

QUARTERLY PERFORMANCE REPORT

Ventura County Employees' Retirement Association

December 31, 2017

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VCERA
VENTURA COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION



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MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

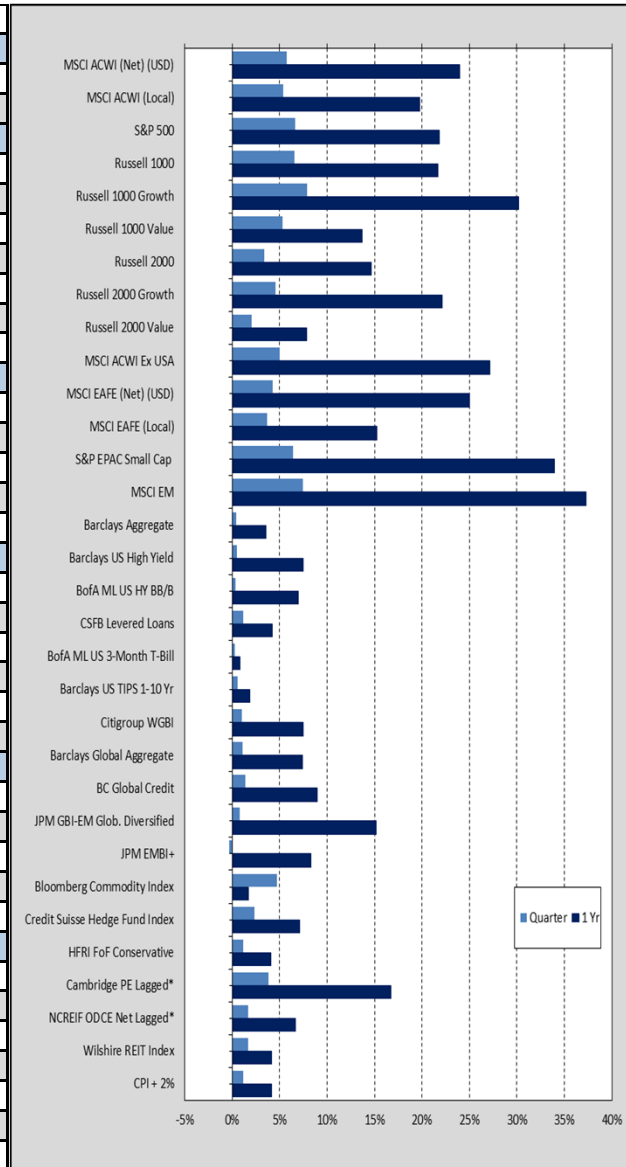
ECONOMIC ENVIRONMENT

- **Fourth quarter GDP growth rate (advance estimate) increased at a modest 2.6%.**
 - Retail sales ended December at +5.6% on a YoY basis. In the same period last year the YoY growth rate was 3.9%.
 - Corporate profits (ended July) as a percent of GDP increased slightly to 9.53% from 9.5% (in April) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended November down at 1.3 from 1.4 and has remained relatively flat since early 2010.
 - The U.S. trade deficit widened by 2.3% ended November as imports increased.
- **The unemployment rate decreased to 4.1% from 4.2% in Q4; U-6, a broader measure of unemployment, decreased to 8.1% from 8.3% during the fourth quarter.**
- **The Case-Shiller Home Price Index (ended October) increased to 195.6 from 194.1 and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw a down-tick to 2.1% at the end of December from 2.2% at the end of September; Capacity Utilization marginally increased to 77.9% in Q4 from 76.1% in Q3.**
- **Fed Funds rate was increased to a targeted range of 1.25% - to – 1.50%. The 10-year Treasury Yield (constant maturity) finished Q4 at 2.4%, up from 2.2% in September.**
- **The Fed balance sheet decreased slightly during Q4 2017, while the European Central Bank balance sheet continues to increase.**
 - ECB held its benchmark refinancing rate at 0%, deposit rates -0.4% and asset purchases would slow from €60 billion per month to €30 billion per month.
- **S&P valuations increased slightly in Q4 remaining above the 10-year and long-term averages.**
 - Cyclically adjusted Shiller PE ratio (32.5x) is above the long-term average of 16.8x and above the 10-year average of 23.3x.



MARKET ENVIRONMENT – Q4 2017 OVERVIEW

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI (Net) (USD)	World	5.7%	24.0%	9.3%	10.8%	4.7%
MSCI ACWI (Local)	World (Local Currency)	5.3%	19.8%	9.7%	12.6%	5.4%
Domestic Equity Benchmarks						
S&P 500	Large Core	6.6%	21.8%	11.4%	15.8%	8.5%
Russell 1000	Large Core	6.6%	21.7%	11.2%	15.7%	8.6%
Russell 1000 Growth	Large Growth	7.9%	30.2%	13.8%	17.3%	10.0%
Russell 1000 Value	Large Value	5.3%	13.7%	8.7%	14.0%	7.1%
Russell 2000	Small Core	3.3%	14.6%	10.0%	14.1%	8.7%
Russell 2000 Growth	Small Growth	4.6%	22.2%	10.3%	15.2%	9.2%
Russell 2000 Value	Small Value	2.0%	7.8%	9.5%	13.0%	8.2%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	5.0%	27.2%	7.8%	6.8%	1.8%
MSCI EAFE (Net) (USD)	Int'l Developed	4.2%	25.0%	7.8%	7.9%	1.9%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	3.7%	15.2%	8.5%	11.4%	3.3%
S&P EPAC Small Cap	Small Cap Int'l	6.4%	34.0%	14.1%	13.1%	5.6%
MSCI EM	Emerging Equity	7.4%	37.3%	9.1%	4.3%	1.7%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	0.4%	3.5%	2.2%	2.1%	4.0%
Barclays US High Yield	High Yield	0.5%	7.5%	6.4%	5.8%	8.0%
BofA ML US HY BB/B	High Yield	0.4%	7.0%	6.0%	5.6%	7.3%
CSFB Levered Loans	Bank Loans	1.2%	4.2%	4.5%	4.3%	4.6%
BofA ML US 3-Month T-Bill	Cash	0.3%	0.9%	0.4%	0.3%	0.4%
Barclays US TIPS 1-10 Yr	Inflation	0.5%	1.9%	1.8%	0.1%	2.8%
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	1.0%	7.5%	1.7%	0.1%	2.7%
Barclays Global Aggregate	Global Core Bonds	1.1%	7.4%	2.0%	0.8%	3.1%
BC Global Credit	Global Bonds	1.3%	8.9%	2.9%	2.3%	4.1%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	0.8%	15.2%	2.5%	-1.5%	3.6%
JPM EMBI+	Em. Mkt. Bonds	-0.3%	8.3%	6.5%	3.3%	6.8%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	4.7%	1.7%	-5.0%	-8.5%	-6.8%
Credit Suisse Hedge Fund Index	Hedge Fund	2.3%	7.1%	2.5%	4.3%	3.2%
HFRI FoF Conservative	Fund of Hedge Funds	1.1%	4.1%	2.1%	3.4%	0.9%
Cambridge PE Lagged*	Private Equity	3.8%	16.7%	10.4%	13.3%	9.6%
NCREIF ODCE Net Lagged*	Real Estate	1.6%	6.7%	9.8%	10.6%	4.1%
Wilshire REIT Index	REIT	1.7%	4.2%	5.2%	9.3%	7.3%
CPI + 2%	Inflation/Real Assets	1.1%	4.2%	3.6%	3.4%	3.6%



* As of 9/30/2017



MARKET ENVIRONMENT

Global Equity

- **U.S. equities as measured by the S&P 500 posted strong gains in the fourth quarter (+6.6%).**
- **Small cap stocks underperformed large cap stocks during the quarter, with the Russell 2000 Index returning 3.3% and the Russell 1000 Index returning 6.6%.**
- **International equities underperformed U.S. markets during the quarter, returning 5.0%, as measured by the MSCI ACWI ex-U.S. Index. Emerging markets returned 7.4% as measured by the MSCI Emerging Markets Index in U.S. dollar terms.**
 - Developed international markets returned 4.2% in USD terms, while in local currency terms returned 3.7% as measured by the MSCI EAFE Index.

Private Equity

- **Capital commitment momentum slowed in Q3 2017, however aggregate capital raised has risen versus last year and was dominated by the five largest investment vehicles.**
- **Private equity fundraising totaled \$95 billion in Q3 2017.**
 - North America focused private equity funds raised \$64 billion.
 - Asia focused private equity funds raised \$9.4 billion.
 - Europe focused private equity raised \$20 billion.
- **Private equity dry powder continued its increase to record levels and stands at \$954 billion.**



MARKET ENVIRONMENT

Fixed Income

- **The nominal yield curve continued to flatten in Q4. Long term yields decreased 5 –to- 12 basis points across 20 to 30 year treasury bonds while short term yields increased 33 basis points for the 3 month and 45 basis points in the one year.**
- **The spread between two and 10 year rates decreased to 51 basis points from 86 basis points in Q4.**
- **Treasury Inflation-Protected Securities, or TIPS, returned 0.5% during the quarter, as measured by the BBg Barclays US TIPS 1-10 Yr Index.**
- **The BBg Barclays Long Duration Credit Index gained 3.16%.**
- **Long Treasuries gained 2.37% and investment-grade US corporate debt gained 0.4%.**
- **The BBg Barclays 1-3 year US Government/ Credit Index returned -0.21%. US high yield bonds gained 0.5% as spreads compressed.**
- **Emerging markets debt had mixed results.**
 - US dollar-denominated debt, as measured by the JP Morgan EMBI Index, returned -0.3%; local currency debt gained 0.8%, according to the JP Morgan GBI-EM BD Index.



MARKET ENVIRONMENT

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?**
 - Improving Metals & Mining fundamentals but limited to assets near production
- **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.**



MARKET ENVIRONMENT

Commodities

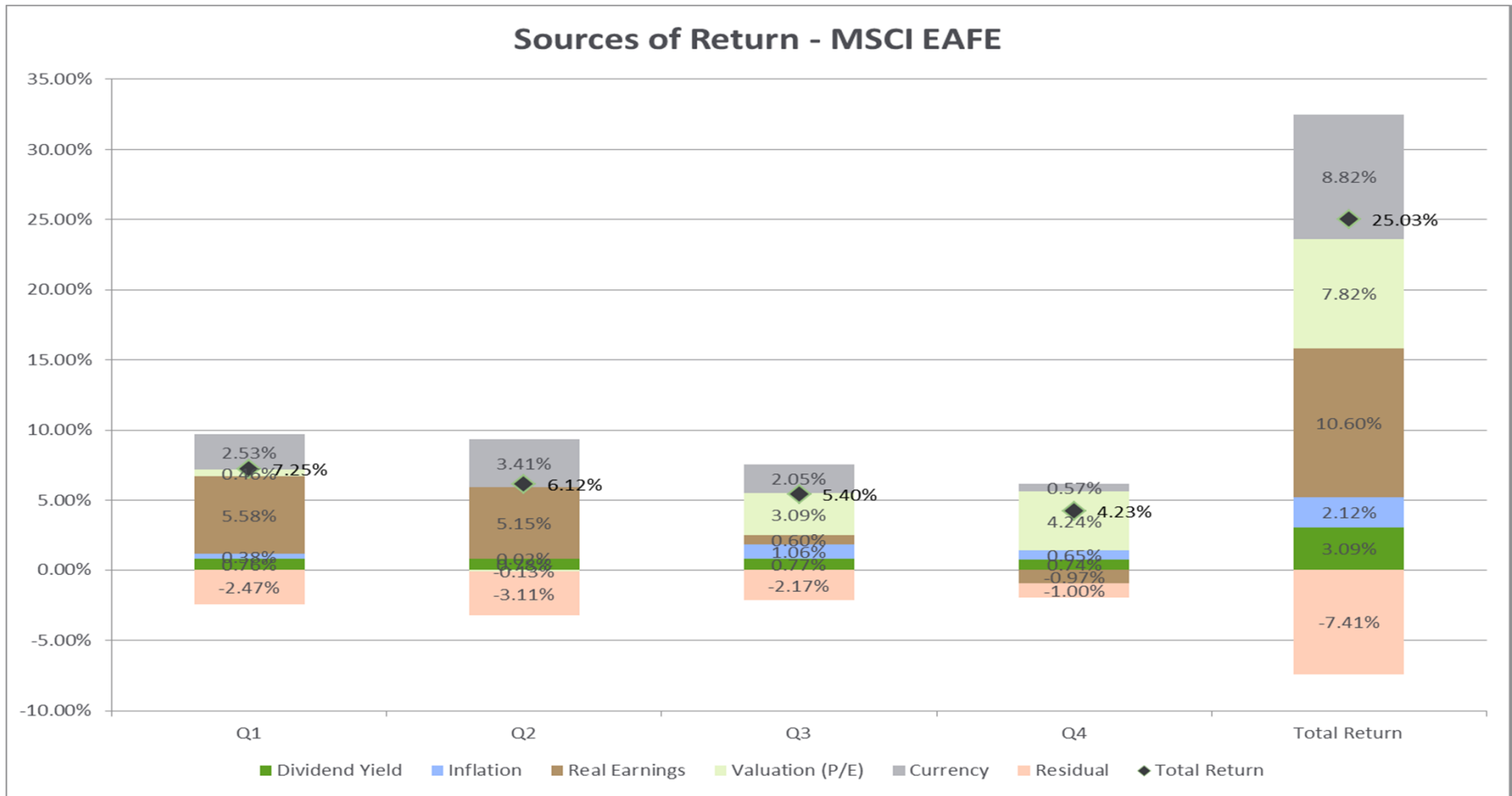
- **Commodities gained 4.7% as measured by the Bloomberg Commodity Index.**
 - US Dollar weakness led to stronger commodity prices broadly.

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.
 - REIT sector has been volatile and remain at the high end of historical FFO multiple ranges
- **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.**
- **Emerging markets in Latin America (Brazil) and Asia (China, India) may have strengthening opportunities.**



CALENDAR YEAR 2017 – ATTRIBUTION OF MSCI EAFE RETURNS



Spot Rates

1 USD = 0.935 Euro

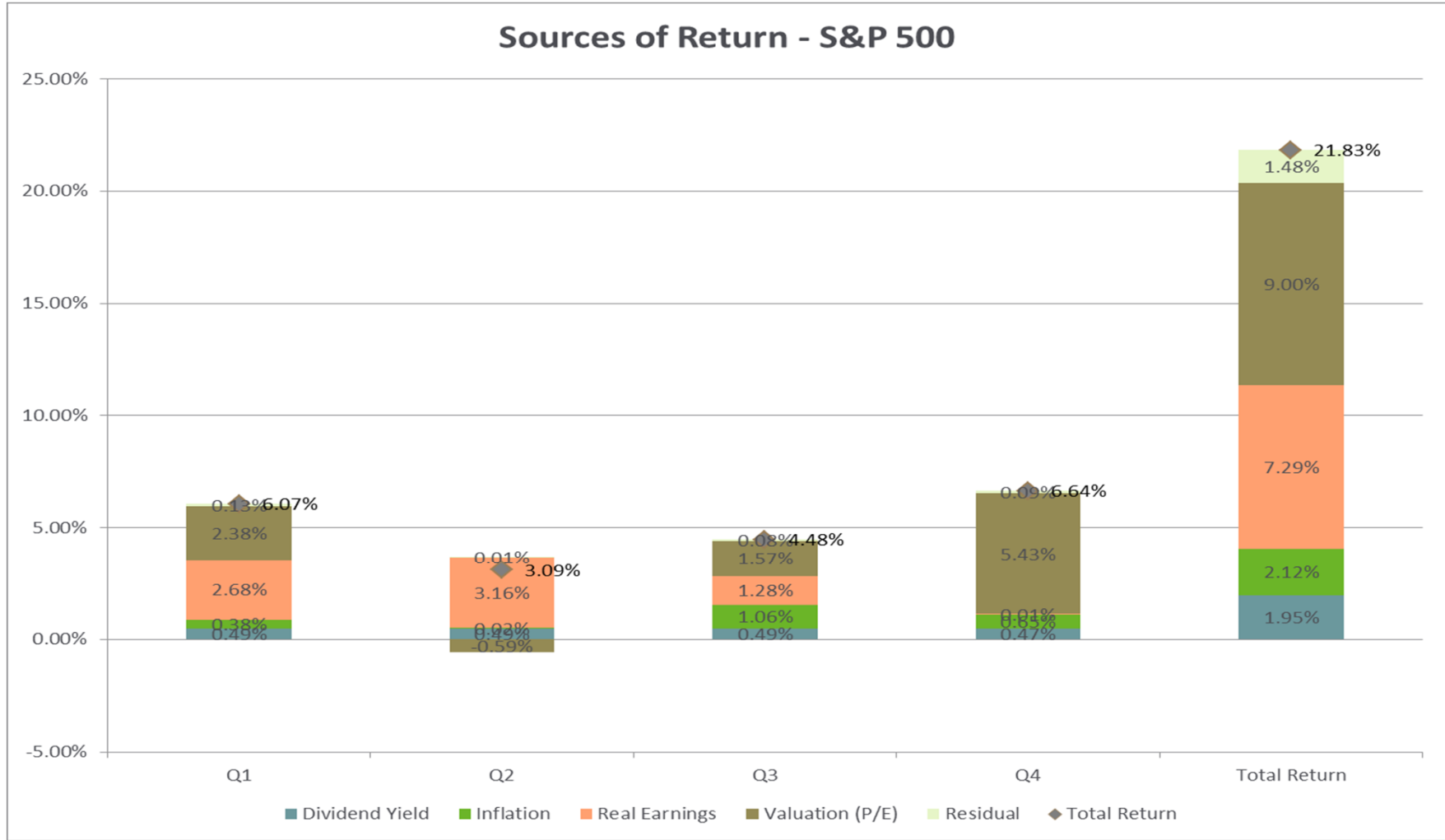
1 USD = 0.876 Euro

1 USD = 0.847 Euro

1 USD = 0.832 Euro



CALENDAR YEAR 2017 – ATTRIBUTION OF S&P 500 RETURNS



Spot Rates

1 USD = 0.935 Euro

1 USD = 0.876 Euro

1 USD = 0.847 Euro

1 USD = 0.832 Euro



KEY MARKET THEMES

Extended US Economic Cycle

Economic cycles do not die of old age

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

Financial health of US consumers and ongoing recovery of the housing market continue to drive economic growth

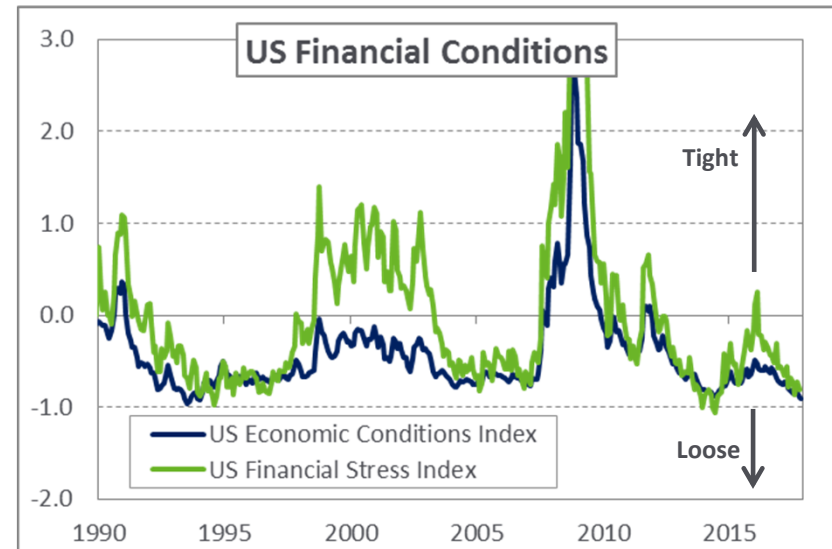
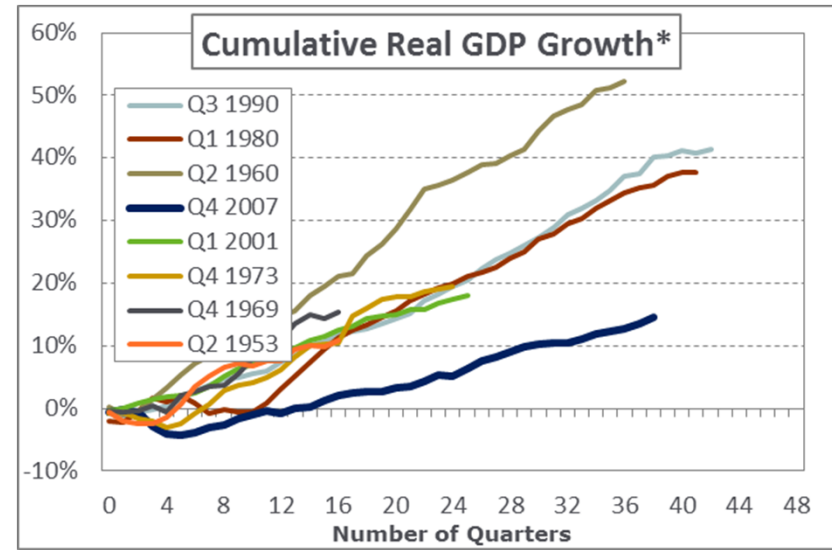
A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

US financial conditions remain loose and support steady economic gains

Low inflation provides a foundation for positive economic conditions and reinforces the Fed's gradual monetary policy approach

Moderating US dollar strength is another form of easy financial conditions, benefiting global trade flows and credit creation

Reversal in these easy conditions may be fueled by actions outside the US, such as a misstep by global central banks and/or increased volatility in the Chinese yuan



Source: (Top) Bloomberg, *Cumulative GDP growth from prior cycle peak
Source: (Bottom) Federal Reserve Bank of Chicago and Kansas City



KEY MARKET THEMES

Extended US Economic Cycle

Excess capacity remains in the system and provides fuel for the expansion

Labor market gains have been robust but slack remains as many have not returned to the workforce

Muted wage gains and low inflation metrics are reflective of the excess capacity remaining in the US economy

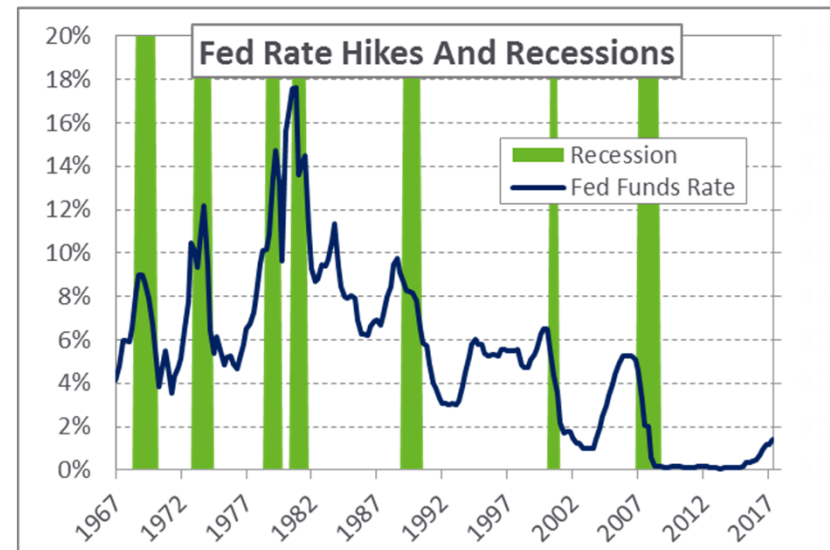
Tax cuts and fiscal stimulus can potentially remove spare economic capacity and be a catalyst for an uptick in inflation measures

US recession concerns are muted

An acceleration in inflation leading to a tightening of financial conditions has historically been a catalyst to end economic expansions

However, improved US household balance sheets have room to expand and support further consumer spending gains

Improving global economic conditions reinforce an expansion of the US economy as global growth factors synchronize



Source: (Top) Federal Reserve Bank of St. Louis

Source: (Bottom) Federal Reserve, NEPC



KEY MARKET THEMES

Synchronized Economic Resurgence

Global economic conditions are improving in a synchronized fashion

Coordinated global growth factors reinforce economic gains across the globe and are distinct from the extension of the US economic cycle

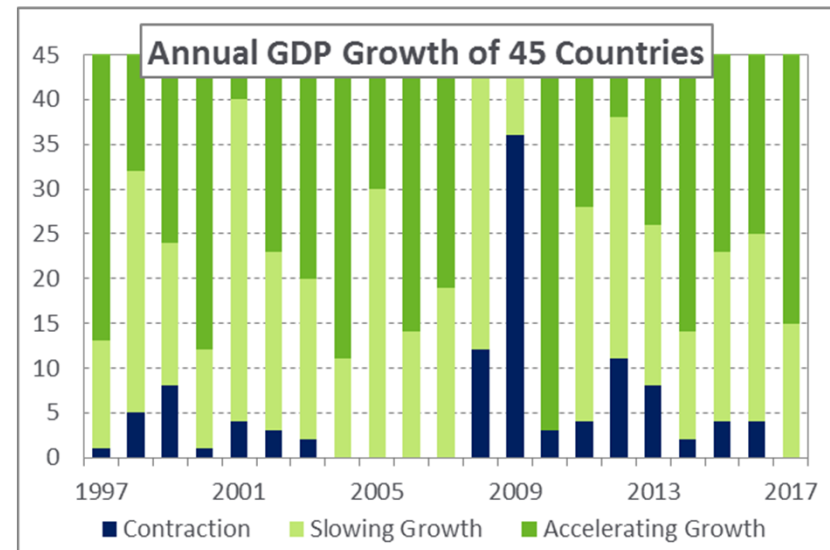
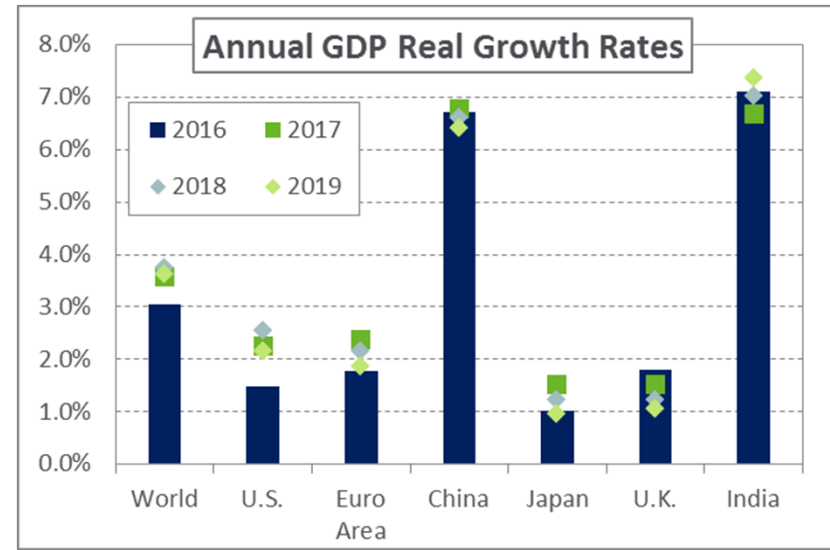
Non-US corporate revenues and equities are best positioned to benefit from a widespread boost in global economic conditions

Positive growth rates harmonized across the globe are relatively rare

Conditions are the result of Europe, Japan, and large parts of the emerging world transitioning out of economic malaise

Persistence of the theme over several years would provide a substantial benefit to equity markets globally – specifically in Europe and Japan

Historically, periods of synchronized growth have been derailed by higher inflation levels and central banks tightening policy



Source: (Top) OECD
Source: (Bottom) OECD



KEY MARKET THEMES

Synchronized Economic Resurgence

Erosion of excess economic capacity is a catalyst to boost economic gains

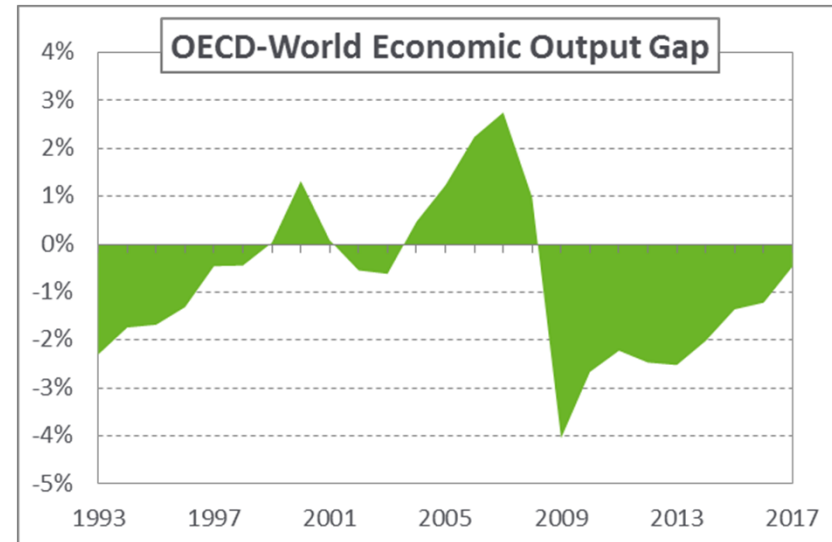
Despite recent labor market improvements, potential for labor reform in Europe and improved workforce participation in Japan offer multi-year benefits to economic growth

Material decline in emerging market inflation provides a cushion for real interest rates to fall and fuel an expansion of economic activity

Economic resurgence is delicate and can be disrupted by lingering global risk factors

US dollar strength, dislocation in China's credit expansion, and restrictive US trade policy pose the greatest threats

The foundation of synchronized economic resurgence is the continuation of positive trends associated with the other key market themes



Source: (Top) OECD
Source: (Bottom) IMF

KEY MARKET THEMES

Federal Reserve Gradualism

The Federal Reserve is expected to slowly increase interest rates

Expected path of Fed policy through 2020 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

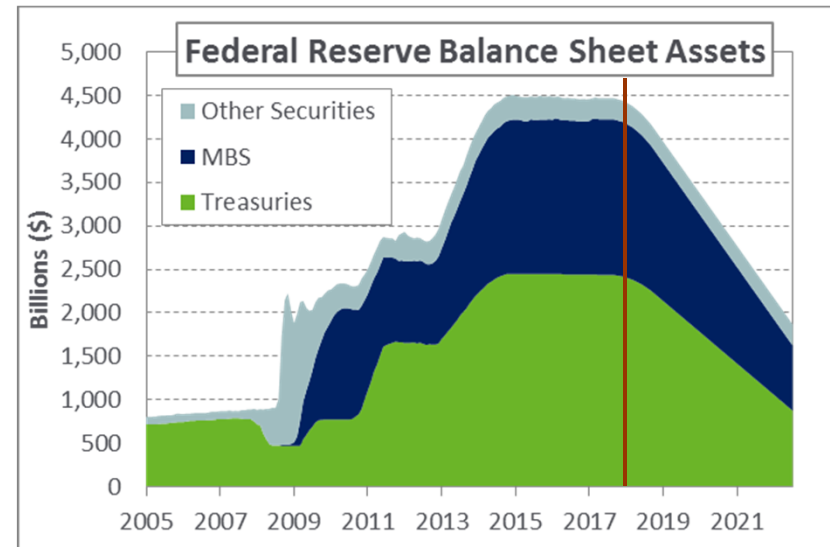
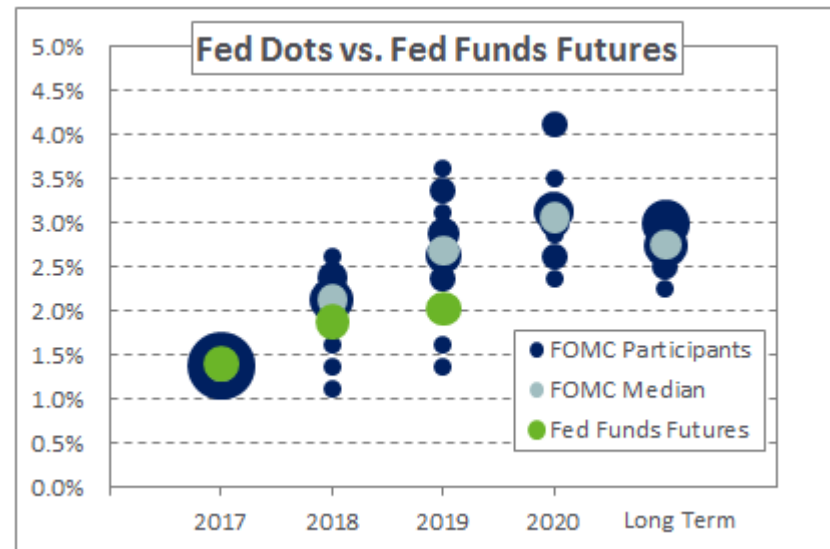
A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

The Fed's balance sheet normalization is a low grade tightening of monetary policy but its impact is untested

Fed is expected to be careful and data dependent yet balance sheet disbursement into a strong economy will likely have tightening effects – in the same way balance sheet expansion had easing effects

The balance sheet will gradually shrink over time assuming conditions remain supportive

The gradual progression of balance sheet reduction combined with the accommodative policies of global central banks supports easy global financial conditions



Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC



KEY MARKET THEMES

Federal Reserve Gradualism

Gradualism is the policy of choice globally as the major central banks manage unprecedented initiatives

ECB's QE program is expanding but at a slower rate

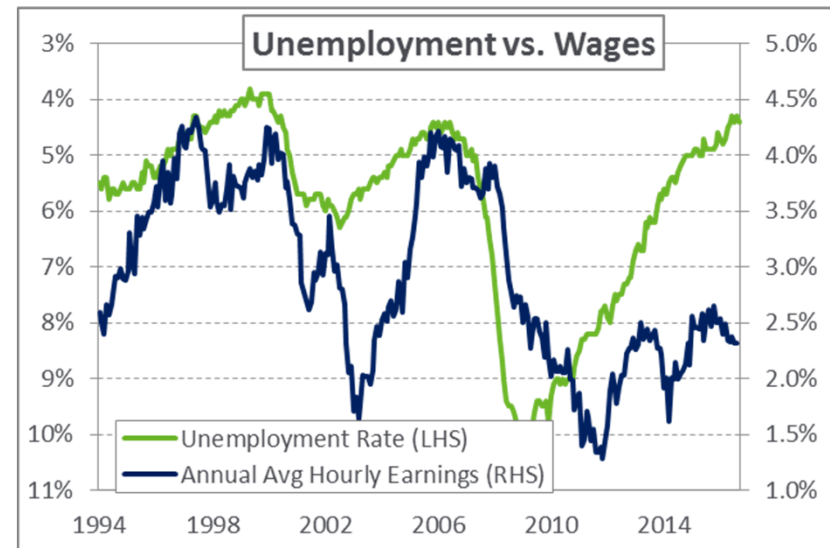
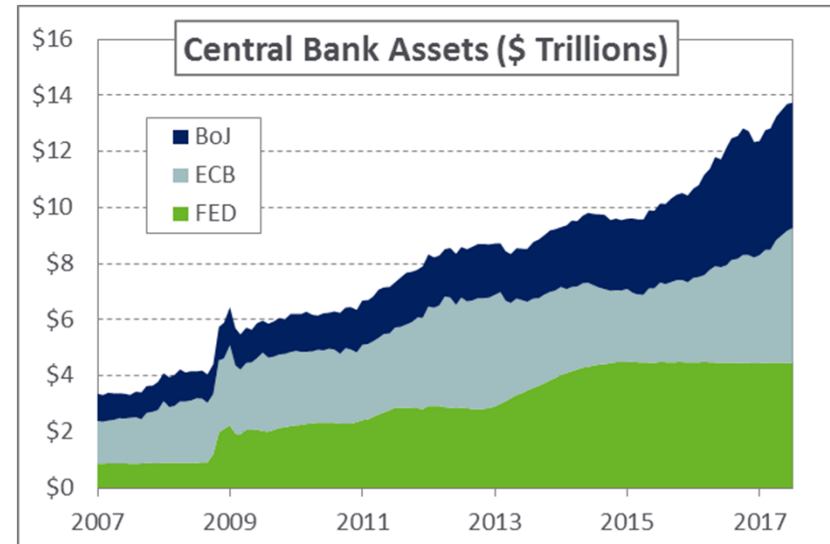
However, the reinvestment of balance sheet holdings is likely to continue for an extended period of time

Bank of Japan's QE yield-curve control program has rapidly slowed bond purchases but solidified steepness in the yield curve

Inflation expected to shift marginally higher in the coming years

Improvements in wage growth and aggregate economic activity support modest upticks in inflation but still within the Fed's tolerance bands to gradually raise rates

Fed has stated a willingness to let the economy "run hot" and accept some inflation to repair the deflationary effects of the past decade



Source: (Top) Bloomberg, NEPC
Source: (Bottom): Bloomberg, FRED



KEY MARKET THEMES

China Transitions

China is the global growth engine but faces fundamental transitions

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

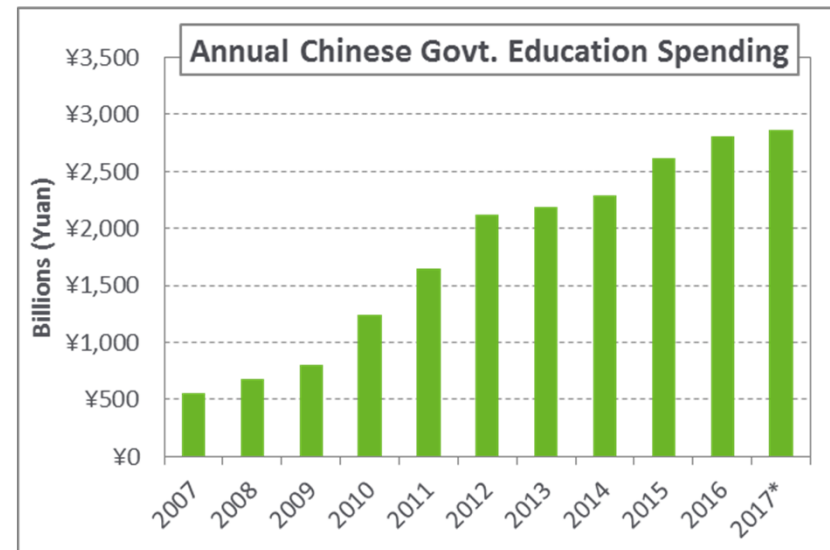
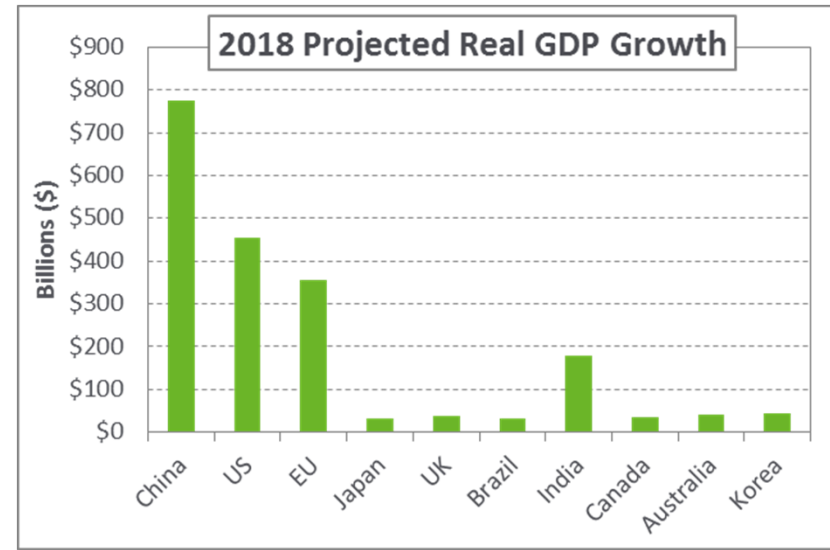
Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers

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

China must manage competing social goals in attempting to sustain growth

Engineering an orderly transition to a consumer-led economy requires supporting employment outside the major cities and improving quality of life metrics such as air quality in the urban centers

Future growth in a services based economy requires advancement in productivity, technology, and a more skilled labor force



Source: (Top) Bloomberg

Source: (Bottom) Bloomberg, *Includes estimate for Nov/Dec 2017



KEY MARKET THEMES

China Transitions

The PBOC is tasked with straddling a delicate path as the economy evolves

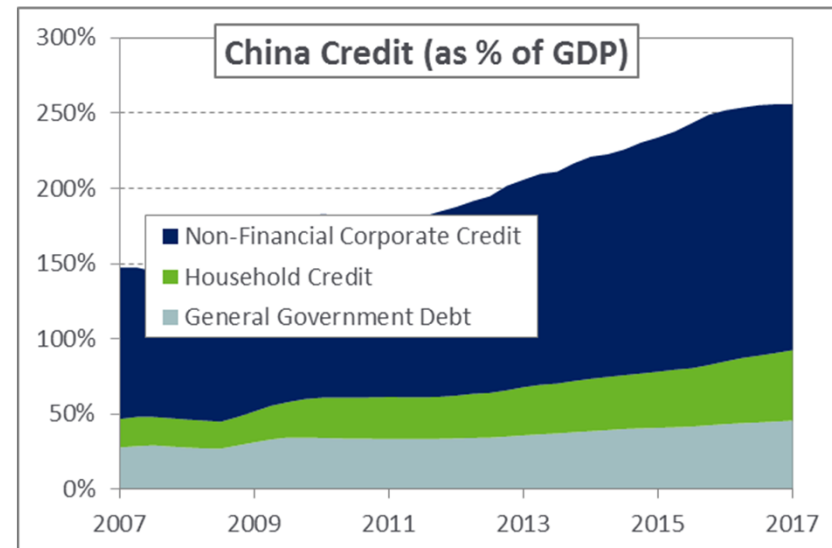
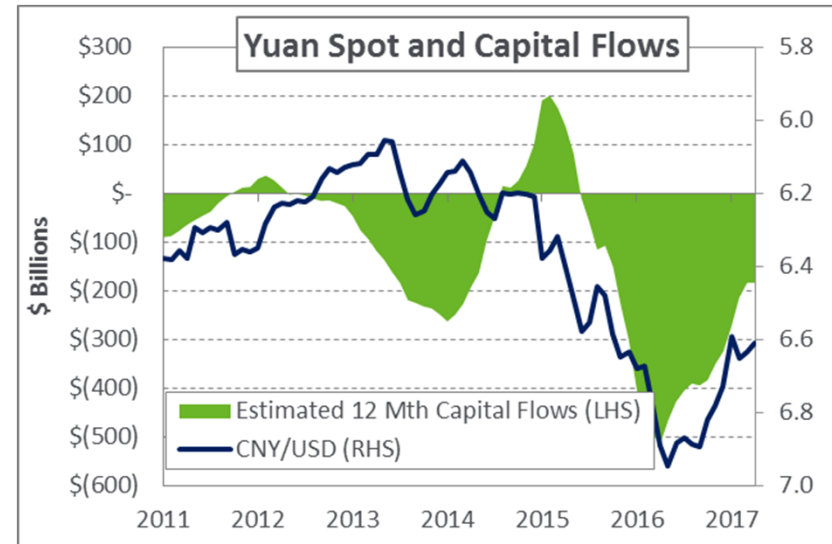
China maintains control of its currency and monetary policy but would have to make concessions to open its capital account and allow the free movement of capital in order to encourage investment

Restrictions on capital markets are slowly being eased, with an eye towards limiting social disruption

China's government is negotiating a balance of tightening credit expansion and support for economic growth

Continued credit expansion and real estate development risk inflating asset price bubbles and pose a systemic risk

Markets have responded positively to the PBOC's management of a more stable yuan as capital outflow pressure has eased but currency devaluation remains a tail risk



Source: (Top) Bloomberg, NEPC

Source: (Bottom) Bank of International Settlements



KEY MARKET THEMES

Globalization Backlash

Uneven economic growth and wage gains have fueled political discontent in the developed world

Election results in France have assuaged fears of political gridlock in the EU

Italian election in first half of 2018 is another potential flashpoint on globalization

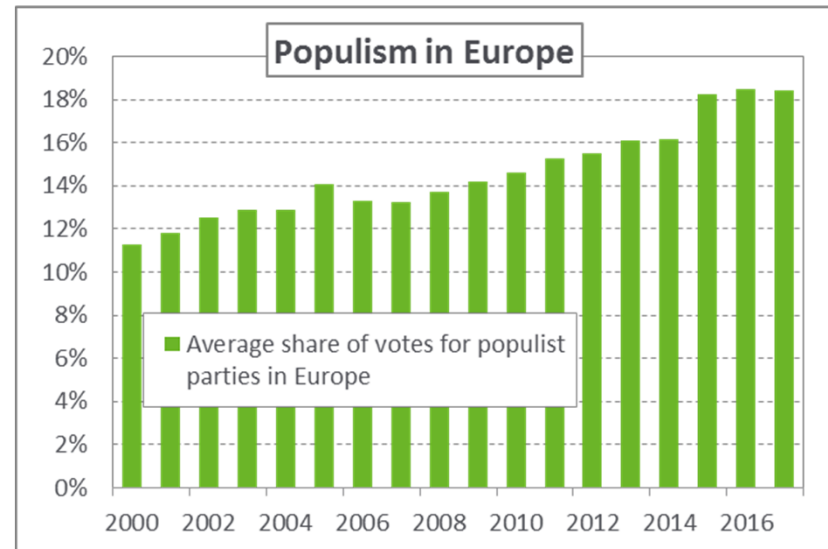
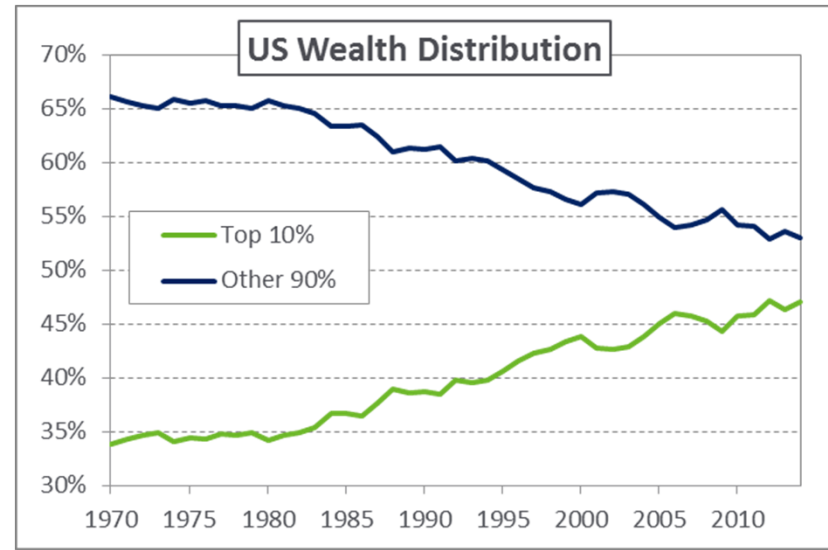
Anti-establishment political bias is likely a long term trend and potentially leads to higher levels of currency volatility over time

For many nations, a turn inward is associated with globalization fatigue

Often fuels greater expression of nationalism and increased geopolitical risks as multilateral relationships are reassessed

Populist movements destabilize the political order and shifts away from political orthodoxy heighten tail risks

However, equity markets often overreact to geopolitical concerns and sell-offs can be a buying opportunity for investors



Source: (Top) World Wealth & Income Database

Source: (Bottom) World Bank



KEY MARKET THEMES

Globalization Backlash

Major shifts in US trade policy did not materialize in 2017

However, a more aggressive protectionist policy would represent a material risk to global markets and the world economy

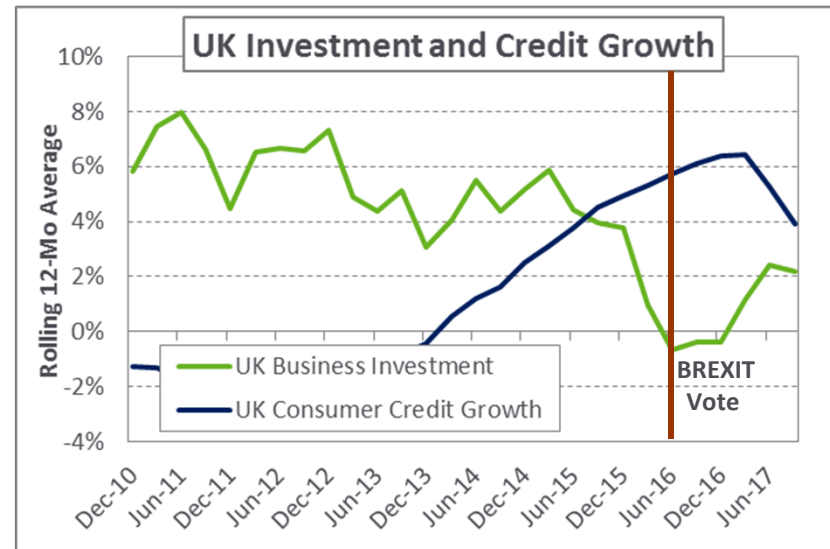
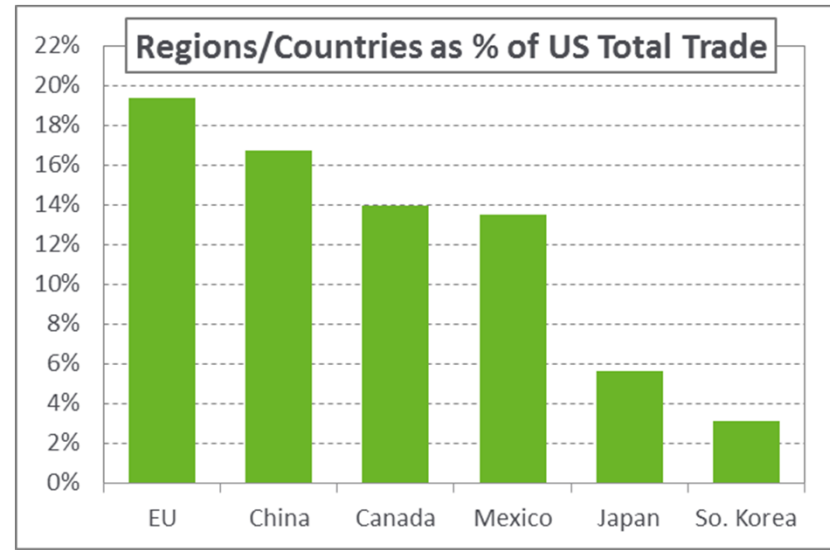
Markets have taken to interpreting the US administration's rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern

The UK serves as a live case study for the effects of globalization backlash

While it is early in the process, economic metrics across the country have turned lower in the 18 months since UK voted to leave the European Union

Expected disruption to financial regulations, customs controls, and business confidence in the UK are proving to be a cautionary tale for a turn away from globalization

However, the economic unease of voters remain and popularity of anti-establishment political parties poses a risk to the global economic order

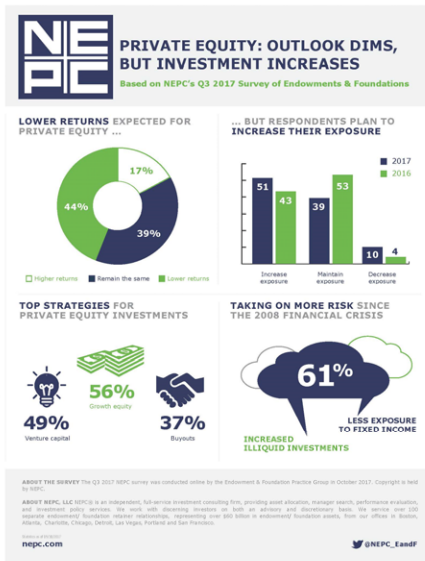


Source: (Top) Federal Reserve Bank of St. Louis

Source: (Bottom) Bloomberg



HIGHLIGHTS OF FOURTH QUARTER HAPPENINGS AT NEPC



NEPC INSIGHTS

- White Paper: Terminated-Vested Lump Sum Payouts
- White Paper: Power Up Your Pension Plans
- Taking Stock: Could ESG Analysis Have Helped Equifax Investors?
- Taking Stock: Ten Years Since The Global Financial Crisis, Part 1: Then and Now
- Taking Stock: No Lull After the Storm for Puerto Rico Bonds
- Taking Stock: Tax Reform Update
- Market Chatter: It's Always Sunny on Sand Hill Road
- Market Chatter: The E-Commerce Grinch that Stole the US Storefront?
- Market Chatter: Endowment Tax Reform Leaves Less to be Thankful for
- NEPC's 2017 Hedge Fund Operational Due Diligence Survey Results
- NEPC's 2017 Defined Benefit Trends Survey Infographic
- NEPC's 2017 Defined Benefit Plan Trends Survey – Healthcare Highlights Infographic
- Taking Stock: What Do Revised Mortality Tables Mean for Terminated-Vested Lump Sum Payouts?
- 2017 Third Quarter Market Thoughts
- 2017 Q3 Endowment & Foundation Survey Results and Infographic

WEBINAR REPLAYS

- NEPC's 2017 Defined Benefit Plan Trends Survey

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 senior consultant and insurance specialist, Andrew Coupe.
- NEPC was featured in over 35 news articles including *Bloomberg*, *Pensions & Investments* and *FundFire*, to name a few.
- NEPC's Chris Levell, ASA, CFA, CAIA, Partner, Client Strategy, was named a finalist in *Chief Investment Officer's* Consultant of the Year list.
- NEPC's Brandon Parrish, CFA, CAIA, Private Wealth Consultant, was featured in *Private Asset Management's* Top Read Stories for 2017 for his article "An Intuitive Approach for High Net Worth Clients."



TOTAL FUND PERFORMANCE SUMMARY

NEPC, LLC

TOTAL FUND PERFORMANCE SUMMARY (NET)

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Return	Since
Total Fund	\$5,420,490,945	4.1%	12	8.0%	20	16.0%	37	7.7%	40	9.4%	20	5.9%	29	8.2%	Apr-94
<i>Policy Index</i>		4.1%	12	7.9%	21	16.3%	29	8.3%	13	9.8%	12	6.1%	22	8.2%	Apr-94
<i>60% MSCI ACWI (Net) / 40% CITI WGBI</i>		3.8%	30	7.8%	27	17.1%	12	6.4%	89	6.5%	89	4.2%	93	--	Apr-94
<i>60% S&P 500 / 40% BBgBarc Aggregate</i>		4.1%	11	7.3%	56	14.2%	73	7.8%	30	10.3%	6	7.0%	3	8.4%	Apr-94
<i>InvestorForce Public DB > \$1B Net Median</i>		3.5%		7.4%		15.6%		7.5%		8.7%		5.4%		7.6%	Apr-94

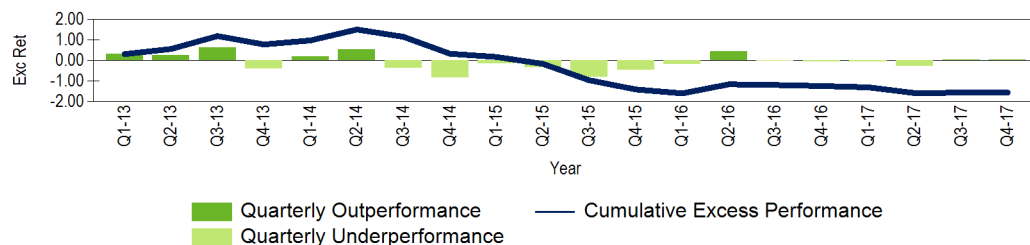
- For the five year period ending December 31, 2017, the Fund returned 9.4% trailing the policy index by 0.4% and ranking in the 20th percentile of its peers and outperforming the actuarial assumed rate of 7.5%. The Fund's volatility, as measured by standard deviation, ranked in the 74th percentile of its peers, and the risk-adjusted return, or Sharpe Ratio, ranks in the 46th percentile. This means that the Fund has earned more return per unit of volatility taken than 54% of its peers.

- For the three-year period, the Fund returned 7.7%, trailing the policy index by 0.6% and ranking in the 40th percentile of its peers. The Fund's volatility ranks in the 78th percentile of its peers over this period, with the Fund's Sharpe Ratio ranking in the 67th percentile.

- For the one-year period, the Fund returned 16.0%, underperforming the policy index by 0.3% and ranking in the 37th percentile of the InvestorForce Public Funds > \$1 Billion Universe (Net of fees).

- For the one-year period, the Fund experienced a net investment gain of \$763 million which includes a net investment gain of \$218 million in the quarter. Assets increased from \$4.67 billion one year ago to \$5.42 billion.

Quarterly and Cumulative Excess Performance



3 Years Ending December 31, 2017

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	7.7%	40	6.4%	78	1.1	67	1.6	47
Policy Index	8.3%	13	6.2%	72	1.3	36	1.8	34
InvestorForce Public DB > \$1B Net Median	7.5%	--	5.7%	--	1.2	--	1.6	--

5 Years Ending December 31, 2017

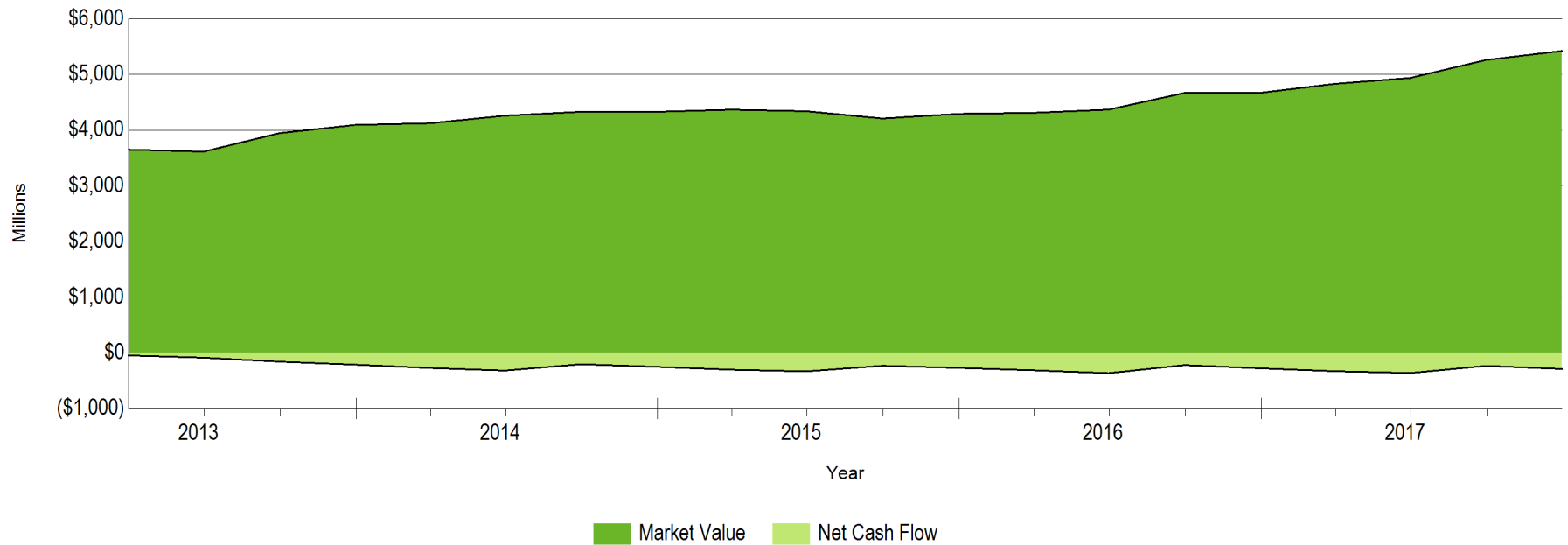
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	9.4%	20	6.2%	74	1.5	46	2.5	30
Policy Index	9.8%	12	6.0%	69	1.6	27	2.6	27
InvestorForce Public DB > \$1B Net Median	8.7%	--	5.6%	--	1.4	--	2.2	--

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



TOTAL FUND ASSET GROWTH SUMMARY

Market Value History
5 Years Ending December 31, 2017

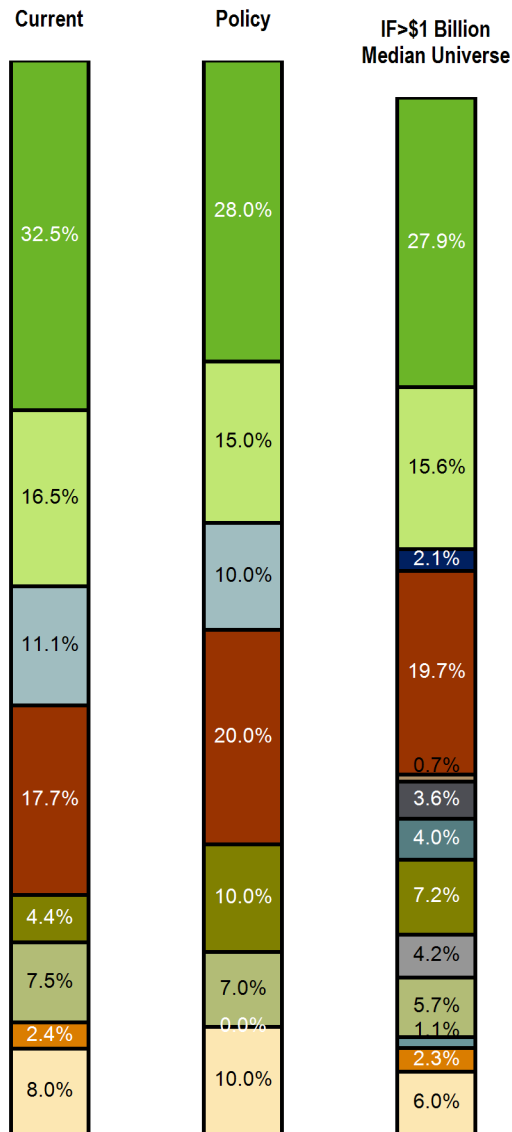


Summary of Cash Flows

	Last Three Months	Fiscal Year-To-Date	One Year	Three Years	Five Years
Beginning Market Value	\$5,257,900,164	\$4,935,381,791	\$4,668,717,739	\$4,328,232,756	\$3,498,758,840
Net Cash Flow	-\$55,558,176	\$73,852,225	-\$10,957,697	-\$37,760,046	-\$291,503,970
Net Investment Change	\$218,148,957	\$411,256,929	\$762,730,903	\$1,130,018,235	\$2,213,236,075
Ending Market Value	\$5,420,490,945	\$5,420,490,945	\$5,420,490,945	\$5,420,490,945	\$5,420,490,945



TOTAL FUND ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target						
	Current	Current	Policy	Difference*	Policy Range	Within Range
U.S. Equity	\$1,760,783,794	32.5%	28.0%	4.5%	24.0% - 32.0%	--
Non-US Equity	\$892,509,805	16.5%	15.0%	1.5%	12.0% - 18.0%	Yes
Emerging Markets Equity	--	--	--	0.0%	--	--
Global Equity	\$599,349,407	11.1%	10.0%	1.1%	7.0% - 13.0%	Yes
U.S. Fixed Income	\$959,995,760	17.7%	20.0%	-2.3%	16.0% - 24.0%	Yes
Fixed Income - Emerging	--	--	--	0.0%	--	--
Fixed Income - Global	--	--	--	0.0%	--	--
Global Asset Allocation	--	--	--	0.0%	--	--
Private Equity	\$238,478,359	4.4%	10.0%	-5.6%	0.0% - 12.0%	Yes
Hedge Funds	--	--	--	0.0%	--	--
Real Estate	\$405,111,120	7.5%	7.0%	0.5%	4.0% - 10.0%	Yes
Commodities/ Real Assets	--	--	--	0.0%	--	--
Cash	\$130,726,462	2.4%	0.0%	2.4%	0.0% - 3.0%	Yes
Liquid Alternatives	\$433,536,238	8.0%	10.0%	-2.0%	5.0% - 15.0%	Yes
Total	\$5,420,490,945	100.0%	100.0%			

*Difference between Policy and Current Allocation

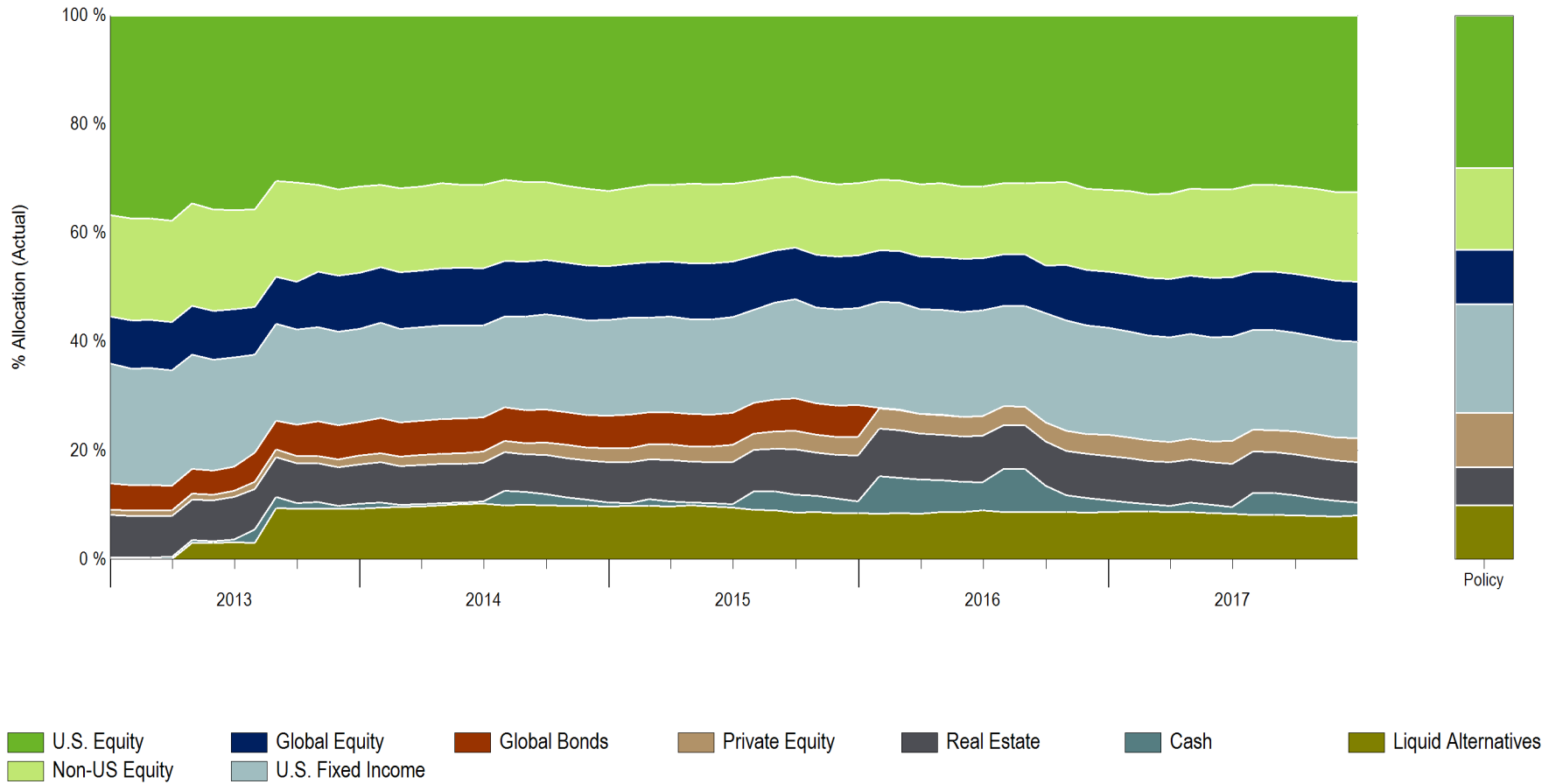
Cash represents asset in Parametric Overlay.

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



TOTAL FUND ALLOCATION HISTORY

Asset Allocation History
5 Years Ending December 31, 2017



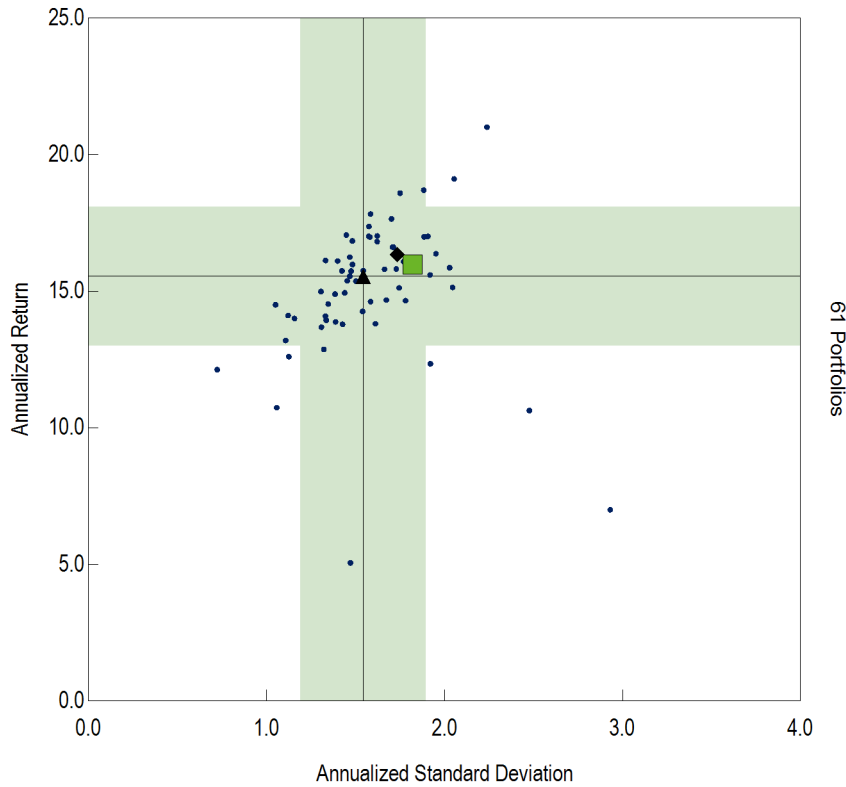
Policy Index shown is most recently approved index



Ventura County Employees' Retirement Association

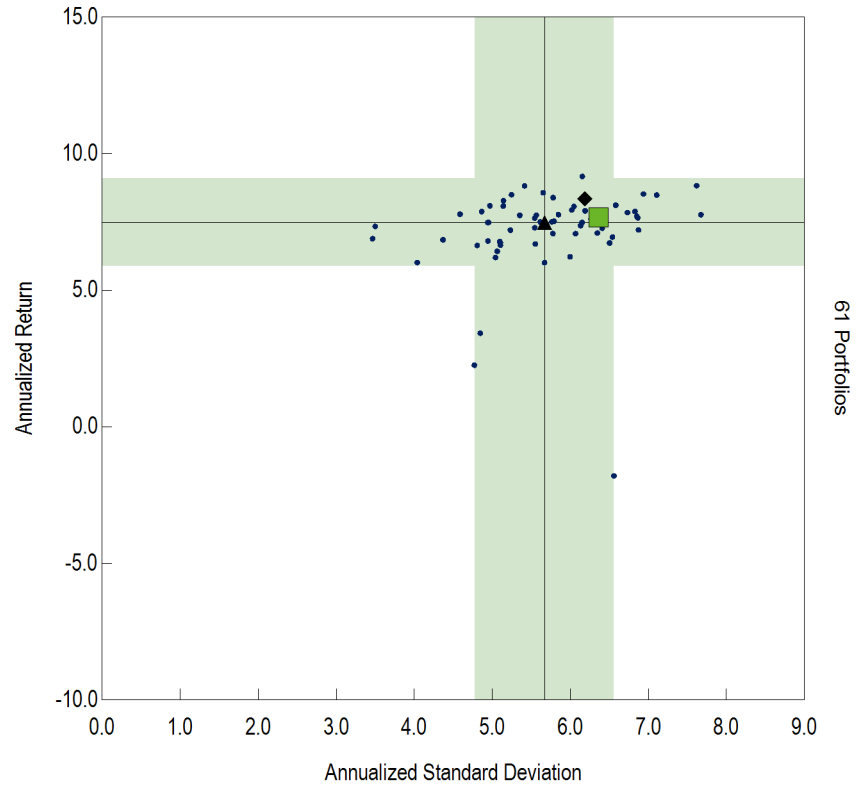
TOTAL FUND RISK/RETURN

1 Years Ending December 31, 2017



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

3 Years Ending December 31, 2017

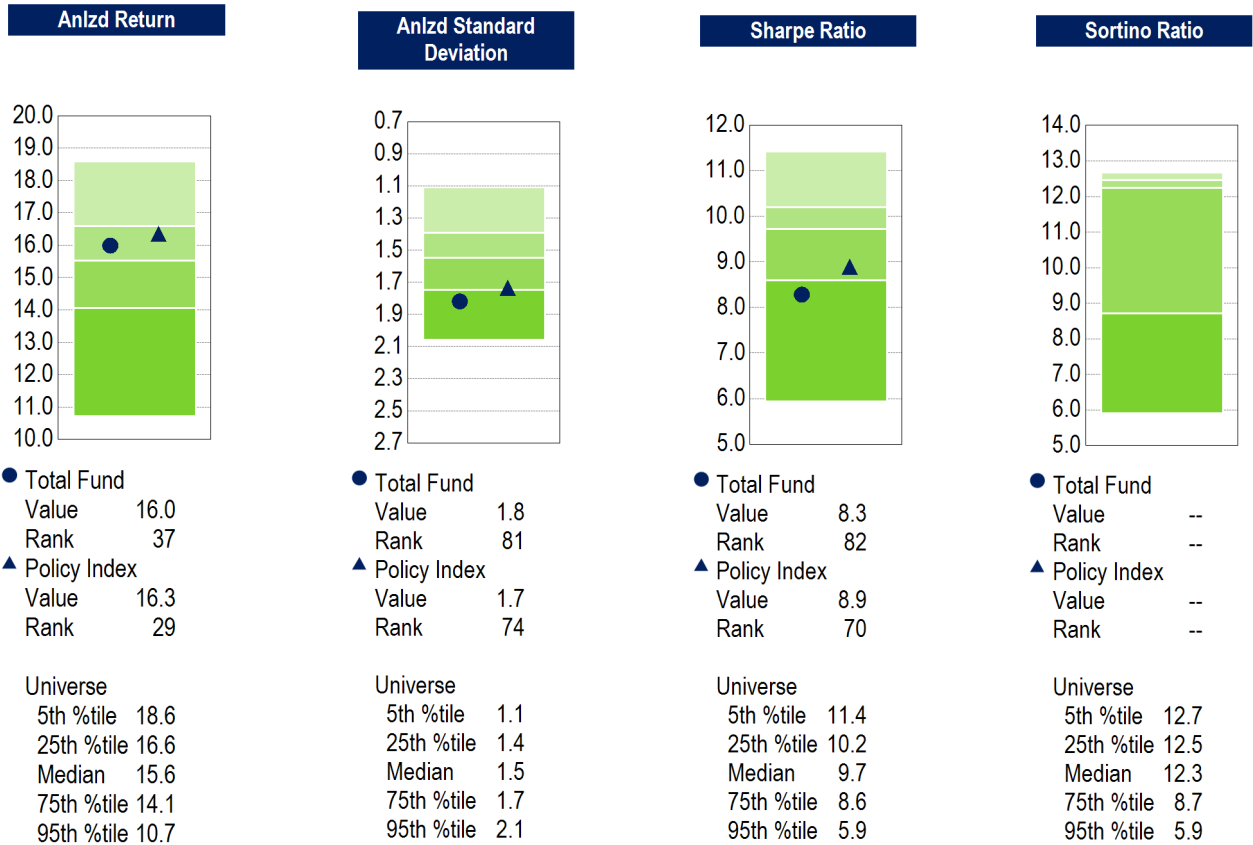


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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



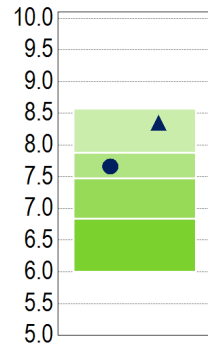
Sortino Ratio requires two months with negative returns in the time period.



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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

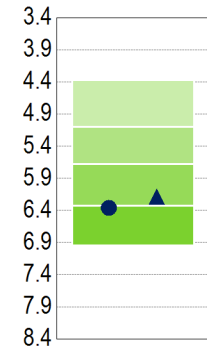
Anlzd Return



● Total Fund
Value 7.7
Rank 40
▲ Policy Index
Value 8.3
Rank 13

Universe
5th %tile 8.6
25th %tile 7.9
Median 7.5
75th %tile 6.8
95th %tile 6.0

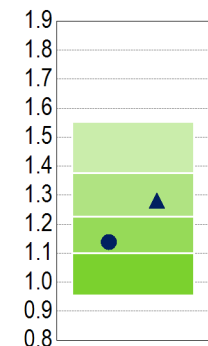
Anlzd Standard Deviation



● Total Fund
Value 6.4
Rank 78
▲ Policy Index
Value 6.2
Rank 72

Universe
5th %tile 4.4
25th %tile 5.1
Median 5.7
75th %tile 6.3
95th %tile 6.9

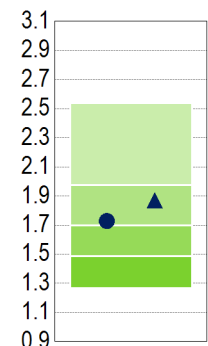
Sharpe Ratio



● Total Fund
Value 1.1
Rank 67
▲ Policy Index
Value 1.3
Rank 36

Universe
5th %tile 1.6
25th %tile 1.4
Median 1.2
75th %tile 1.1
95th %tile 1.0

Sortino Ratio



● Total Fund
Value 1.7
Rank 46
▲ Policy Index
Value 1.9
Rank 34

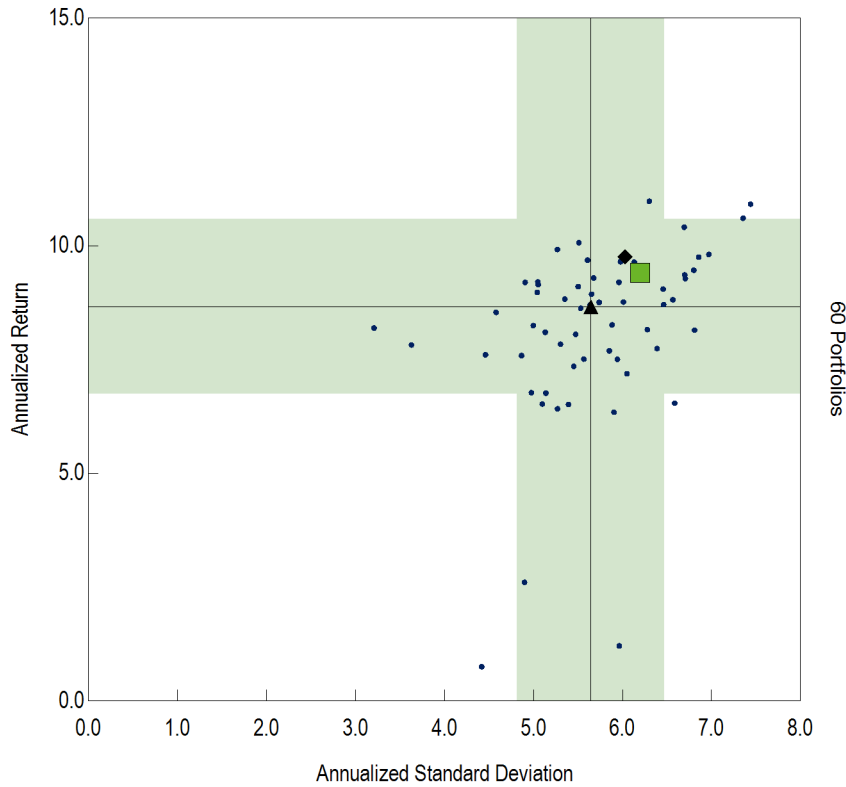
Universe
5th %tile 2.5
25th %tile 2.0
Median 1.7
75th %tile 1.5
95th %tile 1.3



Ventura County Employees' Retirement Association

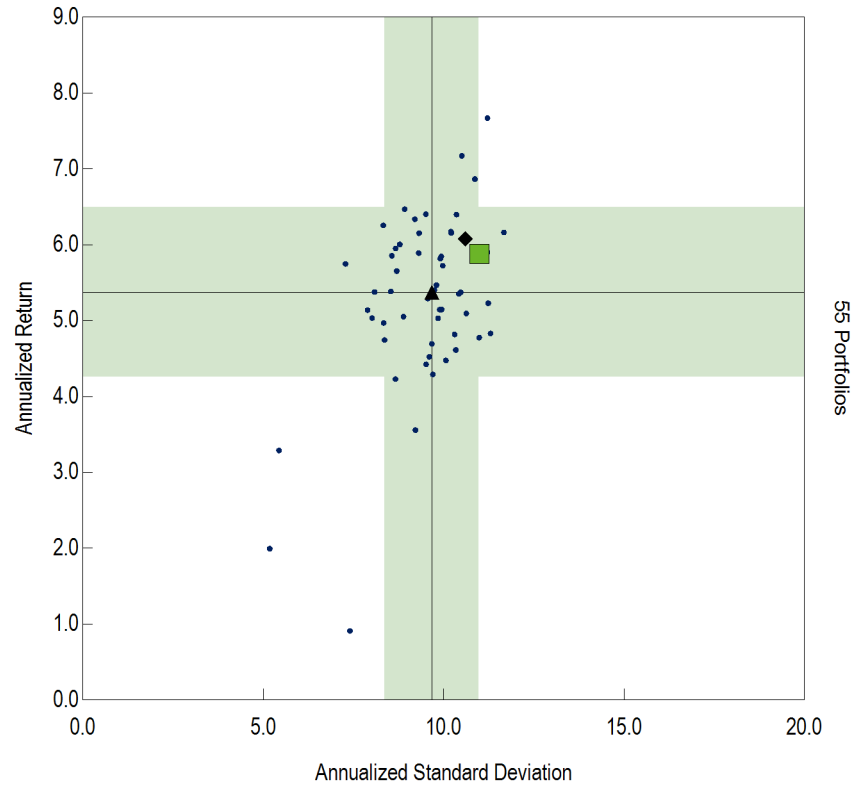
TOTAL FUND RISK/RETURN

5 Years Ending December 31, 2017



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

10 Years Ending December 31, 2017



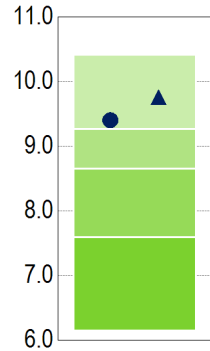
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

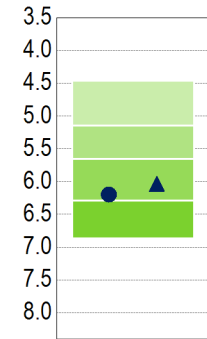
Total Fund vs. InvestorForce Public DB > \$1B Net 5 Years

Anlzd Return



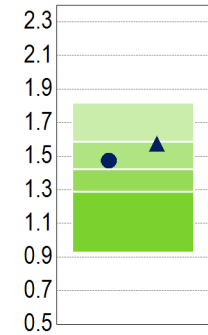
● Total Fund	
Value	9.4
Rank	20
▲ Policy Index	
Value	9.8
Rank	12
Universe	
5th %tile	10.4
25th %tile	9.3
Median	8.7
75th %tile	7.6
95th %tile	6.2

Anlzd Standard Deviation



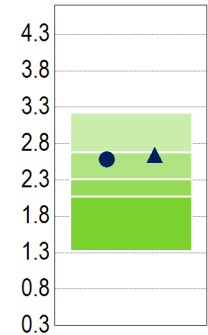
● Total Fund	
Value	6.2
Rank	74
▲ Policy Index	
Value	6.0
Rank	69
Universe	
5th %tile	4.5
25th %tile	5.1
Median	5.6
75th %tile	6.3
95th %tile	6.9

Sharpe Ratio



● Total Fund	
Value	1.5
Rank	46
▲ Policy Index	
Value	1.6
Rank	27
Universe	
5th %tile	1.8
25th %tile	1.6
Median	1.4
75th %tile	1.3
95th %tile	0.9

Sortino Ratio



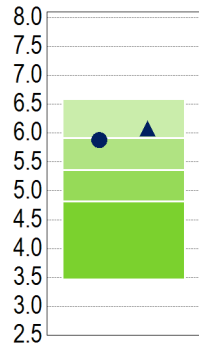
● Total Fund	
Value	2.6
Rank	29
▲ Policy Index	
Value	2.6
Rank	27
Universe	
5th %tile	3.2
25th %tile	2.7
Median	2.3
75th %tile	2.1
95th %tile	1.3



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

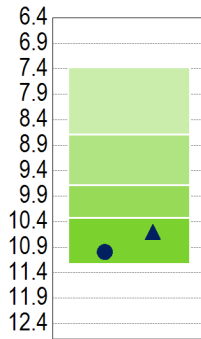
Total Fund vs. InvestorForce Public DB > \$1B Net 10 Years

Anlzd Return



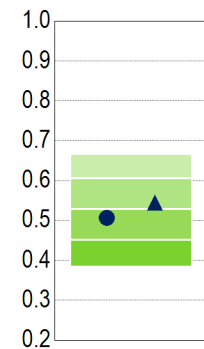
● Total Fund	
Value	5.9
Rank	29
▲ Policy Index	
Value	6.1
Rank	22
Universe	
5th %tile	6.6
25th %tile	5.9
Median	5.4
75th %tile	4.8
95th %tile	3.5

Anlzd Standard Deviation



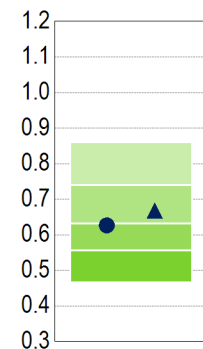
● Total Fund	
Value	11.0
Rank	91
▲ Policy Index	
Value	10.6
Rank	85
Universe	
5th %tile	7.4
25th %tile	8.7
Median	9.7
75th %tile	10.3
95th %tile	11.2

Sharpe Ratio



● Total Fund	
Value	0.5
Rank	60
▲ Policy Index	
Value	0.5
Rank	46
Universe	
5th %tile	0.7
25th %tile	0.6
Median	0.5
75th %tile	0.5
95th %tile	0.4

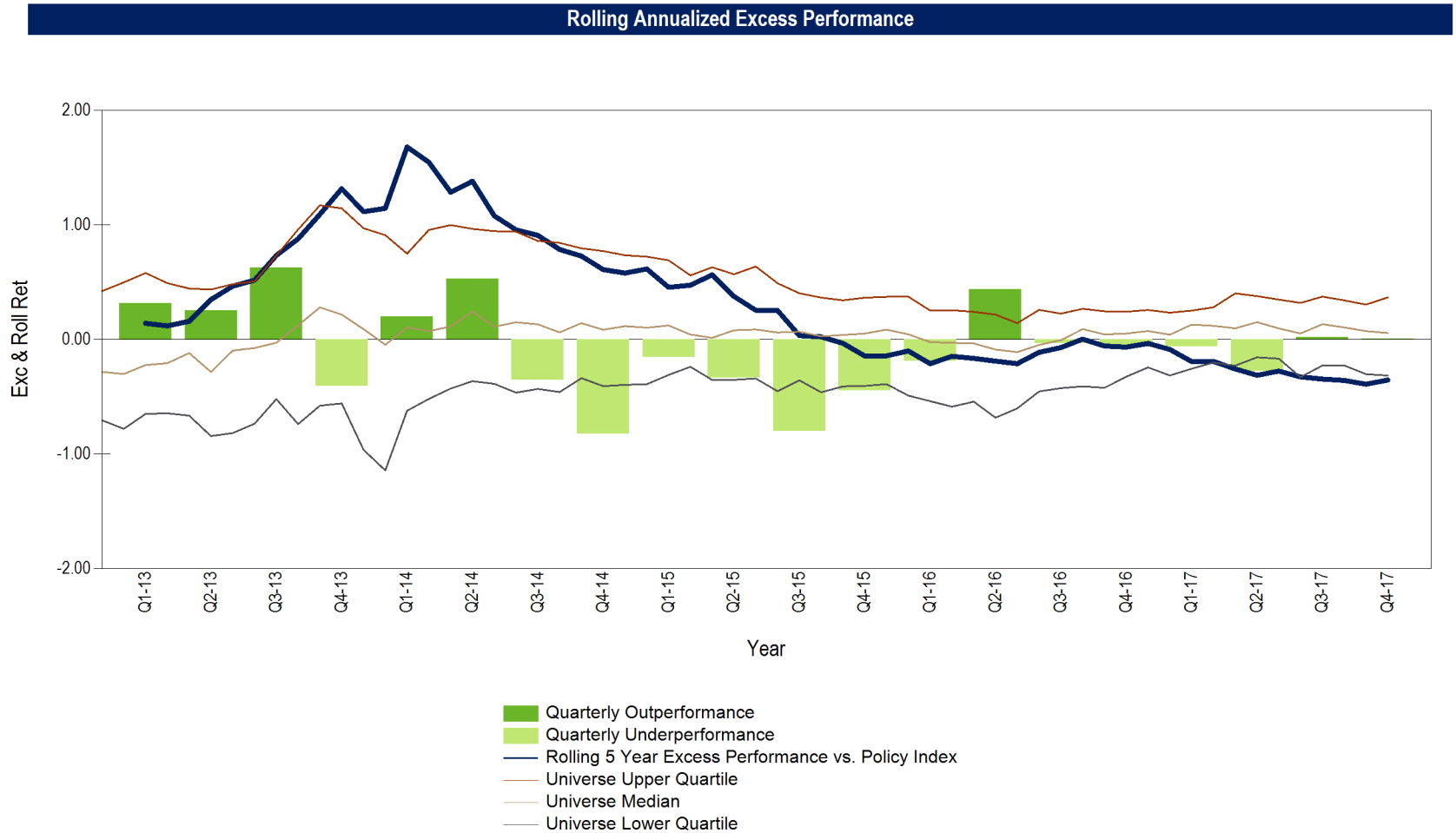
Sortino Ratio



● Total Fund	
Value	0.6
Rank	54
▲ Policy Index	
Value	0.7
Rank	38
Universe	
5th %tile	0.9
25th %tile	0.7
Median	0.6
75th %tile	0.6
95th %tile	0.5

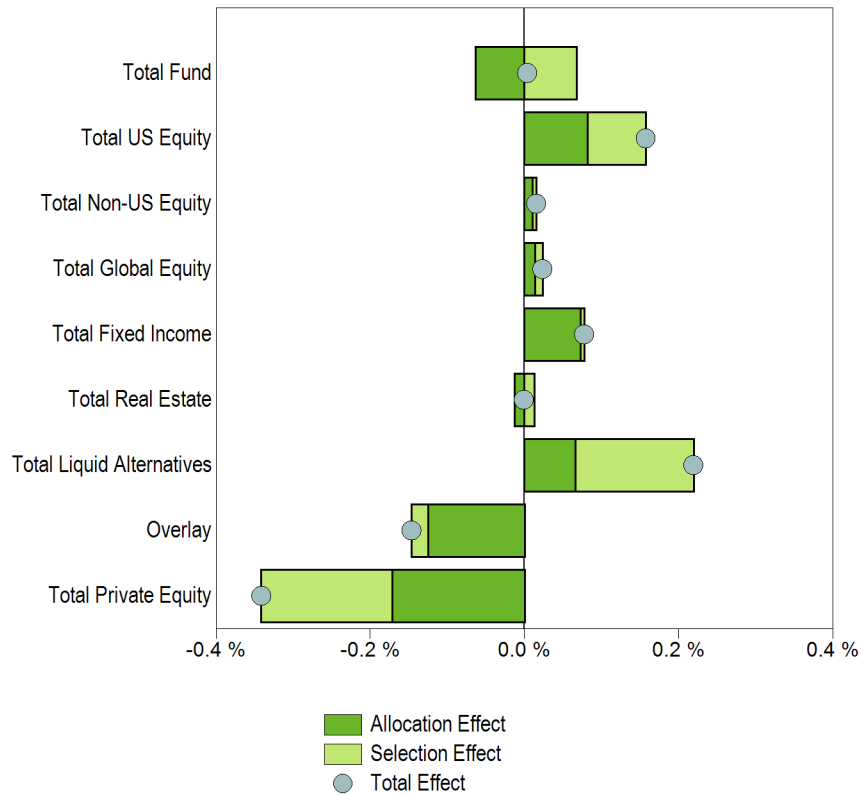


ROLLING 5 YEAR EXCESS RETURNS- NET OF FEES



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects 3 Months Ending December 31, 2017

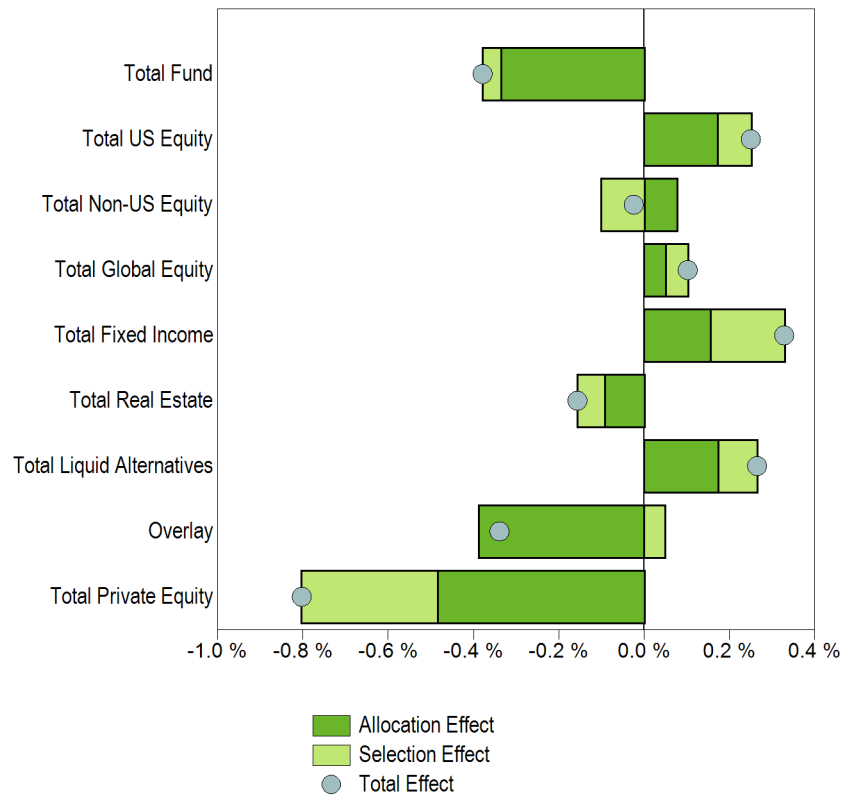


Attribution Summary 3 Months Ending December 31, 2017						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	6.6%	6.3%	0.2%	0.1%	0.1%	0.2%
Total Non-US Equity	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
Total Global Equity	5.8%	5.7%	0.1%	0.0%	0.0%	0.0%
Total Fixed Income	0.4%	0.4%	0.0%	0.0%	0.1%	0.1%
Total Real Estate	2.0%	1.9%	0.2%	0.0%	0.0%	0.0%
Total Liquid Alternatives	2.8%	0.9%	1.9%	0.2%	0.1%	0.2%
Overlay	-0.3%	0.3%	-0.6%	0.0%	-0.1%	-0.1%
Total Private Equity	3.1%	7.1%	-4.0%	-0.2%	-0.2%	-0.3%
Total	4.1%	4.1%	0.0%	0.1%	-0.1%	0.0%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
1 Year Ending December 31, 2017

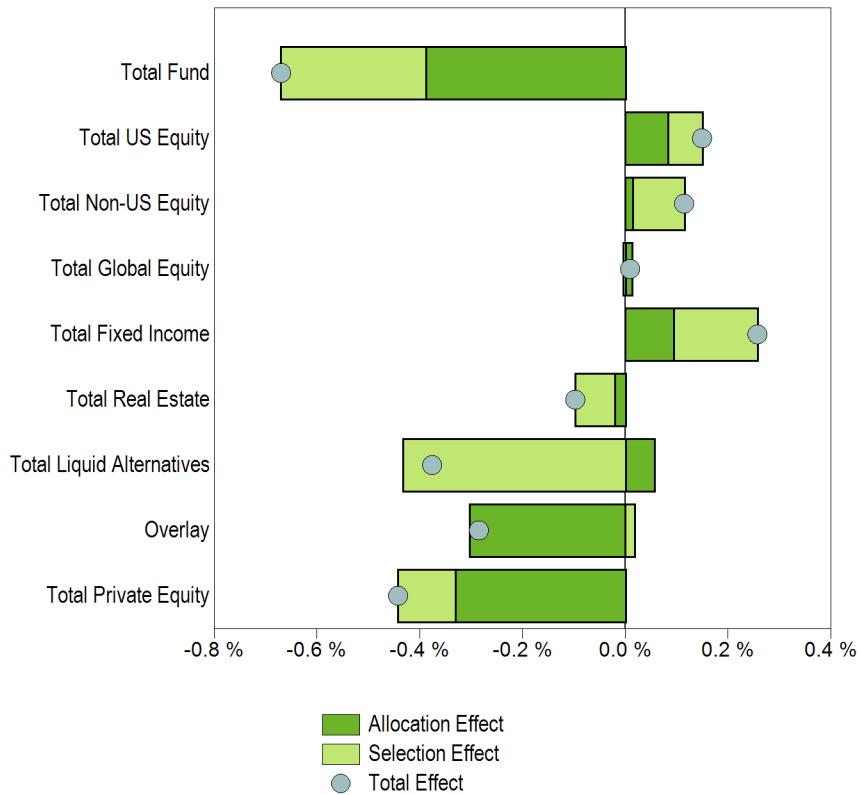


Attribution Summary						
1 Year Ending December 31, 2017						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	21.4%	21.1%	0.3%	0.1%	0.2%	0.2%
Total Non-US Equity	26.5%	27.2%	-0.7%	-0.1%	0.1%	0.0%
Total Global Equity	24.5%	24.0%	0.5%	0.1%	0.1%	0.1%
Total Fixed Income	4.4%	3.5%	0.8%	0.2%	0.2%	0.3%
Total Real Estate	5.9%	6.7%	-0.7%	-0.1%	-0.1%	-0.2%
Total Liquid Alternatives	7.2%	6.2%	1.0%	0.1%	0.2%	0.3%
Overlay	3.9%	0.9%	3.0%	0.0%	-0.4%	-0.3%
Total Private Equity	16.9%	24.7%	-7.9%	-0.3%	-0.5%	-0.8%
Total	16.0%	16.3%	-0.4%	0.0%	-0.3%	-0.4%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects 3 Years Ending December 31, 2017

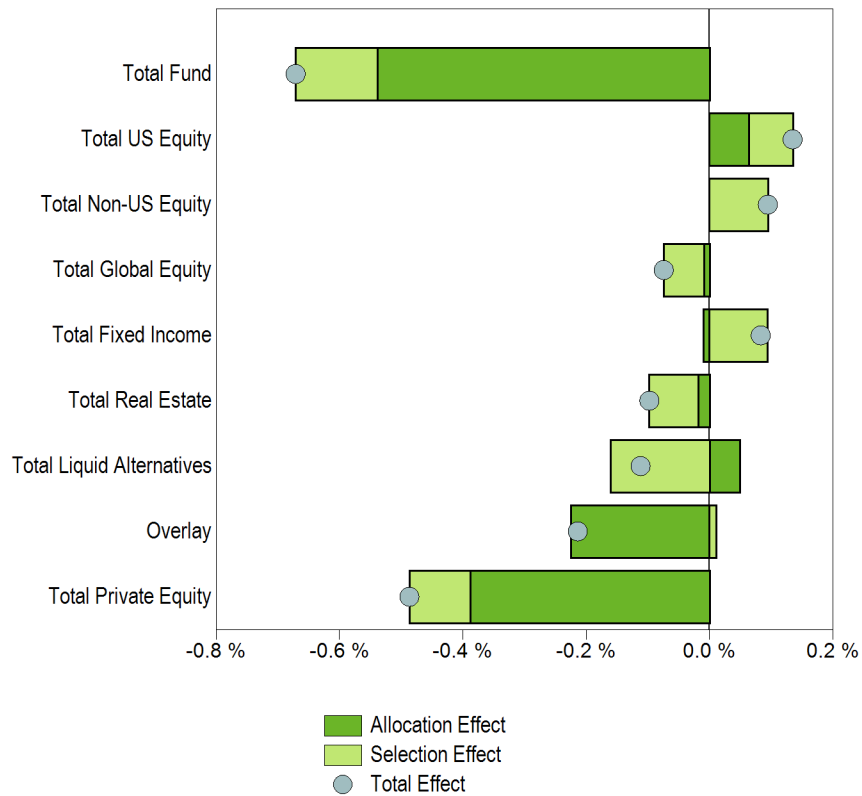


Attribution Summary 3 Years Ending December 31, 2017						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	11.3%	11.1%	0.2%	0.1%	0.1%	0.1%
Total Non-US Equity	8.7%	7.8%	0.8%	0.1%	0.0%	0.1%
Total Global Equity	9.3%	9.3%	0.0%	0.0%	0.0%	0.0%
Total Fixed Income	2.9%	2.0%	0.9%	0.2%	0.1%	0.3%
Total Real Estate	8.5%	9.4%	-1.0%	-0.1%	0.0%	-0.1%
Total Liquid Alternatives	1.1%	5.7%	-4.6%	-0.4%	0.1%	-0.4%
Overlay	1.4%	0.4%	1.0%	0.0%	-0.3%	-0.3%
Total Private Equity	13.0%	14.4%	-1.4%	-0.1%	-0.3%	-0.4%
Total	7.7%	8.3%	-0.7%	-0.3%	-0.4%	-0.7%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
5 Years Ending December 31, 2017



Attribution Summary						
5 Years Ending December 31, 2017						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	15.8%	15.5%	0.2%	0.1%	0.1%	0.1%
Total Non-US Equity	7.5%	6.8%	0.7%	0.1%	0.0%	0.1%
Total Global Equity	10.1%	10.8%	-0.7%	-0.1%	0.0%	-0.1%
Total Fixed Income	2.2%	1.7%	0.5%	0.1%	0.0%	0.1%
Total Real Estate	9.5%	10.5%	-1.0%	-0.1%	0.0%	-0.1%
Total Liquid Alternatives	--	5.8%	--	-0.1%	0.0%	-0.1%
Overlay	--	0.3%	--	0.0%	-0.2%	-0.2%
Total Private Equity	15.1%	18.9%	-3.8%	-0.1%	-0.4%	-0.5%
Total	9.2%	9.8%	-0.6%	-0.1%	-0.6%	-0.6%



TOTAL FUND RISK STATISTICS

1 Year Ending December 31, 2017												
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.0%	23.3%	36	3.0%	62	-1.1%	80	0.6%	10	-1.1	63	1.0
MSCI ACWI	--	24.0%	24	2.8%	46	0.0%	54	0.0%	1	--	--	1.0
Total US Equity	32.5%	21.4%	23	3.8%	43	0.5%	23	0.5%	10	0.5	18	1.0
Russell 3000	--	21.1%	31	3.8%	46	0.0%	30	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	26.5%	77	4.4%	66	-3.8%	87	0.9%	11	-0.7	85	1.1
MSCI ACWI ex USA	--	27.2%	71	3.9%	32	0.0%	62	0.0%	1	--	--	1.0
Total Global Equity	11.1%	24.5%	53	2.8%	9	0.6%	23	0.1%	1	8.2	1	1.0
MSCI ACWI	--	24.0%	72	2.8%	9	0.0%	49	0.0%	1	--	--	1.0
Total Fixed Income	17.7%	4.4%	61	1.1%	14	1.7%	52	0.6%	50	1.4	56	0.7
Total Fixed Income Policy Index	--	3.5%	70	1.5%	81	0.0%	83	0.0%	1	--	--	1.0
Total US Fixed Income	17.7%	4.4%	38	1.1%	20	1.7%	31	0.6%	66	1.4	44	0.7
BBgBarc US Aggregate TR	--	3.5%	51	1.5%	88	0.0%	81	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.0%	7.2%	--	4.3%	--	1.7%	--	4.3%	--	0.2	--	0.9
CPI + 4% (Unadjusted)	--	6.2%	--	0.8%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.5%	5.9%	84	2.6%	71
NCREIF ODCE Net	--	6.7%	66	2.8%	75
Total Private Equity	4.4%	16.9%	31	5.8%	53
DJ U.S. Total Stock Market Index + 3%	--	24.7%	1	3.8%	21

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 86 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 173 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 122 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 39 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 84 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 109 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 63 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 43 portfolios).



TOTAL FUND RISK STATISTICS

3 Years Ending December 31, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.0%	10.3%	16	10.2%	67	1.3%	8	1.2%	32	0.8	3	1.0
MSCI ACWI	--	9.3%	77	10.5%	87	0.0%	73	0.0%	1	--	--	1.0
Total US Equity	32.5%	11.3%	18	10.3%	59	0.2%	19	0.3%	1	0.8	1	1.0
Russell 3000	--	11.1%	27	10.2%	53	0.0%	25	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	8.7%	47	11.5%	51	1.2%	46	1.1%	6	0.7	19	1.0
MSCI ACWI ex USA	--	7.8%	73	12.0%	85	0.0%	78	0.0%	1	--	--	1.0
Total Global Equity	11.1%	9.3%	32	10.6%	70	-0.1%	87	1.0%	1	0.0	44	1.0
MSCI ACWI	--	9.3%	31	10.5%	70	0.0%	83	0.0%	1	--	--	1.0
Total Fixed Income	17.7%	2.9%	47	2.4%	35	1.4%	30	1.8%	62	0.5	33	0.7
Total Fixed Income Policy Index	--	2.0%	72	2.7%	53	0.0%	82	0.0%	1	--	--	1.0
Total US Fixed Income	17.7%	3.2%	26	2.4%	50	1.6%	15	2.0%	83	0.5	45	0.6
BBgBarc US Aggregate TR	--	2.2%	55	2.8%	69	0.0%	74	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.0%	1.1%	--	9.3%	--	-12.2%	--	9.1%	--	-0.5	--	2.4
CPI + 4% (Unadjusted)	--	5.7%	--	0.9%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.5%	8.5%	66	3.7%	46
NCREIF ODCE Net	--	9.4%	39	4.1%	59
Total Private Equity	4.4%	13.0%	27	6.1%	62
DJ U.S. Total Stock Market Index + 3%	--	14.4%	12	10.2%	96

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 81 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 163 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 116 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 33 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 79 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 107 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 61 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 42 portfolios).



TOTAL FUND RISK STATISTICS

5 Years Ending December 31, 2017

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.0%	12.5%	46	9.6%	46	2.1%	6	1.3%	37	1.3	1	1.0
MSCI ACWI	--	10.8%	86	9.9%	81	0.0%	70	0.0%	1	--	--	1.0
Total US Equity	32.5%	15.8%	7	9.8%	39	0.2%	11	0.3%	1	0.7	1	1.0
Russell 3000	--	15.5%	25	9.8%	34	0.0%	14	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	7.5%	48	10.9%	27	1.1%	34	1.2%	5	0.6	22	0.9
MSCI ACWI ex USA	--	6.8%	74	11.5%	76	0.0%	72	0.0%	1	--	--	1.0
Total Global Equity	11.1%	10.1%	65	10.0%	49	-0.7%	99	1.0%	1	-0.6	99	1.0
MSCI ACWI	--	10.8%	63	9.9%	47	0.0%	89	0.0%	1	--	--	1.0
Total Fixed Income	17.7%	2.2%	54	2.5%	27	0.9%	31	1.6%	57	0.3	44	0.7
Total Fixed Income Policy Index	--	1.7%	72	2.8%	44	0.0%	70	0.0%	1	--	--	1.0
Total US Fixed Income	17.7%	2.5%	35	2.4%	41	1.0%	23	1.8%	84	0.2	53	0.7
BBgBarc US Aggregate TR	--	2.1%	53	2.8%	63	0.0%	72	0.0%	1	--	--	1.0
Total Liquid Alternatives	8.0%	--	--	--	--	--	--	--	--	--	--	--
CPI + 4% (Unadjusted)	--	9.8%	--	6.2%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.5%	9.5%	77	4.0%	45
NCREIF ODCE Net	--	10.5%	55	4.4%	55
Total Private Equity	4.4%	15.1%	23	6.5%	57
DJ U.S. Total Stock Market Index + 3%	--	18.9%	5	9.8%	90

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 62 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 134 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 103 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 18 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 68 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 90 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 54 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 37 portfolios).



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Fund	5,420,490,945	100.0	100.0	4.1	12	8.0	20	16.0	37	7.7	40	9.4	20	5.9	29	8.2	Apr-94
Policy Index				4.1	12	7.9	21	16.3	29	8.3	13	9.8	12	6.1	22	8.2	Apr-94
Over/Under				0.0		0.1		-0.3		-0.6		-0.4		-0.2		0.0	
60% MSCI ACWI (Net) / 40% CITI WGBI				3.8	30	7.8	27	17.1	12	6.4	89	6.5	89	4.2	93	--	Apr-94
InvestorForce Public DB > \$1B Net Median				3.5		7.4		15.6		7.5		8.7		5.4		7.6	Apr-94
Total Fund ex Parametric*	5,276,974,531	97.4	--	3.9	--	7.8	--	15.7	--	7.6	--	9.3	--	5.8	--	8.2	Apr-94
Total Fund ex Private Equity	5,180,512,586	95.6	--	4.1	11	8.0	20	15.9	38	7.5	50	8.9	40	--	--	9.6	Jan-12
Policy Index				4.1	12	7.9	21	16.3	29	8.3	13	9.8	12	6.1	22	10.3	Jan-12
Over/Under				0.0		0.1		-0.4		-0.8		-0.9				-0.7	
InvestorForce Public DB > \$1B Net Median				3.5		7.4		15.6		7.5		8.7		5.4		9.2	Jan-12
Total US Equity	1,760,783,794	32.5	28.0	6.6	18	11.5	19	21.4	23	11.3	18	15.8	7	8.5	41	9.4	Dec-93
Russell 3000				6.3	37	11.2	31	21.1	31	11.1	27	15.5	25	8.7	27	9.7	Dec-93
Over/Under				0.3		0.3		0.3		0.2		0.3		-0.2		-0.3	
InvestorForce Public DB US Eq Net Median				6.2		10.9		20.2		10.8		15.0		8.3		9.4	Dec-93
Western U.S. Index Plus	197,789,623	3.6		6.9	25	12.8	20	22.7	31	12.2	18	16.5	16	7.4	78	5.9	May-07
S&P 500				6.6	30	11.4	36	21.8	35	11.4	25	15.8	27	8.5	52	7.7	May-07
Over/Under				0.3		1.4		0.9		0.8		0.7		-1.1		-1.8	
eV All US Equity Net Median				5.6		10.4		18.7		9.8		14.5		8.5		7.6	May-07
Blackrock Russell 1000 Index	1,501,688,720	27.7		6.6	48	11.4	50	--	--	--	--	--	--	--	--	13.6	May-17
Russell 1000				6.6	48	11.4	50	21.7	46	11.2	27	15.7	33	8.6	39	13.6	May-17
Over/Under				0.0		0.0										0.0	
eV US Large Cap Equity Net Median				6.5		11.3		21.1		10.0		14.8		8.3		13.6	May-17
Blackrock Russell 2500 Index	61,305,451	1.1		5.2	54	10.3	44	--	--	--	--	--	--	--	--	11.7	May-17
Russell 2500				5.2	54	10.2	44	16.8	52	10.1	38	14.3	38	9.2	49	11.7	May-17
Over/Under				0.0		0.1										0.0	
eV US Small-Mid Cap Equity Net Median				5.5		9.6		17.1		9.3		13.7		9.1		11.2	May-17

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

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

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



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Non-US Equity	892,509,805	16.5	15.0	5.0	40	11.6	41	26.5	77	8.7	47	7.5	48	2.5	47	6.8	Mar-94
MSCI ACWI ex USA				5.0	43	11.5	47	27.2	71	7.8	73	6.8	74	1.8	68	5.6	Mar-94
Over/Under				0.0		0.1		-0.7		0.9		0.7		0.7		1.2	
MSCI EAFE				4.2	76	9.9	85	25.0	89	7.8	75	7.9	38	1.9	68	5.2	Mar-94
MSCI ACWI ex USA Local Currency				4.2	77	8.8	93	18.2	99	8.8	43	10.4	1	3.5	18	--	Mar-94
MSCI EAFE Local Currency				3.7	86	7.1	99	15.2	99	8.5	53	11.4	1	3.3	21	5.1	Mar-94
InvestorForce Public DB ex-US Eq Net Median				4.8		11.3		28.3		8.6		7.4		2.4		6.0	Mar-94
BlackRock ACWI ex-U.S. Index	437,710,700	8.1		5.2	40	11.9	51	28.1	62	8.6	60	7.4	79	2.4	68	3.3	Mar-07
MSCI ACWI ex USA IMI				5.2	40	11.8	53	27.8	62	8.4	64	7.2	80	2.2	70	3.1	Mar-07
Over/Under				0.0		0.1		0.3		0.2		0.2		0.2		0.2	
MSCI ACWI ex USA Local Currency				4.2	69	8.8	85	18.2	99	8.8	58	10.4	21	3.5	49	3.7	Mar-07
eV ACWI ex-US All Cap Equity Net Median				4.9		11.9		29.6		9.3		9.1		3.4		4.2	Mar-07
Sprucegrove	236,456,815	4.4		5.8	31	14.7	17	27.5	68	9.0	54	8.0	67	3.7	42	8.2	Mar-02
MSCI ACWI ex USA				5.0	43	11.5	54	27.2	69	7.8	73	6.8	84	1.8	82	7.1	Mar-02
Over/Under				0.8		3.2		0.3		1.2		1.2		1.9		1.1	
MSCI EAFE				4.2	68	9.9	74	25.0	80	7.8	73	7.9	69	1.9	79	6.5	Mar-02
MSCI ACWI ex USA Local Currency				4.2	69	8.8	85	18.2	99	8.8	58	10.4	21	3.5	49	5.7	Mar-02
MSCI EAFE Local Currency				3.7	79	7.1	97	15.2	99	8.5	61	11.4	14	3.3	51	4.9	Mar-02
eV ACWI ex-US All Cap Equity Net Median				4.9		11.9		29.6		9.3		9.1		3.4		7.7	Mar-02
Hexavest	94,281,380	1.7		2.5	86	5.7	96	17.4	96	6.3	88	6.7	95	--	--	5.1	Dec-10
MSCI EAFE				4.2	41	9.9	50	25.0	59	7.8	65	7.9	68	1.9	78	6.0	Dec-10
Over/Under				-1.7		-4.2		-7.6		-1.5		-1.2				-0.9	
MSCI EAFE Local Currency				3.7	60	7.1	87	15.2	99	8.5	56	11.4	11	3.3	36	8.5	Dec-10
eV EAFE All Cap Equity Net Median				3.9		9.7		25.7		8.9		8.7		2.7		7.0	Dec-10
Walter Scott	124,060,910	2.3		4.9	50	9.9	73	26.6	74	9.9	41	7.4	79	--	--	6.6	Dec-10
MSCI ACWI ex USA				5.0	43	11.5	54	27.2	69	7.8	73	6.8	84	1.8	82	4.9	Dec-10
Over/Under				-0.1		-1.6		-0.6		2.1		0.6				1.7	
MSCI ACWI ex USA Local Currency				4.2	69	8.8	85	18.2	99	8.8	58	10.4	21	3.5	49	7.7	Dec-10
MSCI EAFE				4.2	68	9.9	74	25.0	80	7.8	73	7.9	69	1.9	79	6.0	Dec-10
eV ACWI ex-US All Cap Equity Net Median				4.9		11.9		29.6		9.3		9.1		3.4		7.1	Dec-10



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Global Equity	599,349,407	11.1	10.0	5.8	3	11.4	6	24.5	53	9.3	32	10.1	65	3.9	20	6.4	May-05
MSCI ACWI				5.7	6	11.2	9	24.0	72	9.3	31	10.8	63	4.7	14	7.3	May-05
Over/Under				0.1		0.2		0.5		0.0		-0.7		-0.8		-0.9	
InvestorForce Public DB Gbl Eq Net Median				4.6		8.9		24.5		9.1		12.5		2.4		6.4	May-05
BlackRock MSCI ACWI Equity Index	599,349,407	11.1		5.8	34	11.4	40	24.5	43	9.8	38	11.2	52	--	--	12.0	Aug-12
MSCI ACWI				5.7	37	11.2	43	24.0	45	9.3	45	10.8	60	4.7	64	11.6	Aug-12
Over/Under				0.1		0.2		0.5		0.5		0.4				0.4	
eV All Global Equity Net Median				5.1		10.5		23.0		9.0		11.4		5.5		11.9	Aug-12



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Private Equity	239,978,359	4.4	10.0	3.1	39	8.2	27	16.9	31	13.0	27	15.1	23	--	--	14.3	Jan-12
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	4	<u>12.8</u>	4	<u>24.7</u>	1	<u>14.4</u>	12	<u>18.9</u>	5	--	--	<u>19.1</u>	<i>Jan-12</i>
Over/Under				-4.0		-4.6		-7.8		-1.4		-3.8				-4.8	
<i>InvestorForce Public DB Private Eq Net Median</i>				2.7		6.2		14.6		11.7		13.5		7.9		12.3	<i>Jan-12</i>
Adams Street Global Fund Series	133,737,393	2.5		4.4	--	7.6	--	13.4	--	10.2	--	13.1	--	--	--	12.7	Jan-12
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	<u>19.1</u>	<i>Jan-12</i>
Over/Under				-2.7		-5.2		-11.3		-4.2		-5.8				-6.4	
Harbourvest	66,119,273	1.2		0.9	--	9.7	--	23.2	--	19.1	--	--	--	--	--	19.3	Aug-13
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	<u>16.3</u>	<i>Aug-13</i>
Over/Under				-6.2		-3.1		-1.5		4.7						3.0	
Pantheon Global Secondary Funds	31,268,033	0.6		2.6	--	9.1	--	24.1	--	15.1	--	15.4	--	--	--	12.8	Jan-12
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	<u>19.1</u>	<i>Jan-12</i>
Over/Under				-4.5		-3.7		-0.6		0.7		-3.5				-6.3	
Drive Capital Fund	2,573,974	0.0		-2.9	--	-7.2	--	-33.7	--	--	--	--	--	--	--	-43.3	Sep-16
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	<u>22.7</u>	<i>Sep-16</i>
Over/Under				-10.0		-20.0		-58.4								-66.0	
Abbott Secondary Opportunities	3,279,685	0.1		--	--	--	--	--	--	--	--	--	--	--	--	--	Jan-18
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	--	<i>Jan-18</i>
Over/Under																	
CVI Credit Value Fund	1,500,000	0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	Jan-18
<i>DJ U.S. Total Stock Market Index + 3%</i>				<u>7.1</u>	--	<u>12.8</u>	--	<u>24.7</u>	--	<u>14.4</u>	--	<u>18.9</u>	--	--	--	--	<i>Jan-18</i>
Over/Under																	
Abbott Capital Cash	1,500,000	0.0															

*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

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

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

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



PRIVATE EQUITY LIMITED PARTNERSHIP PERFORMANCE

Fund Name	Vintage Year	Initial Investment Date	Commitment	Capital Called to Date ¹	Outstanding Commitment ¹	Call Ratio	Add'l Fees ²	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions to Paid In Multiple (DPI)	Total Value to Paid In Multiple (TVPI)
Abbott Secondary Opportunities, LP.	2017	12/21/2017	\$25,000,000	\$4,779,685	\$20,583,031	19%	--	\$1,500,000	\$2,875,000	\$4,375,000	-\$404,685	-100%	0.31x	0.92x
Adams Street 2010 U.S. Fund	2010	5/21/2010	\$42,500,000	\$37,442,500	\$5,057,500	88%	\$15,213	\$20,305,453	\$35,853,396	\$56,158,849	\$18,701,136	13.2%	0.54x	1.50x
Adams Street 2010 Non-U.S. Dev. Mkts Fund	2010	5/21/2010	\$25,500,000	\$21,254,249	\$4,245,751	83%	\$1,589	\$11,784,023	\$17,528,905	\$29,312,928	\$8,057,090	10.6%	0.55x	1.38x
Adams Street 2010 Non-U.S. Emg Mkts Fund	2010	1/3/2011	\$8,500,000	\$7,378,000	\$1,122,000	87%	\$0	\$1,507,798	\$8,818,035	\$10,325,833	\$2,947,833	10.2%	0.2x	1.4x
Adams Street 2010 Direct Fund	2010	5/21/2010	\$8,500,000	\$8,046,100	\$453,900	95%	\$6,697	\$7,693,519	\$5,423,150	\$13,116,669	\$5,063,872	12.4%	0.96x	1.63x
Adams Street 2013 Global Fund	2013	6/27/2013	\$75,000,000	\$49,950,000	\$25,050,000	67%	\$10,728	\$4,679,630	\$55,265,820	\$59,945,450	\$9,984,722	8.1%	0.09x	1.2x
Adams Street 2016 Global Fund	2016	12/22/2016	\$60,000,000	\$9,960,000	\$50,040,000	17%	\$0	\$0	\$10,878,847	\$10,878,847	\$918,847	22.5%	0x	1.09x
Clearlake Capital Partners	2017	12/22/2017	\$9,950,000	--	\$9,950,000	0%	--	--	--	--	--	--	--	--
CVI Credit Value Fund IV	2017	12/31/2017	\$30,000,000	\$1,500,000	\$28,500,000	5%	--	--	\$1,500,000	\$1,500,000	--	--	0x	1x
Drive Capital Fund II	2016	9/1/2016	\$15,000,000	\$3,018,985	\$11,984,305	20%	\$3,210	\$0	\$2,573,973	\$2,573,973	-\$448,222	-23.7%	0x	0.85x
GTCR Fund XII	2017	9/29/2017	\$30,000,000	--	\$30,000,000	0%	--	--	--	--	--	--	--	--
Insight Venture Partners X	2017	10/13/2017	\$25,000,000	--	\$25,000,000	0%	--	--	--	--	--	--	--	--
HarbourVest - Dover Street VIII	2013	5/30/2013	\$67,500,000	\$59,147,454	\$8,437,500	88%	\$84,954	\$46,566,930	\$40,585,660	\$87,152,590	\$27,920,182	21.9%	0.79x	1.47x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$12,600,000	\$47,400,000	21%	\$0	\$3,388,361	\$12,615,715	\$16,004,076	\$3,404,076	65.0%	0.27x	1.27x
HarbourVest - PRTNS CO INVEST IV L.P.	2017	6/2/2017	\$30,000,000	\$14,521,740	\$15,675,000	48%	\$0	\$0	\$16,043,068	\$16,043,068	\$1,521,328	25.0%	0x	1.1x
Pantheon Global Secondary Fund IV	2010	8/20/2010	\$15,000,000	\$9,960,000	\$5,040,000	66%	\$0	\$11,535,001	\$3,862,210	\$15,397,211	\$5,437,211	14.1%	1.16x	1.55x
Pantheon Global Secondary Fund V	2015	2/26/2015	\$50,000,000	\$24,941,509	\$25,058,491	50%	(\$162,514)	\$4,775,205	\$27,393,227	\$32,168,433	\$7,389,438	21.6%	0.19x	1.29x
Total VCERA Private Equity Program	--	5/21/2010	\$577,450,000	\$264,500,222	\$313,597,478	46%	-\$40,123	\$113,735,920	\$241,217,006	\$354,952,927	\$90,492,828	14.2%	0.43x	1.34x

1. Includes recycled/recallable distributions received to date.

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

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

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

Performance shown is based on 9/30/2017 NAVs cash-adjusted for cash flows through 12/31/2017.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total US Fixed Income	959,995,760	17.7	20.0	0.4	46	1.4	45	4.4	38	3.2	26	2.5	35	5.4	18	5.9	Feb-94
BBgBarc US Aggregate TR				0.4	47	1.2	53	3.5	51	2.2	55	2.1	53	4.0	56	5.4	Feb-94
Over/Under				0.0		0.2		0.9		1.0		0.4		1.4		0.5	
InvestorForce Public DB US Fix Inc Net Median				0.3		1.3		3.6		2.5		2.3		4.1		5.4	Feb-94
BlackRock U.S. Debt Fund	223,128,516	4.1		0.4	52	1.3	56	3.6	56	2.3	58	2.2	56	4.1	54	5.2	Nov-95
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56	5.2	Nov-95
Over/Under				0.0		0.1		0.1		0.1		0.1		0.1		0.0	
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2		5.1	Nov-95
Western	298,407,973	5.5		0.7	33	1.9	36	6.0	29	3.6	35	3.4	35	5.3	30	6.2	Dec-96
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56	5.2	Dec-96
Over/Under				0.3		0.7		2.5		1.4		1.3		1.3		1.0	
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2		5.1	Dec-96
Reams	309,158,438	5.7		0.0	79	0.6	75	2.5	70	2.9	44	1.5	73	5.3	30	5.4	Sep-01
Reams Custom Index				0.4	52	0.7	70	1.3	88	0.8	93	0.4	95	3.2	74	3.9	Sep-01
Over/Under				-0.4		-0.1		1.2		2.1		1.1		2.1		1.5	
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56	4.4	Sep-01
3-Month LIBOR + 3%				1.1	21	2.2	29	4.4	43	3.8	33	3.6	32	3.8	61	4.8	Sep-01
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2		4.5	Sep-01
Loomis Strategic Alpha	46,094,642	0.9		0.6	36	2.1	30	3.3	60	2.8	48	--	--	--	--	2.7	Jul-13
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56	2.9	Jul-13
Over/Under				0.2		0.9		-0.2		0.6						-0.2	
3-Month LIBOR + 3%				1.1	21	2.2	29	4.4	43	3.8	33	3.6	32	3.8	61	3.6	Jul-13
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2		3.2	Jul-13
Loomis Sayles Multi Strategy	83,206,191	1.5		0.8	31	2.7	20	8.4	13	4.6	22	4.4	24	6.6	18	6.6	Jul-05
Loomis Custom Index				0.4	51	1.6	45	4.5	42	3.4	38	3.1	39	5.2	31	5.2	Jul-05
Over/Under				0.4		1.1		3.9		1.2		1.3		1.4		1.4	
BBgBarc US Govt/Credit TR				0.5	45	1.3	54	4.0	49	2.4	55	2.1	57	4.1	54	4.2	Jul-05
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2		4.2	Jul-05

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

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

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



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Real Estate	405,111,120	7.5	7.0	2.0	29	3.6	52	5.9	84	8.5	66	9.5	77	2.7	88	7.8	Mar-94
NCREIF ODCE Net				1.9	40	3.5	56	6.7	66	9.4	39	10.5	55	4.1	56	8.1	Mar-94
Over/Under				0.1		0.1		-0.8		-0.9		-1.0		-1.4		-0.3	
InvestorForce Public DB Real Estate Pub+Priv Net Median				1.8		3.7		7.6		9.1		10.7		4.5		5.5	Mar-94
Prudential Real Estate	144,511,543	2.7		1.8	--	3.9	--	7.0	--	9.8	--	11.2	--	3.7	--	6.2	Jun-04
NCREIF ODCE Net				1.9	--	3.5	--	6.7	--	9.4	--	10.5	--	4.1	--	7.1	Jun-04
Over/Under				-0.1		0.4		0.3		0.4		0.7		-0.4		-0.9	
NCREIF ODCE				2.1	--	4.0	--	7.6	--	10.4	--	11.5	--	5.0	--	8.1	Jun-04
UBS Real Estate	260,599,577	4.8		2.1	--	3.5	--	5.4	--	7.8	--	8.6	--	4.2	--	7.4	Mar-03
NCREIF ODCE Net				1.9	--	3.5	--	6.7	--	9.4	--	10.5	--	4.1	--	7.3	Mar-03
Over/Under				0.2		0.0		-1.3		-1.6		-1.9		0.1		0.1	
NCREIF ODCE				2.1	--	4.0	--	7.6	--	10.4	--	11.5	--	5.0	--	8.3	Mar-03

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



TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Return (%)	Since
Total Liquid Alternatives	433,536,238	8.0	10.0	2.8	--	4.7	--	7.2	--	1.1	--	--	--	--	--	5.1	Apr-13
CPI + 4% (Unadjusted)				0.9	--	2.6	--	6.2	--	5.7	--	9.8	--	--	--	6.2	Apr-13
Over/Under				1.9		2.1		1.0		-4.6						-1.1	
Bridgewater All Weather Fund	314,550,694	5.8		4.1	--	7.8	--	11.9	--	4.7	--	--	--	--	--	5.8	Aug-13
CPI + 5% (Unadjusted)				1.1	--	3.1	--	7.2	--	6.7	--	--	--	--	--	6.3	Aug-13
Over/Under				3.0		4.7		4.7		-2.0						-0.5	
Tortoise Energy Infrastructure	118,985,544	2.2		-0.7	--	-2.7	--	-3.5	--	-6.6	--	--	--	--	--	1.3	Apr-13
Wells Fargo MLP Index				-0.7	--	-2.7	--	-5.7	--	-9.1	--	0.9	--	--	--	-3.0	Apr-13
Over/Under				0.0		0.0		2.2		2.5						4.3	
Overlay	129,226,462	2.4	0.0														
Parametric	129,226,462	2.4															

Overlay performance is not applicable on an individual account level.

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

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



MANAGER DUE DILIGENCE

NEPC, LLC

DUE DILIGENCE MONITOR

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

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



DUE DILIGENCE MONITOR

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

NEPC Due Diligence Committee Recommendation Key

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



DUE DILIGENCE COMMENTARY

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

Manager Changes/Announcements

Hexavest

NEPC Research was notified that Eaton Vance elected not to exercise its option to increase ownership in Hexavest to 76% from the present 49%. Management explains that both parties have been happy with the present structure - 51% Hexavest, 49% Eaton Vance - allowing Hexavest to continue controlling and directing operations and investment philosophy in its Montreal headquarters. NEPC Research is comfortable with this decision. Hexavest is an independent company with a young team; this structure keeps them incentivized with all strategic choices belonging to them. NEPC Research recommends NO ACTION.

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

Western

Western Asset Management has announced two retirements at their firm. Generalist Portfolio Manager Carl Eichstaedt will be retiring from Western at the end of March 2019, and Chief Risk Officer Ken Winston will be retiring from Western at the end of December 2018. There is no immediate plan to hire a replacement for Mr. Eichstaedt. His responsibilities will be absorbed by the existing five generalist portfolio managers on the US Broad Market Investment Team. Western's investment process is team-based. Named portfolio managers are tasked with executing team views on each portfolio, and do not diverge from targets dictated by the team-based investment process. For this reason, NEPC Research is not concerned with Carl Eichstaedt retiring, believing the remaining portfolio managers have the ability and transition period necessary to absorb responsibility.

Western is promoting Ahmet Kocagil, who currently leads risk management of the firm's credit strategies, to replace Mr. Winston as Chief Risk Officer (CRO). He will be assuming managerial responsibility of the 34 person risk team. NEPC Research does not anticipate any changes in terms of structure of the team. Leading up to assuming the full CRO role by June 2018, both Mr. Kocagil and Mr. Winston will be assessing new candidates to lead the credit risk team. NEPC Research recommends NO ACTION.

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

Sprucegrove

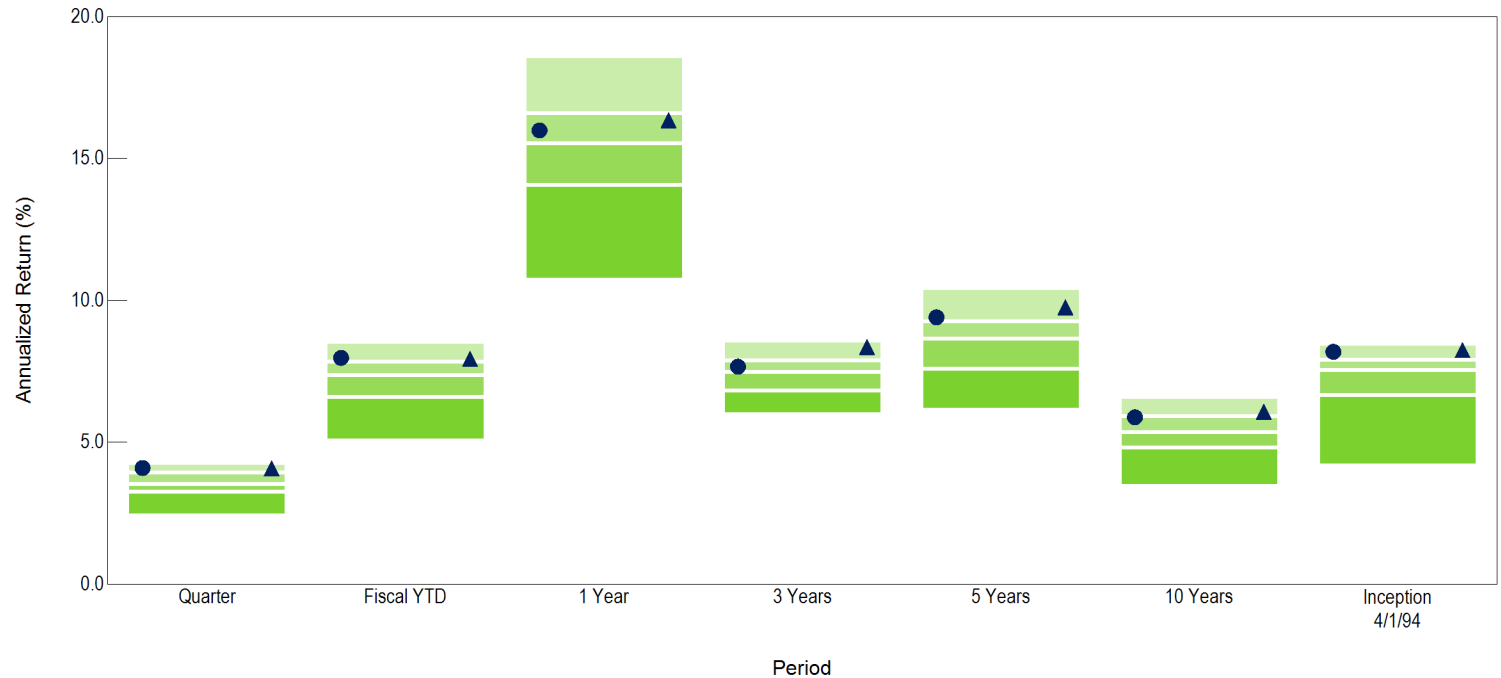
NEPC Research held an update call with Sprucegrove and they mentioned that they had added a few new analysts and the team had remained stable since Craig Merrigan's announcement was made in 2016 to retire in June of 2018. Mr. Merrigan stepped down from his role as President as well as from the Board and Business Management Committee. Mr. Merrigan has remained active in portfolio management in addition to serving as an advisor to the Board during the transition period until his retirement. Portfolio Manager and member of Sprucegrove's Business Management Committee, Arjun Kumar, joined Shirley Woo and Sabu Mehta on the Board in early 2017. The firm has transitioned away from having a President and instead has adopted an executive director model. They will be announcing a new internal research director in 2018. Sprucegrove had been placed on HOLD back in 2014 as a result of Peter Ellement's departure and challenging performance. They have shown improvements in hiring new analysts and they hired a VP of HR to professionalize and set expectations for the team. Performance has also turned around. NEPC Research is comfortable with upgrading Sprucegrove from HOLD to NO ACTION.

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



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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

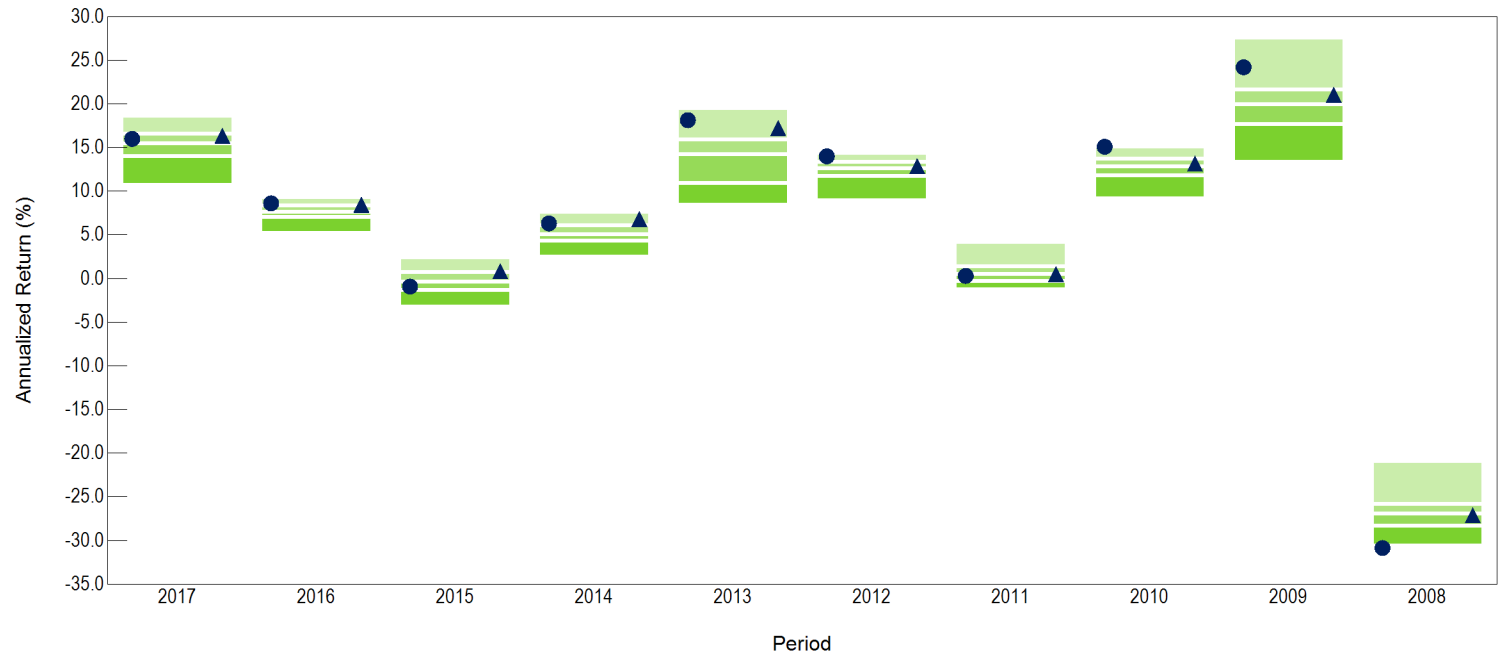


	Return (Rank)													
5th Percentile	4.3	8.5	18.6	8.6	10.4	6.6	8.5							
25th Percentile	3.9	7.8	16.6	7.9	9.3	5.9	7.9							
Median	3.5	7.4	15.6	7.5	8.7	5.4	7.6							
75th Percentile	3.3	6.6	14.1	6.8	7.6	4.8	6.7							
95th Percentile	2.4	5.1	10.7	6.0	6.2	3.5	4.2							
# of Portfolios	61	61	61	61	60	55	33							
● Total Fund	4.1	(12)	8.0	(20)	16.0	(37)	7.7	(40)	9.4	(20)	5.9	(29)	8.2	(13)
▲ Policy Index	4.1	(12)	7.9	(21)	16.3	(29)	8.3	(13)	9.8	(12)	6.1	(22)	8.2	(11)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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

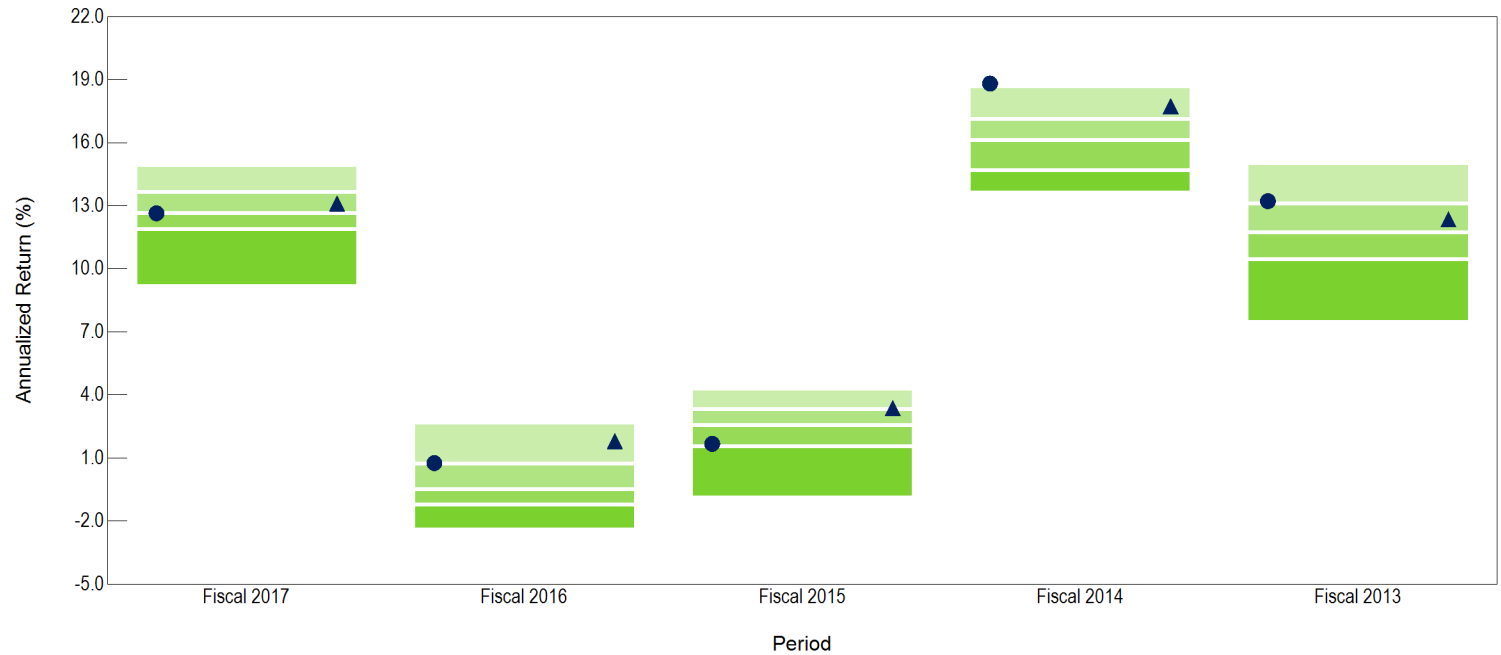


	Return (Rank)																			
5th Percentile	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5	-20.9	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5	-20.9
25th Percentile	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7	-25.7	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7	-25.7
Median	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0	-26.9	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0	-26.9
75th Percentile	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7	-28.3	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7	-28.3
95th Percentile	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4	-30.5	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4	-30.5
# of Portfolios	61	62	57	55	48	44	42	41	40	39	61	62	57	55	48	44	42	41	40	39
● Total Fund	16.0	(37)	8.6	(15)	-0.9	(65)	6.3	(20)	18.1	(10)	14.0	(15)	0.3	(61)	15.1	(6)	24.2	(16)	-30.9	(98)
▲ Policy Index	16.3	(29)	8.4	(25)	0.8	(25)	6.8	(12)	17.2	(14)	12.9	(41)	0.5	(55)	13.2	(44)	21.0	(33)	-27.1	(54)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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

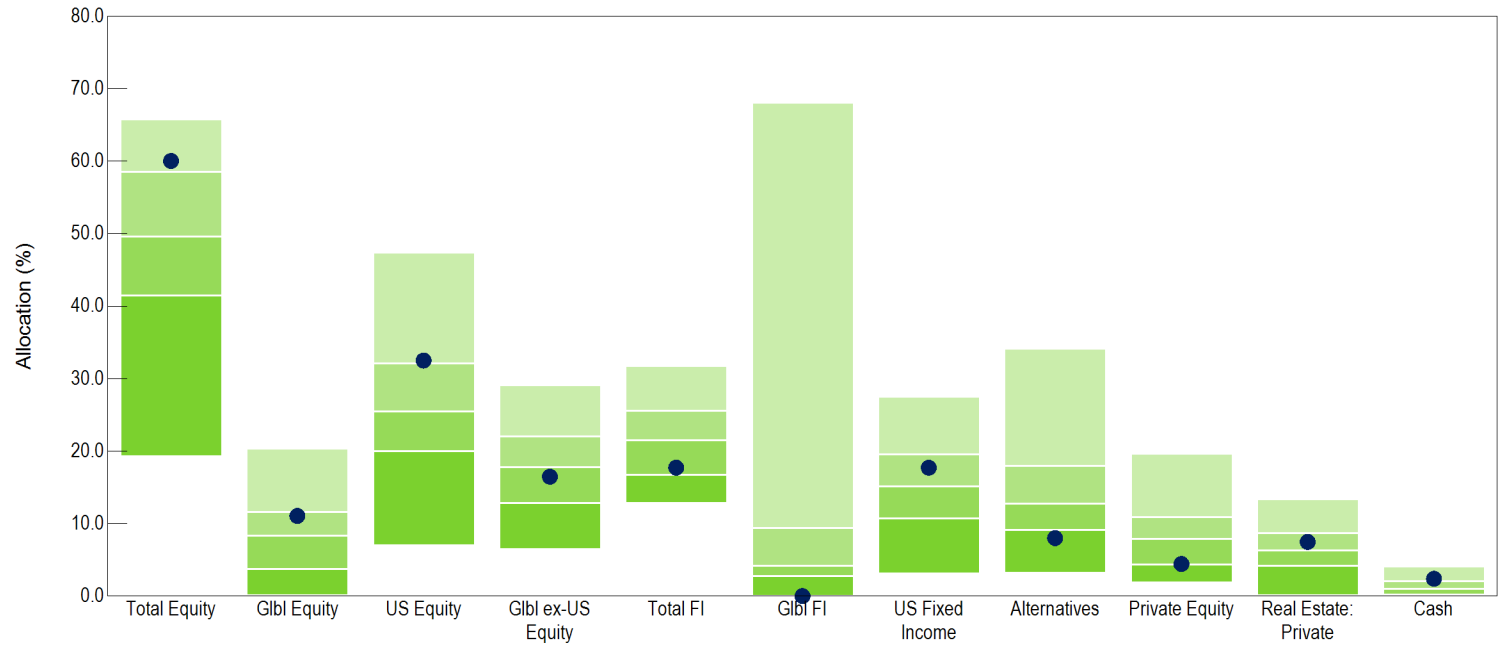


	Return (Rank)									
5th Percentile	14.9		2.7		4.3		18.7		15.0	
25th Percentile	13.7		0.8		3.3		17.2		13.1	
Median	12.7		-0.5		2.6		16.1		11.8	
75th Percentile	11.9		-1.2		1.6		14.7		10.5	
95th Percentile	9.2		-2.4		-0.9		13.6		7.5	
# of Portfolios	65		55		53		43		56	
● Total Fund	12.6	(53)	0.8	(26)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



TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

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



	Allocation (Rank)																							
5th Percentile	65.8	20.3	47.4	29.1	31.7	68.0	27.5	34.1	19.6	13.4	4.1	--	--											
25th Percentile	58.6	11.7	32.2	22.1	25.7	9.5	19.6	18.0	11.0	8.8	2.2	--	--											
Median	49.7	8.4	25.6	17.8	21.6	4.2	15.2	12.8	8.0	6.4	1.1	--	--											
75th Percentile	41.6	3.8	20.1	12.9	16.8	2.9	10.8	9.3	4.5	4.3	0.3	--	--											
95th Percentile	19.4	0.2	7.1	6.6	12.9	0.1	3.2	3.3	1.9	0.2	0.0	--	--											
# of Portfolios	56	22	49	50	56	26	51	51	48	44	54	--	--											
• Total Fund	60.0	(18)	11.1	(28)	32.5	(24)	16.5	(56)	17.7	(69)	0.0	(96)	17.7	(30)	8.0	(81)	4.4	(76)	7.5	(41)	2.4	(20)	--	--



TOTAL FUND CALENDER YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total US Equity	21.4	13.0	0.5	12.5	34.0	16.9	0.9	18.5	29.2	-40.0	4.3
<i>Russell 3000</i>	<u>21.1</u>	<u>12.7</u>	<u>0.4</u>	<u>12.4</u>	<u>33.5</u>	<u>16.4</u>	<u>1.1</u>	<u>17.5</u>	<u>28.6</u>	<u>-37.2</u>	<u>5.5</u>
Over/Under	0.3	0.3	0.1	0.1	0.5	0.5	-0.2	1.0	0.6	-2.8	-1.2
Western U.S. Index Plus	22.7	13.8	1.1	14.2	32.9	20.7	1.0	24.7	42.6	-56.3	--
<i>S&P 500</i>	<u>21.8</u>	<u>12.0</u>	<u>1.4</u>	<u>13.7</u>	<u>32.4</u>	<u>16.0</u>	<u>2.1</u>	<u>15.1</u>	<u>26.5</u>	<u>-37.0</u>	<u>5.5</u>
Over/Under	0.9	1.8	-0.3	0.5	0.5	4.7	-1.1	9.6	16.1	-19.3	
Blackrock Russell 1000 Index	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 1000</i>	<u>21.7</u>	<u>12.1</u>	<u>0.9</u>	<u>13.2</u>	<u>33.1</u>	<u>16.4</u>	<u>1.5</u>	<u>16.1</u>	<u>28.4</u>	<u>-37.6</u>	<u>5.8</u>
Over/Under											
Blackrock Russell 2500 Index	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 2500</i>	<u>16.8</u>	<u>17.6</u>	<u>-2.9</u>	<u>7.1</u>	<u>36.8</u>	<u>17.9</u>	<u>-2.5</u>	<u>26.7</u>	<u>34.4</u>	<u>-36.8</u>	<u>1.4</u>
Over/Under											
Total Non-US Equity	26.5	6.6	-4.8	-3.6	16.3	17.9	-13.6	13.5	37.4	-44.1	11.7
<i>MSCI ACWI ex USA</i>	<u>27.2</u>	<u>4.5</u>	<u>-5.7</u>	<u>-3.9</u>	<u>15.3</u>	<u>16.8</u>	<u>-13.7</u>	<u>11.2</u>	<u>41.4</u>	<u>-45.5</u>	<u>16.7</u>
Over/Under	-0.7	2.1	0.9	0.3	1.0	1.1	0.1	2.3	-4.0	1.4	-5.0
BlackRock ACWI ex-U.S. Index	28.1	4.7	-4.5	-3.8	16.0	17.2	-14.1	12.8	43.1	-45.6	--
<i>MSCI ACWI ex USA IMI</i>	<u>27.8</u>	<u>4.4</u>	<u>-4.6</u>	<u>-3.9</u>	<u>15.8</u>	<u>17.0</u>	<u>-14.3</u>	<u>12.7</u>	<u>43.6</u>	<u>-46.0</u>	<u>16.1</u>
Over/Under	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.1	-0.5	0.4	
Sprucegrove	27.5	11.9	-9.1	-3.2	17.1	17.2	-10.7	18.8	36.2	-42.4	5.8
<i>MSCI ACWI ex USA</i>	<u>27.2</u>	<u>4.5</u>	<u>-5.7</u>	<u>-3.9</u>	<u>15.3</u>	<u>16.8</u>	<u>-13.7</u>	<u>11.2</u>	<u>41.4</u>	<u>-45.5</u>	<u>16.7</u>
Over/Under	0.3	7.4	-3.4	0.7	1.8	0.4	3.0	7.6	-5.2	3.1	-10.9
Hexavest	17.4	3.8	-1.4	-4.3	20.2	13.7	-9.6	--	--	--	--
<i>MSCI EAFE</i>	<u>25.0</u>	<u>1.0</u>	<u>-0.8</u>	<u>-4.9</u>	<u>22.8</u>	<u>17.3</u>	<u>-12.1</u>	<u>7.8</u>	<u>31.8</u>	<u>-43.4</u>	<u>11.2</u>
Over/Under	-7.6	2.8	-0.6	0.6	-2.6	-3.6	2.5				
Walter Scott	26.6	5.1	-0.4	-3.5	11.8	20.4	-9.3	--	--	--	--
<i>MSCI ACWI ex USA</i>	<u>27.2</u>	<u>4.5</u>	<u>-5.7</u>	<u>-3.9</u>	<u>15.3</u>	<u>16.8</u>	<u>-13.7</u>	<u>11.2</u>	<u>41.4</u>	<u>-45.5</u>	<u>16.7</u>
Over/Under	-0.6	0.6	5.3	0.4	-3.5	3.6	4.4				



TOTAL FUND CALENDER YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total Global Equity	24.5	9.0	-3.8	1.9	22.0	14.4	-3.9	11.4	17.8	-37.3	11.3
<i>MSCI ACWI</i>	<u>24.0</u>	<u>7.9</u>	<u>-2.4</u>	<u>4.2</u>	<u>22.8</u>	<u>16.1</u>	<u>-7.3</u>	<u>12.7</u>	<u>34.6</u>	<u>-42.2</u>	<u>11.7</u>
Over/Under	0.5	1.1	-1.4	-2.3	-0.8	-1.7	3.4	-1.3	-16.8	4.9	-0.4
BlackRock MSCI ACWI Equity Index	24.5	8.4	-2.0	4.6	23.2	--	--	--	--	--	--
<i>MSCI ACWI</i>	<u>24.0</u>	<u>7.9</u>	<u>-2.4</u>	<u>4.2</u>	<u>22.8</u>	<u>16.1</u>	<u>-7.3</u>	<u>12.7</u>	<u>34.6</u>	<u>-42.2</u>	<u>11.7</u>
Over/Under	0.5	0.5	0.4	0.4	0.4						
Total US Fixed Income	4.4	4.9	0.3	3.0	-0.1	9.6	7.3	10.6	25.6	-8.7	6.3
<i>BBgBarc US Aggregate TR</i>	<u>3.5</u>	<u>2.6</u>	<u>0.5</u>	<u>6.0</u>	<u>-2.0</u>	<u>4.2</u>	<u>7.8</u>	<u>6.5</u>	<u>5.9</u>	<u>5.2</u>	<u>7.0</u>
Over/Under	0.9	2.3	-0.2	-3.0	1.9	5.4	-0.5	4.1	19.7	-13.9	-0.7
BlackRock U.S. Debt Fund	3.6	2.7	0.6	6.2	-2.0	4.3	7.9	6.7	6.0	5.4	7.0
<i>BBgBarc US Aggregate TR</i>	<u>3.5</u>	<u>2.6</u>	<u>0.5</u>	<u>6.0</u>	<u>-2.0</u>	<u>4.2</u>	<u>7.8</u>	<u>6.5</u>	<u>5.9</u>	<u>5.2</u>	<u>7.0</u>
Over/Under	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.2	0.0
Western	6.0	4.1	0.9	7.4	-1.2	9.7	7.3	11.3	18.9	-8.9	4.8
<i>BBgBarc US Aggregate TR</i>	<u>3.5</u>	<u>2.6</u>	<u>0.5</u>	<u>6.0</u>	<u>-2.0</u>	<u>4.2</u>	<u>7.8</u>	<u>6.5</u>	<u>5.9</u>	<u>5.2</u>	<u>7.0</u>
Over/Under	2.5	1.5	0.4	1.4	0.8	5.5	-0.5	4.8	13.0	-14.1	-2.2
Reams	2.5	6.0	0.3	-3.6	2.5	10.0	8.4	10.0	33.6	-11.0	7.4
<i>Reams Custom Index</i>	<u>1.3</u>	<u>0.7</u>	<u>0.3</u>	<u>0.2</u>	<u>-0.5</u>	<u>4.2</u>	<u>7.8</u>	<u>6.5</u>	<u>5.9</u>	<u>5.2</u>	<u>7.0</u>
Over/Under	1.2	5.3	0.0	-3.8	3.0	5.8	0.6	3.5	27.7	-16.2	0.4
Loomis Strategic Alpha	3.3	6.1	-1.0	2.4	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	<u>3.5</u>	<u>2.6</u>	<u>0.5</u>	<u>6.0</u>	<u>-2.0</u>	<u>4.2</u>	<u>7.8</u>	<u>6.5</u>	<u>5.9</u>	<u>5.2</u>	<u>7.0</u>
Over/Under	-0.2	3.5	-1.5	-3.6							
Loomis Sayles Multi Strategy	8.4	8.2	-2.3	6.8	1.4	16.7	4.2	13.6	37.6	-19.7	6.4
<i>Loomis Custom Index</i>	<u>4.5</u>	<u>7.0</u>	<u>-1.2</u>	<u>4.6</u>	<u>0.8</u>	<u>7.5</u>	<u>7.1</u>	<u>8.7</u>	<u>18.8</u>	<u>-4.6</u>	<u>5.1</u>
Over/Under	3.9	1.2	-1.1	2.2	0.6	9.2	-2.9	4.9	18.8	-15.1	1.3



APPENDIX: MARKET ENVIRONMENT

NEPC, LLC

LONG TERM BROAD MARKET PERFORMANCE SUMMARY AS OF 12/31/2017

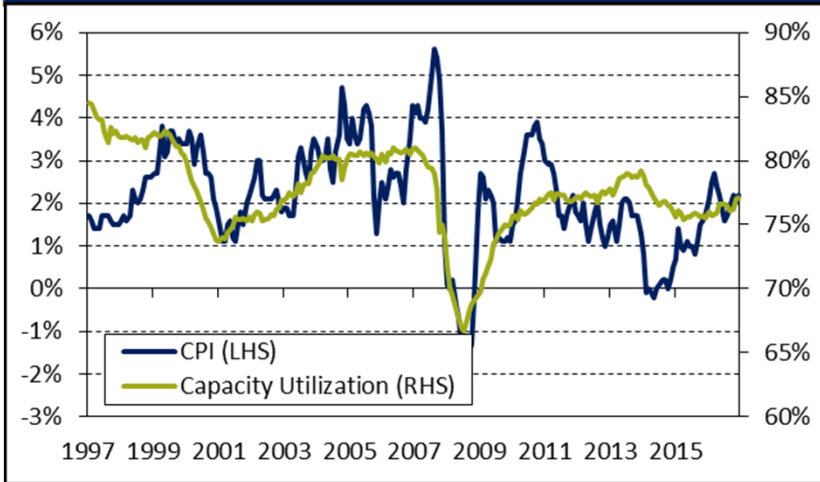


Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan



US ECONOMIC INDICATORS

Inflation continues to hover around 2%



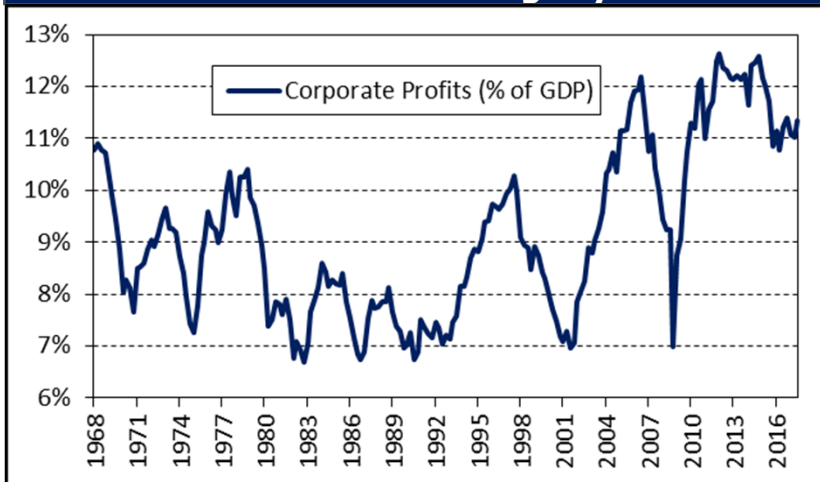
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics

Unemployment remains near historic lows



Source: Bloomberg, Bureau of Labor Statistics

Corporate profits as a % of GDP have increased slightly



Source: Bloomberg, Bureau of Economic Analysis

Manufacturing has retreated slightly, though remains elevated

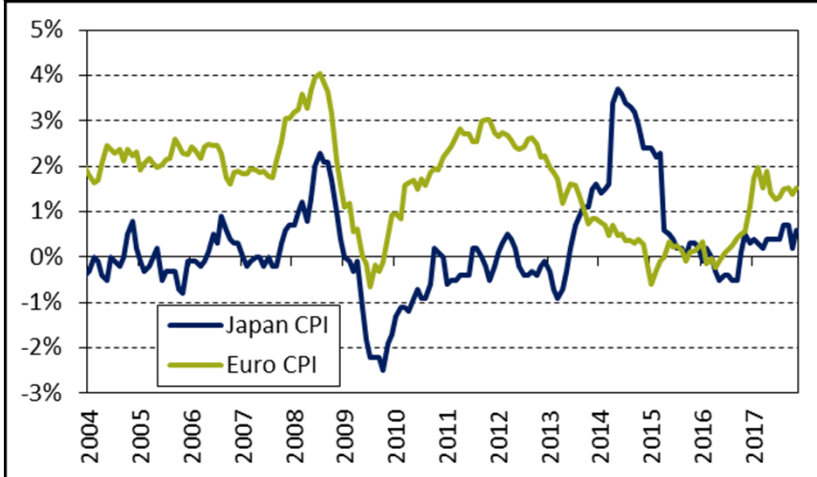


Source: Bloomberg, Institute for Supply Management



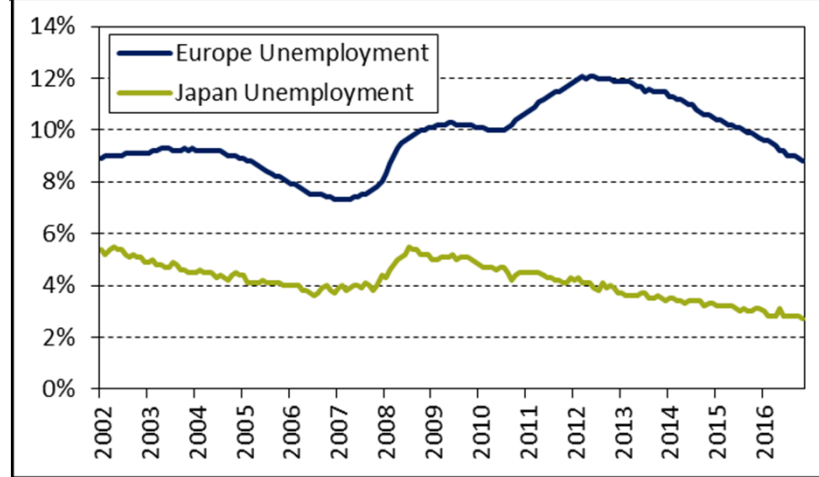
INTERNATIONAL ECONOMIC INDICATORS

Euro and Japan inflation have increased slightly



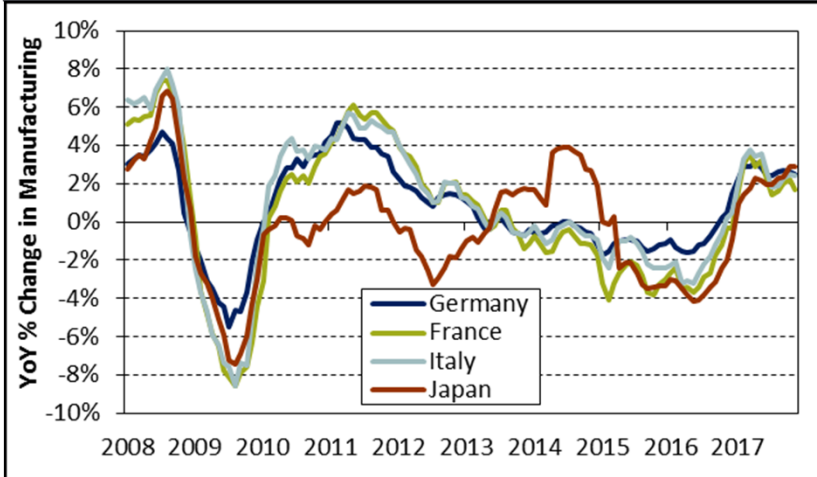
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Unemployment numbers continue to grind lower in Europe and Japan



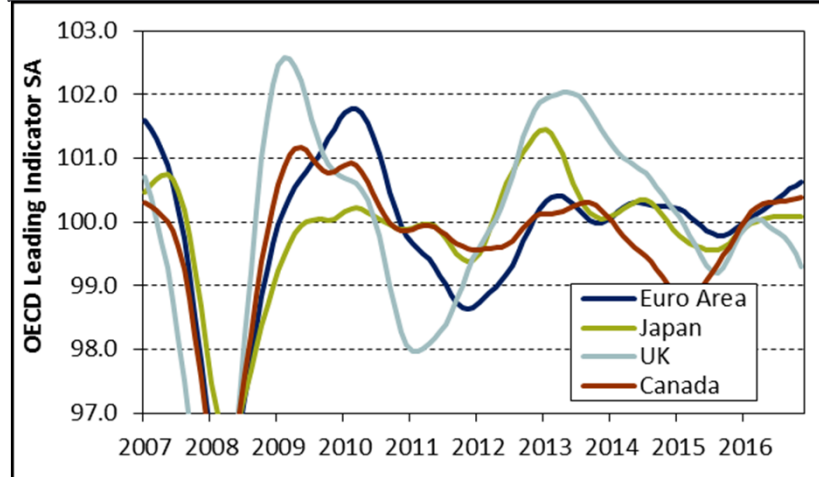
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Manufacturing has slowed slightly in European countries



Source: Bloomberg, OECD, Eurostat

Ex-UK, Euro-area leading indicators remain strong

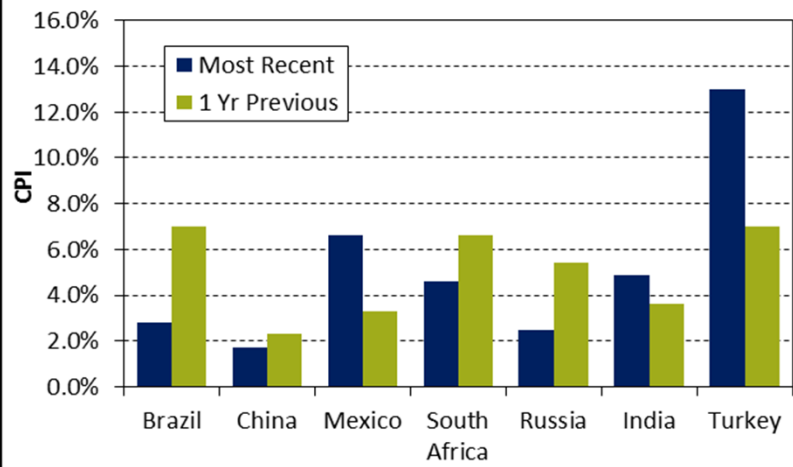


Source: Bloomberg, OECD



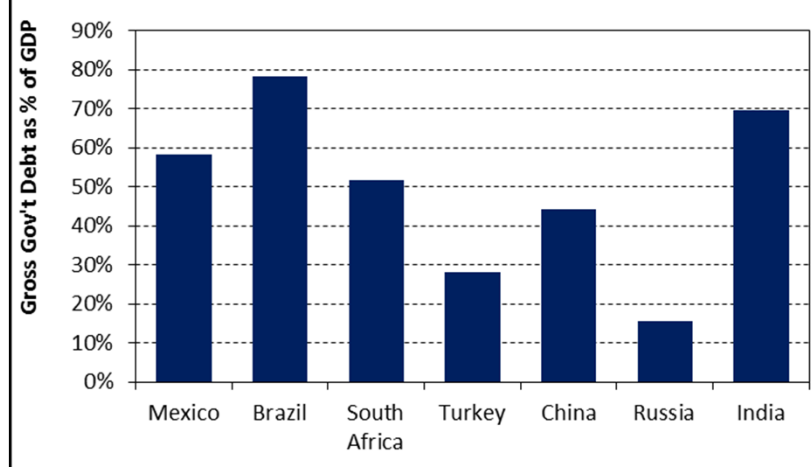
EMERGING MARKET ECONOMIC INDICATORS

EM inflation varies by country



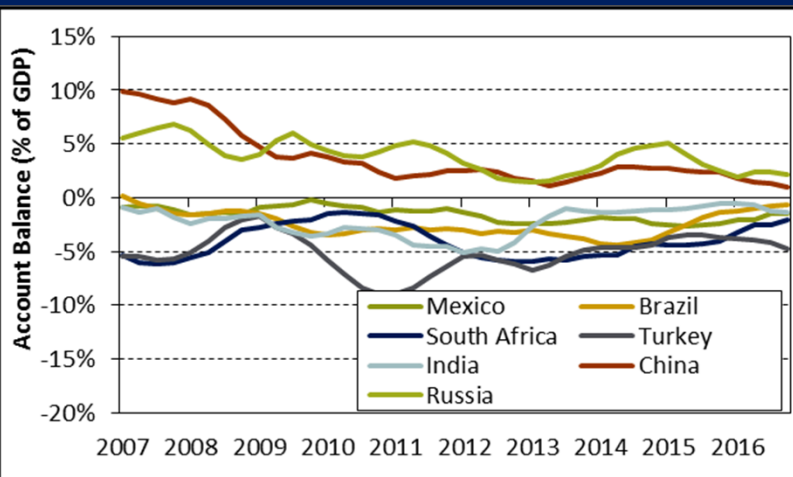
Source: Bloomberg

Relatively healthy debt/GDP ratios



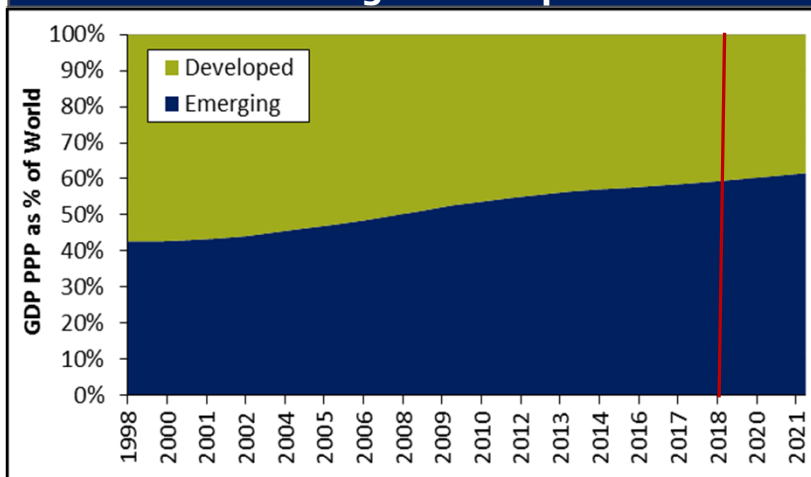
Source: Bloomberg, IMF

Account balances remain steady



Source: Bloomberg

EM continues trending higher as a percent of global output

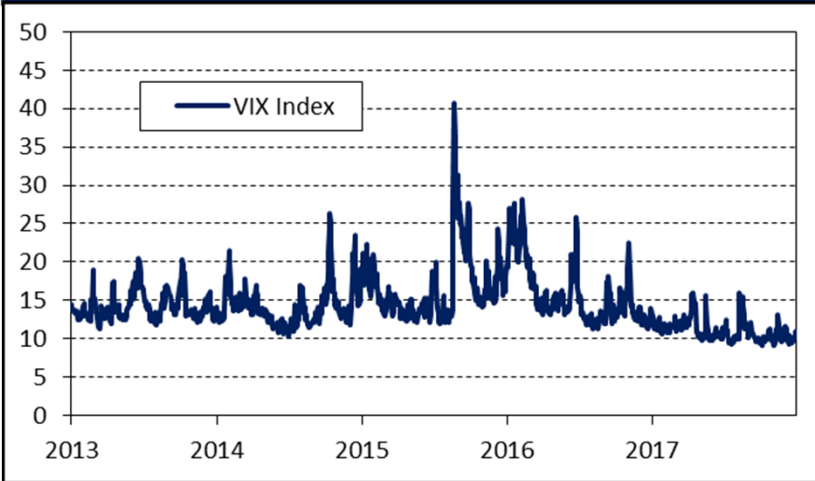


Source: Bloomberg, IMF



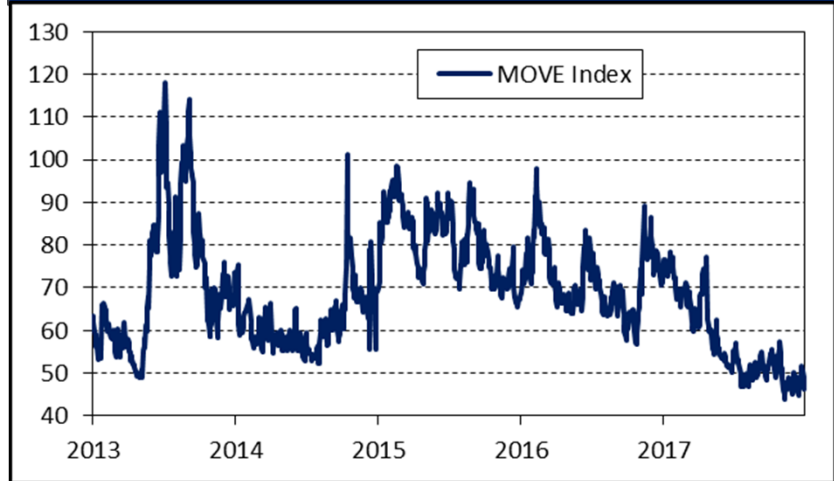
VOLATILITY

Equity volatility remains near historic lows



Source: Bloomberg, CBOE

Treasury volatility continues to decline



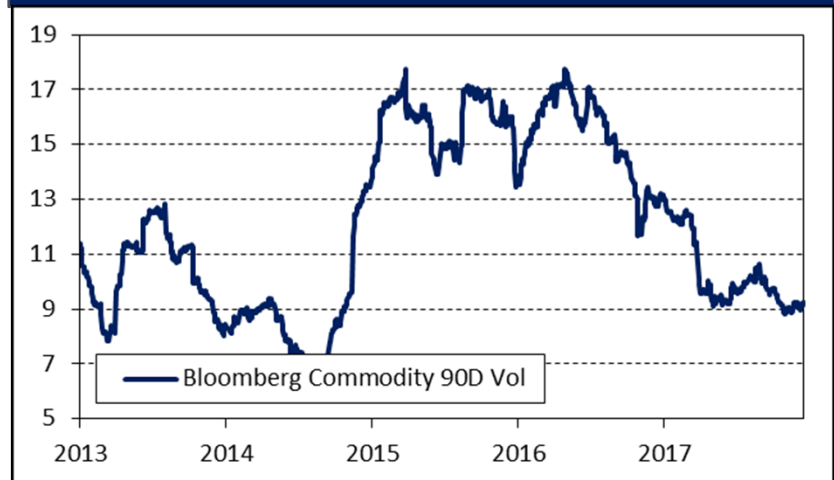
Source: Bloomberg, Merrill Lynch

Currency volatility remains low



Source: Bloomberg, Deutsche Bank

Commodity volatility is trending downward

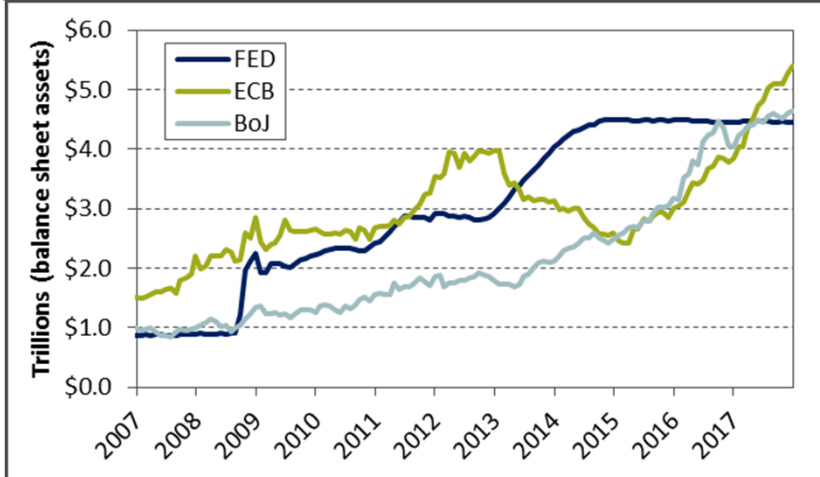


Source: Bloomberg, Merrill Lynch



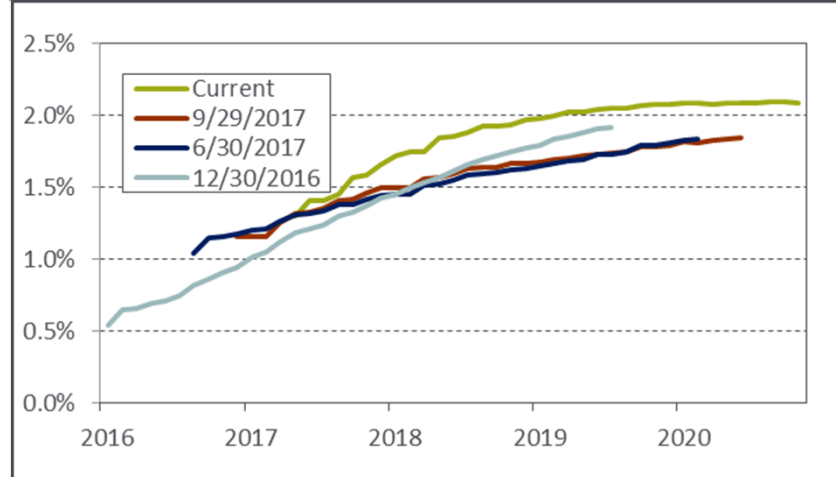
CENTRAL BANKS

Euro strength continues to impact total balance sheet assets



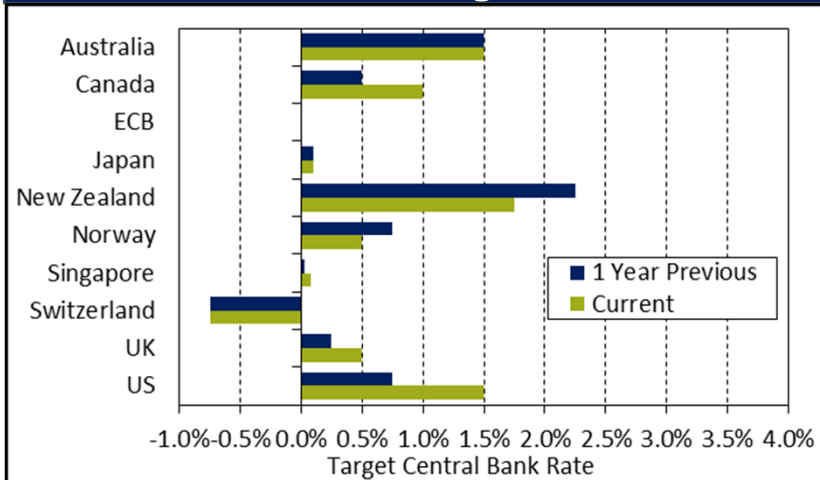
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

The yield curve has shifted upward with a December Fed hike



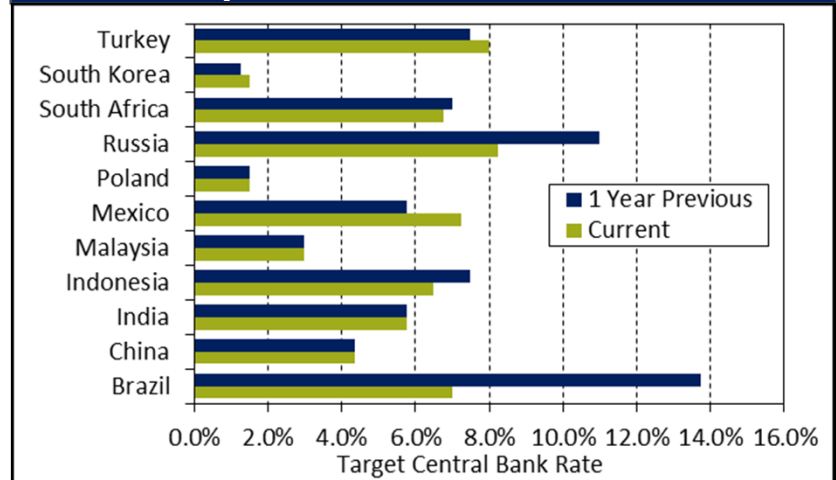
Source: Bloomberg, Federal Reserve

Developed markets have broadly started increasing rates



Source: Bloomberg

EM central bank policies vary by country-specific economic conditions

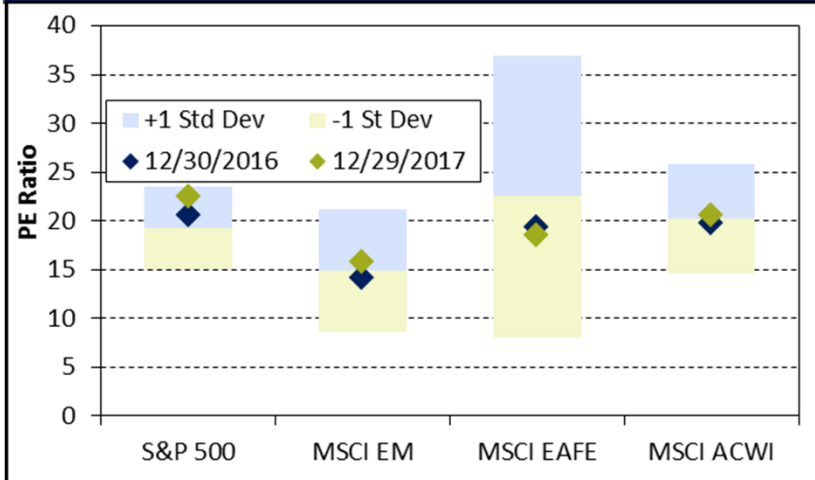


Source: Bloomberg



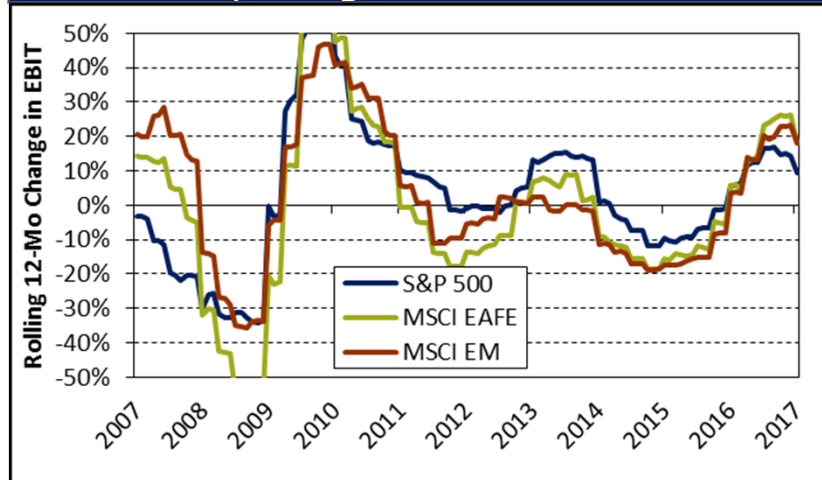
GLOBAL EQUITY

Ex-EAFE, global equity valuations are higher relative to last year



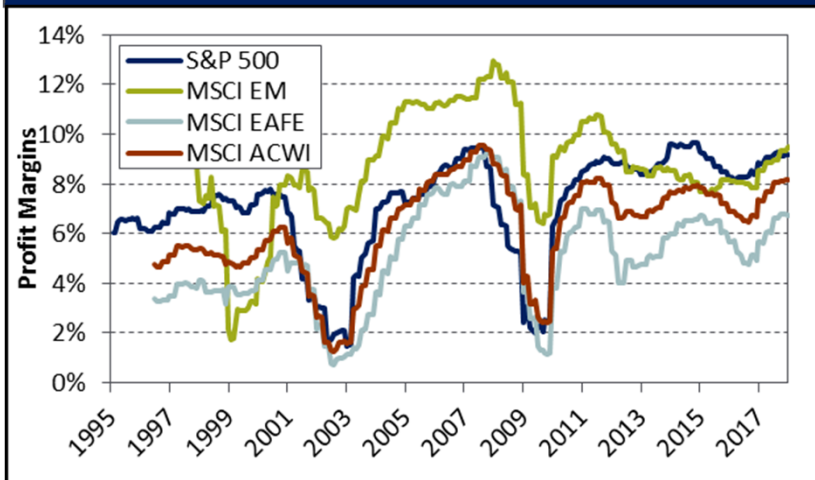
Source: Bloomberg, Standard and Poors, MSCI *MSCI EAFE is ex UK Telecom
*Standard deviation calculations on 20 years of data except S&P 500 (30 years)

Rolling annual earnings growth is trending lower, though still remains elevated



Source: Bloomberg, Standard and Poors, MSCI

Profit margins continue to increase



Source: Bloomberg, MSCI

Equities continue to experience strong short-term performance

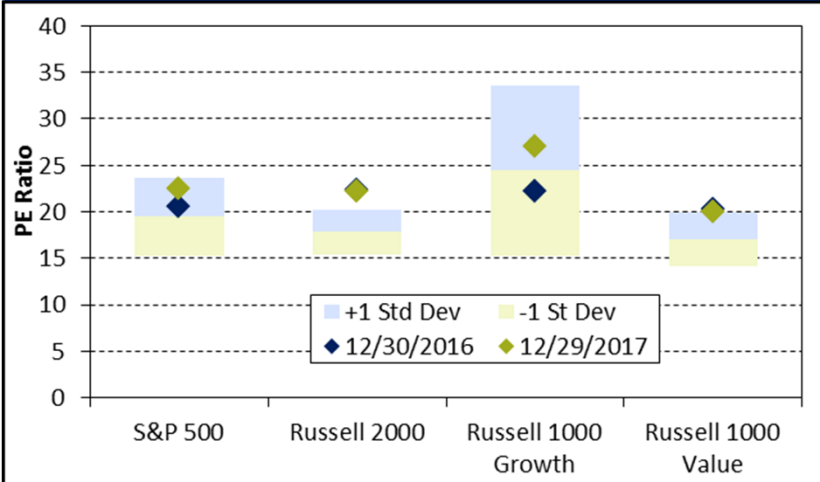


Source: Bloomberg, MSCI



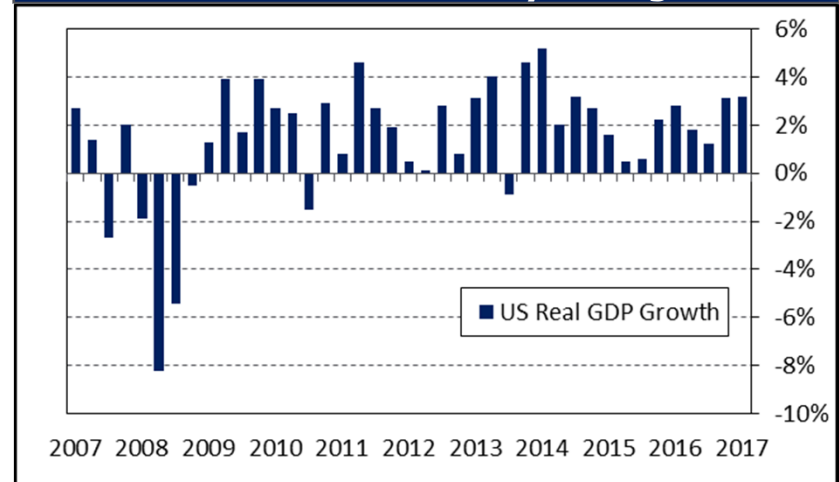
US EQUITY

The S&P 500 PE remains elevated relative to history



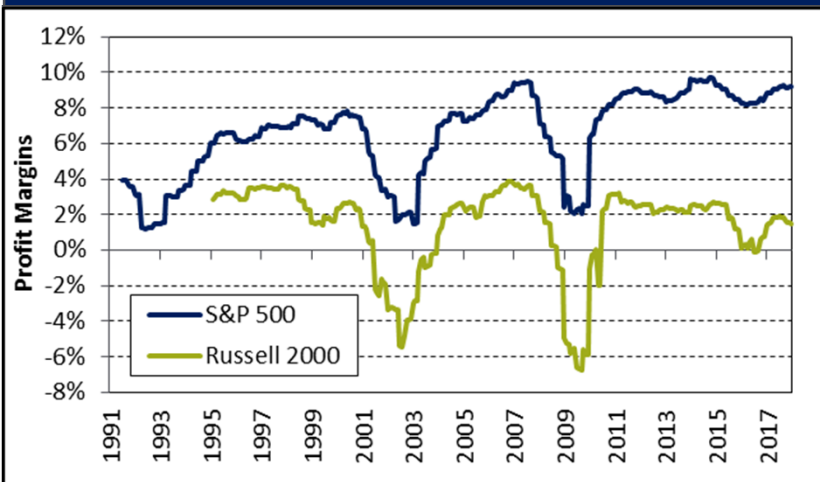
Source: Bloomberg, Standard and Poors, Russell *Russell 2000 PE is index adjusted positive* Standard deviation calculations based on 20 years of data

The Q3 real GDP growth revision to 3.3% marked a three-year high



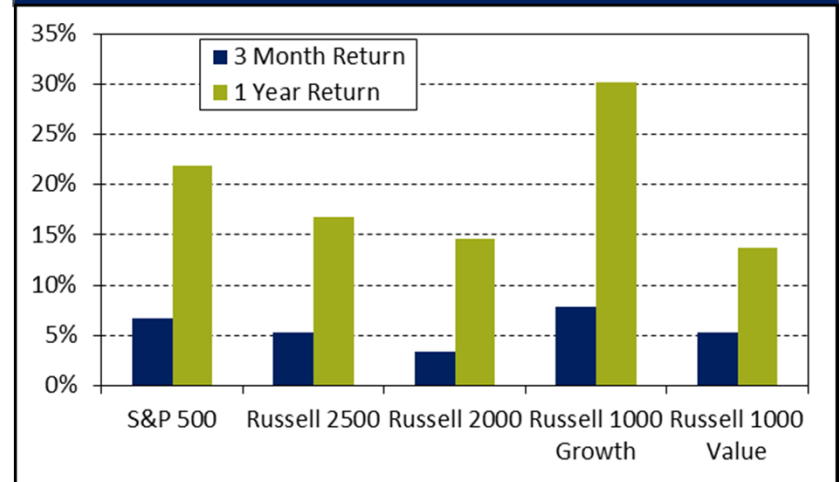
Source: Bloomberg, Bureau of Economic Analysis

Russell 2000 margins have begun trending lower



Source: Bloomberg, Standard and Poors, Russell

US equities continue to post positive returns

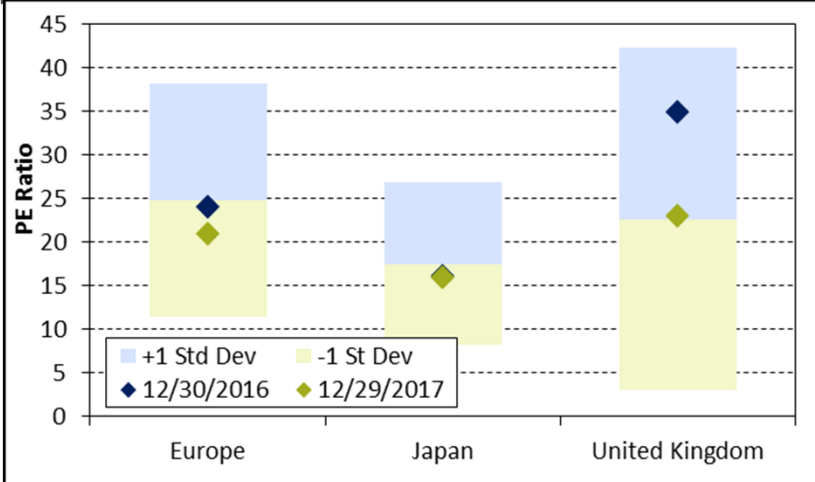


Source: Bloomberg, Standard and Poors, Russell



INTERNATIONAL EQUITY

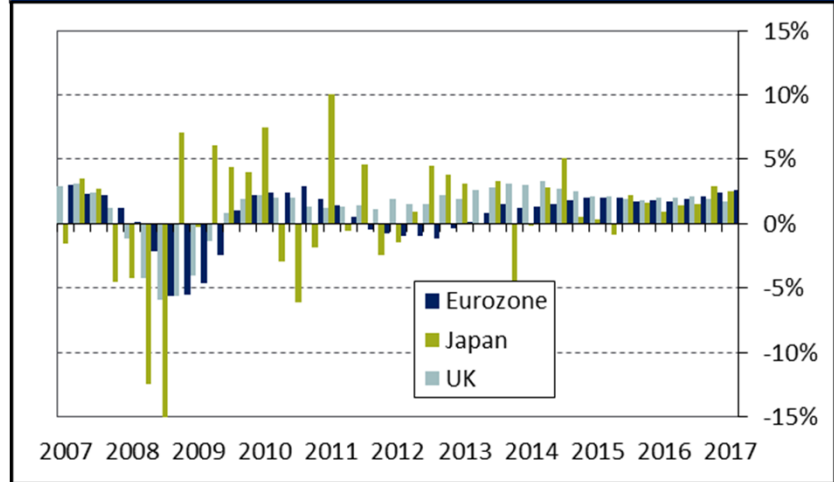
International equity PEs remain below the previous year



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

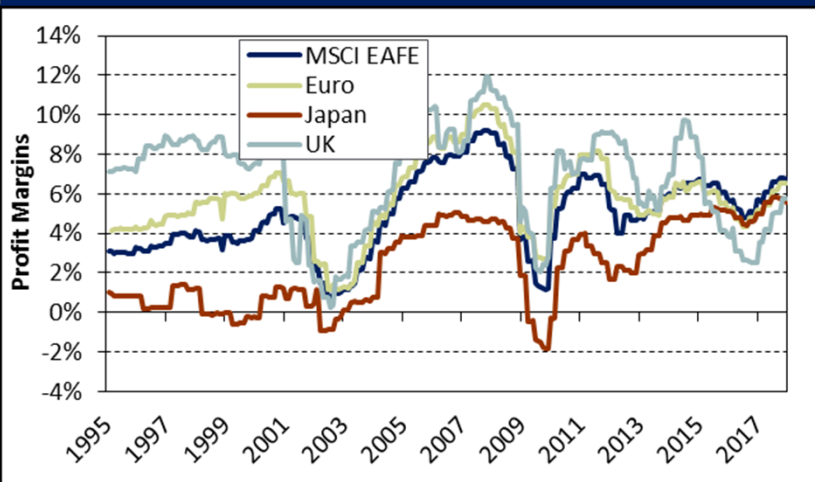
*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

UK GDP growth continues to decline



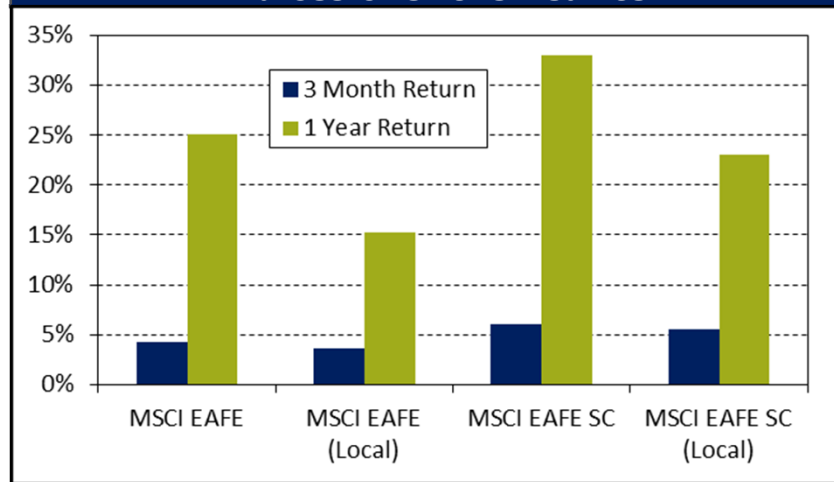
Source: Bloomberg

Profit margins continue trending higher



Source: Bloomberg, MSCI

Small cap slightly outperformed broad indices over the near term

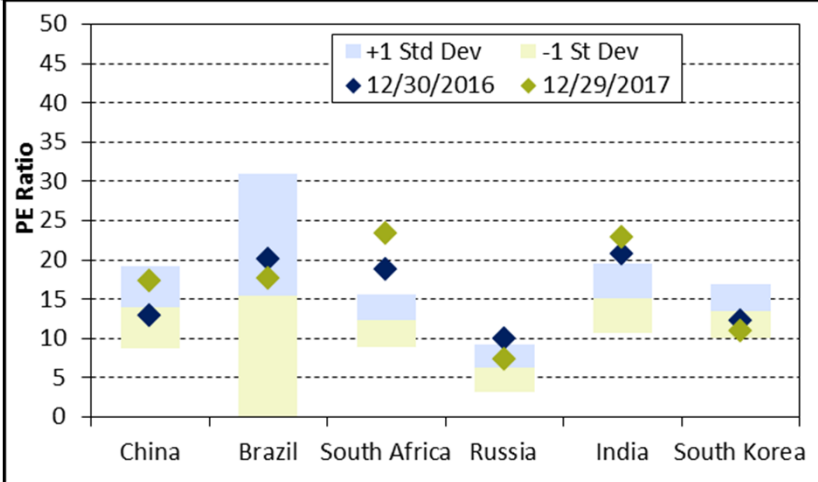


Source: Bloomberg, MSCI



EMERGING MARKETS EQUITY

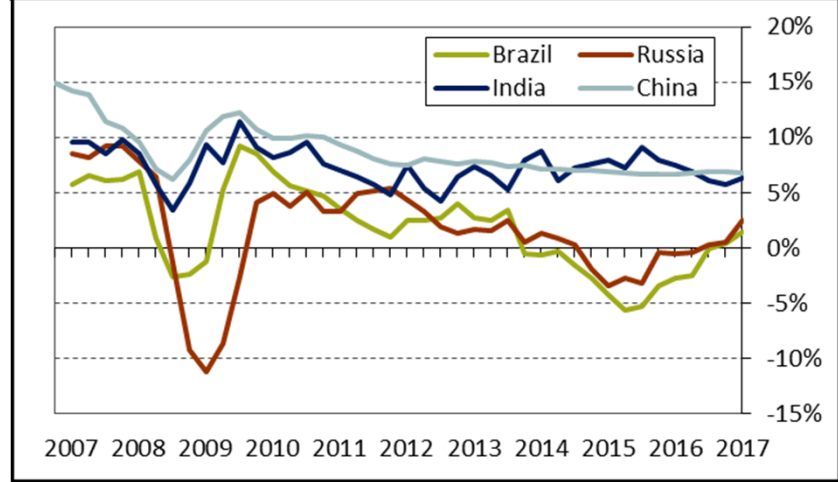
EM country valuations vary significantly relative to last year



Source: Bloomberg, MSCI

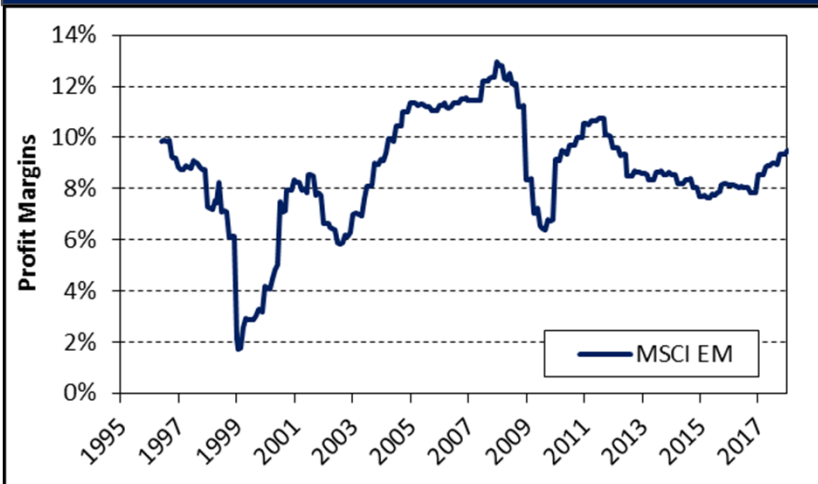
*Standard deviation calculations based on 20 years of data, with Russia since 01/1998

Ex-China, EM profit margins continue to rebound off earnings contractions



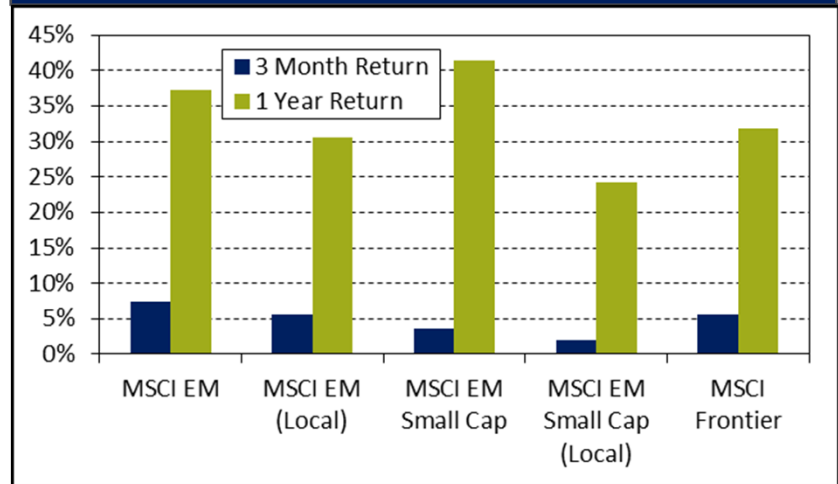
Source: Bloomberg

Profit margins remain elevated



Source: Bloomberg, MSCI

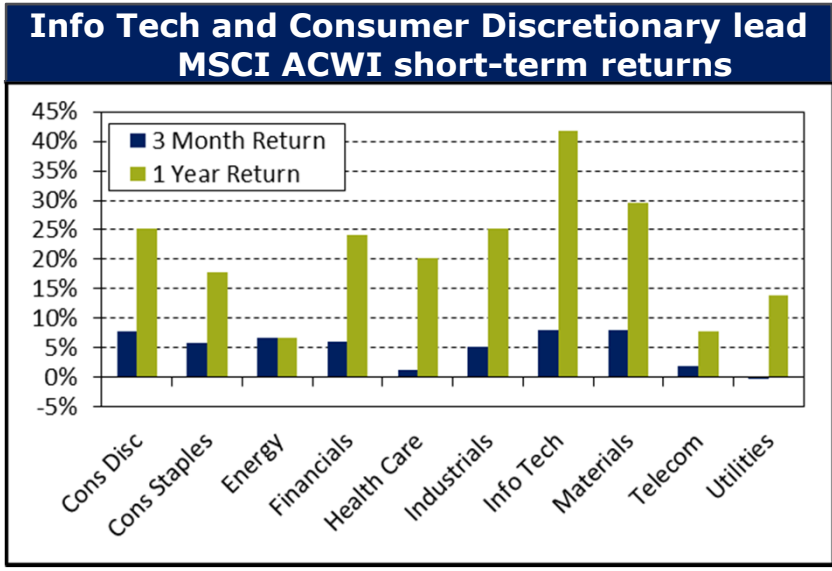
EM returns show continued strength



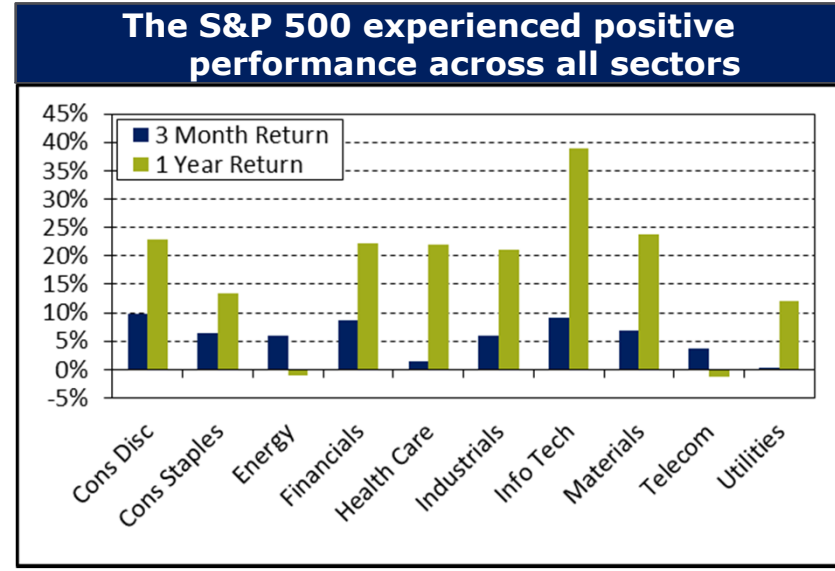
Source: Bloomberg, MSCI



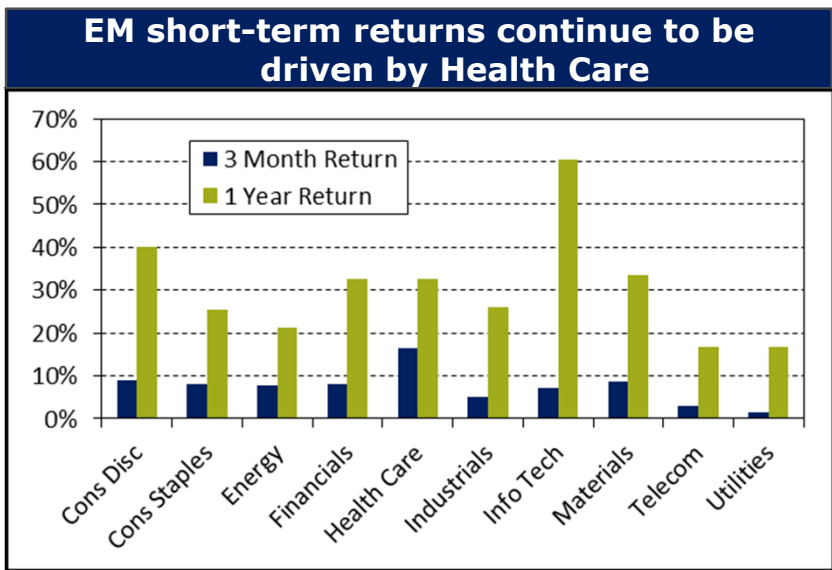
GLOBAL EQUITY BY SECTOR



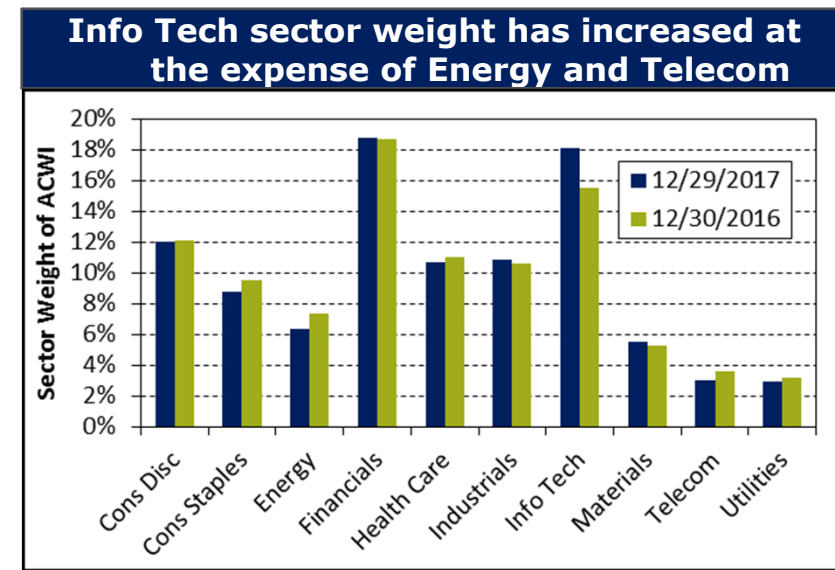
Source: Bloomberg, MSCI



Source: Bloomberg, Standard and Poors



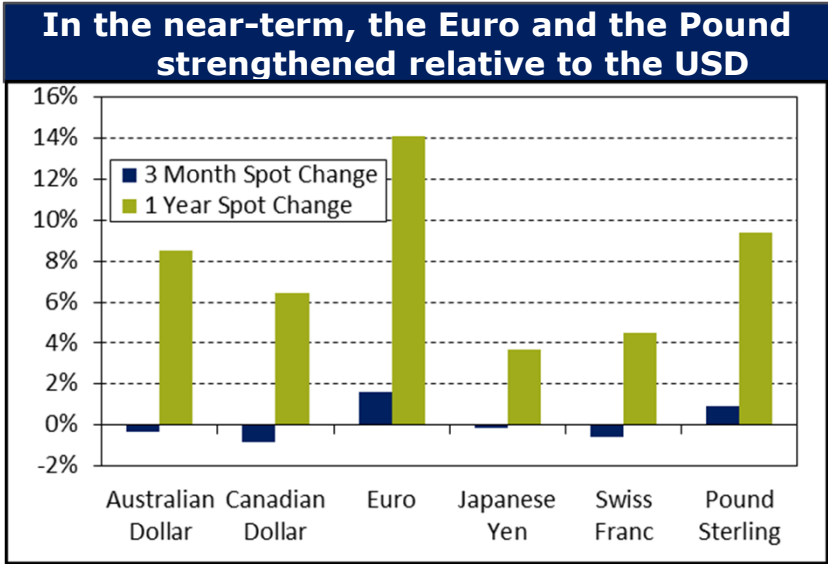
Source: Bloomberg, MSCI



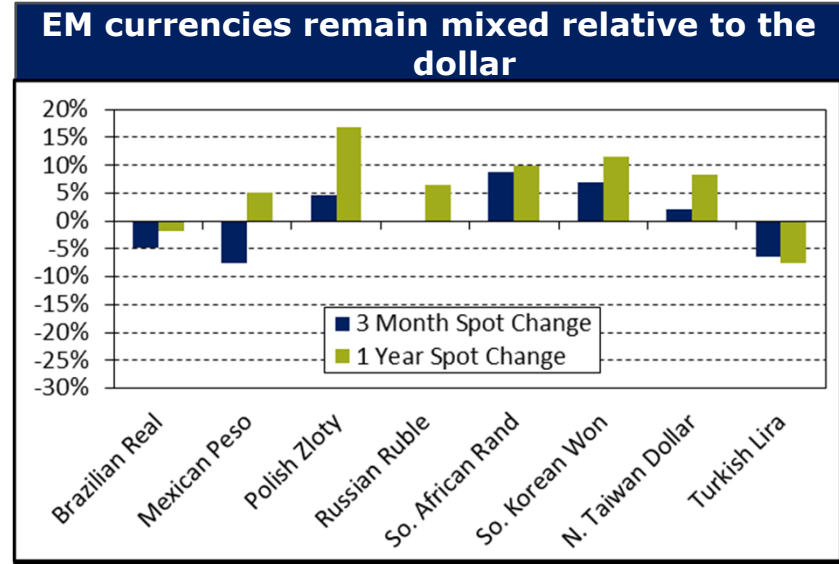
Source: Bloomberg, MSCI



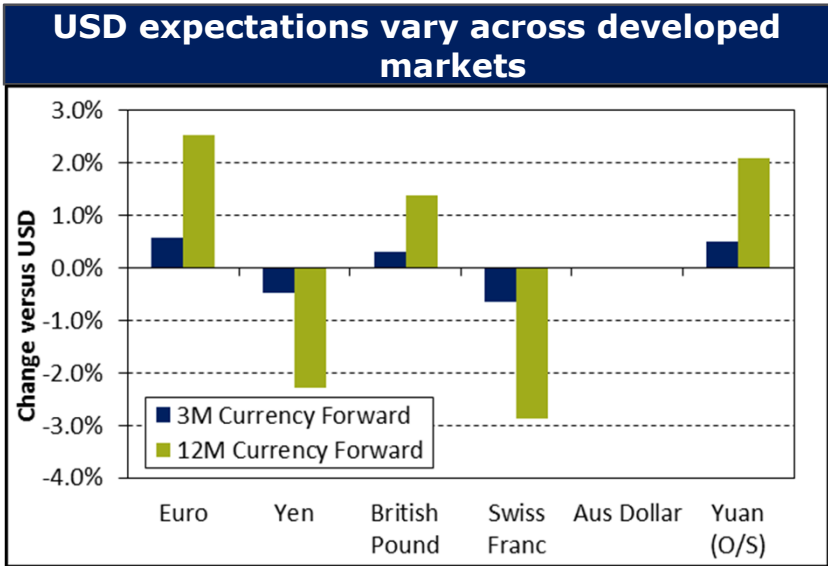
CURRENCIES



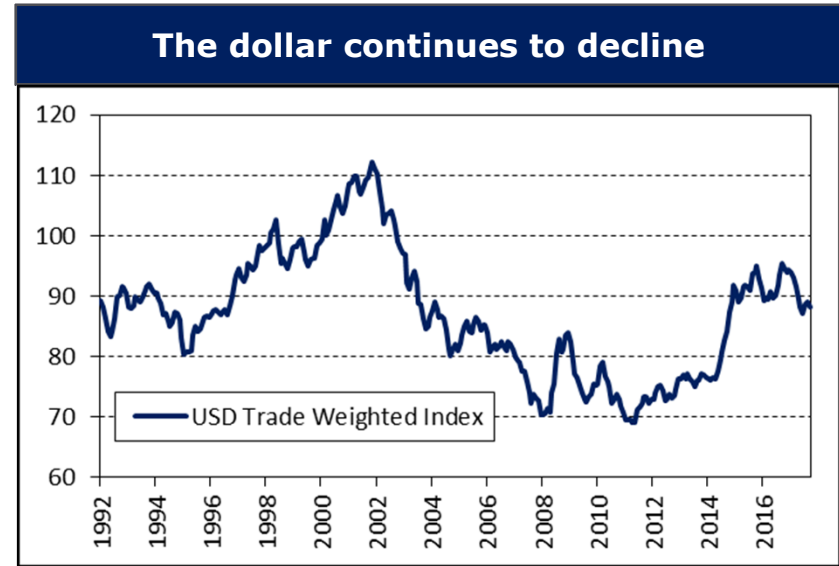
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

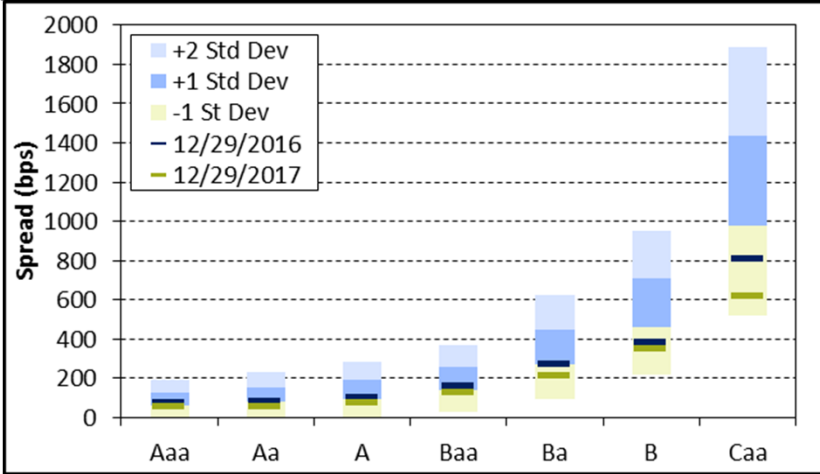


Source: Bloomberg, Federal Reserve



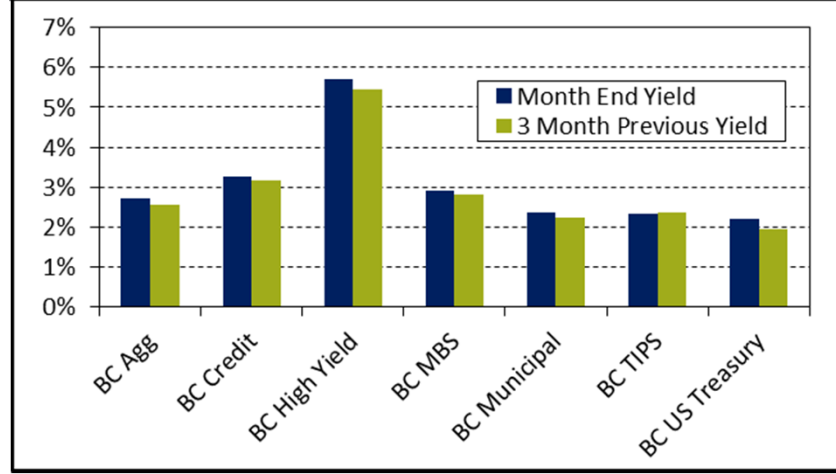
US FIXED INCOME

Spreads remain lower than the previous year



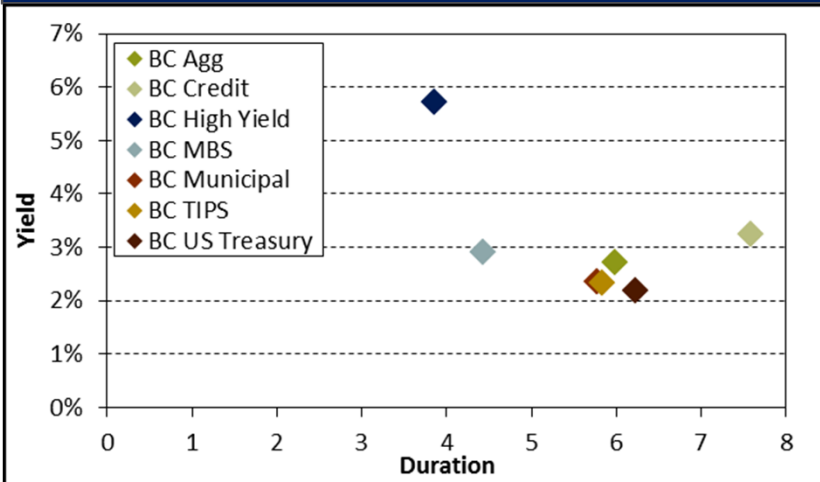
Source: Bloomberg, Barclays
*Standard deviation calculations based on 20 years of data

Yields are modestly higher relative to three months ago



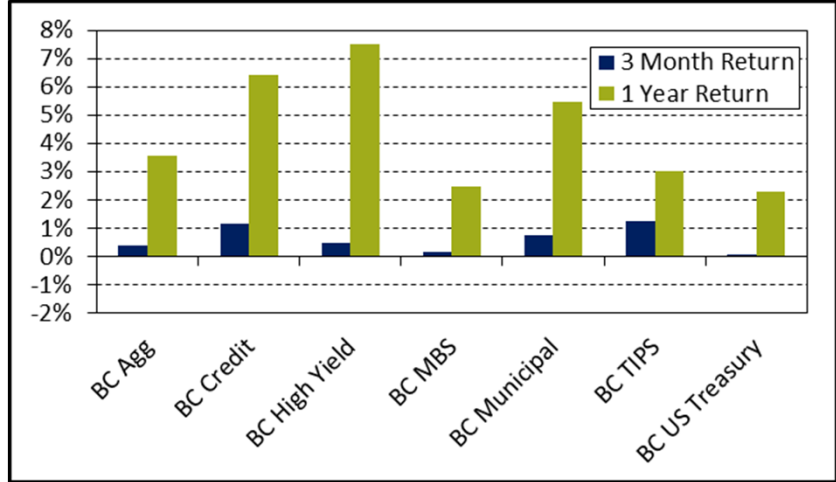
Source: Bloomberg, Barclays

Similar duration/yield profiles among core indices



Source: Bloomberg, Barclays

Fixed income indices were slightly positive over the short-term

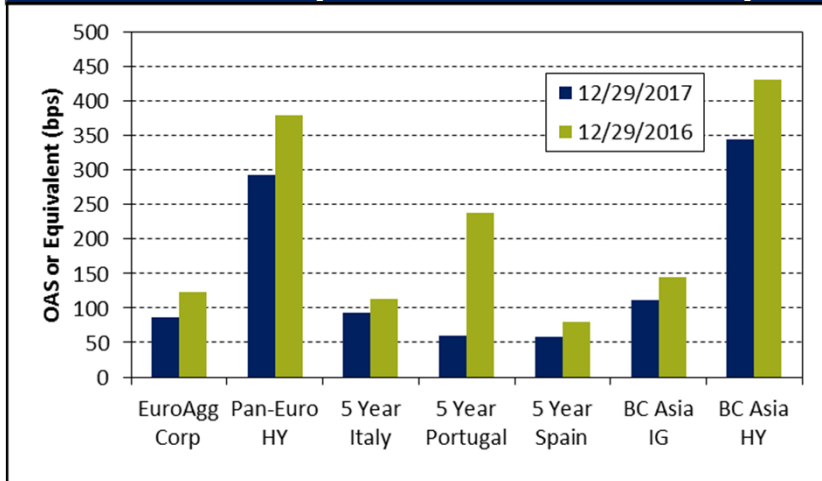


Source: Bloomberg, Barclays



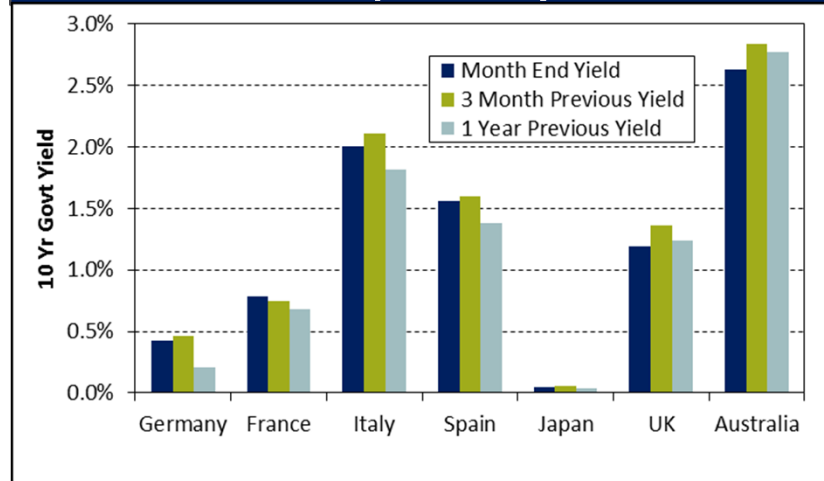
INTERNATIONAL DEVELOPED FIXED INCOME

Periphery yields have broadly declined over the year relative to Germany



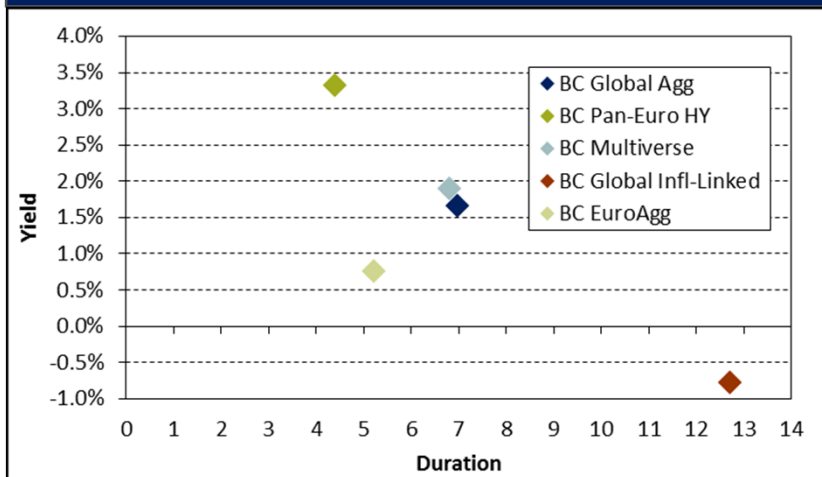
Source: Barclays, Bloomberg, *European periphery spreads are over equivalent German Bund

Ex-UK and Australia, yields are higher than the previous year



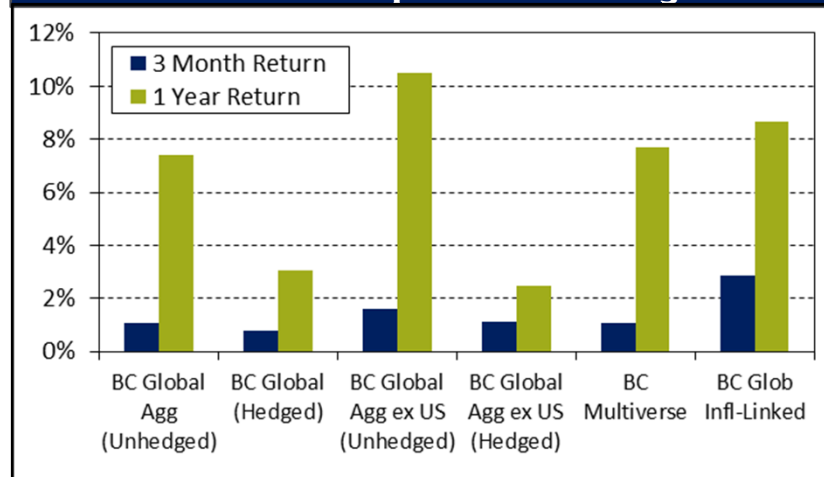
Source: Bloomberg

Low yields persist in global bond universe



Source: Bloomberg, Citigroup, Barclays

In the near-term, unhedged global bond indices outperformed hedged

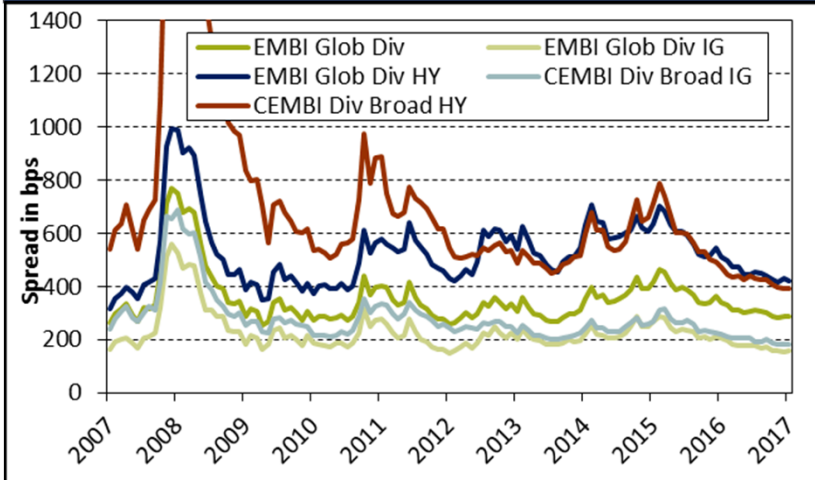


Source: Bloomberg, Citigroup, Barclays



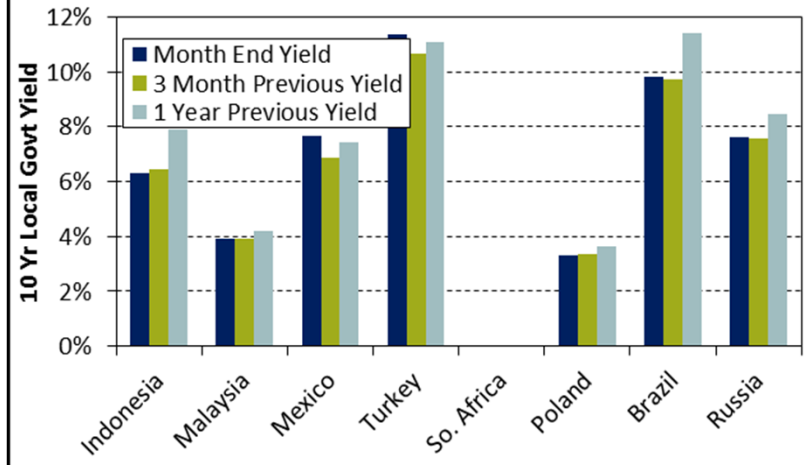
EMERGING MARKETS FIXED INCOME

EM spreads continue to compress



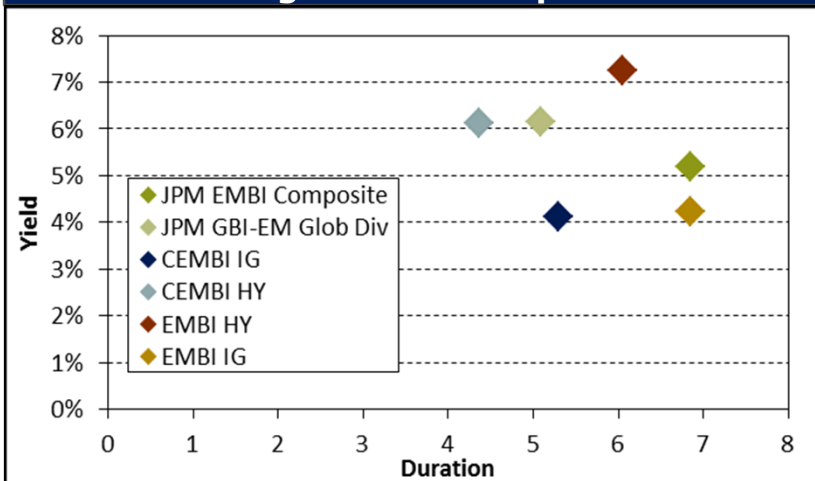
Source: Bloomberg, JP Morgan

Yields have broadly increased relative to three months prior



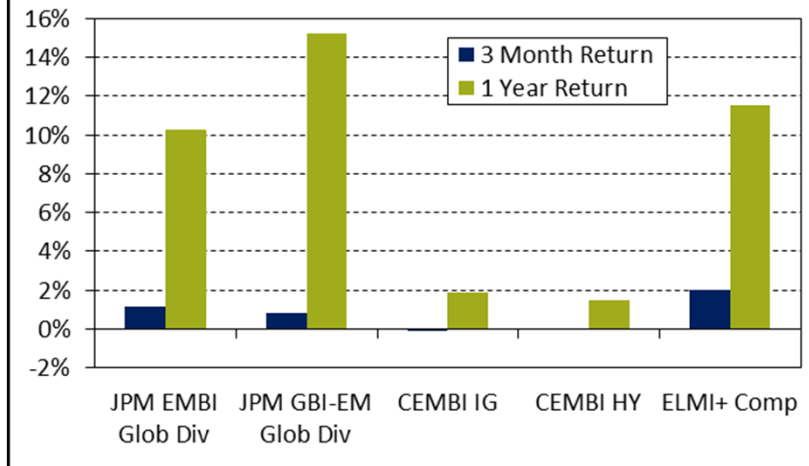
Source: Bloomberg

EM yields appear attractive relative to global counterparts



Source: Bloomberg, JP Morgan

EM fixed income returns were slightly positive to flat over the short-term

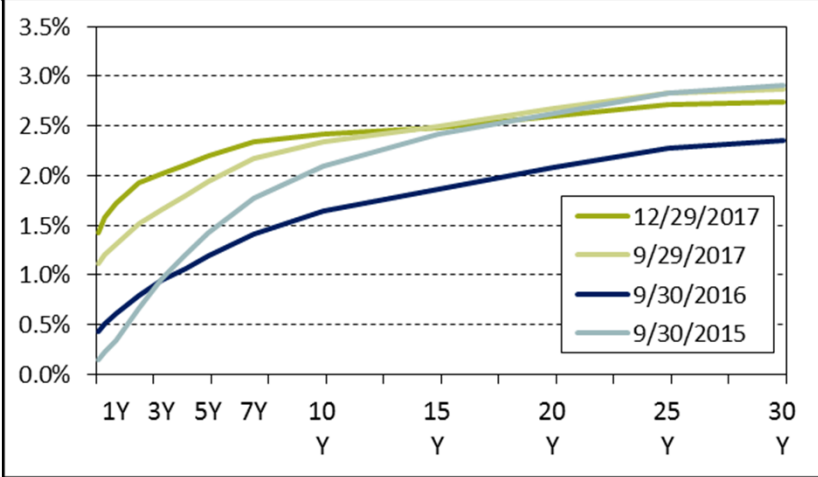


Source: Bloomberg, JP Morgan



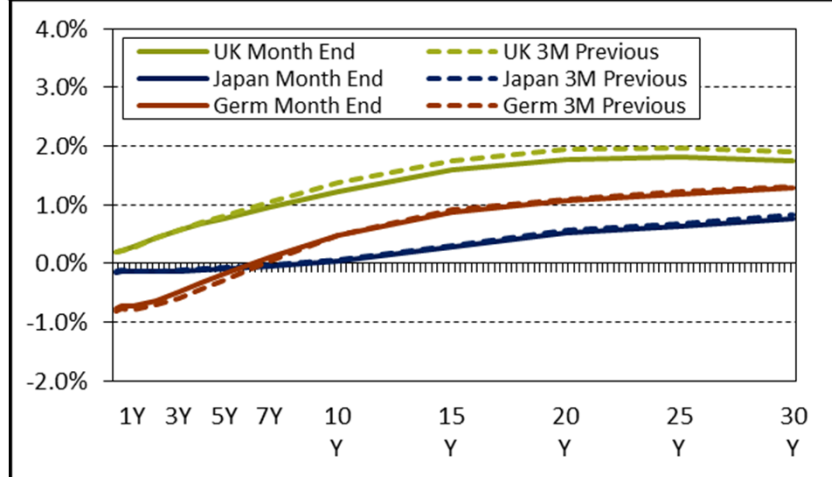
RATES

The curve has flattened relative to three months prior



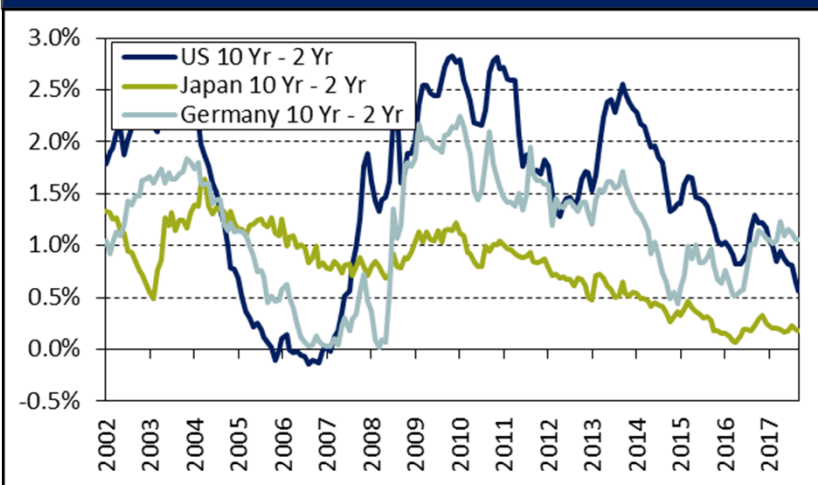
Source: Bloomberg

Longer term rate expectations have declined relative to previous months



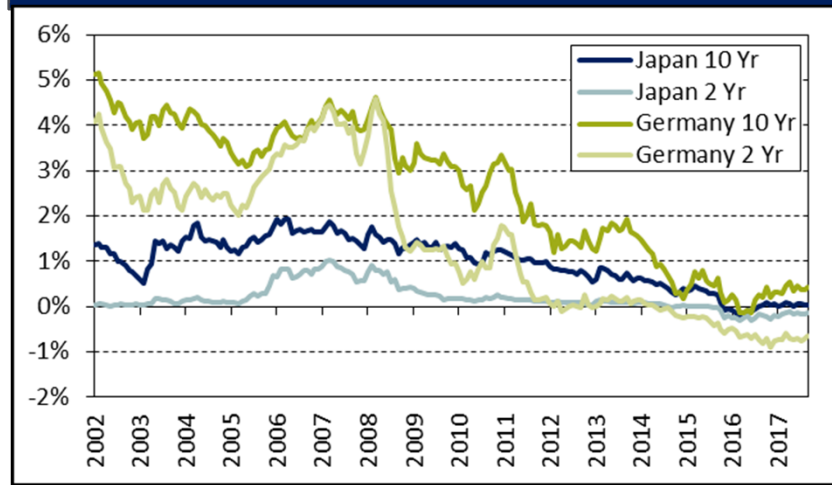
Source: Bloomberg

10-2 spreads continue to decline



Source: Bloomberg

Sovereign bond yields remain relatively flat

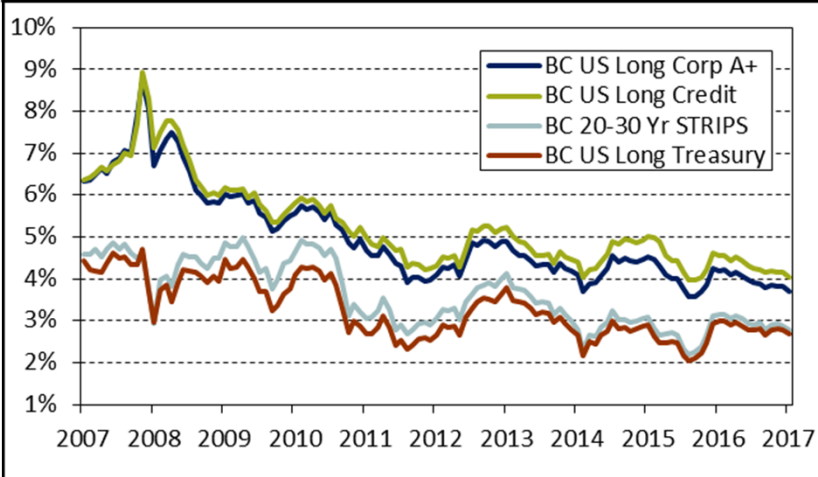


Source: Bloomberg



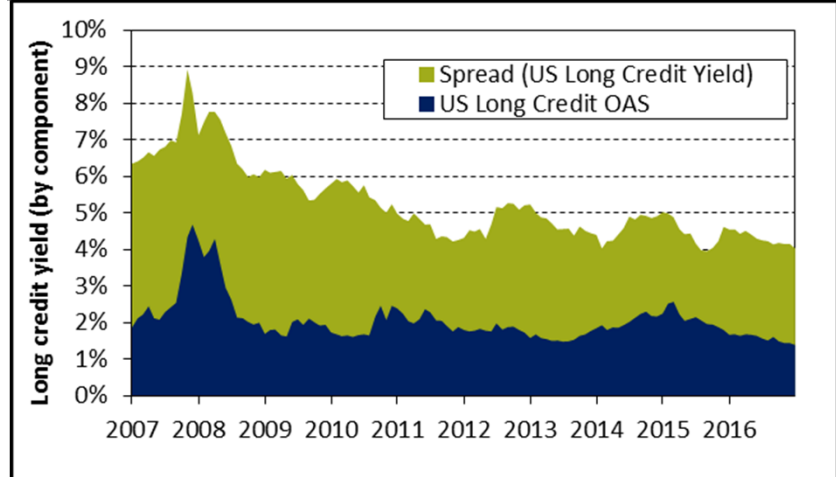
LONG RATES AND LIABILITY

Long duration yields continue to grind lower



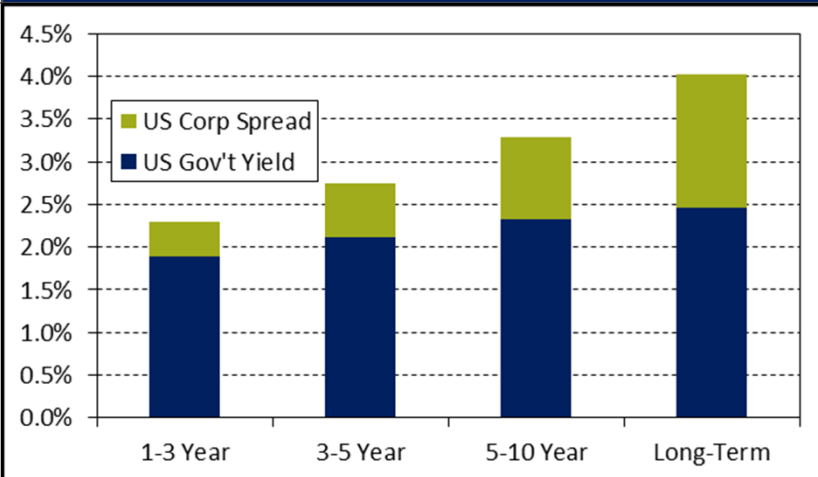
Source: Bloomberg, Citigroup, Barclays

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



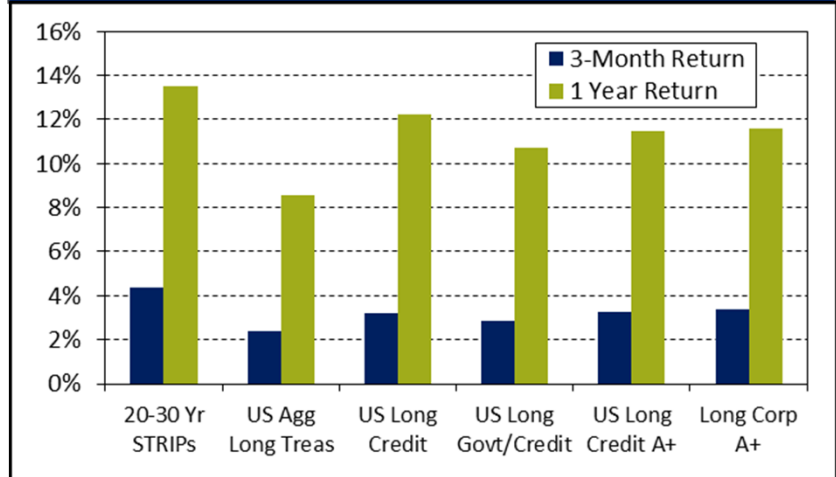
Source: Bloomberg, US Treasury, Barclays, NEPC

Yield and spread components continue to offer modest returns



Source: Bloomberg, Barclays

Long duration fixed income indices continue to experience positive returns

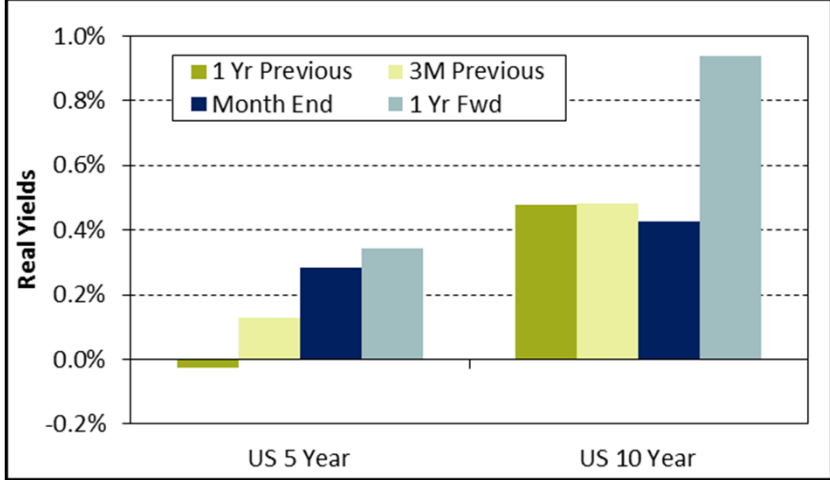


Source: Bloomberg, Barclays



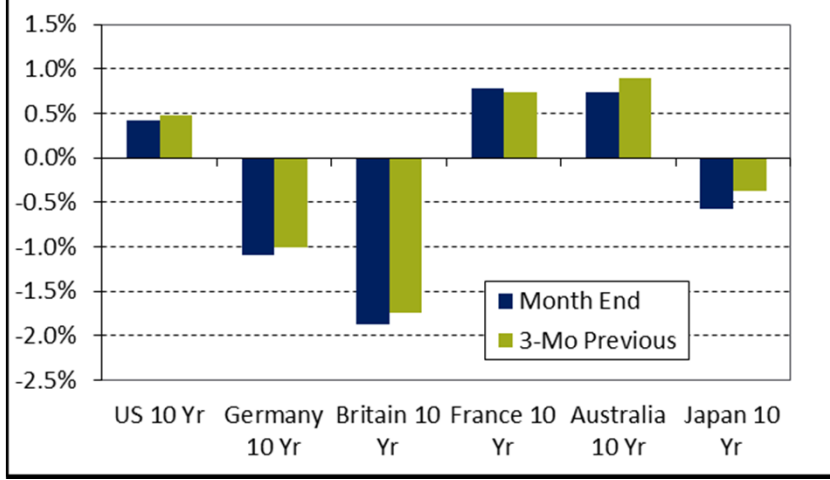
INFLATION AND REAL RATES

Changes in 5 and 10 year real yields echo a flatter yield curve



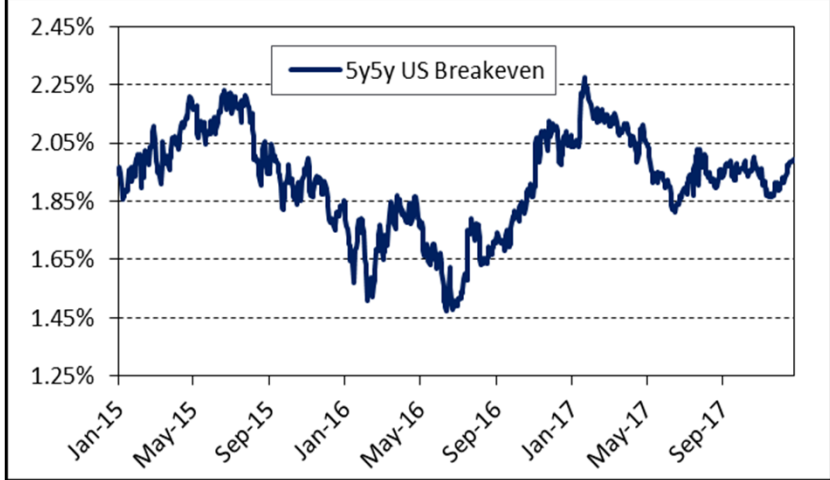
Source: Bloomberg

Ex-France, developed market real yields have declined in recent months



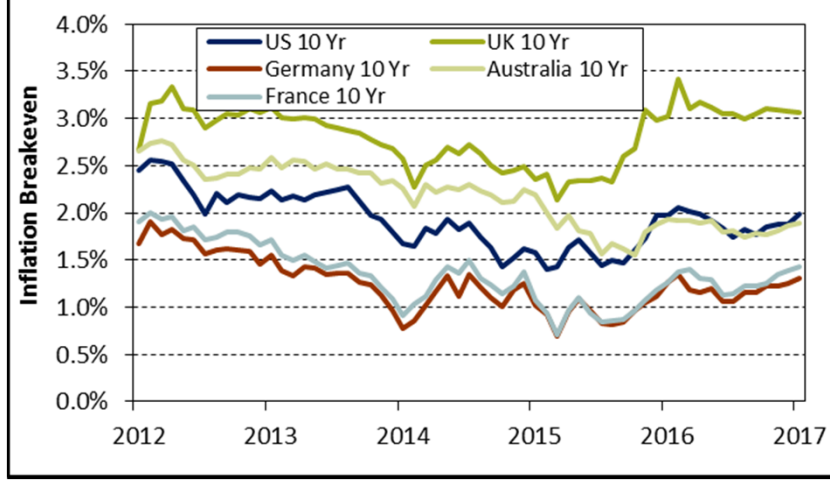
Source: Bloomberg

US inflation expectations continue to rise



Source: Bloomberg

Ex-UK, inflation expectations have begun trending upward

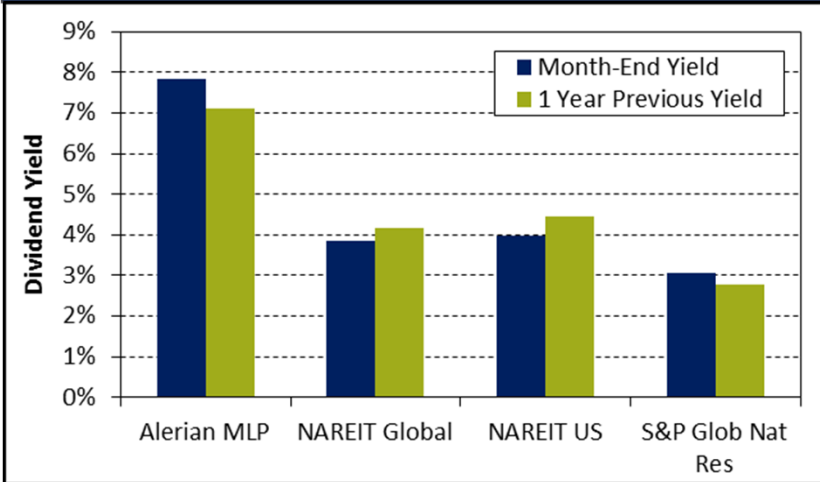


Source: Bloomberg



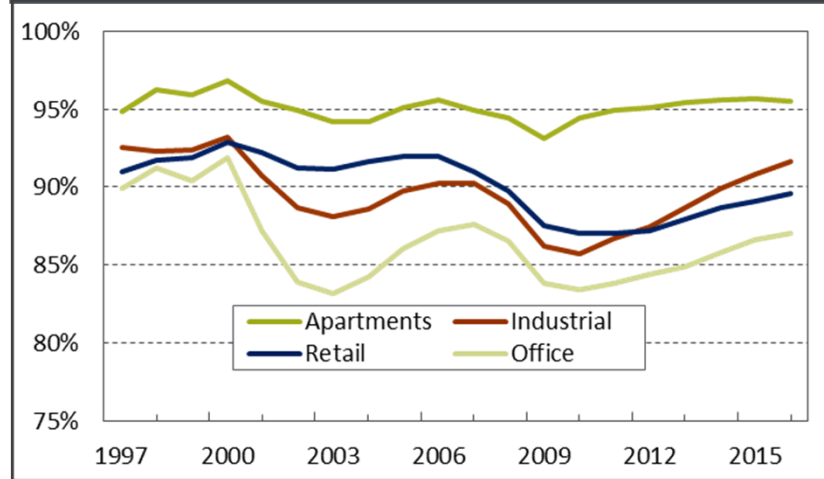
INFLATION-SENSITIVE GROWTH ASSETS

MLP yields have increased relative to last year



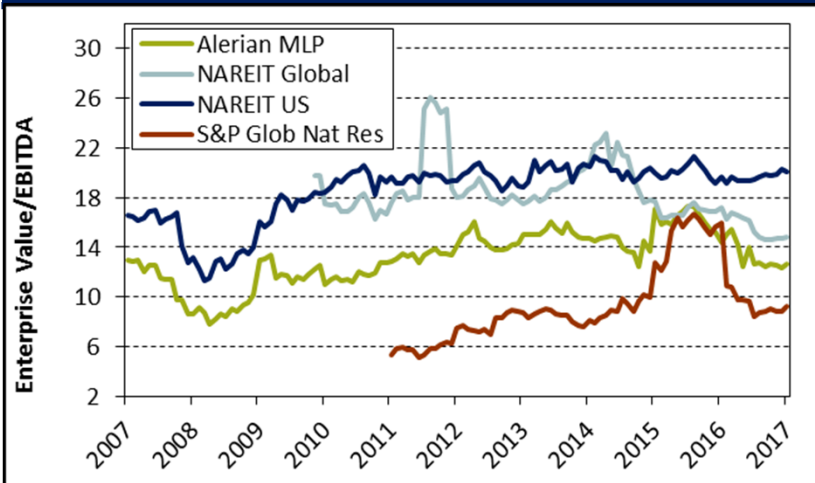
Source: Bloomberg, Alerian, NAREIT, Standard and Poors

Sustained recovery in commercial real estate occupancy rates



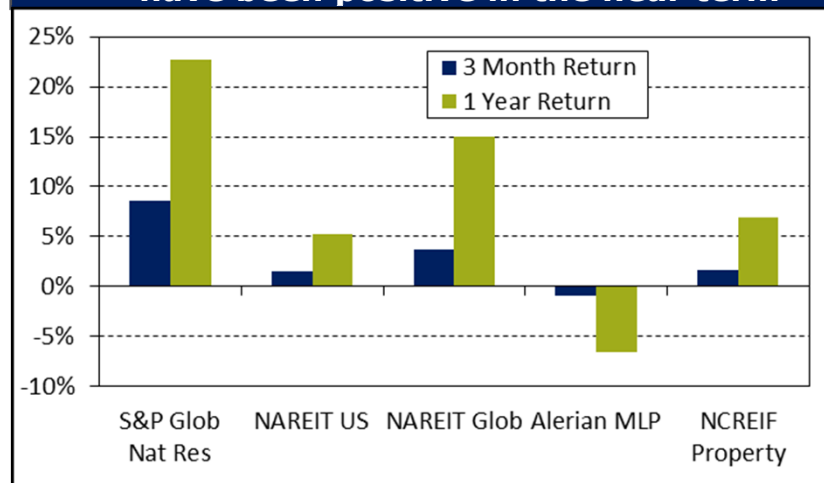
Source: CBRE

US REIT valuations have steadied



Source: Bloomberg, US Census Bureau

Ex-MLPs, inflation-sensitive growth assets have been positive in the near term

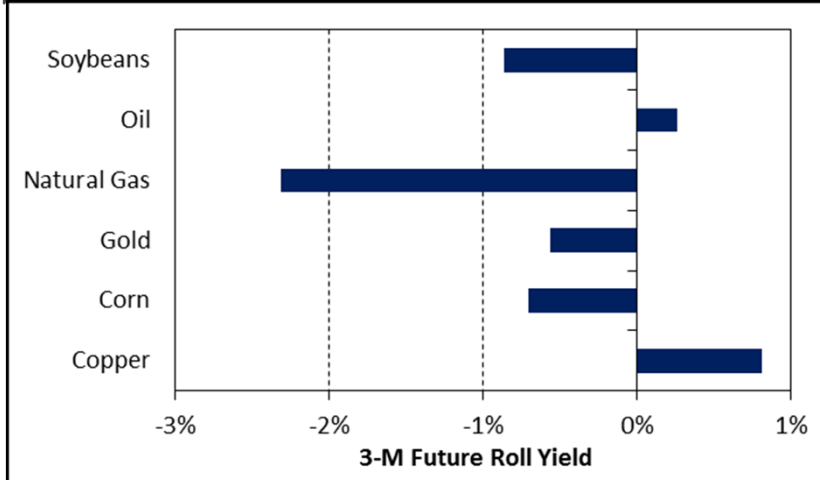


Source: Bloomberg, Alerian, NAREIT, Standard and Poors



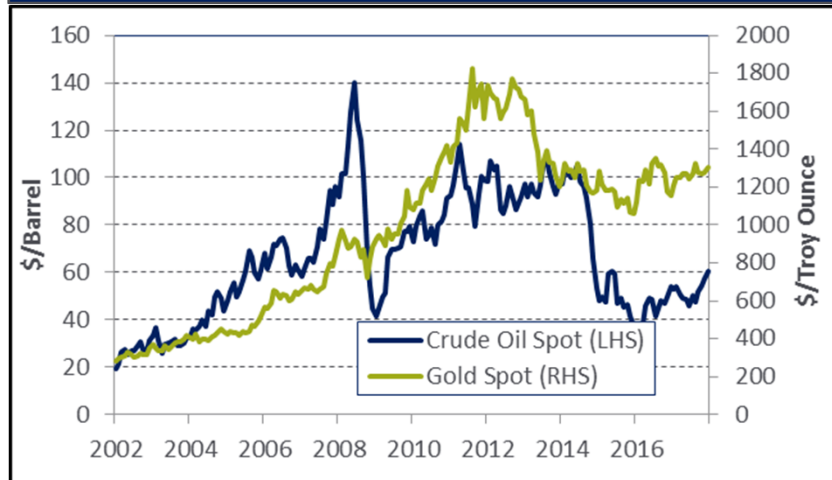
COMMODITIES

Ex-oil and copper, 3-month roll yields remain negative



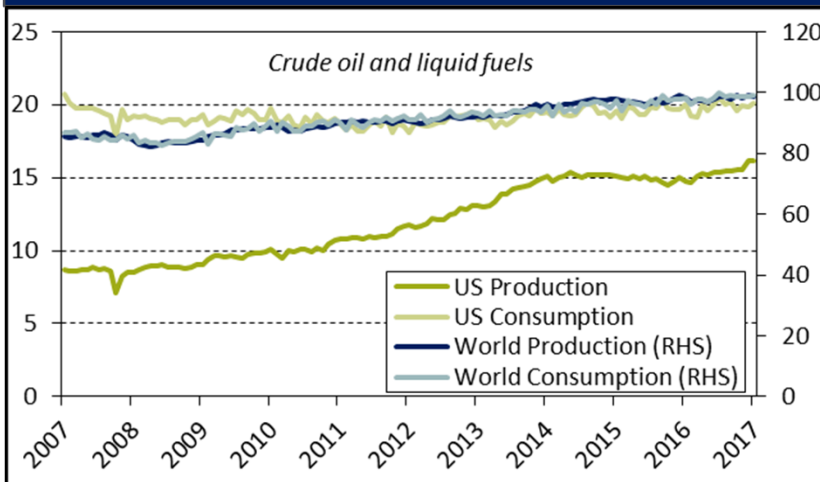
Source: Bloomberg

Spot oil has continued to increase



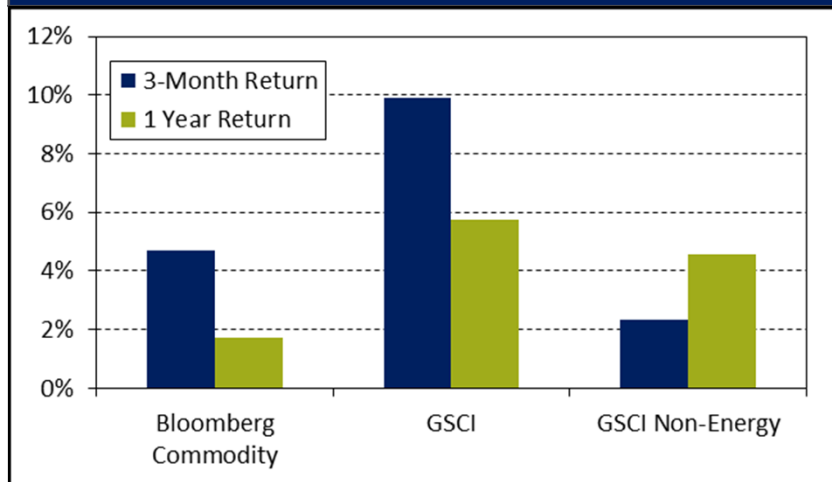
Source: Bloomberg

US production experienced a slight uptick in volume



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

GSCI Non-Energy underperformed in the near term



Source: Bloomberg, Standard and Poors



GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



GLOSSARY OF INVESTMENT TERMINOLOGY

Of Portfolios/Observations¹ - The total number of data points that make up a specified universe

Allocation Index³ - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect² - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

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

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

Attribution³ - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

Average Effective Maturity⁴ - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

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

Batting Average¹ - A measurement representing an investment manager's ability to meet or beat an index.

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

Brinson Fachler (BF) Attribution¹ - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution¹ - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

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

Correlation¹ - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

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



GLOSSARY OF INVESTMENT TERMINOLOGY

Coupon⁴ – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the “coupon rate” or “coupon percent rate.”

Currency Effect¹ – Is the effect that changes in currency exchange rates over time affect excess performance.

Derivative Instrument² – A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

Downside Deviation¹ – Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

Formula:

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

Duration³ – Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond’s duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio¹ – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond³ – A bond that is issued in a domestic market by a foreign entity, in the domestic market’s currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm’s debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle⁵ – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark⁴ – The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

Hurdle Rate⁴ – The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects² – The interaction effect measures the combined impact of an investment manager’s selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median³ – The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration³ – The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)³ – Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni)⁴ – A debt security issued by a state, municipality or county to finance its capital expenditures.

Net Investment Change¹ – Is the change in an investment after accounting for all Net Cash Flows.

Performance Fee⁴ – A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

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



GLOSSARY OF INVESTMENT TERMINOLOGY

Policy Index³ - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

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

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

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

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

Selection (or Manager) Effect² - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate⁵ - is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee¹ - A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

Total Effects² - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return¹ - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe³ - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation¹ - Standard Deviation of Positive Returns

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

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

Yield to Maturity³ - The discount rate that equates the present value of cash flows, both principal and interest, to market price.

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



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- **The goal of this report is to provide a basis for monitoring financial markets. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
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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.

