBar US Aggregate
- **Performance Inception Date** December 2016
- **Fees** 25 bps, plus 20% of excess return beyond cash + 1%

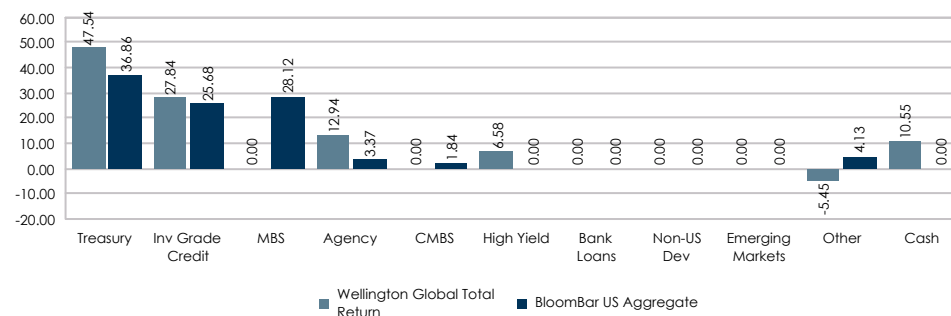
### Characteristics



### Performance Goals

- Outperform the LIBOR 3 Month.
- Over rolling three year periods, rank above the median in the eA Global Unconstrained Fixed Income universe.

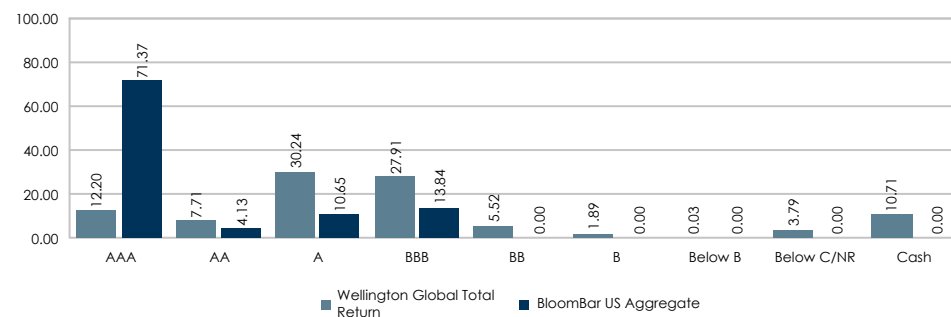
### Sector Allocation



### Dollar Growth Summary (\$000s)

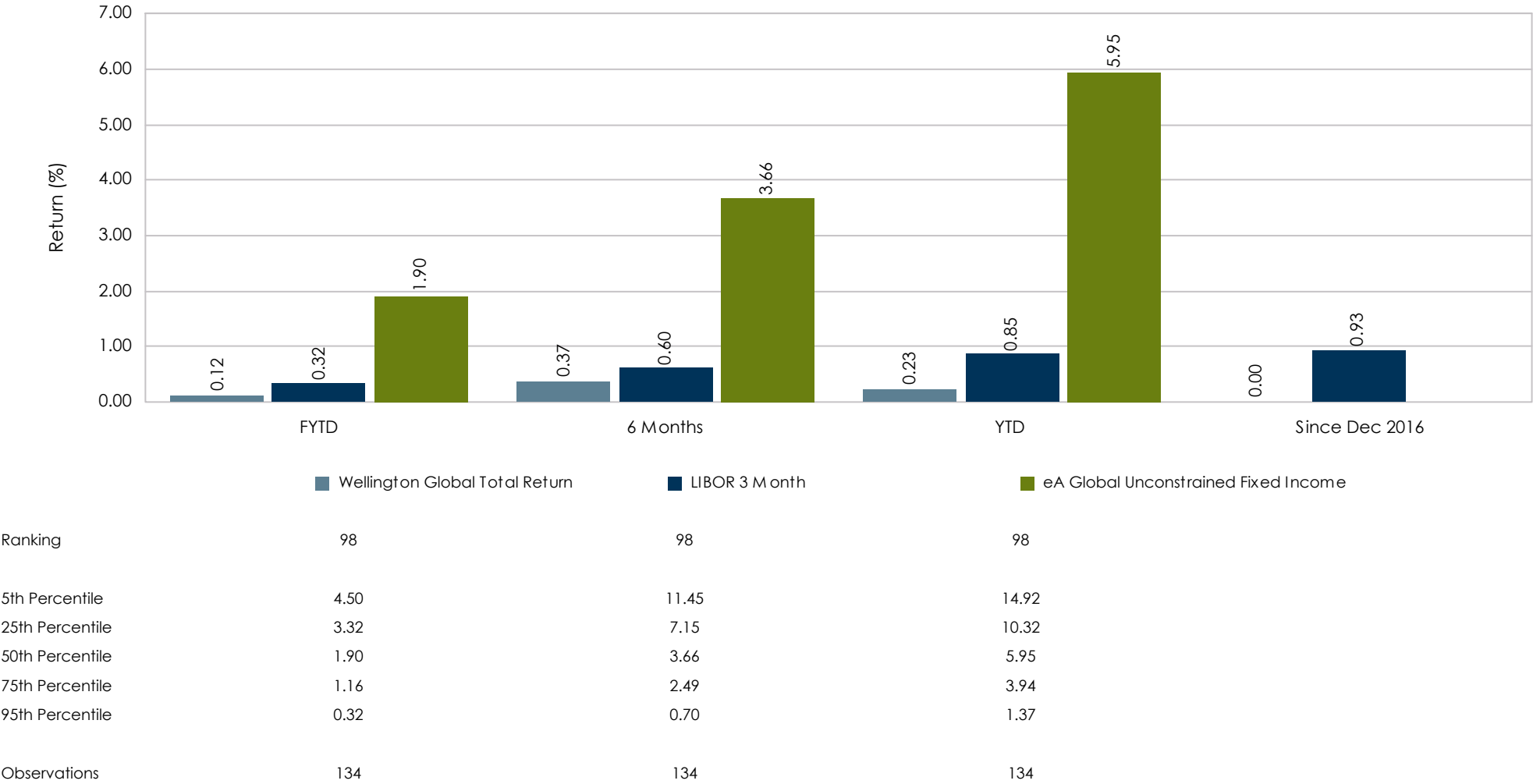
	FYTD	1 Year
<b>Beginning Market Value</b>	<b>59,877</b>	<b>0</b>
Net Additions	-37	59,913
Return on Investment	73	0
<b>Ending Market Value</b>	<b>59,913</b>	<b>59,913</b>

### Quality Allocation



The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

**Wellington Global Total Return**  
For the Periods Ending September 30, 2017



The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

## **Real Assets Manager Performance**

## JP Morgan Strategic Property

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Core Real Estate
- **Vehicle** Non-Mutual Commingled
- **Benchmarks** NFI ODCE Net and NCREIF Property
- **Performance Inception Date** December 2007
- **Fees** First \$100M at 92 bps, next \$150M at 85 bps, next \$250M at 80 bps, balance at 75 bps

### Performance Goals

- Outperform the NFI ODCE Net.

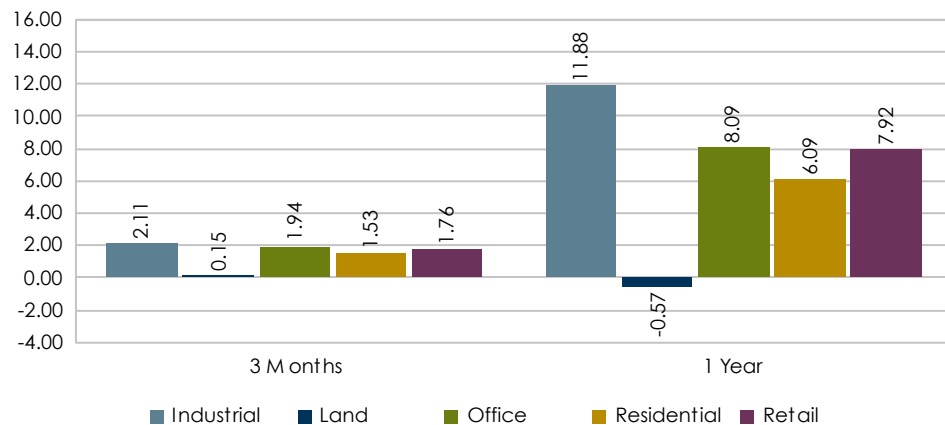
### Account Information

- **Ending Market Value** \$117,636,621

### Fund Information

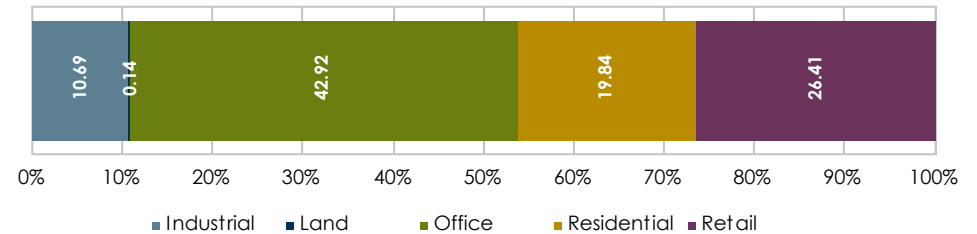
- **Gross Market Value** \$42,035,480,174
- **Net Market Value** \$31,725,474,546
- **Cash Balance of Fund** \$2,118,093,644
- **# of Properties** 162
- **# of Participants** 428

### Returns by Property Type (%)

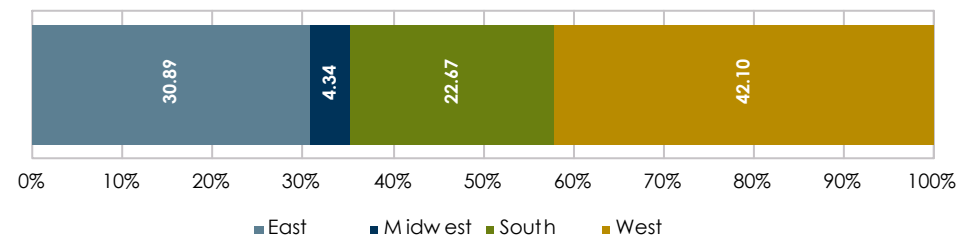


### Allocations

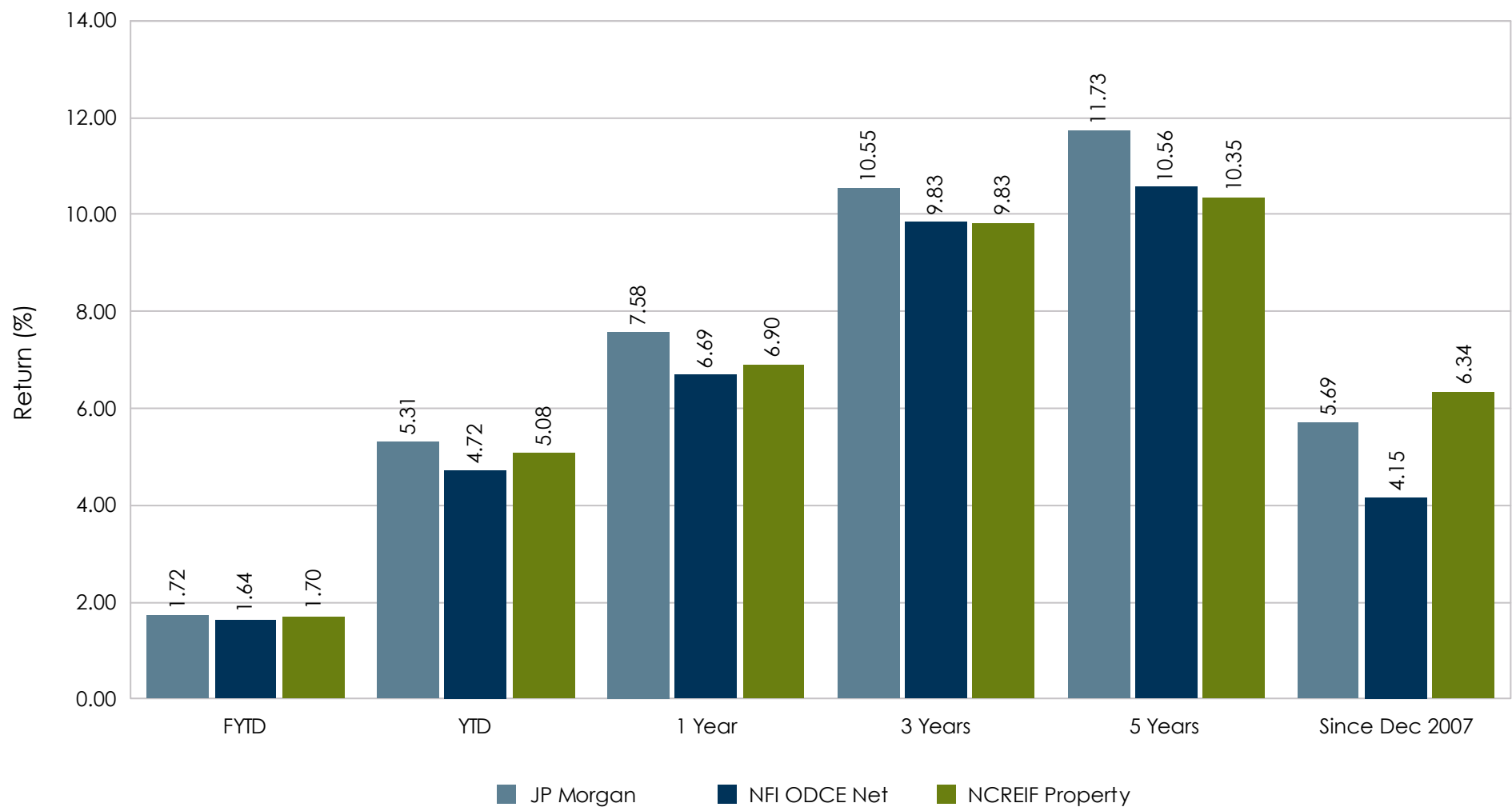
#### Property Type



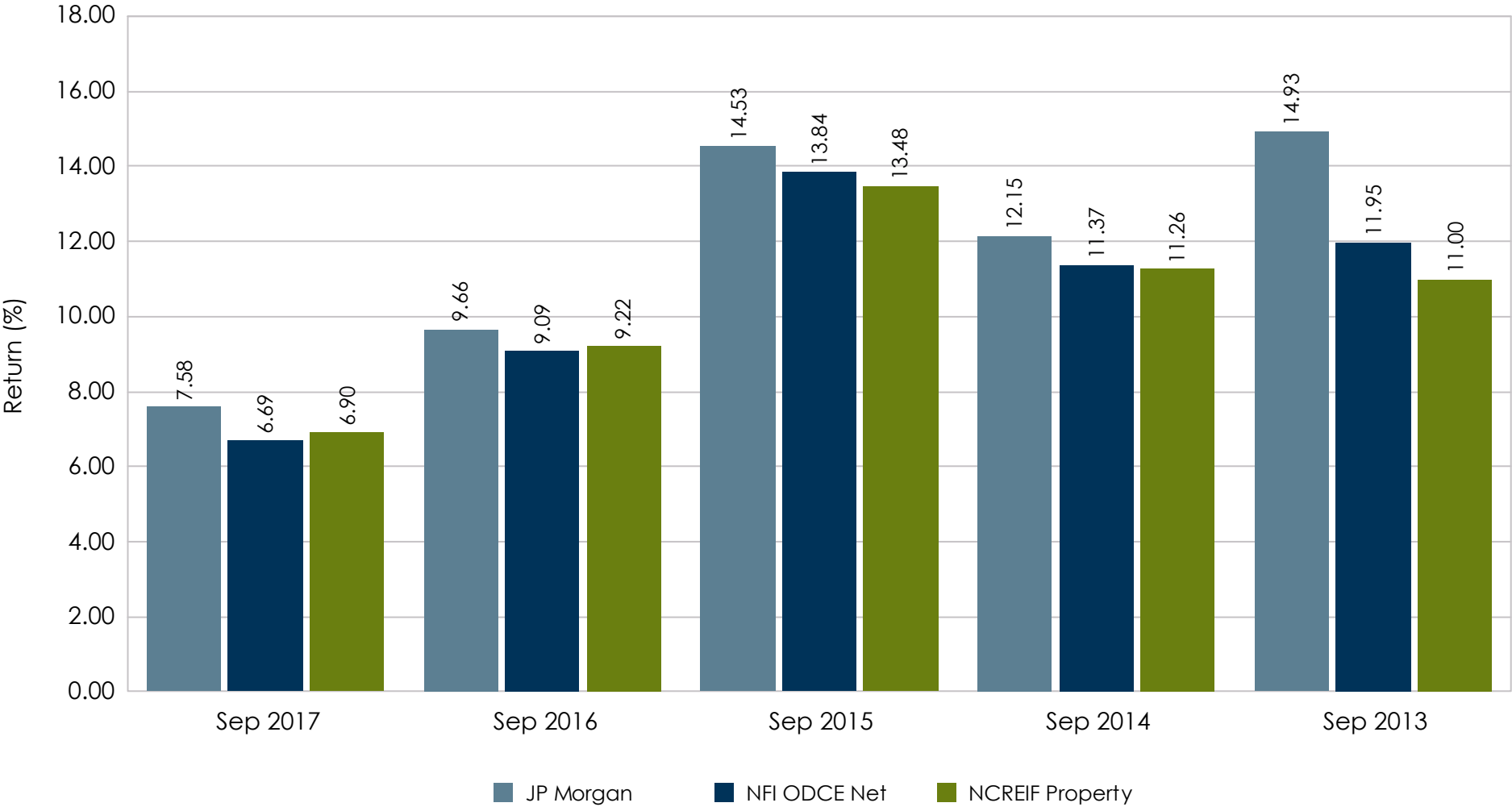
#### Geographic Region



**JP Morgan Strategic Property**  
*For the Periods Ending September 30, 2017*



**JP Morgan Strategic Property**  
*For the One Year Periods Ending September*



## Blackstone Property Partners

For the Periods Ending September 30, 2017

### Account Description

- **Strategy** Core Real Estate
- **Vehicle** Limited Partnership
- **Benchmarks** NFI ODCE Net and NCREIF Property
- **Performance Inception Date** January 2015

### Account Information

- **Ending Market Value** \$38,693,571

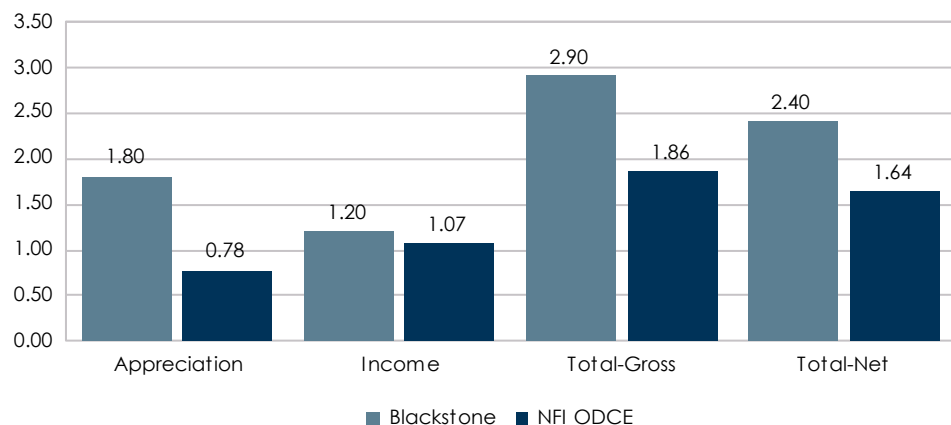
### Fund Information

- **Net Market Value** \$6,300,000,000
- **# of Properties** 21

### Performance Goals

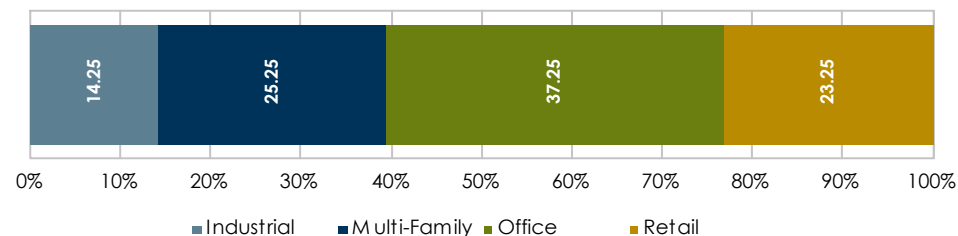
- Outperform the NFI ODCE Net and NCREIF Property.

### Current Quarter Returns (%)

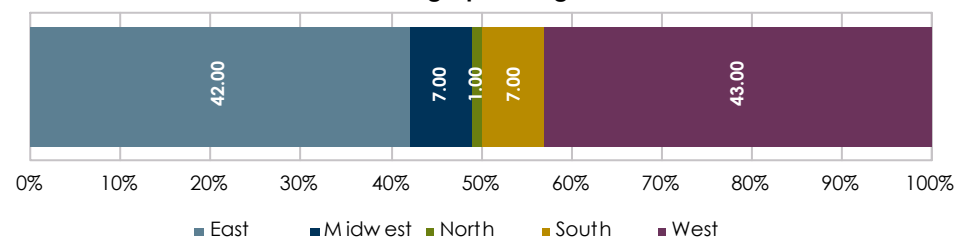


### Allocations

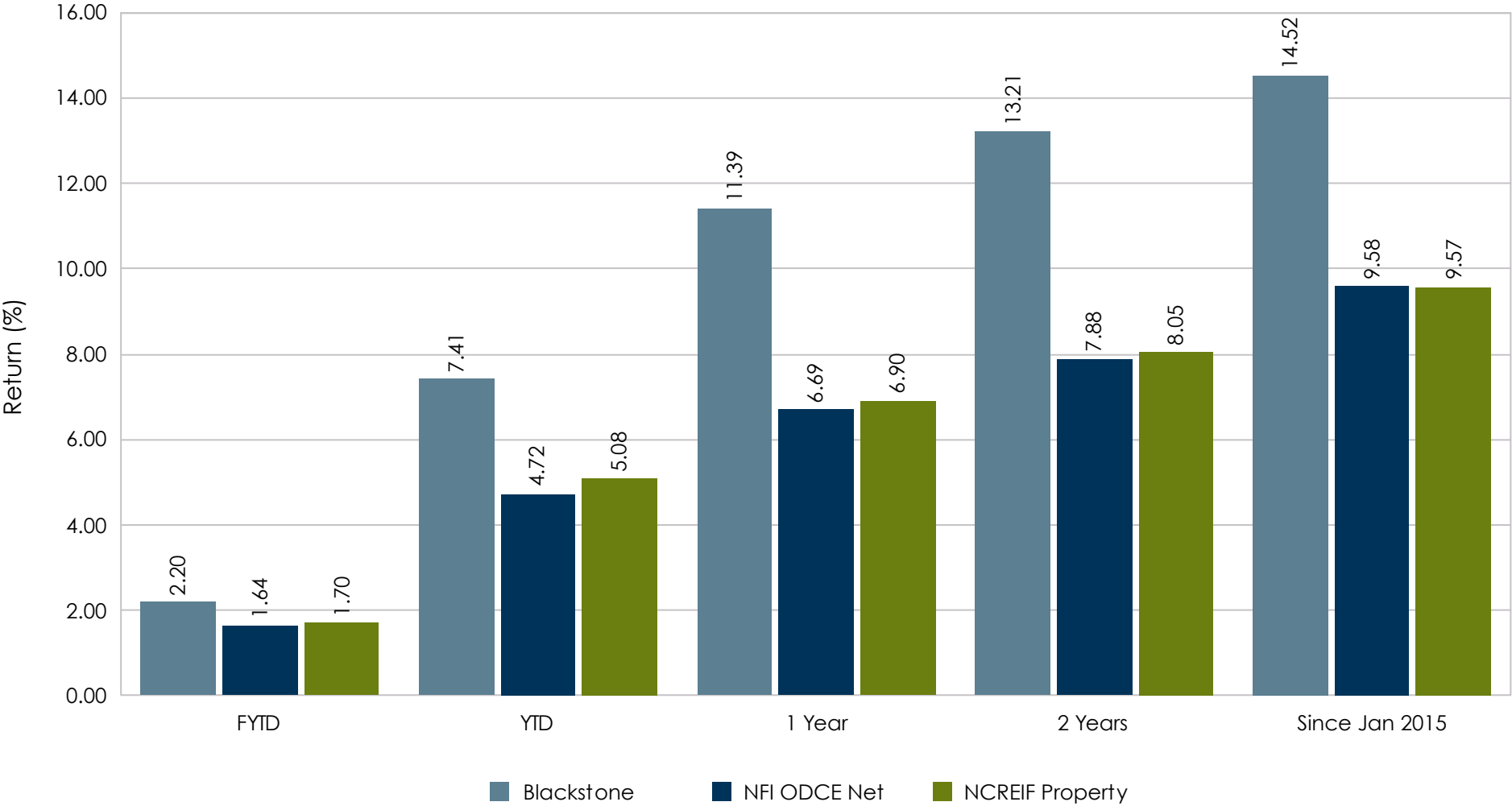
#### Property Type



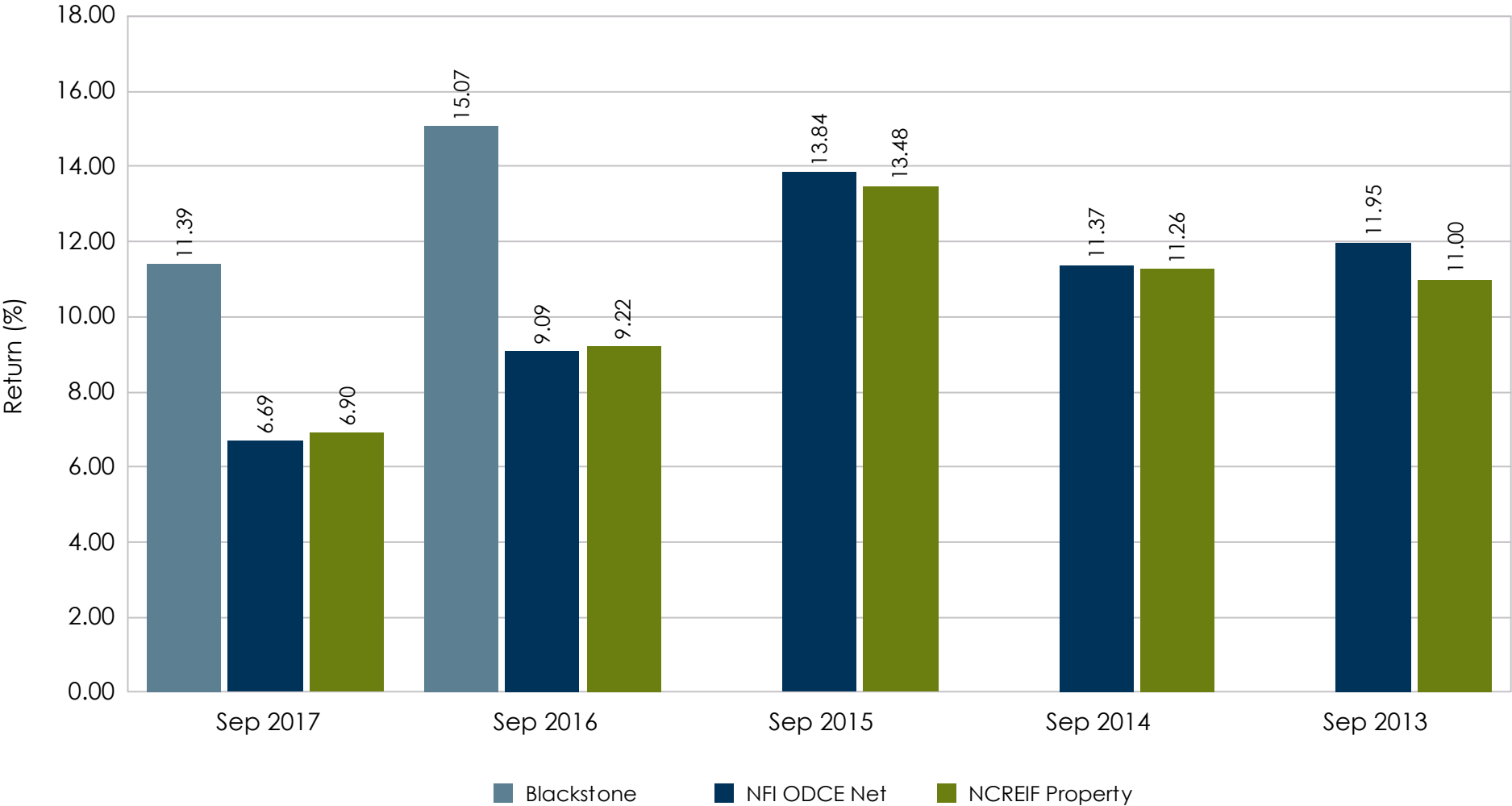
#### Geographic Region



**Blackstone Property Partners**  
*For the Periods Ending September 30, 2017*



**Blackstone Property Partners**  
*For the One Year Periods Ending September*



## Private Real Estate

For the Period Ending September 30, 2017

### Summary of Cash Flows for 6 Months

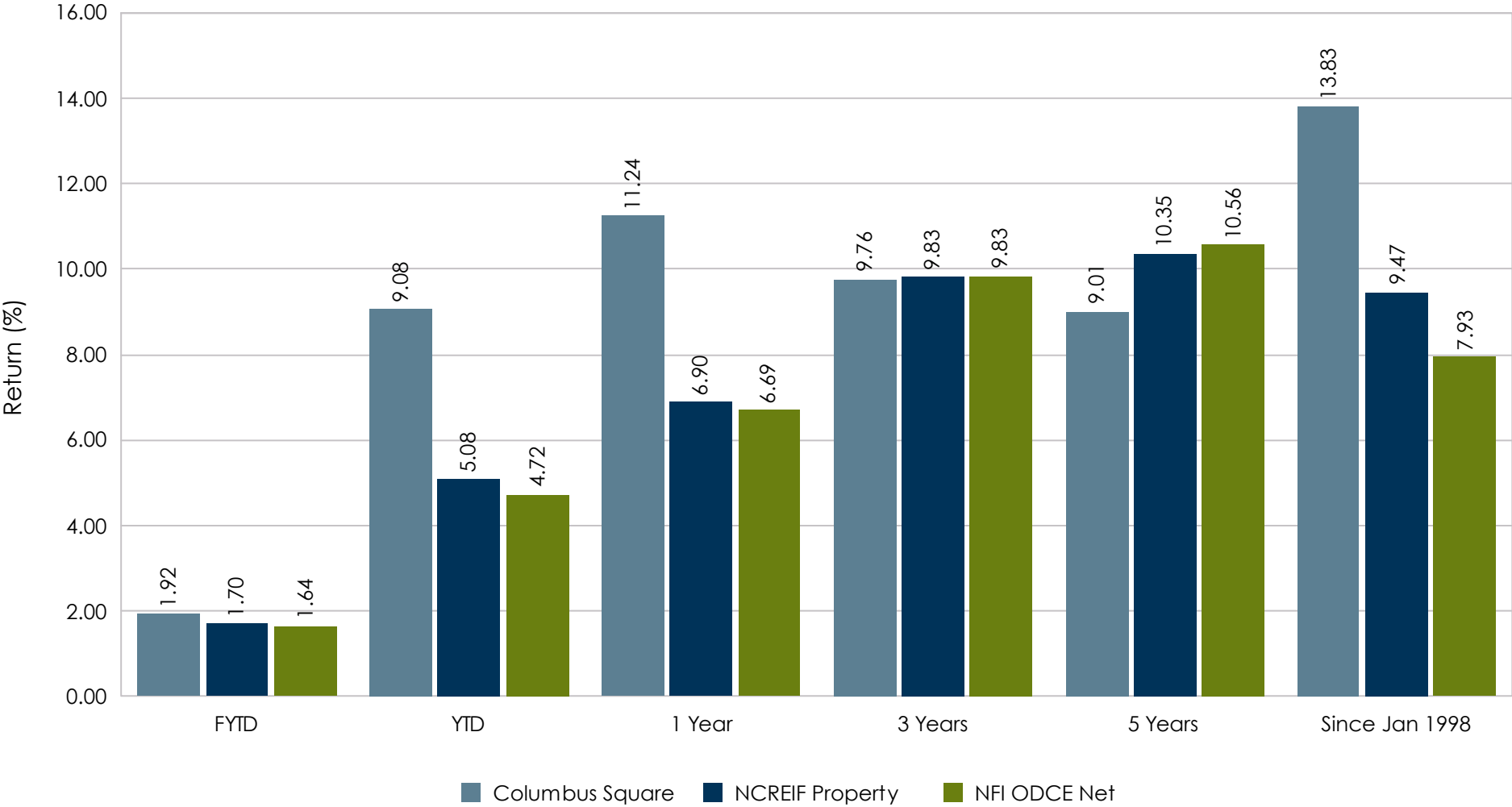
Cash Outflows	Cash Inflows	Net Cash Flows
-4,907,649	7,781,498	2,873,849

### Summary of Portfolio Inception to Date

	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Total</b>		<b>92,500,000</b>	<b>71,700,183</b>	<b>29,873,111</b>	<b>40,652,423</b>	<b>52,883,862</b>	<b>93,536,285</b>	<b>1.30x</b>
<b>Real Estate</b>		<b>92,500,000</b>	<b>71,700,183</b>	<b>29,873,111</b>	<b>40,652,423</b>	<b>52,883,862</b>	<b>93,536,285</b>	<b>1.30x</b>
Siguler Guff Dist. Real Estate Opp.	Jul-11	10,000,000	8,608,587	1,650,773	7,365,931	<b>6,855,553</b>	14,221,484	1.65x
TA Associates Realty X	Nov-12	20,000,000	20,000,000	-	13,333,260	<b>14,896,201</b>	28,229,461	1.41x
Cerberus Real Estate Fund III	May-13	20,000,000	25,185,319	3,552,375	16,806,989	<b>15,794,219</b>	32,601,208	1.29x
Hall Capital Fund III	Feb-14	7,500,000	6,959,483	540,517	1,648,312	<b>5,837,719</b>	7,486,031	1.08x
Siguler Guff Dist. Real Estate Opp. II	Nov-14	10,000,000	7,507,577	2,492,423	756,118	<b>7,733,635</b>	8,489,753	1.13x
Cerberus Institutional Real Estate Partners 4	Jun-16	15,000,000	3,439,217	11,637,023	741,813	<b>1,766,535</b>	2,508,348	0.73x
Siguler Guff Dist. Real Estate Opp. II B	May-17	10,000,000	-	10,000,000	-	-	-	-

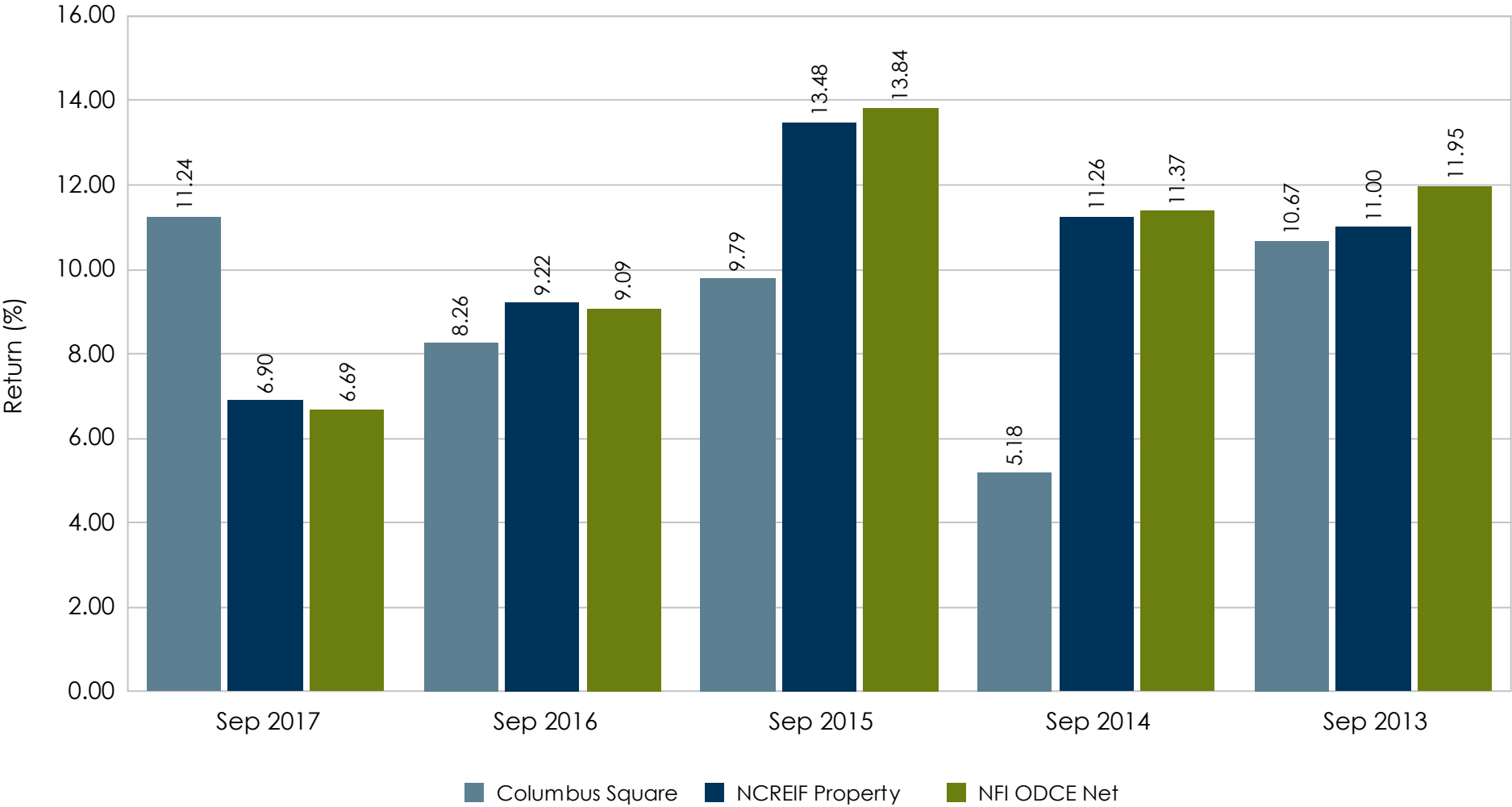
Columbus Square

For the Periods Ending September 30, 2017



Columbus Square

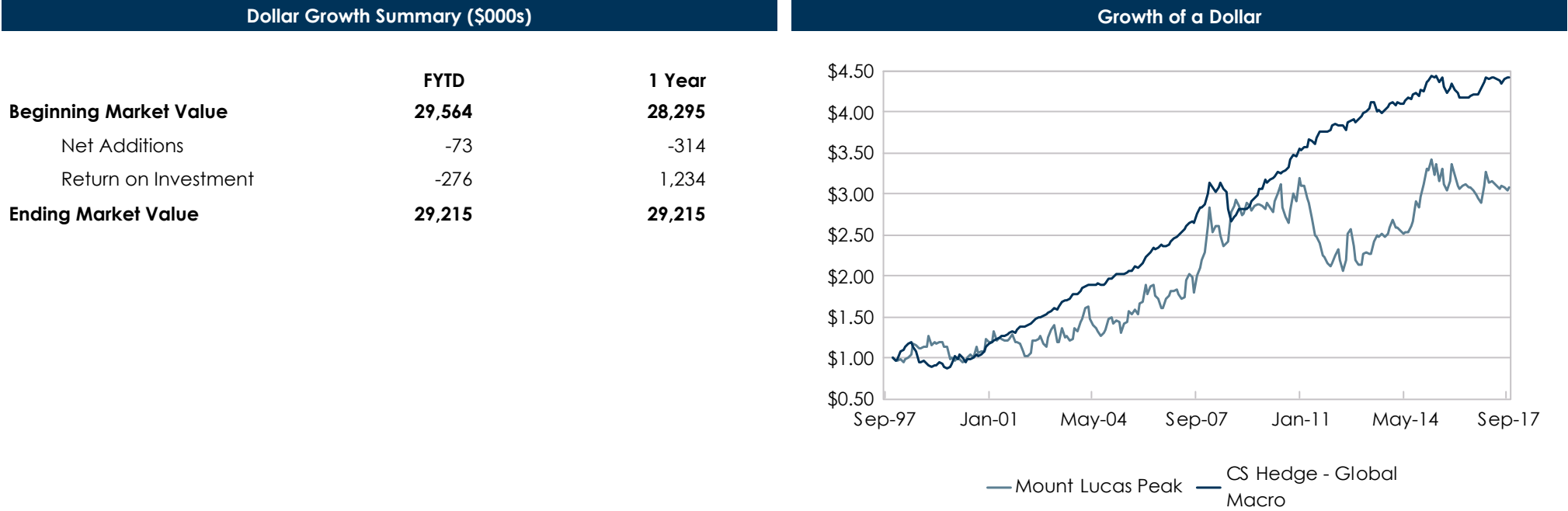
For the One Year Periods Ending September



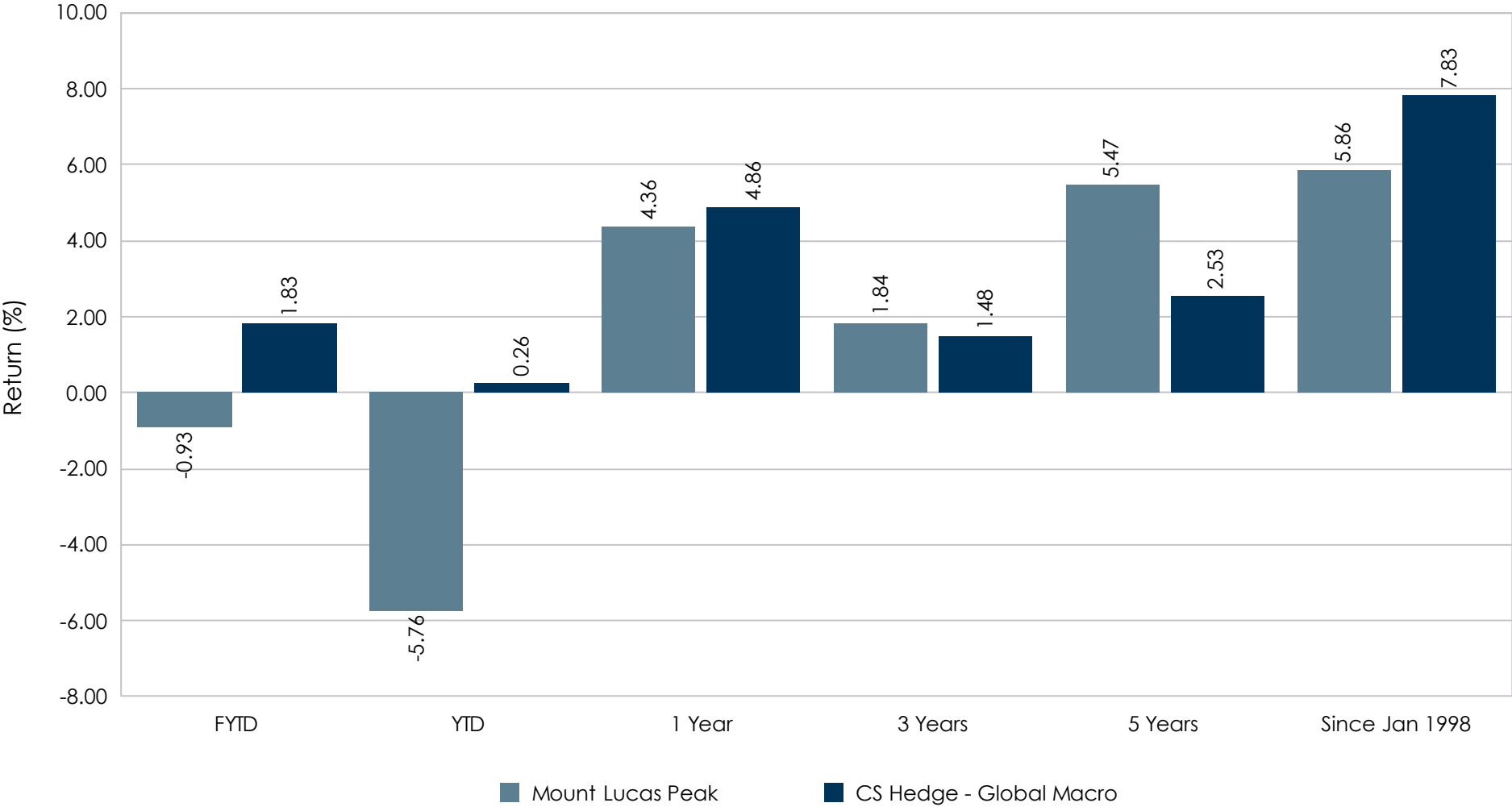
Mount Lucas Peak Partners

For the Periods Ending September 30, 2017

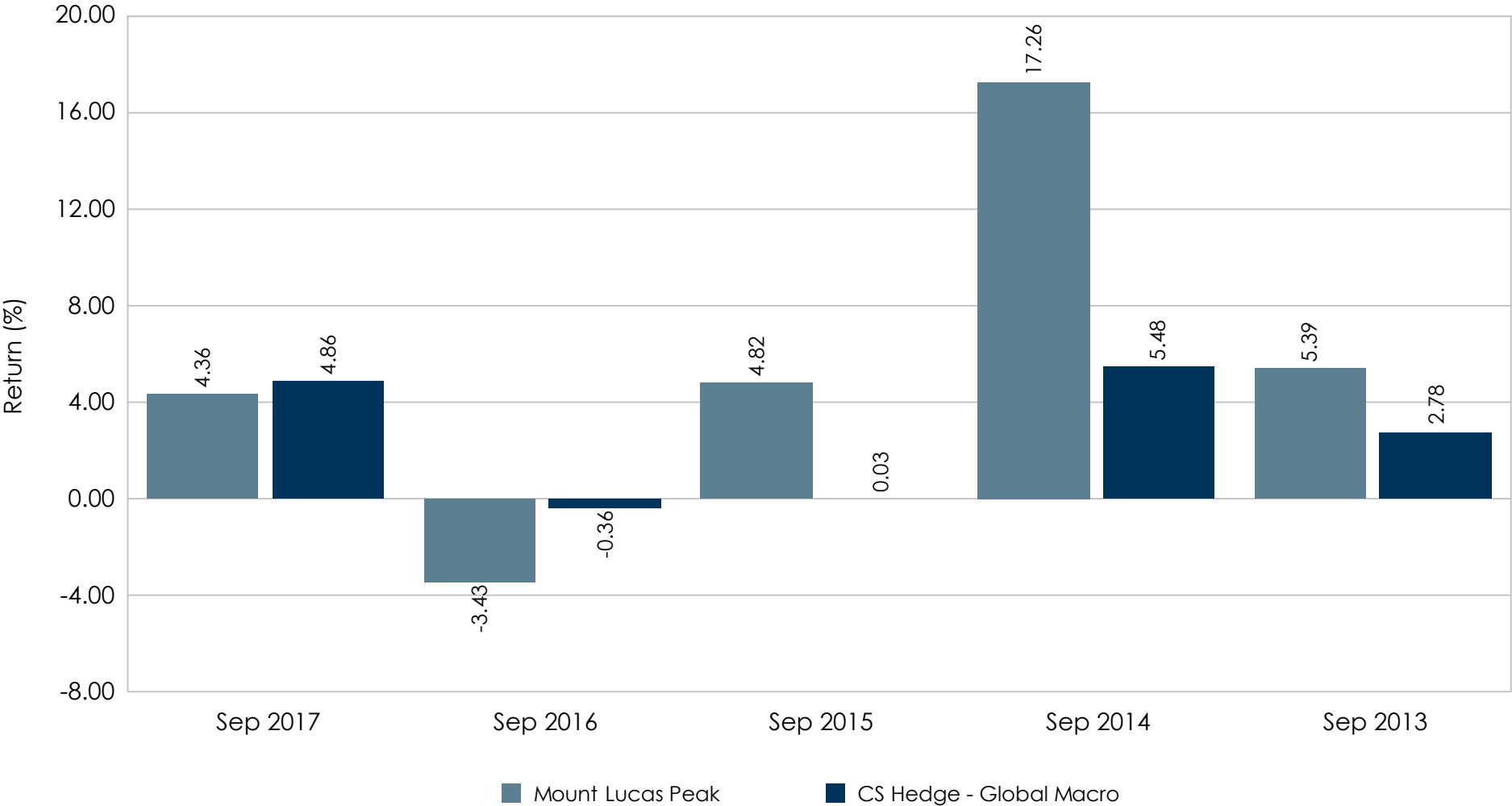
Account Description	Performance Goals
<ul style="list-style-type: none"><li>■ <b>Strategy</b> Commodities</li><li>■ <b>Vehicle</b> Non-Mutual Commingled</li><li>■ <b>Benchmark</b> CS Hedge - Global Macro</li><li>■ <b>Performance Inception Date</b> January 1998</li><li>■ <b>Fees</b> 100 bps and an annual incentive fee</li></ul>	<ul style="list-style-type: none"><li>■ Outperform the CS Hedge - Global Macro.</li></ul>



**Mount Lucas Peak Partners**  
*For the Periods Ending September 30, 2017*



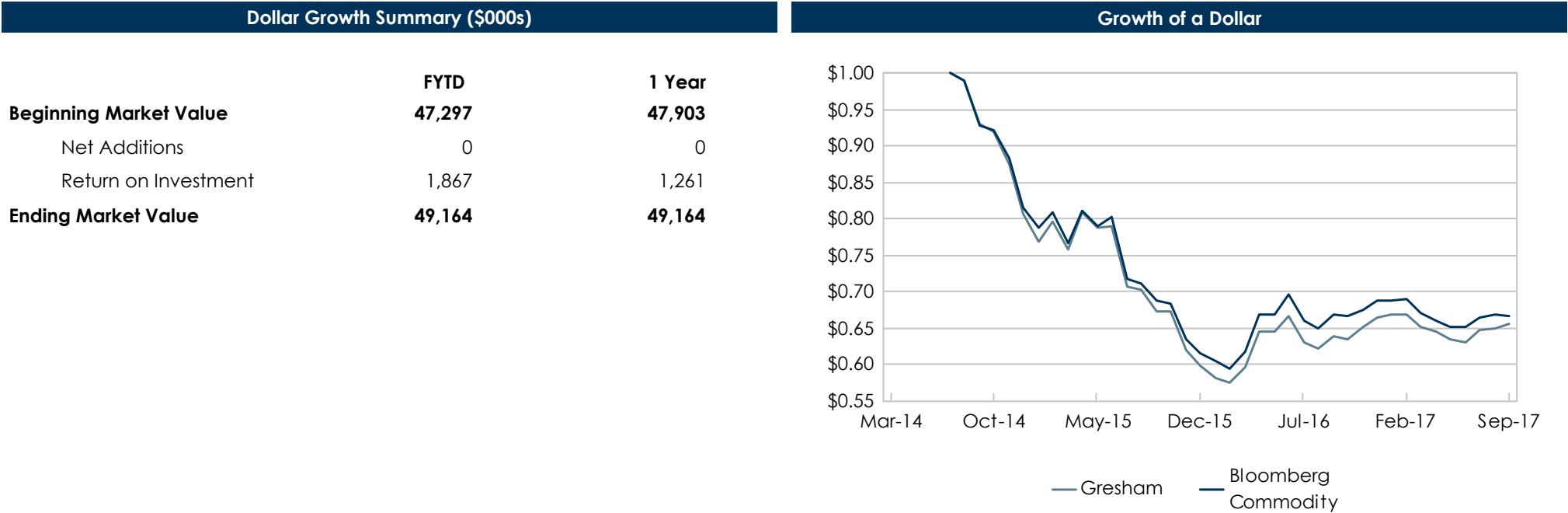
**Mount Lucas Peak Partners**  
*For the One Year Periods Ending September*



Gresham Tap Fund

For the Periods Ending September 30, 2017

Account Description	Performance Goals
<ul style="list-style-type: none"><li>■ <b>Strategy</b> Commodities</li><li>■ <b>Vehicle</b> Non-Mutual Commingled</li><li>■ <b>Benchmark</b> Bloomberg Commodity</li><li>■ <b>Performance Inception Date</b> August 2014</li><li>■ <b>Fees</b> 75 bps</li></ul>	<ul style="list-style-type: none"><li>■ Outperform the Bloomberg Commodity over a complete market cycle.</li></ul>



**Gresham TAP Fund**  
**Attribution Analysis and Bloomberg Commodity Comparison**

For the Periods Ending September 30, 2017

		Portfolio Weights (%)		QTD ROI (%)		ROI DIFF		YTD ROI (%)		ROI DIFF	
		TAP	Bloomberg	TAP	Bloomberg	Abs	Est. Wgt'd	TAP	Bloomberg	Abs	Est. Wgt'd
<b>Total Gross Return</b>		<b>100.00</b>	<b>100.00</b>	<b>3.91</b>	<b>2.25</b>	<b>--</b>	<b>1.66</b>	<b>-1.34</b>	<b>-3.49</b>	<b>--</b>	<b>0.09</b>
<b>AGRICULTURE</b>		<b>15.38</b>	<b>23.07</b>	<b>-6.47</b>	<b>-7.55</b>	<b>1.08</b>	<b>0.94</b>	<b>-6.97</b>	<b>-7.14</b>	<b>0.17</b>	<b>0.26</b>
	Corn	3.65	7.27	-9.99	-10.20	0.21	0.51	-8.09	-8.44	0.35	0.22
	Soybean	5.00	5.62	1.72	1.41	0.31	-0.05	-5.67	-6.29	0.62	-0.10
	Wheat (CBOT)	2.32	3.47	-19.43	-19.67	0.24	0.33	-5.53	-5.34	-0.19	0.02
	Wheat (KC)	0.54	1.19	-21.24	-21.15	-0.09	0.17	-9.34	-9.20	-0.14	0.04
	Wheat (MGE)	0.24		-18.45		-18.45	-0.07	15.21		15.21	0.02
	Soybean Meal	2.48	2.91	2.00	1.48	0.52	-0.01	-3.43	-4.23	0.79	-0.02
	Soybean Oil	1.15	2.60	-1.34	-1.56	0.22	0.06	-7.57	-8.16	0.59	0.07
<b>ENERGY</b>		<b>34.72</b>	<b>29.12</b>	<b>10.82</b>	<b>9.50</b>	<b>1.33</b>	<b>0.48</b>	<b>-10.37</b>	<b>-12.72</b>	<b>2.35</b>	<b>0.49</b>
	Crude Oil	8.30	6.68	10.58	10.90	-0.32	0.11	-10.25	-9.97	-0.28	-0.20
	Brent Crude	10.24	7.66	13.72	15.32	-1.59	-0.14	-5.60	-4.79	-0.81	-0.29
	Heating Oil	3.10	3.99	18.65	20.97	-2.32	-0.27	-1.27	0.31	-1.58	-0.08
	Gas Oil	3.74		24.42		24.42	0.59	4.41		4.41	0.18
	Natural Gas	5.04	7.21	-3.13	-4.32	1.19	0.15	-27.32	-28.34	1.02	0.66
	Unleaded Gas (RBOB)	4.30	3.57	16.75	14.49	2.26	0.05	-5.47	-10.16	4.69	0.22
<b>INDUSTRIAL METALS</b>		<b>19.69</b>	<b>20.01</b>	<b>9.20</b>	<b>9.58</b>	<b>-0.38</b>	<b>0.01</b>	<b>17.48</b>	<b>16.08</b>	<b>1.39</b>	<b>0.41</b>
	Aluminum	6.20	5.51	8.76	8.32	0.44	0.06	22.29	21.14	1.15	0.25
	Copper (LME)	6.83		8.58		8.58	0.47	16.00		16.00	1.26
	Copper (NY)	1.86	8.71	8.22	8.22	0.00	-0.38	15.50	15.31	0.19	-1.08
	Nickel	1.25	2.57	11.20	11.03	0.17	-0.11	3.00	2.85	0.15	-0.05
	Zinc	2.44	3.22	14.39	14.58	-0.19	-0.08	21.92	21.62	0.30	-0.22
	Lead	1.12		7.62		7.62	0.06	21.75		21.75	0.25
<b>LIVESTOCK</b>		<b>9.42</b>	<b>5.89</b>	<b>-2.47</b>	<b>-7.79</b>	<b>5.32</b>	<b>0.08</b>	<b>11.60</b>	<b>2.30</b>	<b>9.30</b>	<b>0.73</b>
	Live Cattle	5.67	3.95	-2.81	-5.78	2.97	-0.04	11.85	7.44	4.41	0.30
	Lean Hogs	1.87	1.94	-8.06	-10.94	2.88	0.06	-0.45	-5.30	4.85	0.02
	Feeder Cattle	1.87		5.36		5.36	0.06	24.39		24.39	0.42
<b>PRECIOUS METALS</b>		<b>15.83</b>	<b>16.20</b>	<b>2.39</b>	<b>2.03</b>	<b>0.36</b>	<b>0.09</b>	<b>9.04</b>	<b>8.02</b>	<b>1.02</b>	<b>-0.15</b>
	Gold	11.80	12.09	2.82	2.82	0.00	0.03	10.11	10.00	0.10	-0.25
	Silver	2.67	4.11	-0.33	-0.22	-0.11	0.02	2.41	2.50	-0.09	-0.14
	Platinum	0.66		-1.53		-1.53	-0.02	-0.05		-0.05	0.03
	Palladium	0.71		12.77		12.77	0.07	38.37		38.37	0.21
<b>FOODS &amp; FIBERS</b>		<b>4.95</b>	<b>5.71</b>	<b>-0.55</b>	<b>-0.97</b>	<b>0.43</b>	<b>0.03</b>	<b>-16.26</b>	<b>-19.50</b>	<b>3.25</b>	<b>0.32</b>
	Cotton	1.32	1.32	0.24	-0.20	0.45	0.00	0.22	-2.66	2.89	0.04
	Sugar	1.39	2.28	-2.25	-1.60	-0.65	0.02	-30.22	-31.25	1.03	0.21
	White Sugar	0.17		-5.82		-5.82	-0.02	-27.80		-27.80	-0.06
	Coffee	1.19	2.11	-0.62	-0.61	-0.02	0.04	-13.24	-13.34	0.10	0.16
	Coffee (Robusta)	0.23		-7.18		-7.18	-0.03	-8.78		-8.78	-0.01
	Cocoa	0.66		4.54		4.54	0.02	-6.09		-6.09	-0.02

Data provided by manager.

-A composite weighted return is shown for Wheat, Crude Oil, Heating Oil and Copper. Wheat (KC), Brent Crude, Gas Oil, Copper (NY) and Cocoa were added to TAP's portfolio in the middle of January 2008. Wheat (MGE) was added to TAP's portfolio in the middle of January 2010.

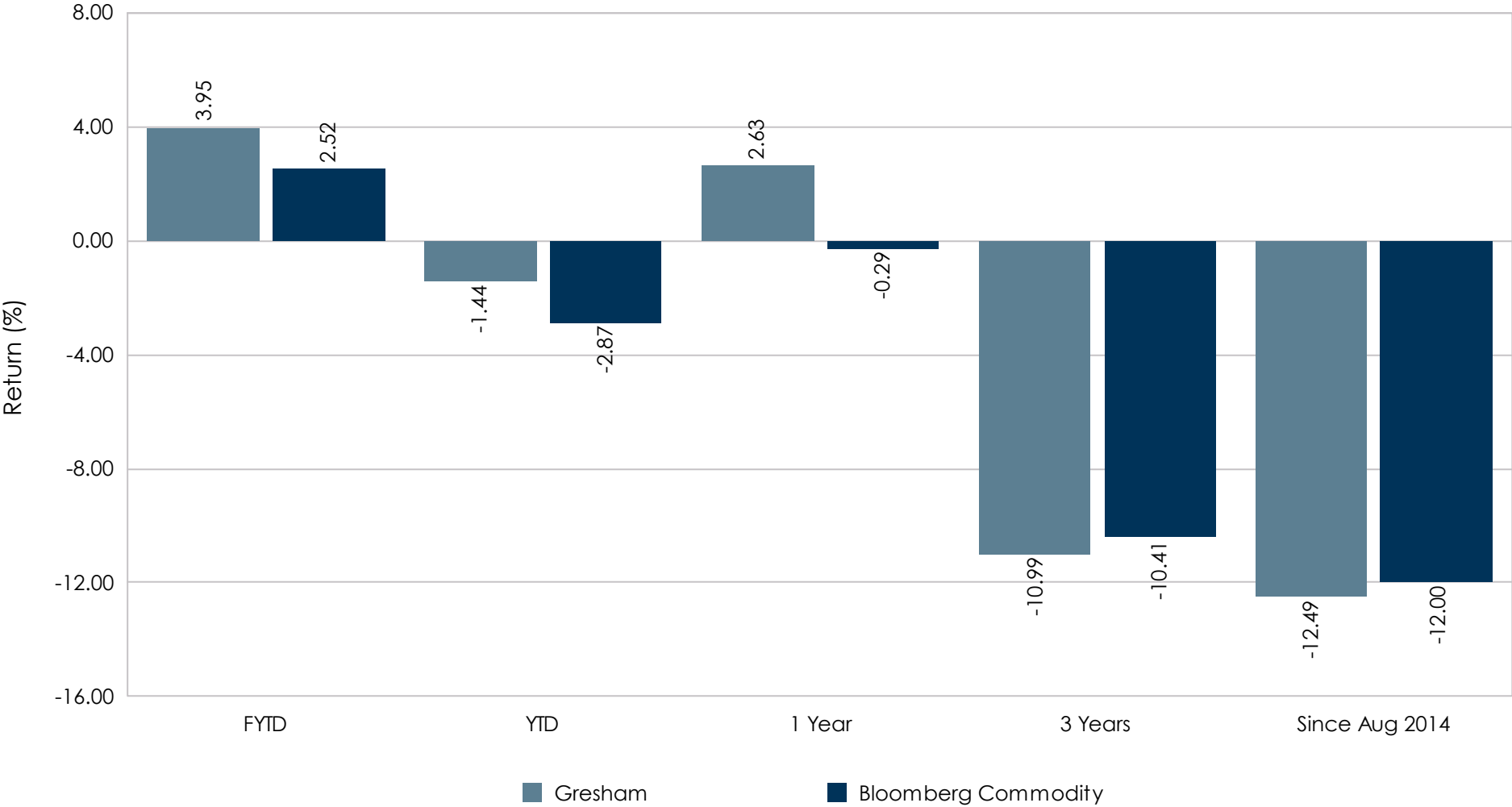
-MTD ROI % and YTD ROI% columns show TAP and Bloomberg individual commodity returns.

-'Abs' is the absolute difference in ROI between TAP and Bloomberg for each commodity. 'Est. Wgt'd' is the portfolio effect (TAP's return x TAP's period avg. wgt. - Bloomberg's return x Bloomberg's period avg. wgt.). 'Average Weights' is calculated using month-end weights.

-All returns are estimates. Total Gross Return is gross of fees and includes cash returns. All indicated TAP returns are net of commissions and gross of management fees.

Gresham Tap Fund

For the Periods Ending September 30, 2017



**Appendix**

## Definitions of Statistical Measures

**Alpha** - the annualized difference between the manager's actual return and the managers's expected return given its relative risk vs. the benchmark (which is represented by beta, a measure that tracks volatility to an index).

**Batting Average** - a measure used to quantify a manager's ability to meet or beat a benchmark. A manager who outperforms the benchmark 20 out of a possible 40 times has a batting average of 50.

**Beta** - measures the portfolio's sensitivity of returns to market movements represented by the primary benchmark.

**Down Capture** - demonstrates the ratio of the portfolio's average returns relative to the benchmark in periods in which the benchmark had a negative return. For instance, a down-capture of 96% indicates that, on average, the portfolio is down 96% when the benchmark is down 100%. Lower portfolio down-capture is preferred.

**R Squared** - the amount of the manager's return that can be explained by the benchmark. A R Squared of 100 indicates a perfect correlation, while a R Squared of 0 indicates no correlation at all.

**Sharpe Ratio** - a measure of return per unit of risk. Higher sharpe ratios are preferred while negative ratios are generally meaningless and cannot be used for comparison purposes.

**Standard Deviation** - a measure of the portfolio's volatility. A large standard deviation relative to the benchmark represents volatile portfolio returns.

**Tracking Error** - a measure that reports the difference between the return of a manager that is received and that of a benchmark that the manager is attempting to track.

**Up Capture** - demonstrates the ratio of the portfolio's average returns relative to the benchmark in periods in which the benchmark had a positive return. For instance, an up-capture of 96% indicates that, on average, the portfolio is up 96% when the benchmark is up 100%. Higher portfolio up-capture is preferred.

### Quality Rating Scale

Moody's Rating	S&P Rating	Prior to 1Q09	Beginning 1Q09	Beginning 3Q11	Moody's Rating	S&P Rating	Prior to 1Q09	Beginning 1Q09	Beginning 3Q11
TSY	TSY	10	26	24	Ba2	BB	6	13	13
AGY	AGY	10	25	24	Ba	BB		13	13
Aaa	AAA	10	24	24	MIG4		6	13	13
Aa1	AA+	9.3	23	23	Ba3	BB-	5.7	12	12
Aa2	AA		22	22	B1	B+	5.3	11	11
Aa	AA	9	22	22	B2	B	5	10	10
MIG1		9	22	22	B	B		10	10
Aa3	AA-	8.7	21	21	B3	B-	4.7	9	9
A1	A+	8.3	20	20	Caa1	CCC+	4.3	8	8
A-1			20	20	Caa2	CCC	4	7	7
A2	A	8	19	19	Caa	CCC		7	7
A	A		19	19	Caa3	CCC-	3.7	6	6
MIG2		8	19	19	Ca	CC	3	5	5
A3	A-		18	18	C	C	2	4	4
Baa1	BBB+	7.7	17	17		DDD	1	3	3
Baa2	BBB	7.3	16	16		DD		2	2
Baa	BBB	7	16	16		D		1	1
MIG3			16	16	NR	NR	N/A	-1	-1
Baa3	BBB-	7	15	15	NA	NA	N/A		
Ba1	BB+	6.7	14	14	N/A	N/A			

Historical Benchmark Composition

Total Fund Policy

10/31/1990	The index consists of 55.0% Russell 3000, 35.0% BloomBar US Aggregate, 10.0% MSCI EAFE.
06/30/2007	The index consists of 55.0% Russell 3000, 35.0% BloomBar Universal, 10.0% MSCI EAFE.
11/30/2007	The index consists of 55.0% Russell 3000, 10.0% MSCI EAFE, 30.0% BloomBar Universal, 5.0% NFI ODCE Net.
08/31/2012	The index consists of 65.0% MSCI ACWI, 30.0% BloomBar Universal, 5.0% NFI ODCE Net.
08/31/2014	The index consists of 60.0% MSCI ACWI, 30.0% BloomBar Universal, 5.0% NFI ODCE Net, 5.0% Bloomberg Commodity.
04/30/2016	The index consists of 60.0% MSCI ACWI, 25.0% BloomBar Universal, 10.0% NFI ODCE Net, 5.0% Bloomberg Commodity.

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