

**Oklahoma Police Pension & Retirement System**

***Investment Performance Review***

*September 30, 2018*



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**Market Overview**

## Global Long-Only Equity

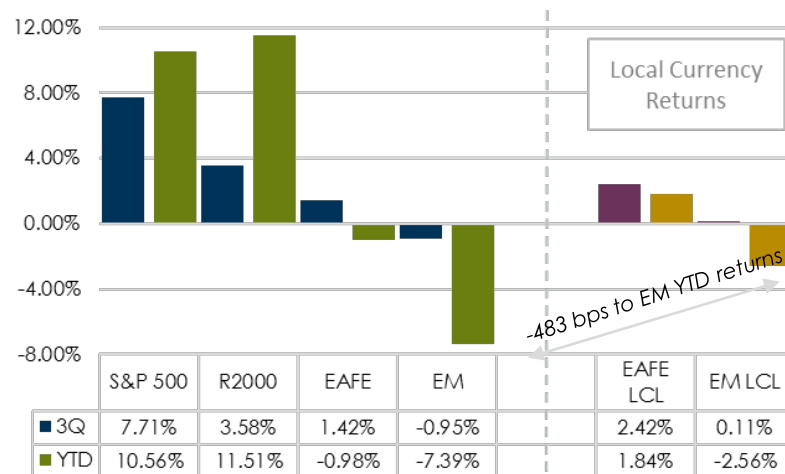
**Domestic Equities** reached new highs in 3Q-18, while non-US markets continue to lag, particularly Emerging Markets.

US Large Caps led this quarter with an advance of 7.7%. Small Caps continued to trend higher but with a decelerated pace, albeit continuing to lead on a full-year basis. Reported and expected earnings have benefited from a **healthy economic backdrop** strengthened by tax cuts, more favorable repatriation dynamics, increasing wages, strong employment, and rising consumer sentiment. This has led to the **rally being concentrated in higher growth areas** such as Information Technology and Health Care.

Non-US markets, primarily Emerging Markets, were negatively impacted by weakness in both Consumer Discretionary and Technology sectors. Energy was a bright spot in both developed and emerging economies. **Global desynchronization was most apparent in China**, which accounts for approximately 30% of the EM benchmark and is one of the main targets of the Trump administration's trade actions. China was down almost 7% in the quarter, driven by weakness in large-cap IT names such as Tencent and Alibaba.

The **strengthening US dollar once again negatively impacted non-US returns** in the quarter. Year-to-date, US-based returns have been meaningfully impacted by US dollar strength, with local currency returns reduced by 483 bps (EM) and 282 bps (EAFE).

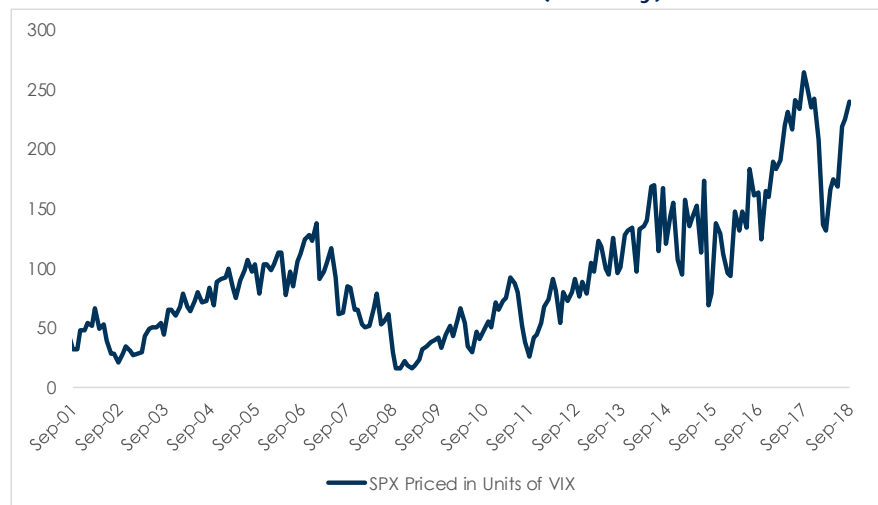
## Non-US Markets Impacted by Strong Dollar & Trade Wars



Sources: Bloomberg, FactSet, ACG Research

## Global Long/Short Equity

### S&P Priced in Units of VIX (volatility)



Sources: Bloomberg, ACG Research

After a volatile start to the year, **muted volatility** and investor complacency **has returned** as the global indices continued their march to once again mark historic highs in September. **Net exposure** for managers, after hitting a peak in March, has continued to track downward and **reached year-to-date lows** in September. Concerns about the macro environment (trade wars, mid-term elections and Brexit) as well as being in the late innings of the market cycle, have been factors in the reduced exposure of portfolios. We anticipate these events may lead to increased volatility, which should provide opportunities for managers to generate returns on both the long and the short side of their investments. For this reason the gross exposure of managers has not decreased with the net but remains high at above the 90<sup>th</sup> percentile rank since 2010.

The likelihood of continued interest rate increases should have a positive impact on equity long/short managers as they finally start to earn rebates on their short portfolios.

The outlook for **event driven** strategies continues to be **positive** as M&A activity appears to be on pace for a record year. Announced mergers are at \$3.3 trillion year-to-date with the tailwind from tax cuts and cash repatriation. Organic growth for companies is hard to come by, margins are near peak levels, and stock buybacks are not a good strategy at current equity valuation levels, so companies will look externally for growth.

Technology remains a key area of interest as the sector has been a major contributor to returns and there continues to be a large amount of dispersion between winners and losers. This creates a **positive opportunity set for equity long/short stock pickers**. 4

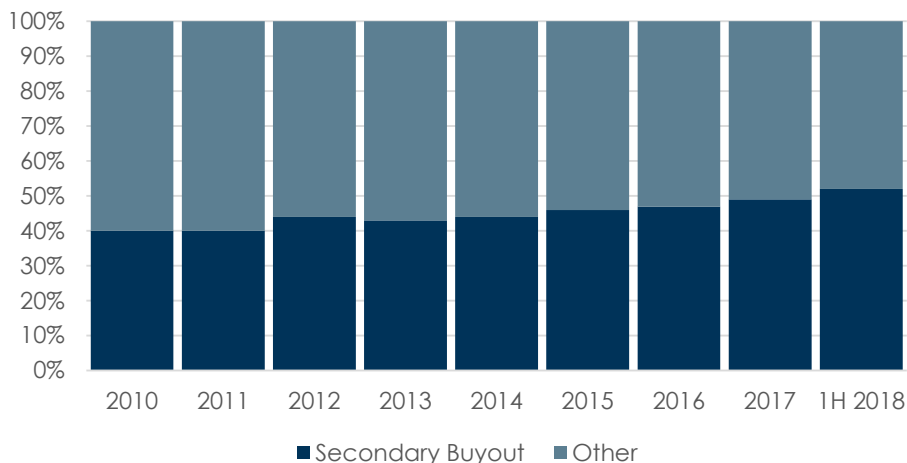
## Global Private Equity

Much like public markets, valuations remain high for new deals in private markets, though valuations have slightly moderated relative to recent history. The **median acquisition price for a private equity-backed company purchased in 2Q-18 was 9.8x EBITDA**, down from 2017's all time high of 10.7x but still above the prior 2007 peak of 9.7x. We will continue to watch pricing trends as time will tell if this drop represents a rationalization in purchase price multiples or a short-term deviation from the past few years' trend. Rising interest rates combined with the possibility of slowing economic growth continue to pose risks to private equity-backed companies.

**Private equity-backed companies are remaining private for longer**, both from extended holding periods and an increasing trend of private equity funds exiting their investments through a sale to another private equity fund, also known as a secondary buyout ("SBO"). Several firms, including Blackstone and CVC, have recently raised private equity funds with 15+ year terms intended to hold investments for much longer than the traditional 3-5-year hold period. Year-to-date in the US, more private companies have been sold to another private equity sponsor than any other type of exit transaction.

**High purchase prices today are likely to translate into lower returns for select vintages going forward.** The best managers recognize that **high multiples are unlikely to continue indefinitely and that patience and asset selection is key to driving strong investment outcomes** in this environment.

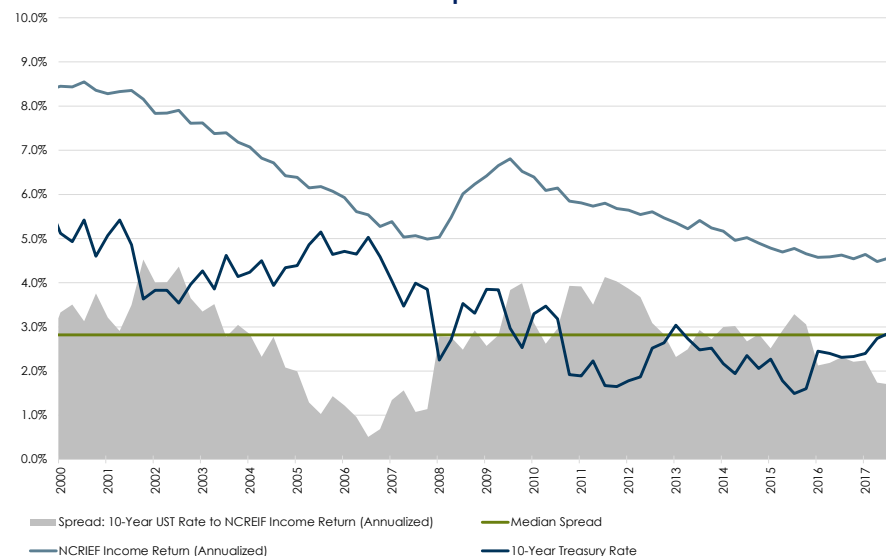
### SBOs Become Increasingly Common



Sources: Pitchbook, ACG Research

## Global Real Assets

### NCREIF Income Return Spread to Treasuries



Sources: NCREIF, ACG Research

**US real estate assets continue to benefit from a solid economic outlook and generally low new supply.** The NCREIF Property Index is expected to post its 34<sup>th</sup> consecutive quarter of positive appreciation in 3Q-18. This is 12 quarters longer than the second longest winning streak since the benchmark's inception in 1978. In 2Q-18, NCREIF annualized income returns (a proxy for cap rates) decreased 16 bps to end at 4.48%. **As interest rates continue to rise, the spread between NCREIF income returns and the 10-year US Treasury yield ended the quarter at 170 bps, approximately 110 bps tighter than the median spread since 2000.**

Though there have been no significant impacts to real estate valuations so far, **the potential for higher interest rates could put upward pressure on cap rates and lower future core real estate returns.** Real estate market fundamentals remain relatively solid, with no imminent signs of a dramatic imbalance between supply and demand outside of the long-challenged retail sector. **Given the potential for rising cap rates and the length of the current economic cycle, core real estate funds focused on income may outperform those focused on generating appreciation in the intermediate term.**

Down slightly more than 2.0% during the quarter, the Bloomberg Commodity Index (BCOM) underperformed the Bloomberg Barclays US Aggregate Bond Index by 2.0% and underperformed the S&P 500 and MSCI ACWI by 9.7% and 6.4%, respectively. **Signs of rising inflation may be positive for commodities broadly,** though ongoing uncertainty about international trade policy, the strength of the US dollar, and sanctions may drive further volatility in the near term.

## Global Traditional Bond Markets

Navigating the fixed income landscape remained challenging in 3Q-18. Signs of strength in the domestic economy allowed the **Federal Reserve** to continue down its seemingly predictable path, with another 25 bps hike in late-September. Policymakers also confirmed forecasts suggesting four more rate hikes by the end of 2019. **US Treasury yields trended persistently higher** throughout the quarter, essentially passing through tighter financial conditions while discounting the ongoing uncertainty associated with global trade. The US yield curve continued its multi-year flattening trend, as front-end rates were most reactive.

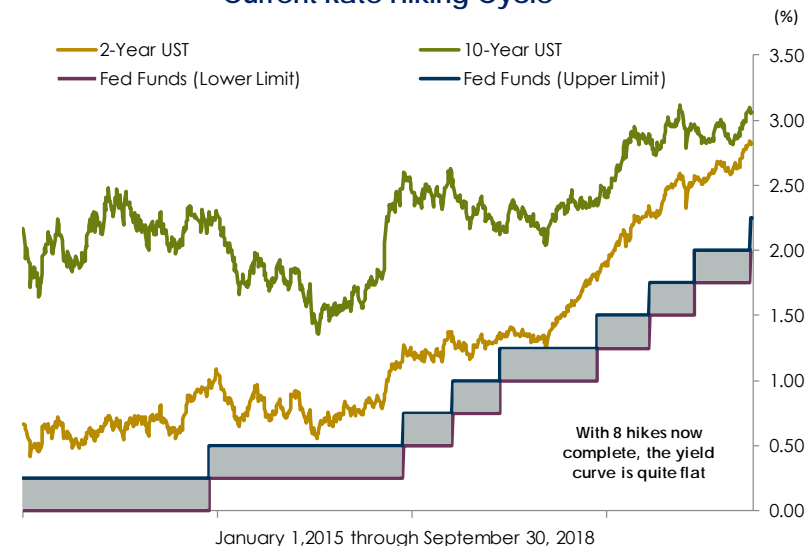
The **BloomBar Aggregate** managed to produce flat results. Despite harmful rate sensitivity for government-related issues, the varied spread sectors outperformed. IG corporates led the way, with credit spreads tightening back across the quality spectrum. The tug-of-war between rates and spreads resulted in the benchmark's yield-to-worst moving up to 3.5%.

**High Yield** supply has been relatively low, while demand remains strong given limited concern of near-term default. Index-level spreads tightened by 47 bps during 3Q-18, establishing fresh 10-year lows. Floating-rate bank loans are thriving in this environment.

**Municipal Bonds** suffered a modest loss, underperforming taxable counterparts as rates moved higher. Richly priced short-term issues began to lag late in the quarter, flattening the tax-exempt yield curve. High quality bonds continued to underperform riskier credits.

**Unhedged Global** government bonds underperformed as the US dollar's ongoing strength weighed on returns. **Emerging Market** returns remained quite volatile month-to-month.

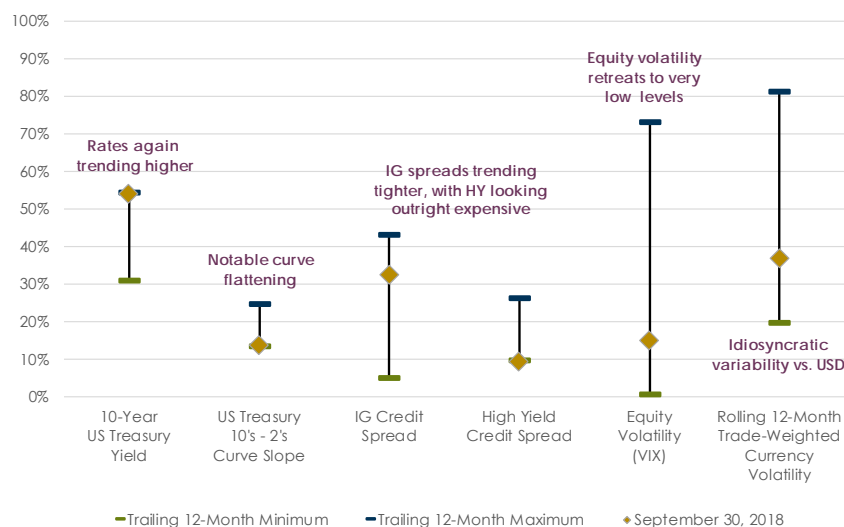
### Current Rate Hiking Cycle



Sources: Bloomberg, ACG Research

## Global Nontraditional Fixed Income

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



Sources: Bloomberg, ACG Research

**Liquid Absolute Return** strategies produced positive results in 3Q-18, and the group remains comfortably ahead of traditional bond benchmarks year-to-date. The diversification of risk factors within portfolios remains valuable, as this aids in downside protection and reduces key correlations. Achieving full-cycle alpha objectives remains challenging, but **enhanced volatility in rates, spreads, and currency should provide opportunities** to outperform risk-free cash.

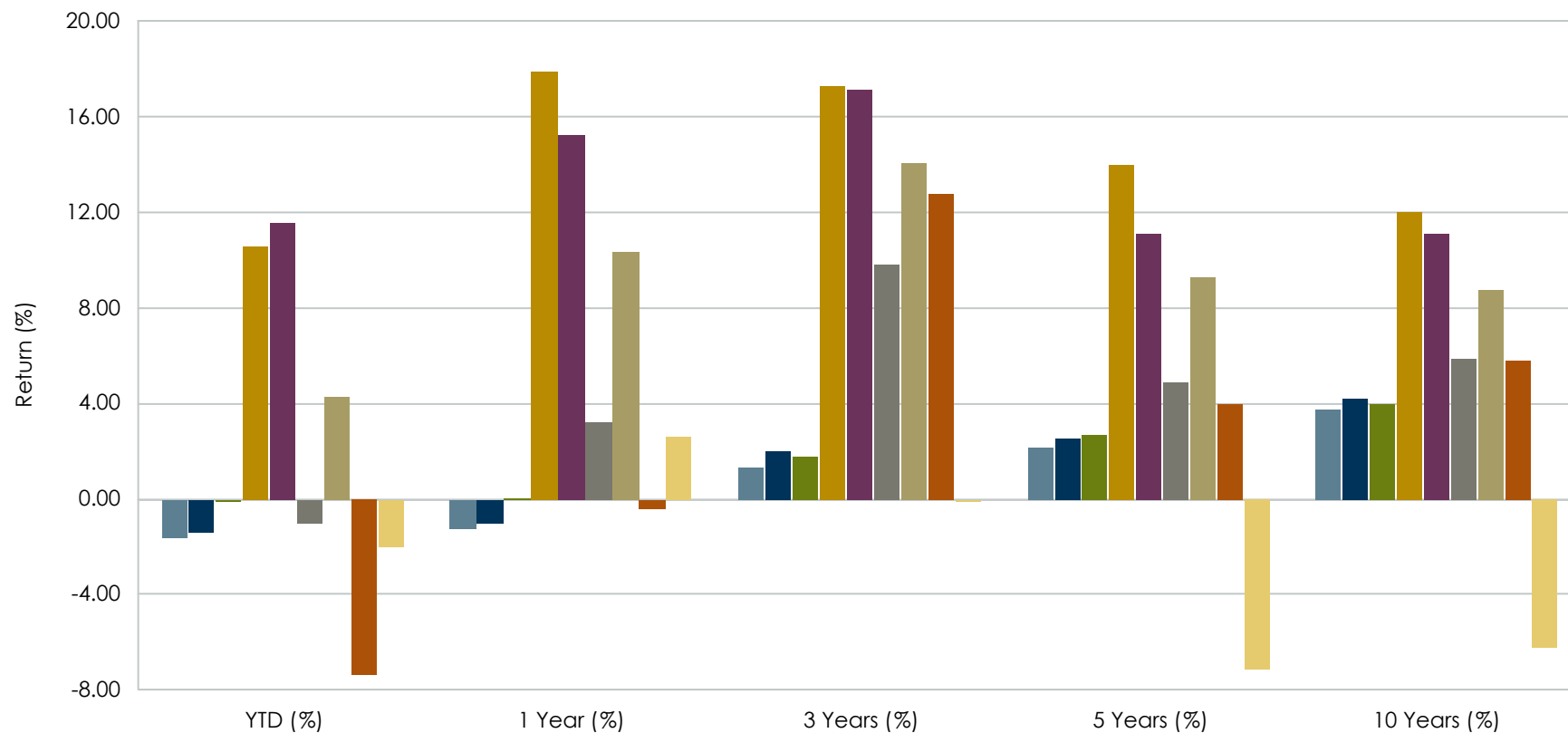
Tightening corporate credit spreads provided a **tailwind for credit hedge funds** in 3Q-18. Sentiment varies, but many hedge fund managers have been reluctant to aggressively de-risk their portfolios, preferring a middle ground approach of **incrementally increasing credit quality and liquidity while maintaining exposure levels**. Relative-value trades and IG tactical trading activities have also provided an avenue for managers looking for less correlated allocations. Despite the pressure to maintain upside participation in the extending bull market, we believe credit hedge funds are **still situated to provide protection relative to their long-only credit counterparts** in a downturn.

**Private Credit** strategies (typically 5- to 10-year fund life) offer the opportunity to earn both a credit spread and an illiquidity premium versus publicly traded fixed income strategies. **Fundraising in the sector remains strong**. Through August, Preqin reports 88 private debt funds held a final close on \$89.6 billion of commitments for 2018. **Competition spurred by sustained investor demand in the face of persistently low default rates, along with steadily worsening loan covenant quality, may drive more severe losses in a credit downturn**. We expect the ever extending credit cycle will eventually provide opportunity for some (primarily distress-focused managers) and insight into the underwriting skill level of others.



## Market Environment

For the Periods Ending September 30, 2018

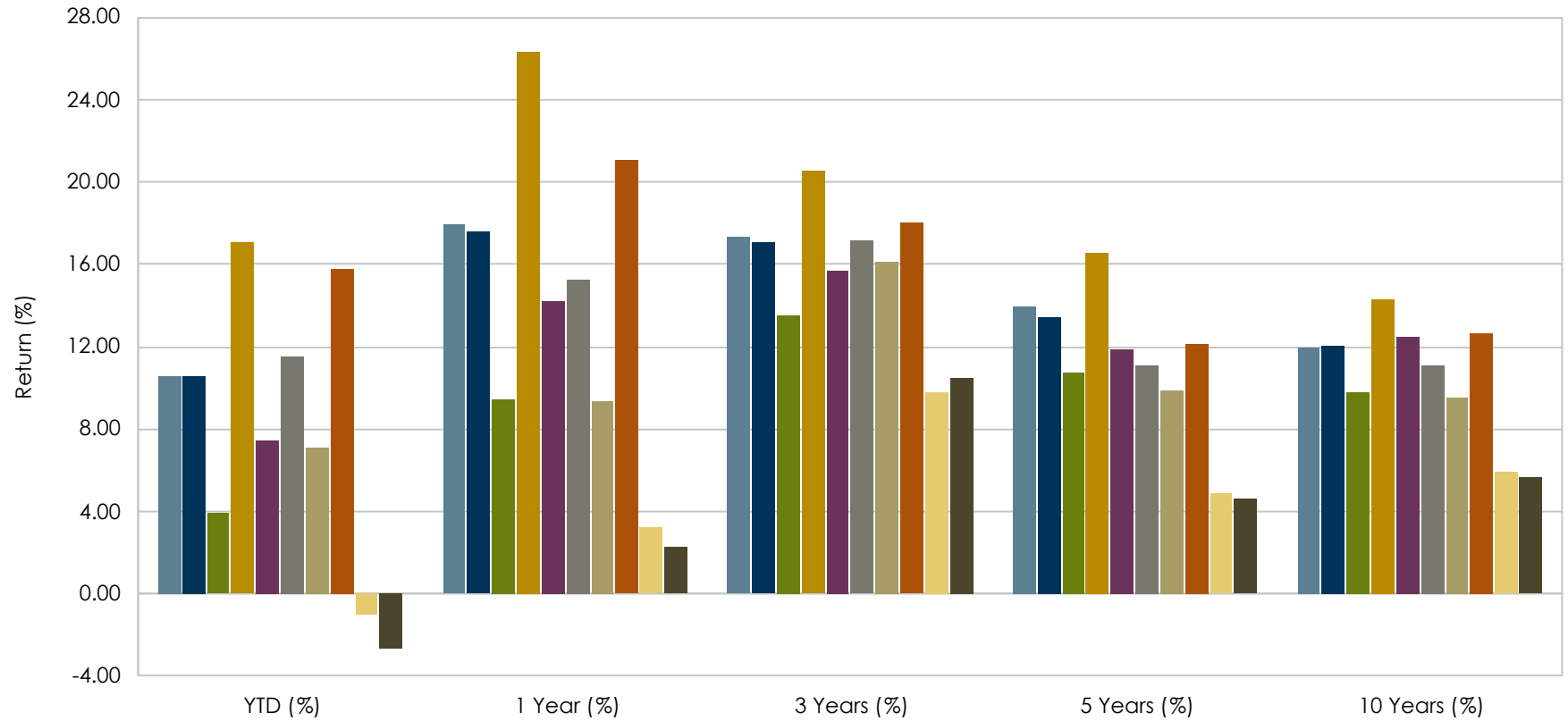


BloomBar US Aggregate	-1.60
BloomBar Universal	-1.41
BloomBar 1-15 Yr Municipal	-0.13
S&P 500	10.56
Russell 2000	11.51
MSCI EAFE	-0.98
MSCI ACWI	4.26
MSCI Emerging Markets	-7.39
Bloomberg Commodity	-2.03

1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)
-1.22	1.31	2.16	3.77
-1.00	1.98	2.53	4.22
0.02	1.76	2.72	4.00
17.91	17.31	13.95	11.97
15.24	17.12	11.07	11.11
3.25	9.77	4.90	5.87
10.35	14.02	9.25	8.77
-0.44	12.77	3.99	5.76
2.59	-0.11	-7.18	-6.24

## Equity Index Returns

For the Periods Ending September 30, 2018



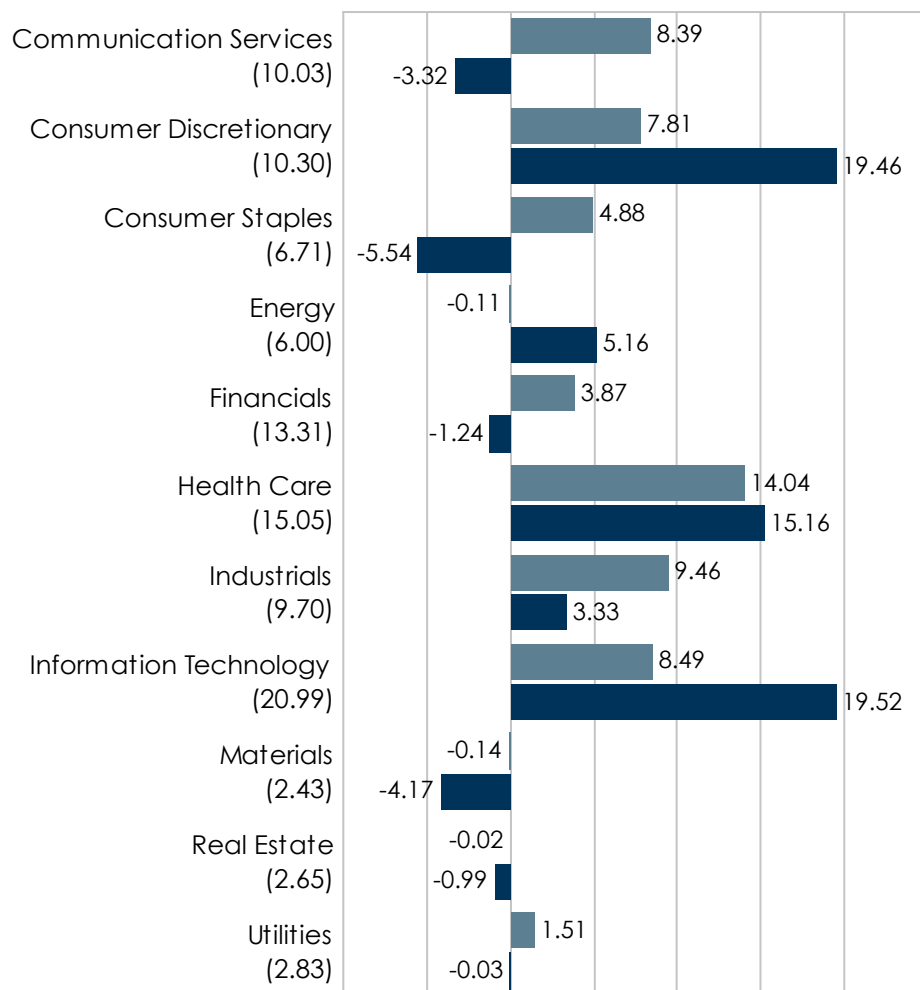
S&P 500	10.56
Russell 3000	10.57
Russell 1000 Value	3.92
Russell 1000 Growth	17.09
S&P Mid Cap 400	7.49
Russell 2000	11.51
Russell 2000 Value	7.14
Russell 2000 Growth	15.76
MSCI EAFE	-0.98
MSCI ACWI ex US	-2.67

10.56	17.91	17.31	13.95	11.97
10.57	17.58	17.07	13.46	12.01
3.92	9.45	13.55	10.72	9.79
17.09	26.30	20.55	16.58	14.31
7.49	14.21	15.68	11.91	12.49
11.51	15.24	17.12	11.07	11.11
7.14	9.33	16.12	9.91	9.52
15.76	21.06	17.98	12.14	12.65
-0.98	3.25	9.77	4.90	5.87
-2.67	2.25	10.49	4.60	5.67

## US Markets - Performance Breakdown

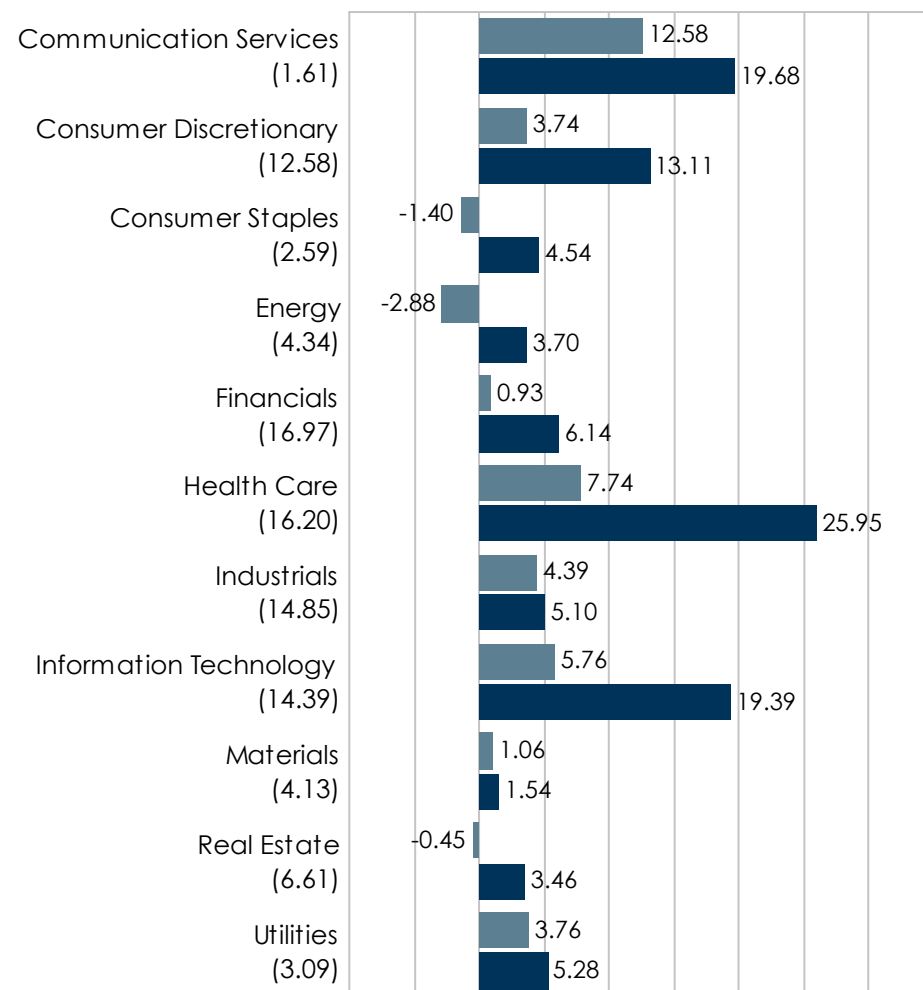
For the Periods Ending September 30, 2018

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



■ 3 Months ■ YTD

### Russell 2000 - Sector Returns (%)

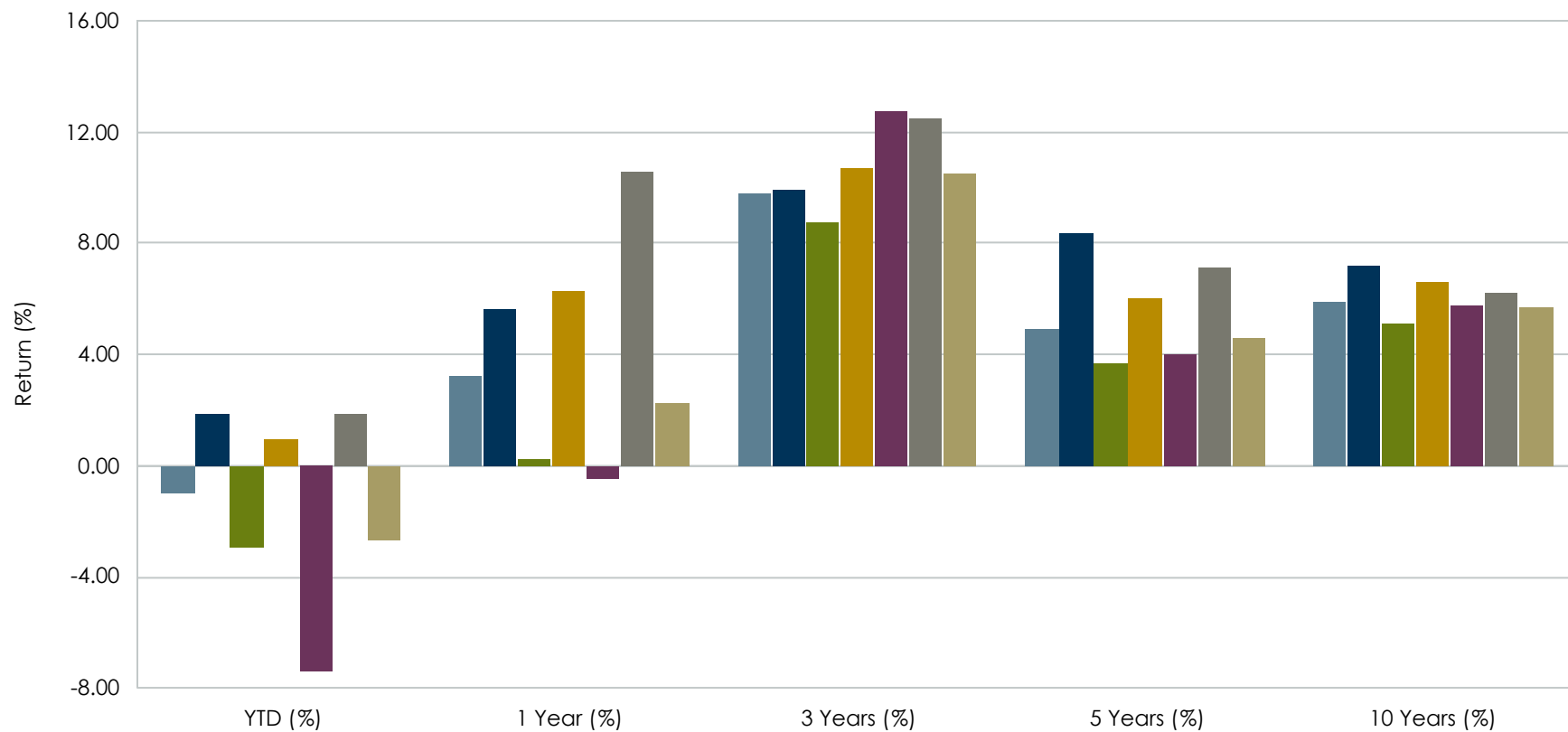


Numbers in parenthesis represent sector weightings of the index. Sector weights may not add to 100% due to rounding or securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Source: ACG Research, Bloomberg

## Non-US Equity Index Returns

For the Periods Ending September 30, 2018

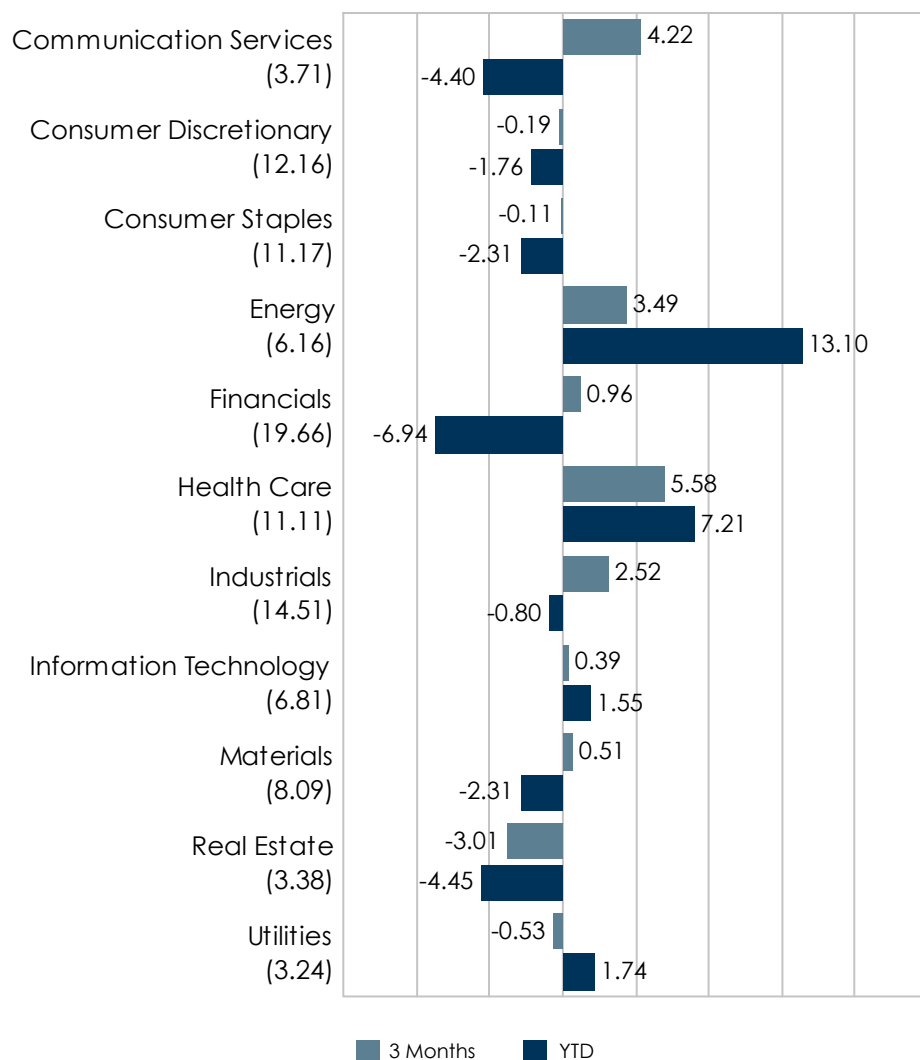


MSCI EAFE	-0.98	3.25	9.77	4.90	5.87
MSCI EAFE Local Currency	1.84	5.61	9.91	8.37	7.20
MSCI EAFE Value	-2.95	0.24	8.76	3.71	5.09
MSCI EAFE Growth	0.95	6.27	10.68	6.02	6.59
MSCI Emerging Markets	-7.39	-0.44	12.77	3.99	5.76
MSCI Japan	1.89	10.57	12.51	7.11	6.21
MSCI ACWI ex US	-2.67	2.25	10.49	4.60	5.67

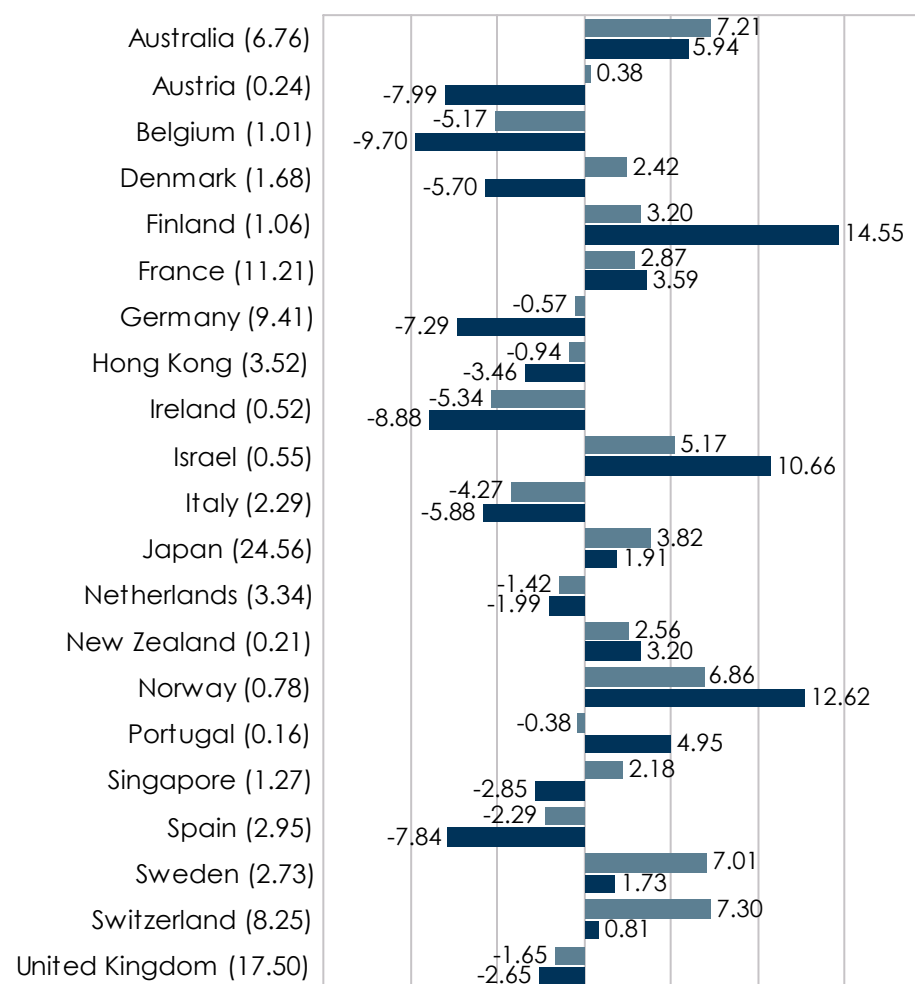
## Non-US Equity - Performance Breakdown

For the Periods Ending September 30, 2018

### 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.

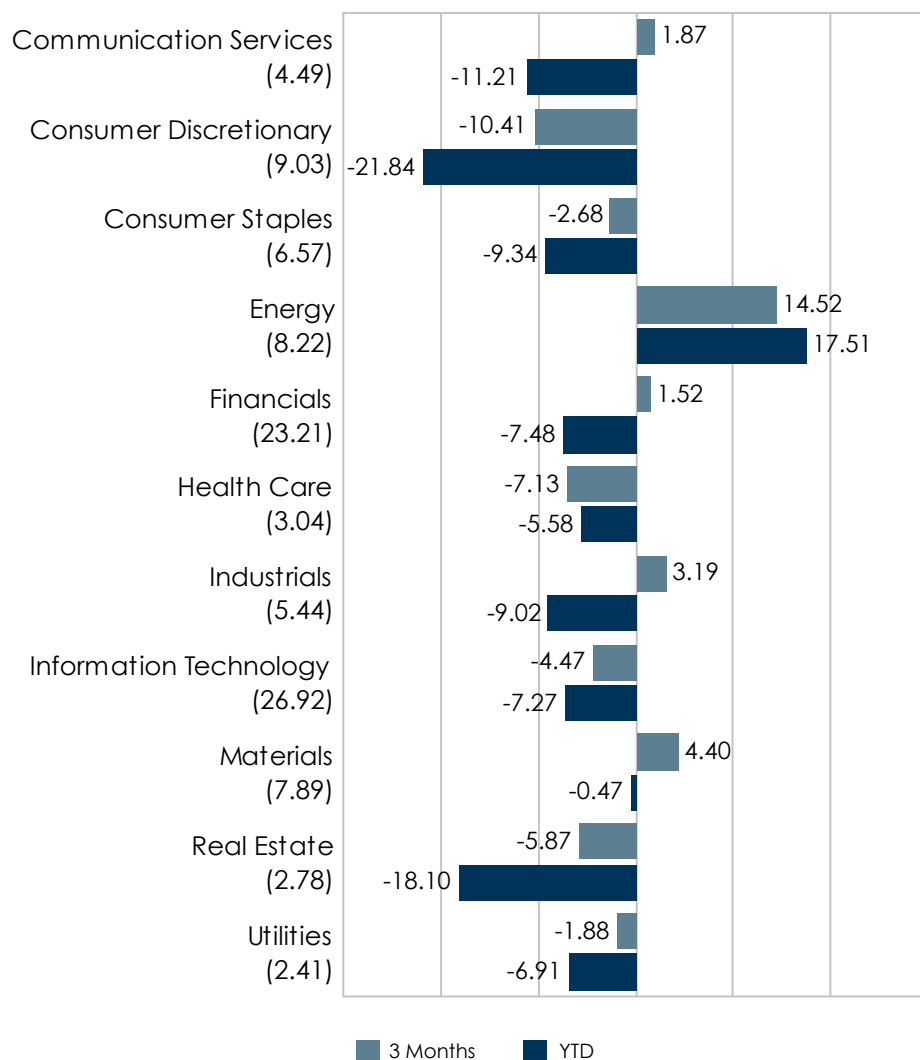
Source: ACG Research, Bloomberg

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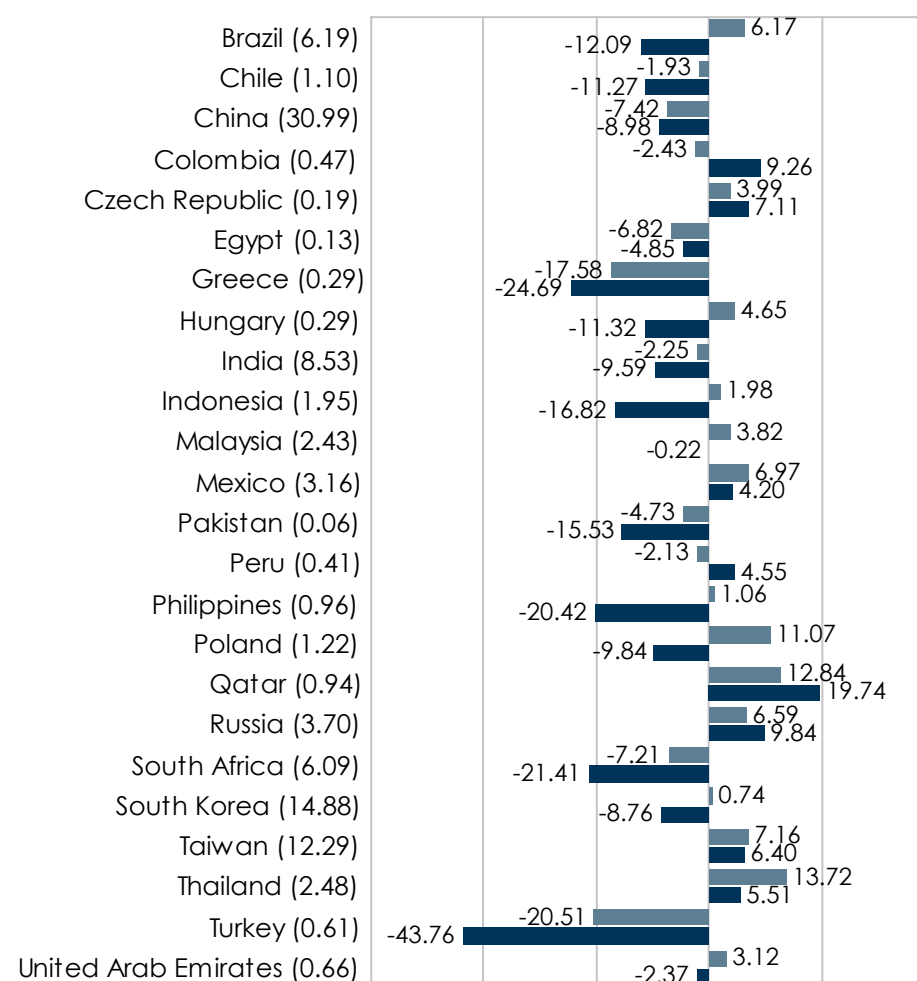
## Emerging Markets - Performance Breakdown

For the Periods Ending September 30, 2018

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



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



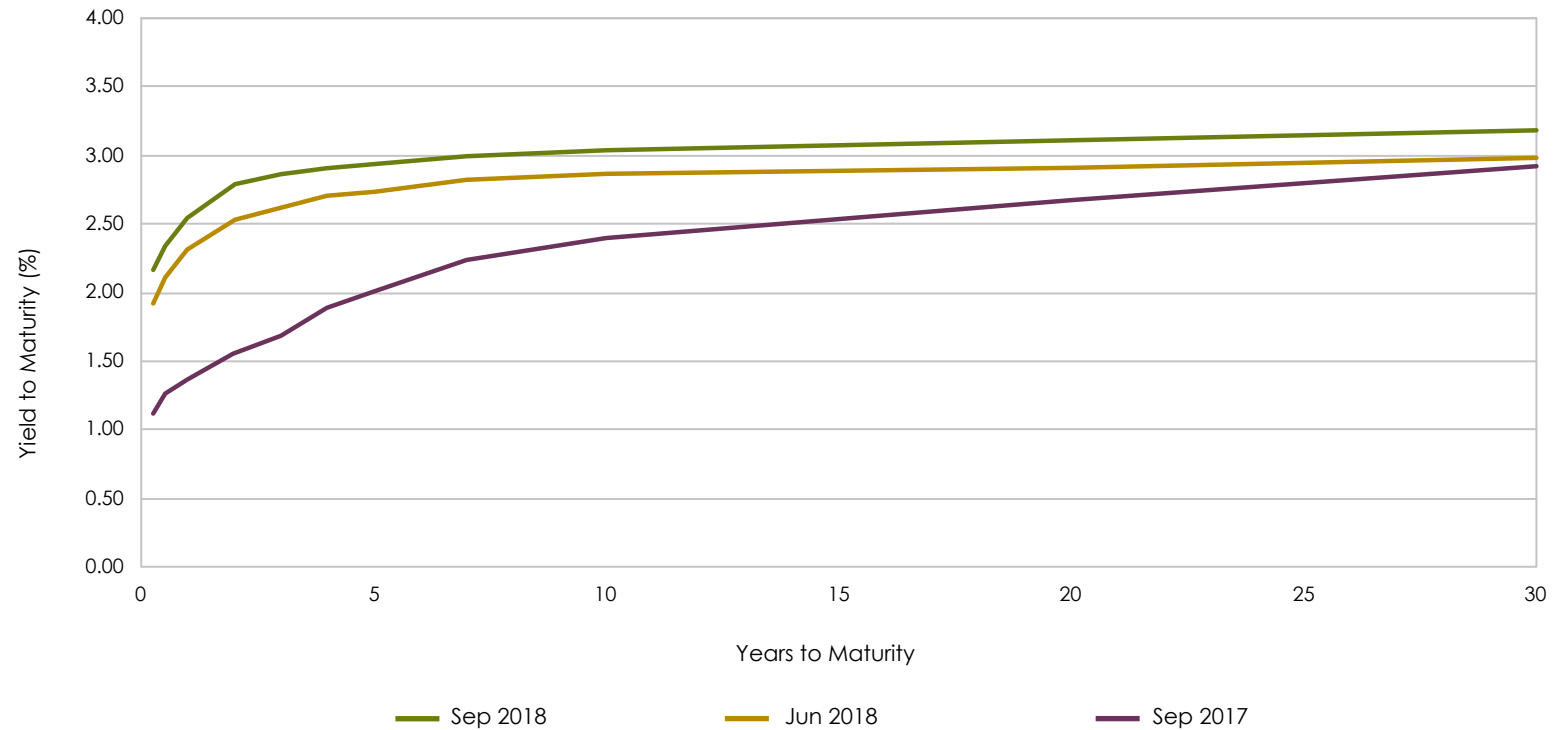
Numbers in parenthesis represent sector or country weights of the index. Sector or country weights may not add to 100% due to rounding.

Source: ACG Research, Bloomberg

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## Interest Rate Term Structure

Government Issues - 3 Months to 30 Years Maturity

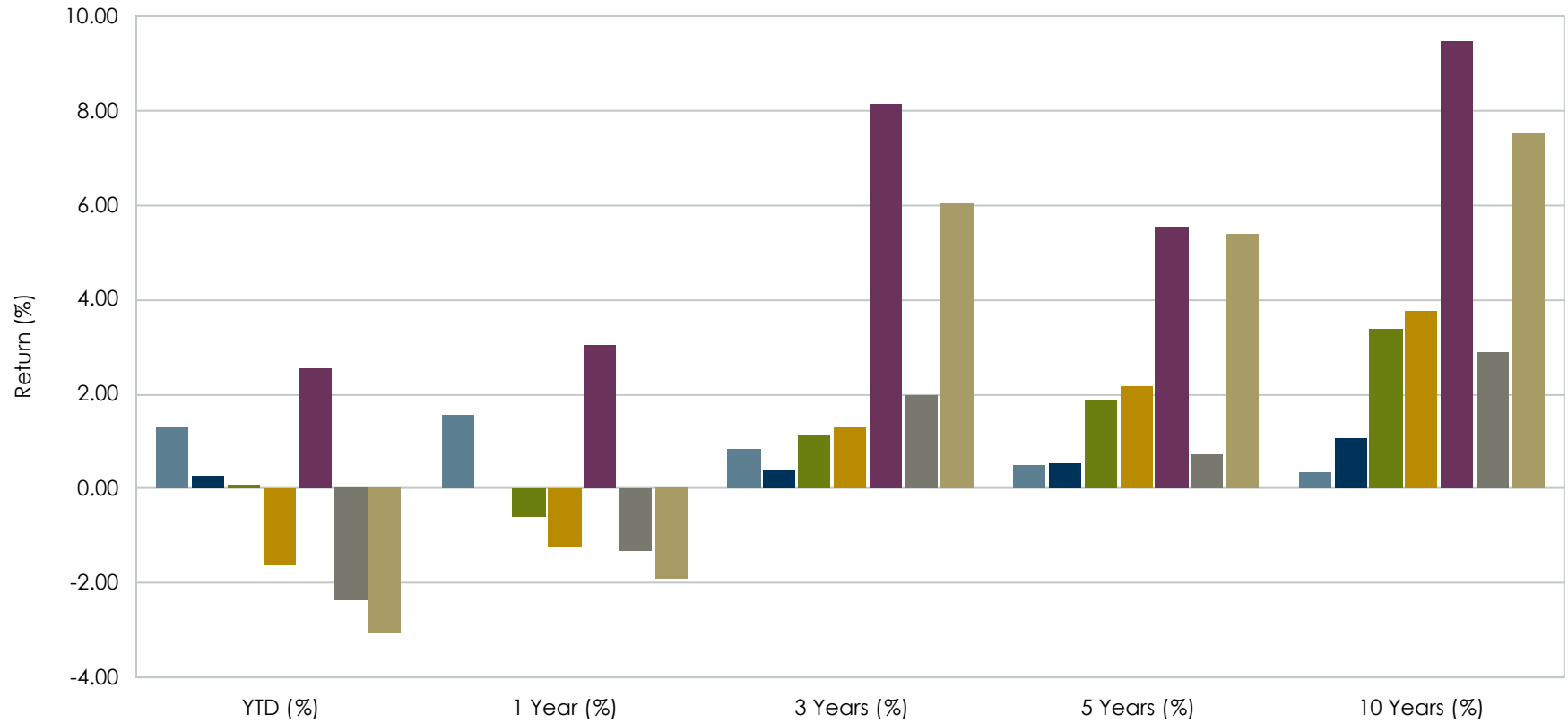


90 Days	2.20	1.92	1.05
180 Days	2.37	2.11	1.19
1 Year	2.57	2.31	1.29
2 Years	2.82	2.53	1.49
3 Years	2.88	2.62	1.62
4 Years	2.94	2.71	1.82
5 Years	2.95	2.74	1.94
7 Years	3.02	2.82	2.17
10 Years	3.06	2.86	2.33
20 Years	3.14	2.91	2.60
30 Years	3.21	2.99	2.86

Source: Bloomberg

## Fixed Income Index Returns

For the Periods Ending September 30, 2018



US T-Bills 90 Day	1.30	1.58	0.84	0.52	0.34
ICE BofA ML 1-3 Yr Treasury	0.29	0.03	0.38	0.56	1.09
BloomBar 5 Yr Municipal	0.10	-0.60	1.16	1.85	3.37
BloomBar US Aggregate	-1.60	-1.22	1.31	2.16	3.77
BloomBar US Corp High Yield	2.57	3.05	8.15	5.54	9.46
BloomBar Global Aggregate	-2.37	-1.32	1.98	0.75	2.89
JPM EMBI Global Diversified	-3.04	-1.92	6.04	5.38	7.54



## US Fixed Income Market Environment

For the Periods Ending September 30, 2018

### Nominal Returns By Sector (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
US Aggregate	0.02	-1.60	-1.22	1.32
US Treasury	-0.60	-1.67	-1.62	0.23
US Agg: Gov't-Related	0.37	-0.94	-0.64	1.83
US Corporate IG	0.96	-2.34	-1.21	3.12
MBS	-0.11	-1.06	-0.91	0.99
CMBS	0.46	-0.94	-0.59	1.47
ABS	0.49	0.53	0.52	1.17
US Corp High Yield	2.41	2.57	3.04	8.15

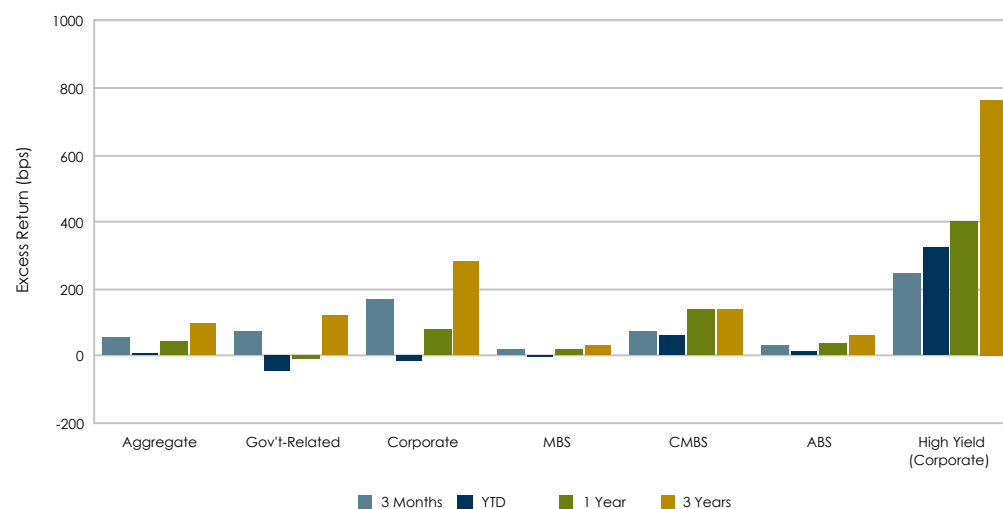
### Nominal Returns by Quality (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
AAA	-0.35	-1.37	-1.29	0.59
AA	0.34	-1.23	-0.63	1.97
A	0.69	-2.67	-1.56	2.55
BAA	1.35	-2.04	-0.83	3.97
BA	2.33	0.51	0.90	6.70
B	2.29	3.17	3.55	7.64
CAA	2.73	5.99	7.07	12.47

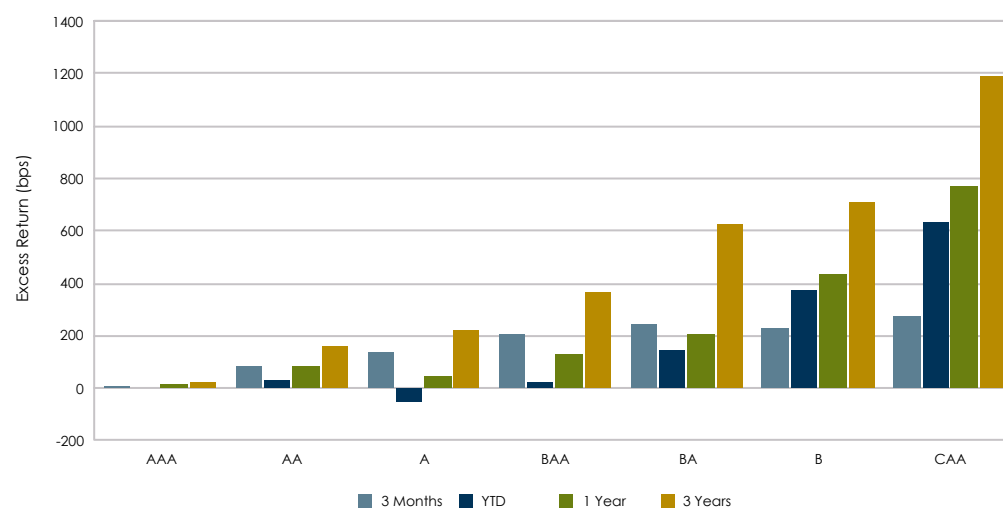
### Nominal Returns by Maturity (%)

	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Years</u>
1-3 Yr.	0.34	0.43	0.23	0.75
3-5 Yr.	0.14	-0.68	-1.04	0.81
5-7 Yr.	0.13	-1.07	-1.18	0.96
7-10 Yr.	-0.09	-1.89	-1.60	1.13
10+ Yr.	-0.47	-5.40	-2.72	3.37

### 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, 2018

Index Name	3 Months (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	7.71	10.56	17.91	17.31	13.95	16.91	11.97
Russell 1000	7.42	10.49	17.76	17.07	13.67	16.90	12.09
Russell 1000 Growth	9.17	17.09	26.30	20.55	16.58	18.69	14.31
Russell 1000 Value	5.70	3.92	9.45	13.55	10.72	15.02	9.79
Russell 2500	4.70	10.41	16.19	16.13	11.37	16.49	12.02
Russell 2000	3.58	11.51	15.24	17.12	11.07	16.43	11.11
Russell 2000 Growth	5.52	15.76	21.06	17.98	12.14	17.52	12.65
Russell 2000 Value	1.60	7.14	9.33	16.12	9.91	15.26	9.52
Wilshire 5000 Cap Wtd	7.27	10.53	17.60	17.27	13.63	16.86	12.02
MSCI ACWI	4.40	4.26	10.35	14.02	9.25	12.22	8.77
MSCI ACWI ex US	0.80	-2.67	2.25	10.49	4.60	7.74	5.67
MSCI EAFE	1.42	-0.98	3.25	9.77	4.90	8.80	5.87
MSCI EAFE Local Currency	2.42	1.84	5.61	9.91	8.37	11.91	7.20
MSCI EAFE Growth	1.57	0.95	6.27	10.68	6.02	9.68	6.59
MSCI EAFE Value	1.26	-2.95	0.24	8.76	3.71	7.86	5.09
MSCI Emerging Markets	-0.95	-7.39	-0.44	12.77	3.99	5.41	5.76
<b>Fixed Income</b>							
ICE BofA ML 1-3 Yr Treasury	0.19	0.29	0.03	0.38	0.56	0.53	1.09
BloomBar 5 Yr Municipal	-0.20	0.10	-0.60	1.16	1.85	1.95	3.37
BloomBar US Aggregate	0.02	-1.60	-1.22	1.31	2.16	2.02	3.77
BloomBar Gov't Bond	-0.57	-1.62	-1.57	0.26	1.34	1.08	2.66
BloomBar US Credit	0.89	-2.12	-1.10	2.98	3.40	3.55	5.94
BloomBar 10 Yr Municipal	0.06	-0.66	-0.14	2.18	3.42	3.41	4.91
BloomBar US Corp High Yield	2.40	2.57	3.05	8.15	5.54	7.64	9.46
FTSE World Govt Bond	-1.62	-2.55	-1.54	1.68	0.20	-0.06	2.21
BloomBar Global Aggregate	-0.92	-2.37	-1.32	1.98	0.75	0.86	2.89
BloomBar Multiverse	-0.80	-2.36	-1.32	2.34	0.94	1.13	3.12
JPM EMBI Global Diversified	2.30	-3.04	-1.92	6.04	5.38	5.87	7.54
<b>Real Assets</b>							
NCREIF Property	1.67	5.27	7.16	7.76	9.58	9.98	6.42
NFI ODCE Net	1.87	5.76	7.71	7.83	9.71	10.14	4.62
FTSE NAREIT US Real Estate	0.79	1.81	3.35	7.64	9.16	11.75	7.44
Bloomberg Commodity	-2.02	-2.03	2.59	-0.11	-7.18	-6.48	-6.24
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.49	1.30	1.58	0.84	0.52	0.39	0.34

## Monthly Index Returns

For the Periods Ending October 31, 2018

Index Name	1 Month (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	-6.84	3.01	7.35	11.52	11.34	14.03	13.24
Russell 1000	-7.08	2.67	6.98	11.31	11.05	13.94	13.42
Russell 1000 Growth	-8.94	6.62	10.71	13.67	13.43	15.39	15.45
Russell 1000 Value	-5.18	-1.46	3.03	8.88	8.61	12.40	11.30
Russell 2500	-10.15	-0.80	2.80	10.05	8.32	12.51	13.55
Russell 2000	-10.86	-0.60	1.85	10.68	8.01	12.25	12.43
Russell 2000 Growth	-12.65	1.11	4.13	10.72	8.75	12.87	13.89
Russell 2000 Value	-8.95	-2.46	-0.59	10.52	7.18	11.56	10.95
Wilshire 5000 Cap Wtd	-7.29	2.47	6.72	11.44	10.98	13.84	13.34
MSCI ACWI	-7.47	-3.53	0.00	8.33	6.72	9.38	10.34
MSCI ACWI ex US	-8.12	-10.58	-7.80	4.87	2.10	4.93	7.41
MSCI EAFE	-7.95	-8.86	-6.39	4.13	2.50	6.12	7.39
MSCI EAFE Local Currency	-6.53	-4.81	-4.13	4.77	6.22	9.88	8.29
MSCI EAFE Growth	-9.20	-8.35	-5.66	4.38	3.47	6.69	7.92
MSCI EAFE Value	-6.63	-9.39	-7.14	3.81	1.47	5.48	6.80
MSCI Emerging Markets	-8.70	-15.45	-12.19	6.92	1.15	2.21	8.20
<b>Fixed Income</b>							
ICE BofA ML 1-3 Yr Treasury	0.16	0.45	0.25	0.47	0.57	0.54	1.01
BloomBar Municipal	-0.62	-1.01	-0.51	1.90	3.25	3.32	4.80
BloomBar US Aggregate	-0.79	-2.38	-2.05	1.04	1.83	1.89	3.94
BloomBar Gov't Bond	-0.47	-2.08	-1.92	0.22	1.15	1.12	2.64
BloomBar US Credit	-1.40	-3.49	-2.81	2.34	2.81	3.13	6.43
BloomBar 10 Yr Municipal	-0.58	-1.23	-0.93	1.85	3.14	3.40	4.94
BloomBar US Corp High Yield	-1.60	0.93	0.97	6.60	4.68	6.51	11.20
FTSE World Govt Bond	-1.10	-3.62	-2.09	1.32	-0.21	-0.30	2.30
BloomBar Global Aggregate	-1.12	-3.46	-2.05	1.52	0.33	0.51	3.16
BloomBar Multiverse	-1.10	-3.43	-2.05	1.83	0.51	0.76	3.44
<b>Real Assets</b>							
Bloomberg Commodity	-2.16	-4.14	-1.73	-0.69	-7.31	-7.62	-4.18
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.18	1.48	1.68	0.90	0.55	0.42	0.35

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**Total Portfolio Summary**

**Total Portfolio**

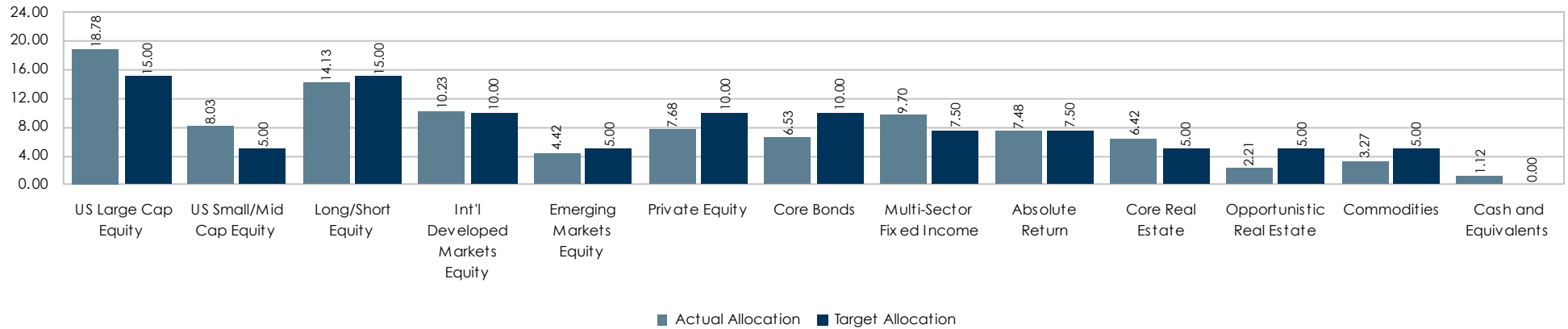
**Dollar Reconciliation (\$000s)**

*For the Periods Ending September 30, 2018*

	<b>FYTD</b>	<b>YTD</b>	<b>1 Year</b>	<b>5 Years</b>
<b>Beginning Market Value</b>	<b>2,539,695</b>	<b>2,508,222</b>	<b>2,443,294</b>	<b>2,035,114</b>
Net Additions	-10,163	-33,016	-47,475	-257,930
Return on Investment	73,164	127,490	206,876	825,511
<b>Ending Market Value</b>	<b>2,602,696</b>	<b>2,602,696</b>	<b>2,602,696</b>	<b>2,602,696</b>

## Total Portfolio

For the Period Ending September 30, 2018

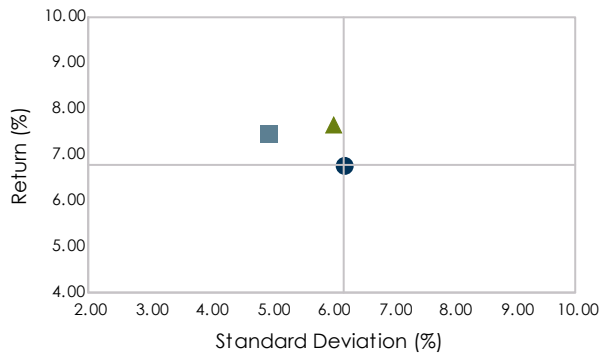


	Market Value (\$000s)	Actual Allocation (%)	Target Allocation (%)	Over/Under Target (%)	Range Min-Max (%)
<b>Total Portfolio</b>	<b>2,602,696</b>	<b>100.00</b>	<b>100.00</b>		
<b>Equity</b>	<b>1,646,586</b>	<b>63.26</b>	<b>60.00</b>	<b>3.26</b>	<b>50.00 - 70.00</b>
US Large Cap Equity	488,785	18.78	15.00	3.78	10.00 - 20.00
US Small/Mid Cap Equity	208,877	8.03	5.00	3.03	0.00 - 15.00
Long/Short Equity	367,851	14.13	15.00	-0.87	10.00 - 20.00
Int'l Developed Markets Equity	266,214	10.23	10.00	0.23	5.00 - 15.00
Emerging Markets Equity	115,052	4.42	5.00	-0.58	0.00 - 10.00
Private Equity	199,806	7.68	10.00	-2.32	5.00 - 15.00
<b>Fixed Income</b>	<b>617,145</b>	<b>23.71</b>	<b>25.00</b>	<b>-1.29</b>	<b>15.00 - 35.00</b>
Core Bonds	170,057	6.53	10.00	-3.47	7.50 - 20.00
Multi-Sector Fixed Income	252,466	9.70	7.50	2.20	5.00 - 10.00
Absolute Return	194,623	7.48	7.50	-0.02	5.00 - 10.00
<b>Real Assets</b>	<b>309,803</b>	<b>11.90</b>	<b>15.00</b>	<b>-3.10</b>	<b>0.00 - 20.00</b>
Core Real Estate	167,052	6.42	5.00	1.42	0.00 - 10.00
Opportunistic Real Estate	57,626	2.21	5.00	-2.79	0.00 - 10.00
Commodities	85,125	3.27	5.00	-1.73	0.00 - 10.00
<b>Cash and Equivalents</b>	<b>29,162</b>	<b>1.12</b>	<b>0.00</b>	<b>1.12</b>	

## Total Portfolio

For the Periods Ending September 30, 2018

### 5 Year Risk / Return



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

### 5 Year Relative Statistics

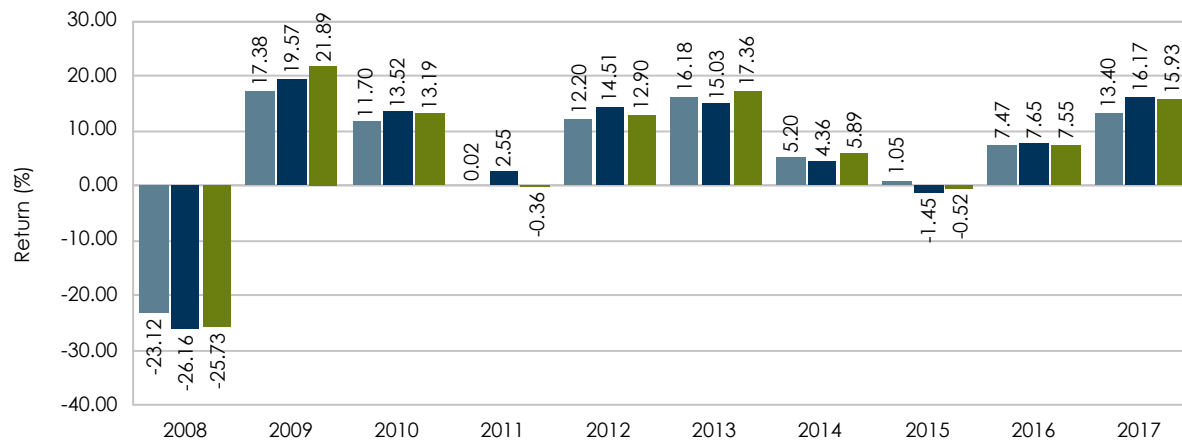
Total Fund Policy	
Beta	0.76
Up Capture (%)	88.29
Down Capture (%)	66.46

	Return (%)	Rank	Std Dev (%)	Sharpe Ratio
FYTD				
Total Portfolio	2.87	53	--	--
Total Fund Policy	2.79		--	--
IF TF Between 55 - 70% Equity	2.91		--	--

YTD				
Total Portfolio	5.10	16	--	--
Total Fund Policy	2.74		--	--
IF TF Between 55 - 70% Equity	3.64		--	--

1 Year				
Total Portfolio	8.51	29	3.87	1.81
Total Fund Policy	6.86		5.23	1.02
IF TF Between 55 - 70% Equity	7.54		5.01	1.19

### Calendar Year Returns



3 Years				
Total Portfolio	9.23	82	4.51	1.88
Total Fund Policy	9.64		5.87	1.51
IF TF Between 55 - 70% Equity	10.05		5.66	1.61

5 Years				
Total Portfolio	7.46	59	4.97	1.41
Total Fund Policy	6.77		6.20	1.02
IF TF Between 55 - 70% Equity	7.64		6.03	1.19

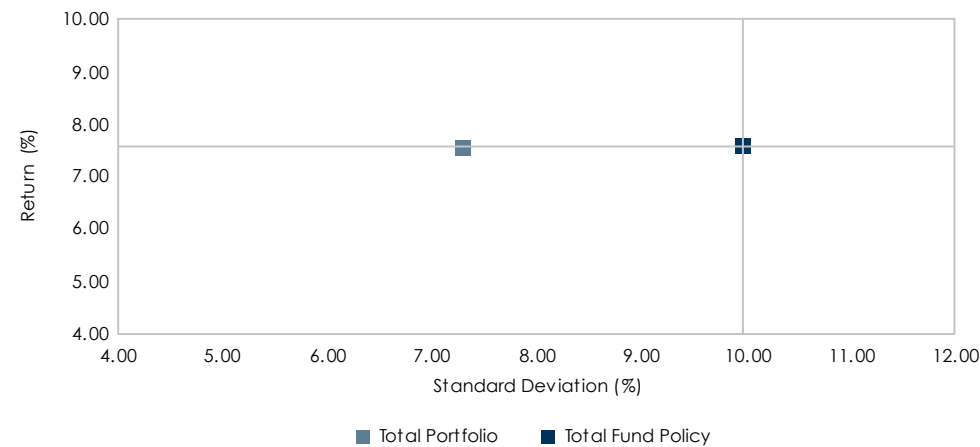
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.



Total Portfolio

For the Periods Ending September 30, 2018

10 Year Risk / Return



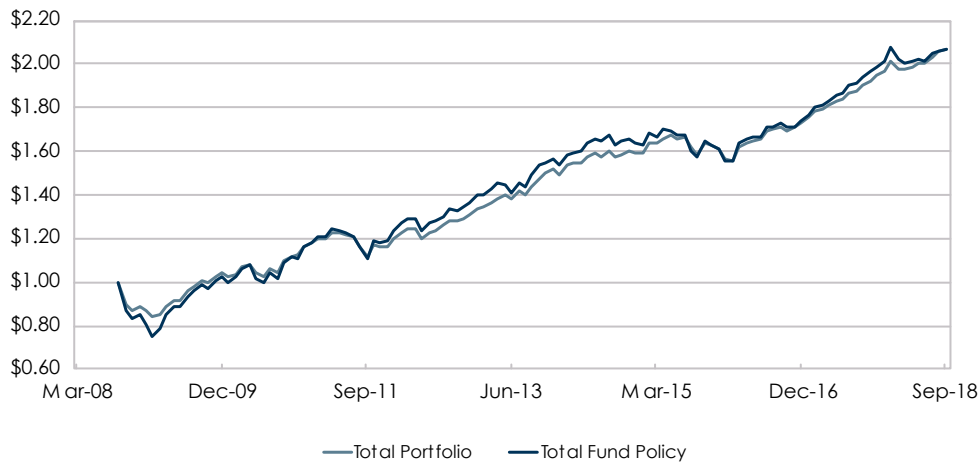
10 Year Portfolio Statistics

	Total Portfolio	Total Fund Policy
Return (%)	7.51	7.55
Standard Deviation (%)	7.31	9.97
Sharpe Ratio	0.99	0.73

Benchmark Relative Statistics

Beta	0.71
Up Capture (%)	77.90
Down Capture (%)	68.06

10 Year Growth of a Dollar

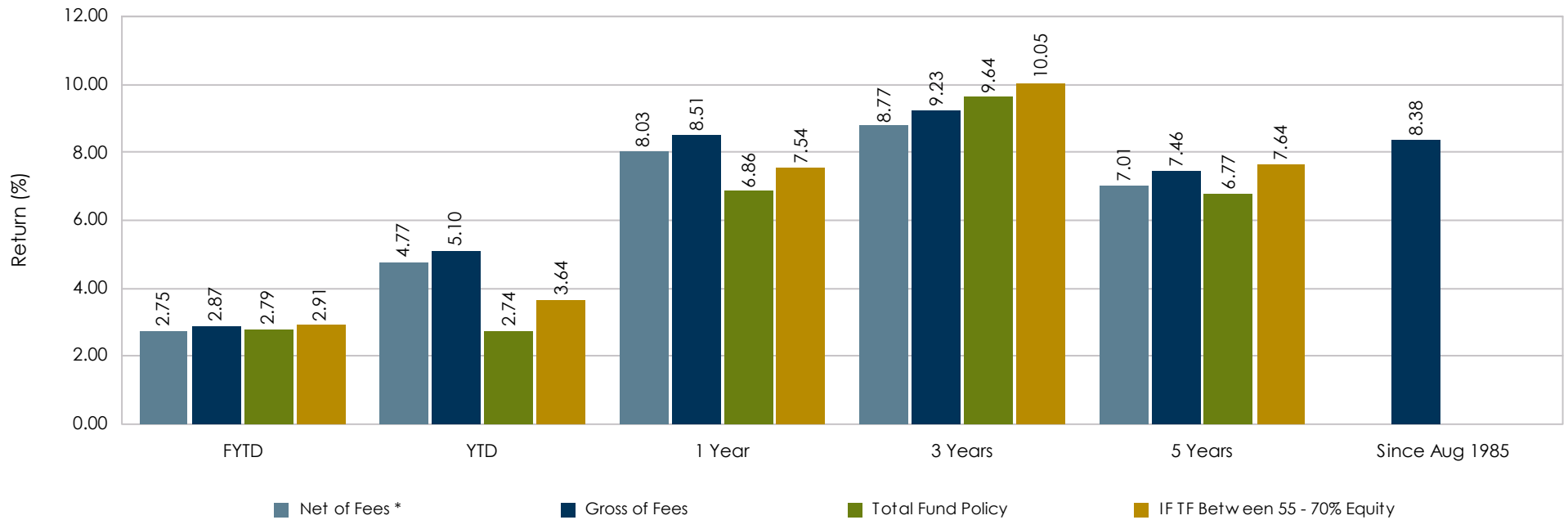


10 Year Return Analysis

	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	84	78
Number of Negative Months	36	42
% of Positive Months	70.00	65.00

### Total Portfolio

For the Periods Ending September 30, 2018



Ranking	53	16	29	82	59
5th Percentile	4.20	6.50	10.80	11.66	9.33
25th Percentile	3.38	4.56	8.65	10.59	8.33
50th Percentile	2.91	3.64	7.54	10.05	7.64
75th Percentile	2.52	2.81	6.55	9.40	6.96
95th Percentile	1.95	1.71	5.20	8.27	5.84
Observations	514	508	506	464	423

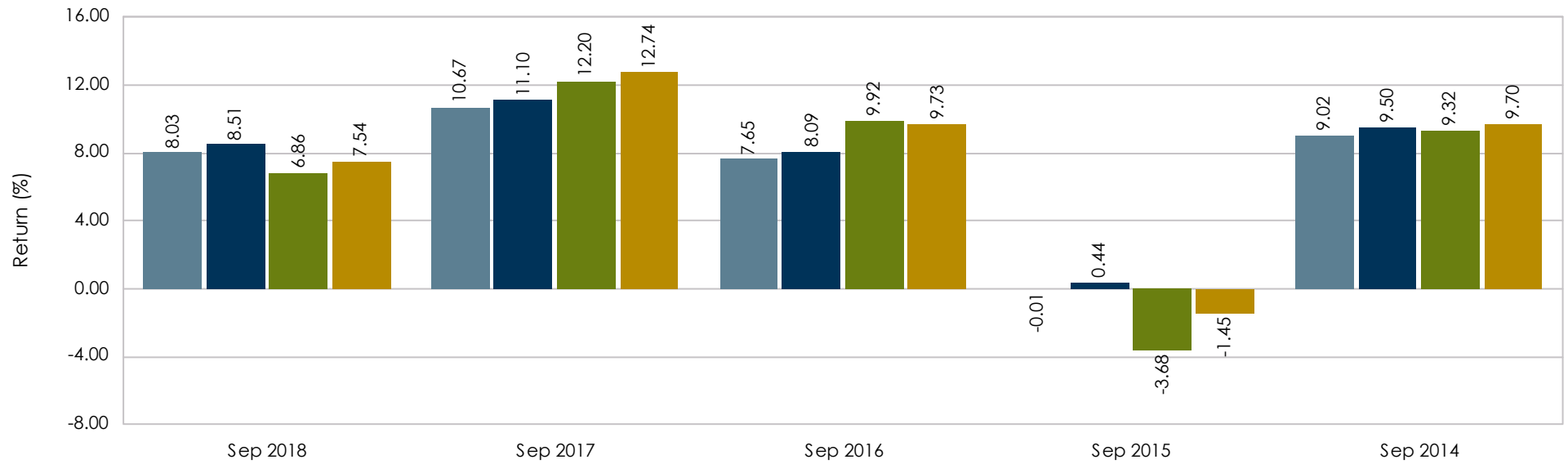
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

\* 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	29	85	86	18	54
5th Percentile	10.80	15.22	12.34	1.62	12.47
25th Percentile	8.65	13.76	10.50	-0.12	10.63
50th Percentile	7.54	12.74	9.73	-1.45	9.70
75th Percentile	6.55	11.70	8.83	-3.13	8.62
95th Percentile	5.20	10.21	7.13	-6.27	7.06
Observations	506	680	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.

\* Performance is calculated using net of fee returns.

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending September 30, 2018

	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>2,602,696</b>	<b>100.00</b>	<b>2.75</b>		<b>4.77</b>		<b>8.03</b>		<b>8.77</b>		<b>7.01</b>		<b>7.14</b>
<b>Total Portfolio (08/85)</b>			<b>2.87</b>	<b>53</b>	<b>5.10</b>	<b>16</b>	<b>8.51</b>	<b>29</b>	<b>9.23</b>	<b>82</b>	<b>7.46</b>	<b>59</b>	<b>7.51</b>
<i>Total Fund Policy <sup>2</sup></i>			2.79		2.74		6.86		9.64		6.77		7.55
<i>IF TF Between 55 - 70% Equity</i>			2.91		3.64		7.54		10.05		7.64		7.99
<b>Equity (01/98)</b>	<b>1,646,586</b>	<b>63.26</b>	<b>4.11</b>		<b>6.74</b>		<b>11.26</b>		<b>12.22</b>		<b>9.70</b>		<b>8.83</b>
<i>MSCI ACWI</i>			4.40		4.26		10.35		14.02		9.25		8.77
<b>US Large Cap Equity</b>	<b>488,785</b>	<b>18.78</b>											
<b>Northern Trust Russell 1000 Index (08/98) <sup>3</sup></b>	<b>488,785</b>	<b>18.78</b>	<b>7.42</b>	<b>45</b>	<b>10.48</b>	<b>38</b>	<b>17.75</b>	<b>43</b>	<b>17.07</b>	<b>30</b>	<b>13.68</b>	<b>48</b>	<b>12.10</b>
<i>Russell 1000</i>			7.42		10.49		17.76		17.07		13.67		12.09
<i>eA US Large Cap Core Equity</i>			7.24		9.47		16.96		16.18		13.50		11.92
<b>US Small/Mid Cap Equity</b>	<b>208,877</b>	<b>8.03</b>											
<b>Boston Partners (01/98)</b>	<b>92,683</b>	<b>3.56</b>	<b>0.66</b>	<b>94 / 72</b>	<b>1.22</b>	<b>76 / 94</b>	<b>6.23</b>	<b>78 / 81</b>	<b>13.52</b>	<b>50 / 75</b>	<b>9.77</b>	<b>77 / 68</b>	<b>12.20</b>
<i>Russell 2500 Value</i>			2.67		5.75		10.24		14.51		9.99		10.53
<i>eA US Mid Cap Value Equity</i>			3.28		4.20		9.38		13.48		10.90		12.22
<i>eA US Small Cap Value Equity</i>			1.53		5.32		9.07		15.16		10.73		11.92
<b>Cortina (02/14)</b>	<b>116,195</b>	<b>4.46</b>	<b>8.06</b>	<b>46</b>	<b>32.74</b>	<b>10</b>	<b>34.02</b>	<b>26</b>	<b>25.03</b>	<b>17</b>	<b>--</b>		<b>--</b>
<i>Russell 2000 Growth</i>			5.52		15.76		21.06		17.98		12.14		12.65
<i>eA US Small Cap Growth Equity</i>			7.88		21.56		27.73		19.70		13.38		14.53
<b>Long/Short Equity</b>	<b>367,851</b>	<b>14.13</b>											
<b>Grosvenor Long/Short Equity (11/03)</b>	<b>367,851</b>	<b>14.13</b>	<b>1.26</b>		<b>4.38</b>		<b>6.85</b>		<b>6.62</b>		<b>6.12</b>		<b>5.99</b>
<i>MSCI ACWI</i>			4.40		4.26		10.35		14.02		9.25		8.77
<i>HFRI FOF: Strategic</i>			-0.43		-0.07		2.42		4.08		3.43		2.87

FYTD: Fiscal year ending June.

\* Net of fee return data.

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## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending September 30, 2018

	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>266,214</b>	<b>10.23</b>											
<b>Mondrian International (05/04)</b>	<b>141,280</b>	<b>5.43</b>	<b>2.12</b>	<b>8</b>	<b>-1.60</b>	<b>18</b>	<b>1.71</b>	<b>31</b>	<b>8.82</b>	<b>50</b>	<b>4.99</b>	<b>46</b>	<b>5.48</b>
MSCI EAFE			1.42		-0.98		3.25		9.77		4.90		5.87
eA EAFE All Cap Value Equity			0.85		-3.43		1.08		8.78		4.84		6.79
<b>Baring Focused International (03/12)</b>	<b>124,934</b>	<b>4.80</b>	<b>2.92</b>	<b>7</b>	<b>2.07</b>	<b>18</b>	<b>7.55</b>	<b>12</b>	<b>12.51</b>	<b>20</b>	<b>7.09</b>	<b>25</b>	<b>--</b>
MSCI EAFE			1.42		-0.98		3.25		9.77		4.90		5.87
eA EAFE All Cap Equity			0.92		-1.34		2.84		10.13		6.26		7.09
<b>Emerging Markets Equity</b>	<b>115,052</b>	<b>4.42</b>											
<b>Wasatch Emerging Markets (09/12)</b>	<b>34,018</b>	<b>1.31</b>	<b>-6.65</b>	<b>91</b>	<b>-11.21</b>	<b>78</b>	<b>-4.42</b>	<b>77</b>	<b>6.46</b>	<b>98</b>	<b>2.84</b>	<b>87</b>	<b>--</b>
MSCI EM SC			-4.05		-12.06		-3.89		7.74		3.03		7.74
eA Global Emerging Mkts Equity			-2.14		-8.43		-2.04		12.30		4.43		7.05
<b>AB EM Strategic Core Equity Fund (11/16)</b>	<b>81,034</b>	<b>3.11</b>	<b>-0.09</b>	<b>24</b>	<b>-6.82</b>	<b>24</b>	<b>-3.65</b>	<b>68</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MSCI Emerging Markets			-0.95		-7.39		-0.44		12.77		3.99		5.76
eA Global Emerging Mkts Equity			-2.14		-8.43		-2.04		12.30		4.43		7.05
<b>Private Equity (07/03)</b>	<b>199,806</b>	<b>7.68</b>	<b>7.21</b>		<b>12.53</b>		<b>16.23</b>		<b>8.81</b>		<b>12.15</b>		<b>9.42</b>
<b>Fixed Income (01/98)</b>	<b>617,145</b>	<b>23.71</b>	<b>0.63</b>		<b>1.00</b>		<b>2.08</b>		<b>3.46</b>		<b>2.99</b>		<b>5.25</b>
BloomBar Universal			0.27		-1.41		-1.00		1.98		2.53		4.22
<b>Core Bonds</b>	<b>170,057</b>	<b>6.53</b>											
<b>Agincourt Core Fixed Income (10/99)</b>	<b>170,057</b>	<b>6.53</b>	<b>0.32</b>	<b>21</b>	<b>-1.38</b>	<b>64</b>	<b>-0.73</b>	<b>47</b>	<b>1.87</b>	<b>47</b>	<b>2.61</b>	<b>48</b>	<b>4.64</b>
BloomBar US Aggregate			0.02		-1.60		-1.22		1.31		2.16		3.77
eA US Core Fixed Income			0.20		-1.28		-0.80		1.82		2.58		4.60

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending September 30, 2018

	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>252,466</b>	<b>9.70</b>											
<b>Multi Sector Fixed Income</b>													
<b>Oaktree Capital Management (02/98)</b>	<b>125,888</b>	<b>4.84</b>	<b>2.00</b>		<b>2.04</b>		<b>2.88</b>		<b>7.24</b>		<b>5.27</b>		<b>8.27</b>
<i>BloomBar US Aggregate</i>			0.02		-1.60		-1.22		1.31		2.16		3.77
<b>Loomis Sayles (06/08)</b>	<b>95,726</b>	<b>3.68</b>	<b>-0.98</b>	<b>77</b>	<b>-2.47</b>	<b>65</b>	<b>-1.25</b>	<b>61</b>	<b>3.41</b>	<b>55</b>	<b>1.21</b>	<b>66</b>	<b>4.18</b>
<i>FTSE World Govt Bond</i>			-1.62		-2.55		-1.54		1.68		0.20		2.21
<i>eA All Global Fixed Income</i>			0.19		-1.68		-0.64		3.68		2.24		4.44
<b>Private Credit (10/16)</b>	<b>30,852</b>	<b>1.19</b>	<b>1.93</b>		<b>6.83</b>		<b>10.51</b>		<b>--</b>		<b>--</b>		<b>--</b>
<b>Absolute Return</b>	<b>194,623</b>	<b>7.48</b>											
<b>PAAMCO (10/02)</b>	<b>130,508</b>	<b>5.01</b>	<b>0.35</b>		<b>2.48</b>		<b>3.64</b>		<b>2.58</b>		<b>2.81</b>		<b>3.74</b>
<i>BloomBar US Aggregate</i>			0.02		-1.60		-1.22		1.31		2.16		3.77
<i>HFRI FOF: Conservative</i>			0.91		2.58		3.76		2.85		2.95		2.20
<b>Wellington Global Total Return (12/16)</b>	<b>64,115</b>	<b>2.46</b>	<b>1.29</b>	<b>19</b>	<b>5.61</b>	<b>2</b>	<b>7.28</b>	<b>2</b>	<b>--</b>		<b>--</b>		<b>--</b>
<i>LIBOR 3 Month</i>			0.59		1.56		1.91		1.18		0.81		0.66
<i>eA Global Unconstrained Fixed Income</i>			0.41		-0.96		-0.61		3.94		2.88		4.63
<b>Real Assets (01/98)</b>	<b>309,803</b>	<b>11.90</b>	<b>1.26</b>		<b>5.49</b>		<b>8.82</b>		<b>7.29</b>		<b>6.38</b>		<b>4.01</b>
<i>Real Assets Blended Index <sup>4</sup></i>			0.58		3.19		6.07		4.42		2.15		0.95
<b>Core Real Estate</b>	<b>167,052</b>	<b>6.42</b>											
<b>JP Morgan Strategic Property (12/07)</b>	<b>125,940</b>	<b>4.84</b>	<b>1.83</b>		<b>6.10</b>		<b>8.01</b>		<b>8.42</b>		<b>10.36</b>		<b>6.18</b>
<i>NFI ODCE Net</i>			1.87		5.76		7.71		7.83		9.71		4.62
<i>NCREIF Property</i>			1.67		5.27		7.16		7.76		9.58		6.42
<b>Blackstone Property Partners (01/15)</b>	<b>41,112</b>	<b>1.58</b>	<b>2.54</b>		<b>7.61</b>		<b>10.74</b>		<b>12.38</b>		<b>--</b>		<b>--</b>
<i>NFI ODCE Net</i>			1.87		5.76		7.71		7.83		9.71		4.62
<i>NCREIF Property</i>			1.67		5.27		7.16		7.76		9.58		6.42

## Rates of Return Summary & Universe Rankings

For the Periods Ending September 30, 2018

	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>57,626</b>	<b>2.21</b>											
<b>Private Real Estate (08/11)</b>	<b>52,737</b>	<b>2.03</b>	<b>0.07</b>		<b>5.88</b>		<b>10.00</b>		<b>9.65</b>		<b>11.61</b>		<b>--</b>
<b>Private Real Estate Direct</b>													
<b>Columbus Square (01/98)</b>	<b>4,889</b>	<b>0.19</b>	<b>3.61</b>		<b>6.30</b>		<b>6.00</b>		<b>8.48</b>		<b>8.07</b>		<b>10.92</b>
NCREIF Property			1.67		5.27		7.16		7.76		9.58		6.42
NFI ODCE Net			1.87		5.76		7.71		7.83		9.71		4.62
<b>Commodities</b>	<b>85,125</b>	<b>3.27</b>											
<b>Mount Lucas Peak Partners (01/98)</b>	<b>32,419</b>	<b>1.25</b>	<b>2.53</b>		<b>7.33</b>		<b>12.19</b>		<b>4.18</b>		<b>6.80</b>		<b>3.59</b>
CS Hedge - Global Macro			-0.19		1.65		3.56		2.66		2.68		4.99
<b>Gresham Tap Fund (08/14)</b>	<b>52,706</b>	<b>2.03</b>	<b>-0.84</b>		<b>1.01</b>		<b>7.20</b>		<b>1.47</b>		<b>--</b>		<b>--</b>
Bloomberg Commodity			-2.02		-2.03		2.59		-0.11		-7.18		-6.24
<b>Cash and Equivalents</b>	<b>29,162</b>	<b>1.12</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, 2018

### Account Description

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

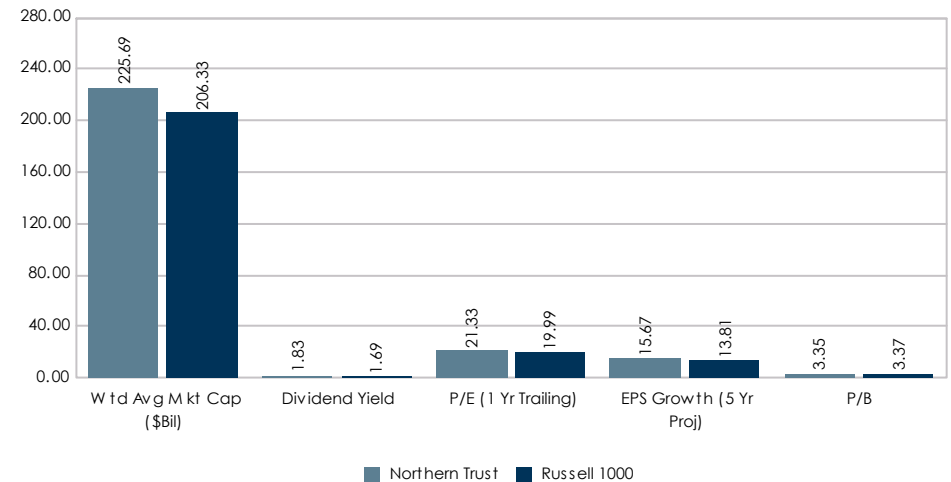
### Performance Goals

- 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.

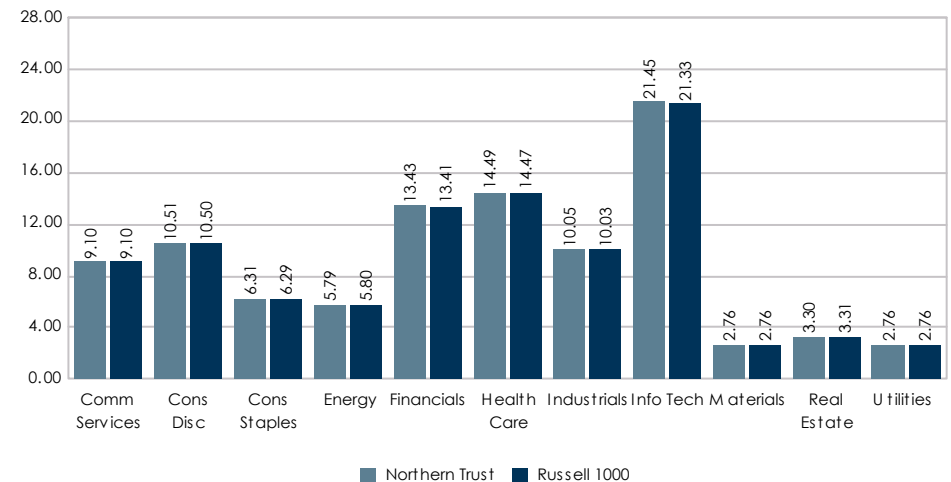
### Dollar Growth Summary (\$000s)

	FYTD	YTD
<b>Beginning Market Value</b>	<b>455,018</b>	<b>442,458</b>
Net Additions	-11	-22
Return on Investment	33,778	46,349
<b>Ending Market Value</b>	<b>488,785</b>	<b>488,785</b>

### Characteristics



### Sector Allocation



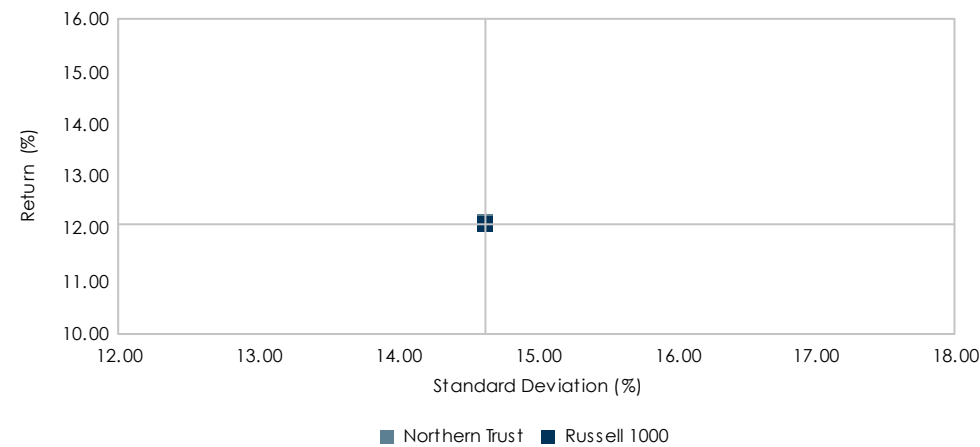
Characteristic and allocation charts represents data of the EB Daily Valued Large Cap Stock Index Fund (Non-Mutual Commingled).

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, 2018

10 Year Risk / Return



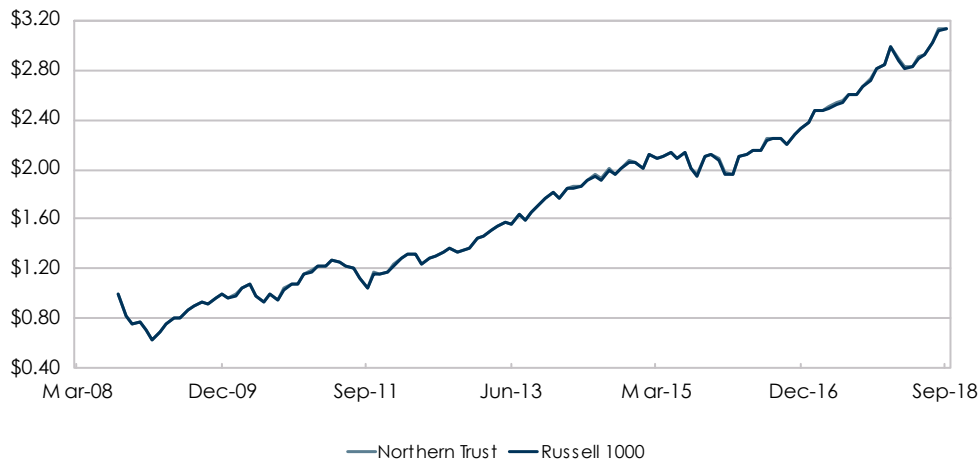
10 Year Portfolio Statistics

	Northern Trust	Russell 1000
Return (%)	12.10	12.09
Standard Deviation (%)	14.63	14.64
Sharpe Ratio	0.81	0.81

Benchmark Relative Statistics

Beta	1.00
R Squared (%)	100.00
Alpha (%)	0.01
Tracking Error (%)	0.04
Batting Average (%)	63.33
Up Capture (%)	99.99
Down Capture (%)	99.92

10 Year Growth of a Dollar

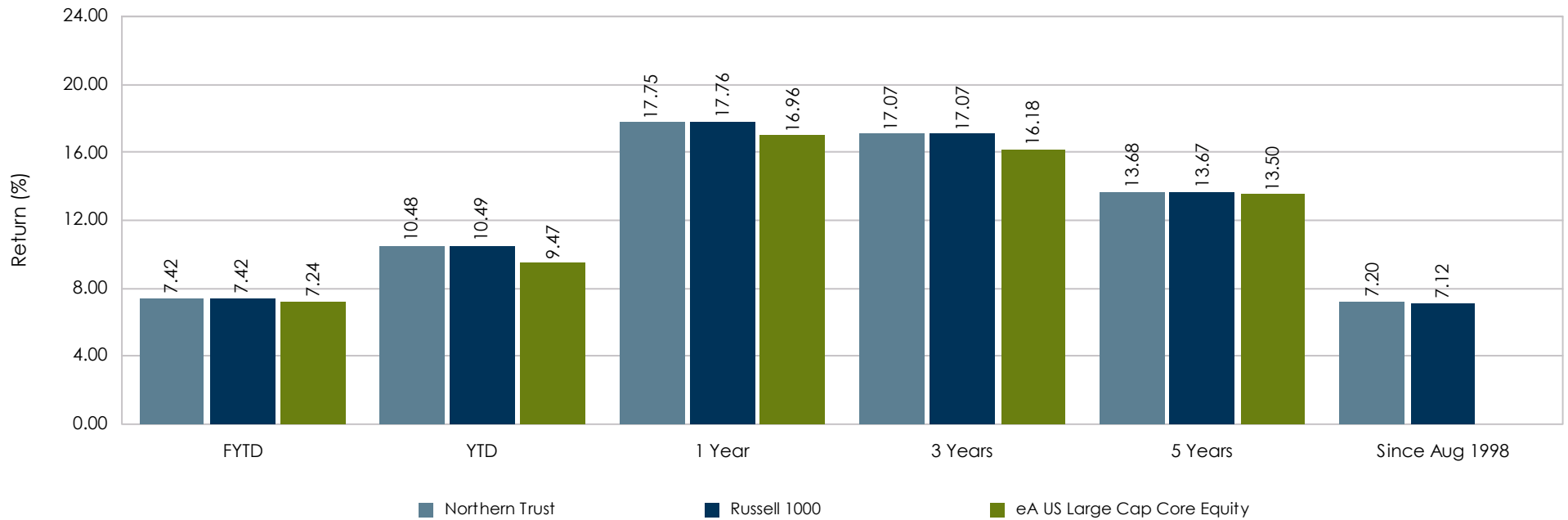


10 Year Return Analysis

	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	85	85
Number of Negative Months	35	35
% of Positive Months	70.83	70.83

### Northern Trust Russell 1000 Index

For the Periods Ending September 30, 2018

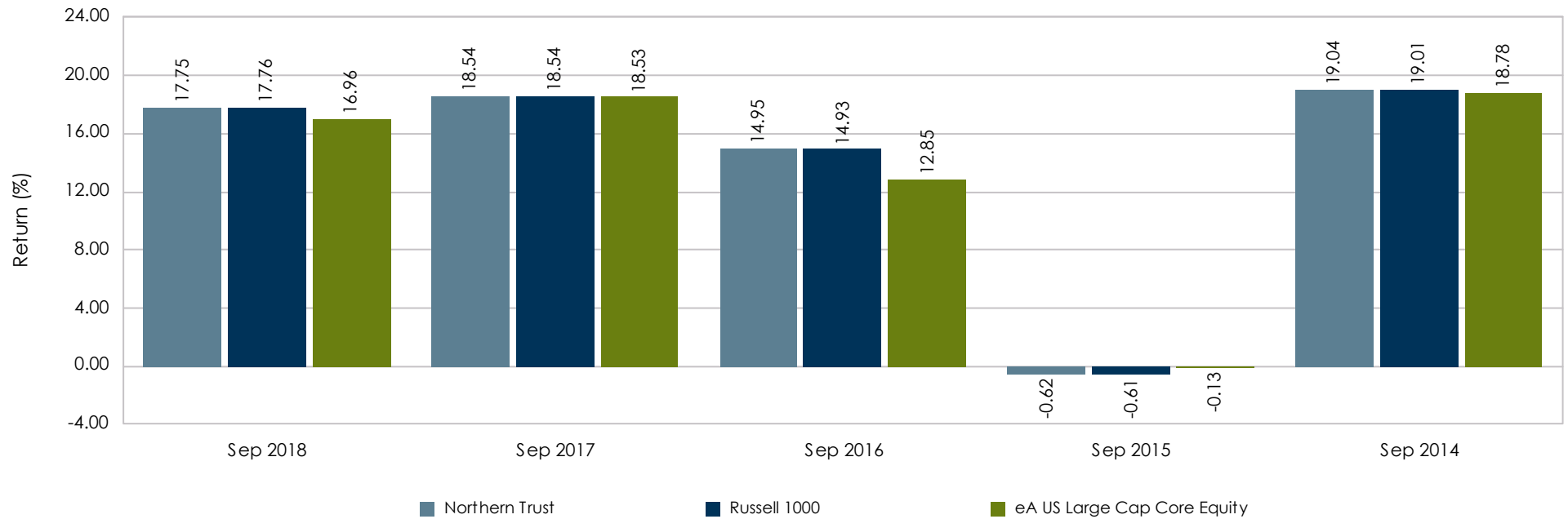


Ranking	45	38	43	30	48
5th Percentile	9.23	14.42	23.56	19.28	15.61
25th Percentile	8.12	11.18	19.56	17.36	14.27
50th Percentile	7.24	9.47	16.96	16.18	13.50
75th Percentile	6.22	7.47	14.63	15.20	12.56
95th Percentile	4.53	4.75	10.75	12.63	11.18
Observations	237	237	237	225	216

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	43	50	25	57	47
5th Percentile	23.56	23.62	19.07	6.37	23.99
25th Percentile	19.56	20.56	14.89	2.11	20.60
50th Percentile	16.96	18.53	12.85	-0.13	18.78
75th Percentile	14.63	16.22	10.66	-1.98	16.78
95th Percentile	10.75	12.05	5.87	-6.45	11.82
Observations	237	388	384	372	394

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, 2018

### 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

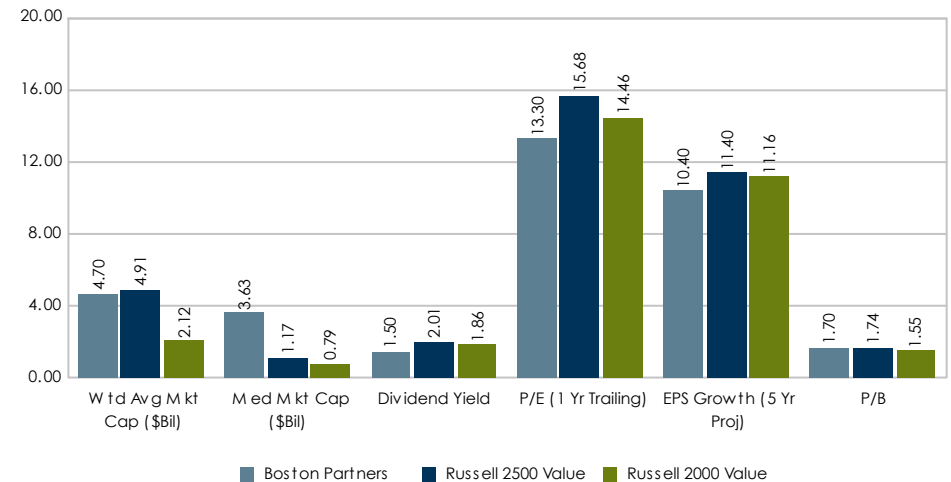
### Performance Goals

- 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.

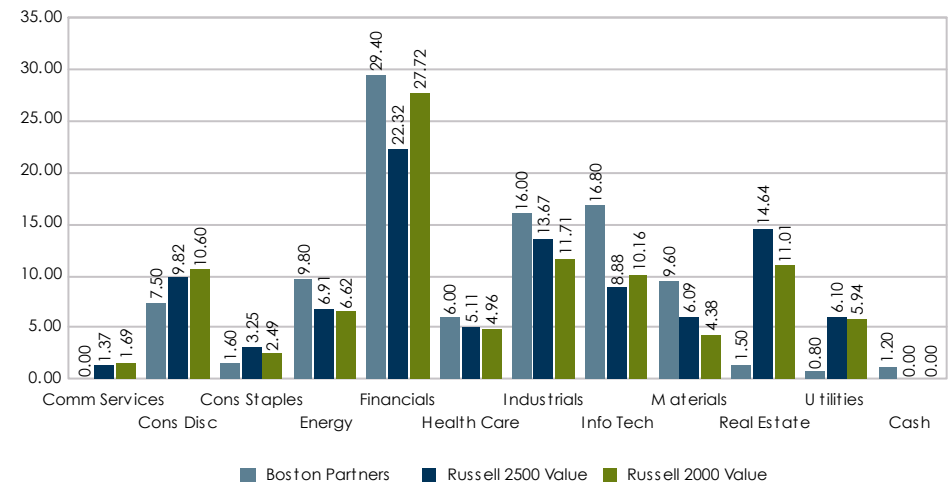
### Dollar Growth Summary (\$000s)

	FYTD	YTD
<b>Beginning Market Value</b>	<b>92,198</b>	<b>92,102</b>
Net Additions	-124	-540
Return on Investment	609	1,121
Income	344	1,068
Gain/Loss	265	54
<b>Ending Market Value</b>	<b>92,683</b>	<b>92,683</b>

### Characteristics



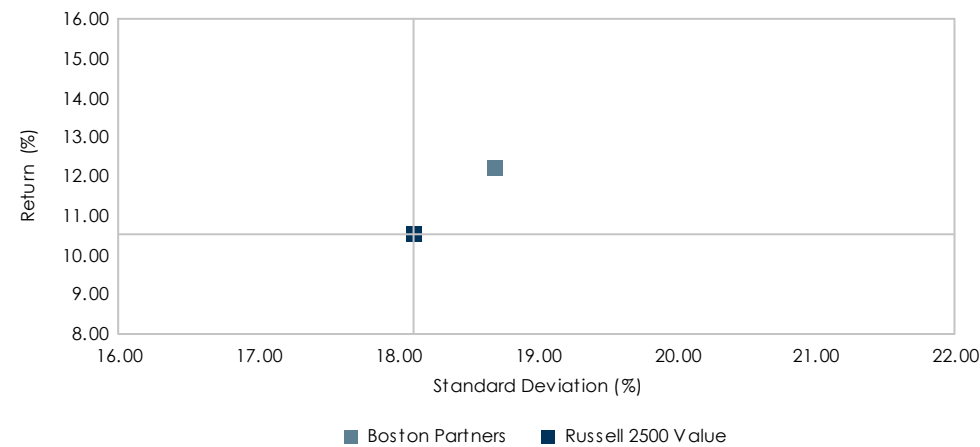
### Sector Allocation



Boston Partners

For the Periods Ending September 30, 2018

10 Year Risk / Return



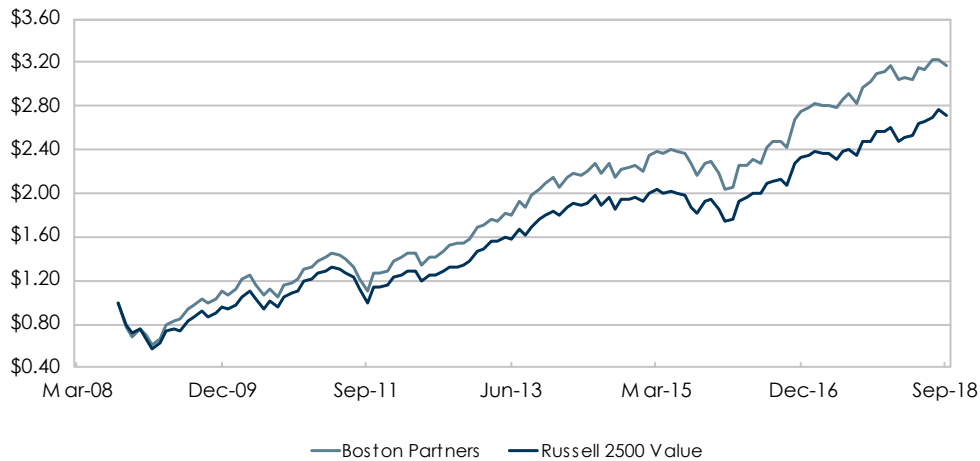
10 Year Portfolio Statistics

	Boston Partners	Russell 2500 Value
Return (%)	12.20	10.53
Standard Deviation (%)	18.71	18.12
Sharpe Ratio	0.64	0.57

Benchmark Relative Statistics

Beta	1.01
R Squared (%)	95.67
Alpha (%)	1.52
Tracking Error (%)	3.90
Batting Average (%)	53.33
Up Capture (%)	101.90
Down Capture (%)	95.67

10 Year Growth of a Dollar

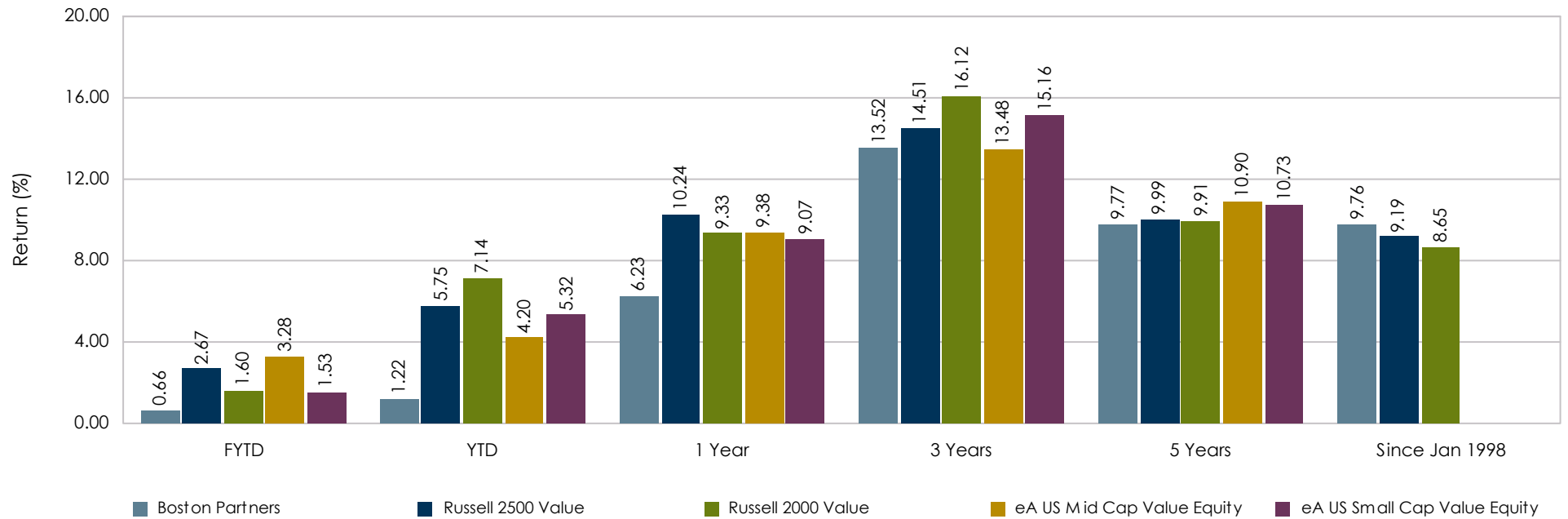


10 Year Return Analysis

	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	79	79
Number of Negative Months	41	41
% of Positive Months	65.83	65.83

## Boston Partners

For the Periods Ending September 30, 2018



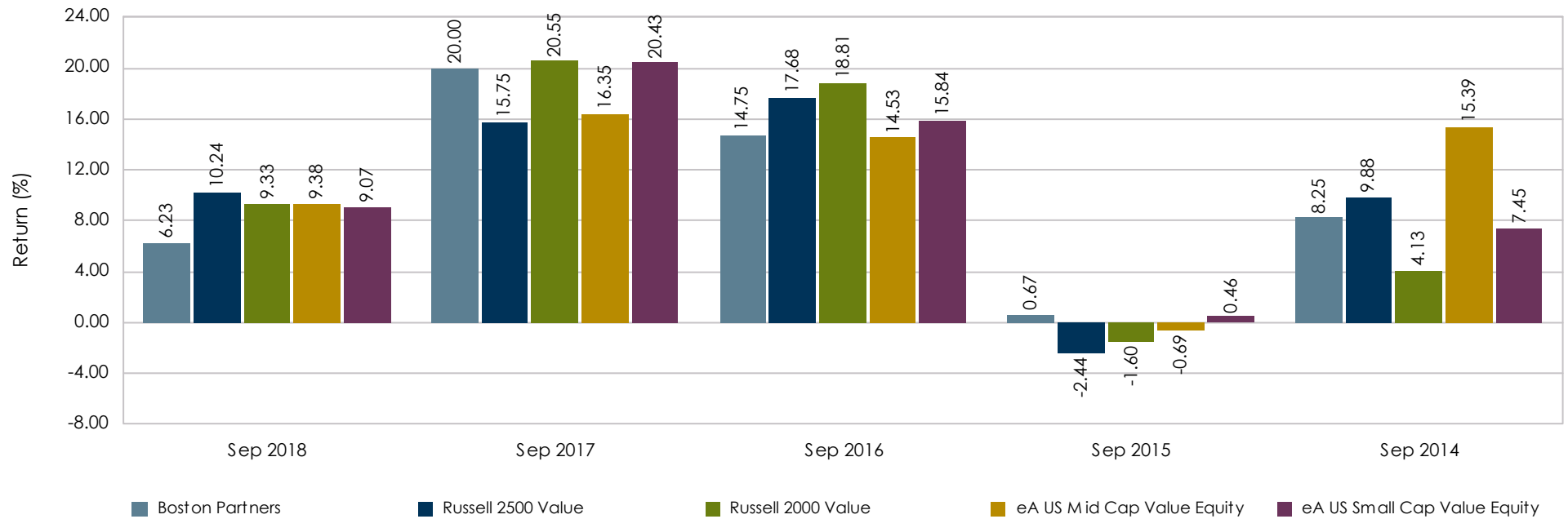
Ranking	94 / 72	76 / 94	78 / 81	50 / 75	77 / 68
5th Percentile	6.82 / 5.92	9.94 / 14.02	15.35 / 18.92	17.04 / 21.11	13.42 / 13.23
25th Percentile	4.18 / 3.24	5.27 / 8.23	12.03 / 12.56	15.53 / 16.97	11.96 / 11.59
50th Percentile	3.28 / 1.53	4.20 / 5.32	9.38 / 9.07	13.48 / 15.16	10.90 / 10.73
75th Percentile	2.03 / 0.34	1.39 / 3.31	7.23 / 6.94	12.03 / 13.46	9.89 / 9.44
95th Percentile	0.31 / -1.73	-1.43 / 0.82	3.36 / 3.01	9.05 / 10.43	6.41 / 6.48
Observations	94 / 199	94 / 199	94 / 199	93 / 194	91 / 185

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	78 / 81	24 / 54	49 / 60	31 / 48	93 / 42
5th Percentile	15.35 / 18.92	25.87 / 28.28	20.61 / 25.32	5.49 / 6.68	21.47 / 13.30
25th Percentile	12.03 / 12.56	19.55 / 22.89	17.71 / 18.95	1.35 / 3.53	17.53 / 10.24
50th Percentile	9.38 / 9.07	16.35 / 20.43	14.53 / 15.84	-0.69 / 0.46	15.39 / 7.45
75th Percentile	7.23 / 6.94	14.77 / 17.37	11.40 / 12.69	-3.58 / -3.91	12.45 / 5.20
95th Percentile	3.36 / 3.01	10.14 / 11.46	7.33 / 7.10	-9.89 / -13.28	7.57 / 0.54
Observations	94 / 199	112 / 248	109 / 246	110 / 250	117 / 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, 2018

### 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

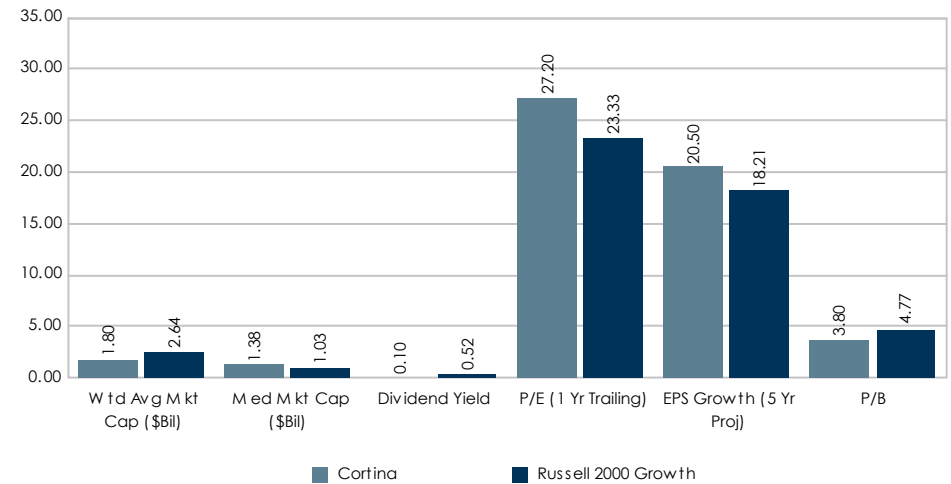
### Performance Goals

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

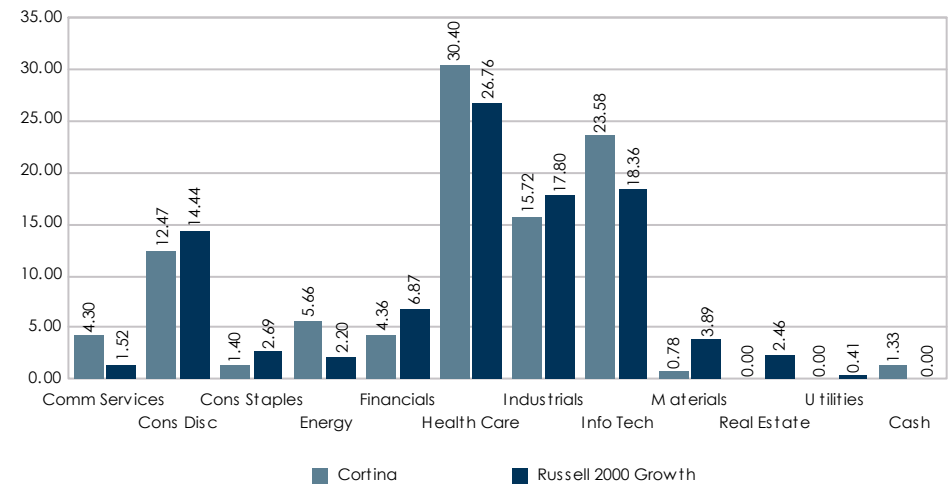
### Dollar Growth Summary (\$000s)

	FYTD	YTD
<b>Beginning Market Value</b>	<b>107,615</b>	<b>87,988</b>
Net Additions	-78	-478
Return on Investment	8,658	28,684
Income	35	198
Gain/Loss	8,622	28,486
<b>Ending Market Value</b>	<b>116,195</b>	<b>116,195</b>

### Characteristics



### Sector Allocation

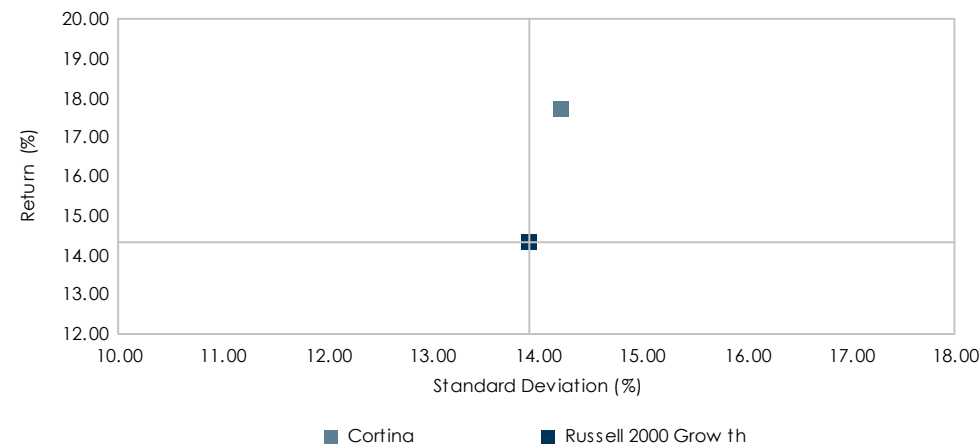


Sector weights may not add to 100% due to securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Cortina

For the Periods Ending September 30, 2018

4 Year Risk / Return



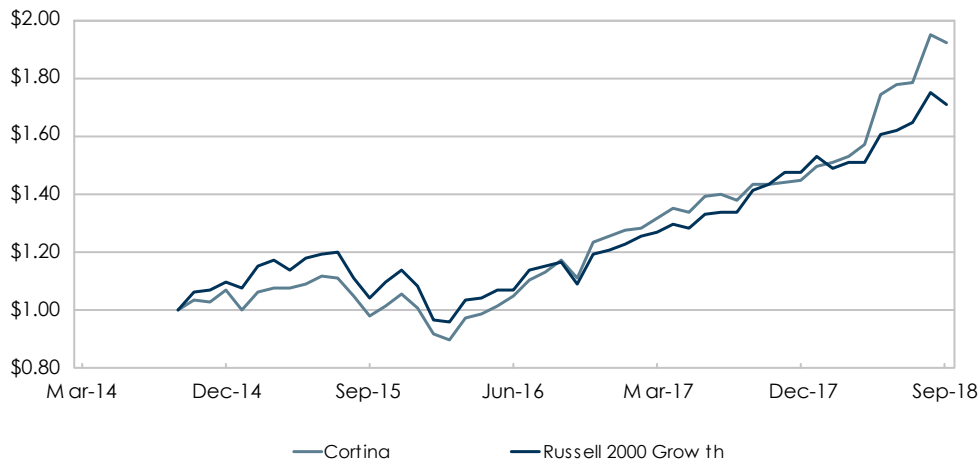
4 Year Portfolio Statistics

	Cortina	Russell 2000 Growth
Return (%)	17.71	14.33
Standard Deviation (%)	14.24	13.93
Sharpe Ratio	1.20	0.99

Benchmark Relative Statistics

Beta	0.92
R Squared (%)	81.66
Alpha (%)	4.15
Tracking Error (%)	6.19
Batting Average (%)	62.50
Up Capture (%)	102.26
Down Capture (%)	84.05

4 Year Growth of a Dollar

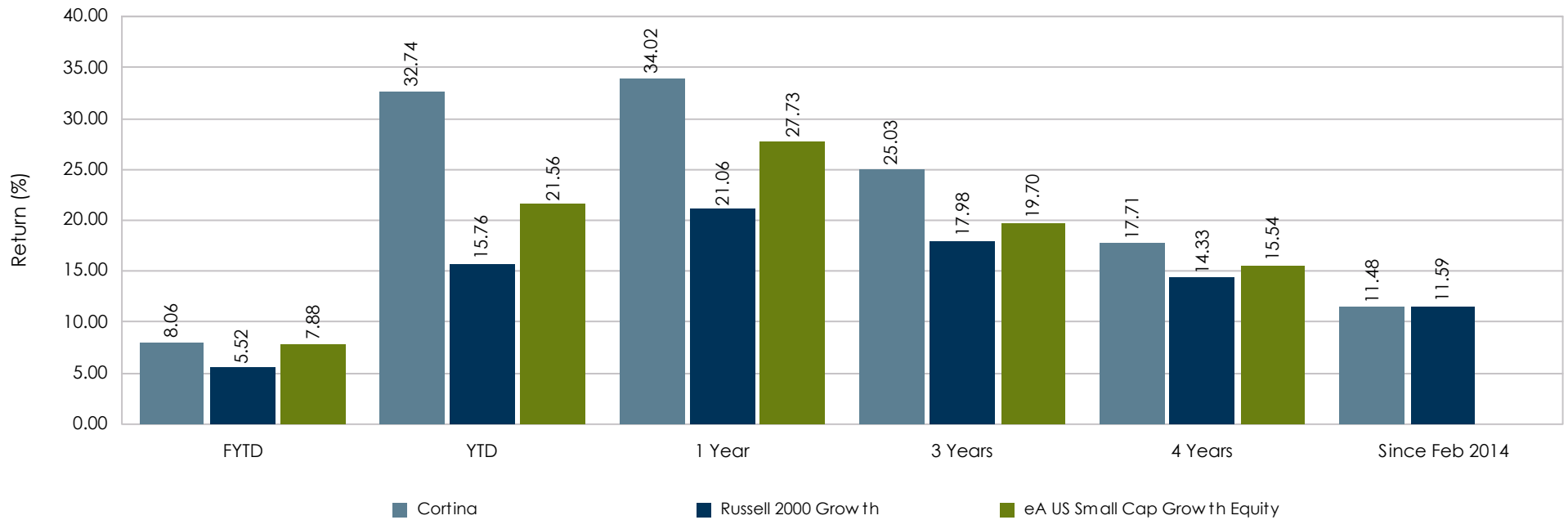


4 Year Return Analysis

	Cortina	Russell 2000 Growth
Number of Months	48	48
Highest Monthly Return (%)	11.26	8.95
Lowest Monthly Return (%)	-9.33	-10.83
Number of Positive Months	35	35
Number of Negative Months	13	13
% of Positive Months	72.92	72.92

## Cortina

For the Periods Ending September 30, 2018

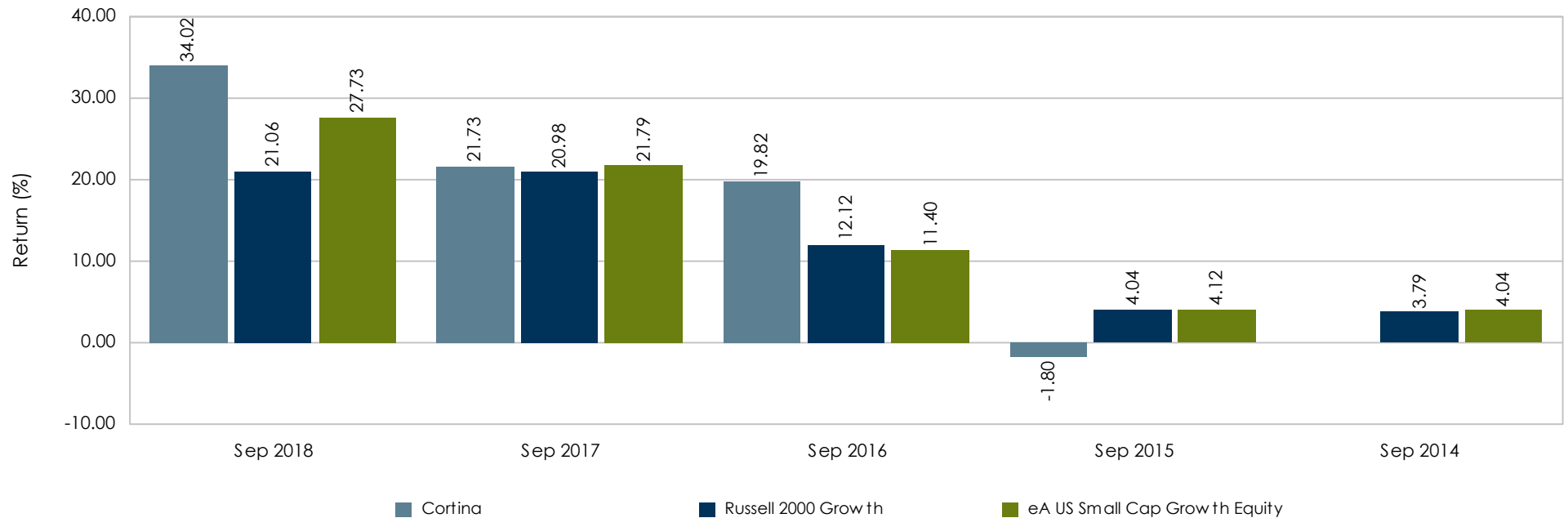


Ranking	46	10	26	17	28
5th Percentile	14.11	38.44	47.49	29.91	23.22
25th Percentile	9.73	27.34	34.16	22.34	18.12
50th Percentile	7.88	21.56	27.73	19.70	15.54
75th Percentile	5.81	16.37	21.95	17.72	13.97
95th Percentile	2.58	9.63	13.91	12.76	10.35
Observations	155	155	155	149	146

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



Ranking	26	52	11	84	
5th Percentile	47.49	32.40	22.70	13.63	12.89
25th Percentile	34.16	24.44	15.16	7.40	7.68
50th Percentile	27.73	21.79	11.40	4.12	4.04
75th Percentile	21.95	19.09	6.88	0.08	0.31
95th Percentile	13.91	11.32	1.40	-3.76	-4.08
Observations	155	185	190	198	205

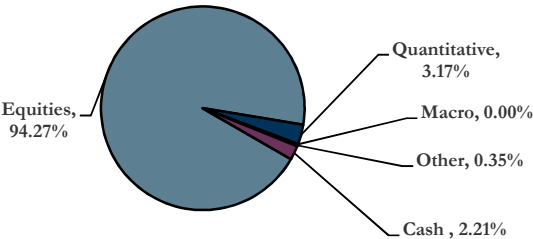
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

Grosvenor Long/Short Equity

For the Periods Ending September 30, 2018

Strategy Allocation

Market Value: \$367,850,702



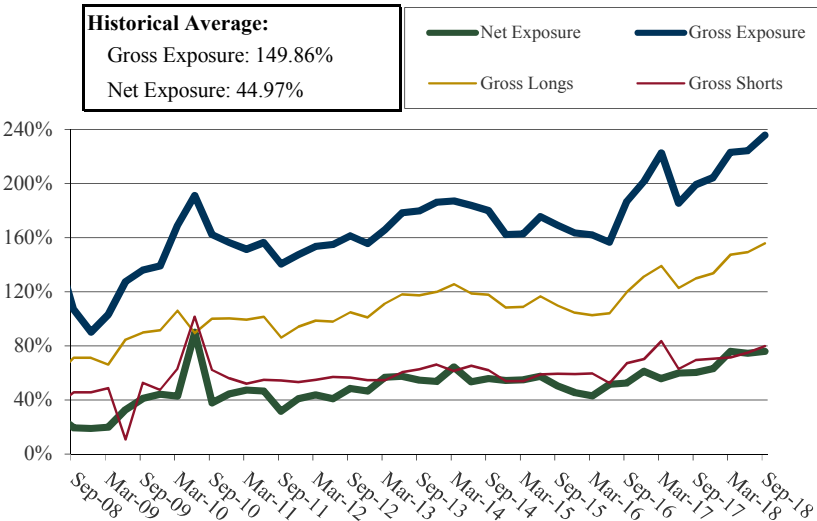
Strategy

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

Exposure

- Net Exposure: 75.94%
- Gross Exposure: 235.8%

Historical Net & Gross Exposure



Performance Goals

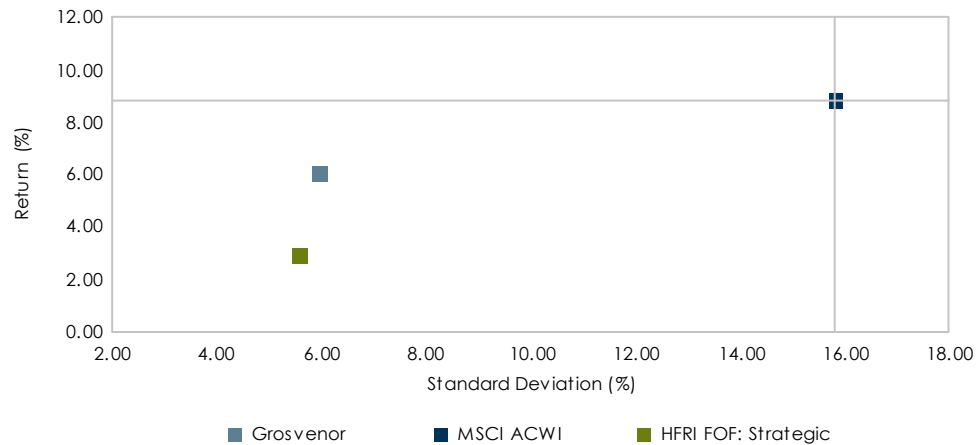
- Meet or exceed the return of the MSCI All Country World, over extended time periods (5 to 10 years).
- The volatility (standard deviation) of the portfolio should be less than two-thirds the volatility of the MSCI All Country World.
- The Beta of the portfolio relative to the MSCI All Country World 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, 2018

### 10 Year Risk / Return



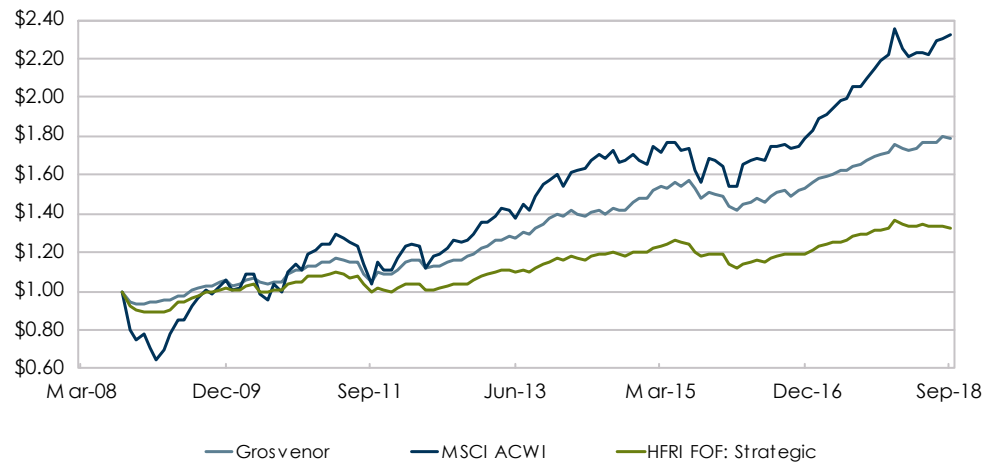
### 10 Year Portfolio Statistics

	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Return (%)	5.99	8.77	2.87
Standard Deviation (%)	5.95	15.83	5.59
Sharpe Ratio	0.96	0.54	0.47

### Benchmark Relative Statistics

Beta	0.29	0.95
R Squared (%)	58.55	79.15
Alpha (%)	3.26	3.22
Tracking Error (%)	11.91	2.73
Batting Average (%)	46.67	66.67
Up Capture (%)	37.04	122.90
Down Capture (%)	31.67	81.10

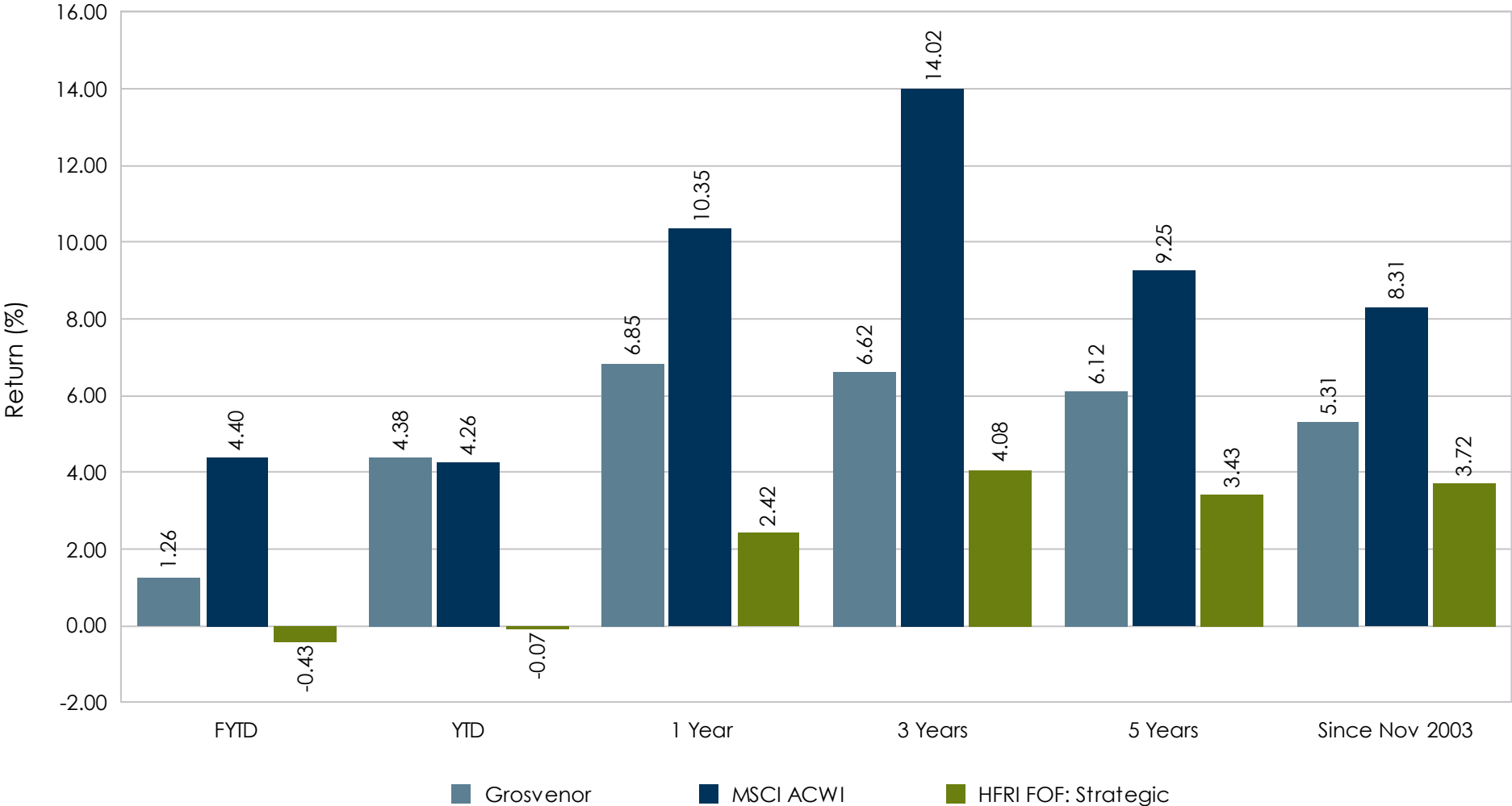
### 10 Year Growth of a Dollar



### 10 Year Return Analysis

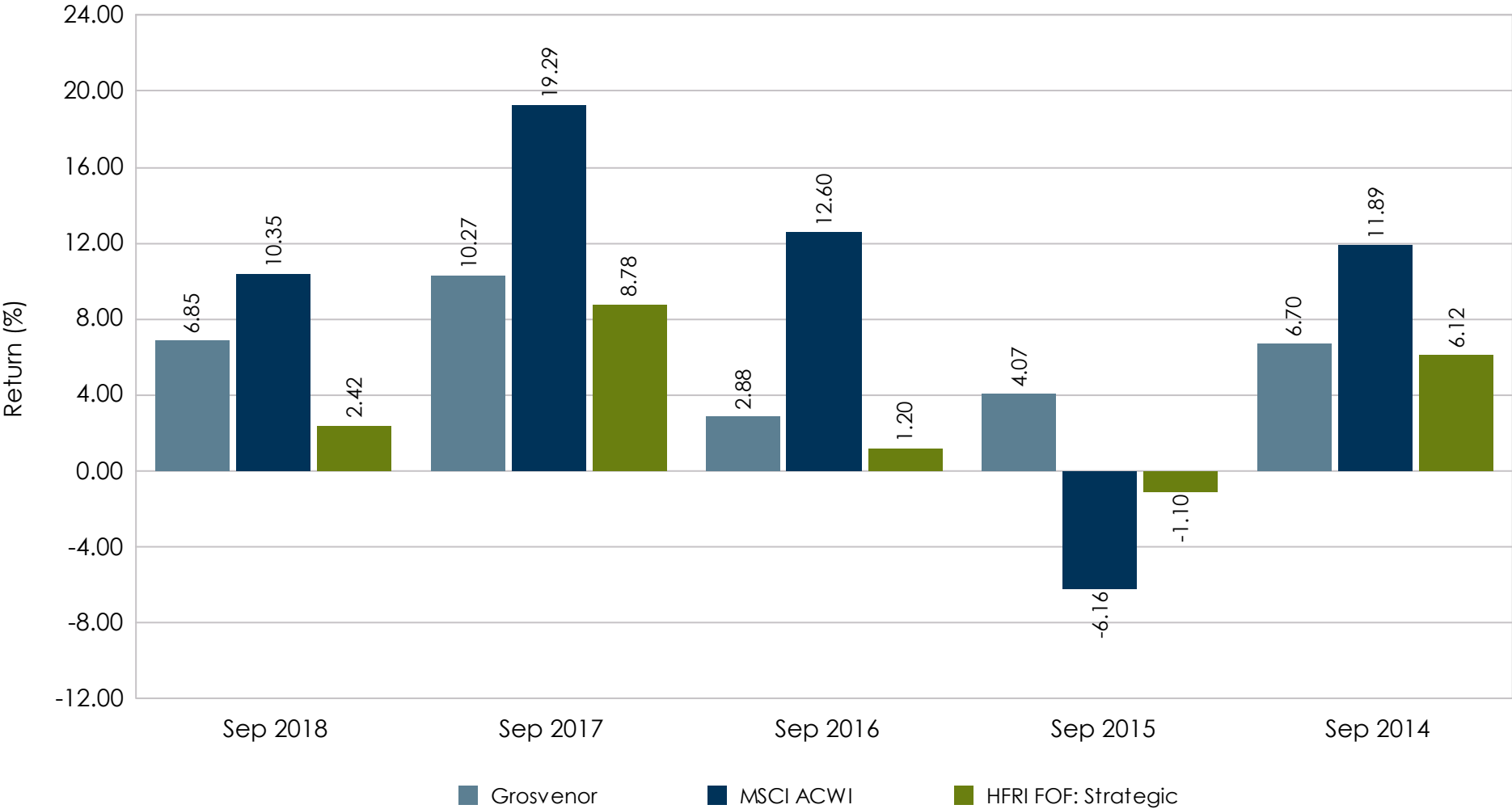
	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Number of Months	120	120	120
Highest Monthly Return (%)	4.12	11.90	4.25
Lowest Monthly Return (%)	-5.29	-19.79	-7.66
Number of Positive Months	81	76	73
Number of Negative Months	39	44	47
% of Positive Months	67.50	63.33	60.83

**Grosvenor Long/Short Equity**  
*For the Periods Ending September 30, 2018*





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



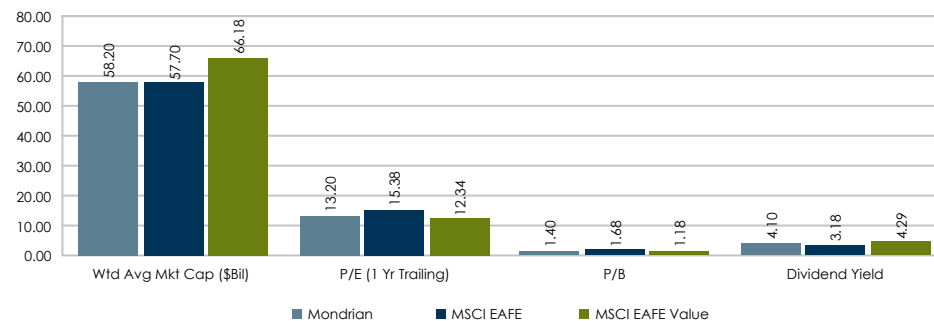
## Mondrian International

For the Periods Ending September 30, 2018

### 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

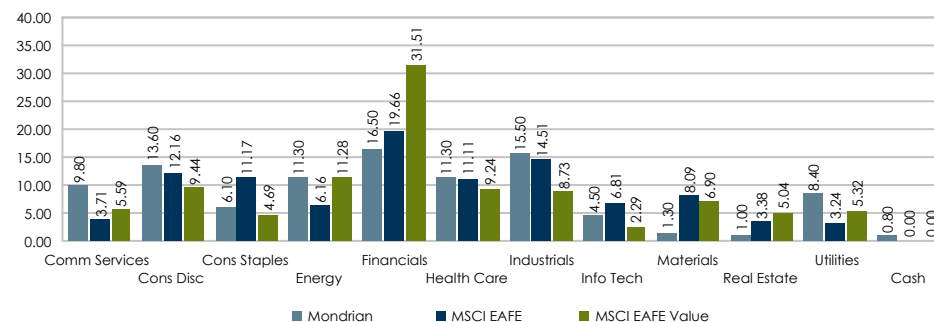
### Characteristics



### 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.

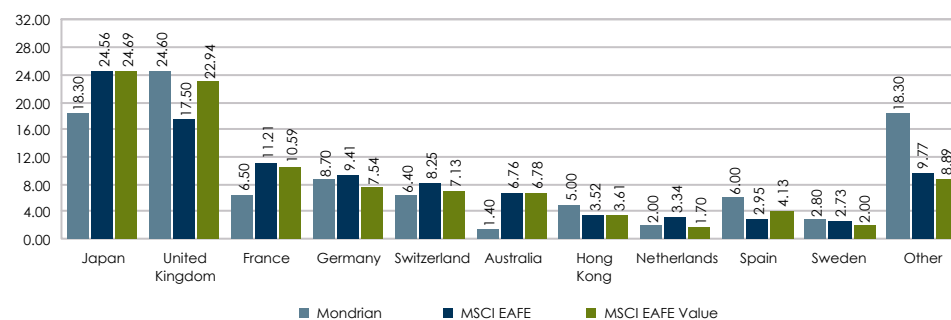
### Sector Allocation



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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>138,343</b>	<b>143,575</b>
Net Additions	0	0
Return on Investment	2,937	-2,295
<b>Ending Market Value</b>	<b>141,280</b>	<b>141,280</b>

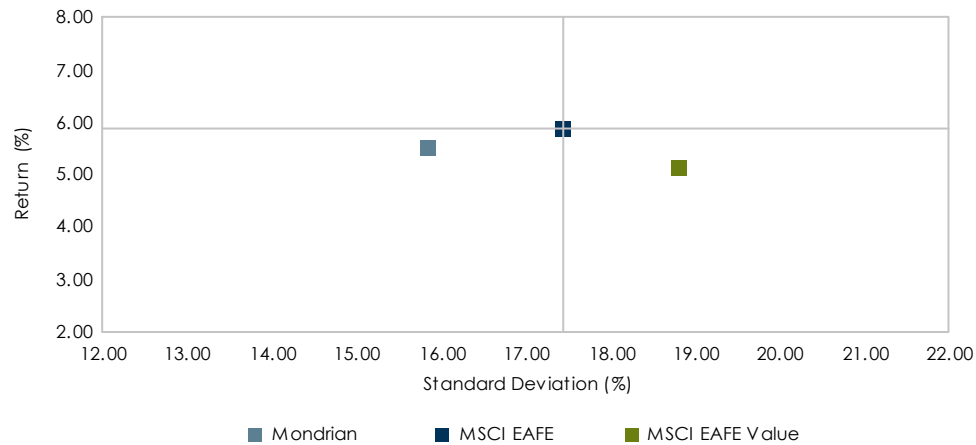
### Country Allocation



## Mondrian International

For the Periods Ending September 30, 2018

### 10 Year Risk / Return



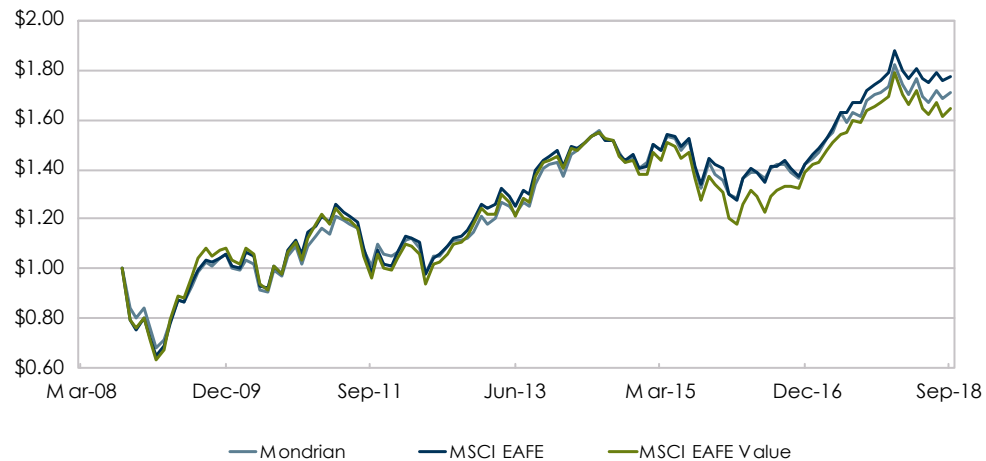
### 10 Year Portfolio Statistics

	Mondrian	MSCI EAFE	MSCI EAFE Value
Return (%)	5.48	5.87	5.09
Standard Deviation (%)	15.84	17.45	18.80
Sharpe Ratio	0.33	0.32	0.26

### Benchmark Relative Statistics

Beta	0.88	0.82
R Squared (%)	94.74	93.86
Alpha (%)	0.19	1.10
Tracking Error (%)	4.16	5.23
Batting Average (%)	47.50	50.00
Up Capture (%)	92.20	82.56
Down Capture (%)	94.96	84.57

### 10 Year Growth of a Dollar

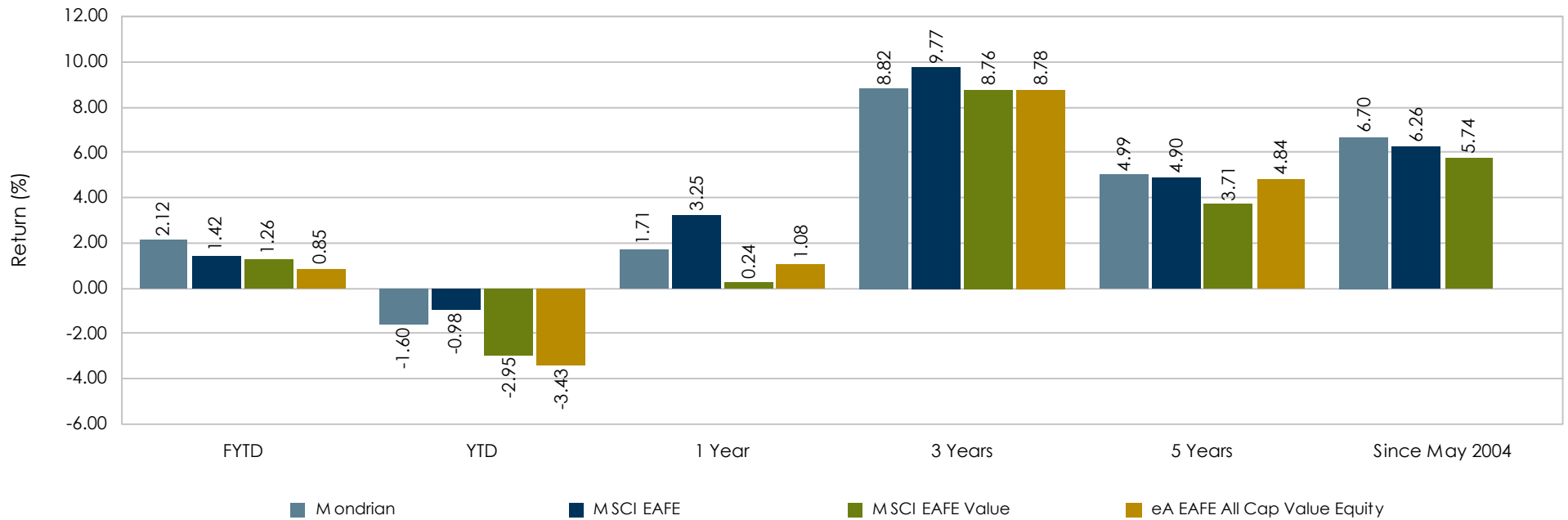


### 10 Year Return Analysis

	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	66	65	66
Number of Negative Months	54	55	54
% of Positive Months	55.00	54.17	55.00

## Mondrian International

For the Periods Ending September 30, 2018

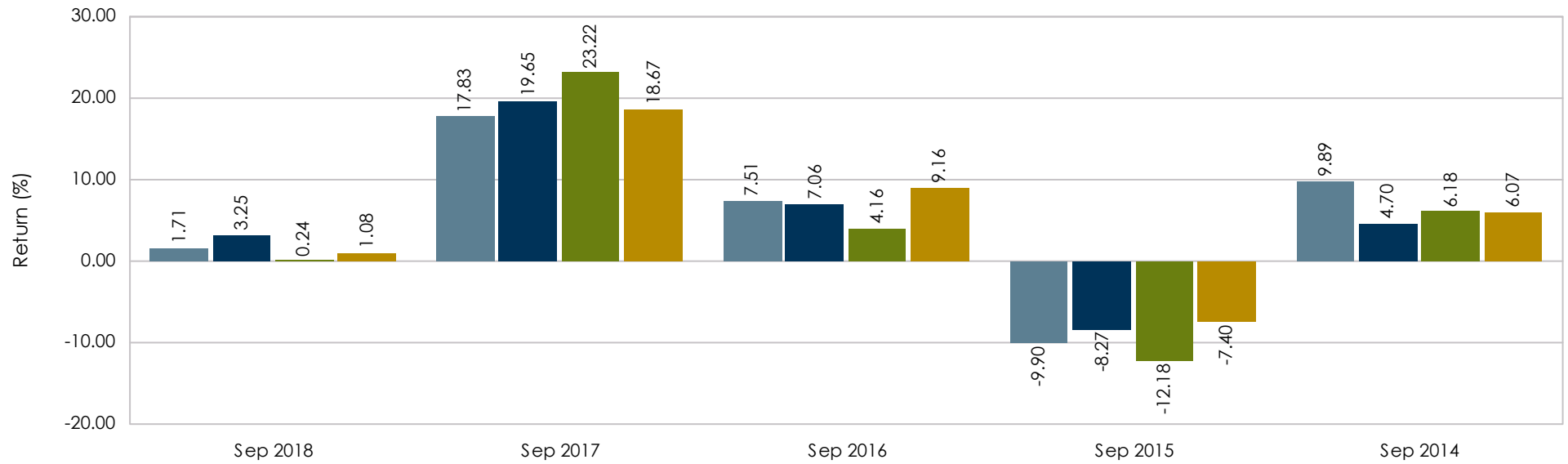


Ranking	8	18	31	50	46
5th Percentile	2.52	2.26	5.10	14.09	9.30
25th Percentile	1.54	-2.19	1.98	11.44	6.66
50th Percentile	0.85	-3.43	1.08	8.78	4.84
75th Percentile	0.05	-4.56	-0.55	8.05	4.33
95th Percentile	-0.68	-7.10	-2.54	6.47	3.07
Observations	23	23	23	23	22

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



	<div>■ Mondrian</div>	<div>■ MSCI EAFE</div>	<div>■ MSCI EAFE Value</div>	<div>■ eA EAFE All Cap Value Equity</div>	
Ranking	31	61	60	72	12
5th Percentile	5.10	25.72	15.57	-0.05	10.26
25th Percentile	1.98	21.78	11.42	-4.46	8.36
50th Percentile	1.08	18.67	9.16	-7.40	6.07
75th Percentile	-0.55	16.67	5.98	-10.65	4.53
95th Percentile	-2.54	12.55	3.16	-13.66	1.66
Observations	23	32	35	37	37

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.

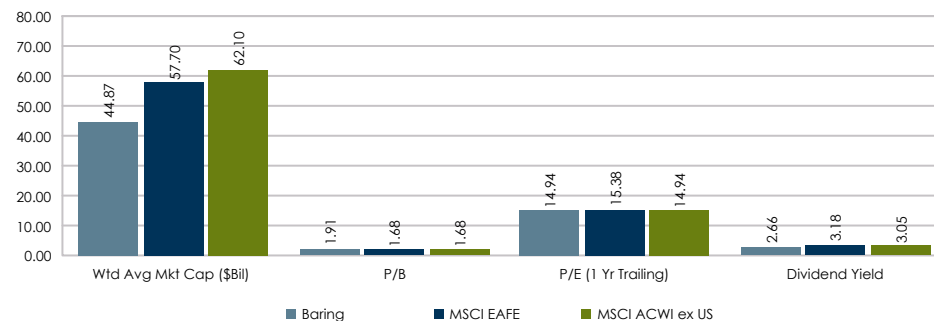
## Baring Focused International

For the Periods Ending September 30, 2018

### 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

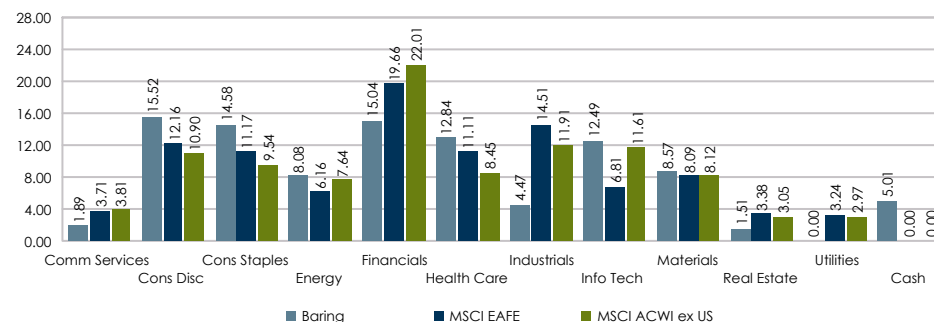
### Characteristics



### 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.

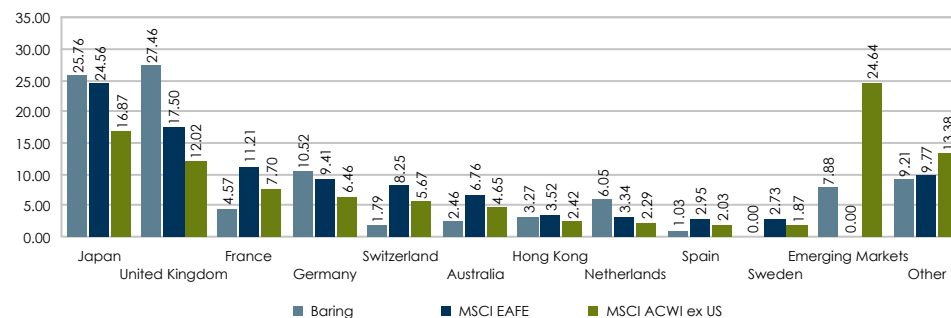
### Sector Allocation



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

	FYTD	YTD
Beginning Market Value	122,126	123,385
Net Additions	-751	-996
Return on Investment	3,559	2,546
Ending Market Value	124,934	124,934

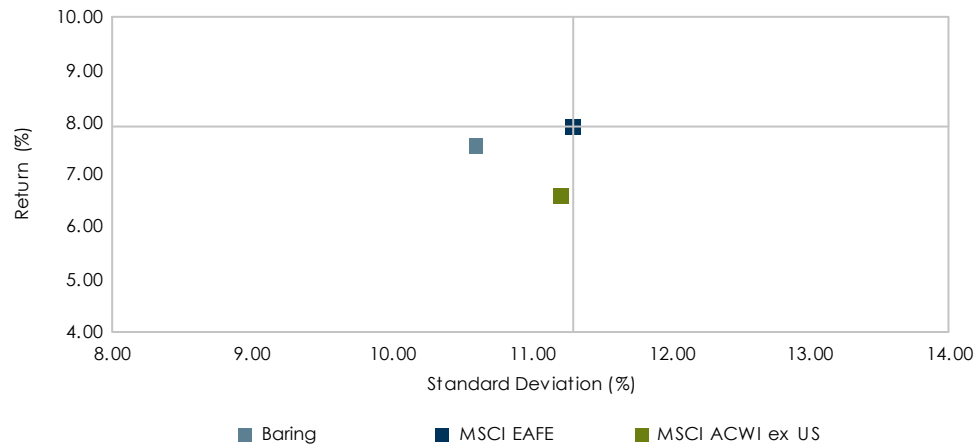
### Country Allocation



## Baring Focused International

For the Periods Ending September 30, 2018

### 6 Year Risk / Return



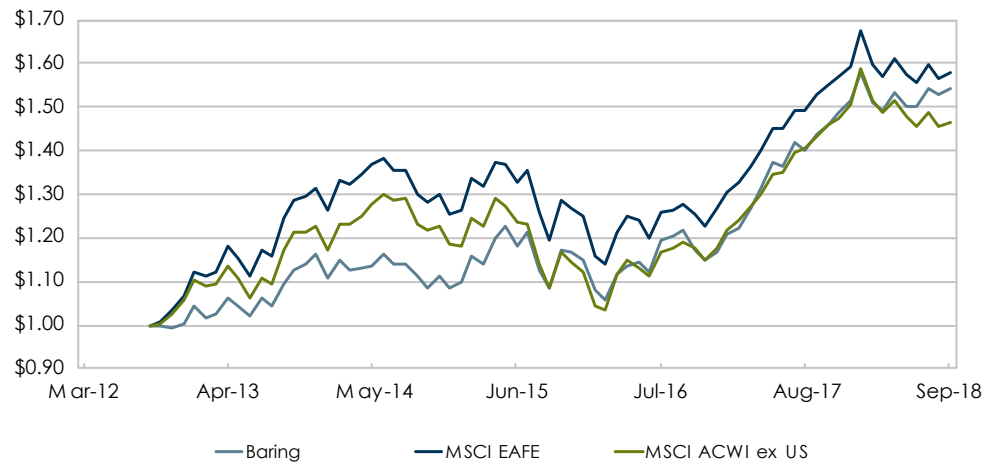
### 6 Year Portfolio Statistics

	Baring	MSCI EAFE	MSCI ACWI ex US
Return (%)	7.51	7.91	6.57
Standard Deviation (%)	10.61	11.31	11.22
Sharpe Ratio	0.67	0.66	0.55

### Benchmark Relative Statistics

Beta	0.88	0.86
R Squared (%)	88.00	82.91
Alpha (%)	0.54	1.81
Tracking Error (%)	3.92	4.66
Batting Average (%)	55.56	52.78
Up Capture (%)	91.34	88.52
Down Capture (%)	92.14	80.42

### 6 Year Growth of a Dollar

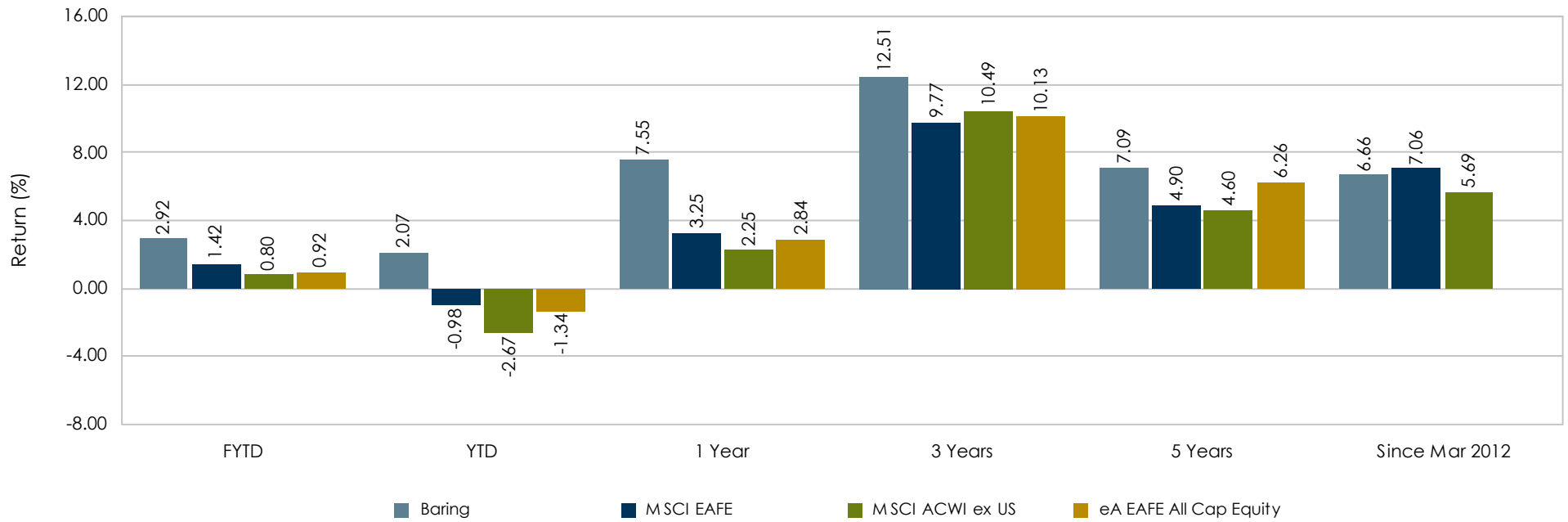


### 6 Year Return Analysis

	Baring	MSCI EAFE	MSCI ACWI ex US
Number of Months	72	72	72
Highest Monthly Return (%)	8.27	7.82	8.21
Lowest Monthly Return (%)	-7.13	-7.35	-7.63
Number of Positive Months	41	41	43
Number of Negative Months	31	31	29
% of Positive Months	56.94	56.94	59.72

### Baring Focused International

For the Periods Ending September 30, 2018



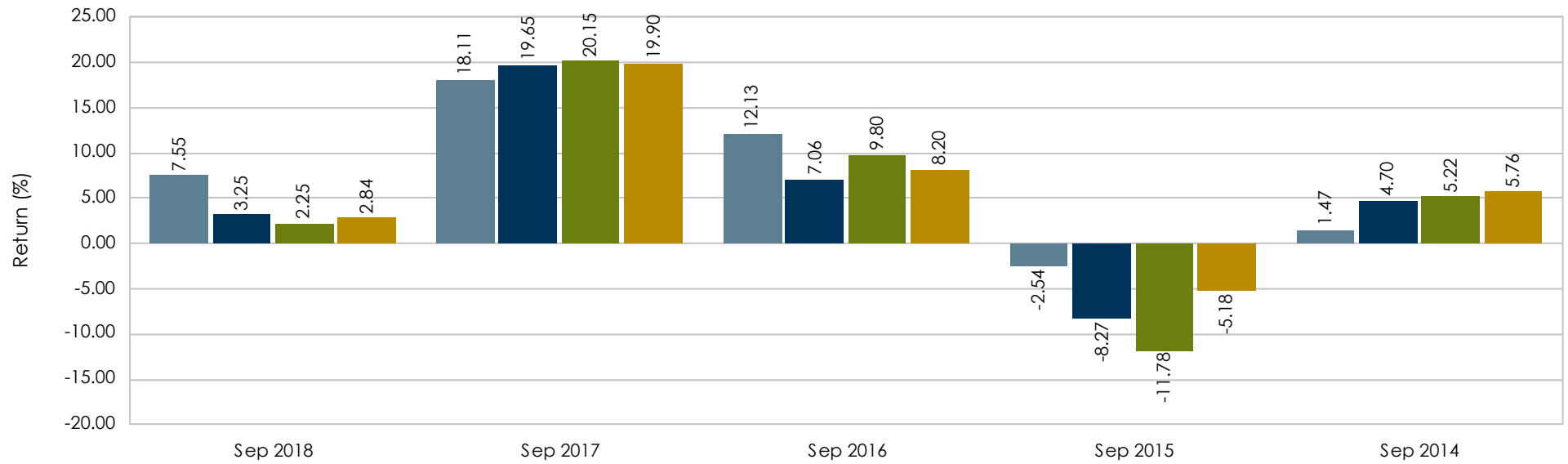
Ranking	7	18	12	20	25
5th Percentile	2.99	4.82	10.61	15.66	9.32
25th Percentile	1.69	0.59	5.51	11.99	7.02
50th Percentile	0.92	-1.34	2.84	10.13	6.26
75th Percentile	0.17	-3.13	0.88	8.77	5.03
95th Percentile	-1.22	-5.61	-2.17	7.03	3.72
Observations	94	94	94	89	82

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



	Baring		MSCI EAFE		MSCI ACWI ex US		eA EAFE All Cap Equity	
Ranking	12	66	19	19	94			
5th Percentile	10.61	28.36	16.41	-0.32	9.99			
25th Percentile	5.51	21.84	10.99	-3.28	7.26			
50th Percentile	2.84	19.90	8.20	-5.18	5.76			
75th Percentile	0.88	17.06	5.60	-7.79	4.17			
95th Percentile	-2.17	12.88	3.35	-12.48	1.41			
Observations	94	125	123	130	132			

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.

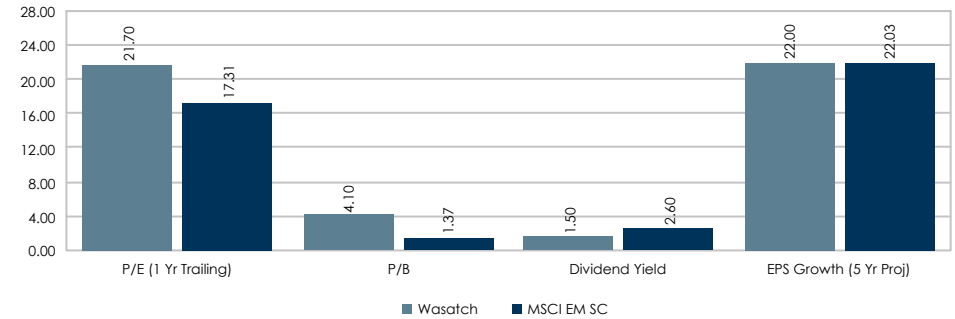
## Wasatch Emerging Markets

For the Periods Ending September 30, 2018

### Account Description

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

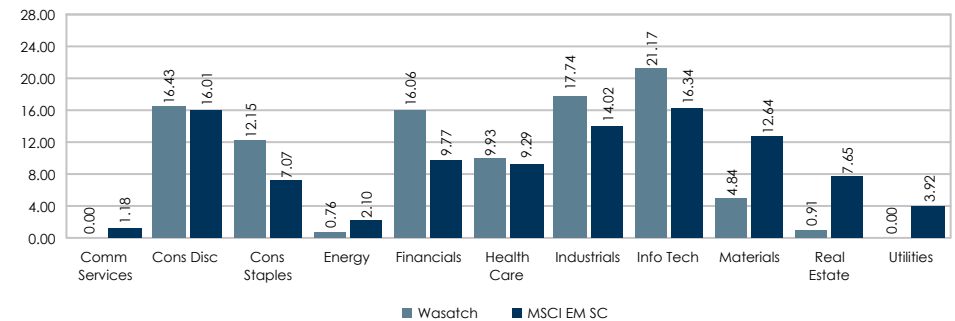
### Characteristics



### 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.

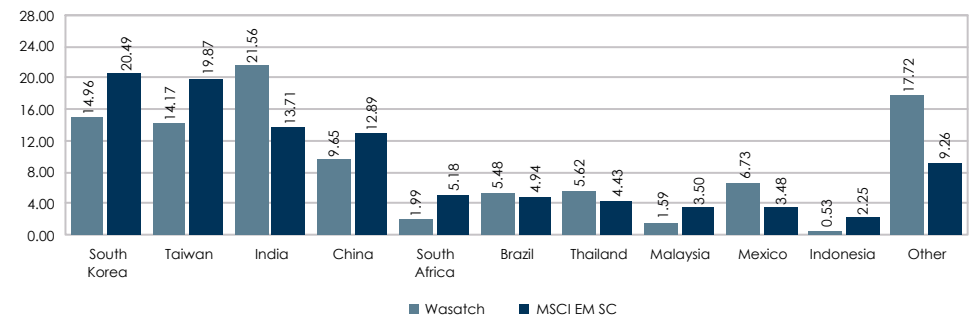
### Sector Allocation



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

	FYTD	YTD
Beginning Market Value	36,569	38,720
Net Additions	-125	-396
Return on Investment	-2,426	-4,305
Ending Market Value	34,018	34,018

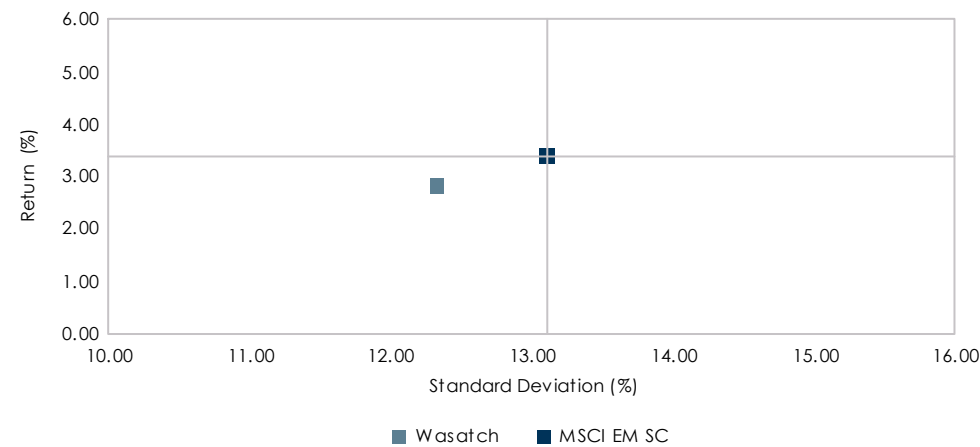
### Country Allocation



Wasatch Emerging Markets

For the Periods Ending September 30, 2018

6 Year Risk / Return



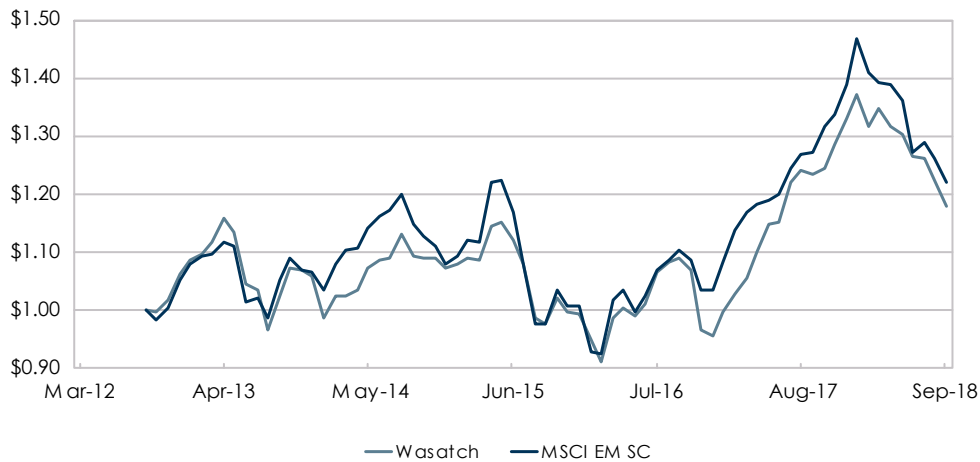
6 Year Portfolio Statistics

	Wasatch	MSCI EM SC
Return (%)	2.80	3.38
Standard Deviation (%)	12.33	13.11
Sharpe Ratio	0.20	0.23

Benchmark Relative Statistics

Beta	0.82
R Squared (%)	76.60
Alpha (%)	0.08
Tracking Error (%)	6.40
Batting Average (%)	44.44
Up Capture (%)	89.31
Down Capture (%)	93.64

6 Year Growth of a Dollar

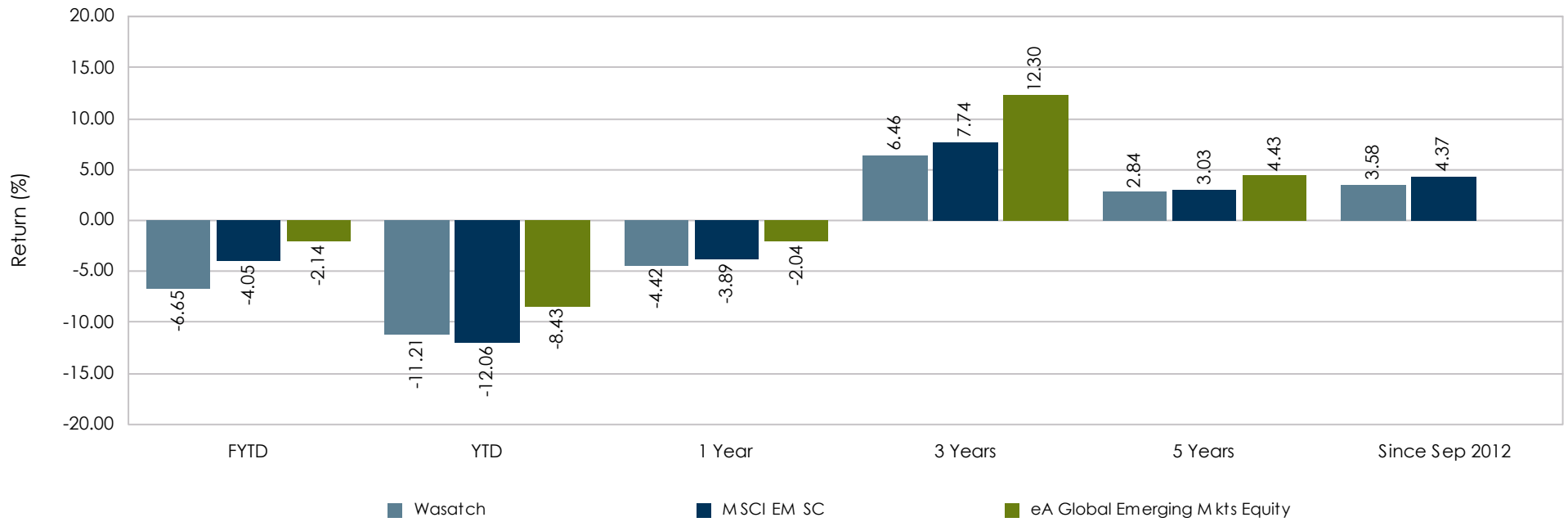


6 Year Return Analysis

	Wasatch	MSCI EM SC
Number of Months	72	72
Highest Monthly Return (%)	8.10	10.01
Lowest Monthly Return (%)	-9.57	-9.60
Number of Positive Months	40	43
Number of Negative Months	32	29
% of Positive Months	55.56	59.72

## Wasatch Emerging Markets

For the Periods Ending September 30, 2018

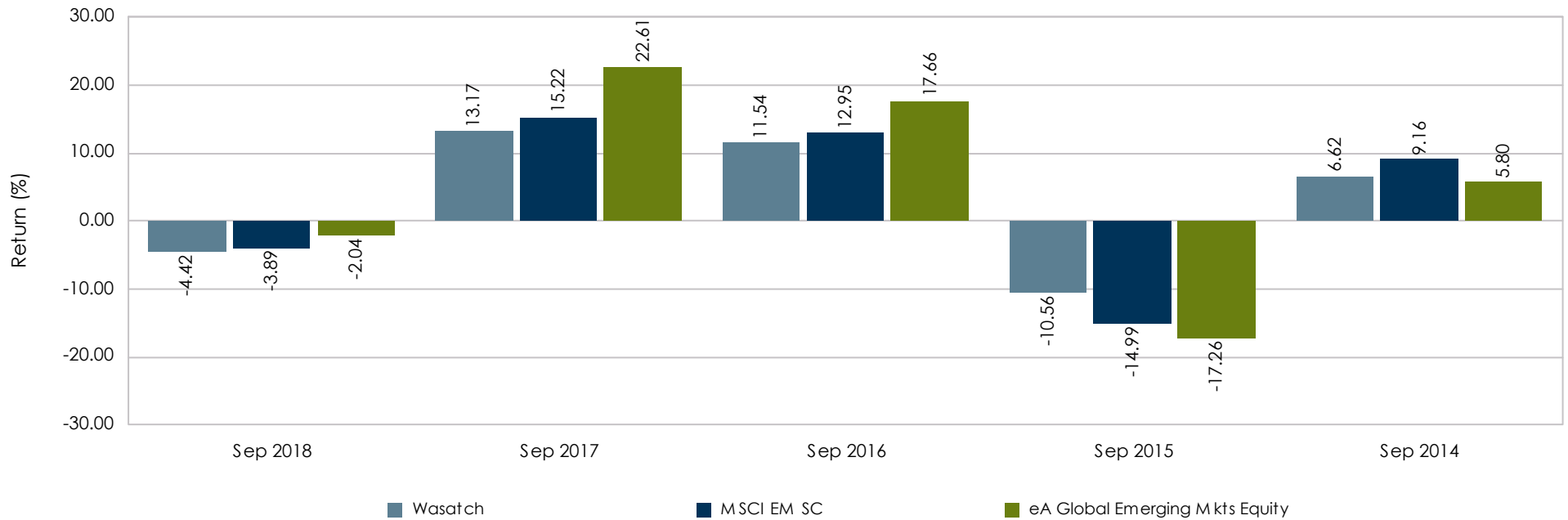


Ranking	91	78	77	98	87
5th Percentile	2.36	-2.44	4.85	17.27	8.46
25th Percentile	-0.32	-6.93	0.13	13.88	6.01
50th Percentile	-2.14	-8.43	-2.04	12.30	4.43
75th Percentile	-4.39	-10.66	-4.34	10.58	3.49
95th Percentile	-8.32	-14.98	-10.01	7.62	1.59
Observations	306	306	304	286	243

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	77	94	91	9	44
5th Percentile	4.85	31.47	26.96	-8.75	14.25
25th Percentile	0.13	26.11	21.10	-14.36	8.74
50th Percentile	-2.04	22.61	17.66	-17.26	5.80
75th Percentile	-4.34	18.46	15.24	-19.67	3.75
95th Percentile	-10.01	12.65	9.87	-24.88	0.12
Observations	304	498	480	441	438

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.

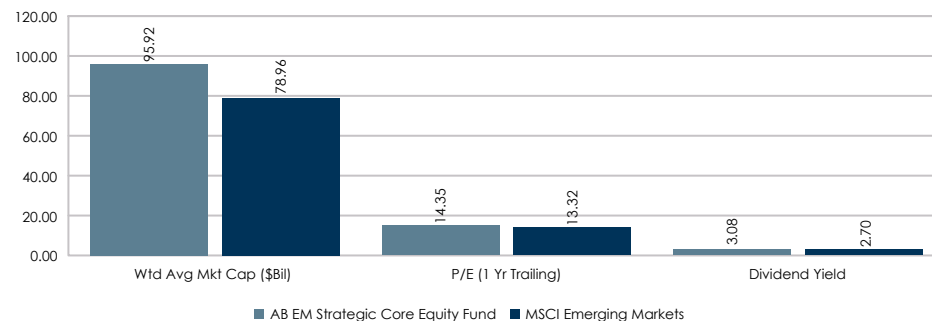
## AB EM Strategic Core Equity Fund

For the Periods Ending September 30, 2018

### Account Description

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

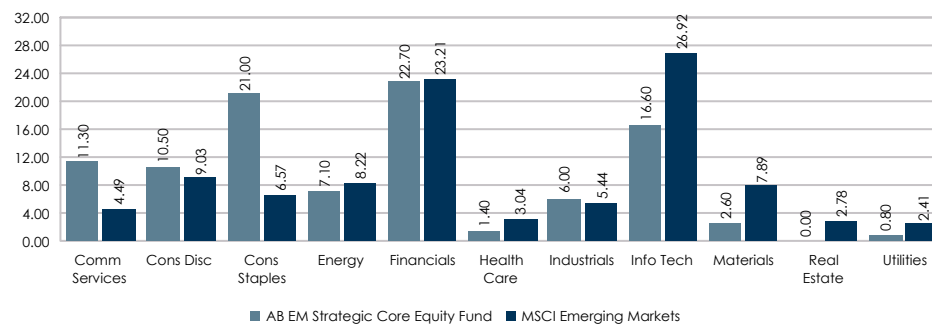
### Characteristics



### Performance Goals

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

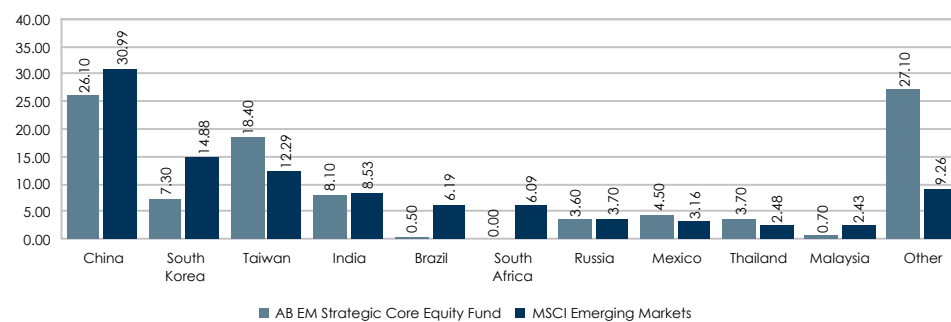
### Sector Allocation



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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>81,104</b>	<b>86,962</b>
Net Additions	0	0
Return on Investment	-70	-5,928
<b>Ending Market Value</b>	<b>81,034</b>	<b>81,034</b>

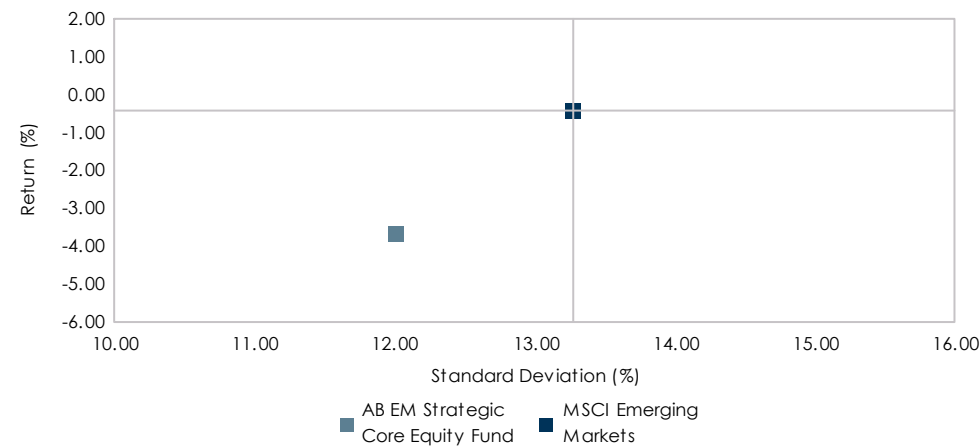
### Country Allocation



AB EM Strategic Core Equity Fund

For the Periods Ending September 30, 2018

1 Year Risk / Return



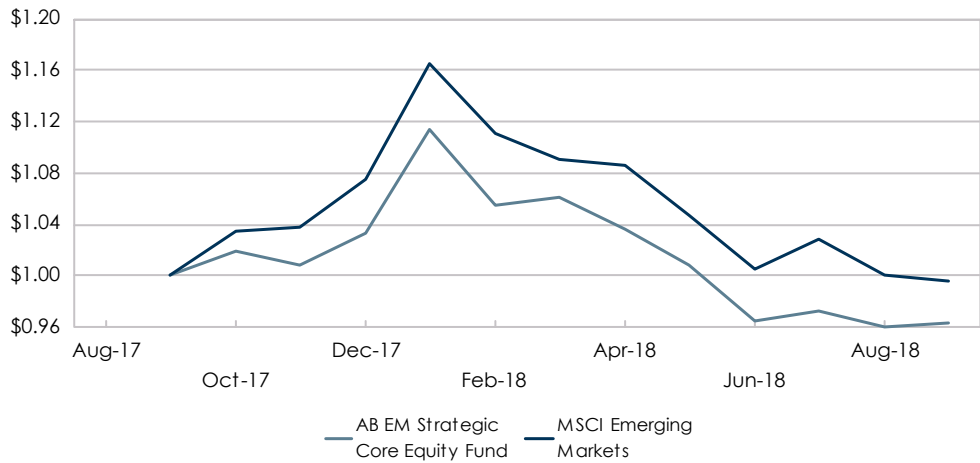
1 Year Portfolio Statistics

	AB EM Strategic Core	MSCI Emerging Markets
Return (%)	-3.65	-0.44
Standard Deviation (%)	12.01	13.28
Sharpe Ratio	-0.43	-0.15

Benchmark Relative Statistics

Beta	0.84
R Squared (%)	87.10
Alpha (%)	-3.30
Tracking Error (%)	4.78
Batting Average (%)	33.33
Up Capture (%)	64.38
Down Capture (%)	86.52

1 Year Growth of a Dollar

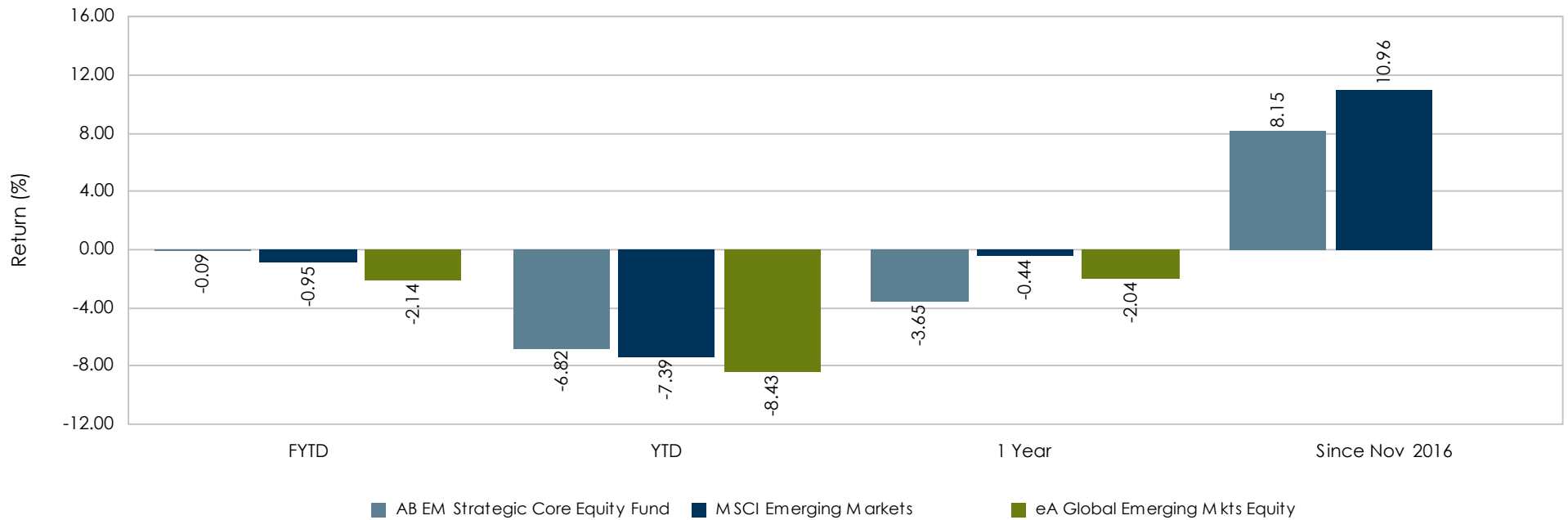


1 Year Return Analysis

	AB EM Strategic Core	MSCI Emerging Markets
Number of Months	12	12
Highest Monthly Return (%)	7.70	8.34
Lowest Monthly Return (%)	-5.29	-4.60
Number of Positive Months	6	5
Number of Negative Months	6	7
% of Positive Months	50.00	41.67

### AB EM Strategic Core Equity Fund

For the Periods Ending September 30, 2018



Ranking	24	24	68
5th Percentile	2.36	-2.44	4.85
25th Percentile	-0.32	-6.93	0.13
50th Percentile	-2.14	-8.43	-2.04
75th Percentile	-4.39	-10.66	-4.34
95th Percentile	-8.32	-14.98	-10.01
Observations	306	306	304

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, 2018

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-14,327,802	24,088,877	9,761,075

### 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>Feb-98</b>	<b>635,700,000</b>	<b>541,175,633</b>	<b>117,827,130</b>	<b>609,594,536</b>	<b>199,805,611</b>	<b>809,400,147</b>	<b>1.50x</b>
<b>Buyout</b>	<b>Apr-99</b>	<b>228,200,000</b>	<b>190,028,366</b>	<b>52,986,974</b>	<b>239,239,520</b>	<b>56,853,534</b>	<b>296,093,054</b>	<b>1.56x</b>
Marathon IV	Apr-99	7,000,000	7,462,426	-	10,188,872	-	10,188,872	1.37x
Hicks, Muse	Nov-01	15,000,000	16,211,210	-	28,272,306	-	28,272,306	1.74x
Calera Capital (Fremont III)	Jan-02	10,000,000	11,014,364	-	10,323,021	-	10,323,021	0.94x
Arsenal Capital Partners	Jan-03	15,000,000	16,154,576	-	28,622,510	-	28,622,510	1.77x
Levine Leichtman	Feb-03	10,000,000	10,612,096	439,719	18,254,382	72,392	18,326,774	1.73x
Marathon Fund Limited Partnership V	Dec-04	10,000,000	10,557,584	-	19,631,139	-	19,631,139	1.86x
Thompson Street C.P. II	Dec-06	10,000,000	10,596,453	952,882	19,089,442	1,738,934	20,828,376	1.97x
Arsenal Capital Partners II	Dec-06	15,000,000	14,991,977	575,879	29,926,943	3,382,715	33,309,658	2.22x
Sun Capital Partners V	May-07	12,500,000	12,742,438	2,028,257	10,655,628	5,297,449	15,953,077	1.25x
HM Capital Sector Performance Fund	Jul-07	15,000,000	15,604,226	-	14,690,140	-	14,690,140	0.94x
Calera Capital Fund IV	Apr-08	10,000,000	8,754,812	1,245,188	12,660,178	1,189,907	13,850,085	1.58x
Levine Leichtman IV	Sep-08	10,000,000	9,284,222	1,065,574	13,546,166	3,861,296	17,407,462	1.87x
Thompson Street Capital III	Oct-11	7,500,000	7,742,349	467,857	7,152,961	4,916,263	12,069,224	1.56x
Arsenal Capital Partners III	Apr-12	7,500,000	7,936,492	1,787,727	11,563,760	3,765,726	15,329,486	1.93x
Apollo Investment Fund VIII	Feb-14	7,500,000	6,894,629	1,660,396	2,351,079	6,518,259	8,869,338	1.29x
Francisco Partners Fund IV	Apr-15	8,000,000	7,796,000	204,000	828,000	10,693,991	11,521,991	1.48x
CenterOak Equity Fund I	Dec-15	7,500,000	3,848,800	3,651,200	93,525	3,794,863	3,888,388	1.01x
Thompson Street Capital Partners IV	Jan-16	7,500,000	5,474,675	2,025,325	1,357,461	5,263,075	6,620,536	1.21x
Leonard Green Equity Investors VII	May-17	7,500,000	3,369,192	4,162,815	32,007	3,378,819	3,410,826	1.01x
Francisco Partners Fund V	Jul-18	10,000,000	2,850,000	7,150,000	-	2,850,000	2,850,000	1.00x
Thompson Street Capital V	Aug-18	12,700,000	129,845	12,570,155	-	129,845	129,845	1.00x
Apollo Investment Fund IX		13,000,000	-	13,000,000	-	-	-	-

## Private Equity

For the Period Ending September 30, 2018

## 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>	Feb-98	<b>143,500,000</b>	<b>121,389,334</b>	<b>22,569,656</b>	<b>161,119,940</b>	<b>18,461,112</b>	<b>179,581,052</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	-	7,535,740	-	7,535,740	1.51x
Oaktree Opportunities Fund IV	Dec-01	10,000,000	10,000,000	-	16,804,559	-	16,804,559	1.68x
Siguler Guff Dist Opp I	Feb-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	-	6,502,265	56,477	6,558,742	1.64x
Oaktree Opportunities Fund VI	Aug-05	4,000,000	4,000,000	-	6,317,103	49	6,317,152	1.58x
Siguler Guff Dist Opp II	Sep-05	20,000,000	20,005,669	375	27,952,068	564,992	28,517,060	1.43x
Oaktree Opportunities VII A	Mar-07	7,500,000	7,554,219	-	9,895,470	490,286	10,385,756	1.37x
Oaktree Opportunities VII B	Jun-08	7,500,000	6,750,000	750,000	11,325,296	396,377	11,721,673	1.74x
Siguler Guff Dist Opp III	Sep-08	15,000,000	14,480,311	600,000	20,565,614	2,575,843	23,141,457	1.60x
Oaktree Opportunities VIII	Dec-09	7,500,000	6,750,000	750,000	9,494,031	573,753	10,067,784	1.49x
Oaktree Opportunities IX	Mar-13	7,500,000	7,500,000	-	2,388,312	6,009,284	8,397,596	1.12x
Oaktree European Dislocation Fund	Nov-13	7,500,000	4,285,544	3,214,456	4,562,943	355,473	4,918,416	1.15x
Oaktree Opportunities Fund X	Jul-15	7,500,000	6,000,000	2,250,000	2,250,000	5,210,408	7,460,408	1.24x
Apollo EPF III	Jan-18	10,000,000	2,120,175	7,879,825	9,286	1,854,059	1,863,345	0.88x
Oaktree Opportunities Fund Xb	Jun-18	7,500,000	375,000	7,125,000	-	374,111	374,111	1.00x
<b>Emerging Markets Focused</b>	Mar-12	<b>7,500,000</b>	<b>6,874,667</b>	<b>1,361,728</b>	<b>1,852,279</b>	<b>6,300,013</b>	<b>8,152,292</b>	<b>1.19x</b>
Actis EM IV	Mar-12	7,500,000	6,874,667	1,361,728	1,852,279	6,300,013	8,152,292	1.19x
<b>Mezzanine</b>	Mar-99	<b>49,500,000</b>	<b>49,935,169</b>	<b>5,268,087</b>	<b>69,173,470</b>	<b>2,724,239</b>	<b>71,897,709</b>	<b>1.44x</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	330,197	20,875,934	2.05x
TCW Crescent IV	Jun-06	10,000,000	9,873,180	1,921,076	11,226,828	25,381	11,252,209	1.14x
Newstone Capital Partners	Nov-06	5,000,000	5,697,863	116,709	7,070,952	20,297	7,091,249	1.24x
TCW Mezzanine Fund V	Mar-08	10,000,000	7,336,349	2,663,651	9,958,042	661,511	10,619,553	1.45x
Newstone Capital Partners II	Dec-10	7,500,000	10,112,733	366,327	10,578,299	1,686,853	12,265,152	1.21x
<b>Other</b>	Feb-13	<b>31,500,000</b>	<b>20,910,869</b>	<b>12,024,073</b>	<b>8,109,449</b>	<b>17,251,952</b>	<b>25,361,401</b>	<b>1.21x</b>
EnCap Energy Fund IX	Feb-13	6,500,000	7,032,938	140,973	4,292,273	4,779,224	9,071,497	1.29x
EnCap Energy Fund X	Apr-15	7,500,000	6,120,074	1,946,074	1,712,268	5,587,957	7,300,225	1.19x
ArcLight Energy Partners VI	Aug-15	7,500,000	6,833,255	861,628	2,104,908	6,126,892	8,231,800	1.20x
EnCap Energy Fund XI	Jul-17	10,000,000	924,602	9,075,398	-	757,879	757,879	0.82x
<b>Secondary Fund of Funds</b>	Dec-05	<b>20,000,000</b>	<b>21,439,062</b>	<b>326,939</b>	<b>27,130,365</b>	<b>2,277,269</b>	<b>29,407,634</b>	<b>1.37x</b>
Lexington VI	Dec-05	20,000,000	21,439,062	326,939	27,130,365	2,277,269	29,407,634	1.37x

## Private Equity

For the Period Ending September 30, 2018

## 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>	Jul-99	<b>155,500,000</b>	<b>130,598,166</b>	<b>23,289,673</b>	<b>102,969,513</b>	<b>95,937,492</b>	<b>198,907,005</b>	<b>1.52x</b>
Weiss, Peck & Greer V, LLC	Jul-99	7,000,000	6,932,406	-	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
Midtown Fund III (Firstmark III, Pequot)	May-00	15,000,000	14,738,625	-	12,141,249	-	12,141,249	0.82x
Lightspeed Venture Partners VI (WPG)	Oct-00	12,000,000	11,010,270	989,730	10,396,934	<b>135,067</b>	10,532,001	0.96x
Venture Lending & Leasing Fund	May-01	6,000,000	4,500,000	-	5,595,215	-	5,595,215	1.24x
Accel Europe	May-01	10,000,000	10,000,000	-	12,403,731	<b>991,602</b>	13,395,333	1.34x
Knightsbridge Fund VI	Dec-04	12,000,000	11,232,000	768,000	9,652,368	<b>6,642,804</b>	16,295,172	1.45x
Firstmark I (Pequot, Firstmark IV)	Nov-05	5,000,000	4,950,000	50,000	13,391,369	<b>22,178,479</b>	35,569,848	7.19x
Weathergage Venture Capital	Mar-07	7,500,000	6,862,500	637,500	8,208,343	<b>5,562,092</b>	13,770,435	2.01x
Warburg Pincus	Oct-07	15,000,000	15,000,000	-	16,583,253	<b>7,368,416</b>	23,951,669	1.60x
Weathergage Venture Cap II	Apr-11	7,500,000	6,975,000	525,000	2,697,369	<b>11,005,598</b>	13,702,967	1.96x
Firstmark II (Firstmark V)	Aug-11	5,000,000	4,922,365	77,635	497,531	<b>8,508,148</b>	9,005,679	1.83x
Warburg Pincus XI	Nov-12	7,500,000	7,500,000	-	4,467,679	<b>7,051,155</b>	11,518,834	1.54x
Firstmark Capital Fund III	Feb-14	5,000,000	4,575,000	425,000	141,977	<b>5,629,278</b>	5,771,255	1.26x
Firstmark Capital Opportunity Fund I	Jun-14	5,000,000	5,075,000	186,808	1,745,695	<b>5,189,238</b>	6,934,933	1.37x
Warburg Pincus XII	Dec-15	10,000,000	6,570,000	3,430,000	217,150	<b>7,110,125</b>	7,327,275	1.12x
Weathergage Venture Capital IV	Dec-16	10,000,000	4,000,000	6,000,000	-	<b>3,984,620</b>	3,984,620	1.00x
FirstMark Capital Fund IV	Apr-17	7,500,000	1,650,000	5,850,000	-	<b>1,452,062</b>	1,452,062	0.88x
FirstMark Capital Opportunity Fund II	Jan-18	7,500,000	3,150,000	4,350,000	-	<b>3,128,808</b>	3,128,808	0.99x

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## **Fixed Income Manager Performance**

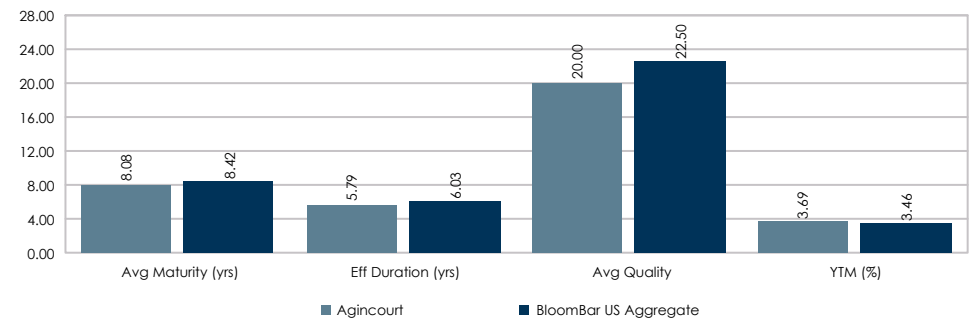
## Agincourt Core Fixed Income

For the Periods Ending September 30, 2018

### 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

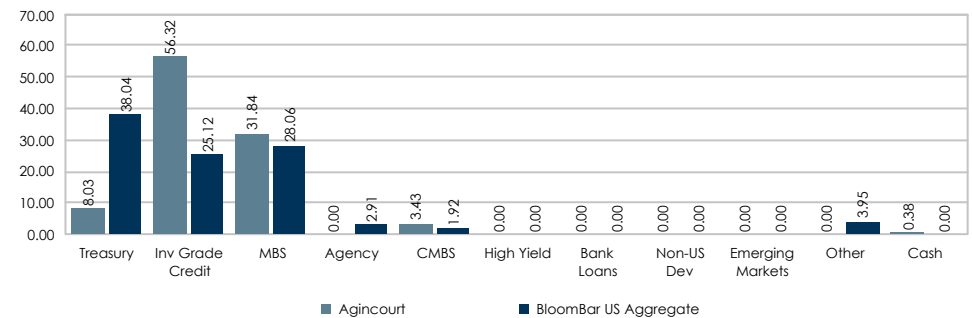
### Characteristics



### Performance Goals

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

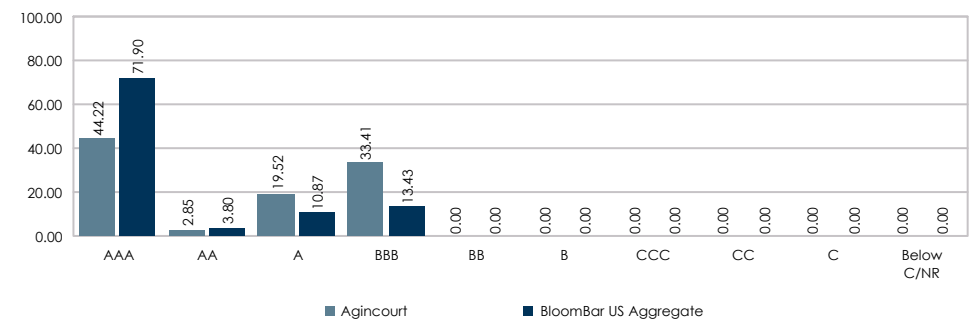
### Sector Allocation



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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>169,624</b>	<b>172,704</b>
Net Additions	-109	-262
Return on Investment	541	-2,386
Income	1,783	5,074
Gain/Loss	-1,242	-7,459
<b>Ending Market Value</b>	<b>170,057</b>	<b>170,057</b>

### Quality Allocation

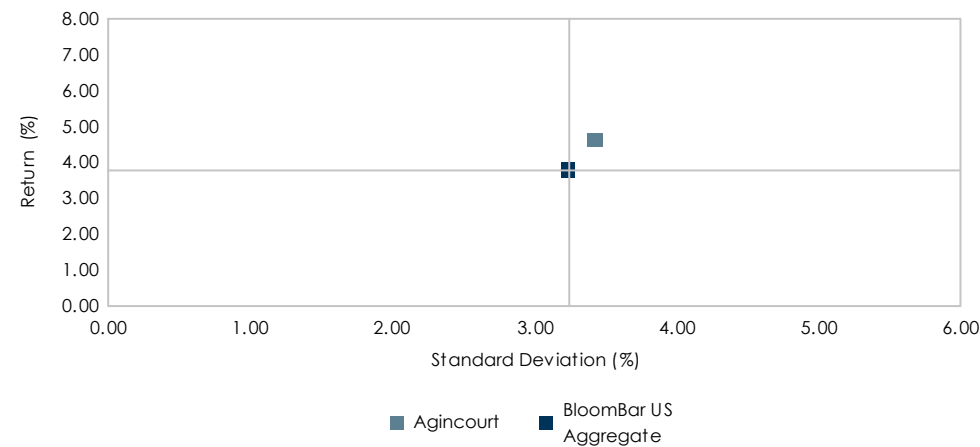


The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

Agincourt Core Fixed Income

For the Periods Ending September 30, 2018

10 Year Risk / Return



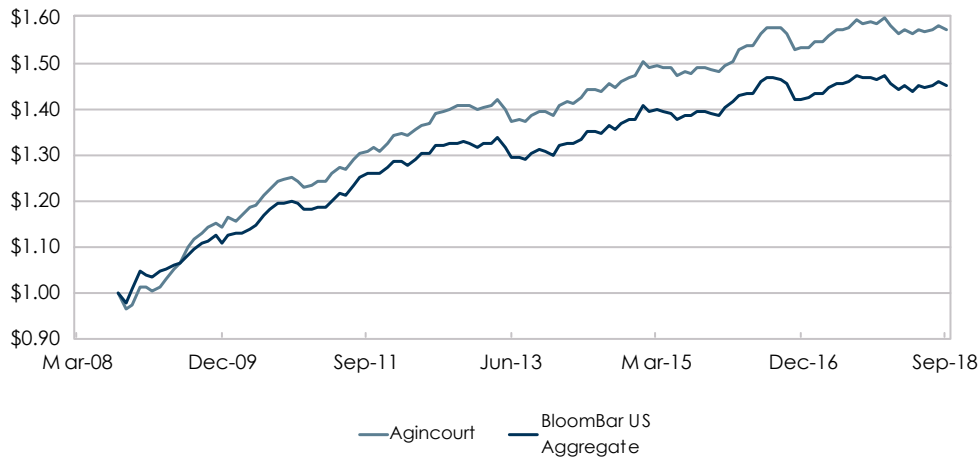
10 Year Portfolio Statistics

	Agincourt	BloomBar US Aggregate
Return (%)	4.64	3.77
Standard Deviation (%)	3.43	3.24
Sharpe Ratio	1.27	1.08

Benchmark Relative Statistics

Beta	0.97
R Squared (%)	83.01
Alpha (%)	0.97
Tracking Error (%)	1.42
Batting Average (%)	64.17
Up Capture (%)	110.52
Down Capture (%)	92.41

10 Year Growth of a Dollar

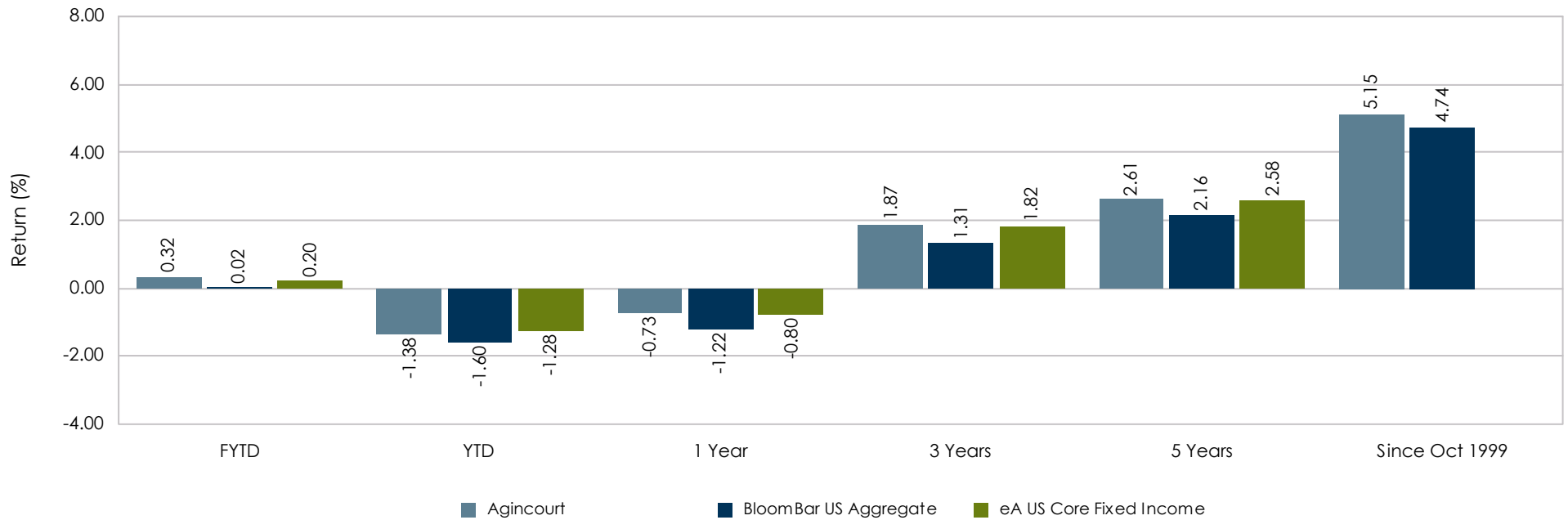


10 Year Return Analysis

	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	79
Number of Negative Months	40	41
% of Positive Months	66.67	65.83

## Agincourt Core Fixed Income

For the Periods Ending September 30, 2018



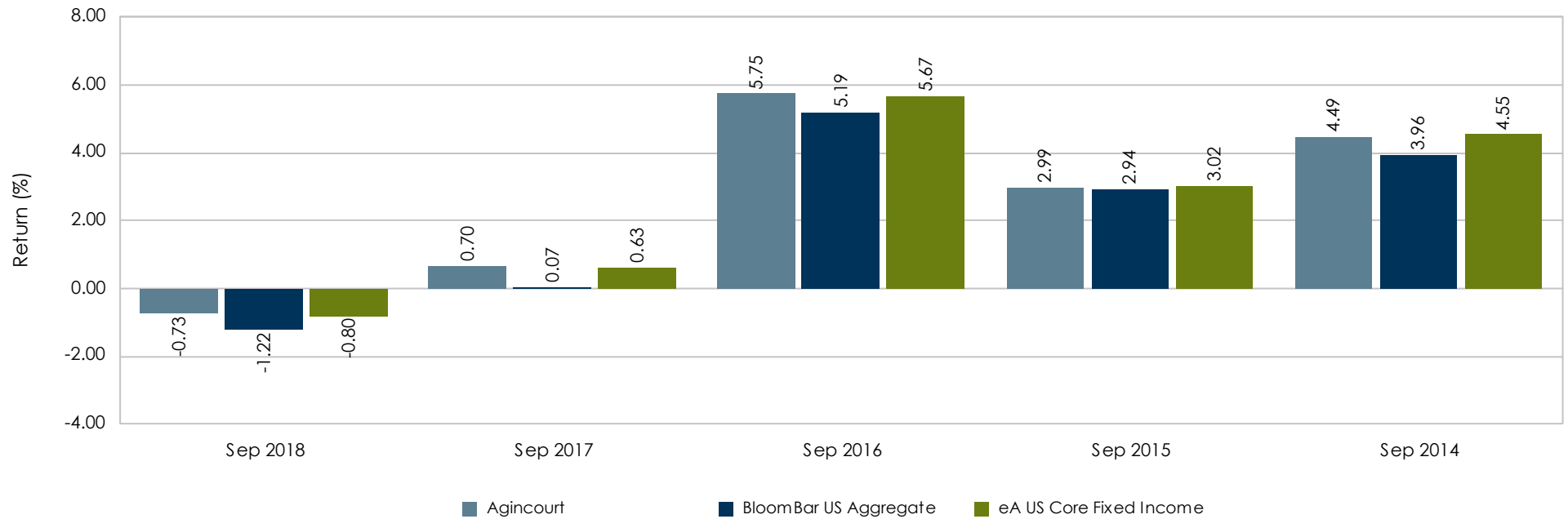
Ranking	21	64	47	47	48
5th Percentile	0.60	-0.34	0.35	3.00	3.62
25th Percentile	0.29	-1.04	-0.52	2.13	2.82
50th Percentile	0.20	-1.28	-0.80	1.82	2.58
75th Percentile	0.07	-1.50	-1.04	1.50	2.36
95th Percentile	-0.22	-1.78	-1.47	1.15	2.06
Observations	161	161	161	159	155

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	47	45	46	54	54
5th Percentile	0.35	2.32	7.34	3.99	6.38
25th Percentile	-0.52	1.17	6.20	3.37	5.11
50th Percentile	-0.80	0.63	5.67	3.02	4.55
75th Percentile	-1.04	0.30	5.19	2.62	4.04
95th Percentile	-1.47	-0.23	4.11	1.81	2.97
Observations	161	268	256	259	276

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, 2018

### Account Description

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

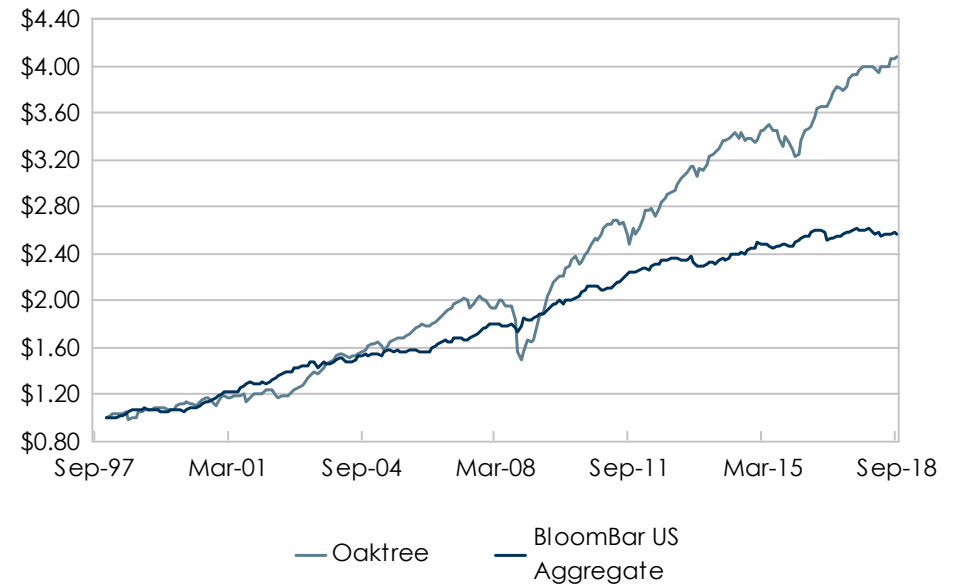
### Performance Goals

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

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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>123,596</b>	<b>123,392</b>
Net Additions	-177	-23
Return on Investment	2,470	2,519
<b>Ending Market Value</b>	<b>125,888</b>	<b>125,888</b>

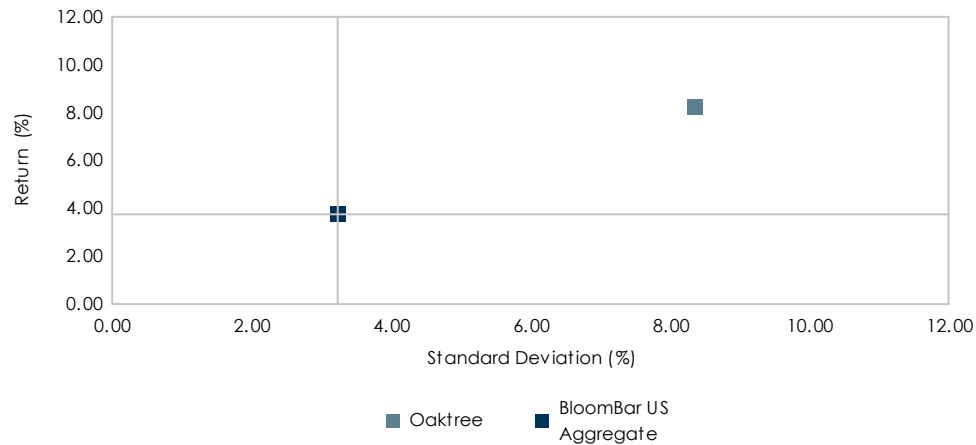
### Growth of a Dollar



## Oaktree Capital Management

For the Periods Ending September 30, 2018

### 10 Year Risk / Return



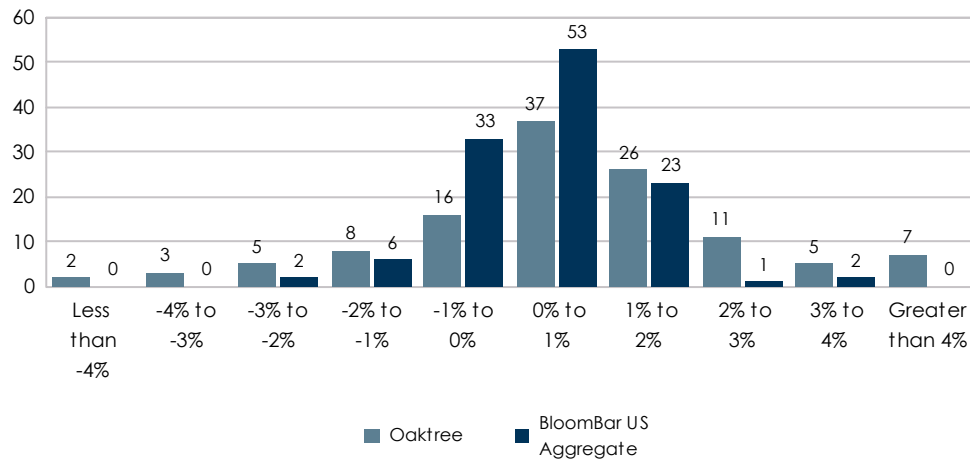
### 10 Year Portfolio Statistics

	Oaktree	BloomBar US Aggregate
Return (%)	8.27	3.77
Standard Deviation (%)	8.36	3.24
Sharpe Ratio	0.96	1.08

### Benchmark Relative Statistics

Beta	0.64
R Squared (%)	6.12
Alpha (%)	6.08
Tracking Error (%)	8.18
Batting Average (%)	61.67
Up Capture (%)	140.26
Down Capture (%)	28.43

### 10 Year Return Histogram

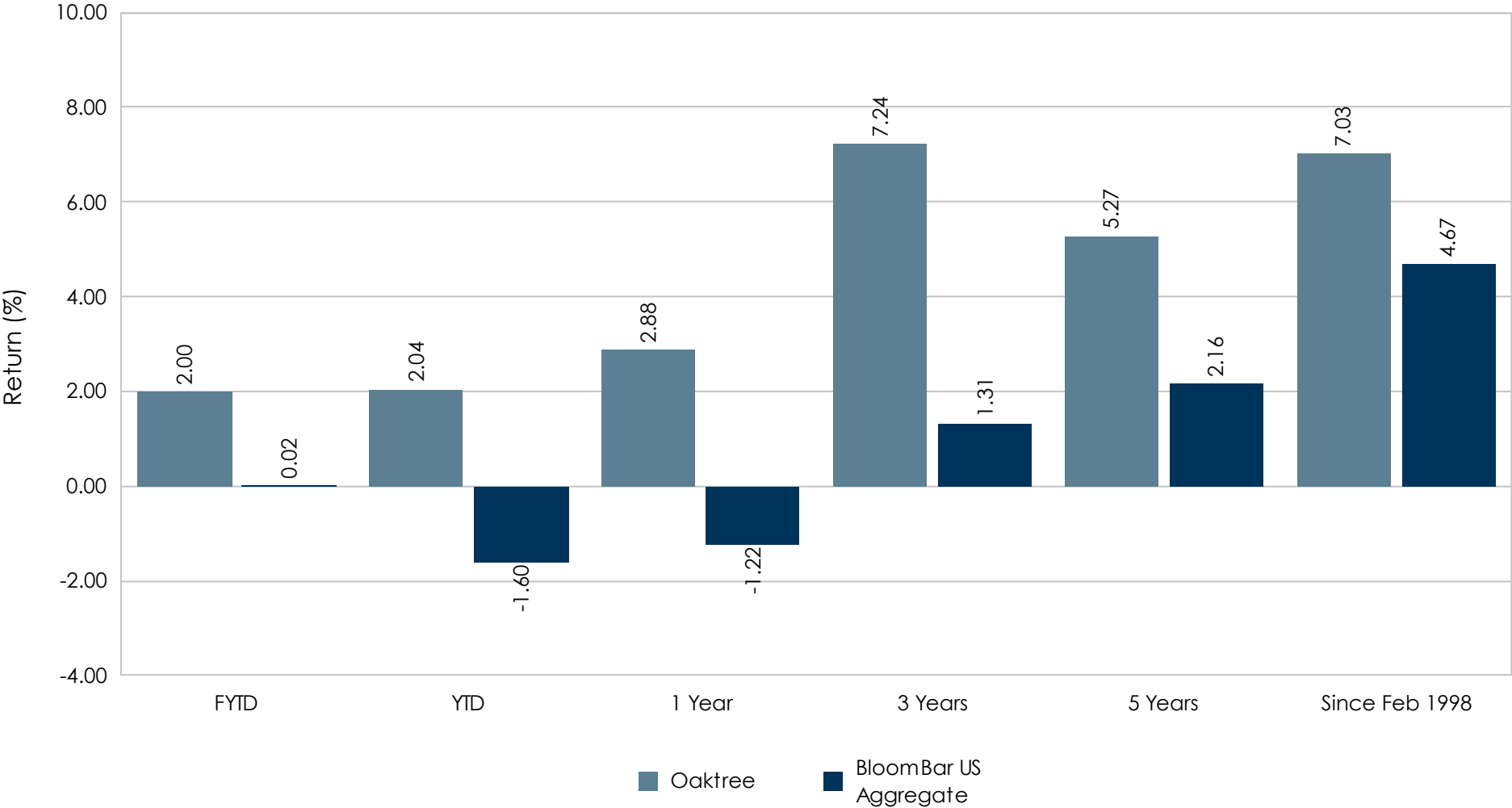


### 10 Year Return Analysis

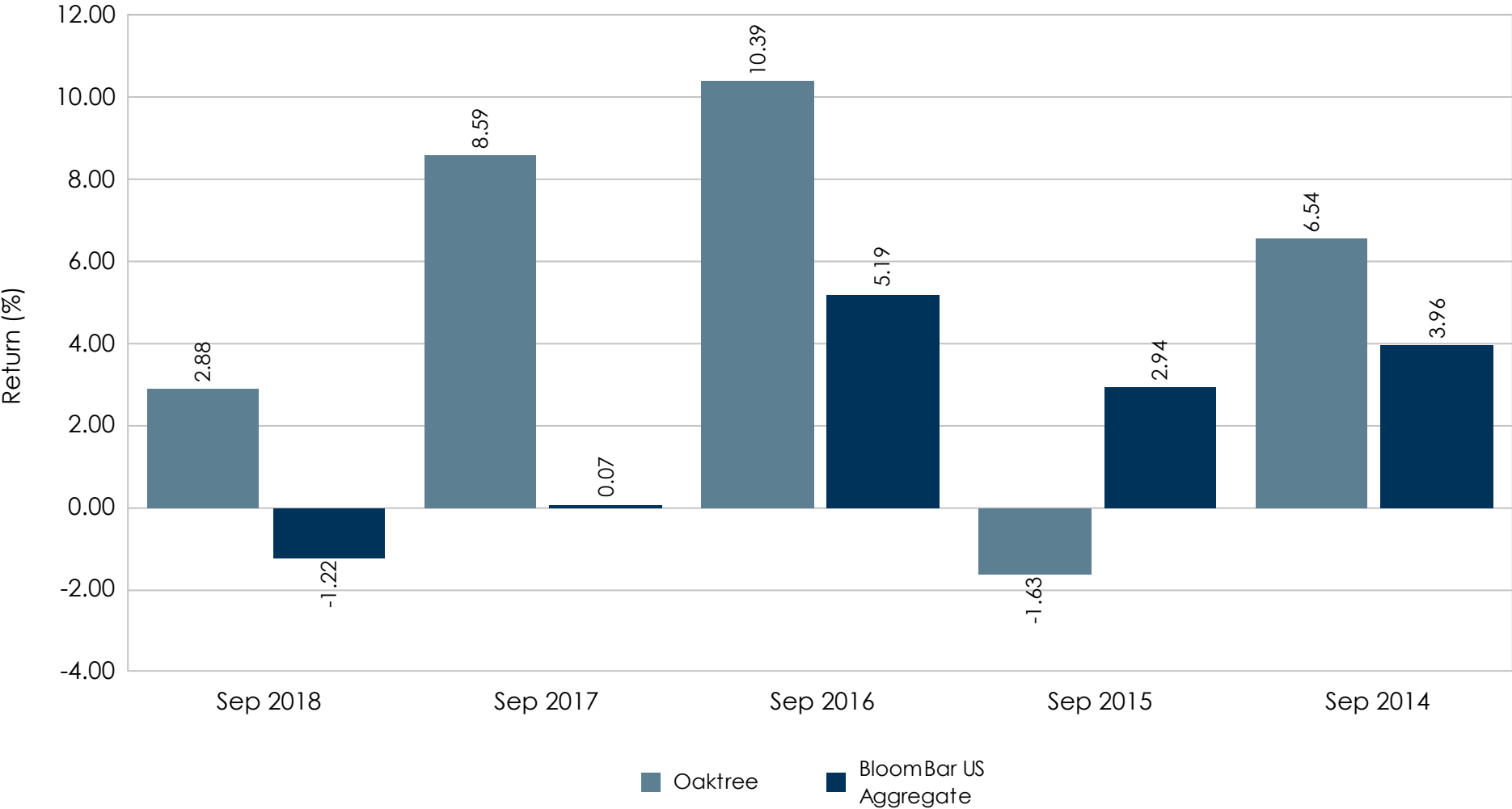
	Oaktree	BloomBar US Aggregate
Number of Months	120	120
Highest Monthly Return (%)	7.58	3.73
Lowest Monthly Return (%)	-14.86	-2.37
Number of Positive Months	86	79
Number of Negative Months	34	41
% of Positive Months	71.67	65.83

Oaktree Capital Management

For the Periods Ending September 30, 2018



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



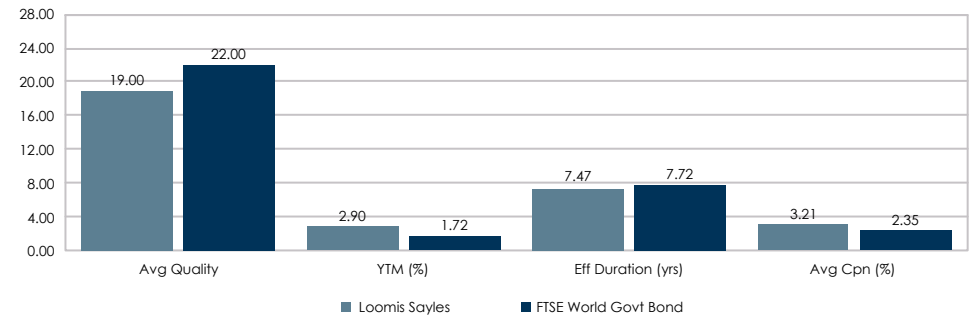
## Loomis Sayles

For the Periods Ending September 30, 2018

### Account Description

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

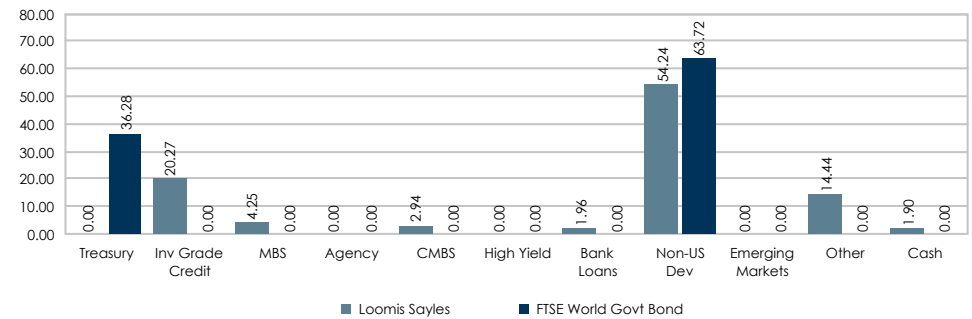
### Characteristics



### Performance Goals

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

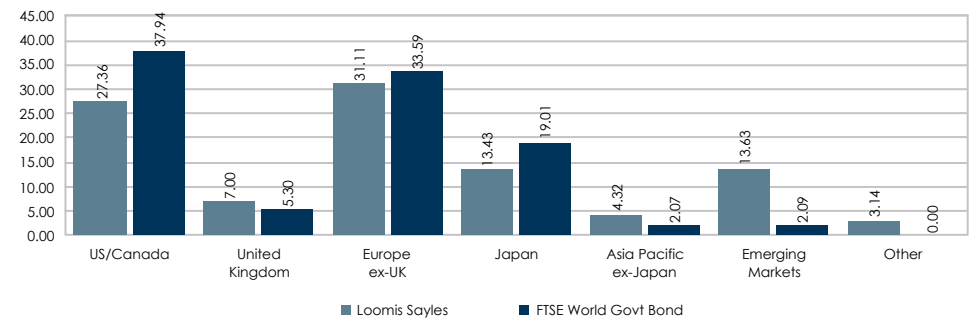
### Sector Allocation



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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>96,749</b>	<b>98,389</b>
Net Additions	-80	-240
Return on Investment	-943	-2,423
<b>Ending Market Value</b>	<b>95,726</b>	<b>95,726</b>

### Regional Allocation



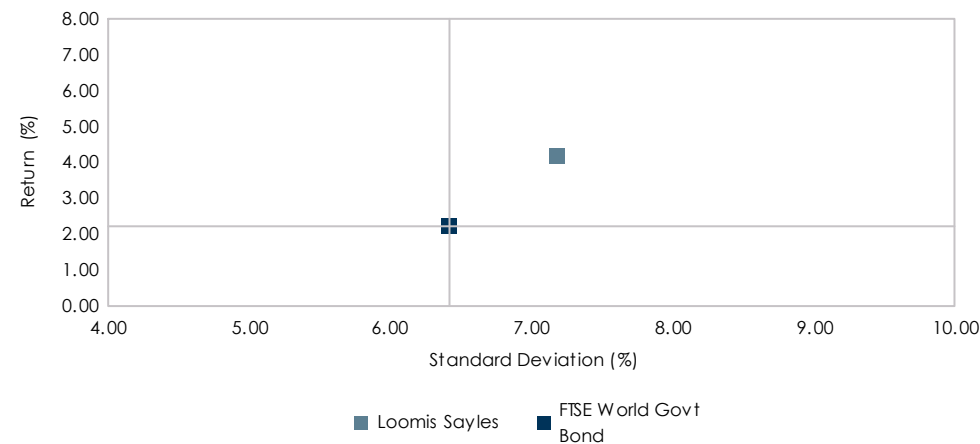
Characteristic and allocation charts represents data of the Loomis World Bond NH Trust (Non-Mutual Commingled).

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

Loomis Sayles

For the Periods Ending September 30, 2018

10 Year Risk / Return



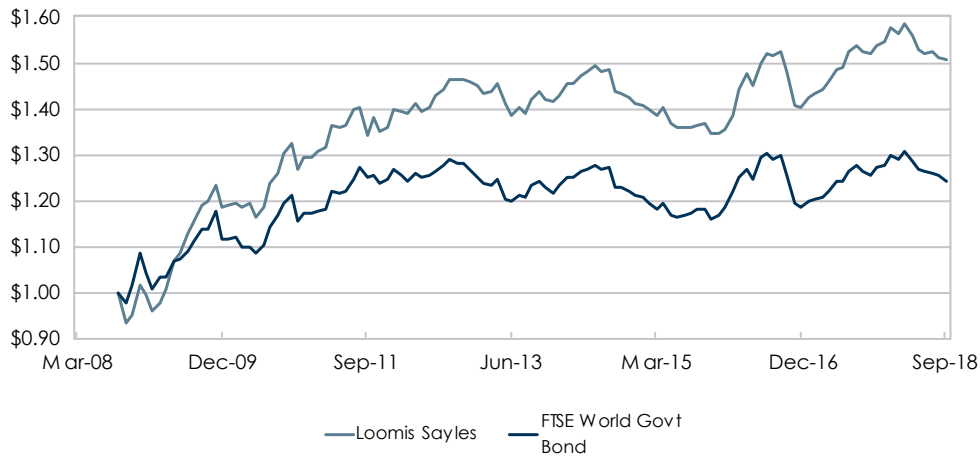
10 Year Portfolio Statistics

	Loomis Sayles	FTSE World Govt Bond
Return (%)	4.18	2.21
Standard Deviation (%)	7.18	6.42
Sharpe Ratio	0.55	0.30

Benchmark Relative Statistics

Beta	1.01
R Squared (%)	81.36
Alpha (%)	1.97
Tracking Error (%)	3.10
Batting Average (%)	65.83
Up Capture (%)	120.65
Down Capture (%)	97.97

10 Year Growth of a Dollar

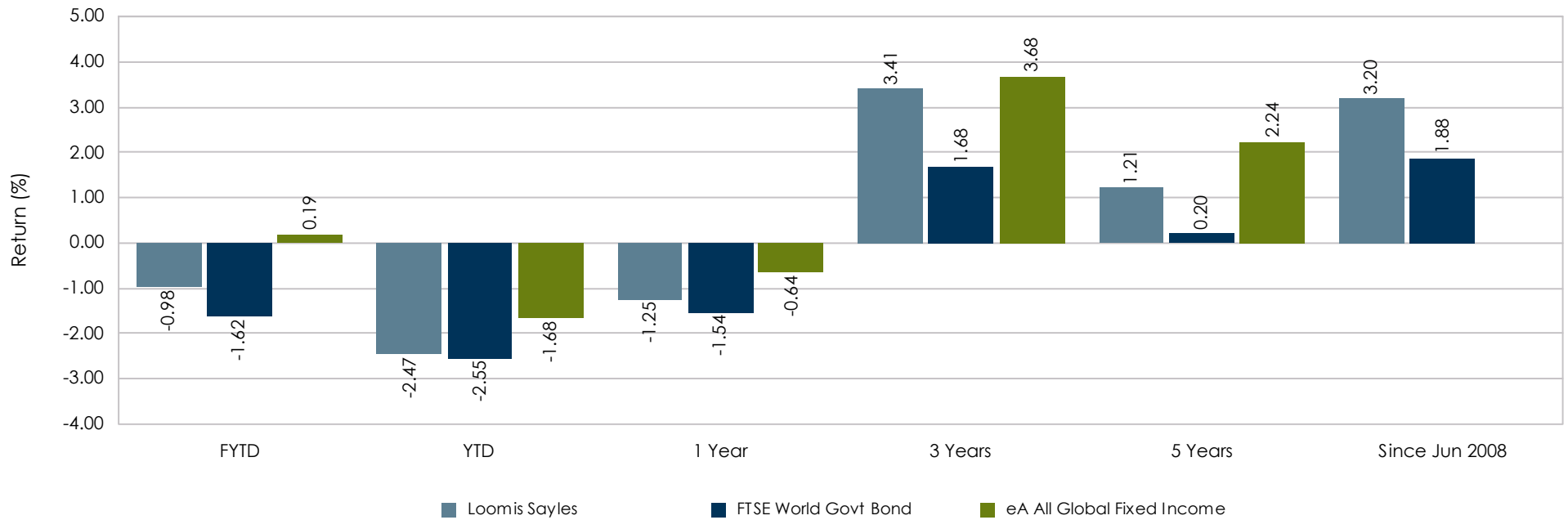


10 Year Return Analysis

	Loomis Sayles	FTSE World Govt Bond
Number of Months	120	120
Highest Monthly Return (%)	7.16	7.11
Lowest Monthly Return (%)	-6.59	-5.03
Number of Positive Months	74	66
Number of Negative Months	46	54
% of Positive Months	61.67	55.00

## Loomis Sayles

For the Periods Ending September 30, 2018



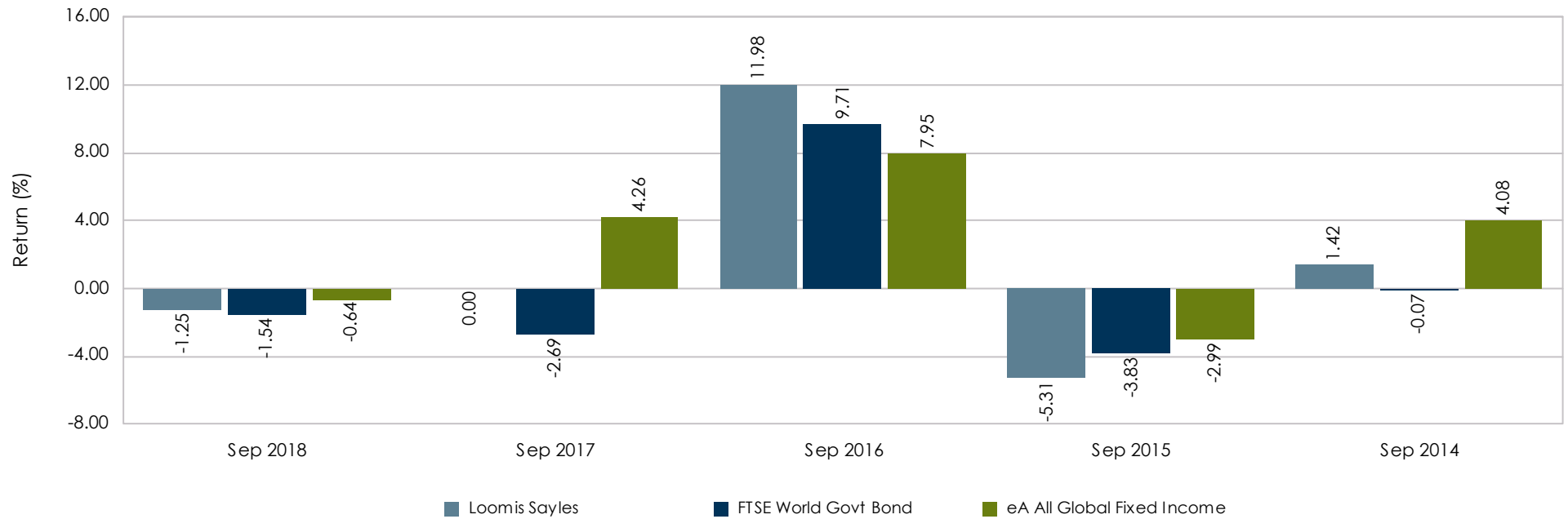
Ranking	77	65	61	55	66
5th Percentile	2.37	3.03	4.16	7.90	6.14
25th Percentile	1.28	0.49	1.50	5.12	4.15
50th Percentile	0.19	-1.68	-0.64	3.68	2.24
75th Percentile	-0.90	-3.18	-2.02	2.23	0.79
95th Percentile	-1.84	-6.70	-6.03	0.43	-1.14
Observations	361	360	360	343	308

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	61	86	13	68	72
5th Percentile	4.16	12.05	15.31	3.23	9.41
25th Percentile	1.50	7.75	10.15	0.28	6.77
50th Percentile	-0.64	4.26	7.95	-2.99	4.08
75th Percentile	-2.02	1.33	4.94	-7.07	1.06
95th Percentile	-6.03	-2.28	-1.67	-15.37	-2.66
Observations	360	700	688	672	673

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, 2018

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-5,000,000	4,156,278	-843,722

### Summary of Portfolio Inception to Date

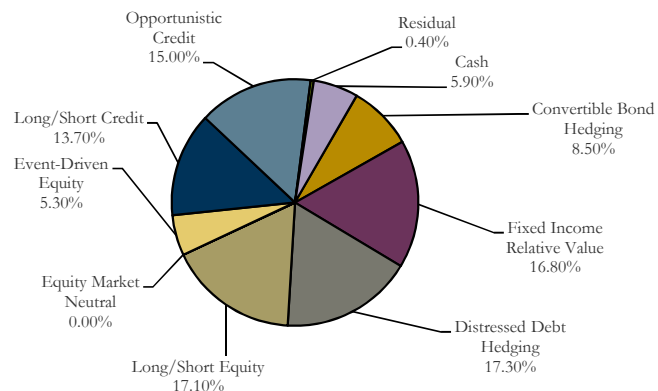
	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Total</b>	<b>Sep-16</b>	<b>90,000,000</b>	<b>33,882,292</b>	<b>56,862,843</b>	<b>7,018,897</b>	<b>30,851,614</b>	<b>37,870,511</b>	<b>1.12x</b>
<b>Mezzanine</b>	Jan-17	<b>20,000,000</b>	<b>12,882,292</b>	<b>7,183,865</b>	<b>4,934,780</b>	<b>9,927,821</b>	<b>14,862,601</b>	<b>1.15x</b>
Newstone Capital Partners III	Jan-17	20,000,000	12,882,292	7,183,865	4,934,780	9,927,821	14,862,601	1.15x
<b>Other</b>	Sep-16	<b>70,000,000</b>	<b>21,000,000</b>	<b>49,678,978</b>	<b>2,084,117</b>	<b>20,923,793</b>	<b>23,007,910</b>	<b>1.10x</b>
LBC Credit Partners Fund IV	Sep-16	40,000,000	21,000,000	19,678,978	2,084,117	20,923,793	23,007,910	1.10x
Apollo Accord II	Jun-18	30,000,000	-	30,000,000	-	-	-	-

## PAAMCO

For the Periods Ending September 30, 2018

### Sector Allocation

Market Value: \$130,508,011



### Strategy

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

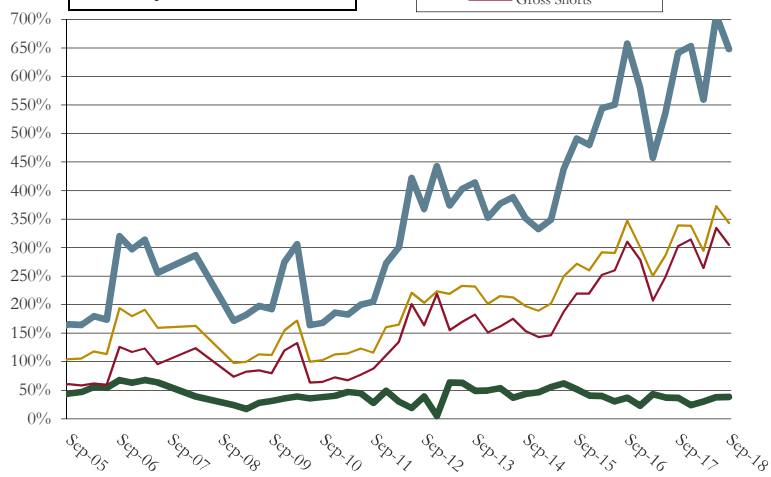
### Objectives and Constraints

- 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

Historical Average	
Gross Exposure	323.03%
Net Exposure	42.46%

Net Exposure	
Gross Exposure	
Gross Longs	
Gross Shorts	



### Exposure

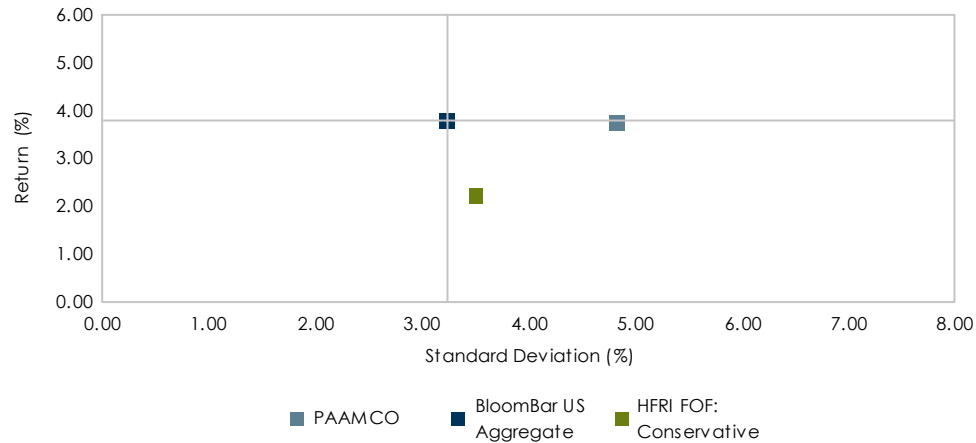
- Net Exposure: 38.50%
- Gross Exposure: 648.30%

Characteristic data provided by manager.

## PAAMCO

For the Periods Ending September 30, 2018

### 10 Year Risk / Return



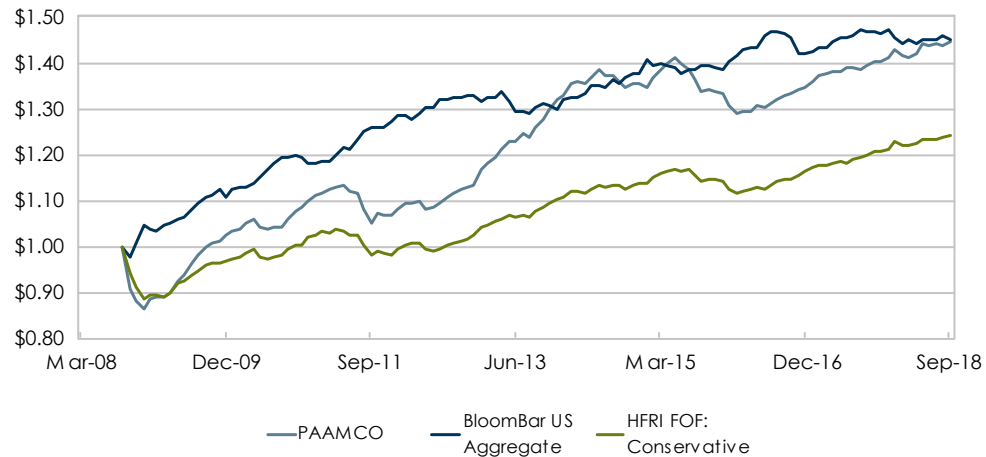
### 10 Year Portfolio Statistics

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Return (%)	3.74	3.77	2.20
Standard Deviation (%)	4.83	3.24	3.51
Sharpe Ratio	0.72	1.08	0.55

### Benchmark Relative Statistics

Beta	-0.10	1.27
R Squared (%)	0.43	84.94
Alpha (%)	4.25	0.96
Tracking Error (%)	5.99	2.10
Batting Average (%)	60.83	61.67
Up Capture (%)	42.75	132.93
Down Capture (%)	-37.25	106.22

### 10 Year Growth of a Dollar

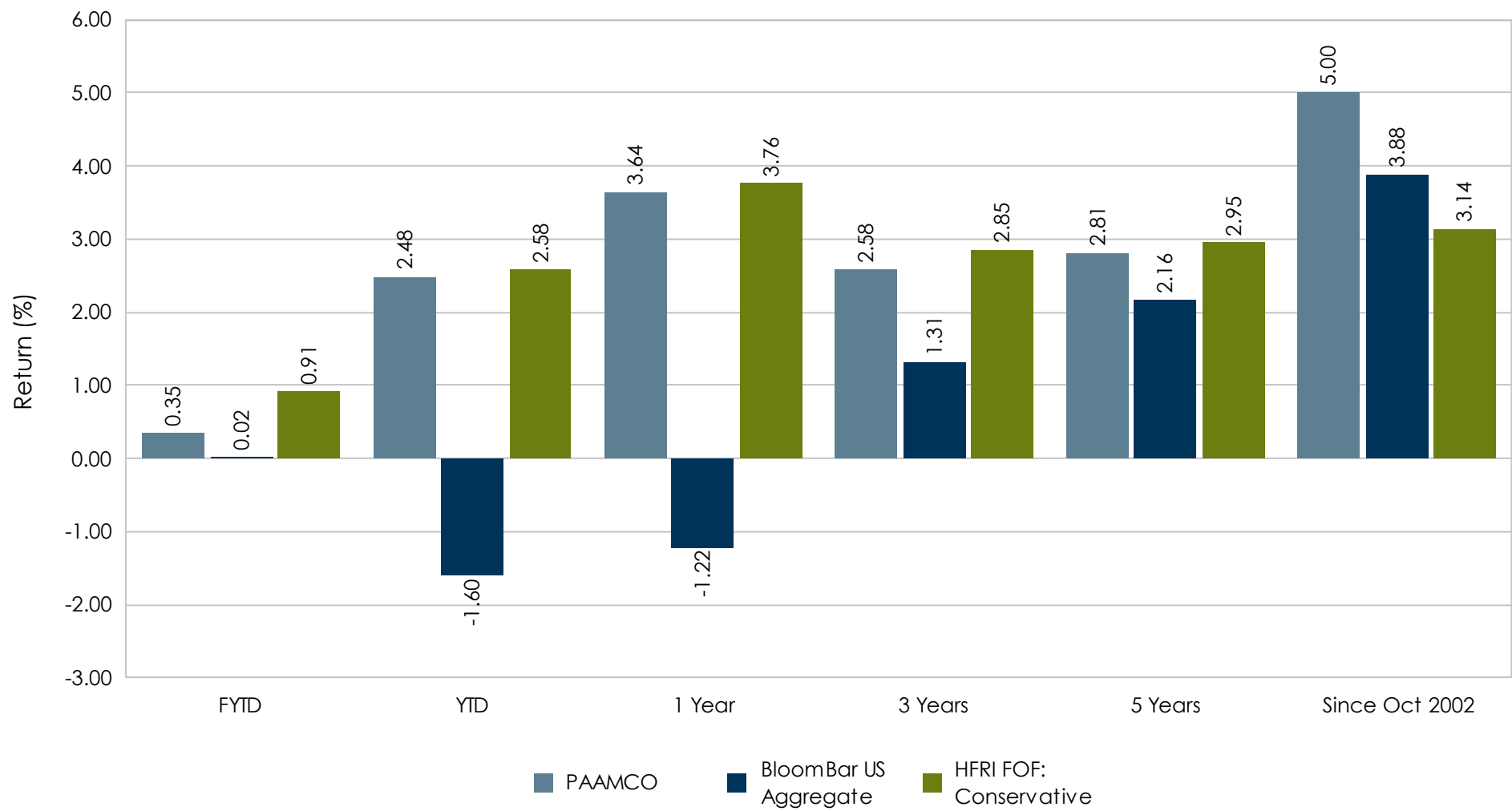


### 10 Year Return Analysis

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Number of Months	120	120	120
Highest Monthly Return (%)	2.84	3.73	2.42
Lowest Monthly Return (%)	-9.06	-2.37	-5.86
Number of Positive Months	82	79	86
Number of Negative Months	38	41	34
% of Positive Months	68.33	65.83	71.67

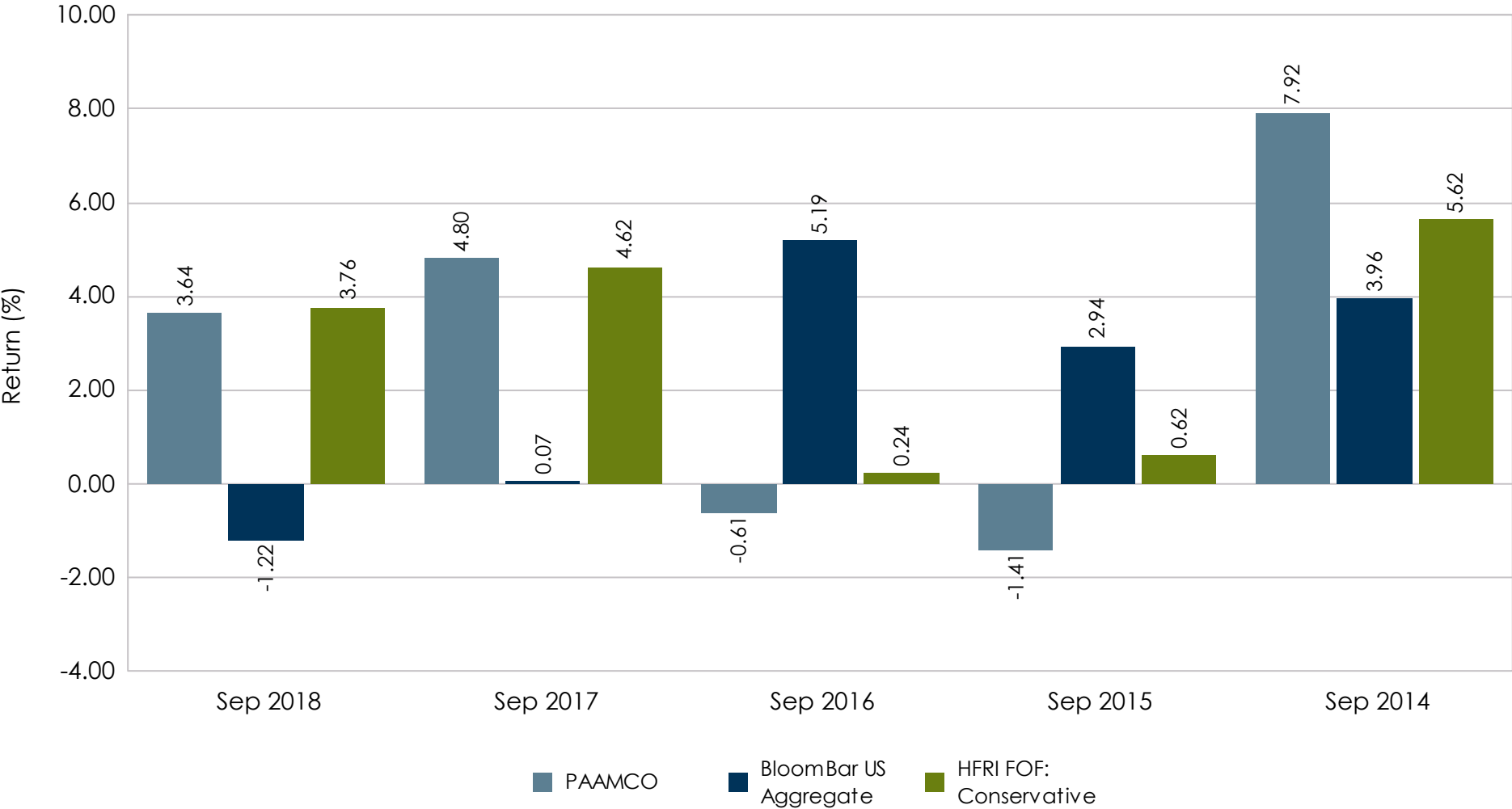
PAAMCO

For the Periods Ending September 30, 2018



PAAMCO

For the One Year Periods Ending September



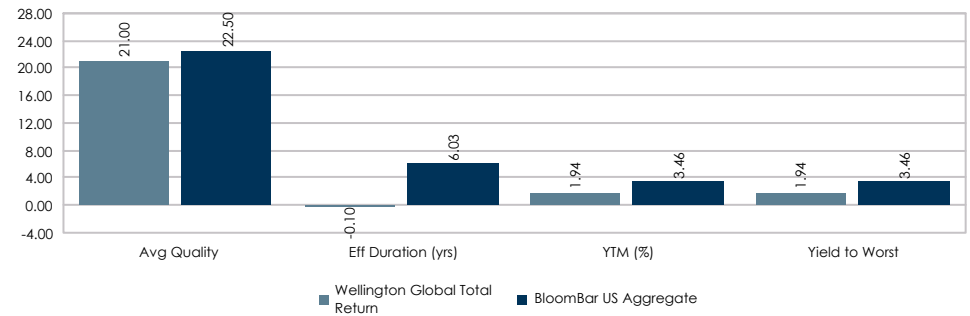
## Wellington Global Total Return

For the Periods Ending September 30, 2018

### 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%

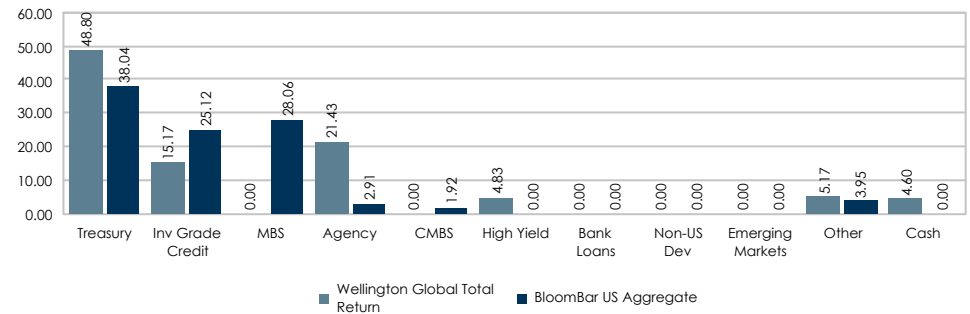
### Characteristics



### Performance Goals

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

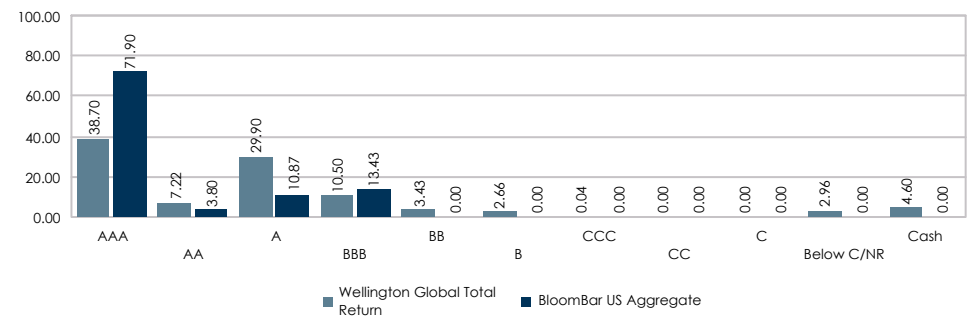
### Sector Allocation



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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>63,335</b>	<b>60,819</b>
Net Additions	-39	-116
Return on Investment	819	3,411
<b>Ending Market Value</b>	<b>64,115</b>	<b>64,115</b>

### Quality Allocation

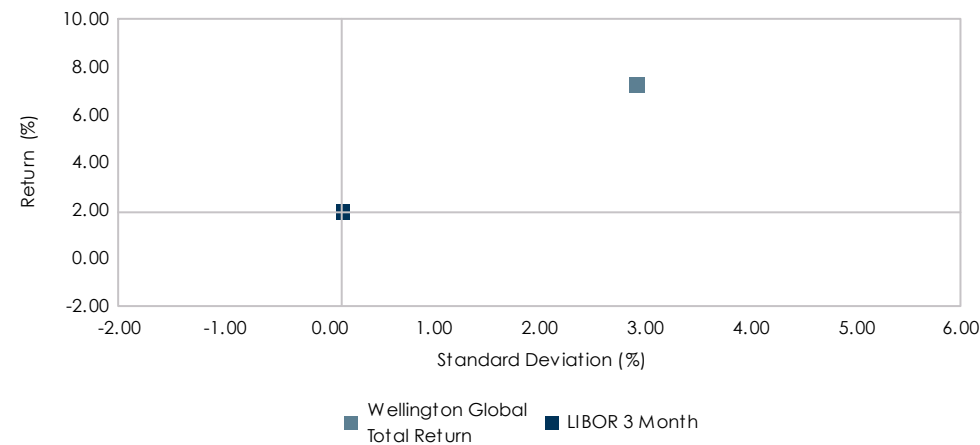


The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

Wellington Global Total Return

For the Periods Ending September 30, 2018

1 Year Risk / Return



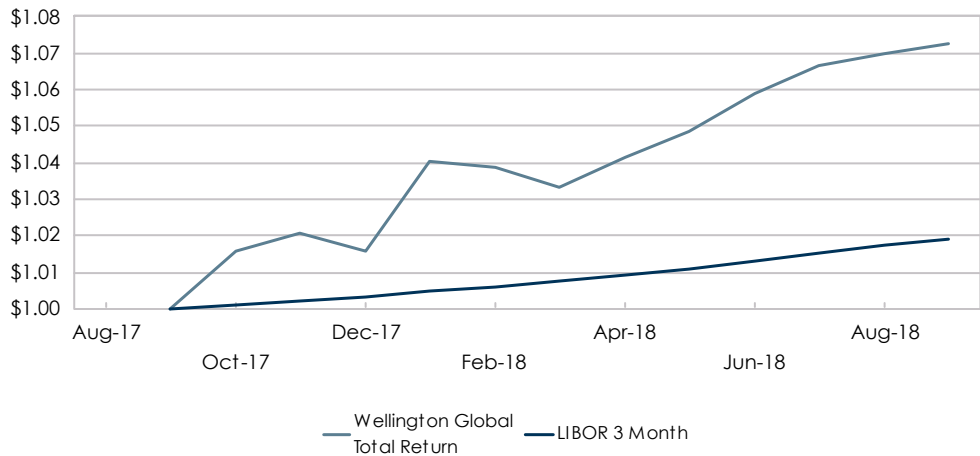
1 Year Portfolio Statistics

	Wellington Global Total Return	LIBOR 3 Month
Return (%)	7.28	1.91
Standard Deviation (%)	2.93	0.13
Sharpe Ratio	1.97	3.02

Benchmark Relative Statistics

Beta	-1.05
R Squared (%)	0.22
Alpha (%)	9.46
Tracking Error (%)	2.94
Batting Average (%)	75.00
Up Capture (%)	381.62
Down Capture (%)	

1 Year Growth of a Dollar

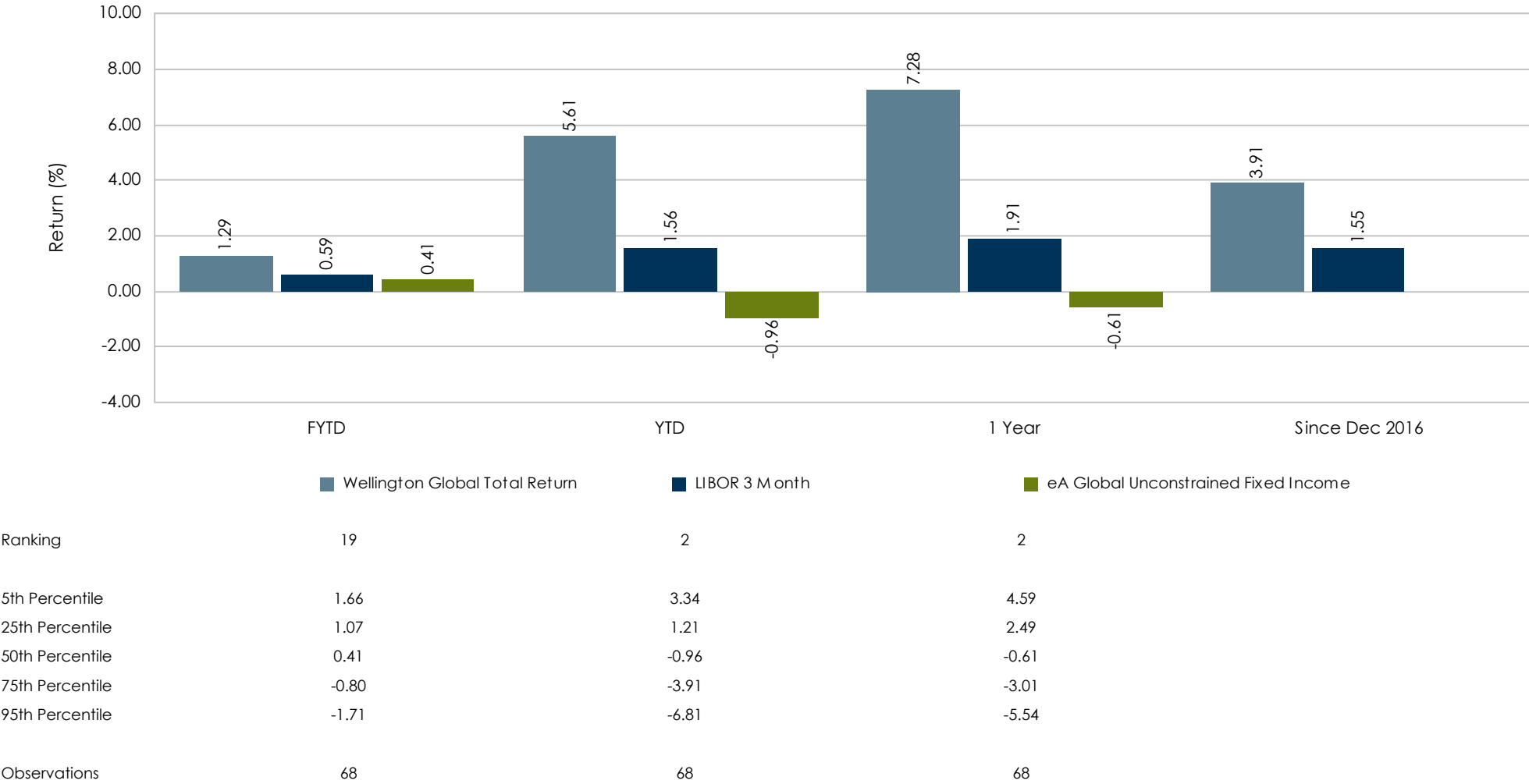


1 Year Return Analysis

	Wellington Global Total Return	LIBOR 3 Month
Number of Months	12	12
Highest Monthly Return (%)	2.45	0.21
Lowest Monthly Return (%)	-0.54	0.11
Number of Positive Months	9	12
Number of Negative Months	3	0
% of Positive Months	75.00	100.00



**Wellington Global Total Return**  
For the Periods Ending September 30, 2018



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.

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## **Real Assets Manager Performance**

## JP Morgan Strategic Property

For the Periods Ending September 30, 2018

### 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.

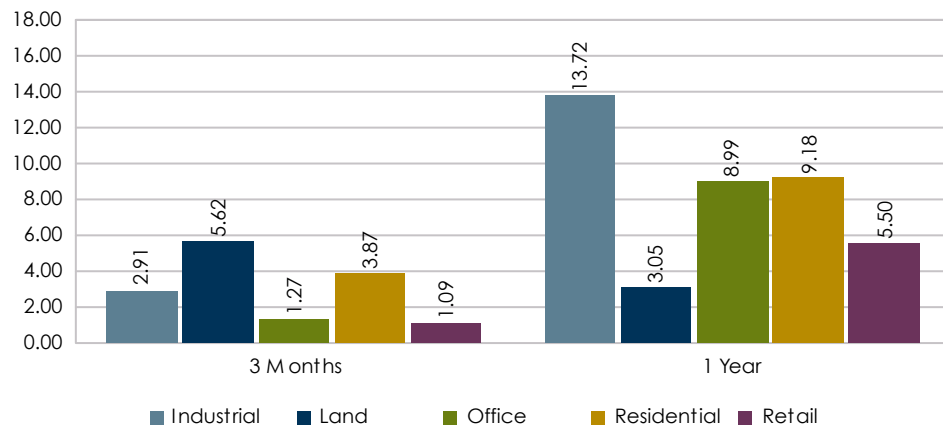
### Account Information

- **Ending Market Value** \$125,939,875

### Fund Information

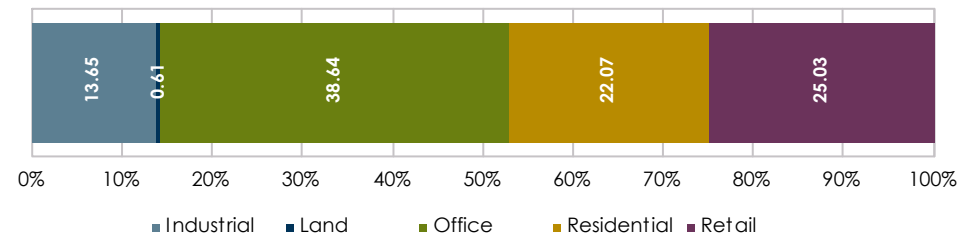
- **Gross Market Value** \$43,601,787,295
- **Net Market Value** \$33,270,456,958
- **Cash Balance of Fund** \$1,205,195,811
- **# of Properties** 166
- **# of Participants** 430

### Returns by Property Type (%)

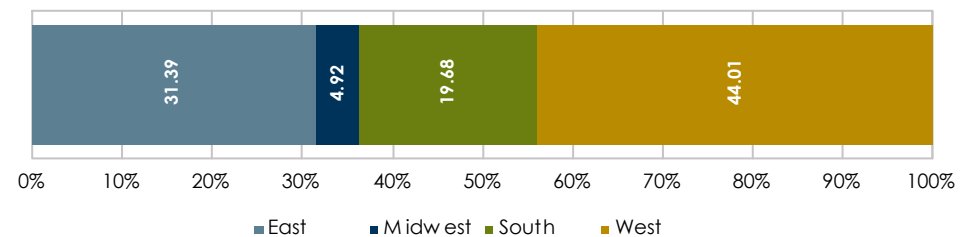


### Allocations

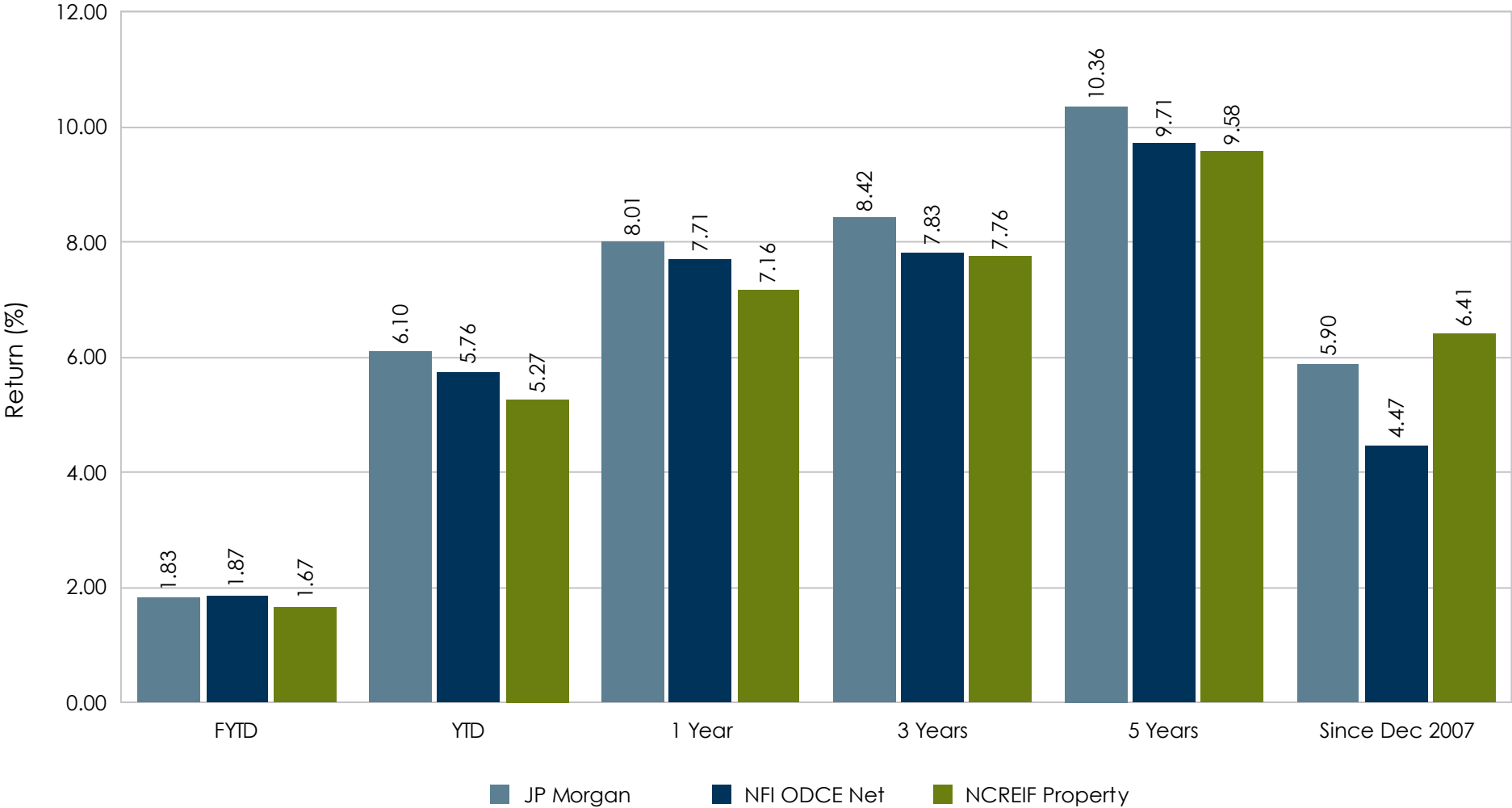
#### Property Type



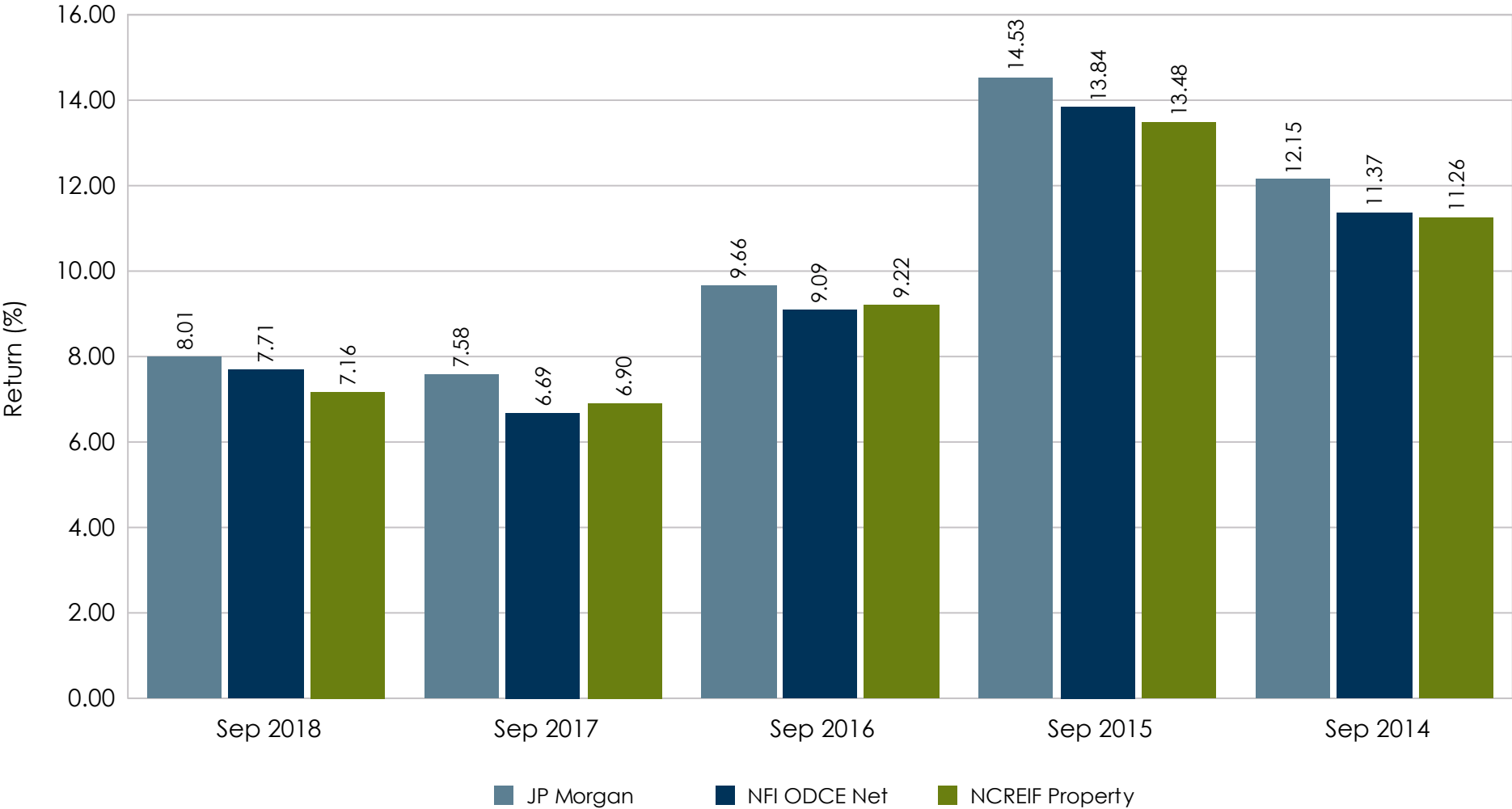
#### Geographic Region



**JP Morgan Strategic Property**  
*For the Periods Ending September 30, 2018*



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



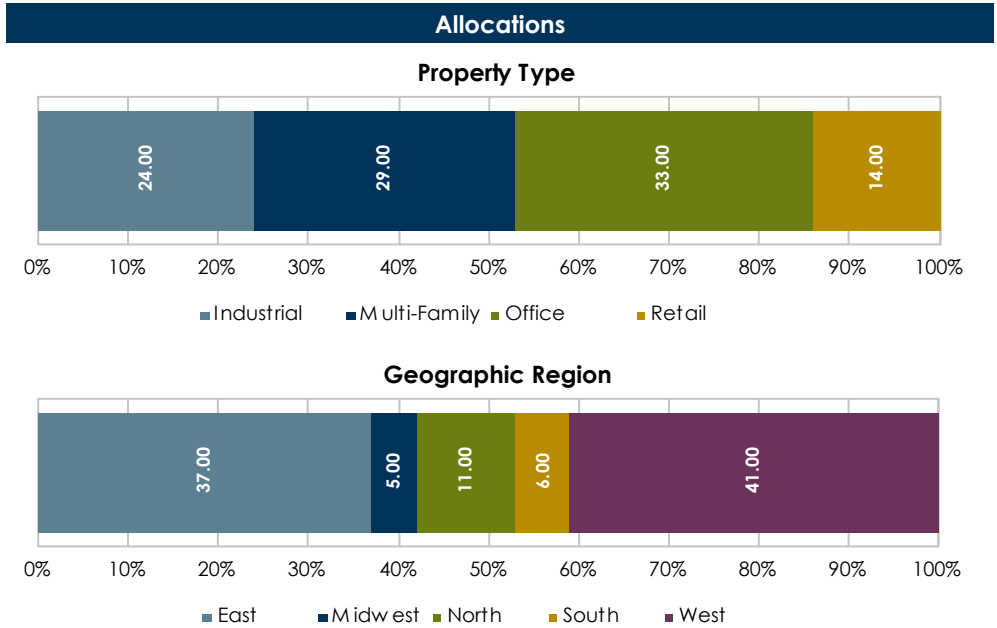
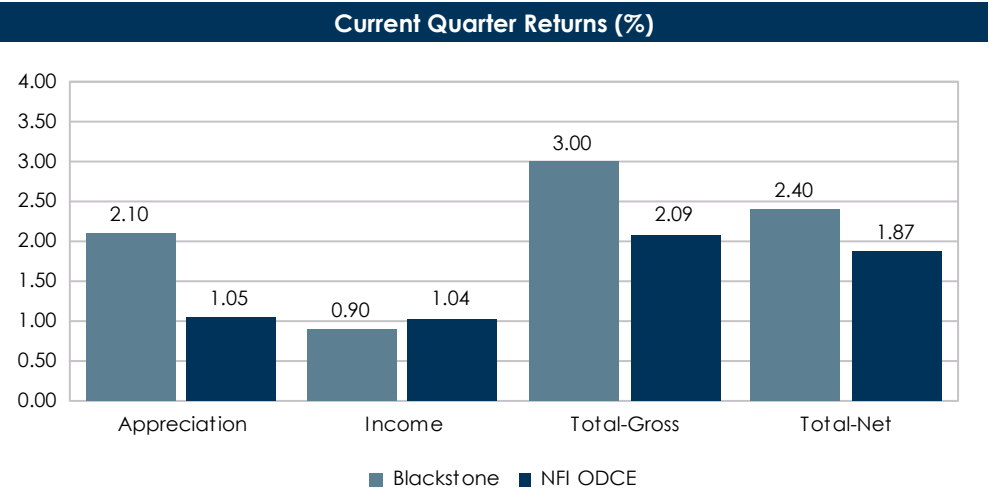
Blackstone Property Partners  
For the Periods Ending September 30, 2018

Account Description
■ <b>Strategy</b> Core Real Estate
■ <b>Vehicle</b> Limited Partnership
■ <b>Benchmarks</b> NFI ODCE Net and NCREIF Property
■ <b>Performance Inception Date</b> January 2015

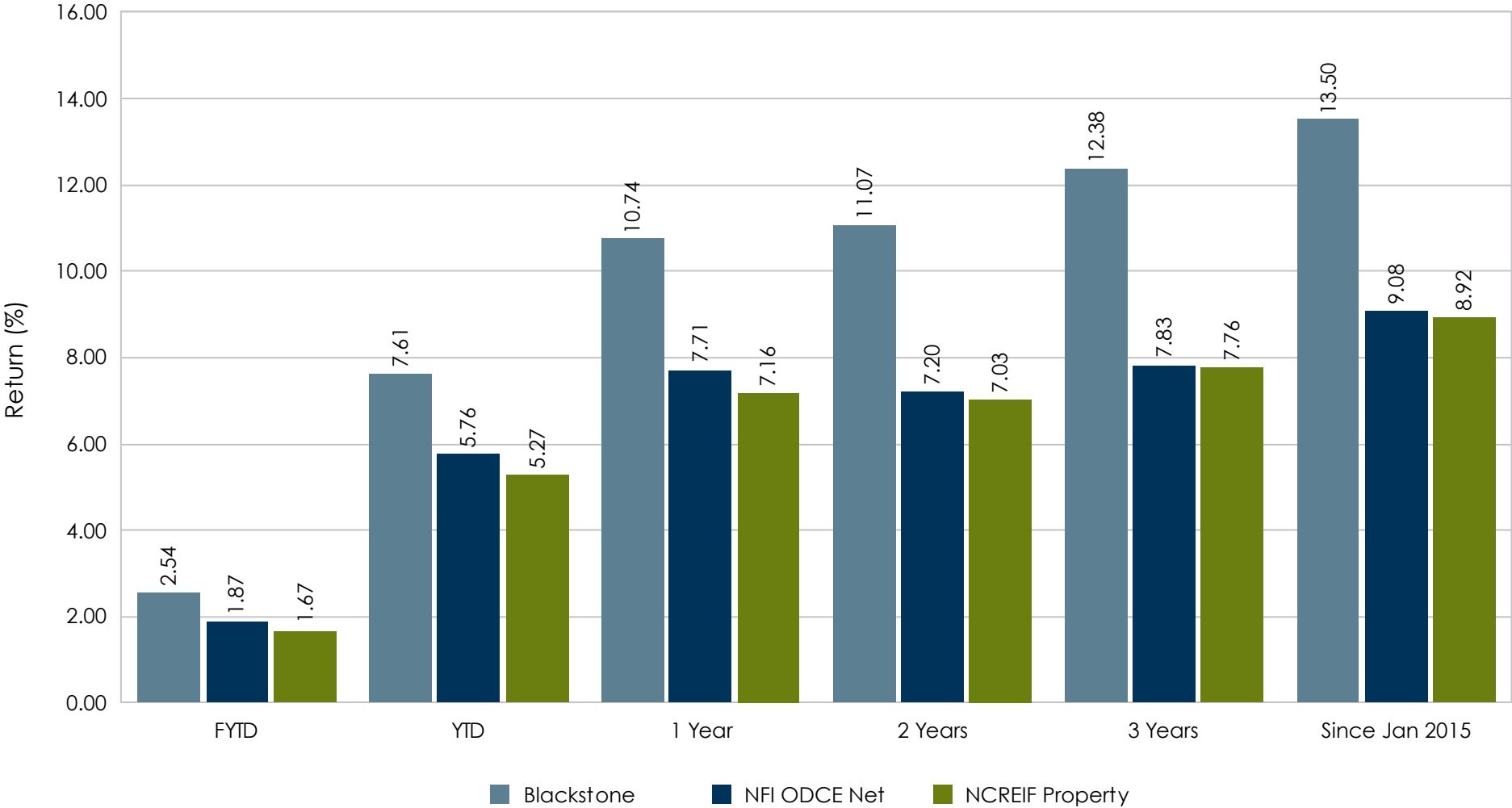
Account Information
■ <b>Ending Market Value</b> \$41,112,230

Fund Information
■ <b>Net Market Value</b> \$8,700,000,000
■ <b># of Properties</b> 29

Performance Goals
■ Outperform the NFI ODCE Net and NCREIF Property.

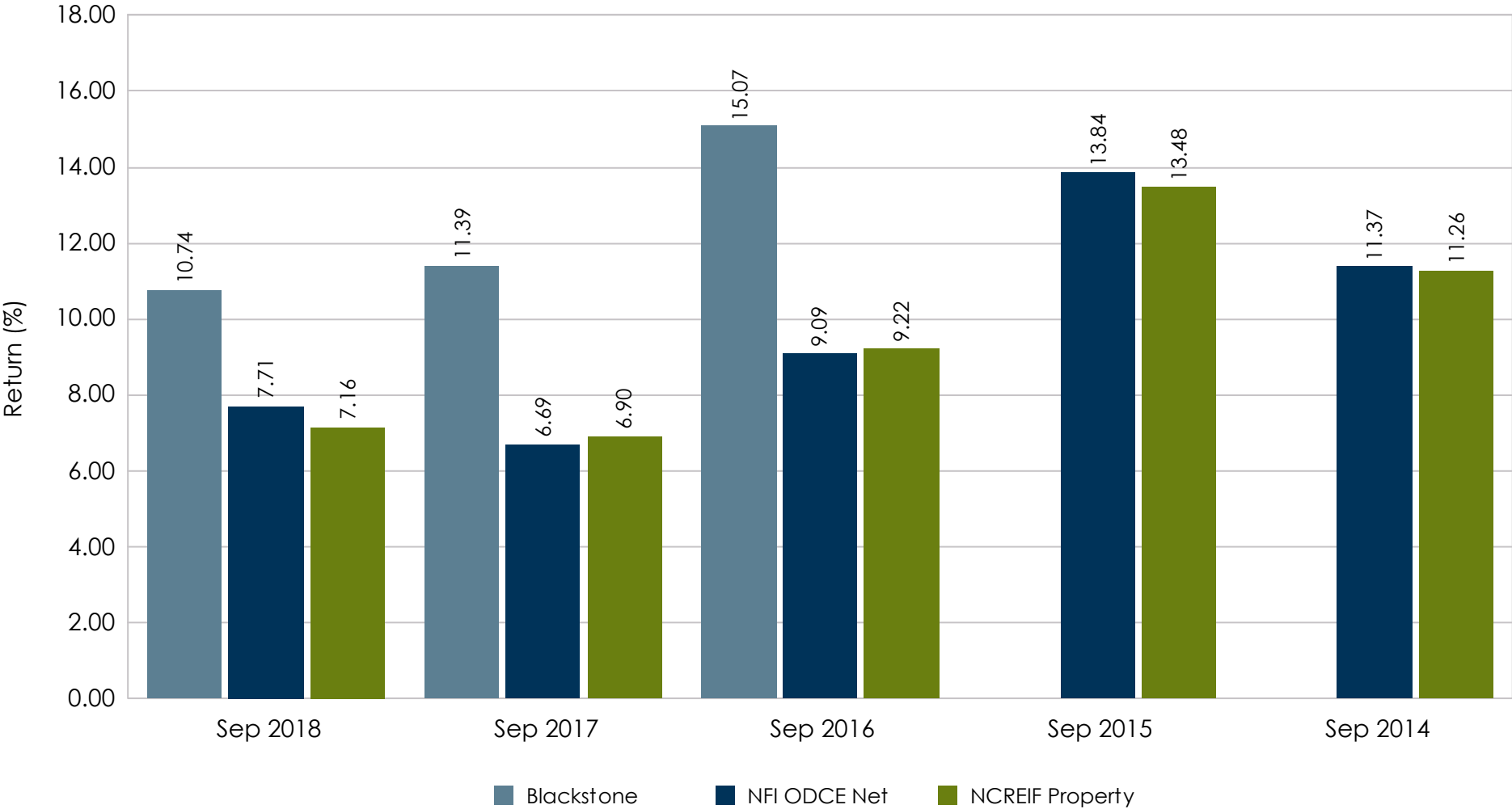


**Blackstone Property Partners**  
*For the Periods Ending September 30, 2018*





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



## Private Real Estate

For the Period Ending September 30, 2018

## Summary of Cash Flows for 6 Months

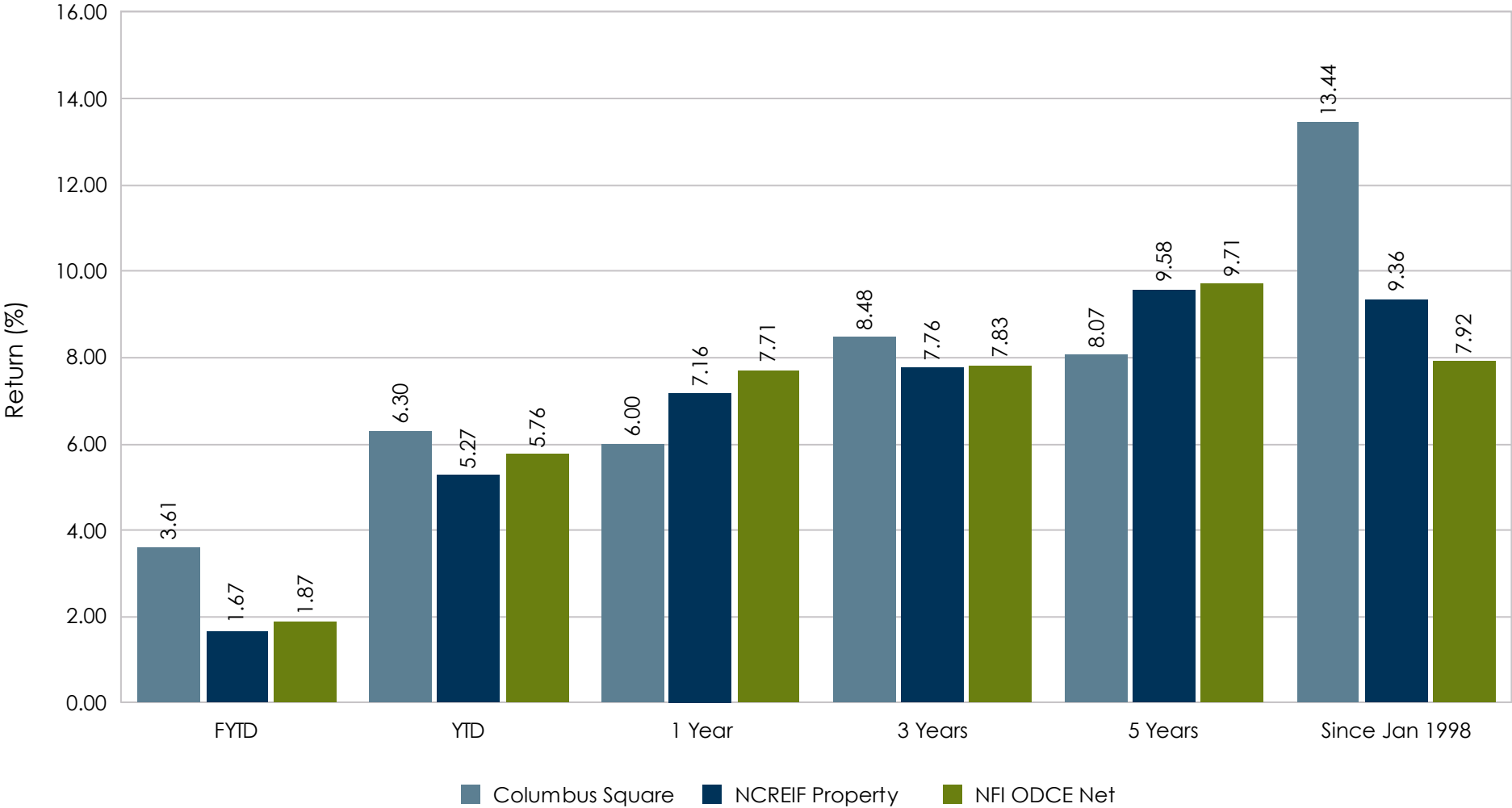
Cash Outflows	Cash Inflows	Net Cash Flows
-3,645,867	6,286,870	2,641,003

## 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>Aug-11</b>	<b>92,500,000</b>	<b>80,684,671</b>	<b>21,958,351</b>	<b>54,902,009</b>	<b>52,736,609</b>	<b>107,638,618</b>	<b>1.33x</b>
<b>Real Estate</b>	<b>Aug-11</b>	<b>92,500,000</b>	<b>80,684,671</b>	<b>21,958,351</b>	<b>54,902,009</b>	<b>52,736,609</b>	<b>107,638,618</b>	<b>1.33x</b>
Siguler Guff Dist. Real Estate Opp.	Aug-11	10,000,000	8,608,587	1,650,773	8,975,931	<b>6,065,180</b>	15,041,111	1.75x
TA Associates Realty X	Jan-13	20,000,000	20,000,000	-	17,448,422	<b>12,595,817</b>	30,044,239	1.50x
Cerberus Real Estate Fund III	Jul-13	20,000,000	25,185,319	3,552,375	21,248,560	<b>11,764,517</b>	33,013,077	1.31x
Hall Capital Fund III	Nov-14	7,500,000	6,959,483	540,517	2,094,715	<b>5,627,737</b>	7,722,452	1.11x
Siguler Guff Dist. Real Estate Opp. II	Dec-14	10,000,000	8,272,577	1,727,423	3,322,815	<b>7,514,609</b>	10,837,424	1.31x
Cerberus Institutional Real Estate Partners 4	Jun-16	15,000,000	8,458,705	7,687,263	1,811,566	<b>5,839,967</b>	7,651,533	0.90x
Siguler Guff Dist. Real Estate Opp. II B	Dec-17	10,000,000	3,200,000	6,800,000	-	<b>3,328,782</b>	3,328,782	1.04x

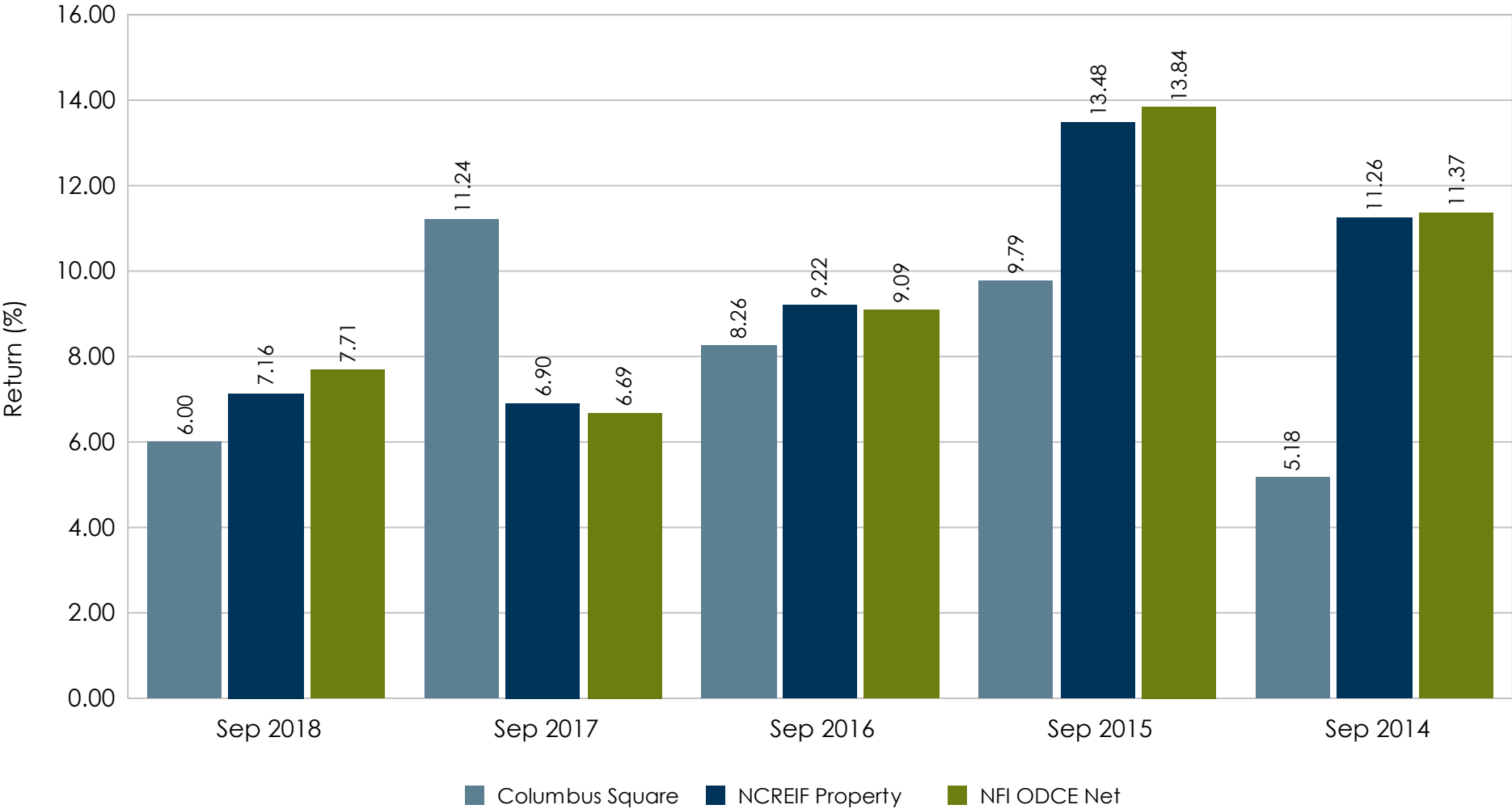
Columbus Square

For the Periods Ending September 30, 2018



Columbus Square

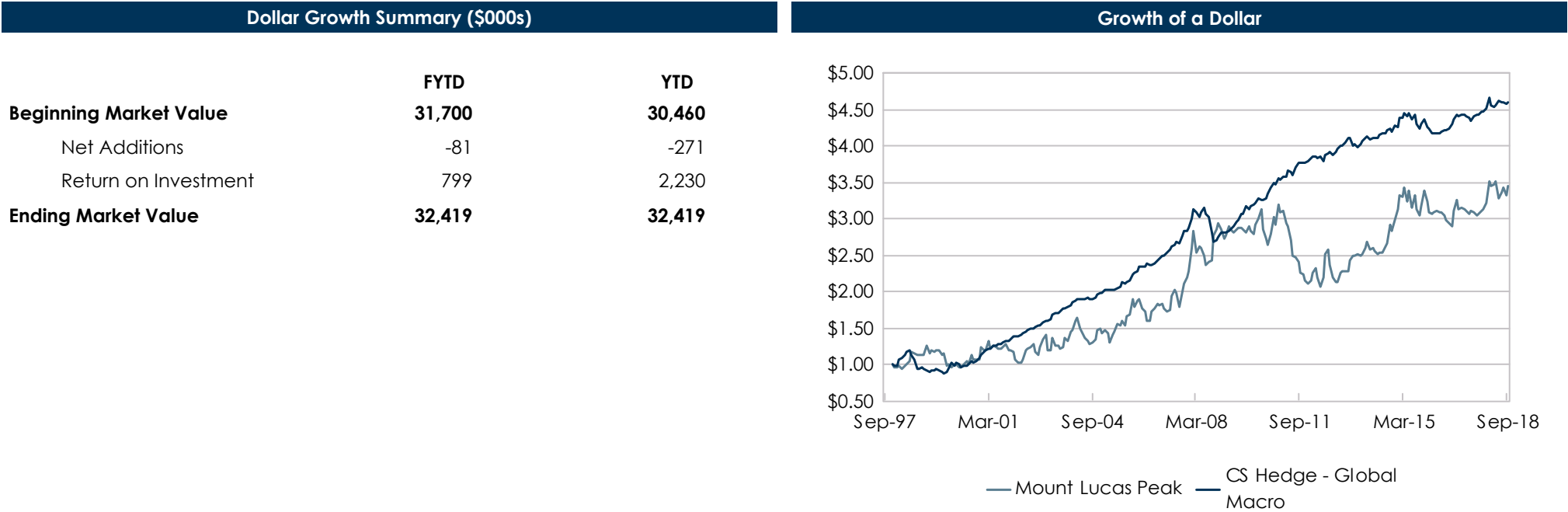
For the One Year Periods Ending September



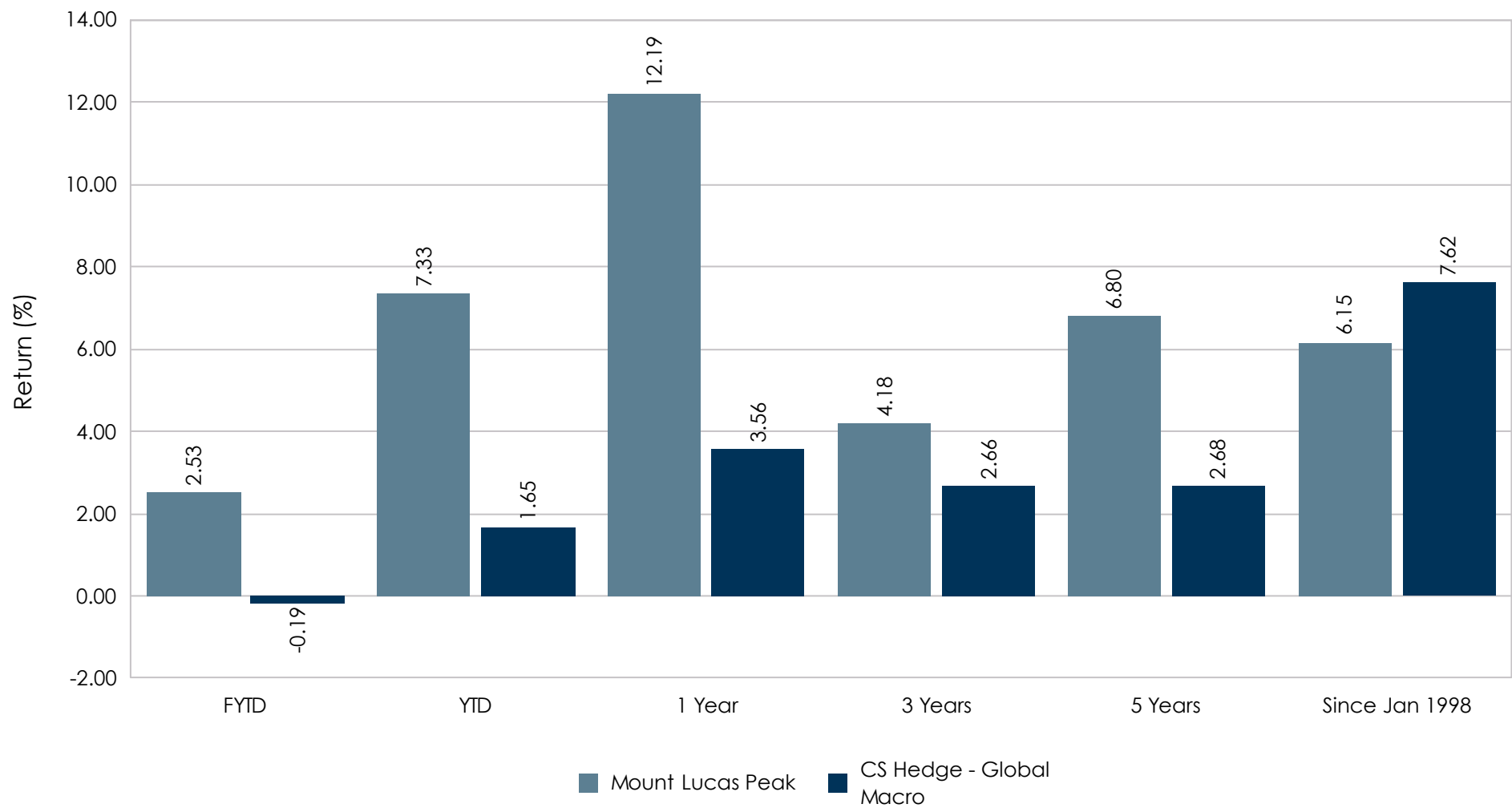
Mount Lucas Peak Partners

For the Periods Ending September 30, 2018

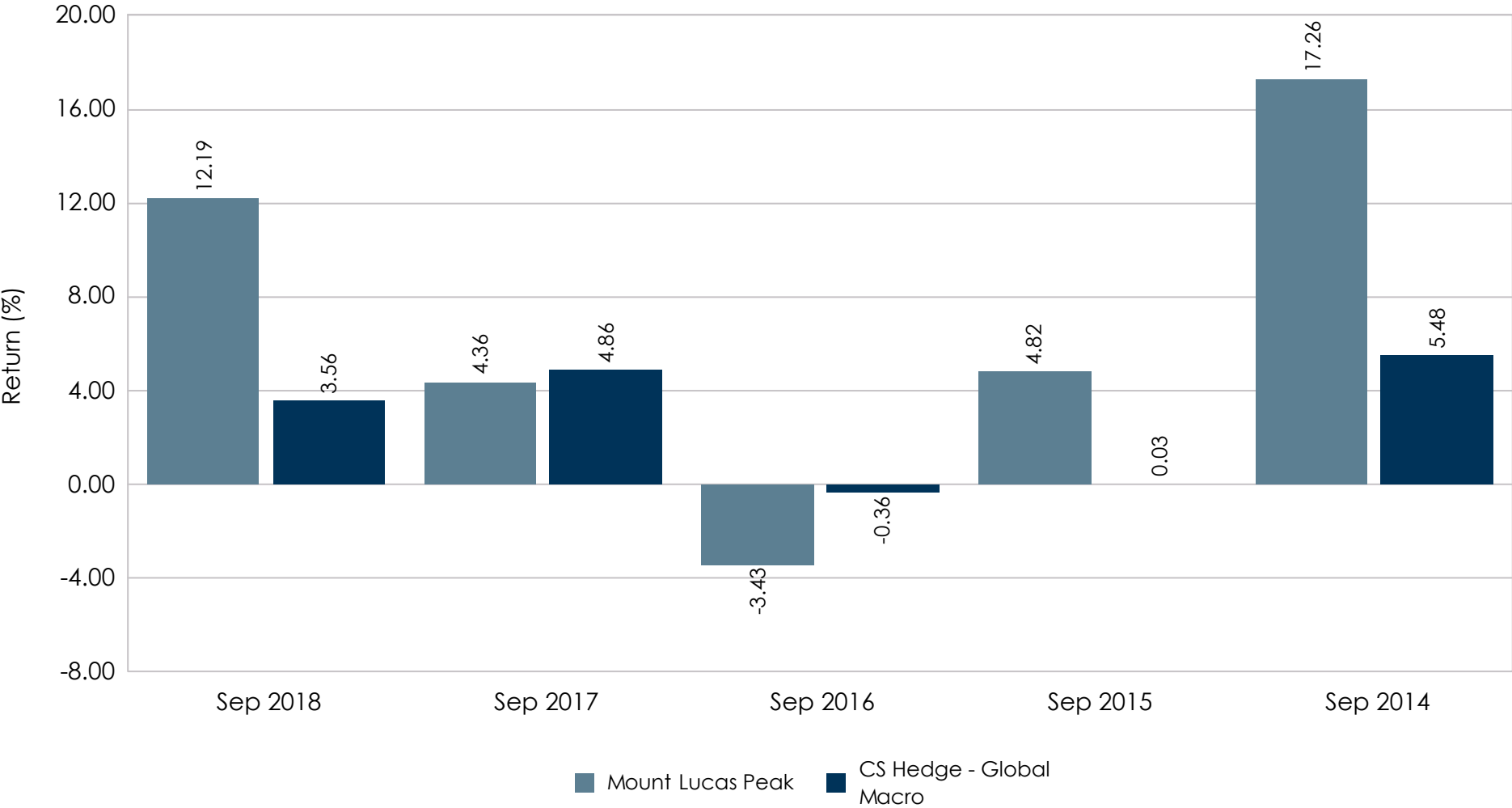
Account Description	Performance Goals
<ul style="list-style-type: none"><li>▪ <b>Strategy</b> Commodities</li><li>▪ <b>Vehicle</b> Non-Mutual Commingled</li><li>▪ <b>Benchmark</b> CS Hedge - Global Macro</li><li>▪ <b>Performance Inception Date</b> January 1998</li><li>▪ <b>Fees</b> 100 bps and an annual 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, 2018*



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



## Gresham Tap Fund

For the Periods Ending September 30, 2018

### Account Description

- **Strategy** Commodities
- **Vehicle** Non-Mutual Commingled
- **Benchmark** Bloomberg Commodity
- **Performance Inception Date** August 2014
- **Fees** 75 bps

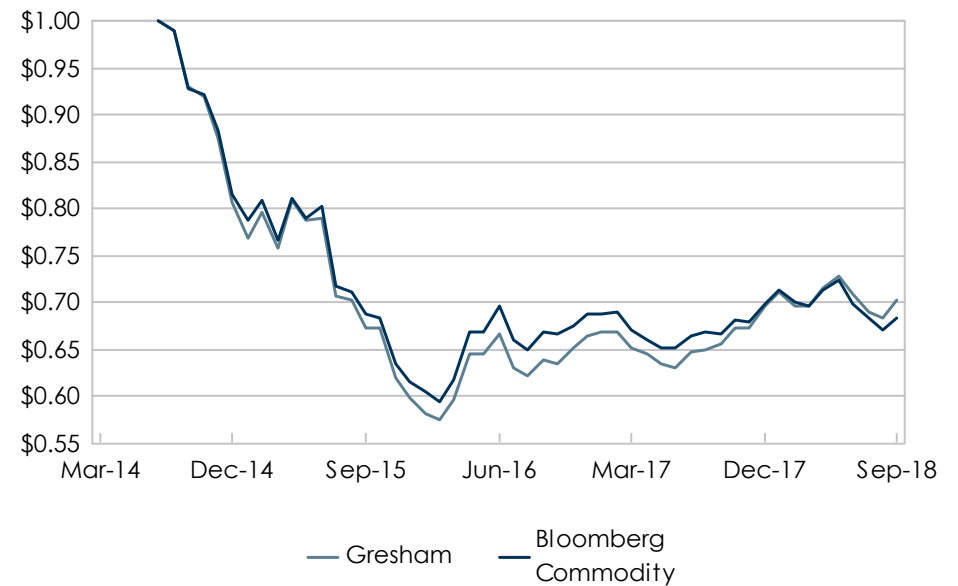
### Performance Goals

- Outperform the Bloomberg Commodity over a complete market cycle.

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

	FYTD	YTD
<b>Beginning Market Value</b>	<b>53,155</b>	<b>52,182</b>
Net Additions	0	0
Return on Investment	-449	524
<b>Ending Market Value</b>	<b>52,706</b>	<b>52,706</b>

### Growth of a Dollar





## Gresham TAP Fund

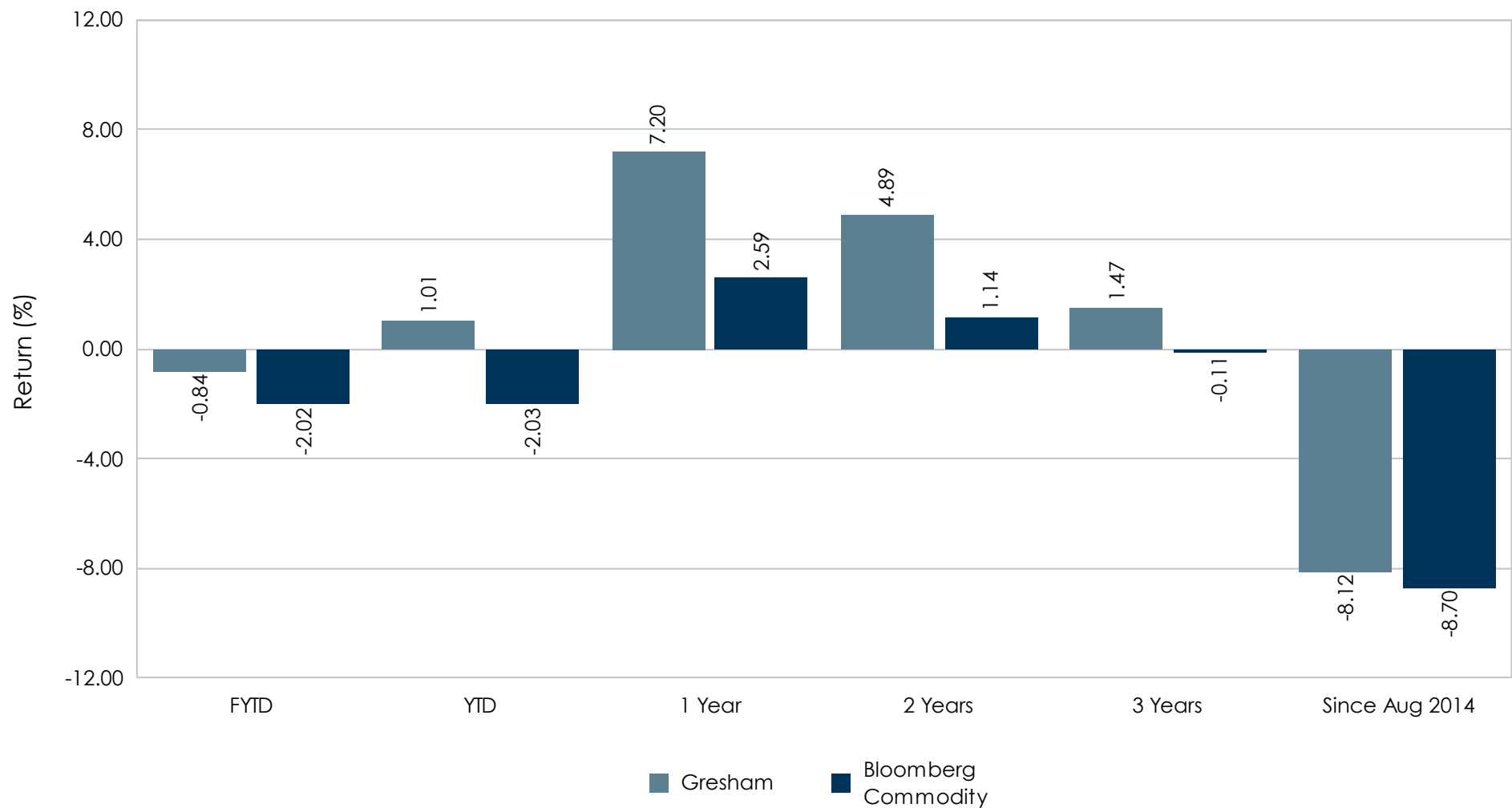
For the Periods Ending September 30, 2018

Attribution Analysis and Bloomberg Commodity Index Comparison										
	Period Ending Weights		QTD ROI %		ROI DIFF		YTD ROI %		ROI DIFF	
	TCBA	Bloomberg	TCBA	Bloomberg	Diff Est.	Wgtd <sup>1</sup>	TCBA	Bloomberg	Diff Est.	Wgtd <sup>1</sup>
<b>Agriculture</b>										
Corn	3.65%	6.27%	-4.32	-4.51	0.19	0.07	-7.65	-8.40	0.75	0.18
Soybean	4.56%	5.23%	-3.65	-3.92	0.27	0.01	-13.88	-15.75	1.87	0.19
Wheat (CBOT)	1.98%	3.88%	-1.42	-2.24	0.81	0.03	5.20	4.74	0.45	-0.07
Wheat (KC)	0.86%	1.54%	0.02	0.03	-0.01	-0.02	3.74	3.85	-0.11	-0.03
Wheat (MGE)	0.17%	--	3.84	--	3.84	0.01	-13.70	--	-13.70	-0.02
Soybean Meal	2.40%	2.94%	-5.26	-6.34	1.07	0.06	-1.81	-5.23	3.41	0.05
Soybean Oil	0.89%	2.38%	-2.55	-2.52	-0.03	0.00	-15.80	-16.16	0.35	0.21
<b>Group SubTotal</b>	<b>14.50%</b>	<b>22.25%</b>	<b>-3.56</b>	<b>-3.78</b>	<b>0.22</b>	<b>0.17</b>	<b>-7.76</b>	<b>-8.25</b>	<b>0.49</b>	<b>0.51</b>
<b>Energy</b>										
WTI Crude Oil	12.72%	8.80%	4.50	2.73	1.77	0.39	27.43	25.50	1.93	0.95
Brent Crude	12.23%	9.42%	4.63	5.21	-0.59	0.15	28.09	28.33	-0.25	0.70
Heating Oil	2.80%	4.25%	5.67	5.63	0.04	-0.10	18.04	15.37	2.67	-0.15
Gas Oil	3.67%	--	6.80	--	6.80	0.32	22.23	--	22.23	0.82
Natural Gas	6.66%	8.86%	0.63	2.31	-1.68	-0.21	0.53	-1.47	2.01	0.05
Unleaded Gas (RBOB)	4.21%	4.36%	5.19	4.92	0.27	0.02	15.25	13.02	2.23	0.08
<b>Group SubTotal</b>	<b>42.29%</b>	<b>35.69%</b>	<b>4.29</b>	<b>3.85</b>	<b>0.43</b>	<b>0.57</b>	<b>20.48</b>	<b>16.02</b>	<b>4.46</b>	<b>2.47</b>
<b>Industrial Metals</b>										
Aluminum	4.87%	4.27%	-3.44	-3.03	-0.41	-0.01	-9.78	-8.03	-1.75	-0.14
Copper (LME)	5.74%	--	-5.78	--	-5.78	-0.22	-14.65	--	-14.65	-0.79
Copper (NY)	2.02%	6.27%	-6.12	-6.14	0.02	0.16	-17.12	-17.19	0.06	0.74
Nickel	1.41%	2.79%	-16.02	-16.05	0.02	0.20	-2.79	-2.82	0.03	-0.01
Zinc	1.97%	2.46%	-7.57	-6.69	-0.88	0.00	-20.29	-19.36	-0.93	0.06
Lead	0.75%	--	-14.36	--	-14.36	-0.12	-17.14	--	-17.14	-0.14
<b>Group SubTotal</b>	<b>16.76%</b>	<b>15.80%</b>	<b>-6.74</b>	<b>-7.36</b>	<b>0.62</b>	<b>0.00</b>	<b>-13.44</b>	<b>-13.02</b>	<b>-0.42</b>	<b>-0.28</b>
<b>Livestock</b>										
Live Cattle	6.06%	4.33%	4.80	4.55	0.25	0.09	-0.04	-0.75	0.71	-0.10
Lean Hogs	1.89%	1.70%	0.60	-1.36	1.96	0.05	-11.20	-10.07	-1.13	0.02
Feeder Cattle	1.77%	--	4.66	--	4.66	0.11	5.62	--	5.62	0.12
<b>Group SubTotal</b>	<b>9.72%</b>	<b>6.03%</b>	<b>3.35</b>	<b>2.35</b>	<b>1.00</b>	<b>0.25</b>	<b>-2.36</b>	<b>-3.72</b>	<b>1.36</b>	<b>0.04</b>
<b>Precious Metals</b>										
Gold	8.19%	10.90%	-5.49	-5.49	0.00	0.08	-10.59	-10.60	0.01	0.20
Silver	2.02%	3.15%	-9.79	-9.75	-0.03	0.07	-16.05	-15.92	-0.13	0.13
Platinum	0.62%	--	3.46	--	3.46	0.03	2.26	--	2.26	0.03
Palladium	0.69%	--	13.10	--	13.10	0.09	2.37	--	2.37	0.04
<b>Group SubTotal</b>	<b>11.52%</b>	<b>14.05%</b>	<b>-5.07</b>	<b>-6.48</b>	<b>1.41</b>	<b>0.27</b>	<b>-10.41</b>	<b>-11.88</b>	<b>1.47</b>	<b>0.40</b>
<b>Softs</b>										
Cotton	1.49%	1.44%	-8.42	-9.00	0.58	0.00	0.58	-1.75	1.17	0.01
Sugar	1.67%	2.65%	-14.06	-14.50	0.44	0.13	-31.76	-32.53	0.77	0.33
White Sugar	0.20%	--	0.00	--	0.00	0.01	-8.41	--	-8.41	-0.01
Coffee	1.08%	2.10%	-13.39	-13.48	0.09	0.11	-25.08	-25.14	0.06	0.21
Coffee (Robusta)	0.32%	--	-7.26	--	-7.26	-0.02	-8.73	--	-8.73	-0.02
Cocoa	0.60%	--	-19.43	--	-19.43	-0.13	2.12	--	2.12	0.03
<b>Group SubTotal</b>	<b>5.37%</b>	<b>6.18%</b>	<b>-12.22</b>	<b>-12.97</b>	<b>0.75</b>	<b>0.11</b>	<b>-17.98</b>	<b>-23.88</b>	<b>5.91</b>	<b>0.55</b>
<b>Tilt Positions</b>										
MW/W	0.69%		0.03			0.03	-0.09			-0.09
HO/XB	0.00%		0.00			0.00	-0.01			-0.01
QW/SB	0.20%		-0.01			-0.01	-0.04			-0.04
<b>Group SubTotal</b>			<b>0.05</b>			<b>0.05</b>	<b>0.03</b>			<b>0.03</b>
<b>Gross Excess Return</b>	<b>100.00%</b>	<b>100.00%</b>	<b>-1.11</b>	<b>-2.53</b>		<b>1.41</b>	<b>0.35</b>	<b>-3.36</b>		<b>3.72</b>

Data provided by manager. Manager Footnotes: All returns are estimates. QTD ROI % and YTD ROI % columns show TAP and BCOM individual commodity returns. Abs' is the absolute difference in ROI between TAP and BCOM for each commodity. Est. Wgtd is the portfolio effect. Gross Excess Return is gross of fees and excludes collateral returns. All indicated TAP returns are net of commissions and gross of management fees. A client's return will be reduced by the advisory fees and other expenses that may be incurred in the management of an account. It is not possible to invest directly in an index. Figures in grey above, represent data on commodity contracts the portfolio holds that do not appear in the BCOM. Commodity and sector level returns exclude tilt, program, and intraday flow trade related P&L where applicable. <sup>1</sup> Est. Wgtd calculation does not fully reflect certain intra-month changes in the Fund or Bloomberg Commodity weightings. Accordingly, Est. Wgtd values may be materially different than those presented above.

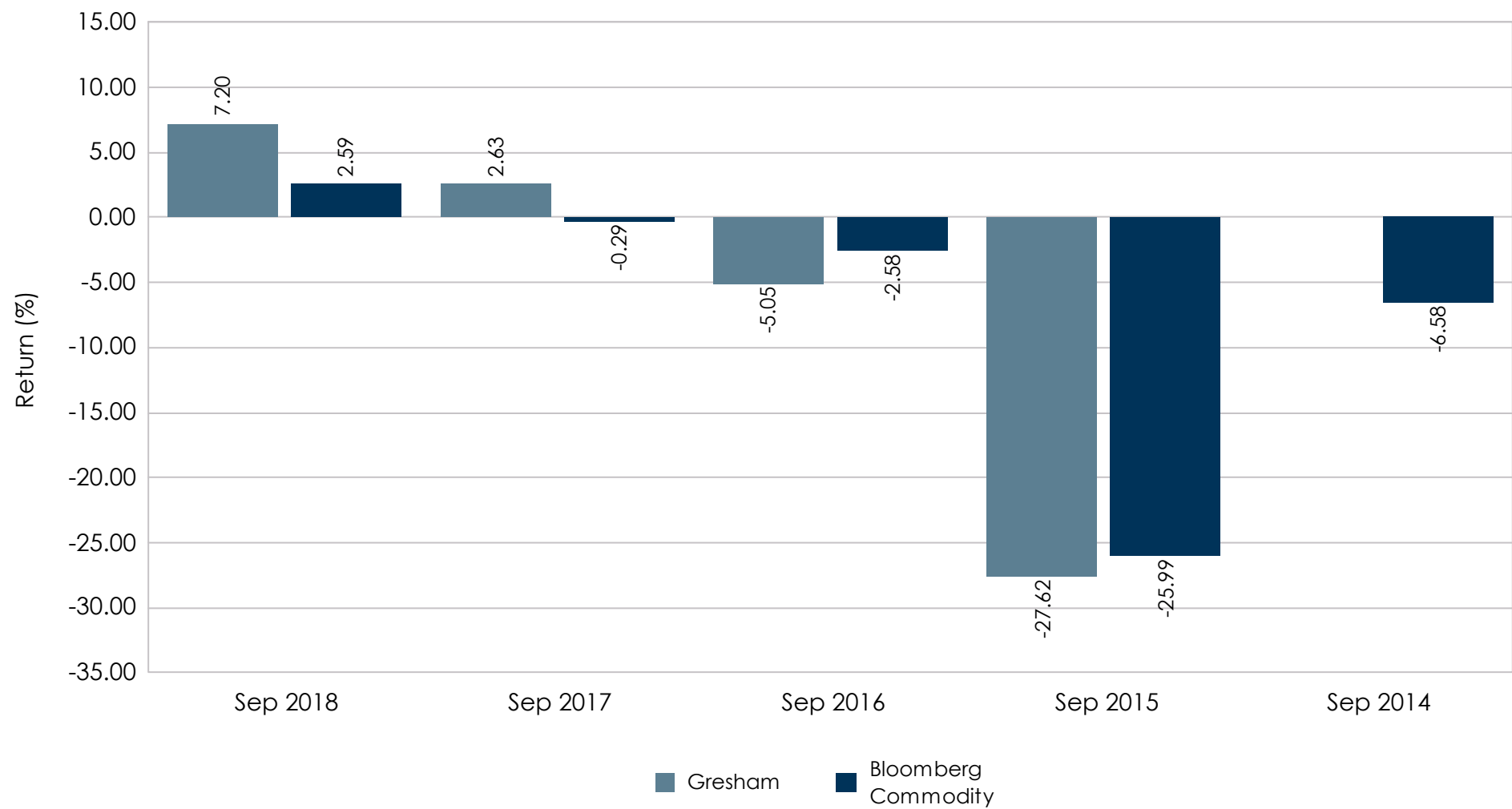
Gresham Tap Fund

For the Periods Ending September 30, 2018



Gresham Tap Fund

For the One Year Periods Ending September



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**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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