

**Oklahoma Police Pension & Retirement System**  
*Investment Performance Review*

*December 31, 2018*





*This year, we at Asset Consulting Group celebrate our 30th anniversary in business. As we reach this exciting milestone, it is important that we recognize and thank those who have been a critical part of our success - our clients. We are grateful for the opportunity and privilege to serve you, and we appreciate the trust and confidence you have shown us. We are in the relationship business - and it is the partnerships we cultivate that fulfill us most and that best define our success as an organization.*

*We look forward to continuing to grow our relationship with you, and we enter our next decade with much anticipation and excitement!*

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## **Market Overview**

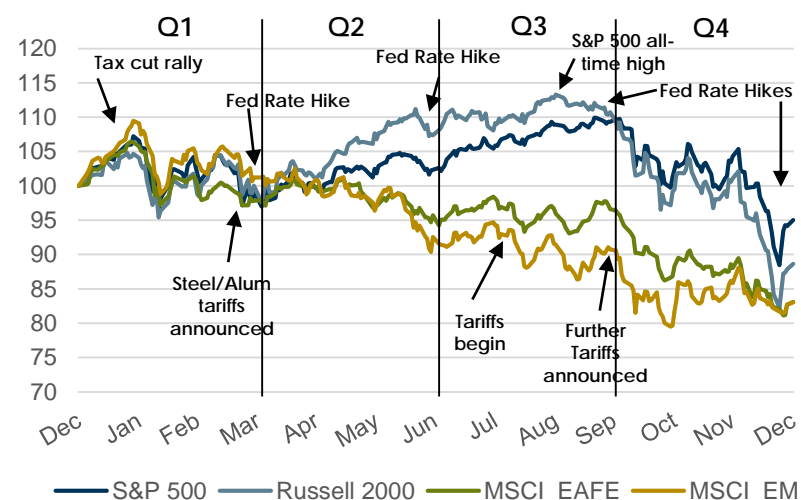
## Global Long-Only Equity

Equity markets retreated across 4Q-18, erasing prior 2018 Domestic Equity gains and further driving International market declines. Stocks earlier in the year benefited from a healthy economic backdrop strengthened by tax cuts, favorable repatriation dynamics, strong employment, and rising consumer sentiment. However, concerns over the pace of interest rate hikes, Brexit, inflation, and heightened valuations appeared strongly in the markets as we moved into 4Q-18, which sharply accelerated into December. Still, our conversations with managers suggest optimism in the economic outlook and many have viewed the correction as a buying opportunity.

Nearly all sectors declined in the quarter across US Small-to-Large Cap equities. Sectors that had previously posted the strongest returns and highest valuations retreated the most, highlighted within the high-growth sectors such as IT or Healthcare. US Small Caps experienced the most pain in the quarter moving into bear territory with a 20.2% drop in the Russell 2000 for the quarter, wiping out all previous gains for a -11% decline in 2018.

Developed markets, following a 1% drop in September, declined 13% in 4Q-18. All major developed countries contributed to the decline on concerns over global growth and Brexit. Emerging markets declined 7% in the quarter and posted a -14% decline for the full-year as trade issues continue to impact the space. China (-11%) and South Korea (-13%), in particular, continue to struggle, as Technology/Consumer names such as Tencent, Alibaba and Samsung were particularly weak.

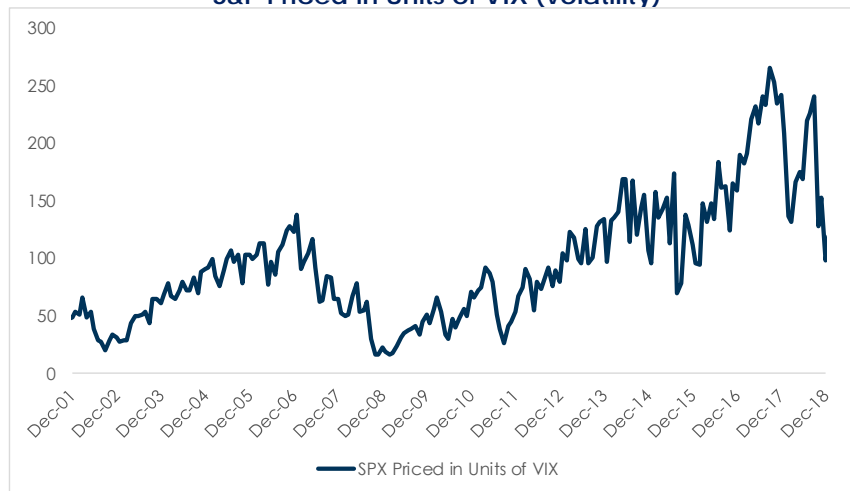
### 2018 Performance



Sources: Bloomberg, ACG Research

## Global Long/Short Equity

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



Sources: Bloomberg, ACG Research

Volatility made a dramatic return in 4Q-18 after the global indices had reached historic highs in September. Exposure typically decreases into year-end but the volatility triggered equity long short managers to reduce gross exposure to the lowest year-end level since 2011 (compared to the highest year-end gross in 2017). Often volatility is a positive factor for equity long/short managers as it can provide opportunities for managers to generate returns on both the long and the short side. During the recent extreme volatility, however, stocks within sectors moved together and did not create the dispersion between top and bottom companies that is necessary for strong equity long/short performance. Dispersion fell to the lowest level since 2008, reducing the opportunity set for equity long short managers.

Most equity long/short managers provided protection during the negative months in 2018 despite the reduced exposure. Equity long/short managers generally remain optimistic about the opportunity set and have a positive view on the economy. They believe companies are not trading on fundamentals (as evidenced by the lack of dispersion) and they are using the volatility to selectively add to names. The chart to the left shows the S&P priced in units of volatility has not been this low in three years.

Technology and Health Care remain key areas of interest as historically there has been a large amount of dispersion between winners and losers in these sectors. M&A activity has continued in these sectors as well, with large deals being announced despite the market disruption.



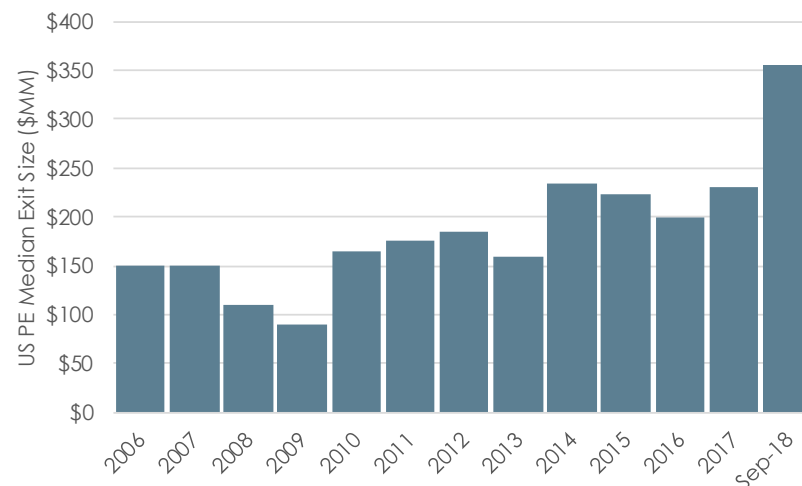
## Global Private Equity

Valuations remain high for new deals in private markets, reaching a new all-time high in 3Q-18. While the effects of public equity markets' weakness in 4Q-18 are not yet known, we will be watching closely to see how much of an impact lower public multiples have on private valuations. The **median acquisition price for a private equity-backed company purchased in 3Q-18 was 11.0x EBITDA**, up from 2017's previous high of 10.7x and well above the pre-crisis peak in 2007 of 9.7x. Rising interest rates combined with the possibility of slowing economic growth continue to pose risks to private equity-backed companies.

In 2018, private equity sponsors took advantage of market conditions to exit larger businesses with a **median exit size through 3Q-18 of \$354 million, well above the \$200-\$240 million range of the past five years**. This has been driven in part by greater appetite for large acquisitions by strategic purchasers, whose median PE-backed acquisition increased from \$150 million in 2017 to \$313 million in 2018.

**High purchase prices are likely to translate into lower returns for select vintages.** 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.

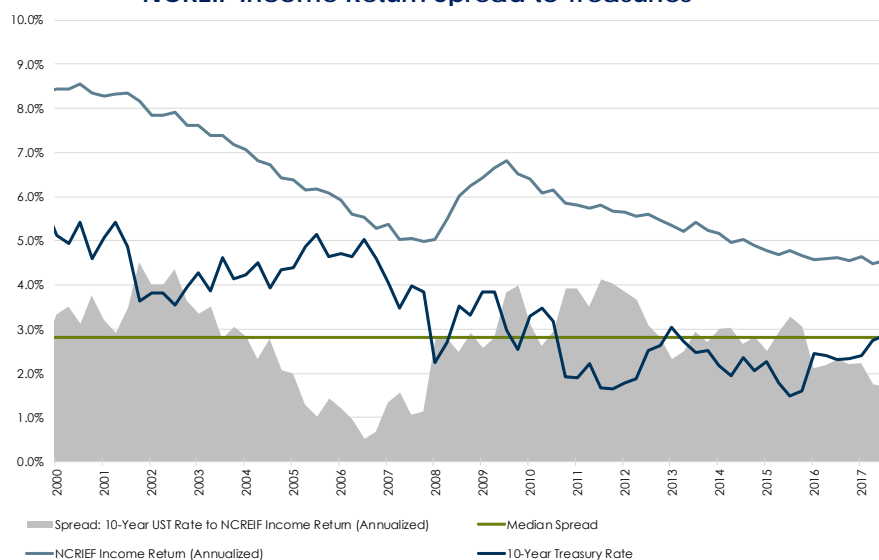
### PE Exits Grew Significantly Larger in 2018



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 35<sup>th</sup> consecutive quarter of positive appreciation in 4Q-18. This is 13 quarters longer than the second longest winning streak since the benchmark's inception in 1978. In 3Q-18, NCREIF annualized income returns (a proxy for cap rates) decreased 12 bps to end at 4.44%. **As interest rates continued to rise, the spread between NCREIF income returns and the 10-year US Treasury yield ended the quarter at 138 bps, tightening 32 bps and approximately 143 bps tighter than the median spread since 2000.**

Though there have been no significant impacts to real estate valuations so far, **more prolonged periods of higher interest rates could put upward pressure on cap rates and lower future 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, while industrial assets in key markets continue to enjoy above-trend appreciation. **Cap rates remain near their all-time lows, and while further cap rate compression is possible, core real estate funds focused on income may outperform those focused on generating appreciation in the intermediate term, particularly in the event of softness in real estate valuations.**

The Bloomberg Commodity Index (BCOM) fell -9.4% in 4Q-18, underperforming the Bloomberg Barclays US Aggregate Bond Index by 11.1% and outperforming the S&P 500 and MSCI ACWI by 4.1% and 3.3%, respectively. **Any signs of rising inflation may be positive for commodities broadly, though growing concerns regarding slowing global economic growth, the strength of the US dollar, and trade tensions may drive continued volatility in the near term.**

## Global Traditional Bond Markets

"It was the best of times, it was the worst of times" across the fixed income landscape in 4Q-18. As expected, the **Federal Reserve** increased short-term interest rates in December, to a targeted range of 2.25% to 2.50%. The tone of the **message was slightly more dovish than prior statements**, with the dot-plot now projecting only two more increases by the end of 2019. The rates market became quite skeptical of additional tightening amid market volatility, and **US Treasury yields crashed lower in the final weeks of the year**.

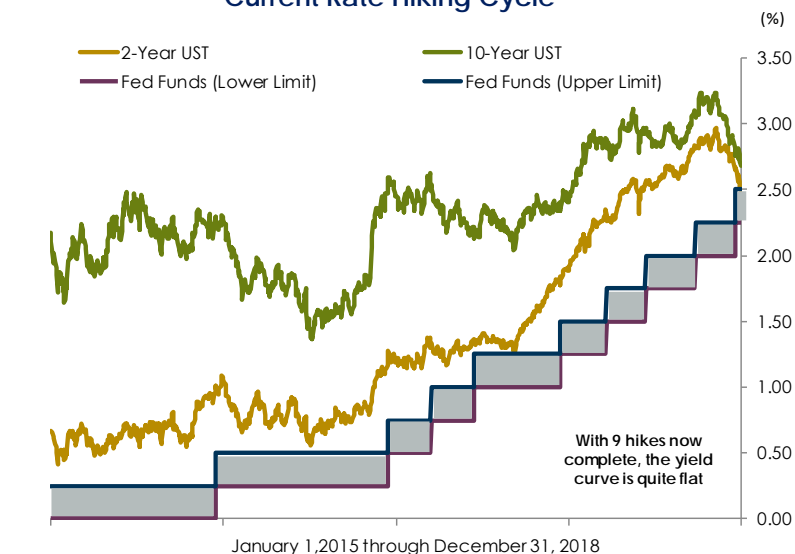
Having spent the entire year well underwater, the **BloomBar Aggregate** became a reliable safe-haven as equity volatility spiked. Full-year results ended at +0.01%, despite being **hindered by ~50 bps of spread widening in IG corporate credits during 4Q-18**. The tug-of-war between rates and spreads caused the benchmark's yield-to-worst to decline to 3.3%.

Coming off fresh 10-year lows, **High Yield** spreads widened by ~210 bps during 4Q-18. Energy-related, and CCC-rated issues were hardest hit by this pullback, which has taken **index-level yields to nearly 8.0%**. Floating-rate bank loans also suffered for the quarter.

**Municipal Bonds** were **solidly positive**, but lagged taxable counterparts as rates moved rapidly lower late in the period. The tax-exempt yield curve is notably steeper than that of US Treasuries, providing enhanced yield and better valuations for extended maturities.

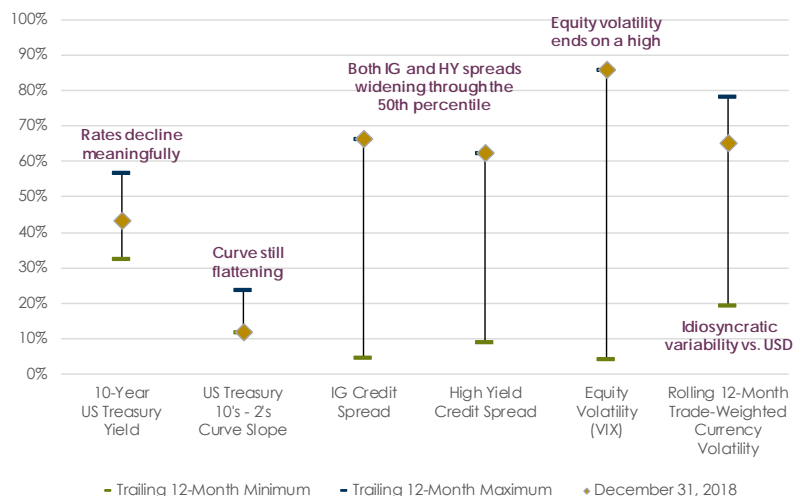
**Unhedged Global** government bonds outperformed as US dollar strength moderated and yields reacted to global growth concern. **Emerging Market** returns remained quite volatile.

### Current Rate Hiking Cycle



## Global Nontraditional Fixed Income

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



Sources: Bloomberg, ACG Research

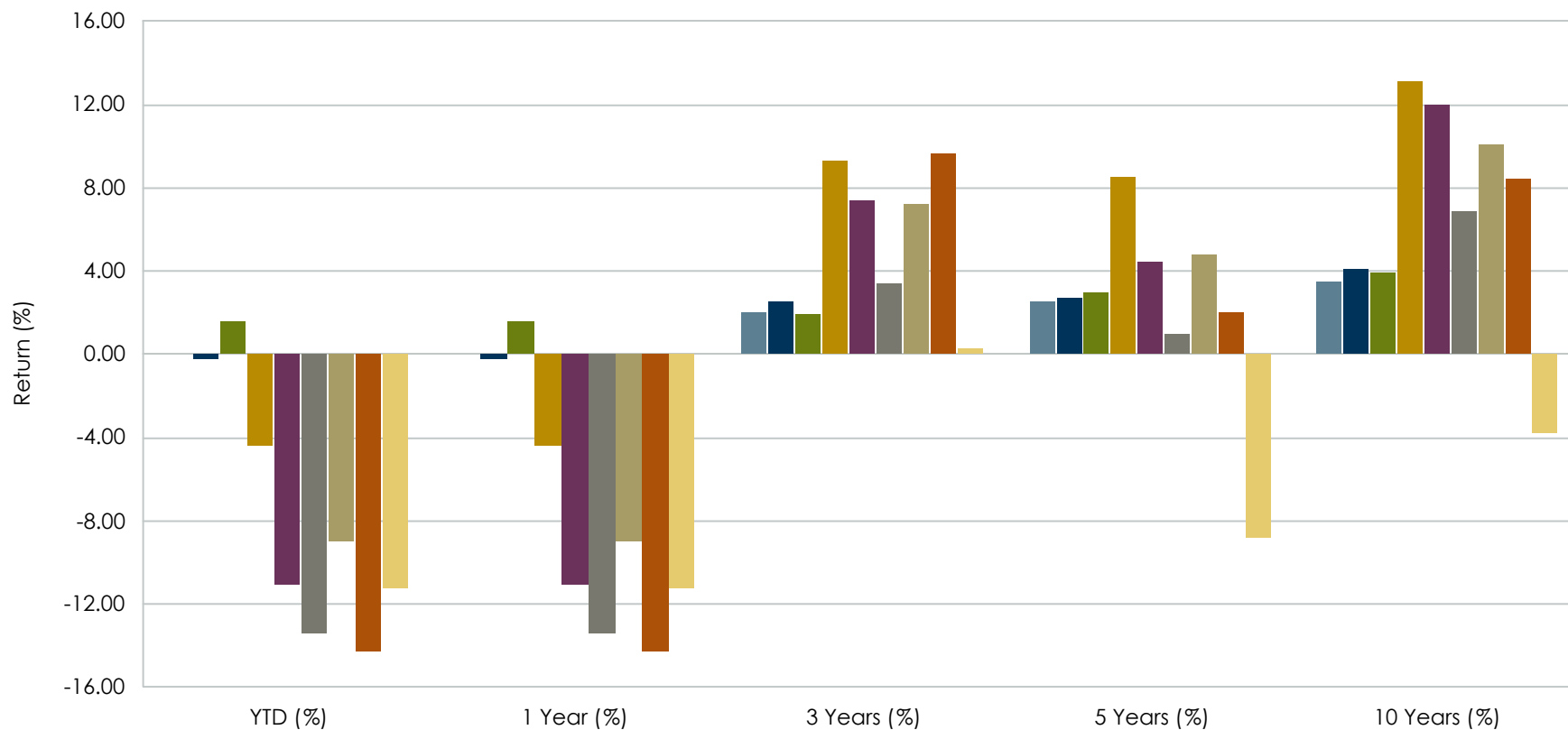
**Liquid Absolute Return** strategies produced disparate results in 4Q-18, with credit-heavy funds underperforming those now favoring more risk-off duration. Amid the rally in US Treasury yields, nothing in the category kept pace with traditional bond benchmarks. Still, **diversification of risk factors 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.

Widening credit spreads provided a 4Q-18 test for credit-focused absolute return managers. **Credit hedge funds** tend to run with little or no duration exposure and don't reap the benefit of flight-to-quality scenarios. However, they benefit from existing short positions and the potential for new relative value and distressed opportunities. **Some began to tactically reduce risk levels** prior to the November and December market declines, with others preferring to incrementally increase credit quality and liquidity. We continue to believe that credit hedge funds are **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. **4Q-18 saw a dramatic reversal in market dynamics for new issue levered loans**. By December, new issue loan volume fell precipitously, spreads widened, and loan documents were revised to include more creditor protections than had been seen earlier in the year. **Although default rates have remained low, these shifts in the market may indicate the beginnings of investor concern around the possibility of a coming distressed cycle**. Due to the high-leverage, covenant-lite loans issued over the last several years, recoveries may be worse as companies are allowed to operate longer without previously customary capital preservation requirements.

## Market Environment

For the Periods Ending December 31, 2018

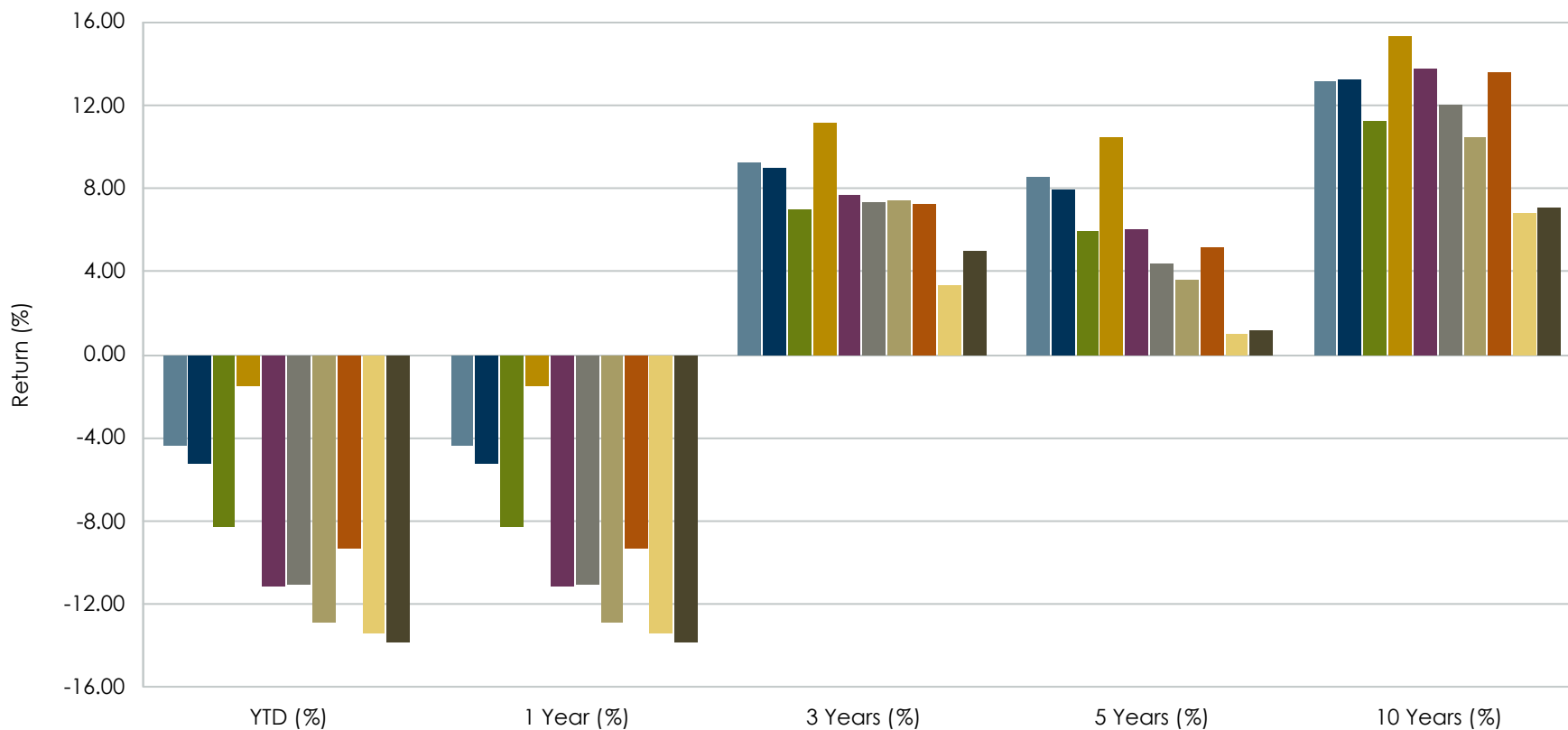


BloomBar US Aggregate	0.01
BloomBar Universal	-0.25
BloomBar 1-15 Yr Municipal	1.58
S&P 500	-4.38
Russell 2000	-11.01
MSCI EAFE	-13.36
MSCI ACWI	-8.93
MSCI Emerging Markets	-14.24
Bloomberg Commodity	-11.25

YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)
0.01	0.01	2.06	2.52	3.48
-0.25	-0.25	2.56	2.72	4.06
1.58	1.58	1.96	3.00	3.90
-4.38	-4.38	9.26	8.49	13.12
-11.01	-11.01	7.36	4.41	11.97
-13.36	-13.36	3.38	1.00	6.81
-8.93	-8.93	7.18	4.82	10.05
-14.24	-14.24	9.65	2.03	8.39
-11.25	-11.25	0.30	-8.80	-3.78

## Equity Index Returns

For the Periods Ending December 31, 2018

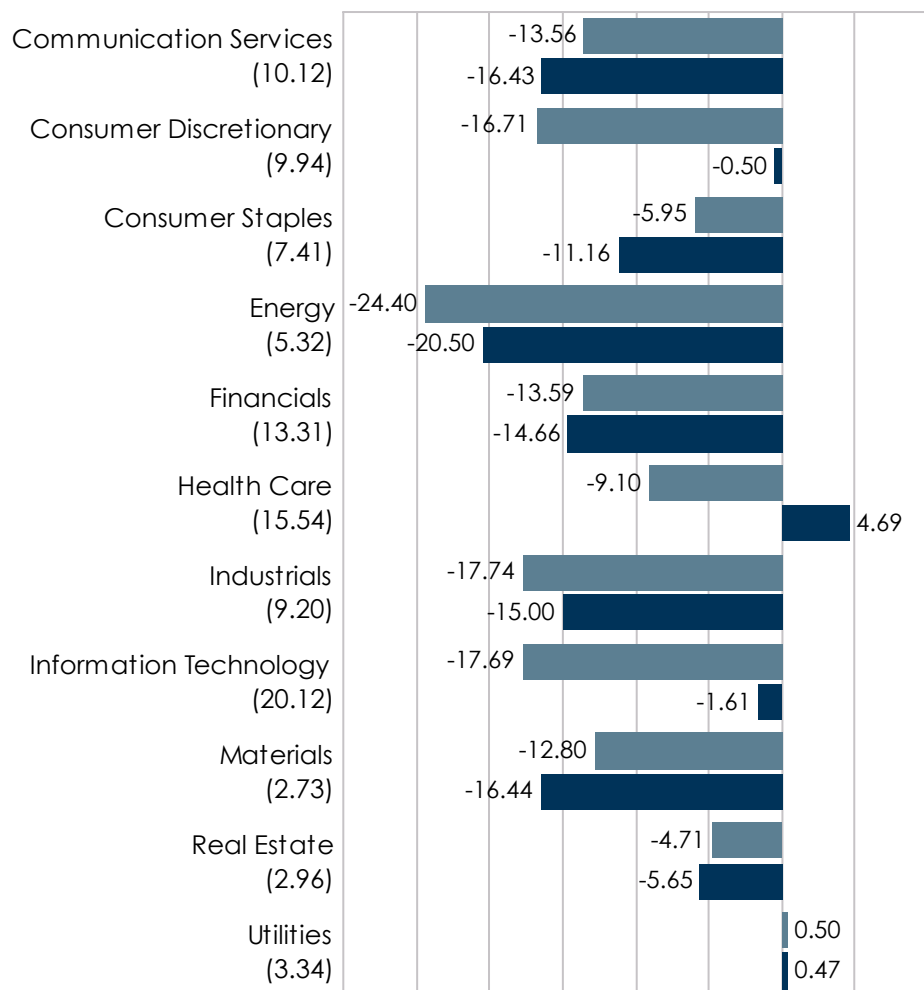


S&P 500	-4.38	-4.38	9.26	8.49	13.12
Russell 3000	-5.24	-5.24	8.97	7.91	13.18
Russell 1000 Value	-8.27	-8.27	6.95	5.95	11.18
Russell 1000 Growth	-1.51	-1.51	11.15	10.40	15.29
S&P Mid Cap 400	-11.08	-11.08	7.66	6.03	13.68
Russell 2000	-11.01	-11.01	7.36	4.41	11.97
Russell 2000 Value	-12.86	-12.86	7.37	3.61	10.40
Russell 2000 Growth	-9.31	-9.31	7.24	5.13	13.52
MSCI EAFE	-13.36	-13.36	3.38	1.00	6.81
MSCI ACWI ex US	-13.77	-13.77	4.98	1.14	7.06

## US Markets - Performance Breakdown

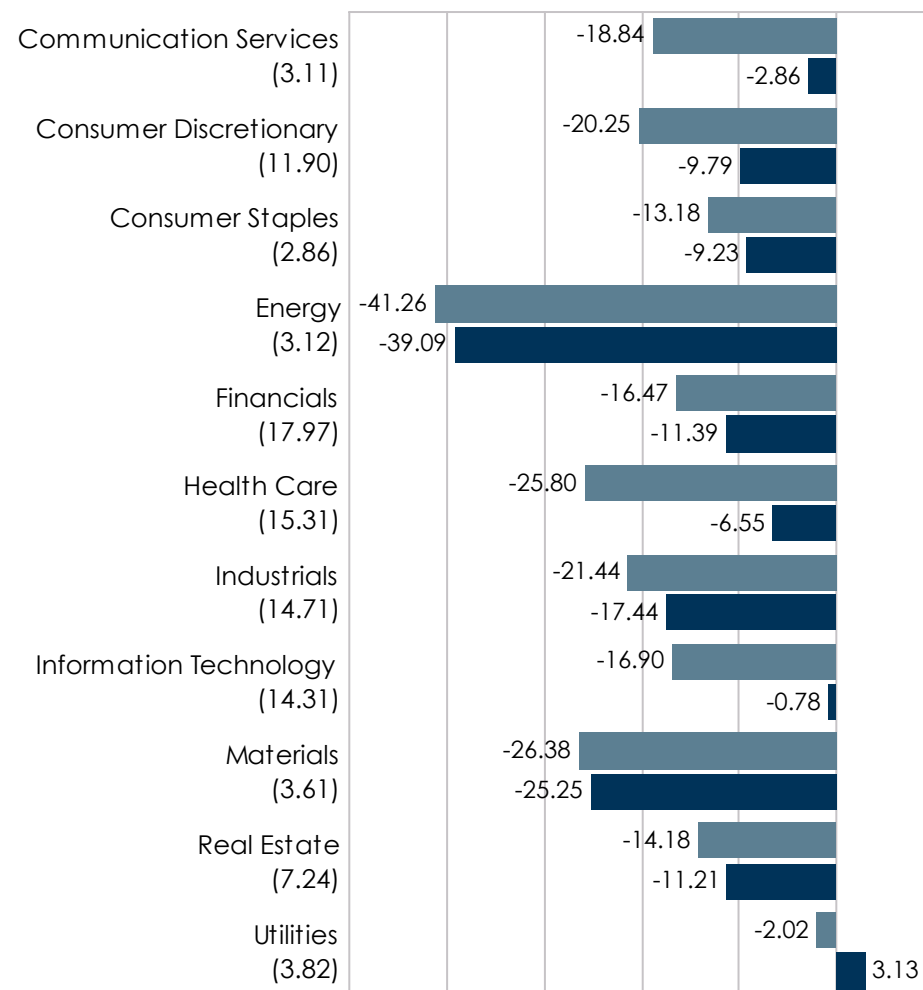
For the Periods Ending December 31, 2018

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



■ 3 Months ■ YTD

### Russell 2000 - Sector Returns (%)

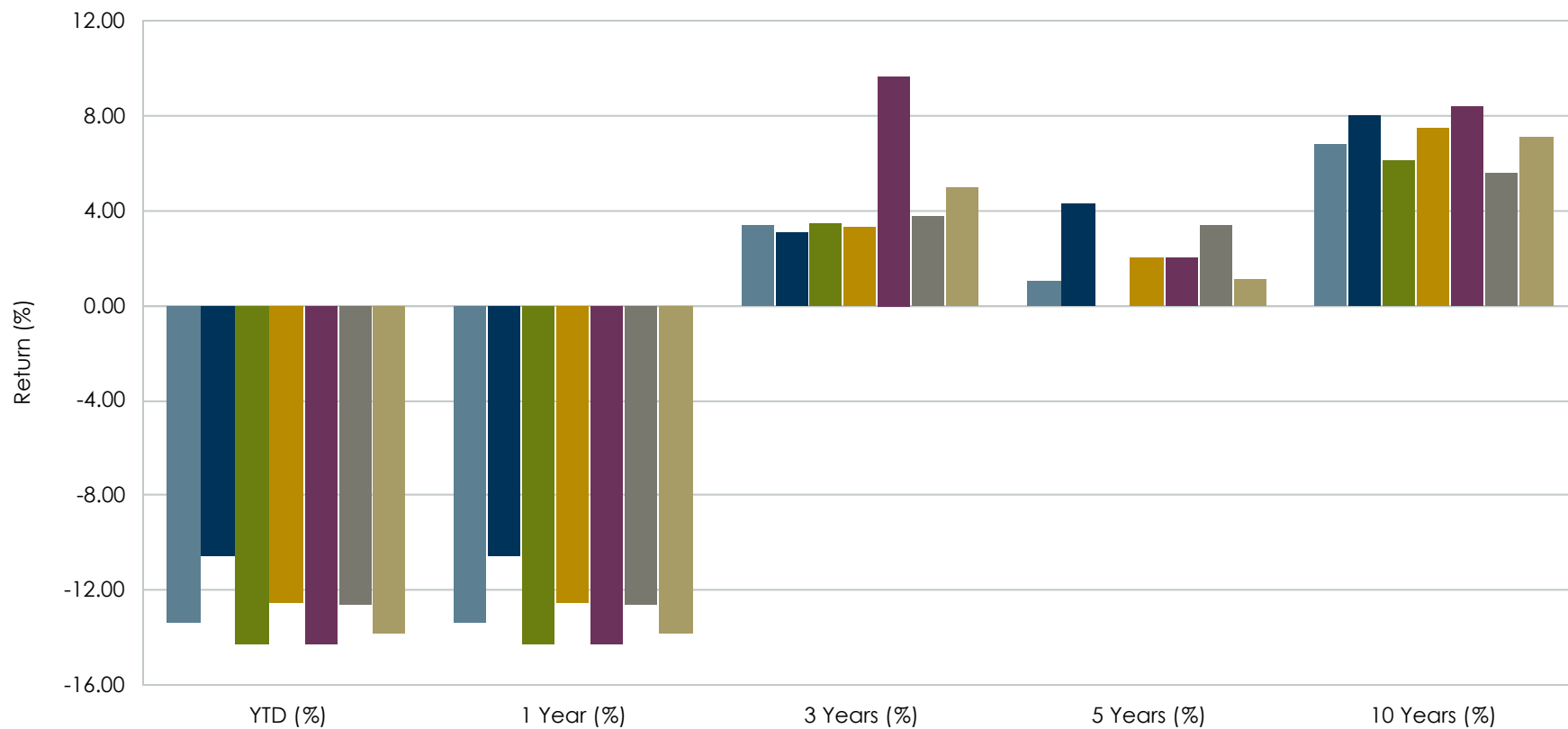


Numbers in parenthesis represent sector weightings of the index. Sector weights may not add to 100% due to rounding or securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Source: ACG Research, Bloomberg

## Non-US Equity Index Returns

For the Periods Ending December 31, 2018



MSCI EAFE	-13.36
MSCI EAFE Local Currency	-10.54
MSCI EAFE Value	-14.26
MSCI EAFE Growth	-12.48
MSCI Emerging Markets	-14.24
MSCI Japan	-12.58
MSCI ACWI ex US	-13.77

-13.36  
-10.54  
-14.26  
-12.48  
-14.24  
-12.58  
-13.77

-13.36  
-10.54  
-14.26  
-12.48  
-14.24  
-12.58  
-13.77

3.38  
3.12  
3.43  
3.28  
9.65  
3.76  
4.98

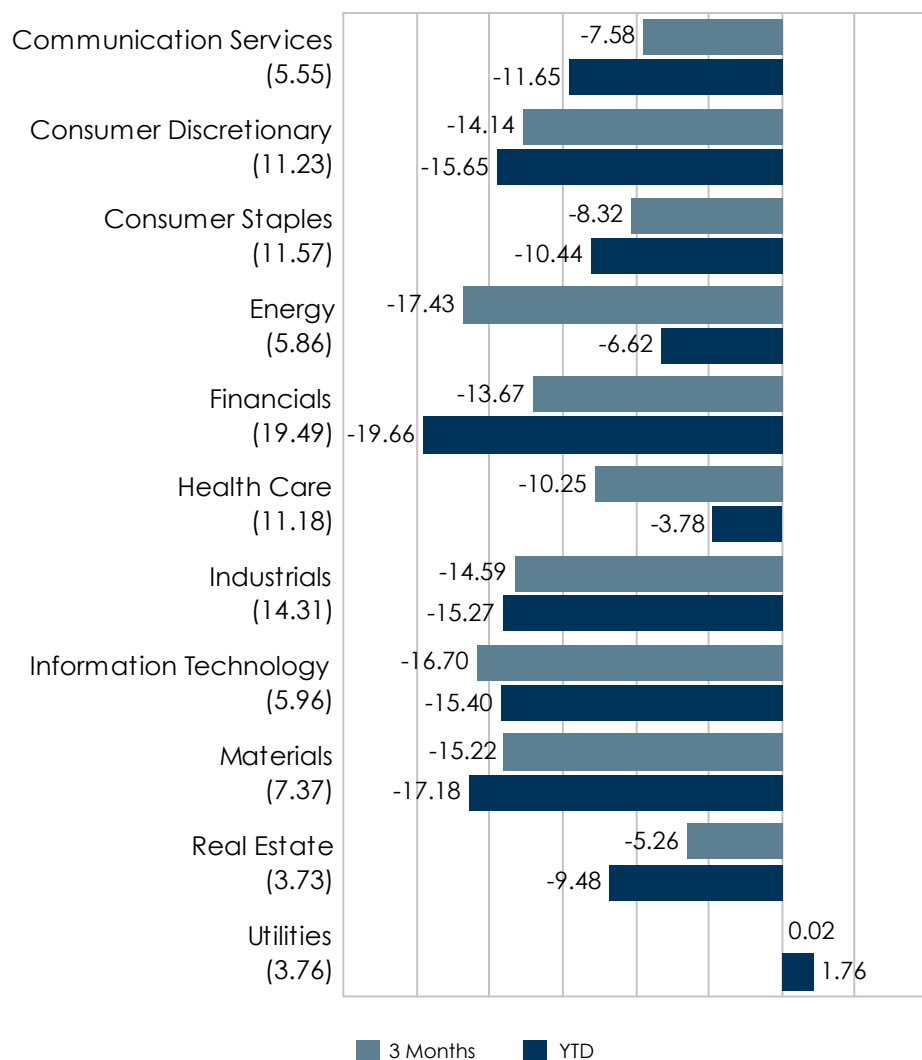
1.00  
4.29  
-0.06  
2.00  
2.03  
3.40  
1.14

6.81  
8.00  
6.10  
7.46  
8.39  
5.58  
7.06

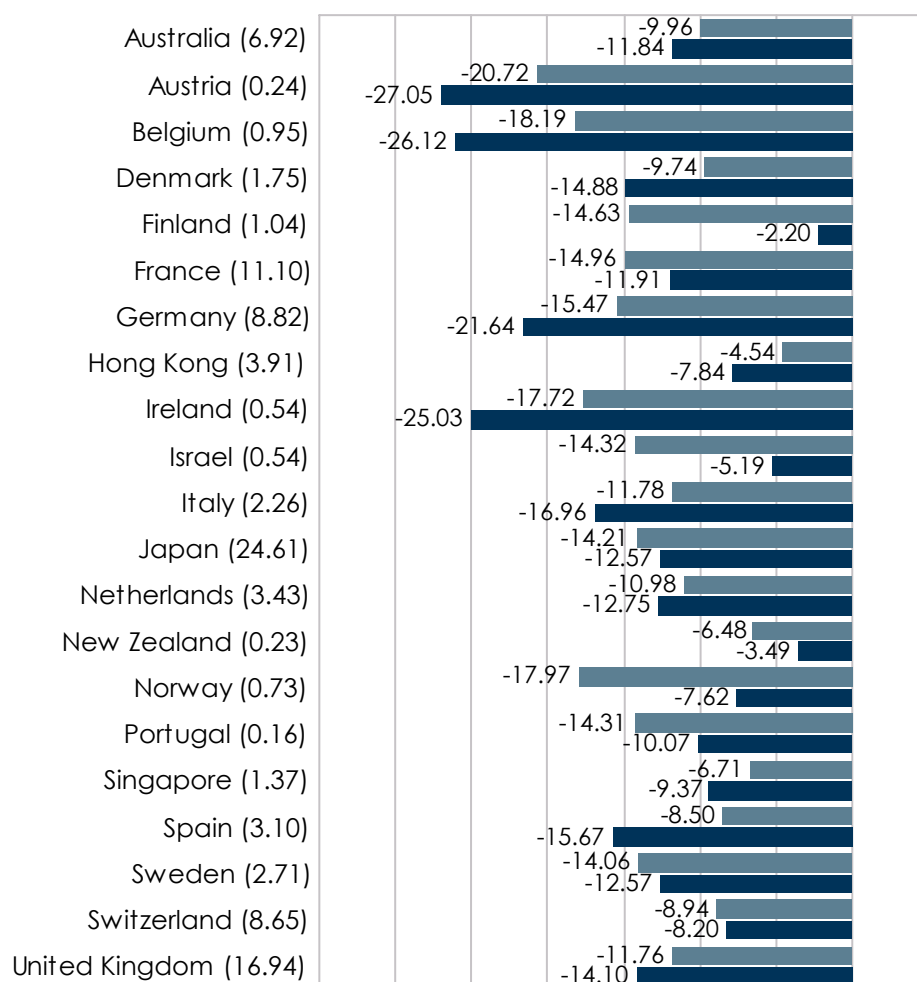
## Non-US Equity - Performance Breakdown

For the Periods Ending December 31, 2018

### MSCI EAFE - Sector Returns (%)



### MSCI EAFE - Country Returns (%)



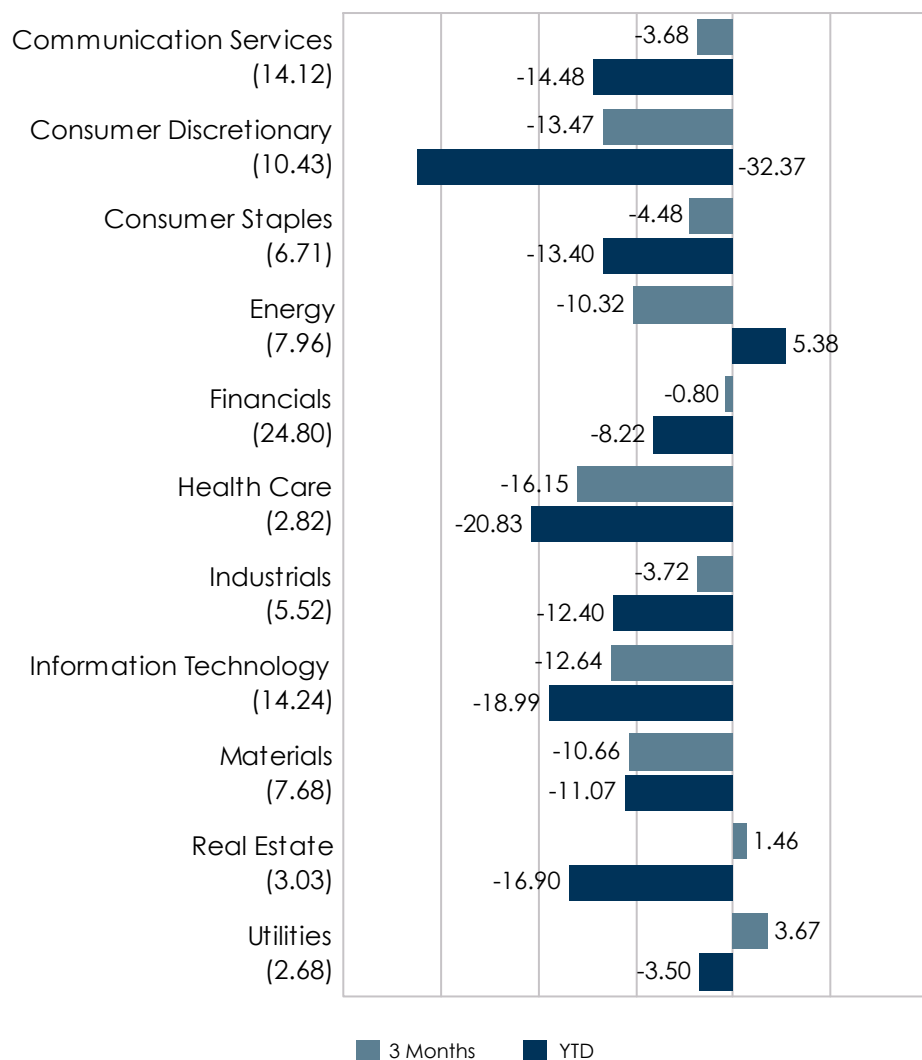
Numbers in parenthesis represent sector or country weights of the index. Sector or country weights may not add to 100% due to rounding.

Source: ACG Research, Bloomberg

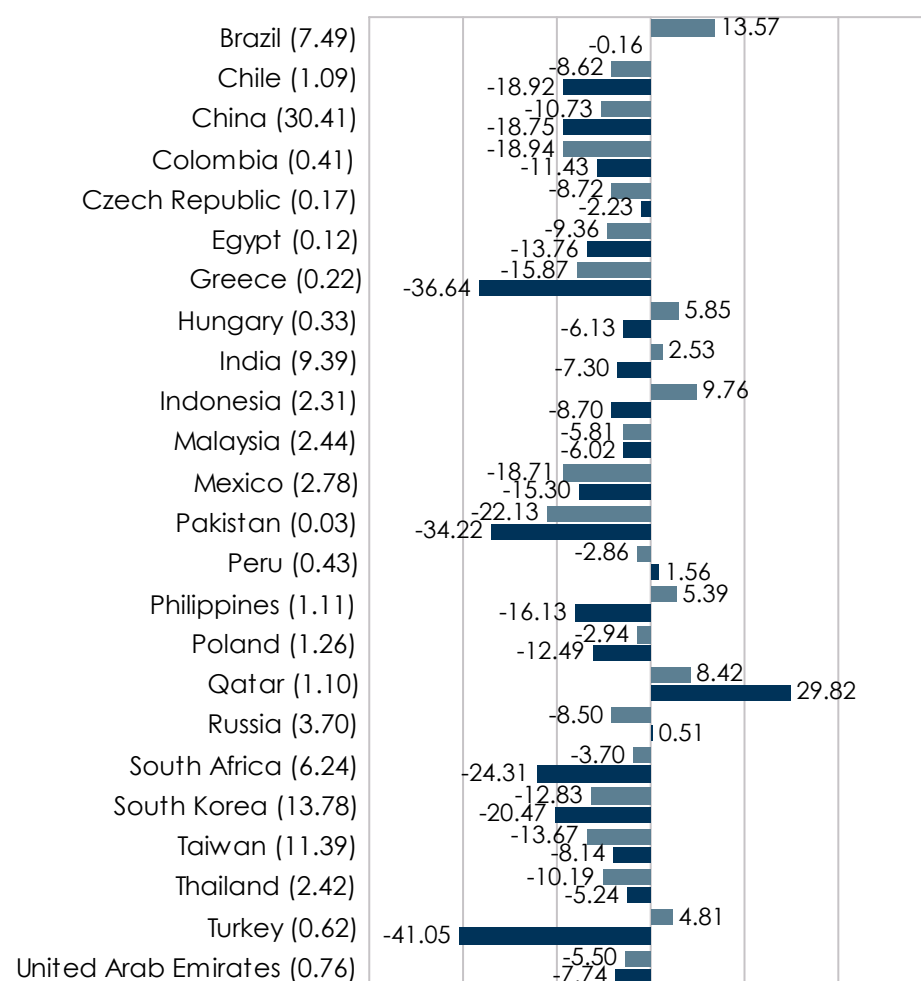
## Emerging Markets - Performance Breakdown

For the Periods Ending December 31, 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.

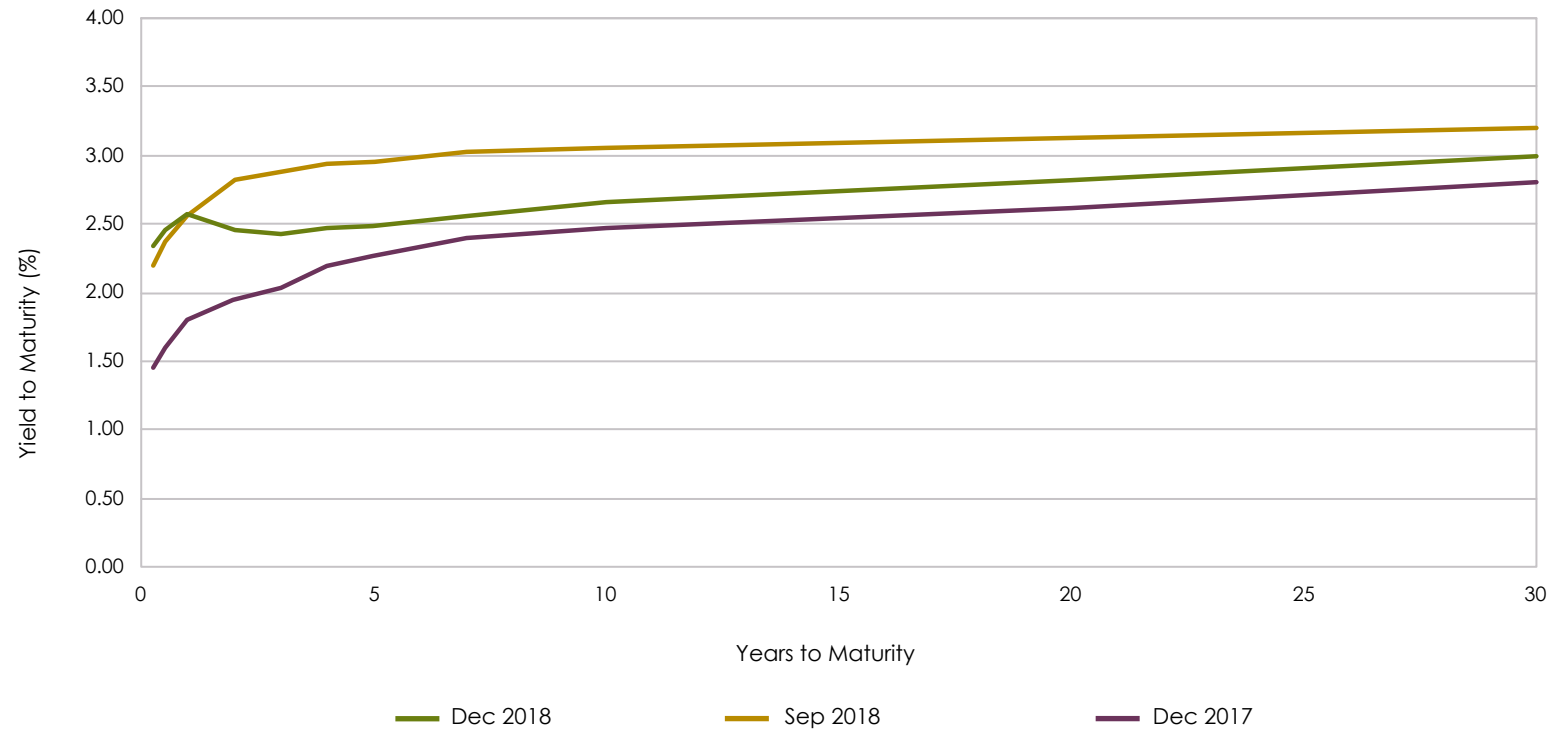
Source: ACG Research, Bloomberg

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## Interest Rate Term Structure

Government Issues - 3 Months to 30 Years Maturity

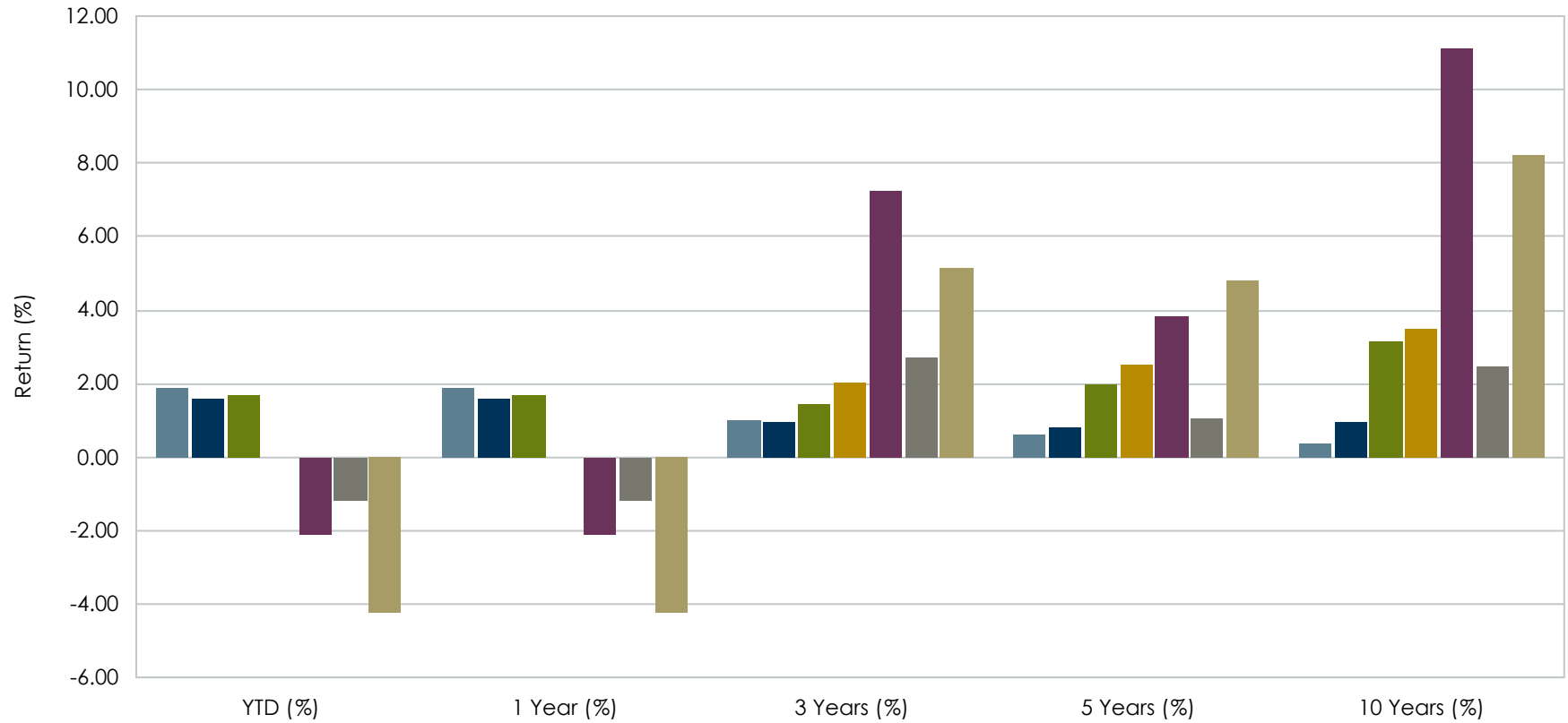


90 Days	2.36	2.20	1.38
180 Days	2.48	2.37	1.53
1 Year	2.60	2.57	1.74
2 Years	2.49	2.82	1.89
3 Years	2.45	2.88	1.97
4 Years	2.49	2.94	2.13
5 Years	2.51	2.95	2.21
7 Years	2.59	3.02	2.33
10 Years	2.69	3.06	2.41
20 Years	2.84	3.14	2.55
30 Years	3.02	3.21	2.74

Source: Bloomberg

## Fixed Income Index Returns

For the Periods Ending December 31, 2018



US T-Bills 90 Day	1.88
ICE BofA ML 1-3 Yr Treasury	1.59
BloomBar 5 Yr Municipal	1.69
BloomBar US Aggregate	0.01
BloomBar US Corp High Yield	-2.08
BloomBar Global Aggregate	-1.20
JPM EMBI Global Diversified	-4.26

1.88
1.59
1.69
0.01
-2.08
-1.20
-4.26

1.88
1.59
1.69
0.01
-2.08
-1.20
-4.26

1.02
0.96
1.47
2.06
7.23
2.70
5.15

0.63
0.81
2.00
2.52
3.83
1.08
4.80

0.38
0.95
3.13
3.48
11.12
2.49
8.20

## US Fixed Income Market Environment

For the Periods Ending December 31, 2018

### Nominal Returns By Sector (%)

	<u>3 Months</u>	<u>YTD</u>	<u>3 Years</u>	<u>5 Years</u>
US Aggregate	1.64	0.02	2.06	2.57
US Treasury	2.56	0.85	1.40	2.00
US Agg: Gov't-Related	1.23	0.28	2.38	2.56
US Corporate IG	-0.18	-2.52	3.25	3.28
MBS	2.08	0.99	1.72	2.53
CMBS	1.73	0.78	2.48	2.45
ABS	1.24	1.78	1.78	1.69
US Corp High Yield	-4.53	-2.08	7.24	3.84

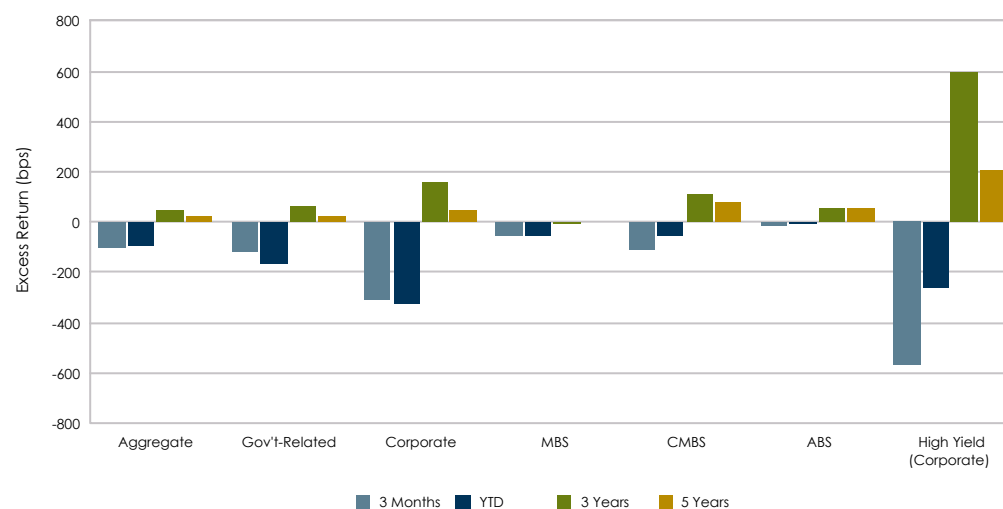
### Nominal Returns by Quality (%)

	<u>3 Months</u>	<u>YTD</u>	<u>3 Years</u>	<u>5 Years</u>
AAA	2.31	0.91	1.56	2.22
AA	1.32	0.07	2.46	2.88
A	0.35	-2.33	2.70	3.21
BAA	-0.90	-2.92	4.01	3.45
BA	-2.91	-2.41	5.70	4.26
B	-4.34	-1.31	6.78	3.31
CAA	-9.28	-3.84	11.75	3.94

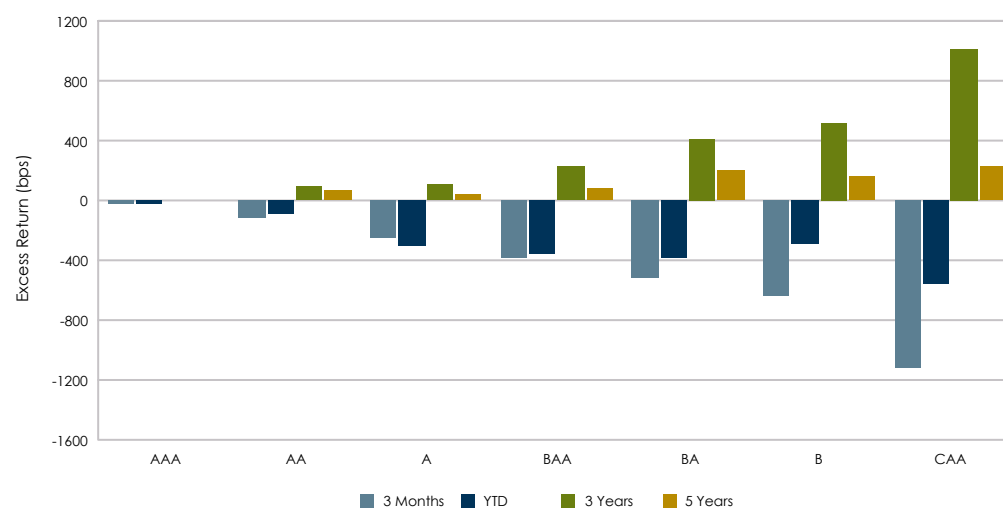
### Nominal Returns by Maturity (%)

	<u>3 Months</u>	<u>YTD</u>	<u>3 Years</u>	<u>5 Years</u>
1-3 Yr.	1.18	1.62	1.27	1.06
3-5 Yr.	1.84	1.15	1.64	1.86
5-7 Yr.	1.99	0.90	1.80	2.32
7-10 Yr.	2.08	0.15	2.00	3.09
10+ Yr.	0.90	-4.55	4.00	5.08

### 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 December 31, 2018

Index Name	3 Months (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	-13.52	-4.38	-4.38	9.26	8.49	12.70	13.12
Russell 1000	-13.82	-4.78	-4.78	9.09	8.21	12.63	13.28
Russell 1000 Growth	-15.89	-1.51	-1.51	11.15	10.40	14.14	15.29
Russell 1000 Value	-11.72	-8.27	-8.27	6.95	5.95	11.02	11.18
Russell 2500	-18.49	-10.00	-10.00	7.32	5.15	10.97	13.15
Russell 2000	-20.20	-11.01	-11.01	7.36	4.41	10.44	11.97
Russell 2000 Growth	-21.65	-9.31	-9.31	7.24	5.13	11.25	13.52
Russell 2000 Value	-18.67	-12.86	-12.86	7.37	3.61	9.57	10.40
Wilshire 5000 Cap Wtd	-14.29	-5.27	-5.27	9.12	8.07	12.47	13.20
MSCI ACWI	-12.65	-8.93	-8.93	7.18	4.82	8.97	10.05
MSCI ACWI ex US	-11.40	-13.77	-13.77	4.98	1.14	5.33	7.06
MSCI EAFE	-12.50	-13.36	-13.36	3.38	1.00	6.24	6.81
MSCI EAFE Local Currency	-12.16	-10.54	-10.54	3.12	4.29	9.22	8.00
MSCI EAFE Growth	-13.30	-12.48	-12.48	3.28	2.00	6.87	7.46
MSCI EAFE Value	-11.65	-14.26	-14.26	3.43	-0.06	5.55	6.10
MSCI Emerging Markets	-7.39	-14.24	-14.24	9.65	2.03	3.61	8.39
<b>Fixed Income</b>							
ICE BofA ML 1-3 Yr Treasury	1.30	1.59	1.59	0.96	0.81	0.69	0.95
BloomBar 5 Yr Municipal	1.58	1.69	1.69	1.47	2.00	1.97	3.13
BloomBar US Aggregate	1.64	0.01	0.01	2.06	2.52	2.10	3.48
BloomBar Gov't Bond	2.54	0.88	0.88	1.41	1.99	1.33	2.12
BloomBar US Credit	0.01	-2.11	-2.11	3.16	3.22	3.30	5.52
BloomBar 10 Yr Municipal	2.09	1.41	1.41	2.34	3.87	3.24	4.85
BloomBar US Corp High Yield	-4.53	-2.08	-2.08	7.23	3.83	5.98	11.12
FTSE World Govt Bond	1.75	-0.84	-0.84	2.69	0.77	0.20	1.52
BloomBar Global Aggregate	1.20	-1.20	-1.20	2.70	1.08	1.00	2.49
BloomBar Multiverse	1.02	-1.36	-1.36	2.99	1.20	1.22	2.77
JPM EMBI Global Diversified	-1.26	-4.26	-4.26	5.15	4.80	4.99	8.20
<b>Real Assets</b>							
NCREIF Property	1.37	6.71	6.71	7.22	9.33	9.74	7.49
NFI ODCE Net	1.53	7.38	7.38	7.27	9.41	9.96	6.01
FTSE NAREIT US Real Estate	-6.73	-4.62	-4.62	2.89	7.90	8.49	12.12
Bloomberg Commodity	-9.41	-11.25	-11.25	0.30	-8.80	-7.84	-3.78
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.57	1.88	1.88	1.02	0.63	0.47	0.38

## Monthly Index Returns

For the Periods Ending January 31, 2019

Index Name	1 Month (%)	YTD (%)	1 Year (%)	3 Years (%)	5 Years (%)	7 Years (%)	10 Years (%)
<b>Equity</b>							
S&P 500	8.01	8.01	-2.31	14.02	10.96	13.23	15.00
Russell 1000	8.38	8.38	-2.17	14.14	10.68	13.16	15.17
Russell 1000 Growth	8.99	8.99	0.24	16.60	12.97	14.60	16.86
Russell 1000 Value	7.78	7.78	-4.81	11.62	8.33	11.62	13.39
Russell 2500	11.51	11.51	-2.61	14.42	7.96	11.68	15.47
Russell 2000	11.25	11.25	-3.52	14.71	7.26	11.05	14.51
Russell 2000 Growth	11.55	11.55	-2.63	15.55	7.83	11.84	15.68
Russell 2000 Value	10.94	10.94	-4.51	13.76	6.62	10.19	13.28
Wilshire 5000 Cap Wtd	8.65	8.65	-2.20	14.30	10.59	13.03	15.12
MSCI ACWI	7.93	7.93	-6.98	12.24	7.30	9.27	11.88
MSCI ACWI ex US	7.57	7.57	-12.14	10.12	3.59	5.44	8.84
MSCI EAFE	6.59	6.59	-12.07	8.27	3.14	6.42	8.61
MSCI EAFE Local Currency	5.47	5.47	-6.77	7.09	6.13	9.45	9.28
MSCI EAFE Growth	6.47	6.47	-10.95	7.80	4.24	7.01	9.11
MSCI EAFE Value	6.70	6.70	-13.20	8.72	1.98	5.76	8.06
MSCI Emerging Markets	8.76	8.76	-13.90	15.32	5.15	3.26	10.03
<b>Fixed Income</b>							
ICE BofA ML 1-3 Yr Treasury	0.27	0.27	2.15	0.85	0.83	0.71	1.01
BloomBar Municipal	0.76	0.76	3.26	2.15	3.57	3.07	4.55
BloomBar US Aggregate	1.06	1.06	2.25	1.95	2.44	2.12	3.68
BloomBar Gov't Bond	0.47	0.47	2.72	0.87	1.82	1.33	2.43
BloomBar US Credit	2.16	2.16	0.94	3.72	3.31	3.31	5.75
BloomBar 10 Yr Municipal	1.09	1.09	4.11	2.20	3.71	3.15	4.48
BloomBar US Corp High Yield	4.52	4.52	1.73	9.41	4.61	6.20	10.97
FTSE World Govt Bond	1.41	1.41	-1.07	2.71	0.79	0.19	2.12
BloomBar Global Aggregate	1.52	1.52	-0.88	2.92	1.17	0.98	2.98
BloomBar Multiverse	1.68	1.68	-0.92	3.31	1.34	1.21	3.26
<b>Real Assets</b>							
Bloomberg Commodity	5.45	5.45	-8.23	2.66	-7.88	-7.46	-2.74
<b>Cash and Equivalents</b>							
US T-Bills 90 Day	0.20	0.20	1.95	1.08	0.67	0.50	0.40

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**Total Portfolio Summary**

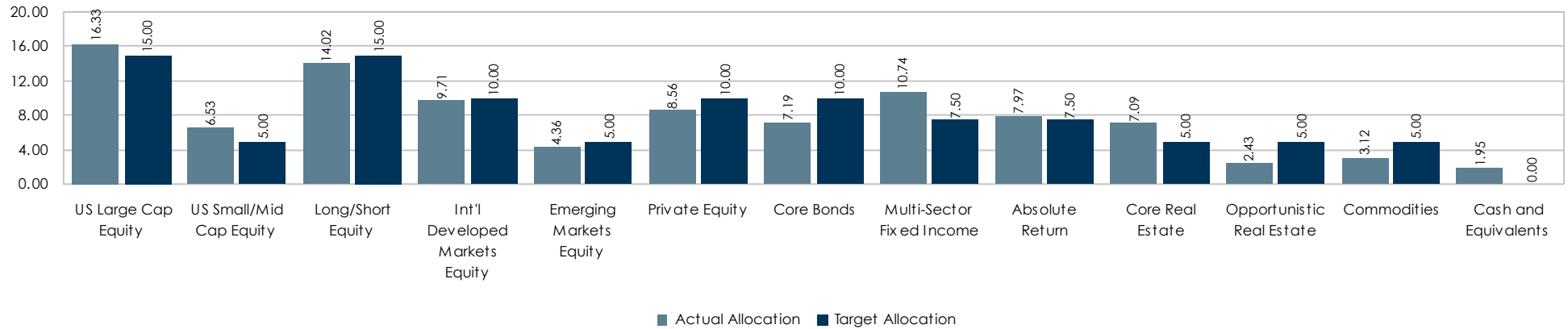
**Total Portfolio**  
**Dollar Reconciliation (\$000s)**  
*For the Periods Ending December 31, 2018*

	3 Months	FYTD	1 Year	5 Years
<b>Beginning Market Value</b>	<b>2,602,696</b>	<b>2,539,695</b>	<b>2,508,222</b>	<b>2,138,536</b>
Net Additions	-17,482	-27,644	-50,498	-271,542
Return on Investment	-186,833	-113,669	-59,343	531,387
<b>Ending Market Value</b>	<b>2,398,381</b>	<b>2,398,381</b>	<b>2,398,381</b>	<b>2,398,381</b>



## Total Portfolio

For the Period Ending December 31, 2018

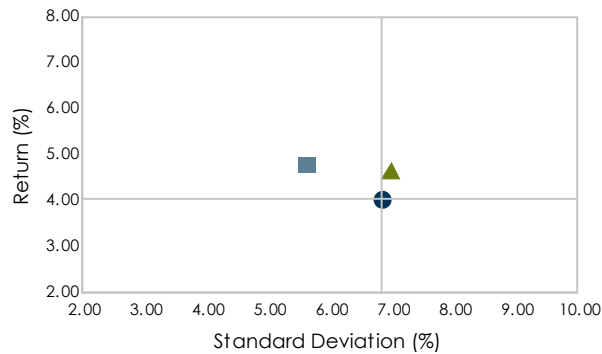


	Market Value (\$000s)	Actual Allocation (%)	Target Allocation (%)	Over/Under Target (%)	Range Min-Max (%)
<b>Total Portfolio</b>	<b>2,398,381</b>	<b>100.00</b>	<b>100.00</b>		
<b>Equity</b>	<b>1,427,305</b>	<b>59.51</b>	<b>60.00</b>	<b>-0.49</b>	<b>50.00 - 70.00</b>
US Large Cap Equity	391,678	16.33	15.00	1.33	10.00 - 20.00
US Small/Mid Cap Equity	156,628	6.53	5.00	1.53	0.00 - 15.00
Long/Short Equity	336,135	14.02	15.00	-0.98	10.00 - 20.00
Int'l Developed Markets Equity	232,927	9.71	10.00	-0.29	5.00 - 15.00
Emerging Markets Equity	104,650	4.36	5.00	-0.64	0.00 - 10.00
Private Equity	205,287	8.56	10.00	-1.44	5.00 - 15.00
<b>Fixed Income</b>	<b>620,960</b>	<b>25.89</b>	<b>25.00</b>	<b>0.89</b>	<b>15.00 - 35.00</b>
Core Bonds	172,421	7.19	10.00	-2.81	7.50 - 20.00
Multi-Sector Fixed Income	257,470	10.74	7.50	3.24	5.00 - 10.00
Absolute Return	191,068	7.97	7.50	0.47	5.00 - 10.00
<b>Real Assets</b>	<b>303,320</b>	<b>12.65</b>	<b>15.00</b>	<b>-2.35</b>	<b>0.00 - 20.00</b>
Core Real Estate	170,080	7.09	5.00	2.09	0.00 - 10.00
Opportunistic Real Estate	58,367	2.43	5.00	-2.57	0.00 - 10.00
Commodities	74,872	3.12	5.00	-1.88	0.00 - 10.00
<b>Cash and Equivalents</b>	<b>46,796</b>	<b>1.95</b>	<b>0.00</b>	<b>1.95</b>	

## Total Portfolio

For the Periods Ending December 31, 2018

### 5 Year Risk / Return



### 5 Year Relative Statistics

#### Total Fund Policy

Beta	0.79
Up Capture (%)	86.23
Down Capture (%)	72.70

### 3 Months

Total Portfolio	-7.19	5	--	--
Total Fund Policy	-7.71		--	--
IF TF Between 55 - 70% Equity	-8.59		--	--

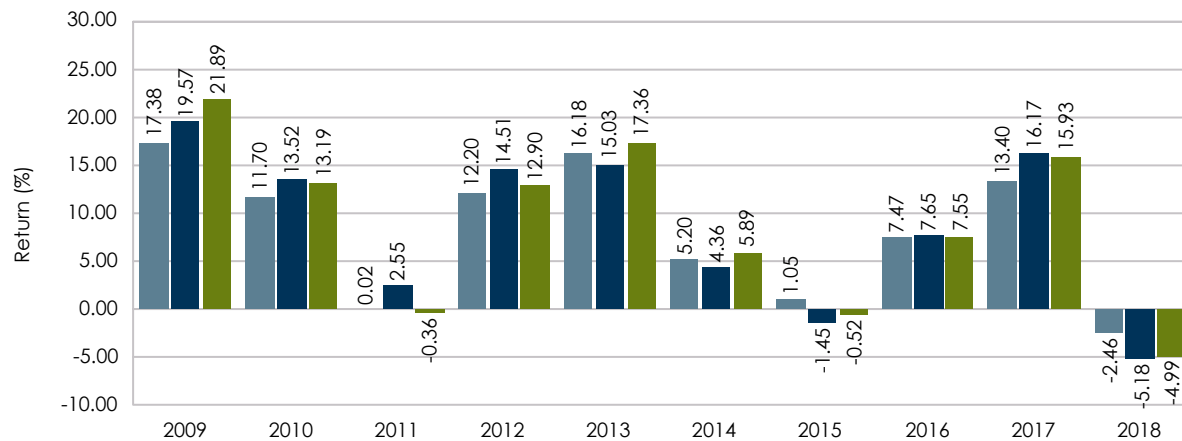
### FYTD

Total Portfolio	-4.52	11	--	--
Total Fund Policy	-5.13		--	--
IF TF Between 55 - 70% Equity	-5.78		--	--

### 1 Year

Total Portfolio	-2.46	5	7.16	-0.60
Total Fund Policy	-5.18		8.20	-0.85
IF TF Between 55 - 70% Equity	-4.99		8.73	-0.80

### Calendar Year Returns



### 3 Years

Total Portfolio	5.93	50	5.53	0.90
Total Fund Policy	5.85		6.64	0.74
IF TF Between 55 - 70% Equity	5.92		6.94	0.70

### 5 Years

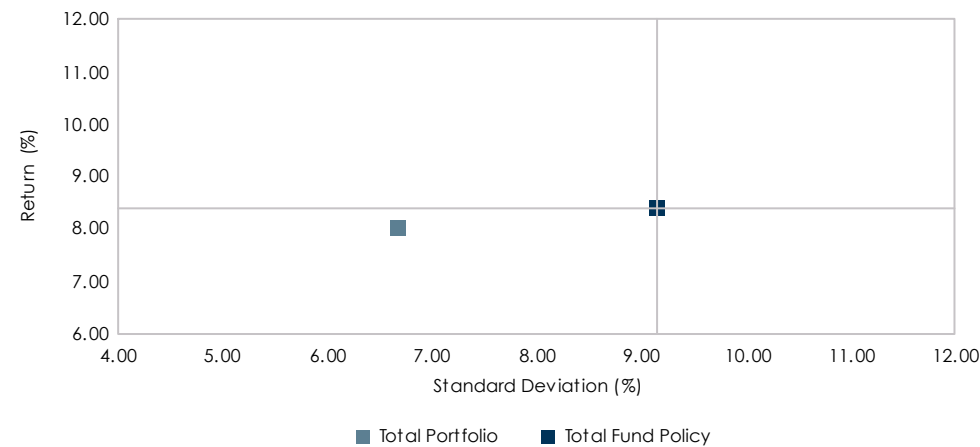
Total Portfolio	4.79	45	5.63	0.75
Total Fund Policy	4.05		6.84	0.51
IF TF Between 55 - 70% Equity	4.66		6.99	0.58

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 December 31, 2018

10 Year Risk / Return



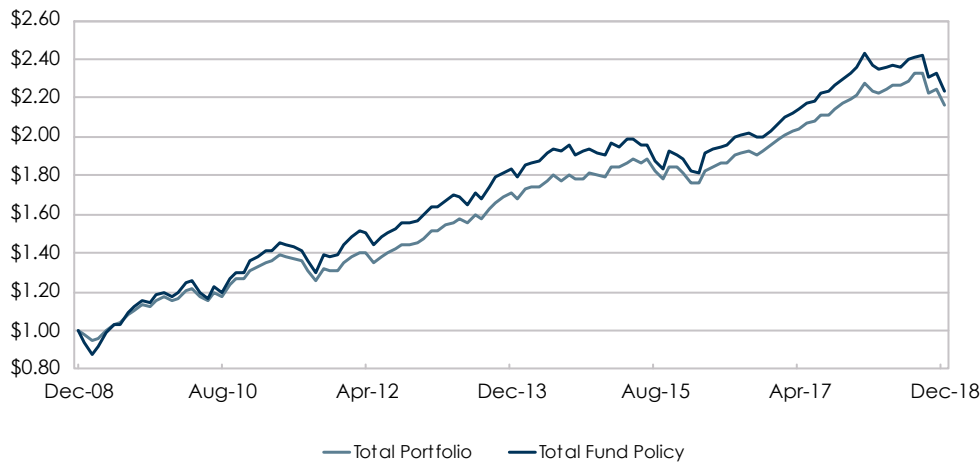
10 Year Portfolio Statistics

	Total Portfolio	Total Fund Policy
Return (%)	8.00	8.38
Standard Deviation (%)	6.67	9.15
Sharpe Ratio	1.15	0.88

Benchmark Relative Statistics

Beta	0.70
Up Capture (%)	77.68
Down Capture (%)	67.65

10 Year Growth of a Dollar

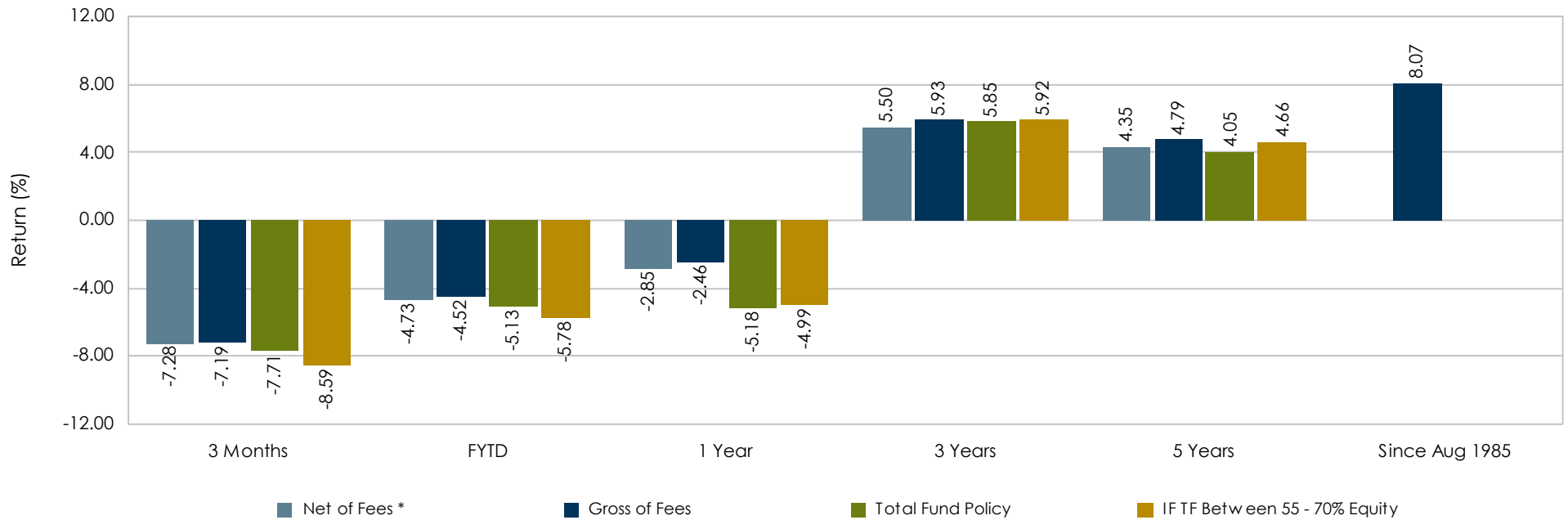


10 Year Return Analysis

	Total Portfolio	Total Fund Policy
Number of Months	120	120
Highest Monthly Return (%)	5.31	7.47
Lowest Monthly Return (%)	-4.27	-6.94
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 December 31, 2018



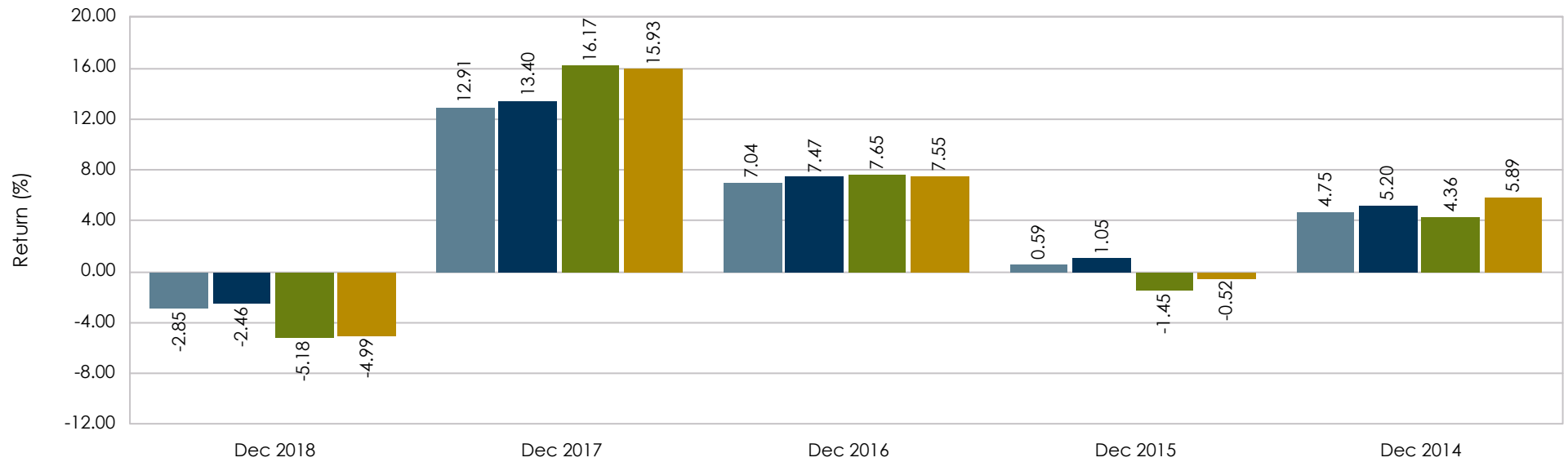
Ranking	5	11	5	50	45
5th Percentile	-7.20	-4.09	-2.64	7.10	5.90
25th Percentile	-8.00	-5.07	-4.18	6.35	5.18
50th Percentile	-8.59	-5.78	-4.99	5.92	4.66
75th Percentile	-9.27	-6.46	-5.93	5.41	4.03
95th Percentile	-10.27	-7.46	-7.33	4.70	3.22
Observations	403	401	396	360	331

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.

## Total Portfolio

For the One Year Periods Ending December



	Dec 2018	Dec 2017	Dec 2016	Dec 2015	Dec 2014
Ranking	5	93	53	13	63
5th Percentile	-2.64	18.98	9.94	1.92	9.12
25th Percentile	-4.18	17.22	8.59	0.50	6.99
50th Percentile	-4.99	15.93	7.55	-0.52	5.89
75th Percentile	-5.93	14.76	6.70	-1.91	4.54
95th Percentile	-7.33	12.93	5.16	-3.89	2.43
Observations	396	609	576	500	480

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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## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending December 31, 2018

	Market Value (\$000s)	Actual Allocation (%)	3 Months (%)	Rank	FYTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Total Portfolio * (06/05) <sup>1</sup></b>	<b>2,398,381</b>	<b>100.00</b>	<b>-7.28</b>		<b>-4.73</b>		<b>-2.85</b>		<b>5.50</b>		<b>4.35</b>		<b>7.63</b>
<b>Total Portfolio (08/85)</b>			<b>-7.19</b>	<b>5</b>	<b>-4.52</b>	<b>11</b>	<b>-2.46</b>	<b>5</b>	<b>5.93</b>	<b>50</b>	<b>4.79</b>	<b>45</b>	<b>8.00</b>
<i>Total Fund Policy <sup>2</sup></i>			-7.71		-5.13		-5.18		5.85		4.05		8.38
<i>IF TF Between 55 - 70% Equity</i>			-8.59		-5.78		-4.99		5.92		4.66		8.67
<b>Equity (01/98)</b>	<b>1,427,305</b>	<b>59.51</b>	<b>-10.92</b>		<b>-7.26</b>		<b>-4.91</b>		<b>6.96</b>		<b>5.80</b>		<b>9.32</b>
<i>MSCI ACWI</i>			-12.65		-8.81		-8.93		7.18		4.82		10.05
<b>US Large Cap Equity</b>	<b>391,678</b>	<b>16.33</b>											
<b>Northern Trust Russell 1000 Index (08/98) <sup>3</sup></b>	<b>391,678</b>	<b>16.33</b>	<b>-13.81</b>	<b>55</b>	<b>-7.41</b>	<b>52</b>	<b>-4.78</b>	<b>45</b>	<b>9.10</b>	<b>39</b>	<b>8.22</b>	<b>43</b>	<b>13.30</b>
<i>Russell 1000</i>			-13.82		-7.42		-4.78		9.09		8.21		13.28
<i>eA US Large Cap Core Equity</i>			-13.63		-7.32		-5.12		8.54		7.99		12.86
<b>US Small/Mid Cap Equity</b>	<b>156,628</b>	<b>6.53</b>											
<b>Boston Partners (01/98)</b>	<b>74,519</b>	<b>3.11</b>	<b>-19.47</b>	<b>93 / 60</b>	<b>-18.94</b>	<b>96 / 68</b>	<b>-18.48</b>	<b>88 / 86</b>	<b>5.15</b>	<b>66 / 70</b>	<b>3.51</b>	<b>78 / 66</b>	<b>12.83</b>
<i>Russell 2500 Value</i>			-17.12		-14.91		-12.36		6.59		4.16		11.61
<i>eA US Mid Cap Value Equity</i>			-16.39		-13.80		-13.44		5.82		5.25		13.11
<i>eA US Small Cap Value Equity</i>			-18.97		-17.56		-13.89		6.49		4.11		12.91
<b>Cortina (02/14)</b>	<b>82,109</b>	<b>3.42</b>	<b>-20.52</b>	<b>44</b>	<b>-14.12</b>	<b>43</b>	<b>5.50</b>	<b>10</b>	<b>14.65</b>	<b>14</b>	<b>--</b>		<b>--</b>
<i>Russell 2000 Growth</i>			-21.65		-17.33		-9.31		7.24		5.13		13.52
<i>eA US Small Cap Growth Equity</i>			-20.75		-14.78		-3.78		9.63		6.52		15.14
<b>Long/Short Equity</b>	<b>336,135</b>	<b>14.02</b>											
<b>Grosvenor Long/Short Equity (11/03)</b>	<b>336,135</b>	<b>14.02</b>	<b>-8.52</b>		<b>-7.37</b>		<b>-4.52</b>		<b>3.10</b>		<b>3.17</b>		<b>5.81</b>
<i>MSCI ACWI</i>			-12.65		-8.81		-8.93		7.18		4.82		10.05
<i>HFRI FOF: Strategic</i>			-6.62		-7.19		-6.82		1.18		1.21		3.31

FYTD: Fiscal year ending June.

\* Net of fee return data.

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending December 31, 2018

	Market Value (\$000s)	Actual Allocation (%)	3 Months (%)	Rank	FYTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>International Developed Market</b>	<b>232,927</b>	<b>9.71</b>											
<b>Mondrian International (05/04)</b>	<b>127,462</b>	<b>5.31</b>	<b>-9.78</b>	<b>11</b>	<b>-7.87</b>	<b>12</b>	<b>-11.22</b>	<b>18</b>	<b>4.25</b>	<b>39</b>	<b>1.54</b>	<b>41</b>	<b>6.14</b>
MSCI EAFE			-12.50		-11.26		-13.36		3.38		1.00		6.81
eA EAFE All Cap Value Equity			-12.91		-12.26		-14.53		3.75		0.86		7.98
<b>Barings Focused EAFE Plus Equity (03/12)</b>	<b>105,466</b>	<b>4.40</b>	<b>-15.49</b>	<b>86</b>	<b>-13.02</b>	<b>52</b>	<b>-13.73</b>	<b>42</b>	<b>4.31</b>	<b>32</b>	<b>2.35</b>	<b>36</b>	<b>--</b>
MSCI EAFE			-12.50		-11.26		-13.36		3.38		1.00		6.81
eA EAFE All Cap Equity			-13.76		-12.96		-14.80		3.36		1.70		7.67
<b>Emerging Markets Equity</b>	<b>104,650</b>	<b>4.36</b>											
<b>Wasatch Emerging Markets (09/12)</b>	<b>31,775</b>	<b>1.32</b>	<b>-6.24</b>	<b>33</b>	<b>-12.47</b>	<b>83</b>	<b>-16.75</b>	<b>68</b>	<b>3.67</b>	<b>97</b>	<b>0.89</b>	<b>87</b>	<b>--</b>
MSCI EM SC			-7.09		-10.85		-18.30		3.99		1.26		10.20
eA Global Emerging Mkts Equity			-7.34		-9.17		-15.07		8.97		2.33		9.45
<b>AB EM Strategic Core Equity Fund (11/16)</b>	<b>72,875</b>	<b>3.04</b>	<b>-10.07</b>	<b>90</b>	<b>-10.15</b>	<b>59</b>	<b>-16.20</b>	<b>63</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
MSCI Emerging Markets			-7.39		-8.27		-14.24		9.65		2.03		8.39
eA Global Emerging Mkts Equity			-7.34		-9.17		-15.07		8.97		2.33		9.45
<b>Private Equity (07/03)</b>	<b>205,287</b>	<b>8.56</b>	<b>2.38</b>		<b>9.76</b>		<b>15.22</b>		<b>10.22</b>		<b>11.95</b>		<b>10.13</b>
<b>Fixed Income (01/98)</b>	<b>620,960</b>	<b>25.89</b>	<b>-0.76</b>		<b>-0.13</b>		<b>0.24</b>		<b>3.41</b>		<b>2.35</b>		<b>5.87</b>
BloomBar Universal			1.17		1.44		-0.25		2.56		2.72		4.06
<b>Core Bonds</b>	<b>172,421</b>	<b>7.19</b>											
<b>Agincourt Core Fixed Income (10/99)</b>	<b>172,421</b>	<b>7.19</b>	<b>1.44</b>	<b>41</b>	<b>1.77</b>	<b>20</b>	<b>0.04</b>	<b>49</b>	<b>2.58</b>	<b>36</b>	<b>2.87</b>	<b>45</b>	<b>4.66</b>
BloomBar US Aggregate			1.64		1.65		0.01		2.06		2.52		3.48
eA US Core Fixed Income			1.35		1.58		0.03		2.43		2.81		4.35

## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending December 31, 2018

	Market Value (\$000s)	Actual Allocation (%)	3 Months (%)	Rank	FYTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Multi Sector Fixed Income</b>	<b>257,470</b>	<b>10.74</b>											
<b>Multi Sector Fixed Income</b>													
<b>Oaktree Global Credit Fund (02/98)</b>	<b>120,339</b>	<b>5.02</b>	<b>-4.25</b>		<b>-2.33</b>		<b>-2.29</b>		<b>5.88</b>		<b>3.61</b>		<b>9.53</b>
<i>BloomBar US Aggregate</i>			1.64		1.65		0.01		2.06		2.52		3.48
<b>Loomis Sayles (06/08)</b>	<b>96,319</b>	<b>4.02</b>	<b>0.70</b>	<b>21</b>	<b>-0.28</b>	<b>44</b>	<b>-1.78</b>	<b>49</b>	<b>4.03</b>	<b>35</b>	<b>1.41</b>	<b>62</b>	<b>4.07</b>
<i>FTSE World Govt Bond</i>			1.75		0.10		-0.84		2.69		0.77		1.52
<i>eA All Global Fixed Income</i>			-1.01		-0.57		-1.85		3.41		2.03		4.79
<b>Private Credit (10/16)</b>	<b>40,812</b>	<b>1.70</b>	<b>-0.35</b>		<b>1.57</b>		<b>6.46</b>		<b>--</b>		<b>--</b>		<b>--</b>
<b>Absolute Return</b>	<b>191,068</b>	<b>7.97</b>											
<b>PAAMCO (10/02)</b>	<b>125,726</b>	<b>5.24</b>	<b>-3.45</b>		<b>-3.11</b>		<b>-1.05</b>		<b>1.51</b>		<b>1.12</b>		<b>4.89</b>
<i>BloomBar US Aggregate</i>			1.64		1.65		0.01		2.06		2.52		3.48
<i>HFRI FOF: Conservative</i>			-3.19		-2.43		-0.82		1.71		1.72		3.11
<b>Wellington Global Total Return (12/16)</b>	<b>65,342</b>	<b>2.72</b>	<b>1.98</b>	<b>2</b>	<b>3.30</b>	<b>2</b>	<b>7.70</b>	<b>2</b>	<b>--</b>		<b>--</b>		<b>--</b>
<i>LIBOR 3 Month</i>			0.65		1.24		2.21		1.37		0.92		0.66
<i>eA Global Unconstrained Fixed Income</i>			-1.39		-0.65		-1.68		3.17		2.04		5.01
<b>Real Assets (01/98)</b>	<b>303,320</b>	<b>12.65</b>	<b>-1.12</b>		<b>0.13</b>		<b>4.30</b>		<b>6.62</b>		<b>5.28</b>		<b>3.77</b>
<i>Real Assets Blended Index <sup>4</sup></i>			-2.13		-1.57		0.99		5.03		1.12		1.91
<b>Core Real Estate</b>	<b>170,080</b>	<b>7.09</b>											
<b>JP Morgan Strategic Property (12/07)</b>	<b>127,948</b>	<b>5.33</b>	<b>1.82</b>		<b>3.68</b>		<b>8.04</b>		<b>7.87</b>		<b>9.96</b>		<b>7.34</b>
<i>NFI ODCE Net</i>			1.53		3.43		7.38		7.27		9.41		6.01
<i>NCREIF Property</i>			1.37		3.06		6.71		7.22		9.33		7.49
<b>Blackstone Property Partners (01/15)</b>	<b>42,132</b>	<b>1.76</b>	<b>3.02</b>		<b>5.64</b>		<b>10.86</b>		<b>12.04</b>		<b>--</b>		<b>--</b>
<i>NFI ODCE Net</i>			1.53		3.43		7.38		7.27		9.41		6.01
<i>NCREIF Property</i>			1.37		3.06		6.71		7.22		9.33		7.49



## Rates of Return Summary &amp; Universe Rankings

For the Periods Ending December 31, 2018

	Market Value (\$000s)	Actual Allocation (%)	3 Months (%)	Rank	FYTD (%)	Rank	1 Year (%)	Rank	3 Years (%)	Rank	5 Years (%)	Rank	10 Years (%)
<b>Opportunistic Real Estate</b>	<b>58,367</b>	<b>2.43</b>											
<b>Private Real Estate (08/11)</b>	<b>53,726</b>	<b>2.24</b>	<b>6.09</b>		<b>6.16</b>		<b>12.33</b>		<b>10.36</b>		<b>12.52</b>		--
<b>Private Real Estate Direct</b>													
<b>Columbus Square (01/98)</b>	<b>4,642</b>	<b>0.19</b>	<b>1.64</b>		<b>5.31</b>		<b>8.04</b>		<b>9.21</b>		<b>8.67</b>		<b>10.68</b>
NCREIF Property			1.37		3.06		6.71		7.22		9.33		7.49
NFI ODCE Net			1.53		3.43		7.38		7.27		9.41		6.01
<b>Commodities</b>	<b>74,872</b>	<b>3.12</b>											
<b>Mount Lucas Peak Partners (01/98)</b>	<b>28,601</b>	<b>1.19</b>	<b>-11.56</b>		<b>-9.32</b>		<b>-5.07</b>		<b>-1.82</b>		<b>2.56</b>		<b>0.40</b>
CS Hedge - Global Macro			-1.74		-1.92		-0.11		1.86		1.77		5.08
<b>Gresham Tap Fund (08/14)</b>	<b>46,271</b>	<b>1.93</b>	<b>-12.21</b>		<b>-12.95</b>		<b>-11.33</b>		<b>1.00</b>		--		--
Bloomberg Commodity			-9.41		-11.24		-11.25		0.30		-8.80		-3.78
<b>Cash and Equivalents</b>	<b>46,796</b>	<b>1.95</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 December 31, 2018

### Account Description

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

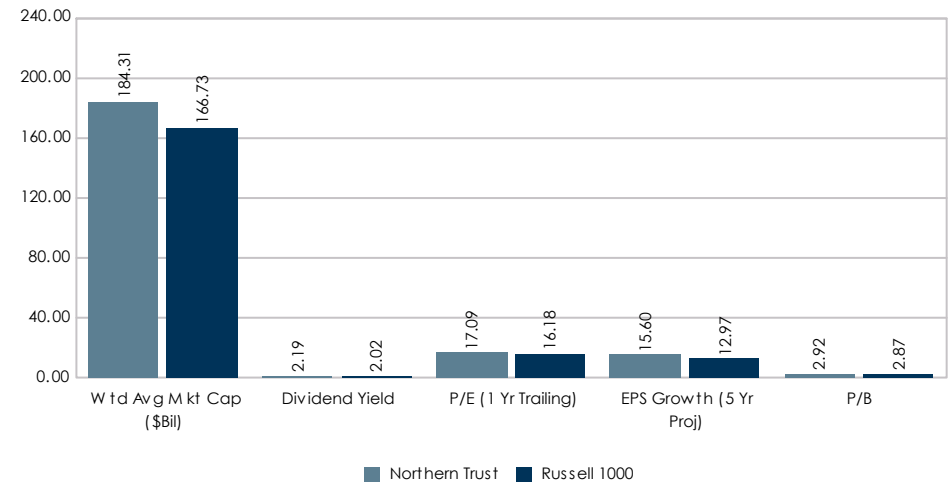
### Performance Goals

- 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.

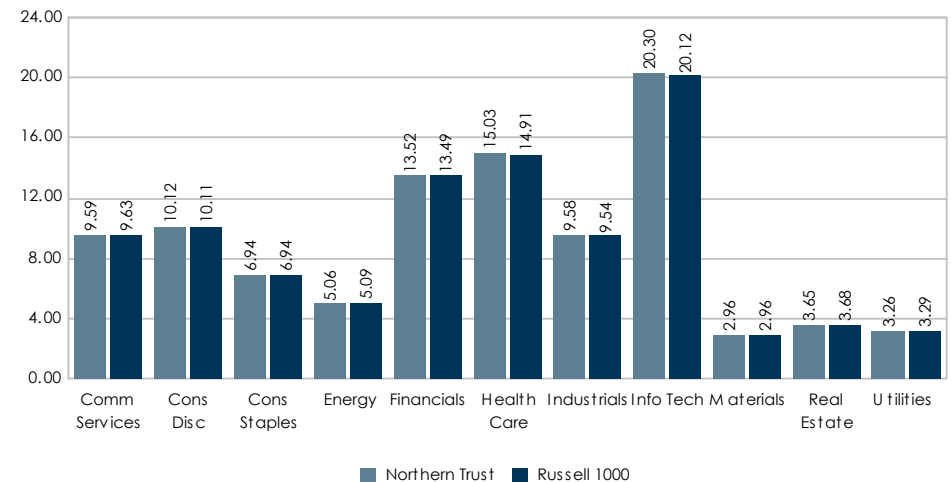
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>455,018</b>	<b>442,458</b>
Net Additions	-30,022	-30,033
Return on Investment	-33,317	-20,746
<b>Ending Market Value</b>	<b>391,678</b>	<b>391,678</b>

### Characteristics



### Sector Allocation



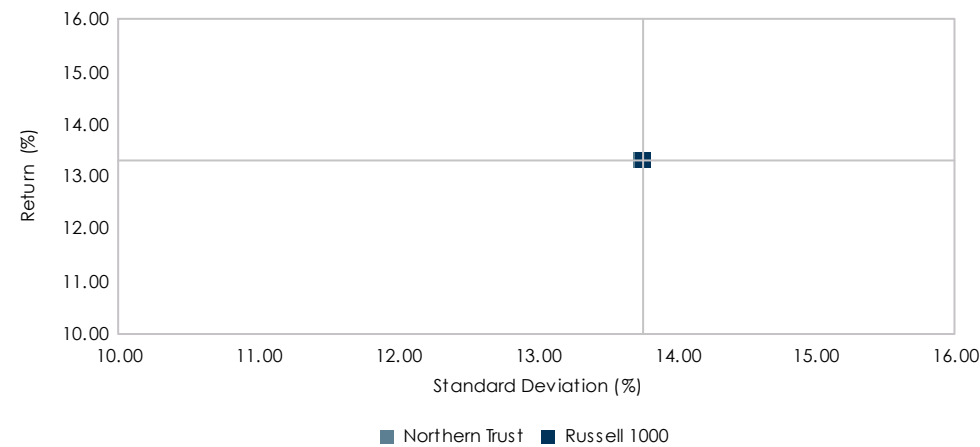
Characteristic and allocation charts represents data of the EB Daily Valued Large Cap Stock Index Fund (Non-Mutual Commingled).

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 December 31, 2018

10 Year Risk / Return



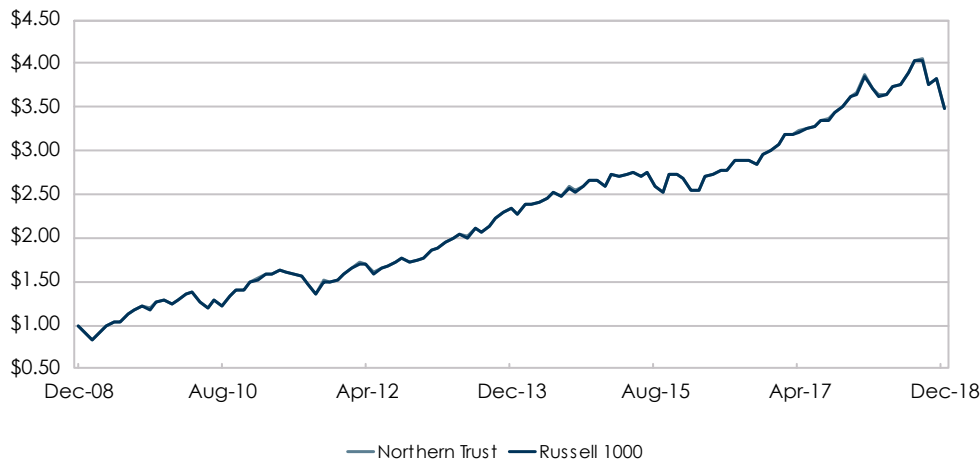
10 Year Portfolio Statistics

	Northern Trust	Russell 1000
Return (%)	13.30	13.28
Standard Deviation (%)	13.75	13.76
Sharpe Ratio	0.94	0.94

Benchmark Relative Statistics

Beta	1.00
R Squared (%)	100.00
Alpha (%)	0.02
Tracking Error (%)	0.04
Batting Average (%)	64.17
Up Capture (%)	100.00
Down Capture (%)	99.90

10 Year Growth of a Dollar

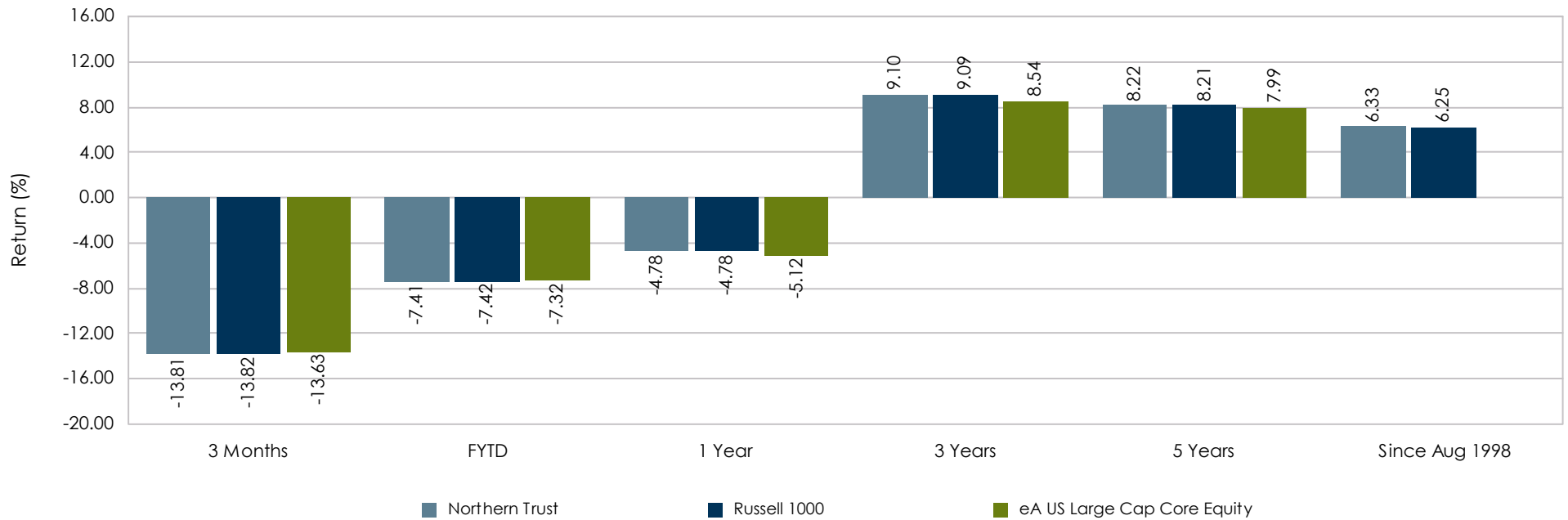


10 Year Return Analysis

	Northern Trust	Russell 1000
Number of Months	120	120
Highest Monthly Return (%)	11.20	11.21
Lowest Monthly Return (%)	-10.33	-10.34
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 December 31, 2018

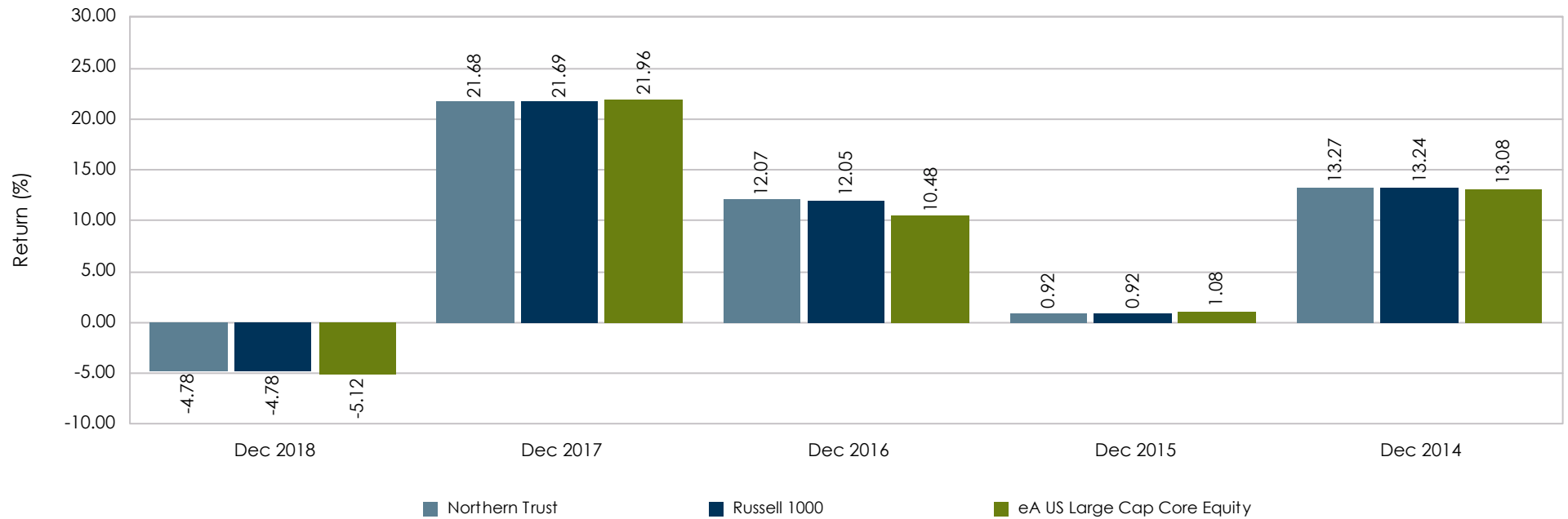


Ranking	55	52	45	39	43
5th Percentile	-8.73	-2.03	0.73	11.48	10.20
25th Percentile	-11.68	-5.20	-3.11	9.60	8.77
50th Percentile	-13.63	-7.32	-5.12	8.54	7.99
75th Percentile	-15.14	-9.11	-7.06	7.45	7.15
95th Percentile	-17.33	-12.38	-11.24	5.52	5.42
Observations	347	347	347	335	315

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 December



Ranking	45	53	34	53	47
5th Percentile	0.73	28.07	17.54	6.31	17.93
25th Percentile	-3.11	24.23	12.57	2.98	15.11
50th Percentile	-5.12	21.96	10.48	1.08	13.08
75th Percentile	-7.06	19.67	8.18	-1.13	11.17
95th Percentile	-11.24	14.31	4.46	-4.79	7.30
Observations	347	383	385	387	406

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 December 31, 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

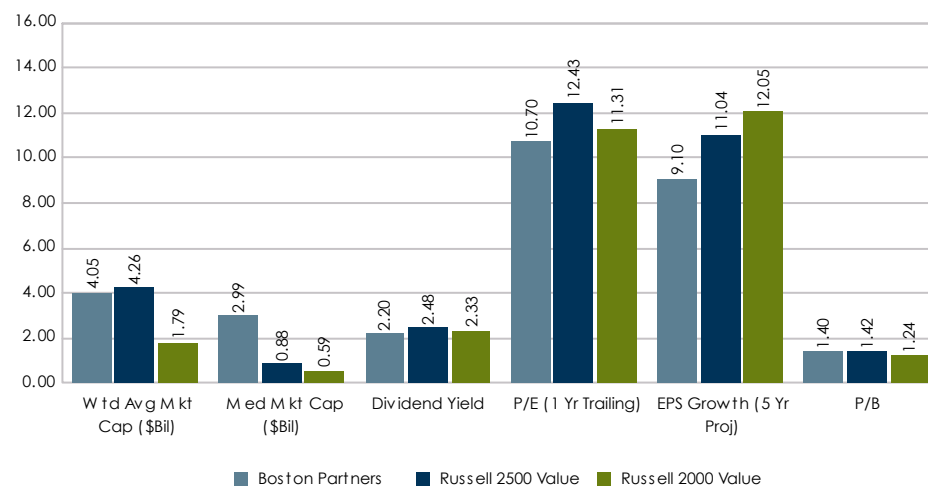
### Performance Goals

- 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.

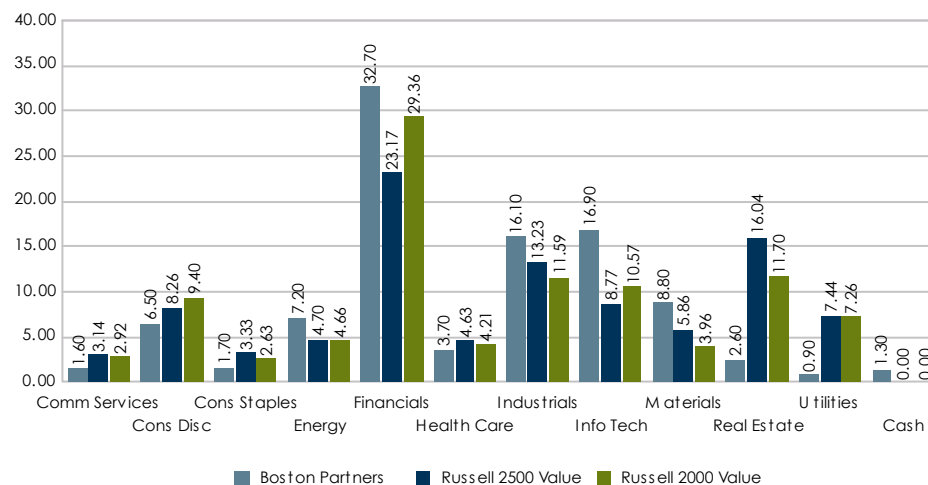
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>92,198</b>	<b>92,102</b>
Net Additions	-260	-676
Return on Investment	-17,418	-16,907
Income	792	1,516
Gain/Loss	-18,211	-18,422
<b>Ending Market Value</b>	<b>74,519</b>	<b>74,519</b>

### Characteristics



### Sector Allocation



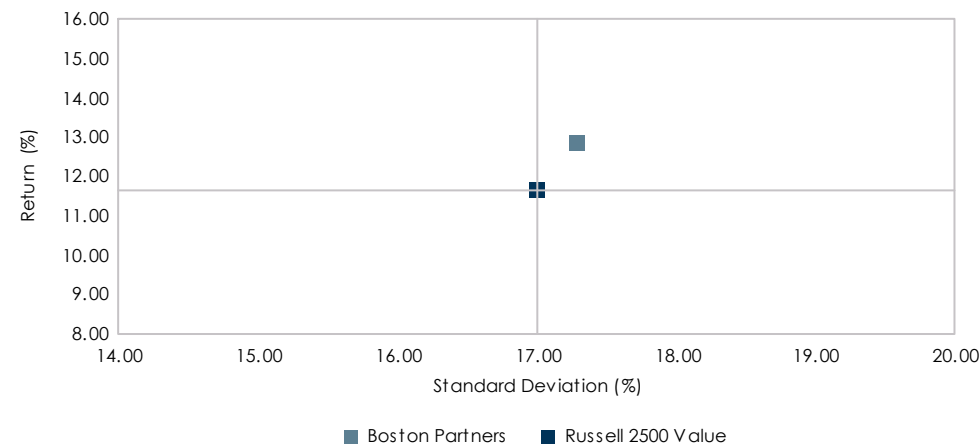
Sector weights may not add to 100% due to securities that are not assigned to a Global Industry Classification Standard (GICS) sector.



Boston Partners

For the Periods Ending December 31, 2018

10 Year Risk / Return



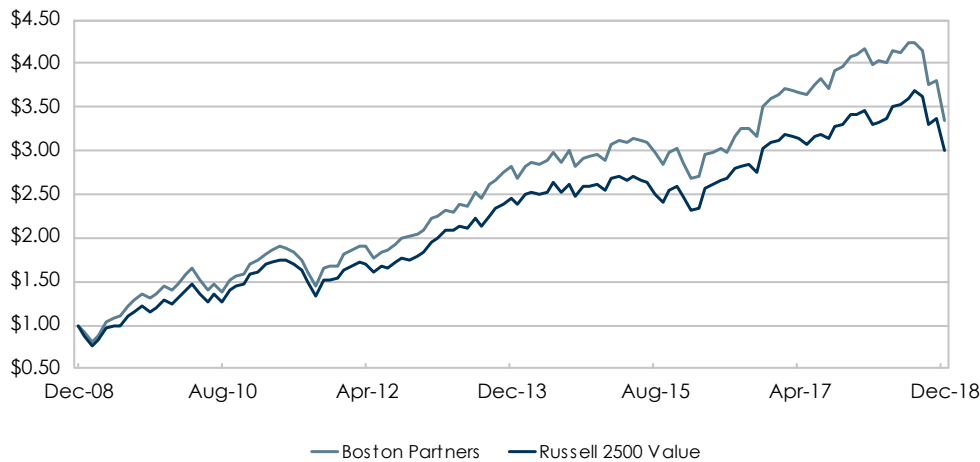
10 Year Portfolio Statistics

	Boston Partners	Russell 2500 Value
Return (%)	12.83	11.61
Standard Deviation (%)	17.29	17.01
Sharpe Ratio	0.72	0.66

Benchmark Relative Statistics

Beta	0.99
R Squared (%)	95.66
Alpha (%)	1.21
Tracking Error (%)	3.60
Batting Average (%)	52.50
Up Capture (%)	99.75
Down Capture (%)	94.89

10 Year Growth of a Dollar

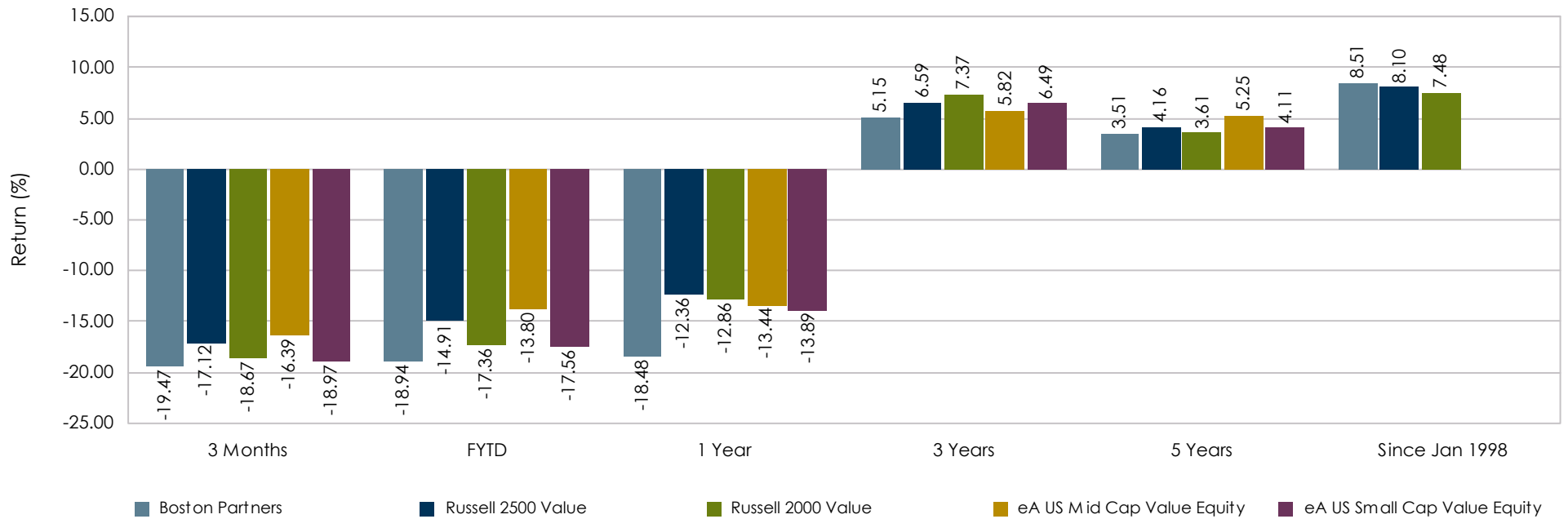


10 Year Return Analysis

	Boston Partners	Russell 2500 Value
Number of Months	120	120
Highest Monthly Return (%)	19.35	15.95
Lowest Monthly Return (%)	-12.90	-12.87
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 December 31, 2018

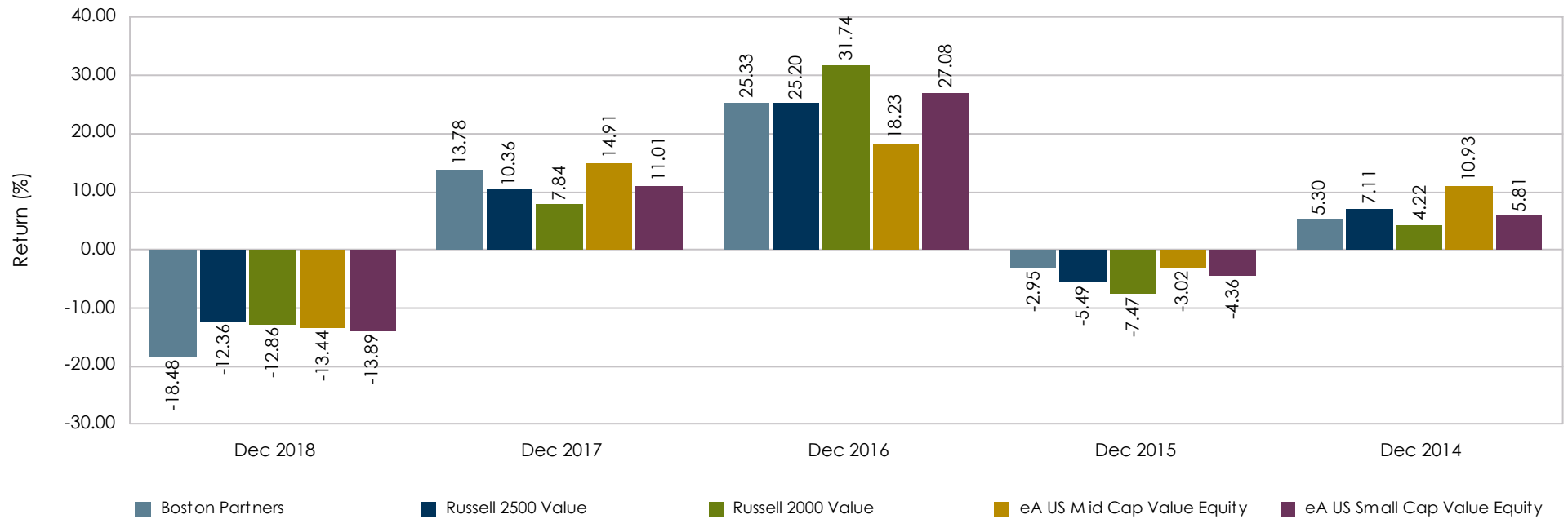


Ranking	93 / 60	96 / 68	88 / 86	66 / 70	78 / 66
5th Percentile	-11.98 / -13.81	-6.90 / -10.66	-6.08 / -5.48	9.79 / 11.13	7.98 / 6.75
25th Percentile	-14.53 / -16.94	-11.46 / -14.66	-10.53 / -10.96	7.69 / 8.10	6.45 / 5.21
50th Percentile	-16.39 / -18.97	-13.80 / -17.56	-13.44 / -13.89	5.82 / 6.49	5.25 / 4.11
75th Percentile	-17.82 / -20.30	-15.88 / -19.66	-16.00 / -16.71	4.53 / 4.79	3.80 / 2.93
95th Percentile	-20.66 / -23.79	-18.65 / -22.84	-19.94 / -20.39	2.19 / 2.59	1.75 / -0.25
Observations	106 / 234	106 / 234	106 / 234	105 / 227	104 / 217

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 December



Ranking	88 / 86	66 / 28	9 / 60	50 / 33	92 / 56
5th Percentile	-6.08 / -5.48	22.63 / 19.79	27.09 / 36.39	2.95 / 1.21	16.88 / 12.14
25th Percentile	-10.53 / -10.96	17.28 / 14.00	22.05 / 30.63	-1.02 / -2.30	13.34 / 8.27
50th Percentile	-13.44 / -13.89	14.91 / 11.01	18.23 / 27.08	-3.02 / -4.36	10.93 / 5.81
75th Percentile	-16.00 / -16.71	12.74 / 7.58	15.25 / 21.85	-5.77 / -7.43	7.42 / 2.95
95th Percentile	-19.94 / -20.39	8.82 / 3.55	10.61 / 16.38	-11.16 / -15.20	3.09 / -5.81
Observations	106 / 234	112 / 245	108 / 243	111 / 251	116 / 257

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 December 31, 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

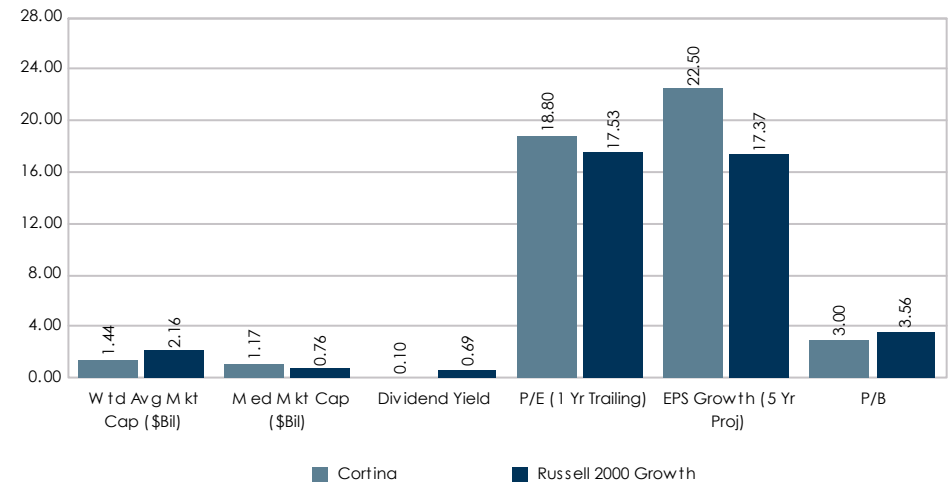
### Performance Goals

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

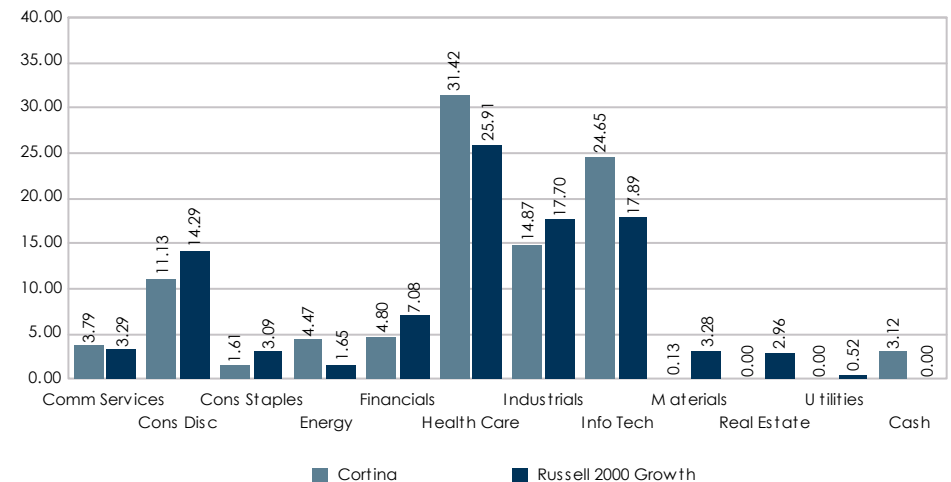
### Dollar Growth Summary (\$000s)

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>107,615</b>	<b>87,988</b>
Net Additions	-10,329	-10,729
Return on Investment	-15,177	4,849
Income	137	300
Gain/Loss	-15,314	4,549
<b>Ending Market Value</b>	<b>82,109</b>	<b>82,109</b>

### Characteristics



### Sector Allocation

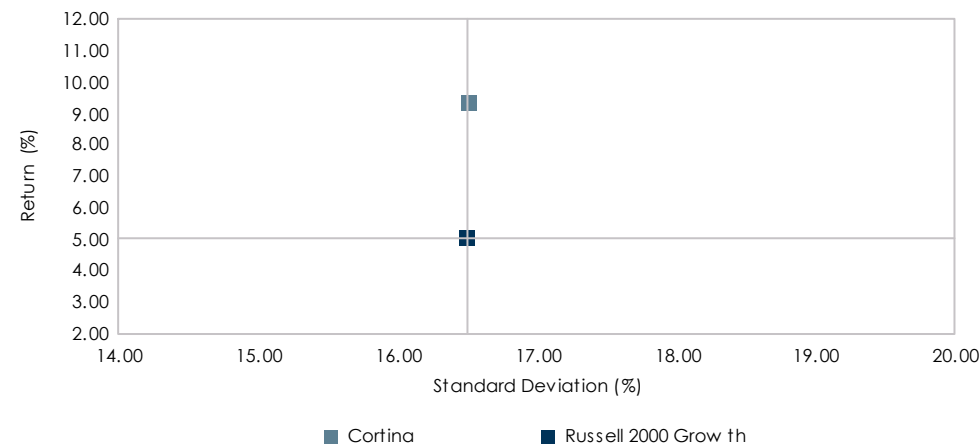


Sector weights may not add to 100% due to securities that are not assigned to a Global Industry Classification Standard (GICS) sector.

Cortina

For the Periods Ending December 31, 2018

4 Year Risk / Return



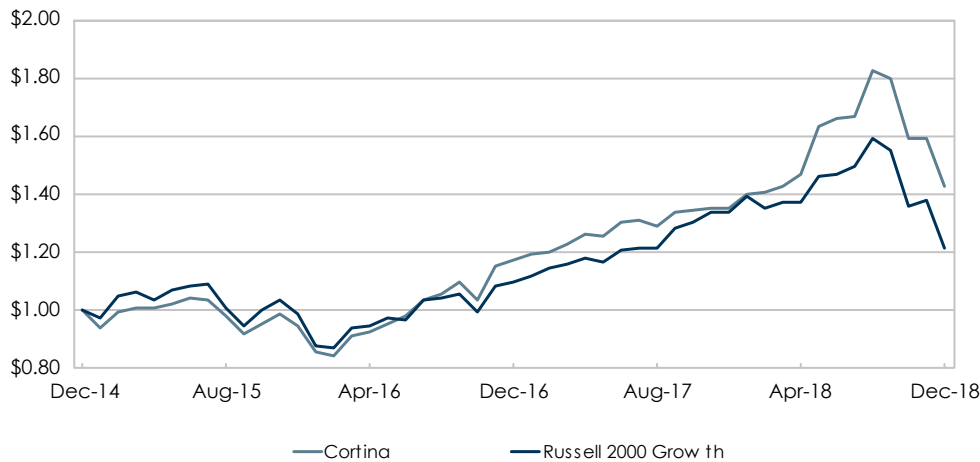
4 Year Portfolio Statistics

	Cortina	Russell 2000 Growth
Return (%)	9.31	5.02
Standard Deviation (%)	16.52	16.51
Sharpe Ratio	0.52	0.26

Benchmark Relative Statistics

Beta	0.93
R Squared (%)	87.11
Alpha (%)	4.51
Tracking Error (%)	6.03
Batting Average (%)	64.58
Up Capture (%)	104.28
Down Capture (%)	87.31

4 Year Growth of a Dollar

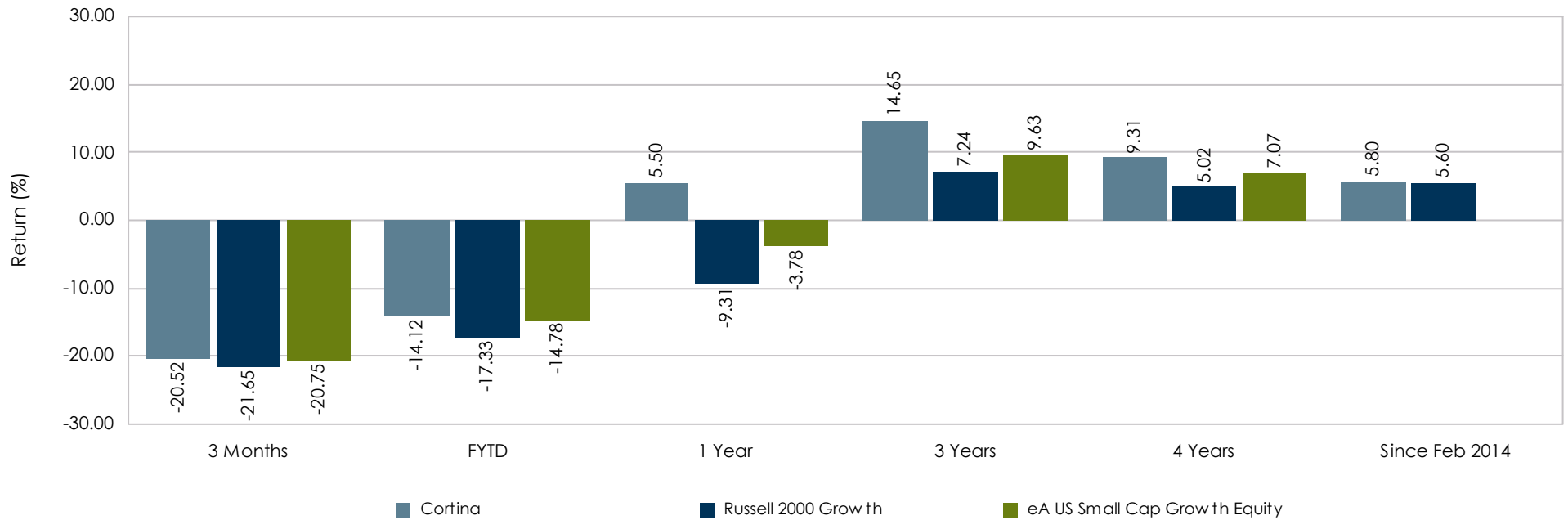


4 Year Return Analysis

	Cortina	Russell 2000 Growth
Number of Months	48	48
Highest Monthly Return (%)	11.26	8.95
Lowest Monthly Return (%)	-11.40	-12.65
Number of Positive Months	34	33
Number of Negative Months	14	15
% of Positive Months	70.83	68.75

## Cortina

For the Periods Ending December 31, 2018

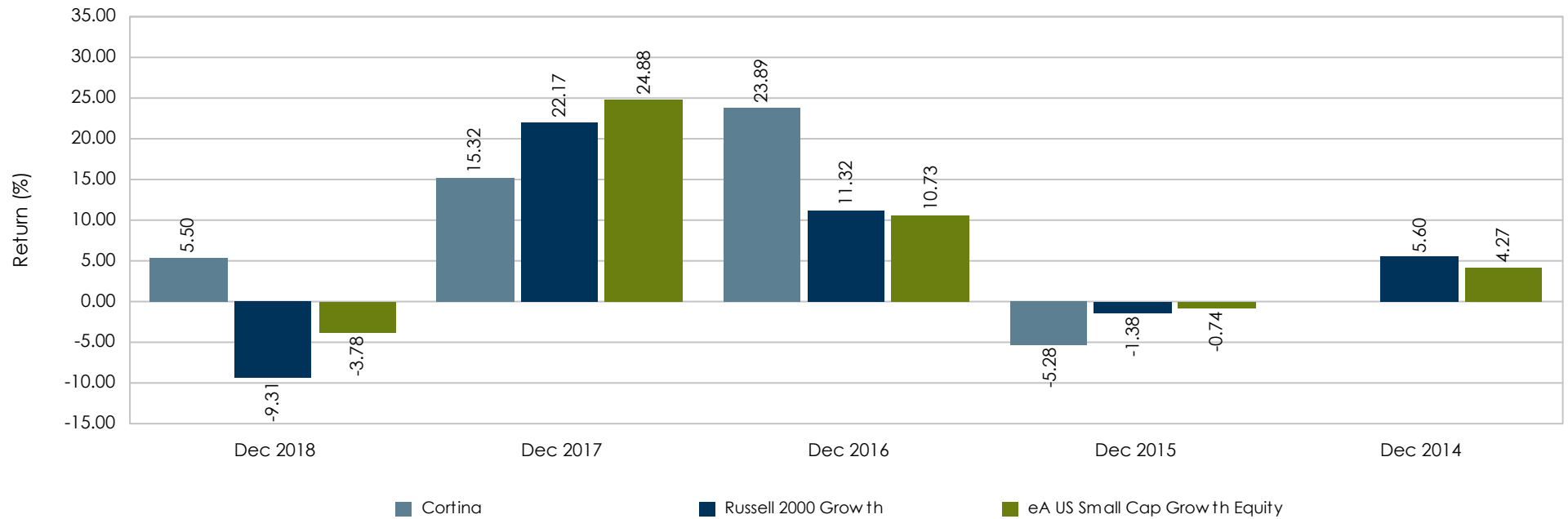


Ranking	44	43	10	14	24
5th Percentile	-15.96	-7.90	10.36	18.75	13.43
25th Percentile	-19.41	-12.86	0.61	12.34	9.14
50th Percentile	-20.75	-14.78	-3.78	9.63	7.07
75th Percentile	-22.59	-16.62	-7.93	7.73	5.36
95th Percentile	-24.62	-19.27	-12.90	3.93	2.22
Observations	176	176	176	171	166

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

## Cortina

For the One Year Periods Ending December



Ranking	10	92	4	81	
5th Percentile	10.36	38.93	22.63	6.93	11.18
25th Percentile	0.61	28.94	14.94	2.44	6.70
50th Percentile	-3.78	24.88	10.73	-0.74	4.27
75th Percentile	-7.93	20.01	7.06	-3.86	0.04
95th Percentile	-12.90	12.24	0.49	-9.10	-7.05
Observations	176	185	188	197	209

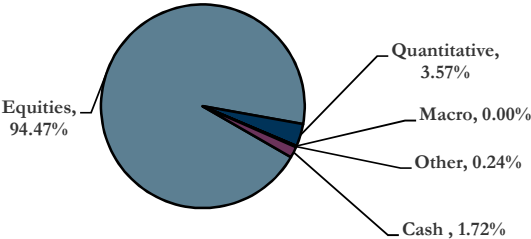
The rankings represent the portfolio's returns versus a peer universe. The rankings are on a scale of 1 to 100 with 1 being the best.

Grosvenor Long/Short Equity

For the Periods Ending December 31, 2018

Strategy Allocation

Market Value: \$336,134,943



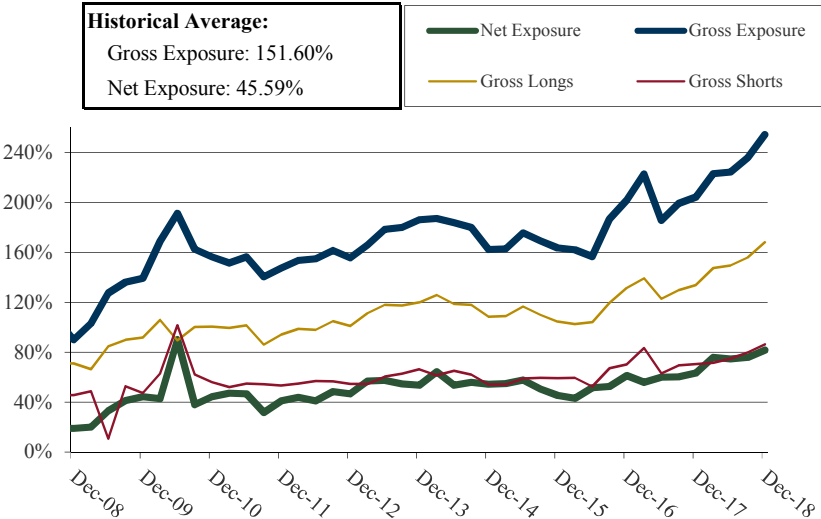
Strategy

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

Exposure

- Net Exposure: 81.87%
- Gross Exposure: 254.44%

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.

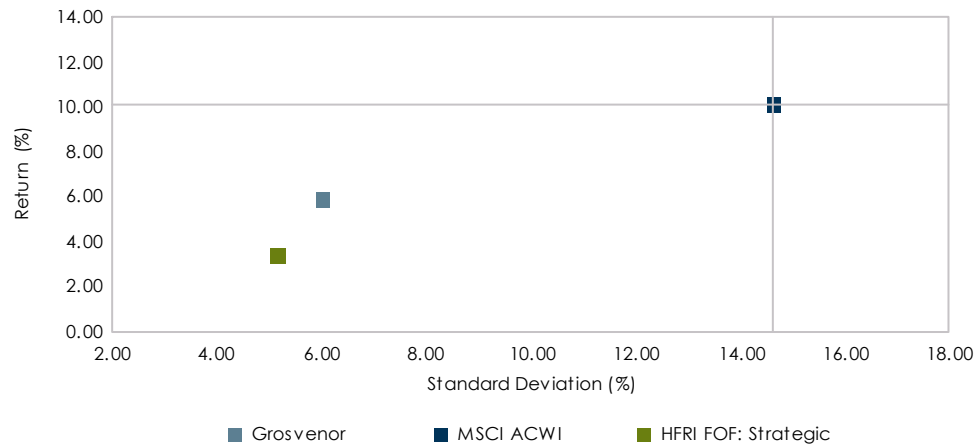
Characteristics provided by manager are the weighted average of GLSEF and GLSEF-B data.



## Grosvenor Long/Short Equity

For the Periods Ending December 31, 2018

### 10 Year Risk / Return



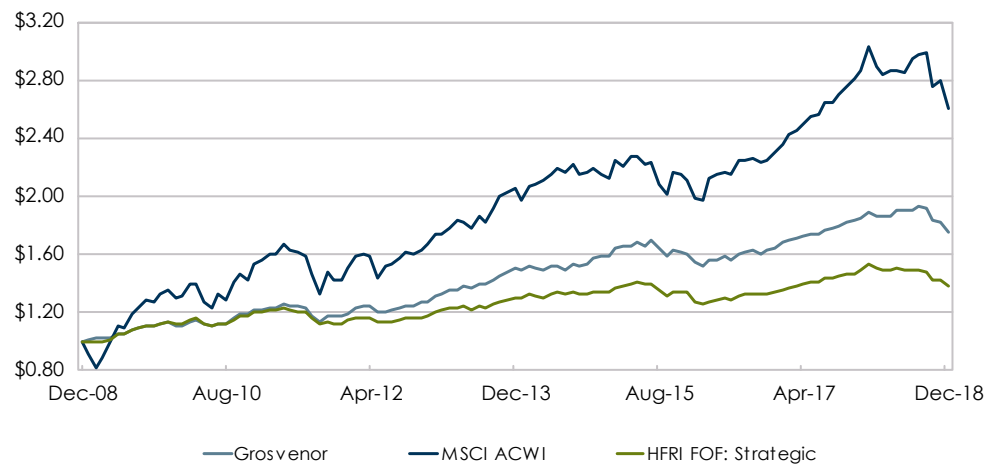
### 10 Year Portfolio Statistics

	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Return (%)	5.81	10.05	3.31
Standard Deviation (%)	6.02	14.65	5.17
Sharpe Ratio	0.91	0.66	0.58

### Benchmark Relative Statistics

Beta	0.31	1.04
R Squared (%)	56.96	80.35
Alpha (%)	2.56	2.32
Tracking Error (%)	10.85	2.68
Batting Average (%)	46.67	64.17
Up Capture (%)	37.50	122.88
Down Capture (%)	35.40	89.97

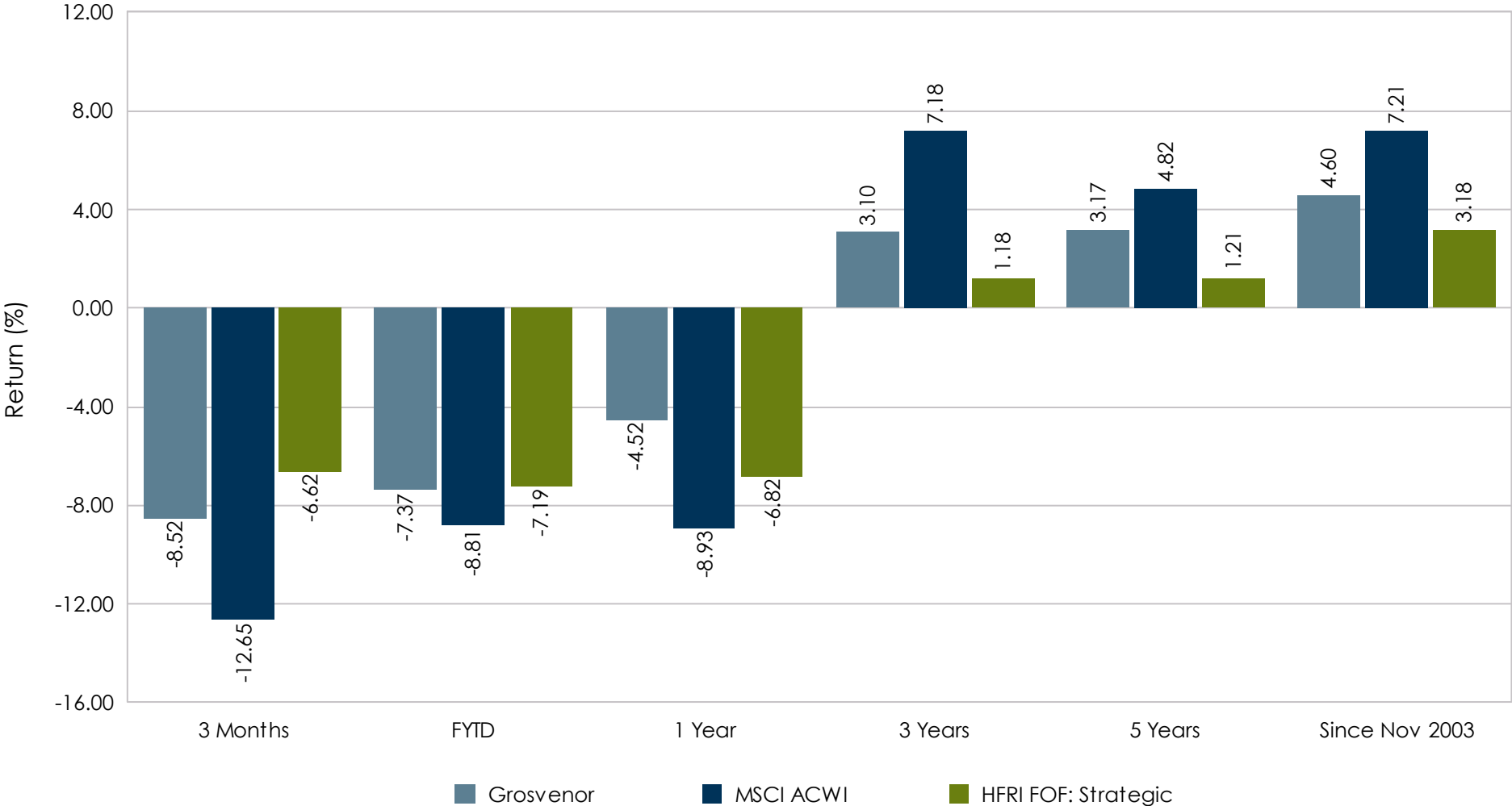
### 10 Year Growth of a Dollar



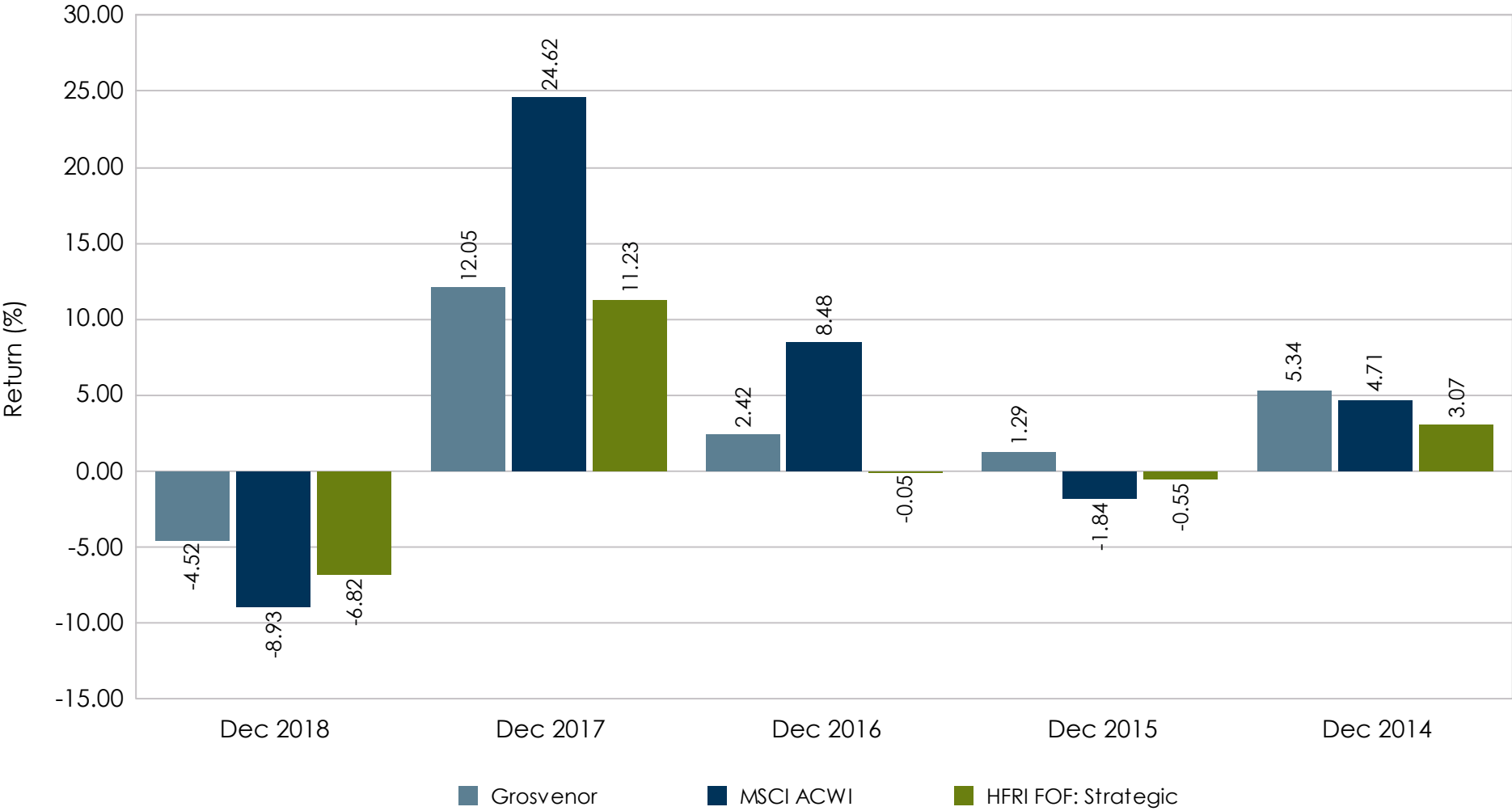
### 10 Year Return Analysis

	Grosvenor	MSCI ACWI	HFRI FOF: Strategic
Number of Months	120	120	120
Highest Monthly Return (%)	4.12	11.90	4.25
Lowest Monthly Return (%)	-4.90	-9.73	-4.49
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 December 31, 2018*



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



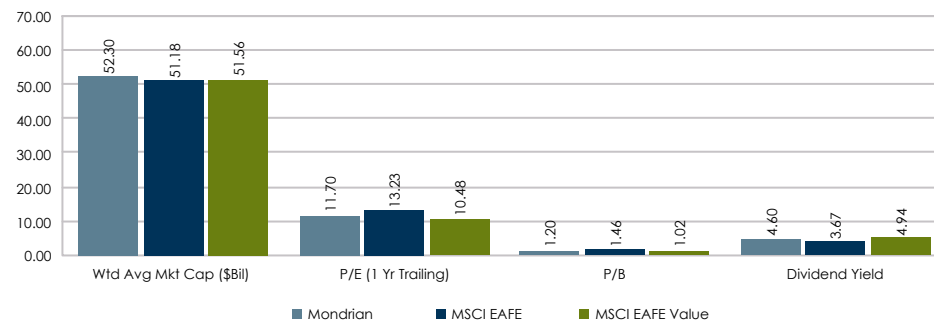
## Mondrian International

For the Periods Ending December 31, 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

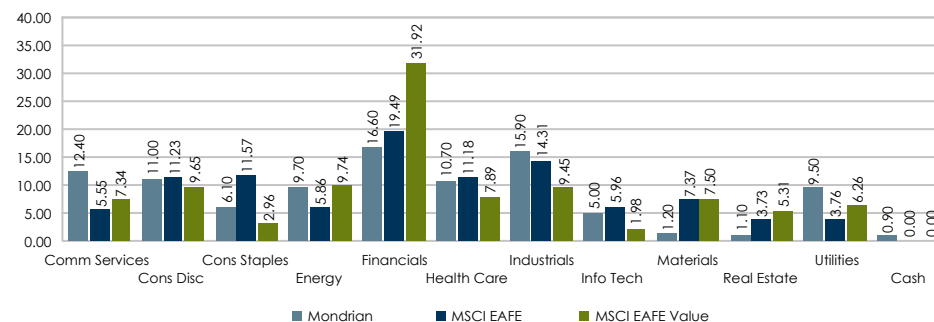
### Characteristics



### 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.

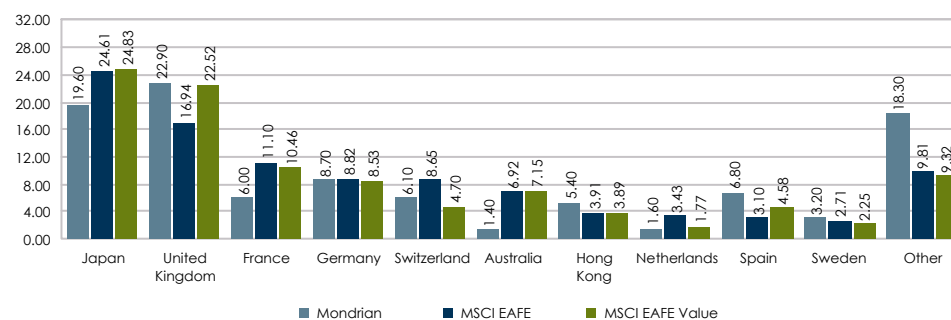
### Sector Allocation



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

	FYTD	1 Year
Beginning Market Value	138,343	143,575
Net Additions	0	0
Return on Investment	-10,882	-16,113
Ending Market Value	127,462	127,462

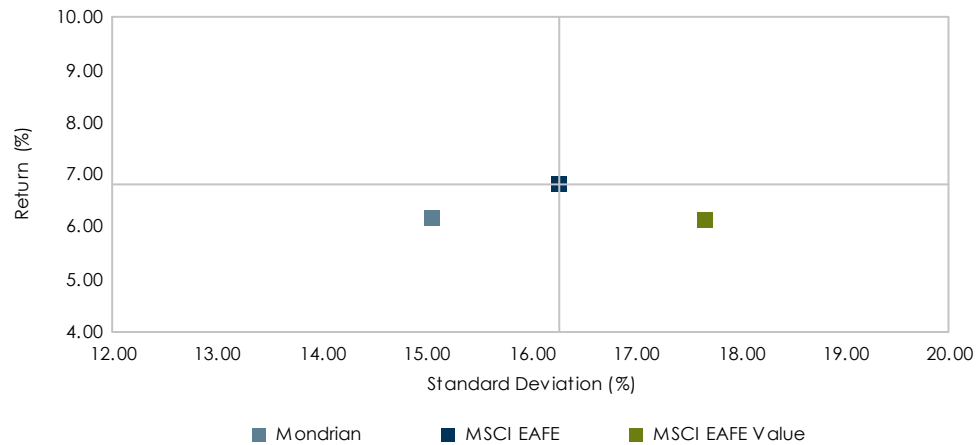
### Country Allocation



## Mondrian International

For the Periods Ending December 31, 2018

### 10 Year Risk / Return



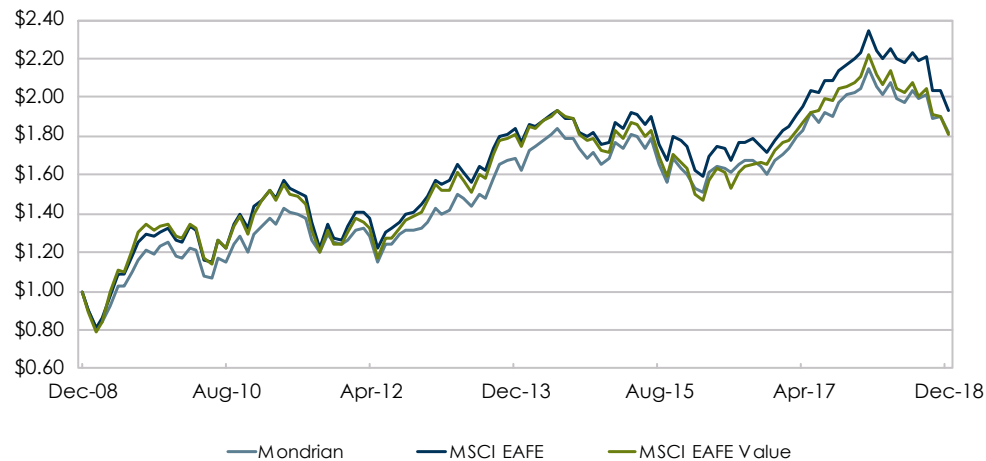
### 10 Year Portfolio Statistics

	Mondrian	MSCI EAFE	MSCI EAFE Value
Return (%)	6.14	6.81	6.10
Standard Deviation (%)	15.04	16.27	17.66
Sharpe Ratio	0.39	0.40	0.33

### Benchmark Relative Statistics

Beta	0.90	0.82
R Squared (%)	94.37	93.32
Alpha (%)	-0.01	0.95
Tracking Error (%)	3.93	4.99
Batting Average (%)	48.33	51.67
Up Capture (%)	92.32	82.33
Down Capture (%)	95.86	84.56

### 10 Year Growth of a Dollar

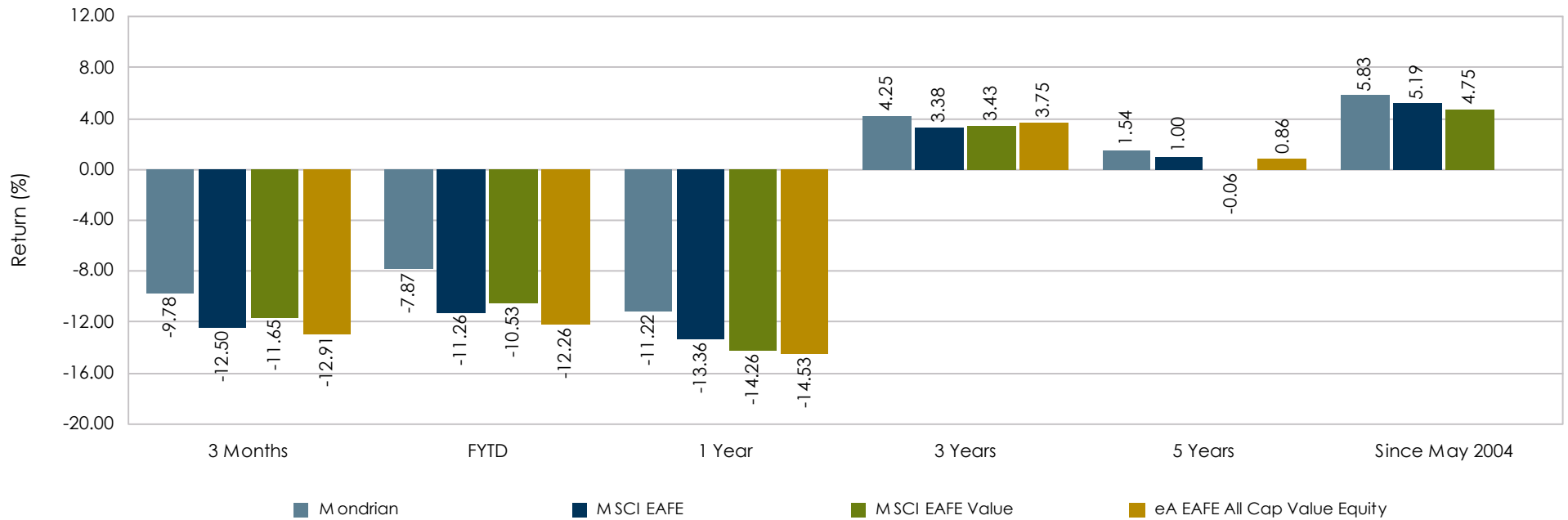


### 10 Year Return Analysis

	Mondrian	MSCI EAFE	MSCI EAFE Value
Number of Months	120	120	120
Highest Monthly Return (%)	11.12	12.96	17.46
Lowest Monthly Return (%)	-10.81	-11.37	-11.86
Number of Positive Months	66	64	65
Number of Negative Months	54	56	55
% of Positive Months	55.00	53.33	54.17

## Mondrian International

For the Periods Ending December 31, 2018

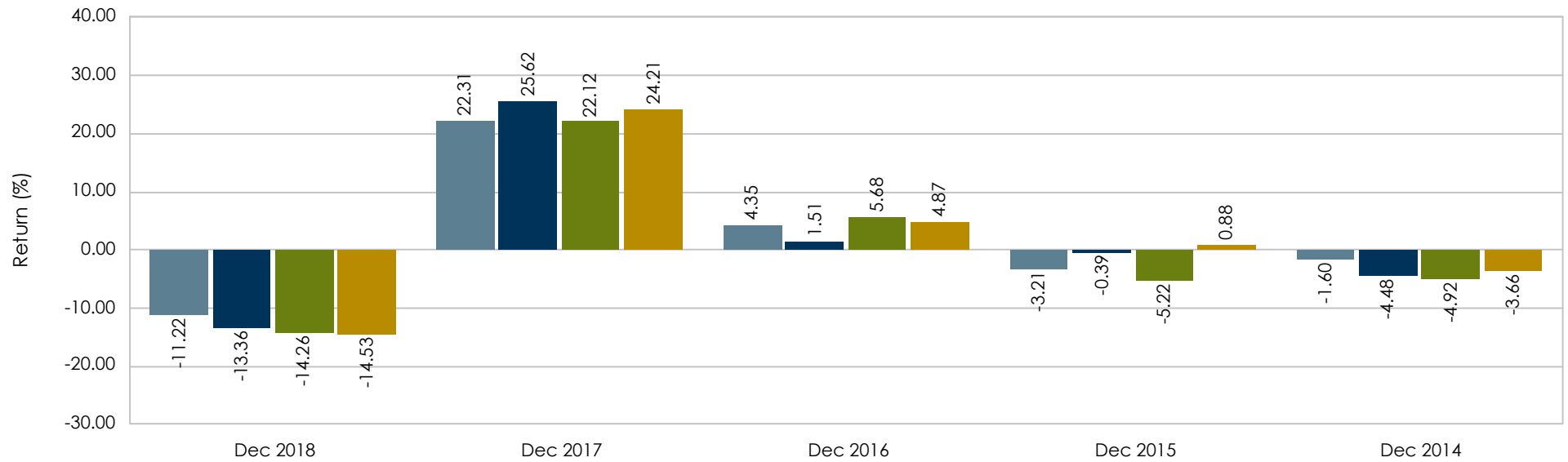


Ranking	11	12	18	39	41
5th Percentile	-9.02	-6.70	-7.64	7.34	4.52
25th Percentile	-10.66	-9.27	-12.56	5.95	3.15
50th Percentile	-12.91	-12.26	-14.53	3.75	0.86
75th Percentile	-14.28	-13.50	-17.69	1.47	-0.09
95th Percentile	-15.36	-14.63	-19.00	0.41	-1.21
Observations	32	32	32	31	30

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 December



	Dec 2018	Dec 2017	Dec 2016	Dec 2015	Dec 2014
Ranking	18	65	53	80	22
5th Percentile	-7.64	28.17	12.93	4.82	1.60
25th Percentile	-12.56	27.03	7.08	2.83	-2.46
50th Percentile	-14.53	24.21	4.87	0.88	-3.66
75th Percentile	-17.69	21.59	1.95	-2.01	-6.29
95th Percentile	-19.00	17.09	0.76	-6.85	-8.36
Observations	32	31	35	34	33

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.

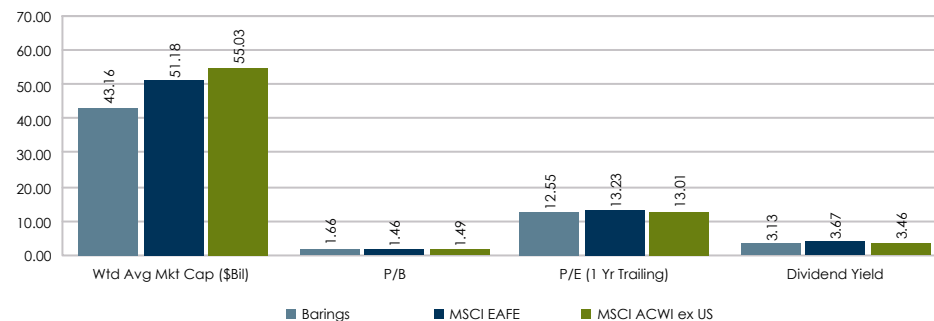
## Barings Focused EAFE Plus Equity

For the Periods Ending December 31, 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

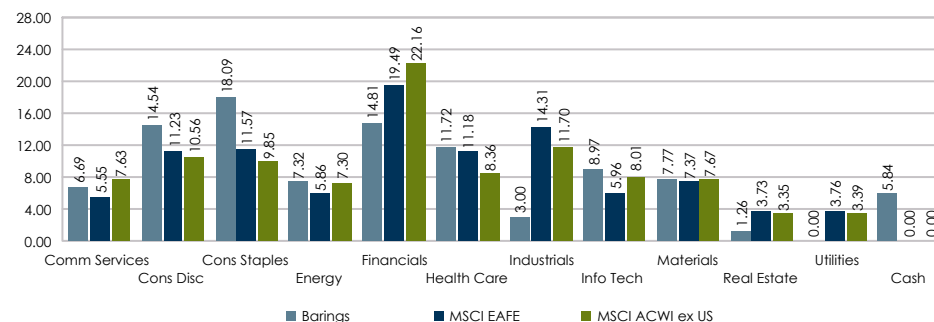
### Characteristics



### 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.

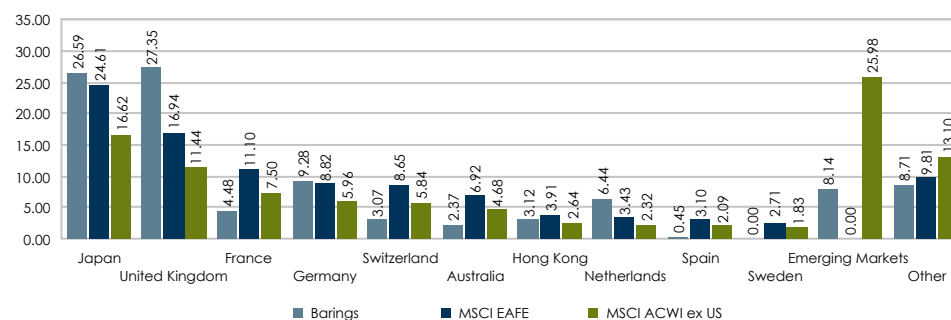
### Sector Allocation



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

	FYTD	1 Year
Beginning Market Value	122,126	123,385
Net Additions	-877	-1,122
Return on Investment	-15,783	-16,797
Ending Market Value	105,466	105,466

### Country Allocation



Characteristic and allocation charts represents data of the Baring Focused Int'l Equity (Non-Mutual Commingled).

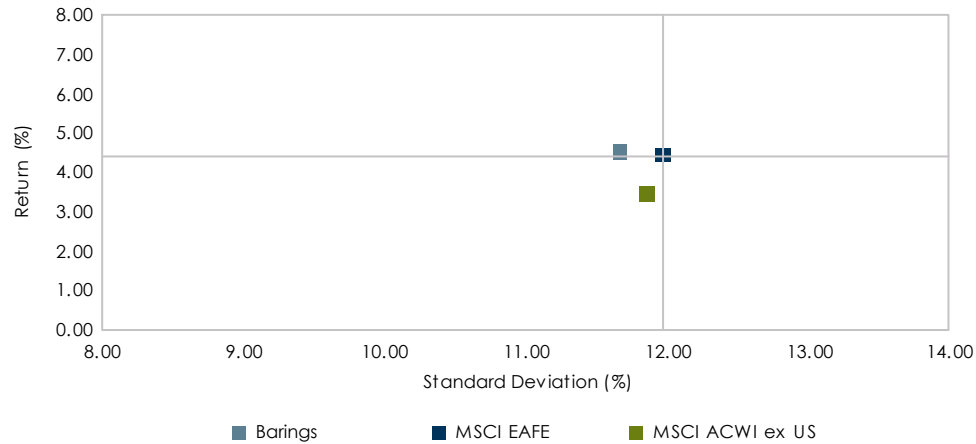
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## Barings Focused EAFE Plus Equity

For the Periods Ending December 31, 2018

### 6 Year Risk / Return



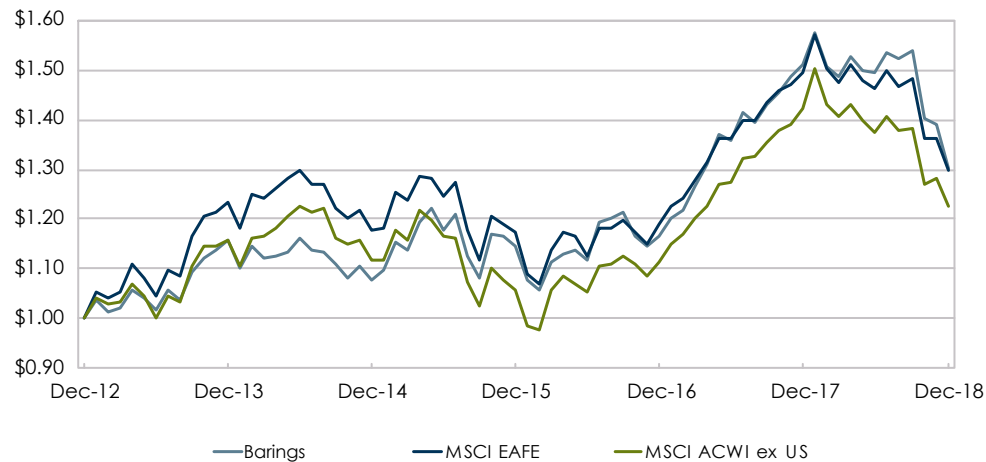
### 6 Year Portfolio Statistics

	Barings	MSCI EAFE	MSCI ACWI ex US
Return (%)	4.49	4.42	3.45
Standard Deviation (%)	11.67	11.97	11.86
Sharpe Ratio	0.34	0.33	0.25

### Benchmark Relative Statistics

Beta	0.93	0.91
R Squared (%)	90.51	85.52
Alpha (%)	0.40	1.36
Tracking Error (%)	3.70	4.57
Batting Average (%)	55.56	52.78
Up Capture (%)	97.14	91.90
Down Capture (%)	96.91	86.66

### 6 Year Growth of a Dollar

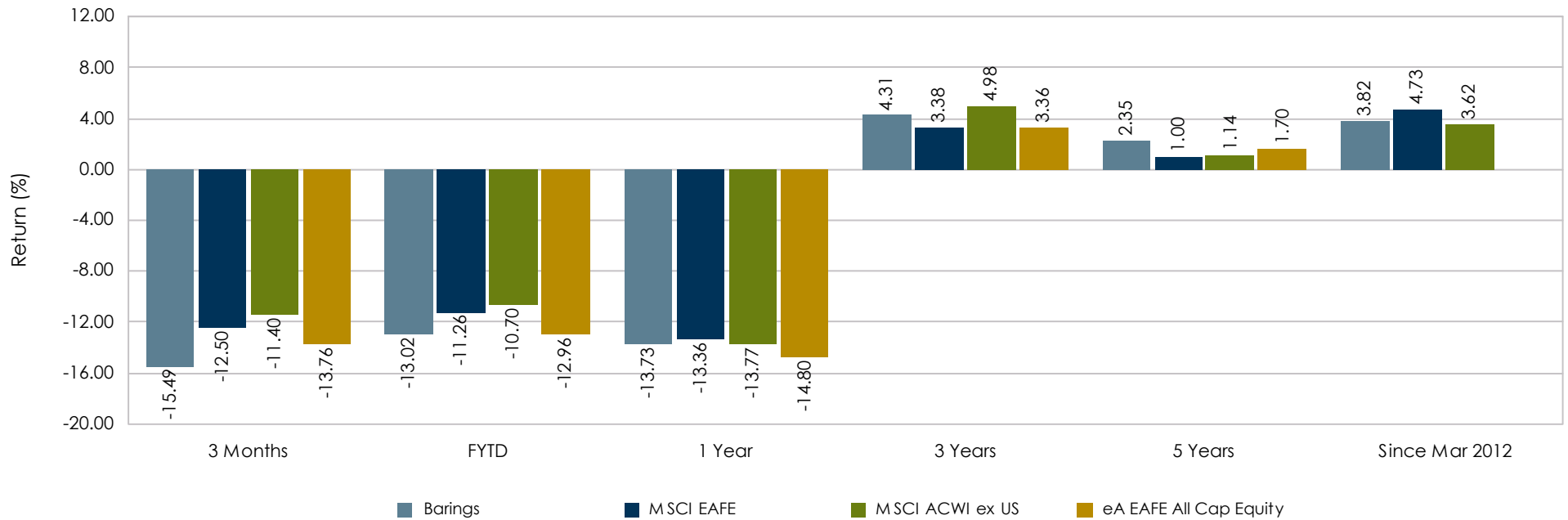


### 6 Year Return Analysis

	Barings	MSCI EAFE	MSCI ACWI ex US
Number of Months	72	72	72
Highest Monthly Return (%)	8.27	7.82	8.21
Lowest Monthly Return (%)	-8.97	-7.95	-8.12
Number of Positive Months	40	38	41
Number of Negative Months	32	34	31
% of Positive Months	55.56	52.78	56.94

### Barings Focused EAFE Plus Equity

For the Periods Ending December 31, 2018

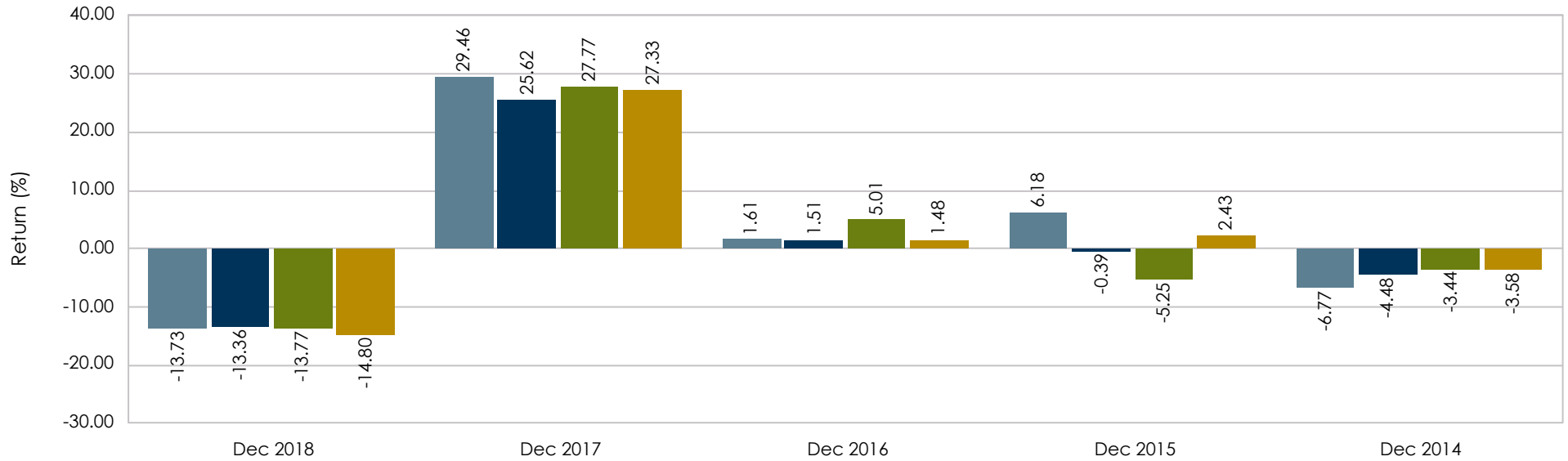


Ranking	86	52	42	32	36
5th Percentile	-9.45	-7.08	-8.43	7.35	4.58
25th Percentile	-11.56	-10.52	-11.85	4.99	2.96
50th Percentile	-13.76	-12.96	-14.80	3.36	1.70
75th Percentile	-14.72	-14.15	-17.13	1.80	0.70
95th Percentile	-16.80	-16.51	-19.13	0.36	-0.57
Observations	121	121	121	118	109

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.

### Barings Focused EAFE Plus Equity

For the One Year Periods Ending December



	Dec 2018	Dec 2017	Dec 2016	Dec 2015	Dec 2014
Ranking	42	24	49	13	87
5th Percentile	-8.43	36.84	8.80	7.19	1.47
25th Percentile	-11.85	29.20	4.30	3.97	-1.59
50th Percentile	-14.80	27.33	1.48	2.43	-3.58
75th Percentile	-17.13	24.28	-0.71	0.10	-5.61
95th Percentile	-19.13	18.93	-5.19	-4.78	-8.75
Observations	121	121	123	119	121

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.

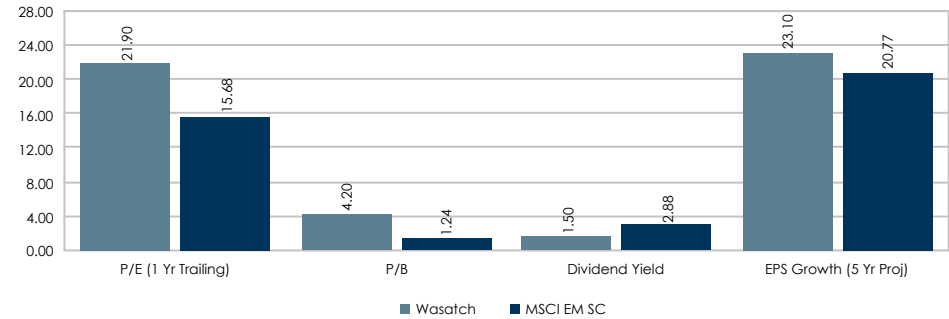
## Wasatch Emerging Markets

For the Periods Ending December 31, 2018

### Account Description

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

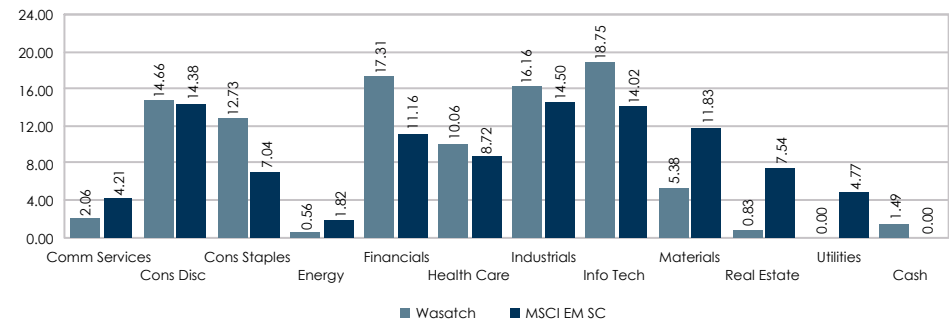
### Characteristics



### 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.

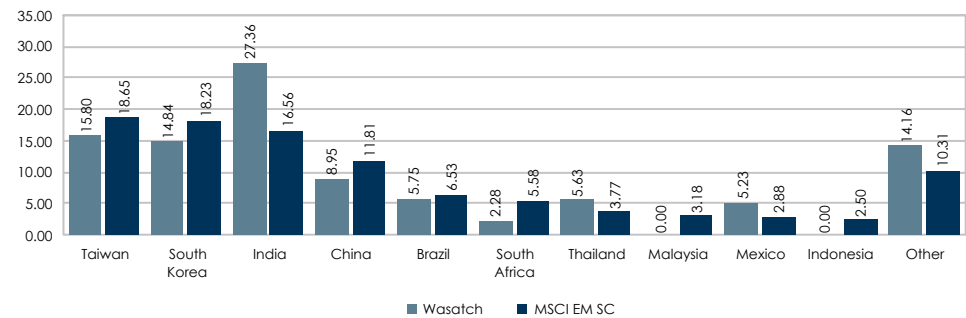
### Sector Allocation



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

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>36,569</b>	<b>38,720</b>
Net Additions	-242	-514
Return on Investment	-4,552	-6,431
<b>Ending Market Value</b>	<b>31,775</b>	<b>31,775</b>

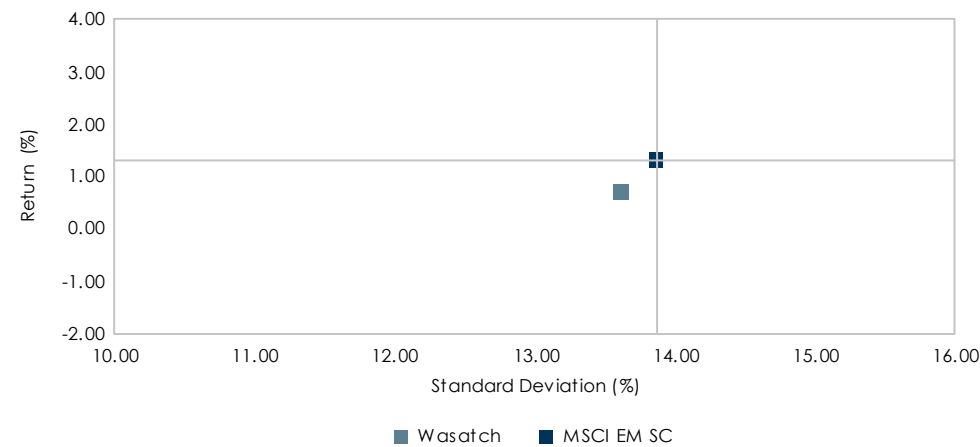
### Country Allocation



Wasatch Emerging Markets

For the Periods Ending December 31, 2018

6 Year Risk / Return



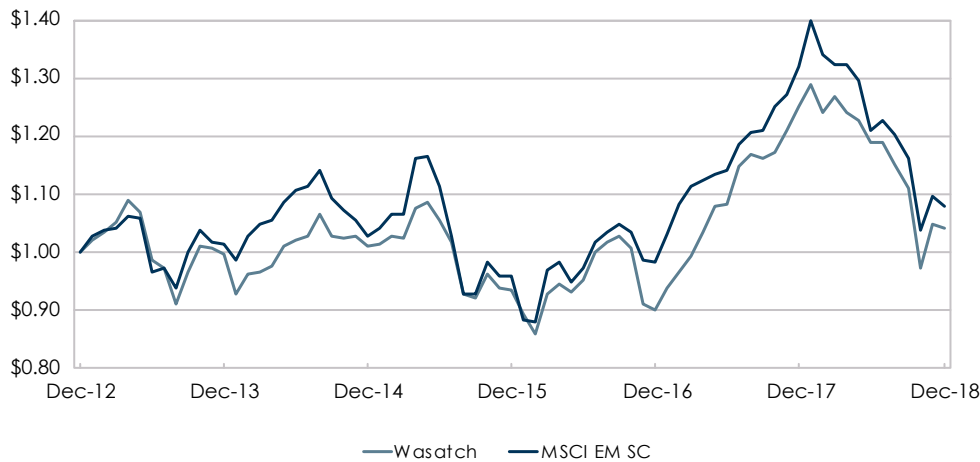
6 Year Portfolio Statistics

	Wasatch	MSCI EM SC
Return (%)	0.68	1.28
Standard Deviation (%)	13.61	13.87
Sharpe Ratio	0.01	0.06

Benchmark Relative Statistics

Beta	0.87
R Squared (%)	78.88
Alpha (%)	-0.34
Tracking Error (%)	6.50
Batting Average (%)	44.44
Up Capture (%)	91.54
Down Capture (%)	96.38

6 Year Growth of a Dollar

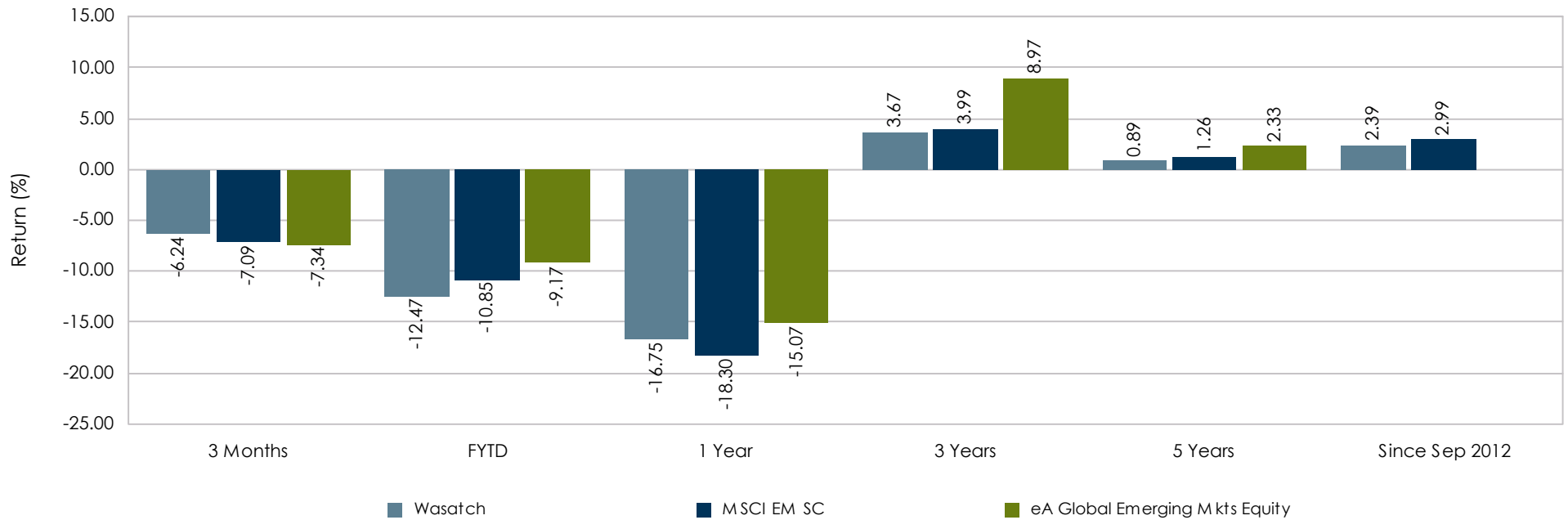


6 Year Return Analysis

	Wasatch	MSCI EM SC
Number of Months	72	72
Highest Monthly Return (%)	8.10	10.01
Lowest Monthly Return (%)	-12.45	-10.53
Number of Positive Months	39	42
Number of Negative Months	33	30
% of Positive Months	54.17	58.33

## Wasatch Emerging Markets

For the Periods Ending December 31, 2018

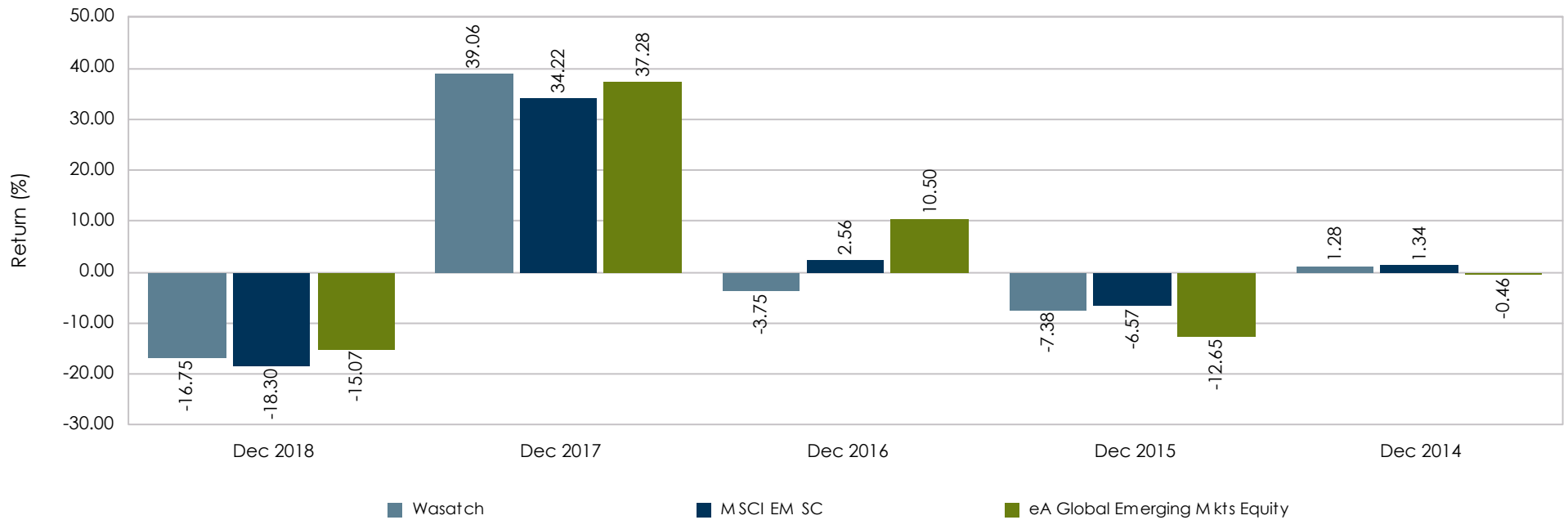


Ranking	33	83	68	97	87
5th Percentile	-3.19	-2.89	-9.02	13.29	5.55
25th Percentile	-5.83	-6.72	-13.18	10.30	3.55
50th Percentile	-7.34	-9.17	-15.07	8.97	2.33
75th Percentile	-8.63	-11.50	-17.49	7.12	1.49
95th Percentile	-11.14	-16.28	-22.20	4.07	-0.31
Observations	470	469	469	442	385

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 December



Ranking	68	39	99	17	33
5th Percentile	-9.02	49.39	23.16	-4.26	7.77
25th Percentile	-13.18	42.01	13.75	-9.06	2.61
50th Percentile	-15.07	37.28	10.50	-12.65	-0.46
75th Percentile	-17.49	32.94	6.78	-15.15	-2.54
95th Percentile	-22.20	26.93	-0.02	-19.16	-7.08
Observations	469	489	483	454	452

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.

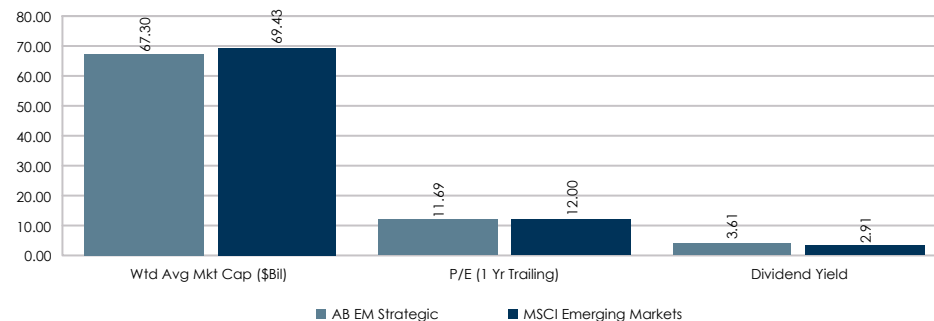
## AB EM Strategic Core Equity Fund

For the Periods Ending December 31, 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)

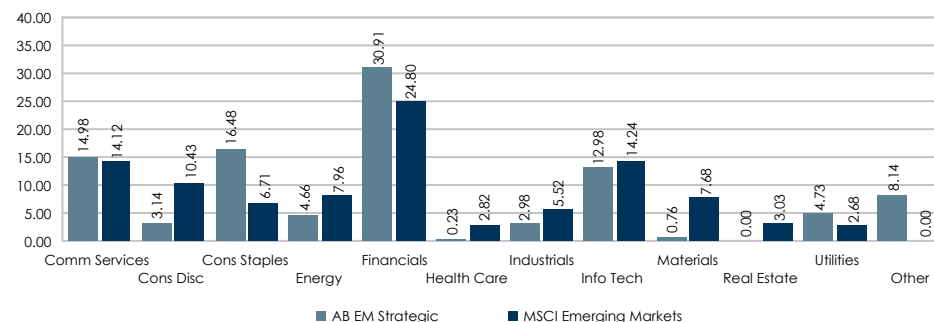
### Characteristics



### Performance Goals

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

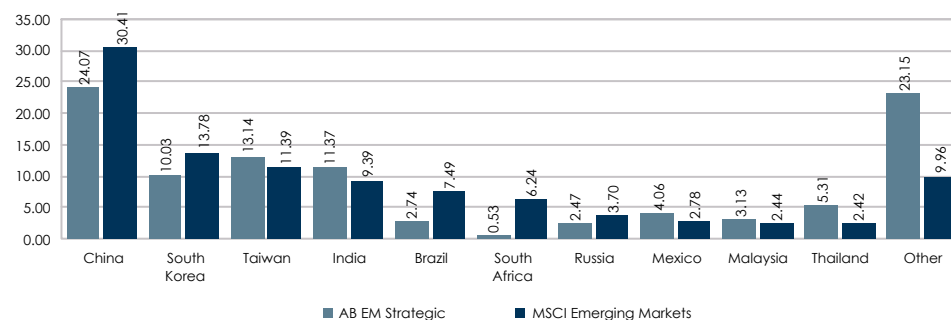
### Sector Allocation



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

	FYTD	1 Year
Beginning Market Value	81,104	86,962
Net Additions	0	0
Return on Investment	-8,229	-14,087
Ending Market Value	72,875	72,875

### Country Allocation

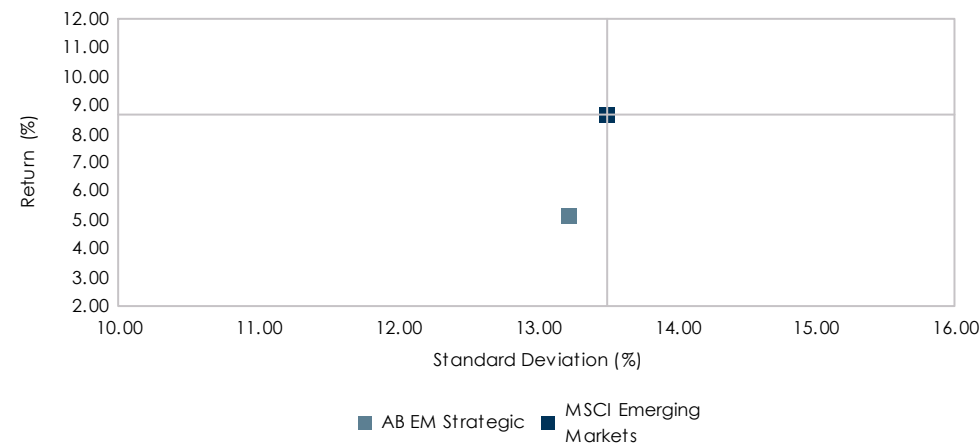




AB EM Strategic Core Equity Fund

For the Periods Ending December 31, 2018

2 Year Risk / Return



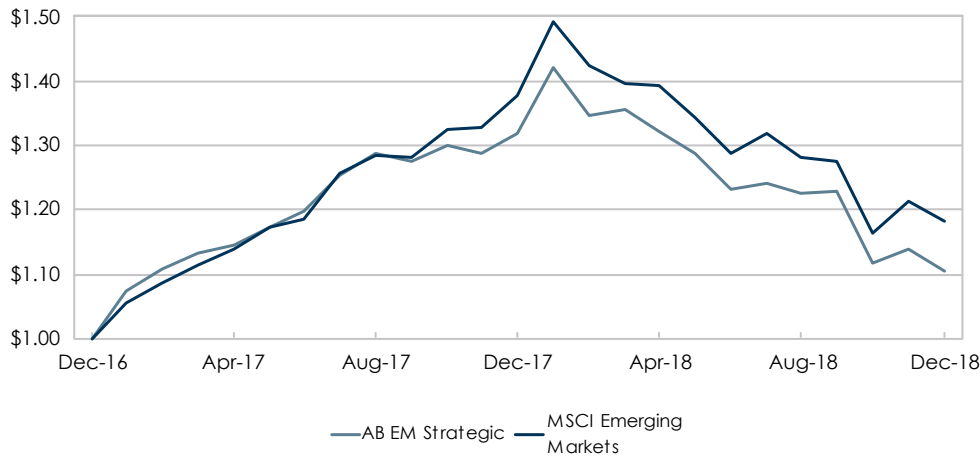
2 Year Portfolio Statistics

	AB EM Strategic	MSCI Emerging Markets
Return (%)	5.16	8.69
Standard Deviation (%)	13.24	13.50
Sharpe Ratio	0.29	0.55

Benchmark Relative Statistics

Beta	0.93
R Squared (%)	90.24
Alpha (%)	-2.69
Tracking Error (%)	4.24
Batting Average (%)	33.33
Up Capture (%)	80.28
Down Capture (%)	96.45

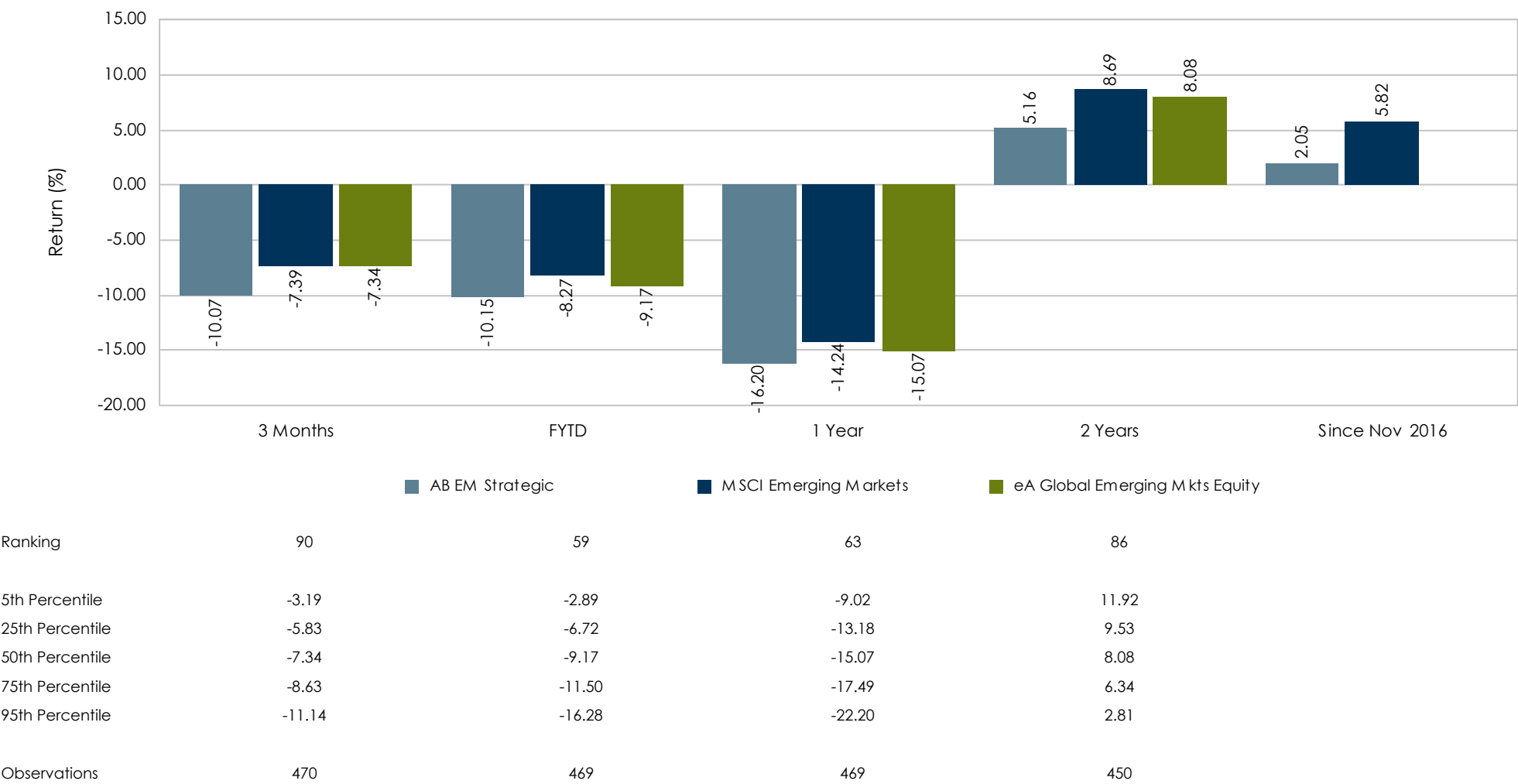
2 Year Growth of a Dollar



2 Year Return Analysis

	AB EM Strategic	MSCI Emerging Markets
Number of Months	24	24
Highest Monthly Return (%)	7.70	8.34
Lowest Monthly Return (%)	-9.21	-8.70
Number of Positive Months	15	14
Number of Negative Months	9	10
% of Positive Months	62.50	58.33

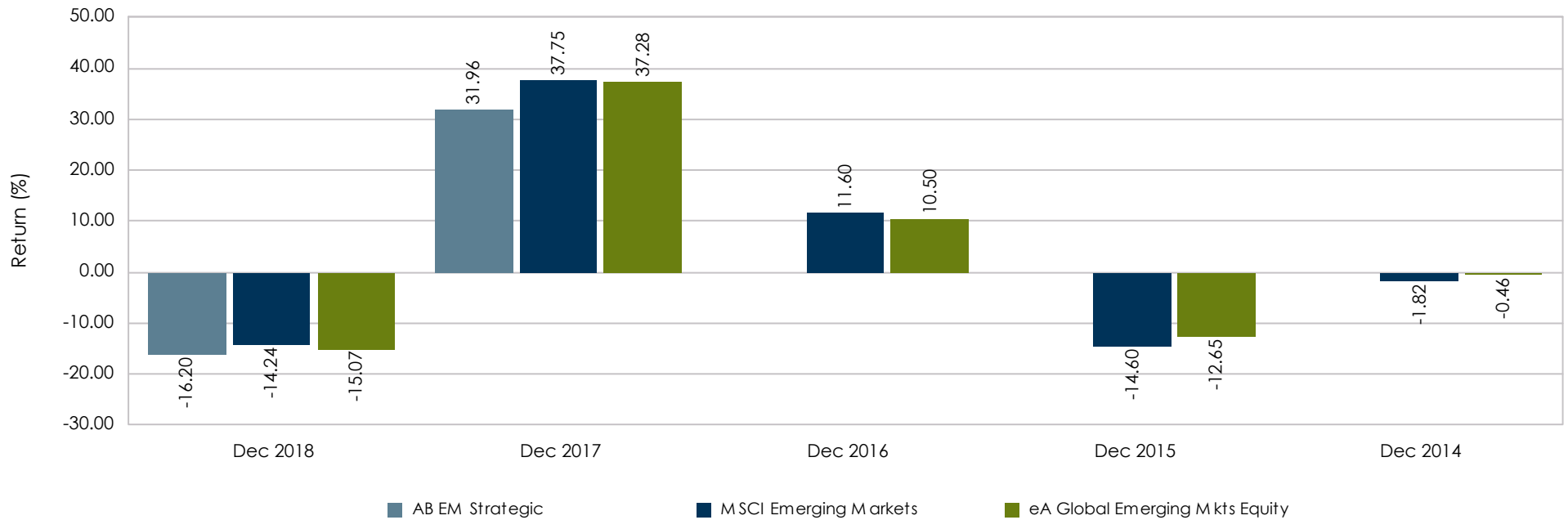
**AB EM Strategic Core Equity Fund**  
For the Periods Ending December 31, 2018



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.

### AB EM Strategic Core Equity Fund

For the One Year Periods Ending December



Ranking	63	79			
5th Percentile	-9.02	49.39	23.16	-4.26	7.77
25th Percentile	-13.18	42.01	13.75	-9.06	2.61
50th Percentile	-15.07	37.28	10.50	-12.65	-0.46
75th Percentile	-17.49	32.94	6.78	-15.15	-2.54
95th Percentile	-22.20	26.93	-0.02	-19.16	-7.08
Observations	469	489	483	454	452

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 December 31, 2018

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-19,962,402	26,080,459	6,118,057

### 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>670,700,000</b>	<b>550,152,475</b>	<b>143,872,653</b>	<b>616,388,428</b>	<b>205,286,859</b>	<b>821,675,287</b>	<b>1.49x</b>
<b>Buyout</b>	<b>Apr-99</b>	<b>228,200,000</b>	<b>192,972,850</b>	<b>50,042,490</b>	<b>242,940,935</b>	<b>57,709,030</b>	<b>300,649,965</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	72,028	18,326,410	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	1,690,682	20,780,124	1.96x
Arsenal Capital Partners II	Dec-06	15,000,000	14,991,977	575,879	29,926,943	3,958,088	33,885,031	2.26x
Sun Capital Partners V	May-07	12,500,000	12,742,438	2,028,257	10,655,628	5,110,875	15,766,503	1.24x
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	12,857,682	973,200	13,830,882	1.58x
Levine Leichtman IV	Sep-08	10,000,000	9,284,222	1,065,574	15,354,090	1,434,087	16,788,177	1.81x
Thompson Street Capital III	Oct-11	7,500,000	7,749,039	461,167	7,273,466	4,369,884	11,643,350	1.50x
Arsenal Capital Partners III	Apr-12	7,500,000	7,936,492	1,787,727	11,563,760	5,398,851	16,962,611	2.14x
Apollo Investment Fund VIII	Feb-14	7,500,000	7,179,898	1,375,127	2,366,561	6,947,081	9,313,642	1.30x
Francisco Partners Fund IV	Apr-15	8,000,000	7,796,000	204,000	2,388,000	9,914,135	12,302,135	1.58x
CenterOak Equity Fund I	Dec-15	7,500,000	4,777,371	2,722,629	93,525	4,997,176	5,090,701	1.07x
Thompson Street Capital Partners IV	Jan-16	7,500,000	6,391,905	1,108,095	1,357,461	5,810,457	7,167,918	1.12x
Leonard Green Equity Investors VII	May-17	7,500,000	3,449,877	4,082,130	32,007	3,447,596	3,479,603	1.01x
Francisco Partners Fund V	Jul-18	10,000,000	2,850,000	7,150,000	-	2,729,006	2,729,006	0.96x
Thompson Street Capital V	Aug-18	12,700,000	855,884	11,844,116	-	855,884	855,884	1.00x
Apollo Investment Fund IX		13,000,000	-	13,000,000	-	-	-	-

## Private Equity

For the Period Ending December 31, 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>124,645,572</b>	<b>19,313,418</b>	<b>160,461,528</b>	<b>21,211,101</b>	<b>181,672,629</b>	<b>1.46x</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	-	6,505,696	52,244	6,557,940	1.64x
Oaktree Opportunities Fund VI	Aug-05	4,000,000	4,000,000	-	6,317,103	1,810	6,318,913	1.58x
Siguler Guff Dist Opp II	Sep-05	20,000,000	20,005,669	375	27,952,068	566,267	28,518,335	1.43x
Oaktree Opportunities VII A	Mar-07	7,500,000	7,554,219	-	10,028,864	367,023	10,395,887	1.38x
Oaktree Opportunities VII B	Jun-08	7,500,000	6,750,000	750,000	11,503,542	226,725	11,730,267	1.74x
Siguler Guff Dist Opp III	Sep-08	15,000,000	14,480,311	600,000	20,565,614	2,658,513	23,224,127	1.60x
Oaktree Opportunities VIII	Dec-09	7,500,000	6,750,000	750,000	9,573,767	549,211	10,122,978	1.50x
Oaktree Opportunities IX	Mar-13	7,500,000	7,500,000	-	2,388,312	6,055,189	8,443,501	1.13x
Oaktree European Dislocation Fund	Nov-13	7,500,000	4,285,544	3,214,456	4,562,943	306,113	4,869,056	1.14x
Oaktree Opportunities Fund X	Jul-15	7,500,000	6,975,000	1,275,000	750,000	6,350,110	7,100,110	1.02x
Apollo EPF III	Jan-18	10,000,000	3,838,913	6,161,087	456,067	3,147,476	3,603,543	0.94x
Oaktree Opportunities Fund Xb	Jun-18	7,500,000	937,500	6,562,500	-	930,420	930,420	0.99x
<b>Emerging Markets Focused</b>	Mar-12	<b>7,500,000</b>	<b>6,874,667</b>	<b>1,361,728</b>	<b>2,041,755</b>	<b>6,360,524</b>	<b>8,402,279</b>	<b>1.22x</b>
Actis EM IV	Mar-12	7,500,000	6,874,667	1,361,728	2,041,755	6,360,524	8,402,279	1.22x
<b>Mezzanine</b>	Mar-99	<b>49,500,000</b>	<b>49,935,169</b>	<b>5,268,087</b>	<b>70,165,819</b>	<b>1,779,112</b>	<b>71,944,931</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	20,839,306	20,584	20,859,890	2.05x
TCW Crescent IV	Jun-06	10,000,000	9,873,180	1,921,076	11,226,828	25,286	11,252,114	1.14x
Newstone Capital Partners	Nov-06	5,000,000	5,697,863	116,709	7,070,952	20,617	7,091,569	1.24x
TCW Mezzanine Fund V	Mar-08	10,000,000	7,336,349	2,663,651	9,958,042	667,868	10,625,910	1.45x
Newstone Capital Partners II	Dec-10	7,500,000	10,112,733	366,327	11,277,079	1,044,757	12,321,836	1.22x
<b>Other</b>	Feb-13	<b>46,500,000</b>	<b>21,411,989</b>	<b>26,522,953</b>	<b>8,396,250</b>	<b>18,480,892</b>	<b>26,877,142</b>	<b>1.26x</b>
EnCap Energy Fund IX	Feb-13	6,500,000	7,158,650	15,261	4,533,601	4,990,906	9,524,507	1.33x
EnCap Energy Fund X	Apr-15	7,500,000	6,347,949	1,718,199	1,757,741	5,854,779	7,612,520	1.20x
ArcLight Energy Partners VI	Aug-15	7,500,000	6,833,255	861,628	2,104,908	6,767,542	8,872,450	1.30x
EnCap Energy Fund XI	Jul-17	10,000,000	1,072,135	8,927,865	-	867,665	867,665	0.81x
ArcLight Energy Partners Fund VII, L.P.		15,000,000	-	15,000,000	-	-	-	-
<b>Secondary Fund of Funds</b>	Dec-05	<b>20,000,000</b>	<b>21,439,062</b>	<b>326,939</b>	<b>27,353,609</b>	<b>2,190,374</b>	<b>29,543,983</b>	<b>1.38x</b>
Lexington VI	Dec-05	20,000,000	21,439,062	326,939	27,353,609	2,190,374	29,543,983	1.38x

## Private Equity

For the Period Ending December 31, 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>175,500,000</b>	<b>132,873,166</b>	<b>41,037,038</b>	<b>105,028,532</b>	<b>97,555,826</b>	<b>202,584,358</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>174,956</b>	10,571,890	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>923,099</b>	13,326,830	1.33x
Knightsbridge Fund VI	Dec-04	12,000,000	11,232,000	768,000	9,852,368	<b>6,797,372</b>	16,649,740	1.48x
Firstmark I (Pequot, Firstmark IV)	Nov-05	5,000,000	4,950,000	50,000	15,380,412	<b>20,191,262</b>	35,571,674	7.19x
Weathergag Venture Capital	Mar-07	7,500,000	6,862,500	637,500	8,403,343	<b>5,549,689</b>	13,953,032	2.03x
Warburg Pincus	Oct-07	15,000,000	15,000,000	-	17,058,498	<b>6,464,451</b>	23,522,949	1.57x
Weathergag Venture Cap II	Apr-11	7,500,000	6,975,000	525,000	2,999,518	<b>11,409,347</b>	14,408,865	2.07x
Firstmark II (Firstmark V)	Aug-11	5,000,000	5,022,365	-	497,531	<b>8,499,975</b>	8,997,506	1.79x
Warburg Pincus XI	Nov-12	7,500,000	7,500,000	-	4,552,378	<b>7,023,044</b>	11,575,422	1.54x
Firstmark Capital Fund III	Feb-14	5,000,000	4,575,000	425,000	141,977	<b>5,630,331</b>	5,772,308	1.26x
Firstmark Capital Opportunity Fund I	Jun-14	5,000,000	5,075,000	186,808	441,498	<b>6,604,259</b>	7,045,757	1.39x
Warburg Pincus XII	Dec-15	10,000,000	7,070,000	2,930,000	334,230	<b>7,705,901</b>	8,040,131	1.14x
Weathergag Venture Capital IV	Dec-16	10,000,000	4,400,000	5,600,000	-	<b>4,454,521</b>	4,454,521	1.01x
FirstMark Capital Fund IV	Apr-17	7,500,000	2,325,000	5,175,000	-	<b>2,401,241</b>	2,401,241	1.03x
FirstMark Capital Opportunity Fund II	Jan-18	7,500,000	3,750,000	3,750,000	-	<b>3,726,378</b>	3,726,378	0.99x
Warburg Pincus Global Growth		20,000,000	-	20,000,000	-	-	-	-

## **Fixed Income Manager Performance**

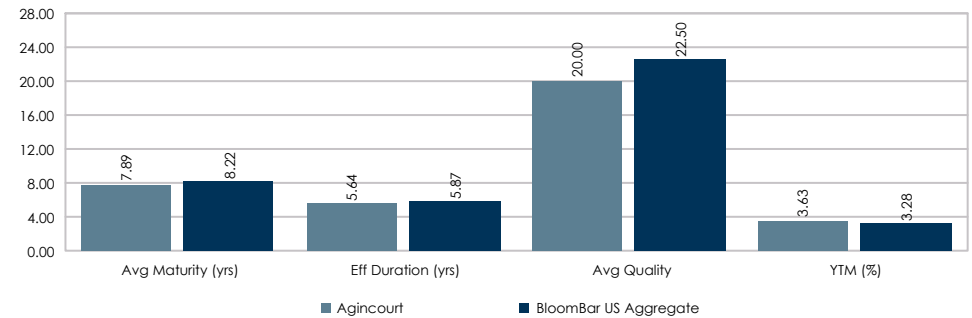
## Agincourt Core Fixed Income

For the Periods Ending December 31, 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

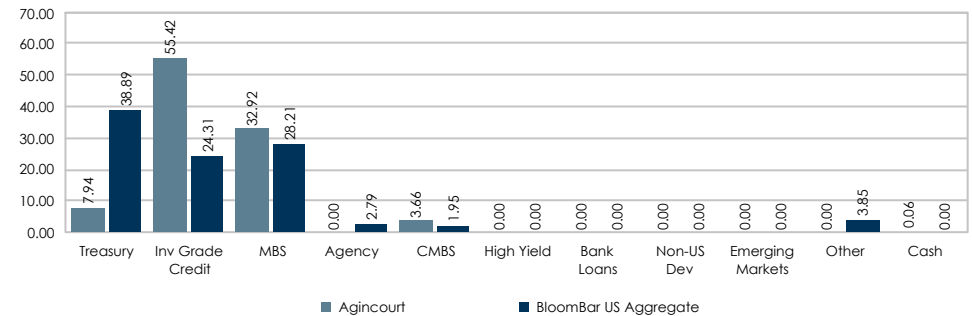
### Characteristics



### Performance Goals

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

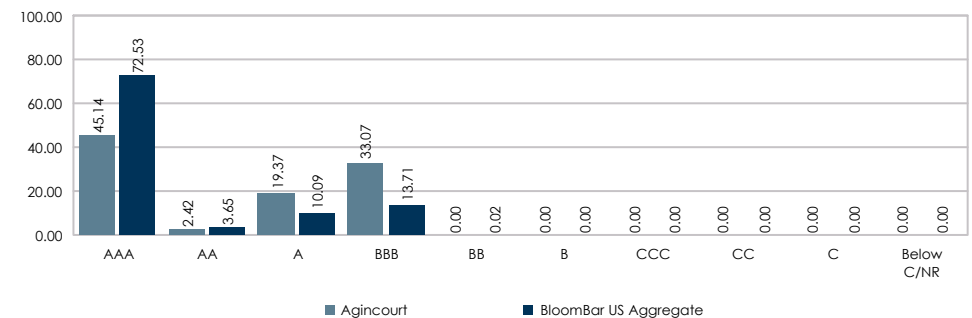
### Sector Allocation



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

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>169,624</b>	<b>172,704</b>
Net Additions	-199	-352
Return on Investment	2,996	69
Income	3,206	6,497
Gain/Loss	-210	-6,428
<b>Ending Market Value</b>	<b>172,421</b>	<b>172,421</b>

### Quality Allocation



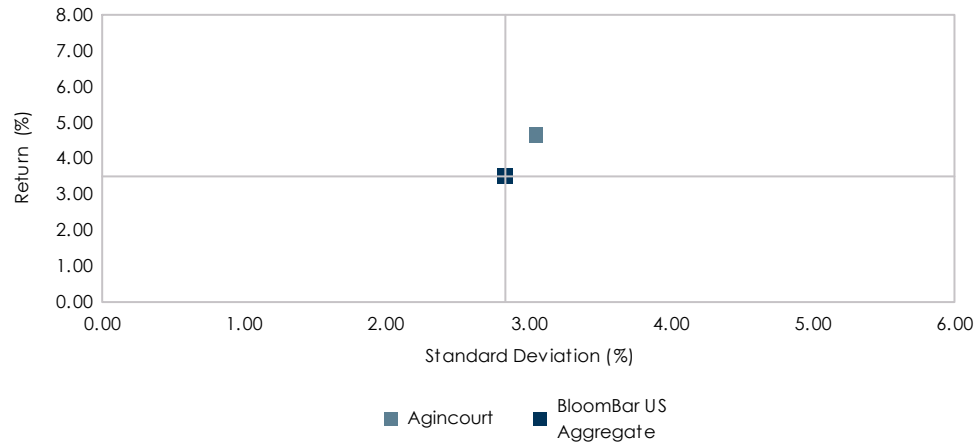
The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.



## Agincourt Core Fixed Income

For the Periods Ending December 31, 2018

### 10 Year Risk / Return



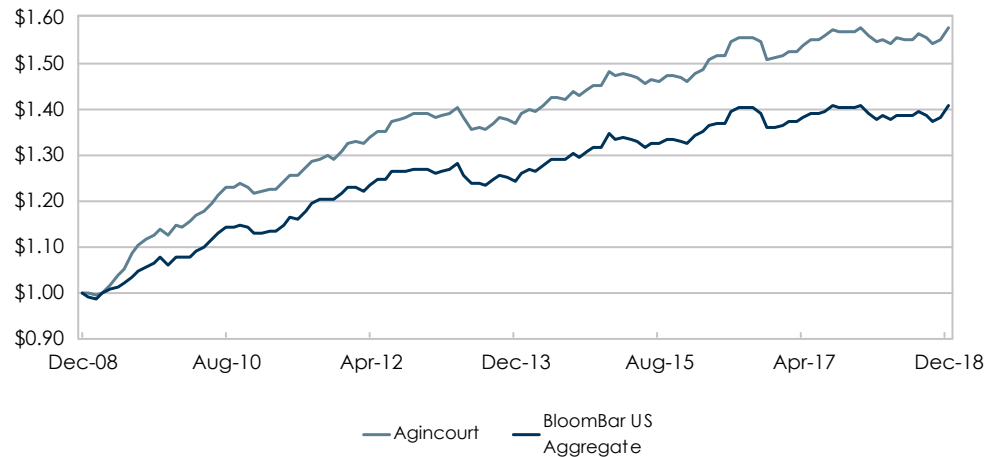
### 10 Year Portfolio Statistics

	Agincourt	BloomBar US Aggregate
Return (%)	4.66	3.48
Standard Deviation (%)	3.05	2.84
Sharpe Ratio	1.42	1.11

### Benchmark Relative Statistics

Beta	0.99
R Squared (%)	85.37
Alpha (%)	1.17
Tracking Error (%)	1.17
Batting Average (%)	64.17
Up Capture (%)	114.55
Down Capture (%)	86.91

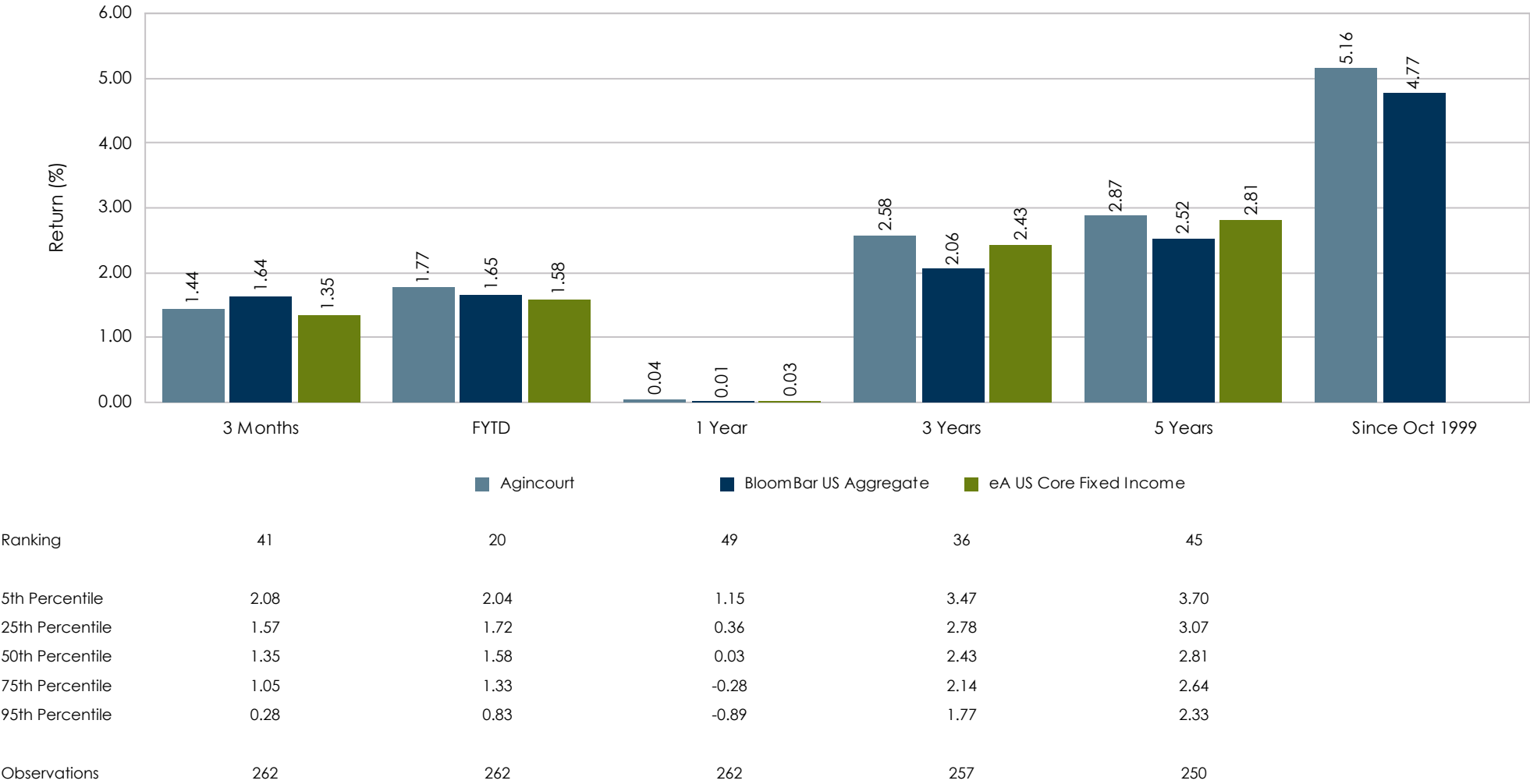
### 10 Year Growth of a Dollar



### 10 Year Return Analysis

	Agincourt	BloomBar US Aggregate
Number of Months	120	120
Highest Monthly Return (%)	3.11	2.10
Lowest Monthly Return (%)	-2.37	-2.37
Number of Positive Months	80	79
Number of Negative Months	40	41
% of Positive Months	66.67	65.83

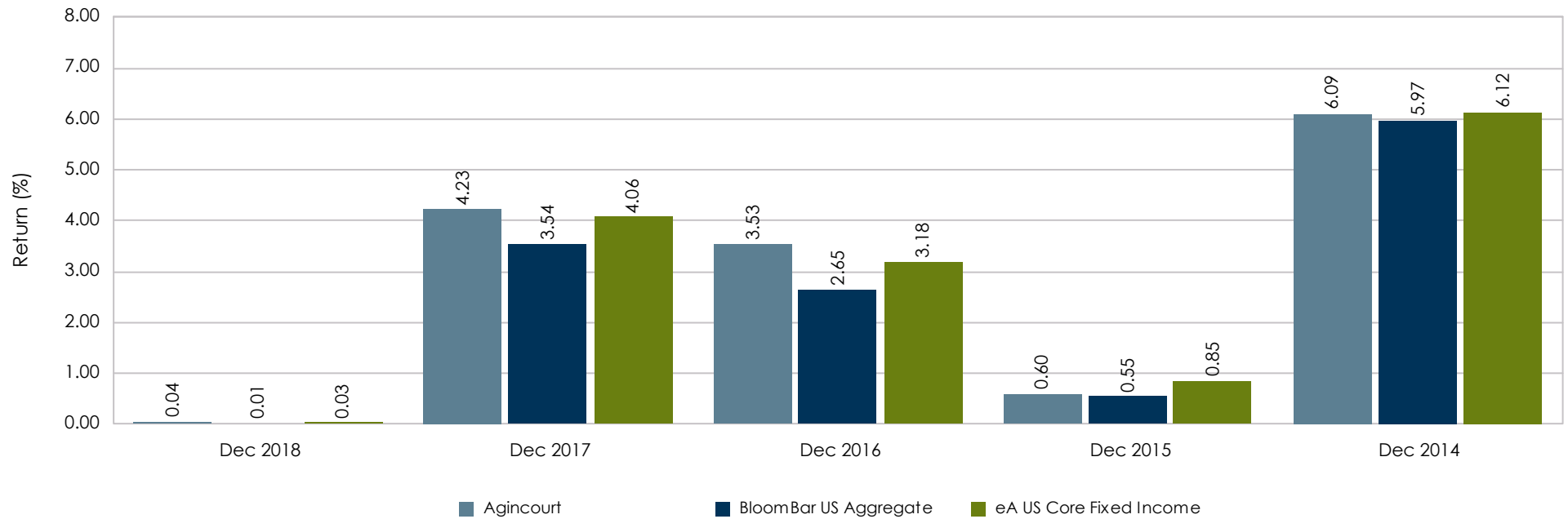
**Agincourt Core Fixed Income**  
For the Periods Ending December 31, 2018



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.

## Agincourt Core Fixed Income

For the One Year Periods Ending December



Ranking	49	37	38	72	53
5th Percentile	1.15	5.28	5.14	2.15	7.68
25th Percentile	0.36	4.45	3.85	1.23	6.60
50th Percentile	0.03	4.06	3.18	0.85	6.12
75th Percentile	-0.28	3.64	2.75	0.55	5.60
95th Percentile	-0.89	2.93	2.02	-0.07	4.07
Observations	262	268	254	255	270

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 Global Credit Fund

For the Periods Ending December 31, 2018

### Account Description

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

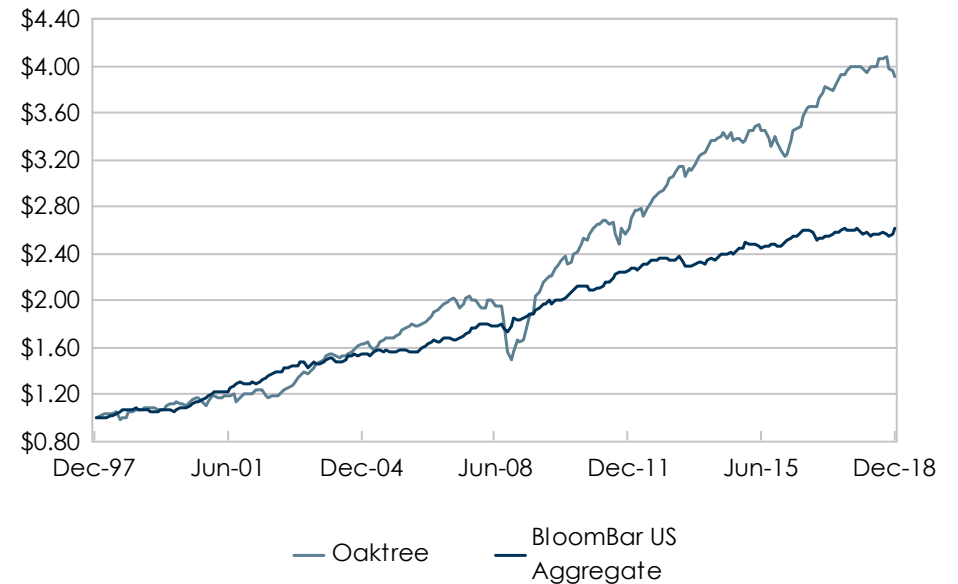
### Performance Goals

- Outperform the BloomBar US Aggregate.

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

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>123,596</b>	<b>123,392</b>
Net Additions	-382	-228
Return on Investment	-2,874	-2,825
<b>Ending Market Value</b>	<b>120,339</b>	<b>120,339</b>

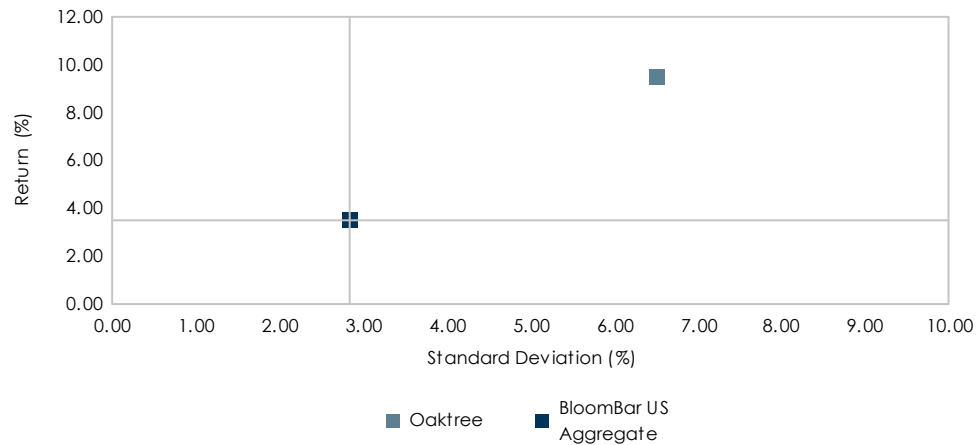
### Growth of a Dollar



## Oaktree Global Credit Fund

For the Periods Ending December 31, 2018

### 10 Year Risk / Return



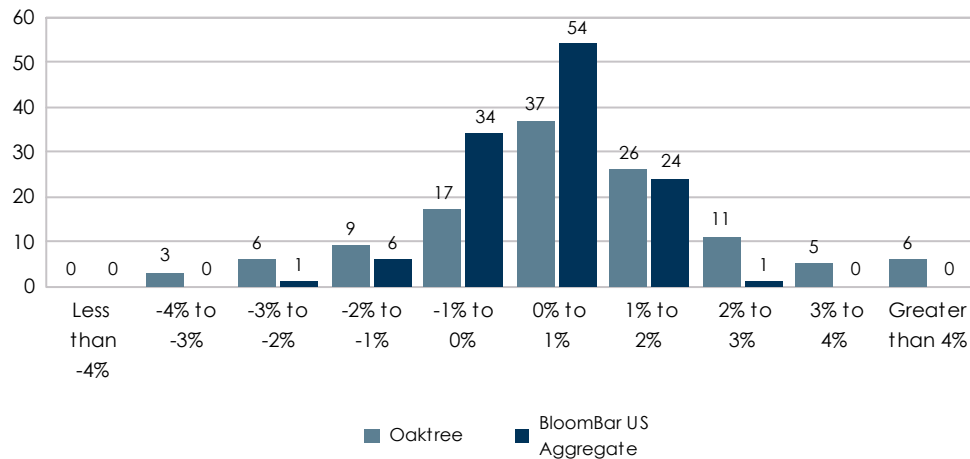
### 10 Year Portfolio Statistics

	Oaktree	BloomBar US Aggregate
Return (%)	9.53	3.48
Standard Deviation (%)	6.52	2.84
Sharpe Ratio	1.41	1.11

### Benchmark Relative Statistics

Beta	0.32
R Squared (%)	1.94
Alpha (%)	8.55
Tracking Error (%)	6.74
Batting Average (%)	60.83
Up Capture (%)	147.30
Down Capture (%)	-28.78

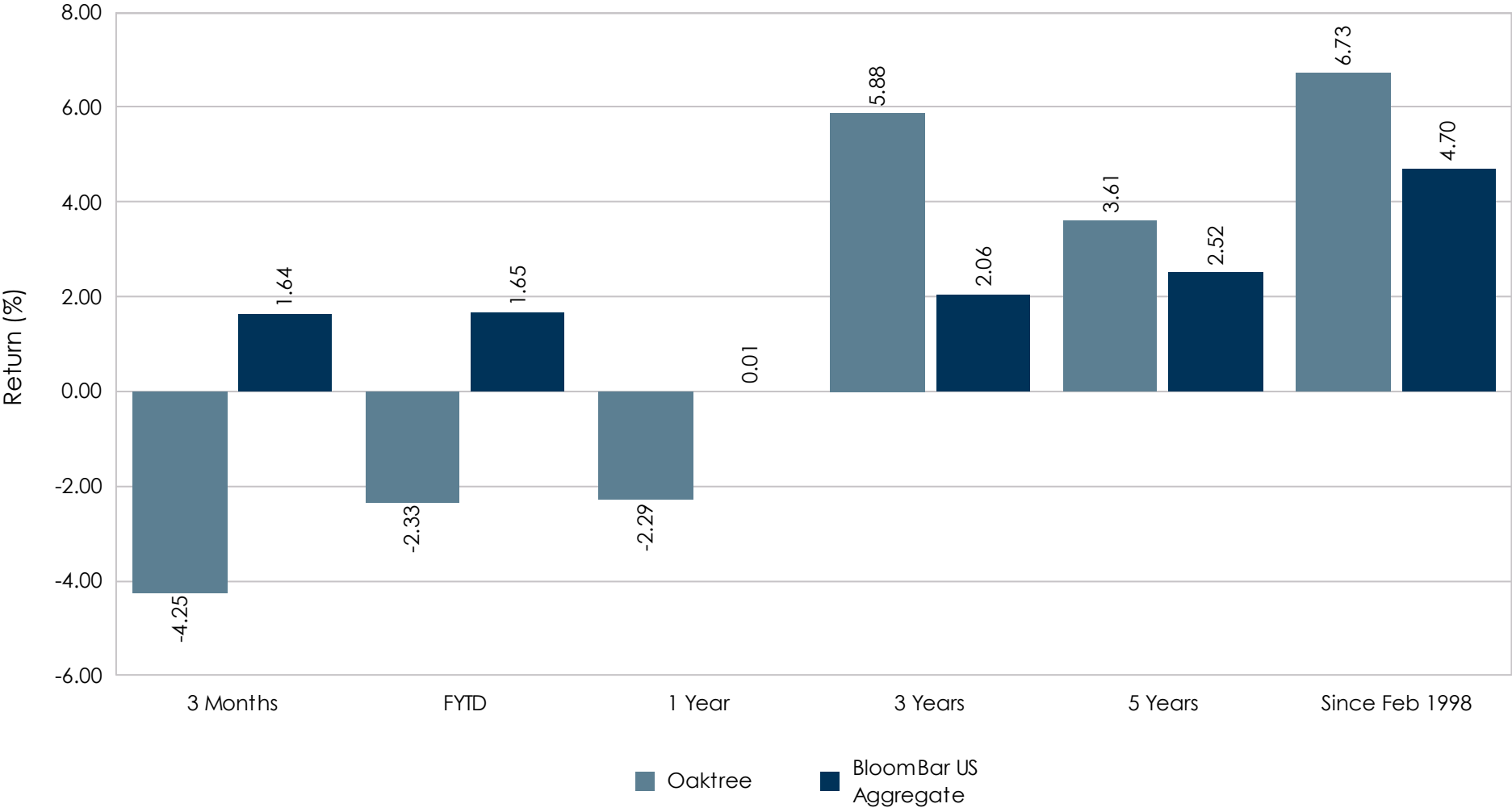
### 10 Year Return Histogram



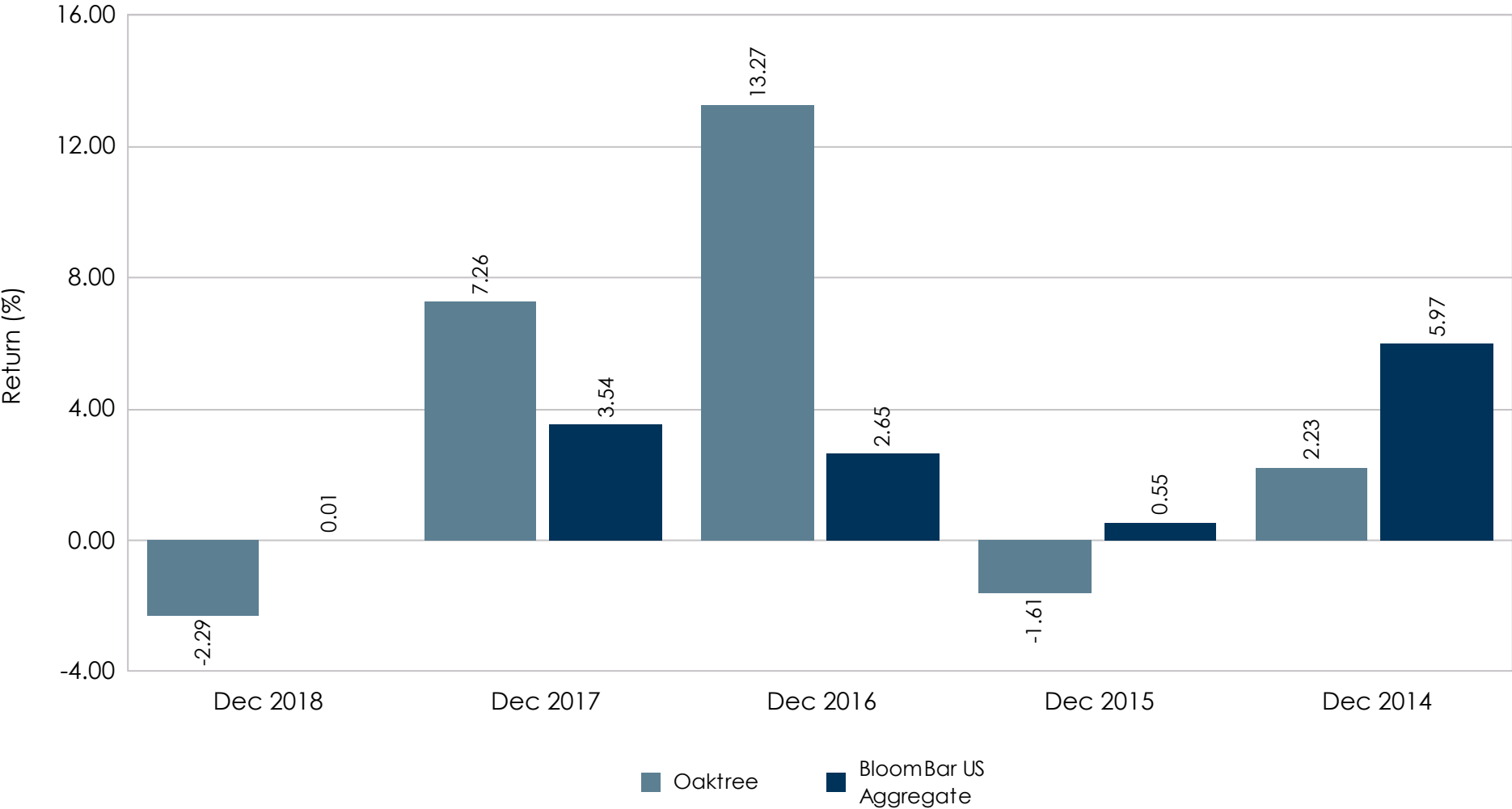
### 10 Year Return Analysis

	Oaktree	BloomBar US Aggregate
Number of Months	120	120
Highest Monthly Return (%)	7.58	2.10
Lowest Monthly Return (%)	-3.96	-2.37
Number of Positive Months	85	79
Number of Negative Months	35	41
% of Positive Months	70.83	65.83

**Oaktree Global Credit Fund**  
*For the Periods Ending December 31, 2018*



**Oaktree Global Credit Fund**  
*For the One Year Periods Ending December*



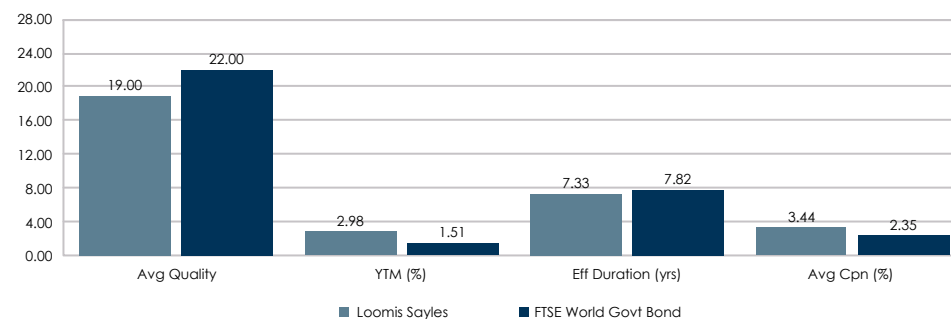
## Loomis Sayles

For the Periods Ending December 31, 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

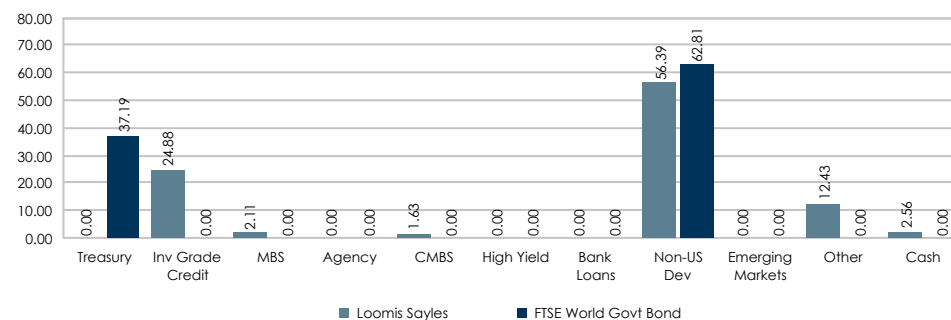
### Characteristics



### 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.

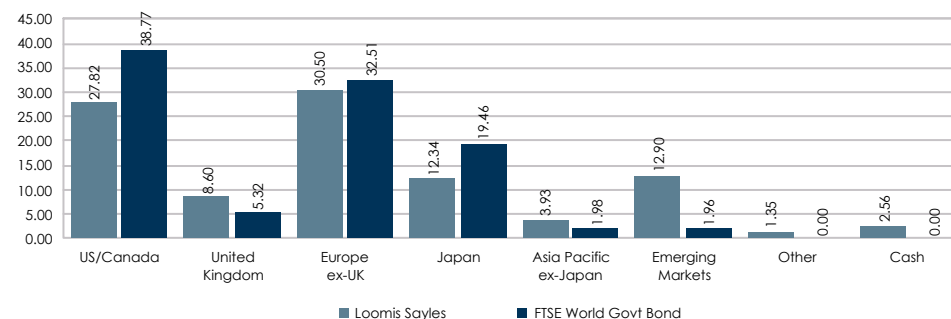
### Sector Allocation



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

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>96,749</b>	<b>98,389</b>
Net Additions	-160	-320
Return on Investment	-270	-1,750
<b>Ending Market Value</b>	<b>96,319</b>	<b>96,319</b>

### Regional Allocation



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

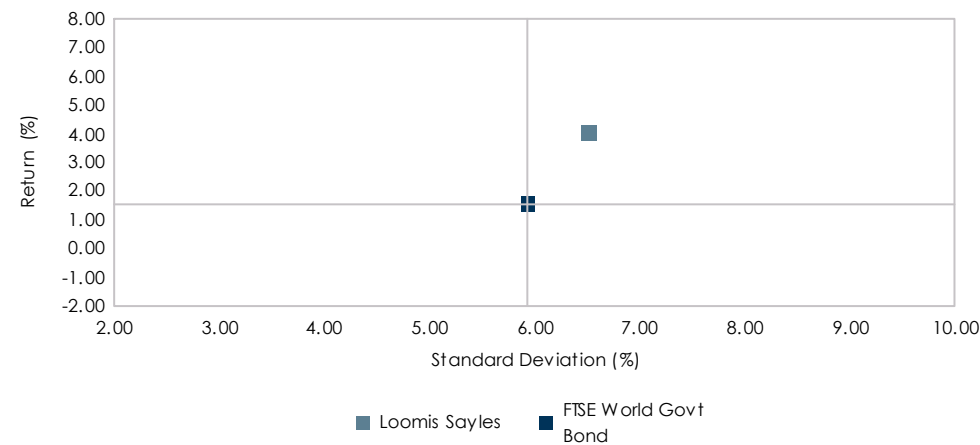
The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.



Loomis Sayles

For the Periods Ending December 31, 2018

10 Year Risk / Return



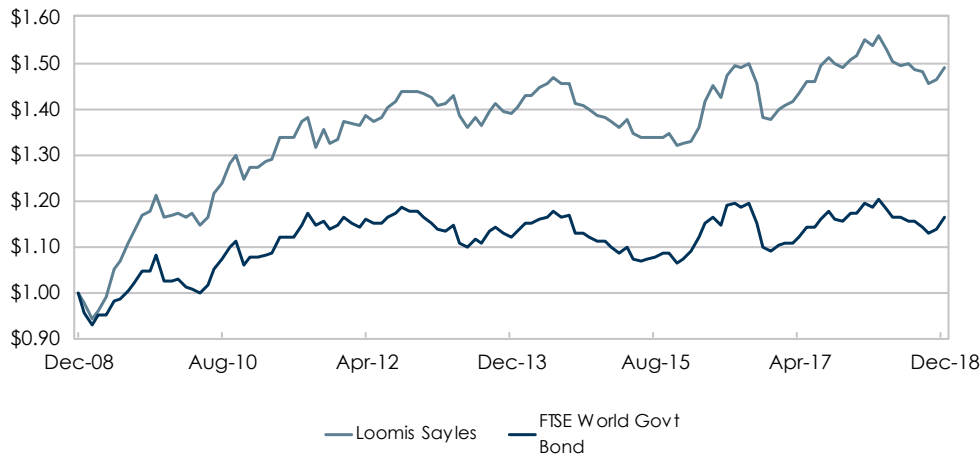
10 Year Portfolio Statistics

	Loomis Sayles	FTSE World Govt Bond
Return (%)	4.07	1.52
Standard Deviation (%)	6.51	5.94
Sharpe Ratio	0.58	0.20

Benchmark Relative Statistics

Beta	1.00
R Squared (%)	83.58
Alpha (%)	2.54
Tracking Error (%)	2.64
Batting Average (%)	65.00
Up Capture (%)	124.05
Down Capture (%)	92.34

10 Year Growth of a Dollar

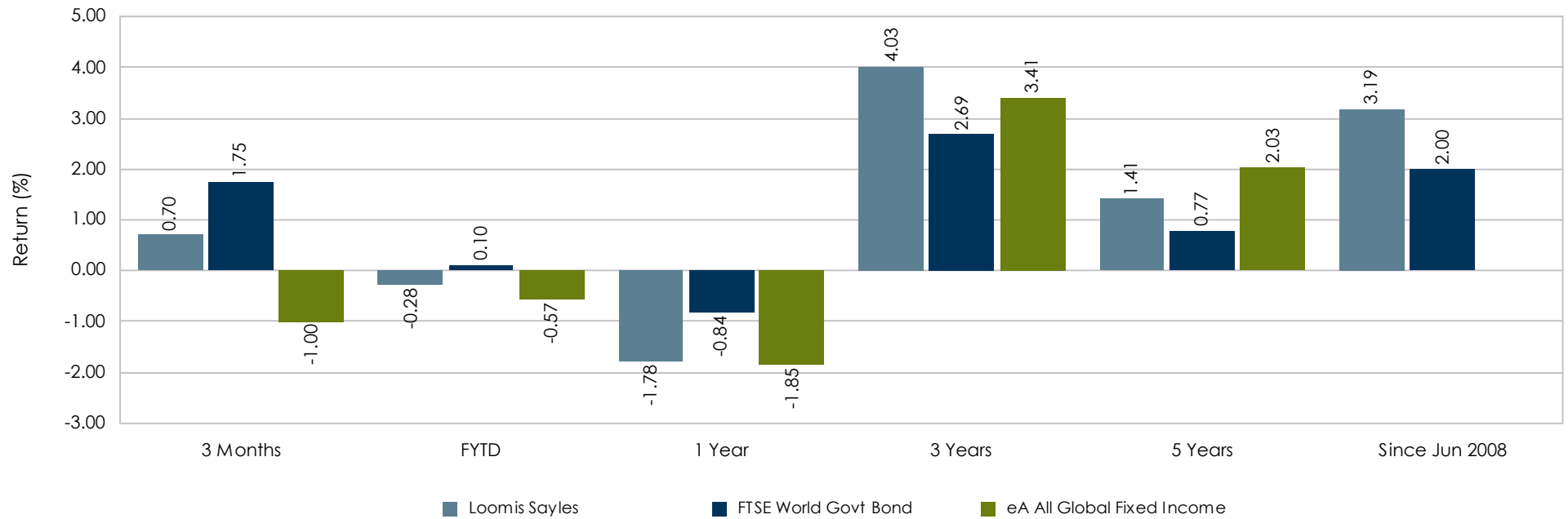


10 Year Return Analysis

	Loomis Sayles	FTSE World Govt Bond
Number of Months	120	120
Highest Monthly Return (%)	6.12	3.69
Lowest Monthly Return (%)	-4.95	-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 December 31, 2018

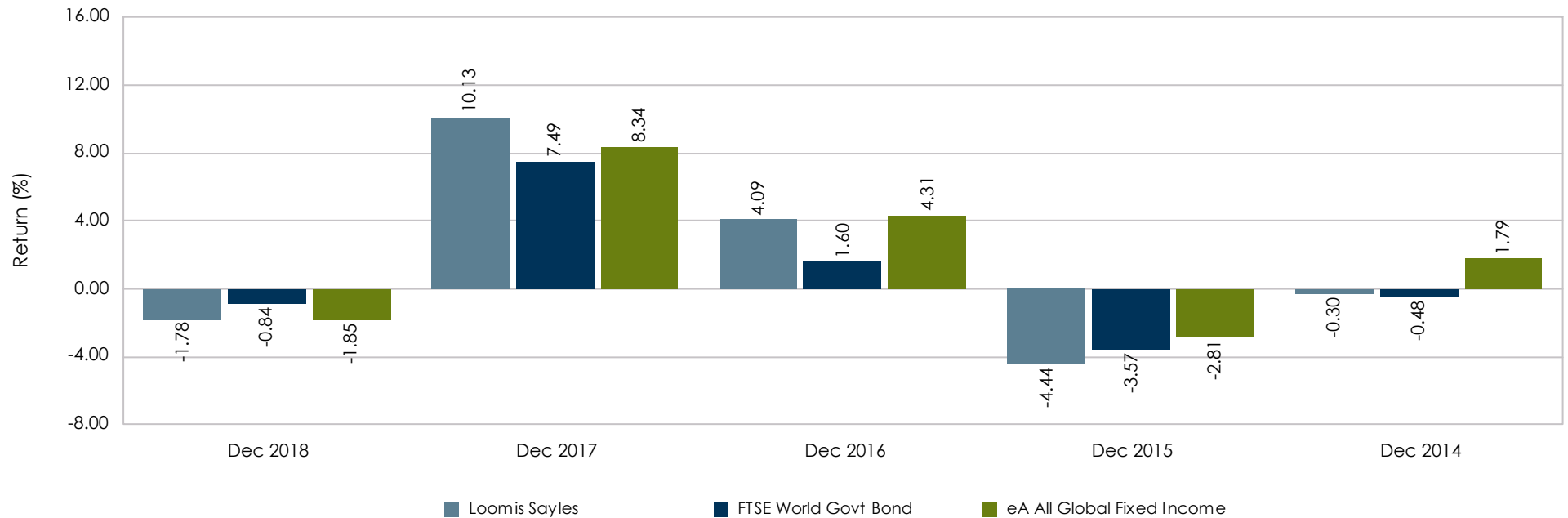


Ranking	21	44	49	35	62
5th Percentile	1.95	1.66	2.19	7.04	4.76
25th Percentile	0.44	0.48	-0.26	4.78	3.60
50th Percentile	-1.01	-0.57	-1.85	3.41	2.03
75th Percentile	-2.78	-2.38	-4.56	2.43	0.47
95th Percentile	-5.65	-4.86	-9.12	0.23	-2.42
Observations	629	629	628	603	532

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 December



Ranking	49	34	53	69	71
5th Percentile	2.19	18.98	14.45	2.40	8.53
25th Percentile	-0.26	11.54	7.47	0.15	4.38
50th Percentile	-1.85	8.34	4.31	-2.81	1.79
75th Percentile	-4.56	6.17	1.66	-5.53	-1.17
95th Percentile	-9.12	2.56	-4.33	-10.95	-8.84
Observations	628	693	677	671	679

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 December 31, 2018

### Summary of Cash Flows for 6 Months

Cash Outflows	Cash Inflows	Net Cash Flows
-13,771,763	4,039,730	-9,732,033

### Summary of Portfolio Inception to Date

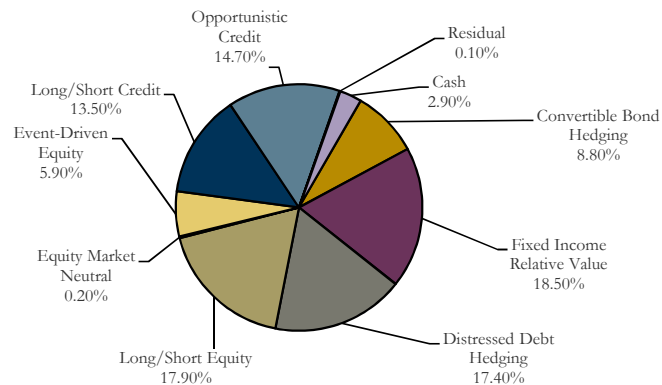
	Inception Date	Committed	Drawn to Date	Remaining Commitment	Distributions to Date	Adjusted Ending Value	Total Value	Total Value to Paid-in
<b>Total</b>	<b>Sep-16</b>	<b>90,000,000</b>	<b>45,654,055</b>	<b>45,091,080</b>	<b>9,649,091</b>	<b>40,812,061</b>	<b>50,461,152</b>	<b>1.11x</b>
<b>Mezzanine</b>	Jan-17	<b>20,000,000</b>	<b>17,154,055</b>	<b>2,912,102</b>	<b>5,181,983</b>	<b>14,311,503</b>	<b>19,493,486</b>	<b>1.14x</b>
Newstone Capital Partners III	Jan-17	20,000,000	17,154,055	2,912,102	5,181,983	14,311,503	19,493,486	1.14x
<b>Other</b>	Sep-16	<b>70,000,000</b>	<b>28,500,000</b>	<b>42,178,978</b>	<b>4,467,108</b>	<b>26,500,558</b>	<b>30,967,666</b>	<b>1.09x</b>
LBC Credit Partners Fund IV	Sep-16	40,000,000	24,000,000	16,678,978	4,467,108	22,000,558	26,467,666	1.10x
Apollo Accord II	Oct-18	30,000,000	4,500,000	25,500,000	-	4,500,000	4,500,000	1.00x

## PAAMCO

For the Periods Ending December 31, 2018

### Sector Allocation

Market Value: \$125,725,734



### Strategy

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

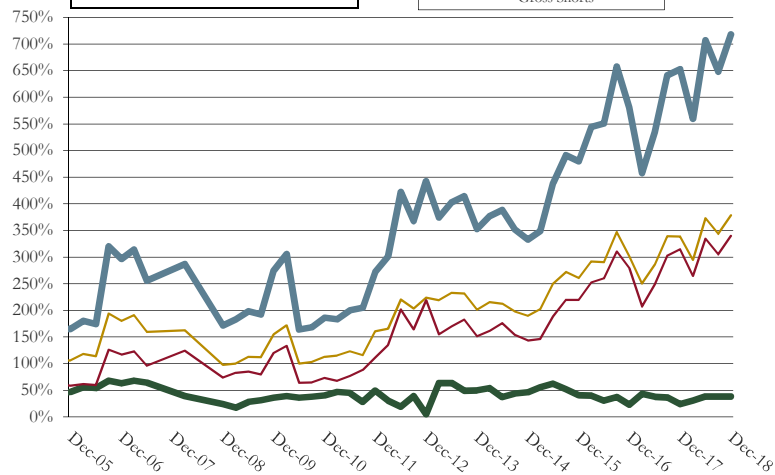
### Objectives and Constraints

- 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	329.51%
Net Exposure	42.40%

Net Exposure	
Gross Exposure	
Gross Longs	
Gross Shorts	



### Exposure

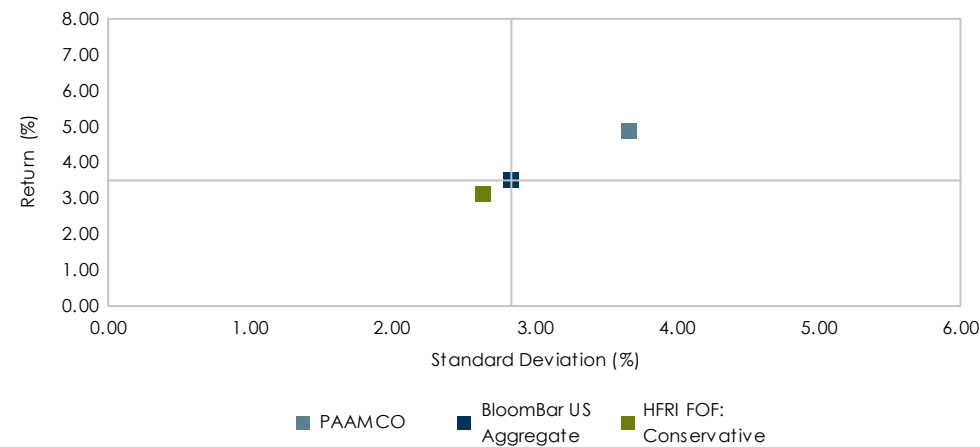
- Net Exposure: 38.50%
- Gross Exposure: 718.30%

Characteristic data provided by manager.

PAAMCO

For the Periods Ending December 31, 2018

10 Year Risk / Return



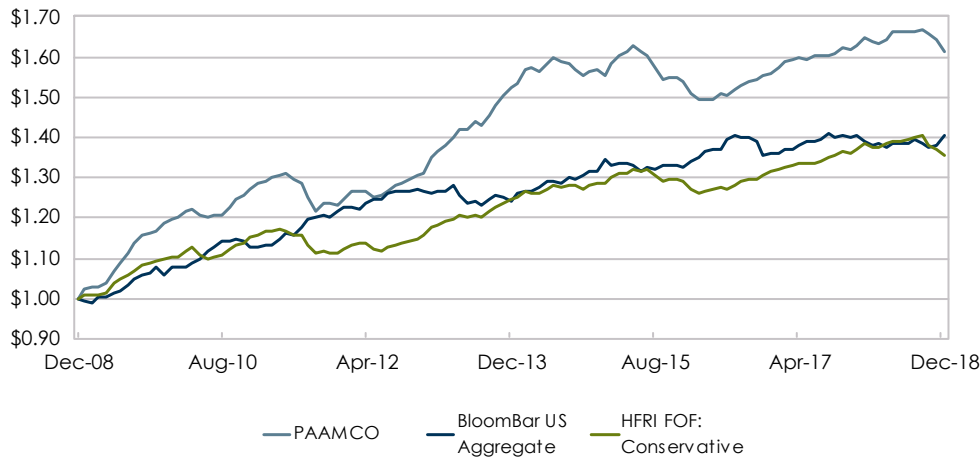
10 Year Portfolio Statistics

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Return (%)	4.89	3.48	3.11
Standard Deviation (%)	3.67	2.84	2.64
Sharpe Ratio	1.25	1.11	1.05

Benchmark Relative Statistics

Beta	-0.25	1.22
R Squared (%)	3.82	77.73
Alpha (%)	5.87	1.07
Tracking Error (%)	5.06	1.83
Batting Average (%)	61.67	61.67
Up Capture (%)	49.88	133.26
Down Capture (%)	-78.78	100.64

10 Year Growth of a Dollar

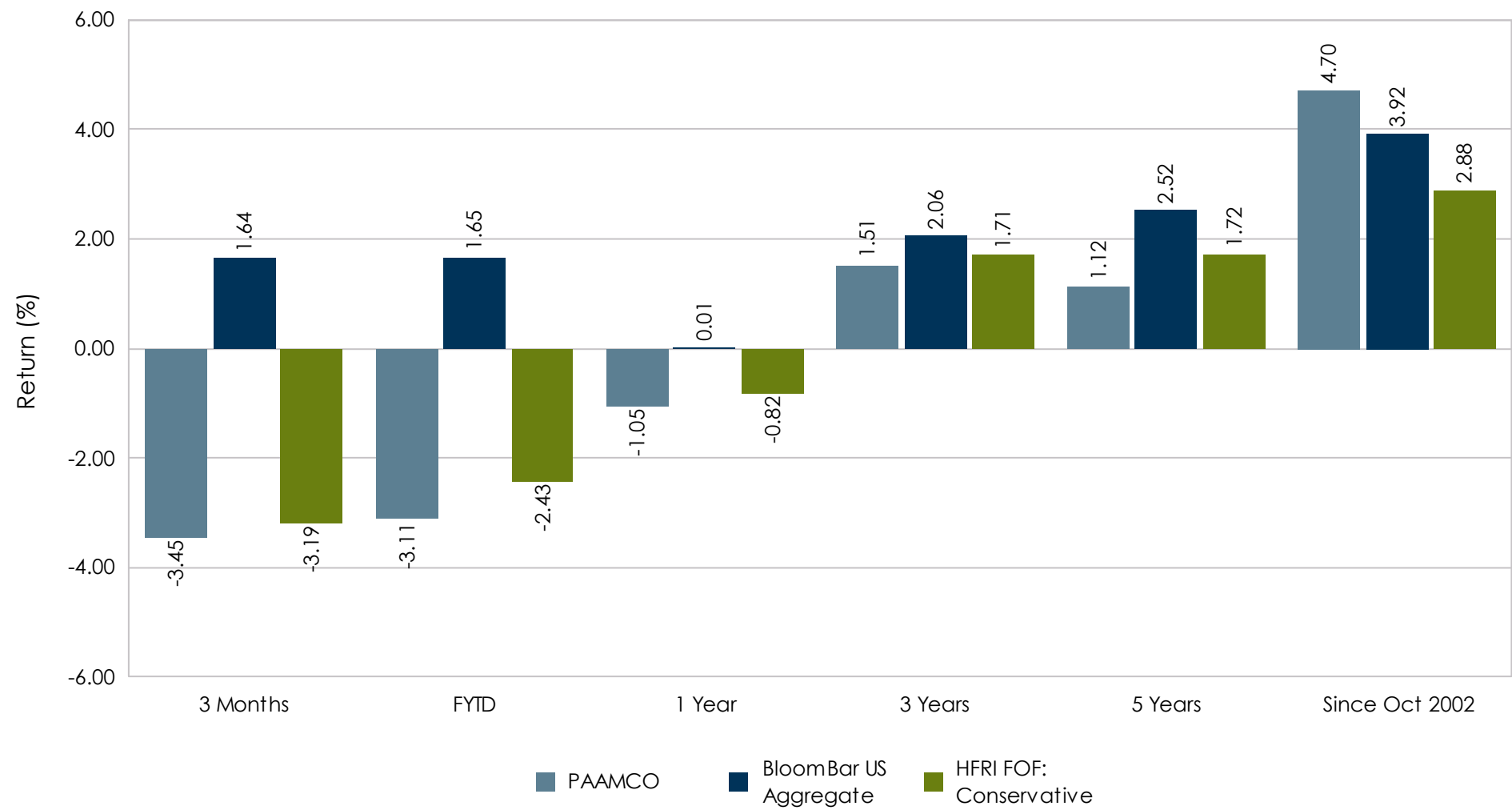


10 Year Return Analysis

	PAAMCO	BloomBar US Aggregate	HFRI FOF: Conservative
Number of Months	120	120	120
Highest Monthly Return (%)	2.84	2.10	2.42
Lowest Monthly Return (%)	-2.99	-2.37	-2.13
Number of Positive Months	82	79	86
Number of Negative Months	38	41	34
% of Positive Months	68.33	65.83	71.67

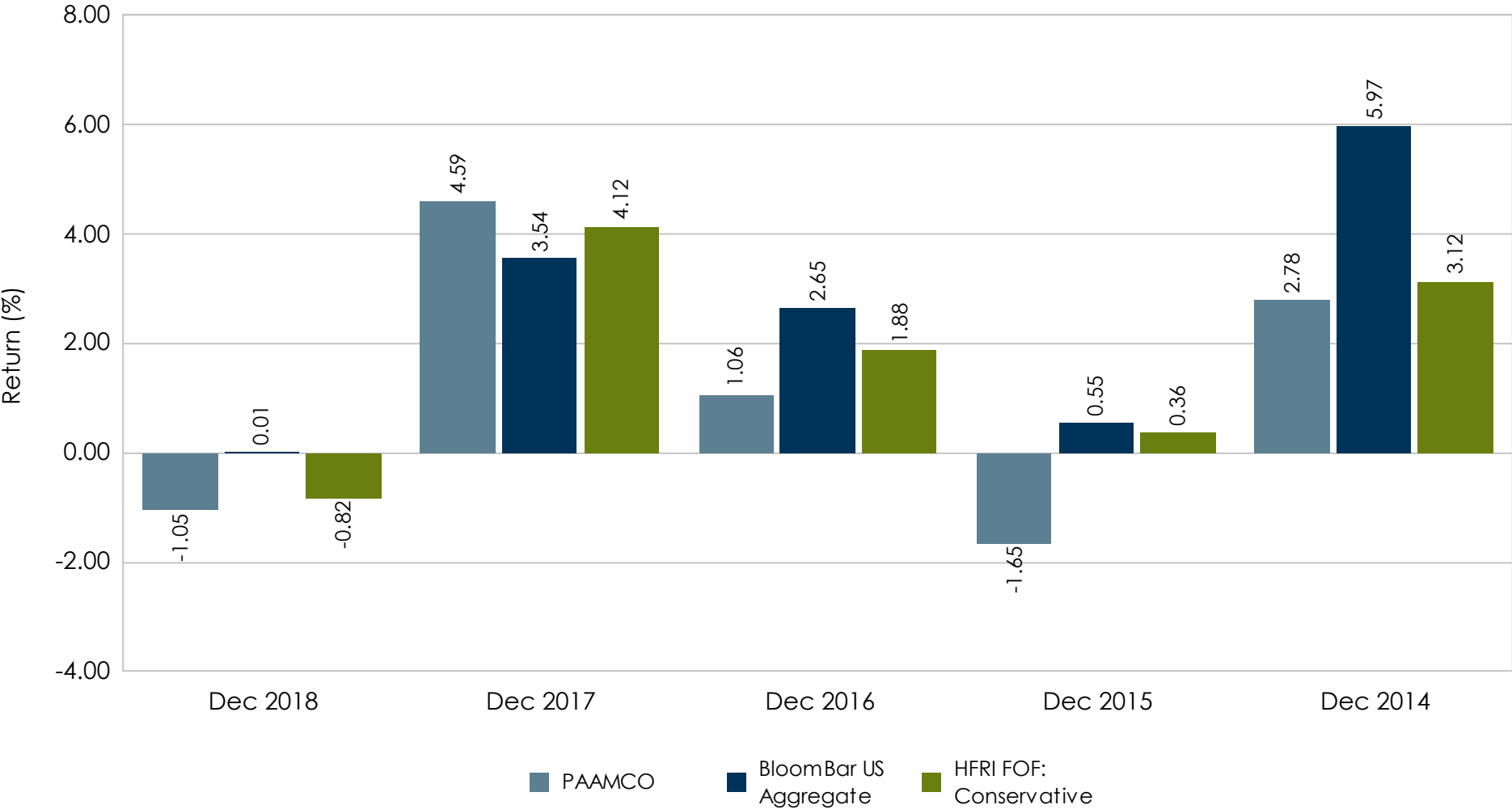
PAAMCO

For the Periods Ending December 31, 2018



PAAMCO

For the One Year Periods Ending December





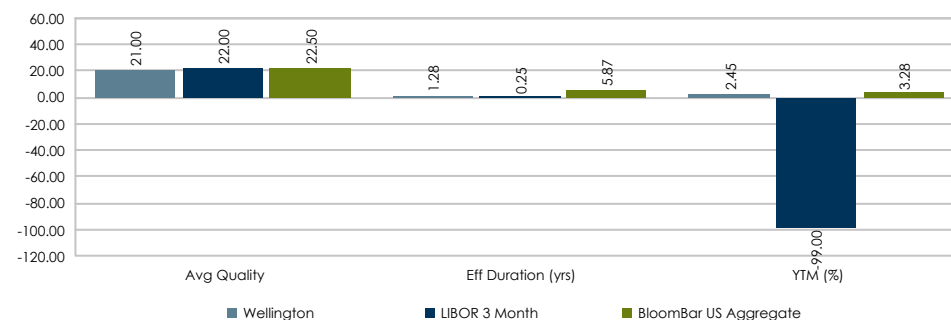
## Wellington Global Total Return

For the Periods Ending December 31, 2018

### Account Description

- **Strategy** Absolute Return
- **Vehicle** Non-Mutual Commingled
- **Benchmarks** LIBOR 3 Month and BloomBar US Aggregate
- **Performance Inception Date** December 2016
- **Fees** 25 bps, plus 20% of excess return beyond cash + 1%

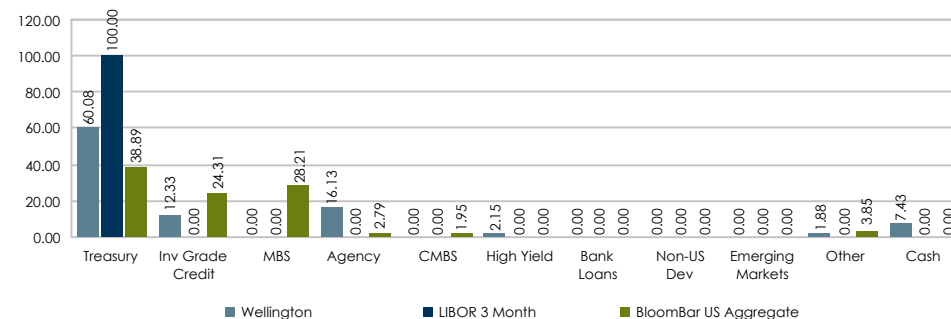
### Characteristics



### Performance Goals

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

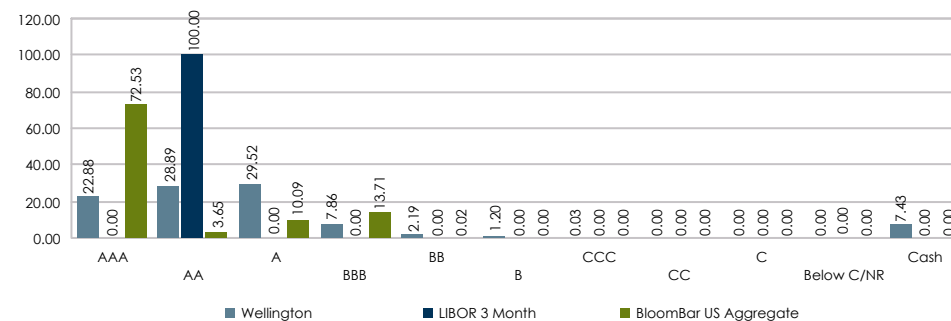
### Sector Allocation



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

	FYTD	1 Year
<b>Beginning Market Value</b>	<b>63,335</b>	<b>60,819</b>
Net Additions	-79	-156
Return on Investment	2,087	4,679
<b>Ending Market Value</b>	<b>65,342</b>	<b>65,342</b>

### Quality Allocation

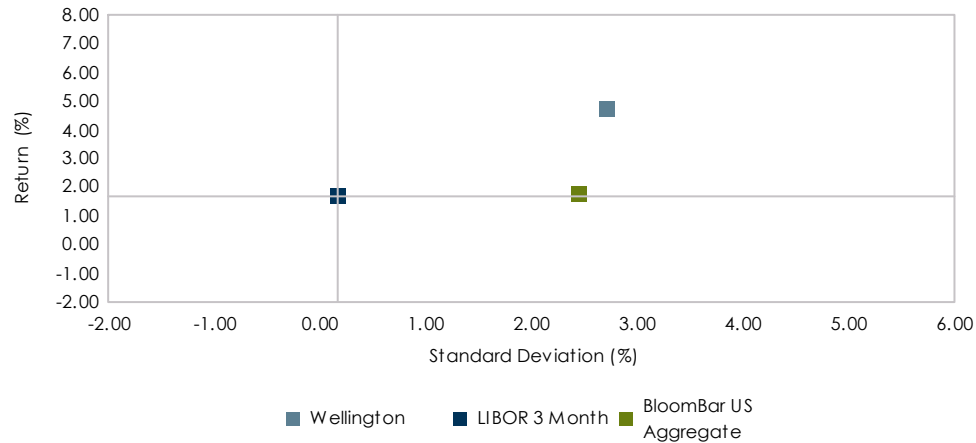


The Other sector consists of ABS, CMO, Convertibles, Municipals, Private Placements/144As and TIPS.

## Wellington Global Total Return

For the Periods Ending December 31, 2018

### 2 Year Risk / Return



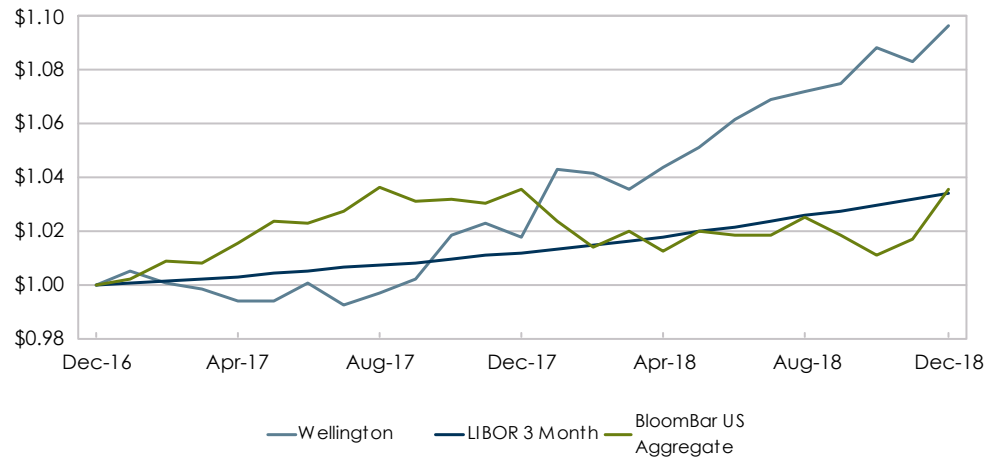
### 2 Year Portfolio Statistics

	Wellington	LIBOR 3 Month	BloomBar US Aggregate
Return (%)	4.71	1.71	1.76
Standard Deviation (%)	2.70	0.17	2.45
Sharpe Ratio	1.26	2.32	0.18

### Benchmark Relative Statistics

Beta	4.58	-0.39
R Squared (%)	8.33	12.57
Alpha (%)	-3.05	5.48
Tracking Error (%)	2.66	4.25
Batting Average (%)	62.50	50.00
Up Capture (%)	276.42	25.63
Down Capture (%)		-142.17

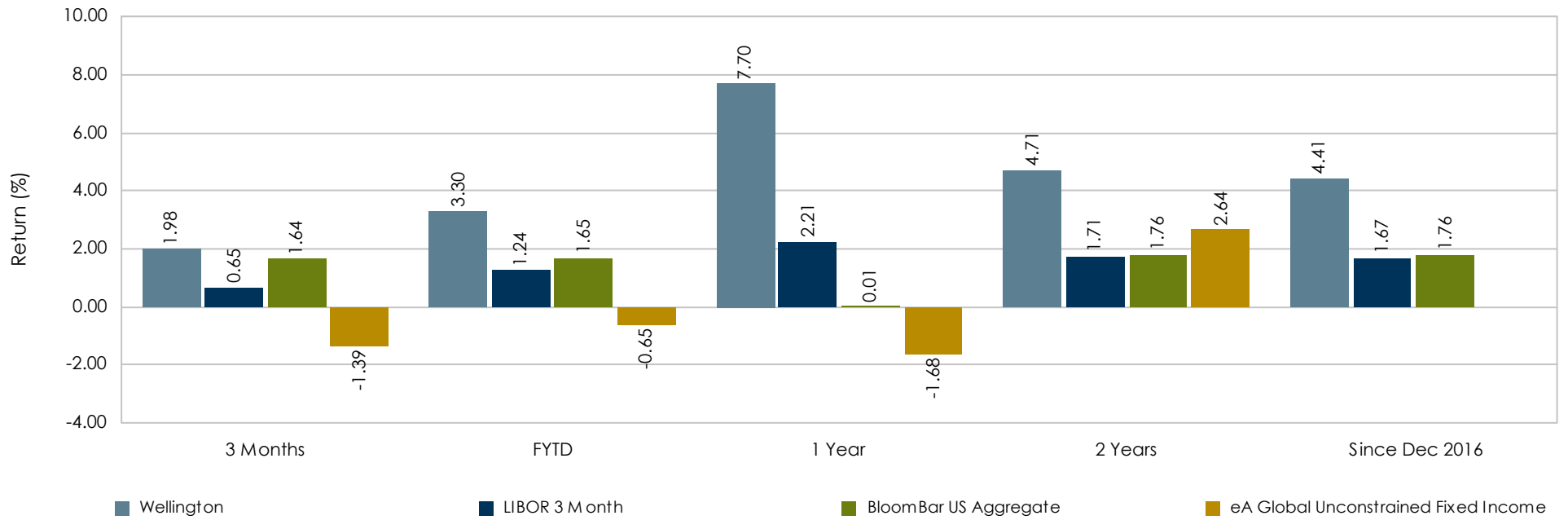
### 2 Year Growth of a Dollar



### 2 Year Return Analysis

	Wellington	LIBOR 3 Month	BloomBar US Aggregate
Number of Months	24	24	24
Highest Monthly Return (%)	2.45	0.22	1.84
Lowest Monthly Return (%)	-0.87	0.08	-1.15
Number of Positive Months	15	24	14
Number of Negative Months	9	0	10
% of Positive Months	62.50	100.00	58.33

**Wellington Global Total Return**  
For the Periods Ending December 31, 2018

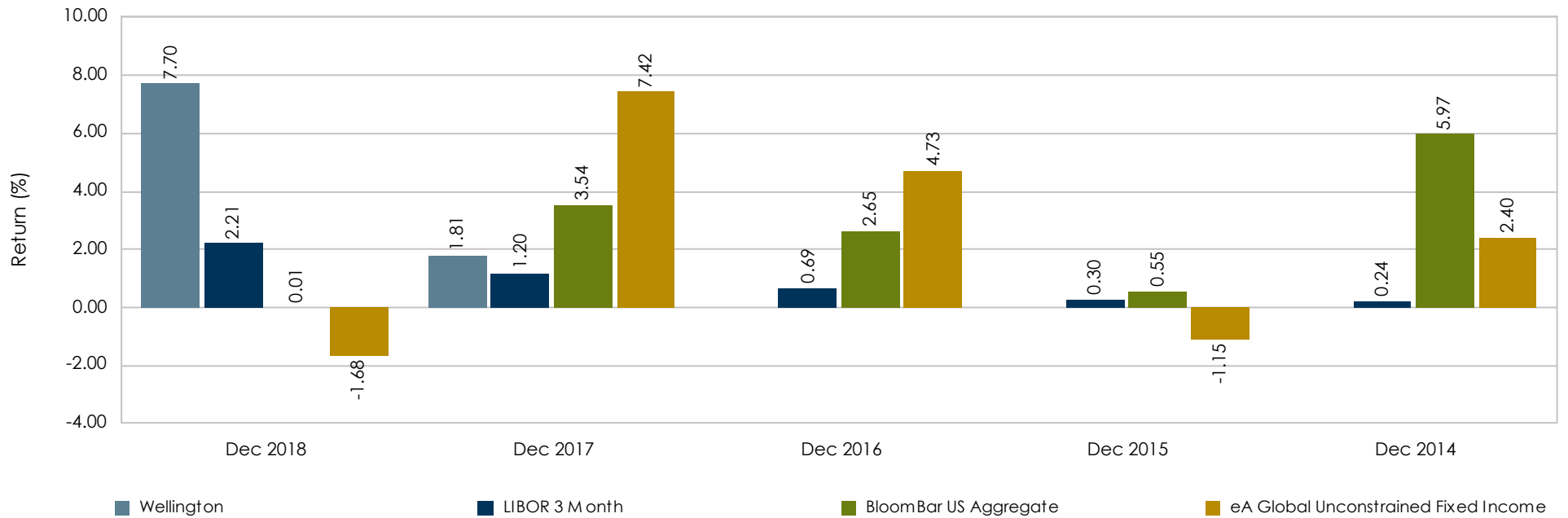


Ranking	2	2	2	12
5th Percentile	1.05	1.47	2.40	5.27
25th Percentile	-0.25	0.41	0.52	3.92
50th Percentile	-1.39	-0.65	-1.68	2.64
75th Percentile	-2.58	-2.66	-5.93	1.94
95th Percentile	-4.16	-4.61	-8.74	-0.37
Observations	144	144	144	141

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.

## Wellington Global Total Return

For the One Year Periods Ending December



Ranking	2	96			
5th Percentile	2.40	18.11	12.26	2.66	7.54
25th Percentile	0.52	12.00	7.43	0.48	4.39
50th Percentile	-1.68	7.42	4.73	-1.15	2.40
75th Percentile	-5.93	5.10	1.52	-4.23	-1.27
95th Percentile	-8.74	1.89	-11.67	-10.32	-9.13
Observations	144	155	180	177	164

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

## **Real Assets Manager Performance**

## JP Morgan Strategic Property

For the Periods Ending December 31, 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.

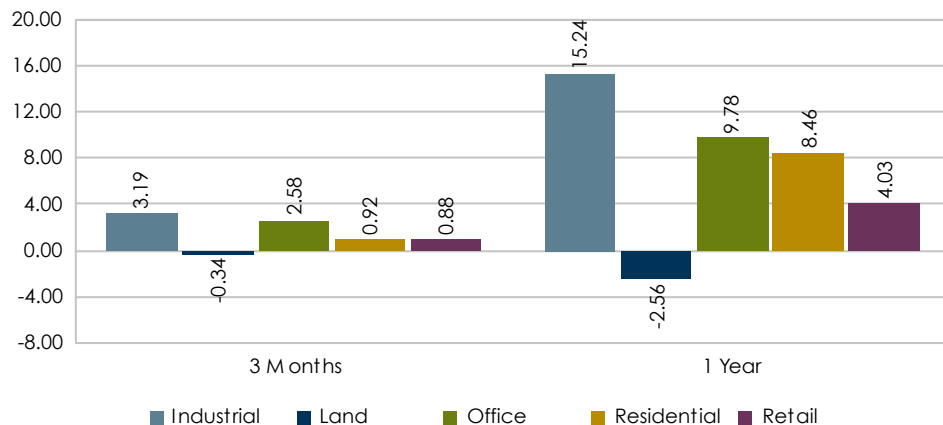
### Account Information

- **Ending Market Value** \$127,948,083

### Fund Information

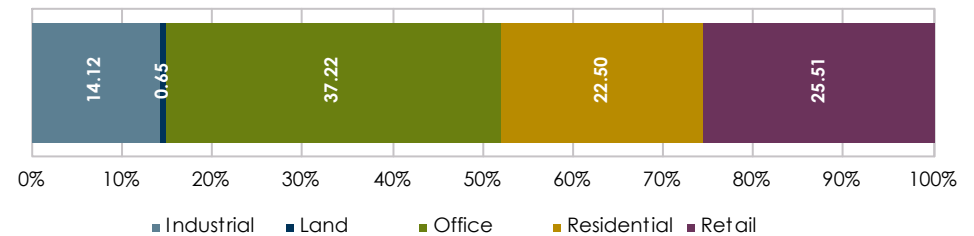
- **Gross Market Value** \$42,978,446,219
- **Net Market Value** \$33,423,972,203
- **Cash Balance of Fund** \$946,759,258
- **# of Properties** 166
- **# of Participants** 430

### Returns by Property Type (%)

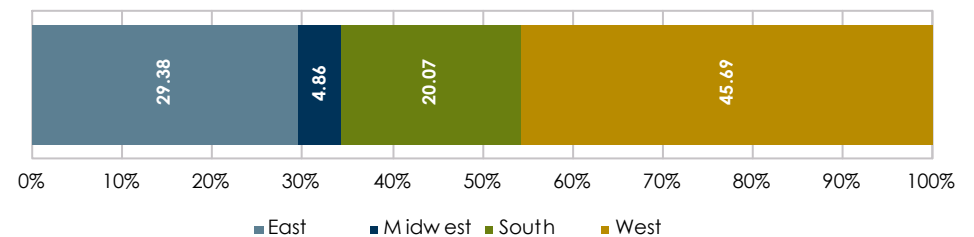


### Allocations

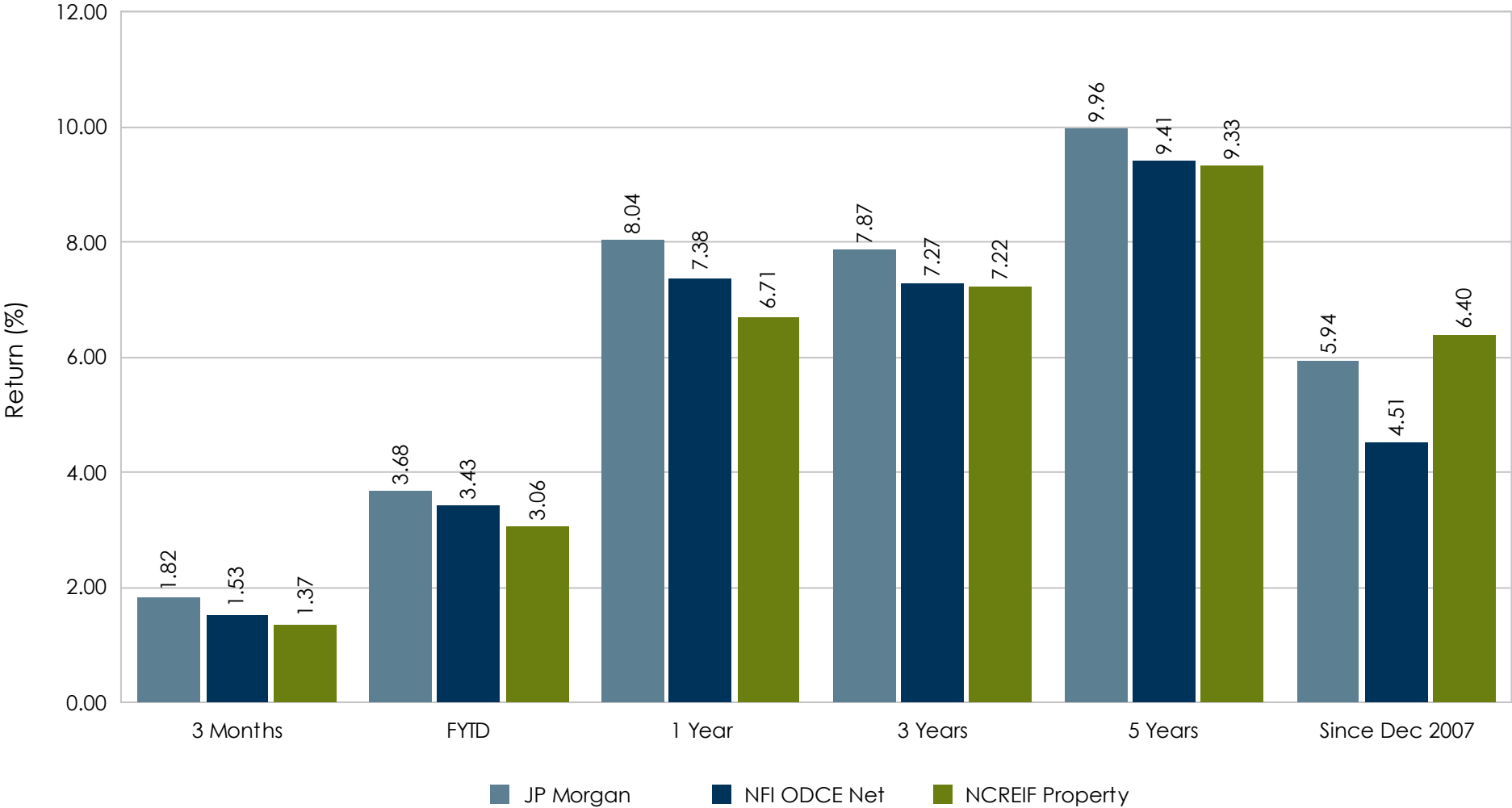
#### Property Type



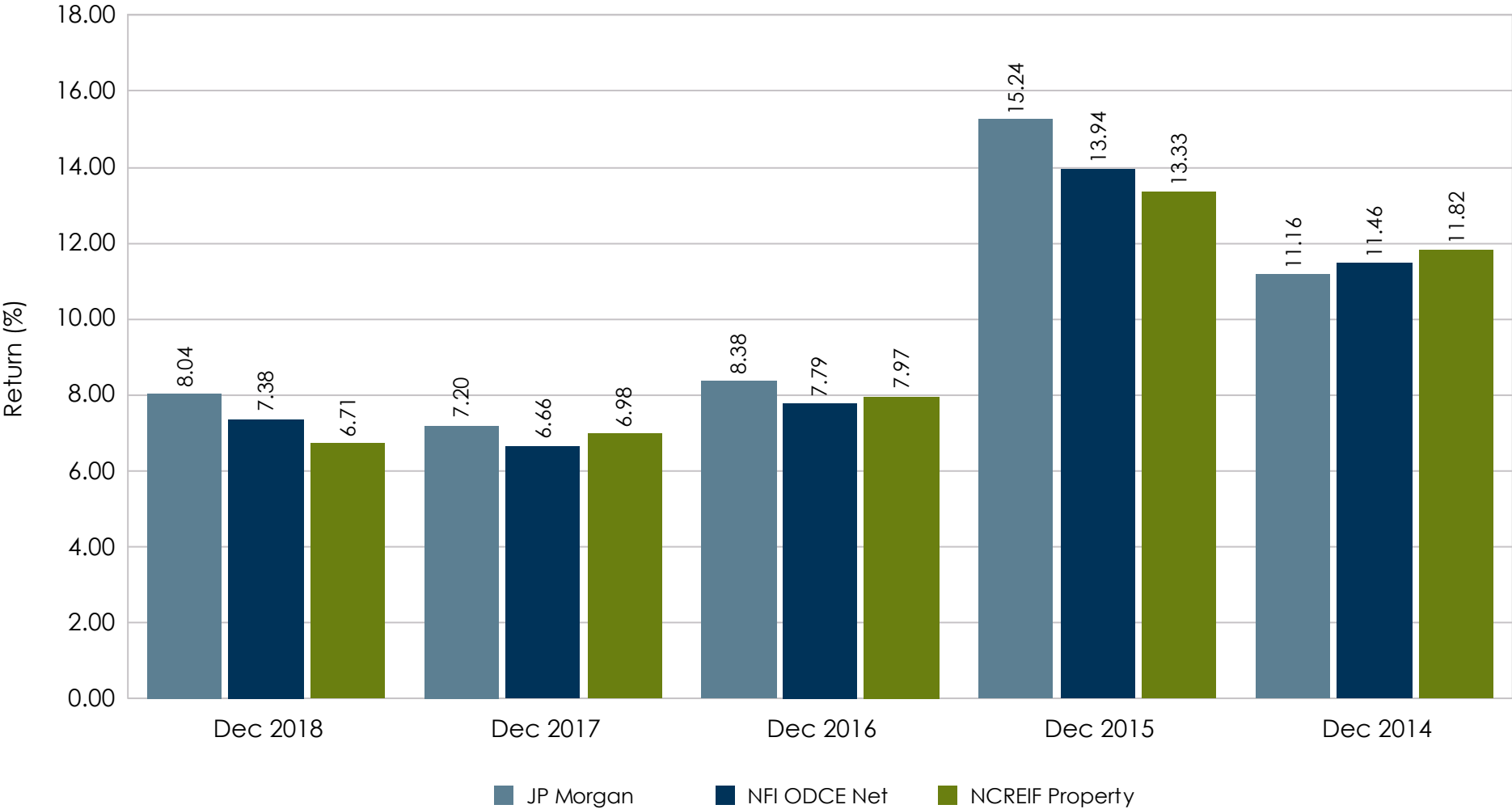
#### Geographic Region



**JP Morgan Strategic Property**  
*For the Periods Ending December 31, 2018*



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





## Blackstone Property Partners

For the Periods Ending December 31, 2018

### Account Description

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

### Account Information

■ **Ending Market Value** \$42,131,980

### Fund Information

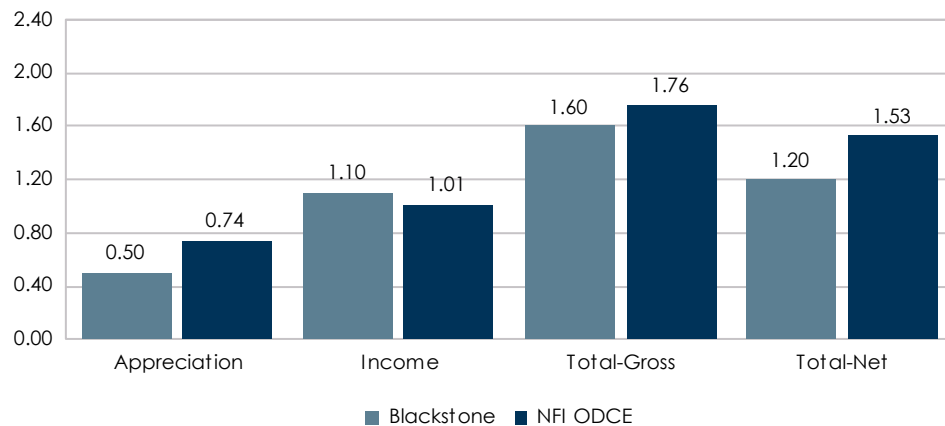
■ **Net Market Value** \$9,000,000,000

■ **# of Properties** 32

### Performance Goals

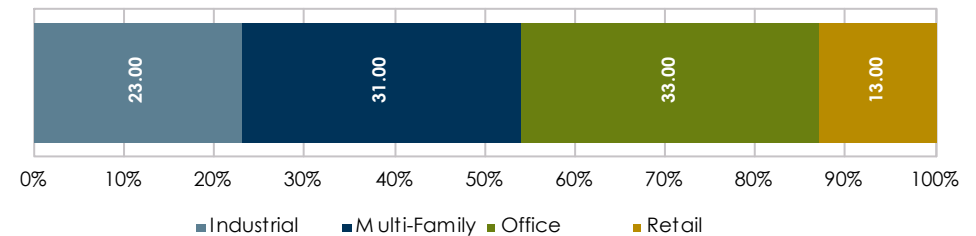
- Outperform the NFI ODCE Net and NCREIF Property.

### Current Quarter Returns (%)

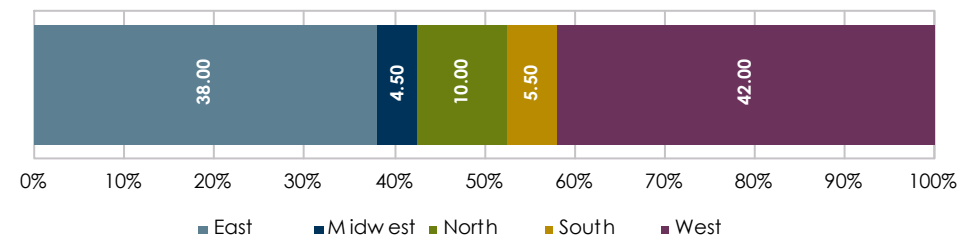


### Allocations

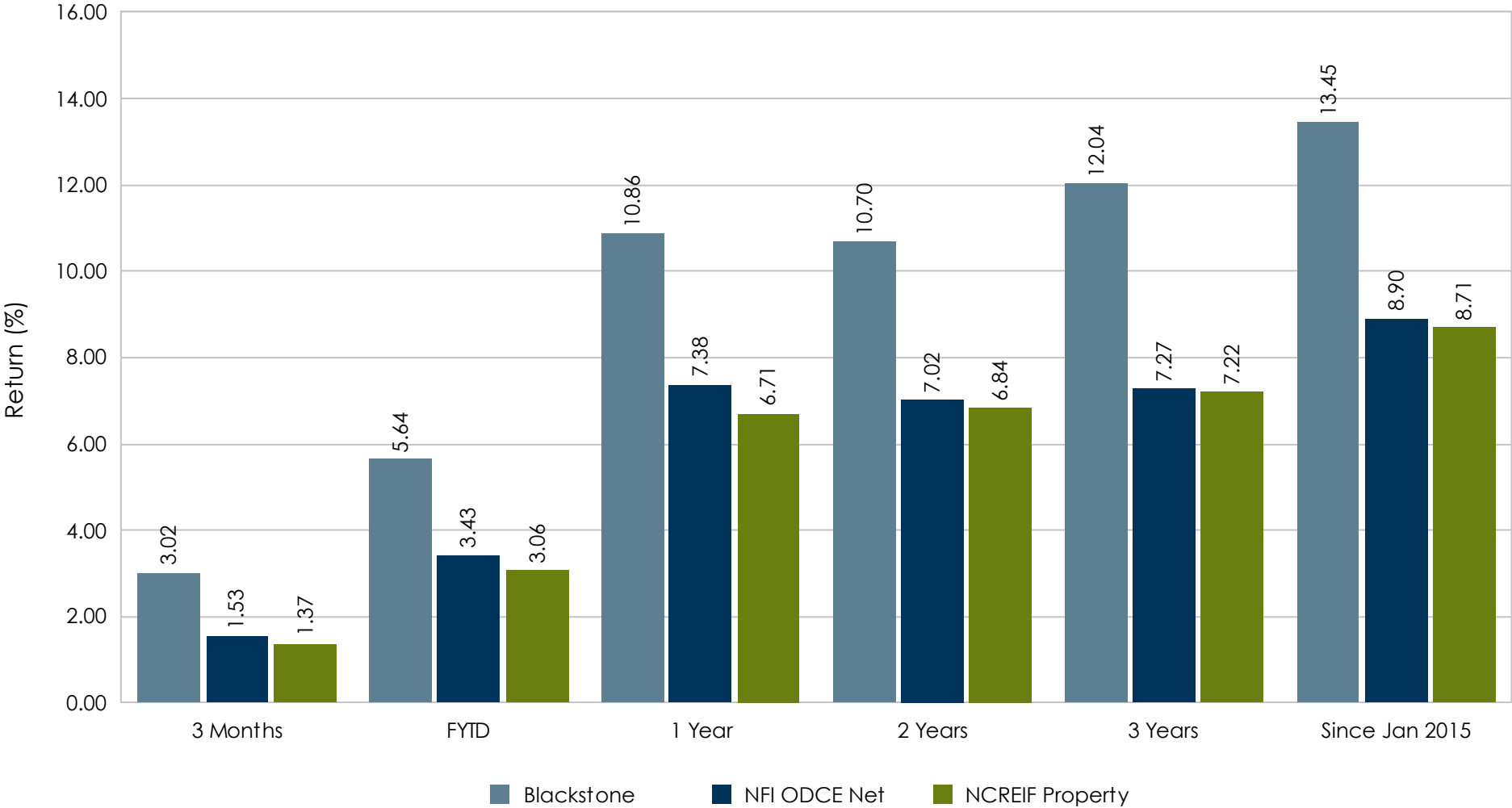
#### Property Type



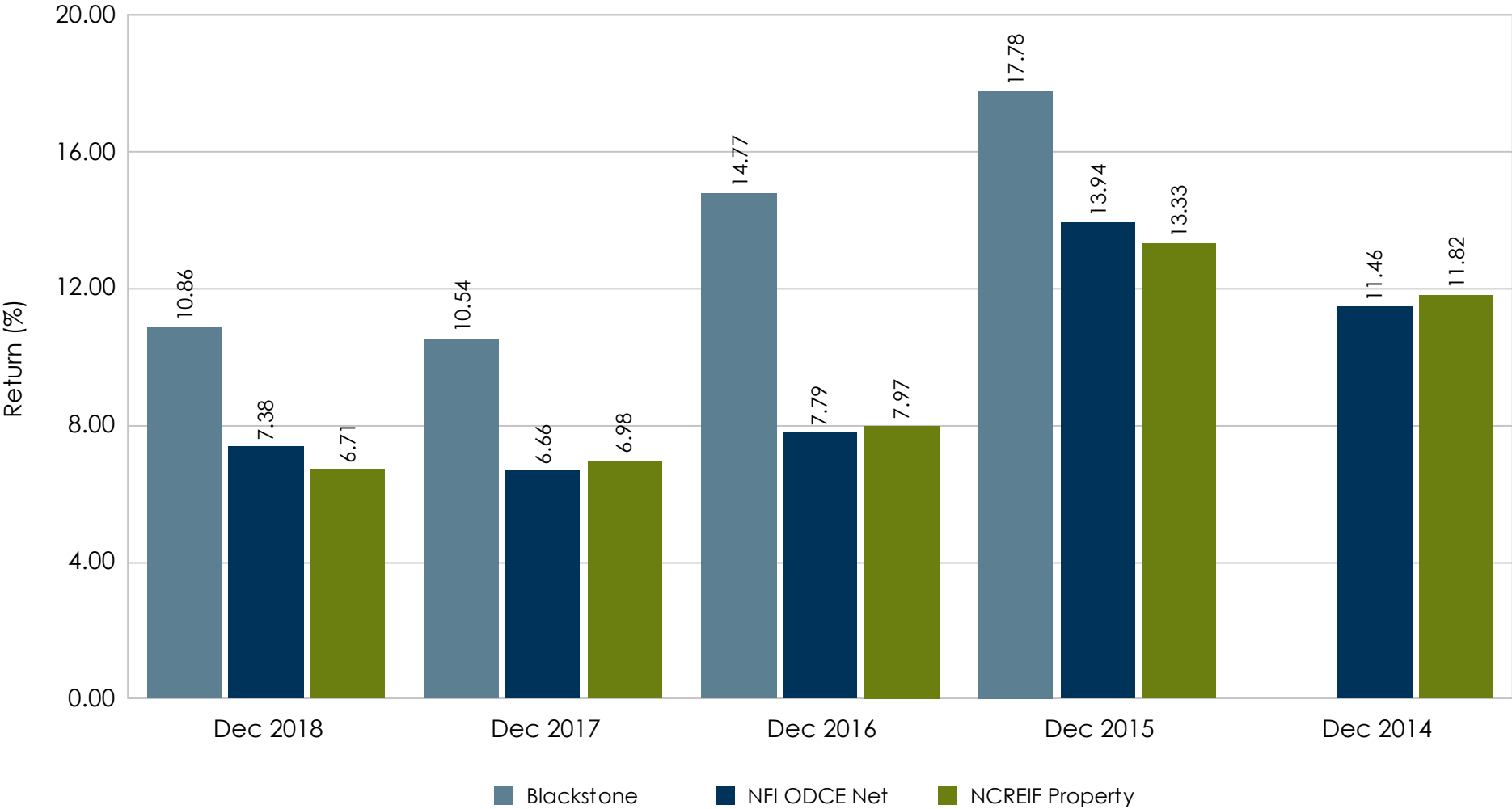
#### Geographic Region



**Blackstone Property Partners**  
*For the Periods Ending December 31, 2018*



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



**Private Real Estate***For the Period Ending December 31, 2018***Summary of Cash Flows for 6 Months**

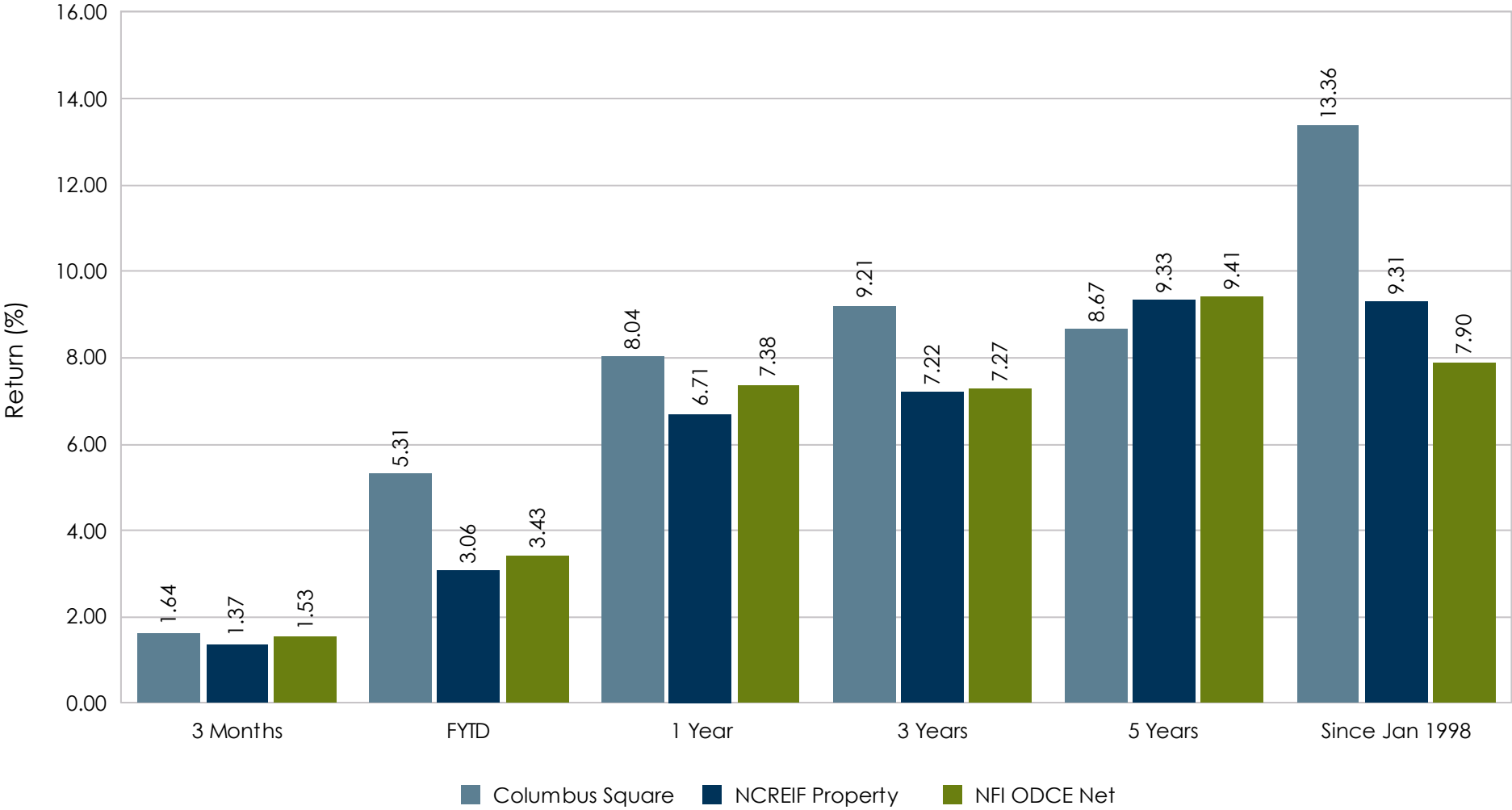
Cash Outflows	Cash Inflows	Net Cash Flows
-7,658,060	9,466,385	1,808,325

**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>84,696,864</b>	<b>17,946,158</b>	<b>61,041,981</b>	<b>53,725,595</b>	<b>114,767,576</b>	<b>1.36x</b>
<b>Real Estate</b>	<b>Aug-11</b>	<b>92,500,000</b>	<b>84,696,864</b>	<b>17,946,158</b>	<b>61,041,981</b>	<b>53,725,595</b>	<b>114,767,576</b>	<b>1.36x</b>
Siguler Guff Dist. Real Estate Opp.	Aug-11	10,000,000	8,608,587	1,650,773	11,065,802	<b>4,213,268</b>	15,279,070	1.77x
TA Associates Realty X	Jan-13	20,000,000	20,000,000	-	19,048,464	<b>11,431,665</b>	30,480,129	1.52x
Cerberus Real Estate Fund III	Jul-13	20,000,000	25,185,319	3,552,375	22,244,770	<b>11,936,765</b>	34,181,535	1.36x
Hall Capital Fund III	Nov-14	7,500,000	6,959,483	540,517	2,559,905	<b>5,228,395</b>	7,788,300	1.12x
Siguler Guff Dist. Real Estate Opp. II	Dec-14	10,000,000	8,272,577	1,727,423	4,311,474	<b>6,815,686</b>	11,127,160	1.35x
Cerberus Institutional Real Estate Partners 4	Jun-16	15,000,000	10,120,898	6,025,070	1,811,566	<b>7,660,382</b>	9,471,948	0.94x
Siguler Guff Dist. Real Estate Opp. II B	Dec-17	10,000,000	5,550,000	4,450,000	-	<b>6,439,434</b>	6,439,434	1.16x

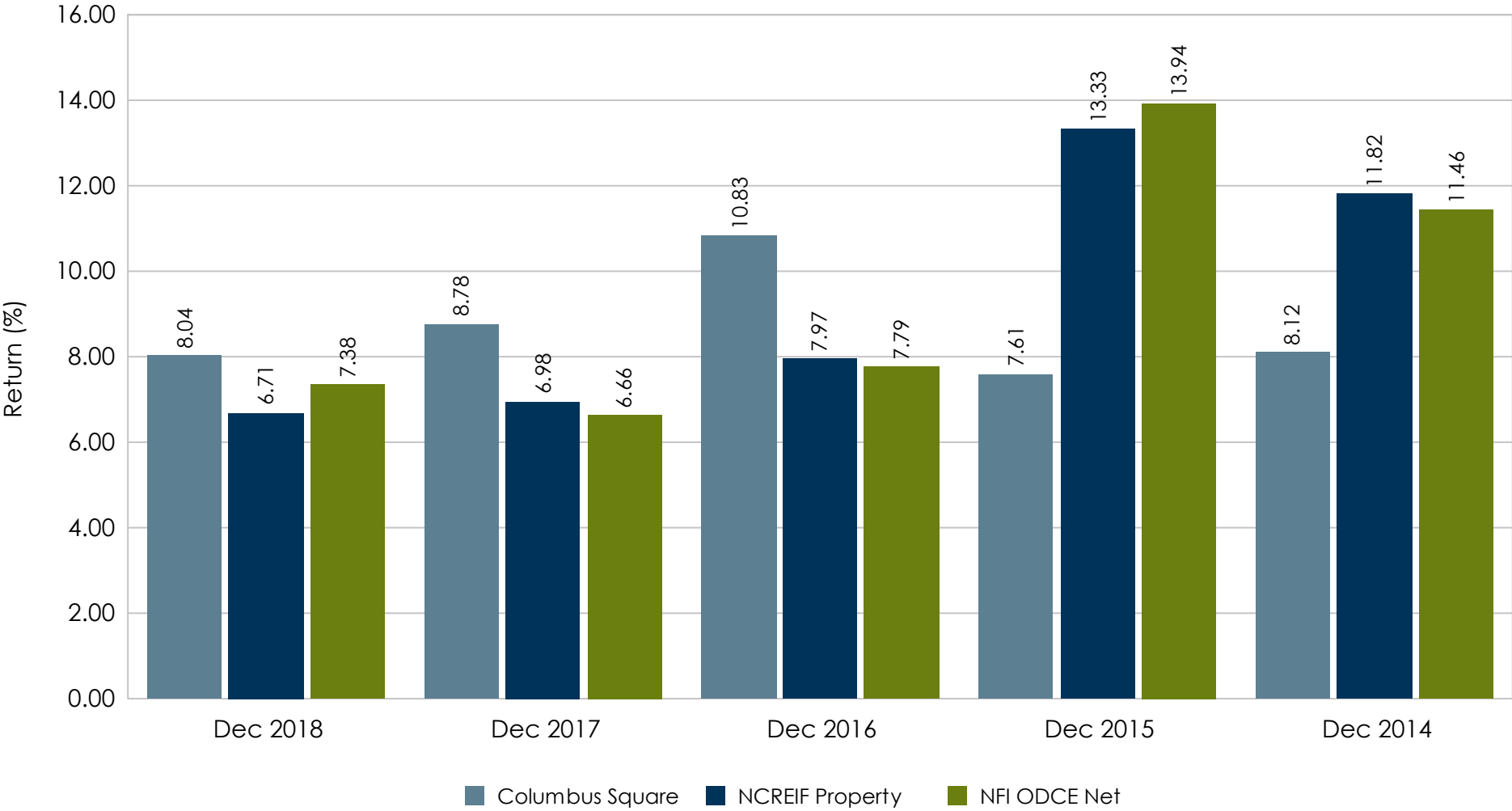
Columbus Square

For the Periods Ending December 31, 2018



Columbus Square

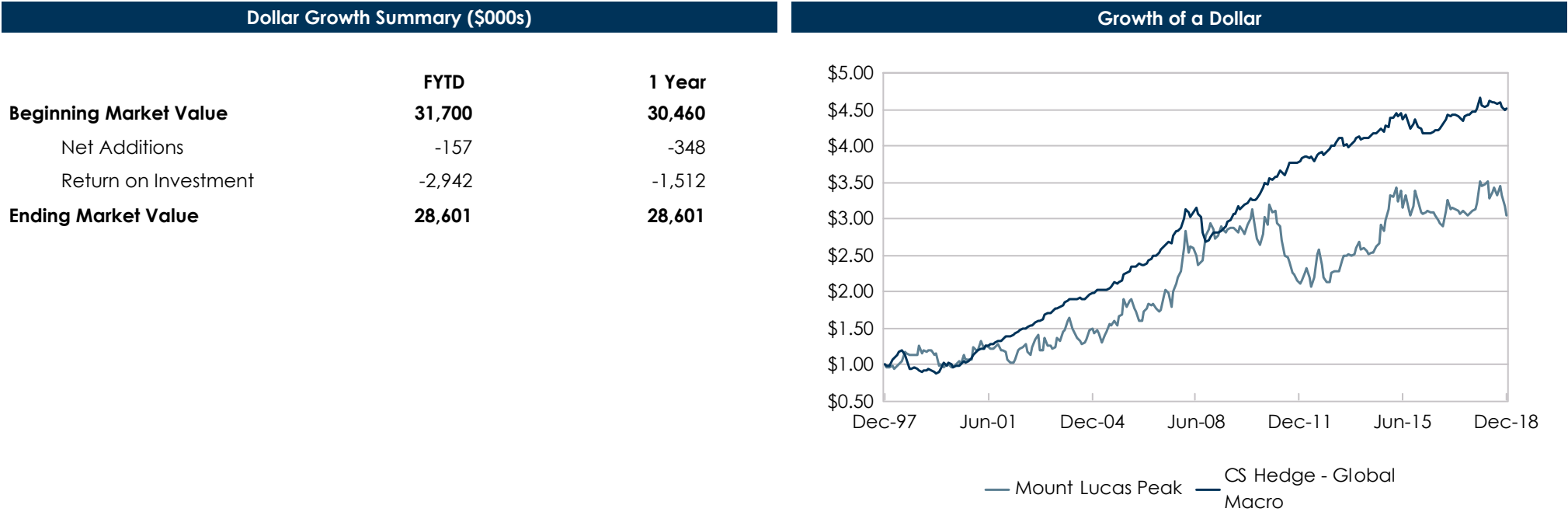
For the One Year Periods Ending December



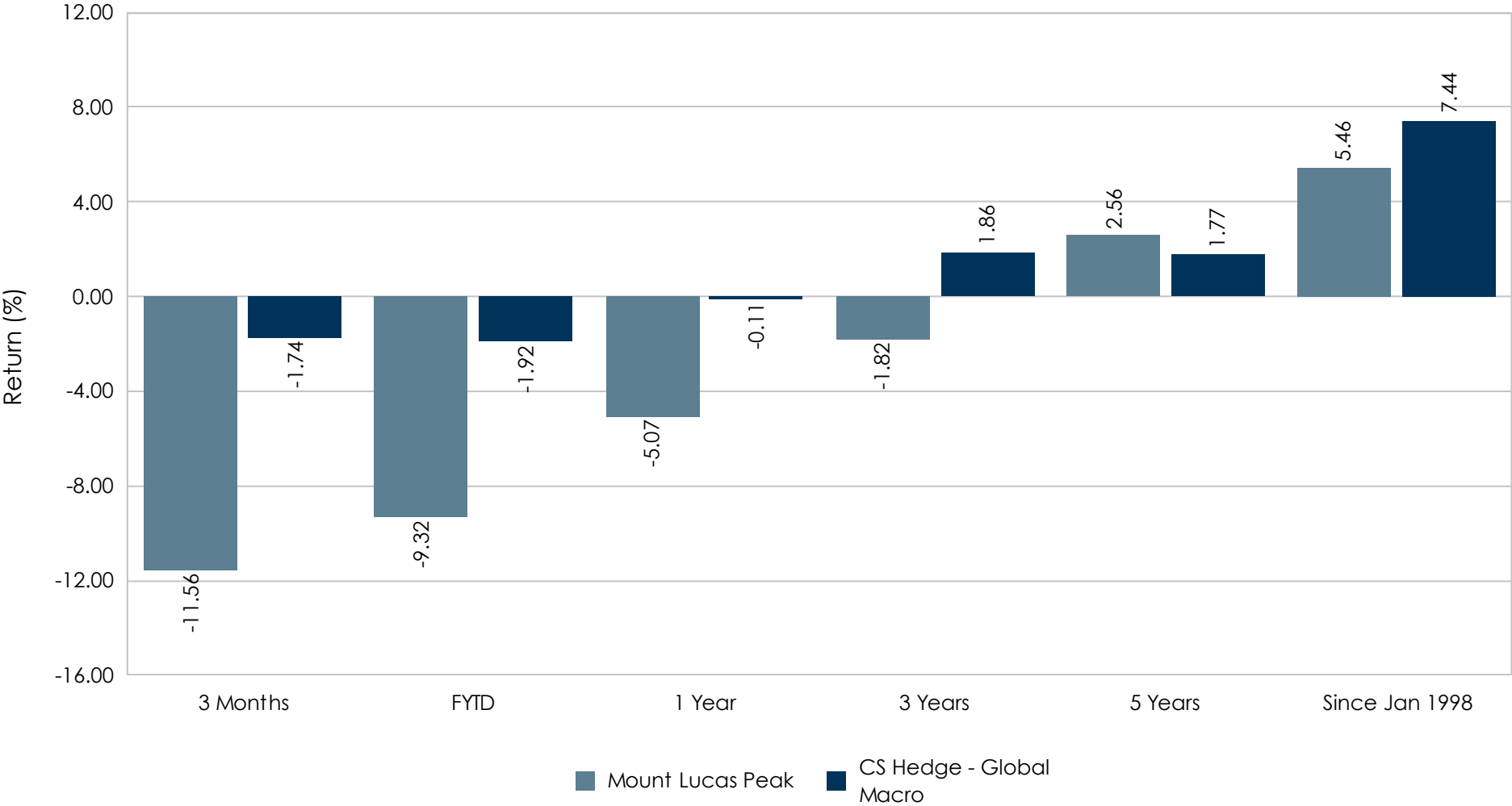
Mount Lucas Peak Partners

For the Periods Ending December 31, 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>

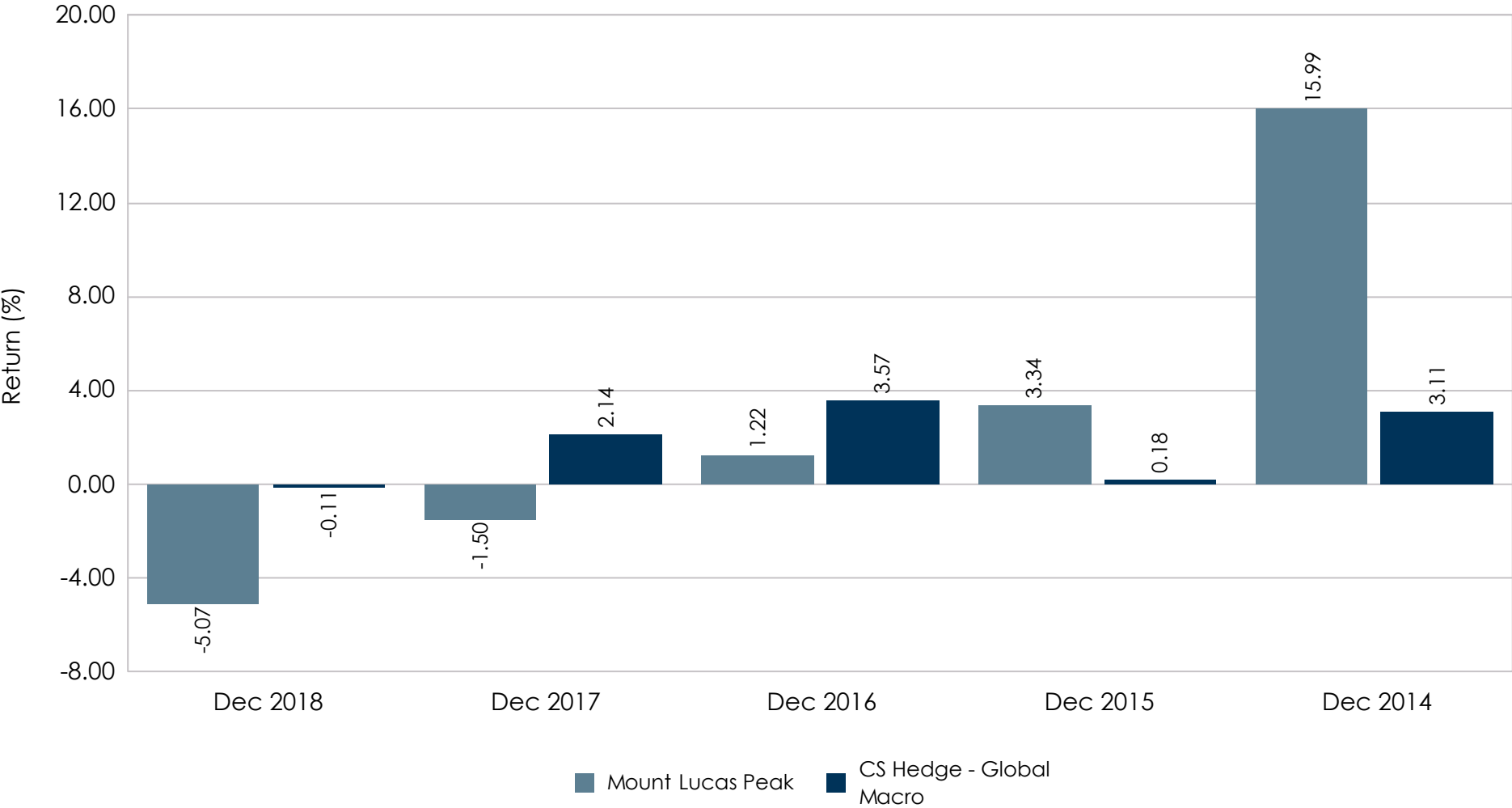


**Mount Lucas Peak Partners**  
*For the Periods Ending December 31, 2018*





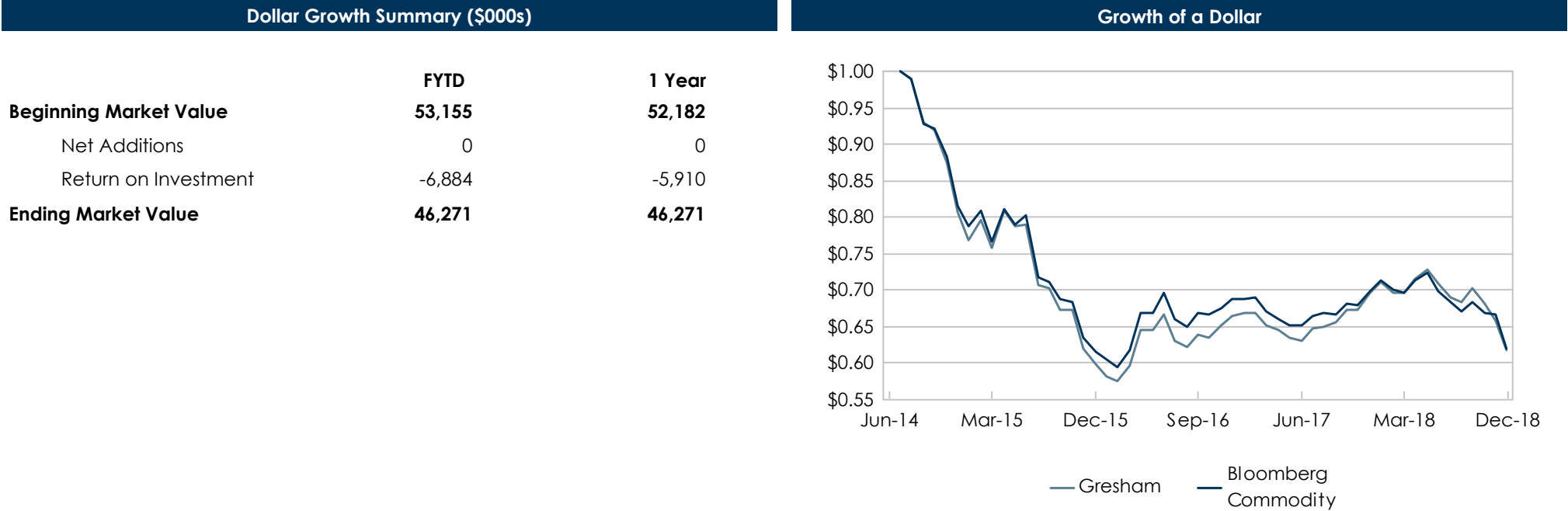
**Mount Lucas Peak Partners**  
*For the One Year Periods Ending December*



Gresham Tap Fund

For the Periods Ending December 31, 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> Bloomberg Commodity</li><li>■ <b>Performance Inception Date</b> August 2014</li><li>■ <b>Fees</b> 75 bps</li></ul>	<ul style="list-style-type: none"><li>■ Outperform the Bloomberg Commodity over a complete market cycle.</li></ul>



## Gresham TAP Fund

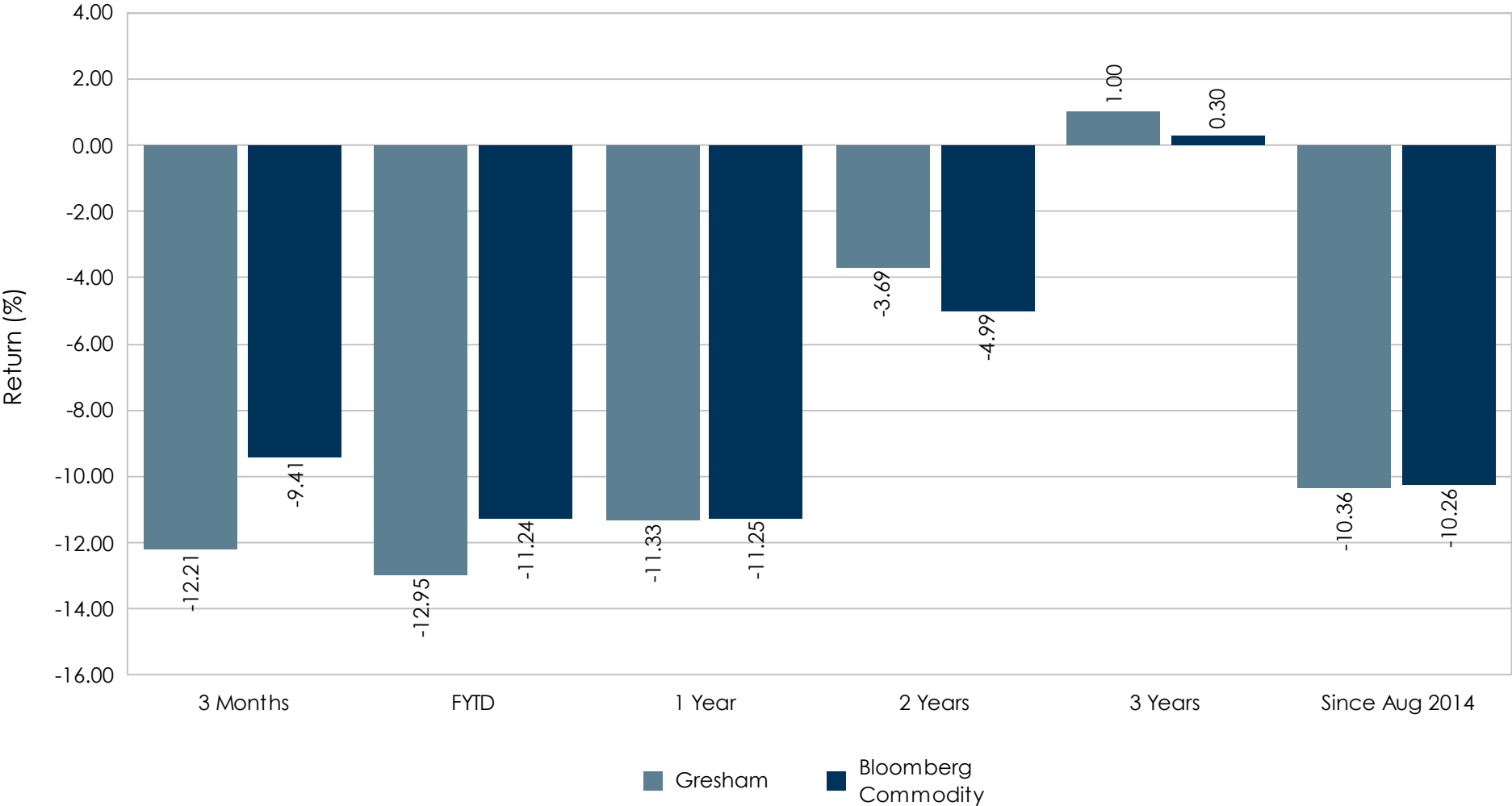
For the Periods Ending December 31, 2018

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	3.98%	6.69%	2.18	2.12	0.06	-0.30	-5.64	-6.45	0.81	-0.13
Soybean	4.89%	5.57%	2.62	2.73	-0.11	-0.09	-11.63	-13.45	1.82	0.08
Wheat (CBOT)	2.18%	3.99%	-4.28	-3.08	-1.19	-0.14	0.70	1.51	-0.82	-0.20
Wheat (KC)	0.84%	1.55%	-8.36	-8.50	0.13	-0.01	-4.94	-4.97	0.04	-0.04
Wheat (MGE)	0.17%	-	-5.41	-	-5.41	0.01	-18.37	-	-18.37	-0.01
Soybean Meal	2.40%	3.02%	-0.01	-1.07	1.06	-0.04	-1.82	-6.24	4.42	0.01
Soybean Oil	0.95%	2.38%	-5.58	-5.52	-0.06	-0.06	-20.50	-20.78	0.28	0.13
<b>Group SubTotal</b>	<b>15.42%</b>	<b>23.19%</b>	-0.16	-0.62	<b>0.46</b>	<b>-0.63</b>	-7.91	-8.83	<b>0.92</b>	<b>-0.16</b>
<b>Energy</b>										
WTI Crude Oil	10.34%	7.28%	-37.59	-37.87	0.28	-0.99	-20.47	-22.03	1.56	-0.13
Brent Crude	10.19%	8.02%	-34.29	-34.99	0.69	-0.50	-15.84	-16.56	0.72	0.13
Heating Oil	2.58%	3.81%	-28.61	-28.38	-0.23	0.23	-15.73	-17.37	1.64	0.10
Gas Oil	3.25%	-	-28.66	-	-28.66	-0.66	-12.80	-	-12.80	0.08
Natural Gas	9.10%	11.09%	-0.71	-0.62	-0.10	-0.60	-0.18	-2.08	1.90	-0.55
Unleaded Gas (RBOB)	3.40%	3.50%	-37.91	-37.78	-0.13	0.02	-28.44	-29.68	1.24	0.09
<b>Group SubTotal</b>	<b>38.86%</b>	<b>33.70%</b>	-29.37	-26.23	<b>-3.13</b>	<b>-2.50</b>	-14.90	-14.41	<b>-0.49</b>	<b>-0.28</b>
<b>Industrial Metals</b>										
Aluminum	4.85%	4.14%	-11.55	-11.43	-0.12	-0.02	-20.20	-18.54	-1.66	-0.14
Copper (LME)	5.67%	-	-4.54	-	-4.54	0.30	-18.52	-	-18.52	-0.40
Copper (NY)	2.09%	6.25%	-6.86	-6.77	-0.09	-0.13	-22.81	-22.79	-0.02	0.52
Nickel	1.38%	2.62%	-15.70	-15.66	-0.04	0.07	-18.05	-18.04	-0.02	0.07
Zinc	2.04%	2.43%	-4.61	-4.38	-0.22	-0.02	-23.97	-22.90	-1.07	0.03
Lead	0.81%	-	-0.84	-	-0.84	0.08	-17.83	-	-17.83	-0.04
<b>Group SubTotal</b>	<b>16.84%</b>	<b>15.44%</b>	-7.68	-9.24	<b>1.57</b>	<b>0.28</b>	-20.08	-21.06	<b>0.98</b>	<b>0.03</b>
<b>Livestock</b>										
Live Cattle	6.54%	4.42%	1.64	1.33	0.31	0.26	1.61	0.57	1.04	0.17
Lean Hogs	1.96%	1.81%	-3.60	-2.96	-0.64	-0.01	-14.39	-12.73	-1.67	0.01
Feeder Cattle	1.83%	-	-3.30	-	-3.30	0.13	2.14	-	2.14	0.24
<b>Group SubTotal</b>	<b>10.34%</b>	<b>6.23%</b>	-0.21	0.08	<b>-0.30</b>	<b>0.39</b>	-2.57	-3.64	<b>1.06</b>	<b>0.42</b>
<b>Precious Metals</b>										
Gold	8.84%	11.40%	6.59	6.59	0.00	-0.40	-4.70	-4.71	0.01	-0.22
Silver	2.20%	3.18%	4.70	4.72	-0.02	-0.13	-12.10	-11.95	-0.15	-0.02
Platinum	0.65%	-	-3.42	-	-3.42	0.04	-1.23	-	-1.23	0.07
Palladium	0.75%	-	12.70	-	12.70	0.16	15.37	-	15.37	0.19
<b>Group SubTotal</b>	<b>12.44%</b>	<b>14.57%</b>	6.09	6.17	<b>-0.08</b>	<b>-0.33</b>	-4.95	-6.44	<b>1.49</b>	<b>0.02</b>
<b>Softs</b>										
Cotton	1.60%	1.48%	-7.37	-7.50	0.14	0.00	-7.91	-9.12	1.22	0.01
Sugar	2.04%	3.08%	7.50	7.41	0.09	-0.17	-26.64	-27.53	0.88	0.13
White Sugar	0.22%	-	-1.92	-	-1.92	0.02	-10.17	-	-10.17	0.01
Coffee	1.29%	2.30%	-3.84	-3.73	-0.11	-0.07	-27.95	-27.93	-0.02	0.12
Coffee (Robusta)	0.35%	-	-4.22	-	-4.22	0.02	-12.58	-	-12.58	0.00
Cocoa	0.70%	-	15.81	-	15.81	0.17	18.26	-	18.26	0.19
<b>Group SubTotal</b>	<b>6.20%</b>	<b>6.87%</b>	0.89	0.13	<b>0.76</b>	<b>-0.03</b>	-17.25	-23.79	<b>6.54</b>	<b>0.45</b>
<b>Tilt Positions</b>										
MW/W	0.72%	-	-0.02	-	-0.02	-0.11	-0.11	-	-0.11	-0.11
HO/XB	0.00%	-	0.00	-	0.00	-0.01	-0.01	-	-0.01	-0.01
QW/SB	0.22%	-	0.00	-	0.00	-0.03	-0.03	-	-0.03	-0.03
<b>Group SubTotal</b>			0.26		<b>0.26</b>		0.29		<b>0.29</b>	
<b>Gross Excess Return</b>	<b>100.00%</b>	<b>100.00%</b>	<b>-12.53</b>	<b>-9.96</b>	<b>-2.57</b>		<b>-12.22</b>	<b>-12.99</b>		<b>0.77</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.

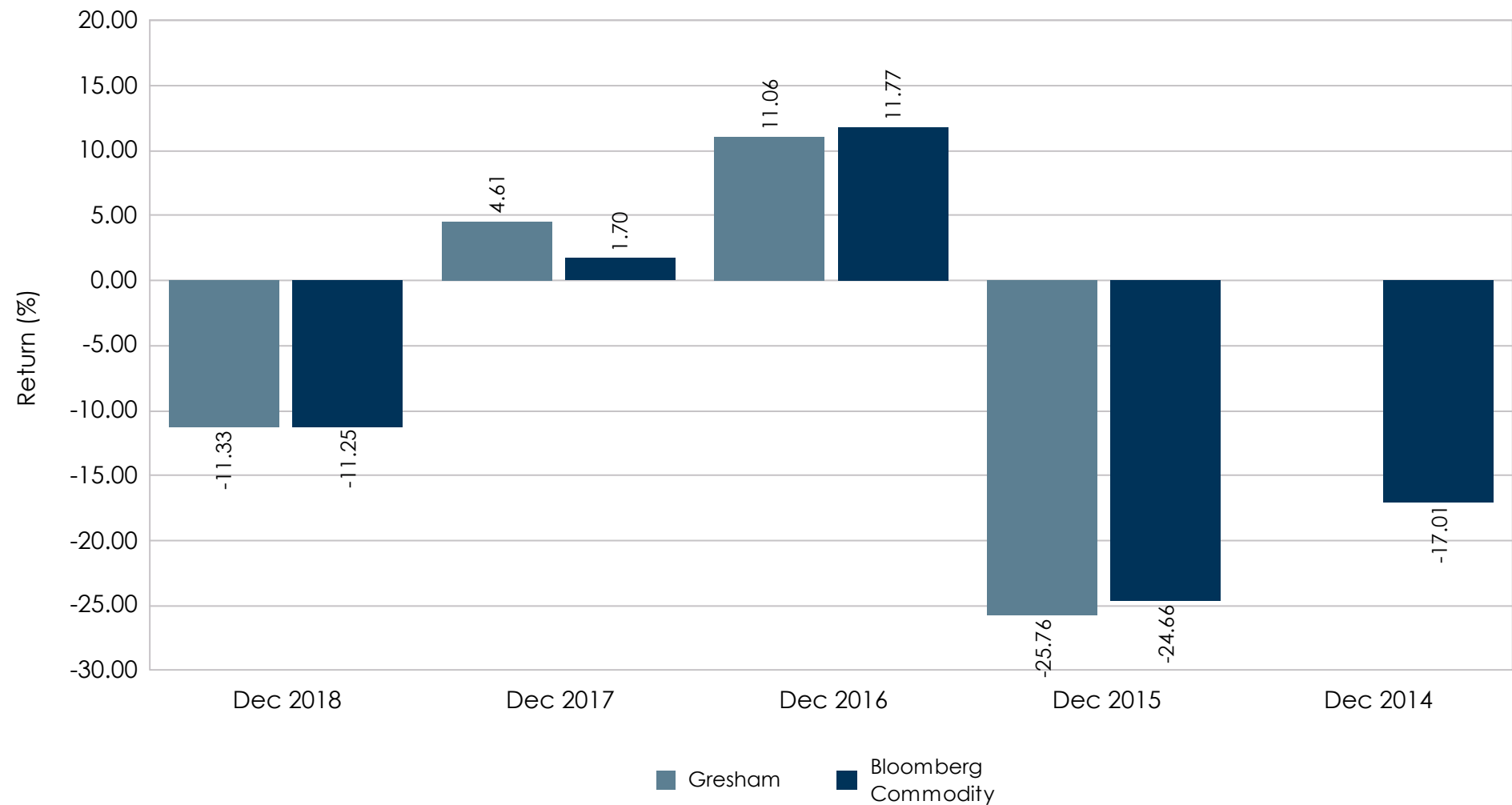
Gresham Tap Fund

For the Periods Ending December 31, 2018



Gresham Tap Fund

For the One Year Periods Ending December



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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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