



NEPC, LLC

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**San Bernardino County Employees' Retirement Association**

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

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# Market Environment Update and Outlook

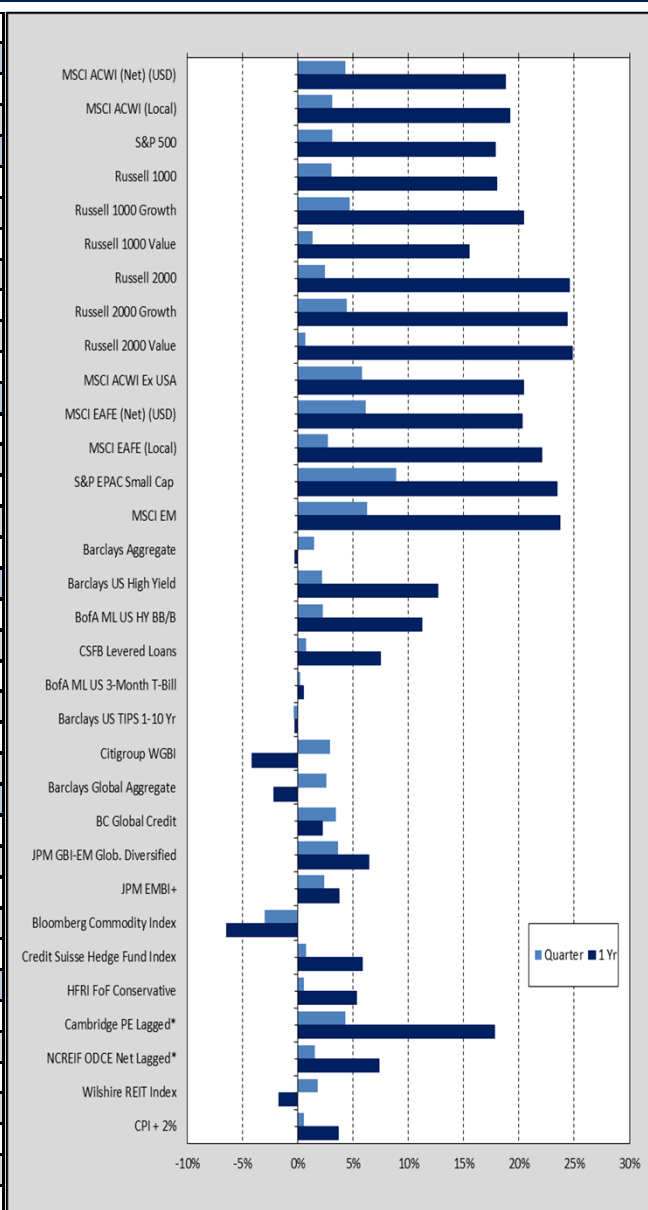


- **Second quarter GDP growth rate (advance estimate) is estimated at 2.6%.**
  - Retail sales ended May at +4.2% on a YoY basis. In the same period last year the YoY growth rate was 1.6%.
  - Corporate profits (ended January) as a percent of GDP decreased slightly to 9.1% from 9.2% (in October) and 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.

# San Bernardino County Employees' Retirement Association

## 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.

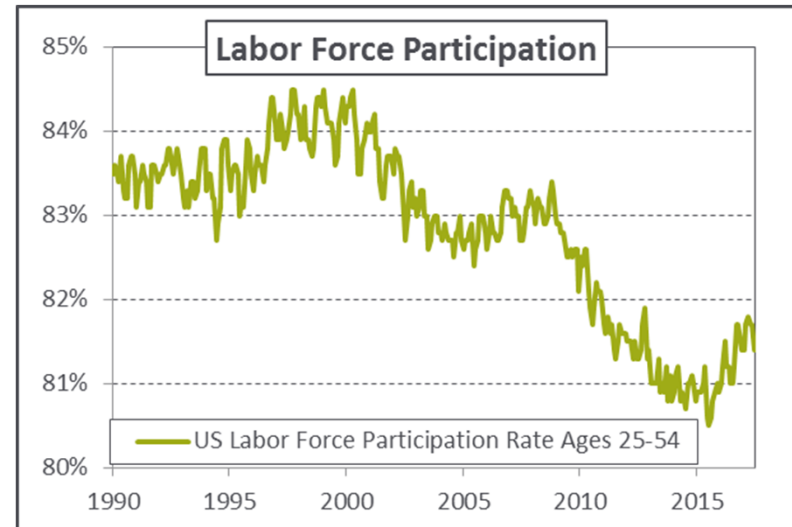


## Extended US Economic Cycle

### 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

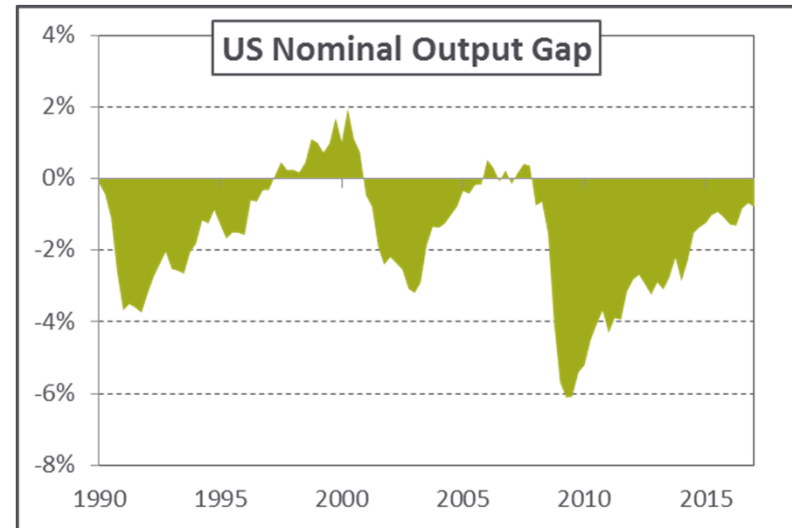


Source: FRED

### US household balance sheets have room to expand and support further consumer spending gains

Improvement of economic conditions in Europe and emerging markets reinforce US economic gains as global growth factors synchronize

US corporate profitability is near all time highs and may be a challenge for companies to boost economic growth rate



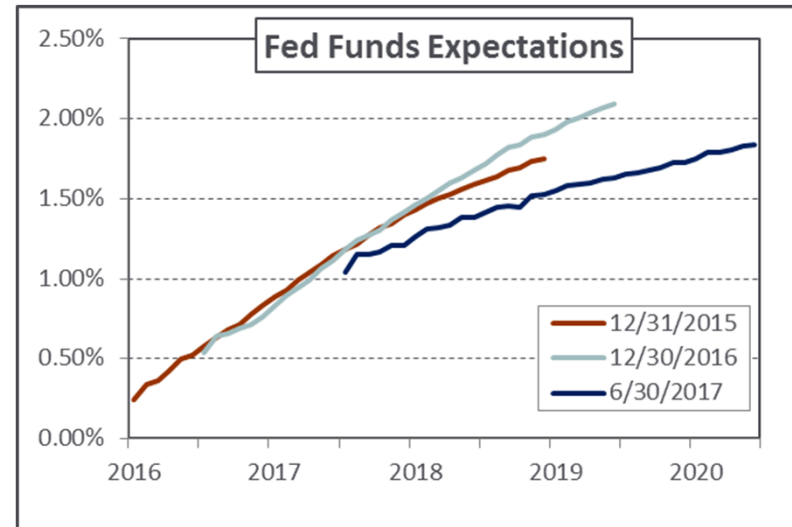
Source: Congressional Budget Office, Bloomberg

## 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

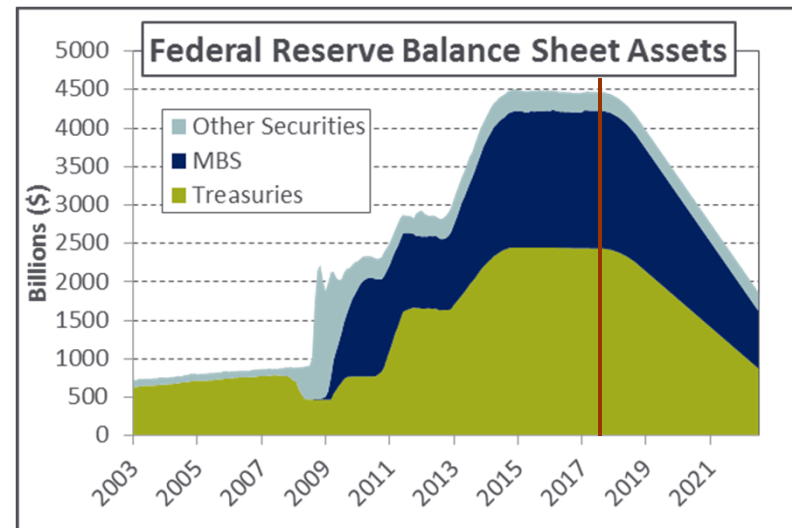


Source: Fed, Bloomberg

### 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.”*

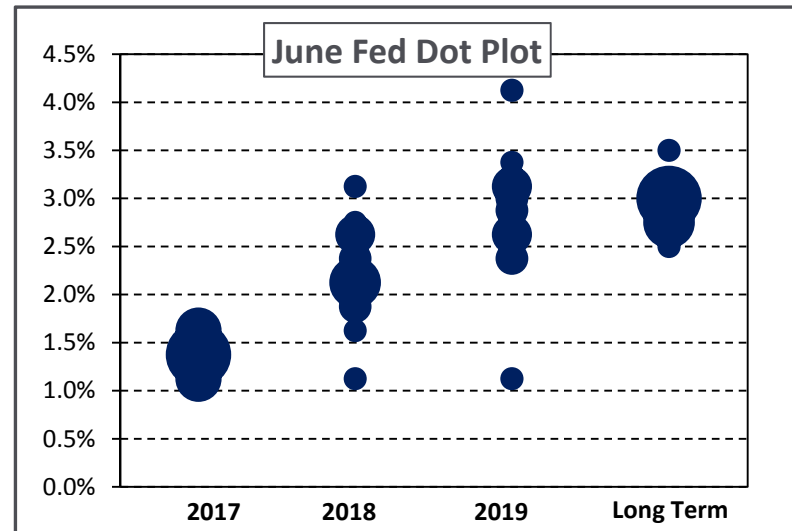
- Fed Chair Janet Yellen July 12<sup>th</sup>, 2017

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

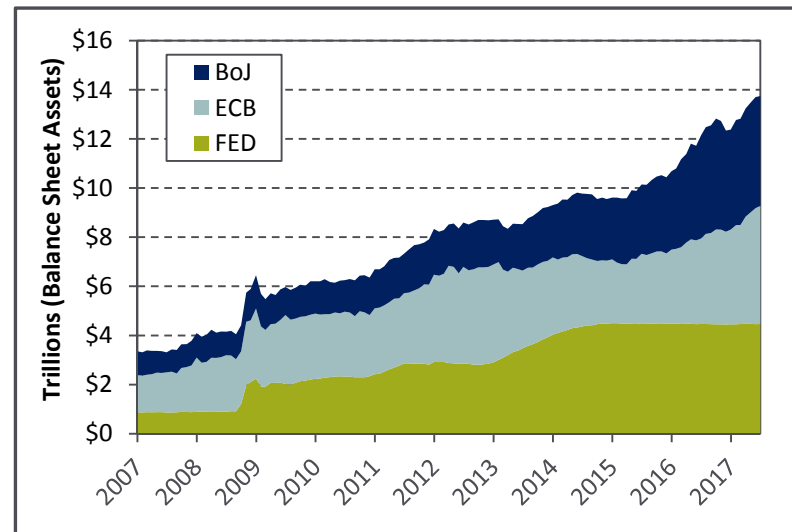
**ECB:** “A very substantial degree of monetary accommodation is still needed for underlying inflation pressures to gradually build...”

- 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

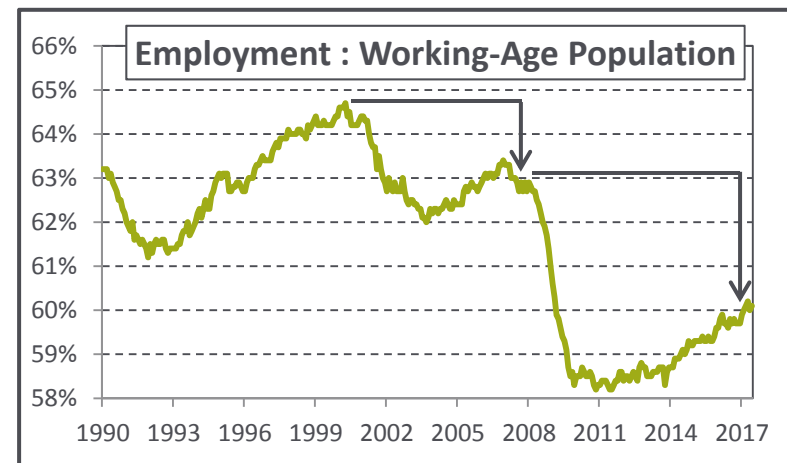
*“With further gradual adjustments in the stance of monetary policy, the economy will continue to expand at a moderate pace over the next couple of years, with the job market strengthening somewhat further and inflation rising to 2%”*

- 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

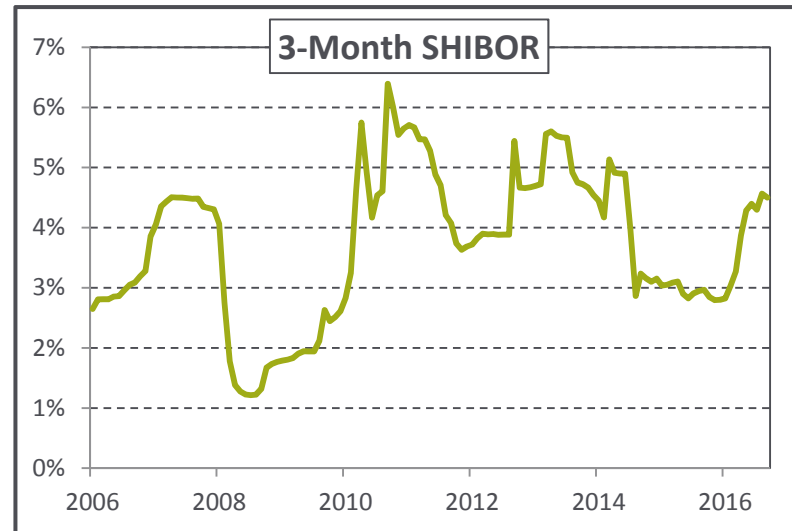
Fixed investment is required to sustain the production based economy and support labor force migration

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

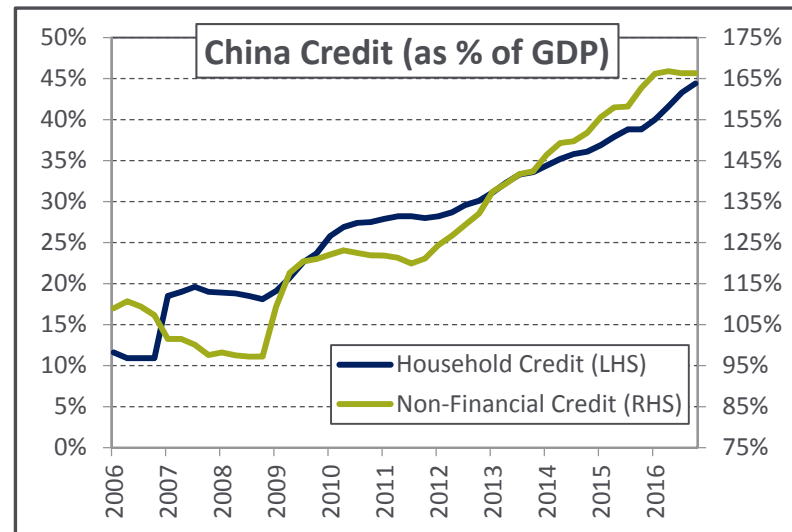
**China's government is negotiating a balance between deleveraging and near term economic growth**

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)

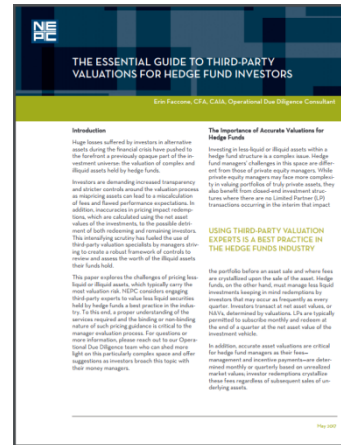
## Webinar Replays

- 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

- 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

# San Bernardino County Employees' Retirement Association

## Total Fund Performance Summary (Gross)

	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
<b>Total Fund</b>	<b>\$9,197,095,393</b>	<b>2.6%</b>	<b>79</b>	<b>6.2%</b>	<b>88</b>	<b>13.7%</b>	<b>31</b>	<b>5.7%</b>	<b>46</b>	<b>8.8%</b>	<b>58</b>	<b>4.3%</b>	<b>85</b>
<i>Policy Index</i>		2.7%	77	6.2%	88	7.9%	95	3.9%	90	6.8%	93	4.7%	69
<i>S&amp;P 500</i>		3.1%	54	9.3%	7	17.9%	1	9.6%	1	14.6%	1	7.2%	1
<i>BBgBarc US Aggregate TR</i>		1.4%	97	2.3%	99	-0.3%	99	2.5%	95	2.2%	97	4.5%	75
<i>60% MSCI ACWI (Gross)/40% CITI WGBI</i>		3.8%	6	8.8%	14	9.5%	93	2.9%	95	6.6%	94	4.3%	84
<i>InvestorForce Public DB &gt; \$1B Gross Median</i>		3.1%		7.6%		12.8%		5.4%		9.1%		5.2%	

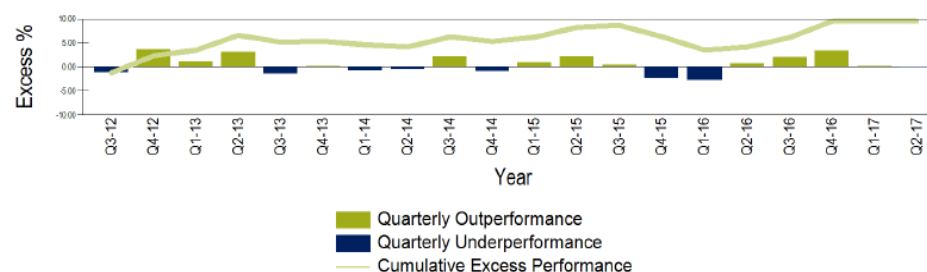
In the year ended June 30, 2017 the Fund returned 13.7% ranking in the 31<sup>st</sup> percentile of Public Funds > \$1Billion. The Fund's assets totaled \$9.20 billion, an increase of \$1.07 billion from a year ago.

The Fund experienced a net investment gain of \$1.13 billion in the year ended June 30, 2017 including a net investment gain of \$242.6 million in the second calendar quarter.

In the three –year period ended June 30, 2017 the Fund returned 5.7% and ranked in the 46<sup>th</sup> percentile among its peers. The Sharpe Ratio over this period of 1.5 ranks in the 1<sup>st</sup> percentile, indicating that the Fund earned a much higher rate of return for each incremental unit of risk taken during the period versus its peers.

In the five-year period ended June 30, 2017 the Fund returned 8.8% per annum and ranked in the 58<sup>th</sup> percentile among its peers. On a risk adjusted basis the Fund's Sharpe and Sortino Ratios rank in the 1<sup>st</sup> and 2<sup>nd</sup> percentile indicating both strong returns per unit of risk taken and strong returns per unit of downside risk experienced when compared to a universe of public fund peers >\$1B.

Quarterly and Cumulative Gross Performance vs. Policy



### Statistics Summary

#### 3 Years Ending June 30, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	1.5	1	2.6	2
InvestorForce Public DB > \$1B Gross Median	0.8	--	1.4	--

#### 5 Years Ending June 30, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	2.6	1	4.2	2
InvestorForce Public DB > \$1B Gross Median	1.5	--	2.4	--

Note: InvestorForce Public Funds >\$1B Gross of Fee final universe contains 86 portfolios with \$1.64 trillion in assets



**Total Fund Performance Summary**

**Statistics Summary**

**1 Year Ending June 30, 2017**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	13.7%	31	1.4%	2	9.5	1	--	--
InvestorForce Public DB > \$1B Gross Median	12.8%	--	3.2%	--	3.8	--	6.5	--

**Statistics Summary**

**3 Years Ending June 30, 2017**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	5.7%	46	3.6%	2	1.5	1	2.6	2
InvestorForce Public DB > \$1B Gross Median	5.4%	--	6.1%	--	0.8	--	1.4	--

**Statistics Summary**

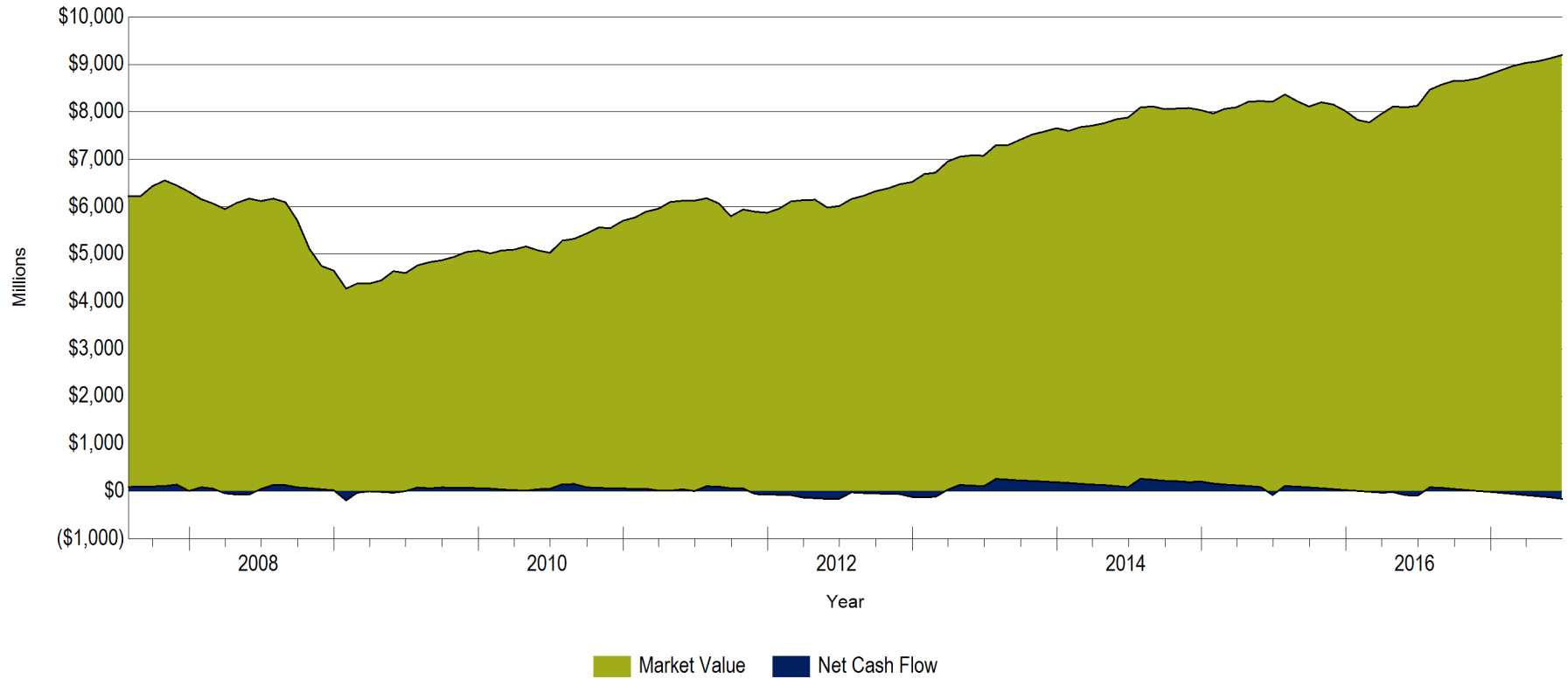
**5 Years Ending June 30, 2017**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	8.8%	58	3.3%	2	2.6	1	4.2	2
InvestorForce Public DB > \$1B Gross Median	9.1%	--	5.8%	--	1.5	--	2.4	--

Sortino Ratio requires at least two negative points during the time period in order to calculate

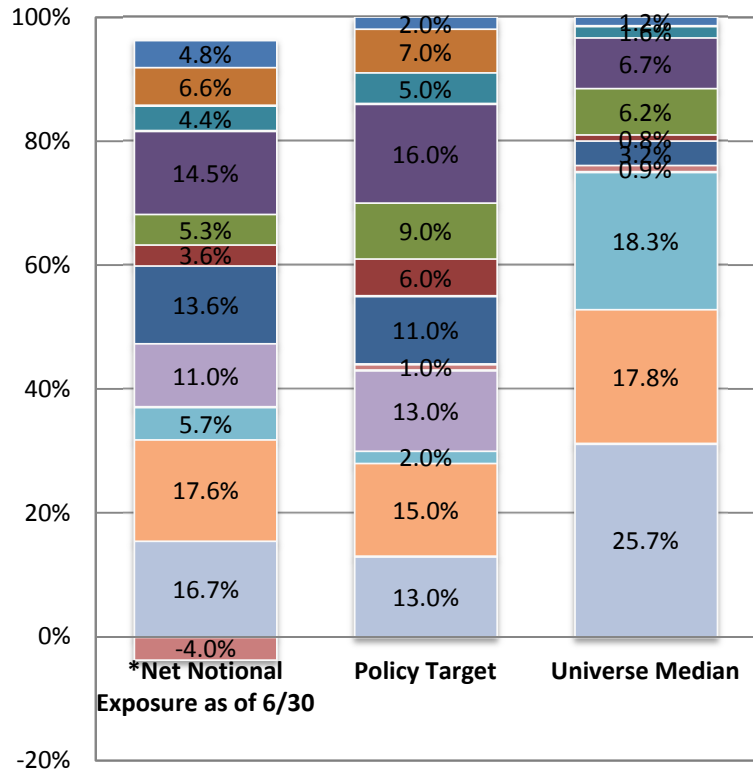
**Total Fund Asset Growth Summary**

10 Years Ending June 30, 2017



	Last Three Months	One Year	Five Years	Ten Years
Beginning Market Value	\$9,032,099,324	\$8,128,956,525	\$6,013,012,206	\$6,206,502,583
Net Cash Flow	-\$77,588,093	-\$63,712,564	\$10,305,406	-\$153,910,668
Net Investment Change	\$242,584,162	\$1,131,851,432	\$3,173,777,780	\$3,144,503,477
Ending Market Value	\$9,197,095,393	\$9,197,095,393	\$9,197,095,393	\$9,197,095,393

## Total Fund Asset Allocation vs. Policy Targets



	*Net Notional Exposure	*Net Notional Exposure as of 6/30	Policy Target	*Difference	Policy Ranges	Within Range
US Equities	1,538,677	16.7%	13.0%	3.7%	8%-18%	Yes
Int'l Equities	1,619,894	17.6%	15.0%	2.6%	10%-20%	Yes
U.S. Core	525,547	5.7%	2.0%	3.7%	-3%-7%	Yes
US Credit	1,013,597	11.0%	13.0%	-2.0%	8%-18%	Yes
Non-US Core Fixed Income	(367,884)	-4.0%	1.0%	-5.0%	-4%-6%	Yes
Non-US Credit	1,252,324	13.6%	11.0%	2.6%	6%-16%	Yes
Emerging Market Debt	335,287	3.6%	6.0%	-2.4%	1%-11%	Yes
Real Estate	488,295	5.3%	9.0%	-3.7%	4%-14%	Yes
Private Equity	1,335,428	14.5%	16.0%	-1.5%	11%-21%	Yes
Real Assets	405,996	4.4%	5.0%	-0.6%	0%-10%	Yes
Absolute Return	607,651	6.6%	7.0%	-0.4%	2%-12%	Yes
Cash	442,283	4.8%	2.0%	2.8%	0%-10%	Yes
	9,197,095	100.0%	100.0%			

- US Equities
- Int'l Equities
- U.S. Core
- US Credit
- Non-US Core Fixed Income
- Non-US Credit
- Emerging Market Debt
- Real Estate
- Private Equity
- Real Assets

\*Net Notional Exposure is the combination of physical exposures as reported by State Street and the synthetic exposures reported by Russell. Universe Medians are a quarter lagged due to availability

San Bernardino County Employees' Retirement Association  
**SBCERA Delta Adjusted Asset Summary**

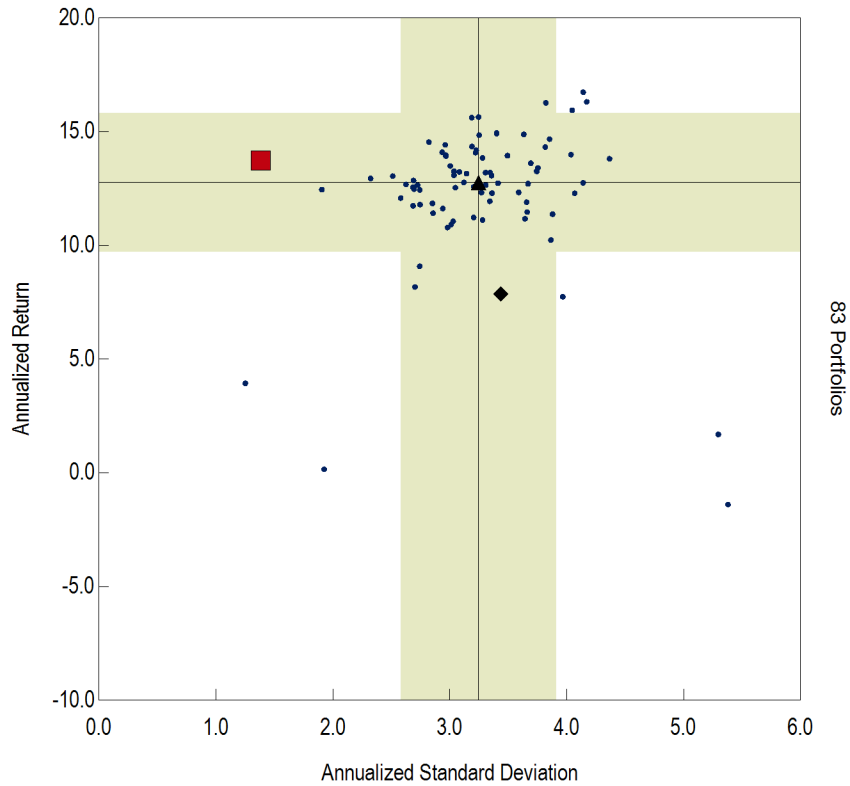
<u>Asset Class</u>	<u>Physical Exposure</u>		<u>Delta Adjusted</u>		<u>Net Position</u>		<u>Overlay Target</u>		<u>Policy Target</u>	
			<u>Synthetic Exposure</u>							
<b>Total Market Value</b>	<b>8,977.0</b>	<b>100.0%</b>	<b>0.0</b>	<b>0.0%</b>	<b>8,977.0</b>	<b>100.0%</b>	<b>8,977.0</b>	<b>100.0%</b>	<b>8,977.0</b>	<b>100.00%</b>
Cash	1,470.1	16.38%	-1,422.0	-15.84%	48.1	0.54%	0.0	0.0%	0.0	0.00%
Cash	1,470.1	16.38%	-1,422.0	-15.84%	48.1	0.54%	0.0	0.0%	0.0	0.00%
<b>Equity</b>	<b>1,308.2</b>	<b>14.57%</b>	<b>1,851.6</b>	<b>20.63%</b>	<b>3,159.8</b>	<b>35.2%</b>	<b>3,225.8</b>	<b>35.93%</b>	<b>3,321.5</b>	<b>37.00%</b>
Emerging Markets	481.7	5.37%	184.6	2.06%	666.3	7.42%	697.5	7.77%	718.2	8.00%
Equity Delta Hedge	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
International Developed	123.6	1.38%	831.6	9.26%	955.2	10.64%	959.0	10.68%	987.5	11.00%
US Large Cap	702.9	7.83%	527.0	5.87%	1,229.9	13.7%	1,264.2	14.08%	1,301.7	14.50%
US Small Cap	0.1	0.0%	308.4	3.44%	308.5	3.44%	305.1	3.4%	314.2	3.50%
<b>Fixed</b>	<b>2,866.9</b>	<b>31.94%</b>	<b>-429.6</b>	<b>-4.79%</b>	<b>2,437.3</b>	<b>27.15%</b>	<b>2,419.4</b>	<b>26.95%</b>	<b>2,491.1</b>	<b>27.75%</b>
EM High Yield CDX	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
Global ex US Fixed Income	1,877.3	20.91%	-727.0	-8.1%	1,150.3	12.81%	1,133.4	12.63%	1,167.0	13.00%
High Yield **	989.6	11.02%	0.0	0.0%	989.6	11.02%	828.3	9.23%	852.8	9.50%
US Fixed Income	0.0	0.0%	297.4	3.31%	297.4	3.31%	457.7	5.1%	471.3	5.25%
<b>Other</b>	<b>3,331.8</b>	<b>37.11%</b>	<b>0.0</b>	<b>0.0%</b>	<b>3,331.8</b>	<b>37.11%</b>	<b>3,331.8</b>	<b>37.11%</b>	<b>3,164.4</b>	<b>35.25%</b>
Alternatives	187.3	2.09%	0.0	0.0%	187.3	2.09%	187.3	2.09%	197.5	2.20%
Commodities	133.5	1.49%	0.0	0.0%	133.5	1.49%	133.5	1.49%	152.6	1.70%
Infrastructure	73.5	0.82%	0.0	0.0%	73.5	0.82%	73.5	0.82%	71.8	0.80%
Private Equity	1,211.0	13.49%	0.0	0.0%	1,211.0	13.49%	1,211.0	13.49%	1,185.0	13.20%
Real Estate	555.1	6.18%	0.0	0.0%	555.1	6.18%	555.1	6.18%	457.8	5.10%
Tactical Cash	1,171.5	13.05%	0.0	0.0%	1,171.5	13.05%	1,171.5	13.05%	1,099.7	12.25%

\*\* HY CDX credit spread protection of \$700mm face is not reflected on Asset Summary

Source: Russell Investments

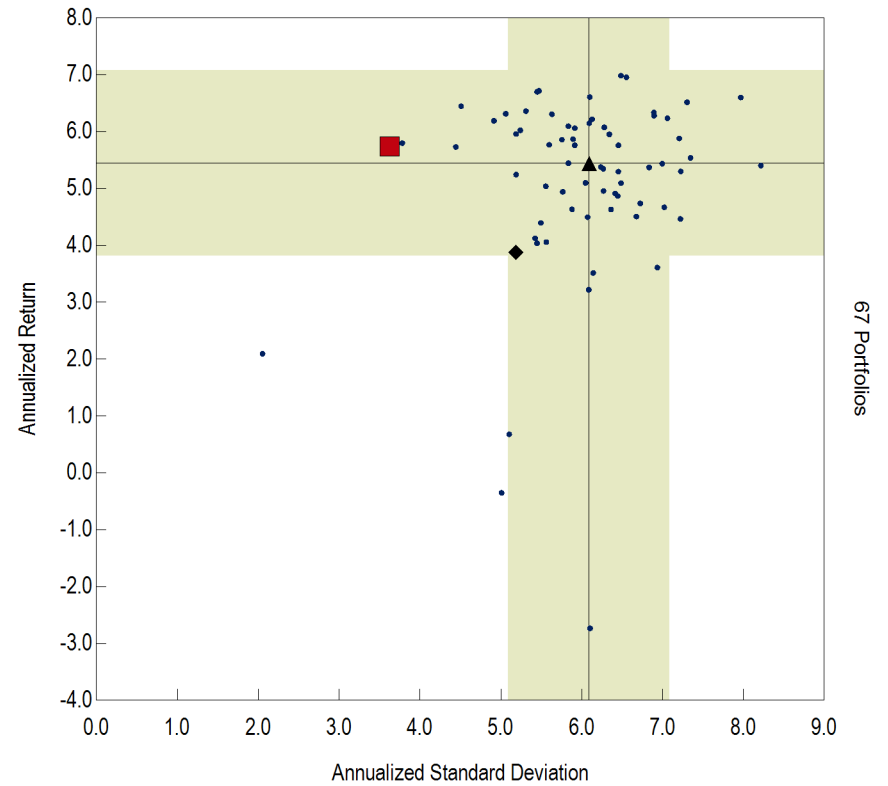
Total Fund Risk/Return

1 Year Ending June 30, 2017



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

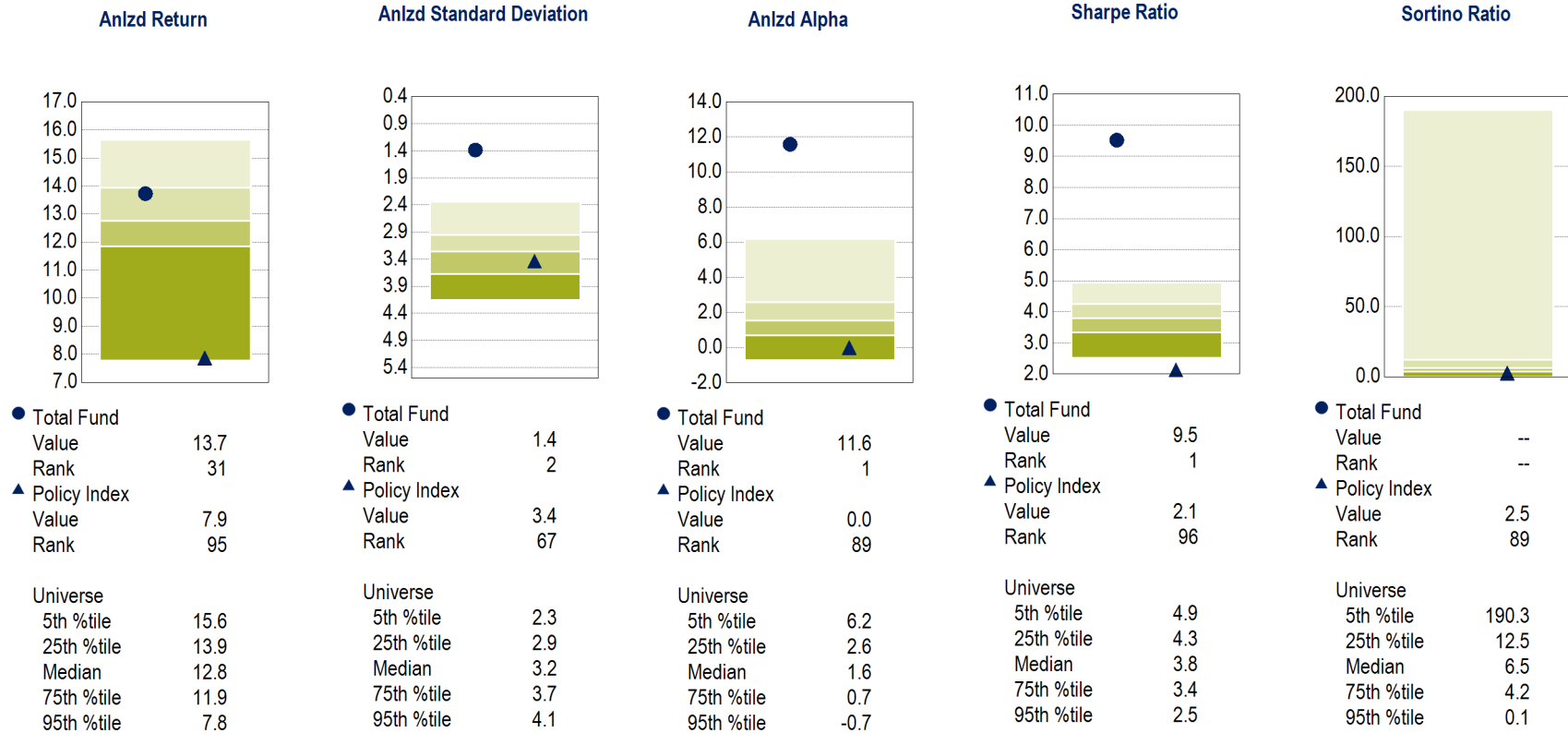
3 Years Ending June 30, 2017



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

Total Fund Risk Statistics vs. Peer Universe

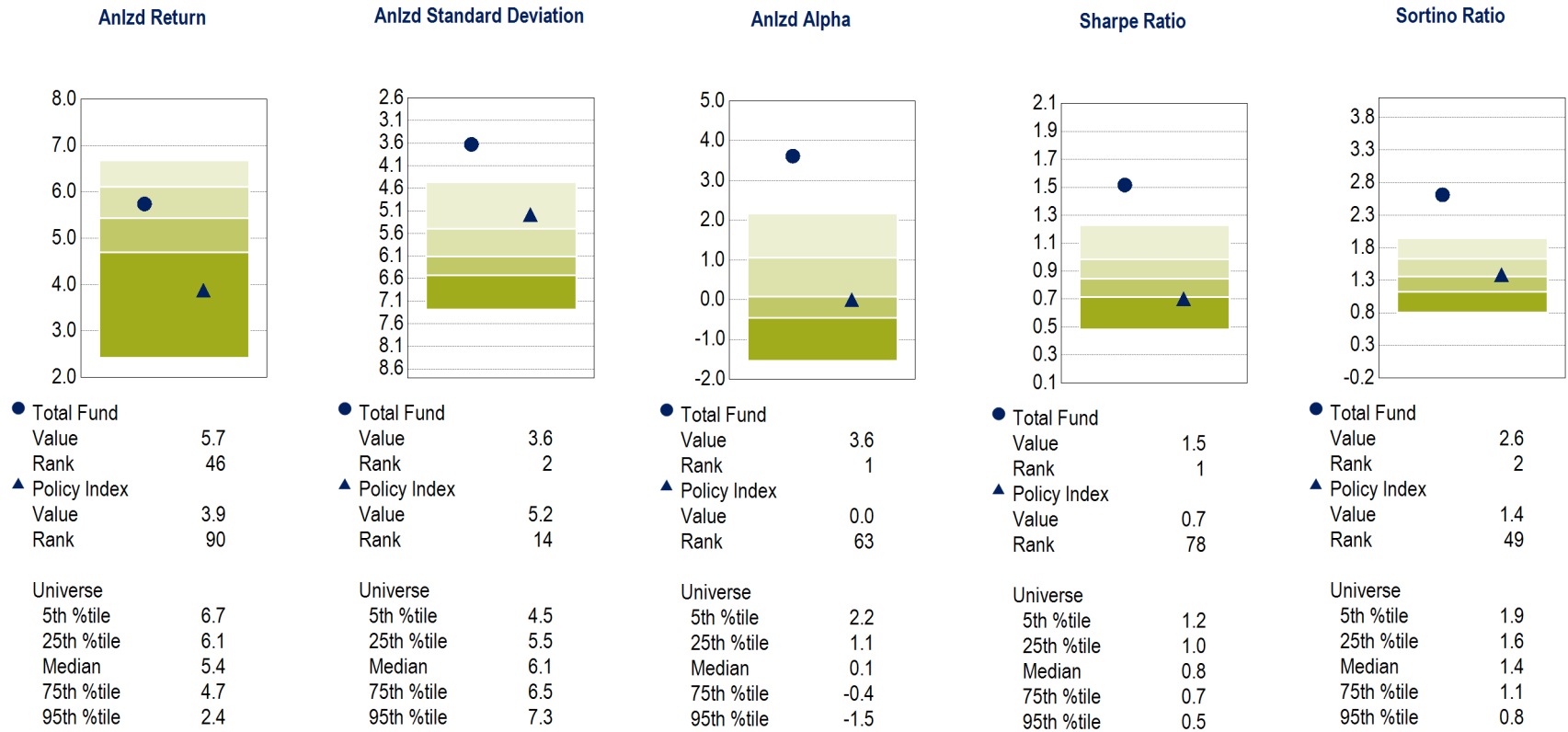
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)  
1 Year



Sortino Ratio requires at least two negative points during the time period in order to calculate  
Sample size is 31 Portfolios

Total Fund Risk Statistics vs. Peer Universe

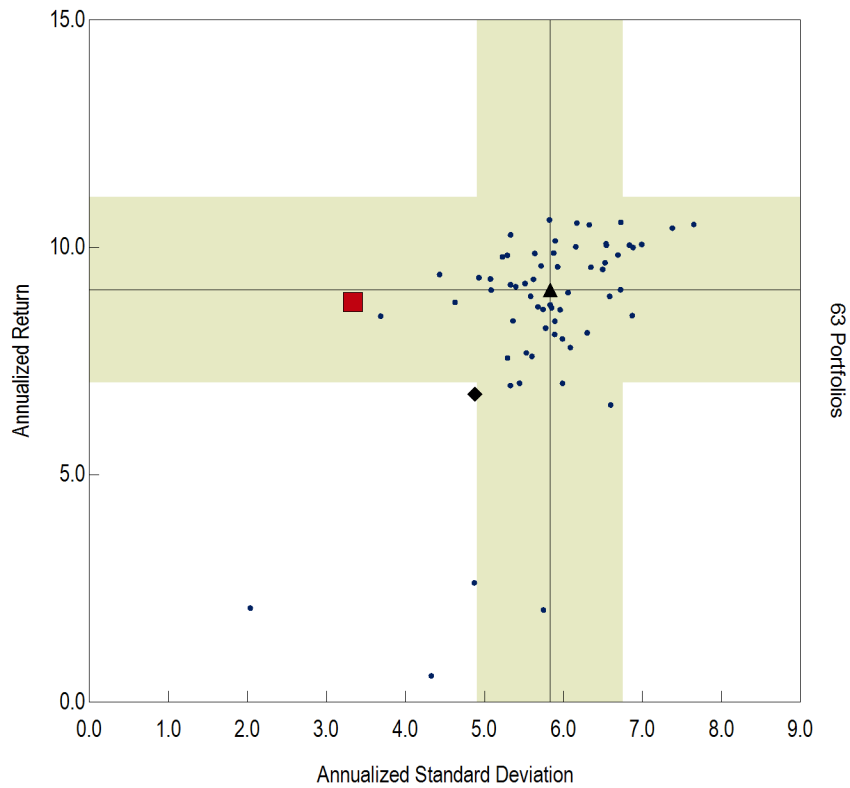
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)  
3 Years



Sortino Ratio requires at least two negative points during the time period in order to calculate  
Sample size is 31 Portfolios

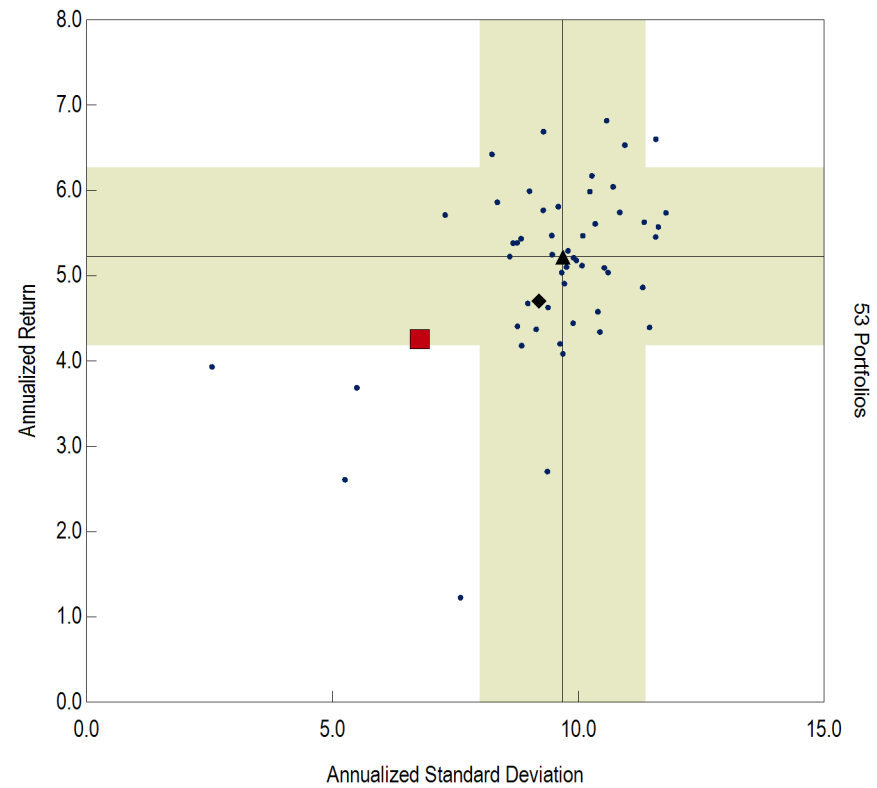
Total Fund Risk/Return

5 Years Ending June 30, 2017



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

10 Years Ending June 30, 2017

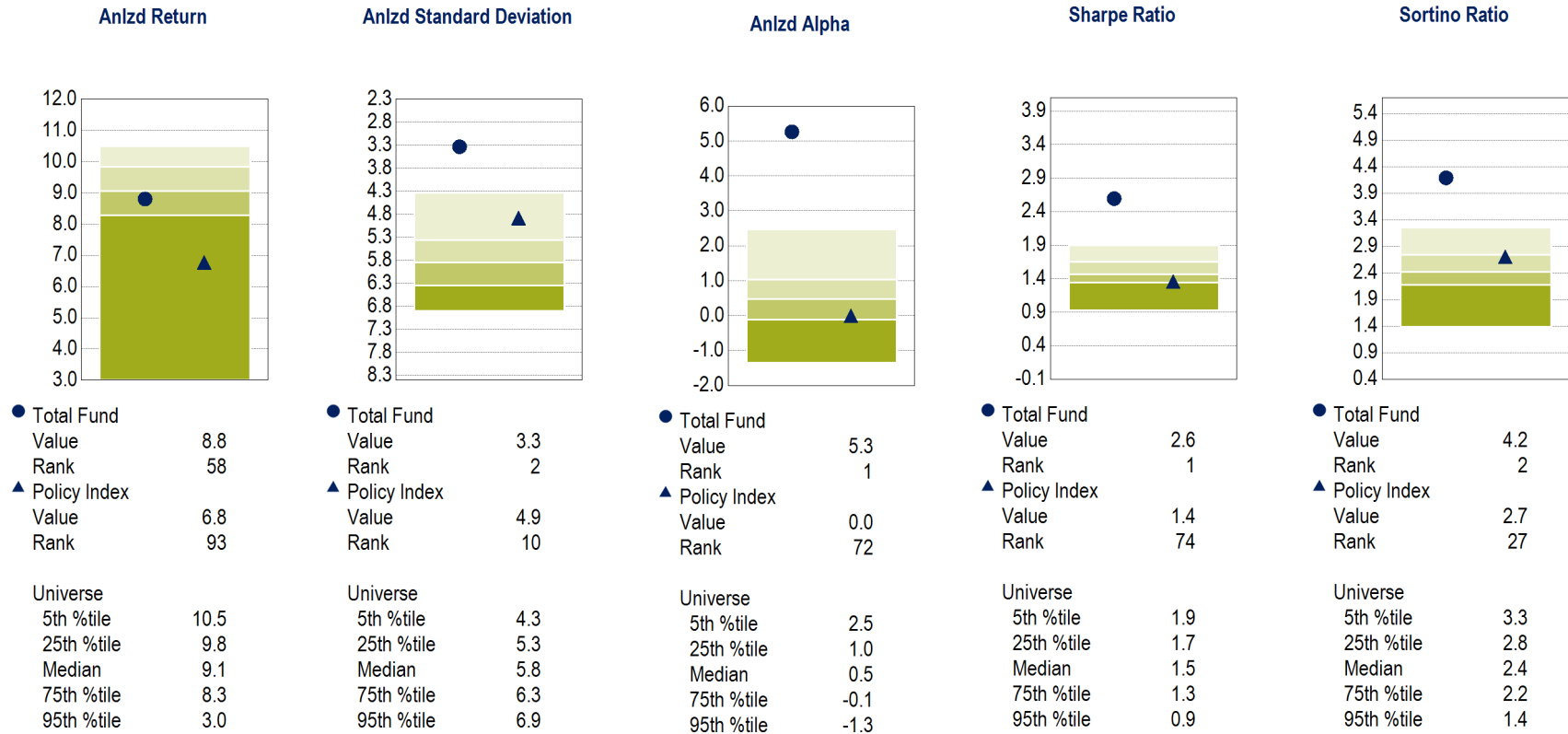


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross



Total Fund Risk Statistics vs. Peer Universe

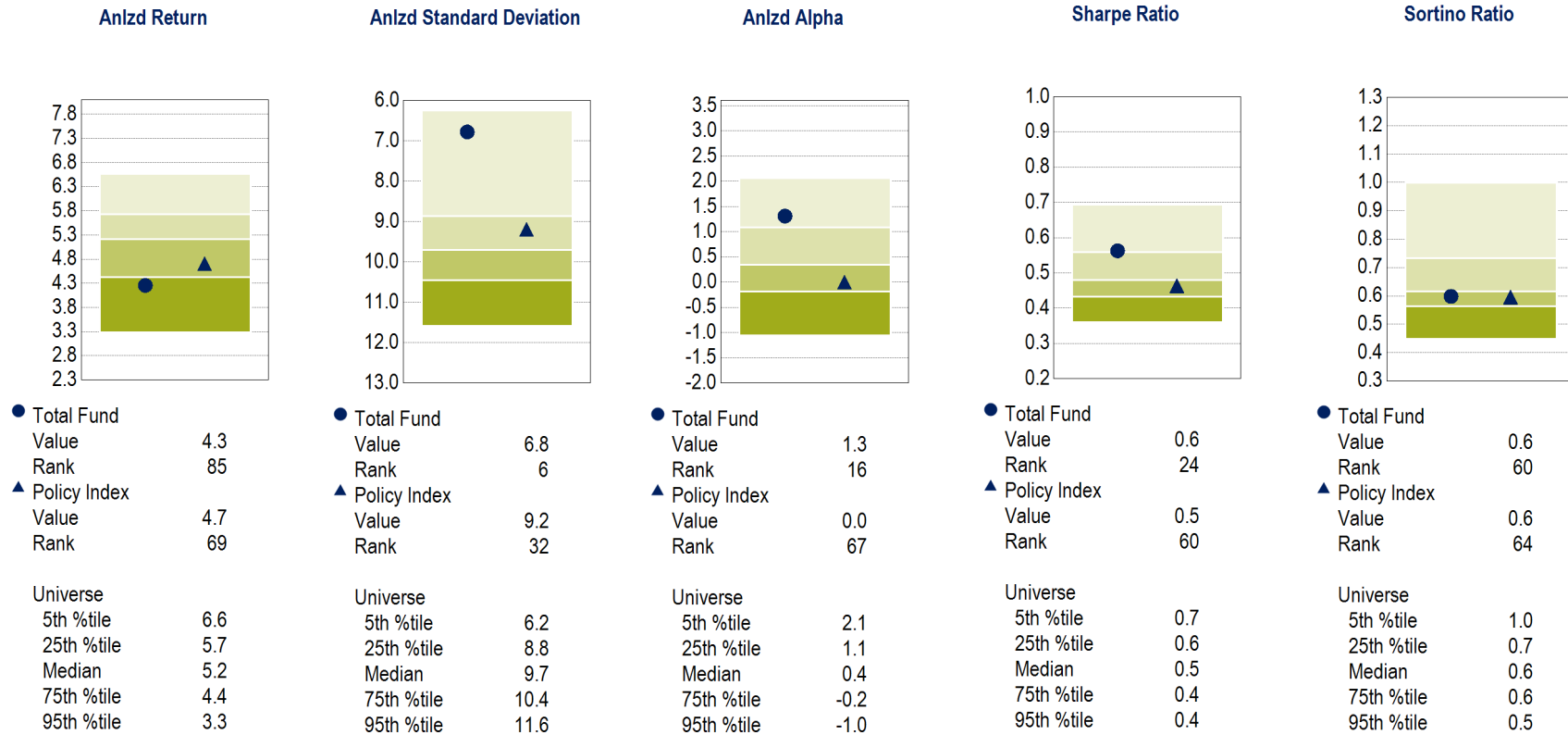
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)  
5 Years



Sortino Ratio requires at least two negative points during the time period in order to calculate  
Sample size is 31 Portfolios

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)  
10 Years



Sortino Ratio requires at least two negative points during the time period in order to calculate  
Sample size is 31 Portfolios

# San Bernardino County Employees' Retirement Association

## Total Fund Risk Statistics

### 1 Years Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Total Fund	100.0%	13.7%	31	1.4%	2	2.7%	2.2	14
Policy Index	--	7.9%	95	3.4%	67	0.0%	--	--
Domestic Equity	7.7%	2.0%	99	2.4%	1	6.3%	-2.6	--
Russell 3000	--	18.5%	48	6.6%	53	0.0%	--	--
International Developed	1.3%	5.4%	99	3.8%	1	6.9%	-2.1	--
MSCI EAFE	--	20.3%	35	7.8%	63	0.0%	--	--
International Emerging	5.2%	12.9%	99	8.6%	23	2.3%	-4.7	--
MSCI Emerging Markets	--	23.7%	24	9.0%	38	0.0%	--	--
U.S. Credit Strategies	11.2%	10.8%	4	3.5%	27	4.7%	0.3	3
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	9.3%	8	2.2%	5	0.0%	--	--
Non-U.S. Credit Composite	13.5%	14.4%	4	3.3%	27	9.0%	0.2	83
BofA Merrill Lynch Euro High Yield Constrained	--	12.6%	6	8.1%	99	0.0%	--	--
Non-U.S. Core Composite	0.0%	--	--	--	--	--	--	--
BBgBarc Global Aggregate TR	--	-2.2%	92	5.7%	70	0.0%	--	--
Emerging Markets Debt Composite	7.6%	14.9%	3	6.5%	61	6.4%	1.3	17
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	6.3%	82	7.2%	70	0.0%	--	--
Alpha Pool Composite	19.4%	13.4%	2	3.2%	86	3.2%	3.1	6
91 Day T-Bill + 3%	--	3.6%	95	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.5%	15.7%	24	4.0%	22
Cambridge Associates Global All PE (Qtr Lag)	--	13.5%	38	5.6%	57
Real Estate Composite	5.3%	3.4%	93	3.6%	80
NCREIF Property Index 1 Qtr Lag	--	7.3%	41	3.0%	63
Real Assets Composite	4.4%	2.3%	60	2.8%	31
Bloomberg Commodity Index	--	-6.5%	98	7.5%	89

Percent of Total equals 95% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.

# San Bernardino County Employees' Retirement Association

## Total Fund Risk Statistics

3 Years Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Total Fund	100.0%	5.7%	46	3.6%	2	3.3%	0.6	23
Policy Index	--	3.9%	90	5.2%	14	0.0%	--	--
Domestic Equity	7.7%	0.5%	99	4.5%	1	13.8%	-0.6	--
Russell 3000	--	9.1%	37	10.6%	48	0.0%	--	--
International Developed	1.3%	3.1%	21	23.7%	99	17.7%	0.1	42
MSCI EAFE	--	1.1%	55	12.4%	85	0.0%	--	--
International Emerging	5.2%	-1.6%	99	12.6%	5	5.2%	-0.5	--
MSCI Emerging Markets	--	1.1%	62	16.1%	95	0.0%	--	--
U.S. Credit Strategies	11.2%	5.5%	8	3.4%	11	4.1%	0.3	11
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	4.0%	31	3.9%	35	0.0%	--	--
Non-U.S. Credit Composite	13.5%	5.8%	5	3.5%	6	10.5%	0.7	1
BofA Merrill Lynch Euro High Yield Constrained	--	-1.6%	91	10.5%	99	0.0%	--	--
Non-U.S. Core Composite	0.0%	--	--	--	--	--	--	--
BBgBarc Global Aggregate TR	--	-0.4%	78	5.0%	54	0.0%	--	--
Emerging Markets Debt Composite	7.6%	5.3%	18	6.2%	37	5.5%	0.7	40
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	1.3%	67	8.3%	66	0.0%	--	--
Alpha Pool Composite	19.4%	3.6%	18	3.9%	56	3.9%	0.1	38
91 Day T-Bill + 3%	--	3.2%	25	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.5%	11.2%	46	4.2%	10
Cambridge Associates Global All PE (Qtr Lag)	--	9.1%	74	5.2%	29
Real Estate Composite	5.3%	9.5%	78	3.3%	34
NCREIF Property Index 1 Qtr Lag	--	10.6%	61	4.4%	48
Real Assets Composite	4.4%	0.3%	64	5.4%	56
Bloomberg Commodity Index	--	-14.8%	86	13.4%	83

Percent of Total equals 95% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.

# San Bernardino County Employees' Retirement Association

## Total Fund Risk Statistics

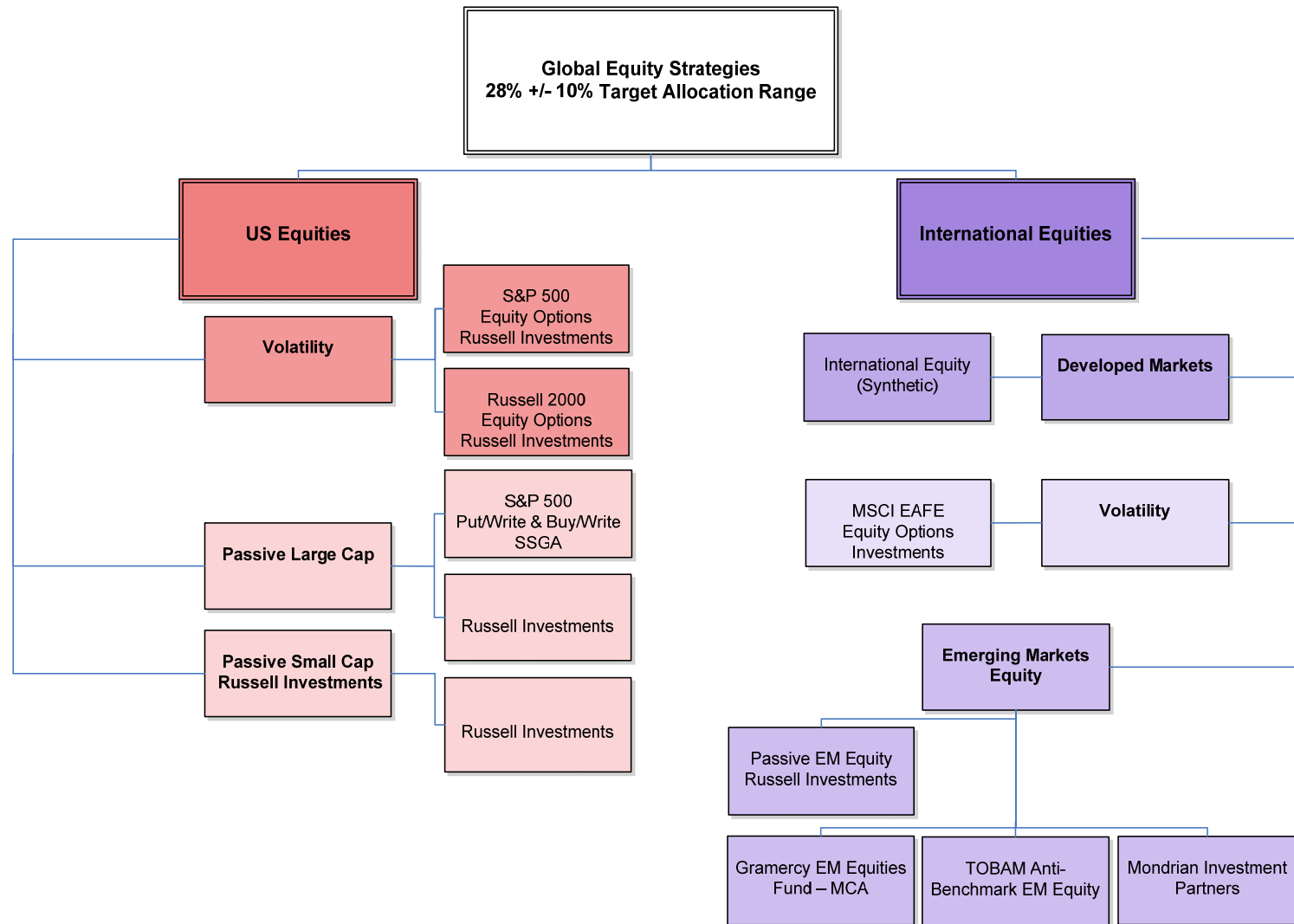
### 5 Years Ending June 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Total Fund	100.0%	8.8%	58	3.3%	2	3.2%	0.6	35
Policy Index	--	6.8%	93	4.9%	10	0.0%	--	--
Domestic Equity	7.7%	2.5%	99	4.5%	1	12.3%	-1.0	--
Russell 3000	--	14.6%	39	9.8%	35	0.0%	--	--
International Developed	1.3%	18.1%	1	20.8%	99	16.1%	0.6	17
MSCI EAFE	--	8.7%	50	11.7%	86	0.0%	--	--
International Emerging	5.2%	1.9%	93	12.3%	5	4.4%	-0.5	--
MSCI Emerging Markets	--	4.0%	73	14.4%	93	0.0%	--	--
U.S. Credit Strategies	11.2%	8.0%	3	3.1%	4	3.9%	0.6	4
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	5.8%	17	3.4%	5	0.0%	--	--
Non-U.S. Credit Composite	13.5%	9.3%	5	3.5%	1	9.4%	0.3	74
BofA Merrill Lynch Euro High Yield Constrained	--	6.4%	8	10.1%	99	0.0%	--	--
Non-U.S. Core Composite	0.0%	--	--	--	--	--	--	--
BBgBarc Global Aggregate TR	--	0.8%	84	4.6%	48	0.0%	--	--
Emerging Markets Debt Composite	7.6%	4.8%	50	6.2%	26	5.2%	0.4	56
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	2.5%	68	8.4%	65	0.0%	--	--
Alpha Pool Composite	19.4%	5.8%	26	3.2%	18	3.2%	0.8	29
91 Day T-Bill + 3%	--	3.2%	86	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.5%	13.1%	53	4.2%	11
Cambridge Associates Global All PE (Qtr Lag)	--	11.5%	86	6.2%	53
Real Estate Composite	5.3%	9.5%	85	3.6%	33
NCREIF Property Index 1 Qtr Lag	--	10.7%	65	4.4%	52
Real Assets Composite	4.4%	2.3%	63	5.5%	55
Bloomberg Commodity Index	--	-9.2%	87	12.4%	82

Percent of Total equals 95% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.

# Global Equity Portfolio



# San Bernardino County Employees' Retirement Association

## Global Equity Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Equity</b>	<b>1,309,557,106</b>	<b>14.2</b>	<b>2.3</b>	<b>99</b>	<b>5.9</b>	<b>99</b>	<b>6.0</b>	<b>99</b>	<b>1.3</b>	<b>99</b>	<b>5.3</b>	<b>99</b>	<b>--</b>	<b>--</b>
MSCI ACWI			4.3	34	11.5	28	18.8	58	4.8	88	10.5	90	3.7	94
Excess Return			-2.0		-5.6		-12.8		-3.5		-5.2			
InvestorForce Public DB Total Eq Gross Median			4.0		10.8		19.0		6.7		12.2		5.0	
<b>Domestic Equity</b>	<b>706,378,759</b>	<b>7.7</b>	<b>0.9</b>	<b>98</b>	<b>1.6</b>	<b>99</b>	<b>2.0</b>	<b>99</b>	<b>0.5</b>	<b>99</b>	<b>2.5</b>	<b>99</b>	<b>-1.5</b>	<b>99</b>
Russell 3000			3.0	36	8.9	31	18.5	48	9.1	37	14.6	39	7.3	48
Excess Return			-2.1		-7.3		-16.5		-8.6		-12.1		-8.8	
InvestorForce Public DB US Eq Gross Median			2.9		8.5		18.4		8.8		14.4		7.2	
<b>Large Cap Equity</b>	<b>706,283,859</b>	<b>7.7</b>	<b>0.7</b>	<b>86</b>	<b>2.1</b>	<b>90</b>	<b>4.2</b>	<b>98</b>	<b>2.1</b>	<b>97</b>	<b>3.3</b>	<b>99</b>	<b>-0.5</b>	<b>99</b>
S&P 500			3.1	44	9.3	36	17.9	64	9.6	30	14.6	48	7.2	67
Excess Return			-2.4		-7.2		-13.7		-7.5		-11.3		-7.7	
eA All US Equity Gross Median			2.9		7.9		19.7		8.4		14.6		7.8	
SsgA S&P500	692,978,935	7.5	1.6	73	5.5	70	9.9	95	6.1	82	8.1	99	2.3	99
S&P 500			3.1	44	9.3	36	17.9	64	9.6	30	14.6	48	7.2	67
Excess Return			-1.5		-3.8		-8.0		-3.5		-6.5		-4.9	
eA All US Equity Gross Median			2.9		7.9		19.7		8.4		14.6		7.8	
Russell US Large Cap Volatility	13,304,924	0.1	-37.9	99	-69.6	99	-78.7	99	-58.0	99	-49.6	99	--	--
S&P 500			3.1	44	9.3	36	17.9	64	9.6	30	14.6	48	7.2	67
Excess Return			-41.0		-78.9		-96.6		-67.6		-64.2			
eA All US Equity Gross Median			2.9		7.9		19.7		8.4		14.6		7.8	
<b>Small Cap Equity</b>	<b>94,900</b>	<b>0.0</b>	<b>0.2</b>	<b>82</b>	<b>0.4</b>	<b>84</b>	<b>0.7</b>	<b>99</b>	<b>4.6</b>	<b>86</b>	<b>-32.7</b>	<b>99</b>	<b>--</b>	<b>--</b>
Russell 2000			2.5	49	5.0	50	24.6	40	7.4	61	13.7	71	6.9	75
Excess Return			-2.3		-4.6		-23.9		-2.8		-46.4			
eA US Small Cap Equity Gross Median			2.3		4.8		23.3		8.0		14.8		8.0	
Russell US Small Cap Volatility	94,900	0.0	0.2	91	0.4	95	0.7	99	4.6	91	-32.7	99	--	--
Russell 2000			2.5	58	5.0	73	24.6	20	7.4	66	13.7	68	6.9	74
Excess Return			-2.3		-4.6		-23.9		-2.8		-46.4			
eA All US Equity Gross Median			2.9		7.9		19.7		8.4		14.6		7.8	

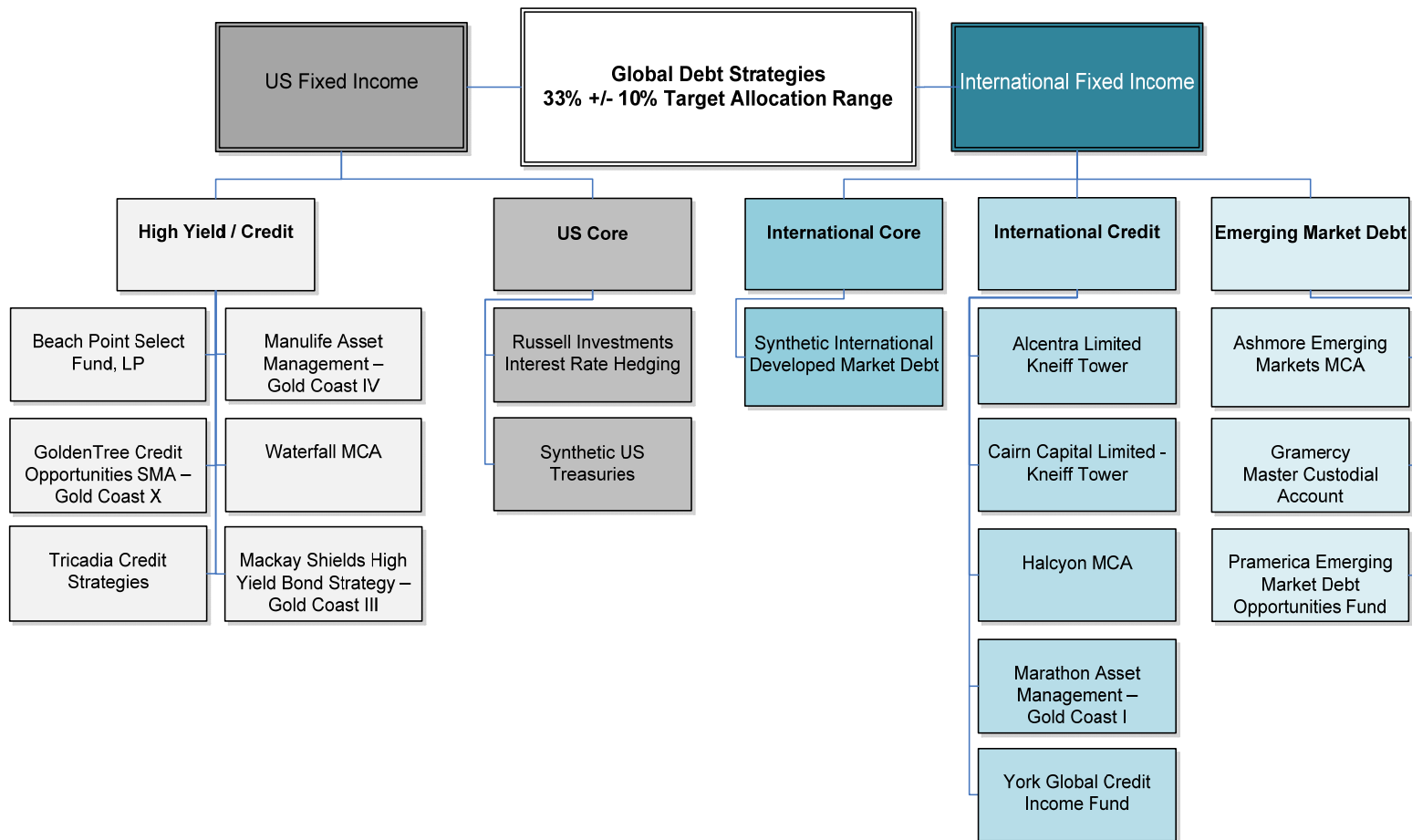
# San Bernardino County Employees' Retirement Association

## Global Equity Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>International Equity</b>	<b>603,178,347</b>	<b>6.6</b>	<b>3.9</b>	<b>90</b>	<b>11.7</b>	<b>86</b>	<b>11.3</b>	<b>98</b>	<b>1.0</b>	<b>99</b>	<b>8.7</b>	<b>78</b>	<b>1.9</b>	<b>32</b>
MSCI EAFE			<u>6.1</u>	37	<u>13.8</u>	70	<u>20.3</u>	64	<u>1.1</u>	98	<u>8.7</u>	78	<u>1.0</u>	99
Excess Return			-2.2		-2.1		-9.0		-0.1		0.0		0.9	
InvestorForce Public DB Gbl Eq Gross Median			5.8		14.6		21.4		6.9		12.3		1.6	
<b>International Developed</b>	<b>122,286,599</b>	<b>1.3</b>	<b>0.2</b>	<b>99</b>	<b>0.4</b>	<b>99</b>	<b>5.4</b>	<b>99</b>	<b>3.1</b>	<b>21</b>	<b>18.1</b>	<b>1</b>	<b>4.4</b>	<b>7</b>
MSCI EAFE			<u>6.1</u>	46	<u>13.8</u>	87	<u>20.3</u>	35	<u>1.1</u>	55	<u>8.7</u>	50	<u>1.0</u>	58
Excess Return			-5.9		-13.4		-14.9		2.0		9.4		3.4	
InvestorForce Public DB Dev Mkt ex-US Eq Gross Median			5.8		14.7		19.9		1.2		8.7		1.2	
Russell International Volatility	122,286,599	1.3	0.2	99	0.4	99	5.4	99	3.1	50	17.5	2	--	--
MSCI EAFE			<u>6.1</u>	72	<u>13.8</u>	74	<u>20.3</u>	59	<u>1.1</u>	86	<u>8.7</u>	82	<u>1.0</u>	89
Excess Return			-5.9		-13.4		-14.9		2.0		8.8			
eA All EAFE Equity Gross Median			6.8		15.0		21.1		3.1		10.2		2.8	
<b>International Emerging</b>	<b>480,891,748</b>	<b>5.2</b>	<b>4.9</b>	<b>76</b>	<b>15.0</b>	<b>87</b>	<b>12.9</b>	<b>99</b>	<b>-1.6</b>	<b>99</b>	<b>1.9</b>	<b>93</b>	<b>1.5</b>	<b>58</b>
MSCI Emerging Markets			<u>6.3</u>	46	<u>18.4</u>	51	<u>23.7</u>	24	<u>1.1</u>	62	<u>4.0</u>	73	<u>1.9</u>	49
Excess Return			-1.4		-3.4		-10.8		-2.7		-2.1		-0.4	
Mondrian	136,796,349	1.5	4.1	83	15.5	86	14.2	94	-1.1	94	2.9	95	3.3	45
MSCI Emerging Markets			<u>6.3</u>	53	<u>18.4</u>	66	<u>23.7</u>	53	<u>1.1</u>	79	<u>4.0</u>	88	<u>1.9</u>	82
Excess Return			-2.2		-2.9		-9.5		-2.2		-1.1		1.4	
eA Emg Mkts Equity Gross Median			6.4		19.7		24.0		2.6		5.9		3.1	
Gramercy Emerging Market Equity	76,873,482	0.8	9.5	9	19.5	53	27.1	26	5.5	13	--	--	--	--
MSCI Emerging Markets			<u>6.3</u>	53	<u>18.4</u>	66	<u>23.7</u>	53	<u>1.1</u>	79	<u>4.0</u>	88	<u>1.9</u>	82
Excess Return			3.2		1.1		3.4		4.4					
eA Emg Mkts Equity Gross Median			6.4		19.7		24.0		2.6		5.9		3.1	
Tobam	267,122,750	2.9	4.0	83	13.5	95	9.1	99	--	--	--	--	--	--
MSCI Emerging Markets			<u>6.3</u>	53	<u>18.4</u>	66	<u>23.7</u>	53	<u>1.1</u>	79	<u>4.0</u>	88	<u>1.9</u>	82
Excess Return			-2.3		-4.9		-14.6							
eA Emg Mkts Equity Gross Median			6.4		19.7		24.0		2.6		5.9		3.1	



# Global Debt Portfolio



# San Bernardino County Employees' Retirement Association

## Global Debt Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fixed</b>	<b>2,961,852,425</b>	<b>32.2</b>	<b>3.0</b>	<b>2</b>	<b>7.1</b>	<b>1</b>	<b>13.2</b>	<b>1</b>	<b>5.6</b>	<b>2</b>	<b>7.9</b>	<b>1</b>	<b>--</b>	<b>--</b>
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			1.5		3.0		2.5		2.7		2.9		5.3	
<b>U.S. Credit Strategies</b>	<b>1,030,092,970</b>	<b>11.2</b>	<b>0.5</b>	<b>99</b>	<b>4.5</b>	<b>64</b>	<b>10.8</b>	<b>4</b>	<b>5.5</b>	<b>8</b>	<b>8.0</b>	<b>3</b>	<b>8.7</b>	<b>1</b>
<i>50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index</i>			<u>1.5</u>	95	<u>3.2</u>	89	<u>9.3</u>	8	<u>4.0</u>	31	<u>5.8</u>	17	<u>5.7</u>	26
Excess Return			-1.0		1.3		1.5		1.5		2.2		3.0	
<i>BofA Merrill Lynch US High Yield Master II TR</i>			2.1	75	4.9	55	12.8	2	4.5	19	6.9	7	7.5	10
<i>eA Global Credit Fixed Income Gross Median</i>			2.9		5.3		4.3		2.1		4.0		4.4	
AG Capital	1,054,052	0.0	1.5	95	1.5	99	17.9	1	-1.3	83	5.3	21	--	--
Golden Tree Asset Management	373,691,185	4.1	-1.2	99	6.2	26	13.0	2	9.6	1	11.9	1	--	--
Beach Point Capital (Formerly Post)	143,314,104	1.6	1.2	96	3.7	81	13.8	2	7.1	2	10.6	1	--	--
Golden Tree Distressed Debt	28,437,526	0.3	5.4	14	5.4	47	4.4	48	10.2	1	13.7	1	--	--
Mackay / Gold Coast	103,985,663	1.1	2.1	77	7.2	22	13.1	2	3.7	38	7.5	5	8.1	1
Mariner Tricadia	68,476,121	0.7	1.5	95	4.7	58	6.2	22	1.3	70	4.9	35	--	--
MD SASS Waterfall Victoria	28,135,493	0.3	1.8	--	1.5	--	7.7	--	--	--	--	--	--	--
Russell Interest Rate Hedging	25,614,937	0.3	-10.4	99	-18.9	99	8.6	9	-24.9	99	-20.6	99	--	--
Stone Tower Credit (Apollo)	80,874,634	0.9	0.3	95	2.4	85	8.5	25	3.4	33	6.4	15	--	--
Gold Coast Capital IV	94,226,578	1.0	2.1	--	4.0	--	7.2	--	--	--	--	--	--	--
Waterfall Asset Management	39,438,459	0.4	6.2	--	12.8	--	12.9	--	--	--	--	--	--	--
Waterfall Victoria	42,584,228	0.5	1.9	--	2.9	--	7.7	--	--	--	--	--	--	--

# San Bernardino County Employees' Retirement Association

## Global Debt Strategies Performance Detail - Gross

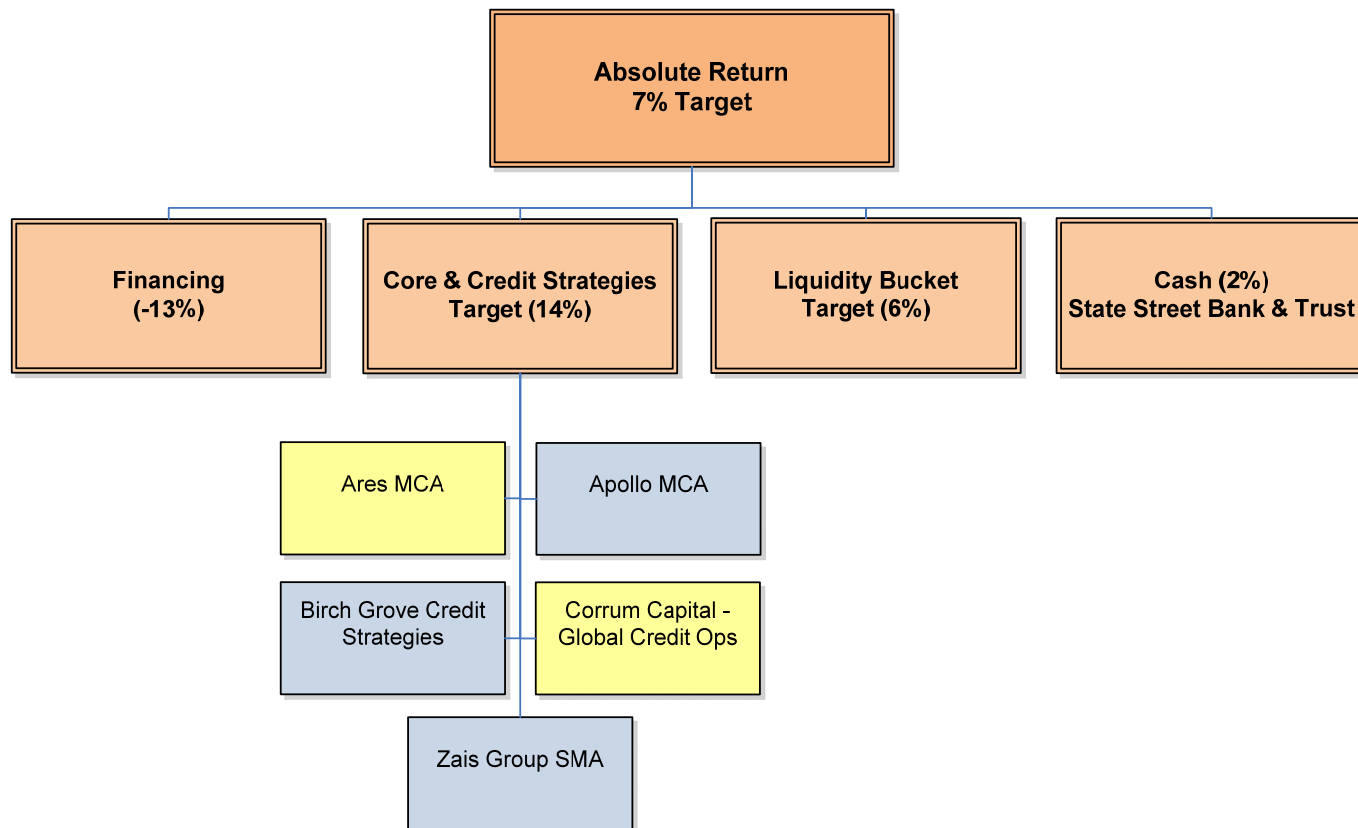
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Non-U.S. Fixed Income Composite</b>	<b>1,931,759,455</b>	<b>21.0</b>	<b>4.4</b>	<b>1</b>	<b>8.6</b>	<b>1</b>	<b>14.5</b>	<b>1</b>	<b>5.7</b>	<b>1</b>	<b>7.9</b>	<b>1</b>	<b>5.9</b>	<b>21</b>
<i>BBgBarc Global Aggregate TR</i>			<u>2.6</u>	4	<u>4.4</u>	17	<u>-2.2</u>	99	<u>-0.4</u>	99	<u>0.8</u>	99	<u>3.7</u>	96
Excess Return			1.8		4.2		16.7		6.1		7.1		2.2	
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			1.5		3.0		2.5		2.7		2.9		5.3	
<b>Non-U.S. Credit Composite</b>	<b>1,237,359,270</b>	<b>13.5</b>	<b>4.2</b>	<b>16</b>	<b>9.8</b>	<b>16</b>	<b>14.4</b>	<b>4</b>	<b>5.8</b>	<b>5</b>	<b>9.3</b>	<b>5</b>	<b>--</b>	<b>--</b>
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>9.2</u>	1	<u>12.6</u>	1	<u>12.6</u>	6	<u>-1.6</u>	91	<u>6.4</u>	8	<u>6.0</u>	22
Excess Return			-5.0		-2.8		1.8		7.4		2.9		--	--
Marathon/Gold Coast	196,269,061	2.1	2.4	67	6.5	25	12.3	3	5.5	8	9.1	2	--	--
Alcentra Core European Credit	399,135,565	4.3	1.3	96	8.2	16	13.8	2	10.3	1	15.9	1	--	--
Halcyon Asset Management	151,471,688	1.6	-2.4	99	3.4	85	21.5	1	--	--	--	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>9.2</u>	1	<u>12.6</u>	1	<u>12.6</u>	3	<u>-1.6</u>	84	<u>6.4</u>	10	<u>6.0</u>	22
Excess Return			-11.6		-9.2		8.9						--	--
<i>eA Global Credit Fixed Income Gross Median</i>			2.9		5.3		4.3		2.1		4.0		4.4	
Oaktree Capital	2,498	0.0												
York Global Credit	148,366,144	1.6	2.3	71	7.5	21	15.6	1	5.8	7	--	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>9.2</u>	1	<u>12.6</u>	1	<u>12.6</u>	3	<u>-1.6</u>	84	<u>6.4</u>	10	<u>6.0</u>	22
Excess Return			-6.9		-5.1		3.0		7.4				--	--
<i>eA Global Credit Fixed Income Gross Median</i>			2.9		5.3		4.3		2.1		4.0		4.4	
Cairn Composite	342,114,186	3.7	12.3	1	18.3	1	17.6	1	5.6	8	6.3	10	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>9.2</u>	1	<u>12.6</u>	1	<u>12.6</u>	3	<u>-1.6</u>	84	<u>6.4</u>	10	<u>6.0</u>	22
Excess Return			3.1		5.7		5.0		7.2		-0.1		--	--
<i>eA Global Credit Fixed Income Gross Median</i>			2.9		5.3		4.3		2.1		4.0		4.4	

# San Bernardino County Employees' Retirement Association

## Global Debt Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Emerging Markets Debt Composite</b>	<b>694,400,186</b>	<b>7.6</b>	<b>4.7</b>	<b>2</b>	<b>6.3</b>	<b>69</b>	<b>14.9</b>	<b>3</b>	<b>5.3</b>	<b>18</b>	<b>4.8</b>	<b>50</b>	<b>4.2</b>	<b>82</b>
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified			2.9	33	8.3	42	6.3	82	1.3	67	2.5	68	5.8	67
Excess Return			1.8		-2.0		8.6		4.0		2.3		-1.6	
eA All Emg Mkts Fixed Inc Gross Median			2.6		7.4		7.9		3.6		4.8		7.1	
<b>Ashmore Emerging Markets Liquid Investments</b>	<b>168,143,882</b>	<b>1.8</b>	<b>2.9</b>	<b>33</b>	<b>8.3</b>	<b>42</b>	<b>6.3</b>	<b>82</b>	<b>1.3</b>	<b>67</b>	<b>2.5</b>	<b>68</b>	<b>5.8</b>	<b>67</b>
JP Morgan GBI - EM Global Diversified Index			3.6	14	10.4	22	6.4	79	-2.8	93	-0.7	95	4.0	85
Excess Return			-0.7		-2.1		-0.1		4.1		3.2		1.8	
eA All Emg Mkts Fixed Inc Gross Median			2.6		7.4		7.9		3.6		4.8		7.1	
<b>Ashmore Local Currency</b>	<b>86,233,654</b>	<b>0.9</b>	<b>3.3</b>	<b>28</b>	<b>10.2</b>	<b>6</b>	<b>9.7</b>	<b>20</b>	<b>-2.5</b>	<b>90</b>	<b>-1.2</b>	<b>97</b>	<b>--</b>	<b>--</b>
JP Morgan ELMI+			1.9	65	7.2	18	4.9	45	-2.3	90	-0.5	96	1.7	98
Excess Return			1.4		3.0		4.8		-0.2		-0.7			
JP Morgan EMBI Global Index			2.2	56	6.2	25	5.5	41	4.6	11	5.2	25	7.3	7
eA All Global Fixed Inc Gross Median			2.4		4.9		4.2		1.9		3.4		4.8	
Gramercy Funds Management LLC	344,102,009	3.7	5.3	2	2.2	99	18.5	2	11.0	1	--	--	--	--
JP Morgan ELMI+			1.9	78	7.2	53	4.9	93	-2.3	89	-0.5	91	1.7	99
Excess Return			3.4		-5.0		13.6		13.3					
JP Morgan EMBI Global Index			2.2	66	6.2	71	5.5	89	4.6	33	5.2	44	7.3	44
eA All Emg Mkts Fixed Inc Gross Median			2.6		7.4		7.9		3.6		4.8		7.1	
Prudential Investment Management	95,920,640	1.0	6.7	2	16.9	1	20.1	1	4.5	36	--	--	--	--
JP Morgan ELMI+			1.9	78	7.2	53	4.9	93	-2.3	89	-0.5	91	1.7	99
Excess Return			4.8		9.7		15.2		6.8					
JP Morgan EMBI Global Index			2.2	66	6.2	71	5.5	89	4.6	33	5.2	44	7.3	44
eA All Emg Mkts Fixed Inc Gross Median			2.6		7.4		7.9		3.6		4.8		7.1	

# Absolute Return Portfolio (Alpha Pool)

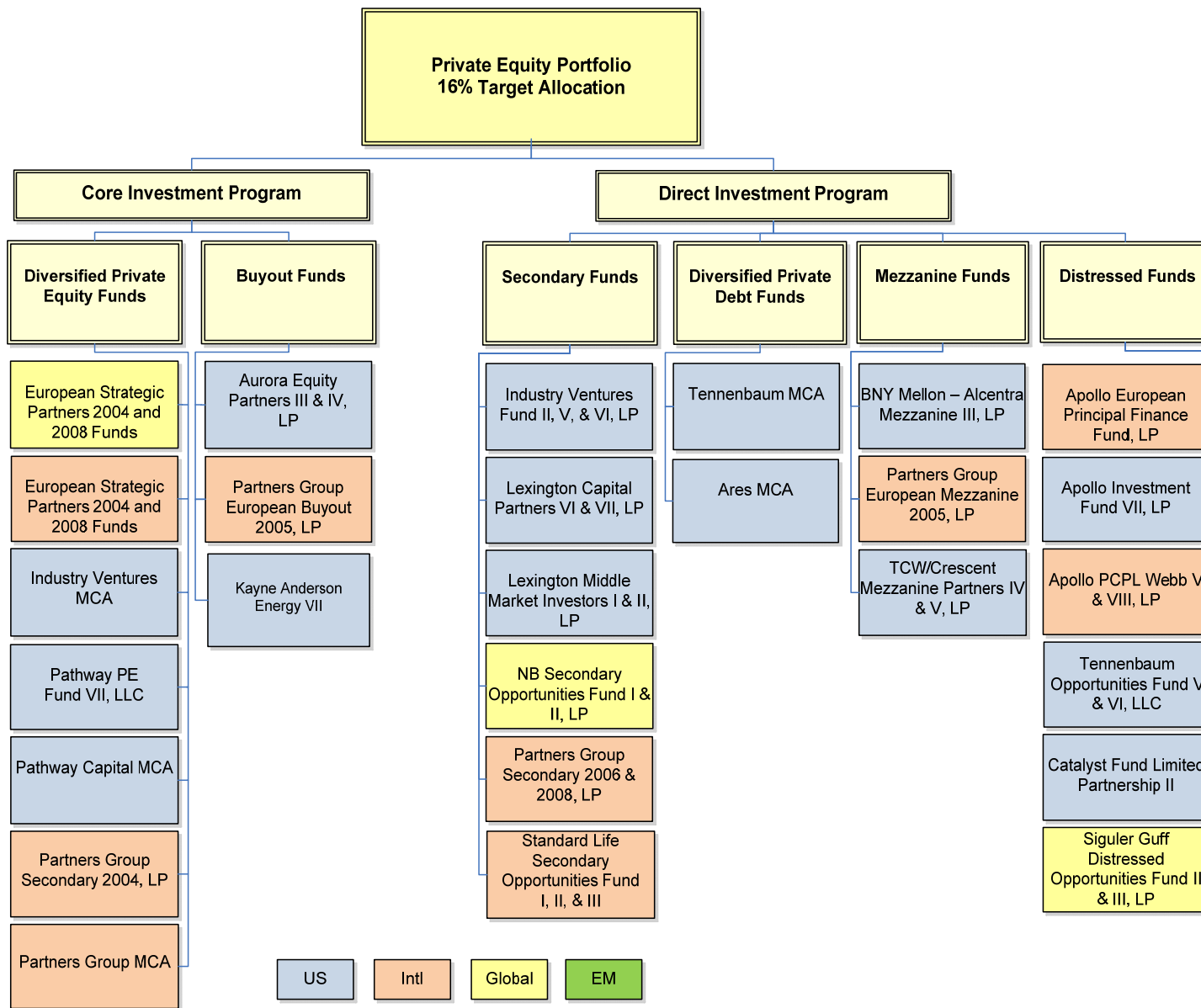


# San Bernardino County Employees' Retirement Association

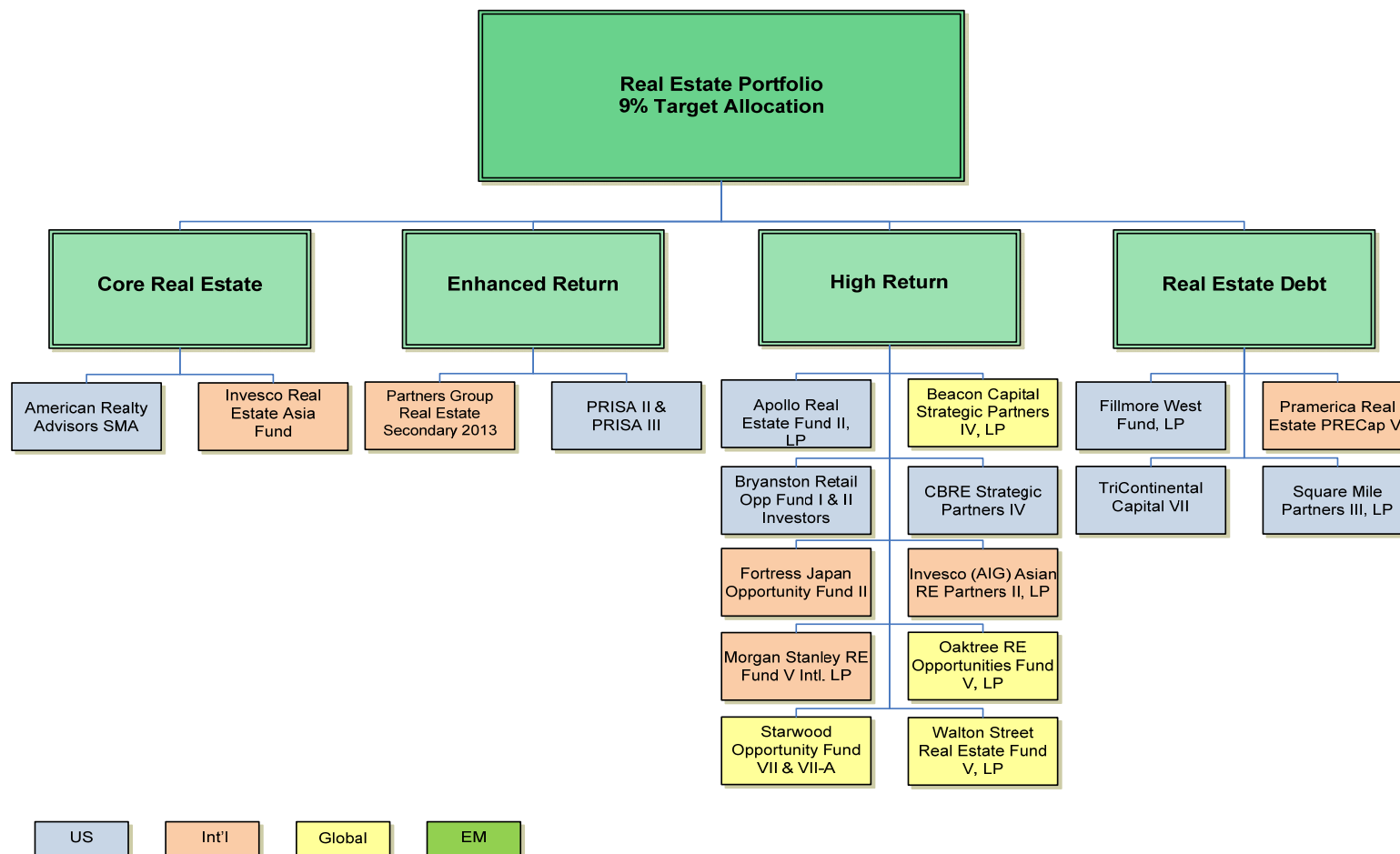
## Alpha Pool Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Alpha Pool Composite</b>	<b>1,781,239,524</b>	<b>19.4</b>	<b>0.8</b>	<b>49</b>	<b>4.3</b>	<b>14</b>	<b>13.4</b>	<b>2</b>	<b>3.6</b>	<b>18</b>	<b>5.8</b>	<b>26</b>	<b>4.1</b>	<b>16</b>
91 Day T-Bill + 3%			<u>1.0</u>	42	<u>1.9</u>	66	<u>3.6</u>	95	<u>3.2</u>	25	<u>3.2</u>	86	<u>3.5</u>	27
Excess Return			-0.2		2.4		9.8		0.4		2.6		0.6	
Alpha Liquidity (Ssga)	156,509,252	1.7	0.2	96	0.4	99	0.8	77	0.5	65	0.4	89	--	--
Apollo Global Management	31,947,743	0.3	1.4	81	16.1	1	36.3	1	--	--	--	--	--	--
Apollo SCRF III	24,599,023	0.3	3.4	--	6.7	--	--	--	--	--	--	--	--	--
Ares Eco Master Fund II	218,208,632	2.4	-2.9	99	3.9	68	--	--	--	--	--	--	--	--
Ares Strategic Investment	218,275,259	2.4	0.9	90	3.0	81	8.9	22	32.6	1	--	--	--	--
Birch Grove Credit Strategies	116,400,644	1.3	0.9	90	0.6	99	14.0	4	4.1	20	--	--	--	--
Sterling Stamos	213,975,046	2.3	1.7	73	5.4	38	12.8	9	5.5	4	5.6	21	2.4	93
Stone Tower Off (Apollo)	374,798,938	4.1	1.0	88	3.4	75	8.9	23	5.7	4	7.4	8	--	--
Zais	129,361,273	1.4	1.2	85	7.7	15	24.5	1	6.3	2	9.0	2	10.0	1
Zais Group Invest Advisors	237,266,315	2.6	2.1	60	8.8	10	29.3	1	8.7	1	10.0	1	--	--
Zais Zephyr A 6 LP	30,018,132	0.3	2.8	--	2.0	--	16.7	--	--	--	--	--	--	--
Apollo Accord	4,505,580	0.0	0.2	97	--	--	--	--	--	--	--	--	--	--

# Private Equity Portfolio

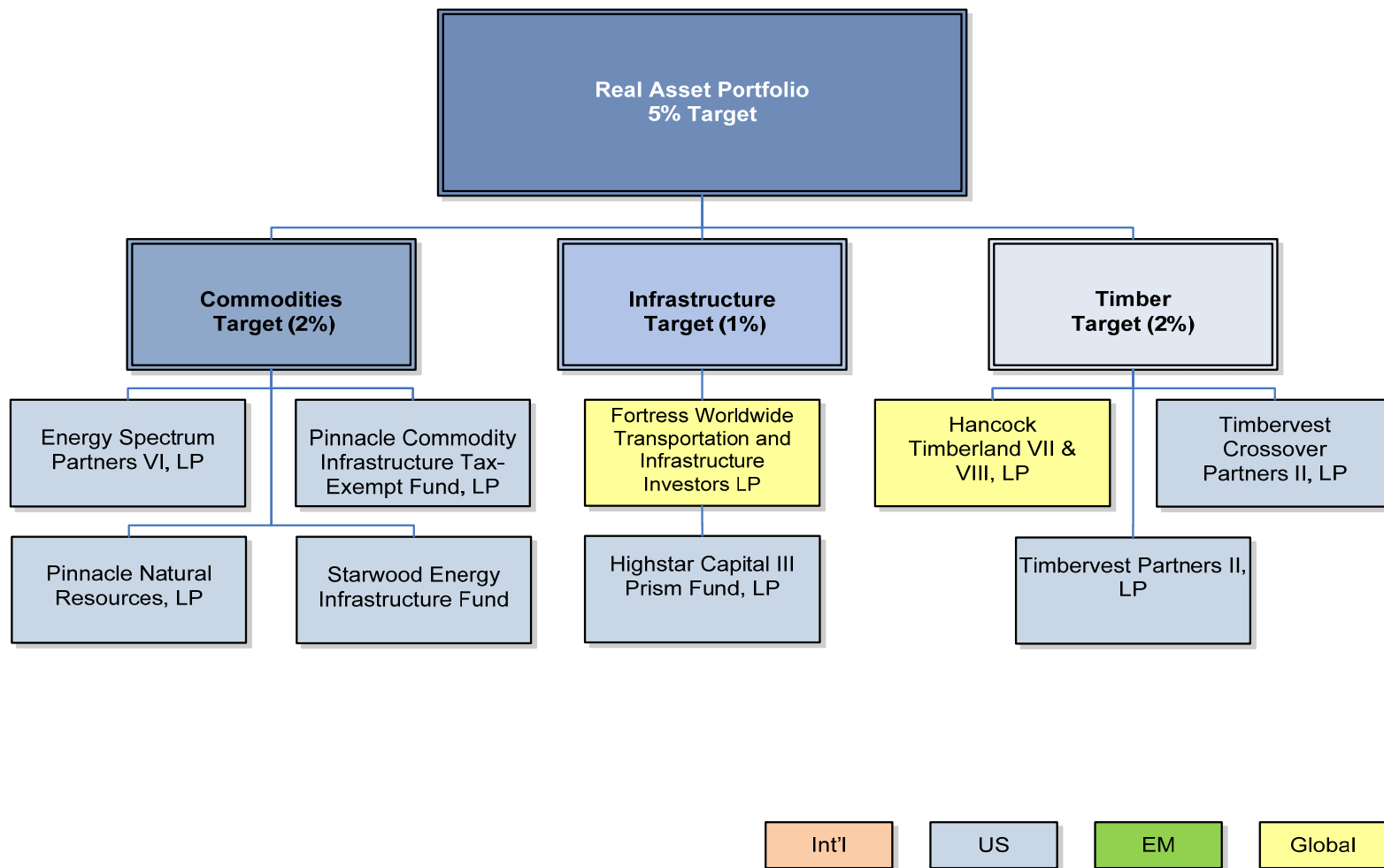


# Real Estate Portfolio





# Real Assets Portfolio



# San Bernardino County Employees' Retirement Association

## Alternatives Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Private Equity Composite</b>	<b>1,335,427,787</b>	<b>14.5</b>	<b>7.0</b>	<b>1</b>	<b>9.3</b>	<b>12</b>	<b>15.7</b>	<b>24</b>	<b>11.2</b>	<b>46</b>	<b>13.1</b>	<b>53</b>	<b>8.5</b>	<b>50</b>
Cambridge Associates Global All PE (Qtr Lag)			<u>3.8</u>	44	<u>6.7</u>	49	<u>13.5</u>	38	<u>9.1</u>	74	<u>11.5</u>	86	<u>8.9</u>	48
Excess Return			3.2		2.6		2.2		2.1		1.6		-0.4	
Russell 3000			3.0	55	8.9	16	18.5	4	9.1	73	14.6	26	7.3	97
Cambridge Associates US All PE (1 Qtr Lag)			4.3	39	9.0	15	17.8	6	10.3	64	12.7	57	9.8	43
<b>Real Estate Composite</b>	<b>488,295,291</b>	<b>5.3</b>	<b>-1.7</b>	<b>99</b>	<b>-0.6</b>	<b>99</b>	<b>3.4</b>	<b>93</b>	<b>9.5</b>	<b>78</b>	<b>9.5</b>	<b>85</b>	<b>2.3</b>	<b>94</b>
NCREIF Property Index 1 Qtr Lag			<u>1.6</u>	69	<u>3.3</u>	73	<u>7.3</u>	41	<u>10.6</u>	61	<u>10.7</u>	65	<u>6.7</u>	13
Excess Return			-3.3		-3.9		-3.9		-1.1		-1.2		-4.4	
InvestorForce Public DB Real Estate Pub+Priv Gross Median			2.0		3.8		6.9		10.8		11.2		5.5	
Pramerica Real Estate Capital VI	6,464,419	0.1	4.0	--	13.8	--	--	--	--	--	--	--	--	--
FPA SB Hunter	75,497	0.0	-4.3	99	-13.2	99	--	--	--	--	--	--	--	--
eA US REIT Gross Median			2.1		3.0		-0.5		8.9		10.0		7.2	
<b>Real Assets Composite</b>	<b>405,996,030</b>	<b>4.4</b>	<b>-0.4</b>	<b>65</b>	<b>-0.5</b>	<b>73</b>	<b>2.3</b>	<b>60</b>	<b>0.3</b>	<b>64</b>	<b>2.3</b>	<b>63</b>	<b>1.9</b>	<b>84</b>
Bloomberg Commodity Index			<u>-3.0</u>	83	<u>-5.3</u>	90	<u>-6.5</u>	98	<u>-14.8</u>	86	<u>-9.2</u>	87	<u>-6.5</u>	99
Excess Return			2.6		4.8		8.8		15.1		11.5		8.4	
NCREIF Timberland 1 Qtr Lag			0.8	44	1.9	49	3.8	51	5.7	44	7.2	44	5.7	6
Timber	187,266,575	2.0	-2.7	--	-2.8	--	-3.6	--	0.7	--	5.0	--	2.3	--
NCREIF Timberland 1 Qtr Lag			<u>0.8</u>	--	<u>1.9</u>	--	<u>3.8</u>	--	<u>5.7</u>	--	<u>7.2</u>	--	<u>5.7</u>	--
Excess Return			-3.5		-4.7		-7.4		-5.0		-2.2		-3.4	
<b>Infrastructure</b>	<b>73,502,624</b>	<b>0.8</b>	<b>5.1</b>	<b>--</b>	<b>10.1</b>	<b>--</b>	<b>34.1</b>	<b>--</b>	<b>6.3</b>	<b>--</b>	<b>0.4</b>	<b>--</b>	<b>--</b>	<b>--</b>
Russell 3000			<u>3.0</u>	--	<u>8.9</u>	--	<u>18.5</u>	--	<u>9.1</u>	--	<u>14.6</u>	--	<u>7.3</u>	--
Excess Return			2.1		1.2		15.6		-2.8		-14.2		--	
<b>Commodities</b>	<b>145,226,831</b>	<b>1.6</b>	<b>0.0</b>	<b>--</b>	<b>-2.4</b>	<b>--</b>	<b>-2.3</b>	<b>--</b>	<b>-1.8</b>	<b>--</b>	<b>0.3</b>	<b>--</b>	<b>--</b>	<b>--</b>
Bloomberg Commodity Index			<u>-3.0</u>	--	<u>-5.3</u>	--	<u>-6.5</u>	--	<u>-14.8</u>	--	<u>-9.2</u>	--	<u>-6.5</u>	--
Excess Return			3.0		2.9		4.2		13.0		9.5		--	

# Appendix: Private Equity and Real Estate Performance

# San Bernardino County Employees' Retirement Association

## Real Estate Performance Ended March 31, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	IRR	TVPI Ratio
American Realty Advisors	1996	\$ 128,009,773	\$ 128,009,773	\$ 108,098,126	\$ 170,028,432	7.01%	2.17
American Realty Value Add	2006	\$ 13,125,215	\$ 13,125,215	\$ 32,065,484	\$ 75,497	10.94%	2.45
Apollo US Real Estate Fund II	2015	\$ 20,000,000	\$ 11,671,912	\$ 2,236,405	\$ 11,961,698	23.47%	1.21
Beacon Capital Strategic Partners IV, L.P.	2006	\$ 39,000,000	\$ 38,000,000	\$ 30,085,408	\$ 1,330,280	-3.27%	0.83
Beacon Capital Strategic Partners V, L.P.	2007	\$ 20,000,000	\$ 18,000,000	\$ 11,030,231	\$ 154,951	-7.87%	0.62
BlackRock Diamond Property Fund	2005	\$ 25,000,000	\$ 25,000,000	\$ 15,093,876	\$ 81,809	-9.45%	0.61
Bryanston Real Estate Opportunity Fund II, L.P.	2009	\$ 20,000,000	\$ 8,589,256	\$ 11,824,142	\$ 47,427	10.25%	1.38
Bryanston Retail Opportunity Fund, L.P.	2004	\$ 20,000,000	\$ 8,228,165	\$ 18,492,031	\$ 9,237,789	71.01%	3.37
CBRE Strategic Partners III	2003	\$ 10,000,000	\$ 10,000,000	\$ 12,698,783	\$ -	8.02%	1.27
CBRE Strategic Partners IV	2005	\$ 40,000,000	\$ 40,000,000	\$ 2,432,836	\$ 1,381,508	-23.47%	0.1
Fillmore East Fund	2006	\$ 25,000,000	\$ 31,403,818	\$ 20,777,177	\$ -	-9.78%	0.66
Fillmore West Fund	2008	\$ 20,000,000	\$ 19,561,557	\$ 12,339,042	\$ 9,481,797	1.61%	1.12
Fortress Japan Opportunity Fund II	2012	\$ 21,739,130	\$ 7,179,780	\$ 7,016,858	\$ 16,343,286	24.58%	3.22
Hancock Timberland VII	2005	\$ 90,000,000	\$ 90,000,000	\$ 12,105,900	\$ 93,853,414	1.61%	1.18
Hancock Timberland VIII	2006	\$ 40,000,000	\$ 40,000,000	\$ 4,021,950	\$ 34,379,171	-0.48%	0.96
Highstar Capital III, L.P.	2007	\$ 60,000,000	\$ 59,119,119	\$ 34,006,811	\$ 33,609,368	1.93%	1.14
Invesco Asian Real Estate Partners II (USD), LP	2007	\$ 20,000,000	\$ 8,393,368	\$ 9,645,314	\$ 1,724,879	7.52%	1.36
Invesco High Yield Debt Fund I	2007	\$ 20,000,000	\$ 20,000,000	\$ 8,567,605	\$ -	-35.57%	0.43
Invesco Real Estate Asia Fund	2014	\$ 51,732,500	\$ 51,732,500	\$ 4,603,874	\$ 60,189,314	8.35%	1.24
INVESCO Real Estate Fund I	2005	\$ 10,000,000	\$ 9,248,390	\$ 10,000,208	\$ 18,259	1.54%	1.08
LaSalle Income & Growth Fund IV	2005	\$ 20,000,000	\$ 19,469,417	\$ 13,482,024	\$ -	-5.51%	0.69
North Haven Real Estate Fund V International	2005	\$ 27,500,000	\$ 27,377,414	\$ 31,743,090	\$ 1,666,291	7.19%	1.22
Oaktree Real Estate Opportunities V	2012	\$ 25,000,000	\$ 25,000,000	\$ 30,125,000	\$ 9,045,613	13.59%	1.56
Partners Group RE Secondary 2013 (USD) A	2014	\$ 65,000,000	\$ 32,040,740	\$ 7,750,376	\$ 37,755,706	26.24%	1.41
Prologis Japan Fund	2005	\$ 25,290,819	\$ 25,290,819	\$ 33,126,118	\$ -	4.81%	1.31
Prudential PRISA II	2004	\$ 100,000,441	\$ 100,000,441	\$ 34,394,180	\$ 114,045,897	8.27%	1.41
Prudential PRISA III	2003	\$ 40,000,000	\$ 40,000,000	\$ 39,373,383	\$ 35,264,085	19.52%	1.72
RREEF America REIT III	2004	\$ 20,000,000	\$ 20,539,309	\$ 23,555,134	\$ 110,743	3.01%	1.15
Square Mile Partners II	2007	\$ 20,000,000	\$ 19,831,232	\$ 5,247,159	\$ 338,120	-17.99%	0.28
Square Mile Partners III LP	2008	\$ 20,000,000	\$ 19,721,680	\$ 25,971,268	\$ 3,304,910	12.11%	1.48
Starwood Capital Hospitality Fund I-2	2006	\$ 30,000,000	\$ 30,000,000	\$ 24,291,034	\$ 5,632,038	-0.04%	1
Starwood Debt Fund II, LP	2008	\$ 20,000,000	\$ 17,599,882	\$ 21,858,788	\$ 59,025	6.46%	1.25
Starwood Opportunity Fund VII - A	2006	\$ 25,000,000	\$ 25,000,000	\$ 12,243,387	\$ 7,747,586	-2.54%	0.8
Structured Real Estate III, LP (Guggenheim)	2008	\$ 20,000,000	\$ 20,000,000	\$ 16,320,664	\$ -	-4.99%	0.82
Timbervest Crossover Partners II, L.P.	2008	\$ 30,000,000	\$ 30,000,000	\$ 11,160,000	\$ 18,316,845	-0.35%	0.98
Timbervest Partners II, L.P.	2007	\$ 50,000,000	\$ 50,000,000	\$ 9,000,000	\$ 45,287,127	1.01%	1.09
Tri Continental Capital VII	2005	\$ 23,000,000	\$ 22,343,057	\$ 1,586,367	\$ 1,597,906	-19.01%	0.14
Tuckerman Multi-Family Development Fund III	2002	\$ 10,000,000	\$ 10,219,311	\$ 16,939,699	\$ -	26.67%	1.66
Walton Street Real Estate Fund IV, LP	2003	\$ 10,000,000	\$ 9,770,890	\$ 15,630,801	\$ 451,341	10.82%	1.65
Walton Street Real Estate Fund V, LP	2006	\$ 40,000,000	\$ 40,000,000	\$ 17,359,244	\$ 14,817,546	-2.57%	0.8

Note: all metrics are calculated since inception

\* Denotes cash adjusted

## San Bernardino County Employees' Retirement Association

### Private Equity Performance Ended March 31, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	IRR	TVPI Ratio
Apollo European Principal Finance Fund (Feeder), LP	2009	\$ 53,445,695	\$ 46,373,293	\$ 68,193,403	\$ 1,209,440	11.87%	1.50
Apollo Investment Fund VII, L.P.	2008	\$ 10,000,000	\$ 8,458,621	\$ 14,594,835	\$ 2,866,268	24.19%	2.07
Apollo PCPL Webb V*	2010	\$ 4,844,398	\$ 4,844,398	\$ 5,196,757	\$ 50,173	6.63%	1.08
Apollo PCPL Webb VIII*	2010	\$ 4,734,303	\$ 4,734,303	\$ 12,146,258	\$ 2,308	46.47%	2.57
ARES European Loan Opp Fund	2015	\$ 15,000,000	\$ 8,413,136	\$ 7,613,498	\$ -	-6.02%	0.90
Ares Special Situations Fund IV, LP	2015	\$ 50,000,000	\$ 14,884,488	\$ 65,594	\$ 9,483,727	-18.77%	0.64
Aurora Equity Partners III, L.P.	2005	\$ 25,000,000	\$ 23,544,536	\$ 41,738,196	\$ 1,342,341	14.05%	1.71
Aurora Equity Partners IV, L.P.	2012	\$ 20,000,000	\$ 15,882,665	\$ 12,425,994	\$ 21,271,905	18.91%	1.85
Aurora Resurgence Fund, L.P.	2008	\$ 15,000,000	\$ 5,653,009	\$ 10,350,965	\$ -	17.60%	1.82
Baring Asia Private Equity Fund IV, L.P.	2015	\$ 2,931,918	\$ 2,922,361	\$ 526,859	\$ 2,554,491	2.85%	1.05
BNY Mellon - Alcentra Mezzanine III*	2012	\$ 25,000,000	\$ 23,254,658	\$ 26,583,881	\$ 46,747	12.47%	1.15
Catalyst Fund II, L.P.	2007	\$ 10,000,000	\$ 9,934,668	\$ 4,256,332	\$ 17,946,255	12.51%	2.22
Catalyst Fund LP IV, L.P.	2015	\$ 8,000,000	\$ 3,075,610	\$ -	\$ 3,430,270	8.33%	1.11
Charlesbank Equity Fund VIII	2015	\$ 7,500,000	\$ 4,795,405	\$ 422,938	\$ 4,798,687	7.78%	1.09
DRI II, L.P.	2009	\$ 20,000,000	\$ 19,917,669	\$ 26,302,807	\$ -	19.64%	1.33
European Strategic Partners 2004	2004	\$ 239,751,355	\$ 220,597,962	\$ 243,675,337	\$ 29,626,332	3.72%	1.24
European Strategic Partners 2008	2010	\$ 31,068,585	\$ 26,755,220	\$ 12,051,110	\$ 20,837,393	6.17%	1.22
Industry Ventures Direct, LP	2016	\$ 25,000,000	\$ 3,962,897	\$ -	\$ 3,824,605	-3.97%	0.97
Industry Ventures Fund V	2008	\$ 10,000,000	\$ 9,500,000	\$ 20,712,664	\$ 8,252,342	32.20%	3.05
Industry Ventures Fund VI	2011	\$ 20,000,000	\$ 18,400,000	\$ 11,876,040	\$ 12,980,547	11.04%	1.35
Industry Ventures Partnership Holdings Fund II, L.P.	2012	\$ 25,000,000	\$ 22,750,000	\$ 5,231,047	\$ 41,392,487	25.72%	2.05
Industry Ventures Partnership Holdings Fund III, L.P.	2013	\$ 25,000,000	\$ 18,750,000	\$ 2,252,340	\$ 20,861,552	12.72%	1.23
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	\$ 12,500,000	\$ 10,437,500	\$ 3,352,672	\$ 8,887,338	9.95%	1.17
Industry Ventures Partnership Holdings IV, LP	2016	\$ 25,000,000	\$ 2,625,000	\$ -	\$ 2,715,428	5.26%	1.03
Industry Ventures Secondary VII, L.P.	2013	\$ 25,000,000	\$ 20,125,000	\$ 2,854,366	\$ 21,247,884	11.48%	1.20
Industry Ventures Secondary VIII	2017	\$ 25,000,000	\$ 300,000	\$ -	\$ 320,133	6.71%	1.07
Insight Venture Partners III Co-Invest	2014	\$ 4,000,000	\$ 3,844,000	\$ -	\$ 4,919,360	11.24%	1.28

Note: all metrics are calculated since inception

\* Denotes Cash adjusted value

# San Bernardino County Employees' Retirement Association

## Private Equity Performance Ended March 31, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	IRR	TVPI Ratio
Lexington Capital Partners VI-B	2006	\$ 25,000,000	\$ 24,591,319	\$ 28,069,572	\$ 6,067,606	6.78%	1.39
Lexington Capital Partners VII (Offshore)	2011	\$ 25,000,000	\$ 19,788,432	\$ 19,936,288	\$ 10,503,080	16.20%	1.53
Lexington Middle Market I	2005	\$ 25,000,000	\$ 24,771,942	\$ 32,806,394	\$ 6,279,927	11.43%	1.58
Lexington Middle Market II - Offshore	2008	\$ 10,000,000	\$ 9,773,736	\$ 9,137,872	\$ 5,540,633	13.68%	1.50
Madison Dearborn VII	2016	\$ 10,000,000	\$ 1,723,707	\$ -	\$ 1,620,693	-7.51%	0.94
NB Secondary Opportunities I, LP	2005	\$ 20,000,000	\$ 18,500,843	\$ 21,646,835	\$ 2,806,699	6.67%	1.32
NB Secondary Opportunities II, LP	2008	\$ 20,000,000	\$ 16,962,076	\$ 21,411,053	\$ 5,521,100	15.52%	1.56
Partners Group Access 632, L.P.	2014	\$ 2,782,028	\$ 2,782,028	\$ -	\$ 4,350,082	15.54%	1.55
Partners Group Access 648, L.P.	2014	\$ 4,348,772	\$ 4,028,602	\$ 19,449	\$ 3,050,360	-10.11%	0.76
Partners Group Access 680 L.P.	2015	\$ 7,272,688	\$ 7,206,011	\$ -	\$ 7,916,742	7.43%	1.10
Partners Group CA Infrastructure, LP Inc	2016	\$ 6,246,500	\$ 878,461	\$ -	\$ 875,722	-0.49%	1.00
Partners Group Client Access 8 LP	2014	\$ 5,531,585	\$ 5,531,585	\$ 6,978,396	\$ 20,619,809	74.24%	4.99
Partners Group Direct Equity 2016 USD A	2016	\$ 20,000,000	\$ 5,208,094	\$ -	\$ 5,279,220	1.56%	1.01
Partners Group Direct Investment 2012, L.P.	2013	\$ 18,086,936	\$ 16,509,621	\$ 7,235,860	\$ 16,808,278	17.82%	1.46
Partners Group European Mandate, L.P.	2004	\$ 235,756,909	\$ 196,136,552	\$ 218,640,610	\$ 43,427,612	5.57%	1.34
Partners Group European Mezzanine 2005	2005	\$ 101,076,654	\$ 101,076,654	\$ 113,039,782	\$ 15,558,369	3.88%	1.27
Partners Group Princess Learning IC LTD	2014	\$ 8,332,516	\$ 5,814,832	\$ 1,550,144	\$ 4,898,533	7.91%	1.11
Partners Group Seabras Holdings, LLC	2015	\$ 4,800,000	\$ 3,193,156	\$ -	\$ 3,212,756	0.52%	1.01
Partners Group Secondary 2006 LP	2006	\$ 54,276,646	\$ 51,077,528	\$ 50,128,084	\$ 9,791,863	3.41%	1.17
Partners Group Secondary 2008, L.P.	2009	\$ 26,481,675	\$ 23,690,725	\$ 28,085,806	\$ 6,389,053	8.93%	1.45
Partners Group Starfrost Limited	2014	\$ 6,135,894	\$ 3,736,806	\$ -	\$ 5,291,354	11.50%	1.42
Pathway Private Equity Fund VII, L.P.	2004	\$ 904,500,000	\$ 782,727,751	\$ 793,593,410	\$ 476,298,898	9.98%	1.59
Siguler Guff DOF II	2006	\$ 30,000,000	\$ 30,000,000	\$ 41,624,855	\$ 759,395	8.66%	1.42
Siguler Guff DOF III	2008	\$ 10,000,000	\$ 9,700,000	\$ 12,338,779	\$ 2,894,087	10.77%	1.57
SL Capital SOF I LP	2014	\$ 25,000,000	\$ 17,346,556	\$ 2,423,643	\$ 18,592,338	11.41%	1.21
TCP Direct Lending Fund VIII-L, LLC	2016	\$ 40,000,000	\$ 9,379,855	\$ -	\$ 9,651,027	6.48%	1.03
TCW/Crescent Mezzanine IV, L.P.	2006	\$ 40,000,000	\$ 39,590,976	\$ 43,109,680	\$ 1,506,782	2.85%	1.13
TCW/Crescent Mezzanine V, L.P.	2008	\$ 20,000,000	\$ 19,949,723	\$ 23,828,706	\$ 2,643,736	9.59%	1.33
Tennenbaum Energy Opportunities Fund, LP	2016	\$ 20,000,000	\$ 5,383,007	\$ 764,143	\$ 5,761,905	21.53%	1.21
Tennenbaum Opportunities Fund V, L.P.	2007	\$ 10,000,000	\$ 10,000,000	\$ 10,049,688	\$ 4,143,376	5.61%	1.42
Tennenbaum Opportunities Fund VI, L.P.	2011	\$ 20,000,000	\$ 13,822,641	\$ 7,856,626	\$ 13,170,323	9.49%	1.52
Tennenbaum Special Situations Fund IX	2015	\$ 50,000,000	\$ 21,837,087	\$ 1,557,402	\$ 22,892,384	10.40%	1.12
Tennenbaum Waterman Fund, LP	2012	\$ 70,000,000	\$ 70,000,000	\$ 22,507,234	\$ 74,983,693	11.64%	1.39
The Resolute Fund II	2016	\$ 1,720,184	\$ 1,442,018	\$ 197,102	\$ 1,335,467	6.57%	1.06
The Resolute Fund III	2014	\$ 8,000,000	\$ 3,948,500	\$ 58,401	\$ 5,141,448	19.56%	1.32
Thoma Bravo XI	2014	\$ 8,000,000	\$ 7,845,858	\$ -	\$ 9,392,156	10.77%	1.20
Thoma Bravo XII	2016	\$ 10,000,000	\$ 3,679,884	\$ -	\$ 3,494,807	-8.45%	0.95
Vista Foundation Fund III	2016	\$ 10,000,000	\$ 1,135,708	\$ -	\$ 925,289	-33.87%	0.81

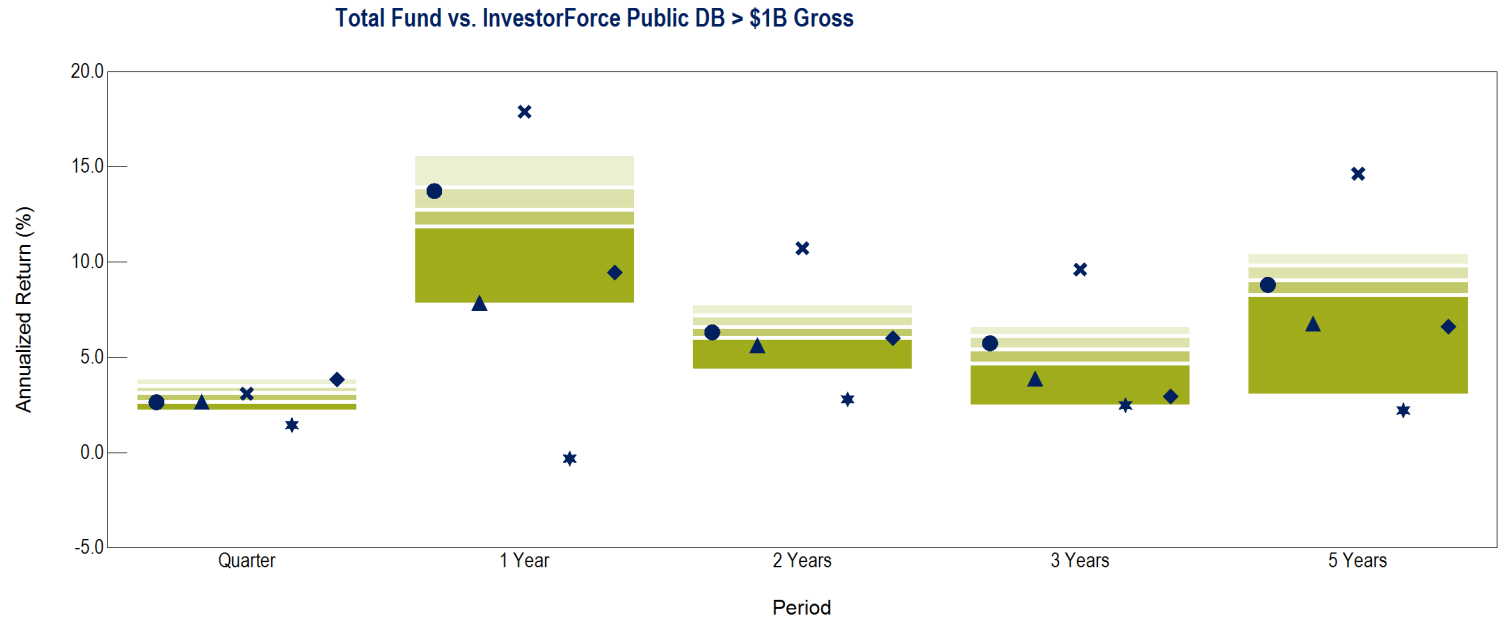
Note: all metrics are calculated since inception

\* Denotes Cash adjusted value

# Appendix: Market Environment



Total Fund Return Summary vs. Peer Universe

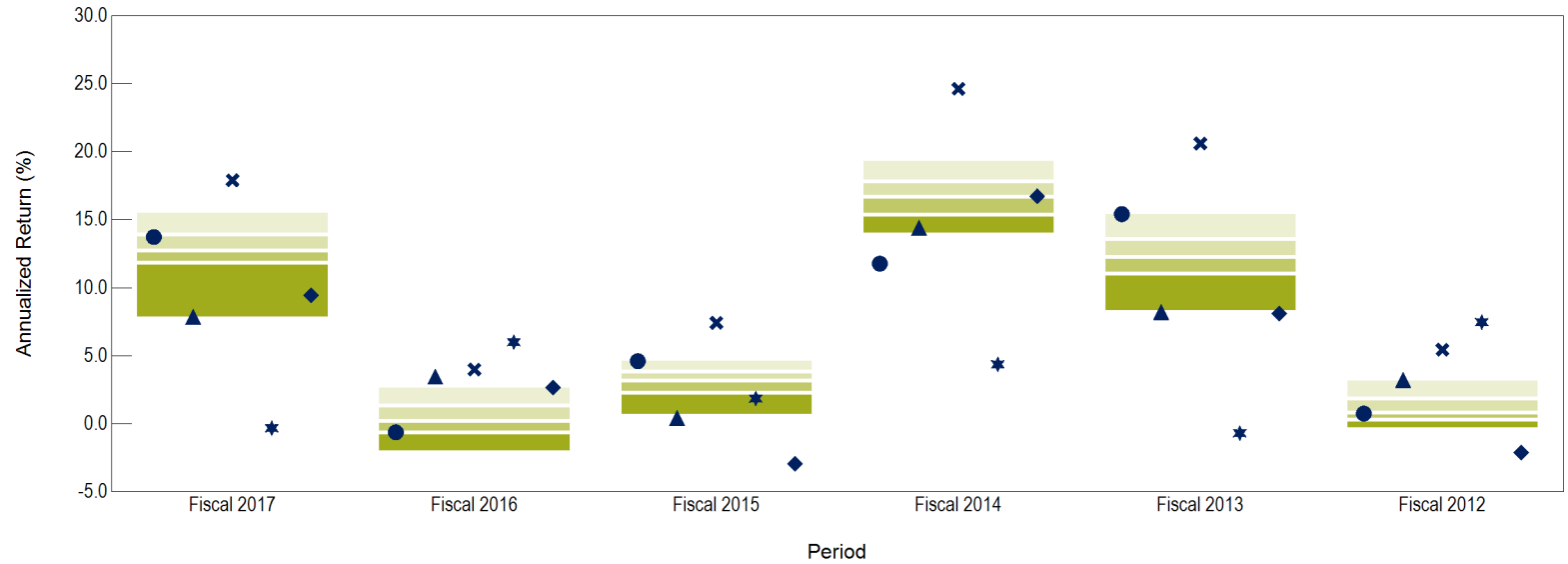


	Return (Rank)									
5th Percentile	3.9		15.6		7.8		6.7		10.5	
25th Percentile	3.5		13.9		7.2		6.1		9.8	
Median	3.1		12.8		6.6		5.4		9.1	
75th Percentile	2.7		11.9		6.0		4.7		8.3	
95th Percentile	2.2		7.8		4.3		2.4		3.0	
# of Portfolios	86		83		73		67		63	
● Total Fund	2.6	(79)	13.7	(31)	6.3	(61)	5.7	(46)	8.8	(58)
▲ Policy Index	2.7	(77)	7.9	(95)	5.6	(84)	3.9	(90)	6.8	(93)
× S&P 500	3.1	(54)	17.9	(1)	10.7	(1)	9.6	(1)	14.6	(1)
* BBgBarc US Aggregate TR	1.4	(97)	-0.3	(99)	2.8	(98)	2.5	(95)	2.2	(97)
◆ 60% MSCI ACWI (Gross)/40% CITI WGBI	3.8	(6)	9.5	(93)	6.0	(77)	2.9	(95)	6.6	(94)



Fiscal Year Ending 6/30 Total Fund Return Summary vs. Peer Universe

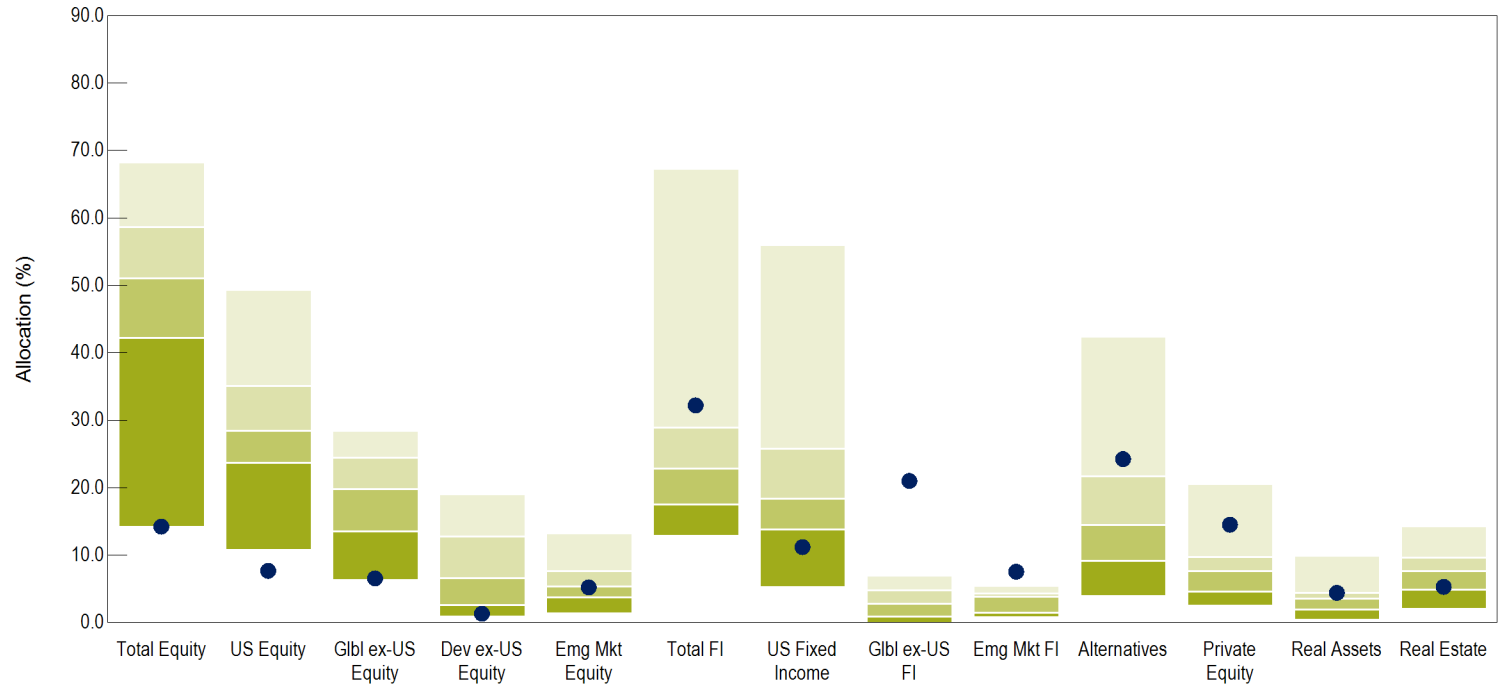
Total Fund vs. InvestorForce Public DB > \$1B Gross



	Return (Rank)					
	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
5th Percentile	15.6	2.8	4.8	19.4	15.5	3.3
25th Percentile	13.9	1.4	3.9	17.8	13.6	1.9
Median	12.8	0.3	3.2	16.7	12.3	0.9
75th Percentile	11.9	-0.6	2.3	15.4	11.0	0.3
95th Percentile	7.8	-2.1	0.6	13.9	8.2	-0.4
# of Portfolios	83	91	92	65	78	70
● Total Fund	13.7 (31)	-0.6 (77)	4.6 (7)	11.8 (99)	15.4 (7)	0.8 (58)
▲ Policy Index	7.9 (95)	3.5 (3)	0.4 (96)	14.4 (87)	8.2 (96)	3.2 (6)
× S&P 500	17.9 (1)	4.0 (2)	7.4 (1)	24.6 (1)	20.6 (1)	5.4 (1)
* BBgBarc US Aggregate TR	-0.3 (99)	6.0 (1)	1.9 (87)	4.4 (99)	-0.7 (99)	7.5 (1)
◆ 60% MSCI ACWI (Gross)/40% CITI WGBI	9.5 (93)	2.7 (8)	-2.9 (99)	16.7 (51)	8.1 (96)	-2.1 (99)

Total Fund Allocations vs. Peer Universe

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

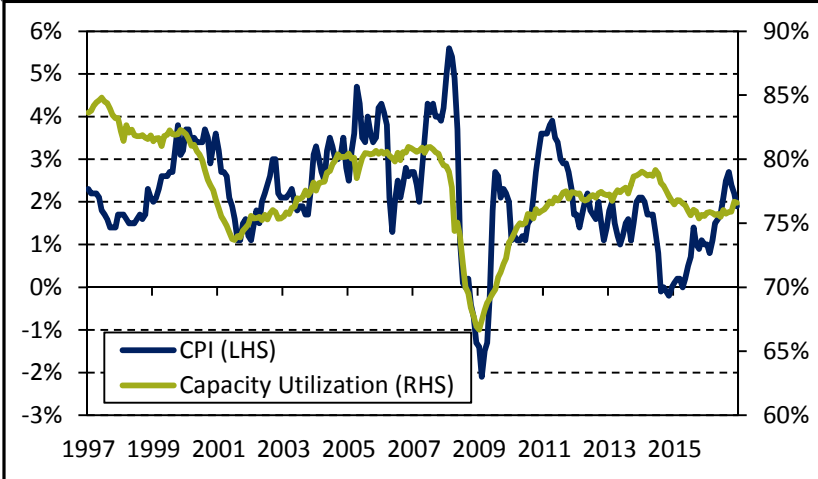


	Allocation (Rank)													
5th Percentile	68.2	49.3	28.5	19.0	13.2	67.3	56.0	7.0	5.4	42.4	20.6	9.9	14.3	--
25th Percentile	58.7	35.2	24.5	12.9	7.8	29.0	25.9	4.9	4.4	21.8	9.8	4.5	9.7	--
Median	51.1	28.5	19.9	6.7	5.5	23.0	18.5	2.9	4.0	14.6	7.8	3.7	7.8	--
75th Percentile	42.3	23.8	13.6	2.7	3.9	17.6	13.9	1.0	1.5	9.2	4.7	2.1	5.0	--
95th Percentile	14.2	10.9	6.4	1.0	1.5	12.9	5.3	0.1	0.9	4.1	2.6	0.5	2.2	--
# of Portfolios	80	72	74	22	34	83	78	44	19	68	37	19	67	--
● Total Fund	14.2 (96)	7.7 (98)	6.6 (95)	1.3 (90)	5.2 (57)	32.2 (18)	11.2 (83)	21.0 (1)	7.6 (1)	24.2 (20)	14.5 (13)	4.4 (26)	5.3 (69)	--



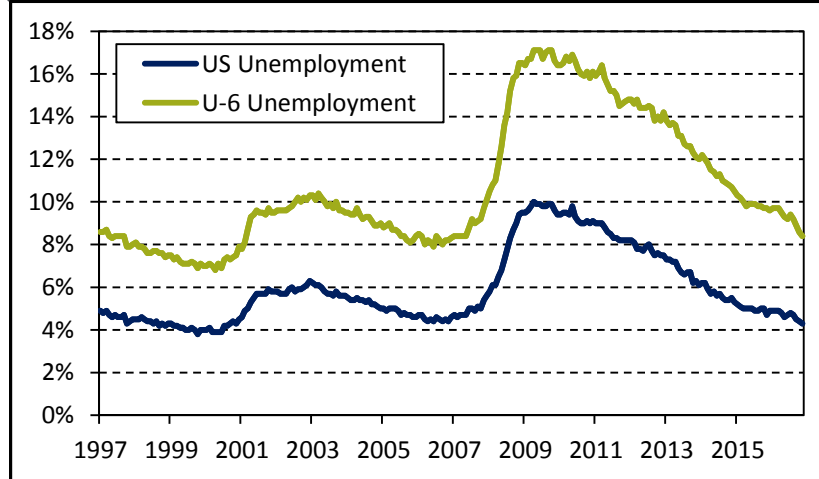
Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan

**Inflation continues to decline, while capacity utilization trends upward**



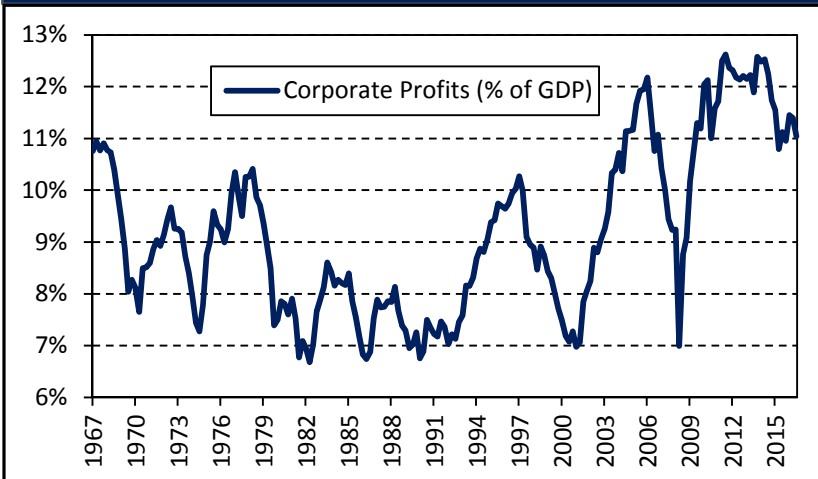
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics

**Unemployment is still declining**



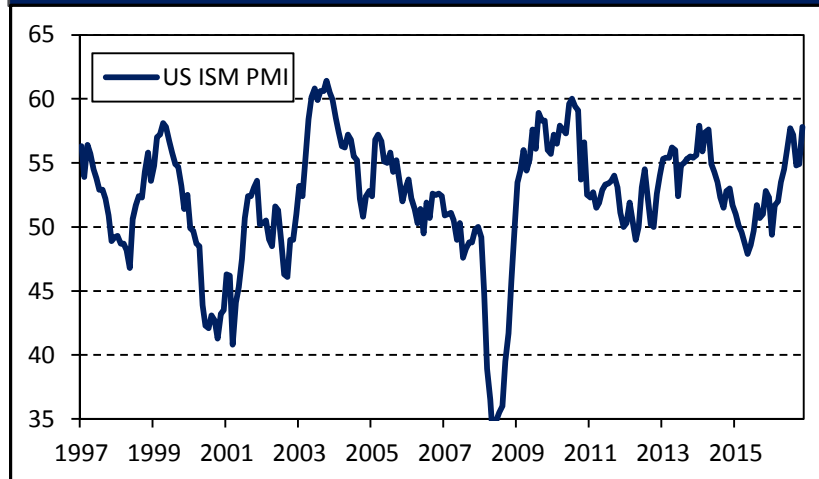
Source: Bloomberg, Bureau of Labor Statistics

**Corporate profits fall off recent highs**



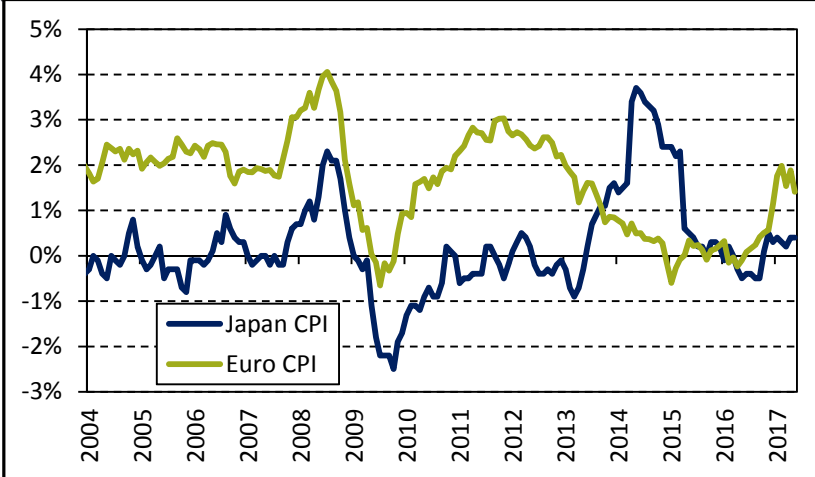
Source: Bloomberg, Bureau of Economic Analysis

**Manufacturing growth hit a multi-year high**



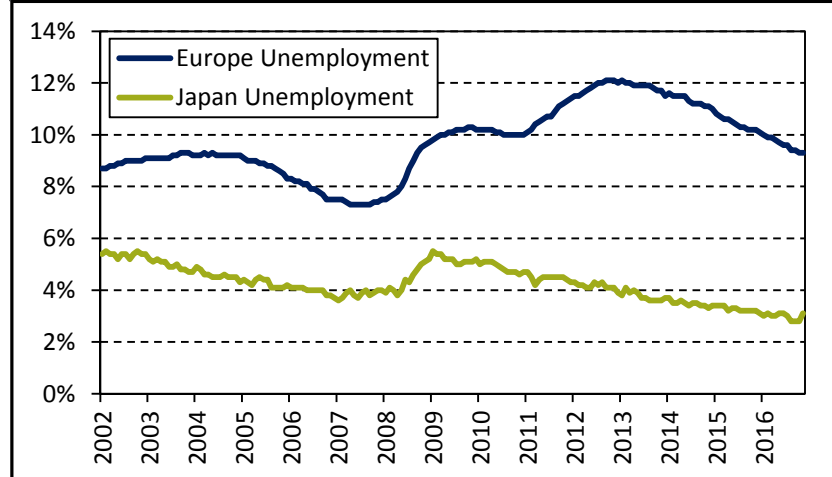
Source: Bloomberg, Institute for Supply Management

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



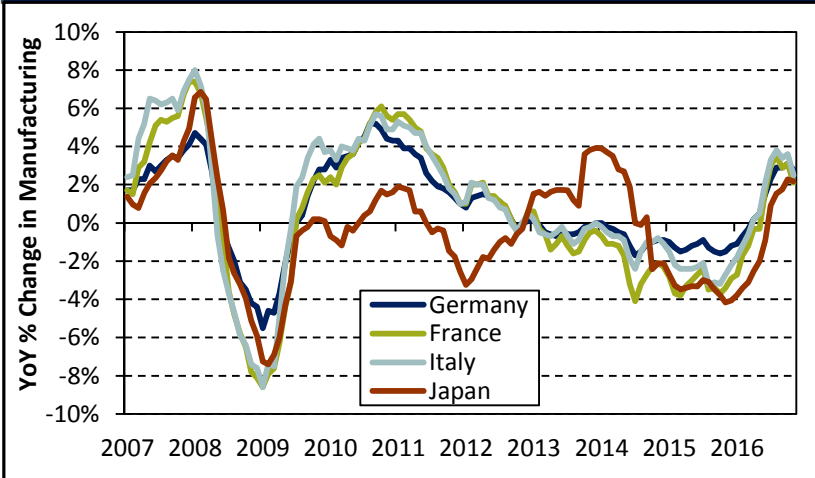
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

**Japan unemployment increased off previous month lows**



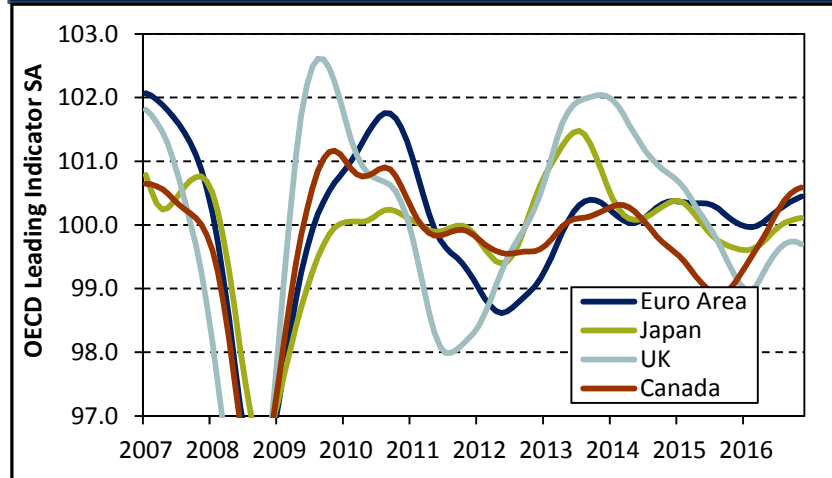
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

**Manufacturing has fallen, though still remains elevated**



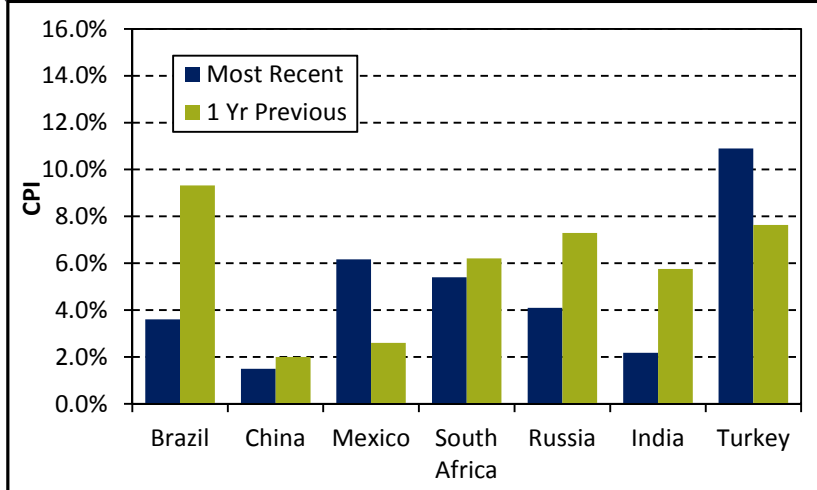
Source: Bloomberg, OECD, Eurostat

**UK leading indicators have begun to decline**



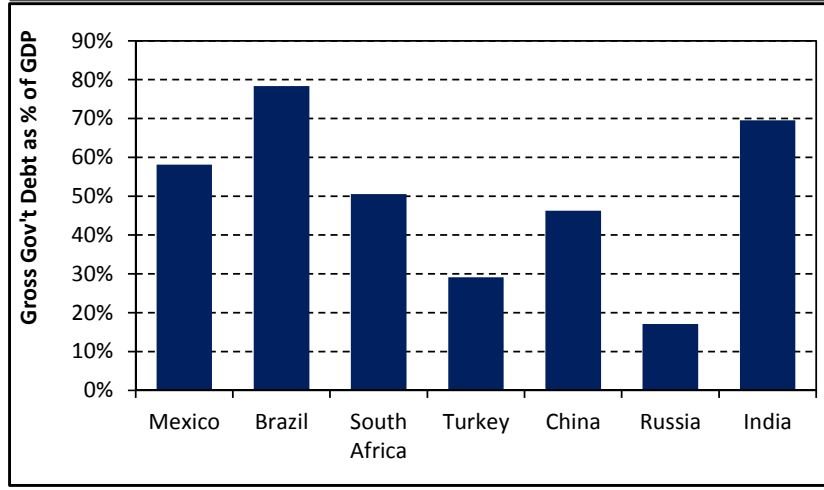
Source: Bloomberg, OECD

### EM inflation varies by country



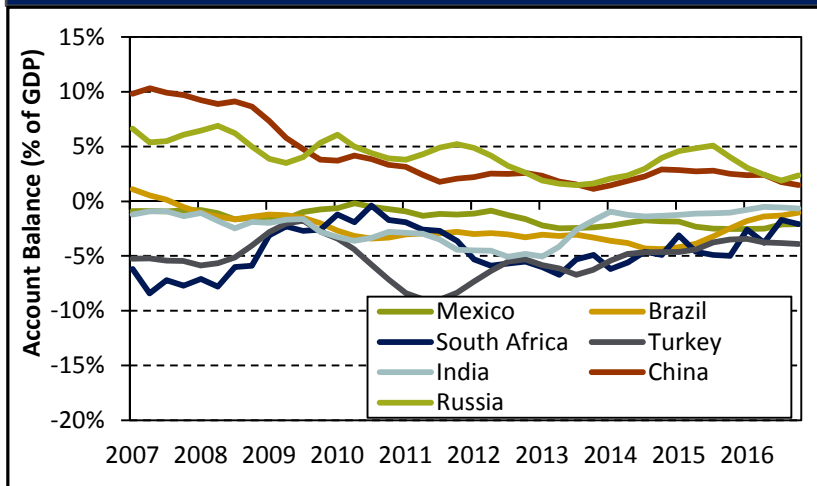
Source: Bloomberg

### Relatively healthy debt/GDP ratios



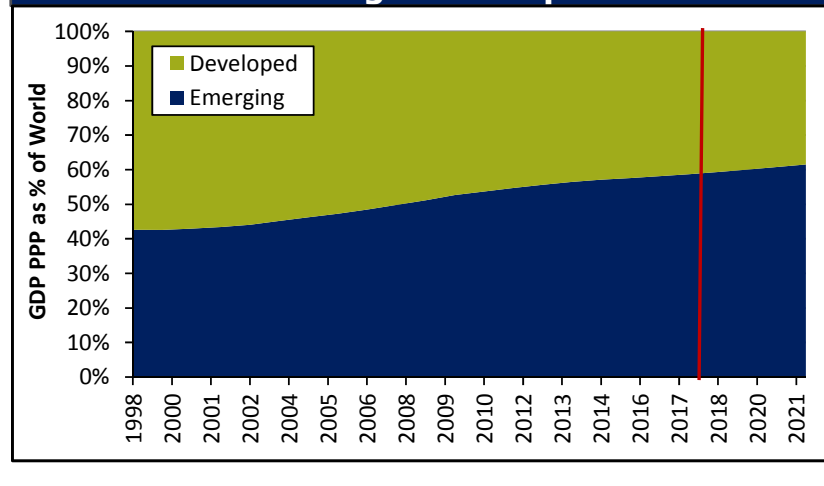
Source: Bloomberg, IMF

### Account balances remain steady



Source: Bloomberg

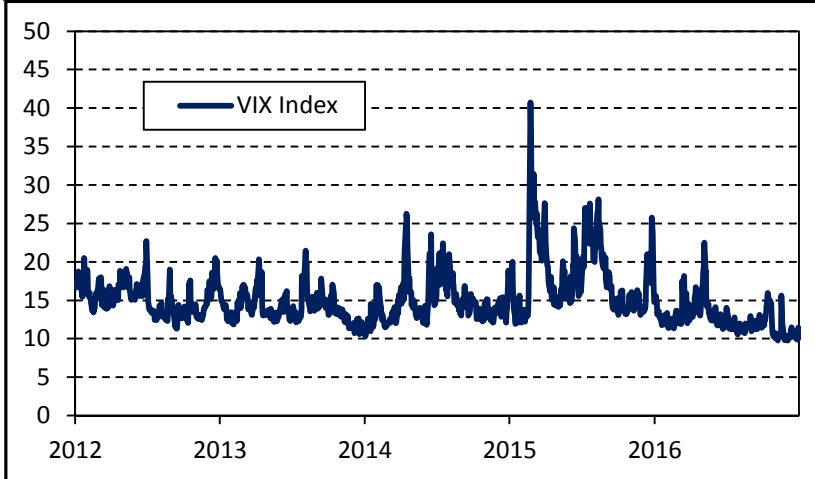
### EM continues trending higher as a percent of global output



Source: Bloomberg, IMF

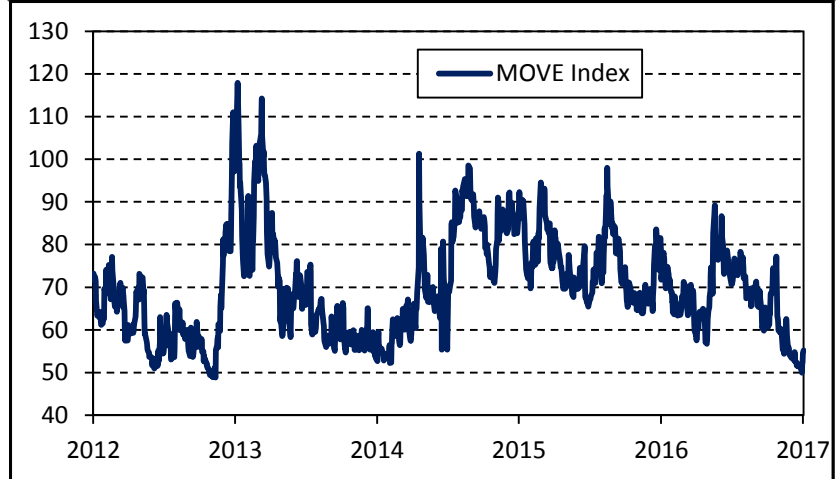
Volatility

Equity volatility remains low



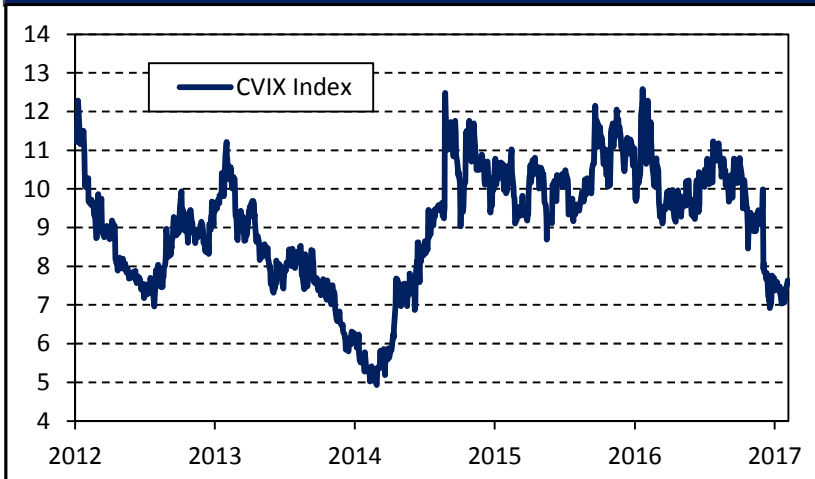
Source: Bloomberg, CBOE

Treasury volatility has recently subsided



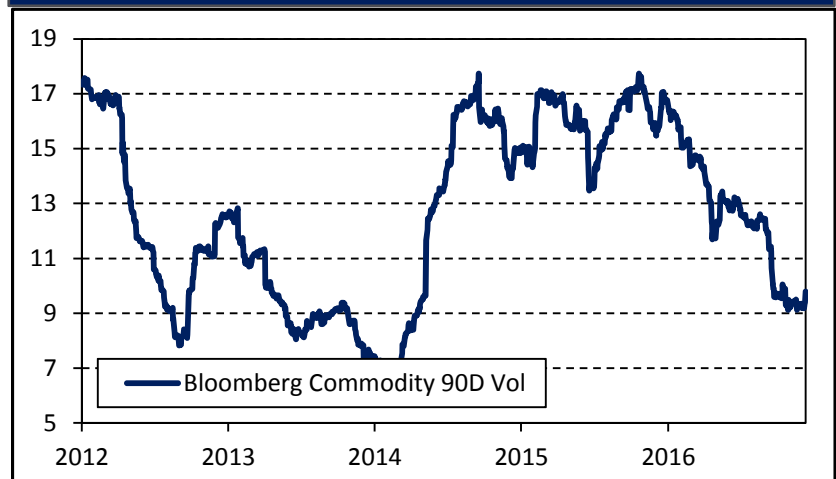
Source: Bloomberg, Merrill Lynch

Currency volatility increased off recent lows



Source: Bloomberg, Deutsche Bank

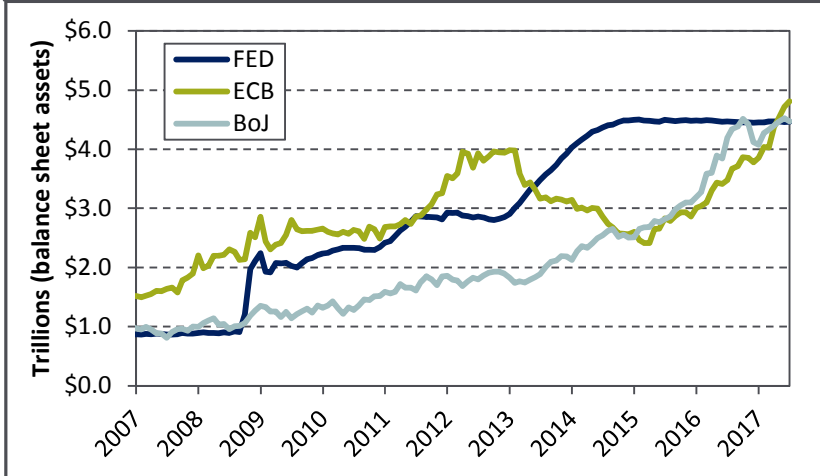
Commodity volatility continues to decline



Source: Bloomberg, Merrill Lynch

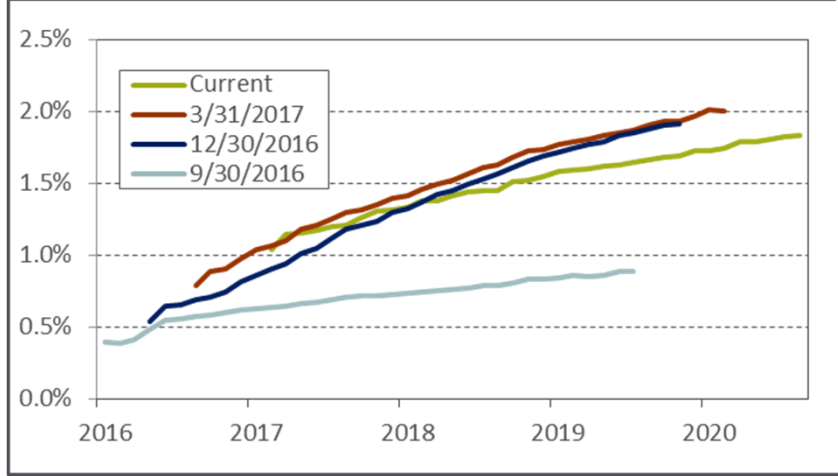


**The ECB balance sheet continues growing**



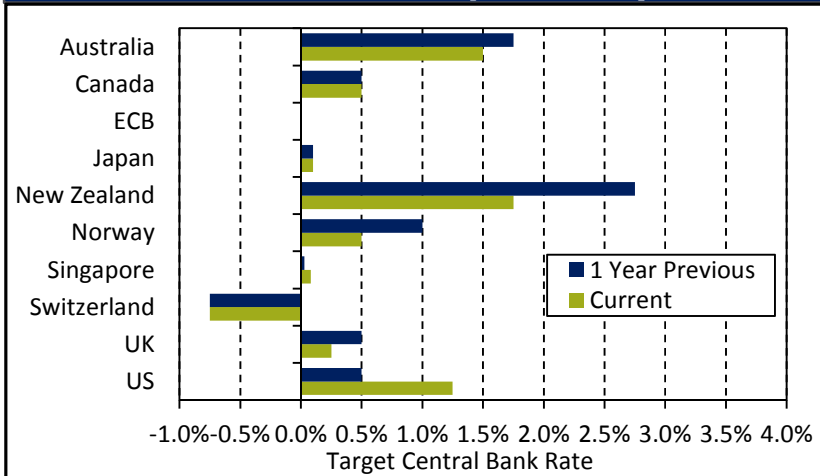
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

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



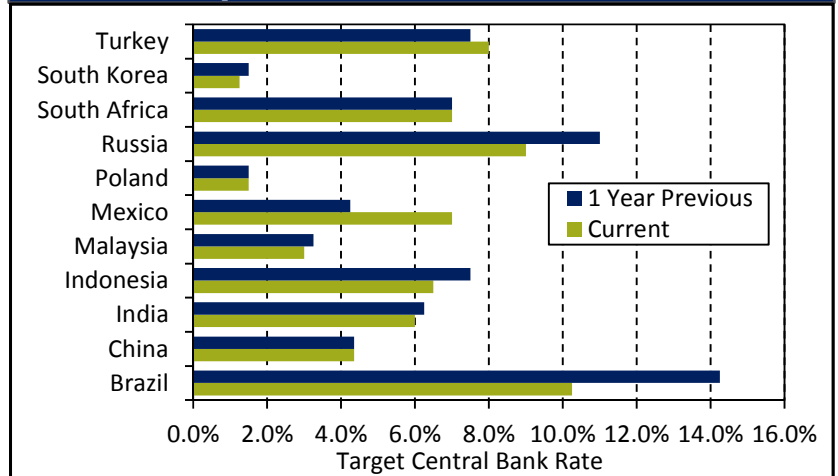
Source: Bloomberg, Federal Reserve

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



Source: Bloomberg

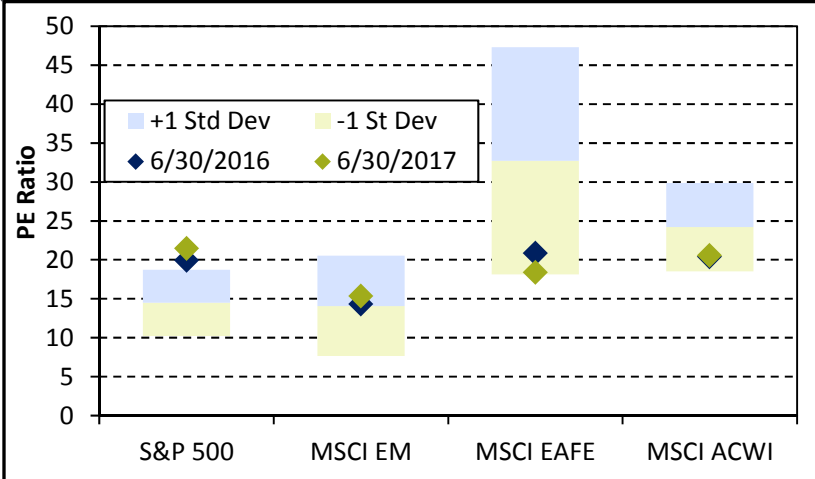
**EM central bank policies vary by country-specific economic conditions**



Source: Bloomberg

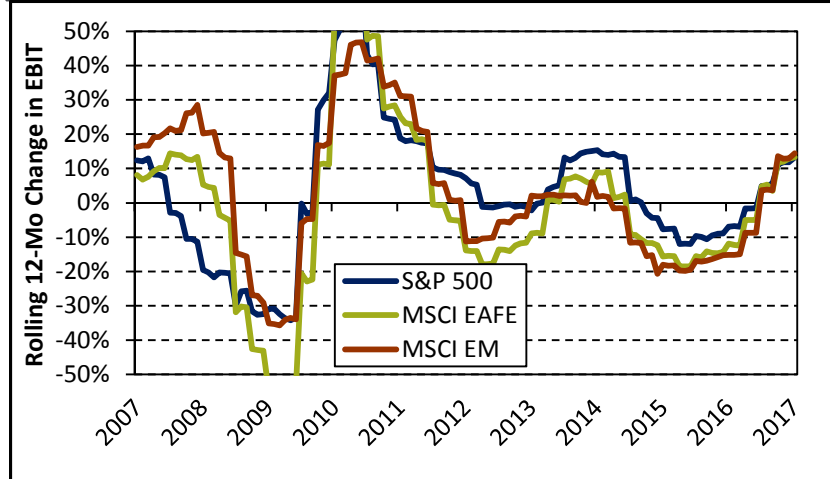


**EAFE valuations remain lower than the previous year**



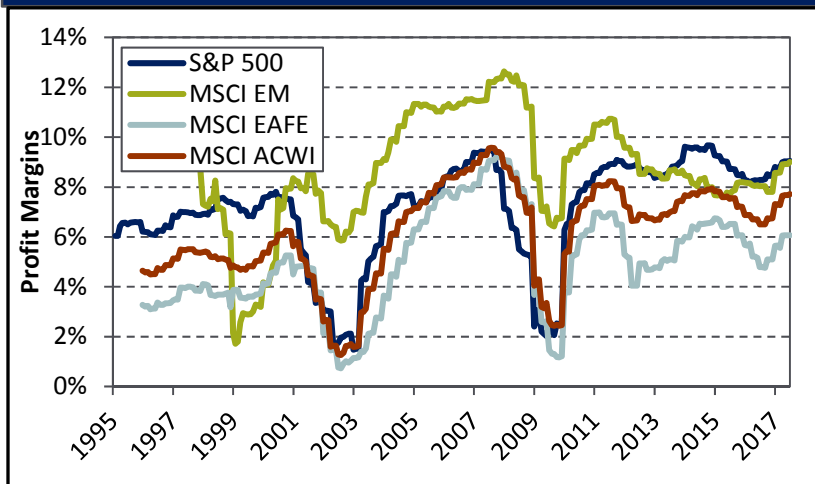
Source: Bloomberg, Standard and Poors, MSCI \*MSCI EAFE is ex UK Telecom  
\*Standard deviation calculations on 20 years of data except S&P 500 (30 years)

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



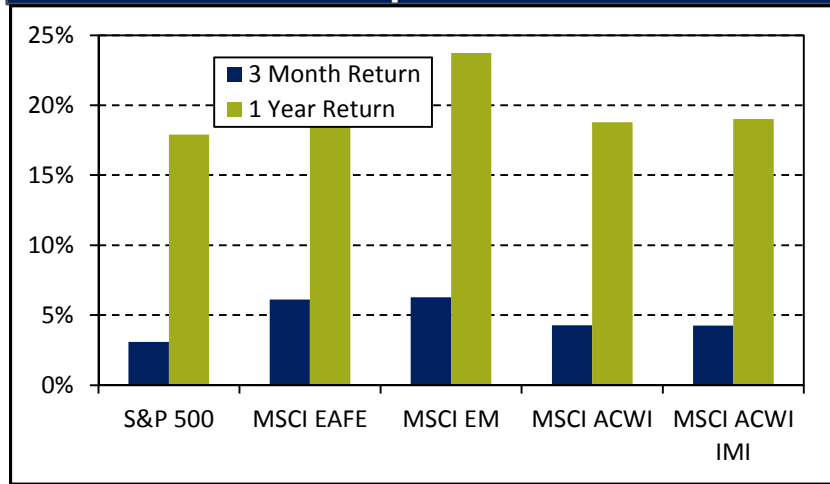
Source: Bloomberg, Standard and Poors, MSCI

**Profit margins continue to improve**



Source: Bloomberg, MSCI

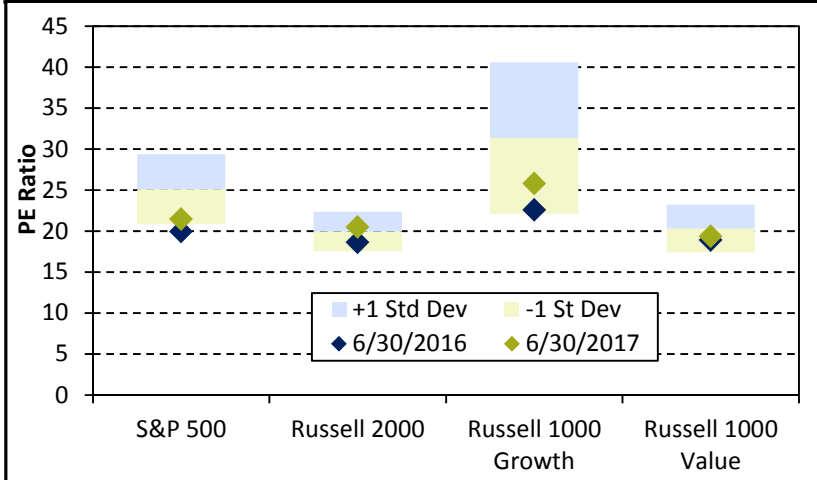
**Equities have experienced positive short-term performance**



Source: Bloomberg, MSCI

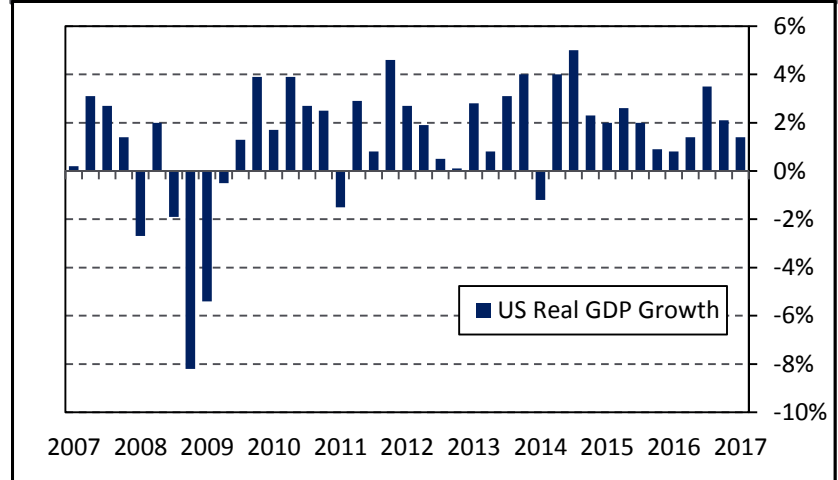
US Equity

**US equity valuations remain elevated relative to last year**



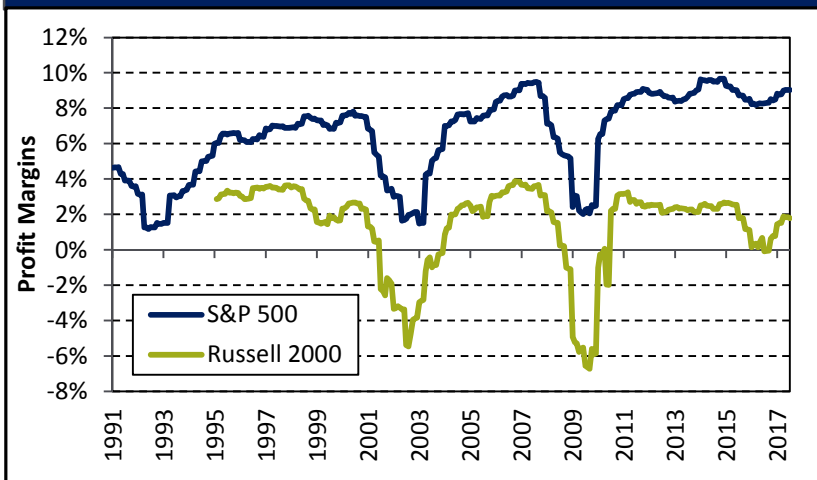
Source: Bloomberg, Standard and Poors, Russell \*Russell 2000 PE is index adjusted positive\* Standard deviation calculations based on 20 years of data

**Real GDP growth declined significantly from the previous quarter**



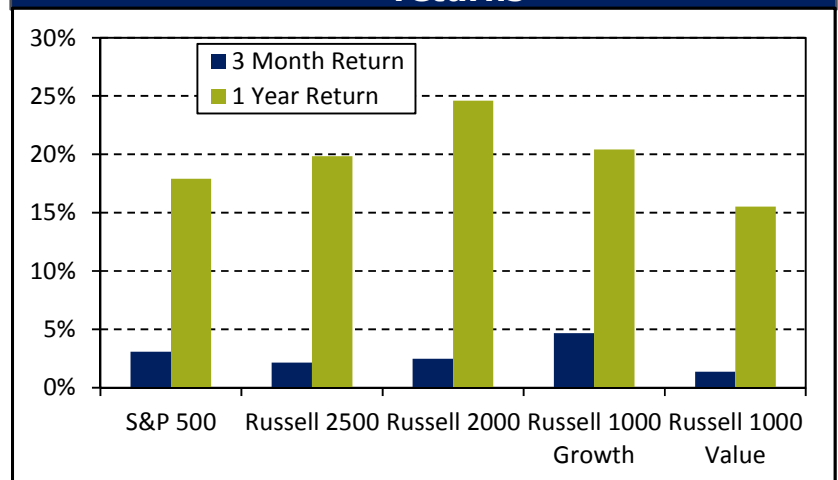
Source: Bloomberg, Bureau of Economic Analysis

**Profit margins experience an uptick**



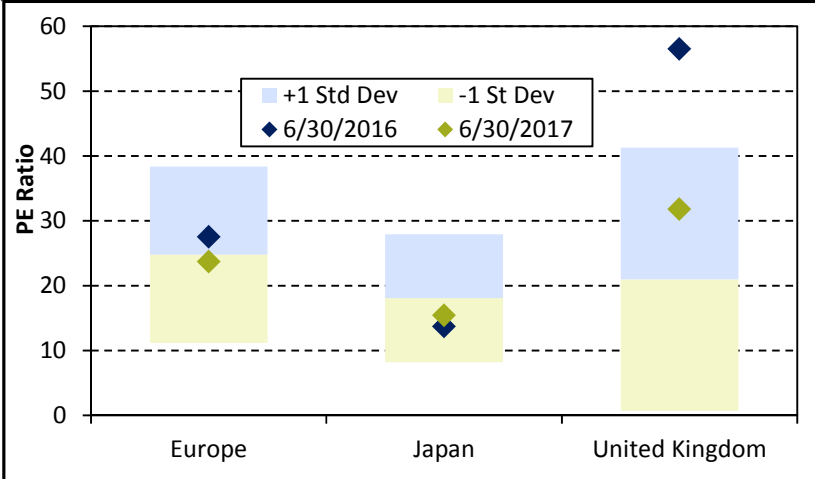
Source: Bloomberg, Standard and Poors, Russell

**US equity continues to post positive returns**



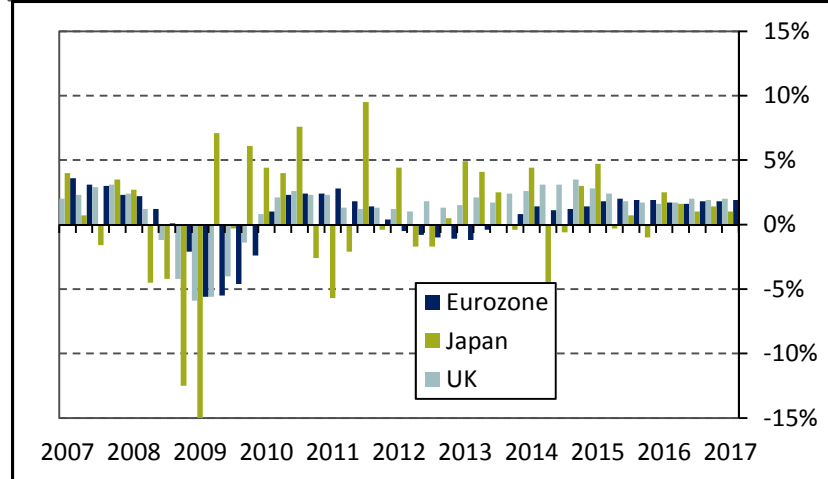
Source: Bloomberg, Standard and Poors, Russell

### UK and Europe PEs remain below previous year levels



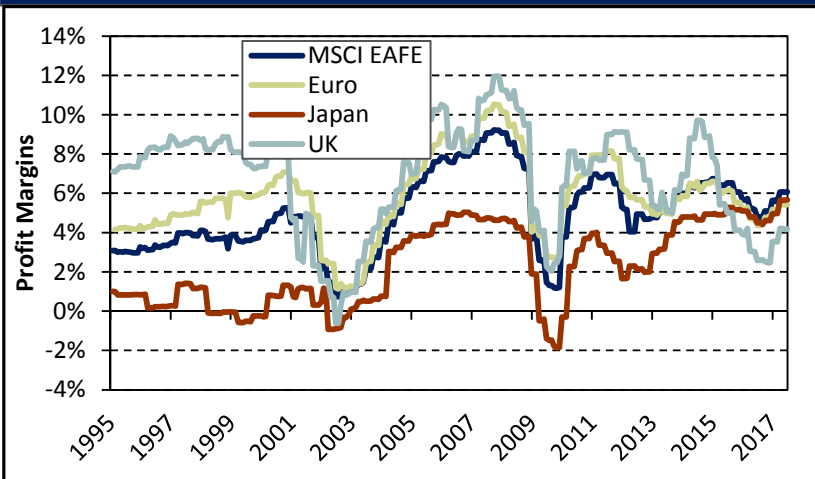
Source: Bloomberg, MSCI, FTSE \*UK represented by FTSE 100 Index  
\*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

### International growth has steadied



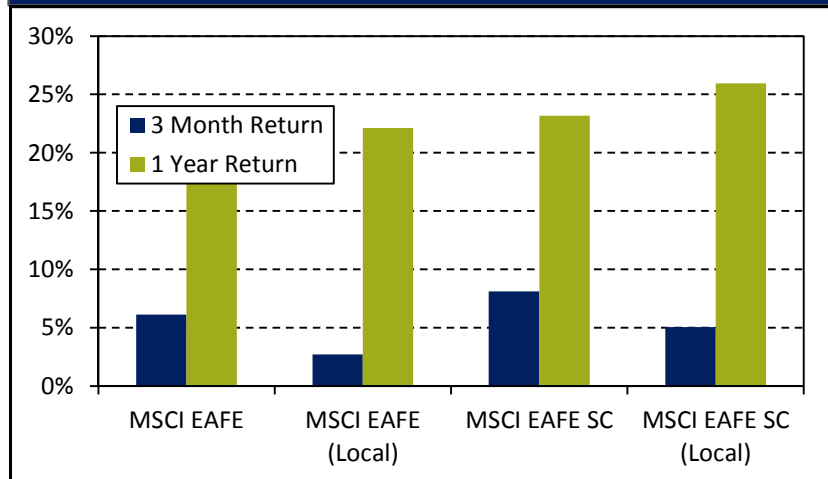
Source: Bloomberg

### Profit margins continue trending higher



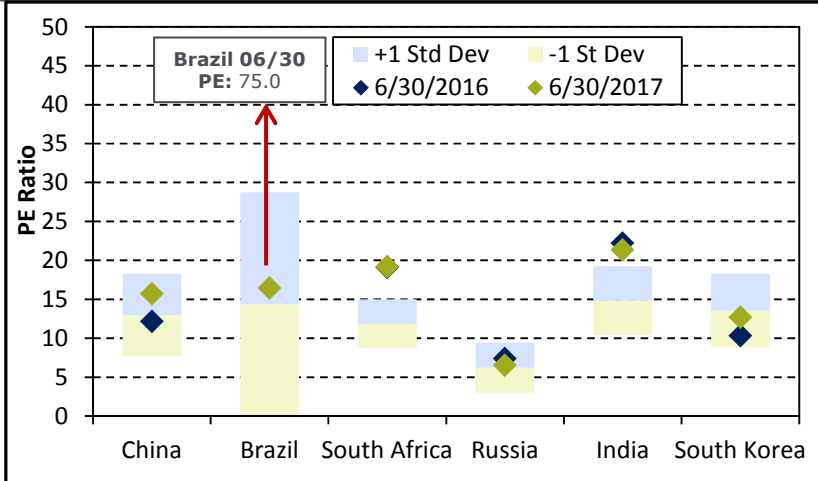
Source: Bloomberg, MSCI

### Strong short-term performance for EAFE



Source: Bloomberg, MSCI

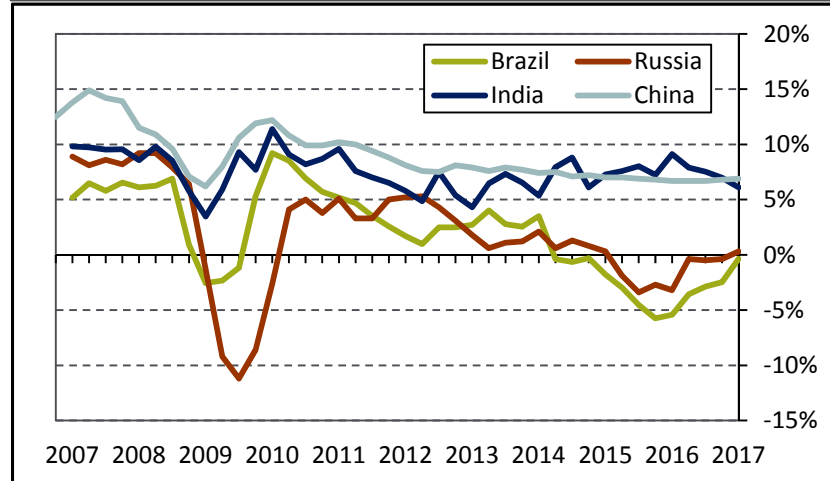
**India's valuation fell below the previous year, though still remains elevated**



Source: Bloomberg, MSCI

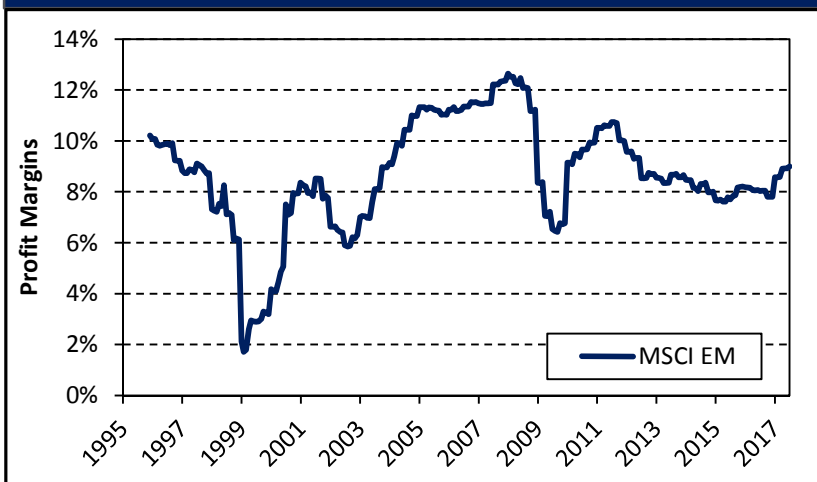
\*Standard deviation calculations based on 20 years of data, with Russia since 01/1998

**Brazil continues to rebound off earnings contraction**



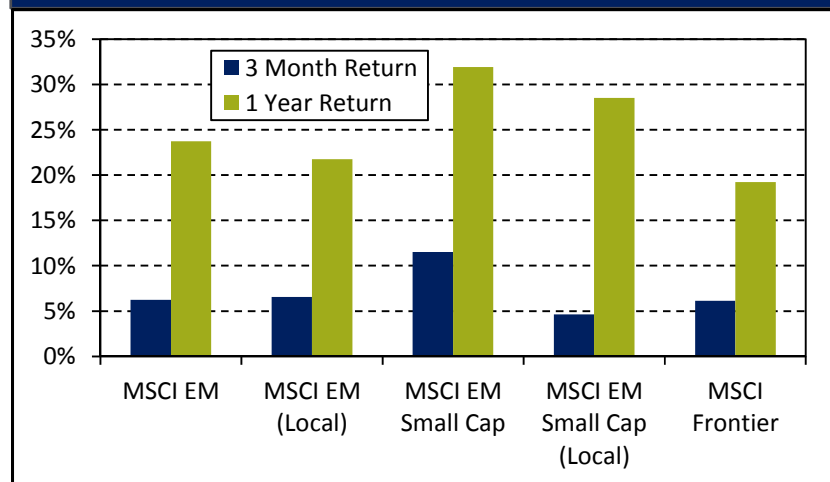
Source: Bloomberg

**Profit margins continue trending upward**



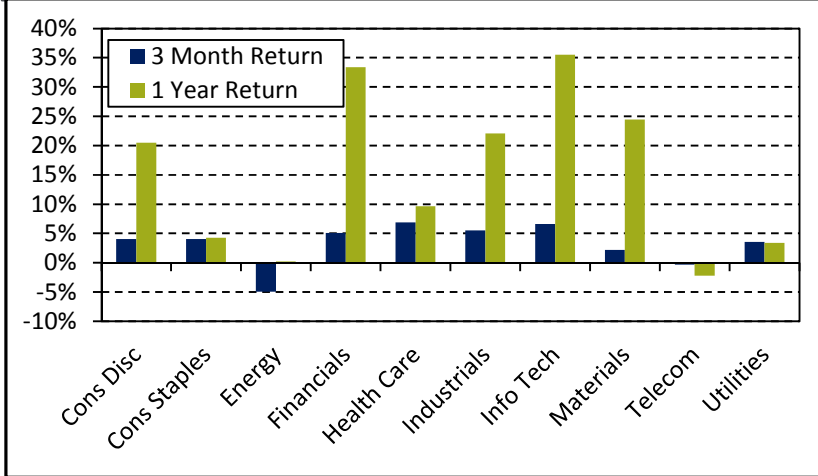
Source: Bloomberg, MSCI

**EM posts strong short-term returns**



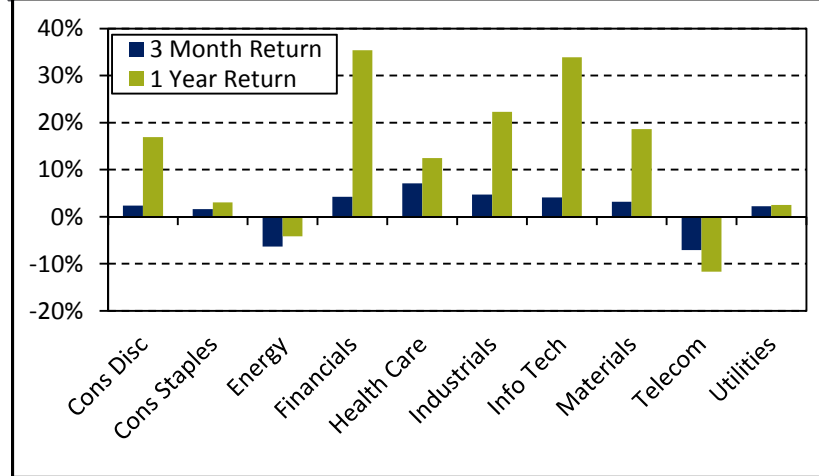
Source: Bloomberg, MSCI

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



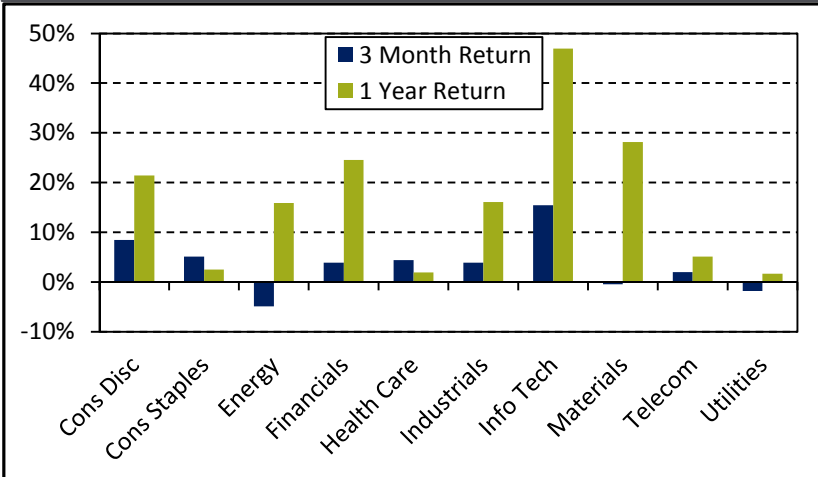
Source: Bloomberg, MSCI

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



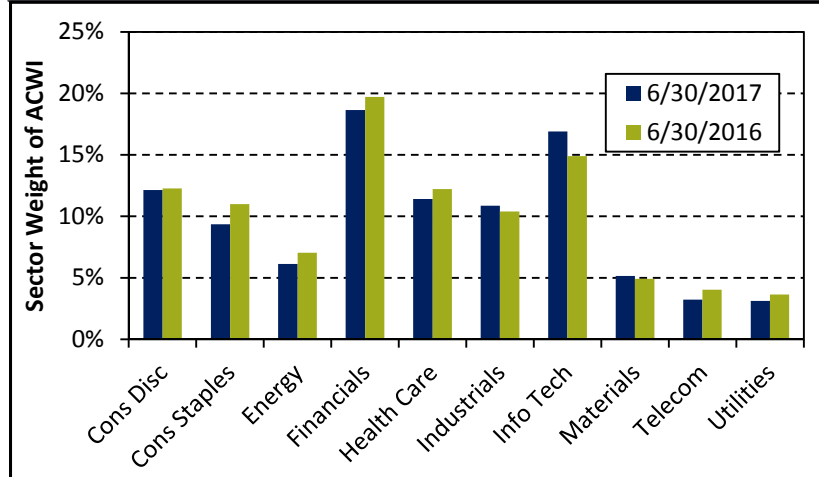
Source: Bloomberg, Standard and Poors

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



Source: Bloomberg, MSCI

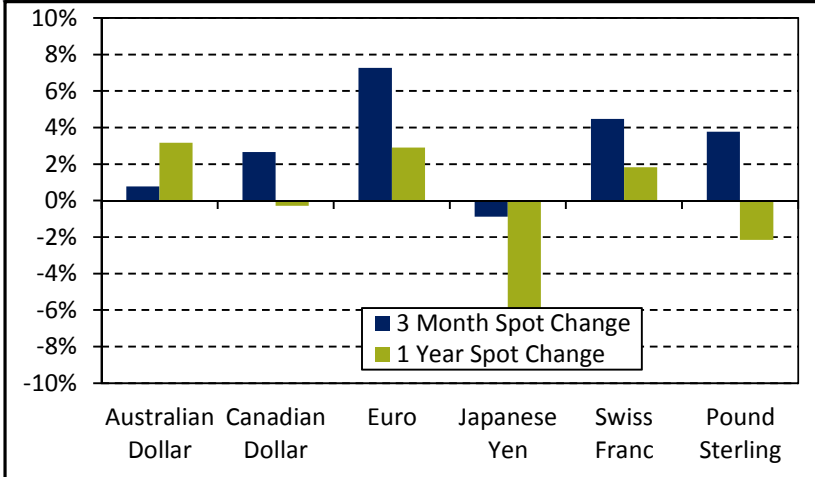
**Financials sector weight has decreased in favor of Info Tech and Industrials**



Source: Bloomberg, MSCI

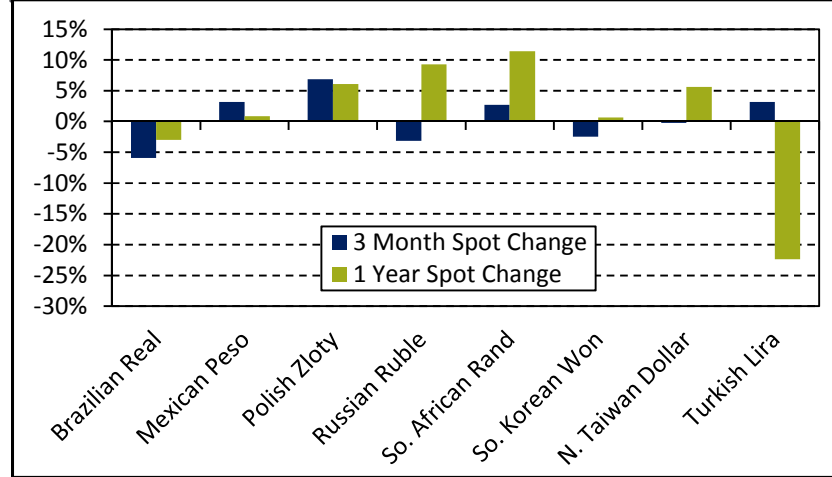
Currencies

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



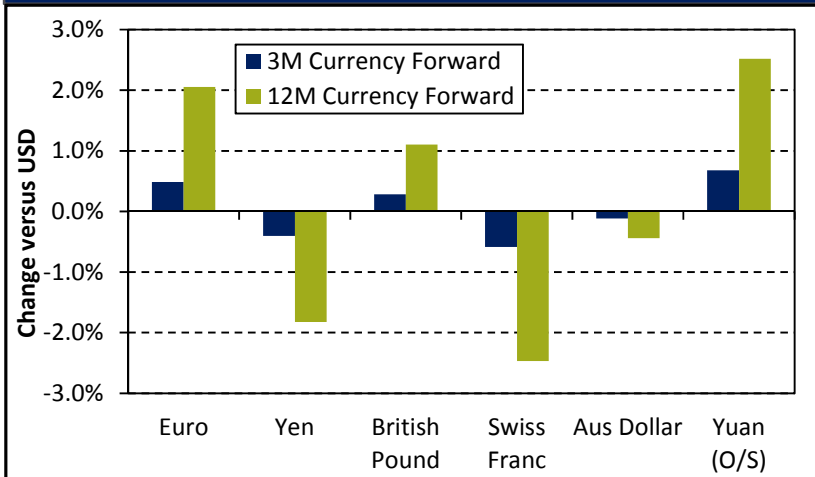
Source: Bloomberg

EM currencies remain mixed relative to the dollar



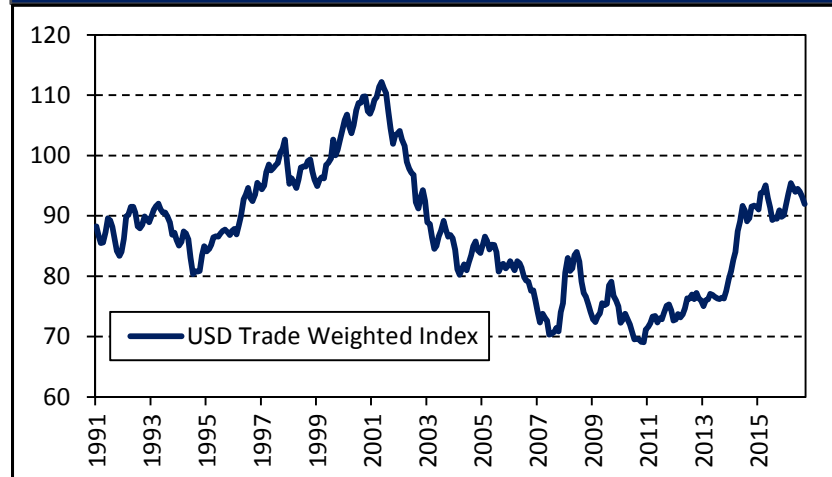
Source: Bloomberg

USD expectations vary across developed markets

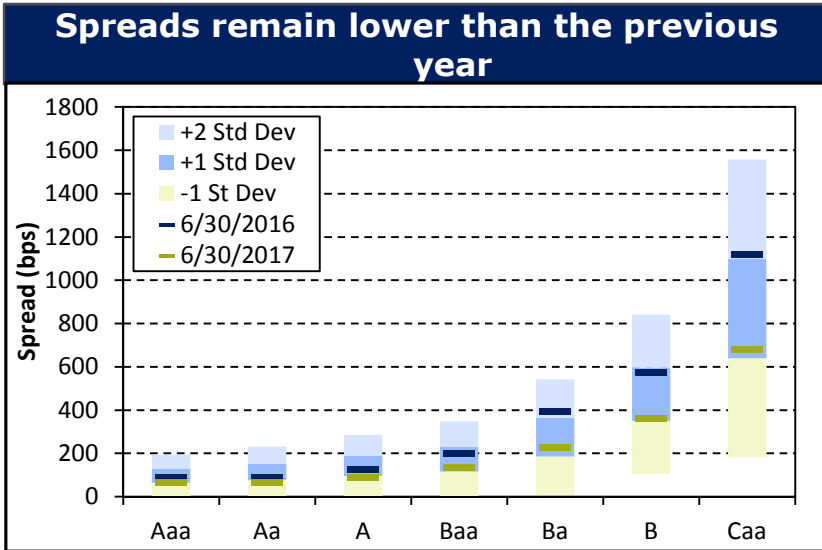


Source: Bloomberg

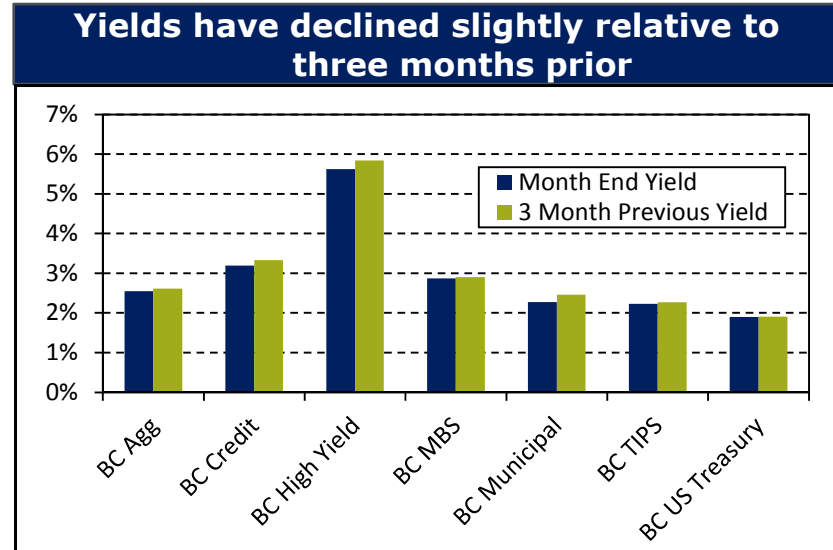
The dollar continues trending downward



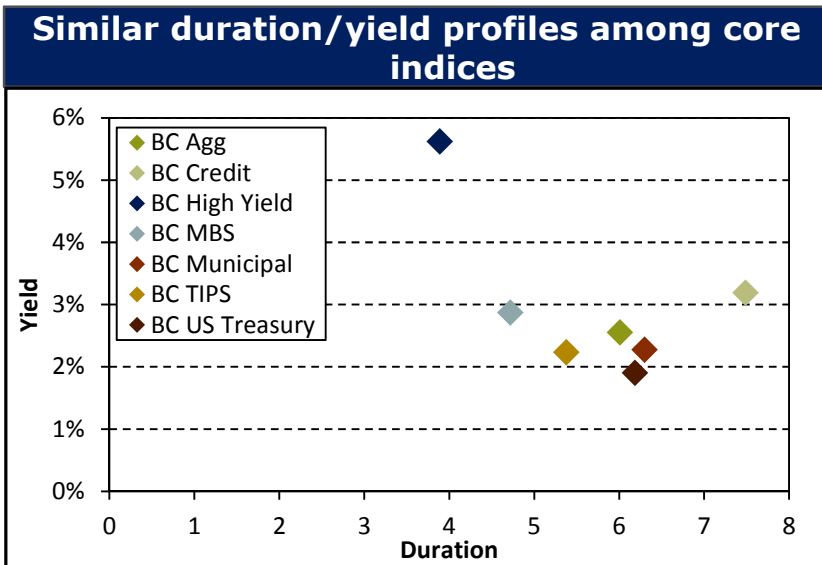
Source: Bloomberg, Federal Reserve



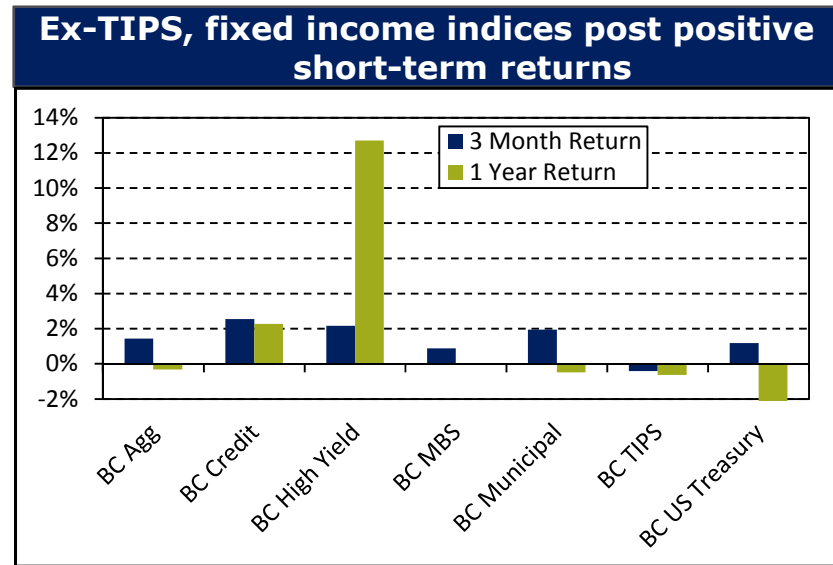
Source: Bloomberg, Barclays  
 \*Standard deviation calculations based on 20 years of data



Source: Bloomberg, Barclays

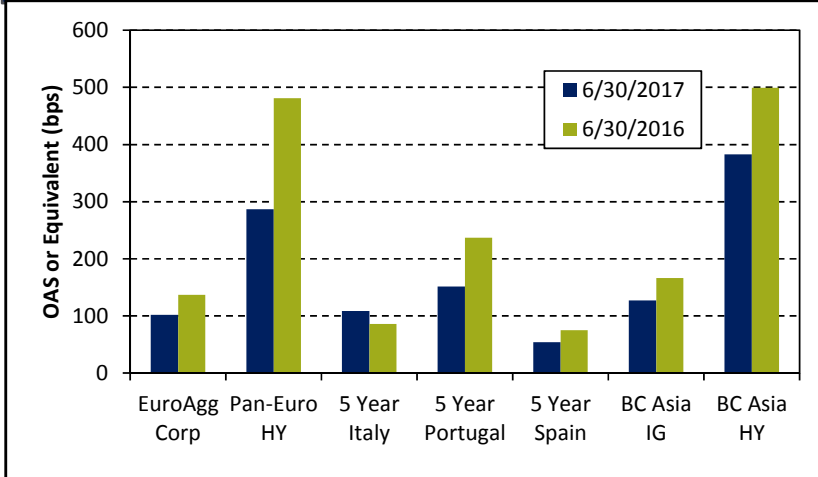


Source: Bloomberg, Barclays



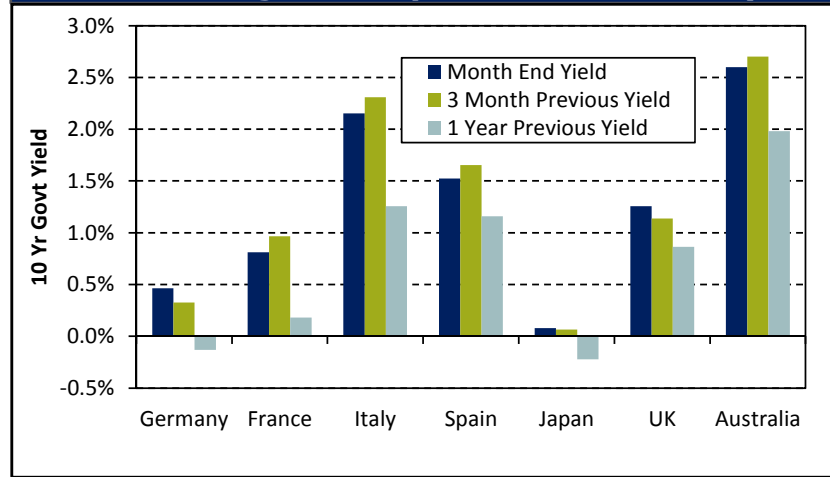
Source: Bloomberg, Barclays

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



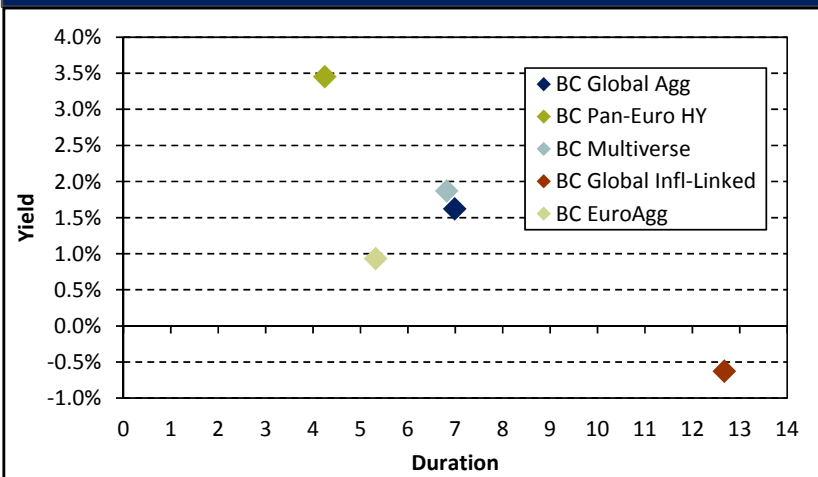
Source: Barclays, Bloomberg, \*European periphery spreads are over equivalent German Bund

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



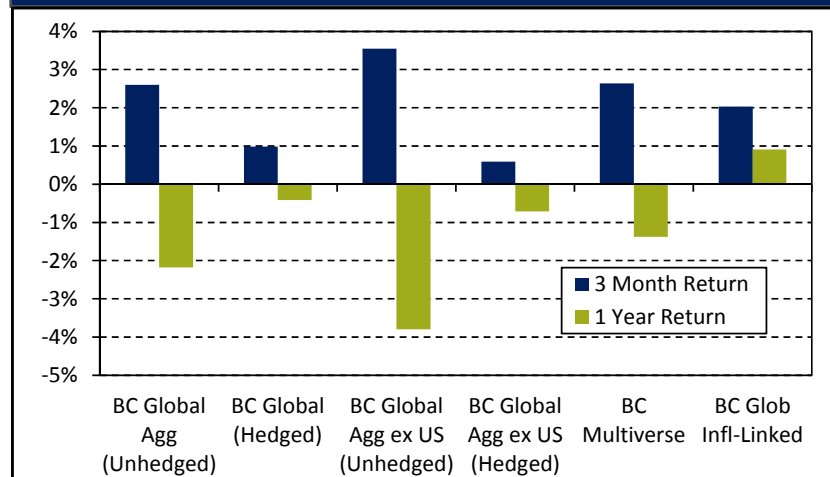
Source: Bloomberg

**Low yields persist in global bond universe**



Source: Bloomberg, Citigroup, Barclays

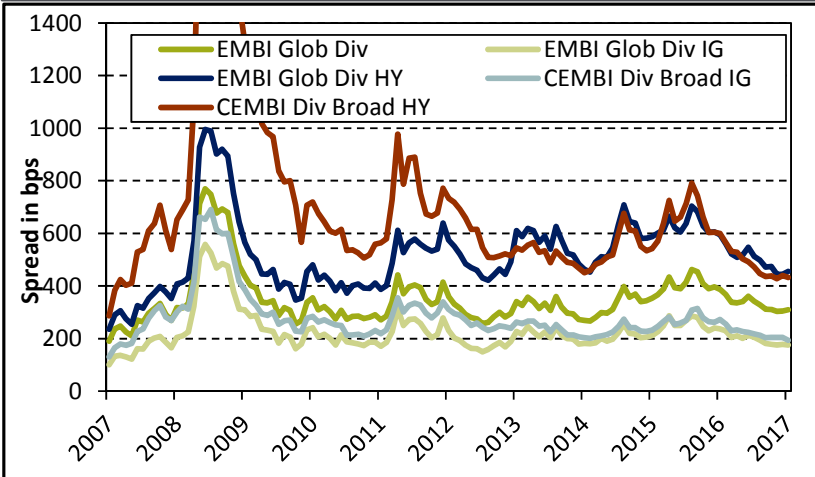
**Global bonds post strong short-term returns**



Source: Bloomberg, Citigroup, Barclays

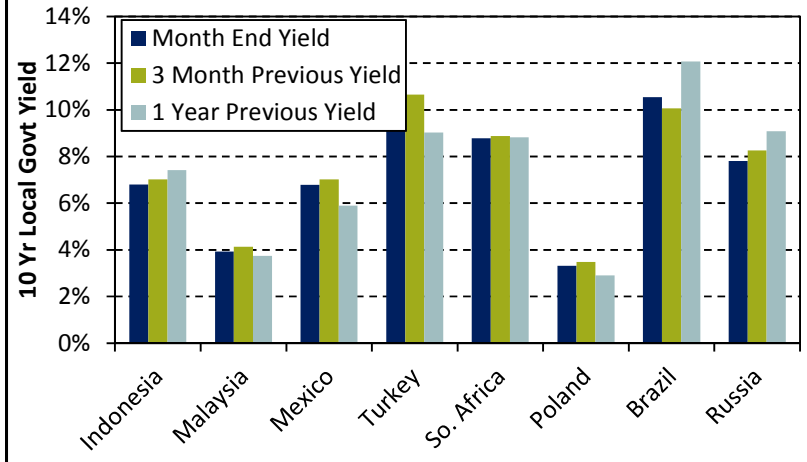


**EM spreads remain steady**



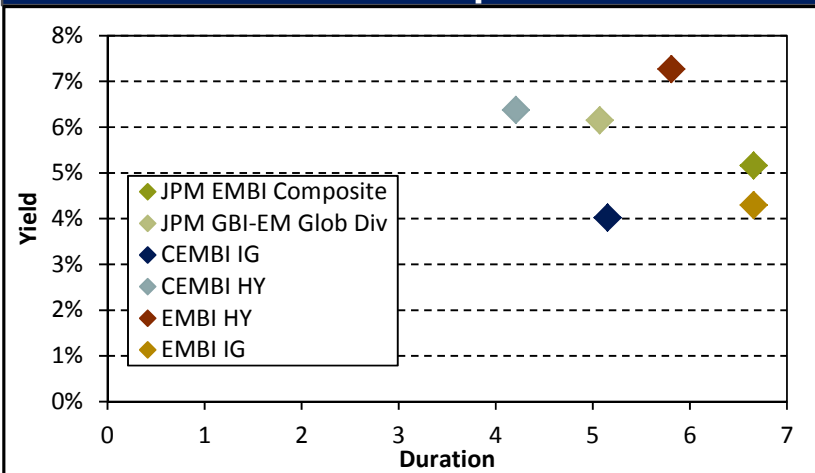
Source: Bloomberg, JP Morgan

**Brazil's bond yields have increased with concerns over President Michel Temer**



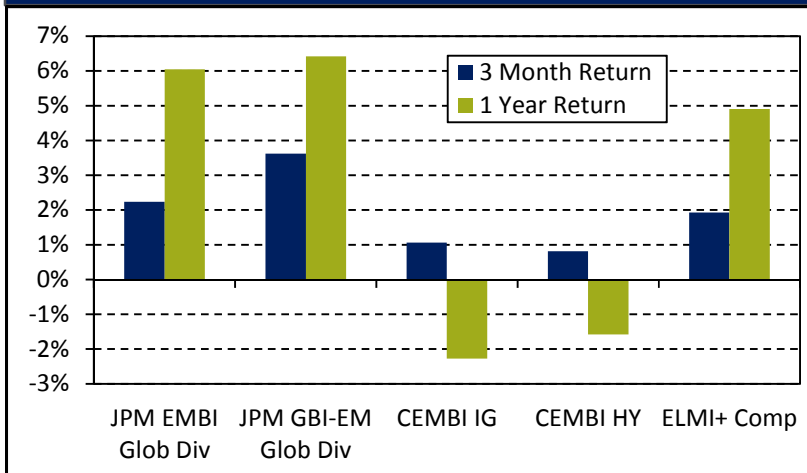
Source: Bloomberg

**EM yields remain attractive versus global counterparts**



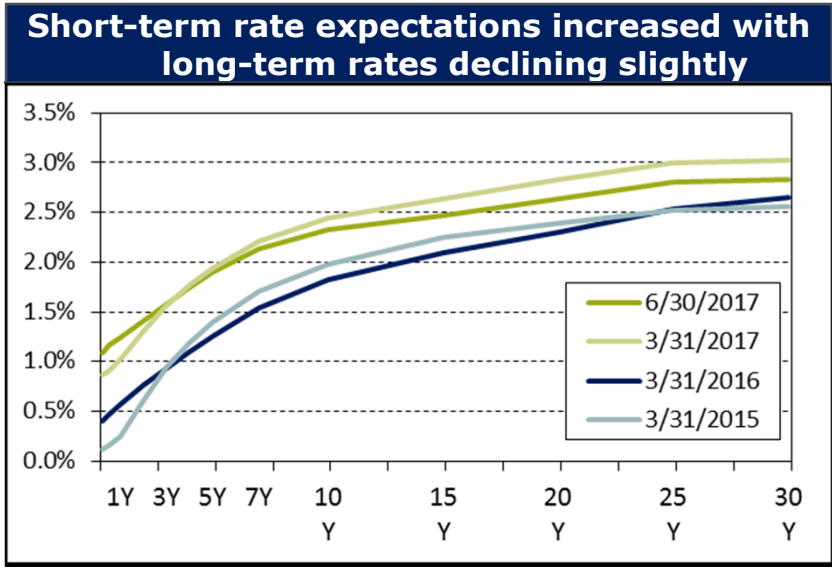
Source: Bloomberg, JP Morgan

**EM debt posts strong positive short-term returns**

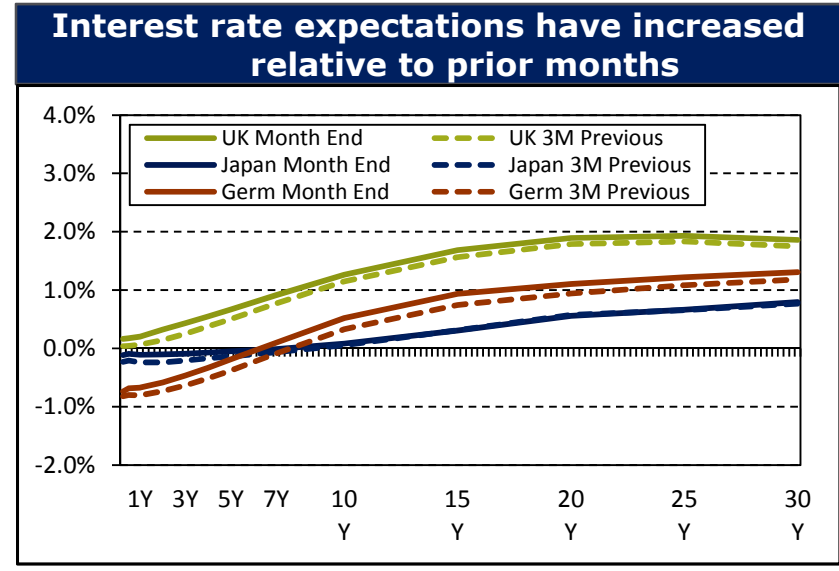


Source: Bloomberg, JP Morgan

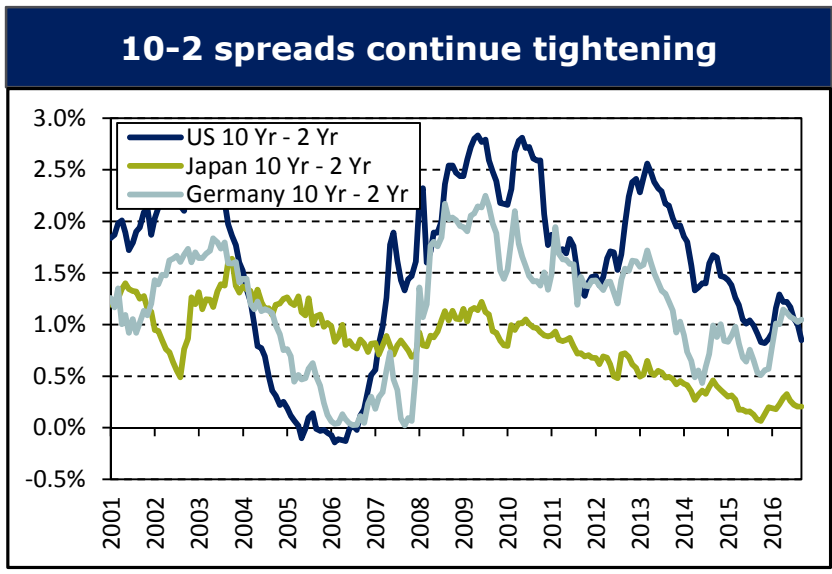
Rates



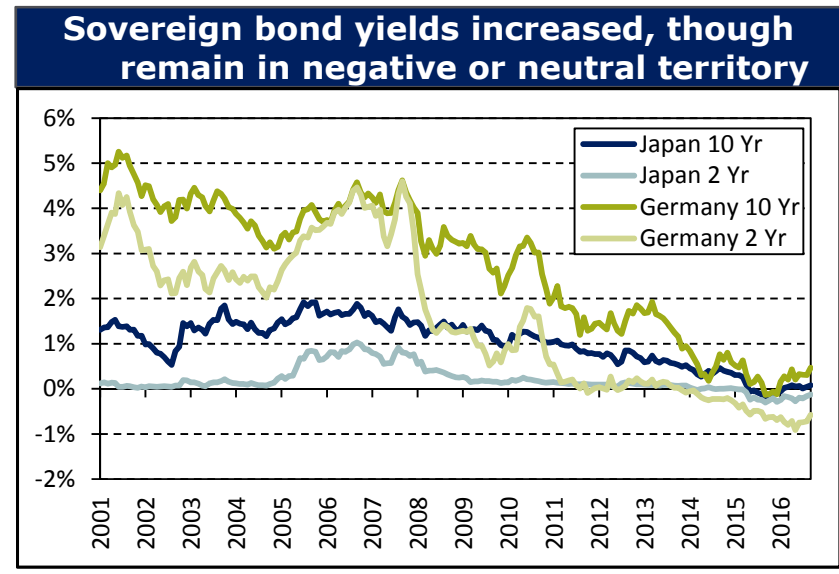
Source: Bloomberg



Source: Bloomberg

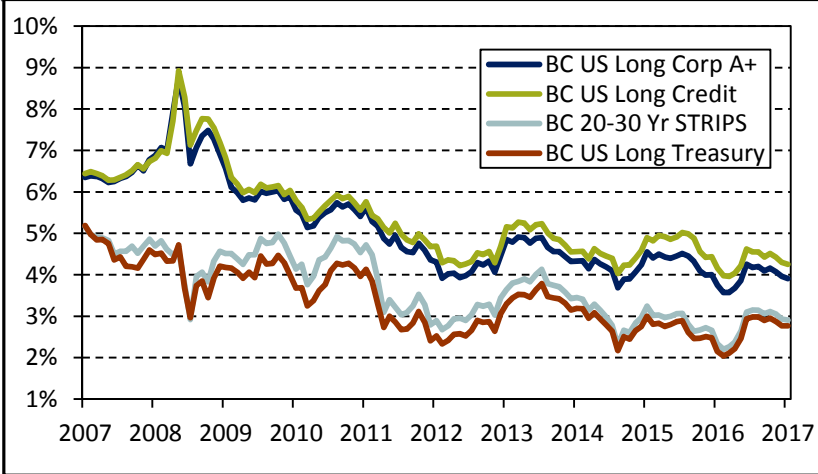


Source: Bloomberg



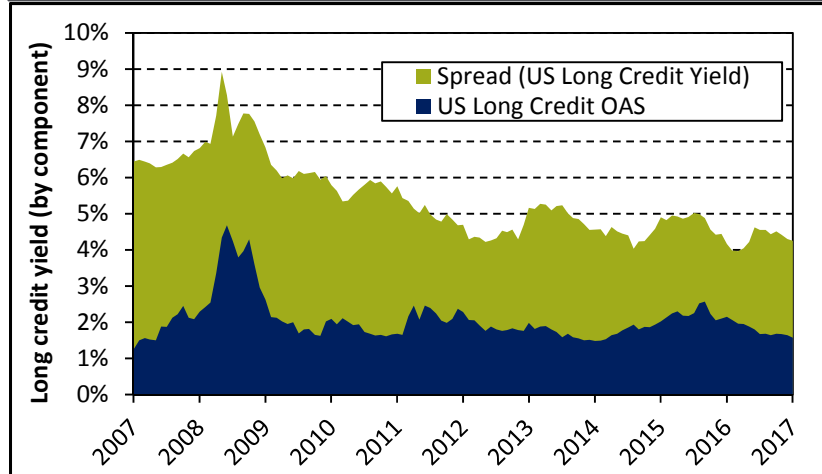
Source: Bloomberg

**Long duration yields have steadied**



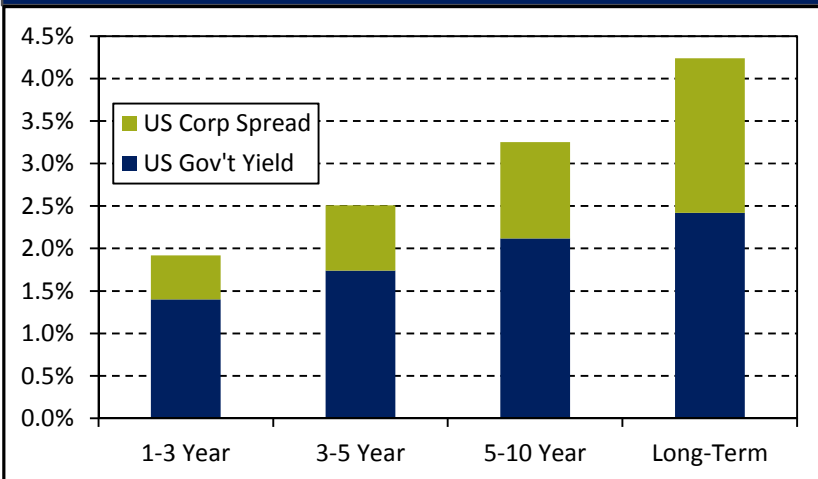
Source: Bloomberg, Citigroup, Barclays

**Long credit yield remains in line with previous years**



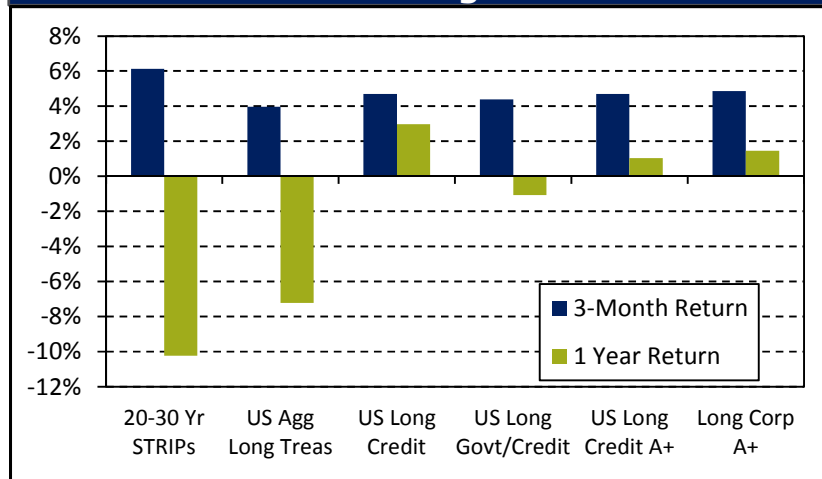
Source: Bloomberg, US Treasury, Barclays, NEPC

**Yield and spread components continue to offer modest returns**



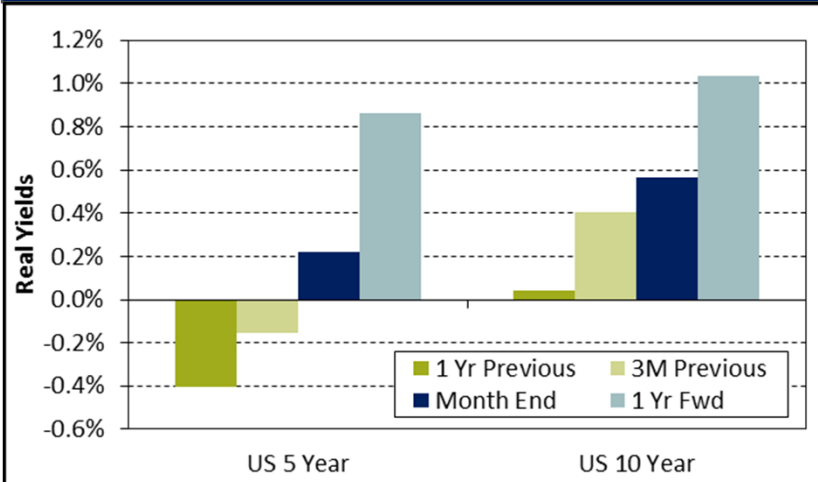
Source: Bloomberg, Barclays

**Long duration fixed income posts short-term gains**



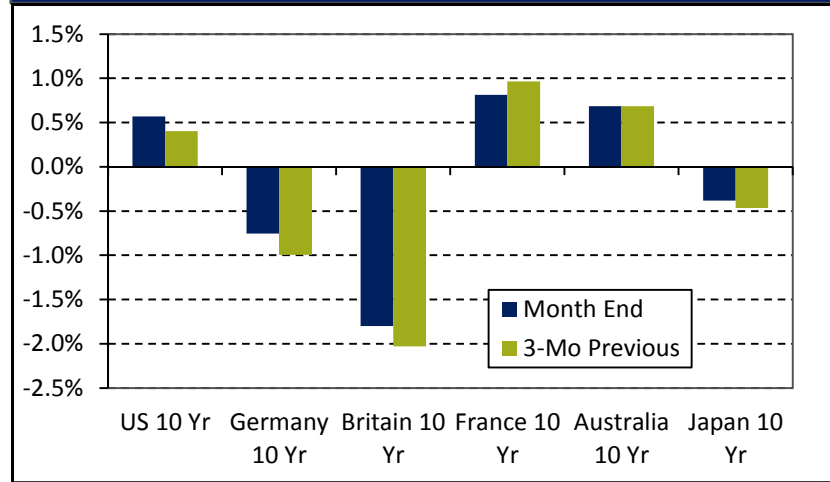
Source: Bloomberg, Barclays

**US real yields continue to increase**



Source: Bloomberg

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



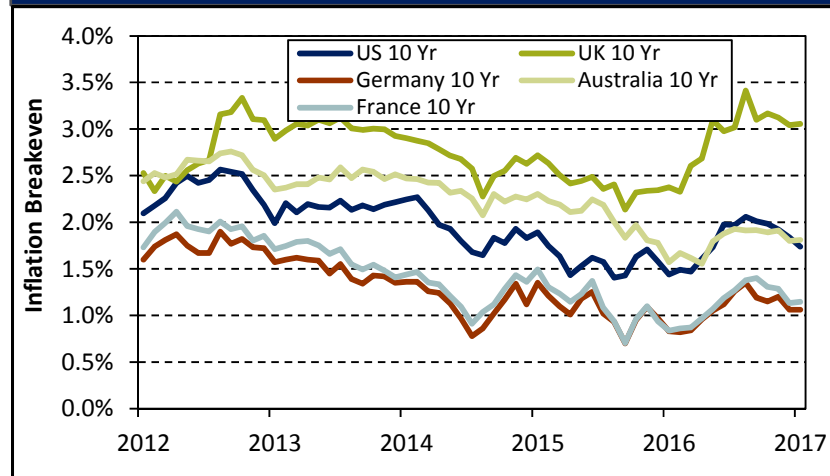
Source: Bloomberg

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



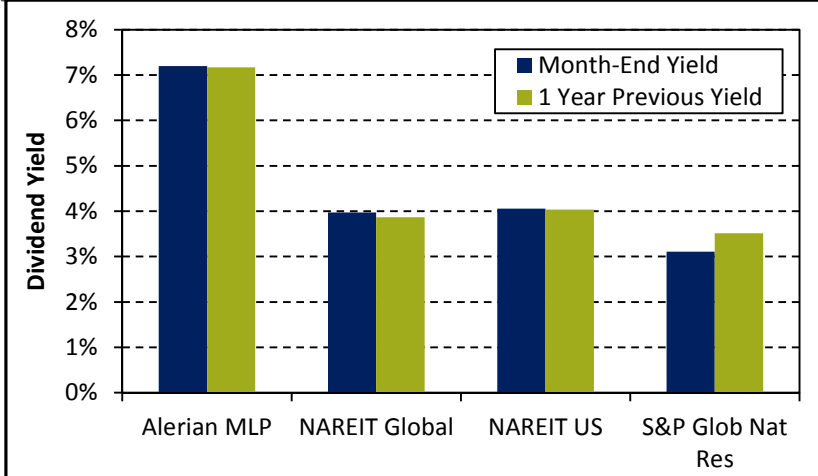
Source: Bloomberg

**Inflation expectations have started to decline**



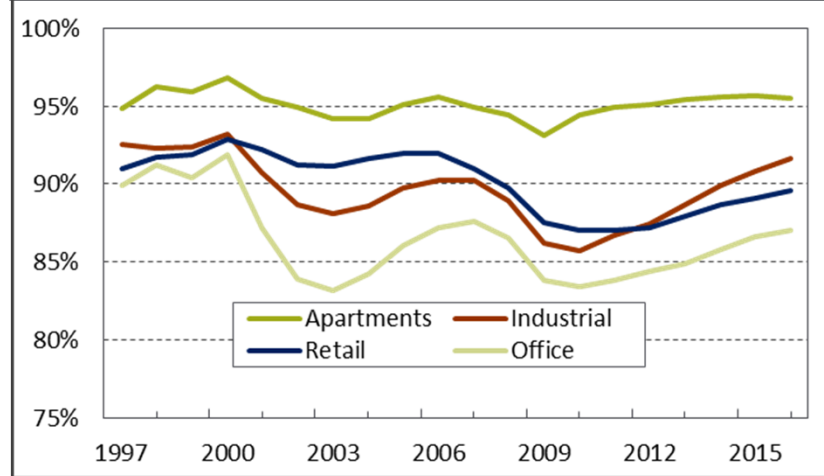
Source: Bloomberg

**Yields remain relatively similar to the previous year**



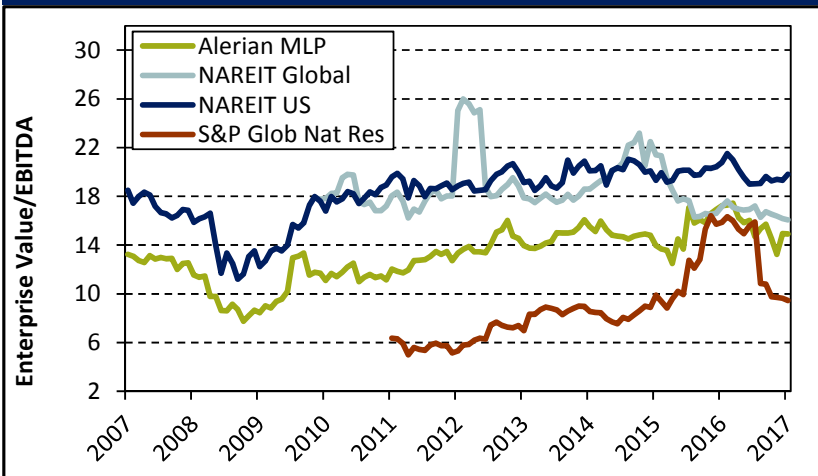
Source: Bloomberg, Alerian, Nareit, Standard and Poors

**Sustained recovery in commercial real estate occupancy rates**



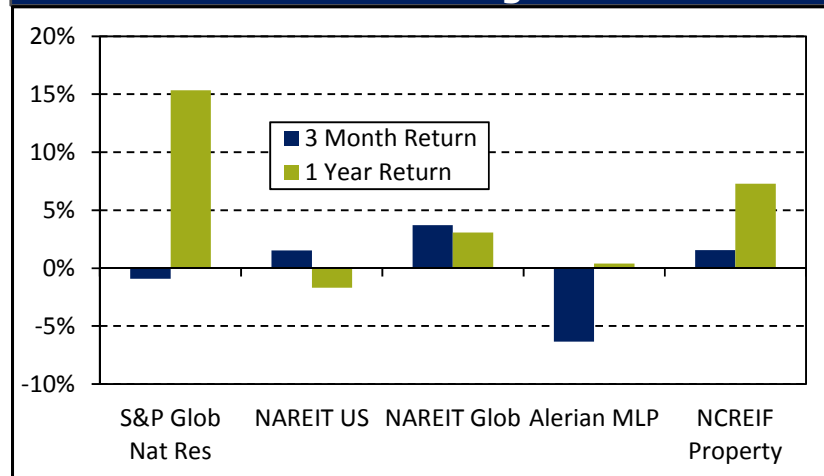
Source: CBRE

**US REIT valuations have steadied**



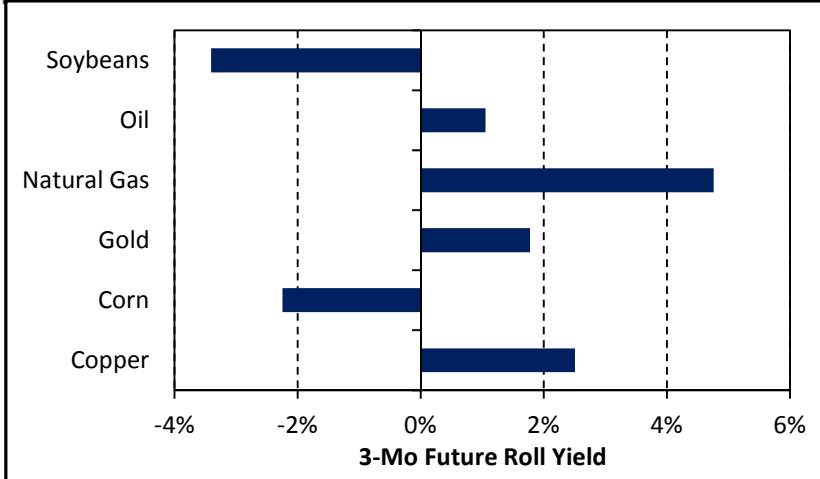
Source: Bloomberg, US Census Bureau

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



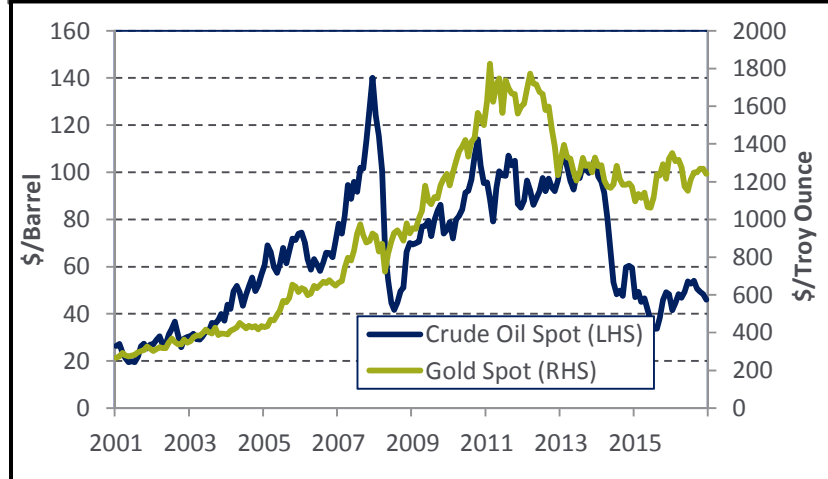
Source: Bloomberg, Alerian, Nareit, Standard and Poors

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



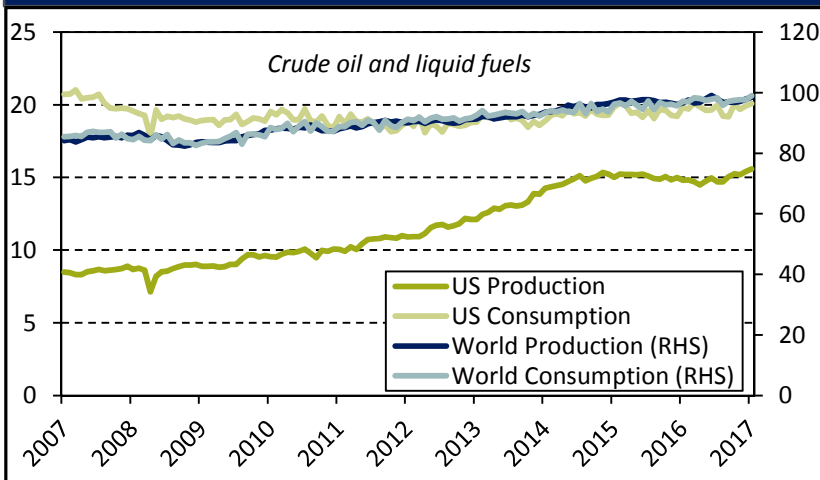
Source: Bloomberg

**Oil has recently experienced a steady decline**



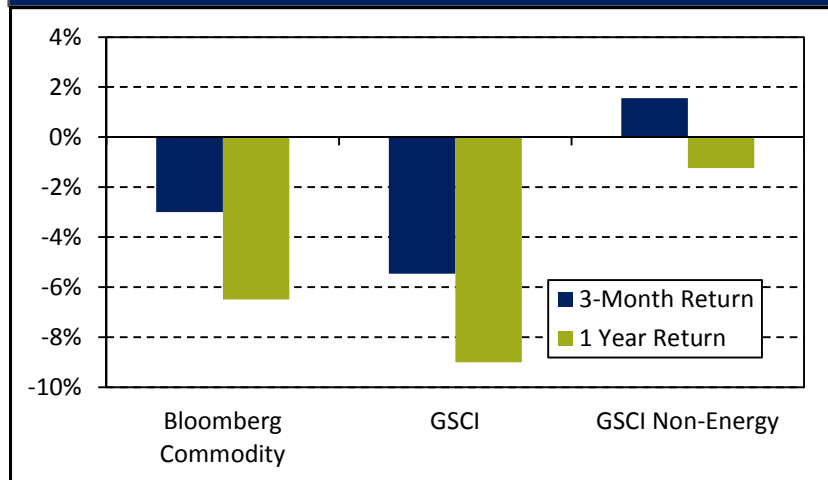
Source: Bloomberg

**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

## Information Disclaimer and Reporting Methodology

### Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
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- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- 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.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.