



# **Vermont Pension Investment Committee**

## **Fourth Fiscal Quarter 2017 Preliminary Investment Performance Analysis**

September 26, 2017

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## Highlights of Second Quarter Happenings at NEPC

June 30, 2017

#### **NEPC Insights**

- 2017 First Quarter Market Thoughts (April 2017)
- The French Election A Sigh of Relief (May 2017)
- An Insight into a Goals-Based Asset Allocation Framework (May 2017)
- The Essential Guide to Third-Party Valuations for Hedge Fund Investors (May 2017)
- Market Chatter: What's Next for Puerto Rico Bondholders? (June 2017)
- Are US Equities Falling out of Favor? (June 2017)

#### **Webinar Replays**

NEPC's 7th Annual Investment Manager Webinar (May 2017)

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

#### **Conference Recap**

NEPC hosted its 22<sup>nd</sup> Annual Investment Conference in Boston in May. This year's agenda focused on the uncertainty and challenges facing investors today. Over 200 NEPC clients attended the panel discussions, keynote presentations and breakout sessions. Thank you to everyone who took time out of their schedules to make this conference our biggest and, according to our attendees, our best one yet! Check out some pictures from the event here: http://info.nepc.com/nepc-22nd-annual-investment-conference



#### **Recent Updates**

 Healthcare Financial Management Association (HFMA) has awarded NEPC's Healthcare practice with the "Peer Reviewed by HFMA ®" designation.\*



#### **NEPC Gives Back**

- NEPC's Stacey Flier, CFA, Private Wealth Senior Consultant, hosted an educational day to discuss the importance of education and preparing for future careers to a group of 7th grade girls that attend St. Andrew Nativity School, a college-prep middle school in Portland, OR, that provides education for lowincome, primarily minority, students of all religious backgrounds.
- NEPC participated in the J.P. Morgan
   Corporate Challenge Series, a world-wide
   series of 3.5-mile running events open to
   groups from organizations within the business
   and public sectors in Boston. The Corporate
   Challenge is set up to be the world's greenest
   road race, and this year the race made a
   donation to the Boston Children's Hospital
   Trust.

\*HFMA staff and volunteers determined that this business solution has met specific criteria developed under the HFMA Peer Review Process. HFMA does not endorse or guarantee the use of this business solution.











# Market Environment



#### **Key Market Themes**

#### The US economy is experiencing an extended economic growth cycle

- US consumers and a tightening labor market are driving the US economy
- Growth recovery in Europe and the emerging markets reinforces US economic conditions
- Stable economic growth is a positive backdrop but expected risk asset returns are subdued

#### Federal Reserve monetary policy remains on a gradual normalization path

- Despite the June increase, markets continue to price in a slow pace for Fed rate hikes
- Market impact of the Fed's planned reduction of the \$4.5T balance sheet is untested
- Chair Yellen's uncertain tenure may stoke market unease has her term expires in Feb. 2018

#### China is modestly tightening financial conditions to slow credit growth and manage an orderly transition to a consumer led economy

- Markets have responded positively to the PBOC's management of a more stable yuan
- Capital outflow pressure persists and large scale currency devaluation remains a tail risk
- Continued credit expansion and real estate development risk inflating asset price bubbles

#### Globalization backlash is disrupting the political and economic orthodoxy

- Outcomes of the French and UK elections have eased market fears but conditions driving anti-establishment political sentiment have not subsided
- Capital market fundamentals may not be materially altered but risks stemming from globalization backlash likely lead to higher levels of currency volatility
- Potential changes to US trade policy under the current administration remain uncertain

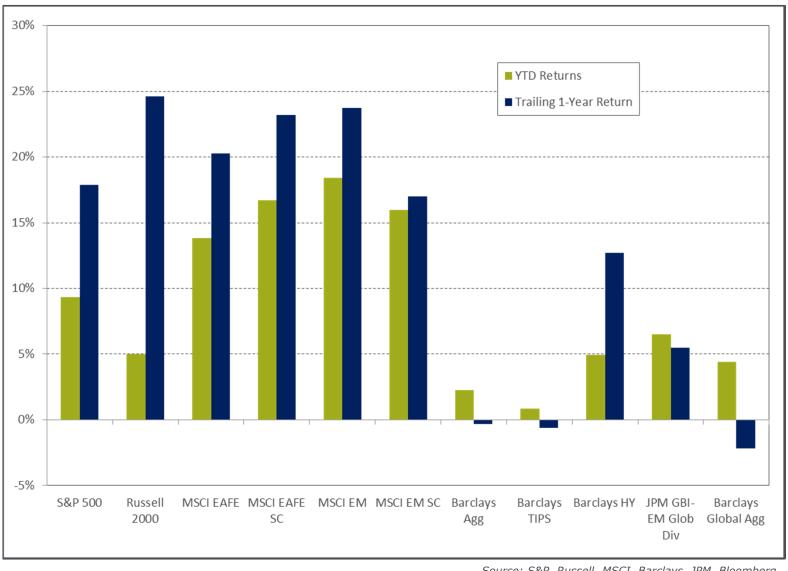


#### **Current Opportunities**

- Trim US equity gains as US equity markets continue to rally
  - Expanding valuations have driven recent gains and profit margins sit near all-time highs
- Maintain overweight exposure to non-US developed market equities
  - We believe a multi-year earnings recovery offers the potential for an elevated return
- Emerging market equities remain attractive and offer robust total returns
  - Fundamentals support an overweight relative to index weights (e.g. 15% to 20%)
- Allocate to TIPS as inflation expectations are priced attractively
  - Preserve US duration exposure with a bias to TIPS over core bonds
- Reduce high yield bonds with credit spreads below long-term medians
  - Credit markets continue to benefit from high demand in a low rate environment but current credit spread levels do not provide adequate compensation for the risks
- For tactical investors, look to fund emerging local debt from risk assets
  - Valuations for many emerging market currencies remain attractive despite the recent rally
- Add macro hedge fund strategies for portfolio diversification benefits
  - Systematic strategies tend to exhibit low correlation to equity markets



## Year to Date Performance: All Assets Have Moved Higher



Source: S&P, Russell, MSCI, Barclays, JPM, Bloomberg As of 06/30/2017



#### **Extended US Economic Cycle**

#### **US** recession concerns are muted

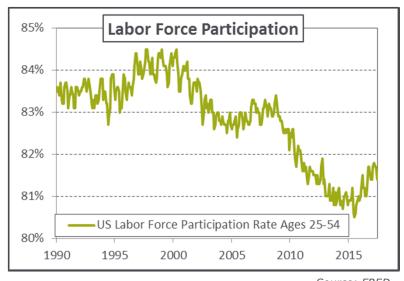
The US economy appears on a path of slow but steady growth as excess capacity is gradually absorbed by the economy

The labor market recovery has been strong but slack remains as many have yet to return to the workforce

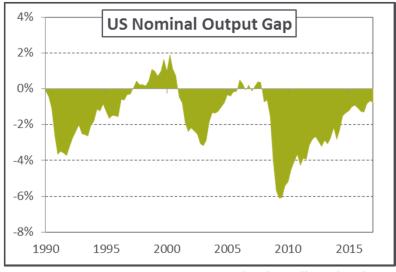
### US household balance sheets have room to expand and support further consumer spending gains

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

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



Source: FRED



Source: Congressional Budget Office, Bloomberg



#### **Federal Reserve Gradualism**

## The Federal Reserve is expected to slowly increase interest rates

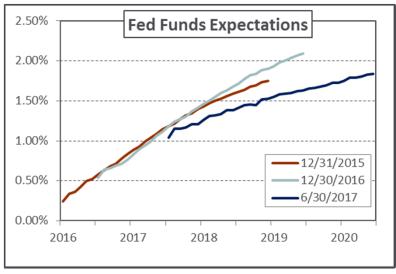
Expected path of Fed policy through 2019 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

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

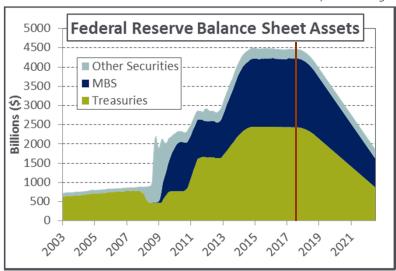
## Reduction of the Fed balance sheet will likely be a gradual process

The market impact is untested but the Fed has announced a specific schedule to not reinvest a portion of the balance sheet securities that mature

Politics could intersect with Fed policy as Fed Chair Janet Yellen's term is set to expire in February 2018



Source: Fed, Bloomberg



Source: Fed, Bloomberg, NEPC

Forecast based on the June Fed Minutes: MBS assumes \$4B per month for 3-month intervals over 12 months with a \$20B cap; Treasuries assume \$6B per month for 3-month intervals over 12 months with a \$30B cap; Other Securities are assumed to stay constant



## Despite Transparency, a Number of Outstanding Questions Remain...

## What does this mean for the future path of rate hikes?

"The evolution of the economy will warrant <u>gradual increases</u> in the federal funds rate over time to achieve and maintain maximum employment and stable prices."

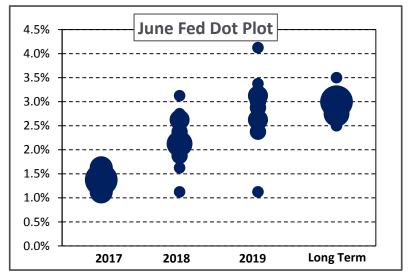
- Fed Chair Janet Yellen July 12<sup>th</sup>, 2017

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

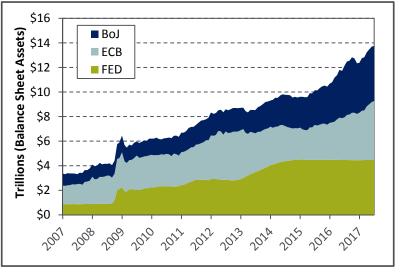
**ECB:** "A very substantial degree of monetary accommodation is still needed for underlying inflation pressures to gradually build..."

- ECB President Mario Draghi July 20th, 2017

**BoJ:** Though the monetary stimulus program remained unchanged in July, the 2% inflation target was postponed further – indicating ongoing stimulus measures will continue to be necessary



Source: Fed, NEPC



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



#### The Fed's Challenge

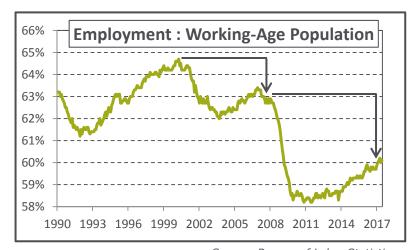
"With further gradual adjustments in the stance of monetary policy, the economy will continue to expand at a moderate pace over the next couple of years, with the job market strengthening somewhat further and inflation rising to 2%"

- Fed Chair Janet Yellen July 12th, 2017

- The ongoing challenge for the Fed will be to balance continued strength in the labor market with lagging inflation
  - Even with sustained improvements in unemployment, there has been significant difficulty reaching the 2% inflation target
- Despite historically low unemployment, structural changes in demographics and the labor pool have introduced uncertainty regarding the remaining slack in the labor force







Source: Bureau of Labor Statistics Represents employed persons as a percentage of age 16+ population



#### **China Transitions**

## China is the global growth engine but faces fundamental transitions

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

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

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

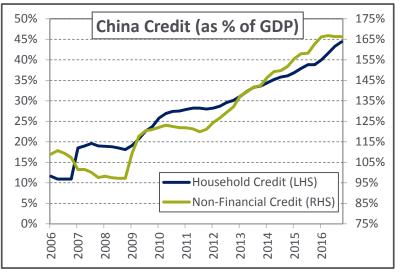
# China's government is negotiating a balance between deleveraging and near term economic growth

Unrestrained growth in credit and real estate markets pose a systematic risk

Concerns of capital outflows have forced greater intervention from the central bank to limit currency movements



Source: China Foreign Exchange Trade System, Bloomberg



Source: Bank for International Settlements



## State Employees' Retirement System



## Total Fund Performance Summary - Net

	Market Value	3 Mo F	Rank	YTD I	Rank	Fiscal YTD I	Rank	1 Yr F	Rank	3 Yrs I	Rank	5 Yrs I	Rank	7 Yrs I	Rank	10 Yrs F	Rank
<b>Employees Composite</b>	\$1,740,006,749	2.6%	69	6.8%	67	10.6%	77	10.6%	77	3.7%	84	6.6%	91	7.8%	77	4.2%	82
Policy Index		2.5%	77	6.3%	82	10.1%	84	10.1%	84	3.8%	81	6.5%	93	7.3%	90	4.2%	80
Allocation Index		2.7%	60	6.8%	68	10.5%	78	10.5%	78	3.7%	83	6.5%	93	7.2%	91	4.2%	81
InvestorForce Public DB Net Median		2.8%		7.3%		11.9%		11.9%		4.9%		8.2%		8.6%		5.0%	

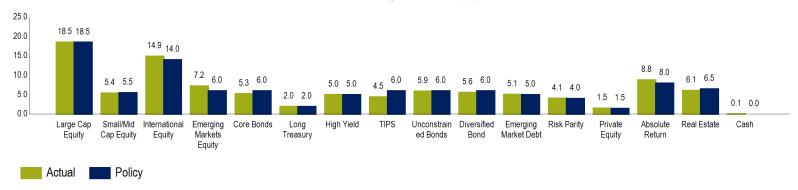
#### 3 Years Ending June 30, 2017

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Employees Composite	3.67%	84	5.66%	27	0.61	78	1.05	64
Policy Index	3.78%	81	5.24%	10	0.68	65	1.18	47
Allocation Index	3.70%	83	5.47%	21	0.63	75	1.07	62

#### 5 Years Ending June 30, 2017

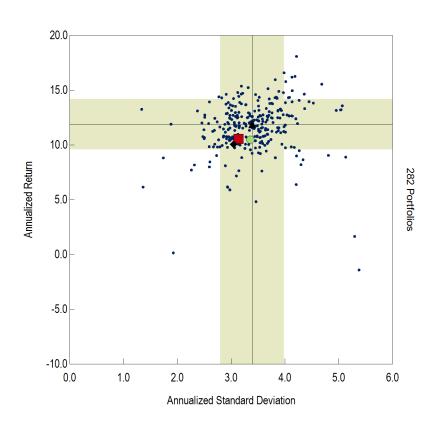
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	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank			
Employees Composite	6.60%	91	5.50%	31	1.17	83	2.04	70			
Policy Index	6.48%	93	5.05%	13	1.25	74	2.24	49			
Allocation Index	6.48%	93	5.16%	18	1.23	77	2.12	62			

#### Actual vs Target Allocation (%)





#### 1 Year Ending June 30, 2017

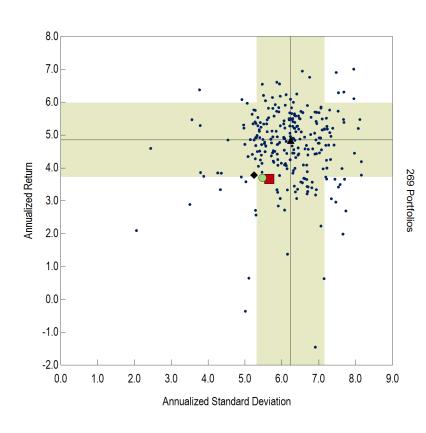


#### 1 Year Ending June 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	10.56%	77	3.14%	35	3.20	63
Policy Index	10.07%	84	3.05%	27	3.13	66
S&P 500	17.90%	1	6.09%	99	2.85	80
Citi WGBI	-4.14%	99	6.58%	99	-0.71	99
MSCI ACWI	18.78%	1	5.34%	99	3.42	45
MSCI ACWI ex USA	20.45%	1	7.16%	99	2.78	84
InvestorForce Public DB Net Median	11.88%		3.39%		3.34	-

- Employees Composite
- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

3 Years Ending June 30, 2017

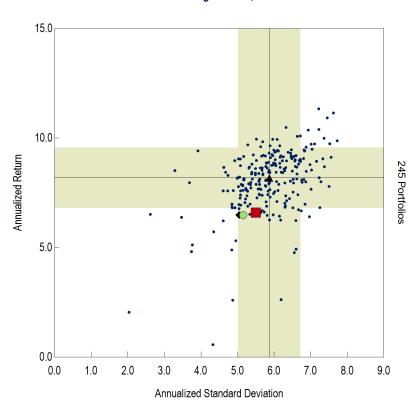


3 Years	<b>Ending</b>	June	30,	2017
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	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	3.67%	84	5.66%	27	0.61	78
Policy Index	3.78%	81	5.24%	10	0.68	65
S&P 500	9.61%	1	10.35%	99	0.91	18
Citi WGBI	-1.00%	99	5.98%	40	-0.21	99
MSCI ACWI	4.82%	51	10.78%	99	0.43	96
MSCI ACWI ex USA	0.80%	99	12.44%	99	0.05	99
InvestorForce Public DB Net Median	4.85%		6.24%		0.74	

- Employees Composite
- Policy Index
- Allocation Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

5 Years Ending June 30, 2017

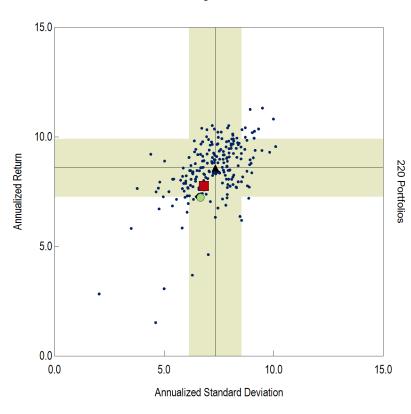


5 Years	Ending .	June 30,	2017
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	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	6.60%	91	5.50%	31	1.17	83
Policy Index	6.48%	93	5.05%	13	1.25	74
S&P 500	14.63%	1	9.56%	99	1.51	23
Citi WGBI	-0.20%	99	5.33%	25	-0.07	99
MSCI ACWI	10.54%	2	9.97%	99	1.04	93
MSCI ACWI ex USA	7.22%	80	11.56%	99	0.61	99
InvestorForce Public DB Net Median	8.19%		5.87%		1.37	

- Employees Composite
- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

#### 7 Years Ending June 30, 2017

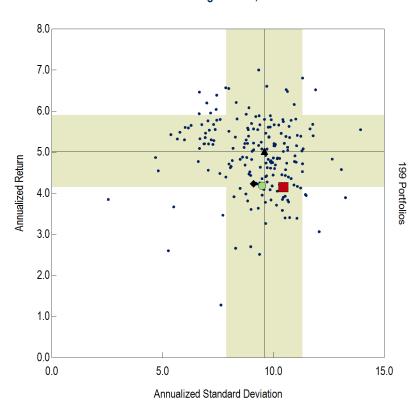


7 Years	<b>Ending</b>	June	30,	2017
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	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	7.77%	77	6.81%	34	1.12	65
Policy Index	7.28%	90	6.56%	25	1.09	73
S&P 500	15.41%	1	11.69%	99	1.31	22
Citi WGBI	1.68%	99	5.67%	8	0.27	99
MSCI ACWI	10.48%	3	13.05%	99	0.79	98
MSCI ACWI ex USA	6.66%	96	14.97%	99	0.44	99
InvestorForce Public DB Net Median	8.59%		7.34%		1.17	

- Employees Composite
- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

#### 10 Years Ending June 30, 2017



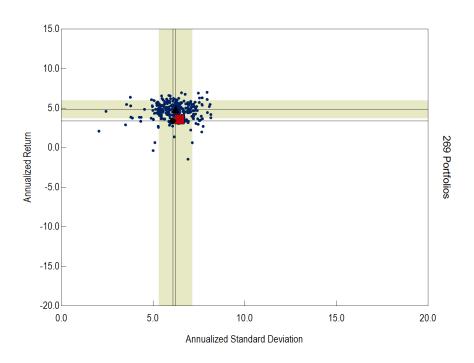
10 Years	<b>Ending</b>	June	30,	2017
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	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Employees Composite	4.15%	82	10.44%	77	0.36	86
Policy Index	4.23%	80	9.10%	41	0.42	70
S&P 500	7.18%	1	15.21%	99	0.44	59
Citi WGBI	3.49%	95	6.80%	9	0.45	57
MSCI ACWI	3.71%	93	16.95%	99	0.19	99
MSCI ACWI ex USA	1.13%	99	19.14%	99	0.04	99
InvestorForce Public DB Net Median	5.03%		9.59%		0.48	

- Employees Composite
- Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

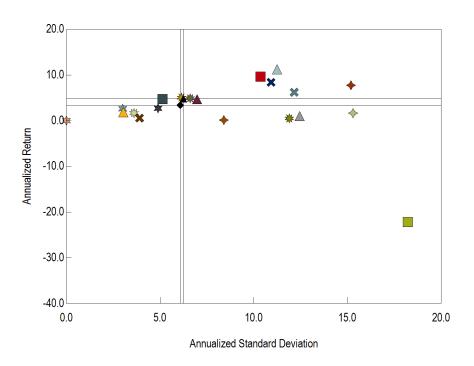
### Total Marketable Assets - Net

#### Annualized Return vs. Annualized Standard Deviation 3 Years Ending June 30, 2017



- Total Marketable Assets
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

#### **Annualized Return vs. Annualized Standard Deviation** 3 Years Ending June 30, 2017

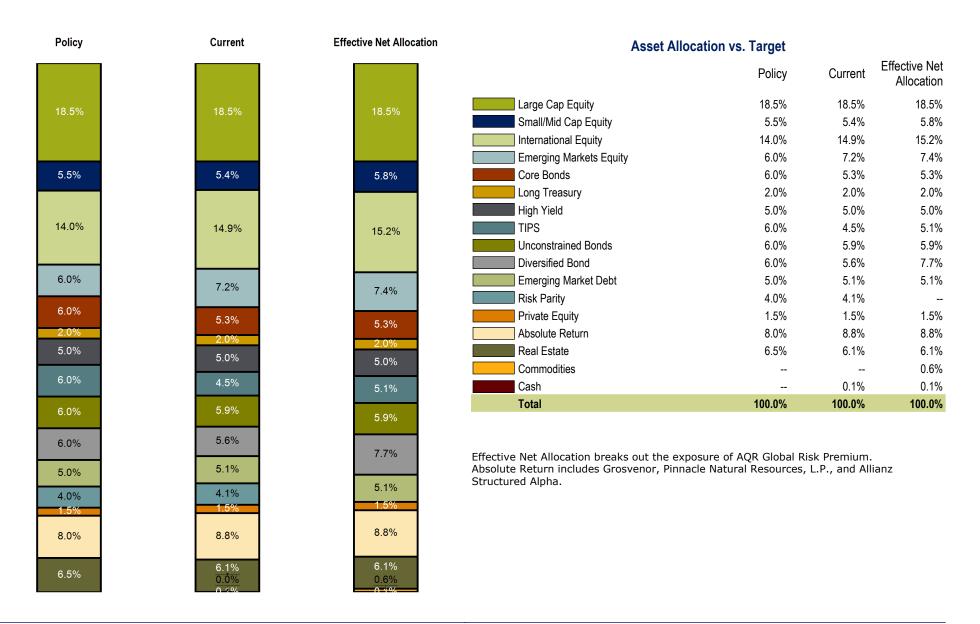


- SSgA S&P 500 Cap-Wgt
- SSgA S&P 500 Equal-Wgt
- T. Rowe
- Champlain
- Wellington
- Acadian
- Mondrian
- SSgA ACWI Ex US
- Aberdeen
- PIMCO Core Plus
- Z Terminated Wellington DAS
- PIMCO Unconstrained

- KDP
- Guggenheim
- BlackRock TIPS
- Wellington Opportunistic EMD
- Mellon Dynamic Growth
- AQR Global Risk Premium
- Vermont Cash
- Z Terminated- Schroder
- Total Marketable Assets Custom Index
- Universe Median
- 68% Confidence Interval



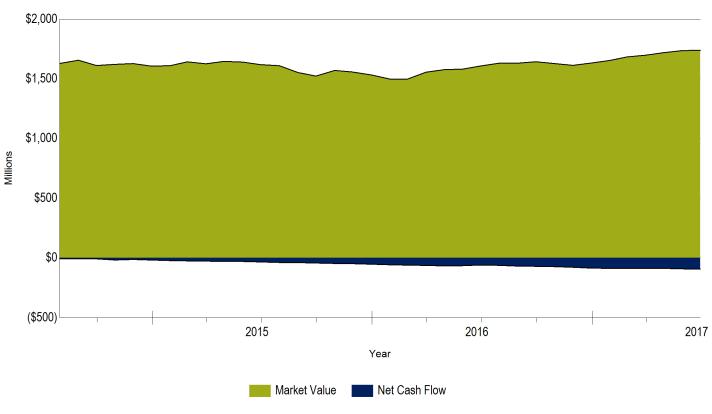
### Total Fund Asset Allocation vs. Policy Targets





## Total Fund Asset Growth Summary

3 Years Ending June 30, 2017



	Last Three Months	Year-To-Date	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$1,698,765,699	\$1,633,425,741	\$1,608,681,493	\$1,608,681,493	\$1,650,586,256
Contributions	\$190,241,079	\$199,826,821	\$236,036,458	\$236,036,458	\$844,574,099
Withdrawals	-\$196,547,595	-\$208,341,555	-\$270,070,901	-\$270,070,901	-\$938,319,544
Net Cash Flow	-\$6,306,517	-\$8,514,735	-\$34,034,443	-\$34,034,443	-\$93,745,445
Net Investment Change	\$47,547,567	\$115,095,744	\$165,359,700	\$165,359,700	\$183,165,938
Ending Market Value	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749	\$1,740,006,749



## Total Fund Asset Growth Summary by Manager

#### Quarter Ending June 30, 2017

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Aberdeen	\$118,134,913	\$211,984	-\$211,984	\$0	\$7,774,354	\$125,909,267
Acadian	\$72,214,486	\$87,185	-\$87,185	\$0	\$7,802,051	\$80,016,537
Allianz Structured Alpha	\$31,088,191	\$0	-\$101,205	-\$101,205	\$528,640	\$31,515,625
AQR Global Risk Premium	\$136,246,511	\$141,836	-\$67,549,667	-\$67,407,831	\$2,084,971	\$70,923,651
BlackRock TIPS	\$64,665,711	\$13,493,133	-\$11,567	\$13,481,566	-\$244,593	\$77,902,684
Champlain	\$36,294,247	\$10,325,374	-\$73,487	\$10,251,887	\$2,119,222	\$48,665,355
GAM	\$165,474	\$0	\$0	\$0	\$1,556	\$167,030
GAM Unconstrained Bond	\$59,229,765	\$0	-\$78,291	-\$78,291	\$1,226,122	\$60,377,596
Grosvenor	\$80,299,835	\$0	\$0	\$0	\$349,573	\$80,649,409
Guggenheim	\$68,529,755	\$78,393	-\$78,393	\$0	\$1,215,882	\$69,745,638
Harbourvest Dover Street Fund IX	\$1,595,849	\$722,264	\$0	\$722,264	\$0	\$2,318,113
Harbourvest Dover VIII Fund	\$7,356,047	\$0	-\$291,641	-\$291,641	\$0	\$7,064,406
Harbourvest Partners IX Buyout Fund	\$6,285,450	\$0	-\$63,904	-\$63,904	\$0	\$6,221,546
Harbourvest Partners IX Credit Opportunities	\$906,469	\$0	-\$17,295	-\$17,295	\$0	\$889,174
Harbourvest Partners IX Venture Fund	\$4,683,578	\$0	-\$18,698	-\$18,698	\$0	\$4,664,881
Harbourvest Partners X Buyout Fund	\$2,021,150	\$480,767	-\$167,288	\$313,479	\$0	\$2,334,629
Harbourvest Partners X Venture Fund	\$900,920	\$247,252	\$0	\$247,252	\$0	\$1,148,172
HIPEP VII	\$1,913,486	\$218,786	\$0	\$218,786	\$0	\$2,132,272
KDP	\$17,111,101	\$27,648	-\$27,648	\$0	\$308,354	\$17,419,455
Mellon Dynamic Growth	\$32,947,759	\$0	-\$33,244,977	-\$33,244,977	\$347,093	\$49,875
Mondrian	\$69,656,139	\$65,578	-\$65,578	\$0	\$3,050,966	\$72,707,105
Morgan Stanley Prime Property	\$48,160,530	\$0	\$0	\$0	\$0	\$48,160,530
PIMCO Core Plus	\$95,187,475	\$69,874	-\$69,874	\$0	\$1,651,309	\$96,838,784
PIMCO Unconstrained	\$42,095,618	\$63,318	-\$63,318	\$0	\$455,333	\$42,550,951
Pinnacle Natural Resources, L.P.	\$21,798,620	\$20,241,790	\$0	\$20,241,790	-\$911,219	\$41,129,191



## Total Fund Asset Growth Summary by Manager

#### Quarter Ending June 30, 2017

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
RREEF America REIT III	\$205,264	\$0	-\$879	-\$879	-\$5,053	\$199,332
Siguler Guff DREOF II	\$13,111,434	\$0	-\$367,106	-\$367,106	\$494,799	\$13,239,126
Siguler Guff DREOF II Co-Investment	\$3,866,124	\$0	\$0	\$0	\$88,180	\$3,954,304
SSgA ACWI Ex US	\$75,899,336	\$25,574,683	-\$13,129	\$25,561,554	\$5,029,906	\$106,490,797
SSgA Barclays Aggregate Index	\$49,681,232	\$42,980,599	-\$2,006,112	\$40,974,487	\$976,606	\$91,632,325
SSgA S&P 500 Cap-Wgt	\$214,453,323	\$28,993,606	-\$5,515,766	\$23,477,839	\$7,067,800	\$244,998,962
SSgA S&P 500 Equal-Wgt	\$75,123,307	\$7,797	-\$7,797	\$0	\$1,922,829	\$77,046,136
State Street Long U.S. Treasury Index		\$34,049,838	\$0	\$34,049,838	\$198,204	\$34,248,042
T. Rowe	\$3,085	\$0	\$0	\$0	\$0	\$3,085
Transwestern / Aslan III	\$102,653	\$0	\$0	\$0	\$0	\$102,653
UBS Trumbull	\$39,616,332	\$87,317	-\$87,317	\$0	\$466,360	\$40,082,692
Vermont Cash	\$772,429	\$2,731,628	-\$2,100,907	\$630,721	\$0	\$1,403,150
Wellington	\$36,986,312	\$9,337,263	-\$69,762	\$9,267,501	-\$613,052	\$45,640,761
Wellington Opportunistic EMD	\$87,293,616	\$0	\$0	\$0	\$2,169,892	\$89,463,508
Z Terminated - SSgA Russell 2000 Growth	\$8,074,767	\$1,730	-\$9,269,231	-\$9,267,501	\$1,192,734	\$0
Z Terminated - SSgA S&P 400	\$9,793,138	\$1,437	-\$10,253,323	-\$10,251,887	\$458,749	\$0
Z Terminated - Wellington DAS	\$43,526,865	\$0	-\$44,392,476	-\$44,392,476	\$865,610	\$0
Z Terminated- Schroder	\$20,767,402	\$0	-\$20,241,790	-\$20,241,790	-\$525,612	\$0
Total	\$1,698,765,699	\$190,241,079	-\$196,547,595	-\$6,306,517	\$47,547,567	\$1,740,006,749



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Employees Composite	1,740,006,749	100.0	100.0	2.6	69	6.8	67	10.6	77	10.6	77	3.7	84	6.6	91	4.2	82
Policy Index				2.5	77	6.3	82	10.1	84	10.1	84	3.8	81	6.5	93	4.2	80
Allocation Index				2.7	60	6.8	68	10.5	78	10.5	78	3.7	83	6.5	93	4.2	81
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
Total Marketable Assets	1,454,033,665	83.6		3.1	29	8.0	20	11.6	57	11.6	57	3.6	87	6.5	93	-	
Total Marketable Assets Custom Index				2.9	44	7.1	55	10.6	74	10.6	74	3.4	90	6.6	91		
InvestorForce Public DB Net Median				2.8		7.3		11.9		11.9		4.9		8.2		5.0	
US Equity	416,354,300	23.9	24.0	2.6	53	7.8	49	17.8	60	17.8	60	9.1	27	-	-		
Russell 3000				3.0	46	8.9	39	18.5	55	18.5	55	9.1	27	14.6	34	7.3	46
eA All US Equity Net Median				2.8		7.6		19.1		19.1		7.6		13.8		7.1	
Large Cap Comp	322,048,184	18.5	18.5	2.9	52	9.0	48	17.8	51	17.8	51	9.3	27	14.9	23	7.7	30
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
eA US Large Cap Equity Net Median				3.0		8.7		17.8		17.8		7.8		13.7		7.0	
SSgA S&P 500 Cap-Wgt	244,998,962	14.1	14.0	3.1	48	9.3	45	17.9	49	17.9	49	9.6	22	14.6	28	-	
S&P 500				3.1	48	9.3	45	17.9	50	17.9	50	9.6	22	14.6	28	7.2	45
SSgA S&P 500 Equal-Wgt	77,046,136	4.4	4.5	2.5	61	7.9	59	17.2	56	17.2	56	8.4	40	15.4	14	8.0	27
S&P 500 Equal Weighted				2.5	61	8.1	58	17.3	56	17.3	56	8.5	37	15.5	13	8.3	19
T. Rowe	3,085	0.0	0.0														
Small/Mid Cap Comp	94,306,116	5.4	5.5	1.7	66	4.1	75	18.1	63	18.1	63	9.1	20	14.5	30	8.2	29
Russell 2000				2.5	51	5.0	69	24.6	15	24.6	15	7.4	38	13.7	44	6.9	62
eA US Small-Mid Cap Equity Net Median				2.5		6.6		19.7		19.7		6.6		13.4		7.4	
Champlain	48,665,355	2.8	2.8	4.8	24	10.6	33	21.3	19	21.3	19	11.2	4	16.0	12	-	
Russell 2500 eA US Mid Cap Equity Net				2.1	57	6.0	71	19.8	29	19.8	29	6.9	55	14.0	48	7.4	53
Median				2.5		8.1		17.2		17.2		7.2		14.0		7.6	
Wellington	45,640,761	2.6	2.8	-1.0	90	-2.4	93	14.6	94	14.6	94	7.7	33	13.0	66	8.1	17
Russell 2000 Value				0.7	56	0.5	64	24.9	30	24.9	30	7.0	46	13.4	60	5.9	76
eA US Small Cap Value Equity Net Median				0.9		1.7		22.3		22.3		6.7		14.0		6.9	



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Int'l Equity Comp	259,214,439	14.9	14.0	7.0	42	16.0	33	22.5	33	22.5	33	2.7	44	10.0	43	1.3	69
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
eA All EAFE Equity Net Median				6.6		14.6		20.1		20.1		2.3		9.6		2.3	
Acadian	80,016,537	4.6	4.0	10.7	4	21.8	4	31.0	3	31.0	3	6.2	12	13.1	14	1.7	61
Mondrian	72,707,105	4.2	4.0	4.3	95	12.0	85	16.0	79	16.0	79	0.5	86	8.4	72	1.6	63
MSCI EAFE				6.1	67	13.8	61	20.3	48	20.3	48	1.1	77	8.7	67	1.0	76
SSgA ACWI Ex US	106,490,797	6.1	6.0	5.9	78	14.3	75	20.7	45	20.7	45	1.0	72	7.4	81	-	
MSCI ACWI ex USA				5.8	79	14.1	76	20.5	45	20.5	45	0.8	74	7.2	82	1.1	75
eA ACWI ex-US All Cap Equity Net Median				6.9		15.8		20.0		20.0		2.4		9.2		2.5	
Emerging Market Comp	125,909,267	7.2	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	73		
Aberdeen	125,909,267	7.2	6.0	6.4	50	18.8	56	18.7	71	18.7	71	1.6	55	3.9	74		
MSCI Emerging Markets				6.3	53	18.4	62	23.7	42	23.7	42	1.1	68	4.0	73	1.9	66
eA Emg Mkts Equity Net Median				6.4		19.3		22.9		22.9		1.7		5.2		2.5	
US Fixed Income	490,715,475	28.2	31.0	1.3	54	3.1	36	3.5	27	3.5	27	3.4	30				
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
Diversified Fixed	325,647,698	18.7	20.0	1.7	38	3.5	31	2.3	34	2.3	34	3.5	29	2.9	47	4.0	63
BBgBarc US Aggregate TR				1.4	50	2.3	56	-0.3	84	-0.3	84	2.5	52	2.2	61	4.5	52
eA All US Fixed Inc Net Median				1.4		2.5		0.9		0.9		2.5		2.8		4.5	
PIMCO Core Plus	96,838,784	5.6	6.0	1.7	22	3.3	5	1.1	17	1.1	17	2.6	51	2.3	66	-	
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
SSgA Barclays Aggregate Index	91,632,325	5.3	6.0	1.4	68	2.2	71	-0.4	74	-0.4	74						
BBgBarc US Aggregate TR				1.4	64	2.3	65	-0.3	72	-0.3	72	2.5	59	2.2	72	4.5	76
3-Month Libor Total Return USD				0.3	99	0.6	99	1.0	20	1.0	20	0.6	99	0.5	99	1.0	99
eA US Core Fixed Inc Net Median				1.5		2.4		0.2		0.2		2.6		2.5		4.7	
State Street Long U.S. Treasury Index	34,248,042	2.0		-				-								-	
BBgBarc US Treasury Long TR				4.0		5.4		-7.2		-7.2		5.6		2.8		7.3	



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Unconstrained Fixed Income	102,928,547	5.9	6.0	1.5	62	4.2	48	7.9	30	7.9	30		-	-		-	
25% HY, 25% EMD, 50% BC Agg				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
BBgBarc Global Aggregate TR eA Global Unconstrained Fixed Inc Net Median				2.6 1.8	21	4.4 4.1	43	-2.2 7.0	99	-2.2 7.0	99	-0.4 2.5	97	0.8 4.0	98	3.7 5.5	91
PIMCO Unconstrained	42,550,951	2.4	2.5	0.9	94	3.0	76	7.0	51	7.0	51	1.8	75	1.4	97		
25% HY, 25% EMD, 50% BC Agg				1.8	48	3.9	59	4.3	76	4.3	76	3.6	16	4.2	43	6.1	26
3-Month Libor Total Return USD				0.3	95	0.6	99	1.0	98	1.0	98	0.6	90	0.5	99	1.0	99
GAM Unconstrained Bond	60,377,596	3.5	3.5	1.9	43	5.1	32	8.5	26	8.5	26						
3-Month LIBOR + 3%				1.1	90	2.1	93	4.1	80	4.1	80	3.6	15	3.5	64	4.0	89
eA Global Unconstrained Fixed Inc Net Median				1.8		4.1		7.0		7.0		2.5		4.0		5.5	
High Yield Comp	87,165,093	5.0	5.0	1.7	72	3.6	81	11.6	41	11.6	41	4.4	30	6.5	35	7.1	36
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	
KDP	17,419,455	1.0	1.0	1.6	73	3.4	83	7.9	87	7.9	87	2.7	84	4.6	93		
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
BofA Merrill Lynch US High Yield BB-B Rated				2.2	29	4.6	44	11.2	52	11.2	52	4.5	26	6.7	31	7.1	36
Guggenheim	69,745,638	4.0	4.0	1.7	72	3.7	78	12.6	29	12.6	29	4.7	21	-		-	
BBgBarc US High Yield TR				2.2	35	4.9	24	12.7	27	12.7	27	4.5	28	6.9	25	7.7	14
eA US High Yield Fixed Inc Net Median				2.0		4.4		11.3		11.3		3.8		6.3		6.8	



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TIPS	77,902,684	4.5	6.0														
BlackRock TIPS	77,902,684	4.5	6.0	-0.4		0.8		-0.6		-0.6		0.6		0.2			
BBgBarc US TIPS TR				-0.4		0.9		-0.6		-0.6		0.6		0.3		4.3	
Emerging Market Debt	89,463,508	5.1	5.0														
Wellington Opportunistic EMD	89,463,508	5.1	5.0	2.5	48	6.8	62	9.0	27	9.0	27	5.1	9	5.9	14		
JP Morgan EMBI Global TR				2.2	61	6.2	74	5.5	86	5.5	86	4.6	18	5.2	29	7.3	22
eA All Emg Mkts Fixed Inc Net Median				2.4		7.8		7.3		7.3		2.4		3.7		6.3	
Risk Parity/GAA	70,973,526	4.1	4.0	1.1	84	5.4	58	5.0	77	5.0	77	0.5	76	4.4	58	3.9	66
Mellon Dynamic Growth	49,875	0.0	0.0	1.2	47	4.1	38	3.4	82	3.4	82	4.7	18	6.5	30	2.9	51
Mellon Dynamic Growth Benchmark				3.7	9	8.0	12	9.3	35	9.3	35	2.8	43	6.2	33	3.6	34
Risk Parity	70,923,651	4.1	4.0	1.2	82	5.8	53	5.6	72	5.6	72	0.1	83	4.2	62	-	
eA Global TAA Net Median				2.5		6.3		7.0		7.0		1.5		5.0		4.3	
AQR Global Risk Premium	70,923,651	4.1	4.0	1.2	82	5.8	53	5.6	72	5.6	72	0.1	83	4.2	62		
60% MSCI World (Net) / 40% CITI WGBI				3.6	26	8.2	34	8.8	40	8.8	40	2.9	32	6.7	24	4.1	64
Cash	1,403,150	0.1	0.0														
Vermont Cash	1,403,150	0.1		0.0		0.0		0.0		0.0		0.0		0.0		0.7	
91 Day T-Bills				0.2		0.4		0.5		0.5		0.2		0.2		0.4	

Risk Parity Composite formerly shown as Risk Parity/GAA.

Mellon Dynamic Growth was included in Risk Parity/GAA composite prior to 04/01/2016.



## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Real Estate	105,738,638	6.1	6.5	0.9		2.3		6.6		6.6		10.4		11.4			
NCREIF Property Index				1.8		3.3		7.0		7.0		10.2		10.5		6.4	
NCREIF ODCE				1.7		3.5		7.9		7.9		11.3		11.8		5.2	
UBS Trumbull	40,082,692	2.3		1.0		1.9		4.6		4.6		8.8		8.8		4.5	
Siguler Guff DREOF II	13,239,126	0.8		3.9		4.2		12.5		12.5		10.7					
Siguler Guff DREOF II Co- Investment	3,954,304	0.2		2.3		5.9					-				-		
RREEF America REIT III	199,332	0.0		-2.9		-3.6		-16.1		-16.1		-1.9		7.0		-5.5	
Morgan Stanley Prime Property	48,160,530	2.8		0.0		1.9		6.7		6.7		11.6		12.5		5.2	
Transwestern / Aslan III	102,653	0.0		0.0		0.0		0.0		0.0		3.6		14.3		-21.9	
Absolute Return	153,461,254	8.8	8.0	-0.2	80	-0.2	91	4.1	76	4.1	76	0.0	80	4.5	64		
HFRI Fund of Funds Composite Index				0.7	62	3.1	54	6.4	57	6.4	57	1.5	59	3.9	70	0.9	91
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Grosvenor	80,649,409	4.6	3.0	0.4	70	2.2	65	7.5	49	7.5	49	1.7	54	5.6	42		
Allianz Structured Alpha	31,515,625	1.8	2.0	1.4	41	2.3	65	5.0	67	5.0	67	8.0	6	6.4	31		
91 Day T-Bills				0.2	73	0.4	88	0.5	91	0.5	91	0.2	78	0.2	98	0.4	94
eV Alt Fund of Funds - Multi- Strategy Median				1.0		3.2		7.2		7.2		2.0		5.2		2.9	
Pinnacle Natural Resources, L.P.	41,129,191	2.4	3.0	-3.0		-10.9		-9.4		-9.4					-		
Bloomberg Commodity Index				-3.0		-5.3		-6.5		-6.5		-14.8		-9.2		-6.5	
GAM	167,030	0.0	0.0														

Absolute Return composite formerly shown as Hedge Funds composite. As of 04/01/2016, Absolute Return includes Allianz Structured Alpha. Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016.

Real Estate performance reported on a quarterly basis. NCREIF Property is available 25 days after quarter end.

Real Estate values are finalized as of 06/30/2017. Morgan Stanley will be liquidated, funding UBS and SSgA Long US Treasury Index.



## Total Fund Performance Detail - Net

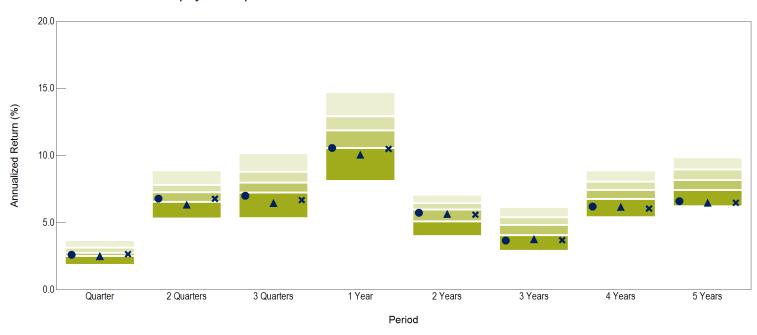
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Equity	26,773,193	1.5	1.5	0.0		0.3	-	7.8	-	7.8		13.7			-		
Cambridge Associates US All PE				0.0		4.3		13.3		13.3		8.4		12.7		9.0	
Harbourvest Partners IX Credit Opportunities	889,174	0.1															
Harbourvest Partners IX Venture Fund	4,664,881	0.3															
Harbourvest Partners IX Buyout Fund	6,221,546	0.4															
Harbourvest Partners X Venture Fund	1,148,172	0.1															
Harbourvest Partners X Buyout Fund	2,334,629	0.1															
Harbourvest Dover VIII Fund	7,064,406	0.4															
Harbourvest Dover Street Fund IX	2,318,113	0.1															
HIPEP VII	2,132,272	0.1															

Harbourvest values based on final Capital Account Statements for Q1, and cash adjusted through Q2.



## Total Fund Return Summary vs. Peer Universe - Net

#### **Employees Composite vs. InvestorForce Public DB Net**

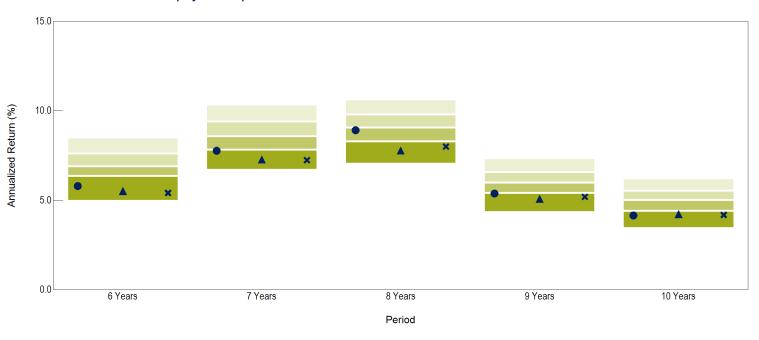


	Return (Rank)							
5th Percentile	3.7	8.9	10.2	14.7	7.1	6.2	8.9	9.9
25th Percentile	3.2	7.8	8.8	12.9	6.5	5.4	8.1	9.0
Median	2.8	7.3	8.0	11.9	6.0	4.9	7.4	8.2
75th Percentile	2.5	6.6	7.3	10.6	5.1	4.1	6.8	7.4
95th Percentile	1.9	5.3	5.4	8.1	4.0	2.9	5.4	6.2
# of Portfolios	283	283	282	282	278	269	255	245
<ul> <li>Employees Composite</li> </ul>	2.6 (69)	6.8 (67)	7.0 (82)	10.6 (77)	5.7 (58)	3.7 (84)	6.2 (88)	6.6 (91)
▲ Policy Index	2.5 (77)	6.3 (82)	6.5 (90)	10.1 (84)	5.7 (59)	3.8 (81)	6.2 (88)	6.5 (93)
× Allocation Index	2.7 (60)	6.8 (68)	6.7 (88)	10.5 (78)	5.6 (60)	3.7 (83)	6.1 (90)	6.5 (93)



## Total Fund Return Summary vs. Peer Universe - Net

#### **Employees Composite vs. InvestorForce Public DB Net**

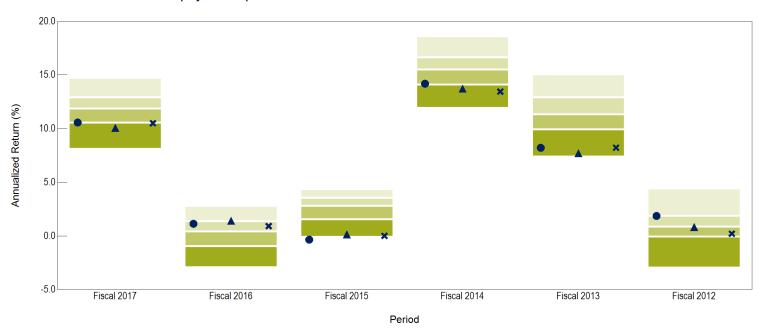


	Return (Rank)								
5th Percentile	8.5		10.3		10.6	7.3		6.2	
25th Percentile	7.6		9.4		9.8	6.6		5.5	
Median	6.9		8.6		9.1	6.0		5.0	
75th Percentile	6.4		7.8		8.3	5.4		4.4	
95th Percentile	5.0		6.7		7.0	4.4		3.5	
# of Portfolios	230		220		211	206		199	
<ul> <li>Employees Composite</li> </ul>	5.8	(88)	7.8	(77)	8.9 (55	5) 5.4	(78)	4.2	(82)
▲ Policy Index	5.5	(92)	7.3	(90)	7.8 (87	7) 5.1	(85)	4.2	(80)
× Allocation Index	5.4	(92)	7.2	(91)	8.0 (85	5) 5.2	(84)	4.2	(81)



## Total Fund Return Summary vs. Peer Universe - Net

#### **Employees Composite vs. InvestorForce Public DB Net**

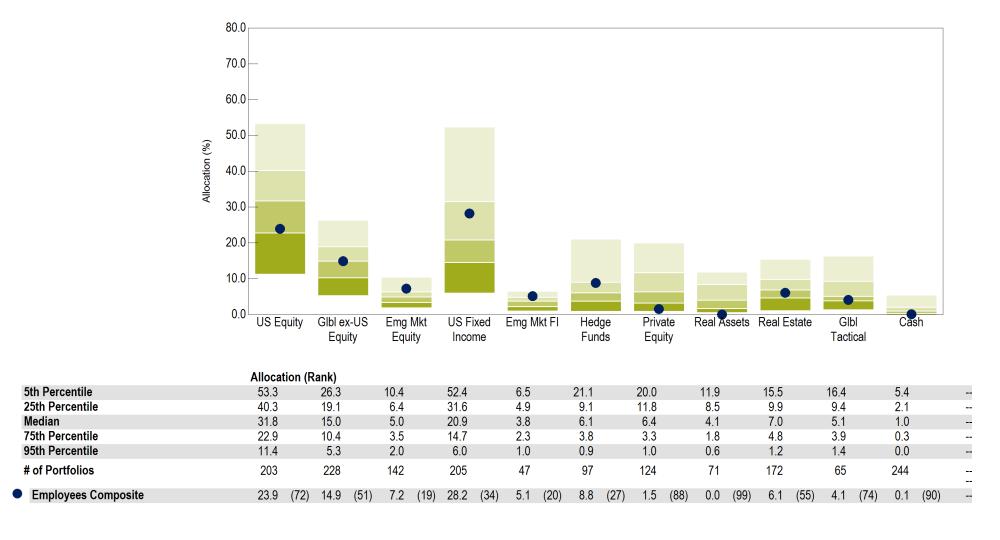


	Return (Rank)								
5th Percentile	14.7	2.8		4.4		18.6	15.0	4.4	
25th Percentile	12.9	1.4		3.6		16.7	12.9	1.9	
Median	11.9	0.4		2.8		15.5	11.3	0.9	
75th Percentile	10.6	-0.9		1.6		14.1	9.9	0.0	
95th Percentile	8.1	-2.9		-0.1		11.9	7.4	-2.9	
# of Portfolios	282	258		231		173	192	147	
<ul> <li>Employees Composite</li> </ul>	10.6	(77) 1.1	(32)	-0.3	(96)	14.2 (73)	8.2 (	93) 1.9	(26)
Policy Index	10.1	(84) 1.4	(25)	0.1	(94)	13.7 (84)	7.7 (	94) 0.8	(52)
× Allocation Index	10.5	(78) 0.9	(36)	0.0	(95)	13.4 (89)	8.2 (	93) 0.2	(70)



### Total Fund Allocation vs. Peer Universe - Net

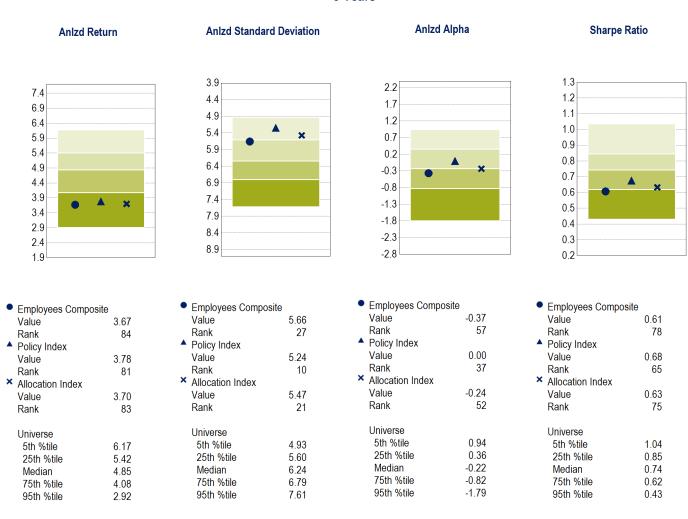
Total Plan Allocation vs. InvestorForce Public DB Net
As of June 30, 2017





### Total Fund Risk Statistics vs. Peer Universe - Net

## Employees Composite vs. IFx Public DB Net 3 Years



### Total Fund Risk Statistics vs. Peer Universe - Net

## Employees Composite vs. IFx Public DB Net 5 Years

**AnIzd Standard Deviation** Anizd Alpha Sharpe Ratio **Anizd Return** 3.6 2.0 2.6 11.2 1.9 4.1 2.1 10.7 1.8 1.6 10.2 4.6 1.7 9.7 5.1 1.1 1.6 9.2 0.6 5.6 1.5 8.7 0.1 6.1 1.4 8.2 -0.4 1.3 6.6 7.7 -0.9 1.2 7.2 7.1 -1.4 6.7 1.1 7.6 -1.9 1.0 6.2 8.1 -2.4 0.9 5.7 8.6 -2.9 8.0 5.2 Employees Composite Employees Composite Employees Composite Employees Composite Value Value 5.50 -0.40 Value 1.17 Value 6.60 67 Rank 31 Rank Rank 83 Rank 91 ▲ Policy Index ▲ Policy Index ▲ Policy Index ▲ Policy Index Value Value 5.05 0.00 Value 1.25 Value 6.48 Rank 46 Rank 13 Rank 74 Rank 93 × Allocation Index × Allocation Index × Allocation Index × Allocation Index Value -0.12 5.16 Value 6.48 Value Value 1.23 Rank 18 Rank 55 Rank 77 Rank 93 Universe Universe Universe Universe 5th %tile 4.63 5th %tile 1.18 5th %tile 1.75 9.87 5th %tile 25th %tile 0.45 25th %tile 5.34 25th %tile 1.49 25th %tile 8.98 Median -0.08 Median 5.87 Median 1.37 Median 8.19 -0.62 75th %tile 6.47 75th %tile 75th %tile 1.24 75th %tile 7.44 95th %tile -1.88 7.22 0.99 95th %tile 6.24 95th %tile 95th %tile

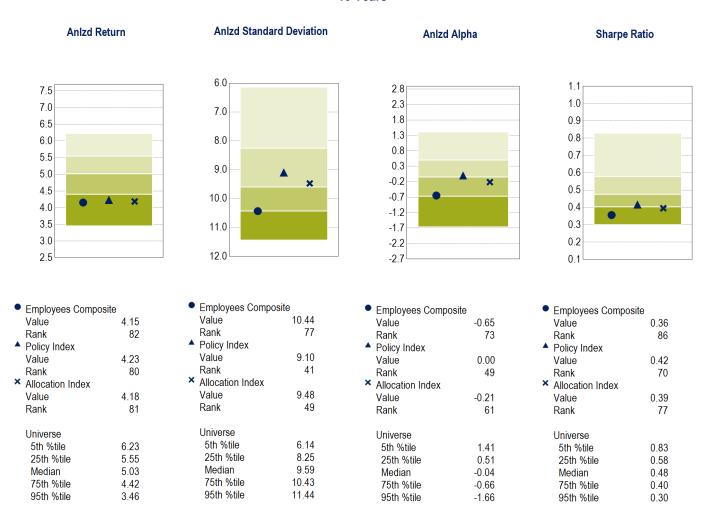
#### Total Fund Risk Statistics vs. Peer Universe - Net

# Employees Composite vs. IFx Public DB Net 7 Years

**Anizd Alpha AnIzd Standard Deviation Anizd Return Sharpe Ratio** 4.0 2.5 1.8 11.7 4.5 2.0 1.7 11.2 5.0 1.5 10.7 1.6 5.5 10.2 1.0 1.5 6.0 9.7 0.5 1.4 6.5 9.2 0.0 7.0 1.3 8.7 7.5 -0.5 1.2 8.2 8.0 -1.0 1.1 7.7 8.5 -1.5 1.0 7.2 9.0 -2.0 0.9 6.7 9.5 -2.5 8.0 6.2 10.0 -3.0 10.5 5.7 0.7 Employees Composite Employees Composite Employees Composite Employees Composite Value 0.25 Value 6.81 Value 7.77 Value 1.12 29 Rank Rank 34 77 Rank 65 Rank ▲ Policy Index ▲ Policy Index ▲ Policy Index Policy Index Value 0.00 Value 6.56 Value Value 1.09 7.28 Rank 39 Rank 25 73 Rank 90 Rank × Allocation Index × Allocation Index × Allocation Index × Allocation Index Value -0.14 6.66 Value 7.24 Value Value 1.07 Rank 46 Rank 28 Rank 91 Rank 78 Universe Universe Universe Universe 5th %tile 1.14 5th %tile 5.02 5th %tile 5th %tile 10.34 1.46 25th %tile 0.36 25th %tile 6.57 25th %tile 1.29 25th %tile 9.41 Median -0.21 Median 7.34 Median Median 8.59 1.17 75th %tile -0.81 75th %tile 8.06 75th %tile 1.08 75th %tile 7.83 95th %tile -2.01 9.00 95th %tile 6.71 95th %tile 95th %tile 0.89

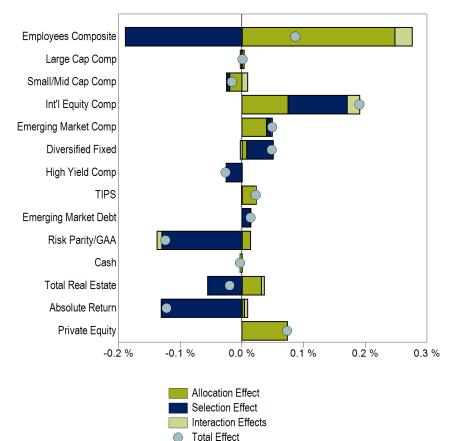
#### Total Fund Risk Statistics vs. Peer Universe - Net

# Employees Composite vs. IFx Public DB Net 10 Years



#### Total Fund Attribution Analysis - Net

Attribution Effects Relative to Policy Index 3 Months Ending June 30, 2017



#### Attribution Summary 3 Months Ending June 30, 2017

	Wtd.		•				
		Wtd. Index	Excess	Selection	Allocation	Interaction	Total
	Actual	Return	Return	Effect	Effect	Effects	Effects
	Return						
Large Cap Comp	2.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Small/Mid Cap Comp	1.7%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Int'l Equity Comp	7.0%	6.0%	0.9%	0.1%	0.1%	0.0%	0.2%
<b>Emerging Market Comp</b>	6.4%	6.3%	0.1%	0.0%	0.0%	0.0%	0.0%
Diversified Fixed	1.7%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%
High Yield Comp	1.7%	2.2%	-0.5%	0.0%	0.0%	0.0%	0.0%
TIPS	-0.4%	-0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Emerging Market Debt</b>	2.5%	2.2%	0.3%	0.0%	0.0%	0.0%	0.0%
Risk Parity/GAA	1.1%	3.6%	-2.5%	-0.1%	0.0%	0.0%	-0.1%
Cash	0.0%	0.2%	-0.2%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	0.9%	1.8%	-0.8%	-0.1%	0.0%	0.0%	0.0%
Absolute Return	-0.2%	1.3%	-1.5%	-0.1%	0.0%	0.0%	-0.1%
Private Equity	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Total	2.7%	2.5%	0.1%	-0.2%	0.2%	0.0%	0.1%

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

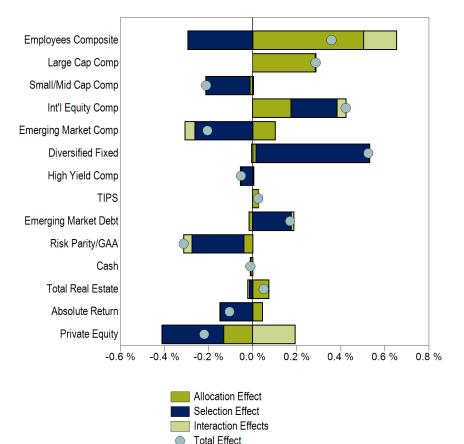
May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



#### Total Fund Attribution Analysis - Net

Attribution Effects Relative to Policy Index 1 Year Ending June 30, 2017



# Attribution Summary 1 Year Ending June 30, 2017

	Wtd. , Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Large Cap Comp	17.8%	17.8%	0.0%	0.0%	0.3%	0.0%	0.3%
Small/Mid Cap Comp	18.1%	22.0%	-3.8%	-0.2%	0.0%	0.0%	-0.2%
Int'l Equity Comp	22.5%	20.3%	2.1%	0.2%	0.2%	0.0%	0.4%
<b>Emerging Market Comp</b>	18.7%	23.7%	-5.0%	-0.3%	0.1%	0.0%	-0.2%
Diversified Fixed	2.3%	-0.3%	2.6%	0.5%	0.0%	0.0%	0.5%
High Yield Comp	11.6%	12.7%	-1.1%	-0.1%	0.0%	0.0%	-0.1%
TIPS	-0.6%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Emerging Market Debt	9.0%	5.5%	3.4%	0.2%	0.0%	0.0%	0.2%
Risk Parity/GAA	5.0%	8.8%	-3.8%	-0.2%	0.0%	0.0%	-0.3%
Cash	0.0%	0.5%	-0.5%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	6.6%	7.0%	-0.4%	0.0%	0.1%	0.0%	0.1%
Absolute Return	4.1%	5.7%	-1.6%	-0.1%	0.0%	0.0%	-0.1%
Private Equity	7.8%	13.3%	-5.5%	-0.3%	-0.1%	0.2%	-0.2%
Total	10.8%	10.2%	0.7%	-0.3%	0.5%	0.1%	0.4%

Note: Plan attribution calculations are returns based and the results shown reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance report.

The target return shown for each composite is a custom index, based on aggregated policy indices. This policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark.

The allocation, selection, and interaction effects are calculated using the custom index described above along with the policy or target weight of each composite.

May not add up due to rounding.

Absolute Return's Wtd. index Return is calculated using a weighting of the respective benchmarks for each underlying strategy part of the composite.



#### Vermont State Employees

#### **Analytics Definitions**

Asset Allocation Effect - Measures VPIC's ability to effectively allocate their portfolio's assets to various asset classes. The allocation effect determines whether the overweighting or underweighting of asset classes relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is overweighted in an asset class that outperforms the benchmark. Negative allocation occurs when the portfolio is overweighted in an asset class that underperforms the benchmark and underweighted in an asset class that outperforms the benchmark.

Selection Effect - Measures VPIC's ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by VPIC's allocation to the asset class. The weight of the manager in the portfolio determines the size of the effect -- the larger the manager, the larger the effect is, positive or negative.

Interaction Effect - The interaction effect measures the combined impact of VPIC's manager selection and manager allocation decisions within an asset class. For example, if VPIC had superior manager selection and overweighted that particular asset class, the interaction effect is positive. If VPIC had superior manager selection, but underweighted that asset class, the interaction effect is negative. In this case, VPIC did not take advantage of the superior manager selection by allocating more assets to that asset class.

#### Vermont State Employees

## Risk Statistics - 3 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Employees Composite	100.00%	3.67%	84	5.66%	27	-0.35%	56	0.61	78	1.05	64	0.88%	32
Policy Index		3.78%	81	5.24%	10	0.00%	36	0.68	65	1.18	47	0.00%	1
US Equity	23.93%	9.14%	27	10.83%	28	-0.06%	30	0.82	21	1.38	23	1.40%	2
Russell 3000		9.10%	27	10.63%	25	0.00%	29	0.83	19	1.37	24	0.00%	1
Large Cap Comp	18.51%	9.27%	27	10.45%	36	-0.42%	31	0.86	24	1.56	19	0.70%	1
S&P 500		9.61%	22	10.35%	34	0.00%	24	0.91	18	1.52	21	0.00%	1
Small/Mid Cap Comp	5.42%	9.09%	20	12.83%	46	3.06%	24	0.69	21	1.35	12	4.05%	2
Russell 2000		7.36%	38	15.38%	93	0.00%	61	0.46	57	0.77	53	0.00%	1
Int'l Equity Comp	14.90%	2.68%	44	11.78%	42	1.60%	45	0.21	44	0.37	43	2.06%	7
MSCI EAFE		1.15%	77	12.42%	76	0.00%	78	0.07	78	0.13	76	0.00%	1
Emerging Market Comp	7.24%	1.64%	55	15.29%	61	0.65%	55	0.09	56	0.18	49	5.16%	56
MSCI Emerging Markets		1.07%	68	16.06%	78	0.00%	67	0.05	67	0.10	66	0.00%	1
US Fixed Income	28.20%	3.42%	30	2.96%	61	1.27%	27	1.07	26	1.57	29	1.69%	36
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Diversified Fixed	18.72%	3.51%	29	3.00%	61	1.15%	28	1.09	24	1.37	40	1.22%	24
BBgBarc US Aggregate TR		2.48%	52	2.90%	59	0.00%	76	0.77	61	1.07	66	0.00%	1
Unconstrained Fixed Income	5.92%												
25% HY, 25% EMD, 50% BC		3.56%	16	3.68%	51	0.00%	48	0.90	28	1.50	28	0.00%	1
Agg	_		10		31		40		20		20		'
High Yield Comp	5.01%	4.36%	30	5.04%	43	0.69%	38	0.82	41	1.48	48	1.62%	37
BBgBarc US High Yield TR	-	4.48%	28	6.09%	83	0.00%	57	0.70	55	1.56	40	0.00%	1
TIPS	4.48%	0.59%	27	3.90%	70	-0.05%	22	0.09	23	0.16	21	0.18%	4
BBgBarc US TIPS TR		0.63%	23	3.83%	59	0.00%	18	0.10	18	0.18	18	0.00%	1
Emerging Market Debt	5.14%	5.05%	9	6.14%	28	0.44%	15	0.78	13	1.21	16	1.32%	9
JP Morgan EMBI Global TR		4.64%	18	6.04%	27	0.00%	25	0.73	21	1.07	22	0.00%	1
Total Real Estate	6.08%	10.40%		4.64%		0.15%		0.61		0.56		1.44%	
NCREIF Property Index		10.16%		4.28%		0.00%		0.61		0.52		0.00%	
Absolute Return	8.82%	0.02%	80	3.15%	21	-1.29%	76	-0.07	83	-0.09	83	1.66%	6
HFRI Fund of Funds Composite Index		1.53%	59	3.30%	27	0.00%	56	0.39	51	0.45	56	0.00%	1
Risk Parity/GAA	4.08%	0.49%	76	7.32%	62	-1.96%	80	0.03	77	0.06	77	4.42%	41
60% MSCI World (Net) / 40% CITI WGBI		2.86%	32	7.04%	55	0.00%	42	0.37	38	0.74	26	0.00%	1



#### Vermont State Employees

## Risk Statistics - 5 Years Ending June 30, 2017 - Net

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Employees Composite	100.00%	6.60%	91	5.50%	31	-0.39%	67	1.17	83	2.04	70	0.84%	26
Policy Index		6.48%	93	5.05%	13	0.00%	46	1.25	74	2.24	49	0.00%	1
US Equity	23.93%												
Russell 3000	-	14.58%	34	9.80%	18	0.00%	29	1.47	12	2.53	17	0.00%	1
Large Cap Comp	18.51%	14.92%	23	9.67%	28	0.16%	21	1.53	10	2.87	8	0.74%	1
S&P 500		14.63%	28	9.56%	24	0.00%	26	1.51	11	2.61	18	0.00%	1
Small/Mid Cap Comp	5.42%	14.53%	30	11.96%	47	3.00%	43	1.20	31	2.44	12	3.47%	1
Russell 2000		13.70%	44	13.88%	87	0.00%	85	0.98	75	1.61	70	0.00%	1
Int'l Equity Comp	14.90%	10.04%	43	11.20%	38	1.87%	42	0.88	38	1.63	29	2.08%	7
MSCI EAFE		8.69%	67	11.74%	71	0.00%	79	0.73	72	1.28	67	0.00%	1
Emerging Market Comp	7.24%	3.95%	73	14.40%	70	0.20%	71	0.26	72	0.44	69	4.74%	51
MSCI Emerging Markets		3.96%	73	14.40%	70	0.00%	75	0.26	72	0.44	69	0.00%	1
US Fixed Income	28.20%												
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Diversified Fixed	18.72%	2.90%	47	3.17%	63	0.62%	53	0.86	62	1.10	64	1.13%	24
BBgBarc US Aggregate TR		2.21%	61	2.86%	52	0.00%	83	0.72	77	0.98	74	0.00%	1
Unconstrained Fixed Income	5.92%												
25% HY, 25% EMD, 50% BC Agg	-	4.15%	43	3.78%	57	0.00%	72	1.06	50	1.51	53	0.00%	1
High Yield Comp	5.01%	6.48%	35	4.40%	30	0.84%	33	1.44	33	2.27	46	1.37%	36
BBgBarc US High Yield TR	-	6.89%	25	5.28%	76	0.00%	64	1.27	58	2.37	41	0.00%	1
TIPS	4.48%	0.20%	56	4.56%	73	-0.07%	55	0.01	56	0.01	55	0.16%	1
BBgBarc US TIPS TR	-	0.27%	37	4.52%	59	0.00%	40	0.02	40	0.03	40	0.00%	1
Emerging Market Debt	5.14%	5.90%	14	6.65%	28	0.91%	16	0.86	16	1.20	15	1.27%	7
JP Morgan EMBI Global TR	-	5.20%	29	6.81%	31	0.00%	30	0.74	26	1.04	30	0.00%	1
Total Real Estate	6.08%	11.43%		4.92%		0.98%		0.11		0.12		1.51%	
NCREIF Property Index		10.49%		4.30%		0.00%		-0.09		-0.09		0.00%	
Absolute Return	8.82%	4.51%	64	3.53%	33	0.79%	57	1.23	44	1.88	40	1.63%	7
HFRI Fund of Funds Composite Index	-	3.86%	70	3.25%	27	0.00%	67	1.14	49	1.51	53	0.00%	1
Risk Parity/GAA	4.08%	4.35%	58	7.22%	64	-1.75%	82	0.58	71	0.86	74	4.10%	44
60% MSCI World (Net) / 40% CITI WGBI	-	6.75%	24	6.63%	53	0.00%	47	0.99	17	2.07	5	0.00%	1





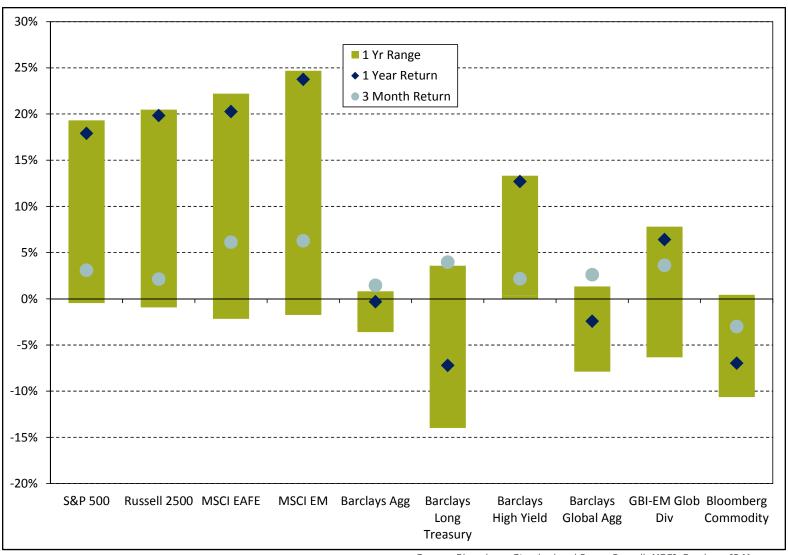
## Index Performance Summary as of 06/30/2017

	2009	2010	2011	2012	2013	2014	2015	2016	Q1	April	May	June	Q2	YTD
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	11.4%	2.2%	3.0%	1.0%	6.3%	18.4%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	7.2%	2.5%	3.7%	-0.2%	6.1%	13.8%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	6.9%	1.6%	2.2%	0.5%	4.3%	11.5%
JPM GBI-EM Global Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	6.5%	1.2%	2.0%	0.5%	3.6%	10.4%
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	6.1%	1.0%	1.4%	0.6%	3.1%	9.3%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	6.0%	1.1%	1.3%	0.7%	3.1%	9.3%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	1.8%	1.8%	3.1%	1.1%	6.1%	8.0%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	1.7%	1.6%	2.1%	1.0%	4.7%	6.4%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	3.9%	1.6%	0.9%	-0.1%	2.2%	6.2%
BC US Govt/Cred Long	1.9%	10.2%	22.5%	8.8%	-8.8%	19.3%	-3.3%	6.7%	1.6%	1.6%	2.0%	0.8%	4.4%	6.0%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	3.8%	0.8%	-1.1%	2.5%	2.1%	6.0%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	2.5%	1.1%	-2.0%	3.5%	2.5%	5.0%
BC US Corporate HY	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	2.7%	1.2%	0.9%	0.1%	2.2%	4.9%
BC Global Agg	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	1.8%	1.1%	1.5%	-0.1%	2.6%	4.4%
BC Municipal	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	1.6%	0.7%	1.6%	-0.4%	2.0%	3.6%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	2.1%	0.4%	0.8%	-	1.3%	3.4%
FTSE NAREIT Eqy REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	1.2%	0.1%	-0.8%	2.2%	1.5%	2.7%
BC US Agg Bond	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	0.8%	0.8%	0.8%	-0.1%	1.4%	2.3%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	1.2%	0.4%	0.4%	-0.1%	0.8%	2.0%
BC US Agg Interm	6.5%	6.1%	6.0%	3.6%	-1.0%	4.1%	1.2%	2.0%	0.7%	0.6%	0.5%	-0.3%	0.9%	1.6%
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	1.3%	0.6%	0.0%	-0.9%	-0.4%	0.9%
BC US Govt/Cred 1-3 Yr	3.8%	2.8%	1.6%	1.3%	0.6%	0.8%	0.7%	1.3%	0.4%	0.2%	0.2%	0.0%	0.3%	0.7%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	3.9%	-1.3%	-4.5%	-0.6%	-6.4%	-2.7%
<b>BBG Commodity</b>	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	-2.3%	-1.5%	-1.4%	-0.3%	-3.2%	-5.6%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse



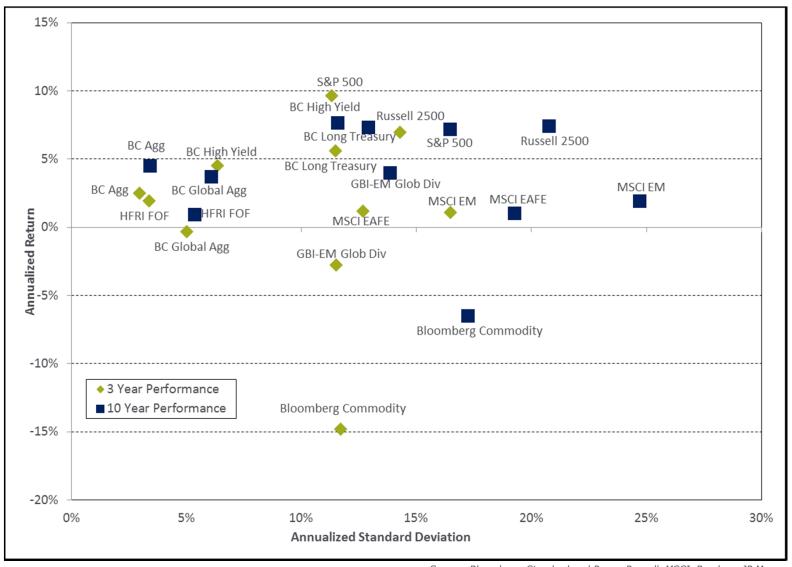
### Near Term Broad Market Performance Summary as of 06/30/2017



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



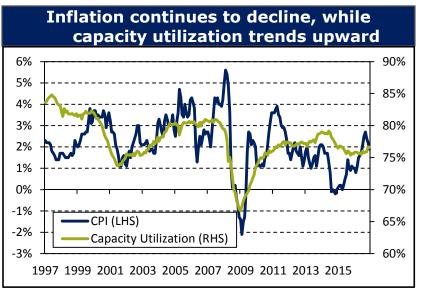
# Long Term Broad Market Performance Summary as of 06/30/2017



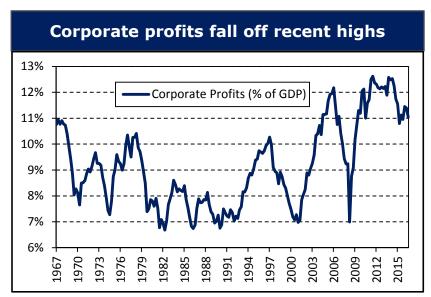
Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan



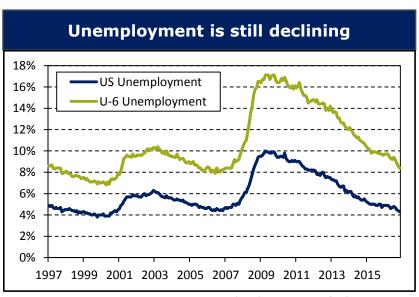
#### US Economic Indicators



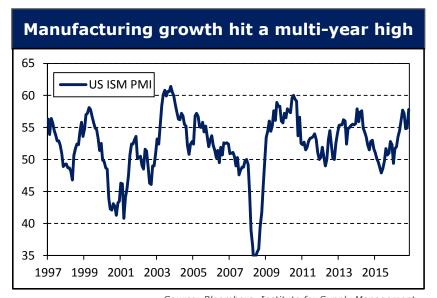
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics



Source: Bloomberg, Bureau of Economic Analysis



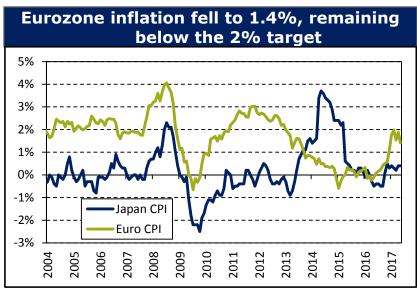
Source: Bloomberg, Bureau of Labor Statistics



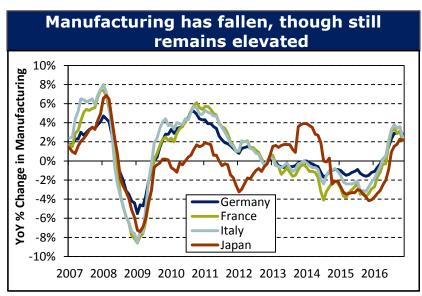
Source: Bloomberg, Institute for Supply Management



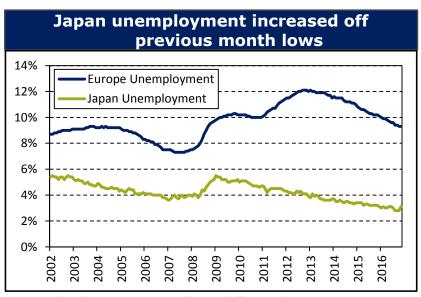
#### International Economic Indicators



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



Source: Bloomberg, OECD, Eurostat



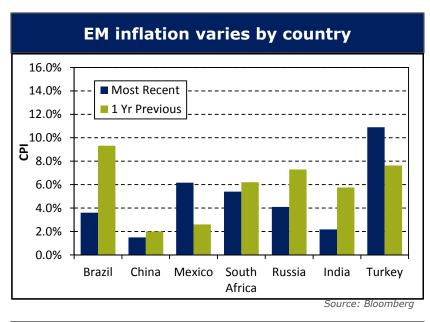
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat

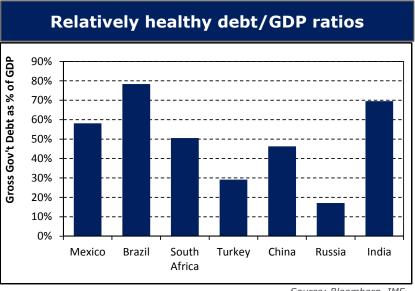


Source: Bloomberg, OECD

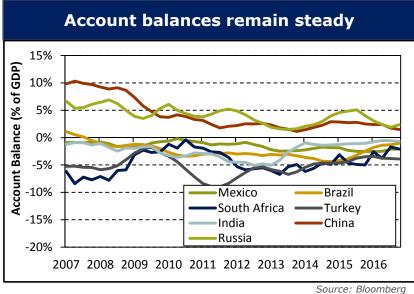


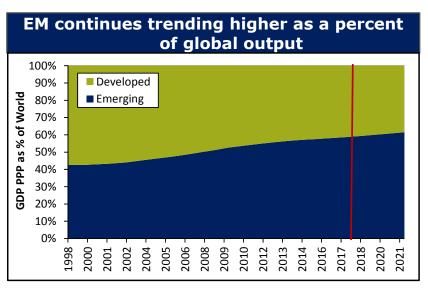
#### Emerging Market Economic Indicators





Source: Bloomberg, IMF

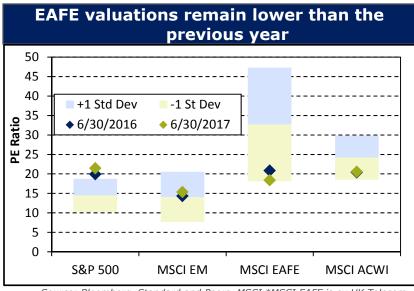




Source: Bloomberg, IMF



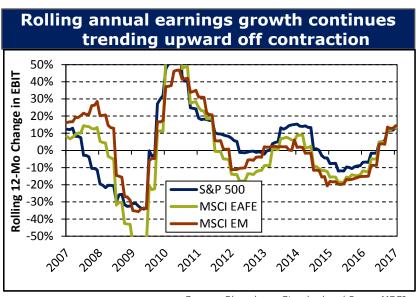
#### Global Equity



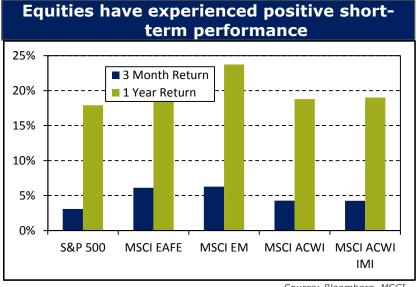
Source: Bloomberg, Standard and Poors, MSCI \*MSCI EAFE is ex UK Telecom \*Standard deviation calculations on 20 years of data except S&P 500 (30 years)



Source: Bloomberg, MSCI

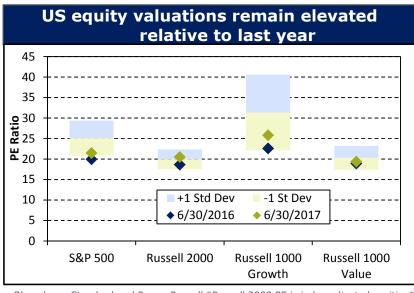


Source: Bloomberg, Standard and Poors, MSCI

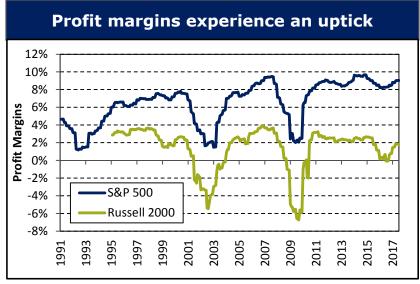




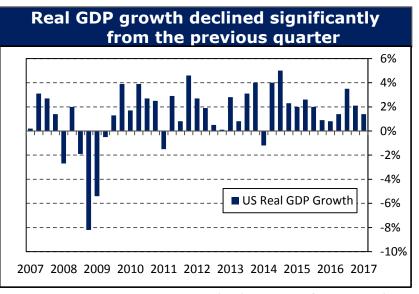
### **US** Equity



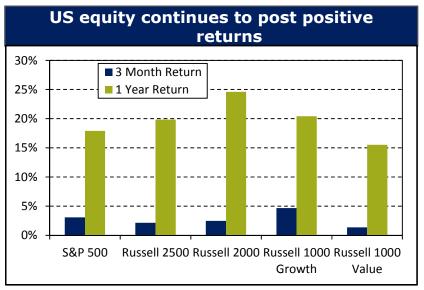
Source: Bloomberg, Standard and Poors, Russell \*Russell 2000 PE is index adjusted positive\* Standard deviation calculations based on 20 years of data



Source: Bloomberg, Standard and Poors, Russell



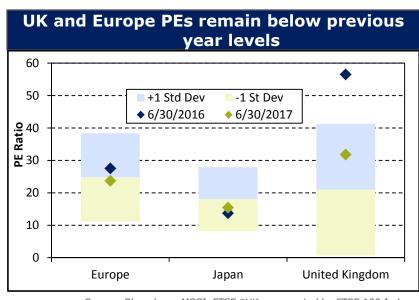
Source: Bloomberg, Bureau of Economic Analysis



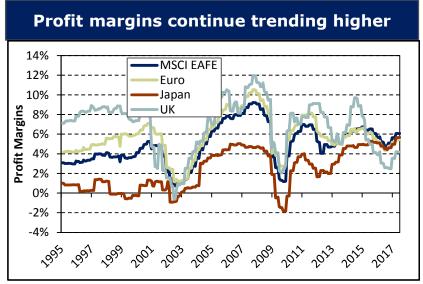
Source: Bloomberg, Standard and Poors, Russell



#### International Equity



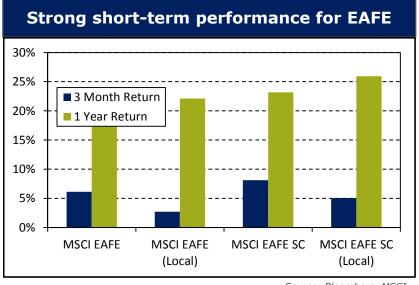
Source: Bloomberg, MSCI, FTSE \*UK represented by FTSE 100 Index \*Standard deviation calculations based on 20 years of data, with Europe since 12/1998



Source: Bloomberg, MSCI



Source: Bloomberg





#### **Emerging Markets Equity**

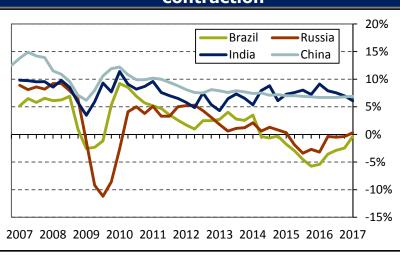
#### India's valuation fell below the previous year, though still remains elevated 50 +1 Std Dev -1 St Dev Brazil 06/30 45 **PE:** 75.0 ♦ 6/30/2016 6/30/2017 40 **Ratio** 30 **2**5 20 15 10 5 India South Korea China Brazil South Africa Russia

Source: Bloomberg, MSCI Standard deviation calculations based on 20 years of data, with Russia since 01/1998

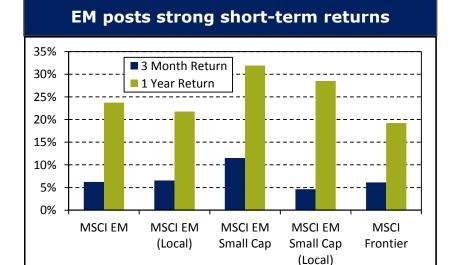


Source: Bloomberg, MSCI

# Brazil continues to rebound off earnings contraction

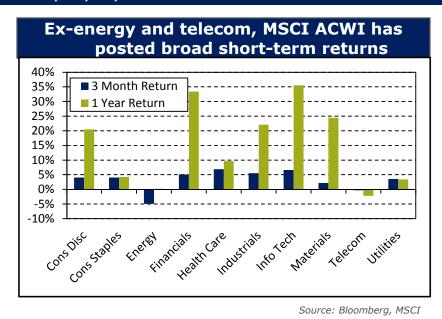


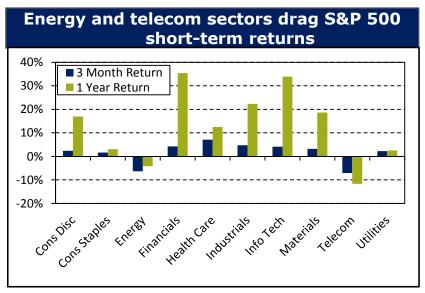
Source: Bloomberg



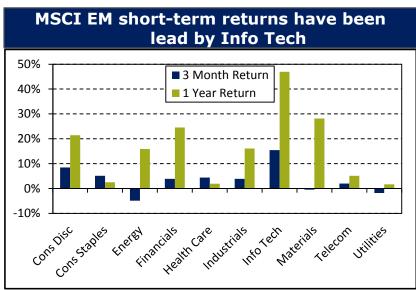


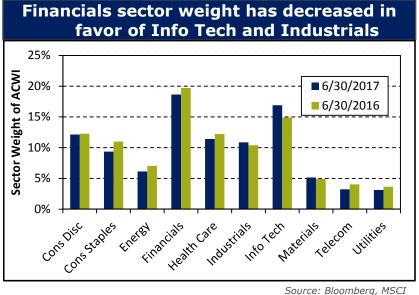
#### Global Equity by Sector





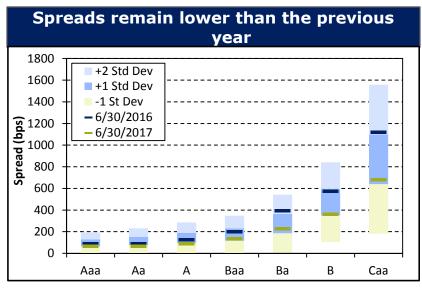
Source: Bloomberg, Standard and Poors



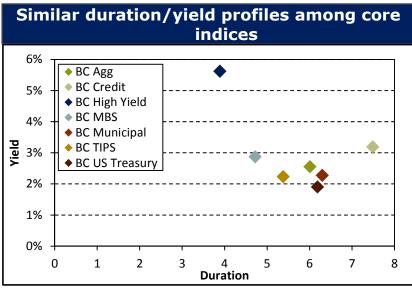




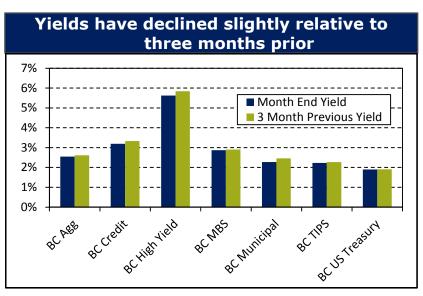
#### US Fixed Income



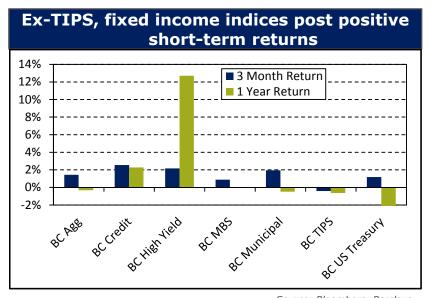
Source: Bloomberg, Barclays \*Standard deviation calculations based on 20 years of data



Source: Bloomberg, Barclays



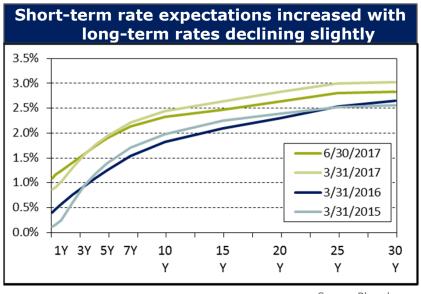
Source: Bloomberg, Barclays



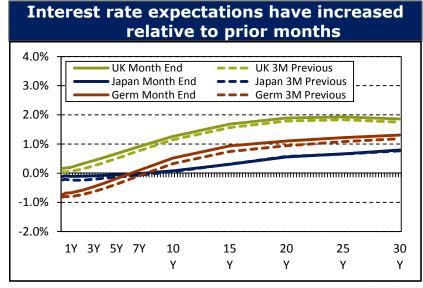
Source: Bloomberg, Barclays



#### Rates



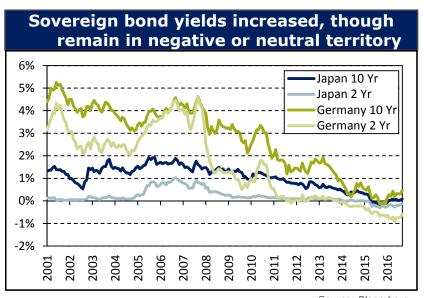
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

