

# SECOND FISCAL QUARTER 2018 INVESTMENT PERFORMANCE ANALYSIS

## VERMONT STATE TEACHERS

February 28, 2018



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

# MARKET ENVIRONMENT

NEPC, LLC

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# QUARTERLY MARKET PERFORMANCE - EQUITIES

- **Domestic equity markets had yet another positive quarter, supported by generally positive macroeconomic data and bolstered by the prospect of corporate tax cuts; S&P 500 gained 6.6% for the three months ending December 31, hitting new highs in its ninth straight year in the black**
  - On a style basis, growth outperformed value across the market cap spectrum – continuing the trend from the beginning of the year and representing a notable reversal from 2016
  - On a size basis, larger cap stocks outperformed their smaller cap counterparts
  - On a sector basis, healthcare and consumer discretionary were the best performing sectors while utilities and telecommunication services lagged in the fourth quarter
- **Non-U.S. equity markets moved in line with the U.S. markets with emerging market small cap stocks taking the lead within the group during the quarter**
  - Developed market equities, measured by MSCI EAFE index, was up by 4.2% for the quarter
  - Emerging market equities, measured by MSCI EM index, was up by 7.4% for the quarter















# QUARTERLY MARKET PERFORMANCE – FIXED INCOME

- **Fixed Income categories posted low single-digit returns for the quarter. The U.S. yield curve flattened as short rates rose but longer-dated bond yields declined. Outside the U.S., the rally continued within emerging markets.**
  - The Barclays US Aggregate index gained 0.4% in the fourth quarter
  - Treasury Inflation-Protected Securities (TIPS) were among the highest performers with the Barclays TIPS up 1.3%
  - Long Treasuries maintained their upward trajectory, returning 2.4%
  - Emerging market local debt , largely helped by currencies, returned 0.8%



# PERFORMANCE OVERVIEW

## Q4 Market Summary

Macro			Equity			Credit			Real Assets		
US Dollar	VIX	US 10-Yr	S&P 500	MSCI EAFE	MSCI EM	US Agg.	High Yield	Dollar EMD	Oil	Gold	REITS
											
-1.0%	1.5	7 bps	6.6%	4.2%	7.4%	0.4%	0.5%	0.5%	16.9%	1.8%	2.3%

- **Equities ended the year on a high note with another strong quarter of returns on the back of accelerating global growth, a robust earnings season, and continued accommodative monetary policy**
  - Emerging markets continued their outperformance with a weaker dollar, rebounding earnings, and a significant rally in tech shares
- **Long-term US Treasury yields increased, but an additional Fed rate hike pushed up short-term yields even more, causing the curve to flatten**
- **Reflecting the pro-risk environment, volatility remained subdued and the US dollar continued to decline – ending the year down nearly 10%**

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).



# KEY MARKET THEMES

**Extended US Economic Cycle**

**Synchronized Economic Resurgence**

**Federal Reserve Gradualism**

**China Transitions**

**Globalization Backlash**



# STATE TEACHERS' RETIREMENT SYSTEM

NEPC, LLC

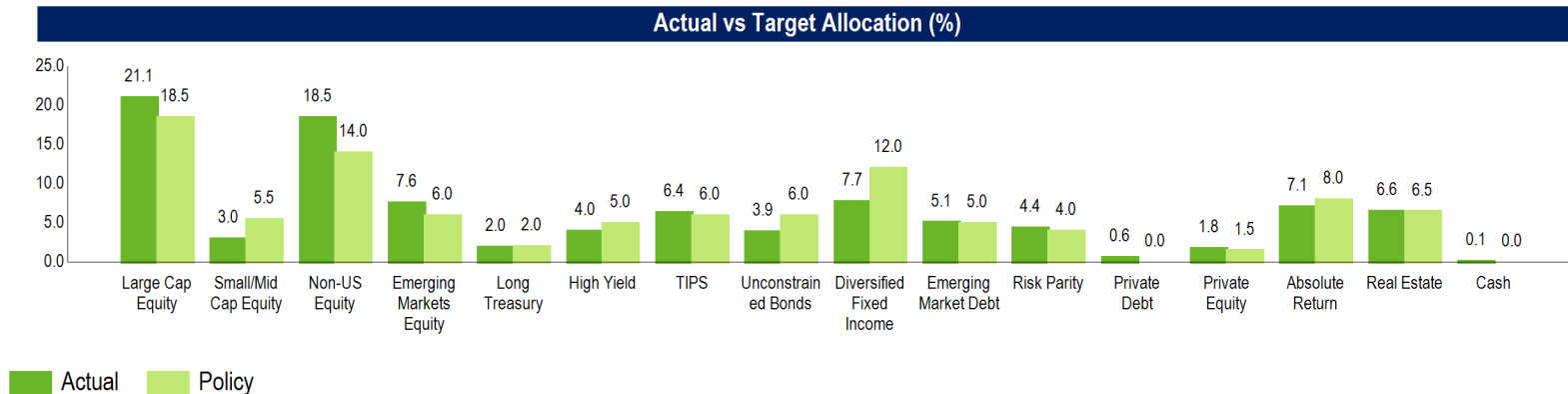
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# TOTAL FUND PERFORMANCE SUMMARY - NET

	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	7 Yrs	Rank	10 Yrs	Rank
<b>Total Teachers Composite</b>	<b>\$1,851,643,124</b>	<b>3.3%</b>	<b>63</b>	<b>6.4%</b>	<b>75</b>	<b>13.7%</b>	<b>74</b>	<b>6.8%</b>	<b>63</b>	<b>6.4%</b>	<b>95</b>	<b>6.6%</b>	<b>86</b>	<b>4.6%</b>	<b>88</b>
<i>Policy Index</i>		3.1%	80	6.5%	72	13.3%	82	6.6%	72	6.5%	94	6.3%	92	4.4%	91
<i>Allocation Index</i>		3.6%	48	7.1%	43	14.4%	57	6.7%	68	6.5%	94	6.3%	92	4.6%	88
<i>InvestorForce Public DB Net Median</i>		3.5%		6.9%		14.7%		7.1%		8.4%		7.6%		5.6%	

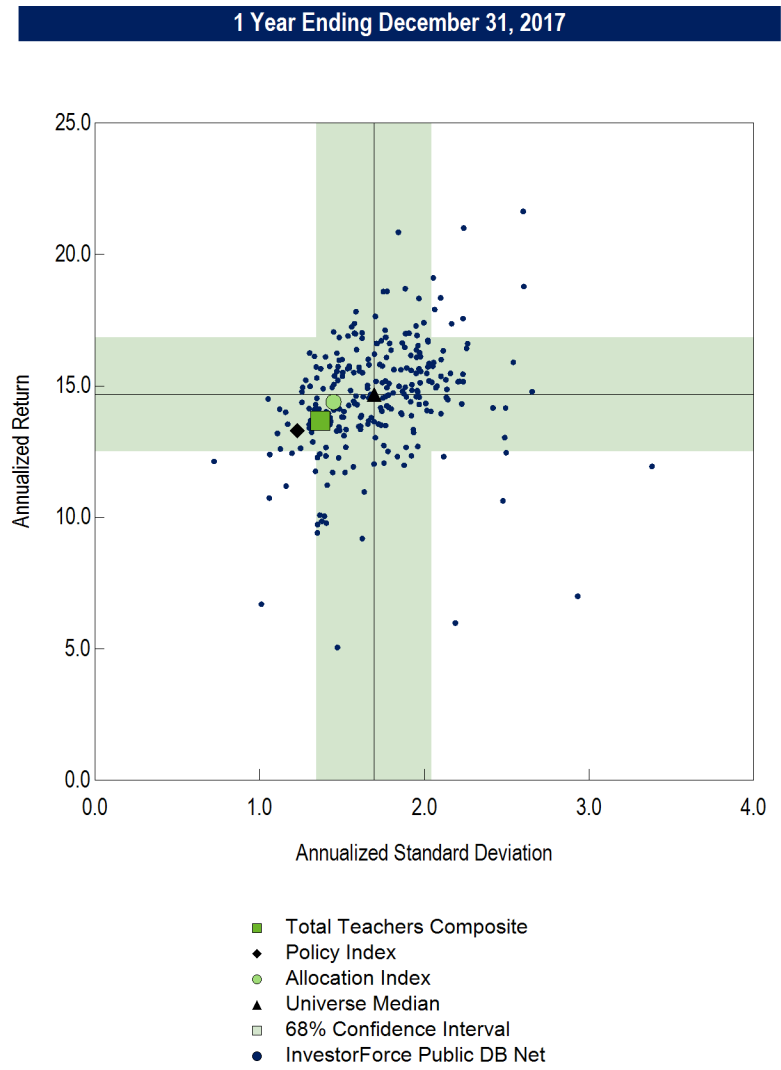
3 Years Ending December 31, 2017								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Teachers Composite	6.80%	63	5.01%	15	1.27	20	2.04	5
Policy Index	6.58%	72	4.91%	10	1.26	23	2.00	6
Allocation Index	6.68%	68	5.09%	17	1.23	29	1.88	14

5 Years Ending December 31, 2017								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Teachers Composite	6.42%	95	5.31%	27	1.16	85	2.06	70
Policy Index	6.53%	94	5.01%	13	1.25	76	2.21	54
Allocation Index	6.53%	94	5.08%	16	1.23	78	2.12	62





# TOTAL FUND RISK/RETURN - NET



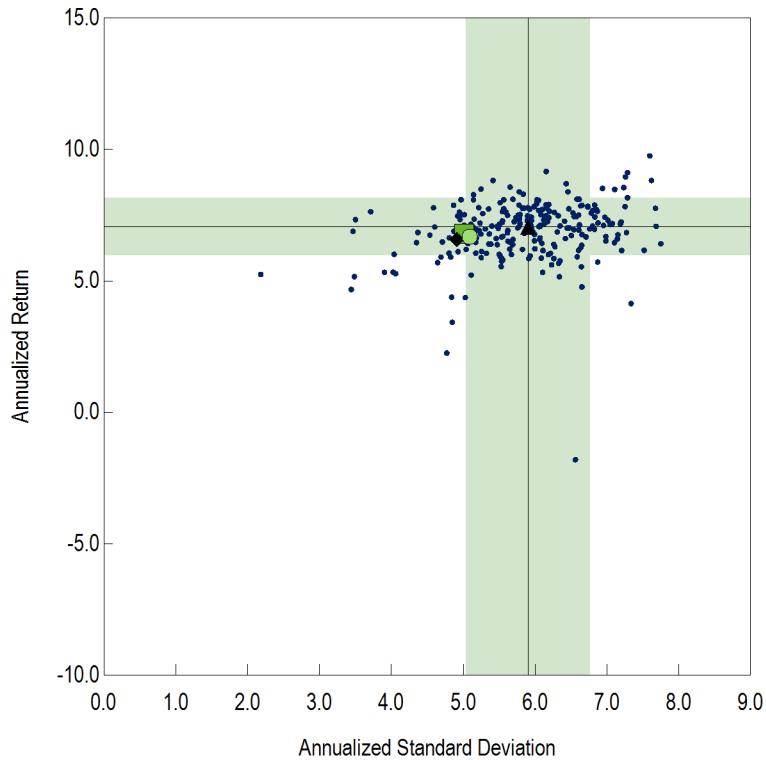
1 Year Ending December 31, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	13.68%	74	1.37%	16	9.34	25
Policy Index	13.29%	82	1.23%	5	10.07	13
S&P 500	21.83%	1	3.94%	99	5.31	97
Citi WGBI	7.49%	99	3.30%	99	1.99	99
MSCI ACWI	23.97%	1	2.84%	99	8.12	52
MSCI ACWI ex USA	27.19%	1	3.88%	99	6.78	83
InvestorForce Public DB Net Median	14.68%	--	1.69%	--	8.17	--



# Total Fund Risk/Return - Net

3 Years Ending December 31, 2017



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

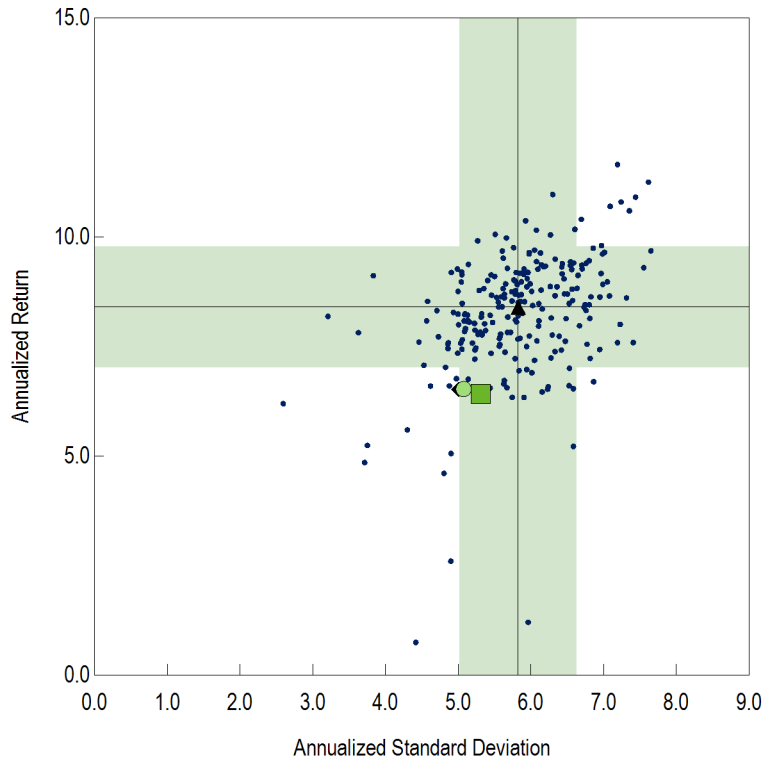
3 Years Ending December 31, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	6.80%	63	5.01%	15	1.27	20
Policy Index	6.58%	72	4.91%	10	1.26	23
S&P 500	11.41%	1	10.07%	99	1.09	62
Citi WGBI	1.74%	99	5.83%	47	0.23	99
MSCI ACWI	9.30%	1	10.51%	99	0.84	94
MSCI ACWI ex USA	7.83%	14	12.04%	99	0.62	99
InvestorForce Public DB Net Median	7.05%	--	5.90%	--	1.13	--



# TOTAL FUND RISK/RETURN - NET

5 Years Ending December 31, 2017



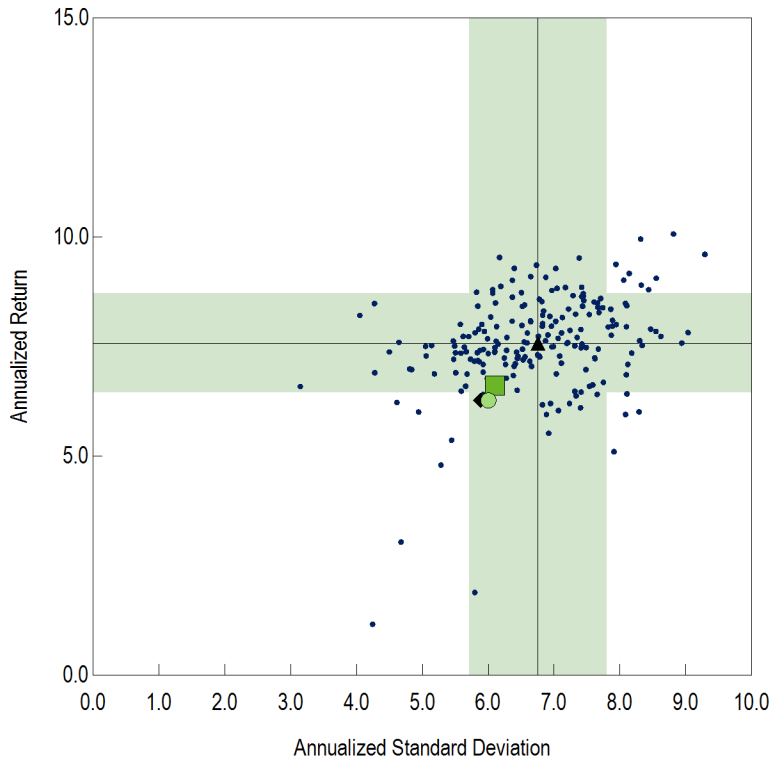
5 Years Ending December 31, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	6.42%	95	5.31%	27	1.16	85
Policy Index	6.53%	94	5.01%	13	1.25	76
S&P 500	15.79%	1	9.49%	99	1.64	10
Citi WGBI	0.12%	99	5.41%	30	-0.03	99
MSCI ACWI	10.80%	2	9.93%	99	1.06	93
MSCI ACWI ex USA	6.80%	89	11.50%	99	0.57	99
InvestorForce Public DB Net Median	8.40%	--	5.83%	--	1.40	--



# TOTAL FUND RISK/RETURN - NET

7 Years Ending December 31, 2017



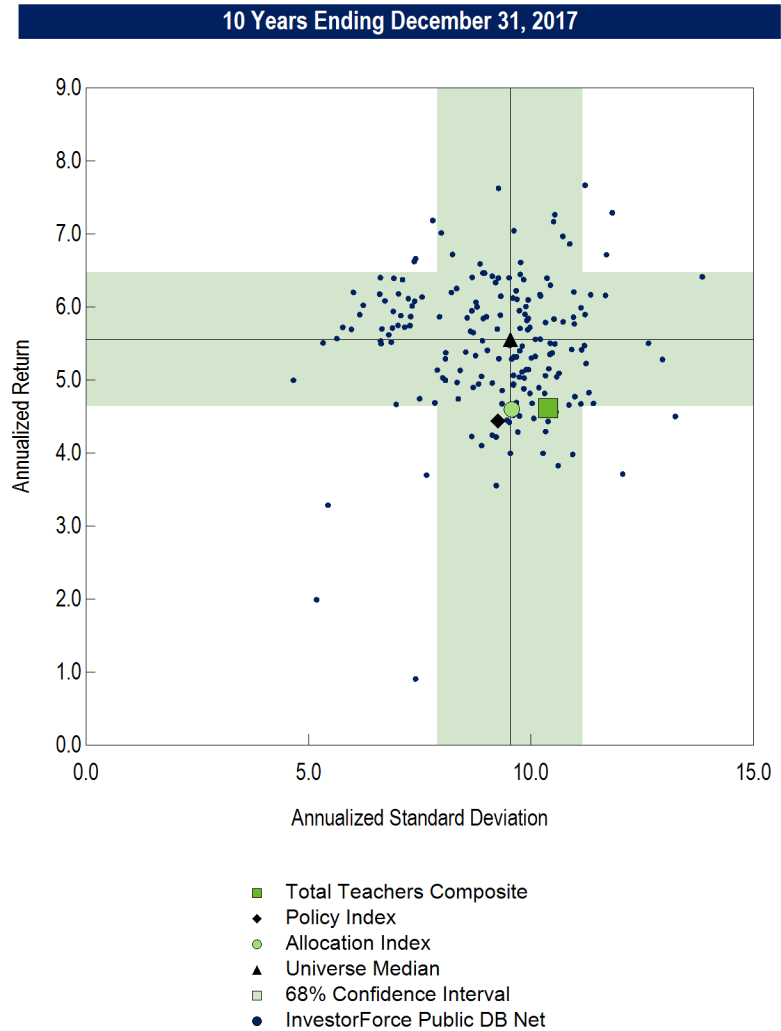
- Total Teachers Composite
- ◆ Policy Index
- Allocation Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Net

7 Years Ending December 31, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	6.62%	86	6.10%	29	1.05	65
Policy Index	6.28%	92	5.88%	21	1.03	71
S&P 500	13.76%	1	10.67%	99	1.27	21
Citi WGBI	1.21%	99	5.12%	7	0.20	99
MSCI ACWI	8.73%	12	11.89%	99	0.72	98
MSCI ACWI ex USA	4.93%	99	13.78%	99	0.34	99
InvestorForce Public DB Net Median	7.58%	--	6.76%	--	1.11	--



# TOTAL FUND RISK/RETURN - NET



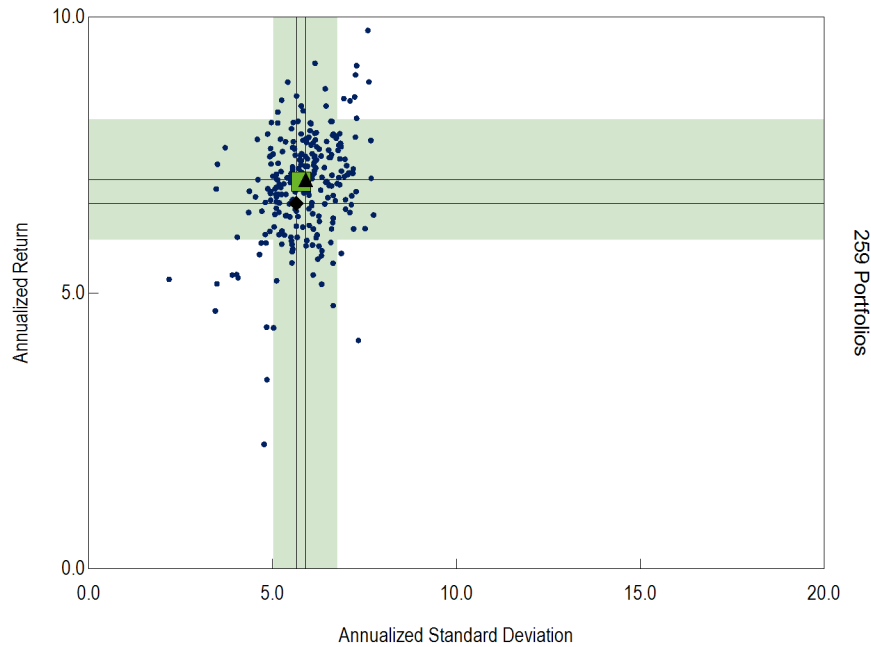
10 Years Ending December 31, 2017

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank
Total Teachers Composite	4.61%	88	10.38%	79	0.41	90
Policy Index	4.44%	91	9.26%	44	0.45	82
S&P 500	8.50%	1	15.08%	99	0.54	54
Citi WGBI	2.67%	99	6.68%	8	0.35	97
MSCI ACWI	4.65%	87	16.79%	99	0.26	99
MSCI ACWI ex USA	1.84%	99	18.94%	99	0.08	99
InvestorForce Public DB Net Median	5.56%	--	9.53%	--	0.56	--



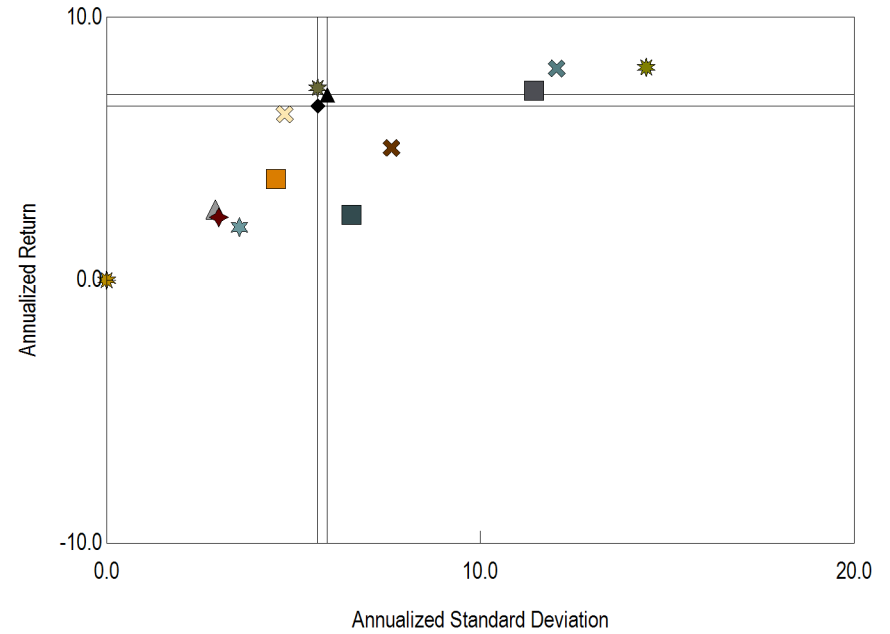
# TOTAL MARKETABLE ASSETS - NET

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



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

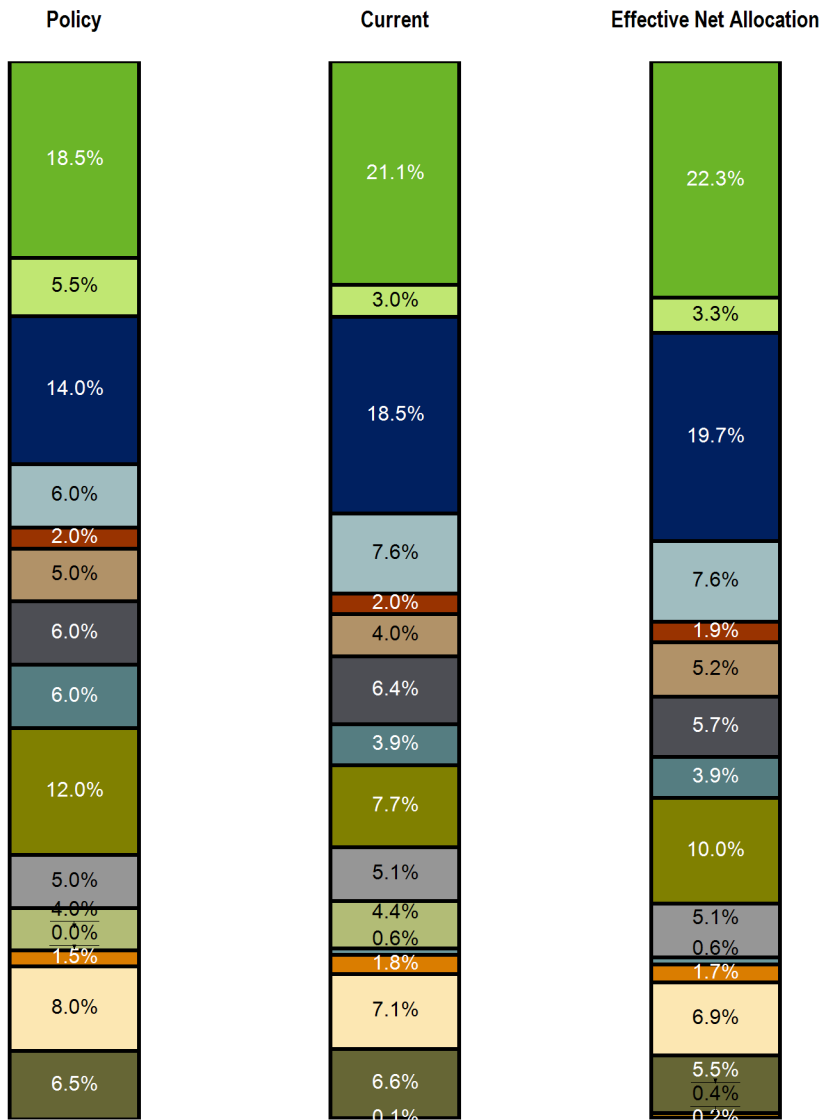
Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



- 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

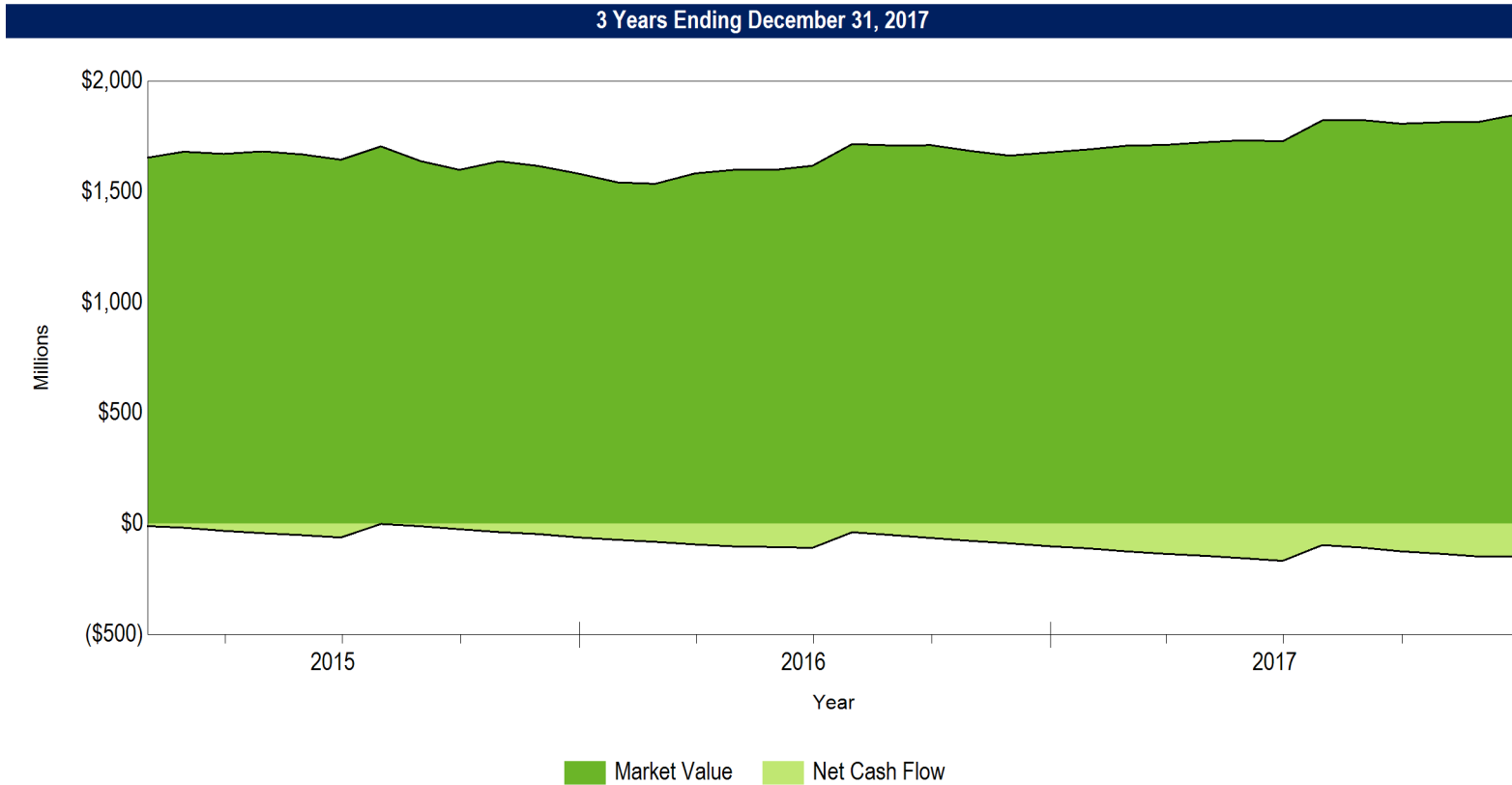


Asset Allocation vs. Target			
	Policy	Current	Effective Net Allocation
Large Cap Equity	18.5%	21.1%	22.3%
Small/Mid Cap Equity	5.5%	3.0%	3.3%
Non-US Equity	14.0%	18.5%	19.7%
Emerging Markets Equity	6.0%	7.6%	7.6%
Long Treasury	2.0%	2.0%	1.9%
High Yield	5.0%	4.0%	5.2%
TIPS	6.0%	6.4%	5.7%
Unconstrained Bonds	6.0%	3.9%	3.9%
Diversified Fixed Income	12.0%	7.7%	10.0%
Emerging Market Debt	5.0%	5.1%	5.1%
Risk Parity	4.0%	4.4%	--
Private Debt	0.0%	0.6%	0.6%
Private Equity	1.5%	1.8%	1.7%
Absolute Return	8.0%	7.1%	6.9%
Real Estate	6.5%	6.6%	5.5%
Commodities	--	--	0.4%
Cash	--	0.1%	0.2%
<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



	Last Three Months	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$1,807,680,703	\$1,727,857,427	\$1,677,902,518	\$1,653,682,205
Contributions	\$181,963,117	\$367,088,570	\$572,161,791	\$1,313,235,848
Withdrawals	-\$204,381,426	-\$346,448,961	-\$617,579,306	-\$1,459,246,971
Net Cash Flow	-\$22,418,309	\$20,639,609	-\$45,417,515	-\$146,011,122
Net Investment Change	\$66,380,730	\$103,146,088	\$219,158,121	\$343,972,041
Ending Market Value	\$1,851,643,124	\$1,851,643,124	\$1,851,643,124	\$1,851,643,124





## TOTAL FUND ASSET GROWTH SUMMARY BY MANAGER

	Quarter Ending December 31, 2017					Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	
Aberdeen	\$133,611,025	\$252,406	-\$252,406	\$0	\$7,144,949	\$140,755,974
Acadian	\$65,522,543	\$98,818	-\$98,818	\$0	\$3,392,604	\$68,915,147
Allianz Structured Alpha	\$32,178,367	\$0	-\$137,061	-\$137,061	\$612,204	\$32,653,510
AQR Global Risk Premium	\$78,433,565	\$78,050	-\$78,050	\$0	\$3,781,580	\$82,215,145
Benefit Street Partners	--	\$23,823,269	\$0	\$23,823,269	-\$11,911,634	\$11,911,634
BlackRock TIPS	\$124,114,306	\$17,589	-\$7,517,589	-\$7,500,000	\$1,557,897	\$118,172,203
Champlain	\$53,906,746	\$101,126	-\$101,126	\$0	\$2,254,674	\$56,161,419
GAM	\$176,740	\$0	\$0	\$0	\$20,743	\$197,484
GAM Unconstrained Bond	\$61,398,824	\$0	-\$25,059,785	-\$25,059,785	-\$238,357	\$36,100,683
Grosvenor	\$53,051,976	\$0	\$0	\$0	\$1,288,297	\$54,340,273
Guggenheim	\$66,314,090	\$81,875	-\$12,081,875	-\$12,000,000	\$680,650	\$54,994,740
Harbourvest Dover IX Fund	\$3,270,436	\$872,439	-\$566,162	\$306,276	\$166,619	\$3,743,331
Harbourvest Dover VIII Fund	\$7,609,439	\$0	-\$922,985	-\$922,985	\$312,184	\$6,998,638
Harbourvest Partners IX Buyout Fund	\$6,729,220	\$415,234	-\$674,539	-\$259,305	\$529,749	\$6,999,665
Harbourvest Partners IX Credit Opportunities	\$1,139,523	\$40,392	-\$84,576	-\$44,184	-\$72,364	\$1,022,975
Harbourvest Partners IX Venture Fund	\$4,786,430	\$181,899	-\$188,221	-\$6,322	\$293,180	\$5,073,289
Harbourvest Partners X Buyout Fund	\$2,684,473	\$720,183	\$0	\$720,183	\$360,324	\$3,764,980
Harbourvest Partners X Venture Fund	\$1,798,950	\$623,959	\$0	\$623,959	\$27,562	\$2,450,471
HIPEP VII	\$2,555,619	\$235,134	\$0	\$235,134	\$341,016	\$3,131,769
KDP	\$18,773,948	\$29,485	-\$29,485	\$0	\$49,412	\$18,823,360
Mellon Dynamic Growth	\$51,459	\$0	\$0	\$0	\$103	\$51,563
Mondrian	\$62,736,081	\$72,848	-\$72,848	\$0	\$1,901,478	\$64,637,559
PIMCO Core Plus	\$95,428,647	\$30,071,328	-\$71,328	\$30,000,000	\$511,499	\$125,940,146
PIMCO Unconstrained	\$42,517,294	\$67,903	-\$6,567,903	-\$6,500,000	\$177,622	\$36,194,916
Pinnacle Natural Resources, L.P.	\$42,863,256	\$0	\$0	\$0	\$974,556	\$43,837,812



## TOTAL FUND ASSET GROWTH SUMMARY BY MANAGER

	Quarter Ending December 31, 2017					Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	
RREEF America REIT III	\$208,437	\$0	\$0	\$0	\$0	\$208,437
Siguler Guff DREOF II	\$13,244,520	\$8,906	-\$367,176	-\$358,270	\$0	\$12,886,250
Siguler Guff DREOF II Co-Investment	\$4,230,934	\$870,215	\$0	\$870,215	-\$1	\$5,101,147
SSgA ACWI Ex US	\$130,155,511	\$71,018,487	-\$18,487	\$71,000,000	\$8,700,786	\$209,856,297
SSgA Barclays Aggregate Index	\$115,671,021	\$13,231	-\$98,013,611	-\$98,000,380	-\$126,360	\$17,544,281
SSgA S&P 500 Cap-Wgt	\$258,614,461	\$50,022,268	-\$11,548,698	\$38,473,569	\$19,335,943	\$316,423,974
SSgA S&P 500 Equal-Wgt	\$74,705,177	\$7,681	-\$5,507,681	-\$5,500,000	\$4,728,838	\$73,934,015
State Street Long U.S. Treasury Index	\$35,445,519	\$3,865	-\$3,865	\$0	\$840,339	\$36,285,858
T. Rowe	\$2,468	\$0	\$0	\$0	-\$1,079	\$1,390
Transwestern / Aslan III	\$128,447	\$0	\$0	\$0	\$0	\$128,447
UBS Trumbull	\$85,481,531	\$191,011	-\$191,011	\$0	\$17,954,654	\$103,436,184
Vermont Cash	\$293,144	\$2,043,517	-\$224,019	\$1,819,498	\$0	\$2,112,642
Wellington	\$34,006,156	\$0	-\$34,002,119	-\$34,002,119	\$25,633	\$29,670
Wellington Opportunistic EMD	\$93,840,419	\$0	\$0	\$0	\$765,429	\$94,605,848
<b>Total</b>	<b>\$1,807,680,703</b>	<b>\$181,963,117</b>	<b>-\$204,381,426</b>	<b>-\$22,418,309</b>	<b>\$66,380,730</b>	<b>\$1,851,643,124</b>



# TOTAL FUND PERFORMANCE DETAIL - NET

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Teachers Composite</b>	<b>1,851,643,124</b>	<b>100.0</b>	<b>100.0</b>	<b>3.3</b>	<b>63</b>	<b>6.4</b>	<b>75</b>	<b>13.7</b>	<b>74</b>	<b>6.8</b>	<b>63</b>	<b>6.4</b>	<b>95</b>	<b>4.6</b>	<b>88</b>
<i>Policy Index</i>				3.1	80	6.5	72	13.3	82	6.6	72	6.5	94	4.4	91
<i>Allocation Index</i>				3.6	48	7.1	43	14.4	57	6.7	68	6.5	94	4.6	88
<i>InvestorForce Public DB Net Median</i>				3.5		6.9		14.7		7.1		8.4		5.6	
<b>Total Marketable Assets</b>	<b>1,553,756,831</b>	<b>83.9</b>	<b>84.0</b>	<b>3.6</b>	<b>47</b>	<b>6.8</b>	<b>54</b>	<b>15.4</b>	<b>36</b>	<b>7.0</b>	<b>52</b>	<b>6.3</b>	<b>96</b>	<b>--</b>	<b>--</b>
<i>Total Marketable Assets Custom Index</i>				3.4	61	7.0	48	14.5	55	6.6	71	6.6	92	--	--
<i>InvestorForce Public DB Net Median</i>				3.5		6.9		14.7		7.1		8.4		5.6	
<b>Total Domestic Equity</b>	<b>446,550,468</b>	<b>24.1</b>	<b>24.0</b>	<b>6.1</b>	<b>42</b>	<b>9.9</b>	<b>56</b>	<b>18.5</b>	<b>51</b>	<b>11.0</b>	<b>32</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Russell 3000</i>				6.3	36	11.2	40	21.1	38	11.1	30	15.6	30	8.6	49
<i>eV All US Equity Net Median</i>				5.6		10.4		18.7		9.8		14.5		8.5	
<b>Total Large Cap Equities</b>	<b>390,359,379</b>	<b>21.1</b>	<b>18.5</b>	<b>6.5</b>	<b>51</b>	<b>11.1</b>	<b>54</b>	<b>21.0</b>	<b>51</b>	<b>11.1</b>	<b>29</b>	<b>15.8</b>	<b>31</b>	<b>9.2</b>	<b>24</b>
<i>S&amp;P 500</i>				6.6	47	11.4	49	21.8	45	11.4	25	15.8	31	8.5	42
<i>eV US Large Cap Equity Net Median</i>				6.5		11.3		21.1		10.0		14.8		8.3	
<i>SSgA S&amp;P 500 Cap-Wgt</i>	316,423,974	17.1	14.0	6.6	47	11.4	49	21.8	45	11.4	24	15.8	31	--	--
<i>S&amp;P 500</i>				6.6	47	11.4	49	21.8	45	11.4	25	15.8	31	8.5	42
<i>SSgA S&amp;P 500 Equal-Wgt</i>	73,934,015	4.0	4.5	6.3	54	10.2	69	18.9	65	10.1	49	15.8	32	10.0	12
<i>S&amp;P 500 Equal Weighted</i>				6.2	57	10.0	71	18.9	66	10.1	49	15.8	31	10.2	11
<i>T. Rowe</i>	1,390	0.0	0.0												
<b>Total Small/Mid Cap Equities</b>	<b>56,191,089</b>	<b>3.0</b>	<b>5.5</b>	<b>3.5</b>	<b>82</b>	<b>4.9</b>	<b>91</b>	<b>9.6</b>	<b>90</b>	<b>9.9</b>	<b>40</b>	<b>14.4</b>	<b>37</b>	<b>9.5</b>	<b>39</b>
<i>Russell 2000</i>				3.3	85	9.2	56	14.6	65	10.0	40	14.1	43	8.7	59
<i>eV US Small-Mid Cap Equity Net Median</i>				5.5		9.6		17.1		9.3		13.7		9.1	
<i>Champlain</i>	56,161,419	3.0	2.8	4.0	88	6.1	92	17.4	58	12.4	13	16.3	14	--	--
<i>Custom SMID Cap Equity Index</i>				4.3	85	9.2	61	15.8	65	9.7	46	14.1	56	9.1	44
<i>eV US Mid Cap Equity Net Median</i>				5.7		9.8		19.6		9.5		14.4		8.9	
<i>Wellington</i>	29,670	0.0	2.8												

Fiscal Year End is 6/30.

Total Marketable Assets Custom Index mirrors the Plan Policy Index, while excluding Absolute Return, Real Estate, Private Debt and Private Equity.

Custom SMID Cap Equity Index is 50% Russell 2500 and 50% Russell 2000 starting 10/1/2017, and 100% Russell 2500 prior, corresponding to the change in strategy.



# TOTAL FUND PERFORMANCE DETAIL - NET

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Non US Equity</b>	<b>484,164,977</b>	<b>26.1</b>	<b>20.0</b>	<b>4.8</b>	<b>58</b>	<b>10.5</b>	<b>69</b>	<b>29.3</b>	<b>56</b>	<b>9.4</b>	<b>48</b>	<b>7.2</b>	<b>79</b>	<b>--</b>	<b>--</b>
MSCI EAFE				4.2	66	9.9	79	25.0	84	7.8	74	7.9	66	1.9	82
MSCI ACWI ex USA				5.0	48	11.5	56	27.2	72	7.8	74	6.8	84	1.8	84
eV All ACWI ex-US Equity Net Median				4.9		12.0		29.9		9.3		8.6		3.5	
<b>Total Core Non US Equity</b>	<b>343,409,004</b>	<b>18.5</b>	<b>14.0</b>	<b>4.6</b>	<b>38</b>	<b>11.2</b>	<b>43</b>	<b>28.9</b>	<b>35</b>	<b>10.3</b>	<b>35</b>	<b>9.9</b>	<b>36</b>	<b>2.6</b>	<b>69</b>
MSCI EAFE				4.2	50	9.9	62	25.0	64	7.8	70	7.9	71	1.9	86
eV All EAFE Equity Net Median				4.2		10.4		26.6		8.9		9.0		3.4	
Acadian	68,915,147	3.7	4.0	5.0	30	12.3	32	36.8	11	14.7	12	13.0	14	3.1	53
Mondrian	64,637,559	3.5	4.0	2.9	84	8.9	75	22.1	83	7.2	82	8.3	64	2.3	74
MSCI EAFE				4.2	50	9.9	62	25.0	64	7.8	70	7.9	71	1.9	86
SSgA ACWI Ex US	209,856,297	11.3	6.0	5.0	43	11.6	54	27.5	68	8.0	72	7.0	83	--	--
MSCI ACWI ex USA				5.0	43	11.5	54	27.2	69	7.8	73	6.8	84	1.8	82
eV ACWI ex-US All Cap Equity Net Median				4.9		11.9		29.6		9.3		9.1		3.4	
<b>Total Emerging Market Equity</b>	<b>140,755,974</b>	<b>7.6</b>	<b>6.0</b>	<b>5.2</b>	<b>84</b>	<b>9.6</b>	<b>93</b>	<b>30.2</b>	<b>81</b>	<b>8.1</b>	<b>69</b>	<b>3.0</b>	<b>89</b>	<b>--</b>	<b>--</b>
Aberdeen	140,755,974	7.6	6.0	5.2	84	9.6	93	30.2	81	8.1	69	3.0	89	--	--
MSCI Emerging Markets				7.4	30	15.9	39	37.3	48	9.1	52	4.3	74	1.7	75
eV Emg Mkts Equity Net Median				6.7		14.9		37.1		9.1		5.4		2.7	
<b>Total Fixed Income</b>	<b>538,662,035</b>	<b>29.1</b>	<b>36.0</b>	<b>0.7</b>	<b>33</b>	<b>2.0</b>	<b>34</b>	<b>5.8</b>	<b>30</b>	<b>4.2</b>	<b>29</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2	
<b>Total Diversified Fixed Income</b>	<b>143,484,427</b>	<b>7.7</b>	<b>12.0</b>	<b>0.4</b>	<b>53</b>	<b>1.4</b>	<b>52</b>	<b>4.5</b>	<b>42</b>	<b>3.3</b>	<b>39</b>	<b>3.2</b>	<b>38</b>	<b>4.2</b>	<b>52</b>
BBgBarc US Aggregate TR				0.4	52	1.2	57	3.5	57	2.2	59	2.1	57	4.0	56
eV All US Fixed Inc Net Median				0.4		1.4		3.9		2.6		2.4		4.2	
PIMCO Core Plus	125,940,146	6.8	6.0	0.4	70	1.5	30	4.8	9	2.7	33	2.1	65	--	--
BBgBarc US Aggregate TR				0.4	66	1.2	60	3.5	66	2.2	69	2.1	62	4.0	77
SSgA Barclays Aggregate Index	17,544,281	0.9	6.0	0.3	76	1.2	60	3.5	70	--	--	--	--	--	--
BBgBarc US Aggregate TR				0.4	66	1.2	60	3.5	66	2.2	69	2.1	62	4.0	77
3-Month Libor Total Return USD				0.4	66	0.7	92	1.3	99	0.8	99	0.6	99	0.8	99
eV US Core Fixed Inc Net Median				0.4		1.3		3.8		2.4		2.3		4.4	



# TOTAL FUND PERFORMANCE DETAIL - NET

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total TIPS</b>	<b>118,172,203</b>	<b>6.4</b>	<b>6.0</b>	<b>1.2</b>	<b>68</b>	<b>2.0</b>	<b>79</b>	<b>2.9</b>	<b>67</b>	<b>2.0</b>	<b>39</b>	<b>0.1</b>	<b>52</b>	--	--
BlackRock TIPS	118,172,203	6.4	6.0	1.2	--	2.0	--	2.9	--	2.0	--	0.0	--	--	--
BBgBarc US TIPS TR				1.3	--	2.1	--	3.0	--	2.0	--	0.1	--	3.5	--
<b>Total High Yield Bonds</b>	<b>73,818,101</b>	<b>4.0</b>	<b>5.0</b>	<b>0.7</b>	<b>38</b>	<b>2.3</b>	<b>53</b>	<b>6.1</b>	<b>76</b>	<b>5.8</b>	<b>43</b>	<b>5.5</b>	<b>41</b>	<b>7.3</b>	<b>48</b>
BBgBarc US High Yield TR				0.5	55	2.5	47	7.5	39	6.4	25	5.8	26	8.0	15
eV US High Yield Fixed Inc Net Median				0.5		2.4		7.1		5.6		5.2		7.2	
KDP	18,823,360	1.0	1.0	0.1	89	1.5	89	4.9	89	3.9	95	3.7	96	--	--
BBgBarc US High Yield TR				0.5	55	2.5	47	7.5	39	6.4	25	5.8	26	8.0	15
BofA Merrill Lynch US High Yield BB-B Rated				0.4	69	2.3	53	7.0	53	6.0	34	5.6	35	7.3	47
Guggenheim	54,994,740	3.0	4.0	0.9	28	2.6	39	6.4	66	6.3	26	--	--	--	--
BBgBarc US High Yield TR				0.5	55	2.5	47	7.5	39	6.4	25	5.8	26	8.0	15
eV US High Yield Fixed Inc Net Median				0.5		2.4		7.1		5.6		5.2		7.2	
<b>Total Emerging Market Debt</b>	<b>94,605,848</b>	<b>5.1</b>	<b>5.0</b>	<b>0.8</b>	<b>57</b>	<b>3.5</b>	<b>77</b>	<b>10.6</b>	<b>74</b>	<b>7.3</b>	<b>20</b>	<b>4.5</b>	<b>16</b>	--	--
Wellington Opportunistic EMD	94,605,848	5.1	5.0	0.8	57	3.5	77	10.6	74	7.3	20	4.5	16	--	--
JP Morgan EMBI Global Index				0.5	70	2.9	92	9.3	86	6.8	32	3.8	32	7.1	34
eV All Emg Mkts Fixed Inc Net Median				0.9		4.2		12.5		5.7		2.6		6.3	
<b>Total Long Treasury</b>	<b>36,285,858</b>	<b>2.0</b>	<b>2.0</b>	<b>2.4</b>	<b>--</b>	<b>2.9</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
State Street Long U.S. Treasury Index	36,285,858	2.0	2.0	2.4	--	2.9	--	--	--	--	--	--	--	--	--
BBgBarc US Treasury Long TR				2.4	--	3.0	--	8.5	--	2.8	--	3.5	--	6.6	--



# TOTAL FUND PERFORMANCE DETAIL - NET

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Unconstrained Fixed Income</b>	<b>72,295,599</b>	<b>3.9</b>	<b>6.0</b>	<b>-0.2</b>	<b>88</b>	<b>1.1</b>	<b>85</b>	<b>5.4</b>	<b>72</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
25% HY, 25% EMD, 50% BC Agg				0.4	72	2.0	70	6.0	64	4.4	24	3.5	33	5.9	15
BBgBarc Global Aggregate TR				1.1	30	2.9	41	7.4	41	2.0	88	0.8	93	3.1	84
eV Global Unconstrained Fixed Inc Net Median				0.9		2.5		6.7		2.9		2.4		4.7	
<b>PIMCO Unconstrained</b>	<b>36,194,916</b>	<b>2.0</b>	<b>2.5</b>	<b>0.2</b>	<b>80</b>	<b>1.6</b>	<b>73</b>	<b>4.7</b>	<b>85</b>	<b>2.4</b>	<b>79</b>	<b>1.5</b>	<b>84</b>	<b>--</b>	<b>--</b>
25% HY, 25% EMD, 50% BC Agg				0.4	72	2.0	70	6.0	64	4.4	24	3.5	33	5.9	15
3-Month Libor Total Return USD				0.4	74	0.7	90	1.3	98	0.8	99	0.6	93	0.8	99
<b>GAM Unconstrained Bond</b>	<b>36,100,683</b>	<b>1.9</b>	<b>3.5</b>	<b>-0.6</b>	<b>93</b>	<b>0.7</b>	<b>90</b>	<b>5.8</b>	<b>66</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
3-Month LIBOR + 3%				1.1	25	2.2	61	4.4	86	3.8	30	3.6	32	3.8	61
eV Global Unconstrained Fixed Inc Net Median				0.9		2.5		6.7		2.9		2.4		4.7	
<b>Total Risk Parity/GAA</b>	<b>82,266,708</b>	<b>4.4</b>	<b>4.0</b>	<b>4.7</b>	<b>17</b>	<b>9.3</b>	<b>18</b>	<b>15.2</b>	<b>44</b>	<b>4.9</b>	<b>50</b>	<b>4.3</b>	<b>61</b>	<b>4.7</b>	<b>55</b>
Mellon Dynamic Growth	51,563	0.0	0.0												
<b>Total Risk Parity</b>	<b>82,215,145</b>	<b>4.4</b>	<b>4.0</b>	<b>4.7</b>	<b>16</b>	<b>9.3</b>	<b>18</b>	<b>15.7</b>	<b>40</b>	<b>5.0</b>	<b>49</b>	<b>4.1</b>	<b>62</b>	<b>--</b>	<b>--</b>
eV Global TAA Net Median				3.4		6.7		13.7		4.9		4.9		4.8	
<b>AQR Global Risk Premium</b>	<b>82,215,145</b>	<b>4.4</b>	<b>4.0</b>	<b>4.7</b>	<b>16</b>	<b>9.3</b>	<b>18</b>	<b>15.7</b>	<b>40</b>	<b>5.0</b>	<b>49</b>	<b>4.1</b>	<b>62</b>	<b>--</b>	<b>--</b>
60% MSCI World (Net) / 40% CITI WGBI				3.7	43	7.5	42	16.2	37	6.4	19	7.0	30	4.4	58
<b>Total Cash</b>	<b>2,112,642</b>	<b>0.1</b>	<b>0.0</b>												
Vermont Cash	2,112,642	0.1	0.0												
<b>Total Real Estate</b>	<b>121,760,465</b>	<b>6.6</b>	<b>6.5</b>	<b>1.8</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>5.7</b>	<b>--</b>	<b>9.1</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>--</b>	<b>--</b>
NCREIF Property Index				1.8	--	3.5	--	7.0	--	9.4	--	10.2	--	6.1	--



## TOTAL FUND PERFORMANCE DETAIL - NET

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Real Estate Core</b>	<b>103,773,068</b>	<b>5.6</b>	<b>5.0</b>	<b>2.2</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>5.4</b>	<b>--</b>	<b>8.9</b>	<b>--</b>	<b>10.8</b>	<b>--</b>	<b>--</b>	<b>--</b>
UBS Trumbull	103,436,184	5.6		2.2	--	3.5	--	5.4	--	8.3	--	8.9	--	4.6	--
RREEF America REIT III	208,437	0.0		0.0	--	-0.8	--	-4.8	--	-5.6	--	4.2	--	-6.5	--
Transwestern / Aslan III	128,447	0.0		0.0	--	0.0	--	0.0	--	1.8	--	6.9	--	-23.1	--
<b>Total Real Estate Non-Core</b>	<b>17,987,397</b>	<b>1.0</b>	<b>1.5</b>	<b>0.0</b>	<b>--</b>	<b>3.1</b>	<b>--</b>	<b>7.7</b>	<b>--</b>	<b>10.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
Siguler Guff DREOF II	12,886,250	0.7		0.0	--	3.8	--	8.1	--	10.7	--	--	--	--	--
Siguler Guff DREOF II Co-Investment	5,101,147	0.3		0.0	--	0.9	--	6.8	--	--	--	--	--	--	--
<b>Total Absolute Return</b>	<b>131,029,078</b>	<b>7.1</b>	<b>8.0</b>	<b>2.2</b>	<b>34</b>	<b>4.2</b>	<b>46</b>	<b>4.0</b>	<b>78</b>	<b>1.7</b>	<b>75</b>	<b>4.2</b>	<b>68</b>	<b>--</b>	<b>--</b>
<i>HFRI Fund of Funds Composite Index</i>				2.0	38	4.3	43	7.7	45	2.6	59	4.0	69	1.1	90
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				1.7		3.9		7.2		3.0		5.1		3.0	
Grosvenor	54,340,273	2.9	3.0	2.4	31	4.1	47	6.5	57	3.0	53	5.4	45	--	--
Allianz Structured Alpha	32,653,510	1.8	2.0	1.5	58	2.8	76	5.2	67	6.7	14	6.4	31	--	--
<i>91 Day T-Bills</i>				0.3	92	0.6	95	0.9	97	0.4	89	0.3	99	0.3	96
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				1.7		3.9		7.2		3.0		5.1		3.0	
Pinnacle Natural Resources, L.P.	43,837,812	2.4	3.0	2.3	--	5.2	--	-6.3	--	--	--	--	--	--	--
<i>Bloomberg Commodity Index</i>				4.7	--	7.3	--	1.7	--	-5.0	--	-8.5	--	-6.8	--
GAM	197,484	0.0	0.0												
<b>Total Private Debt</b>	<b>11,911,634</b>	<b>0.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>S&amp;P/LSTA Leveraged Loan TR</i>				1.1	--	2.2	--	4.1	--	4.4	--	4.0	--	4.9	--
Benefit Street Partners	11,911,634	0.6	0.0	--	--	--	--	--	--	--	--	--	--	--	--
<b>Total Private Equity</b>	<b>33,185,117</b>	<b>1.8</b>	<b>1.5</b>	<b>1.9</b>	<b>--</b>	<b>7.4</b>	<b>--</b>	<b>14.2</b>	<b>--</b>	<b>14.8</b>	<b>--</b>	<b>14.0</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Cambridge Associates US All PE</i>				0.0	--	3.9	--	11.8	--	10.1	--	12.5	--	9.2	--

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.

Absolute Return composite formerly shown as Hedge Funds composite.

As of 04/01/2016, Absolute Return includes Allianz Structured Alpha.

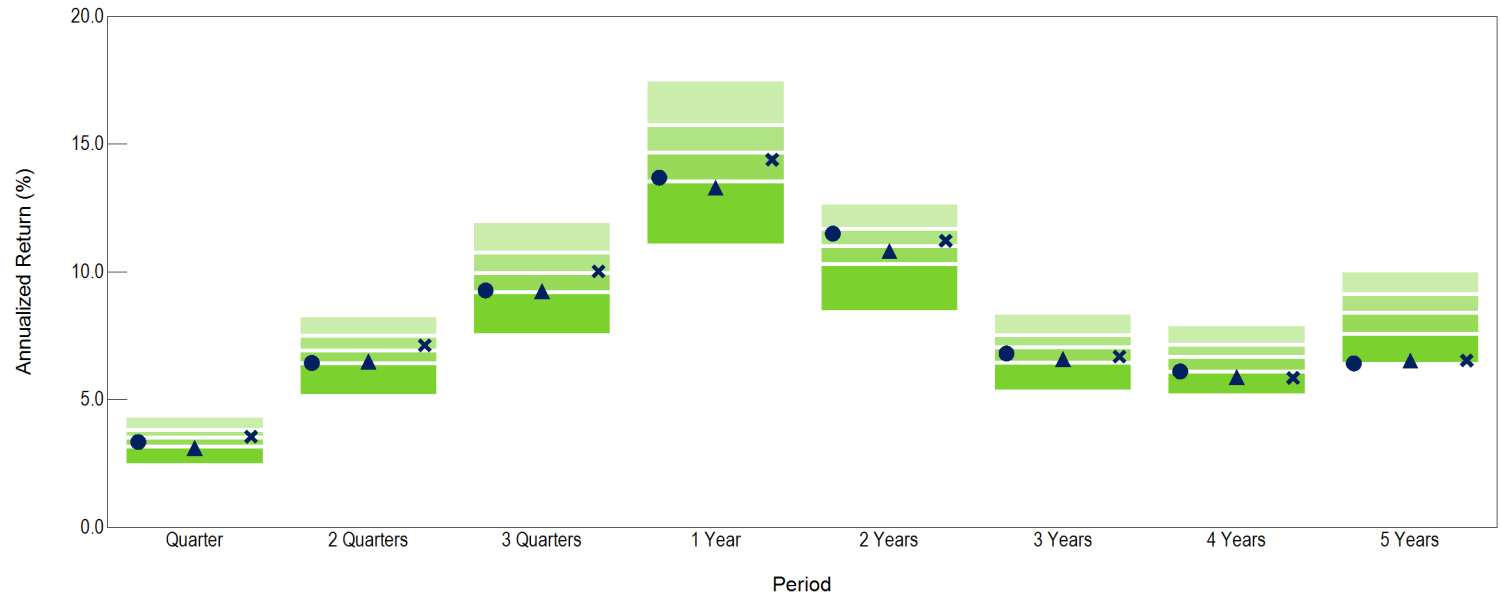
Allianz Structured Alpha was included Diversified Fixed income composite prior to 04/01/2016.

Harbourvest values based on final Capital Account Statements for Q2, and cash adjusted through Q3.



# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Teachers Composite vs. InvestorForce Public DB Net



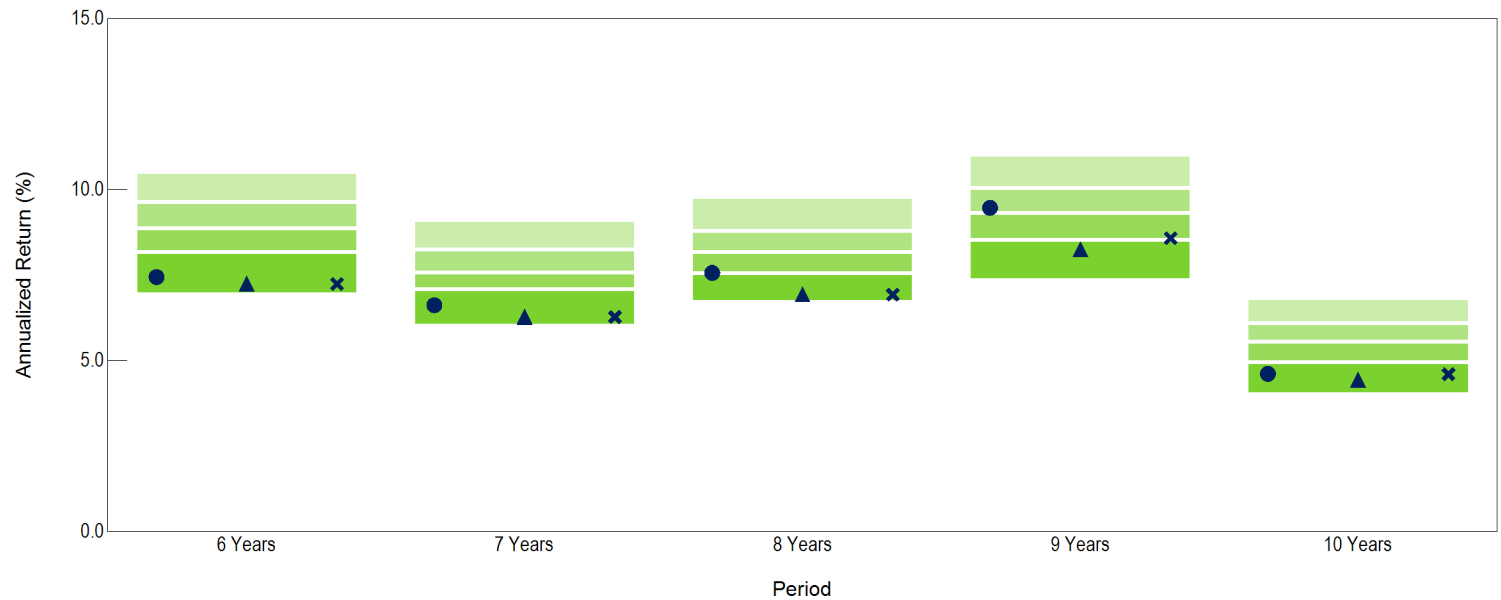
	Return (Rank)							
	Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years
5th Percentile	4.3	8.3	12.0	17.5	12.7	8.4	7.9	10.1
25th Percentile	3.8	7.5	10.8	15.8	11.7	7.5	7.2	9.1
Median	3.5	6.9	10.0	14.7	11.0	7.1	6.7	8.4
75th Percentile	3.2	6.4	9.2	13.6	10.3	6.5	6.1	7.6
95th Percentile	2.4	5.2	7.5	11.1	8.4	5.3	5.2	6.4
# of Portfolios	270	269	269	269	265	259	247	237
● Total Teachers Composite	3.3 (63)	6.4 (75)	9.3 (73)	13.7 (74)	11.5 (33)	6.8 (63)	6.1 (76)	6.4 (95)
▲ Policy Index	3.1 (80)	6.5 (72)	9.2 (75)	13.3 (82)	10.8 (58)	6.6 (72)	5.9 (83)	6.5 (94)
× Allocation Index	3.6 (48)	7.1 (43)	10.0 (49)	14.4 (57)	11.2 (41)	6.7 (68)	5.9 (83)	6.5 (94)





# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Teachers Composite vs. InvestorForce Public DB Net

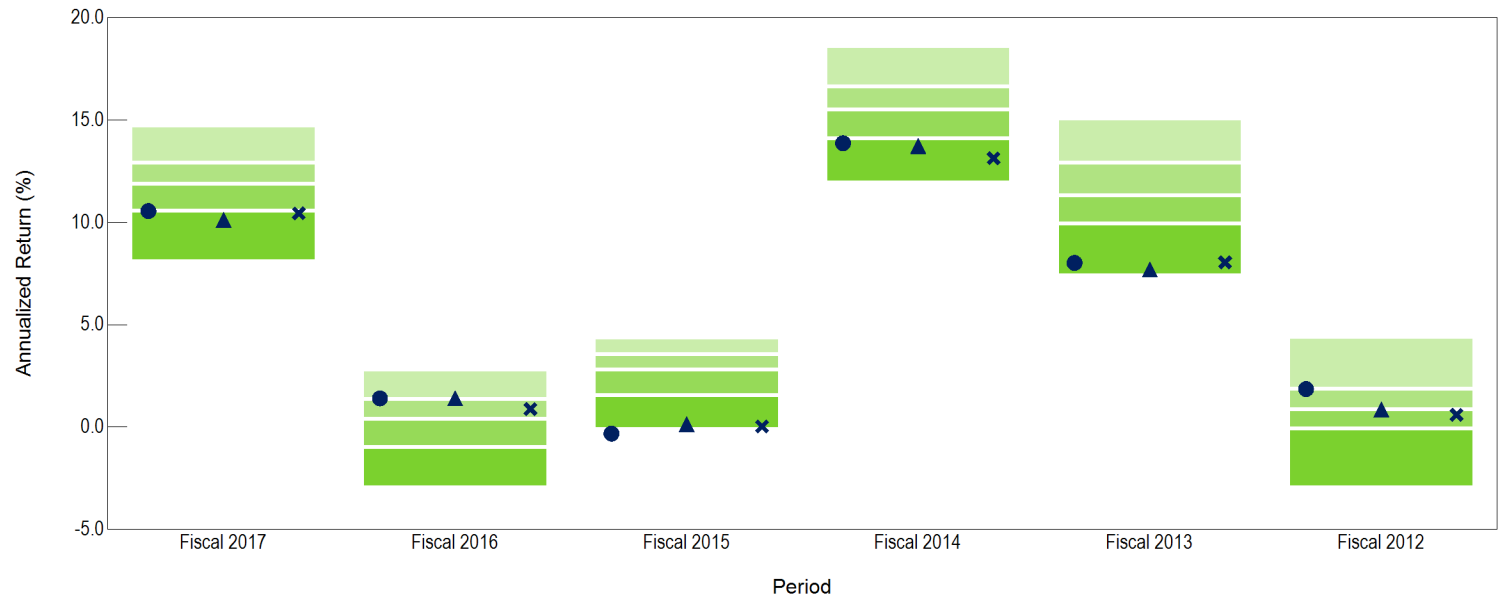


	Return (Rank)									
5th Percentile	10.5		9.1		9.8		11.0		6.8	
25th Percentile	9.6		8.2		8.8		10.1		6.1	
Median	8.9		7.6		8.2		9.3		5.6	
75th Percentile	8.2		7.1		7.6		8.5		5.0	
95th Percentile	7.0		6.0		6.7		7.4		4.0	
# of Portfolios	228		208		197		189		187	
● Total Teachers Composite	7.4	(91)	6.6	(86)	7.6	(75)	9.5	(48)	4.6	(88)
▲ Policy Index	7.3	(95)	6.3	(92)	6.9	(93)	8.3	(82)	4.4	(91)
× Allocation Index	7.2	(95)	6.3	(92)	6.9	(93)	8.6	(74)	4.6	(88)



# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Teachers Composite vs. InvestorForce Public DB Net

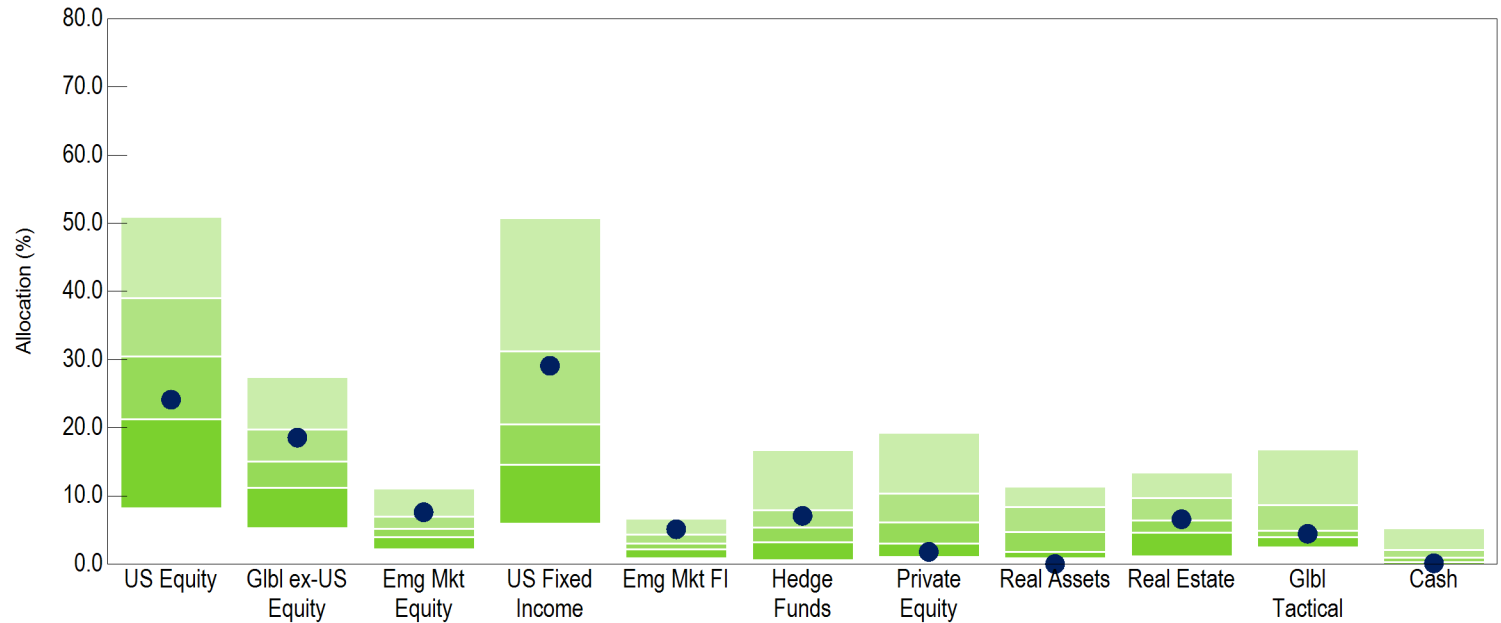


	Return (Rank)					
	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
5th Percentile	14.7	2.8	4.4	18.6	15.0	4.4
25th Percentile	12.9	1.4	3.6	16.7	12.9	1.9
Median	11.9	0.4	2.8	15.5	11.3	0.9
75th Percentile	10.6	-0.9	1.6	14.1	9.9	0.0
95th Percentile	8.1	-2.9	-0.1	11.9	7.4	-2.9
# of 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 December 31, 2017**



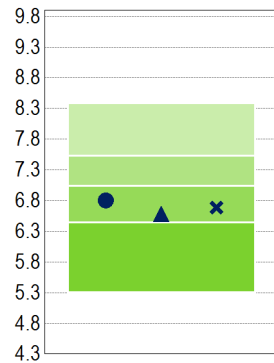
	Allocation (Rank)												
5th Percentile	51.0	27.4	11.1	50.7	6.6	16.7	19.3	11.4	13.5	16.9	5.3	--	
25th Percentile	39.1	19.9	7.0	31.3	4.4	8.0	10.5	8.5	9.8	8.8	2.1	--	
Median	30.5	15.1	5.3	20.6	3.1	5.5	6.2	4.8	6.5	5.0	1.1	--	
75th Percentile	21.3	11.3	4.0	14.7	2.2	3.3	3.1	1.9	4.7	4.0	0.4	--	
95th Percentile	8.3	5.3	2.2	6.0	1.0	0.7	1.1	0.9	1.2	2.6	0.0	--	
# of Portfolios	193	215	133	189	44	85	115	71	161	56	238	--	
● Total Teachers Composite	24.1 (67)	18.5 (33)	7.6 (20)	29.1 (30)	5.1 (17)	7.1 (36)	1.8 (88)	0.0 (99)	6.6 (50)	4.4 (70)	0.1 (88)	--	



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

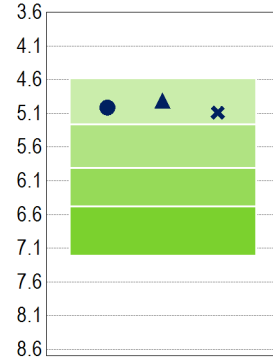
## Teachers Composite vs. IFx Public DB Net 3 Years

### Anlzd Return



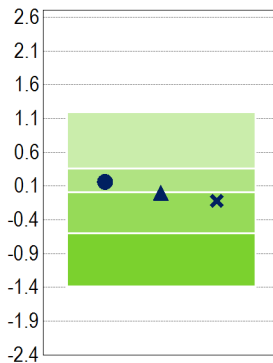
● Total Teachers Composite	
Value	6.80
Rank	63
▲ Policy Index	
Value	6.58
Rank	72
× Allocation Index	
Value	6.68
Rank	68
Universe	
5th %tile	8.39
25th %tile	7.54
Median	7.05
75th %tile	6.46
95th %tile	5.32

### Anlzd Standard Deviation



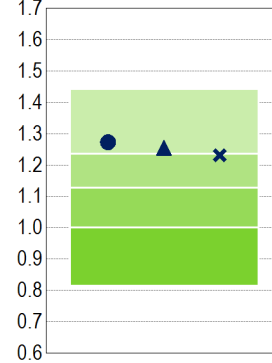
● Total Teachers Composite	
Value	5.01
Rank	15
▲ Policy Index	
Value	4.91
Rank	10
× Allocation Index	
Value	5.09
Rank	17
Universe	
5th %tile	4.58
25th %tile	5.25
Median	5.90
75th %tile	6.47
95th %tile	7.21

### Anlzd Alpha



● Total Teachers Composite	
Value	0.16
Rank	41
▲ Policy Index	
Value	0.00
Rank	53
× Allocation Index	
Value	-0.12
Rank	59
Universe	
5th %tile	1.19
25th %tile	0.37
Median	0.02
75th %tile	-0.59
95th %tile	-1.37

### Sharpe Ratio



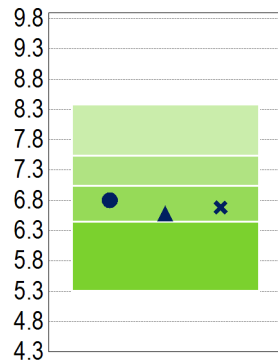
● Total Teachers Composite	
Value	1.27
Rank	20
▲ Policy Index	
Value	1.26
Rank	23
× Allocation Index	
Value	1.23
Rank	29
Universe	
5th %tile	1.44
25th %tile	1.24
Median	1.13
75th %tile	1.00
95th %tile	0.82



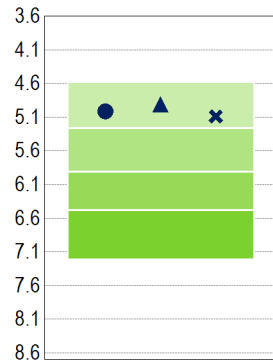
# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

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

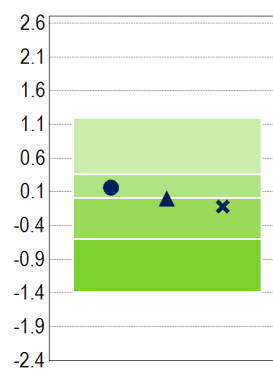
### Anlzd Return      Anlzd Standard Deviation      Anlzd Alpha      Sharpe Ratio



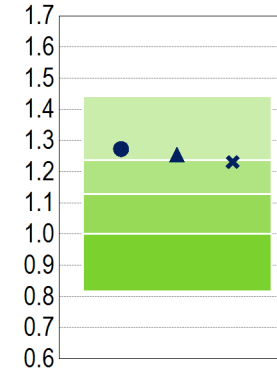
● Total Teachers Composite	
Value	6.80
Rank	63
▲ Policy Index	
Value	6.58
Rank	72
✕ Allocation Index	
Value	6.68
Rank	68
Universe	
5th %tile	8.39
25th %tile	7.54
Median	7.05
75th %tile	6.46
95th %tile	5.32



● Total Teachers Composite	
Value	5.01
Rank	15
▲ Policy Index	
Value	4.91
Rank	10
✕ Allocation Index	
Value	5.09
Rank	17
Universe	
5th %tile	4.58
25th %tile	5.25
Median	5.90
75th %tile	6.47
95th %tile	7.21



● Total Teachers Composite	
Value	0.16
Rank	41
▲ Policy Index	
Value	0.00
Rank	53
✕ Allocation Index	
Value	-0.12
Rank	59
Universe	
5th %tile	1.19
25th %tile	0.37
Median	0.02
75th %tile	-0.59
95th %tile	-1.37



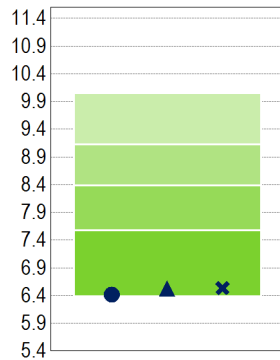
● Total Teachers Composite	
Value	1.27
Rank	20
▲ Policy Index	
Value	1.26
Rank	23
✕ Allocation Index	
Value	1.23
Rank	29
Universe	
5th %tile	1.44
25th %tile	1.24
Median	1.13
75th %tile	1.00
95th %tile	0.82



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

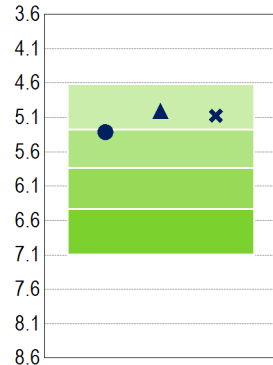
## Teachers Composite vs. IFx Public DB Net 5 Years

**Anlzd Return**



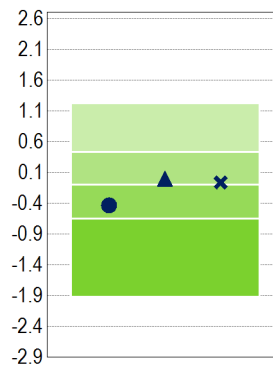
● Total Teachers Composite	
Value	6.42
Rank	95
▲ Policy Index	
Value	6.53
Rank	94
✕ Allocation Index	
Value	6.53
Rank	94
Universe	
5th %tile	10.05
25th %tile	9.13
Median	8.40
75th %tile	7.60
95th %tile	6.40

**Anlzd Standard Deviation**



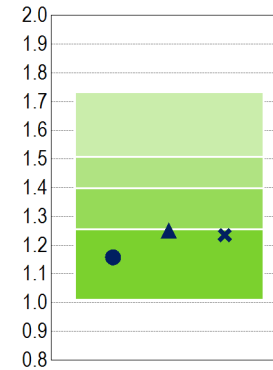
● Total Teachers Composite	
Value	5.31
Rank	27
▲ Policy Index	
Value	5.01
Rank	13
✕ Allocation Index	
Value	5.08
Rank	16
Universe	
5th %tile	4.61
25th %tile	5.27
Median	5.83
75th %tile	6.43
95th %tile	7.08

**Anlzd Alpha**



● Total Teachers Composite	
Value	-0.44
Rank	66
▲ Policy Index	
Value	0.00
Rank	44
✕ Allocation Index	
Value	-0.06
Rank	48
Universe	
5th %tile	1.23
25th %tile	0.45
Median	-0.09
75th %tile	-0.64
95th %tile	-1.91

**Sharpe Ratio**



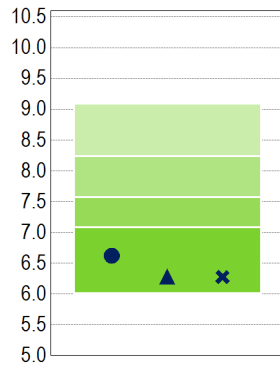
● Total Teachers Composite	
Value	1.16
Rank	85
▲ Policy Index	
Value	1.25
Rank	76
✕ Allocation Index	
Value	1.23
Rank	78
Universe	
5th %tile	1.73
25th %tile	1.51
Median	1.40
75th %tile	1.26
95th %tile	1.01



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

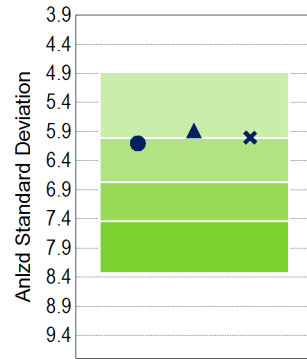
## Teachers Composite vs. IFx Public DB Net 7 Years

**Anlzd Return**



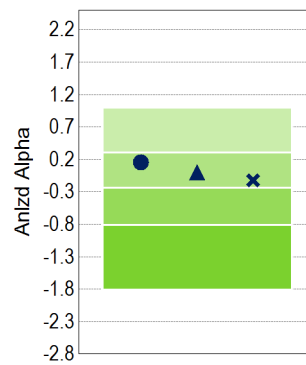
● Total Teachers Composite	
Value	6.62
Rank	86
▲ Policy Index	
Value	6.28
Rank	92
✕ Allocation Index	
Value	6.27
Rank	92
Universe	
5th %tile	9.09
25th %tile	8.25
Median	7.58
75th %tile	7.09
95th %tile	6.02

**Anlzd Standard Deviation**



● Total Teachers Composite	
Value	6.10
Rank	29
▲ Policy Index	
Value	5.88
Rank	21
✕ Allocation Index	
Value	6.00
Rank	26
Universe	
5th %tile	4.87
25th %tile	6.00
Median	6.76
75th %tile	7.43
95th %tile	8.32

**Anlzd Alpha**



● Total Teachers Composite	
Value	0.15
Rank	32
▲ Policy Index	
Value	0.00
Rank	40
✕ Allocation Index	
Value	-0.12
Rank	45
Universe	
5th %tile	1.00
25th %tile	0.32
Median	-0.23
75th %tile	-0.80
95th %tile	-1.79

**Sharpe Ratio**



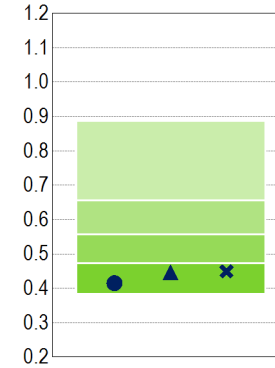
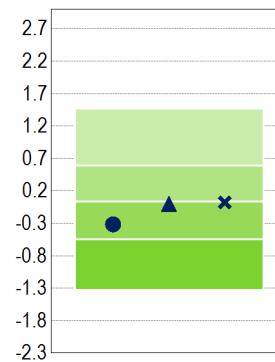
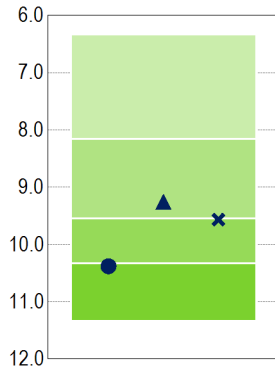
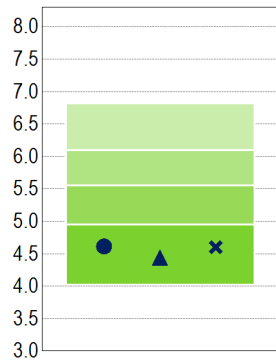
● Total Teachers Composite	
Value	1.05
Rank	65
▲ Policy Index	
Value	1.03
Rank	71
✕ Allocation Index	
Value	1.01
Rank	75
Universe	
5th %tile	1.42
25th %tile	1.23
Median	1.11
75th %tile	1.01
95th %tile	0.82



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

## Teachers Composite vs. IFx Public DB Net 10 Years

**Anlzd Return      Anlzd Standard Deviation      Anlzd Alpha      Sharpe Ratio**



● Total Teachers Composite	
Value	4.61
Rank	88
▲ Policy Index	
Value	4.44
Rank	91
✕ Allocation Index	
Value	4.60
Rank	88

● Total Teachers Composite	
Value	10.38
Rank	79
▲ Policy Index	
Value	9.26
Rank	44
✕ Allocation Index	
Value	9.57
Rank	51

● Total Teachers Composite	
Value	-0.32
Rank	64
▲ Policy Index	
Value	0.00
Rank	54
✕ Allocation Index	
Value	0.02
Rank	52

● Total Teachers Composite	
Value	0.41
Rank	90
▲ Policy Index	
Value	0.45
Rank	82
✕ Allocation Index	
Value	0.45
Rank	82

Universe	
5th %tile	6.82
25th %tile	6.10
Median	5.56
75th %tile	4.97
95th %tile	4.03

Universe	
5th %tile	6.34
25th %tile	8.14
Median	9.53
75th %tile	10.31
95th %tile	11.33

Universe	
5th %tile	1.47
25th %tile	0.60
Median	0.05
75th %tile	-0.54
95th %tile	-1.32

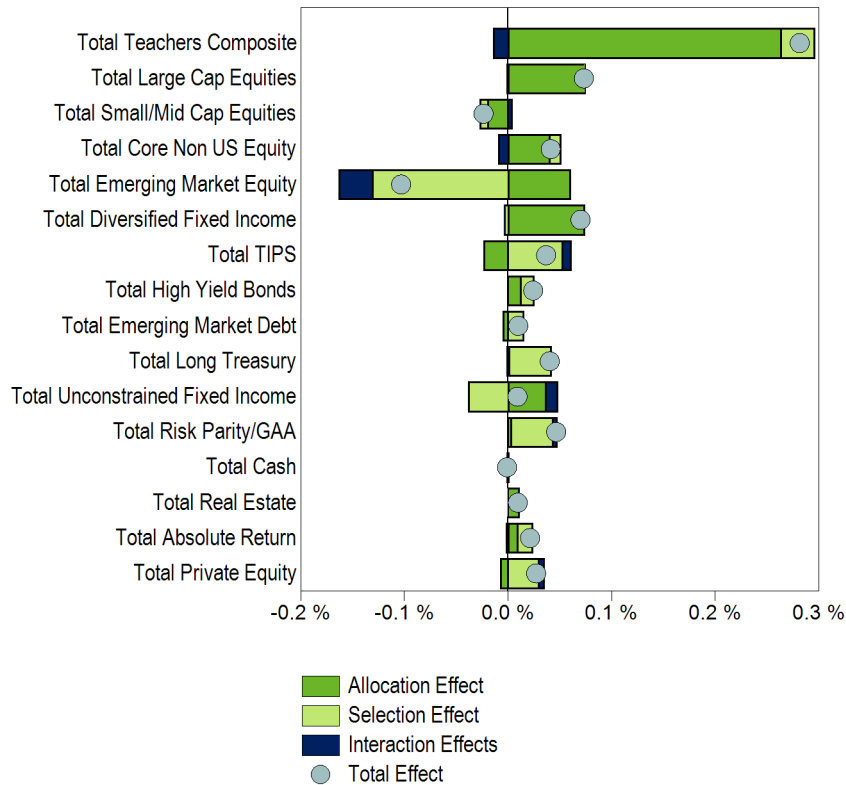
Universe	
5th %tile	0.89
25th %tile	0.66
Median	0.56
75th %tile	0.47
95th %tile	0.38





# TOTAL FUND ATTRIBUTION ANALYSIS - NET

**Attribution Effects Relative to Policy Index  
3 Months Ending December 31, 2017**



Attribution Summary 3 Months Ending December 31, 2017							
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Large Cap Equities	6.5%	6.5%	0.0%	0.0%	0.1%	0.0%	0.1%
Total Small/Mid Cap Equities	3.5%	3.6%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total Core Non US Equity	4.6%	4.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Total Emerging Market Equity	5.2%	7.4%	-2.3%	-0.1%	0.1%	0.0%	-0.1%
Total Diversified Fixed Income	0.4%	0.4%	0.0%	0.0%	0.1%	0.0%	0.1%
Total TIPS	1.2%	0.4%	0.9%	0.1%	0.0%	0.0%	0.0%
Total High Yield Bonds	0.7%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%
Total Emerging Market Debt	0.8%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%
Total Long Treasury	2.4%	0.4%	2.0%	0.0%	0.0%	0.0%	0.0%
Total Unconstrained Fixed Income	-0.2%	0.4%	-0.6%	0.0%	0.0%	0.0%	0.0%
Total Risk Parity/GAA	4.7%	3.7%	1.0%	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	1.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Absolute Return	2.2%	2.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	1.9%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>3.3%</b>	<b>3.1%</b>	<b>0.3%</b>	<b>0.0%</b>	<b>0.3%</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.

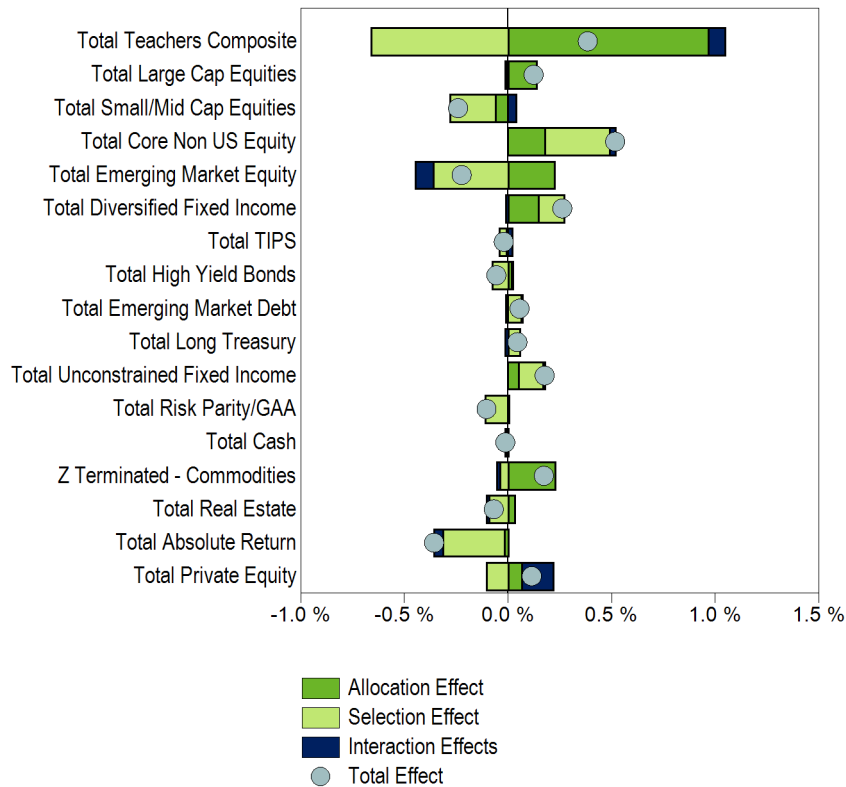
May not add up due to rounding.

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 December 31, 2017**



Attribution Summary 1 Year Ending December 31, 2017							
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Large Cap Equities	21.0%	21.1%	-0.1%	0.0%	0.1%	0.0%	0.1%
Total Small/Mid Cap Equities	9.6%	13.1%	-3.5%	-0.2%	-0.1%	0.0%	-0.2%
Total Core Non US Equity	28.9%	25.9%	3.0%	0.3%	0.2%	0.0%	0.5%
Total Emerging Market Equity	30.2%	37.3%	-7.1%	-0.4%	0.2%	-0.1%	-0.2%
Total Diversified Fixed Income	4.5%	3.5%	0.9%	0.1%	0.1%	0.0%	0.3%
Total TIPS	2.9%	3.5%	-0.6%	0.0%	0.0%	0.0%	0.0%
Total High Yield Bonds	6.1%	7.5%	-1.4%	-0.1%	0.0%	0.0%	-0.1%
Total Emerging Market Debt	10.6%	9.3%	1.2%	0.1%	0.0%	0.0%	0.1%
Total Long Treasury	--	--	--	0.1%	0.0%	0.0%	0.0%
Total Unconstrained Fixed Income	5.4%	3.5%	1.8%	0.1%	0.1%	0.0%	0.2%
Total Risk Parity/GAA	15.2%	16.3%	-1.1%	-0.1%	0.0%	0.0%	-0.1%
Total Cash	0.0%	0.9%	-0.9%	0.0%	0.0%	0.0%	0.0%
Z Terminated - Commodities	--	--	--	0.0%	0.2%	0.0%	0.2%
Total Real Estate	5.7%	7.0%	-1.3%	-0.1%	0.0%	0.0%	-0.1%
Total Absolute Return	4.0%	7.8%	-3.8%	-0.3%	0.0%	0.0%	-0.4%
Total Private Equity	14.2%	11.8%	2.5%	-0.1%	0.1%	0.1%	0.1%
<b>Total</b>	<b>13.6%</b>	<b>13.3%</b>	<b>0.3%</b>	<b>-0.7%</b>	<b>1.0%</b>	<b>0.1%</b>	<b>0.4%</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.



# 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 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%	6.80%	63	5.01%	15	0.17%	37	1.27	20	2.04	5	0.79%	29
Policy Index	--	6.58%	72	4.91%	10	0.00%	52	1.26	23	2.00	6	0.00%	1
Total Domestic Equity	24.12%	10.97%	32	10.22%	23	-0.05%	33	1.03	22	1.52	32	1.30%	2
Russell 3000	--	11.12%	30	10.23%	23	0.00%	32	1.05	20	1.56	28	0.00%	1
Total Large Cap Equities	21.08%	11.09%	29	10.11%	34	-0.34%	37	1.06	28	1.71	23	0.73%	1
S&P 500	--	11.41%	25	10.07%	33	0.00%	32	1.09	22	1.66	26	0.00%	1
Total Small/Mid Cap Equities	3.03%	9.93%	40	11.62%	36	1.96%	42	0.82	39	1.47	21	4.34%	12
Russell 2000	--	9.96%	40	14.11%	85	0.00%	70	0.68	66	1.03	64	0.00%	1
Total Core Non US Equity	18.55%	10.25%	35	11.15%	36	3.06%	33	0.88	31	1.37	30	1.97%	8
MSCI EAFE	--	7.80%	70	12.00%	75	0.00%	80	0.61	77	0.92	77	0.00%	1
Total Emerging Market Equity	7.60%	8.09%	69	14.43%	49	0.14%	63	0.53	67	0.98	48	5.48%	66
MSCI Emerging Markets	--	9.10%	52	15.57%	80	0.00%	65	0.56	59	0.97	50	0.00%	1
Total Fixed Income	29.09%	4.23%	29	3.00%	63	2.25%	24	1.27	20	1.77	25	1.82%	42
BBgBarc US Aggregate TR	--	2.24%	59	2.81%	58	0.00%	77	0.65	72	0.88	72	0.00%	1
Total Diversified Fixed Income	7.75%	3.33%	39	3.88%	76	0.48%	54	0.75	60	0.98	64	1.37%	29
BBgBarc US Aggregate TR	--	2.24%	59	2.81%	58	0.00%	77	0.65	72	0.88	72	0.00%	1
Total Unconstrained Fixed Income	3.90%	--	--	--	--	--	--	--	--	--	--	--	--
25% HY, 25% EMD, 50% BC Agg	--	4.44%	24	3.38%	48	0.00%	62	1.19	22	1.72	36	0.00%	1
Total High Yield Bonds	3.99%	5.83%	43	4.68%	49	0.60%	49	1.16	50	1.83	53	1.43%	27
BBgBarc US High Yield TR	--	6.35%	25	5.65%	87	0.00%	68	1.05	63	1.86	50	0.00%	1
Total TIPS	6.38%	2.03%	39	3.55%	65	-0.04%	46	0.45	33	0.97	29	0.17%	8
BBgBarc US TIPS TR	--	2.05%	36	3.51%	60	0.00%	40	0.46	30	0.99	27	0.00%	1
Total Emerging Market Debt	5.11%	7.31%	20	5.64%	30	0.43%	27	1.22	24	1.79	25	1.28%	7
JP Morgan EMBI Global Index	--	6.84%	32	5.46%	26	0.00%	35	1.17	28	1.65	33	0.00%	1
Total Real Estate	6.58%	9.07%	--	4.02%	--	-0.08%	--	2.15	--	76.44	--	1.01%	--
NCREIF Property Index	--	9.39%	--	4.00%	--	0.00%	--	2.24	--	79.26	--	0.00%	--
Total Absolute Return	7.08%	1.69%	75	3.08%	25	-0.46%	70	0.41	68	0.44	73	1.72%	9
HFRI Fund of Funds Composite Index	--	2.58%	59	3.30%	28	0.00%	63	0.65	48	0.70	59	0.00%	1
Total Risk Parity/GAA	4.44%	4.88%	50	6.98%	60	-0.30%	46	0.64	51	1.02	42	4.63%	50
60% MSCI World (Net) / 40% CITI WGBI	--	6.36%	19	6.73%	58	0.00%	44	0.88	19	1.62	6	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%	6.42%	95	5.31%	27	-0.42%	66	1.16	85	2.06	70	0.83%	27
Policy Index	--	6.53%	94	5.01%	13	0.00%	44	1.25	76	2.21	54	0.00%	1
Total Domestic Equity	24.12%	--	--	--	--	--	--	--	--	--	--	--	--
Russell 3000	--	15.58%	30	9.75%	17	0.00%	28	1.57	13	2.60	19	0.00%	1
Total Large Cap Equities	21.08%	15.79%	31	9.62%	27	-0.15%	31	1.61	14	2.84	15	0.71%	1
S&P 500	--	15.79%	31	9.49%	23	0.00%	28	1.64	11	2.71	23	0.00%	1
Total Small/Mid Cap Equities	3.03%	14.43%	37	11.76%	41	2.82%	41	1.20	33	2.37	15	3.88%	3
Russell 2000	--	14.12%	43	13.91%	90	0.00%	84	1.00	75	1.61	72	0.00%	1
Total Core Non US Equity	18.55%	9.93%	36	11.20%	41	2.44%	37	0.86	33	1.59	24	1.99%	8
MSCI EAFE	--	7.90%	71	11.67%	70	0.00%	81	0.65	76	1.13	74	0.00%	1
Total Emerging Market Equity	7.60%	3.01%	89	14.27%	65	-1.06%	88	0.19	87	0.32	87	5.00%	59
MSCI Emerging Markets	--	4.35%	74	14.39%	69	0.00%	74	0.28	73	0.48	66	0.00%	1
Total Fixed Income	29.09%	--	--	--	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR	--	2.10%	57	2.85%	55	0.00%	76	0.64	71	0.90	66	0.00%	1
Total Diversified Fixed Income	7.75%	3.20%	38	4.23%	78	0.28%	60	0.69	65	0.96	62	1.61%	38
BBgBarc US Aggregate TR	--	2.10%	57	2.85%	55	0.00%	76	0.64	71	0.90	66	0.00%	1
Total Unconstrained Fixed Income	3.90%	--	--	--	--	--	--	--	--	--	--	--	--
25% HY, 25% EMD, 50% BC Agg	--	3.46%	33	3.69%	60	0.00%	72	0.87	48	1.22	46	0.00%	1
Total High Yield Bonds	3.99%	5.45%	41	4.32%	30	0.73%	37	1.20	35	1.84	51	1.37%	38
BBgBarc US High Yield TR	--	5.78%	26	5.22%	79	0.00%	66	1.06	62	1.86	48	0.00%	1
Total TIPS	6.38%	0.05%	52	4.50%	69	-0.08%	48	-0.05	46	-0.06	46	0.16%	1
BBgBarc US TIPS TR	--	0.13%	38	4.46%	59	0.00%	34	-0.03	35	-0.04	35	0.00%	1
Total Emerging Market Debt	5.11%	4.45%	16	6.46%	32	0.83%	21	0.65	20	0.88	19	1.24%	8
JP Morgan EMBI Global Index	--	3.75%	32	6.60%	33	0.00%	32	0.53	31	0.72	33	0.00%	1
Total Real Estate	6.58%	10.89%	--	4.72%	--	-0.10%	--	2.25	--	104.88	--	1.28%	--
NCREIF Property Index	--	10.19%	--	4.21%	--	0.00%	--	2.36	--	97.96	--	0.00%	--
Total Absolute Return	7.08%	4.19%	68	3.47%	32	0.42%	60	1.13	49	1.69	46	1.63%	6
HFRI Fund of Funds Composite Index	--	3.98%	69	3.25%	28	0.00%	66	1.14	48	1.50	54	0.00%	1
Total Risk Parity/GAA	4.44%	4.34%	61	7.22%	62	-1.99%	82	0.56	78	0.84	77	4.17%	44
60% MSCI World (Net) / 40% CITI WGBI	--	7.03%	30	6.61%	53	0.00%	44	1.02	26	2.12	4	0.00%	1



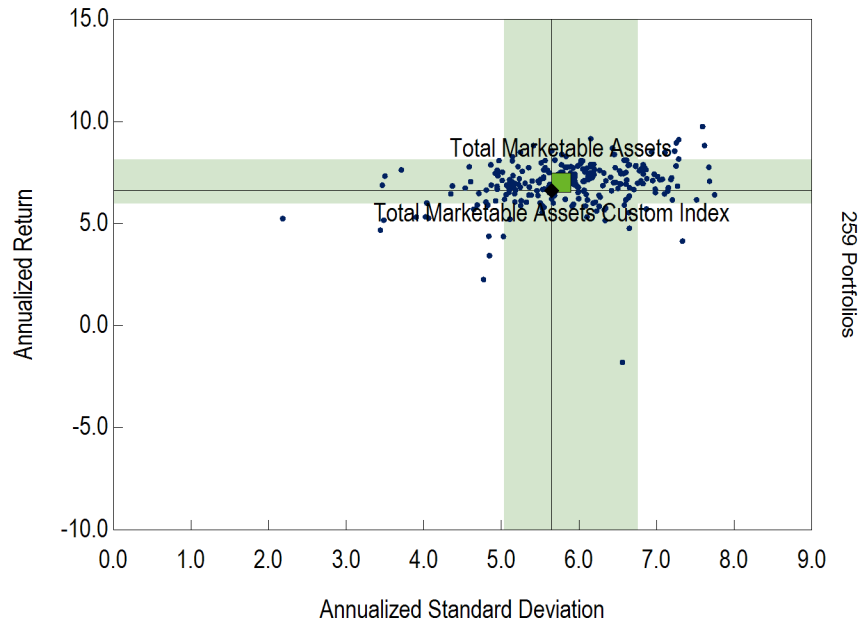
# MANAGER CHARACTERISTICS

NEPC, LLC

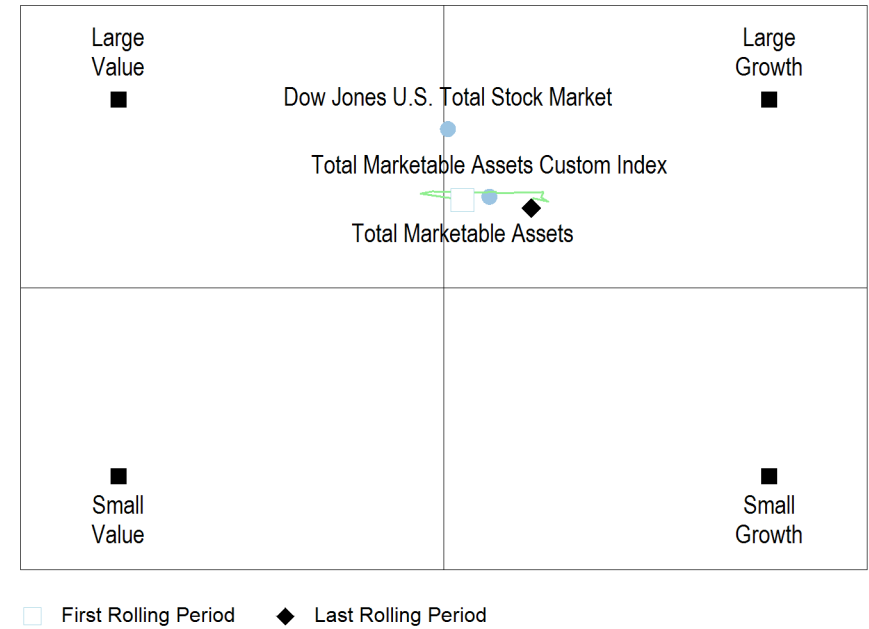
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# TOTAL MARKETABLE ASSETS

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

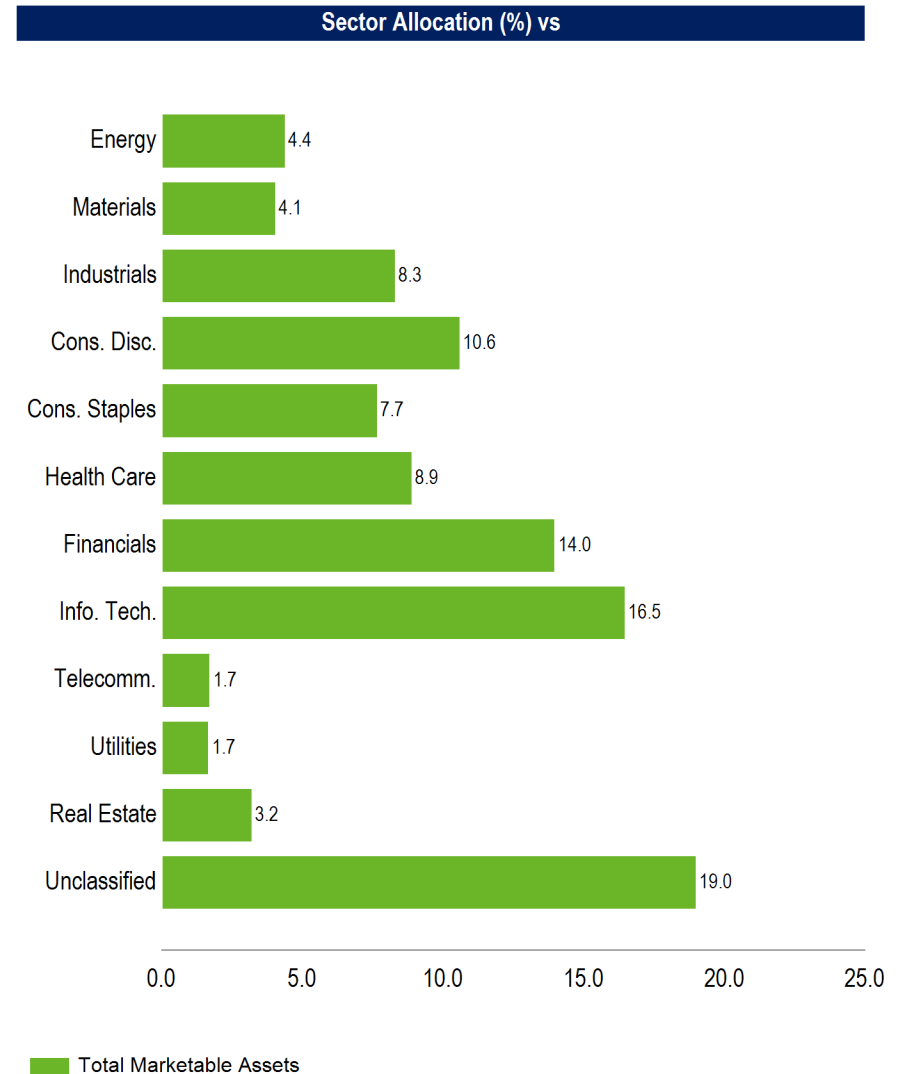
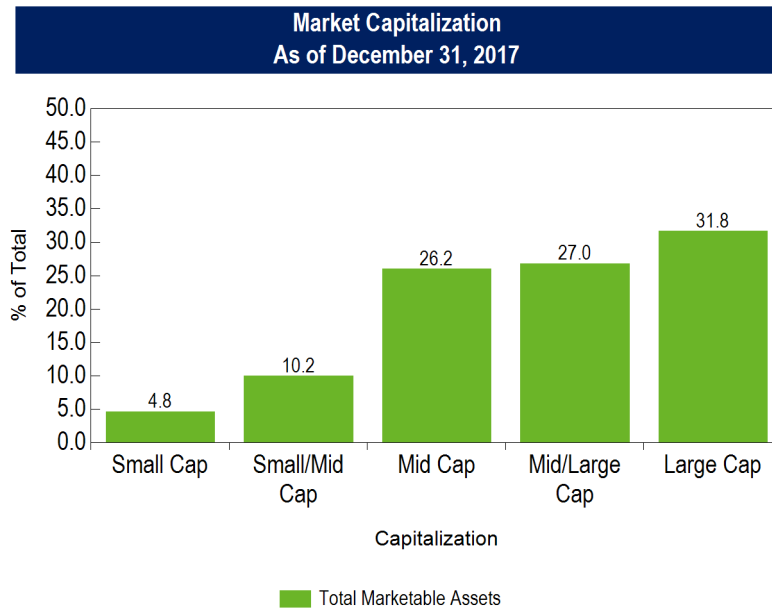


U.S. Effective Style Map  
3 Years Ending December 31, 2017



# TOTAL MARKETABLE ASSETS

Characteristics	
	Portfolio
Number of Holdings	9,428
Weighted Avg. Market Cap. (\$B)	110.95
Median Market Cap. (\$B)	13.97
Price To Earnings	26.57
Price To Book	5.33
Price To Sales	3.42
Return on Equity (%)	21.35
Yield (%)	1.88
Beta	
R-Squared	





# TOTAL MARKETABLE ASSETS

Top Ten Holdings	
APPLE	1.5%
MICROSOFT	1.1%
UST 0.125 04/15/19	0.9%
AMAZON.COM	0.8%
SAMSUNG ELTN.PREF.	0.8%
TAIWAN SEMICON.MNFG.	0.8%
FACEBOOK CLASS A	0.7%
UST 0.125 04/15/20	0.7%
CASH - USD	0.7%
BERKSHIRE HATHAWAY 'B'	0.7%

Top Positive Contributors		
	Relative Contribution %	Return %
BANK RAKYAT INDONESIA	0.1%	18.3%
HONDA MOTOR	0.1%	16.5%
KONINKLIJKE AHOLD DELHAIZE	0.1%	17.7%
MICROSOFT	0.1%	15.4%
AMAZON.COM	0.1%	21.6%
BANK MANDIRI	0.1%	18.1%
APPLE	0.1%	10.2%
PEARSON	0.1%	21.3%
NAVER	0.1%	24.9%
UNITED OVERSEAS BANK	0.1%	14.4%

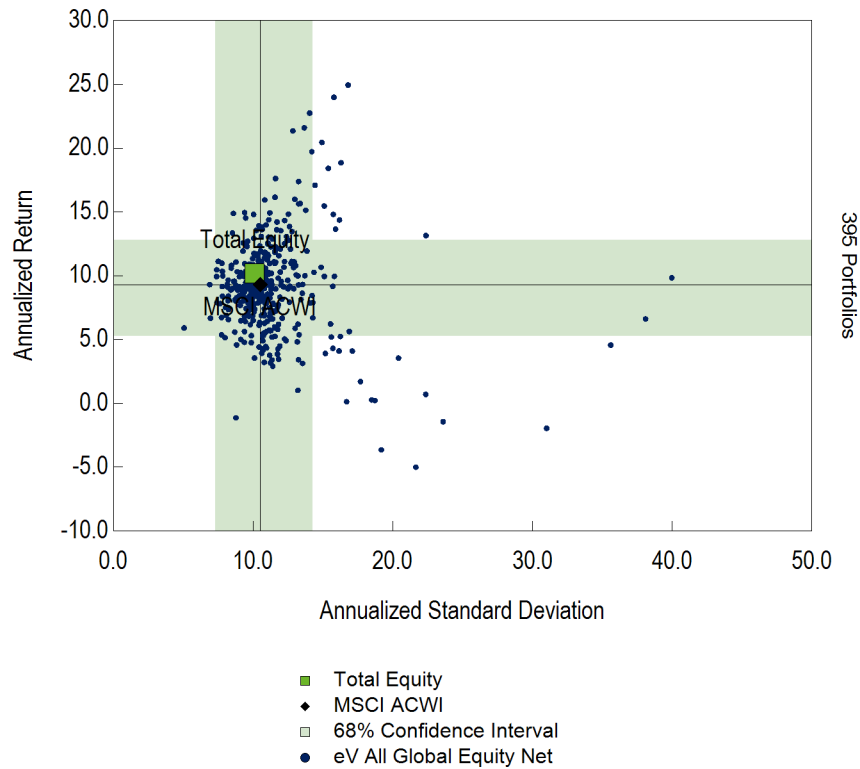
Top Negative Contributors		
	Relative Contribution %	Return %
MAGNIT	-0.1%	-36.9%
SANOFI	-0.1%	-13.1%
GPO FINANCE BANORTE	-0.1%	-20.3%
GENERAL ELECTRIC	-0.1%	-27.3%
TELEKOMUNIKASI INDONESIA	-0.1%	-5.8%
CELGENE	0.0%	-28.4%
BRF BRASIL FOODS ON	0.0%	-23.6%
TREEHOUSE FOODS	0.0%	-27.0%
MERCK & COMPANY	0.0%	-11.4%
TELEFONICA	0.0%	-8.5%

	Equity Sector Attribution								Returns		Sector Weights	
	Total Effects	Selection Effect	Attribution Effects		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
			Allocation Effect									
Energy	0.0%	--	--	--	--	6.3%	--	5.6%	0.0%			
Materials	0.0%	--	--	--	--	7.9%	--	4.7%	0.0%			
Industrials	0.0%	--	--	--	--	5.4%	--	9.6%	0.0%			
Consumer Discretionary	0.0%	--	--	--	--	8.3%	--	13.4%	0.0%			
Consumer Staples	0.0%	--	--	--	--	6.9%	--	10.6%	0.0%			
Health Care	0.0%	--	--	--	--	0.7%	--	9.9%	0.0%			
Financials	0.0%	--	--	--	--	7.6%	--	18.8%	0.0%			
Information Technology	0.0%	--	--	--	--	8.5%	--	16.4%	0.0%			
Telecommunication Services	0.0%	--	--	--	--	-1.3%	--	4.5%	0.0%			
Utilities	0.0%	--	--	--	--	0.4%	--	2.1%	0.0%			
Real Estate	0.1%	0.0%	0.1%	0.0%	0.0%	2.3%	2.3%	3.4%	0.0%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.9%	0.0%			
<b>Portfolio</b>	<b>0.1%</b>	<b>=</b>	<b>0.0%</b>	<b>+</b>	<b>0.1%</b>	<b>+</b>	<b>0.0%</b>	<b>6.0%</b>	<b>0.0%</b>	<b>100.0%</b>	<b>0.0%</b>	

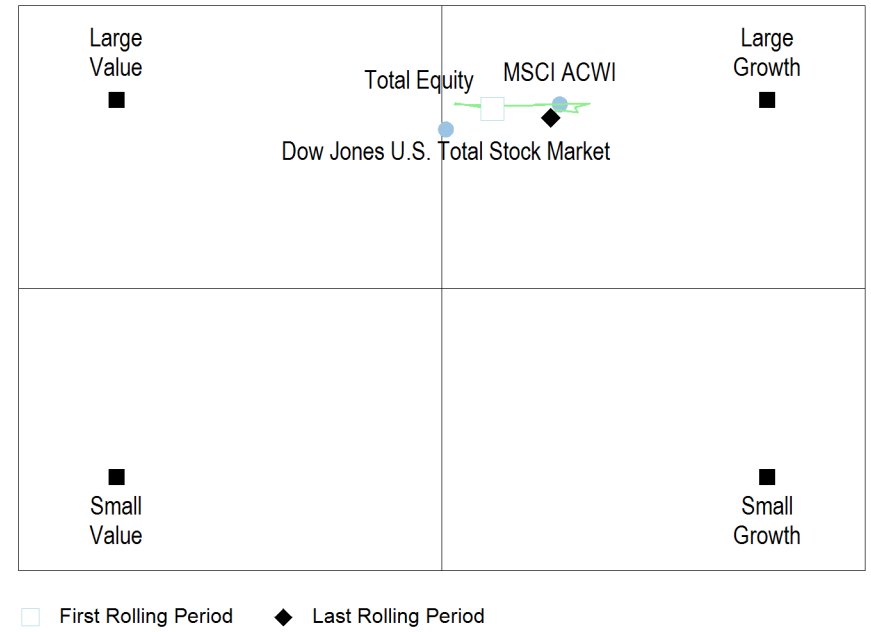


# TOTAL EQUITY COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

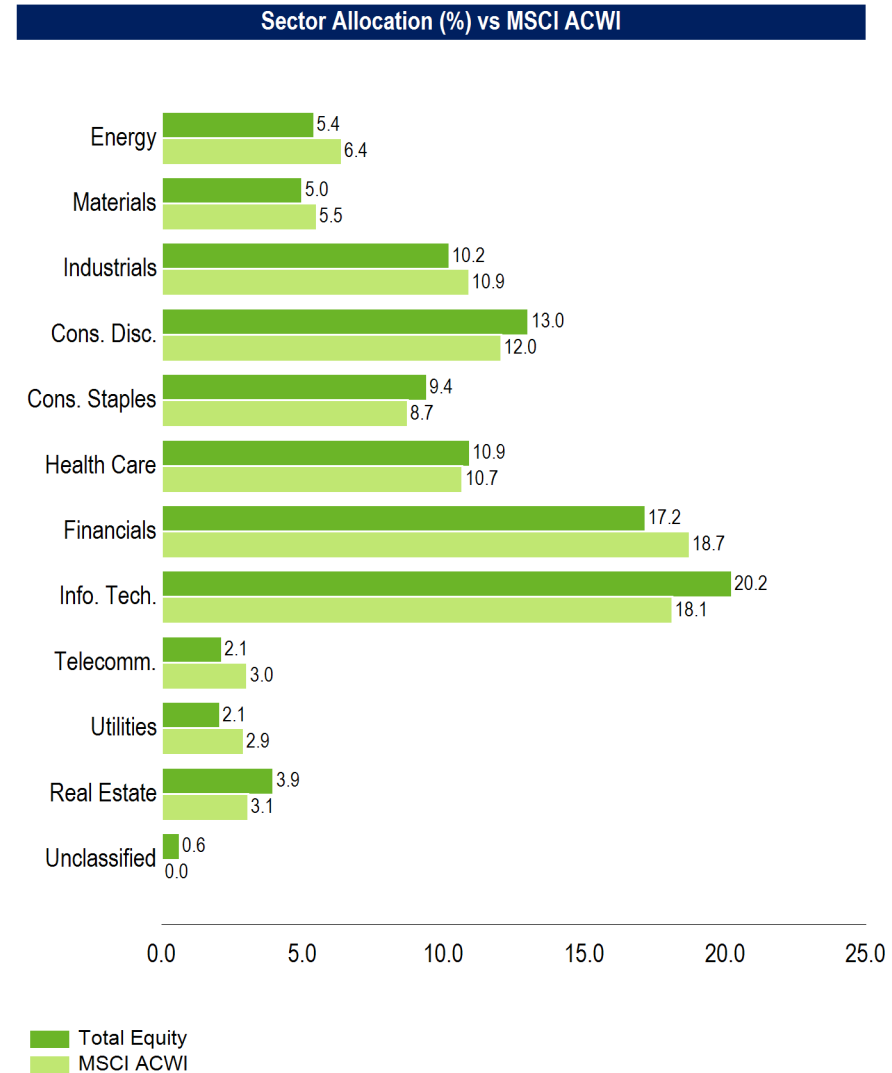
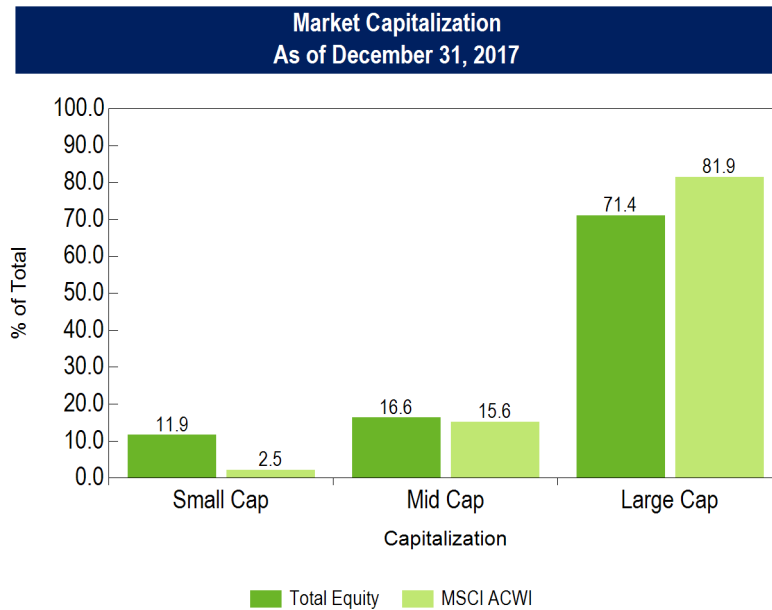


U.S. Effective Style Map  
3 Years Ending December 31, 2017



# TOTAL EQUITY COMPOSITE

Characteristics		
	Portfolio	MSCI ACWI
Number of Holdings	1,130	2,499
Weighted Avg. Market Cap. (\$B)	110.95	121.48
Median Market Cap. (\$B)	13.97	10.65
Price To Earnings	26.57	22.84
Price To Book	5.33	3.82
Price To Sales	3.42	2.95
Return on Equity (%)	21.35	16.68
Yield (%)	1.88	2.25
Beta	0.95	1.00
R-Squared	0.98	1.00



# TOTAL EQUITY COMPOSITE

Top Ten Holdings	
APPLE	1.8%
MICROSOFT	1.4%
AMAZON.COM	1.0%
SAMSUNG ELTN.PREF.	1.0%
TAIWAN SEMICON.MNFG.	1.0%
FACEBOOK CLASS A	0.9%
BERKSHIRE HATHAWAY 'B'	0.8%
HOUSING DEVELOPMENT FIN.	0.8%
JOHNSON & JOHNSON	0.8%
JP MORGAN CHASE & CO.	0.8%

Top Positive Contributors		
	Relative Contribution %	Return %
BANK RAKYAT INDONESIA	0.2%	18.3%
KONINKLIJKE AHOLD DELHAIZE	0.1%	17.7%
HONDA MOTOR	0.1%	16.5%
BANK MANDIRI	0.1%	18.1%
PEARSON	0.1%	21.3%
BANK CENTRAL ASIA	0.1%	7.5%
BANK NEGARA INDONESIA	0.1%	32.8%
UNITED OVERSEAS BANK	0.1%	14.4%
NAVER	0.1%	24.9%
SAMSUNG ELTN.PREF.	0.1%	8.4%

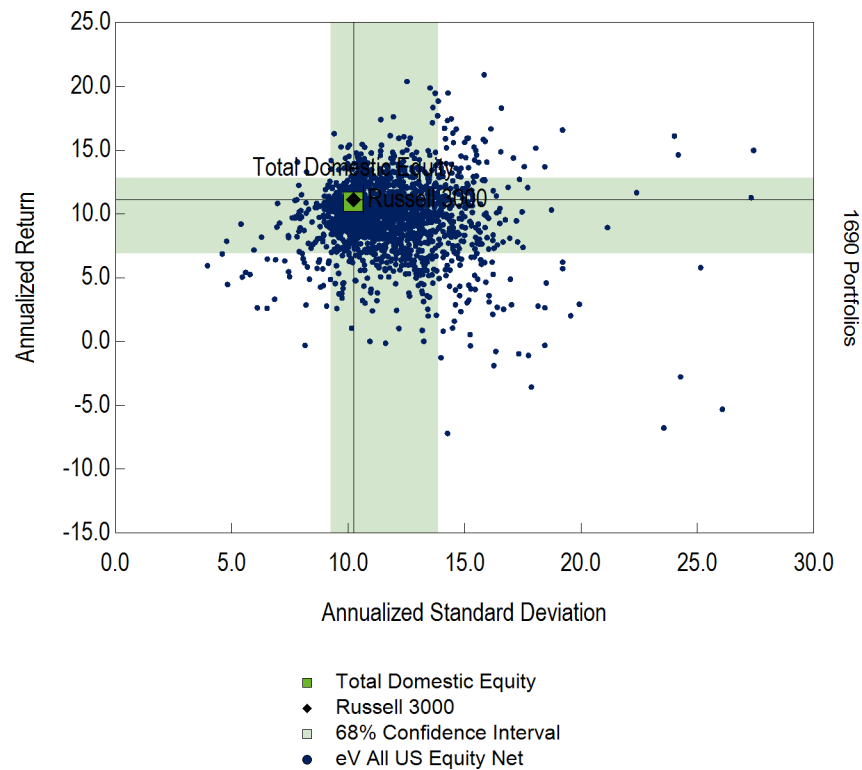
Top Negative Contributors		
	Relative Contribution %	Return %
MAGNIT	-0.1%	-36.9%
TENCENT HOLDINGS	-0.1%	20.7%
GPO FINANCE BANORTE	-0.1%	-20.3%
AMAZON.COM	-0.1%	21.6%
SANOFI	-0.1%	-13.1%
APPLE	-0.1%	10.2%
TELEKOMUNIKASI INDONESIA	-0.1%	-5.8%
MICROSOFT	-0.1%	15.4%
NASPERS	-0.1%	28.9%
BRF BRASIL FOODS ON	0.0%	-23.6%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects		Portfolio	Benchmark	Portfolio	Benchmark		
Energy	-0.1%	0.0%	0.0%	0.0%	0.0%	6.3%	7.1%	5.6%	6.4%		
Materials	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	7.9%	4.7%	5.3%		
Industrials	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	5.2%	9.7%	10.8%		
Consumer Discretionary	0.1%	0.1%	0.0%	0.0%	0.0%	8.3%	7.8%	13.5%	11.9%		
Consumer Staples	0.1%	0.1%	0.0%	0.0%	0.0%	6.9%	5.9%	10.6%	8.8%		
Health Care	0.0%	-0.1%	0.1%	0.0%	0.0%	0.7%	1.4%	10.0%	11.1%		
Financials	0.3%	0.3%	0.0%	0.0%	0.0%	7.6%	6.2%	18.9%	18.8%		
Information Technology	0.0%	-0.2%	0.0%	0.2%	0.0%	8.5%	8.2%	16.4%	17.6%		
Telecommunication Services	-0.2%	-0.1%	0.0%	0.0%	0.0%	-1.3%	2.2%	4.5%	3.1%		
Utilities	0.1%	0.0%	0.1%	0.0%	0.0%	0.4%	-0.2%	2.1%	3.1%		
Real Estate	-0.1%	-0.1%	0.0%	0.0%	0.0%	2.3%	4.8%	3.4%	3.1%		
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.7%	0.0%		
<b>Portfolio</b>	<b>0.2%</b>	<b>=</b>	<b>-0.1%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.2%</b>	<b>6.0%</b>	<b>5.9%</b>	<b>100.0%</b>	<b>100.0%</b>

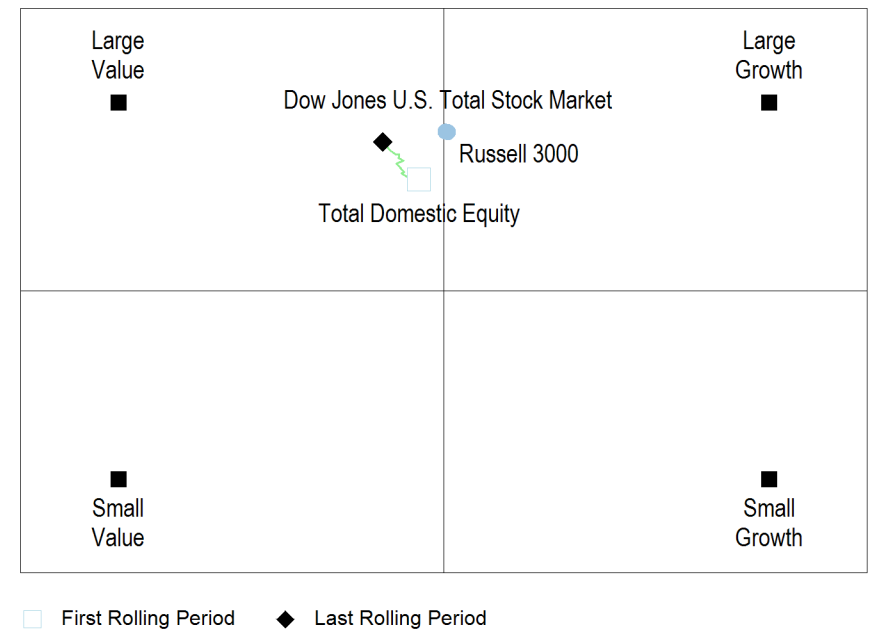


# DOMESTIC EQUITY COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



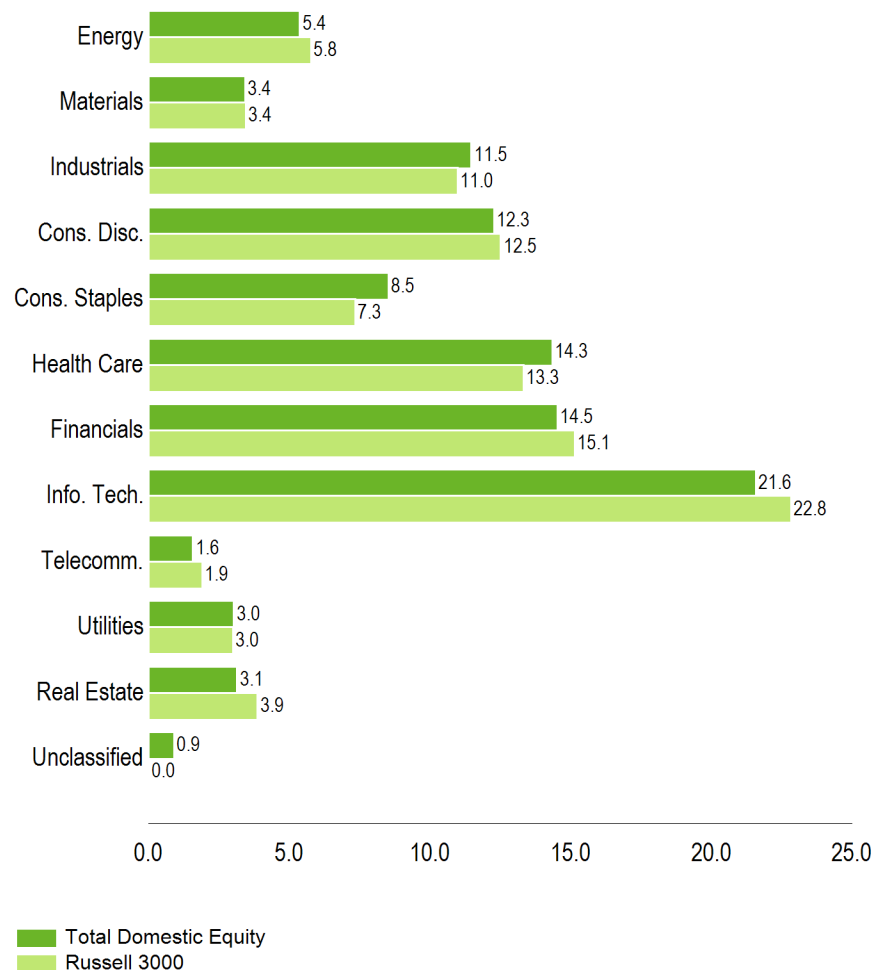
U.S. Effective Style Map  
3 Years Ending December 31, 2017



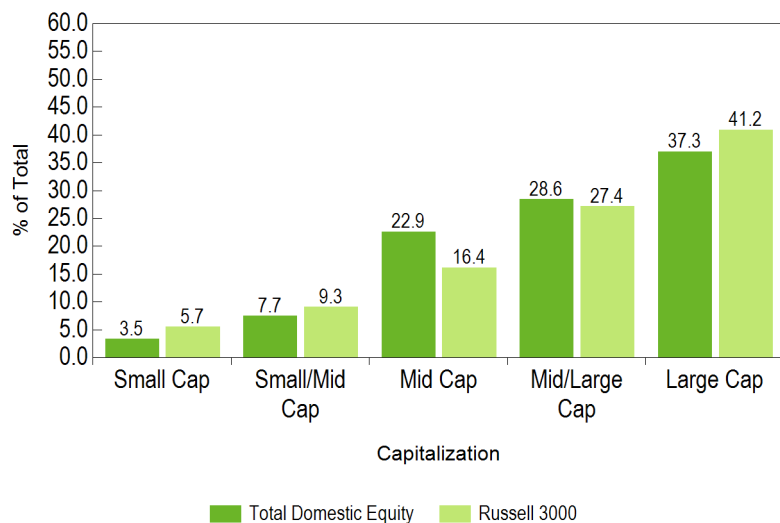
# DOMESTIC EQUITY COMPOSITE

Characteristics		
	Portfolio	Russell 3000
Number of Holdings	609	2,961
Weighted Avg. Market Cap. (\$B)	137.53	150.14
Median Market Cap. (\$B)	19.46	1.72
Price To Earnings	27.47	25.02
Price To Book	5.89	4.63
Price To Sales	3.73	3.64
Return on Equity (%)	22.00	17.53
Yield (%)	1.74	1.74
Beta	0.99	1.00
R-Squared	0.98	1.00

## Sector Allocation (%) vs Russell 3000



## Market Capitalization As of December 31, 2017



# DOMESTIC EQUITY COMPOSITE

Top Ten Holdings	
APPLE	2.7%
MICROSOFT	2.1%
AMAZON.COM	1.5%
FACEBOOK CLASS A	1.3%
BERKSHIRE HATHAWAY 'B'	1.2%
JOHNSON & JOHNSON	1.2%
JP MORGAN CHASE & CO.	1.2%
EXXON MOBIL	1.1%
ALPHABET 'C'	1.0%
ALPHABET A	1.0%

Top Positive Contributors		
	Relative Contribution %	Return %
GENERAL ELECTRIC	0.2%	-27.3%
BANK RAKYAT INDONESIA	0.1%	18.3%
HONDA MOTOR	0.1%	16.5%
KONINKLIJKE AHOLD DELHAIZE	0.1%	17.7%
BANK MANDIRI	0.1%	18.1%
CELGENE	0.1%	-28.4%
PEARSON	0.1%	21.3%
NAVER	0.1%	24.9%
UNITED OVERSEAS BANK	0.1%	14.4%
BANK CENTRAL ASIA	0.1%	7.5%

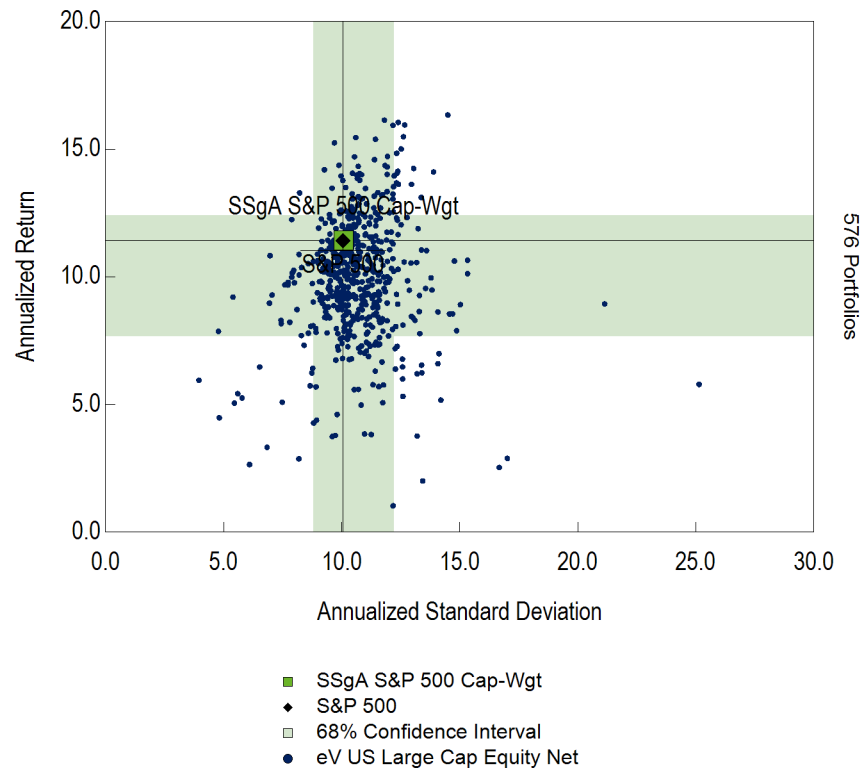
Top Negative Contributors		
	Relative Contribution %	Return %
MICROSOFT	-0.2%	15.4%
APPLE	-0.2%	10.2%
AMAZON.COM	-0.2%	21.6%
JP MORGAN CHASE & CO.	-0.1%	12.6%
BANK OF AMERICA	-0.1%	17.0%
INTEL	-0.1%	21.9%
MAGNIT	-0.1%	-36.9%
HOME DEPOT	-0.1%	16.5%
WALMART	-0.1%	27.0%
BERKSHIRE HATHAWAY 'B'	-0.1%	8.1%

Equity Sector Attribution									
	Attribution Effects					Returns		Sector Weights	
	Total	Selection	Allocation	Interaction	Portfolio	Benchmark	Portfolio	Benchmark	
	Effects	Effect	Effect	Effects					
Energy	0.0%	0.0%	0.0%	0.0%	6.3%	6.4%	5.6%	5.7%	
Materials	0.1%	0.0%	0.0%	0.1%	7.9%	6.7%	4.7%	3.4%	
Industrials	-0.1%	-0.2%	0.0%	0.1%	5.4%	6.5%	9.6%	10.9%	
Consumer Discretionary	-0.1%	-0.2%	0.0%	0.1%	8.3%	9.1%	13.4%	12.2%	
Consumer Staples	0.1%	0.0%	0.0%	0.0%	6.9%	6.4%	10.6%	7.4%	
Health Care	0.1%	-0.2%	0.2%	0.1%	0.7%	1.6%	9.9%	13.9%	
Financials	0.0%	0.0%	0.1%	0.0%	7.6%	7.7%	18.8%	15.1%	
Information Technology	-0.1%	-0.4%	-0.1%	0.4%	8.5%	8.5%	16.4%	22.4%	
Telecommunication Services	-0.3%	-0.1%	-0.1%	-0.1%	-1.3%	3.2%	4.5%	1.9%	
Utilities	0.1%	0.0%	0.1%	0.0%	0.4%	0.6%	2.1%	3.1%	
Real Estate	0.0%	0.0%	0.0%	0.0%	2.3%	2.6%	3.4%	4.0%	
Cash	-0.1%	0.0%	-0.1%	0.0%	0.3%	--	0.9%	0.0%	
<b>Portfolio</b>	<b>-0.3%</b>	<b>=</b>	<b>-1.1%</b>	<b>+</b>	<b>0.1%</b>	<b>+</b>	<b>0.6%</b>	<b>6.0%</b>	<b>6.4%</b>
					<b>6.0%</b>	<b>6.4%</b>	<b>100.0%</b>	<b>100.0%</b>	

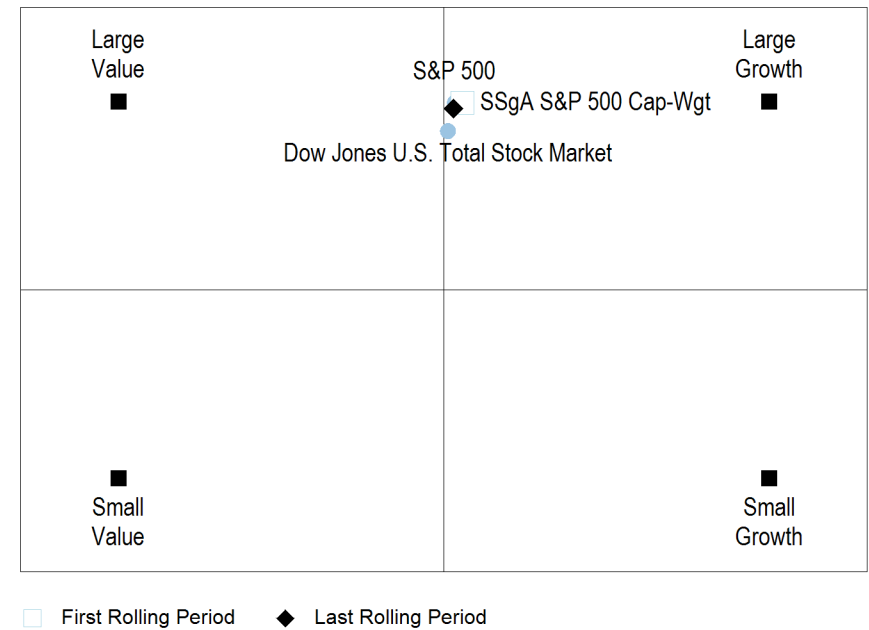


# SSGA S&P 500 CAP-WGT

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



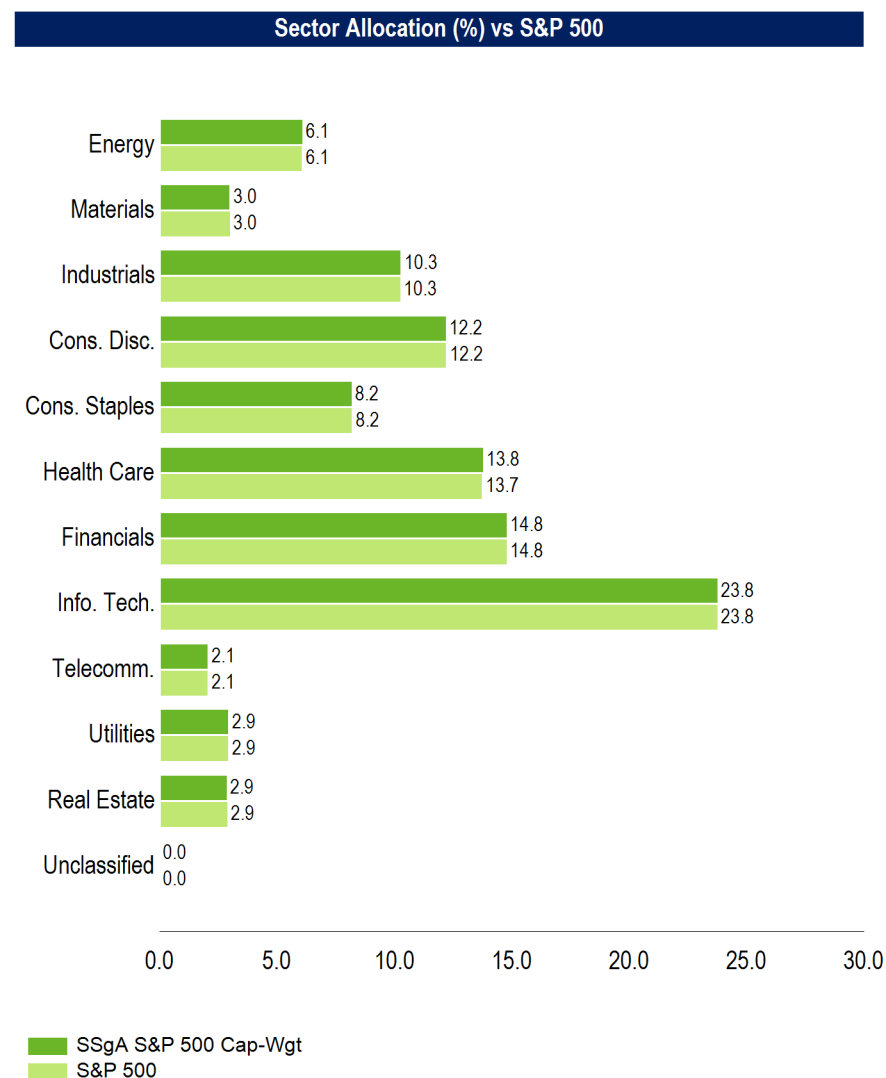
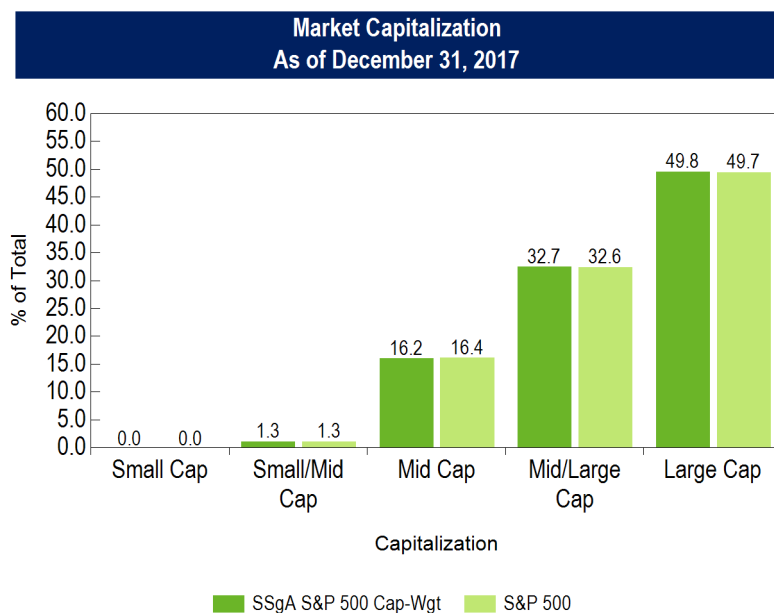
U.S. Effective Style Map  
3 Years Ending December 31, 2017





# SSGA S&P 500 CAP-WGT

Characteristics		
	Portfolio	S&P 500
Number of Holdings	504	505
Weighted Avg. Market Cap. (\$B)	180.38	180.13
Median Market Cap. (\$B)	21.48	21.55
Price To Earnings	27.46	24.81
Price To Book	6.06	4.93
Price To Sales	3.80	3.50
Return on Equity (%)	24.52	20.41
Yield (%)	1.88	1.87
Beta	1.00	1.00
R-Squared	1.00	1.00



# SSGA S&P 500 CAP-WGT

Top Ten Holdings	
APPLE	3.8%
MICROSOFT	2.9%
AMAZON.COM	2.0%
FACEBOOK CLASS A	1.8%
BERKSHIRE HATHAWAY 'B'	1.7%
JOHNSON & JOHNSON	1.7%
JP MORGAN CHASE & CO.	1.6%
EXXON MOBIL	1.6%
ALPHABET 'C'	1.4%
ALPHABET A	1.4%

Top Positive Contributors		
	Relative Contribution %	Return %
MICROSOFT	0.0%	15.4%
APPLE	0.0%	10.2%
AMAZON.COM	0.0%	21.6%
WALMART	0.0%	27.0%
QUALCOMM	0.0%	24.5%
ADVANCED MICRO DEVC.	0.0%	-19.4%
RANGE RES.	0.0%	-12.7%
JP MORGAN CHASE & CO.	0.0%	12.6%
BOEING	0.0%	16.6%
INTEL	0.0%	21.9%

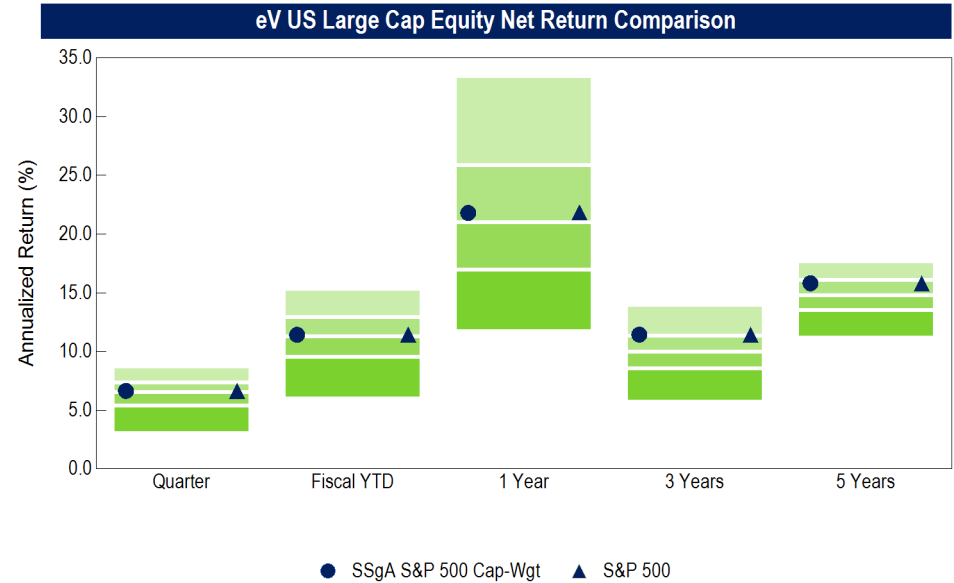
Top Negative Contributors		
	Relative Contribution %	Return %
BROWN-FORMAN 'B'	0.0%	26.8%
L BRANDS	0.0%	46.5%
GENERAL ELECTRIC	0.0%	-27.3%
GGP	0.0%	14.8%
CROWN CASTLE INTL.	0.0%	12.1%
STRYKER	0.0%	9.4%
DOLLAR TREE	0.0%	23.6%
FLUOR	0.0%	23.2%
DARDEN RESTAURANTS	0.0%	22.8%
FOOT LOCKER	0.0%	34.4%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%	6.1%	6.1%	6.1%		
Materials	0.0%	0.0%	0.0%	0.0%	0.0%	6.9%	6.9%	3.0%	3.0%		
Industrials	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%	6.1%	10.3%	10.2%		
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	0.0%	9.9%	9.9%	11.9%	11.9%		
Consumer Staples	0.0%	0.0%	0.0%	0.0%	0.0%	6.5%	6.5%	8.3%	8.2%		
Health Care	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	1.5%	14.4%	14.4%		
Financials	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%	8.6%	14.7%	14.6%		
Information Technology	0.0%	0.0%	0.0%	0.0%	0.0%	9.0%	9.0%	23.3%	23.3%		
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	3.8%	2.1%	2.1%		
Utilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	3.1%	3.1%		
Real Estate	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	3.2%	2.9%	3.0%		
Cash	0.0%	--	--	--	--	--	--	0.0%	0.0%		
<b>Portfolio</b>	<b>0.0%</b>	<b>=</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>6.7%</b>	<b>6.7%</b>	<b>100.0%</b>	<b>100.0%</b>

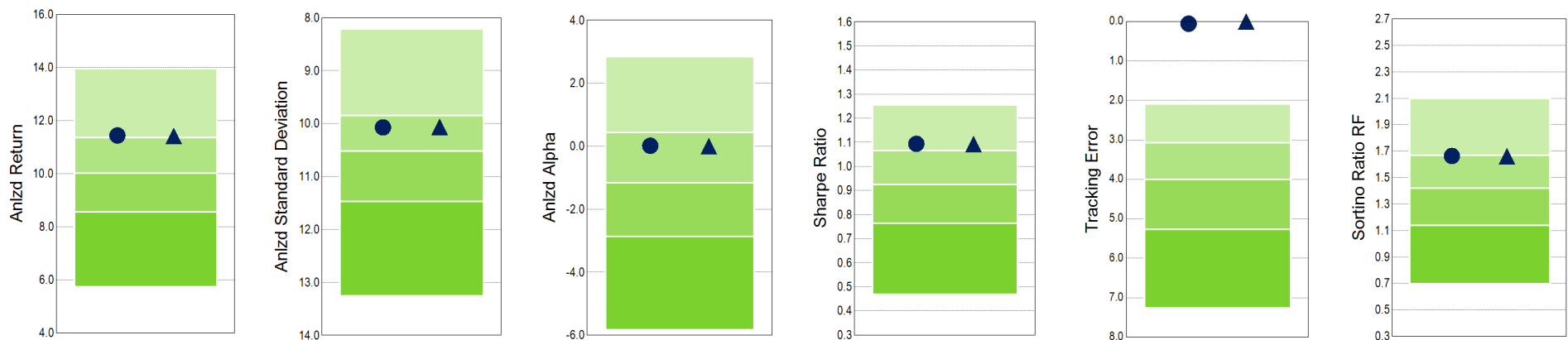


# SSGA S&P 500 CAP-WGT

Using a replication process, we purchase each security for the Strategy in the same capitalization weight as it appears in the S&P 500 Index. Replication results in low turnover, accurate tracking, and low costs. SSgA's internal liquidity has allowed the firm to acquire many of the benchmark constituents for free. These free trading opportunities have allowed SSgA to gradually reduce security-level misweights while avoiding the open market. This process has resulted in portfolios that look and behave like the benchmark, and do so at a very low cost. SSgA's passive equity process objective is to remain fully invested in the equity market at all times. To accomplish this, it holds a small amount of unleveraged exchange-traded S&P 500® futures contracts to maintain full exposure. SSgA tends to hold approximately 1-3% of the strategy's value in suitable CFTC approved index futures contracts. This position in futures also allows the firm to accommodate cash flows into and out of the portfolio on a daily basis and to equitize dividend receivables to achieve closer tracking.



## 3 Year Risk Statistics



# SSGA S&P 500 CAP-WGT

Characteristics		
	Portfolio	S&P 500
Number of Holdings	504	505
Weighted Avg. Market Cap. (\$B)	180.4	180.1
Median Market Cap. (\$B)	21.5	21.6
Price To Earnings	27.5	24.8
Price To Book	6.1	4.9
Price To Sales	3.8	3.5
Return on Equity (%)	24.5	20.4
Yield (%)	1.9	1.9
Beta	1.0	1.0
R-Squared	1.0	1.0

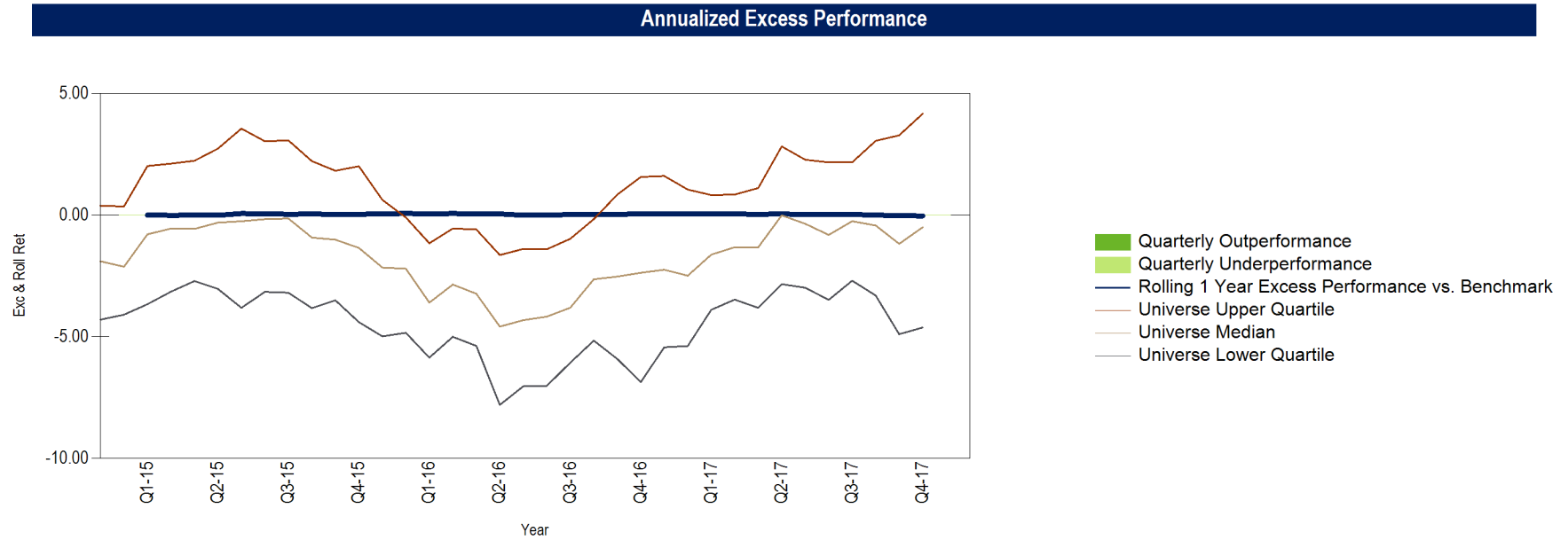
Top Positive Contributors		
	Relative Contribution %	Return %
MICROSOFT (MSFT)	0.0%	15.4%
APPLE (AAPL)	0.0%	10.2%
AMAZON.COM (AMZN)	0.0%	21.6%
WALMART (WMT)	0.0%	27.0%
QUALCOMM (QCOM)	0.0%	24.5%
ADVANCED MICRO DEVC. (AMD)	0.0%	-19.4%
RANGE RES. (RRC)	0.0%	-12.7%
JP MORGAN CHASE & CO. (JPM)	0.0%	12.6%
BOEING (BA)	0.0%	16.6%
INTEL (INTC)	0.0%	21.9%

Top Negative Contributors		
	Relative Contribution %	Return %
BROWN-FORMAN 'B' (BFB)	0.0%	26.8%
L BRANDS (LB)	0.0%	46.5%
GENERAL ELECTRIC (GE)	0.0%	-27.3%
GGP (GGP)	0.0%	14.8%
CROWN CASTLE INTL. (CCI)	0.0%	12.1%
STRYKER (SYK)	0.0%	9.4%
DOLLAR TREE (DLTR)	0.0%	23.6%
FLUOR (FLR)	0.0%	23.2%
DARDEN RESTAURANTS (DRI)	0.0%	22.8%
FOOT LOCKER (FL)	0.0%	34.4%

SSgA S&P 500 Cap-Wgt Performance Attribution vs. S&P 500											
	Attribution Effects				Returns			Sector Weights			
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	6.1%	6.1%	6.1%	6.1%			
Materials	0.0%	0.0%	0.0%	0.0%	6.9%	6.9%	3.0%	3.0%			
Industrials	0.0%	0.0%	0.0%	0.0%	6.1%	6.1%	10.3%	10.2%			
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	9.9%	9.9%	11.9%	11.9%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	6.5%	6.5%	8.3%	8.2%			
Health Care	0.0%	0.0%	0.0%	0.0%	1.5%	1.5%	14.4%	14.4%			
Financials	0.0%	0.0%	0.0%	0.0%	8.6%	8.6%	14.7%	14.6%			
Information Technology	0.0%	0.0%	0.0%	0.0%	9.0%	9.0%	23.3%	23.3%			
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	3.8%	3.8%	2.1%	2.1%			
Utilities	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	3.1%	3.1%			
Real Estate	0.0%	0.0%	0.0%	0.0%	3.2%	3.2%	2.9%	3.0%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>0.0%</b>	<b>=</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.0%</b>	<b>6.7%</b>	<b>6.7%</b>	<b>100.0%</b>	<b>100.0%</b>

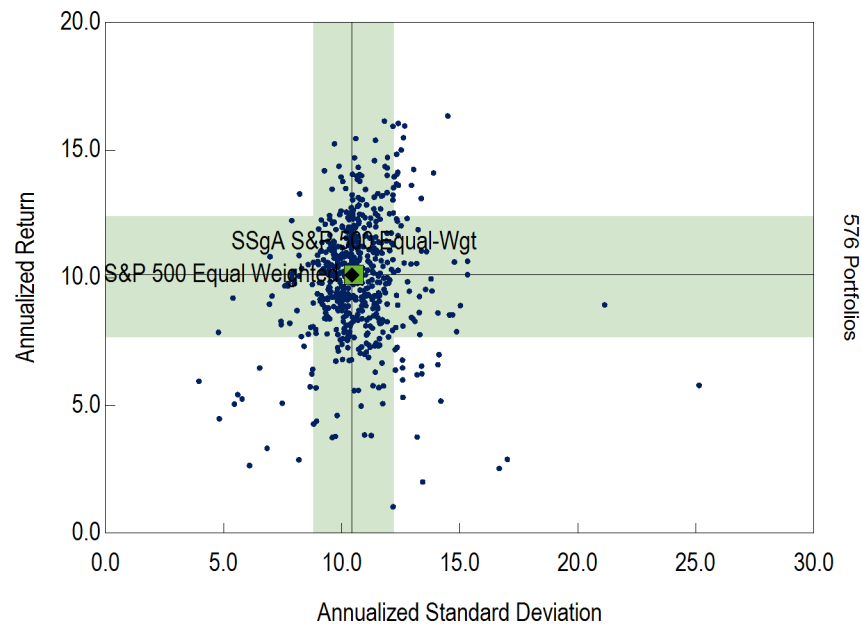


# SSGA S&P 500 CAP-WGT

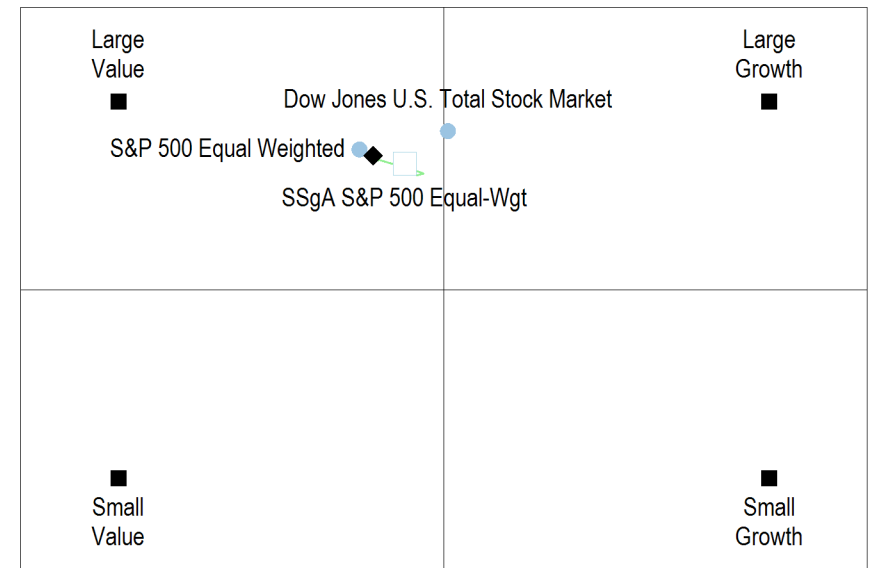


# SSGA S&P 500 EQUAL-WGT

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

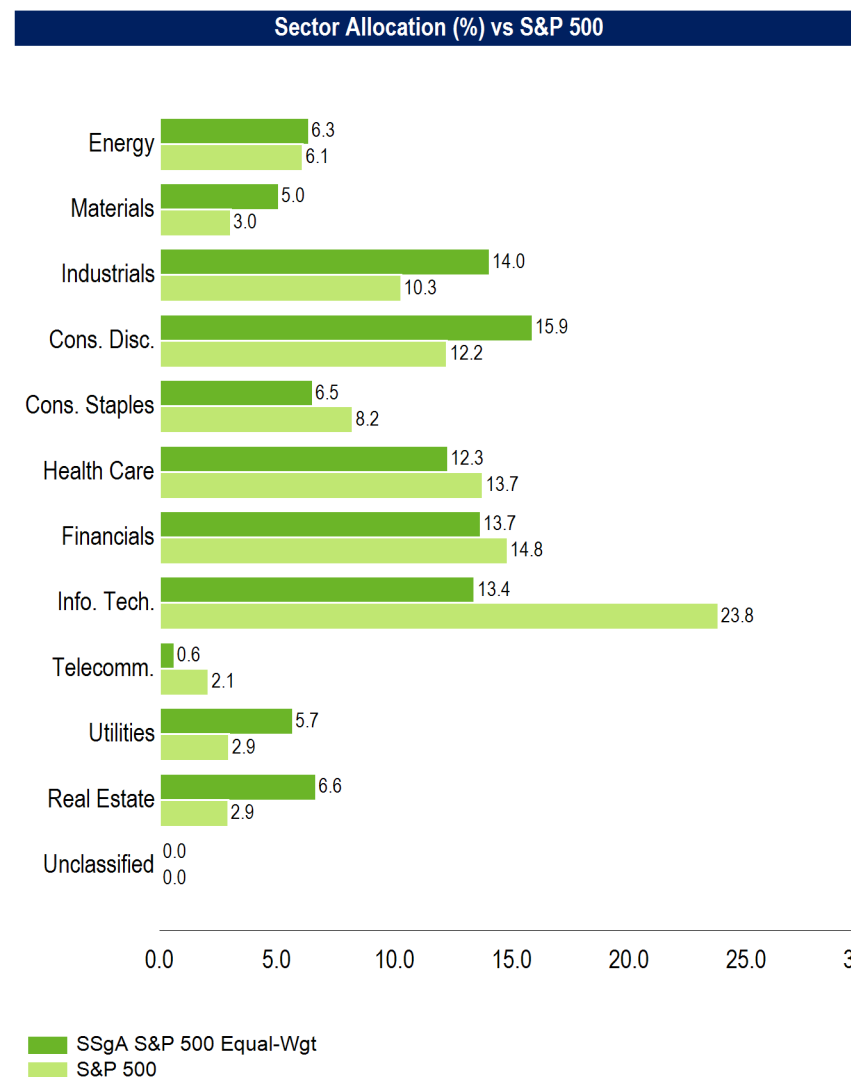
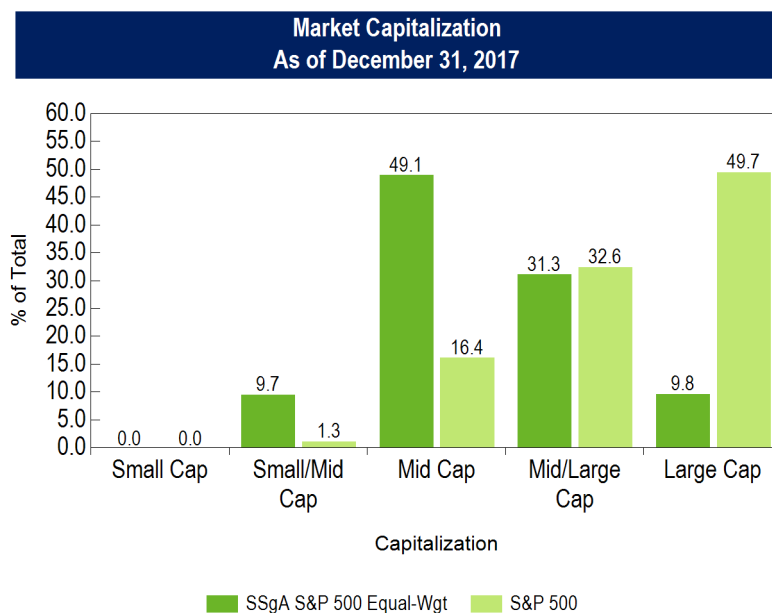


U.S. Effective Style Map  
3 Years Ending December 31, 2017



# SSGA S&P 500 EQUAL-WGT

Characteristics		
	Portfolio	S&P 500
Number of Holdings	500	505
Weighted Avg. Market Cap. (\$B)	46.05	180.13
Median Market Cap. (\$B)	21.38	21.55
Price To Earnings	26.42	24.81
Price To Book	4.99	4.93
Price To Sales	3.25	3.50
Return on Equity (%)	19.54	20.41
Yield (%)	1.81	1.87
Beta	1.01	1.00
R-Squared	0.93	1.00



# SSGA S&P 500 EQUAL-WGT

Top Ten Holdings	
BECTON DICKINSON	0.2%
ALLIANCE DATA SYSTEMS	0.2%
VALERO ENERGY	0.2%
DR PEPPER SNAPPLE GROUP	0.2%
ACUITY BRANDS	0.2%
AUTOZONE	0.2%
ROSS STORES	0.2%
MARTIN MRTA.MATS.	0.2%
J M SMUCKER	0.2%
CH ROBINSON WWD.	0.2%

Top Positive Contributors		
	Relative Contribution %	Return %
GENERAL ELECTRIC	0.2%	-27.3%
CELGENE	0.1%	-28.4%
MERCK & COMPANY	0.1%	-11.4%
L BRANDS	0.1%	46.5%
FOOT LOCKER	0.1%	34.4%
AKAMAI TECHS.	0.1%	33.5%
MICHAEL KORS HOLDINGS	0.1%	31.6%
WW GRAINGER	0.0%	32.3%
SEAGATE TECH.	0.0%	28.0%
FLUOR	0.0%	23.2%

Top Negative Contributors		
	Relative Contribution %	Return %
MICROSOFT	-0.4%	15.4%
APPLE	-0.4%	10.2%
AMAZON.COM	-0.3%	21.6%
JP MORGAN CHASE & CO.	-0.2%	12.6%
BANK OF AMERICA	-0.2%	17.0%
INTEL	-0.1%	21.9%
BERKSHIRE HATHAWAY 'B'	-0.1%	8.1%
JOHNSON & JOHNSON	-0.1%	8.1%
HOME DEPOT	-0.1%	16.5%
ALPHABET 'C'	-0.1%	9.1%

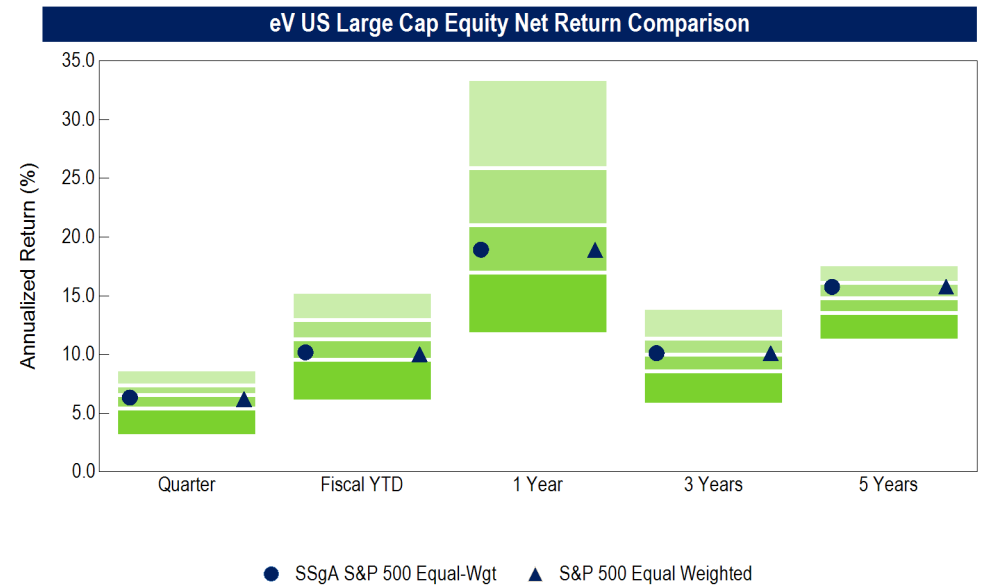
	Equity Sector Attribution						Returns		Sector Weights		
	Total Effects	Selection Effect	Attribution Effects			Portfolio	Benchmark	Portfolio	Benchmark		
			Allocation Effect	Interaction Effects							
Energy	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%	6.1%	6.2%	6.1%		
Materials	0.1%	0.1%	0.0%	0.0%	0.0%	8.9%	6.9%	5.1%	3.0%		
Industrials	0.3%	0.2%	0.0%	0.1%	0.1%	8.0%	6.1%	13.9%	10.2%		
Consumer Discretionary	-0.2%	-0.2%	0.1%	-0.1%	-0.1%	7.9%	9.9%	15.7%	11.9%		
Consumer Staples	0.2%	0.3%	0.0%	-0.1%	-0.1%	9.9%	6.5%	6.4%	8.2%		
Health Care	0.2%	0.1%	0.1%	0.0%	0.0%	2.3%	1.5%	12.3%	14.4%		
Financials	-0.2%	-0.2%	0.0%	0.0%	0.0%	7.1%	8.6%	13.8%	14.6%		
Information Technology	-0.6%	-0.6%	-0.2%	0.3%	0.3%	6.3%	9.0%	13.9%	23.3%		
Telecommunication Services	0.0%	-0.1%	0.0%	0.1%	0.1%	0.2%	3.8%	0.6%	2.1%		
Utilities	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.4%	0.2%	5.4%	3.1%		
Real Estate	-0.1%	0.0%	-0.1%	0.0%	0.0%	3.6%	3.2%	6.5%	3.0%		
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.3%	0.0%		
<b>Portfolio</b>	<b>-0.4%</b>	<b>=</b>	<b>-0.4%</b>	<b>+</b>	<b>-0.3%</b>	<b>+</b>	<b>0.3%</b>	<b>6.3%</b>	<b>6.7%</b>	<b>100.0%</b>	<b>100.0%</b>



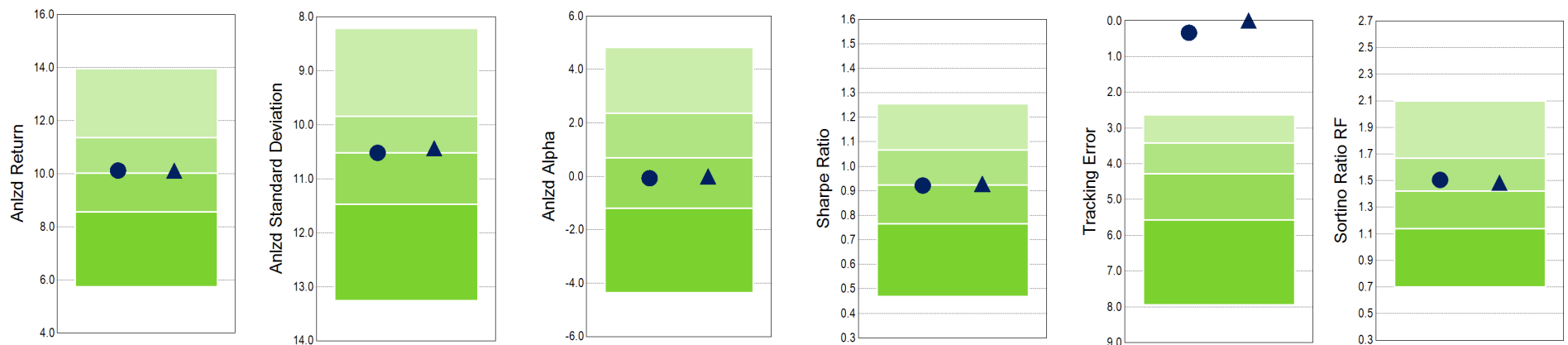


# SSGA S&P 500 EQUAL-WGT

The Strategy is managed using a "passive" or "indexing" investment approach, by which SSgA attempts to match, before expenses, the performance of the Index. SSgA will typically attempt to invest in the securities comprising the Index, in the same proportions as they are represented in the Index. In some cases, it may not be possible or practicable to purchase all of the securities comprising the Index, or to hold them in the same weightings as they represent in the Index. In those circumstances, SSgA may employ a sampling or optimization technique to construct the portfolio in question. From time to time securities are added to or removed from the Index. SSgA may sell securities that are represented in the Index, or purchase securities that are not yet represented in the Index, in anticipation of their removal from or addition to the Index. The Strategy may at times purchase or sell futures contracts on the Index, or options on those futures, or engage in other transactions involving the use of derivatives, in lieu of investment directly in the securities making up the Index or to enhance the Strategy's replication of the Index return. The Strategy's return may not match the return of the Index.



## 3 Year Risk Statistics



# SSGA S&P 500 EQUAL-WGT

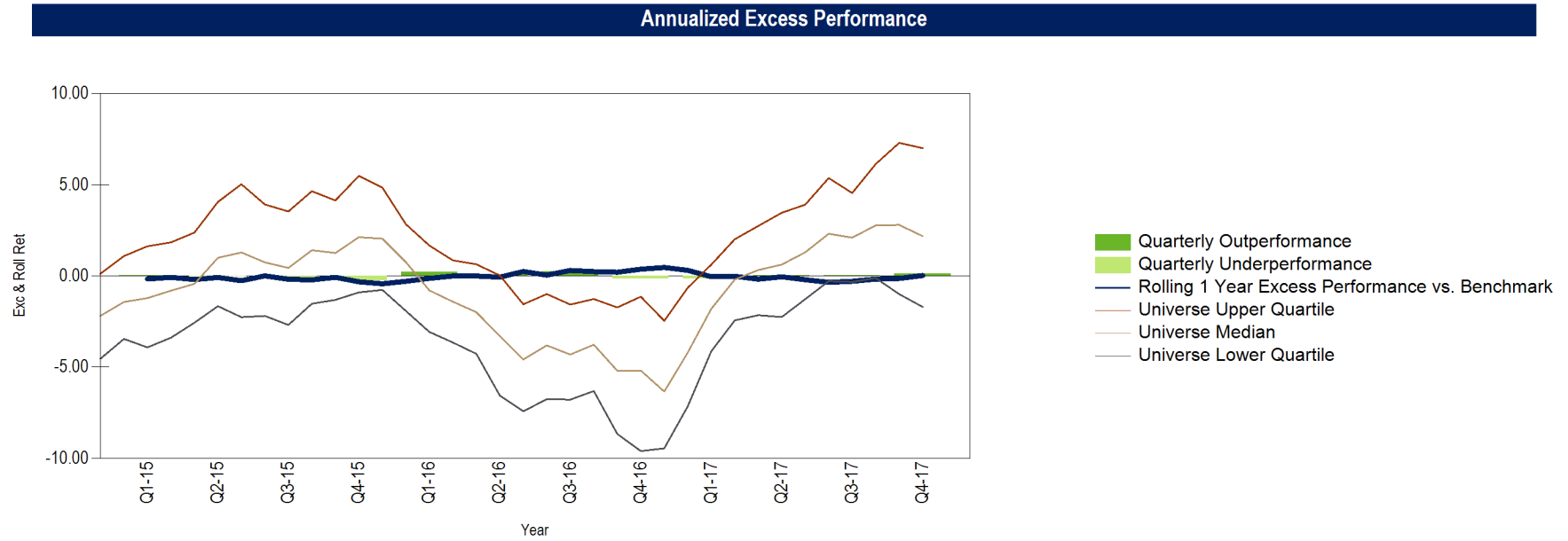
Characteristics			Top Positive Contributors			Top Negative Contributors		
	Portfolio	S&P 500		Relative Contribution %	Return %		Relative Contribution %	Return %
Number of Holdings	500	505	GENERAL ELECTRIC (GE)	0.2%	-27.3%	MICROSOFT (MSFT)	-0.4%	15.4%
Weighted Avg. Market Cap. (\$B)	46.1	180.1	CELGENE (CELG)	0.1%	-28.4%	APPLE (AAPL)	-0.4%	10.2%
Median Market Cap. (\$B)	21.4	21.6	MERCK & COMPANY (MRK)	0.1%	-11.4%	AMAZON.COM (AMZN)	-0.3%	21.6%
Price To Earnings	26.4	24.8	L BRANDS (LB)	0.1%	46.5%	JP MORGAN CHASE & CO. (JPM)	-0.2%	12.6%
Price To Book	5.0	4.9	FOOT LOCKER (FL)	0.1%	34.4%	BANK OF AMERICA (BAC)	-0.2%	17.0%
Price To Sales	3.2	3.5	AKAMAI TECHS. (AKAM)	0.1%	33.5%	INTEL (INTC)	-0.1%	21.9%
Return on Equity (%)	19.5	20.4	MICHAEL KORS HOLDINGS (KORS)	0.1%	31.6%	BERKSHIRE HATHAWAY 'B' (BRKB)	-0.1%	8.1%
Yield (%)	1.8	1.9	VW GRAINGER (GWW)	0.0%	32.3%	JOHNSON & JOHNSON (JNJ)	-0.1%	8.1%
Beta	1.0	1.0	SEAGATE TECH. (STX)	0.0%	28.0%	HOME DEPOT (HD)	-0.1%	16.5%
R-Squared	0.9	1.0	FLUOR (FLR)	0.0%	23.2%	ALPHABET 'C' (GOOG)	-0.1%	9.1%

## SSgA S&P 500 Equal-Wgt Performance Attribution vs. S&P 500

	Total Effects	Attribution Effects				Returns		Sector Weights	
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark	
Energy	0.0%	0.0%	0.0%	0.0%	6.6%	6.1%	6.2%	6.1%	
Materials	0.2%	0.1%	0.1%	0.0%	8.9%	6.9%	5.1%	3.0%	
Industrials	0.5%	0.2%	0.2%	0.1%	8.0%	6.1%	13.9%	10.2%	
Consumer Discretionary	0.1%	-0.2%	0.4%	-0.1%	7.9%	9.9%	15.7%	11.9%	
Consumer Staples	0.1%	0.3%	-0.1%	-0.1%	9.9%	6.5%	6.4%	8.2%	
Health Care	0.1%	0.1%	0.0%	0.0%	2.3%	1.5%	12.3%	14.4%	
Financials	-0.3%	-0.2%	-0.1%	0.0%	7.1%	8.6%	13.8%	14.6%	
Information Technology	-1.2%	-0.6%	-0.8%	0.3%	6.3%	9.0%	13.9%	23.3%	
Telecommunication Services	-0.1%	-0.1%	-0.1%	0.1%	0.2%	3.8%	0.6%	2.1%	
Utilities	0.0%	0.0%	0.0%	0.0%	0.4%	0.2%	5.4%	3.1%	
Real Estate	0.1%	0.0%	0.1%	0.0%	3.6%	3.2%	6.5%	3.0%	
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.3%	0.0%	
<b>Portfolio</b>	<b>-0.4%</b>	<b>=</b>	<b>-0.4%</b>	<b>+</b>	<b>-0.3%</b>	<b>+</b>	<b>0.3%</b>	<b>6.3%</b>	<b>6.7%</b>
								<b>100.0%</b>	<b>100.0%</b>

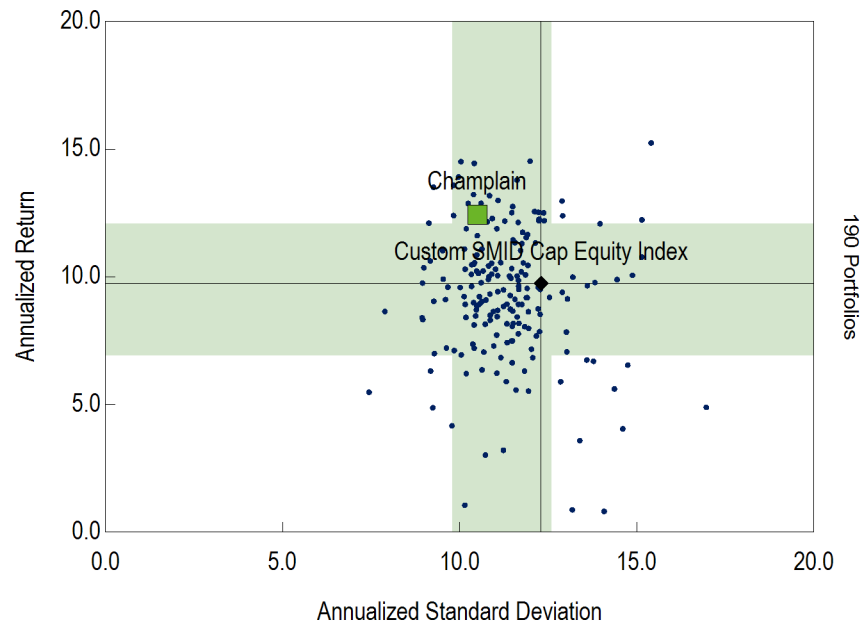


# SSGA S&P 500 EQUAL-WGT

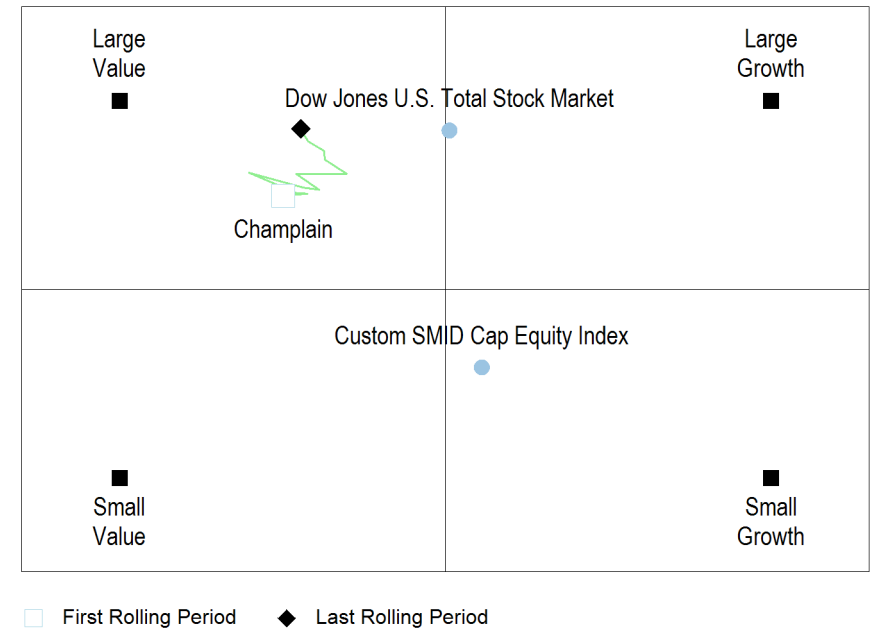


# CHAMPLAIN

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

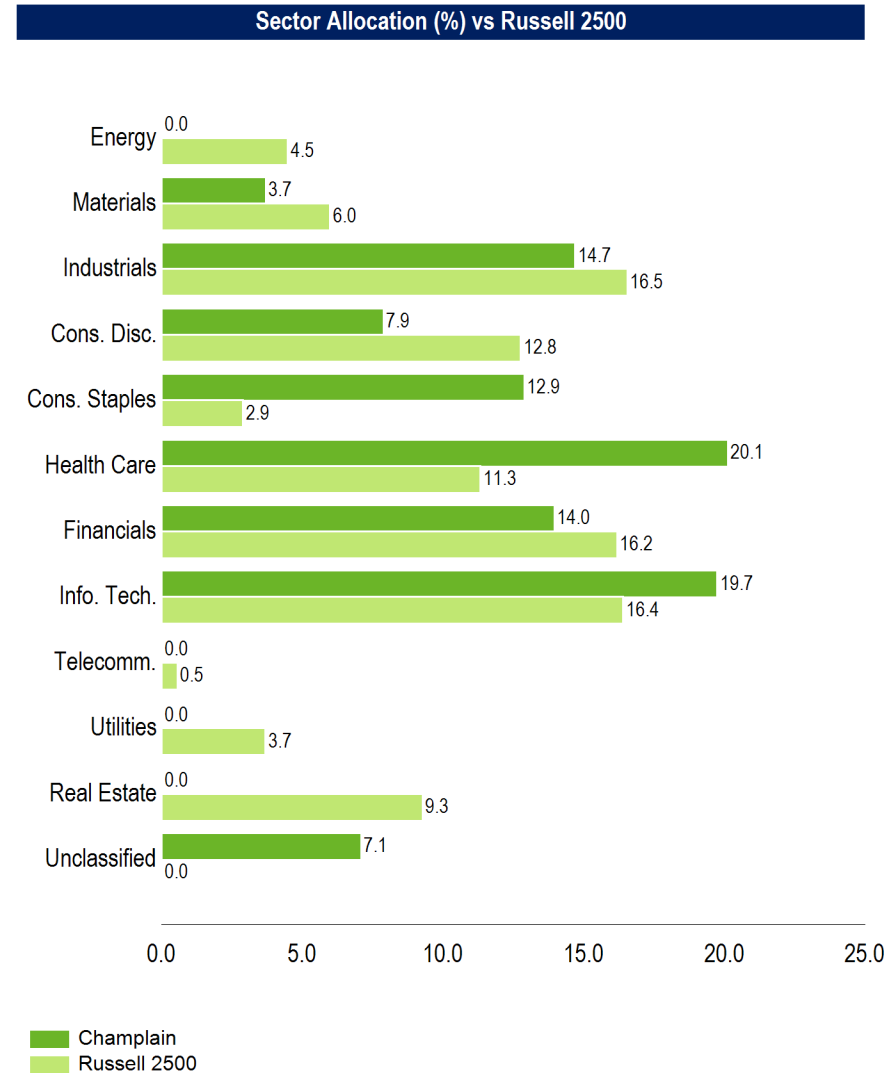
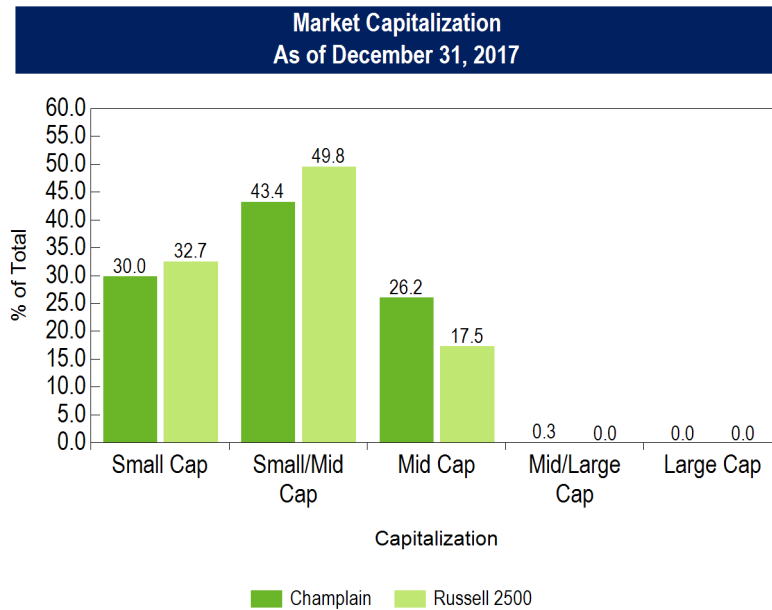


U.S. Effective Style Map  
3 Years Ending December 31, 2017



# CHAMPLAIN

Characteristics		
	Portfolio	Russell 2500
Number of Holdings	115	2,472
Weighted Avg. Market Cap. (\$B)	6.73	5.12
Median Market Cap. (\$B)	3.81	1.20
Price To Earnings	29.03	22.36
Price To Book	5.93	3.73
Price To Sales	3.94	3.24
Return on Equity (%)	10.40	10.62
Yield (%)	0.82	1.22
Beta	0.78	1.00
R-Squared	0.83	1.00



# CHAMPLAIN

Top Ten Holdings	
CASH - USD	7.1%
SNYDERS LANCE	2.5%
WILEY JOHN & SONS 'A'	2.4%
INTEGRA LFSC.HDG.	2.3%
BLACKBAUD	2.2%
RITCHIE BROS.AUCTIONEERS (NYS)	1.9%
NUVASIVE	1.8%
WEX	1.7%
LOGMEIN	1.7%
TREEHOUSE FOODS	1.6%

Top Positive Contributors		
	Relative Contribution %	Return %
SNYDERS LANCE	0.7%	31.9%
NORDSON	0.5%	23.8%
SPLUNK	0.5%	24.7%
WILEY JOHN & SONS 'A'	0.4%	24.2%
ALIGN TECHNOLOGY	0.3%	19.3%
AKAMAI TECHS.	0.3%	33.5%
J M SMUCKER	0.3%	19.3%
WEX	0.3%	25.9%
HORMEL FOODS	0.3%	13.8%
VERISK ANALYTICS CL.A	0.3%	15.4%

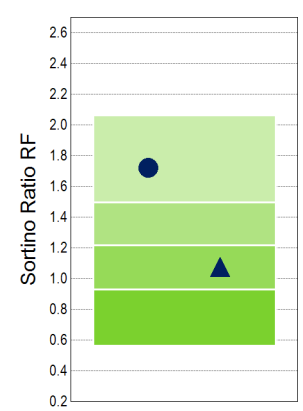
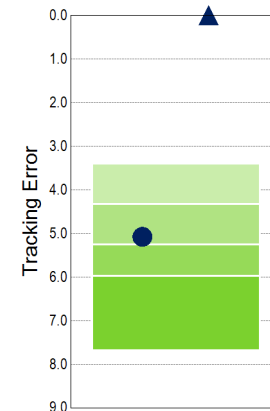
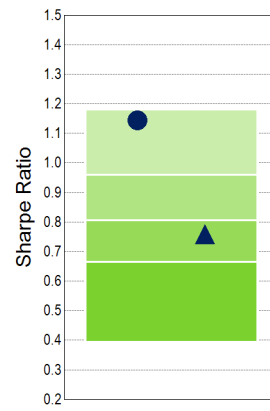
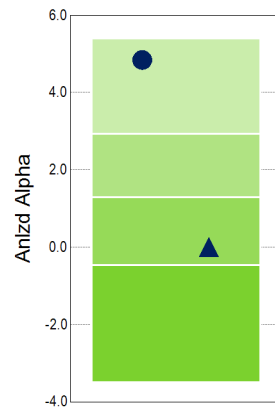
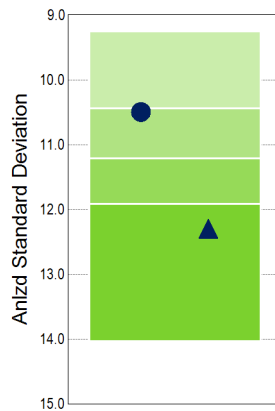
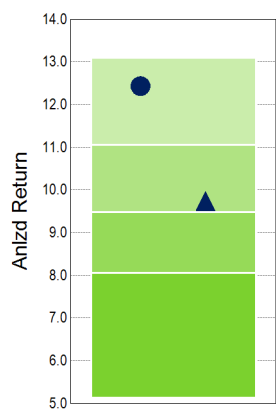
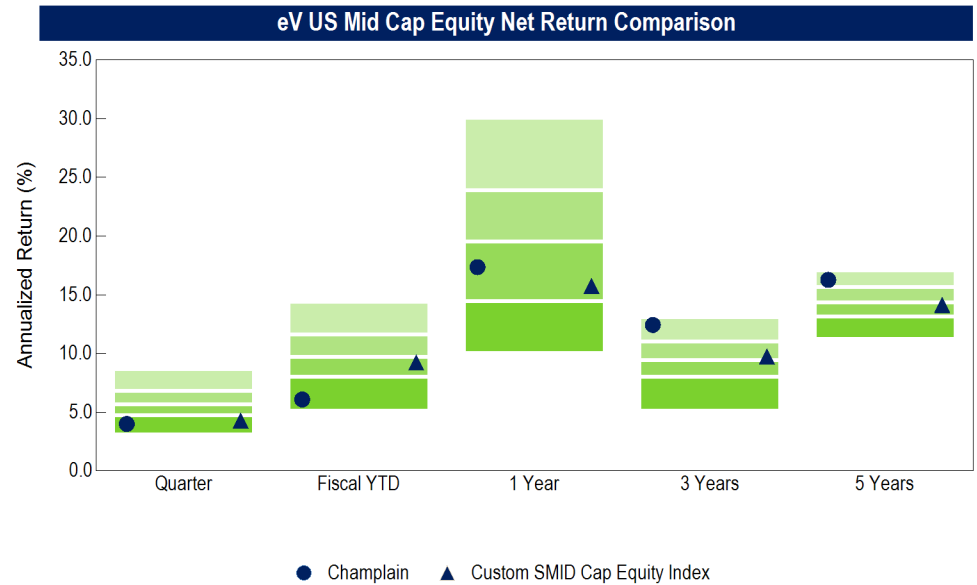
Top Negative Contributors		
	Relative Contribution %	Return %
TREEHOUSE FOODS	-0.5%	-27.0%
HENRY SCHEIN	-0.2%	-14.8%
MEDIDATA SOLUTIONS	-0.2%	-18.8%
TABLEAU SOFTWARE CL.A	-0.2%	-7.6%
COOPER COS.	-0.1%	-8.1%
INTEGRA LFSC.HDG.	-0.1%	-5.2%
RITCHIE BROS.AUCTIONEERS (NYS)	-0.1%	-4.7%
STERICYCLE	-0.1%	-5.1%
GUIDEWIRE SOFTWARE	-0.1%	-4.6%
WORKDAY CLASS A	-0.1%	-3.5%

Equity Sector Attribution									
	Attribution Effects					Returns		Sector Weights	
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects		Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.1%	--	-0.1%	--	--	--	7.8%	0.0%	4.3%
Materials	-0.2%	-0.3%	0.0%	0.1%	1.4%	7.2%	3.5%	5.9%	
Industrials	0.2%	0.2%	0.0%	0.0%	9.6%	8.1%	16.1%	16.1%	
Consumer Discretionary	-0.1%	0.1%	-0.2%	-0.1%	9.2%	8.0%	5.5%	12.5%	
Consumer Staples	0.3%	0.0%	0.1%	0.2%	7.5%	6.0%	14.0%	2.9%	
Health Care	-0.4%	-0.1%	-0.3%	-0.1%	1.5%	2.1%	20.7%	11.6%	
Financials	0.3%	0.4%	0.1%	-0.1%	6.6%	4.3%	10.7%	16.4%	
Information Technology	0.8%	0.6%	0.0%	0.2%	8.7%	4.7%	21.6%	16.3%	
Telecommunication Services	0.0%	--	0.0%	--	--	-0.7%	0.0%	0.6%	
Utilities	0.1%	--	0.1%	--	--	2.6%	0.0%	3.8%	
Real Estate	0.3%	--	0.3%	--	--	2.0%	0.0%	9.6%	
Cash	-0.4%	0.0%	-0.4%	0.0%	0.3%	--	7.9%	0.0%	
<b>Portfolio</b>	<b>0.8%</b>	<b>=</b>	<b>1.0%</b>	<b>+</b>	<b>-0.5%</b>	<b>+</b>	<b>0.2%</b>	<b>6.1%</b>	<b>5.2%</b>
							<b>100.0%</b>		<b>100.0%</b>



# CHAMPLAIN

Champlain employs a fundamental, bottom-up approach to investing in equity assets. They believe that superior companies purchased at attractive valuations have the highest probability to wealth creation. Champlain seeks strong businesses with credible and sincere management and aims to buy shares of their stock at discounts to fair or intrinsic value. Portfolio construction applies sector weight guidelines and position size rules to manage risk. The portfolio will have some exposure to at least seven out of the eight largest sectors of the S&P 400, with a maximum weighting on 25% in any one sector. Individual positions will not represent more than 2% of the respective companies' outstanding shares and are limited to no more than 5% of assets under management. The portfolio typically holds 50-75 securities with average position sizes of 2%. The strategy's minimum market cap is \$1.5 billion at purchase and a maximum market cap of \$15 billion. In general, no more than 10% of portfolio in stocks with a market cap below \$2B and no more than 5% of portfolio in companies with market cap above \$20B.



# CHAMPLAIN

Characteristics	Portfolio	Russell 2500
Number of Holdings	115	2,472
Weighted Avg. Market Cap. (\$B)	6.7	5.1
Median Market Cap. (\$B)	3.8	1.2
Price To Earnings	29.0	22.4
Price To Book	5.9	3.7
Price To Sales	3.9	3.2
Return on Equity (%)	10.4	10.6
Yield (%)	0.8	1.2
Beta	0.8	1.0
R-Squared	0.8	1.0

Top Positive Contributors	Relative Contribution %	Return %
SNYDERS LANCE (LNCE)	0.7%	31.9%
NORDSON (NDSN)	0.5%	23.8%
SPLUNK (SPLK)	0.5%	24.7%
WILEY JOHN & SONS 'A' (JWA)	0.4%	24.2%
ALIGN TECHNOLOGY (ALGN)	0.3%	19.3%
AKAMAI TECHS. (AKAM)	0.3%	33.5%
J M SMUCKER (SJM)	0.3%	19.3%
WEX (WEX)	0.3%	25.9%
HORMEL FOODS (HRL)	0.3%	13.8%
VERISK ANALYTICS CL.A (VRSK)	0.3%	15.4%

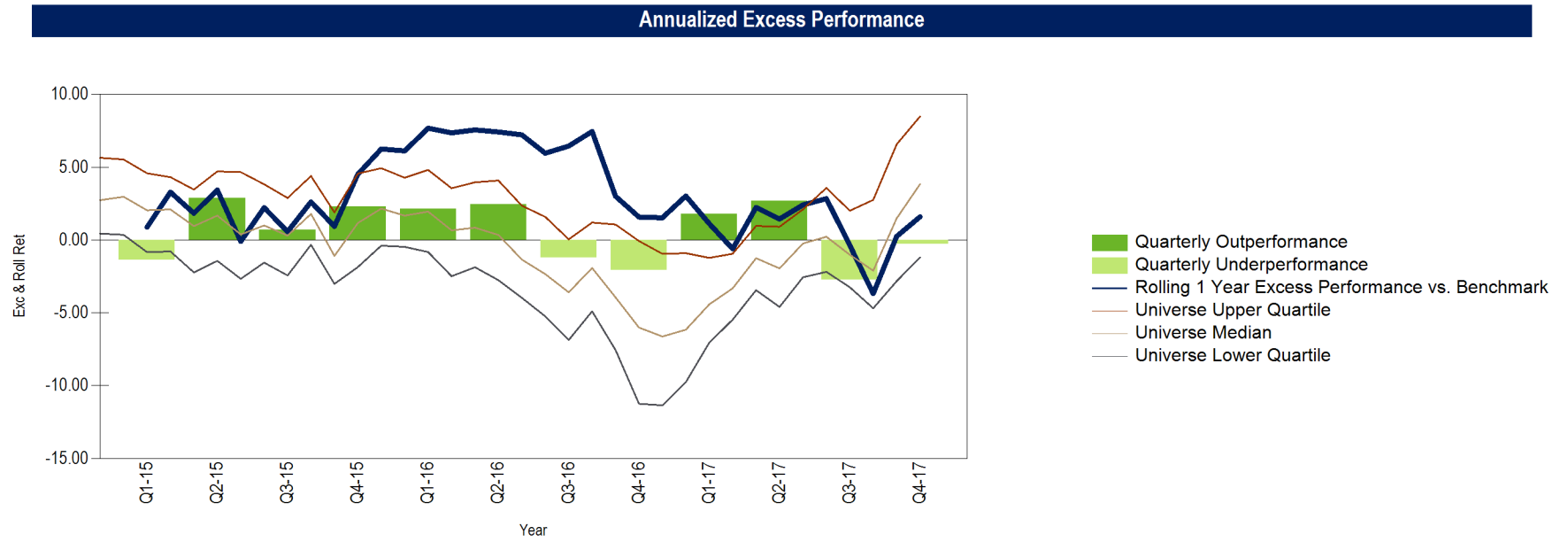
Top Negative Contributors	Relative Contribution %	Return %
TREEHOUSE FOODS (THS)	-0.5%	-27.0%
HENRY SCHEIN (HSIC)	-0.2%	-14.8%
MEDIDATA SOLUTIONS (MDSO)	-0.2%	-18.8%
TABLEAU SOFTWARE CL.A (DATA)	-0.2%	-7.6%
COOPER COS. (COO)	-0.1%	-8.1%
INTEGRA LFSC.HDG. (IART)	-0.1%	-5.2%
RITCHIE BROS.AUCTIONEERS (NYS) (RBA)	-0.1%	-4.7%
STERICYCLE (SRCL)	-0.1%	-5.1%
GUIDEWIRE SOFTWARE (GWRE)	-0.1%	-4.6%
WORKDAY CLASS A (WDAY)	-0.1%	-3.5%

Champlain Performance Attribution vs. Russell 2500											
	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.3%	--	-0.3%	--	--	7.8%	0.0%	4.3%			
Materials	-0.4%	-0.3%	-0.2%	0.1%	1.4%	7.2%	3.5%	5.9%			
Industrials	0.2%	0.2%	0.0%	0.0%	9.6%	8.1%	16.1%	16.1%			
Consumer Discretionary	-0.5%	0.1%	-0.6%	-0.1%	9.2%	8.0%	5.5%	12.5%			
Consumer Staples	0.9%	0.0%	0.7%	0.2%	7.5%	6.0%	14.0%	2.9%			
Health Care	0.1%	-0.1%	0.2%	-0.1%	1.5%	2.1%	20.7%	11.6%			
Financials	0.0%	0.4%	-0.2%	-0.1%	6.6%	4.3%	10.7%	16.4%			
Information Technology	1.1%	0.6%	0.3%	0.2%	8.7%	4.7%	21.6%	16.3%			
Telecommunication Services	0.0%	--	0.0%	--	--	-0.7%	0.0%	0.6%			
Utilities	-0.1%	--	-0.1%	--	--	2.6%	0.0%	3.8%			
Real Estate	-0.2%	--	-0.2%	--	--	2.0%	0.0%	9.6%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	7.9%	0.0%			
<b>Portfolio</b>	<b>0.8%</b>	<b>=</b>	<b>1.0%</b>	<b>+</b>	<b>-0.5%</b>	<b>+</b>	<b>0.2%</b>	<b>6.1%</b>	<b>5.2%</b>	<b>100.0%</b>	<b>100.0%</b>



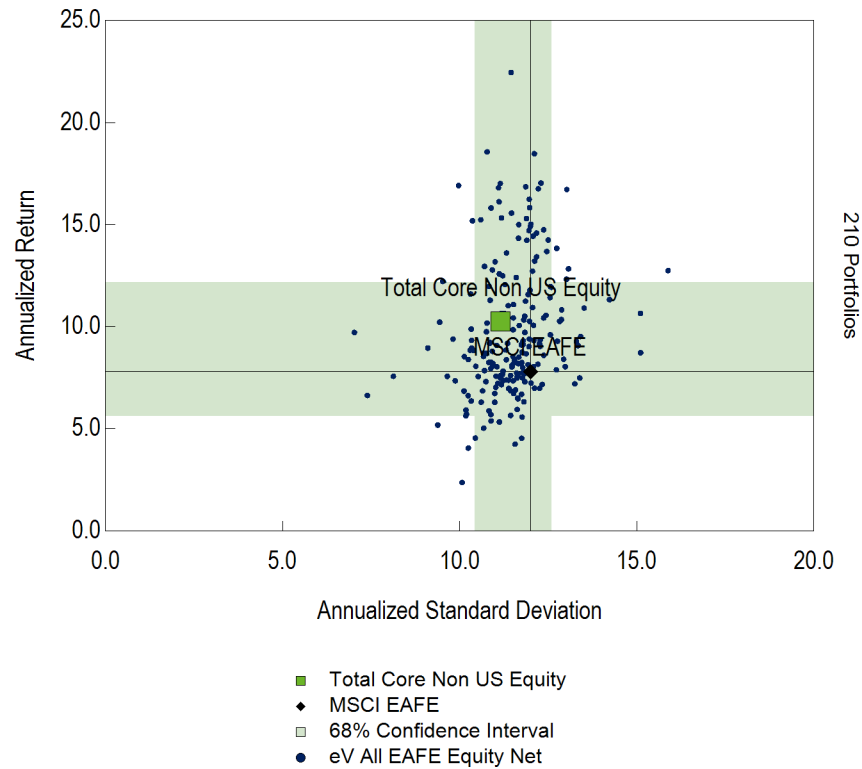


# CHAMPLAIN

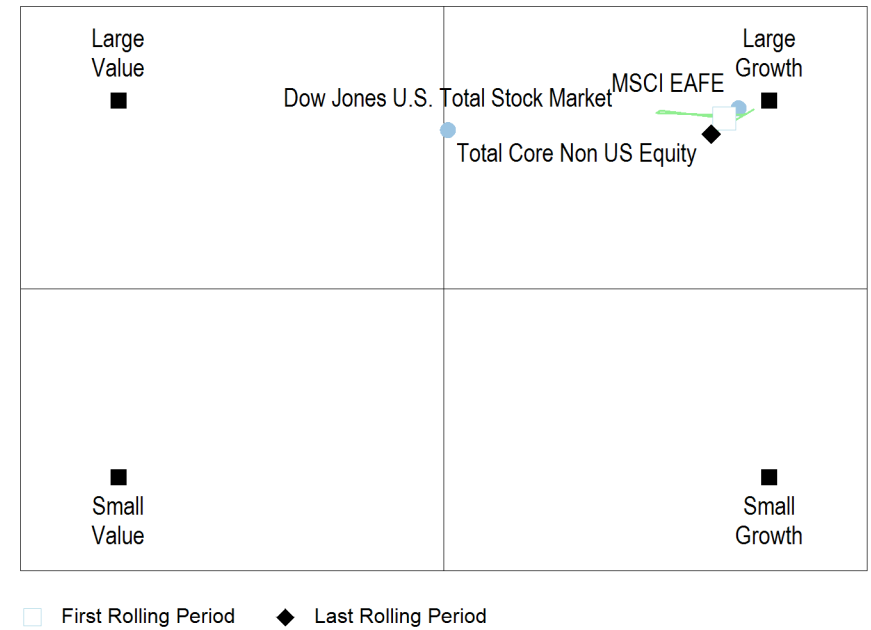


# INT'L EQUITY COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



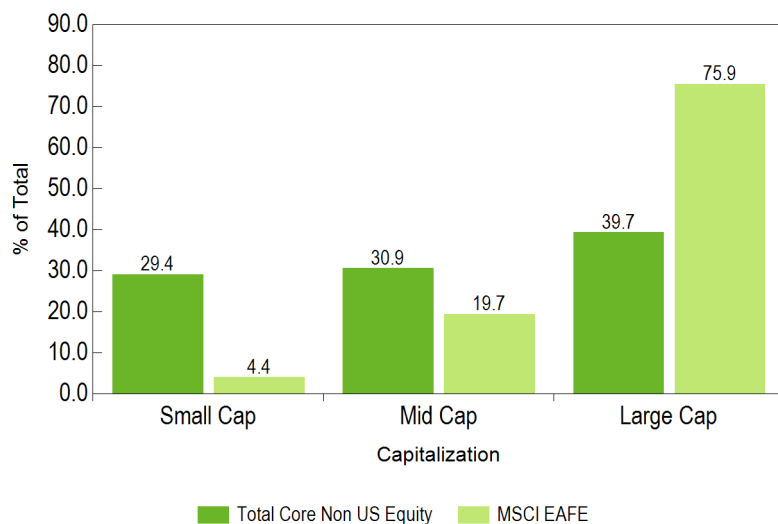
U.S. Effective Style Map  
3 Years Ending December 31, 2017



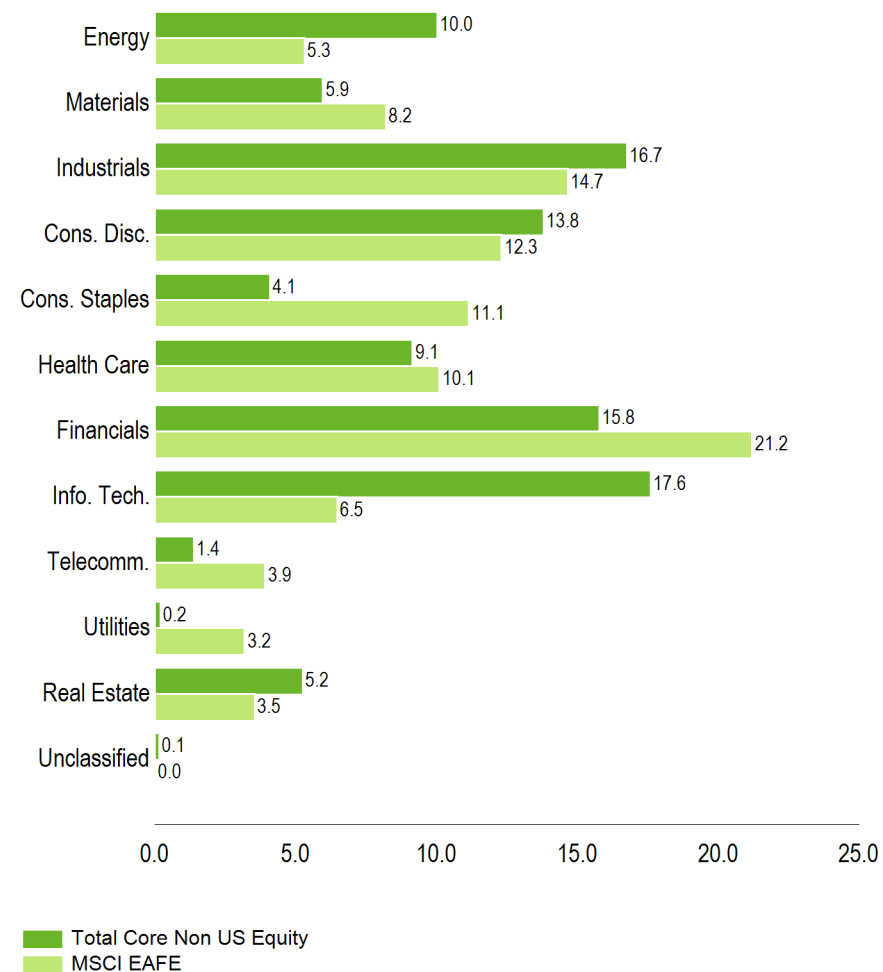
# INT'L EQUITY COMPOSITE

Characteristics		
	Portfolio	MSCI EAFE
Number of Holdings	457	928
Weighted Avg. Market Cap. (\$B)	42.31	59.79
Median Market Cap. (\$B)	1.08	11.50
Price To Earnings	19.20	20.39
Price To Book	3.24	2.68
Price To Sales	2.04	2.11
Return on Equity (%)	21.16	13.77
Yield (%)	2.23	2.90
Beta	0.92	1.00
R-Squared	0.98	1.00

**Market Capitalization**  
As of December 31, 2017



**Sector Allocation (%) vs MSCI EAFE**



# INT'L EQUITY COMPOSITE

Top Ten Holdings	
ROYAL DUTCH SHELL A	3.4%
ALIBABA GROUP HLDG.SPN. ADR 1:1	2.6%
LONZA GROUP	2.1%
DEUTSCHE LUFTHANSA	2.0%
DAITO TST.CONSTRUCTION	2.0%
NORSK HYDRO	1.9%
TORONTO-DOMINION BANK	1.9%
ACS ACTIV.CONSTR.Y SERV.	1.9%
ROYAL BANK OF CANADA	1.8%
SWISS LIFE HOLDING	1.8%

Top Positive Contributors		
	Relative Contribution %	Return %
BANK RAKYAT INDONESIA	0.4%	18.3%
KONINKLIJKE AHOLD DELHAIZE	0.3%	17.7%
BANK MANDIRI	0.3%	18.1%
HONDA MOTOR	0.3%	16.5%
PEARSON	0.3%	21.3%
BANK NEGARA INDONESIA	0.2%	32.8%
SAMSUNG ELECTRONICS	0.2%	6.3%
UNITED OVERSEAS BANK	0.2%	14.4%
BANK CENTRAL ASIA	0.2%	7.5%
TOKIO MARINE HOLDINGS	0.2%	16.7%

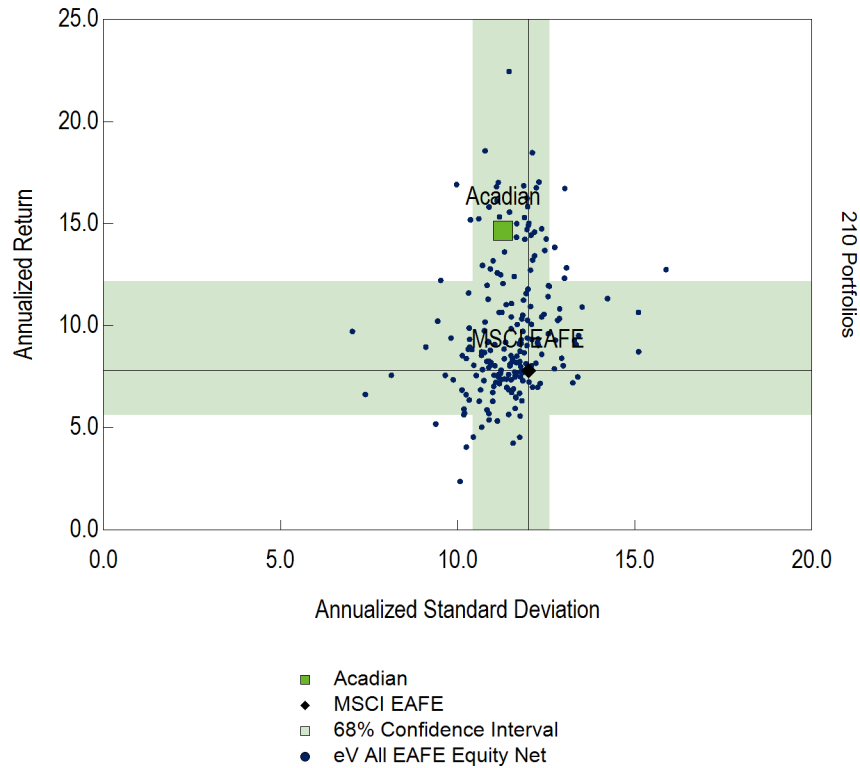
Top Negative Contributors		
	Relative Contribution %	Return %
TELEKOMUNIKASI INDONESIA	-0.2%	-5.8%
SANOFI	-0.2%	-13.1%
ROYAL DUTCH SHELL A(LON)	-0.1%	12.9%
AIA GROUP	-0.1%	15.6%
ROYAL DUTCH SHELL B	-0.1%	11.9%
BRITISH AMERICAN TOBACCO	-0.1%	9.2%
HSBC HDG. (ORD \$0.50)	-0.1%	6.0%
BP	-0.1%	12.0%
VODAFONE GROUP	-0.1%	15.6%
NOVO NORDISK 'B'	-0.1%	12.8%

Equity Sector Attribution											
	Attribution Effects					Returns		Sector Weights			
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects		Portfolio	Benchmark	Portfolio	Benchmark		
Energy	-0.1%	-0.2%	0.1%	0.0%		7.3%	10.3%	6.4%	5.1%		
Materials	-0.2%	-0.2%	-0.1%	0.1%		6.3%	8.3%	4.5%	7.8%		
Industrials	-0.2%	-0.3%	0.0%	0.1%		3.6%	4.8%	10.3%	14.5%		
Consumer Discretionary	0.6%	0.3%	0.0%	0.2%		8.3%	5.3%	16.6%	12.1%		
Consumer Staples	0.7%	0.8%	0.0%	0.0%		12.4%	5.0%	10.2%	11.2%		
Health Care	0.0%	-0.2%	0.1%	0.1%		-1.9%	-0.1%	7.5%	10.6%		
Financials	1.5%	1.5%	0.0%	0.0%		10.1%	3.1%	21.0%	21.4%		
Information Technology	0.2%	-0.1%	0.0%	0.3%		6.4%	5.0%	11.5%	6.3%		
Telecommunication Services	-0.5%	-0.2%	-0.1%	-0.2%		-4.0%	0.7%	7.9%	4.1%		
Utilities	0.1%	0.0%	0.1%	0.0%		0.6%	-1.0%	1.6%	3.3%		
Real Estate	-0.1%	-0.1%	0.0%	0.0%		4.0%	7.4%	2.4%	3.5%		
Cash	0.0%	--	--	--		--	--	0.0%	0.0%		
<b>Portfolio</b>	<b>2.0%</b>	<b>=</b>	<b>1.3%</b>	<b>+</b>	<b>0.1%</b>	<b>+</b>	<b>0.6%</b>	<b>6.3%</b>	<b>4.3%</b>	<b>100.0%</b>	<b>100.0%</b>

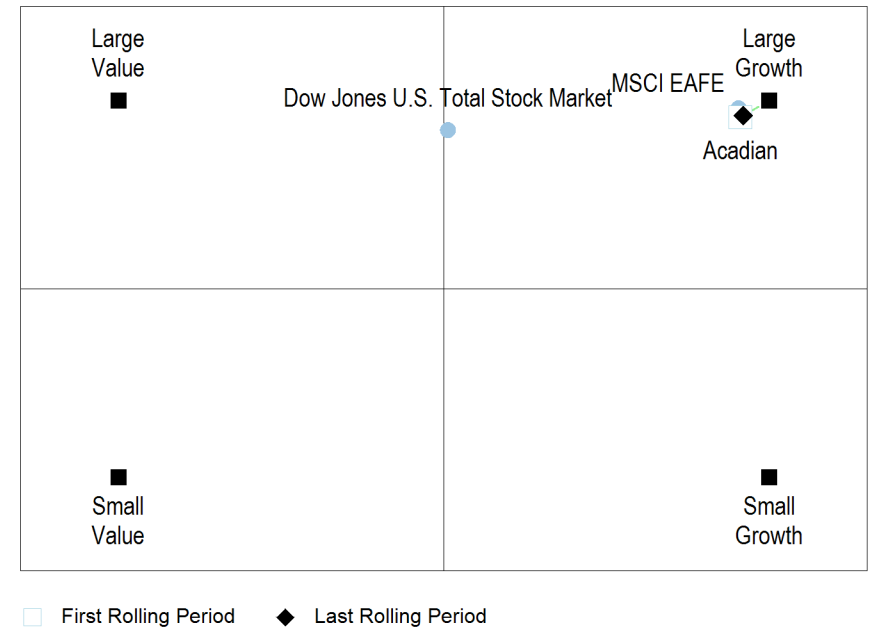


# ACADIAN

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

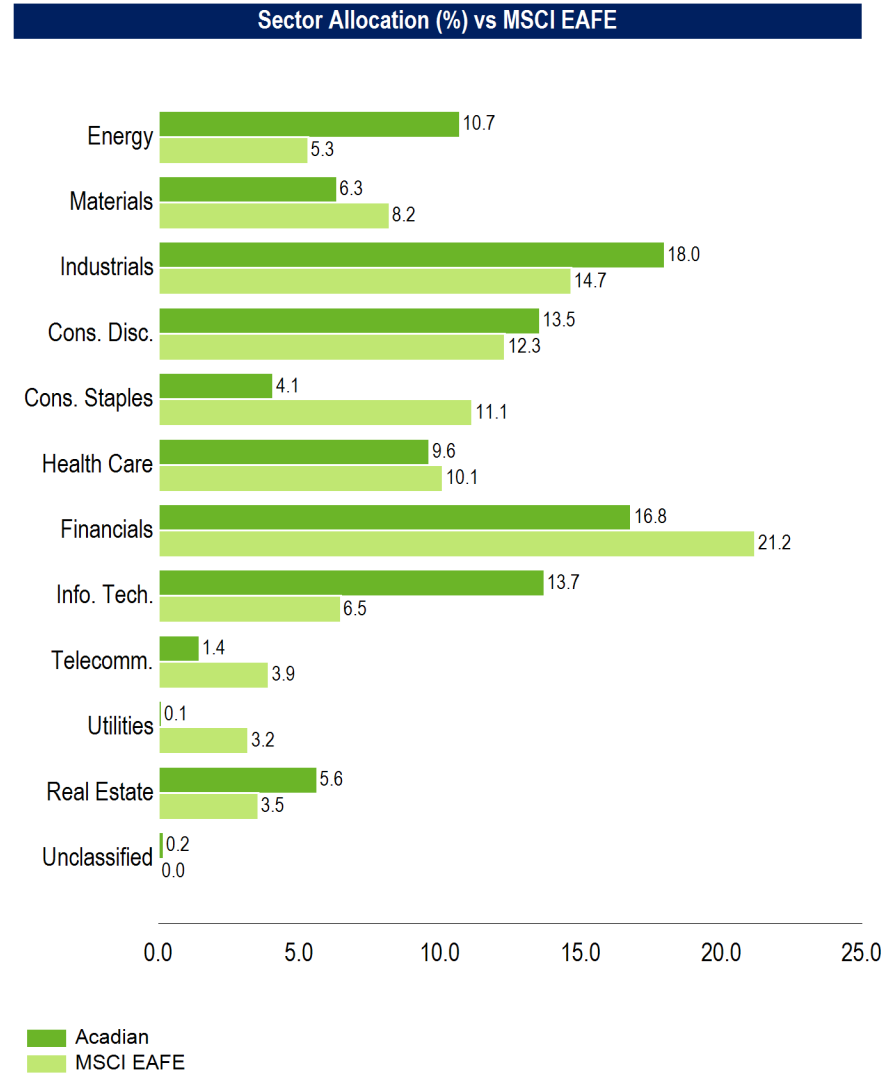
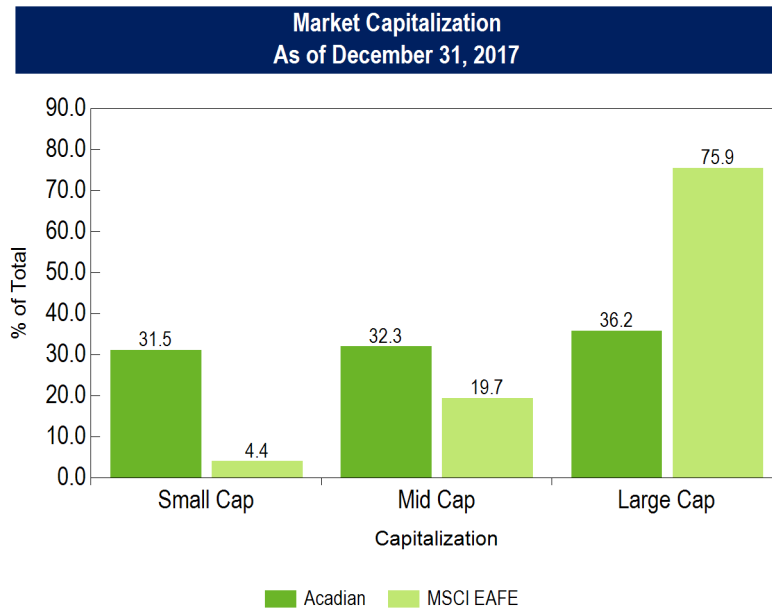


U.S. Effective Style Map  
3 Years Ending December 31, 2017



# ACADIAN

Characteristics		
	Portfolio	MSCI EAFE
Number of Holdings	409	928
Weighted Avg. Market Cap. (\$B)	30.97	59.79
Median Market Cap. (\$B)	0.80	11.50
Price To Earnings	17.92	20.39
Price To Book	2.83	2.68
Price To Sales	1.50	2.11
Return on Equity (%)	20.94	13.77
Yield (%)	2.35	2.90
Beta	0.90	1.00
R-Squared	0.91	1.00



# ACADIAN

Top Ten Holdings	
ROYAL DUTCH SHELL A	3.7%
LONZA GROUP	2.3%
DEUTSCHE LUFTHANSA	2.2%
DAITO TST.CONSTRUCTION	2.2%
NORSK HYDRO	2.1%
TORONTO-DOMINION BANK	2.1%
ACS ACTIV.CONSTR.Y SERV.	2.0%
ROYAL BANK OF CANADA	2.0%
SWISS LIFE HOLDING	1.9%
SAMSUNG ELECTRONICS	1.9%

Top Positive Contributors		
	Relative Contribution %	Return %
DEUTSCHE LUFTHANSA	0.6%	33.2%
NESTE	0.5%	46.7%
ROYAL DUTCH SHELL A	0.4%	12.0%
LG ELECTRONICS	0.3%	37.6%
DAITO TST.CONSTRUCTION	0.2%	12.0%
STANDARD BK.GP.	0.2%	35.2%
DAIWA HOUSE INDUSTRY	0.2%	11.3%
ARISTOCRAT LEISURE	0.2%	13.5%
CANADIAN IMP.BK.COM.	0.2%	13.2%
JAFCO	0.2%	13.5%

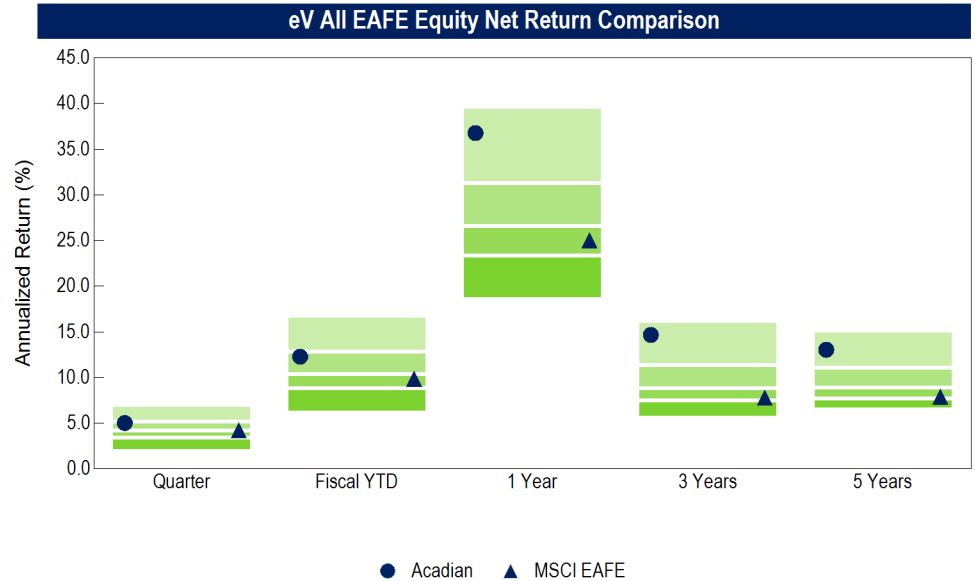
Top Negative Contributors		
	Relative Contribution %	Return %
PEUGEOT	-0.3%	-14.5%
QANTAS AIRWAYS	-0.2%	-13.8%
H LUNDBECK	-0.2%	-12.0%
ATOS	-0.1%	-6.1%
ELECTROLUX 'B'	-0.1%	-4.7%
FUJITSU	-0.1%	-4.0%
BYD ELECTRONIC (INTL.)	-0.1%	-26.4%
SONY	-0.1%	21.3%
SOLVAY	-0.1%	-6.9%
SARAS	-0.1%	-10.3%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects				Returns		Sector Weights		
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.7%	0.1%	0.3%	0.2%	12.7%	10.3%	11.0%	5.1%			
Materials	-0.4%	-0.4%	0.0%	0.0%	2.6%	8.3%	7.4%	7.8%			
Industrials	0.3%	0.1%	0.0%	0.2%	6.0%	4.8%	18.7%	14.5%			
Consumer Discretionary	-0.2%	-0.2%	0.0%	0.0%	3.7%	5.3%	13.6%	12.1%			
Consumer Staples	0.0%	0.1%	-0.1%	-0.1%	6.4%	5.0%	3.6%	11.2%			
Health Care	-0.1%	-0.2%	0.1%	0.0%	-2.3%	-0.1%	8.4%	10.6%			
Financials	0.6%	0.6%	0.1%	-0.1%	6.7%	3.1%	16.3%	21.4%			
Information Technology	-0.1%	-0.2%	0.1%	0.0%	3.5%	5.0%	13.9%	6.3%			
Telecommunication Services	0.2%	0.5%	0.1%	-0.4%	12.5%	0.7%	1.3%	4.1%			
Utilities	0.1%	-0.4%	0.2%	0.3%	-10.6%	-1.0%	0.1%	3.3%			
Real Estate	0.2%	0.1%	0.1%	0.0%	9.6%	7.4%	5.7%	3.5%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>1.2%</b>	<b>=</b>	<b>0.2%</b>	<b>+</b>	<b>0.9%</b>	<b>+</b>	<b>0.2%</b>	<b>5.5%</b>	<b>4.3%</b>	<b>100.0%</b>	<b>100.0%</b>

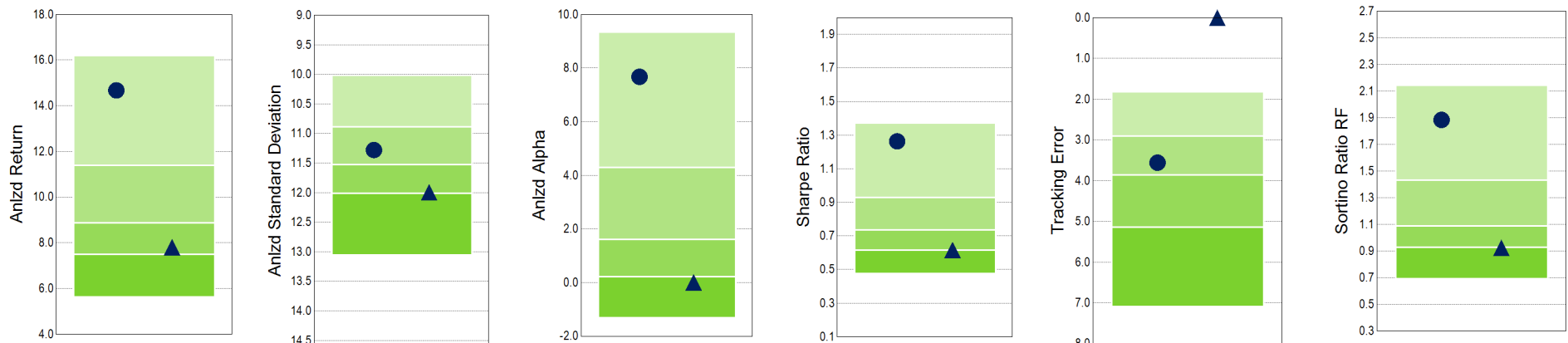


# ACADIAN

Acadian believes that the larger the pool of potential investments, the greater the potential opportunity an active manager has to add value. They believe that stocks and markets have many attributes that are related to potential outperformance, and that a successful investment approach must be multi-faceted and highly adaptable. They believe that objectivity is crucial to investment success. Acadian's quantitative process and extensive database allows them to apply their valuation techniques to over 40,000 stocks worldwide. They do not limit the universe other than to employ screens based on invest-ability and availability of data. For example, they only evaluate stocks that have sufficient daily trading volume to be appropriate for institutional investment. Other than these practical considerations, they consider our investment universe to encompass all institutionally investable stocks in the world.



### 3 Year Risk Statistics





# ACADIAN

Characteristics		
	Portfolio	MSCI EAFE
Number of Holdings	409	928
Weighted Avg. Market Cap. (\$B)	31.0	59.8
Median Market Cap. (\$B)	0.8	11.5
Price To Earnings	17.9	20.4
Price To Book	2.8	2.7
Price To Sales	1.5	2.1
Return on Equity (%)	20.9	13.8
Yield (%)	2.4	2.9
Beta	0.9	1.0
R-Squared	0.9	1.0

Top Positive Contributors		
	Relative Contribution %	Return %
DEUTSCHE LUFTHANSA (D:LHA)	0.6%	33.2%
NESTE (M:NEST)	0.5%	46.7%
ROYAL DUTCH SHELL A (H:RDSA)	0.4%	12.0%
LG ELECTRONICS (KO:JHD)	0.3%	37.6%
DAITO TST.CONSTRUCTION (J:DITC)	0.2%	12.0%
STANDARD BK.GP. (R:SBKJ)	0.2%	35.2%
DAIWA HOUSE INDUSTRY (J:DH@N)	0.2%	11.3%
ARISTOCRAT LEISURE (A:ALLX)	0.2%	13.5%
CANADIAN IMP.BK.COM. (C:CM)	0.2%	13.2%
JAFCO (J:ASSD)	0.2%	13.5%

Top Negative Contributors		
	Relative Contribution %	Return %
PEUGEOT (F:PGT)	-0.3%	-14.5%
QANTAS AIRWAYS (A:QANX)	-0.2%	-13.8%
H LUNDBECK (DK:LUN)	-0.2%	-12.0%
ATOS (F:ATO)	-0.1%	-6.1%
ELECTROLUX 'B' (W:SE@G)	-0.1%	-4.7%
FUJITSU (J:FT@N)	-0.1%	-4.0%
BYD ELECTRONIC (INTL.) (K:BYDE)	-0.1%	-26.4%
SONY (J:SO@N)	-0.1%	21.3%
SOLVAY (B:SOL)	-0.1%	-6.9%
SARAS (I:SARA)	-0.1%	-10.3%

Acadian Performance Attribution vs. MSCI EAFE											
	Attribution Effects				Returns			Sector Weights			
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.9%	0.1%	0.6%	0.2%	12.7%	10.3%	11.0%	5.1%			
Materials	-0.5%	-0.4%	0.0%	0.0%	2.6%	8.3%	7.4%	7.8%			
Industrials	0.4%	0.1%	0.2%	0.2%	6.0%	4.8%	18.7%	14.5%			
Consumer Discretionary	-0.1%	-0.2%	0.1%	0.0%	3.7%	5.3%	13.6%	12.1%			
Consumer Staples	-0.3%	0.1%	-0.3%	-0.1%	6.4%	5.0%	3.6%	11.2%			
Health Care	-0.2%	-0.2%	0.0%	0.0%	-2.3%	-0.1%	8.4%	10.6%			
Financials	0.4%	0.6%	-0.1%	-0.1%	6.7%	3.1%	16.3%	21.4%			
Information Technology	0.2%	-0.2%	0.3%	0.0%	3.5%	5.0%	13.9%	6.3%			
Telecommunication Services	0.1%	0.5%	0.0%	-0.4%	12.5%	0.7%	1.3%	4.1%			
Utilities	0.0%	-0.4%	0.1%	0.3%	-10.6%	-1.0%	0.1%	3.3%			
Real Estate	0.3%	0.1%	0.2%	0.0%	9.6%	7.4%	5.7%	3.5%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>1.2%</b>	<b>=</b>	<b>0.2%</b>	<b>+</b>	<b>0.9%</b>	<b>+</b>	<b>0.2%</b>	<b>5.5%</b>	<b>4.3%</b>	<b>100.0%</b>	<b>100.0%</b>



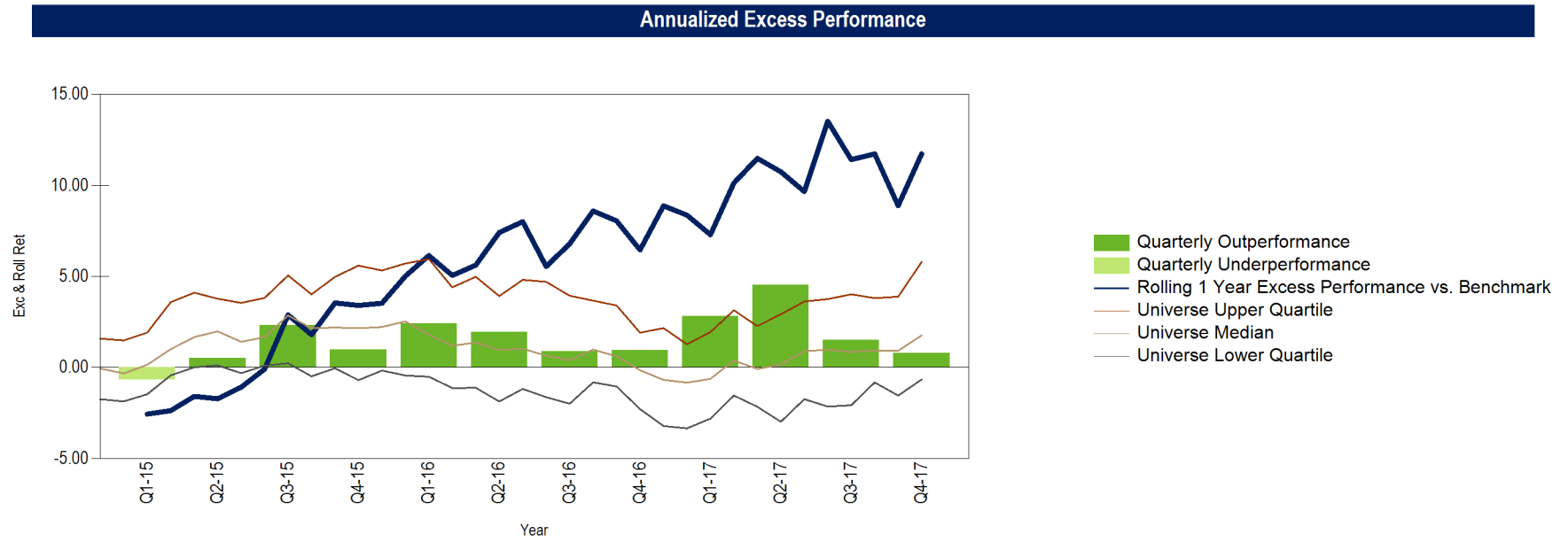
# ACADIAN

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Canada	6.0%	0.0%	7.5%	4.3%
Mexico*	0.2%	0.0%	-11.5%	-8.1%
United States	0.1%	0.0%	7.8%	6.4%
<b>Total-Americas</b>	<b>6.3%</b>	<b>0.0%</b>	<b>6.9%</b>	<b>--</b>
<b>Europe</b>				
Austria	2.0%	0.3%	8.2%	5.8%
Belgium	1.5%	1.2%	-5.6%	-1.6%
Denmark	1.6%	1.9%	-10.7%	2.3%
Finland	1.3%	1.0%	43.2%	-2.5%
France	9.4%	10.7%	-0.2%	1.6%
Germany	6.9%	9.7%	14.2%	2.5%
Greece*	0.2%	0.0%	-4.1%	13.3%
Ireland	2.2%	0.5%	-1.5%	3.7%
Italy	3.1%	2.5%	-4.1%	-2.2%
Luxembourg	0.2%	0.0%	2.1%	4.3%
Netherlands	6.0%	3.7%	8.1%	1.2%
Norway	2.6%	0.7%	4.4%	2.3%
Poland*	0.0%	0.0%	0.8%	5.8%
Spain	3.8%	3.5%	5.0%	-1.5%
Sweden	3.7%	2.9%	-2.2%	-3.7%
Switzerland	4.7%	8.2%	1.6%	1.8%
United Kingdom	9.1%	17.8%	4.7%	5.8%
<b>Total-Europe</b>	<b>58.4%</b>	<b>64.6%</b>	<b>4.2%</b>	<b>2.3%</b>

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	4.6%	6.8%	4.8%	6.7%
China*	0.1%	0.0%	-0.8%	4.0%
Hong Kong	0.9%	3.5%	-0.3%	7.6%
Indonesia*	0.0%	0.0%	-3.9%	0.1%
Japan	19.2%	23.2%	2.0%	8.5%
Korea*	5.5%	0.0%	6.1%	8.4%
Malaysia*	0.1%	0.0%	3.8%	-0.2%
New Zealand	0.2%	0.2%	-7.2%	0.0%
Philippines*	0.0%	0.0%	-1.8%	0.9%
Singapore	0.5%	1.3%	3.9%	10.1%
Taiwan*	0.5%	0.0%	4.2%	6.3%
Thailand*	0.2%	0.0%	4.6%	2.5%
<b>Total-AsiaPacific</b>	<b>31.9%</b>	<b>34.9%</b>	<b>3.1%</b>	<b>8.1%</b>
<b>Other</b>				
Israel	0.6%	0.5%	2.6%	4.0%
South Africa*	2.1%	0.0%	-1.0%	2.4%
Turkey*	0.1%	0.0%	-0.6%	0.1%
<b>Total-Other</b>	<b>2.8%</b>	<b>0.5%</b>	<b>-0.2%</b>	<b>4.0%</b>
<b>Totals</b>				
Developed	91.0%	100.0%	2.6%	4.3%
Emerging*	9.0%	0.0%	3.7%	--

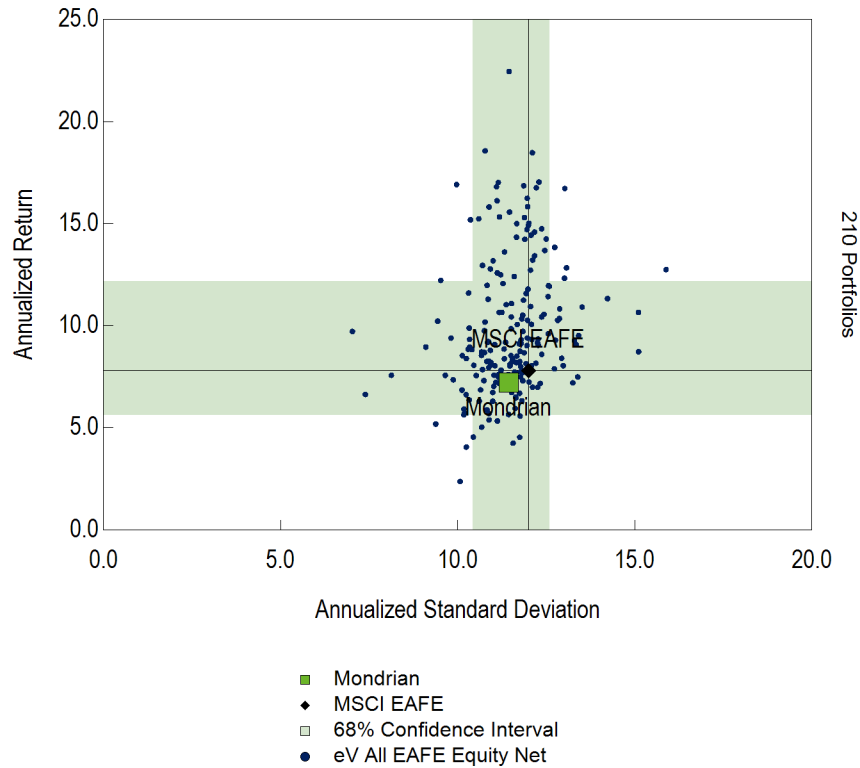


# ACADIAN

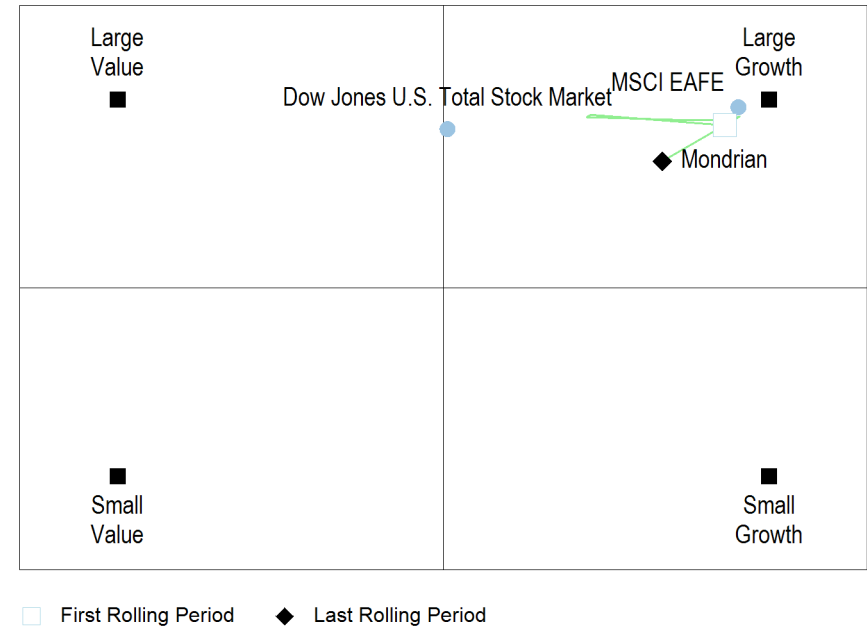


# MONDRIAN

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

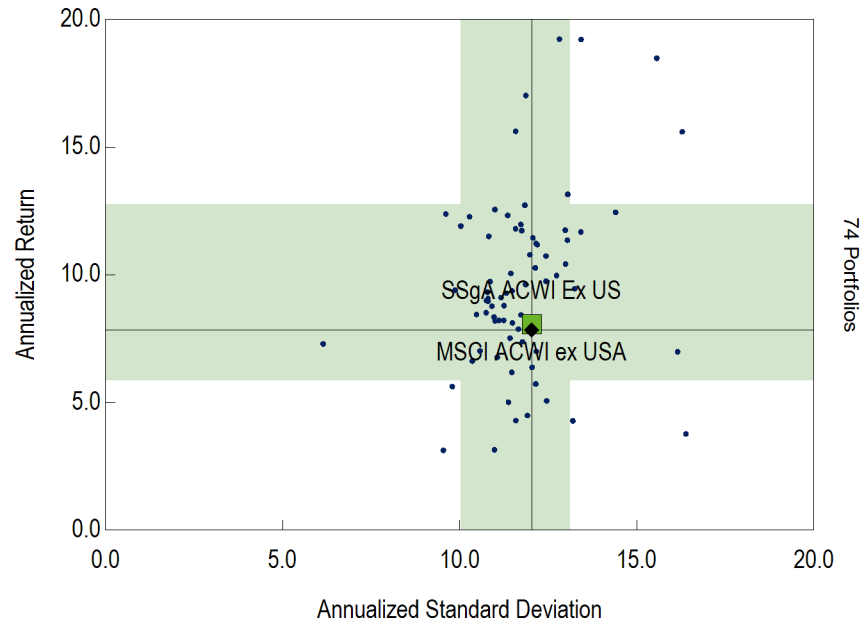


U.S. Effective Style Map  
3 Years Ending December 31, 2017

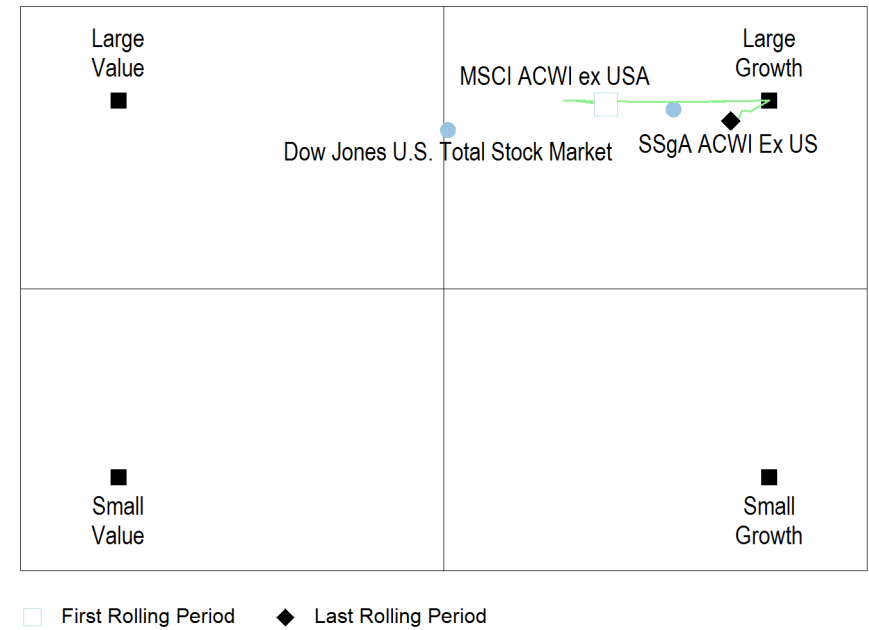


# SSGA ACWI EX US

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



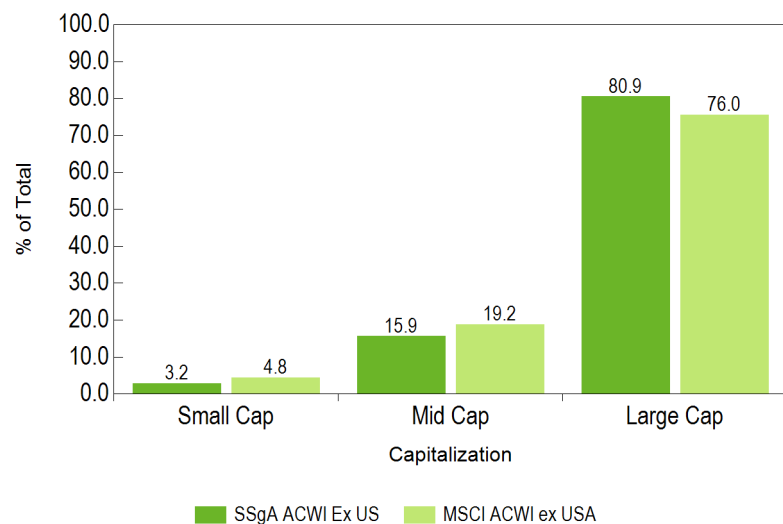
U.S. Effective Style Map  
3 Years Ending December 31, 2017



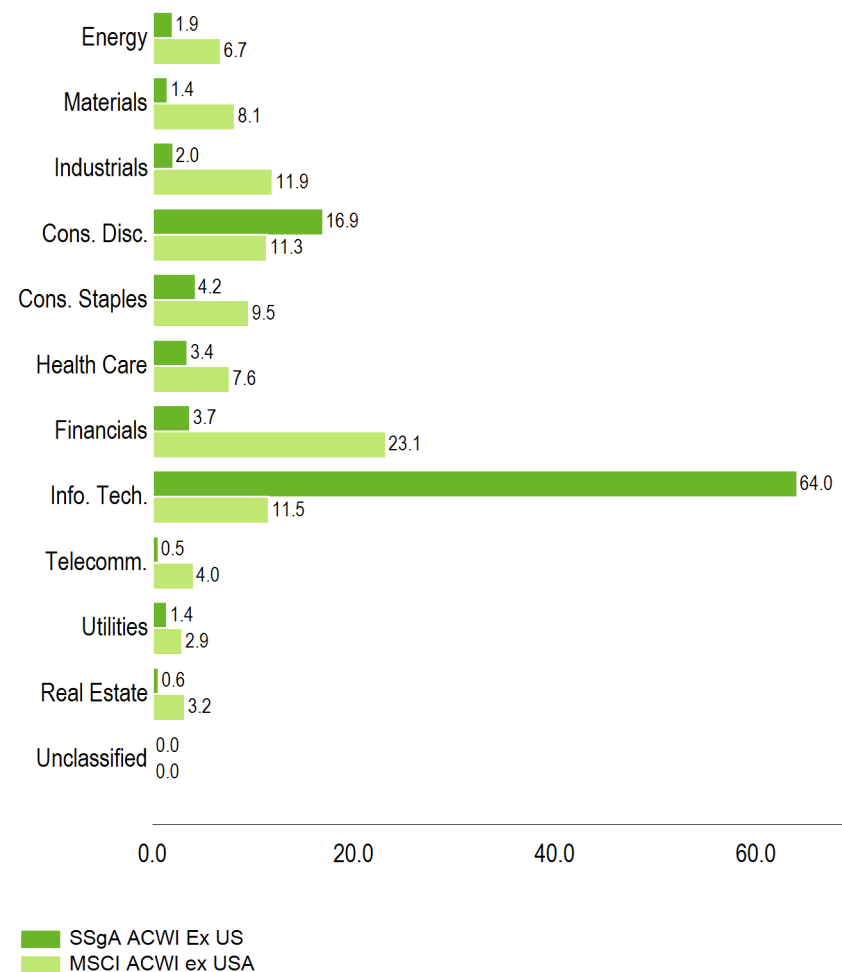
# SSGA ACWI EX US

Characteristics		
	Portfolio	MSCI ACWI ex USA
Number of Holdings	49	1,866
Weighted Avg. Market Cap. (\$B)	173.69	66.27
Median Market Cap. (\$B)	12.97	8.57
Price To Earnings	34.86	20.78
Price To Book	7.46	2.82
Price To Sales	8.89	2.19
Return on Equity (%)	23.68	15.04
Yield (%)	0.82	2.70
Beta	1.00	1.00
R-Squared	1.00	1.00

**Market Capitalization**  
As of December 31, 2017



**Sector Allocation (%) vs MSCI ACWI ex USA**



# SSGA ACWI EX US

Top Ten Holdings	
ALIBABA GROUP HLDG.SPN. ADR 1:1	33.7%
BAIDU 'A' ADR 10:1	10.9%
NXP SEMICONDUCTORS	6.8%
NETEASE ADR 1:25	4.6%
JD.COM 'A' ADR 1:2	4.6%
BRITISH AMER.TOB.ADR 1:1	4.1%
CTRIP.COM INTL.ADR 8:1	2.9%
TEVA PHARM.INDS.ADR 1:1	2.8%
YUM CHINA HOLDINGS	2.6%
CHECK POINT SFTW.TECHS.	2.3%

Top Positive Contributors		
	Relative Contribution %	Return %
BANK RAKYAT INDONESIA	1.0%	18.3%
BANK MANDIRI	0.8%	18.1%
BANK NEGARA INDONESIA	0.6%	32.8%
BANK CENTRAL ASIA	0.5%	7.5%
SAMSUNG ELECTRONICS	0.5%	6.3%
UNILEVER INDONESIA	0.4%	14.3%
GUDANG GARAM	0.3%	26.4%
ASTRA INTERNATIONAL	0.3%	5.0%
HM SAMPOERNA	0.3%	21.6%
CELLTRION	0.2%	69.9%

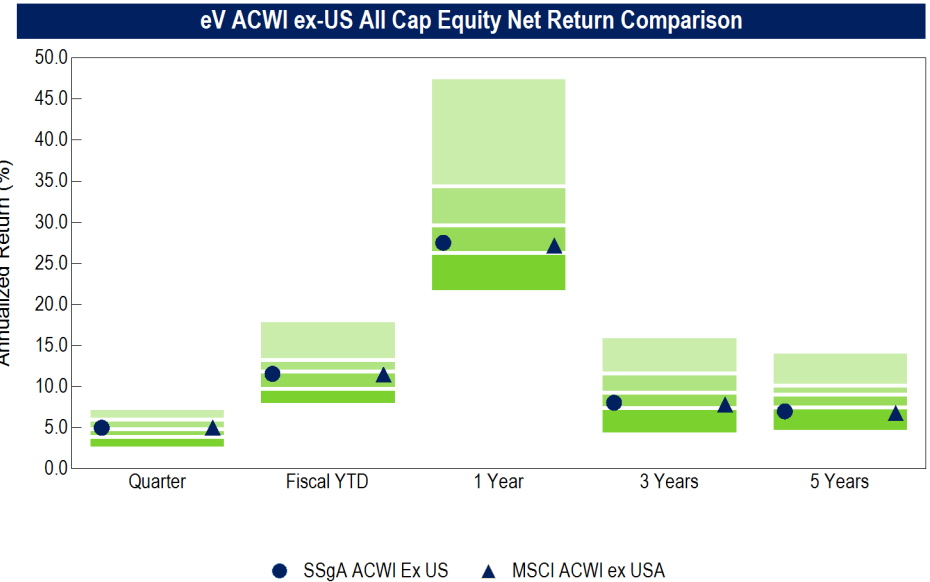
Top Negative Contributors		
	Relative Contribution %	Return %
TELEKOMUNIKASI INDONESIA	-0.5%	-5.8%
TENCENT HOLDINGS	-0.2%	20.7%
INDOFOOD SUKSES MAKMUR	-0.1%	-10.2%
NASPERS	-0.1%	28.9%
LIPPO KARAWACI	-0.1%	-33.2%
XL AXIATA	-0.1%	-21.4%
ROYAL DUTCH SHELL A(LON)	-0.1%	12.9%
BP	-0.1%	12.0%
ROYAL DUTCH SHELL B	-0.1%	11.9%
PING AN INSURANCE (GROUP) OF CHINA 'H'	-0.1%	35.6%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.2%	-0.1%	-0.1%	11.5%	7.6%	4.2%	6.7%			
Materials	0.0%	-0.1%	-0.1%	0.1%	8.7%	8.3%	6.1%	7.7%			
Industrials	0.1%	0.1%	0.0%	0.0%	7.2%	4.8%	6.4%	11.9%			
Consumer Discretionary	0.4%	0.3%	0.0%	0.1%	8.8%	6.1%	12.9%	11.3%			
Consumer Staples	0.7%	0.6%	0.0%	0.1%	12.3%	5.4%	10.5%	9.6%			
Health Care	0.6%	0.9%	0.2%	-0.5%	14.6%	1.3%	3.1%	7.9%			
Financials	2.4%	2.1%	0.0%	0.3%	13.5%	4.6%	26.9%	23.3%			
Information Technology	0.2%	-0.4%	0.0%	0.6%	6.9%	6.2%	16.0%	11.2%			
Telecommunication Services	-0.8%	-0.2%	-0.2%	-0.4%	-5.4%	1.5%	9.9%	4.2%			
Utilities	0.2%	0.2%	0.1%	-0.1%	5.4%	-0.5%	1.8%	3.1%			
Real Estate	-0.3%	-0.3%	0.0%	0.1%	-4.2%	6.4%	2.2%	3.2%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>3.5%</b>	<b>=</b>	<b>3.4%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.2%</b>	<b>8.6%</b>	<b>5.0%</b>	<b>100.0%</b>	<b>100.0%</b>

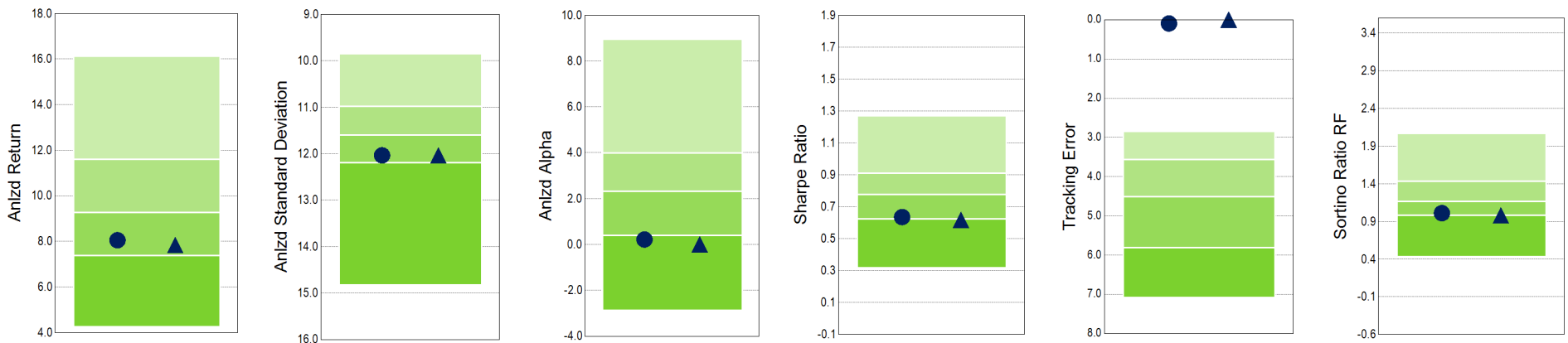


# SSGA ACWI EX US

The MSCI ACWI ex US Index Strategy tends to hold each security that is held in the benchmark index, but the strategy will not be perfectly weighted in every index constituent on a daily basis. Holding securities in the perfect weights would require increased trading and therefore would incur costs. Thus, there will be securities in the fund that are either over- or under-weighted relative to the benchmark. The individual security mis-weights are very minimal, usually within 1 basis point. However, in aggregate, these small mis-weights can add up and result in tracking error if the mis-weighted securities' performance is volatile. SSgA seek to replicate the index by attempting to hold every security in the fund in its appropriate index weight. SSgA trade only when there is a change to the Index, when we have participant cash flows, or when we receive significant dividend income into the fund.



## 3 Year Risk Statistics





# SSGA ACWI EX US

Characteristics	MSCI	
	Portfolio	ACWI ex USA
Number of Holdings	49	1,866
Weighted Avg. Market Cap. (\$B)	173.7	66.3
Median Market Cap. (\$B)	13.0	8.6
Price To Earnings	34.9	20.8
Price To Book	7.5	2.8
Price To Sales	8.9	2.2
Return on Equity (%)	23.7	15.0
Yield (%)	0.8	2.7
Beta	1.0	1.0
R-Squared	1.0	1.0

Top Positive Contributors	Relative	
	Contribution %	Return %
BANK RAKYAT INDONESIA (ID:BRI)	1.0%	18.3%
BANK MANDIRI (ID:BKM)	0.8%	18.1%
BANK NEGARA INDONESIA (ID:BNE)	0.6%	32.8%
BANK CENTRAL ASIA (ID:BCA)	0.5%	7.5%
SAMSUNG ELECTRONICS (KO:SGL)	0.5%	6.3%
UNILEVER INDONESIA (ID:UNI)	0.4%	14.3%
GUDANG GARAM (ID:GUD)	0.3%	26.4%
ASTRA INTERNATIONAL (ID:ATA)	0.3%	5.0%
HM SAMPOERNA (ID:INA)	0.3%	21.6%
CELLTRION (KO:ORC)	0.2%	69.9%

Top Negative Contributors	Relative	
	Contribution %	Return %
TELEKOMUNIKASI INDONESIA (ID:RLK)	-0.5%	-5.8%
TENCENT HOLDINGS (K:TCNT)	-0.2%	20.7%
INDOFOOD SUKSES MAKMUR (ID:IFO)	-0.1%	-10.2%
NASPERS (R:NPNJ)	-0.1%	28.9%
LIPPO KARAWACI (ID:POK)	-0.1%	-33.2%
XL AXIATA (ID:XCP)	-0.1%	-21.4%
ROYAL DUTCH SHELL A(LON) (UKIR:RDSA)	-0.1%	12.9%
BP (UKIR:BP.)	-0.1%	12.0%
ROYAL DUTCH SHELL B (UKIR:RDSB)	-0.1%	11.9%
PING AN INSURANCE (GROUP) OF CHINA 'H' (K:PING)	-0.1%	35.6%

SSgA ACWI Ex US Performance Attribution vs. MSCI ACWI ex USA									
	Attribution Effects				Returns		Sector Weights		
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark	
Energy	0.0%	0.2%	-0.2%	-0.1%	11.5%	7.6%	4.2%	6.7%	
Materials	-0.1%	-0.1%	-0.1%	0.1%	8.7%	8.3%	6.1%	7.7%	
Industrials	-0.1%	0.1%	-0.2%	0.0%	7.2%	4.8%	6.4%	11.9%	
Consumer Discretionary	0.5%	0.3%	0.1%	0.1%	8.8%	6.1%	12.9%	11.3%	
Consumer Staples	0.8%	0.6%	0.0%	0.1%	12.3%	5.4%	10.5%	9.6%	
Health Care	0.4%	0.9%	0.0%	-0.5%	14.6%	1.3%	3.1%	7.9%	
Financials	2.6%	2.1%	0.1%	0.3%	13.5%	4.6%	26.9%	23.3%	
Information Technology	0.4%	-0.4%	0.2%	0.6%	6.9%	6.2%	16.0%	11.2%	
Telecommunication Services	-0.6%	-0.2%	0.1%	-0.4%	-5.4%	1.5%	9.9%	4.2%	
Utilities	0.1%	0.2%	0.0%	-0.1%	5.4%	-0.5%	1.8%	3.1%	
Real Estate	-0.3%	-0.3%	-0.1%	0.1%	-4.2%	6.4%	2.2%	3.2%	
Cash	0.0%	--	--	--	--	--	0.0%	0.0%	
<b>Portfolio</b>	<b>3.5%</b>	<b>=</b>	<b>3.4%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.2%</b>	<b>8.6%</b>	<b>5.0%</b>
					<b>100.0%</b>		<b>100.0%</b>		



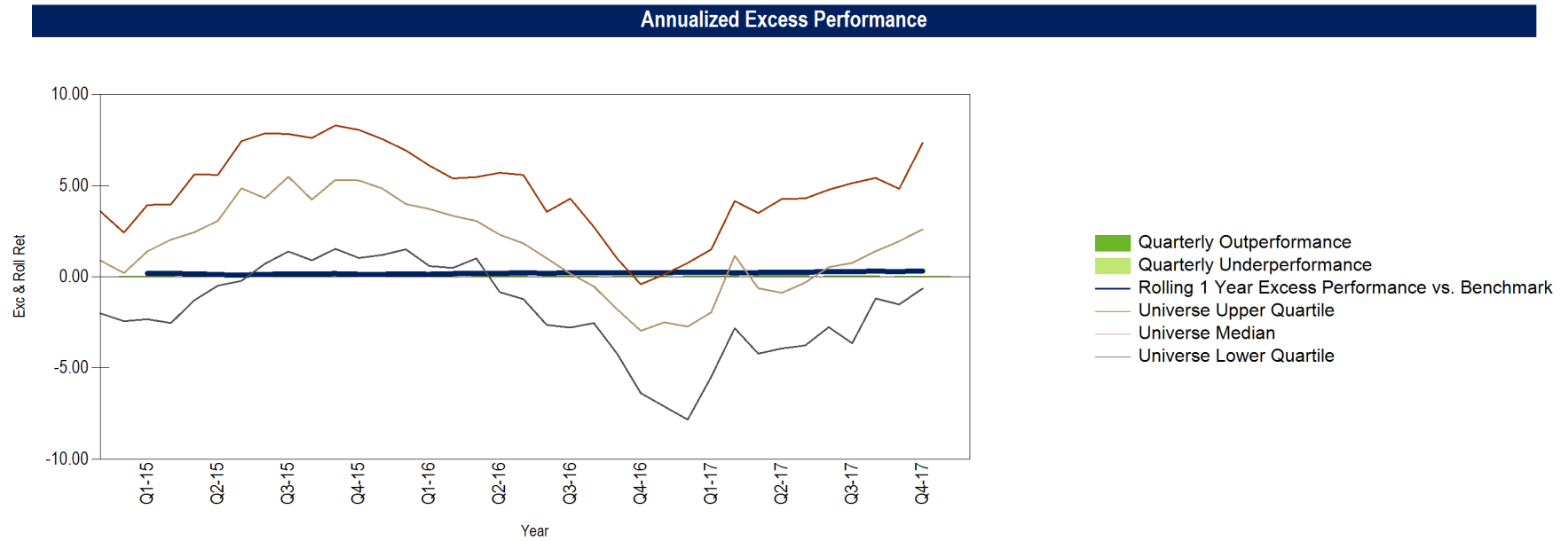
# SSGA ACWI EX US

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	0.0%	1.8%	-2.1%	-2.1%
Canada	0.1%	6.6%	4.4%	4.4%
Chile*	1.4%	0.3%	7.3%	7.3%
Colombia*	2.2%	0.1%	0.8%	0.8%
Mexico*	0.1%	0.8%	-8.0%	-7.9%
Peru*	0.0%	0.1%	4.6%	7.3%
United States	0.0%	0.0%	0.0%	6.4%
<b>Total-Americas</b>	<b>3.8%</b>	<b>9.7%</b>	<b>2.9%</b>	<b>2.2%</b>
<b>Europe</b>				
Austria	0.0%	0.2%	5.8%	5.8%
Belgium	0.0%	0.8%	-1.5%	-1.6%
Czech Republic*	0.0%	0.0%	7.7%	7.8%
Denmark	0.1%	1.3%	2.3%	2.3%
Finland	0.0%	0.7%	-2.5%	-2.5%
France	0.0%	7.4%	1.5%	1.6%
Germany	0.0%	6.7%	2.7%	2.5%
Greece*	0.0%	0.1%	13.5%	13.5%
Hungary*	0.2%	0.1%	7.1%	7.1%
Ireland	0.0%	0.3%	12.6%	3.7%
Italy	0.0%	1.7%	-2.5%	-2.2%
Luxembourg	0.0%	0.0%	-0.2%	5.0%
Netherlands	0.0%	2.6%	4.1%	1.2%
Norway	0.0%	0.5%	2.3%	2.3%
Poland*	0.0%	0.3%	6.0%	6.0%
Portugal	0.0%	0.1%	-2.0%	-2.0%
Russia*	0.0%	0.8%	7.7%	4.6%
Spain	0.0%	2.4%	-1.5%	-1.5%
Sweden	0.1%	2.0%	-3.8%	-3.7%
Switzerland	0.0%	5.7%	1.8%	1.8%
United Kingdom	0.1%	12.4%	5.2%	5.8%
<b>Total-Europe</b>	<b>0.6%</b>	<b>46.2%</b>	<b>2.6%</b>	<b>2.4%</b>

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	0.0%	4.7%	6.6%	6.7%
China*	0.1%	7.1%	7.4%	7.7%
Hong Kong	0.3%	2.4%	10.4%	7.7%
India*	0.9%	2.0%	11.8%	11.8%
Indonesia*	51.7%	0.5%	8.1%	8.0%
Japan	12.5%	16.1%	8.5%	8.5%
Korea*	28.9%	3.6%	10.2%	10.2%
Malaysia*	0.0%	0.6%	6.4%	6.4%
New Zealand	0.0%	0.1%	0.1%	0.0%
Pakistan*	0.0%	0.0%	-5.2%	-5.2%
Philippines*	0.1%	0.3%	6.5%	6.5%
Singapore	0.0%	0.9%	8.3%	10.1%
Taiwan*	0.6%	2.8%	4.2%	4.2%
Thailand*	0.1%	0.5%	8.4%	9.4%
<b>Total-AsiaPacific</b>	<b>95.4%</b>	<b>41.6%</b>	<b>8.8%</b>	<b>8.1%</b>
<b>Other</b>				
Egypt*	0.0%	0.0%	-2.4%	-2.4%
Israel	0.0%	0.3%	7.4%	3.8%
Qatar*	0.0%	0.1%	4.1%	4.1%
South Africa*	0.1%	1.5%	21.4%	21.4%
Turkey*	0.0%	0.3%	4.4%	4.4%
United Arab Emirates*	0.0%	0.2%	-6.2%	-4.9%
<b>Total-Other</b>	<b>0.2%</b>	<b>2.5%</b>	<b>18.7%</b>	<b>14.1%</b>
<b>Totals</b>				
Developed	13.3%	75.9%	8.3%	4.3%
Emerging*	86.7%	24.1%	8.6%	7.3%

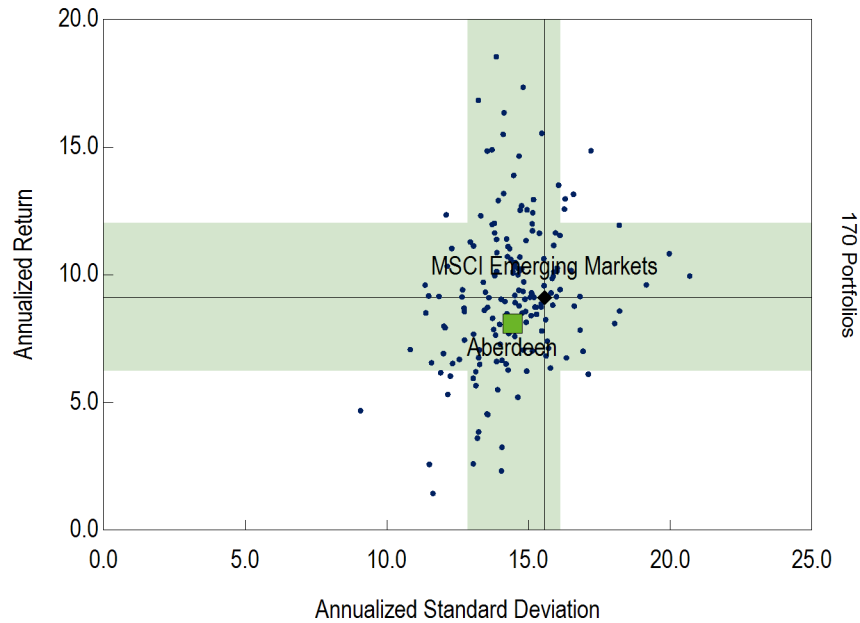


# SSGA ACWI EX US



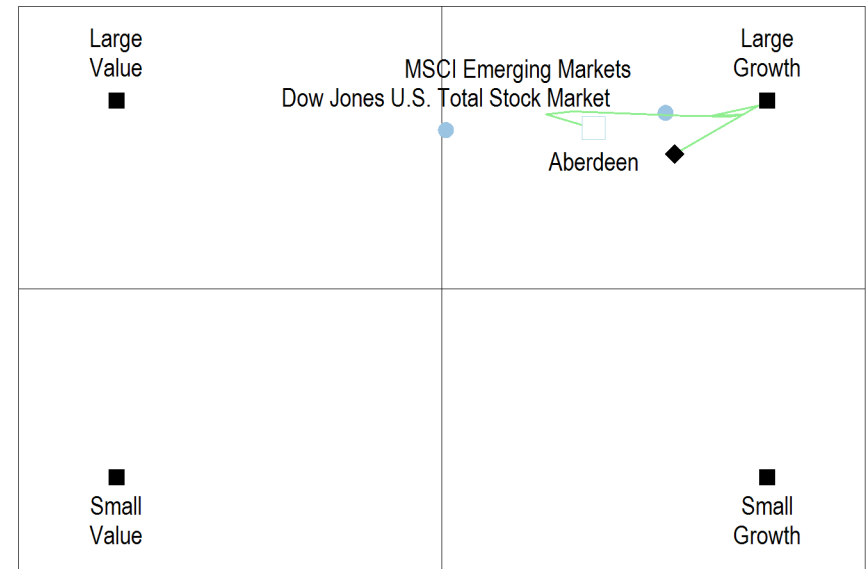
# ABERDEEN

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017



- Aberdeen
- ◆ MSCI Emerging Markets
- 68% Confidence Interval
- eV Emg Mkts Equity Net

U.S. Effective Style Map  
3 Years Ending December 31, 2017

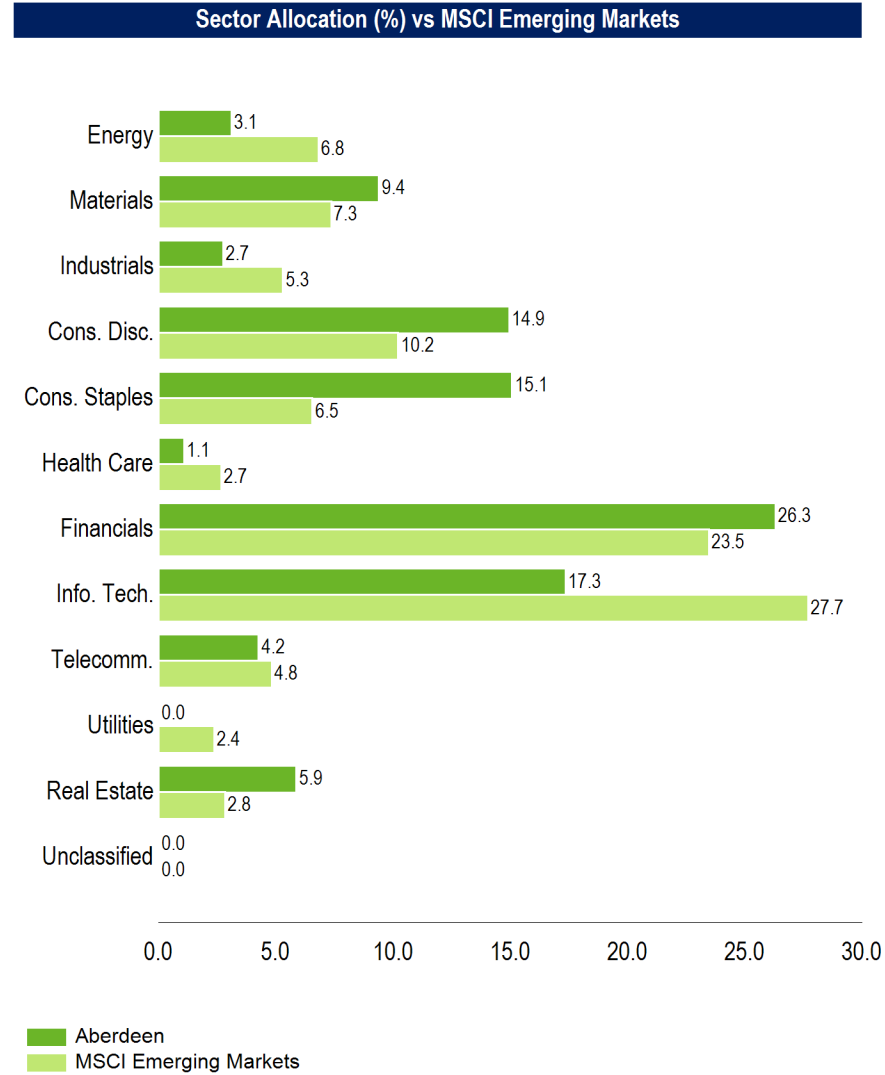
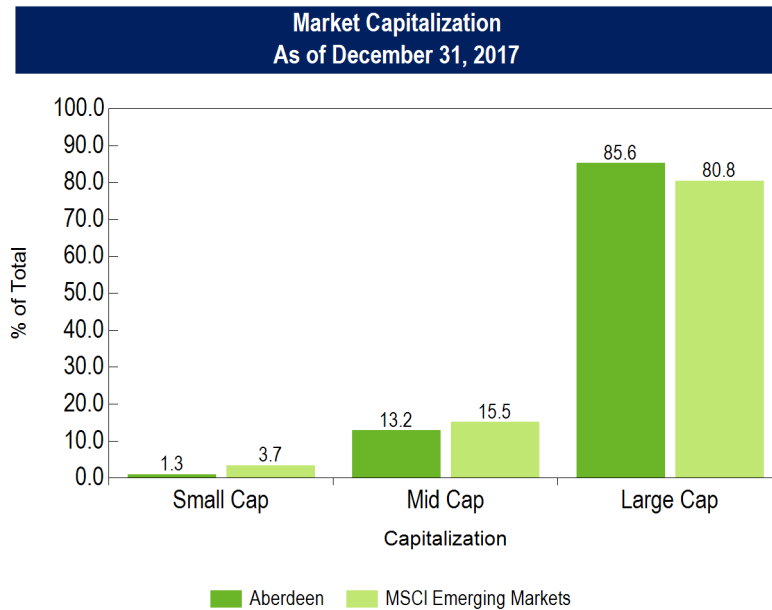


- First Rolling Period
- ◆ Last Rolling Period



# ABERDEEN

Characteristics		
	Portfolio	MSCI Emerging Markets
Number of Holdings	66	846
Weighted Avg. Market Cap. (\$B)	58.52	89.77
Median Market Cap. (\$B)	15.68	5.96
Price To Earnings	27.65	22.05
Price To Book	4.62	3.28
Price To Sales	3.33	2.74
Return on Equity (%)	19.22	18.13
Yield (%)	2.16	2.13
Beta	0.87	1.00



# ABERDEEN

Top Ten Holdings	
SAMSUNG ELTN.PREF.	4.7%
TAIWAN SEMICON.MNFG.	4.5%
HOUSING DEVELOPMENT FIN.	3.9%
TENCENT HOLDINGS	3.3%
AIA GROUP	3.1%
BNC.BRADESCO PF.SPN.ADR 1:1	2.6%
CHINA MOBILE	2.6%
ASTRA INTERNATIONAL	2.5%
ITC	2.4%
VALE ON ADR 1:1	2.3%

Top Positive Contributors		
	Relative Contribution %	Return %
AIA GROUP	0.5%	15.6%
VALE ON ADR 1:1	0.4%	22.7%
TRUWORTHS INTL.	0.4%	33.4%
SAMSUNG ELTN.PREF.	0.4%	8.4%
NAVER	0.3%	24.9%
MASSMART	0.3%	36.4%
HINDUSTAN UNILEVER	0.3%	20.0%
HONG KONG EXS.& CLEAR.	0.2%	14.1%
ULTRATECH CEMENT	0.2%	14.7%
MTN GROUP	0.2%	19.8%

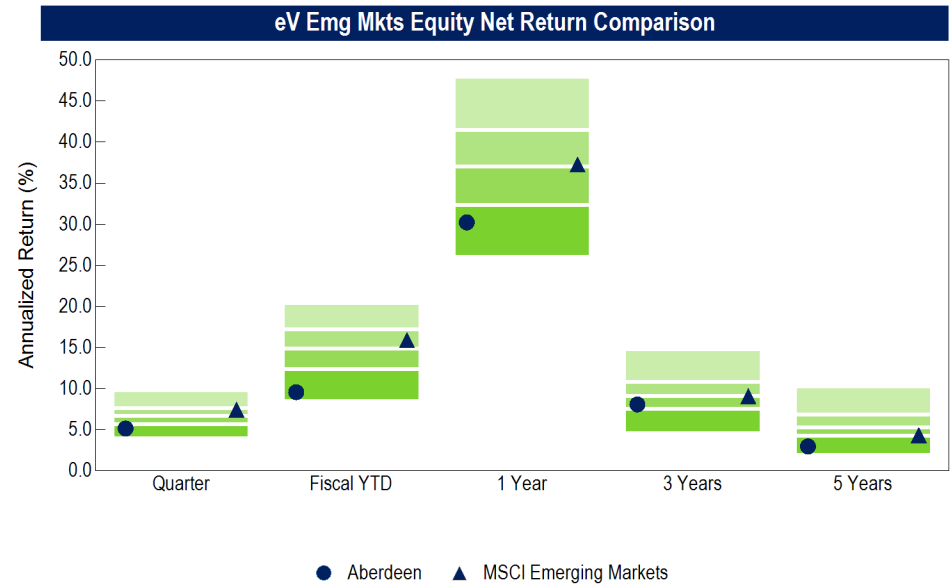
Top Negative Contributors		
	Relative Contribution %	Return %
MAGNIT	-0.8%	-36.9%
TENCENT HOLDINGS	-0.8%	20.7%
GPO FINANCE BANORTE	-0.5%	-20.3%
PING AN INSURANCE (GROUP) OF CHINA 'H'	-0.3%	35.6%
BRF BRASIL FOODS ON	-0.2%	-23.6%
BNC.BRADESCO PF.SPN.ADR 1:1	-0.1%	-5.0%
LOJAS RENNER ON	-0.1%	-5.9%
ULTRAPAR PARTICIPOES ON	-0.1%	-5.0%
MULTIPLAN EMPE. IMOBS.ON	-0.1%	-7.4%
GRUPO AEROPORTUARIO DEL SURESTE ADR 1:10	-0.1%	-4.4%

	Equity Sector Attribution										
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	0.0%	-0.1%	3.5%	7.8%	4.6%	6.8%			
Materials	0.3%	0.2%	0.0%	0.1%	11.2%	8.5%	8.9%	7.1%			
Industrials	-0.1%	-0.4%	0.1%	0.2%	-4.4%	4.6%	1.5%	5.4%			
Consumer Discretionary	-0.4%	-0.1%	0.0%	-0.3%	4.7%	8.8%	10.9%	10.3%			
Consumer Staples	-1.4%	-0.6%	0.2%	-1.0%	-1.5%	7.4%	17.6%	6.5%			
Health Care	-0.3%	-0.2%	-0.1%	0.1%	5.3%	17.4%	1.1%	2.3%			
Financials	-1.5%	-1.0%	0.1%	-0.5%	2.3%	8.1%	28.8%	23.5%			
Information Technology	0.5%	0.7%	0.1%	-0.4%	12.0%	7.1%	13.8%	27.6%			
Telecommunication Services	0.1%	0.0%	0.0%	0.1%	5.1%	3.0%	5.0%	5.1%			
Utilities	0.1%	--	0.1%	--	--	1.1%	0.0%	2.6%			
Real Estate	-0.3%	-0.1%	-0.2%	-0.1%	-0.7%	2.8%	6.7%	2.9%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.3%	--	1.0%	0.0%			
<b>Portfolio</b>	<b>-3.4%</b>	<b>=</b>	<b>-1.7%</b>	<b>+</b>	<b>0.3%</b>	<b>+</b>	<b>-2.0%</b>	<b>3.9%</b>	<b>7.3%</b>	<b>100.0%</b>	<b>100.0%</b>

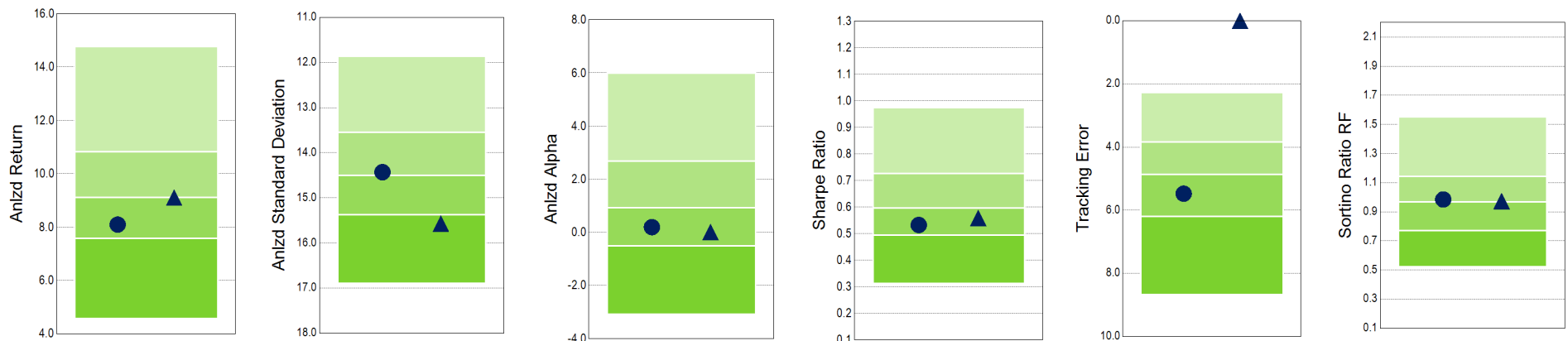


# ABERDEEN

Aberdeen believes, given the inefficiency of markets, that competitive long-term returns are achieved by identifying high quality stocks at attractive valuations and holding for the long term. It is their belief that sound fundamentals drive stock prices over time. They employ a fundamental bottom-up investment approach based upon a rigorous and disciplined proprietary research effort which originates with direct company due diligence visits. Portfolios are constructed to maximize their level of exposure to the most attractive companies filtered from the stock selection process. They run a representative or model' unconstrained portfolio that contains approximately 30 - 70 stocks at any given time. Once a stock has received unanimous approval by the team, the senior investment team members then decide which portfolio category it should enter (i.e. country, regional, Global Emerging Markets) and at what weighting. The Head of Global Emerging Markets then has responsibility to ensure that the decision is implemented.



## 3 Year Risk Statistics



# ABERDEEN

Characteristics	MSCI	
	Portfolio	Emerging Markets
Number of Holdings	66	846
Weighted Avg. Market Cap. (\$B)	58.5	89.8
Median Market Cap. (\$B)	15.7	6.0
Price To Earnings	27.7	22.1
Price To Book	4.6	3.3
Price To Sales	3.3	2.7
Return on Equity (%)	19.2	18.1
Yield (%)	2.2	2.1
Beta	0.9	1.0
R-Squared	0.9	1.0

Top Positive Contributors	Relative	
	Contribution %	Return %
AIA GROUP (K:AGP)	0.5%	15.6%
VALE ON ADR 1:1 (VALE)	0.4%	22.7%
TRUWORTHS INTL. (R:TRUJ)	0.4%	33.4%
SAMSUNG ELTN.PREF. (KO:SEP)	0.4%	8.4%
NAVER (KO:NHN)	0.3%	24.9%
MASSMART (R:MSMJ)	0.3%	36.4%
HINDUSTAN UNILEVER (IN:HDL)	0.3%	20.0%
HONG KONG EXS.& CLEAR. (K:HKEX)	0.2%	14.1%
ULTRATECH CEMENT (IN:URC)	0.2%	14.7%
MTN GROUP (R:MTNJ)	0.2%	19.8%

Top Negative Contributors	Relative	
	Contribution %	Return %
MAGNIT (RS:MGN)	-0.8%	-36.9%
TENCENT HOLDINGS (K:TCNT)	-0.8%	20.7%
GPO FINANCE BANORTE (MX:GTB)	-0.5%	-20.3%
PING AN INSURANCE (GROUP) OF CHINA 'H' (K:PING)	-0.3%	35.6%
BRF BRASIL FOODS ON (BR:DG3)	-0.2%	-23.6%
BNC.BRADESCO PF.SPN.ADR 1:1 (BBD)	-0.1%	-5.0%
LOJAS RENNER ON (BR:LE3)	-0.1%	-5.9%
ULTRAPAR PARTICIPOES ON (BR:U3G)	-0.1%	-5.0%
MULTIPLAN EMPE. IMOBS.ON (BR:MUL)	-0.1%	-7.4%
GRUPO AEROPORTUARIO DEL SURESTE ADR 1:10 (ASR)	-0.1%	-4.4%

Aberdeen Performance Attribution vs. MSCI Emerging Markets											
	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.4%	-0.1%	-0.2%	-0.1%	3.5%	7.8%	4.6%	6.8%			
Materials	0.4%	0.2%	0.1%	0.1%	11.2%	8.5%	8.9%	7.1%			
Industrials	-0.3%	-0.4%	-0.1%	0.2%	-4.4%	4.6%	1.5%	5.4%			
Consumer Discretionary	-0.4%	-0.1%	0.0%	-0.3%	4.7%	8.8%	10.9%	10.3%			
Consumer Staples	-0.8%	-0.6%	0.8%	-1.0%	-1.5%	7.4%	17.6%	6.5%			
Health Care	-0.3%	-0.2%	-0.2%	0.1%	5.3%	17.4%	1.1%	2.3%			
Financials	-1.2%	-1.0%	0.4%	-0.5%	2.3%	8.1%	28.8%	23.5%			
Information Technology	-0.3%	0.7%	-0.7%	-0.4%	12.0%	7.1%	13.8%	27.6%			
Telecommunication Services	0.1%	0.0%	0.0%	0.1%	5.1%	3.0%	5.0%	5.1%			
Utilities	0.0%	--	0.0%	--	--	1.1%	0.0%	2.6%			
Real Estate	-0.1%	-0.1%	0.1%	-0.1%	-0.7%	2.8%	6.7%	2.9%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	1.0%	0.0%			
<b>Portfolio</b>	<b>-3.4%</b>	<b>=</b>	<b>-1.7%</b>	<b>+</b>	<b>0.3%</b>	<b>+</b>	<b>-2.0%</b>	<b>3.9%</b>	<b>7.3%</b>	<b>100.0%</b>	<b>100.0%</b>





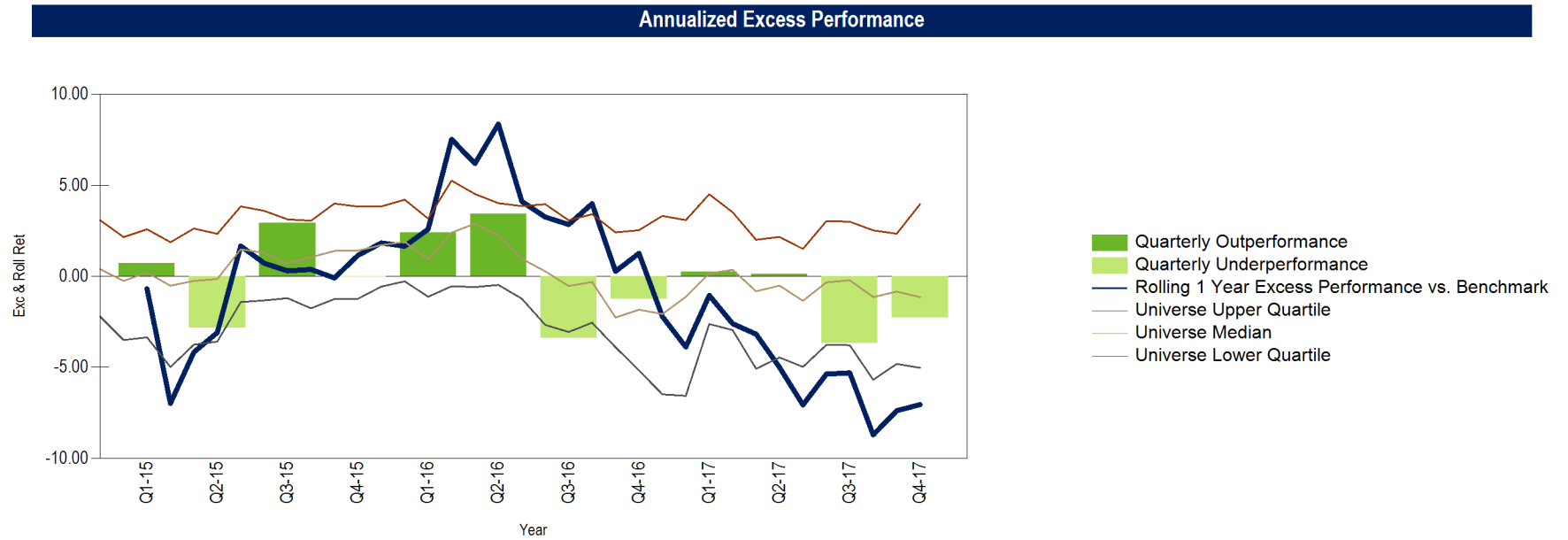
# ABERDEEN

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	13.9%	7.4%	-2.7%	-2.1%
Chile*	2.5%	1.3%	4.0%	7.3%
Mexico*	7.6%	3.5%	-9.5%	-7.9%
United States	2.0%	0.0%	0.4%	6.4%
<b>Total-Americas</b>	<b>26.0%</b>	<b>13.0%</b>	<b>-3.8%</b>	<b>-2.4%</b>
<b>Europe</b>				
Hungary*	1.1%	0.3%	5.3%	7.1%
Luxembourg	0.9%	0.0%	13.6%	7.3%
Poland*	1.0%	1.3%	6.1%	6.0%
Portugal	1.2%	0.0%	-1.4%	-2.0%
Russia*	3.8%	3.4%	-18.5%	4.6%
United Kingdom	1.5%	0.0%	8.6%	5.7%
<b>Total-Europe</b>	<b>9.4%</b>	<b>5.6%</b>	<b>-3.8%</b>	<b>5.7%</b>

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Hong Kong	12.1%	0.0%	7.7%	6.6%
India*	15.7%	8.4%	6.7%	11.8%
Indonesia*	5.4%	2.3%	8.0%	8.0%
Korea*	8.1%	15.0%	13.6%	10.2%
Malaysia*	1.2%	2.3%	6.1%	6.4%
Philippines*	4.0%	1.1%	7.2%	6.5%
Taiwan*	5.3%	11.5%	6.8%	4.2%
Thailand*	4.3%	2.2%	0.3%	9.4%
<b>Total-AsiaPacific</b>	<b>56.2%</b>	<b>72.5%</b>	<b>7.6%</b>	<b>8.1%</b>
<b>Other</b>				
South Africa*	3.5%	6.4%	29.4%	21.4%
Turkey*	4.0%	1.1%	0.2%	4.4%
<b>Total-Other</b>	<b>7.5%</b>	<b>8.9%</b>	<b>13.7%</b>	<b>15.6%</b>
<b>Totals</b>				
Developed	17.7%	0.0%	6.6%	--
Emerging*	81.4%	100.0%	3.4%	7.3%
Cash	1.0%		0.3%	

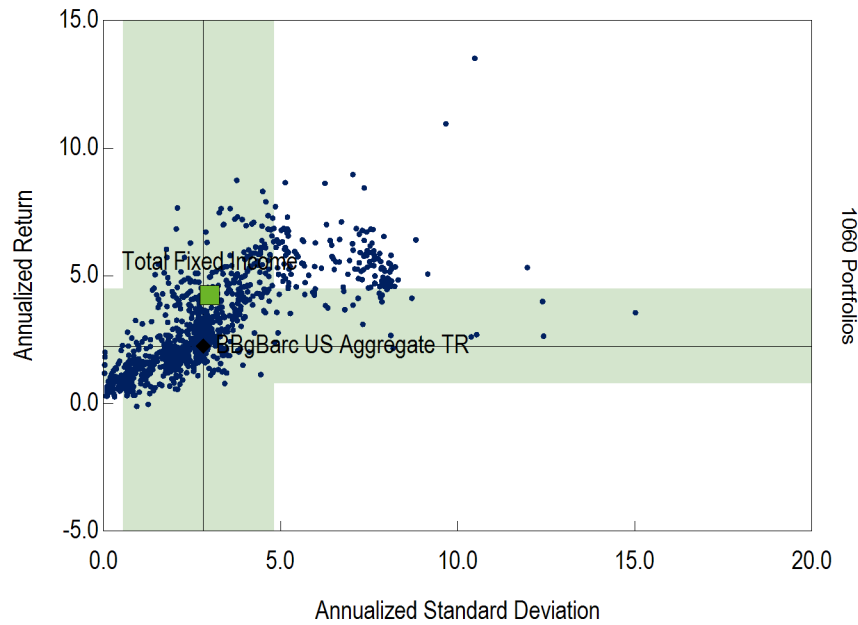


# ABERDEEN



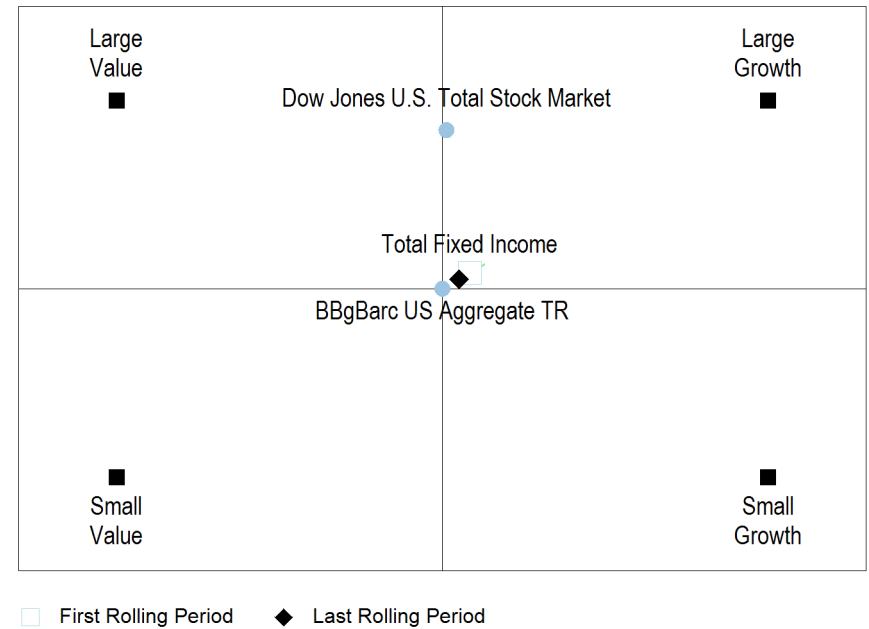
# TOTAL FIXED INCOME COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

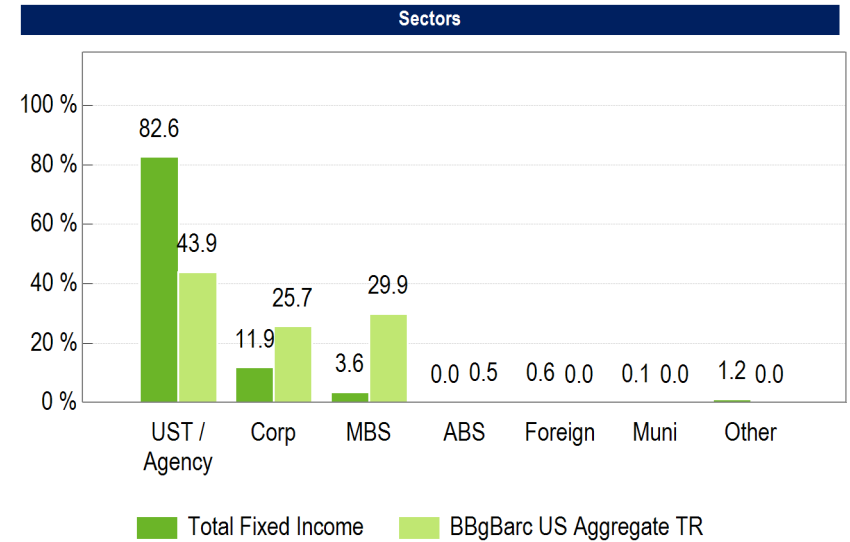
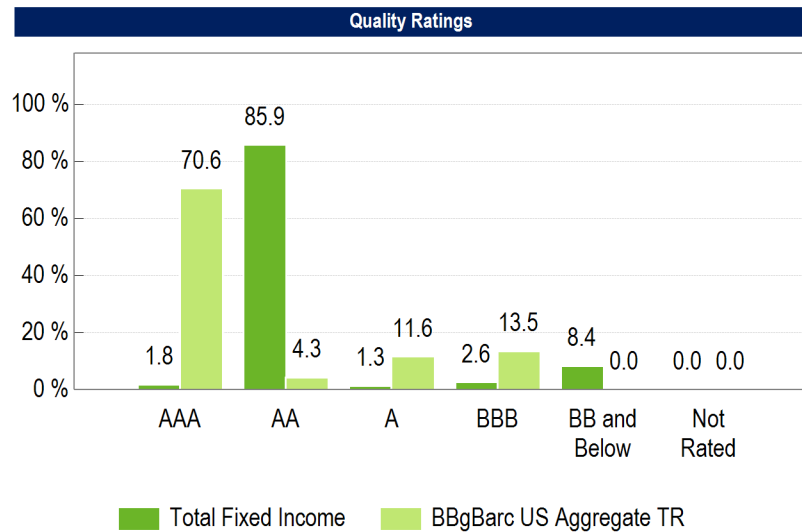
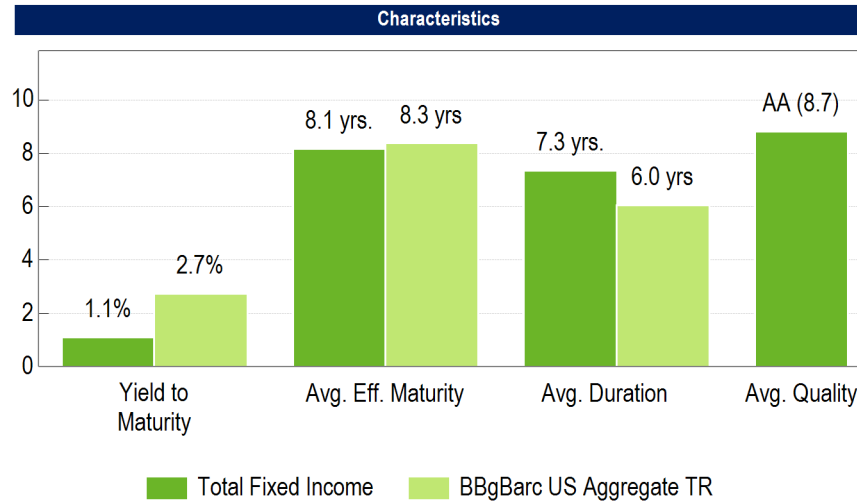


- Total Fixed Income
- ◆ BBgBarc US Aggregate TR
- 68% Confidence Interval
- eV All US Fixed Inc Net

U.S. Effective Style Map  
3 Years Ending December 31, 2017

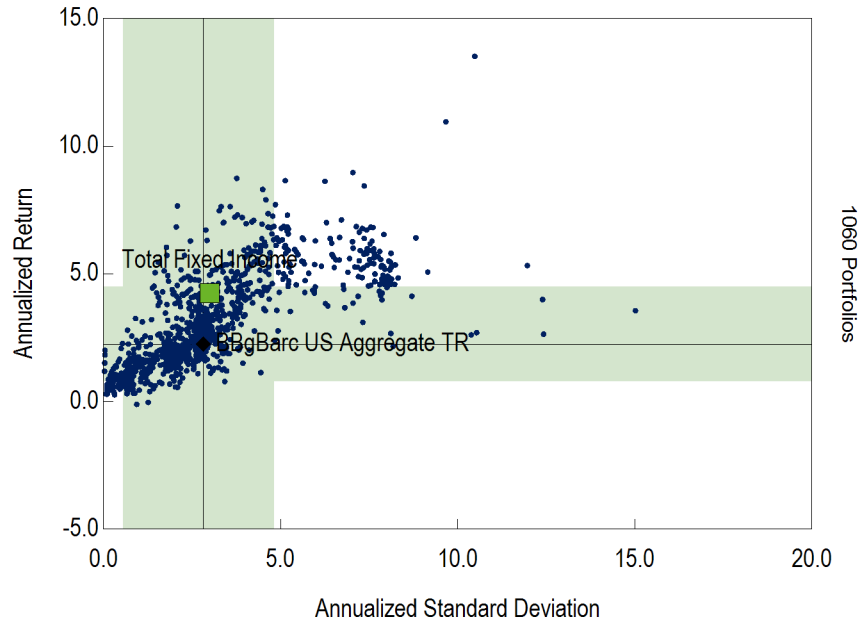


# TOTAL FIXED INCOME COMPOSITE



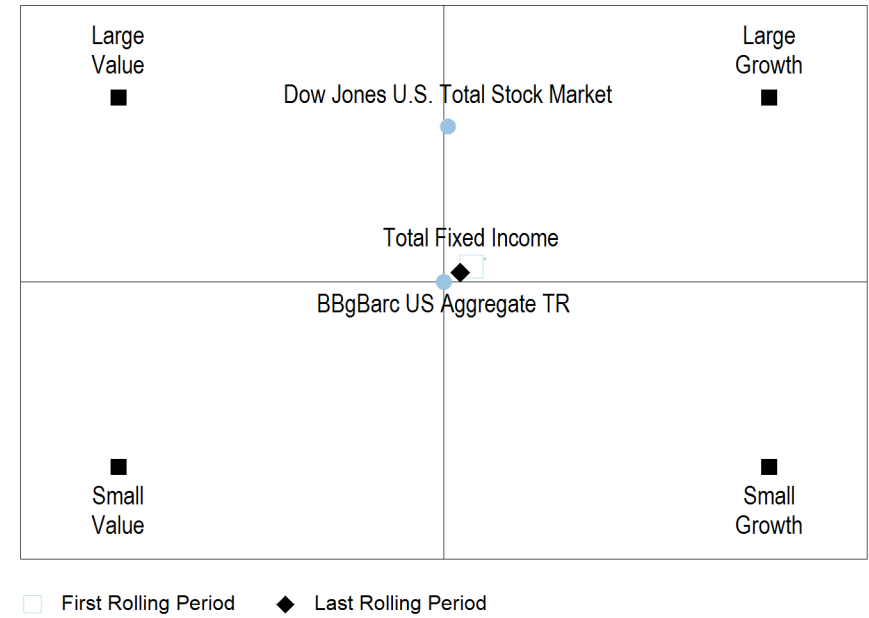
# TOTAL FIXED INCOME COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2017

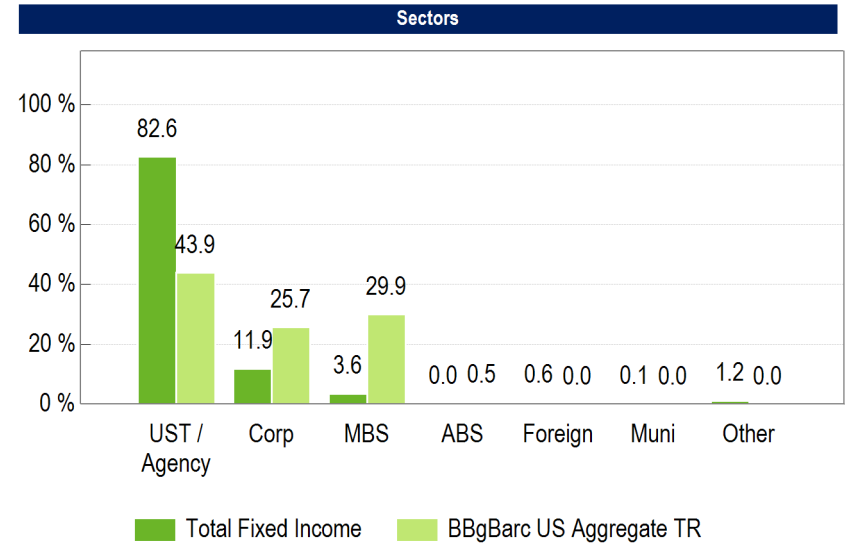
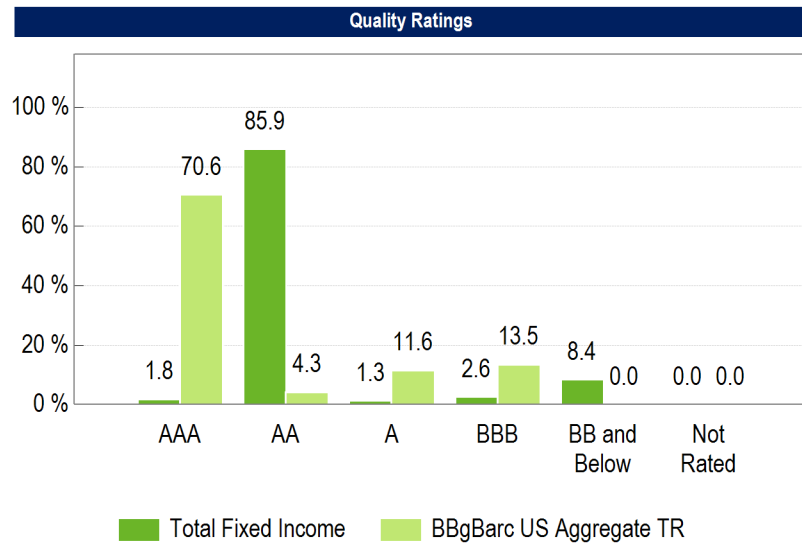
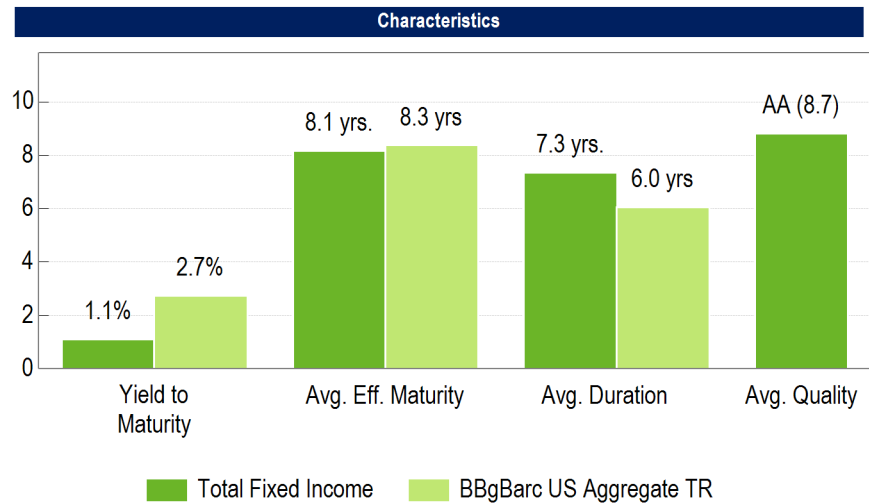


- Total Fixed Income
- ◆ BBgBarc US Aggregate TR
- 68% Confidence Interval
- eV All US Fixed Inc Net

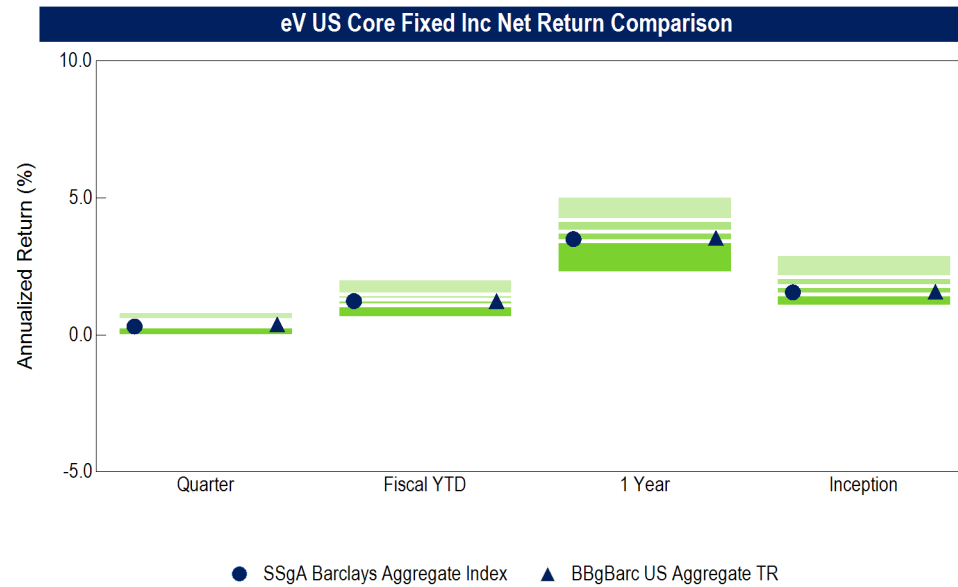
U.S. Effective Style Map  
3 Years Ending December 31, 2017



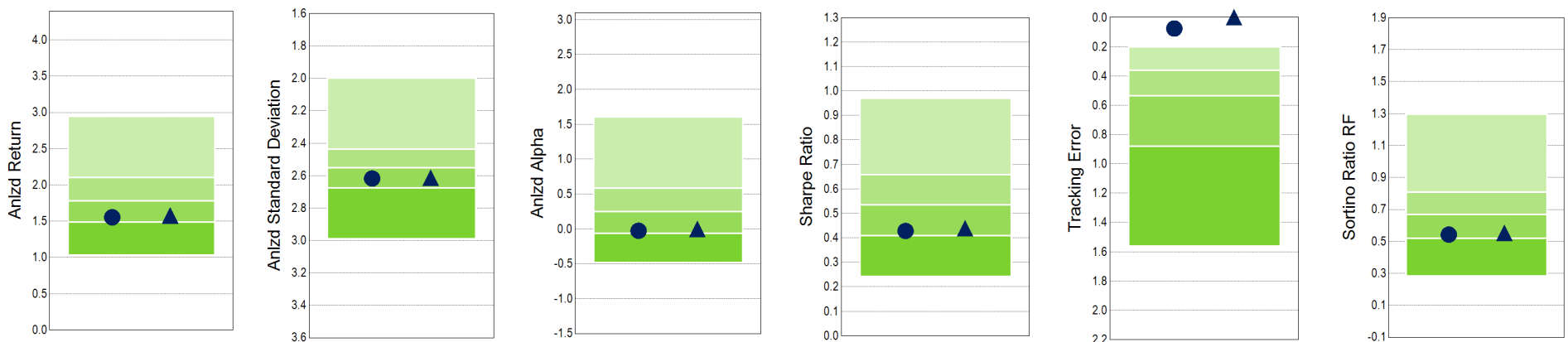
# TOTAL FIXED INCOME COMPOSITE



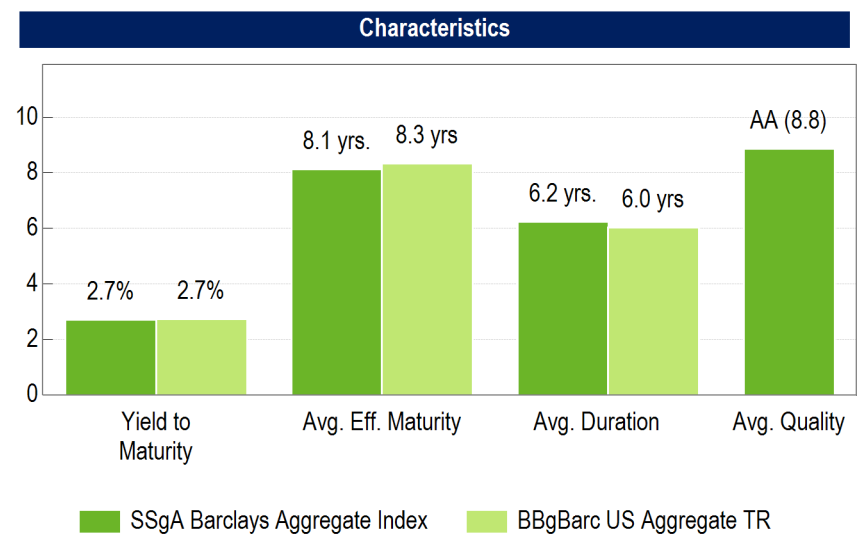
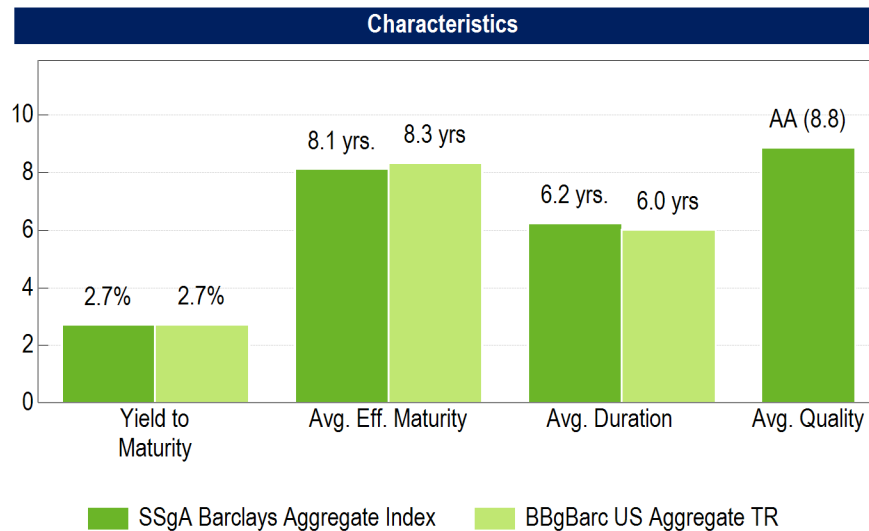
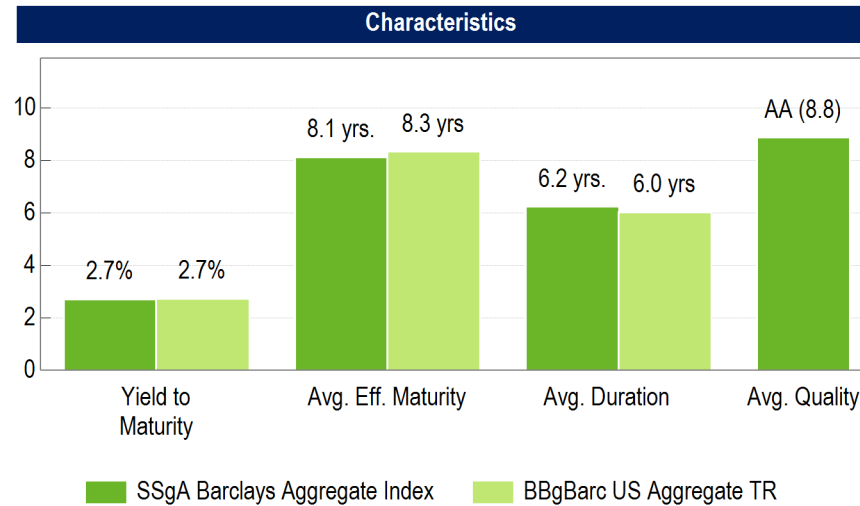
# SSGA BARCLAYS AGGREGATE INDEX



## Since Inception Risk Statistics



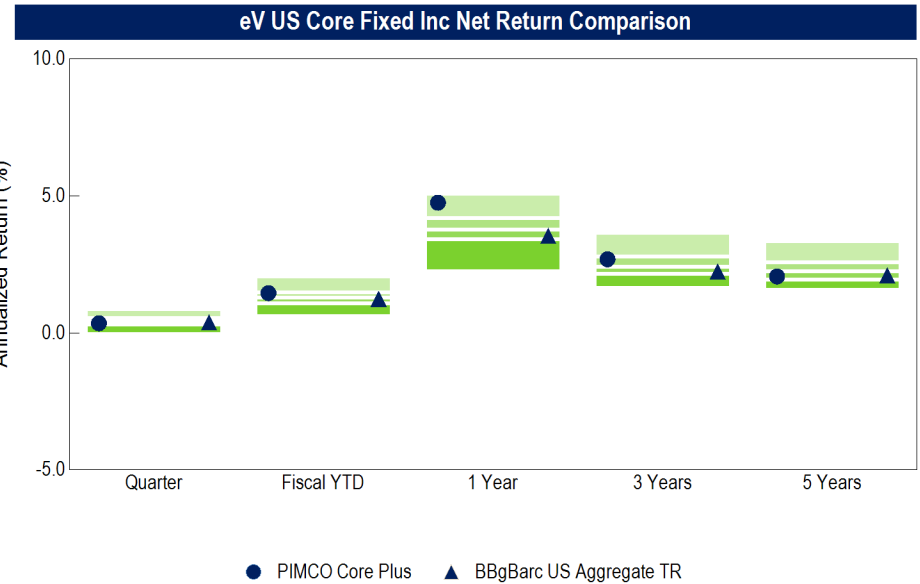
# SSGA BARCLAYS AGGREGATE INDEX



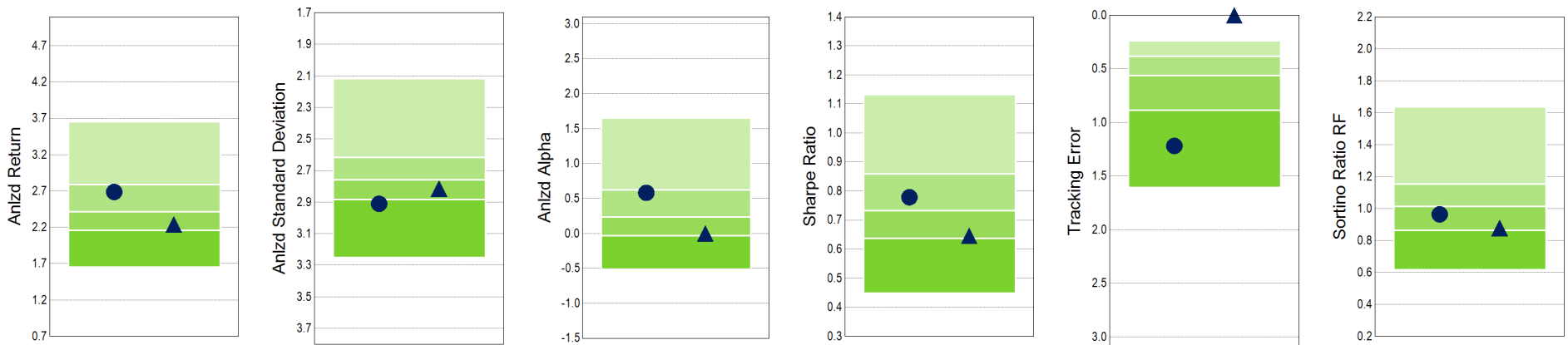


# PIMCO CORE PLUS

PIMCO's investment process expects to generate above-benchmark returns by building diversified, risk-averse portfolios based upon their long-term secular outlook. This is achieved by analyzing fundamental global trends in such areas as political factors, inflation, volatility, growth, and currency, amongst others. The three to five-year secular outlook is the core element of their decision-making process, and serves as a framework for portfolio implementation. In applying the secular outlook to the portfolio, such tools as duration position, yield curve posture and sector allocation are expressed to best represent the firm's view on the macro-economic environment. Bottom-up analysis of specific securities is also an important part of the firm's philosophy. Bonds are evaluated on a rich/cheap basis and fundamental research determines strong portfolio candidates.

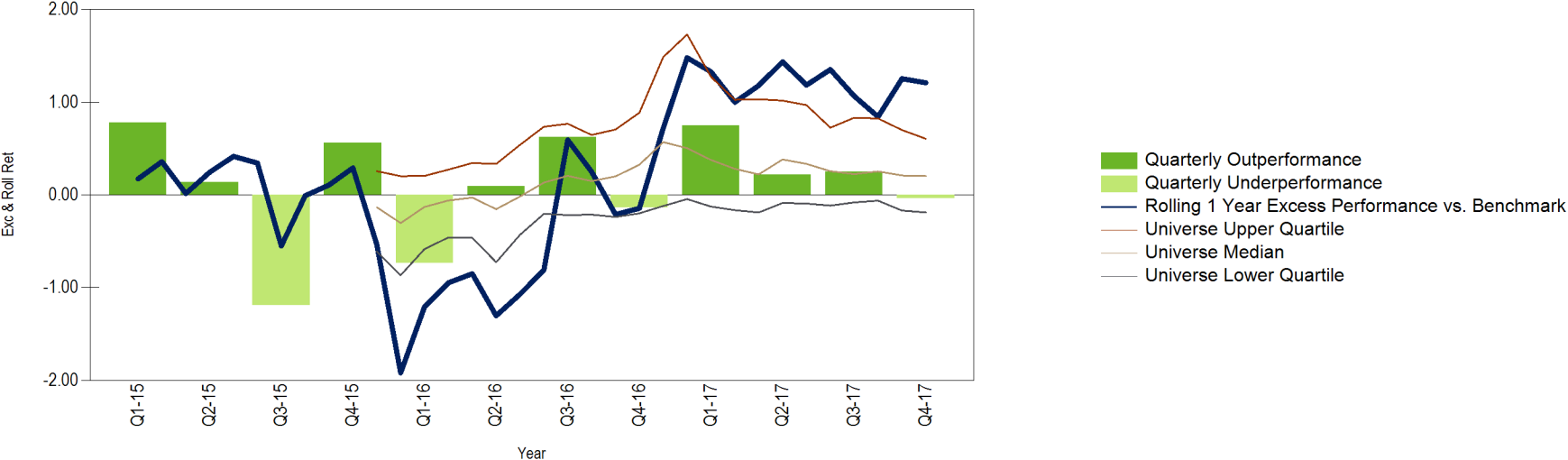


## 3 Year Risk Statistics



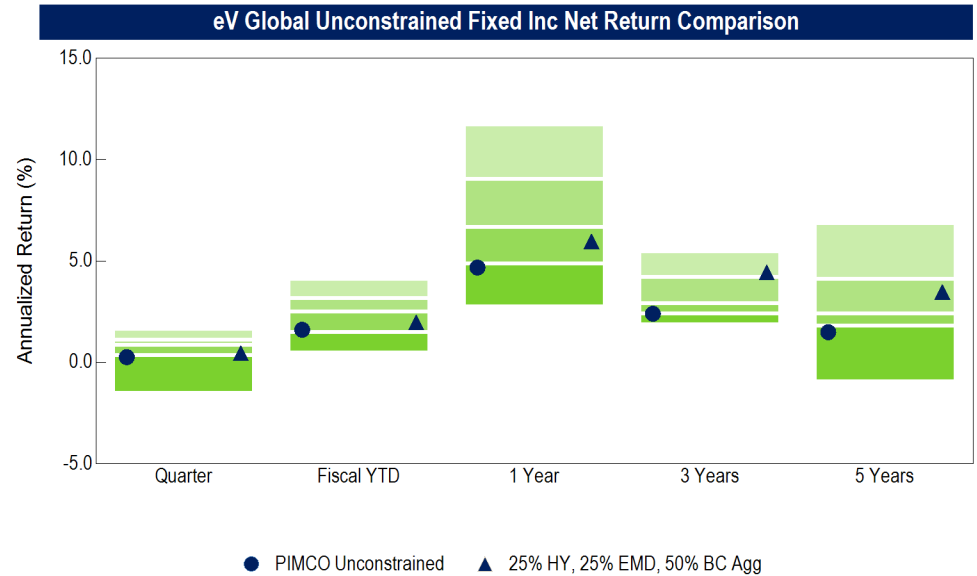
# PIMCO CORE PLUS

## Annualized Excess Performance

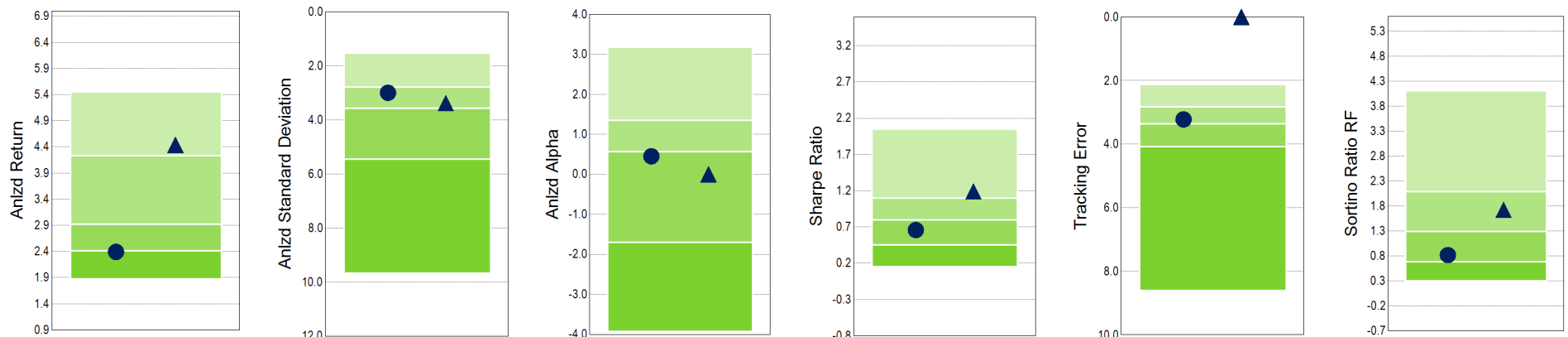


# PIMCO UNCONSTRAINED

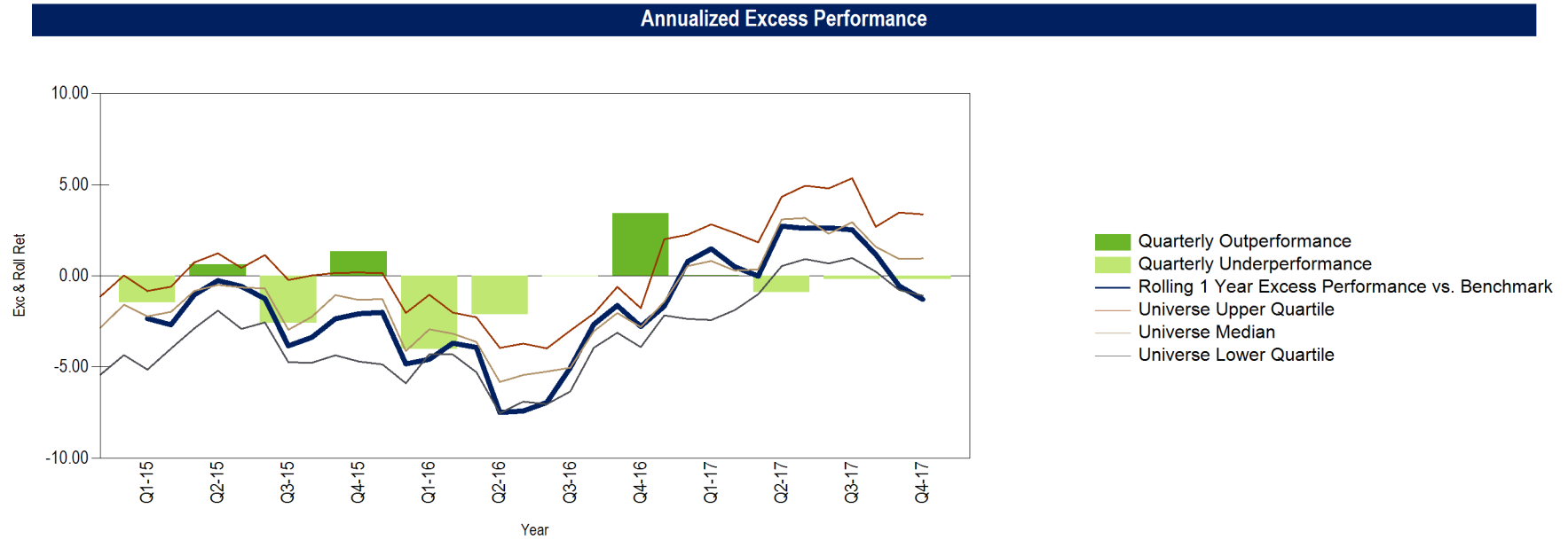
The PIMCO Unconstrained Bond Strategy is an absolute return-oriented, investment grade quality fixed income strategy that embodies PIMCO's secular thinking, global themes, and integrated investment process without the constraints of a benchmark or significant sector/instrument limitations. The strategy is designed to offer the traditional benefits of a core bond portfolio - seeks maximum long-term return consistent with capital preservation and prudent management- but with higher potential alpha and the potential to mitigate downside risk to a greater degree than what is reasonably possible from traditional active fixed income management approaches as the strategy allows for more manager discretion to adjust duration exposure, allocate across sectors and otherwise express the firm's active views. The strategy is governed by PIMCO's investment philosophy and unique, disciplined secular investment process, which focuses on long-term economic, social and political trends that may have lasting impacts on investment returns.



## 3 Year Risk Statistics

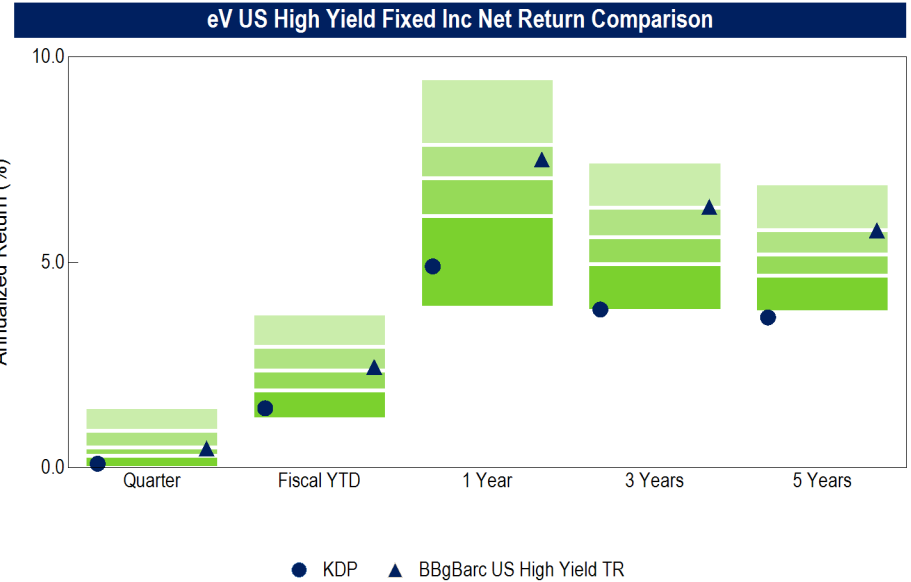


# PIMCO UNCONSTRAINED

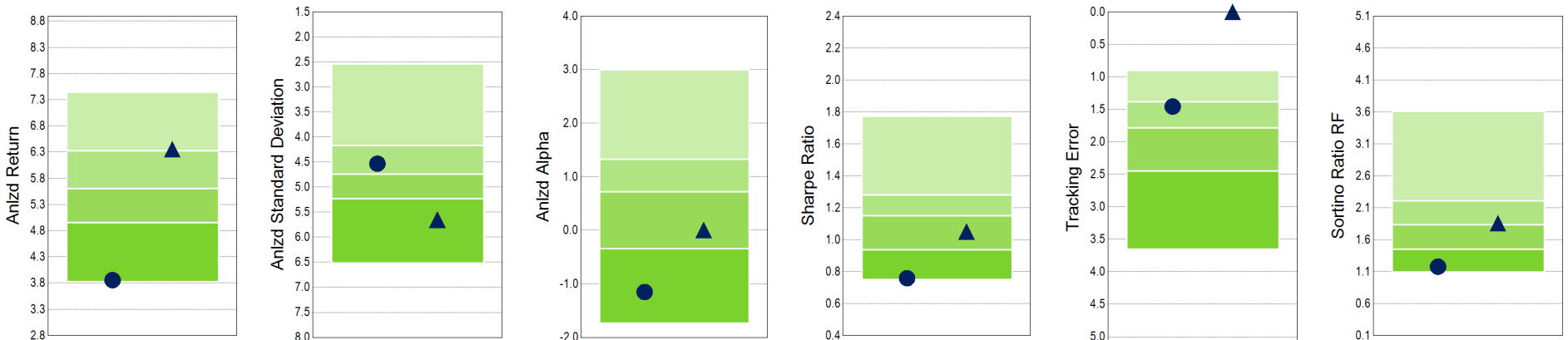


# KDP

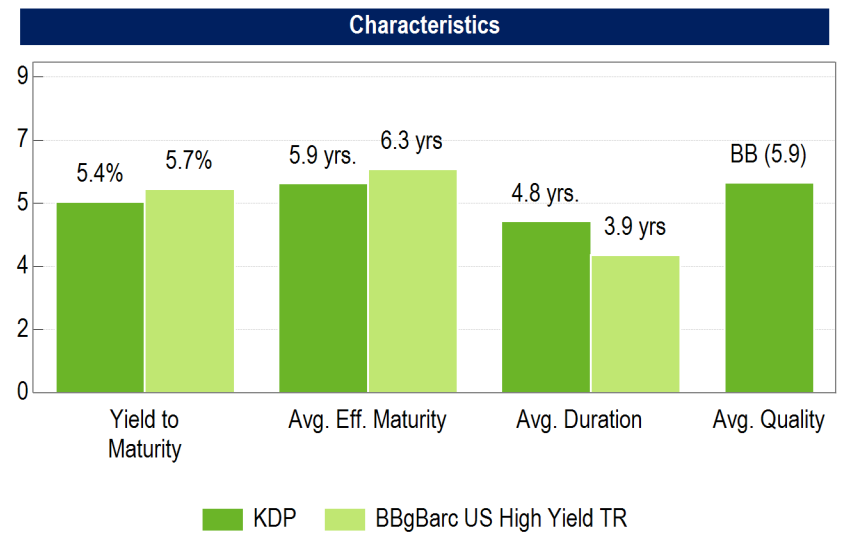
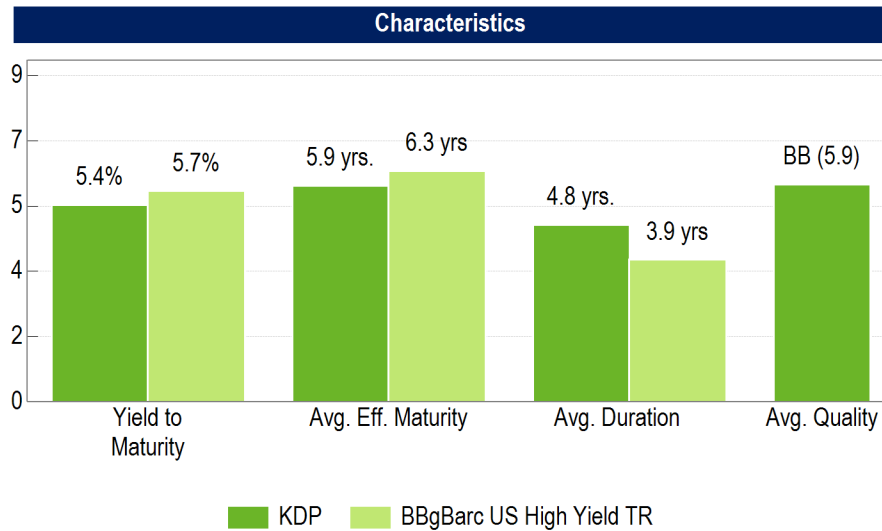
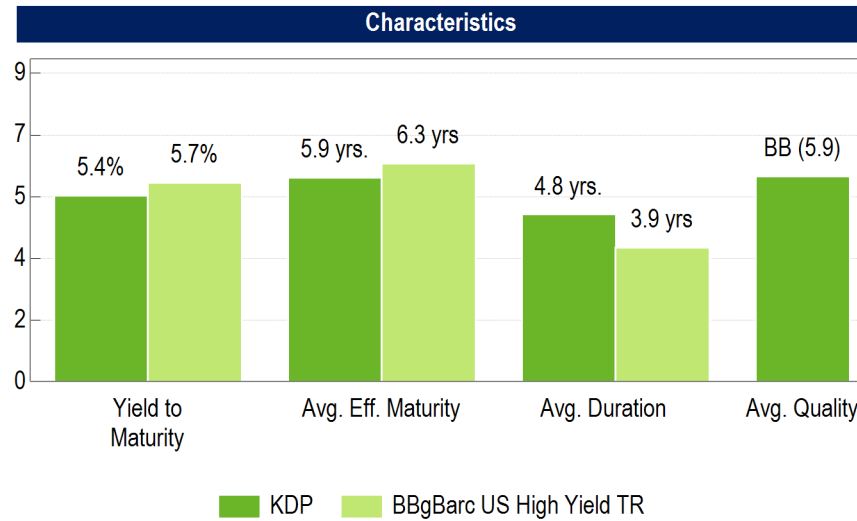
KDP believes that the key to delivering superior risk-adjusted returns lies in controlling credit risk. To do this the firm combines rigorous, bottom-up credit analysis with an active, top-down management approach that ensures a strong overall credit profile and broad portfolio diversification. KDP employs a value-oriented approach to investing that leverages our strong fundamental research capabilities, and seeks to take advantage of market inefficiencies and anomalies on an opportunistic basis in order to capture excess credit spread. KDP places a strong emphasis on issuer, industry and sector diversification, and tends to focus on larger companies, as they tend to be more resilient in times of difficulty and their securities tend to be more liquid. KDP uses a proprietary "Default Risk Ranking (DRR)" System to screen securities eligible for purchase in its portfolios. By assigning default risk probabilities to companies covered, the DRR system is used to identify securities that are overvalued or undervalued relative to the market. The firm minimizes portfolio volatility in part by investing in securities of companies that exhibit greater resilience in times of financial distress. KDP focuses on companies with good management, stable to improving earnings, good balance sheet liquidity and a strong competitive position in industries with favorable underlying fundamentals.



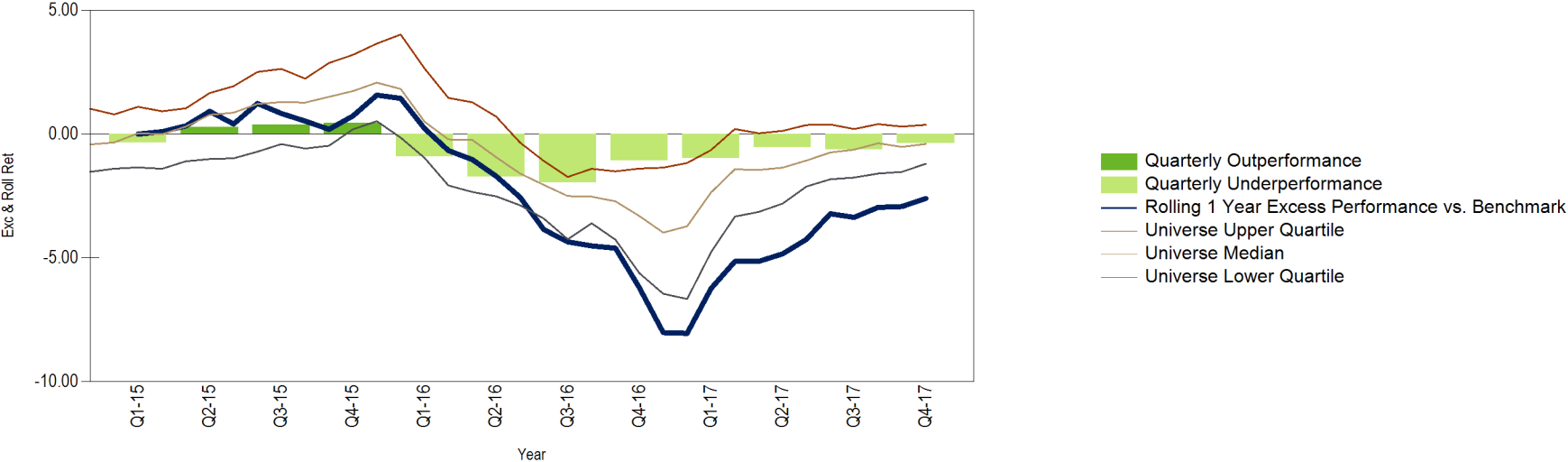
## 3 Year Risk Statistics



# KDP

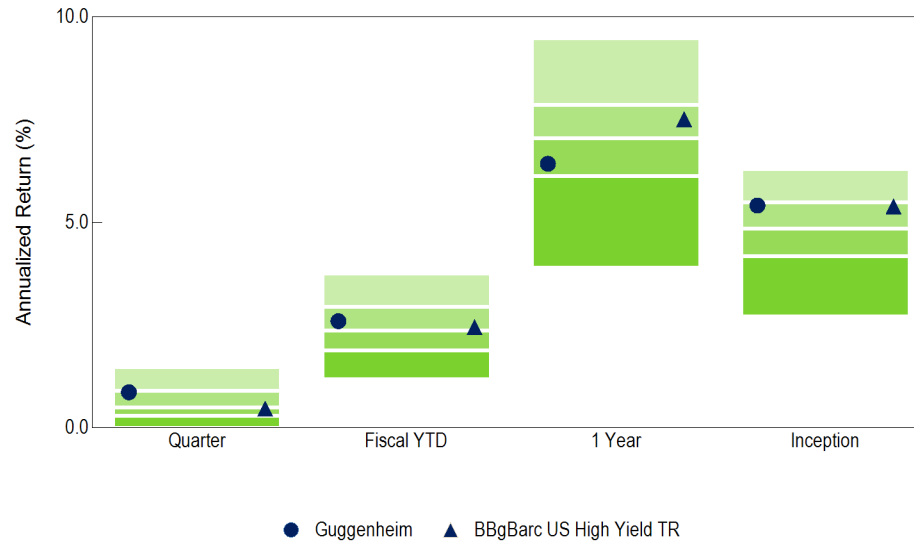


## Annualized Excess Performance

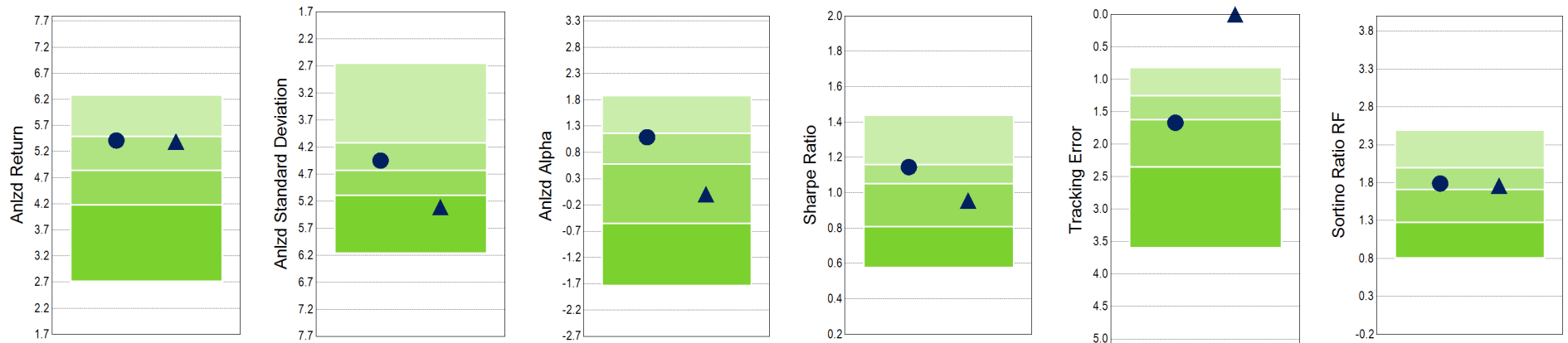


# GUGGENHEIM

**eV US High Yield Fixed Inc Net Return Comparison**



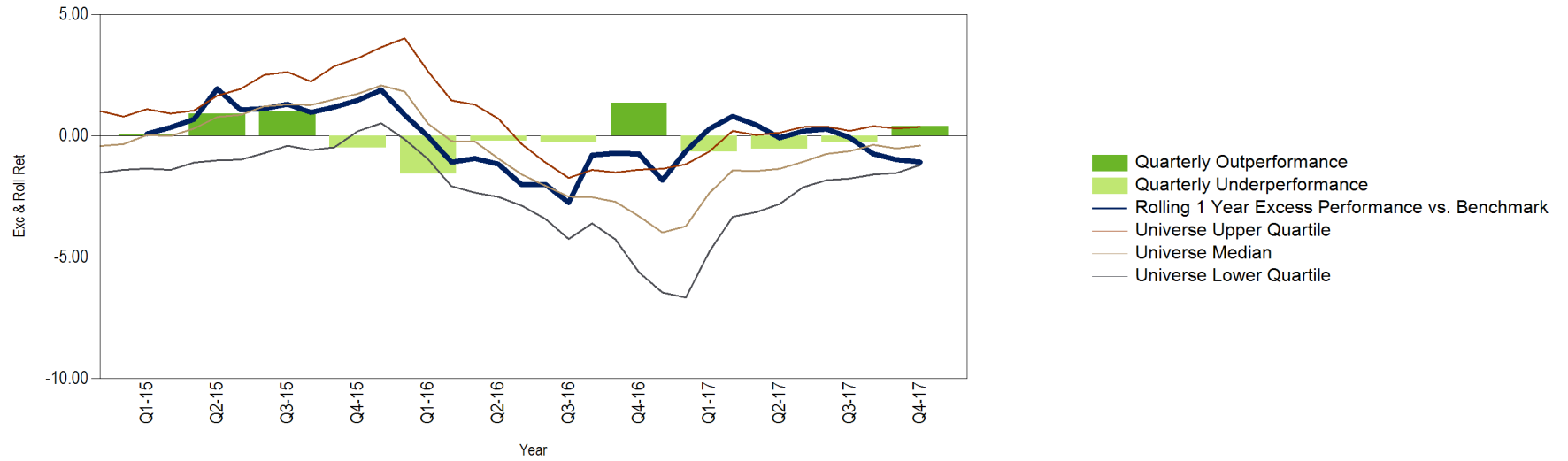
## Since Inception Risk Statistics





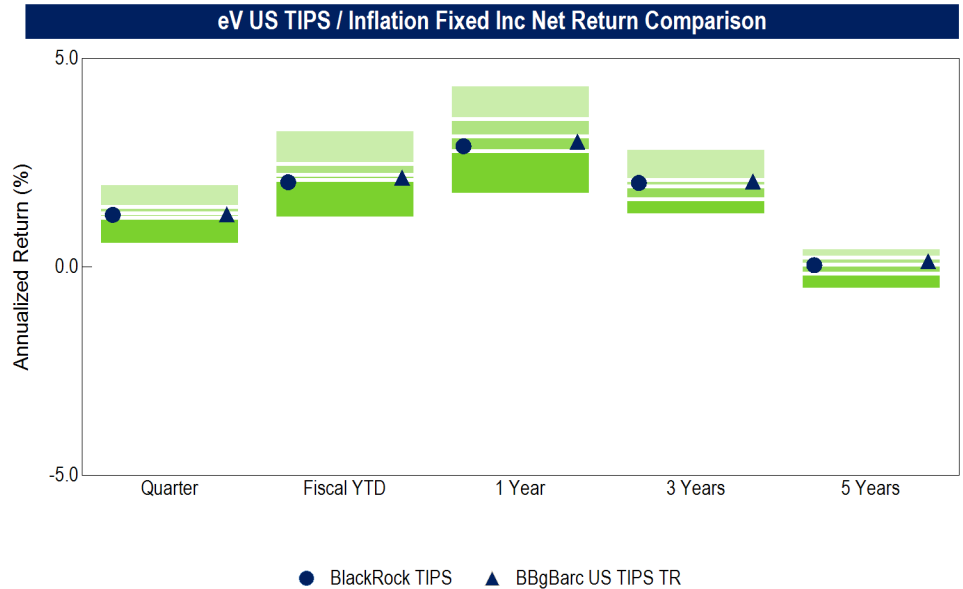
# GUGGENHEIM

Annualized Excess Performance

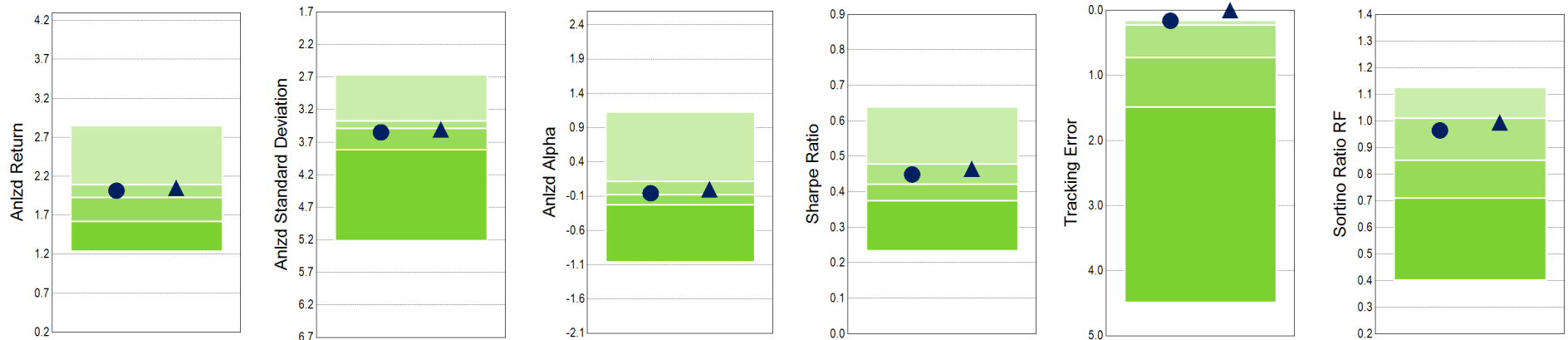


# BLACKROCK TIPS

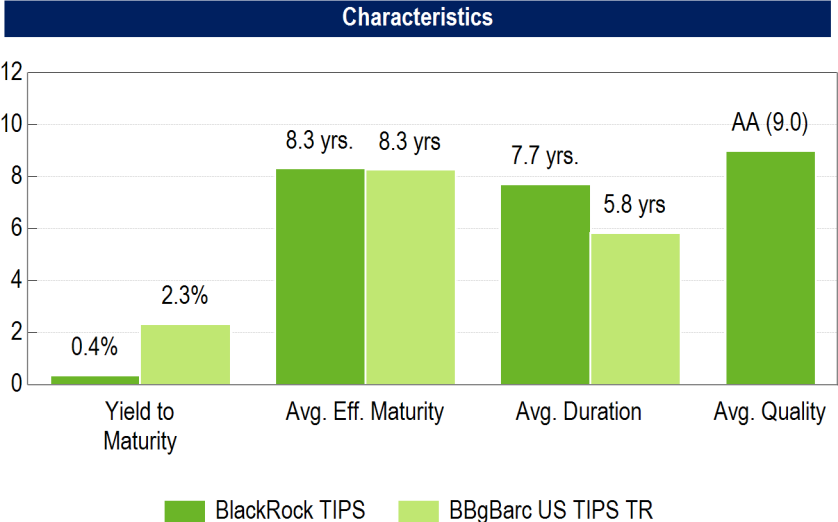
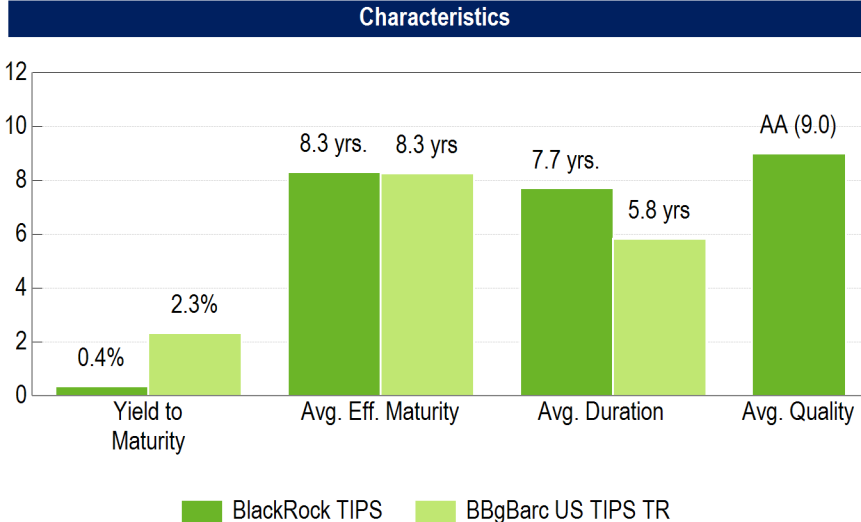
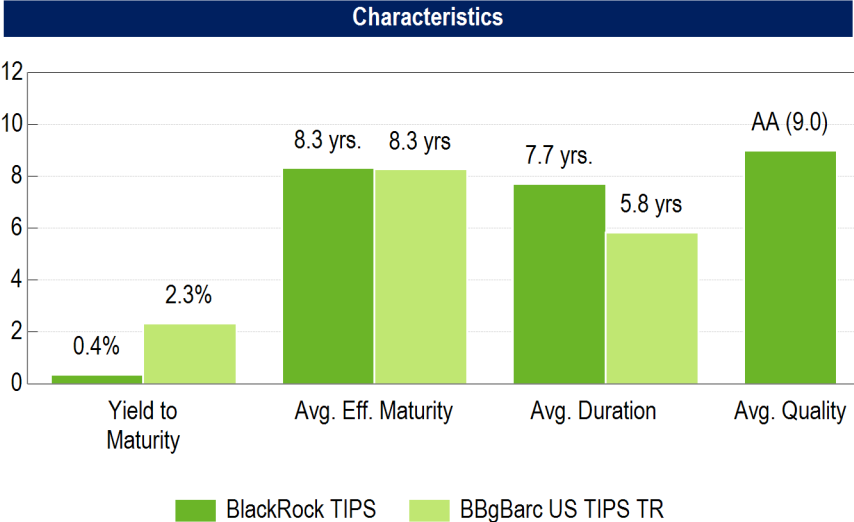
In the management of an inflation-linked bond portfolio, BlackRock will utilize multiple strategies to outperform the index. These include: duration and yield curve positioning, technical supply/demand anomalies related primarily to the ILB auction cycle, seasonal factors related to non-seasonally adjusted inflation-linked indices, break-even spread between ILBs and nominal securities, and, if applicable, sector and country allocation. The team compares nominal yields with real yields and factor in their views on inflation. If the yield spread is less than the inflation rate, then ILBs are considered to trade cheaply to nominal bonds and have greater relative value. The portfolio currently holds about 31 positions, out of 27-29 issues in the benchmark. Turnover is moderate, at around 100-150%.



## 3 Year Risk Statistics

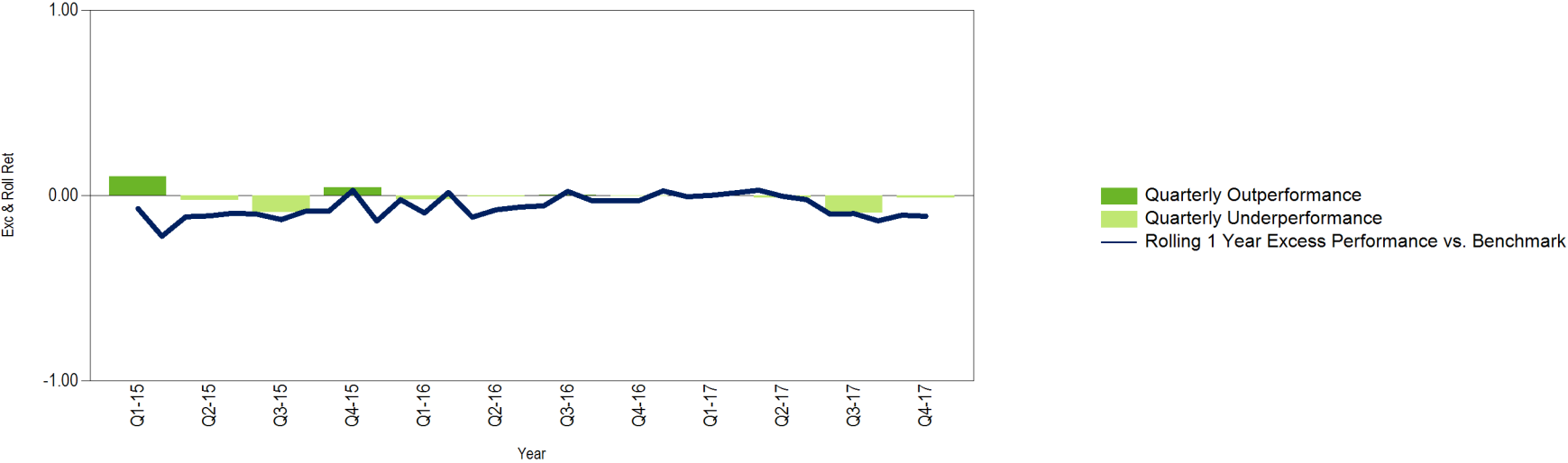


# BLACKROCK TIPS

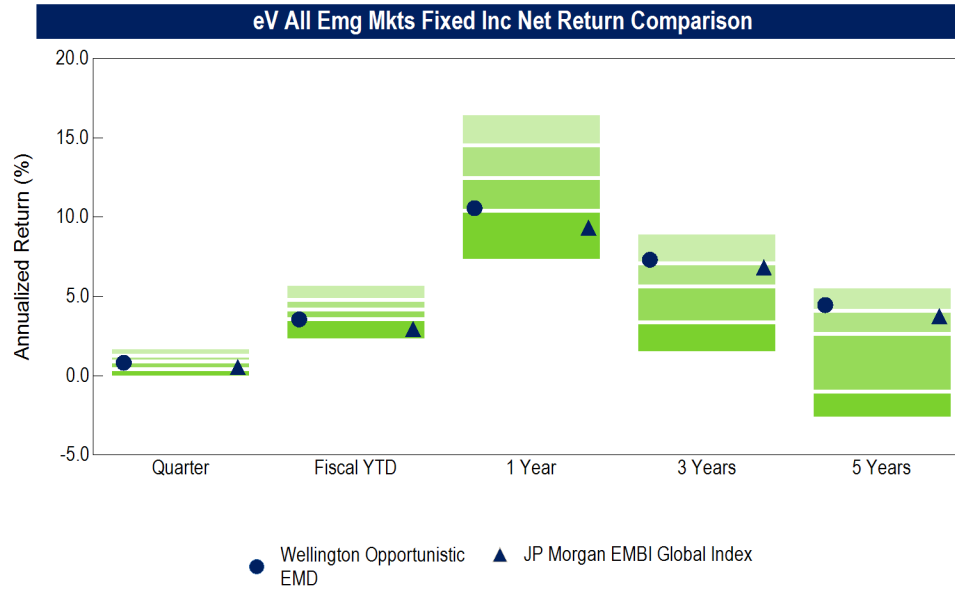


# BLACKROCK TIPS

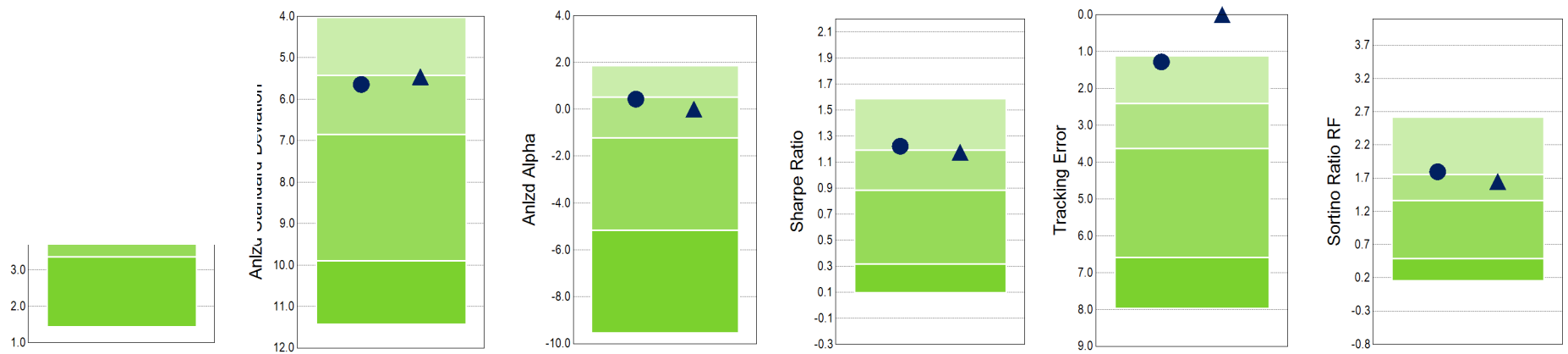
## Annualized Excess Performance



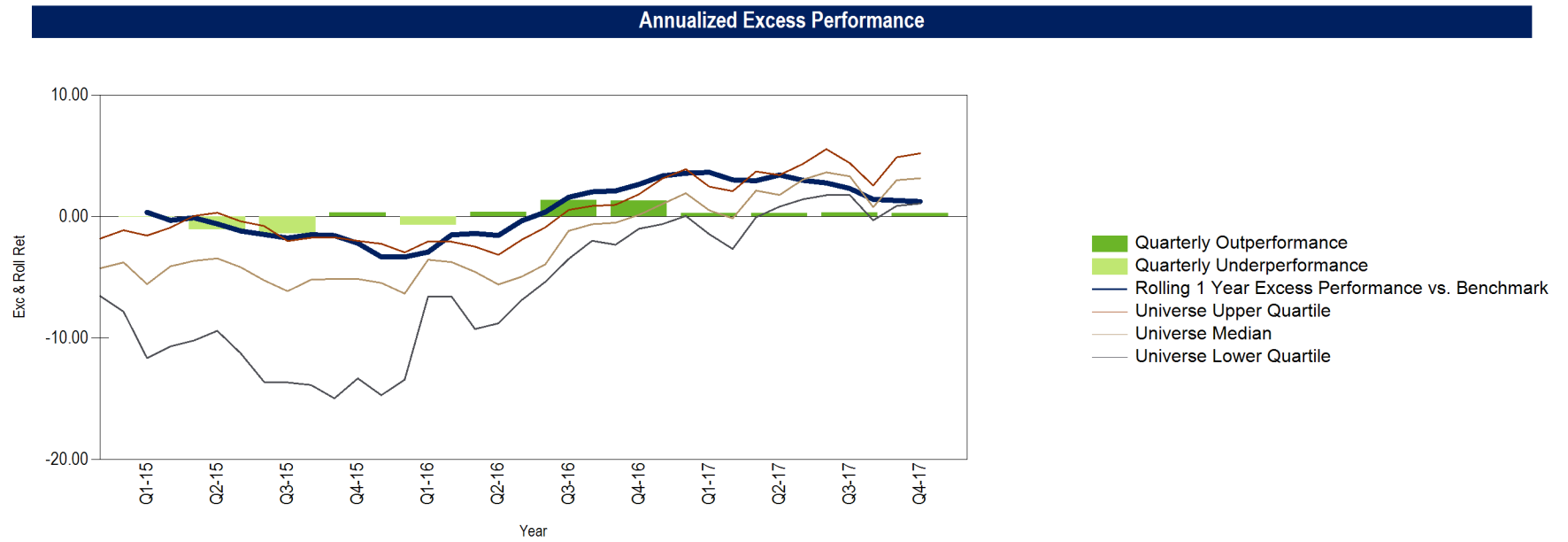
# WELLINGTON OPPORTUNISTIC EMD



## 3 Year Risk Statistics

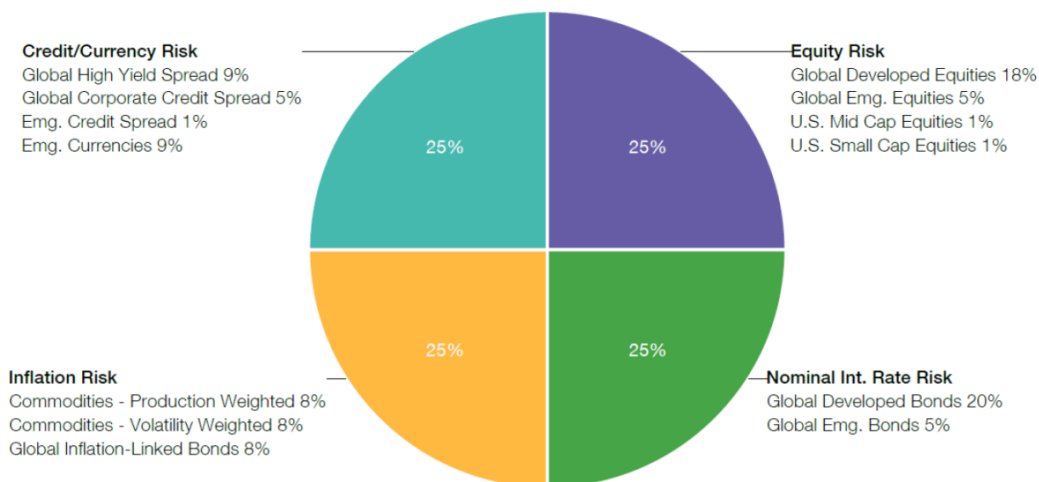


# WELLINGTON OPPORTUNISTIC EMD



# AQR GLOBAL RISK PREMIUM FUND

## Risk Allocation



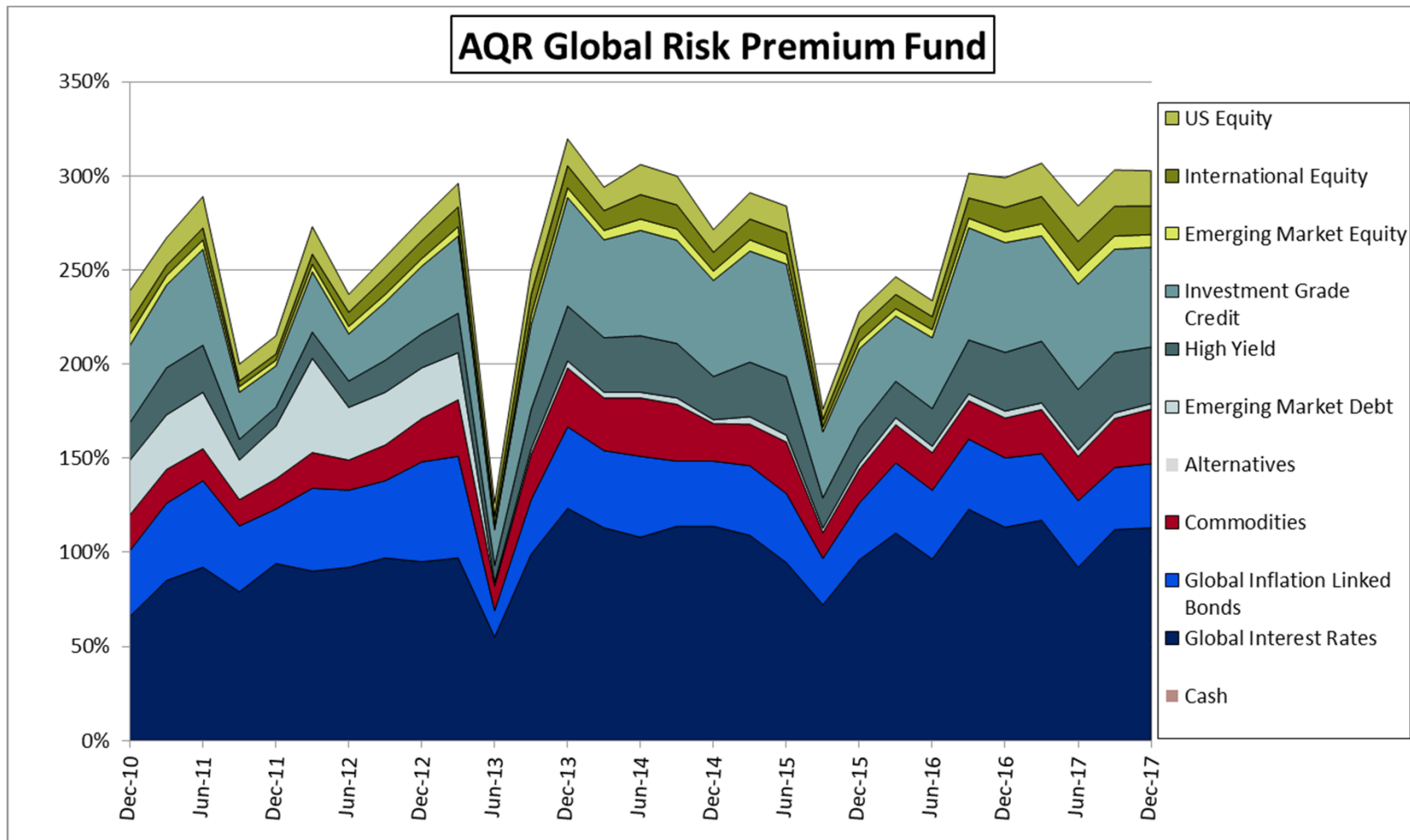
## Estimated Exposure Breakdown

Long Exposure (% of NAV)		Long Exposure (% of NAV)	
<b>Equity Risk</b>		<b>Equity Market Exposures</b>	
Global Developed Equities	36%	Americas	28%
Global Emerging Equities	8%	Europe	8%
U.S. Mid Cap Equities	2%	Asia ex-Japan	8%
U.S. Small Cap Equities	2%	Japan	3%
<b>Total Equity Risk</b>	<b>48%</b>	<b>Total Equity Market Exposures</b>	<b>48%</b>
<b>Nominal Interest Rate Risk</b>		<b>Bond Market Exposures - Nominal and Inflation-Linked</b>	
Global Developed Bonds	108%	Americas	76%
Global Emerging Bonds	27%	Europe	70%
<b>Total Nominal Interest Rate Risk</b>	<b>135%</b>	Asia	30%
<b>Inflation Risk</b>		<b>Total Bond Market Exposures</b>	<b>176%</b>
Commodities - Production Weighted	13%	<b>Emerging Currency Exposures</b>	
Commodities - Volatility Weighted	22%	Asia	9%
Global Inflation-Linked Bonds	41%	Europe	13%
<b>Total Inflation Risk</b>	<b>76%</b>	Latin America	9%
<b>Credit/Currency Risk</b>		Dollar Block ex-U.S.	0%
Global High Yield Spread	36%	<b>Total Emerging Currency Exposures</b>	<b>31%</b>
Global Corporate Credit Spread	63%		
Emerging Credit Spread	4%		
Emerging Currencies	31%		
<b>Total Credit/Currency Risk</b>	<b>135%</b>		
<b>Total Fund Exposures</b>	<b>394%</b>		

Source: AQR



# AQR GLOBAL RISK PREMIUM FUND





# PRIVATE EQUITY PERFORMANCE ANALYSIS (AS OF 9/30/2017)

## State of Vermont Executive IRR Summary 9/30/2017

Investment Name	Commitment Year	Commitment Amount	QTD	YTD	1 Year	3 Year	5 Year	Inception
HarbourVest HIPEP VII	2014	15,000,000	5.28	18.47	21.72			13.94
HarbourVest HIPEP VIII	2017	60,000,000						
HarbourVest Partners Dover Street IX	2016	40,000,000	4.63	33.02				80.79
HarbourVest Partners Dover Street VIII	2012	25,000,000	4.78	15.21	16.65	16.29		22.53
HarbourVest Partners IX-Buyout	2012	24,000,000	4.75	15.48	22.54	18.07		16.49
HarbourVest Partners IX-Credit Opportunities	2012	4,000,000	6.84	15.26	17.55	13.21		14.89
HarbourVest Partners IX-Venture	2012	12,000,000	2.90	9.56	9.26	11.60		14.73
HarbourVest Partners X Buyout Fund	2015	45,500,000	9.86	34.26	44.49			40.05
HarbourVest Partners X Venture Fund	2015	19,500,000	8.74	28.09	42.80			32.27
<b>Total: State of Vermont</b>		<b>245,000,000</b>	<b>5.23</b>	<b>17.76</b>	<b>23.58</b>	<b>18.06</b>		<b>19.95</b>



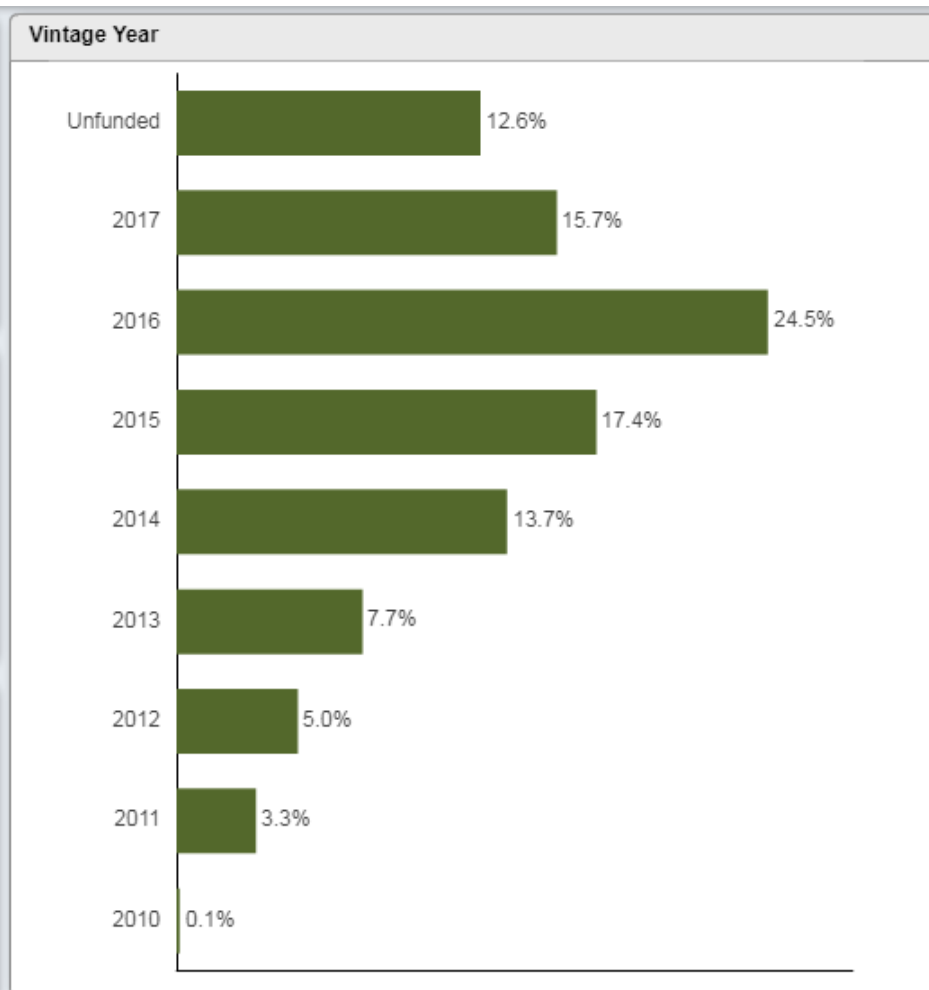
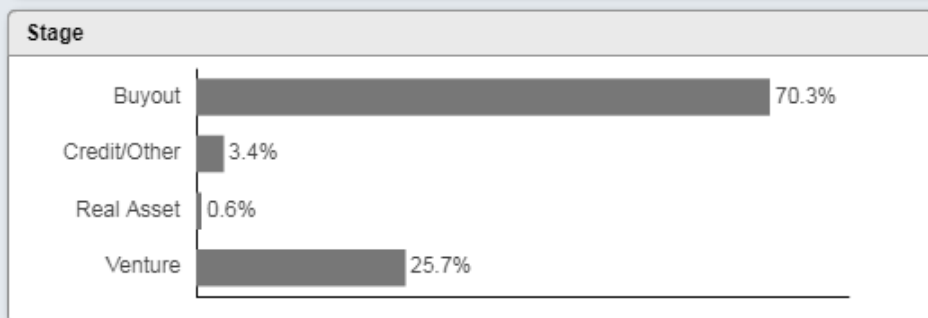
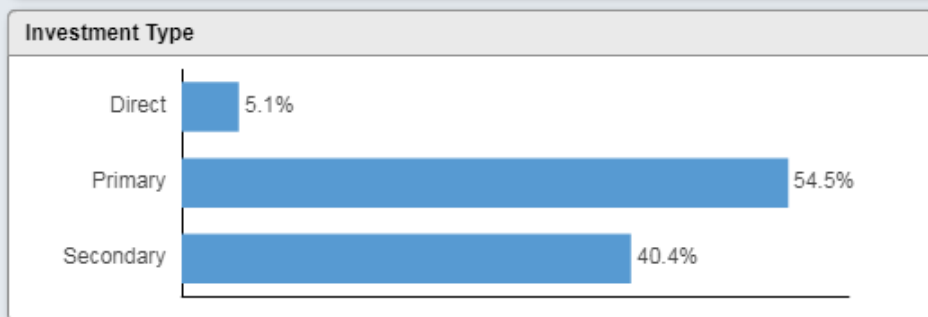
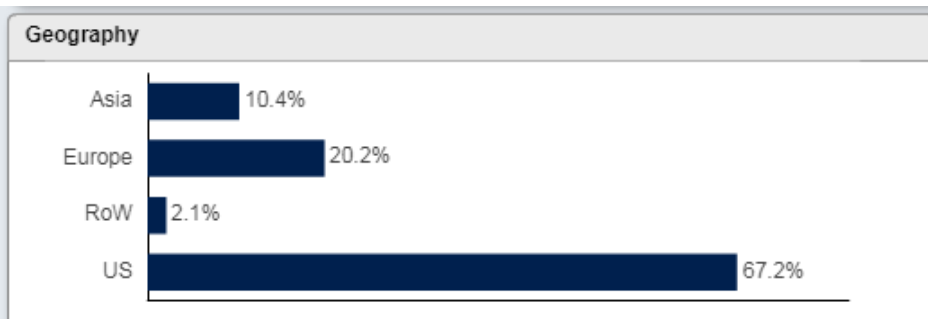
# PRIVATE EQUITY PERFORMANCE ANALYSIS (AS OF 9/30/2017)

## State of Vermont Performance Analysis 9/30/2017

Investment	Commitment Year	Commitment Amount	Paid in Capital	Capital to be Funded	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR
<b>State of Vermont</b>													
1 HarbourVest HIPEP VII	2014	15,000,000	5,512,500	9,487,500	0	289,115	6,326,988	6,616,103	1,103,603	37%	0.05	1.20	13.94%
2 HarbourVest HIPEP VIII	2017	60,000,000	0	60,000,000	0	0		0	0	0%	0.00	0.00	N/A
3 HarbourVest Partners Dover Street IX	2016	40,000,000	6,400,000	33,600,000	0	961,022	7,728,371	8,689,393	2,289,393	16%	0.15	1.36	80.79%
4 HarbourVest Partners Dover Street VIII	2012	25,000,000	21,625,000	3,375,000	0	14,949,894	17,078,845	32,028,739	10,403,739	87%	0.69	1.48	22.53%
5 HarbourVest Partners IX-Buyout	2012	24,000,000	15,180,000	8,820,000	47,188	6,683,524	15,537,584	22,221,108	6,993,920	63%	0.44	1.46	16.49%
6 HarbourVest Partners IX-Credit Opp	2012	4,000,000	2,500,000	1,500,000	10,265	1,118,825	2,310,429	3,429,254	918,989	63%	0.45	1.37	14.89%
7 HarbourVest Partners IX-Venture	2012	12,000,000	10,200,000	1,800,000	37,671	3,639,001	11,065,995	14,704,996	4,467,325	85%	0.36	1.44	14.73%
8 HarbourVest Partners X Buyout Fund	2015	45,500,000	5,005,000	40,495,000	2,787	395,805	6,784,023	7,179,828	2,172,041	11%	0.08	1.43	40.05%
9 HarbourVest Partners X Venture Fund	2015	19,500,000	3,363,750	16,136,250	1,672	146,250	4,159,086	4,305,336	939,914	17%	0.04	1.28	32.27%
<b>Subtotal: State of Vermont</b>		<b>245,000,000</b>	<b>69,786,250</b>	<b>175,213,750</b>	<b>99,583</b>	<b>28,183,436</b>	<b>70,991,321</b>	<b>99,174,757</b>	<b>29,288,924</b>	<b>28%</b>	<b>0.40</b>	<b>1.42</b>	<b>19.95%</b>
<b>Total : State of Vermont</b>		<b>245,000,000</b>	<b>69,786,250</b>	<b>175,213,750</b>	<b>99,583</b>	<b>28,183,436</b>	<b>70,991,321</b>	<b>99,174,757</b>	<b>29,288,924</b>	<b>28%</b>	<b>0.40</b>	<b>1.42</b>	<b>19.95%</b>



# PRIVATE EQUITY INVESTMENT DIVERSIFICATION AS OF 11/30/2017

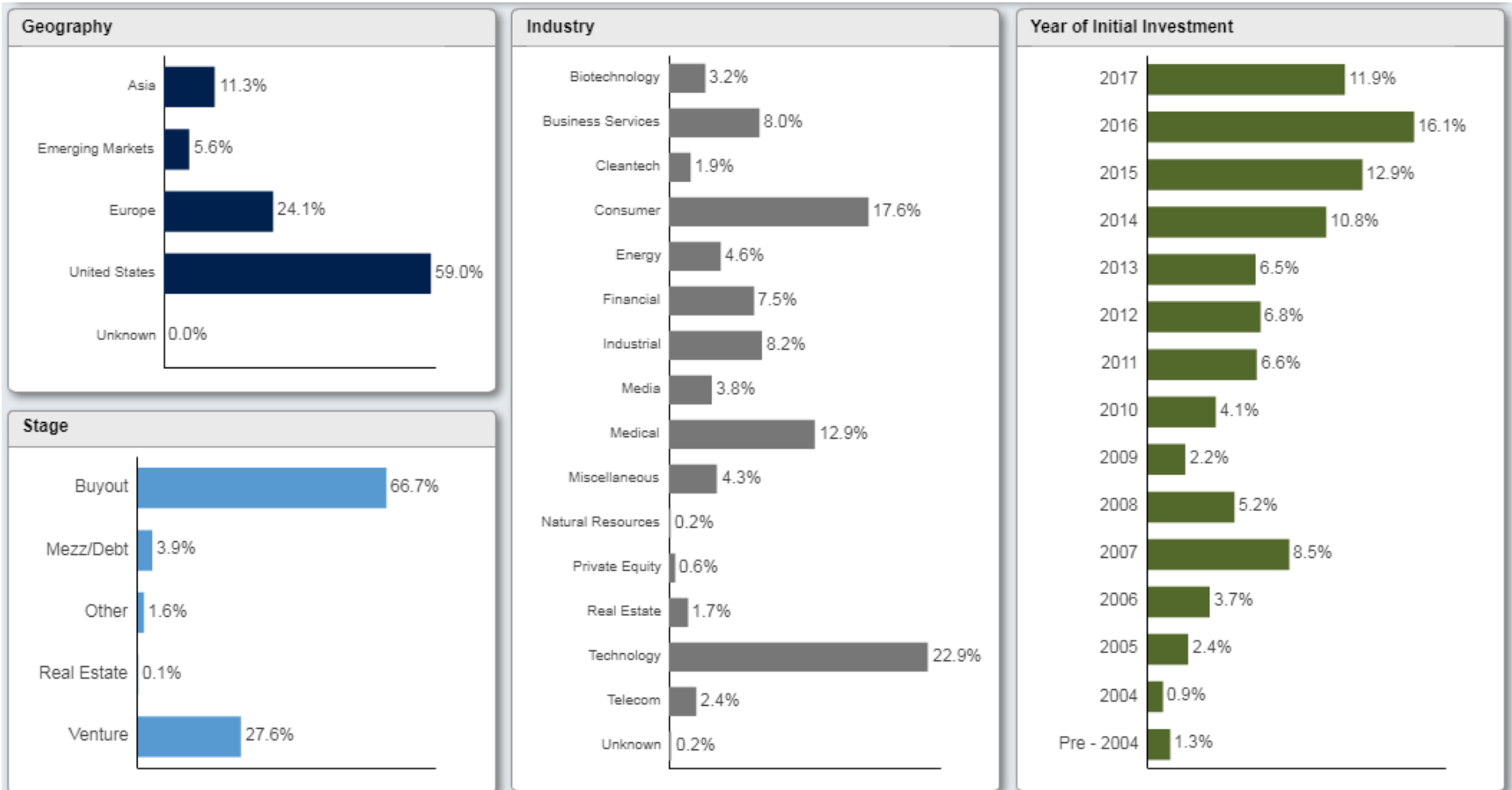


**HARBOURView**  
*insight into your portfolio*

For questions and additional information, please contact [clientrelations@harbourvest.com](mailto:clientrelations@harbourvest.com).



# PRIVATE EQUITY COMPANY DIVERSIFICATION AS OF 11/30/2017



**HARBOURView**  
*insight into your portfolio*

For questions and additional information, please contact [clientrelations@harbourvest.com](mailto:clientrelations@harbourvest.com).



# REAL ESTATE PERFORMANCE ANALYSIS (AS OF 9/30/2017)

## State of Vermont Executive IRR Summary

9/30/2017

Investment Name	Commitment Year	Commitment Amount	QTD	YTD	1 Year	3 Year	5 Year	Inception
RREEF America REIT III	2006	70,000,000	-0.77	-4.77	-5.11	6.85	16.26	-7.38
Siguler Guff Distressed Real Estate Opportunities II	2014	40,000,000	2.42	9.43	12.82	9.01		9.37
Siguler Guff DREOF II Co-Investment	2016	15,000,000	0.64	3.13				7.93
Transwestern Asian Realty Partnership III	2005	5,000,000	-3.67	11.34	10.94	7.46	25.40	-15.31
<b>Total: State of Vermont</b>		<b>130,000,000</b>	<b>1.98</b>	<b>7.89</b>	<b>11.83</b>	<b>8.53</b>	<b>13.13</b>	<b>-4.33</b>

## State of Vermont Performance Analysis

9/30/2017

Investment	Commitment Year	Commitment Amount	Paid in Capital	Capital to be Funded	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR
<b>State of Vermont</b>												
1 RREEF America REIT III	2006	70,000,000	70,000,000	0	40,297,588	498,531	40,796,119	-29,203,881	100%	0.58	0.58	-7.38%
2 Siguler Guff Distressed Real Estate Opportunities II	2014	40,000,000	30,840,000	9,160,000	3,746,995	34,319,508	38,066,503	7,226,503	77%	0.12	1.23	9.37%
3 Siguler Guff DREOF II Co-Investment	2016	15,000,000	9,060,217	5,939,783	0	9,734,183	9,734,183	673,966	60%	0.00	1.07	7.93%
4 Transwestern Asian Realty Partnership III	2005	5,000,000	5,000,000	0	1,370,584	75,598	1,446,182	-3,553,818	100%	0.27	0.29	-15.31%
<b>Subtotal: State of Vermont</b>		<b>130,000,000</b>	<b>114,900,217</b>	<b>15,099,783</b>	<b>45,415,167</b>	<b>44,627,820</b>	<b>90,042,987</b>	<b>-24,857,230</b>	<b>88%</b>	<b>0.40</b>	<b>0.78</b>	<b>-4.33%</b>
<b>Total : State of Vermont</b>		<b>130,000,000</b>	<b>114,900,217</b>	<b>15,099,783</b>	<b>45,415,167</b>	<b>44,627,820</b>	<b>90,042,987</b>	<b>-24,857,230</b>	<b>88%</b>	<b>0.40</b>	<b>0.78</b>	<b>-4.33%</b>

\* The Total Real Estate Composite also includes UBS Trumbull, which is a open-ended core strategy.



# APPENDIX

NEPC, LLC

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# KEY MARKET THEMES

## Extended US Economic Cycle

### Economic cycles do not die of old age

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

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

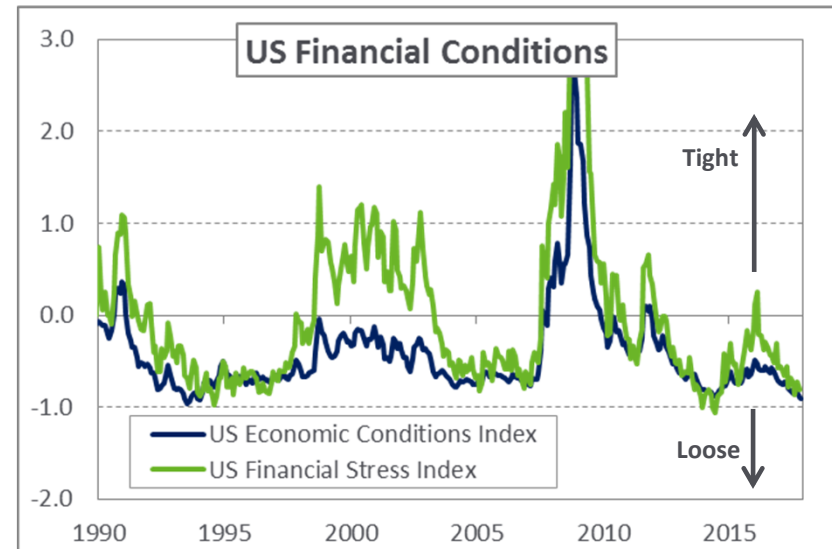
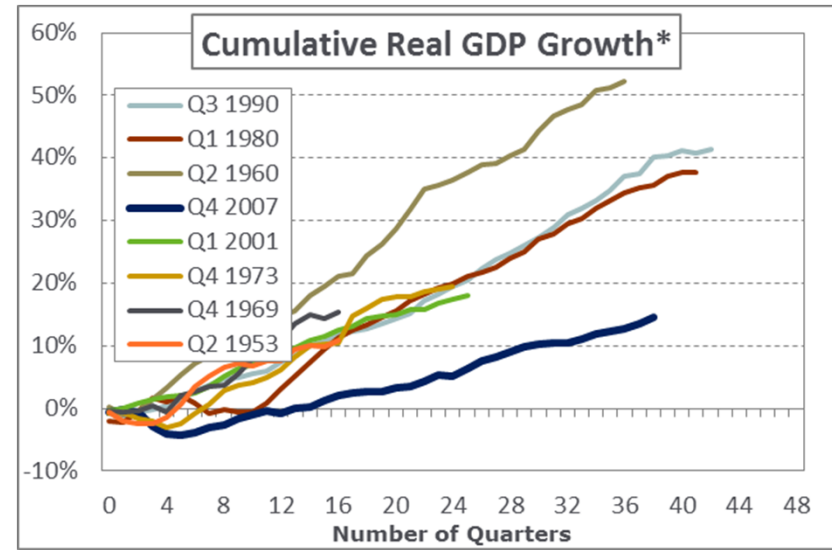
A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

### US financial conditions remain loose and support steady economic gains

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

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

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



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



# KEY MARKET THEMES

## Extended US Economic Cycle

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

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

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

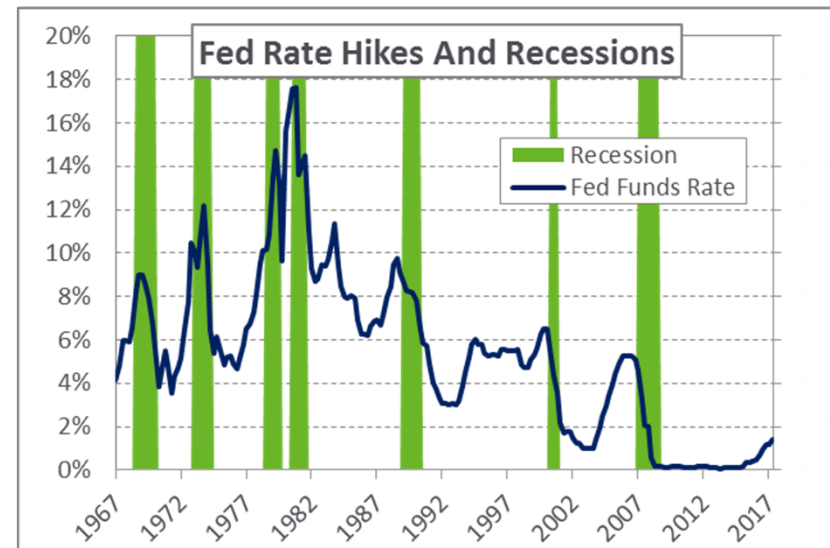
Tax cuts and fiscal stimulus can potentially remove spare economic capacity and be a catalyst for an uptick in inflation measures

### US recession concerns are muted

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

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

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



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

Source: (Bottom) Federal Reserve, NEPC





# KEY MARKET THEMES

## Synchronized Economic Resurgence

### Global economic conditions are improving in a synchronized fashion

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

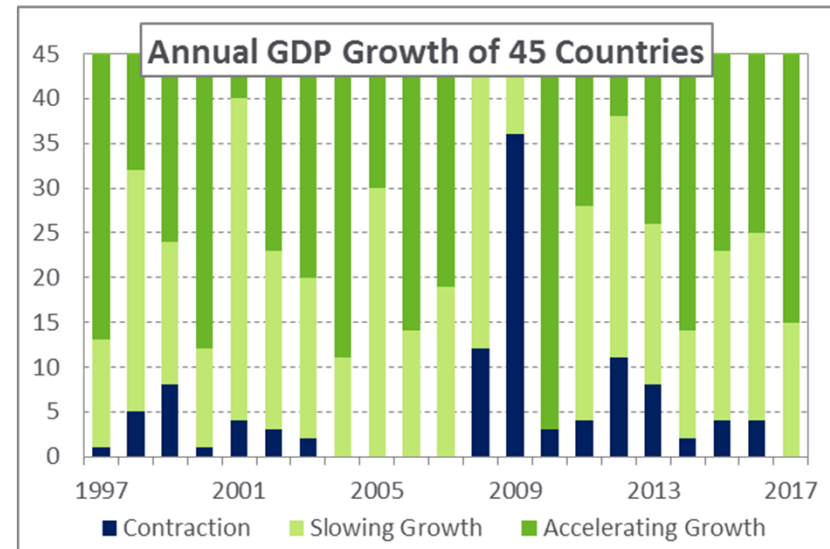
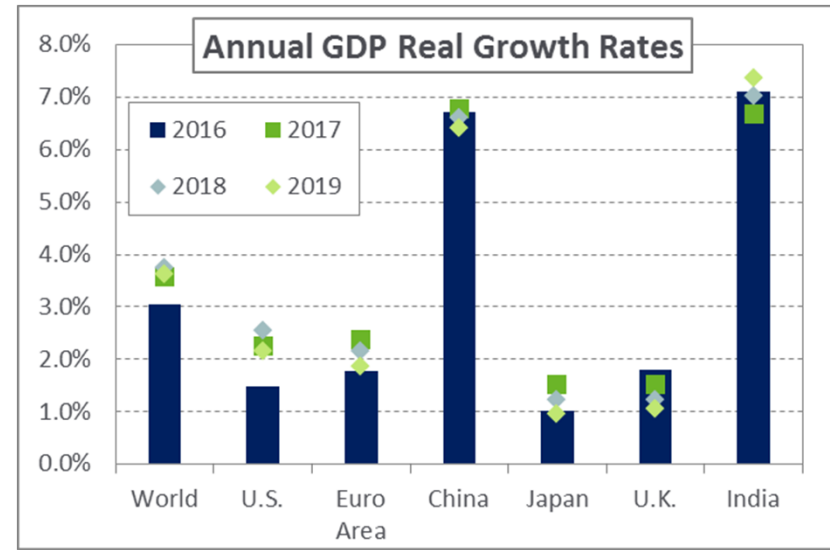
Non-US corporate revenues and equities are best positioned to benefit from a widespread boost in global economic conditions

### Positive growth rates harmonized across the globe are relatively rare

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

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

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



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



# KEY MARKET THEMES

## Synchronized Economic Resurgence

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

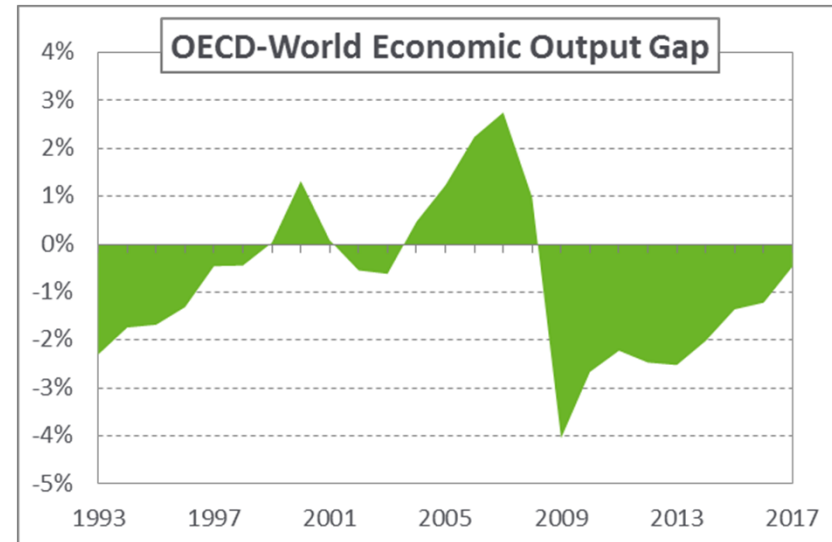
Despite recent labor market improvements, potential for labor reform in Europe and improved workforce participation in Japan offer multi-year benefits to economic growth

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

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

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

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



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



# KEY MARKET THEMES

## Federal Reserve Gradualism

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

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

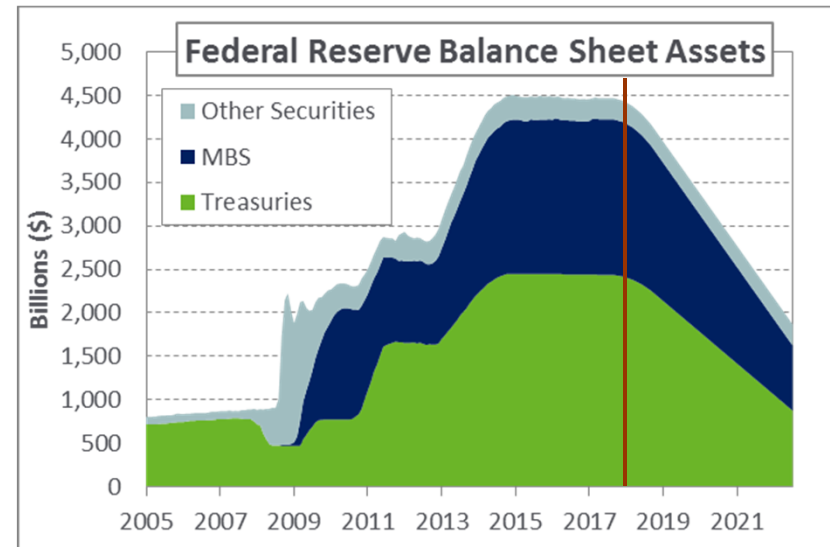
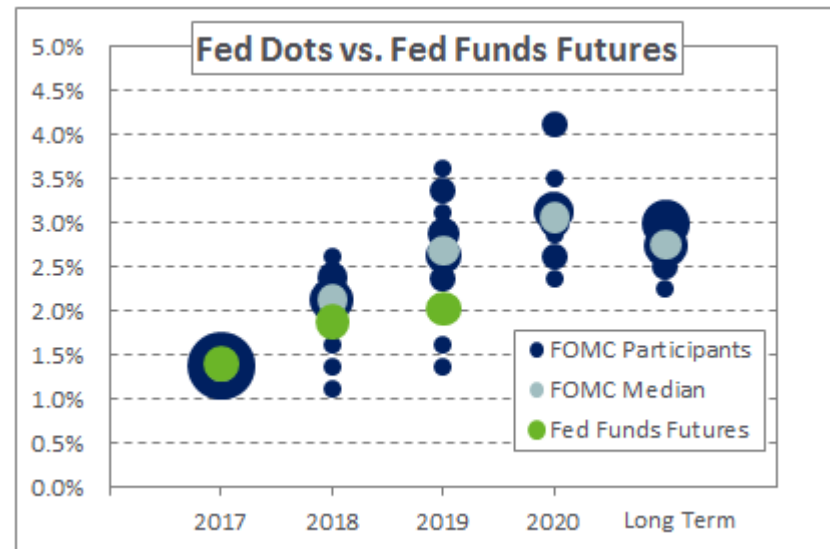
A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

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

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

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

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



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



# KEY MARKET THEMES

## Federal Reserve Gradualism

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

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

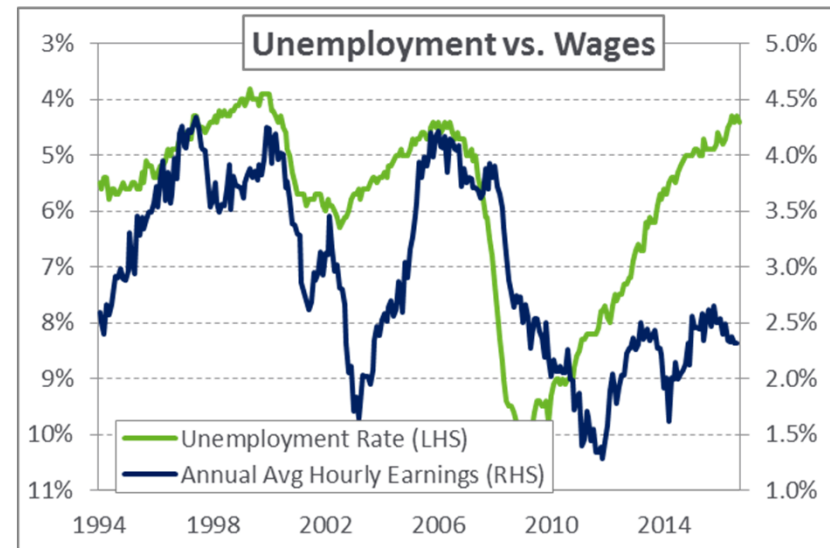
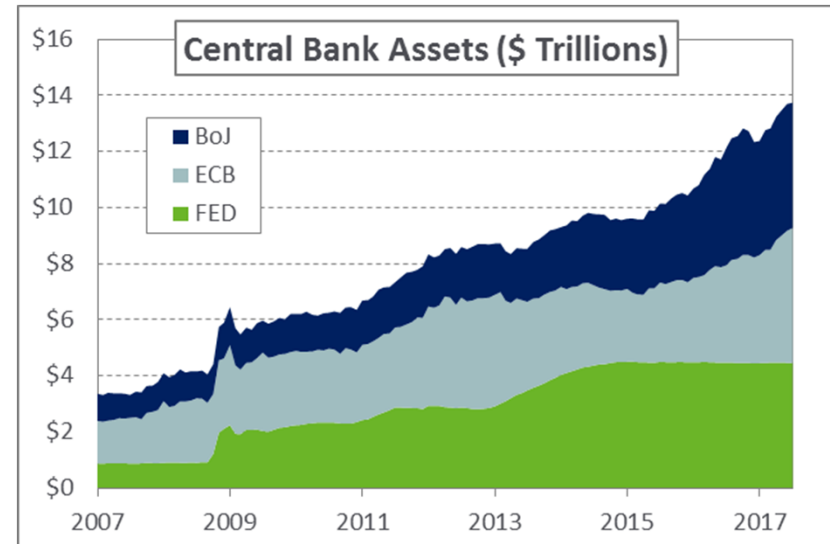
However, the reinvestment of balance sheet holdings is likely to continue for an extended period of time

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

**Inflation expected to shift marginally higher in the coming years**

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

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



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



# KEY MARKET THEMES

## China Transitions

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

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

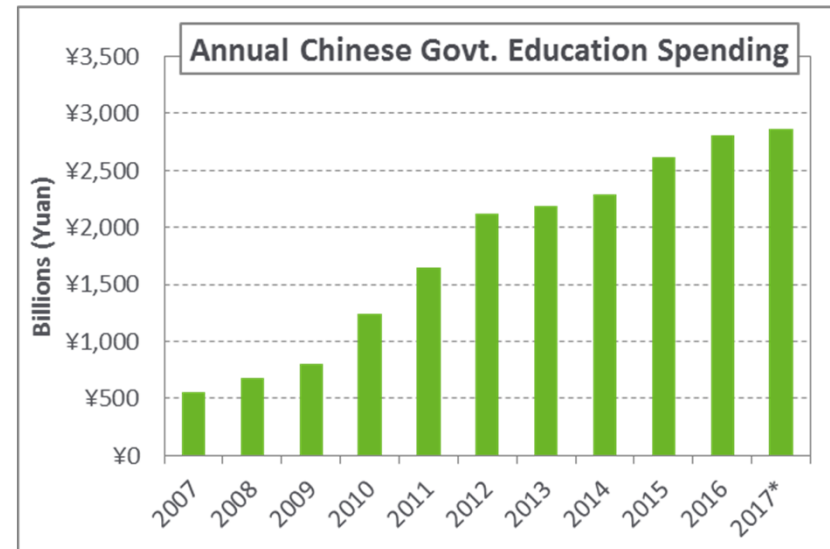
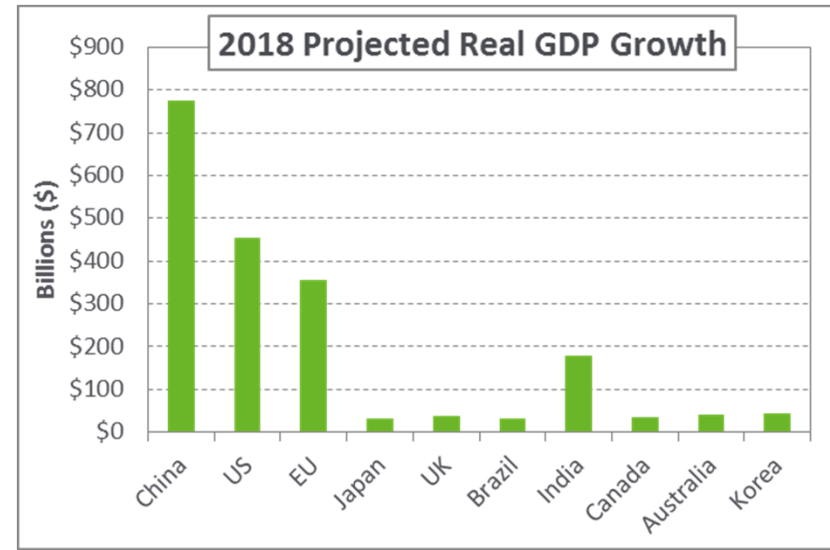
Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers

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

### China must manage competing social goals in attempting to sustain growth

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

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



Source: (Top) Bloomberg

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



# KEY MARKET THEMES

## China Transitions

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

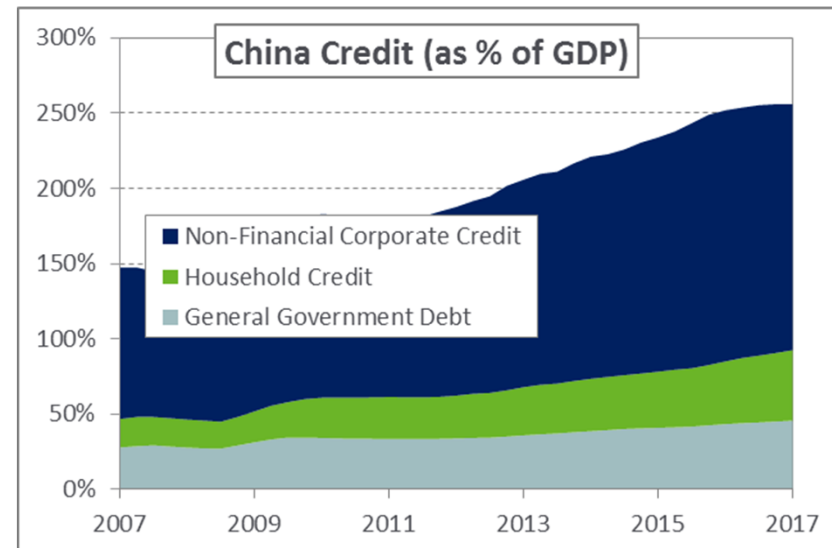
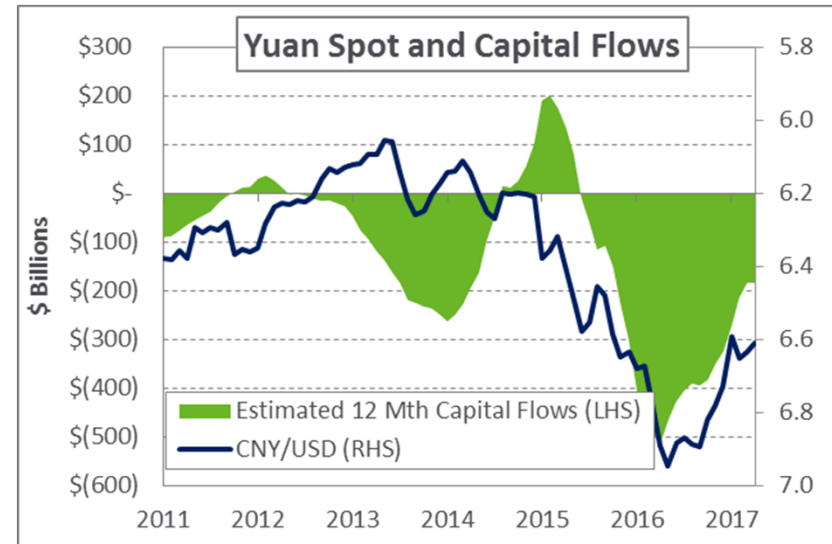
China maintains control of its currency and monetary policy but would have to make concessions to open its capital account and allow the free movement of capital in order to encourage investment

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

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

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

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



Source: (Top) Bloomberg, NEPC

Source: (Bottom) Bank of International Settlements

# KEY MARKET THEMES

## Globalization Backlash

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

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

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

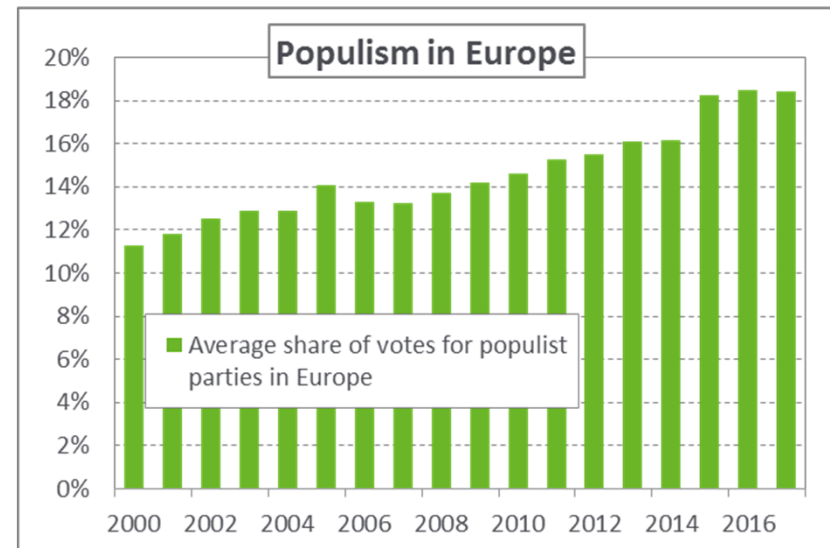
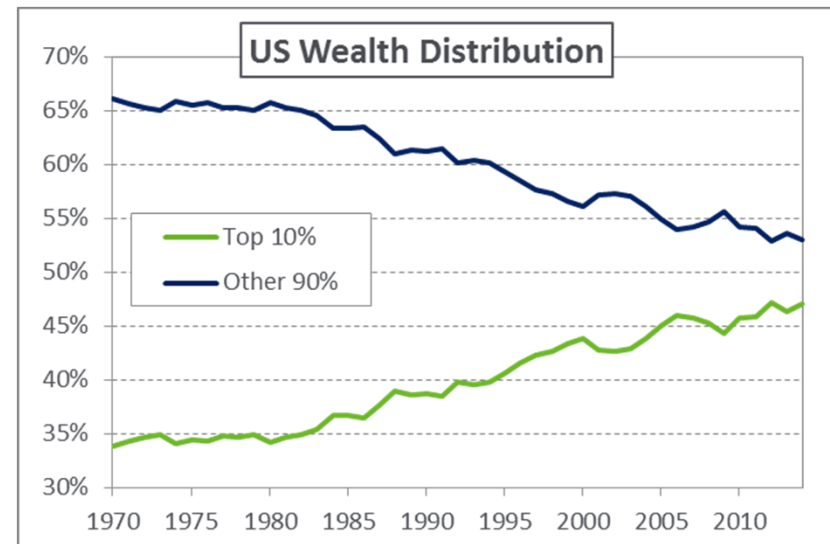
Anti-establishment political bias is likely a long term trend and potentially leads to higher levels of currency volatility over time

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

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

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

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



Source: (Top) World Wealth & Income Database

Source: (Bottom) World Bank



# KEY MARKET THEMES

## Globalization Backlash

### Major shifts in US trade policy did not materialize in 2017

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

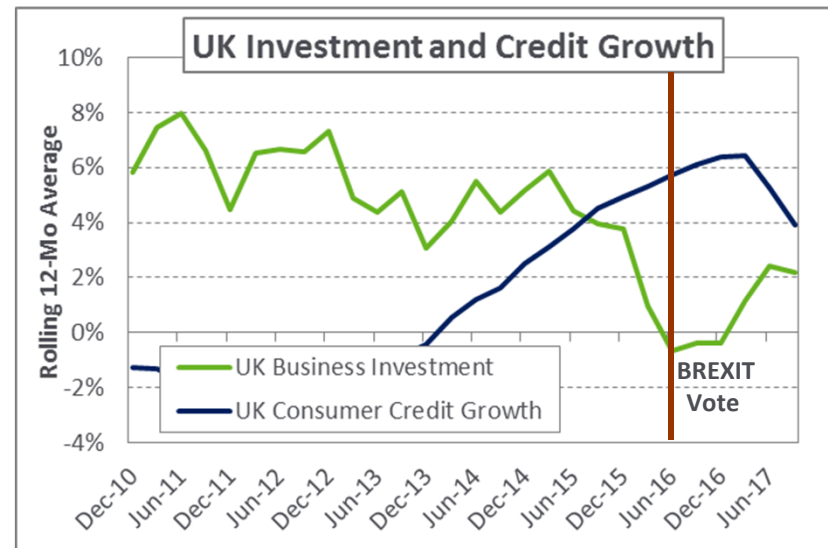
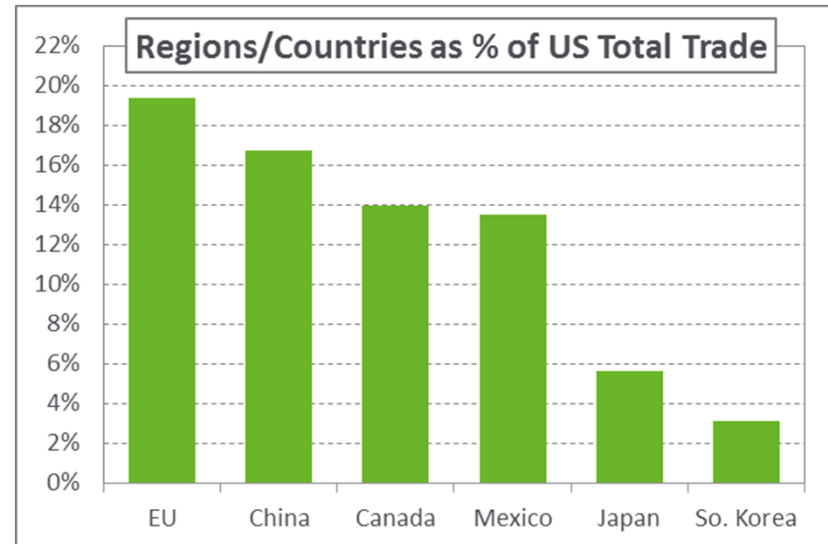
Markets have taken to interpreting the US administration's rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern

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

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

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

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



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

Source: (Bottom) Bloomberg

