

QUARTERLY PERFORMANCE REPORT

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

December 31, 2018

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VCERA
VENTURA COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION



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MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

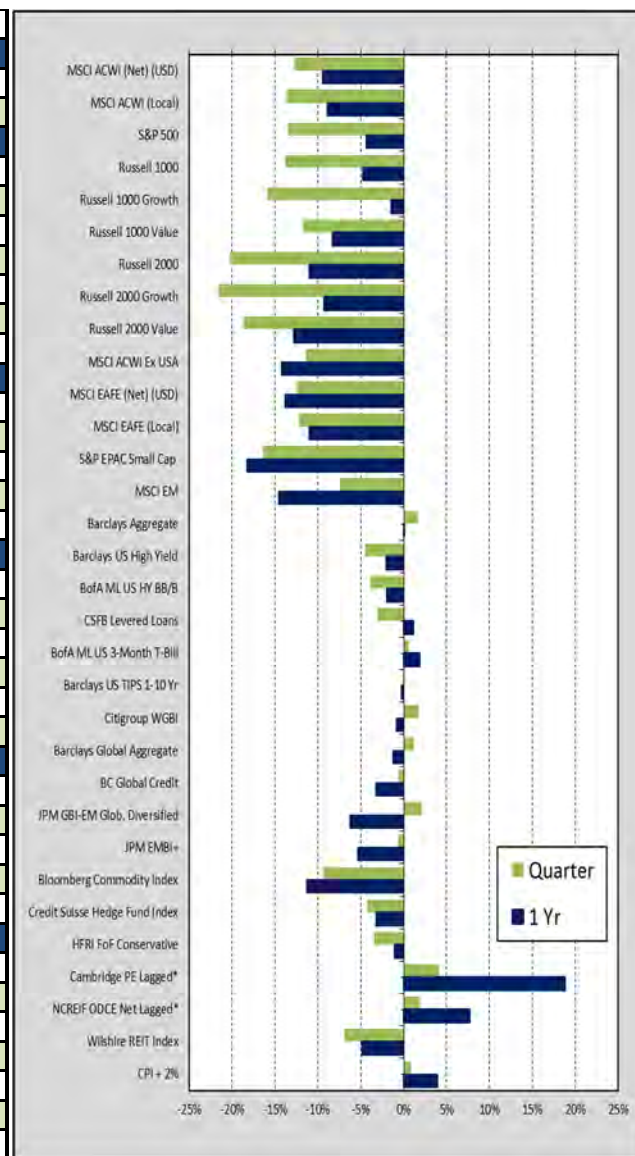
ECONOMIC ENVIRONMENT

- **Real GDP (third quarter) increased at an annual rate of 3.4%.**
 - Retail sales ended October at +3.7% on a YoY basis. In the same period last year the YoY growth rate was 5.9%.
 - Corporate profits (ended July) as a percent of GDP decreased to 9.59% from 9.61% (in April) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended October up to 1.4 from 1.3 in July and has remained relatively constant since early 2010.
 - The U.S. trade deficit widened 7.3% as exports in soy and aircraft fell.
- **The unemployment rate increased slightly to 3.9% from to 3.7% ended Q4; U-6, a broader measure of unemployment, increased to 7.6% from 7.5% during the fourth quarter.**
- **The Case-Shiller Home Price Index (ended October) increased to 206.3 from 205.4 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 1.9% from 2.3% ended December; Capacity Utilization increased to 78.7% from 78.4% in Q4.**
- **Fed Funds rate was increased 0.25% to a targeted range of 2.25% -to- 2.50%. The 10-year Treasury Yield (constant maturity) finished Q4 down to 2.8% from 3.0%.**
- **The Fed continues its planned reduction in balance sheet size, while the European Central Bank balance sheet increased.**
 - ECB held its benchmark refinance rate at 0%, deposit rates -0.4% and has ended its bond purchase program.
- **S&P valuations decreased in Q4, remaining above the 10-year and long-term averages.**
 - Cyclically adjusted Shiller PE ratio (28.41x) is above the long-term average of 16.6x and above the 10-year average of 24.3x.



MARKET ENVIRONMENT – Q4 2018 OVERVIEW

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI (Net) (USD)	World	-12.8%	-9.4%	6.6%	4.3%	9.5%
MSCI ACWI (Local)	World (Local Currency)	-13.6%	-8.9%	5.9%	5.6%	9.8%
Domestic Equity Benchmarks						
S&P 500	Large Core	-13.5%	-4.4%	9.3%	8.5%	13.1%
Russell 1000	Large Core	-13.8%	-4.8%	9.1%	8.2%	13.3%
Russell 1000 Growth	Large Growth	-15.9%	-1.5%	11.1%	10.4%	15.3%
Russell 1000 Value	Large Value	-11.7%	-8.3%	7.0%	5.9%	11.2%
Russell 2000	Small Core	-20.2%	-11.0%	7.4%	4.4%	12.0%
Russell 2000 Growth	Small Growth	-21.7%	-9.3%	7.2%	5.1%	13.5%
Russell 2000 Value	Small Value	-18.7%	-12.9%	7.4%	3.6%	10.4%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	-11.5%	-14.2%	4.5%	0.7%	6.6%
MSCI EAFE (Net) (USD)	Int'l Developed	-12.5%	-13.8%	2.9%	0.5%	6.3%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	-12.2%	-11.0%	2.6%	3.8%	7.5%
S&P EPAC Small Cap	Small Cap Int'l	-16.4%	-18.3%	3.7%	3.3%	10.2%
MSCI EM	Emerging Equity	-7.5%	-14.6%	9.2%	1.6%	8.0%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	1.6%	0.0%	2.1%	2.5%	3.5%
Barclays US High Yield	High Yield	-4.5%	-2.1%	7.2%	3.8%	11.1%
BofA ML US HY BB/B	High Yield	-3.8%	-2.0%	6.4%	3.9%	10.0%
CSFB Levered Loans	Bank Loans	-3.1%	1.1%	5.0%	3.3%	8.3%
BofA ML US 3-Month T-Bill	Cash	0.6%	1.9%	1.0%	0.6%	0.4%
Barclays US TIPS 1-10 Yr	Inflation	-0.1%	-0.3%	1.9%	1.2%	3.1%
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	1.8%	-0.8%	2.7%	0.8%	1.5%
Barclays Global Aggregate	Global Core Bonds	1.2%	-1.2%	2.7%	1.1%	2.5%
BC Global Credit	Global Bonds	-0.6%	-3.2%	3.0%	1.7%	4.5%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	2.1%	-6.2%	5.9%	-1.0%	3.5%
JPM EMBI+	Em. Mkt. Bonds	-0.7%	-5.3%	4.0%	4.0%	7.3%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	-9.4%	-11.2%	0.3%	-8.8%	-3.8%
Credit Suisse Hedge Fund Index	Hedge Fund	-4.3%	-3.2%	1.6%	1.7%	5.1%
HFRI FoF Conservative	Fund of Hedge Funds	-3.4%	-1.1%	1.6%	1.7%	3.1%
Cambridge PE Lagged*	Private Equity	4.1%	18.9%	14.8%	13.6%	12.1%
NCREIF ODCE Net Lagged*	Real Estate	1.9%	7.7%	7.8%	9.7%	4.6%
Wilshire REIT Index	REIT	-6.9%	-4.8%	2.1%	7.9%	12.2%
CPI + 2%	Inflation/Real Assets	0.8%	4.0%	4.1%	3.5%	3.8%















* As of 9/30/2018



PERFORMANCE OVERVIEW

Q4 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
											
1.1%	13.3	-38 bps	-13.5%	-12.5%	-7.5%	1.6%	-4.5%	-1.2%	-38.0%	7.7%	-6.0%

- **Global equities sold-off during the quarter due to concerns related to fed funds rate increases , fears of a global slowdown, and trade uncertainties**
- **The sharp decline in crude oil prices weighed on commodities overall and US high-yield bonds, which have meaningful portion to the energy sector**
- **The Federal Reserve hiked rates for the fourth time in 2018 with one to two additional rate increases expected for 2019**

Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), High Yield (Barclays US High Yield Index), Dollar EMD (JPM Emerging Market Bond Index), Crude Oil (WTI Crude Oil Spot), Gold (Gold Price Spot), and REITs (NAREIT Composite Index).



MACRO PERFORMANCE OVERVIEW

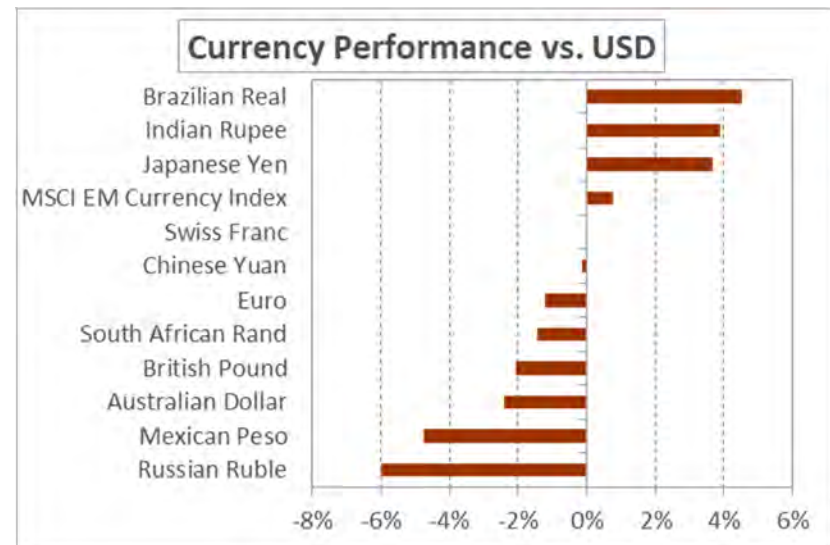
Q4 Macro Market Summary

- Global growth has been revised lower and the outlook is likely to moderate in 2019
- Developed government bond yields decreased as demand for safe haven assets increased
- Global liquidity tightened as the Fed raised rates and the ECB ended the expansion of its QE program

Central Banks	Current Rate	CPI YOY	Notes from the Quarter
Federal Reserve	2.25% - 2.50%	2.2%	The Fed increased its benchmark interest rate 0.25% to 2.25% - 2.50% in December
European Central Bank	0.0%	1.9%	The ECB maintained its current benchmark interest rate, but ended the expansion of its QE bond-buying program
Bank of Japan	-0.1%	0.8%	The BoJ will continue its ultra-easy QE program with inflation remaining well below target

	Yield 09/29/18	Yield 12/31/18	Δ
US 10-Yr	3.06%	2.68%	-0.38%
US 30-Yr	3.21%	3.01%	-0.19%
US Real 10-Yr	0.92%	0.97%	0.05%
German 10-Yr	0.47%	0.24%	-0.23%
Japan 10-Yr	0.13%	0.00%	-0.13%
China 10-Yr	3.63%	3.31%	-0.32%
EM Local Debt	6.62%	6.46%	-0.17%

Source: Bloomberg



Source: Bloomberg



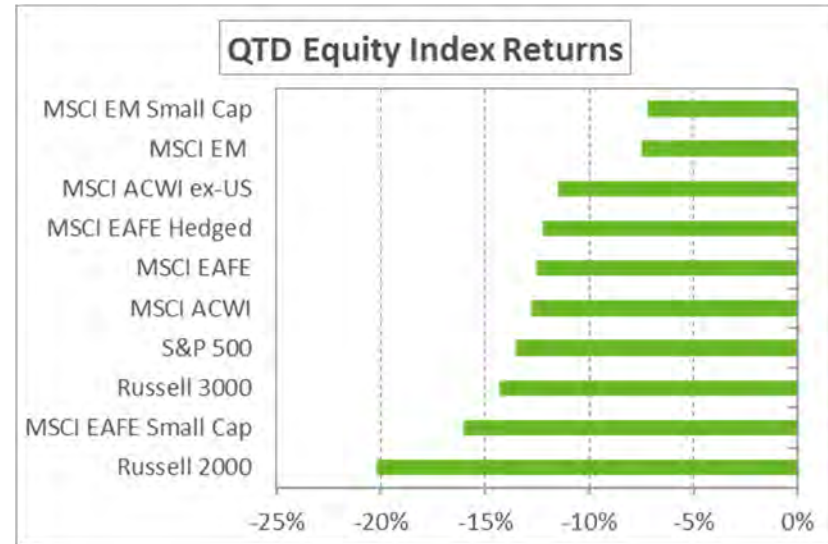
EQUITY PERFORMANCE OVERVIEW

Q4 Equity Market Summary

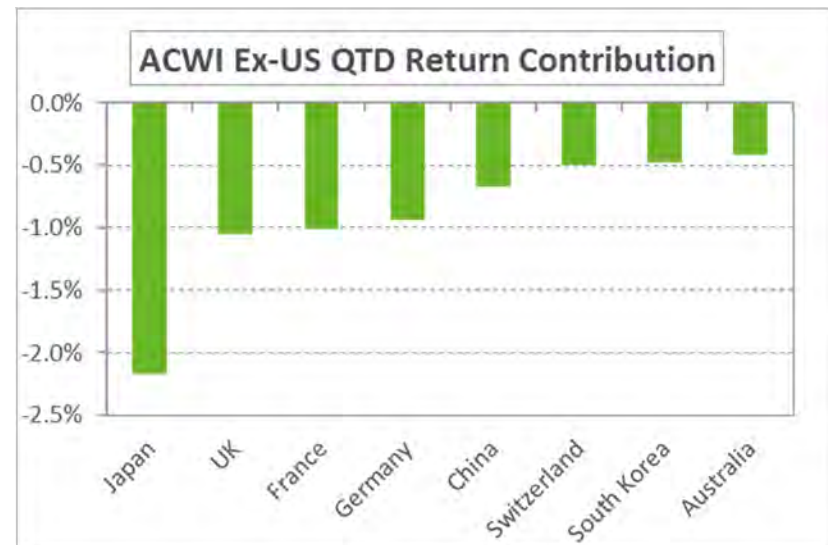
- US equities led the global equity sell-off and developed market indices moved into a bear market
- Equities markets were volatile as ongoing trade concerns and fears of global growth slowdown weighed on investor sentiment

Russell 3000 QTD Sector Return Contribution	
Information Technology	-3.35%
Consumer Discretionary	-1.80%
Financials	-1.80%
Industrials	-1.82%
Consumer Staples	-0.35%
Energy	-1.42%
Materials	-0.43%
Health Care	-1.52%
Real Estate	-0.22%
Communication Services	-1.64%
Utilities	0.02%

Source: Russell, Bloomberg



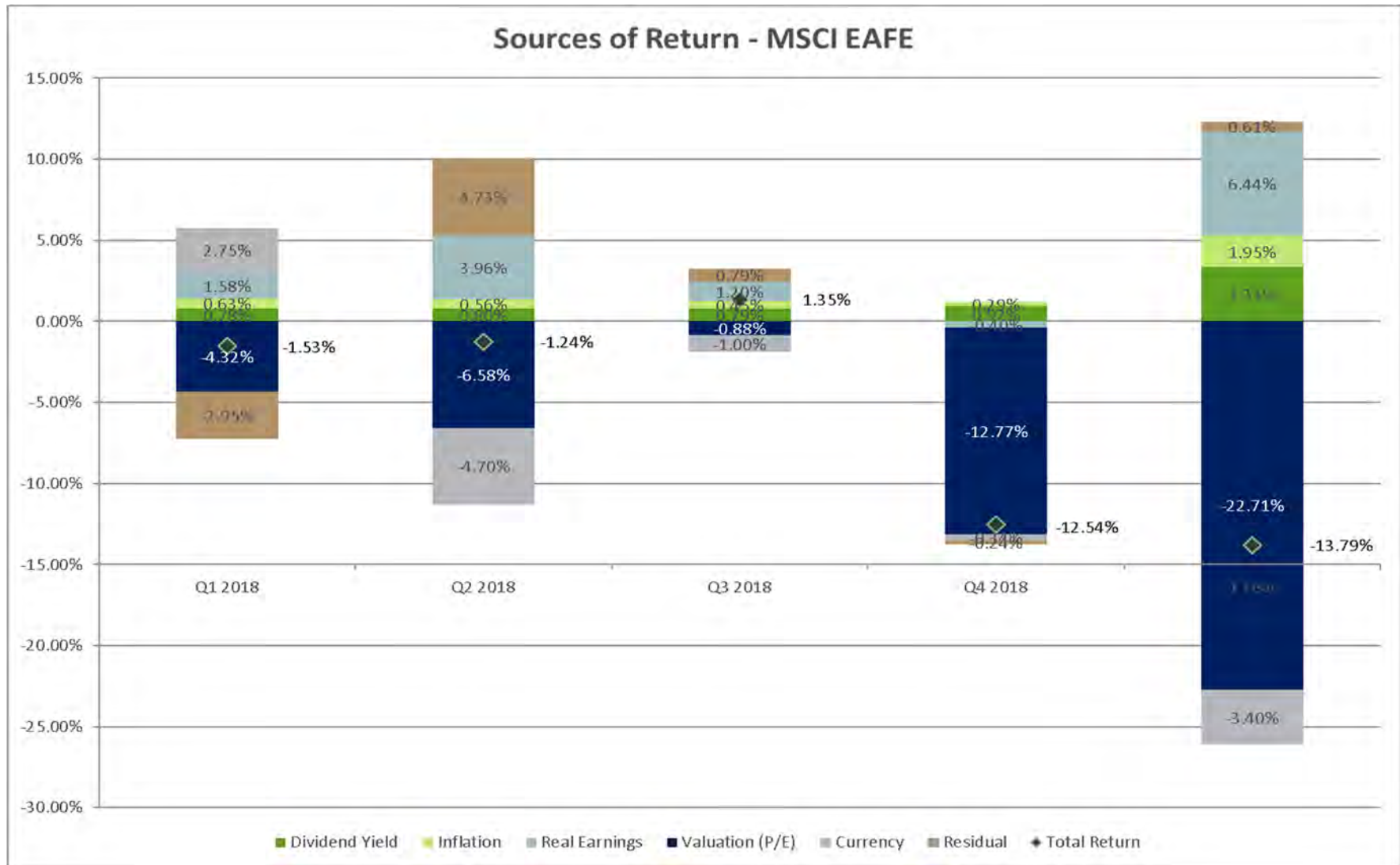
Source: MSCI, Russell, S&P, Bloomberg



Source: MSCI, Bloomberg. QTD top country contributors to index return



1 YEAR ATTRIBUTION OF MSCI EAFE RETURNS



Spot Rates

1 USD = 0.813 Euro

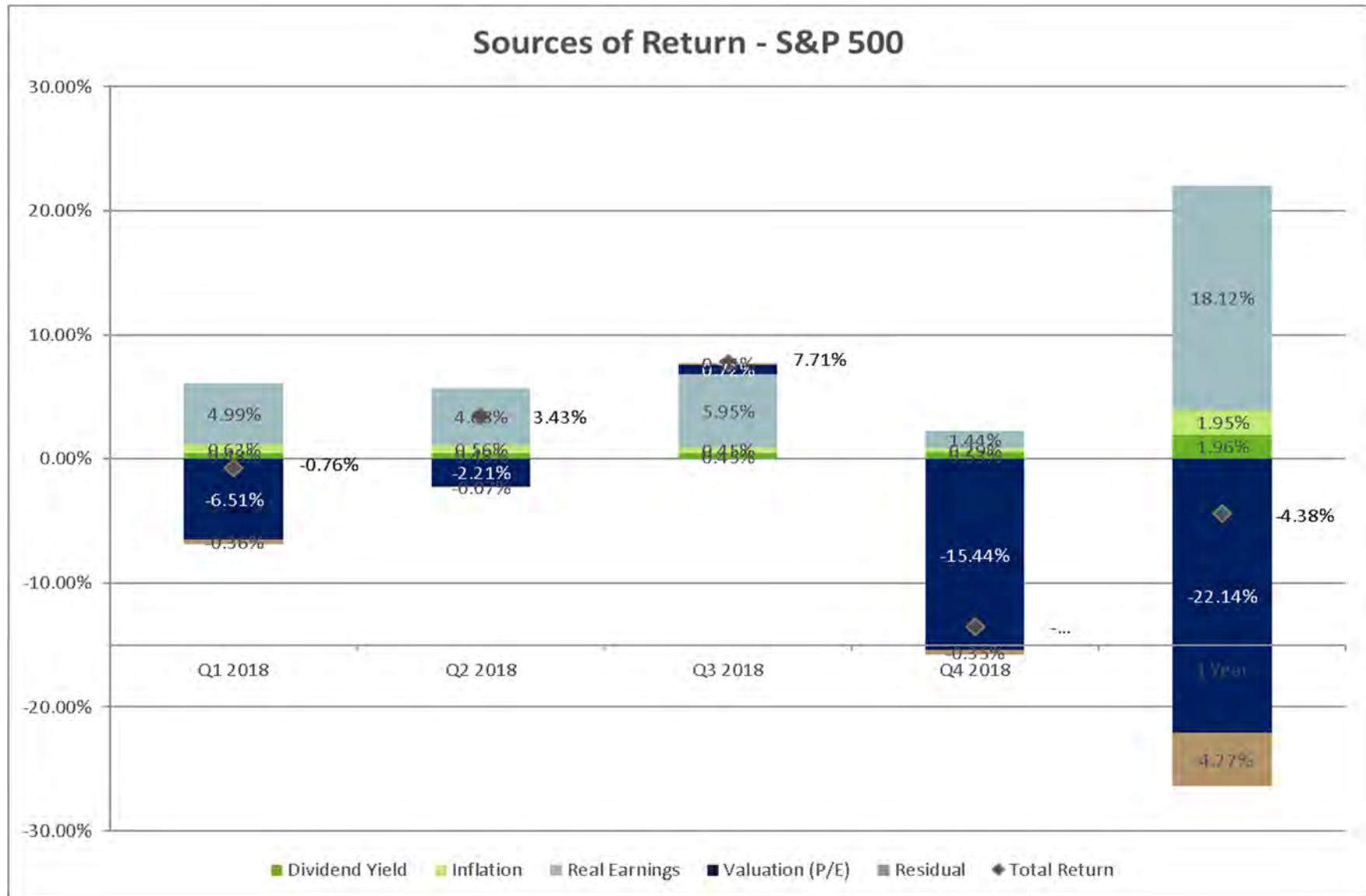
1 USD = 0.858 Euro

1 USD = 0.862 Euro

1 USD = 0.870 Euro



1 YEAR ATTRIBUTION OF S&P 500 RETURNS



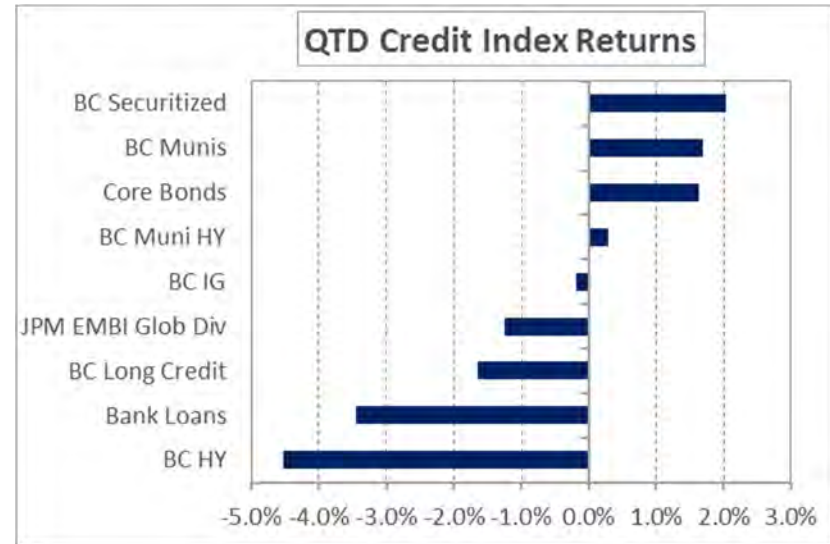
CREDIT PERFORMANCE OVERVIEW

Q4 Credit Market Summary

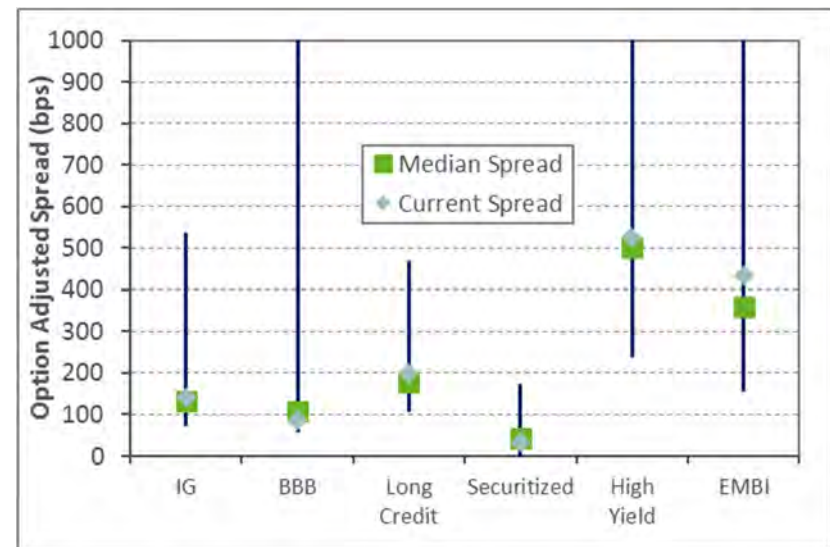
- Credit spreads broadly increased across most areas of the market
- Riskier assets underperformed as demand for high quality and safe-haven assets increased
- Bank loans declined by 3.5% as market outflows weighed on asset prices

Credit Spread (Basis Points)	09/30/18	12/31/18	\u0394
BC IG Credit	100	143	43
BC Long Credit	153	200	47
BC Securitized	28	35	7
BC High Yield	316	526	210
Muni HY	184	236	52
JPM EMBI	362	435	73
Bank Loans - Libor	281	414	133

Source: Barclays, Merrill Lynch, JPM, Bloomberg, NEPC



Source: Barclays, JPM, S&P, Bloomberg



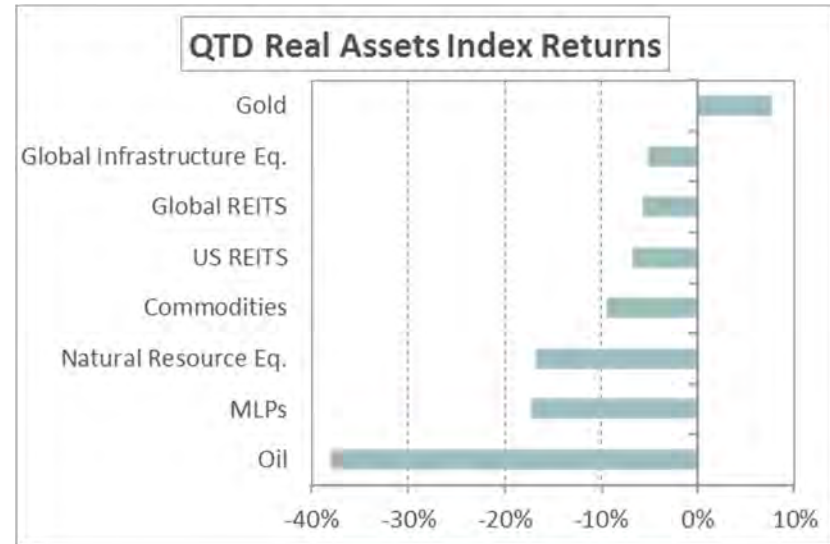
Source: Barclays, JPM, S&P, Bloomberg; as of 01/31/2000



REAL ASSETS PERFORMANCE OVERVIEW

Q4 Real Assets Market Summary

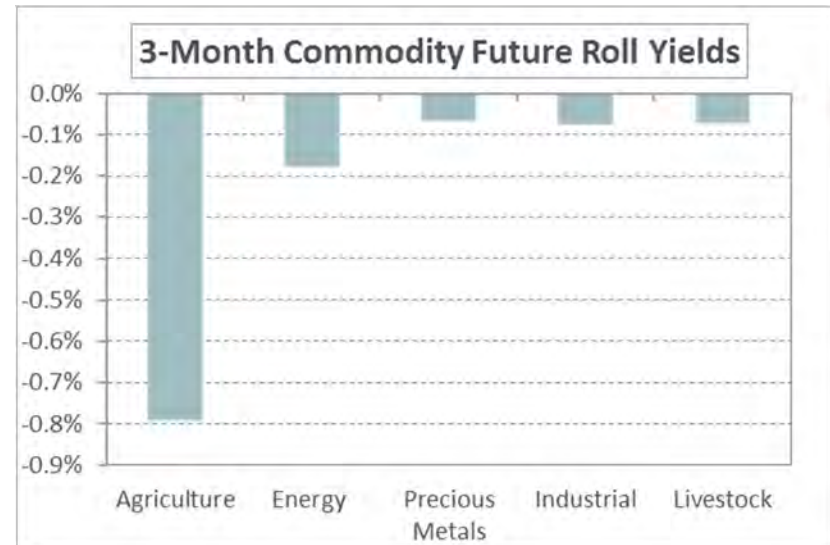
- Oil declined 38% for the quarter due to an increase in supply led by US shale production
- MLPs decreased 17.3% under pressure from falling energy prices and investor outflows
- Commodities declined overall due to the substantial decline in oil markets



Source: S&P, NAREIT, Alerian, Bloomberg

Real Asset Yields	09/30/18	12/31/18
MLPs	8.0%	9.0%
Core Real Estate	4.4%	4.5%
US REITs	4.2%	4.6%
Global REITs	3.7%	3.9%
Global Infrastructure Equities	4.5%	4.6%
Natural Resource Equities	3.5%	4.5%
US 10-Yr Breakeven Inflation	2.1%	1.7%
Commodity Index Roll Yield	-1.2%	-6.1%

Source: NCREIF, Alerian, NAREIT, S&P, Bloomberg



Source: Bloomberg, NEPC Calculated as of 09/28/2018



2019 SUMMARY OUTLOOK

Market dynamics shifted significantly in 2018, with Fed policy and US-China trade tensions disrupting many of our key market themes

As a result we have removed Federal Reserve Gradualism, Extended US Economic Cycle, and Global Synchronized Growth as key themes

We believe we have entered a late-cycle market environment and the dynamics of such an environment will be a focal point for investors

However, late-cycle does not mean end of cycle and equities can still offer lucrative returns, though are likely to be accompanied by additional volatility

We encourage investors to rebalance developed market equity exposure

We have downgraded our outlook for non-US developed equities and removed the overweight recommendation from our current opportunities list

The main driver of the change is negative sentiment surrounding economic and political conditions of Europe, concerns related to the earnings growth outlook, and central banks paring back their support of easy financial conditions

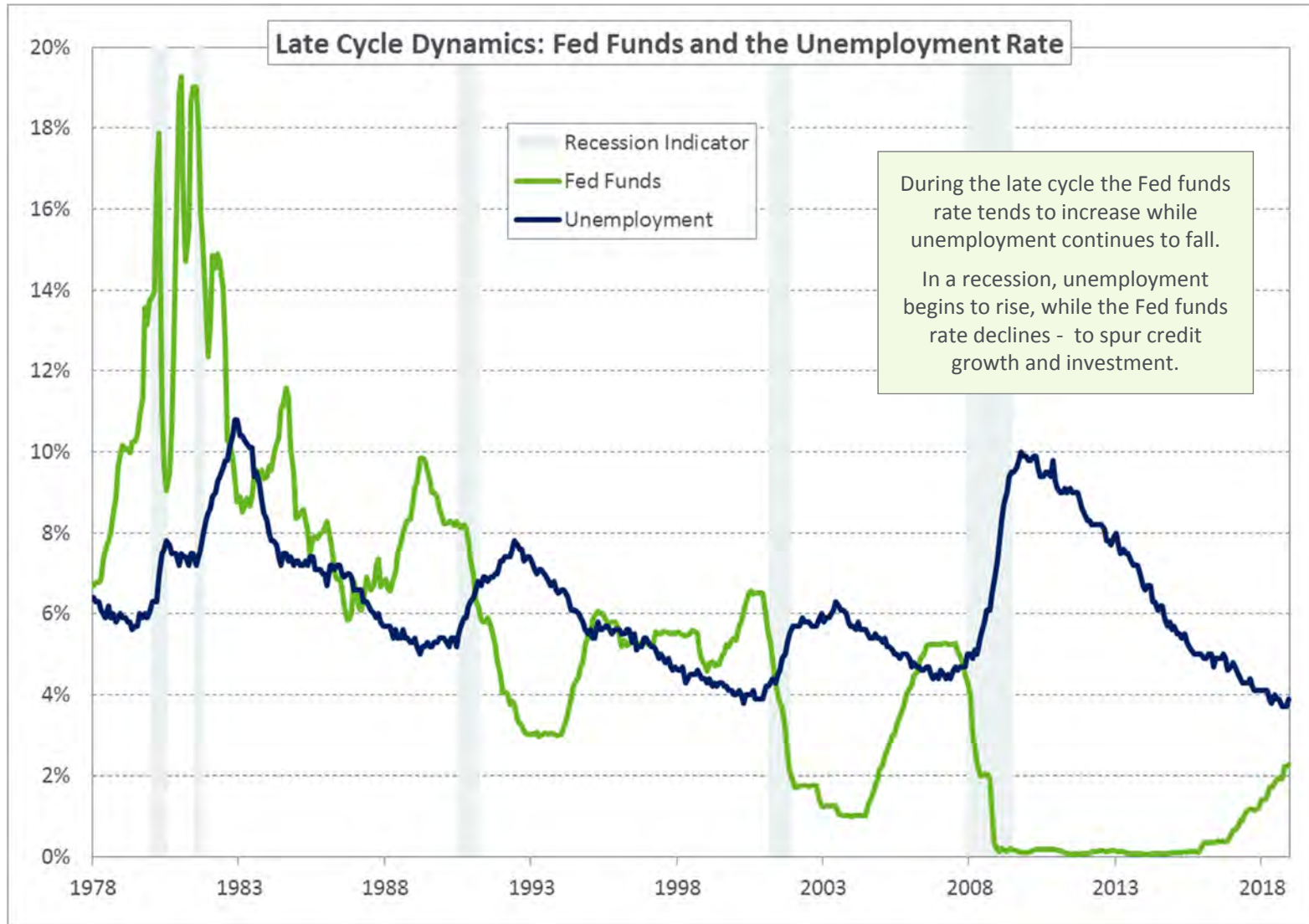
The transition to a late-cycle is accompanied with a more risk-averse investment outlook as economic risks become more pronounced

After years of low volatility and outsized equity returns, the market is likely to transition to a higher volatility regime, which offers more risk but also tactical opportunities

We recommend reducing lower quality credit exposure as higher default rates are a common aspect of late-cycle market dynamics



THE ECONOMIC CYCLE IS IN TRANSITION



Source: St. Louis Federal Reserve, NBER



KEY MARKET THEMES

Late Cycle Dynamics

The US economy has transitioned from a mid- to late-cycle environment

Late cycle does not mean end of cycle; equity markets can offer strong returns and abandoning risk assets early may detract from long-term results

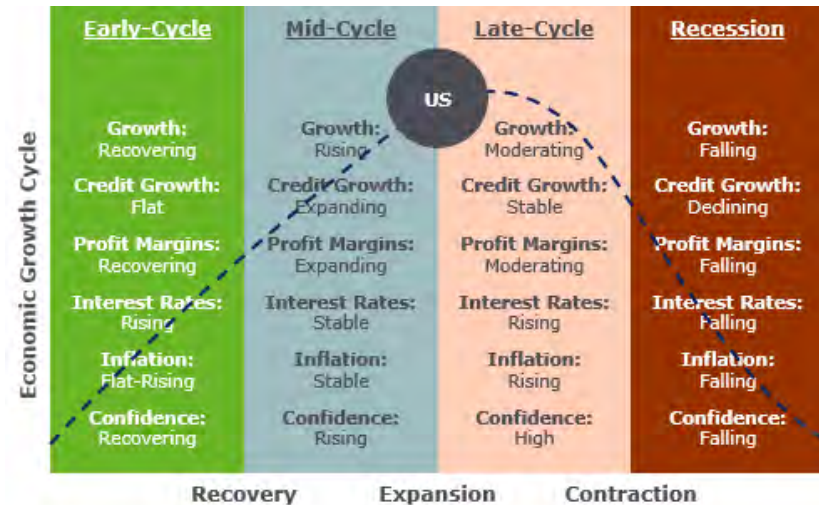
Positive economic data can support continued US economic expansion and further equity gains

However, moving into a late cycle negatively skews the range of outcomes and our investment outlook reflects a more risk-averse posture with a bias toward selling low quality credit and increasing safe-haven fixed income exposure

Trends among key indicators suggest a transition to late-cycle has occurred

These indicators provide a useful guide to recognize changes in the economic cycle

Despite the recent trend, there is minimal evidence in economic/financial indicators to suggest that a US recession is imminent

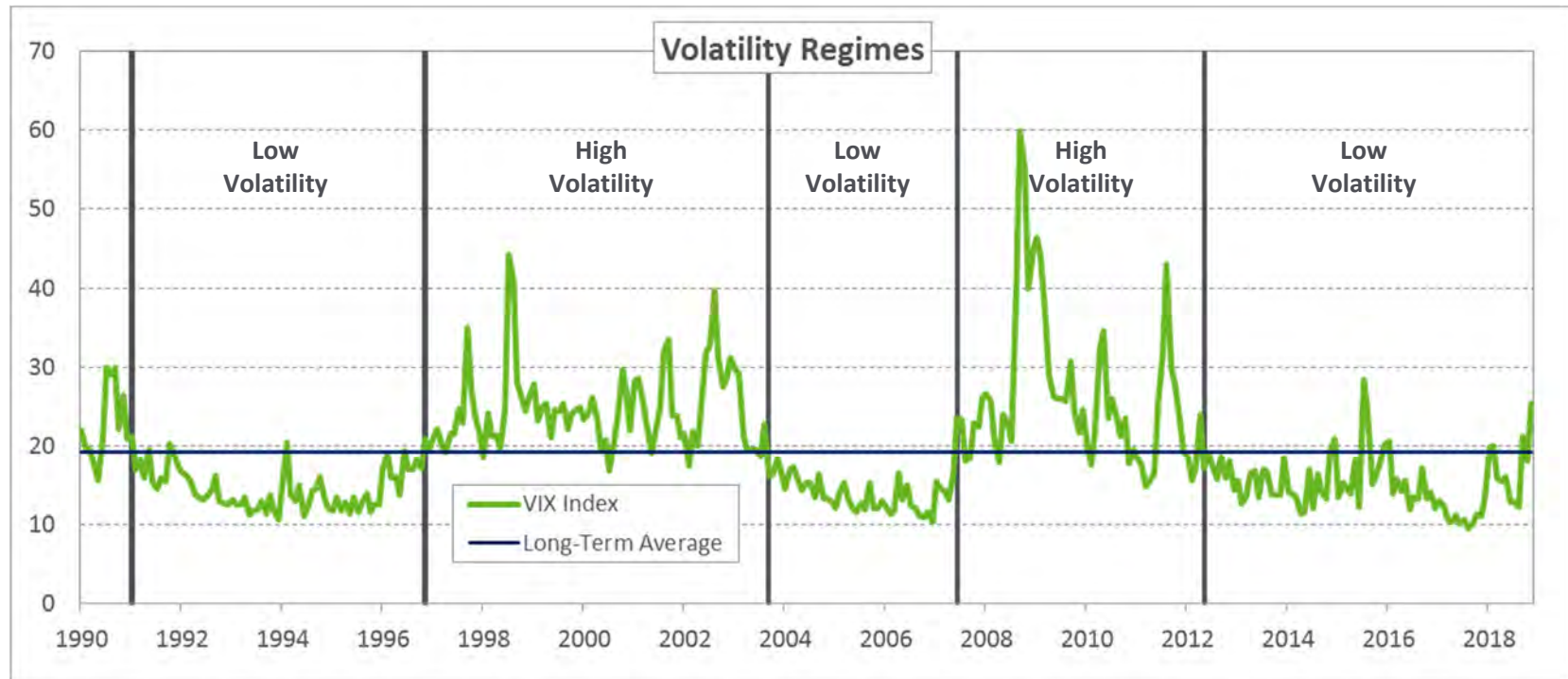


US Indicators	Late-Cycle Trend	Current Trend
Equities	Peaking	Uncertain
Interest Rates	Rising	Yes
Yield Curve	Flattening	Yes
Inflation	Rising	Yes
GDP Growth	Moderating	Uncertain
Credit Spreads	Stable/Rising	Yes
Output Gap	Near/Above Potential	Yes
Unemployment	Falling/Bottoming	Uncertain

Source: (Top) NEPC
Source: (Bottom) NEPC



BRACE FOR HIGHER VOLATILITY IN 2019



Source: S&P, CBOE, Bloomberg, NEPC

Equity volatility regimes tend to persist over prolonged periods and 2018 was witness to a material shift higher in equity volatility

We encourage investors to raise “safe haven” fixed income exposure as trends associated with each of our key market themes suggest higher volatility is on the horizon

2019 may prove to be a difficult year for markets but higher volatility can also offer a greater number of opportunities for dynamic investors

Investors should be prepared to act in a higher volatility regime, as dynamic opportunities may arise to deploy safe-haven assets back into US equity and other risk assets



KEY MARKET THEMES

Tightening Global Liquidity

The Fed has shifted from a “lower for longer” policy to a more balanced posture of raising rates in line with higher inflation

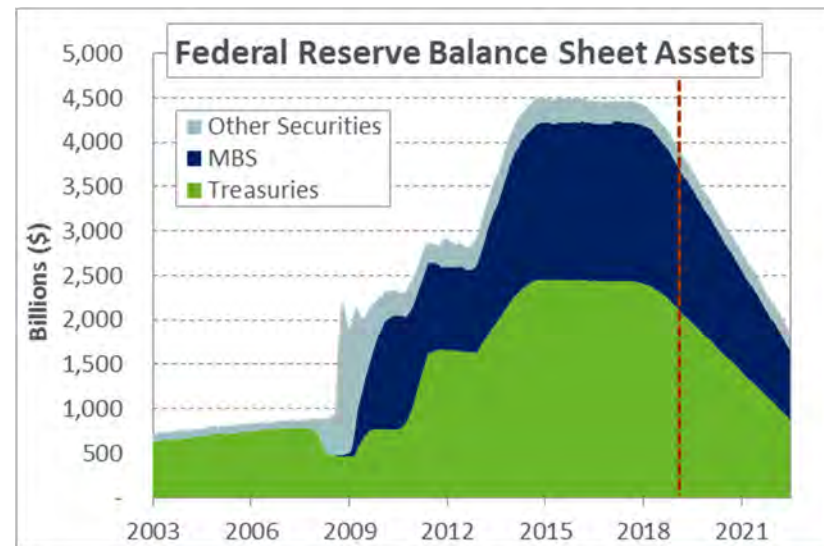
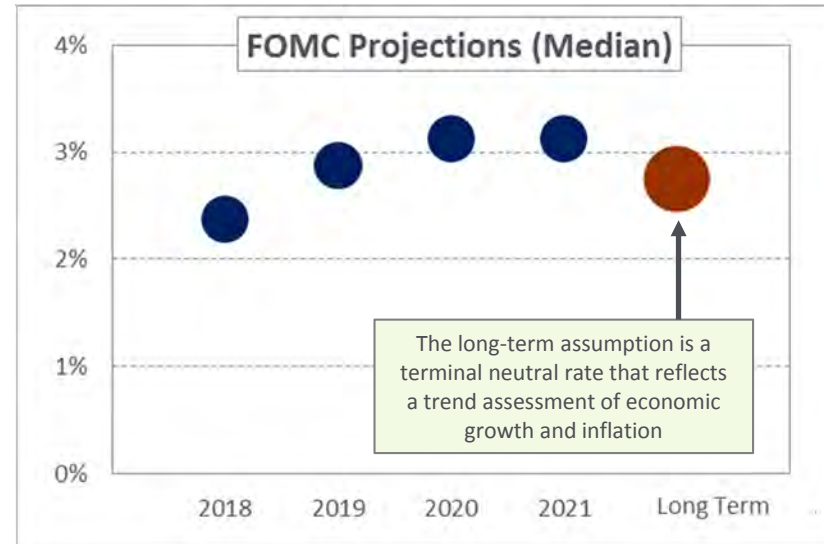
Based on the FOMC projections, the Fed is communicating a tightening path as their forecast for interest rate hikes moves beyond the long-term neutral rate

Markets are discounting a muted pace of hikes relative to Fed projections, creating potential for capital market disruption. However, the Fed’s bias appears to be to raise rates in the absence of market turmoil

The Fed’s balance sheet has shrunk by \$400B and will continue to decline by a monthly maximum target of \$50B

Normalization of the balance sheet is a form of monetary policy tightening as liquidity is methodically extracted from the system

The impact of the balance sheet reduction is untested – potentially mirroring how the Fed’s balance sheet expansion (QE) had easing effects



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



KEY MARKET THEMES

China Transitions

China is the global growth engine but faces fundamental transitions

China's economy is transitioning from a focus on production and investment to a service and consumption based economy

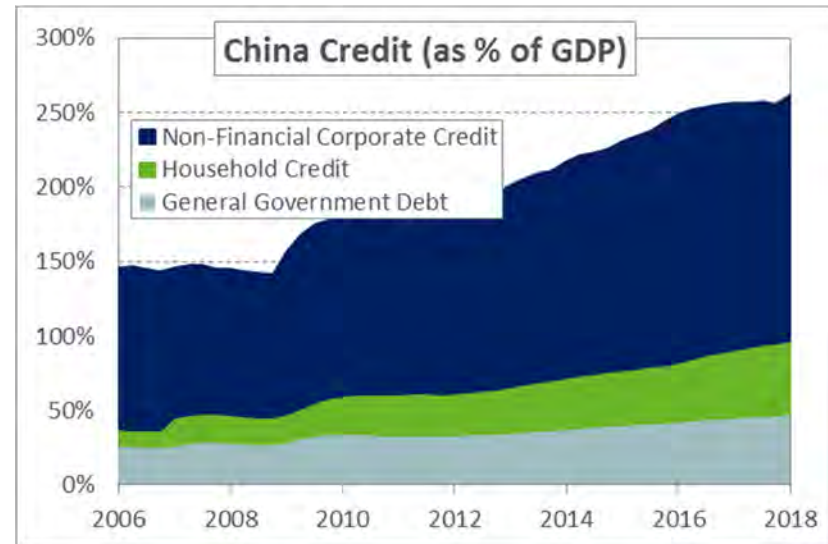
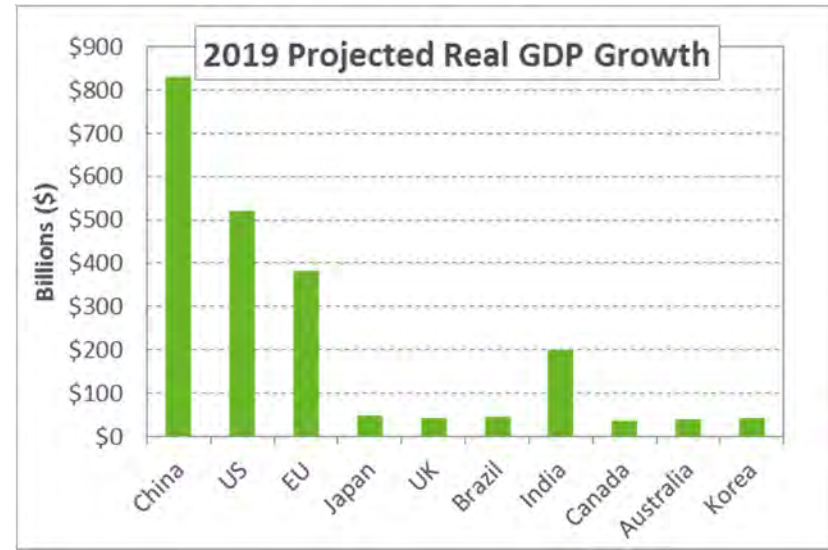
Fixed investment and credit expansion is needed to sustain the "old" production-based economy and support employment as the population shifts to urban centers

Any disruption to these transitions will be transmitted globally due to China's outsized role in the world economy

Policy makers must continue to balance goals of moderating credit expansion against sustaining healthy economic growth rates

Recent shifts in policy suggest a tilt away from credit moderation to offset the harmful effects of the US-China trade dispute

However, an uncontrolled expansion of credit growth and real estate development pose a future systemic risk to the economy



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



HIGHLIGHTS OF FOURTH QUARTER HAPPENINGS AT NEPC

NEPC INSIGHTS

NEPC, LLC PRESENTS

ACTIVE MANAGERS & MARRIAGE

WHAT THEY HAVE IN COMMON AND WHY WE DON'T ALL JUST INDEX

- 1. YOU EXPECT TO MARRY**
Marriage (active management) is the oldest and most universal institution. 
- 2. FIRST COMES LOVE, THEN COMES MARRIAGE**
You're in love (great 3-5 year track record). Past performance is not indicative of future results.
- 3. YOU SAY FOR BETTER OR FOR WORSE, BUT YOU DON'T MEAN IT**
You know 50% of marriages (active managers) fail. 
- 4. THERE ARE UPS AND DOWNS**
You didn't really consider volatility. Where's the person (manager) you remember from a few years ago?
- 5. YOU WANT WHAT OTHER COUPLES HAVE**
Other managers' results look better than yours.
- 6. SOME MARRIAGES SUCCEED**
Some fail. It can take time to bring back that lovin' feeling.
- 7. THE PAYOFF IS WORTH IT**
Enduring the ups and downs of any relationship can be well worth it in the long-run. We believe in active management, but go forth with reasonable expectations. 

Authorized by Tim Fitzgerald, longtime husband and active investor (often struggling with both), and never married, ever patient investor Christine Loughlin. In their roles as defined contribution consultants, they regularly advise clients about active and passive management. All opinions expressed are solely their own and do not reflect the opinions of NEPC, LLC. Look for their companion piece on In-Laws and Income Solutions.

nepc.com    

- Defined Contribution Financial Wellness Results: Is All Well(ness) and Good?
- Low-Basis Assets: Developing a Plan to Avoid Investor Inertia
- Defined Contribution: Active Management and Marriage, Part 1
- Defined Contribution: In-Laws & Income Solutions, Part 2
- Taking Stock: NEPC Drops Fed Gradualism Theme
- It's November: Year-End Tax-Planning Starts Now
- 2018 Third Quarter Market Thoughts
- Partial Annuitizations: The Go-To Strategy for Pension Risk Transfers
- NEPC 2018 Corporate DB Outlook Results: Plans to De-Risk Portfolio and Invest in Alternative Assets
- Taking Stock: Hedge Funds: A New World Post-Crisis
- Don't Let the Tail Wag the Dog: For Insurers, It's Investment Discipline First, Capital Efficiency Second
- Taking Stock: Decision Time for Pension Plans and Q3 Liability Performance
- NEPC's 2018 Hedge Fund Operational Due Diligence Survey Results
- Make an Impact in the Season of Giving
- NEPC's Year-End 2018 Endowments & Foundations Survey Results: Storms Ahead, But Staying the Course
- Taking Stock: Making Sense of Recent Market Movements

WEBINAR REPLAYS

- NEPC's Third Quarter 2018 Quarterly Markets Call
- Total Enterprise Management for Endowments and Foundations

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



SAVE THE DATE



MAY 7-8, 2019 | BOSTON PARK PLAZA | #NEPC_CONFERENCE



NEPC's 24th Annual Investment Conference

- Gradual or dramatic, the economic and political worlds around us are going through major transition. Whether it be global resources, climate, political power, technology, demographics or personal habits, adapting and advancing through these shifts has become a regularity. Most importantly, as we transition our daily processes, so do we transition our investment approaches. Please join us for **NEPC's 24th Annual Investment Conference on May 7-8, 2019** at the Boston Park Plaza Hotel, as we address the 'Transitions' we are experiencing and what lies ahead.
- Please reach out to Sarah Winrow at swinrow@nepc.com if you have any questions.



TOTAL FUND PERFORMANCE SUMMARY

NEPC, LLC

Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE SUMMARY (NET)

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Inception	Inception Date
Total Fund	\$5,198,137,872	-7.5%	64	-4.3%	38	-3.5%	38	6.7%	21	5.1%	28	9.5%	7	7.7%	Apr-94
<i>Policy Index</i>		-8.0%	76	-4.7%	49	-3.6%	41	6.7%	21	5.5%	12	9.1%	20	7.7%	Apr-94
<i>60% MSCI ACWI (Net) / 40% FTSE WGBI</i>		-7.1%	55	-5.3%	67	-5.8%	85	5.2%	96	3.0%	99	6.5%	99	--	Apr-94
<i>60% S&P 500 / 40% BBgBarc Aggregate</i>		-7.6%	64	-3.3%	16	-2.3%	19	6.5%	28	6.2%	6	9.4%	9	8.0%	Apr-94
<i>InvestorForce Public DB > \$1B Net Median</i>		-6.9%		-4.7%		-4.0%		6.0%		4.6%		8.2%		7.0%	Apr-94

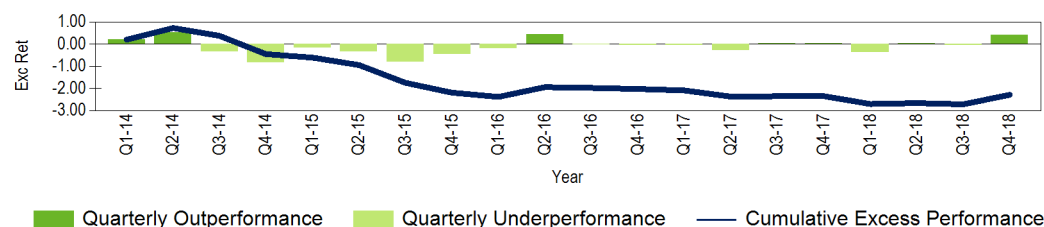
- For the five year period ending December 31, 2018, the Fund returned 5.1% trailing the policy index by 0.4% and ranking in the 28th percentile of its peers and underperforming the actuarial assumed rate of 7.25%. The Fund's volatility, as measured by standard deviation, ranked in the 77th percentile of its peers, and the risk-adjusted return, or Sharpe Ratio, ranks in the 52nd percentile. This means that the Fund has earned more return per unit of volatility taken than 48% of its peers.

- For the three-year period, the Fund returned 6.7%, performing in line with the policy index and ranking in the 21st percentile of its peers. The Fund's volatility ranks in the 76th percentile of its peers over this period, with the Fund's Sharpe Ratio ranking in the 49th percentile.

- For the one-year period, the Fund returned -3.5%, outperforming the policy index by 0.1% and ranking in the 38th percentile of the InvestorForce Public Funds > \$1 Billion Universe (Net of fees).

- For the one-year period, the Fund experienced a net investment loss of \$183.2 million which includes a net investment loss of \$483.2 million in the quarter. Assets decreased from \$5.42 billion one year ago to \$5.20 billion.

Quarterly and Cumulative Excess Performance



3 Years Ending December 31, 2018								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	6.7%	21	6.6%	76	0.9	49	0.9	38
Policy Index	6.7%	21	6.7%	81	0.8	51	0.8	59
InvestorForce Public DB > \$1B Net Median	6.0%	--	5.8%	--	0.8	--	0.9	--

5 Years Ending December 31, 2018								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	5.1%	28	6.7%	77	0.7	52	0.9	45
Policy Index	5.5%	12	6.6%	75	0.7	35	0.9	36
InvestorForce Public DB > \$1B Net Median	4.6%	--	5.9%	--	0.7	--	0.8	--

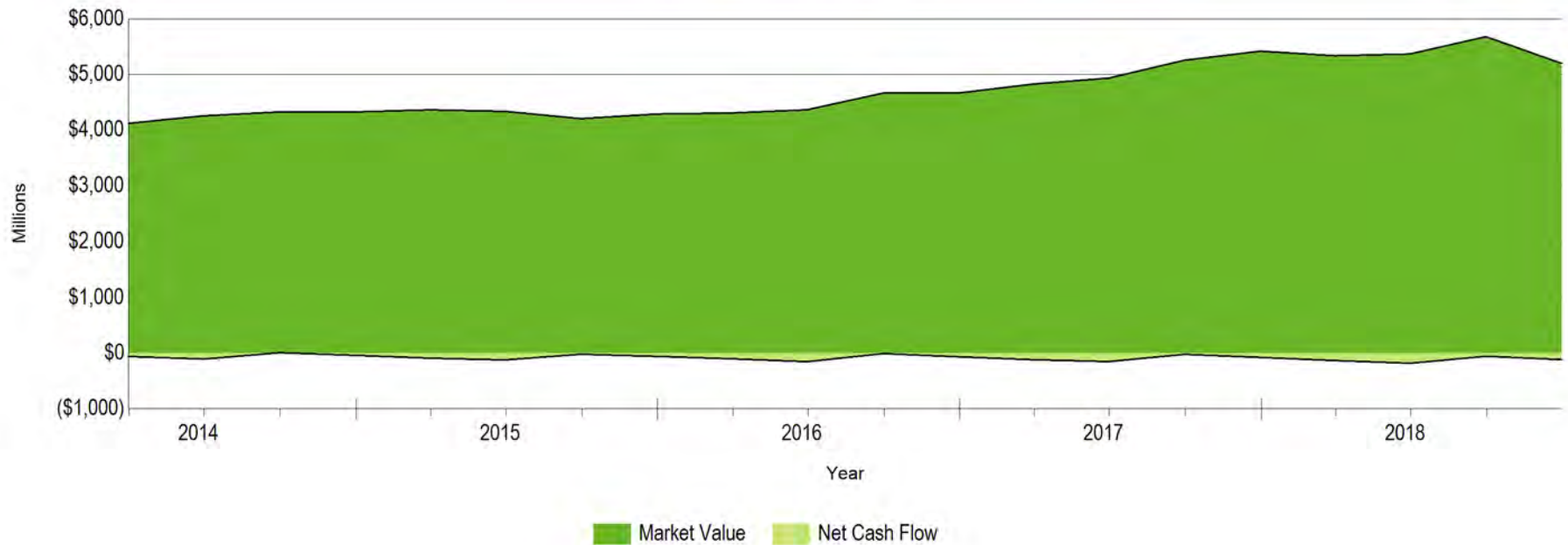
Policy Index as of January 2016: 28% Russell 3000 Index, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% Russell 3000 Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.



Ventura County Employees' Retirement Association

TOTAL FUND ASSET GROWTH SUMMARY

Market Value History
5 Years Ending December 31, 2018

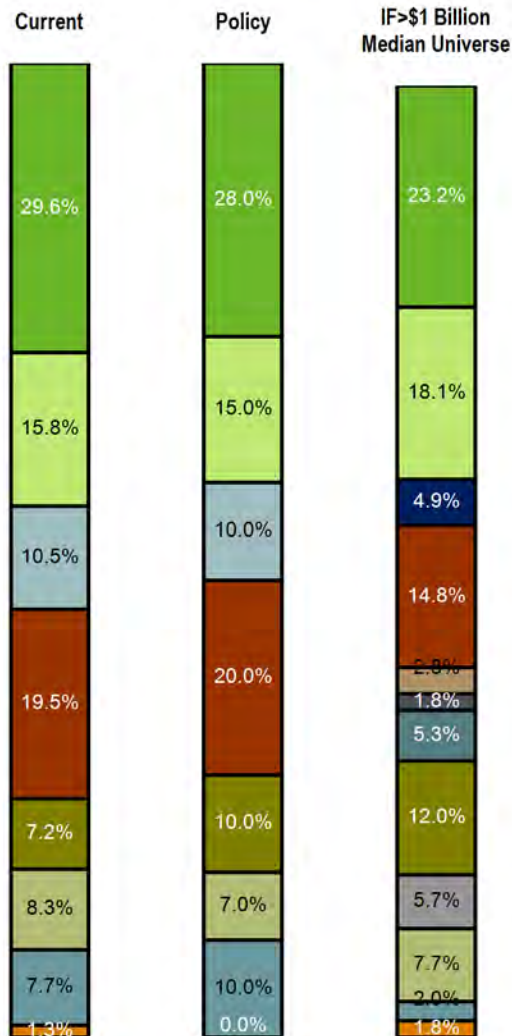


Summary of Cash Flows					
	Last Three Months	Fiscal Year-To-Date	One Year	Three Years	Five Years
Beginning Market Value	\$5,681,345,338	\$5,370,442,517	\$5,420,490,945	\$4,290,811,595	\$4,092,440,847
Net Cash Flow	-\$59,963,396	\$65,526,583	-\$39,202,926	-\$58,244,769	-\$115,894,012
Net Investment Change	-\$423,244,071	-\$237,831,228	-\$183,150,147	\$965,571,046	\$1,221,591,037
Ending Market Value	\$5,198,137,872	\$5,198,137,872	\$5,198,137,872	\$5,198,137,872	\$5,198,137,872



Ventura County Employees' Retirement Association

TOTAL FUND ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target						
	Current	Current	Policy	Difference*	Policy Range	Within Range
U.S. Equity	\$1,540,549,958	29.6%	28.0%	1.6%	24.0% - 32.0%	Yes
Non-US Equity	\$823,353,475	15.8%	15.0%	0.8%	12.0% - 18.0%	Yes
Emerging Markets Equity	--	--	--	0.0%		
Global Equity	\$545,347,212	10.5%	10.0%	0.5%	7.0% - 13.0%	Yes
U.S. Fixed Income	\$1,012,479,844	19.5%	20.0%	-0.5%	16.0% - 24.0%	Yes
Non-U.S. Fixed Income	--	--	--	0.0%		
Fixed Income - Emerging	--	--	--	0.0%		
GTAA	--	--	--	0.0%		
Private Equity	\$374,799,439	7.2%	10.0%	-2.8%	0.0% - 12.0%	Yes
Hedge Funds	--	--	--	0.0%		
Real Estate	\$433,137,514	8.3%	7.0%	1.3%	4.0% - 10.0%	Yes
Real Assets	\$402,539,646	7.7%	10.0%	-2.3%	5.0% - 15.0%	Yes
Cash	\$65,930,785	1.3%	0.0%	1.3%	0.0% - 3.0%	Yes
Total	\$5,198,137,872	100.0%	100.0%			

*Difference between Policy and Current Allocation

Cash represents assets in Parametric Overlay.

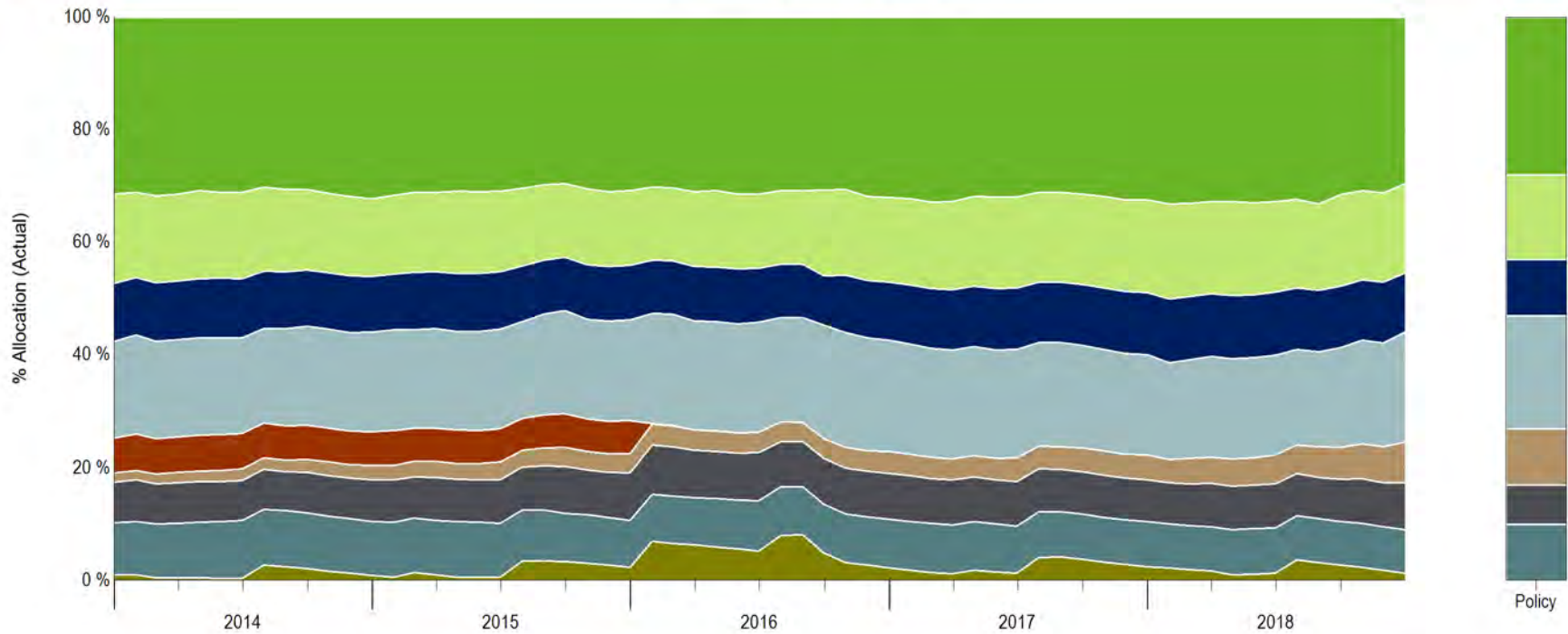
Policy Index as of January 2016: , 28% Russell 3000 Index, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% Russell 3000 Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.

Asset Allocation vs. Policy Targets chart does not reflect Overlay adjusted weights.



TOTAL FUND ALLOCATION HISTORY

Asset Allocation History
5 Years Ending December 31, 2018



- U.S. Equity
- Global Equity
- Global Bonds
- Private Equity
- Real Estate
- Real Assets
- Cash
- Non-US Equity
- U.S. Fixed Income

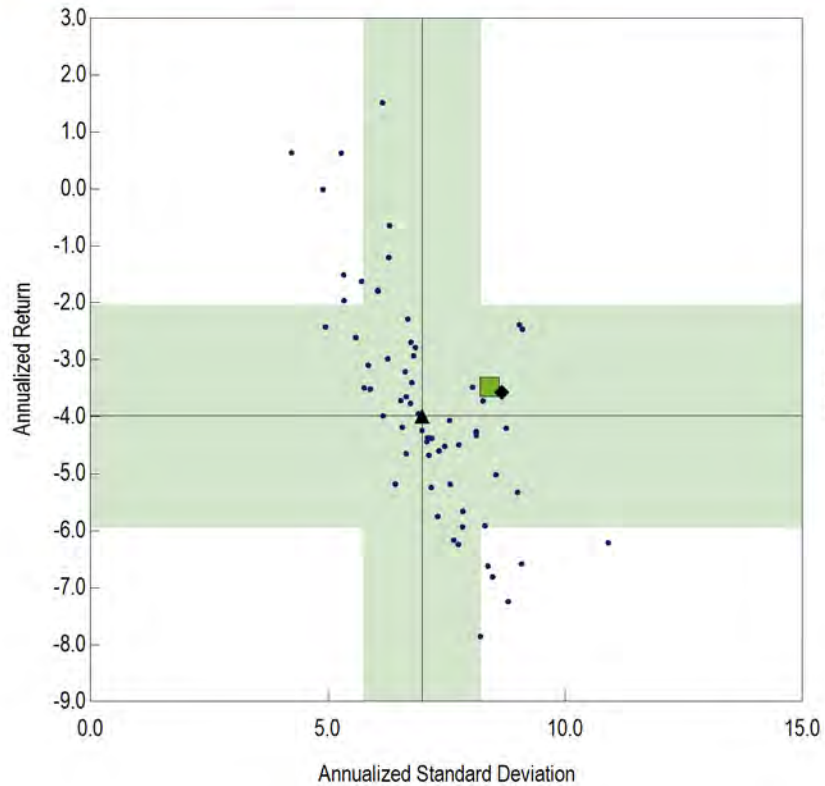
Policy Index shown is most recently approved index



Ventura County Employees' Retirement Association

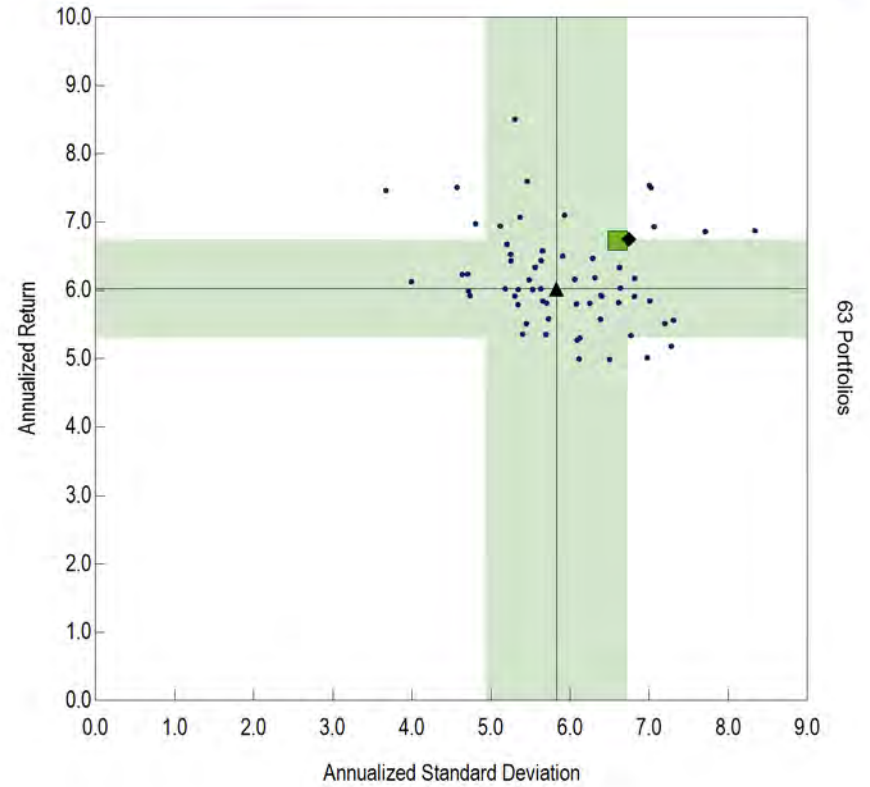
TOTAL FUND RISK/RETURN

1 Years Ending December 31, 2018



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

3 Years Ending December 31, 2018



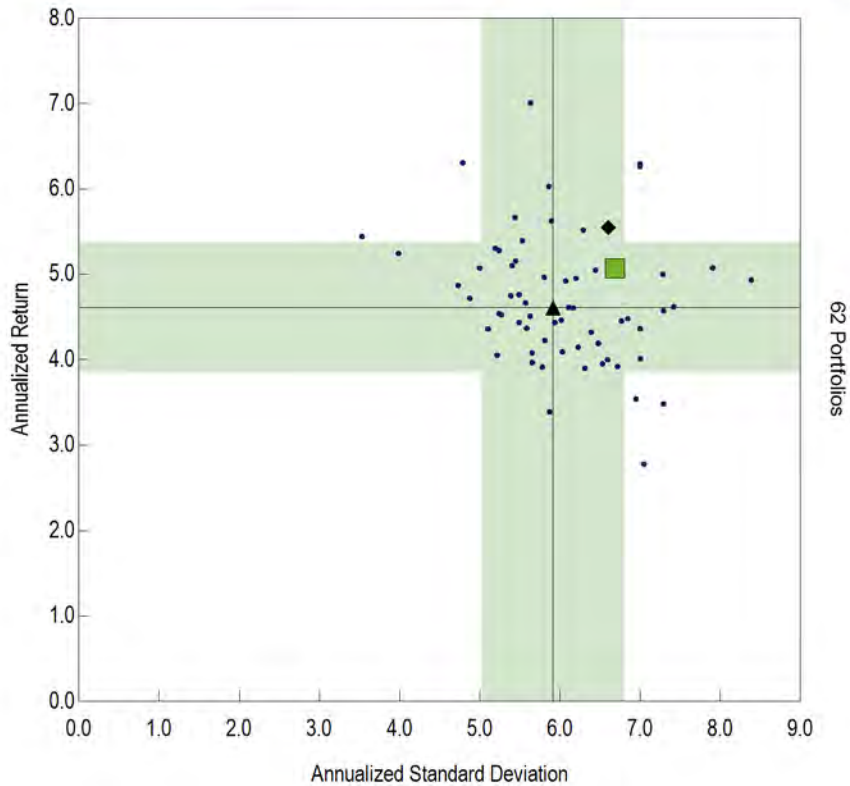
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



Ventura County Employees' Retirement Association

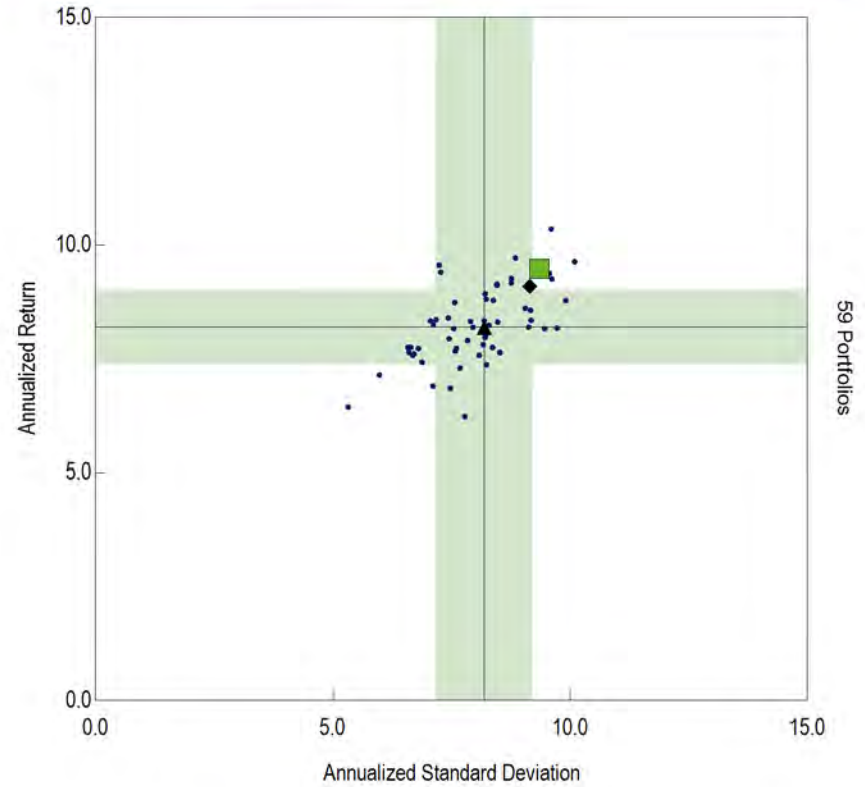
TOTAL FUND RISK/RETURN

5 Years Ending December 31, 2018



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

10 Years Ending December 31, 2018



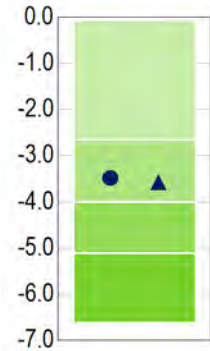
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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

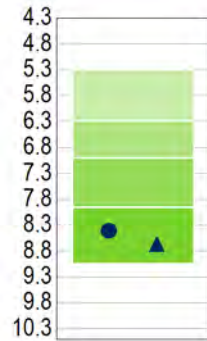
Anlzd Return



● Total Fund
Value -3.5
Rank 38
▲ Policy Index
Value -3.6
Rank 41

Universe
5th %tile -0.1
25th %tile -2.7
Median -4.0
75th %tile -5.1
95th %tile -6.6

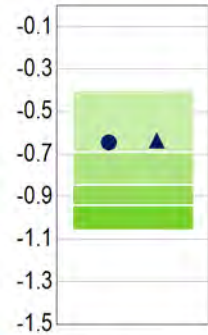
Anlzd Standard Deviation



● Total Fund
Value 8.4
Rank 87
▲ Policy Index
Value 8.7
Rank 90

Universe
5th %tile 5.3
25th %tile 6.3
Median 7.0
75th %tile 7.9
95th %tile 9.0

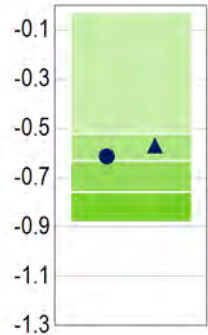
Sharpe Ratio



● Total Fund
Value -0.6
Rank 20
▲ Policy Index
Value -0.6
Rank 19

Universe
5th %tile -0.4
25th %tile -0.7
Median -0.8
75th %tile -0.9
95th %tile -1.1

Sortino Ratio



● Total Fund
Value -0.6
Rank 44
▲ Policy Index
Value -0.6
Rank 30

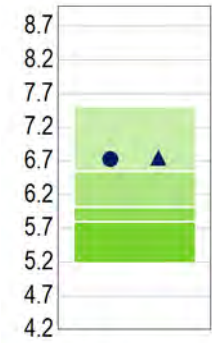
Universe
5th %tile 0.0
25th %tile -0.5
Median -0.6
75th %tile -0.8
95th %tile -0.9



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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

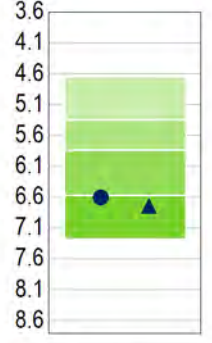
Anlzd Return



● Total Fund
Value 6.7
Rank 21
▲ Policy Index
Value 6.7
Rank 21

Universe
5th %tile 7.5
25th %tile 6.6
Median 6.0
75th %tile 5.8
95th %tile 5.2

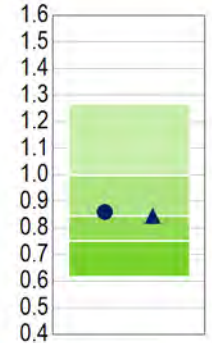
Anlzd Standard Deviation



● Total Fund
Value 6.6
Rank 76
▲ Policy Index
Value 6.7
Rank 81

Universe
5th %tile 4.6
25th %tile 5.3
Median 5.8
75th %tile 6.6
95th %tile 7.3

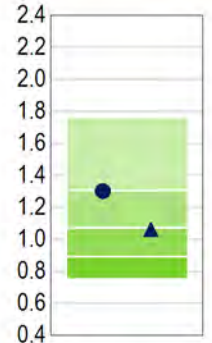
Sharpe Ratio



● Total Fund
Value 0.9
Rank 49
▲ Policy Index
Value 0.8
Rank 51

Universe
5th %tile 1.3
25th %tile 1.0
Median 0.8
75th %tile 0.8
95th %tile 0.6

Sortino Ratio



● Total Fund
Value 1.3
Rank 26
▲ Policy Index
Value 1.1
Rank 54

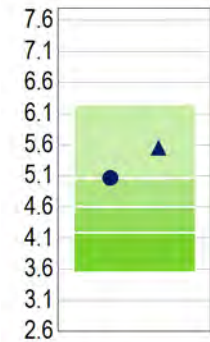
Universe
5th %tile 1.8
25th %tile 1.3
Median 1.1
75th %tile 0.9
95th %tile 0.8



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

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

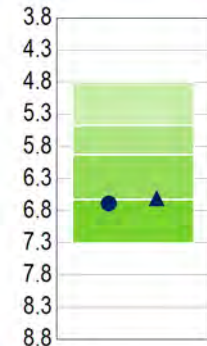
Anlzd Return



● Total Fund
Value 5.1
Rank 28
▲ Policy Index
Value 5.5
Rank 12

Universe
5th %tile 6.3
25th %tile 5.1
Median 4.6
75th %tile 4.2
95th %tile 3.6

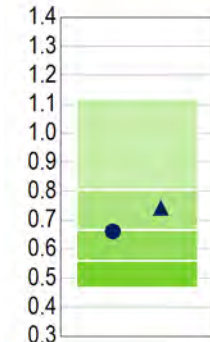
Anlzd Standard Deviation



● Total Fund
Value 6.7
Rank 77
▲ Policy Index
Value 6.6
Rank 75

Universe
5th %tile 4.8
25th %tile 5.5
Median 5.9
75th %tile 6.6
95th %tile 7.3

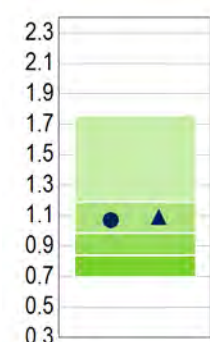
Sharpe Ratio



● Total Fund
Value 0.7
Rank 52
▲ Policy Index
Value 0.7
Rank 35

Universe
5th %tile 1.1
25th %tile 0.8
Median 0.7
75th %tile 0.6
95th %tile 0.5

Sortino Ratio



● Total Fund
Value 1.1
Rank 45
▲ Policy Index
Value 1.1
Rank 42

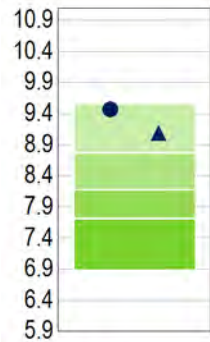
Universe
5th %tile 1.8
25th %tile 1.2
Median 1.0
75th %tile 0.8
95th %tile 0.7



TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

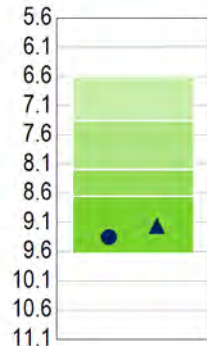
Total Fund vs. InvestorForce Public DB > \$1B Net
10 Years

Anlzd Return



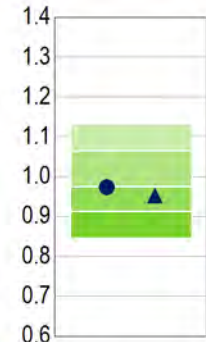
● Total Fund
Value 9.5
Rank 7
▲ Policy Index
Value 9.1
Rank 20
Universe
5th %tile 9.6
25th %tile 8.8
Median 8.2
75th %tile 7.7
95th %tile 6.9

Anlzd Standard Deviation



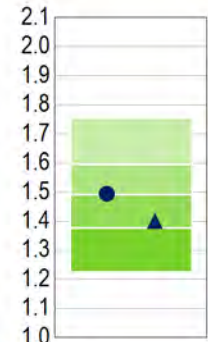
● Total Fund
Value 9.4
Rank 89
▲ Policy Index
Value 9.2
Rank 85
Universe
5th %tile 6.6
25th %tile 7.4
Median 8.2
75th %tile 8.6
95th %tile 9.6

Sharpe Ratio



● Total Fund
Value 1.0
Rank 52
▲ Policy Index
Value 1.0
Rank 59
Universe
5th %tile 1.1
25th %tile 1.1
Median 1.0
75th %tile 0.9
95th %tile 0.8

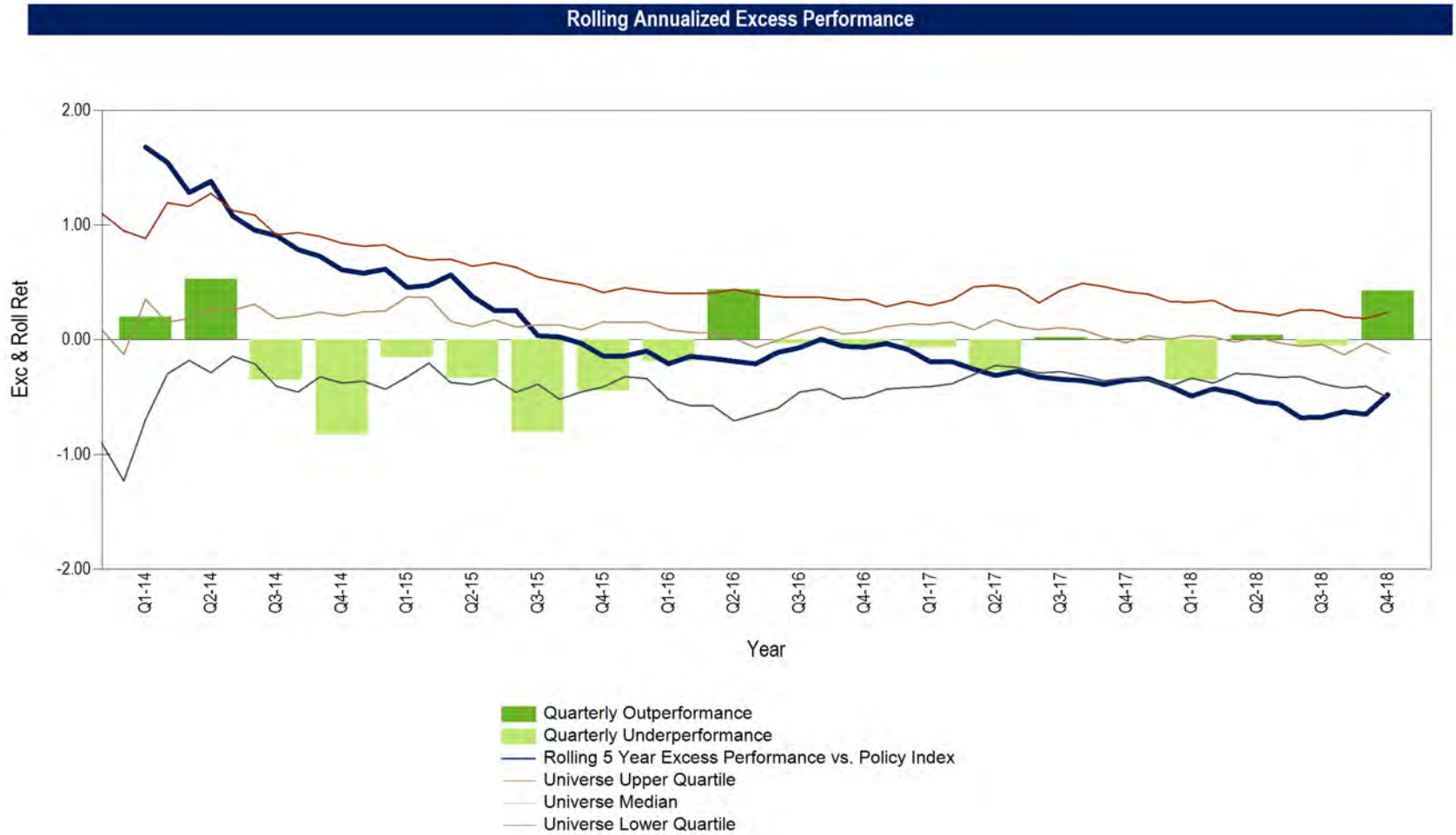
Sortino Ratio



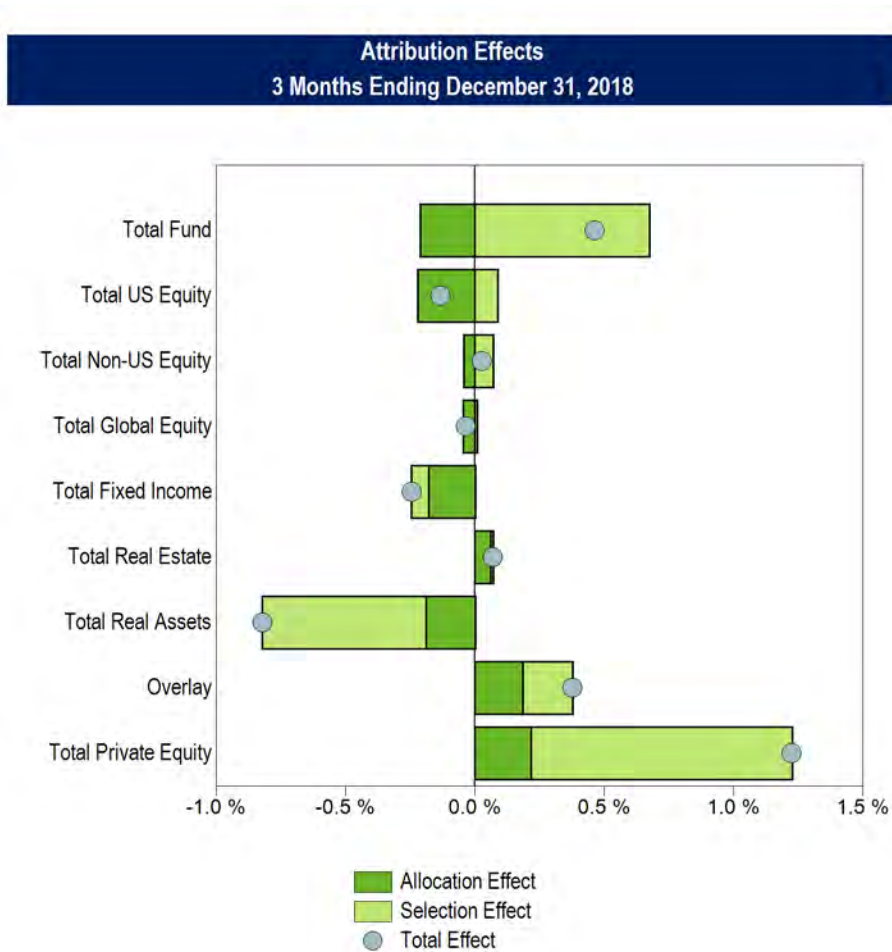
● Total Fund
Value 1.5
Rank 50
▲ Policy Index
Value 1.4
Rank 73
Universe
5th %tile 1.8
25th %tile 1.6
Median 1.5
75th %tile 1.4
95th %tile 1.2



ROLLING 5 YEAR EXCESS RETURNS- NET OF FEES



TOTAL FUND ATTRIBUTION ANALYSIS

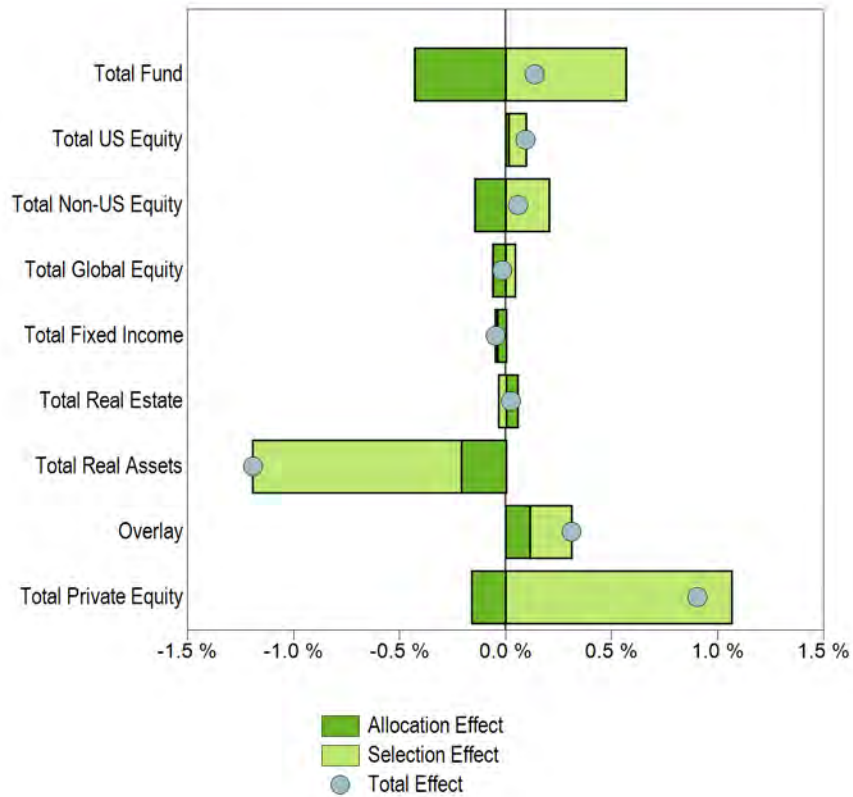


Attribution Summary						
3 Months Ending December 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	-14.0%	-14.3%	0.3%	0.1%	-0.2%	-0.1%
Total Non-US Equity	-11.0%	-11.5%	0.4%	0.1%	0.0%	0.0%
Total Global Equity	-12.7%	-12.8%	0.1%	0.0%	0.0%	0.0%
Total Fixed Income	1.3%	1.6%	-0.4%	-0.1%	-0.2%	-0.2%
Total Real Estate	1.6%	1.5%	0.1%	0.0%	0.1%	0.1%
Total Real Assets	-7.9%	0.5%	-8.4%	-0.6%	-0.2%	-0.8%
Overlay	12.0%	0.6%	11.4%	0.2%	0.2%	0.4%
Total Private Equity	3.1%	-13.6%	16.7%	1.0%	0.2%	1.2%
Total	-7.5%	-8.0%	0.5%	0.7%	-0.2%	0.5%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects 1 Year Ending December 31, 2018

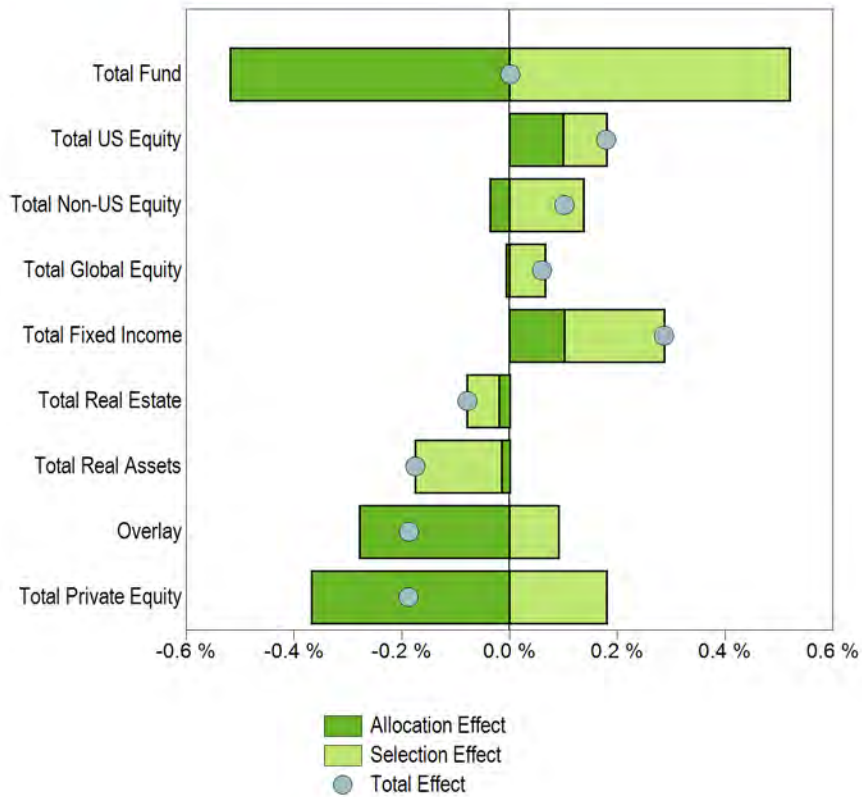


Attribution Summary 1 Year Ending December 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	-5.0%	-5.2%	0.3%	0.1%	0.0%	0.1%
Total Non-US Equity	-13.0%	-14.2%	1.2%	0.2%	-0.1%	0.1%
Total Global Equity	-9.0%	-9.4%	0.4%	0.0%	-0.1%	0.0%
Total Fixed Income	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	6.9%	7.4%	-0.5%	0.0%	0.1%	0.0%
Total Real Assets	-7.3%	6.0%	-13.3%	-1.0%	-0.2%	-1.2%
Overlay	13.5%	1.9%	11.6%	0.2%	0.1%	0.3%
Total Private Equity	18.4%	-2.4%	20.7%	1.1%	-0.2%	0.9%
Total	-3.4%	-3.6%	0.1%	0.6%	-0.4%	0.1%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
3 Years Ending December 31, 2018

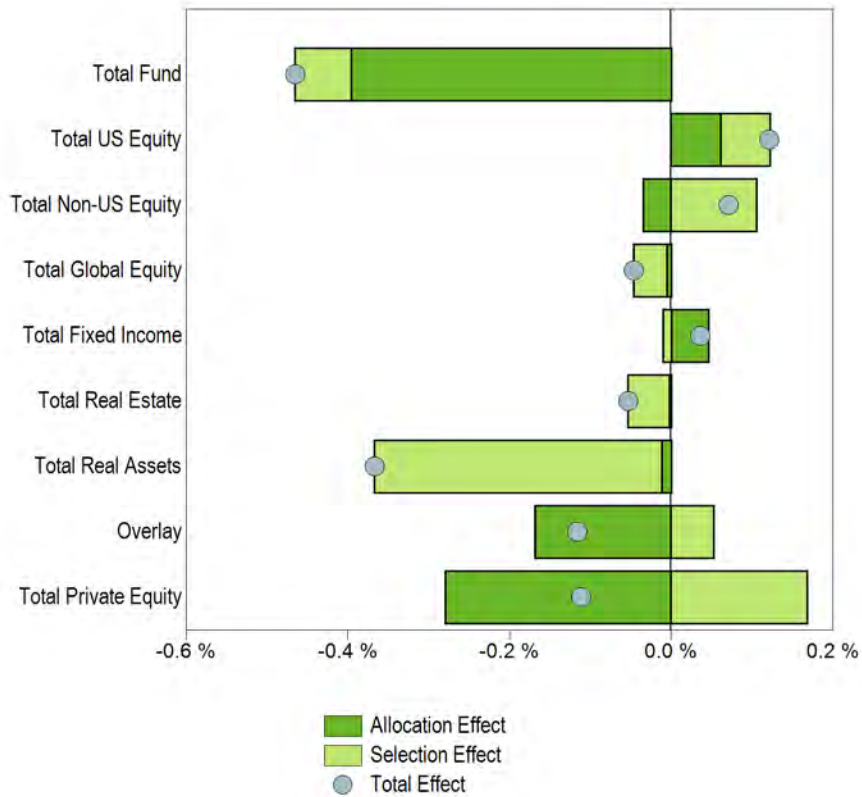


Attribution Summary						
3 Years Ending December 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	9.2%	9.0%	0.3%	0.1%	0.1%	0.2%
Total Non-US Equity	5.5%	4.5%	1.0%	0.1%	0.0%	0.1%
Total Global Equity	7.3%	6.6%	0.7%	0.1%	0.0%	0.1%
Total Fixed Income	3.1%	2.1%	1.0%	0.2%	0.1%	0.3%
Total Real Estate	6.6%	7.3%	-0.7%	-0.1%	0.0%	-0.1%
Total Real Assets	3.5%	6.1%	-2.6%	-0.2%	0.0%	-0.2%
Overlay	5.8%	1.1%	4.8%	0.1%	-0.3%	-0.2%
Total Private Equity	14.2%	12.2%	2.0%	0.2%	-0.4%	-0.2%
Total	6.7%	6.7%	0.0%	0.5%	-0.5%	0.0%



TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
5 Years Ending December 31, 2018



Attribution Summary						
5 Years Ending December 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	8.1%	7.9%	0.2%	0.1%	0.1%	0.1%
Total Non-US Equity	1.5%	0.7%	0.8%	0.1%	0.0%	0.1%
Total Global Equity	3.9%	4.3%	-0.4%	0.0%	0.0%	0.0%
Total Fixed Income	2.2%	2.1%	0.1%	0.0%	0.0%	0.0%
Total Real Estate	8.8%	9.4%	-0.6%	-0.1%	0.0%	-0.1%
Total Real Assets	1.1%	5.6%	-4.5%	-0.4%	0.0%	-0.4%
Overlay	3.4%	0.6%	2.8%	0.0%	-0.2%	-0.1%
Total Private Equity	15.2%	11.1%	4.1%	0.2%	-0.3%	-0.1%
Total	5.1%	5.5%	-0.5%	-0.1%	-0.4%	-0.5%



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

1 Year Ending December 31, 2018												
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	56.0%	-7.9%	39	13.6%	75	1.6%	9	1.2%	33	1.2	6	1.0
MSCI ACWI	--	-9.4%	69	13.5%	68	0.0%	48	0.0%	1	--	--	1.0
Total US Equity	29.6%	-5.0%	23	15.4%	80	0.2%	23	0.5%	6	0.5	13	1.0
Russell 3000	--	-5.2%	32	15.5%	85	0.0%	30	0.0%	1	--	--	1.0
Total Non-US Equity	15.8%	-13.0%	12	12.0%	25	0.2%	22	1.1%	8	1.1	4	0.9
MSCI ACWI ex USA	--	-14.2%	29	12.7%	70	0.0%	28	0.0%	1	--	--	1.0
Total Global Equity	10.5%	-9.0%	64	13.5%	93	0.4%	65	0.1%	1	2.9	1	1.0
MSCI ACWI	--	-9.4%	69	13.5%	93	0.0%	66	0.0%	1	--	--	1.0
Total Fixed Income	19.5%	0.0%	43	2.6%	77	-0.4%	35	0.8%	36	0.0	30	0.8
Total Fixed Income Policy Index	--	0.0%	43	3.1%	94	0.0%	17	0.0%	1	--	--	1.0
Total US Fixed Income	19.5%	0.0%	43	2.6%	77	-0.4%	35	0.8%	36	0.0	30	0.8
BBgBarc US Aggregate TR	--	0.0%	43	3.1%	94	0.0%	17	0.0%	1	--	--	1.0
Total Real Assets	7.7%	-7.3%	--	8.3%	--	-19.3%	--	8.1%	--	-1.6	--	2.5
CPI + 4% (Unadjusted)	--	6.0%	--	1.0%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	8.3%	6.9%	55	2.9%	58
NCREIF ODCE Net	--	7.4%	50	3.1%	64
Total Private Equity	7.2%	18.4%	37	5.4%	30
Russell 3000 + 3%	--	-2.4%	99	15.5%	94

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 86 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 169 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 115 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 39 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 86 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 104 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 60 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 45 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

3 Years Ending December 31, 2018

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	56.0%	7.9%	8	10.6%	56	1.3%	6	1.2%	34	1.1	1	1.0
MSCI ACWI	--	6.6%	75	10.6%	57	0.0%	40	0.0%	1	--	--	1.0
Total US Equity	29.6%	9.2%	8	11.3%	43	0.3%	7	0.4%	3	0.7	4	1.0
Russell 3000	--	9.0%	18	11.3%	43	0.0%	20	0.0%	1	--	--	1.0
Total Non-US Equity	15.8%	5.5%	11	11.0%	18	1.2%	16	1.2%	7	0.9	4	1.0
MSCI ACWI ex USA	--	4.5%	46	11.5%	57	0.0%	51	0.0%	1	--	--	1.0
Total Global Equity	10.5%	7.3%	4	10.6%	73	0.7%	32	0.5%	1	1.3	1	1.0
MSCI ACWI	--	6.6%	50	10.6%	73	0.0%	80	0.0%	1	--	--	1.0
Total Fixed Income	19.5%	3.1%	48	2.6%	56	1.2%	39	1.4%	51	0.7	24	0.8
Total Fixed Income Policy Index	--	2.1%	67	2.9%	69	0.0%	79	0.0%	1	--	--	1.0
Total US Fixed Income	19.5%	3.1%	48	2.6%	56	1.2%	40	1.4%	53	0.7	29	0.8
BBgBarc US Aggregate TR	--	2.1%	67	2.9%	69	0.0%	79	0.0%	1	--	--	1.0
Total Real Assets	7.7%	3.5%	--	7.7%	--	-10.9%	--	7.5%	--	-0.3	--	2.6
CPI + 4% (Unadjusted)	--	6.1%	--	0.8%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	8.3%	6.6%	82	2.7%	41
NCREIF ODCE Net	--	7.3%	67	3.0%	47
Total Private Equity	7.2%	14.2%	42	5.3%	27
Russell 3000 + 3%	--	12.2%	66	11.3%	92

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 81 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 158 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 108 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 34 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 79 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 104 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 60 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 44 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

5 Years Ending December 31, 2018

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	56.0%	5.6%	33	10.7%	52	1.4%	6	1.2%	24	1.1	1	1.0
MSCI ACWI	--	4.3%	73	10.9%	70	0.0%	52	0.0%	1	--	--	1.0
Total US Equity	29.6%	8.1%	7	11.2%	42	0.2%	10	0.3%	1	0.7	1	1.0
Russell 3000	--	7.9%	15	11.2%	42	0.0%	15	0.0%	1	--	--	1.0
Total Non-US Equity	15.8%	1.5%	28	11.3%	26	0.8%	25	1.1%	5	0.7	6	0.9
MSCI ACWI ex USA	--	0.7%	65	11.9%	66	0.0%	56	0.0%	1	--	--	1.0
Total Global Equity	10.5%	3.9%	67	10.9%	59	-0.4%	96	1.0%	1	-0.4	99	1.0
MSCI ACWI	--	4.3%	62	10.9%	58	0.0%	85	0.0%	1	--	--	1.0
Total Fixed Income	19.5%	2.2%	58	2.3%	29	0.6%	34	1.6%	57	0.1	40	0.7
Total Fixed Income Policy Index	--	2.1%	67	2.7%	52	0.0%	73	0.0%	1	--	--	1.0
Total US Fixed Income	19.5%	2.5%	44	2.3%	27	0.7%	27	1.8%	62	0.0	51	0.6
BBgBarc US Aggregate TR	--	2.5%	43	2.8%	54	0.0%	73	0.0%	1	--	--	1.0
Total Real Assets	7.7%	1.1%	--	9.0%	--	-11.4%	--	8.8%	--	-0.5	--	2.4
CPI + 4% (Unadjusted)	--	5.6%	--	1.0%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	8.3%	8.8%	84	3.8%	47
NCREIF ODCE Net	--	9.4%	67	4.0%	51
Total Private Equity	7.2%	15.2%	34	6.3%	48
Russell 3000 + 3%	--	11.1%	66	11.2%	88

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

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

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 63 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 134 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 97 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 22 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 67 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 93 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 54 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 40 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fund	5,198,137,872	100.0	100.0	-7.5	64	-4.3	38	-3.5	38	6.7	21	5.1	28	9.5	7	7.7	Apr-94
Policy Index				-8.0	76	-4.7	49	-3.6	41	6.7	21	5.5	12	9.1	20	7.7	Apr-94
Over/Under				0.5		0.4		0.1		0.0		-0.4		0.4		0.0	
60% MSCI ACWI (Net) / 40% FTSE WGBI				-7.1	55	-5.3	67	-5.8	85	5.2	96	3.0	99	6.5	99	--	Apr-94
60% S&P 500 / 40% BBgBarc Aggregate				-7.6	64	-3.3	16	-2.3	19	6.5	28	6.2	6	9.4	9	8.0	Apr-94
InvestorForce Public DB > \$1B Net Median				-6.9		-4.7		-4.0		6.0		4.6		8.2		7.0	Apr-94
Total Fund ex Parametric*	5,150,006,230	99.1	--	-7.7	--	-4.6	--	-3.8	--	6.6	--	5.0	--	9.3	--	7.6	Apr-94
Total Fund ex Private Equity	4,823,338,434	92.8	--	-8.2	81	-5.1	59	-4.7	73	6.3	37	4.7	47	--	--	7.4	Jan-12
Policy Index				-8.0	76	-4.7	49	-3.6	41	6.7	21	5.5	12	9.1	20	8.2	Jan-12
Over/Under				-0.2		-0.4		-1.1		-0.4		-0.8				-0.8	
InvestorForce Public DB > \$1B Net Median				-6.9		-4.7		-4.0		6.0		4.6		8.2		7.1	Jan-12
Total US Equity	1,540,549,958	29.6	28.0	-14.0	27	-7.7	14	-5.0	23	9.2	8	8.1	7	13.6	6	8.8	Dec-93
Russell 3000				-14.3	38	-8.2	27	-5.2	32	9.0	18	7.9	15	13.2	17	9.1	Dec-93
Over/Under				0.3		0.5		0.2		0.2		0.2		0.4		-0.3	
InvestorForce Public DB US Eq Net Median				-14.5		-9.0		-6.1		8.5		7.1		12.8		8.6	Dec-93
Western U.S. Index Plus	187,644,466	3.6		-14.3	53	-7.4	41	-5.3	47	9.7	19	8.8	19	16.0	4	4.9	May-07
S&P 500				-13.5	41	-6.9	34	-4.4	38	9.3	26	8.5	24	13.1	33	6.6	May-07
Over/Under				-0.8		-0.5		-0.9		0.4		0.3		2.9		-1.7	
eV US Large Cap Equity Net Median				-14.1		-8.2		-5.8		7.8		7.1		12.3		6.4	May-07
Blackrock Russell 1000 Index	1,297,680,697	25.0		-13.8	45	-7.4	41	-4.7	41	--	--	--	--	--	--	4.9	May-17
Russell 1000				-13.8	46	-7.4	41	-4.8	42	9.1	28	8.2	30	13.3	30	4.8	May-17
Over/Under				0.0		0.0		0.1								0.1	
eV US Large Cap Equity Net Median				-14.1		-8.2		-5.8		7.8		7.1		12.3		3.9	May-17
Blackrock Russell 2500 Index	55,224,796	1.1		-18.5	45	-14.6	52	-9.9	47	--	--	--	--	--	--	0.4	May-17
Russell 2500				-18.5	47	-14.7	52	-10.0	47	7.3	44	5.1	37	13.2	39	0.3	May-17
Over/Under				0.0		0.1		0.1								0.1	
eV US Small-Mid Cap Equity Net Median				-18.6		-14.5		-10.5		6.6		4.5		12.7		-0.2	May-17

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

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

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



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Non-US Equity	823,353,475	15.8	15.0	-11.0	20	-10.2	14	-13.0	12	5.5	11	1.5	28	7.1	41	5.9	Mar-94
MSCI ACWI ex USA				-11.5	34	-10.8	24	-14.2	29	4.5	46	0.7	65	6.6	58	4.7	Mar-94
Over/Under				0.5		0.6		1.2		1.0		0.8		0.5		1.2	
MSCI EAFE				-12.5	60	-11.4	40	-13.8	20	2.9	85	0.5	72	6.3	64	4.3	Mar-94
MSCI ACWI ex USA NR LCL				-10.9	19	-9.5	5	-10.6	3	4.2	62	4.1	1	7.8	21	--	Mar-94
MSCI EAFE NR LCL				-12.2	54	-10.1	13	-11.0	5	2.6	89	3.8	1	7.5	28	4.4	Mar-94
InvestorForce Public DB ex-US Eq Net Median				-12.0		-11.8		-15.1		4.4		1.0		6.8		5.0	Mar-94
BlackRock ACWI ex-U.S. Index	418,477,871	8.1		-11.9	22	-11.5	28	-14.6	43	4.6	41	1.0	51	7.1	60	1.7	Mar-07
MSCI ACWI ex USA IMI				-11.9	22	-11.5	28	-14.8	45	4.4	44	0.8	54	7.0	63	1.4	Mar-07
Over/Under				0.0		0.0		0.2		0.2		0.2		0.1		0.3	
MSCI ACWI ex USA NR LCL				-10.9	15	-9.5	9	-10.6	10	4.2	45	4.1	11	7.8	55	2.4	Mar-07
eV ACWI ex-US All Cap Equity Net Median				-13.8		-13.2		-15.2		3.7		1.3		8.0		1.9	Mar-07
Sprucegrove	204,625,925	3.9		-11.1	18	-10.4	15	-13.8	35	7.1	13	1.6	49	7.9	52	6.7	Mar-02
MSCI ACWI ex USA				-11.5	18	-10.8	23	-14.2	41	4.5	44	0.7	56	6.6	68	5.7	Mar-02
Over/Under				0.4		0.4		0.4		2.6		0.9		1.3		1.0	
MSCI EAFE				-12.5	31	-11.4	26	-13.8	35	2.9	61	0.5	60	6.3	76	5.2	Mar-02
MSCI ACWI ex USA NR LCL				-10.9	15	-9.5	9	-10.6	10	4.2	45	4.1	11	7.8	55	4.6	Mar-02
MSCI EAFE NR LCL				-12.2	27	-10.1	14	-11.0	11	2.6	64	3.8	12	7.5	57	3.8	Mar-02
eV ACWI ex-US All Cap Equity Net Median				-13.8		-13.2		-15.2		3.7		1.3		8.0		6.2	Mar-02
Hexavest	84,046,977	1.6		-8.4	2	-7.6	5	-11.3	22	2.7	51	0.4	67	--	--	2.9	Dec-10
MSCI EAFE				-12.5	31	-11.4	33	-13.8	47	2.9	49	0.5	65	6.3	62	3.3	Dec-10
Over/Under				4.1		3.8		2.5		-0.2		-0.1				-0.4	
MSCI EAFE NR LCL				-12.2	31	-10.1	20	-11.0	20	2.6	52	3.8	5	7.5	40	5.9	Dec-10
eV EAFE All Cap Equity Net Median				-14.1		-13.3		-14.6		2.8		1.1		6.8		4.1	Dec-10
Walter Scott	116,202,702	2.2		-9.6	5	-6.7	2	-7.1	1	7.3	11	3.5	13	--	--	4.8	Dec-10
MSCI ACWI ex USA				-11.5	18	-10.8	23	-14.2	41	4.5	44	0.7	56	6.6	68	2.3	Dec-10
Over/Under				1.9		4.1		7.1		2.8		2.8				2.5	
MSCI ACWI ex USA NR LCL				-10.9	15	-9.5	9	-10.6	10	4.2	45	4.1	11	7.8	55	5.2	Dec-10
MSCI EAFE				-12.5	31	-11.4	26	-13.8	35	2.9	61	0.5	60	6.3	76	3.3	Dec-10
eV ACWI ex-US All Cap Equity Net Median				-13.8		-13.2		-15.2		3.7		1.3		8.0		3.7	Dec-10



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Global Equity	545,347,212	10.5	10.0	-12.7	79	-8.9	65	-9.0	64	7.3	4	3.9	67	7.8	17	5.2	May-05
MSCI ACWI				-12.8	86	-9.0	71	-9.4	69	6.6	50	4.3	62	9.5	7	6.0	May-05
Over/Under				0.1		0.1		0.4		0.7		-0.4		-1.7		-0.8	
InvestorForce Public DB Gbl Eq Net Median				-11.7		-7.9		-7.9		6.6		4.6		6.5		5.0	May-05
BlackRock MSCI ACWI Equity Index	545,347,212	10.5		-12.7	43	-8.9	38	-9.0	48	7.1	28	4.7	44	--	--	8.4	Aug-12
MSCI ACWI				-12.8	44	-9.0	40	-9.4	50	6.6	34	4.3	52	9.5	54	8.0	Aug-12
Over/Under				0.1		0.1		0.4		0.5		0.4				0.4	
eV All Global Equity Net Median				-13.5		-10.2		-9.4		5.8		4.3		9.7		8.2	Aug-12



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Private Equity	374,799,439	7.2	10.0	3.1	54	8.3	41	18.4	37	14.2	42	15.2	34	--	--	14.9	Jan-12
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	<i>99</i>	<i>-6.8</i>	<i>99</i>	<i>-2.4</i>	<i>99</i>	<i>12.2</i>	<i>66</i>	<i>11.1</i>	<i>66</i>	<i>16.5</i>	<i>1</i>	<i>15.8</i>	<i>Jan-12</i>
Over/Under				16.7		15.1		20.8		2.0		4.1				-0.9	
<i>Cambridge Associates Global All PE (Qtr Lag)</i>				<i>3.4</i>	<i>50</i>	<i>8.1</i>	<i>49</i>	<i>16.6</i>	<i>52</i>	<i>13.6</i>	<i>49</i>	<i>12.8</i>	<i>53</i>	<i>11.1</i>	<i>45</i>	<i>13.2</i>	<i>Jan-12</i>
<i>InvestorForce Public DB Private Eq Net Median</i>				<i>3.4</i>		<i>7.8</i>		<i>17.0</i>		<i>13.5</i>		<i>13.4</i>		<i>10.8</i>		<i>13.7</i>	<i>Jan-12</i>
Adams Street Global Fund Series	173,586,029	3.3		4.4	--	9.4	--	19.6	--	13.2	--	13.9	--	--	--	13.7	Jan-12
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>15.8</i>	<i>Jan-12</i>
Over/Under				18.0		16.2		22.0		1.0		2.8				-2.1	
Harbourvest	84,171,685	1.6		2.7	--	10.1	--	22.7	--	17.2	--	19.7	--	--	--	19.9	Aug-13
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>12.6</i>	<i>Aug-13</i>
Over/Under				16.3		16.9		25.1		5.0		8.6				7.3	
Pantheon Global Secondary Funds	39,845,681	0.8		2.9	--	8.7	--	17.3	--	18.9	--	15.8	--	--	--	13.4	Jan-12
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>15.8</i>	<i>Jan-12</i>
Over/Under				16.5		15.5		19.7		6.7		4.7				-2.4	
Drive Capital Fund	5,811,980	0.1		-1.5	--	1.6	--	-2.5	--	--	--	--	--	--	--	-28.5	Sep-16
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>11.3</i>	<i>Sep-16</i>
Over/Under				12.1		8.4		-0.1								-39.8	
Abbott Secondary Opportunities	12,219,909	0.2		3.9	--	26.0	--	26.0	--	--	--	--	--	--	--	26.0	Jan-18
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>-2.4</i>	<i>Jan-18</i>
Over/Under				17.5		32.8		28.4								28.4	
CVI Credit Value Fund	10,718,254	0.2		1.0	--	2.3	--	4.6	--	--	--	--	--	--	--	4.6	Jan-18
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>-2.4</i>	<i>Jan-18</i>
Over/Under				14.6		9.1		7.0								7.0	
Clearlake Capital Partners V	4,658,973	0.1		17.6	--	32.9	--	--	--	--	--	--	--	--	--	29.7	Mar-18
<i>Russell 3000 + 3%</i>				<i>-13.6</i>	--	<i>-6.8</i>	--	<i>-2.4</i>	--	<i>12.2</i>	--	<i>11.1</i>	--	<i>16.5</i>	--	<i>-4.2</i>	<i>Mar-18</i>
Over/Under				31.2		39.7										33.9	

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

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

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



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Battery Ventures XII	3,157,998	0.1		-2.2	--	-8.0	--	--	--	--	--	--	--	--	--	-8.0	Apr-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-2.5	Apr-18
Over/Under				11.4		-1.2										-5.5	
Insight Venture Partners X	10,035,627	0.2		0.6	--	-5.7	--	--	--	--	--	--	--	--	--	-5.7	May-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-3.1	May-18
Over/Under				14.2		1.1										-2.6	
GTCR Fund XII	3,569,355	0.1		-5.7	--	-42.2	--	--	--	--	--	--	--	--	--	-42.2	Jun-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-6.0	Jun-18
Over/Under				7.9		-35.4										-36.2	
Buenaventure One, LLC	17,820,574	0.3		-0.8	--	-0.8	--	--	--	--	--	--	--	--	--	-0.8	Jul-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-6.8	Jul-18
Over/Under				12.8		6.0										6.0	
ECI 11	1,241,760	0.0		--	--	--	--	--	--	--	--	--	--	--	--	-2.6	Dec-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-9.1	Dec-18
Over/Under																6.5	
Buenaventure Two, LLC	55,928	0.0		--	--	--	--	--	--	--	--	--	--	--	--	0.0	Dec-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-9.1	Dec-18
Over/Under																9.1	
Monroe Capital Private Credit Fund III	6,001,831	0.1		--	--	--	--	--	--	--	--	--	--	--	--	0.0	Dec-18
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	-9.1	Dec-18
Over/Under																9.1	
The Resolute Fund IV L.P.	1,903,855	0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	Jan-19
Russell 3000 + 3%				-13.6	--	-6.8	--	-2.4	--	12.2	--	11.1	--	16.5	--	--	Jan-19
Over/Under																--	



VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION PRIVATE EQUITY LIMITED PARTNERSHIP PERFORMANCE

Fund Name	Vintage Year	Initial Investment Date	Commitment	Capital Called to Date ¹	Outstanding Commitment ¹	Call Ratio	Add'l Fees ²	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions to Paid In Multiple (DPI)	Total Value to Paid In Multiple (TVPI)
Abbott Secondary Opportunities, LP.	2017	12/21/2017	\$25,000,000	\$13,348,706	\$12,014,011	53%	--	\$2,625,000	\$12,219,907	\$14,844,907	\$1,496,201	23.4%	0.2x	1.11x
ABRY Partners IX	2019	12/6/2018	\$7,600,000	--	\$7,600,000	0%	--	--	--	--	--	--	--	--
Adams Street 2010 U.S. Fund	2010	5/21/2010	\$42,500,000	\$37,442,500	\$5,057,500	88%	\$15,213	\$25,869,869	\$36,820,450	\$62,690,319	\$25,232,606	14.1%	0.69x	1.67x
Adams Street 2010 Non-U.S. Dev. Mkts Fund	2010	5/21/2010	\$25,500,000	\$22,325,249	\$3,174,751	88%	\$1,589	\$15,702,344	\$17,545,522	\$33,247,866	\$10,921,028	11.5%	0.7x	1.49x
Adams Street 2010 Non-U.S. Emg Mkts Fund	2010	1/3/2011	\$8,500,000	\$7,633,000	\$867,000	90%	\$0	\$2,030,308	\$9,914,136	\$11,944,444	\$4,311,444	11.2%	0.27x	1.56x
Adams Street 2010 Direct Fund	2010	5/21/2010	\$8,500,000	\$8,046,100	\$453,900	95%	\$6,697	\$9,077,781	\$5,547,673	\$14,625,454	\$6,572,657	13.7%	1.13x	1.82x
Adams Street 2013 Global Fund	2013	6/27/2013	\$75,000,000	\$56,625,000	\$18,375,000	76%	\$10,728	\$8,075,792	\$70,923,287	\$78,999,079	\$22,363,351	11.7%	0.14x	1.4x
Adams Street 2016 Global Fund	2016	12/22/2016	\$60,000,000	\$28,200,000	\$31,800,000	47%	\$0	\$3,621,043	\$28,506,158	\$32,127,201	\$3,927,201	19.8%	0.13x	1.14x
Adams Street Co-Investment Fund IV A	2018	9/24/2018	\$30,000,000	\$4,567,808	\$25,500,000	15%	\$67,808	--	\$4,500,000	\$4,500,000	-\$67,808	-6.0%	--	0.99x
Astong VII	2019	12/17/2018	\$8,807,183	--	\$8,807,183	0%	--	--	--	--	--	--	--	--
Battery Ventures XII	2018	2/1/2018	\$9,050,000	\$2,045,300	\$7,004,700	23%	\$0	\$0	\$1,916,991	\$1,916,991	-\$128,309	-16.3%	0x	0.94x
Battery Ventures XII Side Fund	2018	2/1/2018	\$5,050,000	\$1,267,550	\$3,782,450	25%	\$0	\$0	\$1,241,008	\$1,241,008	-\$26,542	-6.7%	0x	0.98x
Buenaventure One, LLC	2018	1/5/2018	\$57,172,500	\$18,355,590	\$38,816,910	32%	--	\$403,156	\$17,820,572	\$18,223,728	--	-2.6%	--	0.99x
CapVest Equity Partners IV	2018	7/11/2018	\$12,610,285	--	\$12,610,285	0%	--	--	--	--	--	--	--	--
Clearlake Capital Partners V	2017	12/22/2017	\$9,950,000	\$3,976,011	\$5,974,799	40%	\$46,158	\$38,823	\$4,619,260	\$4,658,083	\$635,914	44.1%	0.01x	1.17x
CVI Credit Value Fund IV	2017	12/31/2017	\$30,000,000	\$10,500,000	\$19,500,000	35%	--	\$6,147	\$10,728,311	\$10,734,458	\$234,458	4.7%	0x	1.02x
Drive Capital Fund II	2016	9/1/2016	\$15,000,000	\$6,355,302	\$8,647,908	42%	\$3,210	\$0	\$5,811,980	\$5,811,980	-\$546,532	-7.9%	0x	0.91x
ECI 11	2018	7/5/2018	\$9,532,886	\$1,252,530	\$8,280,356	0%	--	--	\$955,863	\$955,863	--	-99.3%	--	0.76x
GGV Capital VII	2018	8/15/2018	\$10,160,000	--	\$10,160,000	0%	--	--	--	--	--	--	--	--
GGV Capital VII Plus	2018	8/15/2018	\$2,540,000	--	\$2,540,000	0%	--	--	--	--	--	--	--	--
GGV Discovery II	2018	8/15/2018	\$2,100,000	--	\$2,100,000	0%	--	--	--	--	--	--	--	--
GTCR Fund XII	2017	9/29/2017	\$30,000,000	\$4,548,000	\$25,547,792	15%	--	\$264,502	\$2,754,397	\$3,018,899	-\$1,529,101	-76.6%	0.06x	0.66x
Insight Venture Partners X	2017	10/13/2017	\$25,000,000	\$10,250,000	\$14,750,000	41%	--	\$8,561	\$10,035,624	\$10,044,185	-\$205,815	-5.4%	0x	0.98x
HarbourVest - Dover Street VIII	2013	5/30/2013	\$67,500,000	\$60,834,954	\$6,750,000	90%	\$84,954	\$66,622,008	\$26,906,179	\$93,528,187	\$32,608,279	21.5%	1.1x	1.54x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$31,800,000	\$28,200,000	53%	\$0	\$7,282,016	\$31,808,721	\$39,090,737	\$7,290,737	33.8%	0.23x	1.23x
HarbourVest - PRTNS CO INVEST IV L.P.	2017	6/2/2017	\$30,000,000	\$22,428,591	\$7,768,149	75%	\$0	\$1,736,653	\$24,908,366	\$26,645,019	\$4,216,428	15.7%	0.08x	1.19x
HarbourVest - PRTNS CO INVEST V L.P.	2018	7/31/2018	\$35,000,000	--	\$35,000,000	0%	--	--	--	--	--	--	--	--
Hellman & Friedman Capital Partners IX	2018	9/28/2018	\$19,800,000	--	\$19,800,000	0%	--	--	--	--	--	--	--	--
M/C Partners VIII	2018	4/2/2018	\$10,000,000	--	\$10,000,000	0%	--	--	--	--	--	--	--	--
Monroe Capital Private Credit Fund III	2018	9/5/2018	\$25,000,000	\$6,250,000	\$18,750,000	0%	--	\$248,169	\$6,001,831	\$6,250,000	--	0.0%	--	1x
Pantheon Global Secondary Fund IV	2010	8/20/2010	\$15,000,000	\$9,960,000	\$5,040,000	66%	\$0	\$12,450,001	\$3,342,817	\$15,792,818	\$5,832,818	14.1%	1.25x	1.59x
Pantheon Global Secondary Fund V	2015	2/26/2015	\$50,000,000	\$33,566,509	\$16,433,491	67%	(\$162,514)	\$9,600,205	\$36,490,269	\$46,090,474	\$12,686,479	20.2%	0.29x	1.37x
The Resolute Fund IV	2018	5/2/2018	\$20,000,000	\$1,903,855	\$18,096,145	0%	--	--	\$2,047,844	\$2,047,844	--	203.1%	--	1.08x
Riverside Micro-Cap Fund V	2018	8/21/2018	\$10,000,000	--	\$10,000,000	0%	--	--	--	--	--	--	--	--
Total VCERA Private Equity Program	--	5/21/2010	\$851,872,854	\$403,482,555	\$449,202,330	47%	\$73,843	\$165,662,378	\$373,367,166	\$539,029,544	\$135,825,494	14.8%	0.41x	1.34x

1. Includes recycled/recallable distributions received to date.

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

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

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

Performance shown is based on 12/31/2018 statement of investments produced by Abbott Capital.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total US Fixed Income	1,012,479,844	19.5	20.0	1.3	32	1.4	38	0.0	43	3.1	48	2.5	44	6.3	23	5.7	Feb-94
BBgBarc US Aggregate TR				1.6	17	1.7	20	0.0	43	2.1	67	2.5	43	3.5	88	5.1	Feb-94
Over/Under				-0.3		-0.3		0.0		1.0		0.0		2.8		0.6	
InvestorForce Public DB Total Fix Inc Net Median				0.4		0.8		-0.2		2.8		2.4		4.5		5.2	Feb-94
BlackRock U.S. Debt Fund	274,110,828	5.3		1.6	12	1.7	13	0.0	55	2.1	57	2.6	48	3.6	61	5.0	Nov-95
BBgBarc US Aggregate TR				1.6	11	1.7	14	0.0	55	2.1	58	2.5	51	3.5	63	4.9	Nov-95
Over/Under				0.0		0.0		0.0		0.0		0.1		0.1		0.1	
eV All US Fixed Inc Net Median				0.6		1.0		0.3		2.3		2.5		4.2		4.8	Nov-95
Western	297,084,068	5.7		1.5	15	1.5	21	-0.6	67	3.1	37	3.5	23	6.2	30	5.9	Dec-96
BBgBarc US Aggregate TR				1.6	11	1.7	14	0.0	55	2.1	58	2.5	51	3.5	63	5.0	Dec-96
Over/Under				-0.1		-0.2		-0.6		1.0		1.0		2.7		0.9	
eV All US Fixed Inc Net Median				0.6		1.0		0.3		2.3		2.5		4.2		4.9	Dec-96
Reams	311,909,321	6.0		1.5	17	1.3	35	0.7	42	3.0	38	1.1	88	6.6	27	5.1	Sep-01
Reams Custom Index				0.7	49	1.3	36	2.4	3	1.5	80	1.0	91	2.9	75	3.8	Sep-01
Over/Under				0.8		0.0		-1.7		1.5		0.1		3.7		1.3	
BBgBarc US Aggregate TR				1.6	11	1.7	14	0.0	55	2.1	58	2.5	51	3.5	63	4.2	Sep-01
3-Month LIBOR + 3%				1.4	18	2.8	1	5.4	1	4.5	19	4.0	16	3.7	57	4.8	Sep-01
eV All US Fixed Inc Net Median				0.6		1.0		0.3		2.3		2.5		4.2		4.2	Sep-01
Loomis Strategic Alpha	46,548,032	0.9		-1.1	77	-0.4	77	0.6	44	3.3	35	2.2	61	--	--	2.3	Jul-13
BBgBarc US Aggregate TR				1.6	11	1.7	14	0.0	55	2.1	58	2.5	51	3.5	63	2.4	Jul-13
Over/Under				-2.7		-2.1		0.6		1.2		-0.3		-0.1		-0.1	
3-Month LIBOR + 3%				1.4	18	2.8	1	5.4	1	4.5	19	4.0	16	3.7	57	4.0	Jul-13
eV All US Fixed Inc Net Median				0.6		1.0		0.3		2.3		2.5		4.2		2.5	Jul-13
Loomis Sayles Multi Strategy	82,827,595	1.6		-0.1	67	1.0	53	-0.8	69	5.2	14	3.9	17	8.9	12	6.0	Jul-05
Loomis Custom Index				-0.3	70	0.4	68	-0.6	66	3.6	32	2.8	41	5.6	35	4.7	Jul-05
Over/Under				0.2		0.6		-0.2		1.6		1.1		3.3		1.3	
BBgBarc US Govt/Credit TR				1.5	17	1.5	21	-0.4	63	2.2	54	2.5	51	3.5	63	3.9	Jul-05
eV All US Fixed Inc Net Median				0.6		1.0		0.3		2.3		2.5		4.2		3.9	Jul-05

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

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

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



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Real Estate	433,137,514	8.3	7.0	1.6	27	3.2	46	6.9	55	6.6	82	8.8	84	5.3	67	7.8	Mar-94
<i>NCREIF ODCE Net</i>				<u>1.5</u>	28	<u>3.4</u>	41	<u>7.4</u>	50	<u>7.3</u>	67	<u>9.4</u>	67	<u>6.0</u>	50	<u>8.1</u>	<i>Mar-94</i>
Over/Under				0.1		-0.2		-0.5		-0.7		-0.6		-0.7		-0.3	
<i>InvestorForce Public DB Real Estate Pub+Priv Net Median</i>				1.2		2.9		7.3		7.6		9.8		5.9		8.9	<i>Mar-94</i>
Prudential Real Estate	156,400,478	3.0		1.7	--	4.0	--	8.2	--	7.8	--	10.0	--	6.1	--	6.3	Jun-04
<i>NCREIF ODCE Net</i>				<u>1.5</u>	--	<u>3.4</u>	--	<u>7.4</u>	--	<u>7.3</u>	--	<u>9.4</u>	--	<u>6.0</u>	--	<u>7.1</u>	<i>Jun-04</i>
Over/Under				0.2		0.6		0.8		0.5		0.6		0.1		-0.8	
<i>NCREIF ODCE</i>				1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	7.0	--	8.1	<i>Jun-04</i>
UBS Real Estate	276,737,035	5.3		1.5	--	2.8	--	6.2	--	5.9	--	8.0	--	5.8	--	7.3	Mar-03
<i>NCREIF ODCE Net</i>				<u>1.5</u>	--	<u>3.4</u>	--	<u>7.4</u>	--	<u>7.3</u>	--	<u>9.4</u>	--	<u>6.0</u>	--	<u>7.3</u>	<i>Mar-03</i>
Over/Under				0.0		-0.6		-1.2		-1.4		-1.4		-0.2		0.0	
<i>NCREIF ODCE</i>				1.8	--	3.9	--	8.3	--	8.2	--	10.4	--	7.0	--	8.3	<i>Mar-03</i>

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



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Real Assets	402,539,646	7.7	10.0	-7.9	--	-7.3	--	-7.3	--	3.5	--	1.1	--	--	--	2.8	Apr-13
<i>CPI + 4% (Unadjusted)</i>				<i>0.5</i>	--	<i>1.7</i>	--	<i>6.0</i>	--	<i>6.1</i>	--	<i>5.6</i>	--	--	--	<i>6.1</i>	<i>Apr-13</i>
Over/Under				-8.4		-9.0		-13.3		-2.6		-4.5				-3.3	
Bridgewater All Weather Fund	298,783,262	5.7		-4.5	--	-4.8	--	-5.0	--	5.3	--	3.2	--	--	--	3.7	Aug-13
<i>CPI + 5% (Unadjusted)</i>				<i>0.7</i>	--	<i>2.2</i>	--	<i>7.0</i>	--	<i>7.1</i>	--	<i>6.6</i>	--	--	--	<i>6.4</i>	<i>Aug-13</i>
Over/Under				-5.2		-7.0		-12.0		-1.8		-3.4				-2.7	
Tortoise Energy Infrastructure	103,756,384	2.0		-16.3	--	-14.0	--	-13.3	--	-1.0	--	-4.0	--	--	--	-1.5	Apr-13
<i>Tortoise MLP Index</i>				<i>-16.7</i>	--	<i>-12.4</i>	--	<i>-13.7</i>	--	<i>-0.5</i>	--	<i>-6.9</i>	--	--	--	<i>-5.0</i>	<i>Apr-13</i>
Over/Under				0.4		-1.6		0.4		-0.5		2.9				3.5	
Overlay	65,930,785	1.3	0.0														
Parametric	48,131,642	0.9															
Abbott Capital Cash	17,799,143	0.3															

Overlay performance is not applicable on an individual account level.

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

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



MANAGER DUE DILIGENCE

NEPC, LLC

DUE DILIGENCE MONITOR

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

Investment Options	Performance (Recent Quarter)	Changes/Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
BlackRock Russell 1000 Index	-	-	-	-		10/2013
Western U.S. Index Plus	-	-	-	-		6/2014
BlackRock Russell 2500 Index	-	-	-	-		10/2013
BlackRock MSCI ACWI ex-U.S. Index	Top Quartile	-	-	-		10/2013
Sprucegrove	Top Quartile	-	-	-		N/A
Hexavest	Top Quartile	-	-	Watch (Board Driven)	On Watch for Performance Issues	1/2013
Walter Scott	Top Quartile	-	-	-		10/2012
BlackRock MSCI ACWI Index	-	-	-	-		10/2013
Adams Street	N/A	-	-	-		11/2013
HarbourVest	N/A	-	-	-		3/2014
Pantheon	N/A	-	-	-		1/2015
Drive	N/A	-	-	-		
Abbott Secondary Opps.	N/A	-	-	-		
Carval Credit Value	N/A	-	-	-		
Battery Ventures	N/A	-	-	-		
Buenaventure	N/A	-	-	-		
Clearlake Capital	N/A	-	-	-		
Insight Venture Partners	N/A	-	-	-		10/2013
ECI	N/A	-	-	-		6/2014
Monroe	N/A	-	-	-		11/2013



DUE DILIGENCE MONITOR

	Performance (Recent Quarter)	Changes/ Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
Resolute Fund	N/A					
BlackRock U.S. Debt Fund	Top Quartile	-	-	-		10/2013
Western	Top Quartile	-	-	-		6/2014
Reams	Top Quartile	-	-	-		11/2013
Loomis Sayles Strategic Alpha	Bottom Quartile	-	-	-		11/2013
Loomis Sayles Multi-Sector Full Discretion	-	-	-	-		11/2013
Prudential	N/A	-	-	-		7/2014
RREEF	N/A	-	-	-		7/2013
UBS	N/A	-	-	-		8/2011
Bridgewater	N/A	-	-	-		9/2012
Tortoise	N/A	-	-	-		8/2013
Parametric/Clifton	N/A	Yes	No Action	-	Announced one departure and organizational changes	7/2013

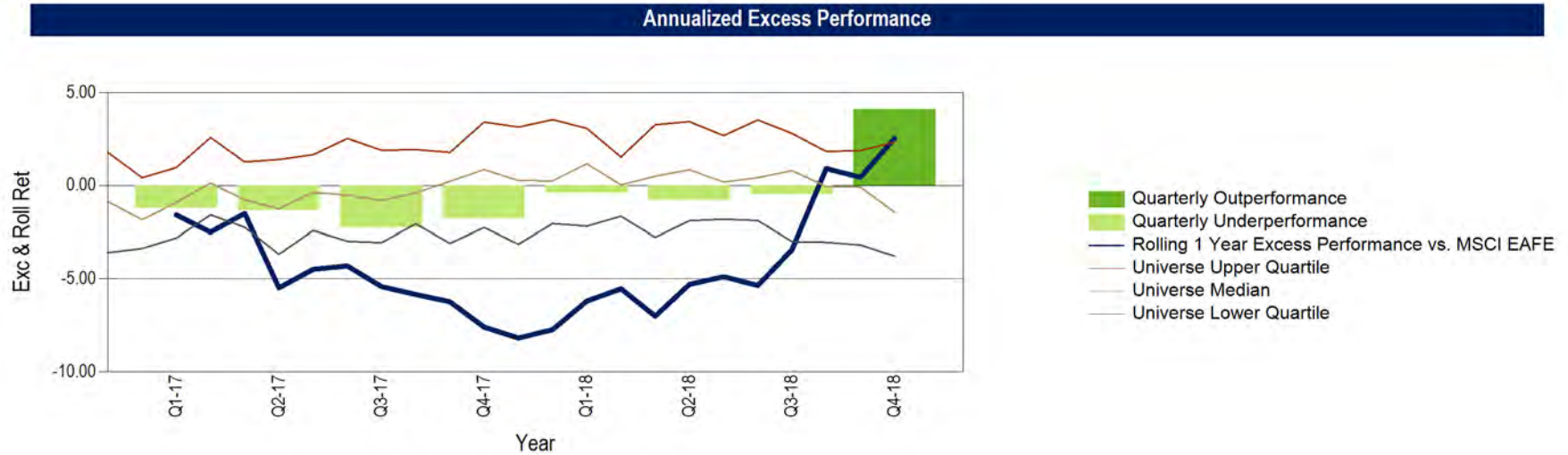
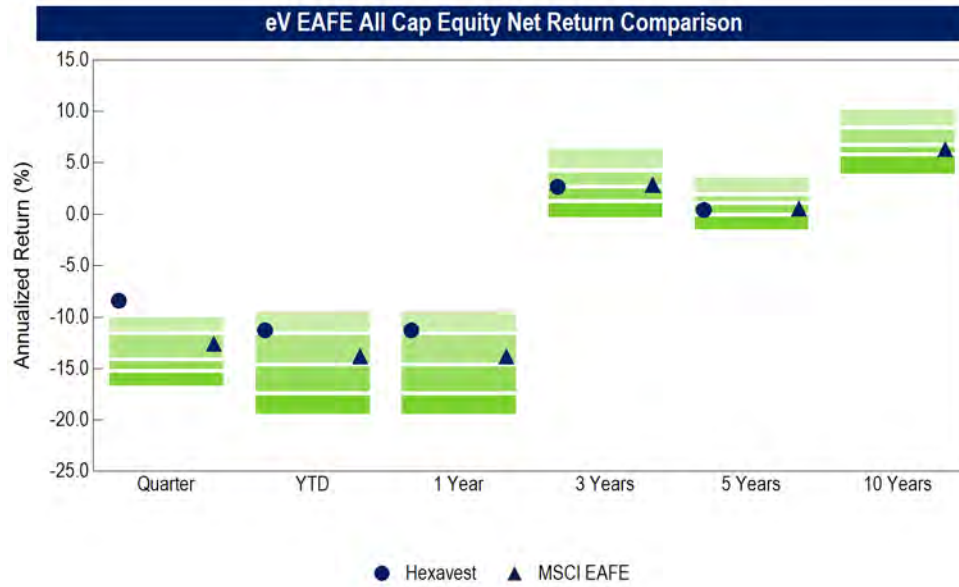
NEPC Due Diligence Committee Recommendation Key

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



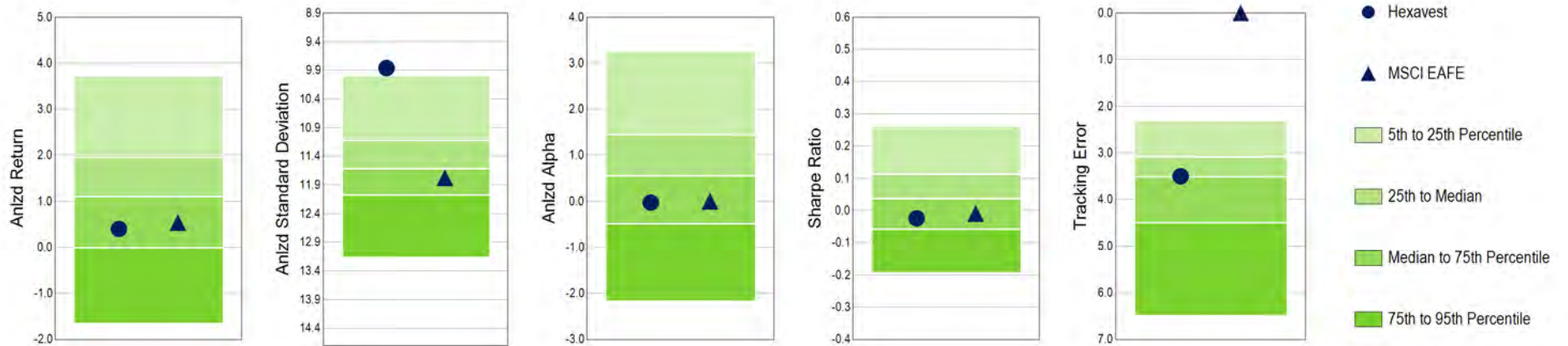
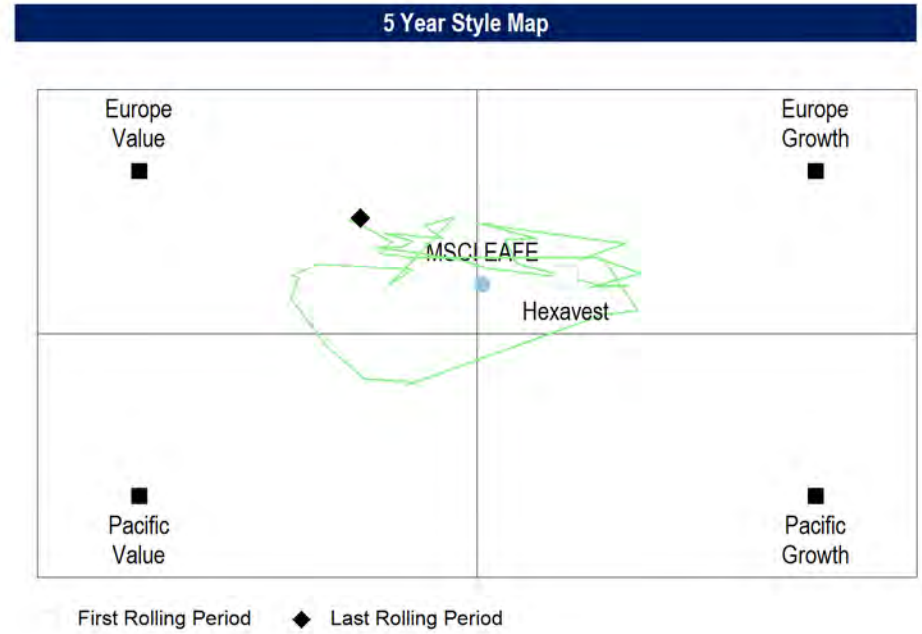
Ventura County Employees' Retirement Association

HEXAVEST



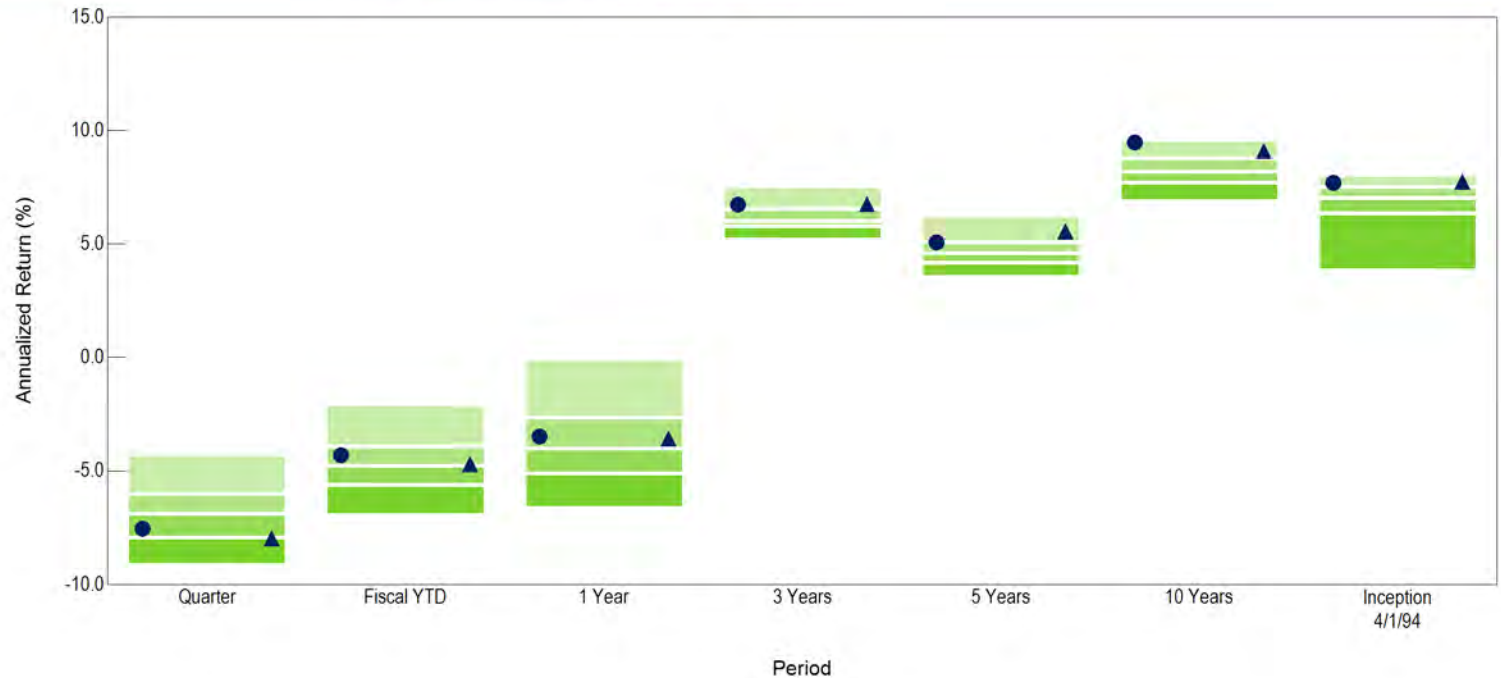
Ventura County Employees' Retirement Association

HEXAVEST



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

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



	Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)	
5th Percentile	-4.3	(64)	-2.1	(38)	-0.1	(38)	7.5	(21)	6.3	(28)	9.6	(7)
25th Percentile	-6.0	(76)	-3.9	(49)	-2.7	(41)	6.6	(21)	5.1	(12)	8.8	(20)
Median	-6.9		-4.7		-4.0		6.0		4.6		8.2	
75th Percentile	-7.9		-5.6		-5.1		5.8		4.2		7.7	
95th Percentile	-9.1		-6.9		-6.6		5.2		3.6		6.9	
# of Portfolios	64		63		63		63		62		59	
● Total Fund	-7.5	(64)	-4.3	(38)	-3.5	(38)	6.7	(21)	5.1	(28)	9.5	(7)
▲ Policy Index	-8.0	(76)	-4.7	(49)	-3.6	(41)	6.7	(21)	5.5	(12)	9.1	(20)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

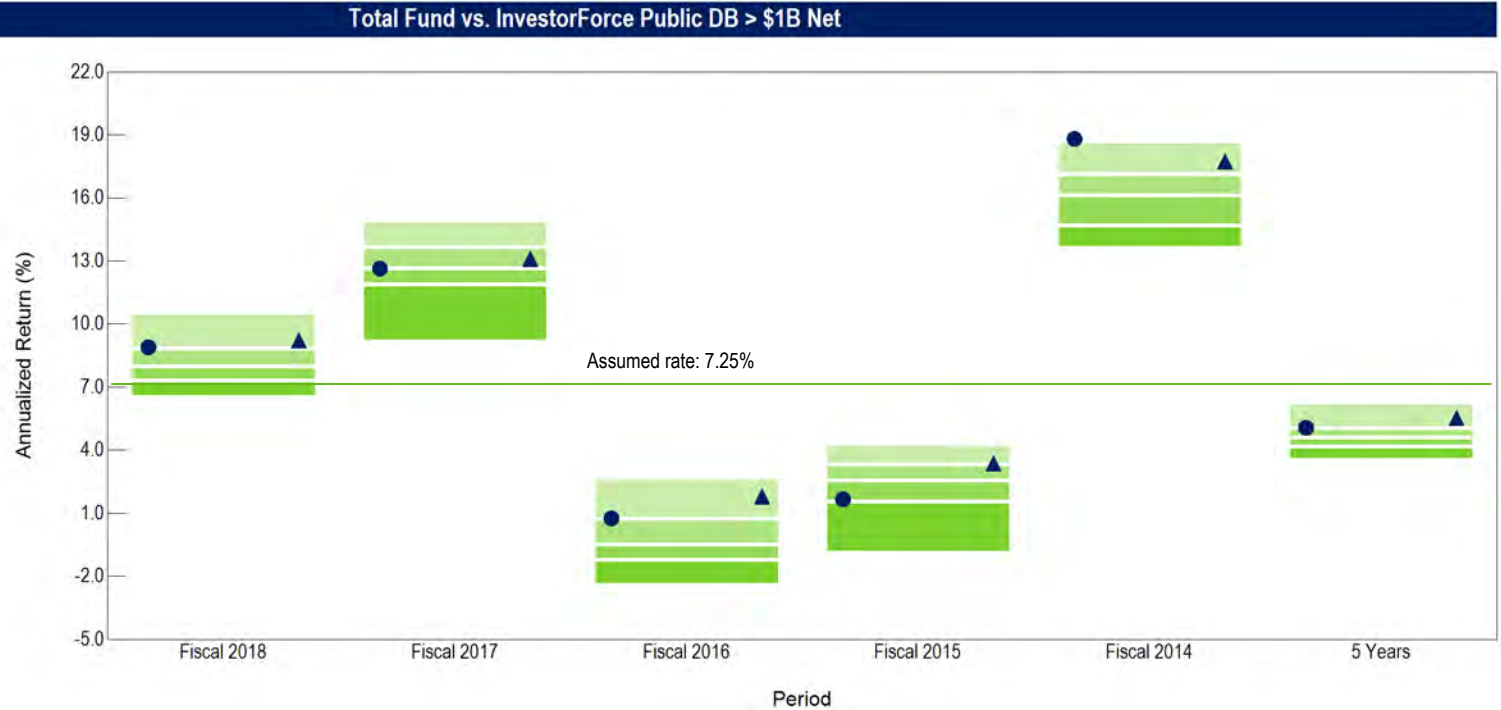
Total Fund vs. InvestorForce Public DB > \$1B Net



	Return (Rank)																					
5th Percentile	-0.1	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5												
25th Percentile	-2.7	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7												
Median	-4.0	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0												
75th Percentile	-5.1	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7												
95th Percentile	-6.6	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4												
# of Portfolios	63	61	62	57	55	48	44	42	41	40												
● Total Fund	-3.5	(38)	16.0	(37)	8.6	(15)	-0.9	(65)	6.3	(20)	18.1	(10)	14.0	(15)	0.3	(61)	15.1	(6)	24.2	(16)		
▲ Policy Index	-3.6	(41)	16.3	(29)	8.4	(25)	0.8	(25)	6.8	(12)	17.2	(14)	12.9	(41)	0.5	(55)	13.2	(44)	21.0	(33)		



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

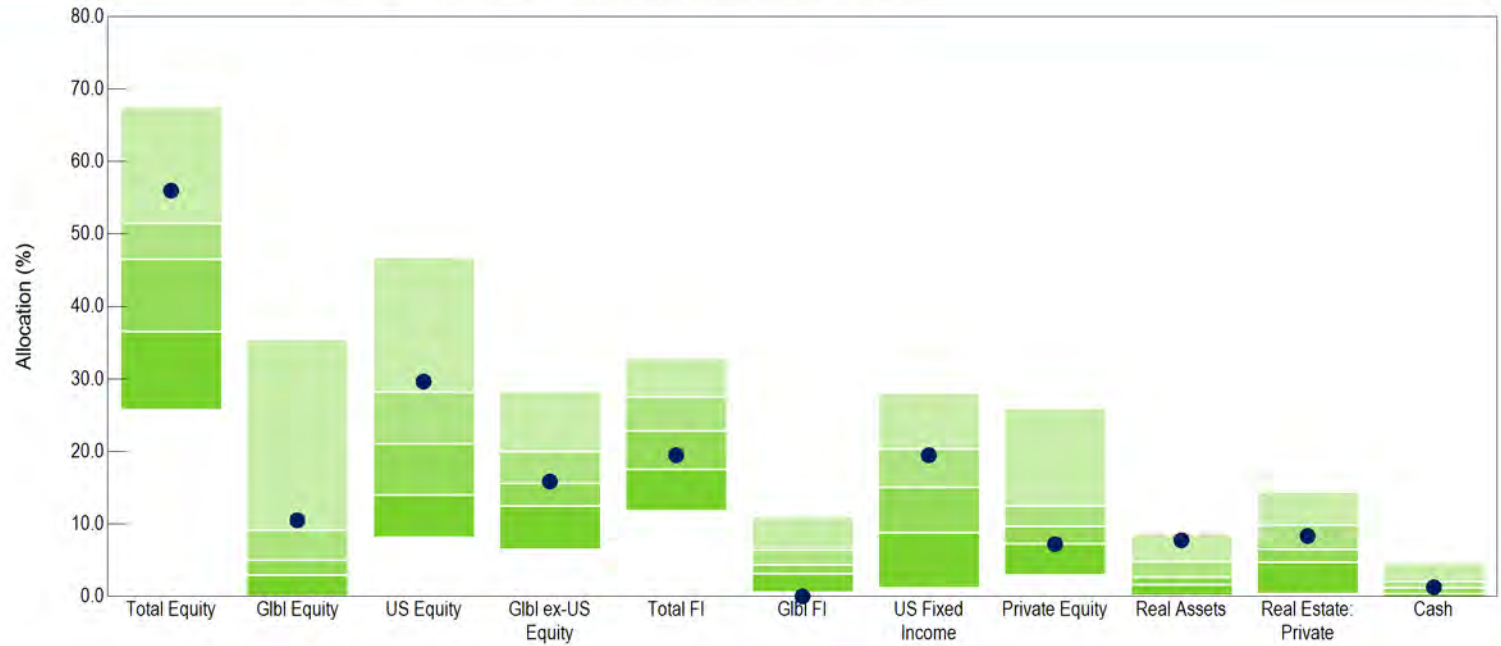


	Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)	
5th Percentile	10.5	(23)	14.9	(53)	2.7	(26)	4.3	(71)	18.7	(4)	6.3	(28)
25th Percentile	8.8	(13)	13.7	(37)	0.8	(9)	3.3	(25)	17.2	(19)	5.1	(12)
Median	8.0		12.7		-0.5		2.6		16.1		4.6	
75th Percentile	7.3		11.9		-1.2		1.6		14.7		4.2	
95th Percentile	6.5		9.2		-2.4		-0.9		13.6		3.6	
# of Portfolios	51		65		55		53		43		62	
● Total Fund	8.9	(23)	12.6	(53)	0.8	(26)	1.7	(71)	18.8	(4)	5.1	(28)
▲ Policy Index	9.2	(13)	13.1	(37)	1.8	(9)	3.4	(25)	17.7	(19)	5.5	(12)



TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

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



	Allocation (Rank)																						
5th Percentile	67.5	35.5	46.8	28.3	32.9	11.0	28.1	25.9	8.8	14.4	4.7	--											
25th Percentile	51.5	9.2	28.3	20.1	27.6	6.5	20.4	12.6	4.9	9.9	2.2	--											
Median	46.5	5.1	21.2	15.7	22.9	4.5	15.1	9.7	2.8	6.6	1.3	--											
75th Percentile	36.6	3.0	14.1	12.6	17.6	3.2	8.9	7.3	1.7	4.8	0.5	--											
95th Percentile	25.9	0.1	8.2	6.5	11.9	0.6	1.2	3.0	0.2	0.4	0.1	--											
# of Portfolios	50	20	43	49	50	23	43	46	23	42	50	--											
● Total Fund	56.0	(17)	10.5	(21)	29.6	(20)	15.8	(48)	19.5	(68)	0.0	(99)	19.5	(31)	7.2	(76)	7.7	(9)	8.3	(35)	1.3	(48)	--



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total Fund	-3.5	16.0	8.6	-0.9	6.3	18.1	14.0	0.3	15.1	24.2	-30.9
Policy Index	-3.6	16.3	8.4	0.8	6.8	17.2	12.9	0.5	13.2	21.0	-27.1
Over/Under	0.1	-0.3	0.2	-1.7	-0.5	0.9	1.1	-0.2	1.9	3.2	-3.8
60% MSCI ACWI (Net) / 40% FTSE WGBI	-5.8	17.1	5.5	-2.6	2.3	11.4	10.3	-1.8	10.0	21.3	-24.1
60% S&P 500 / 40% BBgBarc Aggregate	-2.3	14.2	8.3	1.3	10.6	17.6	11.3	4.7	12.1	18.4	-22.1
Total Fund ex Parametric*	-3.8	15.9	8.6	-0.9	6.3	17.8	13.7	0.6	14.5	23.3	-30.3
Total Fund ex Private Equity	-4.7	15.9	8.6	-1.4	6.1	16.2	13.3	--	--	--	--
Policy Index	-3.6	16.3	8.4	0.8	6.8	17.2	12.9	0.5	13.2	21.0	-27.1
Over/Under	-1.1	-0.4	0.2	-2.2	-0.7	-1.0	0.4				
Total US Equity	-5.0	21.4	13.0	0.5	12.5	34.0	16.9	0.9	18.5	29.2	-40.0
Russell 3000	-5.2	21.1	12.7	0.4	12.4	33.5	16.4	1.1	17.5	28.6	-37.2
Over/Under	0.2	0.3	0.3	0.1	0.1	0.5	0.5	-0.2	1.0	0.6	-2.8
Western U.S. Index Plus	-5.3	22.7	13.8	1.1	14.2	32.9	20.7	1.0	24.7	42.6	-56.3
S&P 500	-4.4	21.8	12.0	1.4	13.7	32.4	16.0	2.1	15.1	26.5	-37.0
Over/Under	-0.9	0.9	1.8	-0.3	0.5	0.5	4.7	-1.1	9.6	16.1	-19.3
Blackrock Russell 1000 Index	-4.7	--	--	--	--	--	--	--	--	--	--
Russell 1000	-4.8	21.7	12.1	0.9	13.2	33.1	16.4	1.5	16.1	28.4	-37.6
Over/Under	0.1										
Blackrock Russell 2500 Index	-9.9	--	--	--	--	--	--	--	--	--	--
Russell 2500	-10.0	16.8	17.6	-2.9	7.1	36.8	17.9	-2.5	26.7	34.4	-36.8
Over/Under	0.1										



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total Non-US Equity	-13.0	26.5	6.6	-4.8	-3.6	16.3	17.9	-13.6	13.5	37.4	-44.1
<i>MSCI ACWI ex USA</i>	<i>-14.2</i>	<i>27.2</i>	<i>4.5</i>	<i>-5.7</i>	<i>-3.9</i>	<i>15.3</i>	<i>16.8</i>	<i>-13.7</i>	<i>11.2</i>	<i>41.4</i>	<i>-45.5</i>
Over/Under	1.2	-0.7	2.1	0.9	0.3	1.0	1.1	0.1	2.3	-4.0	1.4
<i>MSCI EAFE</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>	<i>-4.9</i>	<i>22.8</i>	<i>17.3</i>	<i>-12.1</i>	<i>7.8</i>	<i>31.8</i>	<i>-43.4</i>
<i>MSCI ACWI ex USA NR LCL</i>	<i>-10.6</i>	<i>18.2</i>	<i>7.0</i>	<i>1.9</i>	<i>6.0</i>	<i>20.1</i>	<i>16.3</i>	<i>-12.2</i>	<i>7.6</i>	<i>31.7</i>	<i>-40.9</i>
<i>MSCI EAFE NR LCL</i>	<i>-11.0</i>	<i>15.2</i>	<i>5.3</i>	<i>5.3</i>	<i>5.9</i>	<i>26.9</i>	<i>17.3</i>	<i>-12.2</i>	<i>4.8</i>	<i>24.7</i>	<i>-40.3</i>
BlackRock ACWI ex-U.S. Index	-14.6	28.1	4.7	-4.5	-3.8	16.0	17.2	-14.1	12.8	43.1	-45.6
<i>MSCI ACWI ex USA IMI</i>	<i>-14.8</i>	<i>27.8</i>	<i>4.4</i>	<i>-4.6</i>	<i>-3.9</i>	<i>15.8</i>	<i>17.0</i>	<i>-14.3</i>	<i>12.7</i>	<i>43.6</i>	<i>-46.0</i>
Over/Under	0.2	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.1	-0.5	0.4
<i>MSCI ACWI ex USA NR LCL</i>	<i>-10.6</i>	<i>18.2</i>	<i>7.0</i>	<i>1.9</i>	<i>6.0</i>	<i>20.1</i>	<i>16.3</i>	<i>-12.2</i>	<i>7.6</i>	<i>31.7</i>	<i>-40.9</i>
Sprucegrove	-13.8	27.5	11.9	-9.1	-3.2	17.1	17.2	-10.7	18.8	36.2	-42.4
<i>MSCI ACWI ex USA</i>	<i>-14.2</i>	<i>27.2</i>	<i>4.5</i>	<i>-5.7</i>	<i>-3.9</i>	<i>15.3</i>	<i>16.8</i>	<i>-13.7</i>	<i>11.2</i>	<i>41.4</i>	<i>-45.5</i>
Over/Under	0.4	0.3	7.4	-3.4	0.7	1.8	0.4	3.0	7.6	-5.2	3.1
<i>MSCI EAFE</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>	<i>-4.9</i>	<i>22.8</i>	<i>17.3</i>	<i>-12.1</i>	<i>7.8</i>	<i>31.8</i>	<i>-43.4</i>
<i>MSCI ACWI ex USA NR LCL</i>	<i>-10.6</i>	<i>18.2</i>	<i>7.0</i>	<i>1.9</i>	<i>6.0</i>	<i>20.1</i>	<i>16.3</i>	<i>-12.2</i>	<i>7.6</i>	<i>31.7</i>	<i>-40.9</i>
<i>MSCI EAFE NR LCL</i>	<i>-11.0</i>	<i>15.2</i>	<i>5.3</i>	<i>5.3</i>	<i>5.9</i>	<i>26.9</i>	<i>17.3</i>	<i>-12.2</i>	<i>4.8</i>	<i>24.7</i>	<i>-40.3</i>
Hexavest	-11.3	17.4	3.8	-1.4	-4.3	20.2	13.7	-9.6	--	--	--
<i>MSCI EAFE</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>	<i>-4.9</i>	<i>22.8</i>	<i>17.3</i>	<i>-12.1</i>	<i>7.8</i>	<i>31.8</i>	<i>-43.4</i>
Over/Under	2.5	-7.6	2.8	-0.6	0.6	-2.6	-3.6	2.5	--	--	--
<i>MSCI EAFE NR LCL</i>	<i>-11.0</i>	<i>15.2</i>	<i>5.3</i>	<i>5.3</i>	<i>5.9</i>	<i>26.9</i>	<i>17.3</i>	<i>-12.2</i>	<i>4.8</i>	<i>24.7</i>	<i>-40.3</i>
Walter Scott	-7.1	26.6	5.1	-0.4	-3.5	11.8	20.4	-9.3	--	--	--
<i>MSCI ACWI ex USA</i>	<i>-14.2</i>	<i>27.2</i>	<i>4.5</i>	<i>-5.7</i>	<i>-3.9</i>	<i>15.3</i>	<i>16.8</i>	<i>-13.7</i>	<i>11.2</i>	<i>41.4</i>	<i>-45.5</i>
Over/Under	7.1	-0.6	0.6	5.3	0.4	-3.5	3.6	4.4	--	--	--
<i>MSCI ACWI ex USA NR LCL</i>	<i>-10.6</i>	<i>18.2</i>	<i>7.0</i>	<i>1.9</i>	<i>6.0</i>	<i>20.1</i>	<i>16.3</i>	<i>-12.2</i>	<i>7.6</i>	<i>31.7</i>	<i>-40.9</i>
<i>MSCI EAFE</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>	<i>-4.9</i>	<i>22.8</i>	<i>17.3</i>	<i>-12.1</i>	<i>7.8</i>	<i>31.8</i>	<i>-43.4</i>
Total Global Equity	-9.0	24.5	9.0	-3.8	1.9	22.0	14.4	-3.9	11.4	17.8	-37.3
<i>MSCI ACWI</i>	<i>-9.4</i>	<i>24.0</i>	<i>7.9</i>	<i>-2.4</i>	<i>4.2</i>	<i>22.8</i>	<i>16.1</i>	<i>-7.3</i>	<i>12.7</i>	<i>34.6</i>	<i>-42.2</i>
Over/Under	0.4	0.5	1.1	-1.4	-2.3	-0.8	-1.7	3.4	-1.3	-16.8	4.9
BlackRock MSCI ACWI Equity Index	-9.0	24.5	8.4	-2.0	4.6	23.2	--	--	--	--	--
<i>MSCI ACWI</i>	<i>-9.4</i>	<i>24.0</i>	<i>7.9</i>	<i>-2.4</i>	<i>4.2</i>	<i>22.8</i>	<i>16.1</i>	<i>-7.3</i>	<i>12.7</i>	<i>34.6</i>	<i>-42.2</i>
Over/Under	0.4	0.5	0.5	0.4	0.4	0.4	--	--	--	--	--



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total Private Equity	18.4	16.9	7.6	14.7	19.0	17.9	10.3	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	20.8	-7.8	-8.5	11.2	3.1	-19.6	-9.6				
<i>Cambridge Associates Global All PE (Qtr Lag)</i>	<i>16.6</i>	<i>15.9</i>	<i>8.5</i>	<i>7.0</i>	<i>16.3</i>	<i>15.9</i>	<i>13.0</i>	<i>12.6</i>	<i>17.1</i>	<i>-9.3</i>	<i>-7.2</i>
Adams Street Global Fund Series	19.6	13.4	7.1	10.3	19.6	15.7	10.8	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	22.0	-11.3	-9.0	6.8	3.7	-21.8	-9.1				
Harbourvest	22.7	23.2	6.7	28.5	18.5	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	25.1	-1.5	-9.4	25.0	2.6						
Pantheon Global Secondary Funds	17.3	24.1	15.5	6.4	16.7	14.9	0.9	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	19.7	-0.6	-0.6	2.9	0.8	-22.6	-19.0				
Drive Capital Fund	-2.5	-33.7	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	-0.1	-58.4									
Abbott Secondary Opportunities	26.0	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	28.4										
CVI Credit Value Fund	4.6	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<i>-2.4</i>	<i>24.7</i>	<i>16.1</i>	<i>3.5</i>	<i>15.9</i>	<i>37.5</i>	<i>19.9</i>	<i>4.1</i>	<i>20.4</i>	<i>32.1</i>	<i>-35.3</i>
Over/Under	7.0										



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Clearlake Capital Partners V	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											
Battery Ventures XII	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											
Insight Venture Partners X	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											
GTCR Fund XII	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											
Buenaventure One, LLC	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											
ECI 11	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>-2.4</u>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>
Over/Under											



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total US Fixed Income	0.0	4.4	4.9	0.3	3.0	-0.1	9.6	7.3	10.6	25.6	-8.7
BBgBarc US Aggregate TR	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
Over/Under	0.0	0.9	2.3	-0.2	-3.0	1.9	5.4	-0.5	4.1	19.7	-13.9
BlackRock U.S. Debt Fund	0.0	3.6	2.7	0.6	6.2	-2.0	4.3	7.9	6.7	6.0	5.4
BBgBarc US Aggregate TR	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
Over/Under	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.2
Western	-0.6	6.0	4.1	0.9	7.4	-1.2	9.7	7.3	11.3	18.9	-8.9
BBgBarc US Aggregate TR	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
Over/Under	-0.6	2.5	1.5	0.4	1.4	0.8	5.5	-0.5	4.8	13.0	-14.1
Reams	0.7	2.5	6.0	0.3	-3.6	2.5	10.0	8.4	10.0	33.6	-11.0
Reams Custom Index	2.4	1.3	0.7	0.3	0.2	-0.5	4.2	7.8	6.5	5.9	5.2
Over/Under	-1.7	1.2	5.3	0.0	-3.8	3.0	5.8	0.6	3.5	27.7	-16.2
BBgBarc US Aggregate TR	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
3-Month LIBOR + 3%	5.4	4.4	3.8	3.3	3.2	3.3	3.5	3.3	3.4	3.8	6.2
Loomis Strategic Alpha	0.6	3.3	6.1	-1.0	2.4	--	--	--	--	--	--
BBgBarc US Aggregate TR	0.0	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
Over/Under	0.6	-0.2	3.5	-1.5	-3.6	--	--	--	--	--	--
3-Month LIBOR + 3%	5.4	4.4	3.8	3.3	3.2	3.3	3.5	3.3	3.4	3.8	6.2
Loomis Sayles Multi Strategy	-0.8	8.4	8.2	-2.3	6.8	1.4	16.7	4.2	13.6	37.6	-19.7
Loomis Custom Index	-0.6	4.5	7.0	-1.2	4.6	0.8	7.5	7.1	8.7	18.8	-4.6
Over/Under	-0.2	3.9	1.2	-1.1	2.2	0.6	9.2	-2.9	4.9	18.8	-15.1
BBgBarc US Govt/Credit TR	-0.4	4.0	3.0	0.1	6.0	-2.4	4.8	8.7	6.6	4.5	5.7
Total Real Estate	6.9	5.9	6.8	12.8	11.6	10.6	9.1	14.4	15.4	-31.2	-16.0
NCREIF ODCE Net	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
Over/Under	-0.5	-0.8	-1.0	-1.2	0.1	-2.3	-0.7	-0.6	0.1	-0.8	-5.3
Prudential Real Estate	8.2	7.0	8.2	14.5	12.5	13.8	8.8	18.0	17.2	-34.8	-13.6
NCREIF ODCE Net	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
Over/Under	0.8	0.3	0.4	0.5	1.0	0.9	-1.0	3.0	1.9	-4.4	-2.9
NCREIF ODCE	8.3	7.6	8.8	15.0	12.5	13.9	10.9	16.0	16.4	-29.8	-10.0
UBS Real Estate	6.2	5.4	6.2	11.9	10.6	9.3	9.0	12.1	15.9	-22.9	-8.3
NCREIF ODCE Net	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
Over/Under	-1.2	-1.3	-1.6	-2.1	-0.9	-3.6	-0.8	-2.9	0.6	7.5	2.4
NCREIF ODCE	8.3	7.6	8.8	15.0	12.5	13.9	10.9	16.0	16.4	-29.8	-10.0



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total Real Assets	-7.3	7.2	11.7	-13.8	10.2	--	--	--	--	--	--
CPI + 4% (Unadjusted)	6.0	6.2	6.2	4.8	4.8	28.8	5.4	13.5	--	--	--
Over/Under	-13.3	1.0	5.5	-18.6	5.4						
Bridgewater All Weather Fund	-5.0	11.9	10.0	-6.8	7.6	--	--	--	--	--	--
CPI + 5% (Unadjusted)	7.0	7.2	7.2	5.8	5.8	--	--	--	--	--	--
Over/Under	-12.0	4.7	2.8	-12.6	1.8						
Tortoise Energy Infrastructure	-13.3	-3.5	15.9	-27.1	15.7	--	--	--	--	--	--
Tortoise MLP Index	-13.7	-5.7	21.0	-34.1	8.0	28.8	5.4	13.5	--	--	--
Over/Under	0.4	2.2	-5.1	7.0	7.7						
Overlay											
Parametric											
Abbott Capital Cash											



APPENDIX

NEPC, LLC

CALENDAR YEAR INDEX PERFORMANCE

	2010	2011	2012	2013	2014	2015	2016	2017	Q1	Q2	Q3	Oct	Nov	Dec	Q4	YTD
US Large Cap	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-0.8%	3.4%	7.7%	-6.8%	2.0%	-9.0%	-13.5%	-4.4%
US Small/Mid Cap	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-0.2%	5.7%	4.7%	-10.2%	1.9%	-11.0%	-18.5%	-10.0%
Int'l Developed Equity	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-1.5%	-1.2%	1.4%	-8.0%	-0.1%	-4.9%	-12.5%	-13.8%
Emerging Market Equity	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	1.4%	-8.0%	-1.1%	-8.7%	4.1%	-2.7%	-7.5%	-14.6%
US Aggregate	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	-1.5%	-0.2%	0.0%	-0.8%	0.6%	1.8%	1.6%	0.0%
US High Yield	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-0.9%	1.0%	2.4%	-1.6%	-0.9%	-2.1%	-4.5%	-2.1%
US Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.3%	0.3%	-2.9%	-3.0%	1.9%	5.5%	4.2%	-1.8%
EM Local Credit	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	4.4%	-10.4%	-1.8%	-2.0%	2.8%	1.3%	2.1%	-6.2%
Global Credit	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.4%	-2.8%	-0.9%	-1.1%	0.3%	2.0%	1.2%	-1.2%
Commodities	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-0.4%	0.4%	-2.0%	-2.2%	-0.6%	-6.9%	-9.4%	-11.2%

Source: Bloomberg, Barclays, S&P, Russell, MSCI, JP Morgan, Credit Suisse

S&P 500 = US Large Cap
 Russell 2500 = US Small/Mid Cap
 MSCI EAFE = International Developed Equity
 MSCI EM = Emerging Market Equity
 Bloomberg Barclays Aggregate = US Aggregate
 Bloomberg Barclays High Yield = US HY
 Bloomberg Barclays Long Treasury = US Long Treasuries
 GBI-EM Global Diversified = EM Local Credit
 Barclays Global Aggregate = Global Credit
 Bloomberg Commodity = Commodities



CALENDAR YEAR INDEX PERFORMANCE

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Q1	Q2	Q3	Oct	Nov	Dec	Q4	YTD
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-0.8%	3.4%	7.7%	-6.8%	2.0%	-9.0%	-13.5%	-4.4%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	-0.7%	3.6%	7.4%	-7.1%	2.0%	-9.1%	-13.8%	-4.8%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	-0.1%	7.8%	3.6%	-10.9%	1.6%	-11.9%	-20.2%	-11.0%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-0.2%	5.7%	4.7%	-10.2%	1.9%	-11.0%	-18.5%	-10.0%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-1.5%	-1.2%	1.4%	-8.0%	-0.1%	-4.9%	-12.5%	-13.8%
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	1.4%	-8.0%	-1.1%	-8.7%	4.1%	-2.7%	-7.5%	-14.6%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	-1.0%	0.5%	4.3%	-7.5%	1.5%	-7.0%	-12.8%	-9.4%
Private Equity*	13.7%	19.7%	7.9%	12.5%	20.6%	12.7%	9.6%	8.3%	19.9%	3.3%	4.8%	-	-	-	-	-	8.2%
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-0.8%	0.8%	-0.8%	-1.4%	0.5%	0.5%	-0.4%	-1.3%
BC Municipal Bond	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	5.4%	-1.1%	0.9%	-0.2%	-0.6%	1.1%	1.2%	1.7%	1.3%
BC Muni High Yield	32.7%	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	0.6%	3.1%	0.8%	-1.3%	0.7%	0.9%	0.3%	4.8%
BC US Corp High Yield	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-0.9%	1.0%	2.4%	-1.6%	-0.9%	-2.1%	-4.5%	-2.1%
BC US Aggregate	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	-1.5%	-0.2%	0.0%	-0.8%	0.6%	1.8%	1.6%	0.0%
BC Global Aggregate	2.6%	5.2%	6.4%	1.6%	-4.0%	-0.5%	-3.6%	1.6%	7.5%	1.4%	-2.8%	-0.9%	-1.1%	0.3%	2.0%	1.2%	-1.2%
BC Long Treasuries	-12.9%	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.3%	0.3%	-2.9%	-3.0%	1.9%	5.5%	4.2%	-1.8%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	12.2%	-3.8%	-2.7%	1.3%	-3.6%	-0.4%	2.5%	-1.6%	-6.8%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	13.7%	-4.6%	0.9%	-4.7%	-5.3%	2.4%	7.8%	4.6%	-4.1%
JPM GBI-EM Glob Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	4.4%	-10.4%	-1.8%	-2.0%	2.8%	1.3%	2.1%	-6.2%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	10.1%	-1.7%	-3.5%	2.3%	-2.2%	-0.4%	1.4%	-1.3%	-4.3%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	4.2%	1.6%	0.8%	1.9%	0.0%	-0.8%	-2.3%	-3.1%	1.1%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	0.5%	0.1%	0.6%	-2.6%	-0.6%	-	-	-2.0%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-0.4%	0.4%	-2.0%	-2.2%	-0.6%	-6.9%	-9.4%	-11.2%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	-11.1%	11.8%	6.6%	-8.0%	-0.8%	-9.4%	-17.3%	-12.4%
FTSE NAREIT Eq REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	5.2%	-8.2%	10.0%	0.8%	-3.0%	4.7%	-8.2%	-6.7%	-4.6%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse, Thomson One
 *Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag



TRAILING ANNUAL INDEX PERFORMANCE

Equity							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
Global Equity	-7.0%	-12.8%	-9.4%	-9.4%	6.6%	4.3%	9.5%
US Large Cap	-9.0%	-13.5%	-4.4%	-4.4%	9.3%	8.5%	13.1%
US Small/Mid Cap	-11.0%	-18.5%	-10.0%	-10.0%	7.3%	5.1%	13.2%
Int'l Developed Equity	-4.9%	-12.5%	-13.8%	-13.8%	2.9%	0.5%	6.3%
Emerging Market Equity	-2.7%	-7.5%	-14.6%	-14.6%	9.2%	1.6%	8.0%

Rates/Credit							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
Global Aggregate	2.0%	1.2%	-1.2%	-1.2%	2.7%	1.1%	2.5%
US Aggregate	1.8%	1.6%	0.0%	0.0%	2.1%	2.5%	3.5%
US Credit	1.5%	-0.2%	-2.5%	-2.5%	3.3%	3.3%	5.9%
US High Yield	-2.1%	-4.5%	-2.1%	-2.1%	7.2%	3.8%	11.1%
EM Local Debt	1.3%	2.1%	-6.2%	-6.2%	5.9%	-1.0%	3.5%

Real Assets							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
Commodities	-6.9%	-9.4%	-11.2%	-11.2%	0.3%	-8.8%	-3.8%
MLPs	-9.4%	-17.3%	-12.4%	-12.4%	-1.1%	-7.3%	9.5%

Source: Bloomberg, Barclays, MSCI, S&P, Russell, JP Morgan, Alerian



TRAILING ANNUAL INDEX PERFORMANCE

Equity							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI	-7.0%	-12.8%	-9.4%	-9.4%	6.6%	4.3%	9.5%
S&P 500	-9.0%	-13.5%	-4.4%	-4.4%	9.3%	8.5%	13.1%
Russell 1000	-9.1%	-13.8%	-4.8%	-4.8%	9.1%	8.2%	13.3%
Russell 2000	-11.9%	-20.2%	-11.0%	-11.0%	7.3%	4.4%	12.0%
Russell 2500	-11.0%	-18.5%	-10.0%	-10.0%	7.3%	5.1%	13.2%
MSCI EAFE	-4.9%	-12.5%	-13.8%	-13.8%	2.9%	0.5%	6.3%
MSCI EM	-2.7%	-7.5%	-14.6%	-14.6%	9.2%	1.6%	8.0%

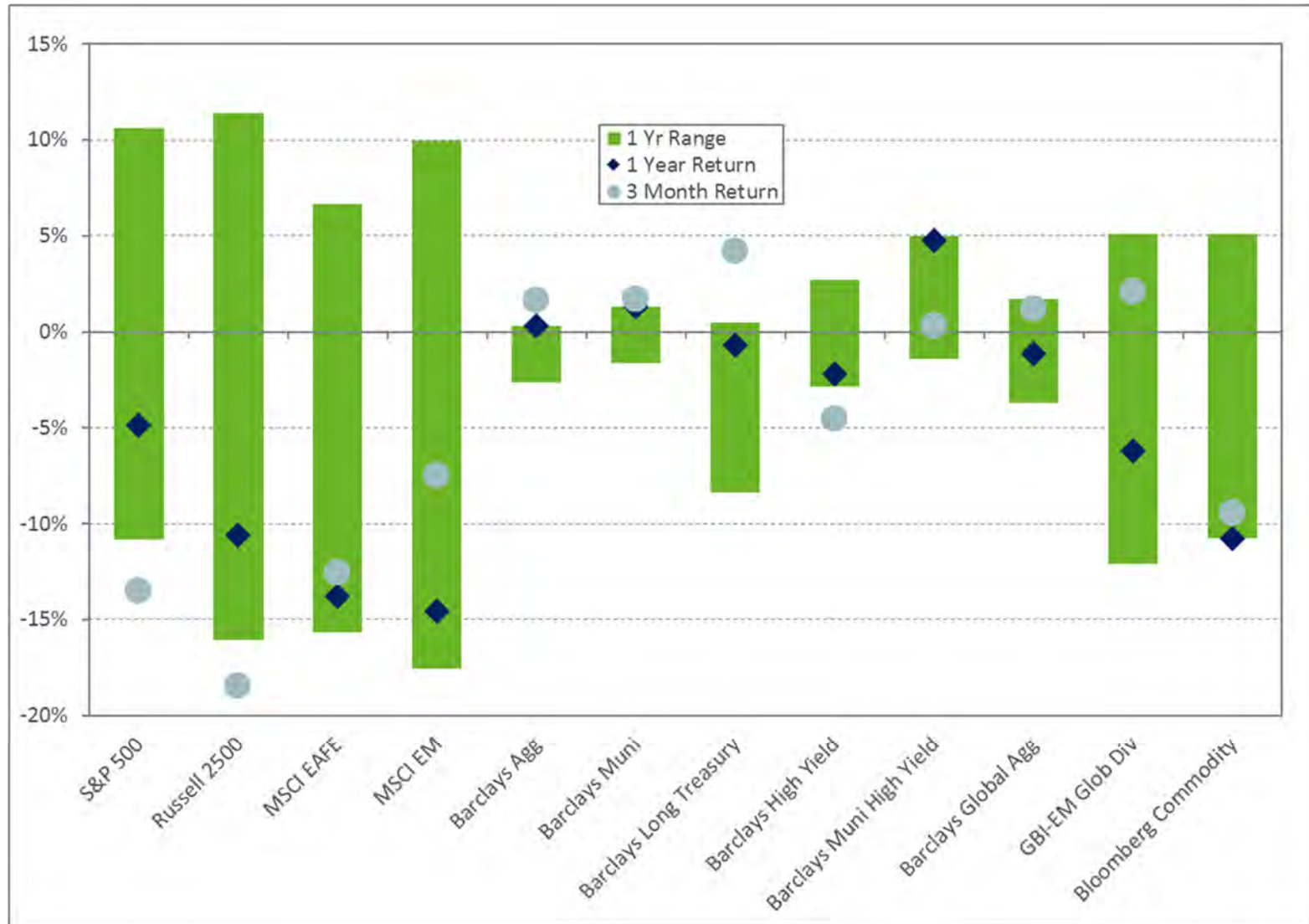
Credit							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
BC Global Agg	2.0%	1.2%	-1.2%	-1.2%	2.7%	1.1%	2.5%
BC US Agg	1.8%	1.6%	0.0%	0.0%	2.1%	2.5%	3.5%
BC Corp Credit	1.5%	-0.2%	-2.5%	-2.5%	3.3%	3.3%	5.9%
BC US HY	-2.1%	-4.5%	-2.1%	-2.1%	7.2%	3.8%	11.1%
BC Muni	1.2%	1.7%	1.3%	1.3%	2.3%	3.8%	4.9%
BC Muni HY	0.9%	0.3%	4.8%	4.8%	5.8%	6.5%	9.1%
BC TIPS	0.5%	-0.4%	-1.3%	-1.3%	2.1%	1.7%	3.6%
BC 20+ STRIPS	7.8%	4.6%	-4.1%	-4.1%	3.4%	9.3%	3.6%
BC Long Treasuries	5.5%	4.2%	-1.8%	-1.8%	2.6%	5.9%	4.1%
BC Long Credit	2.5%	-1.6%	-6.8%	-6.8%	4.9%	5.1%	7.4%
BC Govt/Credit 1-3 Yr	0.8%	1.2%	1.6%	1.6%	1.2%	1.0%	1.5%
CS Lev Loan	-2.3%	-3.1%	1.1%	1.1%	5.0%	3.3%	8.3%
JPM EMBI Glob Div	1.4%	-1.3%	-4.3%	-4.3%	5.2%	4.8%	8.2%
JPM GBI-EM Glob Div	1.3%	2.1%	-6.2%	-6.2%	5.9%	-1.0%	3.5%

Real Assets							
	Dec-18	Q4	YTD	1 YR	3 YR	5 YR	10 YR
BBG Commodity	-6.9%	-9.4%	-11.2%	-11.2%	0.3%	-8.8%	-3.8%
Alerian MLP	-9.4%	-17.3%	-12.4%	-12.4%	-1.1%	-7.3%	9.5%
FTSE NAREIT Equity REITs	-8.2%	-6.7%	-4.6%	-4.6%	2.9%	7.9%	12.1%

Source: Bloomberg, Barclays, S&P, Russell, MSCI, JP Morgan, Credit Suisse, Alerian, NAREIT



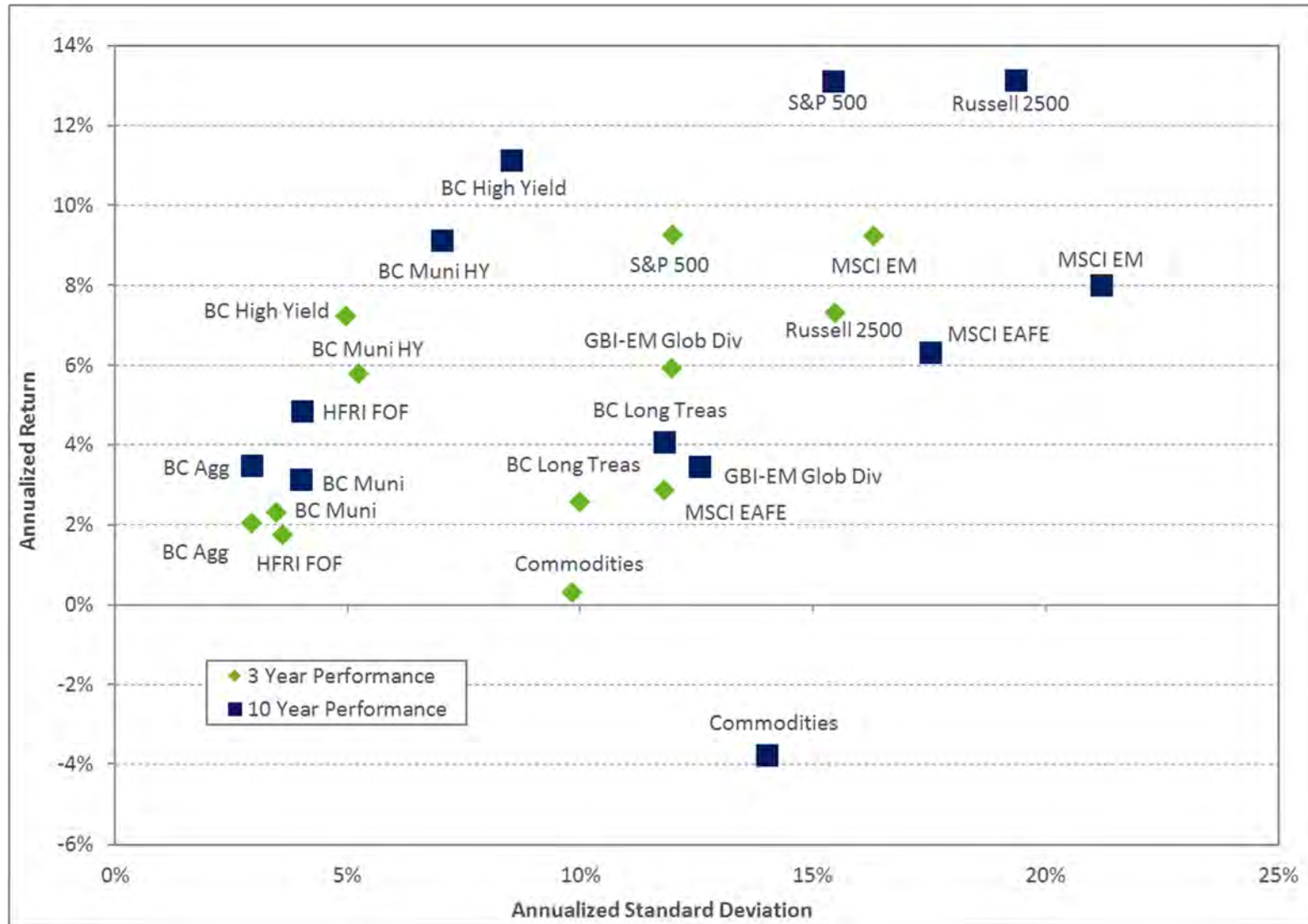
SHORT-TERM PERFORMANCE SUMMARY



Source: Bloomberg, Standard and Poor's, Russell, MSCI, Barclays, JP Morgan
 *1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago



LONG-TERM PERFORMANCE SUMMARY



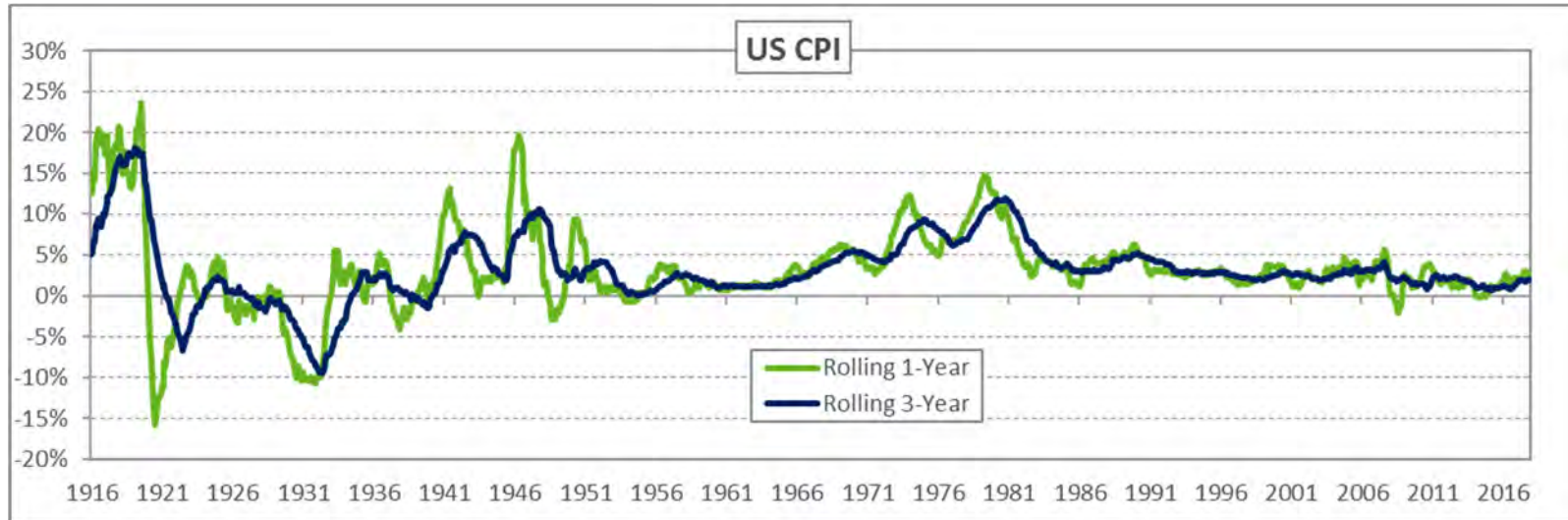
Source: Bloomberg, Standard and Poor's, Russell, MSCI, Barclays, JP Morgan



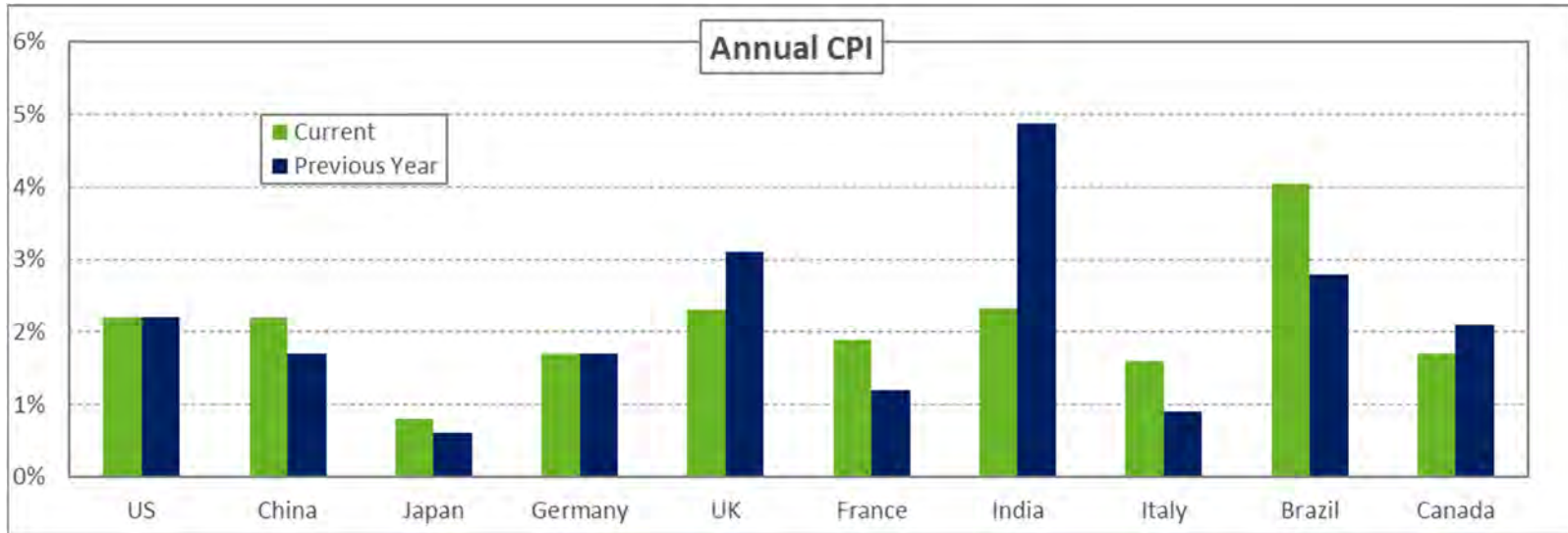
MACRO

NEPC, LLC

INFLATION



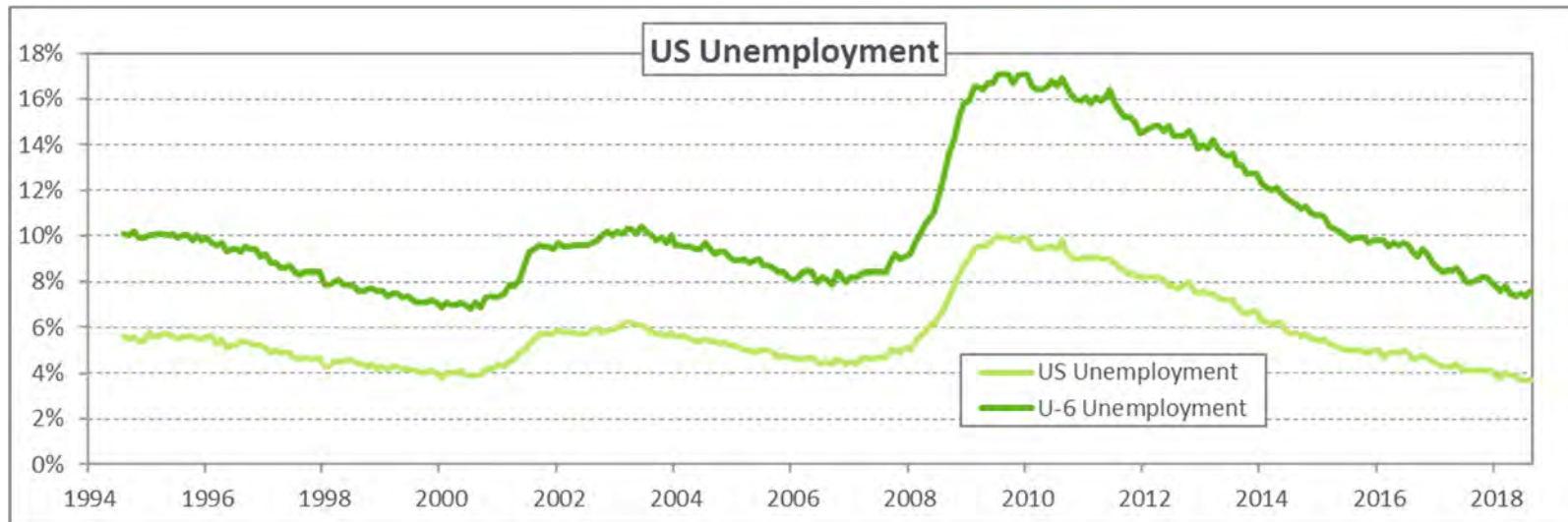
Source: Bureau of Labor Statistics, Bloomberg, NEPC



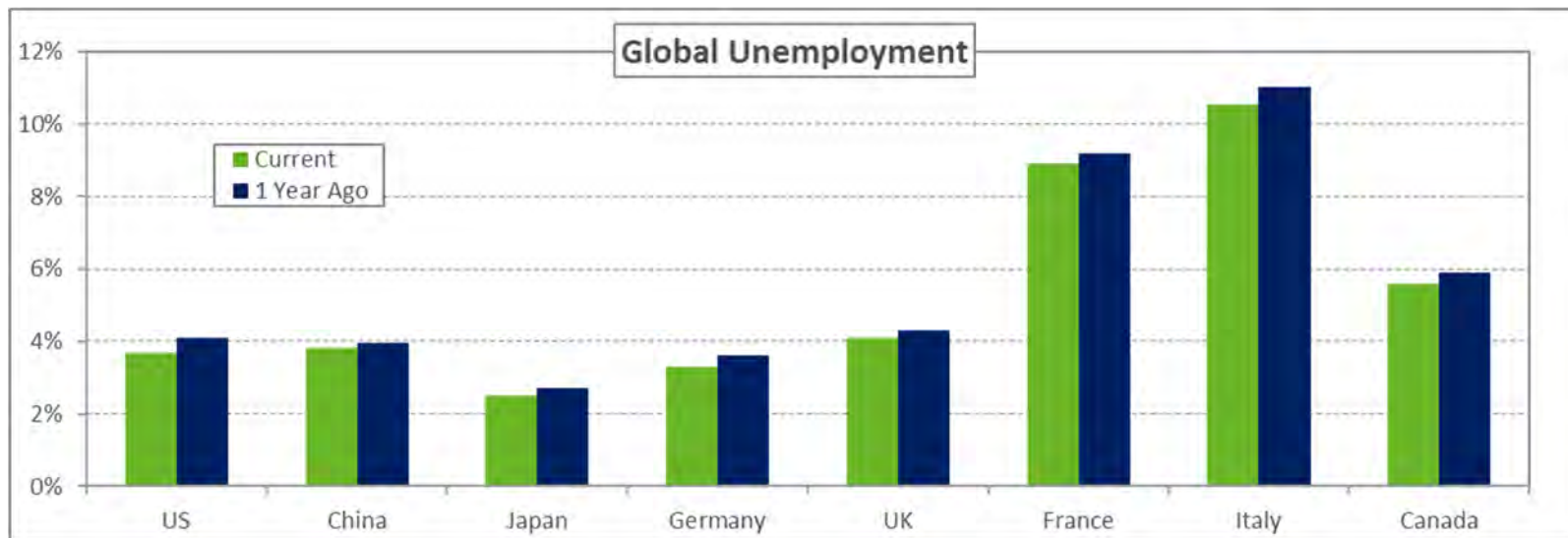
Source: Bureau of Labor Statistics, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, India Central Statistical Organization, ISTAT, IBGE, STCA, Bloomberg



UNEMPLOYMENT



Source: Bureau of Labor Statistics, Bloomberg



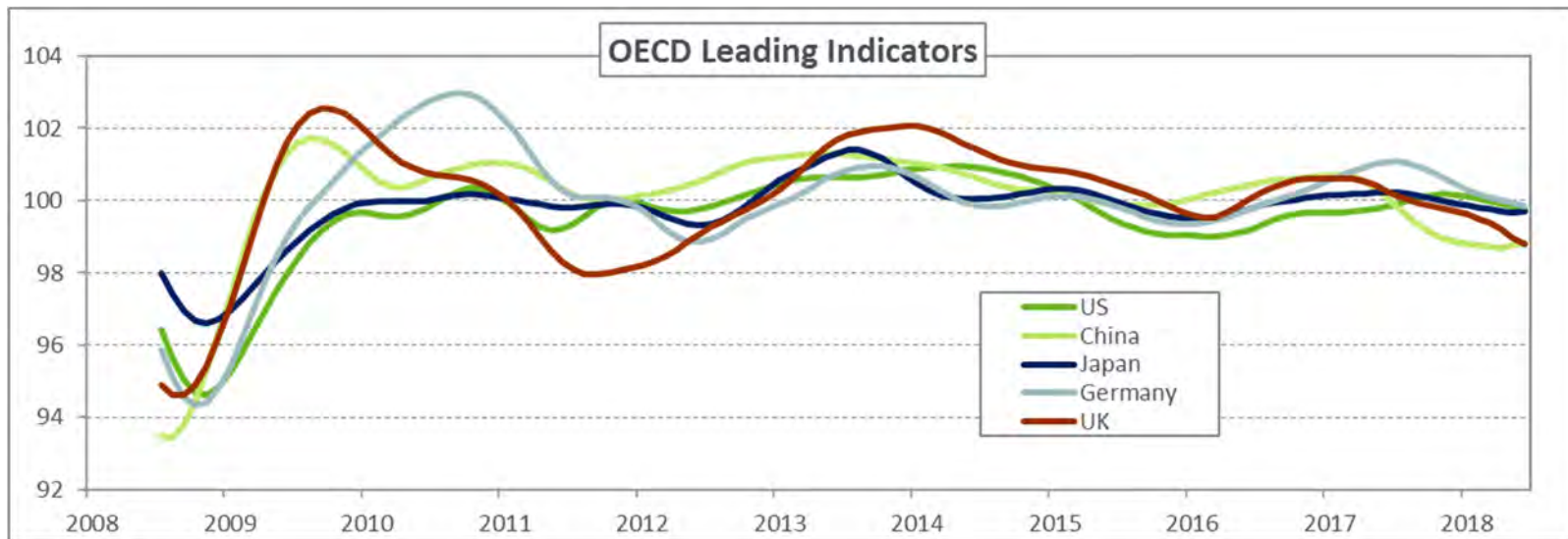
Source: Bureau of Labor Statistics, STA, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, ISTAT, IBGE, Bloomberg



ECONOMIC INDICATORS



Source: IMF



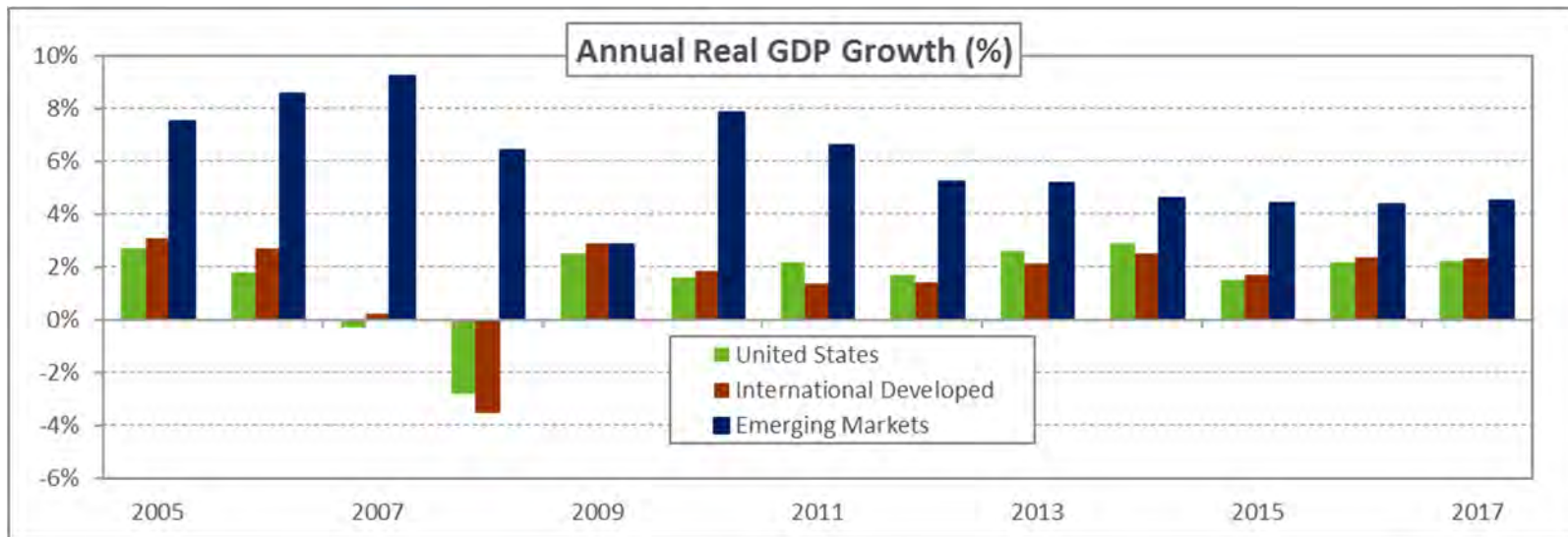
Source: OECD, Bloomberg



GROSS DOMESTIC PRODUCT



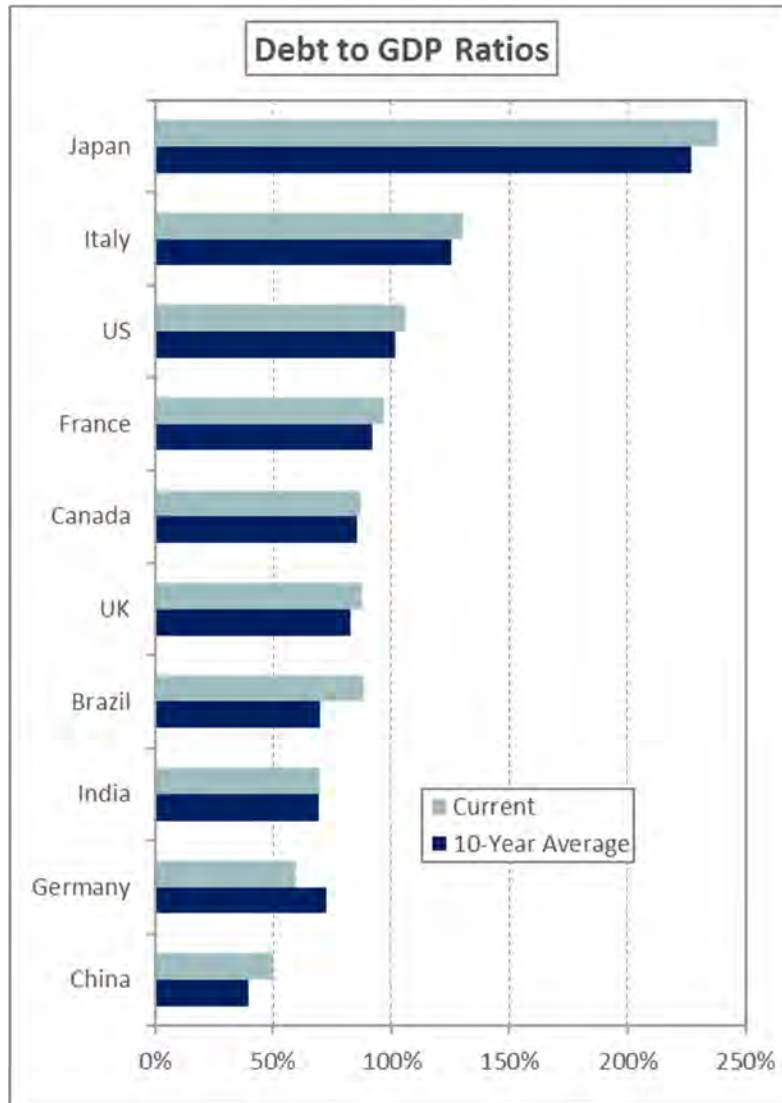
Source: Bloomberg



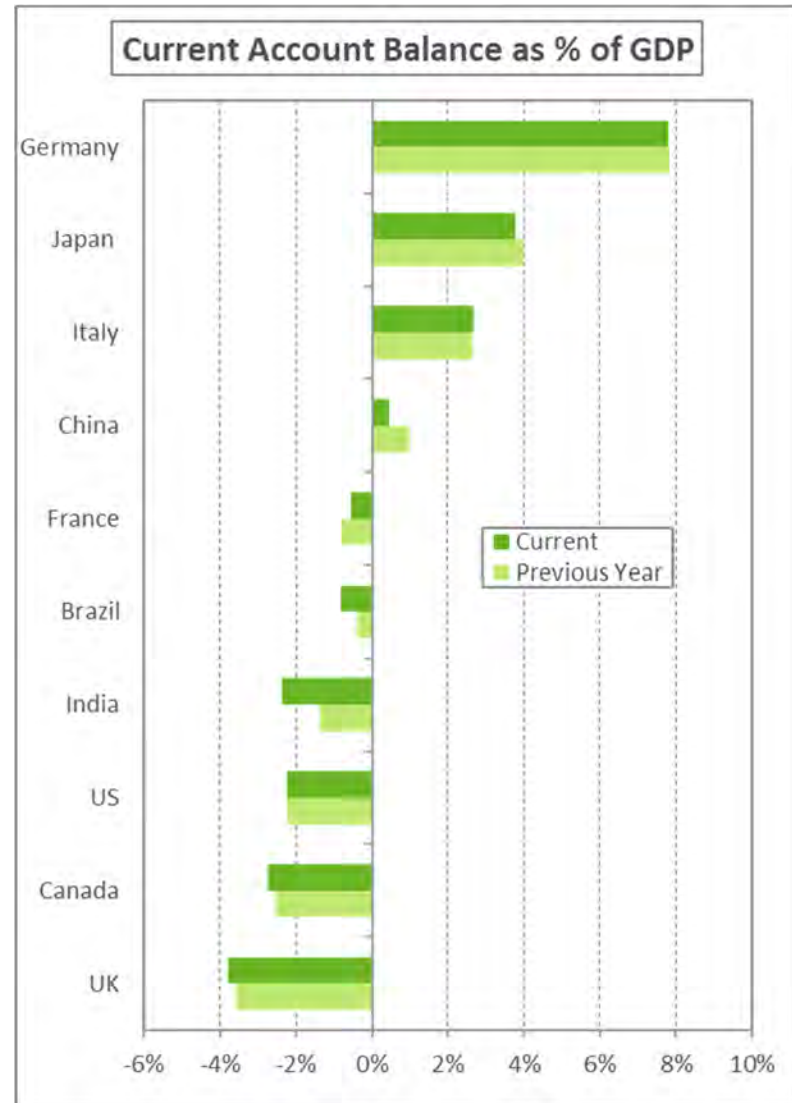
Source: Bloomberg



GROSS DOMESTIC PRODUCT METRICS



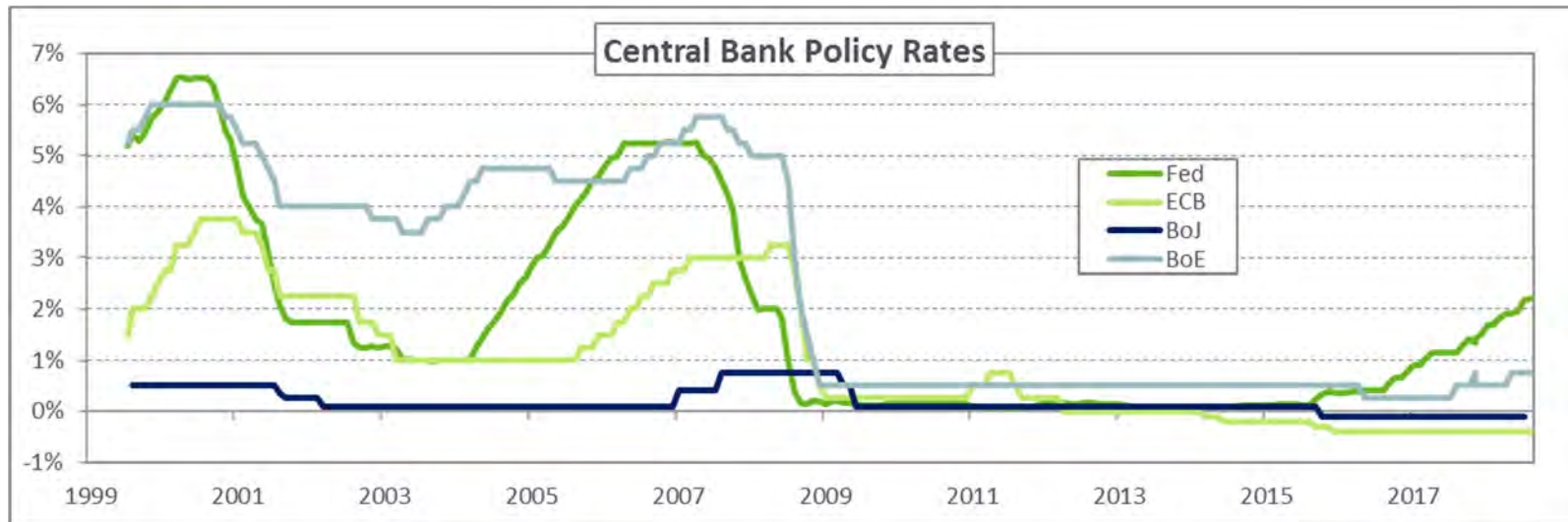
Source: IMF, Bloomberg



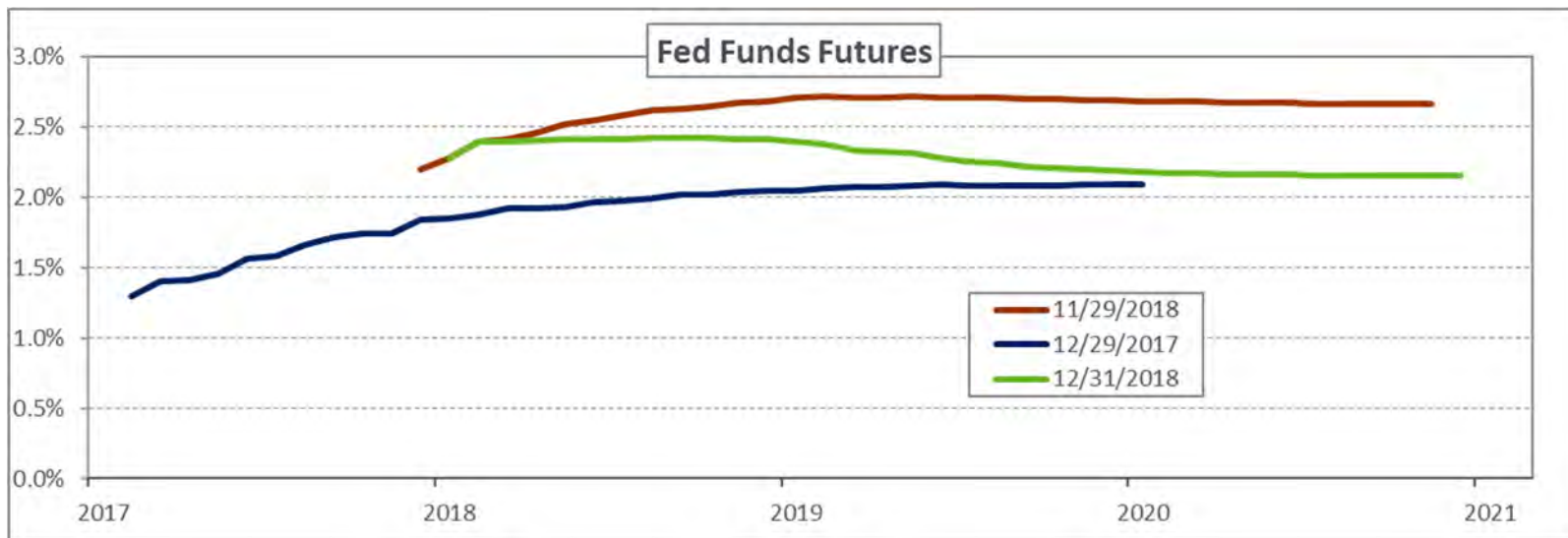
Source: Bloomberg



CENTRAL BANK RATES



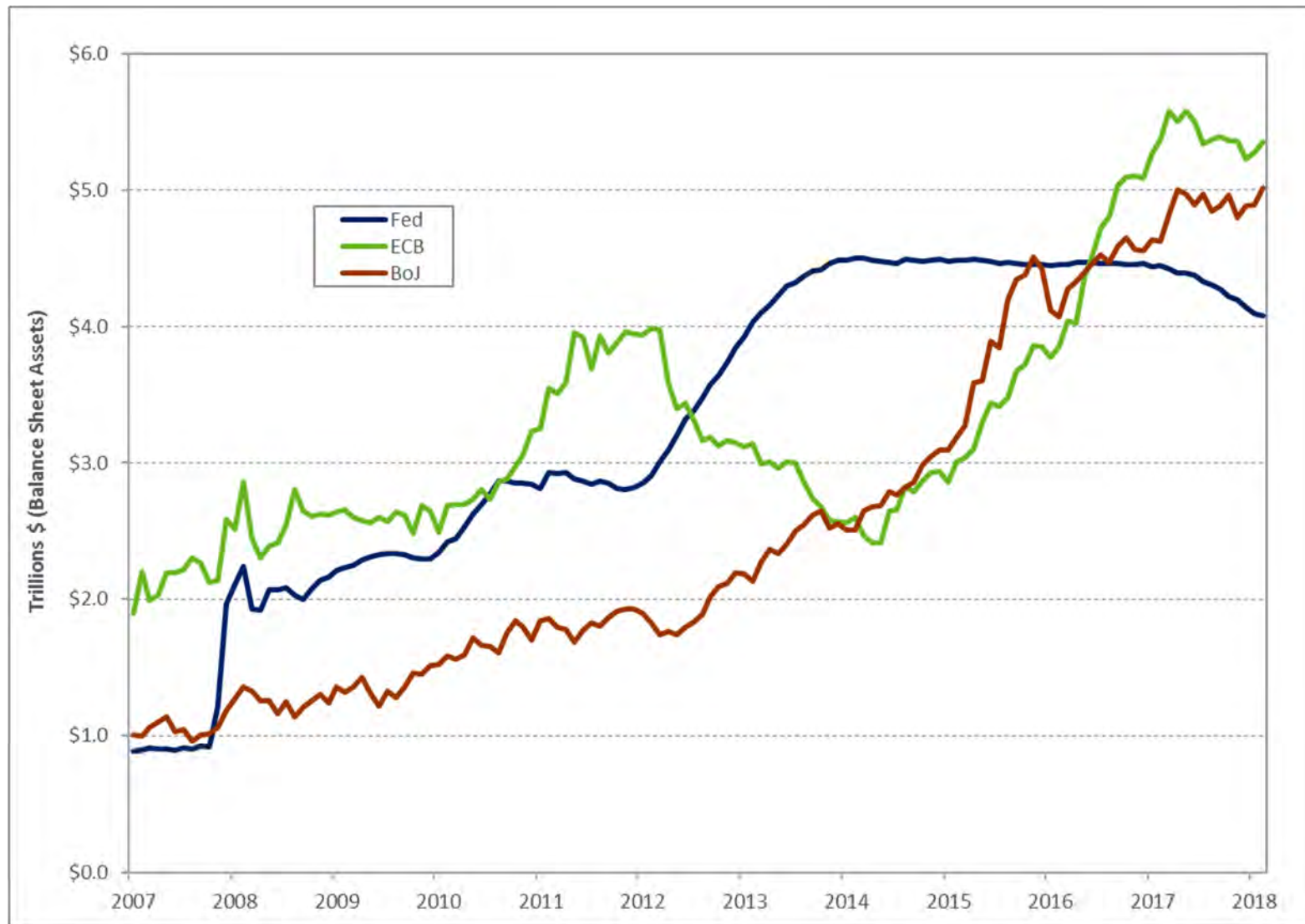
Source: Federal Reserve, ECB, Bank of Japan, Bank of England, Bloomberg



Source: Bloomberg



CENTRAL BANK BALANCE SHEETS



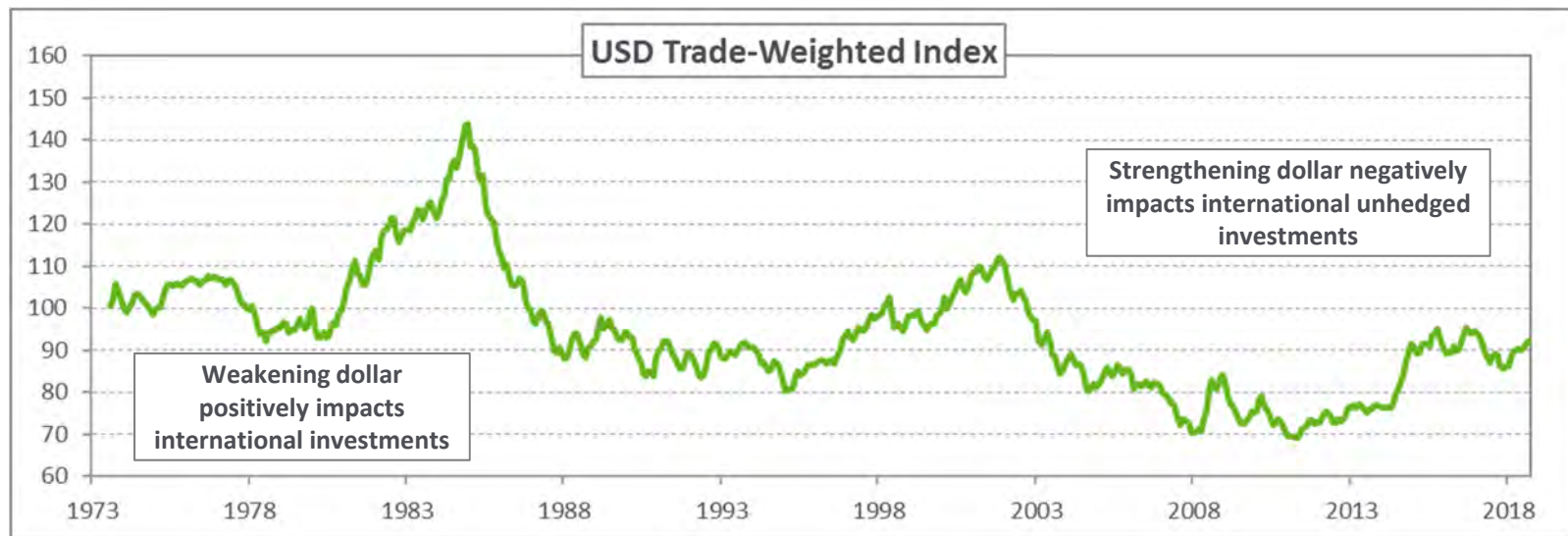
Source: Federal Reserve, Bank of Japan, ECB, Bloomberg, NEPC



CURRENCIES

Currencies	% Change Relative to USD			
	Spot	1 Month	YTD	1 Year
Euro	1.15	1.3%	-4.5%	-4.5%
British Pound	1.28	0.0%	-5.6%	-5.6%
Japanese Yen	109.69	3.5%	2.7%	2.7%
Swiss Franc	0.98	1.6%	-0.8%	-0.8%
Australian Dollar	0.70	-3.5%	-9.7%	-9.7%
Chinese Yuan	6.88	1.2%	-5.4%	-5.4%
Brazilian Real	3.87	-0.2%	-14.6%	-14.6%
Russian Ruble	69.72	-3.9%	-17.3%	-17.3%
Indian Rupee	69.77	-0.3%	-8.5%	-8.5%
Mexican Peso	19.65	3.6%	0.0%	0.0%
South African Rand	14.35	-3.3%	-13.7%	-13.7%

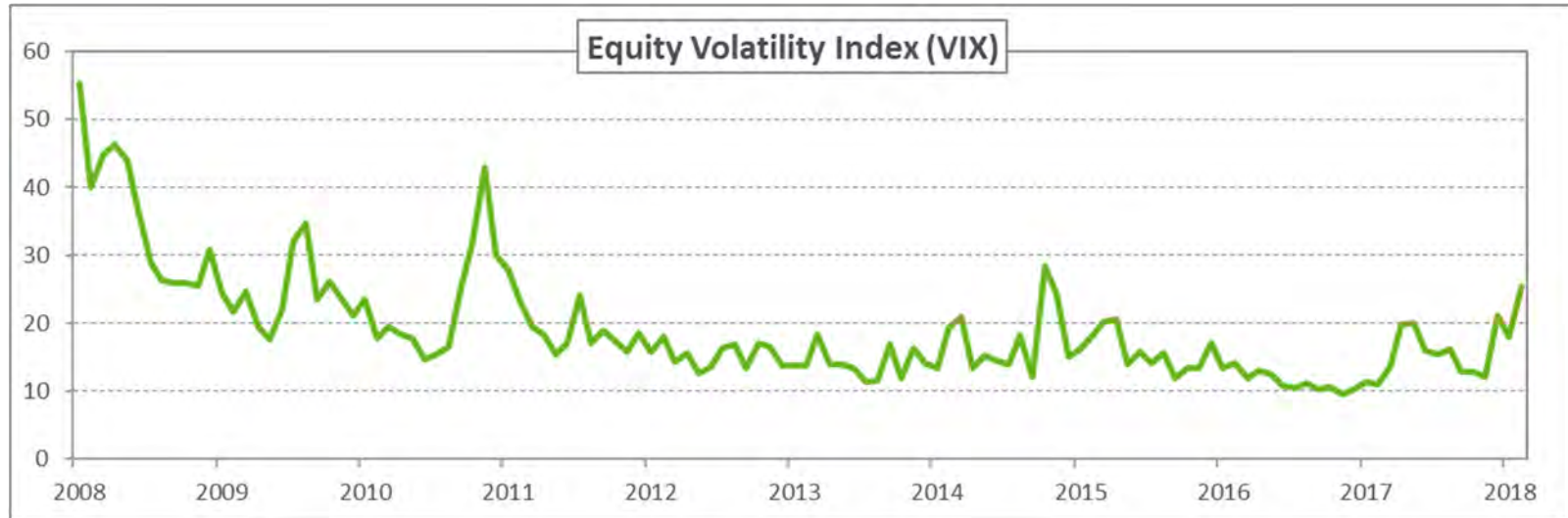
Source: Bloomberg



Source: Bloomberg



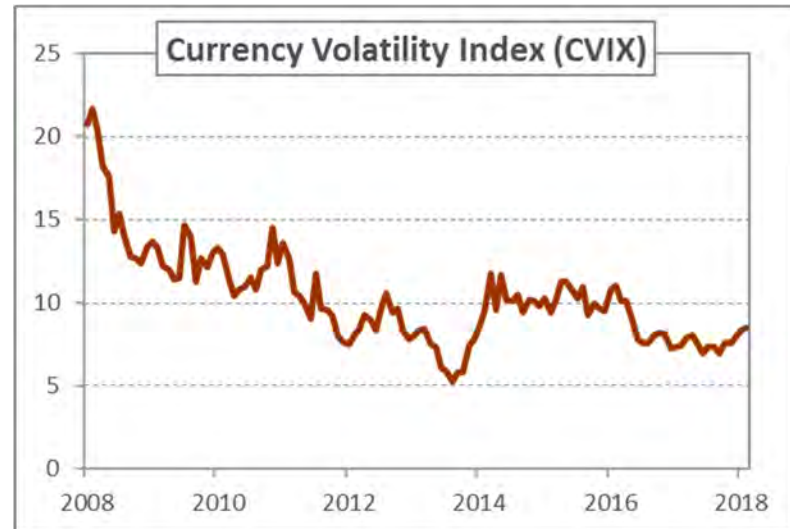
VOLATILITY



Source: CBOE, Bloomberg



Source: Merrill Lynch, Bloomberg



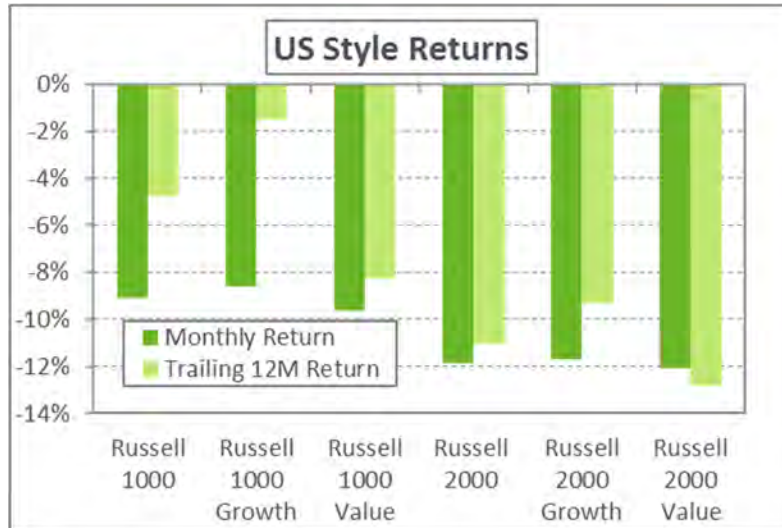
Source: Deutsche Bank, Bloomberg



EQUITY

NEPC, LLC

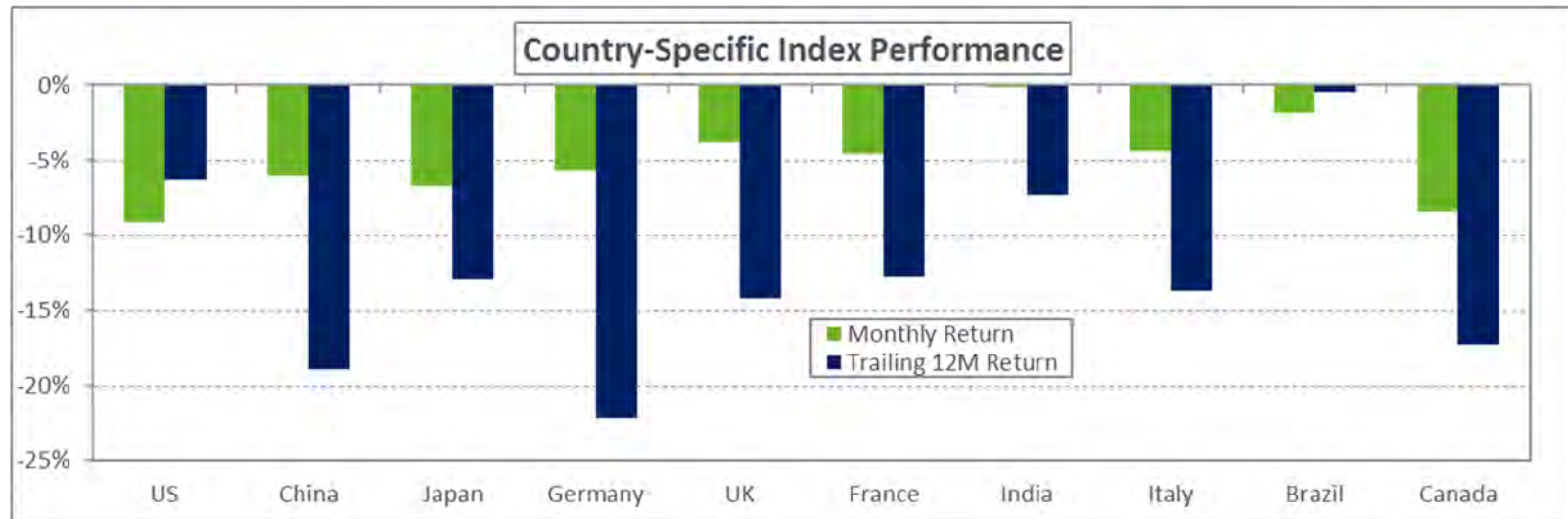
EQUITY INDEX PERFORMANCE



Source: Russell, Bloomberg



Source: MSCI, Bloomberg



Source: MSCI, Bloomberg
Represents returns in USD

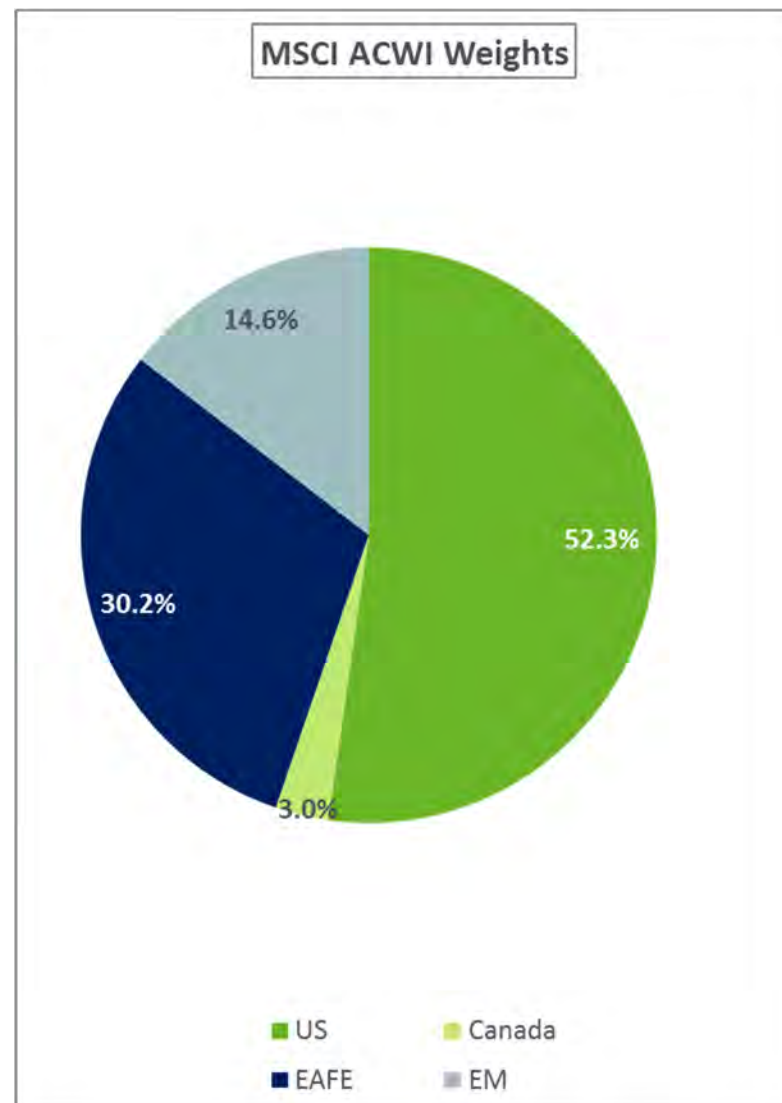


INDEX COMPOSITION

	MTD	QTD	YTD	Index Weight
S&P 500	-9.0%	-13.5%	-4.4%	100%
Cons Disc	-8.4%	-16.5%	0.4%	10.0%
Cons Staples	-9.2%	-5.4%	-9.2%	7.5%
Energy	-12.7%	-24.0%	-18.8%	5.4%
Financials	-11.3%	-13.3%	-13.5%	12.7%
Health Care	-8.6%	-8.8%	5.9%	15.8%
Industrials	-10.7%	-17.4%	-13.8%	9.3%
Info Tech	-8.5%	-17.4%	-0.7%	20.0%
Materials	-7.0%	-12.5%	-15.2%	2.8%
Real Estate	-7.6%	-4.1%	-3.3%	3.0%
Telecom	-7.3%	-13.3%	-13.7%	10.2%
Utilities	-4.1%	1.1%	3.0%	3.4%

	MTD	QTD	YTD	Index Weight
MSCI ACWI	-7.0%	-12.7%	-9.0%	100%
Cons Disc	-7.0%	-14.4%	-8.3%	10.8%
Cons Staples	-6.1%	-6.6%	-10.5%	8.4%
Energy	-9.0%	-20.2%	-13.3%	6.0%
Financials	-7.9%	-11.9%	-15.7%	17.7%
Health Care	-8.1%	-9.6%	1.7%	11.8%
Industrials	-7.9%	-15.6%	-14.4%	10.7%
Info Tech	-7.6%	-17.1%	-5.8%	14.1%
Materials	-3.5%	-13.4%	-16.0%	5.0%
Real Estate	-4.9%	-4.0%	-7.7%	3.2%
Telecom	-6.0%	-6.2%	-10.9%	8.9%
Utilities	-2.0%	0.7%	1.4%	3.4%

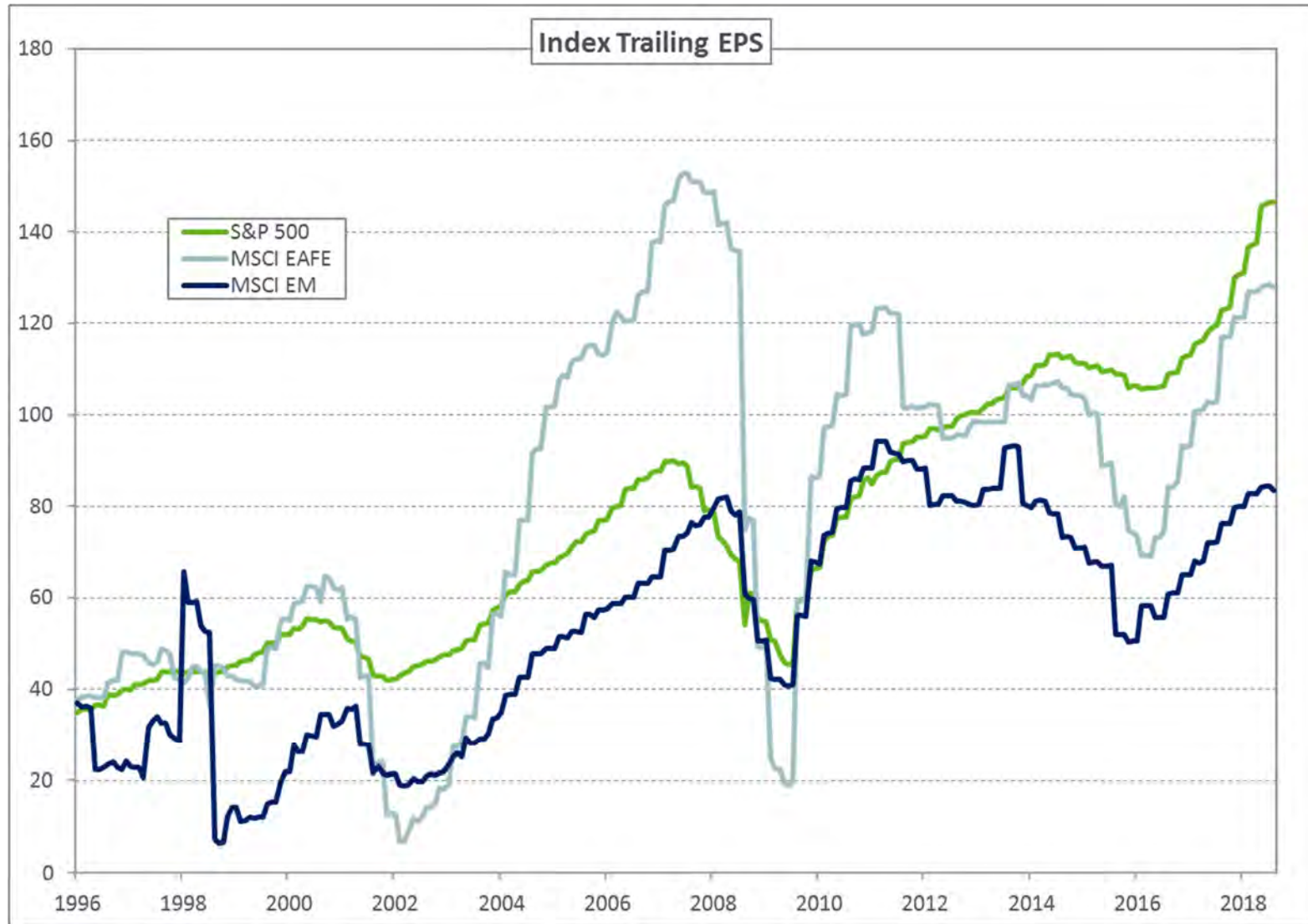
Source: S&P, MSCI, Bloomberg



Source: MSCI, Bloomberg



EARNINGS



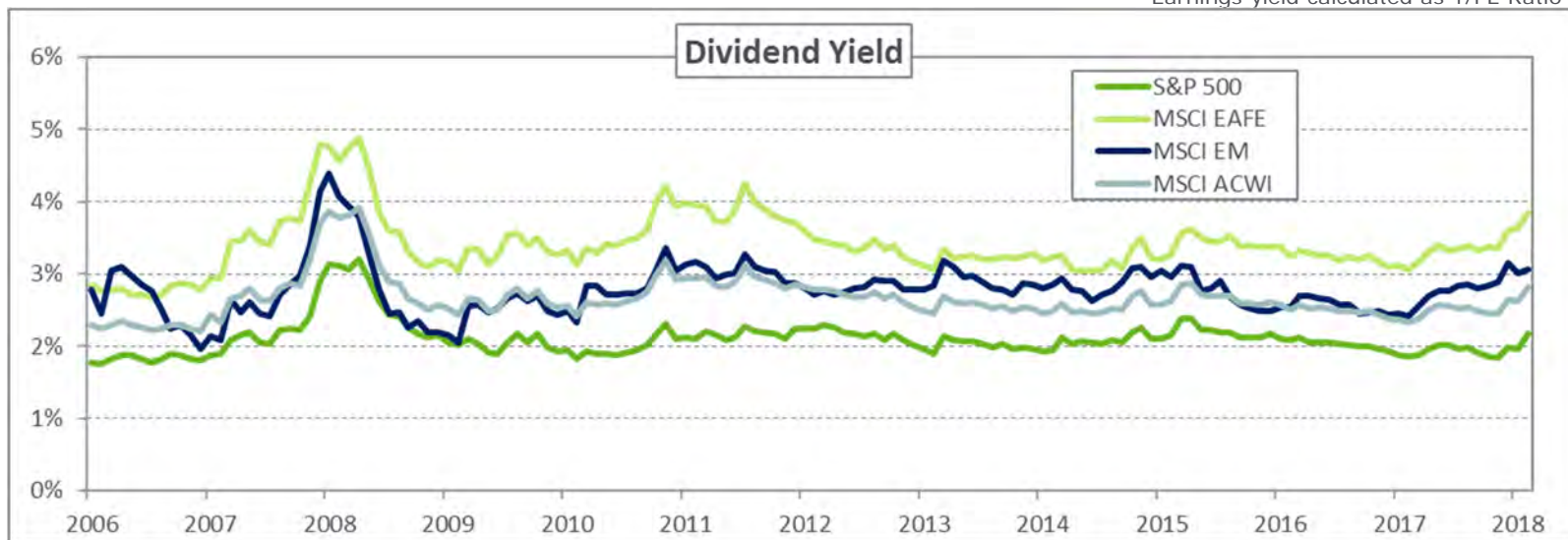
Source: S&P, MSCI, Bloomberg



YIELDS



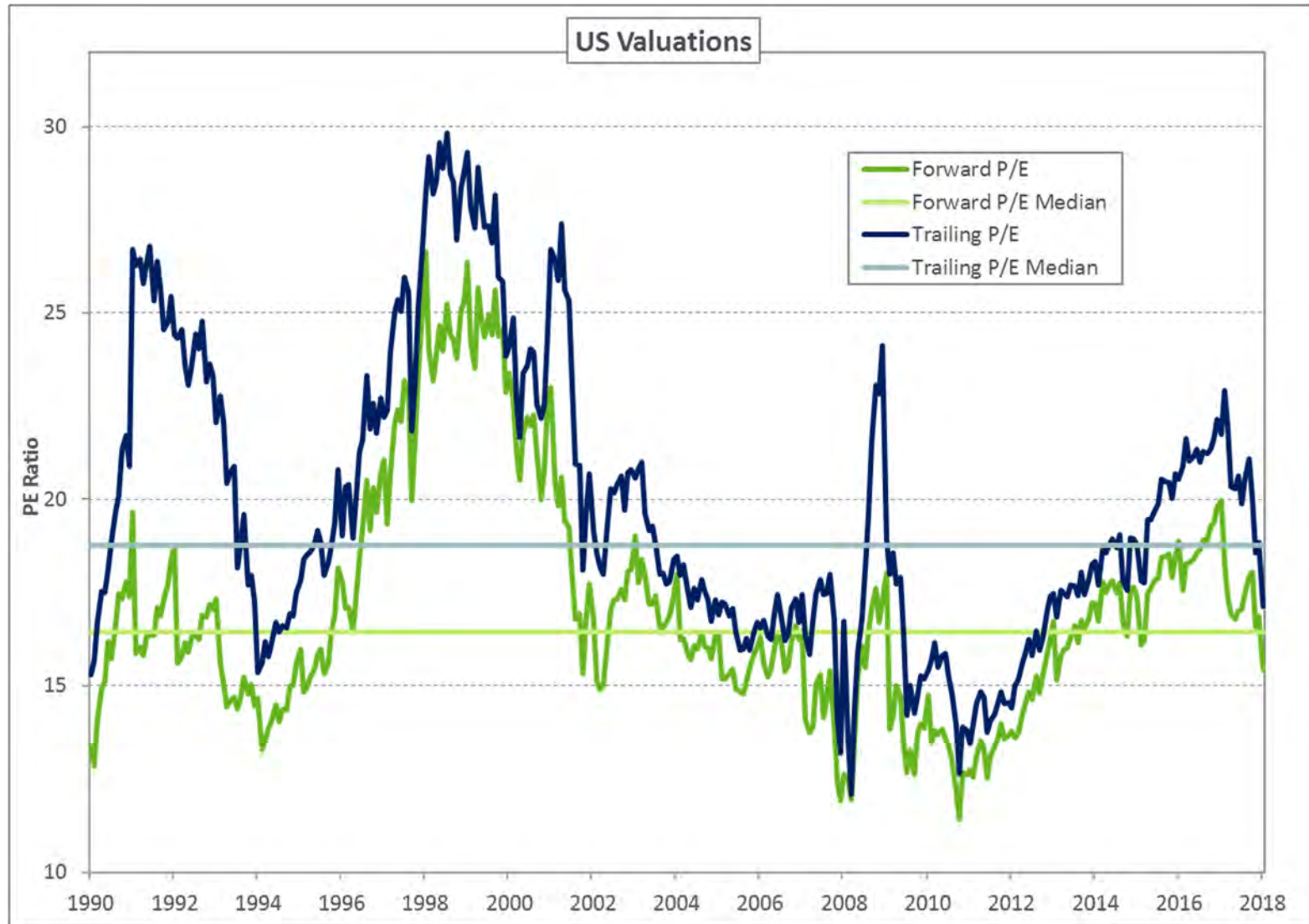
Source: S&P, MSCI, Bloomberg
Earnings yield calculated as 1/PE Ratio



Source: S&P, MSCI, Bloomberg



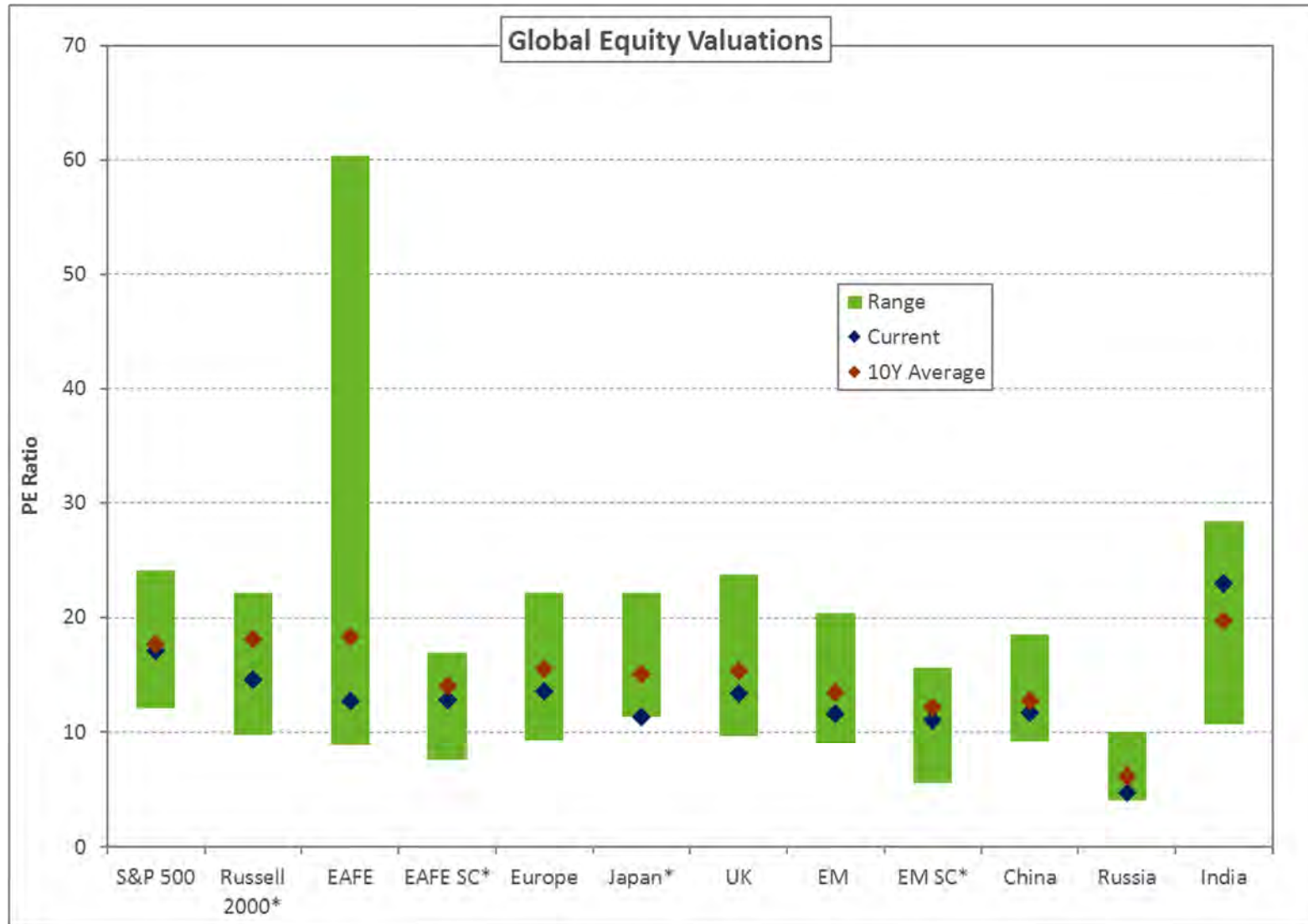
US EQUITY VALUATIONS



Source: S&P, Bloomberg
Medians calculated as of 01/31/1990



GLOBAL EQUITY VALUATIONS



Source: S&P, Russell, MSCI, Bloomberg, NEPC
 *Denotes the use of index-adjusted positive PE ratio
 Ranges calculated using trailing 10-year figures



CREDIT

NEPC, LLC

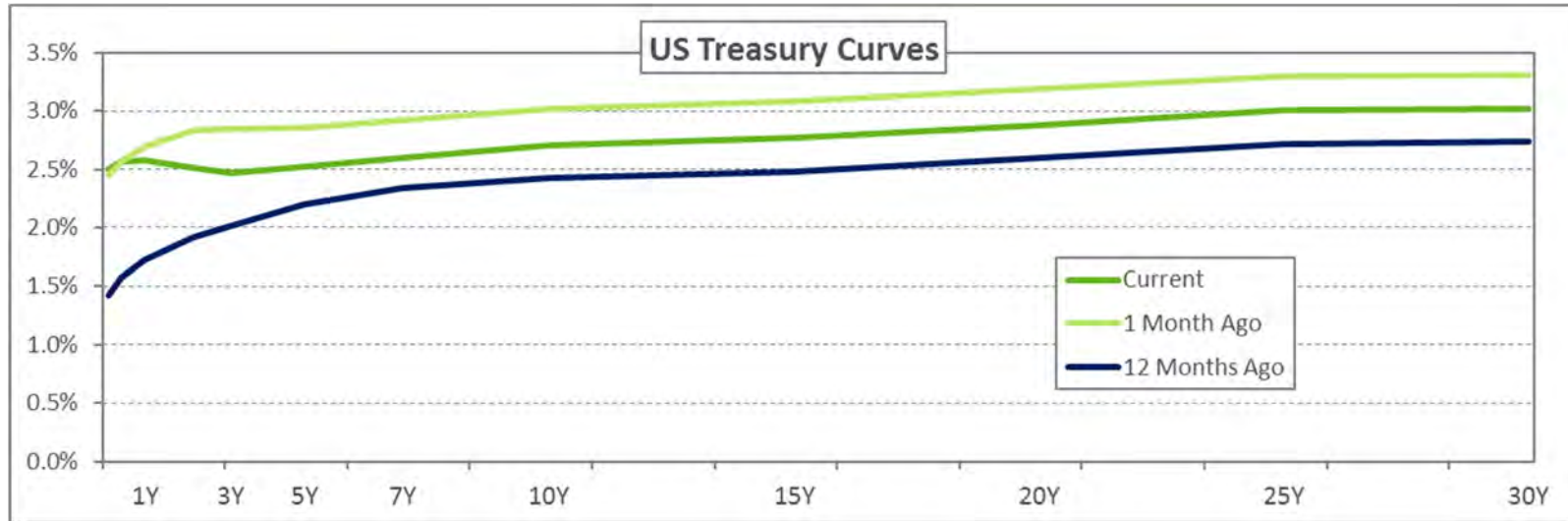
FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	3.3%	54	5.9	1.8%	1.6%	0.0%
Barclays Treasury	2.6%	-	6.1	2.2%	2.6%	0.9%
Barclays Agency	2.8%	16	4.0	1.4%	1.9%	1.3%
Barclays MBS	3.4%	35	4.7	1.8%	2.1%	1.0%
Barclays ABS	3.0%	47	2.3	0.9%	1.3%	1.7%
Barclays CMBS	3.4%	86	5.3	1.6%	1.7%	0.8%
Barclays Corp IG	4.2%	153	7.1	1.5%	-0.2%	-2.5%
Barclays Muni	2.7%	-	6.2	1.2%	1.7%	1.3%
Barclays HY Muni	5.0%	-	8.9	0.9%	0.3%	4.8%
Barclays TIPS	2.8%	-	5.3	0.5%	-0.4%	-1.3%
Barclays HY	8.0%	526	4.0	-2.1%	-4.5%	-2.1%
Barclays Global Agg	2.0%	55	7.0	2.0%	1.2%	-1.2%
JPM EMBI Glob Div	7.0%	434.61	7.1	1.3%	-1.3%	-4.3%
JPM CEMBI Broad	5.3%	337.93	4.5	0.7%	0.0%	-1.6%
JPM GBI - EM	6.5%	-	5.1	1.3%	2.1%	-6.2%

Source: Barclays, JPM, Bloomberg



TREASURIES



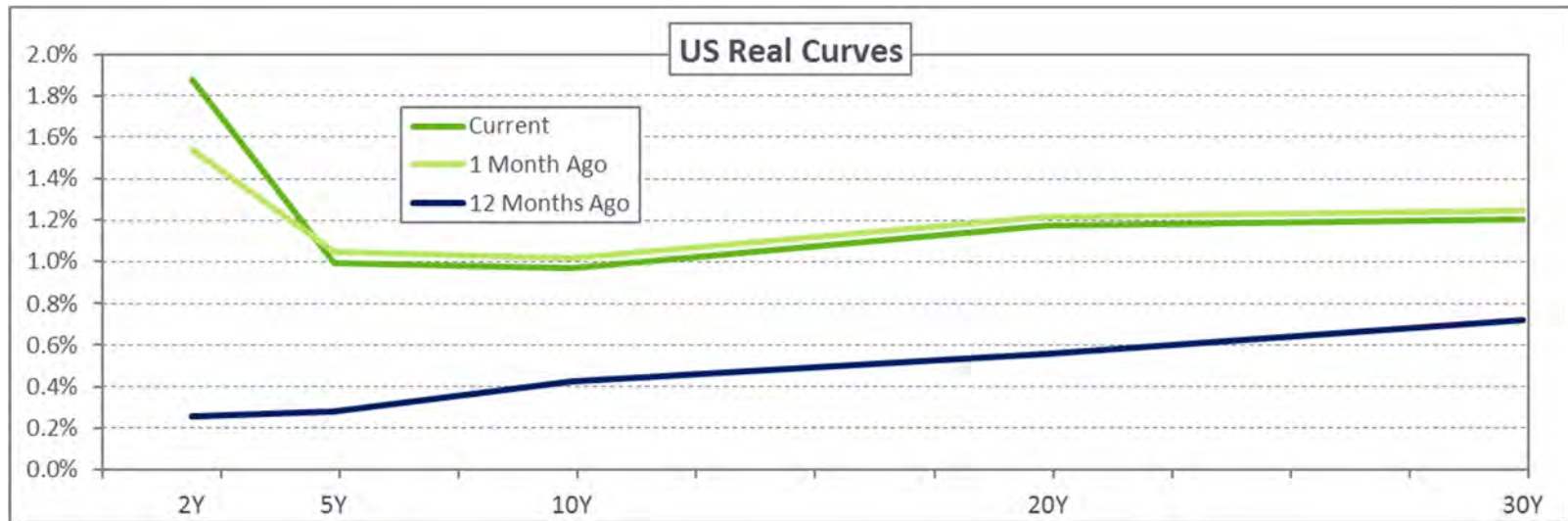
Source: Bloomberg

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	2.51%	2.45%	1.42%	0.19%	1.83%
6M Treasury	2.57%	2.56%	1.57%	0.22%	1.92%
2Y Treasury	2.51%	2.83%	1.92%	0.81%	1.40%
5Y Treasury	2.52%	2.86%	2.20%	1.86%	1.42%
10Y Treasury	2.70%	3.02%	2.42%	3.01%	0.00%
30Y Treasury	3.02%	3.31%	2.74%	5.94%	-2.72%

Source: Barclays, Bloomberg



REAL YIELDS



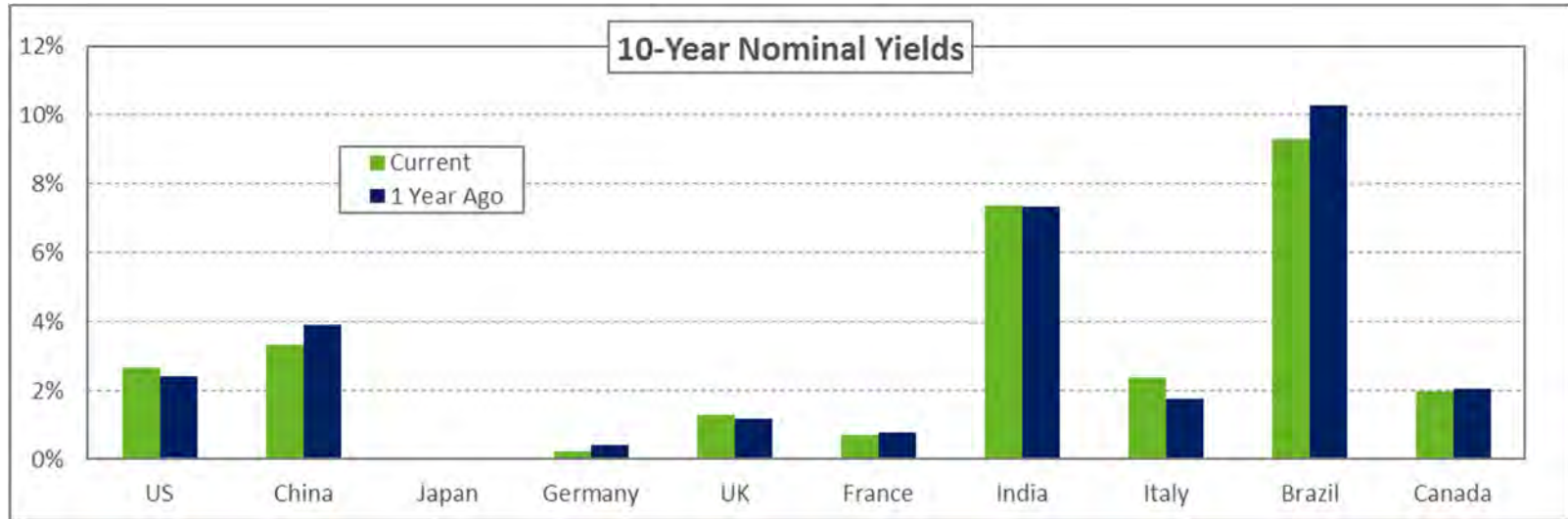
Source: Bloomberg

	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months Ago
2Y Treasury	1.88%	1.54%	0.25%	0.66%	1.56%
5Y Treasury	0.99%	1.05%	0.28%	1.49%	1.88%
10Y Treasury	0.97%	1.02%	0.42%	1.71%	1.98%
20Y Treasury	1.17%	1.22%	0.56%	1.66%	1.86%
30Y Treasury	1.21%	1.25%	0.72%	1.82%	2.02%

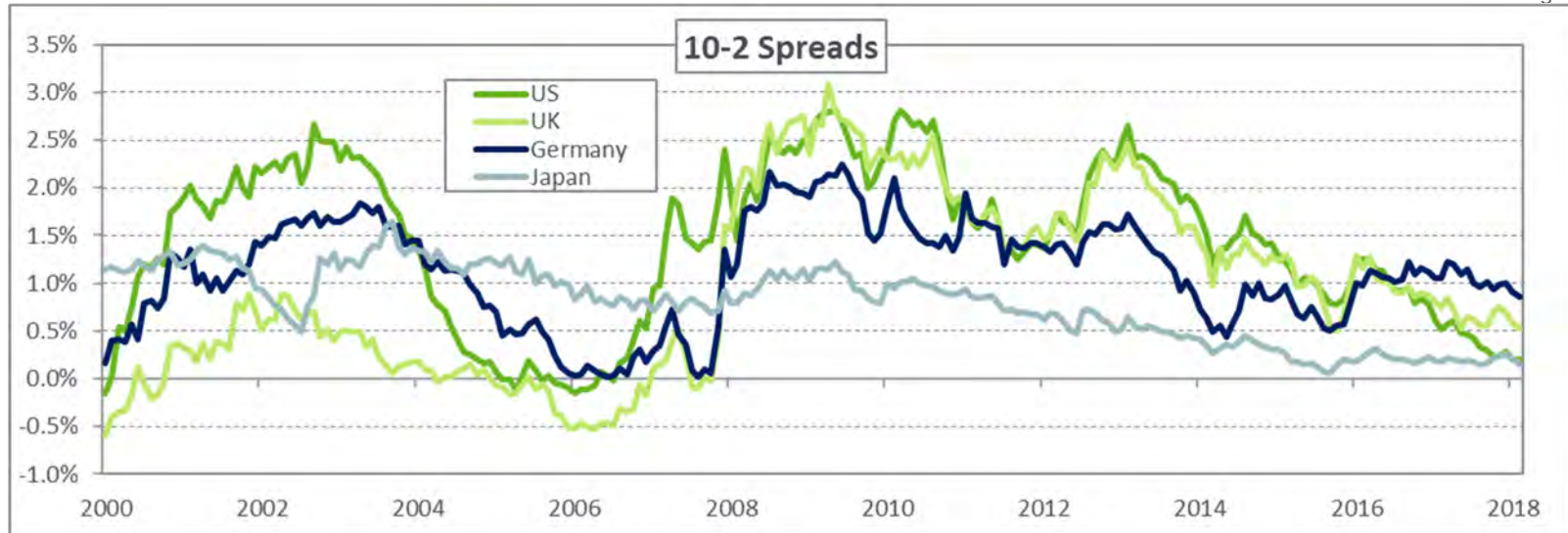
Source: Barclays, Bloomberg



NOMINAL YIELDS



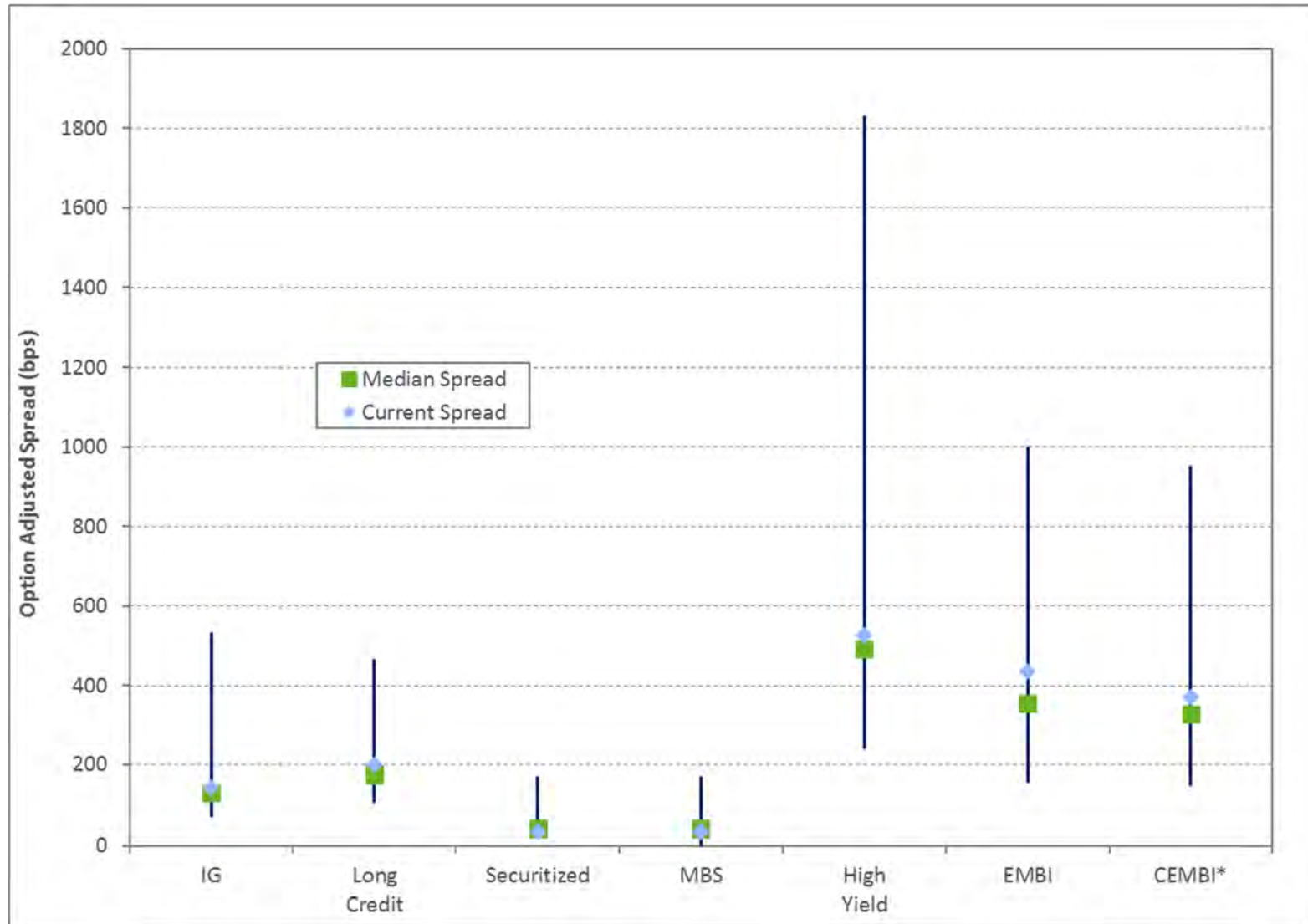
Source: Bloomberg



Source: Bloomberg



CREDIT SPREADS



Source: Barclays, JPM, Bloomberg
Data range: 01/31/2000 through month-end
*JPM CEMBI calculated since 12/31/2001



REAL ASSETS

NEPC, LLC

REAL ASSETS INDEX PERFORMANCE

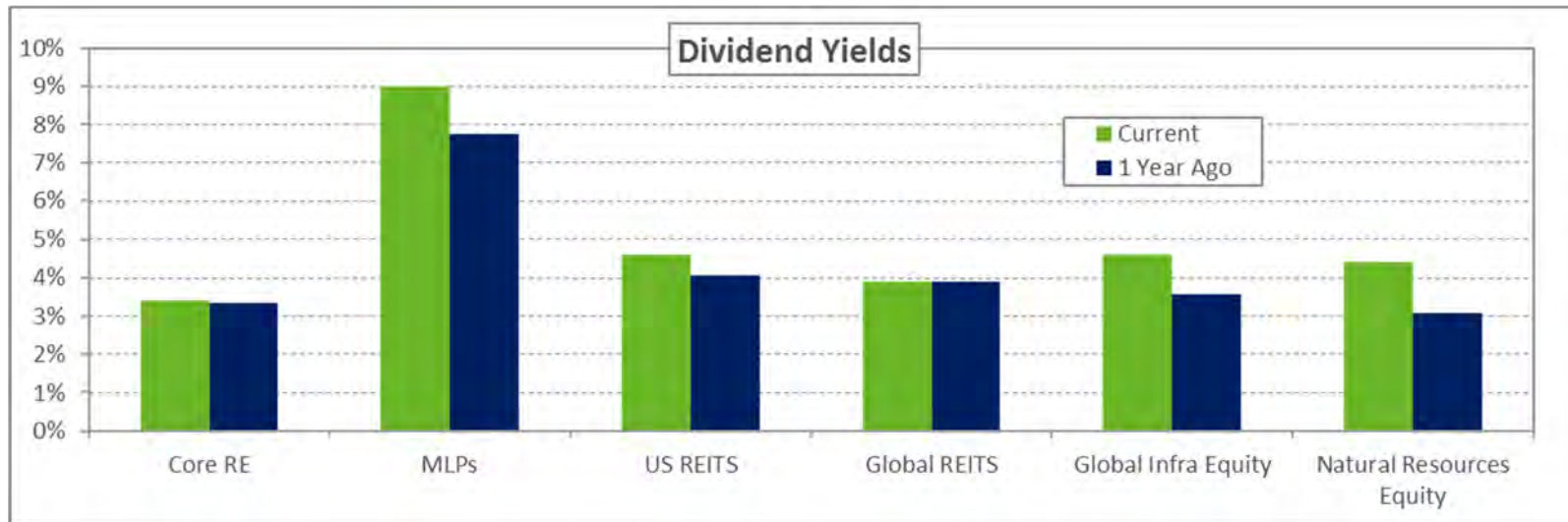
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	-6.9%	-9.4%	-11.2%	-11.2%	0.3%	-8.8%
Bloomberg Sub Agriculture Index	-2.4%	0.2%	-10.8%	-10.8%	-6.8%	-9.1%
Coffee	-5.1%	-3.1%	-26.5%	-26.5%	-15.2%	-10.5%
Corn	-0.5%	2.7%	-4.6%	-4.6%	-8.9%	-11.9%
Cotton	-8.3%	-6.9%	-7.3%	-7.3%	4.9%	-1.3%
Soybean	-1.4%	2.7%	-13.4%	-13.4%	-3.4%	-6.2%
Soybean Oil	-1.6%	-5.5%	-20.8%	-20.8%	-7.9%	-10.6%
Sugar	-6.1%	8.1%	-26.1%	-26.1%	-12.2%	-14.9%
Wheat	-2.2%	-2.5%	3.5%	3.5%	-11.7%	-13.5%
Bloomberg Sub Energy	-18.7%	-25.8%	-12.7%	-12.7%	-1.0%	-18.5%
Brent Crude	-9.5%	-34.6%	-14.9%	-14.9%	6.8%	-19.1%
Heating Oil	-7.7%	-27.9%	-15.7%	-15.7%	9.0%	-14.7%
Natural Gas	-33.0%	0.0%	-0.1%	-0.1%	-11.2%	-21.8%
Unleaded Gas	-7.3%	-37.4%	-28.3%	-28.3%	-7.8%	-17.4%
WTI Crude Oil	-10.8%	-37.5%	-20.5%	-20.5%	-3.6%	-21.9%
Bloomberg Sub Industrial Metals	-5.1%	-8.7%	-19.5%	-19.5%	7.7%	-3.2%
Aluminum	-6.3%	-10.9%	-16.9%	-16.9%	6.2%	-2.2%
Copper	-5.4%	-6.2%	-21.2%	-21.2%	5.6%	-6.0%
Nickel	-4.7%	-15.1%	-16.4%	-16.4%	5.5%	-6.3%
Zinc	-2.9%	-3.8%	-21.4%	-21.4%	17.1%	3.7%
Bloomberg Sub Precious Metals	5.8%	6.8%	-4.6%	-4.6%	5.1%	-0.9%
Gold	4.7%	7.2%	-2.8%	-2.8%	5.7%	0.7%
Silver	9.5%	5.4%	-10.2%	-10.2%	2.7%	-5.5%
Bloomberg Sub Livestock	-0.9%	0.7%	-1.7%	-1.7%	-0.4%	-2.2%
Lean Hogs	-9.5%	-2.4%	-11.0%	-11.0%	-3.9%	-8.9%
Live Cattle	3.0%	1.9%	2.6%	2.6%	1.2%	1.6%

Source: Bloomberg

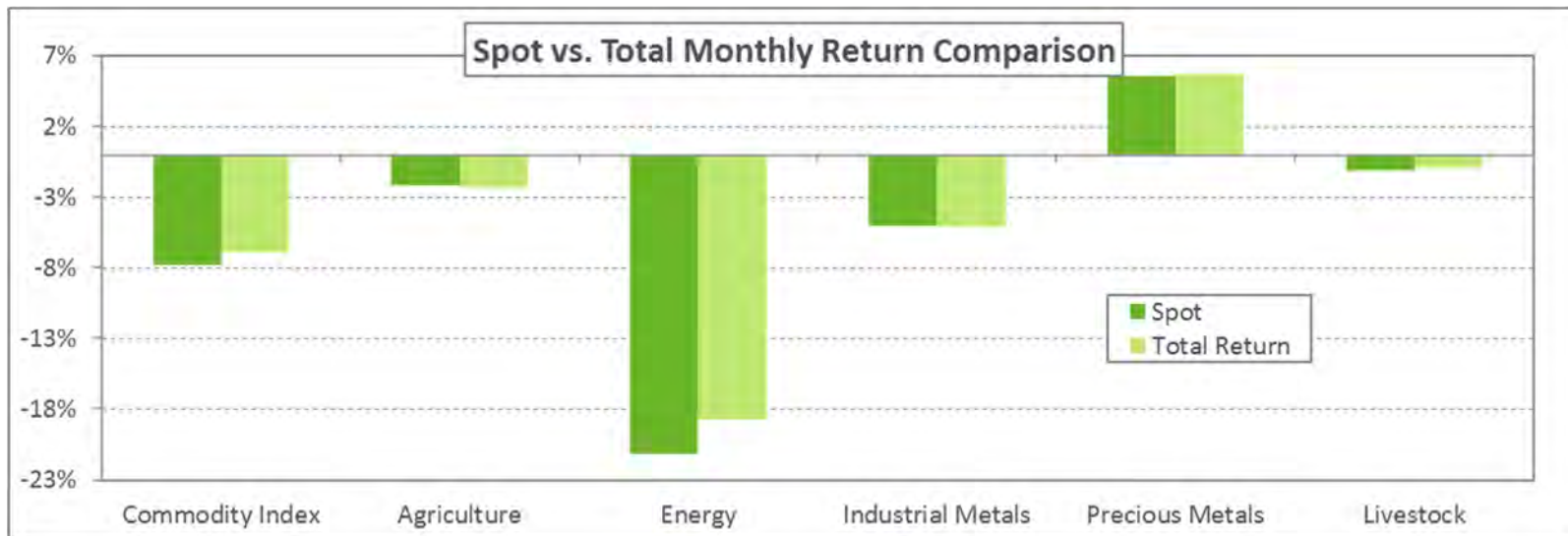
Bloomberg subindex total return indices reflects the return of the underlying one month commodity futures price movements



INCOME YIELD



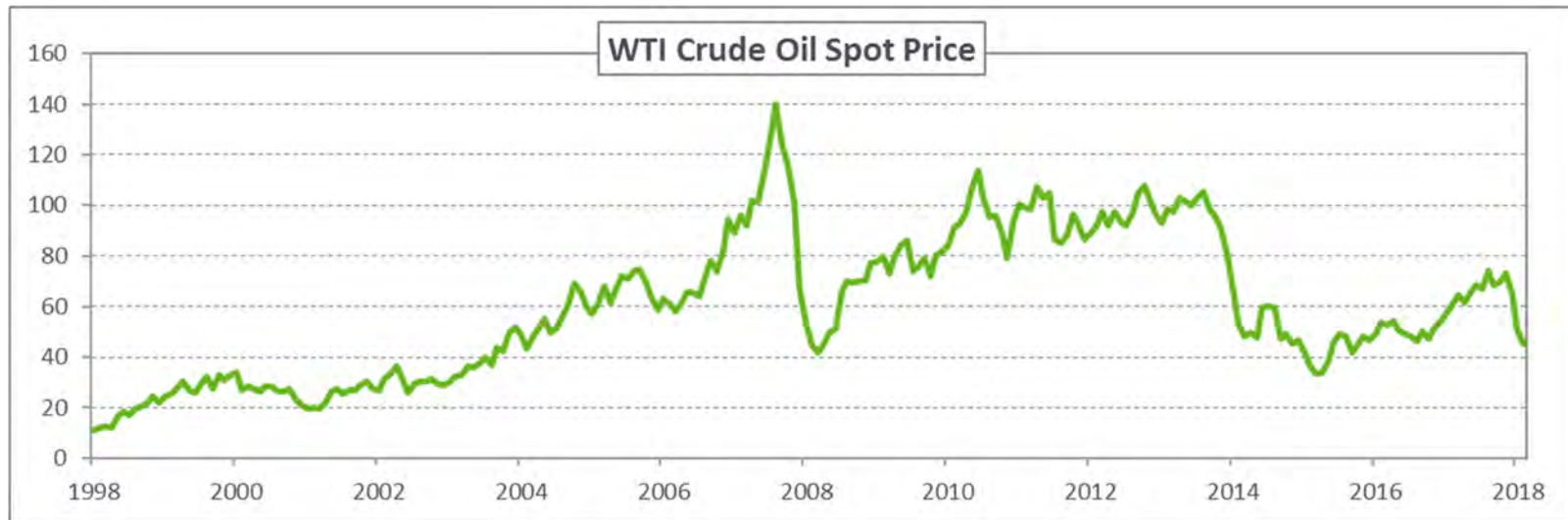
Source: Alerian, NAREIT, S&P, Bloomberg



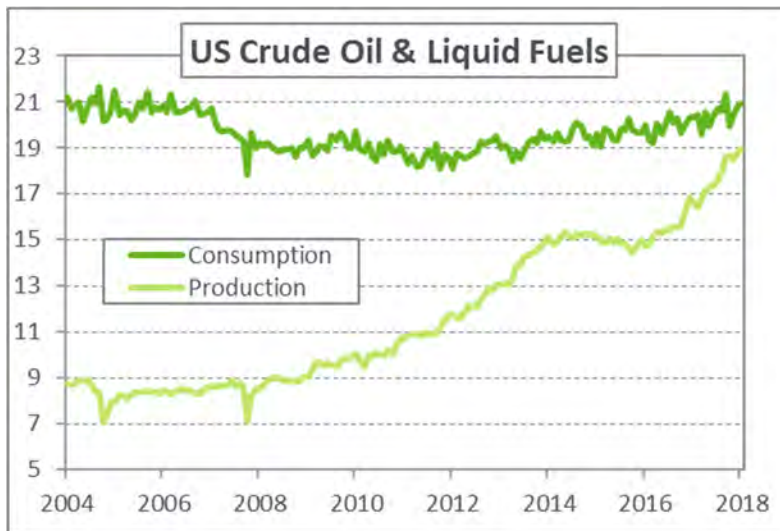
Source: Bloomberg, NEPC



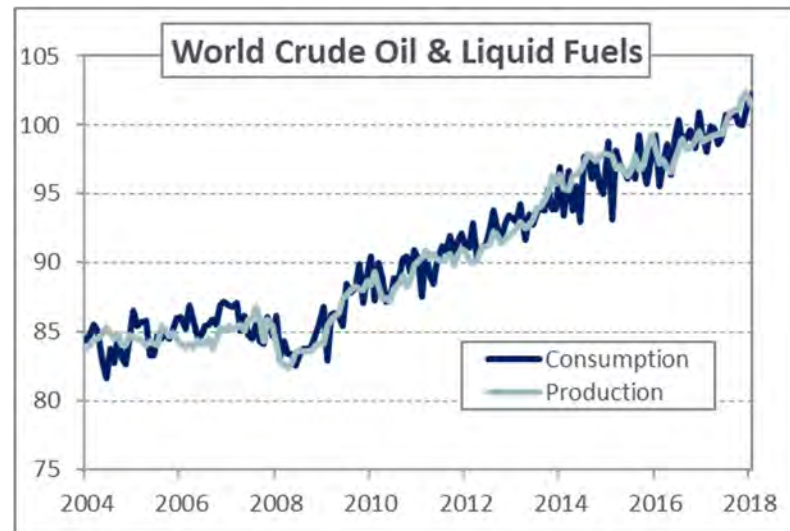
OIL MARKETS



Source: New York Mercantile Exchange, Bloomberg



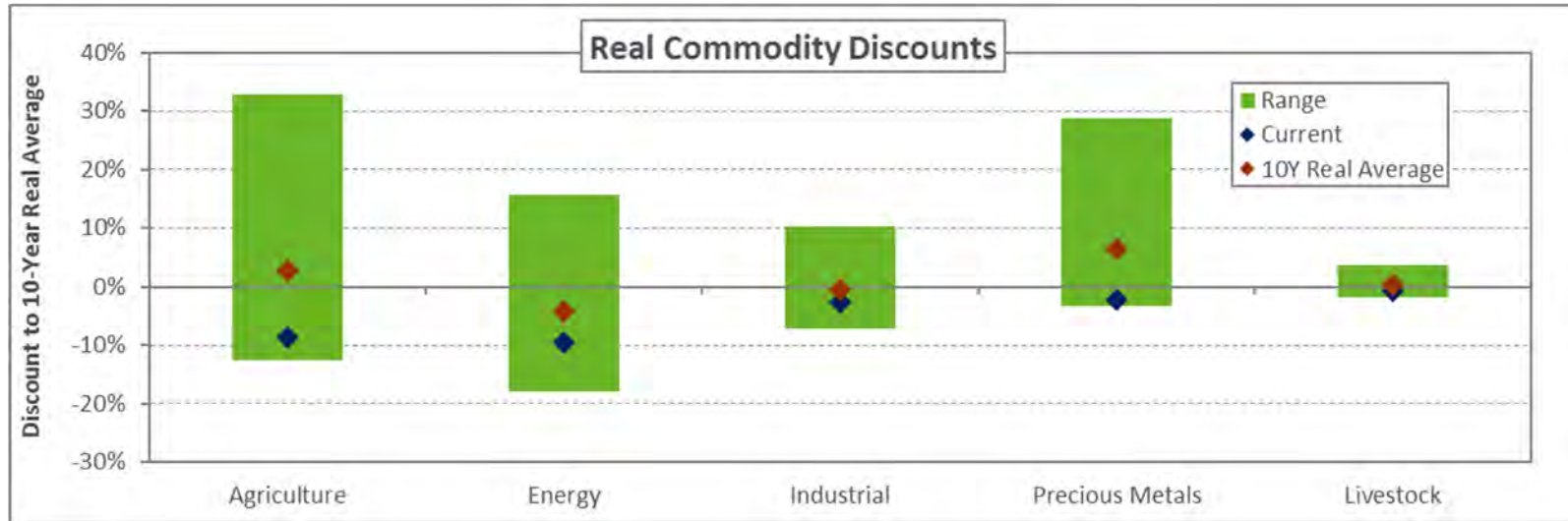
Source: US Department of Energy, Bloomberg



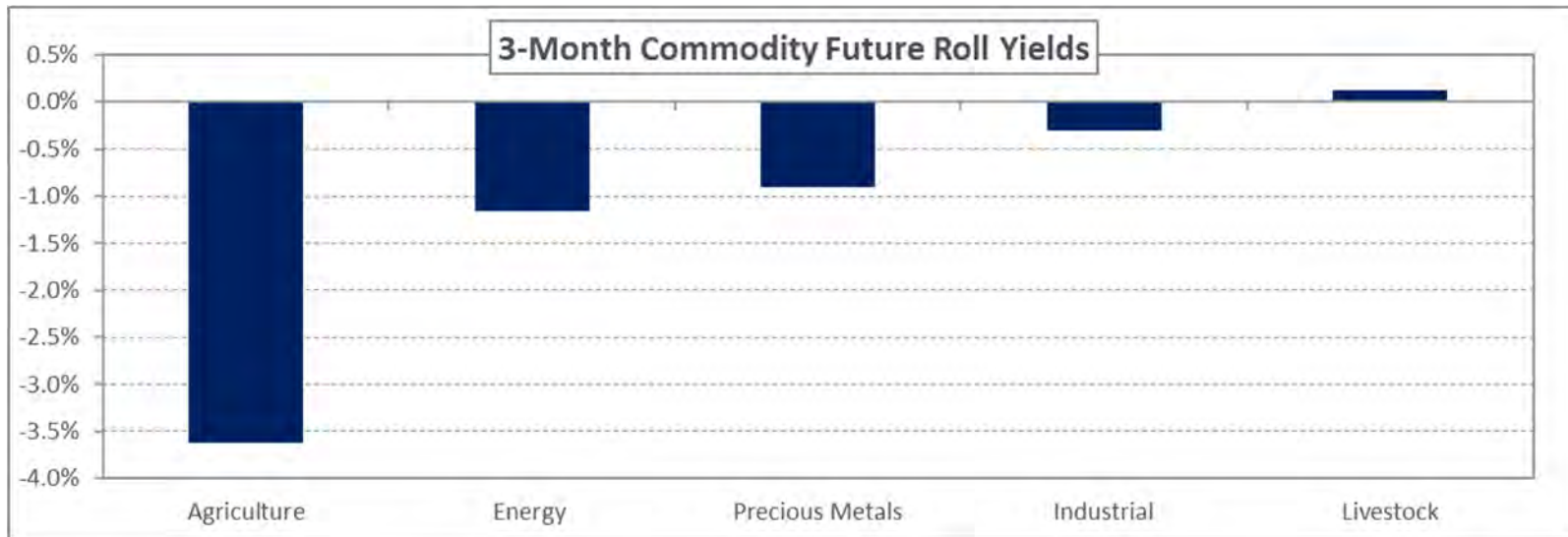
Source: OECD, Bloomberg



VALUATIONS



Source: Bloomberg, NEPC



Source: Bloomberg



INVESTMENT GUIDELINES

- **Sprucegrove U.S. International Pooled Fund**
 - The Fund seeks to maximize the long-term rate of return while seeking to preserve investment capital by investing primarily in equity and quasi-equity securities of companies with more value characteristics located in developed markets in the Europe, Australasia and the Far East ("EAFE") Index and to outperform the index, net of fees and achieve a high ranking relative to similar funds over a full market cycle.
- **Walter Scott & Partners International Fund**
 - The Fund will invest in equity securities that meet certain quantitative and qualitative investment criteria and will seek long-term capital appreciation. The Fund will tend to focus on those industries or sectors with more growth characteristics and experiencing upper quartile economic growth and may avoid industries which are in secular economic decline. The Fund seeks to outperform the MSCI Europe, Australasia and the Far East ("EAFE") Index net of fees, and achieve a high ranking relative to similar funds over a full market cycle.
- **Blackrock U.S. Debt Index Fund**
 - The U.S. Debt Index Fund shall be invested and reinvested primarily in a portfolio of Debt Securities with the objective of approximating as closely as practicable the total rate of return of the market for Debt Securities as defined by the Barclays Capital/Bloomberg U.S. Aggregate Bond Index.
- **Western Asset Management Core Plus Fixed Income Separate Account**
 - The objective of the Portfolio is to provide above-average total return in a manner that is consistent with the typical rate-of-return volatility exhibited by broad market fixed income portfolios. The Fund will seek to outperform the Bloomberg Barclays U.S. Aggregate Index, net of fees, over a full market cycle.
- **Reams Unconstrained Fixed Income Separate Account**
 - The Portfolio will be broadly diversified across markets, sectors, securities, and maturities in a manner consistent with accepted standards of prudence. The objective of the Portfolio is to maximize risk-adjusted total return by systematically pursuing relative value opportunities throughout all sectors of the fixed income market. The Portfolio will seek returns in excess of the Bloomberg/Barclays U.S. Aggregate Bond Index and/or the three month London Interbank Offered Rate ("LIBOR") in U.S. dollars plus 3% net of fees with an expected risk volatility goal of approximately 4 to 6% over a full market cycle.



INVESTMENT GUIDELINES

- **Loomis, Sayles & Company Multisector Full Discretion Separate Account**
 - The fixed income portfolio should be broadly diversified across markets, sectors, securities, and maturities in a manner consistent with accepted standards of prudence. The objective of the Portfolio is to provide above-average total return in a manner that is consistent with the typical rate-of-return volatility exhibited by broad market fixed income portfolios. The return of the Manager should exceed that of the custom benchmark (30% of the rate of return of the Citigroup High-Yield Index, 5% of the rate of return of the J.P. Morgan Non-U.S. Hedged Bond Index and 65% of the rate of return of the Bloomberg Barclays U.S. Aggregate Bond Index), net of fees, over a full market cycle.
- **Loomis, Sayles & Company Strategic Alpha Fund**
 - The objective of the Fund is to provide absolute returns in excess of the Bloomberg/Barclays U.S. Aggregate Bond Index and/or the three month London Interbank Offered Rate (“LIBOR”) in U.S. dollars plus 3% net of fees with an expected risk volatility goal of approximately 4 to 6% over a full market cycle.
- **Bridgewater Associates All Weather Portfolio**
 - The investment objective of the Fund is to seek to provide attractive returns with relatively limited risks, with no material bias to perform better or worse in any particular type of economic environment. In other words, the portfolio seeks to perform approximately as well in rising or falling inflation periods, or in periods of strong or weak economic growth. To achieve this objective, the Fund holds investments in different asset classes that have different biases to economic conditions. The Manager will seek to outperform the CPI + 4% (Unadjusted) benchmark net of fees over a full market cycle.
- **Tortoise Energy Infrastructure Master Limited Partnership**
 - The Manager will invest in master limited partnerships with an investment approach that emphasizes a long-term, buy-and-hold philosophy with low turnover in an effort to achieve a portfolio characterized by high current income, high growth and low volatility. The Manager invests primarily in long-haul pipelines and gathering & processing pipelines. The Manager will seek to outperform the Wells Fargo MLP Index net of fees over a full market cycle.



INVESTMENT GUIDELINES

- **PGIM Real Estate Property Investment Separate Account**

- PRISA is a broadly diversified equity real estate portfolio that invests primarily in existing, income-producing properties with strong cash flow that is expected to increase over time and thereby provide the potential for capital appreciation. The Fund's performance objective is to produce a total return each year that meets or exceeds the National Council of Real Estate Investment Fiduciaries Fund Index – Open-End Diversified Core Equity ("NCREIF-ODCE") net of fees, while maintaining the benefits of a broadly diversified, core real estate portfolio.

- **UBS Realty Investors Trumbull Property Fund**

- The Fund seeks to provide investors with strategic market access to high-quality private commercial real estate with the financial objective of providing superior risk-adjusted returns across the real estate cycles. Maximize the quality and growth of the Fund's income by acquiring and aggressively managing high quality assets in major US metropolitan markets to minimize risk through diversification by property type, geographic location and economic sector. The Fund's performance objective is to outperform the National Council of Real Estate Investment Fiduciaries Fund Index – Open-End Diversified Core Equity ("NCREIF-ODCE") index net of fees, and a 5% real rate of return (inflation-adjusted return) over a full market cycle.



GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

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

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

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

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

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

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

Formula:
 $(\text{Annualized Return of Portfolio} - \text{Annualized Return of Risk Free}) / \text{Annualized Standard Deviation}(\text{Portfolio Returns})$

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

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

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

Formula:
 $(\text{Portfolio Average Return} - \text{Average Return of Risk-Free Rate}) / \text{Portfolio Beta}$

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

$\text{Upside Capture} = \text{Total Return}(\text{Fund Returns}) / \text{Total Returns}(\text{BM Return})$ when Period Benchmark Return is $> = 0$

$\text{Downside Capture} = \text{Total Return}(\text{Fund Returns}) / \text{Total Returns}(\text{BM Return})$ when Benchmark < 0

Data Source: InvestorForce



GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

Derivative Instrument³ - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

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

Formula:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



GLOSSARY OF INVESTMENT TERMINOLOGY

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

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

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

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

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

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

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

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

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

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

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

Upside Deviation¹ - Standard Deviation of Positive Returns

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

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

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

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



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- 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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