



# **PERSPECTIVES** THAT DRIVE ENTERPRISE SUCCESS



**PERIOD ENDING: DECEMBER 31, 2016**

Investment Performance Review for

**Imperial County Employees' Retirement System**

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Investment Landscape

TAB I

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Investment Performance  
Review

TAB II





**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

1<sup>ST</sup> QUARTER 2017  
Investment Landscape



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# 4<sup>th</sup> quarter summary

## THE ECONOMIC CLIMATE

- Economies around the globe experienced higher inflation as the effects of lower energy prices fall out of year-over-year inflation figures. U.S. headline inflation rose to 1.7% YoY and the market's inflation expectations increased sharply, as indicated by TIPS breakeven rates. *p. 14*
- U.S. consumer and business sentiment indicators improved markedly in the fourth quarter based on positive expectations of future economic growth. *p. 12*

## MARKET PORTFOLIO IMPACTS

- U.S. interest rates moved higher in Q4, returning the yield curve to levels experienced one year ago. The Federal Reserve is not likely to increase rates drastically because of lower yields and economic growth around the globe, and due to an already strong U.S. dollar. *p. 22*
- The U.S. dollar rose 6.4% in Q4 on a trade-weighted basis. Currency movement continues to contribute to higher volatility for investors with unhedged currency exposure. *p. 37*

## THE INVESTMENT CLIMATE

- The U.S. presidential election results took many investors by surprise. After an initial overnight plunge in the futures market, U.S. equities rallied on expectations of a more pro-business regulatory environment and the possibility of large-scale fiscal stimulus. U.S. equities may possess greater upside potential post-election. *p. 16*
- Fourth quarter earnings for the S&P 500 are estimated to grow 3.2% YoY, according to FactSet. If this positive growth comes to fruition it will mark the second quarter of positive growth and may indicate that the recent oil-driven earnings slump is behind us. *p. 28*

## ASSET ALLOCATION ISSUES

- Global inflation rises in Q4 may mark a change in trend from disinflation seen in recent years. Investors should work to understand the degree of inflation protection in their portfolio. *p. 14 & 19*

A neutral risk stance seems warranted

Global reflation trends should be watched, and investors should understand the degree of inflation protection in their portfolio

# What drove the market in Q4?

## “World Markets Plunge, Then Steady, On Trump Victory”

### POST-ELECTION ASSET PRICE MOVEMENTS

S&P 500		10-Yr Treasury		Bloomberg USD Spot	
Nov 9 <sup>th</sup>	Dec 30 <sup>th</sup>	Nov 9 <sup>th</sup>	Dec 30 <sup>th</sup>	Nov 9 <sup>th</sup>	Dec 30 <sup>th</sup>
2163	2239	2.06%	2.44%	1237	1267

Source: Fortune, November 9<sup>th</sup> 2016

## “U.S. Consumer Sentiment Rises To Highest Level Since 2004”

### U OF MICHIGAN CONSUMER SENTIMENT SURVEY

Jul 31st	Aug 31st	Sep 30th	Oct 31st	Nov 30th	Dec 31st
90.0	89.8	91.2	87.2	93.8	98.2

Source: WSJ, December 23<sup>rd</sup> 2016

## “OPEC Reaches Deal To Limit Production, Sending Prices Soaring”

### WTI OIL (\$/BARREL)

Jul 29 <sup>th</sup>	Aug 31 <sup>st</sup>	Sep 30 <sup>th</sup>	Oct 31 <sup>st</sup>	Nov 30 <sup>th</sup>	Dec 30 <sup>th</sup>
\$41.60	\$44.70	\$48.24	\$46.86	\$49.44	\$53.72

Source: New York Times, November 30<sup>th</sup> 2016

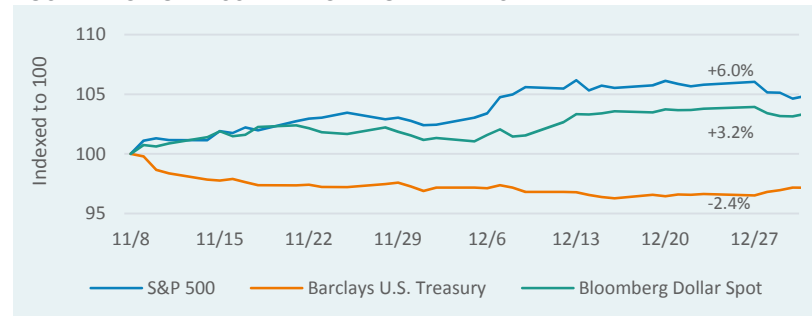
## “Inflation Expectations Hit Highest Level In More Than A Decade”

### 10-YEAR U.S. TIPS BREAK-EVEN RATE

Jul 29 <sup>th</sup>	Aug 31 <sup>st</sup>	Sep 30 <sup>th</sup>	Oct 31 <sup>st</sup>	Nov 30 <sup>th</sup>	Dec 30 <sup>th</sup>
1.49%	1.47%	1.60%	1.73%	1.94%	1.95%

Source: Financial Times, November 16<sup>th</sup> 2016

### POST-ELECTION ASSET PRICE MOVEMENTS



Source: Bloomberg, 11/8/16-12/31/16

### U.S. CONSUMER SENTIMENT



Source: Bloomberg, as of 12/31/16

### WTI CRUDE OIL



Source: Bloomberg, as of 12/31/16

# Economic environment

# U.S. economics summary

- U.S. real GDP grew 1.7% YoY in Q3, up from 1.3% in Q2. Consumer spending continued to account for the majority of economic growth, and rising sentiment may act as a boon for future growth. Net exports helped boost production, as well as private investment.
- Inflation moved higher during the quarter as headline CPI rose to 1.7% YoY, as of November, while core CPI rose to 2.1%. Increases in energy prices have resulted in a convergence between headline and core inflation figures. If oil prices remain stable, this will act as a tailwind for headline inflation in the future.
- The Fed raised its target federal funds rate to 0.50%-0.75% and forecast three rate hikes in 2017 at its December meeting, citing continued modest economic growth and a tightening labor market, in addition to firming consumer prices.
- The labor market added 165,000 jobs per month on average during the fourth quarter. This is slightly below the expansion average of 199,000, but still a solid pace of hiring given where we are at in the labor cycle. The unemployment rate fell 0.2% to 4.7% at the end of December.
- While the economy continued to steadily add jobs, wage growth has lagged behind. Real average hourly earnings only increased 0.7% YoY in November. Softer wage growth may be due in part to workers taking on part-time roles who could not find full time work.

	Most Recent	12 Months Prior
GDP ( <i>annual YoY</i> )	1.7% 9/30/16	2.2% 9/30/15
Inflation ( <i>CPI YoY, Headline</i> )	1.7% 11/30/16	0.4% 11/30/15
Expected Inflation ( <i>5yr-5yr forward</i> )	2.1% 12/31/16	1.8% 12/31/15
Fed Funds Rate	0.50% 12/31/16	0.25% 12/31/15
10 Year Rate	2.5% 12/31/16	2.3% 12/31/15
U-3 Unemployment	4.7% 12/31/16	5.0% 12/31/15
U-6 Unemployment	9.2% 12/31/16	9.9% 12/31/15



# U.S. economics – GDP growth

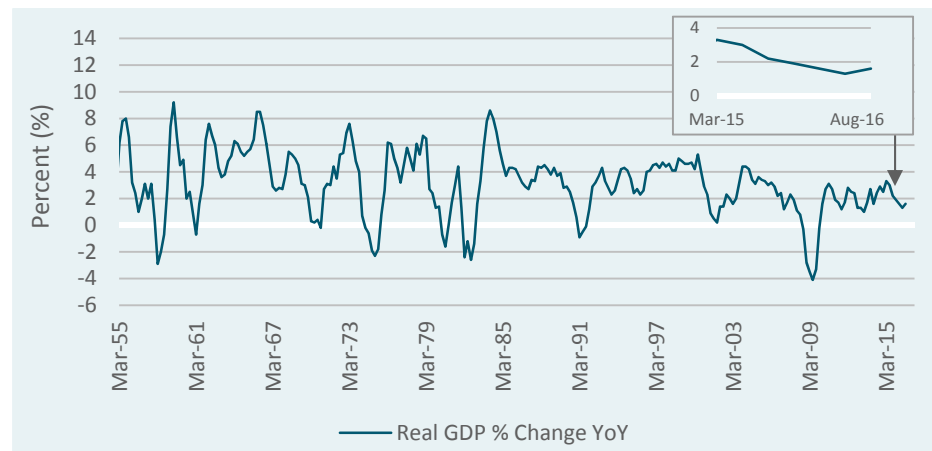
In the third quarter U.S. real GDP rose 1.7% YoY, and 3.5% (annualized) from the previous quarter. This marked the highest quarterly growth rate in two years.

Consumer spending continued to be the main driver of overall growth, contributing 2.0% to quarterly GDP growth. During this economic recovery, the American consumer has been aided by low interest rates that have decreased household debt burdens. The pace of interest rate increases will be an important factor in consumer spending moving forward.

Net exports and private domestic investment were the next two largest contributors to economic growth. Private domestic investment had been a drag on GDP over the past three quarters and was driven by a positive change in private inventories.

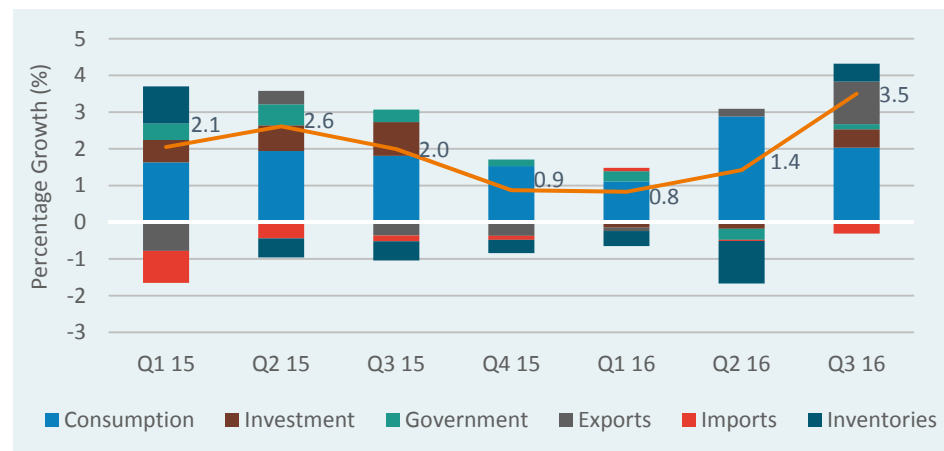
The Atlanta Fed GDP Now forecast as of January 10<sup>th</sup> for the fourth quarter stood at a 2.9% annualized rate, suggesting the economy is continuing to grow at a slow, but positive rate.

## U.S. REAL GDP GROWTH



Source: FRED, as of 9/30/16

## U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 9/30/16

# U.S. economics – Labor market

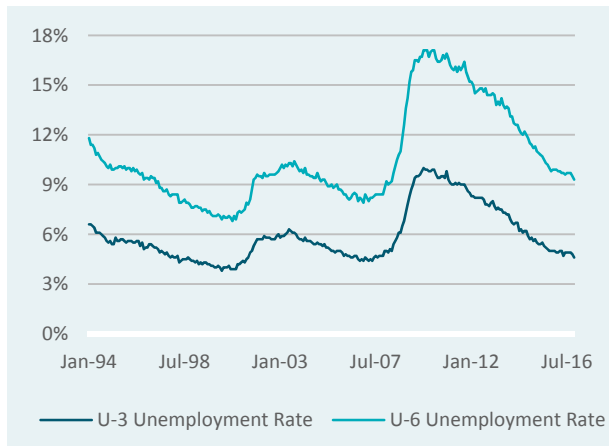
The U.S. labor market added 165,000 jobs on average in the third quarter, compared to an average of 199,000 during the current economic expansion. The unemployment rate fell to a recovery period low of 4.6% in November before rising to 4.7% in December. The participation rate continued its long-term downtrend to finish the quarter at 62.7%. Much of this effect can likely be explained by demographic changes.

While the overall labor market appears strong, some pockets of weakness may still exist. The broader U-6 unemployment rate that includes people who want a job but have stopped

looking and workers who are employed part-time but would like a full-time job currently sits at 9.2%, slightly above pre-recession levels. Another indicator of weakness is the lack of recovery in unemployment duration. It still takes job seekers 26 weeks to find a job after being unemployed, on average.

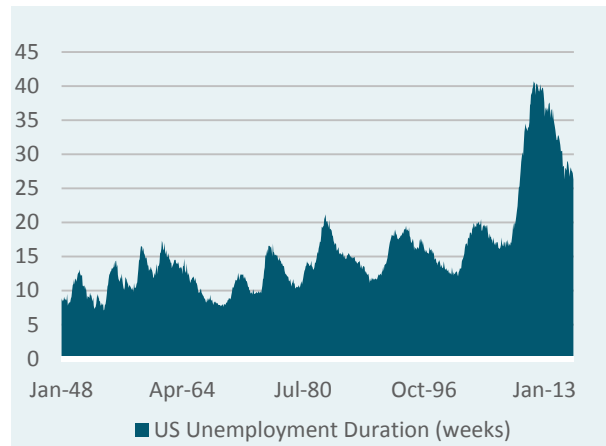
U.S. workers have yet to experience robust wage growth, which we would expect to see under current labor conditions. Real average hourly earnings only rose 0.7% in November.

**U.S. UNEMPLOYMENT**



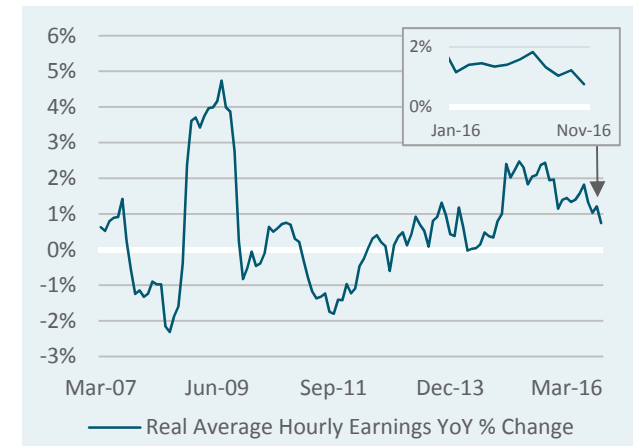
Source: FRED, as of 11/30/16

**UNEMPLOYMENT DURATION**



Source: FRED, as of 11/30/16

**REAL AVERAGE HOURLY EARNINGS**



Source: FRED, as of 11/30/16

# U.S. economics – The consumer

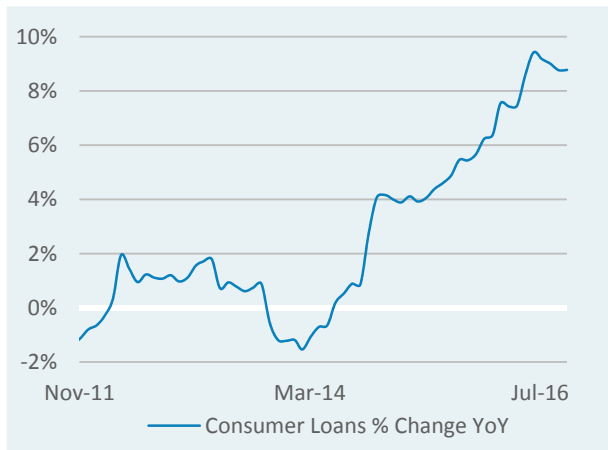
The U.S. consumer continued to buoy the overall economy as historically low interest rates have helped reduce debt burdens and provided a tailwind for consumer spending. While low interest rates have decreased consumer debt payments, they have not resulted in a credit boom. Tighter post-recession lending standards created a headwind to consumer loan growth.

Consumer spending grew 1.6% YoY in November, reiterating the trend of modest spending growth over the

past five years. Sales of durable goods, such as autos, however, have displayed relative strength.

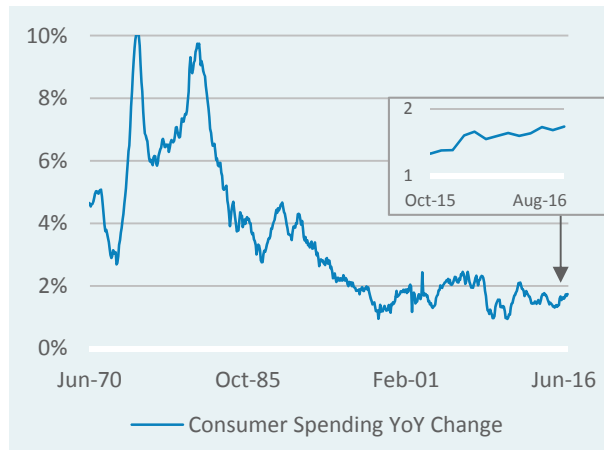
Consumer spending has been a relatively strong area of the economy despite only modest gains in wages and personal income. Higher wages could be an important factor for greater spending growth moving forward, especially if interest rates rise, resulting in greater household debt payments.

**CONSUMER LOAN GROWTH**



Source: FRED, as of 11/30/16

**CONSUMER SPENDING**



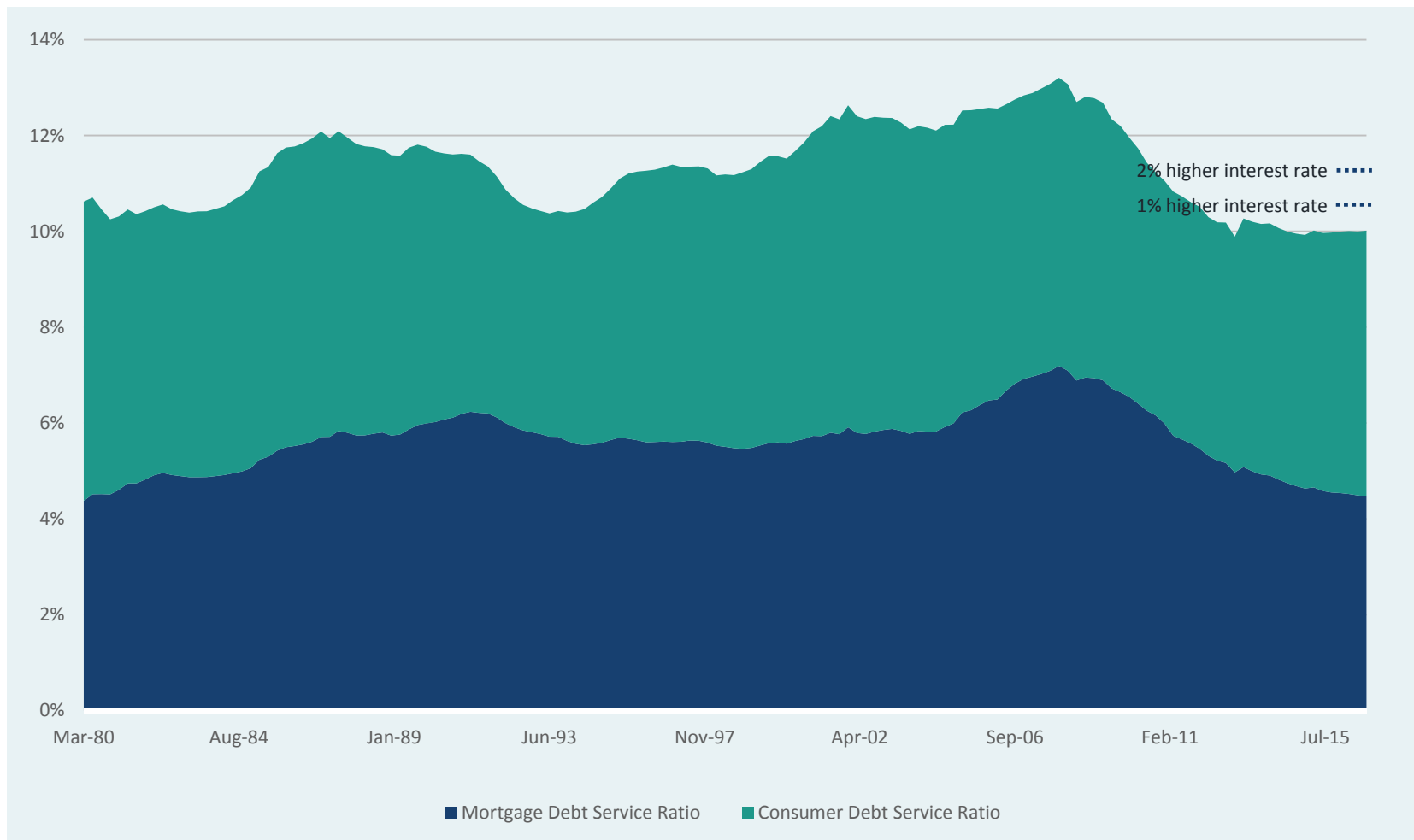
Source: Bloomberg, as of 10/31/16

**HOUSEHOLD DEBT SERVICE**



Source: FRED, as of 9/30/16

# A closer look at household debt burden



Low interest rates have helped decrease household debt burden

If interest rates continue to rise, concurrent gains in income will be important

Source: Federal Reserve Bank, as of 9/30/16. Household debt service payments are composed of mortgage payments and other consumer payments. This analysis assumes an equal weight of debt burden between mortgage and consumer debt. It is also assumed that interest rates on consumer debt move 1:1 with market rates and effective mortgage rates have only a 5% sensitivity to changes in market rates given the preference for fixed mortgages.



# U.S. economics – Sentiment

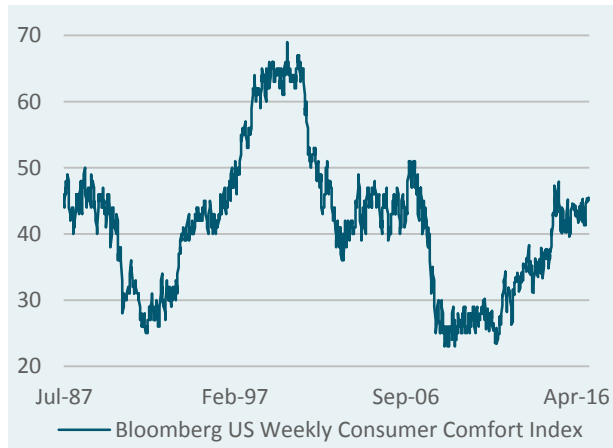
Consumer sentiment hit its highest level since January 2004 as the University of Michigan sentiment survey reached 98.2 in December. A record 18% of survey respondents spontaneously mentioned that they expected a favorable impact from Trump's economic policies. Favorable expectations of policy changes was the main reason identified for the jump in sentiment.

The Bloomberg Consumer Comfort Index also moved higher during the period. The index rose 4.4 points to

46.0 for the week ending December 25<sup>th</sup>.

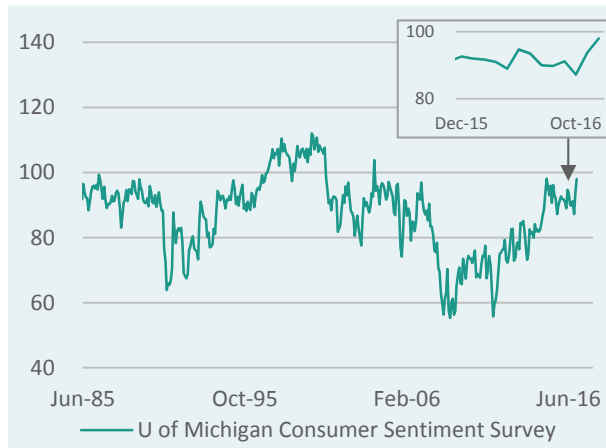
Higher consumer sentiment could have positive flow through effects on the economy if consumers base current spending decisions on expectations of future economic conditions. However, much of this positive sentiment is based on the uncertain economic policies of the new political administration and may only be temporary if these policies do not come to fruition.

**CONSUMER COMFORT INDEX**



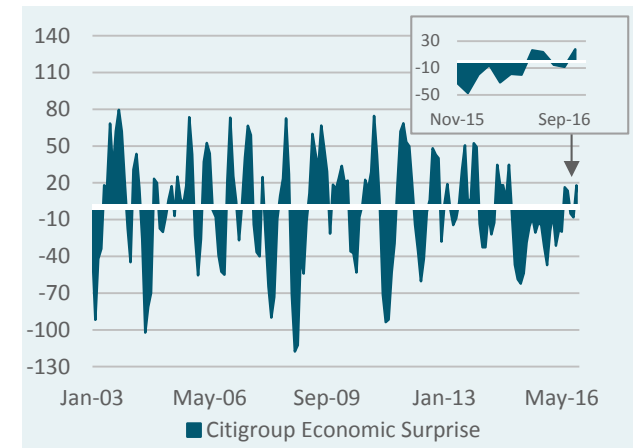
Source: Bloomberg, as of 12/4/16 (see Appendix)

**CONSUMER SENTIMENT**



Source: University of Michigan, as of 12/9/16 (see Appendix)

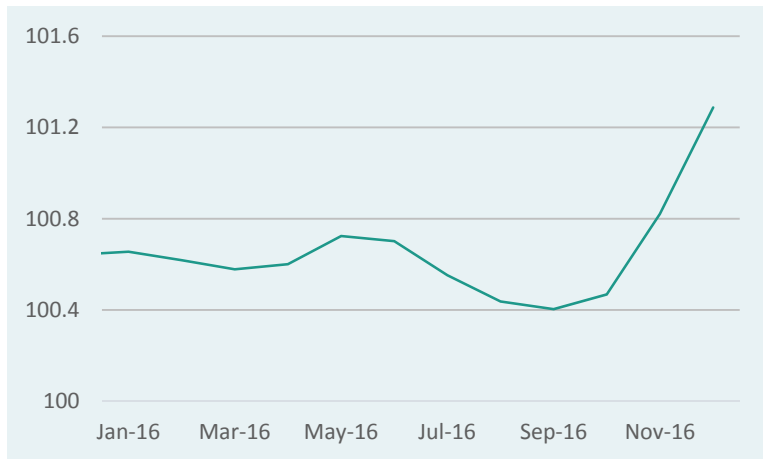
**ECONOMIC SURPRISE**



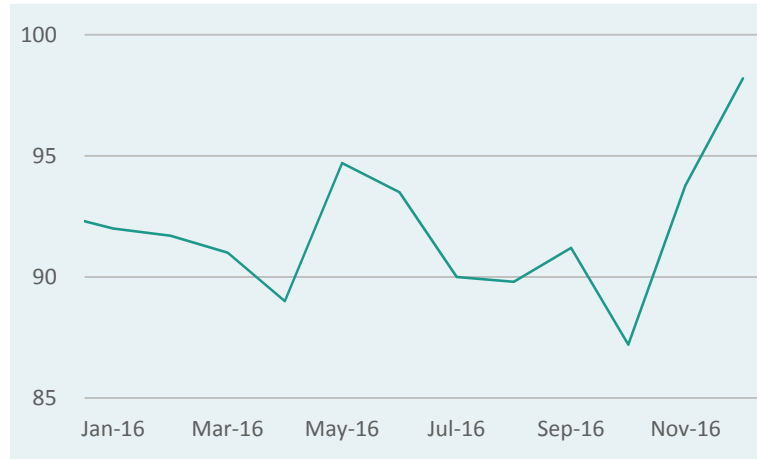
Source: Bloomberg, as of 11/30/16 (see Appendix)

# A broad rise in confidence

OECD U.S. CONSUMER CONFIDENCE

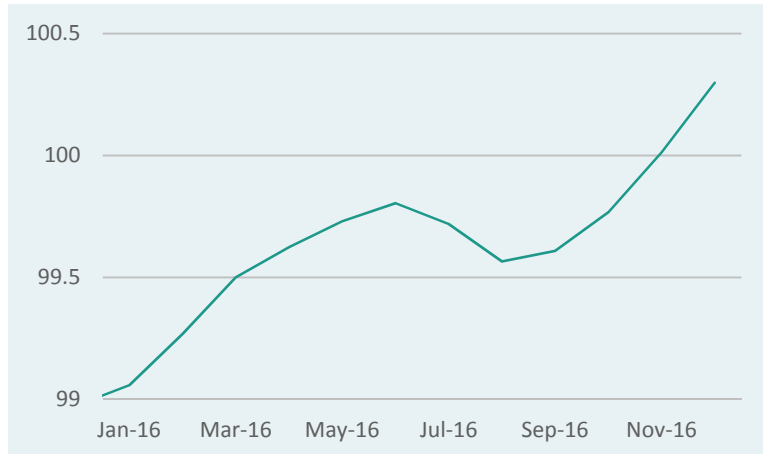


U OF MICHIGAN CONSUMER SENTIMENT

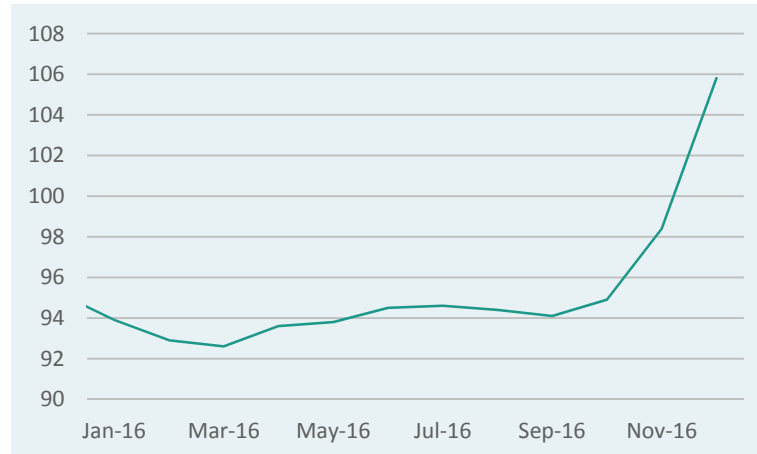


The U.S. has experienced a rise in confidence in nearly all areas of the economy

OECD U.S. BUSINESS CONFIDENCE



NFIB SMALL BUSINESS OUTLOOK



Sources: OECD, University of Michigan, NFIB, as of 12/31/16 See Appendix for details regarding the surveys shown above

# U.S. economics – Housing

U.S. mortgage rates moved sharply higher during the quarter. The 30-year fixed mortgage rate rose 90 bps to 4.3% to finish the year at its highest rate since April of 2014. If higher mortgage rates are sustained, it will put downward pressure on demand for single-family homes and in turn home prices. However, if mortgage rates rise in tandem with consumer exuberance and higher spending the net effects could in fact be positive.

There is still a large imbalance between supply and demand in the housing market. While the number of

single-family houses for sale has recently increased, the overall supply of houses is well below historical norms. At the end of October, there were only 239,000 homes on the market – very low by historical standards.

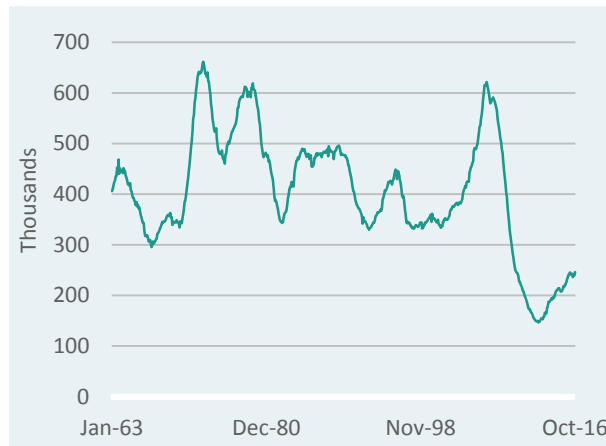
Low interest rates and a lack of supply have helped push median home prices well above pre-recession levels. Increasing interest rates and greater supply coming to market could provide a headwind for prices going forward.

**30-YEAR FIXED MORTGAGE RATE**



Source: FRED, as of 12/29/16

**SINGLE-FAMILY HOUSES FOR SALE**



Source: U.S. Census Bureau, as of 10/31/16, adj. for pop. growth

**MEDIAN HOUSE SALES PRICE**



Source: FRED, as of 9/30/16

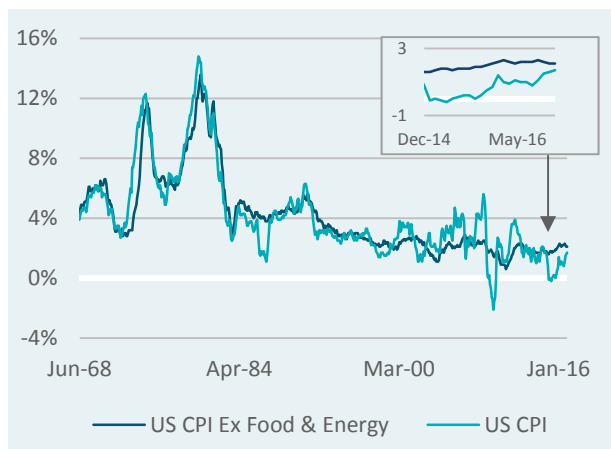
# U.S. economics – Inflation

Realized inflation and future inflation expectations both rose in recent months. Headline CPI was 1.7% YoY in November, up 0.2% from September, while core CPI fell 0.1% during the same time period to 2.1%. Higher rent and energy prices contributed to an increased headline CPI figure.

Market expectations for inflation rose after the U.S. presidential election on anticipation of increased fiscal stimulus from the new administration. The 10-year TIPS breakeven rate finished December at 1.95%, an increase of 35 bps during the quarter.

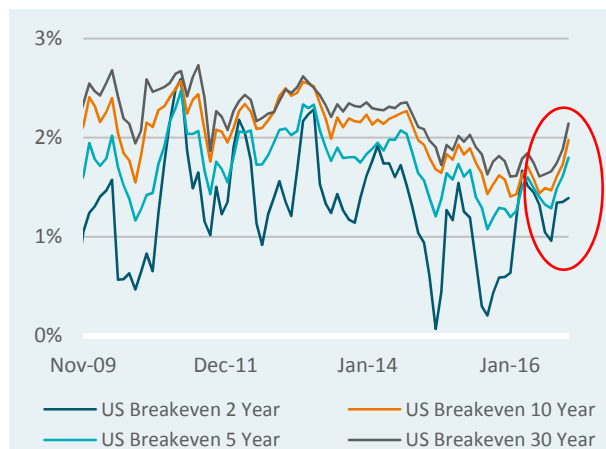
We believe the risk of inflation is skewed to the upside while the market is only discounting a small rise in prices over the next 10 years. Oil prices appear to have stabilized and may continue higher if global rebalancing occurs faster than anticipated. At the same time, the new political administration's proposed fiscal and trade policies suggest higher inflation. Investors may consider reexamining their inflation protecting portfolio and how their overall portfolio might behave in a rising inflation environment.

**U.S. CPI (YOY)**



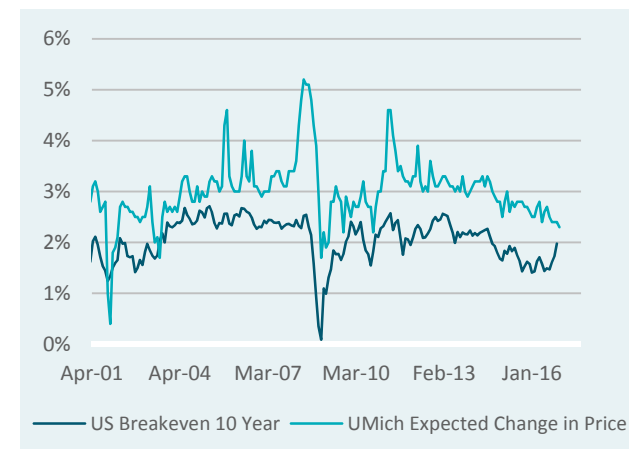
Source: FRED, as of 11/30/16

**U.S. TIPS BREAKEVEN RATES**



Source: FRED, as of 11/30/16

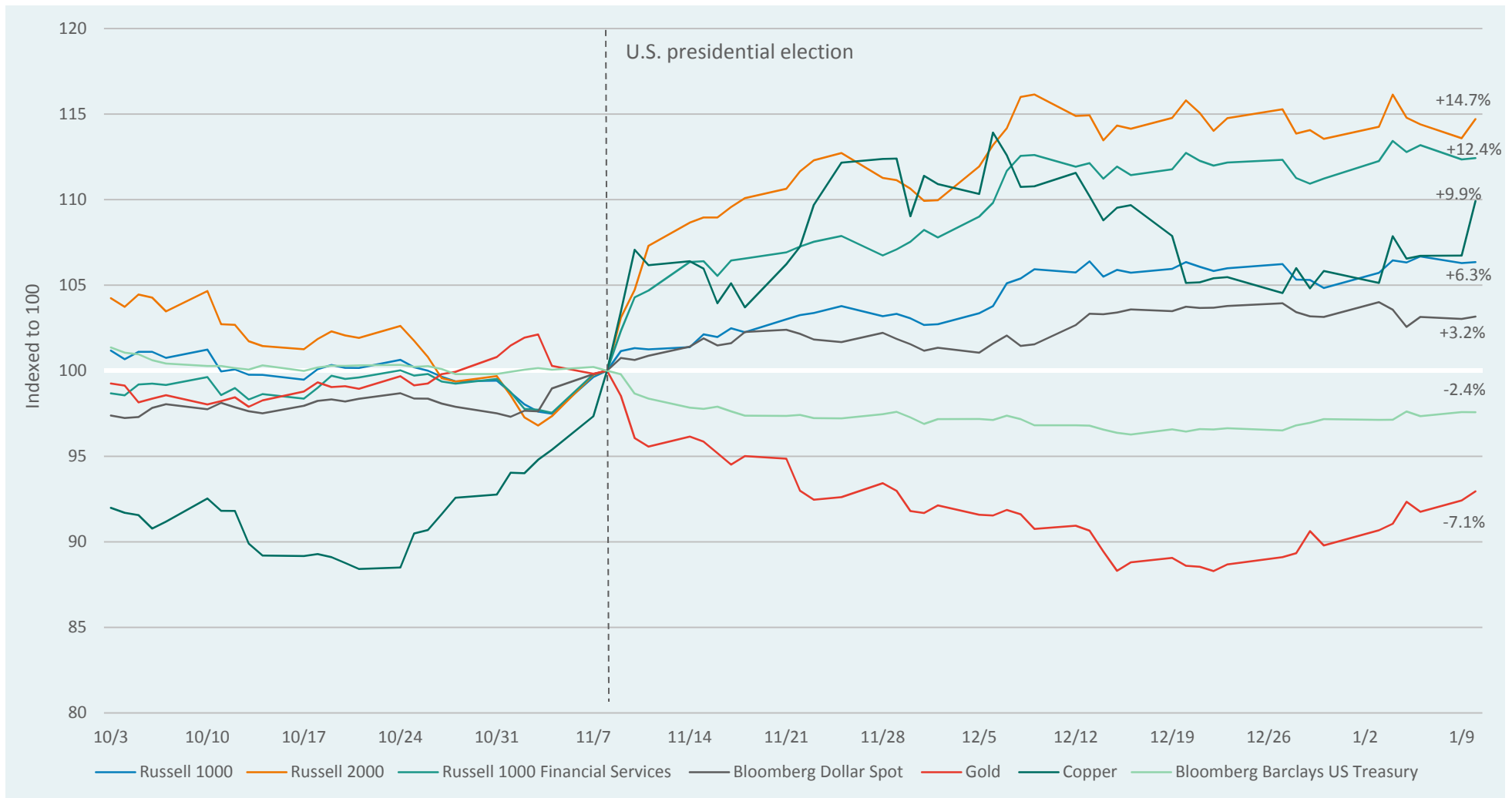
**INFLATION EXPECTATIONS**



Source: Bloomberg, as of 12/31/16



# Post-election price movements



Source: Bloomberg, 10/3/16-1/10/17

# Implications of the election

At first, financial markets reacted negatively to the news of Trump's victory as equity market futures fell sharply the night of the election. S&P 500 futures dropped 6% in a four hour span and then recovered before market open the next morning. Much like Brexit, this was another example where the market's initial response was incorrect and equity prices snapped back quickly.

Risk assets in the U.S. have moved higher while safe haven assets such as Treasuries have declined since the election results on the prospects of improved domestic economic growth.

While a Trump presidency has materially altered the confidence outlook for the U.S. economy, we believe that markets and consumers should avoid overreacting to policies that have yet to be determined in nature and scope.

Although much uncertainty surrounds Trump's actual policy changes, there has been an upswing in confidence in nearly every area of the U.S. economy. Higher confidence from consumers and businesses could have a self-enforcing effect on the economy. At the same time, expectations act as a double edged sword. Increased confidence in the Trump administration's economic policies could leave more room for disappointment.

S&P 500 FUTURES THE NIGHT OF THE ELECTION



Source: Bloomberg, 11/8/16-11/9/16

# Trump policies – Initial areas of focus

POLICY AREA	PROPOSED POLICY
Taxes	<ul style="list-style-type: none"><li>— Trump has proposed tax cuts for both individuals and corporations that will cost \$4.5 trillion over the next 10 years according to the Center for a Responsible Fiscal Budget.</li><li>— The CFRB has also estimated that more than half of the tax cuts for individuals will go to the richest 1% of Americans on a total dollar basis.</li><li>— Corporate tax rates may be lowered to 15% from the current statutory rate of 35%, although the actual rate paid is estimated at only around 25%.</li></ul>
Trade	<ul style="list-style-type: none"><li>— The President has also promised to renegotiate trade deals, such as NAFTA, to better protect American businesses from foreign interests.</li><li>— The details on how he will go about doing so remains unclear.</li><li>— More protectionist policies could result in higher consumer prices as domestic businesses will face less competition.</li></ul>
Deregulation	<ul style="list-style-type: none"><li>— Perhaps the biggest unknown is how President Trump will work to lessen regulations on businesses.</li><li>— This may also be the area that he can have the quickest impact through the use of executive orders.</li><li>— Repealing parts of both the Affordable Care Act and the Dodd Frank Act are two of the more notable pieces of regulation Trump has said he will target.</li></ul>
Infrastructure Spending	<ul style="list-style-type: none"><li>— President Trump has proposed tax breaks on private infrastructure equity investment that he hopes will result in \$1 trillion of total spending on a levered basis.</li><li>— While the private sector may be able to provide more efficiency, it may be difficult to incentivize them to complete projects that will benefit the public and overall economy.</li></ul>

# International economics summary

- The central theme of slow, but positive growth in countries across the globe continued in the third quarter. The U.S., western Europe, and Japan all experienced year-over-year growth rates between 1-2%.
  - The tapering of ECB purchases is likely more a result of mechanical and political obstacles than due to a need for tightening. If the central bank is forced to tighten quicker than desired, it could have an adverse impact on the current economic recovery.
- Developed countries experienced a coordinated pick up in inflation in recent months, suggesting we may be moving into a reflationary environment. Headline CPI was up 1.1% in the Eurozone in December, its highest rate in more than three years.
- The ECB announced it would continue its asset purchase program through the initially scheduled end date of March 2017, but at a reduced rate. The program will extend until at least the end of 2017, and monthly bond purchases will fall to €60 billion from €80 billion in April.
- Italy voted against a referendum on constitutional reform on December 4<sup>th</sup> that would have weakened the power of the Senate in an attempt to make the country easier to govern. The Italian Prime Minister, Matteo Renzi, resigned shortly thereafter. Although Renzi's Democratic party will remain in power, the country's anti-establishment Five Star party has recently gained popularity.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.7% 9/30/16	1.7% 11/30/16	4.7% 12/31/16
Western Europe	1.8% 9/30/16	0.9% 12/31/16	8.4% 9/30/16
Japan	1.1% 9/30/16	0.5% 11/30/16	3.1% 11/30/16
BRIC Nations	5.1% 9/30/16	3.4% 6/30/16	5.5% 9/30/16
Brazil	(2.9%) 9/30/16	6.3% 12/31/16	11.9% 12/31/16
Russia	(0.4%) 9/30/16	5.4% 12/31/16	5.2% 9/30/16
India	7.3% 9/30/16	3.6% 11/30/16	7.1% 12/31/15
China	6.7% 9/30/16	2.1% 12/31/16	4.0% 12/30/16



# International economics

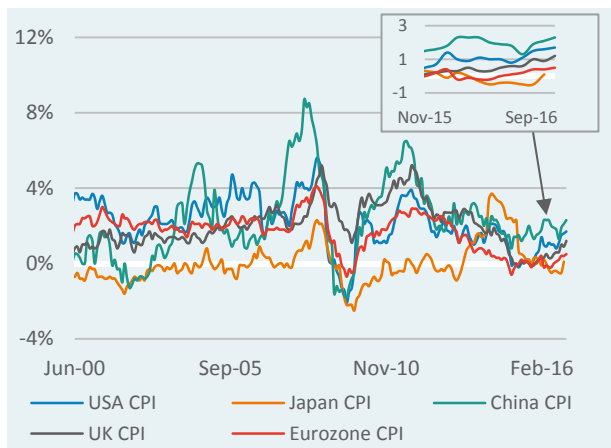
Outside of the U.S., developed market central banks have remained accommodative, which has helped inflation gradually increase and economic growth move forward slowly. Eurozone headline CPI was 1.1% YoY in December, its highest reading in more than three years. Unemployment rates have continued to trend downward, although the European rate is still elevated at 9.8%.

Both the Bank of Japan and European Central Bank have continued their negative rate policies and asset purchase programs, although the ECB announced a tapering of purchases that will begin in April.

Especially in Europe, there is a risk that the central bank may need to tighten more quickly than desired due to a lack of eligible bonds to purchase, and perhaps due to political opposition.

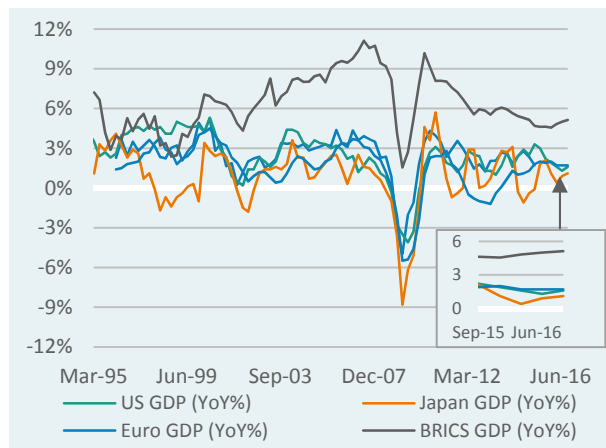
Emerging market economies grew at 5.1% in the third quarter based on the combined real GDP of the BRICs countries. Growth in these countries was driven by China and India, while Brazil and Russia remained in recession.

## INTERNATIONAL INFLATION



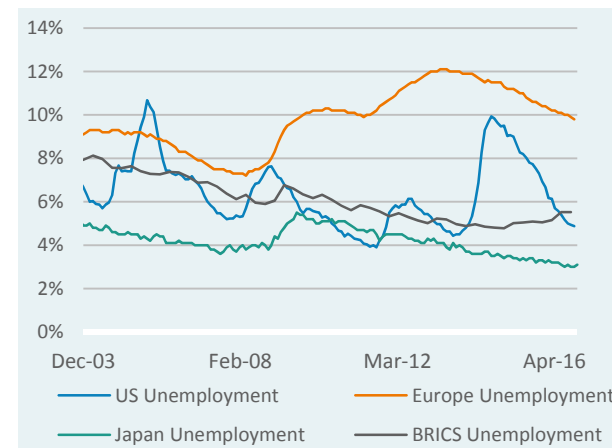
Source: Bloomberg, as of 11/30/16

## REAL GDP GROWTH



Source: Bloomberg, as of 9/30/16

## GLOBAL UNEMPLOYMENT



Source: Bloomberg, as of 11/30/16 or most recent release

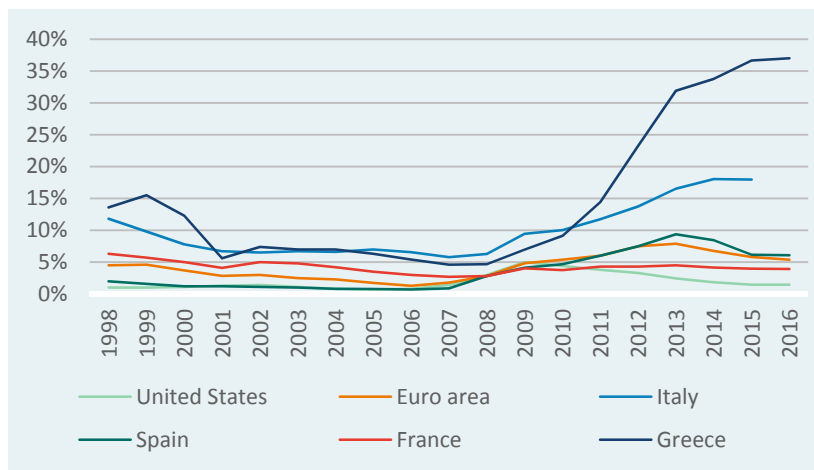
# European banking crisis

While the European economic recovery has continued at a modest pace, due in part to extremely accommodative monetary policy, a major systematic risk is still apparent in the financial system. In other areas, such as the United States, banks have worked through the pain of cleaning up their loan books after the financial crisis. Meanwhile, the loan quality in European banks, notably in Italy and Greece, has deteriorated.

Instead of writing off bad loans, many European banks have kept these loans as assets to avoid insolvency. Overall in the Euro Area, the percentage of non-performing loans (NPLs) to total gross loans was 5.4% as of year-end. This number has fallen only slightly since peaking at 7.9% in 2013. Comparatively, this figure in the U.S. was 1.5% at the end of December.

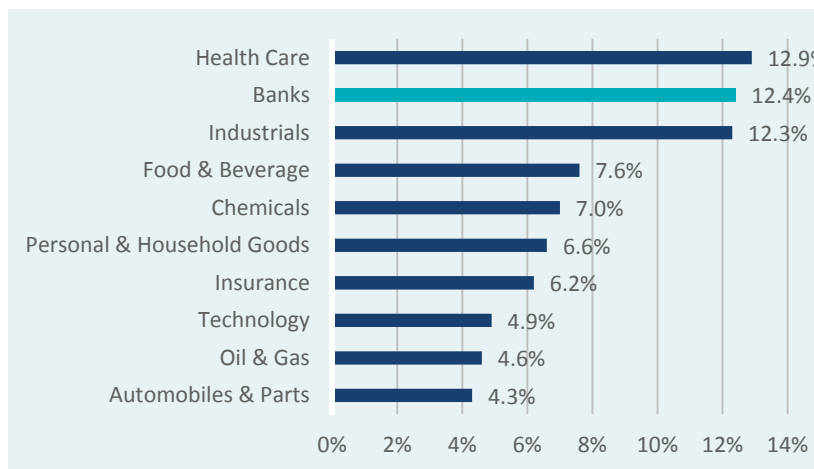
Risks stemming from the Italian financial system may be the most important to the overall health of Europe. As of the last data point, the ratio of NPLs to total gross loans was 18.0% at the end of 2015. In many circumstances, the banks have carried these loans at 50% of face value, when some analysts have suggested they would be more accurately valued at 20-30%. The adverse consequences from these NPLs cannot be avoided and only delayed. Given the risks and the large weight to financials, we believe exposure to European equities should be considered carefully.

NON-PERFORMING LOANS TO TOTAL GROSS LOANS



European equities should be considered carefully given the large exposure to banks

EURO STOXX 600 EX U.K. SECTOR WEIGHTINGS (TOP 10)



Top chart source: World Bank, as of 12/31/16. Data on Italy only available through 12/31/15. Bottom chart source: Stoxx, as of 11/30/16.

# Fixed income rates & credit

# Interest rate environment

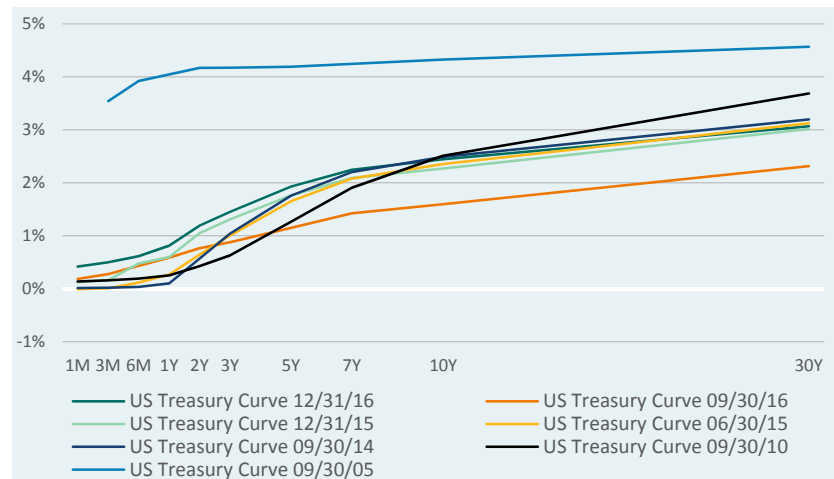
- The Federal Reserve raised interest rates at its December meeting, increasing the federal funds target rate by 0.25%, to a range of 0.50% to 0.75%. The Fed also increased its outlook for the number of 2017 rate hikes from two to three. Lower yields and economic growth outside of the U.S., along with an already strong dollar, reduce the probability of drastic rate rises.
- U.S. Treasury yields moved higher and the curve steepened on the prospects of higher inflation and economic growth. The spread between the 10 and 2-year yields was 1.25% at the end of December, its highest level in more than a year.
- Developed sovereign yields increased along with U.S. rates following the presidential election. The Japanese 10-year bond yield moved out of negative territory to 0.46% at the end of December, while the German 10-year bund yield hit an 11-month high of 0.37% before falling to finish the month at 0.20%.
- The U.S. is much further ahead in the monetary policy cycle than other developed countries, which has led to a widening yield differential between Treasuries and global sovereign bonds. While Treasuries remain expensive compared to history, the higher yield makes them relatively attractive.

Area	Short Term (3M)	10 Year
United States	0.50%	2.45%
Germany	(0.99%)	0.20%
France	(0.90%)	0.68%
Spain	(0.49%)	1.38%
Italy	(0.50%)	1.81%
Greece	1.37%	7.02%
U.K.	0.51%	1.24%
Japan	(0.42%)	0.04%
Australia	1.70%	2.77%
China	2.35%	3.06%
Brazil	12.91%	10.55%
Russia	8.78%	8.29%

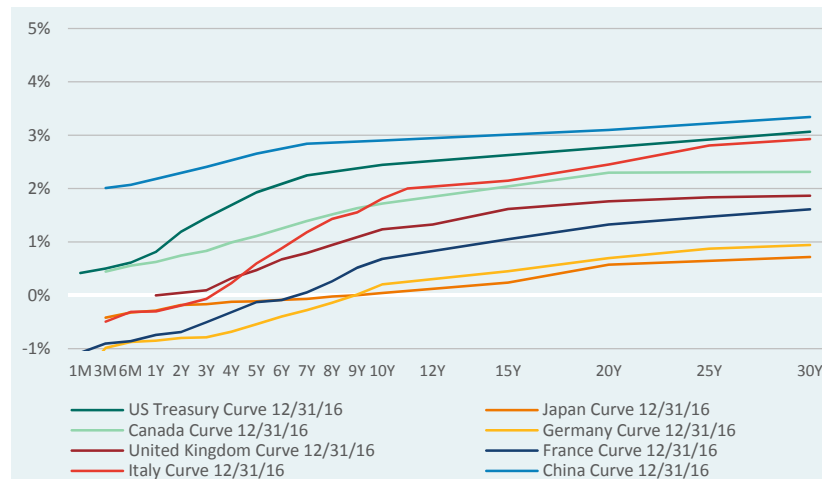
Source: Bloomberg, as of 12/31/16

# Yield environment

U.S. YIELD CURVE

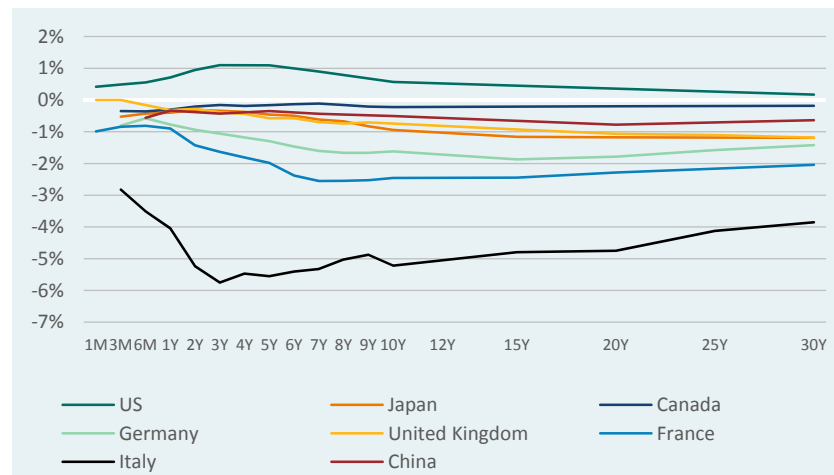


GLOBAL GOVERNMENT YIELD CURVES

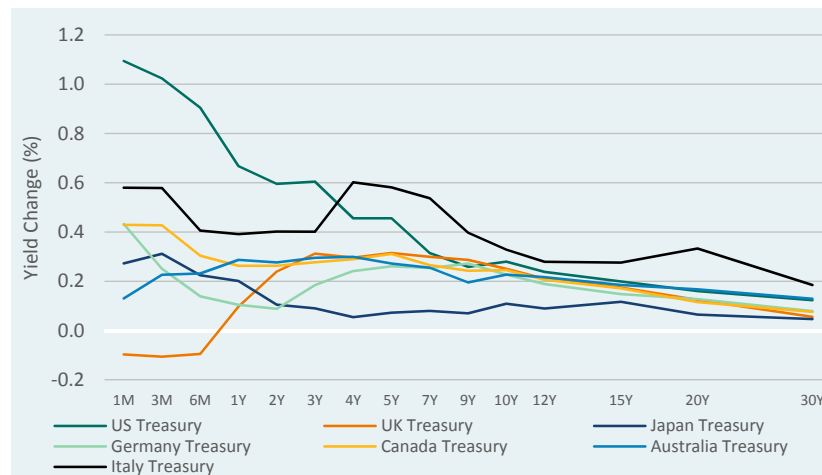


Global investors continue to prefer U.S. Treasuries due to higher relative yields

YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/16



# Credit environment

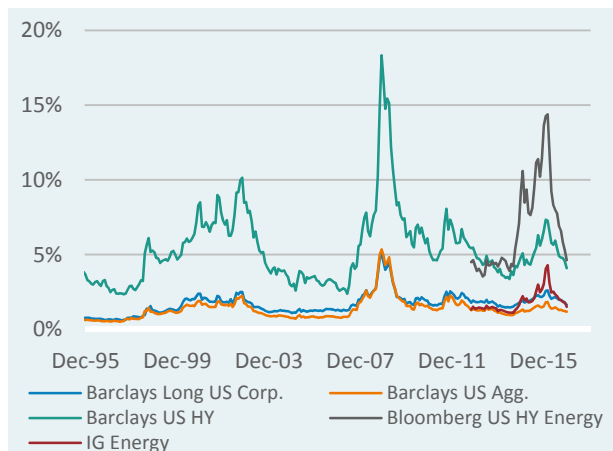
High yield returns across all sectors - energy and metals and mining in particular - have been strong since the trough in Q1. As evidence of this performance, high yield spreads have compressed to below 4.3% as of December from a high of 8.0% earlier in the year.

U.S. credit markets showed surprising strength following a brief period of increased volatility in Q1. While below the long-term trend, U.S. GDP growth has begun to show signs of improvement which has provided a tailwind to credit markets in general. Overall foreign demand for U.S. credit issuance has

remained positive as low developed market yields have been supportive of the “carry trade”, where investors buy relatively higher yielding assets.

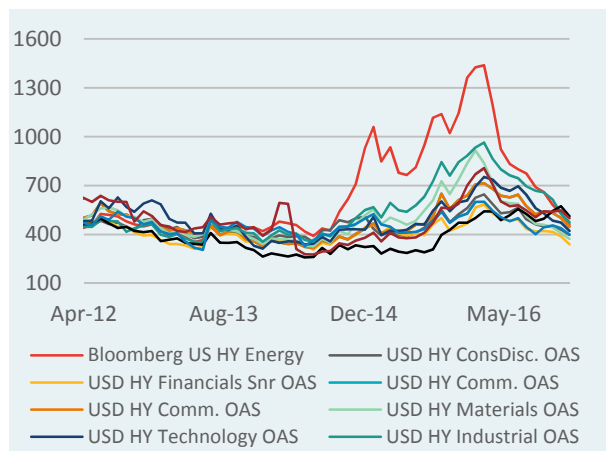
The Federal Reserve Bank moved to increase rates by 0.25% in December and hinted at higher rates in 2017. Continued growth in the job market and increasing inflation were key considerations for the increase. While rising rates may increase borrowing costs and put downward pressure on bond prices, the U.S. credit market remains attractive compared to other developed markets.

## CREDIT SPREADS



Source: Barclays Capital Indices, Bloomberg, as of 12/31/16

## HIGH YIELD SECTOR SPREADS



Source: Bloomberg, as of 12/31/16

## SPREADS

Market	Credit Spread (12/31/16)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	2.1%
US Aggregate	0.9%	1.1%
US High Yield	4.4%	7.1%
US High Yield Energy	4.6%	13.6%
US Bank Loans	3.9%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/16

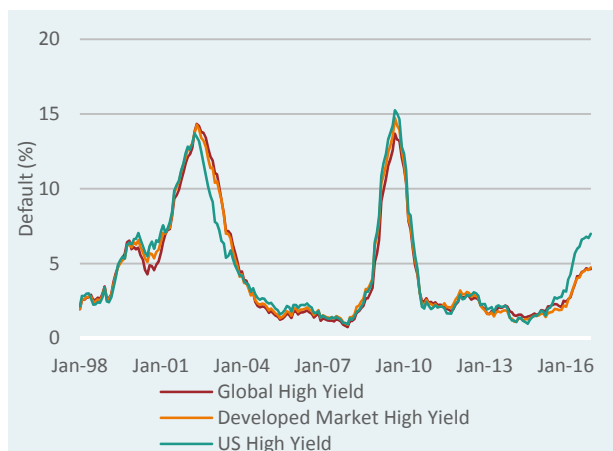
# Issuance and default

Defaults have been trending higher from their lows in 2014 due mostly to lower commodity prices. While the current level of default have risen above the trailing 20-year average, it remains below the peak in 2002 and 2009, respectively.

Corporate issuance in emerging markets has remained strong due mainly to perceived relative value compared to developed market corporates. Rising U.S. rates will most likely result in increased borrowing costs.

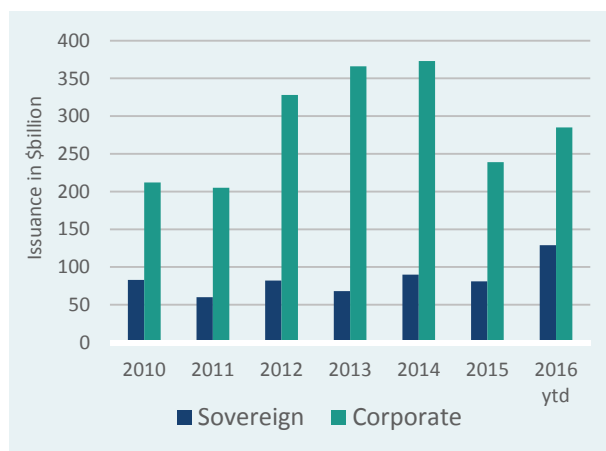
Issuance in both high yield bonds and bank loans has been trending lower. Some of the fall in issuance volume can be attributed to the recent sell off in the energy sector. Additionally, rising U.S. interest rates have resulted in increased borrowing costs which has acted as a headwind.

**HY DEFAULT TRENDS (ROLLING 1 YEAR)**



Source: Credit Suisse, BofA, as of 12/31/16

**EM DEBT ISSUANCE**



Source: JP Morgan, as of 11/30/16

**GLOBAL ISSUANCE**



Source: Bloomberg, BofA Merrill Lynch, as of 12/31/16

# Equity

# Equity environment

- We believe the U.S. election results have had a material impact on possible future equity return outcomes. There is likely greater upside potential for U.S. equities, though some of this has already been priced in with higher prices post-election.
- Both consumer and private sector sentiment have risen robustly. This positive shift may provide a tailwind to U.S. economic growth through spending and investment.
- Fourth quarter earnings for the S&P 500 are estimated to grow 3.2% year-over-year, according to FactSet. If this positive growth comes to fruition it will mark the second quarter of positive growth and may mean the recent earnings slump is now behind us.
- Value equities outperformed growth equities in the fourth quarter. The Russell 1000 Value index and Russell 1000 Growth index returned 6.7% and 1.0%, respectively. Energy and financial service companies have contributed to the performance rebound.
- The U.S. dollar rose 6.4% in Q4 on a trade-weighted basis which directly detracts from investment returns of U.S. investors with unhedged currency exposure.
- Japanese equities (Nikkei 225) delivered a 16.1% return on a hedged basis, but 1.2% on an unhedged basis – a 15% swing caused by currency movement.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	3.8%		12.1%		12.1%	
US Small Cap (Russell 2000)	8.8%		21.3%		21.3%	
US Large Value (Russell 1000 Value)	6.7%		17.3%		17.3%	
US Large Growth (Russell 1000 Growth)	1.0%		7.1%		7.1%	
International Large (MSCI EAFE)	(-0.7%)	7.3%	1.5%	6.2%	1.5%	6.2%
Eurozone (Euro Stoxx 50)	3.2%	10.3%	0.7%	5.1%	0.7%	5.1%
U.K. (FTSE 100)	(0.8%)	4.4%	(0.2%)	19.0%	(0.2%)	19.0%
Japan (NIKKEI 225)	1.2%	16.1%	5.8%	1.3%	5.8%	1.3%
Emerging Markets (MSCI Emerging Markets)	(4.1%)	(2.0%)	11.6%	7.5%	11.6%	7.5%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/16

# Domestic equity

U.S. equity markets fell sharply in futures markets on the night of the election, but then recovered before market open the next morning. After this initial stumble, equities rallied higher to finish the quarter.

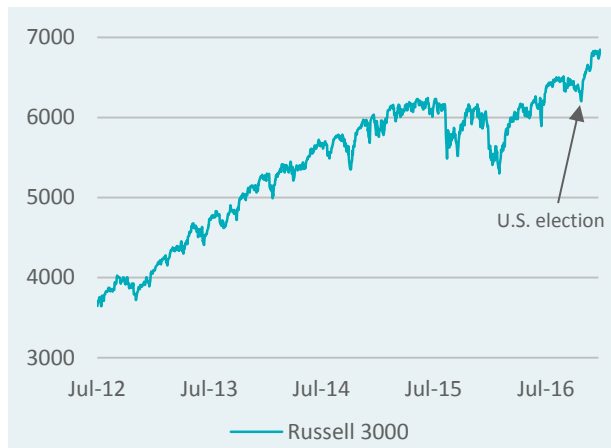
Post-election equity movement was likely driven by an improved economic outlook as well as several proposed policy changes that would benefit corporations, including lower tax rates and deregulation.

The financials sector was responsible for much of the gain in equity prices, likely due to the prospects of higher rates and a steeper curve. The S&P 500 Financials sector was up 16.5% after the election, compared to a 2.8% gain across the rest of the index.

As of December 30<sup>th</sup>, estimated earnings growth for the fourth quarter was 3.2% from the previous year, according to FactSet. Looking ahead, bottom-up analyst EPS forecasts point toward improving corporate earnings growth.

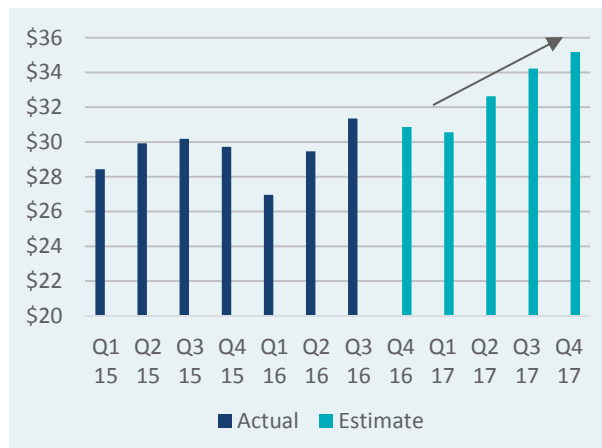
Proposed tax reform and deregulation have helped improve the U.S. earnings outlook

## U.S. EQUITIES



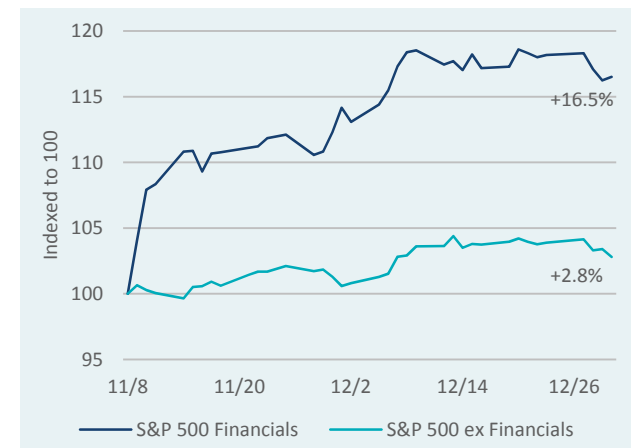
Source: Russell Investments, as of 12/30/16

## S&P 500 EPS



Source: FactSet, as of 12/30/16

## S&P 500 FINANCIALS



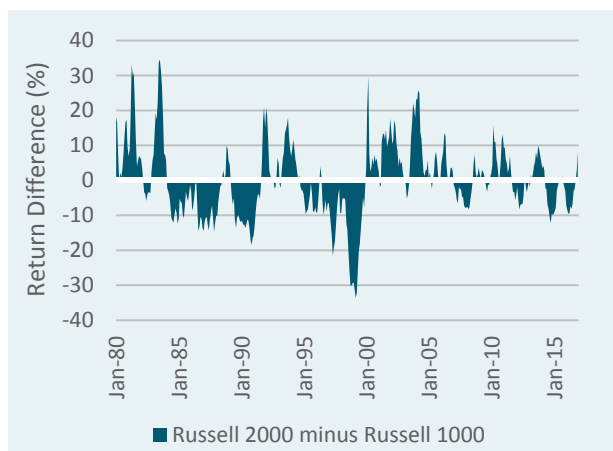
Source: Bloomberg, as of 12/30/16

# Domestic equity size and style

Small cap equities outperformed large cap equities in the fourth quarter as the Russell 2000 Index and Russell 1000 Index returned 8.8% and 3.8%, respectively. Much of this outperformance came after the U.S. presidential election as smaller companies could receive greater marginal benefit from deregulation proposed by Donald Trump. Renewed U.S. dollar strength also benefits smaller companies relative to larger companies due to greater insulation from foreign currency movements.

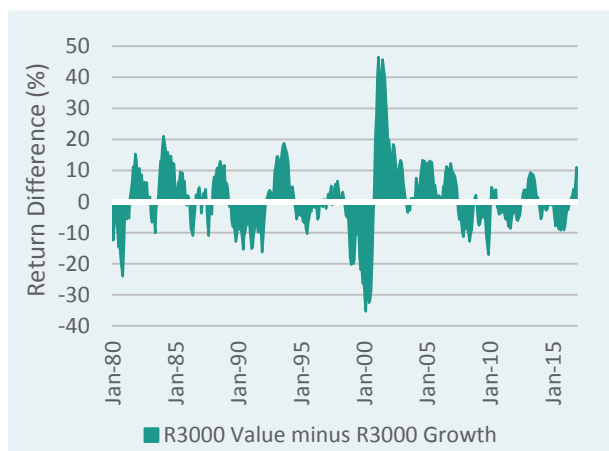
Value equities outperformed growth equities during the quarter. The Russell 1000 Value Index and Russell 1000 Growth Index returned 6.7% and 1.0%, respectively. This relative outperformance was driven by the Financials and Energy sectors, which are the two largest sectors in the value index. The magnitude of this recent value bounce back has brought the value premium back into positive territory for most trailing windows.

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



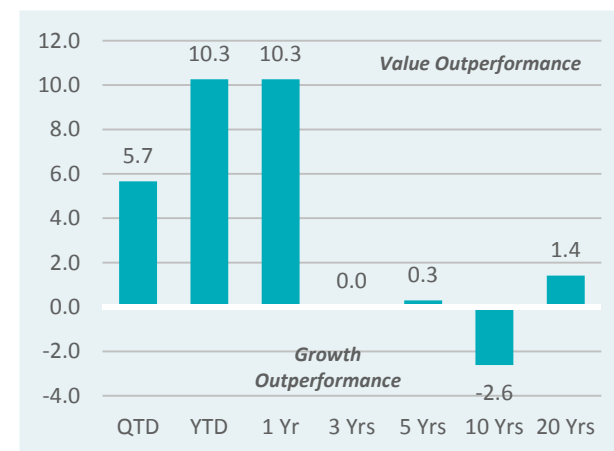
Source: Russell Investments, as of 12/31/16

**VALUE VS GROWTH (YOY)**



Source: Russell Investments, as of 12/31/16

**U.S. VALUE VS. GROWTH RELATIVE PERFORMANCE**



Source: Morningstar, as of 12/31/16



# International equity

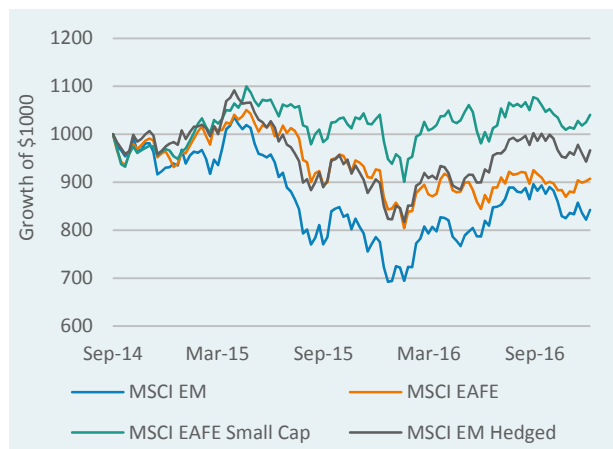
International equity markets narrowly outperformed domestic equities in December (S&P 500 2.0%) as the MSCI ACWI ex U.S. returned 2.2%.

European equity markets remained calm on the back of the announcement that the ECB would continue its asset purchase program through the initially scheduled end date of March 2017, but at a reduced rate. Adjustments to program constraints will be likely, given the mandated rule that the ECB cannot purchase more than 33% of any one country's national debt.

International developed equities delivered a 7.3% total return on a hedged basis over the quarter, but delivered -0.7% on an unhedged basis. Unhedged currency exposure continues to cause higher volatility for investors who choose not to hedge.

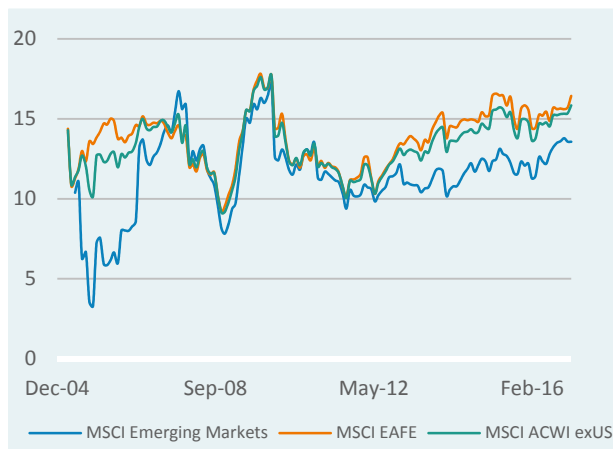
Japanese equities delivered a 16.1% return on a hedged basis, but 1.2% on an unhedged basis – a 15% swing caused by currency movement. Expectations of continued loose monetary policy and low interest rates in Japan contributed to yen weakness.

## GLOBAL EQUITY PERFORMANCE



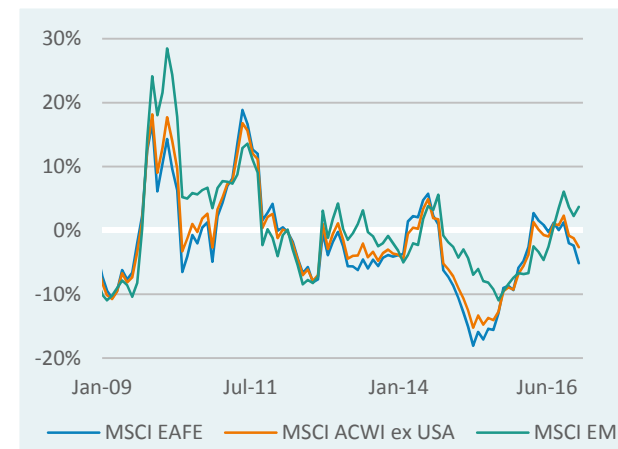
Source: Bloomberg, as of 12/31/16

## INTERNATIONAL FORWARD P/E RATIOS



Source: Bloomberg, as of 12/31/16

## EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 12/31/16

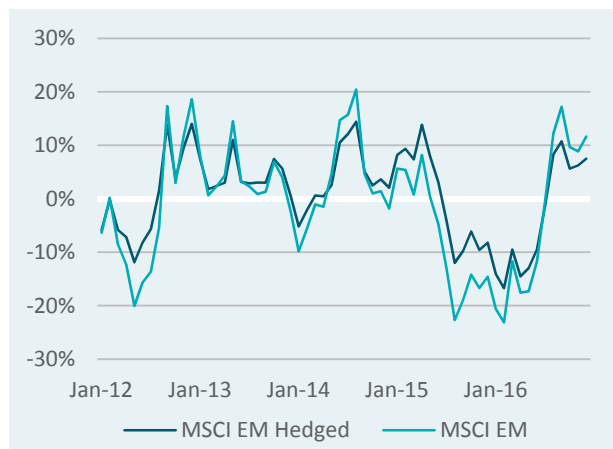
# Emerging market equity

Emerging market economic growth has shown recovery as Russia and Brazil begin moving out of severe depressions and as commodity prices improve. Economic growth of the “BRIC” nations continues at a pace materially higher than that of developed nations, consistent with recent decades.

Some renewed investor optimism can be seen as equity valuations move higher. Emerging market equities

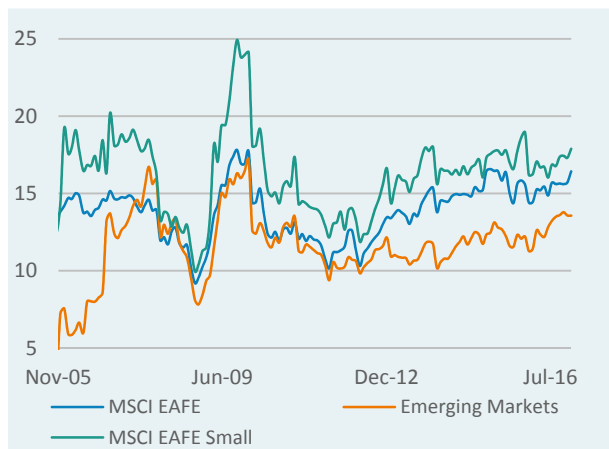
provided a muted quarter with a -2.0% return on a hedged basis, but delivered a positive 7.5% return for the year (MSCI Emerging Markets). Much of the recent performance stability can be attributed to a reversal or flattening of emerging market currency depreciation trends occurring since 2012. Earnings across the broader emerging markets have also reversed their downward trend, though not as quickly as the pace of price improvement as demonstrated in higher equity valuations.

**12-MONTH ROLLING PERFORMANCE**



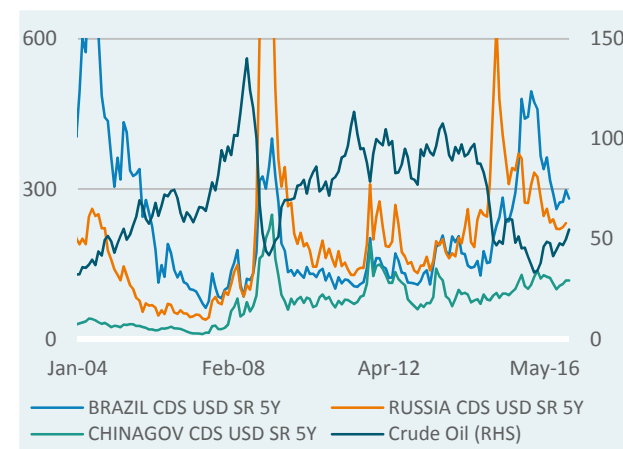
Source: MPI, as of 12/31/16

**FORWARD P/E RATIOS**



Source: Bloomberg, as of 12/31/16

**CDS SPREADS**



Source: MSCI, as of 12/31/16

# Equity valuations

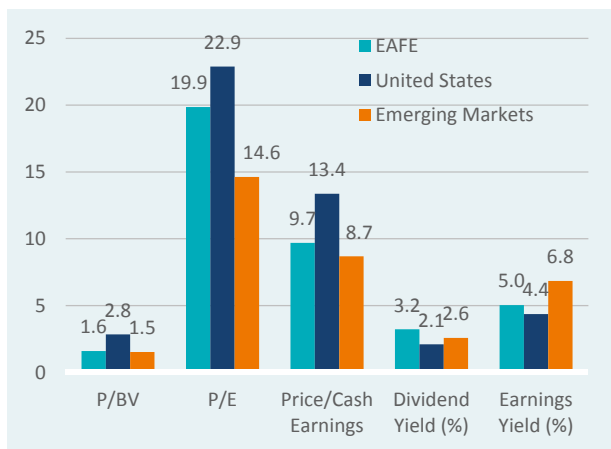
The forward P/E ratio for the S&P 500 was 18.8 at year-end and remains above the long-term average of 16.9 since 1995. The current P/E of 18.8 places it in the 79<sup>th</sup> percentile.

While elevated, valuations for U.S. large cap equities remain within one standard deviation of the average. The expected pick up in corporate earnings would help bring P/E ratios more in line with long-term averages, all else equal.

Low real interest rate and inflation environments have historically supported higher equity valuations, meaning current valuations may not be unusual given the conditions.

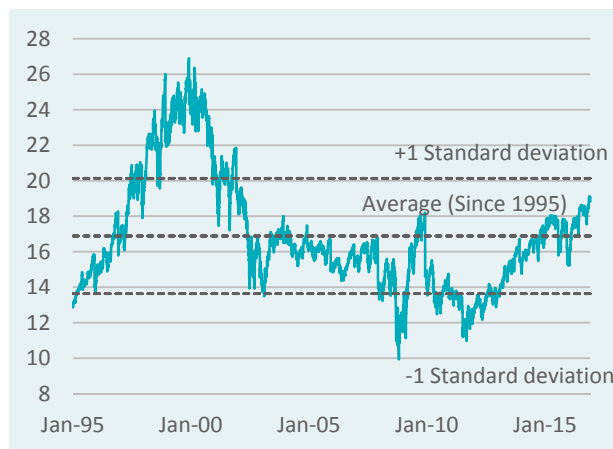
International developed valuations expanded during the quarter, especially in Europe, but are still relatively cheap compared to the U.S. Emerging market P/E ratios expanded off historic lows and emerging market equities remain relatively attractive from a valuation standpoint.

## MSCI VALUATION METRICS (3 MONTH AVERAGE)



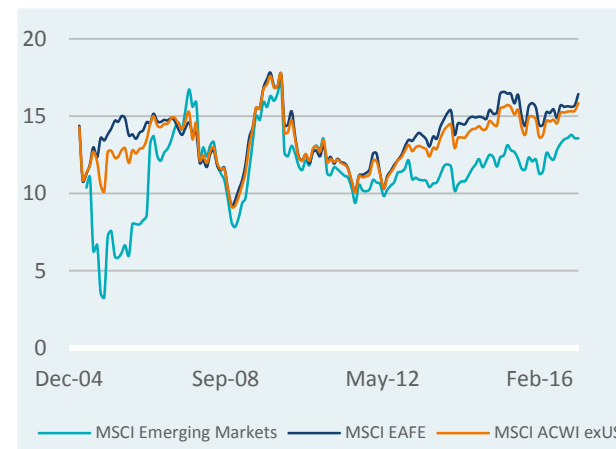
Source: MSCI, as of 12/31/16

## S&P 500 FORWARD P/E



Source: Bloomberg, as of 12/31/16

## INTERNATIONAL FORWARD P/E RATIOS



Source: Bloomberg, as of 12/31/16

# Equity volatility

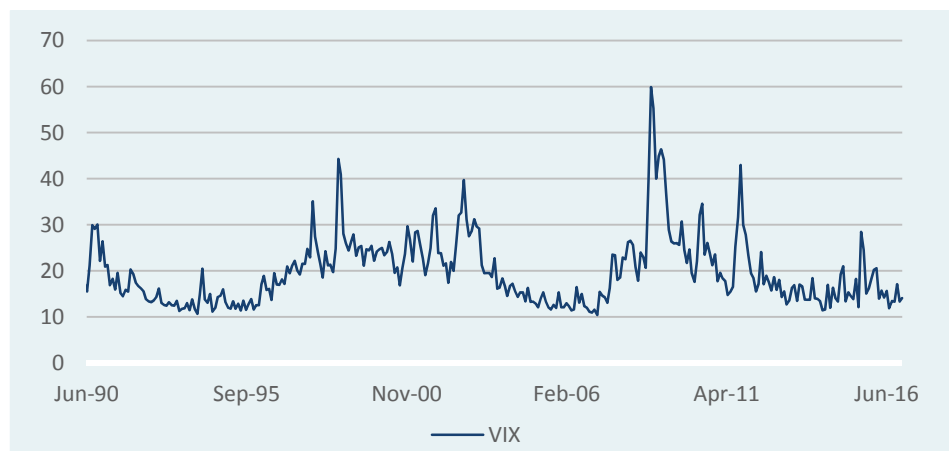
Equity volatility has remained subdued, despite the arguably surprising U.S. election results and uncertain future policy environment. However, uncertainty surrounding a set of policies with highly unclear ramifications for the markets is different from uncertainty in the traditional sense.

Low implied volatility, as shown by the VIX index, is consistent with the renewed bull market in U.S.

equities. Realized risk has also been low across international developed equity markets (MSCI EAFE).

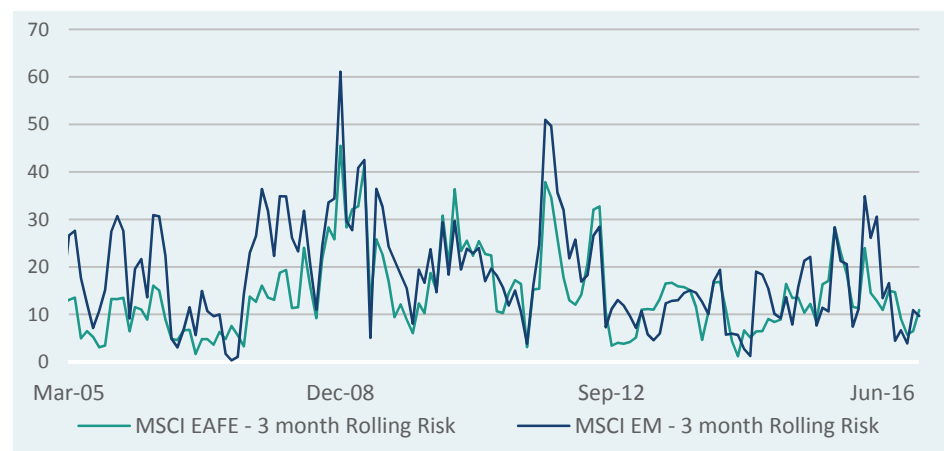
Unhedged currency exposure has resulted in materially higher volatility and often significant variation in equity portfolio performance.

**U.S. IMPLIED EQUITY VOLATILITY**



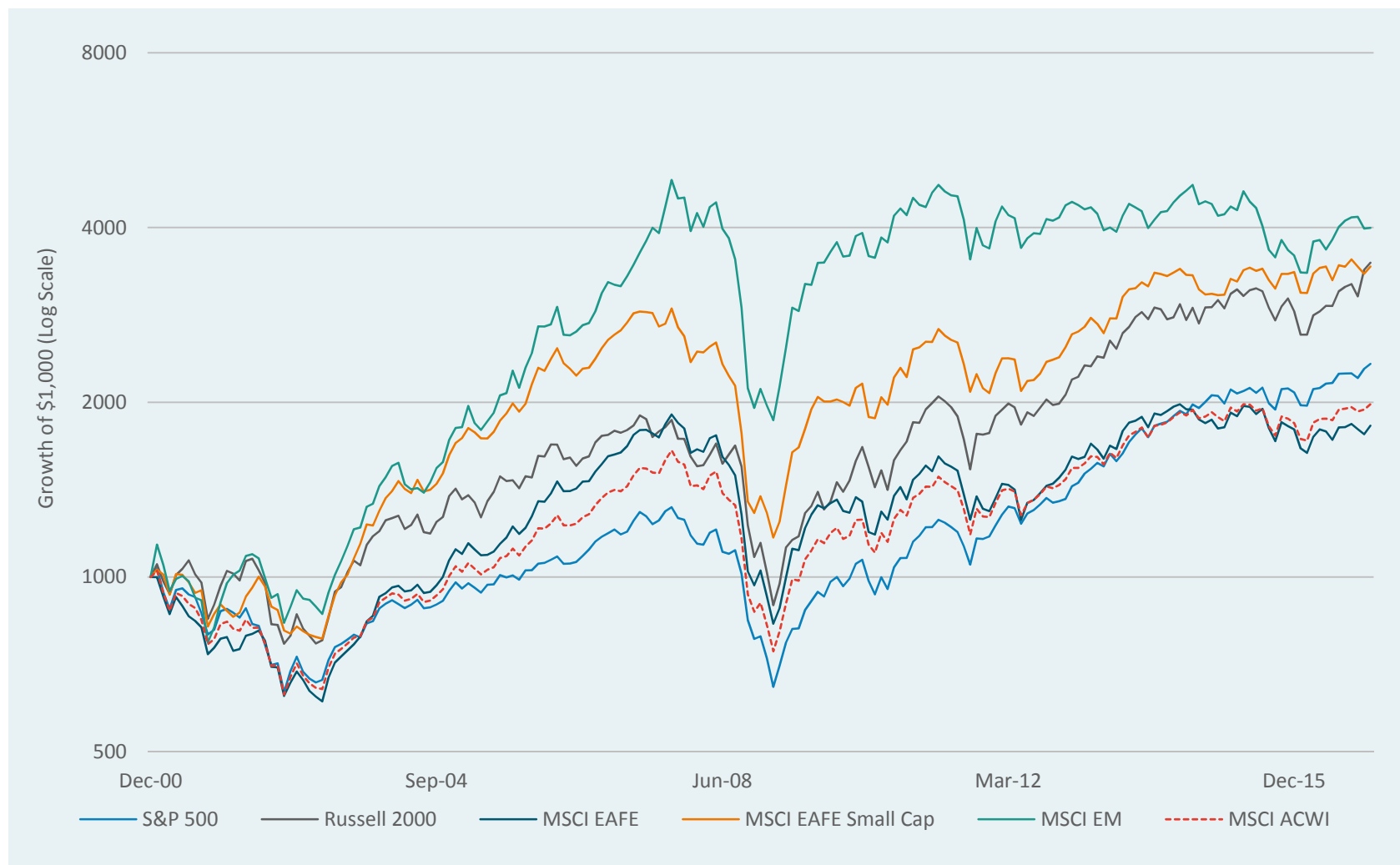
Source: CBOE, as of 12/30/16

**INTERNATIONAL EQUITY VOLATILITY**



Source: MSCI, as of 12/31/16

# Long-term equity performance



Source: MPI, as of 12/31/16

# Other assets



# Real estate & REITs

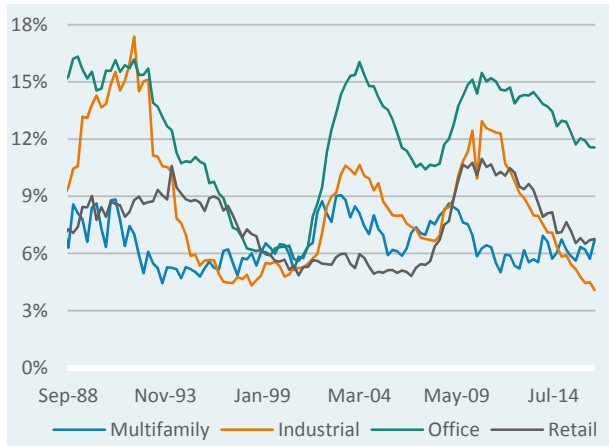
After six consecutive years of double digit returns in core real estate, 2016 is on pace to come in around 8-9% - still a very good return, but slightly down from the pace of recent history.

Fundamentals remain strong with generally declining vacancy rates. The exception is multifamily, where vacancies have come up slightly off historic lows. NOI growth rates are positive and strong for all property types, near or above 5% for all over the last year.

New supply remains below historical averages in all property types except multifamily. Continued tight lending standards have kept new construction, especially speculative construction, under control relative to previous cycles.

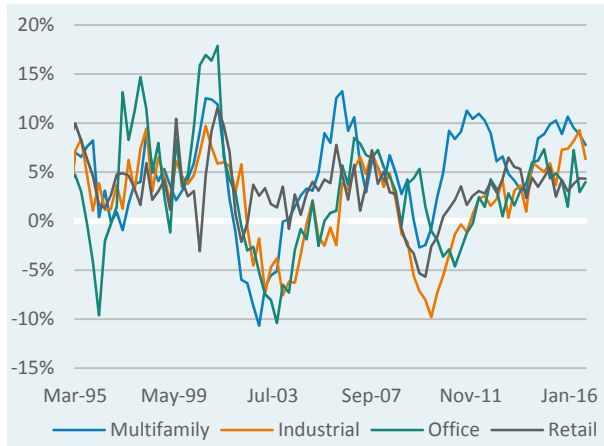
Pricing from a cap rate perspective looks historically high at 4.5%, however relative spreads to Treasuries remain healthy. Rising interest rates could put pressure on pricing, but the spread keeps a small cushion in place.

## VACANCY RATES



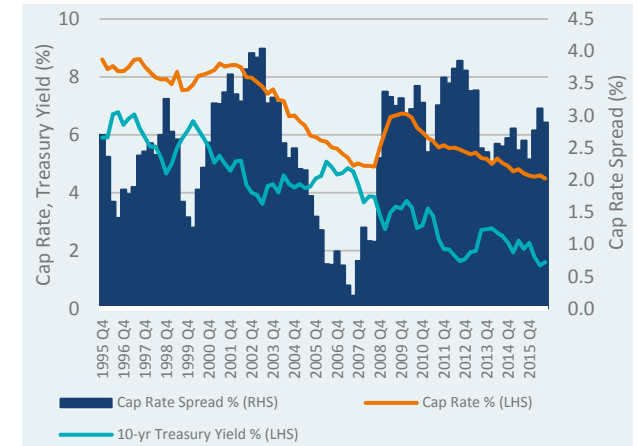
Source: NCREIF, as of 9/30/16

## NET OPERATING INCOME GROWTH



Source: NCREIF, as of 9/30/16

## CAP RATES AND SPREADS



Source: NCREIF, as of 9/30/16

# Currency

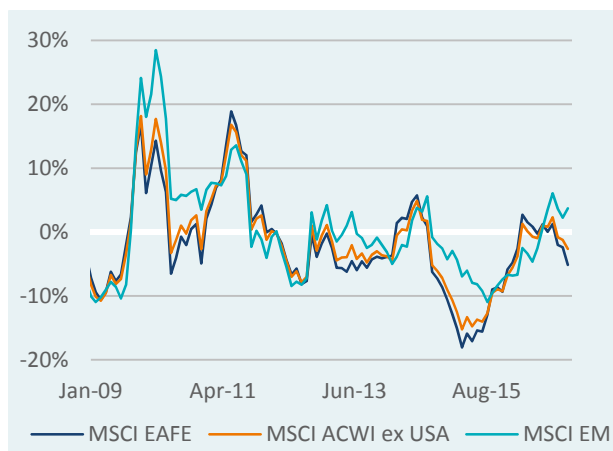
The U.S. dollar rose considerably in the fourth quarter, up 6.4% against a basket of major currencies. The strong dollar created a large gap between hedged and unhedged international exposures, as foreign currency losses eroded unhedged returns.

Renewed dollar strength occurred after the presidential election likely due to increased expectations of U.S. economic growth and higher interest rates. A widening gap between Treasury yields and other developed sovereign bonds could cause greater demand for

Treasuries and provide a tailwind for further dollar appreciation. However, higher inflation at the same time could offset some of the potential strength.

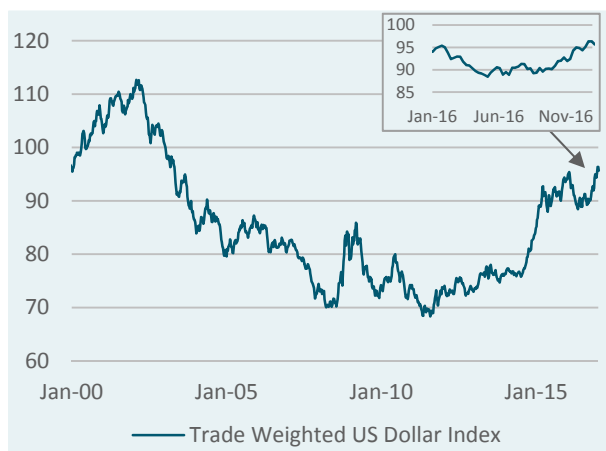
Emerging market currencies were hit hard by the strength in the U.S. dollar, influenced by the Fed pointing towards faster than anticipated interest rates increases and possible protectionist trade policies from the Trump administration. The JPM EM Currency Index was down 4.0% in the fourth quarter.

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



Source: MPI, as of 12/31/16

**LONG-TERM TRADE WEIGHTED DOLLAR**



Source: FRED, as of 12/31/16

**JPM EM CURRENCY INDEX**



Source: Bloomberg, as of 12/31/16

# Appendix

# Periodic table of returns – December 2016

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	5-Year	10-Year
Small Cap Value	74.8	16.6	38.4	23.2	35.2	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	10.1	31.7	15.1	8.3
Small Cap Equity	32.9	8.1	37.8	23.1	32.9	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	14.8	7.8
Large Cap Value	26.3	6.4	37.2	22.4	31.8	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	14.7	7.2
Large Cap Equity	23.8	4.4	31.0	21.6	30.5	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	14.5	7.1
Commodities	19.3	3.2	28.5	21.4	22.4	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	14.5	7.1
Small Cap Growth	18.9	2.6	25.7	16.5	16.2	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	13.7	6.3
Emerging Markets Equity	18.1	0.4	19.6	14.4	13.9	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	11.2	5.7
Large Cap Growth	13.4	-1.5	18.5	11.3	12.9	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	7.1	6.5	4.3
Real Estate	10.2	-1.8	15.2	10.3	10.6	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	6.1	5.8	3.8
60/40 Global Portfolio	9.7	-2.0	11.6	9.9	9.7	-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	3.4	1.8
US Bonds	3.1	-2.4	11.1	6.4	5.2	-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	2.2	1.3
International Equity	2.9	-2.9	7.5	6.0	2.1	-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	1.3	0.7
Hedge Funds of Funds	1.4	-3.5	5.7	5.1	-3.4	-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	0.1	0.7
Cash	-1.1	-7.3	-5.2	3.6	-11.6	-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	-9.0	-5.6

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

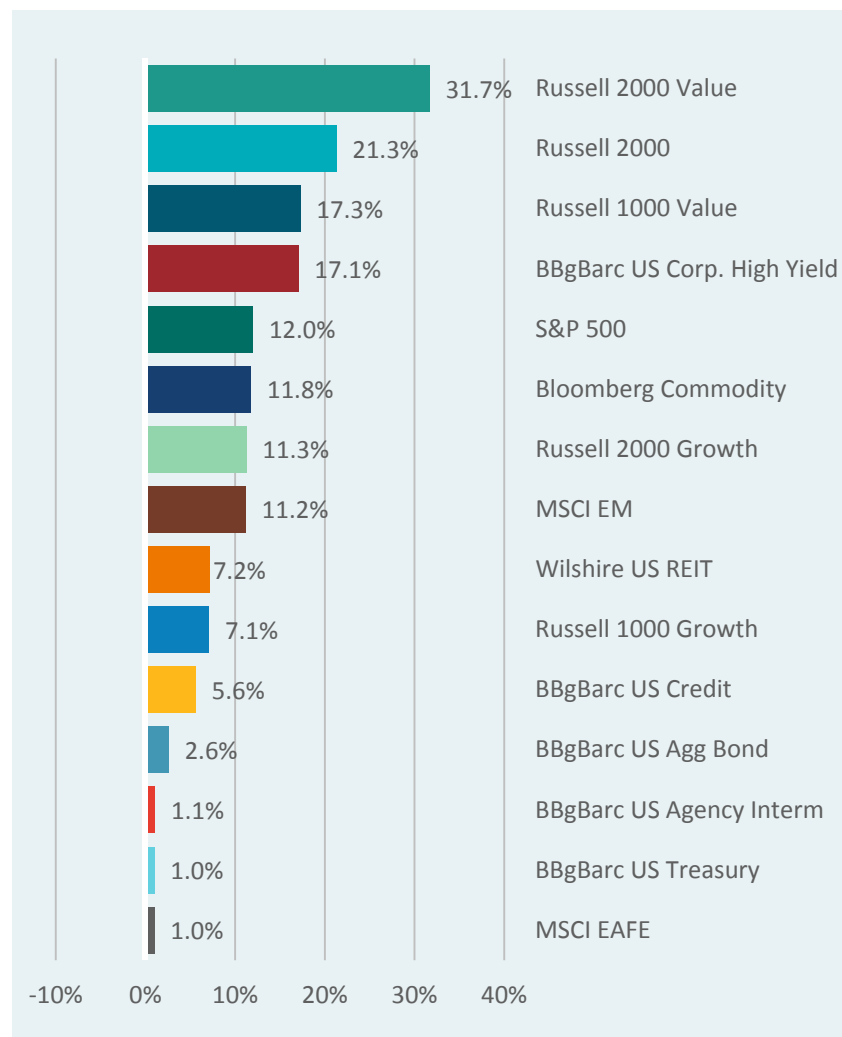
Hedge Funds of Funds

60% MSCI ACWI/40% BC 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, BC Agg, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BC Global Bond. NCREIF Property performance data as of 9/30/16.

# Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/16

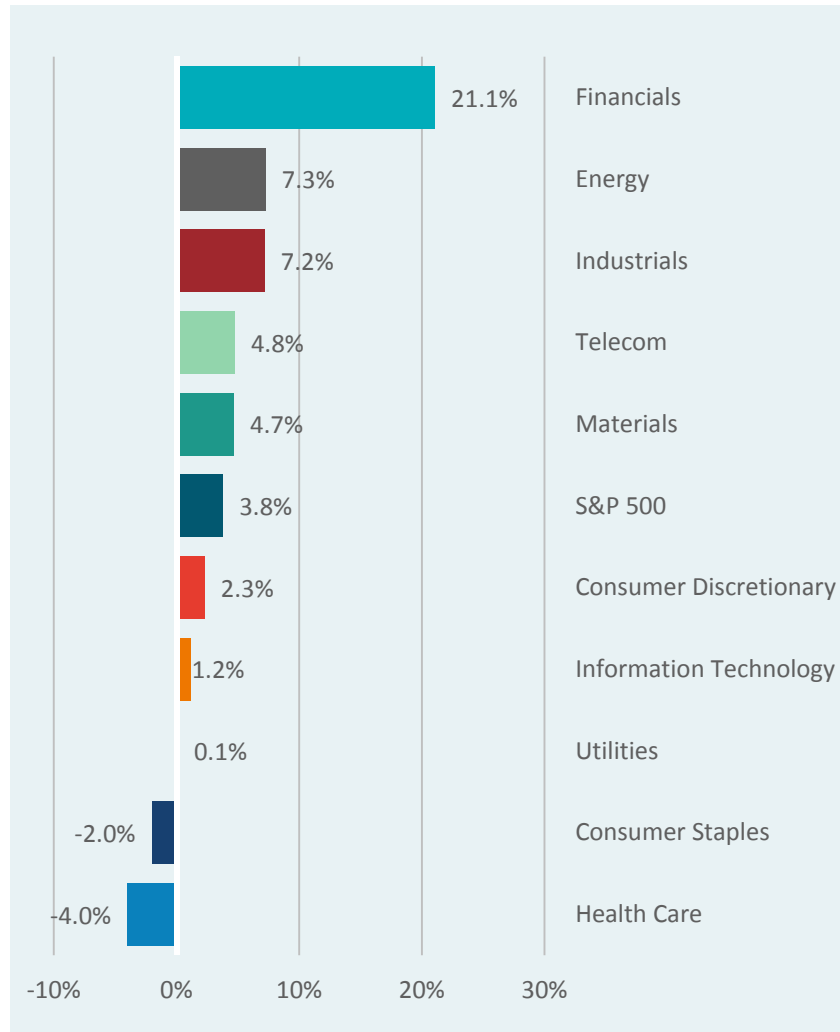
TEN YEARS ENDING DECEMBER



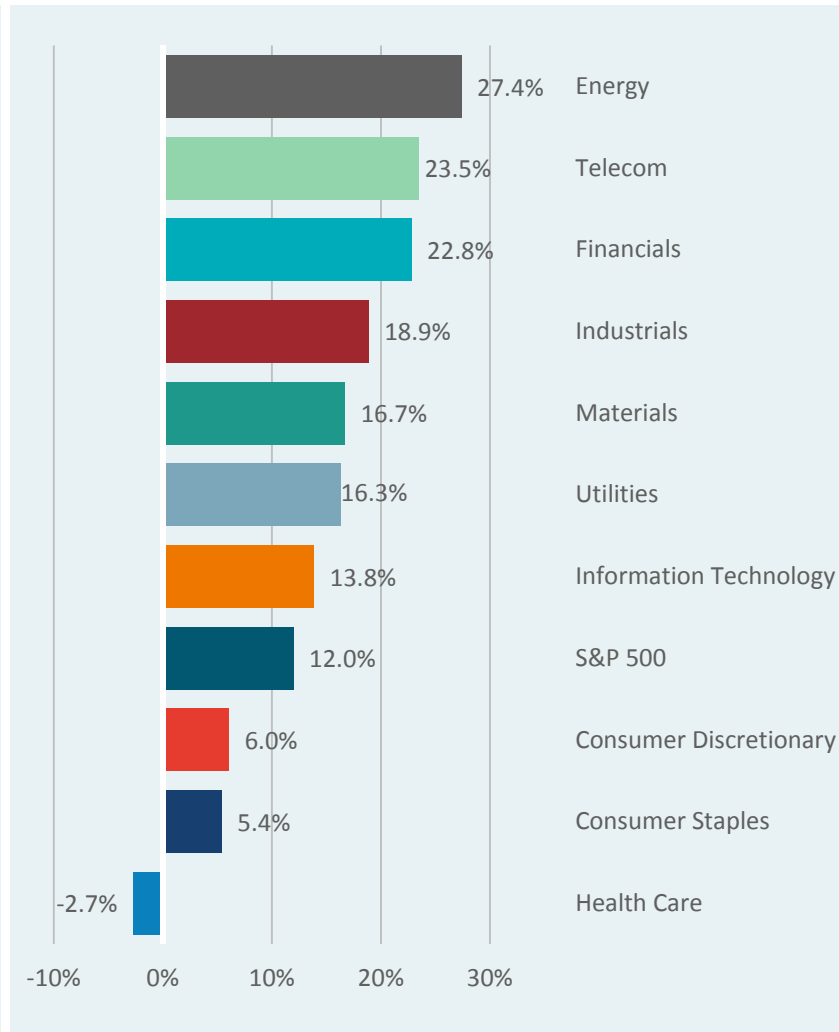
Source: Morningstar, as of 12/31/16

# S&P 500 and S&P 500 sector returns

4<sup>TH</sup> QUARTER



ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/30/16

Source: Morningstar, as of 12/30/16



# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	2.0	3.8	12.0	12.0	8.9	14.7	6.9
S&P 500 Equal Weighted	1.1	3.8	14.8	14.8	8.7	15.5	8.4
DJ Industrial Average	3.4	8.7	16.5	16.5	8.7	12.9	7.5
Russell Top 200	2.2	4.1	11.3	11.3	8.9	14.7	6.8
Russell 1000	1.9	3.8	12.1	12.1	8.6	14.7	7.1
Russell 2000	2.8	8.8	21.3	21.3	6.7	14.5	7.1
Russell 3000	2.0	4.2	12.7	12.7	8.4	14.7	7.1
Russell Mid Cap	1.1	3.2	13.8	13.8	7.9	14.7	7.9
<b>Style Index</b>							
Russell 1000 Growth	1.2	1.0	7.1	7.1	8.6	14.5	8.3
Russell 1000 Value	2.5	6.7	17.3	17.3	8.6	14.8	5.7
Russell 2000 Growth	1.4	3.6	11.3	11.3	5.1	13.7	7.8
Russell 2000 Value	4.1	14.1	31.7	31.7	8.3	15.1	6.3

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	2.2	1.2	7.9	7.9	3.1	9.4	3.6
MSCI ACWI ex US	2.6	(1.3)	4.5	4.5	(1.8)	5.0	1.0
MSCI EAFE	3.4	(0.7)	1.0	1.0	(1.6)	6.5	0.7
MSCI EM	0.2	(4.2)	11.2	11.2	(2.6)	1.3	1.8
MSCI EAFE Small Cap	2.9	(2.9)	2.2	2.2	2.1	10.6	2.9
<b>Style Index</b>							
MSCI EAFE Growth	2.2	(5.5)	(3.0)	(3.0)	(1.2)	6.7	1.6
MSCI EAFE Value	4.6	4.2	5.0	5.0	(2.1)	6.3	(0.2)
<b>Regional Index</b>							
MSCI UK	4.1	(0.9)	(0.1)	(0.1)	(4.4)	4.0	0.3
MSCI Japan	1.0	(0.2)	2.4	2.4	2.5	8.2	0.5
MSCI Euro	6.6	2.0	1.4	1.4	(3.3)	7.1	(0.6)
MSCI EM Asia	(1.4)	(6.1)	6.1	6.1	0.1	4.4	3.4
MSCI EM Latin American	0.9	(0.9)	31.0	31.0	(7.5)	(5.7)	0.3

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BBgBarc US Treasury US TIPS	(0.1)	(2.4)	4.7	4.7	2.3	0.9	4.4
BBgBarc US Treasury Bills	0.0	0.1	0.4	0.4	0.2	0.2	0.9
BBgBarc US Agg Bond	0.1	(3.0)	2.6	2.6	3.0	2.2	4.3
<b>Duration</b>							
BBgBarc US Treasury 1-3 Yr	0.0	(0.5)	0.9	0.9	0.7	0.6	2.1
BBgBarc US Treasury Long	(0.5)	(11.7)	1.3	1.3	7.8	2.5	6.7
BBgBarc US Treasury	(0.1)	(3.8)	1.0	1.0	2.3	1.2	4.0
<b>Issuer</b>							
BBgBarc US MBS	(0.0)	(2.0)	1.7	1.7	3.1	2.1	4.3
BBgBarc US Corp. High Yield	1.8	1.8	17.1	17.1	4.7	7.4	7.5
BBgBarc US Agency Interm	(0.0)	(1.1)	1.1	1.1	1.5	1.1	3.2
BBgBarc US Credit	0.6	(3.0)	5.6	5.6	4.1	3.8	5.3

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	1.8	2.7	11.8	11.8	(11.3)	(9.0)	(5.6)
Wilshire US REIT	4.9	(2.3)	7.2	7.2	13.8	12.0	4.8
<b>Regional Index</b>							
JPM EMBI Global Div	1.3	(4.0)	10.2	10.2	6.2	5.9	6.9
JPM GBI-EM Global Div	1.9	(6.1)	9.9	9.9	(4.1)	(1.3)	3.8
<b>Hedge Funds</b>							
HFRI Composite	1.1	1.3	5.6	5.6	2.4	4.5	3.4
HFRI FOF Composite	0.9	0.8	0.5	0.5	1.2	3.4	1.3
<b>Currency (Spot)</b>							
Euro	(0.6)	(6.1)	(2.9)	(2.9)	(8.5)	(4.1)	(2.2)
Pound	(1.1)	(4.9)	(16.2)	(16.2)	(9.3)	(4.5)	(4.5)
Yen	(2.3)	(13.2)	3.1	3.1	(3.4)	(8.0)	0.2

Source: Morningstar, as of 12/31/16

# Definitions

**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.lanqerresearch.com](http://www.lanqerresearch.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))

**Merrill Lynch Option Volatility Estimate (MOVE) Index** – a yield curve weighted index comprised of a weighted set of 1-month Treasury options, including 2.5.10 and 30 year tenor contracts. This index is an indicator of the expected (implied) future volatility in the rate markets. ([www.Bloomberg.com](http://www.Bloomberg.com))

**OECD Consumer Confidence Index** - based on households' plans for major purchases and their economic situation, both currently and their expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions. (<https://data.oecd.org/>)

**OECD Business Confidence Index** - based on enterprises' assessment of production, orders and stocks, as well as its current position and expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions. (<https://data.oecd.org/>)

**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/>)

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# Imperial County Employees' Retirement System

Investment Performance Review  
Period Ending: December 31, 2016



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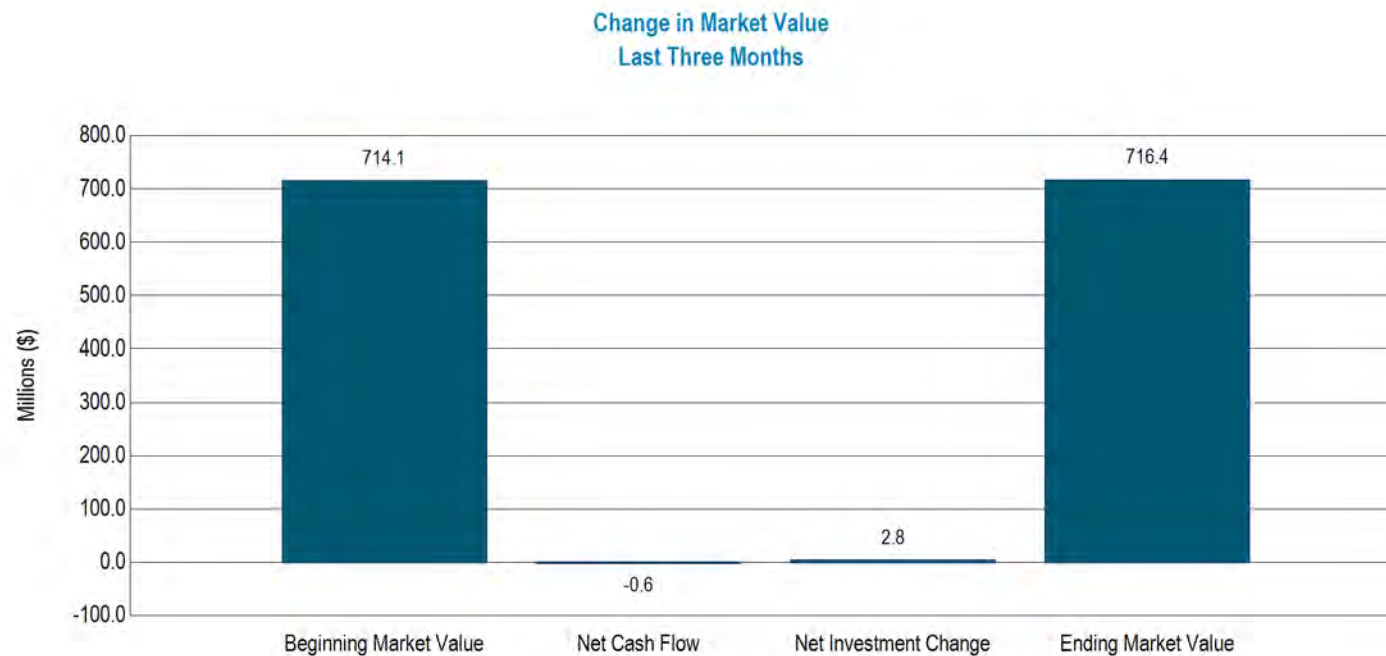
SAN FRANCISCO 415-362-3484

Total Fund  
Portfolio Reconciliation

Period Ending: December 31, 2016

Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$714,140,595	\$688,962,382	\$666,480,216
Net Cash Flow	-\$612,399	-\$919,508	-\$770,015
Net Investment Change	\$2,839,397	\$28,324,719	\$50,657,392
Ending Market Value	\$716,367,593	\$716,367,593	\$716,367,593

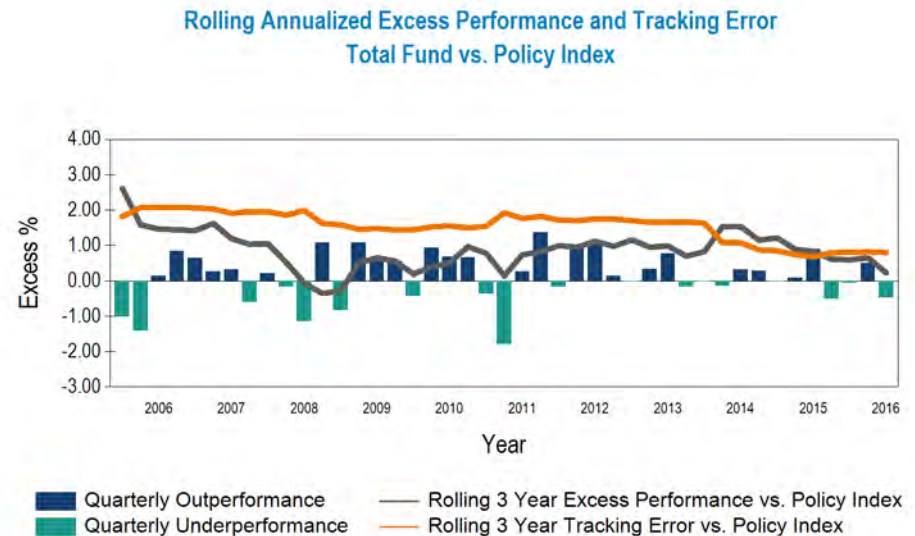
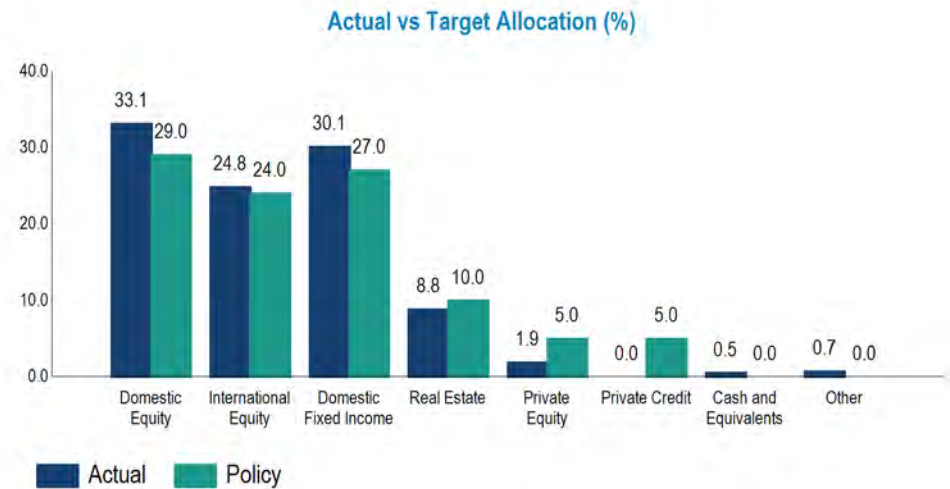


Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.

# Total Fund Executive Summary (Gross of Fees)

Period Ending: December 31, 2016

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>0.4</b>	<b>4.2</b>	<b>7.7</b>	<b>4.1</b>	<b>8.2</b>	<b>5.5</b>
Total Fund ex Parametric	0.4	4.2	7.7	4.2	8.2	5.5
Policy Index	0.9	4.2	8.3	3.9	7.2	4.8
InvestorForce Public DB Gross Rank	72	55	48	64	51	33
<b>Total Domestic Equity</b>	<b>4.2</b>	<b>8.8</b>	<b>12.9</b>	<b>7.7</b>	<b>14.4</b>	<b>7.6</b>
Russell 3000	4.2	8.8	12.7	8.4	14.7	7.1
eA All US Equity Gross Rank	54	56	49	53	53	55
<b>Total International Equity</b>	<b>-1.3</b>	<b>5.6</b>	<b>4.7</b>	<b>-1.2</b>	<b>5.6</b>	<b>1.7</b>
MSCI ACWI ex USA Gross	-1.2	5.7	5.0	-1.3	5.5	1.4
eA ACWI ex-US All Cap Equity Gross Rank	32	33	33	63	86	72
<b>Total Fixed Income</b>	<b>-2.5</b>	<b>-0.8</b>	<b>5.1</b>	<b>3.5</b>	<b>3.6</b>	<b>5.9</b>
BBgBarc US Aggregate TR	-3.0	-2.5	2.6	3.0	2.2	4.3
eA All US Fixed Inc Gross Rank	68	48	36	43	42	24
<b>Total Real Estate</b>	<b>1.1</b>	<b>3.0</b>	<b>7.1</b>	<b>12.0</b>	<b>11.8</b>	<b>5.3</b>
NCREIF Property Index	1.7	3.5	8.0	11.0	10.9	6.9
NCREIF-ODCE	2.1	4.2	8.8	12.1	12.2	5.8
<b>Total Private Equity</b>	<b>3.8</b>	<b>7.0</b>	<b>12.3</b>	<b>18.4</b>	<b>16.9</b>	<b>--</b>
Russell 3000 +3% Lagged	5.2	8.7	18.4	13.7	19.8	--
<b>Total Opportunistic</b>	<b>0.4</b>	<b>3.2</b>	<b>7.3</b>	<b>9.7</b>	<b>19.9</b>	<b>--</b>
Assumption Rate + 1%	2.2	4.4	9.0	9.0	9.0	--

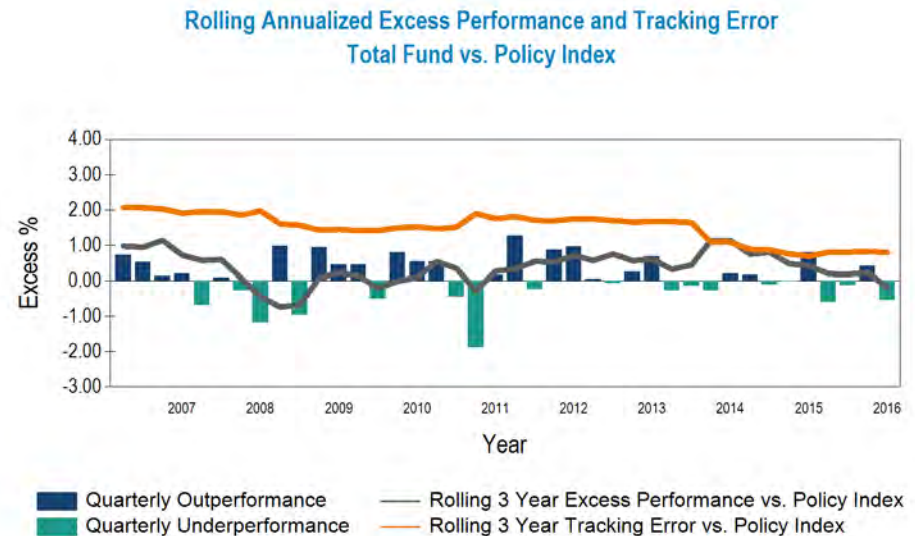
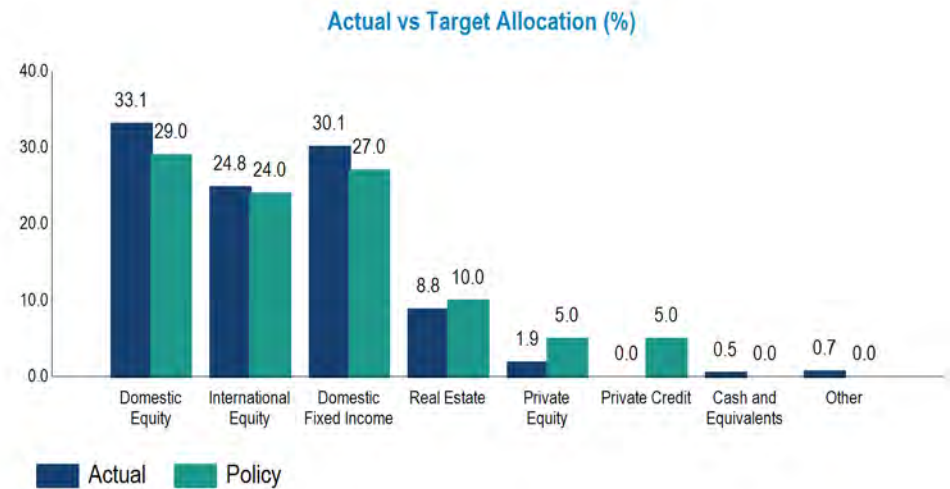


New Policy Index (as of 10/1/2016): 29% Russell 3000, 24% MSCI ACWI Free Ex US, 27% BBgBarc US Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 plus 300 bps (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (7/1/2014 to 9/30/2016): 29% Russell 3000, 25% MSCI ACWI Free Ex US, 30% BBgBarc Aggregate, 6% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 plus 300 bps (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (G) gross of fees.

# Total Fund Executive Summary (Net of Fees)

Period Ending: December 31, 2016

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>0.3</b>	<b>4.0</b>	<b>7.4</b>	<b>3.7</b>	<b>7.9</b>	<b>5.1</b>
<i>Total Fund ex Parametric</i>	0.3	4.0	7.4	3.8	7.8	5.1
<i>Policy Index</i>	0.9	4.2	8.3	3.9	7.2	4.8
<b>Total Domestic Equity</b>	<b>4.2</b>	<b>8.8</b>	<b>12.8</b>	<b>7.5</b>	<b>14.2</b>	<b>7.4</b>
<i>Russell 3000</i>	4.2	8.8	12.7	8.4	14.7	7.1
<b>Total International Equity</b>	<b>-1.4</b>	<b>5.5</b>	<b>4.4</b>	<b>-1.6</b>	<b>5.1</b>	<b>1.2</b>
<i>MSCI ACWI ex USA Gross</i>	-1.2	5.7	5.0	-1.3	5.5	1.4
<b>Total Fixed Income</b>	<b>-2.5</b>	<b>-1.0</b>	<b>4.8</b>	<b>3.2</b>	<b>3.3</b>	<b>5.6</b>
<i>BBgBarc US Aggregate TR</i>	-3.0	-2.5	2.6	3.0	2.2	4.3
<b>Total Real Estate</b>	<b>0.9</b>	<b>2.5</b>	<b>6.1</b>	<b>10.8</b>	<b>11.0</b>	<b>4.5</b>
<i>NCREIF Property Index</i>	1.7	3.5	8.0	11.0	10.9	6.9
<i>NCREIF-ODCE</i>	2.1	4.2	8.8	12.1	12.2	5.8
<b>Total Private Equity</b>	<b>3.5</b>	<b>6.3</b>	<b>10.6</b>	<b>15.6</b>	<b>11.4</b>	<b>--</b>
<i>Russell 3000 +3% Lagged</i>	5.2	8.7	18.4	13.7	19.8	--
<b>Total Opportunistic</b>	<b>0.0</b>	<b>2.2</b>	<b>5.0</b>	<b>7.9</b>	<b>17.9</b>	<b>--</b>
<i>Assumption Rate + 1%</i>	2.2	4.4	9.0	9.0	9.0	--



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 plus 300 bps (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 plus 300 bps (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (N) net of fees.

# Total Fund

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

Period Ending: December 31, 2016

### Attribution Effects



### Performance Attribution

	Quarter	YTD
Wtd. Actual Return	0.43%	7.87%
Wtd. Index Return *	0.58%	7.99%
<b>Excess Return</b>	<b>-0.15%</b>	<b>-0.12%</b>
Selection Effect	0.14%	0.57%
Allocation Effect	-0.15%	-0.60%
Interaction Effect	-0.10%	-0.02%

\*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	4.2%	4.2%	0.0%	0.0%	0.1%	0.0%	0.1%
Total International Equity	-1.3%	-1.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Total Fixed Income	-2.5%	-3.0%	0.5%	0.2%	-0.2%	0.0%	0.0%
Total Real Estate	1.1%	1.7%	-0.6%	-0.1%	0.0%	0.0%	0.0%
Total Private Equity	3.8%	5.2%	-1.3%	0.1%	-0.1%	-0.1%	-0.1%
Total Opportunistic	0.4%	2.2%	-1.8%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>0.4%</b>	<b>0.6%</b>	<b>-0.2%</b>	<b>0.1%</b>	<b>-0.2%</b>	<b>-0.1%</b>	<b>-0.1%</b>

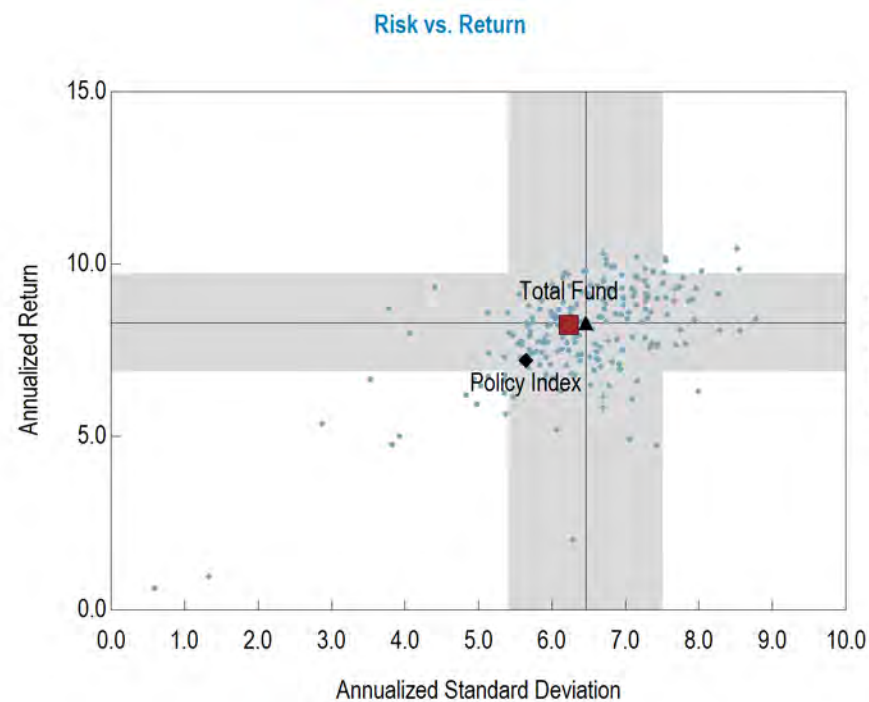
Weighted returns shown in attribution analysis may differ from actual returns.



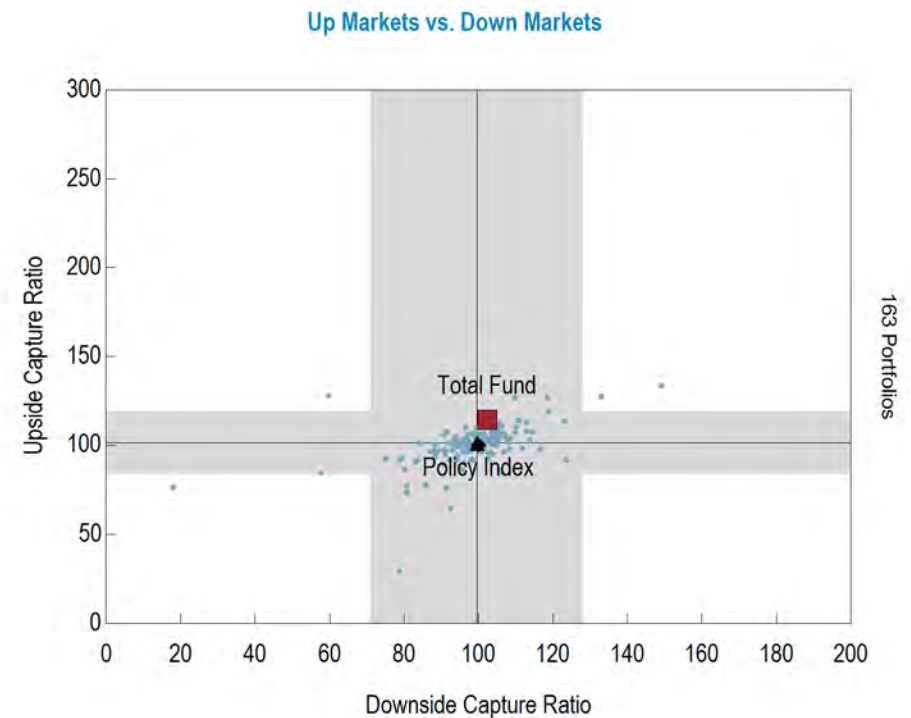
Total Fund  
Risk Analysis - 5 Years (Gross of Fees)

Period Ending: December 31, 2016

	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	8.24%	1.03%	6.23%	0.37%	1.09	1.03%	0.98	1.31	1.00	114.37%	102.30%



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

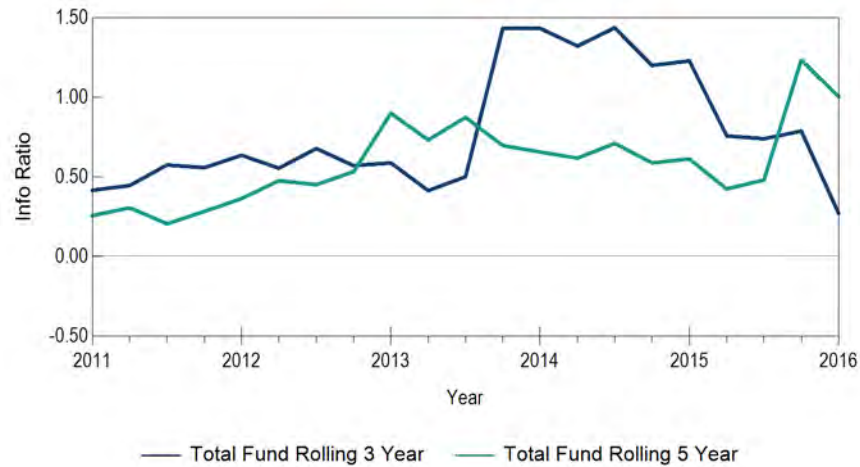


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

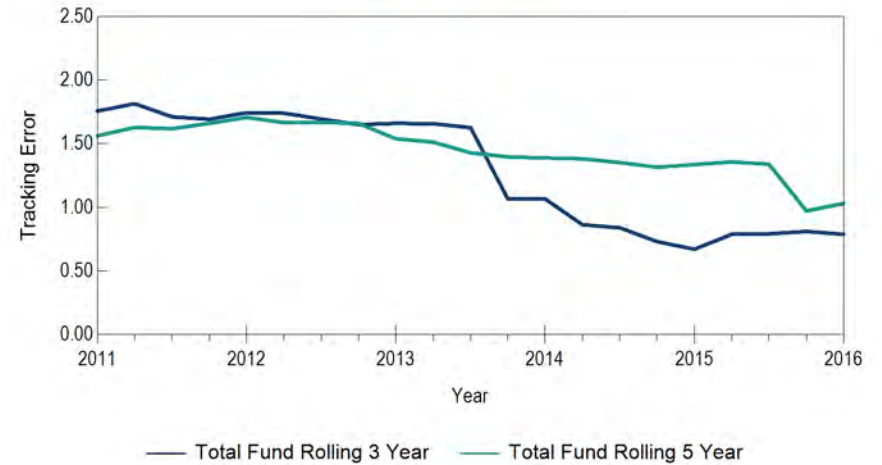
Total Fund  
Rolling Risk Statistics (Gross of Fees)

Period Ending: December 31, 2016

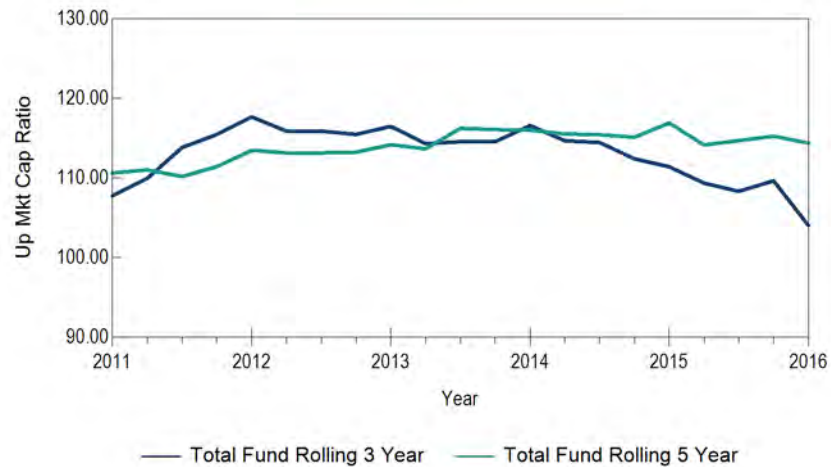
Rolling Information Ratio



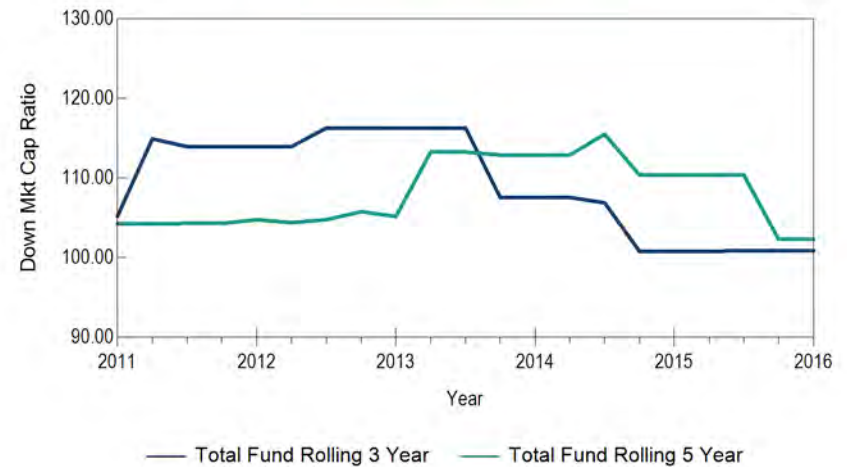
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



# Total Fund

## Performance Summary (Gross of Fees)

Period Ending: December 31, 2016

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012	Return	Since
<b>Total Fund</b>	<b>716,367,593</b>	<b>100.0</b>	<b>0.4</b>	<b>4.2</b>	<b>7.7</b>	<b>4.1</b>	<b>8.2</b>	<b>5.5</b>	<b>7.7</b>	<b>0.0</b>	<b>4.8</b>	<b>14.8</b>	<b>14.6</b>	<b>9.2</b>	<b>Mar-89</b>
Policy Index			0.9	4.2	8.3	3.9	7.2	4.8	8.3	-1.2	4.9	13.5	11.2	--	Mar-89
InvestorForce Public DB Gross Rank			72	55	48	64	51	33	48	53	74	59	6	1	Mar-89
<b>Total Fund ex Parametric</b>			<b>0.4</b>	<b>4.2</b>	<b>7.7</b>	<b>4.2</b>	<b>8.2</b>	<b>5.5</b>	<b>7.7</b>	<b>0.0</b>	<b>4.9</b>	<b>14.7</b>	<b>14.2</b>	<b>9.2</b>	<b>Mar-89</b>
Policy Index			0.9	4.2	8.3	3.9	7.2	4.8	8.3	-1.2	4.9	13.5	11.2	--	Mar-89
InvestorForce Public DB Gross Rank			72	55	48	64	54	36	48	53	72	59	11	1	Mar-89
<b>Total Domestic Equity</b>	<b>237,467,269</b>	<b>33.1</b>	<b>4.2</b>	<b>8.8</b>	<b>12.9</b>	<b>7.7</b>	<b>14.4</b>	<b>7.6</b>	<b>12.9</b>	<b>0.3</b>	<b>10.2</b>	<b>33.9</b>	<b>17.1</b>		
Russell 3000			4.2	8.8	12.7	8.4	14.7	7.1	12.7	0.5	12.6	33.6	16.4		
eA All US Equity Gross Rank			54	56	49	53	53	55	49	42	51	62	37		
BlackRock Russell 3000	237,467,269	33.1	4.2	8.8	12.9	--	--	--	12.9	--	--	--	--	10.5	Dec-15
Russell 3000			4.2	8.8	12.7	--	--	--	12.7	--	--	--	--	9.6	Dec-15
eA US All Cap Core Equity Gross Rank			48	50	37	--	--	--	37	--	--	--	--	49	Dec-15
<b>Total International Equity</b>	<b>177,714,045</b>	<b>24.8</b>	<b>-1.3</b>	<b>5.6</b>	<b>4.7</b>	<b>-1.2</b>	<b>5.6</b>	<b>1.7</b>	<b>4.7</b>	<b>-3.5</b>	<b>-4.4</b>	<b>14.0</b>	<b>19.3</b>		
MSCI ACWI ex USA Gross			-1.2	5.7	5.0	-1.3	5.5	1.4	5.0	-5.3	-3.4	15.8	17.4		
eA ACWI ex-US All Cap Equity Gross Rank			32	33	33	63	86	72	33	77	70	92	54		
BlackRock International Equity	125,326,864	17.5	-0.7	5.8	1.5	-1.3	6.9	1.1	1.5	-0.5	-4.7	23.2	17.8	6.9	Jul-03
MSCI EAFE Gross			-0.7	5.8	1.5	-1.2	7.0	1.2	1.5	-0.4	-4.5	23.3	17.9	7.0	Jul-03
eA All EAFE Equity Gross Rank			33	43	46	73	78	80	46	67	64	61	74	74	Jul-03
DFA Emerging Markets Value	25,077,841	3.5	-0.8	9.0	20.5	-1.8	1.9	--	20.5	-18.3	-3.9	-3.2	20.1	3.0	Jan-07
MSCI Emerging Markets Gross			-4.1	4.7	11.6	-2.2	1.6	--	11.6	-14.6	-1.8	-2.3	18.6	2.2	Jan-07
eA Emg Mkts Equity Gross Rank			8	8	7	63	76	--	7	92	84	84	56	45	Jan-07
Harding Loevner Emerging Markets	27,309,340	3.8	-4.8	--	--	--	--	--	--	--	--	--	--	-1.2	Jul-16
MSCI Emerging Markets Gross			-4.1	--	--	--	--	--	--	--	--	--	--	-0.4	Jul-16
eA Emg Mkts Equity Gross Rank			52	--	--	--	--	--	--	--	--	--	--	9	Jul-16
<b>Total Fixed Income</b>	<b>215,870,870</b>	<b>30.1</b>	<b>-2.5</b>	<b>-0.8</b>	<b>5.1</b>	<b>3.5</b>	<b>3.6</b>	<b>5.9</b>	<b>5.1</b>	<b>-0.3</b>	<b>5.9</b>	<b>-1.7</b>	<b>9.6</b>		
BBgBarc US Aggregate TR			-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2		
eA All US Fixed Inc Gross Rank			68	48	36	43	42	24	36	74	34	78	28		
Bradford & Marzec Fixed	107,784,008	15.0	-2.5	-1.0	5.1	4.4	4.3	6.2	5.1	1.2	7.0	-0.4	8.8	6.7	Dec-92
BBgBarc US Aggregate TR			-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2	5.6	Dec-92
eA US Core Plus Fixed Inc Gross Rank			71	60	46	16	42	19	46	15	16	52	45	41	Dec-92
MackKay Shields Core Plus Opportunities	87,102,536	12.2	-2.4	-0.6	5.1	--	--	--	5.1	--	--	--	--	1.0	Mar-15
BBgBarc US Aggregate TR			-3.0	-2.5	2.6	--	--	--	2.6	--	--	--	--	1.1	Mar-15
eA US Core Plus Fixed Inc Gross Rank			65	43	46	--	--	--	46	--	--	--	--	89	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 on 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.

# Total Fund Performance Summary (Gross of Fees)

Period Ending: December 31, 2016

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012	Return	Since
BlackRock US TIPS	20,984,326	2.9	-2.4	-1.4	4.8	2.4	1.0	--	4.8	-1.2	3.6	-8.5	7.1	4.4	Apr-07
BBgBarc US TIPS TR			-2.4	-1.5	4.7	2.3	0.9	--	4.7	-1.4	3.6	-8.6	7.0	4.2	Apr-07
eA TIPS / Infl Indexed Fixed Inc Gross Rank			62	57	37	29	50	--	37	43	45	62	59	72	Apr-07
<b>Total Real Estate</b>	<b>63,323,360</b>	<b>8.8</b>	<b>1.1</b>	<b>3.0</b>	<b>7.1</b>	<b>12.0</b>	<b>11.8</b>	<b>5.3</b>	<b>7.1</b>	<b>16.1</b>	<b>13.0</b>	<b>12.6</b>	<b>10.6</b>		
NCREIF Property Index			1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5		
NCREIF-ODCE			2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9		
ASB Real Estate	31,241,234	4.4	0.8	2.6	5.6	12.0	--	--	5.6	17.3	13.5	13.7	--	12.4	Dec-12
NCREIF Property Index			1.7	3.5	8.0	11.0	--	--	8.0	13.3	11.8	11.0	--	11.0	Dec-12
NCREIF-ODCE			2.1	4.2	8.8	12.1	--	--	8.8	15.0	12.5	13.9	--	12.5	Dec-12
Clarion Lion	30,642,256	4.3	1.5	3.6	9.1	12.6	12.3	4.8	9.1	15.7	13.2	12.8	10.9	4.8	Dec-06
NCREIF Property Index			1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5	6.9	Dec-06
NCREIF-ODCE			2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9	5.8	Dec-06
1221 State St. Corp	1,439,869	0.2	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.1	-0.5	Sep-08
<b>Total Cash</b>															
Cash Account	3,615,459	0.5	0.0	0.0	0.0	0.0	0.1	--	0.0	0.0	0.0	0.0	0.4		
91 Day T-Bills			0.1	0.2	0.3	0.1	0.1	--	0.3	0.0	0.0	0.0	0.1		

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 on 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.

# Total Fund Performance Summary (Net of Fees)

Period Ending: December 31, 2016

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012	Return	Since
<b>Total Fund</b>	<b>716,367,593</b>	<b>100.0</b>	<b>0.3</b>	<b>4.0</b>	<b>7.4</b>	<b>3.7</b>	<b>7.9</b>	<b>5.1</b>	<b>7.4</b>	<b>-0.4</b>	<b>4.4</b>	<b>14.5</b>	<b>14.2</b>	<b>8.8</b>	<b>Mar-89</b>
Policy Index			0.9	4.2	8.3	3.9	7.2	4.8	8.3	-1.2	4.9	13.5	11.2	--	Mar-89
Total Fund ex Parametric			0.3	4.0	7.4	3.8	7.8	5.1	7.4	-0.4	4.4	14.4	13.8	8.8	Mar-89
Policy Index			0.9	4.2	8.3	3.9	7.2	4.8	8.3	-1.2	4.9	13.5	11.2	--	Mar-89
<b>Total Domestic Equity</b>	<b>237,467,269</b>	<b>33.1</b>	<b>4.2</b>	<b>8.8</b>	<b>12.8</b>	<b>7.5</b>	<b>14.2</b>	<b>7.4</b>	<b>12.8</b>	<b>0.1</b>	<b>10.0</b>	<b>33.6</b>	<b>16.9</b>		
Russell 3000			4.2	8.8	12.7	8.4	14.7	7.1	12.7	0.5	12.6	33.6	16.4		
BlackRock Russell 3000	237,467,269	33.1	4.2	8.8	12.8	--	--	--	12.8	--	--	--	--	10.5	Dec-15
Russell 3000			4.2	8.8	12.7	--	--	--	12.7	--	--	--	--	9.6	Dec-15
<b>Total International Equity</b>	<b>177,714,045</b>	<b>24.8</b>	<b>-1.4</b>	<b>5.5</b>	<b>4.4</b>	<b>-1.6</b>	<b>5.1</b>	<b>1.2</b>	<b>4.4</b>	<b>-4.0</b>	<b>-4.9</b>	<b>13.4</b>	<b>18.6</b>		
MSCI ACWI ex USA Gross			-1.2	5.7	5.0	-1.3	5.5	1.4	5.0	-5.3	-3.4	15.8	17.4		
BlackRock International Equity	125,326,864	17.5	-0.7	5.7	1.3	-1.4	6.7	1.0	1.3	-0.6	-4.8	22.9	17.6	6.7	Jul-03
MSCI EAFE Gross			-0.7	5.8	1.5	-1.2	7.0	1.2	1.5	-0.4	-4.5	23.3	17.9	7.0	Jul-03
DFA Emerging Markets Value	25,077,841	3.5	-1.0	8.6	19.8	-2.4	1.3	--	19.8	-18.8	-4.4	-3.8	19.4	2.4	Jan-07
MSCI Emerging Markets Gross			-4.1	4.7	11.6	-2.2	1.6	--	11.6	-14.6	-1.8	-2.3	18.6	2.2	Jan-07
Harding Loevner Emerging Markets	27,309,340	3.8	-5.0	--	--	--	--	--	--	--	--	--	--	-1.7	Jul-16
MSCI Emerging Markets Gross			-4.1	--	--	--	--	--	--	--	--	--	--	-0.4	Jul-16
<b>Total Fixed Income</b>	<b>215,870,870</b>	<b>30.1</b>	<b>-2.5</b>	<b>-1.0</b>	<b>4.8</b>	<b>3.2</b>	<b>3.3</b>	<b>5.6</b>	<b>4.8</b>	<b>-0.6</b>	<b>5.6</b>	<b>-2.0</b>	<b>9.3</b>		
BBGBarc US Aggregate TR			-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2		
Bradford & Marzec Fixed	107,784,008	15.0	-2.6	-1.1	4.8	4.1	4.0	5.9	4.8	0.9	6.7	-0.8	8.5	6.4	Dec-92
BBGBarc US Aggregate TR			-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2	5.6	Dec-92
MacKay Shields Core Plus Opportunities	87,102,536	12.2	-2.5	-0.8	4.7	--	--	--	4.7	--	--	--	--	0.7	Mar-15
BBGBarc US Aggregate TR			-3.0	-2.5	2.6	--	--	--	2.6	--	--	--	--	1.1	Mar-15
BlackRock US TIPS	20,984,326	2.9	-2.4	-1.4	4.8	2.3	0.9	--	4.8	-1.3	3.6	-8.6	7.0	4.3	Apr-07
BBGBarc US TIPS TR			-2.4	-1.5	4.7	2.3	0.9	--	4.7	-1.4	3.6	-8.6	7.0	4.2	Apr-07
<b>Total Real Estate</b>	<b>63,323,360</b>	<b>8.8</b>	<b>0.9</b>	<b>2.5</b>	<b>6.1</b>	<b>10.8</b>	<b>11.0</b>	<b>4.5</b>	<b>6.1</b>	<b>15.0</b>	<b>11.6</b>	<b>12.1</b>	<b>10.3</b>		
NCREIF Property Index			1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5		
NCREIF-ODCE			2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9		
ASB Real Estate	31,241,234	4.4	0.6	2.1	4.6	11.0	--	--	4.6	16.2	12.5	12.5	--	11.4	Dec-12
NCREIF Property Index			1.7	3.5	8.0	11.0	--	--	8.0	13.3	11.8	11.0	--	11.0	Dec-12
NCREIF-ODCE			2.1	4.2	8.8	12.1	--	--	8.8	15.0	12.5	13.9	--	12.5	Dec-12
Clarion Lion	30,642,256	4.3	1.2	3.1	8.0	11.5	11.3	3.8	8.0	14.6	12.2	11.8	9.9	3.8	Dec-06
NCREIF Property Index			1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5	6.9	Dec-06
NCREIF-ODCE			2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9	5.8	Dec-06
1221 State St. Corp	1,439,869	0.2	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.1	-0.5	Sep-08

Total Fund  
Performance Summary (Net of Fees)

Period Ending: December 31, 2016

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012	Return	Since
<b>Total Cash</b>															
Cash Account	3,615,459	0.5	0.0	0.0	0.0	0.0	0.1	--	0.0	0.0	0.0	0.0	0.4		
91 Day T-Bills			0.1	0.2	0.3	0.1	0.1	--	0.3	0.0	0.0	0.0	0.1		

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

Period Ending: December 31, 2016

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	-1.39%	-0.23%	9.90%	-0.23%	1.00	0.05%	1.00	-0.15	-4.35	98.00%	101.11%
DFA Emerging Markets Value	-2.38%	-0.19%	15.51%	0.00%	1.09	3.69%	0.95	-0.16	-0.05	105.87%	104.97%
Bradford & Marzec Fixed	4.11%	1.08%	3.74%	1.01%	1.02	0.99%	0.93	1.07	1.09	119.62%	89.82%
BlackRock US TIPS	2.31%	0.05%	4.41%	0.03%	1.01	0.12%	1.00	0.50	0.38	101.59%	100.98%
ASB Real Estate	10.98%	-0.04%	2.97%	-7.35%	1.66	2.37%	0.43	3.66	-0.02	99.64%	--
Clarion Lion	11.55%	0.54%	2.04%	-1.91%	1.22	1.47%	0.49	5.61	0.36	105.42%	--

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	6.75%	-0.27%	11.74%	-0.27%	1.00	0.05%	1.00	0.57	-5.45	98.44%	101.29%
DFA Emerging Markets Value	1.33%	-0.32%	16.28%	-0.49%	1.10	3.30%	0.97	0.08	-0.10	108.34%	107.66%
Bradford & Marzec Fixed	3.95%	1.72%	3.57%	1.59%	1.06	1.27%	0.88	1.08	1.36	141.47%	82.42%
BlackRock US TIPS	0.92%	0.03%	5.18%	0.02%	1.01	0.10%	1.00	0.16	0.29	101.36%	100.66%
Clarion Lion	11.27%	0.36%	1.79%	-3.18%	1.32	1.36%	0.45	6.23	0.27	104.05%	--



# Private Equity Non Marketable Securities Overview

Period Ending: December 31, 2016

Vintage	Manager & Fund Name	Estimated 12/31 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	\$6,193,132	\$10,000,000	\$6,025,000	60%	\$3,975,000	\$1,461,557	\$6,193,132	24.3%	127.0%	14.9%	9/30/16	
2011	HarbourVest IX-Credit	\$1,021,291	\$2,000,000	\$1,140,000	57%	\$860,000	\$400,860	\$1,021,291	35.2%	124.8%	13.9%	9/30/16	
2008	HarbourVest Int'l VI <sup>6</sup>	\$2,666,318	\$3,712,930	\$2,895,158	78%	\$817,773	\$929,930	\$2,666,318	32.1%	124.2%	14.9%	9/30/16	
2011	HarbourVest IX-Venture	\$3,602,016	\$4,000,000	\$3,180,000	80%	\$820,000	\$748,336	\$3,602,016	23.5%	136.8%	17.2%	9/30/16	
2010	KKR Mezzanine <sup>7</sup>	\$4,061,530	\$10,000,000	\$10,000,000	100%	\$0	\$10,122,471	\$4,222,578	101.2%	141.8%	8.0%	9/30/16	
2011	PIMCO BRAVO <sup>4</sup>	\$832,303	\$10,000,000	\$10,000,000	100%	\$0	\$18,311,350	\$832,303	183.1%	191.4%	22.2%	12/31/16	
Total Alternative Illiquids		\$18,376,590	\$39,712,930	\$33,240,158	84%	\$6,472,773	\$31,974,505	\$18,537,638	55.8%	152.0%			
% of Portfolio (Market Value)		2.6%											
								Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense <sup>8</sup>	
								HarbourVest IX-Buyout	\$24,721	\$0	\$0	\$1,593	\$26,314
								HarbourVest IX-Credit	\$4,970	\$0	\$0	\$657	\$5,627
								HarbourVest Int'l VI	\$7,562	\$0	\$0	\$279	\$7,840
								HarbourVest IX-Venture	\$9,971	\$0	\$0	\$411	\$10,382
								KKR Mezzanine	\$15,577	\$0	\$0	\$0	\$15,577
								PIMCO BRAVO	\$4,692	\$1,035	\$341	\$1,728	\$7,796
									\$67,493	\$1,035	\$341	\$4,668	\$73,536

<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>3</sup>Last known market value + capital calls - distributions (All HarbourVest funds are as of 9/30/2016)

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

<sup>5</sup>Gross IRR is calculated on the cash flows of the underlying investments of the fund and is net of the underlying fund fees and carried interest.

<sup>6</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>7</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>8</sup>KKR: Total capital called is \$11,446,285, which includes recycled distributions. Unused capital commitment is \$1,327,002 after including distribution proceeds available for reinvestment

<sup>9</sup>All HarbourVest fees and expenses are for 3Q 2016



Total Fund  
Financial Reconciliation (Last Three Months)

Period Ending: December 31, 2016

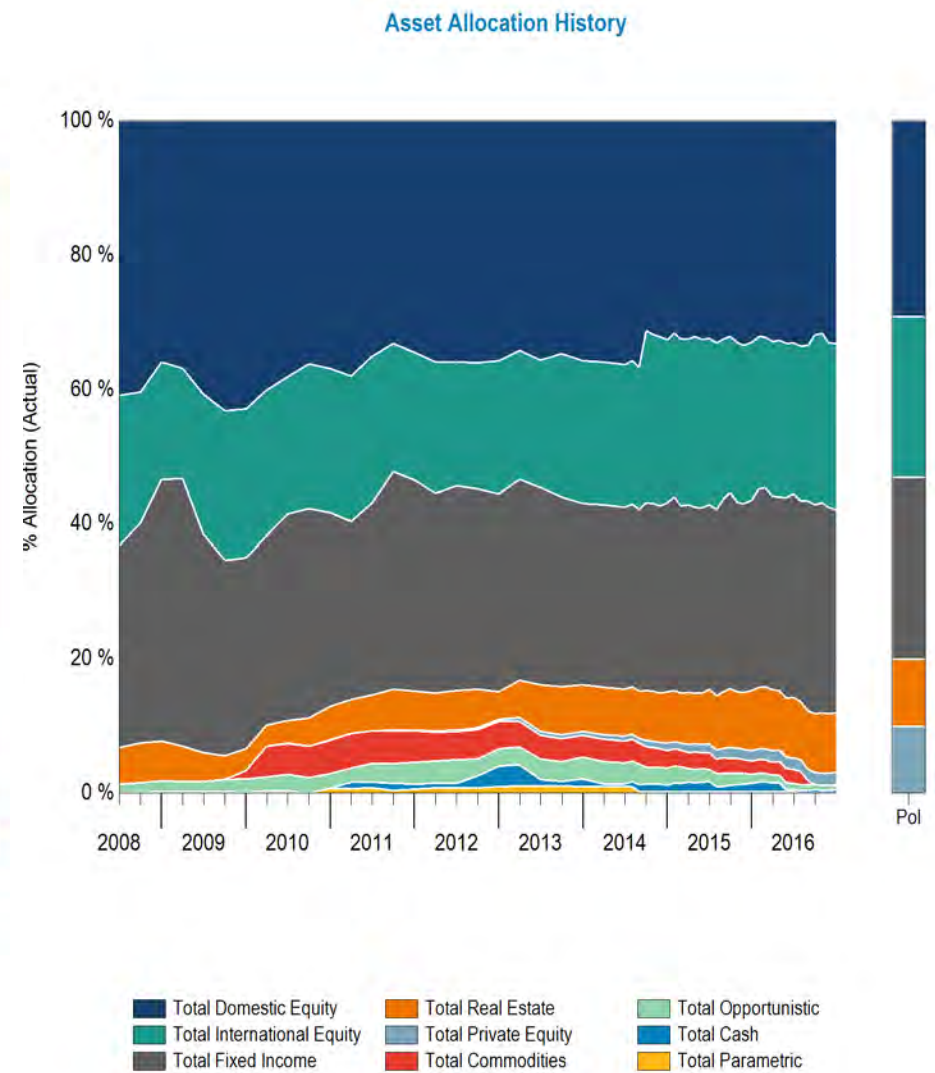
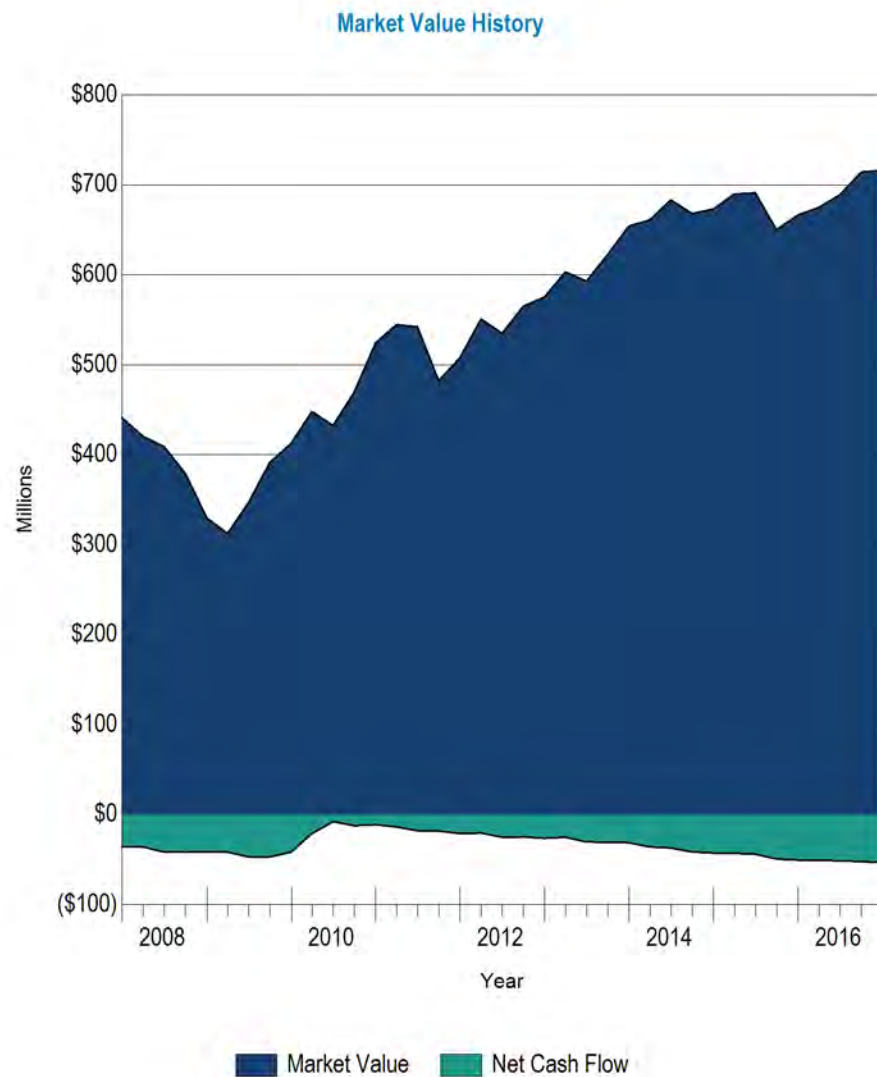
Manager	Beginning Market Value	Contributions	Disbursements	Fees <sup>2</sup>	Net Cash Flow	Investment Income	Capital Gain/ Loss	Total Gains/Earnings/ Losses	Ending Market Value
Blackrock Russell 3000 Index	\$227,830,289	\$0	\$0	\$0	\$0	\$0	\$9,636,980	\$9,636,980	\$237,467,269
DFA Emerging Markets	\$25,322,380	\$0	\$0	\$0	\$0	\$225,377	(\$469,916)	(\$244,539)	\$25,077,841
Harding Loevner Emerging Markets	\$28,671,968	\$0	\$0	\$0	\$0	\$0	(\$1,362,628)	(\$1,362,628)	\$27,309,340
Blackrock International Equity	\$126,155,967	\$0	\$0	\$0	\$0	\$0	(\$829,103)	(\$829,103)	\$125,326,864
Bradford & Marzec, Inc.	\$110,548,310	\$82	\$0	\$0	\$82	\$890,510	(\$3,654,894)	(\$2,764,384)	\$107,784,008
MacKay Shields Core Plus Opp.	\$89,332,597	\$0	\$0	\$0	\$0	\$0	(\$2,230,061)	(\$2,230,061)	\$87,102,536
Blackrock US TIPS	\$21,489,651	\$0	\$0	\$0	\$0	\$0	(\$505,324)	(\$505,324)	\$20,984,326
Clarion Lion Properties	\$30,271,736	\$226,595	(\$304,065)	(\$80,215)	(\$157,685)	\$349,539	\$178,666	\$528,205	\$30,642,256
ICERS State Street Real Estate	\$1,411,712	\$35,592	(\$7,442)	\$0	\$28,150	\$8	\$0	\$8	\$1,439,869
ASB Allegiance Real Estate	\$30,997,962	\$0	\$0	(\$70,773)	(\$70,773)	\$235,291	\$78,754	\$314,046	\$31,241,234
PIMCO BRAVO	\$1,233,204	\$0	(\$413,730)	(\$7,796)	(\$421,526)	\$0	\$20,625	\$20,625	\$832,303
KKR Mezzanine I	\$4,222,578	\$15,577	(\$161,048)	(\$15,577)	(\$161,048)	\$0	\$0	\$0	\$4,061,530
HarbourVest International VI <sup>1</sup>	\$2,553,909	\$45,514	(\$45,514)	(\$7,562)	(\$7,562)	\$19	\$119,952	\$119,971	\$2,666,318
HarbourVest Buyout IX <sup>1</sup>	\$5,697,018	\$450,000	(\$185,368)	(\$24,721)	\$239,911	\$10	\$256,193	\$256,203	\$6,193,132
HarbourVest Credit Opportunities IX <sup>1</sup>	\$1,034,849	\$0	(\$48,786)	(\$4,970)	(\$53,756)	\$1,533	\$38,665	\$40,198	\$1,021,291
HarbourVest Venture IX <sup>1</sup>	\$3,500,812	\$100,000	(\$69,612)	(\$9,971)	\$20,417	\$5	\$80,782	\$80,787	\$3,602,016
Cash	\$3,865,652	\$704,020	(\$954,213)	\$0	(\$250,193)	\$0	\$0	\$0	\$3,615,459
<b>Totals</b>	<b>\$714,140,595</b>	<b>\$1,577,379</b>	<b>(\$2,189,778)</b>	<b>(\$221,585)</b>	<b>(\$833,983)</b>	<b>\$1,702,291</b>	<b>\$1,358,691</b>	<b>\$3,060,981</b>	<b>\$716,367,593</b>

<sup>1</sup>3Q 2016 data

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

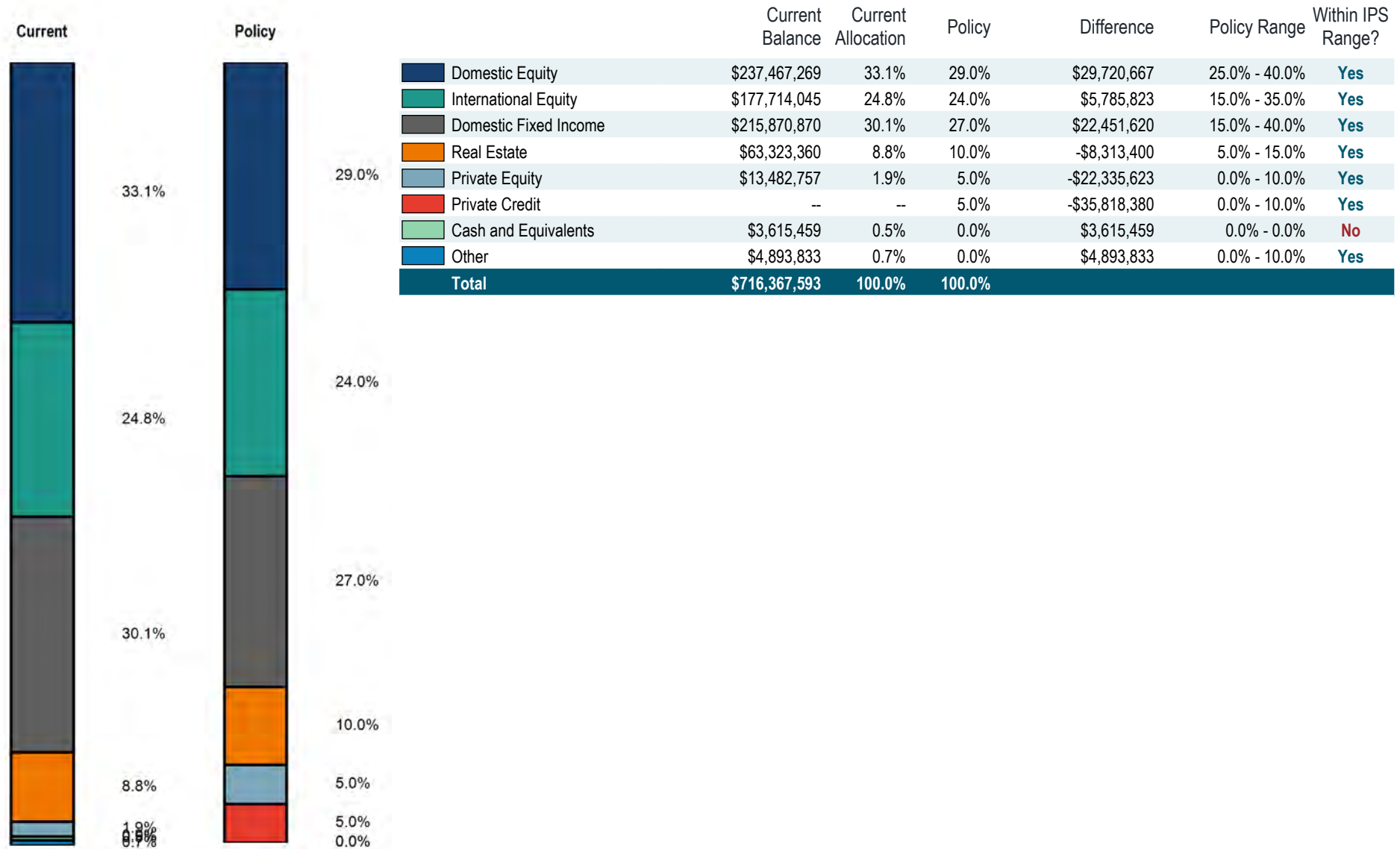
# Total Fund Asset Allocation History

Period Ending: December 31, 2016



# Total Fund Asset Allocation vs. Policy

Period Ending: December 31, 2016



Total Fund  
Manager Report Card

Period Ending: December 31, 2016

**Objective 1: Exceed passive benchmark on a net-of-fee basis**

**Objective 2: Exceed median manager return in comparable universe on a gross-of-fee basis**

Asset Class / Manager	Benchmark	3-Year				5-Year			
		Manager Return	Benchmark Return	Meets Expectations	Universe Ranking	Meets Expectations	Manager Return	Benchmark Return	Meets Expectations
<u>Domestic Equity</u>									
BlackRock	Russell 3000 Index								
<u>International Equity</u>									
BlackRock	MSCI EAFE Index	-1.4%	-1.2%	No			6.7%	7.0%	No
Dimensional Fund Advisors	MSCI Emerging Markets Index + 150 basis points	-2.4%	-0.7%	No	63	No	1.3%	3.1%	No
Harding Loevner	MSCI Emerging Markets Index + 150 basis points								
<u>Fixed Income</u>									
Bradford & Marzec	Barclays Credit Aggregate Bond Index + 50 basis points	4.1%	3.5%	Yes	16	Yes	4.0%	2.7%	Yes
MacKay Shields	Barclays Credit Aggregate Bond Index + 50 basis points								
BlackRock	Barclays Credit US TIPS Index	2.3%	2.3%	No			0.9%	0.9%	No
<u>Alternatives</u>									
Clarion	NCREIF Property Index	11.5%	11.0%	Yes			11.3%	10.9%	Yes
ASB Allegiance	NCREIF Property Index	11.0%	11.0%	No					
PIMCO	Actuarial Assumption Rate + 100 basis points								
KKR	Actuarial Assumption Rate + 100 basis points								
HarbourVest Partners	Russell 3000 + 250 basis points								

Asset Class / Manager	Benchmark	10-Year				15-Year			
		Manager Return	Benchmark Return	Meets Expectations	Universe Ranking	Meets Expectations	Manager Return	Benchmark Return	Meets Expectations
<u>Domestic Equity</u>									
BlackRock	Russell 3000 Index								
<u>International Equity</u>									
BlackRock	MSCI EAFE Index	1.0%	1.2%	No					
Dimensional Fund Advisors	MSCI Emerging Markets Index + 150 basis points								
Harding Loevner	MSCI Emerging Markets Index + 150 basis points								
<u>Fixed Income</u>									
Bradford & Marzec	Barclays Credit Aggregate Bond Index + 50 basis points	5.9%	4.8%	Yes	19	Yes	5.6%	5.1%	Yes
MacKay Shields	Barclays Credit Aggregate Bond Index + 50 basis points								
BlackRock	Barclays Credit US TIPS Index								
<u>Alternatives</u>									
Clarion	NCREIF Property Index	3.8%	6.9%	No					
ASB Allegiance	NCREIF Property Index								
PIMCO	Actuarial Assumption Rate + 100 basis points								
KKR	Actuarial Assumption Rate + 100 basis points								
HarbourVest Partners	Russell 3000 + 250 basis points								



# Total Fund Investment Fee Analysis

Period Ending: December 31, 2016

Account	Fee Schedule	Market Value As of 12/31/2016	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,439,869	0.2%	--	--
ASB Real Estate	1.25% of First \$5.0 Mil, 1.00% of Next \$10.0 Mil, 0.75% Thereafter	\$31,241,234	4.4%	\$284,309	0.91%
BlackRock International Equity	0.15% of First \$50.0 Mil, 0.10% of Next \$50.0 Mil	\$125,326,864	17.5%	\$125,000	0.10%
BlackRock Russell 3000	0.03% of Assets	\$237,467,269	33.1%	\$71,240	0.03%
BlackRock US TIPS	0.07% of Assets	\$20,984,326	2.9%	\$14,689	0.07%
Bradford & Marzec Fixed	0.29% of First \$100.0 Mil, 0.25% of Next \$100.0 Mil	\$107,784,008	15.0%	\$304,460	0.28%
Cash Account	No Fee	\$3,615,459	0.5%	--	--
Clarion Lion	1.25% of First \$10.0 Mil, 1.00% of Next \$15.0 Mil, 0.85% Thereafter	\$30,642,256	4.3%	\$322,959	1.05%
DFA Emerging Markets Value	0.56% of Assets	\$25,077,841	3.5%	\$140,436	0.56%
Harbourvest Buyout IX	\$100,000 Annually	\$6,193,132	0.9%	\$100,000	1.61%
Harbourvest Credit Ops IX	\$20,000 Annually	\$1,021,291	0.1%	\$20,000	1.96%
Harbourvest International PE VI	\$35,000 Annually	\$2,666,318	0.4%	\$35,000	1.31%
Harbourvest Venture IX	\$40,000 Annually	\$3,602,016	0.5%	\$40,000	1.11%
Harding Loevner Emerging Markets	1.05% of Assets	\$27,309,340	3.8%	\$286,748	1.05%
KKR Mezzanine Partners	\$150,000 Annually	\$4,061,530	0.6%	\$150,000	3.69%
Mackay Shields Core Plus Opportunities	0.35% of Assets	\$87,102,536	12.2%	\$304,859	0.35%
PIMCO BRAVO	1.90% of Assets	\$832,303	0.1%	\$15,814	1.90%
Verus Advisory Fee	\$175,000 Annually				
<b>Investment Management Fee</b>		<b>\$716,367,593</b>	<b>100.0%</b>	<b>\$2,215,514</b>	<b>0.31%</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.

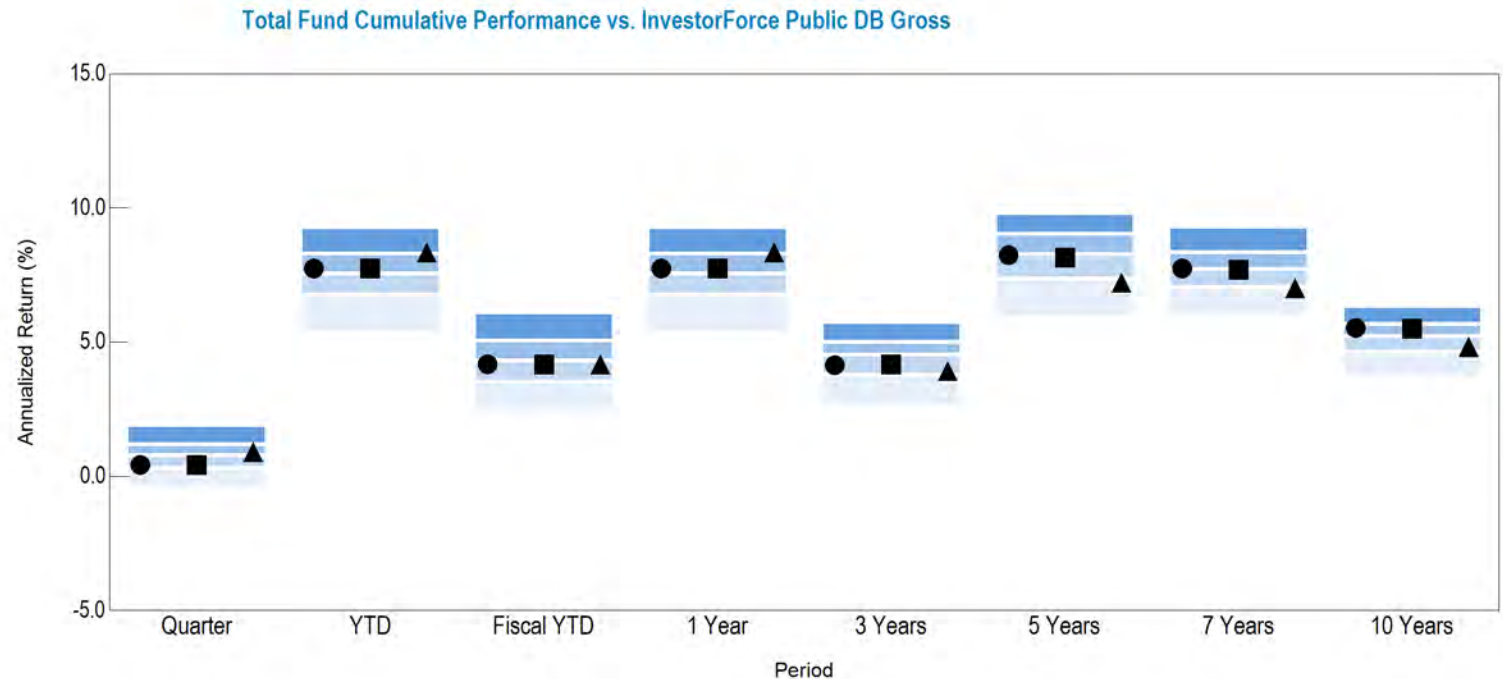
\*HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

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

# Total Fund

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

Period Ending: December 31, 2016

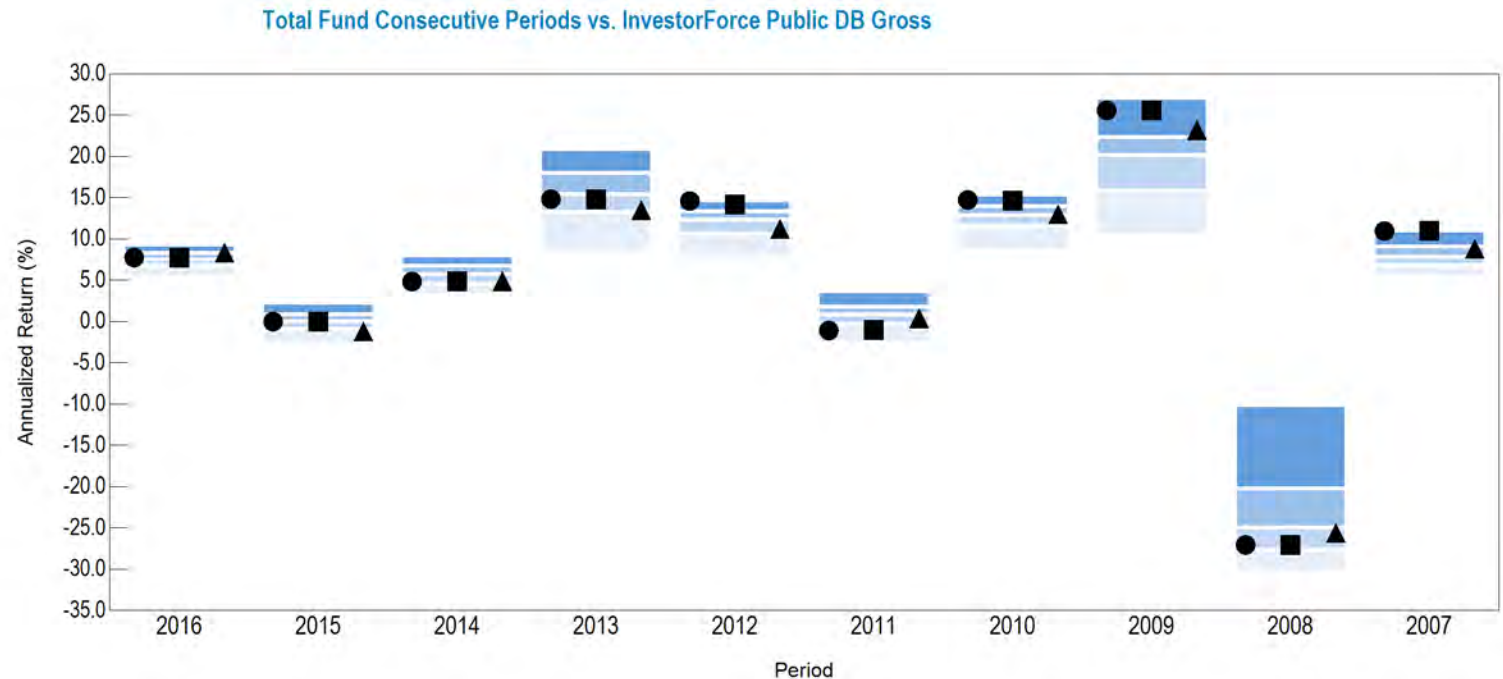


	Return (Rank)							
5th Percentile	1.9	9.3	6.1	9.3	5.7	9.8	9.3	6.3
25th Percentile	1.2	8.3	5.1	8.3	5.0	9.0	8.4	5.7
Median	0.8	7.6	4.3	7.6	4.5	8.3	7.7	5.2
75th Percentile	0.3	6.8	3.5	6.8	3.8	7.4	7.1	4.7
95th Percentile	-0.4	5.4	2.4	5.4	2.7	5.9	6.0	3.7
# of Portfolios	261	255	260	255	235	221	192	179
● Total Fund	0.4 (72)	7.7 (48)	4.2 (55)	7.7 (48)	4.1 (64)	8.2 (51)	7.7 (50)	5.5 (33)
■ Total Fund ex Parametric	0.4 (72)	7.7 (48)	4.2 (55)	7.7 (48)	4.2 (64)	8.2 (54)	7.7 (52)	5.5 (36)
▲ Policy Index	0.9 (43)	8.3 (25)	4.2 (55)	8.3 (25)	3.9 (73)	7.2 (79)	7.0 (80)	4.8 (69)

# Total Fund

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

Period Ending: December 31, 2016

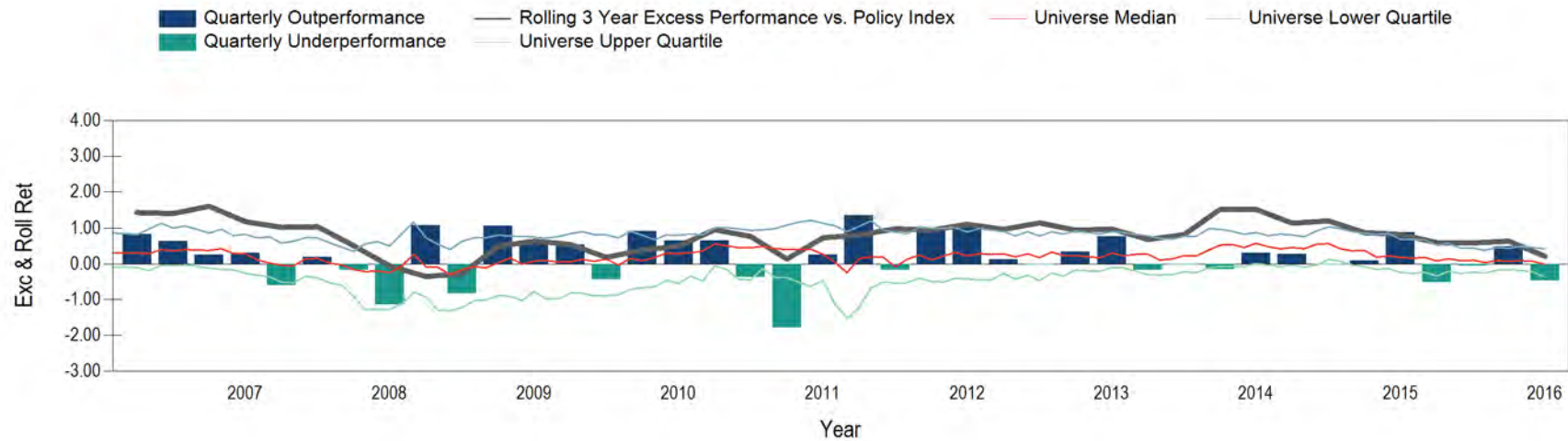


	Return (Rank)									
5th Percentile	9.3	2.2	8.0	20.8	14.6	3.6	15.4	27.0	-10.1	11.0
25th Percentile	8.3	0.9	6.8	18.0	13.4	1.9	14.0	22.4	-20.1	9.1
Median	7.6	0.1	5.8	15.5	12.4	0.9	12.9	20.2	-24.9	7.9
75th Percentile	6.8	-0.9	4.6	13.3	10.7	-0.3	11.7	15.9	-27.6	6.9
95th Percentile	5.4	-2.6	3.2	8.5	7.8	-2.5	8.6	10.5	-30.3	5.4
# of Portfolios	255	316	248	231	236	206	188	184	181	177
● Total Fund	7.7 (48)	0.0 (53)	4.8 (74)	14.8 (59)	14.6 (6)	-1.1 (89)	14.7 (13)	25.6 (11)	-27.1 (68)	10.9 (6)
■ Total Fund ex Parametric	7.7 (48)	0.0 (53)	4.9 (72)	14.7 (59)	14.2 (11)	-1.0 (88)	14.7 (15)	25.6 (11)	-27.1 (68)	10.9 (6)
▲ Policy Index	8.3 (25)	-1.2 (81)	4.9 (72)	13.5 (74)	11.2 (72)	0.4 (63)	13.0 (49)	23.2 (23)	-25.6 (58)	8.8 (31)

Total Fund  
Rolling Return Analysis (Gross of Fees)

Period Ending: December 31, 2016

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance





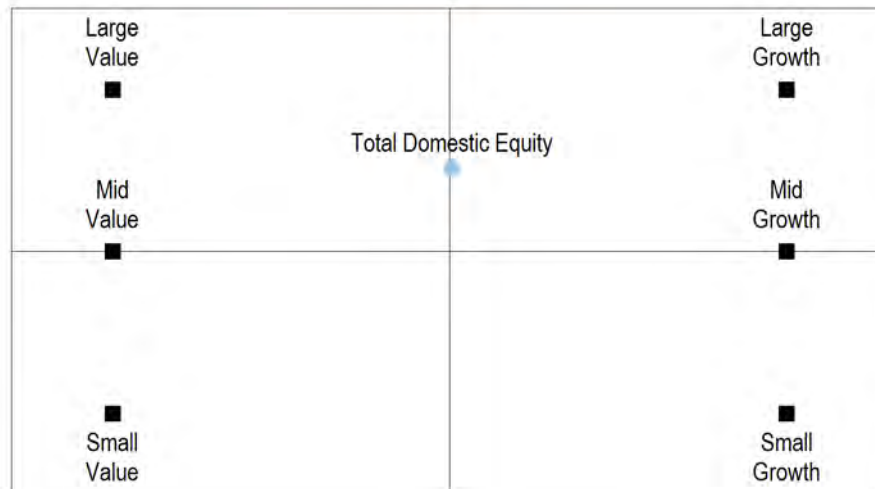
# Total Domestic Equity

## Asset Class Overview (Gross of Fees)

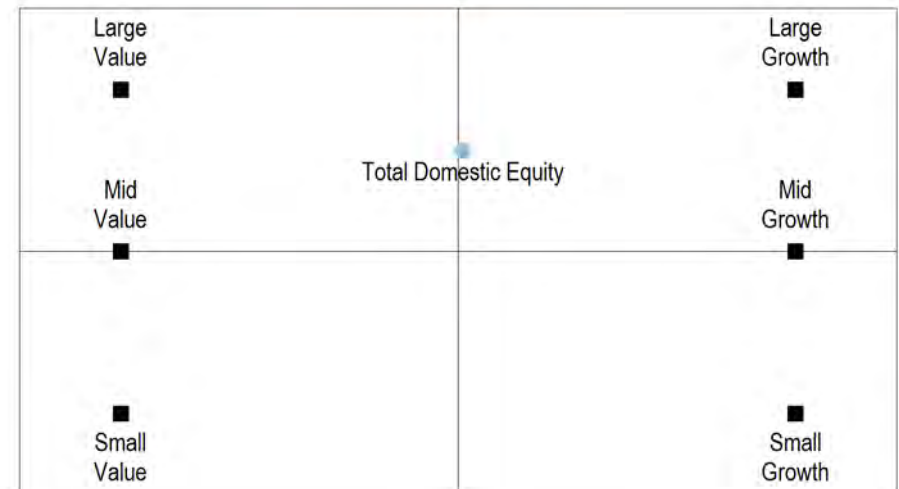
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Domestic Equity</b>	<b>237,467,269</b>	<b>4.2</b>	<b>8.8</b>	<b>12.9</b>	<b>7.7</b>	<b>14.4</b>	<b>7.6</b>	<b>12.9</b>	<b>0.3</b>	<b>10.2</b>	<b>33.9</b>	<b>17.1</b>
<i>Russell 3000</i>		4.2	8.8	12.7	8.4	14.7	7.1	12.7	0.5	12.6	33.6	16.4
<i>eA All US Equity Gross Rank</i>		54	56	49	53	53	55	49	42	51	62	37
<b>BlackRock Russell 3000</b>	<b>237,467,269</b>	<b>4.2</b>	<b>8.8</b>	<b>12.9</b>	--	--	--	<b>12.9</b>	--	--	--	--
<i>Russell 3000</i>		4.2	8.8	12.7	--	--	--	12.7	--	--	--	--
<i>eA US All Cap Core Equity Gross Rank</i>		48	50	37	--	--	--	37	--	--	--	--

U.S. Effective Style Map  
3 Years Ending December 31, 2016



U.S. Effective Style Map  
5 Years Ending December 31, 2016



Total Domestic Equity  
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2016

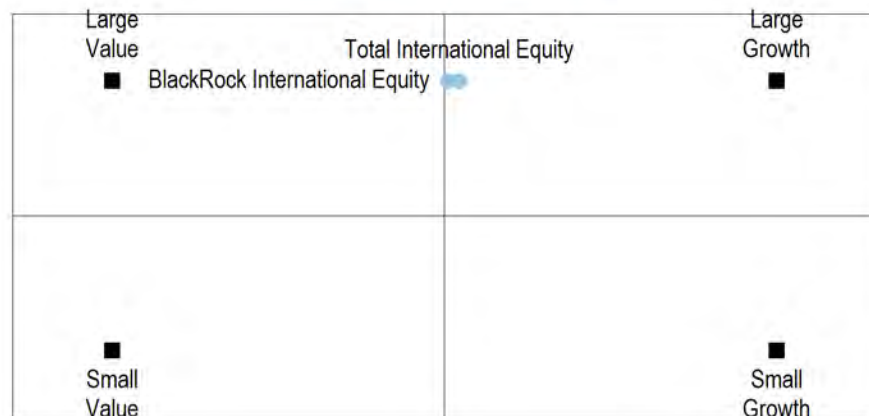
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Domestic Equity</b>	<b>237,467,269</b>	<b>4.2</b>	<b>8.8</b>	<b>12.8</b>	<b>7.5</b>	<b>14.2</b>	<b>7.4</b>	<b>12.8</b>	<b>0.1</b>	<b>10.0</b>	<b>33.6</b>	<b>16.9</b>
<i>Russell 3000</i>		4.2	8.8	12.7	8.4	14.7	7.1	12.7	0.5	12.6	33.6	16.4
BlackRock Russell 3000	237,467,269	4.2	8.8	12.8	--	--	--	12.8	--	--	--	--
<i>Russell 3000</i>		4.2	8.8	12.7	--	--	--	12.7	--	--	--	--

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

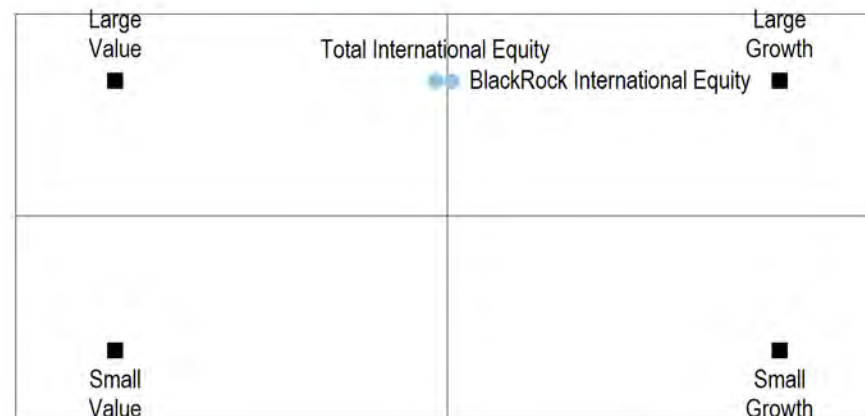
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total International Equity</b>	<b>177,714,045</b>	<b>-1.3</b>	<b>5.6</b>	<b>4.7</b>	<b>-1.2</b>	<b>5.6</b>	<b>1.7</b>	<b>4.7</b>	<b>-3.5</b>	<b>-4.4</b>	<b>14.0</b>	<b>19.3</b>
MSCI ACWI ex USA Gross		-1.2	5.7	5.0	-1.3	5.5	1.4	5.0	-5.3	-3.4	15.8	17.4
eA ACWI ex-US All Cap Equity Gross Rank		32	33	33	63	86	72	33	77	70	92	54
BlackRock International Equity	125,326,864	-0.7	5.8	1.5	-1.3	6.9	1.1	1.5	-0.5	-4.7	23.2	17.8
MSCI EAFE Gross		-0.7	5.8	1.5	-1.2	7.0	1.2	1.5	-0.4	-4.5	23.3	17.9
eA All EAFE Equity Gross Rank		33	43	46	73	78	80	46	67	64	61	74
DFA Emerging Markets Value	25,077,841	-0.8	9.0	20.5	-1.8	1.9	--	20.5	-18.3	-3.9	-3.2	20.1
MSCI Emerging Markets Gross		-4.1	4.7	11.6	-2.2	1.6	--	11.6	-14.6	-1.8	-2.3	18.6
eA Emg Mkts Equity Gross Rank		8	8	7	63	76	--	7	92	84	84	56
Harding Loevner Emerging Markets	27,309,340	-4.8	--	--	--	--	--	--	--	--	--	--
MSCI Emerging Markets Gross		-4.1	--	--	--	--	--	--	--	--	--	--
eA Emg Mkts Equity Gross Rank		52	--	--	--	--	--	--	--	--	--	--

EAFE Effective Style Map  
3 Years Ending December 31, 2016



EAFE Effective Style Map  
5 Years Ending December 31, 2016

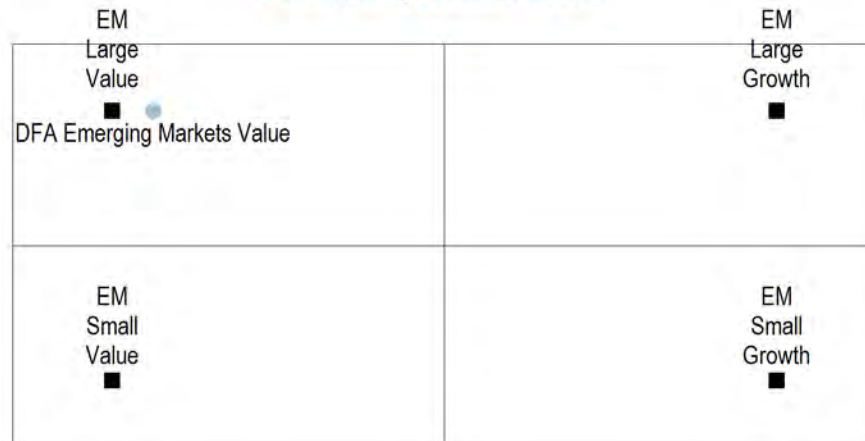


# Total International Equity Asset Class Overview (Net of Fees)

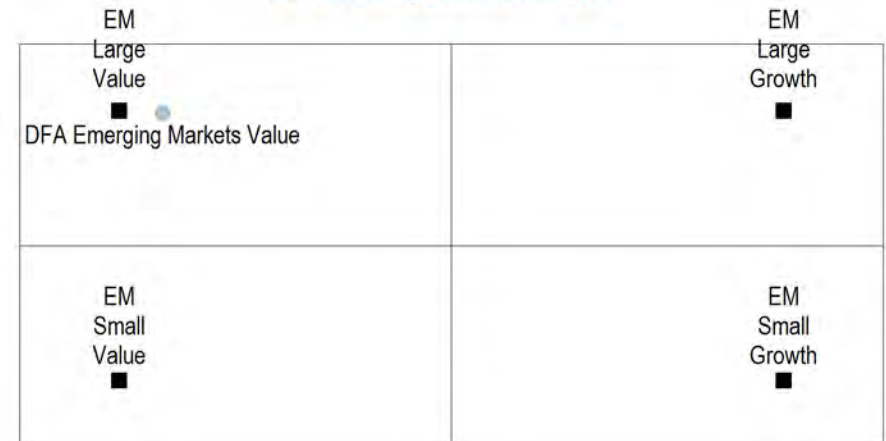
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total International Equity</b>	<b>177,714,045</b>	<b>-1.4</b>	<b>5.5</b>	<b>4.4</b>	<b>-1.6</b>	<b>5.1</b>	<b>1.2</b>	<b>4.4</b>	<b>-4.0</b>	<b>-4.9</b>	<b>13.4</b>	<b>18.6</b>
MSCI ACWI ex USA Gross		-1.2	5.7	5.0	-1.3	5.5	1.4	5.0	-5.3	-3.4	15.8	17.4
BlackRock International Equity	125,326,864	-0.7	5.7	1.3	-1.4	6.7	1.0	1.3	-0.6	-4.8	22.9	17.6
MSCI EAFE Gross		-0.7	5.8	1.5	-1.2	7.0	1.2	1.5	-0.4	-4.5	23.3	17.9
DFA Emerging Markets Value	25,077,841	-1.0	8.6	19.8	-2.4	1.3	--	19.8	-18.8	-4.4	-3.8	19.4
MSCI Emerging Markets Gross		-4.1	4.7	11.6	-2.2	1.6	--	11.6	-14.6	-1.8	-2.3	18.6
Harding Loevner Emerging Markets	27,309,340	-5.0	--	--	--	--	--	--	--	--	--	--
MSCI Emerging Markets Gross		-4.1	--	--	--	--	--	--	--	--	--	--

EM Effective Style Map  
3 Years Ending December 31, 2016

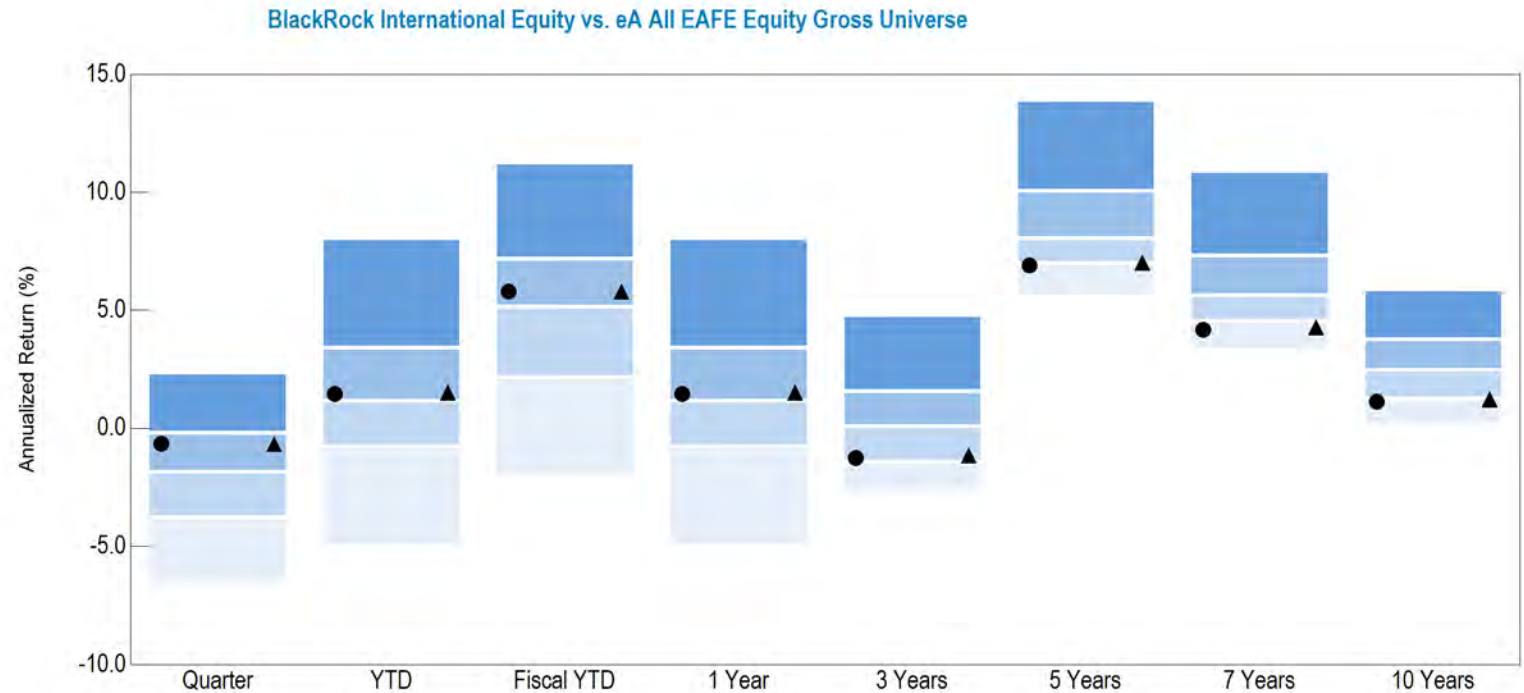


EM Effective Style Map  
5 Years Ending December 31, 2016



BlackRock International Equity  
Cumulative Performance Comparison (Gross of Fees)

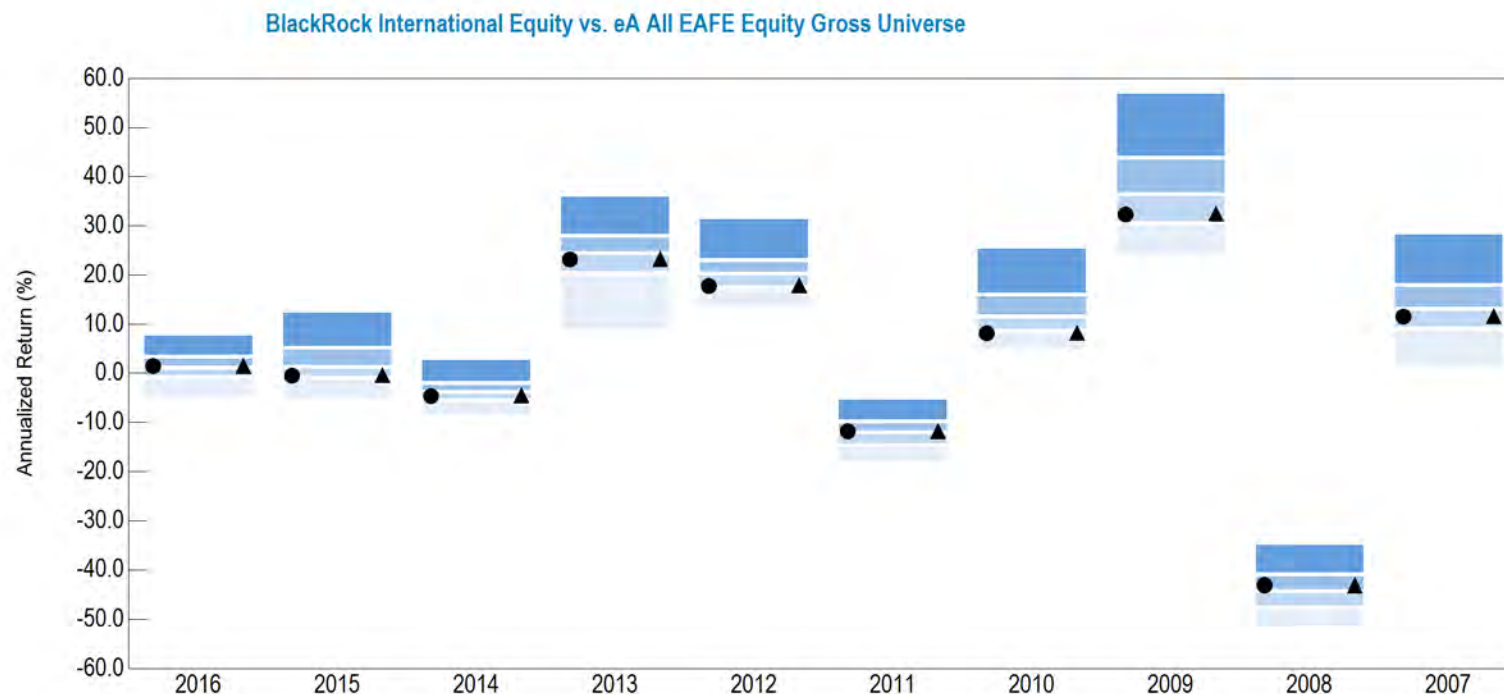
Period Ending: December 31, 2016



	Return (Rank)							
5th Percentile	2.4	8.1	11.2	8.1	4.8	13.9	10.9	5.9
25th Percentile	-0.2	3.4	7.2	3.4	1.6	10.1	7.3	3.8
Median	-1.8	1.2	5.2	1.2	0.1	8.1	5.6	2.5
75th Percentile	-3.8	-0.7	2.2	-0.7	-1.4	7.0	4.6	1.3
95th Percentile	-6.6	-5.0	-2.0	-5.0	-2.7	5.6	3.4	0.2
# of Portfolios	337	337	337	337	322	292	268	221
● BlackRock International Equity	-0.7 (33)	1.5 (46)	5.8 (43)	1.5 (46)	-1.3 (73)	6.9 (78)	4.2 (85)	1.1 (80)
▲ MSCI EAFE Gross	-0.7 (33)	1.5 (46)	5.8 (43)	1.5 (46)	-1.2 (70)	7.0 (75)	4.3 (83)	1.2 (78)

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

Period Ending: December 31, 2016

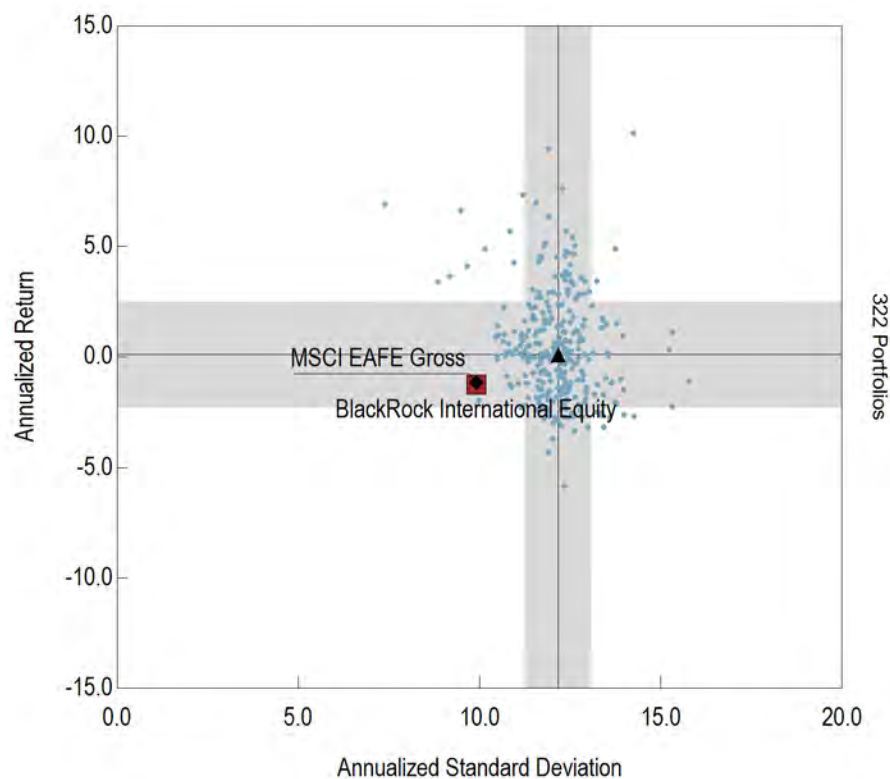


	Return (Rank)									
5th Percentile	8.1	12.6	3.0	36.3	31.7	-5.1	25.7	57.3	-34.5	28.5
25th Percentile	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1	44.0	-40.8	18.0
Median	1.2	1.4	-3.7	24.6	20.4	-12.0	11.7	36.5	-44.1	13.2
75th Percentile	-0.7	-0.9	-5.4	20.5	17.5	-14.5	8.7	30.7	-47.5	9.1
95th Percentile	-5.0	-5.4	-8.6	8.6	13.3	-18.2	4.6	23.7	-51.5	1.2
# of Portfolios	337	325	314	284	263	278	352	455	477	466
● BlackRock International Equity	1.5 (46)	-0.5 (67)	-4.7 (64)	23.2 (61)	17.8 (74)	-11.8 (48)	8.1 (79)	32.3 (68)	-43.1 (41)	11.5 (60)
▲ MSCI EAFE Gross	1.5 (46)	-0.4 (66)	-4.5 (60)	23.3 (60)	17.9 (72)	-11.7 (47)	8.2 (78)	32.5 (67)	-43.1 (41)	11.6 (59)

# BlackRock International Equity Risk vs Return Three & Five Year (Gross of Fees)

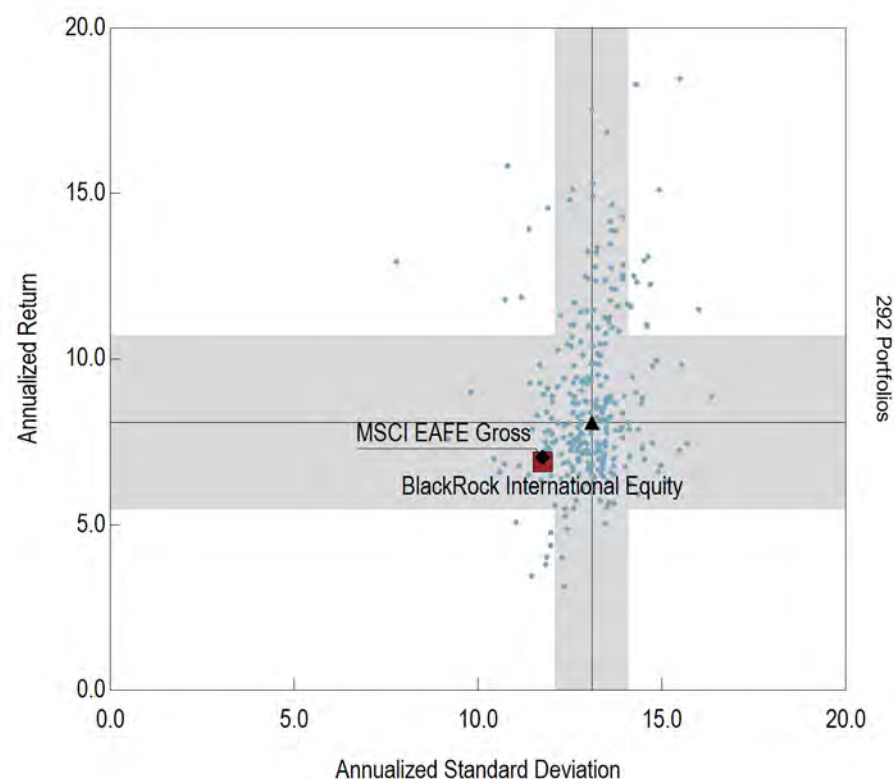
Period Ending: December 31, 2016

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2016



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

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending December 31, 2016

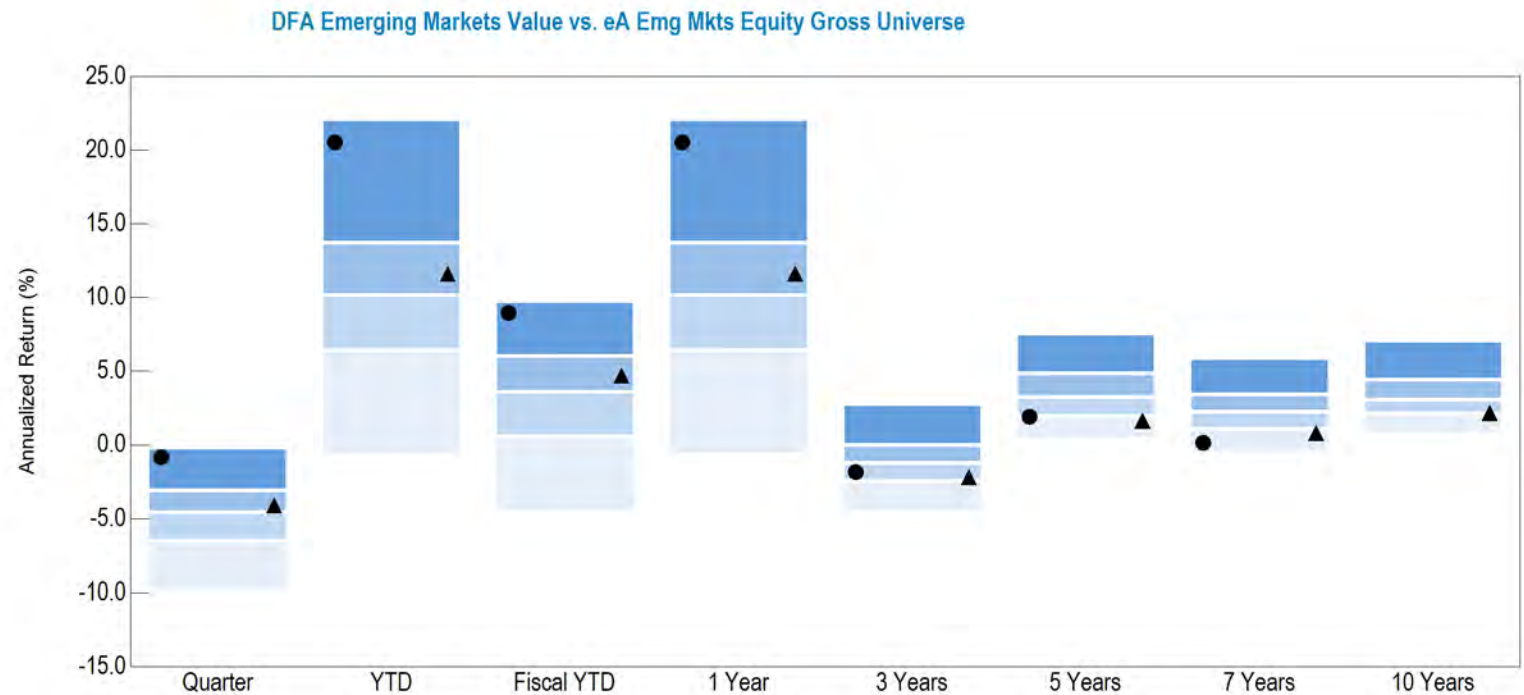


- BlackRock International Equity
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eA All EAFE Equity Gross



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

Period Ending: December 31, 2016

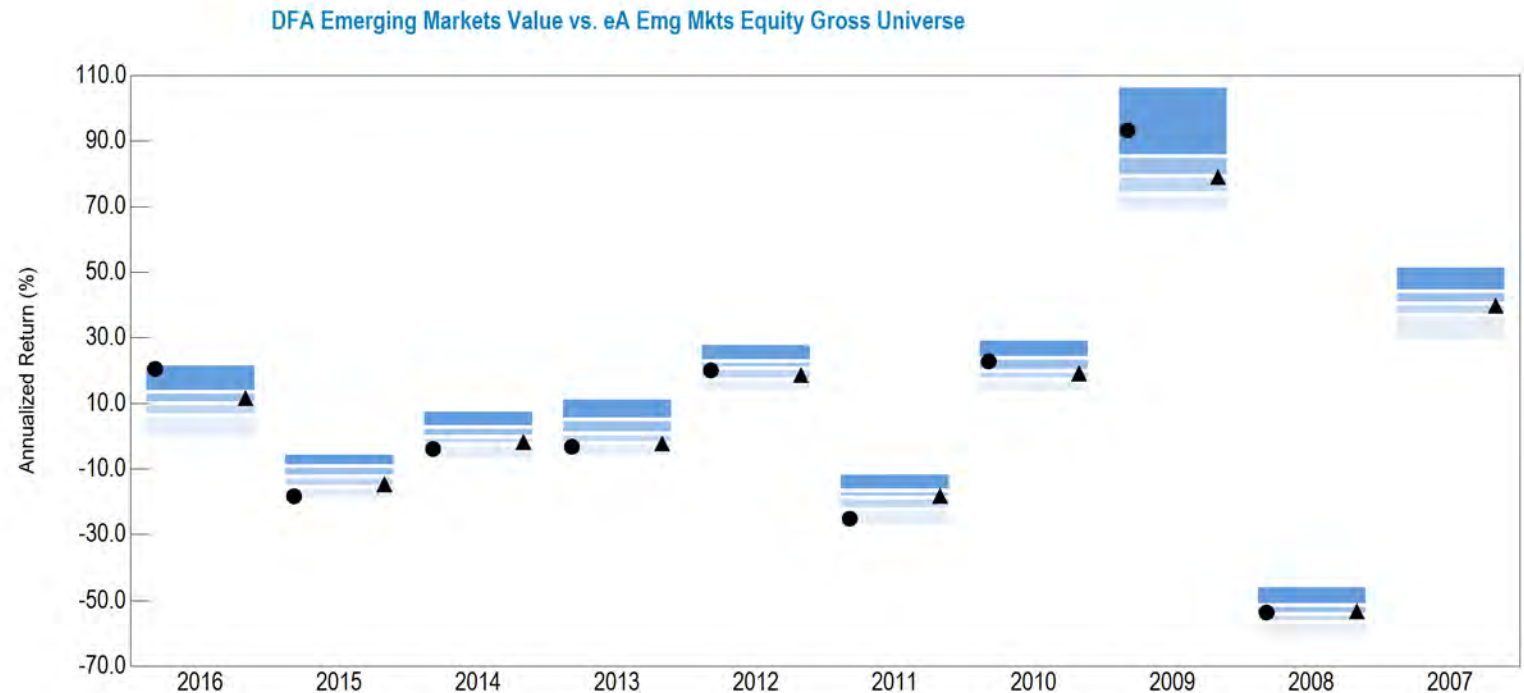


	Return (Rank)													
5th Percentile	-0.2	(8)	22.1	(7)	9.8	(8)	22.1	(7)	2.7	(63)	7.5	(76)	5.9	(90)
25th Percentile	-3.0	(41)	13.7	(40)	6.1	(39)	13.7	(40)	0.0	(70)	4.9	(81)	3.5	(80)
Median	-4.6		10.2		3.6		10.2		-1.2		3.3		2.3	
75th Percentile	-6.5		6.4		0.6		6.4		-2.4		2.0		1.1	
95th Percentile	-9.8		-0.6		-4.6		-0.6		-4.5		0.4		-0.5	
# of Portfolios	330		330		330		330		300		235		166	
● DFA Emerging Markets Value	-0.8	(8)	20.5	(7)	9.0	(8)	20.5	(7)	-1.8	(63)	1.9	(76)	0.1	(90)
▲ MSCI Emerging Markets Gross	-4.1	(41)	11.6	(40)	4.7	(39)	11.6	(40)	-2.2	(70)	1.6	(81)	0.8	(80)
													2.2	(75)



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

Period Ending: December 31, 2016

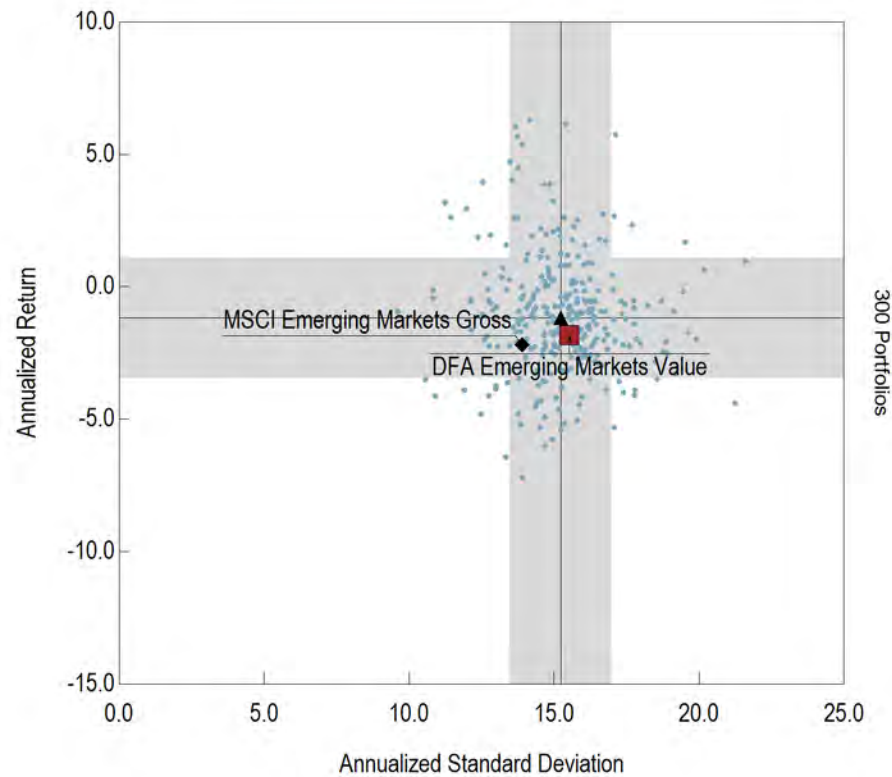


	Return (Rank)									
5th Percentile	22.1	-5.0	8.0	11.7	28.4	-11.1	29.6	106.8	-45.4	51.9
25th Percentile	13.7	-9.0	2.9	5.2	23.0	-16.4	23.9	85.5	-51.3	44.3
Median	10.2	-12.2	-0.1	1.0	20.9	-18.6	20.1	79.5	-54.0	40.5
75th Percentile	6.4	-15.3	-2.4	-2.0	17.3	-22.2	17.3	74.3	-56.3	37.1
95th Percentile	-0.6	-19.2	-7.0	-6.3	13.7	-27.3	13.7	68.5	-60.7	29.1
# of Portfolios	330	273	251	198	155	139	113	113	118	115
● DFA Emerging Markets Value	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	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)	39.8 (58)

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

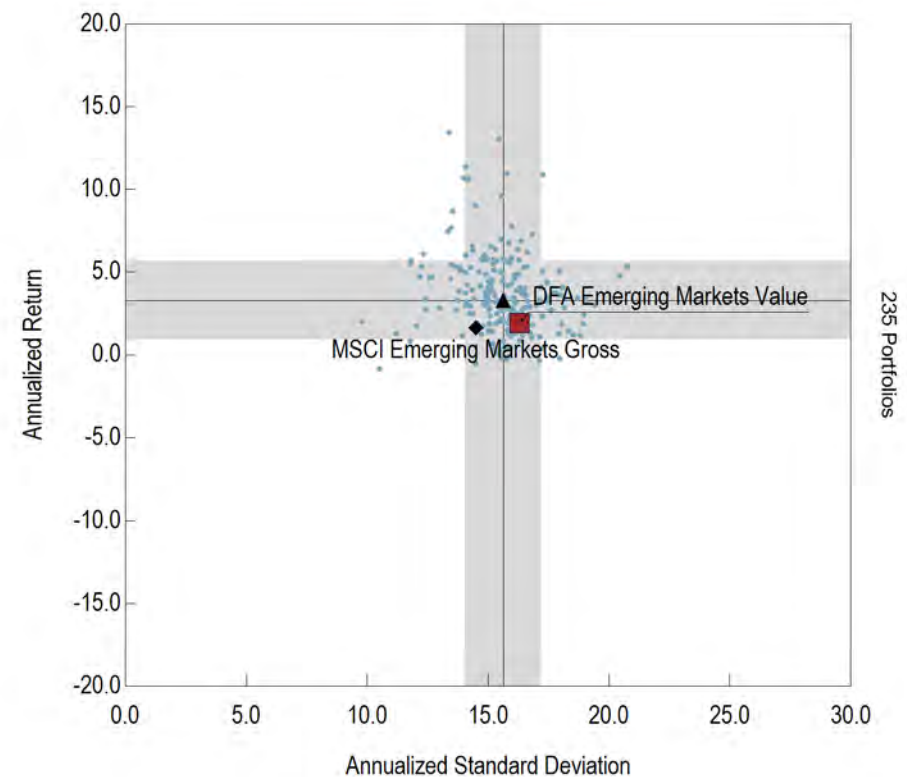
Period Ending: December 31, 2016

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2016



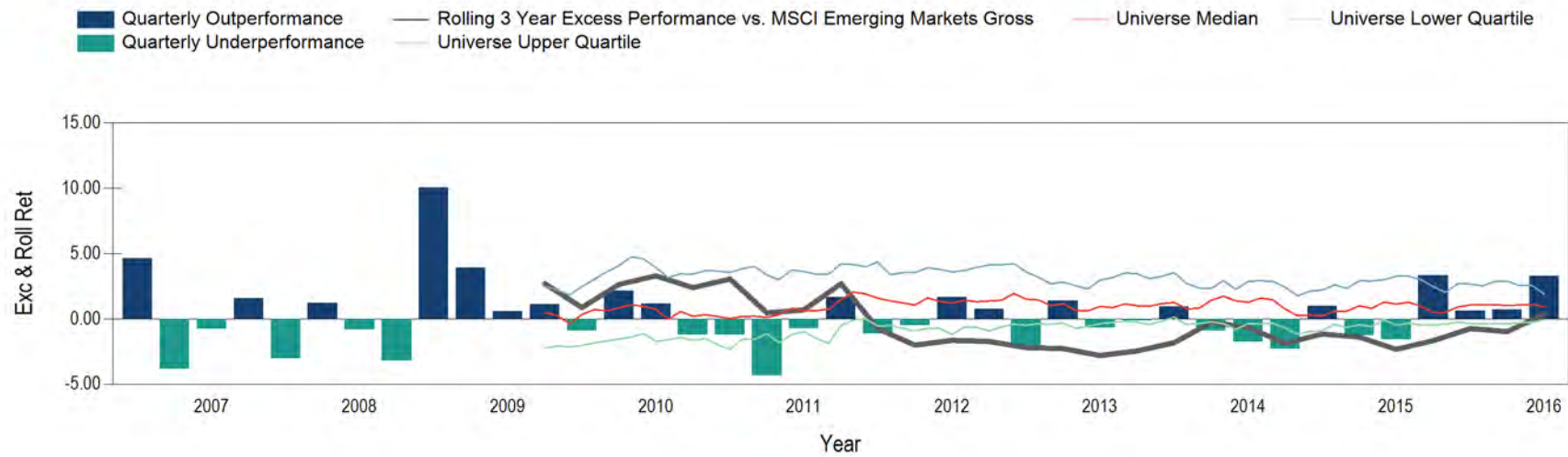
- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- 68% Confidence Interval
- eA Emg Mkts Equity Gross

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending December 31, 2016

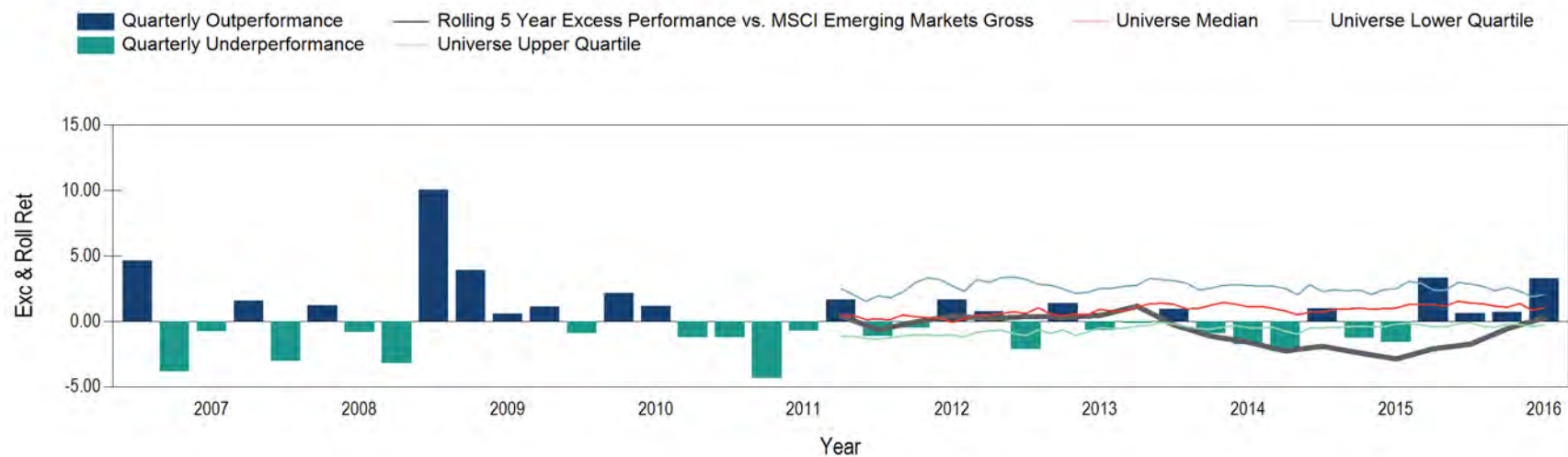


- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- 68% Confidence Interval
- eA Emg Mkts Equity Gross

### Rolling 3 Year Annualized Excess Performance



### Rolling 5 Year Annualized Excess Performance

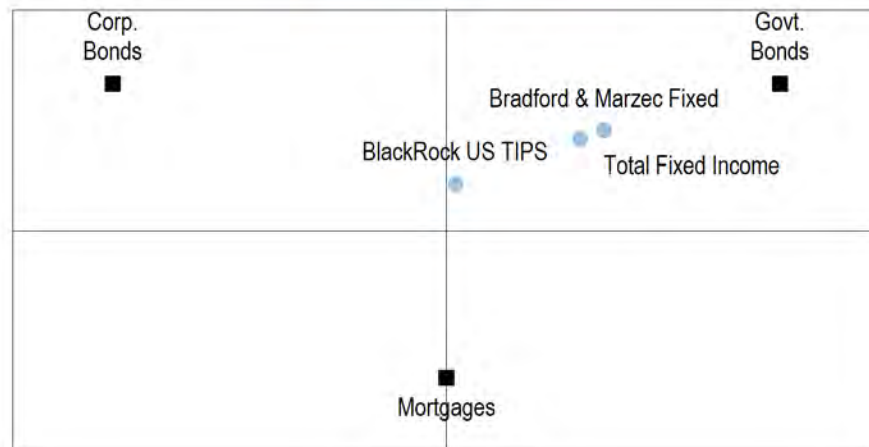


# Total Fixed Income Asset Class Overview (Gross of Fees)

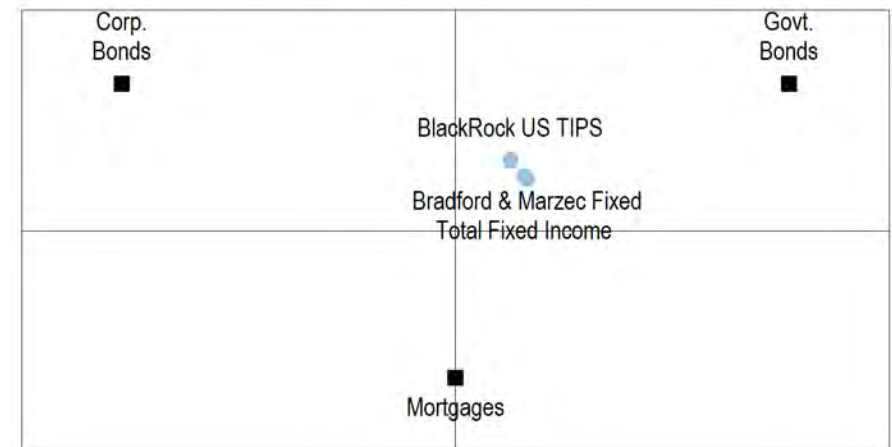
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Fixed Income</b>	<b>215,870,870</b>	<b>-2.5</b>	<b>-0.8</b>	<b>5.1</b>	<b>3.5</b>	<b>3.6</b>	<b>5.9</b>	<b>5.1</b>	<b>-0.3</b>	<b>5.9</b>	<b>-1.7</b>	<b>9.6</b>
BBgBarc US Aggregate TR		-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2
eA All US Fixed Inc Gross Rank		68	48	36	43	42	24	36	74	34	78	28
Bradford & Marzec Fixed	107,784,008	-2.5	-1.0	5.1	4.4	4.3	6.2	5.1	1.2	7.0	-0.4	8.8
BBgBarc US Aggregate TR		-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2
eA US Core Plus Fixed Inc Gross Rank		71	60	46	16	42	19	46	15	16	52	45
MacKay Shields Core Plus Opportunities	87,102,536	-2.4	-0.6	5.1	--	--	--	5.1	--	--	--	--
BBgBarc US Aggregate TR		-3.0	-2.5	2.6	--	--	--	2.6	--	--	--	--
eA US Core Plus Fixed Inc Gross Rank		65	43	46	--	--	--	46	--	--	--	--
BlackRock US TIPS	20,984,326	-2.4	-1.4	4.8	2.4	1.0	--	4.8	-1.2	3.6	-8.5	7.1
BBgBarc US TIPS TR		-2.4	-1.5	4.7	2.3	0.9	--	4.7	-1.4	3.6	-8.6	7.0
eA TIPS / Infl Indexed Fixed Inc Gross Rank		62	57	37	29	50	--	37	43	45	62	59

Fixed Income Style Map  
3 Years Ending December 31, 2016



Fixed Income Style Map  
5 Years Ending December 31, 2016



Total Fixed Income  
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Fixed Income</b>	<b>215,870,870</b>	<b>-2.5</b>	<b>-1.0</b>	<b>4.8</b>	<b>3.2</b>	<b>3.3</b>	<b>5.6</b>	<b>4.8</b>	<b>-0.6</b>	<b>5.6</b>	<b>-2.0</b>	<b>9.3</b>
<i>BBgBarc US Aggregate TR</i>		-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2
Bradford & Marzec Fixed	107,784,008	-2.6	-1.1	4.8	4.1	4.0	5.9	4.8	0.9	6.7	-0.8	8.5
<i>BBgBarc US Aggregate TR</i>		-3.0	-2.5	2.6	3.0	2.2	4.3	2.6	0.6	6.0	-2.0	4.2
Mackay Shields Core Plus Opportunities	87,102,536	-2.5	-0.8	4.7	--	--	--	4.7	--	--	--	--
<i>BBgBarc US Aggregate TR</i>		-3.0	-2.5	2.6	--	--	--	2.6	--	--	--	--
BlackRock US TIPS	20,984,326	-2.4	-1.4	4.8	2.3	0.9	--	4.8	-1.3	3.6	-8.6	7.0
<i>BBgBarc US TIPS TR</i>		-2.4	-1.5	4.7	2.3	0.9	--	4.7	-1.4	3.6	-8.6	7.0

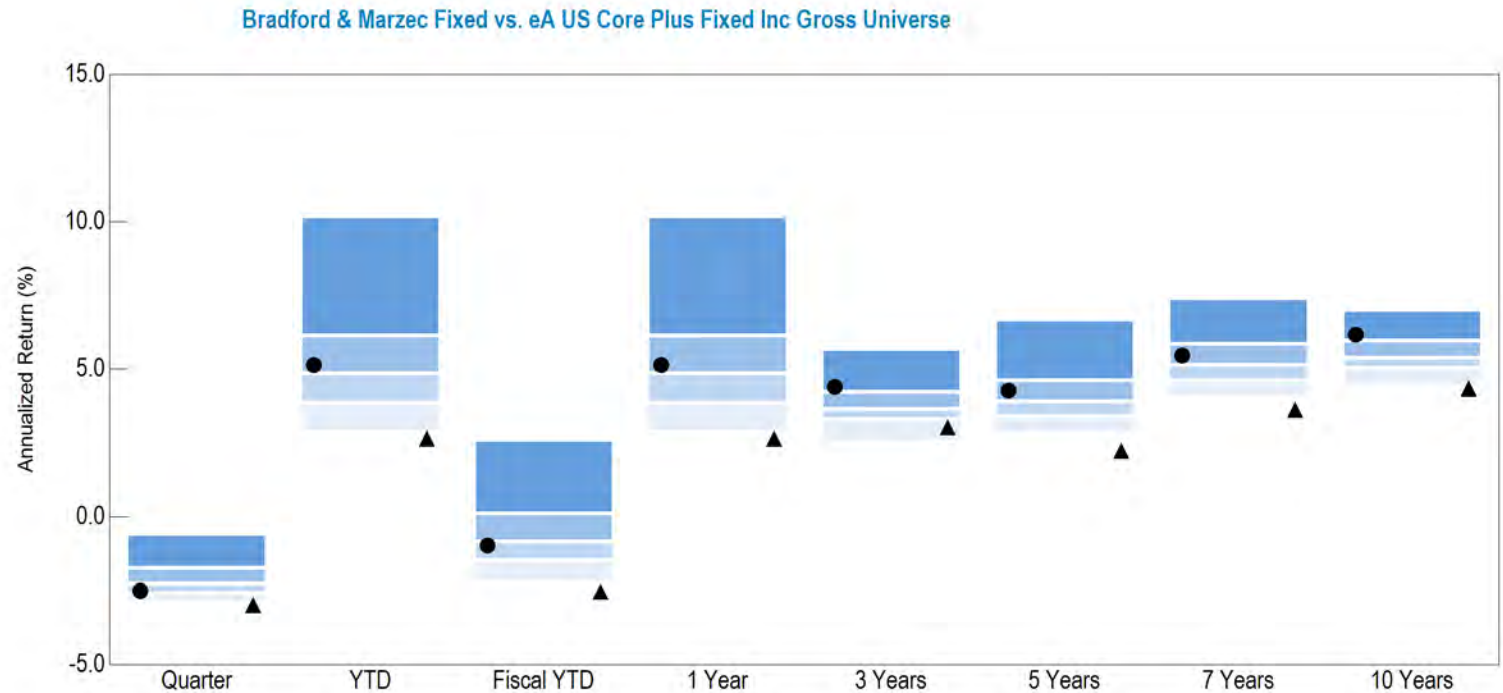
Correlation Matrix  
Last 5 Years

	Total Fixed Income	Bradford & Marzec Fixed	Mackay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR
Total Fixed Income	1.00	--	--	--	--
Bradford & Marzec Fixed	0.98	1.00	--	--	--
Mackay Shields Core Plus Opportunities	--	--	--	--	--
BlackRock US TIPS	0.91	0.86	--	1.00	--
BBgBarc US Aggregate TR	0.90	0.94	--	0.82	1.00



Bradford & Marzec Fixed  
Cumulative Performance Comparison (Gross of Fees)

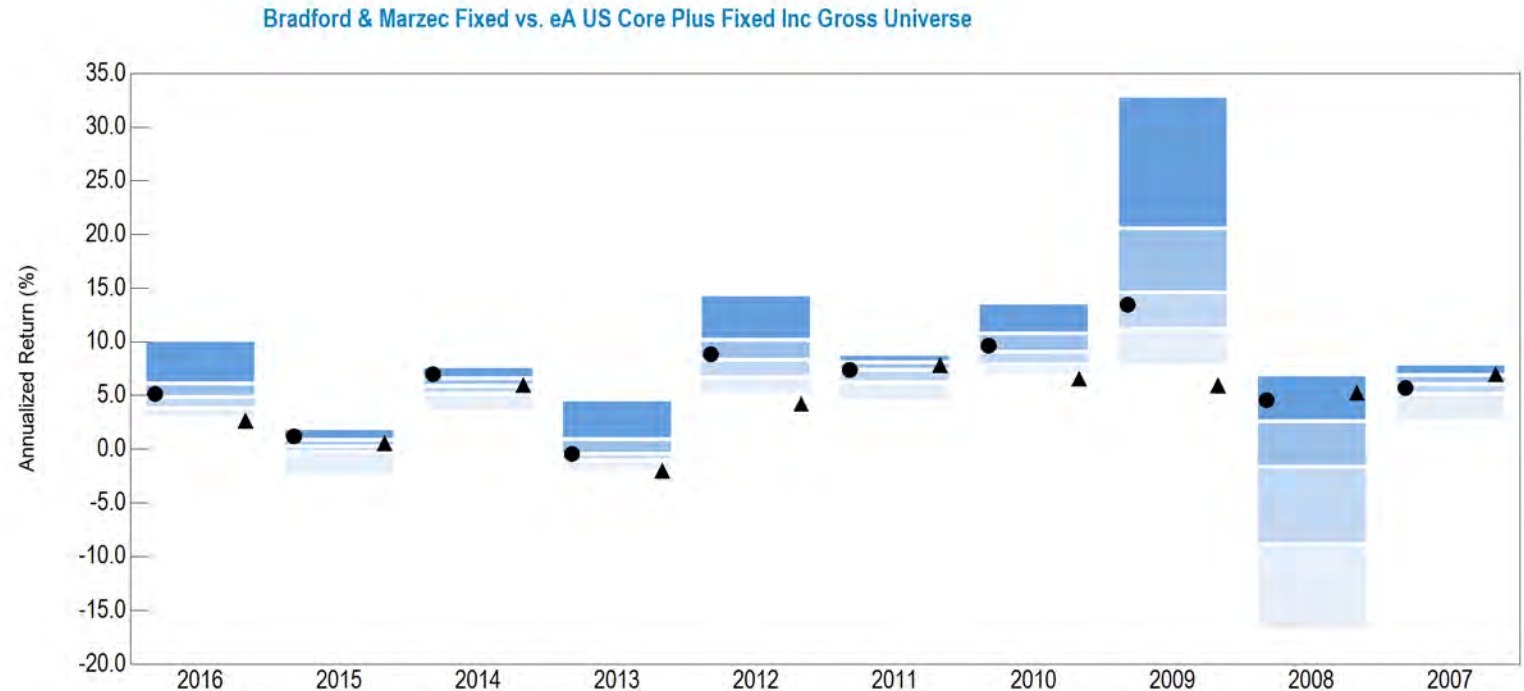
Period Ending: December 31, 2016



	Return (Rank)							
5th Percentile	-0.6	10.2	2.6	10.2	5.7	6.7	7.4	7.0
25th Percentile	-1.7	6.2	0.1	6.2	4.2	4.7	5.9	6.0
Median	-2.2	4.9	-0.8	4.9	3.7	3.9	5.2	5.4
75th Percentile	-2.6	3.9	-1.5	3.9	3.3	3.4	4.6	5.1
95th Percentile	-2.9	2.9	-2.2	2.9	2.6	2.8	4.1	4.4
# of Portfolios	131	131	131	131	128	127	120	99
● Bradford & Marzec Fixed	-2.5 (71)	5.1 (46)	-1.0 (60)	5.1 (46)	4.4 (16)	4.3 (42)	5.5 (36)	6.2 (19)
▲ BBgBarc US Aggregate TR	-3.0 (98)	2.6 (97)	-2.5 (99)	2.6 (97)	3.0 (90)	2.2 (99)	3.6 (99)	4.3 (98)

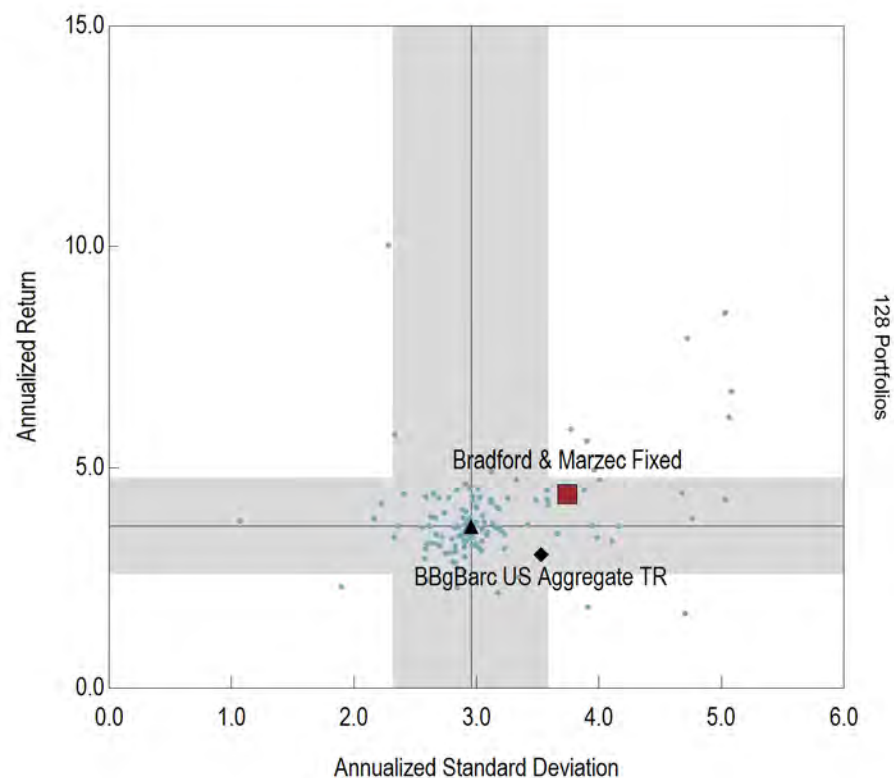
Bradford & Marzec Fixed  
Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2016



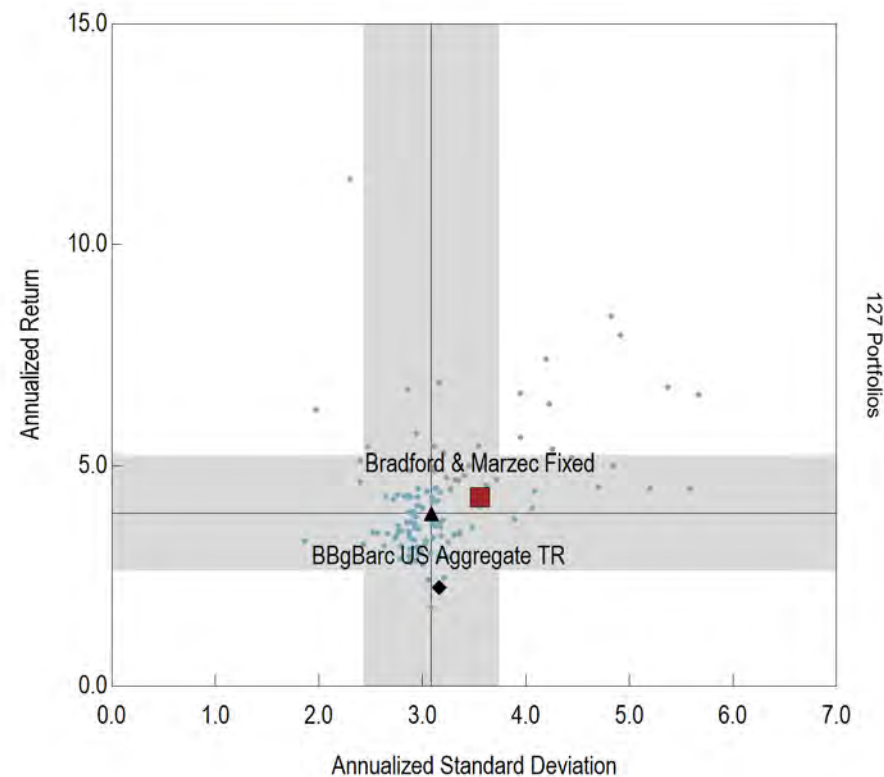
	Return (Rank)									
5th Percentile	10.2	1.9	7.7	4.6	14.4	8.8	13.6	32.9	6.9	7.9
25th Percentile	6.2	0.9	6.7	1.0	10.2	8.1	10.8	20.6	2.7	6.9
Median	4.9	0.3	5.9	-0.4	8.3	7.4	9.1	14.6	-1.6	6.1
75th Percentile	3.9	-0.2	5.2	-1.0	6.7	6.3	8.0	11.2	-8.9	5.2
95th Percentile	2.9	-2.4	3.6	-2.0	5.1	4.4	7.0	7.8	-16.8	2.7
# of Portfolios	131	115	118	116	124	118	123	128	136	144
● Bradford & Marzec Fixed	5.1 (46)	1.2 (15)	7.0 (16)	-0.4 (52)	8.8 (45)	7.4 (51)	9.6 (40)	13.5 (55)	4.6 (17)	5.7 (66)
▲ BbgBarc US Aggregate TR	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)	7.0 (25)

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2016



- Bradford & Marzec Fixed
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eA US Core Plus Fixed Inc Gross

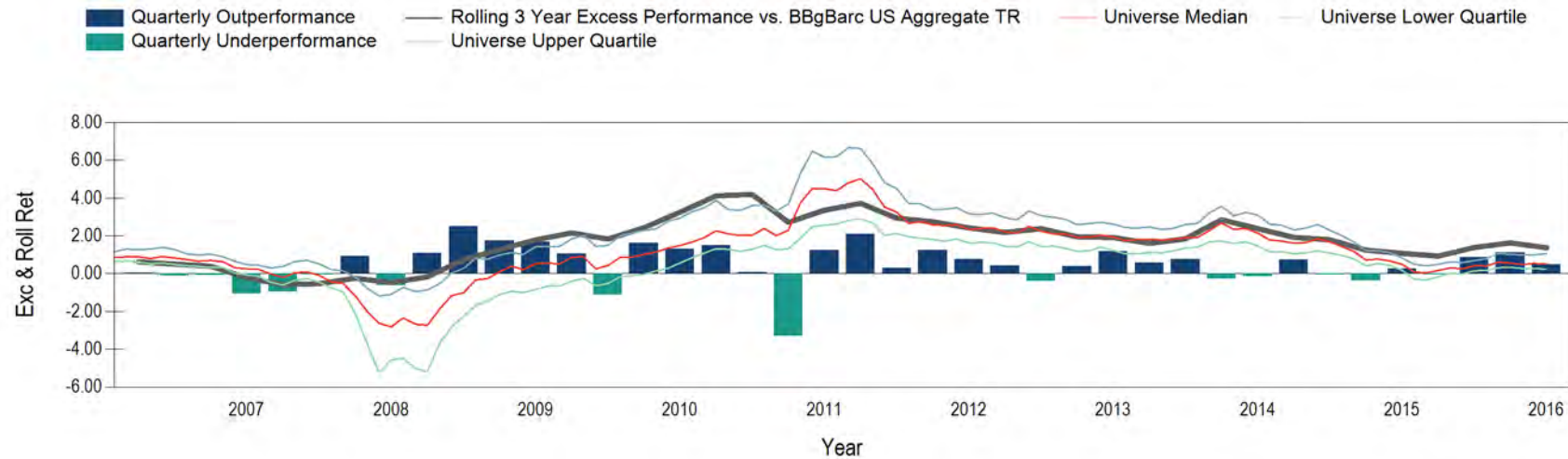
Annualized Return vs. Annualized Standard Deviation  
5 Years Ending December 31, 2016



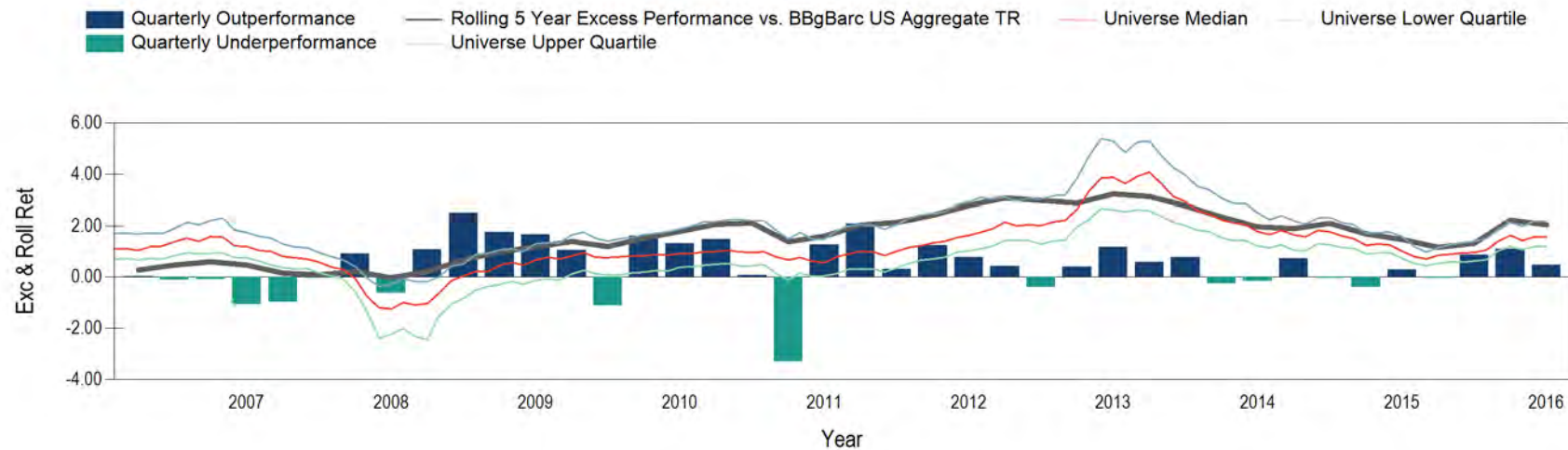
- Bradford & Marzec Fixed
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eA US Core Plus Fixed Inc Gross

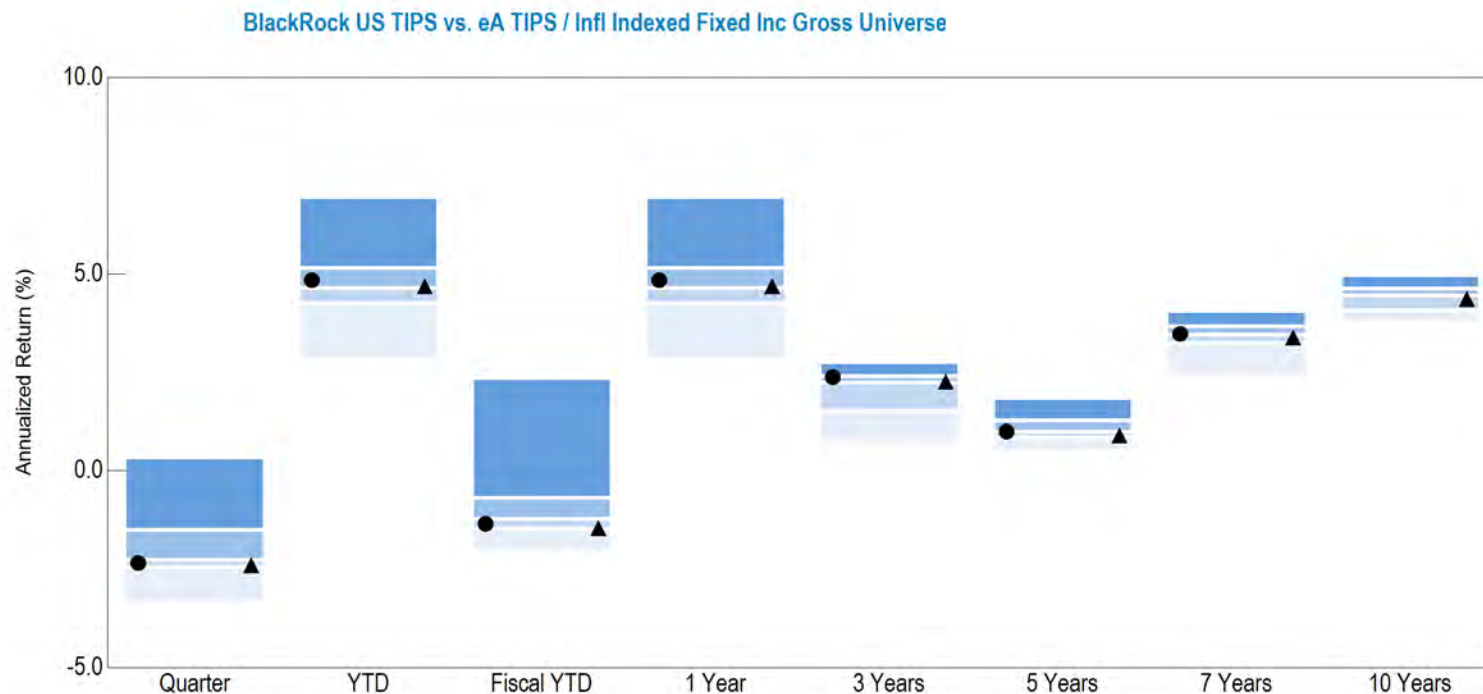


Rolling 3 Year Annualized Excess Performance

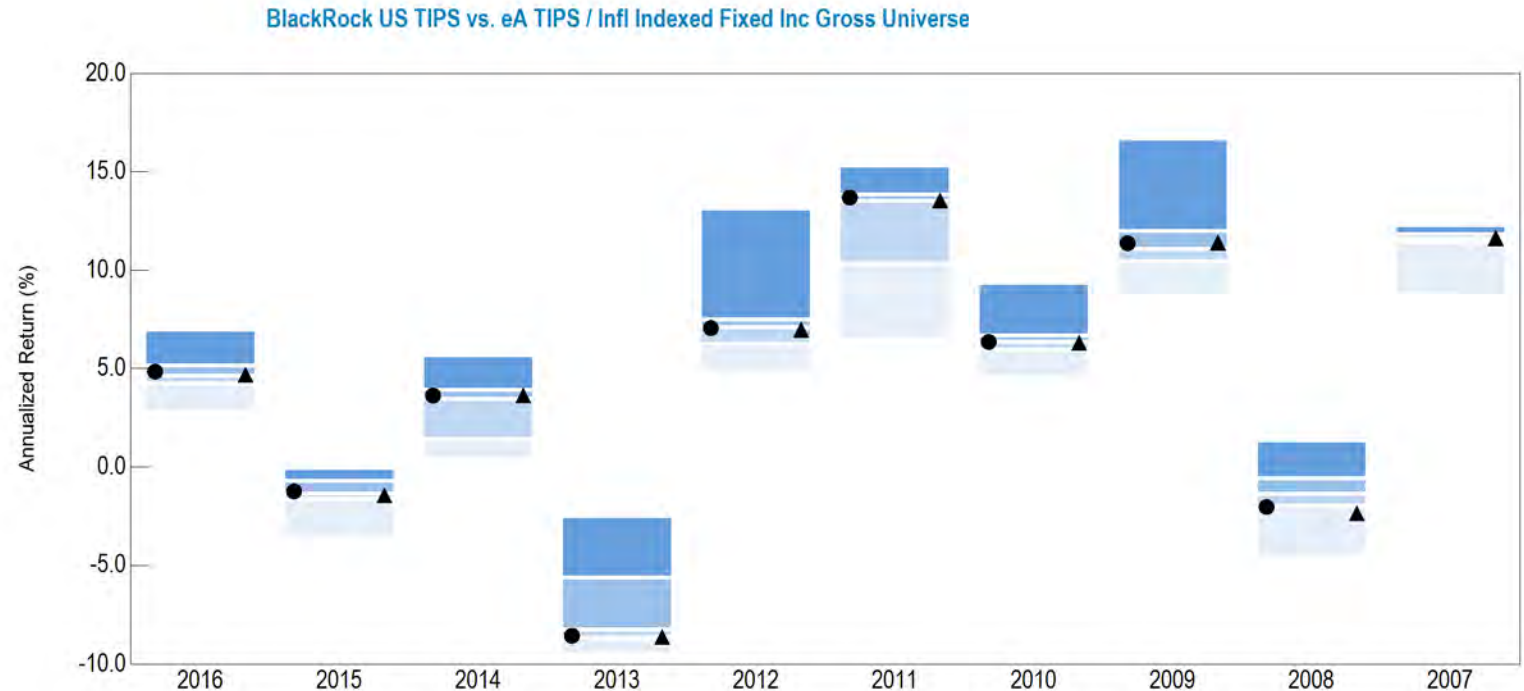


Rolling 5 Year Annualized Excess Performance





	Return (Rank)													
5th Percentile	0.3		7.0		2.3		7.0		2.7		1.8		4.0	5.0
25th Percentile	-1.5		5.2		-0.7		5.2		2.4		1.3		3.7	4.6
Median	-2.3		4.7		-1.2		4.7		2.2		1.0		3.5	4.5
75th Percentile	-2.4		4.3		-1.5		4.3		1.5		0.9		3.3	4.1
95th Percentile	-3.3		2.8		-2.1		2.8		0.7		0.5		2.4	3.8
# of Portfolios	42		42		42		42		42		40		34	28
● BlackRock US TIPS	-2.4	(62)	4.8	(37)	-1.4	(57)	4.8	(37)	2.4	(29)	1.0	(50)	3.5	(43)
▲ BBgBarc US TIPS TR	-2.4	(65)	4.7	(47)	-1.5	(76)	4.7	(47)	2.3	(50)	0.9	(69)	3.4	(63)
													4.4	(66)



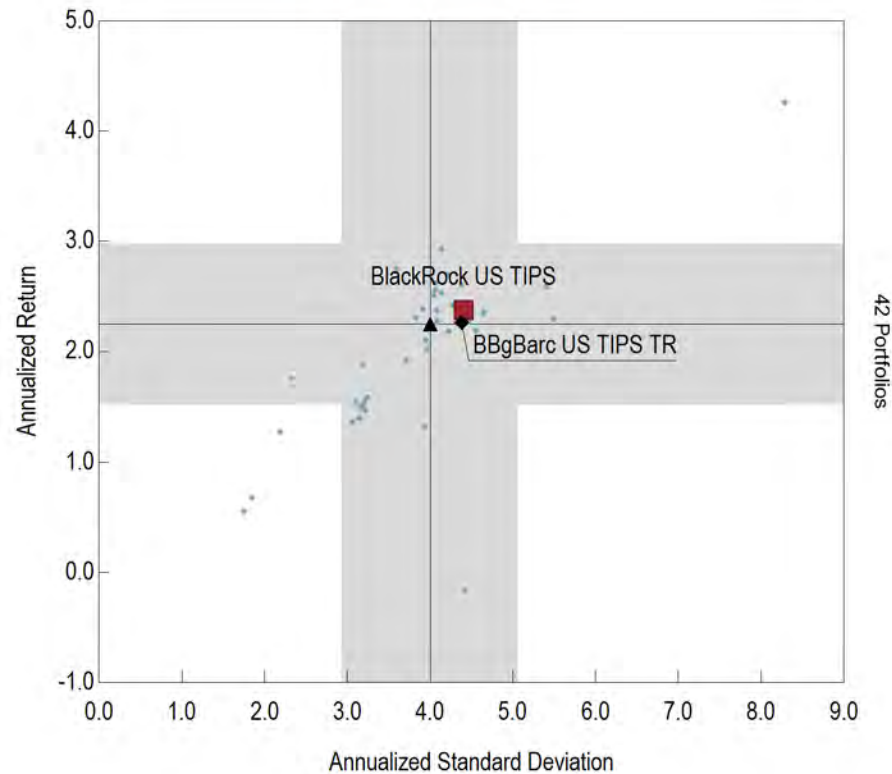
	Return (Rank)									
5th Percentile	7.0	-0.1	5.7	-2.5	13.1	15.3	9.4	16.7	1.3	12.3
25th Percentile	5.2	-0.7	4.0	-5.6	7.5	13.9	6.7	12.0	-0.5	11.8
Median	4.7	-1.3	3.5	-8.2	7.1	13.5	6.4	11.1	-1.4	11.6
75th Percentile	4.3	-1.6	1.4	-8.6	6.3	10.4	6.0	10.5	-1.9	11.5
95th Percentile	2.8	-3.6	0.4	-9.4	4.9	6.6	4.6	8.7	-4.6	8.8
# of Portfolios	42	44	50	43	43	47	39	37	40	37
● BlackRock US TIPS	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)	-- (--)
▲ BBgBarc US TIPS TR	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)	11.6 (49)

# BlackRock US TIPS

## Risk vs Return Three & Five Year (Gross of Fees)

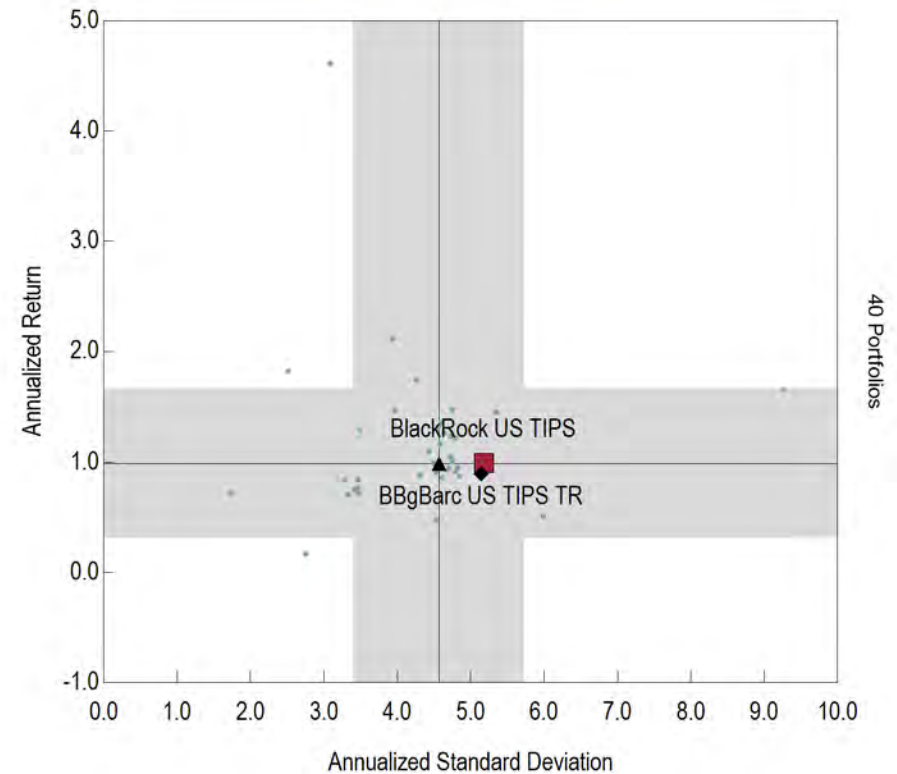
Period Ending: December 31, 2016

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2016



- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eA TIPS / Infl Indexed Fixed Inc Gross

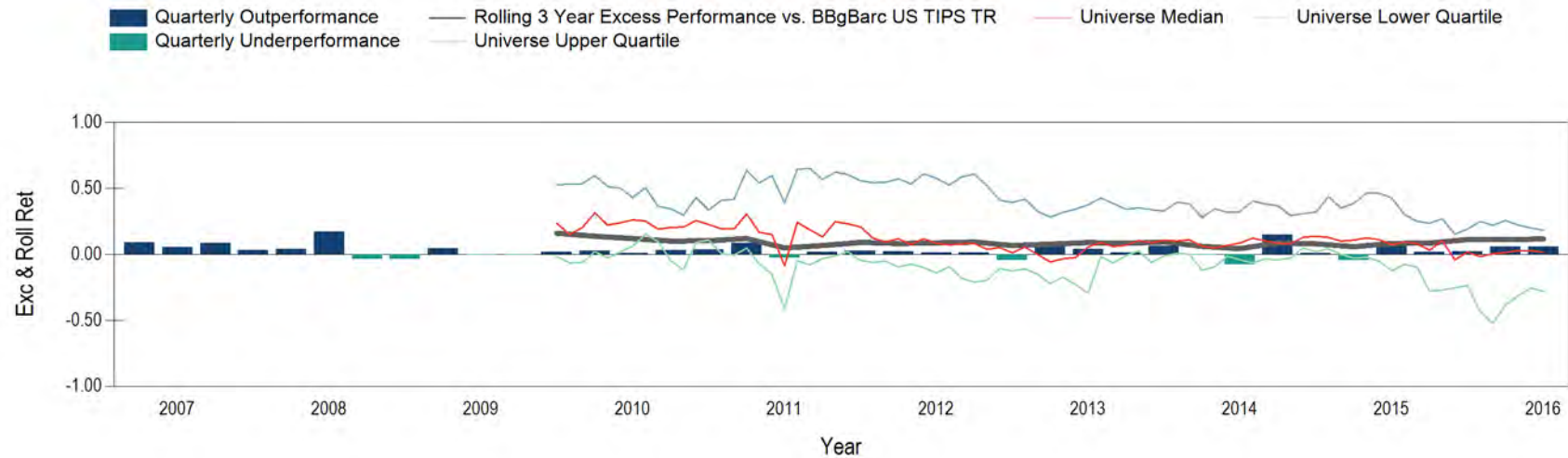
Annualized Return vs. Annualized Standard Deviation  
5 Years Ending December 31, 2016



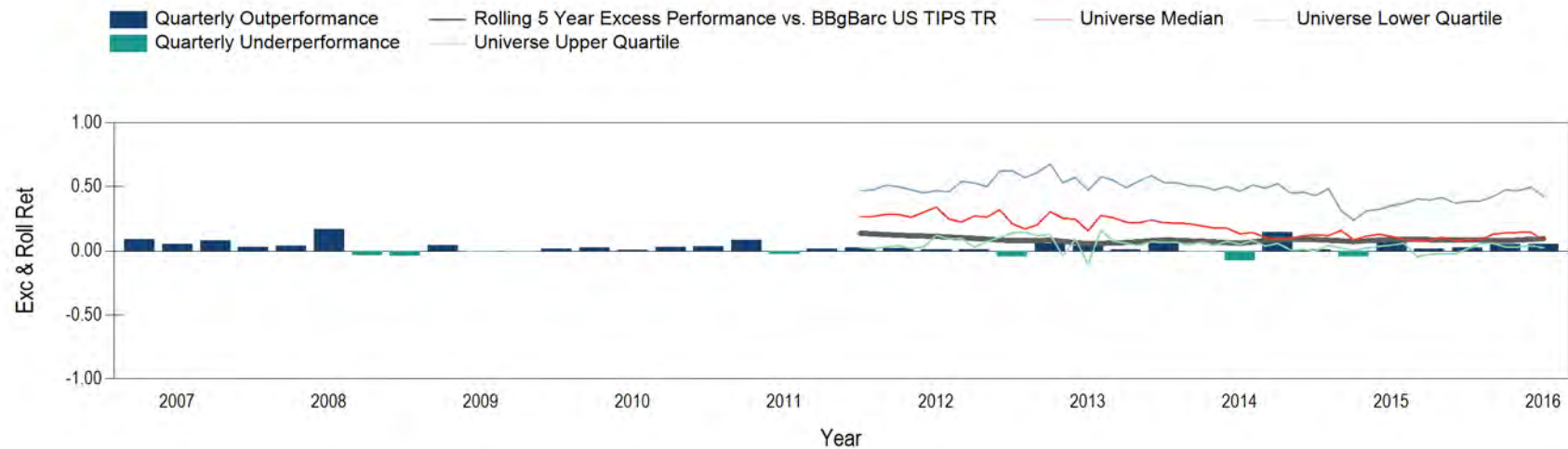
- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eA TIPS / Infl Indexed Fixed Inc Gross



Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance



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

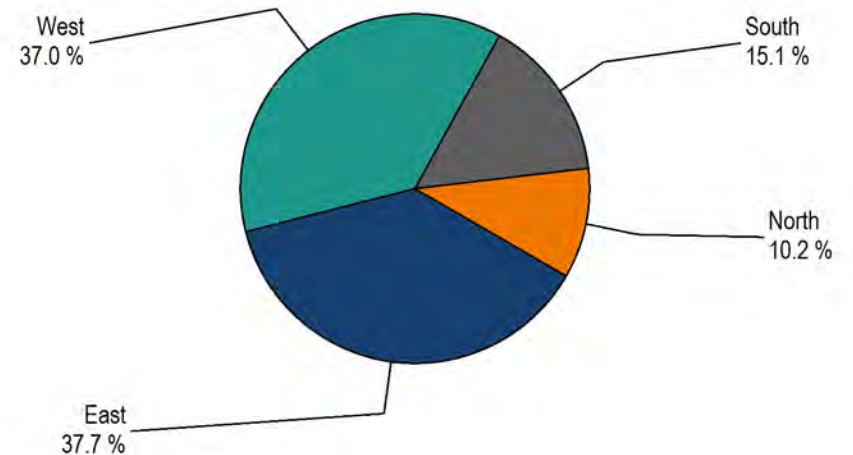
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Real Estate</b>	<b>63,323,360</b>	<b>1.1</b>	<b>3.0</b>	<b>7.1</b>	<b>12.0</b>	<b>11.8</b>	<b>5.3</b>	<b>7.1</b>	<b>16.1</b>	<b>13.0</b>	<b>12.6</b>	<b>10.6</b>
NCREIF Property Index		1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5
NCREIF-ODCE		2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9
ASB Real Estate	31,241,234	0.8	2.6	5.6	12.0	--	--	5.6	17.3	13.5	13.7	--
NCREIF Property Index		1.7	3.5	8.0	11.0	--	--	8.0	13.3	11.8	11.0	--
NCREIF-ODCE		2.1	4.2	8.8	12.1	--	--	8.8	15.0	12.5	13.9	--
Clarion Lion	30,642,256	1.5	3.6	9.1	12.6	12.3	4.8	9.1	15.7	13.2	12.8	10.9
NCREIF Property Index		1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5
NCREIF-ODCE		2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9
1221 State St. Corp	1,439,869	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.1

Property Type Allocation  
Allocation as of December 31, 2016



Geographic Diversification  
Allocation as of December 31, 2016



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

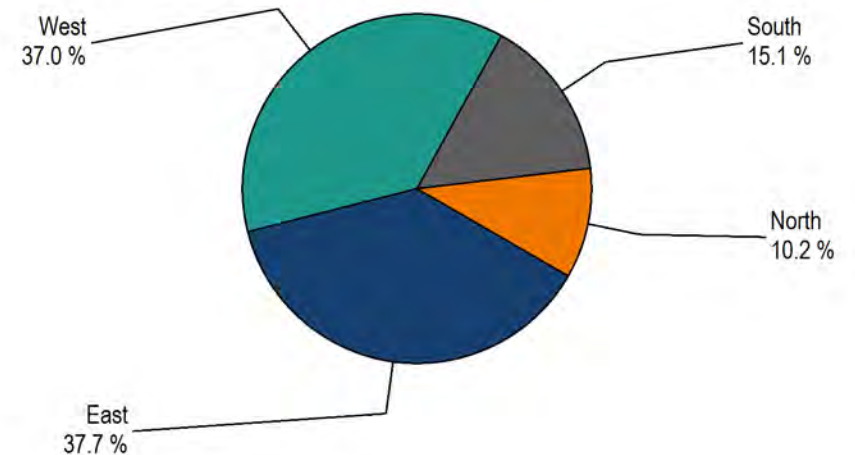
Period Ending: December 31, 2016

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2016	2015	2014	2013	2012
<b>Total Real Estate</b>	<b>63,323,360</b>	<b>0.9</b>	<b>2.5</b>	<b>6.1</b>	<b>10.8</b>	<b>11.0</b>	<b>4.5</b>	<b>6.1</b>	<b>15.0</b>	<b>11.6</b>	<b>12.1</b>	<b>10.3</b>
NCREIF Property Index		1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5
NCREIF-ODCE		2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9
ASB Real Estate	31,241,234	0.6	2.1	4.6	11.0	--	--	4.6	16.2	12.5	12.5	--
NCREIF Property Index		1.7	3.5	8.0	11.0	--	--	8.0	13.3	11.8	11.0	--
NCREIF-ODCE		2.1	4.2	8.8	12.1	--	--	8.8	15.0	12.5	13.9	--
Clarion Lion	30,642,256	1.2	3.1	8.0	11.5	11.3	3.8	8.0	14.6	12.2	11.8	9.9
NCREIF Property Index		1.7	3.5	8.0	11.0	10.9	6.9	8.0	13.3	11.8	11.0	10.5
NCREIF-ODCE		2.1	4.2	8.8	12.1	12.2	5.8	8.8	15.0	12.5	13.9	10.9
1221 State St. Corp	1,439,869	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.1

Property Type Allocation  
Allocation as of December 31, 2016



Geographic Diversification  
Allocation as of December 31, 2016





**Performance Return Calculations**

Returns calculated in the performance summary tables are time-weighted rates of return (TWRR). TWRR are calculated from changes in monthly market values, adjusted for weighted cash flows between months. Returns are linked geometrically 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**

Closed end funds including but not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit may lag performance and market value data due to delayed reporting. Verus will show market values for closed end funds as of the most recent reported performance adjusted for capital calls and distributions. Closed end fund managers report performance using an internal rate of return (IRR), which differs from the 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.

**Manager Line Up**

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 3000	12/10/2015	J.P. Morgan	1221 State Street Corp	09/30/2008	ICERS/Union Bank
BlackRock International Equity	07/03/2003	J.P. Morgan	Cash	-	J.P. Morgan
DFA Emerging Markets Value	01/11/2007	J.P. Morgan	HarbourVest IX-Buyout	2011 <sup>1</sup>	HarbourVest
Harding Loevner	07/05/2016	Harding Loevner	HarbourVest IX-Credit	2011 <sup>1</sup>	HarbourVest
Bradford & Marzec Fixed	12/01/1992	J.P. Morgan	HarbourVest International VI	2008 <sup>1</sup>	HarbourVest
MacKay Shields Core Plus Ops	03/02/2015	CITCO	Harbourvest IX-Venture	2011 <sup>1</sup>	HarbourVest
BlackRock US TIPS	04/11/2007	J.P. Morgan	KKR Mezzanine	2010 <sup>1</sup>	KKR
ASB Real Estate	12/31/2012	ASB Real Estate	PIMCO BRAVO	2011 <sup>1</sup>	PIMCO
Clarion Lion	12/31/2006	Clarion Lion			

<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 plus 300 bps (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 plus 300 bps (Lagged).

# Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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