



NEPC, LLC

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San Bernardino County
Investment Summary
Quarter Ending September 30, 2017

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Market Environment Update and Outlook

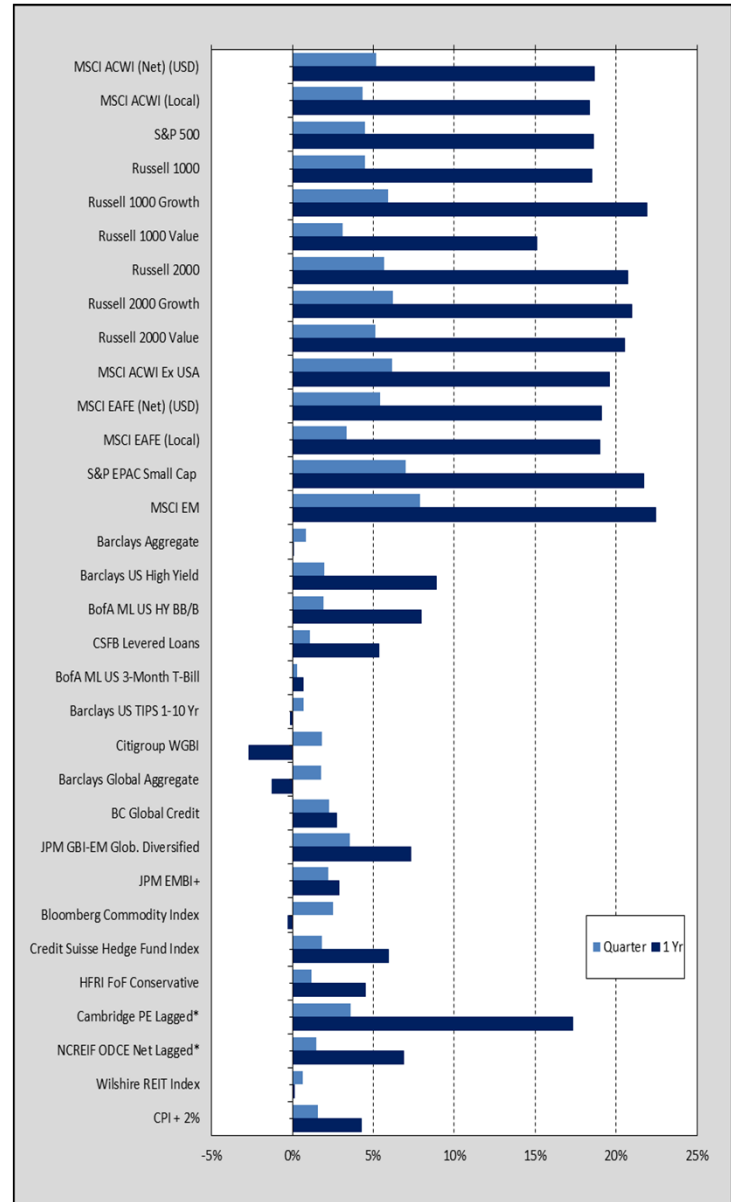


- **Second quarter GDP growth rate (third estimate) is estimated at 3.1%.**
 - Retail sales ended September at +4.7% on a YoY basis. In the same period last year the YoY growth rate was 2.6%.
 - Corporate profits (ended April) as a percent of GDP decreased slightly to 9.2% from 9.5% (in January) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended August flat at 1.4 and has remained relatively flat since early 2010.
 - The U.S. trade deficit declined by 2.6% ended August as exports increased to a level last seen two and half years ago and imports decreased slightly.
- **The unemployment rate decreased to 4.2% from 4.4% in Q3; U-6, a broader measure of unemployment, decreased to 8.3% from 8.6% during the third quarter.**
- **The Case-Shiller Home Price Index (ended July) increased to 194.1 from 192.7 in June and is at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw an up-tick to 2.2% at the end of September from 1.6% at the end of June; Capacity Utilization marginally decreased to 76.0% in Q3 from 76.6% in Q2.**
- **Fed Funds rate was unchanged at a targeted range of 1.0% - to – 1.25%. The 10-year Treasury Yield (constant maturity) finished Q3 at 2.2% flat from Q2.**
- **The Fed balance sheet decreased slightly during Q3 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 Q3 remaining above the 10-year and long-term averages.**
 - Cyclically adjusted Shiller PE ratio (30.2x) is above the long-term average of 16.8x and above the 10-year average of 23.1x.

San Bernardino County Employees' Retirement Association

Market Environment – Q3 2017 Overview

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI (Net) (USD)	World	5.2%	18.6%	7.4%	10.2%	3.9%
MSCI ACWI (Local)	World (Local Currency)	4.3%	18.3%	8.8%	12.2%	4.6%
Domestic Equity Benchmarks						
S&P 500	Large Core	4.5%	18.6%	10.8%	14.2%	7.4%
Russell 1000	Large Core	4.5%	18.5%	10.6%	14.3%	7.5%
Russell 1000 Growth	Large Growth	5.9%	21.9%	12.7%	15.3%	9.1%
Russell 1000 Value	Large Value	3.1%	15.1%	8.5%	13.2%	5.9%
Russell 2000	Small Core	5.7%	20.7%	12.2%	13.8%	7.8%
Russell 2000 Growth	Small Growth	6.2%	21.0%	12.2%	14.3%	8.5%
Russell 2000 Value	Small Value	5.1%	20.5%	12.1%	13.3%	7.1%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	6.2%	19.6%	4.7%	7.0%	1.3%
MSCI EAFE (Net) (USD)	Int'l Developed	5.4%	19.1%	5.0%	8.4%	1.3%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	3.4%	19.0%	7.9%	12.3%	2.6%
S&P EPAC Small Cap	Small Cap Int'l	7.0%	21.7%	11.1%	13.0%	4.4%
MSCI EM	Emerging Equity	7.9%	22.5%	4.9%	4.0%	1.3%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	0.8%	0.1%	2.7%	2.1%	4.3%
Barclays US High Yield	High Yield	2.0%	8.9%	5.8%	6.4%	7.8%
BofA ML US HY BB/B	High Yield	1.9%	8.0%	5.8%	6.1%	7.2%
CSFB Levered Loans	Bank Loans	1.1%	5.4%	4.0%	4.4%	4.4%
BofA ML US 3-Month T-Bill	Cash	0.3%	0.7%	0.3%	0.2%	0.5%
Barclays US TIPS 1-10 Yr	Inflation	0.7%	-0.1%	1.3%	0.1%	3.3%
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	1.8%	-2.7%	0.9%	-0.4%	3.0%
Barclays Global Aggregate	Global Core Bonds	1.8%	-1.3%	1.3%	0.5%	3.3%
BC Global Credit	Global Bonds	2.3%	2.7%	2.4%	2.4%	4.1%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	3.6%	7.3%	0.3%	-0.9%	3.8%
JPM EMBI+	Em. Mkt. Bonds	2.2%	2.9%	6.3%	4.0%	7.1%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	2.5%	-0.3%	-10.4%	-10.5%	-6.8%
Credit Suisse Hedge Fund Index	Hedge Fund	1.8%	5.9%	2.0%	4.2%	3.3%
HFRI FoF Conservative	Fund of Hedge Funds	1.2%	4.5%	1.8%	3.5%	1.0%
Cambridge PE Lagged*	Private Equity	3.6%	17.3%	9.7%	13.5%	9.3%
NCREIF ODCE Net Lagged*	Real Estate	1.5%	6.9%	10.3%	10.8%	4.3%
Wilshire REIT Index	REIT	0.6%	0.1%	9.7%	9.5%	5.6%
CPI + 2%	Inflation/Real Assets	1.6%	4.3%	3.2%	3.3%	3.7%



* As of 6/30/2017

Global Equity

- **U.S. equities as measured by the S&P 500 posted moderate gains in the third quarter (+4.5%).**
- **Small cap stocks outperformed large cap stocks during the quarter, with the Russell 2000 Index returning 5.7% and the Russell 1000 Index returning 4.5%.**
- **International equities outperformed U.S. markets during the quarter, returning 6.2%, as measured by the MSCI ACWI ex-U.S. Index. Emerging markets returned 7.9% as measured by the MSCI Emerging Markets Index in U.S. dollar terms.**
 - Developed international markets returned 5.4% in USD terms, while in local currency terms returned 3.4% as measured by the MSCI EAFE Index.

Private Equity

- **Capital commitment momentum slowed slightly in Q3 2017.**
- **Private equity fundraising totaled \$150 billion in Q3 2017.**
 - North America focused private equity funds raised \$64 billion.
 - Asia focused private equity funds raised \$9 billion.
 - Europe focused private equity raised \$20 billion.
- **Private equity dry powder continued its increase to record levels and stands at \$942 billion ended Q3 up from approximately \$906 billion ended Q2.**

Fixed Income

- **The nominal yield curve continued to flatten in Q3. Intermediate –to- long term yields increased 2 –to- 3 basis points across five to 30 year treasury bonds while short term yields increased 12 basis points for the 3 month and 7 basis points in the one year.**
- **The spread between two and 10 year rates decreased to 86 basis points from 93 basis points in Q3.**
- **Treasury Inflation-Protected Securities, or TIPS, returned 0.7% during the quarter, as measured by the BBg Barclays US TIPS 1-10 Yr Index.**
- **The BBg Barclays Long Duration Credit Index gained 0.6%.**
- **Long Treasuries gained 0.6% and investment-grade US corporate debt gained 0.8%.**
- **The BBg Barclays 1-3 year US Government/ Credit Index returned 0.3%. US high yield bonds gained 2.0% driven by tighter spreads.**
- **Emerging markets debt had modest gains.**
 - US dollar-denominated debt, as measured by the JP Morgan EMBI Index, gained 2.2%; 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.**

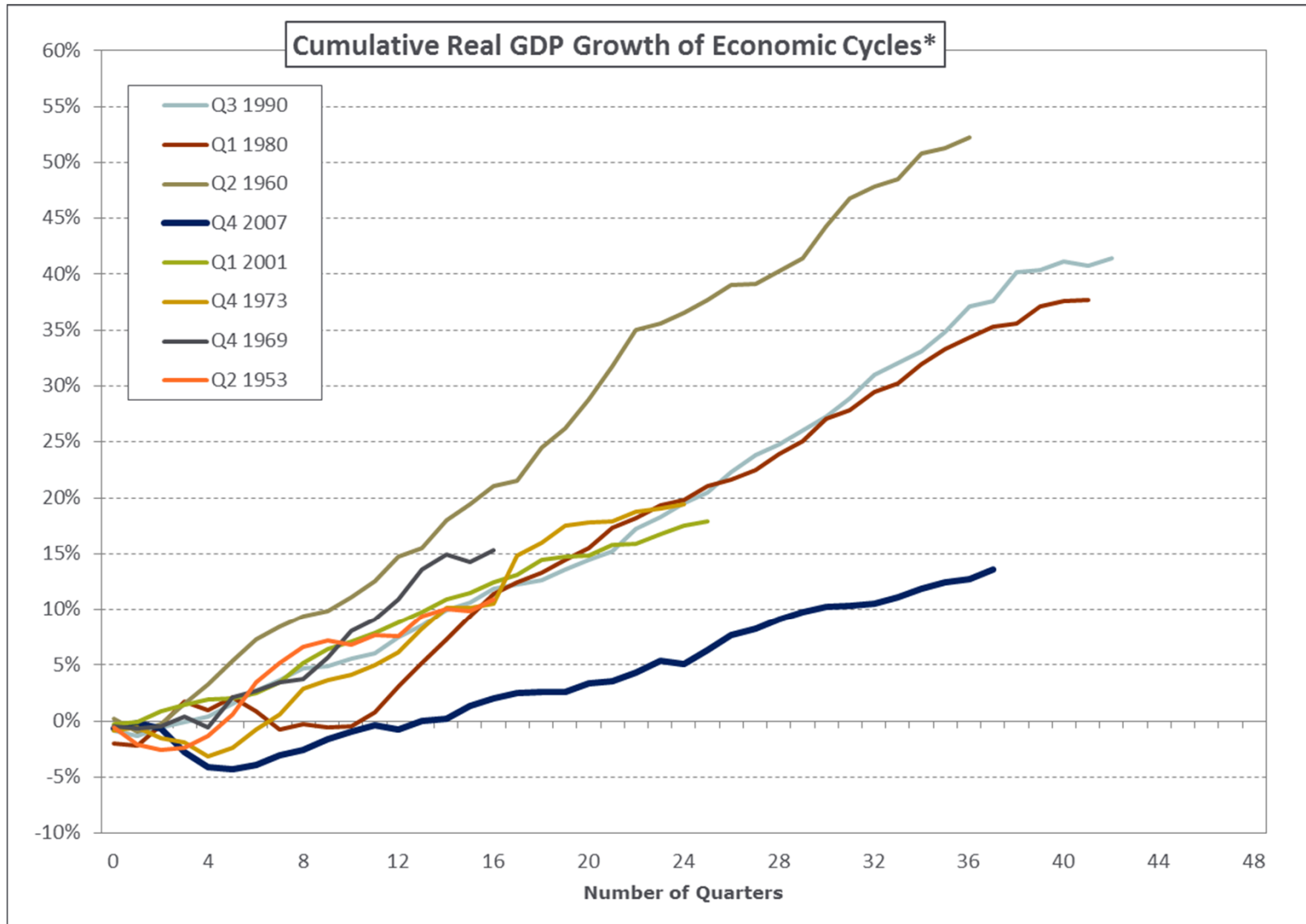
Commodities

- **Commodities gained 2.5% as measured by the Bloomberg Commodity Index.**
 - Energy led gains in commodities with heating oil and crude oil posting strong gains.

Real Estate

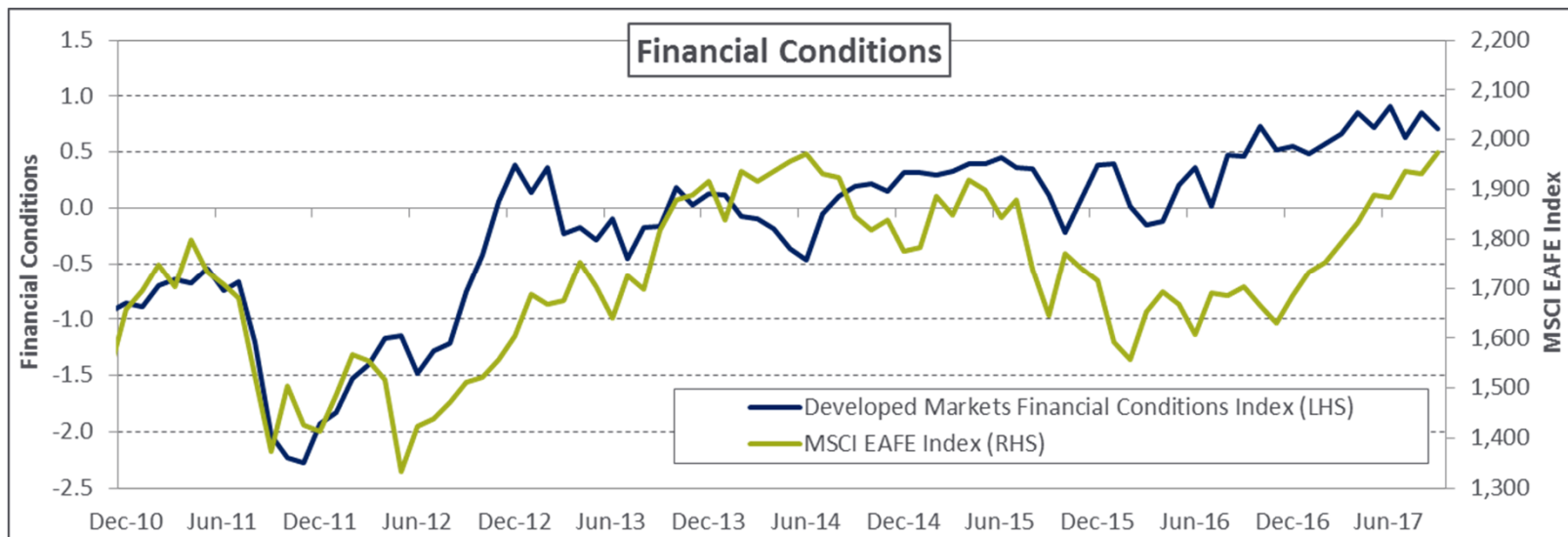
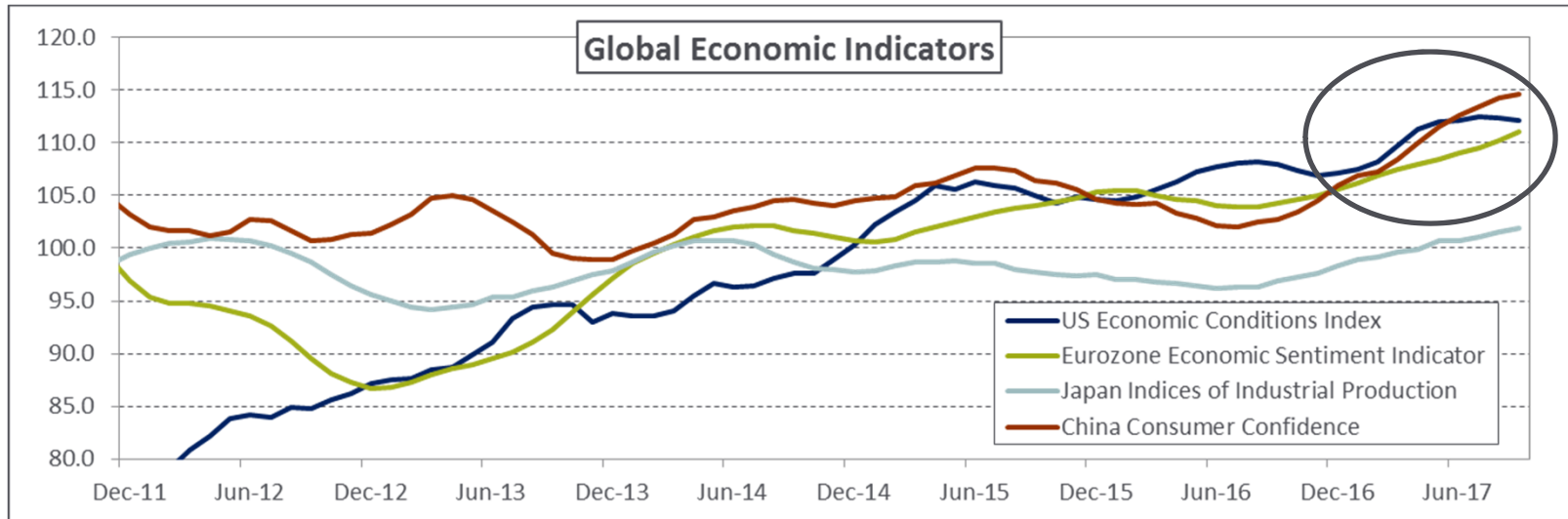
- **NEPC continues to be neutral on core real estate in the US and remains positive on non-core real estate, that is, value-add and opportunistic strategies.**
- **Real estate fundamentals (rent growth, occupancy, net absorption) remain strong; however, valuations are high on an absolute and relative 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.

A Prolonged US Economic Expansion Can Support An Extended Rally For Risk Assets



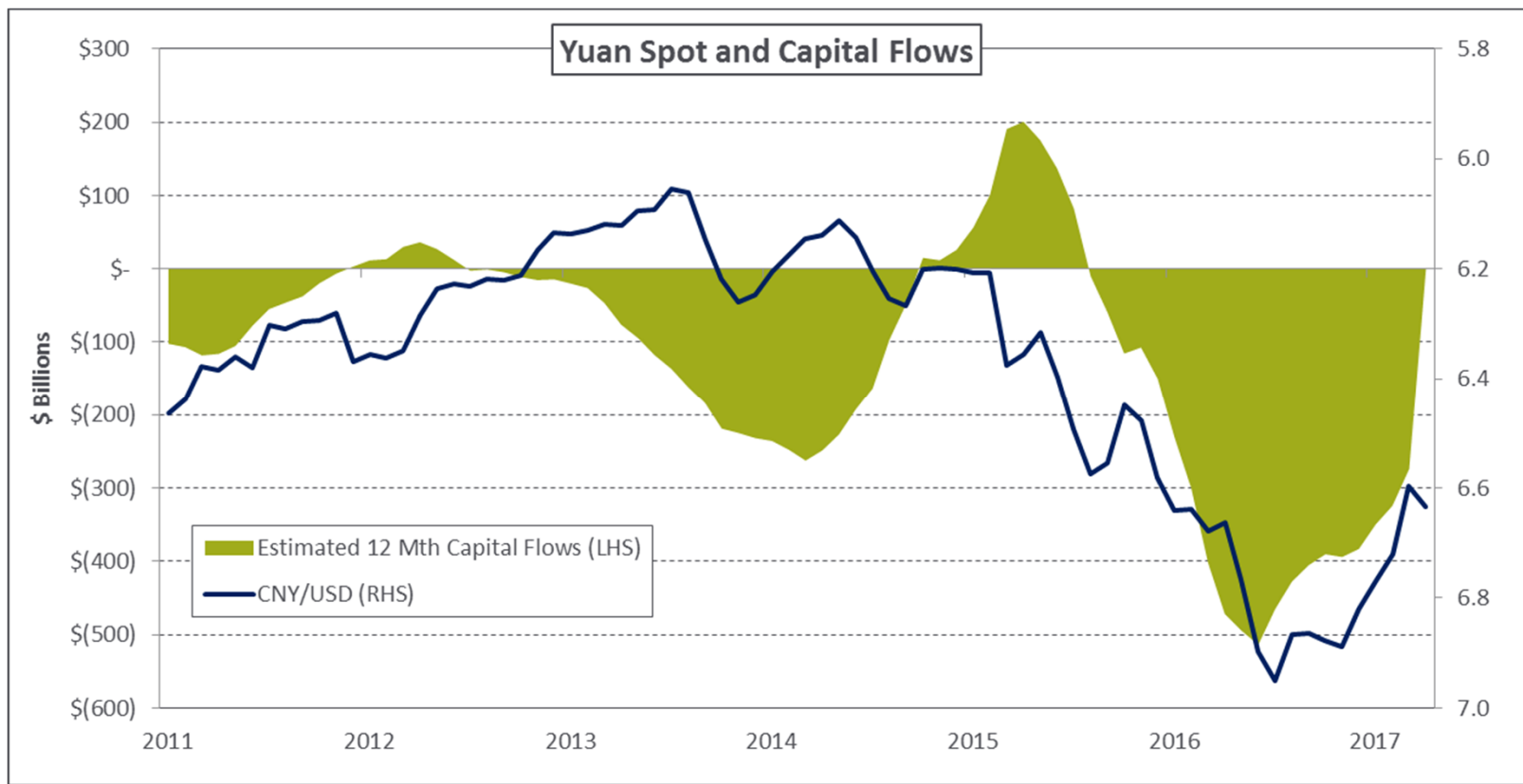
Source: Federal Reserve Bank of St. Louis
*Cumulative Real GDP growth from recession start

Synchronized Global Growth Conditions Supported Equities Globally In 2017



Source: Bloomberg, Morgan Stanley

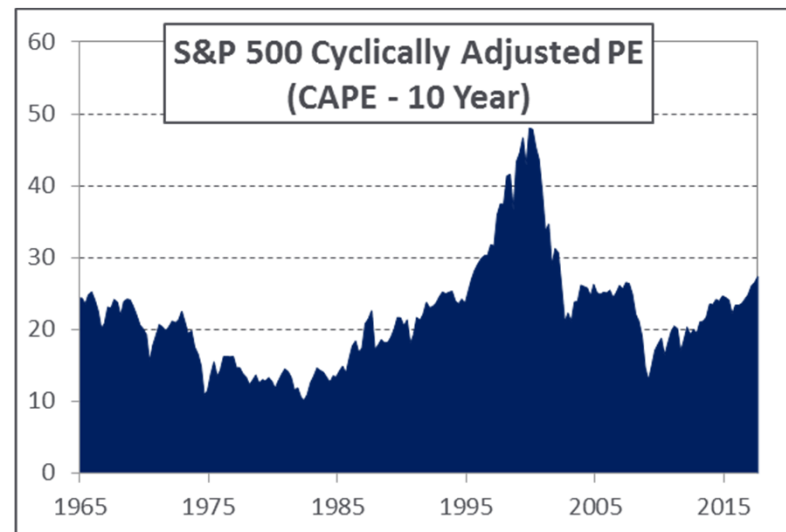
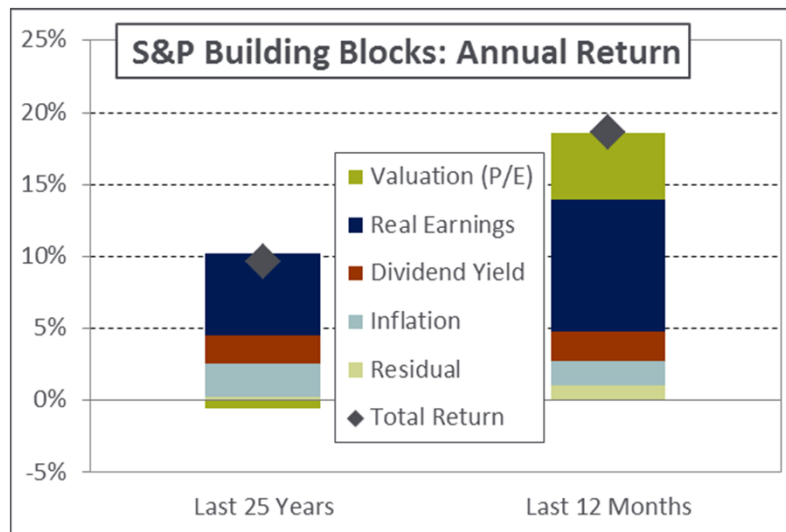
China Transitions – Stable Currency Management Benefits Emerging Markets



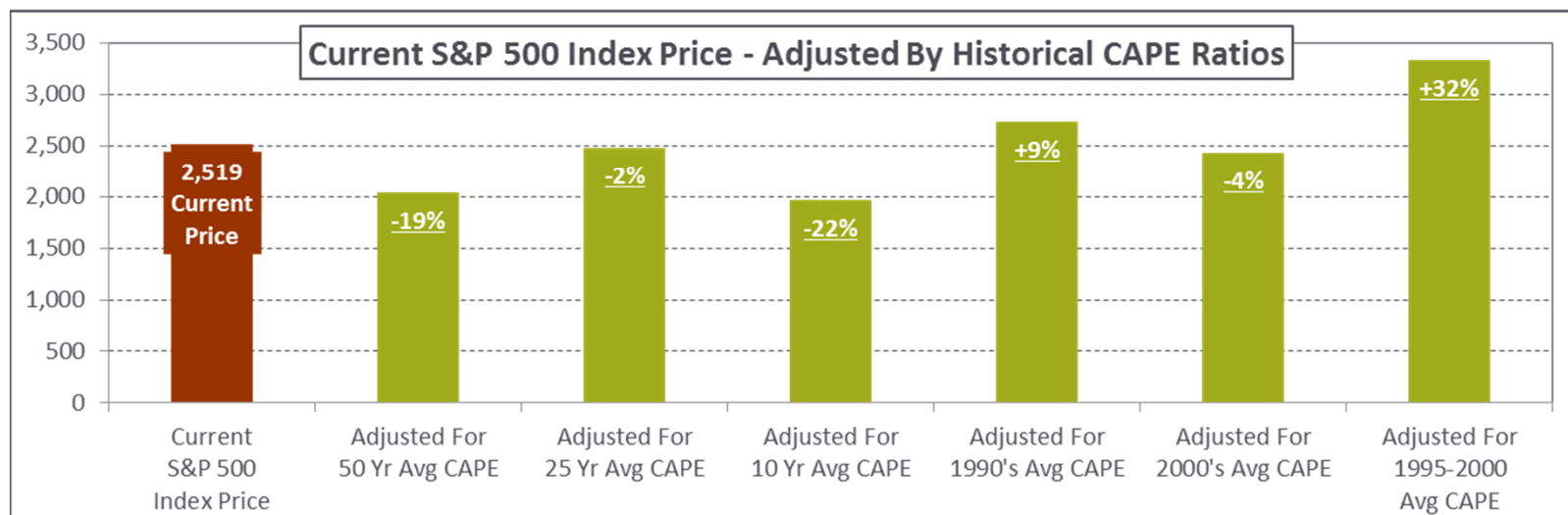
Source: Bloomberg

- **Markets have responded positively to the PBOC's management of a more stable yuan as capital outflow pressure has eased**
- **Currency devaluation remains a tail risk as continued credit expansion and real estate development risk inflating asset price bubbles**

Expanding US Valuations Have Supported S&P 500 Returns But Could Still Run Further

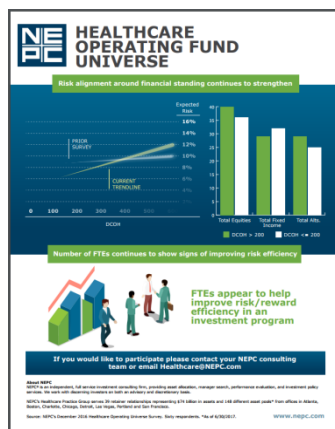


Source Top/Bottom: Bloomberg, NEPC



Holding the current earnings profile constant, what would the S&P 500 trade at under past CAPE ratios. While the S&P 500 is overvalued, it is not at extreme valuations and is supported by low inflation/interest rates

HIGHLIGHTS OF THIRD QUARTER HAPPENINGS AT NEPC



NEPC INSIGHTS

- A Tale of Two Countries: What’s Next for Investors? (July 2017)
- Is the Buy-Write Strategy Right For You? (July 2017)
- 2017 2nd Quarter Market Thoughts (July 2017)
- The Top Three Stressors for Pension Plans (July 2017)
- 2017 Q2 Endowment & Foundation Survey Results & Infographic (August 2017)
- NEPC Healthcare Operating Fund Universe Results and Infographic (August 2017)
- Monitoring the Economic Impact of Harvey (August 2017)
- Market Chatter: Should the Underperformance of CTAs Give Investors Pause (September 2017)
- Defined Contribution Plan & Fee Survey: Healthcare Findings Infographic (September 2017)

WEBINAR REPLAYS

- NEPC’s 12th Annual Defined Contribution Plan & Fee Survey (September 2017)

To download NEPC’s recent insights and webinar replays, visit: www.NEPC.com/insights

RECENT UPDATES

- Our team continues to grow: Please join us in welcoming our Partner, Sam Austin; and Senior Consultants, Kiersten Christensen, Andrew Coupe and Rick Ciccione!
- NEPC was featured in over 45 pieces of news coverage including Bloomberg, Pensions & Investments and FundFire to name a few.
- **SAVE THE DATE!** The Public Funds Workshop will be held January 22 – 23, 2018.
- **SAVE THE DATE!** We will be hosting our 23rd Annual Investment Conference on May 14-15, 2018.

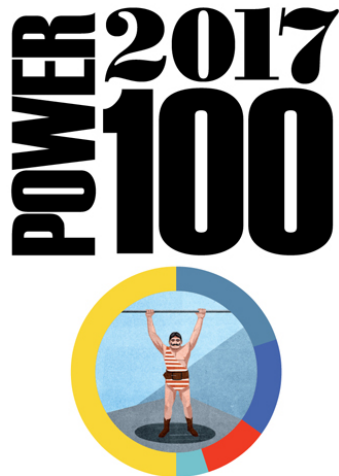
HIGHLIGHTS OF THIRD QUARTER HAPPENINGS AT NEPC



NEPC GIVES BACK

This quarter NEPC participated in three charity organization events: Sox for Socks, Habitat for Humanity and the American Red Cross.

- The Sox for Socks Drive supports Boston's Health Care for the Homeless. The organization provides medical care to Boston's homeless. This year, over 100 pairs of socks were collected and donated.
- Habitat for Humanity Greater Boston is a Massachusetts charitable organization dedicated to building homes in partnership with low-income families in need of decent and affordable housing. Twenty NEPC employees dedicated time and muscle to bring a home closer to occupancy in Dorchester, MA.
- We are thinking of those affected by Hurricane Harvey. In a show of support, employees donated to the American Red Cross with NEPC matching all donations.



CLIENT AWARDS

We'd like to congratulate the following clients for their recent wins at Chief Investment Officer's 2017 Power 100 Awards:

- David Villa, State of Wisconsin Investment Board
- Bob Jacksha, New Mexico Educational Retirement Board
- Tim Barrett, Texas Tech University System
- Don Pierce, San Bernardino County Employees' Retirement Association
- Carrie Thome, Wisconsin Alumni Research Foundation

Total Fund Performance

Total Fund Performance Summary (Gross)

	Market Value	3 Mo	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
Total Fund	\$9,666,461,859	3.3%	72	9.7%	90	12.3%	50	6.7%	50	8.8%	46	4.4%	94
<i>Policy Index</i>		3.0%	82	9.5%	98	8.3%	99	5.5%	98	6.5%	98	4.7%	79
<i>S&P 500</i>		4.5%	3	14.2%	6	18.6%	1	10.8%	1	14.2%	1	7.4%	1
<i>BBgBarc US Aggregate TR</i>		0.8%	99	3.1%	99	0.1%	99	2.7%	99	2.1%	99	4.3%	96
<i>60% MSCI ACWI (Net) / 40% CITI WGBI</i>		3.8%	25	12.8%	19	9.7%	99	4.9%	99	6.0%	99	3.9%	99
<i>InvestorForce Public DB > \$1B Gross Median</i>		3.5%		11.4%		12.3%		6.7%		8.6%		5.3%	

In the year ended September 30, 2017 the Fund returned 12.3% ranking in the 50th percentile of Public Funds > \$1Billion and significantly outperformed the actuarial assumed rate of 7.25%. The Fund's assets totaled \$9.67 billion, an increase of \$1.01 billion from a year ago.

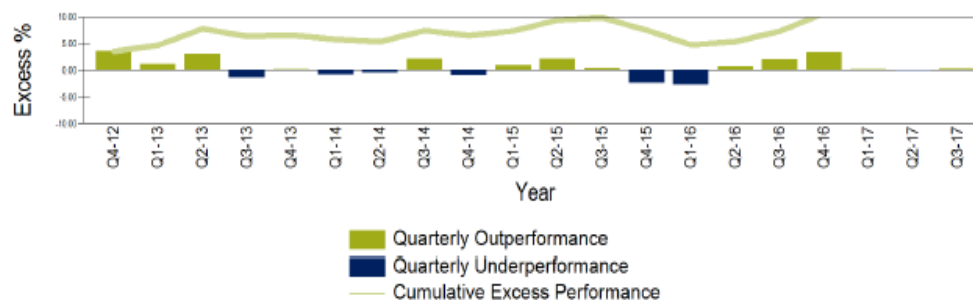
The Fund experienced a net investment gain of \$1.06 billion in the year ended September 30, 2017 including a net investment gain of \$309.5 million in the third calendar quarter.

In the three -year period ended September 30, 2017 the Fund returned 6.7% and ranked in the 50th percentile among its peers. The Sharpe Ratio over this period of 1.8 ranks in the 1st 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 September 30, 2017 the Fund returned 8.8% per annum and ranked in the 46th percentile among its peers. On a risk adjusted basis the Fund's Sharpe and Sortino Ratios rank in the 1st 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.

Note: InvestorForce Public Funds >\$1B Gross of Fee final universe contains 28 portfolios with \$255.9 billion in assets

Quarterly and Cumulative Gross Performance vs. Policy



Statistics Summary

3 Years Ending September 30, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	1.8	1	3.0	1
InvestorForce Public DB > \$1B Gross Median	1.1	--	1.7	--

5 Years Ending September 30, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	2.6	1	4.2	1
InvestorForce Public DB > \$1B Gross Median	1.4	--	2.3	--

Total Fund Performance Summary

Statistics Summary

1 Year Ending September 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	12.3%	50	1.0%	1	11.6	1	--	--
InvestorForce Public DB > \$1B Gross Median	12.3%	--	2.9%	--	4.0	--	9.5	--

Statistics Summary

3 Years Ending September 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	6.7%	50	3.6%	1	1.8	1	3.0	1
InvestorForce Public DB > \$1B Gross Median	6.7%	--	6.0%	--	1.1	--	1.7	--

Statistics Summary

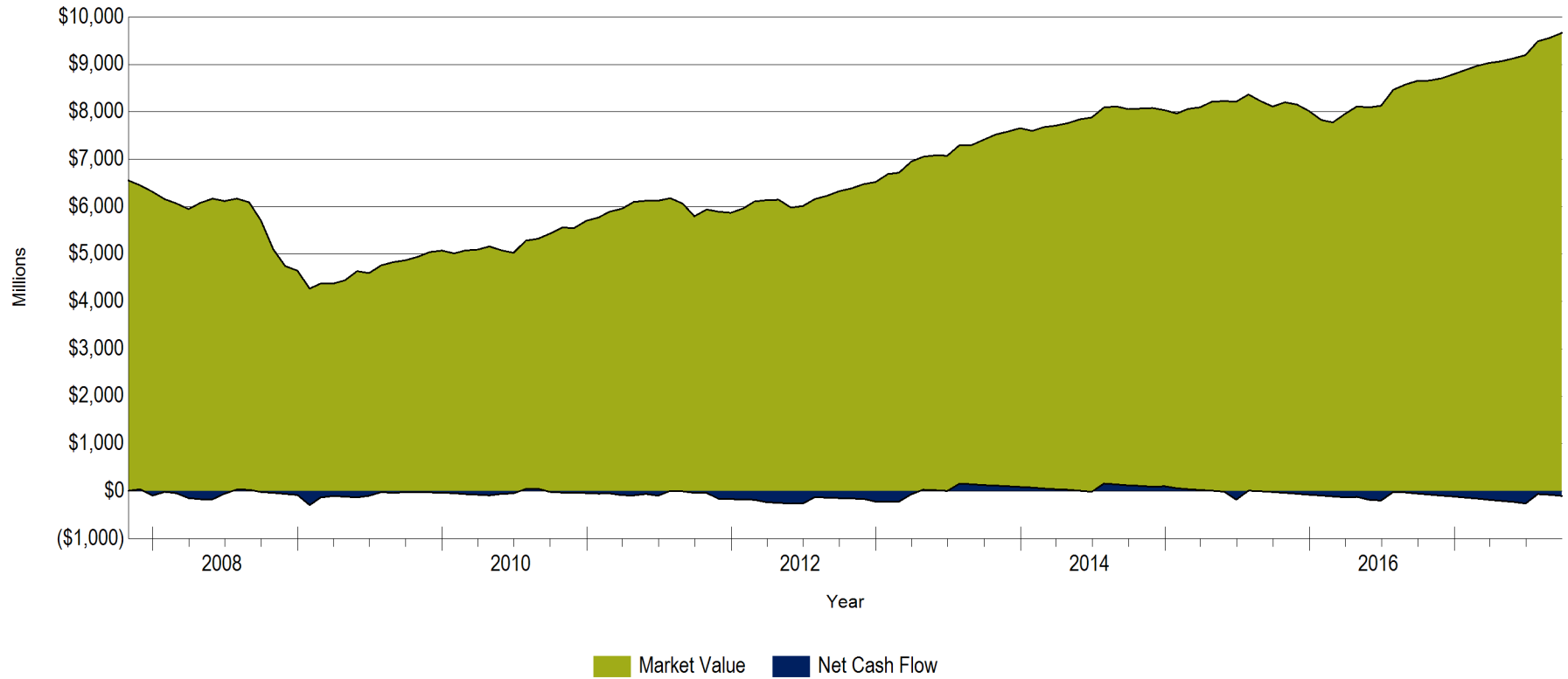
5 Years Ending September 30, 2017

	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%	46	3.3%	1	2.6	1	4.2	1
InvestorForce Public DB > \$1B Gross Median	8.6%	--	5.8%	--	1.4	--	2.3	--

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

Total Fund Asset Growth Summary

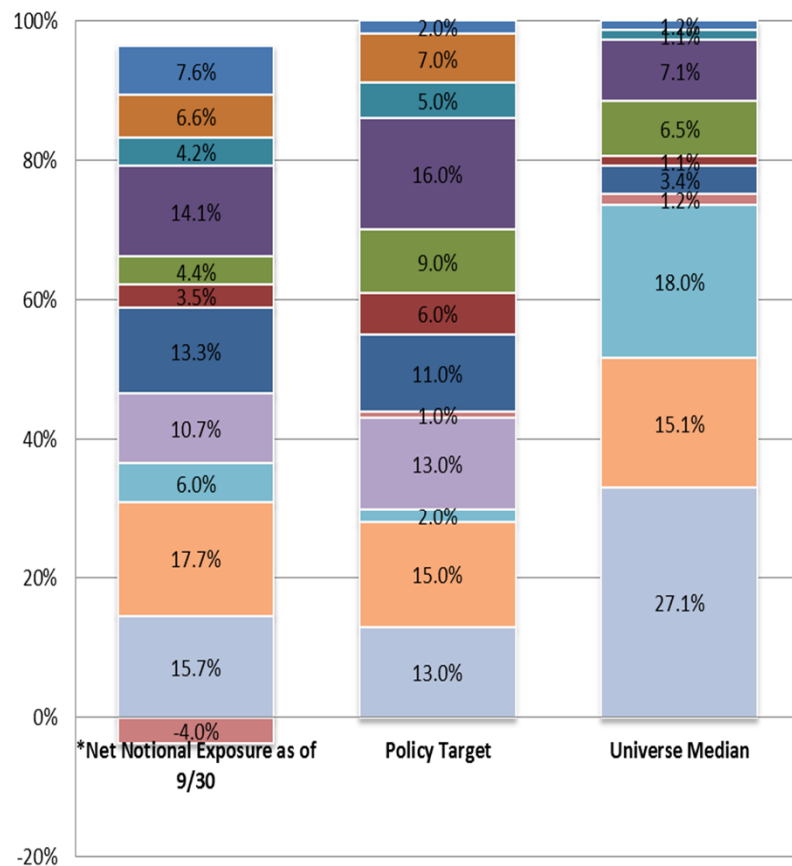
10 Years Ending September 30, 2017



	Last Three Months	One Year	Five Years	Ten Years
Beginning Market Value	\$9,197,095,393	\$8,653,368,081	\$6,326,778,718	\$6,434,023,976
Net Cash Flow	\$159,894,116	-\$48,865,554	\$55,703,063	-\$92,485,841
Net Investment Change	\$309,472,350	\$1,061,959,332	\$3,283,980,078	\$3,324,923,724
Ending Market Value	\$9,666,461,859	\$9,666,461,859	\$9,666,461,859	\$9,666,461,859

San Bernardino County Employees' Retirement Association

Total Fund Asset Allocation vs. Policy Targets



	*Net Notional Exposure	*Net Notional Exposure as of 9/30	Policy Target	*Difference	Policy Ranges	Within Range
US Equities	1,521,299	15.7%	13.0%	2.7%	8%-18%	Yes
Int'l Equities	1,714,185	17.7%	15.0%	2.7%	10%-20%	Yes
U.S. Core Fixed Income	581,247	6.0%	2.0%	4.0%	-3%-7%	Yes
U.S. Credit	1,038,584	10.7%	13.0%	-2.3%	8%-18%	Yes
Non-U.S. Core Fixed Income	(386,658)	-4.0%	1.0%	-5.0%	-4%-6%	Yes
Non-U.S. Credit	1,289,778	13.3%	11.0%	2.3%	6%-16%	Yes
Emerging Market Debt	336,435	3.5%	6.0%	-2.5%	1%-11%	Yes
Real Estate	425,977	4.4%	9.0%	-4.6%	4%-14%	Yes
Private Equity	1,362,340	14.1%	16.0%	-1.9%	11%-21%	Yes
Real Assets	408,691	4.2%	5.0%	-0.8%	0%-10%	Yes
Absolute Return	641,940	6.6%	7.0%	-0.4%	2%-12%	Yes
Cash	732,647	7.6%	2.0%	5.6%	0%-10%	Yes
	9,666,462	100.0%	100.0%			

*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

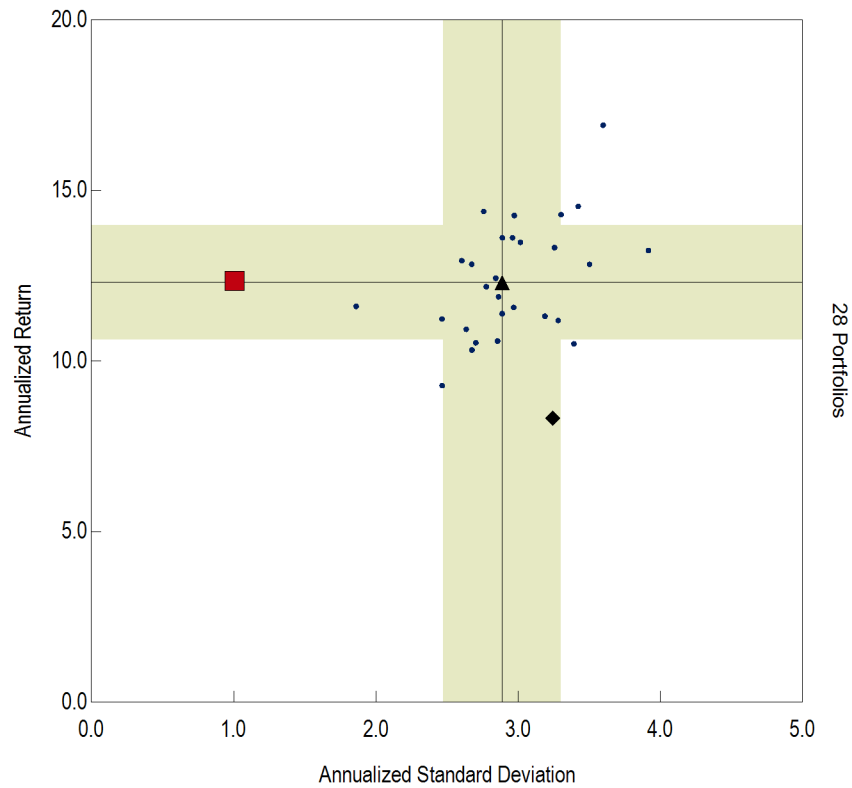
Asset Class	Physical Exposure		Delta Adjusted Synthetic Exposure		Net Position		Overlay Target		Policy Target	
	Value	%	Value	%	Value	%	Value	%	Value	%
Total Market Value	9,458.0	100.0%	0.0	0.0%	9,458.0	100.0%	9,458.0	100.0%	9,458.0	100.00%
Cash	1,739.4	18.39%	-1,447.6	-15.31%	291.8	3.08%	0.0	0.0%	0.0	0.00%
Cash	1,739.4	18.39%	-1,447.6	-15.31%	291.8	3.08%	0.0	0.0%	0.0	0.00%
Equity	1,360.4	14.38%	1,880.9	19.89%	3,241.3	34.27%	3,490.9	36.91%	3,499.4	37.00%
Emerging Markets	512.0	5.41%	174.4	1.84%	686.4	7.26%	754.8	7.98%	756.6	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	123.9	1.31%	904.5	9.56%	1,028.4	10.87%	1,037.8	10.97%	1,040.4	11.00%
US Large Cap	724.4	7.66%	474.5	5.02%	1,198.9	12.68%	1,368.1	14.46%	1,371.4	14.50%
US Small Cap	0.1	0.0%	327.5	3.46%	327.6	3.46%	330.2	3.49%	331.0	3.50%
Fixed	3,009.4	31.82%	-433.3	-4.58%	2,576.1	27.24%	2,618.2	27.68%	2,624.6	27.75%
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	1,984.3	20.98%	-770.1	-8.14%	1,214.1	12.84%	1,226.5	12.97%	1,229.5	13.00%
High Yield **	1,025.2	10.84%	0.0	0.0%	1,025.2	10.84%	896.3	9.48%	898.5	9.50%
US Fixed Income	0.0	0.0%	336.8	3.56%	336.8	3.56%	495.3	5.24%	496.5	5.25%
Other	3,348.8	35.41%	0.0	0.0%	3,348.8	35.41%	3,348.8	35.41%	3,333.9	35.25%
Alternatives	182.5	1.93%	0.0	0.0%	182.5	1.93%	182.5	1.93%	179.7	1.90%
Commodities	133.7	1.41%	0.0	0.0%	133.7	1.41%	133.7	1.41%	141.9	1.50%
Infrastructure	78.9	0.83%	0.0	0.0%	78.9	0.83%	78.9	0.83%	75.7	0.80%
Private Equity	1,237.0	13.08%	0.0	0.0%	1,237.0	13.08%	1,237.0	13.08%	1,295.7	13.70%
Real Estate	510.8	5.4%	0.0	0.0%	510.8	5.4%	510.8	5.4%	435.1	4.60%
Tactical Cash	1,205.9	12.75%	0.0	0.0%	1,205.9	12.75%	1,205.9	12.75%	1,205.9	12.75%

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

Source: Russell Investments

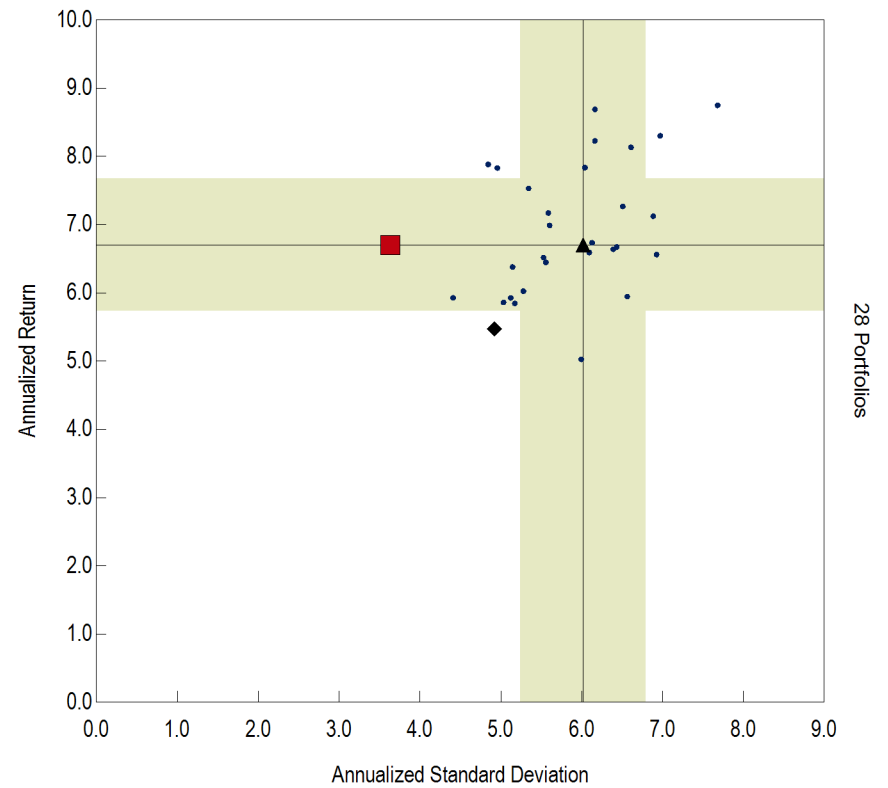
Total Fund Risk/Return

1 Year Ending September 30, 2017



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

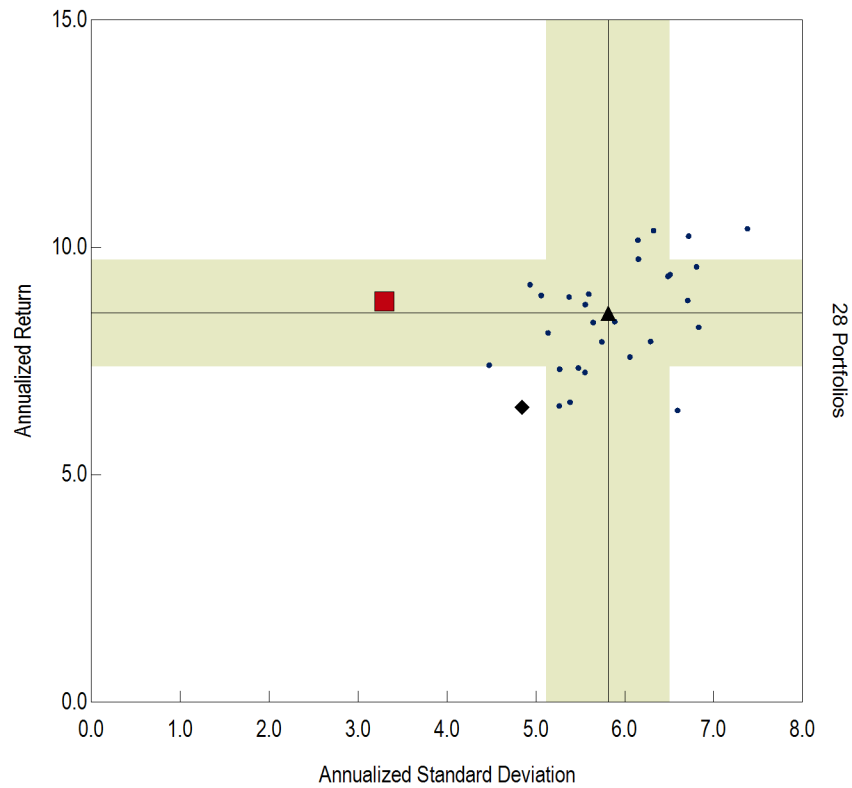
3 Years Ending September 30, 2017



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

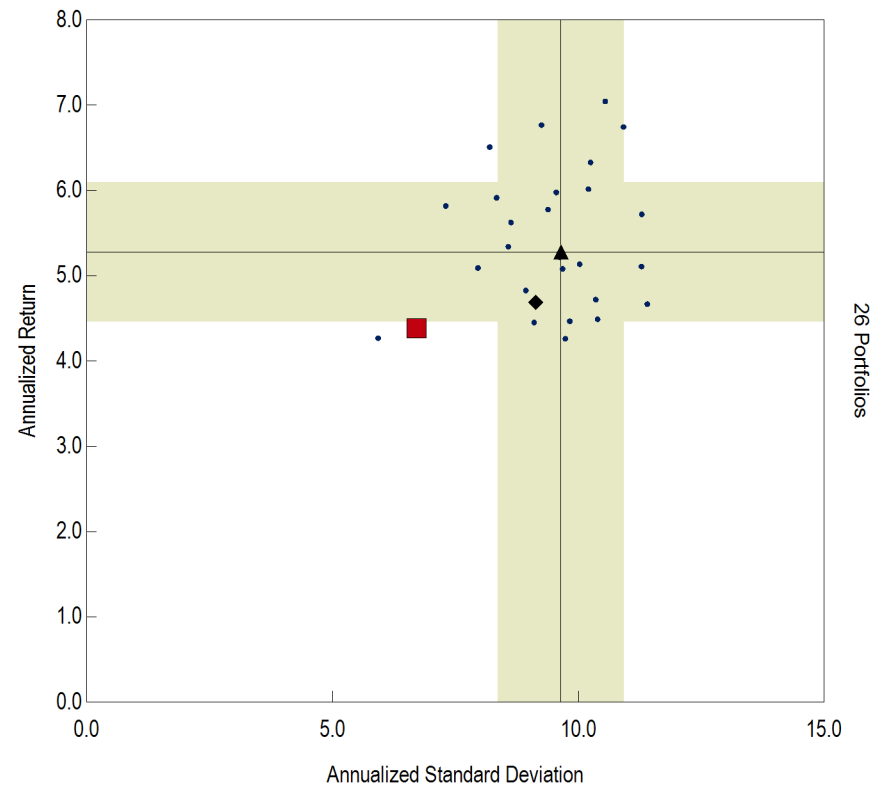
Total Fund Risk/Return

5 Years Ending September 30, 2017



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

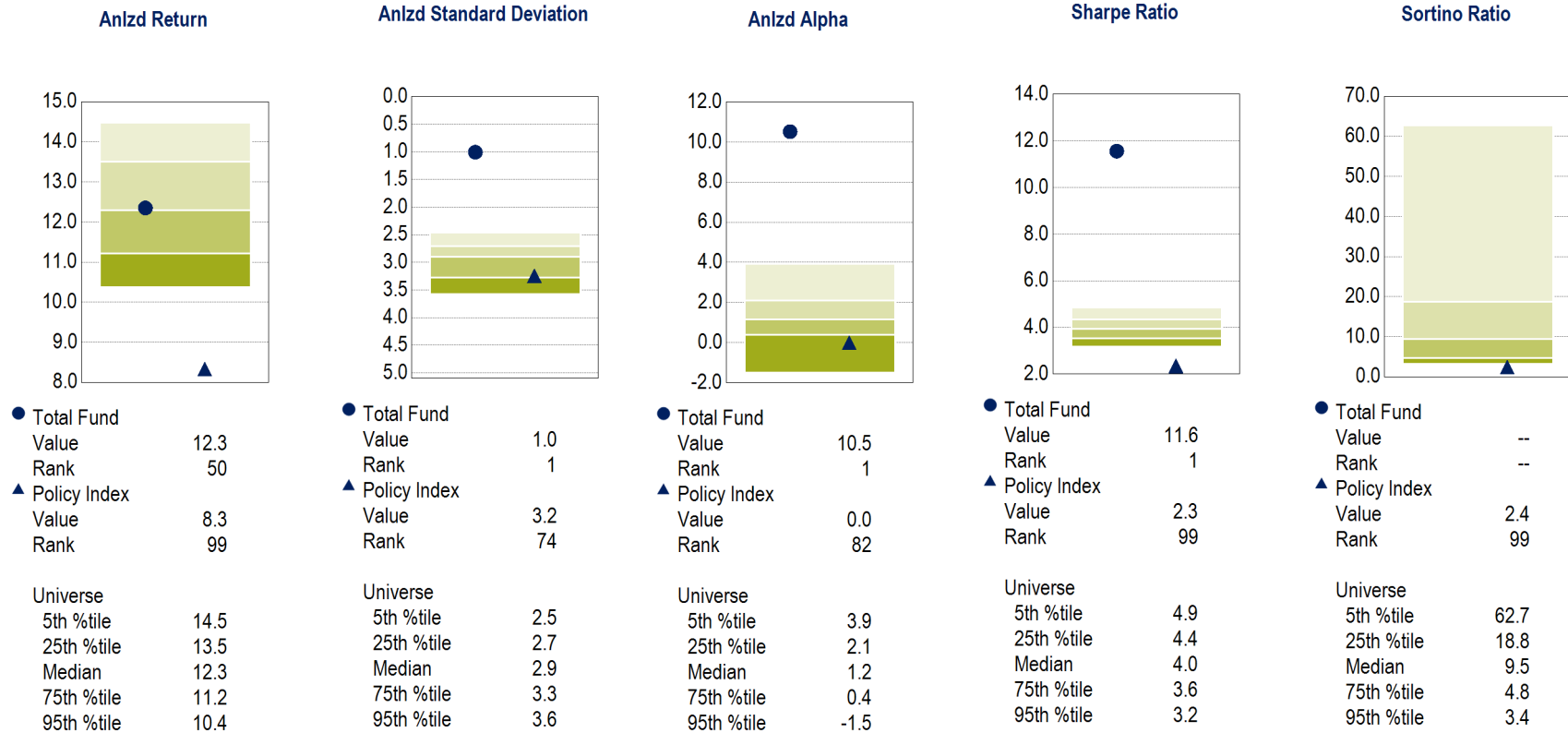
10 Years Ending September 30, 2017



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

Total Fund Risk Statistics vs. Peer Universe

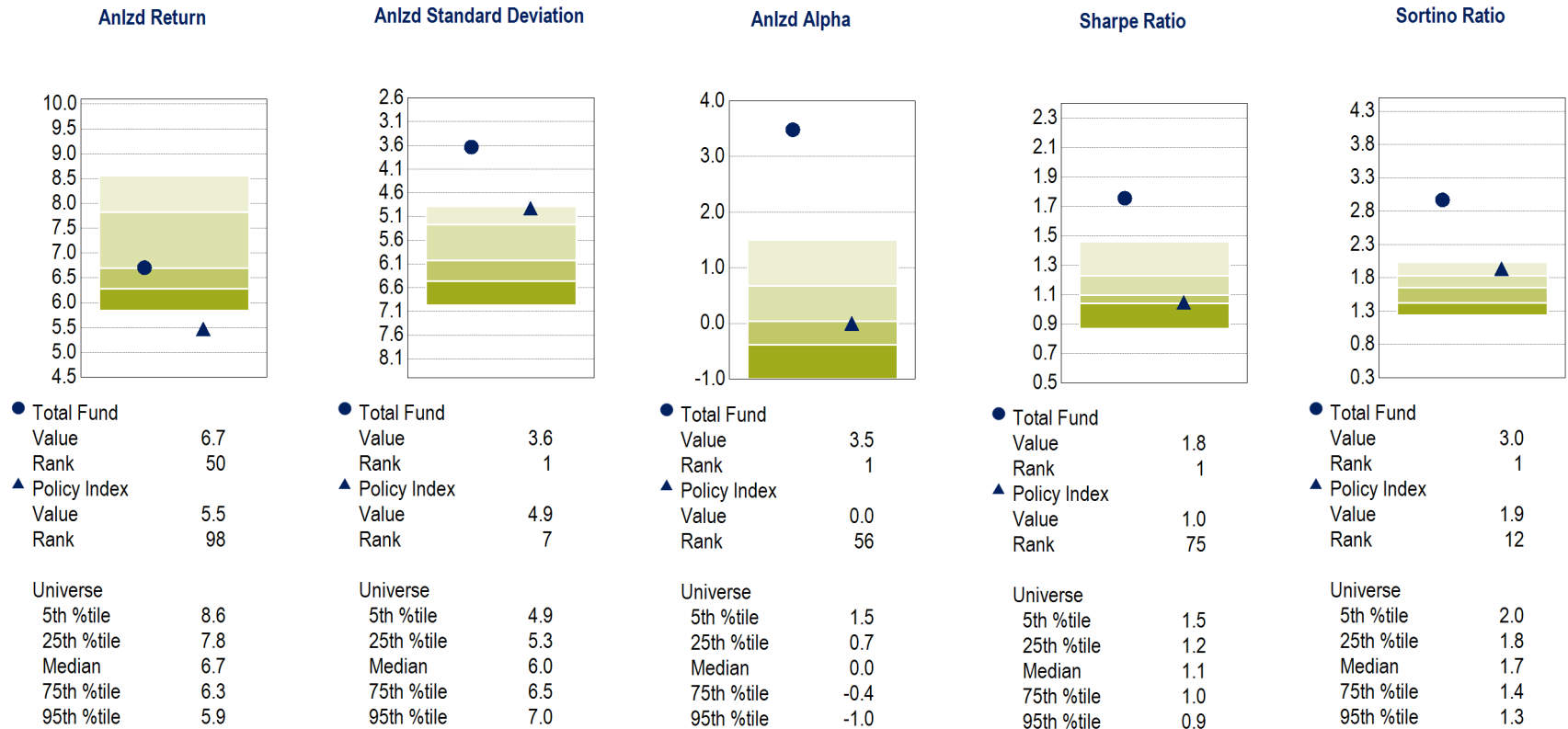
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)
1 Year



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

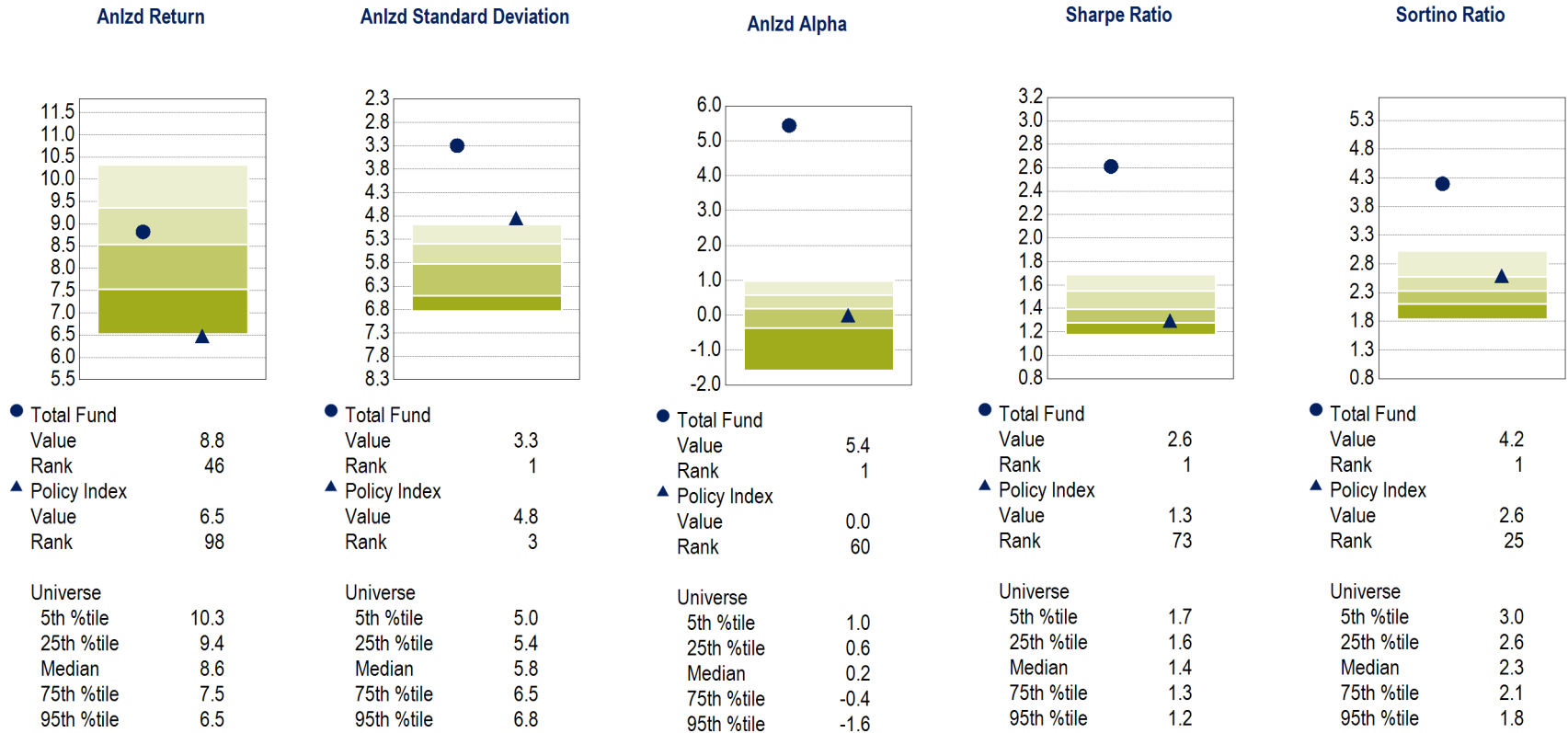
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)
3 Years



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

Total Fund Risk Statistics vs. Peer Universe

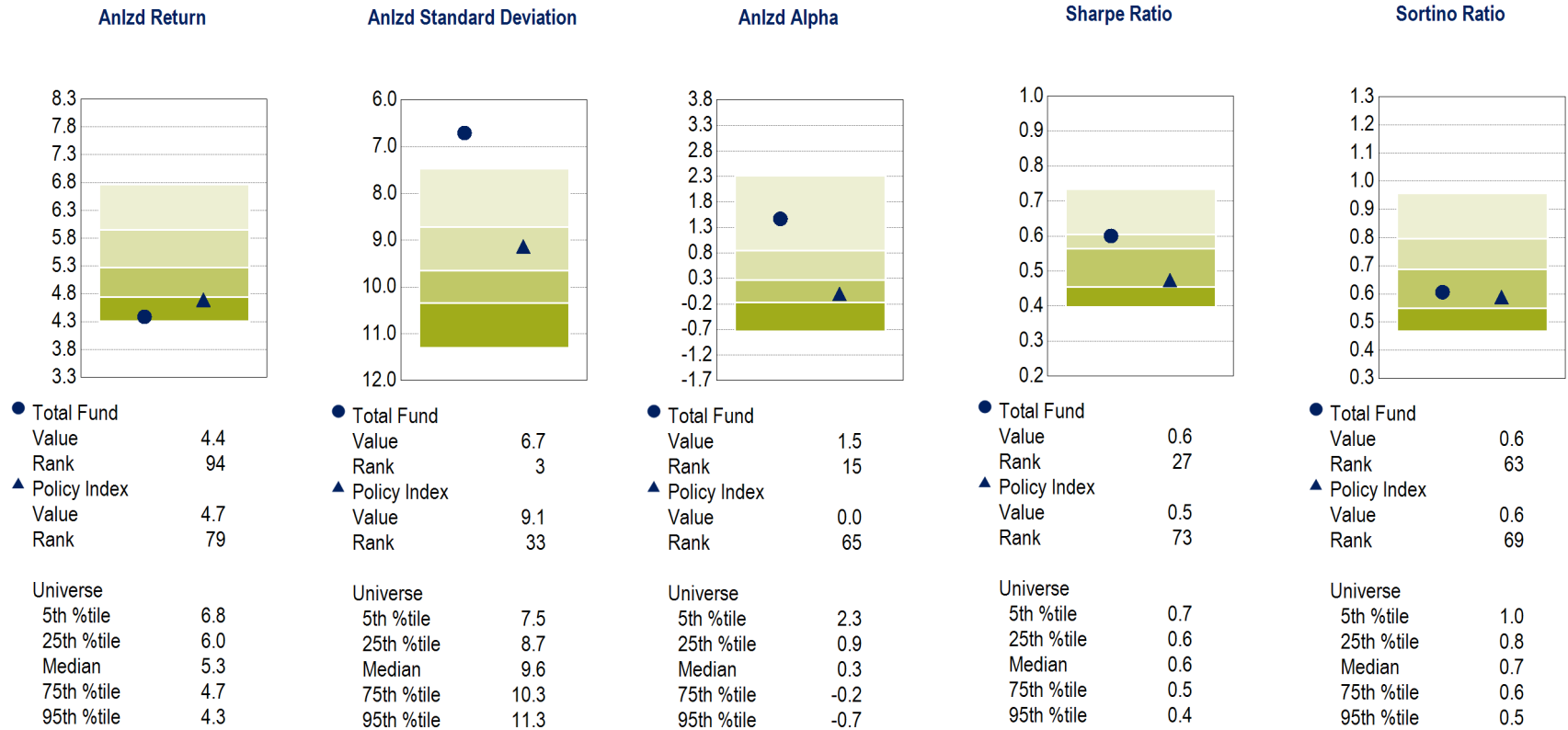
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD)
5 Years



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 September 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	7.5%	2.9%	99	2.3%	1	5.9%	-2.7	--
Russell 3000	--	18.7%	37	6.0%	29	0.0%	--	--
International Developed	1.3%	0.8%	99	0.8%	1	7.1%	-2.6	--
MSCI EAFE	--	19.1%	30	7.1%	61	0.0%	--	--
International Emerging	5.3%	14.4%	99	8.9%	14	2.7%	-3.0	--
MSCI Emerging Markets	--	22.5%	29	9.7%	60	0.0%	--	--
U.S. Credit Strategies	11.0%	11.9%	1	3.4%	43	4.1%	1.3	2
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	6.6%	10	1.7%	5	0.0%	--	--
Non-U.S. Credit Composite	13.2%	14.1%	--	3.4%	--	9.5%	0.1	--
BofA Merrill Lynch Euro High Yield Constrained	--	13.5%	--	8.6%	--	0.0%	--	--
Emerging Markets Debt Composite	7.4%	11.1%	8	5.6%	40	6.0%	0.9	41
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	6.0%	81	7.3%	69	0.0%	--	--
Alpha Pool Composite	18.4%	9.2%	31	2.2%	60	2.2%	2.5	4
91 Day T-Bill + 3%	--	3.7%	90	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.1%	16.6%	--	3.9%	--
Cambridge Associates Global All PE (Qtr Lag)	--	15.6%	--	6.4%	--
Real Estate Composite	4.4%	3.3%	99	3.6%	97
NCREIF Property Index 1 Qtr Lag	--	7.0%	56	2.9%	77
Real Assets Composite	4.2%	2.1%	57	2.8%	15
Bloomberg Commodity Index	--	-0.3%	68	4.9%	71

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 September 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	7.5%	1.2%	99	3.7%	1	12.6%	-0.8	--
Russell 3000	--	10.7%	47	10.2%	58	0.0%	--	--
International Developed	1.3%	2.9%	97	23.7%	99	17.7%	-0.1	--
MSCI EAFE	--	5.0%	46	12.3%	84	0.0%	--	--
International Emerging	5.3%	1.5%	99	12.4%	2	5.1%	-0.7	--
MSCI Emerging Markets	--	4.9%	48	15.7%	94	0.0%	--	--
U.S. Credit Strategies	11.0%	6.3%	6	3.4%	22	3.9%	0.3	8
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	4.9%	20	3.8%	38	0.0%	--	--
Non-U.S. Credit Composite	13.2%	7.0%	--	3.7%	--	10.6%	0.4	--
BofA Merrill Lynch Euro High Yield Constrained	--	3.2%	--	10.3%	--	0.0%	--	--
Emerging Markets Debt Composite	7.4%	7.3%	13	6.0%	37	5.4%	0.7	31
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	3.4%	68	8.1%	66	0.0%	--	--
Alpha Pool Composite	18.4%	4.1%	25	3.9%	54	3.9%	0.2	39
91 Day T-Bill + 3%	--	3.3%	32	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.1%	11.3%	--	4.0%	--
Cambridge Associates Global All PE (Qtr Lag)	--	9.0%	--	5.1%	--
Real Estate Composite	4.4%	9.3%	88	3.2%	38
NCREIF Property Index 1 Qtr Lag	--	10.2%	76	4.3%	47
Real Assets Composite	4.2%	1.0%	57	5.4%	42
Bloomberg Commodity Index	--	-10.4%	99	13.0%	84

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

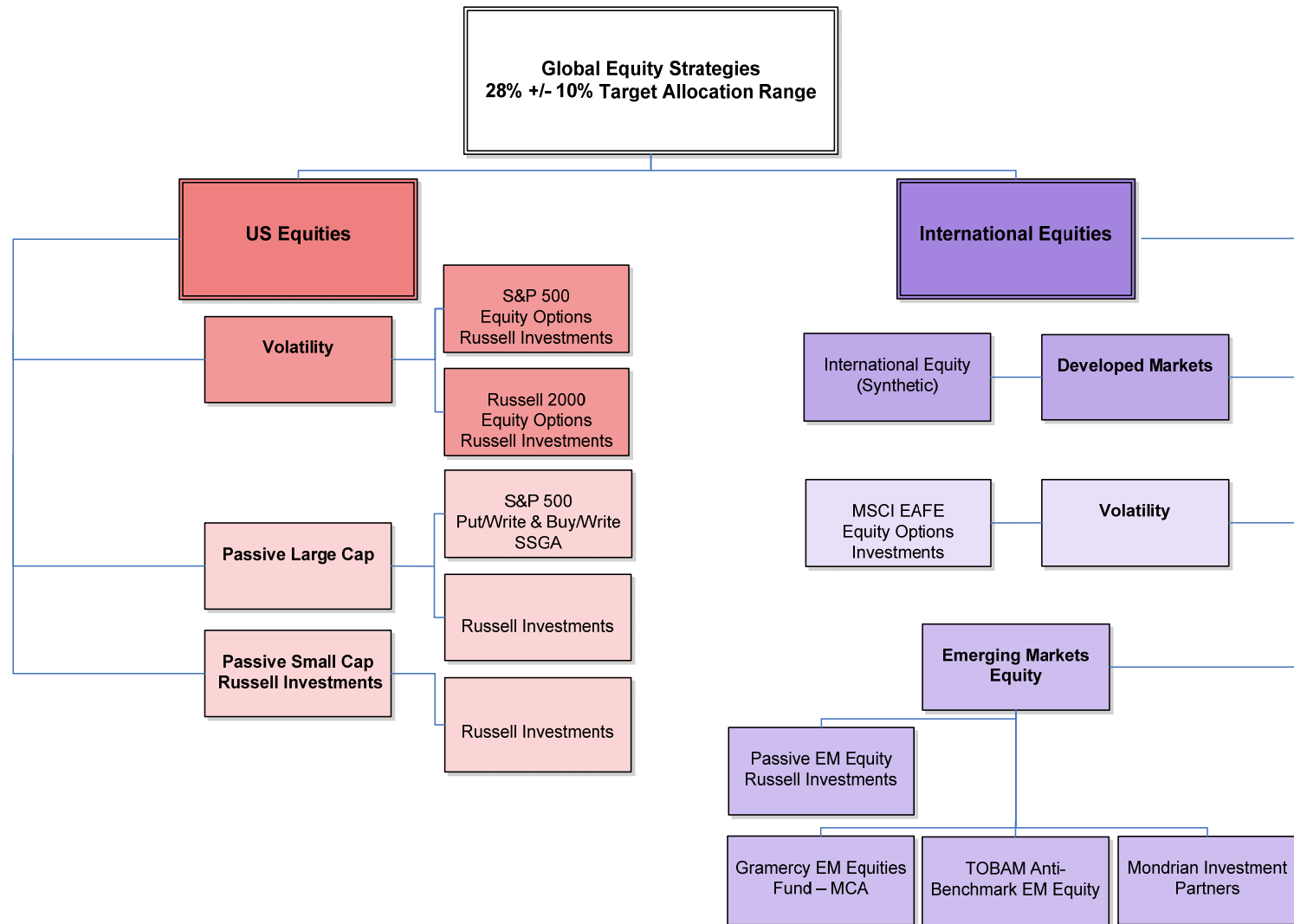
5 Years Ending September 30, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	7.5%	2.4%	99	4.5%	1	12.3%	-1.0	--
Russell 3000	--	14.2%	38	9.8%	37	0.0%	--	--
International Developed	1.3%	16.6%	1	20.7%	99	16.1%	0.5	30
MSCI EAFE	--	8.4%	52	11.7%	84	0.0%	--	--
International Emerging	5.3%	1.7%	96	12.1%	1	4.5%	-0.5	--
MSCI Emerging Markets	--	4.0%	47	14.4%	83	0.0%	--	--
U.S. Credit Strategies	11.0%	8.1%	2	3.1%	3	3.9%	0.7	2
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	5.3%	20	3.4%	7	0.0%	--	--
Non-U.S. Credit Composite	13.2%	9.1%	--	3.5%	--	9.5%	0.4	--
BofA Merrill Lynch Euro High Yield Constrained	--	5.7%	--	9.9%	--	0.0%	--	--
Emerging Markets Debt Composite	7.4%	4.6%	42	6.1%	29	5.2%	0.5	52
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	2.0%	69	8.3%	64	0.0%	--	--
Alpha Pool Composite	18.4%	5.6%	28	3.2%	12	3.2%	0.8	27
91 Day T-Bill + 3%	--	3.2%	96	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	14.1%	13.4%	--	4.1%	--
Cambridge Associates Global All PE (Qtr Lag)	--	12.6%	--	6.3%	--
Real Estate Composite	4.4%	9.5%	92	3.5%	33
NCREIF Property Index 1 Qtr Lag	--	10.5%	90	4.3%	42
Real Assets Composite	4.2%	2.5%	67	5.5%	68
Bloomberg Commodity Index	--	-10.5%	99	11.9%	99

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

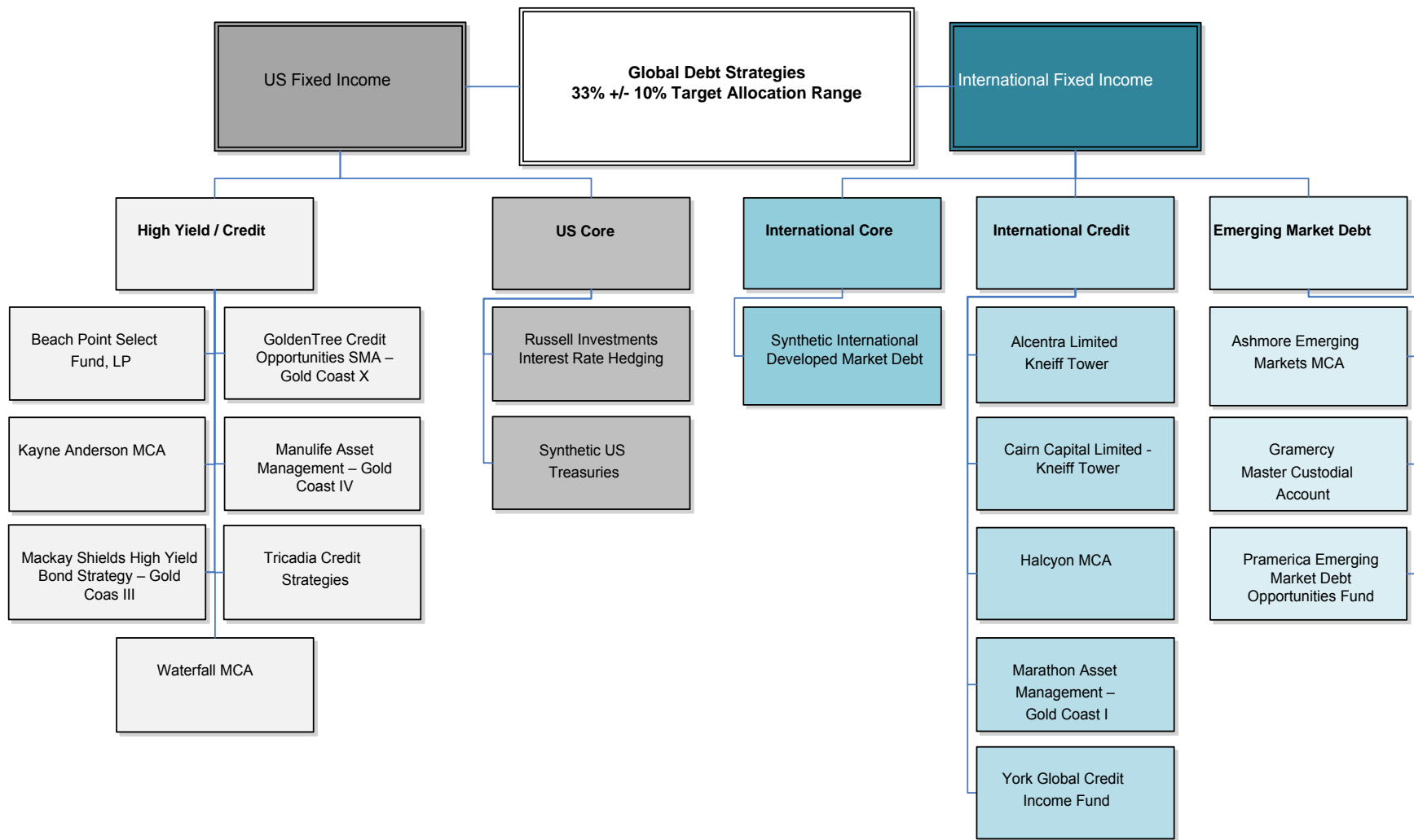
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Equity	1,360,130,343	14.1	3.9	99	10.0	99	6.8	99	2.6	99	5.1	99	--	--
MSCI ACWI			5.2	23	17.3	24	18.6	50	7.4	94	10.2	90	3.9	99
Excess Return			-1.3		-7.3		-11.8		-4.8		-5.1			
InvestorForce Public DB Total Eq Gross Median			4.6		15.9		18.6		9.5		12.3		5.1	
Domestic Equity	725,363,369	7.5	2.7	99	4.3	99	2.9	99	1.2	99	2.4	99	-1.3	99
Russell 3000			4.6	33	13.9	28	18.7	37	10.7	47	14.2	38	7.6	60
Excess Return			-1.9		-9.6		-15.8		-9.5		-11.8		-8.9	
InvestorForce Public DB US Eq Gross Median			4.4		13.1		18.3		10.7		14.0		7.7	
Large Cap Equity	725,268,198	7.5	2.7	88	4.8	93	4.5	98	3.0	98	2.9	99	-0.5	99
S&P 500			4.5	56	14.2	39	18.6	56	10.8	47	14.2	53	7.4	72
Excess Return			-1.8		-9.4		-14.1		-7.8		-11.3		-7.9	
eA All US Equity Gross Median			4.7		12.8		19.1		10.6		14.3		8.2	
SsgA S&P500	718,205,545	7.4	3.6	73	9.3	74	10.3	94	6.7	91	7.9	99	2.5	99
S&P 500			4.5	56	14.2	39	18.6	56	10.8	47	14.2	53	7.4	72
Excess Return			-0.9		-4.9		-8.3		-4.1		-6.3		-4.9	
eA All US Equity Gross Median			4.7		12.8		19.1		10.6		14.3		8.2	
Russell US Large Cap Volatility	7,062,653	0.1	-46.9	99	-83.9	99	-87.3	99	-64.2	99	-56.7	99	--	--
S&P 500			4.5	56	14.2	39	18.6	56	10.8	47	14.2	53	7.4	72
Excess Return			-51.4		-98.1		-105.9		-75.0		-70.9			
eA All US Equity Gross Median			4.7		12.8		19.1		10.6		14.3		8.2	
Small Cap Equity	95,171	0.0	0.3	99	0.7	99	0.9	99	-5.0	99	-33.9	99	--	--
Russell 2000			5.7	46	10.9	47	20.7	53	12.2	53	13.8	68	7.8	76
Excess Return			-5.4		-10.2		-19.8		-17.2		-47.7			
eA US Small Cap Equity Gross Median			5.5		10.3		21.0		12.4		14.8		9.0	
Russell US Small Cap Volatility	95,171	0.0	0.3	99	0.7	99	0.9	99	-5.0	99	-33.9	99	--	--
Russell 2000			5.7	29	10.9	63	20.7	36	12.2	28	13.8	62	7.8	61
Excess Return			-5.4		-10.2		-19.8		-17.2		-47.7			
eA All US Equity Gross Median			4.7		12.8		19.1		10.6		14.3		8.2	

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
International Equity	634,766,974	6.6	5.2	33	17.5	91	11.5	99	3.2	99	8.3	90	2.1	48
MSCI EAFE			5.4	30	20.0	55	19.1	68	5.0	99	8.4	90	1.3	99
Excess Return			-0.2		-2.5		-7.6		-1.8		-0.1		0.8	
InvestorForce Public DB Gbl Eq Gross Median			4.7		20.0		19.7		9.7		13.8		2.1	
International Developed	122,635,109	1.3	0.3	99	0.7	99	0.8	99	2.9	97	16.6	1	4.4	1
MSCI EAFE			5.4	48	20.0	88	19.1	30	5.0	46	8.4	52	1.3	83
Excess Return			-5.1		-19.3		-18.3		-2.1		8.2		3.1	
InvestorForce Public DB Dev Mkt ex-US Eq Gross Median			5.4		20.9		18.5		4.5		8.6		2.6	
Russell International Volatility	122,635,109	1.3	0.3	99	0.7	99	0.8	99	2.9	99	16.6	4	--	--
MSCI EAFE			5.4	70	20.0	75	19.1	67	5.0	85	8.4	82	1.3	91
Excess Return			-5.1		-19.3		-18.3		-2.1		8.2			
eA All EAFE Equity Gross Median			6.0		22.0		20.7		7.1		10.1		3.2	
International Emerging	512,131,865	5.3	6.5	59	22.4	99	14.4	99	1.5	99	1.7	96	0.9	73
MSCI Emerging Markets			7.9	18	27.8	31	22.5	29	4.9	48	4.0	47	1.3	67
Excess Return			-1.4		-5.4		-8.1		-3.4		-2.3		-0.4	
Mondrian	141,540,508	1.5	3.6	94	19.6	96	14.1	92	1.7	95	2.1	96	2.8	47
MSCI Emerging Markets			7.9	50	27.8	59	22.5	59	4.9	74	4.0	88	1.3	88
Excess Return			-4.3		-8.2		-8.4		-3.2		-1.9		1.5	
eA Emg Mkts Equity Gross Median			7.9		28.6		23.2		6.5		6.0		2.8	
Gramercy Emerging Market Equity	82,102,440	0.8	6.6	68	27.4	61	23.2	50	5.8	61	--	--	--	--
MSCI Emerging Markets			7.9	50	27.8	59	22.5	59	4.9	74	4.0	88	1.3	88
Excess Return			-1.3		-0.4		0.7		0.9					
eA Emg Mkts Equity Gross Median			7.9		28.6		23.2		6.5		6.0		2.8	
Tobam	288,389,750	3.0	8.0	48	22.5	84	12.3	97	--	--	--	--	--	--
MSCI Emerging Markets			7.9	50	27.8	59	22.5	59	4.9	74	4.0	88	1.3	88
Excess Return			0.1		-5.3		-10.2							
eA Emg Mkts Equity Gross Median			7.9		28.6		23.2		6.5		6.0		2.8	

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
Total Fixed	3,061,404,192	31.7	3.1	1	10.4	1	12.6	1	6.8	1	7.9	1	--	--
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			1.0		3.5		1.4		2.7		2.3		4.8	
U.S. Credit Strategies	1,063,058,239	11.0	3.3	14	8.0	44	11.9	1	6.3	6	8.1	2	9.0	1
<i>50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index</i>			1.5	83	4.8	87	6.6	10	4.9	20	5.3	20	5.9	43
<i>Excess Return</i>			1.8		3.2		5.3		1.4		2.8		3.1	
<i>BofA Merrill Lynch US High Yield Master II TR</i>			2.0	51	7.0	51	9.1	2	5.9	9	6.4	5	7.7	5
<i>eA Global Credit Fixed Income Gross Median</i>			2.1		7.1		4.1		3.5		3.6		5.2	
AG Capital	404,513	0.0	2.4	29	4.0	97	4.0	57	-1.2	97	5.5	18	--	--
Golden Tree Asset Management	395,947,737	4.1	5.5	1	12.1	12	17.7	1	10.6	1	12.5	1	--	--
Beach Point Capital (Formerly Post)	147,327,162	1.5	2.8	16	6.6	53	11.8	1	7.8	1	10.3	1	--	--
Golden Tree Distressed Debt	29,912,449	0.3	5.2	1	10.9	13	10.8	1	9.7	1	14.5	1	--	--
Mackay / Gold Coast	105,600,975	1.1	1.5	81	8.8	24	8.7	2	3.7	48	6.7	3	8.1	1
Mariner Tricadia	69,602,757	0.7	1.6	66	6.5	55	7.8	8	1.7	89	5.2	21	--	--
MD SASS Waterfall Victoria	28,034,589	0.3	1.9	--	3.4	--	7.8	--	--	--	--	--	--	--
Russell Interest Rate Hedging	23,504,573	0.2	-8.2	99	-25.5	99	5.5	15	-23.2	99	-20.0	99	--	--
Stone Tower Credit (Apollo)	82,735,653	0.9	2.3	34	4.8	78	7.5	26	3.8	38	5.6	17	--	--
Gold Coast Capital IV	95,930,292	1.0	1.8	--	5.8	--	5.8	--	--	--	--	--	--	--
Waterfall Asset Management	40,362,881	0.4	7.1	--	20.8	--	20.9	--	--	--	--	--	--	--
Waterfall Victoria	43,505,364	0.5	2.2	--	5.2	--	7.3	--	--	--	--	--	--	--

San Bernardino County Employees' Retirement Association

Global Debt Strategies Performance Detail - Gross

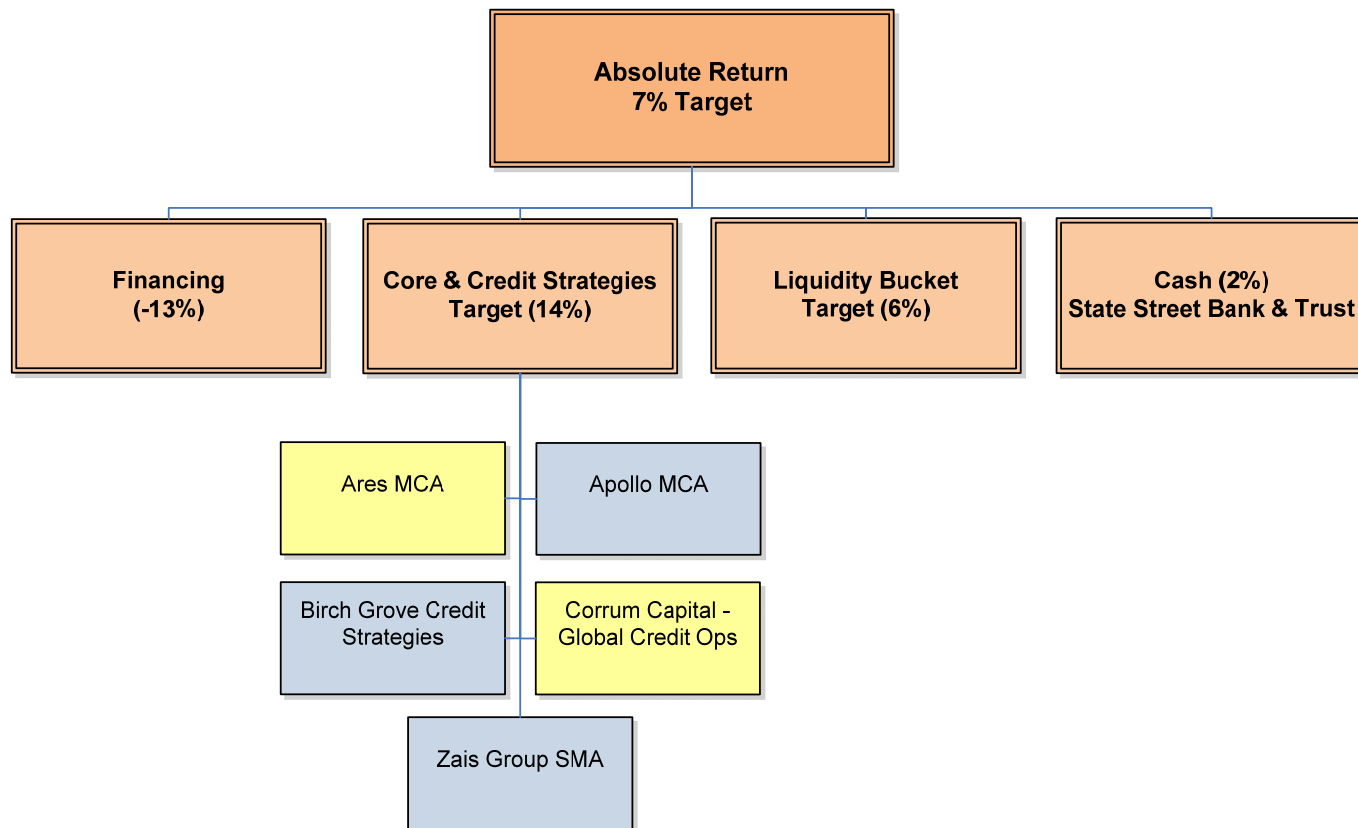
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Non-U.S. Fixed Income Composite	1,998,345,953	20.7	3.0	1	11.8	1	13.1	1	7.1	1	7.7	1	6.0	16
<i>BBgBarc Global Aggregate TR</i>			<u>1.8</u>	15	<u>6.3</u>	16	<u>-1.3</u>	99	<u>1.3</u>	99	<u>0.5</u>	99	<u>3.3</u>	99
Excess Return			1.2		5.5		14.4		5.8		7.2		2.7	
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			1.0		3.5		1.4		2.7		2.3		4.8	
Non-U.S. Credit Composite	1,278,471,840	13.2	2.8	--	12.9	--	14.1	--	7.0	--	9.1	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>5.5</u>	--	<u>18.8</u>	--	<u>13.5</u>	--	<u>3.2</u>	--	<u>5.7</u>	--	<u>6.2</u>	--
Excess Return			-2.7		-5.9		0.6		3.8		3.4		--	
Marathon/Gold Coast	200,964,076	2.1	2.4	30	9.0	23	12.8	1	5.9	9	9.6	1	--	--
Alcentra Core European Credit	420,563,930	4.4	5.3	1	14.0	5	17.9	1	11.4	1	16.4	1	--	--
Halcyon Asset Management	149,131,446	1.5	-1.5	99	1.8	99	11.1	1	--	--	--	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>5.5</u>	1	<u>18.8</u>	1	<u>13.5</u>	1	<u>3.2</u>	67	<u>5.7</u>	11	<u>6.2</u>	39
Excess Return			-7.0		-17.0		-2.4							
<i>eA Global Credit Fixed Income Gross Median</i>			2.1		7.1		4.1		3.5		3.6		5.2	
Oaktree Capital	2,384	0.0												
York Global Credit	149,690,073	1.5	0.9	99	8.4	28	11.2	1	5.4	12	8.4	2	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>5.5</u>	1	<u>18.8</u>	1	<u>13.5</u>	1	<u>3.2</u>	67	<u>5.7</u>	11	<u>6.2</u>	39
Excess Return			-4.6		-10.4		-2.3		2.2		2.7			
<i>eA Global Credit Fixed Income Gross Median</i>			2.1		7.1		4.1		3.5		3.6		5.2	
Cairn Composite	358,119,932	3.7	3.0	15	21.8	1	17.6	1	7.1	1	5.9	10	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>5.5</u>	1	<u>18.8</u>	1	<u>13.5</u>	1	<u>3.2</u>	67	<u>5.7</u>	11	<u>6.2</u>	39
Excess Return			-2.5		3.0		4.1		3.9		0.2			
<i>eA Global Credit Fixed Income Gross Median</i>			2.1		7.1		4.1		3.5		3.6		5.2	

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
Emerging Markets Debt Composite	719,874,113	7.4	3.2	63	9.7	69	11.1	8	7.3	13	4.6	42	4.8	73
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified			3.1	68	11.6	48	6.0	81	3.4	68	2.0	69	5.7	69
Excess Return			0.1		-1.9		5.1		3.9		2.6		-0.9	
eA All Emg Mkts Fixed Inc Gross Median			3.4		11.0		7.7		5.2		3.9		7.3	
Ashmore Emerging Markets Liquid Investments	174,646,286	1.8	3.1	68	11.6	48	6.0	81	3.4	68	2.0	69	5.7	69
JP Morgan GBI - EM Global Diversified Index			3.6	38	14.3	25	7.3	60	0.3	94	-0.9	91	3.8	87
Excess Return			-0.5		-2.7		-1.3		3.1		2.9		1.9	
eA All Emg Mkts Fixed Inc Gross Median			3.4		11.0		7.7		5.2		3.9		7.3	
Ashmore Local Currency	91,098,780	0.9	4.7	4	15.4	5	10.7	7	0.2	94	-1.1	98	--	--
JP Morgan ELMI+			2.0	46	9.4	21	5.4	39	-0.4	96	-0.7	96	1.4	99
Excess Return			2.7		6.0		5.3		0.6		-0.4			
JP Morgan EMBI Global Index			2.4	32	8.7	26	4.2	52	6.1	7	4.3	33	7.3	10
eA All Global Fixed Inc Gross Median			1.9		6.9		4.3		3.0		3.1		4.5	
Gramercy Funds Management LLC	353,781,528	3.7	1.8	98	4.0	99	10.8	8	11.6	1	--	--	--	--
JP Morgan ELMI+			2.0	96	9.4	72	5.4	88	-0.4	99	-0.7	89	1.4	99
Excess Return			-0.2		-5.4		5.4		12.0					
JP Morgan EMBI Global Index			2.4	92	8.7	80	4.2	95	6.1	33	4.3	47	7.3	50
eA All Emg Mkts Fixed Inc Gross Median			3.4		11.0		7.7		5.2		3.9		7.3	
Prudential Investment Management	100,347,520	1.0	4.6	8	22.2	1	14.5	3	6.1	33	--	--	--	--
JP Morgan ELMI+			2.0	96	9.4	72	5.4	88	-0.4	99	-0.7	89	1.4	99
Excess Return			2.6		12.8		9.1		6.5					
JP Morgan EMBI Global Index			2.4	92	8.7	80	4.2	95	6.1	33	4.3	47	7.3	50
eA All Emg Mkts Fixed Inc Gross Median			3.4		11.0		7.7		5.2		3.9		7.3	

Absolute Return Portfolio (Alpha Pool)

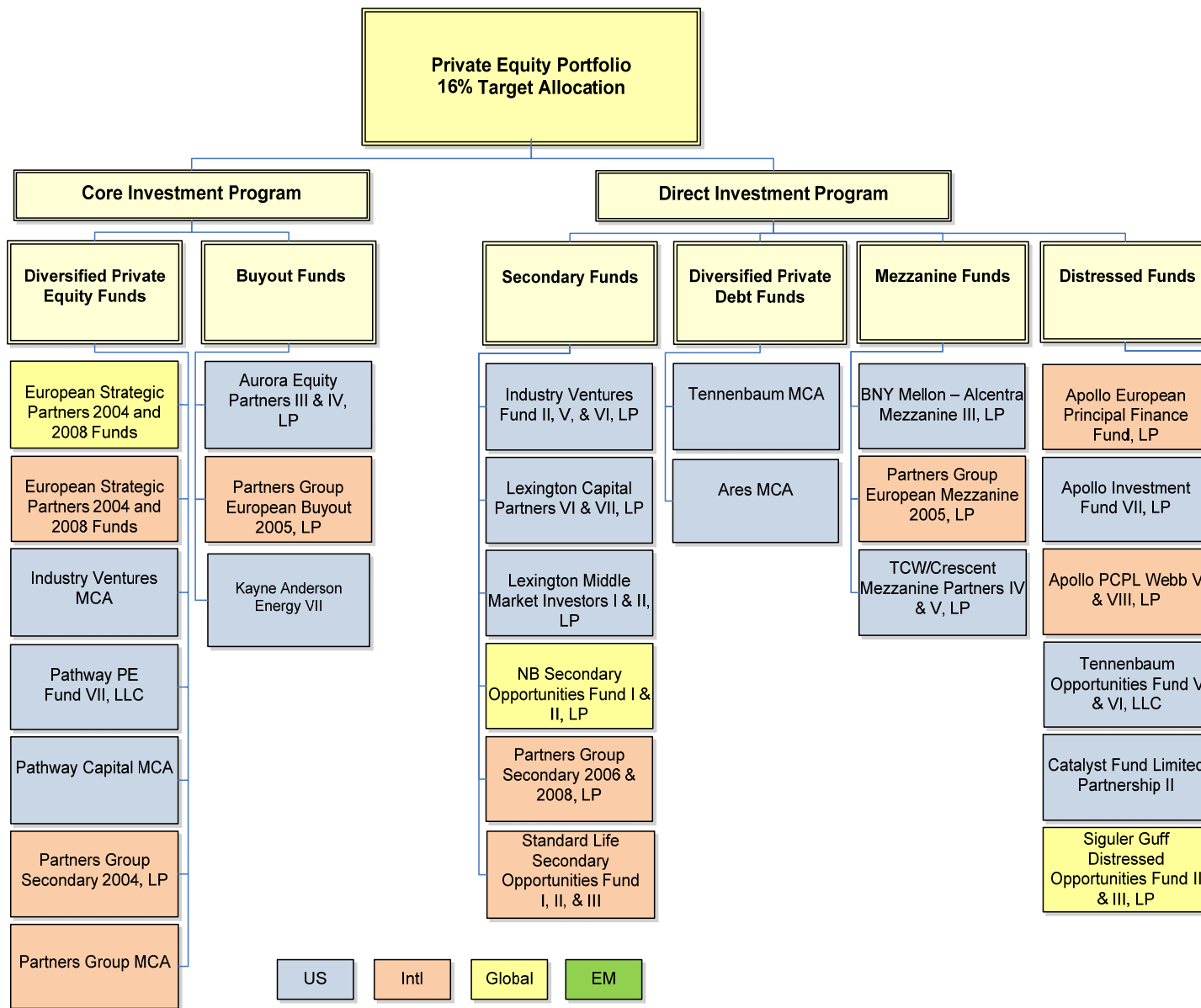


San Bernardino County Employees' Retirement Association

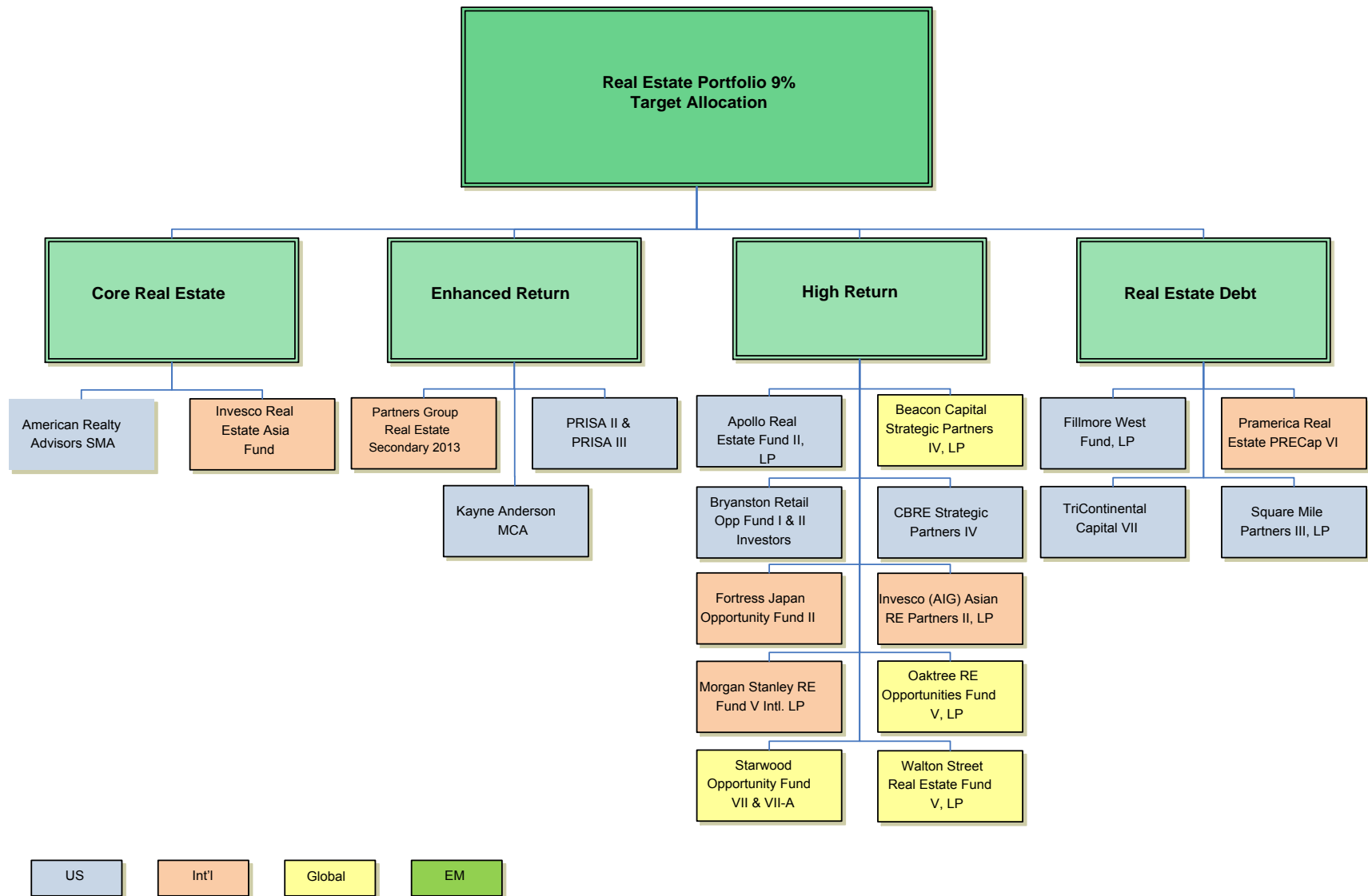
Alpha Pool Strategies Performance Detail - Gross

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alpha Pool Composite	1,780,457,934	18.4	2.0	46	6.4	37	9.2	31	4.1	25	5.6	28	4.6	1
<i>91 Day T-Bill + 3%</i>			<u>1.0</u>	79	<u>2.9</u>	63	<u>3.7</u>	90	<u>3.3</u>	32	<u>3.2</u>	96	<u>3.4</u>	1
Excess Return			1.0		3.5		5.5		0.8		2.4		1.2	
Alpha Liquidity (Ssga)	157,018,145	1.6	0.3	98	0.8	99	0.9	74	0.5	91	0.4	86	--	--
Apollo Global Management	33,224,344	0.3	4.0	7	20.7	1	33.8	1	--	--	--	--	--	--
Apollo SCRF III	24,021,224	0.2	4.8	--	11.8	--	--	--	--	--	--	--	--	--
Ares Eco Master Fund II	444,786,020	4.6	4.3	6	8.4	29	10.7	7	--	--	--	--	--	--
Ares Strategic Investment	0	0.0	0.4	97	3.3	87	5.6	38	33.8	1	--	--	--	--
Birch Grove Credit Strategies	119,402,017	1.2	2.6	26	3.2	89	4.7	46	4.4	28	--	--	--	--
Sterling Stamos	191,678,880	2.0	0.6	95	6.0	65	9.4	16	4.8	22	6.2	13	2.1	95
Stone Tower Off (Apollo)	374,155,240	3.9	1.1	85	4.5	81	6.4	32	5.6	10	6.6	10	--	--
Zais	129,771,736	1.3	0.3	98	8.1	34	11.5	5	5.1	16	7.7	4	10.0	1
Zais Group Invest Advisors	243,476,439	2.5	1.7	59	10.7	15	17.2	1	8.8	1	10.0	1	--	--
Zais Zephyr A 6 LP	31,415,324	0.3	4.7	--	6.8	--	16.2	--	--	--	--	--	--	--
Apollo Accord	6,134,880	0.1	2.9	18	--	--	--	--	--	--	--	--	--	--

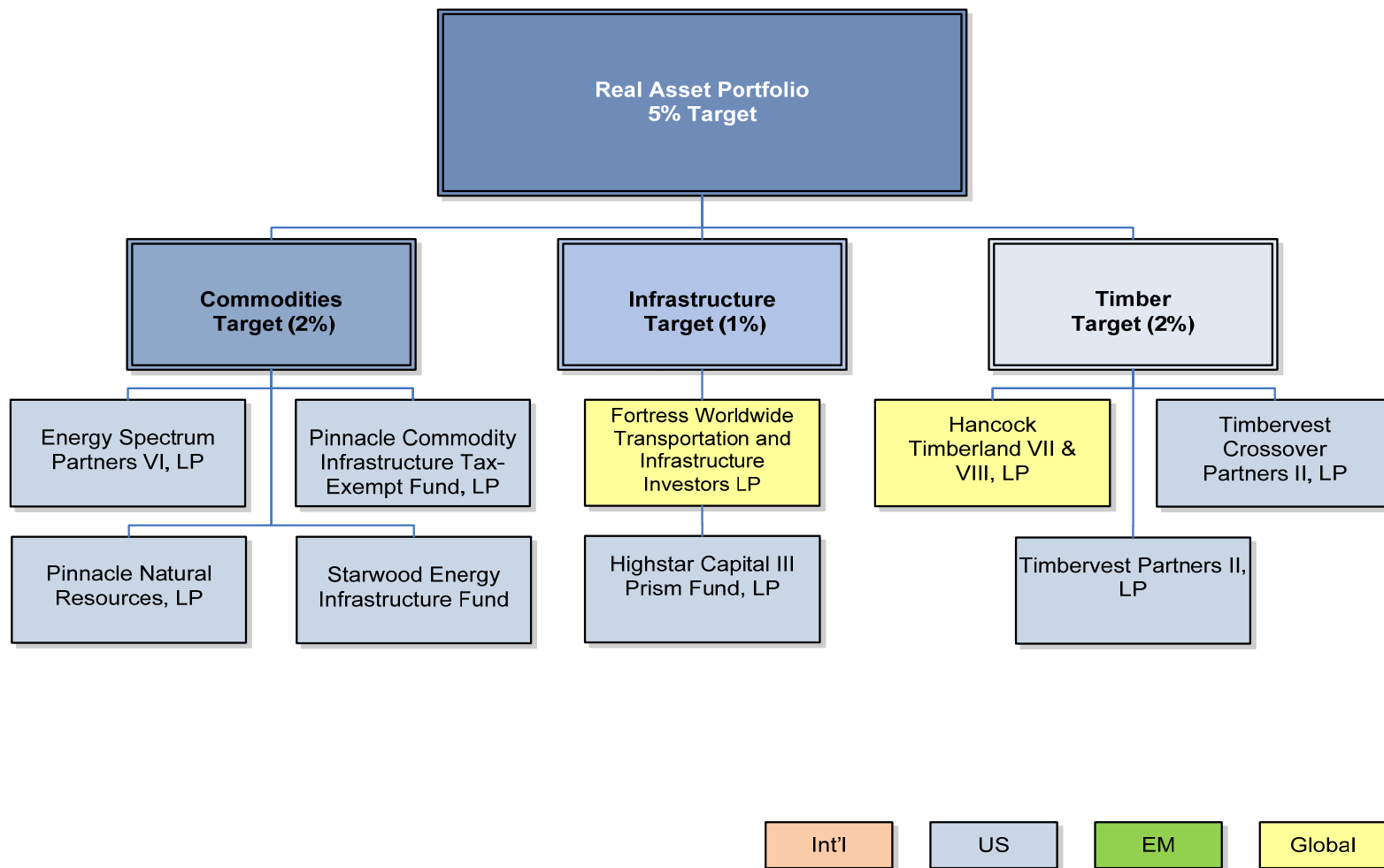
Private Equity Portfolio



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
Private Equity Composite	1,362,340,089	14.1	3.5	--	13.1	--	16.6	--	11.3	--	13.4	--	8.4	--
Cambridge Associates Global All PE (Qtr Lag)			4.4	--	11.4	--	15.6	--	9.0	--	12.6	--	8.4	--
Excess Return			-0.9		1.7		1.0		2.3		0.8		0.0	
Russell 3000			4.6	--	13.9	--	18.7	--	10.7	--	14.2	--	7.6	--
Cambridge Associates US All PE (1 Qtr Lag)			3.6	--	12.9	--	17.3	--	9.7	--	13.5	--	9.3	--
Real Estate Composite	425,976,741	4.4	2.3	4	1.6	99	3.3	99	9.3	88	9.5	92	1.8	99
NCREIF Property Index 1 Qtr Lag			1.8	58	5.1	70	7.0	56	10.2	76	10.5	90	6.4	11
Excess Return			0.5		-3.5		-3.7		-0.9		-1.0		-4.6	
InvestorForce Public DB Real Estate Pub+Priv Gross Median			1.9		5.8		7.3		11.0		11.4		5.6	
Pramerica Real Estate Capital VI	6,590,344	0.1	1.9	--	16.0	--	--	--	--	--	--	--	--	--
FPA SB Hunter	58,438	0.0	15.7	1	0.4	95	--	--	--	--	--	--	--	--
eA US REIT Gross Median			0.8		3.9		1.0		10.2		10.1		6.8	
Real Assets Composite	408,690,903	4.2	1.8	61	1.3	68	2.1	57	1.0	57	2.5	67	2.0	--
Bloomberg Commodity Index			2.5	42	-2.9	99	-0.3	68	-10.4	99	-10.5	99	-6.8	--
Excess Return			-0.7		4.2		2.4		11.4		13.0		8.8	
NCREIF Timberland 1 Qtr Lag			0.7	98	2.7	39	3.4	52	5.6	4	7.2	1	5.6	--
Timber	182,478,014	1.9	-0.6	--	-3.3	--	-3.7	--	0.6	--	5.0	--	2.1	--
NCREIF Timberland 1 Qtr Lag			0.7	--	2.7	--	3.4	--	5.6	--	7.2	--	5.6	--
Excess Return			-1.3		-6.0		-7.1		-5.0		-2.2		-3.5	
Infrastructure	78,919,788	0.8	8.6	--	19.6	--	25.5	--	7.9	--	3.1	--	5.3	--
Russell 3000			4.6	--	13.9	--	18.7	--	10.7	--	14.2	--	7.6	--
Excess Return			4.0		5.7		6.8		-2.8		-11.1		-2.3	
Commodities	147,293,101	1.5	1.3	--	-1.1	--	-0.6	--	-0.8	--	-0.2	--	--	--
Bloomberg Commodity Index			2.5	--	-2.9	--	-0.3	--	-10.4	--	-10.5	--	-6.8	--
Excess Return			-1.2		1.8		-0.3		9.6		10.3			

Appendix: Private Equity, Real Estate and Real Assets Performance



San Bernardino County Employees' Retirement Association

Real Estate Performance Ended June 30, 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	156,398,126	118,895,044	6.87%	2.15
American Realty Value Add	2006	13,125,215	13,125,215	32,065,484	83,438	10.94%	2.45
Apollo US Real Estate Fund II	2015	20,000,000	10,248,432	3,422,160	9,919,385	23.14%	1.29
Beacon Capital Strategic Partners IV, L.P.	2006	39,000,000	38,000,000	31,290,518	133,185	-3.26%	0.83
Beacon Capital Strategic Partners V, L.P.	2007	20,000,000	18,000,000	11,030,231	152,368	-7.87%	0.62
BlackRock Diamond Property Fund	2005	25,000,000	25,000,000	15,093,876	80,756	-9.45%	0.61
Bryanston Real Estate Opportunity Fund II, L.P.	2009	20,000,000	8,589,256	11,824,142	43,684	10.24%	1.38
Bryanston Retail Opportunity Fund, L.P.	2004	20,000,000	8,228,165	18,492,031	9,210,306	70.97%	3.37
CBRE Strategic Partners III	2003	10,000,000	10,000,000	12,698,783	0	8.02%	1.27
CBRE Strategic Partners IV	2005	40,000,000	40,000,000	2,432,836	1,382,058	-23.21%	0.10
Fillmore East Fund	2006	25,000,000	31,403,818	20,777,177	0	-9.78%	0.66
Fillmore West Fund	2008	20,000,000	19,561,557	14,298,921	7,503,742	1.58%	1.11
Fortress Japan Opportunity Fund II	2012	21,739,130	6,386,376	7,410,184	16,232,491	24.73%	3.67
Invesco Asian Real Estate Partners II (USD), LP	2007	20,000,000	8,412,833	10,115,810	1,262,031	7.44%	1.35
Invesco High Yield Debt Fund I	2007	20,000,000	20,000,000	8,567,605	0	-35.57%	0.43
Invesco Real Estate Asia Fund	2014	51,732,500	51,732,500	5,359,598	60,919,013	8.43%	1.26
INVESCO Real Estate Fund I	2005	10,000,000	9,248,390	10,000,208	18,267	1.54%	1.08
LaSalle Income & Growth Fund IV	2005	20,000,000	19,469,417	13,482,024	0	-5.51%	0.69
North Haven Real Estate Fund V International	2005	27,500,000	27,377,414	31,743,090	1,626,867	7.13%	1.22
Oaktree Real Estate Opportunities V	2012	25,000,000	25,000,000	32,375,000	7,152,425	13.44%	1.55
Partners Group RE Secondary 2013 (USD) A	2014	65,000,000	40,166,135	9,000,437	46,394,054	25.19%	1.37
Prologis Japan Fund	2005	25,290,819	25,290,819	33,126,118	0	4.81%	1.31
Prudential PRISA II	2004	120,000,441	120,000,441	35,585,153	135,501,318	8.28%	1.37
Prudential PRISA III	2003	40,000,000	40,000,000	39,661,898	35,974,094	19.38%	1.74
RREEF America REIT III	2004	20,000,000	20,539,309	23,555,134	107,068	3.01%	1.15
RREEF North American Infrastructure Fund	2007	50,000,000	50,000,000	55,238,754	0	12.09%	1.09
Square Mile Partners II	2007	20,000,000	19,831,232	5,311,330	153,993	-18.42%	0.28
Square Mile Partners III LP	2008	20,000,000	19,721,680	26,045,704	3,195,405	12.01%	1.48
Starwood Capital Hospitality Fund I-2	2006	30,000,000	30,000,000	24,678,932	5,431,191	0.05%	1.00
Starwood Debt Fund II, LP	2008	20,000,000	17,599,882	21,858,788	58,611	6.46%	1.25
Starwood Opportunity Fund VII - A	2006	25,000,000	25,000,000	12,453,786	7,678,914	-2.43%	0.81
Structured Real Estate III, LP (Guggenheim)	2008	20,000,000	20,000,000	16,320,664	0	-4.99%	0.82
Tri Continental Capital VII	2005	23,000,000	22,343,057	1,586,367	1,632,570	-18.62%	0.14
Tuckerman Multi-Family Development Fund III	2002	10,000,000	10,219,311	16,939,699	0	26.67%	1.66
Walton Street Real Estate Fund IV, LP	2003	10,000,000	9,770,890	15,750,925	332,306	10.81%	1.65
Walton Street Real Estate Fund V, LP	2006	40,000,000	40,000,000	20,891,961	11,348,064	-2.51%	0.81

Note: all metrics are calculated since inception

* Denotes cash adjusted

San Bernardino County Employees' Retirement Association
Real Assets Performance Ended June 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	IRR	TVPI Ratio
Fortress Transportation Infrastructure LLC	2015	45,403,354	45,403,354	6,169,516	42,572,329	1.07	4.74%
Hancock Timberland VII	2005	90,000,000	90,000,000	13,590,900	92,256,061	1.18	1.57%
Hancock Timberland VIII	2006	40,000,000	40,000,000	4,341,950	34,059,608	0.96	-0.47%
Highstar Capital III, L.P.	2007	60,000,000	59,119,119	36,686,038	30,738,706	1.14	1.86%
Timbervest Crossover Partners II, L.P.	2008	30,000,000	30,000,000	11,910,000	17,569,681	0.98	-0.34%
Timbervest Partners II, L.P.	2007	50,000,000	50,000,000	12,500,000	40,823,676	1.07	0.77%

Note: all metrics are calculated since inception

** Denotes cash adjusted*

San Bernardino County Employees' Retirement Association

Private Equity Performance Ended June 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	IRR	TVPI Ratio
Apollo European Principal Finance Fund (Feeder), LP	2009	53,927,513	46,373,293	68,533,114	930,374	11.87%	1.50
Apollo Investment Fund VII, L.P.	2008	10,000,000	8,477,036	14,861,445	2,509,581	23.92%	2.05
Apollo PCPL Webb V	2010	4,844,398	4,844,398	5,196,757	52,243	6.64%	1.08
Apollo PCPL Webb VIII	2010	4,734,303	4,734,303	12,146,258	2,403	46.47%	2.57
Ares European Loan Funding, S.L.P.	2016	17,113,950	0	0		N/A	0.00
ARES European Loan Opp Fund	2015	15,000,000	8,413,136	7,613,498	0	-6.02%	0.90
Ares Special Situations Fund IV, LP	2015	50,000,000	20,660,066	72,407	14,449,685	-19.64%	0.70
Aurora Equity Partners III, L.P.	2005	25,000,000	23,544,536	41,738,196	1,327,945	14.03%	1.71
Aurora Equity Partners IV, L.P.	2012	20,000,000	15,995,098	25,245,072	8,756,186	18.35%	1.84
Aurora Resurgence Fund, L.P.	2008	15,000,000	5,653,009	10,350,965	0	17.60%	1.82
Baring Asia Private Equity Fund IV, L.P.	2015	2,931,918	2,922,361	604,550	2,804,855	7.59%	1.17
BNY Mellon - Alcentra Mezzanine III	2012	25,000,000	23,254,658	26,736,979	0	12.73%	1.15
Catalyst Fund II, L.P.	2007	10,000,000	9,934,668	4,256,332	17,806,438	12.08%	2.21
Catalyst Fund LP IV, L.P.	2015	8,000,000	3,530,598	0	3,941,698	8.06%	1.12
Charlesbank Equity Fund VIII	2015	7,500,000	5,654,289	422,938	5,768,782	8.01%	1.10
DRI II, L.P.	2009	20,000,000	19,917,669	26,302,807	0	19.64%	1.33
European Strategic Partners 2004	2004	241,056,209	220,597,962	246,786,995	28,261,023	3.81%	1.25
European Strategic Partners 2008	2010	31,359,696	26,816,196	13,474,160	21,938,588	7.95%	1.31
Industry Ventures Direct, LP	2016	25,000,000	5,132,754	0	4,877,333	-6.70%	0.95
Industry Ventures Fund V	2008	10,000,000	9,500,000	21,111,856	7,835,483	31.88%	3.05
Industry Ventures Fund VI	2011	20,000,000	18,400,000	11,876,040	12,874,899	10.46%	1.35
Industry Ventures Partnership Holdings Fund II, L.P.	2012	25,000,000	23,500,000	5,231,047	42,670,490	24.39%	2.04
Industry Ventures Partnership Holdings Fund III, L.P.	2013	25,000,000	19,500,000	2,412,108	22,257,304	13.12%	1.27
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	12,500,000	10,437,500	3,352,672	9,036,745	9.67%	1.19
Industry Ventures Partnership Holdings IV, LP	2016	25,000,000	5,625,000	0	5,920,342	11.83%	1.05
Industry Ventures Secondary VII, L.P.	2013	25,000,000	21,125,000	2,854,366	22,614,812	10.94%	1.21
Industry Ventures Secondary VIII	2017	25,000,000	300,000	0	369,966	23.32%	1.23
Insight Venture Partners III Co-Invest	2014	4,000,000	3,844,000	134,902	5,015,086	12.09%	1.34

Note: all metrics are calculated since inception

* Denotes Cash adjusted value

San Bernardino County Employees' Retirement Association

Private Equity Performance Ended June 30, 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	28,759,565	5,651,451	6.87%	1.40
Lexington Capital Partners VII (Offshore)	2011	25,000,000	19,788,432	20,660,798	10,032,150	16.06%	1.54
Lexington Middle Market I	2005	25,000,000	24,771,942	33,502,466	6,007,448	11.54%	1.59
Lexington Middle Market II - Offshore	2008	10,000,000	9,773,736	9,704,652	5,280,102	13.92%	1.53
Madison Dearborn VII	2016	10,000,000	2,451,010	0	2,463,093	0.73%	1.00
NB Secondary Opportunities I, LP	2005	20,000,000	18,500,843	21,646,835	2,732,786	6.58%	1.32
NB Secondary Opportunities II, LP	2008	20,000,000	16,962,076	21,779,238	5,165,906	15.35%	1.56
Partners Group Access 632, L.P.	2014	2,782,028	2,782,028	0	4,651,895	16.64%	1.66
Partners Group Access 648, L.P.	2014	4,352,802	4,843,537	19,449	3,602,199	-11.92%	0.75
Partners Group Access 680 L.P.	2015	7,277,230	7,206,011	0	9,114,974	16.24%	1.26
Partners Group CA Infrastructure, LP Inc	2016	6,246,500	878,461	0	877,037	-0.66%	1.00
Partners Group Client Access 8 LP	2014	5,531,585	5,531,585	12,335,385	17,338,687	73.00%	5.36
Partners Group Direct Equity 2016 USD A	2016	20,000,000	6,371,776	0	6,242,873	-2.53%	0.98
Partners Group Direct Investment 2012, L.P.	2013	18,194,393	16,509,621	7,902,695	18,228,143	20.22%	1.58
Partners Group European Mandate, L.P.	2004	238,456,106	196,136,552	226,934,380	37,790,199	5.71%	1.35
Partners Group European Mezzanine 2005	2005	101,076,654	101,076,654	116,183,509	12,311,386	3.85%	1.27
Partners Group Princess Learning IC LTD	2014	8,504,037	5,814,832	1,550,144	6,175,845	19.11%	1.33
Partners Group Seabras Holdings, LLC	2015	4,800,000	3,325,156	0	3,344,756	0.43%	1.01
Partners Group Secondary 2006 LP	2006	54,494,591	51,077,528	50,128,084	10,588,407	3.63%	1.19
Partners Group Secondary 2008, L.P.	2009	26,671,812	23,690,725	29,221,626	5,734,105	9.14%	1.47
Partners Group Starfrost Limited	2014	6,299,335	3,736,806	1,880,411	3,391,558	10.72%	1.41
Pathway Private Equity Fund VII, L.P.	2004	904,500,000	792,584,993	827,151,652	453,015,745	9.83%	1.58
Siguler Guff DOF II	2006	30,000,000	30,000,000	41,625,856	883,327	8.70%	1.42
Siguler Guff DOF III	2008	10,000,000	9,700,000	12,617,643	2,651,422	10.72%	1.57
SL Capital SOF I LP	2014	25,000,000	17,008,103	4,330,753	17,594,571	13.31%	1.29
SL Capital SOF III LP	2017	25,000,000	0	0		N/A	0.00
TCP Direct Lending Fund VIII-L, LLC	2016	40,000,000	12,674,724	0	13,189,731	7.98%	1.04
TCW/Crescent Mezzanine IV, L.P.	2006	40,000,000	39,590,976	44,193,173	376,326	2.82%	1.13
TCW/Crescent Mezzanine V, L.P.	2008	20,000,000	19,949,723	23,938,696	2,628,868	9.62%	1.34
Tennenbaum Energy Opportunities Fund, LP	2016	20,000,000	7,437,801	997,099	7,856,582	20.70%	1.19
Tennenbaum Opportunities Fund V, L.P.	2007	10,000,000	10,000,000	10,591,029	3,885,141	5.84%	1.45
Tennenbaum Opportunities Fund VI, L.P.	2011	20,000,000	12,879,245	8,800,022	12,300,364	10.24%	1.64
Tennenbaum Special Situations Fund IX	2015	50,000,000	21,837,087	2,417,562	22,031,534	8.57%	1.12
Tennenbaum Waterman Fund, LP	2012	70,000,000	70,000,000	25,027,234	73,666,424	11.34%	1.41
The Resolute Fund II	2016	1,720,184	1,441,552	207,042	1,390,367	9.11%	1.11
The Resolute Fund III	2014	8,000,000	3,948,500	1,909,125	3,444,541	18.83%	1.36
Thoma Bravo XI	2014	8,000,000	7,955,146	0	10,289,385	13.81%	1.29
Thoma Bravo XII	2016	10,000,000	4,049,936	0	4,054,437	0.14%	1.00
Vista Foundation Fund III	2016	10,000,000	1,752,219	0	1,496,404	-33.31%	0.85

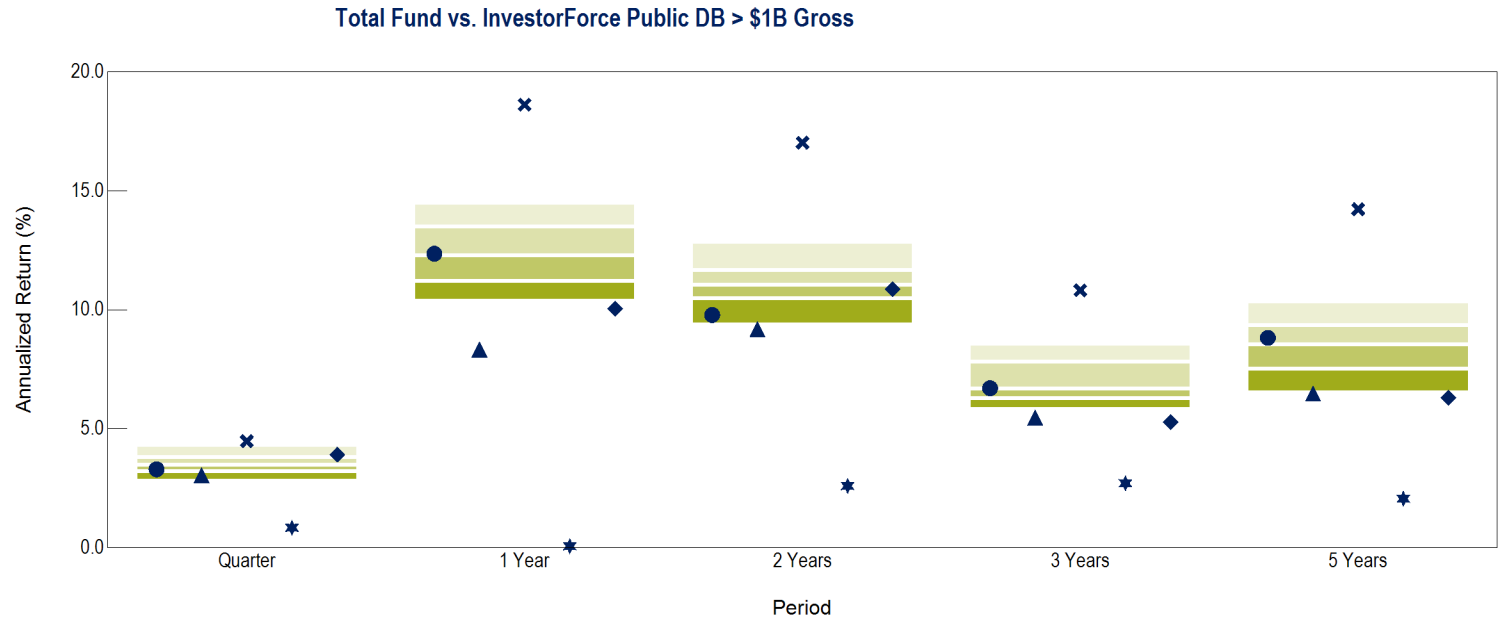
Note: all metrics are calculated since inception

* Denotes Cash adjusted value

Appendix: Market Environment



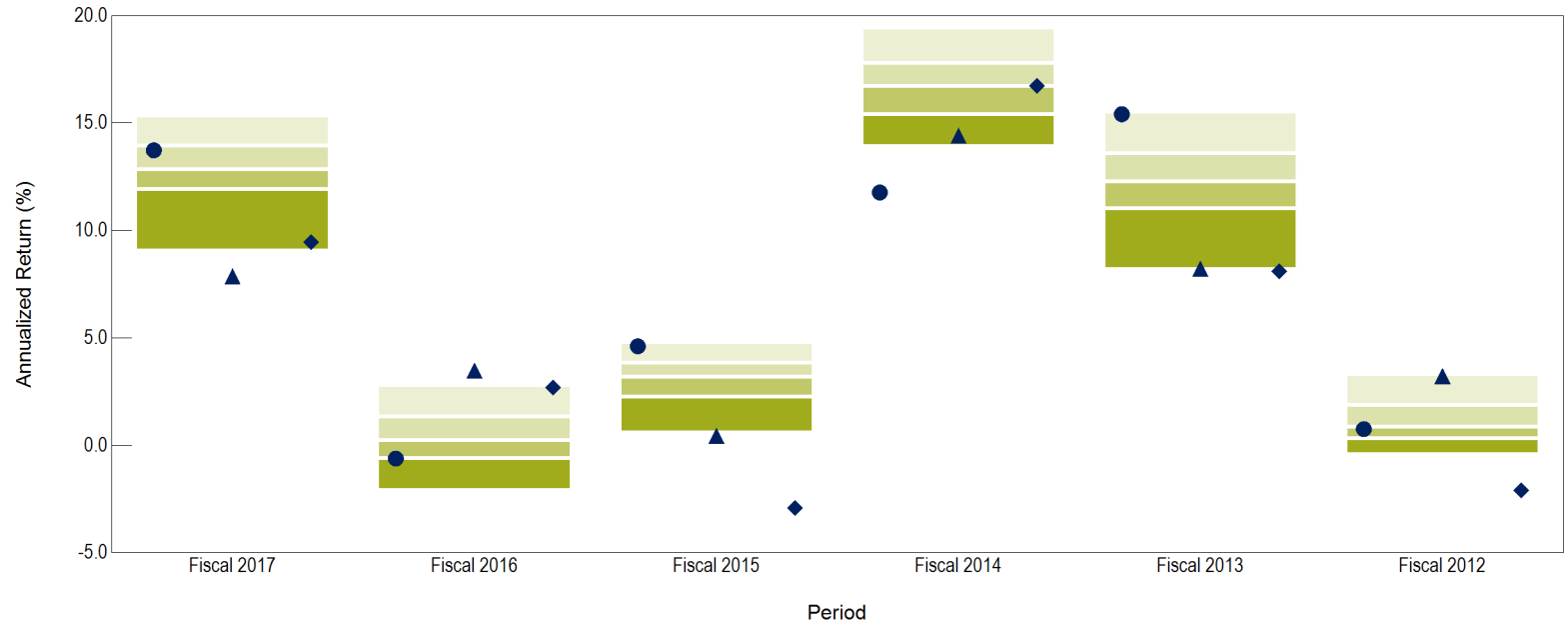
Total Fund Return Summary vs. Peer Universe



	Return (Rank)									
	Quarter	1 Year	2 Years	3 Years	5 Years	Quarter	1 Year	2 Years	3 Years	5 Years
5th Percentile	4.3	14.5	12.8	8.6	10.3					
25th Percentile	3.8	13.5	11.7	7.8	9.4					
Median	3.5	12.3	11.1	6.7	8.6					
75th Percentile	3.2	11.2	10.5	6.3	7.5					
95th Percentile	2.8	10.4	9.4	5.9	6.5					
# of Portfolios	28	28	28	28	28					
● Total Fund	3.3	(72)	12.3	(50)	9.8	(90)	6.7	(50)	8.8	(46)
▲ Policy Index	3.0	(82)	8.3	(99)	9.2	(99)	5.5	(98)	6.5	(98)
× S&P 500	4.5	(3)	18.6	(1)	17.0	(1)	10.8	(1)	14.2	(1)
* BBgBarc US Aggregate TR	0.8	(99)	0.1	(99)	2.6	(99)	2.7	(99)	2.1	(99)
◆ 60% MSCI ACWI (Gross)/40% CITI WGBI	3.9	(19)	10.0	(98)	10.9	(60)	5.3	(99)	6.3	(99)

Fiscal Year Ending 9/30 Total Fund Return Summary vs. Peer Universe

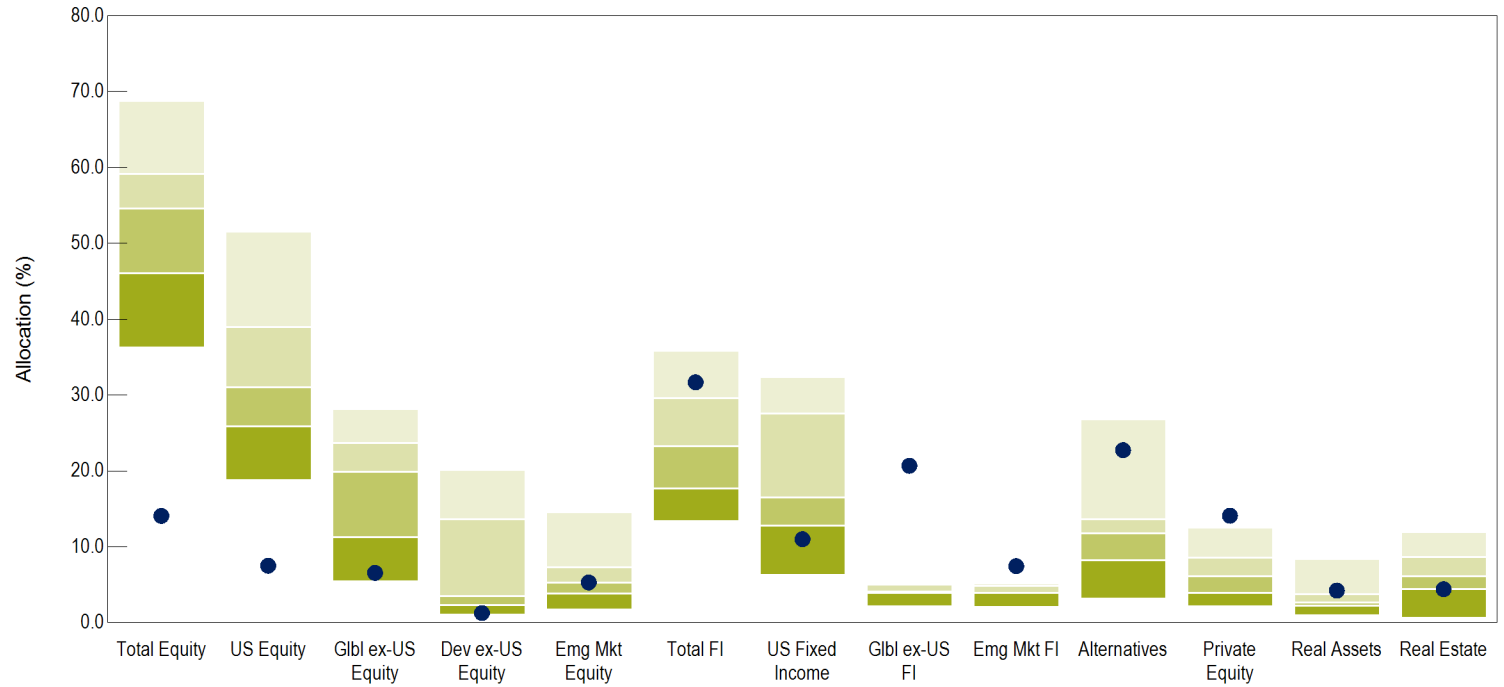
Total Fund vs. InvestorForce Public DB > \$1B Gross



	Return (Rank)					
	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
5th Percentile	15.3	2.8	4.8	19.4	15.5	3.3
25th Percentile	14.0	1.4	3.9	17.8	13.6	1.9
Median	12.9	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	9.1	-2.1	0.6	13.9	8.2	-0.4
# of Portfolios	108	91	92	65	78	70
● Total Fund	13.7 (29)	-0.6 (77)	4.6 (7)	11.8 (99)	15.4 (7)	0.8 (58)
▲ Policy Index	7.9 (97)	3.5 (3)	0.4 (96)	14.4 (87)	8.2 (96)	3.2 (6)
◆ 60% MSCI ACWI (Gross)/40% CITI WGBI	9.5 (94)	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	68.7	51.6	28.2	20.2	14.6	35.8	32.4	5.2	5.2	26.8	12.5	8.4	12.0	--
25th Percentile	59.2	39.1	23.7	13.7	7.4	29.7	27.6	5.1	4.9	13.7	8.7	3.8	8.7	--
Median	54.7	31.1	20.0	3.6	5.3	23.4	16.6	4.1	4.1	11.8	6.2	2.8	6.2	--
75th Percentile	46.1	26.0	11.4	2.4	3.9	17.8	12.8	4.0	4.0	8.3	4.0	2.4	4.5	--
95th Percentile	36.4	18.9	5.5	1.1	1.8	13.4	6.3	2.2	2.1	3.2	2.2	1.0	0.7	--
# of Portfolios	23	20	22	11	19	23	22	10	9	19	19	9	20	--
● Total Fund	14.1 (99)	7.5 (99)	6.6 (94)	1.3 (92)	5.3 (57)	31.7 (16)	11.0 (81)	20.7 (1)	7.4 (1)	22.7 (8)	14.1 (4)	4.2 (24)	4.4 (80)	--

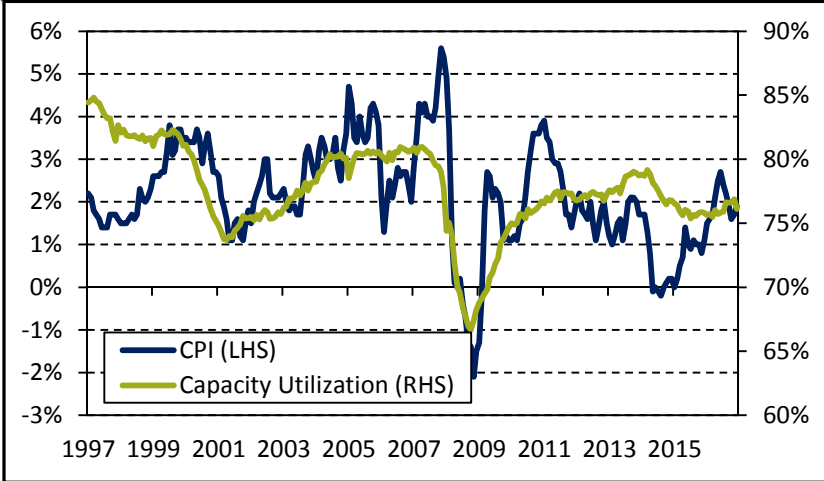
Long Term Broad Market Performance Summary as of 09/30/2017



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

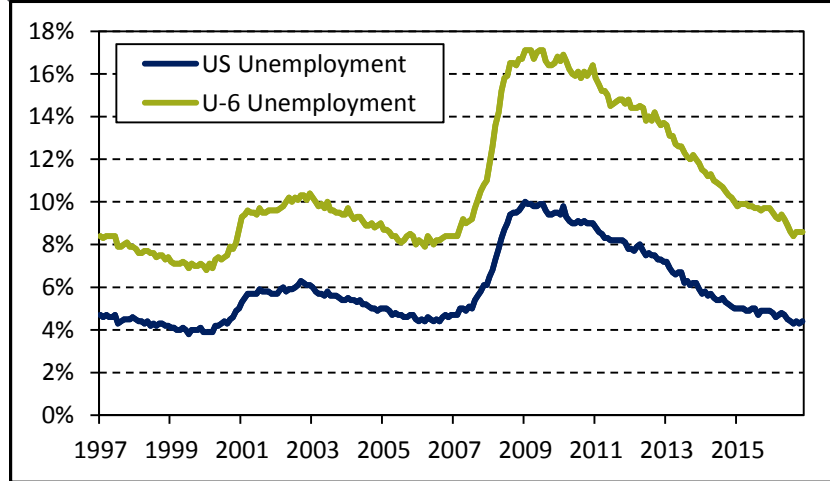
US Economic Indicators

Inflation has ticked modestly higher



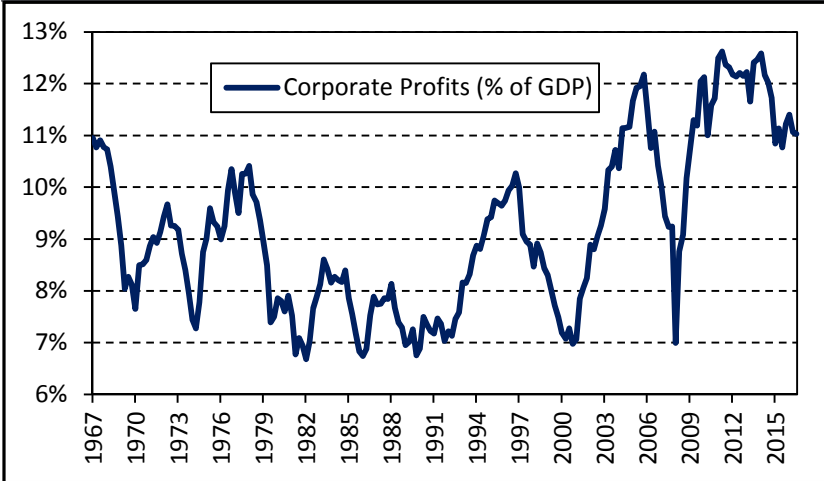
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics

Unemployment remains near historic lows



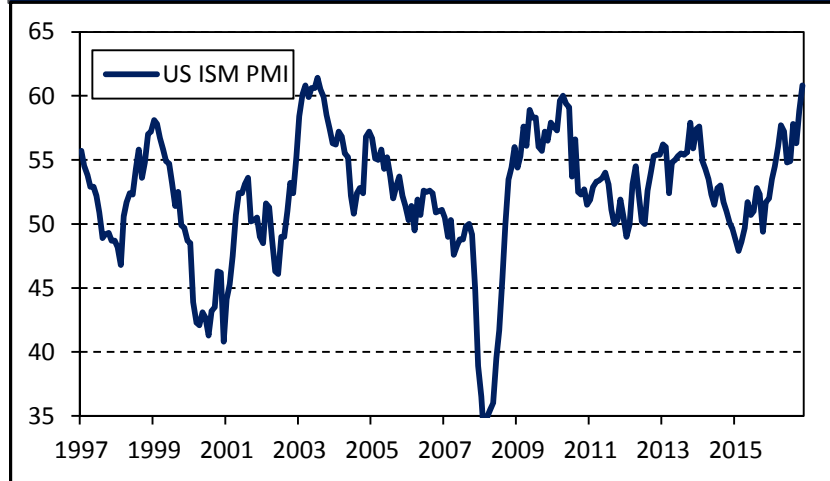
Source: Bloomberg, Bureau of Labor Statistics

With recent increases in GDP, corporate profits (%) have declined



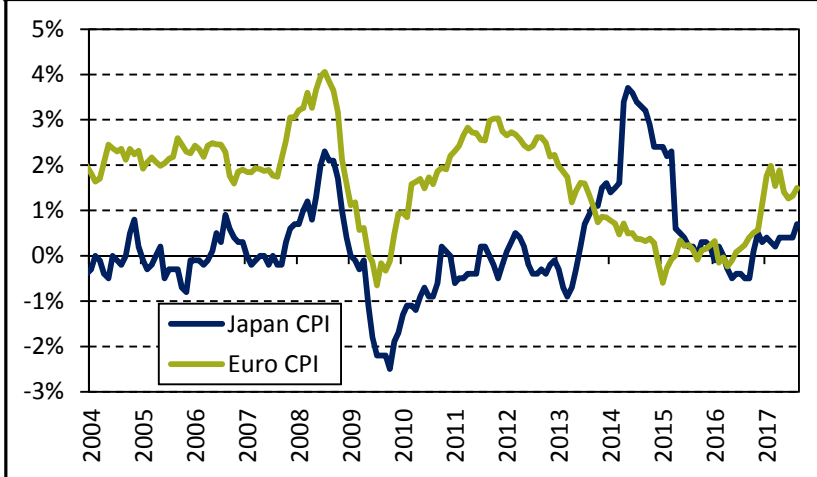
Source: Bloomberg, Bureau of Economic Analysis

Manufacturing shows continued strength



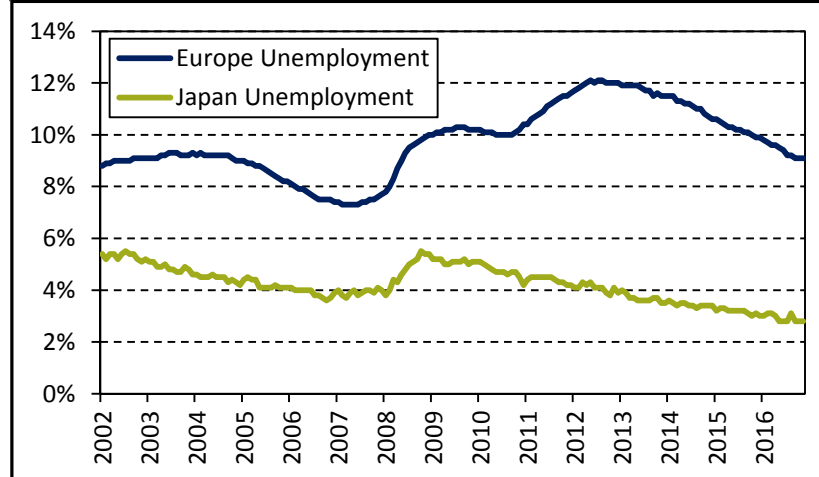
Source: Bloomberg, Institute for Supply Management

Eurozone and Japan inflation are on an upswing



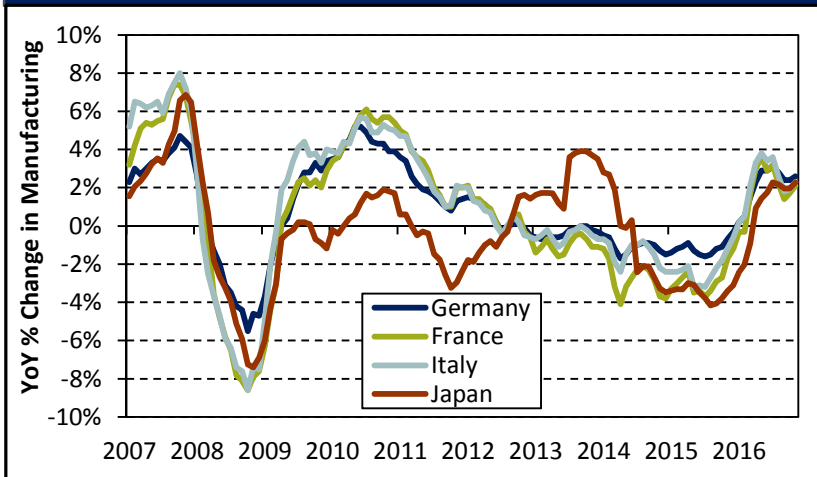
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Unemployment has steadied



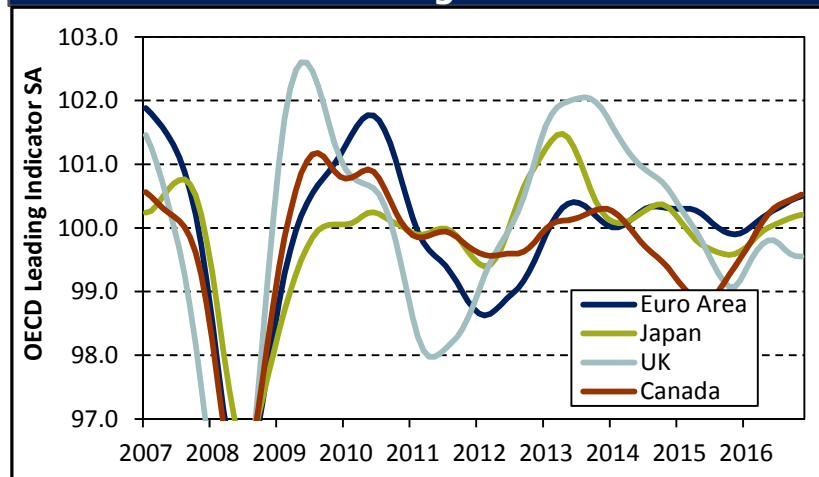
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Manufacturing shows continued strength



Source: Bloomberg, OECD, Eurostat

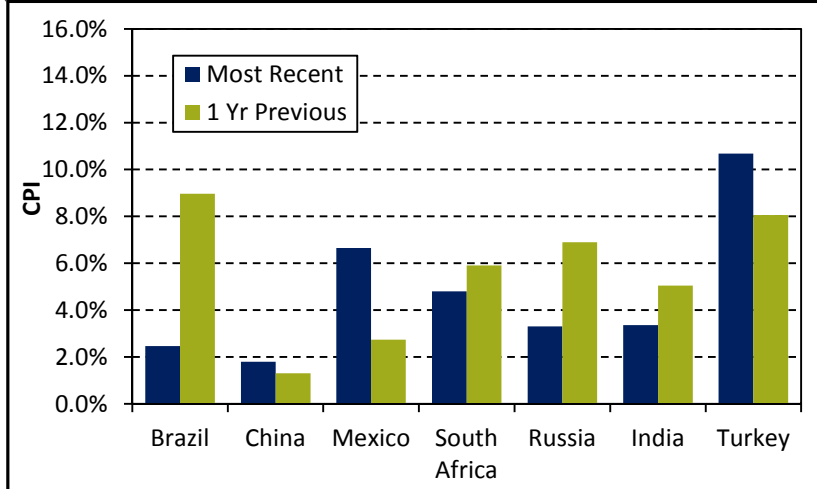
Ex-UK, leading indicators are trending higher



Source: Bloomberg, OECD

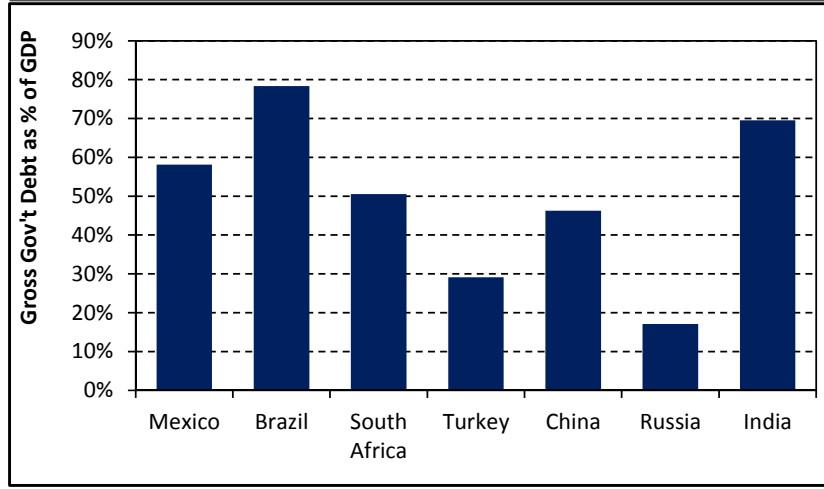
San Bernardino County Employees' Retirement Association
Emerging Market Economic Indicators

EM inflation varies by country



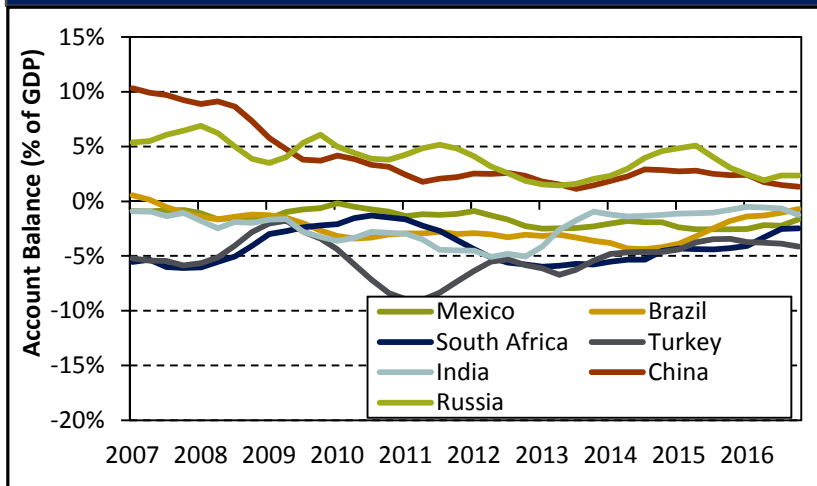
Source: Bloomberg

Relatively healthy debt/GDP ratios



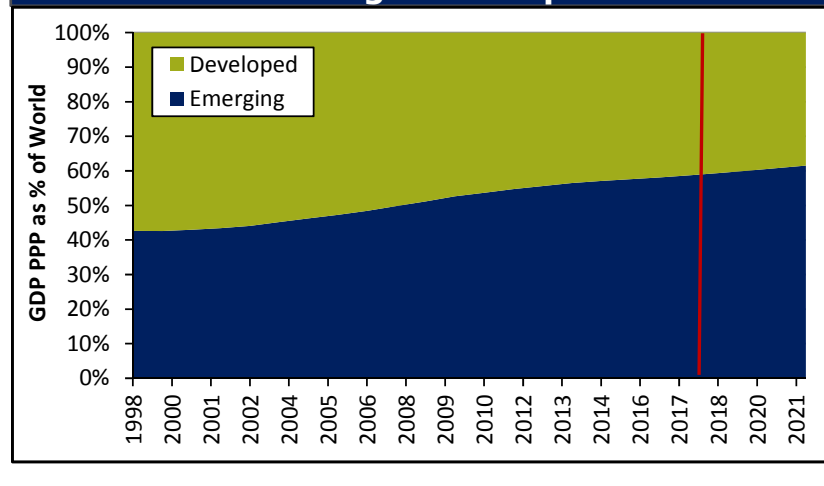
Source: Bloomberg, IMF

Account balances remain steady



Source: Bloomberg

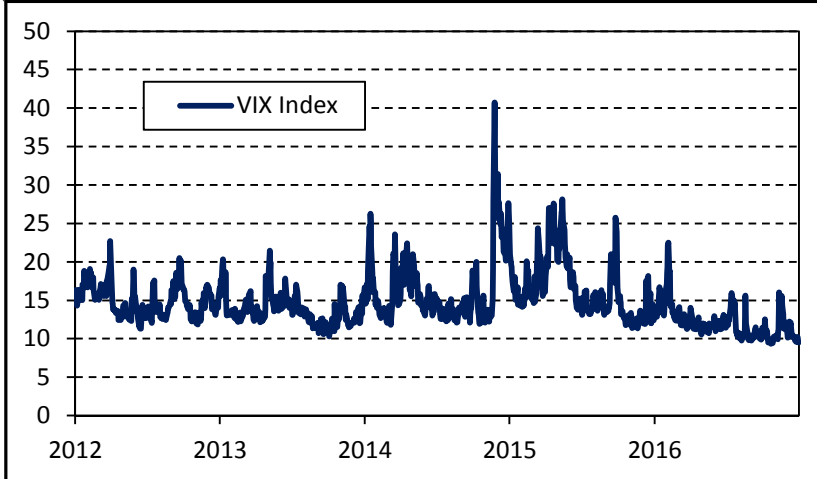
EM continues trending higher as a percent of global output



Source: Bloomberg, IMF

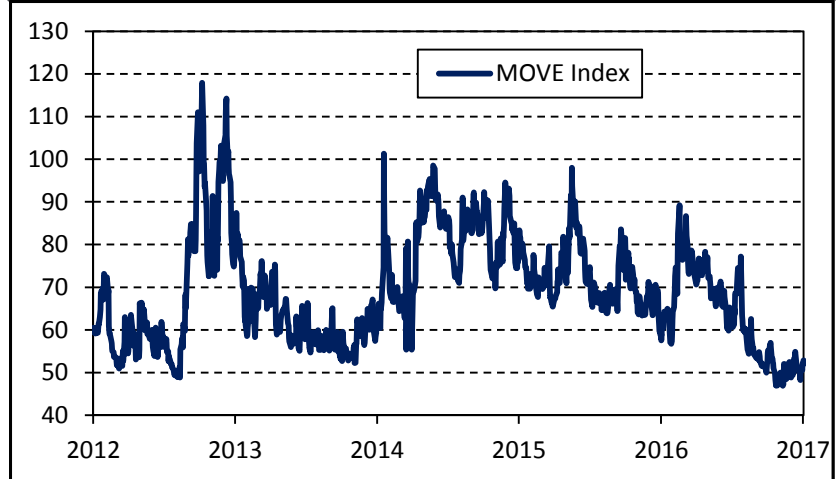
Volatility

Equity volatility remains near historic lows



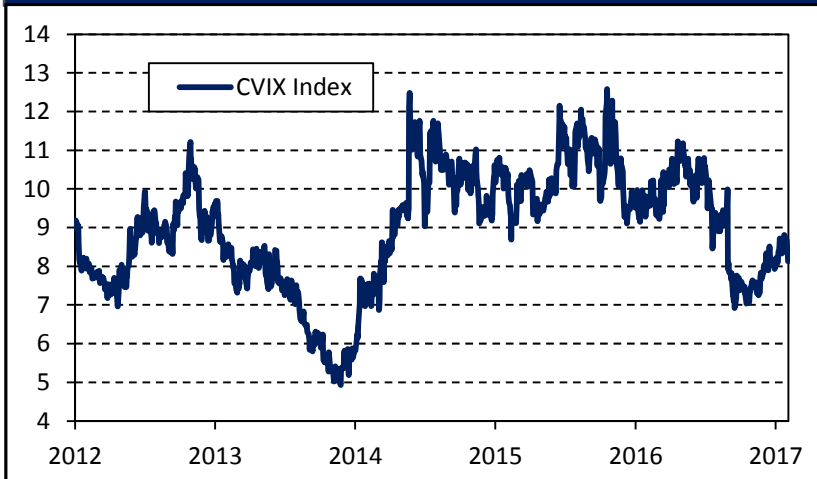
Source: Bloomberg, CBOE

Treasury volatility has increased slightly off recent lows



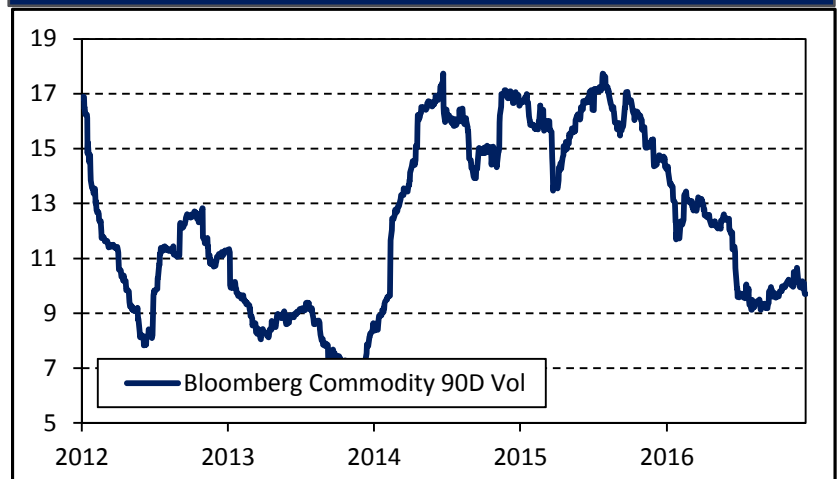
Source: Bloomberg, Merrill Lynch

Currency volatility has modestly declined



Source: Bloomberg, Deutsche Bank

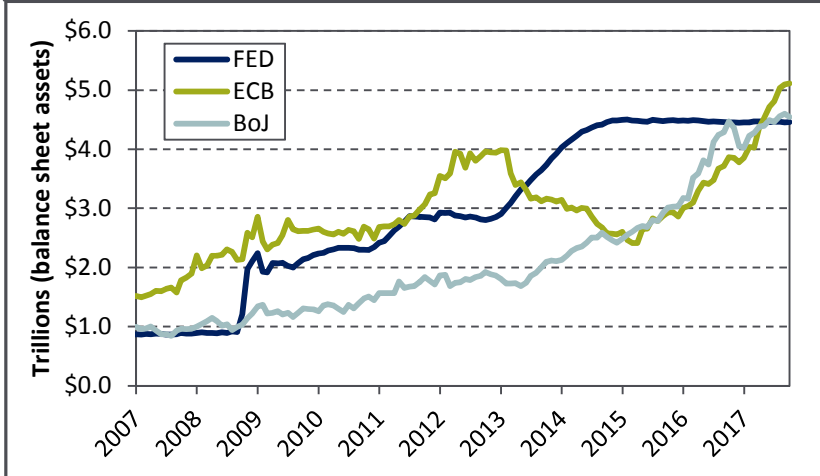
Commodity volatility is trending downward



Source: Bloomberg, Merrill Lynch

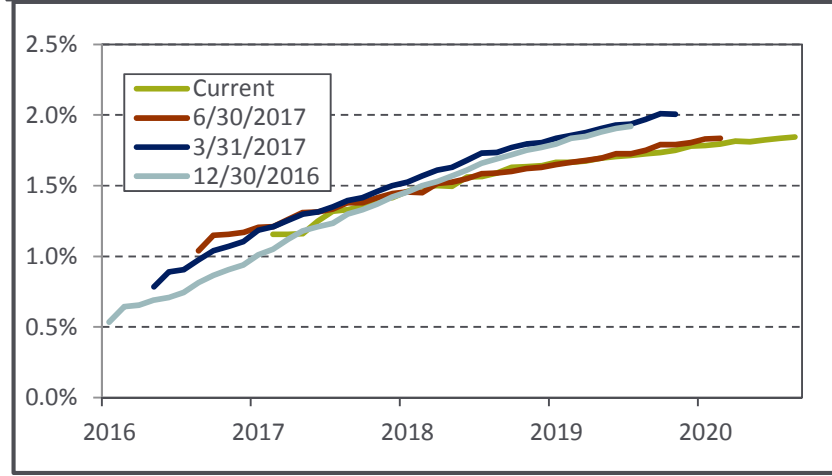
Central Banks

ECB and BOJ balance sheets continue to grow



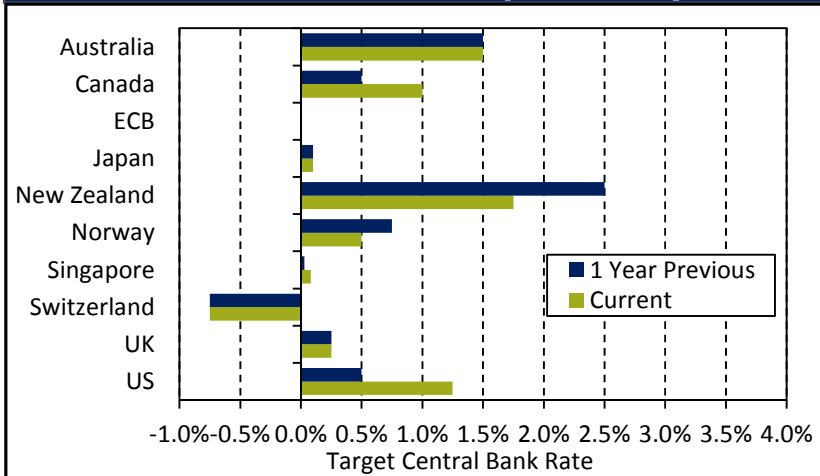
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

Short-term interest rates have increased, causing a relatively flatter yield curve



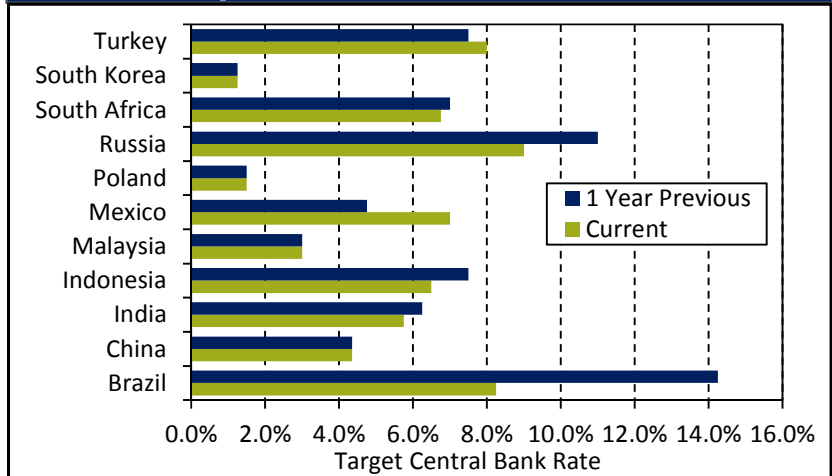
Source: Bloomberg, Federal Reserve

Ex-US and Canada, developed market rates are lower than the previous year



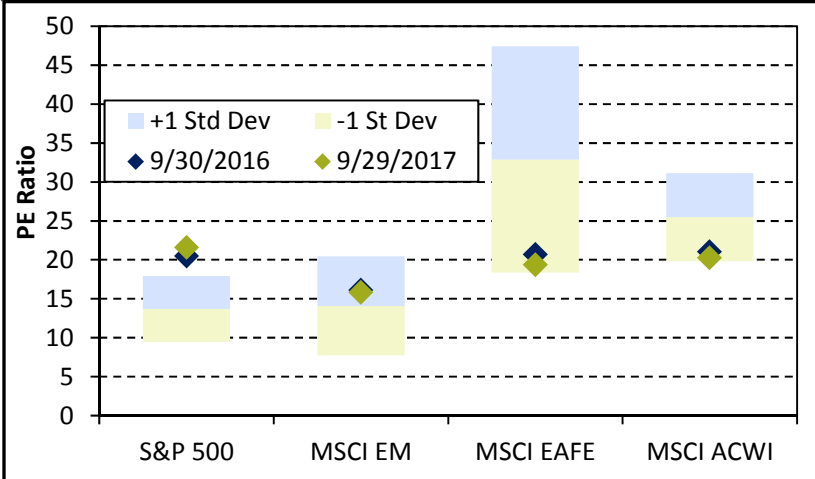
Source: Bloomberg

EM central bank policies vary by country-specific economic conditions



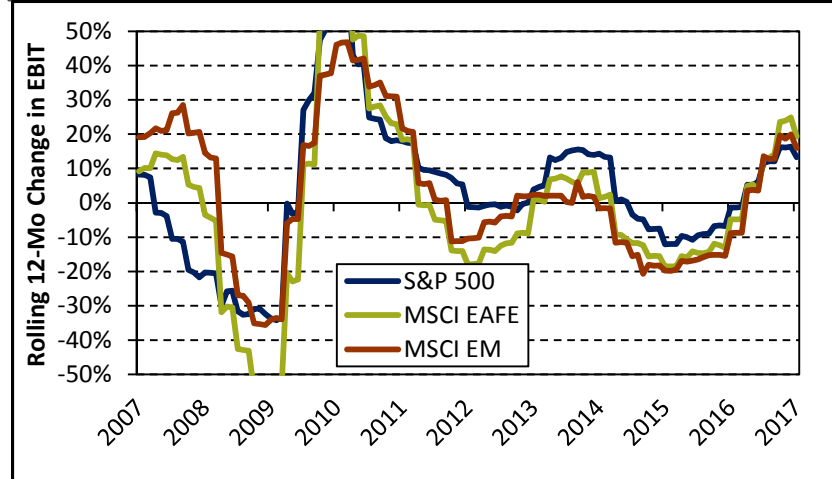
Source: Bloomberg

Ex-US valuations remain lower than the previous year



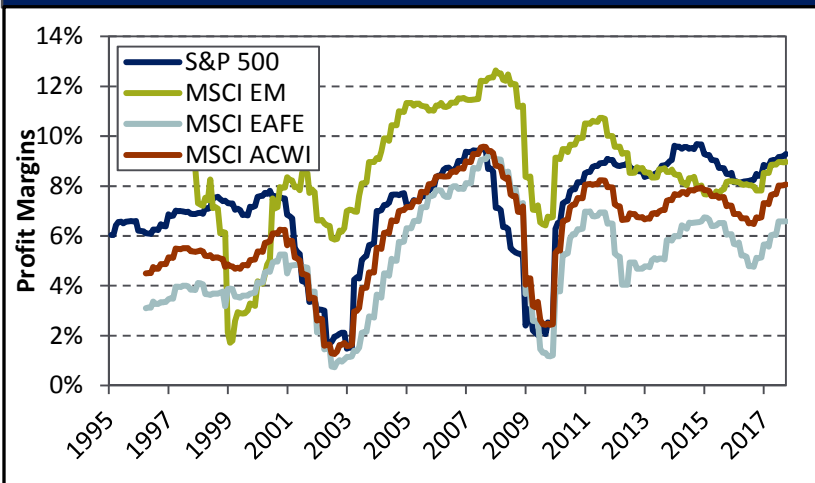
Source: Bloomberg, Standard and Poors, MSCI *MSCI EAFE is ex UK Telecom
 *Standard deviation calculations on 20 years of data except S&P 500 (30 years)

Rolling annual earnings growth remains elevated relative to recent lows



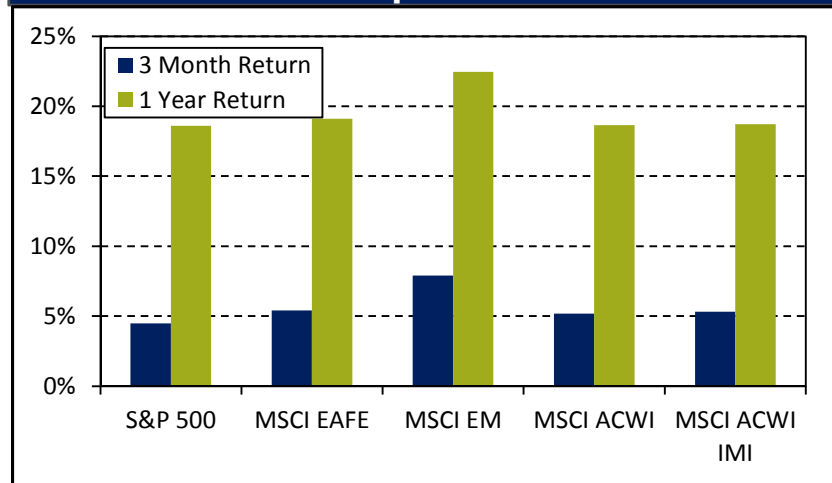
Source: Bloomberg, Standard and Poors, MSCI

Profit margins continue to improve



Source: Bloomberg, MSCI

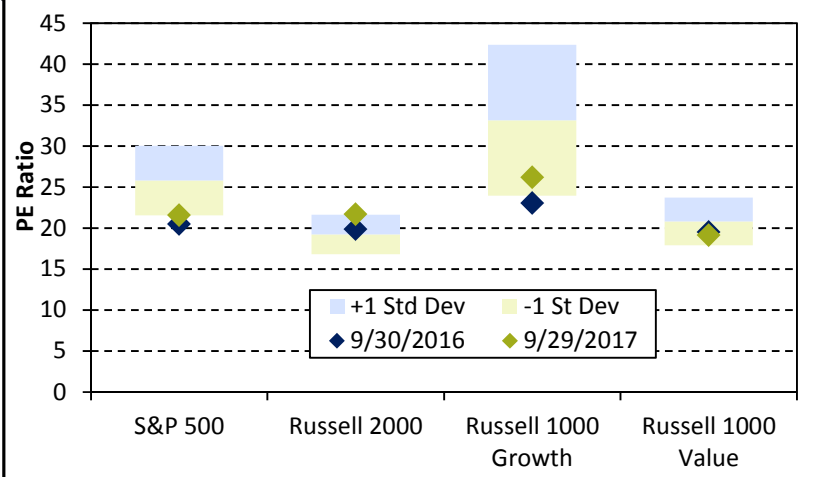
Equities have experienced strong short-term performance



Source: Bloomberg, MSCI

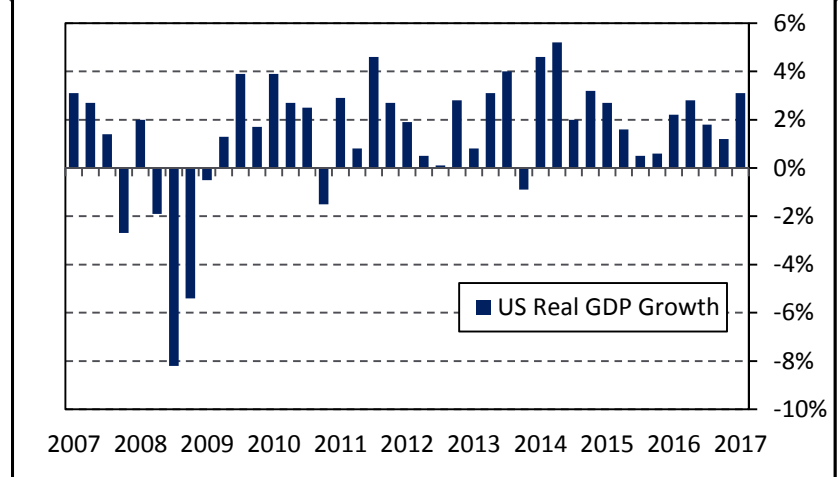
US Equity

Ex-Value, equity valuations remain elevated relative to last year



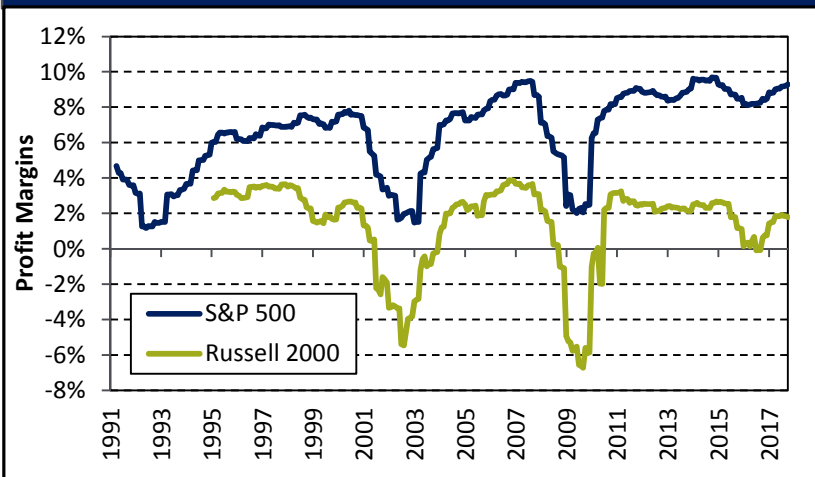
Source: Bloomberg, Standard and Poors, Russell *Russell 2000 PE is index adjusted positive* Standard deviation calculations based on 20 years of data

Real GDP growth strengthened in Q2



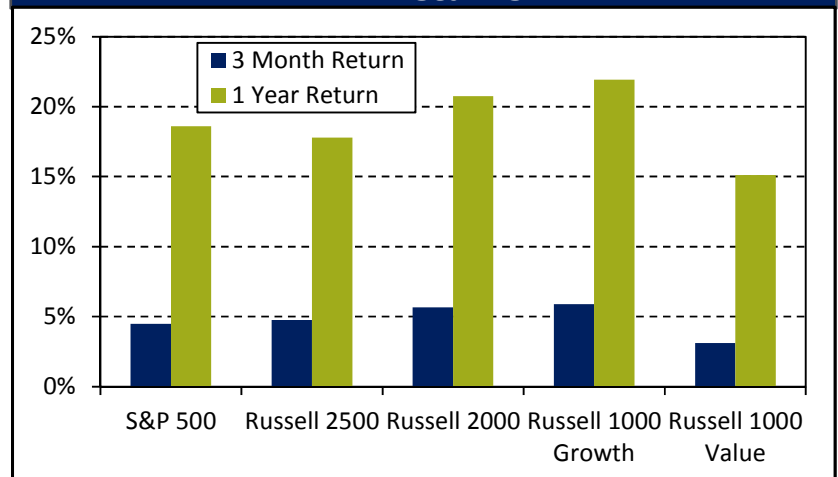
Source: Bloomberg, Bureau of Economic Analysis

S&P profit margins experience an uptick



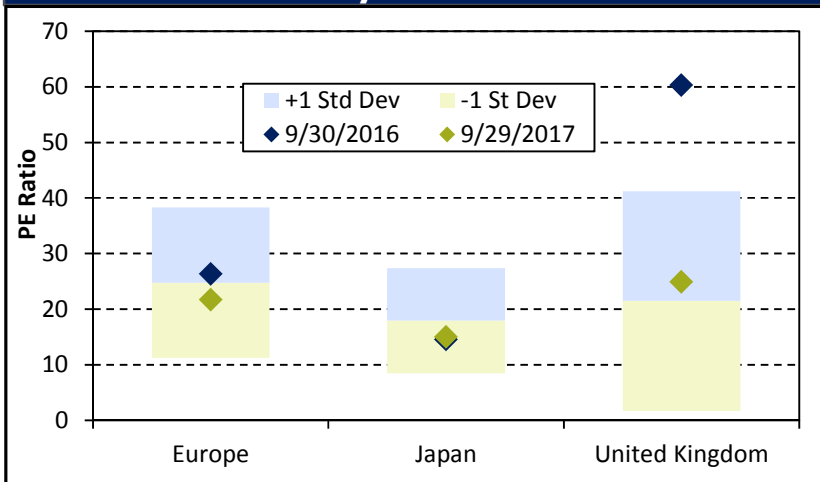
Source: Bloomberg, Standard and Poors, Russell

US equities continue to post positive returns



Source: Bloomberg, Standard and Poors, Russell

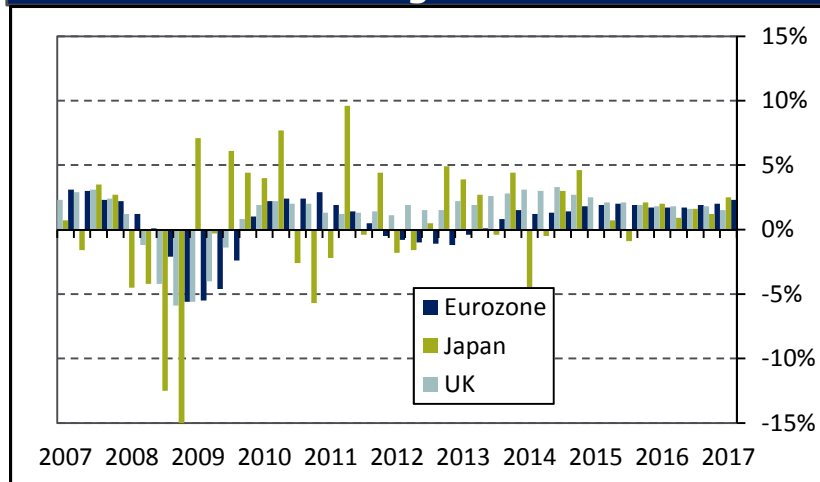
UK and Europe PEs remain below previous year levels



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

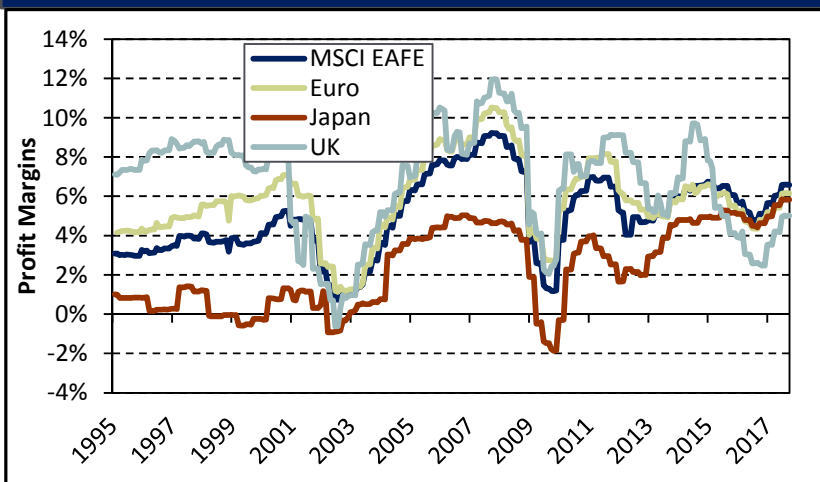
*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

Eurozone and Japan growth increased, while UK growth slowed



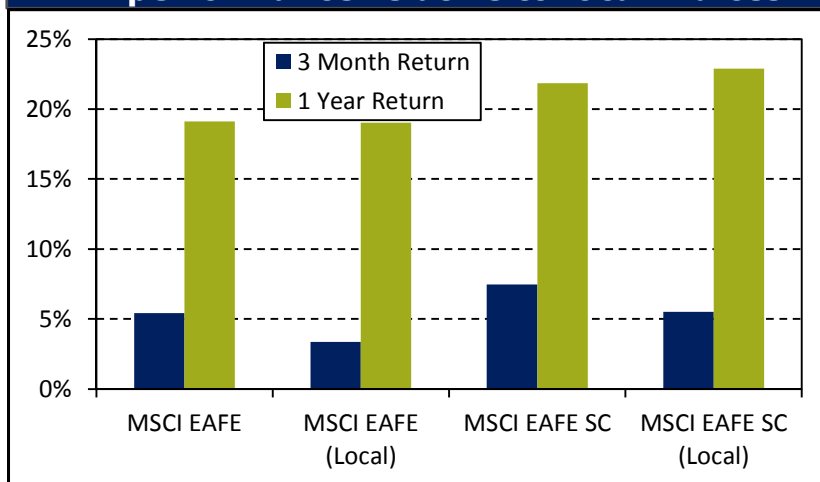
Source: Bloomberg

Profit margins continue trending higher



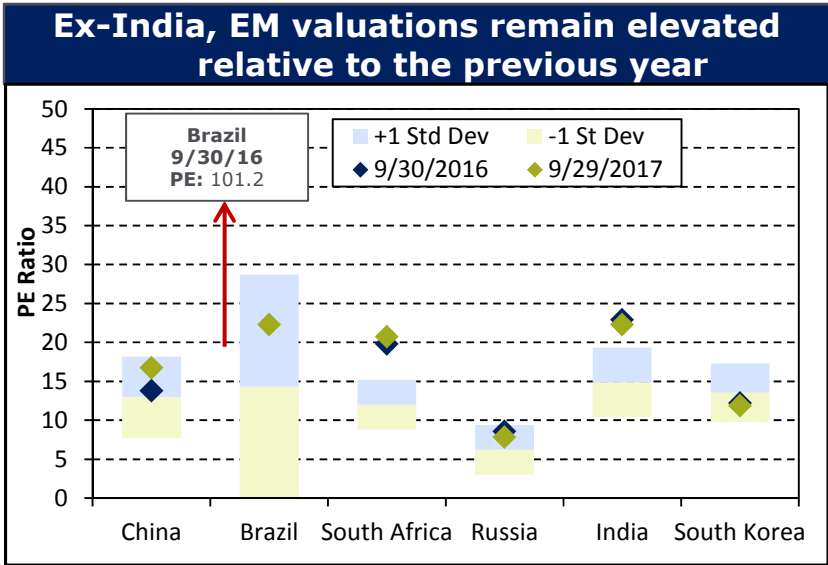
Source: Bloomberg, MSCI

Dollar weakness boosted short-term performance relative to local indices

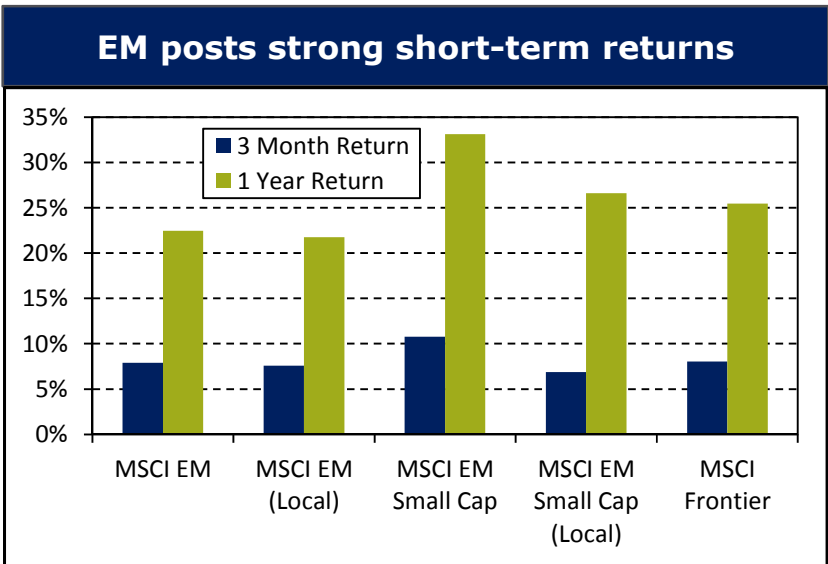
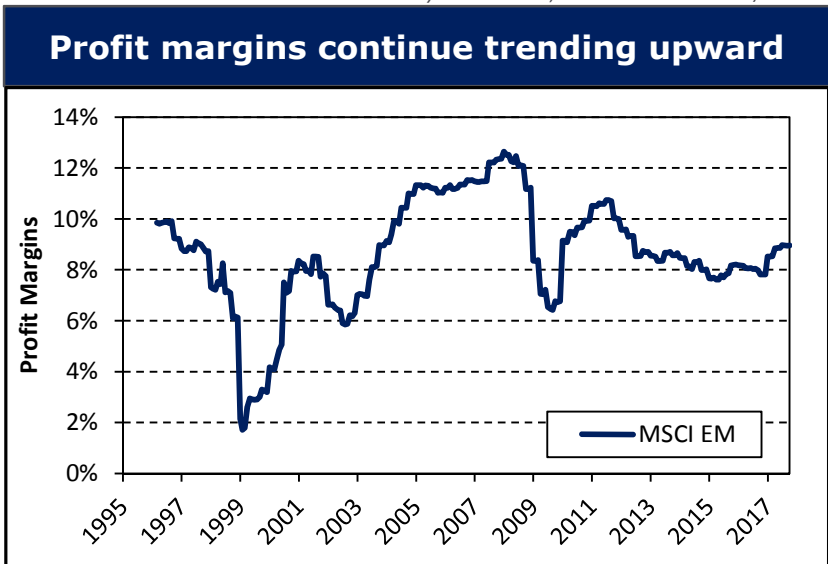
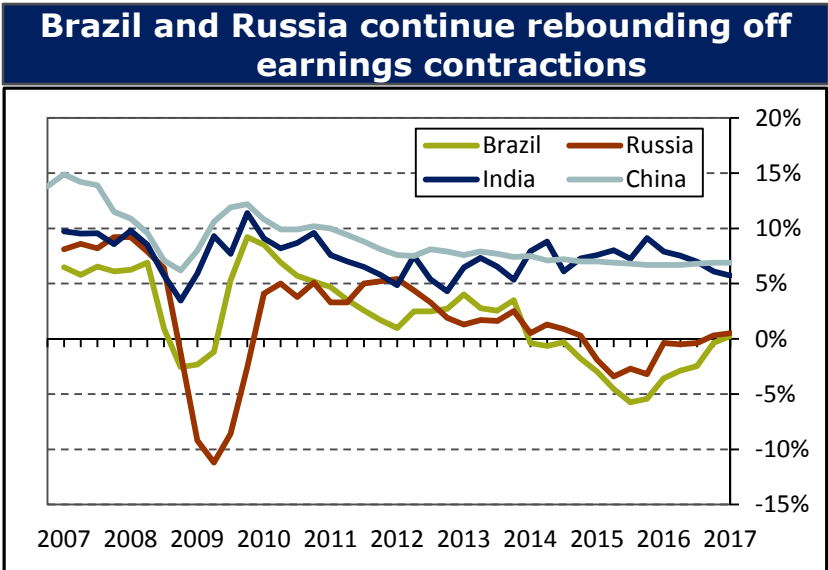


Source: Bloomberg, MSCI

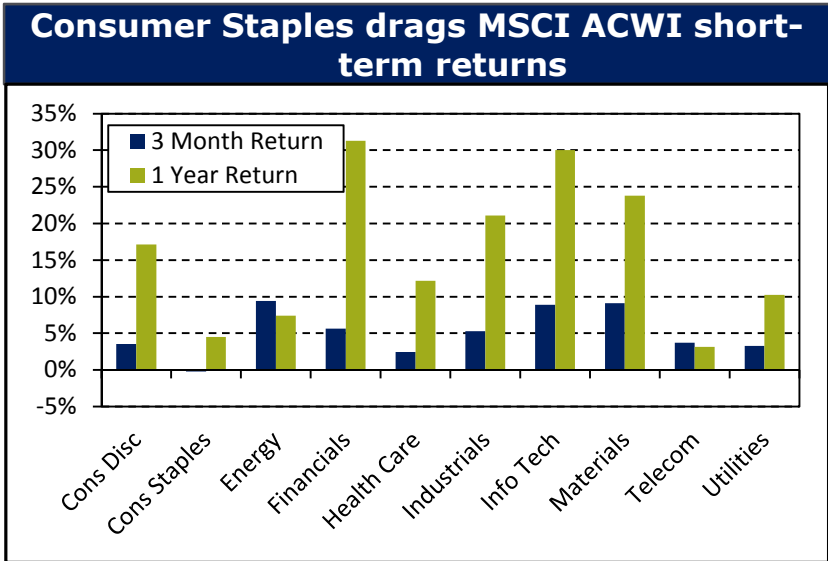
Emerging Markets Equity



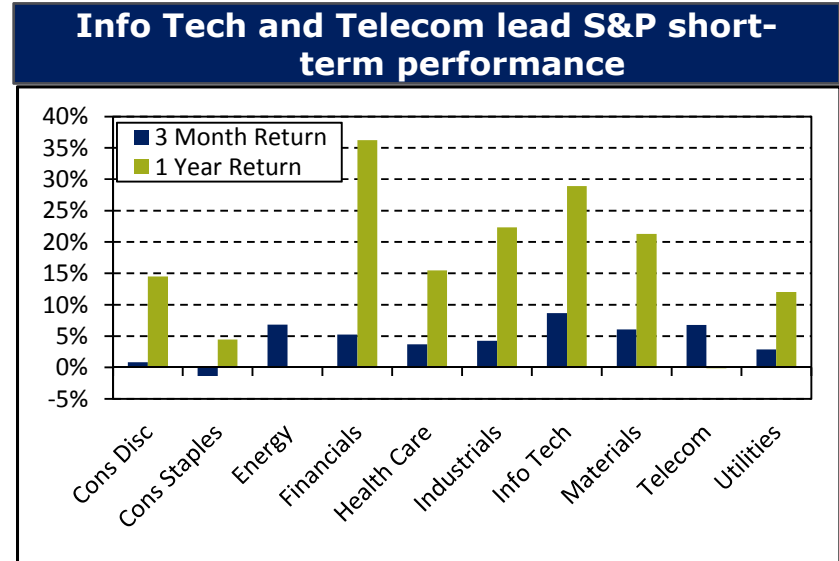
*Standard deviation calculations based on 20 years of data, with Russia since 01/1998



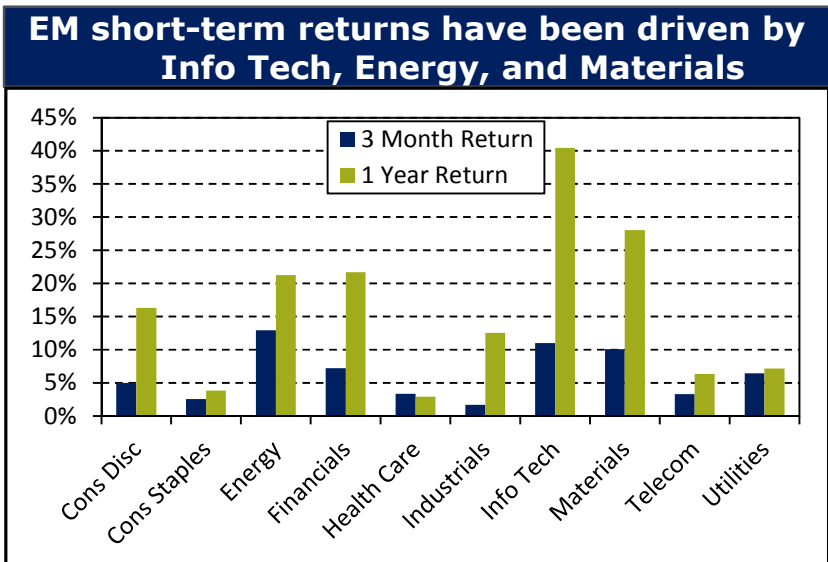
Global Equity by Sector



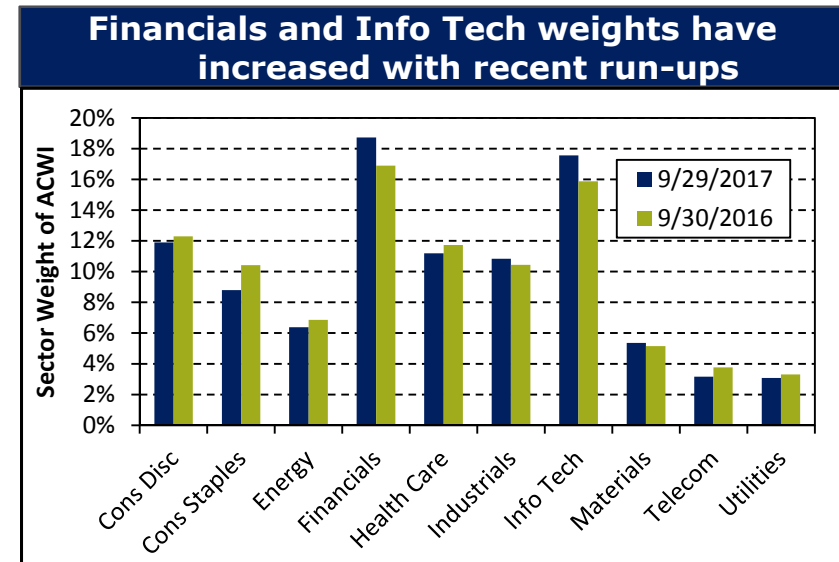
Source: Bloomberg, MSCI



Source: Bloomberg, Standard and Poors

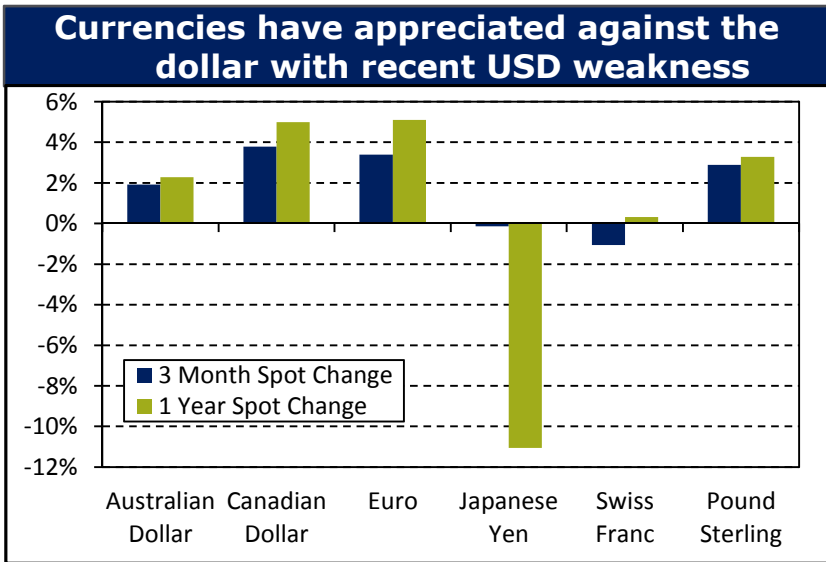


Source: Bloomberg, MSCI

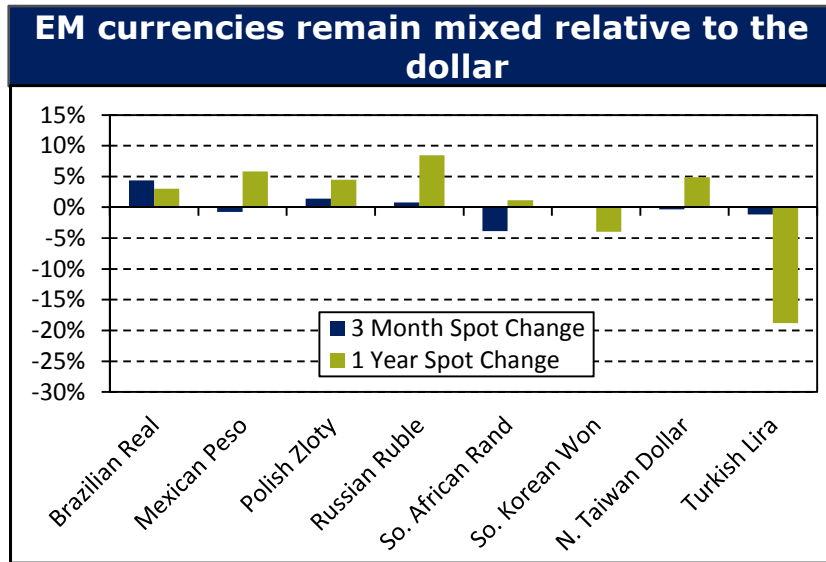


Source: Bloomberg, MSCI

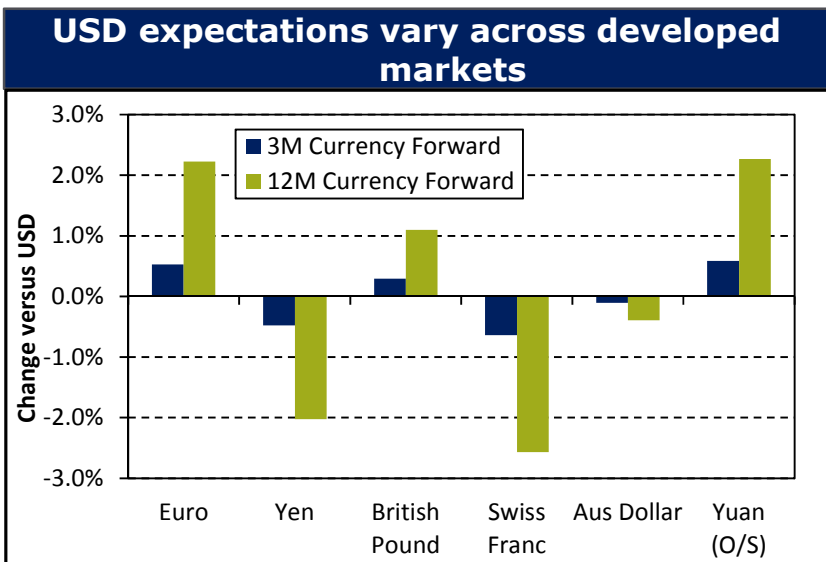
Currencies



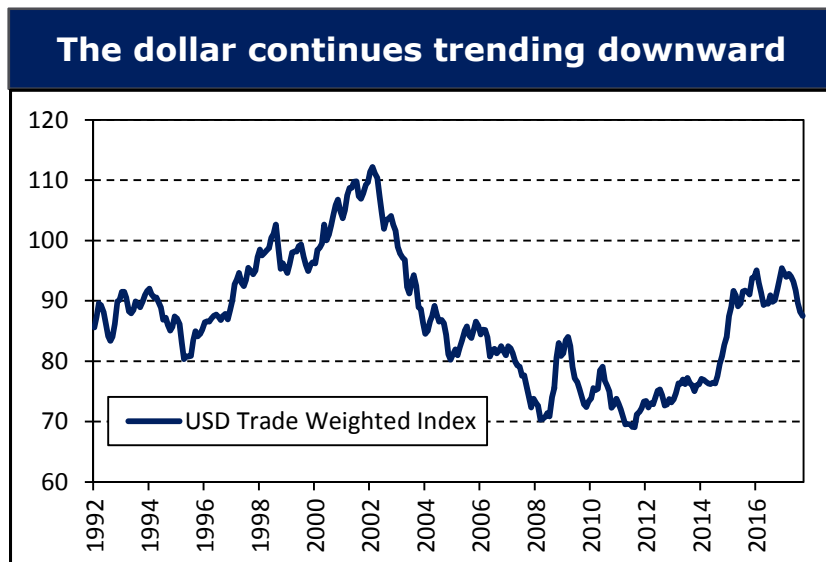
Source: Bloomberg



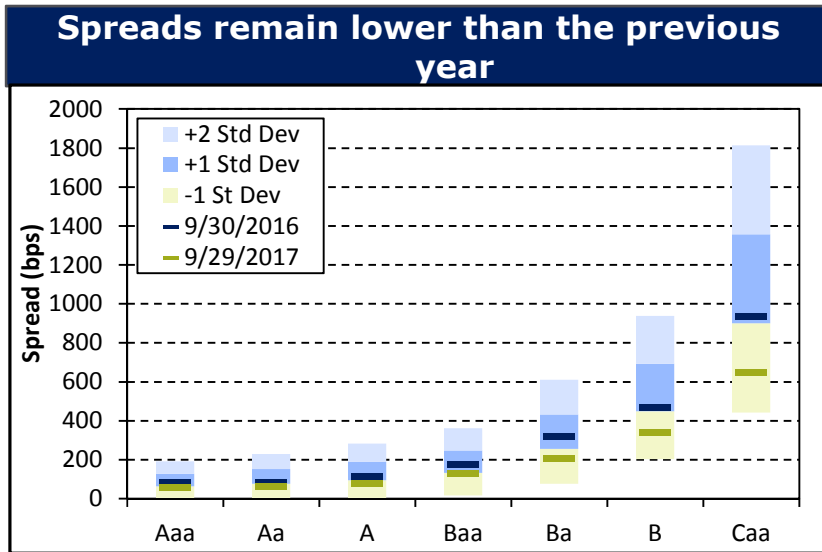
Source: Bloomberg



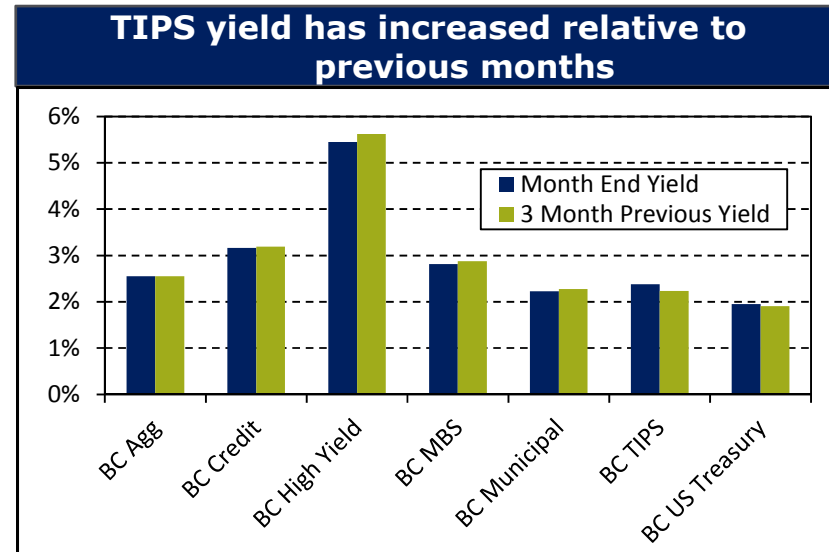
Source: Bloomberg



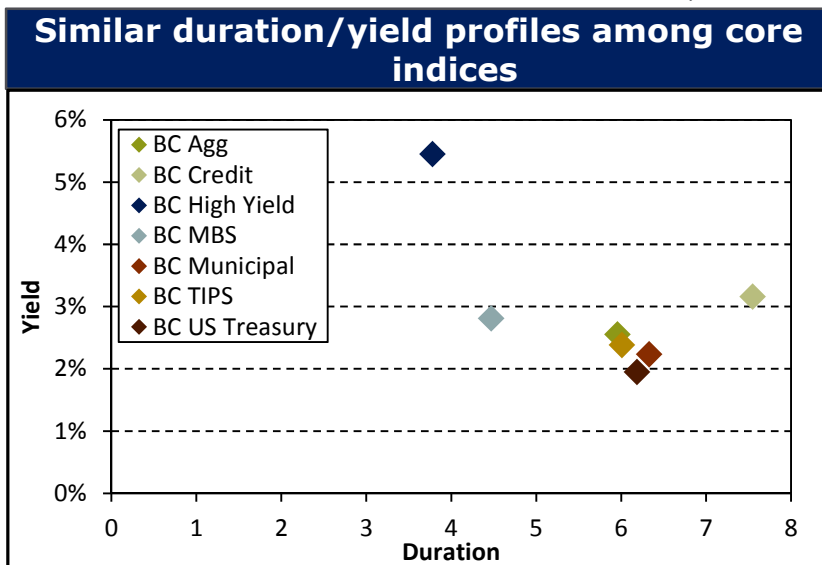
Source: Bloomberg, Federal Reserve



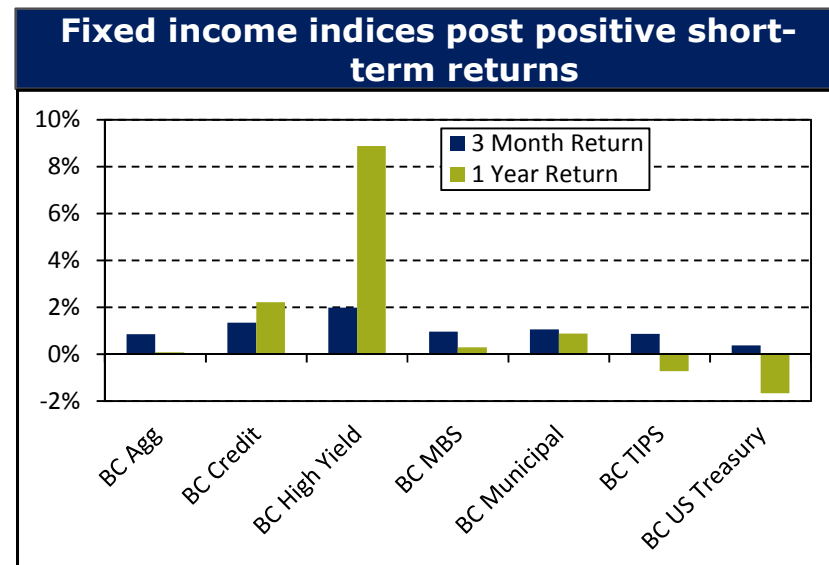
Source: Bloomberg, Barclays
*Standard deviation calculations based on 20 years of data



Source: Bloomberg, Barclays

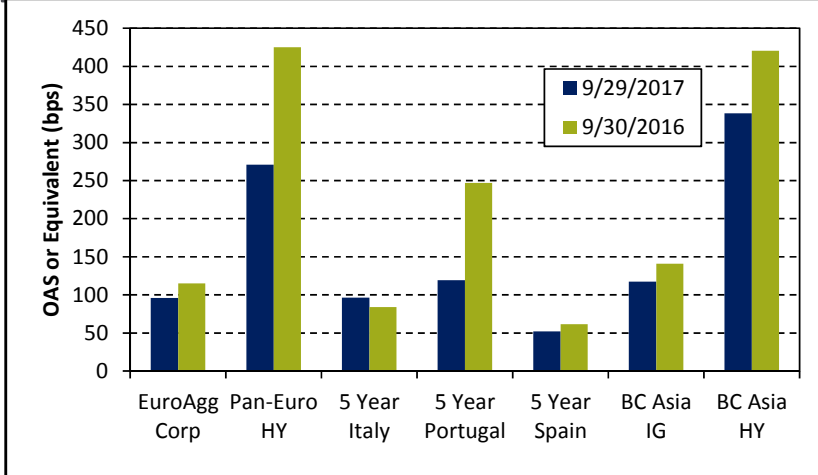


Source: Bloomberg, Barclays



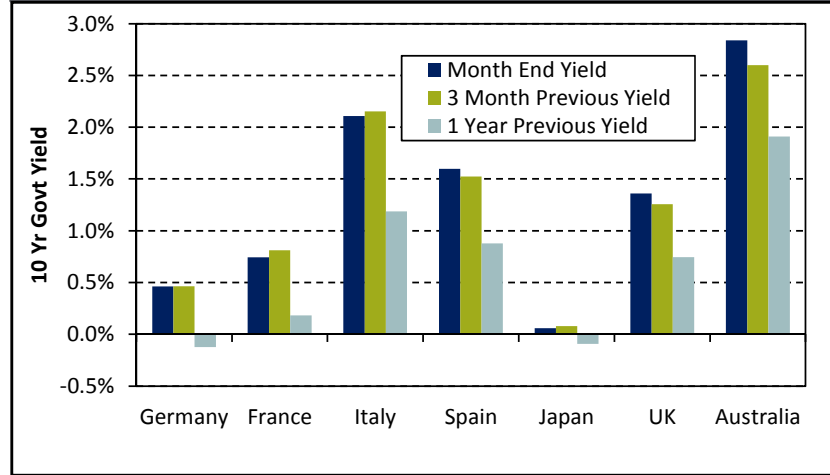
Source: Bloomberg, Barclays

Periphery yields have broadly declined over the year relative to Germany



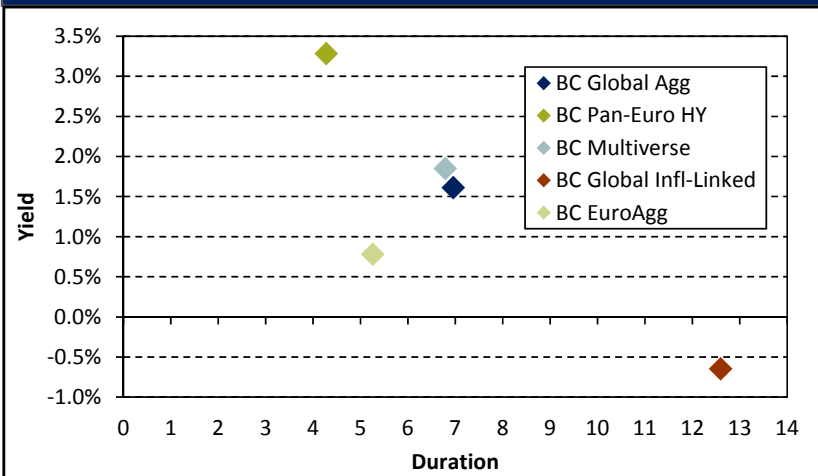
Source: Barclays, Bloomberg, *European periphery spreads are over equivalent German Bund

Yields are significantly higher relative to last year



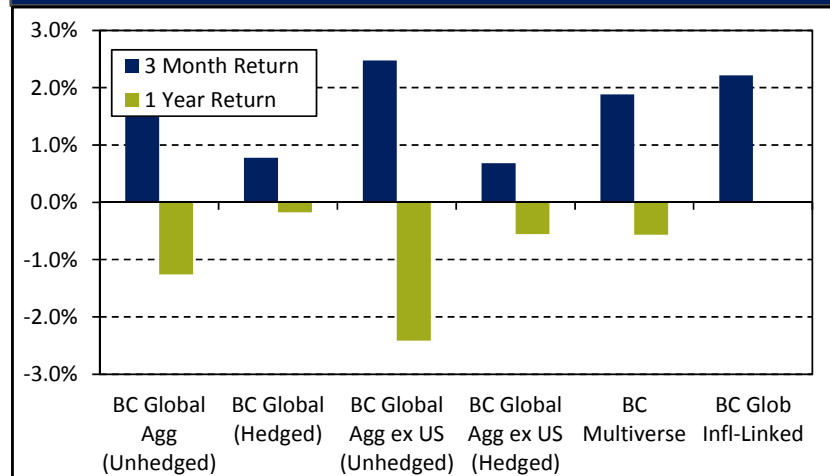
Source: Bloomberg

Low yields persist in global bond universe



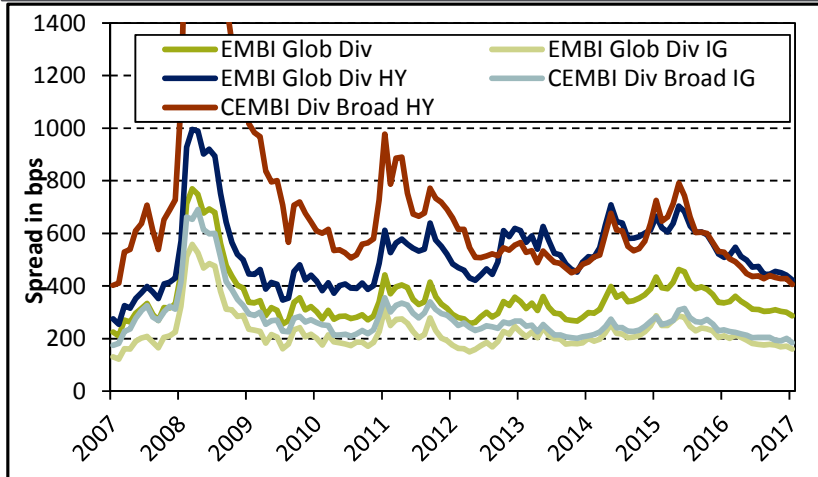
Source: Bloomberg, Citigroup, Barclays

Global bonds post strong short-term returns



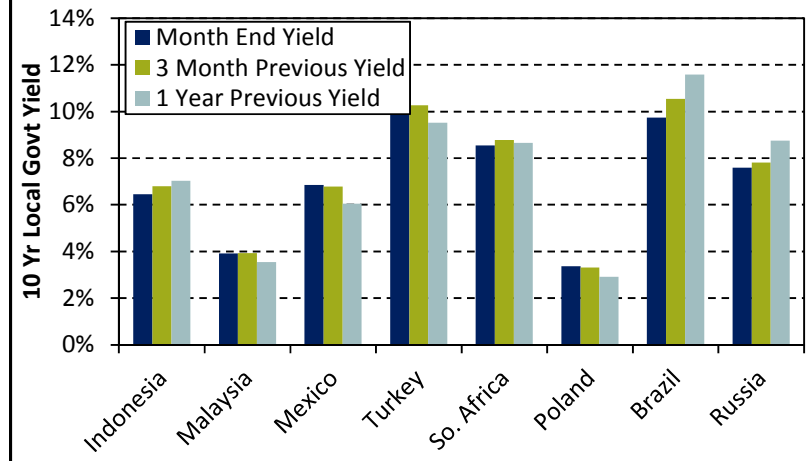
Source: Bloomberg, Citigroup, Barclays

EM spreads continue to compress



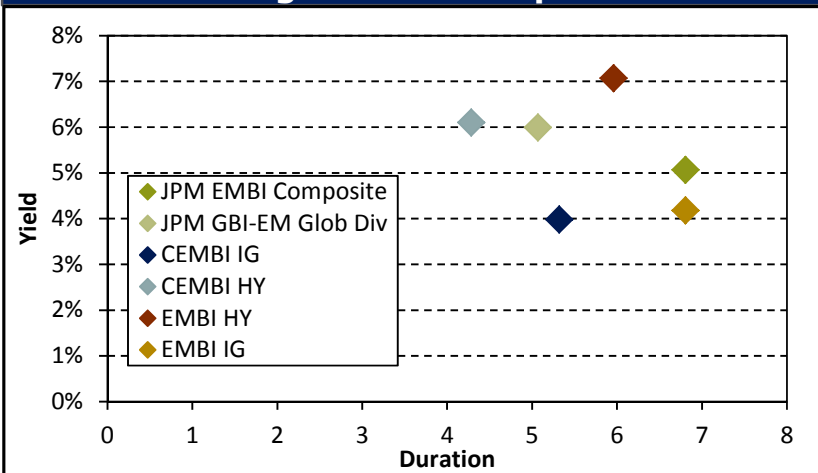
Source: Bloomberg, JP Morgan

Yields have broadly declined relative to previous months



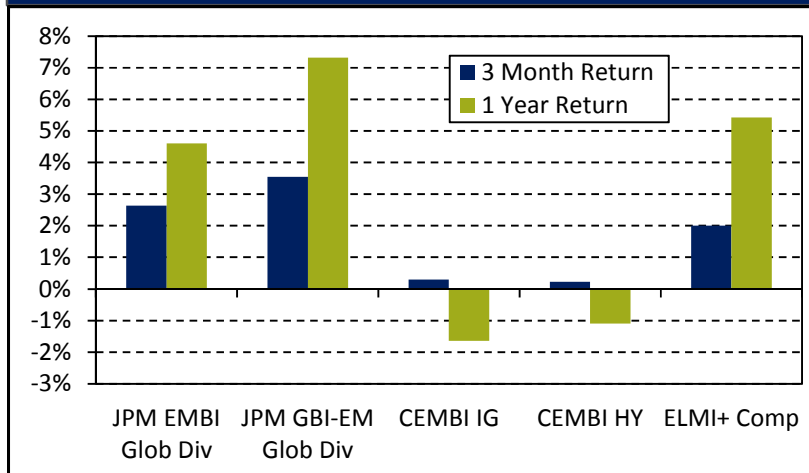
Source: Bloomberg

EM yields appear attractive relative to global counterparts



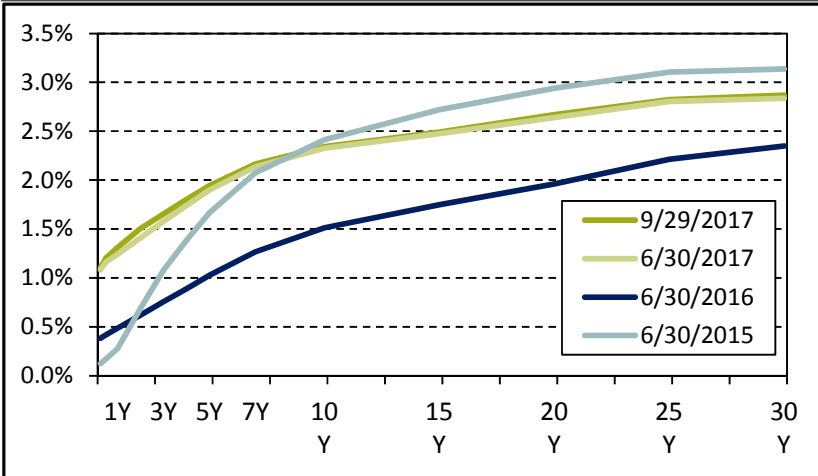
Source: Bloomberg, JP Morgan

EM debt posts strong positive short-term returns



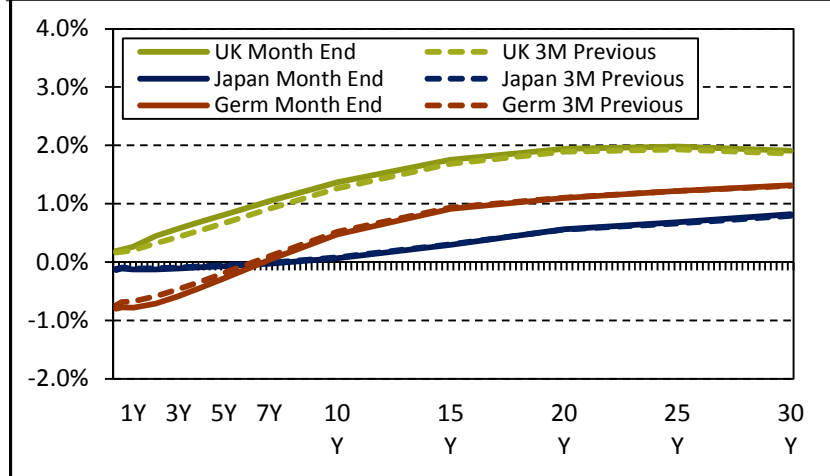
Source: Bloomberg, JP Morgan

The curve remains mostly unchanged from three months prior



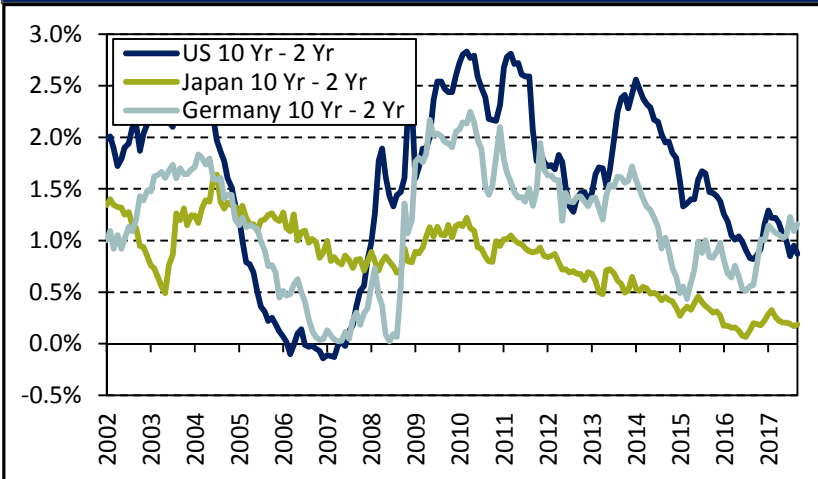
Source: Bloomberg

Interest rate expectations remain similar to previous months



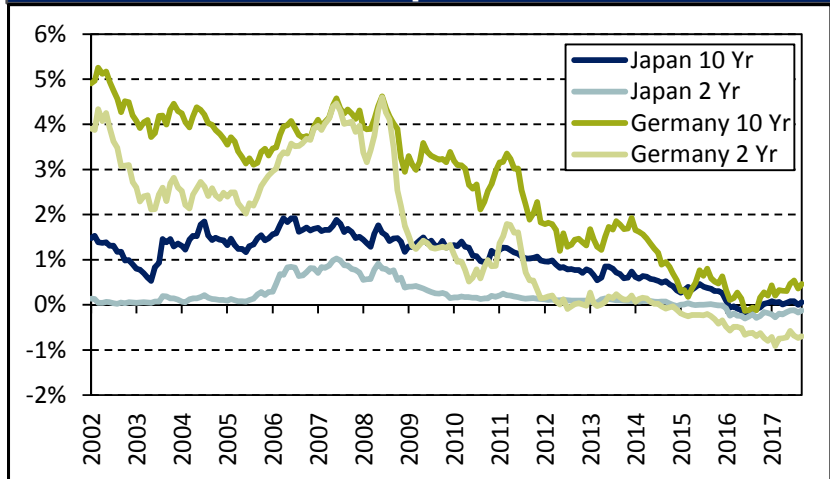
Source: Bloomberg

US and German 10-2 spreads have spiked in the near term



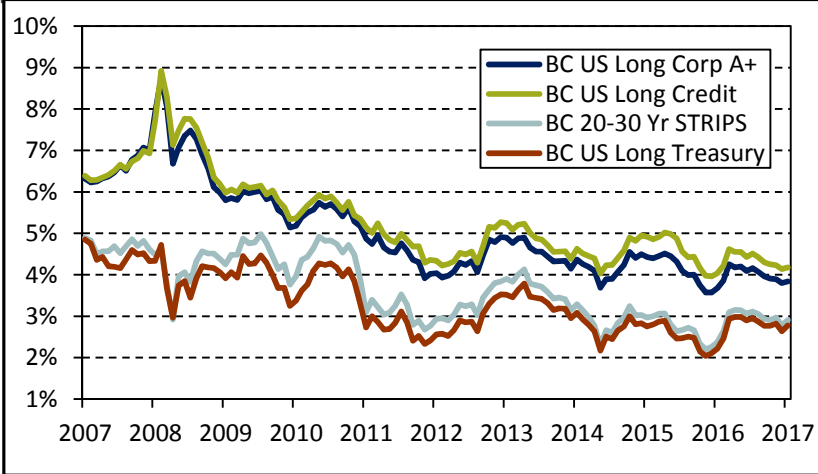
Source: Bloomberg

Sovereign bond yields continue to trend upward



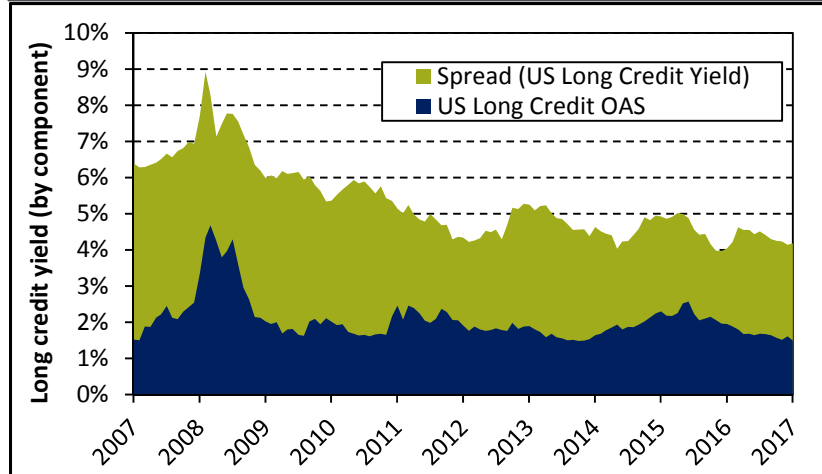
Source: Bloomberg

Long duration yields have slightly increased



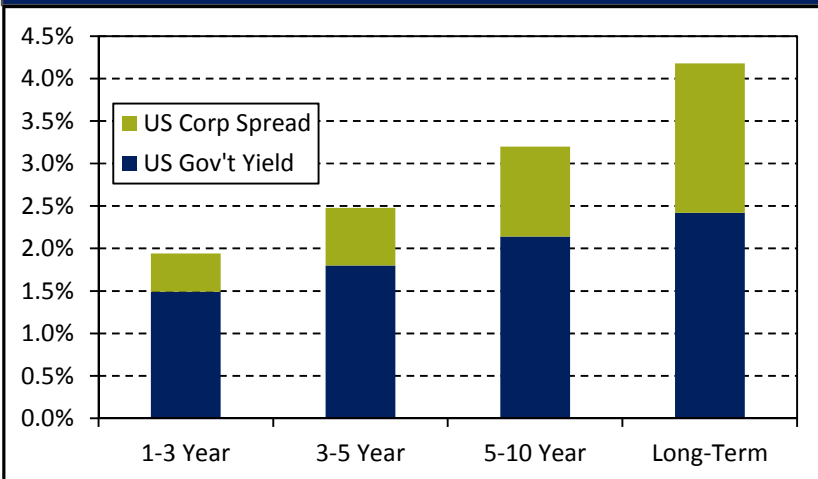
Source: Bloomberg, Citigroup, Barclays

Long credit yield is in line with the long-term historical average



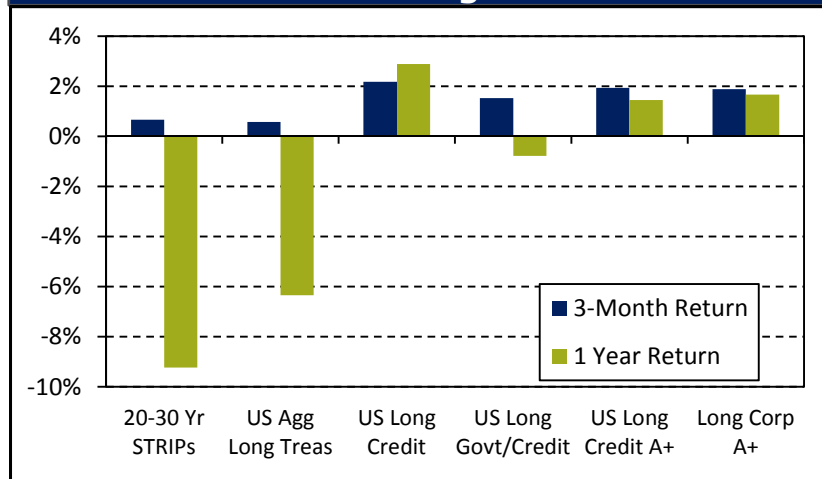
Source: Bloomberg, US Treasury, Barclays, NEPC

Yield and spread components continue to offer modest returns



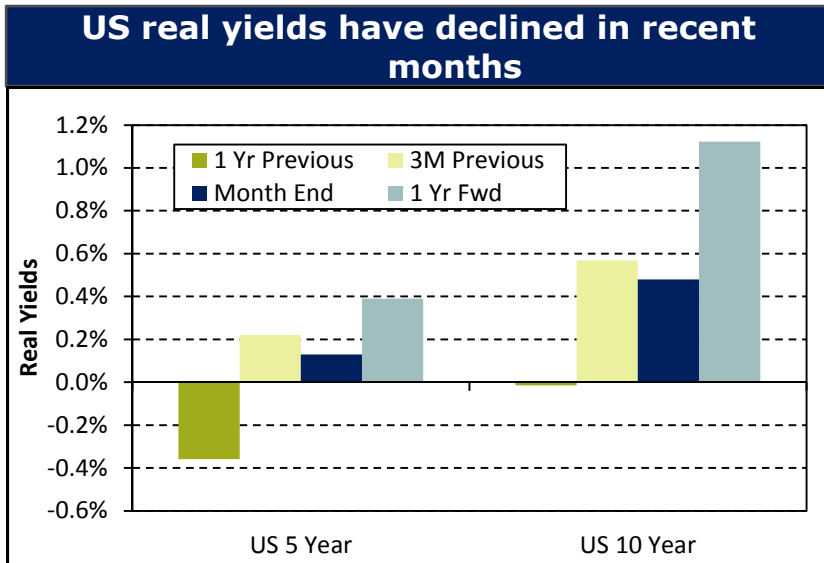
Source: Bloomberg, Barclays

Long duration fixed income posts short-term gains

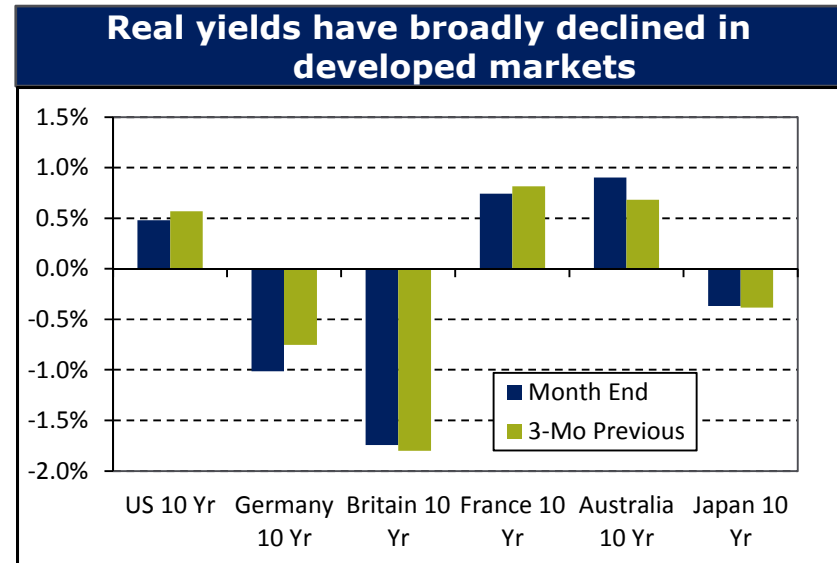


Source: Bloomberg, Barclays

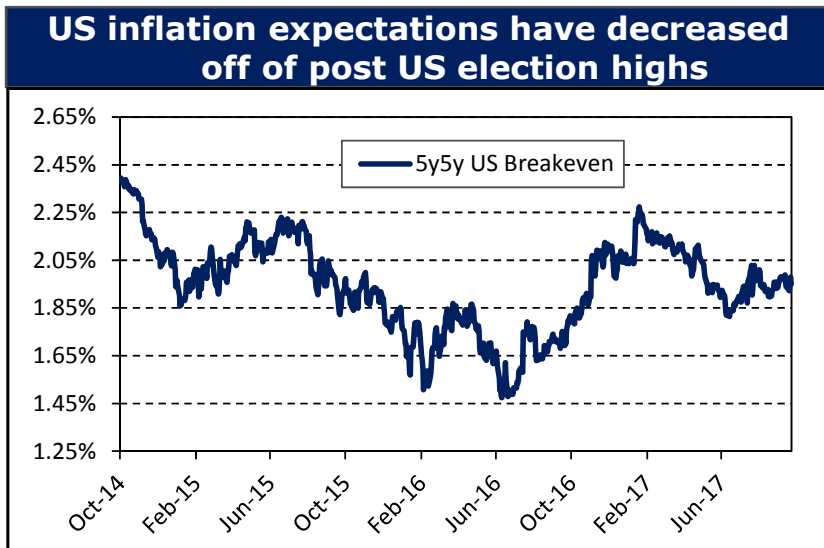
Inflation and Real Rates



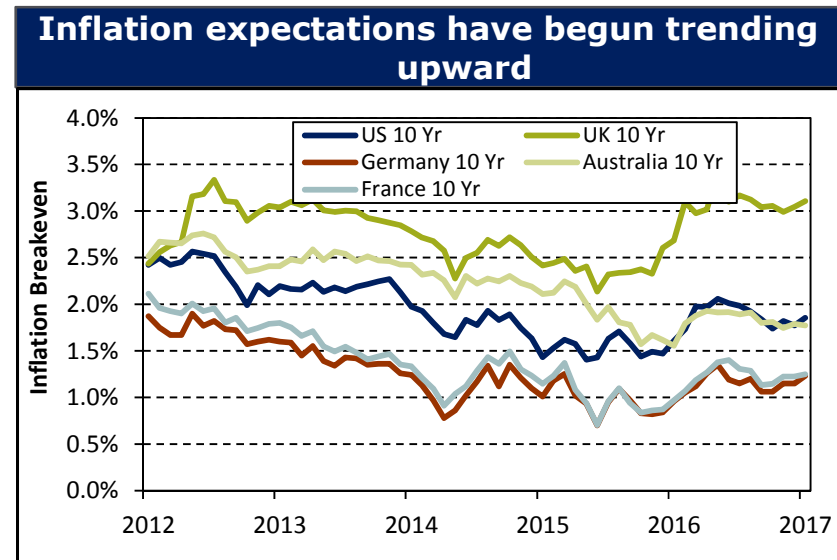
Source: Bloomberg



Source: Bloomberg



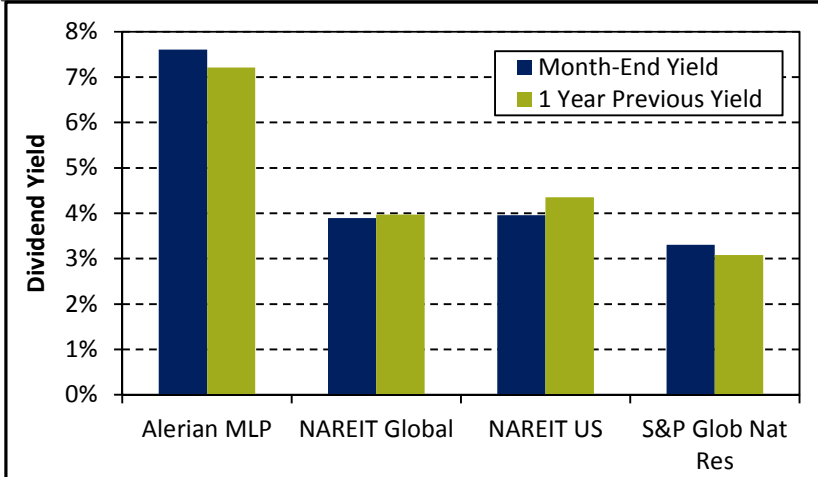
Source: Bloomberg



Source: Bloomberg

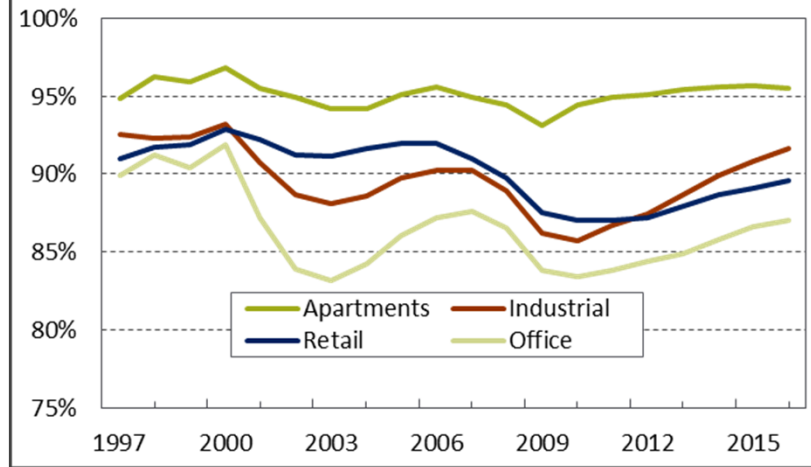
Inflation-Sensitive Growth Assets

Yields remain in line with the previous year



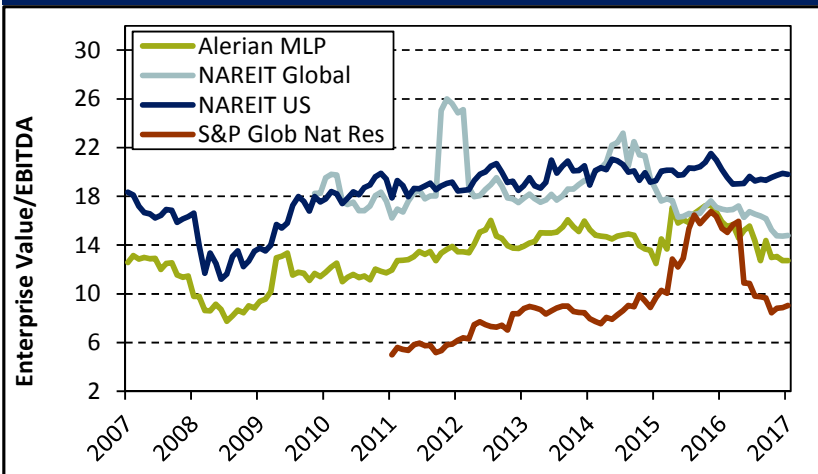
Source: Bloomberg, Alerian, Nareit, Standard and Poors

Sustained recovery in commercial real estate occupancy rates



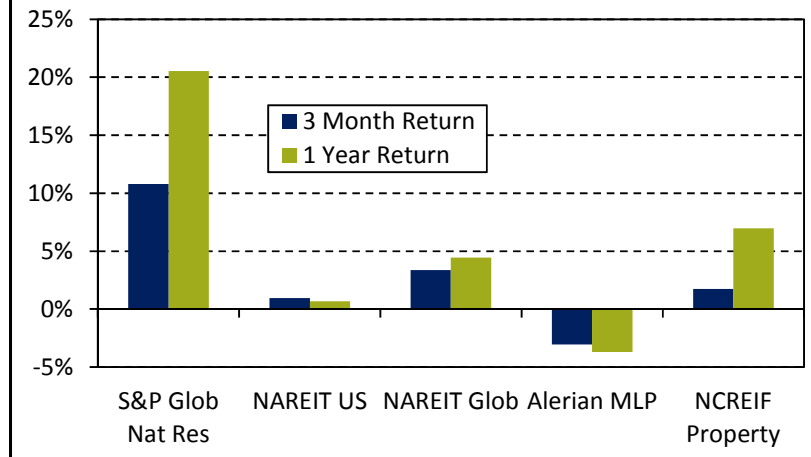
Source: CBRE

US REIT valuations have steadied



Source: Bloomberg, US Census Bureau

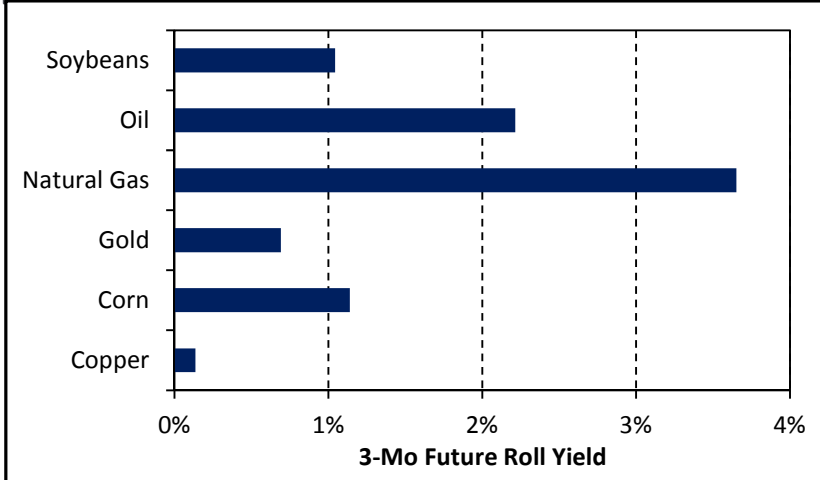
Mixed short-term performance for inflation-sensitive growth assets



Source: Bloomberg, Alerian, Nareit, Standard and Poors

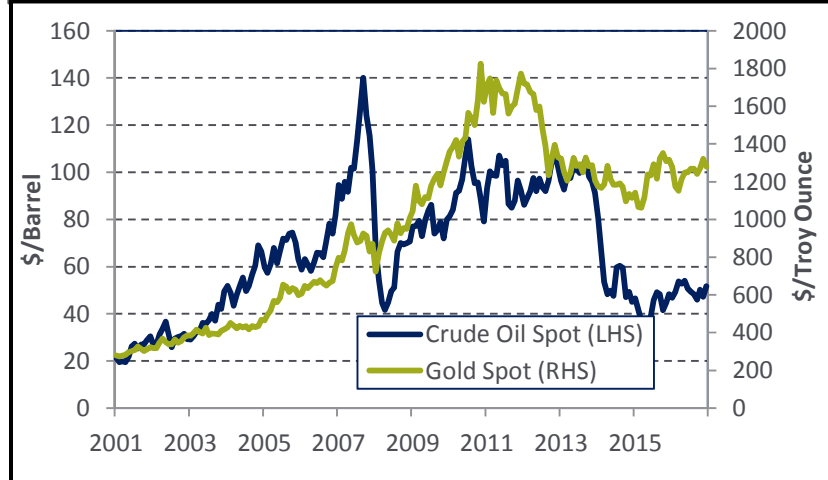
Commodities

Commodities now broadly have positive roll yields



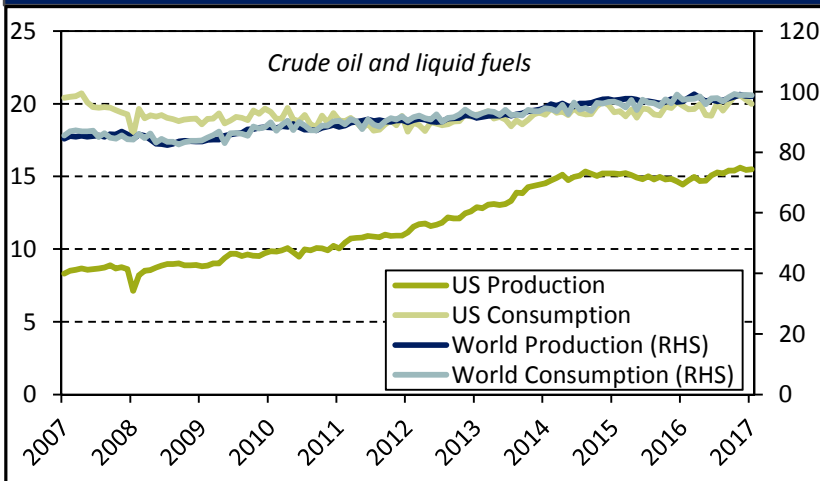
Source: Bloomberg

Gold and oil edge slightly higher



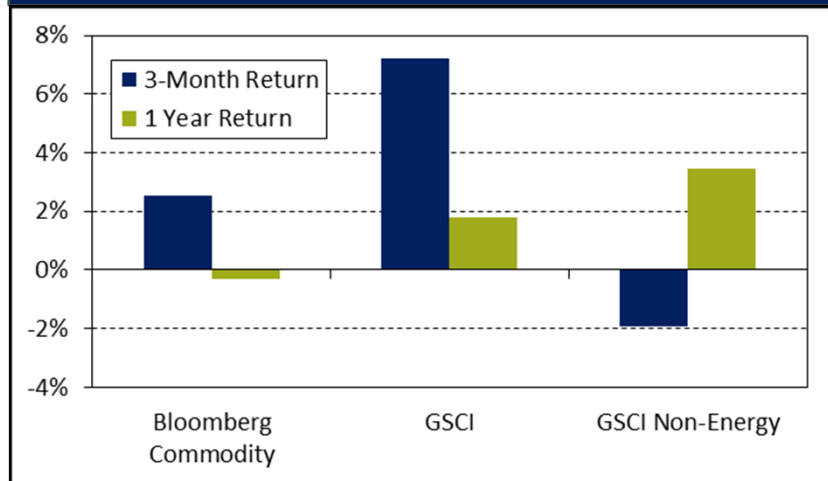
Source: Bloomberg

Oil production and consumption has steadied



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

GSCI Non-Energy underperformed in the near term



Source: Bloomberg, Standard and Poors

Information Disclaimer and Reporting Methodology

Information Disclaimer

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