



# **PERSPECTIVES** THAT DRIVE ENTERPRISE SUCCESS



PERIOD ENDING: MARCH 31, 2018

Investment Performance Review for

**Imperial County Employees' Retirement System**

# Table of Contents



---

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

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

---

Investment Landscape

TAB I

---

Investment Performance  
Review

TAB II



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

2<sup>ND</sup> QUARTER 2018  
Investment Landscape

# Table of Contents



---

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

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

---

Economic environment	6
----------------------	---

---

Fixed income rates & credit	20
-----------------------------	----

---

Equity	27
--------	----

---

Other assets	39
--------------	----

---

Appendix	42
----------	----

# 1<sup>st</sup> quarter summary

## THE ECONOMIC CLIMATE

- The U.S. economy is expected to grow at around 2.2% in Q1. Economists expect a slightly quicker rate of growth throughout the year. We believe that this *middle-of-the-road* expansion – characterized as not too fast and not too slow – may allow the U.S. economy to continue expanding for longer than expected. [p. 8](#)
- The U.S. has enacted a 25% tariff on steel and a 10% tariff on aluminum, which went into effect on March 23<sup>rd</sup>. The U.S. also engaged with China over allegations of asymmetrical trade policies and intellectual property theft. [p. 18, 19](#)

## PORTFOLIO IMPACTS

- Global economic growth has improved – low inflation, strong employment, and accommodative foreign central bank policies have been supportive of equity prices. In the U.S., monetary tightening has yet to have a major impact on equities. [p. 17](#)
- Concerns over increasing trade protectionism weighed on financial markets. The tariffs placed on steel and aluminum are not likely to have a material impact on asset prices, but escalating tensions and retaliatory measures could have a negative impact on global growth. [p. 18, 19](#)

## THE INVESTMENT CLIMATE

- Excitement and optimism over tax cuts helped lead equities higher to begin the year. However, markets stumbled in February – falling roughly 10%. Equities recovered much of the losses throughout the quarter, but then fell back to their lows at the end of March. [p. 29](#)
- 2018 is expected to be a banner year for U.S. corporate profits. Earnings for the calendar year are forecast to grow 17.3%, with 7.3% revenue growth. These 2018 expectations may already be priced in. [p. 29](#)
- February’s market correction appeared isolated to the equity markets. “Risk-off” selling that often accompanies market drawdowns was not apparent – credit spreads, U.S. Treasuries, and gold, reacted minimally. [p. 28](#)

## ASSET ALLOCATION ISSUES

- Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact. We believe a neutral or mild risk overweight is warranted in this environment. [p. 32](#)
- Equity volatility spiked in February, ending the period of extreme calm that investors experienced since the beginning of 2017. The VIX Index averaged 20.7 during the last two months of the quarter. [p. 35, 36](#)

Changing market dynamics suggest a neutral or mild risk overweight may be warranted

# What drove the market in Q1?

## “Record high increase in S&P 500 EPS estimates for Q1 2018”

### CHANGE IN EPS ESTIMATE DURING THE QUARTER (NET)

Q4 16	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18
-2%	-4%	-2%	-4%	0%	+7%

Article Source: FactSet, March 29<sup>th</sup>, 2018

## “U.S. stocks sell off on concerns about trade”

### U.S. TRADE DEFICIT BY COUNTRY (\$ BILLIONS)

China	Japan	Germany	Italy	S. Korea	India
-375	-69	-64	-32	-23	-23

Article Source: WSJ, March 23<sup>rd</sup>, 2018

## “Volatility index spikes by largest-ever [one day] amount”

### VIX Index (Average)

Oct	Nov	Dec	Jan	Feb	Mar
10.1	10.5	10.2	11.1	22.5	19.0

Article Source: Bloomberg, February 5<sup>th</sup>, 2018

## “U.S. Treasury yields rise to a new 4-year high as inflation concerns drag on”

### U.S. 10-Year Treasury Yield

Oct	Nov	Dec	Jan	Feb	Mar
2.38%	2.41%	2.41%	2.71%	2.86%	2.74%

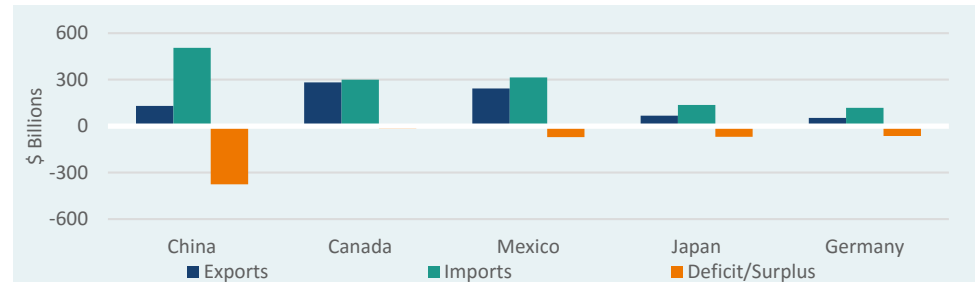
Article Source: USA Today, February 12<sup>th</sup>, 2018

## S&P 500 PRICE INDEX AND Q1 EPS ESTIMATES (INDEXED TO 100)



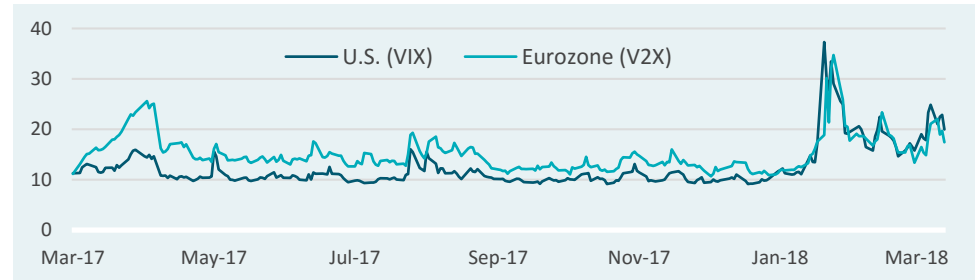
Source: Bloomberg, as of 3/29/18

## U.S. TRADE DEFICIT BY COUNTRY



Source: U.S. Census Bureau, 2017

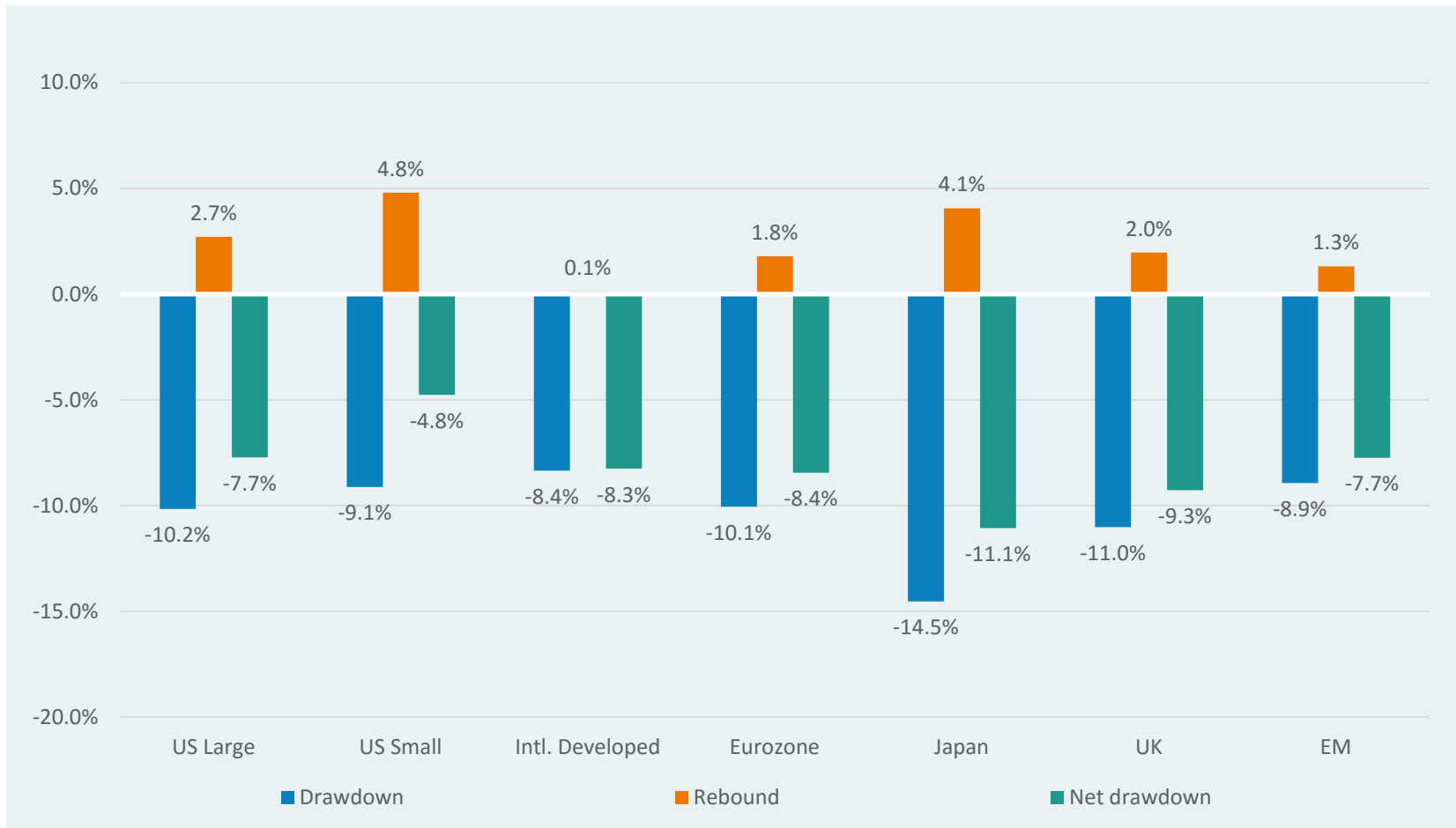
## IMPLIED VOLATILITY



Source: Bloomberg, as of 3/29/18

# The return of volatility

## PEAK TO TROUGH (LOCAL RETURNS)



Timeframe includes the February drawdown and subsequent "bottom" of each market, then recovery through 3/31/18

# Economic environment

# U.S. economics summary

- Economic growth remained near expansion highs in the fourth quarter. U.S. real GDP growth was 2.6% from the previous year. Consumer spending and investment pushed the economy ahead, while falling exports were a drag on growth.
- The U.S. enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23<sup>rd</sup>. The U.S. has engaged with China over allegations of asymmetrical trade policies and intellectual property theft, creating concerns over the risks of a trade war.
- Additions to U.S. payrolls averaged 202,000 per month in the first quarter, above the expansion average.
- In recent years, the U.S. has seen discouraged and part-time workers drawn back to full-time employment. This effect can be quantified by the shrinking difference between U-6 and U-3 unemployment figures. The difference between these two measures fell to 3.9%, matching expansion lows.
- Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.
- The Fed raised interest rates on March 21<sup>st</sup> to 1.50-1.75%. Comments made during the March meeting suggest the FOMC expects continued moderate economic activity, spending, and business investment. Unsurprisingly, the Committee stated that the U.S. inflation rate is expected to stabilize at the 2% target over the near-term.

	Most Recent	12 Months Prior
GDP (YoY)	2.6% 12/31/17	1.8% 12/31/16
Inflation (CPI YoY, Core)	2.1% 3/31/18	2.0% 3/31/17
Expected Inflation (5yr-5yr forward)	2.2% 3/31/18	2.2% 3/31/17
Fed Funds Target Range	1.50 – 1.75% 3/31/18	0.75 – 1.00% 3/31/17
10 Year Rate	2.8% 3/31/18	2.4% 3/31/17
U-3 Unemployment	4.1% 3/31/18	4.5% 3/31/17
U-6 Unemployment	8.0% 3/31/18	8.8% 3/31/17

# GDP growth

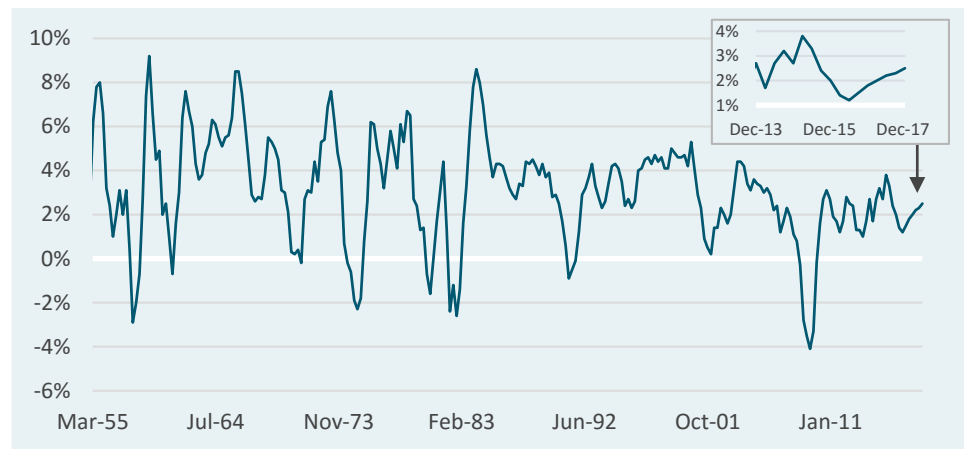
Economic growth accelerated further in the fourth quarter of 2017. Real GDP increased 2.6% from the previous year (2.9% annualized quarterly rate), driven by consumer spending. The pace of growth was faster than the expansion average of 2.2%. Consumer spending contributed 2.8% to the quarterly growth rate, partly due to a strong holiday retail season. Corporate capex spending slowed in Q4, but was still the second largest contributor to the overall growth rate at 1.3%. As discussed last quarter, changes to the tax code could reinforce the current positive trend in fixed business investment.

The economy is expected to experience slower but still moderate growth in the first quarter – the consensus estimate is 2.2%, according to Bloomberg. First quarter growth has underwhelmed the past few years, which may occur again this year. However, expectations for 2018 calendar growth remain robust at 2.8%.

While we continue to see mild pressures building, such as firming inflation, rising interest rates, and tightening in the labor market, there do not appear to be clear signs of economic overheating.

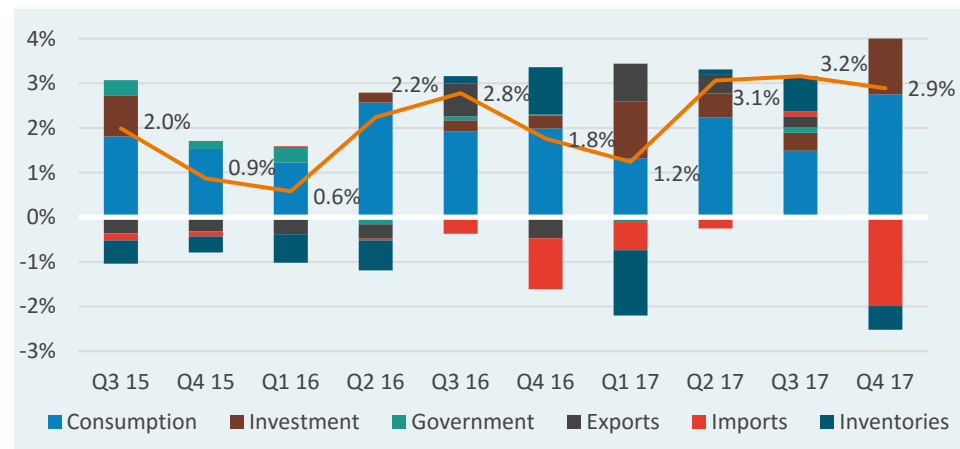
The economy experienced above-trend growth in 2017

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 12/31/17

U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 12/31/17

# Inflation

Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.

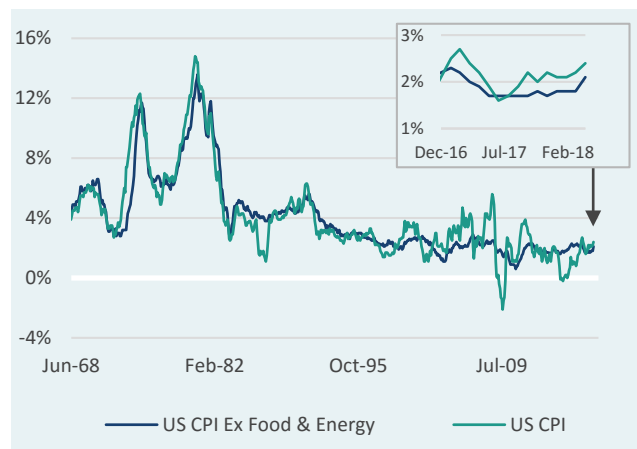
Market inflation expectations have recovered a bit since the deflation scare in 2015 that coincided with an energy driven slump in inflation figures. The 10-year TIPS breakeven inflation rate moved marginally from 2.0% to 2.1%. Investors expect inflation to stay relatively muted

over the longer-term – recent mild rises in inflation may not be indicative of a trend.

While inflation does not actually appear to be bubbling up in most global economies, it is interesting to note that investors are generally expecting higher inflation. Sentiment has transitioned from fear of deflation to fear of inflation, which has broad implications for the markets – central bank confidence in raising rates, and pricing across the fixed income markets, to name a few.

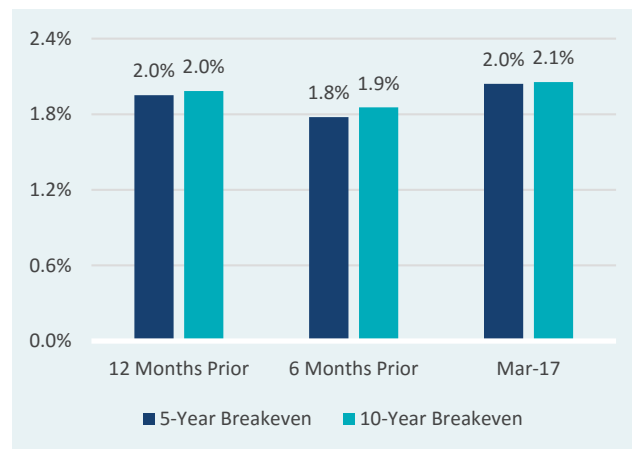
Fears of rising inflation emerged during the quarter

U.S. CPI (YOY)



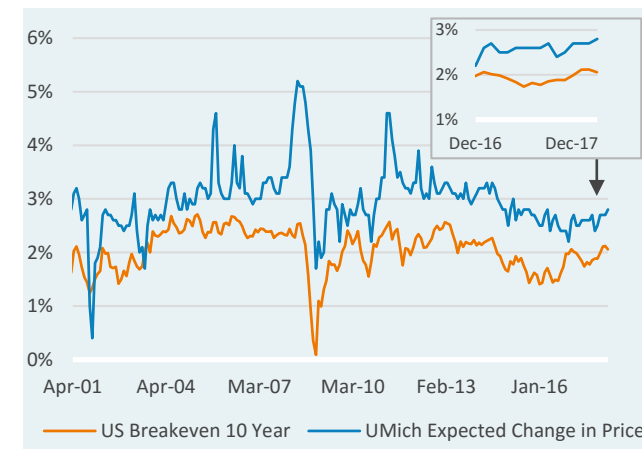
Source: FRED, as of 3/31/18

U.S. TIPS BREAKEVEN RATES



Source: Bloomberg, as of 3/31/18

INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/18

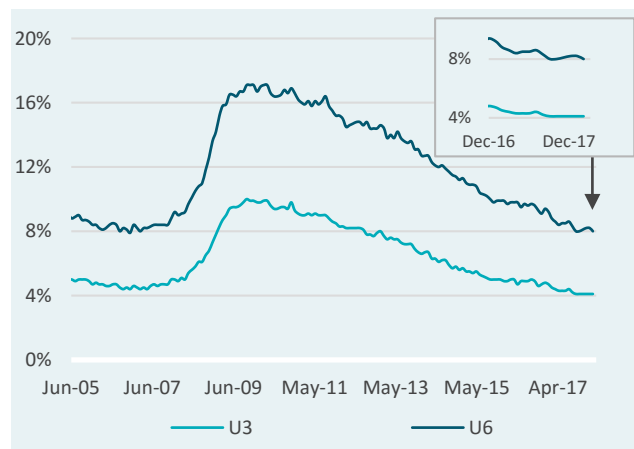
# Labor market

Conditions in the U.S. labor market tightened slightly in Q1. Unemployment kept steady at 4.1%, while the unemployment rate that includes discouraged and part time workers fell to 8.0% from 8.2%. In Q1, 202,000 jobs were created per month - slightly stronger than the expansion average.

As we have discussed in recent years, continued labor market slack, not captured in the popular U-3 unemployment figure, has contributed to slower wage gains. Another key contributor to modest wage gains has been weak improvements in business productivity.

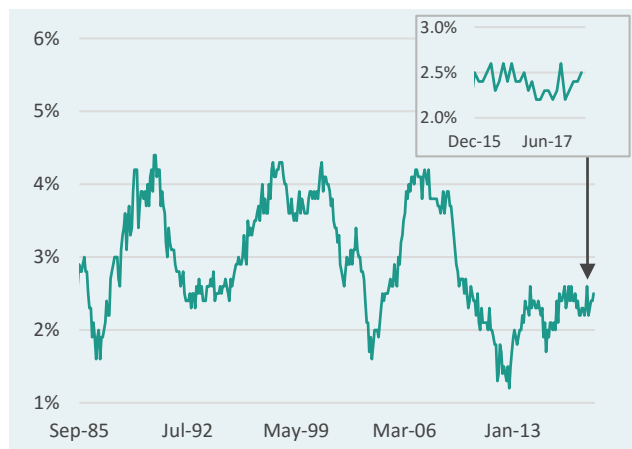
The degree to which U.S. businesses are able to become more efficient has an impact on U.S. employee wages through time. Efficiency is also referred to as *productivity*. As businesses realize productivity gains they are able to pass on some of these gains to employees in the form of higher wages, since output per employee has increased. If businesses are not becoming more productive, this makes it difficult to sustainably raise employee pay. In the current economic expansion, businesses have realized minimal productivity growth, which is likely a contributor to tepid wage growth.

## UNEMPLOYMENT RATE



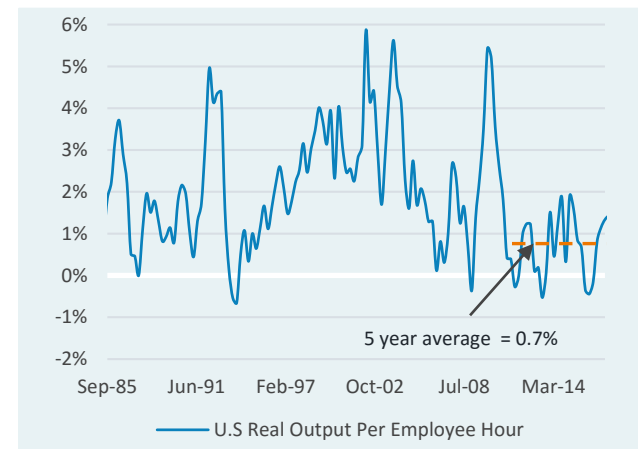
Source: FRED, as of 3/31/18

## AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as 2/28/18

## U.S. PRODUCTIVITY GROWTH



Source: FRED, as of 12/31/17

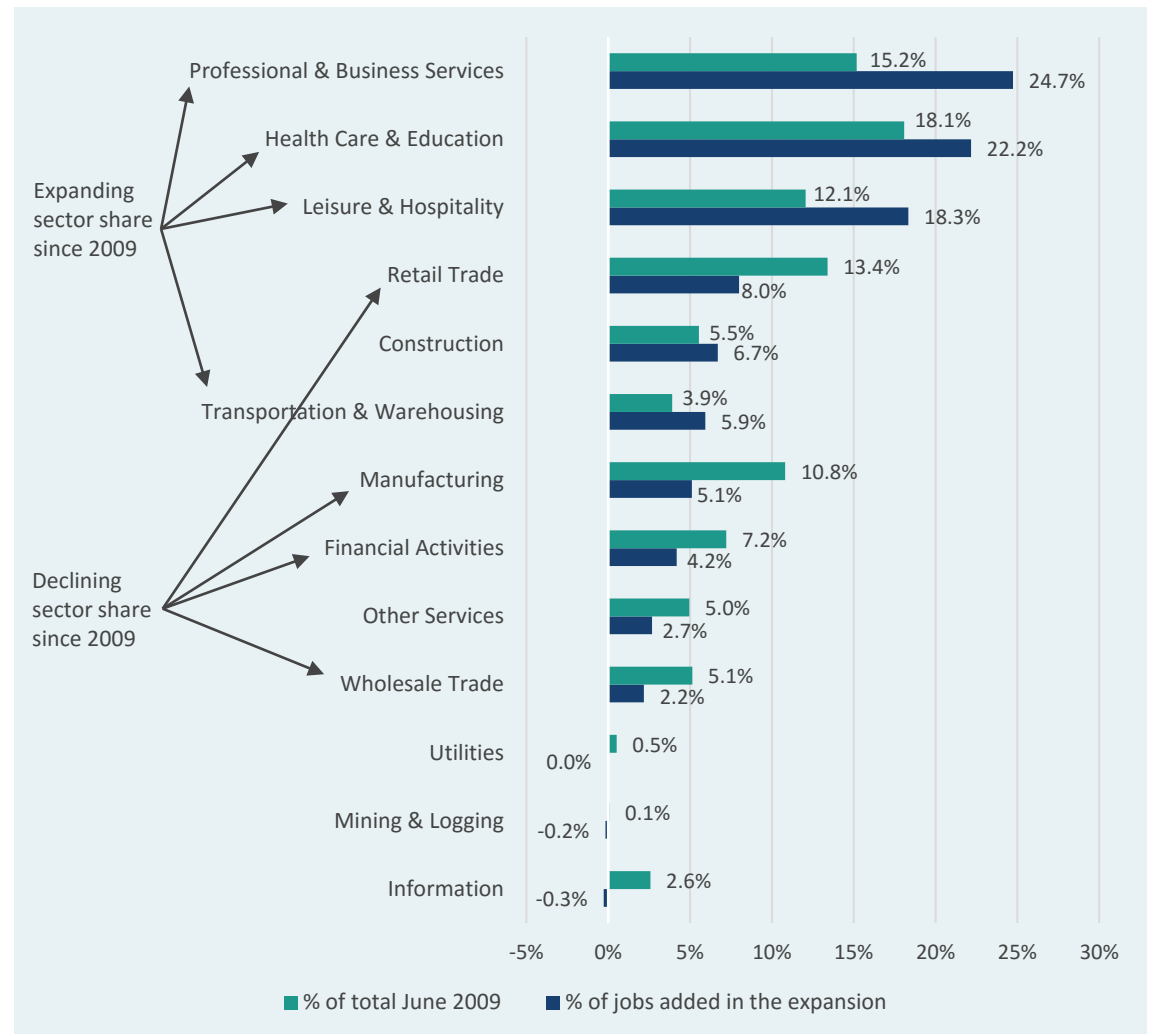
# Job creation since the financial crisis

Since the end of the global financial crisis, the U.S. has added more than 17 million workers to the labor force and the unemployment rate has fallen from 9.9% to 4.1%. During this time the composition of the workforce has changed.

Three broad sectors have experienced outsized gains in employment compared to their sizes in June of 2009: Professional and Business Services, Health Care & Education, and Leisure & Hospitality.

Disproportionate gains in the last two sectors have led some to question the quality of jobs that are being added because they are typically low paid positions. On average, Leisure & Hospitality jobs receive \$15.74 per hour, compared to the national average of \$26.75. The changing sector composition is likely one of many structural factors (i.e. globalization and automation) limiting wage growth in the current cycle.

This exercise also created a useful lens to view recent employment trends in terms of the cyclicality of each sector. Manufacturing and construction have historically been the most cyclical sectors and are both growing above trend over the past year, indicating a recent pickup in hiring. This data confirms acceleration in manufacturing surveys, such as PMIs.



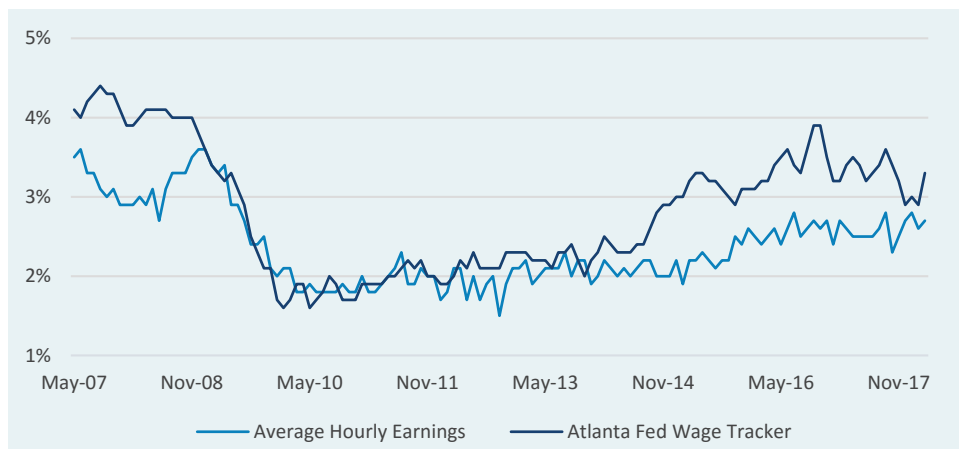
Source: FRED, as of 2/28/18

# Wages

Muted wage growth has been heavily scrutinized during the expansion due to its historically strong relationship with the unemployment rate. Although wage growth has accelerated over the past few years, we have yet to experience a material rise in wages that would be consistent with a tight labor market. The broad unemployment rate (U-6, 8.0%) implies wage growth of around 4.5% versus actual wage growth of 3.3% based on a historical regression analysis. Much like our view on overall inflation, we believe cyclical forces may place modest upward pressures on wages, but at a gradual pace.

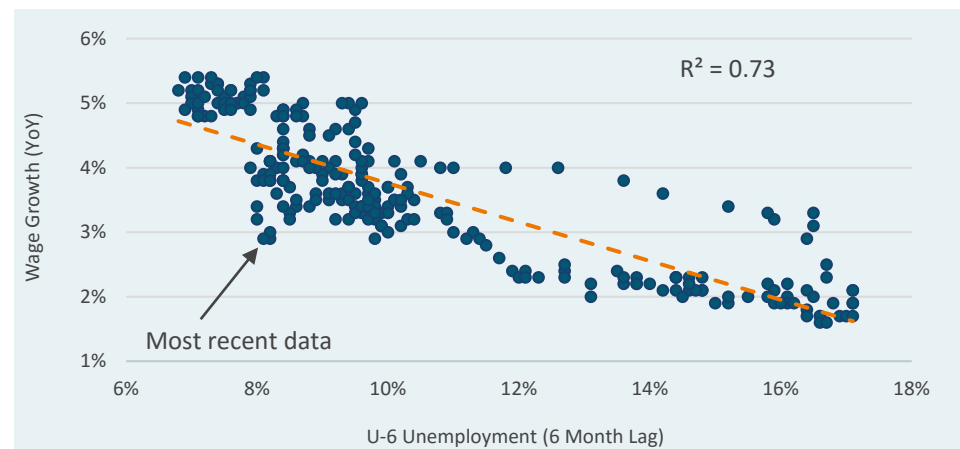
An interesting development during the quarter was a shift in the market narrative surrounding wage growth. In January, a positive surprise in average hourly earnings (mainly caused by a fall in aggregate hours worked during the month) sparked concerns that a faster rate of growth might result in quicker-than-expected monetary tightening. The surprise coincided with a material increase in Treasury yields, although many factors likely influenced these moves. Earlier in the expansion, many market participants voiced concerns that low wage growth was a potential indicator of economic weakness.

## WAGE GROWTH (YOY)



Source: Bloomberg, Atlanta Fed, as of 3/31/18 (see appendix)

## RELATIONSHIP BETWEEN WAGES AND UNEMPLOYMENT



Source: Bloomberg, Atlanta Fed, Verus, as of 3/31/18

# The consumer

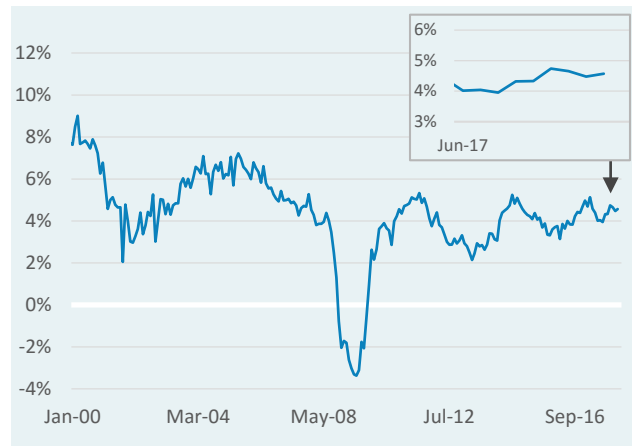
The U.S. continues to be in a *middle-of-the-road* expansion – characterized as not too fast and not too slow. Moderate improvements in wages and employment, conservative spending and borrowing trends, and rising wealth, indicate a sustainable environment going forward for the American consumer.

Current U.S. spending trends appear in-line, or a bit more conservative, than previous economic expansions. Behavior may be partly explained by a more timid pace of employee

wage growth, as well as not-too-distant memories of hardships experienced during the U.S. housing bubble.

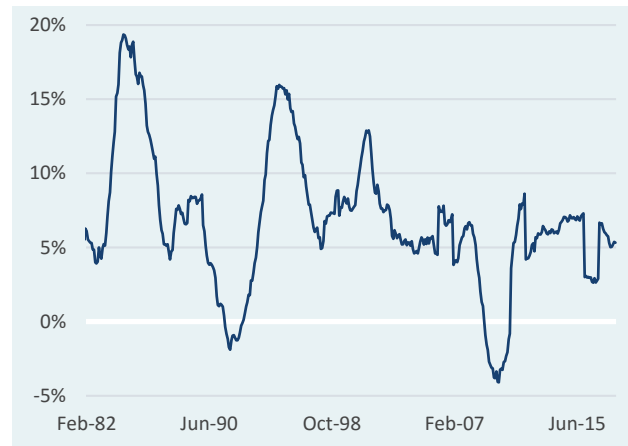
If interest rates continue to rise, this will likely act as a headwind to consumer spending as it becomes more expensive to borrow. Historically, spending patterns tend to ebb and flow through the economic cycle largely through the use of credit (i.e. credit cards, auto loans, home loans).

CONSUMER SPENDING (YOY GROWTH)



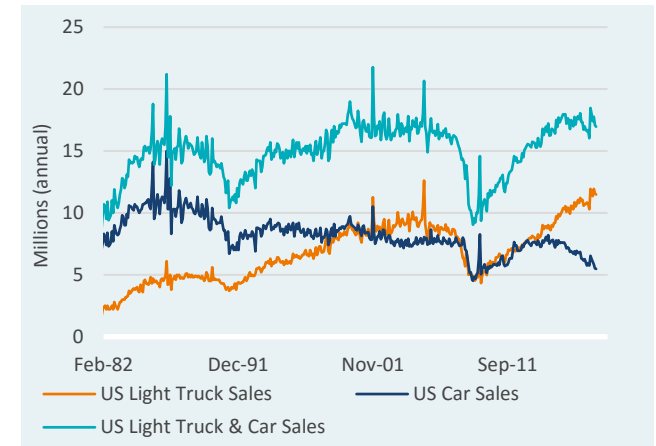
Source: Bloomberg, as of 2/28/18

CONSUMER CREDIT GROWTH (YOY)



Source: FRED, as of 1/31/18

AUTO SALES



Source: Bloomberg, as of 2/28/18

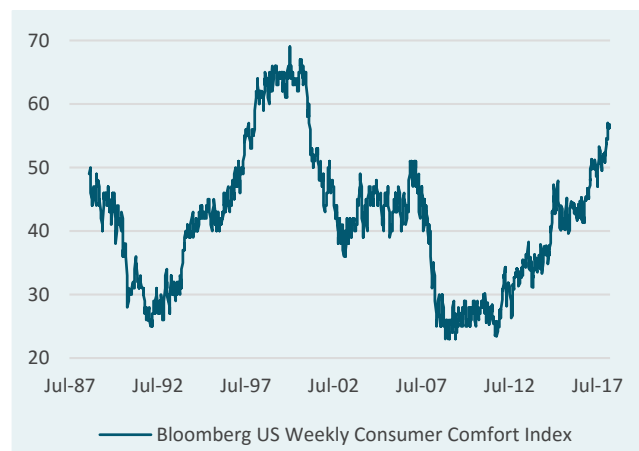
# Sentiment

Consumer and business sentiment surveys further improved over the quarter and are now at or above levels of the latest 2001-2007 U.S. economic cycle. The University of Michigan Consumer Sentiment Index now sits at 101.4, which places it in the 91<sup>st</sup> percentile relative to its own history, since 1978. Consumers' perception of current economic conditions (employment and wage prospects) are at their highest level since the late 1990s. The Bloomberg Consumer Comfort Index has risen to levels last seen in 2001.

The NFIB Small Business Optimism Index was 107.4 at the end of the quarter – near a record high, although there was a significant drop in businesses' expectations for the economy. The net number of firms that expect the economy to improve fell from 43% to 32% in March, but this figure was still near historical highs.

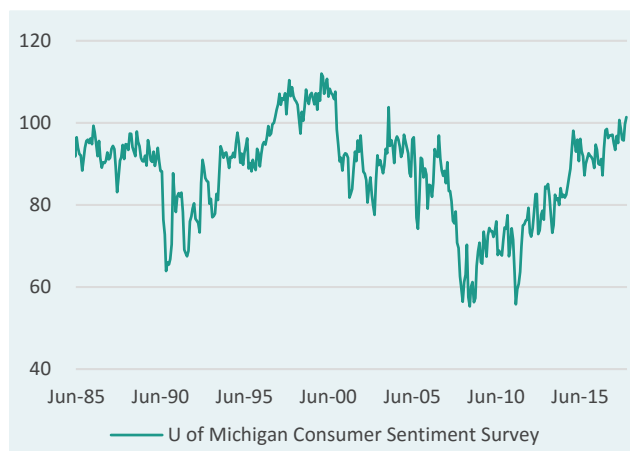
Consumers and small businesses have a positive outlook on the U.S. economy

CONSUMER COMFORT INDEX



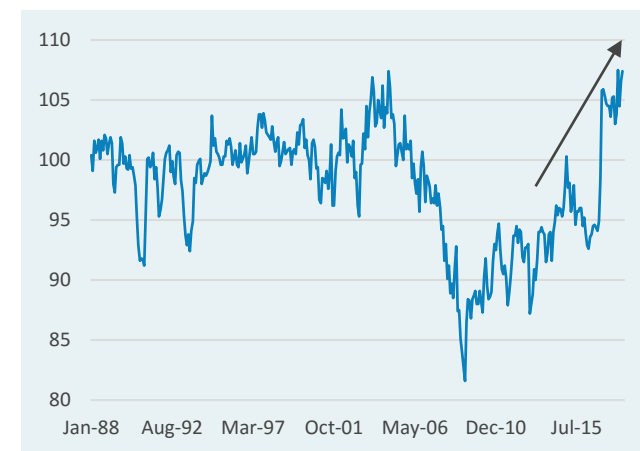
Source: Bloomberg, as of 3/25/18 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/18 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 2/28/18 (see Appendix)

# Housing

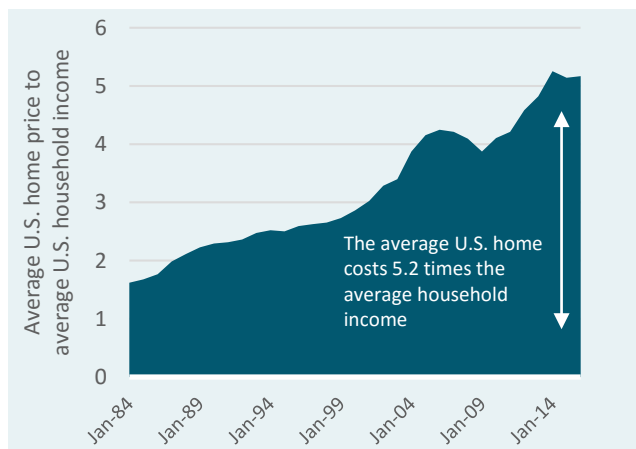
U.S. home prices rose 6.2% YoY, as of January, according to the Case-Shiller National Home Price Index.

Following the U.S. 2008 housing crisis, a combination of lower home prices and ultra-low interest rates made home ownership very affordable. These conditions eventually helped to bring back demand for homes and supported a rise in prices. Today, the price of an American home has returned to, and surpassed, pre-crisis levels. The average U.S. home costs more than 5 times the average household income, which has made purchasing a home increasingly difficult.

This affordability problem could be compounded further if interest rates rise and push mortgage interest rates upward.

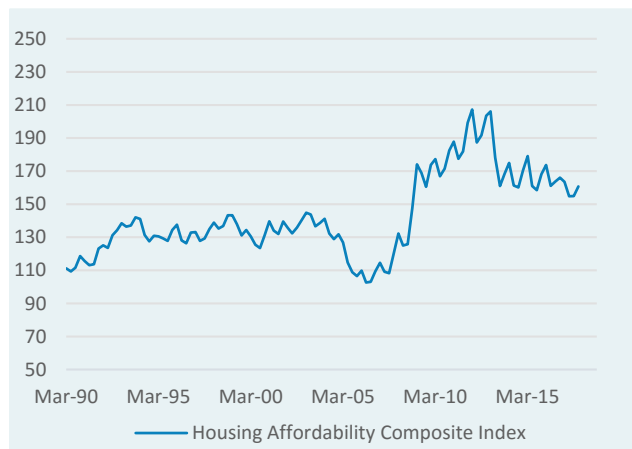
Rising home prices have lopsided effects on consumers. Higher prices add to the wealth of existing homeowners and land owners initially, but also lead to higher property taxes. For prospective homeowners, higher prices translate to a larger required down payment, greater mortgage payments, higher property taxes, and therefore a greater overall drag on standard of living.

**HOME PRICE RELATIVE TO HOUSEHOLD INCOME**



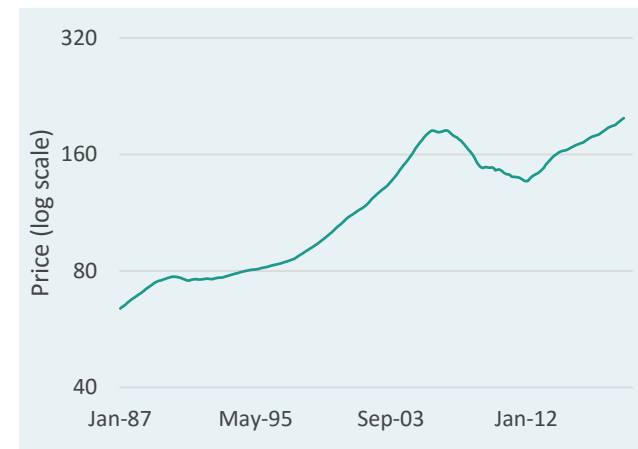
Source: FRED, 2016 census data

**HOUSING AFFORDABILITY**



Source: National Association of Realtors, as of 12/31/17

**U.S. HOME PRICE INDEX**



Source: Case-Shiller National Home Price Index, as of 2/28/18

# International economics summary

- International economic growth was strong across countries in the fourth quarter, but a combination of recent economic data coming in below expectations and trade concerns created risks to the synchronized global growth narrative.
- The U.S. implemented 25% and 10% tariffs on steel and aluminum imports, respectively. When the tariffs were initially announced the White House pushed for all countries to be subject to them. However, many countries, such as Canada and Mexico, were given exemptions to allow for ongoing negotiations.
- In April, concerns over trade shifted to escalating tensions between the U.S. and China.
- The Eurozone experienced above-trend growth in the fourth quarter at 2.7% YoY, driven by contributions from household spending and fixed capital investment.
- Economic data out of the Eurozone consistently missed expectations in the first quarter. Industrial production was particularly disappointing – the year-over-year rate fell from 5.2% in December to 2.9% in February.
- Global PMIs remained above 50, indicating expansion in the manufacturing sector, although several countries experienced a decline. The Eurozone PMI fell from 60.8 to 56.6 during the quarter.
- The populist Five Star Movement performed better than expected in the Italian general election in March, winning the most seats of any party. However, no party won a majority in Parliament, resulting in the need to form a coalition government. Increasing support for populist governments (i.e. Hungary and Poland) across Europe remains a risk to investors.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.5% 12/31/17	2.4% 3/31/18	4.1% 3/31/18
Western Europe	2.5% 12/31/17	1.3% 3/31/18	7.4% 12/31/17
Japan	2.0% 12/31/17	1.5% 2/28/18	2.5% 2/28/18
BRICS Nations	6.2% 12/31/17	2.6% 3/31/18	5.6% 12/31/17
Brazil	2.1% 12/31/17	2.7% 3/31/18	12.4% 3/31/18
Russia	0.9% 12/31/17	2.4% 3/31/18	5.0% 2/28/18
India	7.2% 12/31/17	4.4% 2/28/18	8.8% 12/31/17
China	6.8% 12/31/17	2.1% 3/31/18	3.9% 12/31/17

# International economics

International economic growth continued its upward trend, particularly in emerging countries, where a weaker dollar, higher commodity prices, and stronger external demand has been supportive. Additionally, inflation in emerging economies decelerated to 3.0% in 2017, allowing central banks to cut interest rates. Collectively, the BRICS countries grew by 6.2% in the fourth quarter, the fastest pace since 2012.

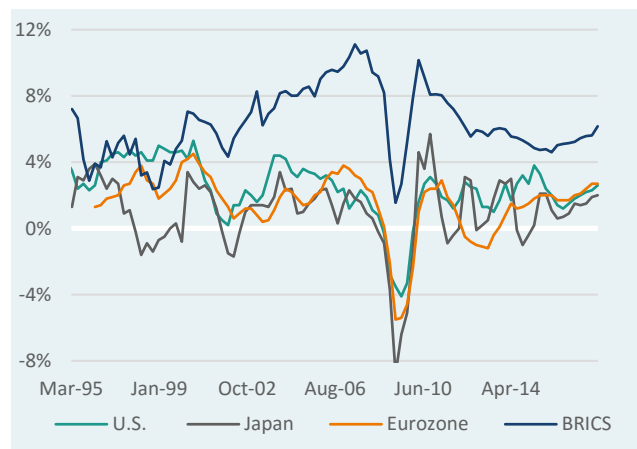
The narrative on international developed economies did not materially change during the quarter – growth accelerated,

inflation remained low, and central banks provided support, but contemplated exit strategies. While inflation is starting to show modest signs of life in the U.S., the Eurozone and Japan are still experiencing inflation well below 2%. In February, year-over-year core CPI growth was 1.0% in both economies.

The European Central Bank continues to express plans to end asset purchases in September and begin raising interest rates sometime next year. The pace of interest rate hikes will likely be heavily dependent on inflation and market reaction to tightening.

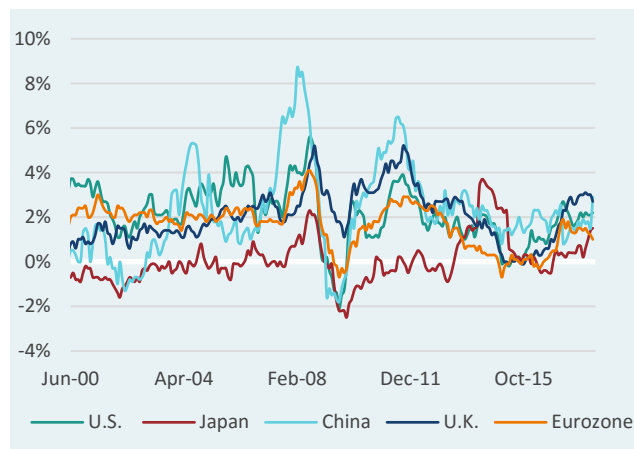
**Economic growth improved, especially in emerging markets**

**REAL GDP GROWTH (YOY)**



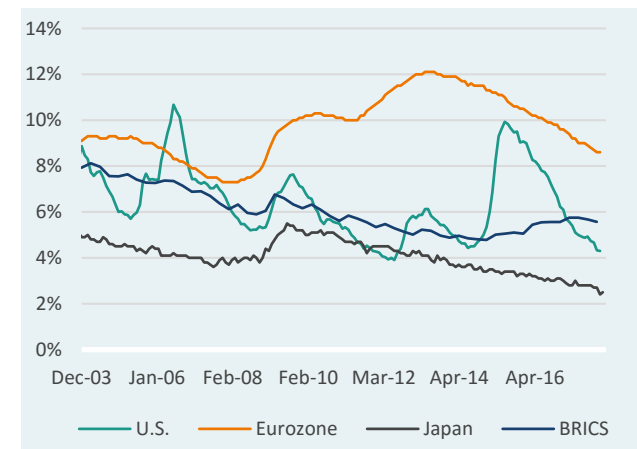
Source: Bloomberg, as of 12/31/17

**INFLATION (CPI)**



Source: Bloomberg, as of 2/28/18

**UNEMPLOYMENT**



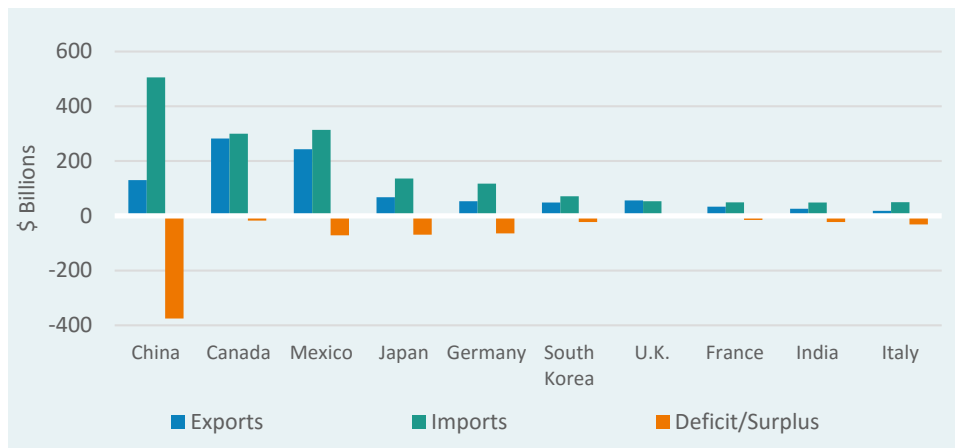
Source: Bloomberg, as of 1/31/18 or most recent release

# International trade

The U.S. has enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23<sup>rd</sup>, though many U.S. trade partners have been exempted. The U.S. is engaged with China over the significant U.S.-China trade deficit, allegations of China's asymmetrical trade barriers, and the long-term issue of theft of U.S. intellectual property by Chinese companies. The actions of the U.S. administration have stoked fears of a global trade war. While it is broadly agreed that tariffs have a net negative impact on global growth, many hold the view that the U.S. should address these long-running trade issues with China. The motivations and strategy behind the U.S. administration's actions are not yet fully known, but it should not be assumed that the outcome of this process will be negative for the U.S. or the global economy.

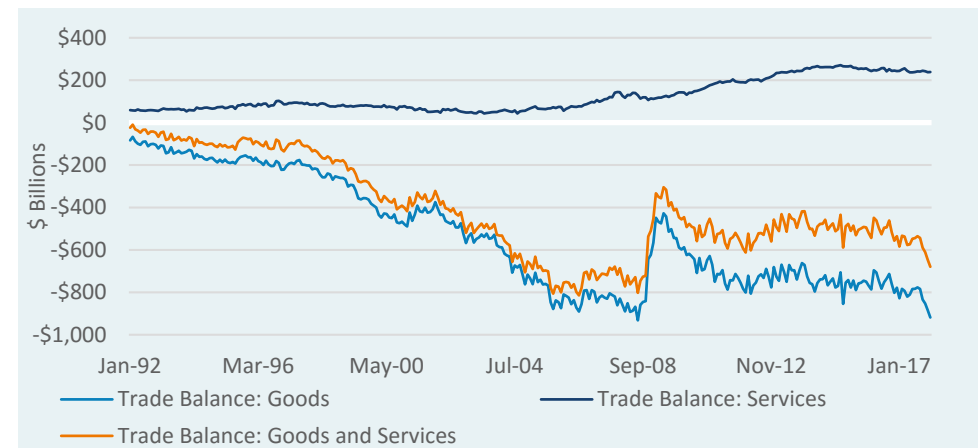
Steel and aluminum represent a small portion of total U.S. imports. On a standalone basis, the economic impact of these tariffs will likely be small. The risk of escalation seems to be the market's primary concern. China-U.S. trade amounts to approximately \$650 Billion annually.

## U.S. TRADE BALANCE



Source: U.S. Census Bureau, 2017

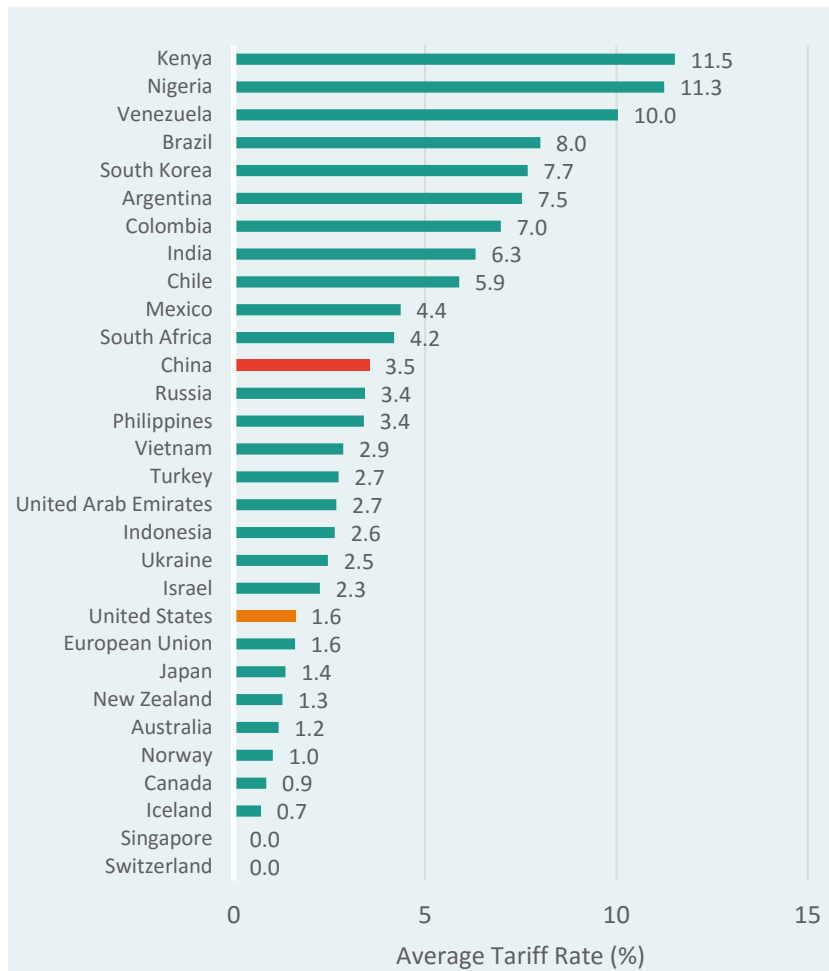
## U.S. TRADE – GOODS & SERVICES (ANNUALIZED)



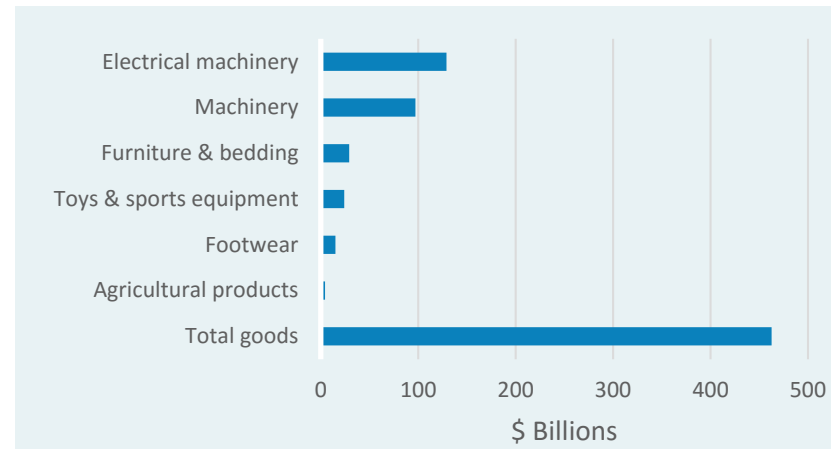
Source: FRED

# International trade

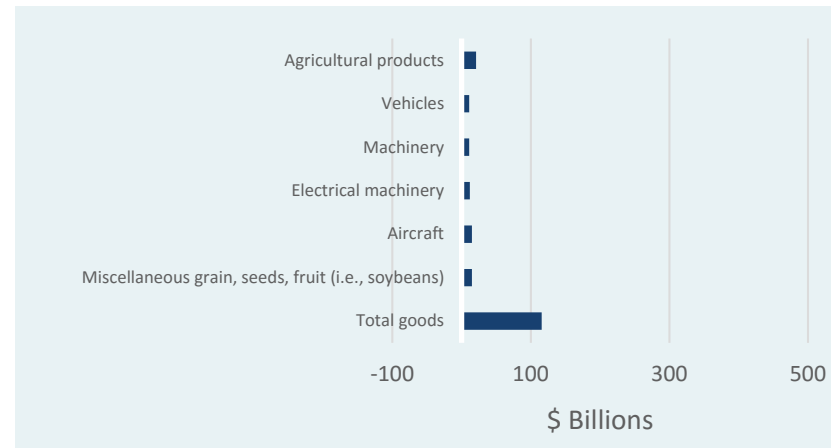
## GLOBAL TARIFFS



## CHINA EXPORTS TO U.S.



## U.S. EXPORTS TO CHINA



Source: World Trade Organization, 2016

# Fixed income rates & credit

# Interest rate environment

- The Fed raised interest rates by 25 bps to a target range of 1.50% - 1.75% in March, as expected. In his first public comments since taking over as Fed chairman, Jerome Powell's views appeared to support a continuation of gradual monetary tightening.
- According to the Fed dot plot, officials are expecting two additional rate hikes this year, on par with market pricing.
- Long-term Treasury yields rose at the beginning of the year, likely influenced by increasing growth and inflation expectations. The 10-year yield peaked at 2.95% in late February, up 55 bps from year-end. Yields failed to hold these levels, however, and finished the quarter at 2.74%.
- Short-term borrowing costs continued to rise during the quarter, especially in debt tied to Libor. The 3-month USD Libor rate moved steadily higher from 1.7% to 2.3%. Much of this increase was likely mechanical due to record high Treasury bill issuance and repatriation of foreign profits.
- Sovereign yields in developed Europe also ticked up in January, coinciding with yield increases in U.S. Treasuries, but came back down in the last two months of the quarter. German 10-year yields peaked at a two year high of 0.77% in early February before finishing the quarter at 0.50%.
- Developed international central banks remain accommodative compared to the Fed, but they have increasingly hinted towards policy normalization. The ECB is likely next in line to begin monetary tightening by ending asset purchases and raising rates sometime next year. The BOJ has yet to provide any details on ending its stimulus program, but officials have noted internal discussions have begun.

Area	Short Term (3M)	10 Year
United States	1.70%	2.74%
Germany	(0.75%)	0.50%
France	(0.58%)	0.72%
Spain	(0.50%)	1.16%
Italy	(0.43%)	1.79%
Greece	1.31%	4.32%
U.K.	0.49%	1.35%
Japan	(0.17%)	0.04%
Australia	2.03%	2.60%
China	3.12%	3.77%
Brazil	6.31%	9.50%
Russia	6.01%	7.16%

Source: Bloomberg, as of 3/31/18

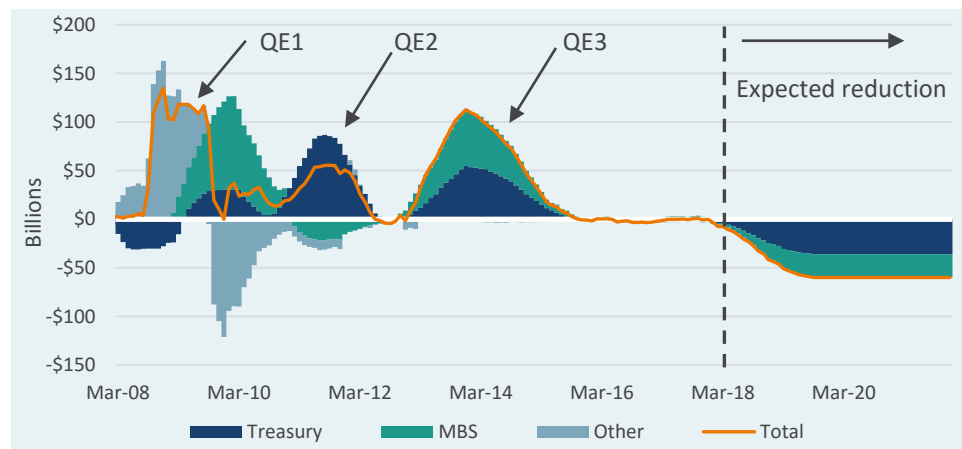
# Fed tightening

In Jerome Powell's first meeting as chairman, the Fed hiked interest rates by 25 bps to a target range of 1.50% - 1.75%, as expected. The Fed's forecast for future hikes shifted up slightly based on the dot plot, but Powell's messaging appeared to be similar to the precedent set by Yellen – slow and gradual rate increases coinciding with firming inflation that will eventually reach the 2% target. Markets priced in 25 bps of additional tightening for 2018 during the quarter, and pricing is now on par with Fed expectations of two more rate rises this year. The balance sheet reduction has gone as planned, but we are likely too early in the process to gain insight into its market impact.

The Fed has intentionally tightened slowly, and markets have been able to digest the 150 bps of rate increases thus far. This is consistent with the beginning of past Fed tightening cycles where economic fundamentals were strong. As we move further down this path, additional increases in discount rates will have an increasing impact on the economy and risk assets. However, we believe the Fed will continue to be patient, barring a material change in the inflation environment.

Fed tightening has gone as expected

## FED BALANCE SHEET FLOW (12-MONTH CHANGE)



Source: Federal Reserve, as of 3/31/18

## FED FUND EXPECTATIONS



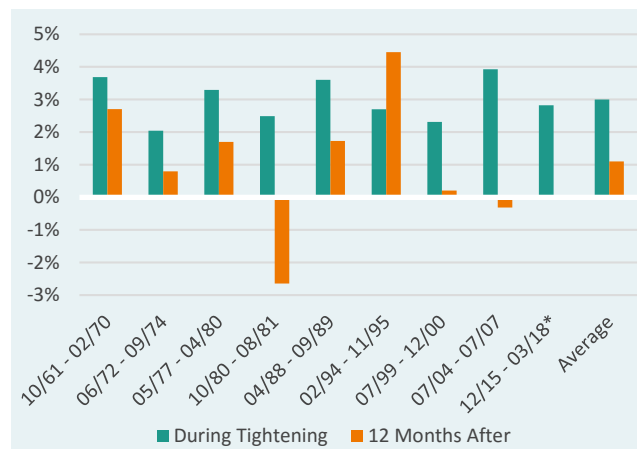
Source: Bloomberg, Federal Reserve as of 3/31/18

# The history of monetary tightening

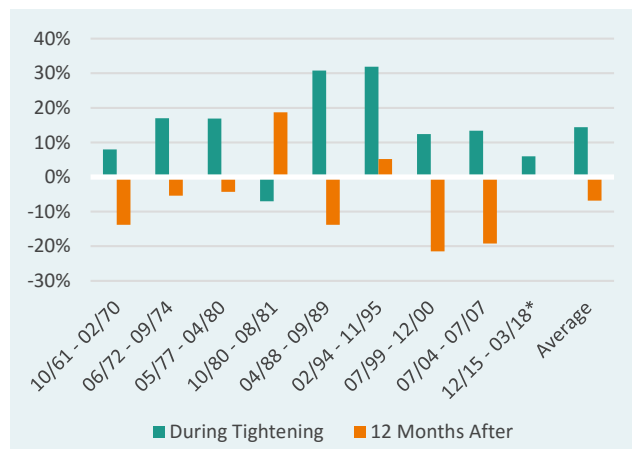
The difficulty of assessing the potential effect of monetary tightening lies in the fact that there are relatively few historical observations to analyze. Since 1959, the Fed has only tightened policy nine times, including the current period which began in December of 2015. There are also unique circumstances in each period, such as the balance sheet reduction coinciding with interest rate increases in this cycle. We looked at three variables: GDP growth, equity earnings growth, and equity performance to get a better understanding of how Fed tightening has historically impacted the economy and financial markets.

As one might expect, GDP growth has been stronger during Fed tightening than in the 12 months following. The same relationship has occurred with equity earnings. This is most likely because the Fed is reacting to underlying economic data rather than driving it. When the economy heats up, the Fed hikes interest rates to avoid overheating, and then stops when things turn over. Equity returns reveal a much more interesting, but muddier picture. On average, equity returns have been higher in the 12 months after tightening than during, although in three of the eight previous periods, equities have experienced a 10% correction.

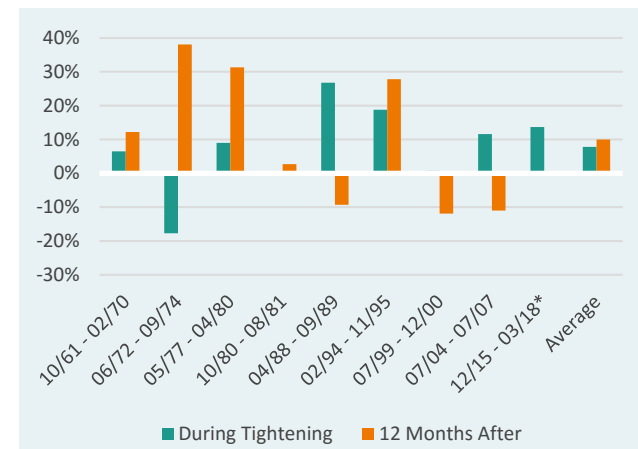
**REAL GDP GROWTH**



**S&P 500 EARNINGS GROWTH**



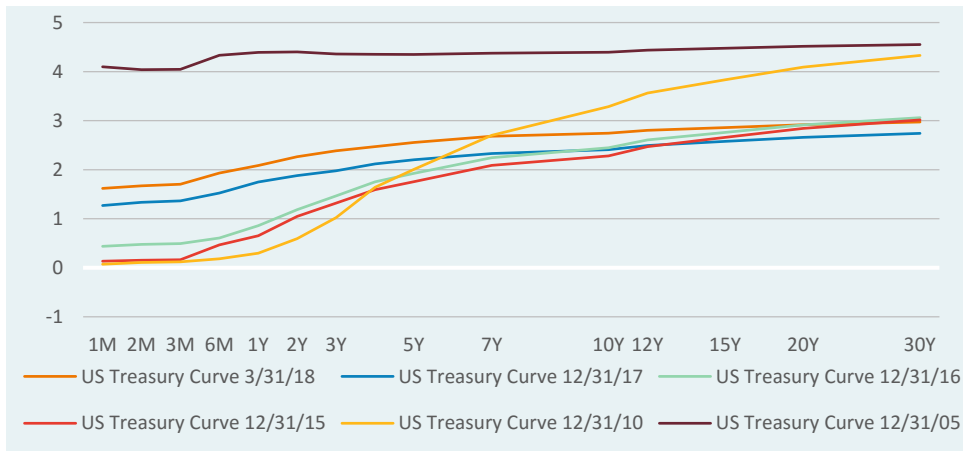
**S&P 500 PERFORMANCE**



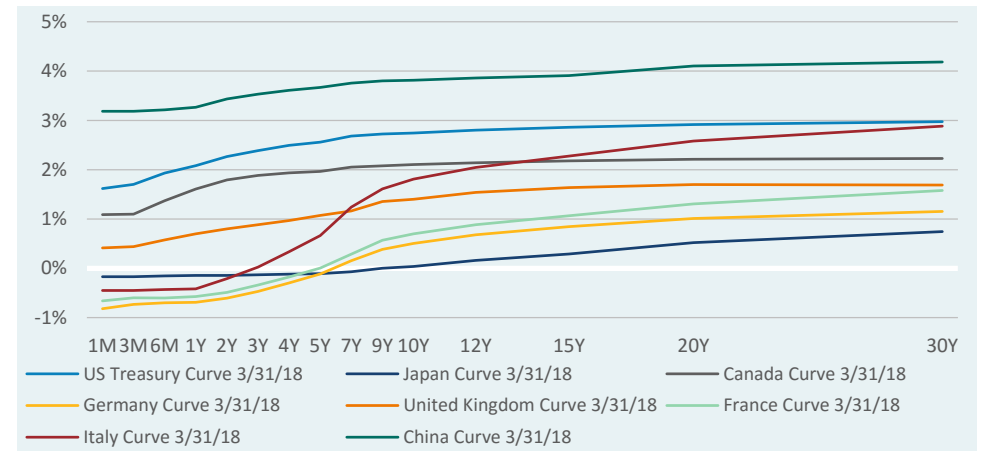
Source: Bloomberg, Verus, analysis started in 1959, all growth calculations are annualized using monthly (earnings/equity performance) or quarterly (GDP) data

# Yield environment

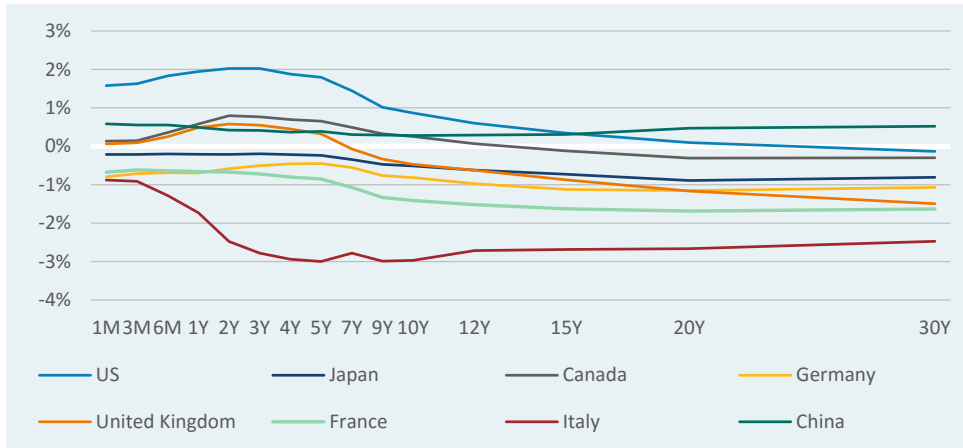
## U.S. YIELD CURVE



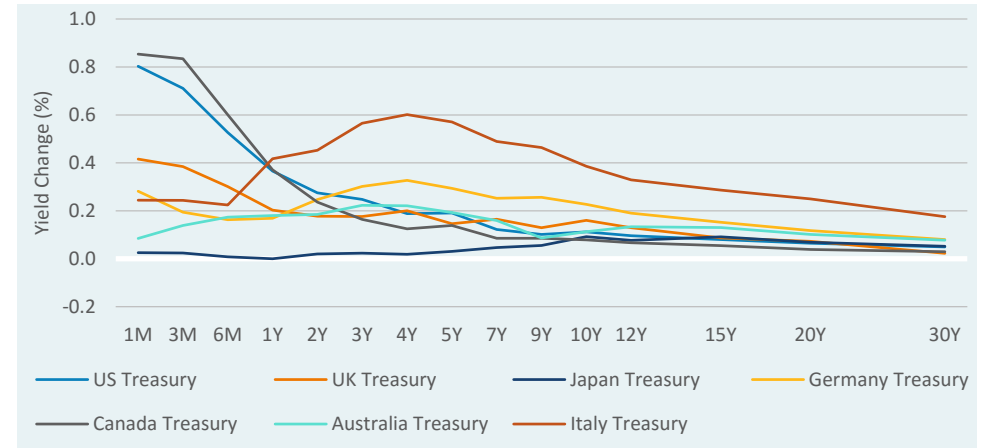
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/18

# Credit environment

Credit spreads in both leveraged loans and high yield have continued to be tight, sitting well below their historic averages. Leveraged loan prices were relatively immune to equity volatility in February. Loans have outperformed high yield year-to-date with an absolute return of 1.6%, driven by strong issuance and demand. LIBOR has steadily risen since 2016, surpassing the LIBOR floors that exist in senior loans, causing them to be fully floating-rate instruments.

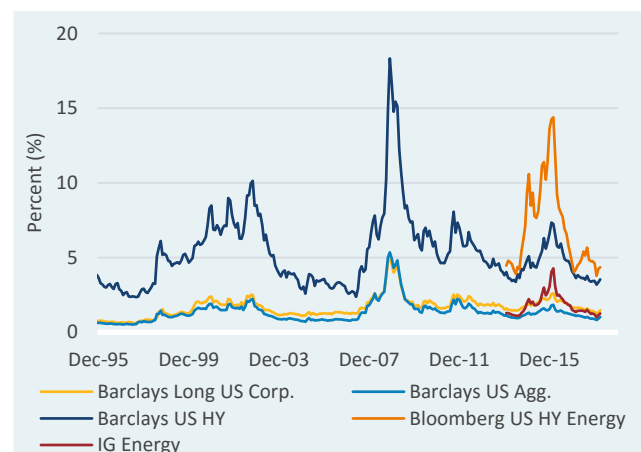
U.S. high yield option-adjusted spreads widened slightly in the

first quarter to 3.5%, with the asset class generating a -0.9% total return for the quarter. Tight credit spreads in both high yield and loans have been driven by strong corporate fundamentals, manageable debt maturities and general macroeconomic improvement. Credit spreads have historically been a good indicator of future performance relative to Treasuries.

Based on low interest rates and tight spreads, we recommend an underweight to U.S. investment and high yield credit.

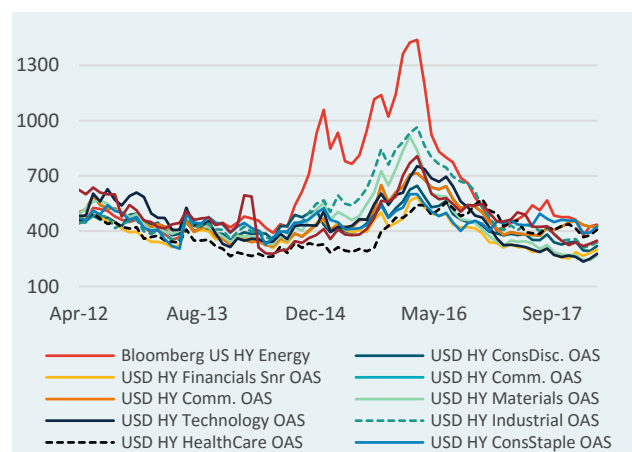
Credit spreads are tight across the capital structure

## SPREADS



Source: Barclays, Bloomberg, as of 3/31/18

## HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/18

Market	Credit Spread (3/31/18)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	1.1%
US Aggregate	1.0%	1.1%
US High Yield	3.5%	3.8%
US Bank Loans	3.5%	3.8%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/18

# Issuance and default

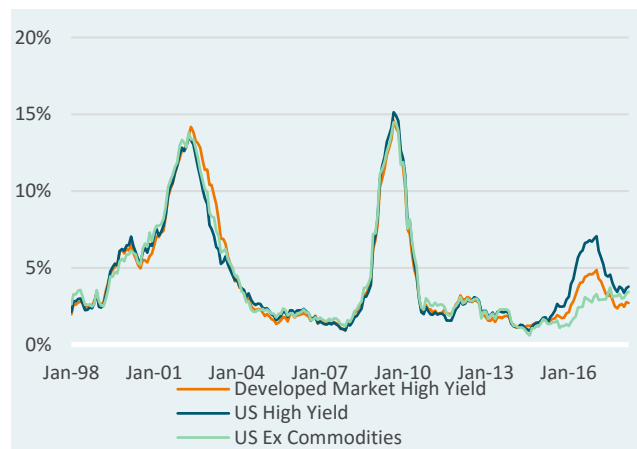
Default activity remains low and stable in the U.S. and international credit markets. The par-weighted U.S. default rate remains below its long-term average of 3.0-3.5% and is currently at 2.4%. In the first quarter, 27% of total defaults have been in the retail sector, followed by energy and broadcasting.

Issuance in bonds and loans both increased in 2017. New issue spreads continue to compress with strong demand supported by significant retail and institutional inflows into the both high yield and senior loan asset class, as well as CLO formation.

Default volume remains below long-term averages

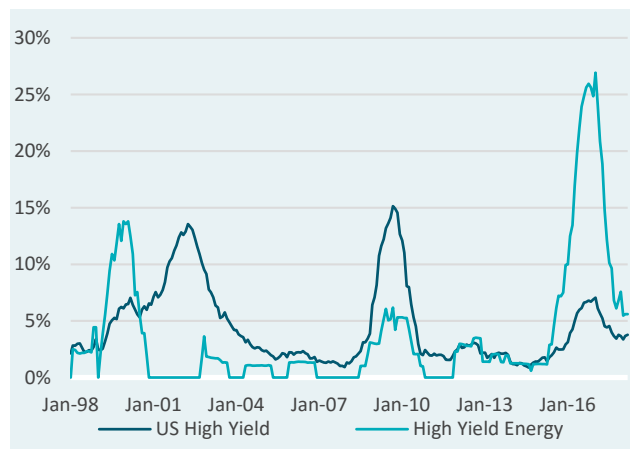
Senior loan and high yield markets are recovering from a wave of defaults that were generated from energy and metals/mining sectors in 2015-2016. Recovery rates for high yield bonds have vastly improved since year-end 2016.

HY DEFAULT TRENDS (ROLLING 1 YEAR)



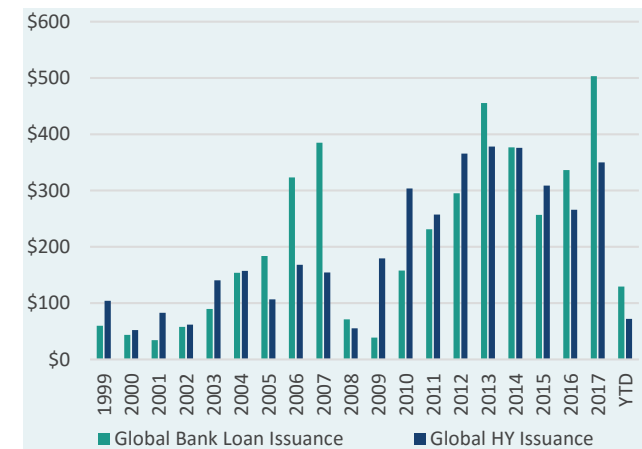
Source: BofA Merrill Lynch, as of 3/31/18

ENERGY DEFAULT TRENDS



Source: BofA Merrill Lynch, as of 3/31/18

GLOBAL ISSUANCE (BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/18

# Equity

# Equity environment

- We maintain an overweight position to equities primarily due to enthusiasm for emerging markets. Though the February market correction dampened investor excitement, it is helpful to remind ourselves that 10% equity drawdowns are fairly common.
- Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact.
- 2018 is expected to be a banner year for U.S. corporate profits. Earnings for the year are forecast to grow 17.3%, with revenue growth of 7.3% according to Factset - a rare and impressive year for U.S. businesses. A continuation of this trend would be supportive of equity performance.
- Equity valuations (price-to-earnings multiples) fell to more attractive levels in Q1 due to the combination of lower equity prices and strong earnings growth.
- Equity volatility has remained extremely low since the beginning of 2017. However, the equity drawdown and volatility spike in February appears to have ended this period of calm. Investors might expect a more normal volatility environment going forward.
- Currency movement has contributed to volatility and great return disparity for investors with unhedged investments in international assets. A hedging program could allow investors to reduce or eliminate uncompensated currency risk.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(2.0%)		(2.0%)		12.4%	
US Small Cap (Russell 2000)	(1.1%)		(1.1%)		10.5%	
US Large Value (Russell 1000 Value)	(4.0%)		(4.0%)		5.6%	
US Large Growth (Russell 1000 Growth)	(0.1%)		(0.1%)		19.3%	
International Large (MSCI EAFE)	(1.6%)	(3.8%)	(1.6%)	(3.8%)	14.4%	7.1%
Eurozone (Euro Stoxx 50)	(0.5%)	(3.2%)	(0.5%)	(3.2%)	18.0%	0.3%
U.K. (FTSE 100)	(3.8%)	(6.9%)	(3.8%)	(6.9%)	11.9%	1.2%
Japan (NIKKEI 225)	0.6%	(5.3%)	0.6%	(5.3%)	20.9%	15.2%
Emerging Markets (MSCI Emerging Markets)	1.2%	0.4%	1.2%	0.4%	23.1%	20.4%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/18

# Domestic equity

U.S. equities delivered a loss in Q1 (Russell 1000 -2.0%) - a change of pace from steady and strong gains in 2017. Equity indexes around the world fell between 8-12% in early February as the recent bull run was interrupted. Since the selloff, most markets have been rangebound but relatively flat overall. Volatility seems to have returned to the markets as sizable day-to-day swings have been the norm.

While large price movements tend to naturally cause

investor fear, it is not apparent that the attractive macro picture has changed – i.e. positive economic growth, very strong earnings gains, and healthy sentiment. Equity prices typically follow growth and corporate profit trends over the medium and long-term term, which likely provides some support against larger downside equity movement.

However, the February selloff has dampened recent positive upward price momentum. Momentum is now more neutral as market prices flatten out.

Fundamentals appear unchanged despite falling prices

## U.S. EQUITIES



Source: Russell Investments, as of 3/31/18

## EARNINGS GROWTH



Source: S&P 500, as of 3/31/18

## S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 3/31/18

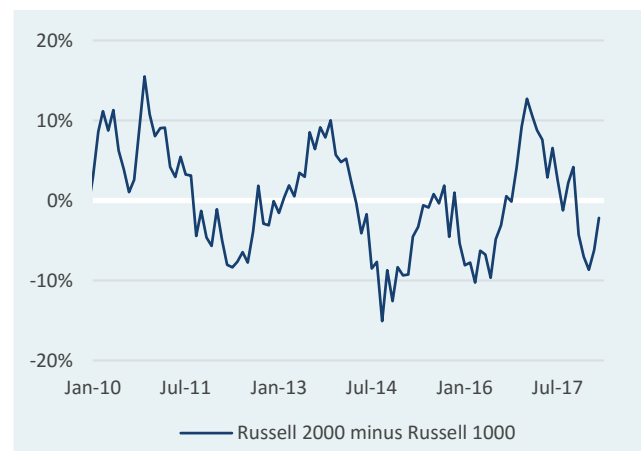
# Domestic equity size & style

Large cap equities (Russell 1000 -2.0%) lagged small cap equities (Russell 2000 -1.1%) during the quarter. Value stocks delivered exceptionally poor performance in Q1 (Russell 1000 Value -4.0% vs. Russell 1000 Growth -0.1%), dragged down by the energy and materials sectors, which are heavily tilted towards value. Despite a sell-off in mega-cap tech stocks in March due mainly to company-specific issues, such as a data breach at Facebook and President Trump targeting Amazon over its relationship with the U.S. Postal Service, tech was still the best performing sector in the first quarter.

Traditional style factors – small cap and value in particular – have hit a rough patch since the 2008-2009 global financial crisis. It may be helpful to remember that these periods do occur. In fact, there are multiple points in history where the equity small-cap and value premiums delivered negative returns over more than a 10 year period.

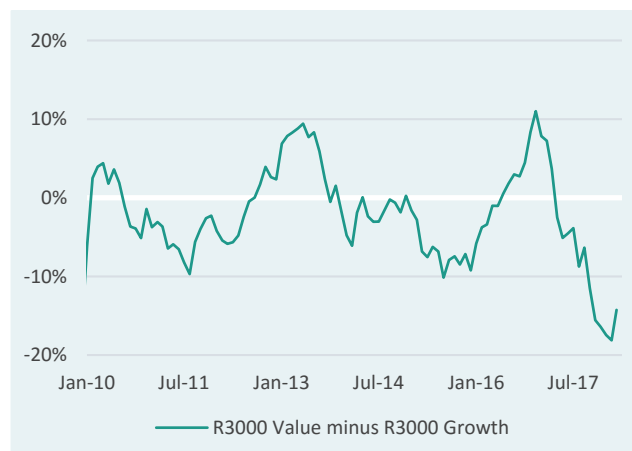
In U.S. equities, value has continued to underperform in recent years, while momentum delivered outperformance alongside the bull market rally.

**SMALL CAP VS LARGE CAP (YOY)**



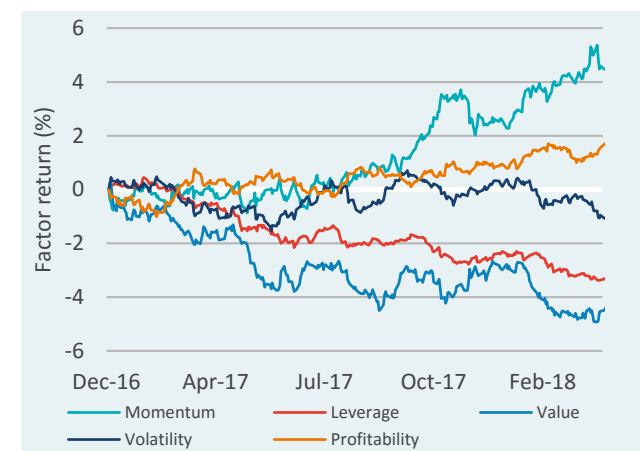
Source: FTSE, as of 3/31/18

**VALUE VS GROWTH (YOY)**



Source: FTSE, as of 3/31/18

**BLOOMBERG FACTOR PERFORMANCE**



Source: Bloomberg, as of 3/31/18

# Hard times for value investing

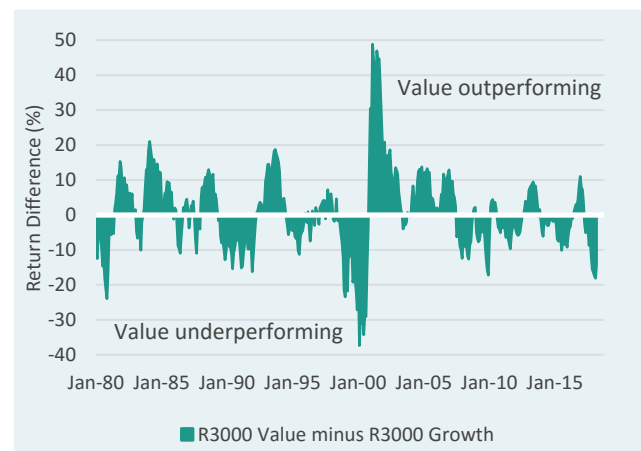
Value equities have underperformed growth equities over the past 10 years. This has occurred only two other times since the 1920's - both periods were followed by a rapid bounce-back in value performance. Is a turning point on the horizon?

Value stocks are concentrated in the financial sector, and growth stocks are concentrated in the technology sector. The global financial crisis led to extreme underperformance of financial stocks, which hurt value. At the same time, technology stocks have fared exceptionally well. These two effects compounded value's underperformance.

The current price difference between value and growth stocks is near the historical average, which is notably different from the most recent bout of value underperformance – the 2001 tech bubble. At that time, growth stocks were anomalously expensive relative to value stocks, which helped explain how value stocks roared back to life after the tech bubble burst.

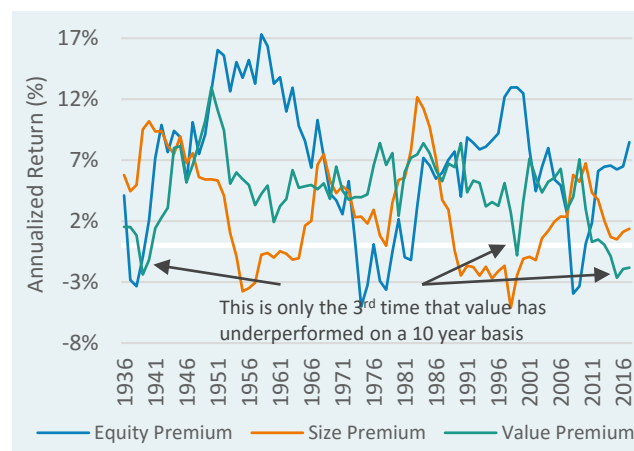
We do not yet see a catalyst for a value comeback. Prices are fairly normal, and the economic environment is positive (growth often performs well during later stages of economic expansions). We recommend that value investors stay the course. Timing factors over the short term is and will always be difficult.

**U.S. VALUE PERFORMANCE (1YR ROLLING)**



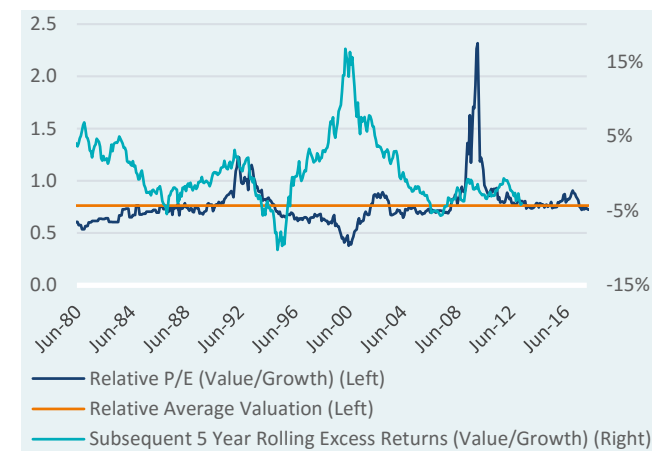
Source: FTSE, as 3/31/18

**U.S. VALUE PERFORMANCE (10YR ROLLING)**



Source: Fama French Library, as of 2/28/18

**VALUE VS GROWTH - P/E MULTIPLES**



Source: FTSE Russell, Bloomberg, as of 3/31/18

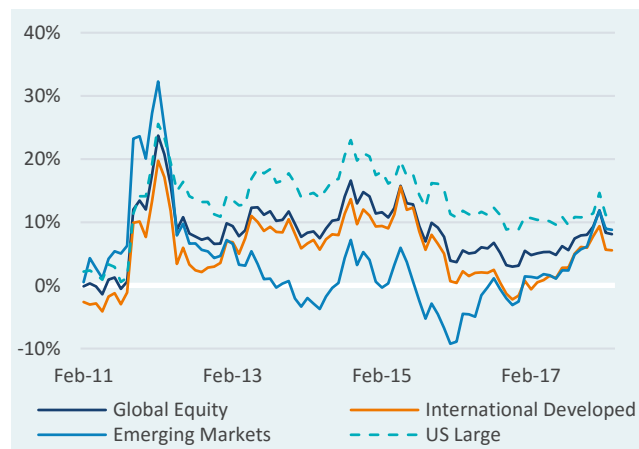
# International developed equity

Unhedged International equities were in line with U.S. equities during Q1, delivering slightly negative performance. The MSCI EAFE Index returned -1.5%. Positive currency returns masked underperformance of local developed market equities. On a hedged basis, the MSCI EAFE Index posted a -3.8% return. Looking forward, accelerating corporate earnings, and more attractive valuations following the February fall in equity prices, may be supportive for another positive year in 2018. Forward one year earnings growth is expected to be around 15%.

Along with the U.S., most developed markets also experienced an approximate 10% drawdown in February, but were not as quick to recover. Most regional benchmarks finished the quarter still 7-10% below recent peaks.

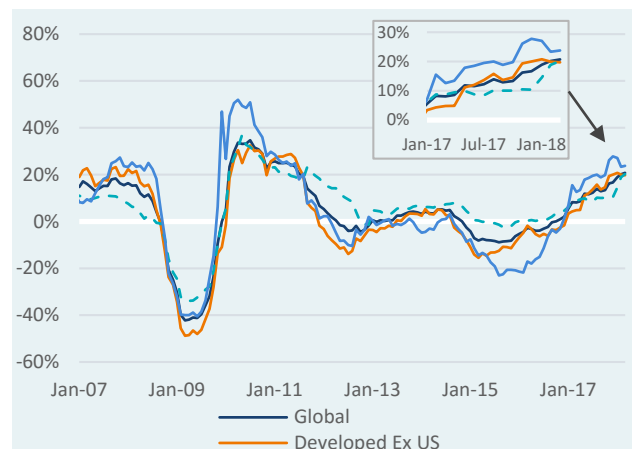
Trailing P/E ratios for the EAFE Index have moved to below average, providing a possible value opportunity. However, downside risks to these markets, including political issues and reliance on central bank support may be a justification for low valuations.

**EQUITY PERFORMANCE (3-YEAR ROLLING)**



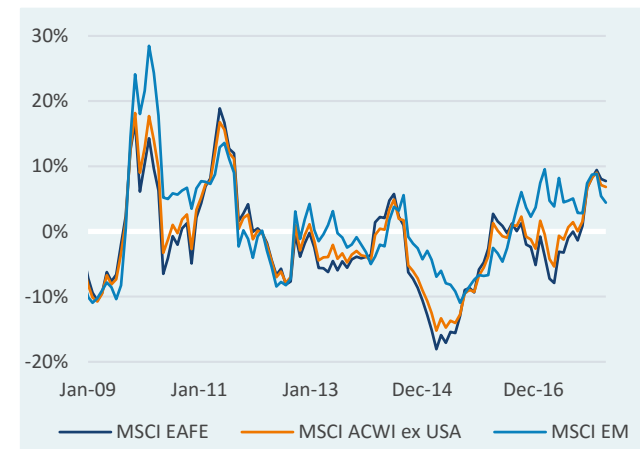
Source: Bloomberg, as of 3/31/18

**EARNINGS GROWTH (YOY)**



Source: MSCI, as of 3/31/18 – YoY growth in forward earnings

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



Source: MSCI, as of 3/31/18

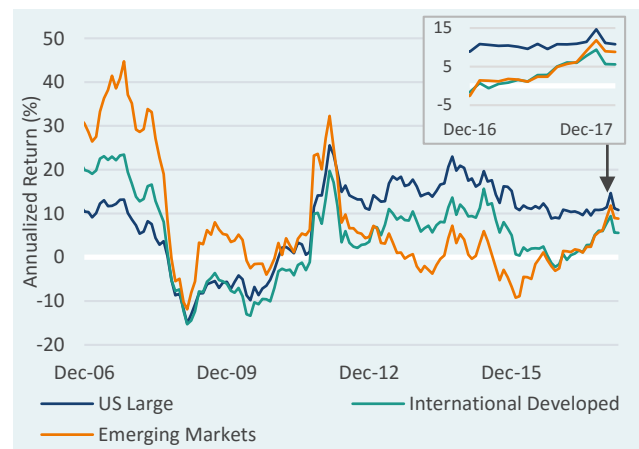
# Emerging market equity

We maintain an overweight to emerging market equities. Emerging market equities have exhibited more modest valuations relative to developed markets such as the U.S., while these economies in aggregate continue to outpace developed economies by a wide margin. Furthermore, emerging market currencies remain depressed relative to history. Cheaper valuations, much stronger economic growth, and a currency tailwind may bode well for future performance.

Emerging economies have led the way over the past year in terms of economic growth, earnings, and equity performance. Emerging market equities have delivered positive performance year-to-date despite the February sell-off (MSCI Emerging Markets +1.2%) while developed markets were in negative territory to end the first quarter.

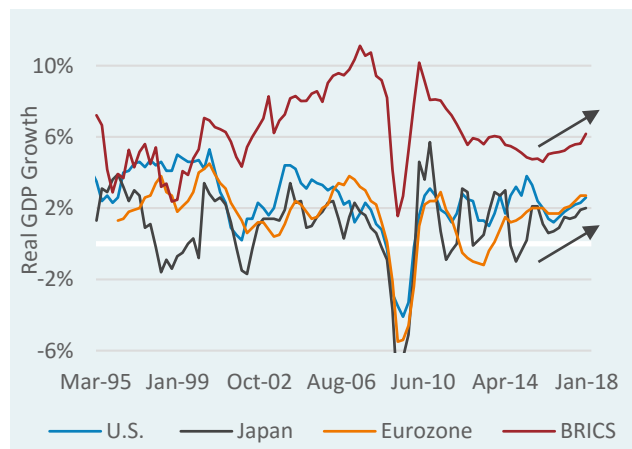
Coordinated global growth has helped propel emerging market equities forward

**EQUITY PERFORMANCE (3YR ROLLING)**



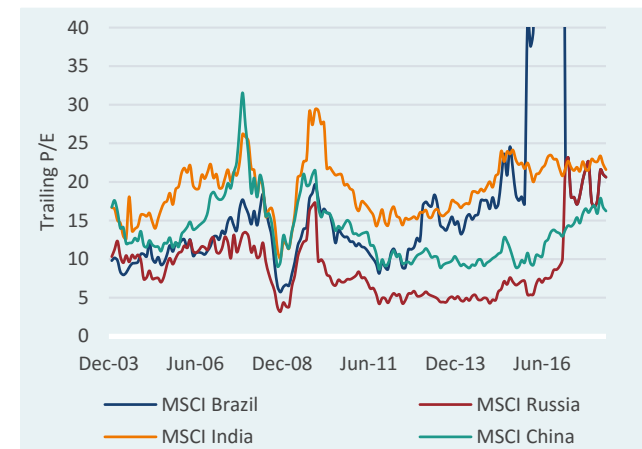
Source: Standard & Poor's, MSCI, as of 3/31/18

**ECONOMIC MOMENTUM**



Source: Bloomberg, as of 12/31/18

**BRIC VALUATIONS**



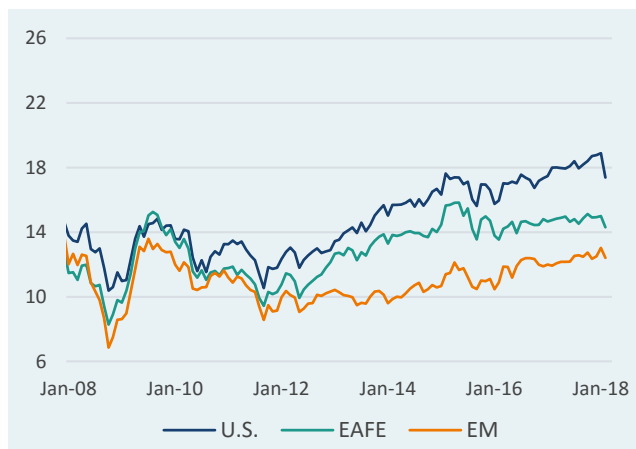
Source: MSCI, as of 3/31/18

# Equity valuations

Equity valuations fell over the quarter due to both a decrease in price and an increase in earnings. International developed equities experienced the biggest contraction in valuations and the trailing P/E ratio (16.5) is now below the median multiple since 1995 (20.0). Price-to-earnings multiples also came down in the U.S., although they remain above average. The trailing 12-month P/E ratio for the S&P 500 Index was 21.3 at the end of March, compared to the 30-year median value of 18.3. After strong price gains over the past year, emerging market equity valuation metrics are near their long-term averages.

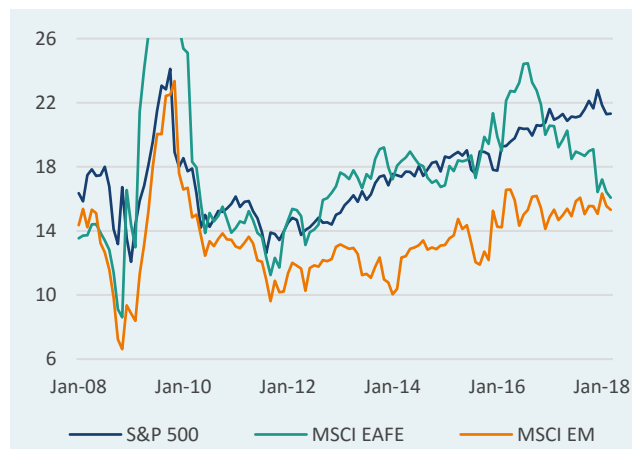
Although most equity markets experienced a 10% correction during the quarter, momentum in earnings growth remained strong. A continuation of this trend may result in further normalization of valuations without a significant drop in equity prices.

## FORWARD P/E RATIOS



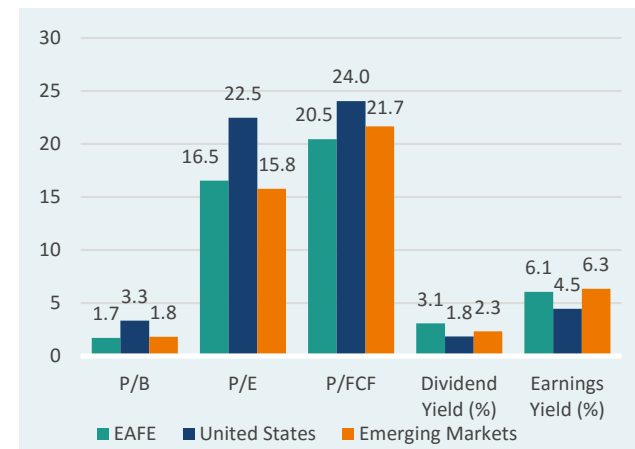
Source: MSCI, as of 3/31/2018

## TRAILING P/E RATIOS



Source: Bloomberg, as of 3/31/18

## VALUATION METRICS



Source: Bloomberg, as of 3/31/18 - trailing P/E

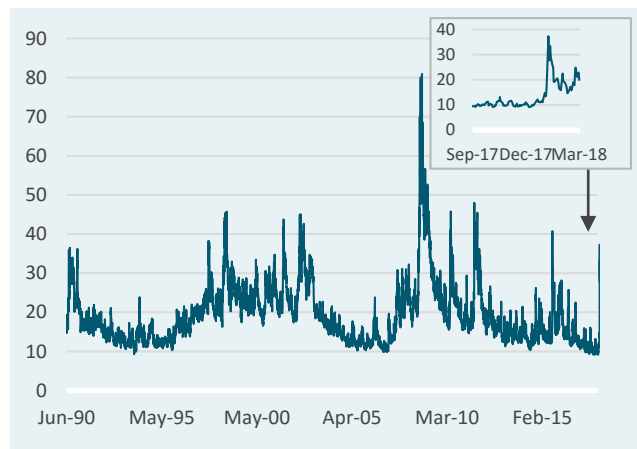
# Equity volatility

Volatility in U.S. equities spiked in February and stayed elevated. The VIX Index of implied volatility on the S&P 500 Index registered its largest one-day increase on February 5<sup>th</sup>, jumping from 17.3 to 37.3. The well-documented period of low volatility that markets experienced in 2017 was broken rather suddenly. Volatility remained high with the VIX averaging 20.7 in the last two month of the quarter, compared to 11.0 during the previous 12 months. The increase in volatility was a U.S. focused event, rather than a global phenomenon – volatility was relatively benign in international developed and emerging markets.

One of the likely drivers of the spike in volatility that occurred in February was the unwinding of the “short vol” trade. The low volatility environment that began in 2016 created an opportunity to profit from selling volatility in the futures market, which is similar to selling insurance. Speculators selling volatility receive a premium for taking on risk from those looking to hedge, and are able to capture this premium when volatility remains low. When volatility increases, however, losses can be catastrophic. An index tracking this strategy lost 96% of its value during one day of trading, which likely reinforced the increase in volatility.

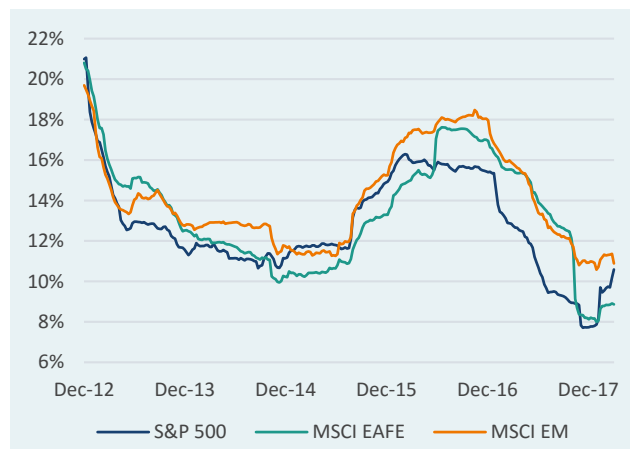
Equity volatility spiked in February and remained at heightened levels

U.S. IMPLIED VOLATILITY (VIX)



Source: CBOE, as of 3/31/18

REALIZED 1-YEAR ROLLING VOLATILITY



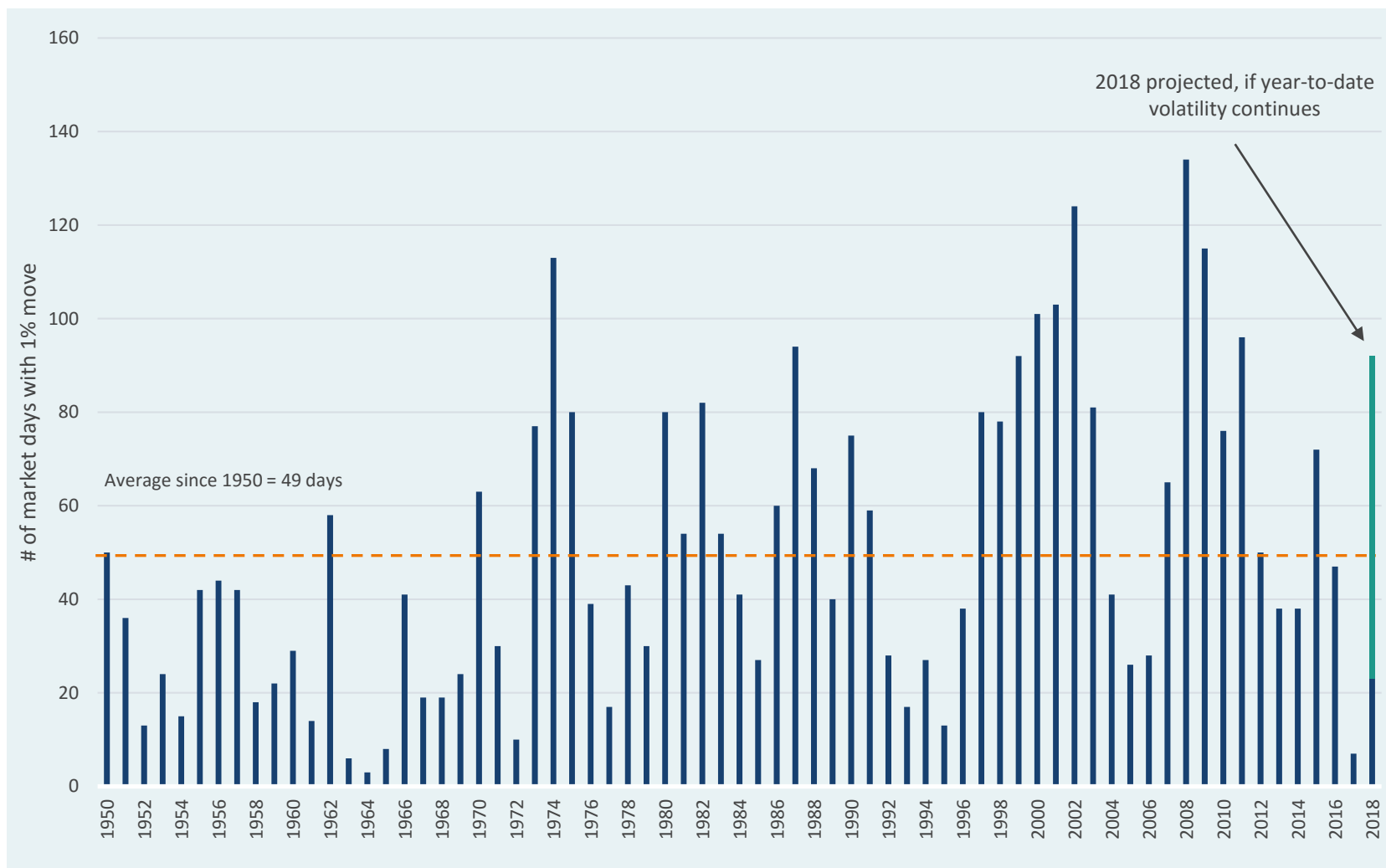
Source: Bloomberg, as of 3/31/18

S&P INVERSE VIX FUTURES INDEX



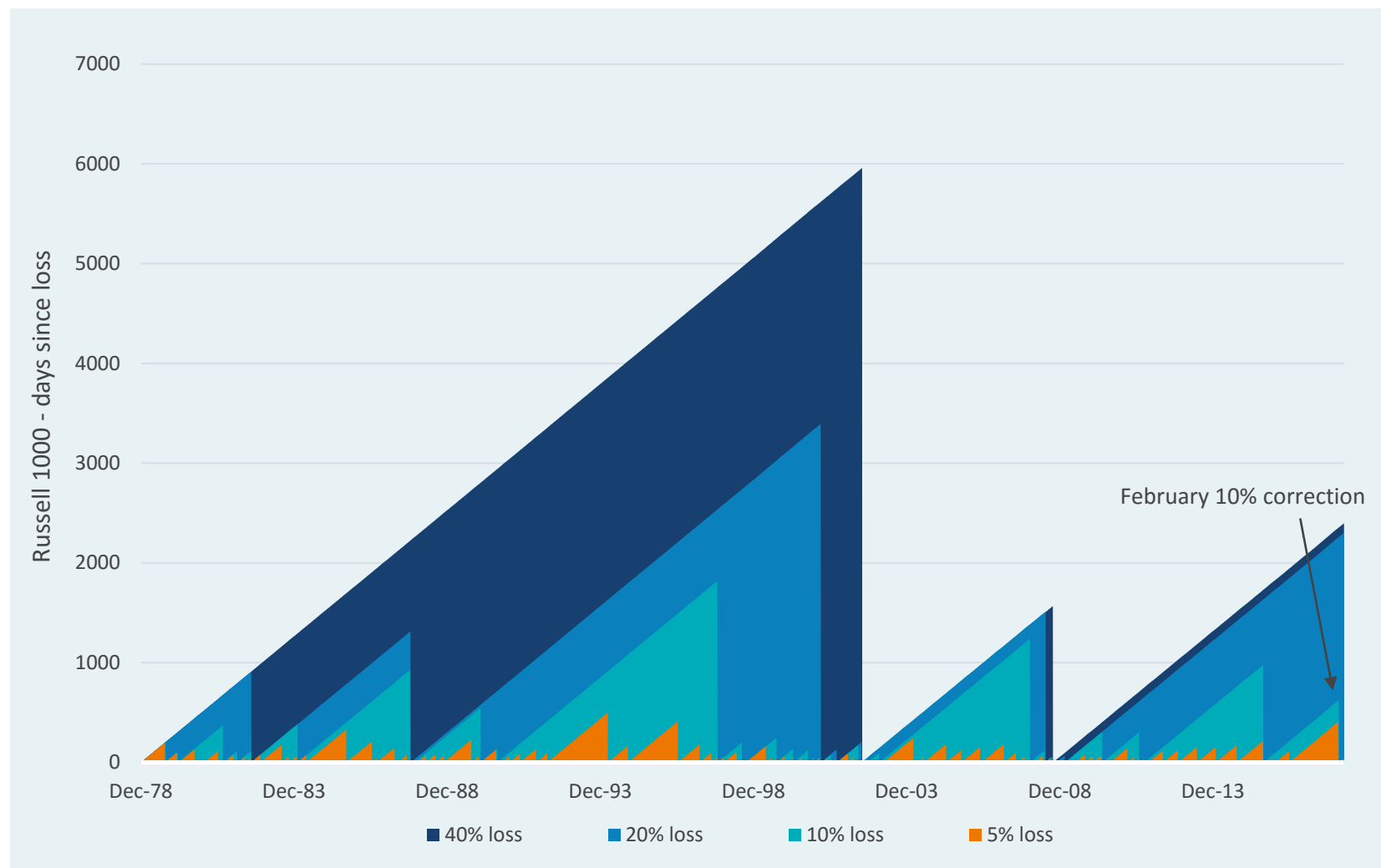
Source: Bloomberg, as of 3/31/18

# Equity volatility



Source: S&P 500, as of 3/31/18

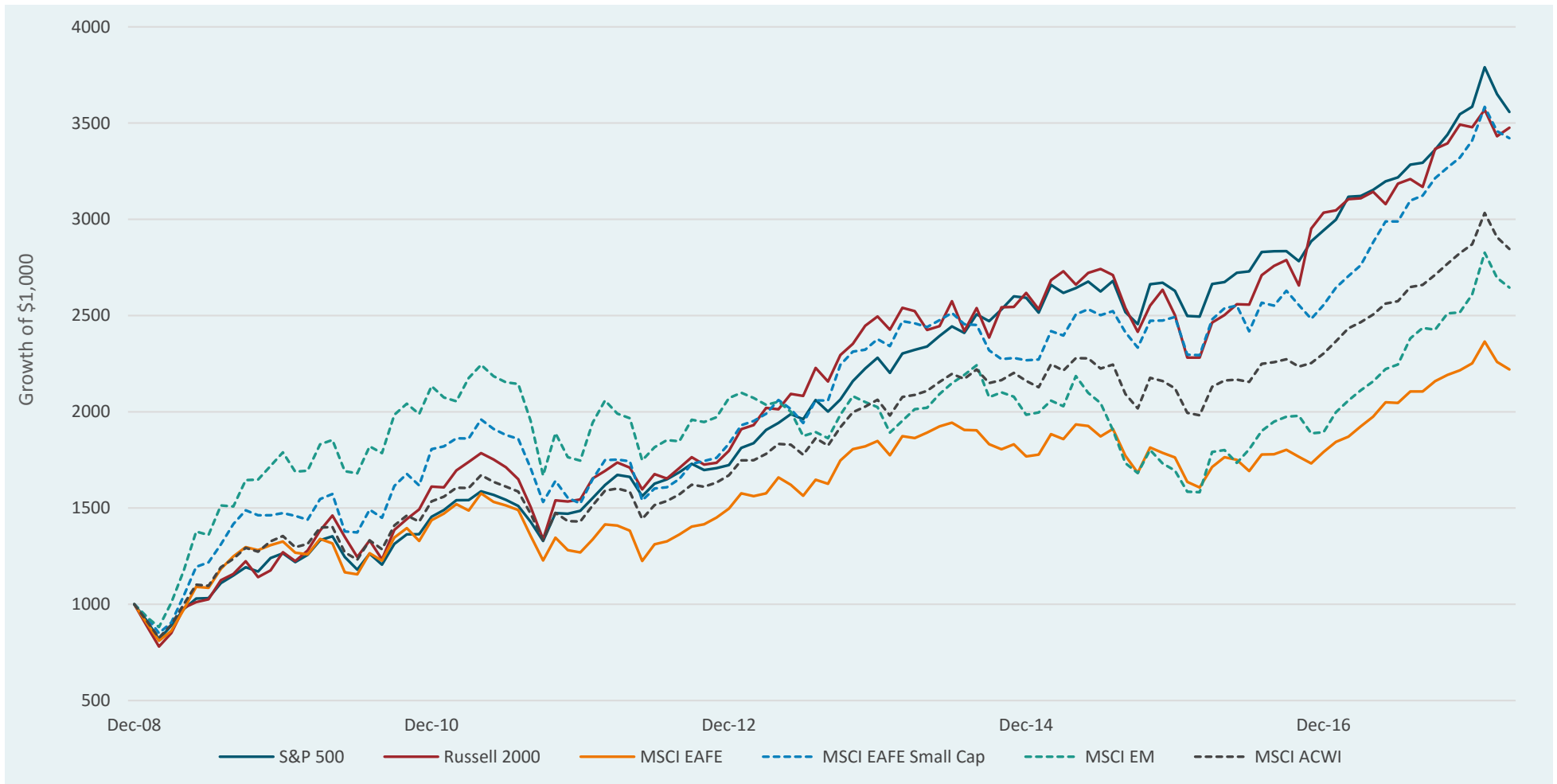
# Expect the unexpected



Equities experienced a 10% correction for the first time in more than two years

Source: FTSE Russell, Bloomberg, as of 4/11/18

# Long-term equity performance



Source: MPI, as of 3/31/18

# Other assets

# Opportunity in MLPs

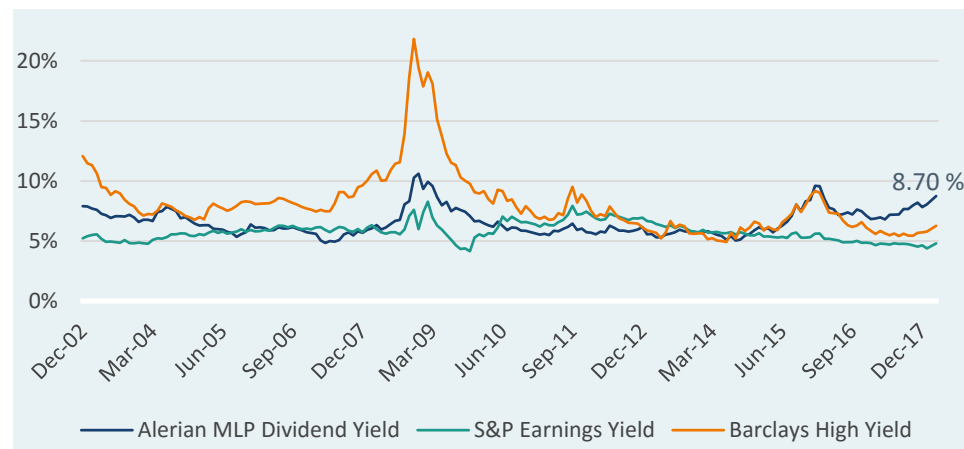
MLP valuations look attractive across a number of historical metrics, including enterprise value-to-EBITDA and price-to-distributable cash flow. We believe there is opportunity to allocate to MLPs for a short to medium holding period (2-4 years).

MLP yields have steadily climbed since mid-2016 on the back of a sell-off in the sector and recovery in distributions following the energy price collapse. Balance sheets across the industry are in better shape today than

before the oil crisis. Debt-to-cash flow levels have improved since peaking at 6.4x in 2015. Furthermore, the U.S. is expected to surpass Russia in 2018 to be the largest oil producer in the world, which is important because midstream companies grow through volume increases rather than commodity price appreciation.

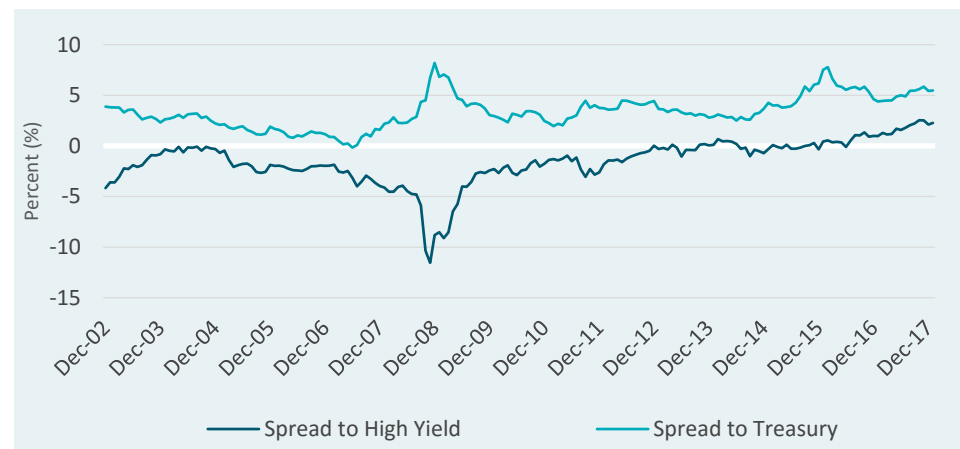
A decision to invest in MLPs, however, is one that should be considered carefully, and after detailed analysis, as it remains a specialist asset class.

## MLP YIELDS



Source: Bloomberg, as of 12/31/17

## MLP SPREADS VS HIGH YIELD AND TREASURY RATES



Source: Bloomberg, as of 12/31/17

# Currency

The U.S. dollar declined further to begin the quarter, but recovered slightly over the past two months. The broad U.S. trade weighted index fell 1.9% in the first quarter. This index was down 8.5% since peaking at the end of 2016.

Dollar depreciation has occurred despite widening short-term interest rate differentials between the U.S. and the rest of the developed world. Typically, higher interest rate differentials result in currency appreciation as investors take advantage of the yield, at least in the short-term.

Based on purchasing power parity (PPP), the dollar is overvalued against the currencies with the biggest weights in international equity benchmarks: the euro, yen, and pound.

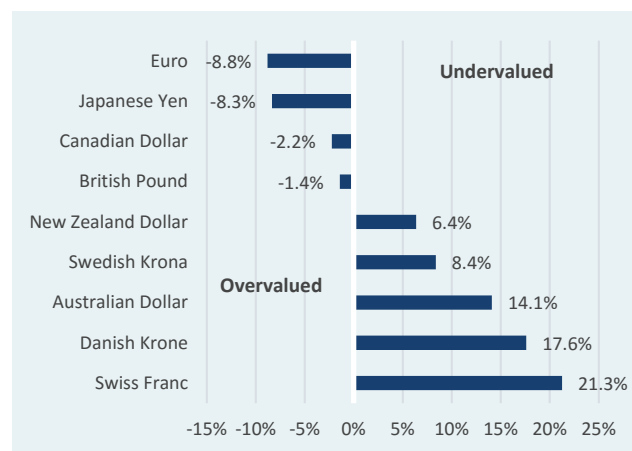
Unhedged foreign currency exposure added to equity returns over the past year, especially in developed markets. Although currency exposure has been positive lately, it has historically tended to experience large swings that add volatility to portfolios.

**U.S. DOLLAR TRADE WEIGHTED INDEX**



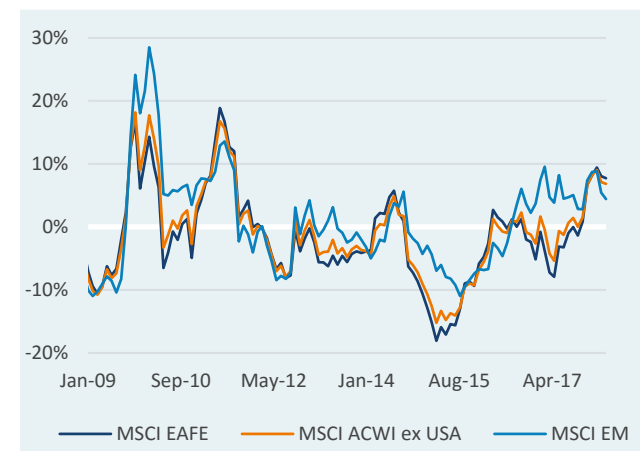
Source: Federal Reserve, as of 3/28/18

**CURRENCY VALUATIONS VS USD (PPP)**



Source: OECD, as of 3/31/2018 (see appendix)

**EFFECT OF CURRENCY (1-YR ROLLING)**



Source: MSCI, as of 3/31/18

# Appendix

# Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD	5-Year	10-Year
Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	2.3	15.5	11.3
Emerging Markets Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.4	13.2	11.0
Large Cap Growth	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	1.4	12.9	9.8
Hedge Funds of Funds	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	0.9	11.5	9.6
Cash	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	0.4	10.8	8.6
60/40 Global Portfolio	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	0.0	10.2	7.8
Real Estate	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	0.0	10.0	6.1
Small Cap Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-0.1	6.5	4.7
Commodities	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-0.4	6.2	3.6
Large Cap Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-0.7	5.0	3.0
US Bonds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	5.1	-1.5	3.5	2.7
International Equity	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-1.5	1.8	1.6
Small Cap Value	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-2.6	0.3	0.3
Large Cap Value	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-2.8	-8.3	-7.7

Large Cap Equity

Large Cap Value

Large Cap Growth

Small Cap Equity

Small Cap Value

Small Cap Growth

International Equity

Emerging Markets Equity

US Bonds

Cash

Commodities

Real Estate

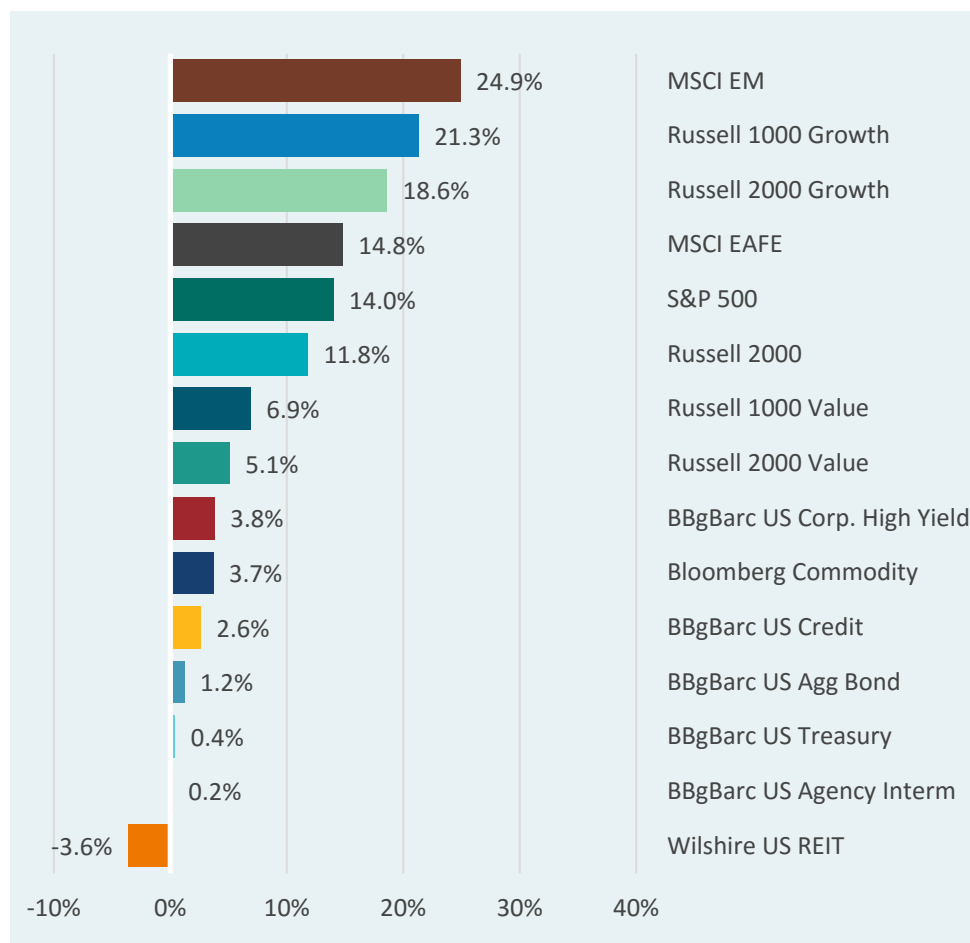
Hedge Funds of Funds

60% MSCI ACWI/40% BBgBarc Global Bond

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/17.

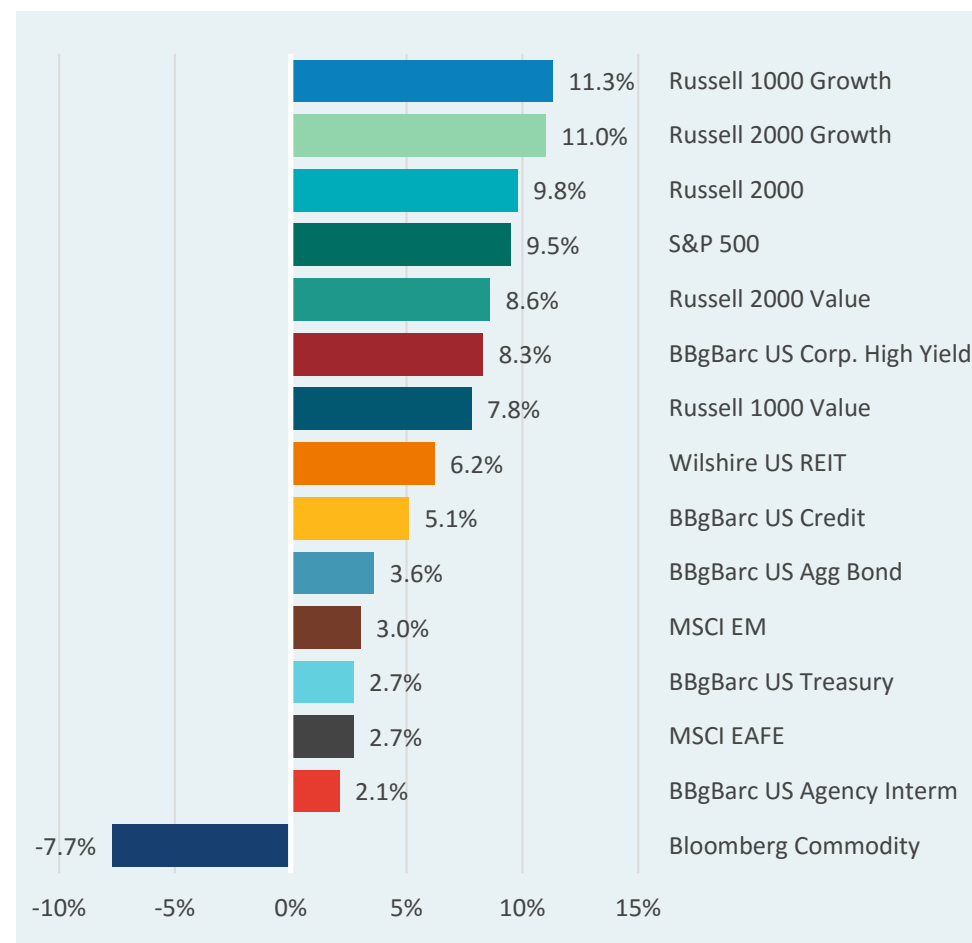
# Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/18

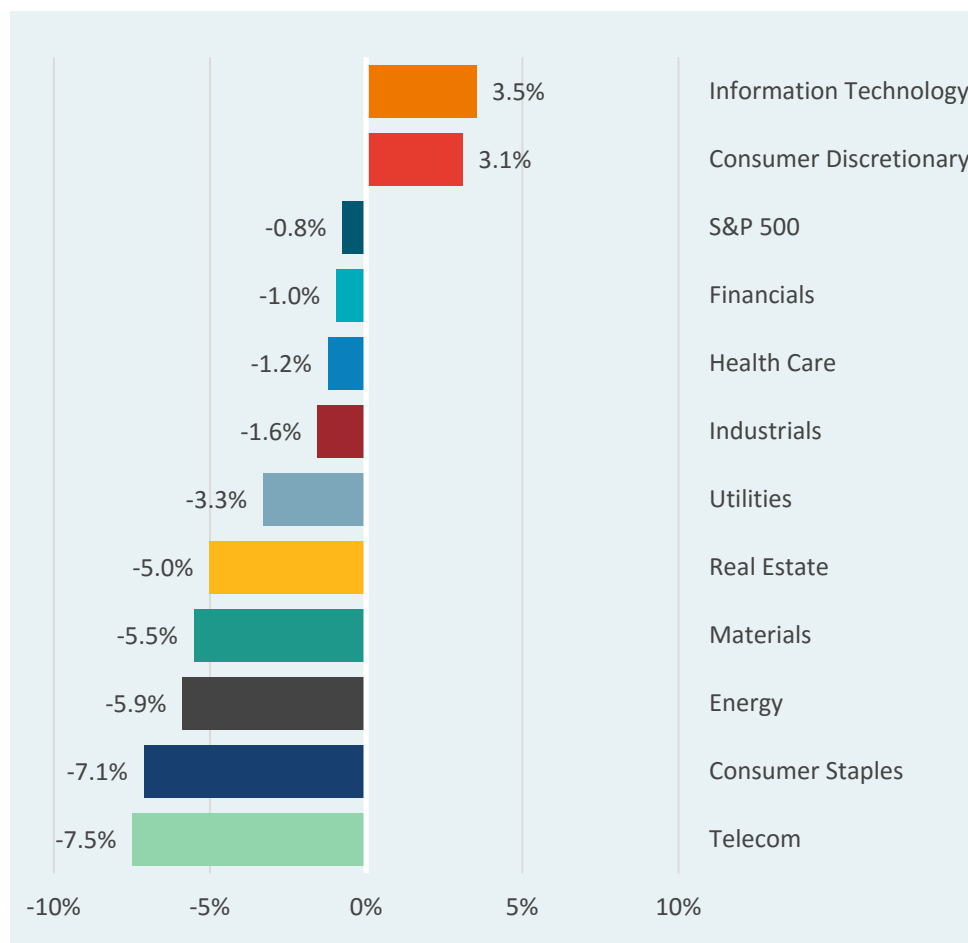
TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/18

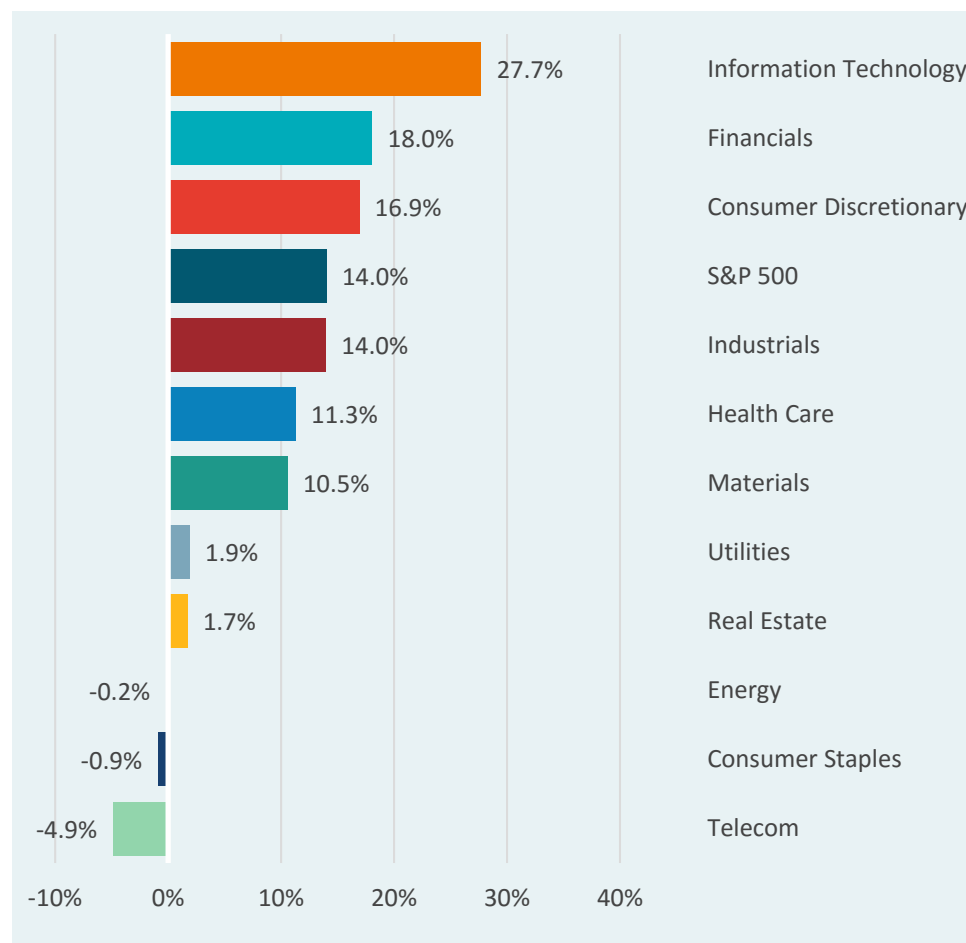
# S&P 500 sector returns

1<sup>ST</sup> QUARTER



Source: Morningstar, as of 3/31/18

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/18

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	(2.5)	(0.8)	(0.8)	14.0	10.8	13.3	9.5
S&P 500 Equal Weighted	(0.9)	(1.0)	(1.0)	11.7	9.1	12.9	11.0
DJ Industrial Average	(3.6)	(2.0)	(2.0)	19.4	13.5	13.3	9.9
Russell Top 200	(3.2)	(0.8)	(0.8)	14.7	11.4	13.6	9.4
Russell 1000	(2.3)	(0.7)	(0.7)	14.0	10.4	13.2	9.6
Russell 2000	1.3	(0.1)	(0.1)	11.8	8.4	11.5	9.8
Russell 3000	(2.0)	(0.6)	(0.6)	13.8	10.2	13.0	9.6
Russell Mid Cap	0.1	(0.5)	(0.5)	12.2	8.0	12.1	10.2
<b>Style Index</b>							
Russell 1000 Growth	(2.7)	1.4	1.4	21.3	12.9	15.5	11.3
Russell 1000 Value	(1.8)	(2.8)	(2.8)	6.9	7.9	10.8	7.8
Russell 2000 Growth	1.3	2.3	2.3	18.6	8.8	12.9	11.0
Russell 2000 Value	1.2	(2.6)	(2.6)	5.1	7.9	10.0	8.6

## INTERNATIONAL EQUITY

<b>Broad Index</b>							
MSCI ACWI	(2.1)	(1.0)	(1.0)	14.8	8.1	9.2	5.6
MSCI ACWI ex US	(1.8)	(1.2)	(1.2)	16.5	6.2	5.9	2.7
MSCI EAFE	(1.8)	(1.5)	(1.5)	14.8	5.6	6.5	2.7
MSCI EM	(1.9)	1.4	1.4	24.9	8.8	5.0	3.0
MSCI EAFE Small Cap	(1.1)	0.2	0.2	23.5	12.3	11.1	6.5
<b>Style Index</b>							
MSCI EAFE Growth	(1.2)	(1.0)	(1.0)	17.5	6.7	7.1	3.4
MSCI EAFE Value	(2.4)	(2.0)	(2.0)	12.2	4.3	5.8	2.0
<b>Regional Index</b>							
MSCI UK	(0.3)	(3.9)	(3.9)	11.9	3.1	3.9	2.3
MSCI Japan	(2.1)	0.8	0.8	19.6	8.4	8.9	4.1
MSCI Euro	(1.2)	(0.4)	(0.4)	16.1	5.7	8.1	0.7
MSCI EM Asia	(1.4)	0.8	0.8	27.0	9.4	8.4	5.2
MSCI EM Latin American	(1.0)	8.0	8.0	19.3	10.1	(1.9)	(0.8)

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BBgBarc US TIPS	1.1	(0.8)	(0.8)	0.9	1.3	0.0	2.9
BBgBarc US Treasury Bills	0.1	0.3	0.3	1.0	0.5	0.3	0.4
BBgBarc US Agg Bond	0.6	(1.5)	(1.5)	1.2	1.2	1.8	3.6
<b>Duration</b>							
BBgBarc US Treasury 1-3 Yr	0.2	(0.2)	(0.2)	(0.0)	0.4	0.5	1.1
BBgBarc US Treasury Long	3.0	(3.3)	(3.3)	3.5	0.4	3.3	5.8
BBgBarc US Treasury	0.9	(1.2)	(1.2)	0.4	0.4	1.1	2.7
<b>Issuer</b>							
BBgBarc US MBS	0.6	(1.2)	(1.2)	0.8	1.1	1.8	3.5
BBgBarc US Corp. High Yield	(0.6)	(0.9)	(0.9)	3.8	5.2	5.0	8.3
BBgBarc US Agency Interm	0.3	(0.4)	(0.4)	0.2	0.7	0.9	2.1
BBgBarc US Credit	0.3	(2.1)	(2.1)	2.6	2.2	2.8	5.1

## OTHER

<b>Index</b>							
Bloomberg Commodity	(0.6)	(0.4)	(0.4)	3.7	(3.2)	(8.3)	(7.7)
Wilshire US REIT	4.1	(7.5)	(7.5)	(3.6)	1.0	6.1	6.2
CS Leveraged Loans	0.3	1.6	1.6	4.6	4.3	4.2	5.4
<b>Regional Index</b>							
JPM EMBI Global Div	0.3	(1.7)	(1.7)	4.3	5.8	4.7	7.0
JPM GBI-EM Global Div	1.0	4.4	4.4	13.0	5.4	(0.7)	3.8
<b>Hedge Funds</b>							
HFRI Composite	(0.7)	0.1	0.1	4.6	2.0	3.9	3.6
HFRI FOF Composite	(0.0)	0.9	0.9	6.2	2.1	3.5	1.6
<b>Currency (Spot)</b>							
Euro	0.8	2.4	2.4	15.0	4.6	(0.9)	(2.5)
Pound	1.8	3.7	3.7	12.2	(1.9)	(1.6)	(3.4)
Yen	0.3	5.9	5.9	4.8	4.1	(2.4)	(0.7)

Source: Morningstar, as of 3/31/18

# Definitions

**Atlanta Fed Wage Tracker** – a measure of the nominal wage growth of individuals. It is constructed using microdata from the Current Population Survey (CPS), and is the median percent change in the hourly wage of individuals observed 12 months apart. ([www.frbatlanta.org](http://www.frbatlanta.org))

**Bloomberg US Weekly Consumer Comfort Index** - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. ([www.langerresearch.com](http://www.langerresearch.com))

**University of Michigan Consumer Sentiment Index** - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. ([www.Bloomberg.com](http://www.Bloomberg.com))

**Citi Economic Surprise Index** - objective and quantitative measures of economic news. Defined as weighted historical standard deviations of data surprises (actual releases vs Bloomberg survey median). A positive reading of the Economic Surprise Index suggests that economic releases have on balance been beating consensus. The indices are calculated daily in a rolling three-month window. The weights of economic indicators are derived from relative high-frequency spot FX impacts of 1 standard deviation data surprises. The indices also employ a time decay function to replicate the limited memory of markets. ([www.Bloomberg.com](http://www.Bloomberg.com))

**NFIB Small Business Outlook** - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

**OECD Purchasing Power Parity** – the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between countries. In their simplest form, PPPs show the ratio of prices in national currencies of the same good or service in different countries. ([www.OECD.org](http://www.OECD.org))

# Notices & disclosures

**Past performance is no guarantee of future results.** This report or presentation is provided for informational purposes only and is directed to institutional clients and eligible institutional counterparties only and should not be relied upon by retail investors. Nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security or pursue a particular investment vehicle or any trading strategy. The opinions and information expressed are current as of the date provided or cited only and are subject to change without notice. This information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. Verus Advisory Inc. expressly disclaim any and all implied warranties or originality, accuracy, completeness, non-infringement, merchantability and fitness for a particular purpose. This report or presentation cannot be used by the recipient for advertising or sales promotion purposes.

The material may include estimates, outlooks, projections and other “forward-looking statements.” Such statements can be identified by the use of terminology such as “believes,” “expects,” “may,” “will,” “should,” “anticipates,” or the negative of any of the foregoing or comparable terminology, or by discussion of strategy, or assumptions such as economic conditions underlying other statements. No assurance can be given that future results described or implied by any forward looking information will be achieved. Actual events may differ significantly from those presented. Investing entails risks, including possible loss of principal. Risk controls and models do not promise any level of performance or guarantee against loss of principal.

“VERUS ADVISORY”™ and any associated designs are the respective trademarks of Verus Advisory, Inc. Additional information is available upon request.

# Imperial County Employees' Retirement System

Investment Performance Review

Period Ending: March 31, 2018



---

[VERUSINVESTMENTS.COM](http://VERUSINVESTMENTS.COM)

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

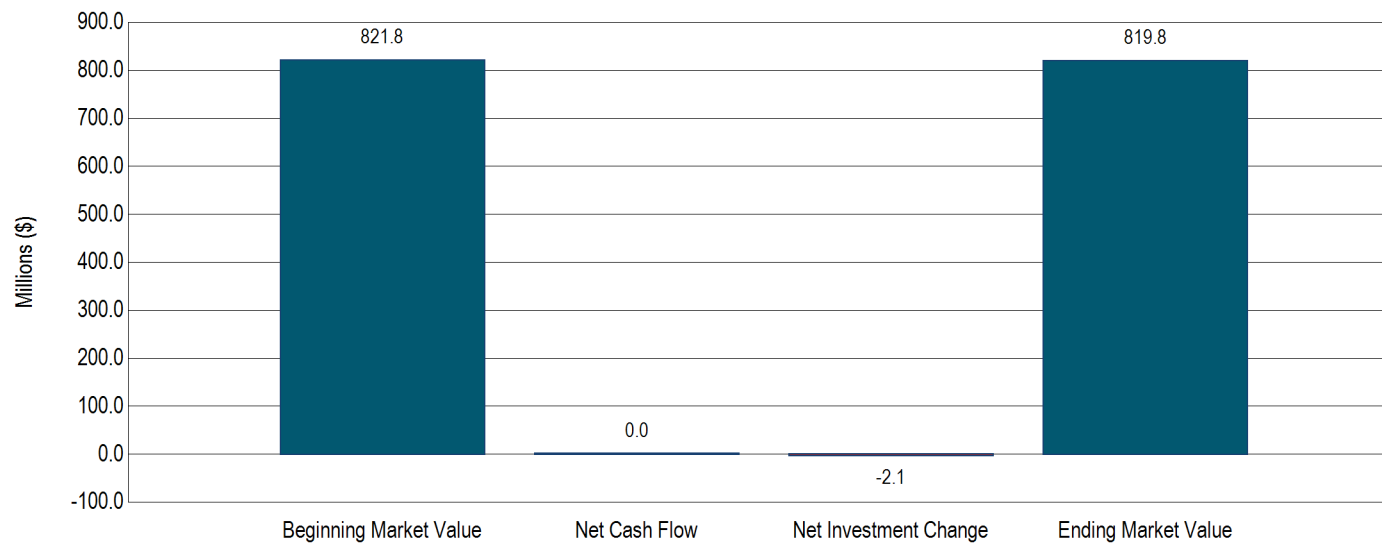
Total Fund  
Portfolio Reconciliation

Period Ending: March 31, 2018

Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$821,809,403	\$768,928,009	\$745,068,708
Net Cash Flow	\$40,525	-\$4,868,561	-\$4,643,810
Net Investment Change	-\$2,069,283	\$55,721,198	\$79,355,747
Ending Market Value	\$819,780,645	\$819,780,645	\$819,780,645

Change in Market Value  
Last Three Months

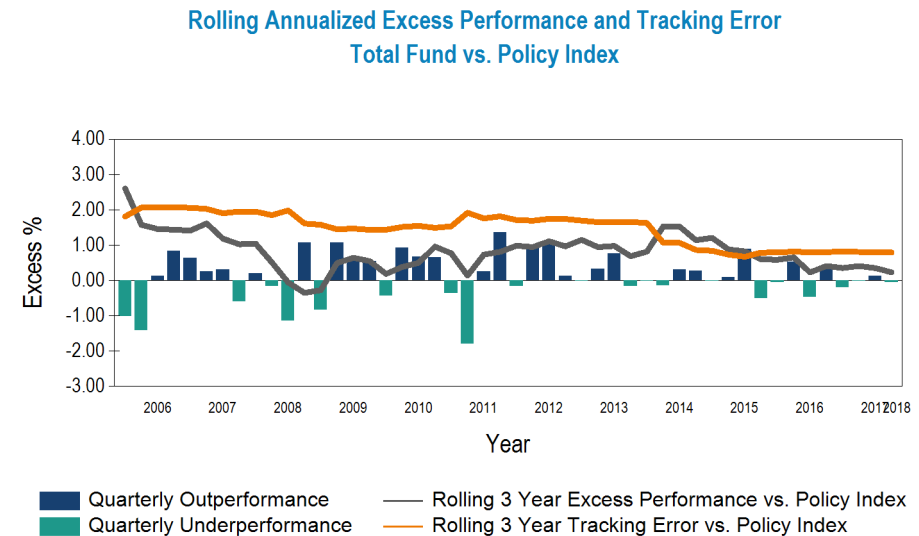
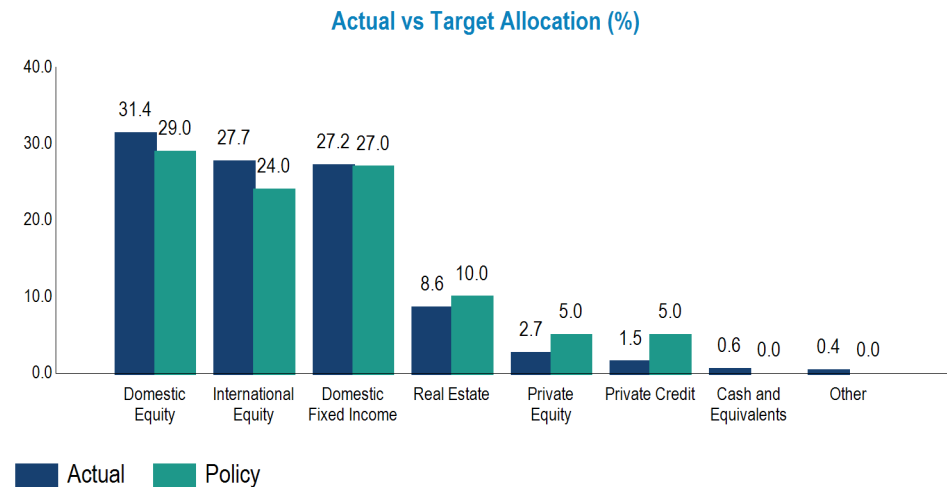


Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.

# Total Fund Executive Summary (Gross of Fees)

Period Ending: March 31, 2018

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>-0.2</b>	<b>7.3</b>	<b>10.7</b>	<b>6.8</b>	<b>7.5</b>	<b>6.6</b>
Total Fund ex Parametric	-0.2	7.3	10.7	6.8	7.5	6.6
Policy Index	-0.2	7.2	10.9	6.6	7.1	6.0
InvestorForce Public DB Gross Rank	53	42	40	42	58	39
<b>Total Domestic Equity</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.1</b>	<b>12.6</b>	<b>9.9</b>
Russell 3000	-0.6	10.5	13.8	10.2	13.0	9.6
InvestorForce Public DB US Eq Gross Rank	65	52	47	50	63	38
<b>Total International Equity</b>	<b>-0.2</b>	<b>10.8</b>	<b>17.4</b>	<b>7.5</b>	<b>6.8</b>	<b>3.1</b>
MSCI ACWI ex USA Gross	-1.2	10.3	16.9	6.6	6.3	3.2
InvestorForce Public DB ex-US Eq Gross Rank	48	55	68	52	64	71
<b>Total Fixed Income</b>	<b>-1.1</b>	<b>0.7</b>	<b>2.1</b>	<b>2.1</b>	<b>2.4</b>	<b>5.3</b>
BBgBarc US Aggregate TR	-1.5	-0.2	1.2	1.2	1.8	3.6
InvestorForce Public DB Total Fix Inc Gross Rank	88	59	59	62	50	35
<b>Total Real Estate</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>9.3</b>	<b>10.9</b>	<b>4.3</b>
NCREIF Property Index	1.7	5.3	7.1	8.7	10.0	6.1
NCREIF-ODCE	2.2	6.3	8.1	10.0	11.4	5.1
<b>Total Private Equity</b>	<b>6.6</b>	<b>16.7</b>	<b>24.6</b>	<b>16.2</b>	<b>18.4</b>	<b>--</b>
Russell 3000 +3% Lagged	7.1	17.1	24.7	14.4	19.0	--
<b>Total Opportunistic</b>	<b>3.3</b>	<b>6.3</b>	<b>6.5</b>	<b>6.3</b>	<b>10.9</b>	<b>14.8</b>
Assumption Rate + 1%	2.0	6.1	8.3	8.4	8.6	8.9

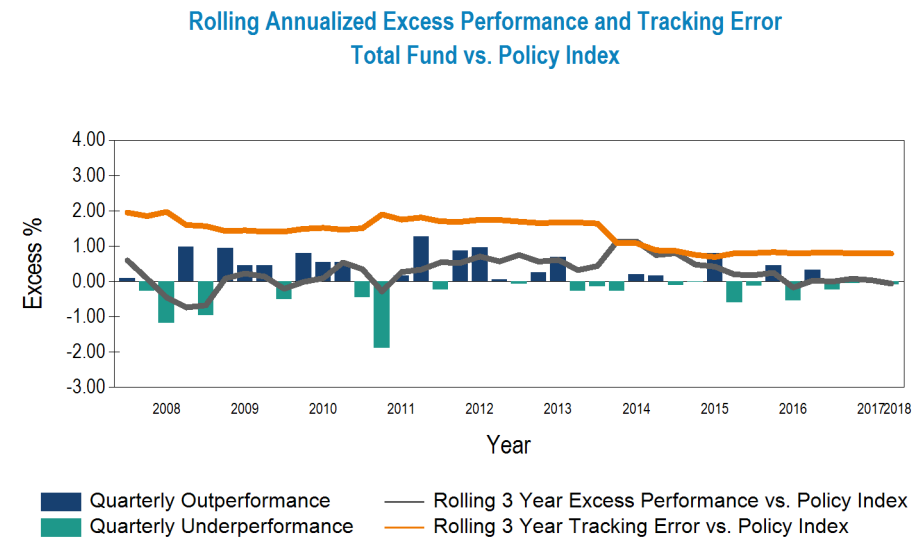
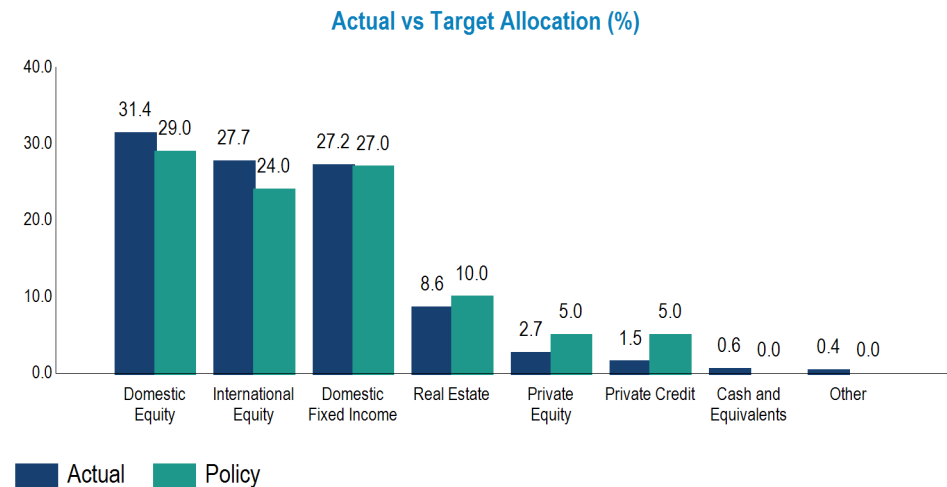


New Policy Index (as of 10/1/2016): 29% Russell 3000, 24% MSCI ACWI Free Ex US, 27% BBgBarc US Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (7/1/2014 to 9/30/2016): 29% Russell 3000, 25% MSCI ACWI Free Ex US, 30% BBgBarc Aggregate, 6% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%. (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (G) gross of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

# Total Fund Executive Summary (Net of Fees)

Period Ending: March 31, 2018

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>-0.3</b>	<b>7.2</b>	<b>10.5</b>	<b>6.5</b>	<b>7.2</b>	<b>6.2</b>
Total Fund ex Parametric	-0.3	7.2	10.5	6.5	7.2	6.2
Policy Index	-0.2	7.2	10.9	6.6	7.1	6.0
<b>Total Domestic Equity</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.0</b>	<b>12.5</b>	<b>9.7</b>
Russell 3000	-0.6	10.5	13.8	10.2	13.0	9.6
<b>Total International Equity</b>	<b>-0.3</b>	<b>10.6</b>	<b>17.0</b>	<b>7.1</b>	<b>6.3</b>	<b>2.6</b>
MSCI ACWI ex USA Gross	-1.2	10.3	16.9	6.6	6.3	3.2
<b>Total Fixed Income</b>	<b>-1.2</b>	<b>0.4</b>	<b>1.8</b>	<b>1.8</b>	<b>2.0</b>	<b>4.9</b>
BBgBarc US Aggregate TR	-1.5	-0.2	1.2	1.2	1.8	3.6
<b>Total Real Estate</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>8.7</b>	<b>10.2</b>	<b>3.7</b>
NCREIF Property Index	1.7	5.3	7.1	8.7	10.0	6.1
NCREIF-ODCE	2.2	6.3	8.1	10.0	11.4	5.1
<b>Total Private Equity</b>	<b>6.6</b>	<b>16.7</b>	<b>24.6</b>	<b>15.1</b>	<b>16.0</b>	<b>--</b>
Russell 3000 +3% Lagged	7.1	17.1	24.7	14.4	19.0	--
<b>Total Opportunistic</b>	<b>3.3</b>	<b>6.3</b>	<b>6.5</b>	<b>5.1</b>	<b>9.5</b>	<b>13.3</b>
Assumption Rate + 1%	2.0	6.1	8.3	8.4	8.6	8.9



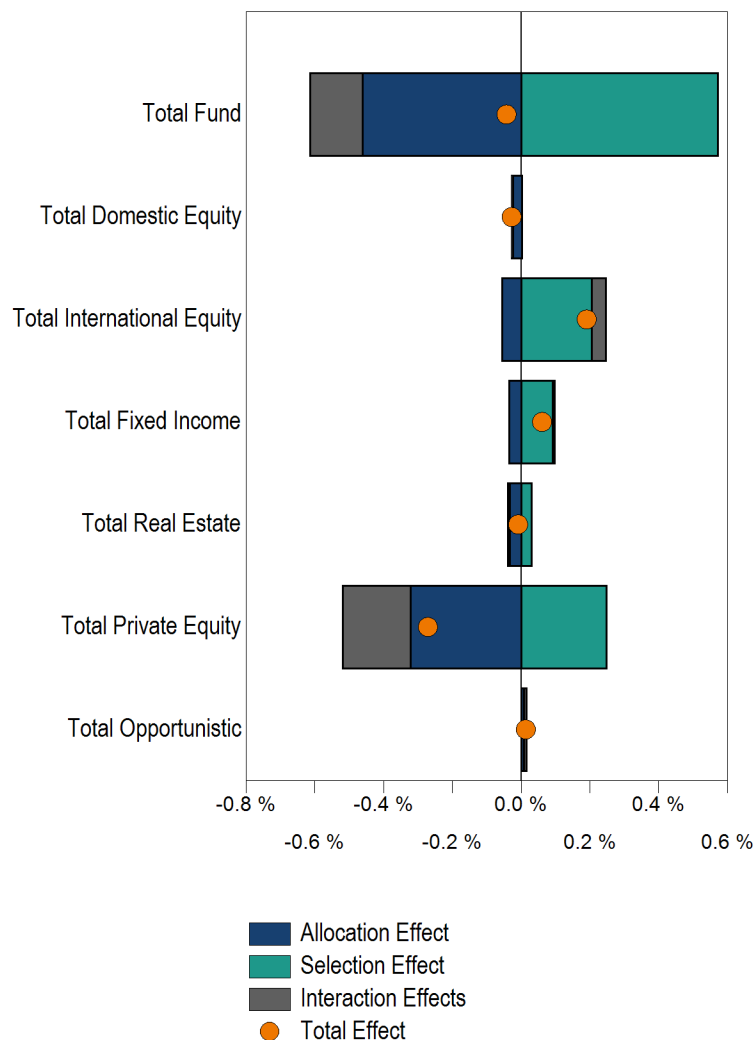
New Policy Index (as of 10/1/2016): 29% Russell 3000, 24% MSCI ACWI Free Ex US, 27% BBgBarc US Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (7/1/2014 to 9/30/2016): 29% Russell 3000, 25% MSCI ACWI Free Ex US, 30% BBgBarc Aggregate, 6% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%. (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (G) gross of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

# Total Fund

## Attribution Analysis - Asset Class Level (Gross of Fees)

Period Ending: March 31, 2018

### Attribution Effects



### Performance Attribution

	Quarter	YTD
Wtd. Actual Return	-0.25%	-0.25%
Wtd. Index Return *	-0.21%	-0.21%
<b>Excess Return</b>	<b>-0.04%</b>	<b>-0.04%</b>
Selection Effect	0.57%	0.57%
Allocation Effect	-0.46%	-0.46%
Interaction Effect	-0.15%	-0.15%

\*Calculated from benchmark returns and weightings of each component.

### Attribution Summary Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	-0.7%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	-0.2%	-1.1%	0.9%	0.2%	-0.1%	0.0%	0.2%
Total Fixed Income	-1.1%	-1.5%	0.4%	0.1%	0.0%	0.0%	0.1%
Total Real Estate	2.0%	1.7%	0.3%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	6.6%	4.0%	2.6%	0.2%	-0.3%	-0.2%	-0.3%
Total Opportunistic	3.3%	2.0%	1.3%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-0.2%</b>	<b>-0.2%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>-0.5%</b>	<b>-0.2%</b>	<b>0.0%</b>

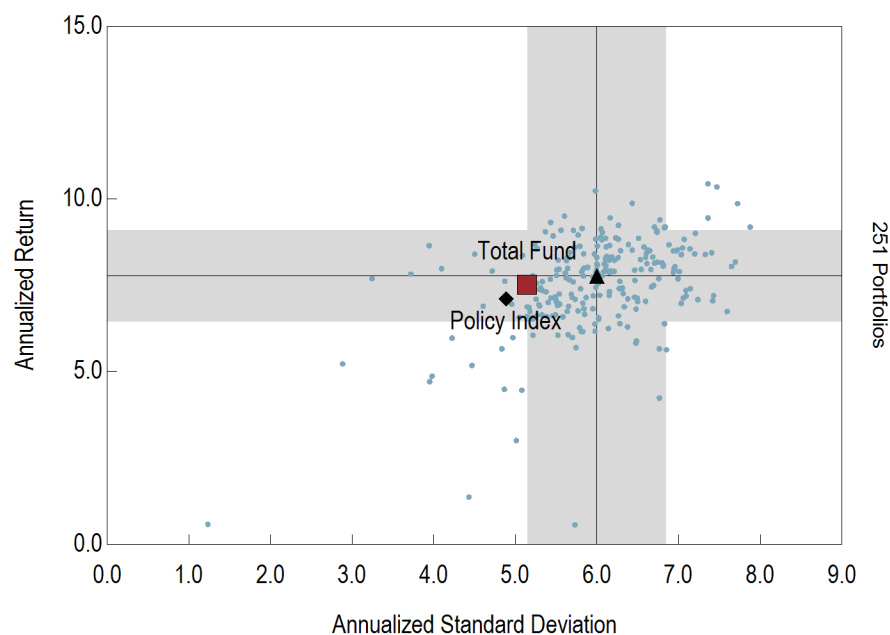
Weighted returns shown in attribution analysis may differ from actual returns.

# Total Fund Risk Analysis - 5 Years (Gross of Fees)

Period Ending: March 31, 2018

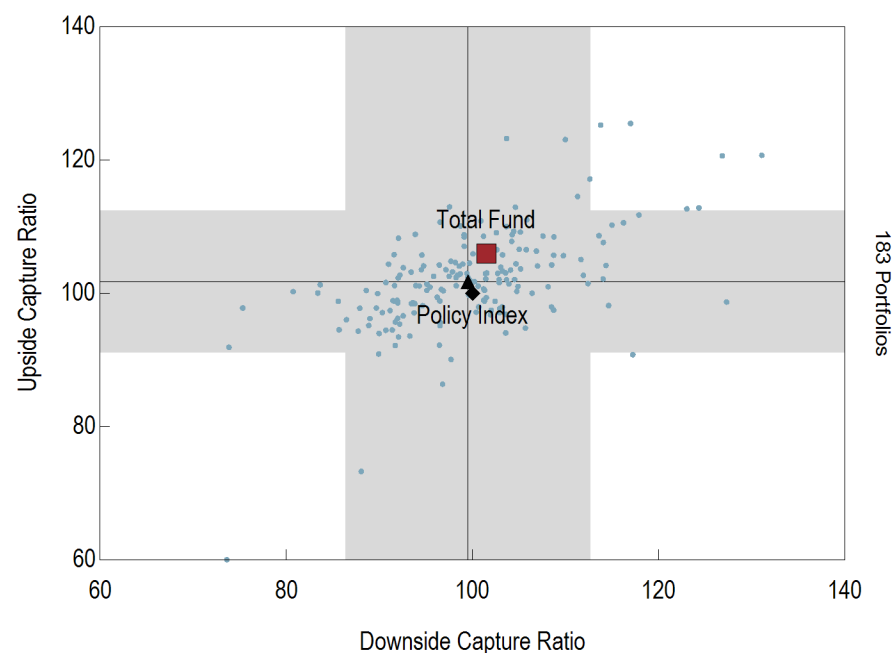
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	7.51%	0.41%	5.14%	0.11%	1.04	0.72%	0.98	1.40	0.57	105.97%	101.48%

Risk vs. Return



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

Up Markets vs. Down Markets

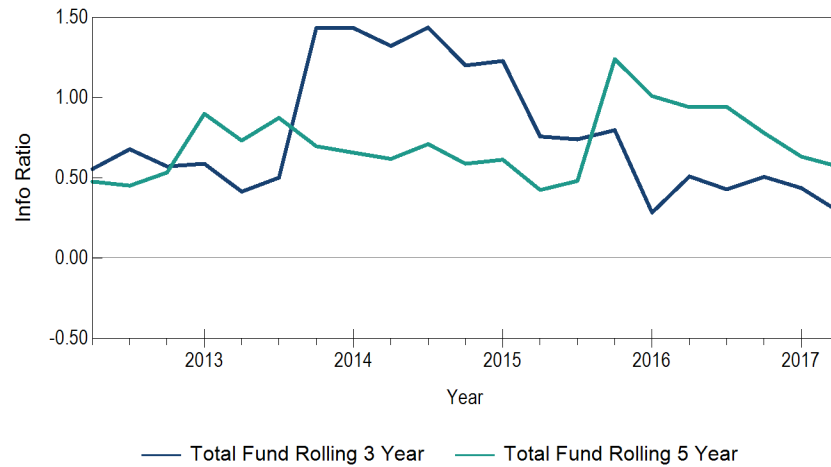


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

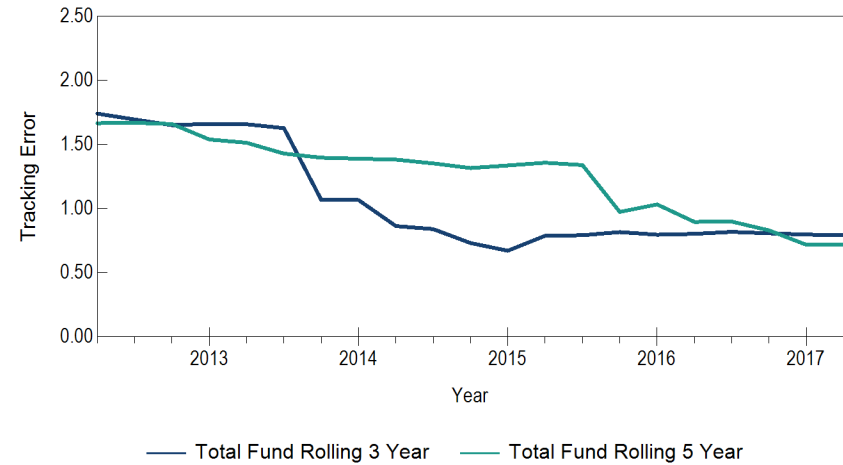
# Total Fund Rolling Risk Statistics (Gross of Fees)

Period Ending: March 31, 2018

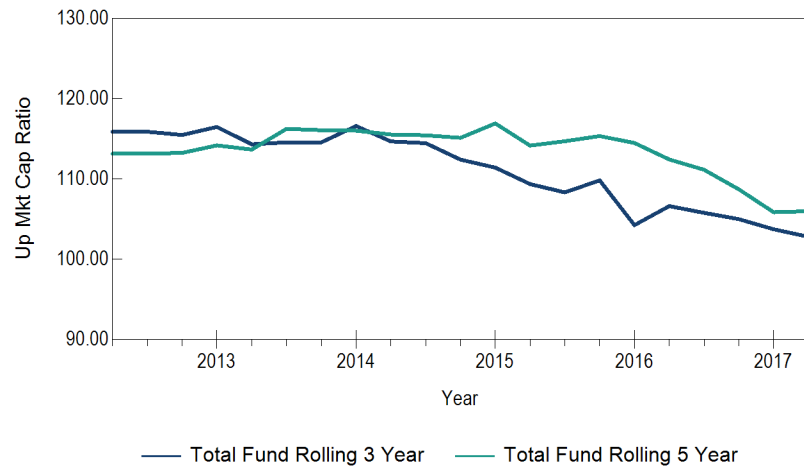
Rolling Information Ratio



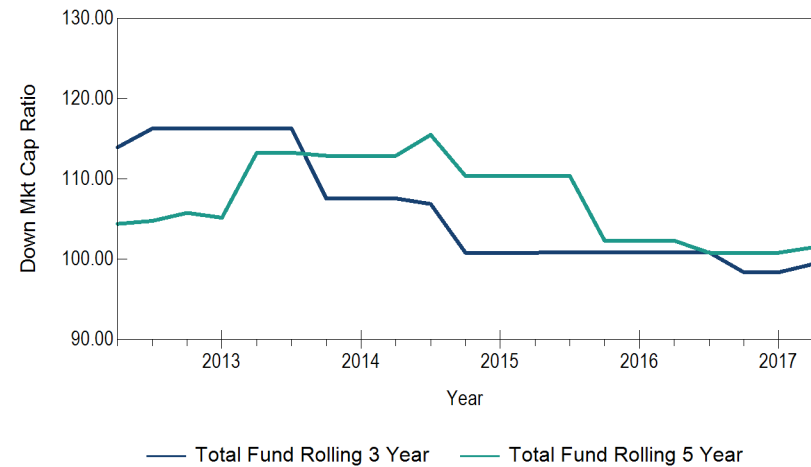
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



# Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
<b>Total Fund</b>	<b>819,780,645</b>	<b>100.0</b>	<b>-0.2</b>	<b>7.3</b>	<b>10.7</b>	<b>6.8</b>	<b>7.5</b>	<b>6.6</b>	<b>16.2</b>	<b>7.8</b>	<b>0.0</b>	<b>4.8</b>	<b>14.8</b>	<b>9.4</b>	<b>Mar-89</b>
Policy Index			-0.2	7.2	10.9	6.6	7.1	6.0	15.9	8.3	-1.2	4.9	13.5	--	Mar-89
InvestorForce Public DB Gross Rank			53	42	40	42	58	39	30	49	53	74	59	3	Mar-89
<b>Total Fund ex Parametric</b>			<b>-0.2</b>	<b>7.3</b>	<b>10.7</b>	<b>6.8</b>	<b>7.5</b>	<b>6.6</b>	<b>16.2</b>	<b>7.8</b>	<b>0.0</b>	<b>4.9</b>	<b>14.7</b>	<b>9.4</b>	<b>Mar-89</b>
Policy Index			-0.2	7.2	10.9	6.6	7.1	6.0	15.9	8.3	-1.2	4.9	13.5	--	Mar-89
InvestorForce Public DB Gross Rank			53	42	40	42	57	40	30	49	53	72	59	3	Mar-89
<b>Total Domestic Equity</b>	<b>257,143,281</b>	<b>31.4</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.1</b>	<b>12.6</b>	<b>9.9</b>	<b>21.2</b>	<b>12.9</b>	<b>0.3</b>	<b>10.2</b>	<b>33.9</b>		
Russell 3000			-0.6	10.5	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6		
InvestorForce Public DB US Eq Gross Rank			65	52	47	50	63	38	35	51	44	73	64		
BlackRock Russell 3000	257,143,281	31.4	-0.7	10.5	13.9	--	--	--	21.2	12.9	--	--	--	13.4	Dec-15
Russell 3000			-0.6	10.5	13.8	--	--	--	21.1	12.7	--	--	--	13.0	Dec-15
eV US All Cap Core Equity Gross Rank			59	50	48	--	--	--	49	35	--	--	--	52	Dec-15
<b>Total International Equity</b>	<b>227,188,650</b>	<b>27.7</b>	<b>-0.2</b>	<b>10.8</b>	<b>17.4</b>	<b>7.5</b>	<b>6.8</b>	<b>3.1</b>	<b>28.3</b>	<b>4.7</b>	<b>-3.5</b>	<b>-4.4</b>	<b>14.0</b>		
MSCI ACWI ex USA Gross			-1.2	10.3	16.9	6.6	6.3	3.2	27.8	5.0	-5.3	-3.4	15.8		
InvestorForce Public DB ex-US Eq Gross Rank			48	55	68	52	64	71	59	40	57	74	83		
BlackRock International Equity	154,823,237	18.9	-1.6	8.2	15.1	5.9	6.8	3.1	25.5	1.5	-0.5	-4.7	23.2	7.8	Jul-03
MSCI EAFE Gross			-1.6	8.2	15.1	6.0	6.9	3.2	25.6	1.5	-0.4	-4.5	23.3	7.9	Jul-03
eV All EAFE Equity Gross Rank			73	70	70	77	80	84	65	47	67	64	61	74	Jul-03
DFA Emerging Markets Value	34,296,988	4.2	2.4	17.0	20.4	10.7	4.9	3.2	34.5	20.5	-18.3	-3.9	-3.2	5.7	Jan-07
MSCI Emerging Markets Gross			1.3	17.7	25.2	9.2	5.3	3.3	37.8	11.6	-14.6	-1.8	-2.3	5.0	Jan-07
eV Emg Mkts Equity Gross Rank			30	57	74	45	77	86	70	7	92	84	84	62	Jan-07
Harding Loevner Emerging Markets	38,068,425	4.6	3.2	16.9	24.7	--	--	--	35.0	--	--	--	--	21.2	Jul-16
MSCI Emerging Markets Gross			1.3	17.7	25.2	--	--	--	37.8	--	--	--	--	21.9	Jul-16
eV Emg Mkts Equity Gross Rank			14	57	51	--	--	--	68	--	--	--	--	54	Jul-16
<b>Total Fixed Income</b>	<b>222,828,214</b>	<b>27.2</b>	<b>-1.1</b>	<b>0.7</b>	<b>2.1</b>	<b>2.1</b>	<b>2.4</b>	<b>5.3</b>	<b>4.6</b>	<b>5.1</b>	<b>-0.3</b>	<b>5.9</b>	<b>-1.7</b>		
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0		
InvestorForce Public DB Total Fix Inc Gross Rank			88	59	59	62	50	35	59	41	55	15	69		
Tortoise Capital	111,689,198	13.6	-0.9	0.8	2.3	2.5	3.2	5.8	4.5	5.1	1.2	7.0	-0.4	6.5	Dec-92
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0	5.4	Dec-92
eV US Core Plus Fixed Inc Gross Rank			18	29	51	34	22	17	70	45	15	16	52	36	Dec-92
MackKay Shields Core Plus Opportunities	89,637,076	10.9	-1.5	0.3	2.2	1.7	--	--	4.9	5.1	--	--	--	1.7	Mar-15
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	--	--	3.5	2.6	--	--	--	1.3	Mar-15
eV US Core Plus Fixed Inc Gross Rank			79	75	64	81	--	--	54	46	--	--	--	85	Mar-15

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.

# Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
BlackRock US TIPS	21,501,940	2.6	-0.7	1.5	1.1	1.5	0.2	3.0	3.2	4.8	-1.2	3.6	-8.5	4.1	Apr-07
BBgBarc US TIPS TR			-0.8	1.3	0.9	1.3	0.0	2.9	3.0	4.7	-1.4	3.6	-8.6	3.9	Apr-07
eV US TIPS / Inflation Fixed Inc Gross Rank			57	50	47	41	49	49	46	37	43	45	62	64	Apr-07
<b>Total Real Estate</b>	<b>70,784,973</b>	<b>8.6</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>9.3</b>	<b>10.9</b>	<b>4.3</b>	<b>5.8</b>	<b>7.5</b>	<b>16.1</b>	<b>13.0</b>	<b>12.6</b>		
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0		
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9		
ASB Real Estate	33,431,944	4.1	1.8	4.2	4.7	8.4	10.5	--	4.0	5.6	17.3	13.5	13.7	10.5	Dec-12
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	--	7.0	8.0	13.3	11.8	11.0	10.0	Dec-12
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	--	7.6	8.8	15.0	12.5	13.9	11.4	Dec-12
Clarion Lion	33,823,520	4.1	2.3	6.1	7.9	10.4	11.8	3.9	7.9	9.1	15.7	13.2	12.8	5.1	Dec-06
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0	6.9	Dec-06
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9	6.0	Dec-06
ARA American Strategic Value Realty	1,787,262	0.2	--	--	--	--	--	--	--	--	--	--	--	2.1	Jan-18
NCREIF Property Index			--	--	--	--	--	--	--	--	--	--	--	1.7	Jan-18
NCREIF-ODCE			--	--	--	--	--	--	--	--	--	--	--	2.2	Jan-18
1221 State St. Corp	1,742,247	0.2	0.0	0.0	0.0	5.5	3.3	1.2	0.0	17.5	0.0	0.0	0.0	1.3	Sep-08
<b>Total Cash</b>															
Cash Account	4,524,525	0.6	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills			0.4	0.9	1.2	0.5	0.3	--	0.9	0.3	0.0	0.0	0.0		

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.

# Total Fund Performance Summary (Net of Fees)

Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
<b>Total Fund</b>	<b>819,780,645</b>	<b>100.0</b>	<b>-0.3</b>	<b>7.2</b>	<b>10.5</b>	<b>6.5</b>	<b>7.2</b>	<b>6.2</b>	<b>16.0</b>	<b>7.4</b>	<b>-0.4</b>	<b>4.4</b>	<b>14.5</b>	<b>8.9</b>	<b>Mar-89</b>
Policy Index			-0.2	7.2	10.9	6.6	7.1	6.0	15.9	8.3	-1.2	4.9	13.5	--	Mar-89
Total Fund ex Parametric			-0.3	7.2	10.5	6.5	7.2	6.2	16.0	7.5	-0.4	4.4	14.4	8.9	Mar-89
Policy Index			-0.2	7.2	10.9	6.6	7.1	6.0	15.9	8.3	-1.2	4.9	13.5	--	Mar-89
<b>Total Domestic Equity</b>	<b>257,143,281</b>	<b>31.4</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.0</b>	<b>12.5</b>	<b>9.7</b>	<b>21.2</b>	<b>12.8</b>	<b>0.1</b>	<b>10.0</b>	<b>33.6</b>		
Russell 3000			-0.6	10.5	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6		
BlackRock Russell 3000	257,143,281	31.4	-0.7	10.5	13.9	--	--	--	21.2	12.8	--	--	--	13.4	Dec-15
Russell 3000			-0.6	10.5	13.8	--	--	--	21.1	12.7	--	--	--	13.0	Dec-15
<b>Total International Equity</b>	<b>227,188,650</b>	<b>27.7</b>	<b>-0.3</b>	<b>10.6</b>	<b>17.0</b>	<b>7.1</b>	<b>6.3</b>	<b>2.6</b>	<b>27.9</b>	<b>4.4</b>	<b>-4.0</b>	<b>-4.9</b>	<b>13.4</b>		
MSCI ACWI ex USA Gross			-1.2	10.3	16.9	6.6	6.3	3.2	27.8	5.0	-5.3	-3.4	15.8		
BlackRock International Equity	154,823,237	18.9	-1.6	8.1	15.0	5.8	6.7	3.0	25.4	1.3	-0.6	-4.8	22.9	7.7	Jul-03
MSCI EAFE Gross			-1.6	8.2	15.1	6.0	6.9	3.2	25.6	1.5	-0.4	-4.5	23.3	7.9	Jul-03
DFA Emerging Markets Value	34,296,988	4.2	2.2	16.5	19.8	10.1	4.3	2.6	33.8	19.8	-18.8	-4.4	-3.8	5.0	Jan-07
MSCI Emerging Markets Gross			1.3	17.7	25.2	9.2	5.3	3.3	37.8	11.6	-14.6	-1.8	-2.3	5.0	Jan-07
Harding Loevner Emerging Markets	38,068,425	4.6	3.0	16.0	23.4	--	--	--	33.6	--	--	--	--	19.9	Jul-16
MSCI Emerging Markets Gross			1.3	17.7	25.2	--	--	--	37.8	--	--	--	--	21.9	Jul-16
<b>Total Fixed Income</b>	<b>222,828,214</b>	<b>27.2</b>	<b>-1.2</b>	<b>0.4</b>	<b>1.8</b>	<b>1.8</b>	<b>2.0</b>	<b>4.9</b>	<b>4.3</b>	<b>4.8</b>	<b>-0.6</b>	<b>5.6</b>	<b>-2.0</b>		
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0		
Tortoise Capital	111,689,198	13.6	-1.0	0.6	2.0	2.2	2.9	5.5	4.3	4.8	0.9	6.7	-0.8	6.2	Dec-92
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0	5.4	Dec-92
MacKay Shields Core Plus Opportunities	89,637,076	10.9	-1.6	0.0	1.8	1.4	--	--	4.5	4.7	--	--	--	1.3	Mar-15
BBgBarc US Aggregate TR			-1.5	-0.2	1.2	1.2	--	--	3.5	2.6	--	--	--	1.3	Mar-15
BlackRock US TIPS	21,501,940	2.6	-0.8	1.4	1.0	1.4	0.1	3.0	3.2	4.8	-1.3	3.6	-8.6	4.0	Apr-07
BBgBarc US TIPS TR			-0.8	1.3	0.9	1.3	0.0	2.9	3.0	4.7	-1.4	3.6	-8.6	3.9	Apr-07

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
<b>Total Real Estate</b>	<b>70,784,973</b>	<b>8.6</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>8.7</b>	<b>10.2</b>	<b>3.7</b>	<b>5.8</b>	<b>6.5</b>	<b>15.0</b>	<b>11.6</b>	<b>12.1</b>		
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0		
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9		
ASB Real Estate	33,431,944	4.1	1.8	4.2	4.7	7.8	9.7	--	4.0	4.6	16.2	12.5	12.5	9.7	Dec-12
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	--	7.0	8.0	13.3	11.8	11.0	10.0	Dec-12
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	--	7.6	8.8	15.0	12.5	13.9	11.4	Dec-12
Clarion Lion	33,823,520	4.1	2.3	6.1	7.9	9.8	11.0	3.0	7.9	8.0	14.6	12.2	11.8	4.2	Dec-06
NCREIF Property Index			1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0	6.9	Dec-06
NCREIF-ODCE			2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9	6.0	Dec-06
ARA American Strategic Value Realty	1,787,262	0.2	--	--	--	--	--	--	--	--	--	--	--	2.1	Jan-18
NCREIF Property Index			--	--	--	--	--	--	--	--	--	--	--	1.7	Jan-18
NCREIF-ODCE			--	--	--	--	--	--	--	--	--	--	--	2.2	Jan-18
1221 State St. Corp	1,742,247	0.2	0.0	0.0	0.0	5.5	3.3	1.2	0.0	17.5	0.0	0.0	0.0	1.3	Sep-08
<b>Total Cash</b>															
Cash Account	4,524,525	0.6	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0		
91 Day T-Bills			0.4	0.9	1.2	0.5	0.3	--	0.9	0.3	0.0	0.0	0.0		

Investment Manager  
Performance Analysis - 3 & 5 Years (Net of Fees)

Period Ending: March 31, 2018

3 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock International Equity	5.79%	-0.19%	10.36%	-0.20%	1.00	0.05%	1.00	0.51	-4.06	98.86%	101.15%
DFA Emerging Markets Value	10.08%	0.92%	16.66%	0.64%	1.03	4.36%	0.93	0.58	0.21	102.57%	94.36%
Tortoise Capital	2.22%	1.02%	3.43%	1.05%	0.97	0.82%	0.94	0.50	1.24	119.98%	84.71%
Mackay Shields Core Plus Opportunities	1.38%	0.18%	3.56%	0.26%	0.93	1.58%	0.81	0.23	0.11	103.42%	97.16%
BlackRock US TIPS	1.39%	0.09%	3.60%	0.09%	1.00	0.07%	1.00	0.25	1.28	101.57%	98.38%
ASB Real Estate	7.84%	-0.88%	3.27%	-12.12%	2.29	2.39%	0.68	2.25	-0.37	89.11%	--
Clarion Lion	9.77%	1.05%	1.80%	-1.27%	1.27	1.05%	0.69	5.16	0.99	113.13%	--

5 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock International Equity	6.70%	-0.24%	10.44%	-0.24%	1.00	0.05%	1.00	0.61	-4.47	98.48%	101.42%
DFA Emerging Markets Value	4.32%	-1.01%	15.16%	-1.43%	1.08	3.88%	0.94	0.26	-0.26	99.15%	108.70%
Tortoise Capital	2.89%	1.06%	3.45%	0.99%	1.04	0.95%	0.93	0.75	1.12	121.85%	83.20%
BlackRock US TIPS	0.11%	0.06%	4.98%	0.06%	1.01	0.10%	1.00	-0.04	0.60	102.17%	100.29%
ASB Real Estate	9.73%	-0.27%	2.92%	-6.59%	1.63	2.24%	0.48	3.23	-0.12	96.73%	--
Clarion Lion	10.99%	0.99%	1.87%	0.13%	1.09	1.30%	0.52	5.72	0.76	112.09%	--

# Private Equity Non Marketable Securities Overview

Period Ending: March 31, 2018

Vintage	Manager & Fund Name	Estimated 3/31 Market Value <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>5</sup>	IRR Date		
2011	HarbourVest IX-Buyout	\$6,923,377	\$10,000,000	\$6,982,409	70%	\$3,017,591	\$3,426,460	\$6,232,339	49.1%	148.2%	17.5%	12/31/17		
2011	HarbourVest IX-Credit	\$1,172,110	\$2,000,000	\$1,301,869	65%	\$698,131	\$652,922	\$1,111,705	50.2%	140.2%	15.2%	12/31/17		
2008	HarbourVest Int'l VI <sup>6</sup>	\$3,094,653	\$3,712,930	\$2,605,981	70%	\$1,106,949	\$1,292,065	\$3,025,382	49.6%	168.3%	14.5%	12/31/17		
2011	HarbourVest IX-Venture	\$3,969,615	\$4,000,000	\$3,592,984	90%	\$407,016	\$1,352,226	\$3,689,446	37.6%	148.1%	15.5%	12/31/17		
2017	HarbourVest 2017 Global	\$6,590,449	\$30,000,000	\$6,000,000	20%	\$24,000,000	\$0	\$0	0.0%	109.8%	N/A	N/A		
2010	KKR Mezzanine <sup>7</sup>	\$2,641,312	\$10,000,000	\$10,000,000	100%	\$0	\$12,367,348	\$2,641,312	123.7%	150.1%	8.6%	3/31/18		
2011	PIMCO BRAVO <sup>4</sup>	\$372,374	\$10,000,000	\$10,000,000	100%	\$0	\$17,755,524	\$598,078	177.6%	181.3%	22.0%	12/31/17		
2017	Portfolio Advisors	\$12,547,114	\$45,000,000	\$12,499,779	28%	\$32,500,221	\$0	\$0	0.0%	100.4%	N/A	N/A		
Total Alternative Illiquids		\$37,311,003	\$114,712,930	\$52,983,022	46%	\$61,729,908	\$36,846,545	\$17,298,262	32.6%	102.2%				
%		4.6%												
									Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense <sup>8</sup>	
									HarbourVest IX-Buyout	\$24,896	\$0	\$0	\$0	\$24,896
									HarbourVest IX-Credit	\$4,980	\$0	\$0	\$0	\$4,980
									HarbourVest Int'l VI	\$8,072	\$0	\$0	\$0	\$8,072
									HarbourVest IX-Venture	\$10,003	\$0	\$0	\$0	\$10,003
									HarbourVest 2017 Global	\$33,750	\$0	\$0	\$38,474	\$72,224
									KKR Mezzanine	\$18,142	\$0	\$0	\$0	\$18,142
									PIMCO BRAVO	\$2,386	\$526	\$54	\$2,385	\$5,351
									Portfolio Advisors	\$0	\$0	\$0	\$0	\$0
										\$102,229	\$526	\$54	\$40,859	\$143,668

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>1</sup>(DPI) is equal to (capital returned / capital called)

<sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>4</sup>Investment period ended, no further capital to be called.

<sup>4</sup>Investment period ended, no further capital to be called.

<sup>5</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

<sup>6</sup>HarbourVest International Private Equity Partners VI-Partnership Fund L.P. values are originally presented in euros and are calculated to dollars using XE™.

<sup>7</sup>KKR: Total capital called is \$11,796,786, which includes recycled distributions. Unused capital commitment is \$976,501 after including distribution proceeds available for reinvestment

<sup>8</sup>All fees and expenses are for 4Q 2017

HarbourVest 2017 Global Fund first capital call issued 9/21/2017. Portfolio Advisors first capital call issued 10/5/2017.

Total Fund  
Financial Reconciliation (Last Three Months)

Period Ending: March 31, 2018

Manager	Beginning Market Value	Contributions	Disbursements	Fees <sup>2</sup>	Net Cash Flow	Investment Income	Capital Gain/ Loss	Total Gains/Earnings/ Losses	Ending Market Value
Blackrock Russell 3000 Index	\$261,554,177	\$0	(\$2,749,998)	\$0	(\$2,749,998)	\$0	(\$1,660,897)	(\$1,660,897)	\$257,143,281
DFA Emerging Markets	\$33,544,861	\$0	\$0	\$0	\$0	\$0	\$752,127	\$752,127	\$34,296,988
Harding Loevner Emerging Markets	\$36,876,125	\$0	\$0	\$0	\$0	\$0	\$1,192,300	\$1,192,300	\$38,068,425
Blackrock International Equity	\$157,328,001	\$0	\$0	\$0	\$0	\$0	(\$2,504,764)	(\$2,504,764)	\$154,823,237
Tortoise Capital	\$112,686,088	\$0	\$0	\$0	\$0	\$0	(\$996,890)	(\$996,890)	\$111,689,198
MacKay Shields Core Plus Opp.	\$91,050,408	\$0	\$0	\$0	\$0	\$0	(\$1,413,332)	(\$1,413,332)	\$89,637,076
Blackrock US TIPS	\$21,663,698	\$0	\$0	\$0	\$0	\$0	(\$161,758)	(\$161,758)	\$21,501,940
Clarion Lion Properties	\$33,064,911	\$326,971	(\$334,599)	(\$85,449)	(\$93,077)	\$352,423	\$499,263	\$851,686	\$33,823,520
ICERS State Street Real Estate	\$1,723,023	\$33,956	(\$14,740)	\$0	\$19,216	\$9	(\$0)	\$9	\$1,742,247
ASB Allegiance Real Estate	\$32,777,910	\$75,185	\$0	(\$75,185)	\$0	\$260,164	\$393,869	\$654,033	\$33,431,944
ARA American Strategic Value Realty	\$0	\$1,750,000	\$0	\$0	\$1,750,000	\$0	\$37,262	\$37,262	\$1,787,262
Portfolio Advisors	\$11,250,000	\$1,249,779	\$0	\$0	\$1,249,779	\$0	\$47,335	\$47,335	\$12,547,114
PIMCO BRAVO <sup>1</sup>	\$598,078	\$0	(\$230,928)	(\$2,386)	(\$233,314)	\$9,164	(\$1,555)	\$7,609	\$372,374
KKR Mezzanine I <sup>1</sup>	\$2,614,311	\$0	(\$72,198)	\$14,669	(\$57,529)	\$137,806	(\$53,277)	\$84,529	\$2,641,312
HarbourVest International VI <sup>1</sup>	\$3,025,382	\$0	(\$81,861)	(\$8,292)	(\$90,153)	\$0	\$159,424	\$159,424	\$3,094,653
HarbourVest Buyout IX <sup>1</sup>	\$6,232,339	\$257,409	\$0	(\$24,896)	\$232,513	\$0	\$458,525	\$458,525	\$6,923,377
HarbourVest Credit Opportunities IX <sup>1</sup>	\$1,111,705	\$1,869	\$0	(\$4,980)	(\$3,111)	\$0	\$63,516	\$63,516	\$1,172,110
HarbourVest Venture IX <sup>1</sup>	\$3,689,446	\$52,984	\$0	(\$10,003)	\$42,981	\$0	\$237,188	\$237,188	\$3,969,615
HarbourVest 2017 Global <sup>1</sup>	\$3,871,112	\$2,400,000	\$0	(\$33,750)	\$2,366,250	(\$400)	\$353,487	\$353,087	\$6,590,449
Cash	\$7,227,280	\$0	(\$2,702,755)	\$0	(\$2,702,755)	\$0	\$0	\$0	\$4,524,525
<b>Totals</b>	<b>\$821,888,855</b>	<b>\$6,148,153</b>	<b>(\$6,187,080)</b>	<b>(\$230,272)</b>	<b>(\$269,198)</b>	<b>\$759,167</b>	<b>(\$2,598,178)</b>	<b>(\$1,839,012)</b>	<b>\$819,780,645</b>

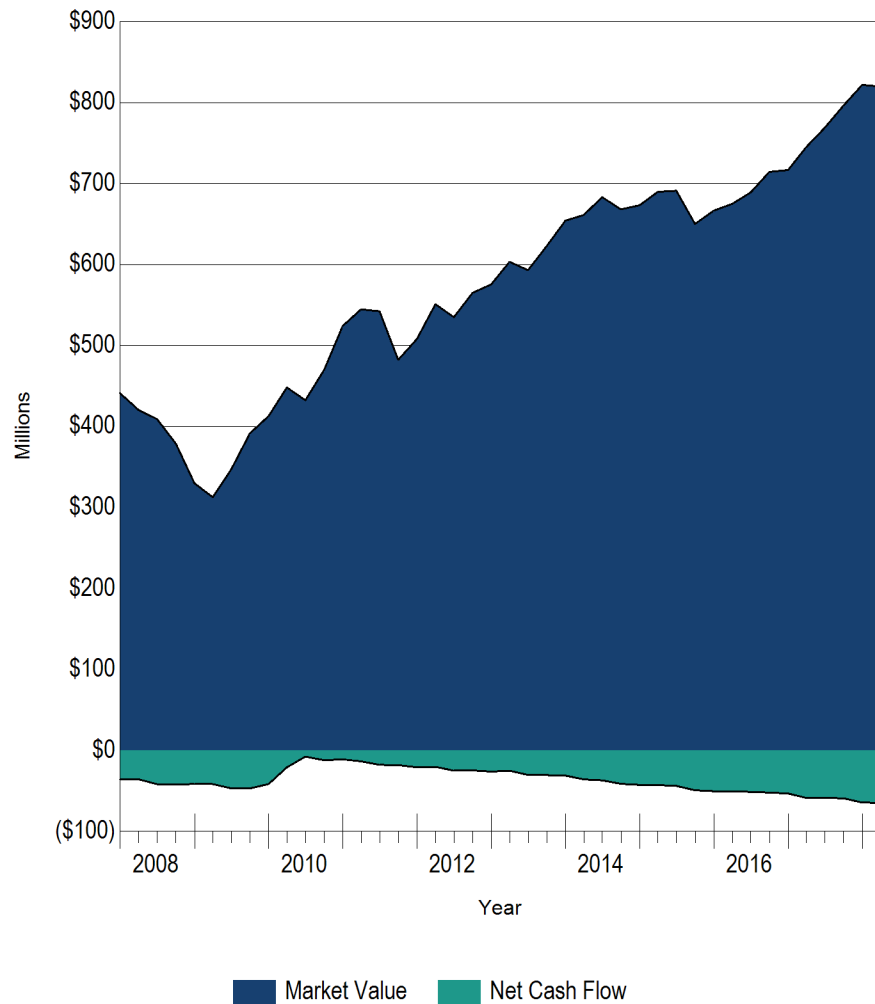
<sup>1</sup>Market value as of 12/31/2017 +/- 1Q18 calls and distributions

<sup>2</sup>Fee transactions not included in the Portfolio Reconciliation page at beginning of report

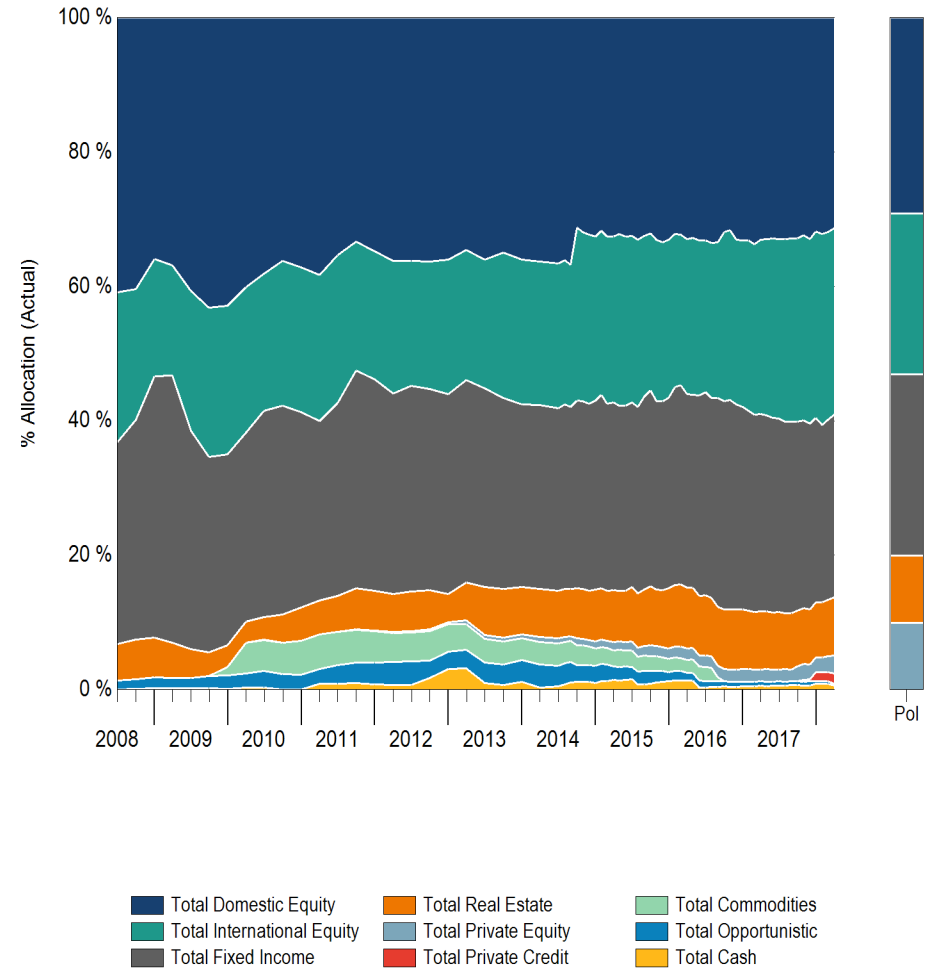
# Total Fund Asset Allocation History

Period Ending: March 31, 2018

Market Value History

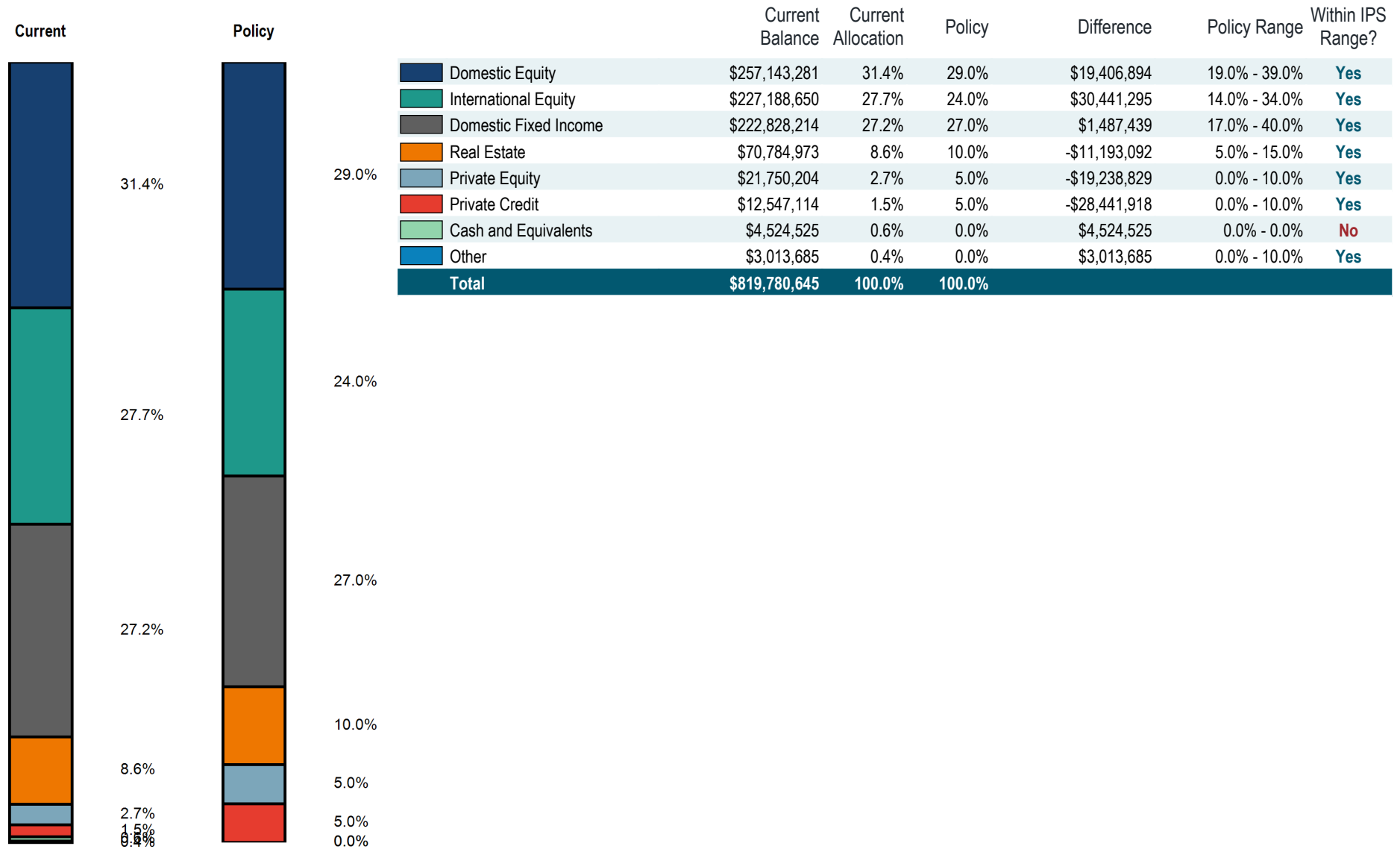


Asset Allocation History



# Total Fund Asset Allocation vs. Policy

Period Ending: March 31, 2018



# Total Fund Investment Fee Analysis

Period Ending: March 31, 2018

Account	Fee Schedule	Market Value As of 3/31/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,742,247	0.2%	--	--
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	\$1,787,262	0.2%	\$22,341	1.25%
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$33,431,944	4.1%	\$300,740	0.90%
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$154,823,237	18.9%	\$125,000	0.08%
BlackRock Russell 3000	0.03% of Assets	\$257,143,281	31.4%	\$77,143	0.03%
BlackRock US TIPS	0.07% of Assets	\$21,501,940	2.6%	\$15,051	0.07%
Cash Account	No Fee	\$4,524,525	0.6%	--	--
Clarion Lion	1.25% of First 10.0 Mil, 1.00% of Next 15.0 Mil, 0.85% Thereafter	\$33,823,520	4.1%	\$350,000	1.03%
DFA Emerging Markets Value	0.57% of Assets	\$34,296,988	4.2%	\$195,493	0.57%
Harbourvest 2017 Global Fund	262,500 Annually	\$6,590,449	0.8%	\$262,500	3.98%
Harbourvest Buyout IX	100,000 Annually	\$6,923,377	0.8%	\$100,000	1.44%
Harbourvest Credit Ops IX	20,000 Annually	\$1,172,110	0.1%	\$20,000	1.71%
Harbourvest International PE VI	35,000 Annually	\$3,094,653	0.4%	\$35,000	1.13%
Harbourvest Venture IX	40,000 Annually	\$3,969,615	0.5%	\$40,000	1.01%
Harding Loevner Emerging Markets	1.05% of Assets	\$38,068,425	4.7%	\$399,718	1.05%
KKR Mezzanine Partners	150,000 Annually	\$2,641,312	0.3%	\$150,000	5.68%
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$89,637,076	11.0%	\$313,730	0.35%
PIMCO BRAVO	1.90% of Assets	\$372,374	0.0%	\$7,075	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$11,297,335	1.4%	\$180,000	1.59%
Tortoise Capital	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$111,689,198	13.6%	\$314,223	0.28%
Verus Advisory Fee	\$175,000 Annually	\$0	0.0%	--	--
<b>Investment Management Fee</b>		<b>\$818,530,866</b>	<b>100.0%</b>	<b>\$2,908,014</b>	<b>0.36%</b>

\*HarbourVest, KKR and PIMCO BRAVO fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund.

\*HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

\*Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations.

\*Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

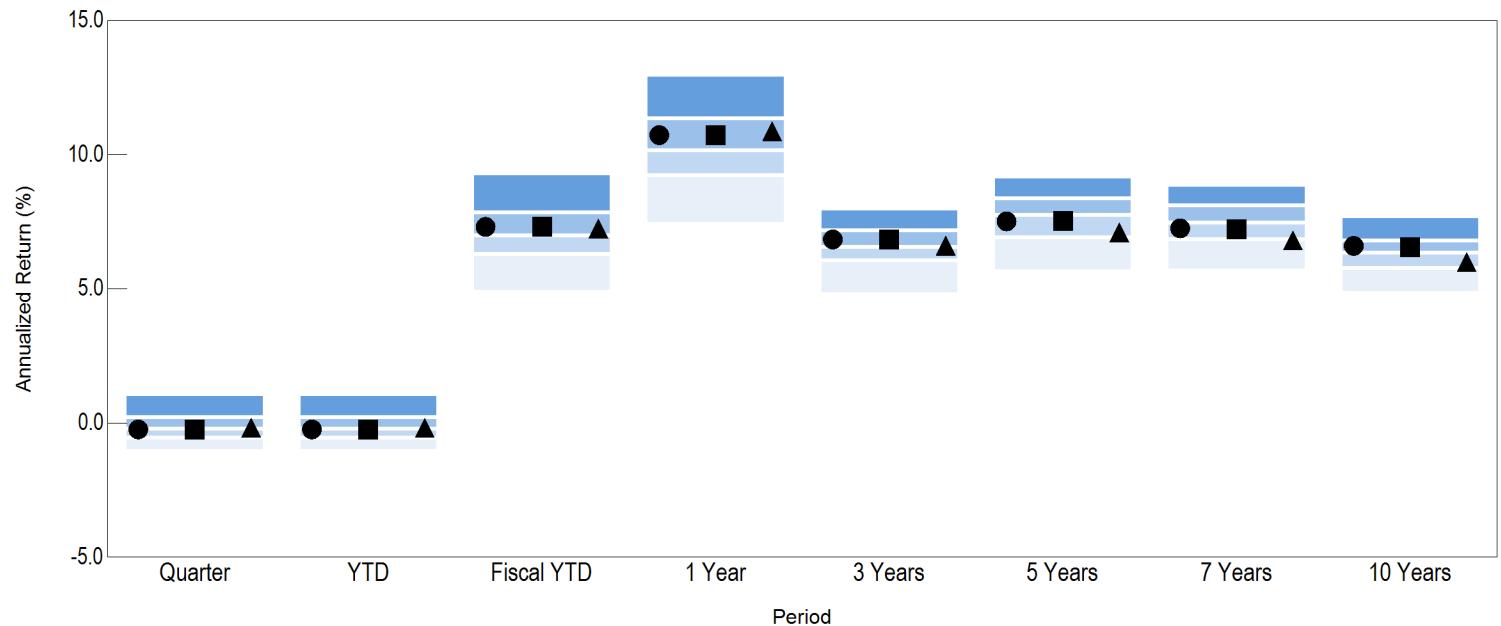
\*Total fund market value excludes other investments managed by Portfolio Advisors.

# Total Fund

## Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: March 31, 2018

Total Fund Cumulative Performance vs. InvestorForce Public DB Gross

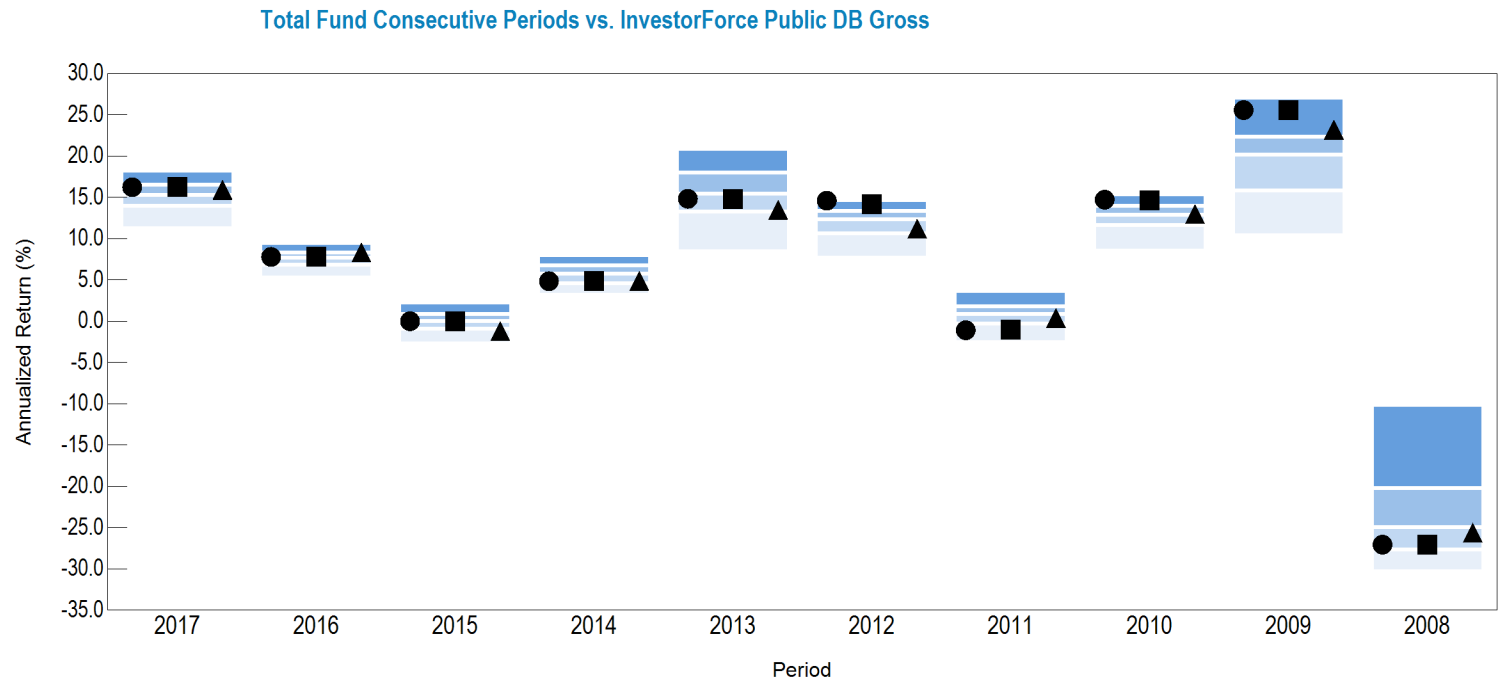


	Return (Rank)											
5th Percentile	1.1		1.1		9.3		13.0		8.0		9.2	
25th Percentile	0.2		0.2		7.9		11.4		7.2		8.4	
Median	-0.2		-0.2		7.0		10.2		6.6		7.8	
75th Percentile	-0.5		-0.5		6.3		9.2		6.1		6.9	
95th Percentile	-1.0		-1.0		4.9		7.4		4.8		5.7	
# of Portfolios	296		296		293		293		277		251	
● Total Fund	-0.2	(53)	-0.2	(53)	7.3	(42)	10.7	(40)	6.8	(42)	7.5	(58)
■ Total Fund ex Parametric	-0.2	(53)	-0.2	(53)	7.3	(42)	10.7	(40)	6.8	(42)	7.5	(57)
▲ Policy Index	-0.2	(50)	-0.2	(50)	7.2	(44)	10.9	(36)	6.6	(50)	7.1	(70)
											6.8	(77)
											6.6	(39)
											6.6	(40)
											6.0	(69)

# Total Fund

## Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: March 31, 2018



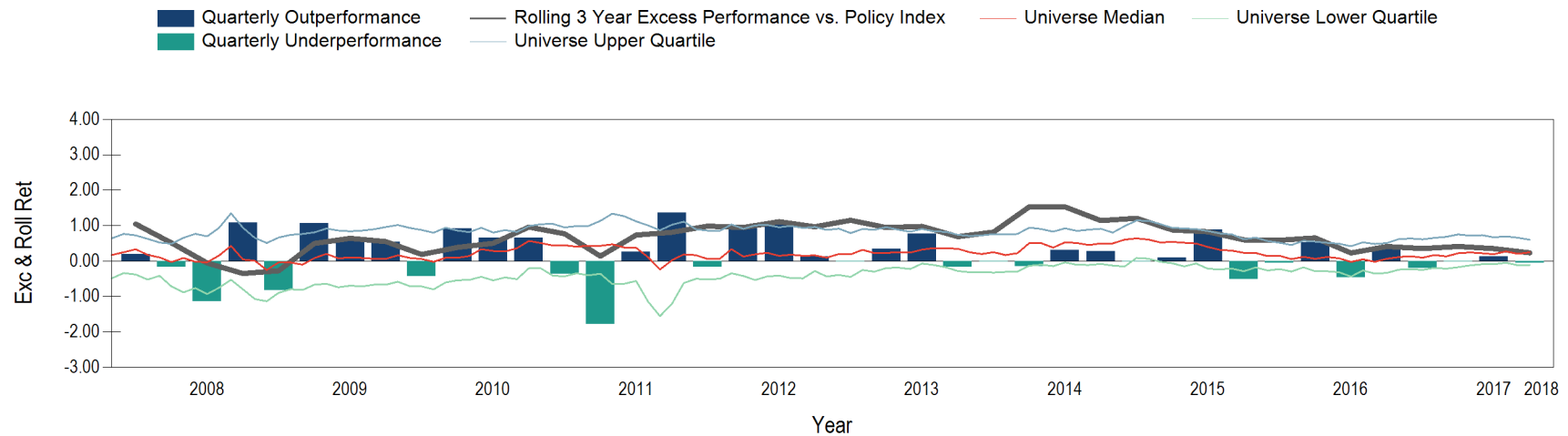
	Return (Rank)									
5th Percentile	18.2	9.4	2.2	8.0	20.8	14.6	3.6	15.4	27.0	-10.1
25th Percentile	16.5	8.4	0.9	6.8	18.0	13.4	1.9	14.0	22.4	-20.1
Median	15.3	7.7	0.1	5.8	15.5	12.4	0.9	12.9	20.2	-24.9
75th Percentile	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	11.7	15.9	-27.6
95th Percentile	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	8.6	10.5	-30.3
# of Portfolios	304	305	316	248	231	236	206	188	184	181
● Total Fund	16.2 (30)	7.8 (49)	0.0 (53)	4.8 (74)	14.8 (59)	14.6 (6)	-1.1 (89)	14.7 (13)	25.6 (11)	-27.1 (68)
■ Total Fund ex Parametric	16.2 (30)	7.8 (49)	0.0 (53)	4.9 (72)	14.7 (59)	14.2 (11)	-1.0 (88)	14.7 (15)	25.6 (11)	-27.1 (68)
▲ Policy Index	15.9 (40)	8.3 (26)	-1.2 (81)	4.9 (72)	13.5 (74)	11.2 (72)	0.4 (63)	13.0 (49)	23.2 (23)	-25.6 (58)

# Total Fund

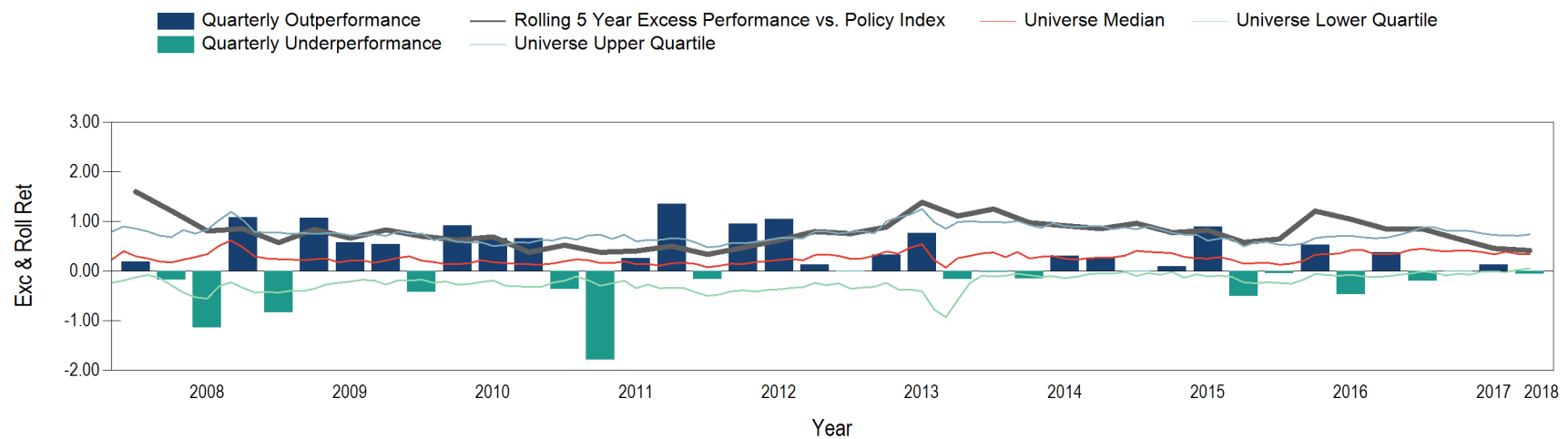
## Rolling Return Analysis (Gross of Fees)

Period Ending: March 31, 2018

### Rolling 3 Year Annualized Excess Performance



### Rolling 5 Year Annualized Excess Performance



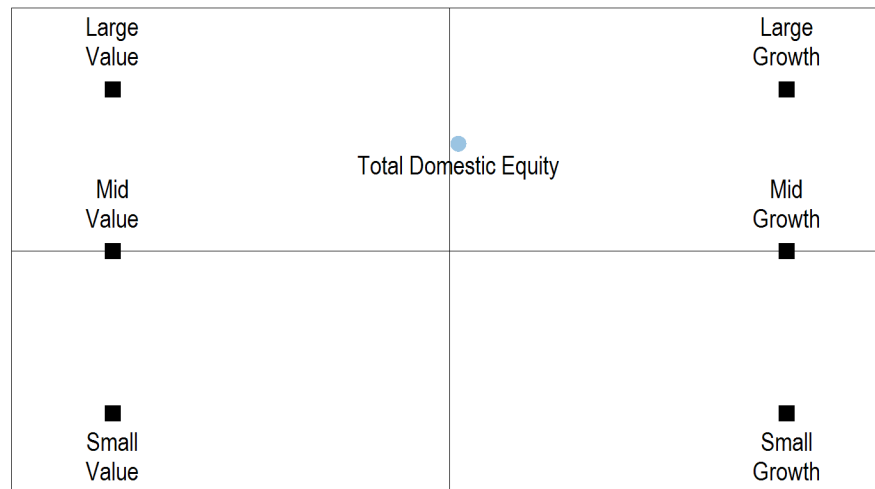
# Total Domestic Equity

## Asset Class Overview (Gross of Fees)

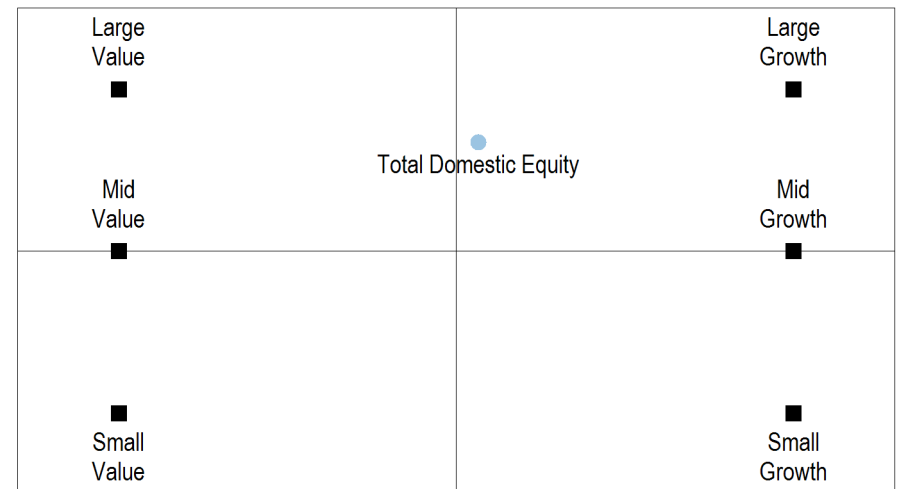
Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Domestic Equity</b>	<b>257,143,281</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.1</b>	<b>12.6</b>	<b>9.9</b>	<b>21.2</b>	<b>12.9</b>	<b>0.3</b>	<b>10.2</b>	<b>33.9</b>
<i>Russell 3000</i>		-0.6	10.5	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6
<i>InvestorForce Public DB US Eq Gross Rank</i>		65	52	47	50	63	38	35	51	44	73	64
<b>BlackRock Russell 3000</b>	<b>257,143,281</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	--	--	--	<b>21.2</b>	<b>12.9</b>	--	--	--
<i>Russell 3000</i>		-0.6	10.5	13.8	--	--	--	21.1	12.7	--	--	--
<i>eV US All Cap Core Equity Gross Rank</i>		59	50	48	--	--	--	49	35	--	--	--

U.S. Effective Style Map  
3 Years Ending March 31, 2018



U.S. Effective Style Map  
5 Years Ending March 31, 2018



Total Domestic Equity  
Asset Class Overview (Net of Fees)

Period Ending: March 31, 2018

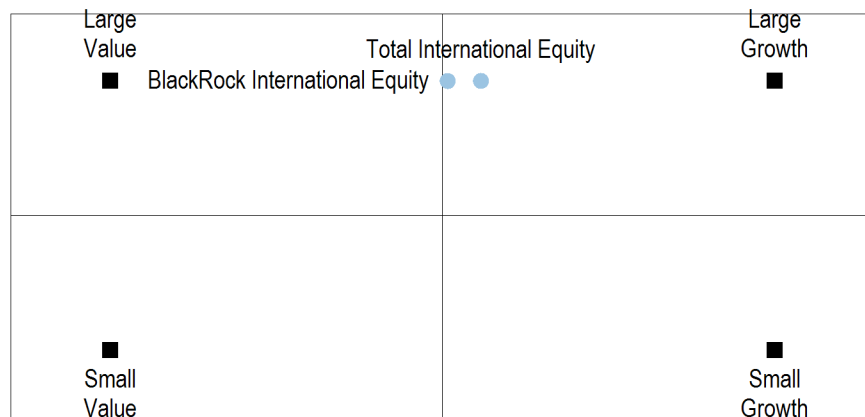
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Domestic Equity</b>	<b>257,143,281</b>	<b>-0.7</b>	<b>10.5</b>	<b>13.9</b>	<b>10.0</b>	<b>12.5</b>	<b>9.7</b>	<b>21.2</b>	<b>12.8</b>	<b>0.1</b>	<b>10.0</b>	<b>33.6</b>
<i>Russell 3000</i>		-0.6	10.5	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6
BlackRock Russell 3000	257,143,281	-0.7	10.5	13.9	--	--	--	21.2	12.8	--	--	--
<i>Russell 3000</i>		-0.6	10.5	13.8	--	--	--	21.1	12.7	--	--	--

# Total International Equity Asset Class Overview (Gross of Fees)

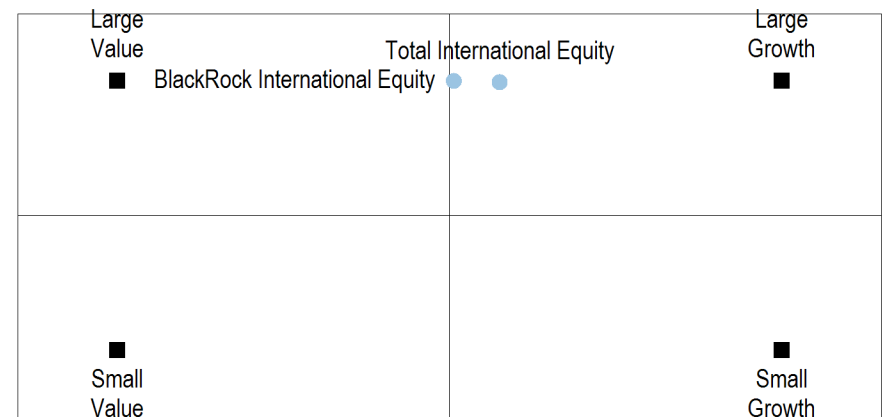
Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total International Equity</b>	<b>227,188,650</b>	<b>-0.2</b>	<b>10.8</b>	<b>17.4</b>	<b>7.5</b>	<b>6.8</b>	<b>3.1</b>	<b>28.3</b>	<b>4.7</b>	<b>-3.5</b>	<b>-4.4</b>	<b>14.0</b>
MSCI ACWI ex USA Gross		-1.2	10.3	16.9	6.6	6.3	3.2	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank		48	55	68	52	64	71	59	40	57	74	83
BlackRock International Equity	154,823,237	-1.6	8.2	15.1	5.9	6.8	3.1	25.5	1.5	-0.5	-4.7	23.2
MSCI EAFE Gross		-1.6	8.2	15.1	6.0	6.9	3.2	25.6	1.5	-0.4	-4.5	23.3
eV All EAFE Equity Gross Rank		73	70	70	77	80	84	65	47	67	64	61
DFA Emerging Markets Value	34,296,988	2.4	17.0	20.4	10.7	4.9	3.2	34.5	20.5	-18.3	-3.9	-3.2
MSCI Emerging Markets Gross		1.3	17.7	25.2	9.2	5.3	3.3	37.8	11.6	-14.6	-1.8	-2.3
eV Emg Mkts Equity Gross Rank		30	57	74	45	77	86	70	7	92	84	84
Harding Loevner Emerging Markets	38,068,425	3.2	16.9	24.7	--	--	--	35.0	--	--	--	--
MSCI Emerging Markets Gross		1.3	17.7	25.2	--	--	--	37.8	--	--	--	--
eV Emg Mkts Equity Gross Rank		14	57	51	--	--	--	68	--	--	--	--

EAFE Effective Style Map  
3 Years Ending March 31, 2018



EAFE Effective Style Map  
5 Years Ending March 31, 2018



# Total International Equity Asset Class Overview (Net of Fees)

Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total International Equity</b>	<b>227,188,650</b>	<b>-0.3</b>	<b>10.6</b>	<b>17.0</b>	<b>7.1</b>	<b>6.3</b>	<b>2.6</b>	<b>27.9</b>	<b>4.4</b>	<b>-4.0</b>	<b>-4.9</b>	<b>13.4</b>
MSCI ACWI ex USA Gross		-1.2	10.3	16.9	6.6	6.3	3.2	27.8	5.0	-5.3	-3.4	15.8
BlackRock International Equity	154,823,237	-1.6	8.1	15.0	5.8	6.7	3.0	25.4	1.3	-0.6	-4.8	22.9
MSCI EAFE Gross		-1.6	8.2	15.1	6.0	6.9	3.2	25.6	1.5	-0.4	-4.5	23.3
DFA Emerging Markets Value	34,296,988	2.2	16.5	19.8	10.1	4.3	2.6	33.8	19.8	-18.8	-4.4	-3.8
MSCI Emerging Markets Gross		1.3	17.7	25.2	9.2	5.3	3.3	37.8	11.6	-14.6	-1.8	-2.3
Harding Loevner Emerging Markets	38,068,425	3.0	16.0	23.4	--	--	--	33.6	--	--	--	--
MSCI Emerging Markets Gross		1.3	17.7	25.2	--	--	--	37.8	--	--	--	--

EM Effective Style Map  
3 Years Ending March 31, 2018

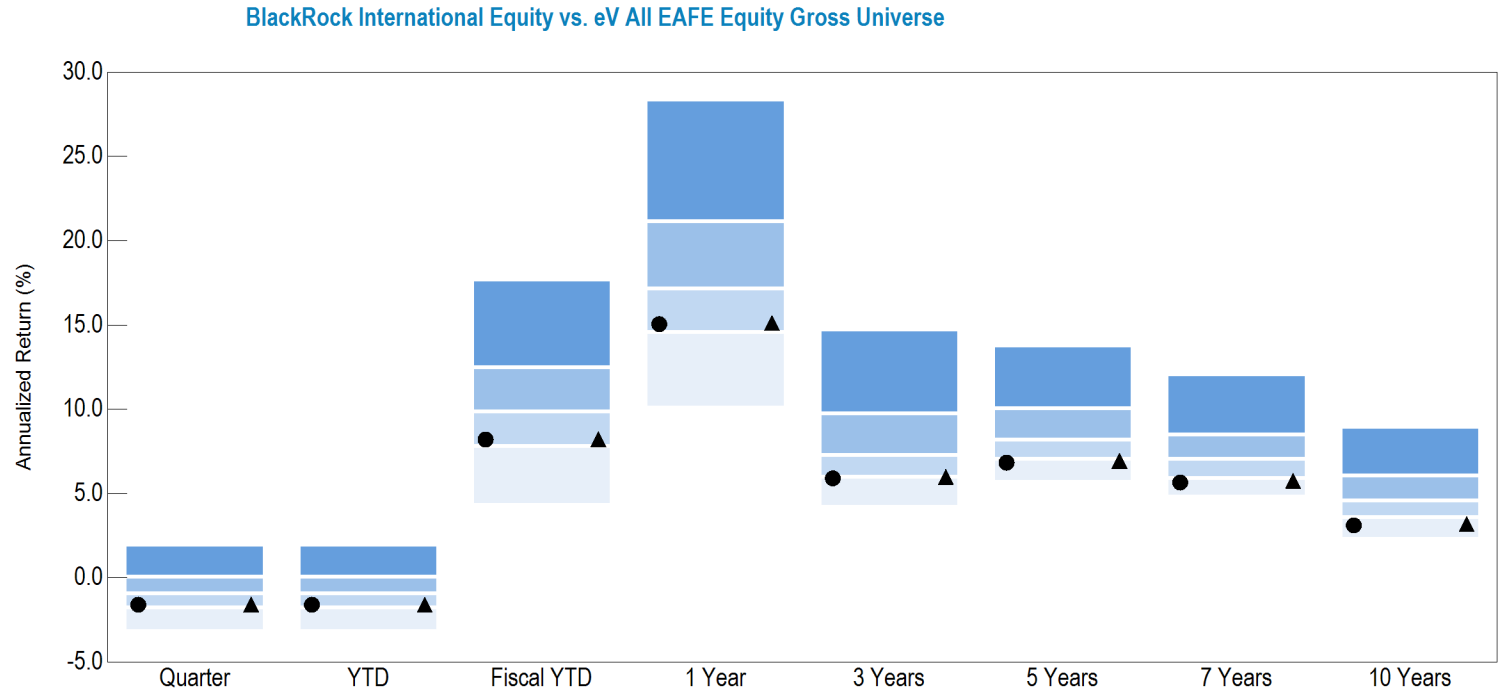


EM Effective Style Map  
5 Years Ending March 31, 2018



# BlackRock International Equity Cumulative Performance Comparison (Gross of Fees)

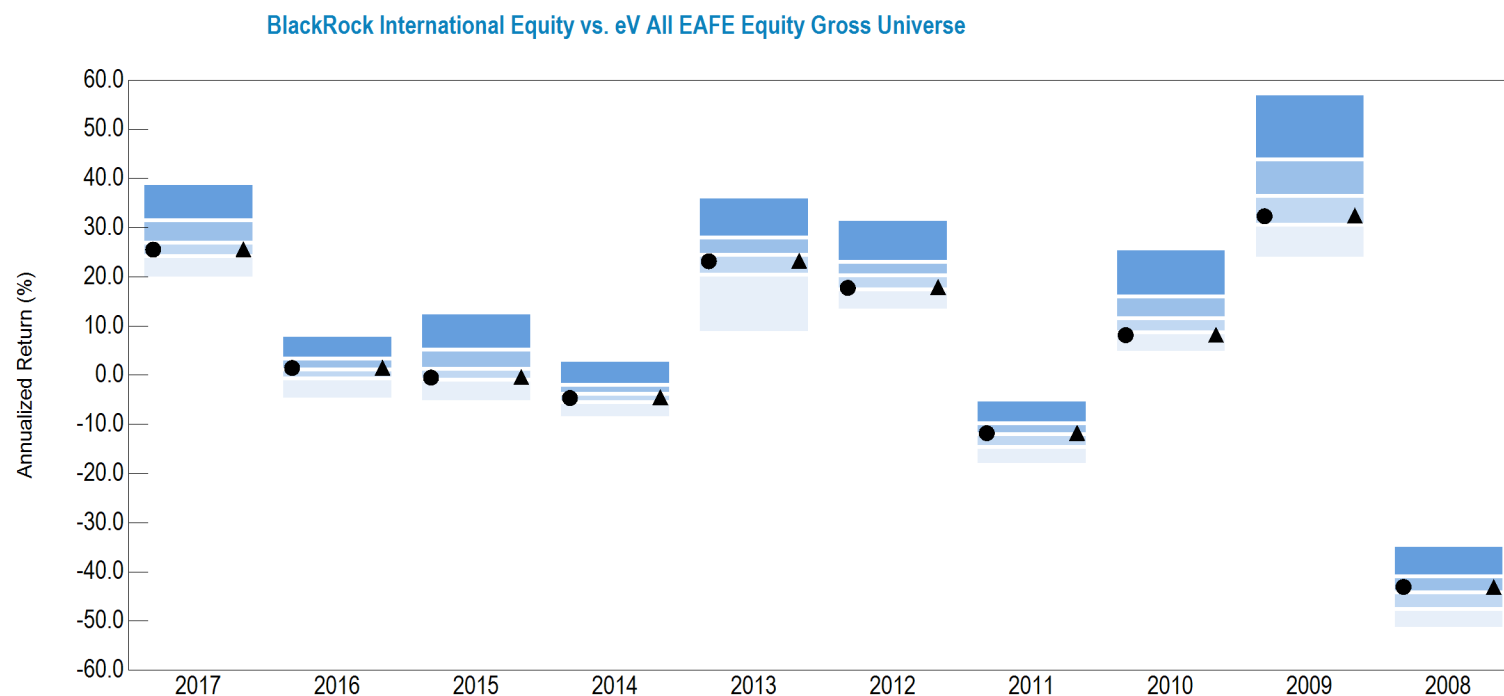
Period Ending: March 31, 2018



	Return (Rank)													
5th Percentile	1.9		1.9		17.7		28.3		14.7		13.8		12.0	
25th Percentile	0.1		0.1		12.5		21.2		9.8		10.1		8.5	
Median	-0.9		-0.9		9.9		17.2		7.3		8.2		7.1	
75th Percentile	-1.7		-1.7		7.8		14.6		6.0		7.1		6.0	
95th Percentile	-3.1		-3.1		4.4		10.1		4.2		5.7		4.8	
# of Portfolios	379		379		379		379		353		320		293	
● BlackRock International Equity	-1.6	(73)	-1.6	(73)	8.2	(70)	15.1	(70)	5.9	(77)	6.8	(80)	5.7	(83)
▲ MSCI EAFE Gross	-1.6	(73)	-1.6	(73)	8.2	(70)	15.1	(68)	6.0	(76)	6.9	(77)	5.8	(79)

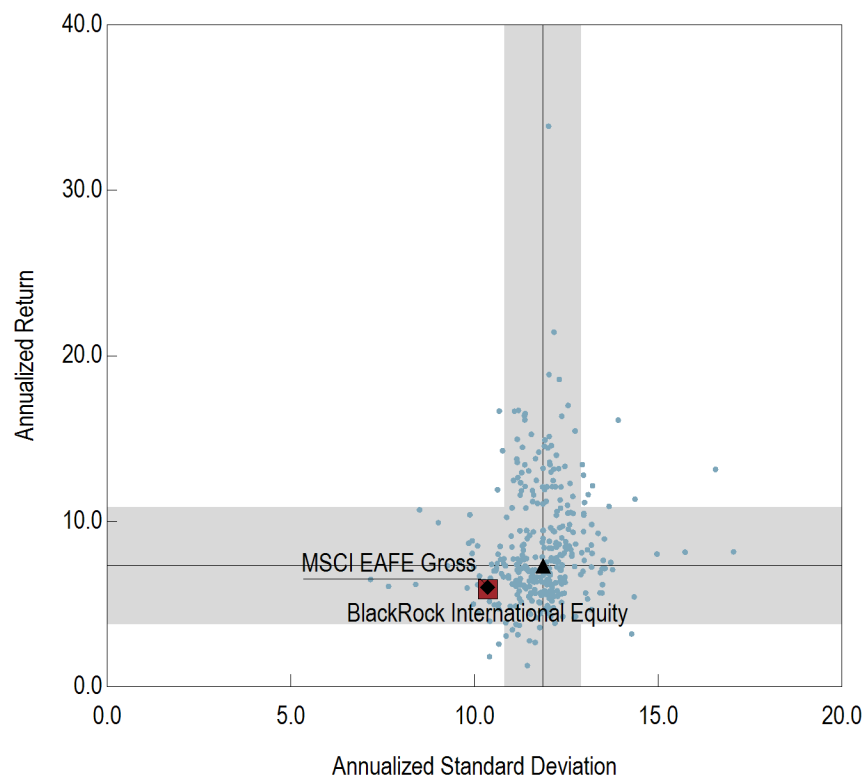
# BlackRock International Equity Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2018



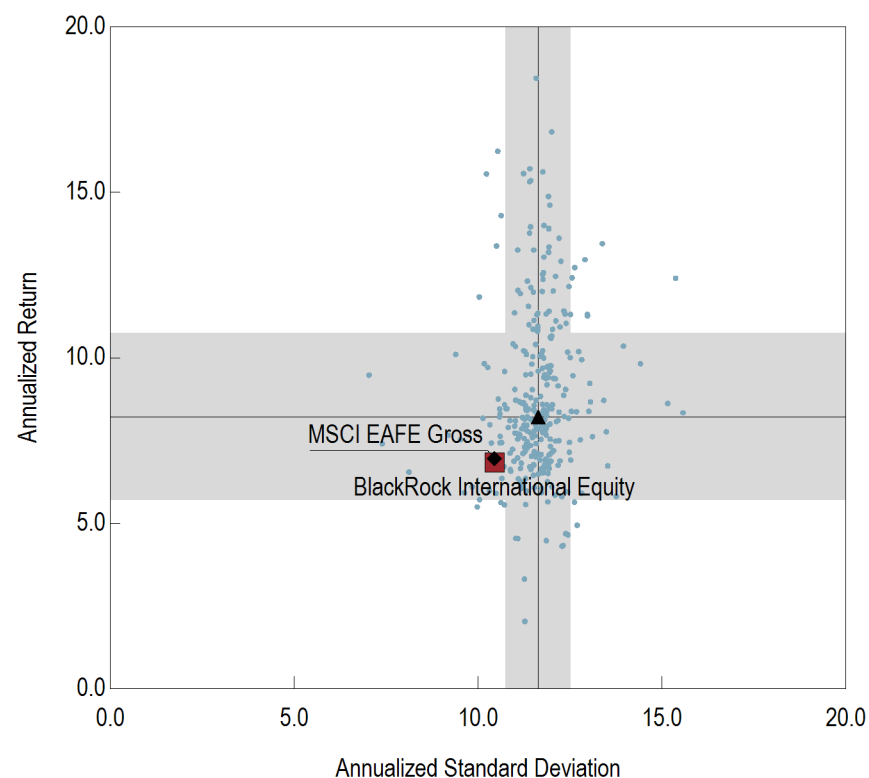
	Return (Rank)									
5th Percentile	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7	57.3	-34.5
25th Percentile	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1	44.0	-40.8
Median	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7	36.5	-44.1
75th Percentile	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7	30.7	-47.5
95th Percentile	19.7	-4.9	-5.4	-8.6	8.6	13.3	-18.2	4.6	23.7	-51.5
# of Portfolios	370	350	325	314	284	263	278	352	455	477
● BlackRock International Equity	25.5 (65)	1.5 (47)	-0.5 (67)	-4.7 (64)	23.2 (61)	17.8 (74)	-11.8 (48)	8.1 (79)	32.3 (68)	-43.1 (41)
▲ MSCI EAFE Gross	25.6 (63)	1.5 (47)	-0.4 (66)	-4.5 (60)	23.3 (60)	17.9 (72)	-11.7 (47)	8.2 (78)	32.5 (67)	-43.1 (41)

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending March 31, 2018



- BlackRock International Equity
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- ▣ 68% Confidence Interval
- eV All EAFE Equity Gross

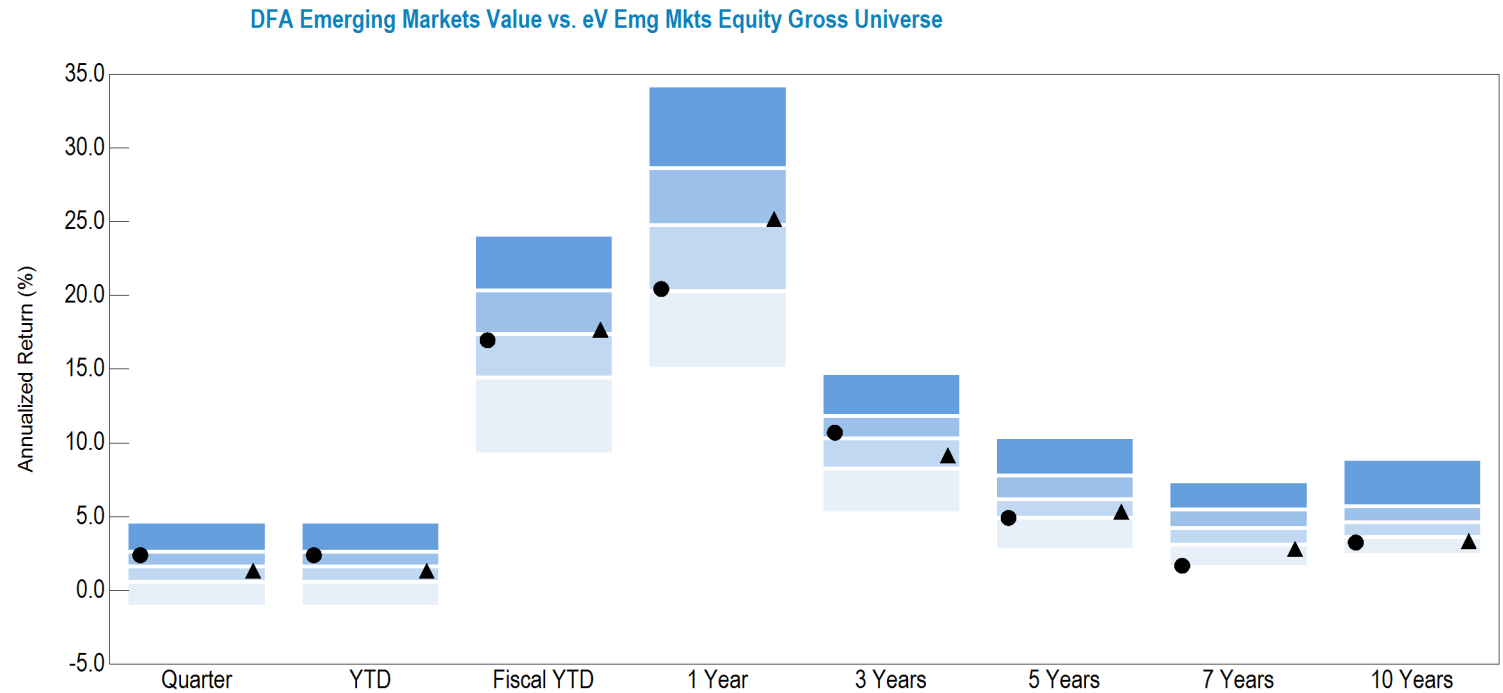
Annualized Return vs. Annualized Standard Deviation  
5 Years Ending March 31, 2018



- BlackRock International Equity
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- ▣ 68% Confidence Interval
- eV All EAFE Equity Gross

# DFA Emerging Markets Value Cumulative Performance Comparison (Gross of Fees)

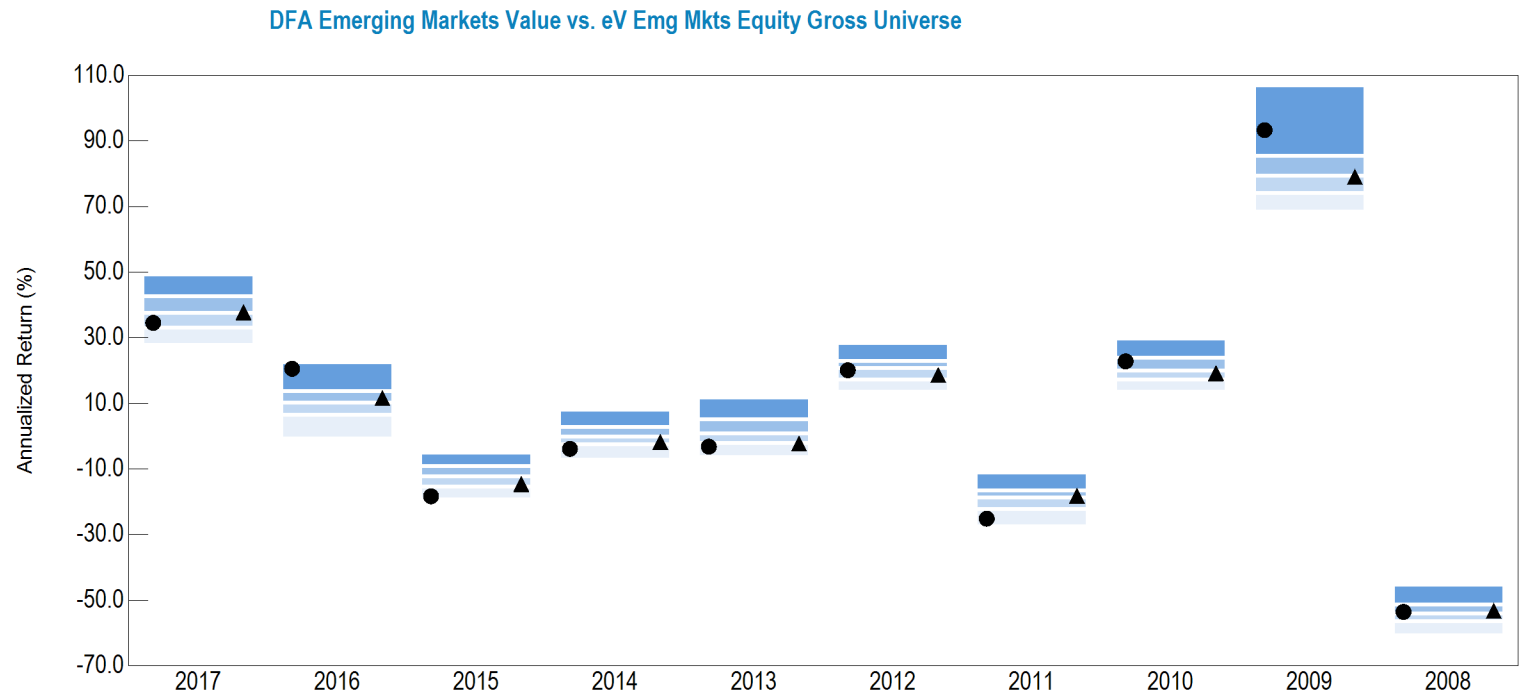
Period Ending: March 31, 2018



	Return (Rank)															
5th Percentile	4.6		4.6		24.1		34.2		14.7		10.4		7.4		8.9	
25th Percentile	2.6		2.6		20.4		28.7		11.9		7.8		5.5		5.7	
Median	1.7		1.7		17.4		24.8		10.3		6.2		4.2		4.7	
75th Percentile	0.6		0.6		14.5		20.3		8.3		5.0		3.1		3.6	
95th Percentile	-1.1		-1.1		9.3		15.1		5.3		2.8		1.6		2.4	
# of Portfolios	341		341		340		340		317		271		198		135	
● DFA Emerging Markets Value	2.4	(30)	2.4	(30)	17.0	(57)	20.4	(74)	10.7	(45)	4.9	(77)	1.7	(95)	3.2	(86)
▲ MSCI Emerging Markets Gross	1.3	(60)	1.3	(60)	17.7	(48)	25.2	(47)	9.2	(66)	5.3	(68)	2.8	(80)	3.3	(83)

# DFA Emerging Markets Value Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2018

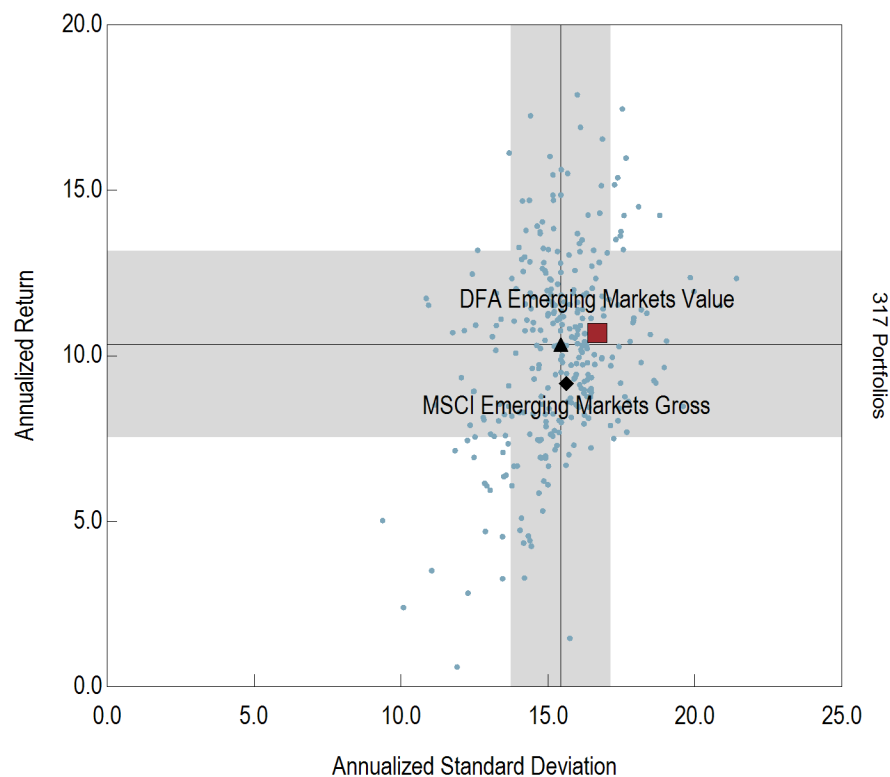


	Return (Rank)									
5th Percentile	49.2	22.4	-5.0	8.0	11.7	28.4	-11.1	29.6	106.8	-45.4
25th Percentile	42.8	13.7	-9.0	2.9	5.2	23.0	-16.4	23.9	85.5	-51.3
Median	37.6	10.4	-12.2	-0.1	1.0	20.9	-18.6	20.1	79.5	-54.0
75th Percentile	33.2	6.6	-15.3	-2.4	-2.0	17.3	-22.2	17.3	74.3	-56.3
95th Percentile	27.8	-0.6	-19.2	-7.0	-6.3	13.7	-27.3	13.7	68.5	-60.7
# of Portfolios	343	337	273	251	198	155	139	113	113	118
● DFA Emerging Markets Value	34.5 (70)	20.5 (7)	-18.3 (92)	-3.9 (84)	-3.2 (84)	20.1 (56)	-25.2 (92)	22.8 (33)	93.3 (12)	-53.6 (44)
▲ MSCI Emerging Markets Gross	37.8 (49)	11.6 (40)	-14.6 (67)	-1.8 (69)	-2.3 (78)	18.6 (68)	-18.2 (45)	19.2 (62)	79.0 (54)	-53.2 (37)

# DFA Emerging Markets Value Risk vs Return Three & Five Year (Gross of Fees)

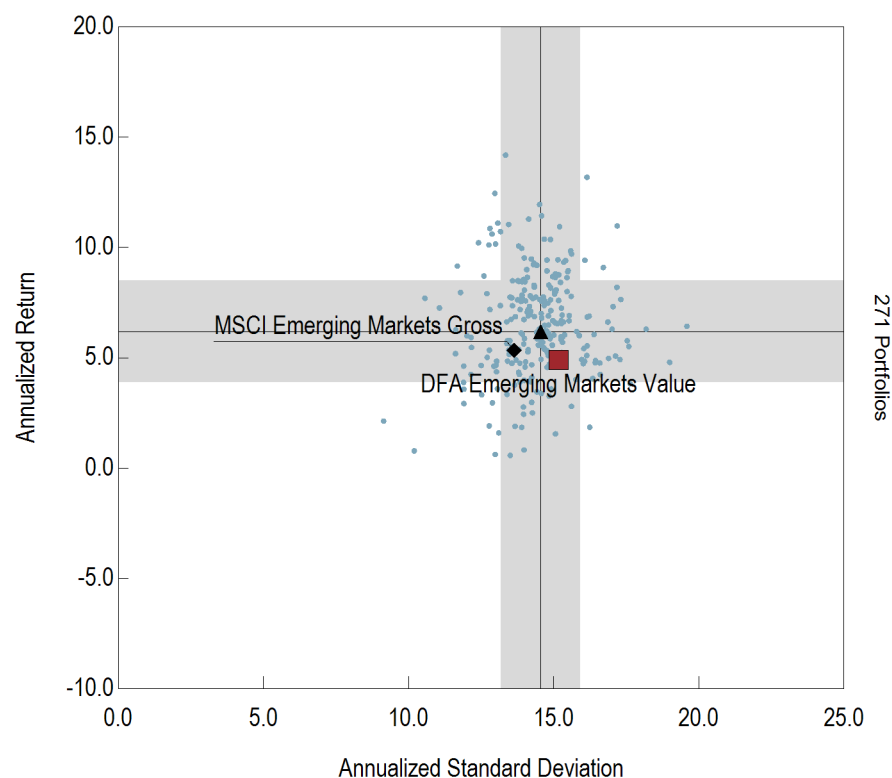
Period Ending: March 31, 2018

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending March 31, 2018



- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- ▣ 68% Confidence Interval
- eV Emg Mkts Equity Gross

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending March 31, 2018

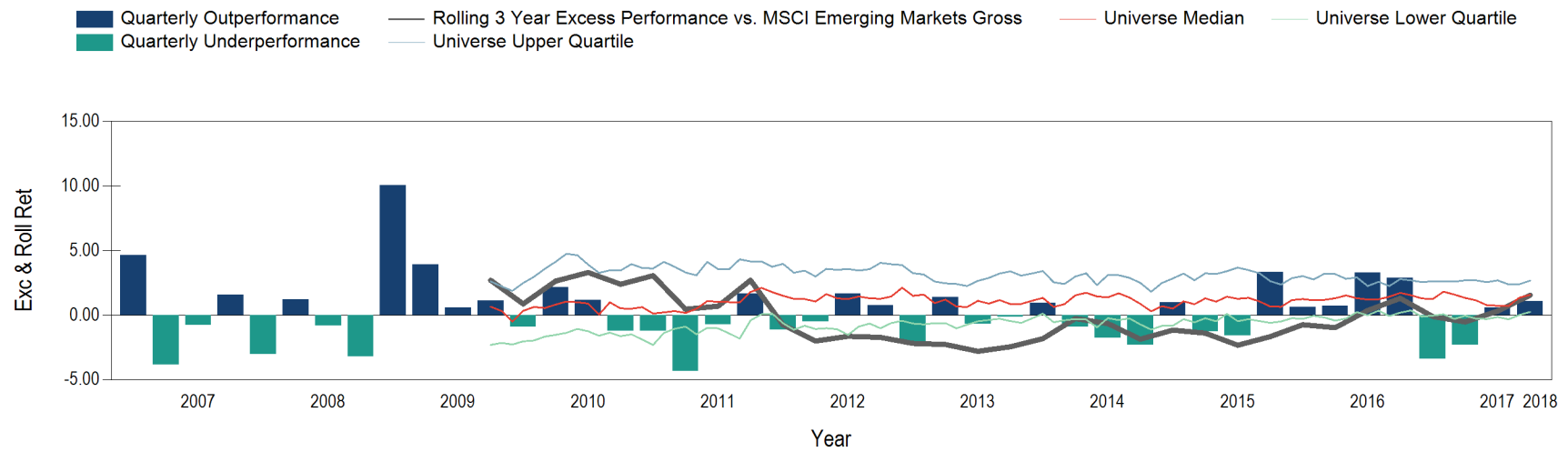


- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- ▣ 68% Confidence Interval
- eV Emg Mkts Equity Gross

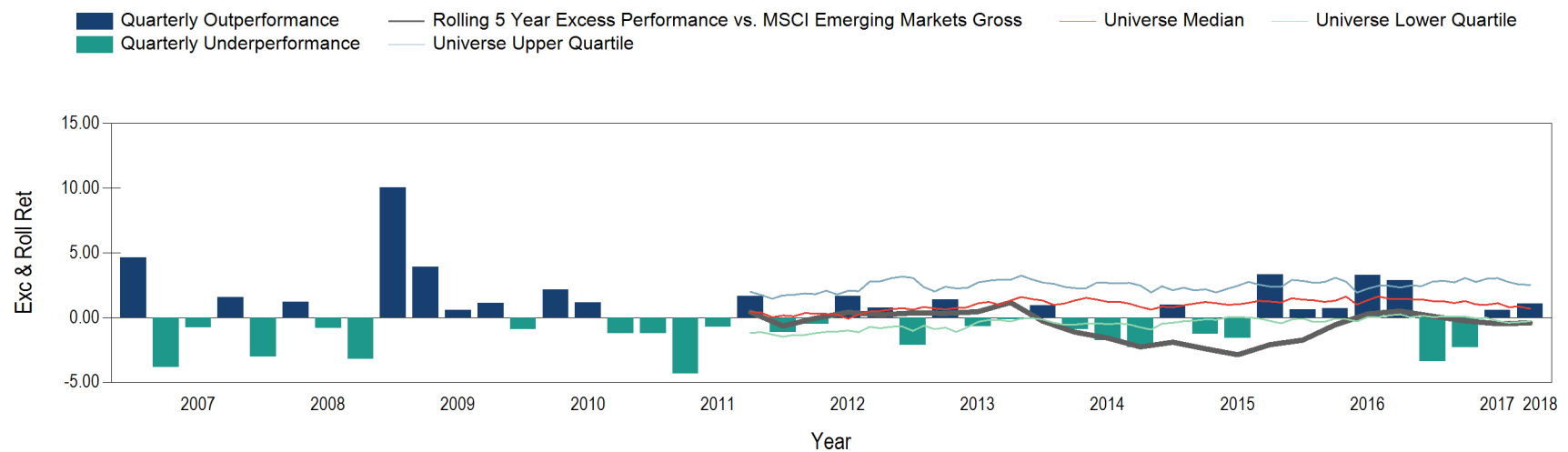
# DFA Emerging Markets Value Rolling Return Analysis (Gross of Fees)

Period Ending: March 31, 2018

## Rolling 3 Year Annualized Excess Performance



## Rolling 5 Year Annualized Excess Performance

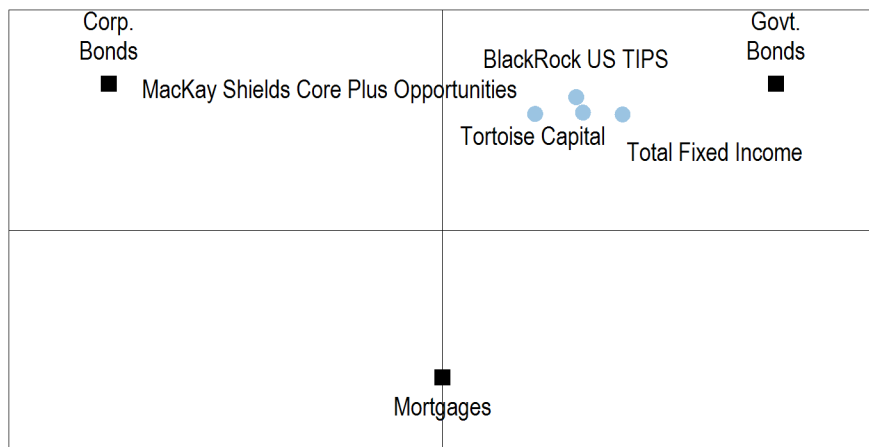


# Total Fixed Income Asset Class Overview (Gross of Fees)

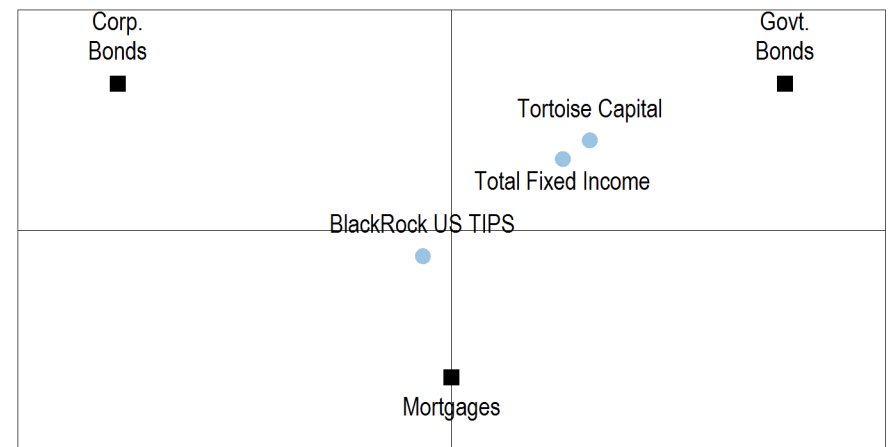
Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Fixed Income</b>	<b>222,828,214</b>	<b>-1.1</b>	<b>0.7</b>	<b>2.1</b>	<b>2.1</b>	<b>2.4</b>	<b>5.3</b>	<b>4.6</b>	<b>5.1</b>	<b>-0.3</b>	<b>5.9</b>	<b>-1.7</b>
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
InvestorForce Public DB Total Fix Inc Gross Rank		88	59	59	62	50	35	59	41	55	15	69
Tortoise Capital	111,689,198	-0.9	0.8	2.3	2.5	3.2	5.8	4.5	5.1	1.2	7.0	-0.4
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
eV US Core Plus Fixed Inc Gross Rank		18	29	51	34	22	17	70	45	15	16	52
MacKay Shields Core Plus Opportunities	89,637,076	-1.5	0.3	2.2	1.7	--	--	4.9	5.1	--	--	--
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	--	--	3.5	2.6	--	--	--
eV US Core Plus Fixed Inc Gross Rank		79	75	64	81	--	--	54	46	--	--	--
BlackRock US TIPS	21,501,940	-0.7	1.5	1.1	1.5	0.2	3.0	3.2	4.8	-1.2	3.6	-8.5
BBgBarc US TIPS TR		-0.8	1.3	0.9	1.3	0.0	2.9	3.0	4.7	-1.4	3.6	-8.6
eV US TIPS / Inflation Fixed Inc Gross Rank		57	50	47	41	49	49	46	37	43	45	62

Fixed Income Style Map  
3 Years Ending March 31, 2018



Fixed Income Style Map  
5 Years Ending March 31, 2018



# Total Fixed Income Asset Class Overview (Net of Fees)

Period Ending: March 31, 2018

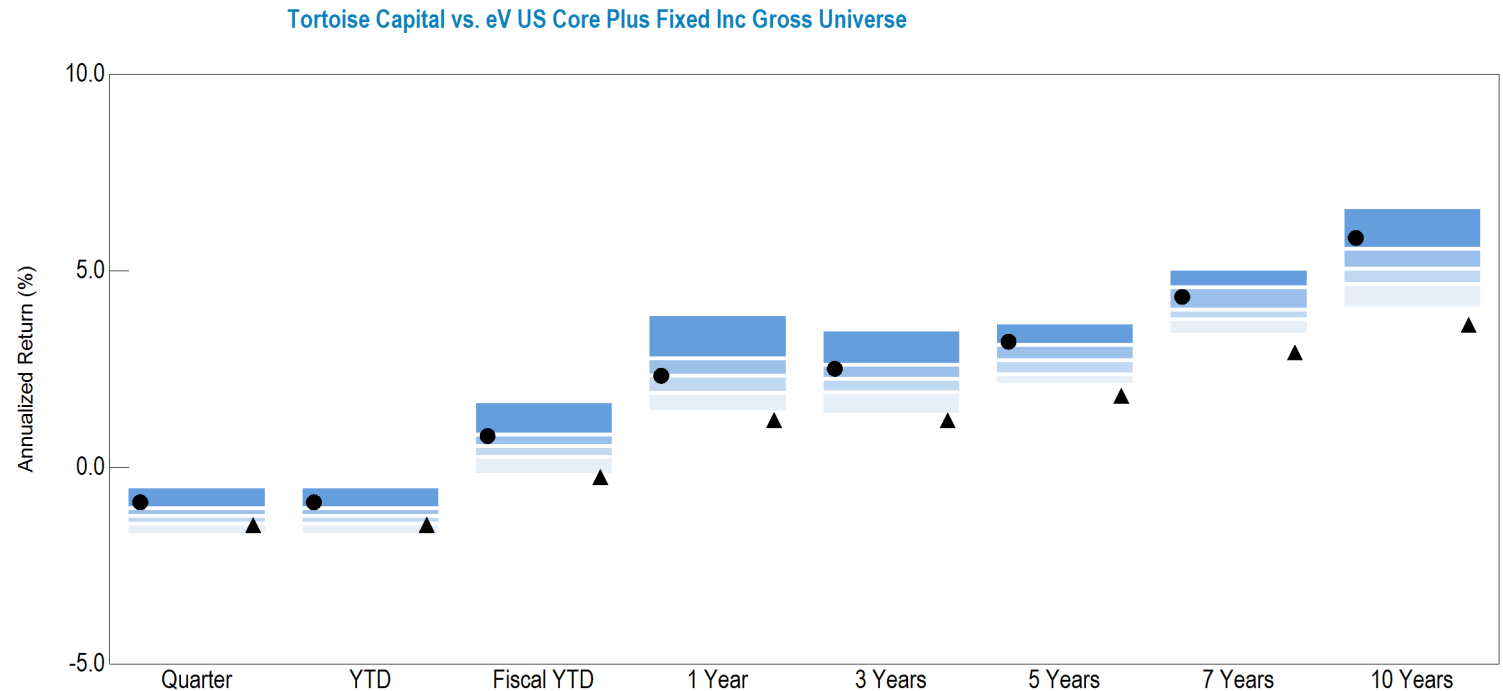
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Fixed Income</b>	<b>222,828,214</b>	<b>-1.2</b>	<b>0.4</b>	<b>1.8</b>	<b>1.8</b>	<b>2.0</b>	<b>4.9</b>	<b>4.3</b>	<b>4.8</b>	<b>-0.6</b>	<b>5.6</b>	<b>-2.0</b>
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
Tortoise Capital	111,689,198	-1.0	0.6	2.0	2.2	2.9	5.5	4.3	4.8	0.9	6.7	-0.8
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
MackKay Shields Core Plus Opportunities	89,637,076	-1.6	0.0	1.8	1.4	--	--	4.5	4.7	--	--	--
BBgBarc US Aggregate TR		-1.5	-0.2	1.2	1.2	--	--	3.5	2.6	--	--	--
BlackRock US TIPS	21,501,940	-0.8	1.4	1.0	1.4	0.1	3.0	3.2	4.8	-1.3	3.6	-8.6
BBgBarc US TIPS TR		-0.8	1.3	0.9	1.3	0.0	2.9	3.0	4.7	-1.4	3.6	-8.6

## Correlation Matrix Last 5 Years

	Total Fixed Income	Tortoise Capital	MackKay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR
Total Fixed Income	1.00	--	--	--	--
Tortoise Capital	0.99	1.00	--	--	--
MackKay Shields Core Plus Opportunities	--	--	--	--	--
BlackRock US TIPS	0.89	0.83	--	1.00	--
BBgBarc US Aggregate TR	0.94	0.96	--	0.77	1.00

# Tortoise Capital Cumulative Performance Comparison (Gross of Fees)

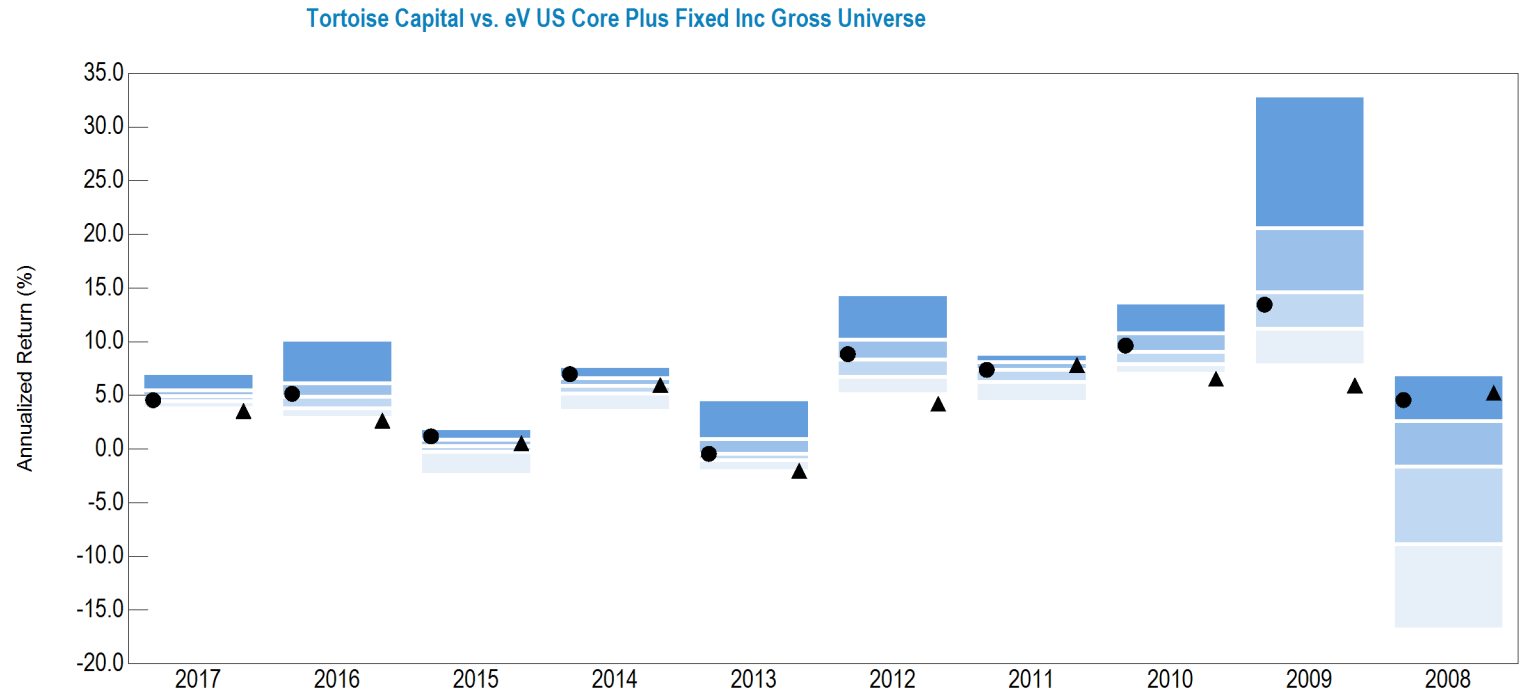
Period Ending: March 31, 2018



	Return (Rank)													
5th Percentile	-0.5	(18)	-0.5	(18)	1.7	(29)	3.9	(51)	3.5	(34)	3.7	(22)	5.1	(33)
25th Percentile	-1.0	(79)	-1.0	(79)	0.9	(96)	2.8	(98)	2.6	(97)	3.1	(99)	4.6	(99)
Median	-1.2		-1.2		0.6		2.3		2.3		2.7		4.0	
75th Percentile	-1.4		-1.4		0.3		1.9		1.9		2.4		3.8	
95th Percentile	-1.7		-1.7		-0.2		1.4		1.3		2.1		3.4	
# of Portfolios	120		120		120		120		117		114		110	
● Tortoise Capital	-0.9	(18)	-0.9	(18)	0.8	(29)	2.3	(51)	2.5	(34)	3.2	(22)	4.3	(33)
▲ BBgBarc US Aggregate TR	-1.5	(79)	-1.5	(79)	-0.2	(96)	1.2	(98)	1.2	(97)	1.8	(99)	2.9	(99)

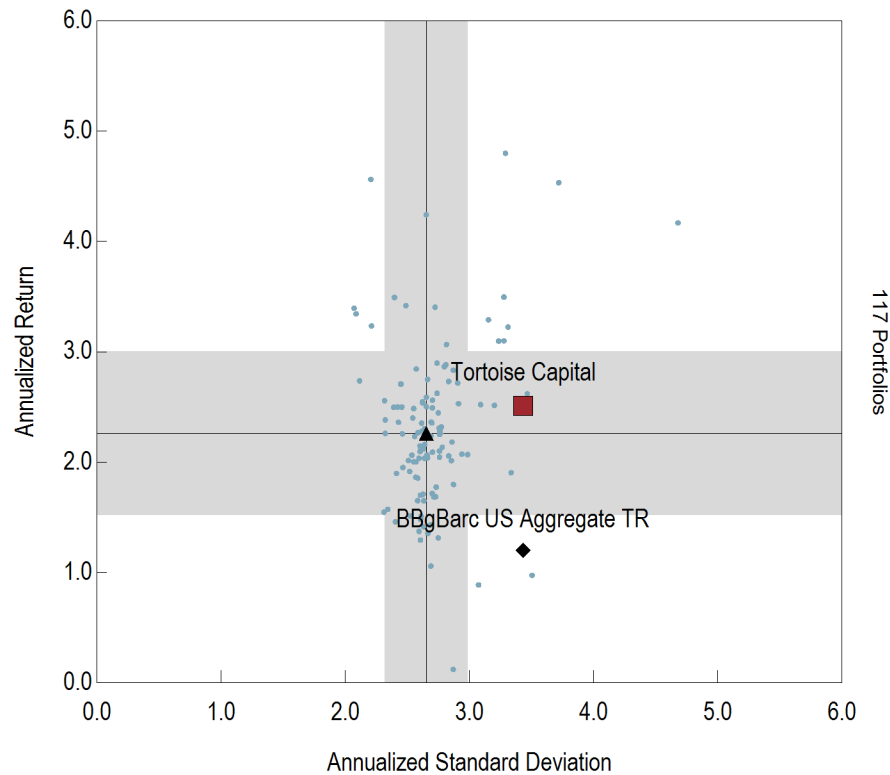
Tortoise Capital  
Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2018



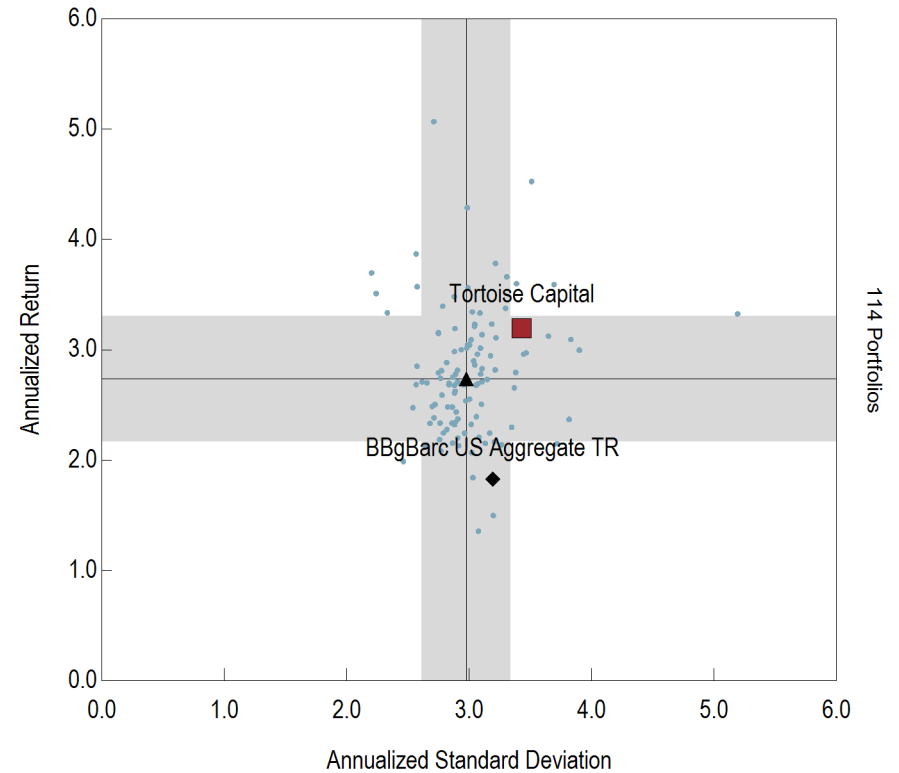
	Return (Rank)									
5th Percentile	7.0	10.1	1.9	7.7	4.6	14.4	8.8	13.6	32.9	6.9
25th Percentile	5.5	6.1	0.9	6.7	1.0	10.2	8.1	10.8	20.6	2.7
Median	5.0	4.9	0.3	5.9	-0.4	8.3	7.4	9.1	14.6	-1.6
75th Percentile	4.5	3.9	-0.2	5.2	-1.0	6.7	6.3	8.0	11.2	-8.9
95th Percentile	3.8	2.9	-2.4	3.6	-2.0	5.1	4.4	7.0	7.8	-16.8
# of Portfolios	122	134	115	118	116	124	118	123	128	136
● Tortoise Capital	4.5 (70)	5.1 (45)	1.2 (15)	7.0 (16)	-0.4 (52)	8.8 (45)	7.4 (51)	9.6 (40)	13.5 (55)	4.6 (17)
▲ BBgBarc US Aggregate TR	3.5 (99)	2.6 (97)	0.6 (42)	6.0 (50)	-2.0 (96)	4.2 (97)	7.8 (37)	6.5 (97)	5.9 (99)	5.2 (13)

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending March 31, 2018



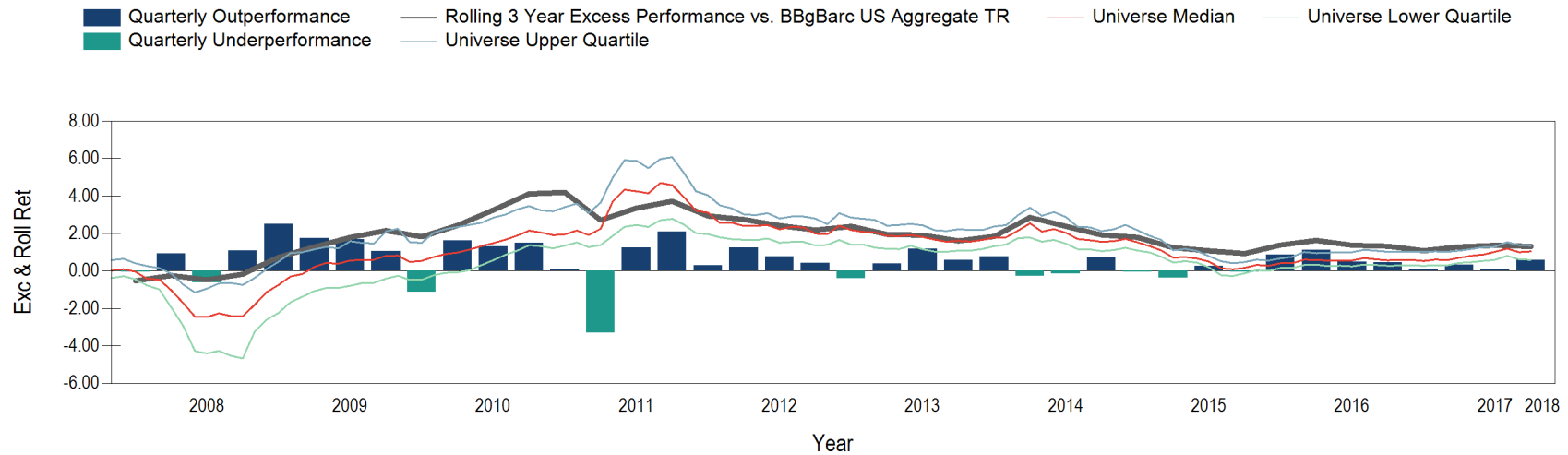
- Tortoise Capital
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending March 31, 2018

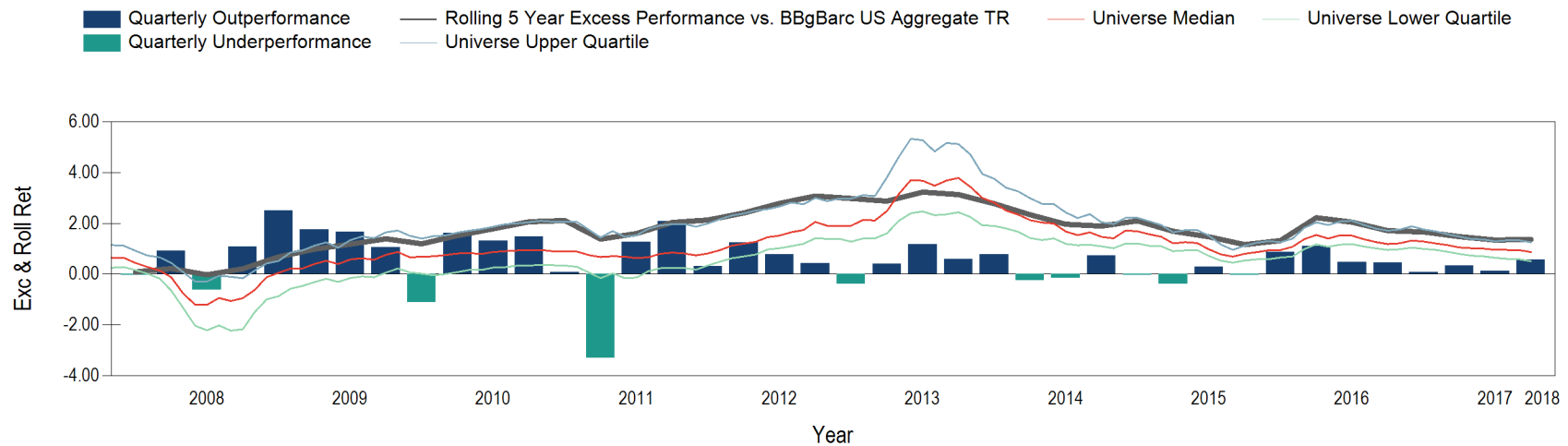


- Tortoise Capital
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross

### Rolling 3 Year Annualized Excess Performance



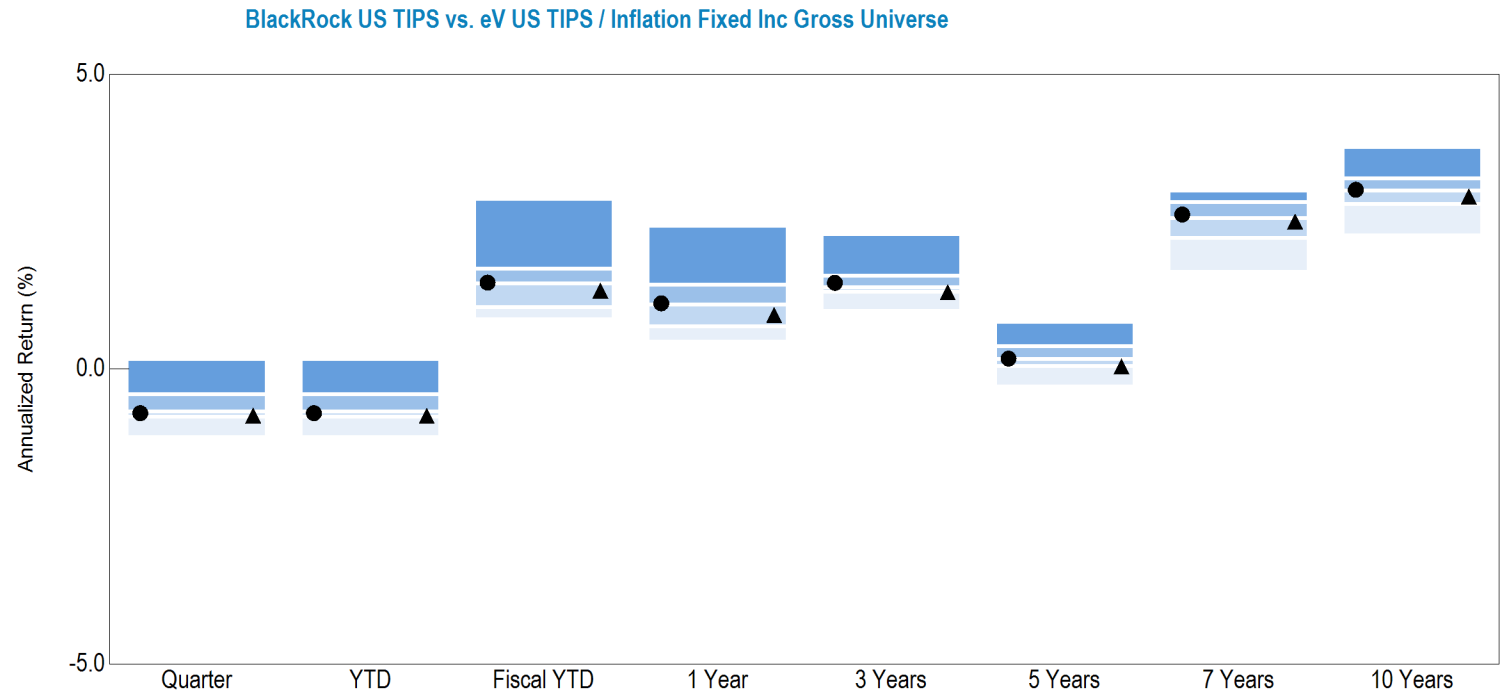
### Rolling 5 Year Annualized Excess Performance



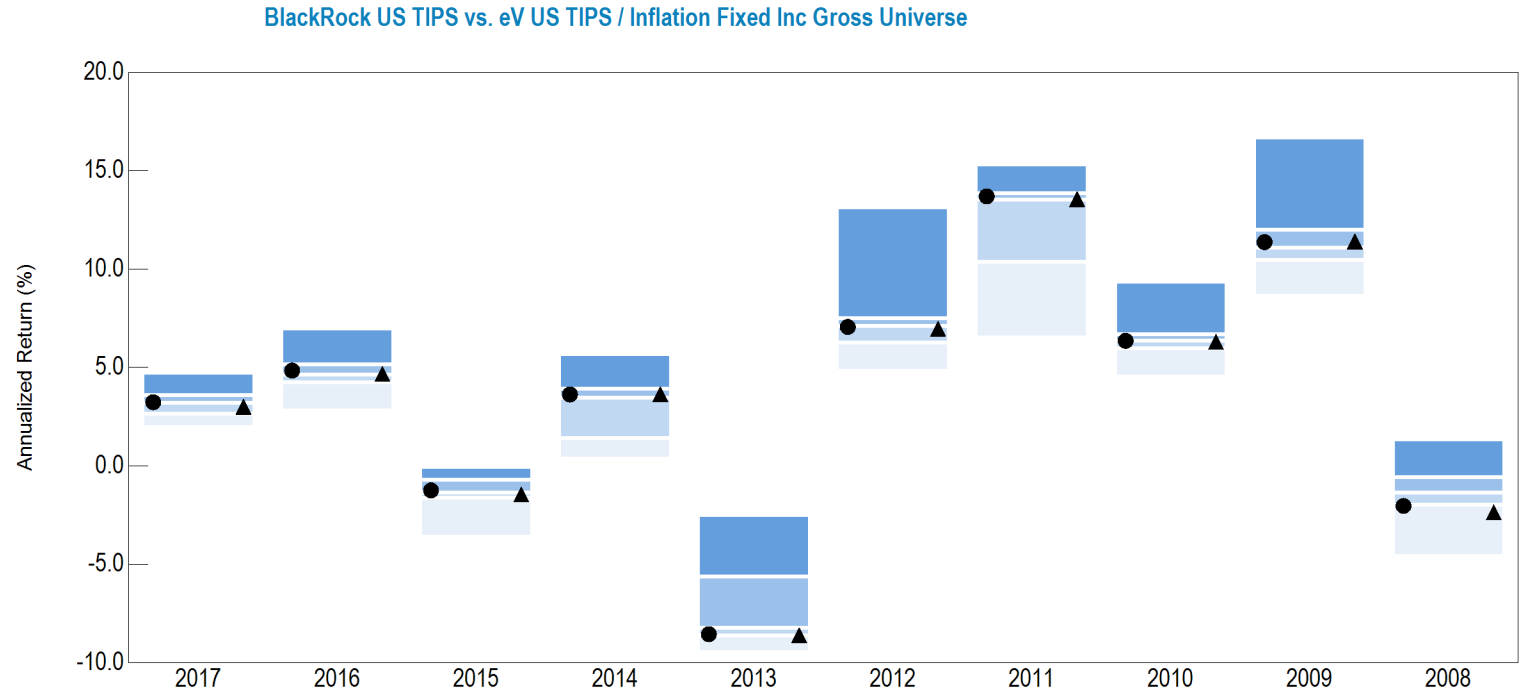
# BlackRock US TIPS

## Cumulative Performance Comparison (Gross of Fees)

Period Ending: March 31, 2018

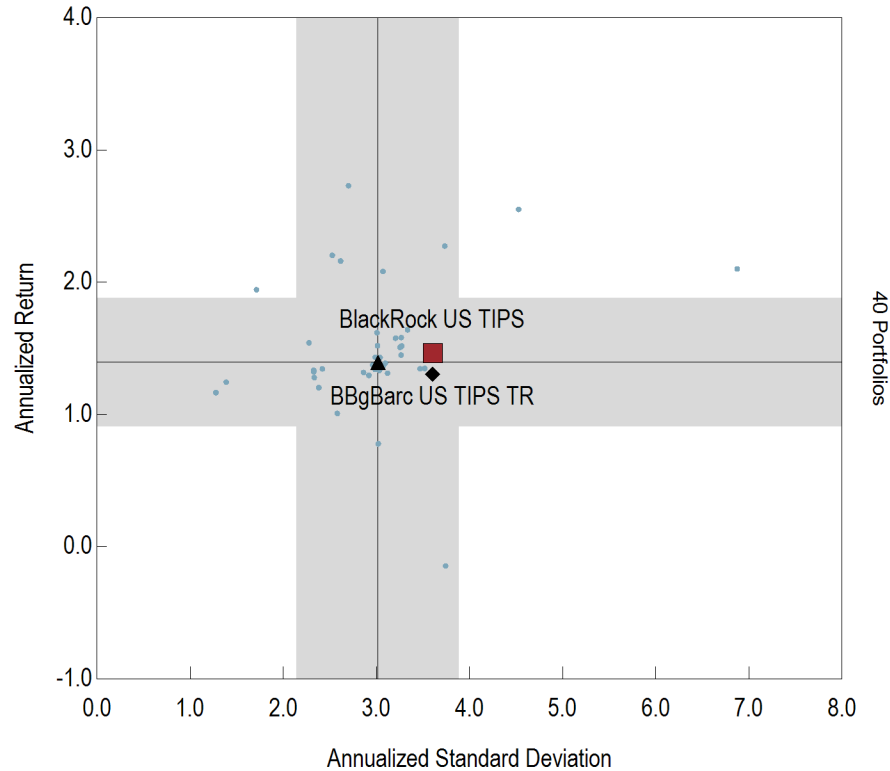


	Return (Rank)													
5th Percentile	0.2		0.2		2.9		2.4		2.3		0.8		3.0	
25th Percentile	-0.4		-0.4		1.7		1.4		1.6		0.4		2.8	
Median	-0.7		-0.7		1.5		1.1		1.4		0.2		2.6	
75th Percentile	-0.8		-0.8		1.1		0.7		1.3		0.1		2.2	
95th Percentile	-1.2		-1.2		0.9		0.5		1.0		-0.3		1.7	
# of Portfolios	40		40		40		40		40		40		37	
● BlackRock US TIPS	-0.7	(57)	-0.7	(57)	1.5	(50)	1.1	(47)	1.5	(41)	0.2	(49)	2.6	(42)
▲ BBgBarc US TIPS TR	-0.8	(71)	-0.8	(71)	1.3	(61)	0.9	(70)	1.3	(81)	0.0	(77)	2.5	(66)
													2.9	(68)



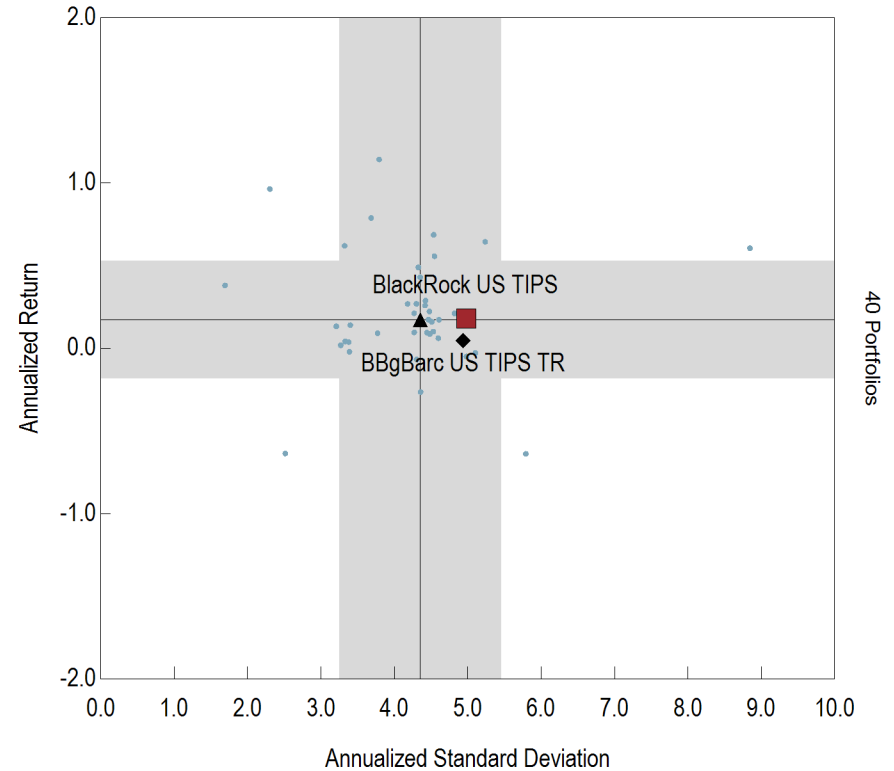
	Return (Rank)									
5th Percentile	4.7	7.0	-0.1	5.7	-2.5	13.1	15.3	9.4	16.7	1.3
25th Percentile	3.6	5.2	-0.7	4.0	-5.6	7.5	13.9	6.7	12.0	-0.5
Median	3.2	4.7	-1.3	3.5	-8.2	7.1	13.5	6.4	11.1	-1.4
75th Percentile	2.7	4.3	-1.6	1.4	-8.6	6.3	10.4	6.0	10.5	-1.9
95th Percentile	2.0	2.8	-3.6	0.4	-9.4	4.9	6.6	4.6	8.7	-4.6
# of Portfolios	38	42	44	50	43	43	47	39	37	40
● BlackRock US TIPS	3.2 (46)	4.8 (37)	-1.2 (43)	3.6 (45)	-8.5 (62)	7.1 (59)	13.7 (37)	6.4 (52)	11.4 (36)	-2.0 (78)
▲ BgBarc US TIPS TR	3.0 (71)	4.7 (47)	-1.4 (59)	3.6 (44)	-8.6 (76)	7.0 (66)	13.6 (49)	6.3 (57)	11.4 (35)	-2.4 (85)

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending March 31, 2018



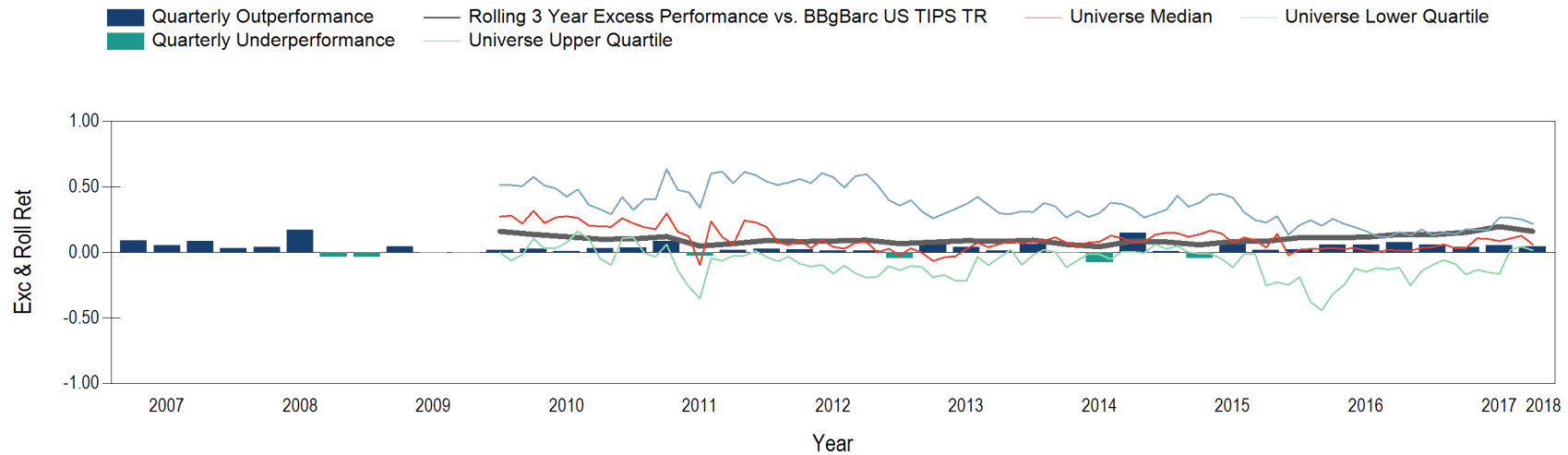
- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending March 31, 2018

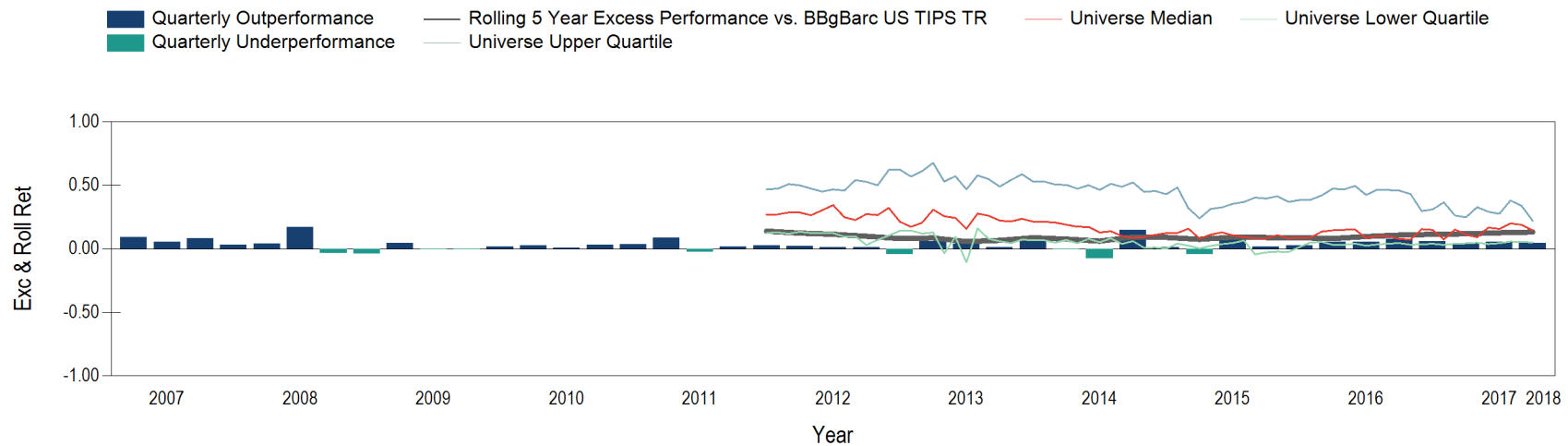


- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross

### Rolling 3 Year Annualized Excess Performance



### Rolling 5 Year Annualized Excess Performance

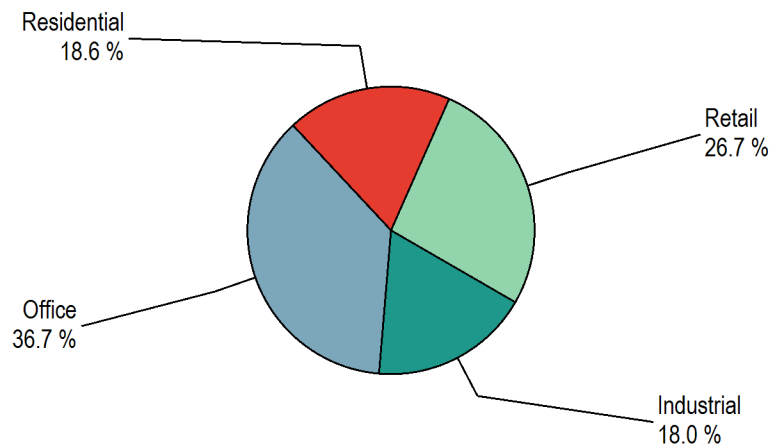


# Total Real Estate Asset Class Overview (Gross of Fees)

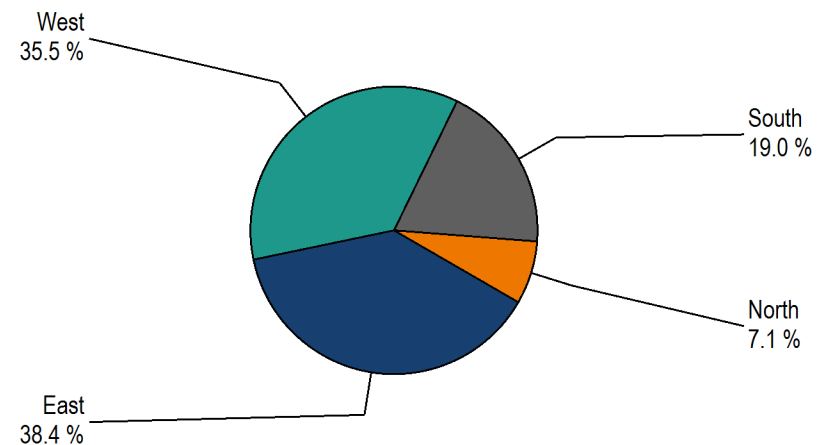
Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Real Estate</b>	<b>70,784,973</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>9.3</b>	<b>10.9</b>	<b>4.3</b>	<b>5.8</b>	<b>7.5</b>	<b>16.1</b>	<b>13.0</b>	<b>12.6</b>
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
ASB Real Estate	33,431,944	1.8	4.2	4.7	8.4	10.5	--	4.0	5.6	17.3	13.5	13.7
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	--	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	--	7.6	8.8	15.0	12.5	13.9
Clarion Lion	33,823,520	2.3	6.1	7.9	10.4	11.8	3.9	7.9	9.1	15.7	13.2	12.8
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
ARA American Strategic Value Realty	1,787,262	--	--	--	--	--	--	--	--	--	--	--
NCREIF Property Index		--	--	--	--	--	--	--	--	--	--	--
NCREIF-ODCE		--	--	--	--	--	--	--	--	--	--	--
1221 State St. Corp	1,742,247	0.0	0.0	0.0	5.5	3.3	1.2	0.0	17.5	0.0	0.0	0.0

**Property Type Allocation**  
Allocation as of March 31, 2018



**Geographic Diversification**  
Allocation as of March 31, 2018



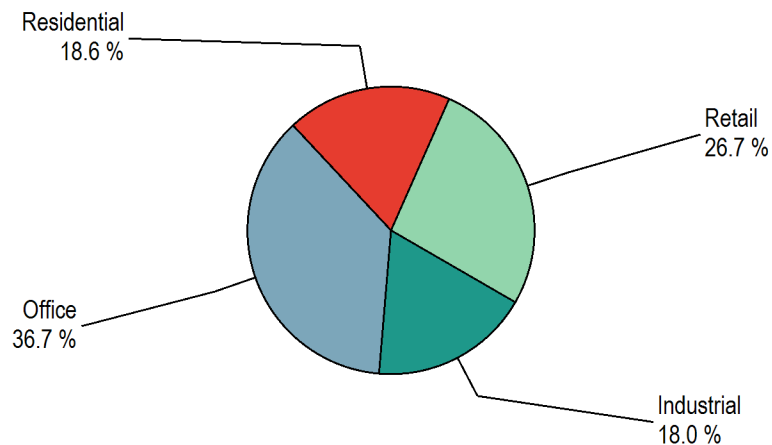
ARA American Strategic Value Realty funded 1/4/2018.

# Total Real Estate Asset Class Overview (Net of Fees)

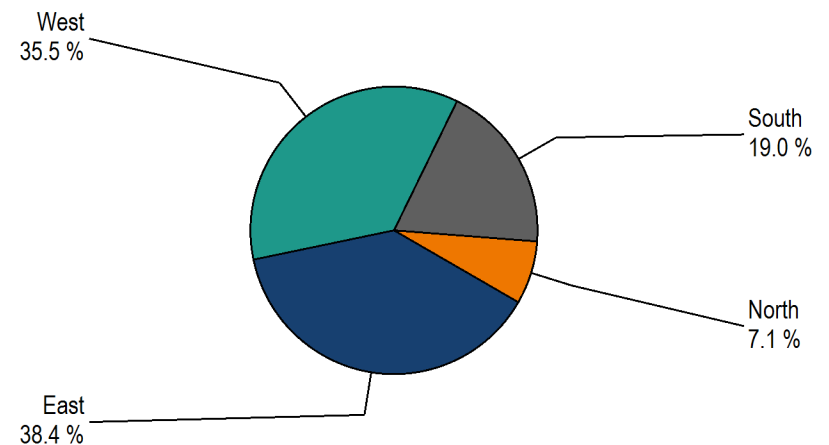
Period Ending: March 31, 2018

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Real Estate</b>	<b>70,784,973</b>	<b>2.0</b>	<b>5.0</b>	<b>6.1</b>	<b>8.7</b>	<b>10.2</b>	<b>3.7</b>	<b>5.8</b>	<b>6.5</b>	<b>15.0</b>	<b>11.6</b>	<b>12.1</b>
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
ASB Real Estate	33,431,944	1.8	4.2	4.7	7.8	9.7	--	4.0	4.6	16.2	12.5	12.5
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	--	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	--	7.6	8.8	15.0	12.5	13.9
Clarion Lion	33,823,520	2.3	6.1	7.9	9.8	11.0	3.0	7.9	8.0	14.6	12.2	11.8
NCREIF Property Index		1.7	5.3	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.2	6.3	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
ARA American Strategic Value Realty	1,787,262	--	--	--	--	--	--	--	--	--	--	--
NCREIF Property Index		--	--	--	--	--	--	--	--	--	--	--
NCREIF-ODCE		--	--	--	--	--	--	--	--	--	--	--
1221 State St. Corp	1,742,247	0.0	0.0	0.0	5.5	3.3	1.2	0.0	17.5	0.0	0.0	0.0

**Property Type Allocation**  
Allocation as of March 31, 2018



**Geographic Diversification**  
Allocation as of March 31, 2018



ARA American Strategic Value Realty funded 1/4/2018.

**Performance Return Calculations**

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

**Data Source**

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

**Illiquid Alternatives**

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

**Manager Line Up**

<b>Manager</b>	<b>Inception Date</b>	<b>Data Source</b>	<b>Manager</b>	<b>Inception Date</b>	<b>Data Source</b>
BlackRock Russell 3000	12/10/2015	J.P. Morgan	1221 State Street Corp	9/30/2008	ICERS/Union Bank
BlackRock International Equity	7/3/2003	J.P. Morgan	Cash	-	J.P. Morgan
DFA Emerging Markets Value	1/11/2007	J.P. Morgan	HarbourVest IX-Buyout	2011 <sup>1</sup>	HarbourVest
Harding Loevner	7/5/2016	Harding Loevner	HarbourVest IX-Credit	2011 <sup>1</sup>	HarbourVest
Bradford & Marzec Fixed (Tortoise Capital)	12/1/1992	J.P. Morgan	HarbourVest International VI	2008 <sup>1</sup>	HarbourVest
Mackay Shields Core Plus Ops	3/2/2015	CITCO	Harbourvest IX-Venture	2011 <sup>1</sup>	HarbourVest
BlackRock US TIPS	4/11/2007	J.P. Morgan	Harbourvest 2017 Global	2017 <sup>1</sup>	HarbourVest
ASB Real Estate	12/31/2012	ASB Real Estate	KKR Mezzanine	2010 <sup>1</sup>	KKR
Clarion Lion	12/31/2006	Clarion Lion	PIMCO BRAVO	2011 <sup>1</sup>	PIMCO
Portfolio Advisors	10/31/2017	Portfolio Advisors	ARA American Strategic Value Realty	1/4/2018	ARA

<sup>1</sup>Represents fund vintage year.

**Policy & Custom Index Composition**

Policy Index (10/1/2016-Current)	29% Russell 3000, 24% MSCI ACWI Free Ex US, 27% BBgBarc Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% lagged.
Policy Index (7/1/2014-9/30/2016)	29% Russell 3000, 25% MSCI ACWI ex-US (Gross), 30% Barclays U.S. Aggregate, 6% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (Lagged).

# 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.

## Disclaimer

---

This report contains confidential and proprietary information and is subject to the terms and conditions of the Consulting Agreement. It is being provided for use solely by the customer. The report may not be sold or otherwise provided, in whole or in part, to any other person or entity without written permission from Verus Advisory, Inc., (hereinafter Verus) or as required by law or any regulatory authority. The information presented does not constitute a recommendation by Verus and cannot be used for advertising or sales promotion purposes. This does not constitute an offer or a solicitation of an offer to buy or sell securities, commodities or any other financial instruments or products.

The information presented has been prepared using data from third party sources that Verus believes to be reliable. While Verus exercised reasonable professional care in preparing the report, it cannot guarantee the accuracy of the information provided by third party sources. Therefore, Verus makes no representations or warranties as to the accuracy of the information presented. Verus takes no responsibility or liability (including damages) for any error, omission, or inaccuracy in the data supplied by any third party. Nothing contained herein is, or should be relied on as a promise, representation, or guarantee as to future performance or a particular outcome. Even with portfolio diversification, asset allocation, and a long-term approach, investing involves risk of loss that the investor should be prepared to bear.

The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Verus receives universe data from InvestorForce, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.