



NEPC, LLC

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## Ventura County Employees' Retirement Association

**Investment Summary**  
**Quarter Ending June 30, 2017**

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# Market Environment Update and Outlook

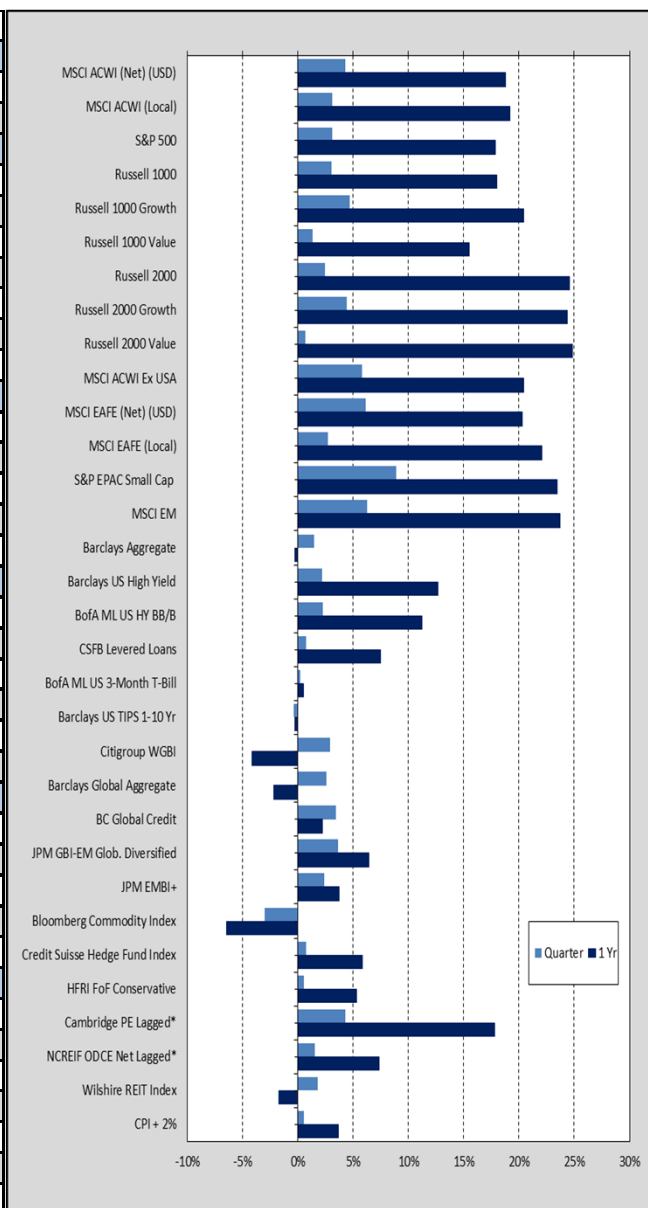


## Economic Environment

- **Second quarter GDP growth rate (advance estimate) is estimated at 2.6%.**
  - Retail sales ended May at +4.2% on a YoY basis. In the same period last year the YoY growth rate was 1.6%.
  - Corporate profits (ended January) as a percent of GDP decreased slightly to 9.1% from 9.2% (in October) and remain elevated relative to historical levels.
  - The inventory-to-sales ratio ended May flat at 1.4 and has remained relatively flat since early 2010.
  - The U.S. trade deficit declined by a meager 1.8% ended May as exports increased and imports decreased.
- **The unemployment rate decreased to 4.4% in Q2 from 4.5% in Q1; U-6, a broader measure of unemployment, decreased to 8.6% during the second quarter from 8.9%.**
- **The Case-Shiller Home Price Index (ended May) increased to 190.6 from 185.5 in January and is at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw a down-tick to 1.6% at the end of June from 2.4% at the end of March; Capacity Utilization marginally increased to 76.6% in Q2 from 76.4% in Q1.**
- **Fed Funds rate was increased +0.25% to a targeted range of 1.0% - to – 1.25%. The 10-year Treasury Yield (constant maturity) finished Q2 at 2.2% down from 2.5% in Q1.**
- **The Fed balance sheet decreased slightly during Q2 2017, while the European Central Bank balance sheet continues to increase.**
  - ECB held its benchmark refinance rate at 0%, deposit rates -0.4% and asset purchases at €60 billion per month of corporate and public securities
- **S&P valuations increased slightly in Q2 remaining above the 10-year and long-term averages.**
  - Cyclically adjusted Shiller PE ratio (29.7x) is above the long-term average of 16.7x and above the 10-year average of 23.0x.

## Market Environment – Q2 2017 Overview

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
<b>World Equity Benchmarks</b>						
MSCI ACWI (Net) (USD)	World	4.3%	18.8%	4.8%	10.5%	3.7%
MSCI ACWI (Local)	World (Local Currency)	3.1%	19.2%	7.6%	12.4%	4.3%
<b>Domestic Equity Benchmarks</b>						
S&P 500	Large Core	3.1%	17.9%	9.6%	14.6%	7.2%
Russell 1000	Large Core	3.1%	18.0%	9.3%	14.7%	7.3%
Russell 1000 Growth	Large Growth	4.7%	20.4%	11.1%	15.3%	8.9%
Russell 1000 Value	Large Value	1.3%	15.5%	7.4%	13.9%	5.6%
Russell 2000	Small Core	2.5%	24.6%	7.4%	13.7%	6.9%
Russell 2000 Growth	Small Growth	4.4%	24.4%	7.6%	14.0%	7.8%
Russell 2000 Value	Small Value	0.7%	24.9%	7.0%	13.4%	5.9%
<b>International Equity Benchmarks</b>						
MSCI ACWI Ex USA	World ex-US	5.8%	20.5%	0.8%	7.2%	1.1%
MSCI EAFE (Net) (USD)	Int'l Developed	6.1%	20.3%	1.1%	8.7%	1.0%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	2.7%	22.1%	7.0%	12.5%	2.0%
S&P EPAC Small Cap	Small Cap Int'l	8.9%	23.4%	5.9%	13.2%	3.6%
MSCI EM	Emerging Equity	6.3%	23.7%	1.1%	4.0%	1.9%
<b>Domestic Fixed Income Benchmarks</b>						
Barclays Aggregate	Core Bonds	1.4%	-0.3%	2.5%	2.2%	4.5%
Barclays US High Yield	High Yield	2.2%	12.7%	4.5%	6.9%	7.7%
BofA ML US HY BB/B	High Yield	2.2%	11.2%	4.5%	6.7%	7.1%
CSFB Levered Loans	Bank Loans	0.8%	7.5%	3.5%	4.8%	4.2%
BofA ML US 3-Month T-Bill	Cash	0.2%	0.5%	0.2%	0.2%	0.6%
Barclays US TIPS 1-10 Yr	Inflation	-0.4%	-0.3%	0.3%	0.3%	3.6%
<b>Global Fixed Income Benchmarks</b>						
Citigroup WGBI	World Gov. Bonds	2.9%	-4.1%	-1.0%	-0.2%	3.5%
Barclays Global Aggregate	Global Core Bonds	2.6%	-2.2%	-0.4%	0.8%	3.7%
BC Global Credit	Global Bonds	3.4%	2.2%	0.9%	2.8%	4.3%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	3.6%	6.4%	-2.8%	-0.7%	4.0%
JPM EMBI+	Em. Mkt. Bonds	2.4%	3.7%	4.8%	5.0%	7.2%
<b>Alternative Benchmarks</b>						
Bloomberg Commodity Index	Commodities	-3.0%	-6.5%	-14.8%	-9.2%	-6.5%
Credit Suisse Hedge Fund Index	Hedge Fund	0.8%	5.8%	1.6%	4.5%	3.2%
HFRI FoF Conservative	Fund of Hedge Funds	0.5%	5.3%	1.5%	3.6%	0.8%
Cambridge PE Lagged*	Private Equity	4.3%	17.8%	10.3%	12.7%	9.8%
NCREIF ODCE Net Lagged*	Real Estate	1.5%	7.4%	10.8%	10.9%	4.6%
Wilshire REIT Index	REIT	1.8%	-1.7%	8.3%	9.3%	5.6%
CPI + 2%	Inflation/Real Assets	0.5%	3.7%	2.9%	3.3%	3.7%



\* As of 3/31/2017

### Global Equity

- **U.S. equities as measured by the S&P 500 posted moderate gains in the second quarter (+3.1%).**
- **Small cap stocks underperformed large cap stocks during the quarter, with the Russell 2000 Index returning 2.5% and the Russell 1000 Index returning 3.1%.**
- **International equities outperformed U.S. markets during the quarter, returning 5.8%, as measured by the MSCI ACWI ex-U.S. Index. Emerging markets returned 6.3% as measured by the MSCI Emerging Markets Index in U.S. dollar terms.**
  - Developed international markets returned 6.1% in USD terms, while in local currency terms returned 2.7% as measured by the MSCI EAFE Index.

### Private Equity

- **Capital commitment momentum continued in Q2 2017.**
- **Private equity fundraising totaled \$121 billion in Q2 2017.**
  - North America focused private equity funds raised \$67.5 billion.
  - Asia focused private equity funds raised \$18.2 billion.
  - Europe focused private equity raised \$32.5 billion.
- **Private equity dry powder continued its increase to \$906 billion ended Q2 up from \$842 billion ended Q1.**

### Fixed Income

- **The nominal yield curve continued to flatten in Q2. Intermediate –to- long term yields declined 4 –to- 18 basis points across five to 30 year treasury bonds while short term yields increased 10 –to- 27 basis points across terms under one year.**
- **The spread between two and 10 year rates decreased to 93 basis points from 113 basis points in Q2.**
- **Treasury Inflation-Protected Securities, or TIPS, returned -0.4% during the quarter, as measured by the BBg Barclays US TIPS 1-10 Yr Index.**
- **The BBg Barclays Long Duration Credit Index gained 4.70%.**
- **Long Treasuries gained 3.96% and investment-grade US corporate debt gained 1.4%.**
- **The BBg Barclays 1-3 year US Government/ Credit Index returned 0.31%. US high yield bonds gained 2.2% driven by tighter spreads.**
- **Emerging markets debt had moderate –to- strong gains.**
  - US dollar-denominated debt, as measured by the JP Morgan EMBI Index, gained 2.4%; local currency debt gained 3.6%, according to the JP Morgan GBI-EM BD Index.

### Real Assets/Inflation-Linked Assets

- **Energy remains attractive despite volatile oil prices.**
  - Private equity and debt opportunities are attractive.
  - Fire sale prices never materialized but focusing on assets outside of the hottest zip codes provides potential for strong returns as market normalizes.
- **Infrastructure – select opportunities to access growth markets.**
  - High quality assets are receiving premium bids from direct investors (Pension Funds and Sovereigns) with low costs of capital and long hold horizons; focus on mismanaged or niche opportunities.
- **Metals & Mining – have commodity prices bottomed?**
  - Peak capex occurred in 2012, lagging commodity price drops that began in 2011.
  - Diverse demand drivers for underlying commodity prices.
- **Timber – low return potential and limited opportunity for outperformance.**
- **Agriculture – near-term slowdown in price appreciation creates opportunity to invest in a strong (very) long term outlook supported by demographic trends.**

### Commodities

- **Commodities ended the quarter down 3.0% as measured by the Bloomberg Commodity Index.**
  - Agricultural commodities and energy price weakness contributed to the quarter's losses.

### Real Estate

- **NEPC continues to be neutral on core real estate in the US and remains positive on non-core real estate, that is, value-add and opportunistic strategies.**
- **Real estate fundamentals (rent growth, occupancy, net absorption) remain strong; however, valuations are high on an absolute and relative basis.**
  - Rising interest rates have been baked into existing valuations but excess cap rate expansion (beyond general expectations) will reset valuations.
- **Overall, the non-core real estate investment environment in the U.S. is normalizing; however, select areas remain attractive.**
- **Europe is viewed as the best place for a marginal dollar of non-core real estate investment.**
  - Current US-dollar denominated investors with currency exposure will feel near-term impact of Brexit, but new investors may benefit from a strong US-dollar. Long-term Brexit and broader European political instability, however, are unclear.



## Extended US Economic Cycle

### Economic cycles don't die of old age

We believe the US economy is in an extended expansionary cycle despite being eight years removed from the last recession

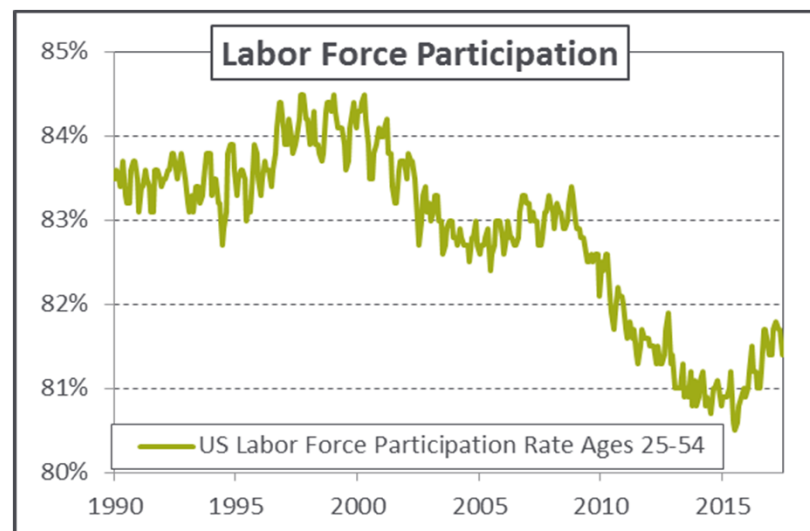
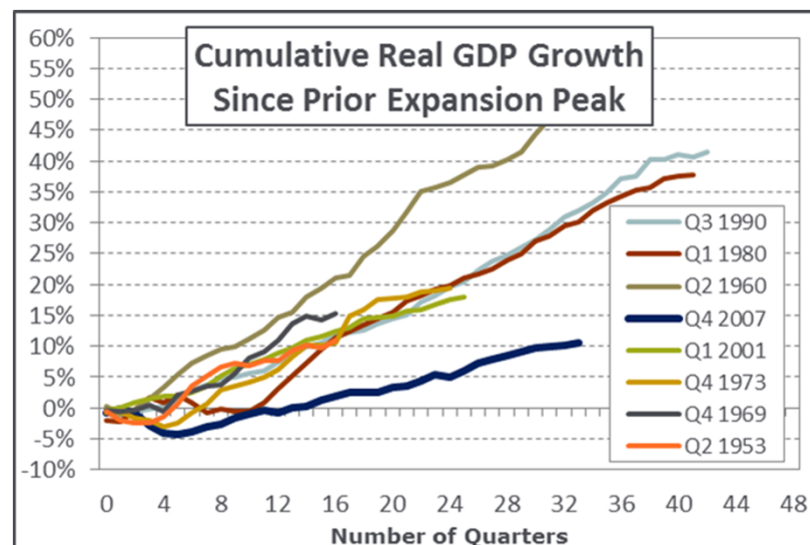
The health of US consumers continue to drive economic growth given relatively low debt levels

A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

### US recession concerns are muted

The US economy appears on a path of slow but steady growth as excess capacity is gradually absorbed by the economy

The labor market recovery has been strong but slack remains as many have yet to return to the workforce



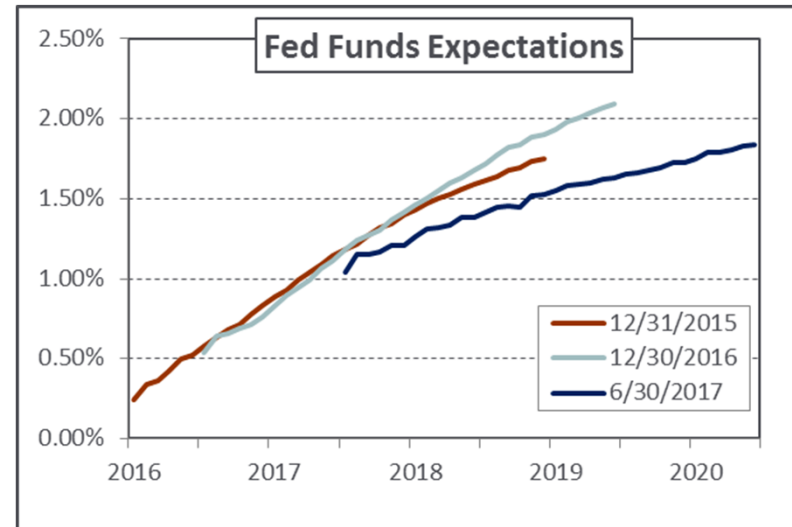
Source: FRED

**Federal Reserve Gradualism**

**The Federal Reserve is expected to slowly increase interest rates**

Expected path of Fed policy through 2019 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

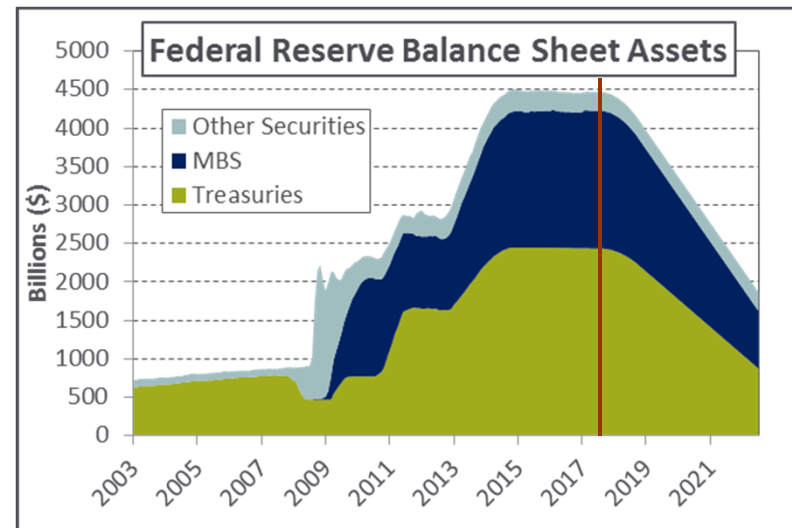


Source: Fed, Bloomberg

**Reduction of the Fed balance sheet will likely be a gradual process**

The market impact is untested but the Fed has announced a specific schedule to not reinvest a portion of the balance sheet securities that mature

Politics could intersect with Fed policy as Fed Chair Janet Yellen's term is set to expire in February 2018



Source: Fed, Bloomberg, NEPC

Forecast based on the June Fed Minutes: MBS assumes \$4B per month for 3-month intervals over 12 months with a \$20B cap; Treasuries assume \$6B per month for 3-month intervals over 12 months with a \$30B cap; Other Securities are assumed to stay constant

Despite Transparency, a Number of Outstanding Questions Remain...

**What does this mean for the future path of rate hikes?**

*“The evolution of the economy will warrant gradual increases in the federal funds rate over time to achieve and maintain maximum employment and stable prices.”*

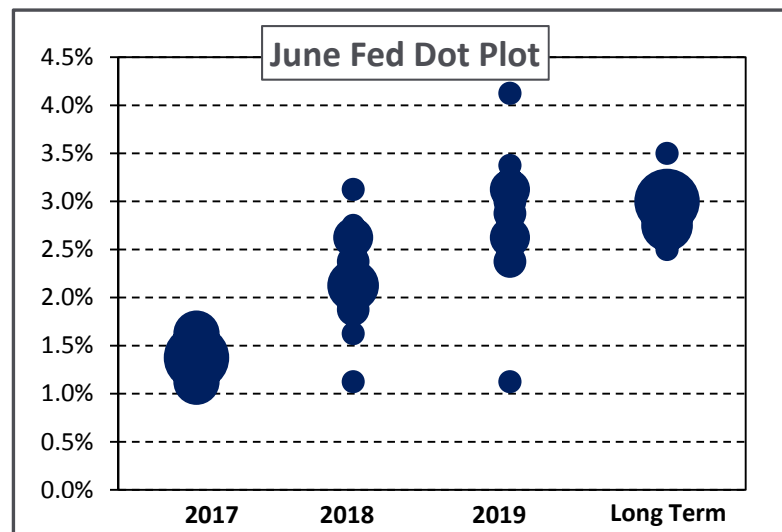
- Fed Chair Janet Yellen July 12<sup>th</sup>, 2017

**What implications does this have for other central banks?**

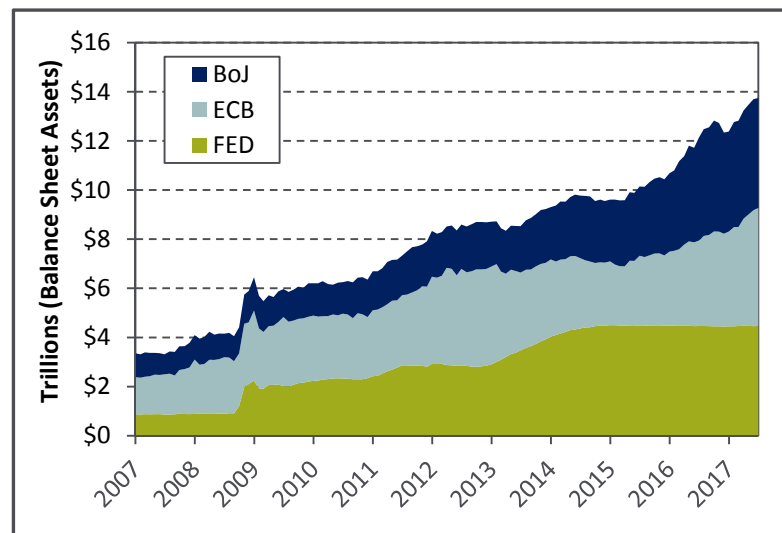
**ECB:** “A very substantial degree of monetary accommodation is still needed for underlying inflation pressures to gradually build...”

- ECB President Mario Draghi July 20<sup>th</sup>, 2017

**BoJ:** Though the monetary stimulus program remained unchanged in July, the 2% inflation target was postponed further – indicating ongoing stimulus measures will continue to be necessary



Source: Fed, NEPC



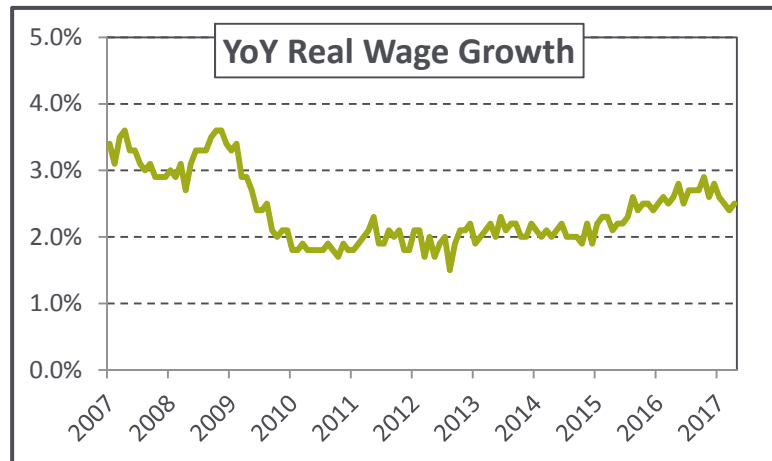
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

## The Fed's Challenge

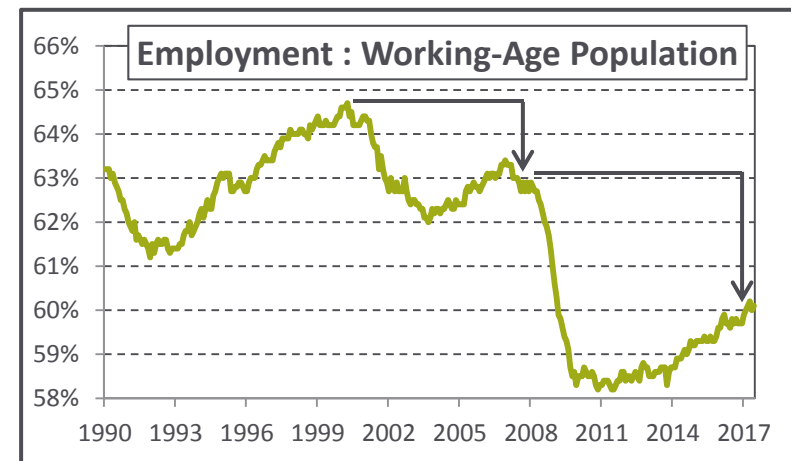
*“With further gradual adjustments in the stance of monetary policy, the economy will continue to expand at a moderate pace over the next couple of years, with the job market strengthening somewhat further and inflation rising to 2%”*

- Fed Chair Janet Yellen July 12<sup>th</sup>, 2017

- **The ongoing challenge for the Fed will be to balance continued strength in the labor market with lagging inflation**
  - Even with sustained improvements in unemployment, there has been significant difficulty reaching the 2% inflation target
- **Despite historically low unemployment, structural changes in demographics and the labor pool have introduced uncertainty regarding the remaining slack in the labor force**



Source: Bureau of Labor Statistics, Bloomberg



Source: Bureau of Labor Statistics  
Represents employed persons as a percentage of age 16+ population

China Transitions

**China is the global growth engine but faces fundamental transitions**

China's economic transition is pivoting from a production to a service and consumption based economy

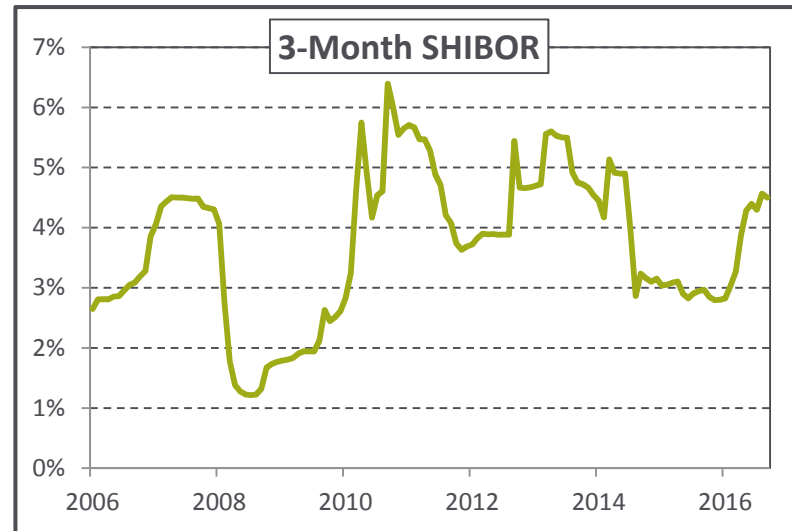
Fixed investment is required to sustain the production based economy and support labor force migration

Any disruption to these transitions will have global repercussions due to China's role in the global economy

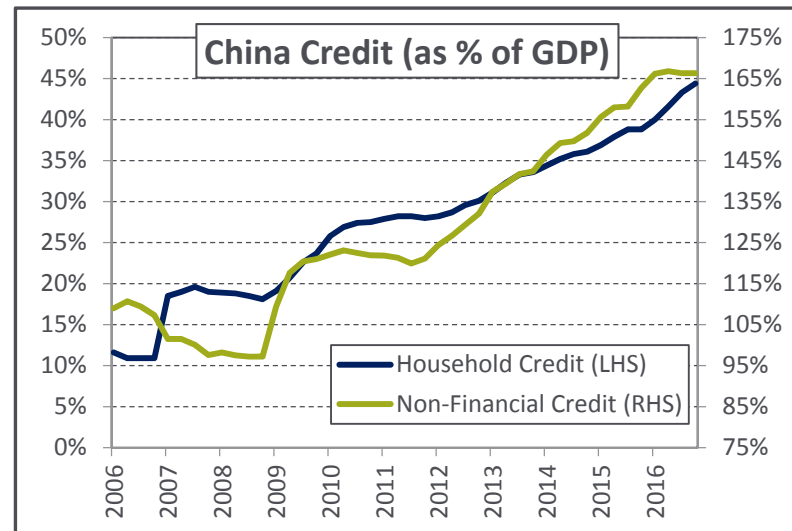
**China's government is negotiating a balance between deleveraging and near term economic growth**

Unrestrained growth in credit and real estate markets pose a systematic risk

Concerns of capital outflows have forced greater intervention from the central bank to limit currency movements



Source: China Foreign Exchange Trade System, Bloomberg



Source: Bank for International Settlements

# Highlights of Second Quarter Happenings at NEPC

June 30, 2017

## NEPC Insights

- 2017 First Quarter Market Thoughts (April 2017)
- The French Election – A Sigh of Relief (May 2017)
- An Insight into a Goals-Based Asset Allocation Framework (May 2017)
- The Essential Guide to Third-Party Valuations for Hedge Fund Investors (May 2017)
- Market Chatter: What's Next for Puerto Rico Bondholders? (June 2017)
- Are US Equities Falling out of Favor? (June 2017)

## Webinar Replays

- NEPC's 7th Annual Investment Manager Webinar (May 2017)

To download NEPC's recent insights and webinar replays, visit: [www.NEPC.com/insights](http://www.NEPC.com/insights)

## Conference Recap

- NEPC hosted its 22<sup>nd</sup> Annual Investment Conference in Boston in May. This year's agenda focused on the uncertainty and challenges facing investors today. Over 200 NEPC clients attended the panel discussions, keynote presentations and breakout sessions. Thank you to everyone who took time out of their schedules to make this conference our biggest and, according to our attendees, our best one yet! Check out some pictures from the event here: <http://info.nepc.com/nepc-22nd-annual-investment-conference>



## Recent Updates

- Chief Investment Officer's 6<sup>th</sup> annual list of the world's most influential investment consultants includes NEPC's Allan Martin, Partner on the Public Funds team.
- Healthcare Financial Management Association (HFMA) has awarded NEPC's Healthcare practice with the "Peer Reviewed by HFMA ®" designation.\*



## NEPC Gives Back

- NEPC's Stacey Flier, CFA, Private Wealth Senior Consultant, hosted an educational day to discuss the importance of education and preparing for future careers to a group of 7th grade girls that attend St. Andrew Nativity School, a college-prep middle school in Portland, OR, that provides education for low-income, primarily minority, students of all religious backgrounds.
- NEPC participated in the J.P. Morgan Corporate Challenge Series, a world-wide series of 3.5-mile running events open to groups from organizations within the business and public sectors in Boston. The Corporate Challenge is set up to be the world's greenest road race, and this year the race made a donation to the Boston Children's Hospital Trust.

\*HFMA staff and volunteers determined that this business solution has met specific criteria developed under the HFMA Peer Review Process. HFMA does not endorse or guarantee the use of this business solution.

# Total Fund Performance Summary

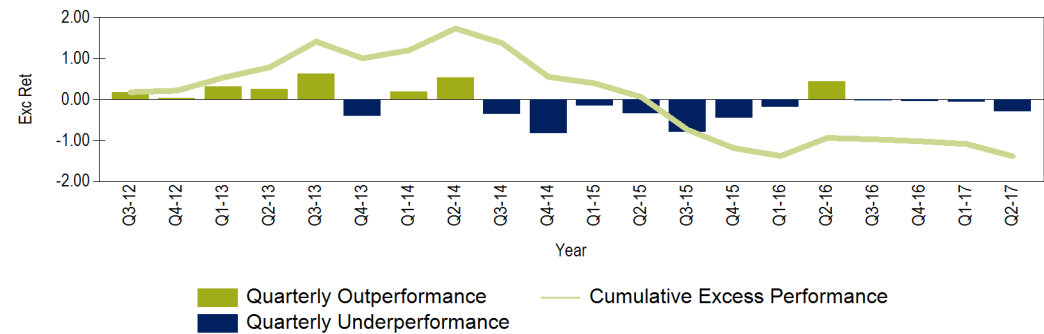
# Ventura County Employees' Retirement Association

## Total Fund Performance Summary (Net)

	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Return	Since
<b>Total Fund</b>	<b>\$4,935,381,791</b>	<b>2.7%</b>	<b>63</b>	<b>7.4%</b>	<b>52</b>	<b>12.6%</b>	<b>54</b>	<b>4.9%</b>	<b>53</b>	<b>9.2%</b>	<b>26</b>	<b>5.2%</b>	<b>36</b>	<b>8.0%</b>	<b>Apr-94</b>
Policy Index		3.1%	38	7.8%	33	13.1%	37	6.0%	8	9.5%	17	5.5%	18	8.1%	Apr-94
Allocation Index		2.9%	50	7.8%	33	13.5%	29	5.3%	33	8.9%	39	5.0%	45	--	Apr-94
60% MSCI ACWI (Net) / 40% CITI WGBI		3.7%	11	8.6%	14	9.1%	96	2.6%	94	6.3%	94	4.0%	83	--	Apr-94
InvestorForce Public DB > \$1B Net Median		2.9%		7.4%		12.7%		4.9%		8.6%		4.8%		7.4%	Apr-94

### Quarterly and Cumulative Excess Performance

- For the five year period ending June 30, 2017, the Fund returned 9.2% trailing the policy index by 0.3% and ranking in the 26th percentile of its peers and outperforming the actuarial assumed rate of 7.5%. The Fund's volatility, as measured by standard deviation, ranked in the 76th percentile of its peers, and the risk-adjusted return, or Sharpe Ratio, ranks in the 46th percentile. This means that the Fund has earned more return per unit of volatility taken than 54% of its peers.



- For the three-year period, the Fund returned 4.9%, trailing the policy index by 1.1% and ranking in the 53rd percentile of its peers. The Fund's volatility ranks in the 76th percentile of its peers over this period, with the Fund's Sharpe Ratio ranking in the 66th percentile.

- For the one-year period, the Fund returned 12.6%, underperforming the policy index by 0.5% and ranking in the 54th percentile of the InvestorForce Public Funds > \$1 Billion Universe (Net of fees).

- For the one-year period, the Fund experienced a net investment gain of \$566 million which includes a net investment gain of \$138 million in the quarter. Assets increased from \$4.37 billion one year ago to \$4.94 billion.

### 3 Years Ending June 30, 2017

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	4.9%	53	6.6%	76	0.7	66	1.2	45
Policy Index	6.0%	8	6.4%	70	0.9	28	1.4	21
InvestorForce Public DB > \$1B Net Median	4.9%	--	5.9%	--	0.8	--	1.1	--

### 5 Years Ending June 30, 2017

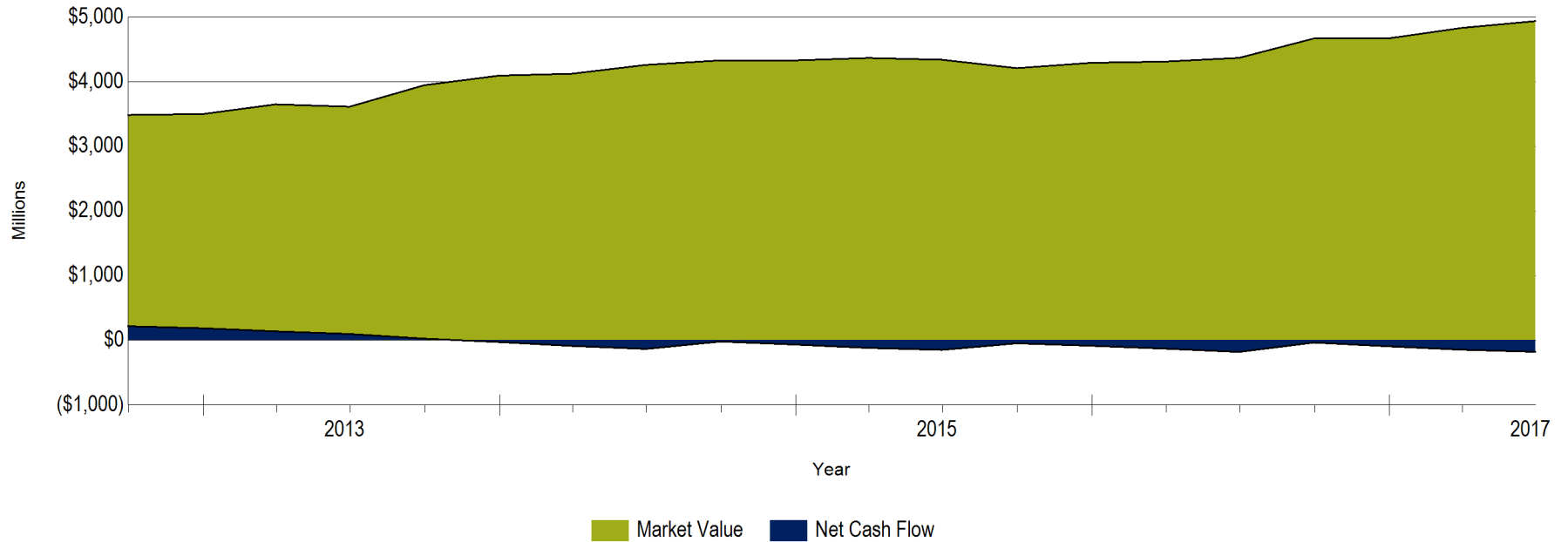
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	9.2%	26	6.2%	76	1.4	46	2.5	29
Policy Index	9.5%	17	6.1%	70	1.5	32	2.6	26
InvestorForce Public DB > \$1B Net Median	8.6%	--	5.7%	--	1.4	--	2.2	--

Policy Index as of January 2016: 28% Russell 3000, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% DJ U.S. Total Stock Market Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.



**Total Fund Asset Growth Summary**

**Market Value History**  
5 Years Ending June 30, 2017

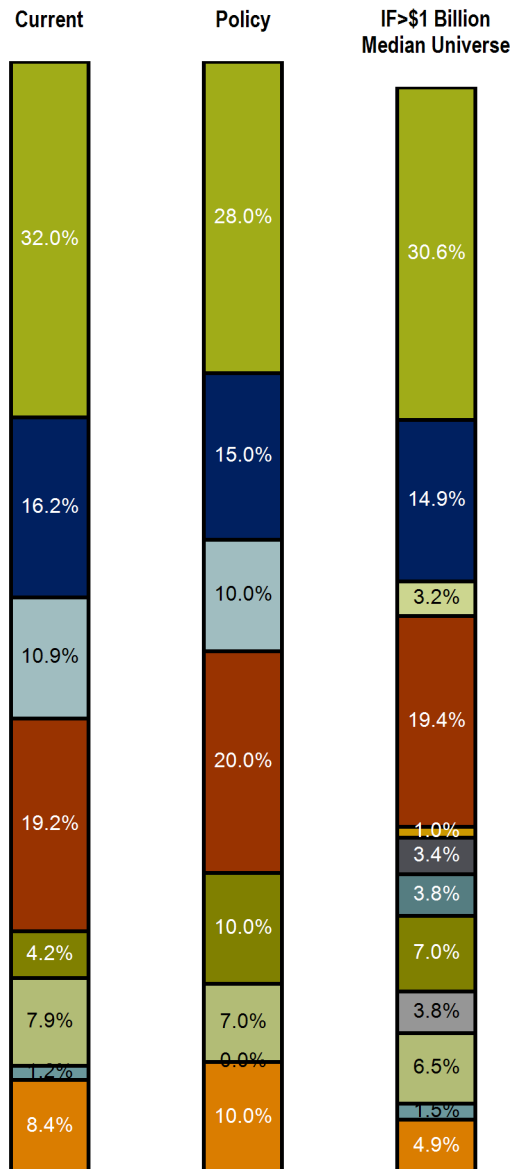


**Summary of Cash Flows**

	Last Three Months	One Year	Three Years	Five Years
Beginning Market Value	\$4,829,813,958	\$4,367,190,644	\$4,258,489,574	\$3,198,890,219
Net Cash Flow	-\$32,739,680	\$2,039,240	-\$44,419,509	-\$177,335,653
Net Investment Change	\$138,307,513	\$566,151,906	\$721,311,725	\$1,913,827,224
Ending Market Value	\$4,935,381,791	\$4,935,381,791	\$4,935,381,791	\$4,935,381,791

# Ventura County Employees' Retirement Association

## Total Fund Asset Allocation vs. Policy Targets



### Asset Allocation vs. Target

	Current	Current	Policy	Difference*	Policy Range	Within Range
U.S. Equity	\$1,579,052,368	32.0%	28.0%	4.0%	24.0% - 32.0%	Yes
Non-US Equity	\$798,384,810	16.2%	15.0%	1.2%	12.0% - 18.0%	Yes
Emerging Markets Equity	--	--	--	0.0%		--
Global Equity	\$537,900,281	10.9%	10.0%	0.9%	7.0% - 13.0%	Yes
U.S. Fixed Income	\$945,558,360	19.2%	20.0%	-0.8%	16.0% - 24.0%	Yes
Fixed Income - Emerging	--	--	--	0.0%		--
Fixed Income - Global	--	--	--	0.0%		--
Global Asset Allocation	--	--	--	0.0%		--
Private Equity	\$208,717,004	4.2%	10.0%	-5.8%	0.0% - 12.0%	Yes
Hedge Funds	--	--	--	0.0%		--
Real Estate	\$391,122,352	7.9%	7.0%	0.9%	4.0% - 10.0%	Yes
Cash	\$60,971,286	1.2%	0.0%	1.2%	0.0% - 3.0%	Yes
Liquid Alternatives	\$413,675,330	8.4%	10.0%	-1.6%	5.0% - 15.0%	Yes
<b>Total</b>	<b>\$4,935,381,791</b>	<b>100.0%</b>	<b>100.0%</b>			

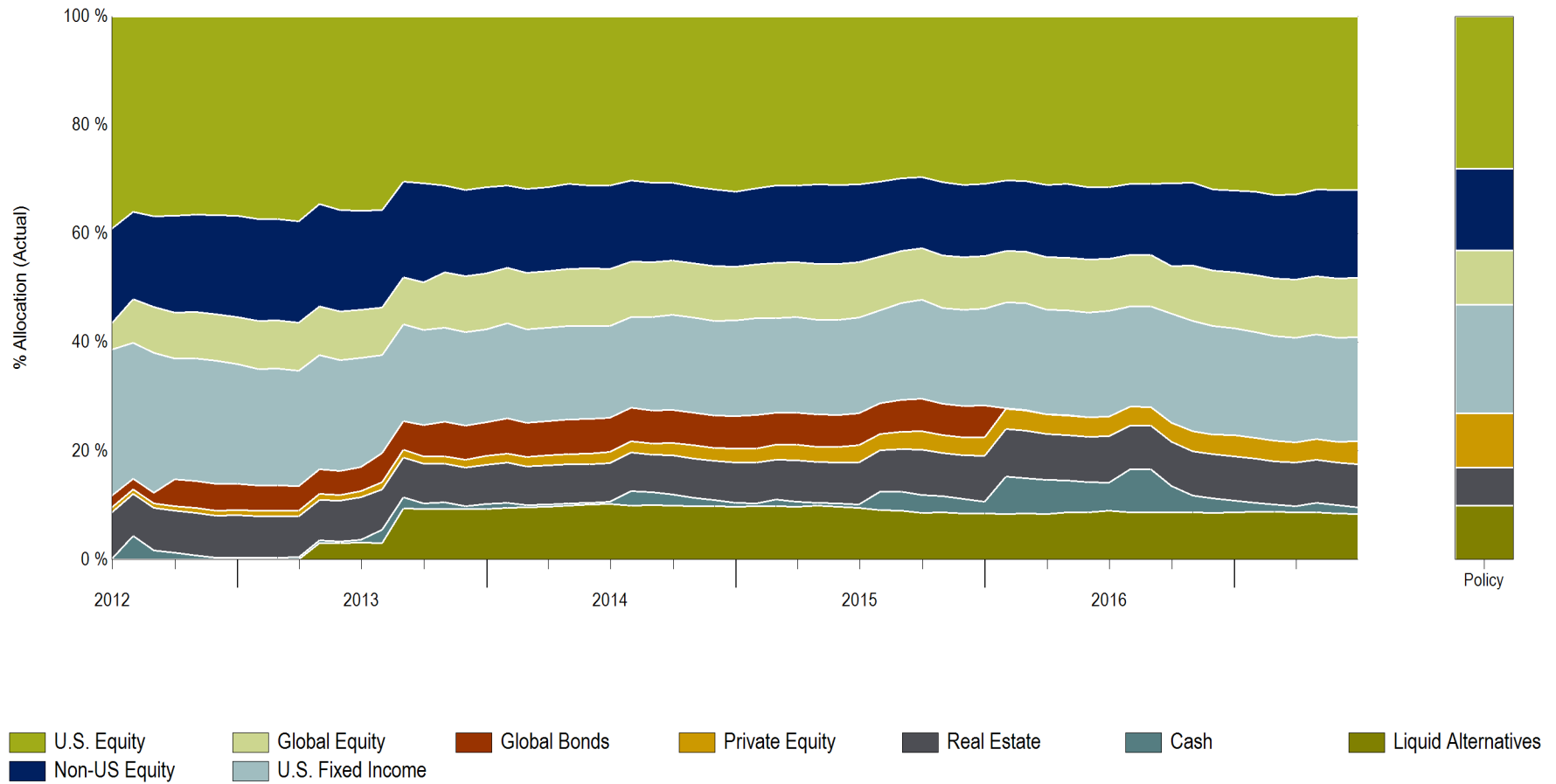
\*Difference between Policy and Current Allocation

Cash represents assets in Parametric Overlay.

Policy Index as of January 2016: 28% Russell 3000, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% DJ U.S. Total Stock Market Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.

**Total Fund Allocation History**

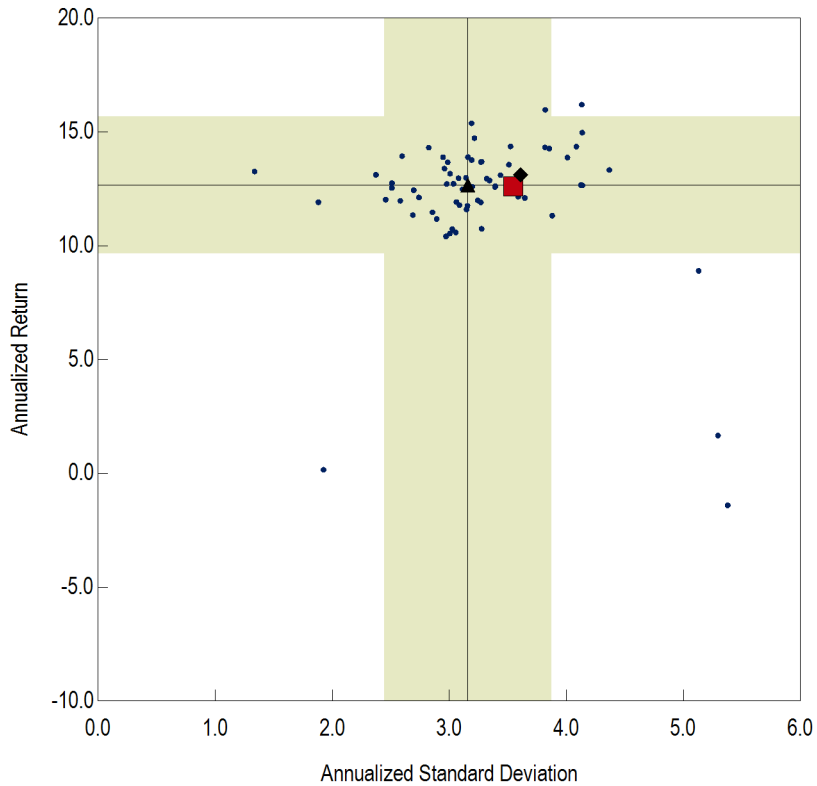
Asset Allocation History  
5 Years Ending June 30, 2017



Policy Index shown is most recently approved index

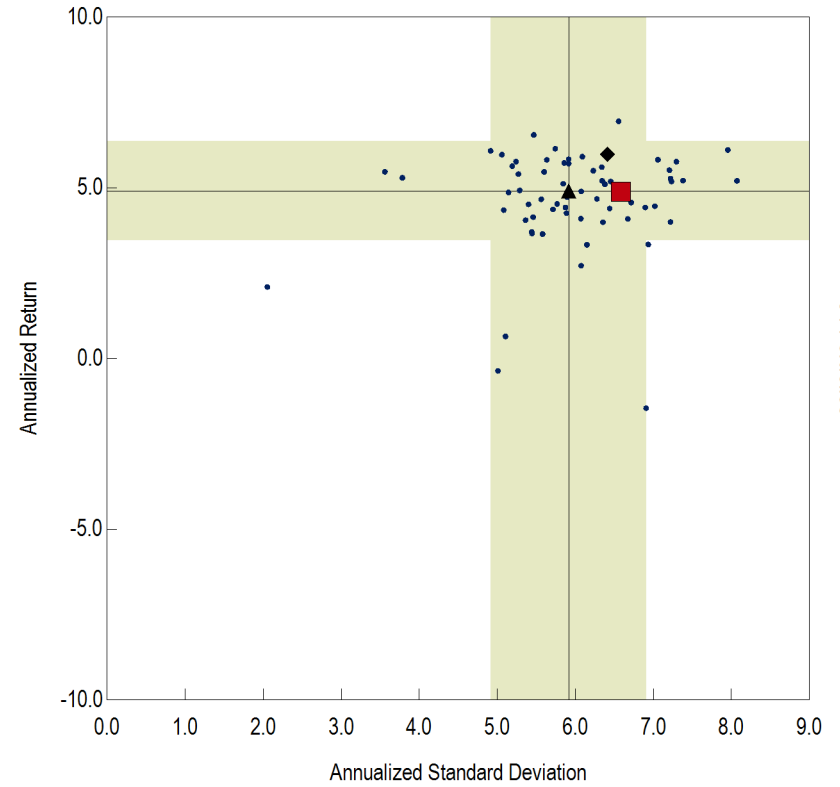
Total Fund Risk/Return

1 Years Ending June 30, 2017



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

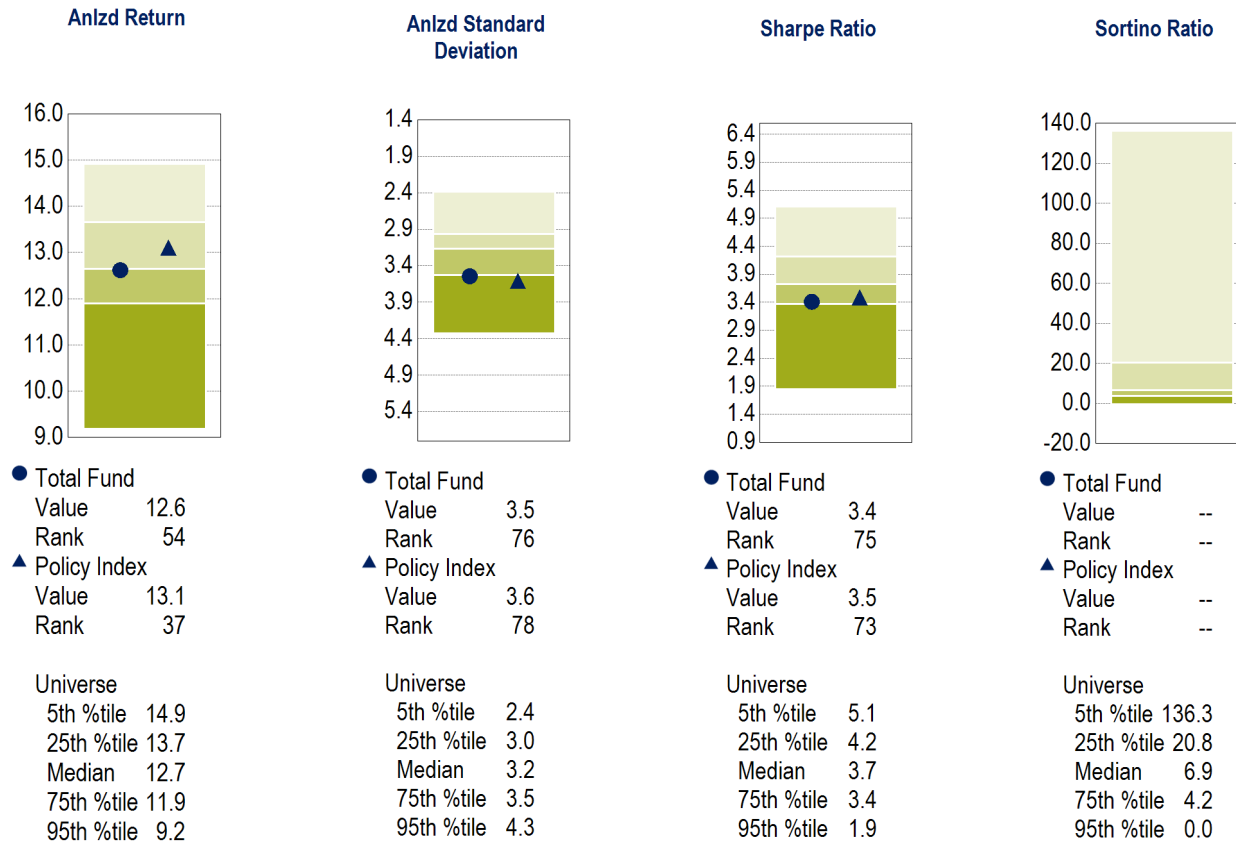
3 Years Ending June 30, 2017



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. InvestorForce Public DB > \$1B Net  
1 Year

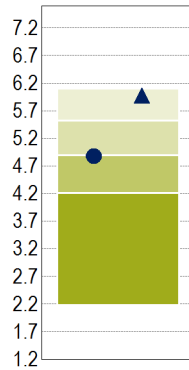


Sortino Ratio requires two months with negative returns in the time period.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. InvestorForce Public DB > \$1B Net  
3 Years

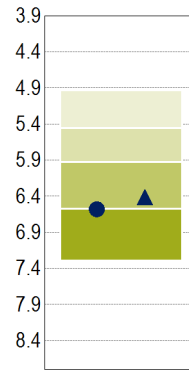
Anlzd Return



● Total Fund  
Value 4.9  
Rank 53  
▲ Policy Index  
Value 6.0  
Rank 8

Universe  
5th %tile 6.1  
25th %tile 5.5  
Median 4.9  
75th %tile 4.2  
95th %tile 2.2

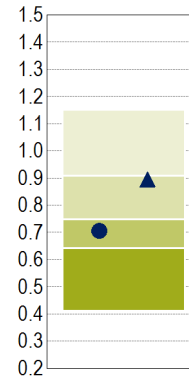
Anlzd Standard  
Deviation



● Total Fund  
Value 6.6  
Rank 76  
▲ Policy Index  
Value 6.4  
Rank 70

Universe  
5th %tile 4.9  
25th %tile 5.4  
Median 5.9  
75th %tile 6.6  
95th %tile 7.3

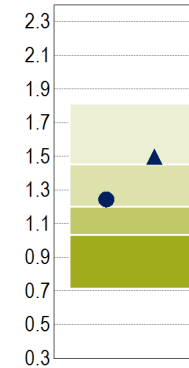
Sharpe Ratio



● Total Fund  
Value 0.7  
Rank 66  
▲ Policy Index  
Value 0.9  
Rank 28

Universe  
5th %tile 1.2  
25th %tile 0.9  
Median 0.8  
75th %tile 0.6  
95th %tile 0.4

Sortino Ratio

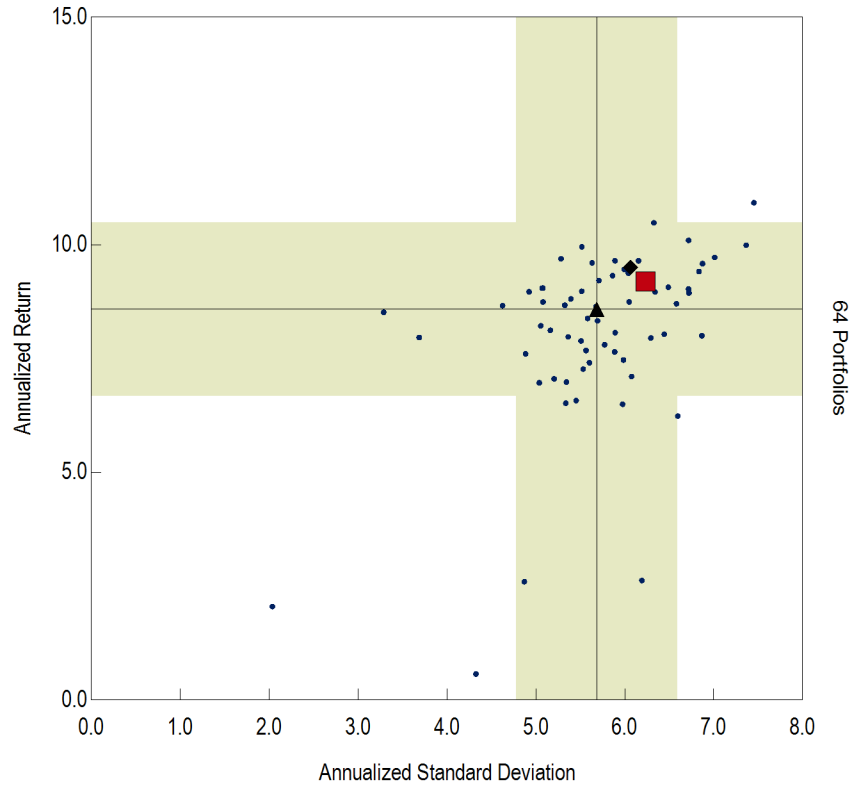


● Total Fund  
Value 1.2  
Rank 45  
▲ Policy Index  
Value 1.5  
Rank 21

Universe  
5th %tile 1.8  
25th %tile 1.5  
Median 1.2  
75th %tile 1.0  
95th %tile 0.7

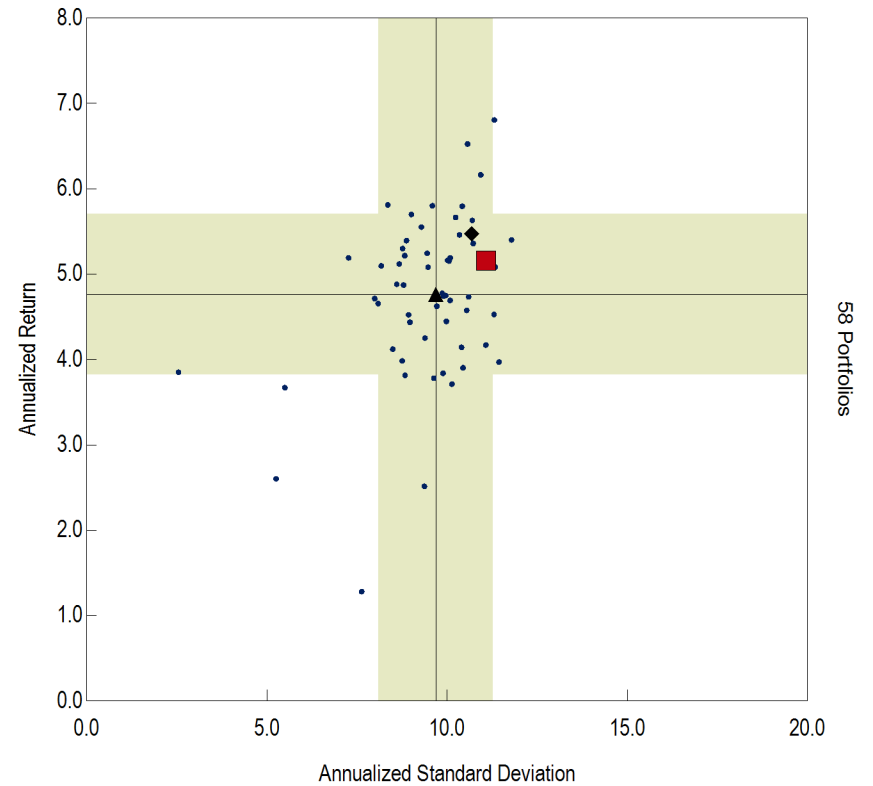
Total Fund Risk/Return

5 Years Ending June 30, 2017



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

10 Years Ending June 30, 2017

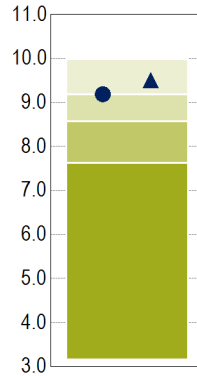


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

Total Fund Risk Statistics vs. Peer Universe

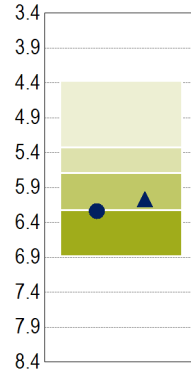
Total Fund vs. InvestorForce Public DB > \$1B Net  
5 Years

Anlzd Return



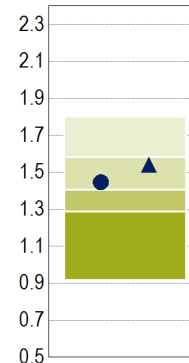
● Total Fund	
Value	9.2
Rank	26
▲ Policy Index	
Value	9.5
Rank	17
Universe	
5th %tile	10.0
25th %tile	9.2
Median	8.6
75th %tile	7.6
95th %tile	3.2

Anlzd Standard Deviation



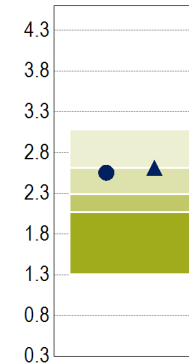
● Total Fund	
Value	6.2
Rank	76
▲ Policy Index	
Value	6.1
Rank	70
Universe	
5th %tile	4.4
25th %tile	5.3
Median	5.7
75th %tile	6.2
95th %tile	6.9

Sharpe Ratio



● Total Fund	
Value	1.4
Rank	46
▲ Policy Index	
Value	1.5
Rank	32
Universe	
5th %tile	1.8
25th %tile	1.6
Median	1.4
75th %tile	1.3
95th %tile	0.9

Sortino Ratio



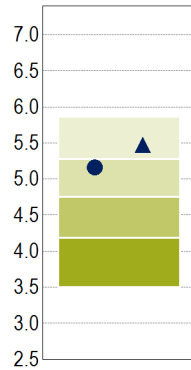
● Total Fund	
Value	2.6
Rank	29
▲ Policy Index	
Value	2.6
Rank	26
Universe	
5th %tile	3.1
25th %tile	2.6
Median	2.3
75th %tile	2.1
95th %tile	1.3



Total Fund Risk Statistics vs. Peer Universe

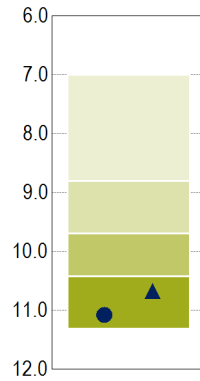
Total Fund vs. InvestorForce Public DB > \$1B Net  
10 Years

Anlzd Return



● Total Fund	
Value	5.2
Rank	36
▲ Policy Index	
Value	5.5
Rank	18
Universe	
5th %tile	5.9
25th %tile	5.3
Median	4.8
75th %tile	4.2
95th %tile	3.5

Anlzd Standard Deviation



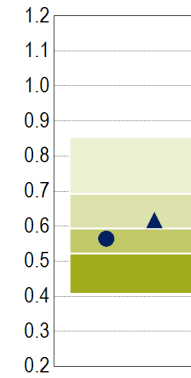
● Total Fund	
Value	11.1
Rank	92
▲ Policy Index	
Value	10.7
Rank	84
Universe	
5th %tile	7.0
25th %tile	8.8
Median	9.7
75th %tile	10.4
95th %tile	11.3

Sharpe Ratio



● Total Fund	
Value	0.4
Rank	66
▲ Policy Index	
Value	0.5
Rank	46
Universe	
5th %tile	0.6
25th %tile	0.5
Median	0.5
75th %tile	0.4
95th %tile	0.3

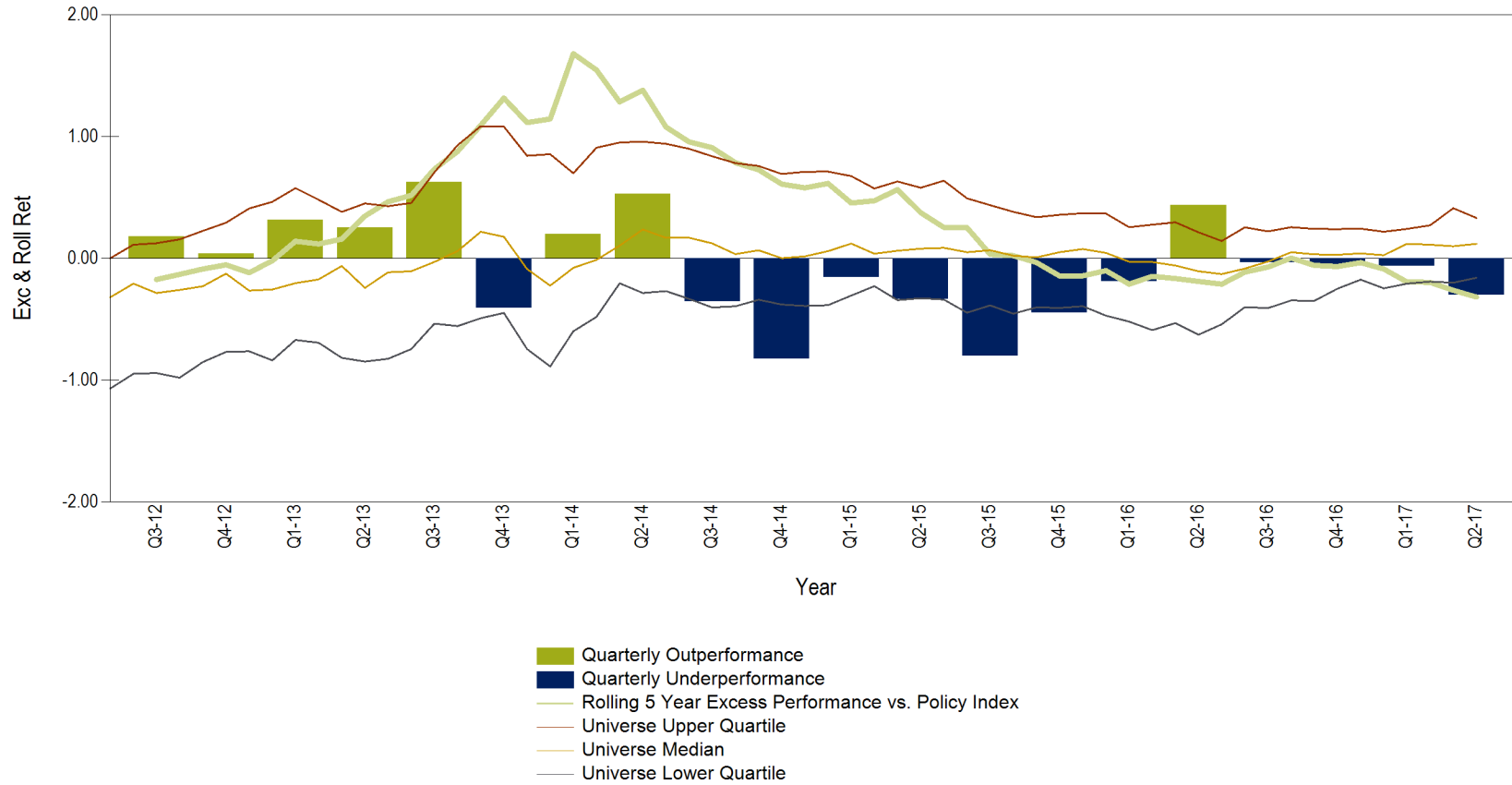
Sortino Ratio



● Total Fund	
Value	0.6
Rank	62
▲ Policy Index	
Value	0.6
Rank	41
Universe	
5th %tile	0.9
25th %tile	0.7
Median	0.6
75th %tile	0.5
95th %tile	0.4

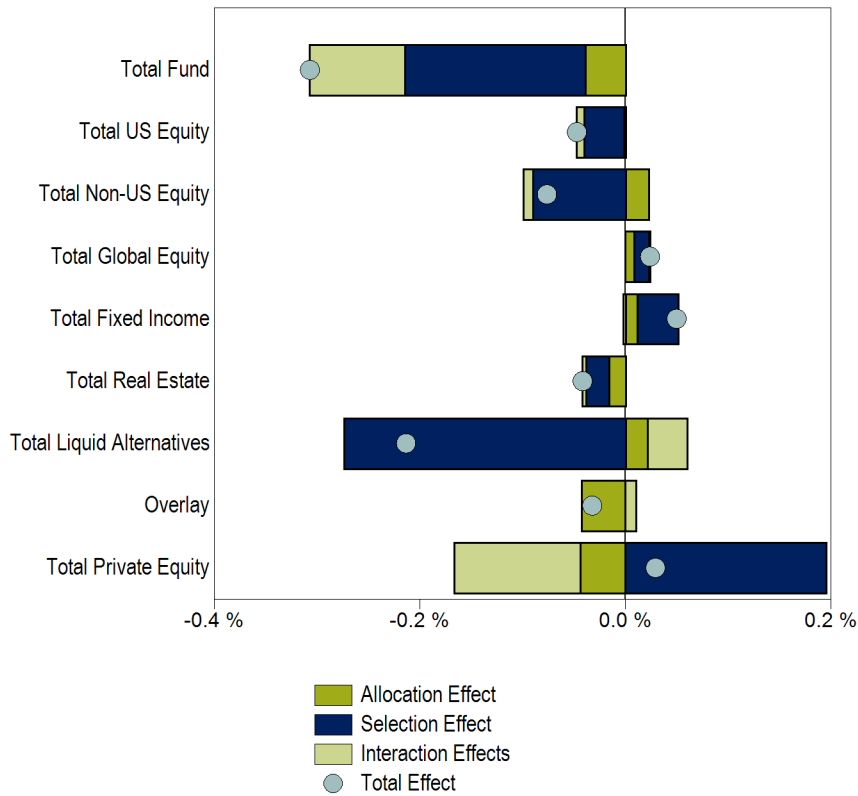
Rolling 5 Year Excess Returns- Net of Fees

Rolling Annualized Excess Performance



**Total Fund Attribution Analysis**

**Attribution Effects  
3 Months Ending June 30, 2017**

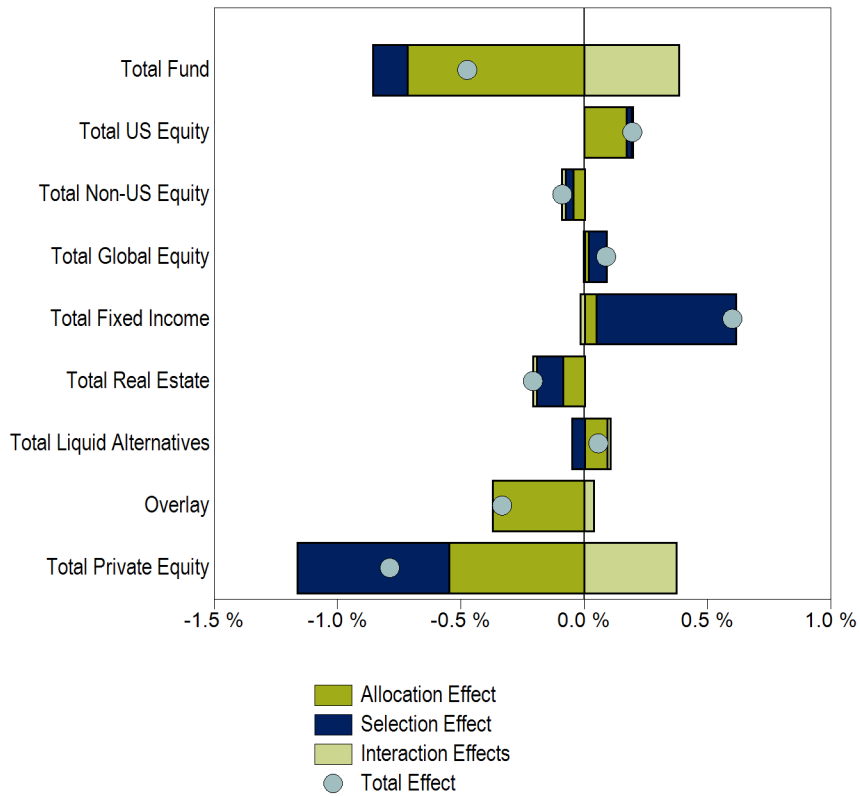


**Attribution Summary  
3 Months Ending June 30, 2017**

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total US Equity	2.9%	3.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total Non-US Equity	5.2%	5.8%	-0.6%	-0.1%	0.0%	0.0%	-0.1%
Total Global Equity	4.4%	4.3%	0.1%	0.0%	0.0%	0.0%	0.0%
Total Fixed Income	1.6%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	1.2%	1.5%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total Liquid Alternatives	-1.2%	1.5%	-2.7%	-0.3%	0.0%	0.0%	-0.2%
Overlay	0.9%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	5.7%	3.8%	1.9%	0.2%	0.0%	-0.1%	0.0%
<b>Total</b>	<b>2.7%</b>	<b>3.1%</b>	<b>-0.3%</b>	<b>-0.2%</b>	<b>0.0%</b>	<b>-0.1%</b>	<b>-0.3%</b>

**Total Fund Attribution Analysis**

**Attribution Effects**  
1 Year Ending June 30, 2017

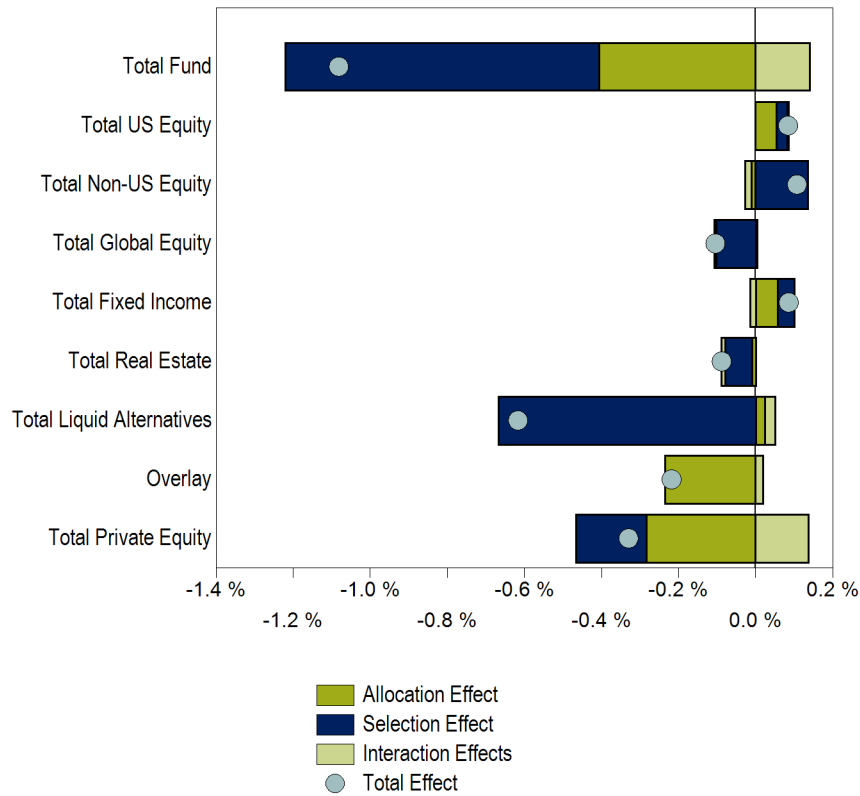


**Attribution Summary**  
1 Year Ending June 30, 2017

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total US Equity	18.6%	18.5%	0.1%	0.0%	0.2%	0.0%	0.2%
Total Non-US Equity	20.2%	20.5%	-0.2%	0.0%	0.0%	0.0%	-0.1%
Total Global Equity	19.5%	18.8%	0.7%	0.1%	0.0%	0.0%	0.1%
Total Fixed Income	2.2%	-0.3%	2.6%	0.6%	0.1%	0.0%	0.6%
Total Real Estate	5.5%	6.9%	-1.4%	-0.1%	-0.1%	0.0%	-0.2%
Total Liquid Alternatives	5.1%	5.7%	-0.6%	0.0%	0.1%	0.0%	0.1%
Overlay	2.7%	0.5%	2.2%	0.0%	-0.4%	0.0%	-0.3%
Total Private Equity	15.7%	22.0%	-6.3%	-0.6%	-0.5%	0.4%	-0.8%
<b>Total</b>	<b>12.6%</b>	<b>13.1%</b>	<b>-0.5%</b>	<b>-0.1%</b>	<b>-0.7%</b>	<b>0.4%</b>	<b>-0.5%</b>

**Total Fund Attribution Analysis**

**Attribution Effects  
3 Years Ending June 30, 2017**

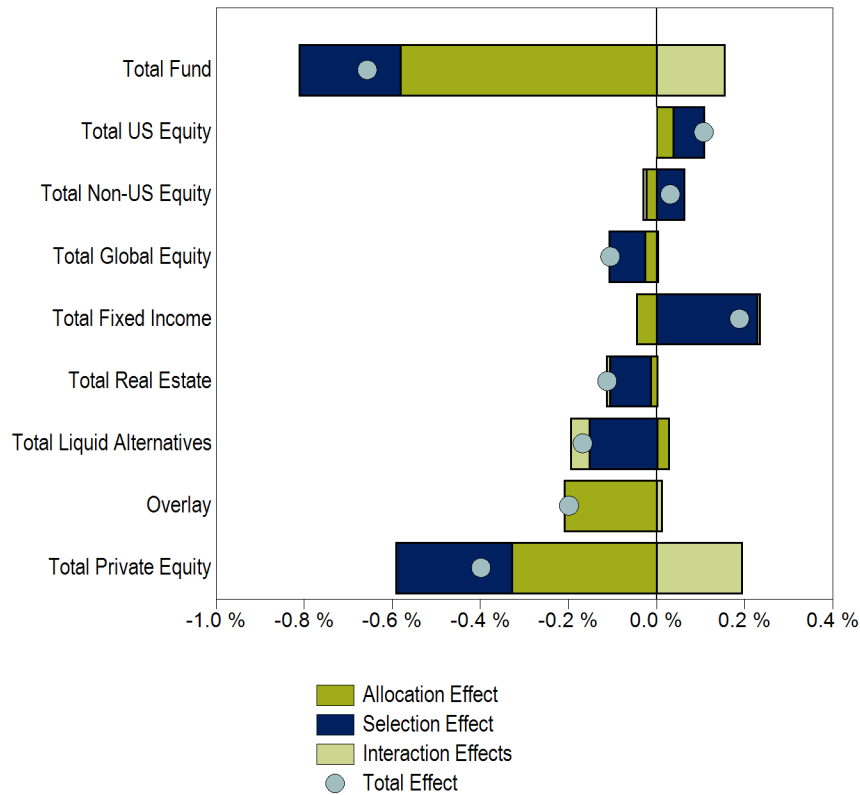


**Attribution Summary  
3 Years Ending June 30, 2017**

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total US Equity	9.1%	9.0%	0.1%	0.0%	0.1%	0.0%	0.1%
Total Non-US Equity	1.8%	0.8%	1.0%	0.1%	0.0%	0.0%	0.1%
Total Global Equity	3.8%	4.8%	-1.0%	-0.1%	0.0%	0.0%	-0.1%
Total Fixed Income	2.1%	1.8%	0.3%	0.0%	0.1%	0.0%	0.1%
Total Real Estate	9.3%	10.3%	-1.0%	-0.1%	0.0%	0.0%	-0.1%
Total Liquid Alternatives	-1.9%	4.9%	-6.8%	-0.7%	0.0%	0.0%	-0.6%
Overlay	1.0%	0.2%	0.8%	0.0%	-0.2%	0.0%	-0.2%
Total Private Equity	12.7%	12.3%	0.4%	-0.2%	-0.3%	0.1%	-0.3%
<b>Total</b>	<b>4.9%</b>	<b>6.0%</b>	<b>-1.1%</b>	<b>-0.8%</b>	<b>-0.4%</b>	<b>0.1%</b>	<b>-1.1%</b>

**Total Fund Attribution Analysis**

**Attribution Effects  
5 Years Ending June 30, 2017**



**Attribution Summary  
5 Years Ending June 30, 2017**

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total US Equity	14.7%	14.5%	0.2%	0.1%	0.0%	0.0%	0.1%
Total Non-US Equity	7.7%	7.2%	0.5%	0.1%	0.0%	0.0%	0.0%
Total Global Equity	9.7%	10.5%	-0.8%	-0.1%	0.0%	0.0%	-0.1%
Total Fixed Income	2.8%	1.8%	0.9%	0.2%	0.0%	0.0%	0.2%
Total Real Estate	9.5%	10.8%	-1.2%	-0.1%	0.0%	0.0%	-0.1%
Total Liquid Alternatives	--	5.2%	--	-0.2%	0.0%	0.0%	-0.2%
Overlay	--	0.1%	--	0.0%	-0.2%	0.0%	-0.2%
Total Private Equity	13.6%	17.9%	-4.3%	-0.3%	-0.3%	0.2%	-0.4%
<b>Total</b>	<b>8.9%</b>	<b>9.6%</b>	<b>-0.6%</b>	<b>-0.2%</b>	<b>-0.6%</b>	<b>0.2%</b>	<b>-0.7%</b>

# Ventura County Employees' Retirement Association

## Total Fund Risk Statistics

### 1 Year Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	59.1%	19.1%	39	5.4%	73	0.8%	37	1.5%	56	0.2	33	1.0
MSCI ACWI	--	18.8%	51	5.3%	69	0.0%	59	0.0%	1	--	--	1.0
Total US Equity	32.0%	18.6%	43	6.6%	50	-0.1%	29	0.4%	5	0.2	36	1.0
Russell 3000	--	18.5%	46	6.6%	44	0.0%	28	0.0%	1	--	--	1.0
Total Non-US Equity	16.2%	20.2%	48	7.2%	50	-0.1%	45	1.1%	7	-0.2	49	1.0
MSCI ACWI ex USA	--	20.5%	45	7.2%	49	0.0%	44	0.0%	1	--	--	1.0
Total Global Equity	10.9%	19.5%	65	5.1%	20	1.5%	57	0.4%	3	2.1	3	1.0
MSCI ACWI	--	18.8%	69	5.3%	25	0.0%	67	0.0%	1	--	--	1.0
Total Fixed Income	19.2%	2.2%	54	2.4%	45	2.4%	42	0.7%	47	3.8	19	0.8
Total Fixed Income Policy Index	--	-0.3%	88	3.0%	77	0.0%	82	0.0%	1	--	--	1.0
Total US Fixed Income	19.2%	2.2%	34	2.4%	55	2.4%	33	0.7%	60	3.8	23	0.8
BBgBarc US Aggregate TR	--	-0.3%	78	3.0%	88	0.0%	71	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.4%	5.1%	--	5.3%	--	-6.7%	--	5.1%	--	-0.1	--	2.2
CPI + 4% (Unadjusted)	--	5.7%	--	0.7%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.9%	5.5%	73	2.3%	39
NCREIF ODCE Net	--	6.9%	43	2.9%	61
Total Private Equity	4.2%	15.7%	18	5.3%	55
DJ U.S. Total Stock Market Index + 3%	--	22.0%	2	6.6%	78

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 95 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 183 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 132 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 40 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 94 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 116 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 72 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 48 portfolios).

# Ventura County Employees' Retirement Association

## Total Fund Risk Statistics

3 Years Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	59.1%	6.2%	44	10.5%	59	1.6%	10	1.4%	37	1.0	1	1.0
MSCI ACWI	--	4.8%	79	10.8%	85	0.0%	62	0.0%	1	--	--	1.0
Total US Equity	32.0%	9.1%	21	10.7%	51	0.1%	22	0.2%	1	0.5	8	1.0
Russell 3000	--	9.0%	29	10.6%	47	0.0%	24	0.0%	1	--	--	1.0
Total Non-US Equity	16.2%	1.8%	49	11.8%	42	1.0%	46	1.3%	5	0.8	14	0.9
MSCI ACWI ex USA	--	0.8%	78	12.4%	82	0.0%	70	0.0%	1	--	--	1.0
Total Global Equity	10.9%	3.8%	76	11.0%	71	-1.1%	99	1.2%	4	-0.9	99	1.0
MSCI ACWI	--	4.8%	73	10.8%	59	0.0%	97	0.0%	1	--	--	1.0
Total Fixed Income	19.2%	2.1%	64	2.5%	37	0.9%	25	1.9%	65	0.2	40	0.7
Total Fixed Income Policy Index	--	1.8%	80	2.8%	52	0.0%	67	0.0%	1	--	--	1.0
Total US Fixed Income	19.2%	2.7%	44	2.4%	45	1.1%	19	2.1%	84	0.1	52	0.6
BBgBarc US Aggregate TR	--	2.5%	51	2.9%	67	0.0%	71	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.4%	-1.9%	--	9.8%	--	-13.2%	--	9.6%	--	-0.7	--	2.4
CPI + 4% (Unadjusted)	--	4.9%	--	1.1%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.9%	9.3%	69	4.1%	40
NCREIF ODCE Net	--	10.3%	54	4.4%	47
Total Private Equity	4.2%	12.7%	18	6.3%	79
DJ U.S. Total Stock Market Index + 3%	--	12.3%	28	10.6%	98

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 84 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 169 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 124 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 34 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 85 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 111 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 68 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 47 portfolios).



# Ventura County Employees' Retirement Association

## Total Fund Risk Statistics

### 5 Years Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	59.1%	11.9%	44	9.7%	48	1.8%	6	1.3%	34	1.0	2	1.0
MSCI ACWI	--	10.5%	83	10.0%	77	0.0%	71	0.0%	1	--	--	1.0
Total US Equity	32.0%	14.7%	9	9.9%	39	0.2%	16	0.3%	1	0.8	2	1.0
Russell 3000	--	14.5%	31	9.8%	35	0.0%	22	0.0%	1	--	--	1.0
Total Non-US Equity	16.2%	7.7%	56	10.9%	24	0.9%	39	1.2%	7	0.4	31	0.9
MSCI ACWI ex USA	--	7.2%	70	11.6%	77	0.0%	73	0.0%	1	--	--	1.0
Total Global Equity	10.9%	9.7%	67	10.1%	55	-0.8%	90	1.1%	5	-0.8	99	1.0
MSCI ACWI	--	10.5%	64	10.0%	48	0.0%	85	0.0%	1	--	--	1.0
Total Fixed Income	19.2%	2.8%	47	2.6%	25	1.4%	25	1.7%	59	0.6	34	0.7
Total Fixed Income Policy Index	--	1.8%	86	2.8%	44	0.0%	82	0.0%	1	--	--	1.0
Total US Fixed Income	19.2%	3.1%	32	2.5%	46	1.5%	20	1.8%	82	0.5	46	0.7
BBgBarc US Aggregate TR	--	2.2%	55	2.9%	63	0.0%	75	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.4%	--	--	--	--	--	--	--	--	--	--	--
CPI + 4% (Unadjusted)	--	10.3%	--	6.7%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.9%	9.5%	76	4.0%	37
NCREIF ODCE Net	--	10.8%	51	4.5%	50
Total Private Equity	4.2%	13.6%	28	6.5%	75
DJ U.S. Total Stock Market Index + 3%	--	17.9%	2	9.8%	92

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 66 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 137 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 104 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 22 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 72 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 93 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 62 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 44 portfolios).

# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Fund</b>	<b>4,935,381,791</b>	<b>100.0</b>	<b>100.0</b>	<b>2.7</b>	<b>63</b>	<b>7.4</b>	<b>52</b>	<b>12.6</b>	<b>54</b>	<b>4.9</b>	<b>53</b>	<b>9.2</b>	<b>26</b>	<b>5.2</b>	<b>36</b>	<b>8.0</b>	<b>Apr-94</b>
Policy Index				3.1	38	7.8	33	13.1	37	6.0	8	9.5	17	5.5	18	8.1	Apr-94
Over/Under				-0.4		-0.4		-0.5		-1.1		-0.3		-0.3		-0.1	
Allocation Index				2.9	50	7.8	33	13.5	29	5.3	33	8.9	39	5.0	45	--	Apr-94
60% MSCI ACWI (Net) / 40% CITI WGBI				3.7	11	8.6	14	9.1	96	2.6	94	6.3	94	4.0	83	--	Apr-94
InvestorForce Public DB > \$1B Net Median				2.9		7.4		12.7		4.9		8.6		4.8		7.4	Apr-94
<b>Total Fund ex Parametric</b>	<b>4,869,942,501</b>	<b>98.7</b>	<b>--</b>	<b>2.7</b>	<b>--</b>	<b>7.2</b>	<b>--</b>	<b>11.9</b>	<b>--</b>	<b>4.8</b>	<b>--</b>	<b>9.0</b>	<b>--</b>	<b>5.0</b>	<b>--</b>	<b>8.0</b>	<b>Apr-94</b>
<b>Total Fund ex Private Equity</b>	<b>4,726,664,787</b>	<b>95.8</b>	<b>--</b>	<b>2.6</b>	<b>71</b>	<b>7.4</b>	<b>55</b>	<b>12.5</b>	<b>60</b>	<b>4.7</b>	<b>59</b>	<b>8.6</b>	<b>50</b>	<b>--</b>	<b>--</b>	<b>9.0</b>	<b>Jan-12</b>
Policy Index				3.1	38	7.8	33	13.1	37	6.0	8	9.5	17	5.5	18	9.7	Jan-12
Over/Under				-0.5		-0.4		-0.6		-1.3		-0.9				-0.7	
InvestorForce Public DB > \$1B Net Median				2.9		7.4		12.7		4.9		8.6		4.8		8.8	Jan-12
<b>Total US Equity</b>	<b>1,579,052,368</b>	<b>32.0</b>	<b>28.0</b>	<b>2.9</b>	<b>46</b>	<b>8.8</b>	<b>32</b>	<b>18.6</b>	<b>43</b>	<b>9.1</b>	<b>21</b>	<b>14.7</b>	<b>9</b>	<b>7.0</b>	<b>46</b>	<b>9.1</b>	<b>Dec-93</b>
Russell 3000				3.0	31	8.9	29	18.5	46	9.0	29	14.5	31	7.3	21	9.4	Dec-93
Over/Under				-0.1		-0.1		0.1		0.1		0.2		-0.3		-0.3	
InvestorForce Public DB US Eq Net Median				2.9		8.4		18.3		8.6		14.1		6.9		9.1	Dec-93
Western U.S. Index Plus	175,117,296	3.5		2.7	53	8.8	40	18.1	59	9.9	17	15.5	19	5.2	89	5.0	May-07
S&P 500				3.1	44	9.3	36	17.9	60	9.6	20	14.6	33	7.2	49	6.9	May-07
Over/Under				-0.4		-0.5		0.2		0.3		0.9		-2.0		-1.9	
eA All US Equity Net Median				2.8		7.6		19.1		7.6		13.8		7.1		6.9	May-07
Blackrock Russell 1000 Index	1,348,309,874	27.3		--	--	--	--	--	--	--	--	--	--	--	--	2.0	May-17
Russell 1000				3.1	48	9.3	45	18.0	49	9.3	27	14.7	27	7.3	43	2.0	May-17
Over/Under																0.0	
eA US Large Cap Equity Net Median				3.0		8.7		17.8		7.8		13.7		7.0		2.0	May-17
Blackrock Russell 2500 Index	55,596,159	1.1		--	--	--	--	--	--	--	--	--	--	--	--	1.3	May-17
Russell 2500				2.1	56	6.0	55	19.8	48	6.9	45	14.0	38	7.4	51	1.4	May-17
Over/Under																-0.1	
eA US Small-Mid Cap Equity Net Median				2.5		6.6		19.7		6.6		13.4		7.4		1.5	May-17

Color Coding: PERFORMANCE: Green-Over performance, Red-Under performance / Color Coding: RANKS: 1 - 25 Green - Positive Result, 26 - 50 Yellow, 50 - 75 Orange, 76 - 100 Red - Negative Result.

Policy Index: Currently, 28% Russell 3000 Index, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% DJ U.S. Total Stock Market Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Non-US Equity</b>	<b>798,384,810</b>	<b>16.2</b>	<b>15.0</b>	<b>5.2</b>	<b>86</b>	<b>13.3</b>	<b>91</b>	<b>20.2</b>	<b>48</b>	<b>1.8</b>	<b>49</b>	<b>7.7</b>	<b>56</b>	<b>1.5</b>	<b>47</b>	<b>6.5</b>	<b>Mar-94</b>
MSCI ACWI ex USA				5.8	71	14.1	82	20.5	45	0.8	78	7.2	70	1.1	59	5.2	Mar-94
Over/Under				-0.6		-0.8		-0.3		1.0		0.5		0.4		1.3	
MSCI EAFE				6.1	55	13.8	86	20.3	47	1.1	70	8.7	32	1.0	62	4.9	Mar-94
MSCI ACWI ex USA Local Currency				3.3	99	8.7	99	21.3	33	6.5	1	11.0	2	2.4	23	--	Mar-94
MSCI EAFE Local Currency				2.7	99	7.5	99	22.1	26	7.0	1	12.5	1	2.0	35	4.9	Mar-94
InvestorForce Public DB ex-US Eq Net Median				6.3		15.5		20.1		1.7		7.9		1.3		5.6	Mar-94
<b>BlackRock ACWI ex-U.S. Index</b>	<b>391,107,141</b>	<b>7.9</b>		<b>6.0</b>	<b>77</b>	<b>14.5</b>	<b>69</b>	<b>20.7</b>	<b>45</b>	<b>1.3</b>	<b>65</b>	<b>7.8</b>	<b>80</b>	<b>1.6</b>	<b>65</b>	<b>2.4</b>	<b>Mar-07</b>
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	0.8	74	7.2	82	1.1	75	1.9	Mar-07
Over/Under				0.2		0.4		0.2		0.5		0.6		0.5		0.5	
MSCI ACWI ex USA Local Currency				3.3	99	8.7	99	21.3	36	6.5	11	11.0	17	2.4	53	3.0	Mar-07
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		2.4		9.2		2.5		3.2	Mar-07
<b>Sprucegrove</b>	<b>205,846,500</b>	<b>4.2</b>		<b>2.8</b>	<b>99</b>	<b>11.2</b>	<b>97</b>	<b>24.1</b>	<b>25</b>	<b>1.1</b>	<b>72</b>	<b>7.5</b>	<b>81</b>	<b>2.0</b>	<b>59</b>	<b>7.5</b>	<b>Mar-02</b>
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	0.8	74	7.2	82	1.1	75	6.6	Mar-02
Over/Under				-3.0		-2.9		3.6		0.3		0.3		0.9		0.9	
MSCI EAFE				6.1	72	13.8	80	20.3	46	1.1	71	8.7	68	1.0	80	6.1	Mar-02
MSCI ACWI ex USA Local Currency				3.3	99	8.7	99	21.3	36	6.5	11	11.0	17	2.4	53	5.3	Mar-02
MSCI EAFE Local Currency				2.7	99	7.5	99	22.1	34	7.0	10	12.5	8	2.0	59	4.6	Mar-02
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		2.4		9.2		2.5		7.2	Mar-02
<b>Hexavest</b>	<b>89,006,040</b>	<b>1.8</b>		<b>4.8</b>	<b>82</b>	<b>11.1</b>	<b>92</b>	<b>14.8</b>	<b>81</b>	<b>1.6</b>	<b>68</b>	<b>7.5</b>	<b>94</b>	<b>--</b>	<b>--</b>	<b>4.6</b>	<b>Dec-10</b>
MSCI EAFE				6.1	62	13.8	54	20.3	35	1.1	74	8.7	62	1.0	74	5.0	Dec-10
Over/Under				-1.3		-2.7		-5.5		0.5		-1.2				-0.4	
MSCI EAFE Local Currency				2.7	99	7.5	99	22.1	20	7.0	3	12.5	10	2.0	45	8.0	Dec-10
eA EAFE All Cap Equity Net Median				6.4		14.1		18.9		2.4		9.3		1.5		6.0	Dec-10
<b>Walter Scott</b>	<b>112,425,129</b>	<b>2.3</b>		<b>7.1</b>	<b>44</b>	<b>15.2</b>	<b>58</b>	<b>16.3</b>	<b>79</b>	<b>4.3</b>	<b>28</b>	<b>7.7</b>	<b>80</b>	<b>--</b>	<b>--</b>	<b>5.6</b>	<b>Dec-10</b>
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	0.8	74	7.2	82	1.1	75	3.6	Dec-10
Over/Under				1.3		1.1		-4.2		3.5		0.5				2.0	
MSCI ACWI ex USA Local Currency				3.3	99	8.7	99	21.3	36	6.5	11	11.0	17	2.4	53	6.9	Dec-10
MSCI EAFE				6.1	72	13.8	80	20.3	46	1.1	71	8.7	68	1.0	80	5.0	Dec-10
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		2.4		9.2		2.5		5.7	Dec-10

# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Global Equity</b>	<b>537,900,281</b>	<b>10.9</b>	<b>10.0</b>	<b>4.4</b>	<b>84</b>	<b>11.7</b>	<b>82</b>	<b>19.5</b>	<b>65</b>	<b>3.8</b>	<b>76</b>	<b>9.7</b>	<b>67</b>	<b>3.1</b>	<b>29</b>	<b>5.7</b>	<b>May-05</b>
MSCI ACWI				4.3	85	11.5	85	18.8	69	4.8	73	10.5	64	3.7	23	6.7	May-05
Over/Under				0.1		0.2		0.7		-1.0		-0.8		-0.6		-1.0	
InvestorForce Public DB Gbl Eq Net Median				5.5		14.2		21.1		6.2		12.0		1.5		6.1	May-05
<b>BlackRock MSCI ACWI Equity Index</b>	<b>537,900,281</b>	<b>10.9</b>		<b>4.4</b>	<b>58</b>	<b>11.7</b>	<b>45</b>	<b>19.3</b>	<b>40</b>	<b>5.3</b>	<b>46</b>	<b>11.0</b>	<b>51</b>	--	--	<b>10.8</b>	<b>Aug-12</b>
MSCI ACWI				4.3	60	11.5	48	18.8	44	4.8	55	10.5	60	3.7	62	10.4	Aug-12
Over/Under				0.1		0.2		0.5		0.5		0.5				0.4	
eA All Global Equity Net Median				4.8		11.2		17.6		5.0		11.0		4.1		10.9	Aug-12



# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Private Equity</b>	<b>208,717,004</b>	<b>4.2</b>	<b>10.0</b>	<b>5.7</b>	<b>18</b>	<b>8.0</b>	<b>28</b>	<b>15.7</b>	<b>18</b>	<b>12.7</b>	<b>18</b>	<b>13.6</b>	<b>28</b>	--	--	<b>14.1</b>	<b>Jan-12</b>
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>3.8</u>	36	<u>10.6</u>	4	<u>22.0</u>	2	<u>12.3</u>	28	<u>17.9</u>	2	--	--	<u>18.4</u>	<i>Jan-12</i>
Over/Under				1.9		-2.6		-6.3		0.4		-4.3				-4.3	
<i>InvestorForce Public DB Private Eq Net Median</i>				2.6		5.8		11.7		9.7		11.8		8.1		11.7	<i>Jan-12</i>
<b>Adams Street Global Fund Series</b>	<b>120,268,756</b>	<b>2.4</b>		<b>3.6</b>	--	<b>5.4</b>	--	<b>12.2</b>	--	<b>10.0</b>	--	<b>11.7</b>	--	--	--	<b>12.5</b>	<b>Jan-12</b>
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>3.8</u>	--	<u>10.6</u>	--	<u>22.0</u>	--	<u>12.3</u>	--	<u>17.9</u>	--	--	--	<u>18.4</u>	<i>Jan-12</i>
Over/Under				-0.2		-5.2		-9.8		-2.3		-6.2				-5.9	
<b>Harbourvest</b>	<b>62,329,635</b>	<b>1.3</b>		<b>7.5</b>	--	<b>12.2</b>	--	<b>18.6</b>	--	<b>19.3</b>	--	--	--	--	--	<b>19.1</b>	<b>Aug-13</b>
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>3.8</u>	--	<u>10.6</u>	--	<u>22.0</u>	--	<u>12.3</u>	--	<u>17.9</u>	--	--	--	<u>14.9</u>	<i>Aug-13</i>
Over/Under				3.7		1.6		-3.4		7.0						4.2	
<b>Pantheon Global Secondary Funds</b>	<b>25,442,660</b>	<b>0.5</b>		<b>13.8</b>	--	<b>13.8</b>	--	<b>33.8</b>	--	<b>13.0</b>	--	<b>12.6</b>	--	--	--	<b>12.3</b>	<b>Jan-12</b>
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>3.8</u>	--	<u>10.6</u>	--	<u>22.0</u>	--	<u>12.3</u>	--	<u>17.9</u>	--	--	--	<u>18.4</u>	<i>Jan-12</i>
Over/Under				10.0		3.2		11.8		0.7		-5.3				-6.1	
<b>Drive Capital Fund</b>	<b>675,953</b>	<b>0.0</b>		<b>-12.1</b>	--	<b>-28.5</b>	--	--	--	--	--	--	--	--	--	<b>-49.5</b>	<b>Sep-16</b>
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>3.8</u>	--	<u>10.6</u>	--	<u>22.0</u>	--	<u>12.3</u>	--	<u>17.9</u>	--	--	--	<u>16.5</u>	<i>Sep-16</i>
Over/Under				-15.9		-39.1										-66.0	

Private equity performance shown above is calculated using a time-weighted return methodology. Market values shown are cash-adjusted based on the current period's cash flows.

Adams Street Global Fund Series includes Adams Street 2010 U.S. Fund, 2010 Non-U.S. Developed Markets Fund, 2010 Non-U.S. Emerging Markets Fund, 2010 Direct Fund, 2013 Global Fund, and 2016 Global Fund.

Harbourvest includes Harbourvest Dover Street VIII, Dover Street IX, and Co-Invest IV.

Pantheon Global Secondary Funds includes Pantheon Global Secondary Fund IV and Global Secondary Fund V.

# Ventura County Employees' Retirement Association

## Private Equity Limited Partnership Performance

Fund Name	Vintage Year	Initial Investment Date	Capital Commitment	Capital Called to Date <sup>1</sup>	Outstanding Commitment <sup>1</sup>	Call Ratio	Add'l Fees <sup>2</sup>	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions to Paid In Multiple (DPI)	Total Value to Paid In Multiple (TVPI)
Adams Street 2010 U.S. Fund	2010	5/21/2010	\$42,500,000	\$34,807,500	\$7,692,500	82%	\$15,213	\$16,630,927	\$35,175,369	\$51,806,296	\$16,983,583	13.5%	0.48x	1.49x
Adams Street 2010 Non-U.S. Dev. Mkts Fund	2010	5/21/2010	\$25,500,000	\$20,591,249	\$4,908,751	81%	\$1,589	\$8,748,084	\$17,044,859	\$25,792,943	\$5,200,105	8.1%	0.42x	1.25x
Adams Street 2010 Non-U.S. Emg Mkts Fund	2010	1/3/2011	\$8,500,000	\$6,621,500	\$1,878,500	78%	\$0	\$738,789	\$8,099,114	\$8,837,903	\$2,216,403	9.0%	0.11x	1.33x
Adams Street 2010 Direct Fund	2010	5/21/2010	\$8,500,000	\$7,975,550	\$524,450	94%	\$6,697	\$6,754,155	\$5,810,548	\$12,564,703	\$3,753,851	12.1%	0.85x	1.57x
<b>Total Adams Street 2010</b>	<b>2010</b>	<b>5/21/2010</b>	<b>\$85,000,000</b>	<b>\$69,995,799</b>	<b>\$15,004,201</b>	<b>82%</b>	<b>\$23,499</b>	<b>\$32,871,955</b>	<b>\$66,129,890</b>	<b>\$99,001,845</b>	<b>\$28,153,942</b>	<b>11.5%</b>	<b>0.47x</b>	<b>1.41x</b>
Adams Street 2013 Global Fund	2013	6/27/2013	\$75,000,000	\$46,875,000	\$28,125,000	63%	\$10,728	\$3,505,124	\$49,899,437	\$53,404,561	\$6,518,833	6.7%	0.07x	1.14x
Adams Street 2016 Global Fund	2016	12/22/2016	\$60,000,000	\$3,540,000	\$56,460,000	6%	\$0	\$0	\$4,239,407	\$4,239,407	\$699,407	43.7%	0x	1.2x
Drive Capital Fund II	2016	9/1/2016	\$15,000,000	\$959,746	\$14,040,254	6%	\$3,210	\$0	\$675,953	\$675,953	(\$287,003)	-47.4%	0x	0.7x
HarbourVest - Dover Street VIII	2013	5/30/2013	\$67,500,000	\$57,712,500	\$9,787,500	86%	\$84,954	\$36,981,700	\$43,834,470	\$80,816,170	\$23,018,716	21.4%	0.64x	1.4x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$7,200,000	\$52,800,000	12%	\$0	\$841,532	\$7,684,088	\$8,525,620	\$1,325,620	39.2%	0.12x	1.18x
HarbourVest - PRTNS CO INVEST IV L.P.	2017	6/2/2017	\$30,000,000	\$11,071,740	\$18,928,260	37%	\$0	\$0	\$11,071,740	\$11,071,740	\$0	0.0%	--	--
Pantheon Global Secondary Fund IV	2010	8/20/2010	\$15,000,000	\$9,960,000	\$5,040,000	66%	\$0	\$10,245,001	\$4,685,159	\$14,930,160	\$4,970,160	13.8%	1.03x	1.5x
Pantheon Global Secondary Fund V	2015	2/26/2015	\$50,000,000	\$17,241,510	\$32,758,490	34%	(\$87,343)	\$1,825,034	\$20,505,039	\$22,330,073	\$3,993,374	22.3%	0.11x	1.3x
<b>Total VCERA Private Equity Program</b>	<b>--</b>	<b>5/21/2010</b>	<b>\$457,500,000</b>	<b>\$224,556,295</b>	<b>\$232,943,705</b>	<b>49%</b>	<b>\$35,048</b>	<b>\$86,270,346</b>	<b>\$208,725,183</b>	<b>\$294,995,529</b>	<b>\$68,393,049</b>	<b>13.4%</b>	<b>0.38x</b>	<b>1.31x</b>

1. Includes recycled/recallable distributions received to date.

2. Add'l Fees represents notional interest paid/(received).

2. Add'l Fees for Pantheon Global Secondary Fund V includes notional interest paid/(received) and management fee rebates paid to VCERA.

Note: Private equity performance data is reported net of fees.

Performance shown is based on 3/31/2017 NAVs cash-adjusted for cash flows through 06/30/2017.

# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total US Fixed Income</b>	<b>945,558,360</b>	<b>19.2</b>	<b>20.0</b>	<b>1.6</b>	<b>20</b>	<b>2.9</b>	<b>31</b>	<b>2.2</b>	<b>34</b>	<b>2.7</b>	<b>44</b>	<b>3.1</b>	<b>32</b>	<b>5.8</b>	<b>14</b>	<b>6.0</b>	<b>Feb-94</b>
BBgBarc US Aggregate TR				1.4	38	2.3	49	-0.3	78	2.5	51	2.2	55	4.5	50	5.4	Feb-94
Over/Under				0.2		0.6		2.5		0.2		0.9		1.3		0.6	
InvestorForce Public DB US Fix Inc Net Median				1.2		2.2		0.4		2.6		2.4		4.4		6.0	Feb-94
BlackRock U.S. Debt Fund	220,274,638	4.5		1.5	47	2.3	54	-0.3	82	2.5	51	2.3	59	4.6	50	5.3	Nov-95
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	2.5	52	2.2	61	4.5	52	5.2	Nov-95
Over/Under				0.1		0.0		0.0		0.0		0.1		0.1		0.1	
eA All US Fixed Inc Net Median				1.4		2.5		0.9		2.5		2.8		4.5		5.1	Nov-95
Western	292,497,126	5.9		2.4	17	4.0	26	2.1	36	3.6	28	3.9	35	5.6	28	6.2	Dec-96
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	2.5	52	2.2	61	4.5	52	5.3	Dec-96
Over/Under				1.0		1.7		2.4		1.1		1.7		1.1		0.9	
eA All US Fixed Inc Net Median				1.4		2.5		0.9		2.5		2.8		4.5		5.2	Dec-96
Reams	306,921,476	6.2		1.0	64	1.8	64	2.5	33	1.9	68	2.2	61	5.9	24	5.5	Sep-01
Reams Custom Index				0.3	90	0.6	95	1.0	49	0.6	94	0.6	93	3.7	70	4.0	Sep-01
Over/Under				0.7		1.2		1.5		1.3		1.6		2.2		1.5	
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	2.5	52	2.2	61	4.5	52	4.5	Sep-01
3-Month LIBOR + 3%				1.1	62	2.1	60	4.1	25	3.6	27	3.5	40	4.0	63	4.8	Sep-01
eA All US Fixed Inc Net Median				1.4		2.5		0.9		2.5		2.8		4.5		4.6	Sep-01
Loomis Strategic Alpha	45,036,733	0.9		0.1	98	1.2	82	4.7	23	2.1	61	--	--	--	--	2.5	Jul-13
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	2.5	52	2.2	61	4.5	52	3.0	Jul-13
Over/Under				-1.3		-1.1		5.0		-0.4						-0.5	
3-Month LIBOR + 3%				1.1	62	2.1	60	4.1	25	3.6	27	3.5	40	4.0	63	3.5	Jul-13
eA All US Fixed Inc Net Median				1.4		2.5		0.9		2.5		2.8		4.5		3.2	Jul-13
Loomis Sayles Multi Strategy	80,828,387	1.6		2.6	14	5.5	12	7.1	17	3.5	29	5.7	15	6.7	14	6.6	Jul-05
Loomis Custom Index				1.6	42	2.9	41	3.3	28	2.9	40	3.5	40	5.4	31	5.2	Jul-05
Over/Under				1.0		2.6		3.8		0.6		2.2		1.3		1.4	
BBgBarc US Govt/Credit TR				1.7	37	2.7	46	-0.4	86	2.6	48	2.3	59	4.6	50	4.3	Jul-05
eA All US Fixed Inc Net Median				1.4		2.5		0.9		2.5		2.8		4.5		4.3	Jul-05

Reams Custom Index: Merrill Lynch 3 Month Libor Constant Maturity Index, prior to February 2013 the Barclays Aggregate

Loomis Custom Index: 65% Barclays Aggregate, 30% Citigroup High Yield Market Index and 5% JPM Non-US Hedged Bond Index

As of January 2016, Loomis Strategic Alpha was moved from the Total Global Fixed Income composite to the Total US Fixed Income composite.

# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Real Estate</b>	<b>391,122,352</b>	<b>7.9</b>	<b>7.0</b>	<b>1.2</b>	<b>82</b>	<b>2.2</b>	<b>89</b>	<b>5.5</b>	<b>73</b>	<b>9.3</b>	<b>69</b>	<b>9.5</b>	<b>76</b>	<b>2.8</b>	<b>82</b>	<b>7.9</b>	<b>Mar-94</b>
NCREIF ODCE Net				1.5	62	3.0	66	6.9	43	10.3	54	10.8	51	4.3	46	8.1	Mar-94
Over/Under				-0.3		-0.8		-1.4		-1.0		-1.3		-1.5		-0.2	
InvestorForce Public DB Real Estate Pub+Priv Net Median				1.8		3.5		6.5		10.5		10.8		4.0		5.4	Mar-94
Prudential Real Estate	139,056,749	2.8		1.5	--	2.9	--	7.3	--	10.8	--	11.0	--	3.9	--	6.1	Jun-04
NCREIF ODCE Net				1.5	--	3.0	--	6.9	--	10.3	--	10.8	--	4.3	--	7.1	Jun-04
Over/Under				0.0		-0.1		0.4		0.5		0.2		-0.4		-1.0	
NCREIF ODCE				1.7	--	3.5	--	7.9	--	11.3	--	11.8	--	5.2	--	8.1	Jun-04
UBS Real Estate	251,891,417	5.1		1.0	--	1.9	--	4.6	--	8.6	--	8.7	--	4.3	--	7.4	Mar-03
NCREIF ODCE Net				1.5	--	3.0	--	6.9	--	10.3	--	10.8	--	4.3	--	7.3	Mar-03
Over/Under				-0.5		-1.1		-2.3		-1.7		-2.1		0.0		0.1	
NCREIF ODCE				1.7	--	3.5	--	7.9	--	11.3	--	11.8	--	5.2	--	8.3	Mar-03
RREEF	174,186	0.0		-3.3	--	-4.0	--	-16.4	--	-2.6	--	6.5	--	--	--	-6.4	Sep-07
NCREIF ODCE Net				1.5	--	3.0	--	6.9	--	10.3	--	10.8	--	4.3	--	4.0	Sep-07
Over/Under				-4.8		-7.0		-23.3		-12.9		-4.3				-10.4	
NCREIF ODCE				1.7	--	3.5	--	7.9	--	11.3	--	11.8	--	5.2	--	5.0	Sep-07

Total Real Estate Benchmark: NCREIF ODCE; prior to January 2006, the NCREIF Property Index



# Ventura County Employees' Retirement Association

## Total Fund Performance Detail (Net)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
<b>Total Liquid Alternatives</b>	<b>413,675,330</b>	<b>8.4</b>	<b>10.0</b>	<b>-1.2</b>	--	<b>2.4</b>	--	<b>5.1</b>	--	<b>-1.9</b>	--	--	--	--	--	<b>4.6</b>	<b>Apr-13</b>
<i>CPI + 4% (Unadjusted)</i>				<u>1.5</u>	--	<u>3.5</u>	--	<u>5.7</u>	--	<u>4.9</u>	--	<u>10.3</u>	--	--	--	<u>6.3</u>	<i>Apr-13</i>
Over/Under				-2.7		-1.1		-0.6		-6.8						-1.7	
Bridgewater All Weather Fund	291,824,605	5.9		<b>0.7</b>	--	<b>3.8</b>	--	<b>5.4</b>	--	<b>1.5</b>	--	--	--	--	--	<b>4.5</b>	Aug-13
<i>CPI + 5% (Unadjusted)</i>				<u>1.7</u>	--	<u>4.0</u>	--	<u>6.7</u>	--	<u>6.0</u>	--	--	--	--	--	<u>6.3</u>	<i>Aug-13</i>
Over/Under				-1.0		-0.2		-1.3		-4.5						-1.8	
Tortoise Energy Infrastructure	121,850,725	2.5		<b>-5.6</b>	--	<b>-0.9</b>	--	<b>4.5</b>	--	<b>-8.5</b>	--	--	--	--	--	<b>2.1</b>	Apr-13
<i>Wells Fargo MLP Index</i>				<u>-6.5</u>	--	<u>-3.1</u>	--	<u>3.4</u>	--	<u>-11.0</u>	--	<u>2.5</u>	--	--	--	<u>-2.7</u>	<i>Apr-13</i>
Over/Under				0.9		2.2		1.1		2.5						4.8	
<b>Overlay</b>	<b>60,971,286</b>	<b>1.2</b>	<b>0.0</b>														
Parametric	60,971,286	1.2															

Overlay performance is not applicable on an individual account level.

Color Coding: PERFORMANCE: Green-Over performance, Red-Under performance

Color Coding: RANKS: 1 - 25 Green - Positive Result, 26 - 50 Yellow, 50 - 75 Orange, 76 - 100 Red - Negative Result



# Manager Due Diligence

## Ventura County Employees' Retirement Association

### Due Diligence Monitor

The items below summarize the recent quarter's performance and any changes or announcements from the Plan's managers/products. A "-" indicates there were no material announcements. A "Yes" indicates there was an announcement and a brief summary is provided on the following pages. NEPC's Due Diligence Committee meets every two weeks to review events as they relate to investment managers and determine if any action should be taken (by NEPC and/or by our clients). Events are rated: No Action, Watch, Hold, Client Review or Terminate. NEPC's recommendation in view of the recent quarter's developments (performance, manager events, and any of the longer-term trending data) is refreshed quarterly.

Investment Options	Performance (Recent Quarter)	Changes/Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
<b>BlackRock Russell 1000 Index</b>	-	-	-	-		10/2013
<b>Western U.S. Index Plus</b>	-	-	-	-		6/2014
<b>BlackRock Russell 2500 Index</b>	-	-	-	-		10/2013
<b>BlackRock MSCI ACWI ex-U.S. Index</b>	Bottom Quartile	-	-	-		10/2013
<b>Sprucegrove</b>	Bottom Quartile	-	Hold	Watch (Board Driven)	3Q 2014 Departure & Performance	N/A
<b>Hexavest</b>	Bottom Quartile	-	-	-		1/2013
<b>Walter Scott</b>	-	-	-	-		10/2012
<b>BlackRock MSCI ACWI Index</b>	-	-	-	-		10/2013
<b>Adams Street</b>	N/A	-	-	-		11/2013
<b>HarbourVest</b>	N/A	-	-	-		3/2014
<b>Pantheon</b>	N/A	-	-	-		1/2015
<b>BlackRock U.S. Debt Fund</b>	-	-	-	-		10/2013
<b>Western</b>	-	-	-	-		6/2014
<b>Reams</b>	-	Yes	No Action	-	Change in ownership	11/2013
<b>Loomis Sayles Multi-Sector Full Discretion</b>	-	-	-	-		11/2013
<b>Loomis Sayles Strategic Alpha</b>	Bottom Quartile	-	-	-		11/2013

Due Diligence Monitor Continued

	Performance (Recent Quarter)	Changes/ Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
Prudential	N/A	-	-	-		7/2014
RREEF	N/A	-	-	-		7/2013
UBS	N/A	-	-	-		8/2011
Bridgewater	N/A	-	-	-		9/2012
Tortoise	N/A	Yes	Watch	-	Exploring strategic alternatives to Mariner stake	8/2013
Parametric/Clifton	N/A	-	-	-		7/2013

**NEPC Due Diligence Committee Recommendation Key**

<b>No Action</b>	Informational items have surfaced; no action is recommended.
<b>Watch</b>	Issues have surfaced to be concerned over; manager can participate in future searches, but current and prospective clients must be made aware of the issues.
<b>Hold</b>	Serious issues have surfaced to be concerned over; manager cannot participate in future searches unless a client specifically requests, but current and prospective clients must be made aware of the issues.
<b>Client Review</b>	Very serious issues have surfaced with an Investment Manager; manager cannot participate in future searches unless a client specifically requests. Current clients must be advised to review the manager.
<b>Terminate</b>	We have lost all confidence in the product; manager would not be recommended for searches and clients would be discouraged from using. The manager cannot participate in future searches unless a client specifically requests. Current clients must be advised to replace the manager.

### Due Diligence Commentary

Below is a summary of manager changes, announcements and due diligence events since the issuance of our last quarterly report.

#### Manager Changes/Announcements

##### Reams

Scouts Investments, a division of UMB financial (a Midwestern bank) and owner of Reams, is getting acquired by Carillon Tower Advisers (CTA). There will be no changes to the day-to-day processes at Reams.

***NEPC recommends No Action at this time. We will continue to monitor the situation and provide updates as necessary.***

##### Tortoise

Tortoise Capital Advisors, L.L.C. ("Tortoise Capital") informed NEPC Research, along with majority shareholder Mariner Holdings, LLC ("Mariner"), of the intention to explore strategic alternatives for Mariner's stake in the firm. Tortoise Capital was founded in 2002 by Kansas City Equity Partners, LC, a private equity firm, and Fountain Capital Management, L.L.C., a high yield asset manager. In September 2009, Tortoise Capital participated in a management buyout with Mariner, the parent company of Montage Investments which provided a growth partner. Tortoise Capital is wholly-owned by Tortoise Investments, LLC ("Tortoise Investments"). The Tortoise Investments family own approximately 30% of Tortoise Investments; and Montage owns approximately 70% of Tortoise Investments. A deal is not expected to have an impact on members of the team, process or investment approach. Tortoise anticipates having a deal in place in 3Q17, with expected closing in 4Q17.

***NEPC recommends downgrading the firm from No Action to WATCH. We will continue to monitor the situation and provide updates as necessary.***

Below is a summary of managers that remain on Hold:

##### Sprucegrove

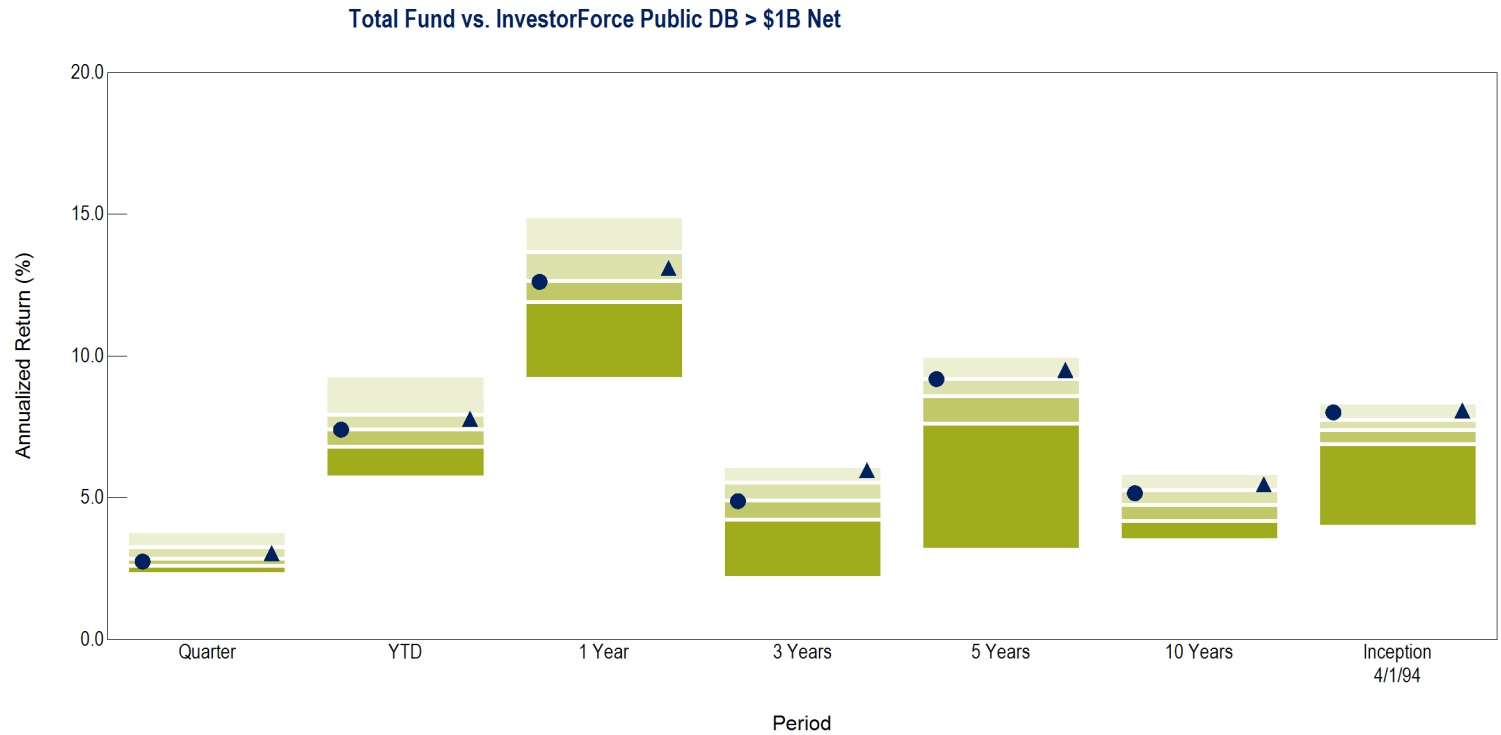
Sprucegrove announced that they will open all products at the firm for new investment. They had been closed for a number of years, but following a period of poor performance and asset outflows they now have capacity. While this is a positive event, it triggers an opportunity to reconsider any allocation to the products. Assets have been declining. The most recent 1 year performance has rebounded, but longer term numbers remain challenged.

***NEPC recommends maintaining a Hold rating at this time. We will continue to monitor the situation and provide updates as necessary.***



# Ventura County Employees' Retirement Association

## Total Fund Return Summary vs. Peer Universe

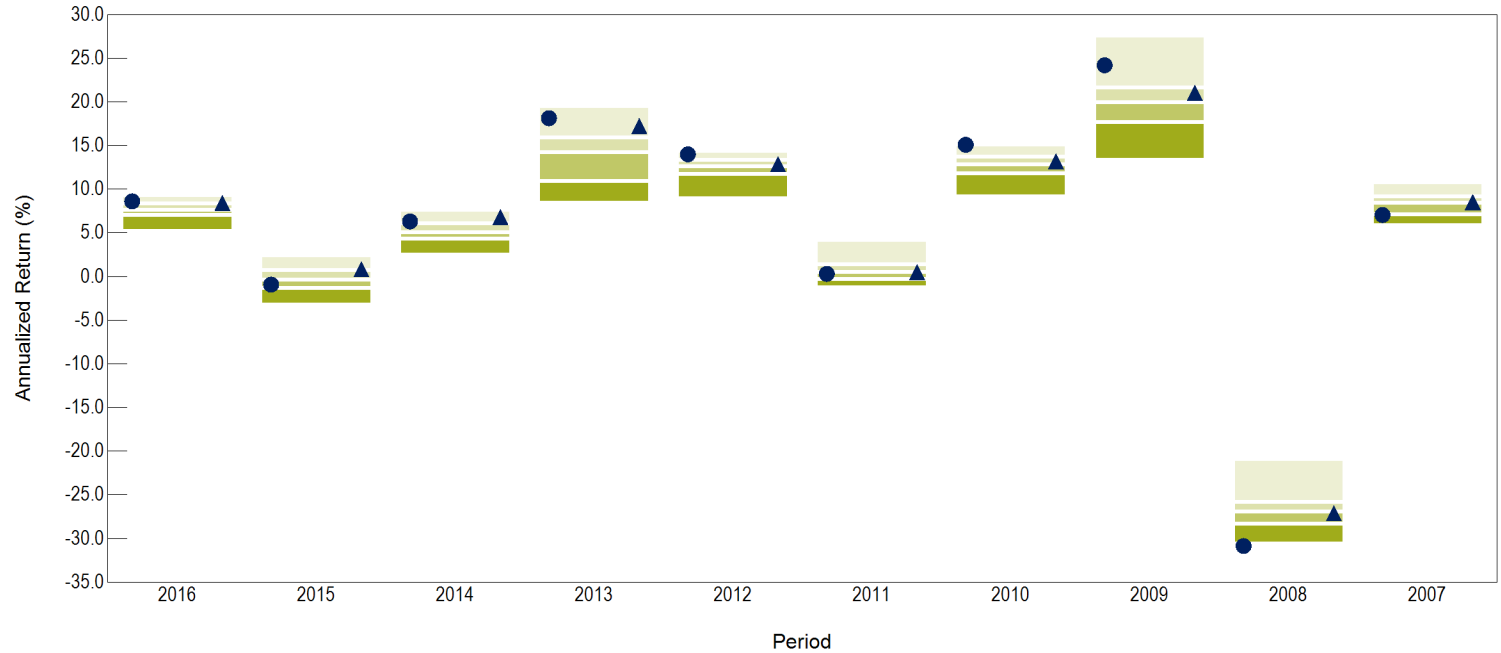


	Return (Rank)													
5th Percentile	3.8		9.3		14.9		6.1		10.0		5.9		8.3	
25th Percentile	3.3		7.9		13.7		5.5		9.2		5.3		7.8	
Median	2.9		7.4		12.7		4.9		8.6		4.8		7.4	
75th Percentile	2.6		6.8		11.9		4.2		7.6		4.2		6.9	
95th Percentile	2.3		5.7		9.2		2.2		3.2		3.5		4.0	
# of Portfolios	65		65		65		64		64		58		37	
● Total Fund	2.7	(63)	7.4	(52)	12.6	(54)	4.9	(53)	9.2	(26)	5.2	(36)	8.0	(17)
▲ Policy Index	3.1	(38)	7.8	(33)	13.1	(37)	6.0	(8)	9.5	(17)	5.5	(18)	8.1	(15)

# Ventura County Employees' Retirement Association

## Total Fund Return Summary vs. Peer Universe

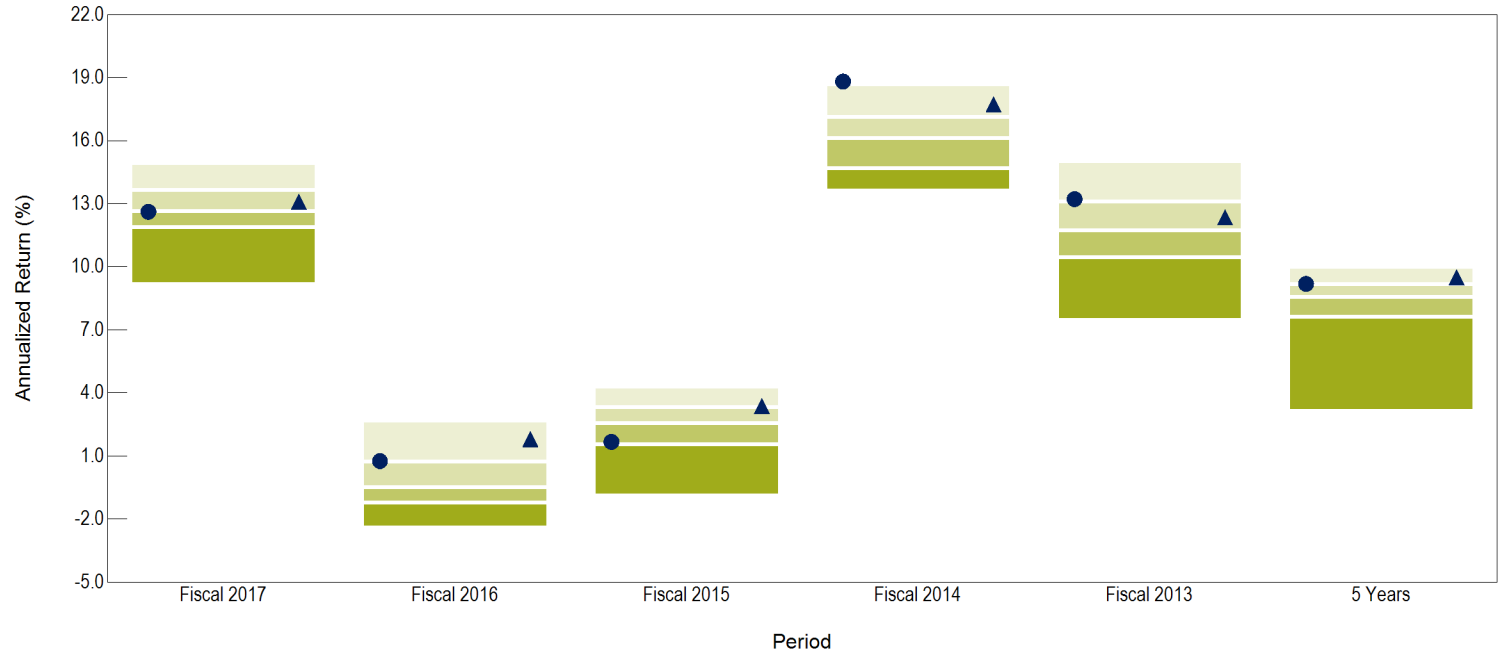
Total Fund vs. InvestorForce Public DB > \$1B Net



	Return (Rank)																			
5th Percentile	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5	-20.9	10.7										
25th Percentile	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7	-25.7	9.2										
Median	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0	-26.9	8.5										
75th Percentile	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7	-28.3	7.1										
95th Percentile	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4	-30.5	5.9										
# of Portfolios	62	57	55	48	44	42	41	40	39	39										
● Total Fund	8.6	(15)	-0.9	(65)	6.3	(20)	18.1	(10)	14.0	(15)	0.3	(61)	15.1	(6)	24.2	(16)	-30.9	(98)	7.0	(77)
▲ Policy Index	8.4	(25)	0.8	(25)	6.8	(12)	17.2	(14)	12.9	(41)	0.5	(55)	13.2	(44)	21.0	(33)	-27.1	(54)	8.5	(50)

Ventura County Employees' Retirement Association  
**Total Fund Return Summary vs. Peer Universe**

Total Fund vs. InvestorForce Public DB > \$1B Net

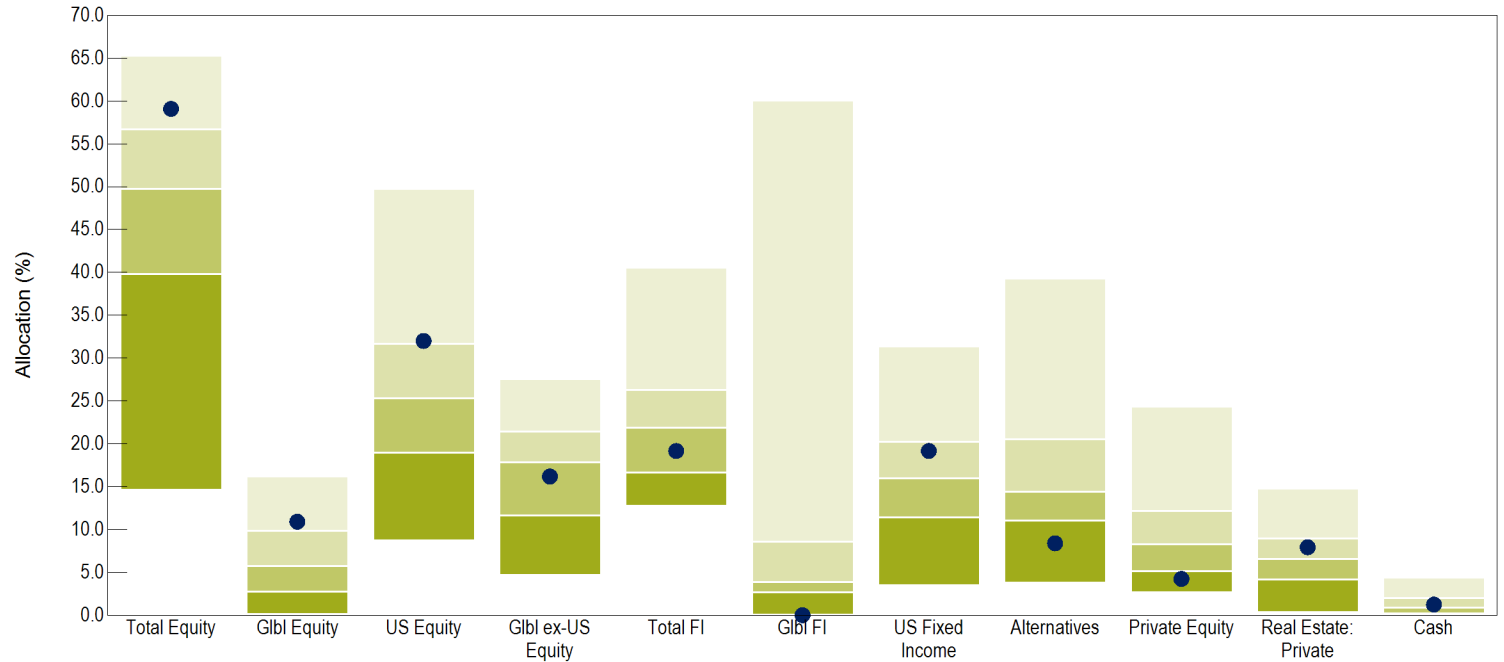


	Return (Rank)											
5th Percentile	14.9	2.7	4.3	18.7	15.0	10.0						
25th Percentile	13.7	0.8	3.3	17.2	13.1	9.2						
Median	12.7	-0.5	2.6	16.1	11.8	8.6						
75th Percentile	11.9	-1.2	1.6	14.7	10.5	7.6						
95th Percentile	9.2	-2.4	-0.9	13.6	7.5	3.2						
# of Portfolios	65	55	53	43	56	64						
● Total Fund	12.6	(54)	0.8	(26)	1.7	(71)	18.8	(4)	13.2	(22)	9.2	(26)
▲ Policy Index	13.1	(37)	1.8	(9)	3.4	(25)	17.7	(19)	12.4	(39)	9.5	(17)



Total Fund Allocations vs. Peer Universe

Total Plan Allocation vs. InvestorForce Public DB > \$1B Net

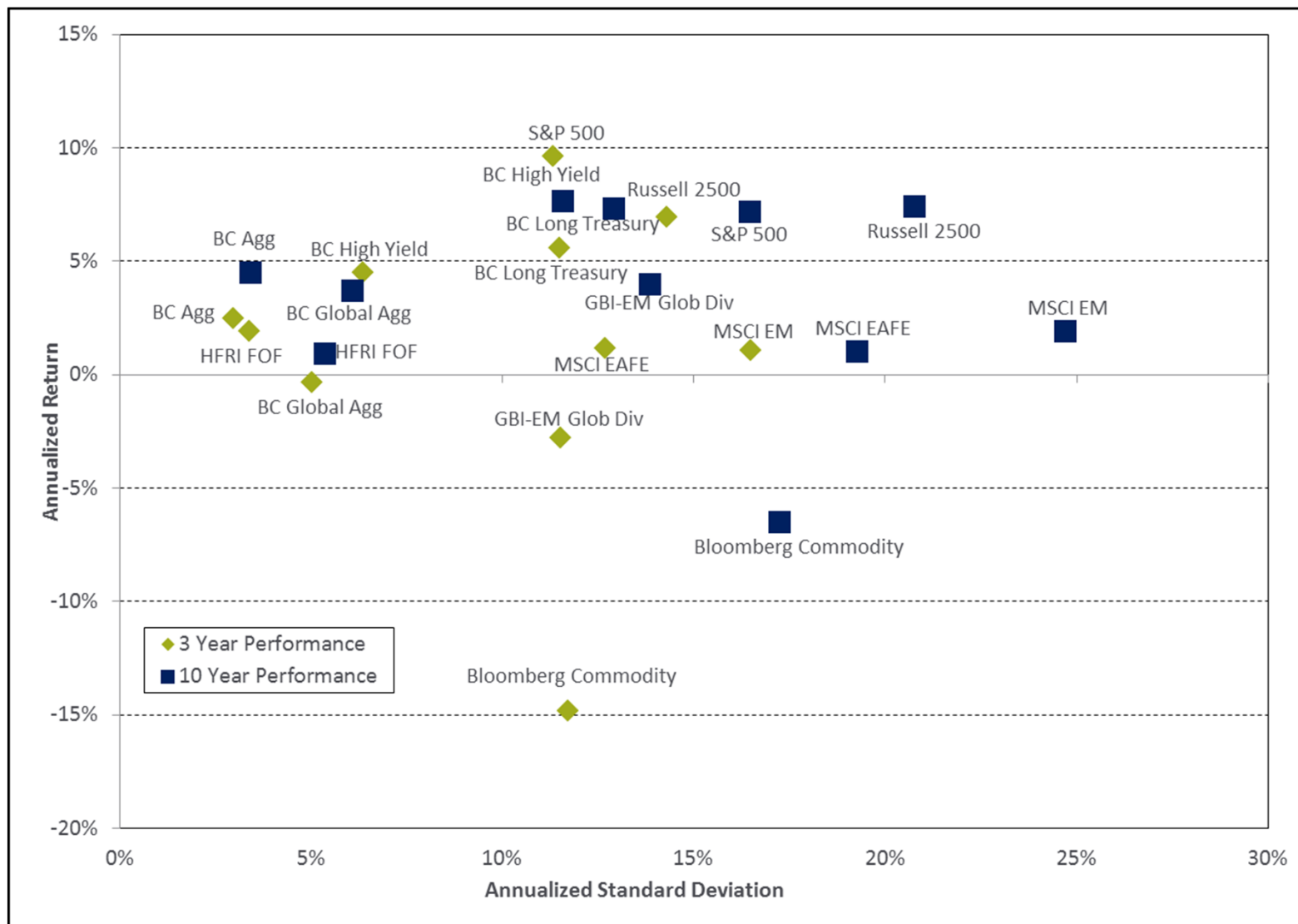


	Total Equity		Gbl Equity		US Equity		Gbl ex-US Equity		Total FI		Gbl FI		US Fixed Income		Alternatives		Private Equity		Real Estate: Private		Cash	
<b>5th Percentile</b>	65.3	16.2	49.8	27.6	40.6	60.1	31.4	39.3	24.3	14.8	4.4	--										
<b>25th Percentile</b>	56.8	9.9	31.8	21.5	26.4	8.7	20.3	20.6	12.3	9.1	2.1	--										
<b>Median</b>	49.8	5.8	25.4	17.9	22.0	4.0	16.0	14.4	8.4	6.6	0.9	--										
<b>75th Percentile</b>	39.9	2.8	19.0	11.7	16.7	2.8	11.5	11.1	5.2	4.2	0.3	--										
<b>95th Percentile</b>	14.7	0.2	8.8	4.7	12.8	0.2	3.6	3.9	2.8	0.4	0.1	--										
<b># of Portfolios</b>	58	23	51	53	60	29	55	54	53	48	54	--										
<b>• Total Fund</b>	59.1 (14)	10.9 (19)	32.0 (22)	16.2 (52)	19.2 (62)	0.0 (97)	19.2 (30)	8.4 (86)	4.2 (83)	7.9 (37)	1.2 (42)	--										

# Appendix: Market Environment

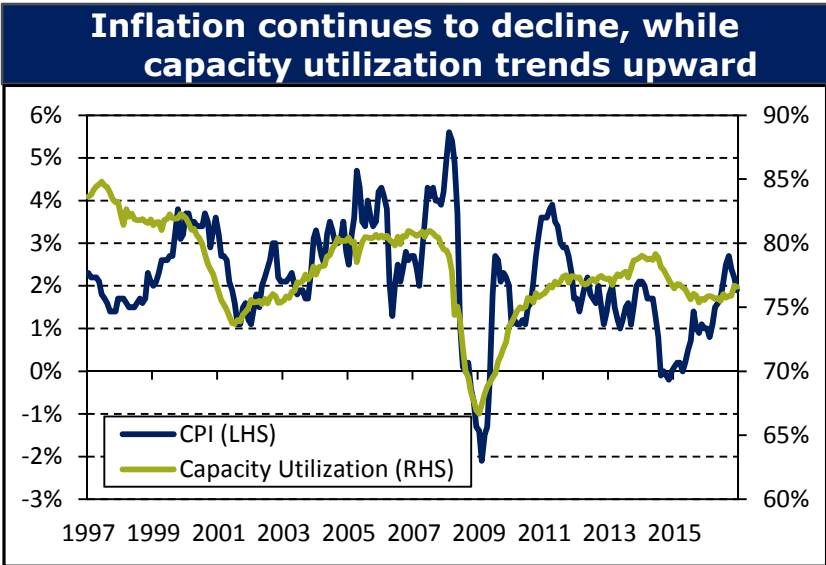


# Long Term Broad Market Performance Summary as of 06/30/2017

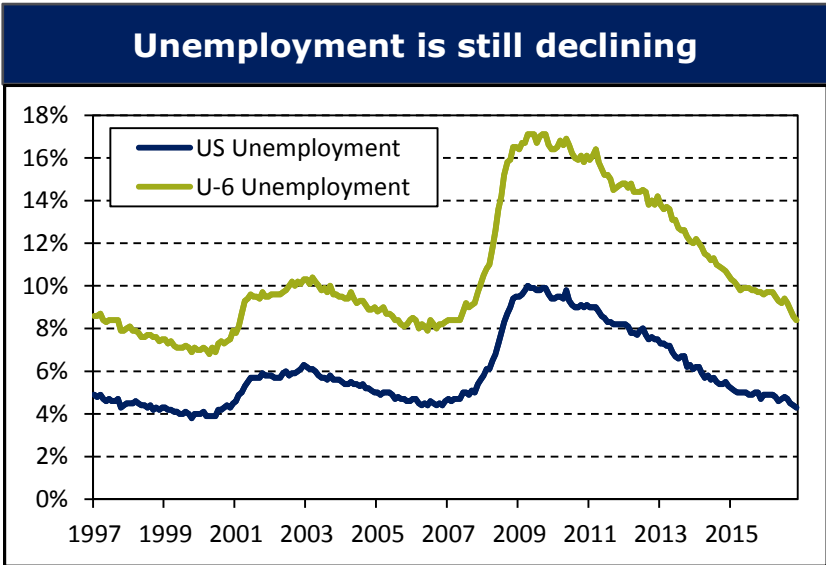


Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan

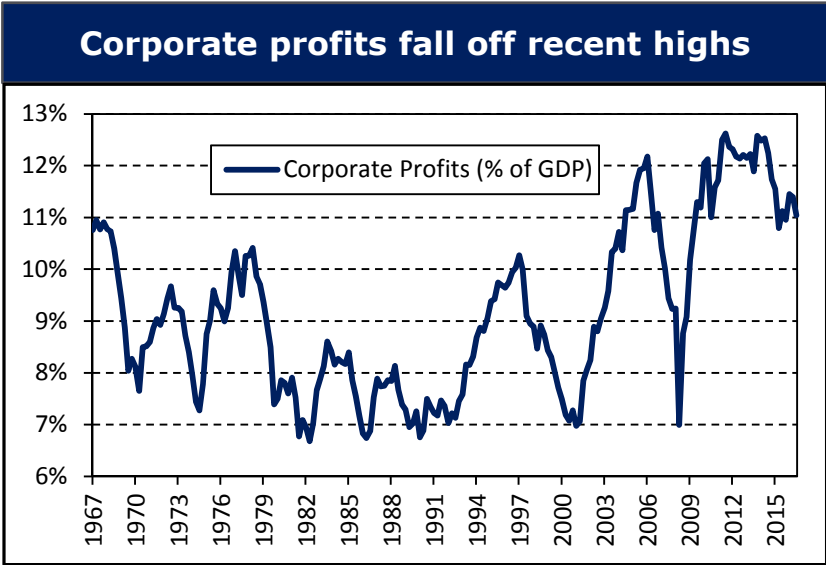
# US Economic Indicators



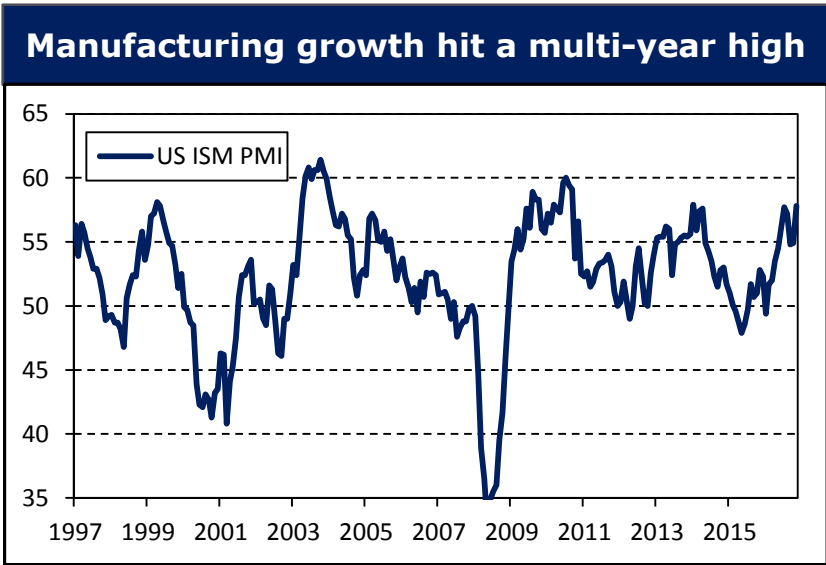
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics



Source: Bloomberg, Bureau of Labor Statistics



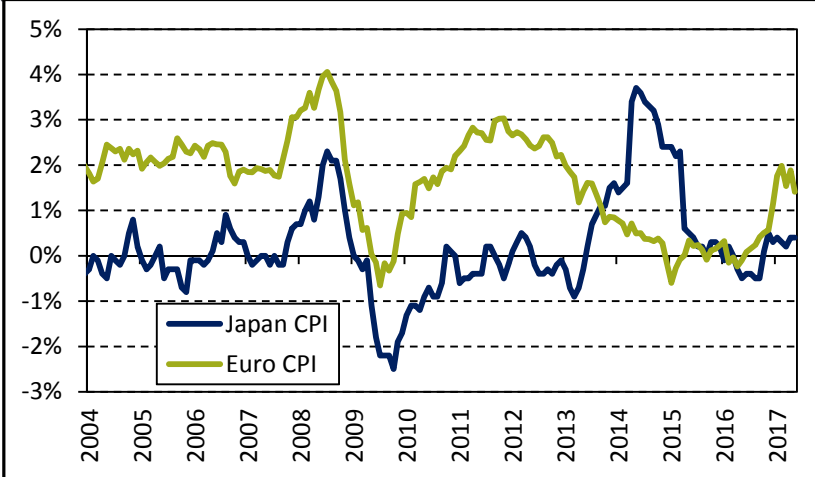
Source: Bloomberg, Bureau of Economic Analysis



Source: Bloomberg, Institute for Supply Management

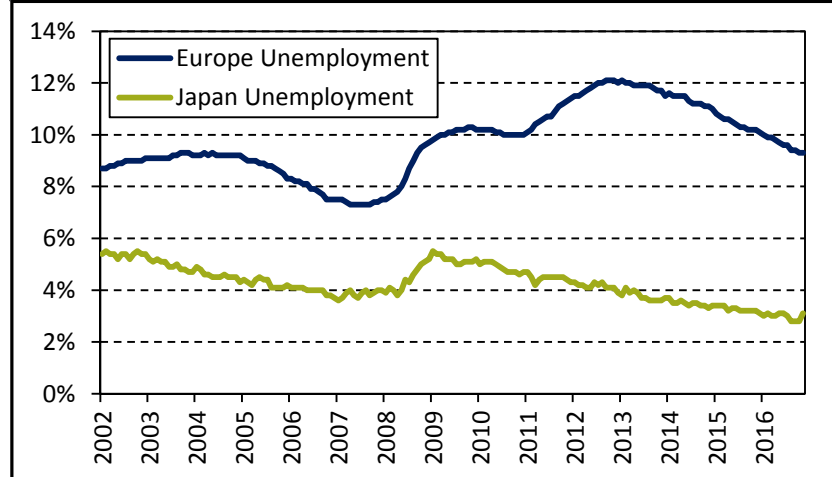
# International Economic Indicators

## Eurozone inflation fell to 1.4%, remaining below the 2% target



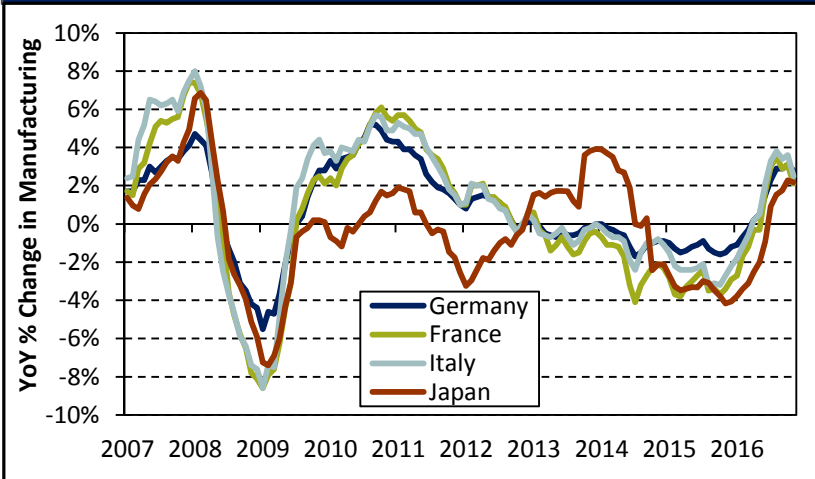
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

## Japan unemployment increased off previous month lows



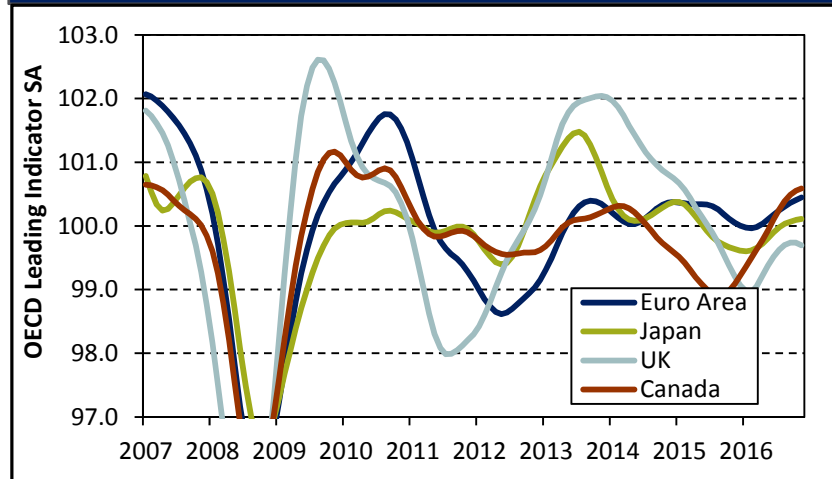
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

## Manufacturing has fallen, though still remains elevated



Source: Bloomberg, OECD, Eurostat

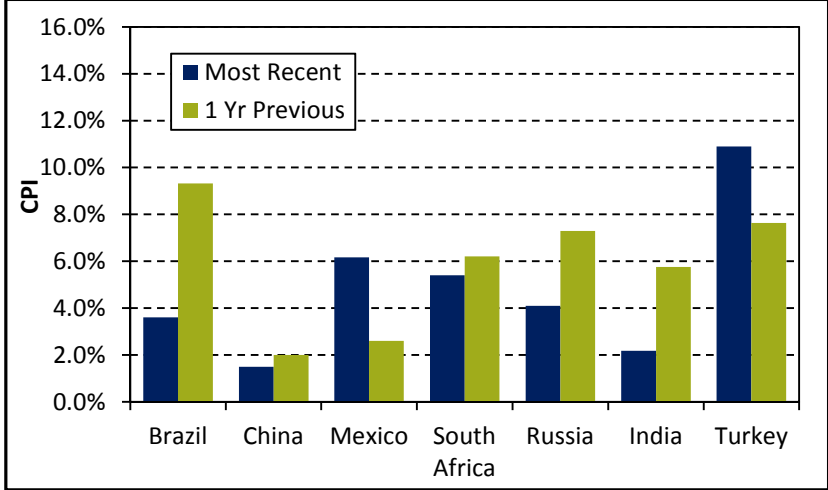
## UK leading indicators have begun to decline



Source: Bloomberg, OECD

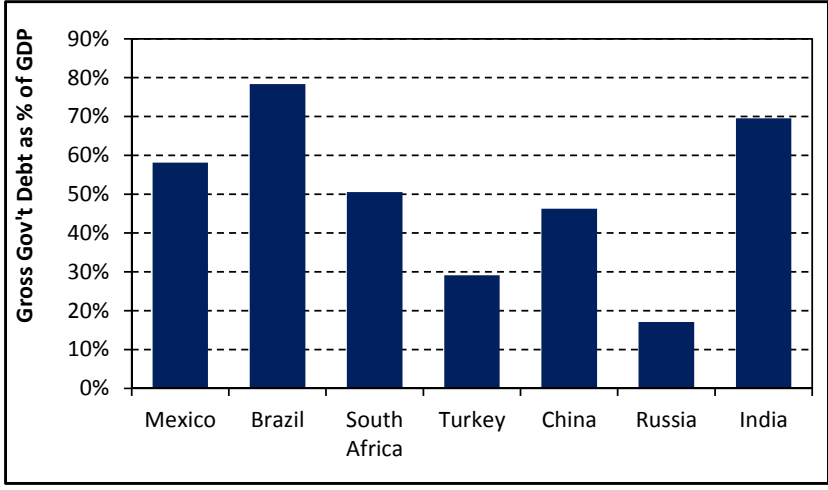
# Emerging Market Economic Indicators

## EM inflation varies by country



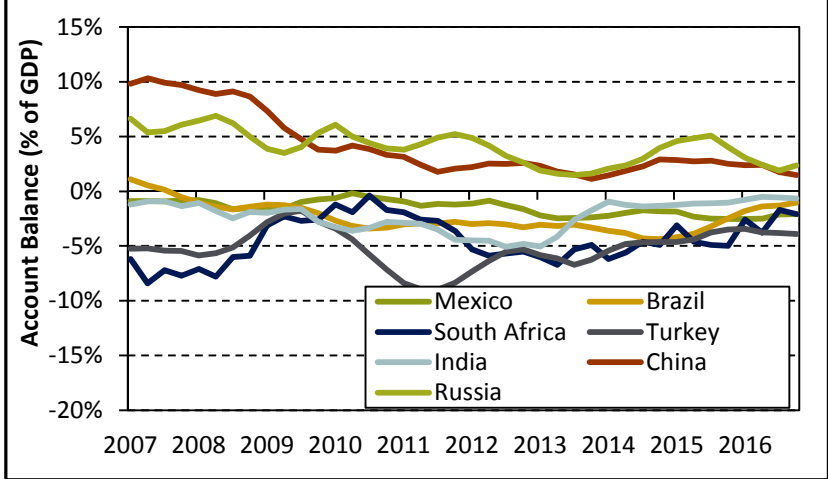
Source: Bloomberg

## Relatively healthy debt/GDP ratios



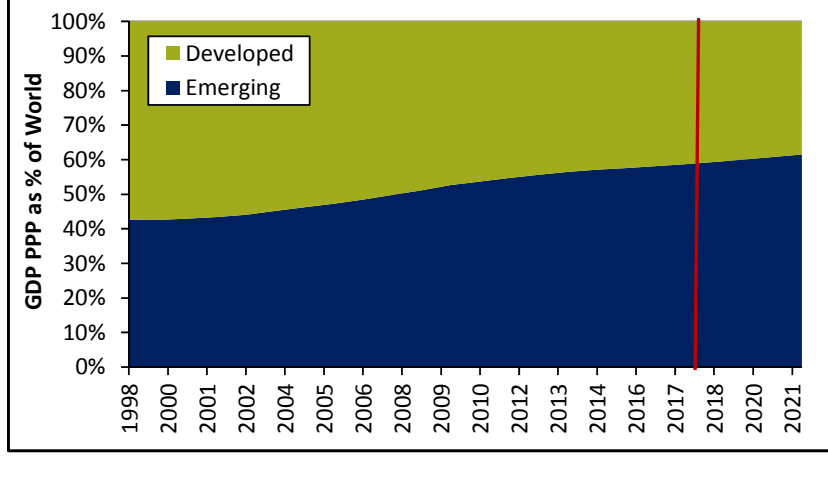
Source: Bloomberg, IMF

## Account balances remain steady



Source: Bloomberg

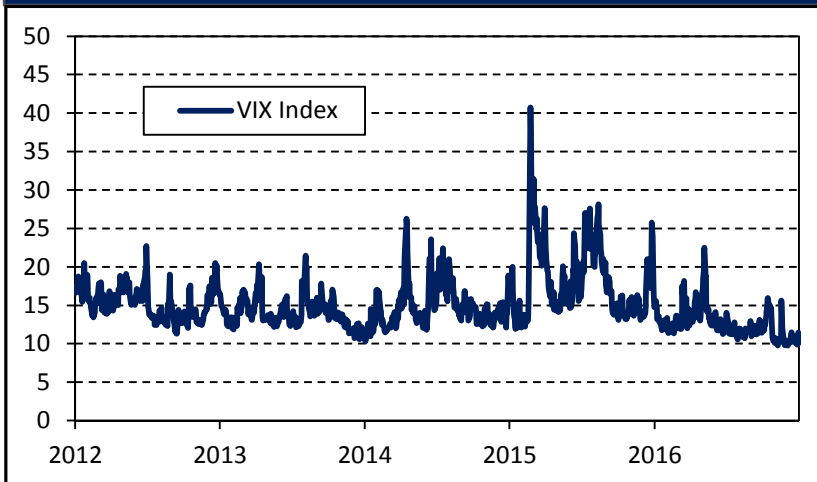
## EM continues trending higher as a percent of global output



Source: Bloomberg, IMF

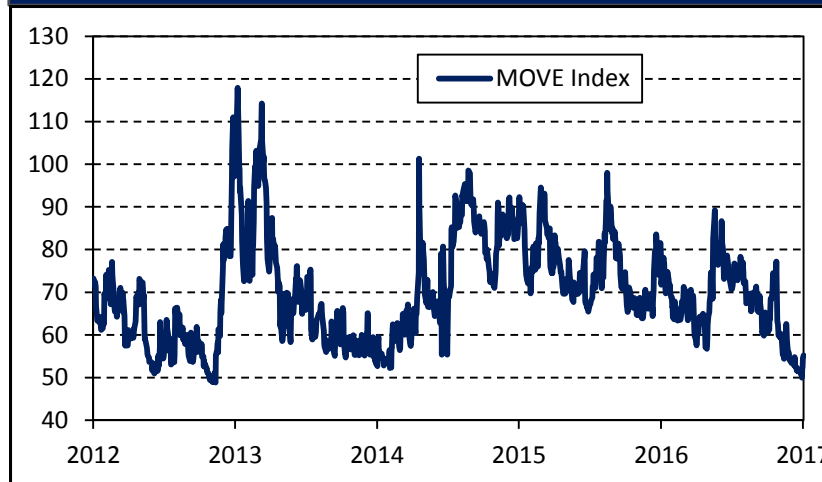
# Volatility

## Equity volatility remains low



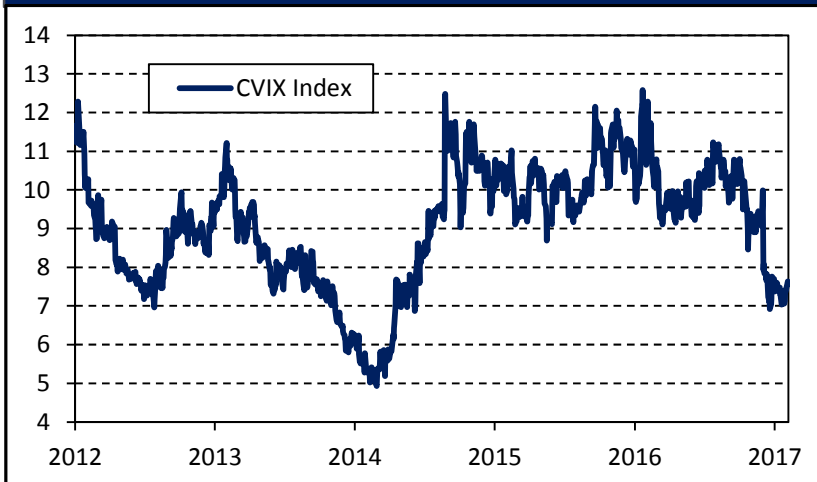
Source: Bloomberg, CBOE

## Treasury volatility has recently subsided



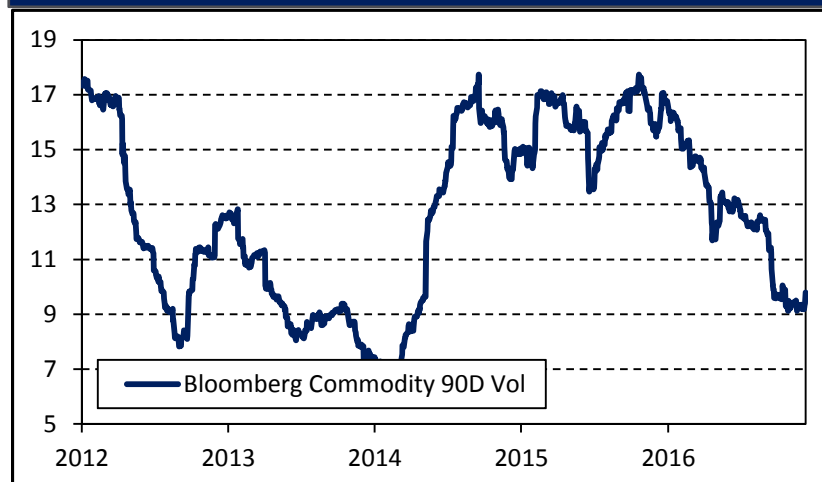
Source: Bloomberg, Merrill Lynch

## Currency volatility increased off recent lows



Source: Bloomberg, Deutsche Bank

## Commodity volatility continues to decline

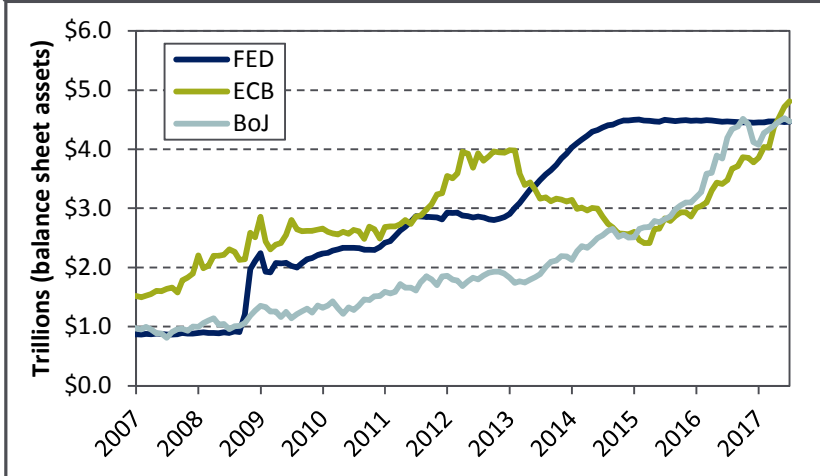


Source: Bloomberg, Merrill Lynch



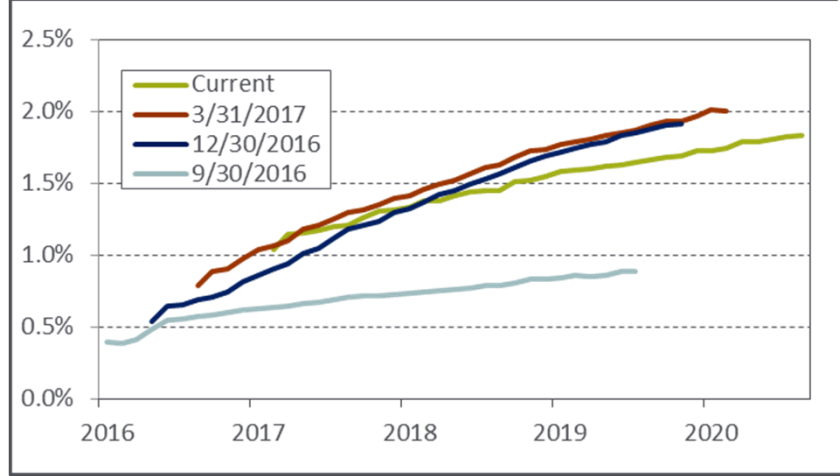
# Central Banks

## The ECB balance sheet continues growing



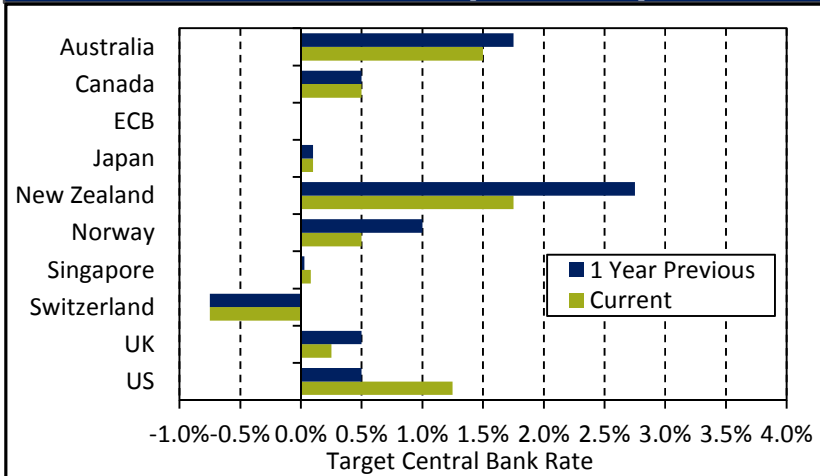
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

## Short-term interest rate has increased with recent rate hike



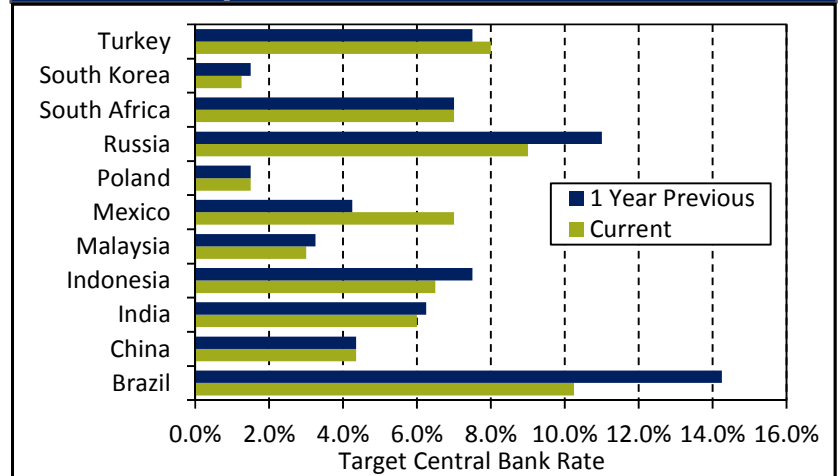
Source: Bloomberg, Federal Reserve

## Ex-US developed market rates are broadly lower than the previous year



Source: Bloomberg

## EM central bank policies vary by country-specific economic conditions

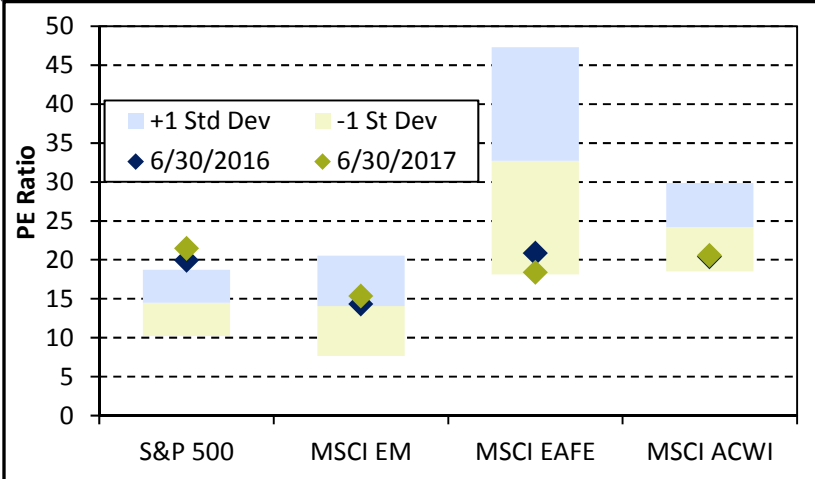


Source: Bloomberg



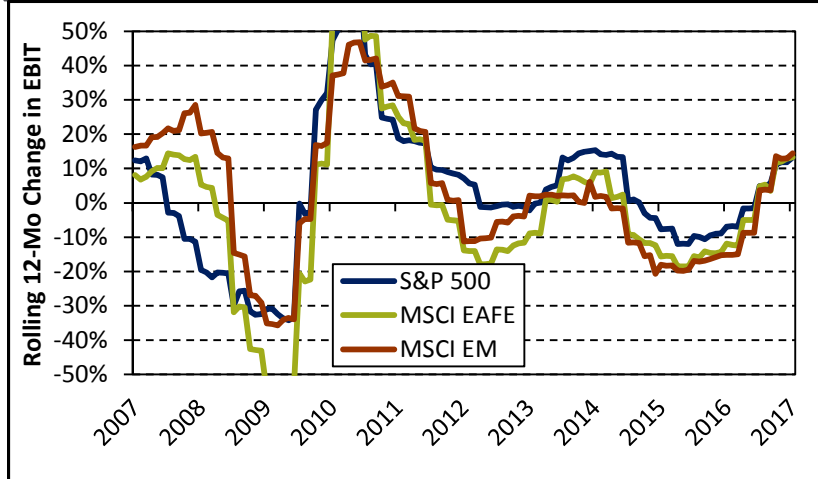


**EAFE valuations remain lower than the previous year**



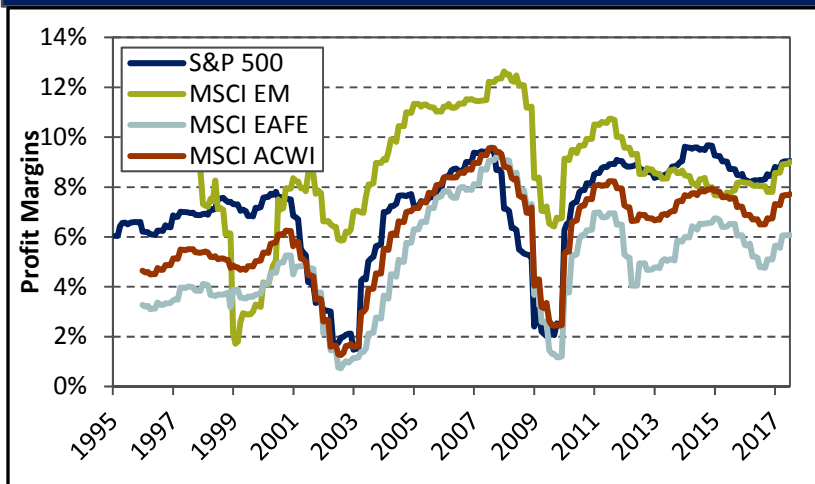
Source: Bloomberg, Standard and Poors, MSCI \*MSCI EAFE is ex UK Telecom  
\*Standard deviation calculations on 20 years of data except S&P 500 (30 years)

**Rolling annual earnings growth continues trending upward off contraction**



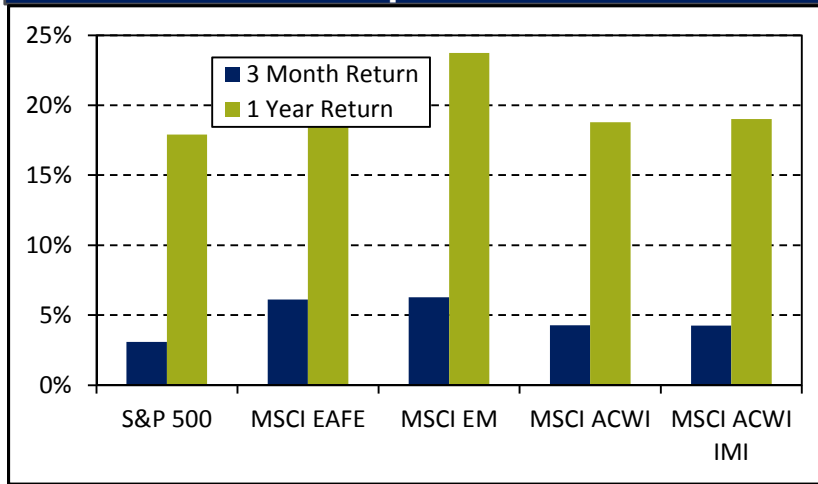
Source: Bloomberg, Standard and Poors, MSCI

**Profit margins continue to improve**



Source: Bloomberg, MSCI

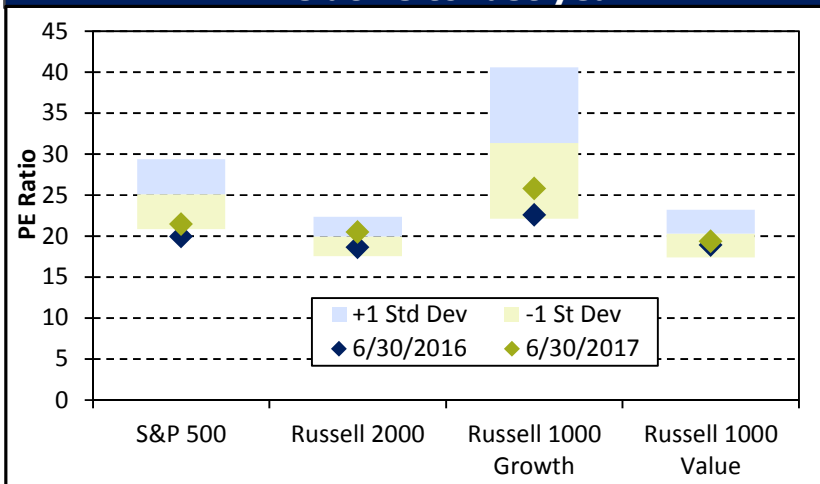
**Equities have experienced positive short-term performance**



Source: Bloomberg, MSCI

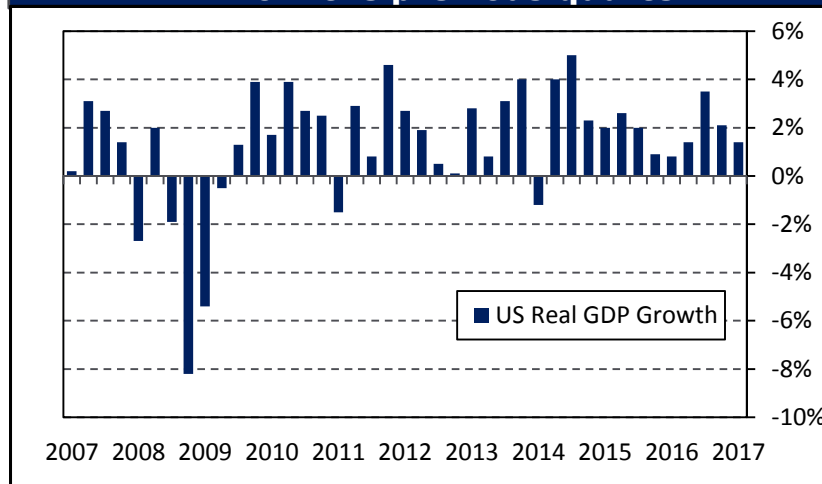
# US Equity

## US equity valuations remain elevated relative to last year



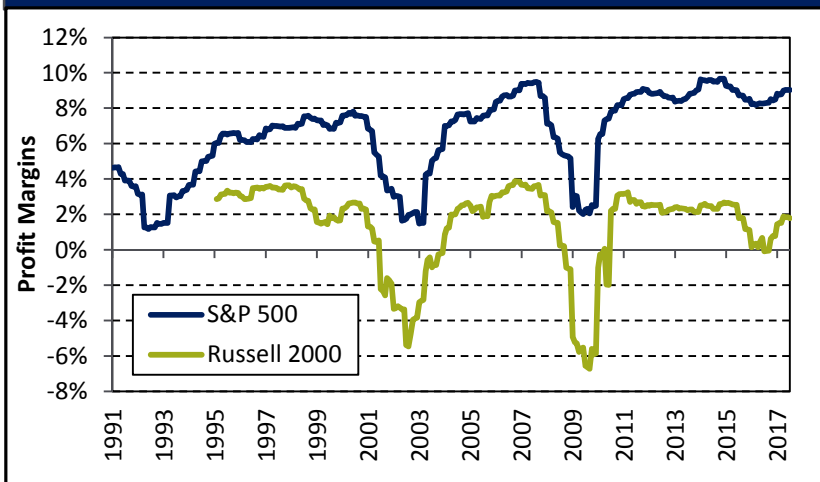
Source: Bloomberg, Standard and Poors, Russell \*Russell 2000 PE is index adjusted positive\* Standard deviation calculations based on 20 years of data

## Real GDP growth declined significantly from the previous quarter



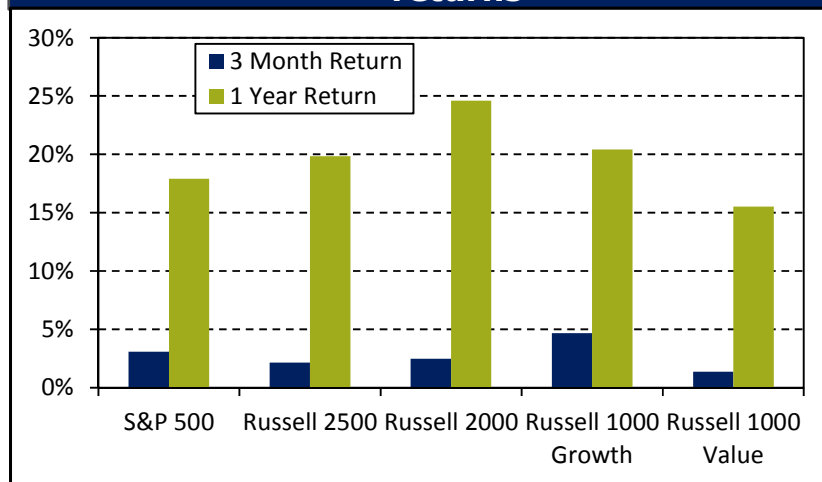
Source: Bloomberg, Bureau of Economic Analysis

## Profit margins experience an uptick



Source: Bloomberg, Standard and Poors, Russell

## US equity continues to post positive returns

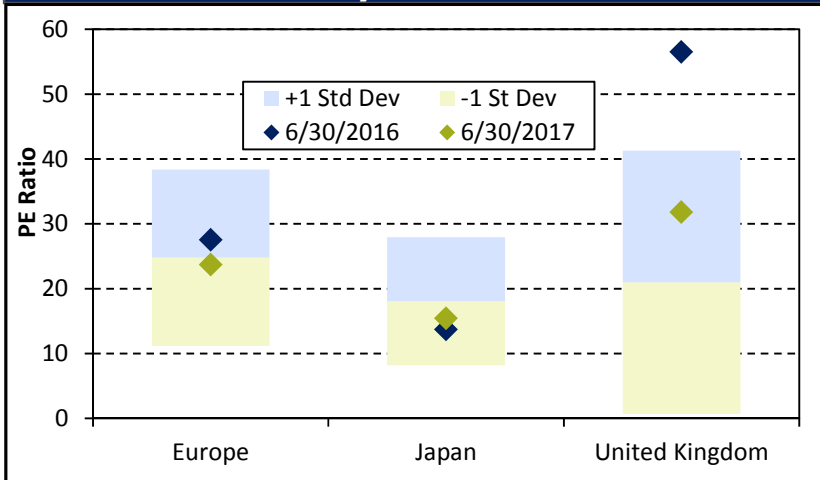


Source: Bloomberg, Standard and Poors, Russell



# International Equity

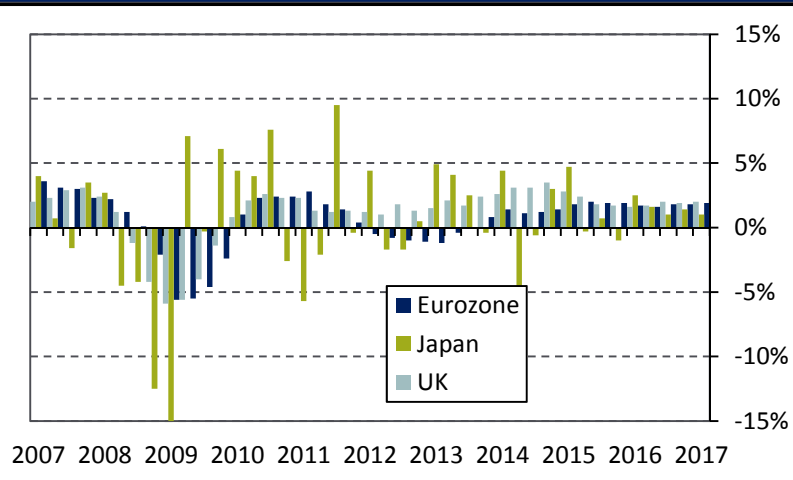
## UK and Europe PEs remain below previous year levels



Source: Bloomberg, MSCI, FTSE \*UK represented by FTSE 100 Index

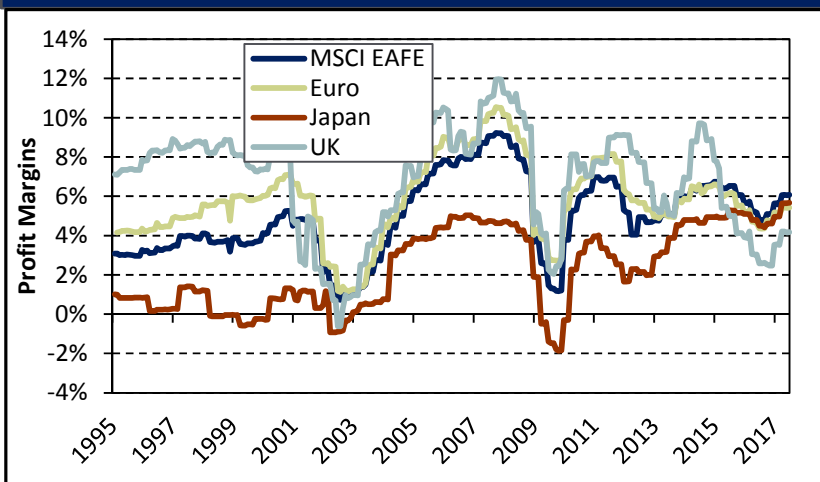
\*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

## International growth has steadied



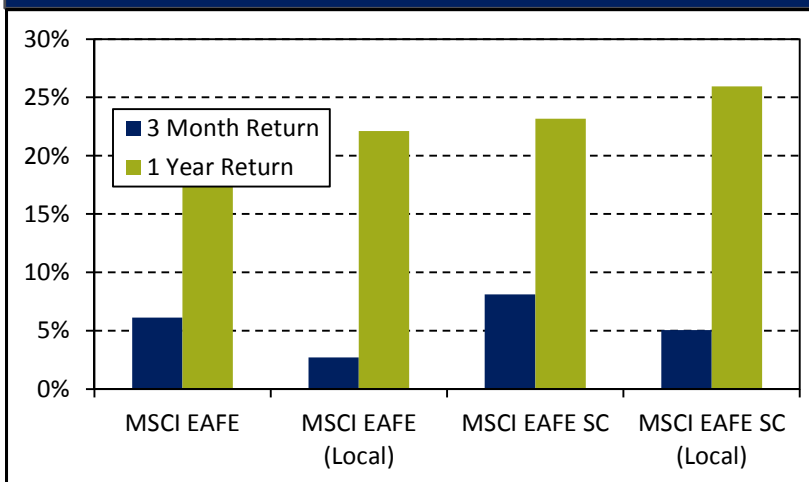
Source: Bloomberg

## Profit margins continue trending higher



Source: Bloomberg, MSCI

## Strong short-term performance for EAFE

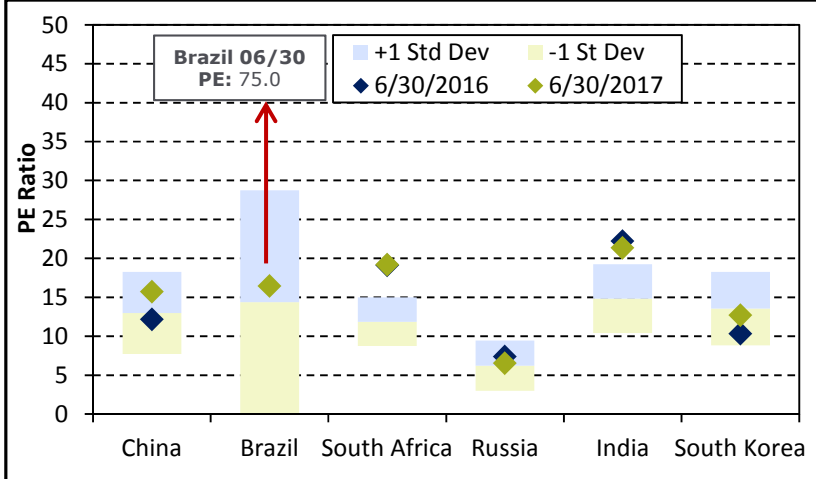


Source: Bloomberg, MSCI



# Emerging Markets Equity

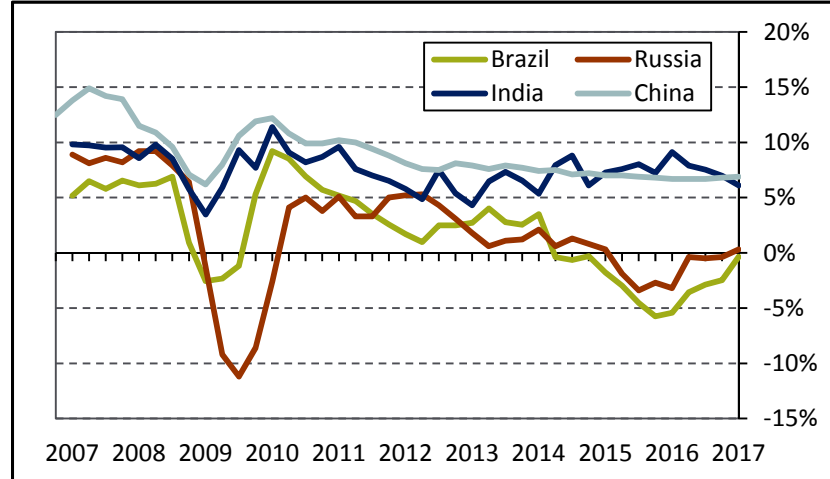
## India's valuation fell below the previous year, though still remains elevated



Source: Bloomberg, MSCI

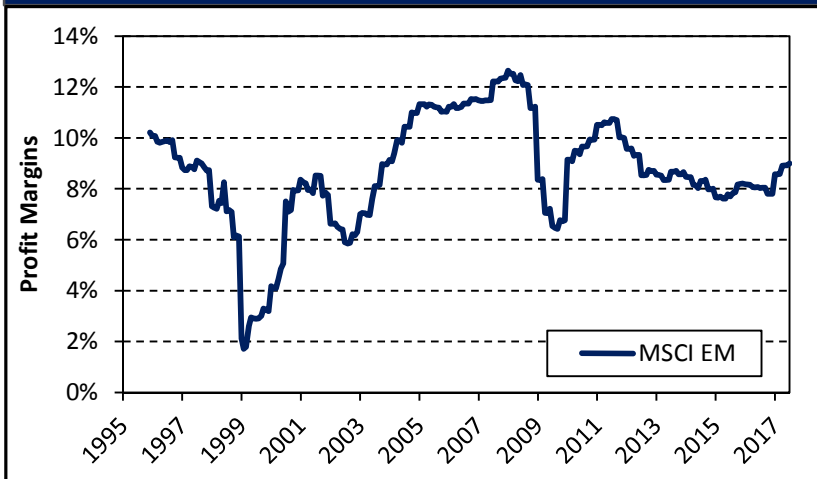
\*Standard deviation calculations based on 20 years of data, with Russia since 01/1998

## Brazil continues to rebound off earnings contraction



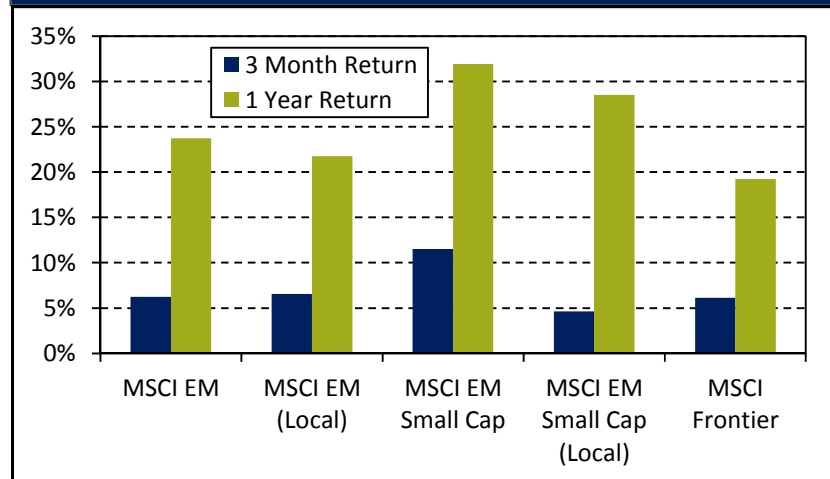
Source: Bloomberg

## Profit margins continue trending upward



Source: Bloomberg, MSCI

## EM posts strong short-term returns

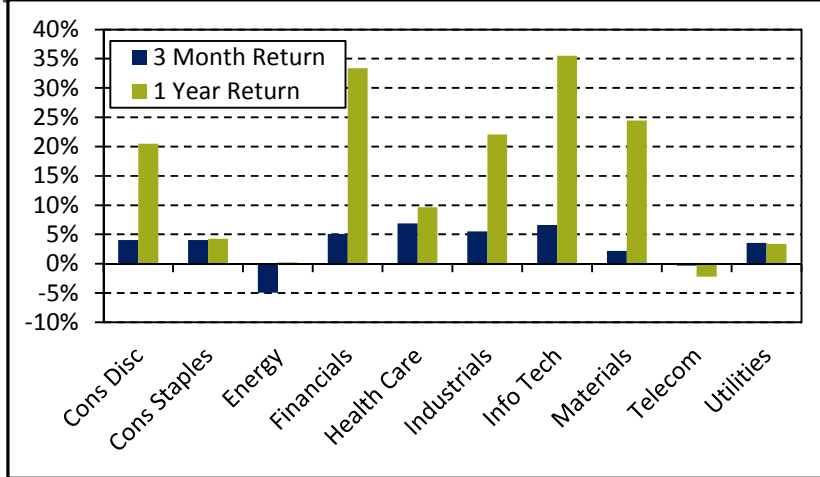


Source: Bloomberg, MSCI



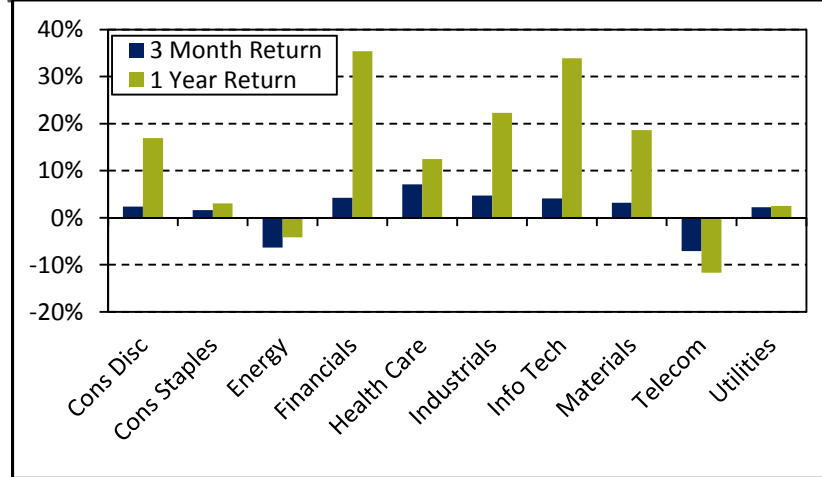
# Global Equity by Sector

## Ex-energy and telecom, MSCI ACWI has posted broad short-term returns



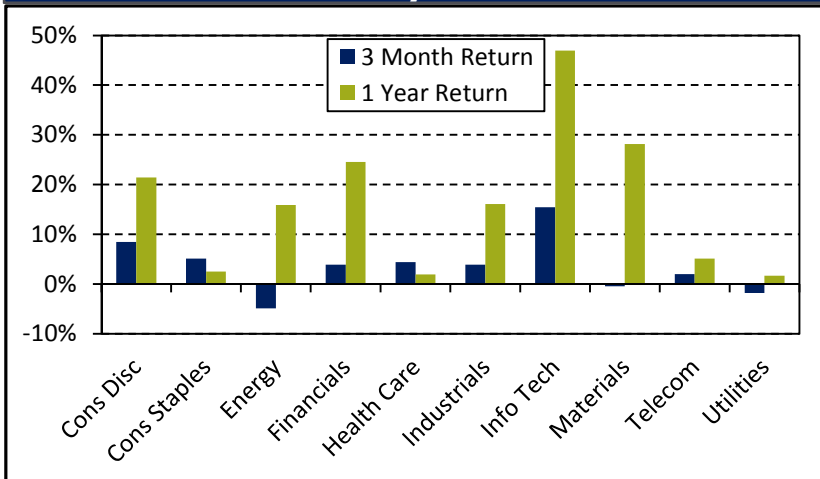
Source: Bloomberg, MSCI

## Energy and telecom sectors drag S&P 500 short-term returns



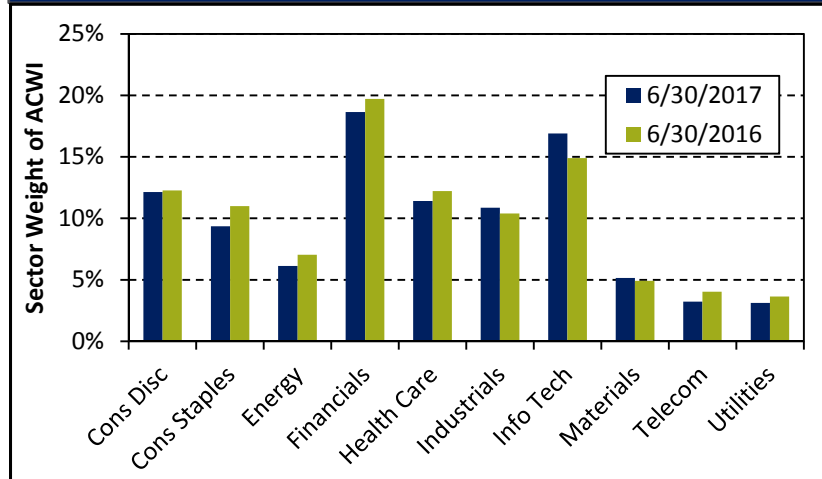
Source: Bloomberg, Standard and Poors

## MSCI EM short-term returns have been lead by Info Tech



Source: Bloomberg, MSCI

## Financials sector weight has decreased in favor of Info Tech and Industrials

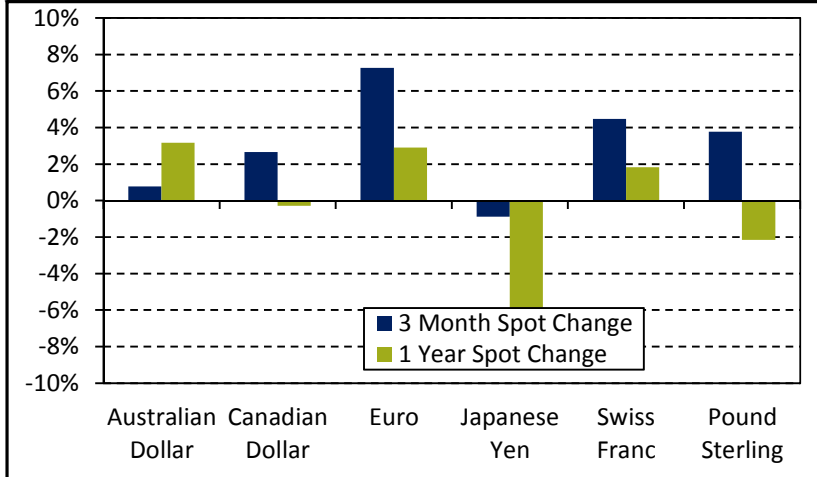


Source: Bloomberg, MSCI



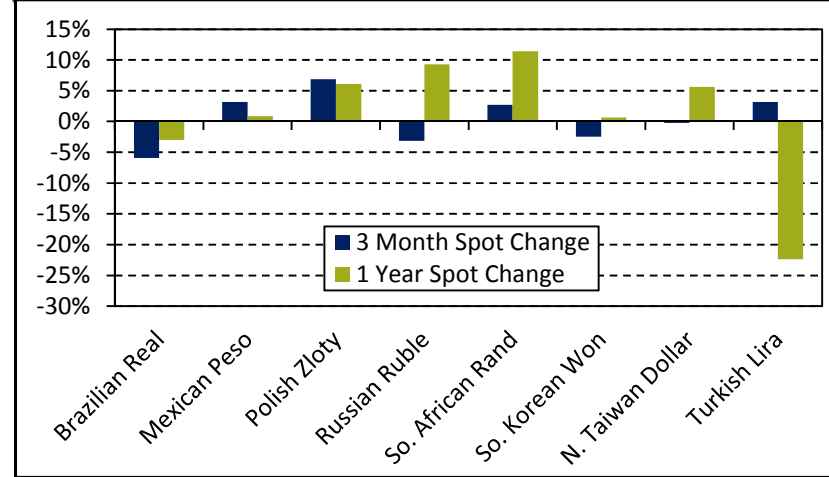
# Currencies

## Many currencies have appreciated against the dollar due to recent USD weakness



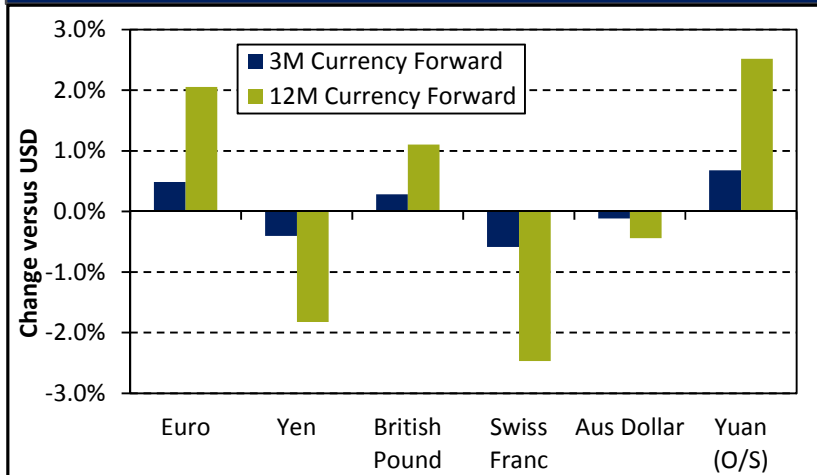
Source: Bloomberg

## EM currencies remain mixed relative to the dollar



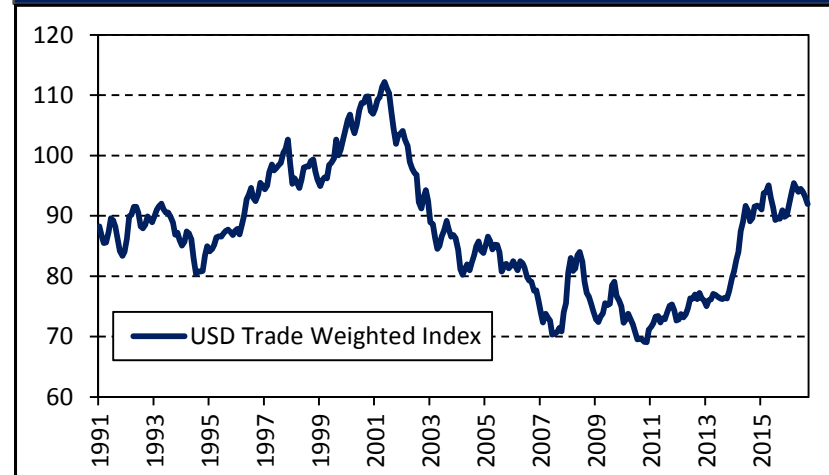
Source: Bloomberg

## USD expectations vary across developed markets



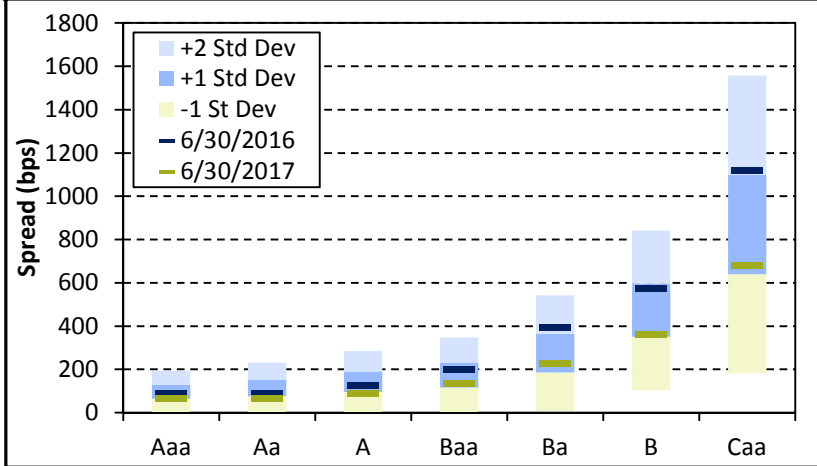
Source: Bloomberg

## The dollar continues trending downward



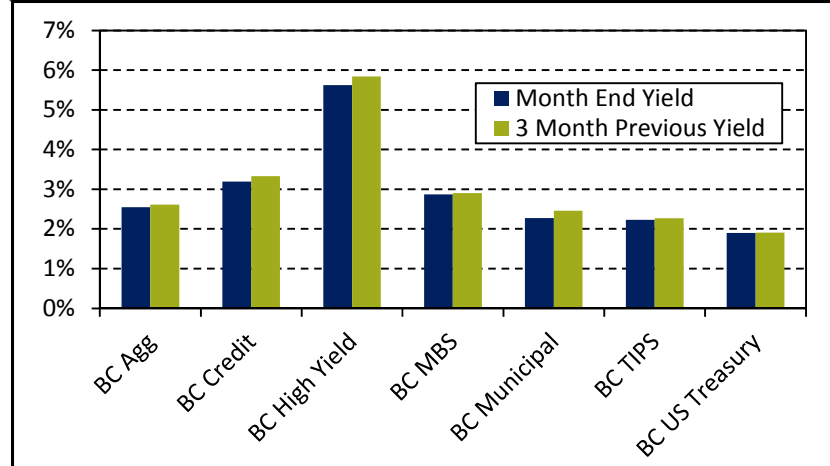
Source: Bloomberg, Federal Reserve

**Spreads remain lower than the previous year**



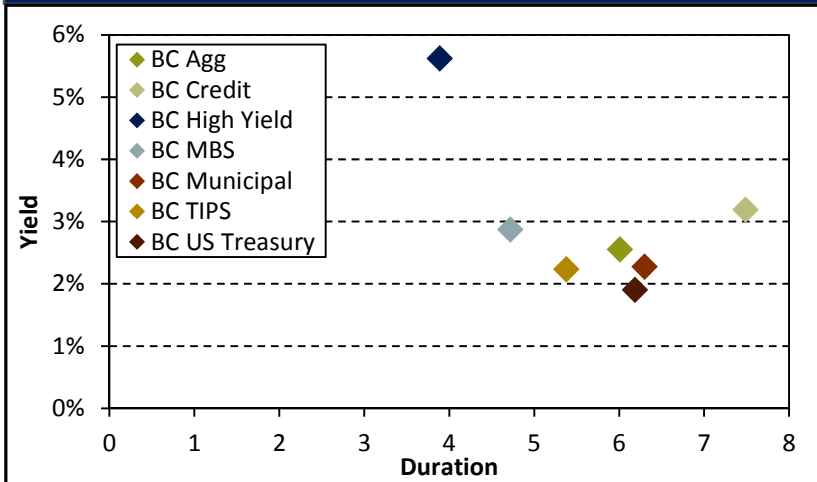
Source: Bloomberg, Barclays  
\*Standard deviation calculations based on 20 years of data

**Yields have declined slightly relative to three months prior**



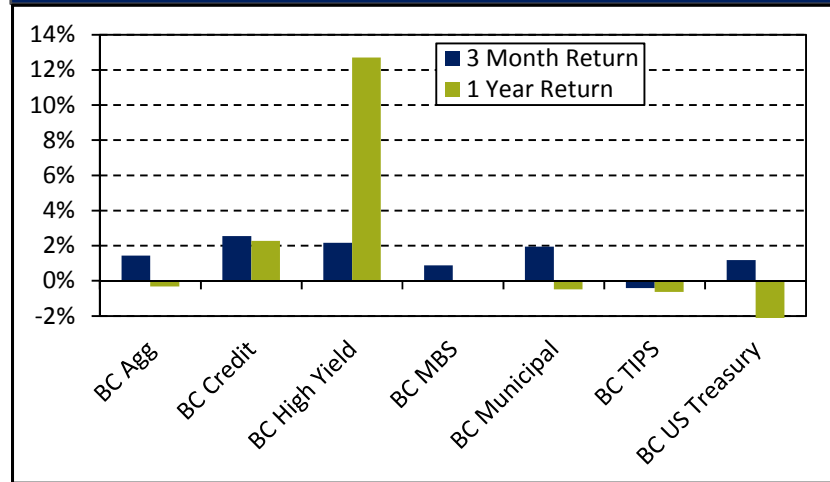
Source: Bloomberg, Barclays

**Similar duration/yield profiles among core indices**



Source: Bloomberg, Barclays

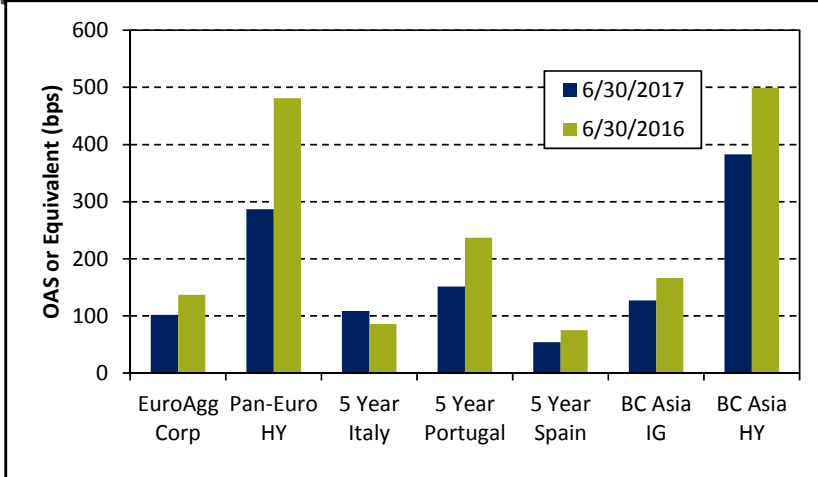
**Ex-TIPS, fixed income indices post positive short-term returns**



Source: Bloomberg, Barclays

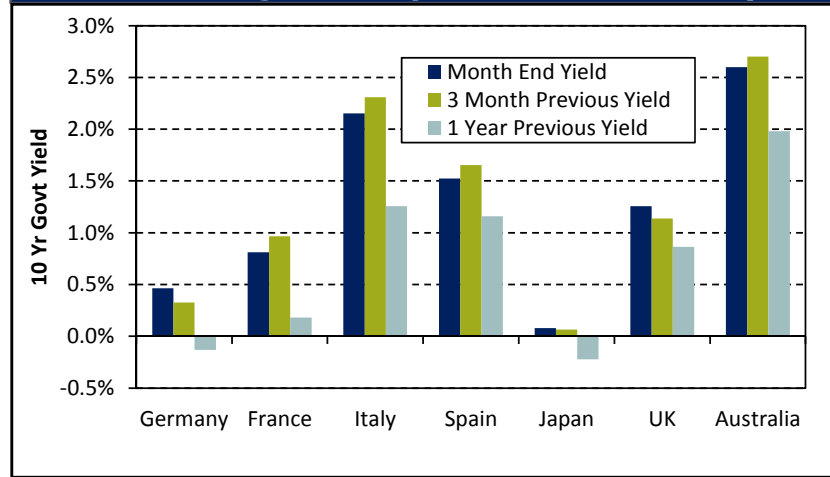
# International Developed Fixed Income

## Ex-Italy, periphery yields have declined over the year relative to Germany



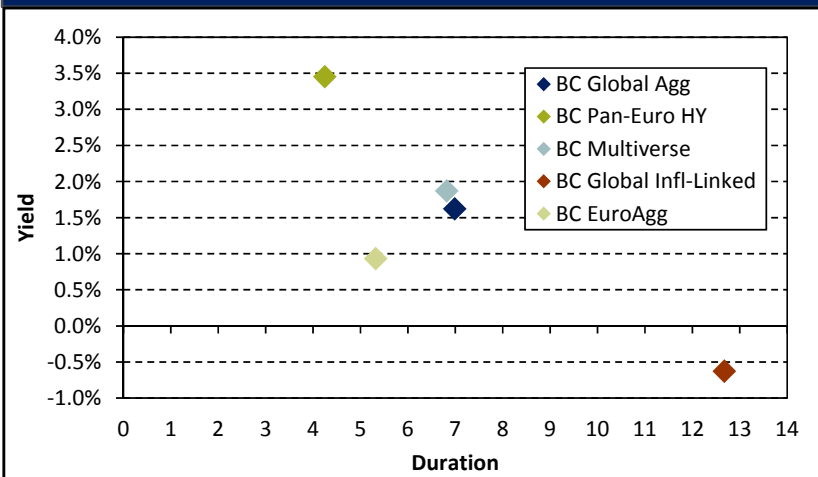
Source: Barclays, Bloomberg, \*European periphery spreads are over equivalent German Bund

## Yields continue to rise in the UK as a result of heightened political uncertainty



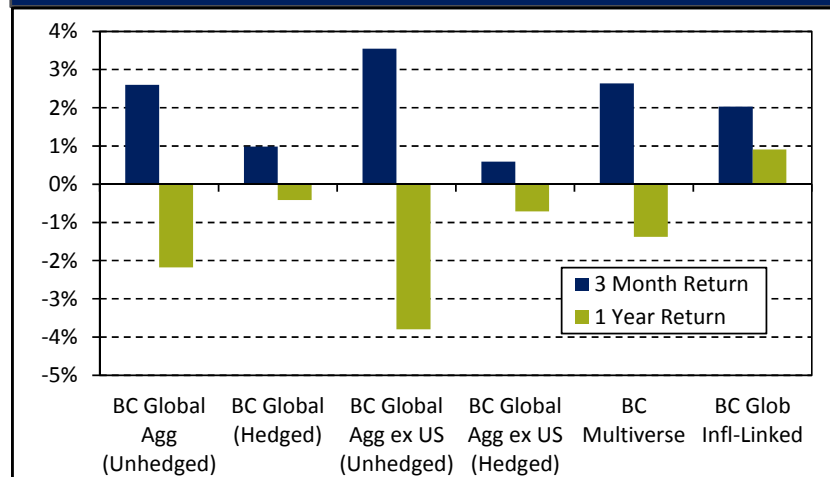
Source: Bloomberg

## Low yields persist in global bond universe



Source: Bloomberg, Citigroup, Barclays

## Global bonds post strong short-term returns

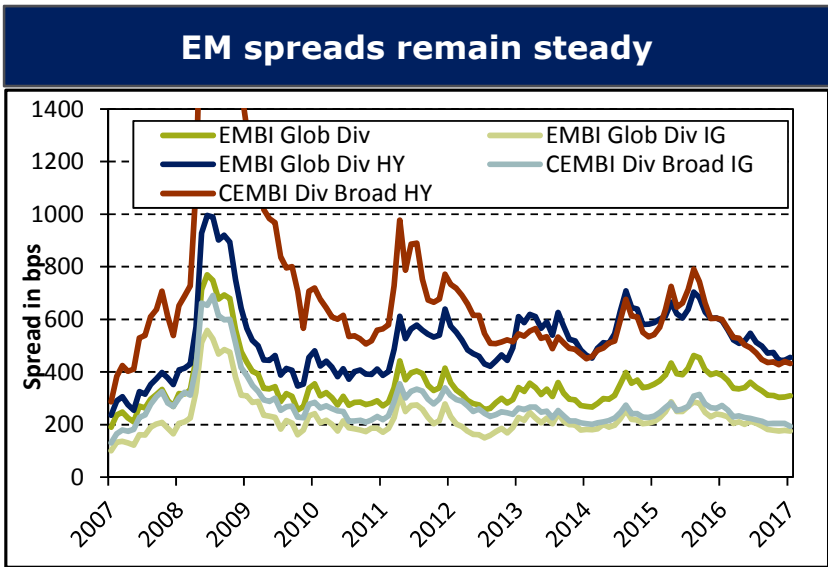


Source: Bloomberg, Citigroup, Barclays

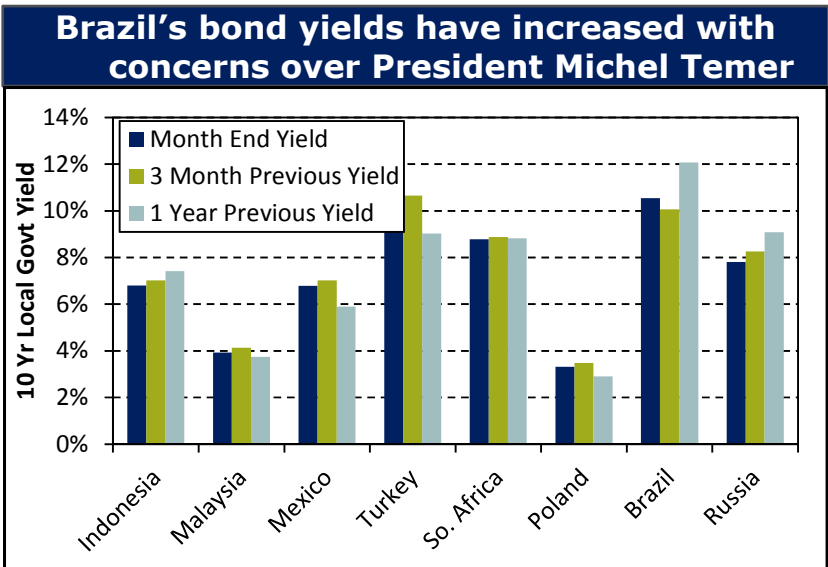




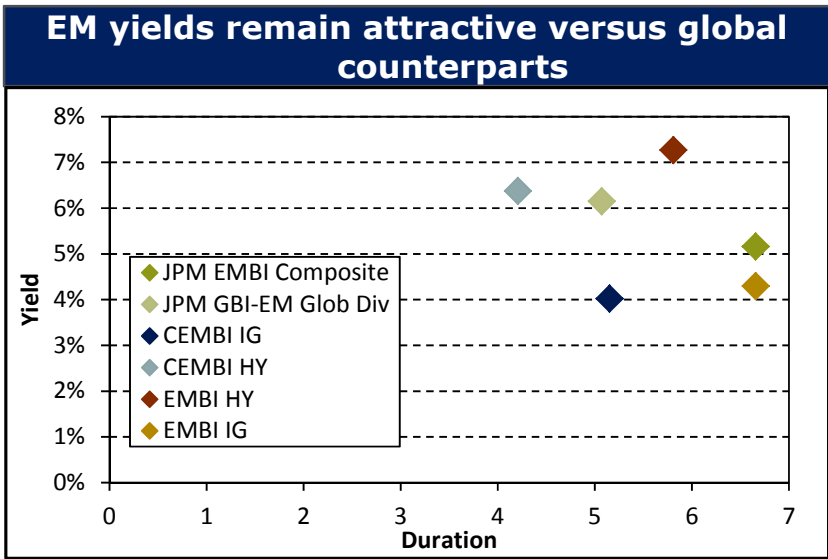
# Emerging Markets Fixed Income



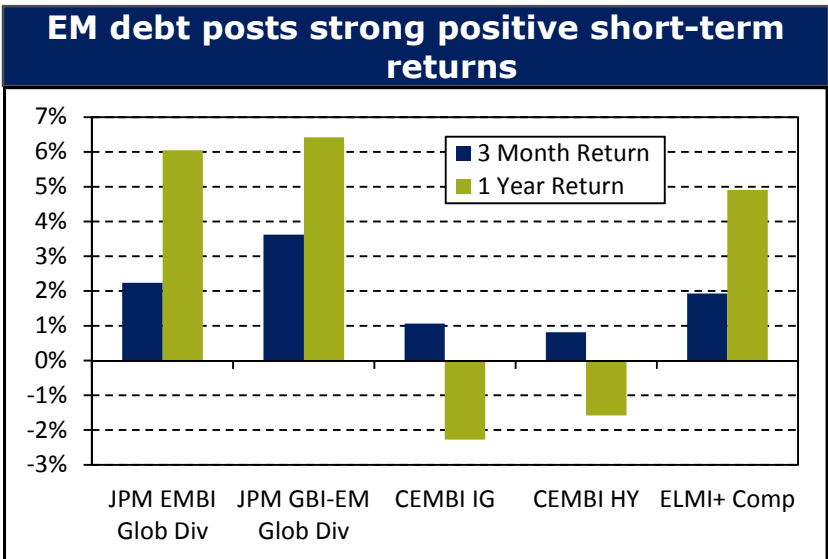
Source: Bloomberg, JP Morgan



Source: Bloomberg



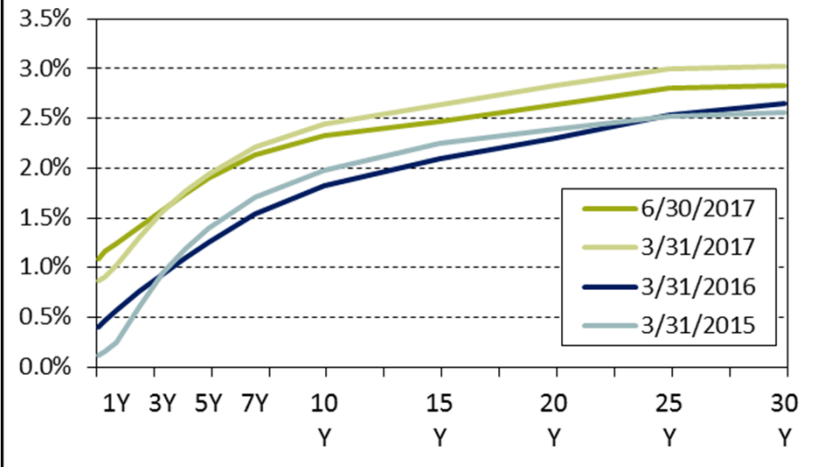
Source: Bloomberg, JP Morgan



Source: Bloomberg, JP Morgan

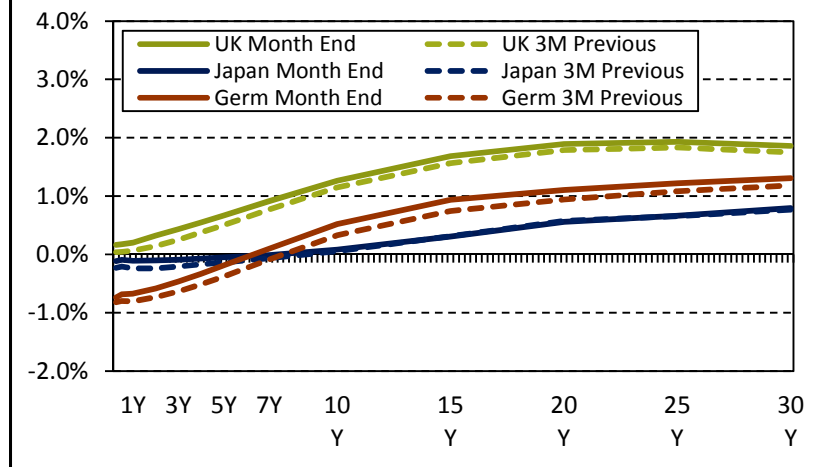
# Rates

## Short-term rate expectations increased with long-term rates declining slightly



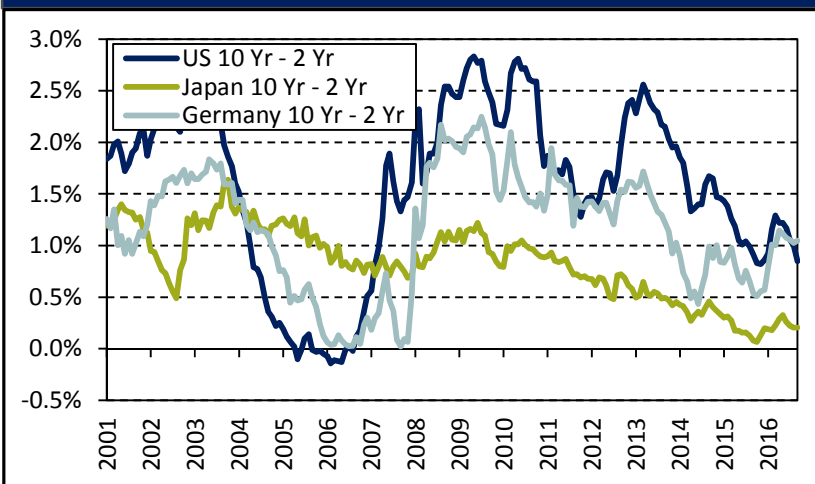
Source: Bloomberg

## Interest rate expectations have increased relative to prior months



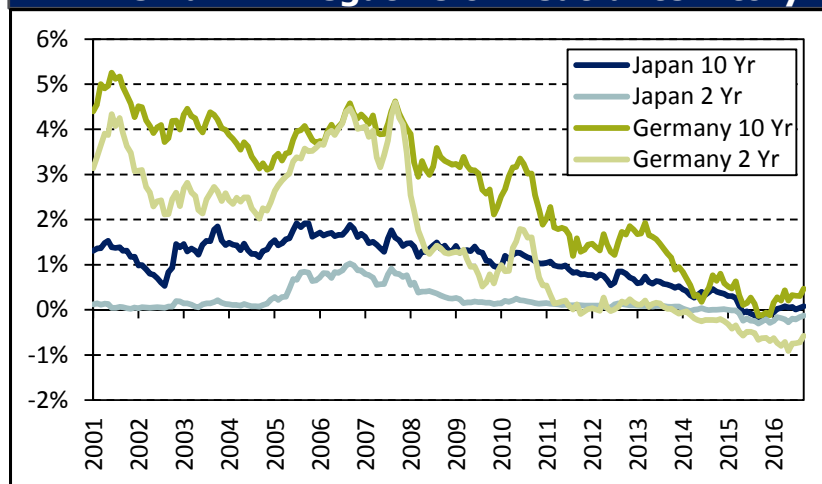
Source: Bloomberg

## 10-2 spreads continue tightening



Source: Bloomberg

## Sovereign bond yields increased, though remain in negative or neutral territory

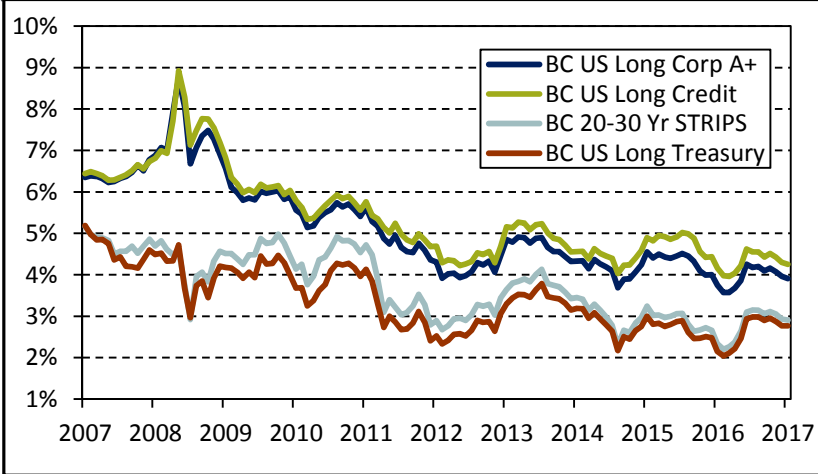


Source: Bloomberg



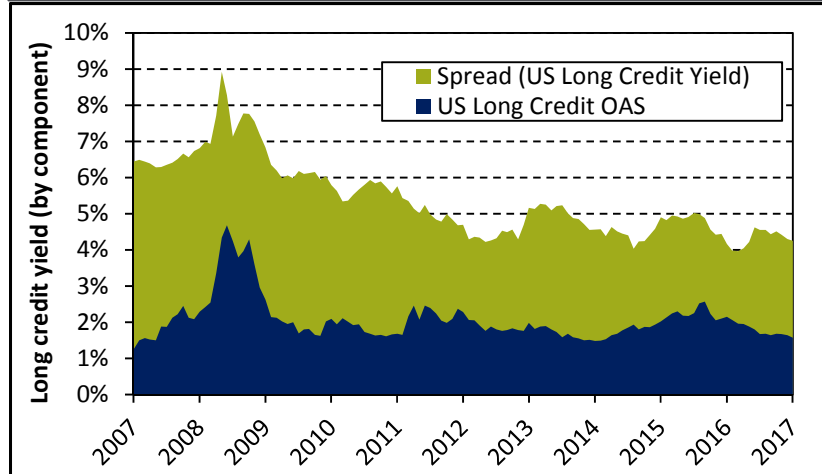
# Long Rates and Liability

## Long duration yields have steadied



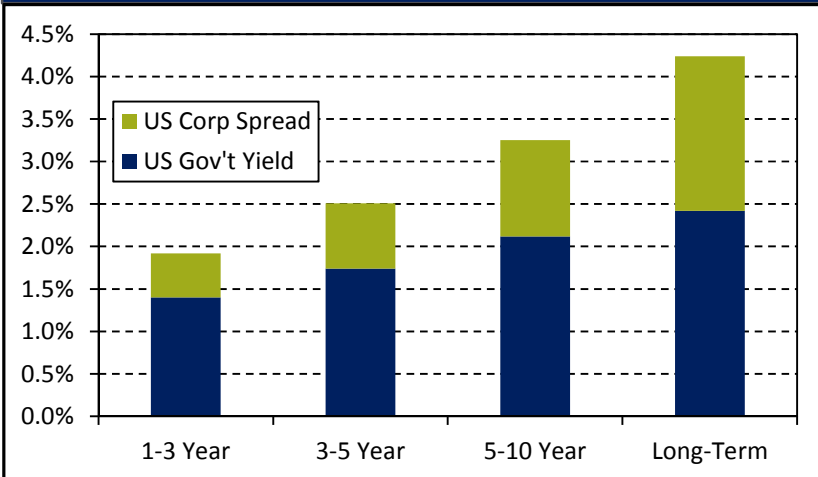
Source: Bloomberg, Citigroup, Barclays

## Long credit yield remains in line with previous years



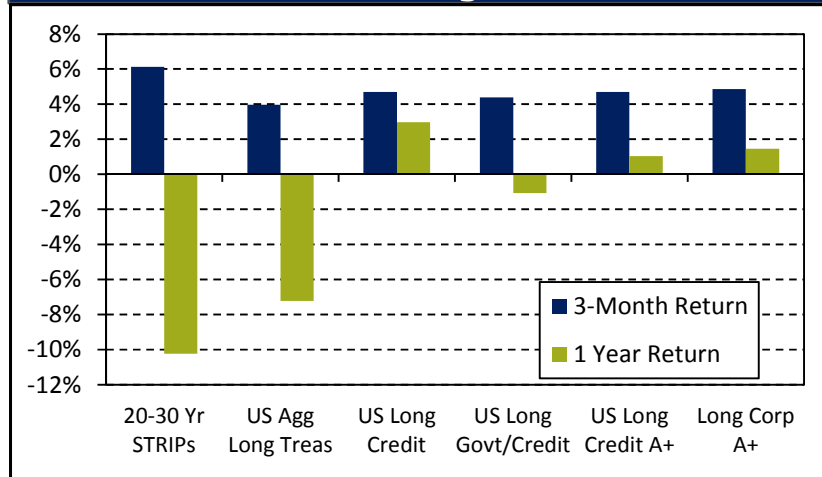
Source: Bloomberg, US Treasury, Barclays, NEPC

## Yield and spread components continue to offer modest returns



Source: Bloomberg, Barclays

## Long duration fixed income posts short-term gains

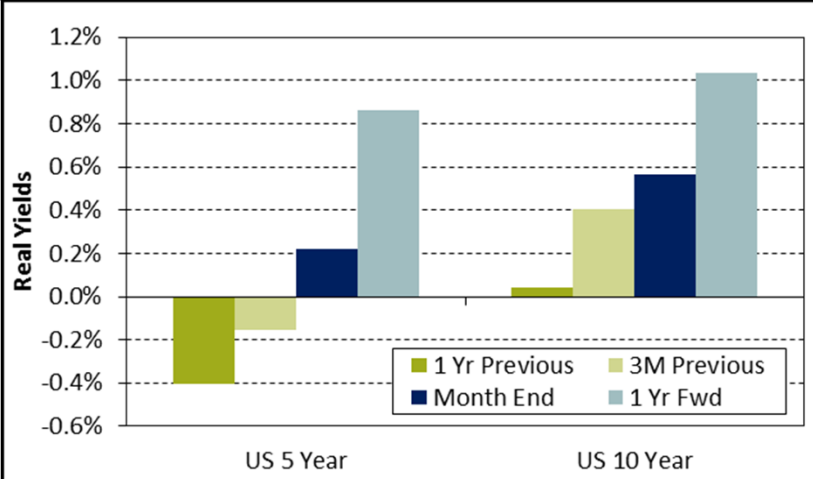


Source: Bloomberg, Barclays



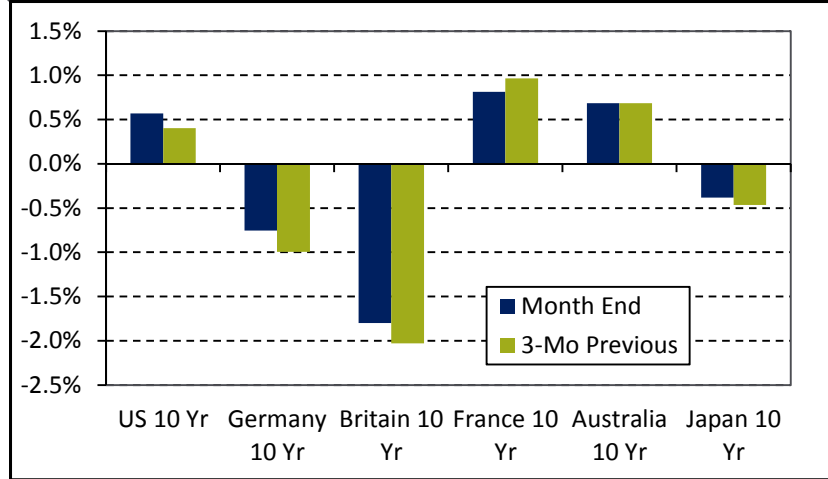
# Inflation and Real Rates

## US real yields continue to increase



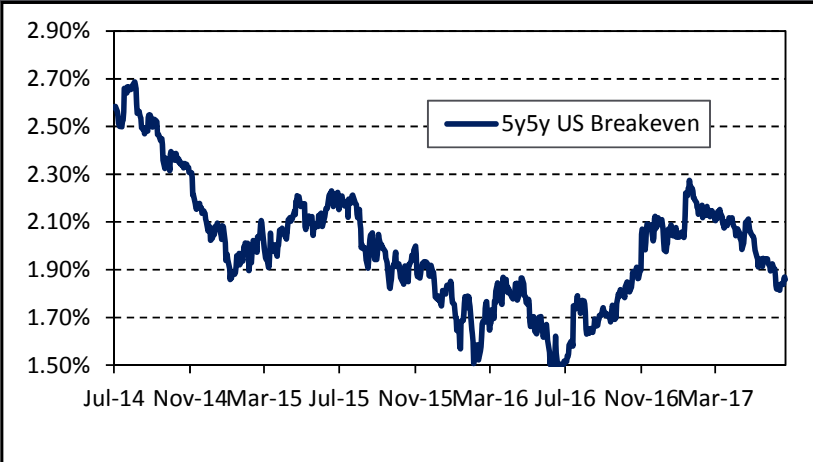
Source: Bloomberg

## French yields have declined following the election of Emmanuel Macron



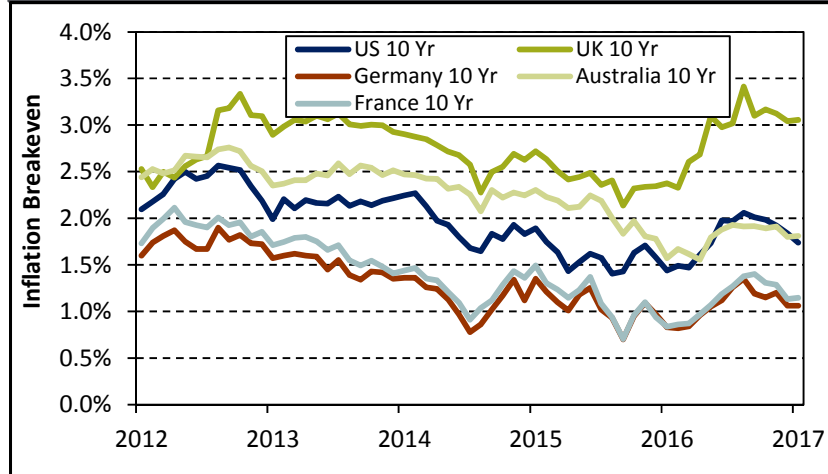
Source: Bloomberg

## US inflation expectations have decreased off of post US election highs



Source: Bloomberg

## Inflation expectations have started to decline

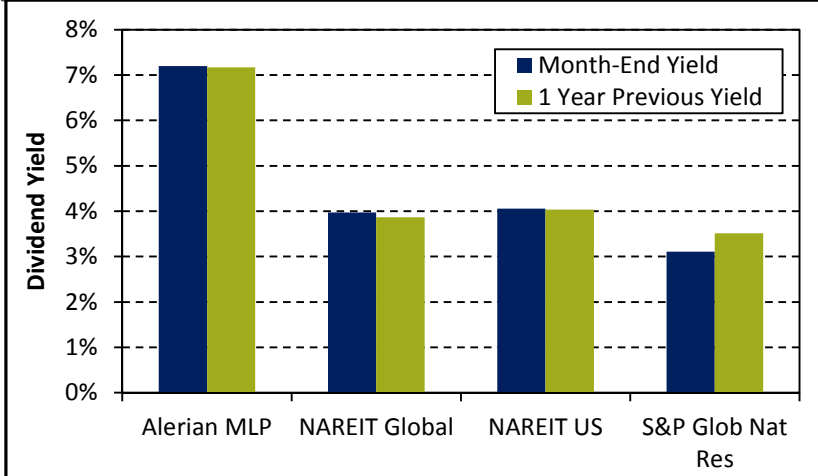


Source: Bloomberg



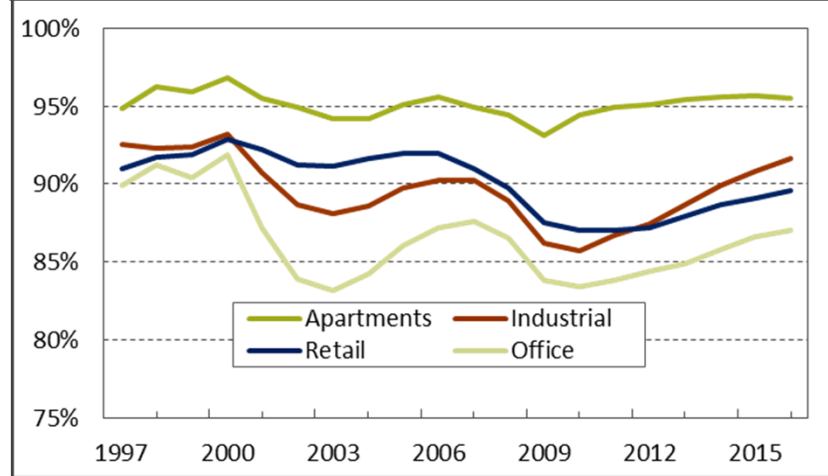
# Inflation-Sensitive Growth Assets

## Yields remain relatively similar to the previous year



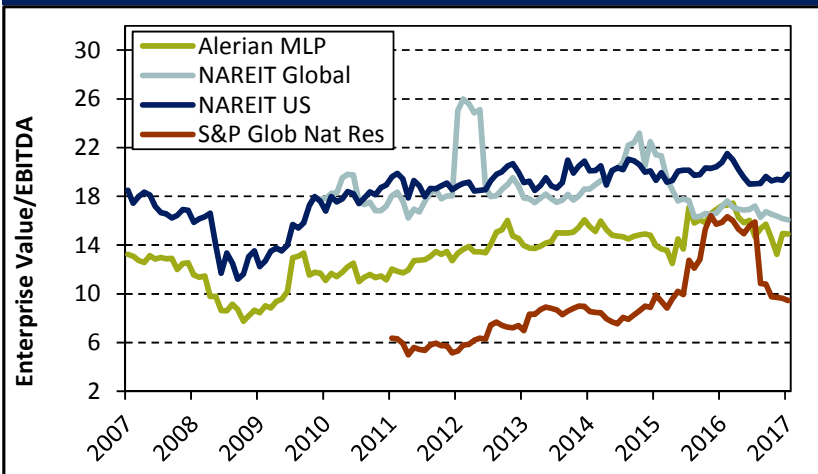
Source: Bloomberg, Alerian, Nareit, Standard and Poors

## Sustained recovery in commercial real estate occupancy rates



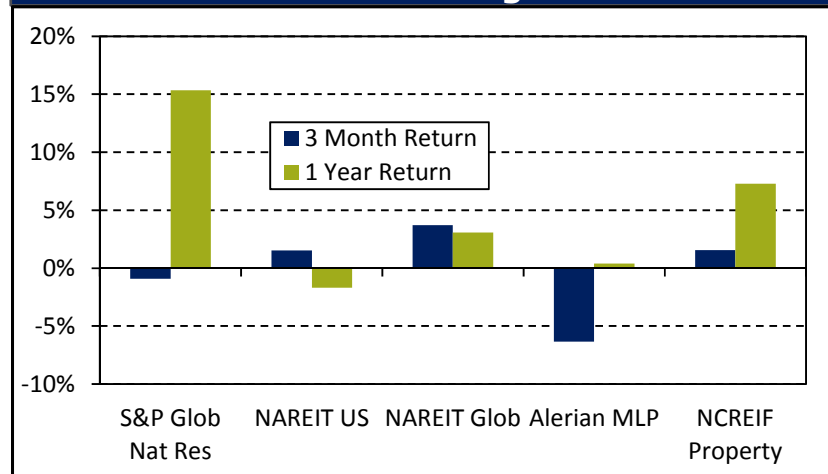
Source: CBRE

## US REIT valuations have steadied



Source: Bloomberg, US Census Bureau

## Mixed short-term performance for inflation-sensitive growth assets



Source: Bloomberg, Alerian, Nareit, Standard and Poors



## Glossary of Investment Terminology—Risk Statistics

**Alpha** - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

**Alpha Jensen** - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

**Annualized Excess Return over Benchmark** - Annualized fund return minus the annualized benchmark return for the calculated return.

**Annualized Return** - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

**Beta** - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

**Information Ratio** - A measure of the risk adjusted return of a financial security, asset, or portfolio.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.*

**R-Squared** - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

**Sharpe Ratio** - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

**Sortino Ratio** - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

*Formula:*

*Calculation Average (X-Y)/Downside Deviation (X-Y) \* 2  
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)*

**Standard Deviation** - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

*Formula:*

*(Annualized Return of Portfolio - Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)*

**Tracking Error** - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

*Formula:*

*Tracking Error = Standard Deviation (X-Y) \*  $\sqrt{(\# \text{ of periods per year})}$   
Where X = periods portfolio return and Y = the period's benchmark return  
For monthly returns, the periods per year = 12  
For quarterly returns, the periods per year = 4*

**Treynor Ratio** - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

*Formula:*

*(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta*

**Up/Down Capture Ratio** - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

*UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0*

*DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark < 0*

Data Source: InvestorForce

## Glossary of Investment Terminology

**# Of Portfolios/Observations<sup>1</sup>** – The total number of data points that make up a specified universe

**Allocation Index<sup>3</sup>** - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

**Asset Allocation Effect<sup>2</sup>** - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

**Agency Bonds (Agencies)<sup>3</sup>** - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

**Asset Backed Securities (ABS)<sup>3</sup>** - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

**Attribution<sup>3</sup>** - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

**Average Effective Maturity<sup>4</sup>** - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

**Batting Average<sup>1</sup>** - A measurement representing an investment manager's ability to meet or beat an index.

*Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.*

**Brinson Fachler (BF) Attribution<sup>1</sup>** - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

**Brinson Hood Beebower (BHB) Attribution<sup>1</sup>** - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

**Corporate Bond (Corp)<sup>4</sup>** - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

**Correlation<sup>1</sup>** - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net

## Glossary of Investment Terminology

**Coupon<sup>4</sup>** – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

**Currency Effect<sup>1</sup>** - Is the effect that changes in currency exchange rates over time affect excess performance.

**Derivative Instrument<sup>3</sup>** - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

**Downside Deviation<sup>1</sup>** - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

*Formula:*

*Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.*

**Duration<sup>3</sup>** - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

**Equity/Debt/Cash Ratio<sup>1</sup>** – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

**Foreign Bond<sup>3</sup>** - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

**Hard Hurdle<sup>5</sup>** – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

**High-Water Mark<sup>4</sup>** - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

**Hurdle Rate<sup>4</sup>** - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

**Interaction Effects<sup>2</sup>** - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

**Median<sup>3</sup>** - The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

**Modified Duration<sup>3</sup>** - The percentage change in the price of a fixed income security that results from a change in yield.

**Mortgage Backed Securities (MBS)<sup>3</sup>** - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

**Municipal Bond (Muni)<sup>4</sup>** - A debt security issued by a state, municipality or county to finance its capital expenditures.

**Net Investment Change<sup>1</sup>** – Is the change in an investment after accounting for all Net Cash Flows.

**Performance Fee<sup>4</sup>** - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net



## Glossary of Investment Terminology

**Policy Index<sup>3</sup>** - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

**Price to Book (P/B)<sup>4</sup>** - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

**Price to Earnings (P/E)<sup>3</sup>** - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

**Price to Sales (P/S)<sup>4</sup>** - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

**Return on Equity (ROE)<sup>4</sup>** - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

**Selection (or Manager) Effect<sup>2</sup>** - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

**Soft Hurdle rate<sup>5</sup>** - is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

**Tiered Fee<sup>1</sup>** - A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

**Total Effects<sup>2</sup>** - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

**Total Return<sup>1</sup>** - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

**Universe<sup>3</sup>** - The list of all assets eligible for inclusion in a portfolio.

**Upside Deviation<sup>1</sup>** - Standard Deviation of Positive Returns

**Weighted Avg. Market Cap.<sup>4</sup>** - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

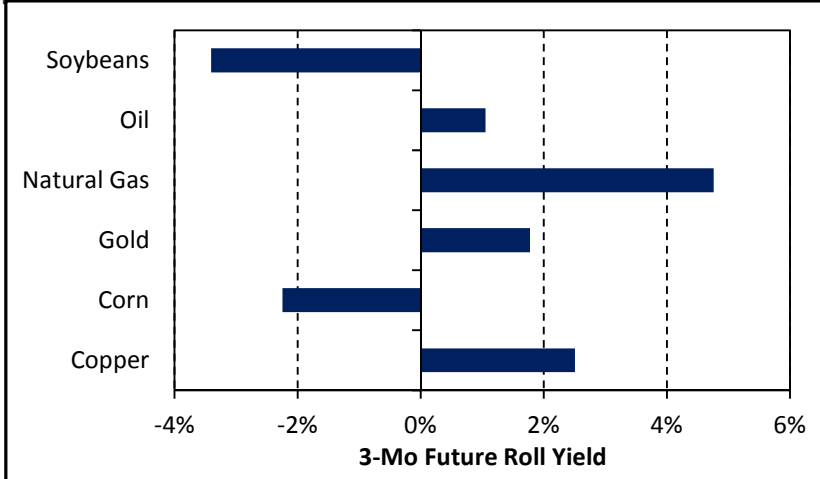
**Yield (%)<sup>3</sup>** - The current yield of a security is the current indicated annual dividend rate divided by current price.

**Yield to Maturity<sup>3</sup>** - The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: <sup>1</sup>InvestorForce, <sup>2</sup>Interaction Effect Performance Attribution, <sup>3</sup>NEPC, LLC, <sup>4</sup>Investopedia, <sup>5</sup>Hedgeco.net

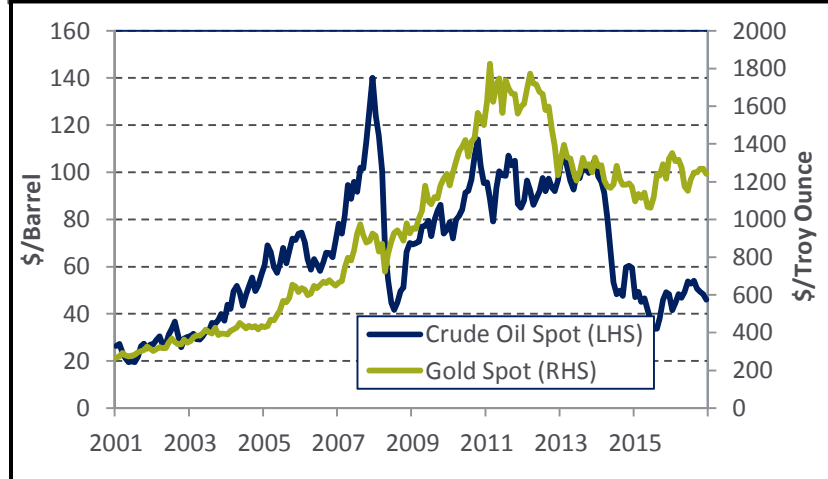
# Commodities

## Roll yield remains a hurdle for investing directly in certain commodities



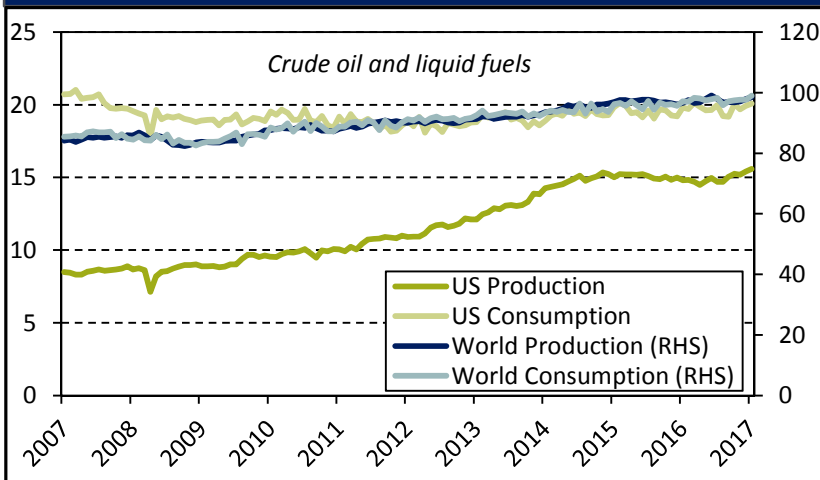
Source: Bloomberg

## Oil has recently experienced a steady decline



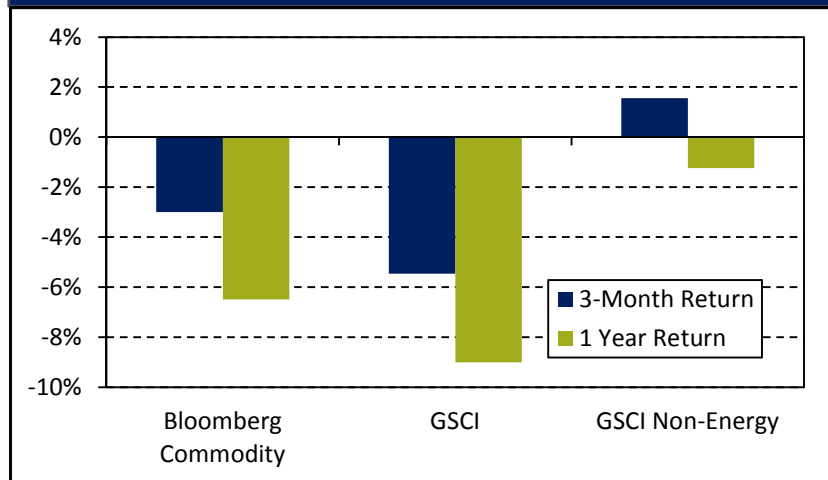
Source: Bloomberg

## Oil production and consumption has steadied



Source: Bloomberg, US Department of Energy \*Crude oil and liquid fuels

## Commodities have declined significantly over the short-term



Source: Bloomberg, Standard and Poors



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- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
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