



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 14

MEETING DATE: February 20, 2019

SUBJECT: Total Fund Investment Performance Report
Fourth Quarter 2018

SUBMITTED FOR: Consent **Deliberation and Action** **Receive and File**

RECOMMENDATION

Staff and Verus recommend the Board receive and file the SCERS Total Fund Investment Performance Review report, prepared by Verus, for the quarter ending December 31, 2018.

PURPOSE

This agenda item does not specifically support the 2018-19 Strategic Management Plan, but complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

SCERS TOTAL FUND RETURNS

This item summarizes SCERS' Total Fund investment returns as presented in Verus' Investment Performance Review for the period ending December 31, 2018. Please note that returns for SCERS' private equity, private credit, non-core real estate, and real assets portfolios are lagged one-quarter.

Verus' report has been reformatted to reflect SCERS' strategic asset allocation, including the Growth, Diversifying, and Real Return asset categories. Please note that new composites were added for the asset categories and several segments of the portfolio, so the performance of these segments includes the current quarter, YTD, 1-Year, and since inception March 2017 performance for this report, without a historical track record (3-Year and 5-Year).

SCERS TOTAL FUND PERFORMANCE SUMMARY
Quarter Reporting Periods Ending December 31, 2018

SCERS ASSET CLASS	Quarter	Fiscal Year-to-Date	1-Year	3-Year	5-Year	Since Inception	Since Inception Date
SCERS TOTAL FUND Return w/Overlay	-5.3%	-3.1%	-1.3%	7.7%	5.5%	8.2%	Jun-86
Policy Index	-5.2%	-2.8%	-1.4%	6.9%	5.4%	8.3%	
InvestorForce Public DB > \$1B	-6.9%	-4.7%	-3.6%	6.4%	4.9%	8.0%	
SCERS TOTAL FUND Return w/o Overlay	-5.0%	-2.8%	-0.8%	7.6%	5.7%	8.1%	Jun-86
Policy Index	-5.2%	-2.8%	-1.4%	6.9%	5.4%	8.3%	
GROWTH ASSET CATEGORY	-9.3%	-5.4%	-3.5%			6.6%	Mar-17
Custom Benchmark	-9.0%	-5.4%	-4.1%			5.1%	
DIVERSIFYING ASSET CATEGORY	0.2%	0.1%	-1.0%			1.5%	Mar-17
Custom Benchmark	0.5%	0.4%	-0.3%			1.7%	
REAL RETURN ASSET CATEGORY	1.0%	0.1%	5.9%			8.7%	Mar-17
Custom Benchmark	0.1%	1.7%	6.2%			6.7%	
OPPORTUNITIES PORTFOLIO	2.0%	4.0%	1.0%	5.3%	6.3%	15.6%	Oct-07
Custom Benchmark	-5.2%	-2.8%	-1.4%	6.9%	5.4%	7.3%	

The SCERS portfolio returned -5.3% in the fourth quarter, slightly underperforming the -5.2% policy index benchmark for the quarter, and outperforming the median public fund return of -6.9%.

Growth Asset Category

During the quarter, growth assets declined significantly with SCERS' Public Equity portfolio underperforming the MSCI ACWI benchmark, -13.1% vs. -12.8%. Small capitalization stocks experienced the most severe decline in the quarter, with the Russell 2000 index down 20.2% and the MSCI World ex U.S. Small Cap index down 18.1%. Private Equity, where results are lagged by one quarter, continued to show strong returns for the quarter and year.

SCERS GROWTH Performance Summary for the periods ending 12/31/18	Quarter	Fiscal Year-to-Date	1-Year	Since Inception	Since Inception Date
SCERS GROWTH ASSET CATEGORY	-9.3%	-5.4%	-3.5%	6.6%	Mar-17
Custom Benchmark	-9.0%	-5.4%	-4.1%	5.1%	
Public Equity	-13.1%	-9.3%	-8.7%	7.3%	Jun-11
MSCI ACWI	-12.8%	-9.0%	-9.4%	6.1%	
Private Equity (lagged 1 quarter)	7.2%	14.3%	25.9%	2.7%	Feb-08
Cambridge All PE	3.8%	9.2%	17.1%	10.5%	
Public Credit	-5.6%	-3.4%	-0.6%	3.5%	Nov-13
Custom Benchmark	-3.9%	-1.8%	-0.6%	3.6%	
Private Credit (lagged 1 quarter)	2.3%	3.6%	7.2%	7.2%	Mar-17
Credit Suisse Leveraged Loan + 2%	-2.5%	-0.1%	3.1%	6.6%	
Growth Absolute Return	-8.6%	-8.0%	-6.1%	4.3%	Aug-04
HFRI FoF Composite +1%	-4.8%	-4.3%	-3.1%	5.7%	

Diversifying Asset Category

The Diversifying Asset Category provided stable returns in the fourth quarter, supporting overall Plan performance during a turbulent period for public equity markets. The Diversifying Asset Category returned +0.2% for the quarter and -1.0% for the year, slightly underperforming the custom benchmark. U.S. Treasury and Core/Core Plus Fixed Income were positive in the quarter, offsetting declines in the Global Fixed Income and Diversifying Absolute Return asset classes.

SCERS DIVERSIFYING Performance Summary for the periods ending 12/31/18	Quarter	Fiscal Year-to-Date	1-Year	Since Inception	Since Inception Date
SCERS DIVERSIFYING ASSET CATEGORY	0.2%	0.1%	-1.0%	1.5%	Mar-17
Custom Benchmark	0.5%	0.4%	-0.3%	1.7%	
Core/Core Plus Fixed Income	1.2%	1.5%	0.2%	2.9%	Jun-11
Barclays US Aggregate TR	1.6%	1.7%	0.0%	2.6%	
U.S. Treasury	2.6%	2.0%	N/A	3.0%	Feb-18
Barclays US Treasury TR	2.6%	2.0%	0.9%	3.0%	
Global Fixed Income	-1.1%	-1.9%	-4.8%	1.6%	May-13
Custom Benchmark	1.8%	0.2%	-1.9%	0.4%	
Diversifying Absolute Return	-2.6%	-2.5%	-3.3%	1.7%	Nov-11
HFRI FoF Conservative Index	-3.2%	-2.5%	-0.9%	4.3%	

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Real Return Asset Category

SCERS' Real Return portfolio was positive in the quarter, returning +1.0% including the Real Return Overlay Proxy, outperforming the asset class benchmark return of +0.1%. The Real Assets portfolio (+4.2%, lagged one quarter) and Real Estate portfolio (+1.4%) contributed to returns, while the Real Return Proxy (-4.3%) and Commodities (-12.3%) detracted from returns. The Real Return Proxy was negatively impacted from exposure to global equities, commodities, and global infrastructure, which generated negative returns for the fourth quarter and one-year period.

SCERS REAL RETURN Performance Summary	Quarter	Fiscal Year-to-Date	1-Year	Since Inception	Since Inception Date
SCERS REAL RETURN ASSET CATEGORY					
SCERS Real Return w/ SSgA Proxy	1.0%	0.1%	5.9%	8.7%	Mar-17
SCERS Real Return w/o SSgA Proxy	2.0%	1.1%	8.5%	10.8%	Mar-17
Custom Benchmark	0.1%	1.7%	6.2%	6.7%	Mar-17
SCERS Real Estate	1.4%	-1.1%	6.1%	11.5%	Jun-11
Custom Benchmark	1.1%	3.3%	8.5%	10.2%	
Core Real Estate (as of 12/31/18)					
Separate Account	4.8%	-1.6%	6.0%	6.1%	Sep-08
Commingled Funds	1.8%	3.9%	9.3%	5.0%	Sep-08
NFI-ODCE	1.8%	3.9%	8.3%	5.6%	
Non-Core Real Estate (as of 9/30/18)					
Opportunistic	-0.6%	-15.4%	-4.3%	23.8%	Feb-14
Value Add	1.5%	1.9%	8.4%	-2.9%	Sep-08
NFI-ODCE net +1%	-0.1%	2.3%	8.7%	10.7%	Feb-14
				7.8%	Sep-08
SCERS Real Assets (as of 9/30/18)	4.2%	6.9%	15.2%	5.3%	Jan-13
Custom Benchmark	2.0%	3.9%	9.3%	7.0%	
SCERS Commodities (as of 12/31/18)	-12.3%	-12.9%	-10.9%	-7.0%	May-08
Bloomberg Commodity Index	-9.4%	-11.2%	-11.2%	-8.8%	
SSgA Real Return Proxy (as of 12/31/18)	-4.3%	-4.9%	-6.2%	0.8%	Jan-08
SSgA Real Assets	-4.4%	-5.0%	-6.3%	N/A	

SCERS’ policy index benchmark includes a blended weighted average of the individual asset class benchmarks, as defined within SCERS’ Master IPS, and as shown below.

SCERS BENCHMARK SUMMARY As of December 31, 2018	
Asset Class	Policy Index Benchmark
Growth Asset Category	Blended Weighted Average of Asset Class Benchmarks
US Equities	Russell 3000
International Equities	MSCI ACWI ex.-U.S. IMI
Private Equity	Cambridge All PE
Public Credit	50% (BofA High Yield) + 50% (CS High Yield)
Private Credit	CS Leveraged Loan + 2%
Growth Absolute Return	HFRI FoF Composite Index +1%
Diversifying Asset Category	Blended Weighted Average of Asset Class Benchmarks
Core/Core Plus Fixed Income	Barclays U.S. Aggregate
U.S. Treasury	Barclays U.S. Treasury
Global Fixed Income	80% Citi WGBI + 20% JPMorgan GBI EM
Diversifying Absolute Return	HFRI FoF Conservative Index
Real Return Asset Category	Blended Weighted Average of Asset Class Benchmarks
Real Estate	65% (NFI-ODCE) + 35% (NFI-ODCE +1%)
Real Assets	45% (Cambridge Infrastructure) + 35% (Cambridge Energy) + 10% (NCREIF Agriculture) + 10% (NCREIF Timber)
Commodities	Bloomberg Commodity Index
SSgA Real Assets Proxy	30% (Barclays U.S. TIPS) + 25% (S&P Global Infrastructure Index) + 15% (Global REITs) + 10% (S&P Global Natural Resources Index) + 10% (Bloomberg Commodity Index) +10% (U.S. Dollar Floating Rate Notes)
Opportunities Portfolio	SCERS Total Fund

ATTACHMENT

Verus' Investment Performance Review for SCERS for the period ending December 31, 2018.

Prepared by:

/S/

Brian Miller
Investment Officer

Reviewed by:

/S/

Steve Davis
Chief Investment Officer

/S/

Eric Stern
Chief Executive Officer



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2018

Investment Performance Review for

Sacramento County Employees' Retirement System

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[VERUSINVESTMENTS.COM](https://www.verusinvestments.com)

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Market Environment

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Total Fund

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Policy Index and
Benchmark History

TAB III

4th quarter summary

THE ECONOMIC CLIMATE

- U.S. real GDP growth reached 3.0% in Q3, supported by fiscal stimulus which is more or less expected to fade in 2019. Growth is forecast to moderate in the U.S., in-line with the rest of the developed world.
- The U.S. and China ended their most recent round of trade negotiations during the first week of January. China indicated willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall.

PORTFOLIO IMPACTS

- The Federal Reserve raised the fed funds rate by 0.25% to a range of 2.25%-2.50%. Market expectations for future rate hikes changed dramatically in December. As of year-end, the fed funds futures market is pricing in zero hikes for 2019, and a rate cut for 2020.
- Emerging markets were the top equity performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed markets (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currencies stabilized in Q4 (JPMorgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines.

THE INVESTMENT CLIMATE

- The U.S. equity market experienced a fairly significant peak-to-trough drawdown in Q4 (S&P 500 -19.8%, Russell 1000 -20.1%), along with global equity markets. Equity corrections of this size have historically occurred roughly once per cycle.
- After reaching a cyclical high of 3.2% in November, the 10-year U.S. Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling inflation expectations as energy prices trended down.
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline.

ASSET ALLOCATION ISSUES

- Diversification has been particularly painful in recent years as most asset classes failed to keep up with a domestic 60/40 portfolio. U.S. performance exceptionalism reversed in Q4 as U.S. equities underperformed.
- Economic conditions around the world have weakened. This trend has been broad-based, from industrial production, to business sentiment, to corporate earnings expectations.

Economic conditions displayed a weaker trend in Q4

A neutral risk stance may be appropriate in today's environment

U.S. economics summary

- Real GDP growth reached 3.0% YoY (3.4% quarterly annualized rate) in the third quarter, the fastest pace of growth in more than three years. Consumers drove growth after bouncing back from a spending slowdown in Q1.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. The U.S. noted China’s willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall.
- U.S. inflation remained near the Federal Reserve’s 2.0% target. Headline U.S. inflation fell from 2.3% to 1.9% over the quarter, driven by lower oil prices. U.S. core CPI remained at 2.2%. Moderate inflation has likely contributed to the willingness of the Fed to keep on course with rate hikes.
- The labor market remained a bright spot in the U.S. economy. On average, nonfarm payrolls increased by 254,000 per month during the quarter, well above the expansion average of 201,000.
- The headline U-3 unemployment rate rose from 3.7% to 3.9%, in part due to an increase in labor force participation.
- Fiscal stimulus continued to support growth, although the impacts will likely subside in the first half of 2019. Stimulus may be masking a slowdown in the economy, which would be directionally in line with the rest of the developed world.
- The Federal Reserve hiked the target range for its benchmark interest rate by 25 basis points to a new range of 2.25% - 2.50%. Consistent with expectations for a “dovish hike”, central bank officials re-rated hike expectations in 2019 from three to two.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>9/30/18</i>	2.3% <i>9/30/17</i>
Inflation (CPI YoY, Core)	2.2% <i>12/31/18</i>	1.8% <i>12/31/17</i>
Expected Inflation (5yr-5yr forward)	1.8% <i>12/31/18</i>	2.0% <i>12/31/17</i>
Fed Funds Target Range	2.25 – 2.50% <i>12/31/18</i>	1.25 – 1.50% <i>12/31/17</i>
10 Year Rate	2.7% <i>12/31/18</i>	2.4% <i>12/31/17</i>
U-3 Unemployment	3.9% <i>12/31/18</i>	4.1% <i>12/31/17</i>
U-6 Unemployment	7.6% <i>12/31/18</i>	8.1% <i>12/31/17</i>

International economics summary

- Outside of the U.S., economic growth has slowed in recent quarters, most notably in Europe and Japan. Developed real GDP growth is expected to slow from 2.2% in 2018 to 2.0% in 2019, according to the World Bank.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. Officials continue to work towards an agreement, though little progress is been demonstrated thus far. On March 2nd, U.S. tariffs are scheduled to increase from 10% to 25% on \$200 billion of Chinese imports.
- China's Purchasing Managers' Index (PMI) fell to 49.7 in December. An index reading of 50 indicates economic expansion while a reading below 50 indicates contraction. This reading is in line with a string of weak economic data coming out of China.
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline. Potential resolutions include renegotiating a deal with the EU, leaving without a deal, or delaying the exit deadline.
- The U.S. dollar appreciated by 1.9% during the quarter on a trade-weighted basis. A slowing U.S. economy would likely put downside pressure on the dollar, which has been boosted recently by U.S. economic exceptionalism.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.9% <i>12/31/18</i>
Eurozone	1.6% <i>9/30/18</i>	1.8% <i>11/30/18</i>	8.1% <i>10/31/18</i>
Japan	0.0% <i>9/30/18</i>	0.8% <i>11/30/18</i>	2.5% <i>11/30/18</i>
BRICS Nations	5.6% <i>9/30/18</i>	2.4% <i>12/31/18</i>	5.4% <i>9/30/18</i>
Brazil	1.3% <i>9/30/18</i>	4.1% <i>11/30/18</i>	11.7% <i>12/31/18</i>
Russia	1.5% <i>9/30/18</i>	4.3% <i>12/31/18</i>	4.8% <i>11/30/18</i>
India	7.1% <i>9/30/18</i>	2.3% <i>11/30/18</i>	8.8% <i>12/31/17</i>
China	6.5% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.8% <i>9/30/18</i>

Equity environment

- U.S. equities experienced their worst quarter since 2008 – the S&P 500 Index returned -13.5%. The sell-off was due in part to concerns over a slowdown in global growth, and was exacerbated by low liquidity toward the end of the year.
- The drawdown from peak on the S&P 500 Index stopped just shy of 20% before equities rebounded during the last week of the year. Historically, equity drawdowns of more than 20% have been associated with an economic recession.
- Although absolute performance was also poor, international equities outperformed U.S. equities, particularly in emerging markets.
- Global equities saw a sharp drop in valuations as price declines overwhelmed small downward adjustments to earnings expectations. The 12-month forward P/E multiple for the MSCI ACWI fell by 12.1% during the quarter, falling from 14.8x to 13.0x.
- The risk-off environment hit small cap equities especially hard. The Russell 2000 Index posted a -20.2% return in the fourth quarter, compared to a decline of 13.8% on the Russell 1000 Index.
- Value equities outperformed growth equities over the quarter for the time since Q4 2016. The Russell 1000 Value Index and Russell 1000 Growth Index returned -11.7% and -15.9%, respectively.
- Equity volatility surged in what may be the beginning of a transition to a higher volatility regime. The VIX Index averaged 21 in Q4, and hit a high of 36 on December 24th.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(13.8%)		(4.8%)	
US Small Cap (Russell 2000)	(20.2%)		(11.0%)	
US Large Value (Russell 1000 Value)	(11.7%)		(8.3%)	
US Large Growth (Russell 1000 Growth)	(15.9%)		(1.5%)	
International Large (MSCI EAFE)	(12.5%)	(11.6%)	(13.8%)	(9.0%)
Eurozone (Euro Stoxx 50)	(14.1%)	(10.7%)	(16.2%)	(9.3%)
U.K. (FTSE 100)	(11.7%)	(9.1%)	(14.0%)	(7.3%)
Japan (NIKKEI 225)	(14.6%)	(16.6%)	(8.6%)	(9.6%)
Emerging Markets (MSCI Emerging Markets)	(7.5%)	(7.4%)	(14.6%)	(10.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/18

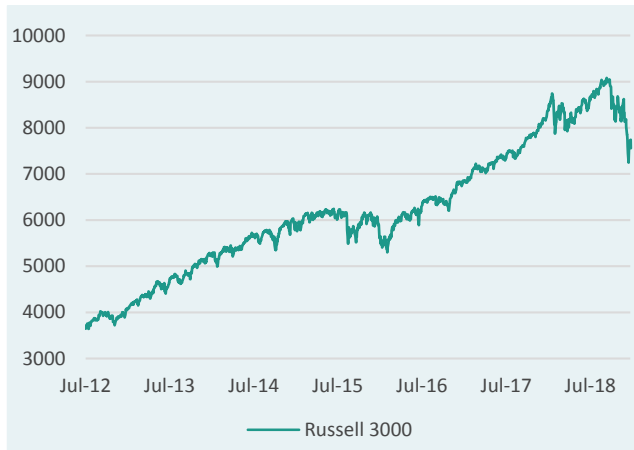
Domestic equity

U.S. equities experienced their worst quarter since 2008 as the S&P 500 Index returned -13.5%. For much of 2018, strong realized and expected earnings growth more than offset rising risk premiums (i.e. February sell-off) and discount rates as shown below in the middle chart. However, when cracks appeared in the growth story, influenced by poor economic data as well as profit warnings from companies, this support quickly vanished. The sharp drawdown, particularly in December, was also influenced by pockets of illiquidity in the market that exacerbated the move lower.

The question for investors now becomes whether the recent drawdown was a healthy reset of the pricing of earnings and risk premia, or whether it was a more urgent warning signal of a deterioration in the growth and profit cycle. We believe it to be more of the former rather than the latter, and that the market priced in an overly pessimistic view of macro conditions. However, we also recognize the growing headwinds to equities, including slowing global growth, further potential monetary tightening, and high debt levels. These conditions will likely result in sustained higher volatility, consistent with previous late cycle experiences.

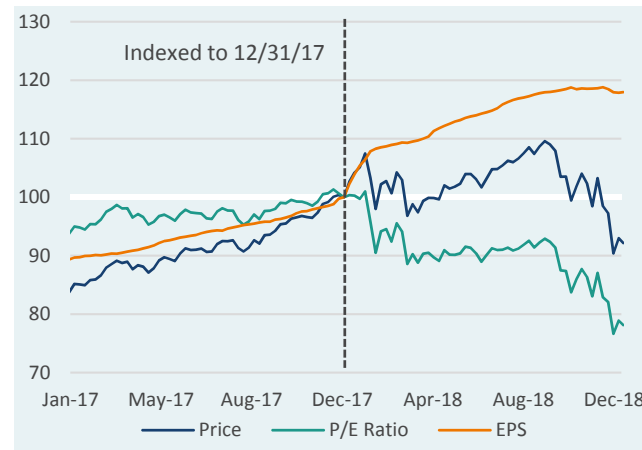
We maintain a neutral view on U.S. equities

U.S. EQUITIES



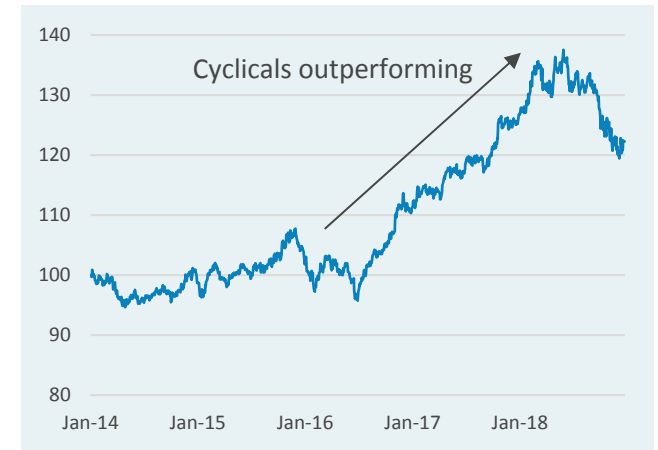
Source: Russell Investments, as of 12/31/18

S&P 500 PRICE MOVEMENT ATTRIBUTION



Source: Bloomberg, as of 12/31/18

CYCLICALS-DEFENSIVES RETURN SPREAD



Source: Bloomberg, MSCI, as of 12/31/18

Domestic equity size & style

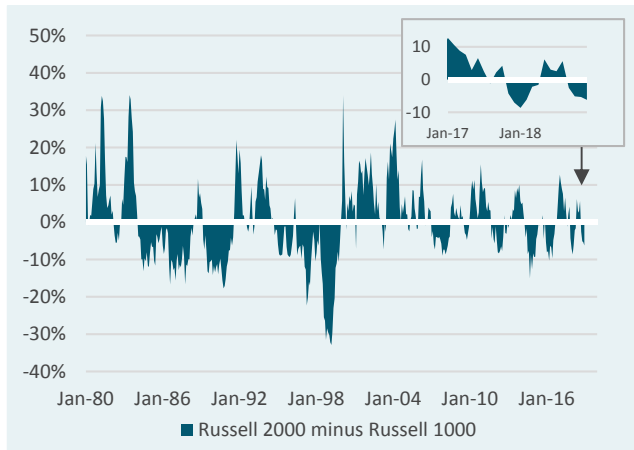
Large cap equities (Russell 1000 -13.8%) significantly outperformed small cap equities (Russell 2000 -20.2%) during the quarter. It may not be surprising that small cap equities underperformed, given the broad risk-off moves during this period. Growth stocks underperformed value stocks during the quarter (Russell 1000 Growth -15.9% vs. Russell 1000 Value -11.7%) for the first time since Q4 2016.

The sector weights in large-cap style benchmarks explain most of the recent value underperformance. Over the past

year, Energy, Materials, and Financials returned -18.1%, -14.7%, and -13.0%, respectively. These sectors are heavily weighted with value stocks, which resulted in a large drag to value. Information technology was an outperforming sector with a return of -0.3% during the period.

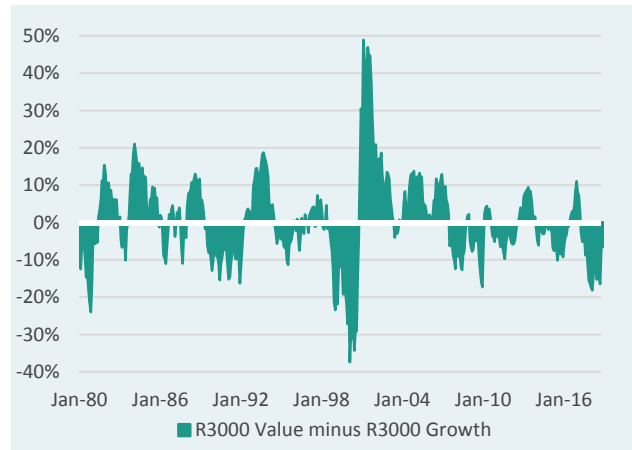
Long spans of style (size, value) underperformance is, and will always be, discouraging for investors. Similar to an investment in the broader equity market, we should expect to see rough patches of performance through time.

SMALL CAP VS LARGE CAP (YOY)



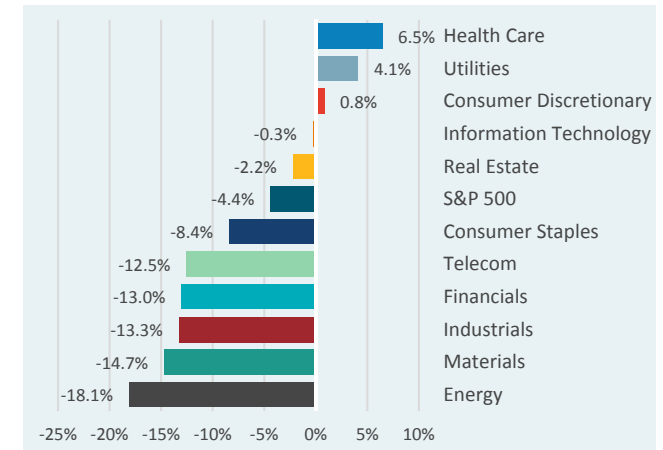
Source: FTSE, as of 12/31/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/18

1-YEAR S&P 500 SECTOR RETURNS



Source: Morningstar, as of 12/31/18

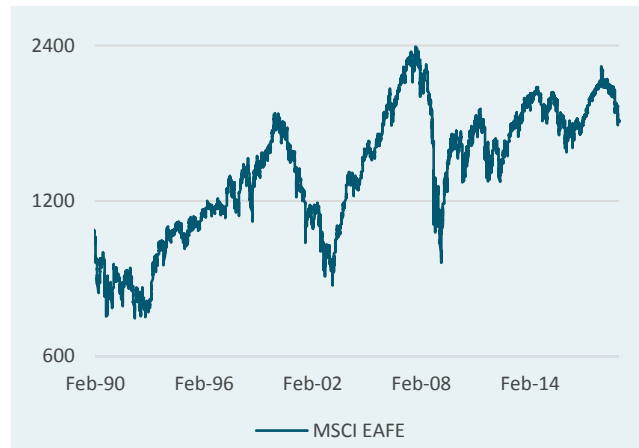
International developed equity

International developed equities sold off alongside U.S. equities. On an unhedged basis, the MSCI EAFE Index returned -12.5% in Q4 (-11.6% on a currency hedged basis). The three major equity markets in the EAFE Index – Japan, the Eurozone, and the UK – were all down more than 10%. The key factors that may have driven U.S. equities lower, most notably concerns over slowing global growth and central bank tightening, likely played an important role in non-U.S. developed markets. These concerns were particularly acute in the Eurozone where economic data routinely missed expectations, while the ECB officially

announced the end to its asset purchase program in December.

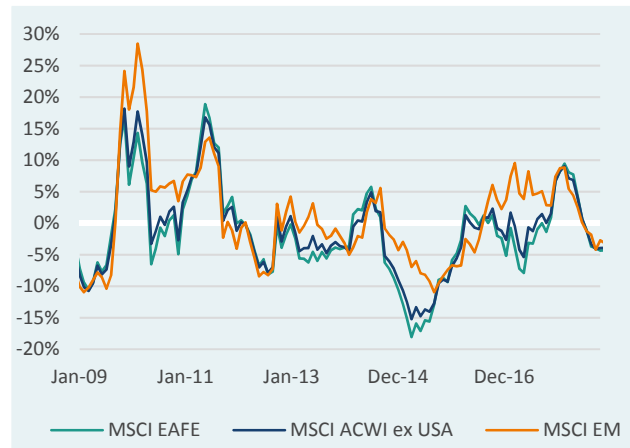
International developed equity markets are still cheap on both an absolute and relative basis at 11.9x forward earnings, but we believe there are good reasons for this pricing in certain markets. Within equity allocations, we are pessimistic on EAFE equities due to a negative view on the Eurozone. We believe slowing economic growth at the same time political risks are increasing and the ECB is unable to meaningfully ease policy present material headwinds to equity performance.

INTERNATIONAL DEVELOPED EQUITIES



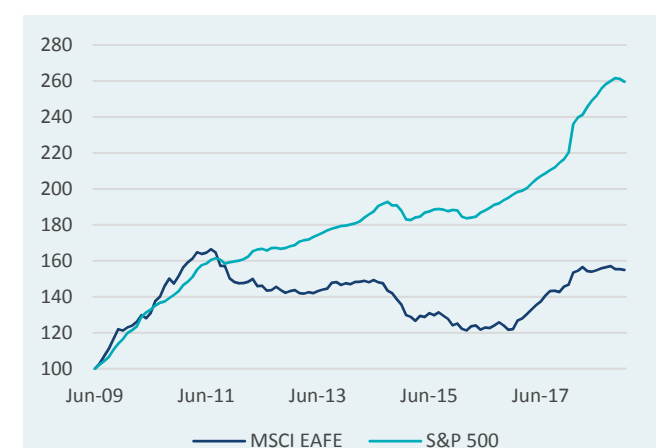
Source: MSCI, as of 12/31/18

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/18

EARNINGS PER SHARE



Source: Bloomberg, as of 12/31/18, indexed to earnings trough

Emerging market equity

Emerging market equities were the top performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currency depreciation stabilized in Q4 (JP Morgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines.

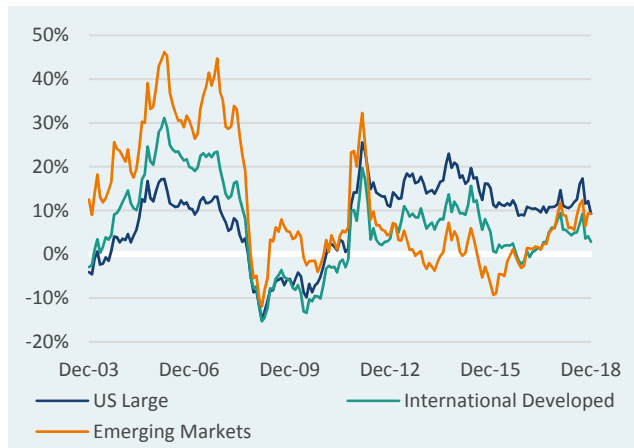
Valuations are near their long-term average, but remain much cheaper than developed market equities. Sentiment around emerging markets seems to be improving as the extreme negativity of 2018 dissipates, which creates possible

upside surprise if investors decide these fears were overblown. Very depressed currencies may also provide a performance tailwind in the event of mean reversion. Overall, we maintain our preference for the asset class.

Decelerating global growth and rising probability of recession do present unique risks to emerging markets, however, as these market typically exhibit a higher beta during market downside and upside moves. We will be watching global developments closely and will update our emerging market views as appropriate.

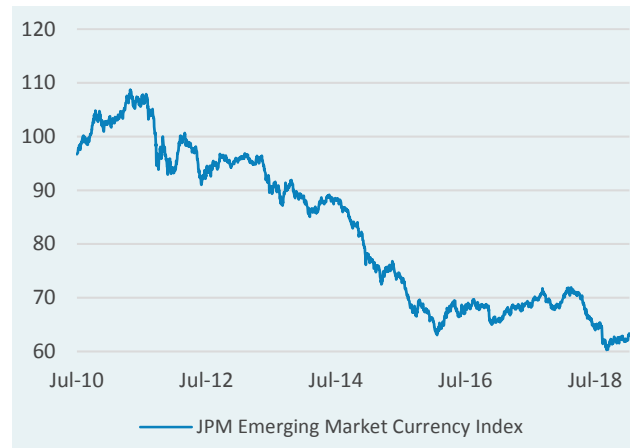
EM equities were the top performer in Q4

EQUITY PERFORMANCE (3-YR ROLLING)



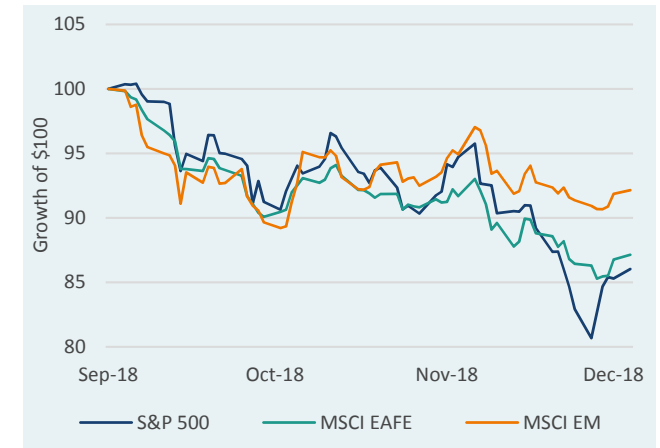
Source: Standard & Poor's, MSCI, as of 12/31/18

EMERGING MARKET CURRENCY MOVEMENT



Source: JP Morgan, as of 12/31/18

Q4 CUMULATIVE PERFORMANCE



Source: Standard & Poor's, MSCI, as of 12/31/18

Interest rate environment

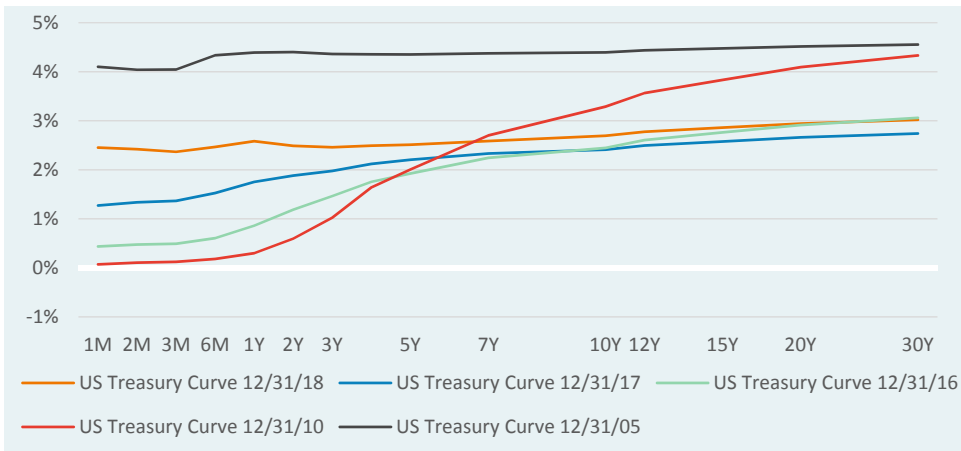
- The Federal Reserve raised the target for the fed funds rate by 0.25% in December, to a range of 2.25%-2.50%. Despite the hike, Fed officials indicated a more patient approach to future tightening, and lowered expectations for hikes in 2019 from three to two.
- The market's expectation for future rate hikes changed dramatically in December. As of year-end, the fed fund futures market is pricing zero hikes in 2019 and a rate cut priced in 2020.
- After reaching a cycle high of 3.2% in November, the 10-year Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling breakeven inflation as oil prices plunged. The 10-year breakeven inflation rate fell from 2.1% to 1.7% over the quarter.
- Although certain parts of the U.S. Treasury yield curve have inverted, there remains a 15 bps gap between the 10- and 2-year yields, which is the most widely cited measure of yield curve shape.
- Developed sovereign yields fell alongside U.S. Treasuries. The 10-year German bund yield was cut in half over the quarter to 0.24%.
- As expected, the European Central Bank officially announced the end of its asset purchase program. Beginning in January of 2019, monthly purchases will fall from €30 billion to €0. Central bank officials have said that they will fully reinvest maturing securities for the foreseeable future and keep interest rates unchanged until at least the second half of 2019.

Area	Short Term (3M)	10-Year
United States	2.36%	2.69%
Germany	(0.77%)	0.24%
France	(0.86%)	0.71%
Spain	(0.42%)	1.42%
Italy	(0.06%)	2.74%
Greece	1.30%	4.40%
U.K.	0.73%	1.28%
Japan	(0.15%)	0.00%
Australia	2.01%	2.32%
China	2.83%	3.31%
Brazil	6.48%	9.24%
Russia	7.12%	8.78%

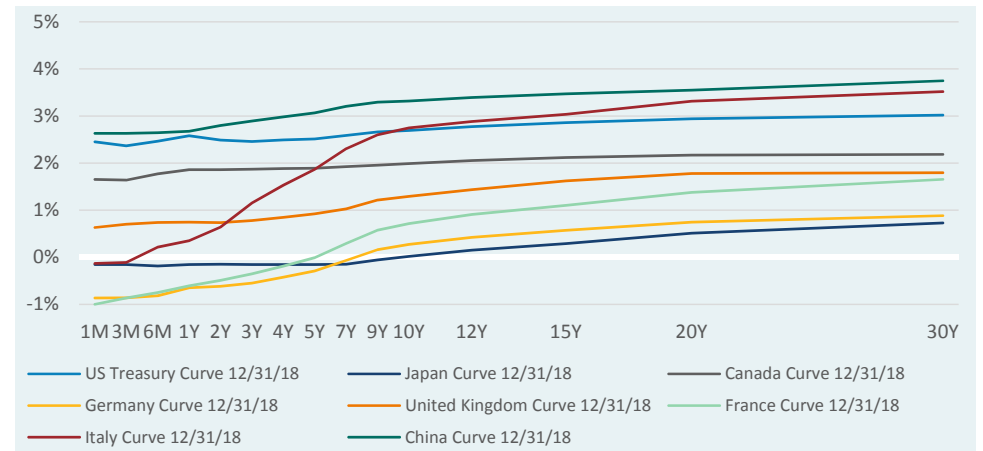
Source: Bloomberg, as of 12/31/18

Yield environment

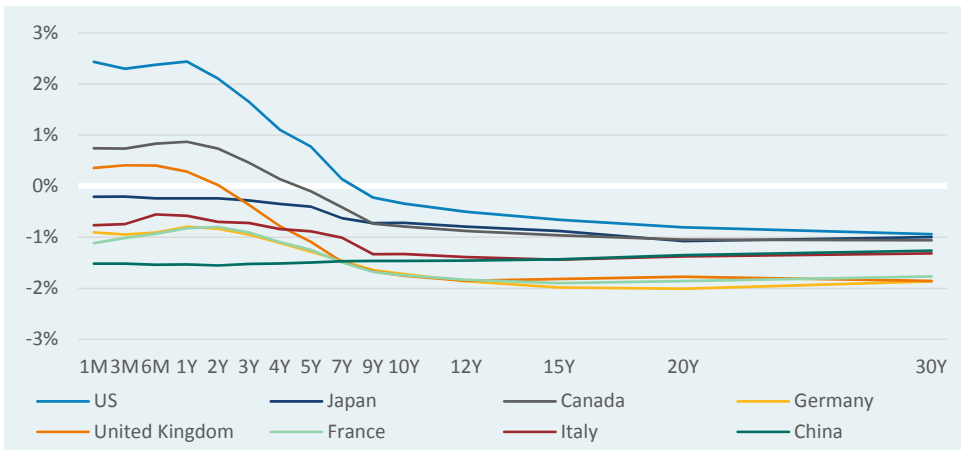
U.S. YIELD CURVE



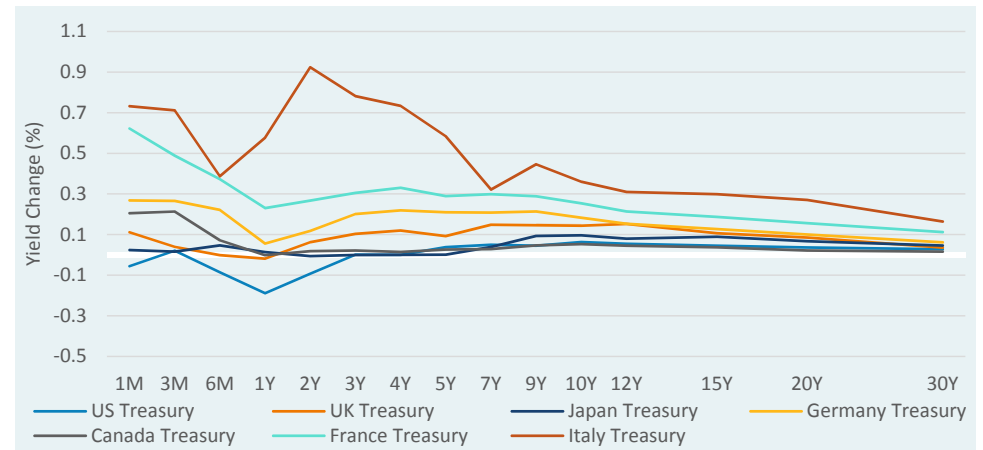
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/18

Currency

The U.S. dollar appreciated by 1.8% during the quarter, and 7.2% in 2018 based on the Broad Trade Weighted Dollar Index. The strong appreciation of the dollar last year was influenced by a number of factors, including stronger relative U.S. economic growth, higher relative interest rates, and weakness in other currencies such as the euro and British pound. The recent dollar strength in Q4 was due in part to safe haven demand amid equity market turbulence as these moves came despite the market pricing considerably less tightening from the Fed.

Emerging market currencies stabilized over the quarter, and recovered slightly from the recent drawdown in Q3. The JPMorgan Emerging Market Currency Index appreciated by 0.2% in Q4.

The U.S. dollar appreciated to a cycle high

From a value perspective (based on purchasing power parity), the U.S. dollar remains expensive, particularly versus the euro, yen, and British pound.

U.S. DOLLAR TRADE WEIGHTED INDEX



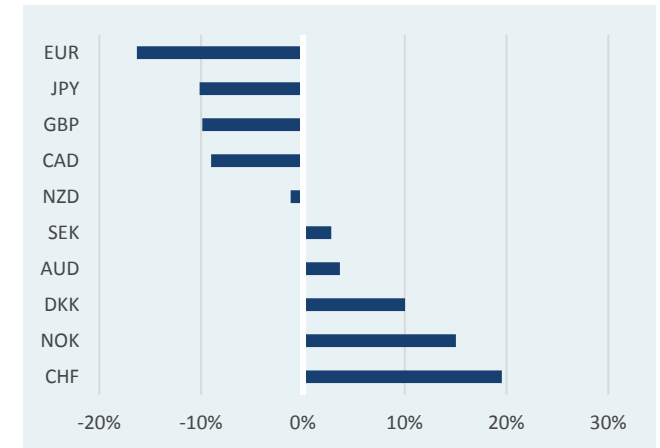
Source: Federal Reserve, as of 12/26/18

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 12/31/18

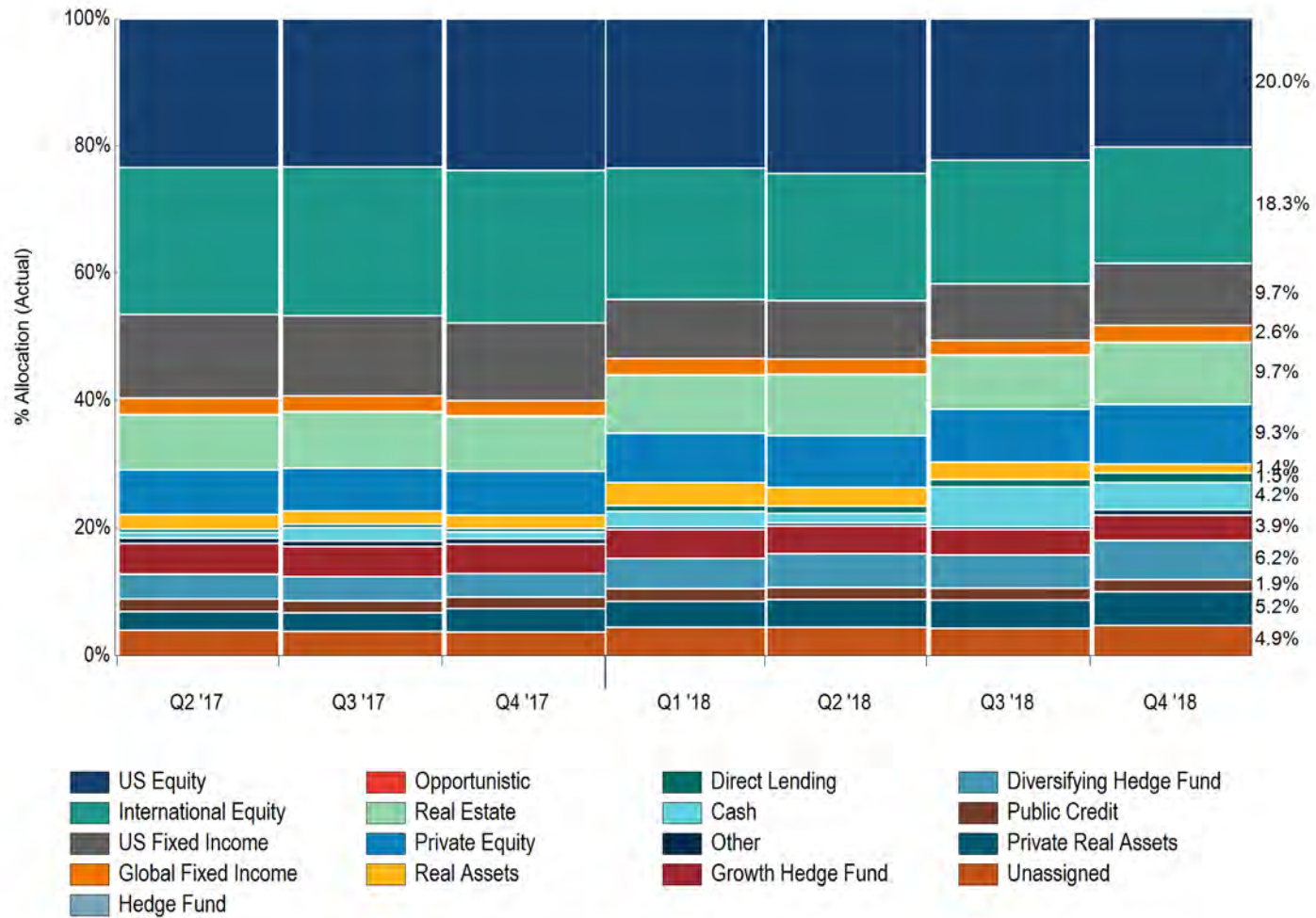
U.S. DOLLAR VALUE (PPP)



Source: Bloomberg, OECD, as of 12/31/18

Total Fund
Quarterly Asset Allocation

Period Ending: December 31, 2018

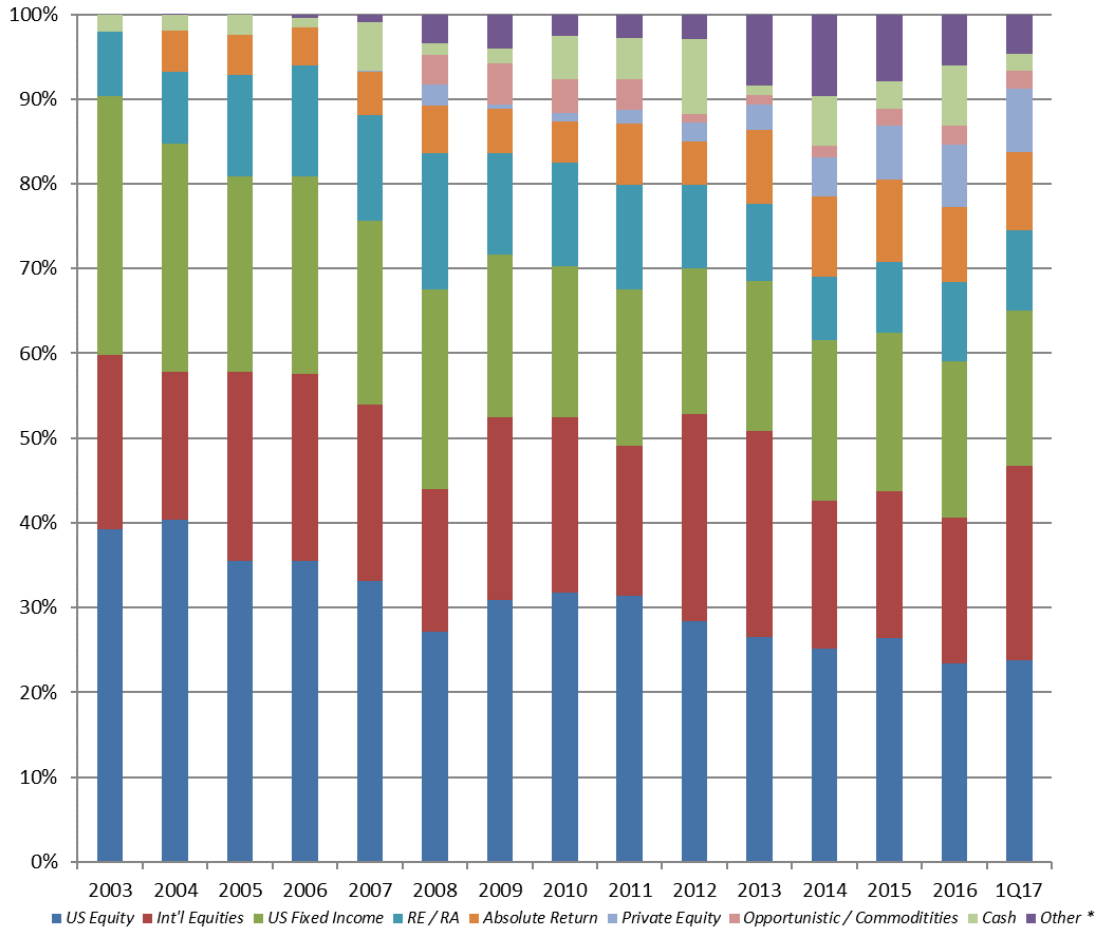


* Other includes SSgA Overlay and closing accounts.

Total Fund

Actual Yearly and Quarterly Asset Allocation

Period Ending: December 31, 2018



	2003	2004	2005	2006	2007	2008
US Equity	39.2	40.4	35.4	35.5	33.1	27.2
International Equity	20.6	17.5	22.3	22.0	20.9	16.8
US Fixed Income	30.6	26.9	23.1	23.3	21.7	23.5
Real Estate	7.5	8.5	11.9	13.1	12.4	16.1
Absolute Return	-	4.9	4.8	4.4	5.1	5.6
Private Equity	-	-	-	-	0.1	2.5
Opportunistic / Commodities	-	-	-	-	-	3.5
Cash	2.1	1.8	2.4	1.2	5.8	1.4
Other *	-	0.1	-	0.4	0.9	3.4

	2009	2010	2011	2012	2013	2014
US Equity	30.9	31.7	31.4	28.4	26.5	25.2
International Equity	21.5	20.7	17.6	24.5	24.3	17.5
US Fixed Income	19.3	17.8	18.4	17.1	17.7	18.9
Real Assets	11.9	12.2	12.4	9.9	9.0	7.6
Absolute Return	5.3	4.9	7.3	5.2	8.8	9.4
Private Equity	0.5	0.9	1.6	2.2	3.0	4.6
Opportunistic / Commodities	4.8	4.1	3.7	1.1	1.0	1.4
Cash	1.7	5.0	4.9	8.8	1.2	5.9
Other *	4.1	2.6	2.7	2.9	8.4	9.6

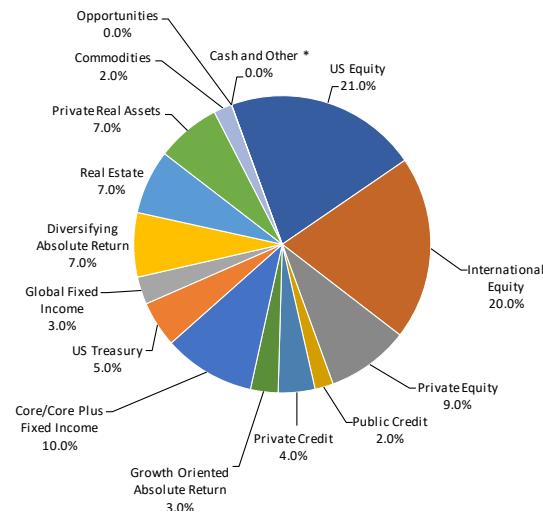
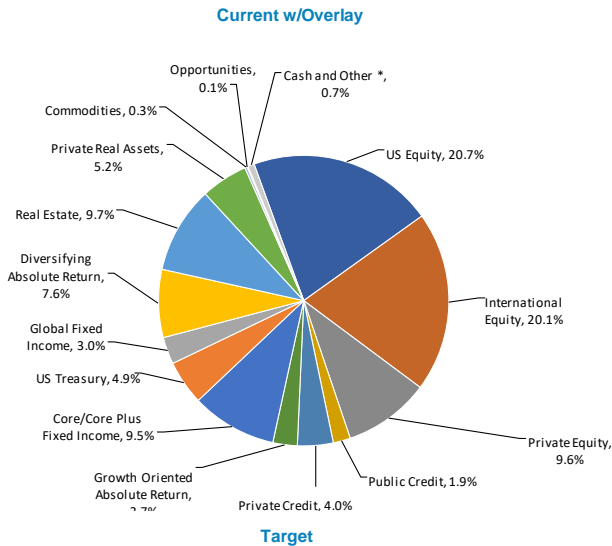
	2015	2016	2017 1Q+
US Equity	26.4	23.4	23.8
International Equity	17.3	17.2	22.9
US Fixed Income	18.7	18.5	18.2
Real Assets	8.3	9.3	9.5
Absolute Return	9.7	8.8	9.2
Private Equity	6.3	7.4	7.5
Opportunistic / Commodities	2.1	2.2	2.1
Cash	3.2	7.1	2.0
Other *	7.9	6.0	4.7

* Allocations without overlay.

* Other includes SSgA Overlay, SSgA Real Assets and closing accounts.

Total Fund Asset Allocation Analysis

Period Ending: December 31, 2018



ASSET ALLOCATION	MARKET VALUE W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	1,856,773,538	20.7%	20.0%
International Equity	1,802,691,875	20.1%	18.3%
Private Equity	864,370,977	9.6%	9.3%
Public Credit	172,073,729	1.9%	1.9%
Private Credit	357,464,746	4.0%	1.5%
Growth Oriented Absolute Return	244,091,359	2.7%	3.3%
Core/Core Plus Fixed Income	855,189,983	9.5%	9.7%
US Treasury	444,375,804	4.9%	4.9%
Global Fixed Income	270,679,978	3.0%	2.6%
Diversifying Absolute Return	679,556,781	7.6%	6.8%
Real Estate	870,481,979	9.7%	9.7%
Private Real Assets	468,892,573	5.2%	5.2%
Commodities	24,058,394	0.3%	0.3%
Opportunities	8,793,308	0.1%	0.1%
Cash and Other *	64,120,613	0.7%	6.2%
TOTAL	8,983,615,635	100.0%	100.0%

ASSET ALLOCATION	ACTUAL	TARGET	DIFF
US Equity	20.7%	21.0%	-0.3%
International Equity	20.1%	20.0%	0.1%
Private Equity	9.6%	9.0%	0.6%
Public Credit	1.9%	2.0%	-0.1%
Private Credit	4.0%	4.0%	0.0%
Growth Oriented Absolute Return	2.7%	3.0%	-0.3%
Core/Core Plus Fixed Income	9.5%	10.0%	-0.5%
US Treasury	4.9%	5.0%	-0.1%
Global Fixed Income	3.0%	3.0%	0.0%
Diversifying Absolute Return	7.6%	7.0%	0.6%
Real Estate	9.7%	7.0%	2.7%
Private Real Assets	5.2%	7.0%	-1.8%
Commodities	0.3%	2.0%	-1.7%
Opportunities	0.1%	0.0%	0.1%
Cash and Other *	0.7%	0.0%	0.7%

* Other includes closing accounts (Heitman), Transition Account, SSgA Overlay of \$77 million and SSgA Real Asset of \$103 million, which serve as overlay proxy for Real Assets.

- The Total Plan returned -5.4% net in the fourth quarter of 2018 and ranked in the top quartile among other public funds greater than \$1 billion (-6.9% median). The Fund lagged its policy index (-5.2%) during this time period. The Total Plan w/o Overlay returned -5.1% for the quarter, net of fees. Longer term, the three-year return of 7.4% beat the median large public plan peer group (6.4%) and ranked in the top quartile. The five-year returns of 5.2% ranked in the second quartile of the large public plan peer group.
- Fourth quarter results (net) were enhanced by the following factors:
 1. Walter Scott lost 11.2% beating the MSCI World ex US (-13.4%). Stock selection in Hong Kong and Japan benefited relative performance.
 2. Private Equity beat the index by 340 bps, gaining 7.2% vs 3.8% for the Thompson Reuters ALL PE 1 quarter lagged.
 3. Mondrian Emerging Markets lost -5.2% beating the MSCI Emerging Markets Index (-7.4%). The portfolio benefited from stock selection particularly in Asia. The portfolio also benefited from weak equity markets where defensive sectors delivered stronger returns.
 4. Treasuries gained 2.6% for the quarter providing the diversification we sought during implementation and helped SCERS' relative peer group performance.
- Fourth quarter results (net) were hindered by the following factors:
 1. Weatherbie lost -24.5% trailing the Russell 2000 Growth (-21.7%) and ranked in the bottom decile of its peers. Relative performance was hurt by an overweight in information technology and consumer discretionary. Despite this short-term underperformance; long term, Weatherbie has consistently ranked above peers in the top quartile for the 3-year and 5-year time periods.
 2. William Blair Developed Small Cap trailed the MSCI World ex US small cap by 2.9% (-19.0% vs -16.1%). The underperformance was driven by negative stock selection effect across most sectors amid the valuation-led environment.
 3. LSV underperformed the MSCI World ex US Value (-14.0% vs -12.0%). The deep value positioning in their portfolios detracted from relative performance as LSV held an underweight in the utility and staples sectors due to high valuations.

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date ⁺
Total Fund- Gross[*]	8,983,615,635	100.0	-5.3	14	-3.1	12	-1.3	10	7.7	6	5.5	26	8.2	Jun-86
Total Fund- Net			-5.4	17	-3.2	12	-1.5	10	7.4	13	5.2	36	8.0	
<i>Policy Index¹</i>			<i>-5.2</i>	<i>13</i>	<i>-2.8</i>	<i>11</i>	<i>-1.4</i>	<i>10</i>	<i>6.9</i>	<i>25</i>	<i>5.4</i>	<i>26</i>	<i>8.3</i>	<i>Jun-86</i>
<i>InvestorForce Public DB > \$1B Gross Median</i>			<i>-6.9</i>		<i>-4.7</i>		<i>-3.6</i>		<i>6.4</i>		<i>4.9</i>		<i>8.0</i>	<i>Jun-86</i>
Total Fund ex Overlay- Gross^{**}	8,804,508,397	98.0	-5.0	11	-2.8	11	-0.8	9	7.6	7	5.7	23	8.1	Jun-86
Total Fund ex Overlay- Net			-5.1	12	-2.9	11	-1.1	9	7.4	14	5.4	28	7.9	
<i>Policy Index</i>			<i>-5.2</i>	<i>13</i>	<i>-2.8</i>	<i>11</i>	<i>-1.4</i>	<i>10</i>	<i>6.9</i>	<i>25</i>	<i>5.4</i>	<i>26</i>	<i>8.3</i>	<i>Jun-86</i>
<i>Allocation ex Overlay Index</i>			<i>-5.1</i>	<i>12</i>	<i>-2.7</i>	<i>11</i>	<i>-1.3</i>	<i>10</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>Jun-86</i>
Growth Asset Category- Gross	4,891,415,300	54.4	-9.3	--	-5.4	--	-3.5	--	--	--	--	--	6.6	Mar-17
Growth Asset Category- Net			-9.4	--	-5.6	--	-3.8	--	--	--	--	--	6.3	
<i>Growth Custom¹</i>			<i>-9.0</i>	<i>--</i>	<i>-5.4</i>	<i>--</i>	<i>-4.1</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>5.1</i>	<i>Mar-17</i>
Public Equities- Gross	3,446,111,164	38.4	-13.1	--	-9.3	--	-8.7	--	7.7	--	5.1	--	7.3	Jun-11
Public Equities- Net			-13.3	--	-9.6	--	-9.1	--	7.3	--	4.8	--	7.0	
<i>MSCI ACWI</i>			<i>-12.8</i>	<i>--</i>	<i>-9.0</i>	<i>--</i>	<i>-9.4</i>	<i>--</i>	<i>6.6</i>	<i>--</i>	<i>4.3</i>	<i>--</i>	<i>6.1</i>	<i>Jun-11</i>
US Equity- Gross	1,799,102,799	20.0	-14.8	53	-8.8	42	-5.5	39	8.6	52	7.6	36	9.7	Jun-86
US Equity- Net			-14.9	54	-8.9	44	-5.7	43	8.3	62	7.3	50	9.5	
<i>Russell 3000</i>			<i>-14.3</i>	<i>36</i>	<i>-8.2</i>	<i>27</i>	<i>-5.2</i>	<i>34</i>	<i>9.0</i>	<i>35</i>	<i>7.9</i>	<i>23</i>	<i>9.8</i>	<i>Jun-86</i>
<i>InvestorForce All DB US Eq Gross Median</i>			<i>-14.8</i>		<i>-9.1</i>		<i>-5.9</i>		<i>8.7</i>		<i>7.3</i>		<i>9.5</i>	<i>Jun-86</i>

^{*}Total Fund and asset class composites are ranked against InvestorForce universes. Managers are ranked against eVest manager universes. Net Returns are ranked against gross universe. Ranking of 1 is a top ranking and ranking of 100 is a bottom rating.

^{**}Total Fund ex Overlay returns from 2/1/2006-12/31/2010 were calculated using the overlay impact provided by SSgA.

⁺ Since inception date denotes last day of the month.

1. See Policy Index and Benchmark History

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap- Gross	1,638,226,018	18.2	-14.1	--	-7.9	--	-4.9	--	9.0	--	8.0	--	5.7	Mar-98
Large Cap- Net			-14.1	--	-7.9	--	-5.1	--	8.7	--	7.8	--	5.5	
<i>Russell 1000</i>			-13.8	--	-7.4	--	-4.8	--	9.1	--	8.2	--	6.2	Mar-98
Large Cap - Index- Gross	1,097,323,589	12.2	-13.7	--	-7.4	--	-4.8	--	9.1	--	8.2	--	10.1	Sep-08
Large Cap - Index- Net			-13.7	--	-7.4	--	-4.8	--	9.0	--	8.2	--	10.1	
<i>Russell 1000</i>			-13.8	--	-7.4	--	-4.8	--	9.1	--	8.2	--	10.2	Sep-08
AB- Gross	1,097,323,589	12.2	-13.7	68	-7.4	65	-4.8	63	9.1	63	8.2	69	9.6	Apr-89
AB- Net			-13.7	69	-7.4	65	-4.8	64	9.0	66	8.2	69	9.6	
<i>Russell 1000</i>			-13.8	78	-7.4	72	-4.8	65	9.1	58	8.2	66	--	Apr-89
<i>eV US Passive Large Cap Equity Gross Median</i>			-13.5		-6.9		-4.4		9.2		8.5		9.6	Apr-89
Large Cap - Enhanced- Gross	209,393,440	2.3	-15.0	--	--	--	--	--	--	--	--	--	-11.7	Jul-18
Large Cap - Enhanced- Net			-15.0	--	--	--	--	--	--	--	--	--	-11.7	
<i>Russell 1000</i>			-13.8	--	-7.4	--	-4.8	--	9.1	--	8.2	--	-10.5	Jul-18
AQR US Enhanced Equity- Gross	209,393,440	2.3	-15.0	73	--	--	--	--	--	--	--	--	-11.7	Jul-18
AQR US Enhanced Equity- Net			-15.0	73	--	--	--	--	--	--	--	--	-11.7	
<i>Russell 1000</i>			-13.8	38	-7.4	41	-4.8	29	9.1	35	8.2	48	-10.5	Jul-18
<i>eV US Enh Equity Gross Median</i>			-14.0		-7.8		-5.7		8.7		8.2		-10.9	Jul-18
Equity Active (130/30)- Gross	113,252,233	1.3	-15.8	--	-8.3	--	-6.2	--	8.6	--	8.4	--	10.8	Sep-08
Equity Active (130/30)- Net			-15.8	--	-8.4	--	-6.7	--	7.8	--	7.7	--	10.2	
<i>Russell 1000</i>			-13.8	--	-7.4	--	-4.8	--	9.1	--	8.2	--	10.2	Sep-08
JP Morgan 130/30- Gross	113,252,233	1.3	-15.8	65	-8.3	40	-6.2	37	8.6	42	8.4	50	10.5	Jul-08
JP Morgan 130/30- Net			-15.8	65	-8.4	42	-6.7	41	7.8	67	7.7	72	9.8	
<i>Russell 1000</i>			-13.8	28	-7.4	30	-4.8	24	9.1	36	8.2	57	9.1	Jul-08
<i>eV Extended US 130/30 Equity Gross Median</i>			-15.1		-8.9		-7.6		8.4		8.4		10.0	Jul-08

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Large Cap Value- Gross	218,233,240	2.4	-13.8	--	-8.4	--	-7.4	--	8.5	--	6.9	--	9.6	Sep-08
Large Cap Value- Net			-13.8	--	-8.7	--	-8.0	--	7.6	--	6.1	--	9.0	
<i>Russell 1000 Value</i>			<i>-11.7</i>	<i>--</i>	<i>-6.7</i>	<i>--</i>	<i>-8.3</i>	<i>--</i>	<i>7.0</i>	<i>--</i>	<i>5.9</i>	<i>--</i>	<i>8.2</i>	<i>Sep-08</i>
Eagle Capital- Gross	217,979,389	2.4	-13.8	59	-8.1	51	-4.6	19	9.8	10	8.7	7	12.7	Feb-12
Eagle Capital- Net			-13.8	59	-8.5	55	-5.1	23	9.0	21	8.0	16	12.0	
<i>Russell 1000</i>			<i>-13.8</i>	<i>59</i>	<i>-7.4</i>	<i>43</i>	<i>-4.8</i>	<i>20</i>	<i>9.1</i>	<i>20</i>	<i>8.2</i>	<i>13</i>	<i>11.5</i>	<i>Feb-12</i>
<i>Russell 1000 Value</i>			<i>-11.7</i>	<i>30</i>	<i>-6.7</i>	<i>36</i>	<i>-8.3</i>	<i>49</i>	<i>7.0</i>	<i>59</i>	<i>5.9</i>	<i>60</i>	<i>10.1</i>	<i>Feb-12</i>
<i>eV US Large Cap Value Equity Gross Median</i>			<i>-13.1</i>		<i>-8.1</i>		<i>-8.4</i>		<i>7.4</i>		<i>6.3</i>		<i>10.2</i>	<i>Feb-12</i>
Small Cap- Gross	160,730,073	1.8	-22.1	--	-16.6	--	-9.0	--	8.8	--	5.0	--	11.4	Dec-90
Small Cap- Net			-22.2	--	-16.8	--	-9.5	--	8.2	--	4.4	--	10.6	
<i>Russell 2000</i>			<i>-20.2</i>	<i>--</i>	<i>-17.3</i>	<i>--</i>	<i>-11.0</i>	<i>--</i>	<i>7.4</i>	<i>--</i>	<i>4.4</i>	<i>--</i>	<i>10.2</i>	<i>Dec-90</i>
Small Cap - Growth- Gross	79,052,737	0.9	-24.4	--	-15.9	--	-2.1	--	12.6	--	6.4	--	10.5	Sep-08
Small Cap - Growth- Net			-24.5	--	-16.0	--	-2.5	--	12.2	--	5.8	--	9.9	
<i>Russell 2000 Growth</i>			<i>-21.7</i>	<i>--</i>	<i>-17.3</i>	<i>--</i>	<i>-9.3</i>	<i>--</i>	<i>7.2</i>	<i>--</i>	<i>5.1</i>	<i>--</i>	<i>9.7</i>	<i>Sep-08</i>
Weatherbie- Gross	79,044,284	0.9	-24.4	95	-16.4	73	-2.2	40	15.8	10	9.4	13	12.1	Dec-02
Weatherbie- Net			-24.5	95	-16.5	74	-2.8	44	15.3	14	8.7	19	11.3	
<i>Russell 2000 Growth</i>			<i>-21.7</i>	<i>65</i>	<i>-17.3</i>	<i>84</i>	<i>-9.3</i>	<i>80</i>	<i>7.2</i>	<i>80</i>	<i>5.1</i>	<i>74</i>	<i>10.1</i>	<i>Dec-02</i>
<i>eV US Small Cap Growth Equity Gross Median</i>			<i>-20.8</i>		<i>-14.8</i>		<i>-3.8</i>		<i>9.7</i>		<i>6.7</i>		<i>11.7</i>	<i>Dec-02</i>
Small Cap - Value- Gross	81,677,335	0.9	-19.7	--	-17.1	--	-16.0	--	4.8	--	3.6	--	8.0	Sep-08
Small Cap - Value- Net			-19.8	--	-17.3	--	-16.5	--	3.9	--	2.8	--	7.1	
<i>Russell 2000 Value</i>			<i>-18.7</i>	<i>--</i>	<i>-17.4</i>	<i>--</i>	<i>-12.9</i>	<i>--</i>	<i>7.4</i>	<i>--</i>	<i>3.6</i>	<i>--</i>	<i>7.1</i>	<i>Sep-08</i>
Dalton, Greiner- Gross	81,562,246	0.9	-19.7	64	-17.1	44	-16.9	77	4.5	82	3.2	70	9.3	Dec-00
Dalton, Greiner- Net			-19.9	67	-17.3	45	-17.4	82	3.9	90	2.6	83	8.5	
<i>Russell 2000 Value</i>			<i>-18.7</i>	<i>45</i>	<i>-17.4</i>	<i>46</i>	<i>-12.9</i>	<i>39</i>	<i>7.4</i>	<i>36</i>	<i>3.6</i>	<i>61</i>	<i>8.0</i>	<i>Dec-00</i>
<i>eV US Small Cap Value Equity Gross Median</i>			<i>-19.0</i>		<i>-17.8</i>		<i>-14.0</i>		<i>6.5</i>		<i>4.1</i>		<i>10.2</i>	<i>Dec-00</i>

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
International Equity- Gross	1,647,008,365	18.3	-11.2	22	-9.9	14	-12.3	13	6.0	14	1.9	23	6.1	Dec-87
International Equity- Net			-11.5	33	-10.3	17	-12.9	17	5.5	23	1.4	39	5.8	
<i>MSCI ACWI ex US¹</i>			-11.4	29	-10.7	23	-13.8	28	5.0	34	1.1	49	5.9	Dec-87
<i>InvestorForce All DB ex-US Eq Gross Median</i>			-12.0		-11.7		-14.6		4.6		1.1		6.7	Dec-87
International - Developed- Gross	1,325,994,179	14.8	-12.2	56	-10.8	25	-11.7	18	5.6	27	2.3	37	4.1	Mar-98
International - Developed- Net			-12.6	61	-11.3	45	-12.3	22	5.1	35	1.8	45	3.7	
<i>MSCI World ex US Gross</i>			-12.7	62	-11.5	49	-13.6	39	3.6	56	0.8	70	4.2	Mar-98
<i>InvestorForce All DB Dev Mkt ex-US Eq Gross Median</i>			-12.0		-11.6		-14.0		3.9		1.6		4.7	Mar-98
Lazard- Gross	333,721,975	3.7	-10.3	9	-9.6	10	-10.9	10	5.0	38	2.7	33	7.7	Jun-12
Lazard- Net			-10.6	12	-9.8	11	-11.2	12	4.7	43	2.4	38	7.4	
<i>MSCI ACWI ex USA Gross</i>			-11.4	21	-10.7	23	-13.8	35	5.0	39	1.1	67	5.3	Jun-12
<i>eV All ACWI ex-US Equity Gross Median</i>			-13.2		-12.7		-15.1		4.3		1.8		6.6	Jun-12
Walter Scott & Partners Limited- Gross	448,568,965	5.0	-10.4	16	-7.5	4	-5.8	1	--	--	--	--	7.2	Mar-17
Walter Scott & Partners Limited- Net			-11.2	18	-8.4	5	-6.8	1	--	--	--	--	6.5	
<i>MSCI World ex USA Growth GR USD</i>			-13.4	40	-12.1	34	-12.6	37	3.3	51	1.8	41	2.0	Mar-17
<i>eV EAFE Large Cap Growth Gross Median</i>			-13.9		-13.6		-13.2		3.3		1.4		2.4	Mar-17
LSV- Gross	387,649,111	4.3	-13.9	58	-12.6	55	-15.9	55	4.3	25	1.6	27	3.8	Dec-04
LSV- Net			-14.0	59	-12.8	56	-16.3	60	3.8	43	1.2	30	3.4	
<i>MSCI World ex US Value Gross</i>			-12.0	27	-10.9	36	-14.5	33	4.0	38	-0.1	84	3.7	Dec-04
<i>eV EAFE Large Cap Value Gross Median</i>			-13.6		-12.4		-15.8		3.5		0.6		4.3	Dec-04
Mondrian Dev Small Cap- Gross	82,839,125	0.9	-14.9	30	-14.7	21	-14.0	16	5.0	41	2.7	54	7.9	Aug-10
Mondrian Dev Small Cap- Net			-15.1	31	-15.0	23	-14.6	20	4.2	54	2.1	64	7.2	
<i>MSCI World ex US Small Cap GD</i>			-16.1	48	-16.8	58	-17.8	49	4.2	53	2.6	55	7.3	Aug-10
<i>eV ACWI ex-US Small Cap Equity Gross Median</i>			-16.2		-16.5		-17.9		4.3		3.1		8.6	Aug-10

1. See Policy Index and Benchmark History.

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
William Blair Dev Small Cap- Gross	73,215,002	0.8	-18.8	78	-20.4	80	-22.9	96	0.5	93	1.1	89	7.7	Sep-08
William Blair Dev Small Cap- Net			-19.0	79	-20.8	83	-24.0	97	-0.5	99	0.2	98	6.7	
MSCI World ex US Small Cap GD			-16.1	48	-16.8	58	-17.8	49	4.2	53	2.6	55	7.3	Sep-08
eV ACWI ex-US Small Cap Equity Gross Median			-16.2		-16.5		-17.9		4.3		3.1		9.0	Sep-08
International - Emerging- Gross	320,947,790	3.6	-6.8	49	-6.1	18	-14.4	36	8.1	55	0.7	78	5.8	Jan-00
International - Emerging- Net			-6.8	49	-6.3	23	-14.6	43	7.7	65	0.5	93	5.4	
MSCI Emerging Markets Gross			-7.4	67	-8.3	50	-14.2	36	9.7	25	2.0	36	6.4	Jan-00
InvestorForce All DB Emg Mkt Eq Gross Median			-6.9		-8.4		-15.3		8.5		1.6		5.8	Jan-00
Baillie Gifford Emg All Cap- Gross	167,267,374	1.9	-8.3	67	-7.6	32	-14.9	47	--	--	--	--	12.0	Mar-16
Baillie Gifford Emg All Cap- Net			-8.3	67	-7.6	32	-14.9	47	--	--	--	--	12.0	
MSCI Emerging Markets Gross			-7.4	52	-8.3	38	-14.2	36	9.7	37	2.0	64	8.3	Mar-16
eV Emg Mkts Equity Gross Median			-7.4		-9.4		-15.2		9.0		2.4		7.9	Mar-16
Mondrian Emg All Cap- Gross	153,680,416	1.7	-5.1	15	-4.5	10	-13.2	25	--	--	--	--	4.8	Mar-16
Mondrian Emg All Cap- Net			-5.2	17	-4.8	12	-13.8	31	--	--	--	--	4.2	
MSCI Emerging Markets Gross			-7.4	52	-8.3	38	-14.2	36	9.7	37	2.0	64	8.3	Mar-16
eV Emg Mkts Equity Gross Median			-7.4		-9.4		-15.2		9.0		2.4		7.9	Mar-16
Private Equity- Gross***	836,646,177	9.3	7.2	2	14.3	3	25.9	5	17.5	11	15.7	21	2.7	Feb-08
Private Equity- Net			7.2	2	14.3	3	25.9	5	17.5	11	15.7	21	2.9	
Thomson Reuters CJA All PE 1 Qtr Lag ¹			3.8	29	9.2	17	17.1	32	16.8	12	14.7	27	10.5	Feb-08
Russell 3000 +3% 1Q Lag			8.1	1	12.4	3	20.6	11	20.1	5	16.5	15	11.9	Feb-08
InvestorForce All DB Private Eq Net Median			1.7		5.1		15.6		13.1		12.2		8.6	Feb-08
Abbott VI- Gross	52,912,032	0.6	3.7	--	9.9	--	20.0	--	17.3	--	16.3	--	4.5	Jul-08
Abbott VI- Net			3.7	--	9.9	--	20.0	--	17.3	--	16.3	--	--	
Thomson Reuters CJA All PE 1 Qtr Lag			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	11.4	Jul-08

1. See Policy Index and Benchmark History.

** Private Equity Composite includes the historical returns of Summit Credit and Athyrum Opportunities up to 4/1/17.

++ Returns are one-quarter lag.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Accel-KKR IV- Gross	13,412,892	0.1	63.8	--	101.0	--	118.1	--	52.3	--	22.7	--	8.9	Jun-13
Accel-KKR IV- Net			63.8	--	101.0	--	118.1	--	52.3	--	22.7	--	8.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.2	Jun-13
Accel-KKR V- Gross	8,198,183	0.1	1.8	--	5.6	--	11.9	--	--	--	--	--	11.3	Jan-17
Accel-KKR V- Net			1.8	--	5.6	--	11.9	--	--	--	--	--	11.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.0	Jan-17
Accel-KKR Growth Partners II- Gross	10,017,749	0.1	2.8	--	4.9	--	24.7	--	8.1	--	--	--	-2.7	Feb-15
Accel-KKR Growth Partners II- Net			2.8	--	4.9	--	24.7	--	8.1	--	--	--	-2.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.0	Feb-15
Atalaya Special Opp VI- Gross	22,501,990	0.3	3.5	--	7.6	--	13.7	--	--	--	--	--	7.8	Apr-16
Atalaya Special Opp VI- Net			3.5	--	7.6	--	13.7	--	--	--	--	--	7.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.3	Apr-16
Davidson Kempner LT Dist Opp- Gross	11,477,215	0.1	3.5	--	12.0	--	--	--	--	--	--	--	12.8	Mar-18
Davidson Kempner LT Dist Opp- Net			3.5	--	12.0	--	--	--	--	--	--	--	12.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.2	Mar-18
Dyal Capital Partners II- Gross	17,680,605	0.2	-4.6	--	-2.8	--	-8.5	--	-8.2	--	--	--	-7.2	Dec-14
Dyal Capital Partners II- Net			-4.6	--	-2.8	--	-8.5	--	-8.2	--	--	--	-7.2	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.9	Dec-14
Dyal Capital Partners III- Gross	18,043,017	0.2	1.7	--	17.7	--	32.2	--	--	--	--	--	25.1	Dec-16
Dyal Capital Partners III- Net			1.7	--	17.7	--	32.2	--	--	--	--	--	25.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.2	Dec-16
Garrison Investment Group- Gross	13,723,884	0.2	-0.7	--	6.4	--	10.2	--	-3.3	--	-0.5	--	1.1	May-12
Garrison Investment Group- Net			-0.7	--	6.4	--	10.2	--	-3.3	--	-0.5	--	1.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.0	May-12
Harbourvest VIII- Gross	18,089,919	0.2	3.2	--	9.7	--	18.9	--	15.3	--	15.9	--	10.2	Dec-07
Harbourvest VIII- Net			3.2	--	9.7	--	18.9	--	15.3	--	15.9	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	10.1	Dec-07

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Harbourvest Intl VI- Gross	36,886,718	0.4	4.2	--	9.1	--	20.8	--	16.3	--	15.9	--	-7.5	Mar-09
Harbourvest Intl VI- Net			4.2	--	9.1	--	20.8	--	16.3	--	15.9	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.8	Mar-09
H.I.G. Bayside Loan III- Gross	19,350,593	0.2	2.3	--	6.7	--	13.7	--	10.2	--	11.2	--	7.0	Jan-13
H.I.G. Bayside Loan III- Net			2.3	--	6.7	--	13.7	--	10.2	--	11.2	--	7.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.7	Jan-13
H.I.G. Capital V- Gross	11,875,278	0.1	10.8	--	22.1	--	47.7	--	30.1	--	13.8	--	10.4	Jul-13
H.I.G. Capital V- Net			10.8	--	22.1	--	47.7	--	30.1	--	13.8	--	10.4	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.1	Jul-13
H.I.G. Europe Capital II- Gross*	10,053,751	0.1	1.6	--	4.6	--	23.2	--	--	--	--	--	--	Jan-14
H.I.G. Europe Capital II- Net			1.6	--	4.6	--	23.2	--	--	--	--	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	13.9	Jan-14
Khosla IV- Gross	17,520,955	0.2	2.9	--	22.4	--	32.2	--	20.8	--	23.9	--	17.3	Jul-11
Khosla IV- Net			2.9	--	22.4	--	32.2	--	20.8	--	23.9	--	17.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	14.7	Jul-11
Khosla V- Gross	20,667,254	0.2	3.7	--	4.4	--	5.8	--	12.0	--	--	--	8.5	Nov-14
Khosla V- Net			3.7	--	4.4	--	5.8	--	12.0	--	--	--	8.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.2	Nov-14
Khosla VI- Gross	7,866,264	0.1	-5.2	--	--	--	--	--	--	--	--	--	-5.2	Aug-18
Khosla VI- Net			-5.2	--	--	--	--	--	--	--	--	--	-5.2	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	9.2	Aug-18
Linden Capital- Gross	42,093,856	0.5	11.0	--	15.3	--	24.0	--	--	--	--	--	12.4	Jun-16
Linden Capital- Net			11.0	--	15.3	--	24.0	--	--	--	--	--	12.4	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.3	Jun-16
Linden Capital Partners IV- Gross	1,940,450	0.0	2.9	--	--	--	--	--	--	--	--	--	2.9	Sep-18
Linden Capital Partners IV- Net			2.9	--	--	--	--	--	--	--	--	--	2.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	3.8	Sep-18

* Unable to calculate a since inception return due to system limitations when HIG Europe Capital II experienced 2 quarters of negative fund values in 2016.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Marlin Equity IV- Gross	14,804,373	0.2	7.9	--	11.3	--	10.7	--	8.9	--	2.9	--	2.9	Nov-13
Marlin Equity IV- Net			7.9	--	11.3	--	10.7	--	8.9	--	2.9	--	2.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.2	Nov-13
Marlin Equity V- Gross	4,152,009	0.0	-1.4	--	-3.8	--	--	--	--	--	--	--	-8.9	Feb-18
Marlin Equity V- Net			-1.4	--	-3.8	--	--	--	--	--	--	--	-8.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	17.1	Feb-18
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	17.1	Feb-18
Marlin Heritage- Gross	8,051,057	0.1	2.3	--	2.6	--	13.1	--	42.3	--	--	--	20.1	Jul-14
Marlin Heritage- Net			2.3	--	2.6	--	13.1	--	42.3	--	--	--	20.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	13.2	Jul-14
Marlin Heritage II- Gross	3,684,557	0.0	-1.0	--	-2.7	--	-17.2	--	--	--	--	--	-14.9	Oct-17
Marlin Heritage II- Net			-1.0	--	-2.7	--	-17.2	--	--	--	--	--	-14.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	17.9	Oct-17
Marlin Heritage Europe- Gross	4,984,577	0.1	6.0	--	3.1	--	0.2	--	--	--	--	--	0.2	Aug-17
Marlin Heritage Europe- Net			6.0	--	3.1	--	0.2	--	--	--	--	--	0.2	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.2	Aug-17
New Enterprise 14- Gross	31,512,975	0.4	9.5	--	11.6	--	28.8	--	19.0	--	19.9	--	14.7	May-12
New Enterprise 14- Net			9.5	--	11.6	--	28.8	--	19.0	--	19.9	--	14.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.0	May-12
New Enterprise 15- Gross	40,633,751	0.5	4.1	--	4.3	--	24.9	--	20.2	--	--	--	16.0	Apr-15
New Enterprise 15- Net			4.1	--	4.3	--	24.9	--	20.2	--	--	--	16.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	13.4	Apr-15
New Enterprise 16- Gross	13,716,149	0.2	15.3	--	13.5	--	16.6	--	--	--	--	--	3.6	May-17
New Enterprise 16- Net			15.3	--	13.5	--	16.6	--	--	--	--	--	3.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	17.6	May-17

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Private Equity X- Gross	31,604,744	0.4	5.0	--	20.2	--	24.6	--	18.7	--	12.6	--	-1.0	Jun-08
Private Equity X- Net			5.0	--	20.2	--	24.6	--	18.7	--	12.6	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	11.9	Jun-08
RCP Multi-Fund Feeder- Gross*	2,750,000	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Nov-18
RCP Multi-Fund Feeder- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	3.8	Nov-18
RRJ Capital Master Fund II- Gross	20,416,135	0.2	7.2	--	10.0	--	20.9	--	7.8	--	13.0	--	13.8	May-13
RRJ Capital Master Fund II- Net			7.2	--	10.0	--	20.9	--	7.8	--	13.0	--	13.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.8	May-13
RRJ Capital Master Fund III- Gross	30,240,739	0.3	2.2	--	3.8	--	9.0	--	-16.1	--	--	--	-16.1	Dec-15
RRJ Capital Master Fund III- Net			2.2	--	3.8	--	9.0	--	-16.1	--	--	--	-16.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.8	Dec-15
Spectrum Equity- Gross	29,044,246	0.3	25.0	--	44.2	--	77.7	--	39.4	--	--	--	11.0	Dec-14
Spectrum Equity- Net			25.0	--	44.2	--	77.7	--	39.4	--	--	--	11.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.9	Dec-14
Spectrum Equity Fund VIII- Gross	3,709,653	0.0	-56.7	--	-80.6	--	--	--	--	--	--	--	-80.6	Jun-18
Spectrum Equity Fund VIII- Net			-56.7	--	-80.6	--	--	--	--	--	--	--	-80.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	9.2	Jun-18
Summit EUR Growth Equity II- Gross	7,521,394	0.1	26.4	--	504.7	--	--	--	--	--	--	--	285.7	Jan-18
Summit EUR Growth Equity II- Net			26.4	--	504.7	--	--	--	--	--	--	--	285.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	17.1	Jan-18
Summit Ventures III- Gross	16,260,397	0.2	1.9	--	3.3	--	15.0	--	24.6	--	17.8	--	12.3	Jun-12
Summit Ventures III- Net			1.9	--	3.3	--	15.0	--	24.6	--	17.8	--	12.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.6	Jun-12
Summit Ventures IV- Gross	16,117,365	0.2	18.6	--	28.2	--	32.8	--	--	--	--	--	36.9	May-16
Summit Ventures IV- Net			18.6	--	28.2	--	32.8	--	--	--	--	--	36.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.9	May-16

* Funded in November 2018.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Thoma Bravo XI- Gross	42,360,298	0.5	10.2	--	34.3	--	78.6	--	33.5	--	--	--	20.3	Jun-14
Thoma Bravo XI- Net			10.2	--	34.3	--	78.6	--	33.5	--	--	--	20.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	13.1	Jun-14
Thoma Bravo XII- Gross	29,142,947	0.3	1.5	--	6.3	--	15.3	--	--	--	--	--	0.3	May-16
Thoma Bravo XII- Net			1.5	--	6.3	--	15.3	--	--	--	--	--	0.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.9	May-16
TPG Opp Partners III- Gross	25,531,533	0.3	3.7	--	9.1	--	19.8	--	14.0	--	--	--	-16.9	Mar-14
TPG Opp Partners III- Net			3.7	--	9.1	--	19.8	--	14.0	--	--	--	-16.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	13.0	Mar-14
Trinity Ventures XI- Gross	30,003,122	0.3	8.4	--	21.5	--	33.3	--	12.3	--	12.0	--	5.6	Apr-13
Trinity Ventures XI- Net			8.4	--	21.5	--	33.3	--	12.3	--	12.0	--	5.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.9	Apr-13
Trinity Ventures XII- Gross	19,845,570	0.2	4.6	--	4.9	--	24.5	--	--	--	--	--	9.3	Apr-16
Trinity Ventures XII- Net			4.6	--	4.9	--	24.5	--	--	--	--	--	9.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	18.3	Apr-16
TSG7 A LP- Gross*	11,539,301	0.1	2.7	--	9.2	--	20.2	--	--	--	--	--	--	Mar-16
TSG7 A LP- Net			2.7	--	9.2	--	20.2	--	--	--	--	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.5	Mar-16
TSG7 B LP- Gross	867,597	0.0	-6.3	--	0.6	--	-15.8	--	--	--	--	--	-25.5	Jan-16
TSG7 B LP- Net			-6.3	--	0.6	--	-15.8	--	--	--	--	--	-25.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	14.2	Jan-16
Waterland V- Gross	14,410,007	0.2	27.6	--	24.9	--	40.2	--	40.4	--	61.2	--	25.0	Aug-11
Waterland V- Net			27.6	--	24.9	--	40.2	--	40.4	--	61.2	--	25.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.0	Aug-11
Waterland VI- Gross	23,067,441	0.3	29.7	--	26.4	--	28.9	--	10.2	--	--	--	-7.4	Jul-15
Waterland VI- Net			29.7	--	26.4	--	28.9	--	10.2	--	--	--	-7.4	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	12.5	Jul-15

* Unable to calculate a since inception return due to system limitations when account experienced 1 quarter of negative fund value in 2016.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Waterland VI Over- Gross	936	0.0	0.0	--	-14.8	--	-41.7	--	-69.8	--	--	--	-69.8	Dec-15
Waterland VI Over- Net			0.0	--	-14.8	--	-41.7	--	-69.8	--	--	--	-69.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.8	Dec-15
Wayzata Opportunities III- Gross	6,360,699	0.1	-0.6	--	-7.2	--	-8.1	--	0.7	--	-2.4	--	-5.7	Feb-13
Wayzata Opportunities III- Net			-0.6	--	-7.2	--	-8.1	--	0.7	--	-2.4	--	-5.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	16.7	Feb-13
Public Credit- Gross	172,073,729	1.9	-5.6	--	-3.4	--	-0.6	--	9.2	--	3.4	--	3.5	Nov-13
Public Credit- Net			-5.6	--	-3.4	--	-0.6	--	9.2	--	3.4	--	3.5	
<i>Brigade Custom¹</i>			-3.9	--	-1.8	--	-0.6	--	6.2	--	3.6	--	3.6	Nov-13
Brigade Capital- Gross	172,073,729	1.9	-5.6	90	-3.4	91	-0.6	29	9.2	6	3.4	71	3.5	Nov-13
Brigade Capital- Net			-5.6	90	-3.4	91	-0.6	29	9.2	6	3.4	71	3.5	
<i>Brigade Custom¹</i>			-3.9	41	-1.8	49	-0.6	28	6.2	56	3.6	63	3.6	Nov-13
<i>eV US High Yield Fixed Inc Gross Median</i>			-4.0		-1.8		-1.8		6.3		3.8		3.8	Nov-13
Private Credit- Gross⁺⁺	138,389,193	1.5	2.3	--	3.6	--	7.2	--	10.3	--	8.0	--	7.2	Oct-11
Private Credit- Net			2.3	--	3.6	--	7.2	--	10.3	--	8.0	--	7.2	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	6.6	Oct-11
Athyrium Opp II- Gross	14,518,501	0.2	5.6	--	6.4	--	11.8	--	12.8	--	--	--	6.5	Jun-15
Athyrium Opp II- Net			5.6	--	6.4	--	11.8	--	12.8	--	--	--	6.5	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	5.4	Jun-15
Athyrium Opp III- Gross	11,162,424	0.1	0.6	--	1.8	--	2.1	--	--	--	--	--	-5.4	May-17
Athyrium Opp III- Net			0.6	--	1.8	--	2.1	--	--	--	--	--	-5.4	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	4.2	May-17
Benefit St Pr Sr Secure Opp- Gross	42,173,643	0.5	2.0	--	2.8	--	--	--	--	--	--	--	5.7	Jan-18
Benefit St Pr Sr Secure Opp- Net			2.0	--	2.8	--	--	--	--	--	--	--	5.7	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	1.9	Jan-18

1. See Policy Index and Benchmark History.

++ Returns are one-quarter lag.

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Summit Credit- Gross	3,450,002	0.0	3.5	--	11.0	--	12.7	--	11.6	--	10.2	--	8.7	Oct-11
Summit Credit- Net			3.5	--	11.0	--	12.7	--	11.6	--	10.2	--	8.7	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	6.6	Oct-11
Summit Credit II- Gross	22,431,366	0.2	1.9	--	4.1	--	8.3	--	10.6	--	--	--	6.9	Nov-14
Summit Credit II- Net			1.9	--	4.1	--	8.3	--	10.6	--	--	--	6.9	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	5.3	Nov-14
Summit Credit III- Gross*	12,954,628	0.1	--	--	--	--	--	--	--	--	--	--	0.0	Oct-18
Summit Credit III- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	-2.7	Oct-18
TCP Direct Lending VIII- Gross	31,698,629	0.4	1.9	--	2.6	--	--	--	--	--	--	--	2.1	Feb-18
TCP Direct Lending VIII- Net			1.9	--	2.6	--	--	--	--	--	--	--	2.1	
<i>Credit Suisse Leveraged Loan + 2%</i>			-2.5	--	-0.1	--	3.1	--	7.1	--	5.4	--	1.5	Feb-18
Growth Oriented Absolute Return- Gross⁺⁺⁺	298,195,038	3.3	-8.6	--	-8.0	--	-6.1	--	3.0	--	2.1	--	4.3	Aug-04
Growth Oriented Absolute Return- Net			-8.6	--	-8.0	--	-6.1	--	3.0	--	2.1	--	4.3	
<i>HFRI FoF Composite Index + 1%¹</i>			-4.8	--	-4.3	--	-3.1	--	3.3	--	4.0	--	5.7	Aug-04
Grosvenor SCARF Growth- Gross	131,868,495	1.5	-6.0	59	-5.3	54	-2.5	51	4.3	26	2.4	53	5.3	Nov-11
Grosvenor SCARF Growth- Net			-6.0	59	-5.3	54	-2.5	51	4.3	26	2.4	53	5.3	
<i>HFRI FoF Composite Index + 1%</i>			-4.8	49	-4.3	51	-3.1	55	3.3	48	4.0	28	4.3	Nov-11
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			-4.9		-4.2		-2.3		2.9		2.5		4.5	Nov-11
JANA Partners- Gross	37,739,657	0.4	-15.8	94	-11.9	88	-7.9	76	0.2	89	-0.2	87	1.2	Jul-13
JANA Partners- Net			-15.8	94	-11.9	88	-7.9	76	0.2	89	-0.2	87	1.2	
<i>HFRI FoF Composite Index + 1%</i>			-4.8	64	-4.3	61	-3.1	67	3.3	68	4.0	41	4.0	Jul-13
<i>eV Alt All Event Driven Median</i>			-3.3		-2.0		0.2		5.2		3.3		4.5	Jul-13

++ Absolute Return managers are ranked in the eVest net of fee universe.

** Composite reflects net returns from Cliffwater up to March 2017.

1. See Policy Index and Benchmark History.

* Funded October 2018.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Lakewood- Gross	38,980,522	0.4	-10.0	61	-10.2	61	-14.3	74	1.1	70	2.6	55	3.5	Jun-13
Lakewood- Net			-10.0	61	-10.2	61	-14.3	74	1.1	70	2.6	55	3.5	
<i>HFRI FoF Composite Index + 1%</i>			-4.8	30	-4.3	32	-3.1	38	3.3	55	4.0	41	4.1	Jun-13
<i>eV Alt Fundamental - Long/Short Equity Median</i>			-8.1		-8.1		-6.9		3.8		3.1		4.7	Jun-13
OZ Domestic II- Gross	45,698,448	0.5	-5.2	68	-6.2	75	-2.3	50	4.3	42	3.4	46	6.3	Dec-11
OZ Domestic II- Net			-5.2	68	-6.2	75	-2.3	50	4.3	42	3.4	46	6.2	
<i>HFRI FoF Composite Index + 1%</i>			-4.8	64	-4.3	62	-3.1	52	3.3	52	4.0	42	4.3	Dec-11
<i>eV Alt All Multi-Strategy Median</i>			-3.3		-2.4		-2.7		3.4		3.0		4.8	Dec-11
Third Point Offshore Fund- Gross	43,907,915	0.5	-11.7	84	-11.8	88	-10.9	83	3.7	61	3.3	51	7.9	Apr-12
Third Point Offshore Fund- Net			-11.7	84	-11.8	88	-10.9	83	3.7	61	3.3	51	7.9	
<i>HFRI FoF Composite Index + 1%</i>			-4.8	64	-4.3	61	-3.1	67	3.3	68	4.0	41	4.2	Apr-12
<i>eV Alt All Event Driven Median</i>			-3.3		-2.0		0.2		5.2		3.3		5.5	Apr-12
Diversifying Asset Category- Gross	2,159,946,796	24.0	0.2	--	0.1	--	-1.0	--	--	--	--	--	1.5	Mar-17
Diversifying Asset Category- Net			0.2	--	0.1	--	-1.2	--	--	--	--	--	1.3	
<i>Diversifying Custom¹</i>			0.5	--	0.4	--	-0.3	--	--	--	--	--	1.7	Mar-17
Core/Core Plus Fixed Income- Gross	872,654,646	9.7	1.2	--	1.5	--	0.2	--	3.0	--	2.9	--	2.9	Jun-11
Core/Core Plus Fixed Income- Net			1.2	--	1.4	--	0.0	--	2.8	--	2.8	--	2.8	
<i>BBgBarc US Aggregate TR</i>			1.6	--	1.7	--	0.0	--	2.1	--	2.5	--	2.6	Jun-11
Prudential- Gross	437,999,882	4.9	0.7	89	1.3	77	-0.1	61	4.1	3	--	--	3.4	Jul-14
Prudential- Net			0.7	89	1.3	79	-0.2	74	3.9	4	--	--	3.3	
<i>BBgBarc US Aggregate TR</i>			1.6	20	1.7	38	0.0	54	2.1	84	2.5	84	2.0	Jul-14
<i>eV US Core Fixed Inc Gross Median</i>			1.4		1.6		0.1		2.4		2.8		2.3	Jul-14
TCW MetWest Fixed- Gross	434,654,764	4.8	1.6	19	1.6	41	0.6	16	2.6	35	2.9	38	5.7	Dec-01
TCW MetWest Fixed- Net			1.6	24	1.6	56	0.4	22	2.4	53	2.7	60	5.5	
<i>BBgBarc US Aggregate TR</i>			1.6	20	1.7	38	0.0	54	2.1	84	2.5	84	4.2	Dec-01
<i>eV US Core Fixed Inc Gross Median</i>			1.4		1.6		0.1		2.4		2.8		4.7	Dec-01

1. See Policy Index and Benchmark History.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
U.S. Treasury- Gross	437,280,240	4.9	2.6	--	2.0	--	--	--	--	--	--	--	3.0	Feb-18
U.S. Treasury- Net			2.6	--	2.0	--	--	--	--	--	--	--	3.0	
<i>BBgBarc US Treasury TR</i>			2.6	--	2.0	--	0.9	--	1.4	--	2.0	--	3.0	Feb-18
Neuberger Berman- Gross*	437,280,240	4.9	2.6	9	2.0	46	0.8	97	2.4	1	2.8	1	6.4	Jun-88
Neuberger Berman- Net			2.6	9	2.0	52	0.8	97	2.4	1	2.8	1	6.3	
<i>BBgBarc US Govt TR</i>			2.5	10	2.0	51	0.9	95	1.4	80	2.0	65	5.8	Jun-88
<i>eV US Government Fixed Inc Gross Median</i>			2.2		2.0		1.4		1.6		2.2		--	Jun-88
Global Fixed Income- Gross	236,976,046	2.6	-1.1	--	-1.9	--	-4.8	--	4.5	--	2.3	--	1.6	May-13
Global Fixed Income- Net			-1.2	--	-2.1	--	-5.1	--	4.1	--	1.9	--	1.3	
<i>Brandywine Custom¹</i>			1.8	--	0.2	--	-1.9	--	3.4	--	0.5	--	0.4	May-13
Brandywine Global- Gross	236,976,046	2.6	-1.1	58	-1.9	78	-4.8	84	4.5	31	2.3	51	1.6	May-13
Brandywine Global- Net			-1.2	58	-2.1	78	-5.1	86	4.1	36	1.9	58	1.3	
<i>Brandywine Custom</i>			1.8	7	0.2	39	-1.9	53	3.4	53	0.5	83	0.4	May-13
<i>eV All Global Fixed Inc Gross Median</i>			-0.7		-0.4		-1.7		3.5		2.3		2.2	May-13
Diversifying Absolute Return- Gross**	613,035,864	6.8	-2.6	--	-2.5	--	-3.3	--	0.0	--	0.6	--	1.7	Nov-11
Diversifying Absolute Return- Net			-2.6	--	-2.5	--	-3.3	--	0.0	--	0.6	--	1.7	
<i>HFRI FoF Conservative Index¹</i>			-3.2	--	-2.5	--	-0.9	--	3.2	--	3.9	--	4.3	Nov-11
AQR DELTA II- Gross	61,142,504	0.7	-4.7	64	-6.7	77	-15.7	89	-3.5	89	1.4	75	1.8	May-13
AQR DELTA II- Net			-4.7	64	-6.7	77	-15.7	89	-3.5	89	1.4	75	1.8	
<i>HFRI FoF Conservative Index</i>			-3.2	50	-2.5	52	-0.9	41	3.2	52	3.9	42	4.1	May-13
<i>eV Alt All Multi-Strategy Median</i>			-3.3		-2.4		-2.7		3.4		3.0		3.2	May-13

1. See Policy Index and Benchmark History.

+ Account converted to U.S. Treasury from Core Fixed Income in February 2018. Reflects linked historical returns up to February 2018.

* Composite reflects net returns from Cliffwater up to March 2017.

**Absolute Return managers are ranked in the eVest net of fees universe.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Brevan Howard US- Gross	9,835,860	0.1	2.0	22	3.6	17	12.1	8	3.0	26	--	--	1.8	Feb-14
Brevan Howard US- Net			2.0	22	3.6	17	12.1	8	3.0	26	--	--	1.8	
<i>HFRI FoF Conservative Index</i>			-3.2	53	-2.5	50	-0.9	39	3.2	22	3.9	27	3.9	Feb-14
<i>HFRI Fund of Funds Composite Index</i>			-5.0	63	-4.8	64	-4.1	55	1.3	49	1.4	52	1.2	Feb-14
<i>eV Alt All Macro Median</i>			-2.8		-2.5		-3.3		1.0		1.6		1.9	Feb-14
Elliot Associates- Gross*	54,211,208	0.6	0.0	22	-0.7	41	2.5	31	7.7	31	6.3	21	7.3	Apr-12
Elliot Associates- Net			0.0	22	-0.7	41	2.5	31	7.7	31	6.3	21	7.3	
<i>HFRI FoF Conservative Index</i>			-3.2	49	-2.5	52	-0.9	54	3.2	68	3.9	41	4.2	Apr-12
<i>eV Alt All Event Driven Median</i>			-3.3		-2.0		0.2		5.2		3.3		5.5	Apr-12
Graham Global Inv II- Gross	30,361,259	0.3	-11.8	92	-6.8	80	-14.0	82	--	--	--	--	-6.9	Feb-17
Graham Global Inv II- Net			-11.8	92	-6.8	80	-14.0	82	--	--	--	--	-6.9	
<i>HFRI FoF Conservative Index</i>			-3.2	67	-2.5	60	-0.9	39	3.2	30	3.9	33	1.9	Feb-17
<i>eV Alt All Managed Futures Median</i>			-2.1		-1.7		-3.6		0.1		2.2		-1.7	Feb-17
Grosvenor SCARF Diversifying- Gross	128,929,074	1.4	-2.5	27	-2.3	31	-2.4	51	-1.5	95	-1.2	98	1.2	Nov-11
Grosvenor SCARF Diversifying- Net			-2.5	27	-2.3	31	-2.4	51	-1.5	95	-1.2	98	1.2	
<i>HFRI FoF Conservative Index</i>			-3.2	34	-2.5	32	-0.9	39	3.2	48	3.9	28	4.3	Nov-11
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			-4.9		-4.2		-2.3		2.9		2.5		4.5	Nov-11
Grosvenor SCARF B Diversifying- Gross	165,349,976	1.8	-2.4	26	-2.7	37	-3.5	60	-3.4	99	-1.7	99	-0.1	Jan-13
Grosvenor SCARF B Diversifying- Net			-2.4	26	-2.7	37	-3.5	60	-3.4	99	-1.7	99	-0.1	
<i>HFRI FoF Conservative Index</i>			-3.2	34	-2.5	32	-0.9	39	3.2	48	3.9	28	4.1	Jan-13
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			-4.9		-4.2		-2.3		2.9		2.5		3.9	Jan-13

* Preliminary quarterly returns as of 12/31/2018 (Returns are not available at reporting period.)

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
KLS Diversified Fund- Gross*	40,000,000	0.4	--	--	--	--	--	--	--	--	--	--	--	Dec-18
KLS Diversified Fund- Net			--	--	--	--	--	--	--	--	--	--	--	
<i>HFRI FoF Conservative Index</i>			-3.2	72	-2.5	63	-0.9	66	3.2	39	3.9	27	--	Dec-18
<i>eV Alt Relative Value - Multi-Market Arbitrage Median</i>			-1.3		-0.7		0.8		1.7		1.2		--	Dec-18
Laurion Capital- Gross	46,313,429	0.5	0.9	48	1.0	56	7.7	18	4.0	41	--	--	6.0	Mar-14
Laurion Capital- Net			0.9	48	1.0	56	7.7	18	4.0	41	--	--	6.0	
<i>HFRI FoF Conservative Index</i>			-3.2	63	-2.5	77	-0.9	75	3.2	48	3.9	52	3.9	Mar-14
<i>eV Alt Relative Value - Equity Relative Value Median</i>			0.3		1.7		0.4		3.2		4.0		4.0	Mar-14
MW Global Opportunities Fund- Gross*	40,000,000	0.4	--	--	--	--	--	--	--	--	--	--	--	Dec-18
MW Global Opportunities Fund- Net			--	--	--	--	--	--	--	--	--	--	--	
<i>HFRI FoF Conservative Index</i>			-3.2	22	-2.5	22	-0.9	27	3.2	55	3.9	41	--	Dec-18
<i>eV Alt Fundamental - Long/Short Equity Median</i>			-8.1		-8.1		-6.9		3.8		3.1		--	Dec-18
Winton Diversified Futures- Gross	36,892,554	0.4	-2.5	58	-1.5	49	-0.9	39	--	--	--	--	2.7	Dec-16
Winton Diversified Futures- Net			-2.5	58	-1.5	49	-0.9	39	--	--	--	--	2.7	
<i>HFRI FoF Conservative Index</i>			-3.2	67	-2.5	60	-0.9	39	3.2	30	3.9	33	2.2	Dec-16
<i>eV Alt All Managed Futures Median</i>			-2.1		-1.7		-3.6		0.1		2.2		-1.4	Dec-16

* Funded in December 2018.

Total Fund Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Real Return (with SSgA RA Overlay Proxy)- Gross	1,465,964,498	16.3	1.0	--	0.1	--	5.9	--	--	--	--	--	8.7	Mar-17
Real Return (with SSgA RA Overlay Proxy)- Net			0.9	--	0.0	--	5.7	--	--	--	--	--	8.5	
Real Return Custom ¹			0.1	--	1.7	--	6.2	--	--	--	--	--	6.7	Mar-17
Real Return Asset Category- Gross	1,363,432,946	15.2	2.0	--	1.1	--	8.5	--	--	--	--	--	10.8	Mar-17
Real Return Asset Category- Net			2.0	--	1.0	--	8.2	--	--	--	--	--	10.6	
Real Return Custom			0.1	--	1.7	--	6.2	--	--	--	--	--	6.7	Mar-17
Real Estate- Gross	870,481,979	9.7	1.4	41	-1.1	99	6.1	82	9.6	4	11.0	9	11.5	Jun-11
Real Estate- Net			1.3	52	-1.3	99	5.8	88	9.1	7	10.2	22	10.7	
Real Estate Custom ¹			1.1	69	3.3	42	8.5	11	7.7	36	9.6	46	10.2	Jun-11
InvestorForce All DB Real Estate Priv Net Median			1.4		3.2		7.3		7.2		9.5		10.0	Jun-11
Core RE -Separate- Gross**	20,439,896	0.2	4.8	--	-1.6	--	6.0	--	9.5	--	10.2	--	6.1	Sep-08
Core RE -Separate- Net			2.5	--	-3.9	--	3.2	--	7.9	--	8.6	--	4.9	
NFI-ODCE			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	5.6	Sep-08
BlackRock RE Leveraged- Gross	19,020,500	0.2	5.2	--	-1.2	--	6.2	--	9.4	--	11.5	--	9.7	Dec-98
BlackRock RE Leveraged- Net			3.8	--	-2.7	--	4.1	--	8.3	--	10.0	--	--	
NFI-ODCE			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	8.6	Dec-98
BlackRock RE Unleveraged- Gross	--	--	4.0	--	-3.4	--	2.9	--	8.1	--	10.1	--	10.0	Oct-95
BlackRock RE Unleveraged- Net			4.0	--	-2.6	--	2.7	--	7.3	--	9.0	--	--	
NFI-ODCE			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	9.2	Oct-95
Core RE -Limited Partnership- Gross	657,952,393	7.3	1.8	--	3.9	--	9.3	--	10.4	--	11.8	--	5.0	Sep-08
Core RE -Limited Partnership- Net			1.7	--	3.7	--	9.1	--	10.1	--	11.3	--	4.4	
NFI-ODCE			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	5.6	Sep-08
Brookfield Premier RE Partners- Gross ⁺	100,000,000	1.1	--	--	--	--	--	--	--	--	--	--	0.0	Oct-18
Brookfield Premier RE Partners- Net			--	--	--	--	--	--	--	--	--	--	0.0	
NFI-ODCE			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	1.8	Oct-18

1. See Policy Index and Benchmark History.

* Funded October 2018.

** Preliminary quarterly return as of 12/31/2018. Cornerstone valuation is not available at reporting period.

+ Preliminary quarterly return as of 12/31/2018 (Returns are not available at reporting period.)

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Clarion Lion Properties- Gross	153,287,701	1.7	2.0	--	--	--	--	--	--	--	--	--	2.0	Sep-18
Clarion Lion Properties- Net			1.8	--	--	--	--	--	--	--	--	--	1.8	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	1.8	Sep-18
Jamestown Premier Property- Gross	18,054,711	0.2	1.2	--	2.6	--	7.6	--	9.0	--	11.2	--	11.2	Dec-13
Jamestown Premier Property- Net			1.2	--	2.6	--	7.6	--	9.0	--	11.2	--	11.2	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	10.4	Dec-13
Metlife Core Property- Gross	59,077,405	0.7	1.1	--	2.7	--	7.7	--	8.4	--	11.8	--	11.8	Dec-13
Metlife Core Property- Net			1.0	--	2.4	--	7.2	--	7.9	--	11.3	--	11.3	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	10.4	Dec-13
Prime Property- Gross	60,270,074	0.7	2.2	--	4.5	--	9.1	--	9.8	--	12.1	--	12.2	Sep-13
Prime Property- Net			2.0	--	4.0	--	8.0	--	8.6	--	10.9	--	11.0	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	10.5	Sep-13
Principal US Property- Gross	45,812,164	0.5	1.2	--	3.8	--	8.1	--	8.4	--	--	--	8.9	Oct-15
Principal US Property- Net			1.2	--	3.8	--	8.1	--	8.4	--	--	--	8.9	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	8.9	Oct-15
Prologis Targeted Euro Logistics- Gross*	39,269,209	0.4	3.4	--	5.8	--	12.1	--	13.9	--	--	--	13.1	Oct-15
Prologis Targeted Euro Logistics- Net			3.4	--	5.8	--	12.1	--	13.9	--	--	--	13.1	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	8.9	Oct-15
Prologis Targeted US Logistics- Gross*	69,903,370	0.8	3.3	--	6.7	--	14.6	--	16.6	--	--	--	17.0	Jul-15
Prologis Targeted US Logistics- Net			3.3	--	6.7	--	14.6	--	16.6	--	--	--	17.0	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	9.4	Jul-15
Townsend Real Estate- Gross*	112,277,760	1.2	2.0	--	4.2	--	9.2	--	--	--	--	--	10.1	Mar-16
Townsend Real Estate- Net			2.0	--	4.2	--	9.2	--	--	--	--	--	10.1	
<i>NFI-ODCE</i>			1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	8.2	Mar-16

+ Preliminary quarterly returns as of 12/31/2018 (Market Values estimated based on preliminary performance numbers provided by the manager.)

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Non-Core RE -Opportunistic- Gross**	136,039,259	1.5	-0.6	--	-15.4	--	-4.3	--	10.9	--	--	--	23.8	Feb-14
Non-Core RE -Opportunistic- Net			-0.6	--	-15.4	--	-4.3	--	10.4	--	--	--	22.8	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	10.7	Feb-14
Carlyle China Realty- Gross	5,801,144	0.1	-4.9	--	49.5	--	65.4	--	--	--	--	--	23.1	Jun-17
Carlyle China Realty- Net			-4.9	--	49.5	--	65.4	--	--	--	--	--	23.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	7.0	Jun-17
Carlyle China Rome Logistics- Gross	26,102,570	0.3	-4.4	--	-20.6	--	-10.5	--	--	--	--	--	-13.1	Jun-17
Carlyle China Rome Logistics- Net			-4.4	--	-20.6	--	-10.5	--	--	--	--	--	-13.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	7.0	Jun-17
CIM Opportunity VIII- Gross	35,323,441	0.4	0.2	--	4.3	--	8.0	--	7.6	--	--	--	6.7	Feb-15
CIM Opportunity VIII- Net			0.2	--	4.3	--	8.0	--	6.7	--	--	--	5.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	10.2	Feb-15
Kohlberg Kravis Roberts- Gross	9,834,624	0.1	4.9	--	-58.6	--	-55.8	--	-9.5	--	--	--	10.4	Feb-14
Kohlberg Kravis Roberts- Net			4.9	--	-58.6	--	-55.8	--	-9.6	--	--	--	10.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	10.7	Feb-14
NREP Nordic Strat FCP-FIS- Gross	13,272,052	0.1	-3.2	--	-5.0	--	20.4	--	26.5	--	--	--	26.0	Dec-14
NREP Nordic Strat FCP-FIS- Net			-3.2	--	-5.0	--	20.4	--	26.5	--	--	--	26.0	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	9.8	Dec-14
NREP Nordic Strat II- Gross	30,602,586	0.3	-0.3	--	0.7	--	29.5	--	--	--	--	--	16.2	Jun-16
NREP Nordic Strat II- Net			-0.3	--	0.7	--	29.5	--	--	--	--	--	16.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	7.5	Jun-16
NREP Nordic Strat III- Gross	1,810,686	0.0	9.1	--	--	--	--	--	--	--	--	--	9.1	Jul-18
NREP Nordic Strat III- Net			9.1	--	--	--	--	--	--	--	--	--	9.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	2.2	Jul-18
OZ RE III- Gross	13,292,155	0.1	3.1	--	5.4	--	25.8	--	21.2	--	--	--	5.3	Sep-14
OZ RE III- Net			3.1	--	5.4	--	25.8	--	18.6	--	--	--	0.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.2	--	10.3	--	9.9	Sep-14

** Returns are one-quarter lag.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Non-Core RE -Value Added- Gross	56,050,431	0.6	1.5	--	1.9	--	8.4	--	6.1	--	8.6	--	-2.9	Sep-08
Non-Core RE -Value Added- Net			1.5	--	1.9	--	8.4	--	5.6	--	7.9	--	-4.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	7.8	Sep-08
AEW II- Gross	1,557	0.0	-1.5	--	28.1	--	18.2	--	-4.9	--	6.6	--	1.7	May-07
AEW II- Net			-1.5	--	28.1	--	18.2	--	-5.3	--	5.9	--	0.3	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	--	May-07
ECE Euro Prime Shopping II- Gross	18,066,479	0.2	2.2	--	1.5	--	13.6	--	20.7	--	--	--	17.9	Jul-15
ECE Euro Prime Shopping II- Net			2.2	--	1.5	--	13.6	--	19.0	--	--	--	16.5	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	9.5	Jul-15
European RE Debt II- Gross	15,139,602	0.2	0.9	--	-3.4	--	10.7	--	6.9	--	5.7	--	5.6	Nov-13
European RE Debt II- Net			0.9	--	-3.4	--	10.7	--	6.9	--	5.7	--	5.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	11.1	Nov-13
Hammes II- Gross	17,320,610	0.2	8.5	--	14.2	--	19.5	--	0.2	--	--	--	3.5	Jul-15
Hammes II- Net			8.5	--	14.2	--	19.5	--	-2.0	--	--	--	0.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	9.5	Jul-15
Hammes III- Gross*	942,721	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Oct-18
Hammes III- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	0.3	Oct-18
Hines US Office II- Gross	28,864	0.0												
Hines US Office II- Net														
UBS RE- Gross	4,550,599	0.1	-19.6	--	-21.4	--	-22.0	--	-2.4	--	2.2	--	-1.5	Sep-06
UBS RE- Net			-19.6	--	-21.4	--	-22.0	--	-2.6	--	1.9	--	-2.9	
<i>NFI-ODCE net +1% 1Q Lag</i>			-0.1	--	2.3	--	8.7	--	8.4	--	10.7	--	--	Sep-06

* Funded in October 2018.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Private Real Assets- Gross**	468,892,573	5.2	4.2	--	6.9	--	15.2	--	15.9	--	21.3	--	5.3	Jan-13
Private Real Assets- Net			4.2	--	6.9	--	15.2	--	15.9	--	21.3	--	5.3	
<i>Private Real Assets Custom¹</i>			2.0	--	3.9	--	9.3	--	8.1	--	7.0	--	7.0	Jan-13
<i>CPI-U Headline +5%</i>			1.6	--	3.0	--	6.9	--	7.0	--	6.3	--	6.4	Jan-13
ACM II- Gross	12,432,018	0.1	-1.2	--	-2.3	--	-4.8	--	--	--	--	--	-6.6	Sep-16
ACM II- Net			-1.2	--	-2.3	--	-4.8	--	--	--	--	--	-6.6	
<i>NCREIF Farmland 1 Qtr Lag</i>			1.3	--	2.4	--	6.8	--	7.2	--	9.9	--	6.4	Sep-16
ArcLight Energy VI- Gross	36,093,567	0.4	10.5	--	26.1	--	29.1	--	12.4	--	--	--	11.1	Aug-15
ArcLight Energy VI- Net			10.5	--	26.1	--	29.1	--	12.4	--	--	--	11.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	13.6	Aug-15
Atalaya SMA- Gross	17,477,601	0.2	2.5	--	5.0	--	13.9	--	8.7	--	--	--	8.7	May-15
Atalaya SMA- Net			2.5	--	5.0	--	13.9	--	8.7	--	--	--	8.7	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	11.9	May-15
Brookfield Infra III- Gross	24,144,796	0.3	-1.2	--	0.2	--	8.7	--	--	--	--	--	11.5	May-16
Brookfield Infra III- Net			-1.2	--	0.2	--	8.7	--	--	--	--	--	11.5	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	13.4	May-16
Carlyle Power II- Gross	16,240,678	0.2	3.8	--	11.5	--	26.0	--	-1.6	--	--	--	-1.5	Oct-15
Carlyle Power II- Net			3.8	--	11.5	--	26.0	--	-1.6	--	--	--	-1.5	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	12.4	Oct-15
EnCap Energy IX- Gross	25,038,862	0.3	9.2	--	13.4	--	14.9	--	24.3	--	15.7	--	1.2	Jan-13
EnCap Energy IX- Net			9.2	--	13.4	--	14.9	--	24.3	--	15.7	--	1.2	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			2.2	--	6.0	--	10.7	--	7.1	--	1.4	--	2.6	Jan-13
EnCap Energy X- Gross	30,931,038	0.3	1.1	--	1.7	--	4.5	--	5.1	--	--	--	-2.5	Apr-15
EnCap Energy X- Net			1.1	--	1.7	--	4.5	--	5.1	--	--	--	-2.5	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			2.2	--	6.0	--	10.7	--	7.1	--	1.4	--	2.1	Apr-15

1. See Policy Index and Benchmark History.

** Returns are one-quarter lag.

Total Fund
Performance Summary

Period Ending: December 31, 2018

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
EnCap Flatrock Midstream III- Gross	13,469,379	0.1	0.1	--	1.1	--	15.2	--	33.5	--	--	--	8.1	Jul-14
EnCap Flatrock Midstream III- Net			0.1	--	1.1	--	15.2	--	33.5	--	--	--	8.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	10.6	Jul-14
EnCap Flatrock Midstream IV- Gross	6,108,969	0.1	-1.1	--	-10.2	--	--	--	--	--	--	--	-18.3	Feb-18
EnCap Flatrock Midstream IV- Net			-1.1	--	-10.2	--	--	--	--	--	--	--	-18.3	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	9.9	Feb-18
First Reserve- Gross	24,030,803	0.3	3.9	--	5.8	--	13.4	--	29.9	--	--	--	-2.6	Dec-14
First Reserve- Net			3.9	--	5.8	--	13.4	--	29.9	--	--	--	-2.6	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	11.1	Dec-14
IFM Global Infrastructure US LP- Gross	89,294,096	1.0	6.2	--	7.2	--	20.1	--	--	--	--	--	14.5	Apr-17
IFM Global Infrastructure US LP- Net			6.2	--	7.2	--	20.1	--	--	--	--	--	14.5	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	15.1	Apr-17
ISQ Global Infrastructure Fund II- Gross*	12,984,631	0.1	--	--	--	--	--	--	--	--	--	--	0.0	Oct-18
ISQ Global Infrastructure Fund II- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	2.2	Oct-18
Meridiam Infra N America III- Gross	373,839	0.0	-57.0	--	-72.6	--	-94.3	--	--	--	--	--	-93.8	Sep-17
Meridiam Infra N America III- Net			-57.0	--	-72.6	--	-94.3	--	--	--	--	--	-93.8	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	11.8	Sep-17
Pantheon Ventures- Gross	85,738,925	1.0	2.7	--	5.6	--	10.8	--	18.0	--	--	--	28.7	Jul-14
Pantheon Ventures- Net			2.7	--	5.6	--	10.8	--	18.0	--	--	--	28.7	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	10.6	Jul-14
Quantum Energy VI- Gross	30,554,301	0.3	17.6	--	17.3	--	41.8	--	38.5	--	--	--	26.9	Nov-14
Quantum Energy VI- Net			17.6	--	17.3	--	41.8	--	38.5	--	--	--	26.9	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			2.2	--	6.0	--	10.7	--	7.1	--	1.4	--	-1.8	Nov-14
Quantum Energy VII- Gross	14,611,850	0.2	0.5	--	-1.8	--	5.5	--	--	--	--	--	-5.1	Aug-17
Quantum Energy VII- Net			0.5	--	-1.8	--	5.5	--	--	--	--	--	-5.1	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			2.2	--	6.0	--	10.7	--	7.1	--	1.4	--	9.0	Aug-17

* Funded in October 2018.

Total Fund
Performance Summary

Period Ending: December 31, 2018

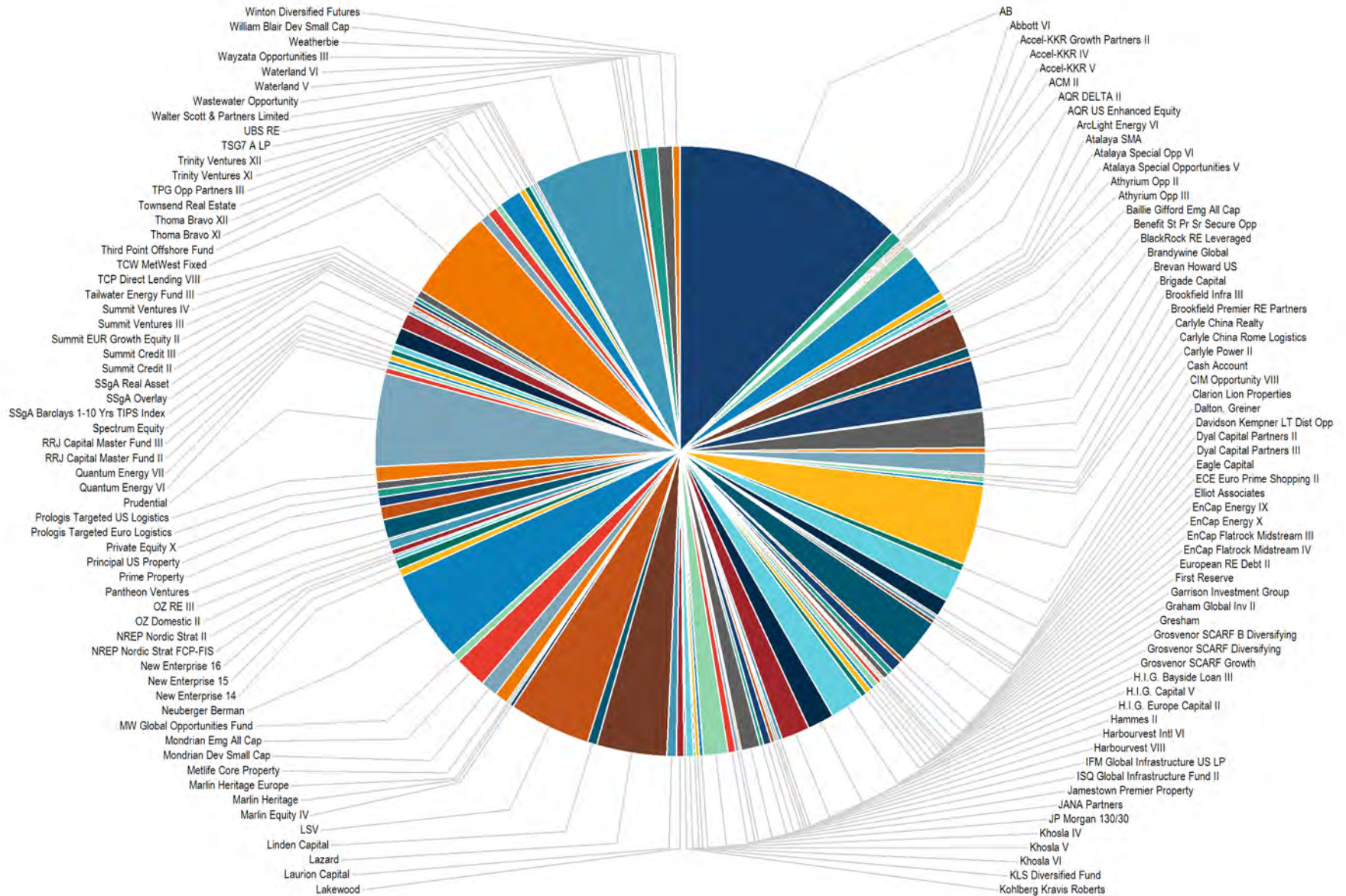
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception (%)	Inception Date
Tailwater Energy Fund III- Gross	16,928,152	0.2	-8.9	--	--	--	--	--	--	--	--	--	-8.9	Sep-18
Tailwater Energy Fund III- Net			-8.9	--	--	--	--	--	--	--	--	--	-8.9	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			2.2	--	6.0	--	10.7	--	7.1	--	1.4	--	2.2	Sep-18
Wastewater Opportunity- Gross	12,439,068	0.1	-1.2	--	-2.8	--	-8.0	--	-31.4	--	--	--	-31.4	Dec-15
Wastewater Opportunity- Net			-1.2	--	-2.8	--	-8.0	--	-31.4	--	--	--	-31.4	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			2.2	--	3.1	--	9.9	--	12.6	--	10.6	--	12.6	Dec-15
Commodities- Gross	24,058,394	0.3	-12.3	--	-12.9	--	-10.9	--	-1.5	--	-9.5	--	-7.0	May-08
Commodities- Net			-12.4	--	-13.2	--	-11.5	--	-2.1	--	-10.1	--	--	
<i>Bloomberg Commodity Index TR USD</i>			-9.4	--	-11.2	--	-11.2	--	0.3	--	-8.8	--	-8.8	May-08
Gresham- Gross	24,058,394	0.3	-12.3	--	-12.9	--	-11.0	--	1.7	--	-8.1	--	-8.1	Apr-08
Gresham- Net			-12.4	--	-13.2	--	-11.6	--	1.0	--	-8.8	--	--	
<i>Bloomberg Commodity Index TR USD</i>			-9.4	--	-11.2	--	-11.2	--	0.3	--	-8.8	--	-8.5	Apr-08
Opportunities Asset Category- Gross*	8,793,308	0.1	2.0	--	4.0	--	1.0	--	5.3	--	6.3	--	15.6	Oct-07
Opportunities Asset Category- Net			2.0	--	4.0	--	1.0	--	5.3	--	6.3	--	15.6	
<i>Policy Index</i>			-5.2	--	-2.8	--	-1.4	--	6.9	--	5.4	--	7.3	Oct-07
Atalaya Special Opportunities V- Gross	8,793,308	0.1	2.0	--	4.0	--	1.0	--	5.0	--	6.1	--	5.1	Jul-13
Atalaya Special Opportunities V- Net			2.0	--	4.0	--	1.0	--	5.0	--	6.1	--	5.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.8	--	9.2	--	17.1	--	16.8	--	14.7	--	15.1	Jul-13
SSgA Real Asset Overlay Proxy- Gross	102,531,552	1.1	-4.3	--	-4.9	--	-6.2	--	5.0	--	0.5	--	0.8	Jan-08
SSgA Real Asset Overlay Proxy- Net			-4.3	--	-4.9	--	-6.3	--	4.8	--	0.3	--	0.6	
<i>SSgA Real Asset¹</i>			-4.4	--	-5.0	--	-6.3	--	4.9	--	0.3	--	--	Jan-08
Cash - Gross	380,658,082	4.2	0.6	--	1.4	--	1.3	--	1.8	--	1.5	--	3.2	Jun-92
Cash - Net			0.6	--	1.4	--	1.3	--	1.8	--	1.5	--	--	
<i>91 Day T-Bills</i>			0.5	--	1.0	--	1.9	--	1.0	--	0.6	--	2.4	Jun-92
Cash Account- Gross	380,658,082	4.2	0.6	--	1.4	--	1.3	--	1.8	--	1.5	--	3.2	Jun-92
Cash Account- Net			0.6	--	1.4	--	1.3	--	1.8	--	1.5	--	--	
<i>91 Day T-Bills</i>			0.5	--	1.0	--	1.9	--	1.0	--	0.6	--	2.4	Jun-92

1. See Policy Index and Benchmark History.

* Composite reflects net returns from Cliffwater up to March 2017.

Total Fund Manager Allocation Analysis

Period Ending: December 31, 2018



Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
AB	\$1,097,323,589	12.2%
AQR US Enhanced Equity	\$209,393,440	2.3%
JP Morgan 130/30	\$113,252,233	1.3%
Brown Advisory	\$23,517	0.0%
Eagle Capital	\$217,979,389	2.4%
Huber Capital	\$253,851	0.0%
UBS	\$8,453	0.0%
Weatherbie	\$79,044,284	0.9%
Dalton, Greiner	\$81,562,246	0.9%
WEDGE Capital	\$115,089	0.0%
CenterSquare	\$146,707	0.0%
Lazard	\$333,721,975	3.7%
Walter Scott & Partners Limited	\$448,568,965	5.0%
LSV	\$387,649,111	4.3%
Mondrian Dev Small Cap	\$82,839,125	0.9%
William Blair Dev Small Cap	\$73,215,002	0.8%
Baillie Gifford Emg All Cap	\$167,267,374	1.9%
Mondrian Emg All Cap	\$153,680,416	1.7%
CBRE Clarion	\$66,397	0.0%
Abbott VI	\$52,912,032	0.6%
Accel-KKR IV	\$13,412,892	0.1%
Accel-KKR V	\$8,198,183	0.1%
Accel-KKR Growth Partners II	\$10,017,749	0.1%
Atalaya Special Opp VI	\$22,501,990	0.3%
Davidson Kempner LT Dist Opp	\$11,477,215	0.1%
Dyal Capital Partners II	\$17,680,605	0.2%
Dyal Capital Partners III	\$18,043,017	0.2%
Garrison Investment Group	\$13,723,884	0.2%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
Harbourvest VIII	\$18,089,919	0.2%
Harbourvest Intl VI	\$36,886,718	0.4%
H.I.G. Bayside Loan III	\$19,350,593	0.2%
H.I.G. Capital V	\$11,875,278	0.1%
H.I.G. Europe Capital II	\$10,053,751	0.1%
Khosla IV	\$17,520,955	0.2%
Khosla V	\$20,667,254	0.2%
Khosla VI	\$7,866,264	0.1%
Linden Capital	\$42,093,856	0.5%
Linden Capital Partners IV	\$1,940,450	0.0%
Marlin Equity IV	\$14,804,373	0.2%
Marlin Equity V	\$4,152,009	0.0%
Marlin Heritage	\$8,051,057	0.1%
Marlin Heritage II	\$3,684,557	0.0%
Marlin Heritage Europe	\$4,984,577	0.1%
New Enterprise 14	\$31,512,975	0.4%
New Enterprise 15	\$40,633,751	0.5%
New Enterprise 16	\$13,716,149	0.2%
Private Equity X	\$31,604,744	0.4%
RCP Multi-Fund Feeder	\$2,750,000	0.0%
RRJ Capital Master Fund II	\$20,416,135	0.2%
RRJ Capital Master Fund III	\$30,240,739	0.3%
Spectrum Equity	\$29,044,246	0.3%
Spectrum Equity Fund VIII	\$3,709,653	0.0%
Summit EUR Growth Equity II	\$7,521,394	0.1%
Summit Ventures III	\$16,260,397	0.2%
Summit Ventures IV	\$16,117,365	0.2%
Thoma Bravo XI	\$42,360,298	0.5%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
Thoma Bravo XII	\$29,142,947	0.3%
TPG Opp Partners III	\$25,531,533	0.3%
Trinity Ventures XI	\$30,003,122	0.3%
Trinity Ventures XII	\$19,845,570	0.2%
TSG7 A LP	\$11,539,301	0.1%
TSG7 B LP	\$867,597	0.0%
Waterland V	\$14,410,007	0.2%
Waterland VI	\$23,067,441	0.3%
Waterland VI Over	\$936	0.0%
Wayzata Opportunities III	\$6,360,699	0.1%
Brigade Capital	\$172,073,729	1.9%
Athyrium Opp II	\$14,518,501	0.2%
Athyrium Opp III	\$11,162,424	0.1%
Benefit St Pr Sr Secure Opp	\$42,173,643	0.5%
Summit Credit	\$3,450,002	0.0%
Summit Credit II	\$22,431,366	0.2%
Summit Credit III	\$12,954,628	0.1%
TCP Direct Lending VIII	\$31,698,629	0.4%
Grosvenor SCARF Growth	\$131,868,495	1.5%
Grosvenor SCARF B Growth	\$0	0.0%
JANA Partners	\$37,739,657	0.4%
Lakewood	\$38,980,522	0.4%
OZ Domestic II	\$45,698,448	0.5%
Third Point Offshore Fund	\$43,907,915	0.5%
Prudential	\$437,999,882	4.9%
TCW MetWest Fixed	\$434,654,764	4.8%
Neuberger Berman	\$437,280,240	4.9%
Brandywine Global	\$236,976,046	2.6%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
AQR DELTA II	\$61,142,504	0.7%
Brevan Howard US	\$9,835,860	0.1%
Elliot Associates	\$54,211,208	0.6%
Graham Global Inv II	\$30,361,259	0.3%
Grosvenor SCARF Diversifying	\$128,929,074	1.4%
Grosvenor SCARF B Diversifying	\$165,349,976	1.8%
KLS Diversified Fund	\$40,000,000	0.4%
Laurion Capital	\$46,313,429	0.5%
MW Global Opportunities Fund	\$40,000,000	0.4%
Winton Diversified Futures	\$36,892,554	0.4%
BlackRock RE Leveraged	\$19,020,500	0.2%
Cornerstone Leveraged	\$1,419,396	0.0%
Brookfield Premier RE Partners	\$100,000,000	1.1%
Clarion Lion Properties	\$153,287,701	1.7%
Jamestown Premier Property	\$18,054,711	0.2%
Metlife Core Property	\$59,077,405	0.7%
Prime Property	\$60,270,074	0.7%
Principal US Property	\$45,812,164	0.5%
Prologis Targeted Euro Logistics	\$39,269,209	0.4%
Prologis Targeted US Logistics	\$69,903,370	0.8%
Townsend Real Estate	\$112,277,760	1.2%
Carlyle China Realty	\$5,801,144	0.1%
Carlyle China Rome Logistics	\$26,102,570	0.3%
CIM Opportunity VIII	\$35,323,441	0.4%
Kohlberg Kravis Roberts	\$9,834,624	0.1%
NREP Nordic Strat FCP-FIS	\$13,272,052	0.1%
NREP Nordic Strat II	\$30,602,586	0.3%
NREP Nordic Strat III	\$1,810,686	0.0%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
OZ RE III	\$13,292,155	0.1%
AEW II	\$1,557	0.0%
ECE Euro Prime Shopping II	\$18,066,479	0.2%
European RE Debt II	\$15,139,602	0.2%
Hammes II	\$17,320,610	0.2%
Hammes III	\$942,721	0.0%
Hines US Office II	\$28,864	0.0%
UBS RE	\$4,550,599	0.1%
ACM II	\$12,432,018	0.1%
ArcLight Energy VI	\$36,093,567	0.4%
Atalaya SMA	\$17,477,601	0.2%
Brookfield Infra III	\$24,144,796	0.3%
Carlyle Power II	\$16,240,678	0.2%
EnCap Energy IX	\$25,038,862	0.3%
EnCap Energy X	\$30,931,038	0.3%
EnCap Flatrock Midstream III	\$13,469,379	0.1%
EnCap Flatrock Midstream IV	\$6,108,969	0.1%
First Reserve	\$24,030,803	0.3%
IFM Global Infrastructure US LP	\$89,294,096	1.0%
ISQ Global Infrastructure Fund II	\$12,984,631	0.1%
Meridiam Infra N America III	\$373,839	0.0%
Pantheon Ventures	\$85,738,925	1.0%
Quantum Energy VI	\$30,554,301	0.3%
Quantum Energy VII	\$14,611,850	0.2%
Tailwater Energy Fund III	\$16,928,152	0.2%
Wastewater Opportunity	\$12,439,068	0.1%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2018

	Current	%
Gresham	\$24,058,394	0.3%
Atalaya Special Opportunities V	\$8,793,308	0.1%
Cash Account	\$380,658,082	4.2%
Transition Account	\$253,576	0.0%
Heitman Adv JMB V	\$8,390	0.0%
SSgA Overlay	\$76,575,686	0.9%
SSgA Barclays 1-10 Yrs TIPS Index	\$30,693,257	0.3%
SSgA Real Asset	\$71,838,295	0.8%
Total	\$8,983,615,635	100.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.7%	6	5.7%	44	1.2	15	0.4	37	1.9%	91
Policy Index	6.9%	25	4.6%	6	1.3	8	--	--	0.0%	1
Total Fund ex Overlay	7.6%	7	5.4%	26	1.2	9	0.5	36	1.7%	89
Policy Index	6.9%	25	4.6%	6	1.3	8	--	--	0.0%	1

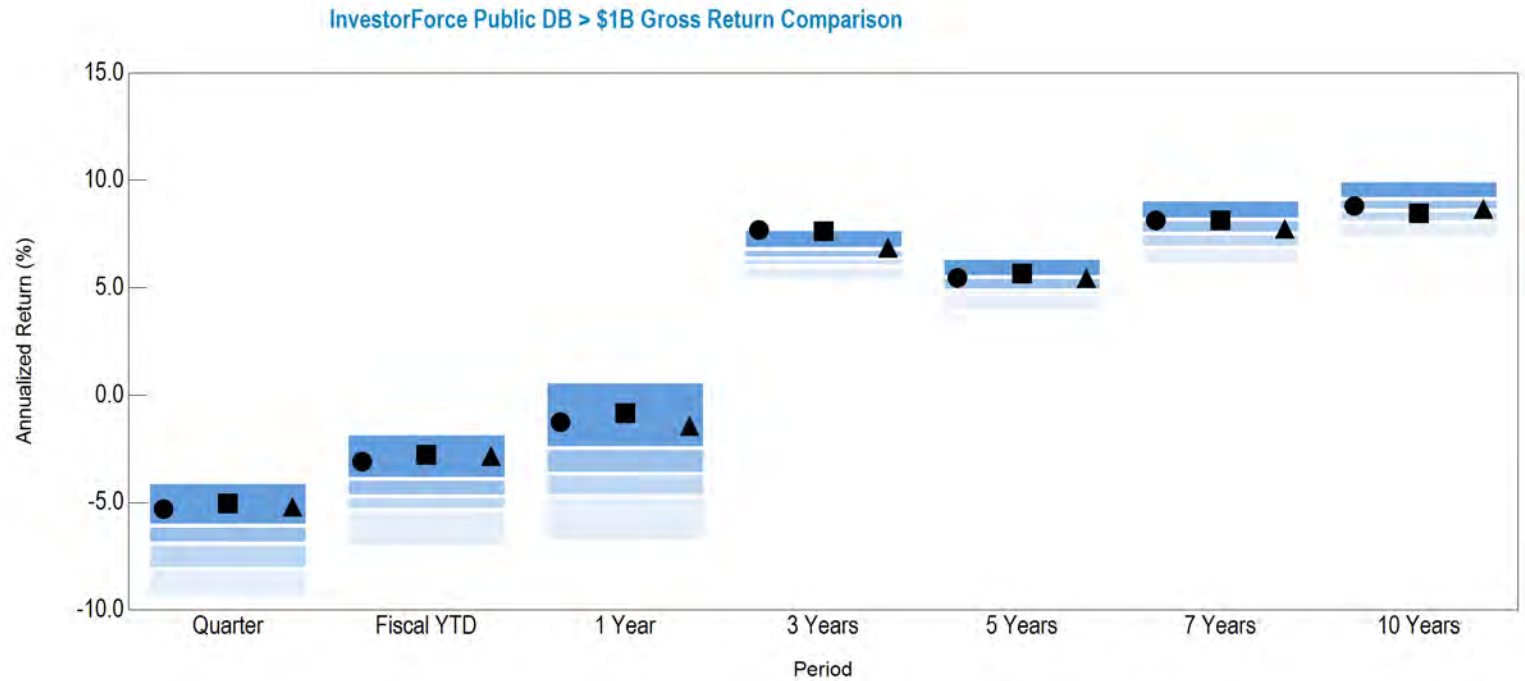
Statistics Summary

5 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	5.5%	26	5.8%	42	0.8	22	0.0	69	1.8%	89
Policy Index	5.4%	26	5.0%	10	1.0	11	--	--	0.0%	1
Total Fund ex Overlay	5.7%	23	5.5%	24	0.9	12	0.1	57	1.5%	81
Policy Index	5.4%	26	5.0%	10	1.0	11	--	--	0.0%	1

Total Fund
Peer Universe Comparison

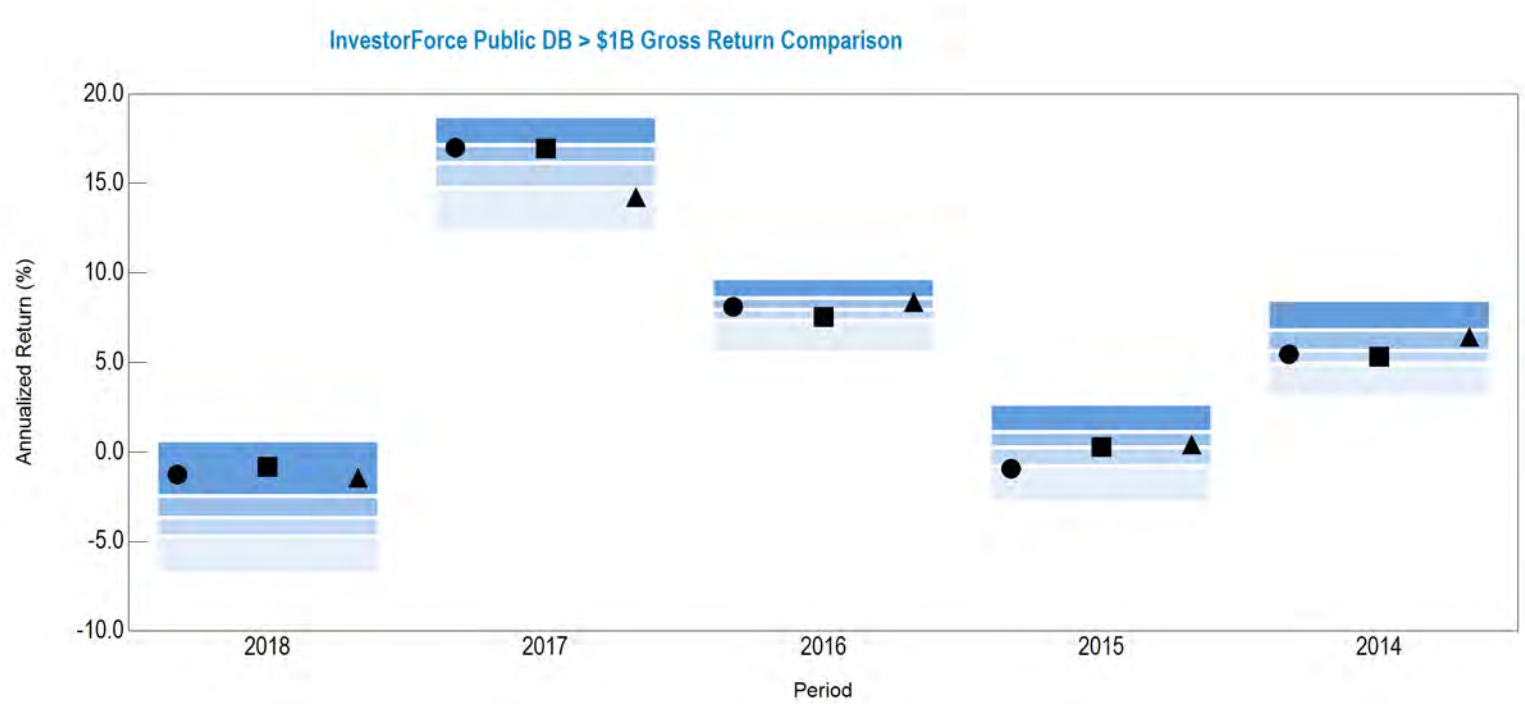
Period Ending: December 31, 2018



	Return (Rank)						
	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	-4.1	-1.8	0.6	7.7	6.4	9.1	10.0
25th Percentile	-6.1	-3.9	-2.4	6.8	5.5	8.2	9.1
Median	-6.9	-4.7	-3.6	6.4	4.9	7.5	8.6
75th Percentile	-8.1	-5.4	-4.7	6.0	4.7	6.9	8.1
95th Percentile	-9.4	-7.1	-6.8	5.3	3.9	6.1	7.3
# of Portfolios	52	52	52	52	52	51	49
● Total Fund	-5.3 (14)	-3.1 (12)	-1.3 (10)	7.7 (6)	5.5 (26)	8.1 (27)	8.8 (34)
■ Total Fund ex Overlay	-5.0 (11)	-2.8 (11)	-0.8 (9)	7.6 (7)	5.7 (23)	8.1 (27)	8.5 (59)
▲ Policy Index	-5.2 (13)	-2.8 (11)	-1.4 (10)	6.9 (25)	5.4 (26)	7.7 (39)	8.7 (37)

Total Fund
Peer Universe Comparison (Calendar Years)

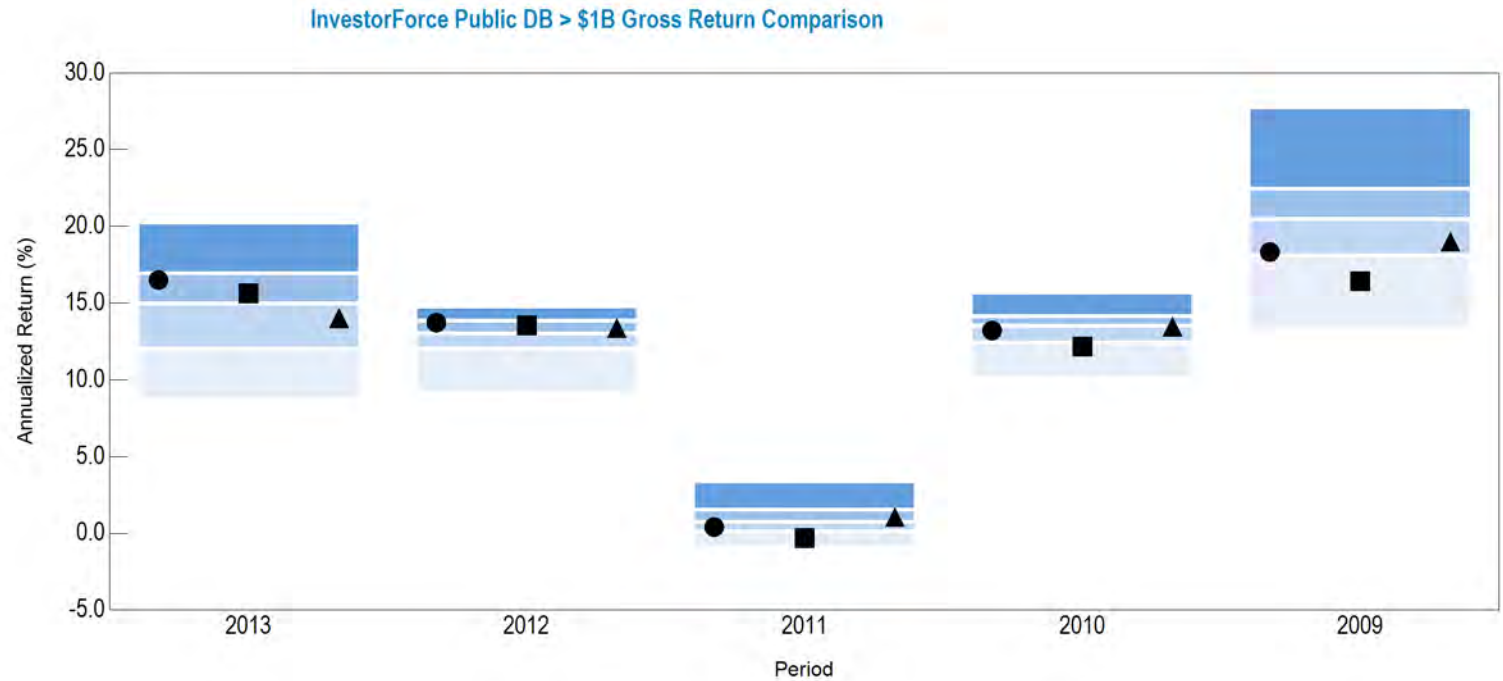
Period Ending: December 31, 2018



	2018		2017		2016		2015		2014	
Return (Rank)	0.6	(10)	18.8	(31)	9.7	(43)	2.7	(83)	8.5	(61)
5th Percentile	-6.8		12.4		5.5		-2.8		3.1	
25th Percentile	-4.7		14.8		7.4		-0.7		4.9	
Median	-3.6		16.2		8.0		0.3		5.7	
75th Percentile	-2.4		17.2		8.6		1.1		6.8	
95th Percentile	0.6		18.8		9.7		2.7		8.5	
# of Portfolios	52		98		92		98		79	
● Total Fund	-1.3	(10)	17.0	(31)	8.1	(43)	-0.9	(83)	5.5	(61)
■ Total Fund ex Overlay	-0.8	(9)	16.9	(31)	7.5	(69)	0.3	(51)	5.3	(65)
▲ Policy Index	-1.4	(10)	14.2	(82)	8.4	(34)	0.4	(46)	6.4	(34)

Total Fund
Peer Universe Comparison (Calendar Years)

Period Ending: December 31, 2018



	2013		2012		2011		2010		2009	
5th Percentile	20.2		14.7		3.3		15.7		27.7	
25th Percentile	17.0		13.9		1.6		14.2		22.5	
Median	15.0		13.0		0.8		13.5		20.5	
75th Percentile	12.0		12.1		0.1		12.5		18.1	
95th Percentile	8.7		9.2		-0.9		10.2		13.4	
# of Portfolios	67		74		68		66		66	
● Total Fund	16.5	(31)	13.7	(36)	0.4	(60)	13.2	(62)	18.3	(73)
■ Total Fund ex Overlay	15.6	(43)	13.6	(41)	-0.3	(86)	12.2	(81)	16.4	(86)
▲ Policy Index	14.0	(64)	13.4	(42)	1.0	(38)	13.5	(53)	19.0	(62)

Total Plan Policy Index	As of:								
	7/1/17	4/1/17	1/1/14	1/1/12	1/1/08	2/1/06	9/1/04	1/1/00	7/1/86
91-day UST Bill +5% (AR)		10.0%	10.0%	10.0%	5.0%	5.0%	5.0%		
BBgBarc Aggregate	10.0%	10.0%	15.0%	20.0%	20.0%	25.0%	25.0%	30.0%	
BBgBarc US Treasury	5.0%	5.0%							
ICE BofA ML High Yield II	1.0%	1.0%	1.0%						
Bloomberg Commodity	2.0%	2.0%			5.0%				
Cambridge Associates Private Energy 1 Qtr Lag	2.5%								
Cambridge Associates Private Infrastructure 1 Qtr Lag	3.2%								
FTSE BIG									23.0%
FTSE WGBI ex US Unhedged	2.4%	2.4%	2.4%						
CPI-U +5% (PRA)		7.0%	15.0%	15.0%					
Credit Suisse Leveraged Loans	1.0%	1.0%	1.0%						
Credit Suisse Leveraged Loans +2%	4.0%	4.0%							
JPM GBI EM Diversified	0.6%	0.6%	0.6%						
HFRI FoF Composite Index + 1%	3.0%								
HFRI FoF Conservative Index	7.0%								
MSCI ACWI ex US	20.0%	20.0%	22.5%	22.5%	20.0%				
MSCI EAFE						15.0%	15.0%	15.0%	15.0%
MSCI Emerging Markets						5.0%	5.0%	5.0%	
NAREIT					3.0%	3.0%			
NFI-ODCE	4.6%								
NFI-ODCE net +1% 1Q Lag	2.5%								
NCREIF		7.0%			12.0%	12.0%	15.0%	10.0%	15.0%
NCREIF Farmland 1 Qtr Lag	0.7%								
NCREIF Timberland Index Lagged	0.7%								
Russell 1000						30.0%	30.0%	35.0%	
Russell 1000 +3% 1QL (PE)			10.0%	10.0%					
Russell 2000						5.0%	5.0%	5.0%	
Russell 3000	21.0%	21.0%	22.5%	22.5%	30.0%				47.0%
S&P 500 +2% 1QL (PE)					5.0%				
Thomson Reuters C A All PE 1 Qtr Lag	9.0%	9.0%							
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Growth Benchmark		As of:	
	7/1/17	4/1/17	
91 Day T-Bill +5%		5.08%	
ICE BofA ML High Yield II	1.70%	1.70%	
Credit Suisse Leveraged Loans	1.70%	1.70%	
Credit Suisse Leveraged Loan + 2%	6.78%	6.78%	
HFRI FoF Composite Index + 1%	5.08%		
MSCI ACWI ex US	33.90%	33.90%	
Russell 3000	35.59%	35.59%	
Thomson Reuters CJA All PE 1 Qtr Lag	15.25%	15.25%	
	100.0%	100.0%	

US Equity Benchmark		As of:			
	1/1/08	9/1/04	1/1/00	7/1/86	
Russell 1000		85.71%	87.5%		
Russell 2000		14.29%	12.5%		
Russell 3000	100.0%				100.0%
	100.0%	100.0%	100.0%	100.0%	

International Equity Benchmark		As of:		
	1/1/08	1/1/00	7/1/86	
MSCI ACWI ex US	100.0%			
MSCI EAFE		75.0%	100.0%	
MSCI Emerging Markets		25.0%		
	100.0%	100.0%	100.0%	

Private Equity Benchmark		As of:		
	4/1/17	1/1/12	1/1/08	
Russell 1000 +3% 1QL		100.0%		
S&P 500 +2% 1QL			100.0%	
Thomson Reuters CJA All PE 1 Qtr Lag	100.0%			
	100.0%	100.0%	100.0%	

Public Credit Benchmark		As of:	
	4/1/17		
ICE BofA ML High Yield II	50.0%		
Credit Suisse Leveraged Loans	50.0%		
	100.0%		

Private Credit Benchmark		As of:	
	4/1/17		
Credit Suisse Leveraged Loan + 2%	100.0%		
	100.0%		

Growth Oriented Absolute Return Benchmark		As of:	
	7/1/17	4/1/17	
91-day UST Bill +5%		100.0%	
HFRI FoF Composite Index + 1%	100.0%		
	100.0%	100.0%	

Diversifying Benchmark		As of:	
	7/1/17	4/1/17	
91 Day T-Bill +5%		28.0%	
BBgBarc US Aggregate	40.0%	40.0%	
BBgBarc US Treasury	20.0%	20.0%	
FTSE WGBI ex US Unhedged	9.6%	9.6%	
HFRI FoF Conservative Index	28.0%		
JPM GBI EM Diversified	2.4%	2.4%	
	100.0%	100.0%	

Global Fixed Income Benchmark		As of:	
	6/1/13		
FTSE WGBI ex US Unhedged	80.0%		
JPM GBI EM Diversified	20.0%		
	100.0%		

Diversifying Absolute Return Benchmark		As of:	
	7/1/17	4/1/17	
91-day UST Bill +5%		100.0%	
HFRI FoF Conservative Index	100.0%		
	100.0%	100.0%	

Real Return Benchmark		As of:	
	4/1/17		
Real Estate Benchmark	43.75%		
Private Real Assets Benchmark	43.75%		
Bloomberg Commodity	12.50%		
	100.0%		

Real Estate Benchmark		As of:	
	7/1/17	7/1/2011	
NCREIF		100.0%	
NFI-ODCE	65.0%		
NFI-ODCE net +1% 1Q Lag	35.0%		
	100.0%	100.0%	

RE-Value Added Benchmark		As of:	
	7/1/16	10/1/08	
NCREIF +2% 1Q Lag		100.0%	
NFI-ODCE net +1% 1Q Lag	100.0%		
	100.0%	100.0%	

Private Real Assets Benchmark		As of:	
	7/1/17	4/1/17	
CPI-U Headline +5%		100.0%	
Cambridge Associates Private Energy 1 Qtr Lag	35.0%		
Cambridge Associates Private Infrastructure 1 Qtr Lag	45.0%		
NCREIF Farmland 1 Qtr Lag	10.0%		
NCREIF Timberland Index Lagged	10.0%		
	100.0%	100.0%	

AllianceBernstein Benchmark	As of:		
	1/1/01	1/1/98	5/1/89
Russell 1000	100.0%		
Russell 3000		100.0%	
Wilshire 2500			100.0%
	100.0%	100.0%	100.0%

Brandywine Benchmark	As of:
	6/1/13
FTSE WGBI ex US Unhedged	80.0%
JPM GBI EM Diversified	20.0%
	100.0%

Brigade Benchmark	As of:
	12/1/13
ICE BofA ML High Yield II	50.0%
Credit Suisse Leveraged Loans	50.0%
	100.0%

SSgA Real Asset Benchmark	As of:		
	3/2/2018	10/1/15	2/1/08
BBgBarc US Govt Inflation-Linked 1-10 Yrs		10.0%	
BBgBarc US TIPS		10.0%	20.0%
BBgBarc 1-10 Yr US TIPS	30.0%		
BBgBarc Roll Select Commodity TR	10.0%	20.0%	
BBgBarc USD Floating Rate Note <5yr	10.0%		
DJ US Select REIT			30.0%
FTSE EPRA/NAREIT Developed Liquid	15.0%	10.0%	
MSCI World Natural Resources		20.0%	25.0%
S&P Global Large Mid Cap Commodity Resources	10.0%		
S&P Global Infrastructure	25.0%	20.0%	
S&P GS Commodities			25.0%
S&P MLP		10.0%	
	100.0%	100.0%	100.0%

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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