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## Vermont Pension Investment Committee

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### First Fiscal Quarter 2018 Preliminary Investment Performance Analysis

November 28, 2017

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# Market Environment





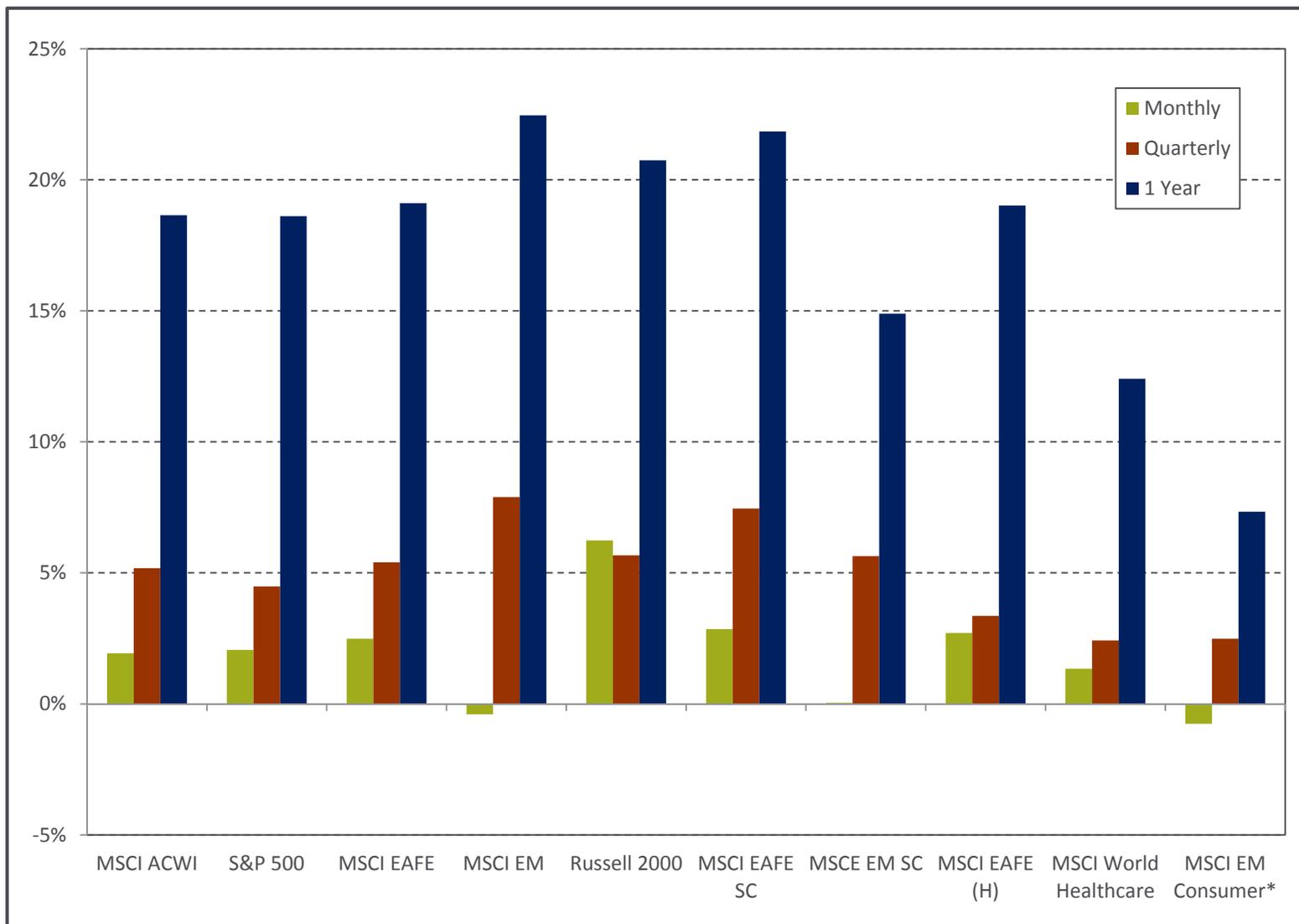
## Q3 Market Summary

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
											
-2.7%	-1.7	3 bps	4.5%	5.4%	7.9%	0.8%	2.0%	2.4%	12.2%	3.1%	1.3%

- **Equities continued to push higher with supportive macroeconomic data, robust earnings, and accommodative central banks**
  - Emerging markets continued their outperformance led by strong returns in China
- **Bond yields were little changed over the quarter – reflecting minimal volatility seen in US economic growth and inflation rates**
- **Reflecting the pro-risk environment, the US dollar declined relative to both the euro and yuan while volatility remained near historic lows**

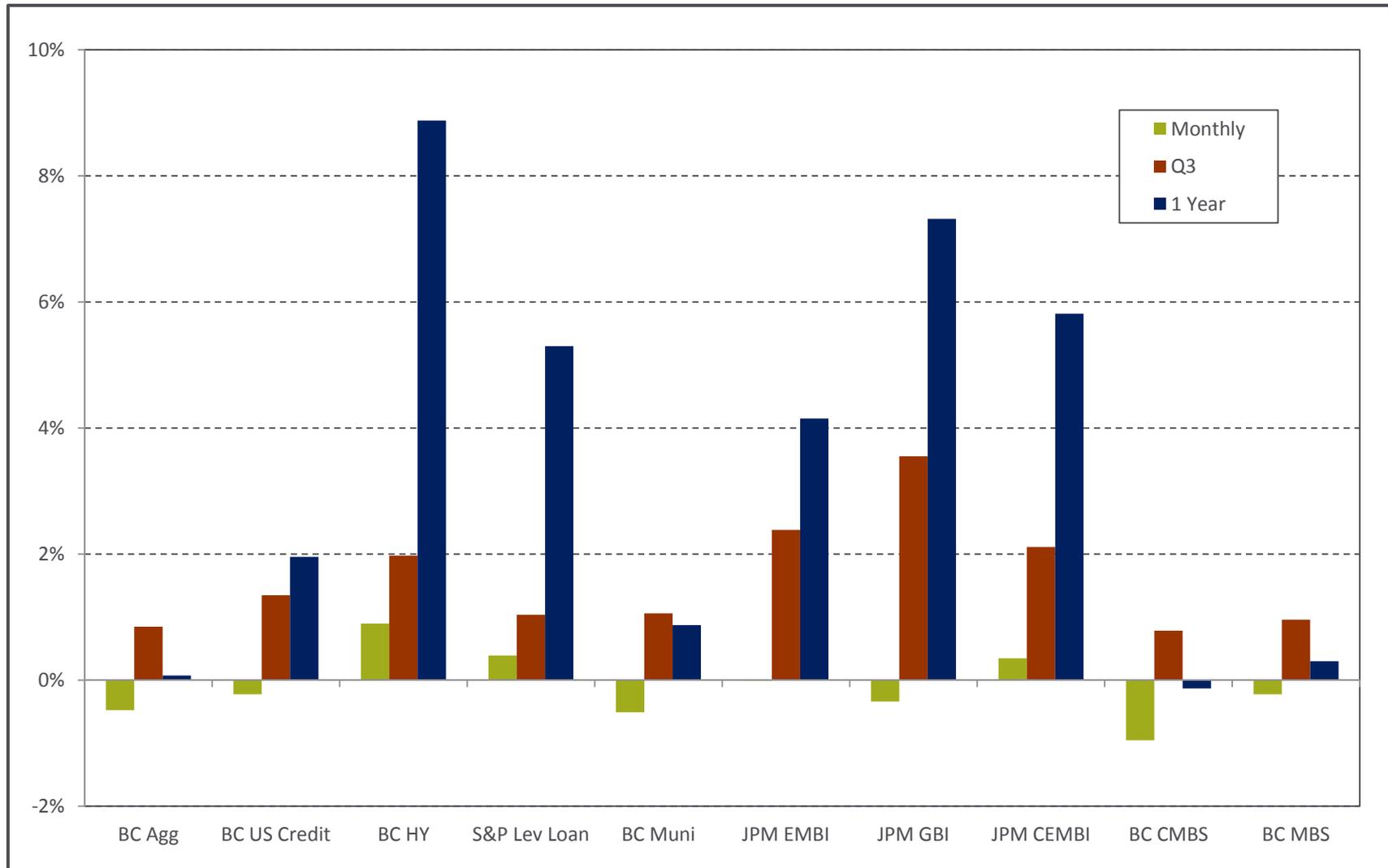
Market segment (index representation) as follows: US Dollar (DXY Index), VIX (CBOE Volatility Index), US 10-Year (US 10-Year Treasury Yield), S&P 500 (US Equity), MSCI EAFE Index (International Developed Equity), MSCI Emerging Markets (Emerging Markets Equity), US Agg (Barclays US Aggregate Bond Index), 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).

# Equity Index Returns- September 30, 2017



\*Equal-weighted EM Healthcare, Consumer Durables & Apparel, Consumer Discretionary, Consumer Staples  
 Source: MSCI, S&P, Russell, NEPC, Bloomberg

# Index Returns



Source: Barclays, S&P, JPM, Bloomberg

# State Teachers' Retirement System

# Vermont State Teachers

## Total Fund Performance Summary - Net

	Market Value	3 Mo Rank	Fiscal YTD Rank	YTD Rank	1 Yr Rank	3 Yrs Rank	5 Yrs Rank	7 Yrs Rank	10 Yrs Rank								
<b>Total Teachers Composite</b>	<b>\$1,807,013,452</b>	<b>2.9%</b>	<b>80</b>	<b>2.9%</b>	<b>80</b>	<b>9.9%</b>	<b>72</b>	<b>10.1%</b>	<b>82</b>	<b>5.5%</b>	<b>80</b>	<b>6.1%</b>	<b>94</b>	<b>6.8%</b>	<b>90</b>	<b>4.1%</b>	<b>90</b>
<i>Policy Index</i>		3.2%	54	3.2%	54	9.8%	74	10.0%	85	5.6%	79	6.2%	92	6.5%	94	4.1%	90
<i>Allocation Index</i>		3.4%	40	3.4%	40	10.4%	59	10.3%	79	5.6%	79	6.2%	93	6.4%	95	4.1%	90
<i>InvestorForce Public DB Net Median</i>		3.3%		3.3%		10.7%		11.6%		6.4%		8.0%		7.9%		5.3%	

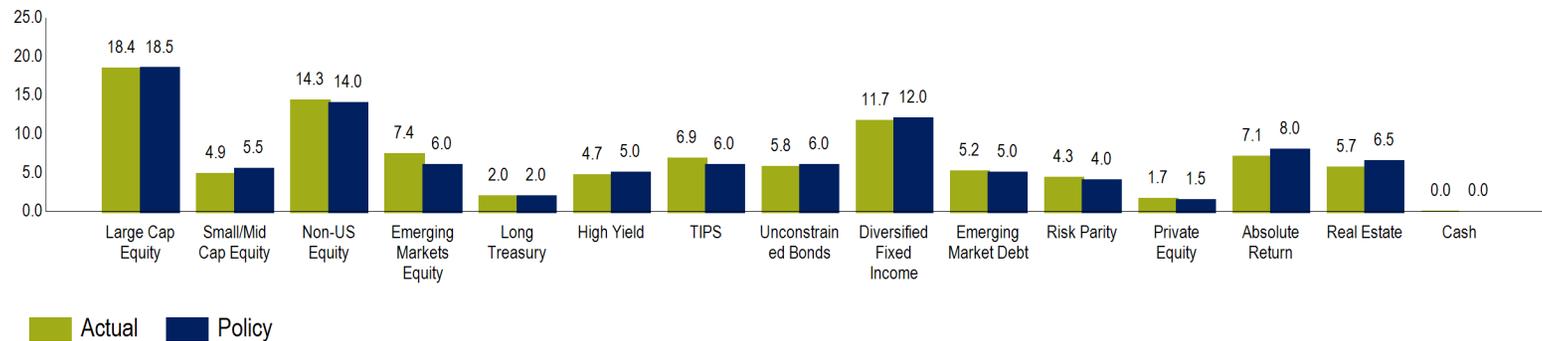
### 3 Years Ending September 30, 2017

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Teachers Composite	5.52%	80	5.11%	16	1.02	56	1.73	19
Policy Index	5.59%	79	4.97%	11	1.06	43	1.78	16
Allocation Index	5.57%	79	5.13%	17	1.02	54	1.64	25

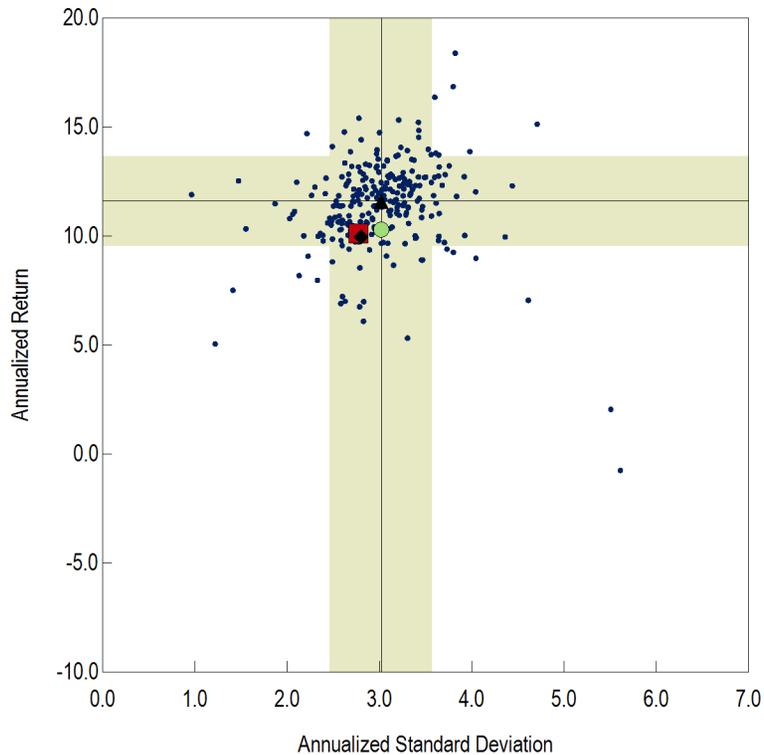
### 5 Years Ending September 30, 2017

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Teachers Composite	6.13%	94	5.32%	26	1.11	87	1.95	73
Policy Index	6.23%	92	5.01%	12	1.20	75	2.13	55
Allocation Index	6.16%	93	5.07%	16	1.17	80	2.01	67

### Actual vs Target Allocation (%)



1 Year Ending September 30, 2017



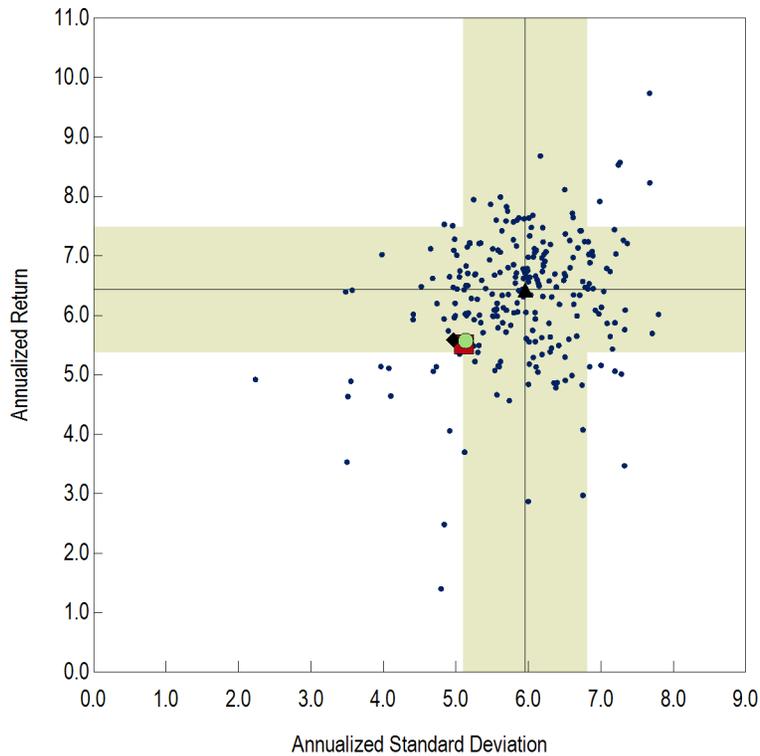
- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

1 Year Ending September 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	10.11%	82	2.77%	32	3.39	67
Policy Index	9.96%	85	2.80%	35	3.30	72
S&P 500	18.61%	1	5.46%	99	3.28	74
Citi WGBI	-2.69%	99	7.03%	99	-0.49	99
MSCI ACWI	18.65%	1	4.57%	99	3.92	33
MSCI ACWI ex USA	19.61%	1	6.63%	99	2.85	89
InvestorForce Public DB Net Median	11.60%	--	3.02%	--	3.61	--

263 Portfolios

3 Years Ending September 30, 2017

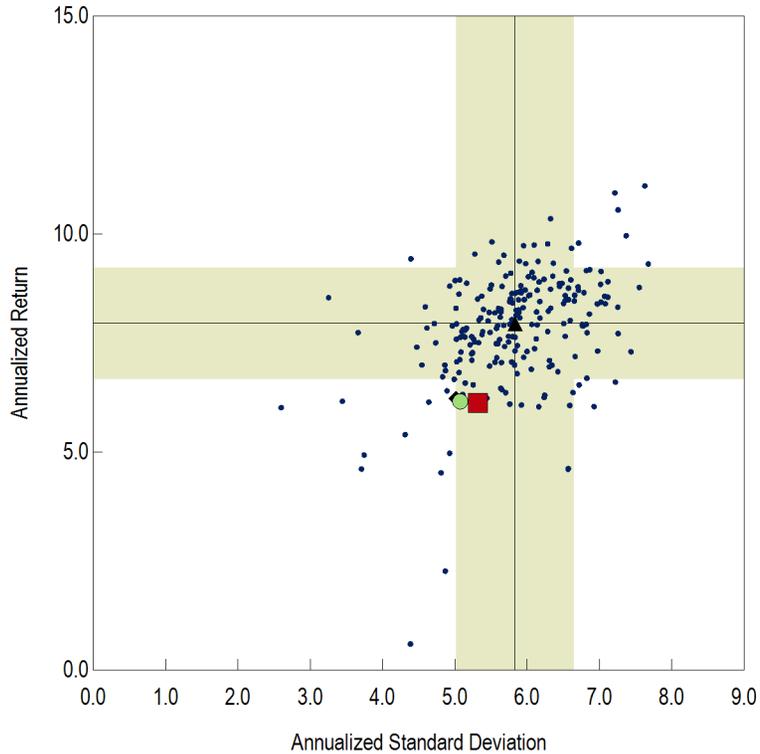


- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

3 Years Ending September 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	5.52%	80	5.11%	16	1.02	56
Policy Index	5.59%	79	4.97%	11	1.06	43
S&P 500	10.81%	1	10.07%	99	1.04	48
Citi WGBI	0.88%	99	5.81%	44	0.10	99
MSCI ACWI	7.43%	11	10.57%	99	0.67	97
MSCI ACWI ex USA	4.70%	96	12.25%	99	0.36	99
InvestorForce Public DB Net Median	6.43%	--	5.96%	--	1.04	--

5 Years Ending September 30, 2017



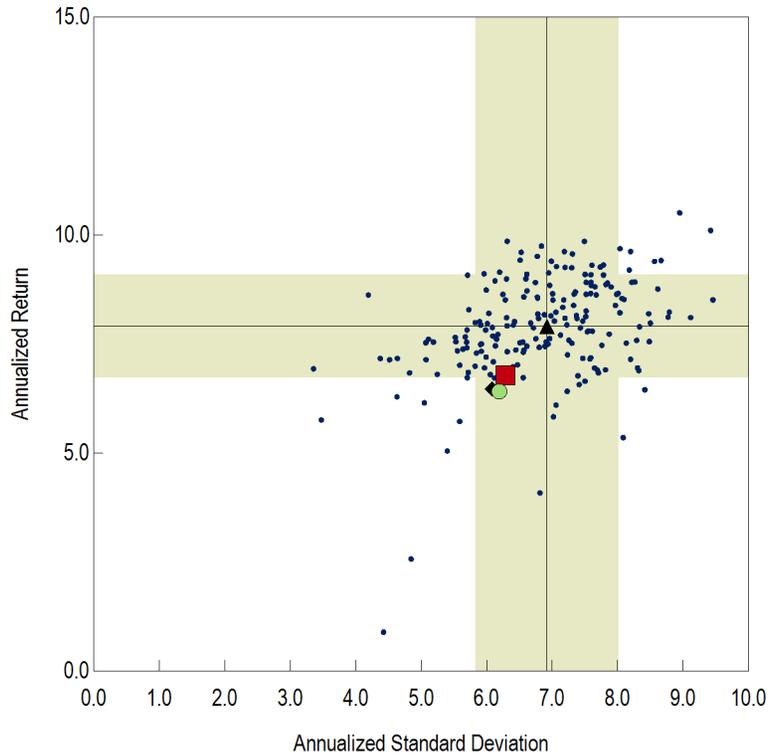
- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

5 Years Ending September 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	6.13%	94	5.32%	26	1.11	87
Policy Index	6.23%	92	5.01%	12	1.20	75
S&P 500	14.22%	1	9.55%	99	1.47	22
Citi WGBI	-0.43%	99	5.39%	29	-0.12	99
MSCI ACWI	10.20%	2	9.94%	99	1.00	93
MSCI ACWI ex USA	6.97%	82	11.55%	99	0.59	99
InvestorForce Public DB Net Median	7.95%	--	5.83%	--	1.34	--

227 Portfolios

7 Years Ending September 30, 2017

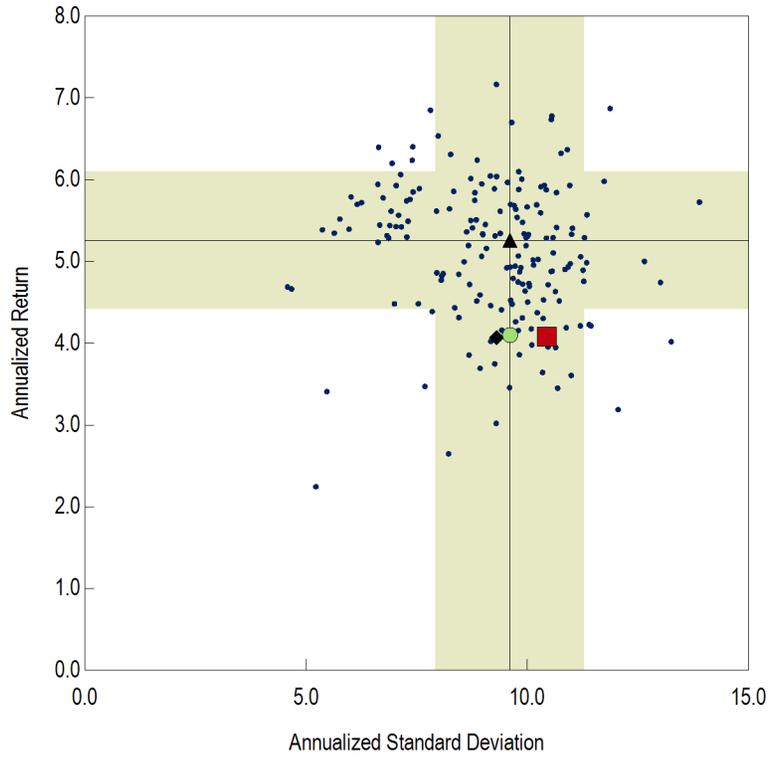


- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

7 Years Ending September 30, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	6.79%	90	6.28%	30	1.05	76
Policy Index	6.47%	94	6.08%	24	1.04	77
S&P 500	14.38%	1	10.90%	99	1.30	19
Citi WGBI	0.80%	99	5.48%	9	0.12	99
MSCI ACWI	9.17%	11	12.23%	99	0.74	99
MSCI ACWI ex USA	5.25%	99	14.18%	99	0.36	99
InvestorForce Public DB Net Median	7.91%	--	6.92%	--	1.14	--

10 Years Ending September 30, 2017

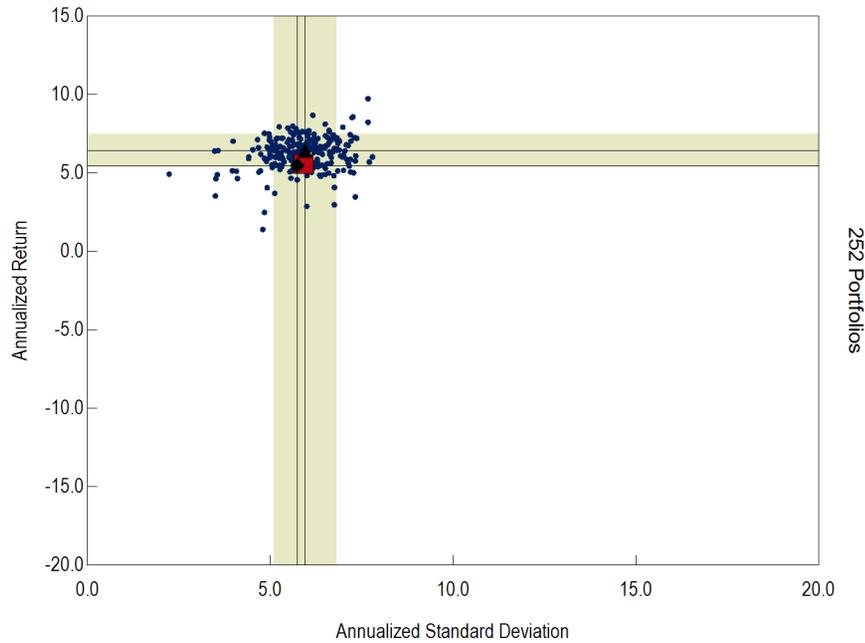


- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

10 Years Ending September 30, 2017

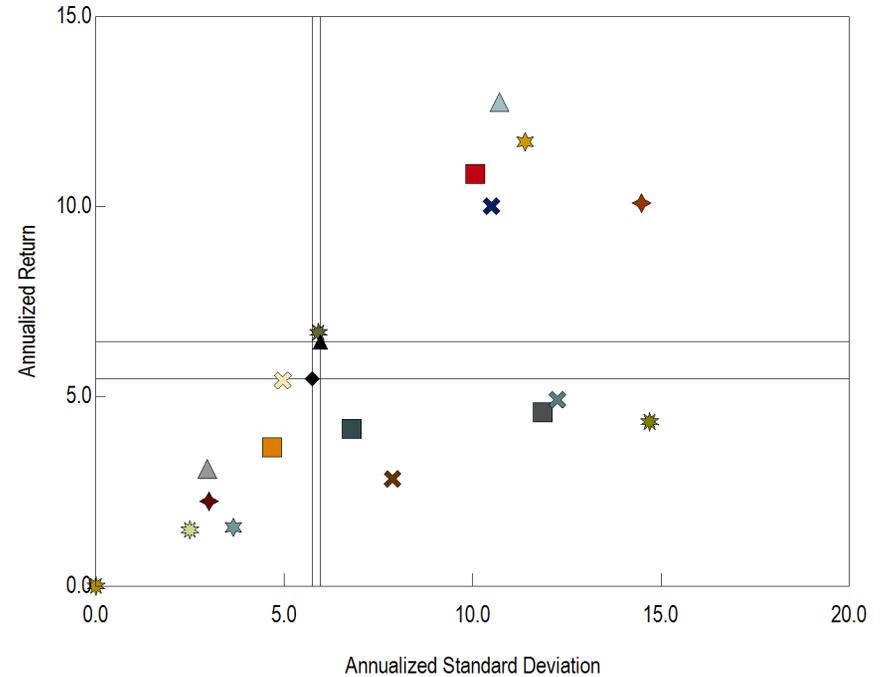
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	4.08%	90	10.44%	78	0.36	92
Policy Index	4.07%	90	9.31%	46	0.40	84
S&P 500	7.44%	1	15.14%	99	0.47	62
Citi WGBI	2.95%	99	6.74%	9	0.38	87
MSCI ACWI	3.88%	93	16.89%	99	0.21	99
MSCI ACWI ex USA	1.28%	99	19.06%	99	0.05	99
InvestorForce Public DB Net Median	5.26%	--	9.60%	--	0.51	--

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



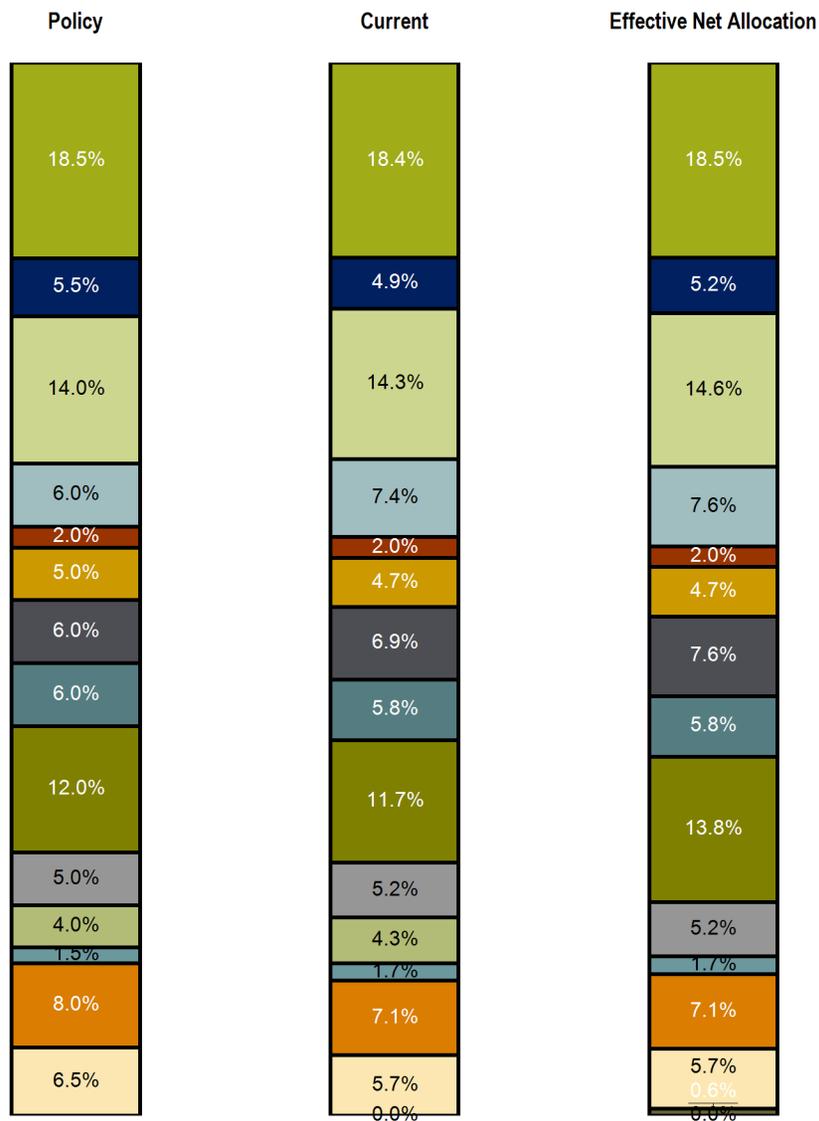
- Total Marketable Assets
- ◆ Total Marketable Assets Custom Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending September 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
- \* BlackRock TIPS
- KDP
- ◆ Guggenheim
- \* Wellington Opportunistic EMD
- ◆ PIMCO Unconstrained
- Mellon Dynamic Growth
- \* AQR Global Risk Premium
- \* Vermont Cash
- ◆ Total Marketable Assets Custom Index
- ▲ Universe Median
- 68% Confidence Interval

# Total Fund Asset Allocation vs. Policy Targets



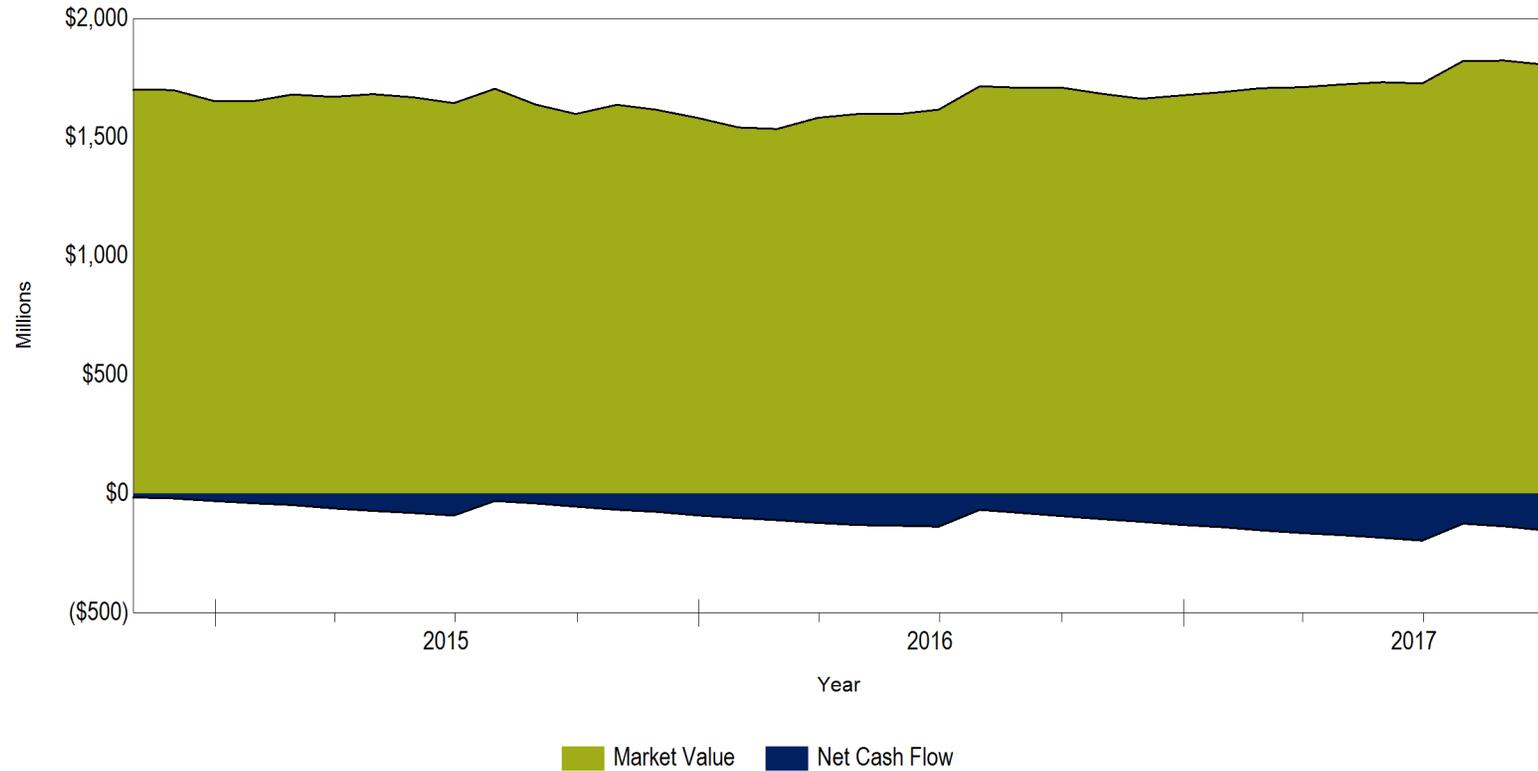
### Asset Allocation vs. Target

	Policy	Current	Effective Net Allocation
Large Cap Equity	18.5%	18.4%	18.5%
Small/Mid Cap Equity	5.5%	4.9%	5.2%
Non-US Equity	14.0%	14.3%	14.6%
Emerging Markets Equity	6.0%	7.4%	7.6%
Long Treasury	2.0%	2.0%	2.0%
High Yield	5.0%	4.7%	4.7%
TIPS	6.0%	6.9%	7.6%
Unconstrained Bonds	6.0%	5.8%	5.8%
Diversified Fixed Income	12.0%	11.7%	13.8%
Emerging Market Debt	5.0%	5.2%	5.2%
Risk Parity	4.0%	4.3%	--
Private Equity	1.5%	1.7%	1.7%
Absolute Return	8.0%	7.1%	7.1%
Real Estate	6.5%	5.7%	5.7%
Commodities	--	--	0.6%
Cash	--	0.0%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Effective Net Allocation breaks out the exposure of AQR Global Risk Premium. Absolute Return includes Grosvenor, Pinnacle Natural Resources, L.P., and Allianz Structured Alpha.

Total Fund Asset Growth Summary

3 Years Ending September 30, 2017



	Last Three Months	Fiscal Year-To-Date	Year-To-Date	One Year	Three Years
Beginning Market Value	\$1,727,857,454	\$1,727,857,454	\$1,677,902,518	\$1,710,896,076	\$1,697,054,148
Contributions	\$185,125,453	\$185,125,453	\$390,198,674	\$408,808,031	\$1,184,557,754
Withdrawals	-\$142,083,371	-\$142,083,371	-\$413,212,662	-\$469,232,373	-\$1,338,138,984
Net Cash Flow	\$43,042,082	\$43,042,082	-\$23,013,988	-\$60,424,343	-\$153,581,230
Net Investment Change	\$36,113,916	\$36,113,916	\$152,124,922	\$156,541,719	\$263,540,534
Ending Market Value	\$1,807,013,452	\$1,807,013,452	\$1,807,013,452	\$1,807,013,452	\$1,807,013,452

# Vermont State Teachers

## Total Fund Asset Growth Summary by Manager

	Quarter Ending September 30, 2017					Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	
Aberdeen	\$127,994,726	\$237,603	-\$237,603	\$0	\$5,616,299	\$133,611,025
Acadian	\$73,833,468	\$94,819	-\$13,294,819	-\$13,200,000	\$4,889,076	\$65,522,543
Allianz Structured Alpha	\$31,764,261	\$0	-\$163,304	-\$163,304	\$577,410	\$32,178,367
AQR Global Risk Premium	\$75,005,803	\$132,432	-\$132,432	\$0	\$3,427,762	\$78,433,565
BlackRock TIPS	\$81,433,141	\$41,639,812	-\$12,911	\$41,626,900	\$1,054,265	\$124,114,306
Champlain	\$49,496,679	\$4,076,430	-\$102,003	\$3,974,427	\$435,639	\$53,906,746
GAM	\$176,710	\$0	\$0	\$0	\$31	\$176,740
GAM Unconstrained Bond	\$60,607,654	\$0	-\$70,889	-\$70,889	\$862,059	\$61,398,824
Grosvenor	\$85,424,173	\$0	-\$33,253,800	-\$33,253,800	\$881,603	\$53,051,976
Guggenheim	\$65,121,555	\$76,429	-\$76,429	\$0	\$1,192,535	\$66,314,090
Harbourvest Dover IX Fund	\$2,456,701	\$472,565	\$0	\$472,565	\$0	\$2,929,266
Harbourvest Dover VIII Fund	\$7,785,396	\$0	-\$452,211	-\$452,211	\$0	\$7,333,185
Harbourvest Partners IX Buyout Fund	\$7,071,833	\$0	-\$371,546	-\$371,546	\$0	\$6,700,288
Harbourvest Partners IX Credit Opportunities	\$1,012,491	\$0	-\$36,772	-\$36,772	\$0	\$975,719
Harbourvest Partners IX Venture Fund	\$5,086,893	\$0	-\$247,006	-\$247,006	\$0	\$4,839,887
Harbourvest Partners X Buyout Fund	\$2,709,250	\$0	\$0	\$0	\$0	\$2,709,250
Harbourvest Partners X Venture Fund	\$1,345,381	\$342,201	\$0	\$342,201	\$0	\$1,687,582
HIPEP VII	\$2,505,967	\$225,801	\$0	\$225,801	\$0	\$2,731,768
KDP	\$18,495,662	\$29,194	-\$29,194	\$0	\$278,286	\$18,773,948
Mellon Dynamic Growth	\$51,397	\$0	\$0	\$0	\$62	\$51,459
Mondrian	\$70,563,580	\$70,959	-\$11,570,959	-\$11,500,000	\$3,672,501	\$62,736,081
PIMCO Core Plus	\$94,321,498	\$72,847	-\$72,847	\$0	\$1,107,149	\$95,428,647
PIMCO Unconstrained	\$41,886,744	\$67,064	-\$67,064	\$0	\$630,550	\$42,517,294
Pinnacle Natural Resources, L.P.	\$41,671,356	\$0	\$0	\$0	\$1,191,900	\$42,863,256
RREEF America REIT III	\$248,324	\$0	-\$921	-\$921	-\$38,965	\$208,437

## Vermont State Teachers

### Total Fund Asset Growth Summary by Manager

	Quarter Ending September 30, 2017					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Siguler Guff DREOF II	\$13,336,119	\$0	-\$8,126	-\$8,126	-\$83,577	\$13,244,415
Siguler Guff DREOF II Co-Investment	\$4,038,258	\$156,639	\$0	\$156,639	\$36,037	\$4,230,934
SSgA ACWI Ex US	\$109,541,925	\$13,816,257	-\$16,257	\$13,800,000	\$6,813,586	\$130,155,511
SSgA Barclays Aggregate Index	\$79,938,016	\$34,795,046	-\$8,750	\$34,786,297	\$946,709	\$115,671,021
SSgA S&P 500 Cap-Wgt	\$227,553,900	\$20,020,004	-\$20,004	\$20,000,000	\$11,060,562	\$258,614,461
SSgA S&P 500 Equal-Wgt	\$68,095,774	\$4,007,451	-\$7,451	\$4,000,000	\$2,609,403	\$74,705,177
State Street Long U.S. Treasury Index	\$34,742,858	\$15,001,003	-\$14,600,000	\$401,003	\$301,658	\$35,445,519
T. Rowe	\$2,468	\$0	\$0	\$0	\$0	\$2,468
Transwestern / Aslan III	\$128,447	\$0	\$0	\$0	\$0	\$128,447
UBS Trumbull	\$50,155,193	\$49,428,441	-\$174,324	\$49,254,116	-\$13,927,778	\$85,481,531
Vermont Cash	\$761,859	\$280,992	-\$749,708	-\$468,715	\$0	\$293,144
Wellington	\$39,866,154	\$81,464	-\$6,043,105	-\$5,961,640	\$101,643	\$34,006,156
Wellington Opportunistic EMD	\$91,362,908	\$0	\$0	\$0	\$2,477,510	\$93,840,419
Z Terminated - Morgan Stanley Prime Property	\$60,262,935	\$0	-\$60,262,935	-\$60,262,935	\$0	--
<b>Total</b>	<b>\$1,727,857,454</b>	<b>\$185,125,453</b>	<b>-\$142,083,371</b>	<b>\$43,042,082</b>	<b>\$36,113,916</b>	<b>\$1,807,013,452</b>

# Vermont State Teachers

## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Teachers Composite</b>	<b>1,807,013,452</b>	<b>100.0</b>	<b>100.0</b>	<b>2.9</b>	<b>80</b>	<b>2.9</b>	<b>80</b>	<b>9.9</b>	<b>72</b>	<b>10.1</b>	<b>82</b>	<b>5.5</b>	<b>80</b>	<b>6.1</b>	<b>94</b>	<b>4.1</b>	<b>90</b>
Policy Index				3.2	54	3.2	54	9.8	74	10.0	85	5.6	79	6.2	92	4.1	90
Allocation Index				3.4	40	3.4	40	10.4	59	10.3	79	5.6	79	6.2	93	4.1	90
InvestorForce Public DB Net Median				3.3		3.3		10.7		11.6		6.4		8.0		5.3	
<b>Total Marketable Assets</b>	<b>1,545,542,406</b>	<b>85.5</b>	<b>84.0</b>	<b>3.2</b>	<b>60</b>	<b>3.2</b>	<b>60</b>	<b>11.4</b>	<b>30</b>	<b>11.2</b>	<b>60</b>	<b>5.6</b>	<b>79</b>	<b>5.9</b>	<b>97</b>	<b>--</b>	<b>--</b>
Total Marketable Assets Custom Index				3.5	30	3.5	30	10.8	46	10.4	75	5.5	82	6.3	92	--	--
InvestorForce Public DB Net Median				3.3		3.3		10.7		11.6		6.4		8.0		5.3	
<b>Total Domestic Equity</b>	<b>421,235,009</b>	<b>23.3</b>	<b>24.0</b>	<b>3.6</b>	<b>69</b>	<b>3.6</b>	<b>69</b>	<b>11.7</b>	<b>55</b>	<b>17.1</b>	<b>63</b>	<b>11.1</b>	<b>34</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
Russell 3000				4.6	48	4.6	48	13.9	40	18.7	48	10.7	38	14.2	38	7.6	52
eA All US Equity Net Median				4.5		4.5		12.4		18.5		9.9		13.6		7.6	
<b>Total Large Cap Equities</b>	<b>333,322,107</b>	<b>18.4</b>	<b>18.5</b>	<b>4.3</b>	<b>55</b>	<b>4.3</b>	<b>55</b>	<b>13.6</b>	<b>50</b>	<b>17.9</b>	<b>54</b>	<b>10.6</b>	<b>28</b>	<b>14.5</b>	<b>26</b>	<b>8.0</b>	<b>31</b>
S&P 500				4.5	49	4.5	49	14.2	44	18.6	46	10.8	25	14.2	32	7.4	45
eA US Large Cap Equity Net Median				4.5		4.5		13.6		18.2		9.4		13.4		7.3	
SSgA S&P 500 Cap-Wgt	258,614,461	14.3	14.0	4.5	49	4.5	49	14.2	45	18.6	46	10.8	25	14.2	31	--	--
S&P 500				4.5	49	4.5	49	14.2	44	18.6	46	10.8	25	14.2	32	7.4	45
SSgA S&P 500 Equal-Wgt	74,705,177	4.1	4.5	3.6	72	3.6	72	11.8	66	15.9	73	10.0	39	15.0	15	8.7	16
S&P 500 Equal Weighted				3.6	73	3.6	73	11.9	65	16.2	70	10.1	38	15.0	15	8.9	13
T. Rowe	2,468	0.0	0.0														

# Vermont State Teachers

## Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Small/Mid Cap Equities</b>	<b>87,912,902</b>	<b>4.9</b>	<b>5.5</b>	<b>1.3</b>	<b>95</b>	<b>1.3</b>	<b>95</b>	<b>5.8</b>	<b>90</b>	<b>14.1</b>	<b>84</b>	<b>11.6</b>	<b>23</b>	<b>14.1</b>	<b>37</b>	<b>8.7</b>	<b>34</b>
<i>Russell 2000</i>				5.7	22	5.7	22	10.9	51	20.7	24	12.2	18	13.8	39	7.8	53
<i>eA US Small-Mid Cap Equity Net Median</i>				4.1		4.1		11.0		18.0		9.8		13.3		8.0	
<b>Champlain</b>	<b>53,906,746</b>	<b>3.0</b>	<b>2.8</b>	<b>2.0</b>	<b>88</b>	<b>2.0</b>	<b>88</b>	<b>12.8</b>	<b>46</b>	<b>17.4</b>	<b>42</b>	<b>12.7</b>	<b>8</b>	<b>15.6</b>	<b>14</b>	<b>--</b>	<b>--</b>
<i>Russell 2500</i>				4.7	29	4.7	29	11.0	57	17.8	41	10.6	31	13.9	46	8.2	49
<i>eA US Mid Cap Equity Net Median</i>				3.7		3.7		11.9		16.4		9.4		13.5		8.1	
<b>Wellington</b>	<b>34,006,156</b>	<b>1.9</b>	<b>2.8</b>	<b>0.5</b>	<b>97</b>	<b>0.5</b>	<b>97</b>	<b>-2.0</b>	<b>99</b>	<b>10.5</b>	<b>98</b>	<b>10.1</b>	<b>67</b>	<b>12.2</b>	<b>76</b>	<b>8.7</b>	<b>30</b>
<i>Russell 2000 Value</i>				5.1	45	5.1	45	5.7	63	20.5	44	12.1	36	13.3	60	7.1	72
<i>eA US Small Cap Value Equity Net Median</i>				5.0		5.0		6.6		19.8		11.0		14.0		7.9	
<b>Total Non US Equity</b>	<b>392,025,161</b>	<b>21.7</b>	<b>20.0</b>	<b>5.5</b>	<b>62</b>	<b>5.5</b>	<b>62</b>	<b>23.4</b>	<b>34</b>	<b>20.6</b>	<b>43</b>	<b>6.1</b>	<b>57</b>	<b>7.4</b>	<b>86</b>	<b>--</b>	<b>--</b>
<i>MSCI EAFE</i>				5.4	65	5.4	65	20.0	68	19.1	58	5.0	75	8.4	69	1.3	81
<i>MSCI ACWI ex USA</i>				6.2	46	6.2	46	21.1	54	19.6	52	4.7	81	7.0	92	1.3	84
<i>eA All EAFE Equity Net Median</i>				5.9		5.9		21.4		19.7		6.3		9.4		2.7	
<b>Total Core Non US Equity</b>	<b>258,414,136</b>	<b>14.3</b>	<b>14.0</b>	<b>6.2</b>	<b>45</b>	<b>6.2</b>	<b>45</b>	<b>23.2</b>	<b>36</b>	<b>22.5</b>	<b>30</b>	<b>7.2</b>	<b>41</b>	<b>9.9</b>	<b>38</b>	<b>2.0</b>	<b>66</b>
<i>MSCI EAFE</i>				5.4	65	5.4	65	20.0	68	19.1	58	5.0	75	8.4	69	1.3	81
<i>eA All EAFE Equity Net Median</i>				5.9		5.9		21.4		19.7		6.3		9.4		2.7	
<b>Acadian</b>	<b>65,522,543</b>	<b>3.6</b>	<b>4.0</b>	<b>6.9</b>	<b>37</b>	<b>6.9</b>	<b>37</b>	<b>30.2</b>	<b>9</b>	<b>30.5</b>	<b>3</b>	<b>11.7</b>	<b>10</b>	<b>13.1</b>	<b>15</b>	<b>2.2</b>	<b>64</b>
<b>Mondrian</b>	<b>62,736,081</b>	<b>3.5</b>	<b>4.0</b>	<b>5.8</b>	<b>53</b>	<b>5.8</b>	<b>53</b>	<b>18.7</b>	<b>76</b>	<b>18.0</b>	<b>67</b>	<b>4.6</b>	<b>82</b>	<b>8.4</b>	<b>68</b>	<b>2.0</b>	<b>66</b>
<i>MSCI EAFE</i>				5.4	65	5.4	65	20.0	68	19.1	58	5.0	75	8.4	69	1.3	81
<b>SSgA ACWI Ex US</b>	<b>130,155,511</b>	<b>7.2</b>	<b>6.0</b>	<b>6.2</b>	<b>51</b>	<b>6.2</b>	<b>51</b>	<b>21.4</b>	<b>66</b>	<b>19.8</b>	<b>54</b>	<b>4.9</b>	<b>74</b>	<b>7.2</b>	<b>81</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex USA</i>				6.2	51	6.2	51	21.1	69	19.6	56	4.7	77	7.0	84	1.3	84
<i>eA ACWI ex-US All Cap Equity Net Median</i>				6.2		6.2		24.0		20.4		6.7		9.2		2.7	
<b>Total Emerging Market Equity</b>	<b>133,611,025</b>	<b>7.4</b>	<b>6.0</b>	<b>4.2</b>	<b>88</b>	<b>4.2</b>	<b>88</b>	<b>23.8</b>	<b>76</b>	<b>17.2</b>	<b>80</b>	<b>4.3</b>	<b>68</b>	<b>3.3</b>	<b>88</b>	<b>--</b>	<b>--</b>
<b>Aberdeen</b>	<b>133,611,025</b>	<b>7.4</b>	<b>6.0</b>	<b>4.2</b>	<b>88</b>	<b>4.2</b>	<b>88</b>	<b>23.8</b>	<b>76</b>	<b>17.2</b>	<b>80</b>	<b>4.3</b>	<b>68</b>	<b>3.2</b>	<b>88</b>	<b>--</b>	<b>--</b>
<i>MSCI Emerging Markets</i>				7.9	46	7.9	46	27.8	55	22.5	45	4.9	59	4.0	77	1.3	79
<i>eA Emg Mkts Equity Net Median</i>				7.8		7.8		28.4		21.9		5.3		5.2		2.3	

Vermont State Teachers

Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fixed Income</b>	<b>653,504,068</b>	<b>36.2</b>	<b>36.0</b>	<b>1.3</b>	<b>30</b>	<b>1.3</b>	<b>30</b>	<b>5.1</b>	<b>29</b>	<b>3.3</b>	<b>26</b>	<b>4.2</b>	<b>28</b>	--	--	--	--
BBgBarc US Aggregate TR				0.8	55	0.8	55	3.1	56	0.1	87	2.7	54	2.1	59	4.3	54
eA All US Fixed Inc Net Median				0.9		0.9		3.4		1.1		2.9		2.5		4.4	
<b>Total Diversified Fixed Income</b>	<b>211,099,668</b>	<b>11.7</b>	<b>12.0</b>	<b>1.0</b>	<b>42</b>	<b>1.0</b>	<b>42</b>	<b>4.1</b>	<b>39</b>	<b>-0.3</b>	<b>94</b>	<b>4.3</b>	<b>27</b>	<b>3.3</b>	<b>38</b>	<b>4.2</b>	<b>56</b>
BBgBarc US Aggregate TR				0.8	55	0.8	55	3.1	56	0.1	87	2.7	54	2.1	59	4.3	54
eA All US Fixed Inc Net Median				0.9		0.9		3.4		1.1		2.9		2.5		4.4	
PIMCO Core Plus	95,428,647	5.3	6.0	1.1	9	1.1	9	4.4	5	1.1	20	3.1	28	2.1	66	--	--
BBgBarc US Aggregate TR				0.8	52	0.8	52	3.1	64	0.1	73	2.7	61	2.1	66	4.3	78
SSgA Barclays Aggregate Index	115,671,021	6.4	6.0	0.9	31	0.9	31	3.2	61	0.1	69	--	--	--	--	--	--
BBgBarc US Aggregate TR				0.8	52	0.8	52	3.1	64	0.1	73	2.7	61	2.1	66	4.3	78
3-Month Libor Total Return USD				0.3	99	0.3	99	0.9	99	1.2	19	0.7	99	0.5	99	0.9	99
eA US Core Fixed Inc Net Median				0.9		0.9		3.3		0.4		2.8		2.3		4.6	
<b>Total TIPS</b>	<b>124,114,306</b>	<b>6.9</b>	<b>6.0</b>	<b>0.8</b>	<b>74</b>	<b>0.8</b>	<b>74</b>	<b>1.6</b>	<b>57</b>	<b>-0.8</b>	<b>70</b>	<b>1.6</b>	<b>28</b>	<b>-0.1</b>	<b>54</b>	<b>--</b>	<b>--</b>
BlackRock TIPS	124,114,306	6.9	6.0	0.8	--	0.8	--	1.6	--	-0.8	--	1.5	--	-0.1	--	--	--
BBgBarc US TIPS TR				0.9	--	0.9	--	1.7	--	-0.7	--	1.6	--	0.0	--	3.9	--
<b>Total High Yield Bonds</b>	<b>85,088,038</b>	<b>4.7</b>	<b>5.0</b>	<b>1.6</b>	<b>68</b>	<b>1.6</b>	<b>68</b>	<b>5.4</b>	<b>80</b>	<b>8.1</b>	<b>52</b>	<b>5.1</b>	<b>48</b>	<b>5.9</b>	<b>39</b>	<b>7.2</b>	<b>43</b>
BBgBarc US High Yield TR				2.0	35	2.0	35	7.0	26	8.9	34	5.8	26	6.4	26	7.8	15
eA US High Yield Fixed Inc Net Median				1.8		1.8		6.5		8.1		5.0		5.7		7.0	
KDP	18,773,948	1.0	1.0	1.3	83	1.3	83	4.8	87	5.5	89	3.7	89	4.1	95	--	--
BBgBarc US High Yield TR				2.0	35	2.0	35	7.0	26	8.9	34	5.8	26	6.4	26	7.8	15
BofA Merrill Lynch US High Yield BB-B Rated				1.9	40	1.9	40	6.6	47	8.0	56	5.8	27	6.1	31	7.2	42
Guggenheim	66,314,090	3.7	4.0	1.7	63	1.7	63	5.5	79	8.8	35	5.4	36	--	--	--	--
BBgBarc US High Yield TR				2.0	35	2.0	35	7.0	26	8.9	34	5.8	26	6.4	26	7.8	15
eA US High Yield Fixed Inc Net Median				1.8		1.8		6.5		8.1		5.0		5.7		7.0	

Vermont State Teachers

Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Emerging Market Debt</b>	<b>93,840,419</b>	<b>5.2</b>	<b>5.0</b>	<b>2.7</b>	<b>81</b>	<b>2.7</b>	<b>81</b>	<b>9.7</b>	<b>68</b>	<b>6.5</b>	<b>63</b>	<b>6.7</b>	<b>10</b>	<b>5.0</b>	<b>17</b>	<b>--</b>	<b>--</b>
Wellington Opportunistic EMD	93,840,419	5.2	5.0	2.7	81	2.7	81	9.7	68	6.5	63	6.7	10	5.0	17	--	--
JP Morgan EMBI Global Index				2.4	91	2.4	91	8.7	81	4.2	94	6.1	19	4.3	31	7.3	30
eA All Emg Mkts Fixed Inc Net Median				3.3		3.3		11.6		7.4		4.6		3.1		6.5	
<b>Total Long Treasury</b>	<b>35,445,519</b>	<b>2.0</b>	<b>2.0</b>	<b>0.5</b>	<b>--</b>	<b>0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>								
State Street Long U.S. Treasury Index	35,445,519	2.0	2.0	0.5	--	0.5	--	--	--	--	--	--	--	--	--	--	--
BBgBarc US Treasury Long TR				0.6	--	0.6	--	6.0	--	-6.4	--	4.9	--	2.8	--	6.9	--
<b>Total Unconstrained Fixed Income</b>	<b>103,916,118</b>	<b>5.8</b>	<b>6.0</b>	<b>1.3</b>	<b>77</b>	<b>1.3</b>	<b>77</b>	<b>5.6</b>	<b>53</b>	<b>6.9</b>	<b>31</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
25% HY, 25% EMD, 50% BC Agg				1.5	68	1.5	68	5.5	58	3.3	85	4.4	14	3.7	30	6.0	30
BBgBarc Global Aggregate TR				1.8	50	1.8	50	6.3	50	-1.3	99	1.3	88	0.5	93	3.3	88
eA Global Unconstrained Fixed Inc Net Median				1.8		1.8		6.0		6.1		2.6		2.7		5.0	
PIMCO Unconstrained	42,517,294	2.4	2.5	1.3	77	1.3	77	4.4	75	5.8	59	2.2	62	1.5	89	--	--
25% HY, 25% EMD, 50% BC Agg				1.5	68	1.5	68	5.5	58	3.3	85	4.4	14	3.7	30	6.0	30
3-Month Libor Total Return USD				0.3	99	0.3	99	0.9	99	1.2	99	0.7	92	0.5	93	0.9	99
GAM Unconstrained Bond	61,398,824	3.4	3.5	1.3	78	1.3	78	6.4	43	7.7	25	--	--	--	--	--	--
3-Month LIBOR + 3%				1.1	85	1.1	85	3.2	89	4.2	74	3.7	27	3.5	31	3.9	78
eA Global Unconstrained Fixed Inc Net Median				1.8		1.8		6.0		6.1		2.6		2.7		5.0	

## Vermont State Teachers

### Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Risk Parity/GAA</b>	<b>78,485,025</b>	<b>4.3</b>	<b>4.0</b>	<b>4.4</b>	<b>28</b>	<b>4.4</b>	<b>28</b>	<b>10.0</b>	<b>48</b>	<b>7.6</b>	<b>60</b>	<b>2.9</b>	<b>58</b>	<b>3.8</b>	<b>64</b>	<b>4.1</b>	<b>52</b>
Mellon Dynamic Growth	51,459	0.0	0.0	0.1	97	0.1	97	4.2	61	2.6	89	4.1	30	5.0	58	2.6	64
<i>Mellon Dynamic Growth Benchmark</i>				3.9	14	3.9	14	12.2	12	9.8	29	4.8	23	6.0	37	3.7	35
<b>Total Risk Parity</b>	<b>78,433,565</b>	<b>4.3</b>	<b>4.0</b>	<b>4.4</b>	<b>28</b>	<b>4.4</b>	<b>28</b>	<b>10.5</b>	<b>47</b>	<b>7.8</b>	<b>58</b>	<b>2.8</b>	<b>58</b>	<b>3.5</b>	<b>66</b>	<b>--</b>	<b>--</b>
<i>eA Global TAA Net Median</i>				3.0		3.0		9.6		8.5		3.5		4.6		4.2	
AQR Global Risk Premium	78,433,565	4.3	4.0	4.4	28	4.4	28	10.5	47	7.8	58	2.8	58	3.4	66	--	--
<i>60% MSCI World (Net) / 40% CITI WGBI</i>				3.6	39	3.6	39	12.1	39	9.4	41	5.1	28	6.4	26	4.0	53
<b>Total Cash</b>	<b>293,144</b>	<b>0.0</b>	<b>0.0</b>														
Vermont Cash	293,144	0.0	0.0	0.0	--	0.0	--	0.0	--	0.0	--	0.0	--	0.0	--	0.5	--
<i>91 Day T-Bills</i>				0.3	--	0.3	--	0.6	--	0.7	--	0.3	--	0.2	--	0.4	--
<b>Total Real Estate</b>	<b>103,293,763</b>	<b>5.7</b>	<b>6.5</b>	<b>1.5</b>	<b>--</b>	<b>1.5</b>	<b>--</b>	<b>3.8</b>	<b>--</b>	<b>5.9</b>	<b>--</b>	<b>9.5</b>	<b>--</b>	<b>11.0</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>NCREIF Property Index</i>				1.7	--	1.7	--	5.1	--	6.9	--	9.8	--	10.3	--	6.2	--
<b>Total Real Estate Core</b>	<b>85,818,414</b>	<b>4.7</b>	<b>5.0</b>	<b>1.3</b>	<b>--</b>	<b>1.3</b>	<b>--</b>	<b>3.2</b>	<b>--</b>	<b>5.1</b>	<b>--</b>	<b>9.3</b>	<b>--</b>	<b>10.8</b>	<b>--</b>	<b>--</b>	<b>--</b>
UBS Trumbull	85,481,531	4.7		1.3	--	1.3	--	3.2	--	4.4	--	8.5	--	8.8	--	4.5	--
RREEF America REIT III	208,437	0.0		-0.8	--	-0.8	--	-4.8	--	-5.1	--	-5.0	--	4.5	--	-6.5	--
Transwestern / Aslan III	128,447	0.0		0.0	--	0.0	--	0.0	--	0.0	--	-2.4	--	9.4	--	-23.1	--
<b>Total Real Estate Non-Core</b>	<b>17,475,349</b>	<b>1.0</b>	<b>1.5</b>	<b>3.1</b>	<b>--</b>	<b>3.1</b>	<b>--</b>	<b>7.7</b>	<b>--</b>	<b>11.1</b>	<b>--</b>	<b>10.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
Siguler Guff DREOF II	13,244,415	0.7		3.8	--	3.8	--	8.1	--	12.3	--	10.7	--	--	--	--	--
Siguler Guff DREOF II Co- Investment	4,230,934	0.2		0.9	--	0.9	--	6.8	--	--	--	--	--	--	--	--	--

Real Estate performance reported on a quarterly basis. NCREIF Property is available 25 days after quarter end.  
Real Estate values are preliminary as of 09/30/2017.

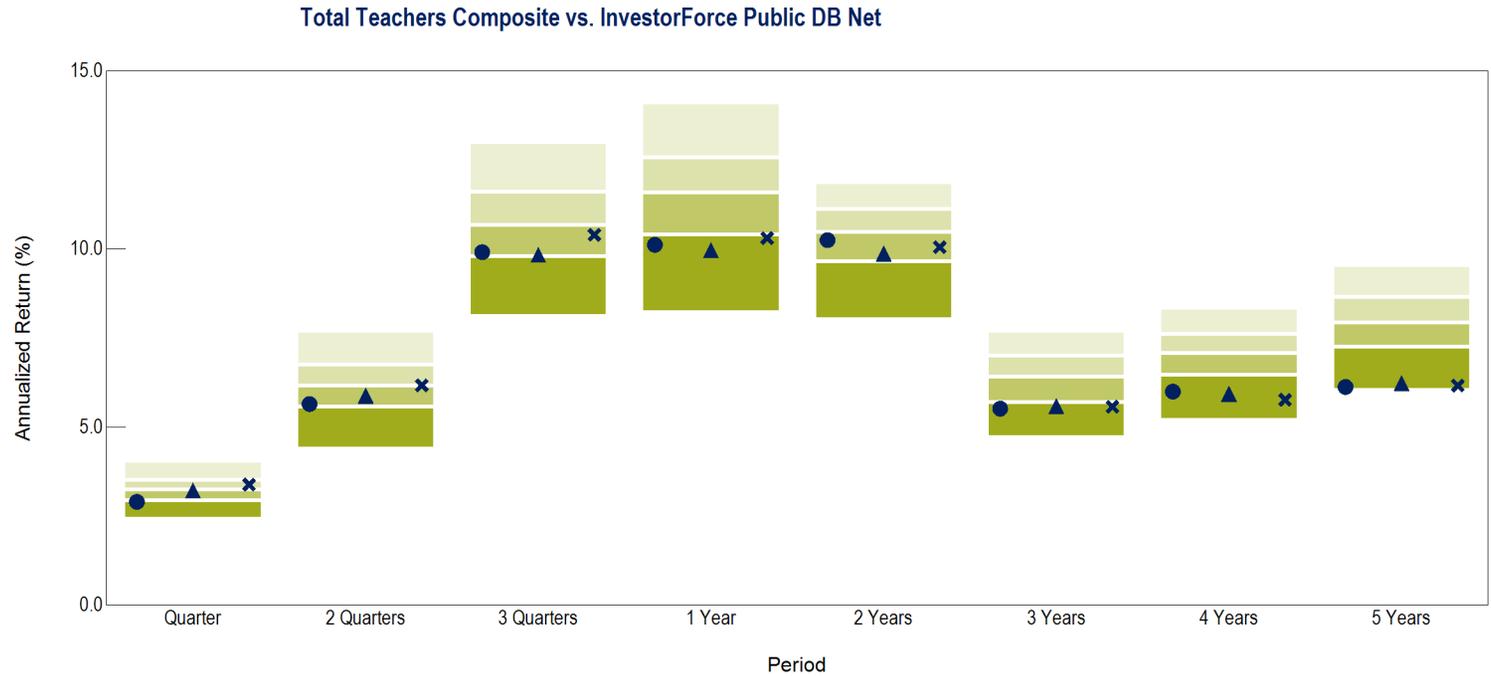
## Vermont State Teachers

### Total Fund Performance Detail - Net

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Absolute Return</b>	<b>128,270,339</b>	<b>7.1</b>	<b>8.0</b>	<b>2.0</b>	<b>53</b>	<b>2.0</b>	<b>53</b>	<b>1.8</b>	<b>89</b>	<b>4.0</b>	<b>77</b>	<b>0.9</b>	<b>80</b>	<b>4.3</b>	<b>69</b>	<b>--</b>	<b>--</b>
<i>HFRI Fund of Funds Composite Index</i>				2.3	46	2.3	46	5.6	48	6.5	51	2.2	60	3.8	73	1.1	90
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				2.1		2.1		5.3		6.5		2.6		5.3		3.0	
Grosvenor	53,051,976	2.9	3.0	1.7	63	1.7	63	3.9	63	6.2	53	2.3	59	5.4	49	--	--
Allianz Structured Alpha	32,178,367	1.8	2.0	1.3	74	1.3	74	3.6	70	5.1	64	7.8	7	6.2	33	--	--
<i>91 Day T-Bills</i>				0.3	96	0.3	96	0.6	96	0.7	96	0.3	88	0.2	99	0.4	96
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				2.1		2.1		5.3		6.5		2.6		5.3		3.0	
Pinnacle Natural Resources, L.P.	42,863,256	2.4	3.0	2.9	--	2.9	--	-8.4	--	-5.3	--	--	--	--	--	--	--
<i>Bloomberg Commodity Index</i>				2.5	--	2.5	--	-2.9	--	-0.3	--	-10.4	--	-10.5	--	-6.8	--
GAM	176,740	0.0	0.0														
<b>Total Private Equity</b>	<b>29,906,943</b>	<b>1.7</b>	<b>1.5</b>	<b>0.0</b>	<b>--</b>	<b>0.0</b>	<b>--</b>	<b>6.4</b>	<b>--</b>	<b>8.4</b>	<b>--</b>	<b>15.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Cambridge Associates US All PE</i>				0.0	--	0.0	--	7.6	--	12.4	--	9.0	--	12.4	--	9.2	--

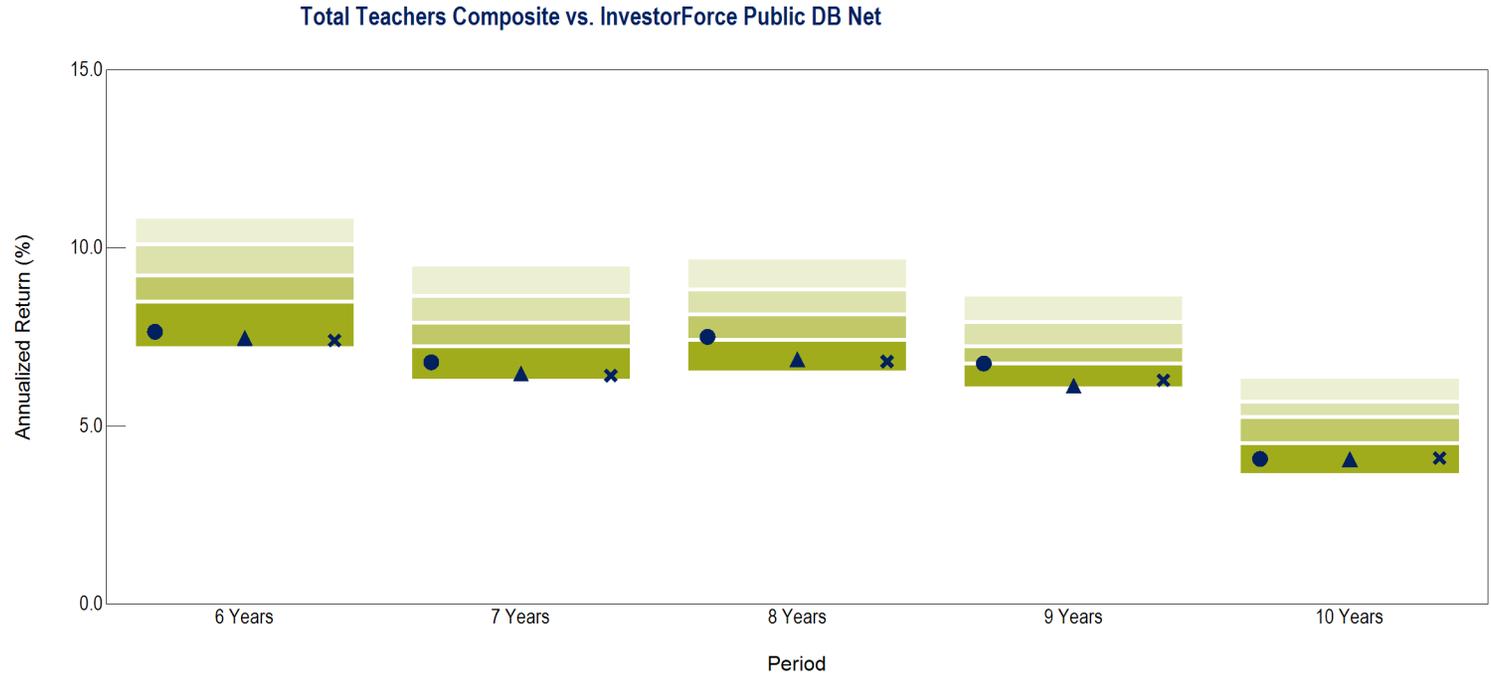
Absolute Return composite formerly shown as Hedge Funds composite. As of 04/01/2016, Absolute Return includes Allianz Structured Alpha. Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016. Harbourvest values based on final Capital Account Statements for Q2, and cash adjusted through Q3.

Total Fund Return Summary vs. Peer Universe - Net



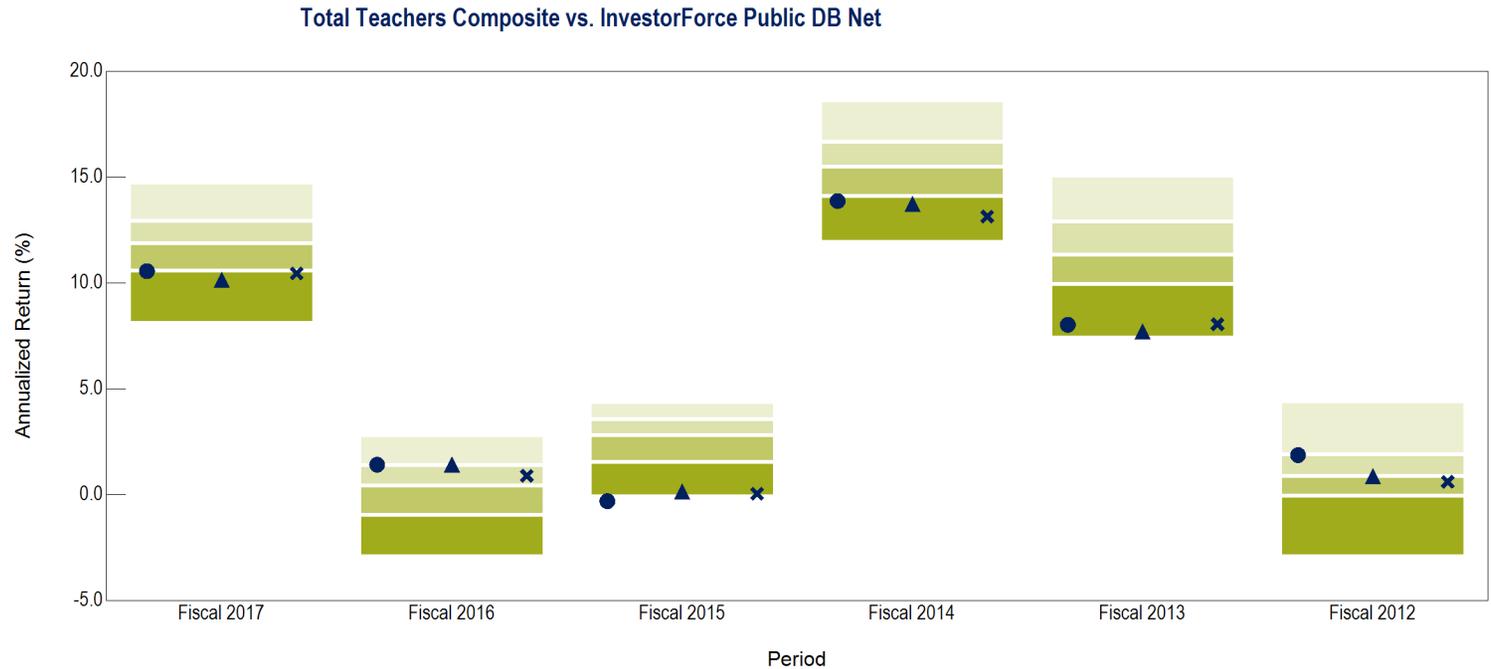
	Return (Rank)															
<b>5th Percentile</b>	4.0	7.7	13.0	14.1	11.9	7.7	8.3	9.5								
<b>25th Percentile</b>	3.5	6.8	11.6	12.6	11.1	7.0	7.6	8.7								
<b>Median</b>	3.3	6.2	10.7	11.6	10.5	6.4	7.1	8.0								
<b>75th Percentile</b>	3.0	5.6	9.8	10.4	9.7	5.7	6.5	7.3								
<b>95th Percentile</b>	2.4	4.4	8.1	8.2	8.0	4.7	5.2	6.1								
<b># of Portfolios</b>	264	264	264	263	258	252	234	227								
<b>● Total Teachers Composite</b>	2.9	(80)	5.6	(73)	9.9	(72)	10.1	(82)	10.2	(56)	5.5	(80)	6.0	(86)	6.1	(94)
<b>▲ Policy Index</b>	3.2	(54)	5.9	(62)	9.8	(74)	10.0	(85)	9.9	(70)	5.6	(79)	5.9	(88)	6.2	(92)
<b>× Allocation Index</b>	3.4	(40)	6.2	(51)	10.4	(59)	10.3	(79)	10.0	(65)	5.6	(79)	5.8	(90)	6.2	(93)

Total Fund Return Summary vs. Peer Universe - Net



	Return (Rank)									
5th Percentile	10.9		9.5		9.7		8.7		6.4	
25th Percentile	10.1		8.7		8.8		7.9		5.7	
Median	9.2		7.9		8.1		7.2		5.3	
75th Percentile	8.5		7.2		7.4		6.8		4.5	
95th Percentile	7.2		6.3		6.5		6.1		3.6	
# of Portfolios	211		200		190		183		180	
● Total Teachers Composite	7.6	(93)	6.8	(90)	7.5	(73)	6.8	(77)	4.1	(90)
▲ Policy Index	7.5	(95)	6.5	(94)	6.9	(93)	6.1	(93)	4.1	(90)
× Allocation Index	7.4	(95)	6.4	(95)	6.8	(94)	6.3	(91)	4.1	(90)

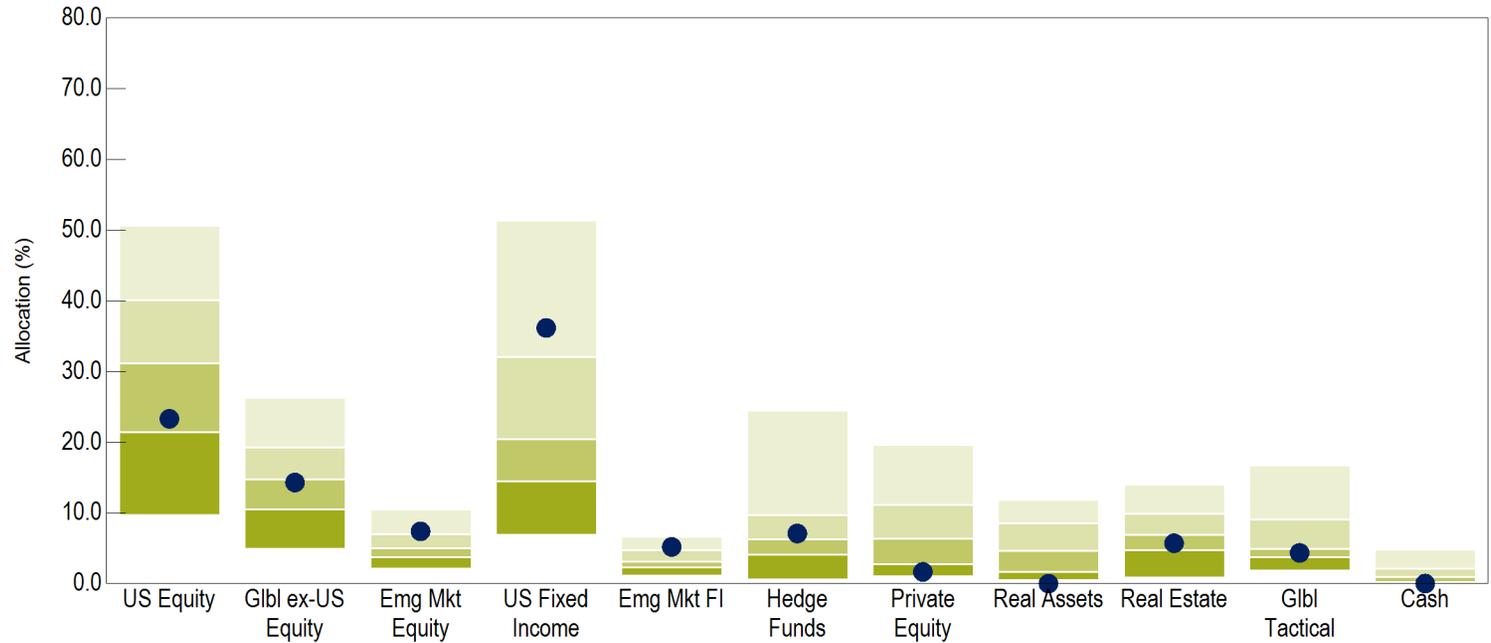
Total Fund Return Summary vs. Peer Universe - Net



	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	
● Total Teachers Composite	10.5	(77)	1.4	(25)	-0.3	(96)	13.9	(83)	8.0	(94)	1.9	(26)
▲ Policy Index	10.1	(82)	1.4	(25)	0.1	(94)	13.7	(84)	7.7	(94)	0.9	(51)
× Allocation Index	10.4	(79)	0.9	(37)	0.0	(95)	13.1	(91)	8.0	(94)	0.6	(59)

Total Fund Allocation vs. Peer Universe - Net

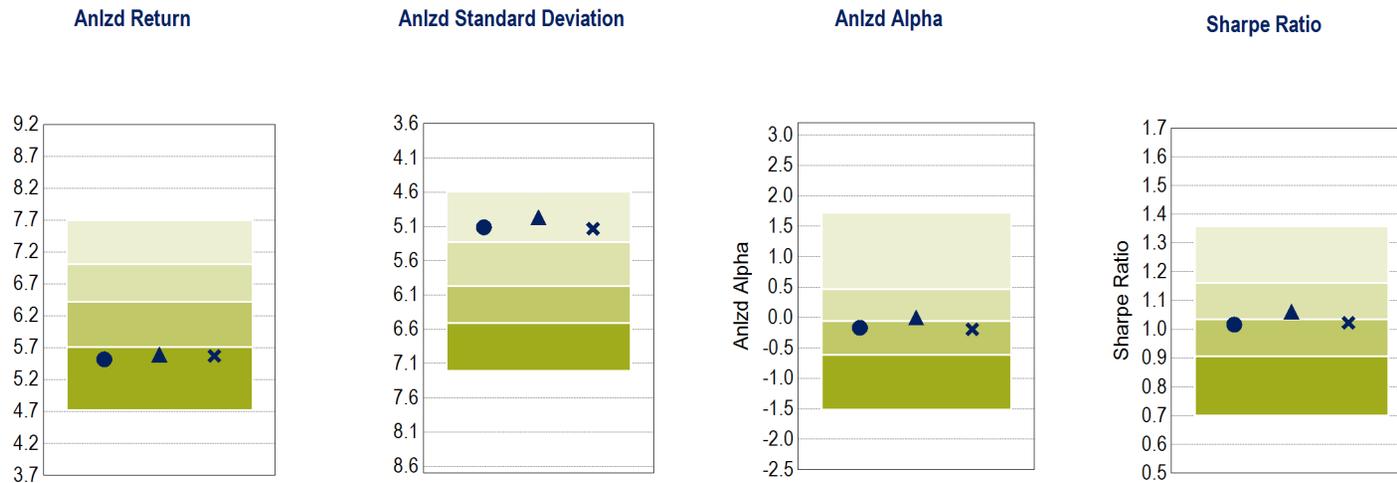
Total Plan Allocation vs. InvestorForce Public DB Net  
As of September 30, 2017



	Allocation (Rank)																						
5th Percentile	50.6	26.3	10.5	51.4	6.7	24.5	19.7	11.8	14.0	16.7	4.8	--											
25th Percentile	40.1	19.4	7.0	32.1	4.8	9.7	11.2	8.6	10.0	9.2	2.2	--											
Median	31.3	14.8	5.1	20.5	3.2	6.3	6.5	4.7	7.0	5.0	1.1	--											
75th Percentile	21.5	10.6	3.8	14.6	2.4	4.2	2.8	1.8	4.8	3.9	0.3	--											
95th Percentile	9.8	5.0	2.2	7.0	1.2	0.7	1.1	0.6	1.0	1.9	0.0	--											
# of Portfolios	183	208	129	181	43	85	108	71	152	58	229	--											
● Total Teachers Composite	23.3	(72)	14.3	(54)	7.4	(22)	36.2	(16)	5.2	(17)	7.1	(44)	1.7	(85)	0.0	(99)	5.7	(61)	4.3	(67)	0.0	(96)	--

Total Fund Risk Statistics vs. Peer Universe - Net

Teachers Composite vs. IFlx Public DB Net  
3 Years



● Total Teachers Composite	
Value	5.52
Rank	80
▲ Policy Index	
Value	5.59
Rank	79
✘ Allocation Index	
Value	5.57
Rank	79
Universe	
5th %tile	7.70
25th %tile	7.01
Median	6.43
75th %tile	5.72
95th %tile	4.73

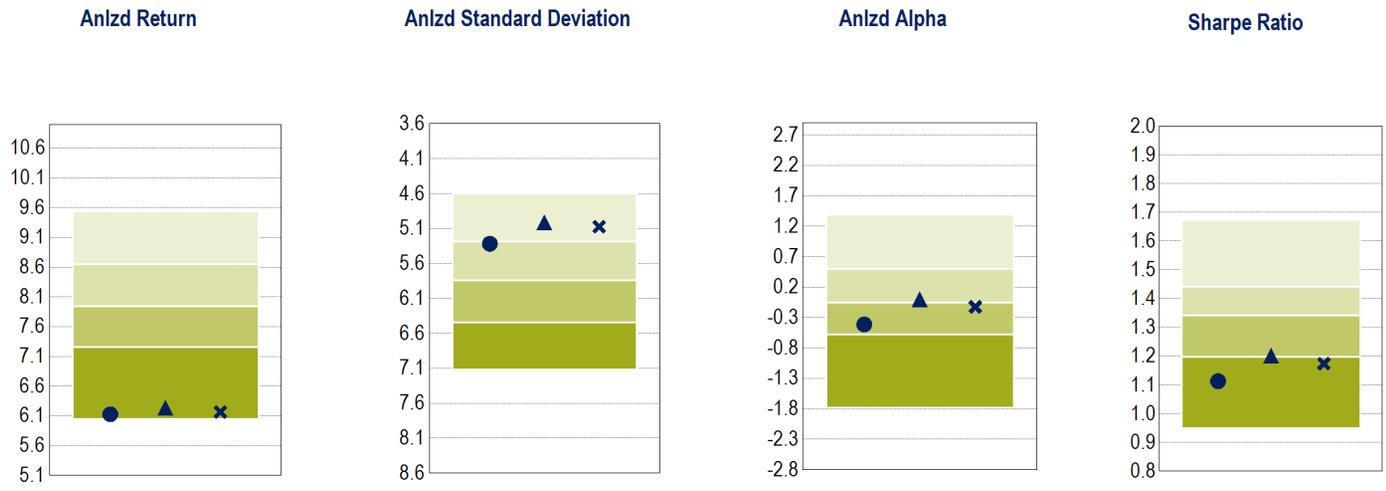
● Total Teachers Composite	
Value	5.11
Rank	16
▲ Policy Index	
Value	4.97
Rank	11
✘ Allocation Index	
Value	5.13
Rank	17
Universe	
5th %tile	4.59
25th %tile	5.32
Median	5.96
75th %tile	6.50
95th %tile	7.20

● Total Teachers Composite	
Value	-0.17
Rank	57
▲ Policy Index	
Value	0.00
Rank	49
✘ Allocation Index	
Value	-0.19
Rank	58
Universe	
5th %tile	1.72
25th %tile	0.48
Median	-0.05
75th %tile	-0.61
95th %tile	-1.50

● Total Teachers Composite	
Value	1.02
Rank	56
▲ Policy Index	
Value	1.06
Rank	43
✘ Allocation Index	
Value	1.02
Rank	54
Universe	
5th %tile	1.36
25th %tile	1.16
Median	1.04
75th %tile	0.91
95th %tile	0.70

Total Fund Risk Statistics vs. Peer Universe - Net

Teachers Composite vs. IFX Public DB Net  
5 Years



● Total Teachers Composite	
Value	6.13
Rank	94
▲ Policy Index	
Value	6.23
Rank	92
✘ Allocation Index	
Value	6.16
Rank	93
Universe	
5th %tile	9.54
25th %tile	8.66
Median	7.95
75th %tile	7.27
95th %tile	6.05

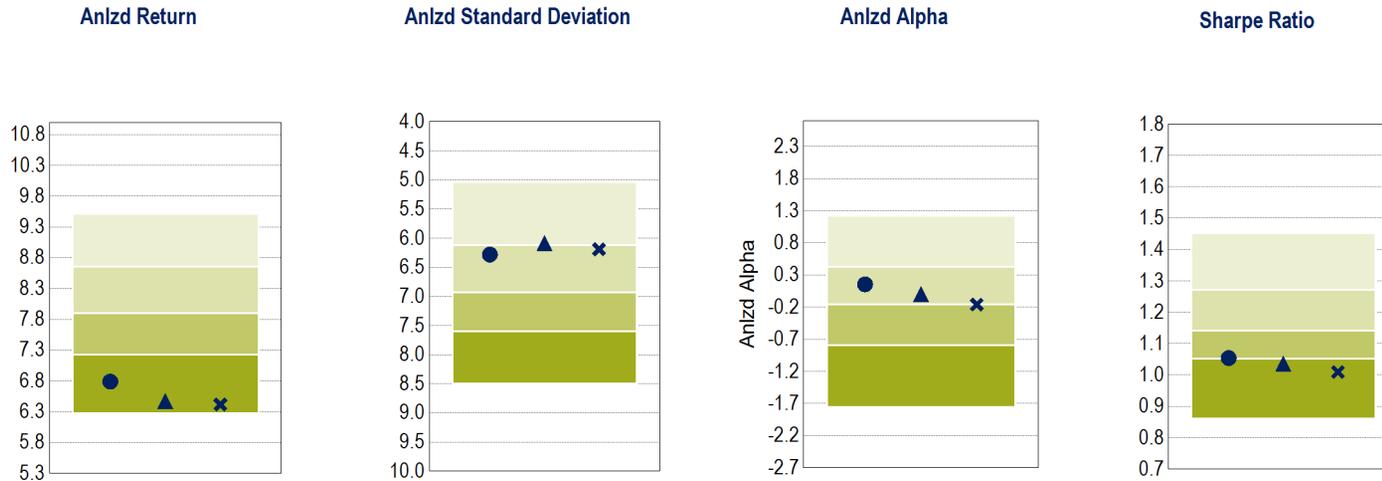
● Total Teachers Composite	
Value	5.32
Rank	26
▲ Policy Index	
Value	5.01
Rank	12
✘ Allocation Index	
Value	5.07
Rank	16
Universe	
5th %tile	4.60
25th %tile	5.28
Median	5.83
75th %tile	6.44
95th %tile	7.11

● Total Teachers Composite	
Value	-0.41
Rank	68
▲ Policy Index	
Value	0.00
Rank	49
✘ Allocation Index	
Value	-0.13
Rank	56
Universe	
5th %tile	1.39
25th %tile	0.52
Median	-0.04
75th %tile	-0.57
95th %tile	-1.77

● Total Teachers Composite	
Value	1.11
Rank	87
▲ Policy Index	
Value	1.20
Rank	75
✘ Allocation Index	
Value	1.17
Rank	80
Universe	
5th %tile	1.67
25th %tile	1.44
Median	1.34
75th %tile	1.20
95th %tile	0.95

Total Fund Risk Statistics vs. Peer Universe - Net

Teachers Composite vs. IFlx Public DB Net  
7 Years



● Total Teachers Composite	
Value	6.79
Rank	90
▲ Policy Index	
Value	6.47
Rank	94
✘ Allocation Index	
Value	6.42
Rank	95
Universe	
5th %tile	9.52
25th %tile	8.66
Median	7.91
75th %tile	7.24
95th %tile	6.29

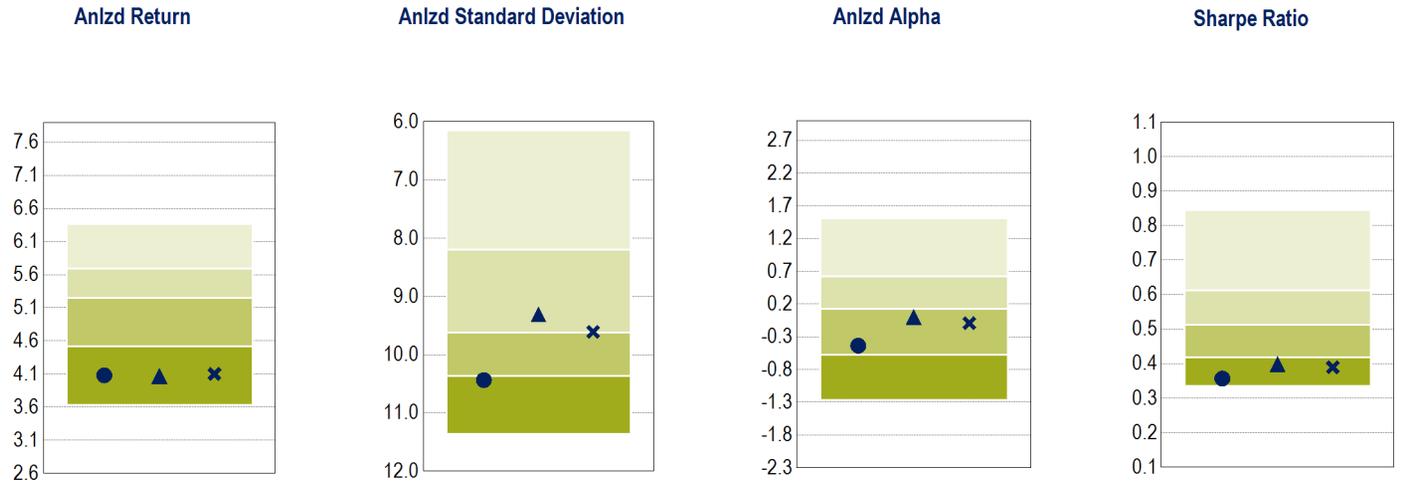
● Total Teachers Composite	
Value	6.28
Rank	30
▲ Policy Index	
Value	6.08
Rank	24
✘ Allocation Index	
Value	6.19
Rank	29
Universe	
5th %tile	5.04
25th %tile	6.11
Median	6.92
75th %tile	7.59
95th %tile	8.48

● Total Teachers Composite	
Value	0.15
Rank	34
▲ Policy Index	
Value	0.00
Rank	42
✘ Allocation Index	
Value	-0.16
Rank	52
Universe	
5th %tile	1.22
25th %tile	0.43
Median	-0.14
75th %tile	-0.78
95th %tile	-1.75

● Total Teachers Composite	
Value	1.05
Rank	76
▲ Policy Index	
Value	1.04
Rank	77
✘ Allocation Index	
Value	1.01
Rank	80
Universe	
5th %tile	1.45
25th %tile	1.27
Median	1.14
75th %tile	1.05
95th %tile	0.86

Total Fund Risk Statistics vs. Peer Universe - Net

Teachers Composite vs. IFX Public DB Net  
10 Years



● Total Teachers Composite	
Value	4.08
Rank	90
▲ Policy Index	
Value	4.07
Rank	90
✘ Allocation Index	
Value	4.10
Rank	90
Universe	
5th %tile	6.37
25th %tile	5.70
Median	5.26
75th %tile	4.53
95th %tile	3.64

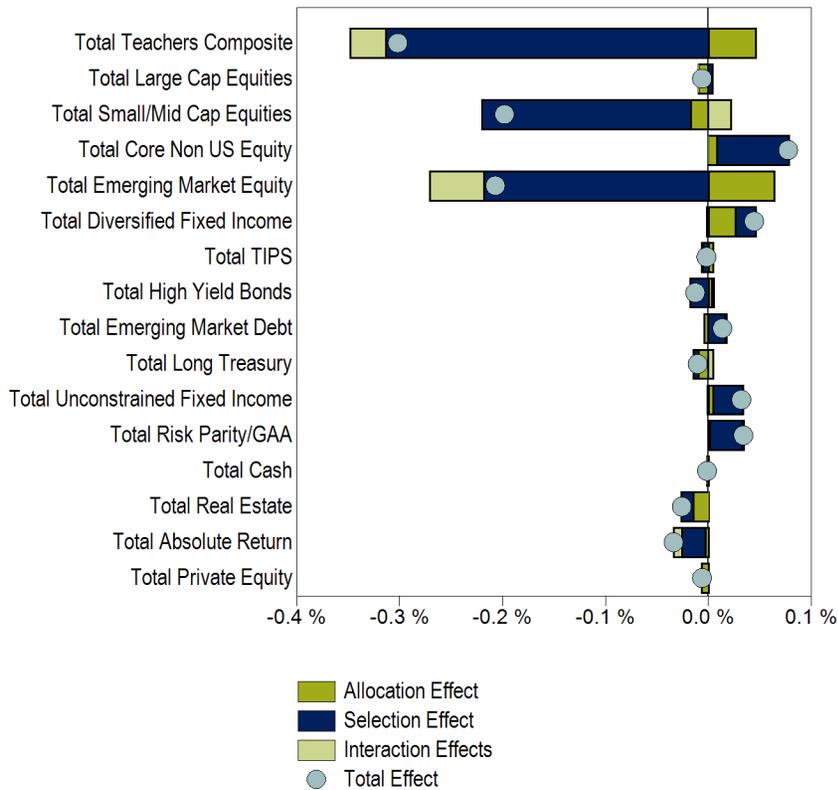
● Total Teachers Composite	
Value	10.44
Rank	78
▲ Policy Index	
Value	9.31
Rank	46
✘ Allocation Index	
Value	9.61
Rank	51
Universe	
5th %tile	6.15
25th %tile	8.19
Median	9.60
75th %tile	10.36
95th %tile	11.35

● Total Teachers Composite	
Value	-0.44
Rank	70
▲ Policy Index	
Value	0.00
Rank	56
✘ Allocation Index	
Value	-0.09
Rank	61
Universe	
5th %tile	1.50
25th %tile	0.63
Median	0.13
75th %tile	-0.57
95th %tile	-1.26

● Total Teachers Composite	
Value	0.36
Rank	92
▲ Policy Index	
Value	0.40
Rank	84
✘ Allocation Index	
Value	0.39
Rank	86
Universe	
5th %tile	0.84
25th %tile	0.61
Median	0.51
75th %tile	0.42
95th %tile	0.34

Total Fund Attribution Analysis - Net

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



Attribution Summary  
3 Months Ending September 30, 2017

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Large Cap Equities	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Small/Mid Cap Equities	1.3%	4.9%	-3.6%	-0.2%	0.0%	0.0%	-0.2%
Total Core Non US Equity	6.2%	5.7%	0.5%	0.1%	0.0%	0.0%	0.1%
Total Emerging Market Equity	4.2%	7.9%	-3.7%	-0.2%	0.1%	-0.1%	-0.2%
Total Diversified Fixed Income	1.0%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%
Total TIPS	0.8%	0.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total High Yield Bonds	1.6%	2.0%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total Emerging Market Debt	2.7%	2.4%	0.3%	0.0%	0.0%	0.0%	0.0%
Total Long Treasury	0.5%	0.8%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total Unconstrained Fixed Income	1.3%	0.8%	0.5%	0.0%	0.0%	0.0%	0.0%
Total Risk Parity/GAA	4.4%	3.6%	0.8%	0.0%	0.0%	0.0%	0.0%
Total Cash	0.0%	0.3%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	1.5%	1.7%	-0.2%	0.0%	0.0%	0.0%	0.0%
Total Absolute Return	2.0%	2.3%	-0.3%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>2.9%</b>	<b>3.2%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>-0.3%</b>

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 policyindex asset weights the underlying policy indices of each option in the plan and the respective benchmark.

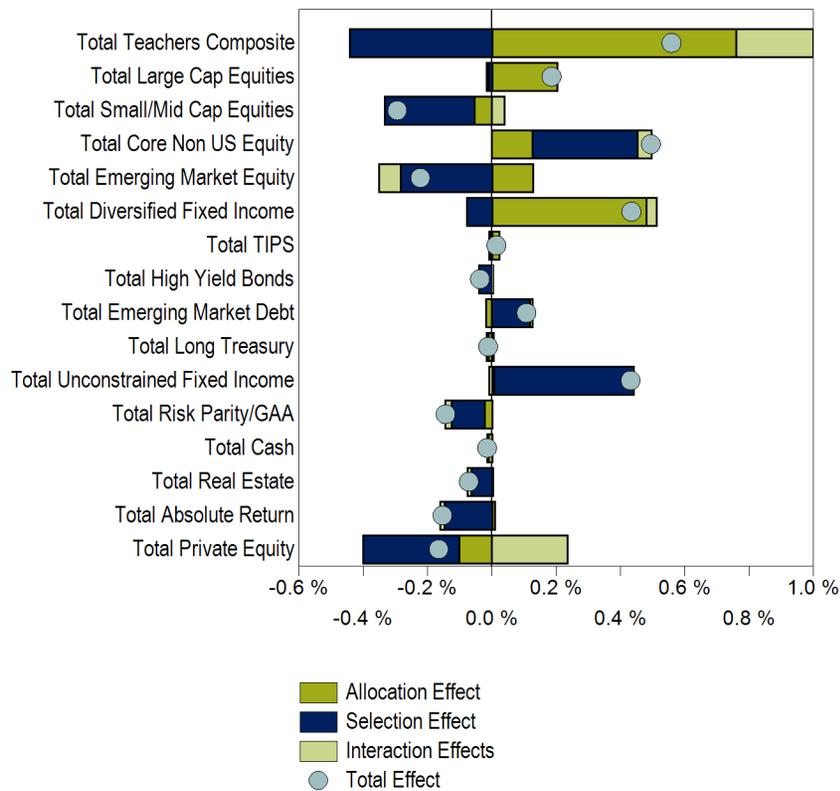
The allocation, selection, and interaction effects are calculated using the custom index described above alongwith the policy or target weight of each composite.

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 September 30, 2017



Attribution Summary  
1 Year Ending September 30, 2017

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Large Cap Equities	17.9%	18.0%	-0.1%	0.0%	0.2%	0.0%	0.2%
Total Small/Mid Cap Equities	14.1%	19.1%	-4.9%	-0.3%	-0.1%	0.0%	-0.3%
Total Core Non US Equity	22.5%	19.4%	3.1%	0.3%	0.1%	0.0%	0.5%
Total Emerging Market Equity	17.2%	22.5%	-5.3%	-0.3%	0.1%	-0.1%	-0.2%
Total Diversified Fixed Income	-0.3%	0.1%	-0.4%	-0.1%	0.5%	0.0%	0.4%
Total TIPS	-0.8%	-0.7%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total High Yield Bonds	8.1%	8.9%	-0.8%	0.0%	0.0%	0.0%	0.0%
Total Emerging Market Debt	6.5%	4.2%	2.3%	0.1%	0.0%	0.0%	0.1%
Total Long Treasury	--	--	--	0.0%	0.0%	0.0%	0.0%
Total Unconstrained Fixed Income	6.9%	0.1%	6.8%	0.4%	0.0%	0.0%	0.4%
Total Risk Parity/GAA	7.6%	9.4%	-1.9%	-0.1%	0.0%	0.0%	-0.1%
Total Cash	0.0%	0.7%	-0.7%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	5.9%	6.9%	-1.0%	-0.1%	0.0%	0.0%	-0.1%
Total Absolute Return	4.0%	5.6%	-1.6%	-0.1%	0.0%	0.0%	-0.2%
Total Private Equity	8.4%	12.4%	-4.0%	-0.3%	-0.1%	0.2%	-0.2%
<b>Total</b>	<b>10.2%</b>	<b>9.8%</b>	<b>0.4%</b>	<b>-0.4%</b>	<b>0.8%</b>	<b>0.2%</b>	<b>0.6%</b>

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 policyindex 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 alongwith 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.

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 Teachers

### Risk Statistics - 3 Years

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Total Teachers Composite	100.00%	5.52%	80	5.11%	16	-0.16%	56	1.02	56	1.73	19	0.81%	27
Policy Index	--	5.59%	79	4.97%	11	0.00%	49	1.06	43	1.78	16	0.00%	1
Total Domestic Equity	23.31%	11.06%	34	10.29%	26	0.37%	34	1.04	19	1.54	32	1.41%	2
Russell 3000	--	10.74%	38	10.24%	25	0.00%	40	1.02	22	1.46	39	0.00%	1
Total Large Cap Equities	18.45%	10.62%	28	10.12%	35	-0.22%	34	1.02	25	1.58	29	0.72%	1
S&P 500	--	10.81%	25	10.07%	34	0.00%	30	1.04	21	1.58	29	0.00%	1
Total Small/Mid Cap Equities	4.87%	11.63%	23	11.94%	41	1.90%	28	0.95	22	1.74	15	4.41%	8
Russell 2000	--	12.18%	18	14.48%	89	0.00%	58	0.82	41	1.28	42	0.00%	1
Total Core Non US Equity	14.30%	7.22%	41	11.42%	38	2.56%	41	0.60	40	1.02	32	1.95%	7
MSCI EAFE	--	5.04%	75	12.27%	78	0.00%	78	0.38	78	0.62	78	0.00%	1
Total Emerging Market Equity	7.39%	4.32%	68	14.70%	51	-0.02%	62	0.27	65	0.52	57	5.36%	64
MSCI Emerging Markets	--	4.90%	59	15.73%	79	0.00%	62	0.29	62	0.53	54	0.00%	1
Total Fixed Income	36.16%	4.17%	28	3.08%	64	1.81%	25	1.25	22	1.82	26	1.93%	43
BBgBarc US Aggregate TR	--	2.71%	54	2.85%	58	0.00%	76	0.84	64	1.11	69	0.00%	1
Total Diversified Fixed Income	11.68%	4.26%	27	3.98%	77	0.71%	43	0.99	46	1.27	55	1.42%	29
BBgBarc US Aggregate TR	--	2.71%	54	2.85%	58	0.00%	76	0.84	64	1.11	69	0.00%	1
Total Unconstrained Fixed Income	5.75%	--	--	--	--	--	--	--	--	--	--	--	--
25% HY, 25% EMD, 50% BC Agg	--	4.36%	14	3.50%	46	0.00%	47	1.16	20	1.76	27	0.00%	1
Total High Yield Bonds	4.71%	5.11%	48	4.86%	47	0.27%	56	0.99	53	1.67	55	1.44%	26
BBgBarc US High Yield TR	--	5.83%	26	5.81%	83	0.00%	62	0.95	60	1.85	46	0.00%	1
Total TIPS	6.87%	1.56%	28	3.65%	66	-0.08%	32	0.34	28	0.74	25	0.18%	5
BBgBarc US TIPS TR	--	1.62%	25	3.58%	60	0.00%	22	0.36	21	0.79	20	0.00%	1
Total Emerging Market Debt	5.19%	6.67%	10	5.91%	27	0.71%	11	1.08	11	1.63	8	1.31%	7
JP Morgan EMBI Global Index	--	6.05%	19	5.85%	25	0.00%	24	0.98	19	1.39	25	0.00%	1
Total Real Estate	5.72%	9.52%	--	4.20%	--	-0.10%	--	2.19	--	96.20	--	1.01%	--
NCREIF Property Index	--	9.83%	--	4.17%	--	0.00%	--	2.28	--	99.41	--	0.00%	--
Total Absolute Return	7.10%	0.87%	80	3.14%	22	-1.01%	74	0.18	77	0.20	78	1.67%	7
HFRI Fund of Funds Composite Index	--	2.23%	60	3.32%	26	0.00%	61	0.57	50	0.65	57	0.00%	1
Total Risk Parity/GAA	4.34%	2.86%	58	7.07%	59	-1.37%	67	0.36	72	0.59	64	4.55%	42
60% MSCI World (Net) / 40% CITI WGBI	--	5.09%	28	6.75%	57	0.00%	40	0.71	31	1.35	4	0.00%	1

## Vermont State Teachers

### Risk Statistics - 5 Years

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank	Tracking Error	Rank
Total Teachers Composite	100.00%	6.13%	94	5.32%	26	-0.40%	68	1.11	87	1.95	73	0.81%	25
Policy Index	--	6.23%	92	5.01%	12	0.00%	49	1.20	75	2.13	55	0.00%	1
Total Domestic Equity	23.31%	--	--	--	--	--	--	--	--	--	--	--	--
Russell 3000	--	14.22%	38	9.80%	18	0.00%	31	1.43	13	2.45	19	0.00%	1
Total Large Cap Equities	18.45%	14.47%	26	9.65%	28	0.14%	26	1.48	12	2.68	12	0.74%	1
S&P 500	--	14.22%	32	9.55%	25	0.00%	28	1.47	12	2.53	19	0.00%	1
Total Small/Mid Cap Equities	4.87%	14.06%	37	11.86%	43	2.71%	40	1.17	36	2.38	12	3.88%	4
Russell 2000	--	13.79%	39	14.00%	90	0.00%	84	0.97	73	1.61	66	0.00%	1
Total Core Non US Equity	14.30%	9.92%	38	11.21%	41	2.02%	42	0.87	39	1.60	27	2.08%	9
MSCI EAFE	--	8.38%	69	11.73%	71	0.00%	76	0.70	74	1.21	70	0.00%	1
Total Emerging Market Equity	7.39%	3.25%	88	14.26%	63	-0.48%	85	0.21	86	0.36	84	4.89%	53
MSCI Emerging Markets	--	3.99%	77	14.40%	70	0.00%	80	0.26	79	0.44	74	0.00%	1
Total Fixed Income	36.16%	--	--	--	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR	--	2.06%	59	2.84%	54	0.00%	79	0.65	74	0.91	69	0.00%	1
Total Diversified Fixed Income	11.68%	3.28%	38	4.26%	78	0.38%	59	0.72	66	1.01	62	1.67%	37
BBgBarc US Aggregate TR	--	2.06%	59	2.84%	54	0.00%	79	0.65	74	0.91	69	0.00%	1
Total Unconstrained Fixed Income	5.75%	--	--	--	--	--	--	--	--	--	--	--	--
25% HY, 25% EMD, 50% BC Agg	--	3.73%	30	3.69%	58	0.00%	72	0.95	46	1.33	53	0.00%	1
Total High Yield Bonds	4.71%	5.95%	39	4.34%	29	0.75%	36	1.32	35	2.04	47	1.37%	37
BBgBarc US High Yield TR	--	6.36%	26	5.24%	76	0.00%	63	1.18	58	2.09	43	0.00%	1
Total TIPS	6.87%	-0.06%	54	4.51%	69	-0.08%	55	-0.06	55	-0.08	56	0.16%	1
BBgBarc US TIPS TR	--	0.02%	47	4.47%	59	0.00%	41	-0.04	41	-0.05	41	0.00%	1
Total Emerging Market Debt	5.19%	5.03%	17	6.48%	31	0.87%	19	0.74	18	1.01	20	1.26%	8
JP Morgan EMBI Global Index	--	4.32%	31	6.62%	33	0.00%	34	0.62	31	0.85	34	0.00%	1
Total Real Estate	5.72%	10.97%	--	4.73%	--	-0.10%	--	2.27	--	130.65	--	1.29%	--
NCREIF Property Index	--	10.35%	--	4.26%	--	0.00%	--	2.38	--	123.09	--	0.00%	--
Total Absolute Return	7.10%	4.29%	69	3.50%	32	0.62%	61	1.17	50	1.75	46	1.64%	7
HFRI Fund of Funds Composite Index	--	3.84%	73	3.25%	27	0.00%	68	1.12	53	1.47	57	0.00%	1
Total Risk Parity/GAA	4.34%	3.82%	64	7.18%	61	-1.98%	84	0.50	79	0.74	78	4.09%	42
60% MSCI World (Net) / 40% CITI WGBI	--	6.42%	26	6.60%	52	0.00%	46	0.94	17	1.95	5	0.00%	1



# Appendix

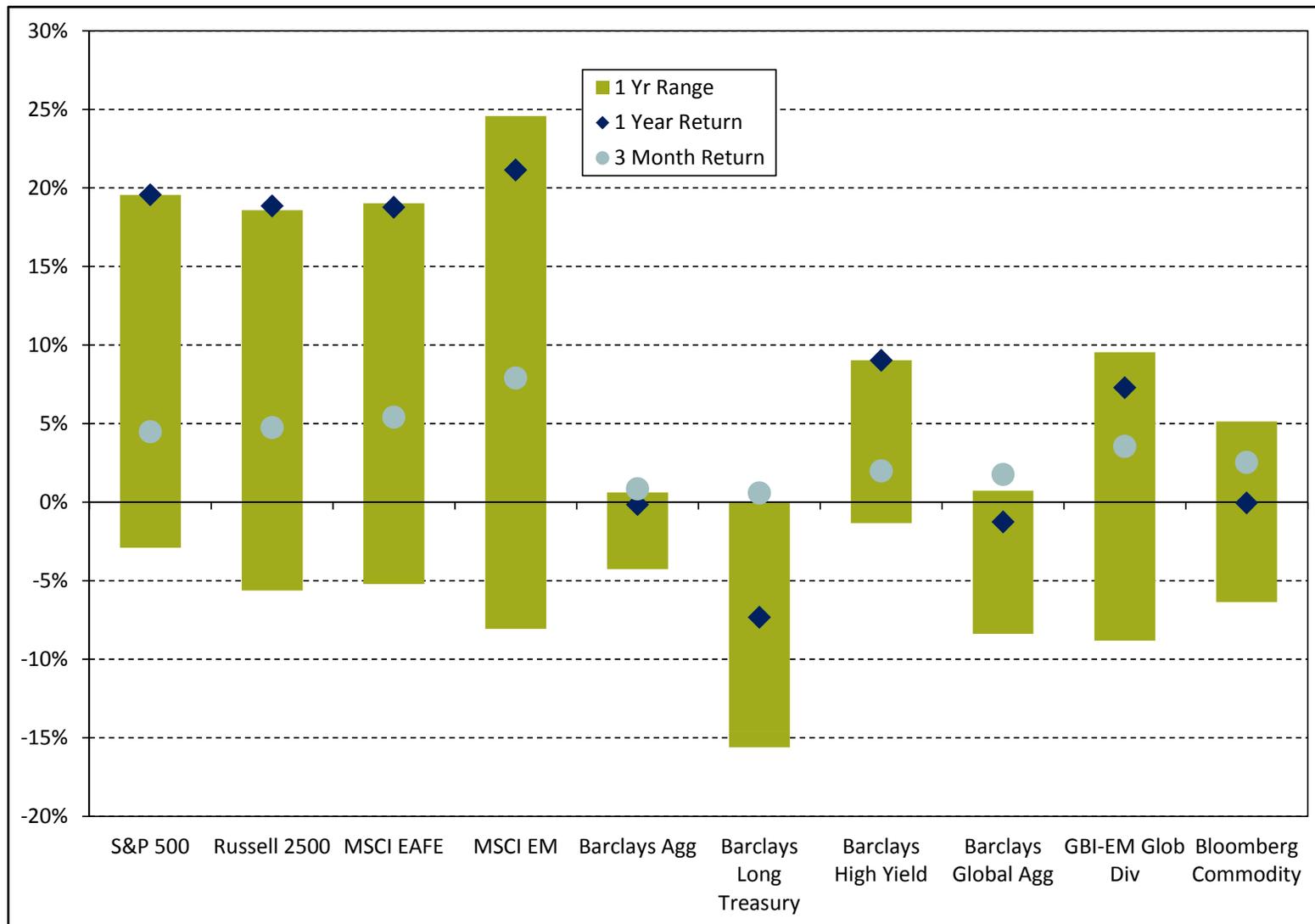


## Index Performance Summary as of 09/30/2017

	2009	2010	2011	2012	2013	2014	2015	2016	Q1	Q2	Q3	Sept	YTD
<b>MSCI EM</b>	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	11.4%	6.3%	7.9%	-0.4%	27.8%
<b>MSCI EAFE</b>	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	7.2%	6.1%	5.4%	2.5%	20.0%
<b>MSCI ACWI</b>	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	6.9%	4.3%	5.2%	1.9%	17.3%
<b>JPM GBI-EM Global Div</b>	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	6.5%	3.6%	3.6%	-0.3%	14.3%
<b>S&amp;P 500</b>	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	6.1%	3.1%	4.5%	2.1%	14.2%
<b>Russell 1000</b>	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	6.0%	3.1%	4.5%	2.1%	14.2%
<b>Russell 2500</b>	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	3.8%	2.1%	4.7%	4.5%	11.0%
<b>Russell 2000</b>	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	2.5%	2.5%	5.7%	6.2%	10.9%
<b>JPM EMBI Glob Div</b>	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	3.9%	2.2%	2.6%	0.0%	9.0%
<b>BC US Long Credit</b>	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	1.7%	4.7%	2.2%	-0.2%	8.7%
<b>BC US STRIPS 20+ Yr</b>	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	1.8%	6.1%	0.7%	-2.8%	8.7%
<b>BC US Govt/Cred Long</b>	1.9%	10.2%	22.5%	8.8%	-8.8%	19.3%	-3.3%	6.7%	1.6%	4.4%	1.5%	-1.0%	7.7%
<b>BC US Corporate HY</b>	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	2.7%	2.2%	2.0%	0.9%	7.0%
<b>BC Global Agg</b>	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	1.8%	2.6%	1.8%	-0.9%	6.3%
<b>CS Hedge Fund</b>	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	2.1%	0.8%	0.6%	-	4.9%
<b>BC Municipal</b>	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	1.6%	2.0%	1.1%	-0.5%	4.7%
<b>FTSE NAREIT Eqy REITs</b>	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	1.2%	1.5%	0.9%	0.0%	3.7%
<b>BC US Agg Bond</b>	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	0.8%	1.4%	0.8%	-0.5%	3.1%
<b>CS Leveraged Loan</b>	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	1.2%	0.8%	1.1%	0.4%	3.0%
<b>BC US Agg Interm</b>	6.5%	6.1%	6.0%	3.6%	-1.0%	4.1%	1.2%	2.0%	0.7%	0.9%	0.7%	-0.4%	2.3%
<b>BC TIPS</b>	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	1.3%	-0.4%	0.9%	-0.6%	1.7%
<b>BC US Govt/Cred 1-3 Yr</b>	3.8%	2.8%	1.6%	1.3%	0.6%	0.8%	0.7%	1.3%	0.4%	0.3%	0.3%	-0.1%	1.1%
<b>BBG Commodity</b>	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	-2.3%	-3.2%	2.5%	-0.1%	-2.9%
<b>Alerian MLP</b>	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	3.9%	-6.4%	-3.0%	0.7%	-5.6%

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

# Near Term Broad Market Performance Summary as of 09/30/2017



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

- **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**
  - Markets continue to price in a slow pace for Fed rate hikes over the next 36 months
  - The Fed will begin to shrink a \$4.5T balance sheet, longer-term impact is untested
  - Chair Yellen’s uncertain tenure may stoke market unease as 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
  - While capital outflow pressure has reversed, 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**
  - Conditions driving anti-establishment political sentiment have not subsided and risks stemming from globalization backlash likely lead to higher levels of currency volatility
  - Changes to US trade policy under the current administration remain uncertain and an aggressive protectionist policy would represent a material risk to global markets

# Macro Performance Overview

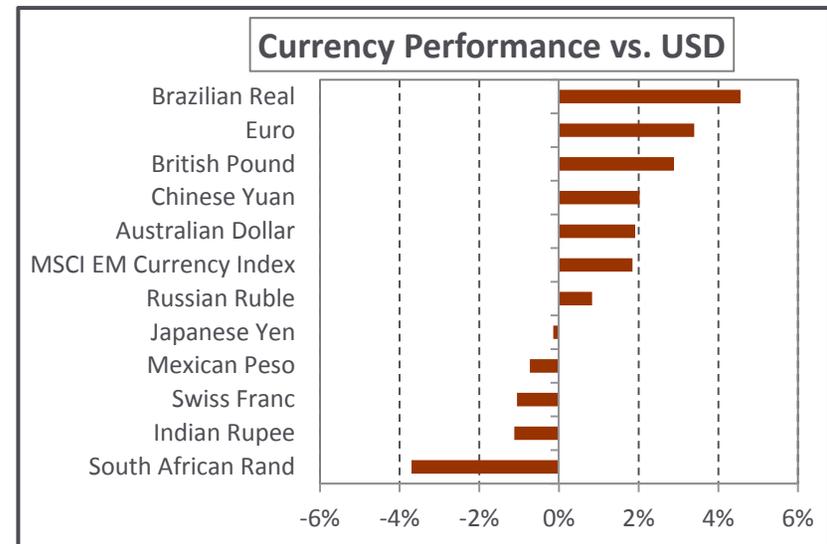
## Q3 Macro Market Summary

- **US, Europe, Japan, and China continue to grow modestly in a synchronized economic expansion**
- **Long-term US interest rates were largely unchanged and reflect the low volatility of inflation**
- **The US Treasury curve flattened slightly as the 2 year rate rose**

	Yield 6/30/17	Yield 9/30/17	\Delta
US 10-Yr	2.30%	2.33%	+0.03%
US 30-Yr	2.84%	2.86%	+0.02%
US Real 10-Yr	0.58%	0.49%	-0.09%
German 10-Yr	0.47%	0.46%	-0.01%
Japan 10-Yr	0.08%	0.06%	-0.02%
China 10-Yr	3.56%	3.62%	+0.06%
EM Local Debt	6.15%	5.99%	-0.16%

Source: Bloomberg

Central Banks	Current Rate	CPI YOY	Notes from the Quarter
Federal Reserve	1.00% - 1.25%	1.9%	Program to reduce Fed balance sheet is set to begin in October. As of quarter-end, market's probability of a Dec '17 rate hike is 70%
European Central Bank	0.0%	1.5%	An accommodative monetary policy likely remains necessary in a persistent low inflation environment
Bank of Japan	-0.10%	0.7%	The BoJ will continue its QE program as part of their yield curve control policy to keep long-term interest rates near zero



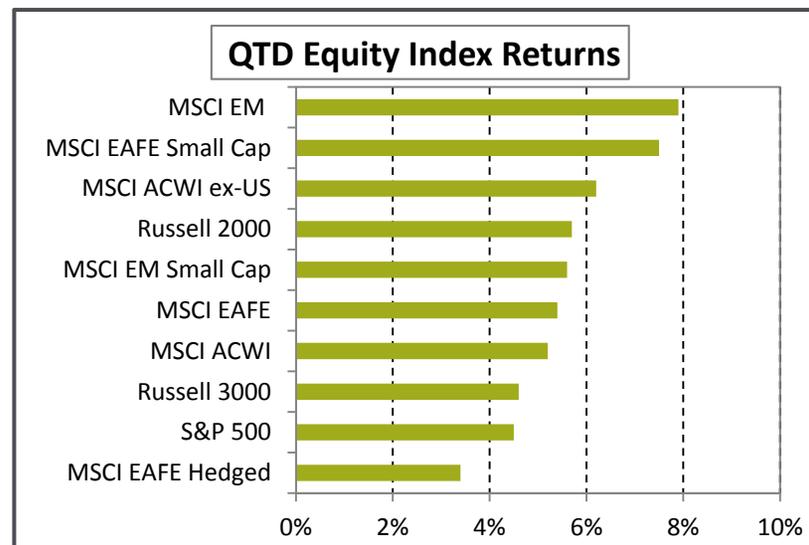
Source: Bloomberg

## Q3 Equity Market Summary

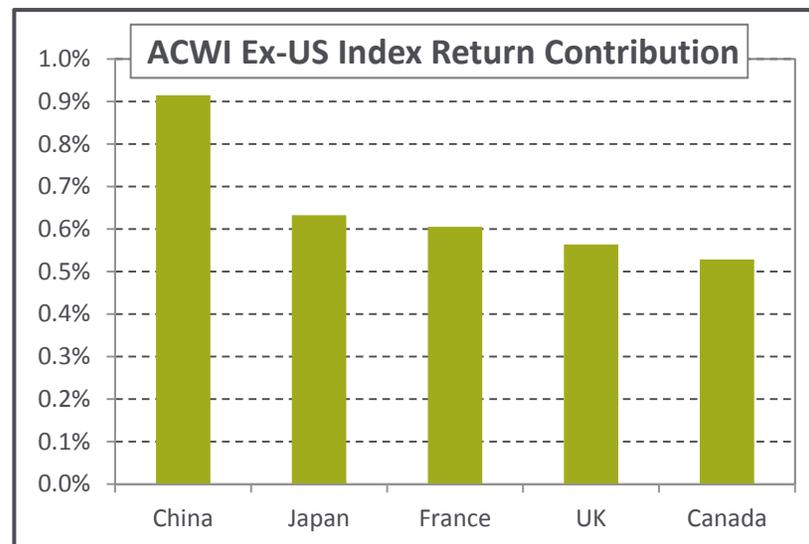
- **US small caps rallied as the outlook for US tax reform improved during the quarter**
- **Corporate earnings growth has accelerated over the last 12 months led by small-caps in Europe/Japan and the technology sector for the US and EM**

Russell 3000 QTD Sector Return Contribution	
Information Technology	1.8%
Industrials	0.9%
Financials	0.7%
Health Care	0.5%
Energy	0.4%
Consumer Discretionary	0.22%
Materials	0.19%
Utilities	0.13%
Telecommunication	0.05%
Real Estate	-0.08%
Consumer Staples	-0.14%

Source: Russell, Bloomberg



Source: MSCI, Russell, S&P, Bloomberg



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

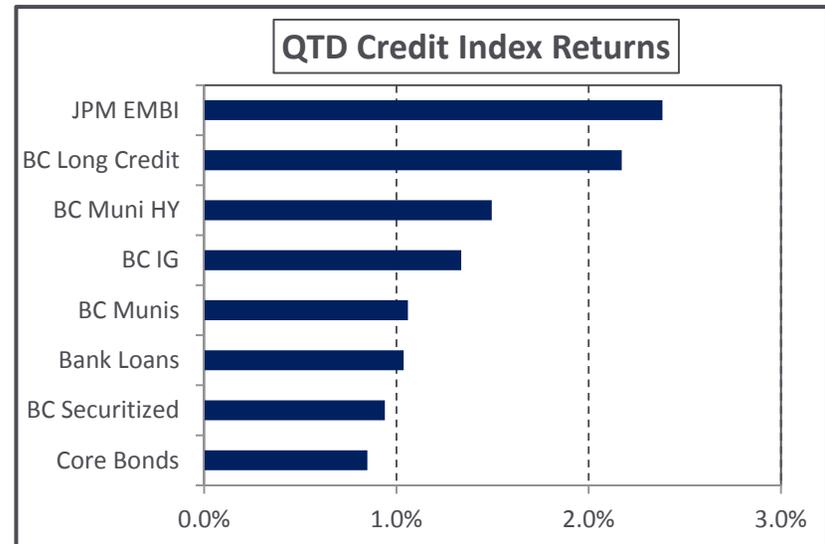
# Credit Performance Overview

## Q3 Credit Market Summary

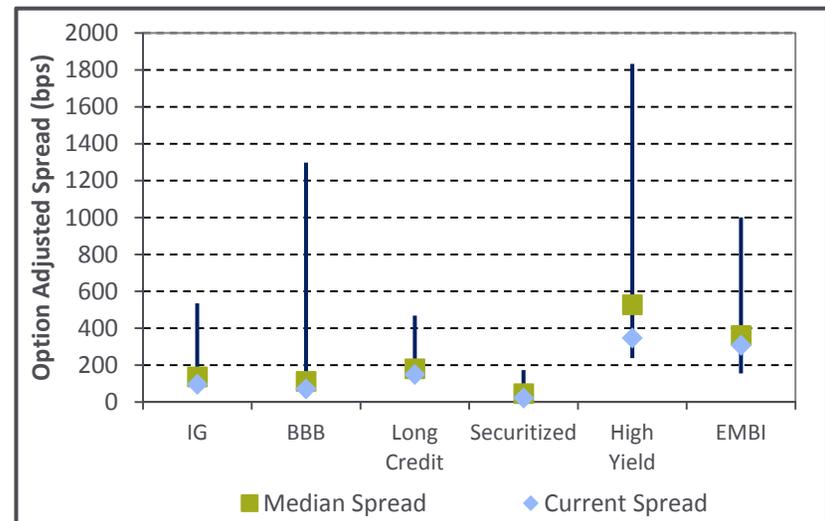
- **Credit spreads continue to grind lower across all areas of the credit markets**
- **High yield and dollar EMD credit spread declines support a broad reduction in exposure**
- **Long credit continues to benefit from strong demand as spreads remain near long-term averages**

Credit Spread (Basis Points)	06/30/17	9/30/17	\Delta
BC IG Credit	103	96	-7
BC Long Credit	157	149	-8
BC Securitized	35	26	-9
BC High Yield	364	347	-17
Muni HY	386	309	-77
JPM EMBI	328	308	-20
Bank Loans - Libor	346	349	+3

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



Source: Barclays, JPM, S&P, Bloomberg



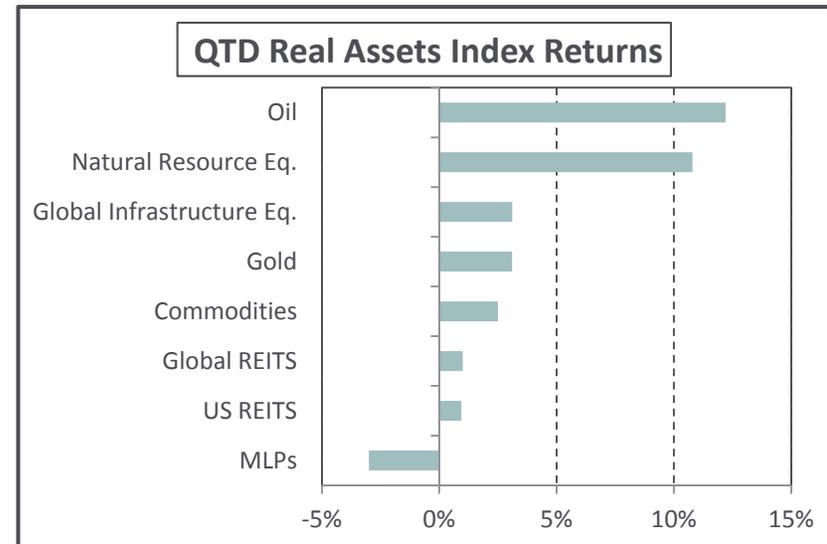
Source: Barclays, JPM, S&P, Bloomberg. As of 01/31/2000

## Q3 Real Assets Market Summary

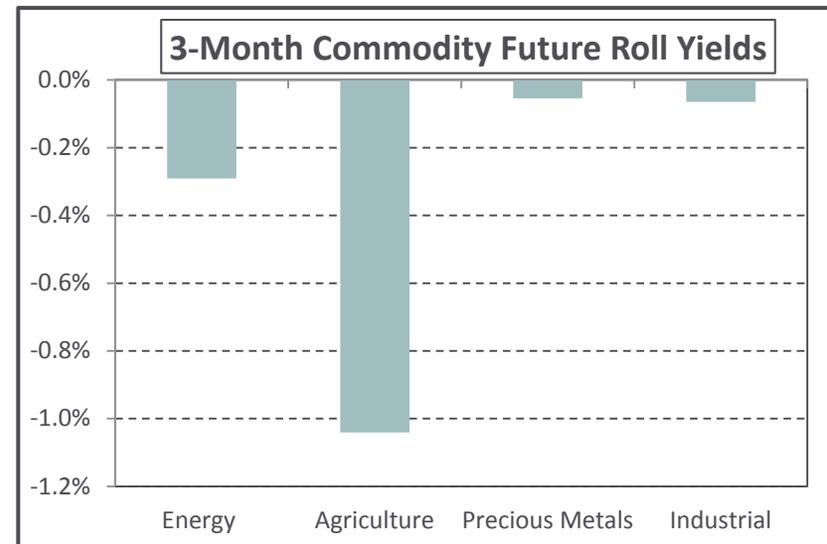
- **Oil prices rebounded over the quarter and appear range bound between \$50 to \$60 a barrel**
- **Gold prices improved and likely benefited from a weaker dollar and geopolitical concerns**
- **Commodity index roll yield is more negative than the previous quarter, though oil futures are slightly positive**

Real Asset Yields	6/30/17	9/30/17
MLPs	7.3%	7.8%
Core Real Estate	4.7%	4.7%
US REITs	4.1%	4.0%
Global REITs	3.7%	3.4%
Global Infrastructure Equities	3.9%	3.9%
Natural Resource Equities	3.5%	3.3%
US 10-Yr Breakeven Inflation	1.7%	1.9%
Commodity Index Roll Yield	-0.4%	-1.5%

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



Source: S&P, NAREIT, Alerian, Bloomberg



Source: Bloomberg, NEPC Calculated as of 10/23/2017

### Key Market Themes

**Extended US Economic Cycle**

**Federal Reserve Gradualism**

**China Transitions**

**Globalization Backlash**

### Current Opportunities

**Trim US Equity Gains**

**Overweight Non-US Developed Market Equities**

**Maintain a Market Overweight to Emerging Market Equities**

**Allocate to TIPS from Core Bonds**

**Reduce High Yield Bond Exposure**

**Fund Emerging Local Debt from Risk Assets**

**Add Macro Hedge Funds**

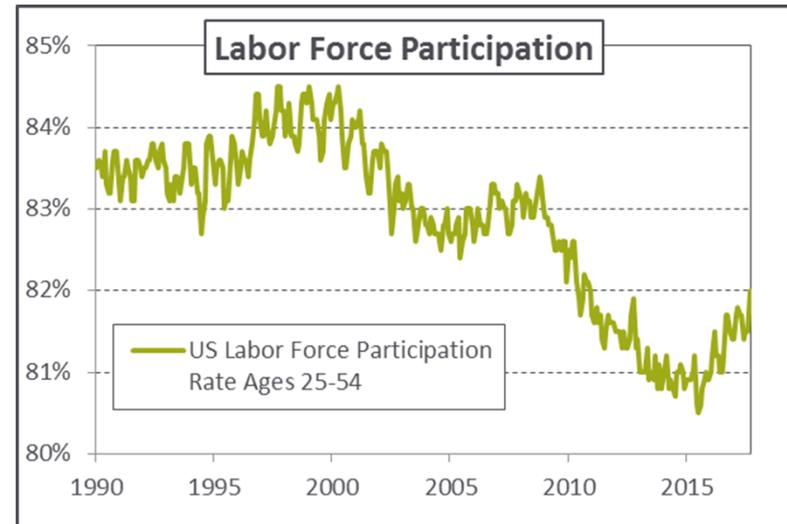
***New Opportunity* – Add Long Volatility Exposure**

### 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

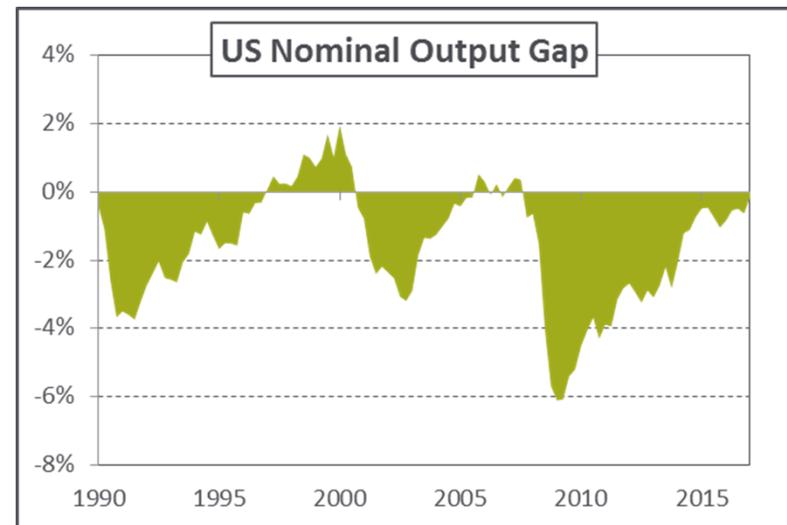


Source: FRED

#### 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 sustain



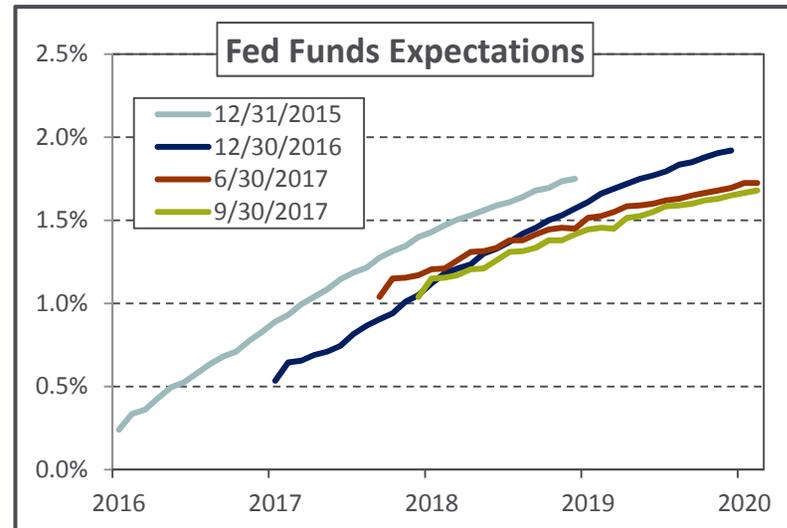
Source: Congressional Budget Office, Bloomberg

**Federal Reserve Gradualism**

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

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

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

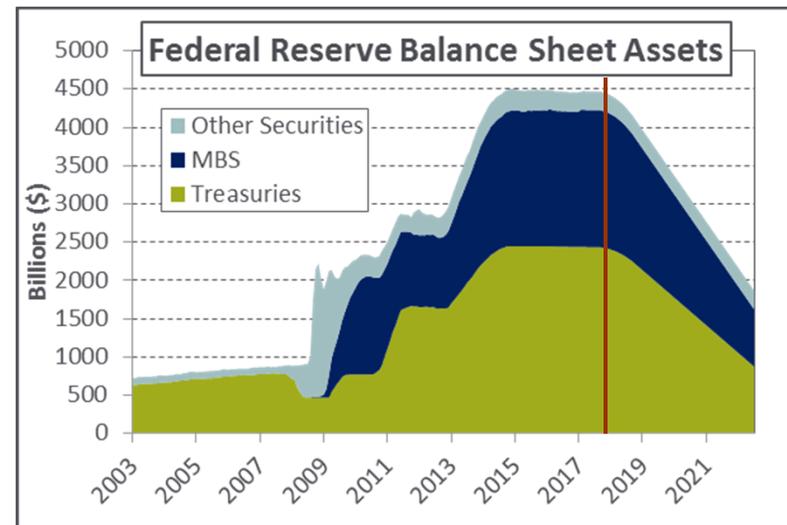


Source: Fed, Bloomberg

**The Fed will begin to reduce its balance sheet in October of 2017**

The balance sheet will gradually shrink over time by tapering the reinvestment of maturing securities

The reinvestment of maturing securities will follow a specific schedule that is based on both time and dollar value



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

**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

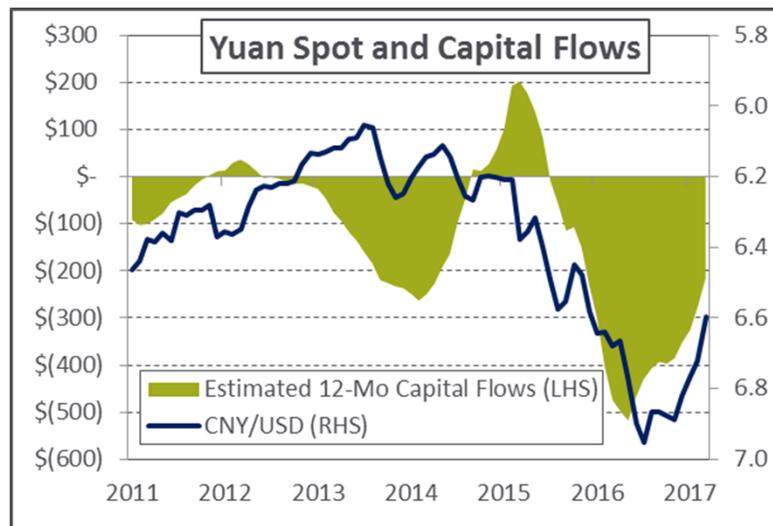
Fixed investment is required to sustain the production based economy and support labor force migration

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

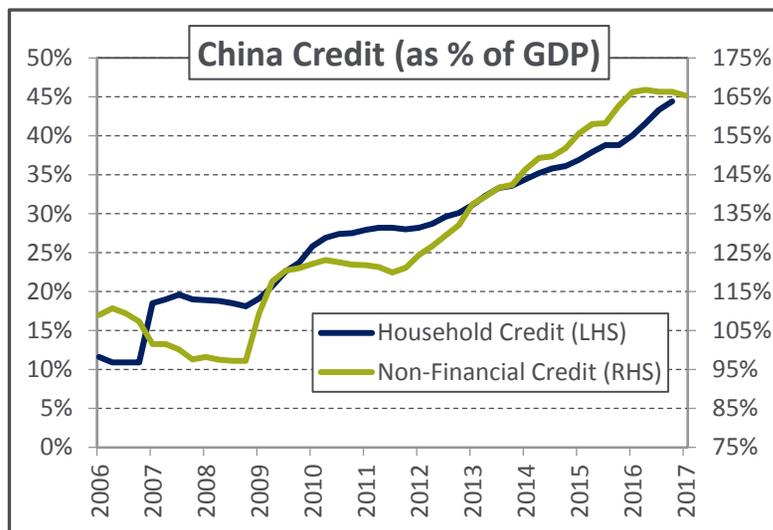
**China’s government is negotiating a balance between deleveraging and near term economic growth**

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

## Globalization Backlash

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

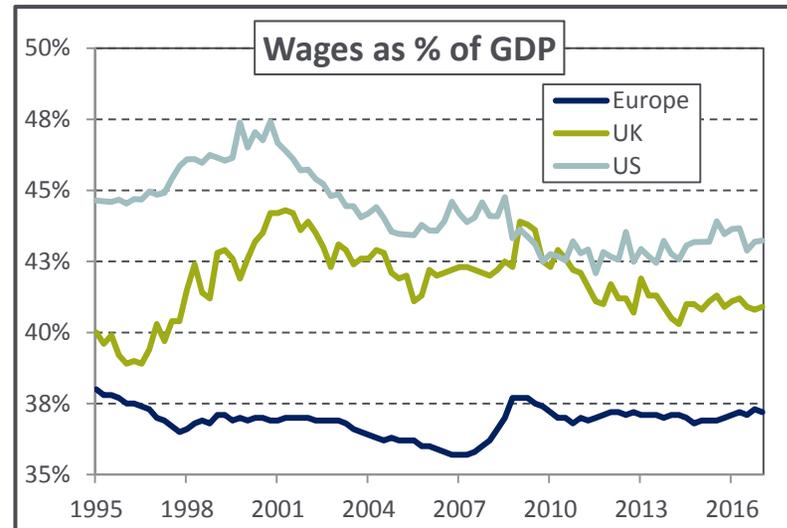
Election results in France and the UK have assuaged fears of political gridlock in Europe – but political conventions have been meaningfully challenged

Despite election outcomes structural issues that stoked unease in Europe remain unresolved

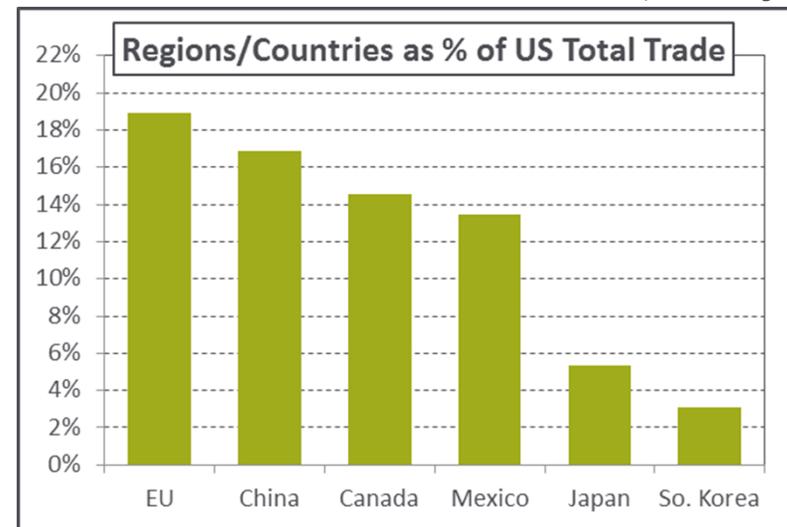
### Major shifts in US trade policy have not materialized in 2017

However, a US move to an aggressive protectionist policy would represent a material risk to global markets

Markets have taken to interpreting the administrations rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern



Source: Eurostat, Bloomberg



Source: IMF, Bloomberg

## Information Disclaimer and Reporting Methodology

### Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

### Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.