

QUARTERLY PERFORMANCE REPORT

SAN BERNARDINO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION



December 31, 2017

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

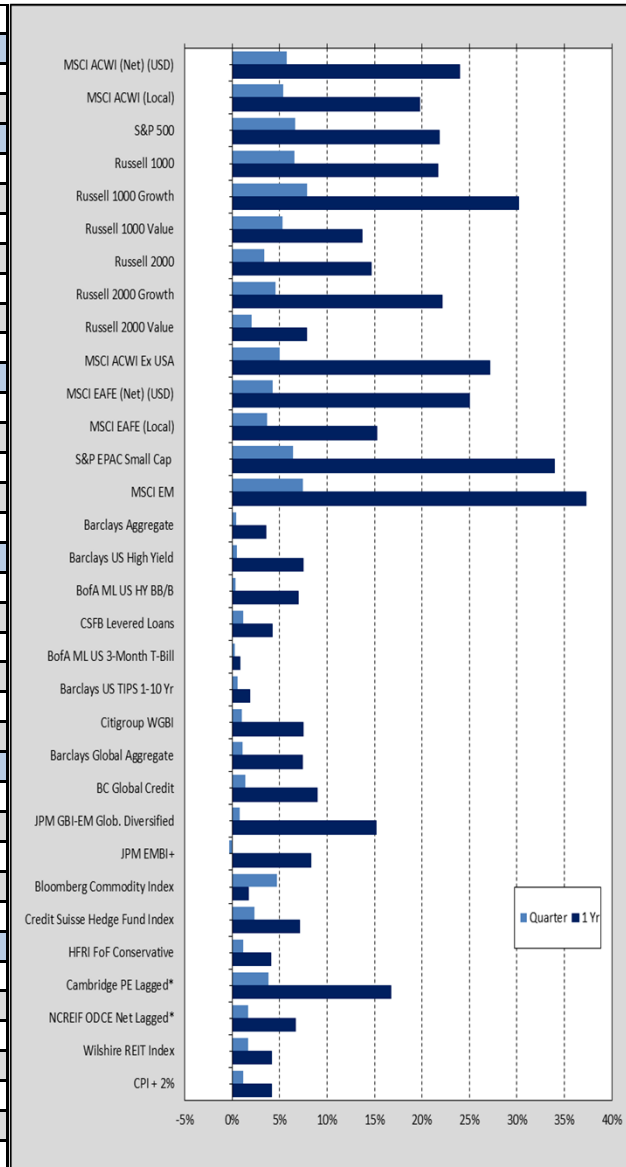
ECONOMIC ENVIRONMENT

- **Third quarter GDP growth rate (third estimate) was 3.2%.**
 - 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 refinance 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

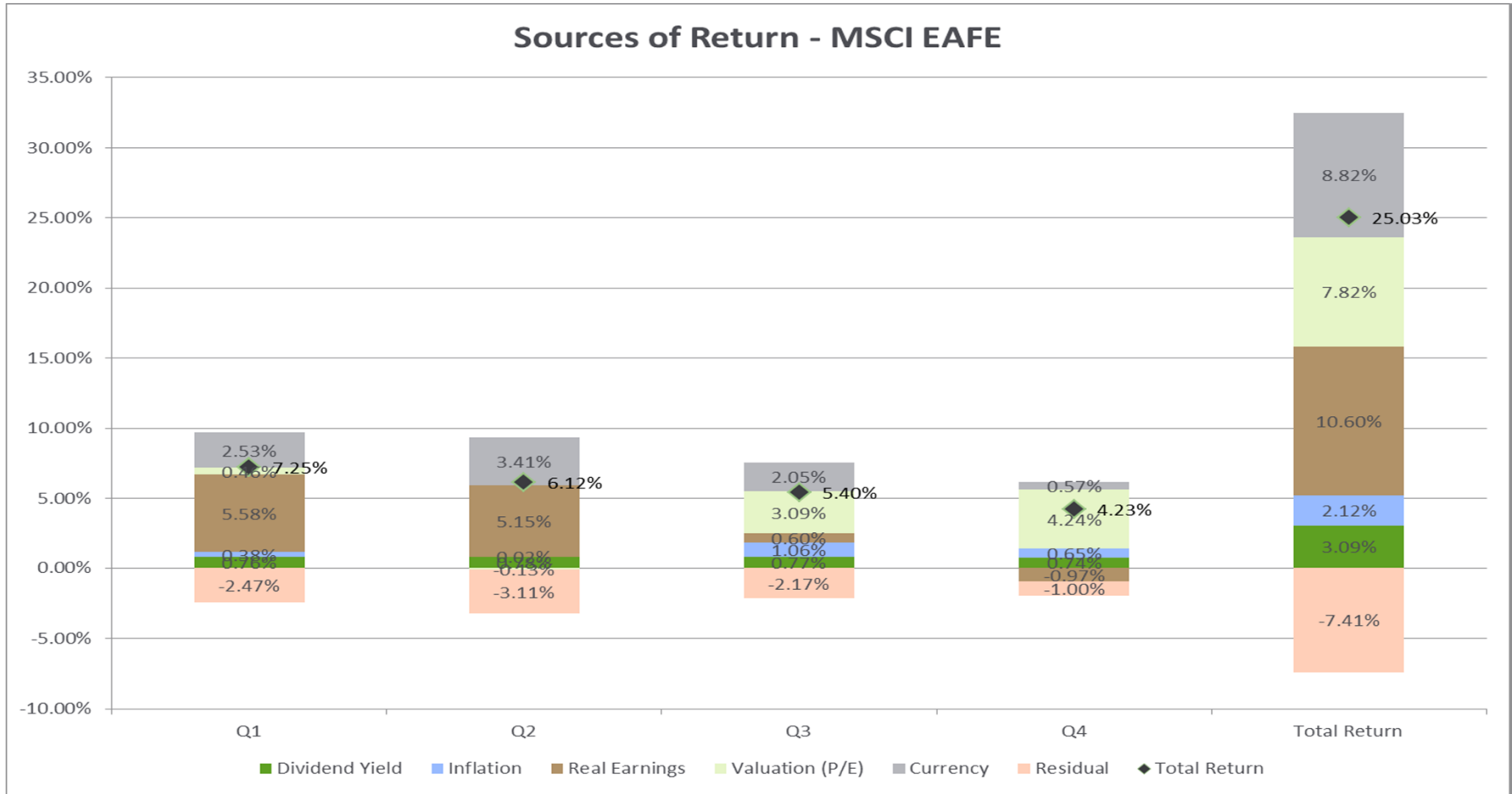
- **Commodities gained 4.7% as measured by the Bloomberg Commodity Index.**
 - US Dollar weakness led to stronger commodity prices broadly.

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

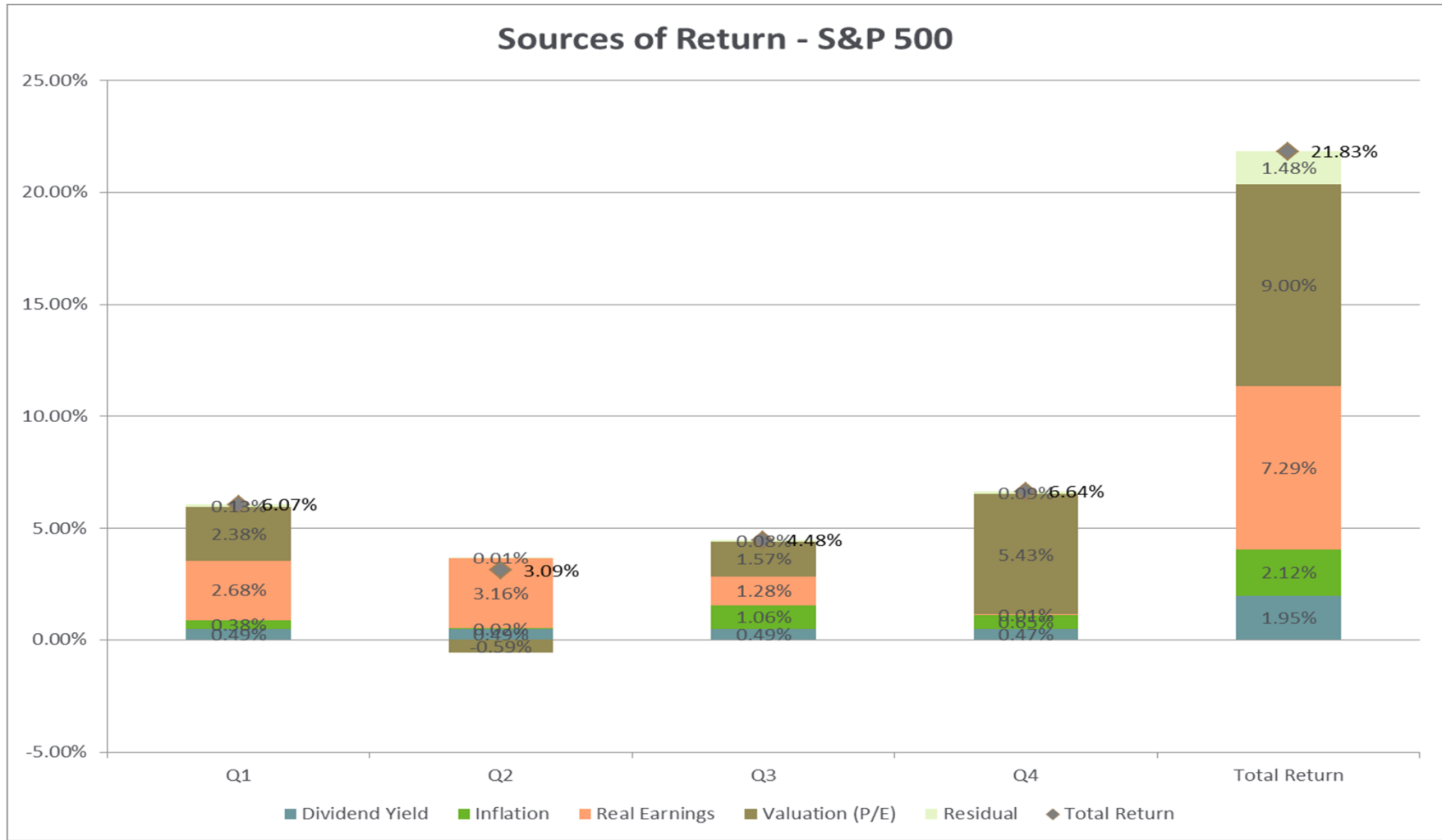
1 USD = 0.876 Euro

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

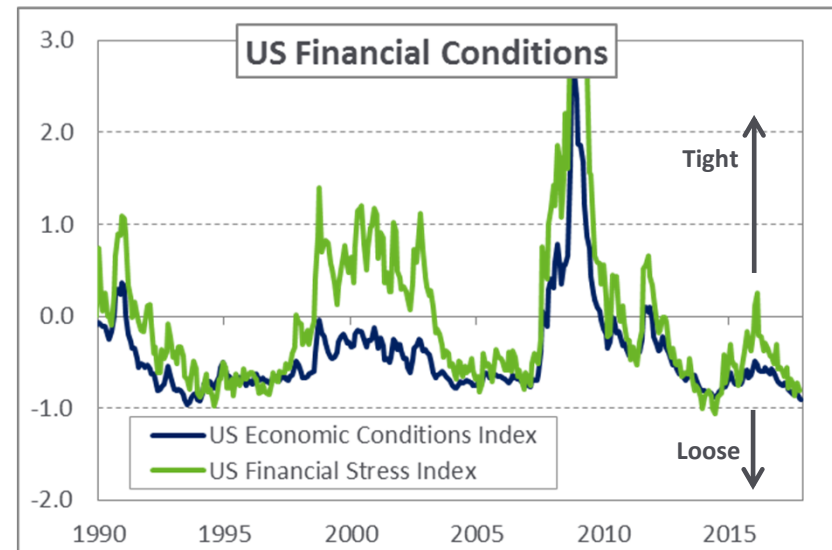
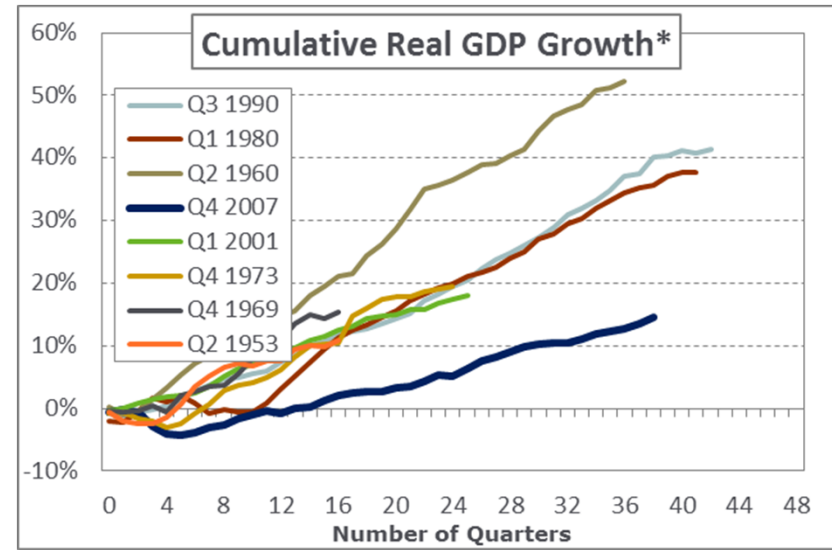
A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

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

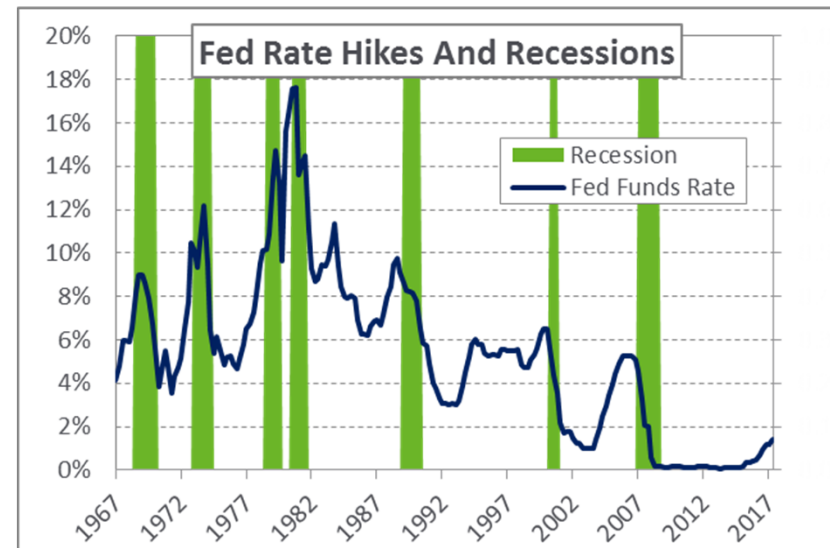
Tax cuts and fiscal stimulus can potentially remove spare economic capacity and be a catalyst for an uptick in inflation measures

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

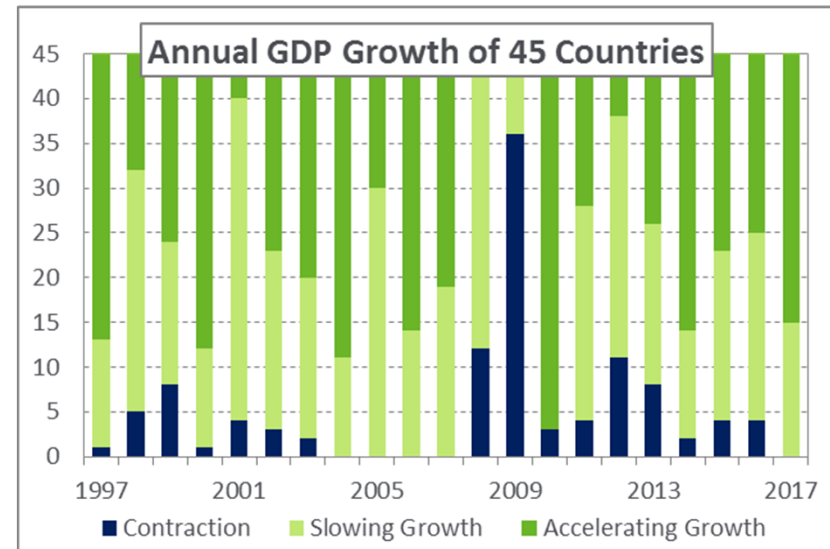
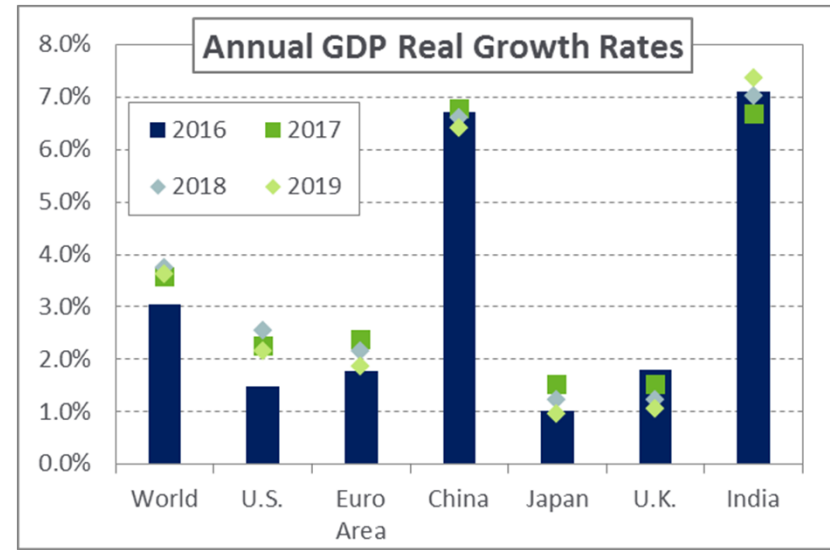
Non-US corporate revenues and equities are best positioned to benefit from a widespread boost in global economic conditions

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

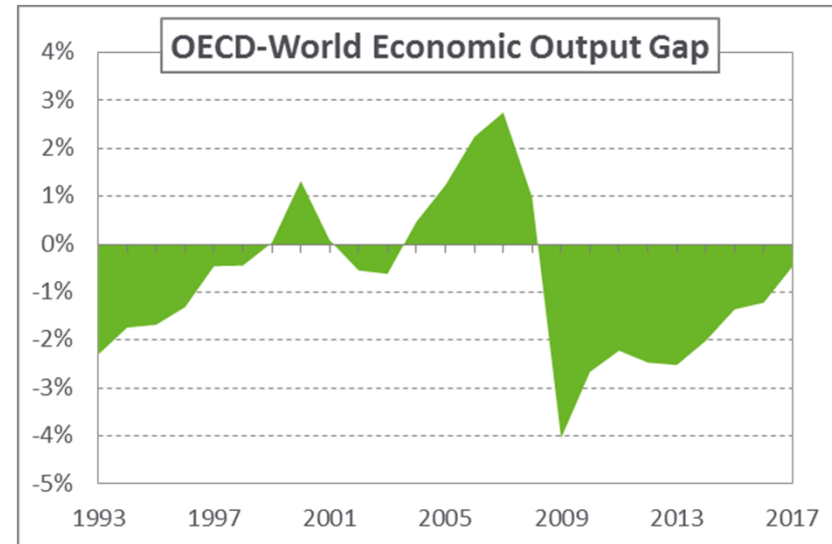
Despite recent labor market improvements, potential for labor reform in Europe and improved workforce participation in Japan offer multi-year benefits to economic growth

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

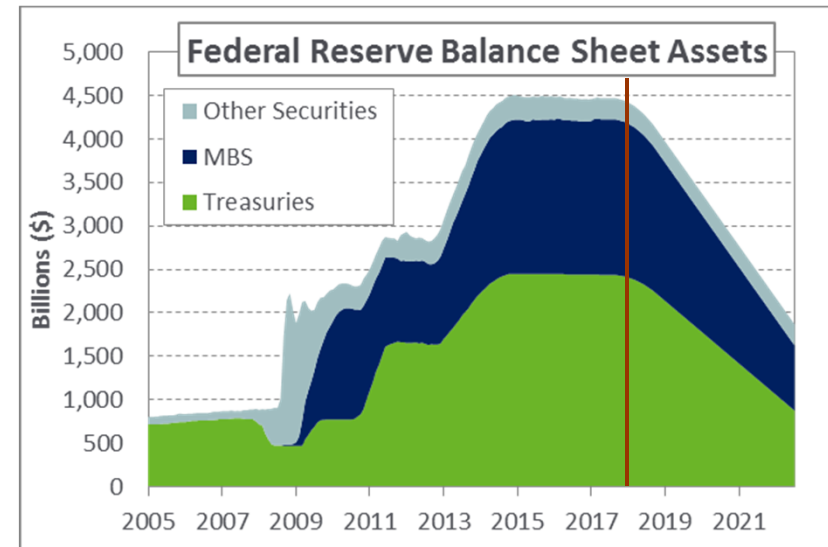
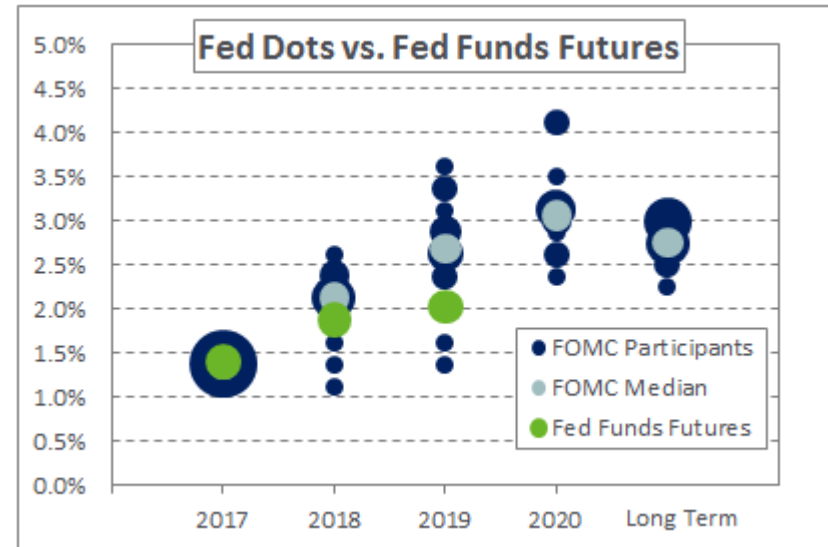
A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

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

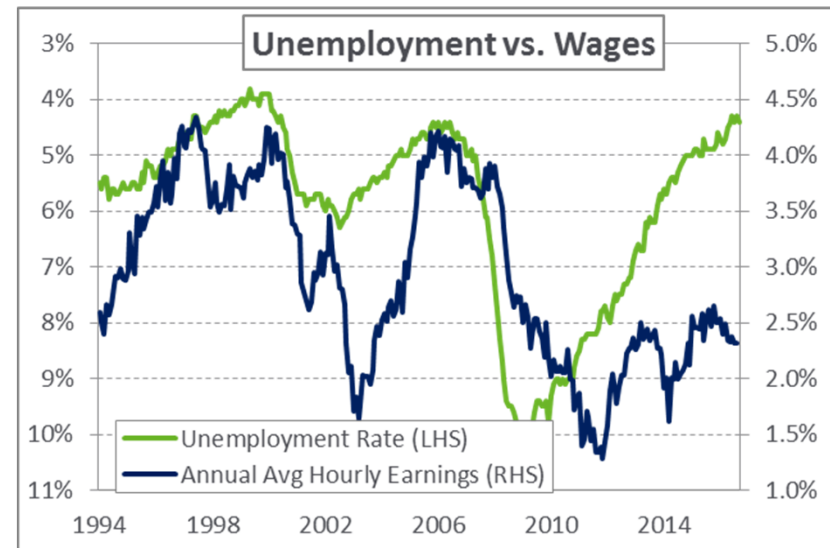
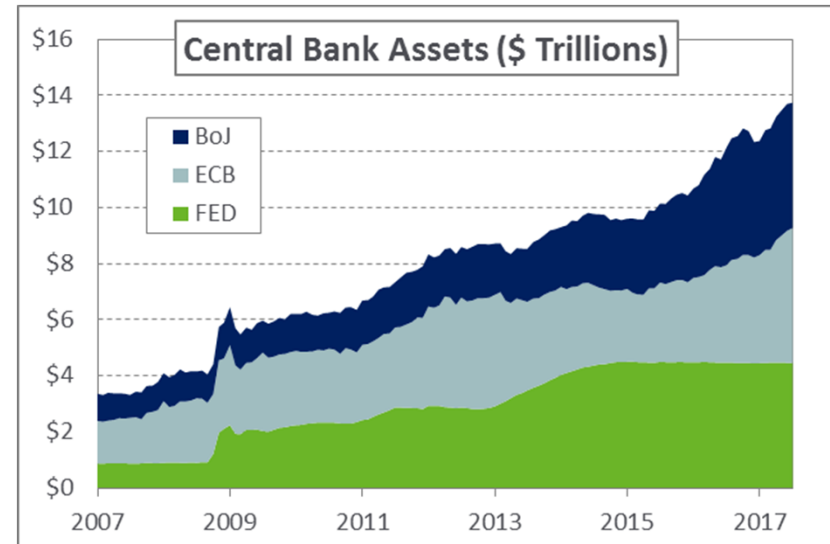
However, the reinvestment of balance sheet holdings is likely to continue for an extended period of time

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

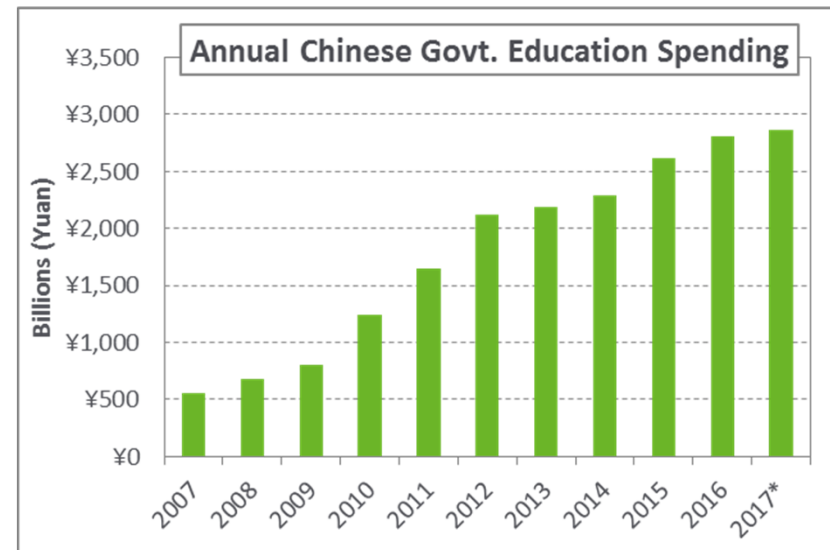
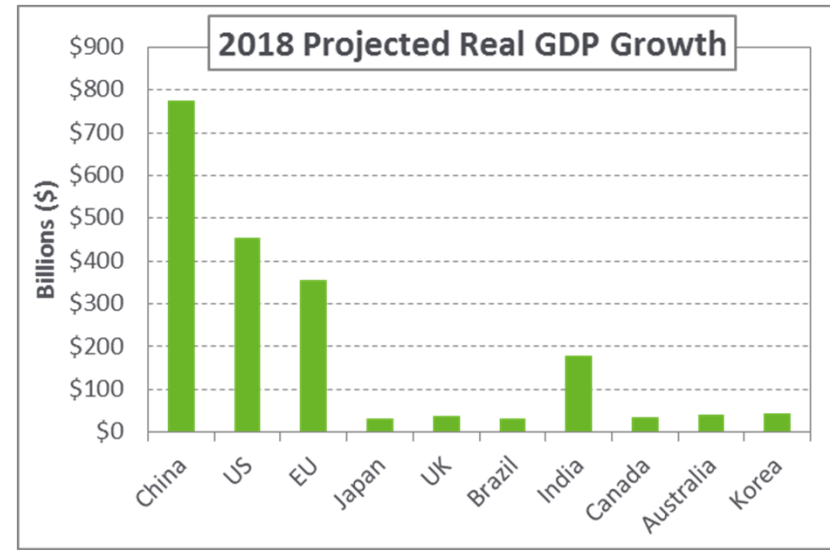
Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers

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

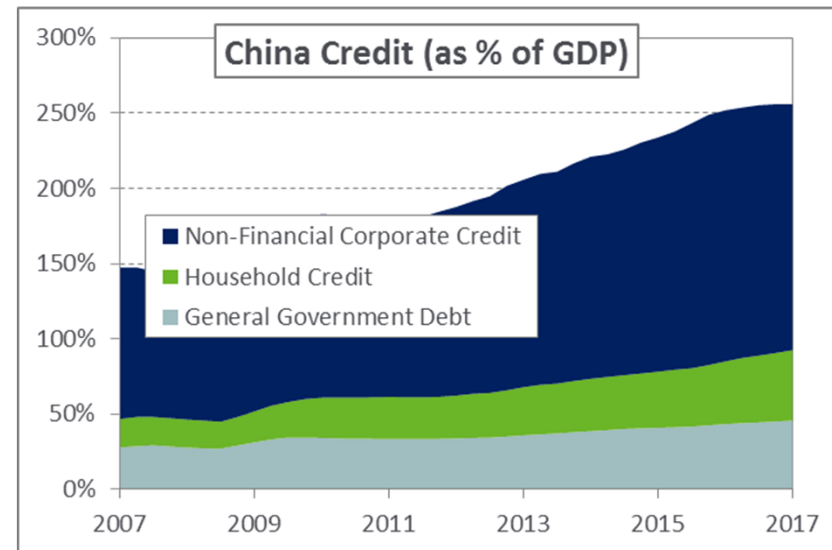
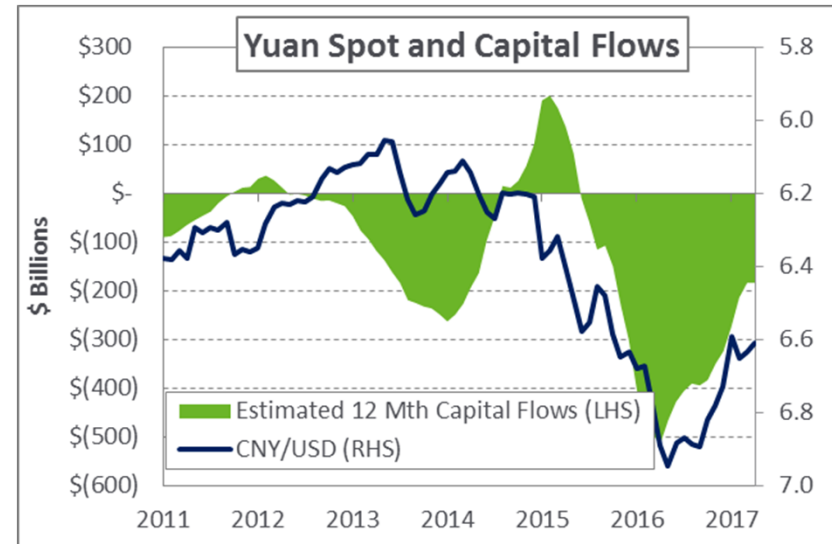
China maintains control of its currency and monetary policy but would have to make concessions to open its capital account and allow the free movement of capital in order to encourage investment

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

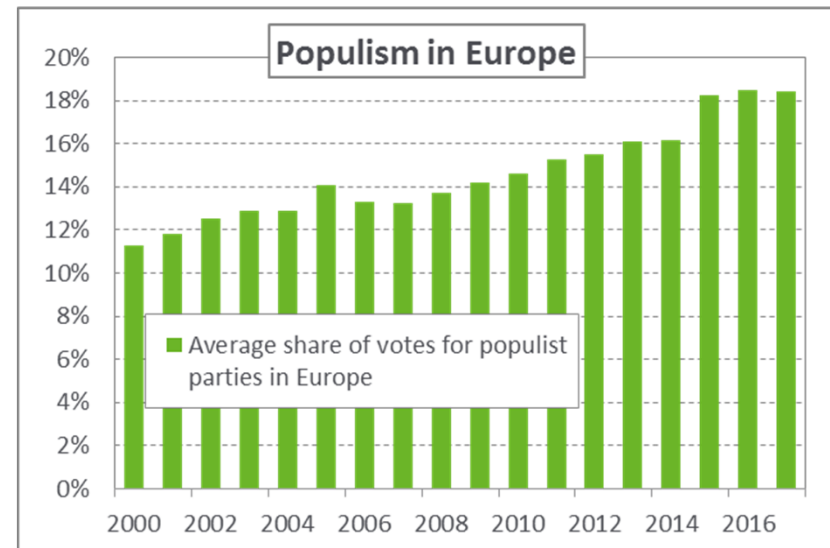
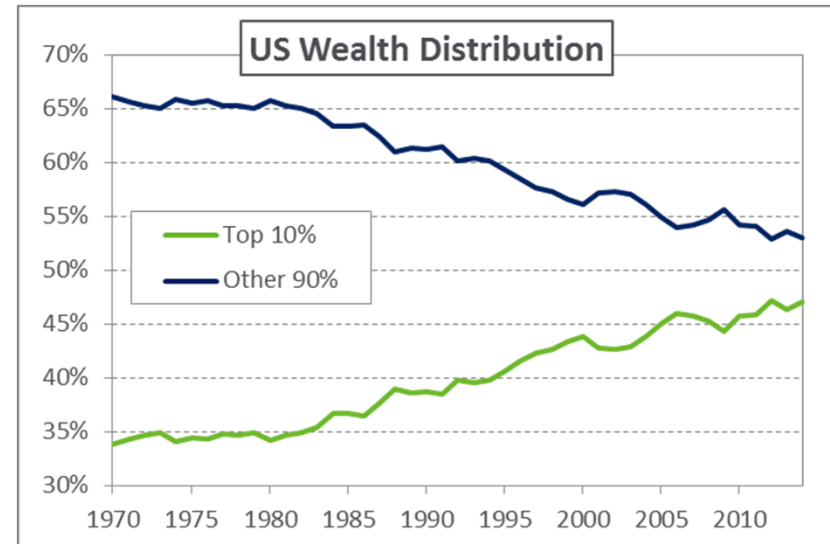
Anti-establishment political bias is likely a long term trend and potentially leads to higher levels of currency volatility over time

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

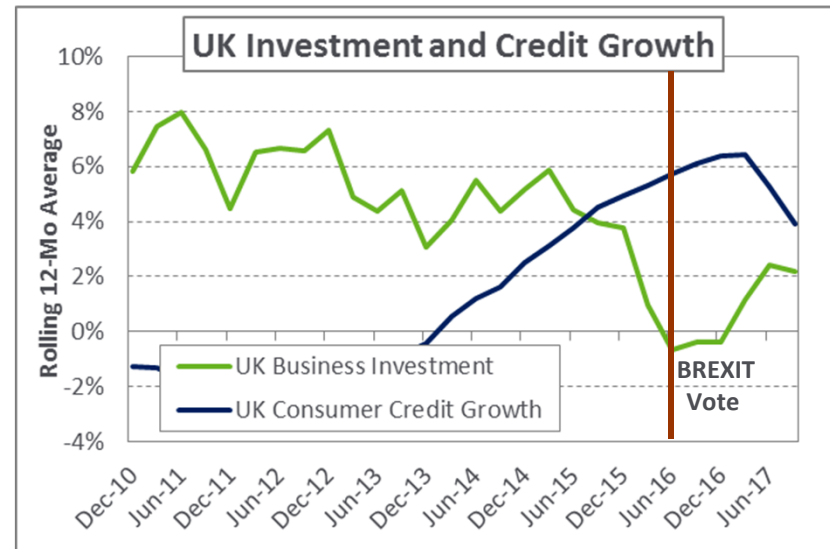
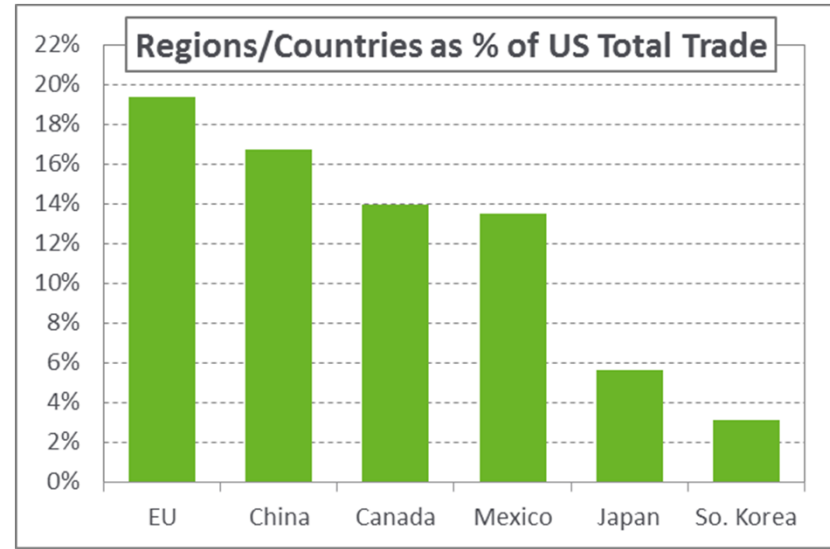
Markets have taken to interpreting the US administration's rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern

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

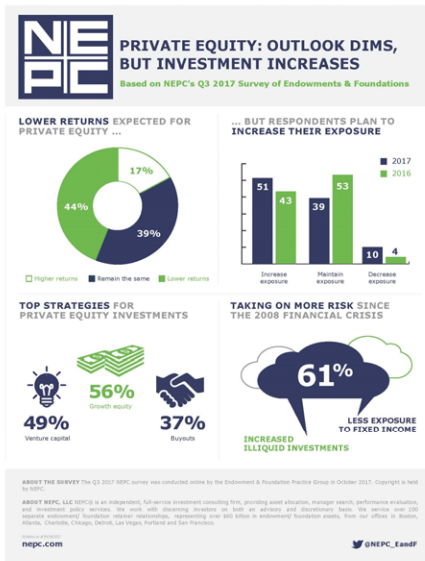


Source: (Top) Federal Reserve Bank of St. Louis

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

NEPC, LLC

TOTAL FUND PERFORMANCE SUMMARY (GROSS)

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank
Total Fund	\$9,844,550,265	2.6%	95	5.9%	95	12.6%	95	7.6%	69	8.5%	67	4.7%	89
<i>Policy Index</i>		3.2%	90	6.4%	90	13.0%	92	6.3%	99	7.0%	99	5.0%	81
<i>S&P 500</i>		6.6%	1	11.4%	1	21.8%	1	11.4%	1	15.8%	1	8.5%	1
<i>BBgBarc US Aggregate TR</i>		0.4%	99	1.2%	99	3.5%	99	2.2%	99	2.1%	99	4.0%	99
<i>60% MSCI ACWI (Net) / 40% CITI WGBI</i>		3.8%	36	7.8%	39	17.1%	20	6.4%	99	6.5%	99	4.2%	99
<i>InvestorForce Public DB > \$1B Gross Median</i>		3.7%		7.4%		15.8%		7.8%		9.2%		5.6%	

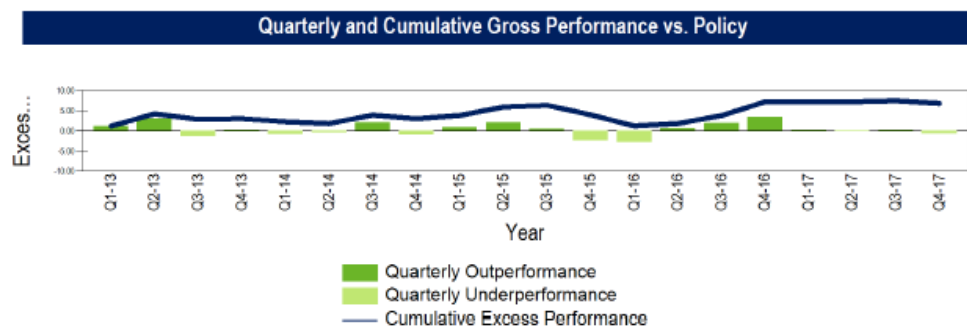
In the year ended December 31, 2017 the Fund returned 12.6% ranking in the 95th percentile of Public Funds > \$1Billion and significantly outperformed the actuarial assumed rate of 7.25%. The Fund's assets totaled \$9.84 billion, an increase of \$1.05 billion from a year ago.

The Fund experienced a net investment gain of \$1.10 billion during the year including a net investment gain of \$245.2 million in the fourth calendar quarter.

In the three –year period ended December 31, 2017 the Fund returned 7.6% and ranked in the 69th percentile among its peers. The Sharpe Ratio over this period of 2.0 ranks in the 5th percentile, indicating that the Fund earned a higher rate of return for each incremental unit of risk taken during the period versus its peers.

In the five-year period ended December 31, 2017 the Fund returned 8.5% per annum and ranked in the 67th percentile among its peers. On a risk adjusted basis the Fund's Sharpe and Sortino Ratios rank in the 1st and 6th percentile indicating both strong returns per unit of risk taken and strong returns per unit of downside risk experienced when compared to a universe of public fund peers >\$1B.

Note: InvestorForce Public Funds >\$1B Gross of Fee prelim universe contains 20 portfolios with \$75 billion in assets



Statistics Summary

3 Years Ending December 31, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	2.0	5	3.2	6
InvestorForce Public DB > \$1B Gross Median	1.2	--	1.8	--

5 Years Ending December 31, 2017

	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	2.5	1	4.0	6
InvestorForce Public DB > \$1B Gross Median	1.6	--	2.5	--



TOTAL FUND PERFORMANCE SUMMARY

Statistics Summary								
1 Year Ending December 31, 2017								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	12.6%	95	0.8%	1	15.2	1	--	--
InvestorForce Public DB > \$1B Gross Median	15.8%	--	1.7%	--	9.3	--	--	--

Statistics Summary								
3 Years Ending December 31, 2017								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	7.6%	69	3.6%	6	2.0	5	3.2	6
InvestorForce Public DB > \$1B Gross Median	7.8%	--	6.1%	--	1.2	--	1.8	--

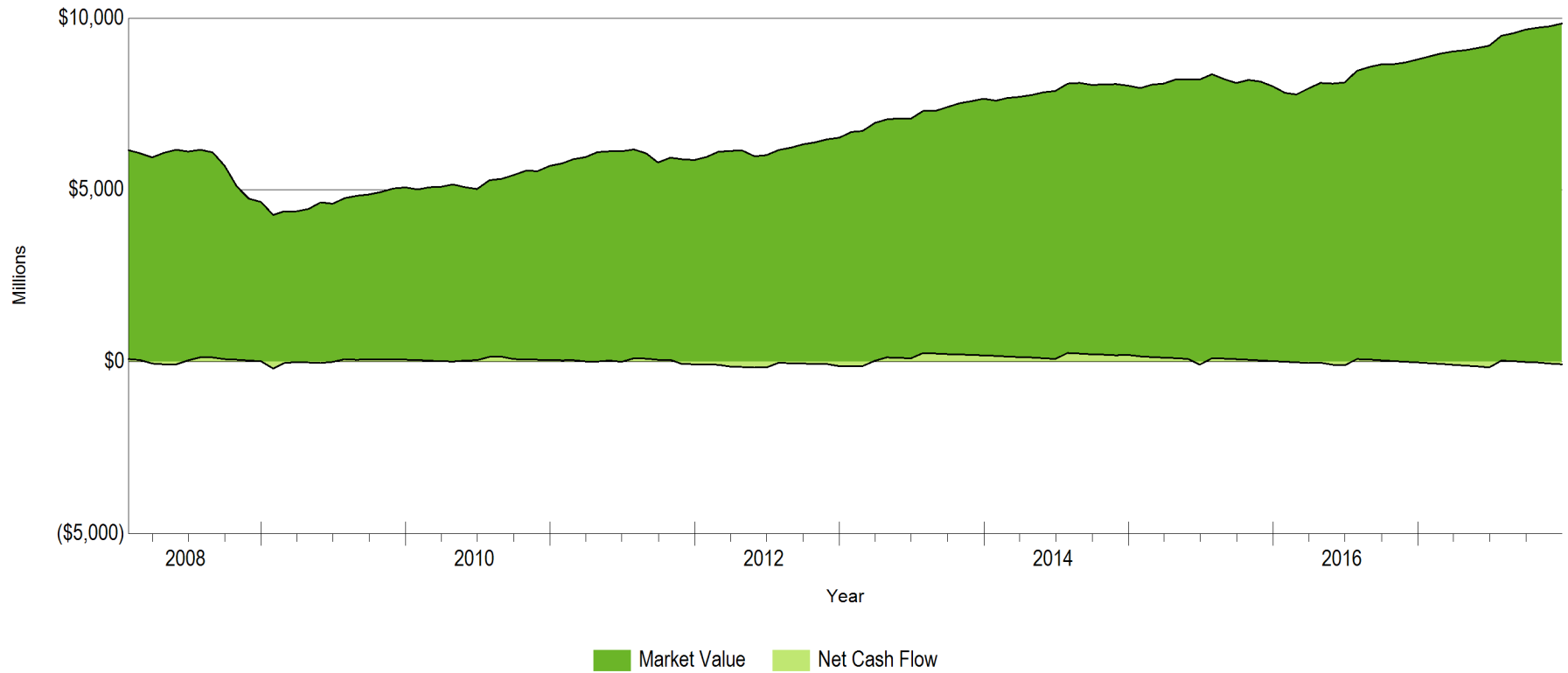
Statistics Summary								
5 Years Ending December 31, 2017								
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Sortino Ratio	Sortino Ratio Rank
Total Fund	8.5%	67	3.2%	1	2.5	1	4.0	6
InvestorForce Public DB > \$1B Gross Median	9.2%	--	6.1%	--	1.6	--	2.5	--

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



TOTAL FUND ASSET GROWTH SUMMARY

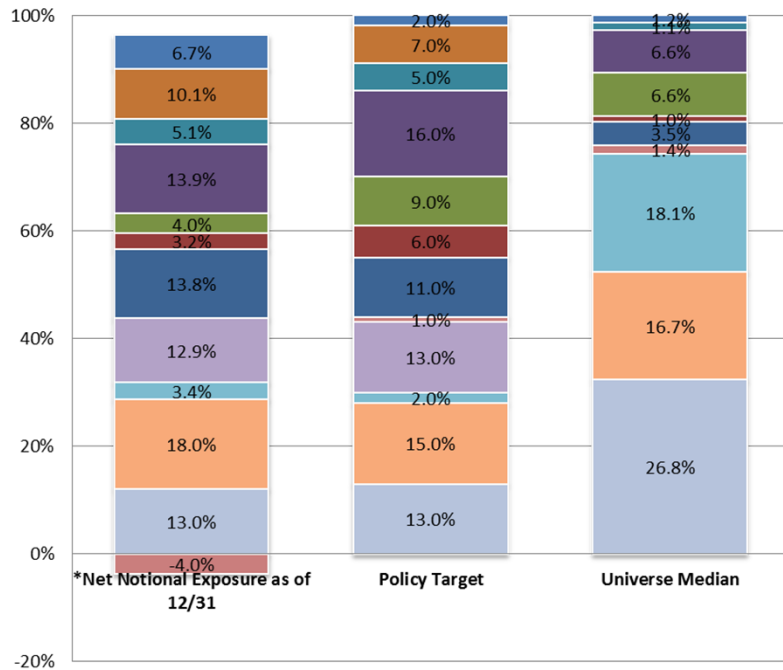
10 Years Ending December 31, 2017



	Last Three Months	One Year	Five Years	Ten Years
Beginning Market Value	\$9,666,461,859	\$8,796,477,524	\$6,520,594,709	\$6,313,118,619
Net Cash Flow	-\$67,078,733	-\$54,645,944	\$63,285,303	-\$64,770,504
Net Investment Change	\$245,167,139	\$1,102,718,685	\$3,260,670,252	\$3,596,202,149
Ending Market Value	\$9,844,550,265	\$9,844,550,265	\$9,844,550,265	\$9,844,550,265



TOTAL FUND PERFORMANCE SUMMARY



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

	*Net Notional Exposure	*Net Notional Exposure as of 12/31	Policy Target	*Difference	Policy Ranges	Within Range
US Equities	1,281,289	13.0%	13.0%	0.0%	8%-18%	Yes
Int'l Equities	1,768,499	18.0%	15.0%	3.0%	10%-20%	Yes
U.S. Core	334,500	3.4%	2.0%	1.4%	-3%-7%	Yes
US Credit	1,266,427	12.9%	13.0%	-0.1%	8%-18%	Yes
Non-US Core Fixed Income	(393,782)	-4.0%	1.0%	-5.0%	-4%-6%	Yes
Non-US Credit	1,361,239	13.8%	11.0%	2.8%	6%-16%	Yes
Emerging Market Debt	311,888	3.2%	6.0%	-2.8%	1%-11%	Yes
Real Estate	391,247	4.0%	9.0%	-5.0%	0%-14%	Yes
Private Equity	1,363,629	13.9%	16.0%	-2.1%	6%-21%	Yes
Real Assets	504,204	5.1%	5.0%	0.1%	0%-10%	Yes
Absolute Return	992,577	10.1%	7.0%	3.1%	0%-12%	Yes
Cash	662,833	6.7%	2.0%	4.7%	0%-10%	Yes
	9,844,550	100.0%	100.0%			



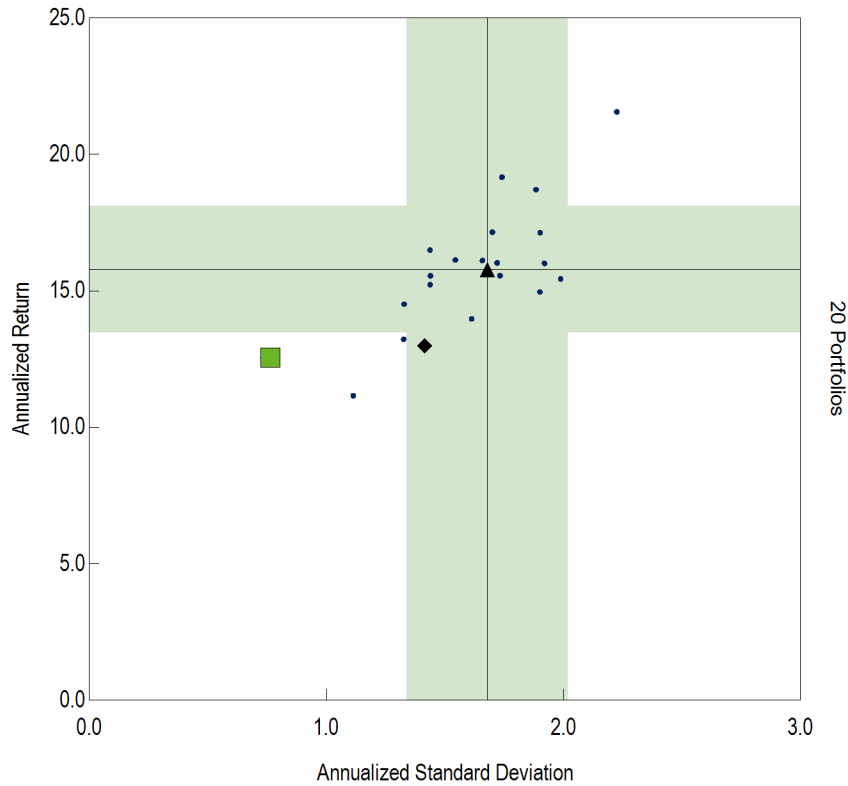
TOTAL FUND PERFORMANCE SUMMARY

<u>Asset Class</u>	<u>Physical Exposure</u>		<u>Delta Adjusted Synthetic Exposure</u>		<u>Net Position</u>		<u>Overlay Target</u>		<u>Policy Target</u>	
Total Market Value	9,601.5	100.0%	-0.0	0.0%	9,601.5	100.0%	9,601.5	100.0%	9,601.5	100.0%
Cash	1,745.5	18.18%	-1,152.6	-12.0%	592.9	6.18%	0.0	0.0%	0.0	0.00%
Cash	1,745.5	18.18%	-1,152.6	-12.0%	592.9	6.18%	0.0	0.0%	0.0	0.00%
Equity	1,404.1	14.62%	1,595.6	16.62%	2,999.7	31.24%	3,542.7	36.9%	3,552.6	37.00%
Emerging Markets	531.6	5.54%	160.3	1.67%	691.9	7.21%	766.0	7.98%	768.1	8.00%
Equity Delta Hedge	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
International Developed	124.1	1.29%	929.0	9.68%	1,053.1	10.97%	1,053.2	10.97%	1,056.2	11.00%
US Large Cap	748.3	7.79%	245.2	2.55%	993.5	10.35%	1,388.4	14.46%	1,392.2	14.50%
US Small Cap	0.1	0.0%	261.1	2.72%	261.2	2.72%	335.1	3.49%	336.1	3.50%
Fixed	3,050.1	31.77%	-443.0	-4.61%	2,607.1	27.15%	2,657.0	27.67%	2,664.4	27.75%
EM High Yield CDX	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.00%
Global ex US Fixed Income	1,994.1	20.77%	-777.5	-8.1%	1,216.6	12.67%	1,244.7	12.96%	1,248.2	13.00%
High Yield **	1,056.0	11.0%	0.0	0.0%	1,056.0	11.0%	909.6	9.47%	912.1	9.50%
US Fixed Income	0.0	0.0%	334.5	3.48%	334.5	3.48%	502.7	5.24%	504.1	5.25%
Other	3,401.7	35.43%	0.0	0.0%	3,401.7	35.43%	3,401.7	35.43%	3,384.5	35.25%
Alternatives	182.5	1.9%	0.0	0.0%	182.5	1.9%	182.5	1.9%	172.8	1.80%
Commodities	137.0	1.43%	0.0	0.0%	137.0	1.43%	137.0	1.43%	144.0	1.50%
Infrastructure	80.2	0.84%	0.0	0.0%	80.2	0.84%	80.2	0.84%	76.8	0.80%
Private Equity	1,216.9	12.67%	0.0	0.0%	1,216.9	12.67%	1,216.9	12.67%	1,325.0	13.80%
Real Estate	493.7	5.14%	0.0	0.0%	493.7	5.14%	493.7	5.14%	374.5	3.90%
Tactical Cash	1,291.4	13.45%	0.0	0.0%	1,291.4	13.45%	1,291.4	13.45%	1,291.4	13.45%



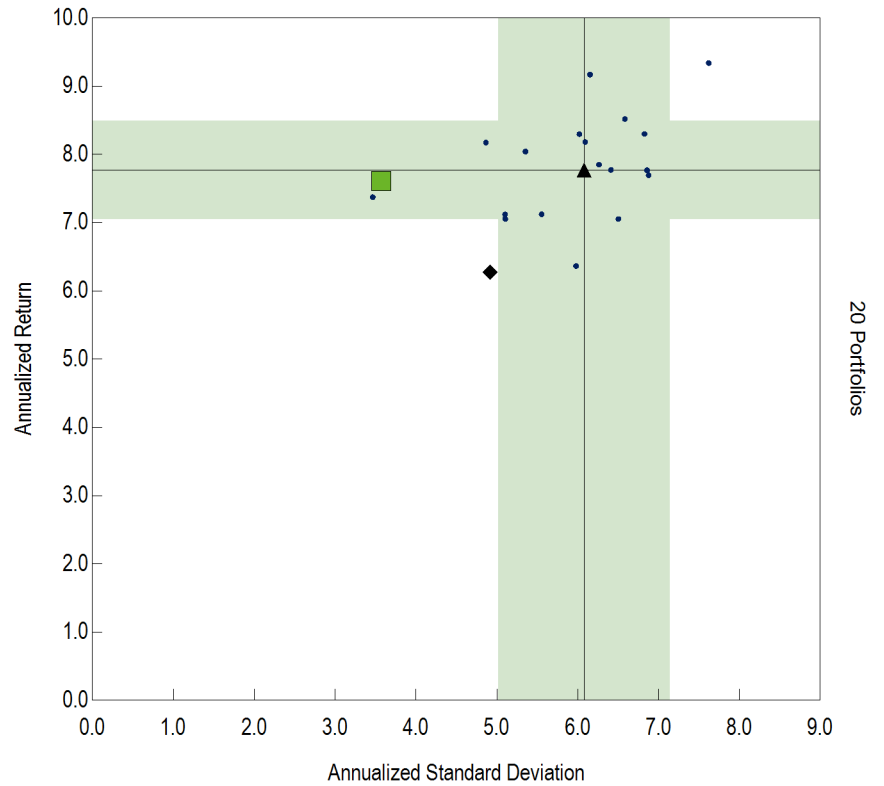
TOTAL FUND RISK/RETURN

1 Year Ending December 31, 2017



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

3 Years Ending December 31, 2017

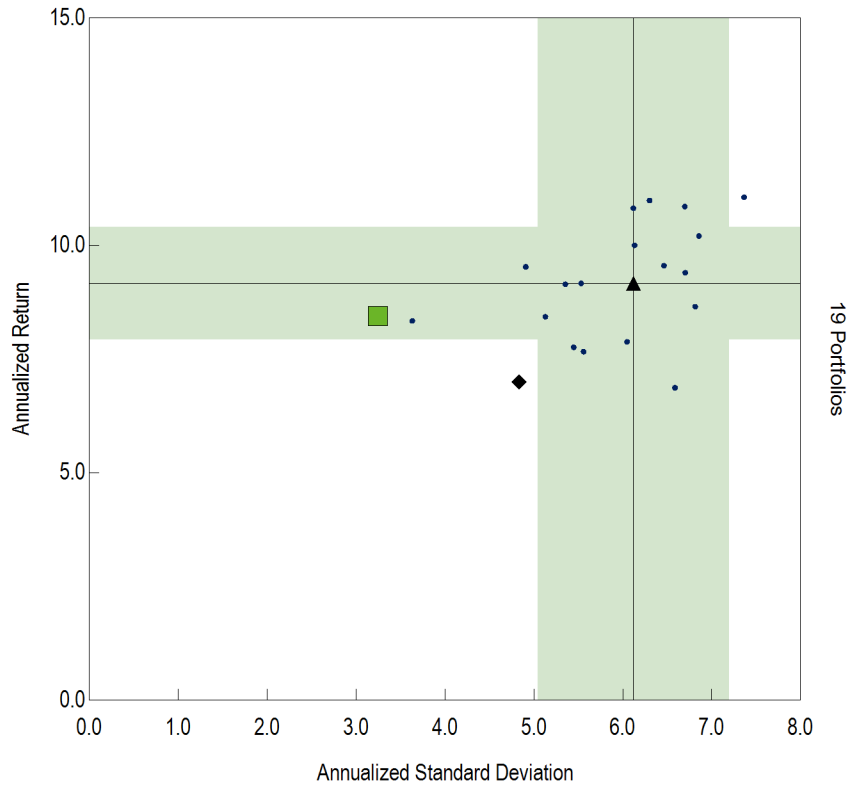


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross



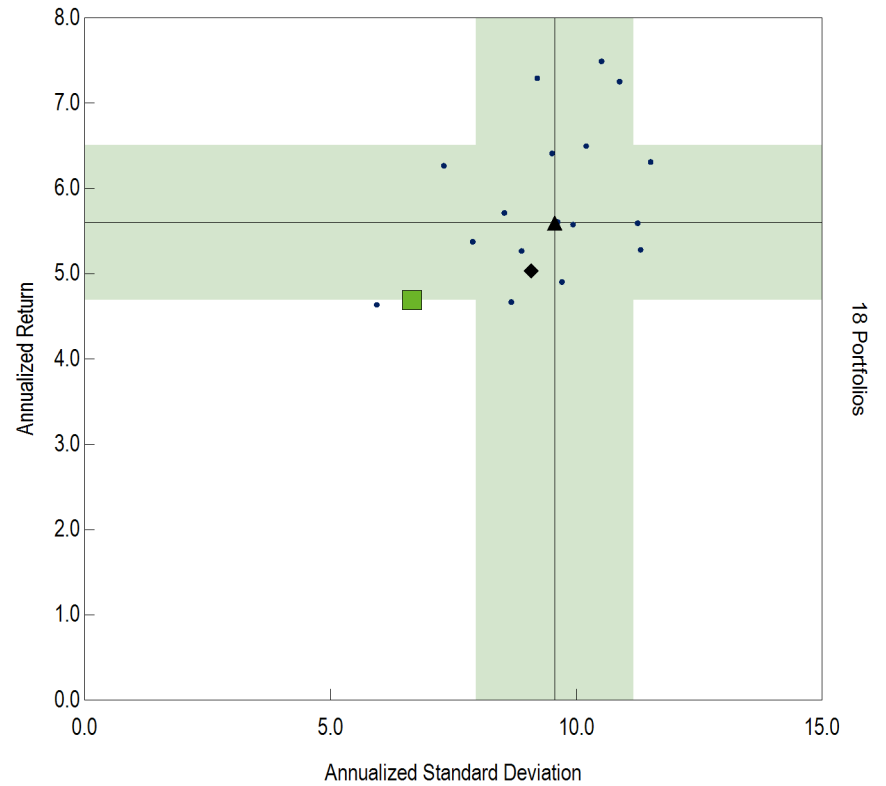
TOTAL FUND RISK/RETURN

5 Years Ending December 31, 2017



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

10 Years Ending December 31, 2017



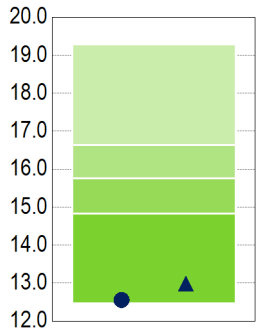
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

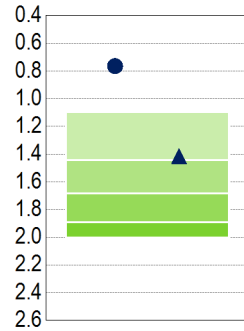
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD) 1 Year

Anlzd Return



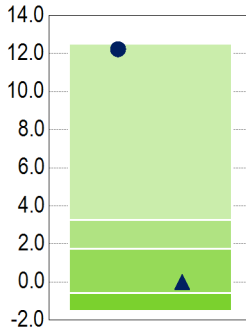
● Total Fund	
Value	12.6
Rank	95
▲ Policy Index	
Value	13.0
Rank	92
Universe	
5th %tile	19.3
25th %tile	16.7
Median	15.8
75th %tile	14.8
95th %tile	12.5

Anlzd Standard Deviation



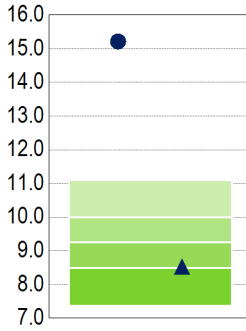
● Total Fund	
Value	0.8
Rank	1
▲ Policy Index	
Value	1.4
Rank	20
Universe	
5th %tile	1.1
25th %tile	1.4
Median	1.7
75th %tile	1.9
95th %tile	2.0

Anlzd Alpha



● Total Fund	
Value	12.2
Rank	7
▲ Policy Index	
Value	0.0
Rank	68
Universe	
5th %tile	12.5
25th %tile	3.3
Median	1.8
75th %tile	-0.6
95th %tile	-1.5

Sharpe Ratio



● Total Fund	
Value	15.2
Rank	1
▲ Policy Index	
Value	8.5
Rank	74
Universe	
5th %tile	11.1
25th %tile	10.0
Median	9.3
75th %tile	8.5
95th %tile	7.4

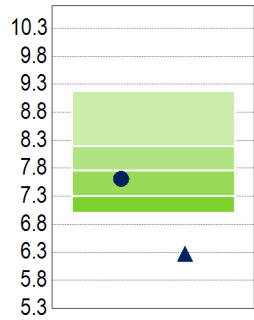
Sortino Ratio not included in 1 year chart. The ratio requires at least two negative points during the time period in order to calculate.
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

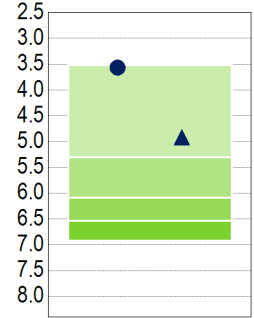
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD) 3 Years

Anlzd Return



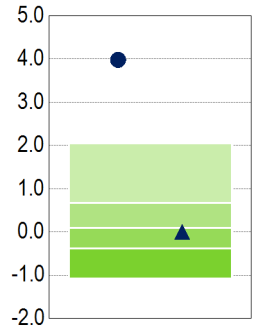
● Total Fund	
Value	7.6
Rank	69
▲ Policy Index	
Value	6.3
Rank	99
Universe	
5th %tile	9.2
25th %tile	8.2
Median	7.8
75th %tile	7.3
95th %tile	7.0

Anlzd Standard Deviation



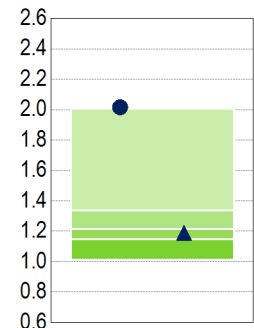
● Total Fund	
Value	3.6
Rank	6
▲ Policy Index	
Value	4.9
Rank	12
Universe	
5th %tile	3.5
25th %tile	5.3
Median	6.1
75th %tile	6.5
95th %tile	6.9

Anlzd Alpha



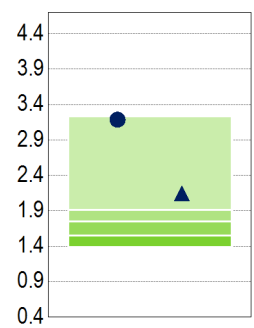
● Total Fund	
Value	4.0
Rank	1
▲ Policy Index	
Value	0.0
Rank	54
Universe	
5th %tile	2.0
25th %tile	0.7
Median	0.1
75th %tile	-0.4
95th %tile	-1.1

Sharpe Ratio



● Total Fund	
Value	2.0
Rank	5
▲ Policy Index	
Value	1.2
Rank	63
Universe	
5th %tile	2.0
25th %tile	1.3
Median	1.2
75th %tile	1.2
95th %tile	1.0

Sortino Ratio



● Total Fund	
Value	3.2
Rank	6
▲ Policy Index	
Value	2.1
Rank	11
Universe	
5th %tile	3.2
25th %tile	1.9
Median	1.8
75th %tile	1.6
95th %tile	1.4

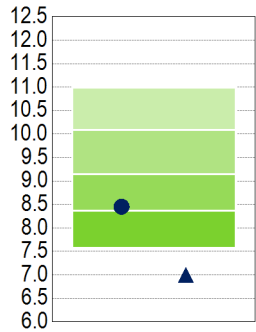
Sortino Ratio requires at least two negative points during the time period in order to calculate
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

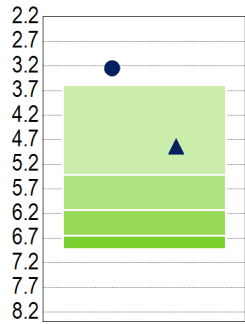
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD) 5 Years

Anlzd Return



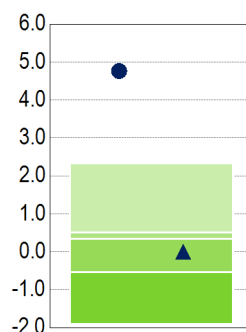
● Total Fund	
Value	8.5
Rank	67
▲ Policy Index	
Value	7.0
Rank	99
Universe	
5th %tile	11.0
25th %tile	10.1
Median	9.2
75th %tile	8.4
95th %tile	7.6

Anlzd Standard Deviation



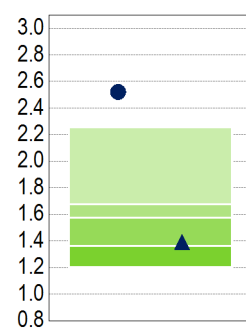
● Total Fund	
Value	3.2
Rank	1
▲ Policy Index	
Value	4.8
Rank	11
Universe	
5th %tile	3.6
25th %tile	5.4
Median	6.1
75th %tile	6.6
95th %tile	6.9

Anlzd Alpha



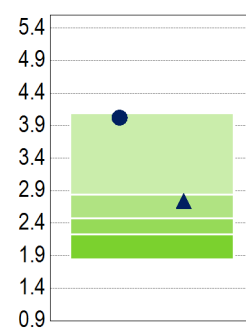
● Total Fund	
Value	4.8
Rank	1
▲ Policy Index	
Value	0.0
Rank	64
Universe	
5th %tile	2.3
25th %tile	0.5
Median	0.4
75th %tile	-0.5
95th %tile	-1.9

Sharpe Ratio



● Total Fund	
Value	2.5
Rank	1
▲ Policy Index	
Value	1.4
Rank	71
Universe	
5th %tile	2.3
25th %tile	1.7
Median	1.6
75th %tile	1.4
95th %tile	1.2

Sortino Ratio



● Total Fund	
Value	4.0
Rank	6
▲ Policy Index	
Value	2.7
Rank	31
Universe	
5th %tile	4.1
25th %tile	2.8
Median	2.5
75th %tile	2.2
95th %tile	1.9

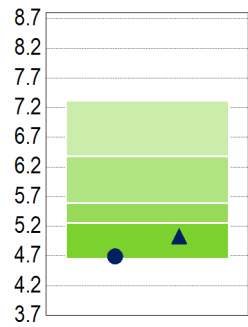
Sortino Ratio requires at least two negative points during the time period in order to calculate
Sample size is 20 Portfolios



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

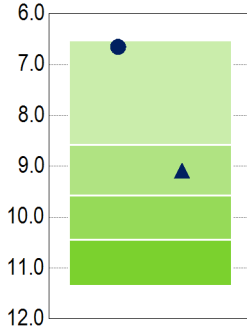
Total Fund vs. InvestorForce Public DB > \$1B Gross (USD) 10 Years

Anlzd Return



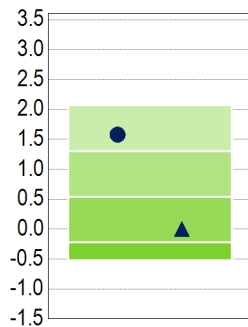
● Total Fund	
Value	4.7
Rank	89
▲ Policy Index	
Value	5.0
Rank	81
Universe	
5th %tile	7.3
25th %tile	6.4
Median	5.6
75th %tile	5.3
95th %tile	4.7

Anlzd Standard Deviation



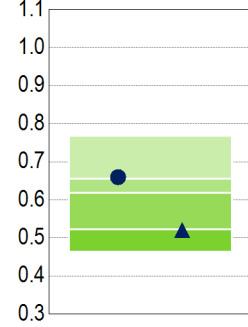
● Total Fund	
Value	6.7
Rank	7
▲ Policy Index	
Value	9.1
Rank	39
Universe	
5th %tile	6.5
25th %tile	8.6
Median	9.6
75th %tile	10.4
95th %tile	11.3

Anlzd Alpha



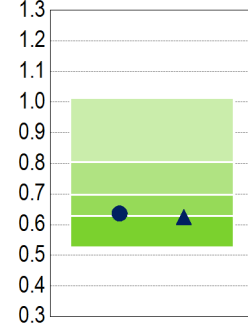
● Total Fund	
Value	1.6
Rank	19
▲ Policy Index	
Value	0.0
Rank	67
Universe	
5th %tile	2.1
25th %tile	1.3
Median	0.6
75th %tile	-0.2
95th %tile	-0.5

Sharpe Ratio



● Total Fund	
Value	0.7
Rank	25
▲ Policy Index	
Value	0.5
Rank	77
Universe	
5th %tile	0.8
25th %tile	0.7
Median	0.6
75th %tile	0.5
95th %tile	0.5

Sortino Ratio



● Total Fund	
Value	0.6
Rank	71
▲ Policy Index	
Value	0.6
Rank	77
Universe	
5th %tile	1.0
25th %tile	0.8
Median	0.7
75th %tile	0.6
95th %tile	0.5

Sortino Ratio requires at least two negative points during the time period in order to calculate
Sample size is 20 Portfolios



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

1 Years Ending December 31, 2017								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	13.0%	10.4%	99	3.5%	13	2.7%	-4.0	--
Russell 3000	--	21.1%	32	3.8%	40	0.0%	--	--
Domestic Equity	7.9%	6.8%	--	2.1%	--	2.9%	-4.9	--
Russell 3000	--	21.1%	--	3.8%	--	0.0%	--	--
International Equity With Beta Overlay	18.0%	22.5%	93	4.0%	50	2.9%	-2.0	--
MSCI ACWI ex US IMI Gross	--	28.4%	3	3.8%	39	0.0%	--	--
International Developed	1.2%	1.0%	99	0.1%	1	4.2%	-5.8	--
MSCI EAFE	--	25.0%	95	4.2%	73	0.0%	--	--
International Emerging	5.6%	32.5%	--	5.5%	--	2.6%	-1.8	--
MSCI Emerging Markets	--	37.3%	--	6.5%	--	0.0%	--	--
U.S. Credit Strategies	10.5%	8.4%	51	3.4%	84	3.9%	0.7	67
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	5.6%	95	1.4%	9	0.0%	--	--
Non-U.S. Credit Composite	13.8%	15.5%	--	3.1%	--	7.6%	-0.8	--
BofA Merrill Lynch Euro High Yield Constrained	--	21.5%	--	6.0%	--	0.0%	--	--
Emerging Markets Debt Composite	7.1%	8.2%	92	4.6%	78	4.8%	-0.9	--
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	12.7%	49	3.3%	61	0.0%	--	--
Alpha Pool Composite	18.2%	7.3%	50	2.3%	73	2.3%	1.4	19
91 Day T-Bill + 3%	--	3.9%	86	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	13.9%	18.4%	--	3.5%	--
Cambridge Associates Global All PE (Qtr Lag)	--	15.8%	--	6.5%	--
Real Estate Composite	4.0%	2.8%	99	3.5%	97
NCREIF Property Index 1 Qtr Lag	--	6.9%	77	2.9%	88
Real Assets Composite	5.1%	3.5%	59	2.8%	42
Bloomberg Commodity Index	--	1.7%	83	5.7%	60

Percent of Total equals 87.2% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.



San Bernardino County Employees' Retirement Association
TOTAL FUND RISK STATISTICS

3 Years Ending December 31, 2017								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity With Beta Overlay	13.0%	5.9%	99	4.1%	1	8.0%	-0.6	--
Russell 3000	--	11.1%	35	10.2%	60	0.0%	--	--
Domestic Equity	7.9%	2.8%	--	3.6%	--	12.4%	-0.7	--
Russell 3000	--	11.1%	--	10.2%	--	0.0%	--	--
International Equity With Beta Overlay	18.0%	8.2%	99	12.0%	99	3.7%	-0.2	--
MSCI ACWI ex US IMI Gross	--	8.9%	92	11.9%	99	0.0%	--	--
International Developed	1.2%	3.5%	99	23.6%	99	17.7%	-0.2	--
MSCI EAFE	--	7.8%	34	12.0%	74	0.0%	--	--
International Emerging	5.6%	5.2%	--	12.5%	--	5.1%	-0.8	--
MSCI Emerging Markets	--	9.1%	--	15.6%	--	0.0%	--	--
U.S. Credit Strategies	10.5%	6.5%	4	3.4%	18	3.9%	0.3	4
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	5.3%	11	3.7%	32	0.0%	--	--
Non-U.S. Credit Composite	13.8%	8.4%	--	3.5%	--	10.6%	0.3	--
BofA Merrill Lynch Euro High Yield Constrained	--	5.2%	--	10.1%	--	0.0%	--	--
Emerging Markets Debt Composite	7.1%	7.4%	35	5.8%	39	5.4%	0.5	47
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	4.9%	71	7.7%	68	0.0%	--	--
Alpha Pool Composite	18.2%	4.5%	17	3.9%	60	3.9%	0.3	40
91 Day T-Bill + 3%	--	3.4%	37	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	13.9%	12.4%	--	4.1%	--
Cambridge Associates Global All PE (Qtr Lag)	--	10.4%	--	5.4%	--
Real Estate Composite	4.0%	8.6%	91	3.2%	58
NCREIF Property Index 1 Qtr Lag	--	9.8%	43	4.2%	62
Real Assets Composite	5.1%	1.2%	38	5.4%	21
Bloomberg Commodity Index	--	-5.0%	86	12.5%	65

Percent of Total equals 87.2% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.



San Bernardino County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

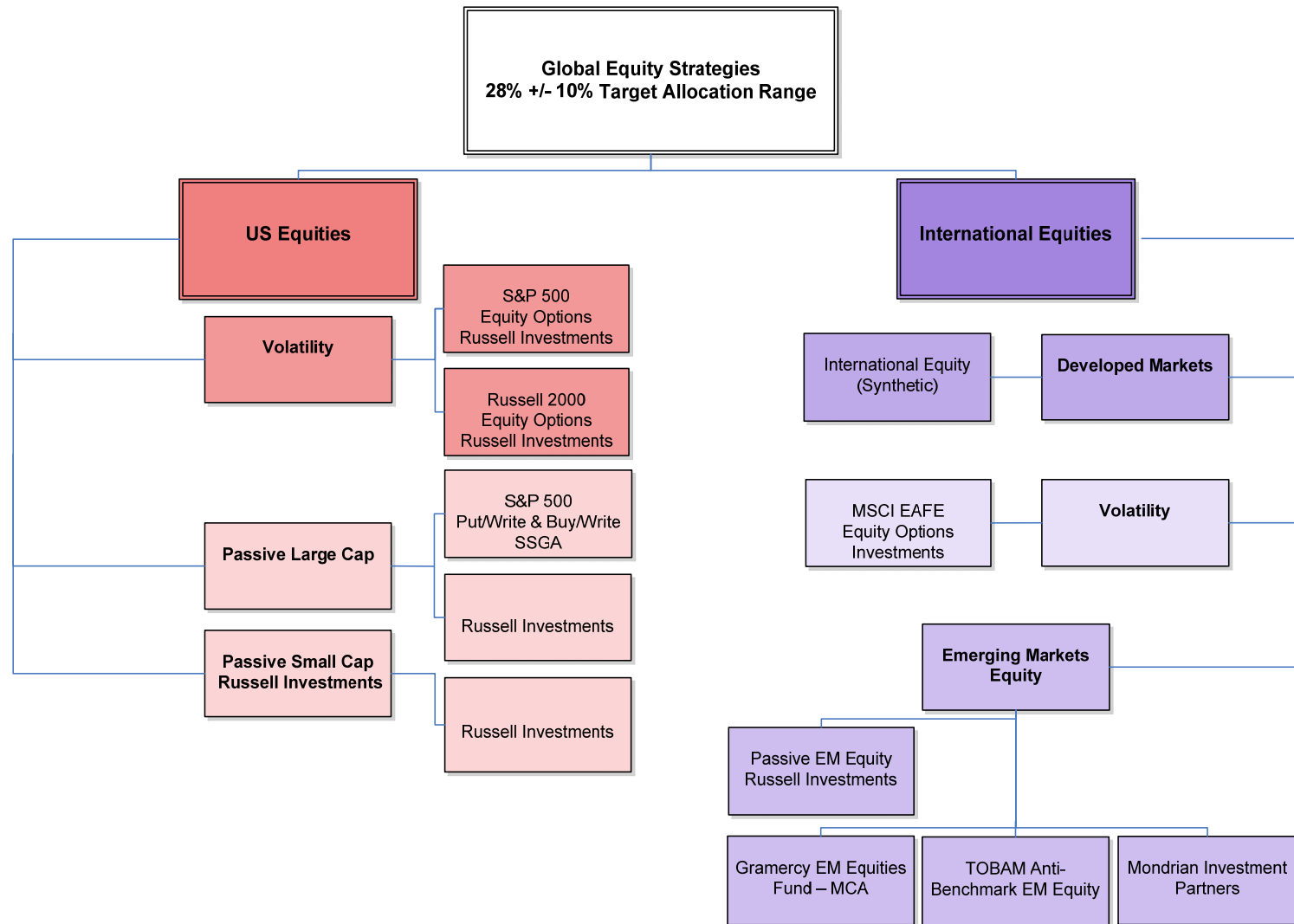
5 Years Ending December 31, 2017								
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Tracking Error	Info Ratio	Rank
Domestic Equity	7.9%	2.7%	--	4.5%	--	12.2%	-1.1	--
Russell 3000	--	15.6%	--	9.7%	--	0.0%	--	--
International Developed	1.2%	11.5%	1	19.8%	99	15.2%	0.2	37
MSCI EAFE	--	7.9%	48	11.7%	75	0.0%	--	--
International Emerging	5.6%	2.0%	--	12.2%	--	4.5%	-0.5	--
MSCI Emerging Markets	--	4.3%	--	14.4%	--	0.0%	--	--
U.S. Credit Strategies	10.5%	7.5%	2	3.1%	3	3.9%	0.6	2
50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index	--	5.0%	19	3.4%	5	0.0%	--	--
Non-U.S. Credit Composite	13.8%	8.4%	--	3.4%	--	9.4%	0.4	--
BofA Merrill Lynch Euro High Yield Constrained	--	4.4%	--	9.7%	--	0.0%	--	--
Emerging Markets Debt Composite	7.1%	3.7%	49	6.2%	29	5.2%	0.4	58
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified	--	1.5%	69	8.3%	67	0.0%	--	--
Alpha Pool Composite	18.2%	5.3%	37	3.2%	17	3.2%	0.6	33
91 Day T-Bill + 3%	--	3.3%	74	0.1%	1	0.0%	--	--

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Private Equity Composite	13.9%	13.6%	--	4.2%	--
Cambridge Associates Global All PE (Qtr Lag)	--	12.6%	--	6.4%	--
Real Estate Composite	4.0%	9.3%	95	3.5%	62
NCREIF Property Index 1 Qtr Lag	--	10.3%	78	4.3%	65
Real Assets Composite	5.1%	2.8%	50	5.5%	26
Bloomberg Commodity Index	--	-8.5%	96	12.0%	79

Percent of Total equals 87.2% because Beta Overlay is not included as these statistics are not relevant for alternative asset classes.



Global Equity Portfolio



GLOBAL EQUITY STRATEGIES PERFORMANCE - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Equity	1,451,836,774	14.7	4.4	97	8.4	97	14.8	98	4.9	99	4.8	99	1.4	97
MSCI ACWI			5.7	52	11.2	31	24.0	17	9.3	97	10.8	96	4.7	87
Excess Return			-1.3		-2.8		-9.2		-4.4		-6.0		-3.3	
InvestorForce Public DB Total Eq Gross Median			5.8		10.5		22.4		10.4		13.0		6.2	
Domestic Equity With Beta Overlay	1,281,289,233	13.0	4.7	99	7.9	99	10.4	99	5.9	99	--	--	--	--
Russell 3000			6.3	40	11.2	30	21.1	32	11.1	35	15.6	37	8.6	56
Excess Return			-1.6		-3.3		-10.7		-5.2					
InvestorForce Public DB US Eq Gross Median			6.2		10.9		20.4		11.0		15.3		8.7	
Domestic Equity	773,157,166	7.9	2.4	--	5.2	--	6.8	--	2.8	--	2.7	--	-0.6	--
Russell 3000			6.3	--	11.2	--	21.1	--	11.1	--	15.6	--	8.6	--
Excess Return			-3.9		-6.0		-14.3		-8.3		-12.9		-9.2	
Large Cap Equity	773,061,704	7.9	2.4	92	5.2	95	7.4	95	4.6	98	3.3	99	0.2	99
S&P 500			6.6	34	11.4	41	21.8	38	11.4	38	15.8	41	8.5	71
Excess Return			-4.2		-6.2		-14.4		-6.8		-12.5		-8.3	
eV All US Equity Gross Median			5.9		10.8		19.5		10.7		15.4		9.3	
SsgA S&P500	769,111,240	7.8	2.9	89	6.6	91	12.4	84	8.0	86	8.6	99	3.1	99
S&P 500			6.6	34	11.4	41	21.8	38	11.4	38	15.8	41	8.5	71
Excess Return			-3.7		-4.8		-9.4		-3.4		-7.2		-5.4	
eV All US Equity Gross Median			5.9		10.8		19.5		10.7		15.4		9.3	
Russell US Large Cap Volatility	3,950,464	0.0												
Small Cap Equity	95,461	0.0												
Russell US Small Cap Volatility	95,461	0.0												

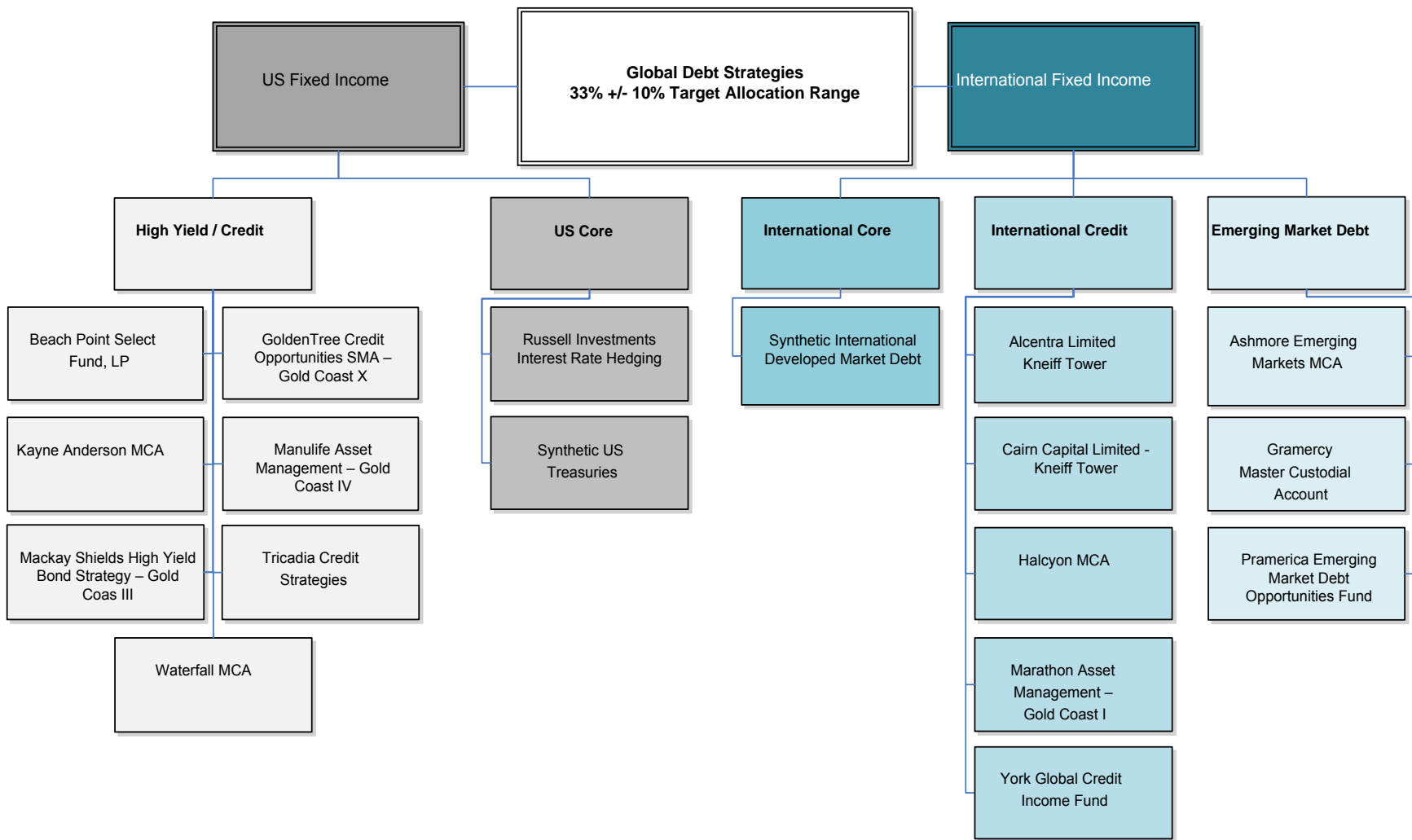


GLOBAL EQUITY STRATEGIES PERFORMANCE - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
International Equity With Beta Overlay	1,768,498,728	18.0	5.0	54	10.3	24	22.5	93	8.2	99	--	--	--	--
MSCI ACWI ex US IMI Gross			<u>5.3</u>	51	<u>12.0</u>	1	<u>28.4</u>	3	<u>8.9</u>	92	<u>7.7</u>	97	<u>2.7</u>	1
Excess Return			-0.3		-1.7		-5.9		-0.7					
InvestorForce Public DB Gbl Eq Gross Median			5.3		9.3		25.4		10.0		14.1		2.3	
International Equity	678,679,608	6.9	6.7	--	12.3	--	25.4	--	6.2	--	7.0	--	2.9	--
MSCI ACWI			<u>5.7</u>	--	<u>11.2</u>	--	<u>24.0</u>	--	<u>9.3</u>	--	<u>10.8</u>	--	<u>4.7</u>	--
Excess Return			1.0		1.1		1.4		-3.1		-3.8		-1.8	
International Developed	123,009,648	1.2	0.3	99	0.6	99	1.0	99	3.5	99	11.5	1	4.9	26
MSCI EAFE			<u>4.2</u>	68	<u>9.9</u>	70	<u>25.0</u>	95	<u>7.8</u>	34	<u>7.9</u>	48	<u>1.9</u>	99
Excess Return			-3.9		-9.3		-24.0		-4.3		3.6		3.0	
InvestorForce Public DB Dev Mkt ex-US Eq Gross Median			4.3		10.0		26.1		6.9		7.8		4.6	
Russell International Volatility	123,009,648	1.2												
International Emerging	555,669,960	5.6	8.3	--	15.3	--	32.5	--	5.2	--	2.0	--	1.3	--
MSCI Emerging Markets			<u>7.4</u>	--	<u>15.9</u>	--	<u>37.3</u>	--	<u>9.1</u>	--	<u>4.3</u>	--	<u>1.7</u>	--
Excess Return			0.9		-0.6		-4.8		-3.9		-2.3		-0.4	
Mondrian	150,581,025	1.5	6.4	70	10.2	93	27.3	96	5.0	97	1.9	98	3.2	51
MSCI Emerging Markets			<u>7.4</u>	41	<u>15.9</u>	45	<u>37.3</u>	53	<u>9.1</u>	71	<u>4.3</u>	83	<u>1.7</u>	87
Excess Return			-1.0		-5.7		-10.0		-4.1		-2.4		1.5	
eV Emg Mkts Equity Gross Median			7.1		15.5		37.7		10.3		6.2		3.3	
Gramercy Emerging Market Equity	86,135,768	0.9	3.4	98	10.2	93	31.7	81	7.8	82	--	--	--	--
MSCI Emerging Markets			<u>7.4</u>	41	<u>15.9</u>	45	<u>37.3</u>	53	<u>9.1</u>	71	<u>4.3</u>	83	<u>1.7</u>	87
Excess Return			-4.0		-5.7		-5.6		-1.3					
eV Emg Mkts Equity Gross Median			7.1		15.5		37.7		10.3		6.2		3.3	
Tobam	318,854,000	3.2	10.6	3	19.4	17	35.4	67	--	--	--	--	--	--
MSCI Emerging Markets			<u>7.4</u>	41	<u>15.9</u>	45	<u>37.3</u>	53	<u>9.1</u>	71	<u>4.3</u>	83	<u>1.7</u>	87
Excess Return			3.2		3.5		-1.9							
eV Emg Mkts Equity Gross Median			7.1		15.5		37.7		10.3		6.2		3.3	



Global Debt Portfolio



GLOBAL DEBT STRATEGIES PERFORMANCE - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fixed Income With Beta Overlay	2,641,003,979	26.8	0.0	--	-0.5	--	-1.4	--	4.0	--	--	--	--	--
Total Fixed	3,084,003,979	31.3	0.8	11	3.9	1	11.3	1	7.5	1	7.2	1	7.9	1
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			<i>0.3</i>		<i>1.5</i>		<i>4.1</i>		<i>2.7</i>		<i>2.2</i>		<i>4.4</i>	
U.S. Credit Strategies	1,034,011,931	10.5	0.4	96	3.7	38	8.4	51	6.5	4	7.5	2	9.1	1
<i>50% Credit Suisse Leveraged Loan Index / 50% BofA ML US HY BB-B Rated Constrained Index</i>			<i>0.8</i>	<i>91</i>	<i>2.3</i>	<i>91</i>	<i>5.6</i>	<i>95</i>	<i>5.3</i>	<i>11</i>	<i>5.0</i>	<i>19</i>	<i>6.0</i>	<i>27</i>
<i>Excess Return</i>			<i>-0.4</i>		<i>1.4</i>		<i>2.8</i>		<i>1.2</i>		<i>2.5</i>		<i>3.1</i>	
<i>BofA Merrill Lynch US High Yield Master II TR eV Global Credit Fixed Income Gross Median</i>			<i>0.4</i>	<i>96</i>	<i>2.5</i>	<i>86</i>	<i>7.5</i>	<i>65</i>	<i>6.4</i>	<i>5</i>	<i>5.8</i>	<i>9</i>	<i>7.9</i>	<i>1</i>
			<i>1.4</i>		<i>3.5</i>		<i>8.6</i>		<i>3.9</i>		<i>3.3</i>		<i>5.4</i>	
AG Capital	116,604	0.0	-9.7	99	-7.6	99	-6.1	99	-4.0	99	1.9	91	--	--
Golden Tree Asset Management	362,183,221	3.7	-0.4	99	5.1	19	11.6	18	9.4	1	11.7	1	--	--
Beach Point Capital (Formerly Post)	148,505,140	1.5	0.8	91	3.6	41	7.5	65	8.2	1	9.6	1	--	--
Golden Tree Distressed Debt	23,812,829	0.2	4.8	1	10.2	1	16.2	5	9.0	1	14.7	1	--	--
Mackay / Gold Coast	106,730,408	1.1	1.1	83	2.6	82	10.0	27	5.0	15	5.9	8	8.2	1
Mariner Tricadia	71,529,359	0.7	2.8	1	4.5	21	9.4	43	2.5	87	4.7	22	--	--
MD SASS Waterfall Victoria	28,152,310	0.3	2.7	--	4.7	--	6.2	--	--	--	--	--	--	--
Russell Interest Rate Hedging	17,713,380	0.2	-24.6	99	-30.8	99	-43.9	99	-24.5	99	-24.0	99	--	--
Stone Tower Credit (Apollo)	85,500,755	0.9	3.3	1	5.7	7	8.3	45	5.8	15	6.7	6	--	--
Gold Coast Capital IV	96,855,922	1.0	1.0	--	2.8	--	6.8	--	--	--	--	--	--	--
Waterfall Asset Management	48,424,048	0.5	0.8	--	8.1	--	21.9	--	--	--	--	--	--	--
Waterfall Victoria	44,299,555	0.4	1.8	--	4.0	--	7.1	--	--	--	--	--	--	--

*Beta overlay exposures and performance sourced from Russell Investments



GLOBAL DEBT STRATEGIES PERFORMANCE - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Non-U.S. Fixed Income Composite	2,049,992,049	20.8	1.0	3	4.0	1	12.9	1	8.1	1	7.0	1	5.6	23
<i>BbgBarc Global Aggregate TR</i>			<u>1.1</u>	1	<u>2.9</u>	3	<u>7.4</u>	11	<u>2.0</u>	68	<u>0.8</u>	99	<u>3.1</u>	99
Excess Return			-0.1		1.1		5.5		6.1		6.2		2.5	
<i>InvestorForce Public DB Total Fix Inc Gross Median</i>			0.3		1.5		4.1		2.7		2.2		4.4	
Non-U.S. Credit Composite	1,354,388,959	13.8	2.3	--	5.2	--	15.5	--	8.4	--	8.4	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>2.3</u>	--	<u>8.0</u>	--	<u>21.5</u>	--	<u>5.2</u>	--	<u>4.4</u>	--	<u>6.4</u>	--
Excess Return			0.0		-2.8		-6.0		3.2		4.0		--	
Marathon/Gold Coast	210,559,739	2.1	4.8	1	7.2	1	14.2	14	7.2	3	9.7	1	--	--
Alcentra Core European Credit	430,142,637	4.4	2.3	4	7.7	1	16.5	4	13.3	1	14.9	1	--	--
Halcyon Asset Management	156,572,450	1.6	-1.6	99	-3.1	99	0.2	99	--	--	--	--	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>2.3</u>	3	<u>8.0</u>	1	<u>21.5</u>	1	<u>5.2</u>	12	<u>4.4</u>	34	<u>6.4</u>	18
Excess Return			-3.9		-11.1		-21.3							
<i>eV Global Credit Fixed Income Gross Median</i>			1.4		3.5		8.6		3.9		3.3		5.4	
Oaktree Capital	2,421	0.0												
York Global Credit	153,618,222	1.6	2.6	2	3.5	43	11.3	18	6.8	4	9.0	1	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>2.3</u>	3	<u>8.0</u>	1	<u>21.5</u>	1	<u>5.2</u>	12	<u>4.4</u>	34	<u>6.4</u>	18
Excess Return			0.3		-4.5		-10.2		1.6		4.6			
<i>eV Global Credit Fixed Income Gross Median</i>			1.4		3.5		8.6		3.9		3.3		5.4	
Caim Composite	403,493,490	4.1	2.4	3	5.5	16	24.8	1	8.7	1	5.2	16	--	--
<i>BofA Merrill Lynch Euro High Yield Constrained</i>			<u>2.3</u>	3	<u>8.0</u>	1	<u>21.5</u>	1	<u>5.2</u>	12	<u>4.4</u>	34	<u>6.4</u>	18
Excess Return			0.1		-2.5		3.3		3.5		0.8			
<i>eV Global Credit Fixed Income Gross Median</i>			1.4		3.5		8.6		3.9		3.3		5.4	

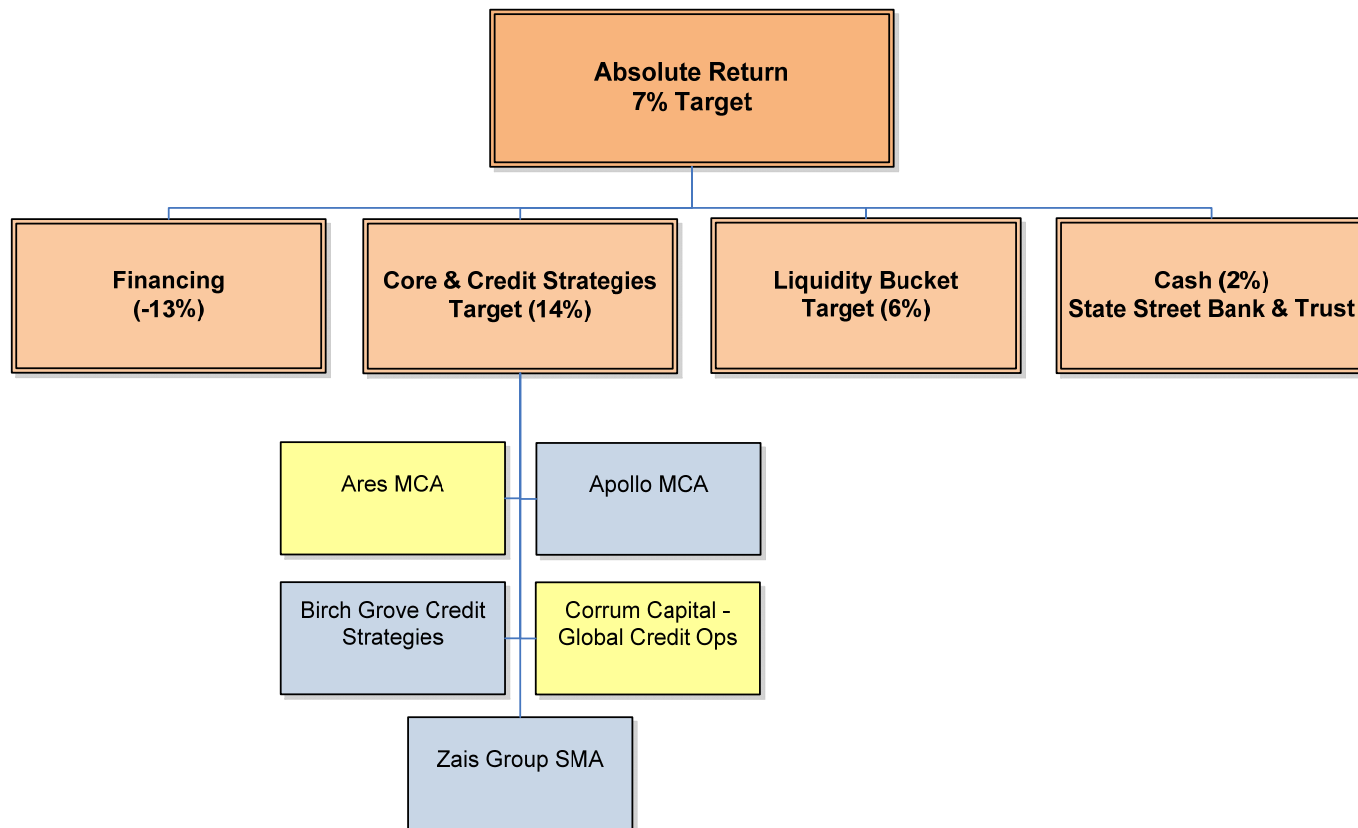


GLOBAL DEBT STRATEGIES PERFORMANCE - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets Debt Composite	695,603,089	7.1	-1.4	99	1.7	99	8.2	92	7.4	35	3.7	49	4.1	83
50% JPM EMBI Global Diversified/50% JPM GBI - EM Global Diversified			1.0	56	4.1	65	12.7	49	4.9	71	1.5	69	5.5	69
Excess Return			-2.4		-2.4		-4.5		2.5		2.2		-1.4	
eV All Emg Mkts Fixed Inc Gross Median			1.1		4.5		12.5		6.5		3.6		7.2	
Ashmore Emerging Markets Liquid Investments	185,412,305	1.9	1.0	56	4.1	65	12.7	49	4.9	71	1.5	69	5.5	69
JP Morgan GBI - EM Global Diversified Index			0.8	67	4.4	53	15.2	24	2.5	94	-1.5	93	3.6	86
Excess Return			0.2		-0.3		-2.5		2.4		3.0		1.9	
eV All Emg Mkts Fixed Inc Gross Median			1.1		4.5		12.5		6.5		3.6		7.2	
Ashmore Local Currency	82,213,291	0.8	1.0	50	5.7	7	16.5	5	3.7	44	-1.4	98	--	--
JP Morgan ELMI+			2.0	9	4.0	20	11.5	16	2.2	78	-0.6	97	1.2	99
Excess Return			-1.0		1.7		5.0		1.5		-0.8			
JP Morgan EMBI Global Index			0.5	77	2.9	50	9.3	32	6.8	8	3.8	34	7.1	16
eV All Global Fixed Inc Gross Median			1.0		2.9		8.0		3.3		2.8		4.4	
Gramercy Funds Management LLC	328,696,613	3.3	-3.0	99	-1.3	99	0.9	99	8.9	11	--	--	--	--
JP Morgan ELMI+			2.0	9	4.0	70	11.5	64	2.2	97	-0.6	84	1.2	99
Excess Return			-5.0		-5.3		-10.6		6.7					
JP Morgan EMBI Global Index			0.5	82	2.9	91	9.3	87	6.8	46	3.8	49	7.1	57
eV All Emg Mkts Fixed Inc Gross Median			1.1		4.5		12.5		6.5		3.6		7.2	
Prudential Investment Management	99,280,880	1.0	-1.1	99	3.5	85	20.9	2	6.2	54	--	--	--	--
JP Morgan ELMI+			2.0	9	4.0	70	11.5	64	2.2	97	-0.6	84	1.2	99
Excess Return			-3.1		-0.5		9.4		4.0					
JP Morgan EMBI Global Index			0.5	82	2.9	91	9.3	87	6.8	46	3.8	49	7.1	57
eV All Emg Mkts Fixed Inc Gross Median			1.1		4.5		12.5		6.5		3.6		7.2	



Absolute Return Portfolio (Alpha Pool)

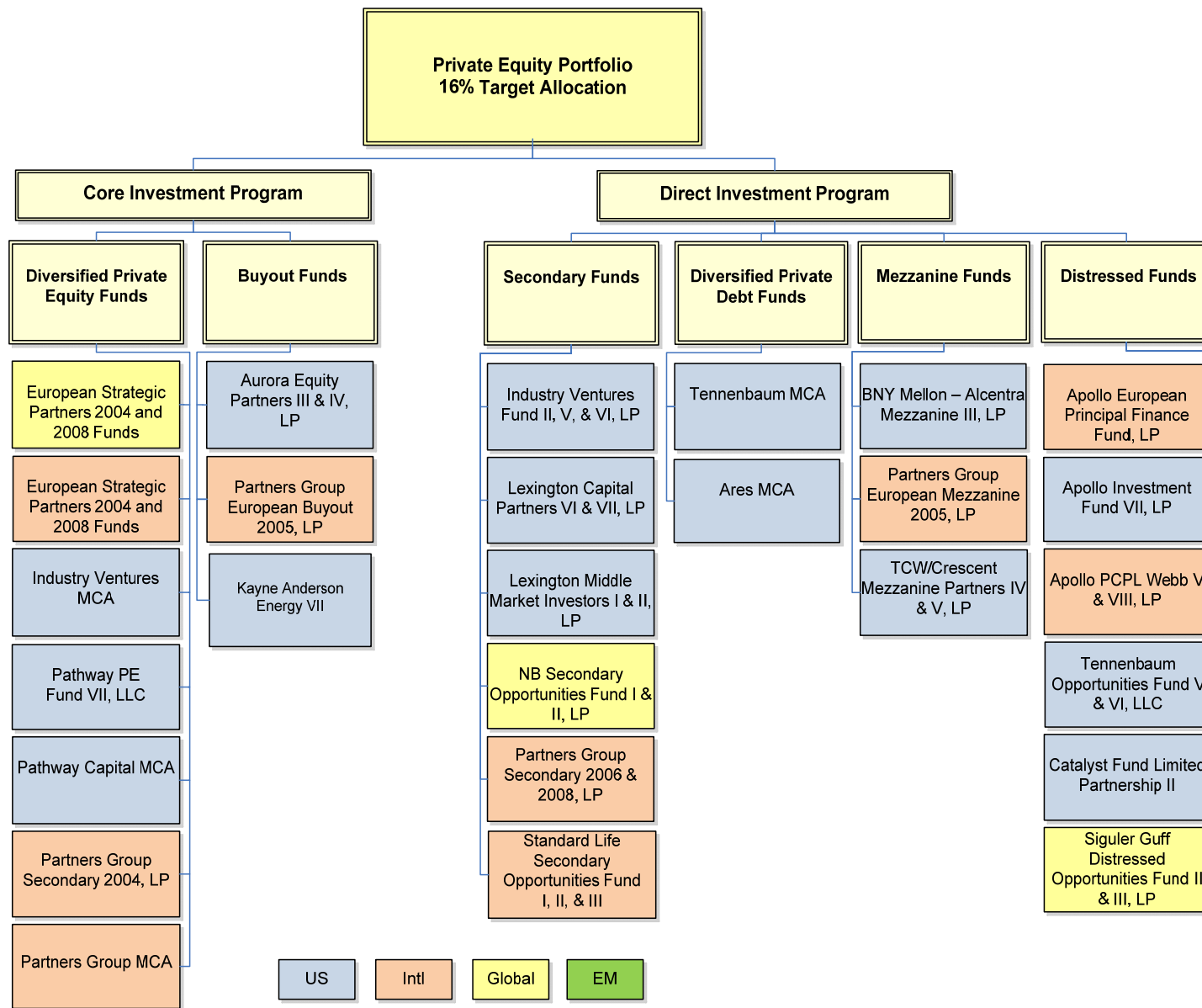


ALPHA POOL STRATEGIES PERFORMANCE - GROSS

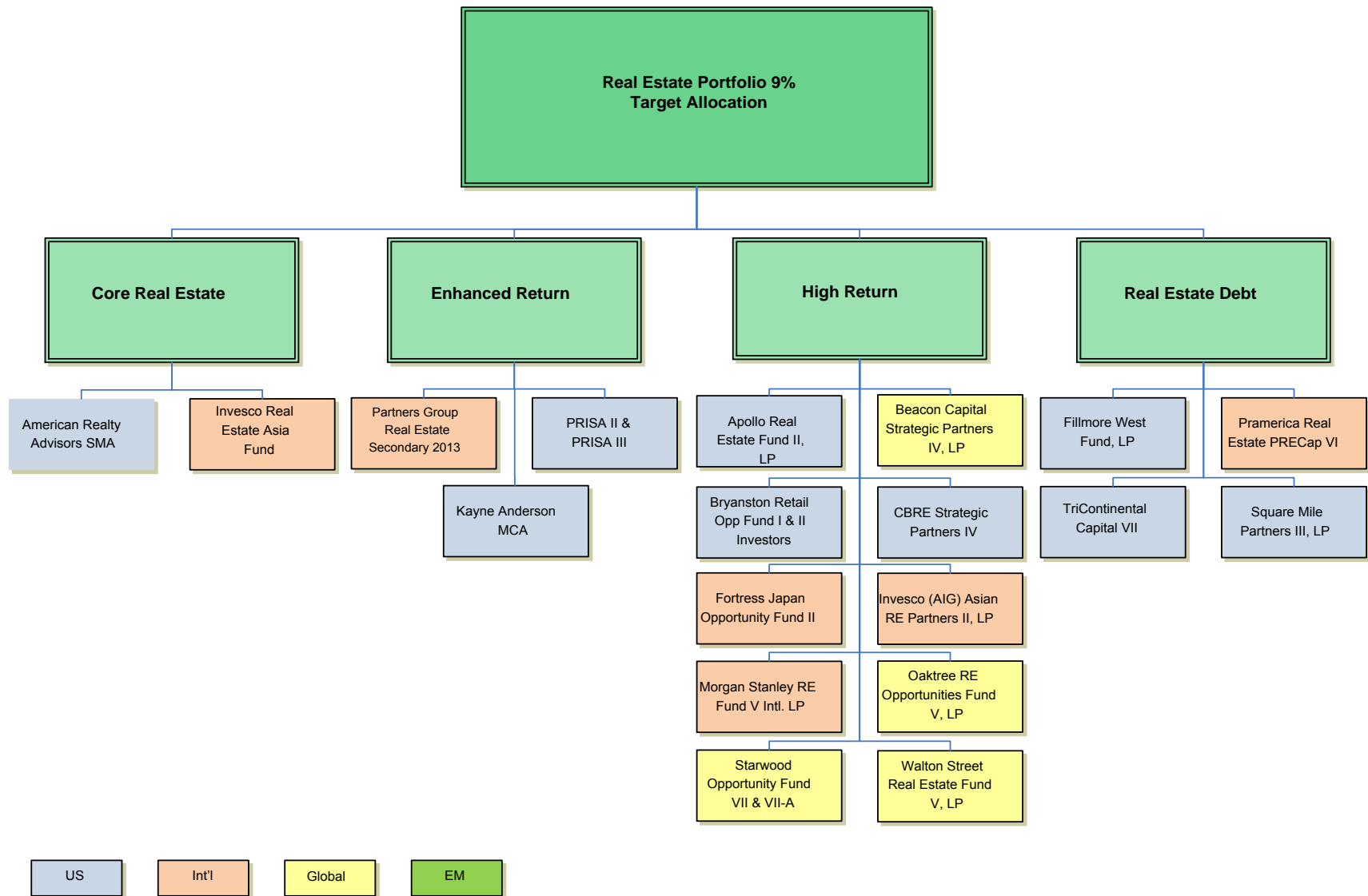
	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alpha Pool Composite	1,791,066,225	18.2	0.9	71	2.9	58	7.3	50	4.5	17	5.3	37	4.5	1
<i>91 Day T-Bill + 3%</i>			<u>1.0</u>	64	<u>2.1</u>	75	<u>3.9</u>	86	<u>3.4</u>	37	<u>3.3</u>	74	<u>3.3</u>	1
Excess Return			-0.1		0.8		3.4		1.1		2.0		1.2	
Alpha Liquidity (Ssga)	157,452,364	1.6	0.3	87	0.6	95	1.0	99	0.6	96	0.5	89	--	--
Apollo Global Management	33,900,911	0.3	2.0	8	6.1	6	23.2	1	--	--	--	--	--	--
Apollo SCRF III	0	0.0	4.3	--	9.3	--	16.6	--	--	--	--	--	--	--
Ares Eco Master Fund II	428,845,167	4.4	-1.6	99	2.7	58	6.7	68	--	--	--	--	--	--
Ares Strategic Investment	0	0.0	0.0	91	0.4	96	3.3	93	34.7	1	--	--	--	--
Birch Grove Credit Strategies	121,563,903	1.2	1.8	11	4.4	15	5.1	82	4.5	31	--	--	--	--
Sterling Stamos	194,924,291	2.0	1.7	15	2.3	74	7.8	54	5.4	18	6.6	6	2.3	95
Stone Tower Off (Apollo)	373,695,362	3.8	1.3	32	2.4	71	5.8	77	5.7	16	6.6	6	--	--
Zais	131,387,859	1.3	1.2	32	1.6	88	9.4	31	4.7	28	6.8	5	10.1	1
Zais Group Invest Advisors	250,130,615	2.5	3.0	2	4.8	13	14.0	9	9.9	1	10.1	1	--	--
Zais Zephyr A 6 LP	66,095,206	0.7	2.1	--	6.8	--	9.0	--	--	--	--	--	--	--
Apollo Accord	7,696,860	0.1	1.0	48	3.9	22	--	--	--	--	--	--	--	--



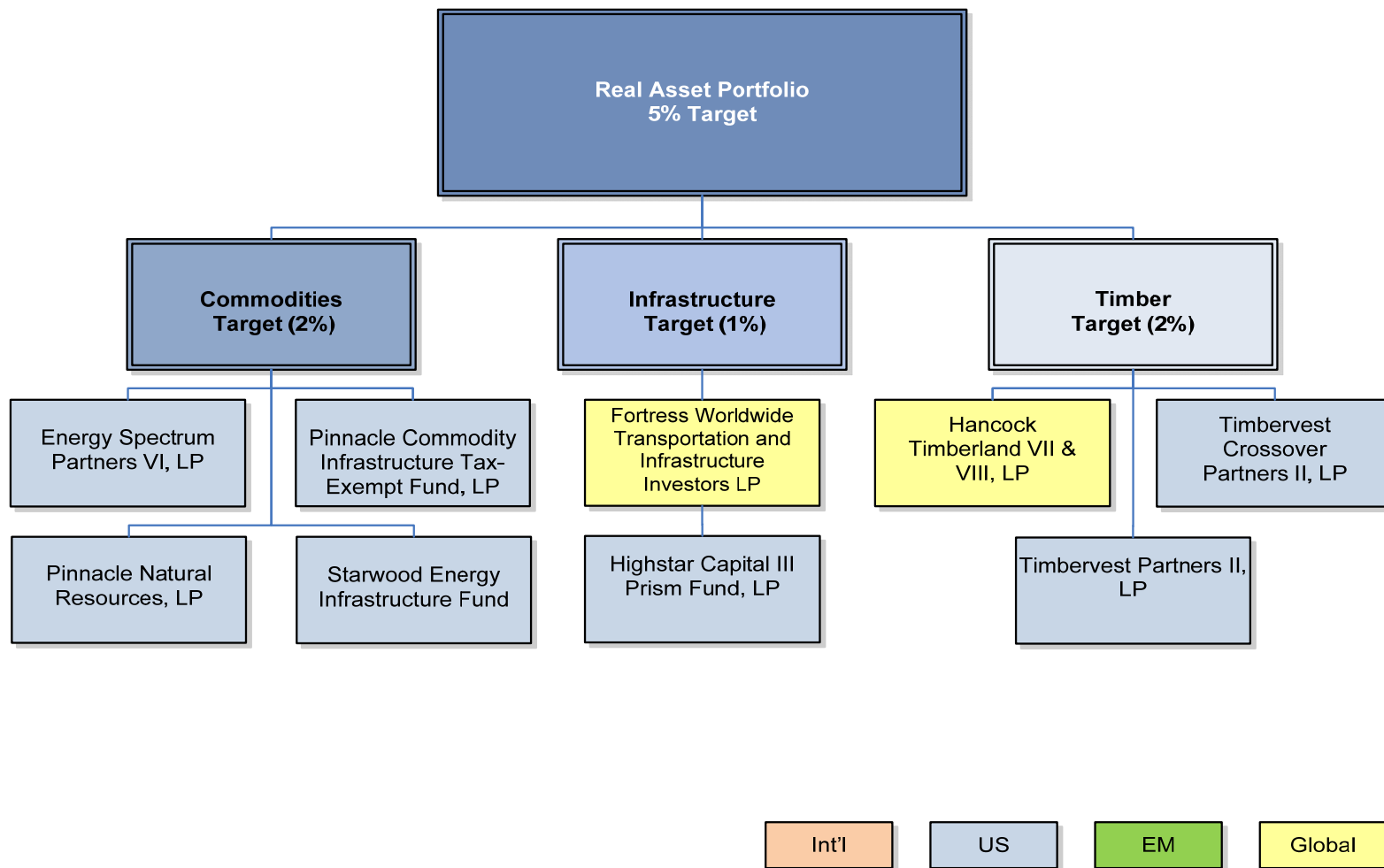
Private Equity Portfolio



Real Estate Portfolio



Real Assets Portfolio



ALTERNATIVES PERFORMANCE DETAIL - GROSS

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity Composite	1,363,629,420	13.9	4.7	--	8.3	--	18.4	--	12.4	--	13.6	--	8.4	--
Cambridge Associates Global All PE (Qtr Lag)			<u>4.0</u>	--	<u>8.6</u>	--	<u>15.8</u>	--	<u>10.4</u>	--	<u>12.6</u>	--	<u>8.6</u>	--
Excess Return			0.7		-0.3		2.6		2.0		1.0		-0.2	
Russell 3000			6.3	--	11.2	--	21.1	--	11.1	--	15.6	--	8.6	--
Cambridge Associates US All PE (1 Qtr Lag)			3.8	--	7.5	--	16.7	--	10.4	--	13.3	--	9.6	--
Real Estate Composite	391,247,124	4.0	1.1	83	3.4	79	2.8	99	8.6	91	9.3	95	1.5	99
NCREIF Property Index 1 Qtr Lag			<u>1.7</u>	79	<u>3.5</u>	77	<u>6.9</u>	77	<u>9.8</u>	43	<u>10.3</u>	78	<u>6.2</u>	11
Excess Return			-0.6		-0.1		-4.1		-1.2		-1.0		-4.7	
InvestorForce Public DB Real Estate Pub+Priv Gross Median			1.8		3.7		7.9		9.4		11.3		4.9	
Pramerica Real Estate Capital VI	7,798,111	0.1	4.5	--	6.5	--	21.2	--	--	--	--	--	--	--
FPA SB Hunter	57,635	0.0	-1.4	99	14.1	1	-1.0	99	--	--	--	--	--	--
eV US REIT Gross Median			2.5		3.4		6.7		6.4		10.0		8.7	
Kayne Anderson RE Fund V	2,000,000	0.0												
Real Assets Composite	504,204,392	5.1	2.2	66	4.0	70	3.5	59	1.2	38	2.8	50	2.1	--
Bloomberg Commodity Index			<u>4.7</u>	33	<u>7.3</u>	35	<u>1.7</u>	83	<u>-5.0</u>	86	<u>-8.5</u>	96	<u>-6.8</u>	--
Excess Return			-2.5		-3.3		1.8		6.2		11.3		8.9	
NCREIF Timberland 1 Qtr Lag			0.6	95	1.3	91	3.3	64	5.3	5	7.2	18	5.2	--
Timber	179,868,311	1.8	-0.7	--	-1.3	--	-4.0	--	0.9	--	4.9	--	1.9	--
NCREIF Timberland 1 Qtr Lag			<u>0.6</u>	--	<u>1.3</u>	--	<u>3.3</u>	--	<u>5.3</u>	--	<u>7.2</u>	--	<u>5.2</u>	--
Excess Return			-1.3		-2.6		-7.3		-4.4		-2.3		-3.3	
Infrastructure	134,267,826	1.4	8.0	--	17.3	--	29.1	--	8.4	--	3.5	--	6.2	--
Russell 3000			<u>6.3</u>	--	<u>11.2</u>	--	<u>21.1</u>	--	<u>11.1</u>	--	<u>15.6</u>	--	<u>8.6</u>	--
Excess Return			1.7		6.1		8.0		-2.7		-12.1		-2.4	
Commodities	190,068,256	1.9	2.3	--	3.6	--	1.1	--	-1.1	--	0.4	--	--	--
Bloomberg Commodity Index			<u>4.7</u>	--	<u>7.3</u>	--	<u>1.7</u>	--	<u>-5.0</u>	--	<u>-8.5</u>	--	<u>-6.8</u>	--
Excess Return			-2.4		-3.7		-0.6		3.9		8.9			



APPENDIX: PRIVATE EQUITY, REAL ESTATE AND REAL ASSETS PERFORMANCE

NEPC, LLC

REAL ESTATE PERFORMANCE ENDED SEPTEMBER 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
American Realty Advisors	1996	\$ 128,009,773	\$ 128,009,773	\$ 241,548,126	\$ 39,612,119	2.20	6.96%
American Realty Value Add	2006	\$ 13,125,215	\$ 13,125,215	\$ 32,065,484	\$ 57,635	2.45	10.93%
Apollo US Real Estate Fund II	2015	\$ 20,000,000	\$ 9,147,352	\$ 2,142,637	\$ 10,507,521	1.38	22.83%
Beacon Capital Strategic Partners IV, L.P.	2006	\$ 39,000,000	\$ 38,000,000	\$ 31,290,518	\$ 131,425	0.83	-3.26%
Beacon Capital Strategic Partners V, L.P.	2007	\$ 20,000,000	\$ 18,000,000	\$ 11,030,231	\$ 155,760	0.62	-7.86%
BlackRock Diamond Property Fund	2005	\$ 25,000,000	\$ 25,000,000	\$ 15,093,876	\$ 86,361	0.61	-9.43%
Bryanston Real Estate Opportunity Fund II, L.P.	2009	\$ 20,000,000	\$ 8,589,256	\$ 11,824,142	\$ 40,129	1.38	10.23%
Bryanston Retail Opportunity Fund, L.P.	2004	\$ 20,000,000	\$ 8,228,165	\$ 18,828,095	\$ 9,207,691	3.41	70.94%
CBRE Strategic Partners III	2003	\$ 10,000,000	\$ 10,000,000	\$ 12,698,783	\$ -	1.27	8.02%
CBRE Strategic Partners IV	2005	\$ 40,000,000	\$ 40,000,000	\$ 2,432,836	\$ 1,381,003	0.10	-22.94%
Fillmore East Fund	2006	\$ 25,000,000	\$ 31,403,818	\$ 20,777,177	\$ -	0.66	-9.78%
Fillmore West Fund	2008	\$ 20,000,000	\$ 19,561,557	\$ 16,174,286	\$ 4,667,894	1.07	0.92%
Fortress Japan Opportunity Fund II	2012	\$ 21,739,130	\$ 4,677,581	\$ 9,015,054	\$ 14,658,673	4.99	25.43%
Invesco Asian Real Estate Partners II (USD), LP	2007	\$ 20,000,000	\$ 8,412,833	\$ 11,279,521	\$ 198,159	1.37	7.59%
Invesco High Yield Debt Fund I	2007	\$ 20,000,000	\$ 20,000,000	\$ 8,567,605	\$ -	0.43	-35.57%
Invesco Real Estate Asia Fund	2014	\$ 51,732,500	\$ 51,732,500	\$ 5,802,524	\$ 62,092,128	1.29	8.55%
INVESCO Real Estate Fund I	2005	\$ 10,000,000	\$ 9,248,390	\$ 10,015,656	\$ 2,819	1.08	1.54%
LaSalle Income & Growth Fund IV	2005	\$ 20,000,000	\$ 19,469,417	\$ 13,482,024	\$ -	0.69	-5.51%
North Haven Real Estate Fund V International	2005	\$ 27,500,000	\$ 27,377,414	\$ 31,921,668	\$ 1,321,037	1.21	7.02%
Oaktree Real Estate Opportunities V	2012	\$ 25,000,000	\$ 25,000,000	\$ 33,606,685	\$ 6,596,122	1.58	13.74%
Partners Group Project Camino	2016	\$ 8,415,776	\$ 5,265,926	\$ -	\$ 5,865,559	1.11	8.77%
Partners Group RE Secondary 2013 (USD) A	2014	\$ 65,000,000	\$ 40,166,135	\$ 9,000,437	\$ 48,179,954	1.42	24.43%
Partners Group RE Secondary 2017 (USD) A	2017	\$ 25,000,000	\$ 1,125,000	\$ -	\$ 1,139,563	1.01	1.29%
Pramerica Real Estate Capital VI	2016	\$ 26,342,922	\$ 5,569,947	\$ -	\$ 6,805,995	1.21	17.83%
Prologis Japan Fund	2005	\$ 25,290,819	\$ 25,290,819	\$ 33,126,118	\$ -	1.31	4.81%
Prudential PRISA II	2004	\$ 140,000,000	\$ 140,000,000	\$ 36,839,954	\$ 156,612,563	1.33	8.19%
Prudential PRISA III	2003	\$ 40,000,000	\$ 43,138,076	\$ 41,007,336	\$ 38,319,487	1.70	19.14%
RREEF America REIT III	2004	\$ 20,000,000	\$ 20,539,309	\$ 23,555,134	\$ 106,245	1.15	3.01%
RREEF North American Infrastructure Fund	2007	\$ 50,000,000	\$ 50,000,000	\$ 55,238,754	\$ -	1.09	12.09%
Square Mile Partners II	2007	\$ 20,000,000	\$ 19,831,232	\$ 5,311,330	\$ 115,514	0.27	-18.56%
Square Mile Partners III LP	2008	\$ 20,000,000	\$ 19,730,190	\$ 26,164,802	\$ 2,871,612	1.47	11.79%
Starwood Capital Hospitality Fund I-2	2006	\$ 30,000,000	\$ 30,000,000	\$ 24,678,932	\$ 5,586,037	1.01	0.12%
Starwood Debt Fund II, LP	2008	\$ 20,000,000	\$ 17,599,882	\$ 21,858,788	\$ 58,001	1.25	6.45%
Starwood Opportunity Fund VII - A	2006	\$ 25,000,000	\$ 25,000,000	\$ 17,292,969	\$ 2,918,176	0.81	-2.37%
Structured Real Estate III, LP (Guggenheim)	2008	\$ 20,000,000	\$ 20,000,000	\$ 16,320,664	\$ -	0.82	-4.99%
Tri Continental Capital VII	2005	\$ 23,000,000	\$ 22,343,057	\$ 1,809,668	\$ 1,457,979	0.15	-18.22%
Tuckerman Multi-Family Development Fund III	2002	\$ 10,000,000	\$ 10,219,311	\$ 16,939,699	\$ -	1.66	26.67%
Walton Street Real Estate Fund IV, LP	2003	\$ 10,000,000	\$ 9,770,890	\$ 15,750,925	\$ 334,379	1.65	10.80%
Walton Street Real Estate Fund V, LP	2006	\$ 40,000,000	\$ 40,000,000	\$ 20,895,961	\$ 11,351,569	0.81	-2.48%

Note: all metrics are calculated since inception

* Denotes cash adjusted



REAL ASSETS PERFORMANCE ENDED SEPTEMBER 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Fortress Transportation Infrastructure LLC	2015	\$ 45,403,354	\$ 45,403,354	\$ 7,050,875	\$48,180,979	1.22	11.77%
Hancock Timberland VII	2005	\$ 90,000,000	\$ 90,000,000	\$ 13,590,900	\$90,368,751	1.16	1.37%
Hancock Timberland VIII	2006	\$ 40,000,000	\$ 40,000,000	\$ 4,597,950	\$33,806,905	0.96	-0.46%
Highstar Capital III, L.P.	2007	\$ 60,000,000	\$ 59,119,119	\$ 36,686,038	\$31,200,669	1.15	1.92%
Timbervest Crossover Partners II, L.P.	2008	\$ 30,000,000	\$ 30,000,000	\$ 12,735,000	\$16,651,155	0.98	-0.39%
Timbervest Partners II, L.P.	2007	\$ 50,000,000	\$ 50,000,000	\$ 13,650,000	\$40,346,450	1.08	0.90%

Note: all metrics are calculated since inception

** Denotes cash adjusted*



PRIVATE EQUITY PERFORMANCE ENDED SEPTEMBER 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Advent International GPE VIII, LP	2016	\$ 10,000,000	\$ 4,515,000	\$ -	\$ 4,685,619	1.04	11.59%
Apollo Accord Fund, LP	2017	\$ 30,000,000	\$ 6,000,000	\$ -	\$ 6,196,861	1.03	5.11%
Apollo European Principal Finance Fund (Feeder), L	2009	\$ 54,194,674	\$ 46,373,293	\$ 68,533,114	\$ 869,389	1.50	11.85%
Apollo Investment Fund VII, L.P.	2008	\$ 10,000,000	\$ 8,544,168	\$ 14,906,669	\$ 2,530,499	2.04	23.79%
Apollo PCPL Webb V	2010	\$ 4,844,398	\$ 4,844,398	\$ 5,196,757	\$ 35,999	1.08	6.45%
Apollo PCPL Webb VIII	2010	\$ 4,734,303	\$ 4,734,303	\$ 12,146,258	\$ 2,475	2.57	46.47%
Ares European Loan Funding, S.L.P.	2016	\$ 17,719,200	\$ -	\$ -		0.00	N/A
ARES European Loan Opp Fund	2015	\$ 15,000,000	\$ 8,413,136	\$ 7,613,498	\$ -	0.90	-6.02%
Ares Special Situations Fund IV, LP	2015	\$ 50,000,000	\$ 21,287,129	\$ 72,407	\$ 15,323,751	0.72	-16.28%
Aurora Equity Partners III, L.P.	2005	\$ 25,000,000	\$ 23,544,536	\$ 41,738,196	\$ 841,491	1.69	13.85%
Aurora Equity Partners IV, L.P.	2012	\$ 20,000,000	\$ 15,995,098	\$ 25,279,576	\$ 8,954,305	1.85	18.23%
Aurora Resurgence Fund, L.P.	2008	\$ 15,000,000	\$ 5,653,009	\$ 10,350,965	\$ -	1.82	17.60%
Baring Asia Private Equity Fund IV, L.P.	2015	\$ 2,931,918	\$ 3,246,042	\$ 3,491,541	\$ 211,284	1.14	6.63%
BNY Mellon - Alcentra Mezzanine III	2012	\$ 25,000,000	\$ 23,254,658	\$ 26,736,979	\$ -	1.15	12.73%
Catalyst Fund II, L.P.	2007	\$ 10,000,000	\$ 9,934,668	\$ 4,256,332	\$ 17,740,388	2.20	11.72%
Catalyst Fund LP IV, L.P.	2015	\$ 8,000,000	\$ 4,385,720	\$ -	\$ 4,903,654	1.12	8.34%
Charlesbank Equity Fund VIII	2015	\$ 7,500,000	\$ 5,690,634	\$ 422,938	\$ 5,956,274	1.12	8.45%
DRI II, L.P.	2009	\$ 20,000,000	\$ 19,917,669	\$ 26,302,807	\$ -	1.33	19.64%
European Strategic Partners 2004	2004	\$ 241,779,733	\$ 220,597,962	\$ 249,710,589	\$ 27,584,468	1.26	3.92%
European Strategic Partners 2008	2010	\$ 31,519,411	\$ 27,333,039	\$ 17,292,375	\$ 19,807,663	1.35	8.52%
Industry Ventures Direct, LP	2016	\$ 25,000,000	\$ 6,796,400	\$ -	\$ 7,222,336	1.06	9.50%
Industry Ventures Fund V	2008	\$ 10,000,000	\$ 9,500,000	\$ 21,111,856	\$ 8,140,504	3.08	31.75%
Industry Ventures Fund VI	2011	\$ 20,000,000	\$ 18,400,000	\$ 12,576,461	\$ 12,127,548	1.34	9.99%
Industry Ventures Partnership Holdings Fund II, L.P.	2012	\$ 25,000,000	\$ 23,500,000	\$ 5,231,047	\$ 45,825,159	2.17	24.86%
Industry Ventures Partnership Holdings Fund III, L.P.	2013	\$ 25,000,000	\$ 19,500,000	\$ 2,412,108	\$ 23,103,347	1.31	13.41%
Industry Ventures Partnership Holdings Fund III-A, L.P.	2014	\$ 12,500,000	\$ 10,437,500	\$ 3,352,672	\$ 7,546,359	1.04	2.22%
Industry Ventures Partnership Holdings IV, LP	2016	\$ 25,000,000	\$ 7,750,000	\$ -	\$ 8,881,690	1.15	28.89%
Industry Ventures Secondary VII, L.P.	2013	\$ 25,000,000	\$ 21,500,000	\$ 2,854,366	\$ 23,153,273	1.21	10.03%
Industry Ventures Secondary VIII	2017	\$ 25,000,000	\$ 1,750,000	\$ -	\$ 2,050,916	1.17	54.42%
Industry Ventures Special Opportunities II-A	2016	\$ 12,500,000	\$ 62,500	\$ -	\$ 74,228	1.19	11.97%
Insight Venture Partners III Co-Invest	2014	\$ 4,000,000	\$ 4,000,000	\$ 134,902	\$ 5,526,842	1.42	13.61%
Kayne Anderson Energy Fund VII, L.P.	2017	\$ 10,000,000	\$ 6,126,202	\$ 1,195,420	\$ 7,167,122	1.37	53.22%
Lexington Capital Partners VI-B	2006	\$ 25,000,000	\$ 24,591,319	\$ 29,583,621	\$ 4,944,739	1.40	6.88%
Lexington Capital Partners VII (Offshore)	2011	\$ 25,000,000	\$ 19,788,432	\$ 21,376,921	\$ 9,579,267	1.56	15.95%
Lexington Middle Market I	2005	\$ 25,000,000	\$ 24,771,942	\$ 34,013,066	\$ 5,694,830	1.60	11.56%
Lexington Middle Market II - Offshore	2008	\$ 10,000,000	\$ 9,773,736	\$ 10,153,812	\$ 5,225,549	1.57	14.30%
Madison Dearborn VII	2016	\$ 10,000,000	\$ 2,413,400	\$ -	\$ 2,326,272	0.96	-4.27%
NB Secondary Opportunities I, LP	2005	\$ 20,000,000	\$ 18,500,843	\$ 22,705,008	\$ 1,658,407	1.32	6.54%
NB Secondary Opportunities II, LP	2008	\$ 20,000,000	\$ 17,080,642	\$ 22,399,333	\$ 4,514,044	1.55	15.02%

Note: all metrics are calculated since inception

* Denotes Cash adjusted value



PRIVATE EQUITY PERFORMANCE ENDED SEPTEMBER 30, 2017

Investment Name	Vintage Year	Commitment Amount	Paid in Capital	Cumulative Distributions	Valuation	TVPI Ratio	IRR
Partners Group Access 216 LP	2017	\$ 7,174,081	\$ 7,174,081	\$ -	\$ 8,022,696	1.13	12.31%
Partners Group Access 384, L.P.	2017	\$ 8,360,000	\$ 8,360,000	\$ -	\$ 8,360,000	1.00	0.00%
Partners Group Access 632, L.P.	2014	\$ 2,782,028	\$ 2,782,028	\$ 4,627,741	\$ 1	1.65	16.01%
Partners Group Access 648, L.P.	2014	\$ 4,336,795	\$ 4,843,537	\$ 19,449	\$ 3,710,251	0.77	-9.72%
Partners Group Access 680 L.P.	2015	\$ 7,279,749	\$ 7,206,011	\$ -	\$ 10,202,591	1.42	21.13%
Partners Group CA Infrastructure, LP Inc	2016	\$ 6,246,500	\$ 1,644,056	\$ -	\$ 1,642,647	1.00	-0.45%
Partners Group Client Access 8 LP	2014	\$ 5,531,585	\$ 5,531,585	\$ 12,335,385	\$ 18,611,537	5.59	71.21%
Partners Group Direct Equity 2016 USD A	2016	\$ 20,000,000	\$ 6,437,296	\$ -	\$ 6,345,766	0.99	-1.36%
Partners Group Direct Investment 2012, L.P.	2013	\$ 18,253,977	\$ 16,509,621	\$ 9,040,890	\$ 18,362,591	1.66	20.83%
Partners Group European Mandate, L.P.	2004	\$ 239,952,774	\$ 196,136,552	\$ 234,214,060	\$ 33,046,719	1.36	5.83%
Partners Group European Mezzanine 2005	2005	\$ 101,076,654	\$ 101,076,654	\$ 111,113,798	\$ 13,065,988	1.23	3.34%
Partners Group Global Opp Limited	2017	\$ 4,001,119	\$ 4,001,119	\$ 888,306	\$ 4,198,340	1.27	28.21%
Partners Group Princess Learning IC LTD	2014	\$ 9,113,906	\$ 4,492,827	\$ -	\$ 6,294,009	1.40	16.06%
Partners Group Seabras Holdings, LLC	2015	\$ 4,800,000	\$ 3,465,156	\$ -	\$ 3,343,351	0.96	-2.23%
Partners Group Secondary 2006 LP	2006	\$ 54,615,438	\$ 51,077,528	\$ 52,235,614	\$ 8,407,550	1.19	3.59%
Partners Group Secondary 2008, L.P.	2009	\$ 26,777,241	\$ 23,690,725	\$ 29,888,630	\$ 5,252,348	1.47	9.17%
Partners Group Starfrost Limited	2014	\$ 6,389,961	\$ 3,736,806	\$ 1,880,411	\$ 3,285,645	1.38	9.59%
Pathway Private Equity Fund VII, L.P.	2004	\$ 904,500,000	\$ 801,305,264	\$ 854,956,011	\$ 470,875,626	1.62	10.17%
Quad-C Partners IX, LP	2017	\$ 8,000,000	\$ 344,368	\$ -	\$ 256,372	0.74	-25.55%
Quantum Energy Partners VII, LP	2017	\$ 6,700,000	\$ 418,723	\$ 1,195	\$ 376,855	0.90	-8.90%
Siguler Guff DOF II	2006	\$ 30,000,000	\$ 30,000,000	\$ 41,855,070	\$ 679,657	1.42	8.71%
Siguler Guff DOF III	2008	\$ 10,000,000	\$ 9,700,000	\$ 12,905,528	\$ 2,418,636	1.58	10.71%
SL Capital SOF I LP	2014	\$ 25,000,000	\$ 16,835,198	\$ 4,789,369	\$ 17,779,591	1.34	13.88%
SL Capital SOF III LP	2017	\$ 25,000,000	\$ 846,024	\$ -	\$ 819,537	0.97	-3.13%
TCP Direct Lending Fund VIII-L, LLC	2016	\$ 40,000,000	\$ 14,674,724	\$ -	\$ 15,492,892	1.05	9.76%
TCV IX, L.P.	2016	\$ 10,000,000	\$ 1,859,000	\$ -	\$ 1,884,855	1.01	3.33%
TCW/Crescent Mezzanine IV, L.P.	2006	\$ 40,000,000	\$ 39,590,976	\$ 44,193,173	\$ 473,408	1.13	2.87%
TCW/Crescent Mezzanine V, L.P.	2008	\$ 20,000,000	\$ 19,949,723	\$ 23,938,696	\$ 2,732,154	1.34	9.66%
Tennenbaum Energy Opportunities Fund, LP	2016	\$ 20,000,000	\$ 7,437,801	\$ 1,259,594	\$ 7,904,546	1.23	19.95%
Tennenbaum Opportunities Fund V, L.P.	2007	\$ 10,000,000	\$ 10,000,000	\$ 10,765,359	\$ 4,115,128	1.49	6.16%
Tennenbaum Opportunities Fund VI, L.P.	2011	\$ 20,000,000	\$ 12,747,170	\$ 8,839,420	\$ 11,548,808	1.60	9.37%
Tennenbaum Special Situations Fund IX	2015	\$ 50,000,000	\$ 21,837,087	\$ 3,192,018	\$ 22,715,363	1.19	11.24%
Tennenbaum Waterman Fund, LP	2012	\$ 70,000,000	\$ 70,000,000	\$ 27,547,234	\$ 72,990,392	1.44	11.28%
The Huron Fund V	2017	\$ 10,000,000	\$ -	\$ -	\$ -	0.00	N/A
The Resolute Fund II - Secondary	2016	\$ 1,720,184	\$ 1,441,552	\$ 208,339	\$ 1,412,253	1.12	8.75%
The Resolute Fund III	2014	\$ 8,000,000	\$ 4,954,358	\$ 1,998,902	\$ 4,504,102	1.31	18.67%
Thoma Bravo Discover Fund I	2015	\$ 3,000,000	\$ 1,879,013	\$ -	\$ 2,064,606	1.10	10.25%
Thoma Bravo XI	2014	\$ 8,000,000	\$ 7,113,340	\$ -	\$ 9,465,046	1.33	12.32%
Thoma Bravo XII	2016	\$ 10,000,000	\$ 4,049,936	\$ -	\$ 4,055,693	1.00	0.13%
Towerbrook III 2ndry	2017	\$ 1,520,778	\$ 365,413	\$ 44,533	\$ 416,096	1.24	26.96%
Towerbrook IV (OS) 2ndry	2017	\$ 760,389	\$ 261,625	\$ 1,524	\$ 318,254	1.22	26.60%
Vista Foundation Fund III	2016	\$ 10,000,000	\$ 2,997,408	\$ -	\$ 2,792,556	0.93	-15.43%

Note: all metrics are calculated since inception

* Denotes Cash adjusted value

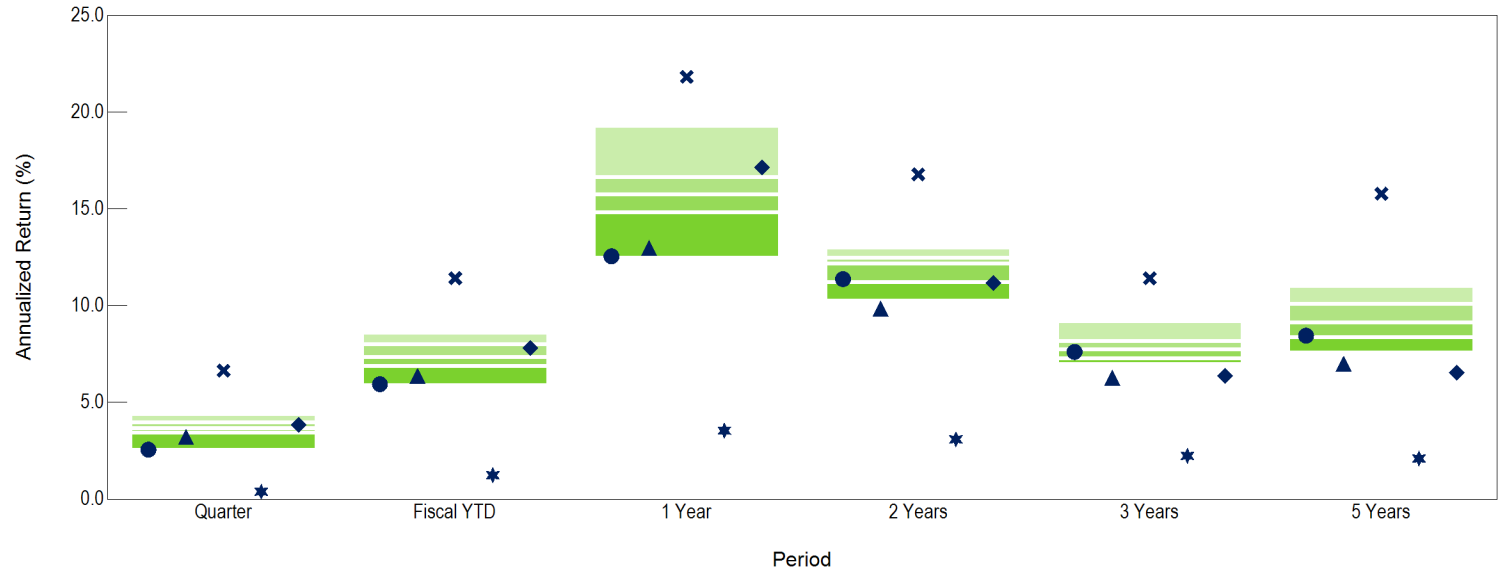


APPENDIX: MARKET ENVIRONMENT

NEPC, LLC

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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

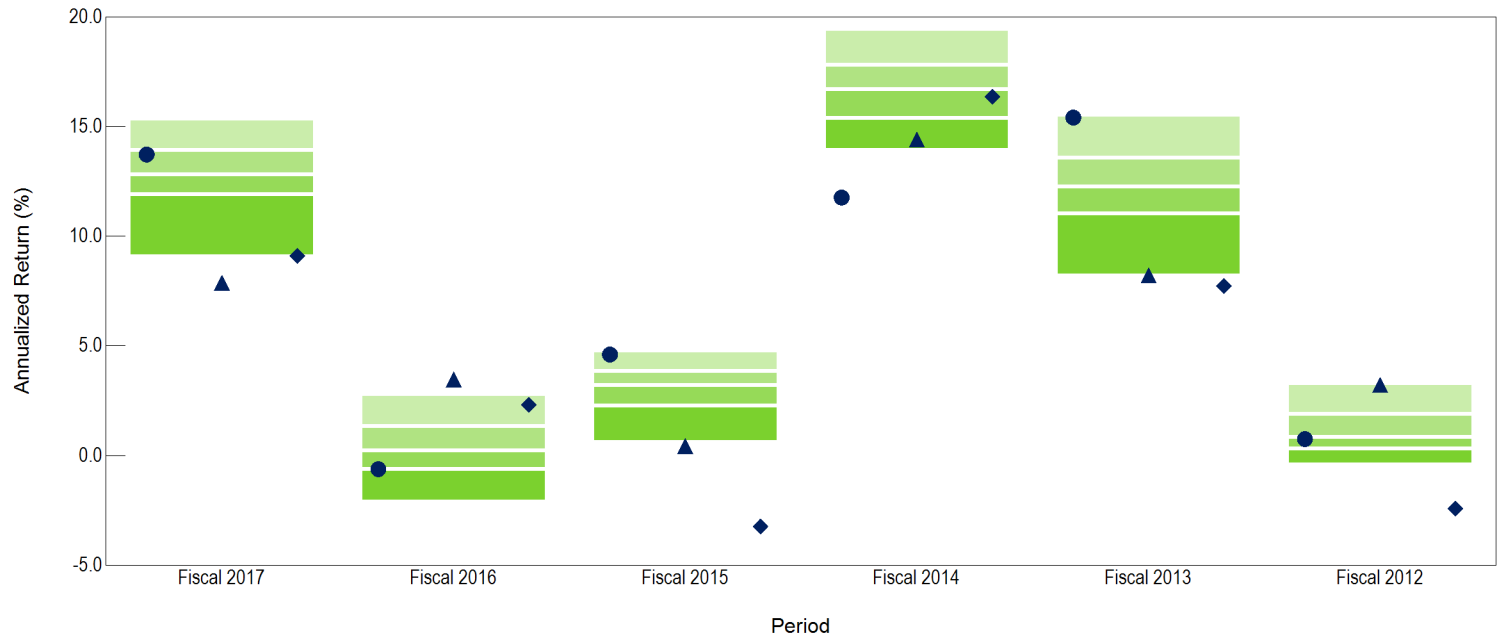


	Return (Rank)					
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years
5th Percentile	4.4	8.6	19.3	13.0	9.2	11.0
25th Percentile	4.0	8.0	16.7	12.5	8.2	10.1
Median	3.7	7.4	15.8	12.2	7.8	9.2
75th Percentile	3.5	6.9	14.8	11.2	7.3	8.4
95th Percentile	2.6	5.9	12.5	10.3	7.0	7.6
# of Portfolios	20	20	20	20	20	19
● Total Fund	2.6 (95)	5.9 (95)	12.6 (95)	11.4 (58)	7.6 (69)	8.5 (67)
▲ Policy Index	3.2 (90)	6.4 (90)	13.0 (92)	9.8 (99)	6.3 (99)	7.0 (99)
× S&P 500	6.6 (1)	11.4 (1)	21.8 (1)	16.8 (1)	11.4 (1)	15.8 (1)
* BBgBarc US Aggregate TR	0.4 (99)	1.2 (99)	3.5 (99)	3.1 (99)	2.2 (99)	2.1 (99)
◆ 60% MSCI ACWI (Net) / 40% CITI WGBI	3.8 (36)	7.8 (39)	17.1 (20)	11.2 (80)	6.4 (99)	6.5 (99)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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

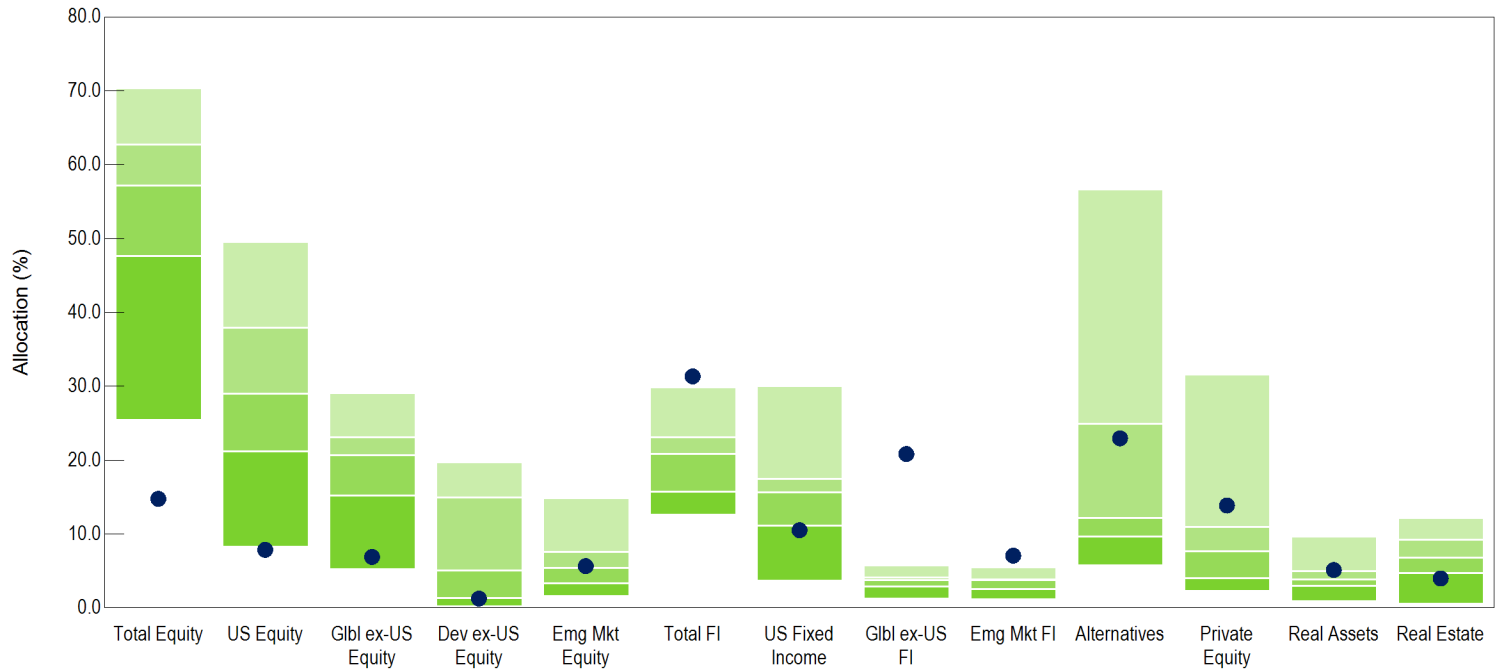


	Fiscal 2017		Fiscal 2016		Fiscal 2015		Fiscal 2014		Fiscal 2013		Fiscal 2012	
	Return	(Rank)	Return	(Rank)	Return	(Rank)	Return	(Rank)	Return	(Rank)	Return	(Rank)
5th Percentile	15.3		2.8		4.8		19.4		15.5		3.3	
25th Percentile	14.0		1.4		3.9		17.8		13.6		1.9	
Median	12.9		0.3		3.2		16.7		12.3		0.9	
75th Percentile	11.9		-0.6		2.3		15.4		11.0		0.3	
95th Percentile	9.1		-2.1		0.6		13.9		8.2		-0.4	
# of Portfolios	108		91		92		65		78		70	
● Total Fund	13.7	(29)	-0.6	(77)	4.6	(7)	11.8	(99)	15.4	(7)	0.8	(58)
▲ Policy Index	7.9	(97)	3.5	(3)	0.4	(96)	14.4	(87)	8.2	(96)	3.2	(6)
◆ 60% MSCI ACWI (Net) / 40% CITI WGBI	9.1	(95)	2.3	(11)	-3.2	(99)	16.4	(58)	7.7	(97)	-2.4	(99)



TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

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

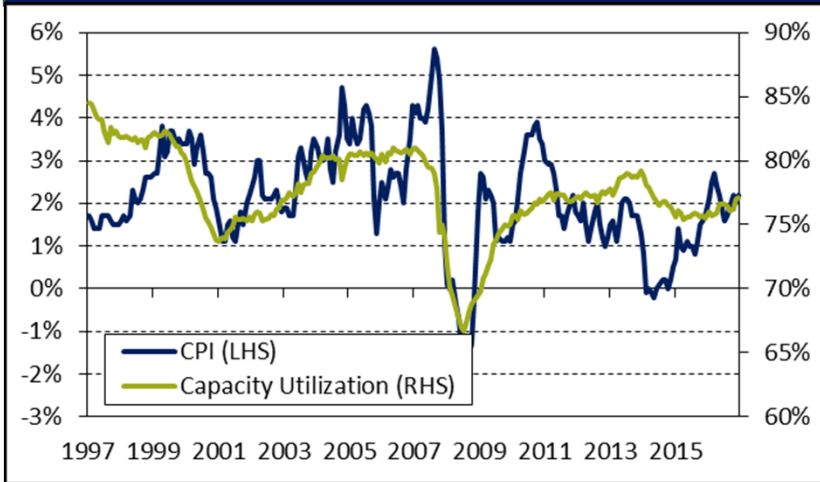


	Allocation (Rank)													
5th Percentile	70.4	49.6	29.1	19.7	14.9	29.9	30.0	5.8	5.5	56.7	31.6	9.6	12.1	--
25th Percentile	62.8	38.0	23.2	15.0	7.6	23.2	17.6	4.2	4.0	25.0	11.1	5.0	9.3	--
Median	57.2	29.1	20.7	5.1	5.5	20.9	15.7	3.9	3.9	12.3	7.8	3.9	6.9	--
75th Percentile	47.7	21.3	15.3	1.4	3.4	15.8	11.3	3.0	2.6	9.7	4.1	3.1	4.8	--
95th Percentile	25.5	8.4	5.3	0.3	1.7	12.7	3.8	1.3	1.3	5.9	2.4	1.0	0.7	--
# of Portfolios	19	17	18	9	15	20	18	9	8	17	16	8	16	--
● Total Fund	14.7 (99)	7.9 (99)	6.9 (92)	1.2 (78)	5.6 (43)	31.3 (1)	10.5 (78)	20.8 (1)	7.1 (1)	22.9 (27)	13.9 (17)	5.1 (25)	4.0 (84)	--



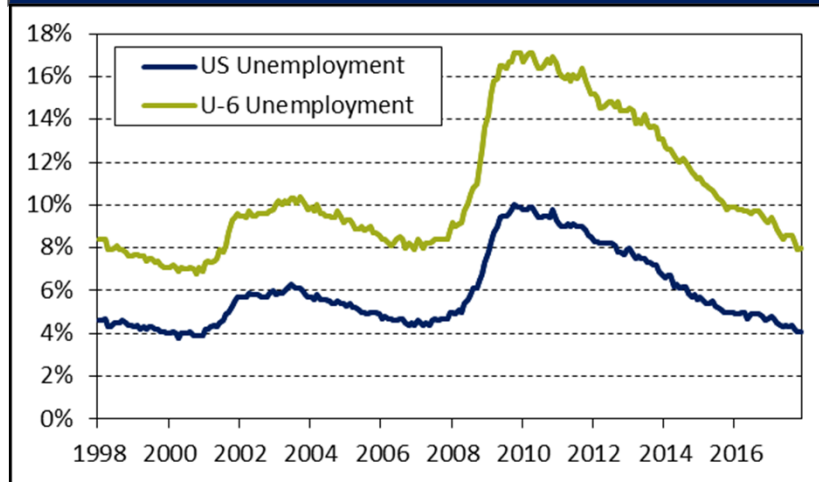
US ECONOMIC INDICATORS

Inflation continues to hover around 2%



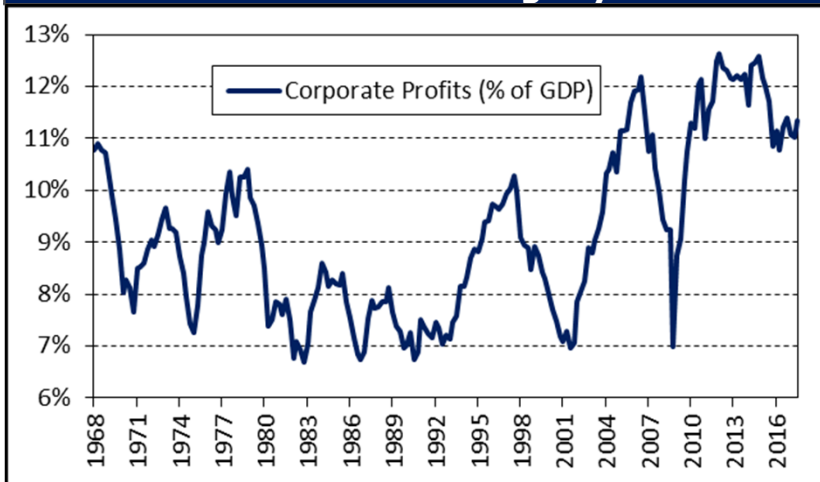
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics

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

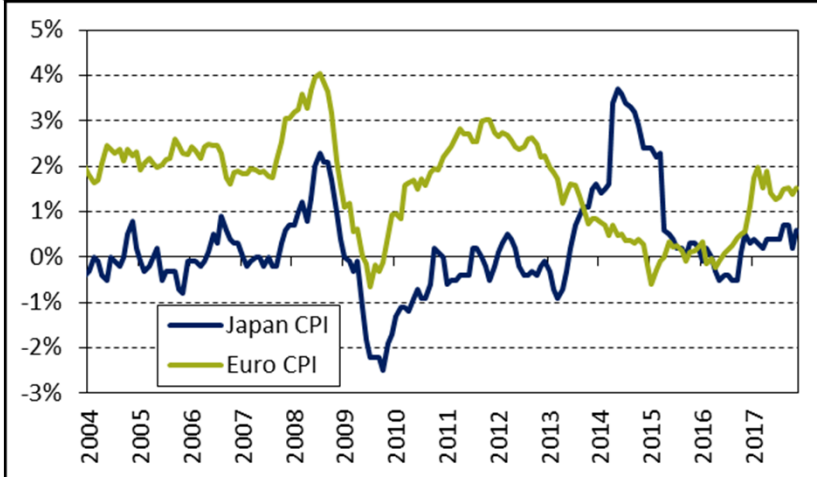


Source: Bloomberg, Institute for Supply Management



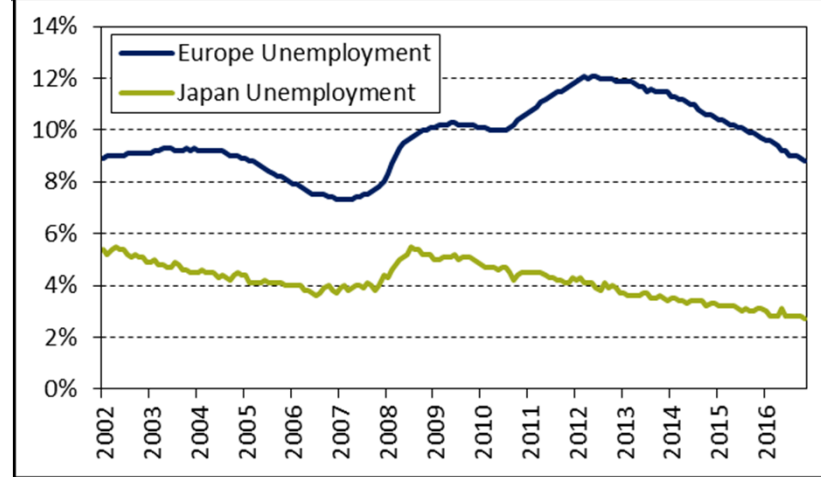
INTERNATIONAL ECONOMIC INDICATORS

Euro and Japan inflation have increased slightly



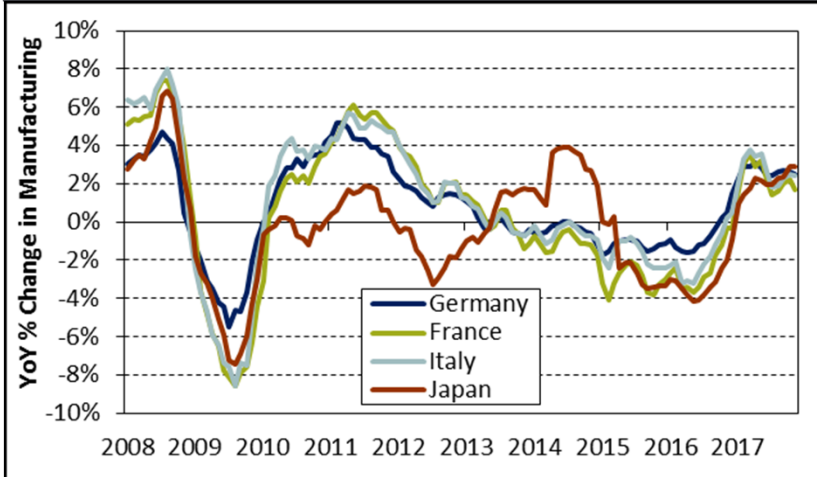
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Unemployment numbers continue to grind lower in Europe and Japan



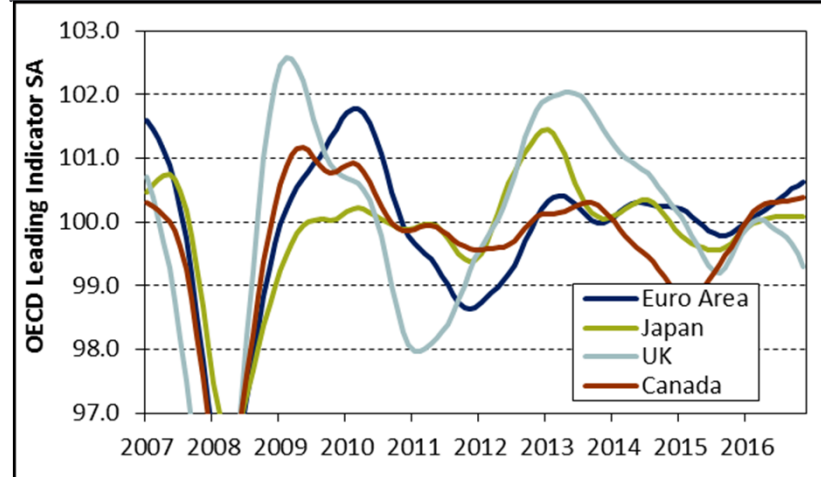
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

Manufacturing has slowed slightly in European countries



Source: Bloomberg, OECD, Eurostat

Ex-UK, Euro-area leading indicators remain strong

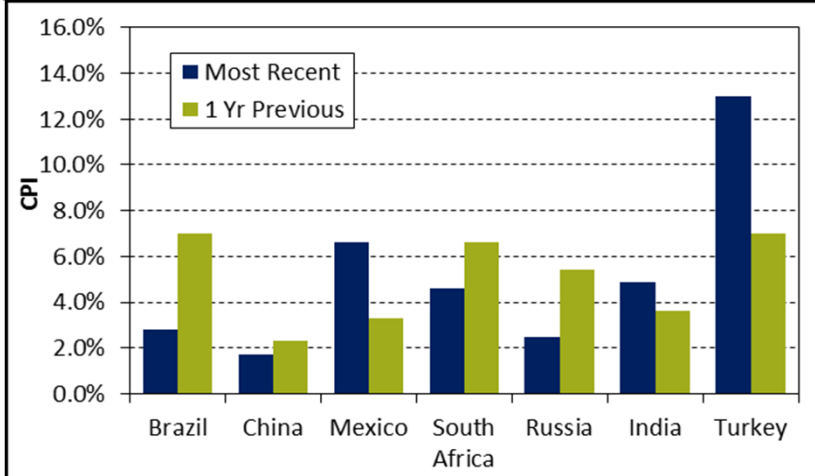


Source: Bloomberg, OECD



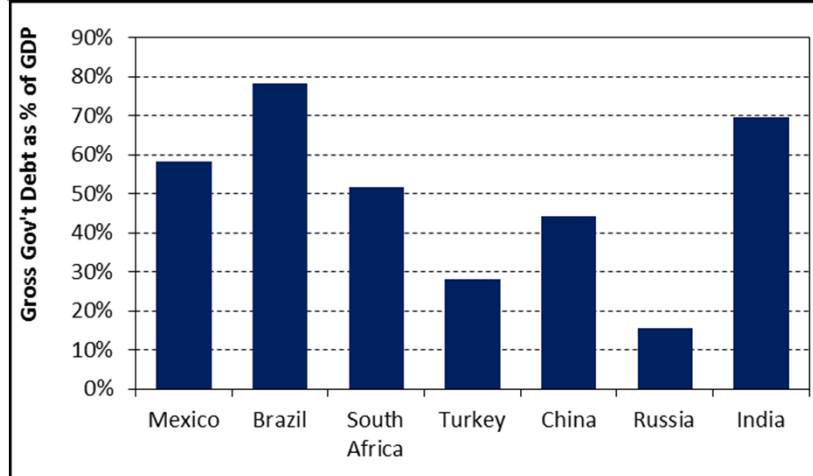
EMERGING MARKET ECONOMIC INDICATORS

EM inflation varies by country



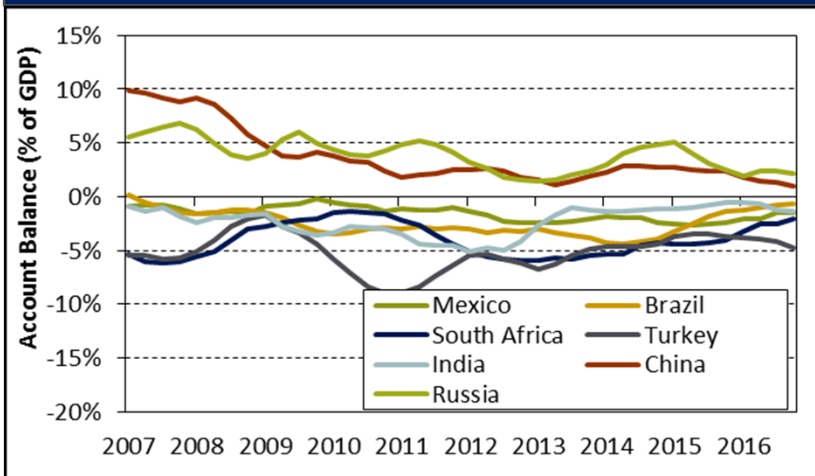
Source: Bloomberg

Relatively healthy debt/GDP ratios



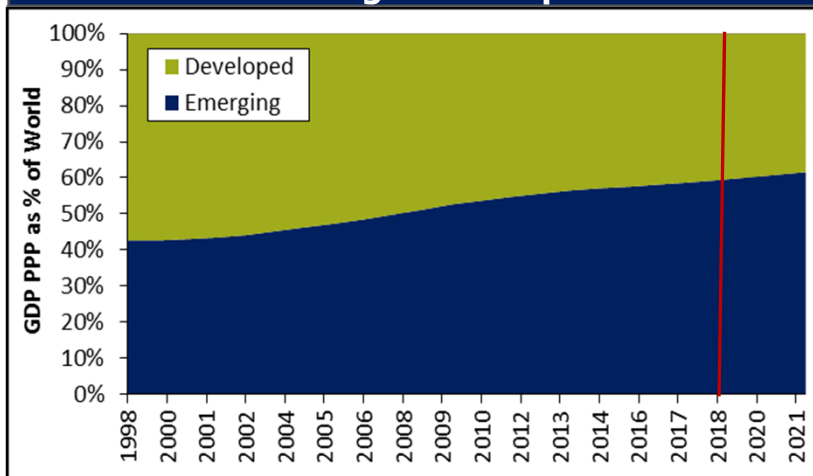
Source: Bloomberg, IMF

Account balances remain steady



Source: Bloomberg

EM continues trending higher as a percent of global output

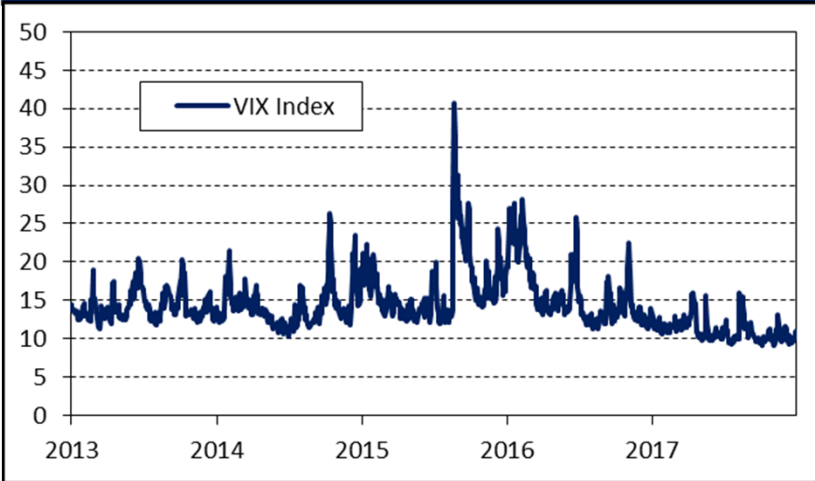


Source: Bloomberg, IMF



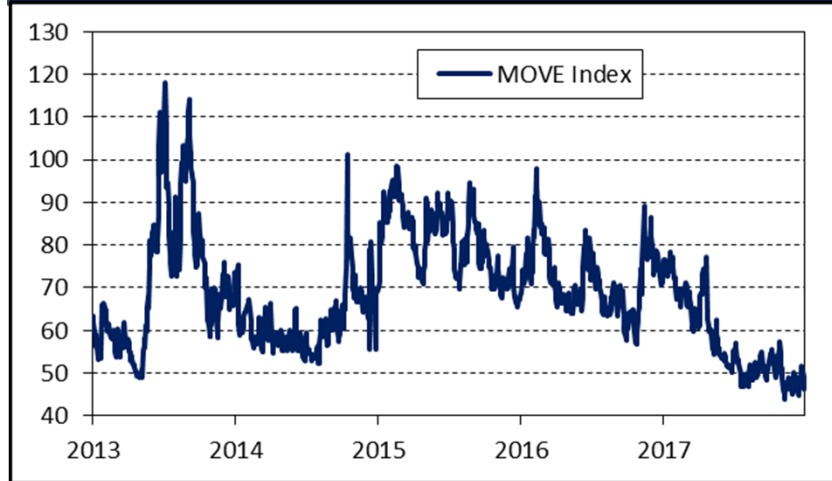
VOLATILITY

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

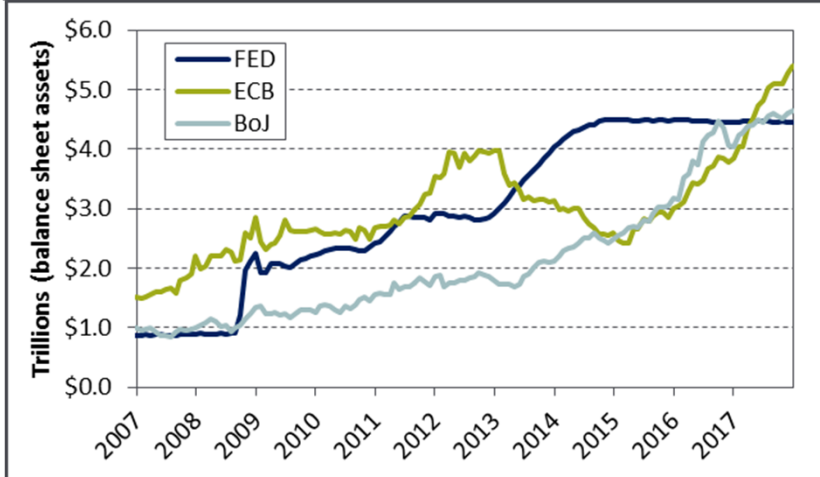


Source: Bloomberg, Merrill Lynch



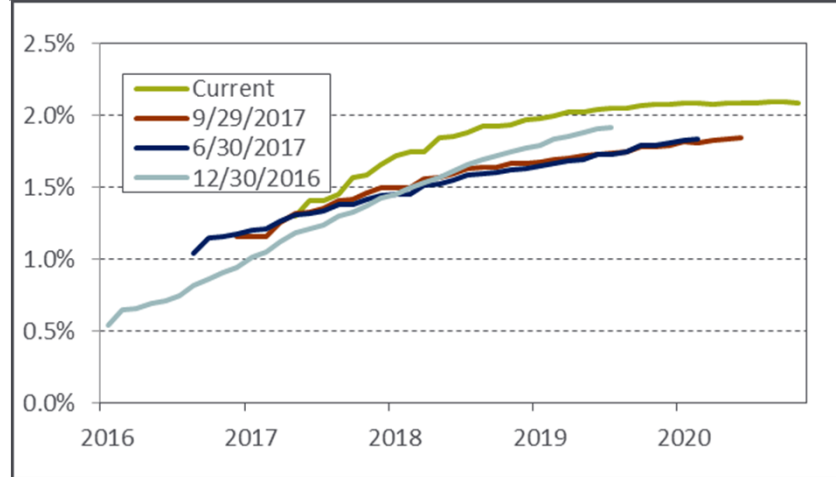
CENTRAL BANKS

Euro strength continues to impact total balance sheet assets



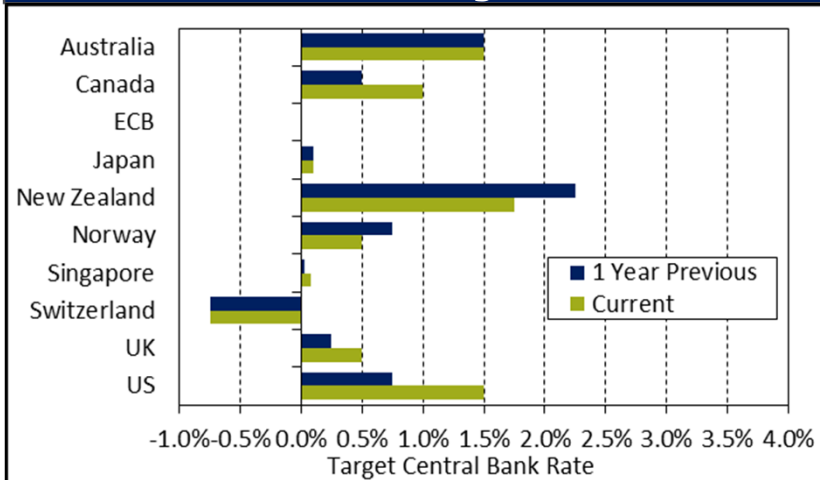
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC

The yield curve has shifted upward with a December Fed hike



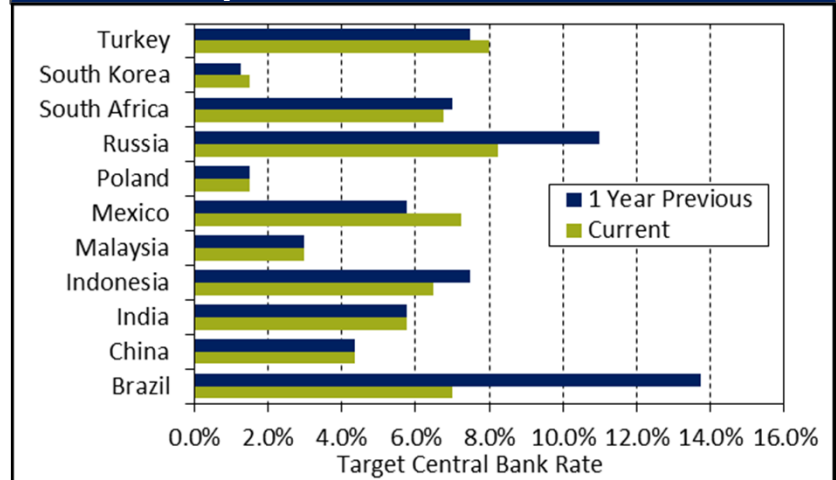
Source: Bloomberg, Federal Reserve

Developed markets have broadly started increasing rates



Source: Bloomberg

EM central bank policies vary by country-specific economic conditions

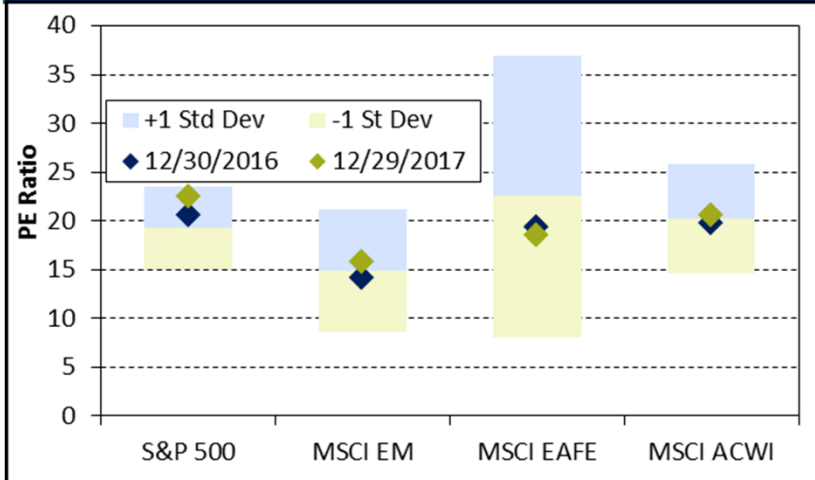


Source: Bloomberg



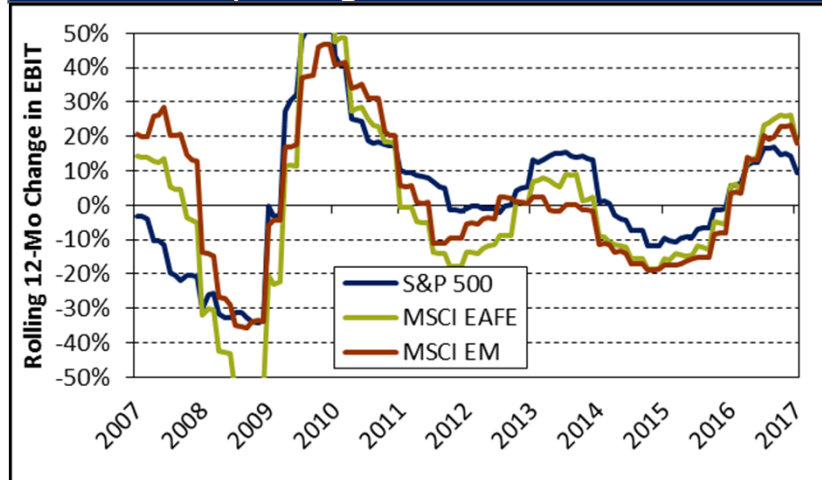
GLOBAL EQUITY

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



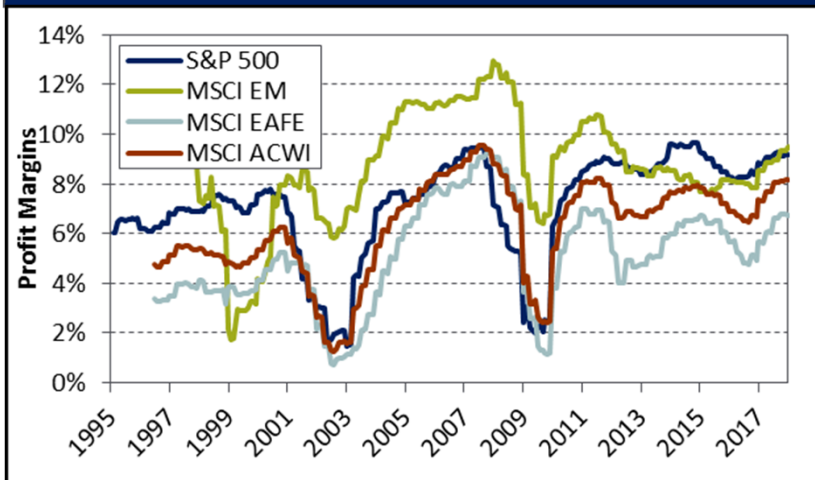
Source: Bloomberg, Standard and Poors, MSCI *MSCI EAFE is ex UK Telecom
*Standard deviation calculations on 20 years of data except S&P 500 (30 years)

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

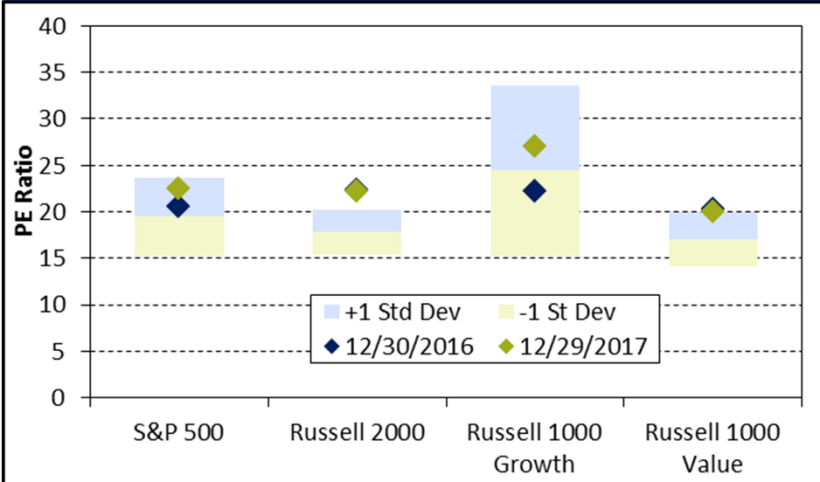


Source: Bloomberg, MSCI



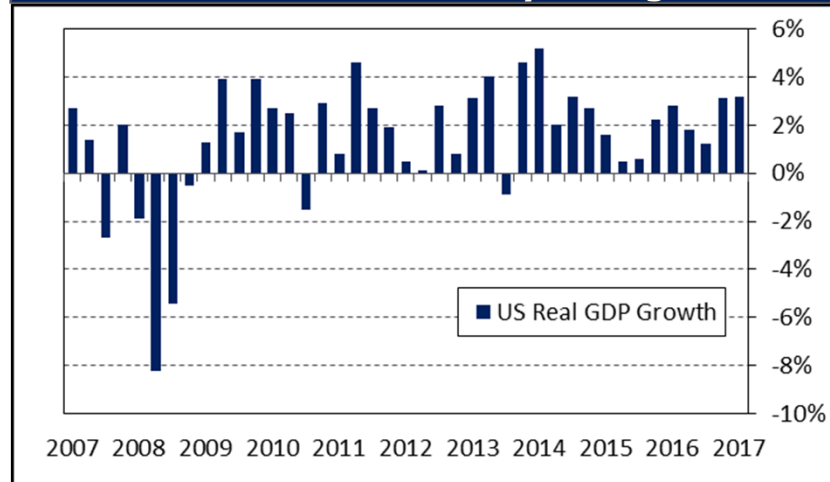
US EQUITY

The S&P 500 PE remains elevated relative to history



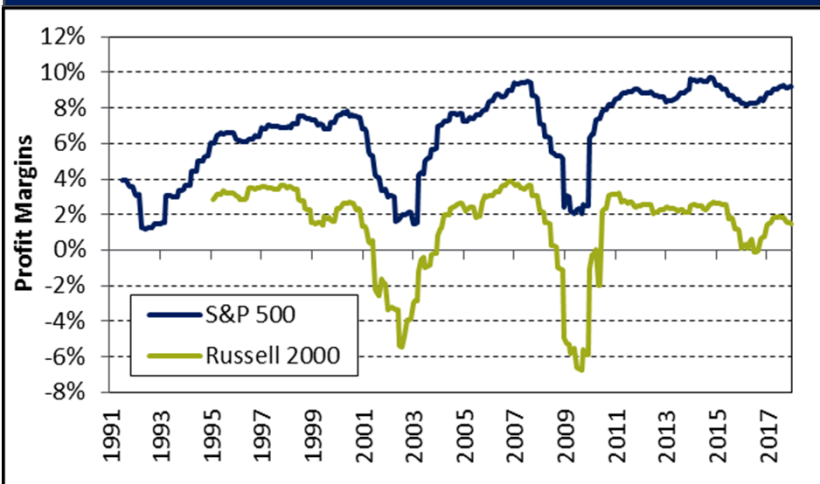
Source: Bloomberg, Standard and Poors, Russell *Russell 2000 PE is index adjusted positive* Standard deviation calculations based on 20 years of data

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



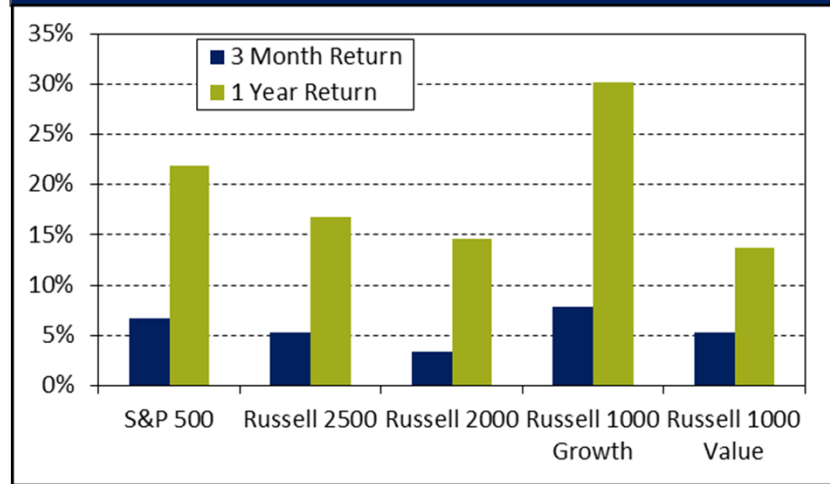
Source: Bloomberg, Bureau of Economic Analysis

Russell 2000 margins have begun trending lower



Source: Bloomberg, Standard and Poors, Russell

US equities continue to post positive returns

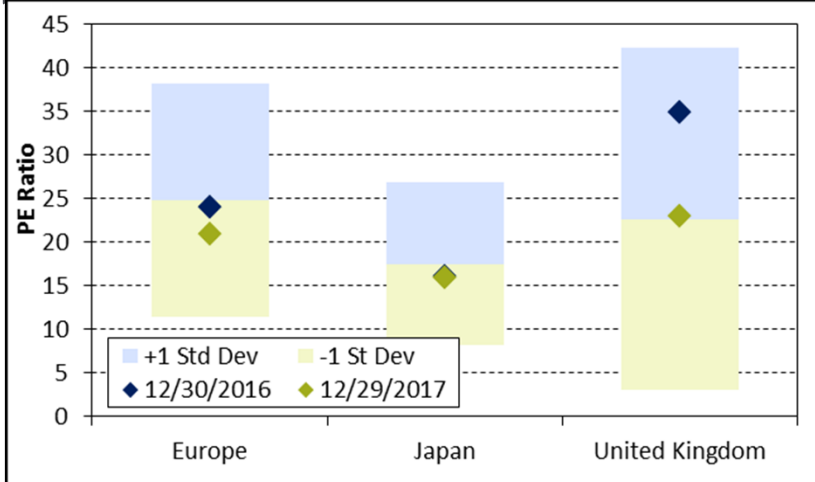


Source: Bloomberg, Standard and Poors, Russell



INTERNATIONAL EQUITY

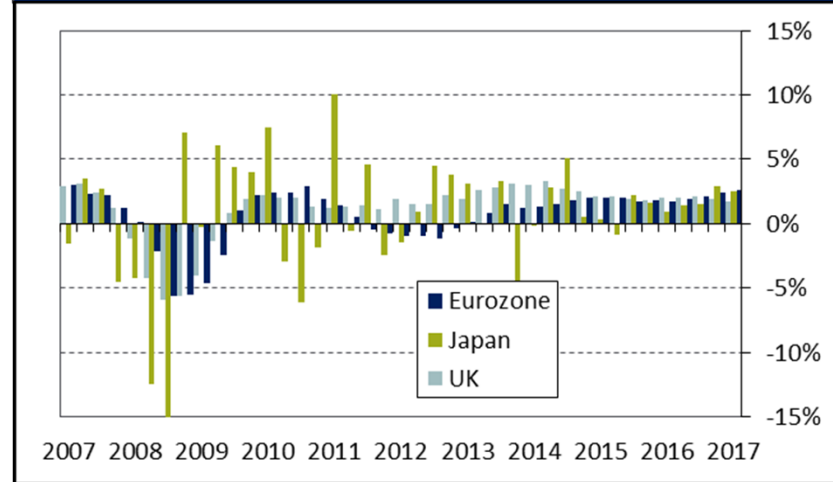
International equity PEs remain below the previous year



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

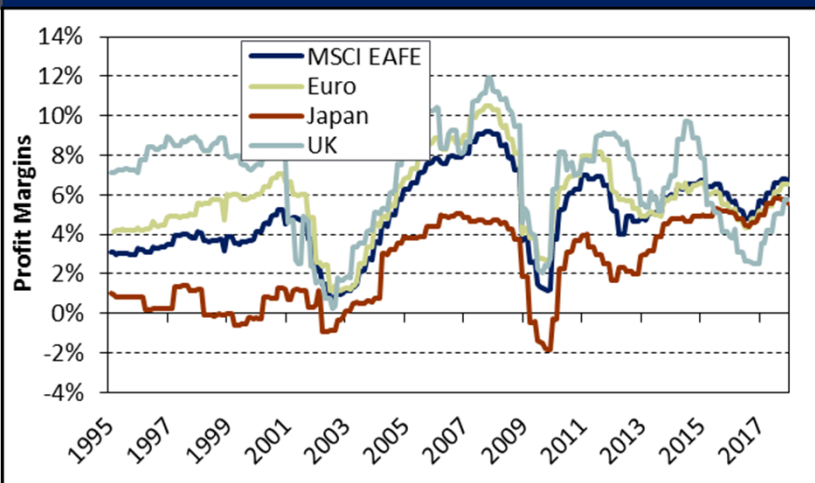
*Standard deviation calculations based on 20 years of data, with Europe since 12/1998

UK GDP growth continues to decline



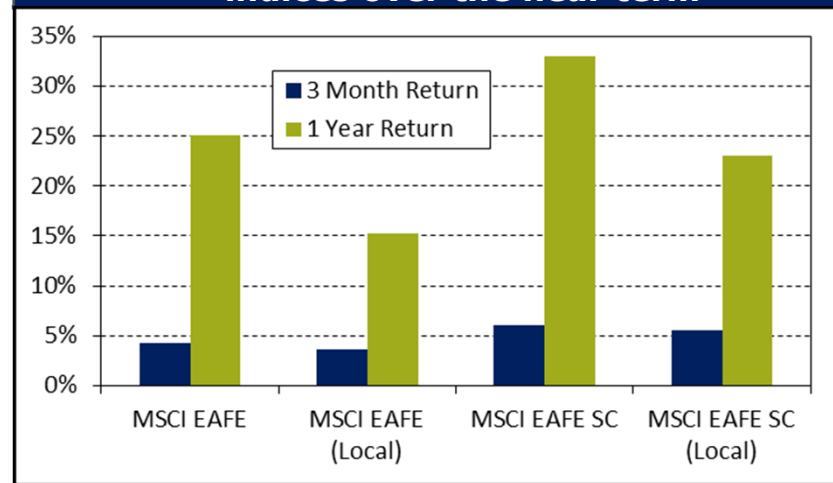
Source: Bloomberg

Profit margins continue trending higher



Source: Bloomberg, MSCI

Small cap slightly outperformed broad indices over the near term

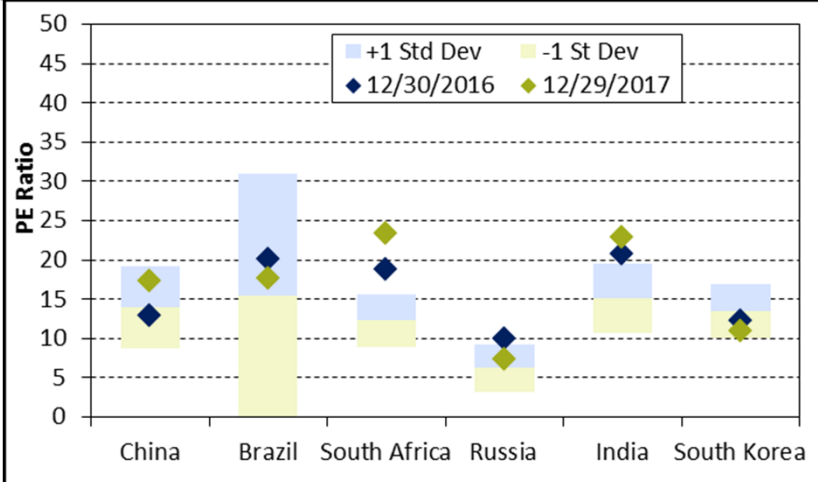


Source: Bloomberg, MSCI



EMERGING MARKETS EQUITY

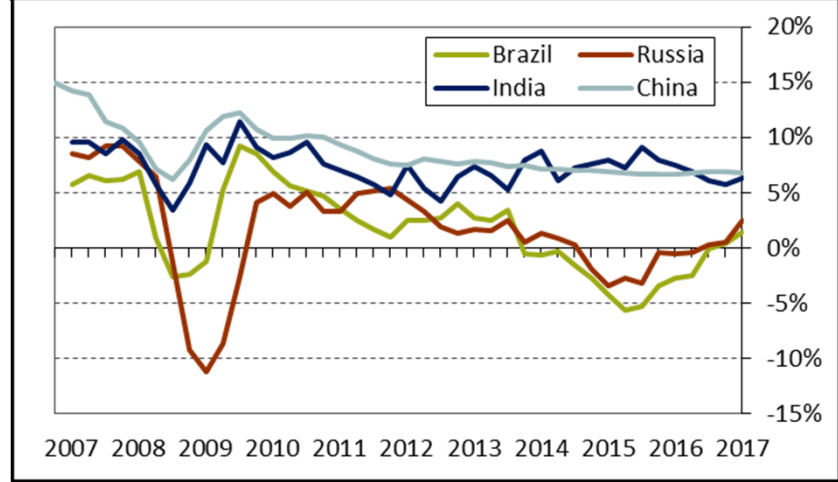
EM country valuations vary significantly relative to last year



Source: Bloomberg, MSCI

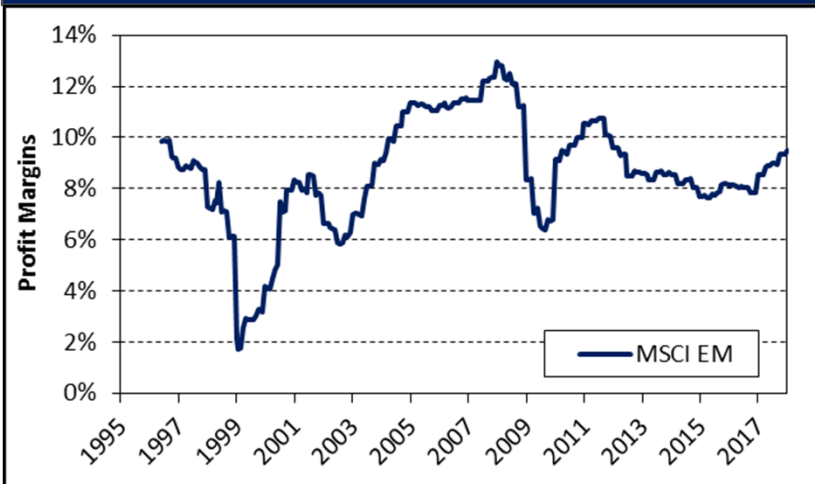
*Standard deviation calculations based on 20 years of data, with Russia since 01/1998

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



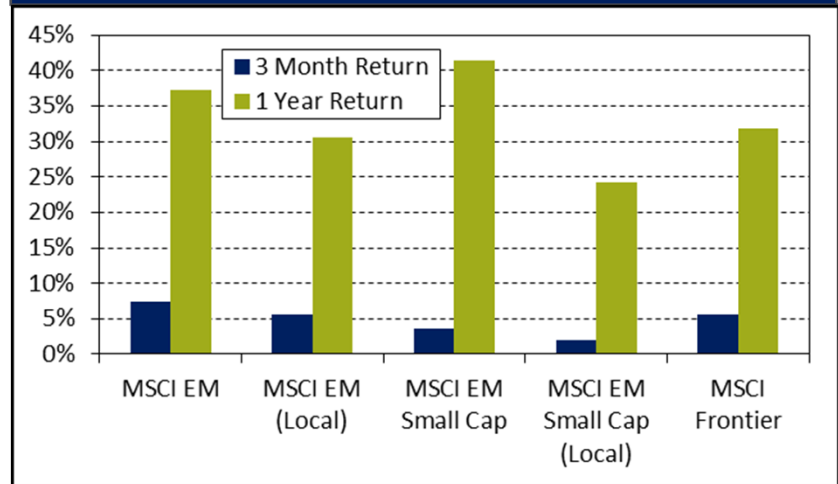
Source: Bloomberg

Profit margins remain elevated



Source: Bloomberg, MSCI

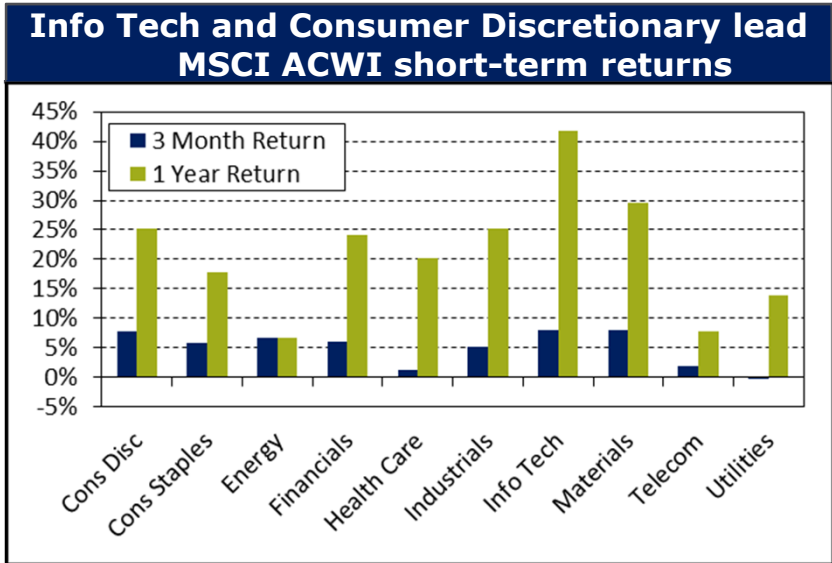
EM returns show continued strength



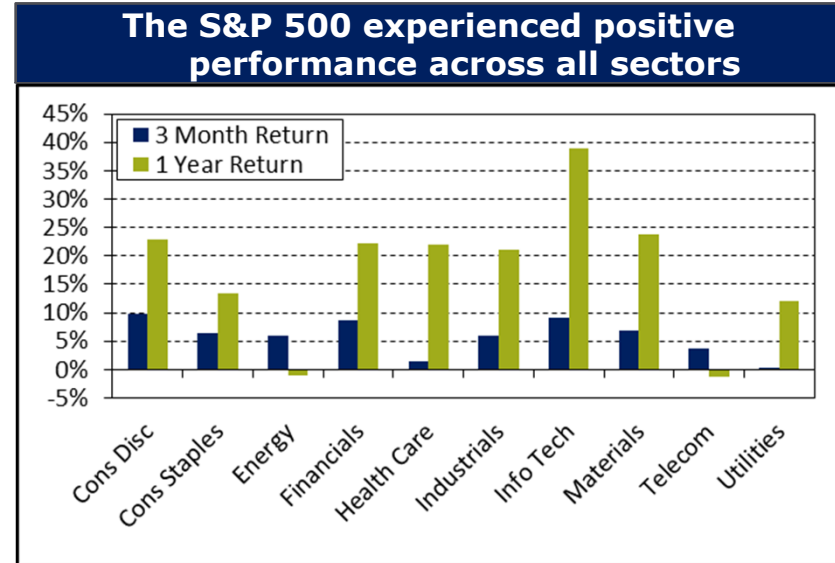
Source: Bloomberg, MSCI



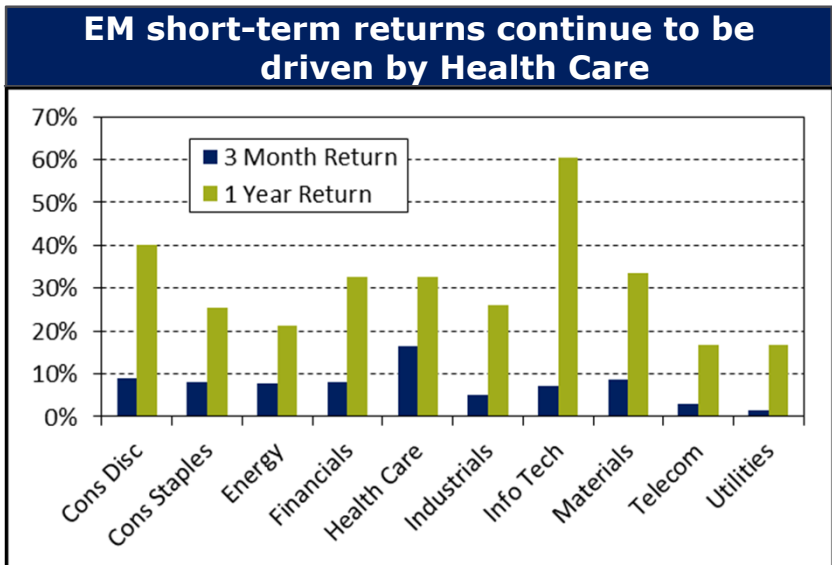
GLOBAL EQUITY BY SECTOR



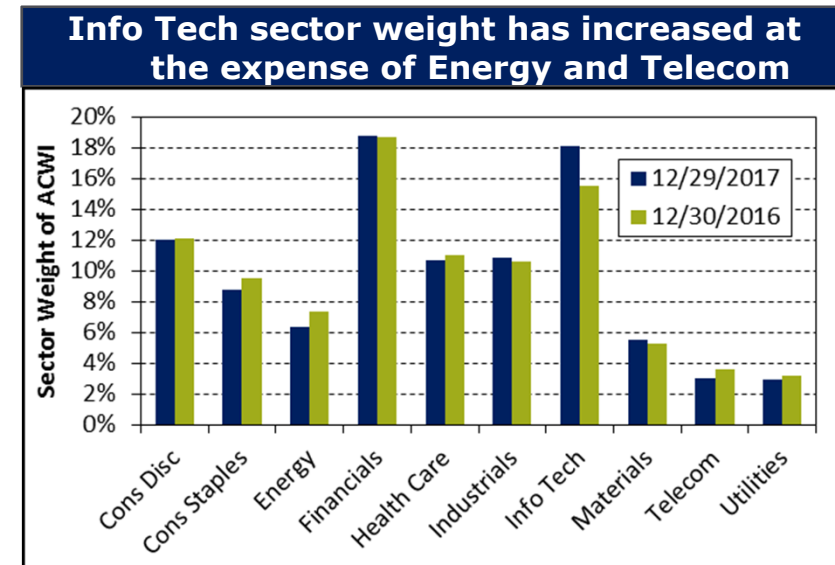
Source: Bloomberg, MSCI



Source: Bloomberg, Standard and Poors



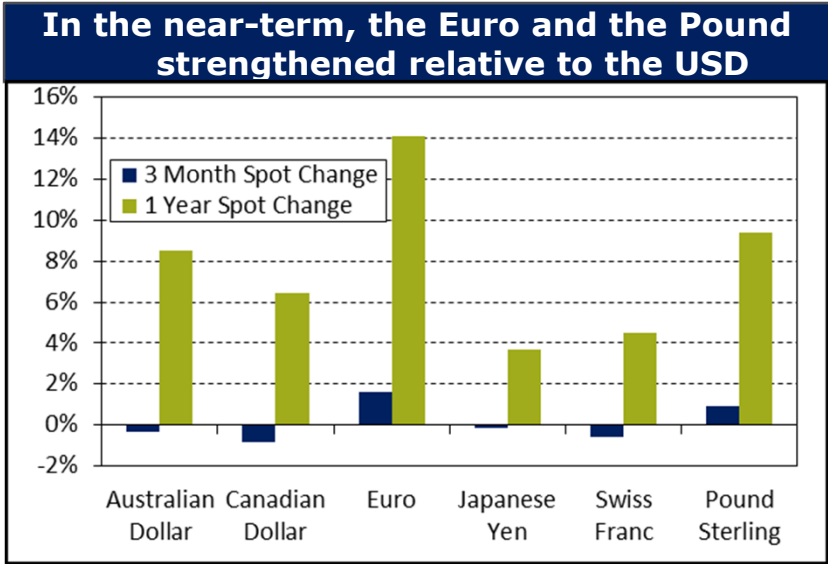
Source: Bloomberg, MSCI



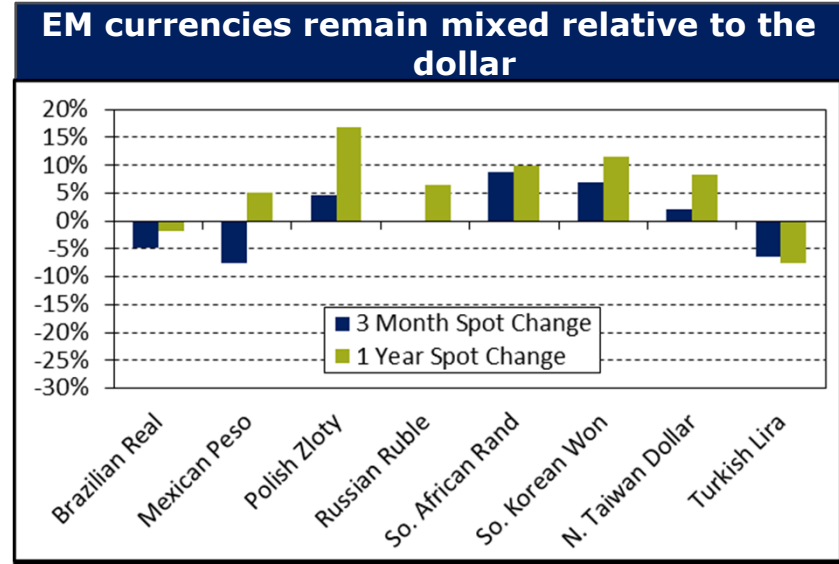
Source: Bloomberg, MSCI



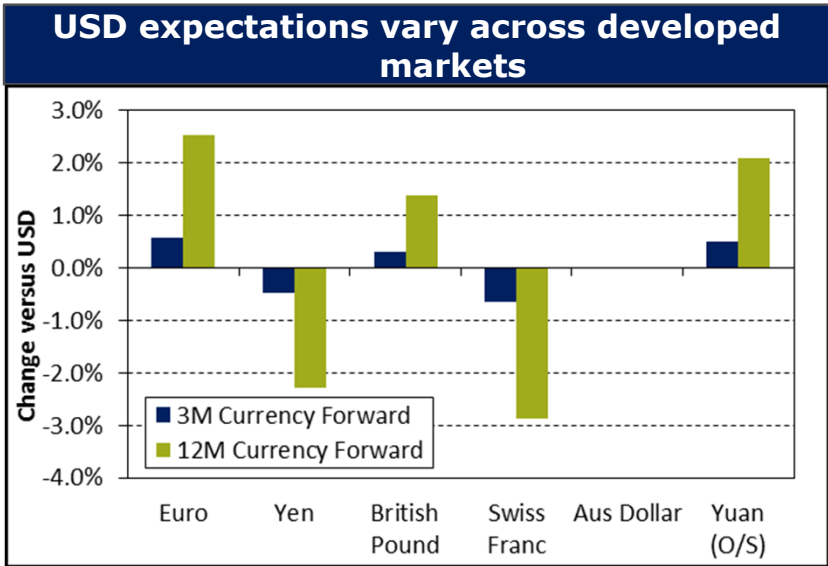
CURRENCIES



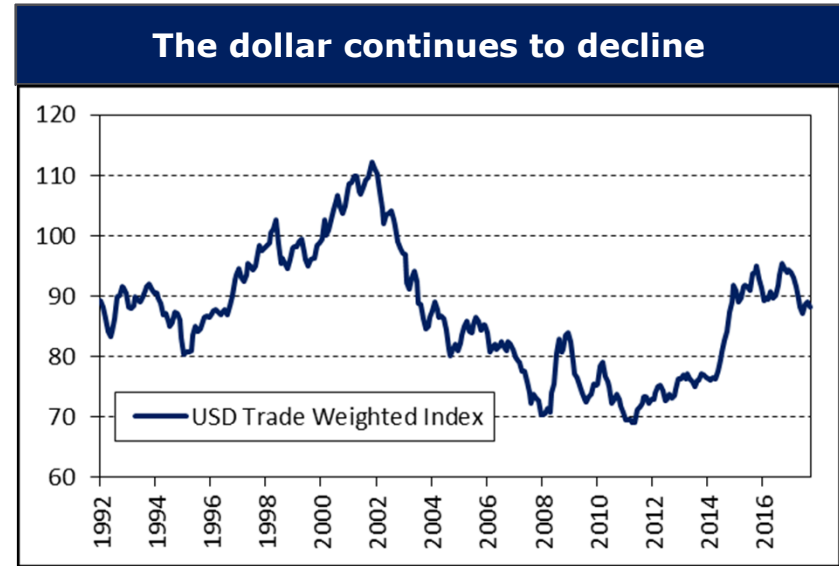
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

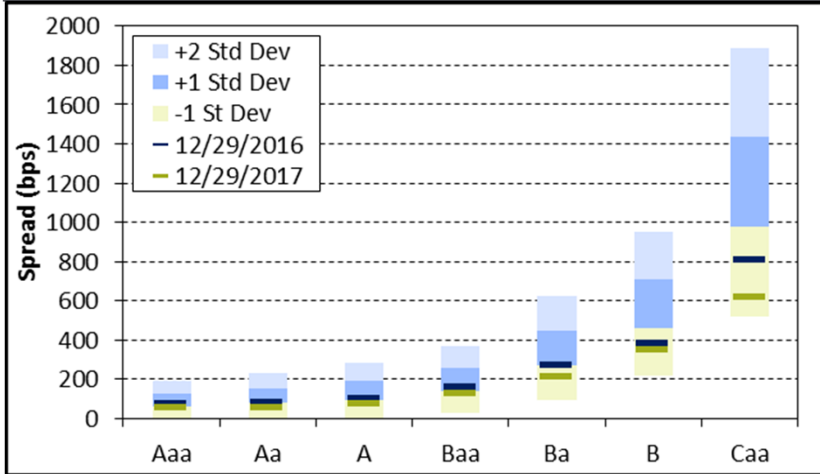


Source: Bloomberg, Federal Reserve



US FIXED INCOME

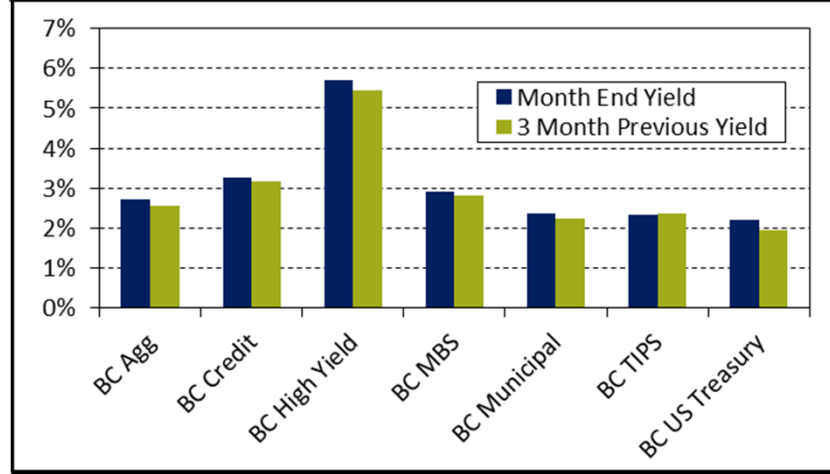
Spreads remain lower than the previous year



Source: Bloomberg, Barclays

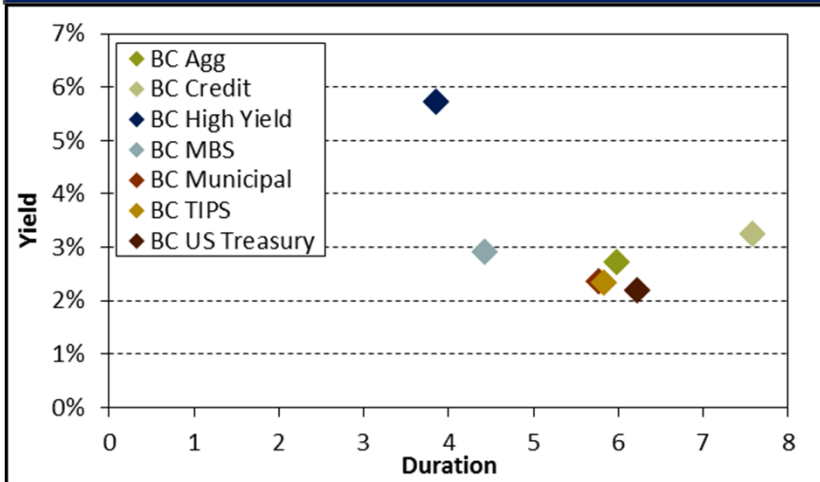
*Standard deviation calculations based on 20 years of data

Yields are modestly higher relative to three months ago



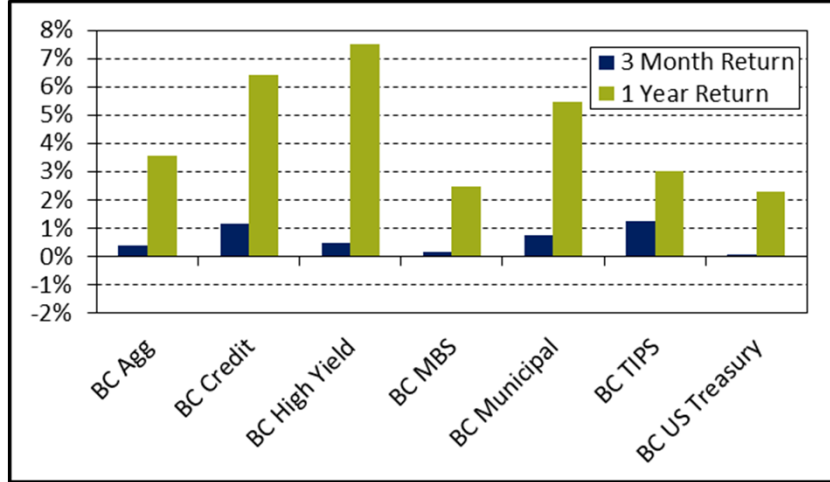
Source: Bloomberg, Barclays

Similar duration/yield profiles among core indices



Source: Bloomberg, Barclays

Fixed income indices were slightly positive over the short-term

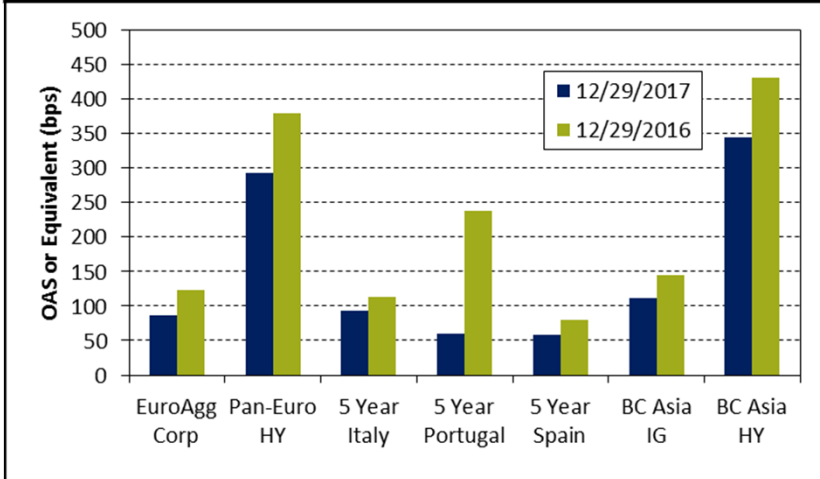


Source: Bloomberg, Barclays



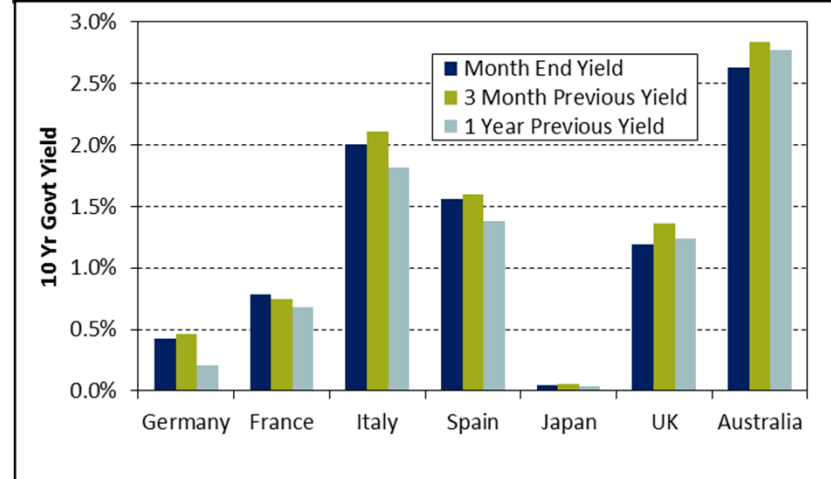
INTERNATIONAL DEVELOPED FIXED INCOME

Periphery yields have broadly declined over the year relative to Germany



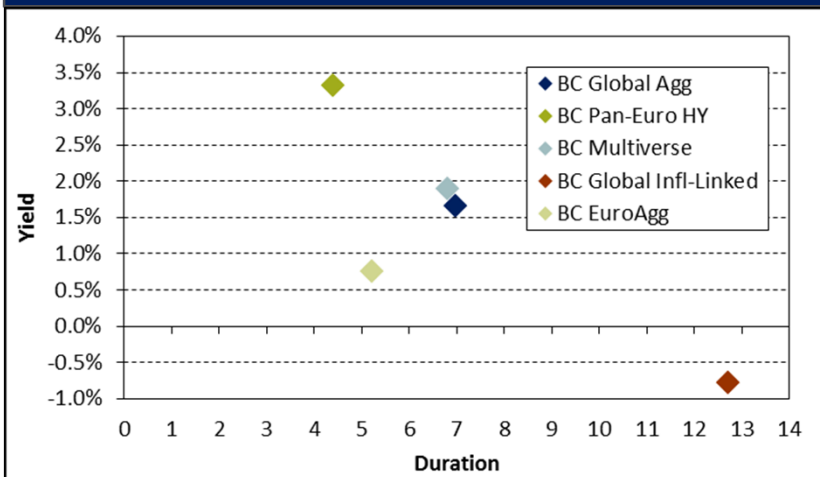
Source: Barclays, Bloomberg, *European periphery spreads are over equivalent German Bund

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



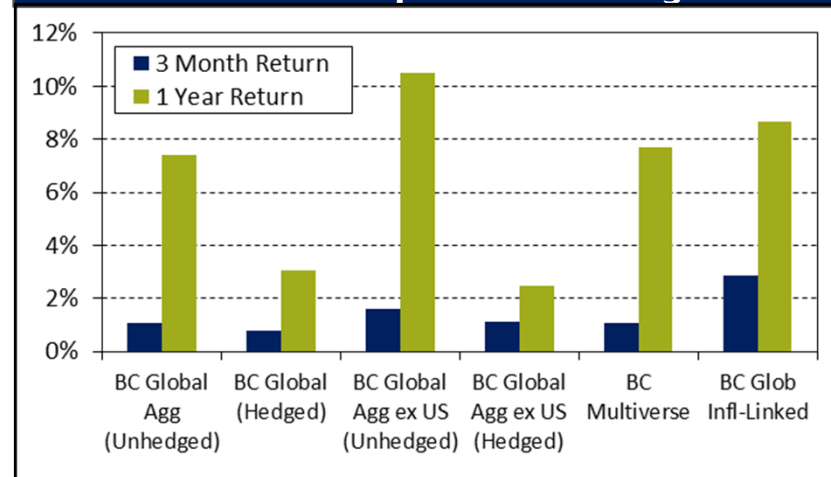
Source: Bloomberg

Low yields persist in global bond universe



Source: Bloomberg, Citigroup, Barclays

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

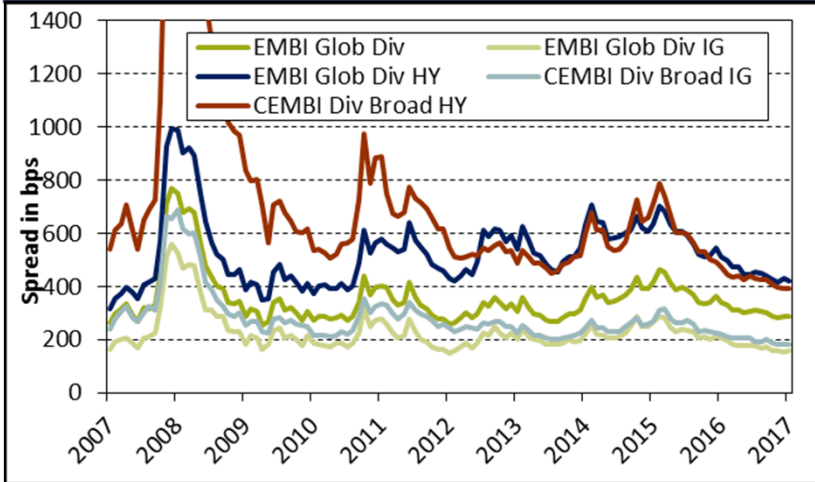


Source: Bloomberg, Citigroup, Barclays



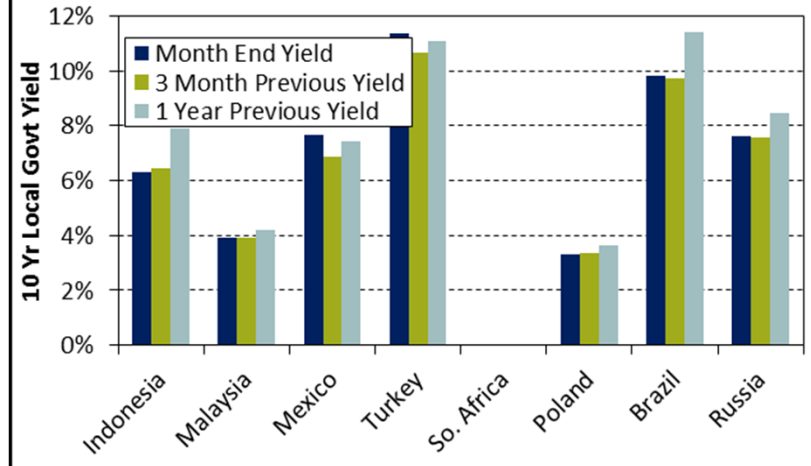
EMERGING MARKETS FIXED INCOME

EM spreads continue to compress



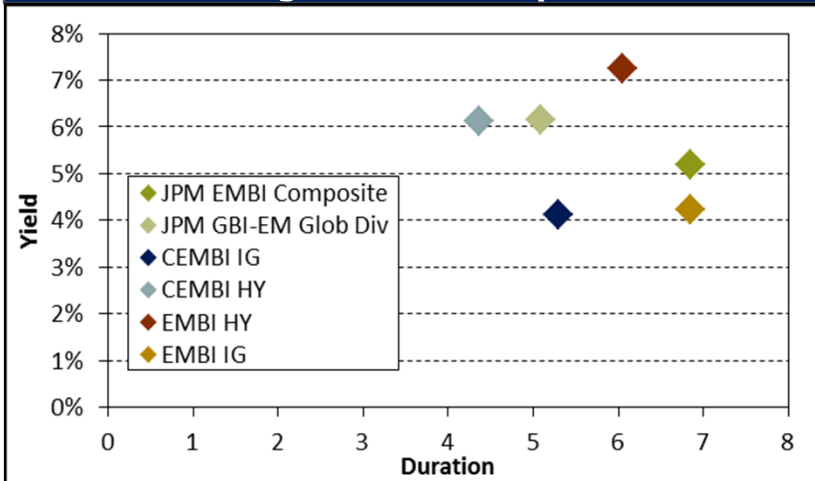
Source: Bloomberg, JP Morgan

Yields have broadly increased relative to three months prior



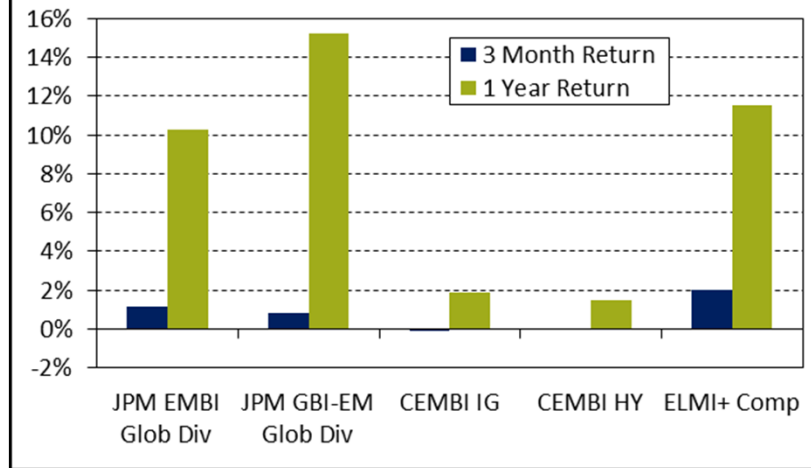
Source: Bloomberg

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

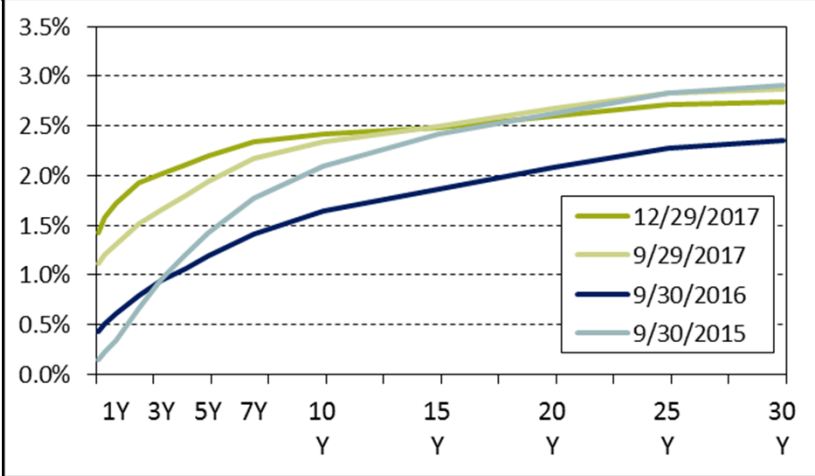


Source: Bloomberg, JP Morgan



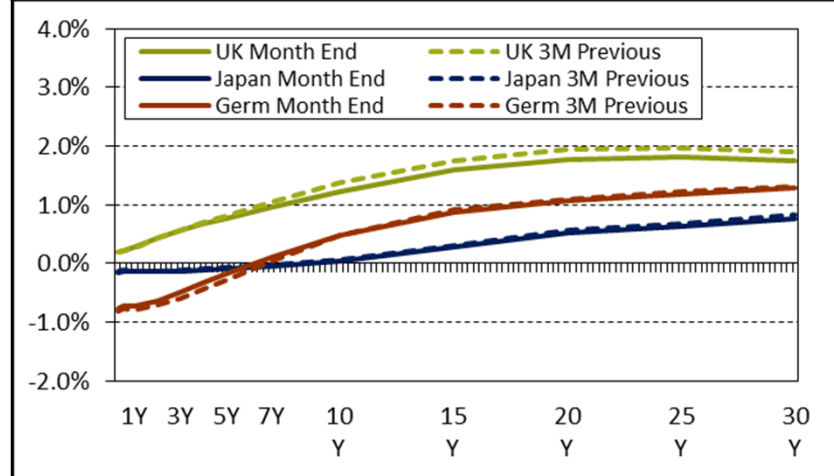
RATES

The curve has flattened relative to three months prior



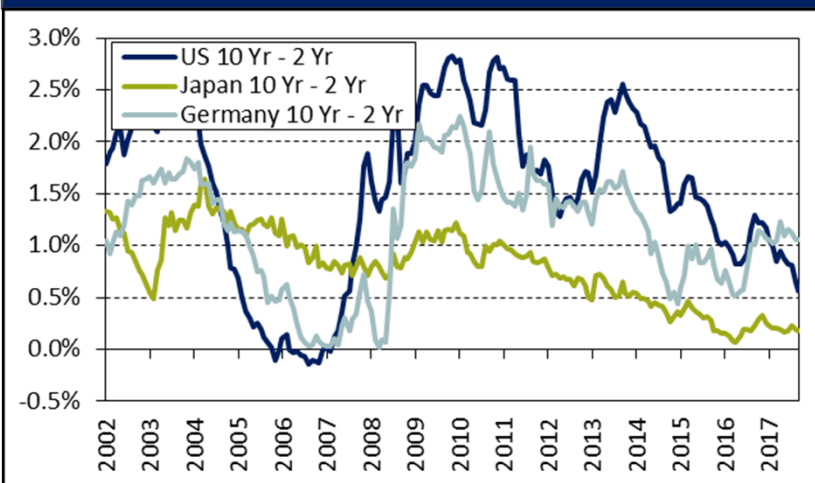
Source: Bloomberg

Longer term rate expectations have declined relative to previous months



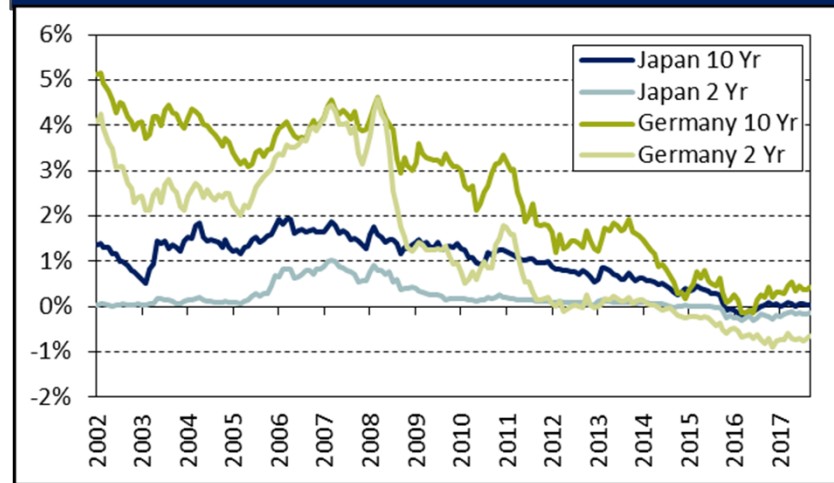
Source: Bloomberg

10-2 spreads continue to decline



Source: Bloomberg

Sovereign bond yields remain relatively flat

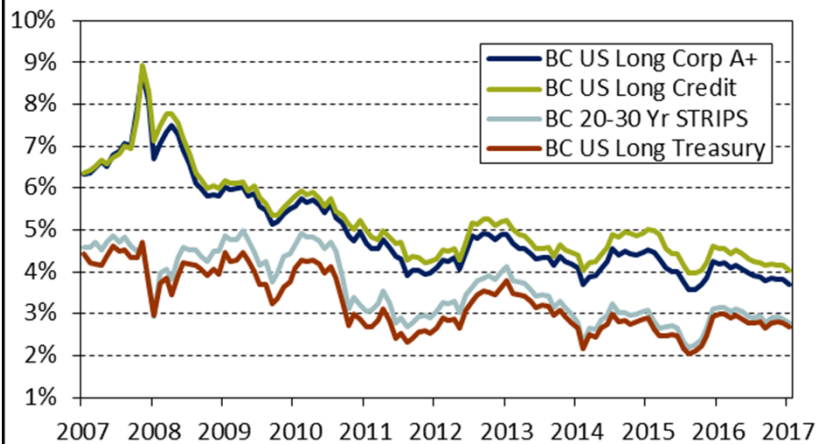


Source: Bloomberg



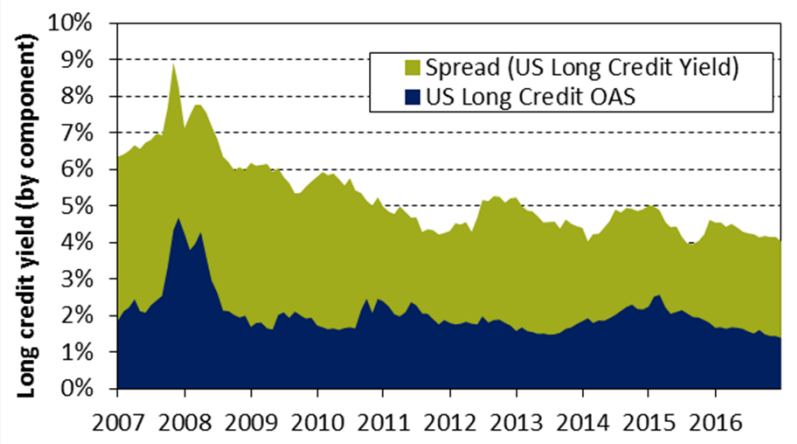
LONG RATES AND LIABILITY

Long duration yields continue to grind lower



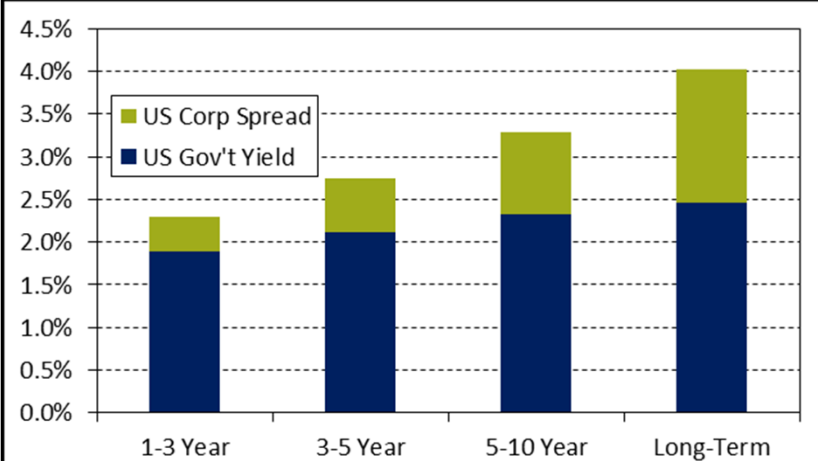
Source: Bloomberg, Citigroup, Barclays

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



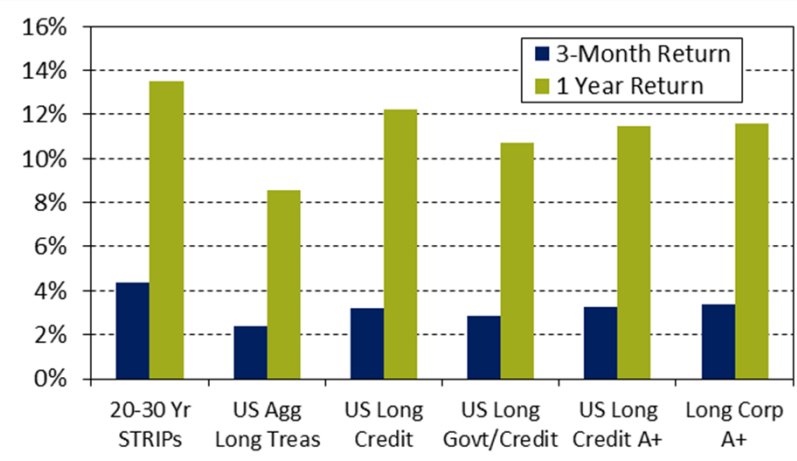
Source: Bloomberg, US Treasury, Barclays, NEPC

Yield and spread components continue to offer modest returns



Source: Bloomberg, Barclays

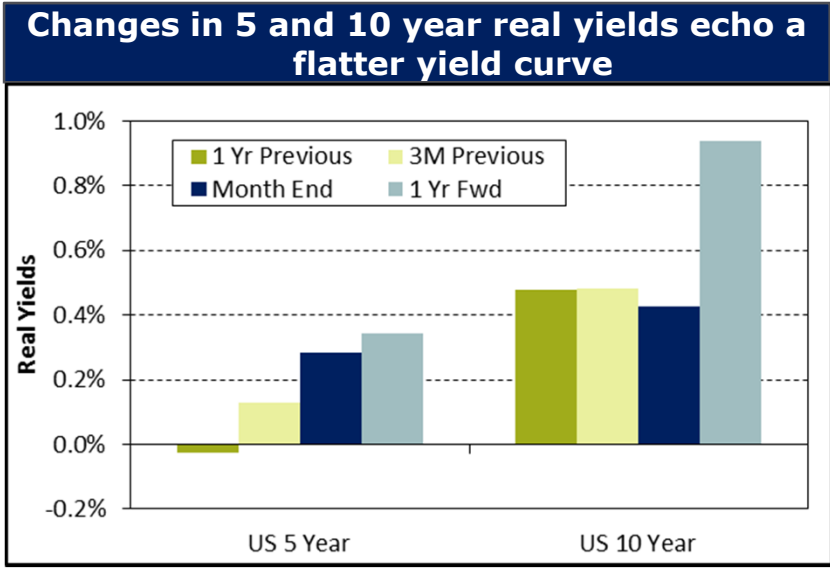
Long duration fixed income indices continue to experience positive returns



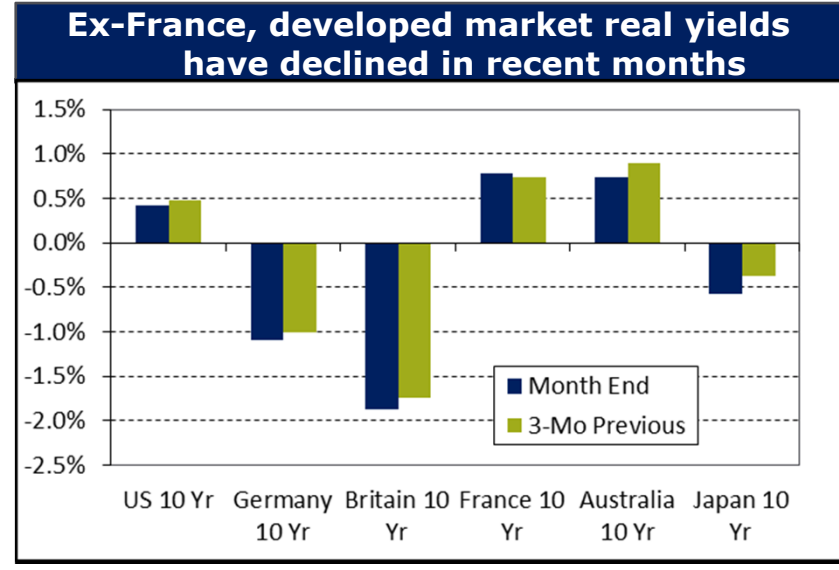
Source: Bloomberg, Barclays



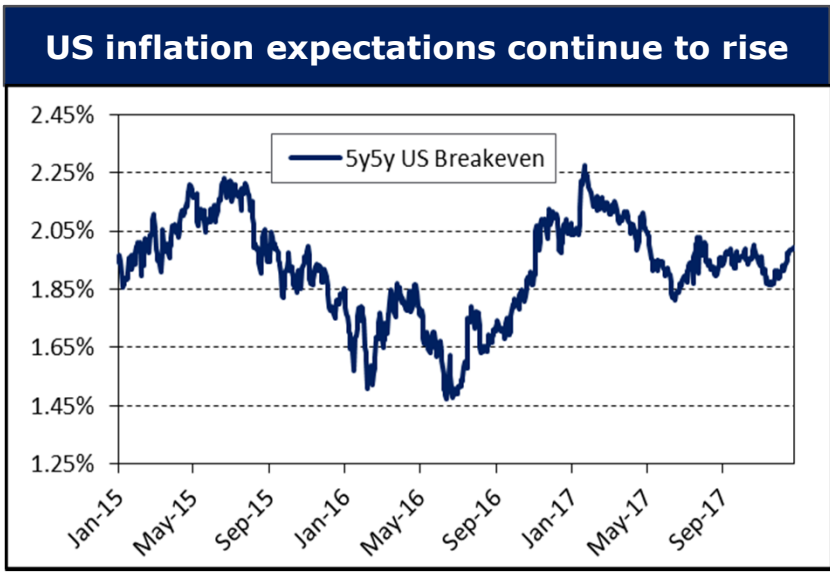
INFLATION AND REAL RATES



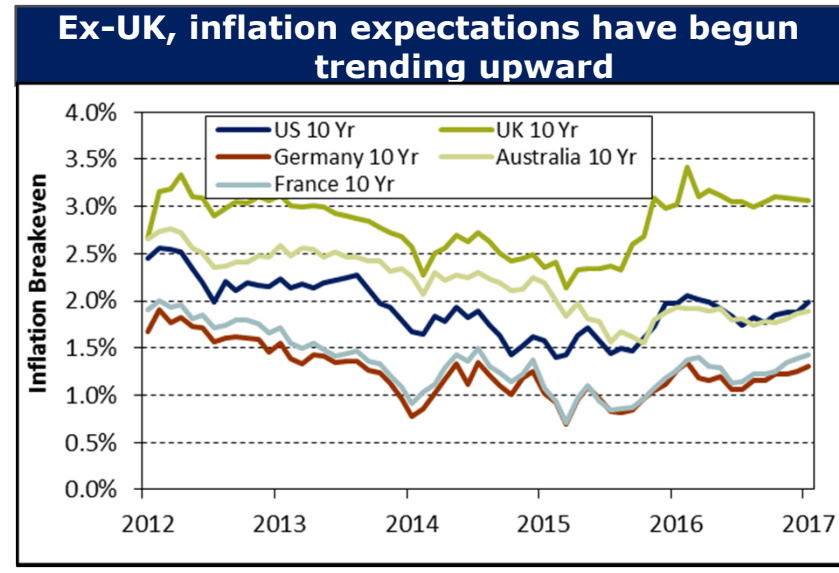
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

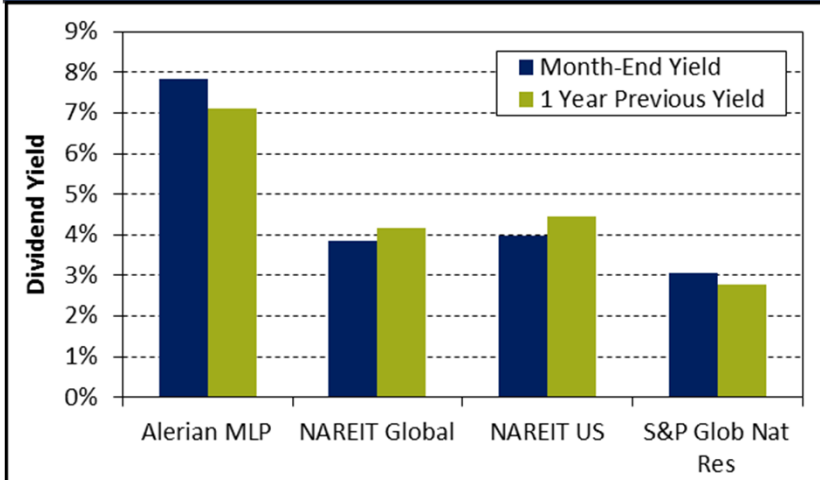


Source: Bloomberg



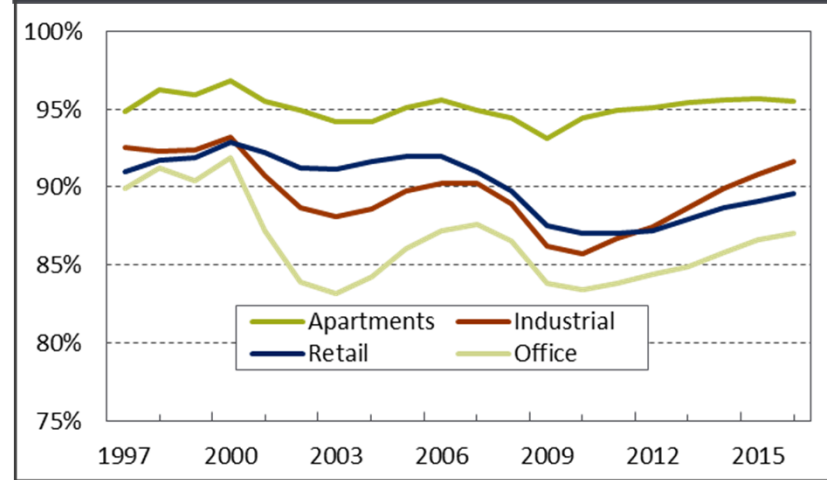
INFLATION-SENSITIVE GROWTH ASSETS

MLP yields have increased relative to last year



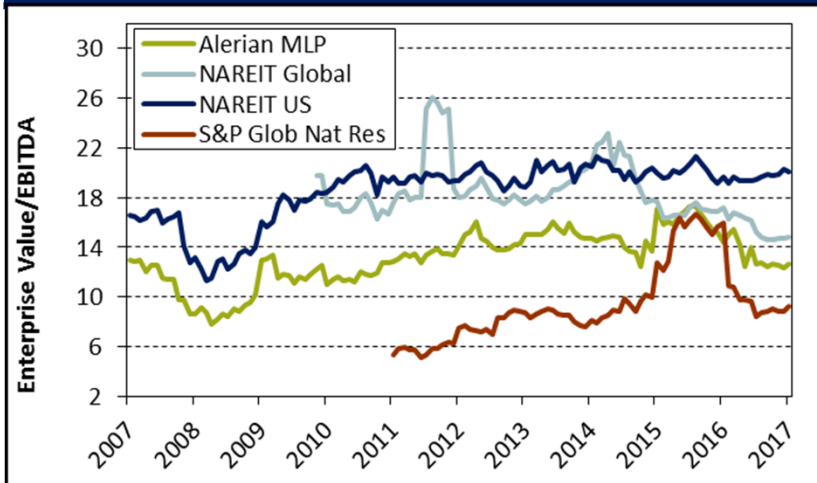
Source: Bloomberg, Alerian, NAREIT, Standard and Poors

Sustained recovery in commercial real estate occupancy rates



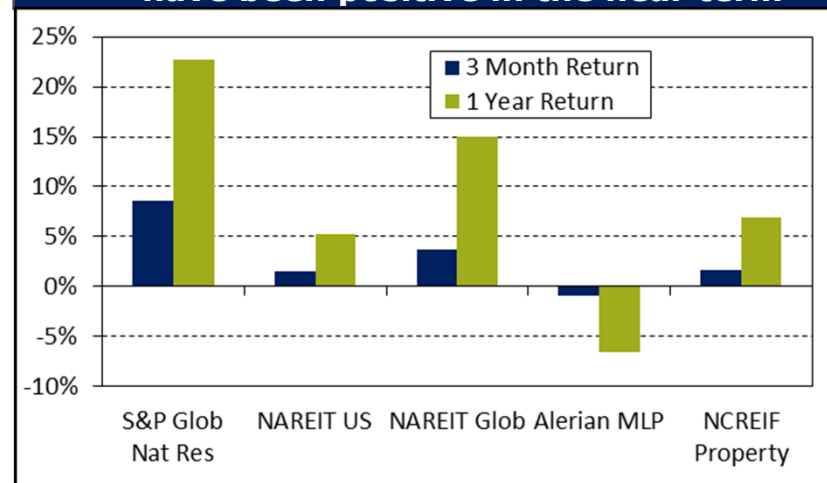
Source: CBRE

US REIT valuations have steadied



Source: Bloomberg, US Census Bureau

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

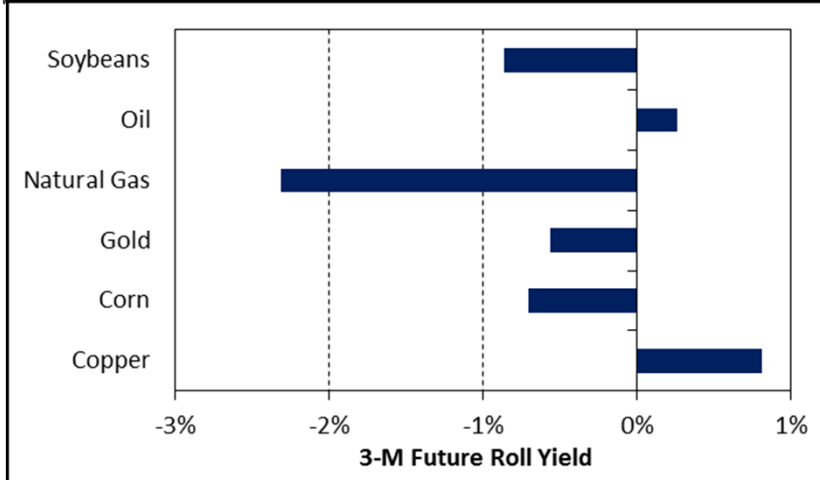


Source: Bloomberg, Alerian, NAREIT, Standard and Poors



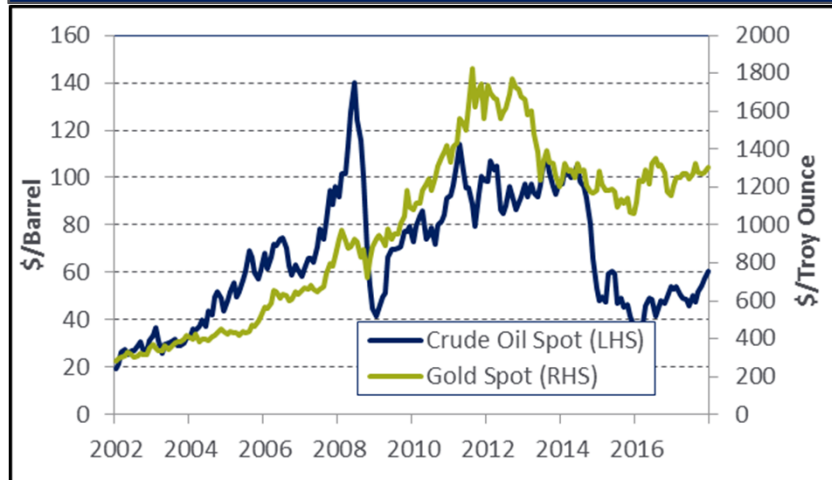
COMMODITIES

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



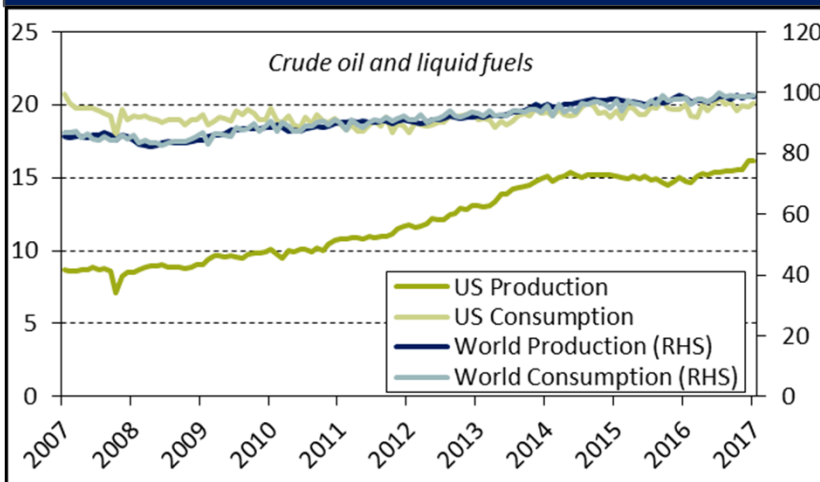
Source: Bloomberg

Spot oil has continued to increase



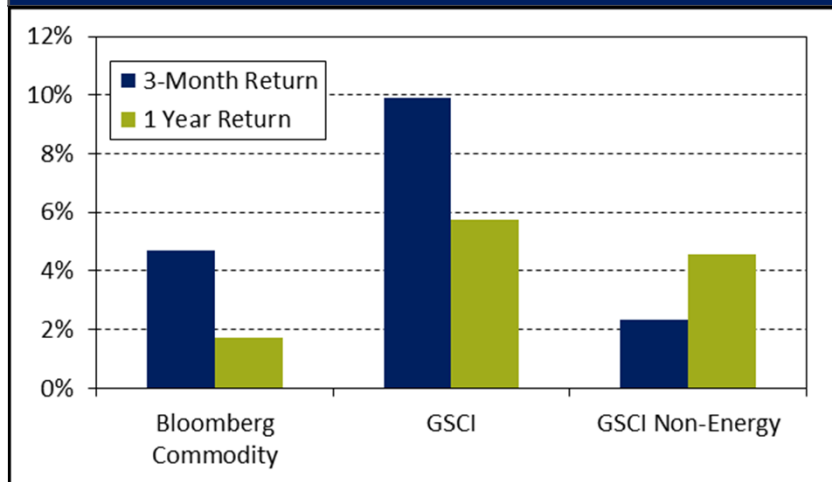
Source: Bloomberg

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



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- 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.
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