

# SECOND FISCAL QUARTER 2019 EXECUTIVE SUMMARY

## VERMONT STATE EMPLOYEES RETIREMENT SYSTEM

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# MARKET ENVIRONMENT

NEPC, LLC

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# PERFORMANCE OVERVIEW

## Q4 Market Summary

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

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

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



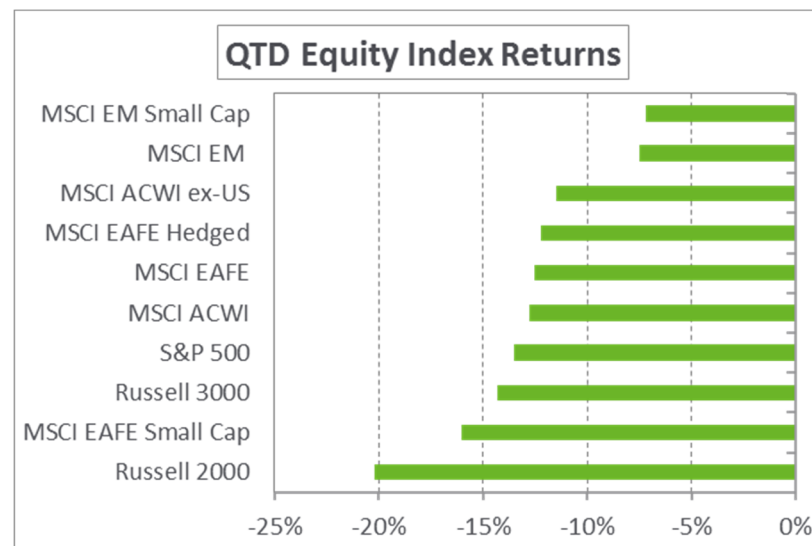
# EQUITY PERFORMANCE OVERVIEW

## Q4 Equity Market Summary

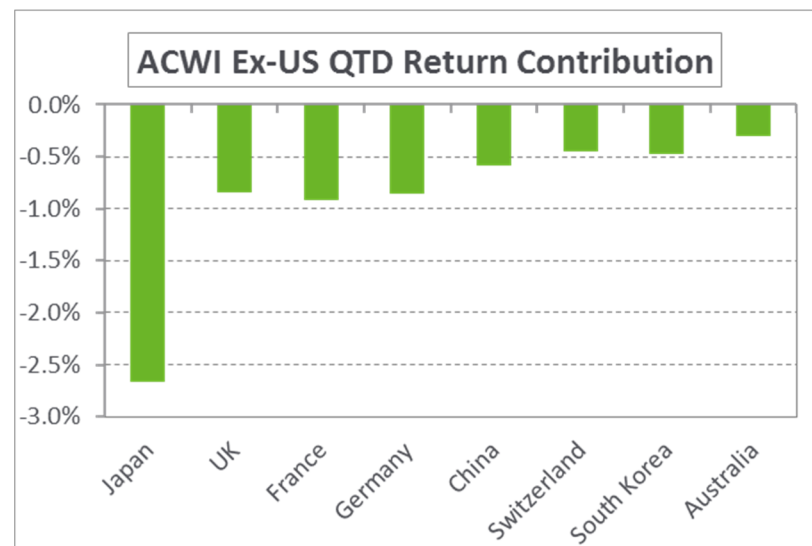
- **US equities led the global equity sell-off and developed market indices moved into a bear market**
- **Equities markets were volatile as ongoing trade concerns and fears of global growth slowdown weighed on investor sentiment**

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

Source: Russell, Bloomberg



Source: MSCI, Russell, S&P, Bloomberg



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



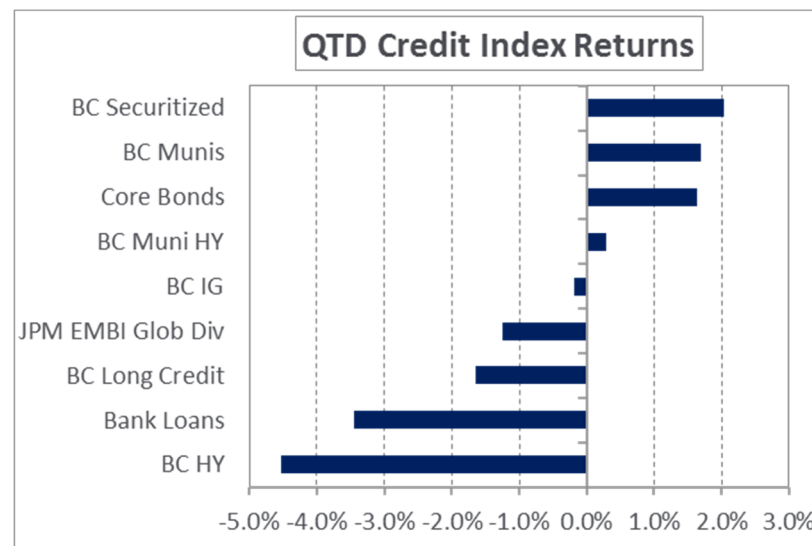
# CREDIT PERFORMANCE OVERVIEW

## Q4 Credit Market Summary

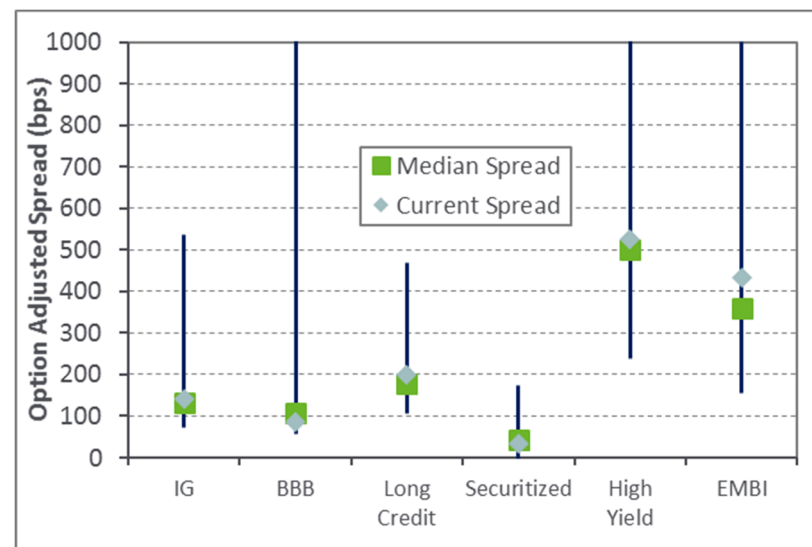
- **Credit spreads broadly increased across most areas of the market**
- **Riskier assets underperformed as demand for high quality and safe-haven assets increased**
- **Bank loans declined by 3.4% as market outflows weighed on asset prices**

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

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



Source: Barclays, JPM, S&P, Bloomberg



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



# CALENDAR YEAR INDEX PERFORMANCE

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

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

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



# RETURNS FOR KEY INDICES RANKED IN ORDER OF PERFORMANCE

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
MSCI EMERGING MARKETS 32.17	MSCI EMERGING MARKETS 39.39	BC AGGREGATE 5.24	MSCI EMERGING MARKETS 78.51	RUSSELL 2000 GROWTH 29.09	BC AGGREGATE 7.84	MSCI EMERGING MARKETS 18.22	RUSSELL 2000 GROWTH 43.30	S&P 500 13.69	RUSSELL 1000 GROWTH 5.67	RUSSELL 2000 VALUE 31.74	MSCI EMERGING MARKETS 37.28	BC AGGREGATE 0.01
MSCI EAFE 26.34	RUSSELL 1000 GROWTH 11.81	RUSSELL 2000 VALUE -28.92	RUSSELL 1000 GROWTH 37.21	RUSSELL 2000 26.85	RUSSELL 1000 GROWTH 2.64	RUSSELL 2000 VALUE 18.05	RUSSELL 2000 38.82	RUSSELL 1000 VALUE 13.45	S&P 500 1.38	RUSSELL 2000 21.31	RUSSELL 1000 GROWTH 30.21	RUSSELL 1000 GROWTH -1.51
RUSSELL 1000 VALUE 22.25	MSCI EAFE 11.17	RUSSELL 2000 -33.79	RUSSELL 2000 GROWTH 34.47	RUSSELL 2000 VALUE 24.5	S&P 500 2.11	RUSSELL 1000 VALUE 17.51	RUSSELL 2000 VALUE 34.52	RUSSELL 1000 13.24	RUSSELL 1000 0.92	RUSSELL 1000 VALUE 17.34	MSCI EAFE 25.03	S&P 500 -4.38
RUSSELL 2000 VALUE 23.48	RUSSELL 2000 GROWTH 7.06	RUSSELL 1000 VALUE -36.85	MSCI EAFE 31.78	MSCI EMERGING MARKETS 18.88	RUSSELL 1000 1.50	MSCI EAFE 17.32	RUSSELL 1000 GROWTH 33.48	RUSSELL 1000 GROWTH 13.05	BC AGGREGATE 0.55	RUSSELL 1000 12.05	RUSSELL 2000 GROWTH 22.17	RUSSELL 1000 -4.78
RUSSELL 2000 18.37	BC AGGREGATE 6.97	S&P 500 -37.0	RUSSELL 1000 28.43	RUSSELL 1000 GROWTH 16.71	RUSSELL 1000 VALUE 0.39	RUSSELL 1000 16.42	RUSSELL 1000 33.11	BC AGGREGATE 5.97	MSCI EAFE -0.81	S&P 500 11.96	S&P 500 21.83	RUSSELL 1000 VALUE -8.27
S&P 500 15.8	RUSSELL 1000 5.77	RUSSELL 1000 -37.6	RUSSELL 2000 27.16	RUSSELL 1000 16.10	RUSSELL 2000 GROWTH -2.91	RUSSELL 2000 16.35	RUSSELL 1000 VALUE 32.53	RUSSELL 2000 GROWTH 5.60	RUSSELL 2000 GROWTH -1.38	RUSSELL 2000 GROWTH 11.32	RUSSELL 1000 21.69	RUSSELL 2000 GROWTH -9.31
RUSSELL 1000 15.46	S&P 500 5.49	RUSSELL 1000 GROWTH -38.44	S&P 500 26.46	RUSSELL 1000 VALUE 15.51	RUSSELL 2000 -4.18	S&P 500 16.00	S&P 500 32.39	RUSSELL 2000 4.89	RUSSELL 1000 VALUE -3.83	MSCI EMERGING MARKETS 11.19	RUSSELL 2000 14.65	RUSSELL 2000 -11.01
RUSSELL 2000 GROWTH 13.35	RUSSELL 1000 VALUE -0.17	RUSSELL 2000 GROWTH -38.54	RUSSELL 2000 VALUE 20.58	S&P 500 15.06	RUSSELL 2000 VALUE -5.50	RUSSELL 1000 GROWTH 15.26	MSCI EAFE 22.78	RUSSELL 2000 VALUE 4.22	RUSSELL 2000 -4.41	RUSSELL 1000 GROWTH 7.08	RUSSELL 1000 VALUE 13.66	RUSSELL 2000 VALUE -12.86
RUSSELL 1000 GROWTH 9.07	RUSSELL 2000 -1.56	MSCI EAFE -43.38	RUSSELL 1000 VALUE 19.69	MSCI EAFE 7.75	MSCI EAFE -12.14	RUSSELL 2000 GROWTH 14.59	BC AGGREGATE -2.02	MSCI EMERGING MARKETS -2.19	RUSSELL 2000 VALUE -7.46	BC AGGREGATE 2.65	RUSSELL 2000 VALUE 7.84	MSCI EAFE -13.79
BC AGGREGATE 4.33	RUSSELL 2000 VALUE -9.78	MSCI EMERGING MARKETS -53.33	BC AGGREGATE 5.93	BC AGGREGATE 6.54	MSCI EMERGING MARKETS -18.42	BC AGGREGATE 4.21	MSCI EMERGING MARKETS -2.60	MSCI EAFE -4.90	MSCI EMERGING MARKETS -14.93	MSCI EAFE 1.00	BC AGGREGATE 3.54	MSCI EMERGING MARKETS -14.58

QTD	3 year	5 Year	10 Year
BC AGGREGATE 1.64	RUSSELL 1000 GROWTH 11.15	RUSSELL 1000 GROWTH 10.40	RUSSELL 1000 GROWTH 15.29
MSCI EMERGING MARKETS -7.47	S&P 500 9.26	S&P 500 8.49	RUSSELL 2000 GROWTH 13.52
RUSSELL 1000 VALUE -11.72	MSCI EMERGING MARKETS 9.25	RUSSELL 1000 8.21	RUSSELL 1000 13.28
MSCI EAFE -12.54	RUSSELL 1000 9.09	RUSSELL 1000 VALUE 5.95	S&P 500 13.12
S&P 500 -13.52	RUSSELL 2000 VALUE 7.37	RUSSELL 2000 GROWTH 5.13	RUSSELL 2000 11.97
RUSSELL 1000 -13.82	RUSSELL 2000 7.36	RUSSELL 2000 4.41	RUSSELL 1000 VALUE 11.18
RUSSELL 1000 GROWTH -15.89	RUSSELL 2000 GROWTH 7.24	RUSSELL 2000 VALUE 3.61	RUSSELL 2000 VALUE 10.40
RUSSELL 2000 VALUE -18.67	RUSSELL 1000 VALUE 6.95	BC AGGREGATE 2.52	MSCI EMERGING MARKETS 8.02
RUSSELL 2000 -20.2	MSCI EAFE 2.87	MSCI EMERGING MARKETS 1.65	MSCI EAFE 6.32
RUSSELL 2000 GROWTH -21.65	BC AGGREGATE 2.06	MSCI EAFE 0.53	BC AGGREGATE 3.48





# TOTAL FUND PERFORMANCE

NEPC, LLC

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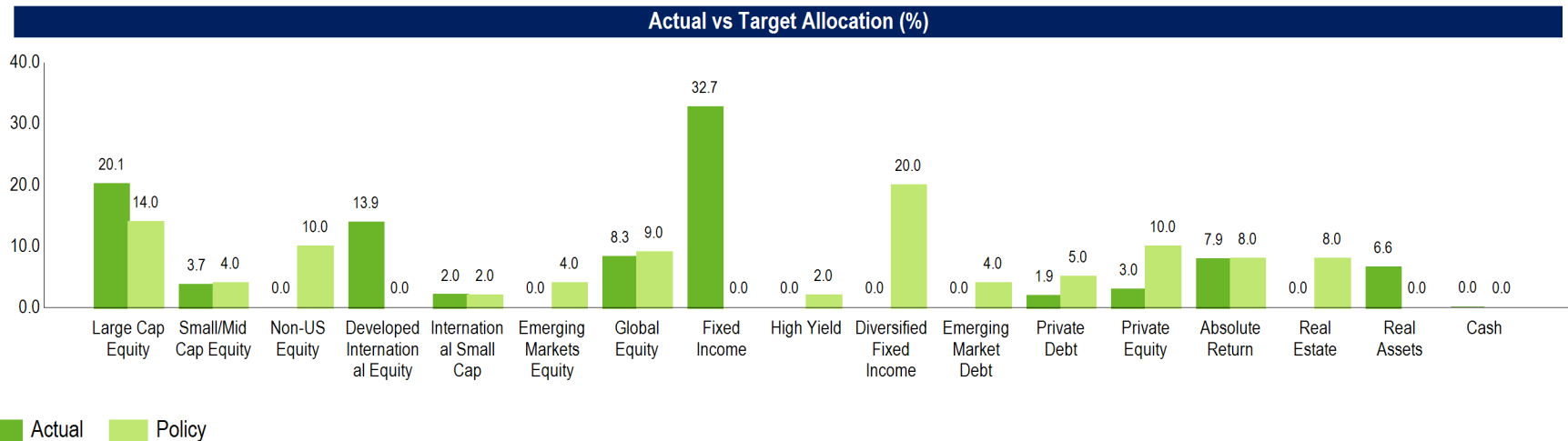
## Vermont State Employees

# 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 Employees Composite</b>	<b>\$1,730,990,361</b>	<b>-6.8%</b>	<b>17</b>	<b>-4.4%</b>	<b>24</b>	<b>-3.4%</b>	<b>23</b>	<b>6.4%</b>	<b>15</b>	<b>4.1%</b>	<b>71</b>	<b>5.9%</b>	<b>91</b>	<b>8.2%</b>	<b>38</b>
Allocation Index		-7.1%	23	-4.8%	33	-4.8%	61	5.7%	45	3.7%	88	5.5%	96	7.2%	83
Policy Index		-6.2%	10	-3.8%	11	-3.6%	28	5.8%	37	3.9%	77	5.6%	95	7.0%	88
InvMetrics Public DB < \$5 Billion Net Median		-8.3%		-5.3%		-4.4%		5.5%		4.5%		7.1%		8.0%	

3 Years Ending December 31, 2018									
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank	
Total Employees Composite	6.38%	15	5.72%	15	0.93	5	1.20	7	
Allocation Index	5.66%	45	5.82%	17	0.79	21	1.02	17	
Policy Index	5.81%	37	5.29%	6	0.90	7	1.17	7	

5 Years Ending December 31, 2018									
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank	
Total Employees Composite	4.13%	71	5.84%	18	0.60	46	0.98	26	
Allocation Index	3.66%	88	5.75%	16	0.53	70	0.84	54	
Policy Index	3.94%	77	5.31%	5	0.62	38	1.03	18	

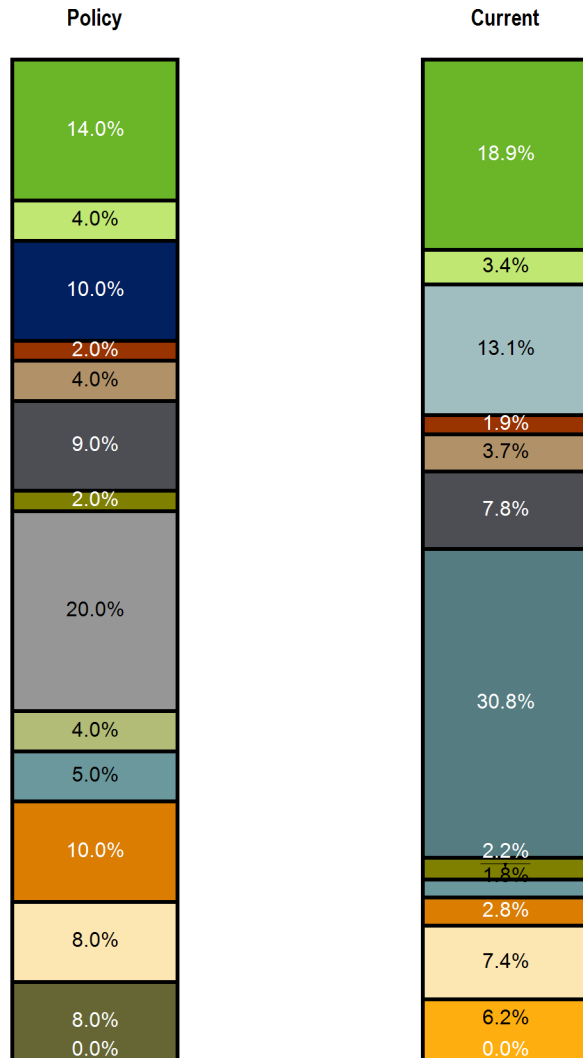


Asset class weights may not add up to 100% due to rounding



## Vermont State Employees

# TOTAL FUND ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target				
	Current	Policy	Current	Difference*
Large Cap Equity	\$327,891,213	14.0%	18.9%	4.9%
Small/Mid Cap Equity	\$59,489,681	4.0%	3.4%	-0.6%
Non-US Equity	--	10.0%	--	-10.0%
Developed International Equity	\$225,954,452	--	13.1%	13.1%
International Small Cap	\$32,919,063	2.0%	1.9%	-0.1%
Emerging Markets Equity	\$64,020,739	4.0%	3.7%	-0.3%
Global Equity	\$134,794,963	9.0%	7.8%	-1.2%
Fixed Income	\$532,715,195	--	30.8%	30.8%
High Yield	\$38,246,511	2.0%	2.2%	0.2%
Diversified Fixed Income	--	20.0%	--	-20.0%
Emerging Market Debt	--	4.0%	--	-4.0%
Private Debt	\$30,779,325	5.0%	1.8%	-3.2%
Private Equity	\$48,221,126	10.0%	2.8%	-7.2%
Absolute Return	\$128,140,003	8.0%	7.4%	-0.6%
Real Estate	--	8.0%	--	-8.0%
Real Assets	\$107,242,954	--	6.2%	6.2%
Cash	\$575,137	0.0%	0.0%	0.0%
<b>Total</b>	<b>\$1,730,990,361</b>	<b>100.0%</b>	<b>100.0%</b>	



# ACTIVE MANAGER RELATIVE PERFORMANCE

	Positive	Negative
QUARTER	<p><b><u>U.S. Equity</u></b></p> <ul style="list-style-type: none"> <li>Champlain Small/Mid Cap (+360)</li> </ul> <p><b><u>Non U.S. Equity</u></b></p> <ul style="list-style-type: none"> <li>Mondrian International (+270)</li> <li>Aberdeen Emerging Markets (+410)</li> </ul> <p><b><u>Fixed Income</u></b></p> <ul style="list-style-type: none"> <li>GAM Unconstrained (+80)</li> </ul> <p><b><u>Absolute Return</u></b></p> <ul style="list-style-type: none"> <li>Pinnacle Nat'l Resources (+500)</li> <li>Grosvenor Fund of Hedge Funds (+10)</li> </ul>	<p><b><u>Non U.S. Equity</u></b></p> <ul style="list-style-type: none"> <li>Acadian International (-200)</li> <li>Hosking Global (-170)</li> <li>Artisan Global (-270)</li> </ul> <p><b><u>Fixed Income</u></b></p> <ul style="list-style-type: none"> <li>PIMCO Core Plus (-40)</li> <li>PIMCO Unconstrained (-90)</li> <li>PIMCO High Yield (-20)</li> <li>Wellington EM Debt (-110)</li> </ul> <p><b><u>Absolute Return</u></b></p> <ul style="list-style-type: none"> <li>Allianz Structured Alpha (-460)</li> </ul>
1 YEAR	<p><b><u>Domestic Equity</u></b></p> <ul style="list-style-type: none"> <li>Champlain Small/Mid Cap (+1,100)</li> </ul> <p><b><u>Non U.S. Equity</u></b></p> <ul style="list-style-type: none"> <li>Mondrian International (+210)</li> <li>Aberdeen Emerging Markets (+30)</li> </ul> <p><b><u>Absolute Return</u></b></p> <ul style="list-style-type: none"> <li>Pinnacle Nat'l Resources (+1,520)</li> <li>Grosvenor Fund of Hedge Funds (+290)</li> </ul>	<p><b><u>Non U.S. Equity</u></b></p> <ul style="list-style-type: none"> <li>Acadian International (-210)</li> </ul> <p><b><u>Fixed Income</u></b></p> <ul style="list-style-type: none"> <li>GAM Unconstrained (-120)</li> <li>PIMCO Unconstrained (-350)</li> <li>Wellington EM Debt (-120)</li> </ul> <p><b><u>Absolute Return</u></b></p> <ul style="list-style-type: none"> <li>Allianz Structured Alpha (-380)</li> </ul>

Reflects public markets and active management only and net of fees  
**GREEN** indicates the managers had outperformed their respective benchmarks  
**RED** indicates the managers had underperformed their respective benchmarks  
**(+-)** is the over/under performance relative to respective benchmarks in basis points



# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## POSITIVE CONTRIBUTORS

	Commentary	Due Diligence Rating
<b>Champlain</b> <i>Small/Mid Cap Equity</i>	<p><b>Returned -15.7%, outperforming the custom benchmark, 50% R2000/50% R2500, by 360 bps</b></p> <p><i>Contributors:</i> For the quarter, the portfolio benefited from strong stock selection and overweight in consumer staples as investors sought out stable and predictable business models amid this quarter’s market volatility. Outperformance also came from their insurance holdings within financials. Technology holdings outperformed with Red Hat as their largest contributor to overall performance after it agreed to be acquired by IBM. Additionally, avoiding cyclical sectors (i.e. energy and utilities) also benefited the portfolio.</p> <p><i>Detractors:</i> Healthcare saw significant declines during the quarter. While the strategy’s overweight position detracted, positive stock selection partially offset the negative contribution. Healthcare company, Intergra Life Sciences, was one of the largest detractors for the portfolio. Stock selection in industrial holdings slightly underperformed the benchmark coming from two food equipment manufacturing companies as both reported weaker than expected results.</p> <p><i>Positioning:</i> Champlain seized upon the widespread selling and attractive discounts to their estimated Fair Values by becoming fully invested in the final weeks of December. If we are headed for a recession, they have an opportunity to shift more capital away from the most economically resilient holdings into their favorite industrial and software holdings that could potentially trade at steeper discounts than today and present greater relative value as compared to the more defensive holdings.</p>	1
<b>Mondrian</b> <i>International Equity</i>	<p><b>Returned -9.8%, outperforming the MSCI EAFE by 270 bps</b></p> <p><i>Contributors:</i> Allocations to both Asia and Europe added to relative returns. In Asia, the portfolio benefited from the overweight positions in Hong Kong and Singapore, which were relatively defensive as expectations for US interest rate increases moderated in response to capital market volatility and signs of weaker economic growth. Strong stock selection in Spain, Italy, and Japan. Enel, the Italian utility, rose strongly after publishing an updated strategic plan to grow their dividends. Sector allocation added to performance by the overweight positions in utilities and communication sectors.</p> <p><i>Detractors:</i> In the context of Brexit-related uncertainty, the portfolio’s positions in domestically-oriented UK stocks detracted. Economically sensitive sectors produced the weakest returns, with the energy sector performing the worst as oil prices fell precipitously.</p> <p><i>Positioning:</i> Increased holdings in selected companies in response to recent share price weakness, including Lloyds Banking Group and SSE in the UK, as well as Takeda, Mitsubishi Electric, WH Group, Evonik and Saint Gobain. To fund these, they have reduced positions in certain stronger performing securities, including Enel, Telefonica, Ahold, Delhaize, and Novartis.</p>	1



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q1 FISCAL 2019 COMMENTARY

## POSITIVE CONTRIBUTORS

	Commentary	NEPC Rating
<b>Aberdeen Emerging Market Equity</b>	<p><b>Returned -3.4%, outperforming the MSCI Emerging Markets by 410 bps</b></p> <p><i>Contributors:</i> In the 2<sup>nd</sup> half of the year, the strategy benefited from the underweight to China as Chinese equities underperform on continued worries over the U.S./China trade tensions. In a turnaround to the first half of the year, Brazil contributed positively to the relative performance of the fund on the back of the rally in the Brazilian equity market, following the Brazilian Presidential election win by market-friendly right wing candidate Jair Bolsonaro. In addition, strong stock selection came from Indonesia, Taiwan and Mexico. From a sector perspective, stock selection was very strong particularly in consumer discretionary, materials, and real estate.</p> <p><i>Detractors:</i> Detractors in the period included Wuxi Biologics. Its business model appears threatened by trade worries, which could impede the transfer of biological data and knowhow. Similarly, major players in the global tech hardware supply chain, such as Sunny Optical and Samsung Electronics, also suffered. Their outlooks were further clouded by expectations of a slowing equipment-replacement and upgrade cycle. Elsewhere, Cancun airport operator Asur sold off on the cancellation of the new Mexico airport. Overweights in materials and consumer staples were also detractors for the quarter.</p> <p><i>Positioning:</i> They are holding onto their high conviction positions. As a result, they retained their significant exposure to India, Brazil, Indonesia and Mexico. These positions contributed to performance in 2018. They retain a focused, quality portfolio – as risks have risen across equity markets, momentum styles have begun to lag and other styles such as quality have begun to outperform. Their quality strategy, especially from the second half of 2018, has fared better.</p>	<p><b>2</b> Rating Changed from "1" to "2" in January 2018</p>
<b>Pinnacle Natural Resources (PNR) Absolute Return</b>	<p><b>Returned -4.4%, outperforming the Bloomberg Commodity Index by 500 bps</b></p> <p><i>Contributors:</i> PNR's agriculturals within directional trading and relative value trading strategies contributed the most to performance. The combination of gas, power, carbon, coal trading and positioning in both the U.S. and Europe were the drivers of performance for the quarter. Physical strategies in metals and livestock also contributed marginally to gains. For the 2018 calendar year, all sectors, except for FX Rates, contributed to the Fund's performance.</p> <p><i>Detractors:</i> Losses in directional and relative value trading strategies in the energy complex and directional trading strategies in the metals sector detracted from performance. Small losses also came from base metals. Additionally, petroleum strategies detracted marginally from performance.</p> <p><i>Positioning:</i> As of end of the quarter, gross and net exposure were 6.8X and 0.75X, respectively. As of December 31, 2018, PNR had a total of 17 active underlying investments. The strategy held 29% Grains, 23% Natural Gas, 13% Livestock, 8% Crude Oil/products, 8% Precious Metals, 7% Electricity, 7% Base Metals, 4% Softs, 1% FX/Rates/Index.</p>	<p><b>1</b></p>



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## POSITIVE CONTRIBUTORS

	Commentary	Due Diligence Rating
<p><b>Grosvenor</b> <i>Absolute Return</i></p>	<p><b>Returned -4.9%, outperforming the HFRI Fund of Funds Composite Index by 10 bps</b></p> <p><i>Contributors:</i> The Fund’s conservative positioning, specifically its limited directional exposure to broader equity and fixed income markets, was beneficial in mitigating losses amid the market declines during the fourth quarter. Most risk assets declined for the year, and many equity indices incurred peak-to-trough drawdowns in excess of -20%, compared to the Fund’s peak-to-trough of -5.0% in 2018. Within the relative value strategy, the Fund’s dedicated fixed income and currency volatility investments were noteworthy contributors to returns as volatility across asset classes rose sharply during the quarter.</p> <p><i>Detractors:</i> The equity strategy allocation was the portfolio’s largest detractor, with longer-biased investments particularly susceptible to the broader equity market drawdown. Modest losses were also incurred in the multi-strategy, macro, credit, and relative value allocations. The Fund’s quantitative strategy allocation was flat. Underperformance within the multi-strategy allocation was attributable to GCM Grosvenor’s Special Opportunities Fund (which pursues direct trading and co-investment activities) and an energy-focused multi-strategy specialist.</p> <p><i>Positioning:</i> GCM’s view is that in today’s late cycle economic environment, these types of actively managed strategies are particularly important, as they are capable of generating attractive absolute and relative returns in periods during which traditional asset classes may struggle. Many of these strategies generate lesser correlated return streams, which can provide prudent diversification to global investment portfolios. They are currently researching specific areas of dislocation to determine if and where value opportunities exist. Specifically, they are investigating hedged strategies in Emerging Markets and Asia, as well as a number of sector focused strategies which have fallen out of favor and may provide outsized opportunities in the coming year.</p>	<p><b>1</b></p>



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## DETRACTORS

	Commentary	Due Diligence Rating
<p><b>Acadian</b> International Equity</p>	<p><b>Returned -14.5%, underperforming the MSCI EAFE by 200bps</b></p> <p><i>Detractors:</i> Growth factors such as earnings surprise predictor, which had worked previously, struggled, causing headwinds for momentum stocks. Q4 represented a capitulation in some of the best performing growth stocks that had become expensive. Key sources of negative active return included stock selection in the U.K., France, Australia, and Denmark. From a sector attribution standpoint, portfolio stock selection in healthcare, utilities, materials, and consumer discretionary detracted. Key negative holdings for the quarter were Aristocrat Leisure, an Australian slot machine maker reporting annual profits that trailed estimates; Peugeot, a French automaker that reported a decline in sales; Lundbeck, a Danish drug maker's treatment that failed in late-stage trial, Ubisoft, a French video game developer after it had fallen victim to a series of distributed denial-of-service attacks. Lastly, their small-cap tilt was a headwind to performance as larger companies tended to hold up better in Q4 and 2018 overall.</p> <p><i>Contributors:</i> More successful investments included stock selection and country positions in Germany, Japan, Brazil, S. Africa, along with stock selection in Switzerland. Key positive holdings for the quarter were Daito Trust Construction, a Japanese property developer; Swiss Life; Lufthansa; and Roche.</p> <p><i>Positioning:</i> Their top-down views show they have positive forecasts on telecom, banking, utilities, and food staples; negative forecasts on energy, semi-conductor, tech, pharma, and auto. From a country view, Portugal tops their forecasts supported by attractive valuations with an additional boost from quality and improved risk scores. Other top scorers include Israel and Japan. Hong Kong scores have also improved slightly but has a weak macro headwind such as trade competitiveness. Lastly, the US is their second weakest forecast since last quarter due to stretched valuations and increased equity volatility.</p>	<p><b>1</b></p>



Returns presented are net of investment management fees



# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## DETRACTORS

	Commentary	Due Diligence Rating
<b>Hosking</b> <i>Global Equity</i>	<p><b>Returned -14.5%, underperforming the MSCI ACWI Index by 170 bps.</b></p> <p><i>Detractors:</i> Stock selection was negative with financials and communications being the largest detractors. The overweight to financials was the largest detractor on an individual sector basis and the portfolio's underweight to defensive areas (utilities, healthcare and staples) acted as a drag. From a country perspective, stock selection in North America detracted the most while Europe, Japan, and Asia Pacific ex. Japan marginally detracted. Top 2 holdings detracting from performance were AIG and Citigroup.</p> <p><i>Contributors:</i> Allocation to emerging markets proved a relative positive, as did the underweight to information technology. At the stock level, the top contribution to relative performance came from not holding Apple, followed by holdings in Belmond Ltd., and Jardine Matheson Holdings.</p> <p><i>Positioning:</i> The portfolio saw historically low turnover, at 8%, with purchases reflecting a continuation towards areas of the market that remain out of favor. The Amazon position continued to be trimmed. The case for financials remain as banks have expanding net interest margins and have been cost cutting, helping book value per share growth exceed the US stock market. With US shares looking relatively expensive, Emerging Markets continues to remain a better place as inflation rates, current account deficits, and debt coverage ratios are well-contained and most currencies are floating.</p>	<p><b>1</b></p>



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## DETRACTORS

	Commentary	Due Diligence Rating
<b>Artisan</b> Global Equites	<p><b>Returned -15.5%, underperforming the MSCI EAFE by 270 bps</b></p> <p><i>Detractors:</i> Some of their holdings whose fundamentals were among the strongest for the year detracted from performance. The worst performing sectors were those most exposed to the potential fall-out of ongoing global trade tensions, this was particularly true in the industrials and consumer sectors. Communication holdings also detracted. Fevertree, Temenos and Activision Blizzard were among biggest detractors from a holding standpoint.</p> <p><i>Contributors:</i> The portfolio’s health care holdings—though negative on an absolute basis—held up better than index peers. HDFC, Cree and Agilent—a new purchase in the quarter were some of the top performing holdings for the quarter. Underweights to materials and financials were also beneficial to the portfolio’s performance.</p> <p><i>Positioning:</i> The year’s relative volatility allowed them to be more active in the portfolio than in prior years. Their exposure to or exiting of campaigns which have become relatively less attractive, in favor of introducing new or adding to high-quality franchises trading at what they find to be compelling valuations. They remain positive on healthcare, energy, and software, driven by positive momentum; whereas automobiles, real estate, and utilities are viewed negatively. As part of their process, they continue to allocate assets to companies with the ability to compound profits in a reasonably wide range of economic scenarios.</p>	1
<b>PIMCO</b> Core Plus	<p><b>Returned 1.2%, trailing the Barclays US Aggregate Index by 40bps</b></p> <p><i>Detractors:</i> The strategy underperformed its benchmark as deductions from interest rate strategies more than offset contributions from currency and spread sectors. Specific detractors were the Non-U.S. duration strategies, including country selection in the eurozone and short duration exposure in select markets, positions in Agency and non-Agency MBS and Positions in high-yield corporates.</p> <p><i>Contributors:</i> The portfolio benefited from U.S. rate strategies, including duration, curve positioning, and instrument selection, underweight investment-grade corporate credit and tactical positions in select high-carry emerging market currencies.</p> <p><i>Positioning:</i> PIMCO remains tactical with currency positioning, particularly given less conviction in the overall direction of the dollar. They continue to underweight duration overall and maintain a preference for U.S. duration against rate exposure in other developed regions, including the U.K. and Japan. They also prefer intermediate portion of the curve against the long-end. Lastly, they are opportunistic in corporate credit, favoring housing-related credits and financials.</p>	1



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## DETRACTORS

	Commentary	Due Diligence Rating
<b>PIMCO</b> <i>Unconstrained</i>	<p><b>Returned 0.3%, trailing the Custom Index (25% High Yield/25% EMD/50% Barclays Aggregate) by bps 90 bps</b></p> <p><i>Detractors:</i> Short exposure to interest rates in select developed market countries, specifically Japan, Italy and the UK, detracted from performance as global yields rallied amid bouts of equity volatility and growth concerns. Exposure to investment grade and high yield corporate credits detracted from performance as both sectors sold off alongside weakness in equity markets. Holdings of Agency and non-Agency mortgage-backed securities also hampered performance as excess supply from the Fed unwind weighed on the sector. Exposure to U.S. TIPS detracted as breakeven inflation rates came under heavy pressure in concert with lower oil prices. Holdings of US dollar-denominated EM debt, specifically sovereigns, weighed on performance as the sector posted negative returns.</p> <p><i>Contributors:</i> Exposure to U.S. interest rates and curve positioning contributed to performance as yields fell across much of the curve in Q4, with the 10-year rate down 38 bps to end the year at 2.68%. Holdings of select high carry emerging market currencies, such as the Argentine peso and Turkish lira, contributed to performance as both currencies rallied, helped in part by favorable policy measures.</p> <p><i>Positioning:</i> Retain a defensive position on duration with a focus on relative value. Looking to selectively invest in corporate credit with a focus on high quality positions. Continue to diversify spread exposures, seeing value in Agency and non-Agency MBS and select relative value positions in EM debt. Favor long positions in higher yield EM currencies, such as the Russian ruble, Argentine peso, and Turkish lira, versus a basket of lower yielding Asian currencies, such as the Taiwanese and Singapore dollars. Favor the US dollar versus developed market currencies as well.</p>	<b>1</b>



Returns presented are net of investment management fees

# INVESTMENT MANAGER – Q2 FISCAL 2019 COMMENTARY

## DETRACTORS

	Commentary	Due Diligence Rating
<p><b>Wellington Opportunistic Emerging Market Debt</b></p>	<p><b>Returned -2.3%, underperforming the JP Morgan EMBI Global Index by 110 bps</b></p> <p><i>Detractors:</i> An underweight to China detracted from performance. An underweight to Brazil, given concerns about President Bolsonaro’s ability to pass fiscal reforms needed to stabilize debt. Negative security selection, specifically a lack of exposure to external sovereign debt, also detracted. Positioning within external quasi-sovereign debt, in Venezuela, negatively impacted performance. An overweight to the Ivory Coast hurt performance. Negative security selection in Kazakhstan, specifically an allocation to external corporate debt of Nostrum Oil &amp; Gas, detracted from results.</p> <p><i>Contributors:</i> An out-of-index allocation to Qatar and Oman contributed to performance. Positive security selection in Croatia, specifically an allocation to EUR denominated sovereign debt, helped results. An overweight country allocation to Morocco enhanced results. Valuations remain fair to slightly cheap with a positive fundamental trend.</p> <p><i>Positioning:</i> Balancing stable emerging market fundamentals and attractive valuations against risks around US Federal Reserve policies, trade protectionism and China growth. They favor select frontier markets with IMF support and strong reform stories. They favor Gulf Cooperation Council (GCC) countries with reform momentum and attractive valuations relative to credit quality. Favor Central and Eastern European countries with improving fundamentals not recognized by markets. Underweight investment grade countries in Latin America where valuations are not attractive. Underweight much of Asia also due to lack of attractive valuations. Favor issuers in Eastern Europe and the Middle East over Asia and Latin America. Cautious on Mexico given the risks around new President AMLO’s policies.</p>	<p><b>1</b></p>
<p><b>Allianz Structured Alpha</b></p>	<p><b>Returned -4.1%, underperforming the 91 Day T-Bills by 460 bps</b></p> <p><i>Detractors:</i> Range-bound positions could not fully withstand the move of the VIX as the path of the S&amp;P 500 in October and December were volatile. They had to restructure the entire book over several days in the second half of the quarter. To keep the cost contained they had to extend duration. Therefore, the range-bound spreads were extended diagonally with expirations into February and March. The cost appears to be manageable, but the tradeoff is that the book is longer-dated.</p> <p><i>Positioning:</i> 2018 was a difficult year for Allianz. They fell short of their alpha targets and delivered negative excess returns for the year. They believe they have kept the strategy in position for a profitable 2019.</p>	<p><b>1</b></p>



# NEPC'S DUE DILIGENCE MONITOR

Investment Options	Manager Changes/ Announcements (Recent Quarter)	NEPC Due Diligence Committee Recommendations
<b>PIMCO</b> <i>Core Plus Unconstrained High Yield</i>	NEPC's Unfavorable News Committee recommended upgrading PIMCO from Watch to No Action.	<b>No Action</b>
<b>Champlain</b> <i>Non-U.S. Small Cap Equity</i>	NEPC Research was notified that health care analyst, Erik Giard-Chase has given his notice.	<b>No Action</b>
<b>Strategic Global Advisors</b> <i>International Small Cap</i>	NEPC Research was notified that Brett Gallagher has joined Strategic Global Advisors as President. Founder and CEO, Cynthia Tusan, will assume the role of Chairwoman of the Board of Directors for the firm. Elyse Waldinger also joined the firm as Chief Operating Officer.	<b>No Action</b>

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



# NEPC'S QUARTERLY DUE DILIGENCE DETAIL

Manager	Summary	Action
<b>PIMCO</b> <i>High Yield                      Core Plus                      Unconstrained</i>	The Unfavorable News Committee recommended upgrading PIMCO from Watch to No Action. The committee agreed. This recommendation was made after Stacy Schaus and PIMCO settled their litigation out of court. As a reminder, Ms. Schaus filed a lawsuit against PIMO in 21018 for age and sex discrimination.	No Action
<b>Champlain</b> <i>Non-U.S. Small                      Cap Equity</i>	NEPC Research was notified that health care analyst, Erik Giard-Chase has given his notice. He wants to go back to school full-time to study in the field of neuroscience and has given the firm a one-year notice, as he won't likely start school until 2020. Mr. Giard-Chase is one of two analysts covering health care. Robert Hallisey is the other health care analyst at the firm. The firm has contacted a recruiter to find a replacement. As a reminder, Scott Brayman leads the small and mid-cap team at the firm. While NEPC does not like seeing team turnover, we feel that there is enough notice for Champlain to find a suitable replacement that there should be no material impact and are recommending No Action.	No Action
<b>Strategic                      Global                      Advisors</b> <i>International                      Small Cap</i>	<p>NEPC Research was notified that Brett Gallagher has joined Strategic Global Advisors as President. Founder and CEO, Cynthia Tusan, will assume the role of Chairwoman of the Board of Directors for the firm. Elyse Waldinger also joined the firm as Chief Operating Officer. Brett has more than 35 years of investment industry experience and comes to SGA from Nile Capital. He spent 14 years with Artio Global Investors, including six years as Deputy CIO. Cynthia will remain a Portfolio Manager alongside Chief Investment Officer Gary Baierl, and three other portfolio managers. Cynthia will be running the newly formed SGA Board of Directors in addition to her portfolio management responsibilities. Elyse joins SGA with over 18 years of institutional investment operations experience and is responsible for oversight of the Operations and IT teams. As a reminder Joel Reynolds joined as Chief Compliance Officer in July of 2018. In September of 2018 John Whittaker left the firm. This decision was made by SGA as a strategic initiative to divide up his dual role of CCO/COO at the time which as now been filled by Elyse and Joel.</p> <p>NEPC Research is comfortable with the changes put in place by SGA. The investment team is led by Cynthia Tusan, CEO and Portfolio Manager, as well as Gary Baierl, CIO. They are supported by portfolio managers and research staff. SGA uses a team based approach throughout the investment process where a consensus is reached for all decisions. As a reminder SGA runs a quantitative process with PM override for risk controls. CIO Gary Baierl and the marketing team will report into Brett Gallagher. Nile Capital has served in an advisory role to SGA for marketing, operations and hiring since taking a minority stake in the firm in late 2015. NEPC Research recommends No Action</p>	No Action



# CORRELATION MATRIX

	VPIC Investment Managers							Indices								
Manager/ Index	Acadian	Aberdeen	Artisan	Hoskings	Champlain	Mondrian	SGA Int'l SCC	S&P 500	Russell 3000	Russell 1000	60% S&P500 40% BCAgg	Russell 2000	LIBOR 3Mos	Russell 2500	BBAgg Index	GSCI Commodity
Acadian	1.000															
Aberdeen	0.738	1.000														
Artisan	0.867	0.652	1.000													
Hoskings	0.903	0.676	0.879	1.000												
Champlain	0.740	0.565	0.812	0.822	1.000											
Mondrian	0.887	0.736	0.761	0.835	0.647	1.000										
SGA Int'l SCC	0.939	0.649	0.880	0.874	0.731	0.806	1.000									
S&P 500	0.786	0.574	0.835	0.892	0.903	0.742	0.747	1.000								
Russell 3000	0.782	0.551	0.841	0.888	0.927	0.719	0.752	0.995	1.000							
Russell 1000	0.790	0.569	0.843	0.894	0.917	0.736	0.754	0.999	0.998	1.000						
60% S&P 500 40% BCAgg	0.800	0.622	0.839	0.879	0.885	0.749	0.750	0.985	0.980	0.985	1.000					
Russell 2000	0.594	0.314	0.697	0.712	0.875	0.463	0.618	0.816	0.868	0.838	0.793	1.000				
LIBOR 3Mos	-0.108	-0.019	-0.118	-0.154	-0.041	-0.061	-0.207	-0.094	-0.094	-0.094	-0.096	-0.088	1.000			
Russell 2500	0.675	0.402	0.762	0.778	0.919	0.551	0.681	0.878	0.922	0.899	0.865	0.985	-0.097	1.000		
BCAgg Index	0.034	0.244	-0.025	-0.131	-0.162	-0.005	-0.027	-0.145	-0.142	-0.136	0.027	-0.180	-0.006	-0.130	1.000	
GSCI Commodity	0.409	0.255	0.308	0.331	0.413	0.397	0.395	0.318	0.326	0.324	0.276	0.297	0.138	0.321	-0.260	1.000

**Time Period: 5.17 Years (Most Common Period as of 12/31/18)**

Notes:

Correlation data provided by eVestment and is not independently verified by NEPC  
Correlation data is based on fund composite and not VPIC specific



# INDEX CORRELATION MATRIX

## One Year Correlation

Index	Bloomberg Barclays Global Aggregate	Bloomberg Barclays US Aggregate	Bloomberg Barclays US TIPS	Bloomberg Commodity	JPM EMBI Global	MSCI ACWI	MSCI ACWI ex-US	MSCI EAFE EME	MSCI EAFE Small Cap	MSCI Frontier Emerging Markets	Russell 3000	S&P 500	S&P/LSTA Leveraged Loan
Bloomberg Barclays Global Aggregate	1.00	0.59	0.45	-0.46	0.47	0.00	0.16	0.18	0.08	0.44	-0.12	-0.12	-0.50
Bloomberg Barclays US Aggregate	0.59	1.00	0.79	-0.57	0.31	-0.27	-0.24	-0.24	-0.25	-0.20	-0.23	-0.26	-0.72
Bloomberg Barclays US TIPS	0.45	0.79	1.00	-0.24	0.06	0.05	0.02	0.02	0.13	-0.12	0.13	0.07	-0.37
Bloomberg Commodity	-0.46	-0.57	-0.24	1.00	-0.14	0.62	0.55	0.55	0.65	0.12	0.62	0.62	0.71
JPM EMBI Global	0.47	0.31	0.06	-0.14	1.00	0.21	0.41	0.42	0.21	0.50	0.03	0.05	-0.16
MSCI ACWI (Price)	0.00	-0.27	0.05	0.62	0.21	1.00	0.93	0.92	0.95	0.55	0.95	0.96	0.61
MSCI ACWI ex-US (Price)	0.16	-0.24	0.02	0.55	0.41	0.93	1.00	1.00	0.94	0.75	0.78	0.80	0.44
MSCI EAFE + EM-ND	0.18	-0.24	0.02	0.55	0.42	0.92	1.00	1.00	0.94	0.75	0.77	0.79	0.42
MSCI EAFE Small Cap-ND	0.08	-0.25	0.13	0.65	0.21	0.95	0.94	0.94	1.00	0.56	0.87	0.87	0.57
MSCI Frontier Emerging Markets-ND	0.44	-0.20	-0.12	0.12	0.50	0.55	0.75	0.75	0.56	1.00	0.33	0.36	0.15
Russell 3000	-0.12	-0.23	0.13	0.62	0.03	0.95	0.78	0.77	0.87	0.33	1.00	1.00	0.66
S&P 500	-0.12	-0.26	0.07	0.62	0.05	0.96	0.80	0.79	0.87	0.36	1.00	1.00	0.67
S&P/LSTA Leveraged Loan	-0.50	-0.72	-0.37	0.71	-0.16	0.61	0.44	0.42	0.57	0.15	0.66	0.67	1.00

## Three Year Correlation

Index	Bloomberg Barclays Global Aggregate	Bloomberg Barclays US Aggregate	Bloomberg Barclays US TIPS	Bloomberg Commodity	JPM EMBI Global	MSCI ACWI	MSCI ACWI ex-US	MSCI EAFE EME	MSCI EAFE Small Cap	MSCI Frontier Emerging Markets	Russell 3000	S&P 500	S&P/LSTA Leveraged Loan
Bloomberg Barclays Global Aggregate	1.00	0.77	0.75	0.06	0.74	0.18	0.32	0.33	0.27	0.56	0.01	0.03	-0.04
Bloomberg Barclays US Aggregate	0.77	1.00	0.84	-0.12	0.66	-0.09	0.01	0.03	-0.01	0.21	-0.18	-0.17	-0.25
Bloomberg Barclays US TIPS	0.75	0.84	1.00	0.10	0.59	0.12	0.18	0.18	0.17	0.31	0.04	0.04	-0.01
Bloomberg Commodity	0.06	-0.12	0.10	1.00	0.17	0.40	0.36	0.34	0.31	0.25	0.39	0.39	0.57
JPM EMBI Global	0.74	0.66	0.59	0.17	1.00	0.34	0.49	0.50	0.38	0.65	0.14	0.16	0.21
MSCI ACWI (Price)	0.18	-0.09	0.12	0.40	0.34	1.00	0.94	0.93	0.91	0.66	0.93	0.94	0.68
MSCI ACWI ex-US (Price)	0.32	0.01	0.18	0.36	0.49	0.94	1.00	1.00	0.94	0.81	0.75	0.76	0.62
MSCI EAFE + EM-ND	0.33	0.03	0.18	0.34	0.50	0.93	1.00	1.00	0.94	0.81	0.74	0.75	0.62
MSCI EAFE Small Cap-ND	0.27	-0.01	0.17	0.31	0.38	0.91	0.94	0.94	1.00	0.72	0.77	0.77	0.65
MSCI Frontier Emerging Markets-ND	0.56	0.21	0.31	0.25	0.65	0.66	0.81	0.81	0.72	1.00	0.42	0.44	0.42
Russell 3000	0.01	-0.18	0.04	0.39	0.14	0.93	0.75	0.74	0.77	0.42	1.00	1.00	0.64
S&P 500	0.03	-0.17	0.04	0.39	0.16	0.94	0.76	0.75	0.77	0.44	1.00	1.00	0.64
S&P/LSTA Leveraged Loan	-0.04	-0.25	-0.01	0.57	0.21	0.68	0.62	0.62	0.65	0.42	0.64	0.64	1.00

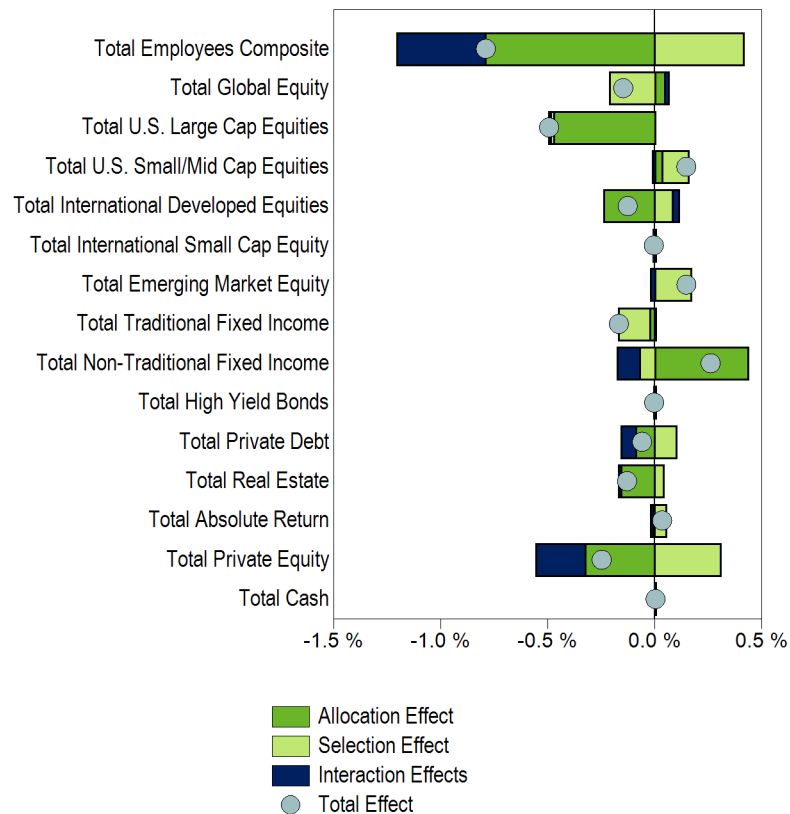




## Vermont State Employees

# TOTAL FUND ATTRIBUTION ANALYSIS - NET

### Attribution Effects Relative to Allocation Index 3 Months Ending December 31, 2018



Attribution Summary 3 Months Ending December 31, 2018							
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Global Equity	-14.9%	-12.8%	-2.2%	-0.2%	0.0%	0.0%	-0.1%
Total U.S. Large Cap Equities	-13.6%	-13.5%	-0.1%	0.0%	-0.5%	0.0%	-0.5%
Total U.S. Small/Mid Cap Equities	-15.7%	-18.5%	2.8%	0.1%	0.0%	0.0%	0.1%
Total International Developed Equities	-11.8%	-12.5%	0.7%	0.1%	-0.2%	0.0%	-0.1%
Total International Small Cap Equity	-7.4%	-16.0%	8.7%	0.0%	0.0%	0.0%	0.0%
Total Emerging Market Equity	-3.4%	-7.5%	4.1%	0.2%	0.0%	0.0%	0.1%
Total Traditional Fixed Income	0.9%	1.6%	-0.8%	-0.1%	0.0%	0.0%	-0.2%
Total Non-Traditional Fixed Income	-0.2%	1.6%	-1.8%	-0.1%	0.4%	-0.1%	0.3%
Total High Yield Bonds	-4.7%	-4.5%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total Private Debt	-1.4%	-3.5%	2.0%	0.1%	-0.1%	-0.1%	-0.1%
Total Real Estate	1.9%	1.4%	0.5%	0.0%	-0.2%	0.0%	-0.1%
Total Absolute Return	-4.3%	-4.9%	0.6%	0.1%	0.0%	0.0%	0.0%
Total Private Equity	1.5%	-1.7%	3.2%	0.3%	-0.3%	-0.2%	-0.2%
Total Cash	0.0%	0.6%	-0.6%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-6.8%</b>	<b>-6.0%</b>	<b>-0.8%</b>	<b>0.4%</b>	<b>-0.8%</b>	<b>-0.4%</b>	<b>-0.8%</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 policy index asset weights the underlying policy indices of each option in the plan and the respective benchmark

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

May not add up due to rounding

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



# **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.

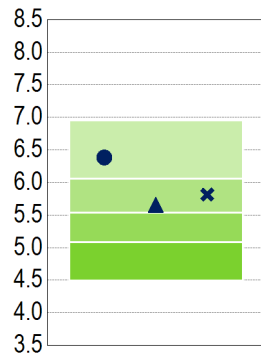
Selection Effect - Measures VPIC's ability to select managers within a given asset class relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by VPIC's allocation to the asset class. The weight of the manager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

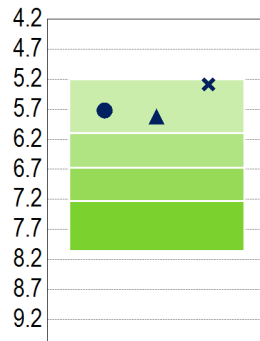
# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

## Employees Composite vs. InvMetrics Public DB < \$5 Billion Net 3 Years

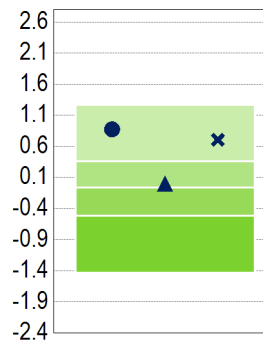
Anlzd Return      Anlzd Standard Deviation      Anlzd Alpha      Sharpe Ratio



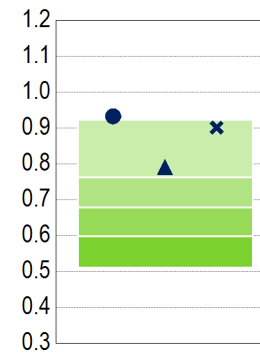
● Total Employees Composite	
Value	6.38
Rank	15
▲ Allocation Index	
Value	5.66
Rank	45
× Policy Index	
Value	5.81
Rank	37
Universe	
5th %tile	6.95
25th %tile	6.07
Median	5.54
75th %tile	5.10
95th %tile	4.50



● Total Employees Composite	
Value	5.72
Rank	15
▲ Allocation Index	
Value	5.82
Rank	17
× Policy Index	
Value	5.29
Rank	6
Universe	
5th %tile	5.20
25th %tile	6.08
Median	6.66
75th %tile	7.22
95th %tile	8.05



● Total Employees Composite	
Value	0.87
Rank	13
▲ Allocation Index	
Value	0.00
Rank	43
× Policy Index	
Value	0.70
Rank	16
Universe	
5th %tile	1.27
25th %tile	0.37
Median	-0.06
75th %tile	-0.50
95th %tile	-1.42

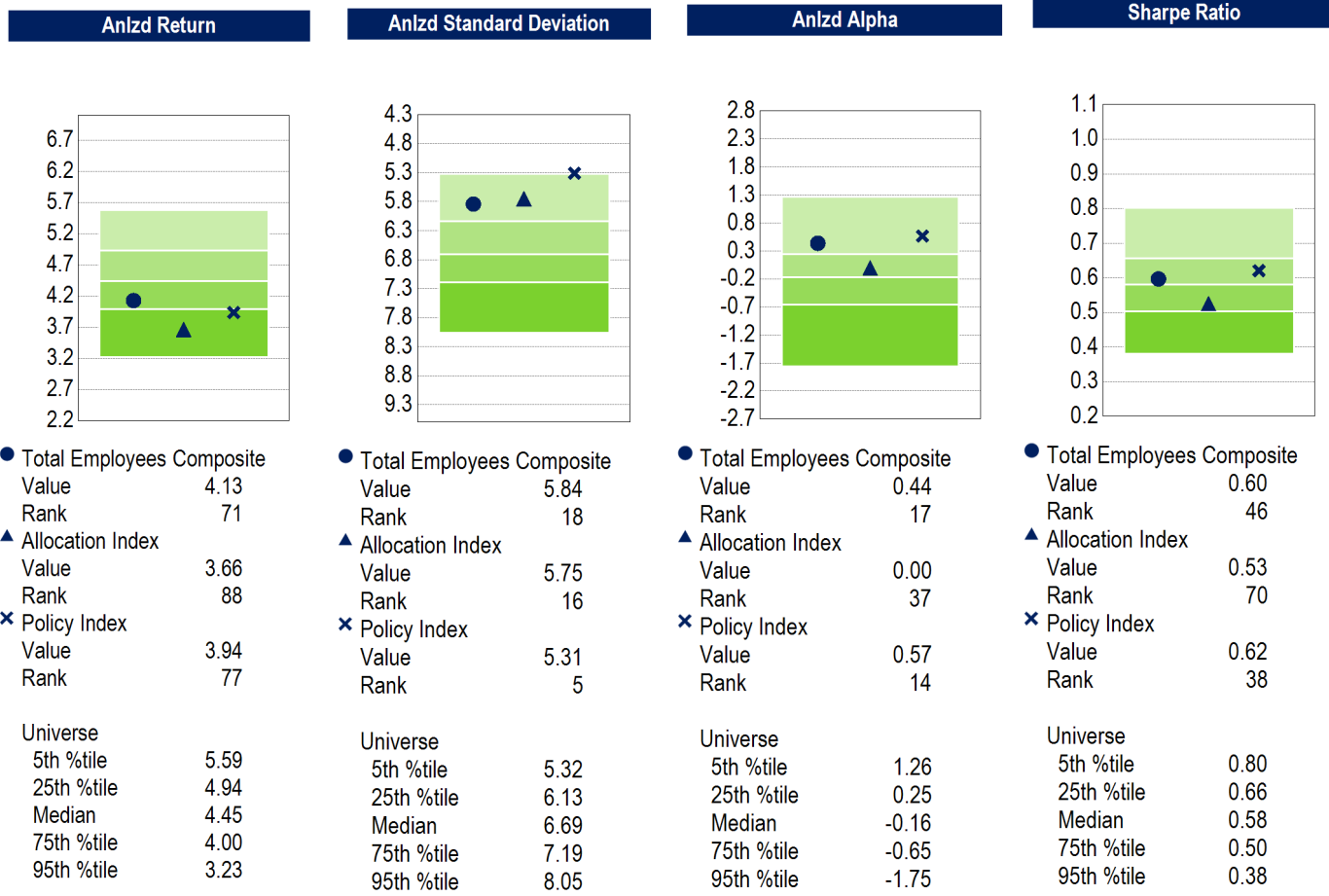


● Total Employees Composite	
Value	0.93
Rank	5
▲ Allocation Index	
Value	0.79
Rank	21
× Policy Index	
Value	0.90
Rank	7
Universe	
5th %tile	0.92
25th %tile	0.76
Median	0.68
75th %tile	0.60
95th %tile	0.51



# TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE - NET

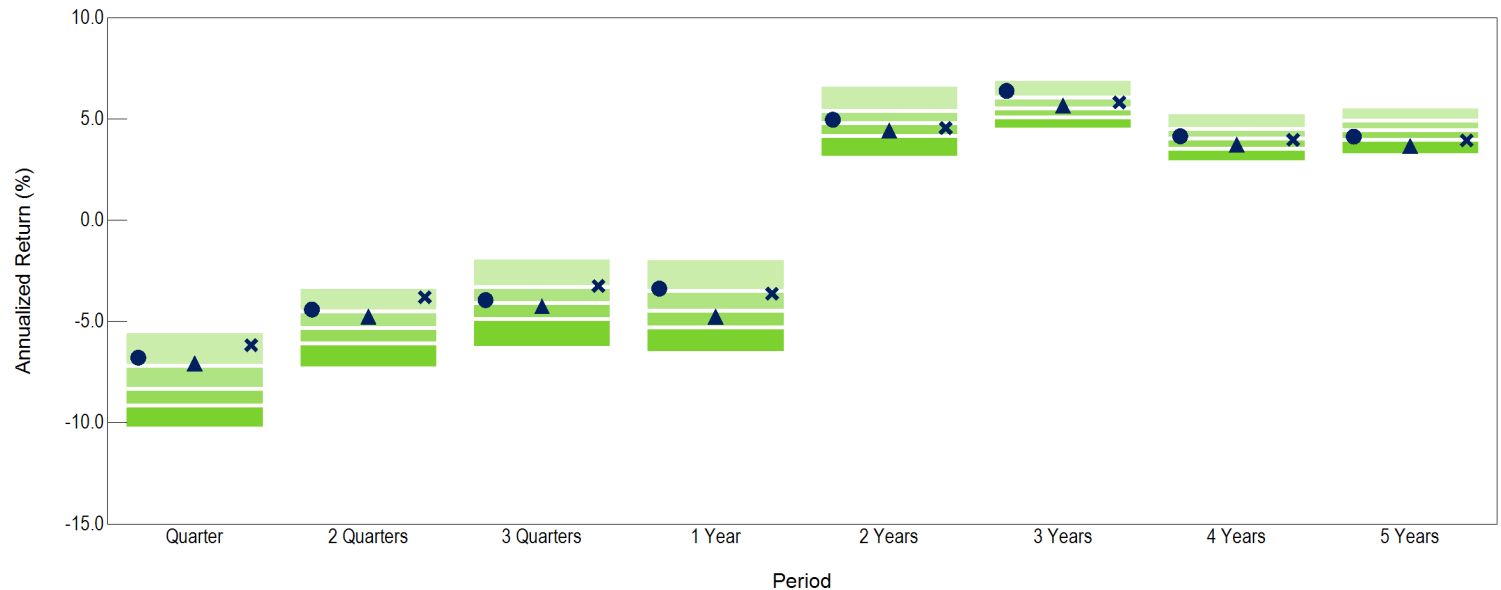
## Employees Composite vs. InvMetrics Public DB < \$5 Billion Net 5 Years



## Vermont State Employees

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Employees Composite vs. InvMetrics Public DB < \$5 Billion Net



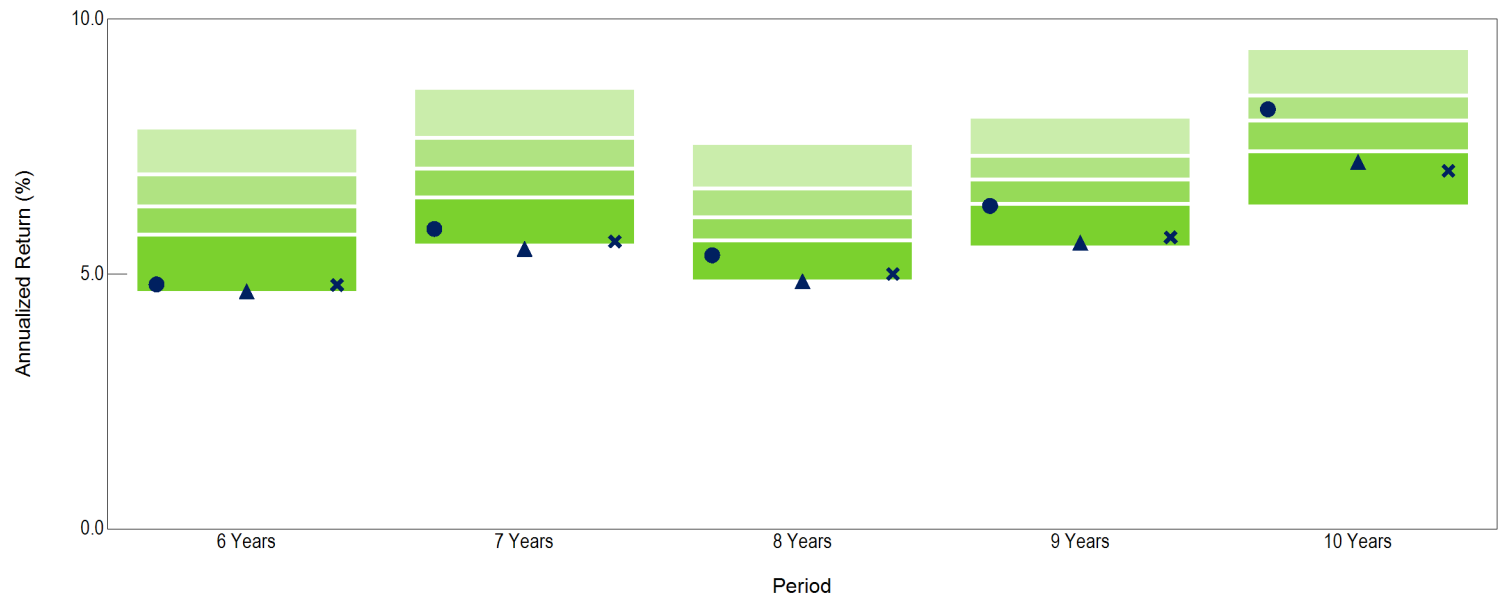
	Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)	
5th Percentile	-5.5	(17)	-3.3	(24)	-1.9	(46)	-1.9	(23)	6.7	(42)	7.0	(15)	5.3	(45)
25th Percentile	-7.2	(23)	-4.5	(33)	-3.3	(55)	-3.5	(61)	5.4	(65)	6.1	(45)	4.5	(67)
Median	-8.3	(10)	-5.3	(11)	-4.1	(23)	-4.4	(28)	4.8	(61)	5.5	(37)	4.1	(56)
75th Percentile	-9.1		-6.1		-4.9		-5.3		4.2		5.1		3.6	
95th Percentile	-10.3		-7.3		-6.3		-6.5		3.1		4.5		2.9	
# of Portfolios	476		475		474		474		465		459		431	
● Total Employees Composite	-6.8	(17)	-4.4	(24)	-3.9	(46)	-3.4	(23)	5.0	(42)	6.4	(15)	4.1	(45)
▲ Allocation Index	-7.1	(23)	-4.8	(33)	-4.2	(55)	-4.8	(61)	4.4	(65)	5.7	(45)	3.7	(67)
× Policy Index	-6.2	(10)	-3.8	(11)	-3.2	(23)	-3.6	(28)	4.6	(61)	5.8	(37)	4.0	(56)



## Vermont State Employees

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Employees Composite vs. InvMetrics Public DB < \$5 Billion Net



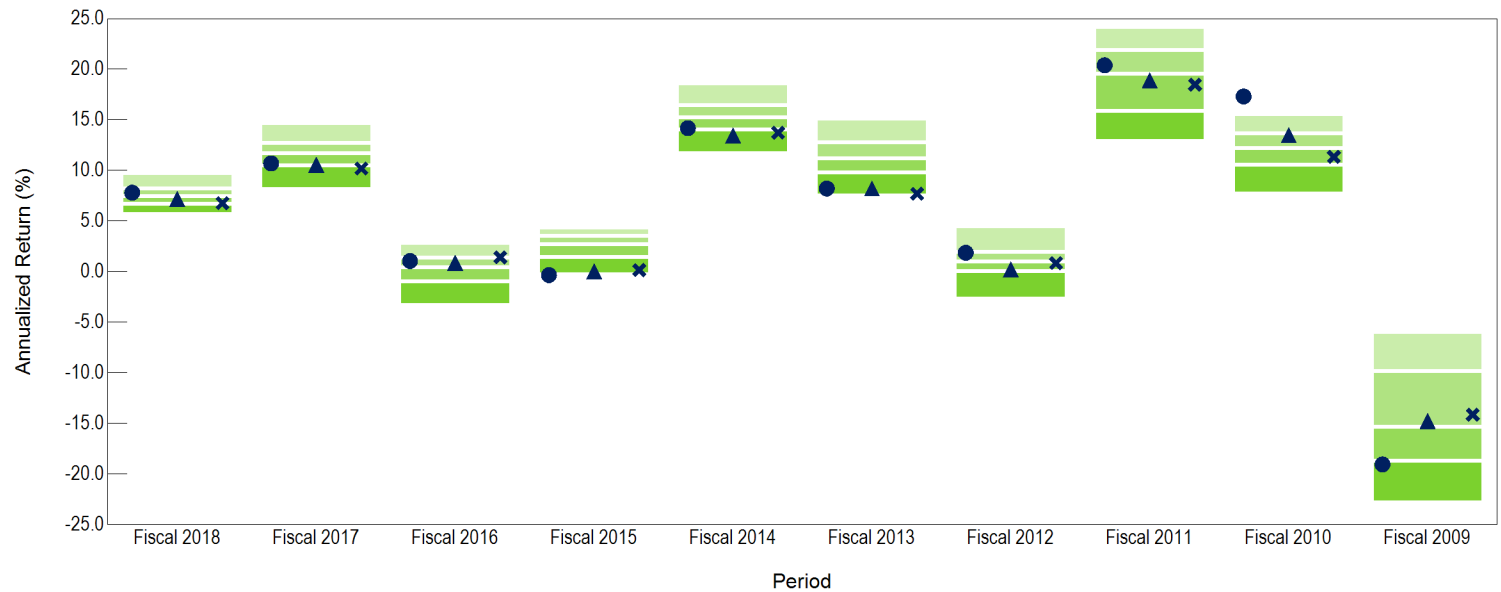
	6 Years		7 Years		8 Years		9 Years		10 Years	
<b>Return (Rank)</b>										
5th Percentile	7.9		8.6		7.6		8.1		9.4	
25th Percentile	7.0		7.7		6.7		7.3		8.5	
Median	6.3		7.1		6.1		6.9		8.0	
75th Percentile	5.8		6.5		5.7		6.4		7.4	
95th Percentile	4.6		5.6		4.9		5.5		6.3	
# of Portfolios	410		399		374		360		349	
● Total Employees Composite	4.8	(95)	5.9	(91)	5.4	(87)	6.3	(78)	8.2	(38)
▲ Allocation Index	4.7	(95)	5.5	(96)	4.9	(96)	5.6	(95)	7.2	(83)
× Policy Index	4.8	(95)	5.6	(95)	5.0	(94)	5.7	(94)	7.0	(88)



## Vermont State Employees

# TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE - NET

Total Employees Composite vs. InvMetrics Public DB < \$5 Billion Net



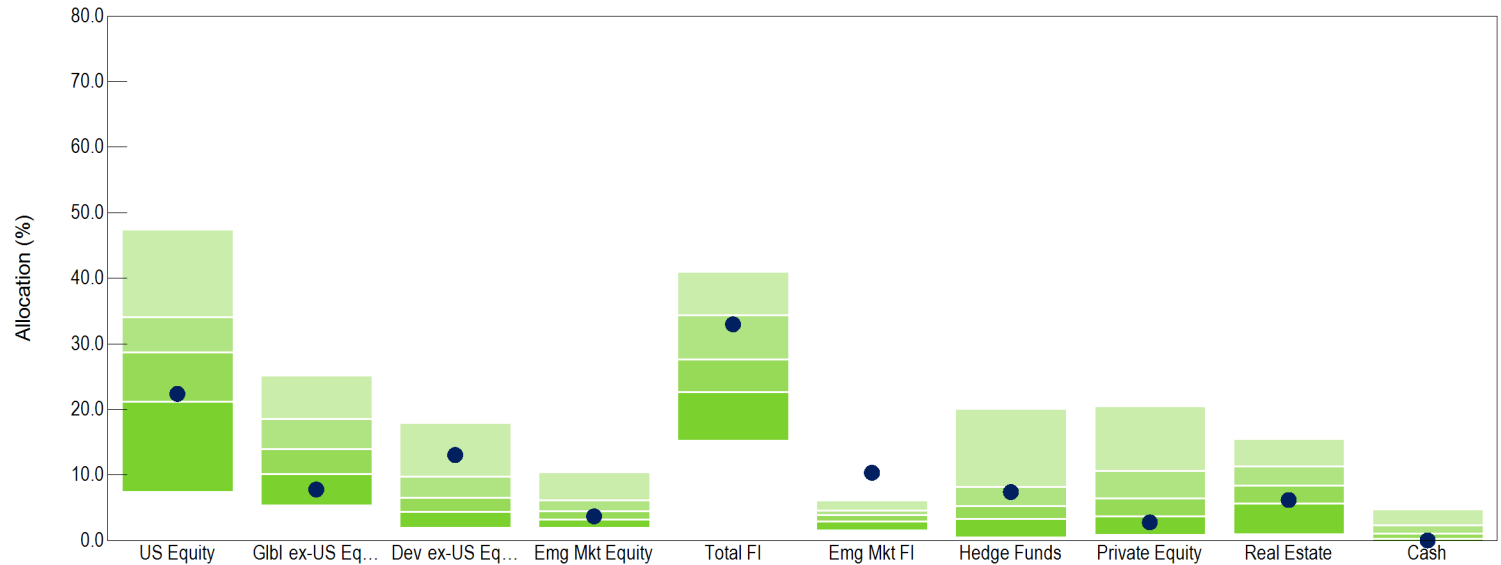
	Return (Rank)									
	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009
5th Percentile	9.7	14.7	2.8	4.4	18.6	15.1	4.5	24.2	15.5	-6.0
25th Percentile	8.3	12.8	1.4	3.6	16.5	12.8	2.0	21.9	13.7	-9.8
Median	7.5	11.7	0.5	2.7	15.3	11.2	1.0	19.6	12.3	-15.3
75th Percentile	6.7	10.6	-0.9	1.5	14.1	9.9	0.1	15.9	10.6	-18.7
95th Percentile	5.7	8.2	-3.3	-0.2	11.7	7.5	-2.6	13.0	7.7	-22.8
# of Portfolios	186	259	239	212	156	139	132	124	116	113
● Total Employees Composite	7.8 (40)	10.7 (71)	1.0 (34)	-0.3 (96)	14.2 (72)	8.2 (95)	1.9 (29)	20.4 (39)	17.3 (1)	-19.1 (78)
▲ Allocation Index	7.2 (61)	10.5 (76)	0.9 (38)	0.0 (95)	13.4 (89)	8.2 (95)	0.2 (72)	18.9 (57)	13.5 (29)	-14.8 (47)
× Policy Index	6.8 (75)	10.2 (81)	1.4 (25)	0.1 (94)	13.7 (83)	7.7 (95)	0.8 (55)	18.5 (60)	11.3 (65)	-14.1 (43)



## Vermont State Employees

# TOTAL FUND ALLOCATION VS. PEER UNIVERSE - NET

Total Employees Composite vs. InvMetrics Public DB < \$5 Billion Net  
As of December 31, 2018



	Allocation (Rank)																			
5th Percentile	47.5	25.1	17.9	10.4	41.0	6.1	20.1	20.5	15.5	4.8	-	-	-	-	-	-	-	-	-	-
25th Percentile	34.2	18.6	9.9	6.2	34.5	4.7	8.3	10.7	11.4	2.4	-	-	-	-	-	-	-	-	-	-
Median	28.8	14.1	6.7	4.6	27.7	4.0	5.4	6.5	8.5	1.2	-	-	-	-	-	-	-	-	-	-
75th Percentile	21.3	10.2	4.5	3.3	22.7	3.0	3.4	3.8	5.8	0.4	-	-	-	-	-	-	-	-	-	-
95th Percentile	7.6	5.5	2.1	2.1	15.4	1.7	0.6	0.9	1.1	0.0	-	-	-	-	-	-	-	-	-	-
# of Portfolios	144	183	90	105	218	28	69	104	145	205	-	-	-	-	-	-	-	-	-	-
• Total Employees Composite	22.4	(69)	7.8	(89)	13.1	(17)	3.7	(64)	33.0	(34)	10.4	(1)	7.4	(30)	2.8	(81)	6.2	(70)	0.0	(94)





# REAL ESTATE PERFORMANCE ANALYSIS

## AS OF 9/30/2018

Investment Name	Vintage Year	Commitment Amount	QTD	YTD	1 Year	3 Year	5 Year	Inception
Brookfield Strategic Real Estate Partners III, L.P.	2017	100,000,000						
Siguler Guff Distressed Real Estate Opportunities II	2014	40,000,000	2.08	7.84	17.57	14.13		11.40
Siguler Guff DREOF II Co-Investment	2016	15,000,000	2.49	3.56	15.19			12.55
<b>Total: State of Vermont</b>		<b>155,000,000</b>	<b>0.65</b>	<b>5.04</b>	<b>15.22</b>	<b>13.25</b>		<b>11.07</b>



# REAL ESTATE PERFORMANCE ANALYSIS

## IRR

Investment Name	Fund Type	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR
1 Siguler Guff Distressed Real Estate Opportunities II	RE Opportunistic	2014	40,000,000	33,420,000	6,580,000	12,985,278	33,139,144	46,124,422	12,704,422	84%	0.39	1.38	11.40%
2 Siguler Guff DREOF II Co-Investment	RE Opportunistic	2016	15,000,000	11,910,217	3,089,783	0	14,337,915	14,337,915	2,427,698	79%	0.00	1.20	12.55%
3 Brookfield Strategic Real Estate Partners III, L.P.	RE Opportunistic	2017	100,000,000	0	100,000,000	0	-729,000	-729,000	-729,000	0%	0.00	0.00	N/A
<b>Total: State of Vermont</b>			<b>155,000,000</b>	<b>45,330,217</b>	<b>109,669,783</b>	<b>12,985,278</b>	<b>46,748,059</b>	<b>59,733,337</b>	<b>14,403,120</b>	<b>29%</b>	<b>0.29</b>	<b>1.32</b>	<b>11.07%</b>

# INDEX COMPARISON METHOD

## ICM

Investment	Index Set Name	Cumulative Contributions	Cumulative Distributions	Adjusted Valuation	Valuation ICM	Valuation Spread	IRR	IRR ICM	IRR Spread
Brookfield Strategic Real Estate Partners III, L.P.	FTSE NAREIT		0	-729,000	729,000	-1,458,000	N/A	N/A	N/A
Siguler Guff Distressed Real Estate Opportunities II	FTSE NAREIT	33,420,000	12,985,278	33,139,144	28,210,111	4,929,033	11.40	7.38	4.02
Siguler Guff DREOF II Co-Investment	FTSE NAREIT	11,910,217	0	14,337,915	13,579,693	758,222	12.55	8.75	3.80
<b>Total: State of Vermont</b>		<b>45,330,217</b>	<b>12,985,278</b>	<b>46,748,059</b>	<b>42,518,804</b>	<b>4,229,255</b>	<b>11.07</b>	<b>8.11</b>	<b>2.96</b>

As of 9/30/2018



# PRIVATE DEBT PERFORMANCE ANALYSIS

## AS OF 9/30/2018

Investment Name	Vintage Year	Commitment Amount	QTD	YTD	1 Year	3 Year	5 Year	Inception
Beneft Street Partners Senior Secured Opportunitites Fund, LP	2017	70,000,000	2.02	4.87				6.54
BlueBay Direct Lending Fund III	2017	70,000,000	1.03					0.68
<b>Total: State of Vermont</b>		<b>140,000,000</b>	<b>1.86</b>	<b>4.65</b>				<b>6.21</b>

- BlueBay Direct Lending Fund III (the "Fund") has completed its Final Close as of 2/8/19 at over €6 billion



# PRIVATE DEBT PERFORMANCE ANALYSIS

## IRR

Investment Name	Vintage 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
1 Benefit Street Partners Senior Secured Opportunites Fund, LP	2017	70,000,000	54,533,364	15,466,636	1,333,567	3,186,838	55,563,538	58,750,376	2,883,445	78%	0.06	1.05	6.54%
2 BlueBay Direct Lending Fund III	2017	70,000,000	11,878,892	58,121,108	0	196,136	11,749,828	11,945,964	67,072	17%	0.02	1.01	0.68%
<b>Total: State of Vermont</b>		<b>140,000,000</b>	<b>66,412,256</b>	<b>73,587,744</b>	<b>1,333,567</b>	<b>3,382,974</b>	<b>67,313,366</b>	<b>70,696,340</b>	<b>2,950,517</b>	<b>47%</b>	<b>0.05</b>	<b>1.04</b>	<b>6.21%</b>

# INDEX COMPARISON METHOD

## ICM

Investment	Index Set Name	Cumulative Contributions	Cumulative Distributions	Adjusted Valuation	Valuation ICM	Valuation Spread	IRR	IRR ICM	IRR Spread
Benefit Street Partners Senior Secured Opportunites Fund, LP	BC US Agg Total Return Unhedged	55,866,931	3,186,838	55,563,538	52,443,732	3,119,806	6.54	-0.53	7.07
BlueBay Direct Lending Fund III	BC US Agg Total Return Unhedged	11,878,892	196,136	11,749,828	11,707,967	41,861	0.68	0.26	0.42
<b>Total: State of Vermont</b>		<b>67,745,823</b>	<b>3,382,974</b>	<b>67,313,366</b>	<b>64,151,699</b>	<b>3,161,667</b>	<b>6.21</b>	<b>-0.44</b>	<b>6.65</b>

As of 9/30/2018



# PRIVATE EQUITY PERFORMANCE ANALYSIS

## AS OF 9/30/2018

Investment Name	Vintage Year	Commitment Amount	QTD	YTD	1 Year	3 Year	5 Year	Inception
HarbourVest Partners Dover Street VIII	2012	25,000,000	3.58	13.66	18.45	13.65	18.16	21.94
HarbourVest Partners IX-Buyout	2012	24,000,000	4.73	15.12	22.66	19.67	18.29	17.71
HarbourVest Partners IX-Credit Opportunities	2012	4,000,000	2.54	8.65	14.13	13.63	13.17	14.73
HarbourVest Partners IX-Venture	2012	12,000,000	6.20	18.63	25.69	13.02	17.16	16.97
HarbourVest HIPEP VII	2014	15,000,000	3.54	14.04	20.21	17.36		16.64
HarbourVest Partners X Buyout Fund	2015	45,500,000	4.07	16.73	22.07			29.94
HarbourVest Partners X Venture Fund	2015	19,500,000	6.77	18.38	25.36			27.86
HarbourVest Partners Dover Street IX	2016	40,000,000	5.82	26.40	36.88			55.29
HarbourVest HIPEP VIII	2017	60,000,000	0.96					31.76
HarbourVest Partners Co-Investment Fund V	2018	25,000,000						
HarbourVest Partners XI Buyout Fund	2018	75,000,000						
HarbourVest Partners XI Micro Buyout	2018	12,500,000						
HarbourVest Partners XI Venture Fund	2018	37,500,000						
<b>Total: State of Vermont</b>		<b>395,000,000</b>	<b>4.66</b>	<b>18.50</b>	<b>25.26</b>	<b>19.89</b>	<b>20.51</b>	<b>21.31</b>



# PRIVATE EQUITY PERFORMANCE ANALYSIS

## IRR

Investment Name	Vintage 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
1 HarbourVest Partners Dover Street VIII	2012	25,000,000	22,500,000	2,500,000	0	23,839,502	11,329,305	35,168,807	12,668,807	90%	1.06	1.56	21.94%
2 HarbourVest Partners IX-Buyout	2012	24,000,000	18,060,000	5,940,000	47,188	11,103,274	17,477,258	28,580,532	10,473,344	75%	0.61	1.58	17.71%
3 HarbourVest Partners IX-Credit Opportunities	2012	4,000,000	2,700,000	1,300,000	10,265	1,478,215	2,470,178	3,948,393	1,238,128	68%	0.55	1.46	14.73%
4 HarbourVest Partners IX-Venture	2012	12,000,000	11,400,000	600,000	37,671	4,839,817	13,955,093	18,794,910	7,357,239	95%	0.42	1.64	16.97%
5 HarbourVest HIPEP VII	2014	15,000,000	8,587,500	6,412,500	0	1,209,028	10,004,298	11,213,326	2,625,826	57%	0.14	1.31	16.64%
6 HarbourVest Partners X Buyout Fund	2015	45,500,000	10,465,000	35,035,000	2,787	1,459,736	13,265,355	14,725,091	4,257,304	23%	0.14	1.41	29.94%
7 HarbourVest Partners X Venture Fund	2015	19,500,000	8,628,750	10,871,250	1,672	498,967	10,819,191	11,318,158	2,687,736	44%	0.06	1.31	27.86%
8 HarbourVest Partners Dover Street IX	2016	40,000,000	16,800,000	23,200,000	0	4,352,270	18,399,751	22,752,021	5,952,021	42%	0.26	1.35	55.29%
9 HarbourVest HIPEP VIII	2017	60,000,000	5,100,000	54,900,000	0	0	6,719,702	6,719,702	1,619,702	9%	0.00	1.32	31.76%
10 HarbourVest Partners Co-Investment Fund	2018	25,000,000	0	25,000,000	0	0	0	0	0	0%	0.00	0.00	N/A
11 HarbourVest Partners XI Buyout Fund	2018	75,000,000	0	75,000,000	0	0	0	0	0	0%	0.00	0.00	N/A
12 HarbourVest Partners XI Micro Buyout	2018	12,500,000	0	12,500,000	0	0	0	0	0	0%	0.00	0.00	N/A
13 HarbourVest Partners XI Venture Fund	2018	37,500,000	0	37,500,000	0	0	0	0	0	0%	0.00	0.00	N/A
<b>Total: State of Vermont</b>		<b>395,000,000</b>	<b>104,241,250</b>	<b>290,758,750</b>	<b>99,583</b>	<b>48,780,809</b>	<b>104,440,131</b>	<b>153,220,940</b>	<b>48,880,107</b>	<b>26%</b>	<b>0.47</b>	<b>1.47</b>	<b>21.31%</b>

As of 9/30/2018



# PRIVATE EQUITY PERFORMANCE ANALYSIS

## ICM – S&P 500 INDEX

Investment	Index Set Name	Cumulative Contributions	Cumulative Distributions	Adjusted Valuation	Valuation ICM	Valuation Spread	IRR	IRR ICM	IRR Spread
HarbourVest HIPEP VII	S&P 500 Total Return	8,587,500	1,209,028	10,004,298	9,861,572	142,726	16.64	15.83	0.81
HarbourVest HIPEP VIII	S&P 500 Total Return	5,100,000	0	6,719,702	5,677,128	1,042,574	31.76	11.32	20.44
HarbourVest Partners Co-Investment Fund V	S&P 500 Total Return		0				0.00	0.00	0.00
HarbourVest Partners Dover Street IX	S&P 500 Total Return	16,800,000	4,352,270	18,399,751	14,317,318	4,082,433	55.29	18.14	37.15
HarbourVest Partners Dover Street VIII	S&P 500 Total Return	22,500,000	23,839,502	11,329,305	5,366,113	5,963,192	21.94	13.81	8.13
HarbourVest Partners IX-Buyout	S&P 500 Total Return	18,107,188	11,103,274	17,477,258	14,862,412	2,614,846	17.71	14.22	3.49
HarbourVest Partners IX-Credit Opportunities	S&P 500 Total Return	2,710,265	1,478,215	2,470,178	2,428,806	41,372	14.73	14.35	0.38
HarbourVest Partners IX-Venture	S&P 500 Total Return	11,437,671	4,839,817	13,955,093	12,338,228	1,616,865	16.97	14.00	2.97
HarbourVest Partners X Buyout Fund	S&P 500 Total Return	10,467,787	1,459,736	13,265,355	11,477,061	1,788,294	29.94	18.26	11.68
HarbourVest Partners X Venture Fund	S&P 500 Total Return	8,630,422	498,967	10,819,191	9,832,058	987,133	27.86	18.18	9.68
HarbourVest Partners XI Buyout Fund	S&P 500 Total Return		0				0.00	0.00	0.00
HarbourVest Partners XI Micro Buyout	S&P 500 Total Return		0				0.00	0.00	0.00
HarbourVest Partners XI Venture Fund	S&P 500 Total Return		0				0.00	0.00	0.00
<b>Total: State of Vermont</b>		<b>104,340,833</b>	<b>48,780,809</b>	<b>104,440,131</b>	<b>86,160,695</b>	<b>18,279,436</b>	<b>21.31</b>	<b>14.81</b>	<b>6.50</b>

As of 9/30/2018



# PRIVATE EQUITY PERFORMANCE ANALYSIS

## ICM – MSCI ACWI INDEX

Investment	Index Set Name	Cumulative Contributions	Cumulative Distributions	Adjusted Valuation	Valuation ICM	Valuation Spread	IRR	IRR ICM	IRR Spread
HarbourVest HIPEP VII	MSCI ACWI	8,587,500	1,209,028	10,004,298	8,779,461	1,224,837	16.64	9.38	7.26
HarbourVest HIPEP VIII	MSCI ACWI	5,100,000	0	6,719,702	5,258,171	1,461,531	31.76	3.10	28.66
HarbourVest Partners Co-Investment Fund V	MSCI ACWI		0				0.00	0.00	0.00
HarbourVest Partners Dover Street IX	MSCI ACWI	16,800,000	4,352,270	18,399,751	13,453,620	4,946,131	55.29	9.86	45.43
HarbourVest Partners Dover Street VIII	MSCI ACWI	22,500,000	23,839,502	11,329,305	1,697,629	9,631,676	21.94	7.23	14.71
HarbourVest Partners IX-Buyout	MSCI ACWI	18,107,188	11,103,274	17,477,258	10,460,556	7,016,702	17.71	7.17	10.54
HarbourVest Partners IX-Credit Opportunities	MSCI ACWI	2,710,265	1,478,215	2,470,178	1,789,337	680,841	14.73	7.60	7.13
HarbourVest Partners IX-Venture	MSCI ACWI	11,437,671	4,839,817	13,955,093	9,097,056	4,858,037	16.97	6.96	10.01
HarbourVest Partners X Buyout Fund	MSCI ACWI	10,467,787	1,459,736	13,265,355	10,522,922	2,742,433	29.94	11.54	18.40
HarbourVest Partners X Venture Fund	MSCI ACWI	8,630,422	498,967	10,819,191	9,039,096	1,780,095	27.86	9.96	17.90
HarbourVest Partners XI Buyout Fund	MSCI ACWI		0				0.00	0.00	0.00
HarbourVest Partners XI Micro Buyout	MSCI ACWI		0				0.00	0.00	0.00
HarbourVest Partners XI Venture Fund	MSCI ACWI		0				0.00	0.00	0.00
<b>Total: State of Vermont</b>		<b>104,340,833</b>	<b>48,780,809</b>	<b>104,440,131</b>	<b>70,097,847</b>	<b>34,342,284</b>	<b>21.31</b>	<b>7.86</b>	<b>13.45</b>

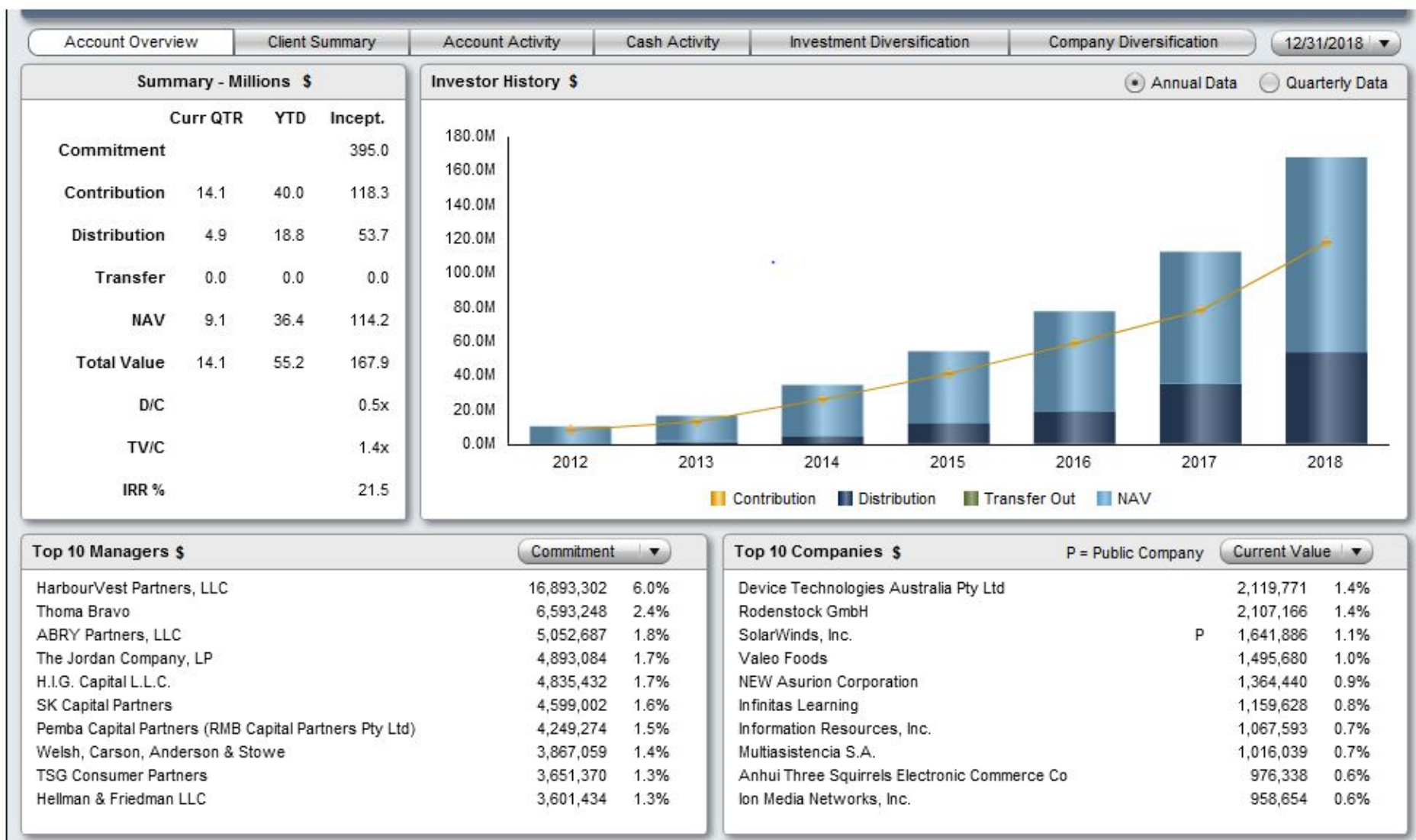
As of 9/30/2018



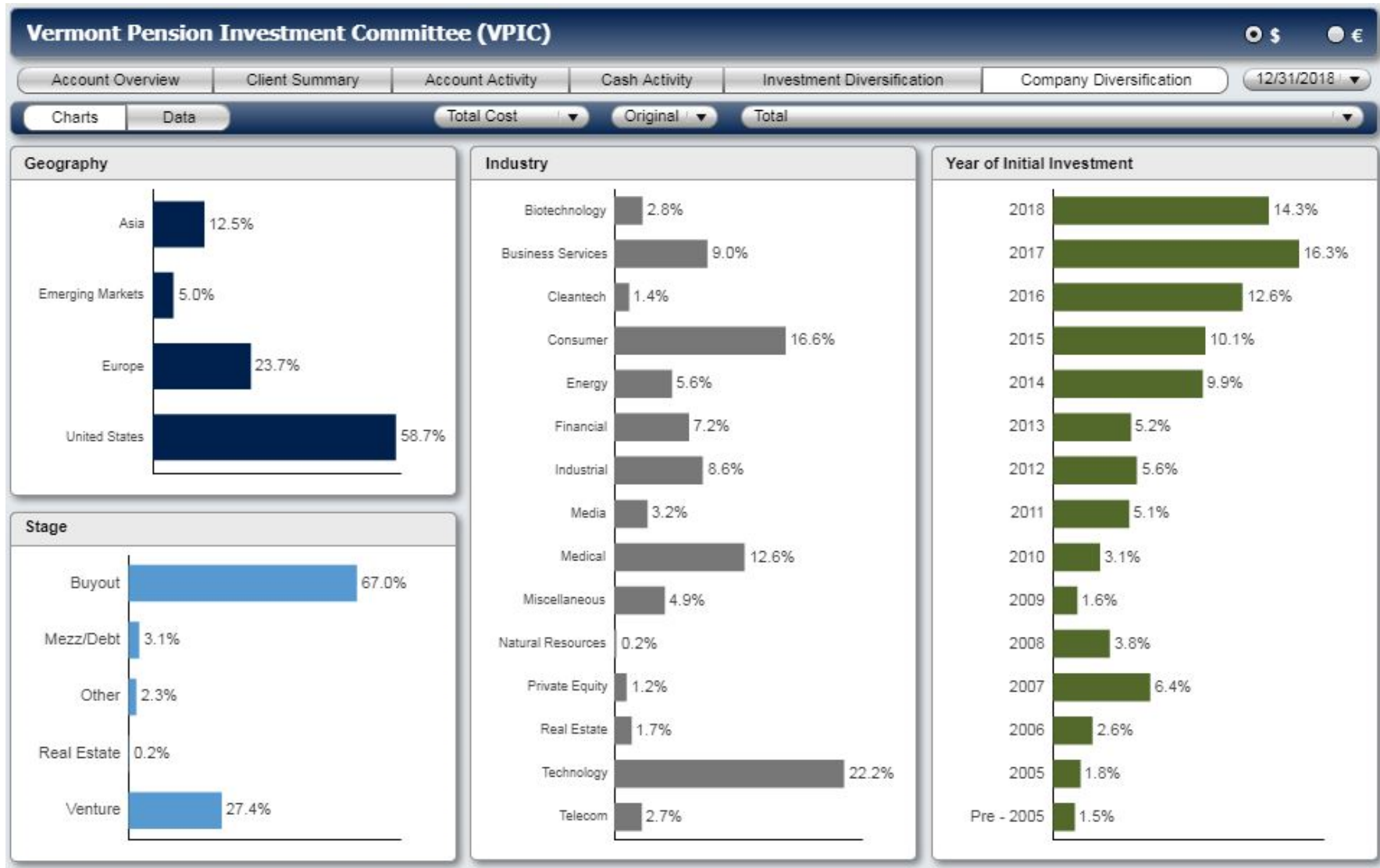


# PRIVATE EQUITY INVESTMENT PORTFOLIO SUMMARY

## AS OF 12/31/2018



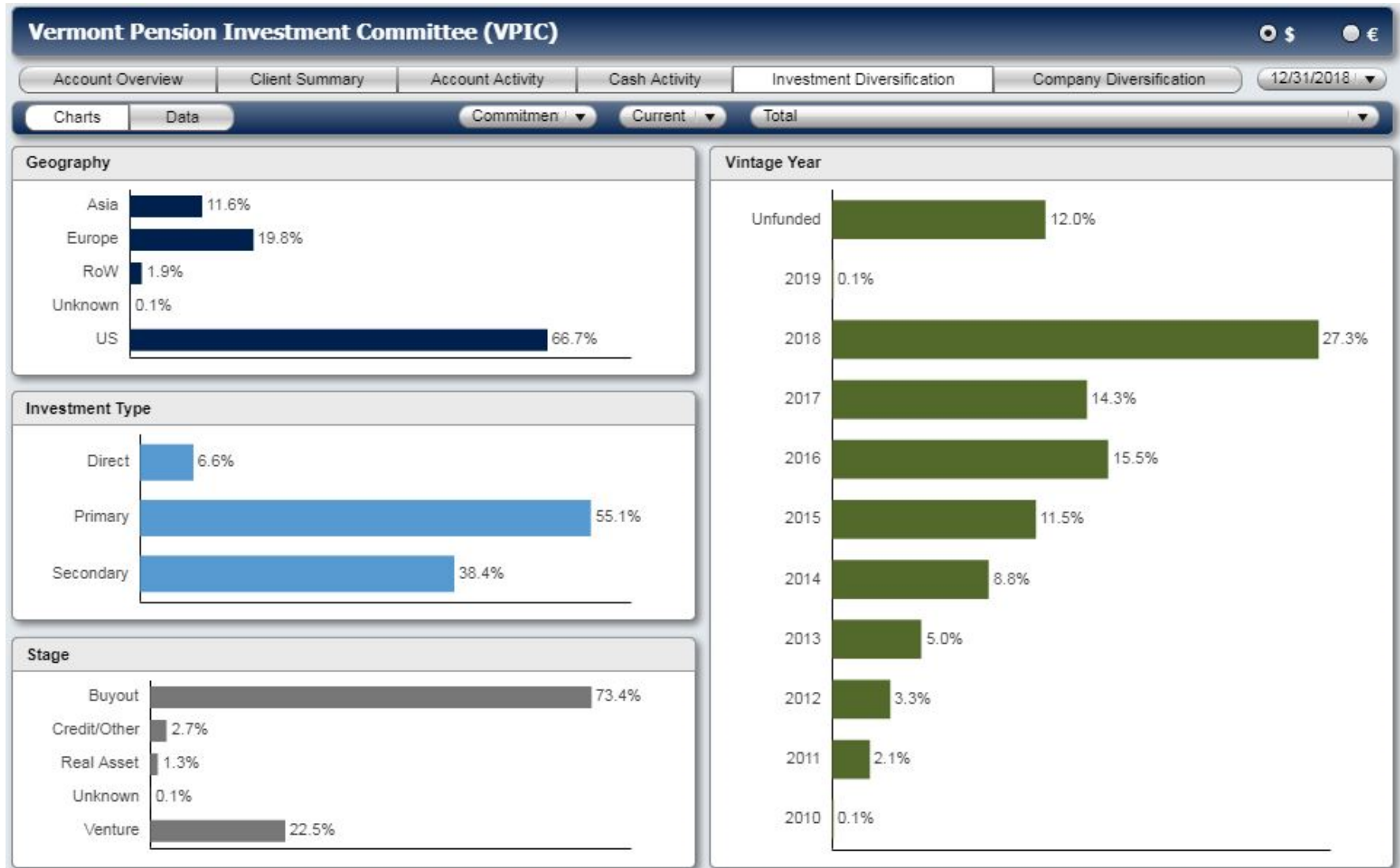
# PRIVATE EQUITY INVESTMENT DIVERSIFICATION AS OF 12/31/2018



Note:  
Data provided by HarbourVest and has not been independently verified by NEPC



# PRIVATE EQUITY COMPANY DIVERSIFICATION AS OF 12/31/2018

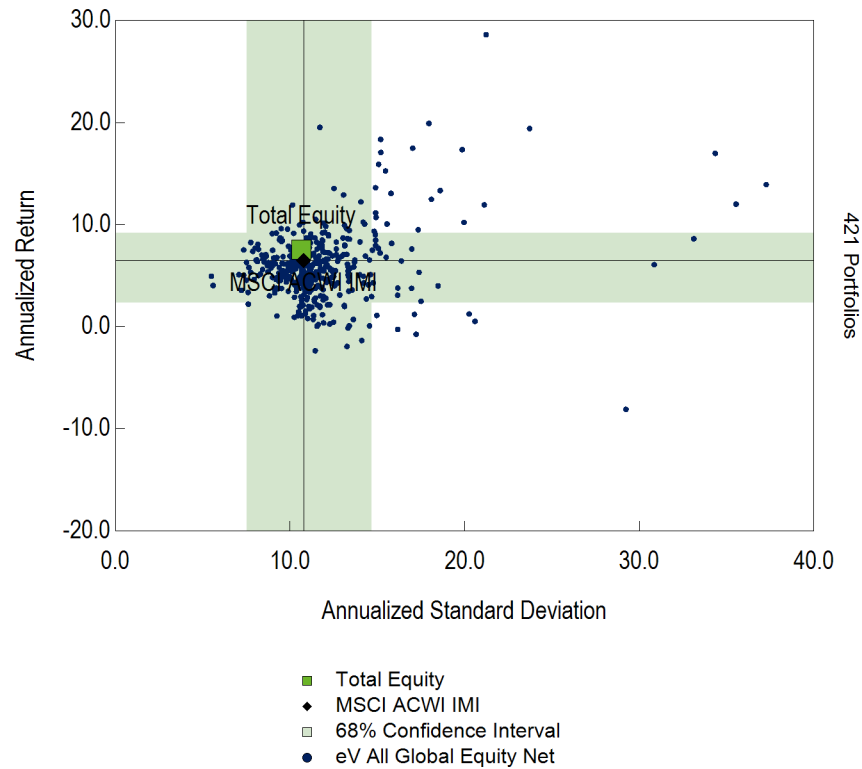


Note:  
Data provided by HarbourVest and has not been independently verified by NEPC

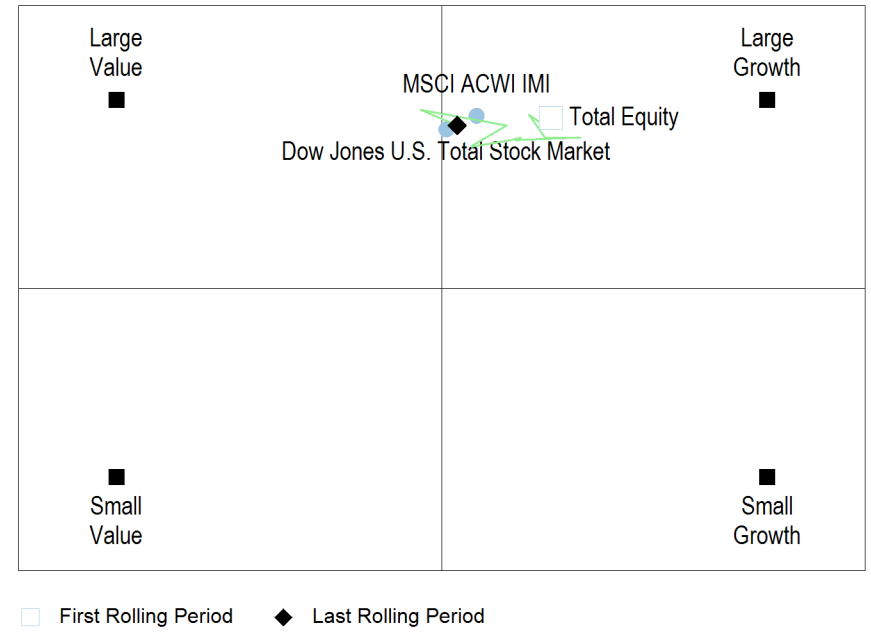


# TOTAL EQUITY COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



U.S. Effective Style Map  
3 Years Ending December 31, 2018

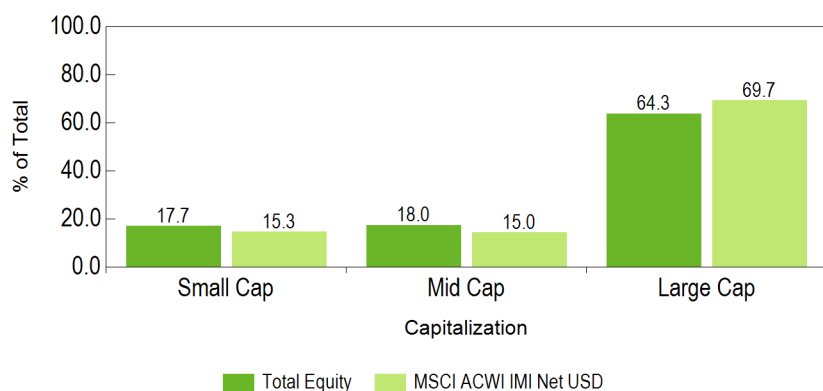


# TOTAL EQUITY COMPOSITE

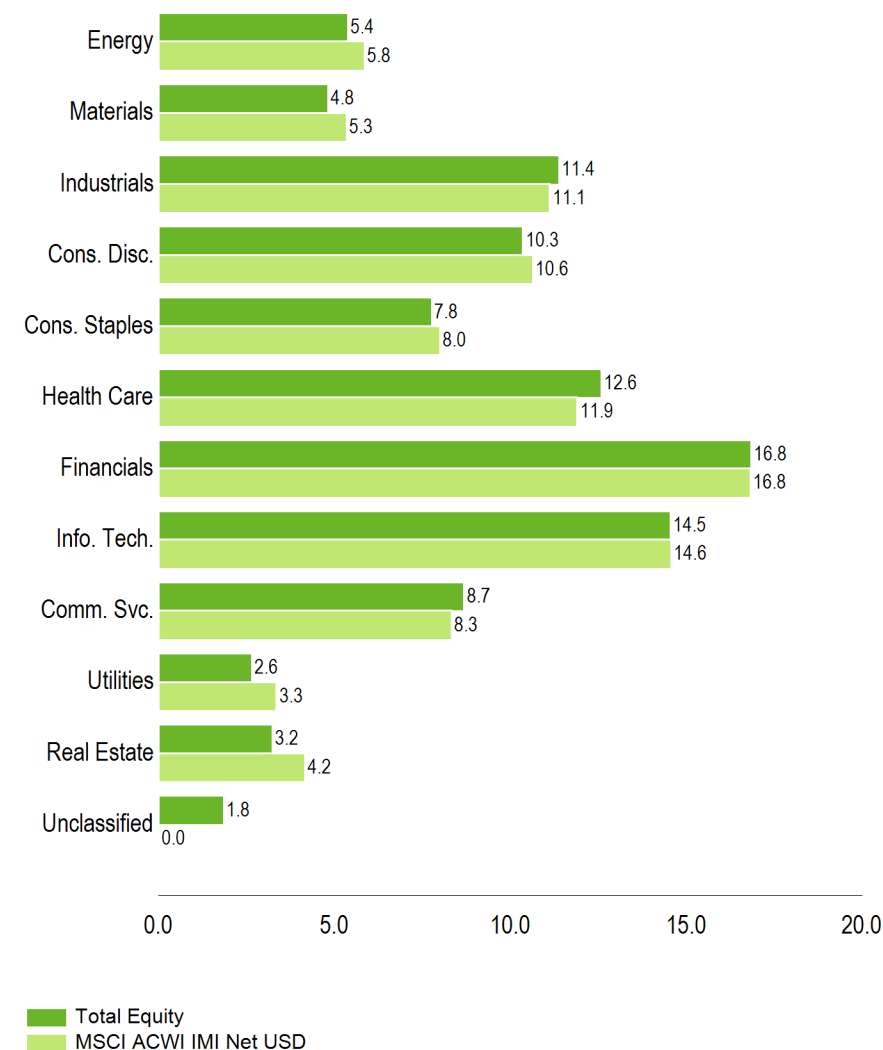
Characteristics		
	Portfolio	MSCI ACWI IMI Net USD
Number of Holdings	3,482	8,725
Weighted Avg. Market Cap. (\$B)	92.23	105.66
Median Market Cap. (\$B)	8.32	1.58
Price To Earnings	19.52	18.26
Price To Book	4.39	3.11
Price To Sales	3.69	3.22
Return on Equity (%)	19.90	17.92
Yield (%)	2.53	2.70

	Portfolio Q4-18	Index Q4-18
<b>Region Weighting</b>		
North America ex U.S.	1.91	3.04
United States	56.33	53.82
Europe Ex U.K.	12.59	14.32
United Kingdom	5.27	5.14
Pacific Basin Ex Japan	5.49	5.28
Japan	6.57	8.04
Emerging Markets	11.36	9.99
Other	0.47	0.37

## Market Capitalization As of December 31, 2018



## Sector Allocation (%) vs MSCI ACWI IMI Net USD



# TOTAL EQUITY COMPOSITE

Top Ten Holdings	
CASH - USD	1.3%
MICROSOFT	1.2%
AMAZON.COM	1.2%
APPLE	1.1%
VISA 'A'	0.8%
BANK OF AMERICA	0.8%
ALPHABET A	0.7%
BERKSHIRE HATHAWAY 'B'	0.7%
TENCENT HOLDINGS	0.6%
IHS MARKIT	0.6%

Top Positive Contributors		
	Relative Contribution %	Return %
APPLE	0.2%	-29.9%
BNC.BRADESCO PF.SPN.ADR 1:1	0.1%	42.7%
AMAZON.COM	0.0%	-25.0%
FACEBOOK CLASS A	0.0%	-20.3%
BRITISH AMERICAN TOBACCO	0.0%	-29.6%
SAMSUNG ELECTRONICS	0.0%	-17.2%
MICROSOFT	0.0%	-10.8%
RED HAT	0.0%	28.9%
EXXON MOBIL	0.0%	-19.0%
ALIBABA GROUP HLDG.SPN. ADR 1:1	0.0%	-16.8%

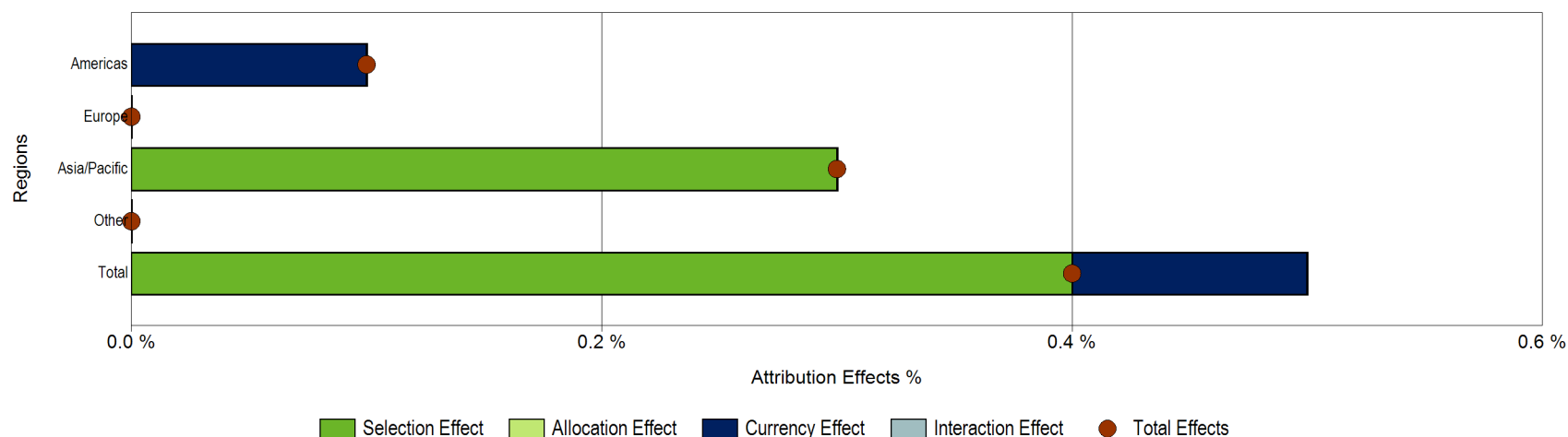
Top Negative Contributors		
	Relative Contribution %	Return %
NOBLE ENERGY	-0.1%	-39.6%
INTEGRA LFSC.HDG.	-0.1%	-31.5%
FEVERTREE DRINKS	-0.1%	-40.5%
SAMSUNG ELTN.PREF.	-0.1%	-16.6%
BLACKBAUD	-0.1%	-37.9%
IHS MARKIT	-0.1%	-11.1%
TEMENOS N	-0.1%	-26.6%
PIONEER NTRL.RES.	-0.1%	-24.5%
LONZA GROUP	-0.1%	-24.7%
PURE STORAGE CL.A	-0.1%	-38.0%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	0.0%	0.0%	-20.0%	-21.6%	6.1%	6.4%			
Materials	0.0%	0.0%	0.0%	0.0%	-13.9%	-14.4%	4.8%	5.3%			
Industrials	0.0%	0.0%	0.0%	0.0%	-15.9%	-16.2%	11.1%	11.6%			
Consumer Discretionary	0.1%	0.1%	0.0%	0.0%	-14.4%	-15.2%	11.0%	10.9%			
Consumer Staples	0.0%	-0.1%	0.0%	0.0%	-7.4%	-6.7%	7.7%	7.4%			
Health Care	-0.2%	-0.2%	0.0%	0.0%	-12.5%	-11.1%	12.3%	11.6%			
Financials	0.2%	0.2%	0.0%	0.0%	-10.9%	-12.3%	17.1%	16.8%			
Information Technology	0.1%	0.1%	0.0%	0.0%	-16.7%	-17.2%	15.5%	15.3%			
Communication Services	0.0%	0.0%	0.0%	0.0%	-11.5%	-11.6%	8.6%	8.2%			
Utilities	0.0%	0.0%	-0.1%	0.0%	2.0%	0.6%	2.5%	2.8%			
Real Estate	0.0%	0.1%	-0.1%	0.0%	-2.2%	-5.1%	2.9%	3.7%			
Cash	0.0%	0.0%	0.0%	0.0%	0.5%	--	0.3%	0.0%			
<b>Portfolio</b>	<b>0.4%</b>	<b>=</b>	<b>0.4%</b>	<b>+</b>	<b>0.0%</b>	<b>+</b>	<b>0.1%</b>	<b>-12.8%</b>	<b>-13.3%</b>	<b>99.7%</b>	<b>100.0%</b>



# TOTAL EQUITY COMPOSITE - \$2,023.7 MILLION

Total Equity Performance Attribution vs. MSCI ACWI IMI Net USD  
Quarter Ending December 31, 2018



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	-13.9%	-14.1%	60.4%	58.8%	0.0%	0.0%	0.1%	0.0%	0.1%
Europe	-13.4%	-13.3%	19.0%	20.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Asia/Pacific	-9.5%	-11.1%	19.3%	19.8%	0.3%	0.0%	0.0%	0.0%	0.3%
Other	0.3%	-4.5%	1.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-12.8%</b>	<b>-13.3%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>0.4%</b>
<b>Totals</b>									
Developed	-13.8%	-14.0%	88.8%	89.1%	0.1%	0.0%	0.1%	0.0%	0.1%
Emerging*	-4.8%	-7.5%	10.9%	10.9%	0.2%	0.0%	0.1%	0.0%	0.3%
Frontier**	-14.9%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



# TOTAL EQUITY COMPOSITE

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	1.1%	0.7%	15.9%	14.5%
Canada	1.8%	3.0%	-14.6%	-15.4%
Chile*	0.2%	0.1%	-8.0%	-8.0%
Colombia*	0.0%	0.0%	-15.3%	-19.6%
Mexico*	0.6%	0.3%	-22.0%	-19.0%
Peru*	0.0%	0.0%	2.4%	-3.1%
United States	56.7%	54.6%	-14.4%	-14.4%
<b>Total-Americas</b>	<b>60.4%</b>	<b>58.8%</b>	<b>-13.9%</b>	<b>-14.1%</b>
<b>Europe</b>				
Austria	0.2%	0.1%	-18.8%	-19.5%
Belgium	0.3%	0.3%	-20.2%	-16.5%
Czech Republic*	0.0%	0.0%	-8.6%	-9.0%
Denmark	0.7%	0.5%	-12.2%	-11.4%
Finland	0.3%	0.4%	-16.0%	-14.6%
France	2.4%	3.2%	-15.2%	-15.3%
Germany	2.2%	2.8%	-14.7%	-16.3%
Greece*	0.1%	0.0%	-9.5%	-14.1%
Hungary*	0.1%	0.0%	5.7%	5.7%
Ireland	0.2%	0.2%	-16.8%	-16.3%
Italy	1.0%	0.8%	-10.3%	-12.8%
Luxembourg	0.1%	0.0%	-23.9%	-13.3%
Netherlands	1.7%	1.0%	-11.2%	-11.7%
Norway	0.2%	0.3%	-18.8%	-20.1%
Poland*	0.1%	0.1%	-1.0%	-2.8%
Portugal	0.0%	0.1%	-14.7%	-13.4%
Russia*	0.4%	0.4%	-9.0%	-9.3%
Spain	1.2%	0.9%	-8.0%	-9.8%
Sweden	0.7%	1.0%	-10.0%	-14.1%
Switzerland	2.1%	2.4%	-12.0%	-10.0%
United Kingdom	5.1%	5.5%	-15.5%	-12.7%
<b>Total-Europe</b>	<b>19.0%</b>	<b>20.2%</b>	<b>-13.4%</b>	<b>-13.3%</b>

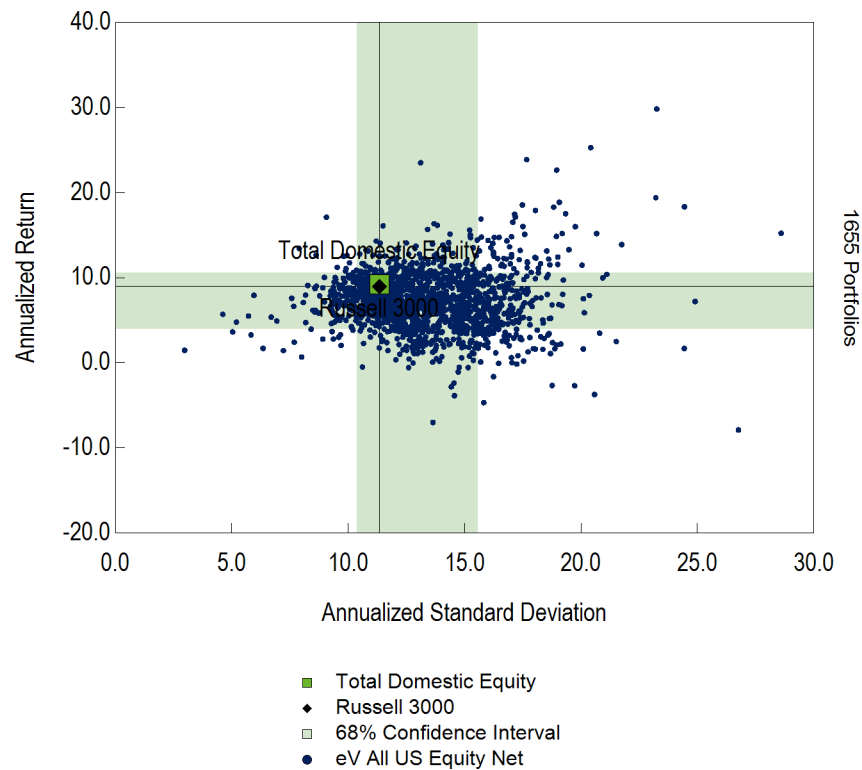
Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	1.5%	2.1%	-9.0%	-10.5%
China*	1.6%	3.1%	-11.0%	-10.6%
Hong Kong	3.3%	1.0%	-3.7%	-4.9%
India*	1.5%	1.0%	6.7%	3.3%
Indonesia*	0.4%	0.2%	11.9%	8.3%
Japan	6.2%	7.9%	-8.9%	-14.3%
Korea*	1.6%	1.7%	-15.8%	-14.2%
Malaysia*	0.4%	0.3%	-4.1%	-6.9%
New Zealand	0.0%	0.1%	-8.9%	-4.1%
Pakistan*	0.0%	0.0%	-6.9%	-20.9%
Philippines*	0.3%	0.1%	8.7%	5.4%
Singapore	0.8%	0.4%	-8.3%	-6.2%
Sri Lanka**	0.0%	0.0%	-4.3%	5.7%
Taiwan*	1.1%	1.4%	-15.2%	-12.9%
Thailand*	0.4%	0.3%	-3.2%	-11.9%
<b>Total-AsiaPacific</b>	<b>19.2%</b>	<b>19.7%</b>	<b>-3.8%</b>	<b>-11.2%</b>
<b>Other</b>				
Egypt*	0.0%	0.0%	-5.1%	-9.1%
Israel	0.1%	0.2%	-5.8%	-13.1%
Qatar*	0.0%	0.1%	7.4%	7.4%
South Africa*	0.7%	0.7%	1.4%	-3.7%
Turkey*	0.2%	0.1%	19.8%	3.5%
United Arab Emirates*	0.0%	0.1%	-0.3%	-6.0%
<b>Total-Other</b>	<b>1.0%</b>	<b>1.2%</b>	<b>6.1%</b>	<b>-4.3%</b>
<b>Totals</b>				
Developed	88.9%	89.2%	-0.4%	-13.9%
Emerging*	10.9%	10.8%	-3.1%	-7.5%
Frontier**	0.0%	0.0%	-4.3%	--
Cash	0.3%		0.2%	



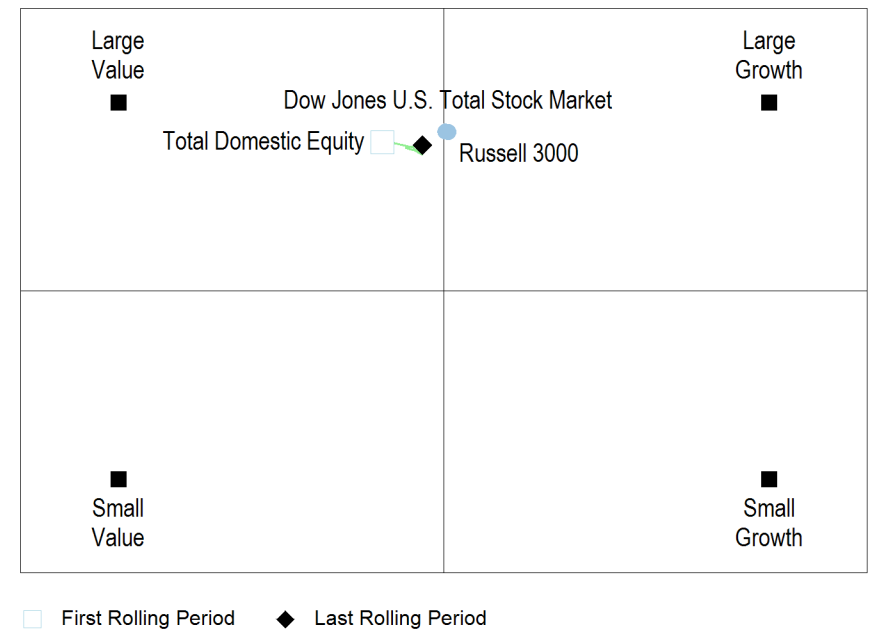


# TOTAL DOMESTIC EQUITY

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



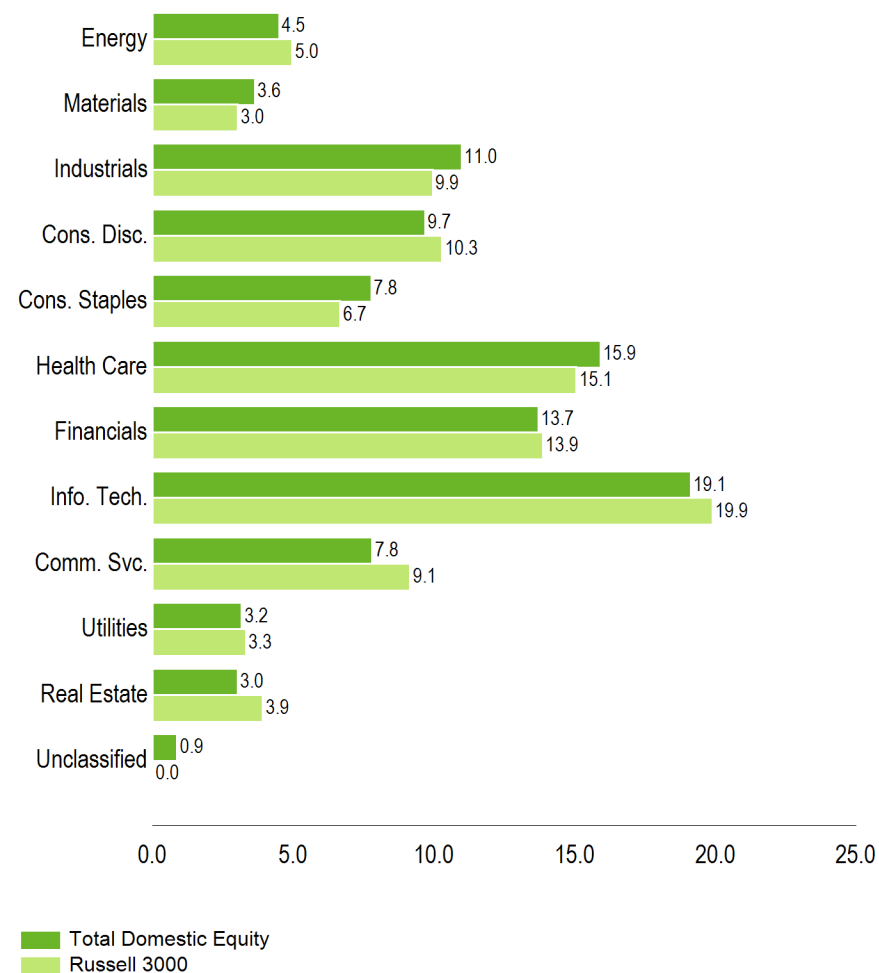
U.S. Effective Style Map  
3 Years Ending December 31, 2018



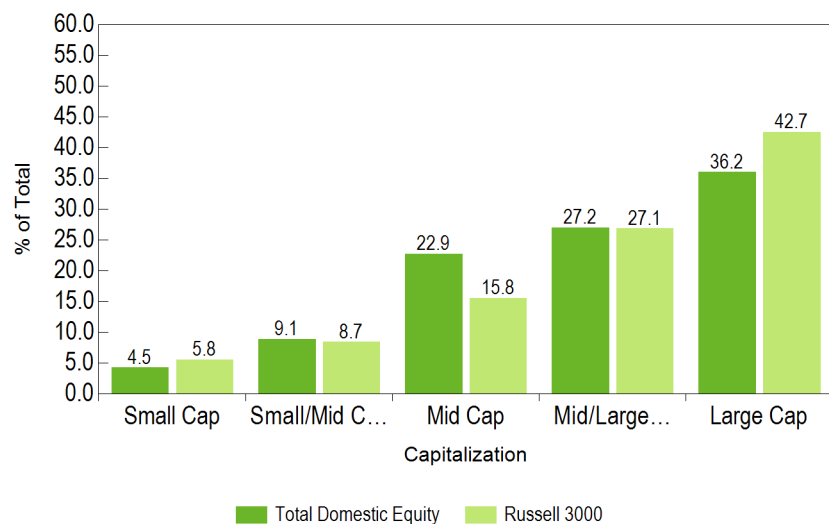
# TOTAL DOMESTIC EQUITY

Characteristics		
	Portfolio	Russell 3000
Number of Holdings	612	3,015
Weighted Avg. Market Cap. (\$B)	131.99	154.67
Median Market Cap. (\$B)	16.19	1.38
Price To Earnings	21.79	22.28
Price To Book	5.63	4.21
Price To Sales	4.20	4.07
Return on Equity (%)	21.83	21.02
Yield (%)	2.03	2.09
Beta	1.00	1.00
R-Squared	0.99	1.00

## Sector Allocation (%) vs Russell 3000



## Market Capitalization As of December 31, 2018



# TOTAL DOMESTIC EQUITY

Top Ten Holdings	
MICROSOFT	2.5%
APPLE	2.3%
AMAZON.COM	2.0%
BERKSHIRE HATHAWAY 'B'	1.3%
JOHNSON & JOHNSON	1.1%
JP MORGAN CHASE & CO.	1.1%
FACEBOOK CLASS A	1.0%
ALPHABET 'C'	1.0%
ALPHABET A	1.0%
EXXON MOBIL	0.9%

Top Positive Contributors		
	Relative Contribution %	Return %
APPLE	0.2%	-29.9%
AMAZON.COM	0.1%	-25.0%
RED HAT	0.1%	28.9%
MICROSOFT	0.1%	-10.8%
FACEBOOK CLASS A	0.0%	-20.3%
EXXON MOBIL	0.0%	-19.0%
ALPHABET A	0.0%	-13.4%
ALPHABET 'C'	0.0%	-13.2%
NVIDIA	0.0%	-52.4%
JP MORGAN CHASE & CO.	0.0%	-12.9%

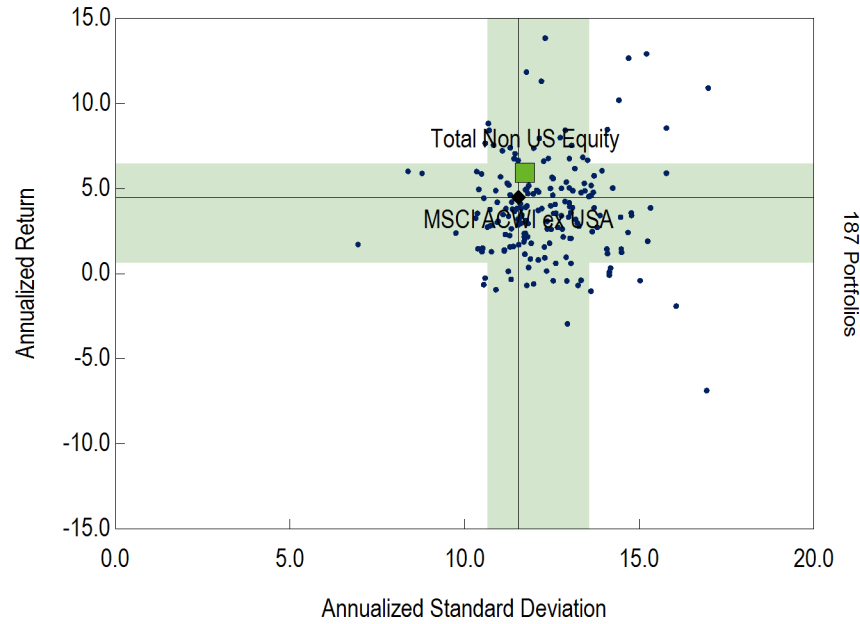
Top Negative Contributors		
	Relative Contribution %	Return %
INTEGRA LFSC.HDG.	-0.2%	-31.5%
BLACKBAUD	-0.1%	-37.9%
PURE STORAGE CL.A	-0.1%	-38.0%
WELBILT	-0.1%	-46.8%
NUVASIVE	-0.1%	-30.2%
JOHN BEAN TECHNOLOGIES	-0.1%	-39.7%
CATALENT	-0.1%	-31.5%
WILEY JOHN & SONS 'A'	-0.1%	-21.5%
AVANOS MEDICAL	-0.1%	-34.6%
SENSIENT TECHS.	-0.1%	-26.6%

	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%	0.1%	0.0%	-24.6%	-25.9%	4.9%	5.7%			
Materials	0.1%	0.1%	0.0%	0.0%	-13.8%	-15.6%	3.4%	2.7%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	-18.8%	-18.2%	11.6%	10.4%			
Consumer Discretionary	0.1%	0.1%	0.0%	0.0%	-15.1%	-16.4%	10.1%	10.6%			
Consumer Staples	0.2%	0.1%	0.1%	0.0%	-4.7%	-5.5%	7.2%	6.1%			
Health Care	-0.3%	-0.3%	0.1%	0.0%	-13.1%	-11.1%	16.2%	14.4%			
Financials	0.1%	0.1%	0.0%	0.0%	-12.6%	-13.5%	13.5%	13.9%			
Information Technology	0.2%	0.1%	0.0%	0.0%	-16.8%	-17.4%	19.6%	20.9%			
Communication Services	0.0%	0.0%	0.0%	0.0%	-13.7%	-13.3%	7.9%	9.0%			
Utilities	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	2.8%	2.8%			
Real Estate	0.0%	0.1%	-0.1%	0.0%	-4.2%	-6.4%	2.8%	3.6%			
Cash	0.0%	0.0%	0.0%	0.0%	0.5%	--	0.0%	0.0%			
<b>Portfolio</b>	<b>0.4%</b>	<b>=</b>	<b>0.3%</b>	<b>+</b>	<b>0.2%</b>	<b>+</b>	<b>-0.1%</b>	<b>-14.0%</b>	<b>-14.4%</b>	<b>100.0%</b>	<b>100.0%</b>

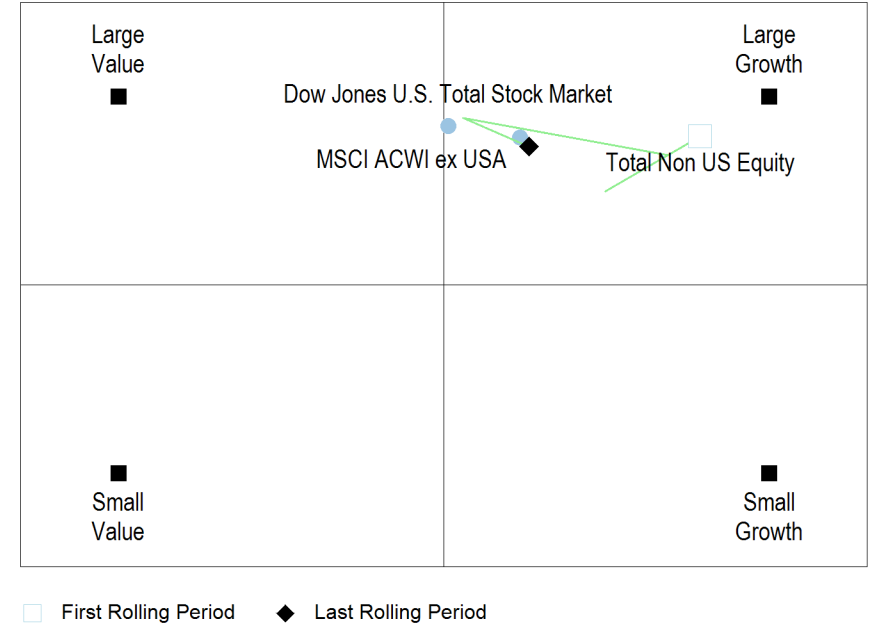


# TOTAL NON US EQUITY

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



U.S. Effective Style Map  
3 Years Ending December 31, 2018

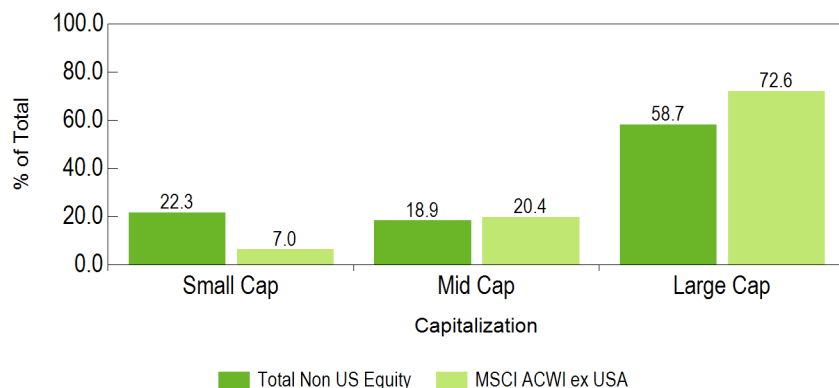


# TOTAL NON US EQUITY

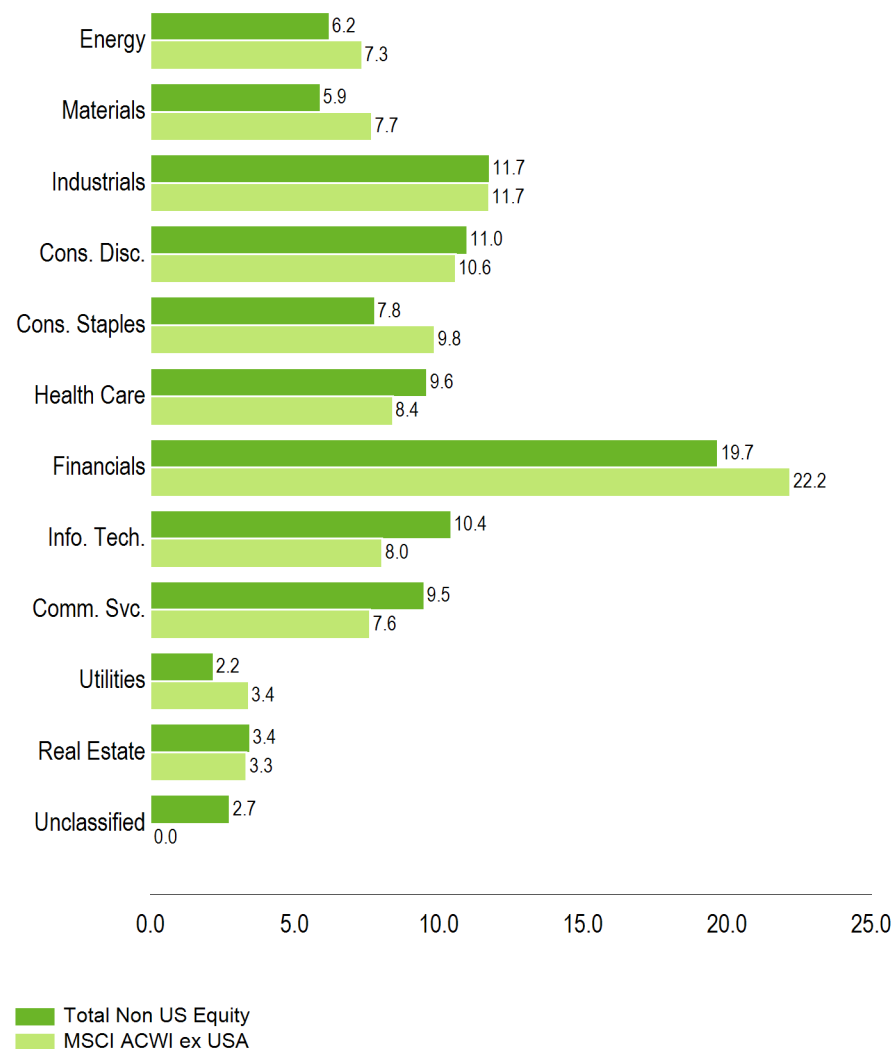
Characteristics		
	Portfolio	MSCI ACWI ex USA
Number of Holdings	2,964	2,136
Weighted Avg. Market Cap. (\$B)	55.05	56.13
Median Market Cap. (\$B)	6.03	7.02
Price To Earnings	17.40	16.43
Price To Book	3.19	2.36
Price To Sales	3.20	2.42
Return on Equity (%)	18.14	15.47
Yield (%)	3.01	3.44

	Portfolio Q4-18	Index Q4-18
<b>Region Weighting</b>		
North America ex U.S.	3.29	6.46
United States	17.55	0.45
Europe Ex U.K.	23.63	31.22
United Kingdom	10.04	10.86
Pacific Basin Ex Japan	10.46	11.62
Japan	12.51	16.58
Emerging Markets	21.62	22.18
Other	0.90	0.62

## Market Capitalization As of December 31, 2018



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



# TOTAL NON US EQUITY

Top Ten Holdings	
CASH - USD	1.8%
TENCENT HOLDINGS	1.2%
IHS MARKIT	1.1%
SAMSUNG ELTN.PREF.	1.0%
TAIWAN SEMICON.MNFG.	0.9%
VISA 'A'	0.9%
BANK OF AMERICA	0.8%
ROYAL DUTCH SHELL A	0.6%
NOVARTIS 'R'	0.6%
BP	0.6%

Top Positive Contributors		
	Relative Contribution %	Return %
BNC.BRADESCO PF.SPN.ADR 1:1	0.1%	42.7%
SAMSUNG ELECTRONICS	0.1%	-17.2%
BRITISH AMERICAN TOBACCO	0.1%	-29.6%
ALIBABA GROUP HLDG.SPN. ADR 1:1	0.1%	-16.8%
TOTAL	0.1%	-17.5%
SOFTBANK GROUP	0.1%	-34.1%
ROYAL DUTCH SHELL A(LON)	0.1%	-13.2%
BNP PARIBAS	0.1%	-26.3%
AIRBUS	0.1%	-23.6%
LOJAS RENNER ON	0.1%	41.2%

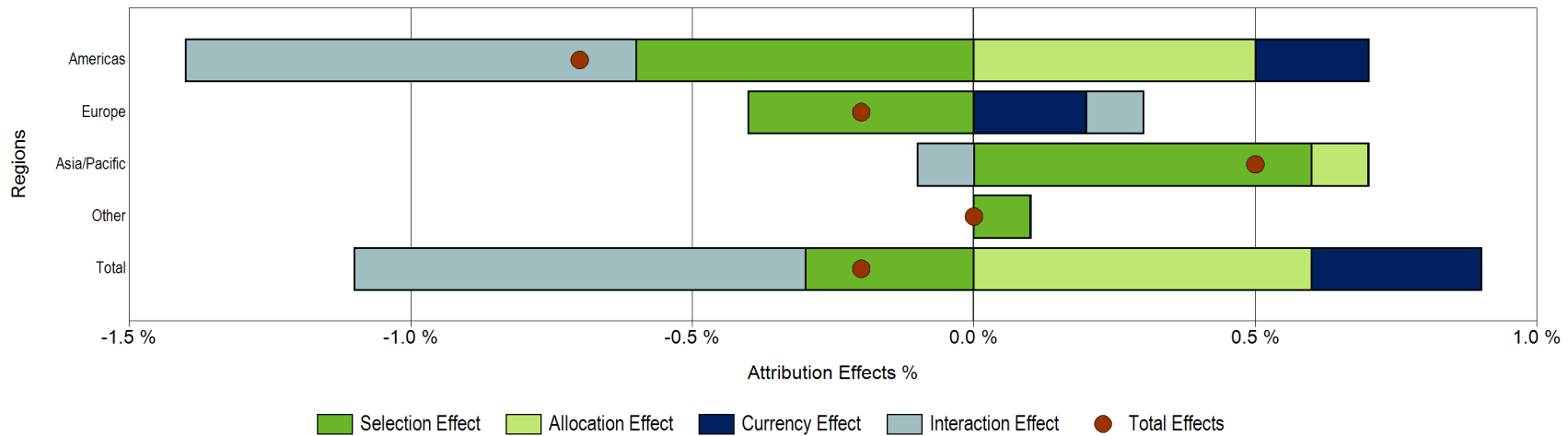
Top Negative Contributors		
	Relative Contribution %	Return %
FEVERTREE DRINKS	-0.2%	-40.5%
NOBLE ENERGY	-0.2%	-39.6%
SAMSUNG ELTN.PREF.	-0.2%	-16.6%
BANK OF AMERICA	-0.1%	-15.9%
VISA 'A'	-0.1%	-11.9%
IHS MARKIT	-0.1%	-11.1%
AMAZON.COM	-0.1%	-25.0%
ACTIVISION BLIZZARD	-0.1%	-44.0%
TEMENOS N	-0.1%	-26.6%
PIONEER NTRL.RES.	-0.1%	-24.5%

	Equity Sector Attribution										
	Total Effects	Selection Effect	Attribution Effects			Returns		Sector Weights			
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	-0.1%	0.0%	0.1%	-17.1%	-16.2%	7.2%	7.7%			
Materials	0.1%	0.0%	0.0%	0.0%	-13.9%	-13.9%	6.1%	7.9%			
Industrials	0.1%	0.1%	0.0%	0.0%	-12.8%	-13.5%	10.6%	12.0%			
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	-13.8%	-13.8%	12.0%	10.6%			
Consumer Staples	-0.2%	-0.3%	-0.1%	0.1%	-9.7%	-7.3%	8.1%	9.3%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	-11.4%	-10.8%	8.5%	8.5%			
Financials	0.2%	0.1%	0.0%	0.1%	-9.8%	-10.8%	20.5%	22.2%			
Information Technology	-0.2%	-0.1%	-0.2%	0.0%	-16.6%	-16.1%	11.6%	8.5%			
Communication Services	-0.1%	-0.1%	0.1%	0.0%	-9.7%	-8.3%	9.3%	7.4%			
Utilities	-0.1%	0.1%	-0.1%	0.0%	2.6%	0.5%	2.1%	3.0%			
Real Estate	0.1%	0.1%	0.0%	0.0%	-0.3%	-2.8%	2.9%	2.9%			
Cash	0.1%	0.0%	0.1%	0.0%	0.5%	--	0.5%	0.0%			
<b>Portfolio</b>	<b>-0.2%</b>	<b>=</b>	<b>-0.3%</b>	<b>+</b>	<b>-0.2%</b>	<b>+</b>	<b>0.3%</b>	<b>-11.7%</b>	<b>-11.5%</b>	<b>99.5%</b>	<b>100.0%</b>



# TOTAL NON US EQUITY

Total Non US Equity Performance Attribution vs. MSCI ACWI ex USA  
Quarter Ending December 31, 2018



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	-13.7%	-10.3%	22.4%	9.5%	-0.6%	0.5%	0.2%	-0.8%	-0.7%
Europe	-13.4%	-12.6%	37.3%	44.9%	-0.4%	0.0%	0.2%	0.1%	-0.2%
Asia/Pacific	-9.5%	-11.0%	37.9%	43.2%	0.6%	0.1%	0.0%	-0.1%	0.5%
Other	0.3%	-3.8%	2.0%	2.5%	0.1%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	0.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
<b>Total</b>	<b>-11.7%</b>	<b>-11.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-0.3%</b>	<b>0.6%</b>	<b>0.3%</b>	<b>-0.8%</b>	<b>-0.2%</b>
<b>Totals</b>									
Developed	-13.6%	-12.8%	78.0%	75.3%	-0.9%	0.0%	0.2%	0.0%	-0.7%
Emerging*	-4.8%	-7.5%	21.5%	24.7%	0.5%	-0.1%	0.1%	-0.1%	0.5%
Frontier**	-14.9%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	0.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%



# TOTAL NON US EQUITY

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	2.1%	1.5%	15.9%	13.6%
Canada	3.2%	6.6%	-15.3%	-14.9%
Chile*	0.4%	0.3%	-8.0%	-8.3%
Colombia*	0.1%	0.1%	-15.3%	-18.9%
Mexico*	1.2%	0.8%	-22.0%	-18.7%
Peru*	0.0%	0.1%	2.4%	-2.9%
United States	15.4%	0.0%	-17.0%	-13.8%
<b>Total-Americas</b>	<b>22.4%</b>	<b>9.5%</b>	<b>-13.7%</b>	<b>-10.3%</b>
<b>Europe</b>				
Austria	0.3%	0.2%	-18.8%	-21.9%
Belgium	0.6%	0.7%	-20.2%	-18.3%
Czech Republic*	0.0%	0.0%	-8.6%	-8.6%
Denmark	1.4%	1.2%	-12.2%	-9.7%
Finland	0.6%	0.7%	-16.0%	-14.6%
France	4.7%	7.7%	-15.0%	-14.9%
Germany	4.2%	6.3%	-14.7%	-16.0%
Greece*	0.2%	0.1%	-9.5%	-15.2%
Hungary*	0.1%	0.1%	5.7%	5.8%
Ireland	0.4%	0.4%	-16.8%	-18.1%
Italy	1.9%	1.6%	-10.3%	-11.6%
Luxembourg	0.1%	0.0%	-23.9%	-11.5%
Netherlands	3.3%	2.3%	-11.2%	-11.0%
Norway	0.4%	0.5%	-18.8%	-17.8%
Poland*	0.2%	0.3%	-1.0%	-2.7%
Portugal	0.1%	0.1%	-14.7%	-14.2%
Russia*	0.8%	0.9%	-9.0%	-9.2%
Spain	2.4%	2.1%	-8.0%	-8.7%
Sweden	1.3%	1.9%	-10.0%	-14.1%
Switzerland	4.2%	5.7%	-12.0%	-9.0%
United Kingdom	10.0%	12.0%	-15.5%	-11.8%
<b>Total-Europe</b>	<b>37.3%</b>	<b>44.9%</b>	<b>-13.4%</b>	<b>-12.6%</b>

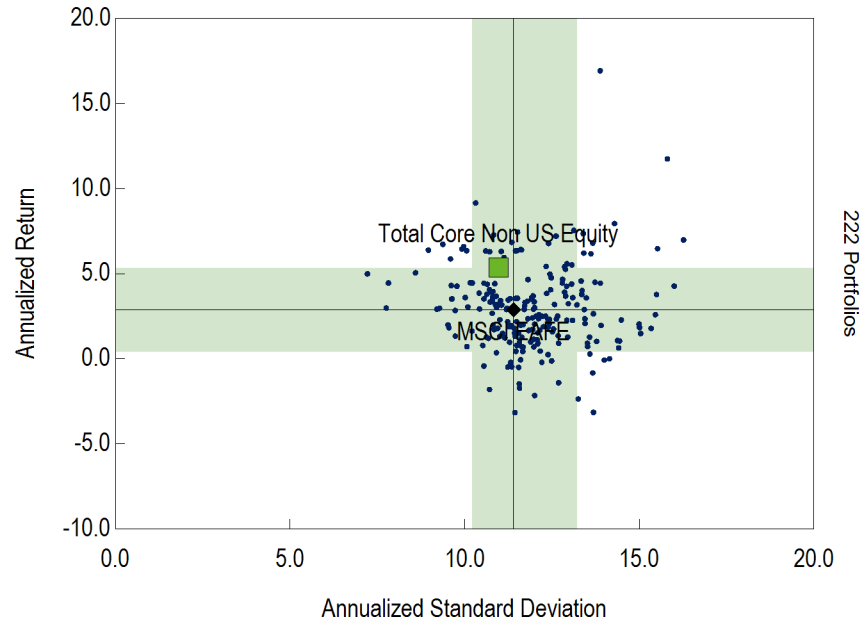
Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	3.0%	4.6%	-9.0%	-9.8%
China*	3.2%	7.6%	-11.0%	-10.6%
Hong Kong	6.5%	2.4%	-3.7%	-4.5%
India*	3.0%	2.1%	6.7%	2.6%
Indonesia*	0.8%	0.5%	11.9%	9.8%
Japan	12.2%	16.7%	-8.9%	-14.2%
Korea*	3.2%	3.7%	-15.8%	-14.2%
Malaysia*	0.7%	0.6%	-4.1%	-5.8%
New Zealand	0.1%	0.1%	-8.9%	-6.4%
Pakistan*	0.0%	0.0%	-6.9%	-22.9%
Philippines*	0.7%	0.2%	8.7%	5.2%
Singapore	1.5%	0.9%	-8.3%	-6.7%
Sri Lanka**	0.0%	0.0%	-4.3%	5.7%
Taiwan*	2.1%	3.0%	-15.2%	-13.6%
Thailand*	0.9%	0.6%	-3.2%	-10.3%
<b>Total-AsiaPacific</b>	<b>37.8%</b>	<b>43.0%</b>	<b>-3.8%</b>	<b>-11.0%</b>
<b>Other</b>				
Egypt*	0.0%	0.0%	-5.1%	-8.7%
Israel	0.2%	0.4%	-5.8%	-14.7%
Qatar*	0.1%	0.2%	7.4%	8.5%
South Africa*	1.3%	1.5%	1.4%	-3.5%
Turkey*	0.3%	0.2%	19.8%	4.9%
United Arab Emirates*	0.1%	0.2%	-0.3%	-6.0%
<b>Total-Other</b>	<b>2.0%</b>	<b>2.5%</b>	<b>6.1%</b>	<b>-3.7%</b>
<b>Totals</b>				
Developed	78.1%	75.4%	-1.2%	-12.7%
Emerging*	21.4%	24.6%	-3.1%	-7.5%
Frontier**	0.0%	0.0%	-4.3%	--
Cash	0.5%		0.2%	





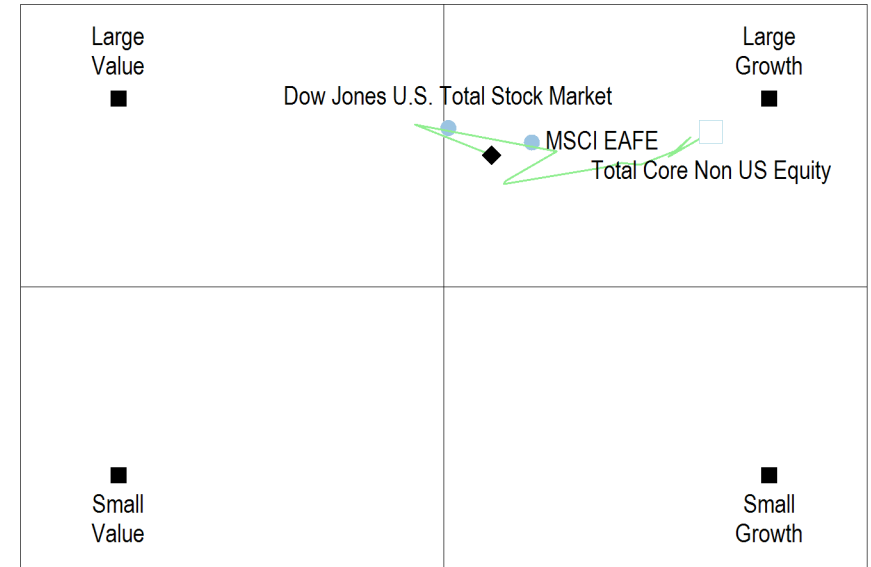
# TOTAL CORE NON US EQUITY

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



- Total Core Non US Equity
- ◆ MSCI EAFE
- 68% Confidence Interval
- eV All EAFE Equity Net

U.S. Effective Style Map  
3 Years Ending December 31, 2018



- First Rolling Period
- ◆ Last Rolling Period

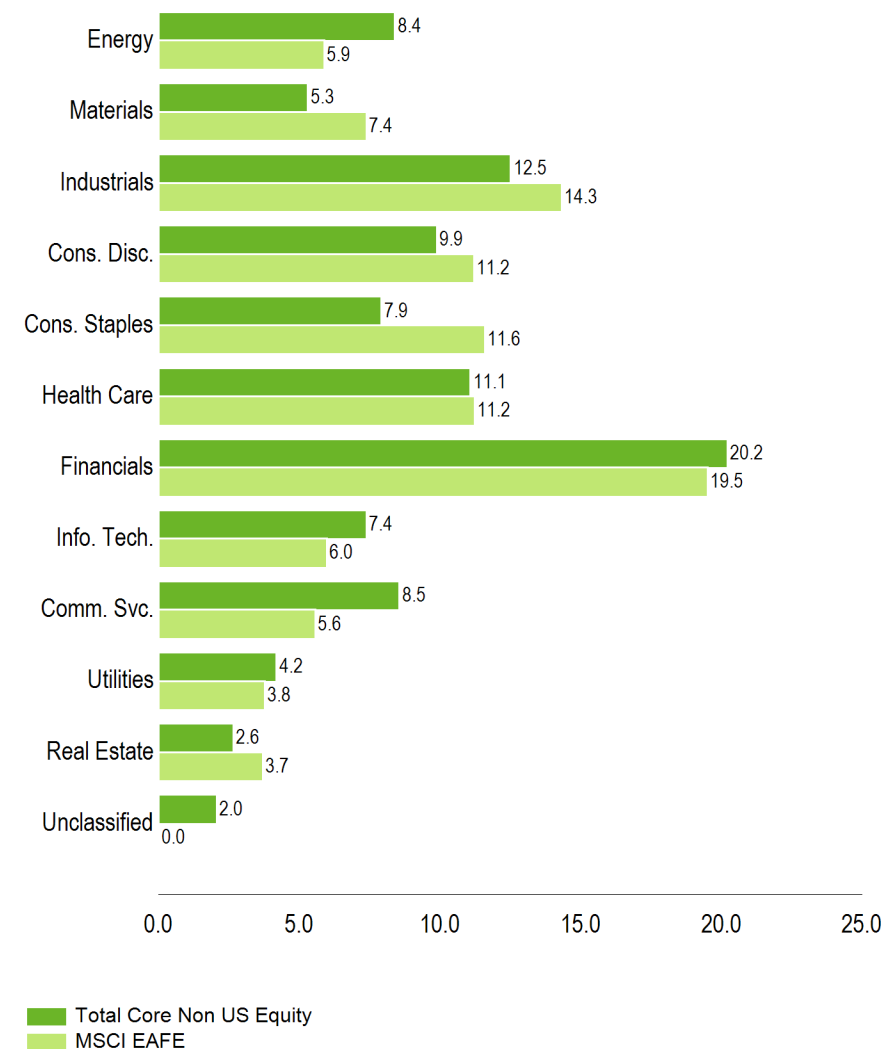


# TOTAL CORE NON US EQUITY

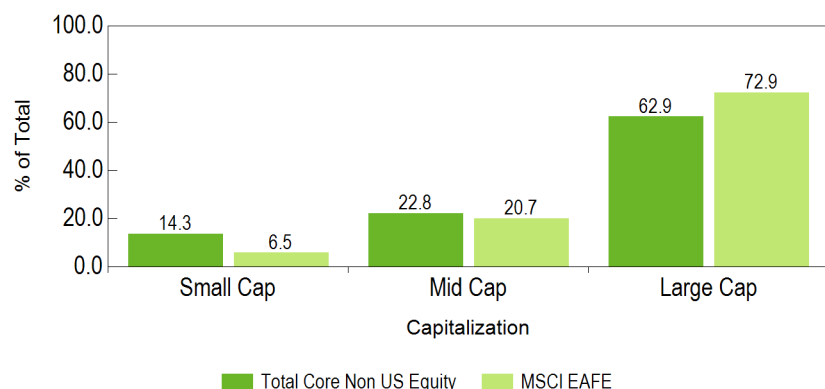
Characteristics		
	Portfolio	MSCI EAFE
Number of Holdings	2,493	920
Weighted Avg. Market Cap. (\$B)	48.61	52.55
Median Market Cap. (\$B)	6.29	9.12
Price To Earnings	14.83	16.68
Price To Book	2.47	2.30
Price To Sales	2.33	2.36
Return on Equity (%)	16.05	14.66
Yield (%)	3.69	3.63

	Portfolio Q4-18	Index Q4-18
Region Weighting		
North America ex U.S.	4.42	--
United States	1.69	0.49
Europe Ex U.K.	36.82	46.14
United Kingdom	12.73	16.01
Pacific Basin Ex Japan	11.78	12.37
Japan	18.32	24.56
Emerging Markets	13.51	--
Other	0.72	0.43

## Sector Allocation (%) vs MSCI EAFE



## Market Capitalization As of December 31, 2018



# TOTAL CORE NON US EQUITY

Top Ten Holdings	
ROYAL DUTCH SHELL A	1.3%
BP	1.1%
NOVARTIS 'R'	1.1%
CASH - USD	1.0%
ENEL	1.0%
SANOFI	1.0%
ROCHE HOLDING	1.0%
GLAXOSMITHKLINE	0.9%
IBERDROLA	0.9%
KONINKLIJKE AHOLD DELHAIZE	0.9%

Top Positive Contributors		
	Relative Contribution %	Return %
BRITISH AMERICAN TOBACCO	0.1%	-29.6%
TOTAL	0.1%	-17.5%
SOFTBANK GROUP	0.1%	-34.1%
ROYAL DUTCH SHELL A(LON)	0.1%	-13.2%
BNP PARIBAS	0.1%	-26.3%
AIRBUS	0.1%	-23.6%
LVMH	0.1%	-15.9%
ANHEUSER-BUSCH INBEV	0.1%	-23.9%
MITSUBISHI UFJ FINL.GP.	0.1%	-21.5%
SONY	0.1%	-20.8%

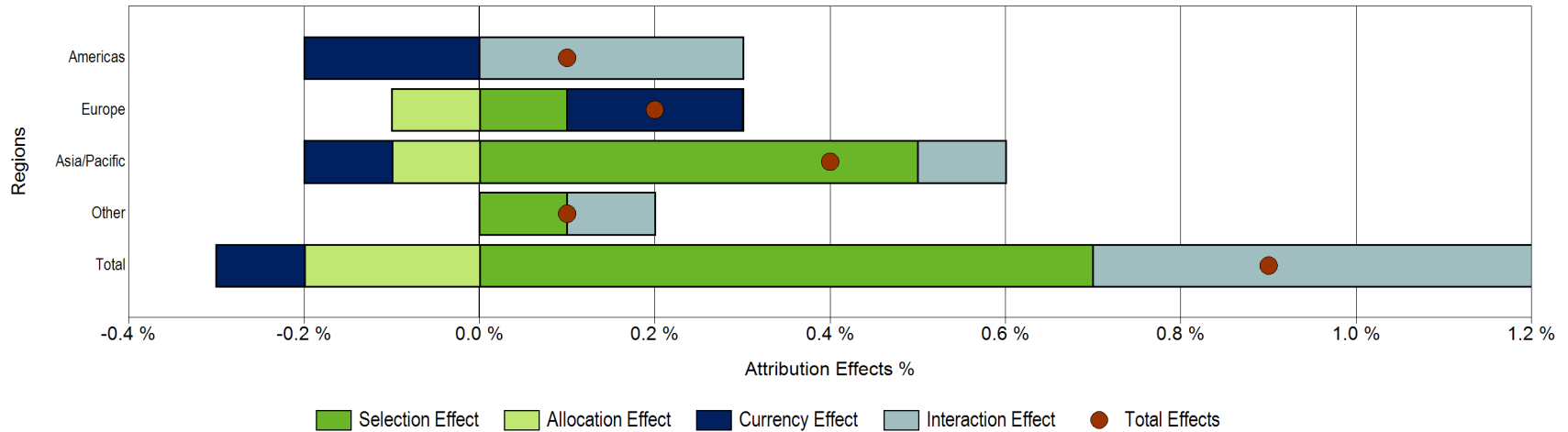
Top Negative Contributors		
	Relative Contribution %	Return %
ROYAL DUTCH SHELL A	-0.2%	-13.3%
WOOD GROUP (JOHN)	-0.2%	-35.9%
DAIMLER	-0.1%	-17.2%
CK HUTCHISON (HSC) HOLDINGS	-0.1%	-15.9%
ROYAL BANK OF CANADA	-0.1%	-13.7%
SAMSUNG ELECTRONICS	-0.1%	-17.2%
TESCO	-0.1%	-22.0%
EVONIK INDUSTRIES	-0.1%	-29.9%
ALIBABA GROUP HLDG.SP.N. ADR 1:1	-0.1%	-16.8%
ALLIANZ	-0.1%	-9.9%

	Equity Sector Attribution						Returns		Sector Weights		
	Total Effects	Selection Effect	Attribution Effects		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark		
			Allocation Effect								
Energy	-0.1%	0.0%	-0.1%		0.0%	-16.5%	-17.3%	9.1%	6.2%		
Materials	0.0%	0.0%	0.0%		0.0%	-16.2%	-16.0%	6.1%	7.8%		
Industrials	0.2%	0.2%	0.1%		-0.1%	-13.4%	-14.6%	12.0%	14.6%		
Consumer Discretionary	0.0%	-0.1%	0.0%		0.0%	-15.2%	-14.6%	10.7%	11.3%		
Consumer Staples	0.0%	0.2%	-0.2%		0.0%	-6.6%	-8.2%	7.6%	10.9%		
Health Care	-0.2%	-0.3%	0.0%		0.0%	-12.2%	-10.1%	10.8%	11.2%		
Financials	0.5%	0.6%	0.0%		0.0%	-11.1%	-13.7%	20.4%	20.0%		
Information Technology	-0.1%	0.0%	-0.1%		0.0%	-16.7%	-16.6%	8.1%	6.2%		
Communication Services	0.3%	0.2%	0.1%		0.1%	-6.3%	-9.7%	7.9%	5.4%		
Utilities	0.1%	0.1%	0.0%		0.0%	2.9%	0.0%	3.6%	3.3%		
Real Estate	0.0%	0.1%	0.0%		0.0%	-1.4%	-4.2%	2.7%	3.2%		
Cash	0.0%	0.0%	0.0%		0.0%	0.5%	--	0.1%	0.0%		
<b>Portfolio</b>	<b>0.9%</b>	<b>=</b>	<b>1.1%</b>	<b>+</b>	<b>-0.1%</b>	<b>+</b>	<b>-0.1%</b>	<b>-11.7%</b>	<b>-12.5%</b>	<b>99.1%</b>	<b>100.0%</b>



# TOTAL CORE NON US EQUITY

Total Core Non US Equity Performance Attribution vs. MSCI EAFE  
Quarter Ending December 31, 2018



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	-11.2%	--	7.2%	0.0%	0.0%	0.0%	-0.2%	0.3%	0.1%
Europe	-12.5%	-12.8%	50.9%	63.3%	0.1%	-0.1%	0.2%	0.0%	0.2%
Asia/Pacific	-11.1%	-12.1%	40.1%	36.1%	0.5%	-0.1%	-0.1%	0.1%	0.4%
Other	-4.0%	-14.8%	1.7%	0.5%	0.1%	0.0%	0.0%	0.1%	0.1%
Cash	0.5%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-11.7%</b>	<b>-12.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.7%</b>	<b>-0.2%</b>	<b>-0.1%</b>	<b>0.5%</b>	<b>0.9%</b>
<b>Totals</b>									
Developed	-12.3%	-12.5%	85.7%	100.0%	0.5%	0.0%	-0.2%	-0.1%	0.2%
Emerging*	-7.8%	--	14.2%	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%
Cash	0.5%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



# TOTAL CORE NON US EQUITY

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	1.0%	0.0%	13.0%	13.4%
Canada	5.0%	0.0%	-15.3%	-15.3%
Chile*	0.2%	0.0%	-8.3%	-8.7%
Colombia*	0.1%	0.0%	-18.9%	-19.0%
Mexico*	0.6%	0.0%	-17.6%	-18.8%
Peru*	0.1%	0.0%	2.4%	-2.9%
United States	0.3%	0.0%	-14.8%	-13.8%
<b>Total-Americas</b>	<b>7.2%</b>	<b>0.0%</b>	<b>-11.2%</b>	<b>--</b>
<b>Europe</b>				
Austria	0.6%	0.2%	-18.7%	-21.9%
Belgium	0.7%	1.0%	-16.4%	-18.3%
Czech Republic*	0.0%	0.0%	-8.6%	-8.7%
Denmark	1.6%	1.7%	-17.4%	-9.7%
Finland	1.0%	1.1%	-15.5%	-14.6%
France	7.2%	11.2%	-15.8%	-14.9%
Germany	6.5%	9.2%	-14.5%	-16.0%
Greece*	0.1%	0.0%	-10.7%	-16.0%
Hungary*	0.0%	0.0%	5.9%	5.9%
Ireland	0.6%	0.5%	-16.3%	-18.1%
Italy	2.8%	2.4%	-8.1%	-11.6%
Luxembourg	0.1%	0.0%	-14.2%	-12.5%
Netherlands	4.7%	3.4%	-10.0%	-11.0%
Norway	0.5%	0.8%	-16.8%	-17.8%
Poland*	0.2%	0.0%	-2.6%	-3.0%
Portugal	0.1%	0.2%	-14.7%	-14.2%
Russia*	0.1%	0.0%	-6.7%	-9.0%
Spain	3.2%	3.0%	-3.4%	-8.7%
Sweden	2.2%	2.8%	-9.7%	-14.1%
Switzerland	5.7%	8.3%	-8.6%	-9.0%
United Kingdom	13.2%	17.5%	-14.5%	-11.8%
<b>Total-Europe</b>	<b>50.9%</b>	<b>63.3%</b>	<b>-12.5%</b>	<b>-12.8%</b>

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	4.6%	6.7%	-8.0%	-9.8%
China*	2.7%	0.0%	-9.8%	-11.5%
Hong Kong	4.8%	3.5%	-11.0%	-4.5%
India*	1.3%	0.0%	-7.0%	-7.0%
Indonesia*	0.3%	0.0%	-3.1%	-3.1%
Japan	17.9%	24.2%	-7.9%	-14.2%
Korea*	2.8%	0.0%	-13.3%	-14.3%
Malaysia*	0.6%	0.0%	-5.2%	-6.4%
New Zealand	0.1%	0.2%	-8.9%	-6.4%
Pakistan*	0.0%	0.0%	-6.9%	-7.0%
Philippines*	0.1%	0.0%	-1.0%	-1.0%
Singapore	2.2%	1.3%	-8.4%	-6.7%
Taiwan*	2.3%	0.0%	-12.7%	-11.8%
Thailand*	0.4%	0.0%	-6.3%	-7.3%
<b>Total-AsiaPacific</b>	<b>40.0%</b>	<b>35.9%</b>	<b>-8.9%</b>	<b>-12.1%</b>
<b>Other</b>				
Egypt*	0.0%	0.0%	-5.1%	-5.9%
Israel	0.3%	0.5%	-5.8%	-14.7%
Qatar*	0.1%	0.0%	7.4%	7.4%
South Africa*	1.0%	0.0%	-10.8%	-10.9%
Turkey*	0.1%	0.0%	-2.5%	-2.3%
United Arab Emirates*	0.1%	0.0%	-0.3%	-0.4%
<b>Total-Other</b>	<b>1.7%</b>	<b>0.5%</b>	<b>-7.1%</b>	<b>-14.7%</b>
<b>Totals</b>				
Developed	85.8%	100.0%	-7.8%	-12.5%
Emerging*	14.1%	0.0%	-8.1%	--
Cash	0.1%		0.2%	

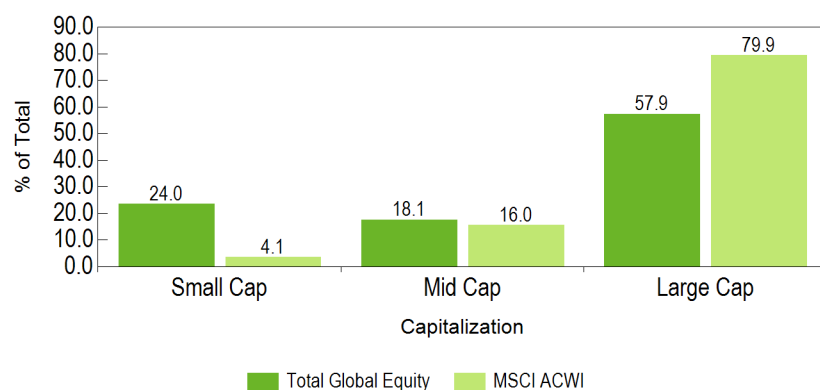


# TOTAL GLOBAL EQUITY

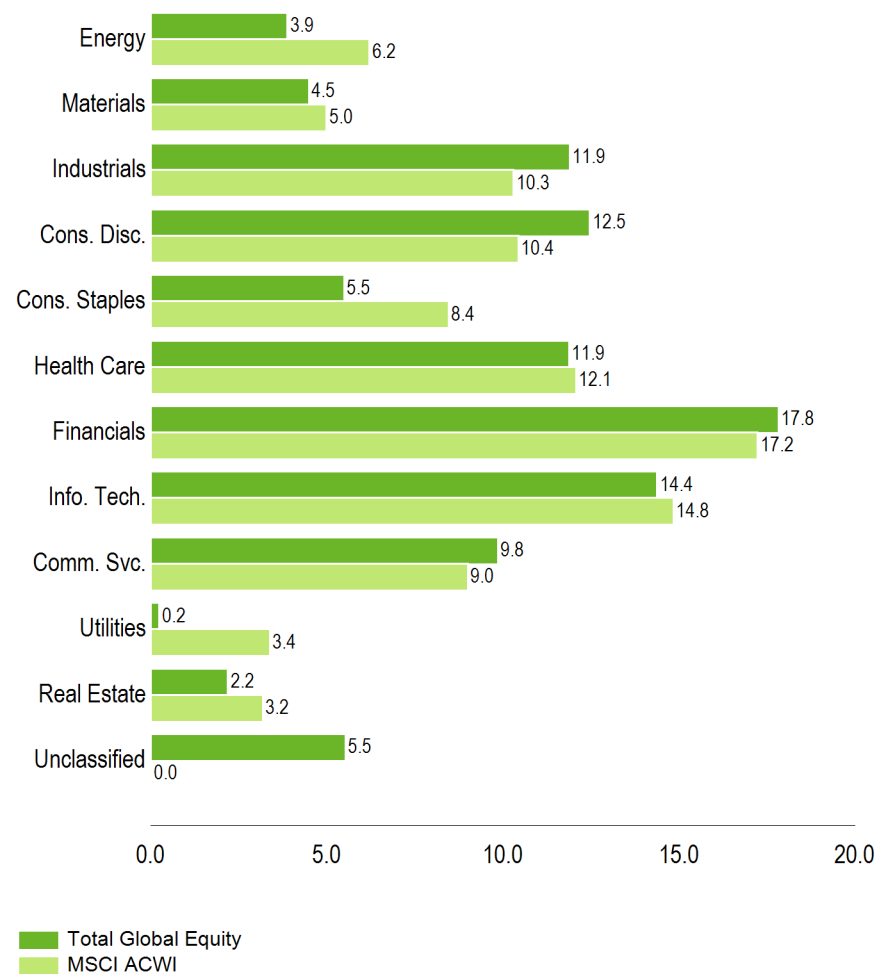
Characteristics		
	Portfolio	MSCI ACWI
Number of Holdings	530	2,758
Weighted Avg. Market Cap. (\$B)	74.96	120.64
Median Market Cap. (\$B)	7.51	8.52
Price To Earnings	20.32	18.55
Price To Book	4.17	3.40
Price To Sales	4.05	3.22
Return on Equity (%)	19.00	18.75
Yield (%)	1.93	2.76

	Portfolio Q4-18	Index Q4-18
<b>Region Weighting</b>		
North America ex U.S.	1.11	3.00
United States	55.25	54.23
Europe Ex U.K.	10.24	14.50
United Kingdom	8.71	4.96
Pacific Basin Ex Japan	6.47	5.31
Japan	4.68	7.58
Emerging Markets	12.17	10.13
Other	1.37	0.28

## Market Capitalization As of December 31, 2018



## Sector Allocation (%) vs MSCI ACWI



# TOTAL GLOBAL EQUITY

Top Ten Holdings	
CASH - USD	4.3%
IHS MARKIT	3.6%
VISA 'A'	2.9%
BANK OF AMERICA	2.7%
TECHTRONIC INDS.	1.9%
ANTHEM	1.8%
BOSTON SCIENTIFIC	1.8%
AMAZON.COM	1.8%
ASTRAZENECA SPN.ADR.2:1	1.7%
ALPHABET A	1.5%

Top Positive Contributors		
	Relative Contribution %	Return %
MICROSOFT	0.1%	-10.8%
HDFC BANK ADR 1:3	0.1%	10.1%
BELMOND 'A'	0.1%	37.2%
JP MORGAN CHASE & CO.	0.1%	-12.9%
ALIBABA GROUP HLDG.SPN. ADR 1:1	0.1%	-16.8%
GENMAB	0.0%	4.0%
ROYAL DUTCH SHELL A(LON)	0.0%	-13.2%
JARDINE MATHESON HDG.	0.0%	10.9%
SIBANYE GOLD	0.0%	15.0%
CREE	0.0%	13.0%

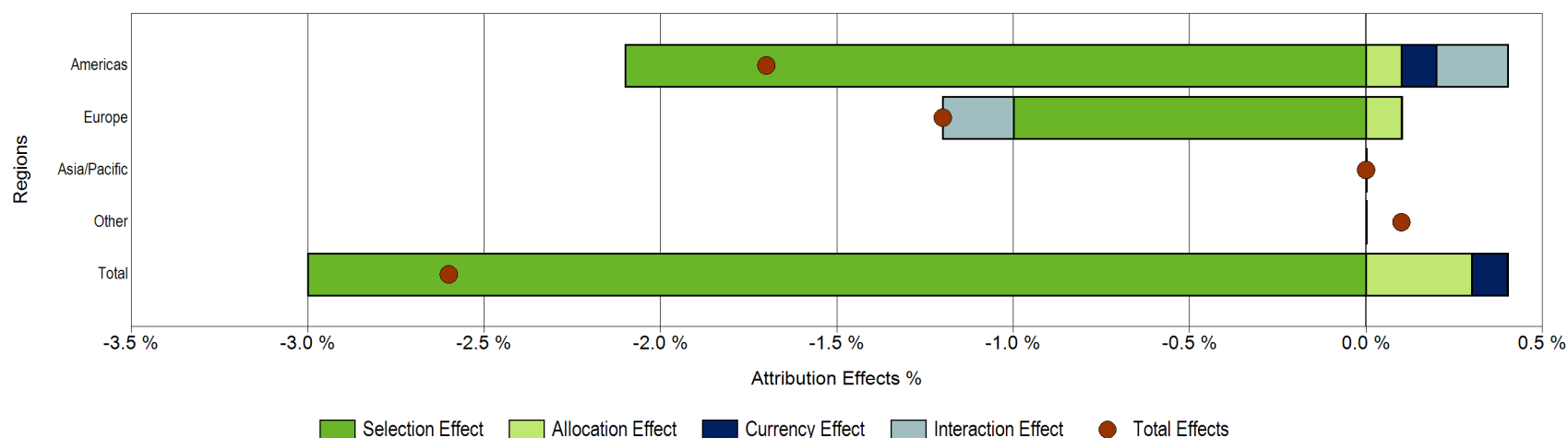
Top Negative Contributors		
	Relative Contribution %	Return %
FEVERTREE DRINKS	-0.5%	-40.5%
NOBLE ENERGY	-0.5%	-39.6%
TEMENOS N	-0.4%	-26.6%
IHS MARKIT	-0.4%	-11.1%
VISA 'A'	-0.4%	-11.9%
BANK OF AMERICA	-0.4%	-15.9%
PIONEER NTRL.RES.	-0.4%	-24.5%
NINTENDO	-0.4%	-26.9%
APTIV	-0.3%	-26.4%
AMADEUS IT GROUP	-0.3%	-25.2%

Equity Sector Attribution											
	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.4%	0.1%	0.1%	-25.8%	-19.9%	5.3%	6.7%			
Materials	0.0%	0.0%	0.0%	0.0%	-14.3%	-13.9%	4.5%	4.9%			
Industrials	0.5%	0.5%	0.0%	0.0%	-10.8%	-15.5%	11.0%	10.7%			
Consumer Discretionary	-0.5%	-0.2%	-0.1%	-0.1%	-17.3%	-14.9%	15.4%	10.6%			
Consumer Staples	-1.0%	-1.1%	-0.1%	0.2%	-19.5%	-6.3%	6.8%	7.8%			
Health Care	-0.1%	0.1%	-0.1%	0.0%	-9.0%	-9.6%	7.3%	11.6%			
Financials	-0.5%	-0.5%	0.0%	0.0%	-14.4%	-11.9%	18.8%	17.3%			
Information Technology	0.0%	0.0%	0.0%	0.0%	-17.1%	-17.2%	16.7%	15.7%			
Communication Services	-0.6%	-0.5%	0.0%	-0.1%	-17.1%	-11.5%	10.2%	8.9%			
Utilities	-0.4%	-0.3%	-0.4%	0.3%	-9.1%	0.9%	0.2%	2.9%			
Real Estate	-0.1%	-0.1%	0.0%	0.0%	-7.7%	-3.5%	2.3%	2.8%			
Cash	0.2%	0.0%	0.2%	0.0%	0.5%	--	1.4%	0.0%			
<b>Portfolio</b>	<b>-2.6%</b>	<b>=</b>	<b>-2.5%</b>	<b>+</b>	<b>-0.5%</b>	<b>+</b>	<b>0.3%</b>	<b>-15.4%</b>	<b>-12.7%</b>	<b>100.0%</b>	<b>100.0%</b>



# TOTAL GLOBAL EQUITY

Total Global Equity Performance Attribution vs. MSCI ACWI  
Quarter Ending December 31, 2018



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	-16.9%	-13.5%	52.0%	59.2%	-2.1%	0.1%	0.1%	0.2%	-1.7%
Europe	-17.5%	-12.6%	24.8%	20.2%	-1.0%	0.1%	0.0%	-0.2%	-1.2%
Asia/Pacific	-11.2%	-11.0%	20.5%	19.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	3.0%	-3.8%	1.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Cash	0.5%	--	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%
<b>Total</b>	<b>-15.4%</b>	<b>-12.7%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-3.0%</b>	<b>0.3%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>-2.6%</b>
<b>Totals</b>									
Developed	-16.8%	-13.4%	88.1%	88.9%	-3.1%	0.0%	0.0%	0.0%	-3.0%
Emerging*	-4.9%	-7.5%	10.4%	11.1%	0.3%	0.0%	0.0%	0.0%	0.2%
Frontier**	-14.9%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%





# TOTAL GLOBAL EQUITY

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	0.6%	0.7%	11.2%	14.5%
Canada	1.1%	3.0%	-15.2%	-15.4%
Colombia*	0.1%	0.0%	-7.5%	-19.6%
Mexico*	0.5%	0.3%	-22.7%	-19.0%
United States	49.8%	54.6%	-17.2%	-14.4%
<b>Total-Americas</b>	<b>52.0%</b>	<b>58.8%</b>	<b>-16.9%</b>	<b>-14.1%</b>
<b>Europe</b>				
Austria	0.1%	0.1%	-20.1%	-19.5%
Belgium	0.7%	0.3%	-26.6%	-16.5%
Denmark	1.5%	0.5%	-2.1%	-11.4%
Finland	0.1%	0.4%	-25.0%	-14.6%
France	1.8%	3.2%	-9.3%	-15.3%
Germany	1.6%	2.8%	-16.7%	-16.3%
Greece*	0.4%	0.0%	-8.9%	-14.1%
Hungary*	0.1%	0.0%	8.6%	5.7%
Ireland	0.3%	0.2%	-18.4%	-16.3%
Italy	1.2%	0.8%	-19.9%	-12.8%
Luxembourg	0.2%	0.0%	-34.5%	-13.3%
Netherlands	2.1%	1.0%	-16.6%	-11.7%
Norway	0.1%	0.3%	-33.6%	-20.1%
Russia*	1.2%	0.4%	-12.0%	-9.3%
Spain	2.0%	0.9%	-21.6%	-9.8%
Sweden	0.3%	1.0%	-14.8%	-14.1%
Switzerland	3.2%	2.4%	-23.2%	-10.0%
United Kingdom	7.9%	5.5%	-19.0%	-12.7%
<b>Total-Europe</b>	<b>24.8%</b>	<b>20.2%</b>	<b>-17.5%</b>	<b>-13.3%</b>

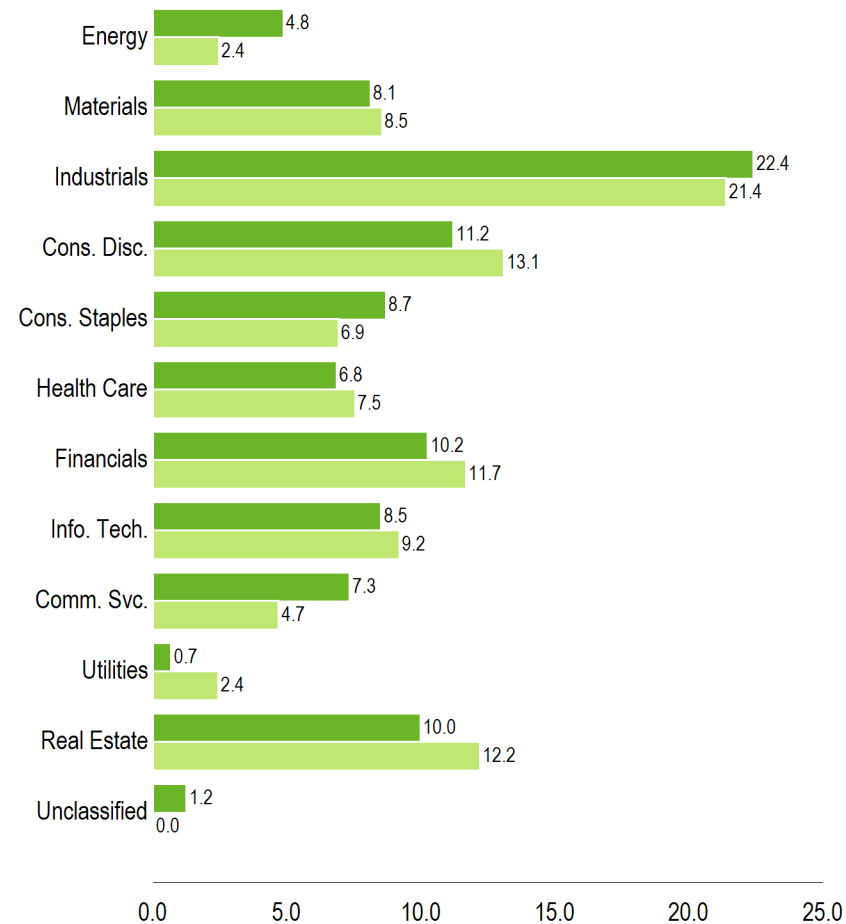
Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
Australia	1.4%	2.1%	-15.1%	-10.5%
China*	0.9%	3.1%	-12.5%	-10.6%
Hong Kong	5.6%	1.0%	-18.1%	-4.9%
India*	1.7%	1.0%	-1.7%	3.3%
Indonesia*	0.0%	0.2%	-22.5%	8.3%
Japan	6.2%	7.9%	-14.3%	-14.3%
Korea*	1.2%	1.7%	-9.0%	-14.2%
Malaysia*	0.7%	0.3%	-9.9%	-6.9%
Philippines*	0.5%	0.1%	2.6%	5.4%
Singapore	0.8%	0.4%	-7.8%	-6.2%
Sri Lanka**	0.1%	0.0%	-4.3%	5.7%
Taiwan*	0.5%	1.4%	-14.3%	-12.9%
Thailand*	0.9%	0.3%	-4.0%	-11.9%
<b>Total-AsiaPacific</b>	<b>20.4%</b>	<b>19.7%</b>	<b>-12.7%</b>	<b>-11.2%</b>
<b>Other</b>				
South Africa*	1.0%	0.7%	-3.9%	-3.7%
Turkey*	0.4%	0.1%	2.9%	3.5%
<b>Total-Other</b>	<b>1.4%</b>	<b>1.2%</b>	<b>-1.9%</b>	<b>-4.3%</b>
<b>Totals</b>				
Developed	88.1%	89.2%	-10.4%	-13.9%
Emerging*	10.4%	10.8%	-5.2%	-7.5%
Frontier**	0.1%	0.0%	-4.3%	--
Cash	1.4%		0.2%	



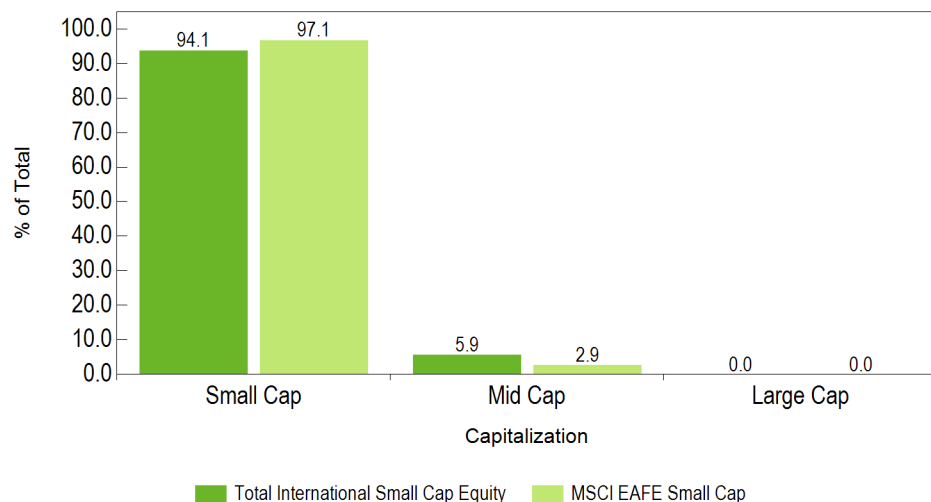
# TOTAL INTERNATIONAL SMALL CAP

Characteristics		
	Portfolio	MSCI EAFE Small Cap
Number of Holdings	175	2,348
Weighted Avg. Market Cap. (\$B)	2.71	2.28
Median Market Cap. (\$B)	1.75	0.95
Price To Earnings	13.39	16.37
Price To Book	2.53	2.10
Price To Sales	2.52	2.52
Return on Equity (%)	22.09	12.68
Yield (%)	3.55	2.82
	Portfolio Q4-18	Index Q4-18
Region Weighting		
North America ex U.S.	10.45	0.08
United States	2.15	0.70
Europe Ex U.K.	31.60	36.48
United Kingdom	15.83	17.65
Pacific Basin Ex Japan	7.60	11.98
Japan	28.05	31.47
Emerging Markets	2.46	--
Other	1.87	1.65

## Sector Allocation (%) vs MSCI EAFE Small Cap

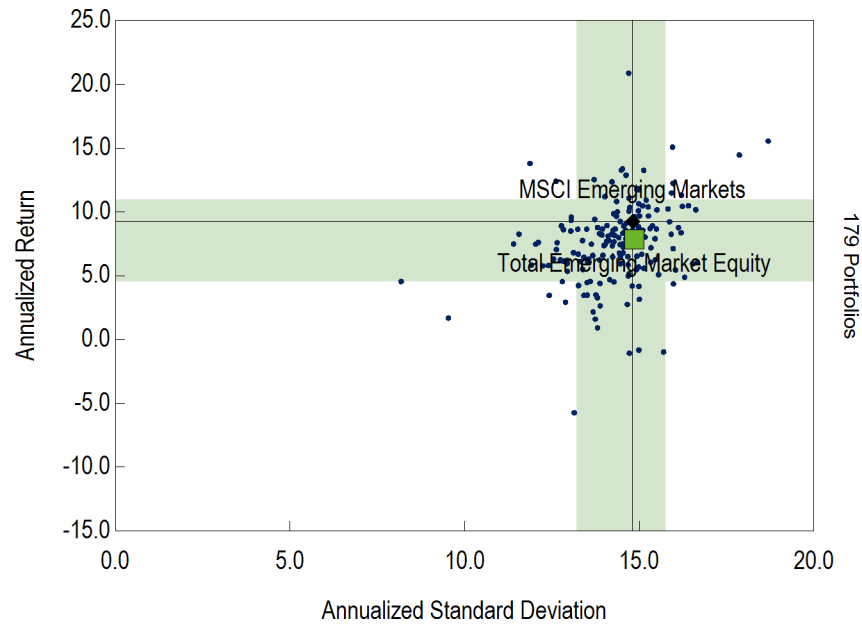


## Market Capitalization



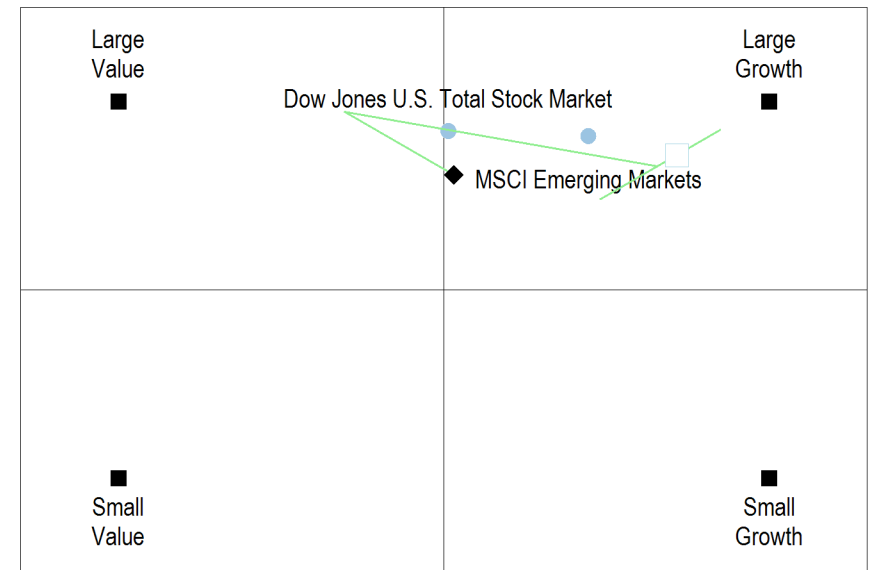
# TOTAL EMERGING MARKET EQUITY

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



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

U.S. Effective Style Map  
3 Years Ending December 31, 2018



- First Rolling Period
- ◆ Last Rolling Period

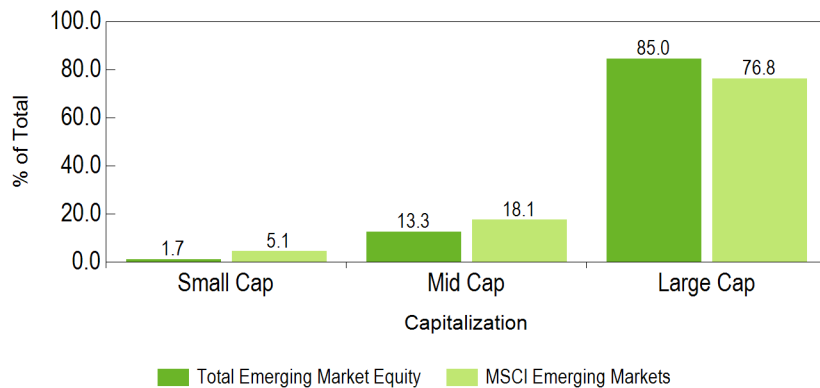


# TOTAL EMERGING MARKET EQUITY

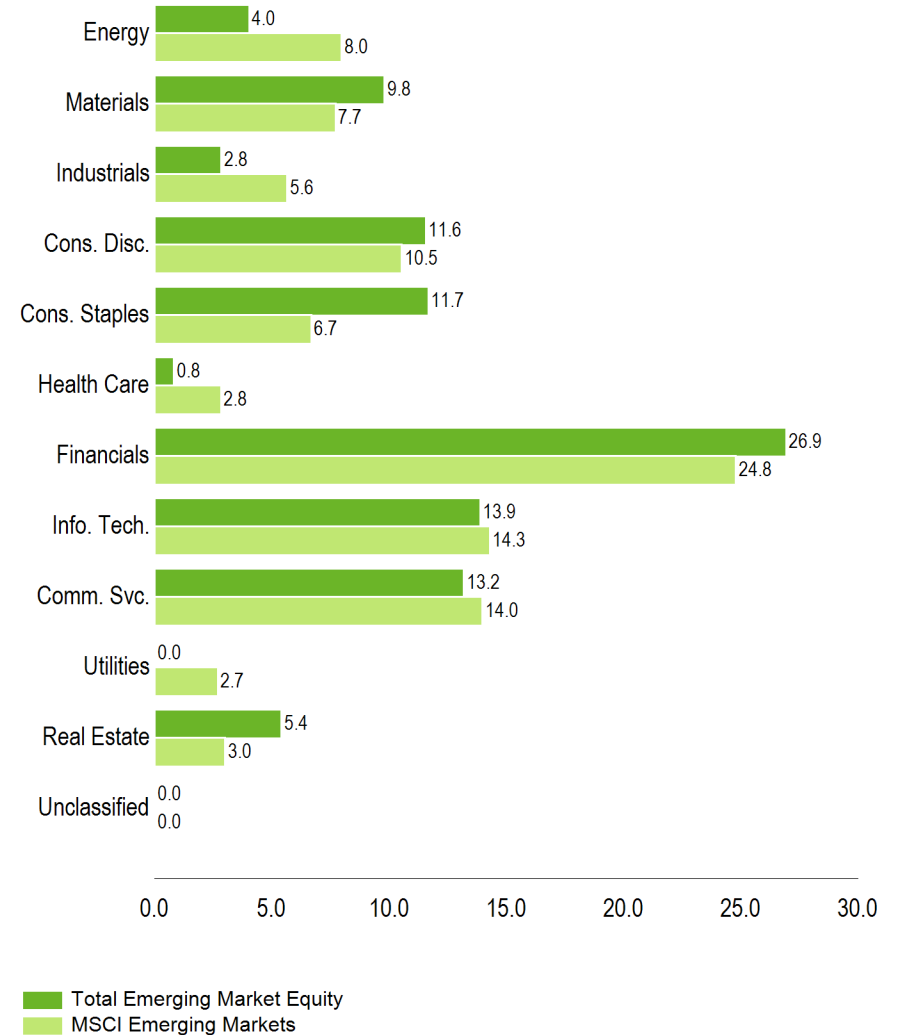
Characteristics		
	Portfolio	MSCI Emerging Markets
Number of Holdings	64	1,125
Weighted Avg. Market Cap. (\$B)	66.68	69.96
Median Market Cap. (\$B)	14.09	4.95
Price To Earnings	23.26	16.63
Price To Book	4.27	2.89
Price To Sales	5.14	2.58
Return on Equity (%)	21.92	17.46
Yield (%)	2.44	2.94

	Portfolio Q4-18	Index Q4-18
<b>Region Weighting</b>		
North America ex U.S.	--	--
United States	1.56	0.48
Europe Ex U.K.	0.73	0.26
United Kingdom	--	0.20
Pacific Basin Ex Japan	15.90	12.55
Japan	--	--
Emerging Markets	81.81	85.24
Other	--	1.27

## Market Capitalization As of December 31, 2018



## Sector Allocation (%) vs MSCI Emerging Markets



# TOTAL EMERGING MARKET EQUITY

Top Ten Holdings	
TENCENT HOLDINGS	6.6%
SAMSUNG ELTN.PREF.	5.5%
TAIWAN SEMICON.MNFG.	5.1%
HOUSING DEVELOPMENT FINANCE CORPORATION	3.9%
BNC.BRADESCO PF.SPN.ADR 1:1	3.3%
PING AN INSURANCE (GROUP) OF CHINA 'H'	2.9%
VALE ON ADR 1:1	2.7%
AIA GROUP	2.6%
ASTRA INTERNATIONAL	2.4%
BANK CENTRAL ASIA	2.3%

Top Positive Contributors		
	Relative Contribution %	Return %
BNC.BRADESCO PF.SPN.ADR 1:1	1.1%	42.7%
LOJAS RENNER ON	0.4%	41.2%
HOUSING DEVELOPMENT FINANCE CORPORATION	0.4%	16.5%
ULTRAPAR PARTICIPOES ON	0.4%	46.8%
ASTRA INTERNATIONAL	0.4%	17.0%
MULTIPLAN EMPE. IMOBS.ON	0.3%	33.9%
BIM BIRLESIK MAGAZALAR	0.2%	22.0%
BANK OF THE PHILP.ISLE.	0.2%	15.9%
KOTAK MAHINDRA BANK	0.2%	14.3%
BANK CENTRAL ASIA	0.2%	11.9%

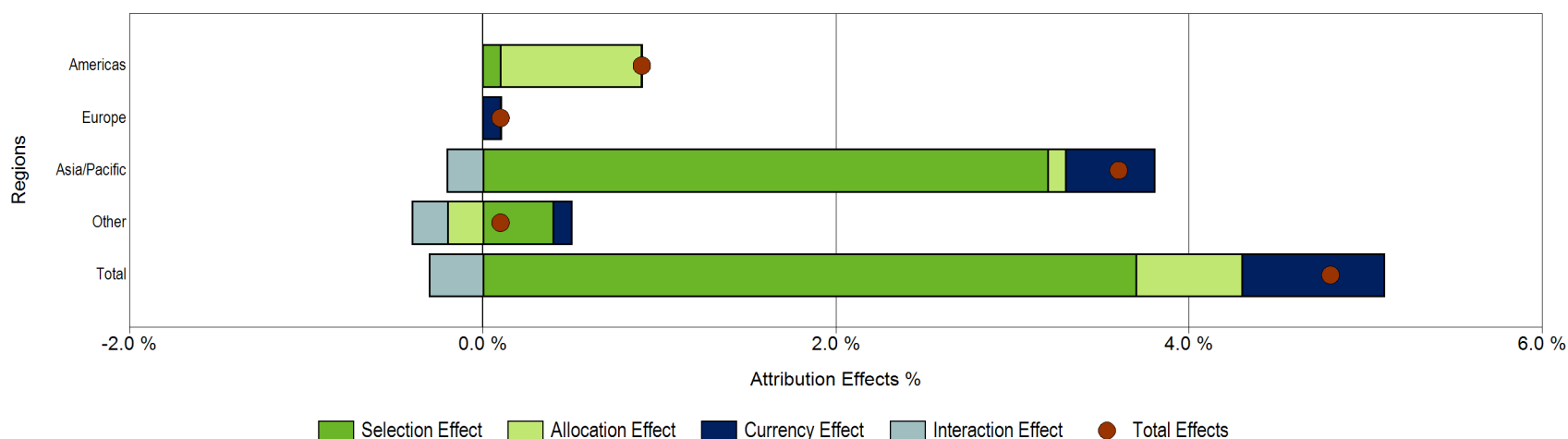
Top Negative Contributors		
	Relative Contribution %	Return %
SAMSUNG ELTN.PREF.	-1.0%	-16.6%
GPO FINANCE BANORTE	-0.6%	-32.8%
KWEICHOW MOUTAI 'A'	-0.4%	-19.0%
GRUPO AEROPORTUARIO DEL SURESTE 'B'	-0.4%	-26.5%
VALE ON ADR 1:1	-0.3%	-11.1%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	-0.3%	-12.4%
PING AN INSURANCE (GROUP) OF CHINA 'H'	-0.2%	-13.1%
58 COM CL.A ADR 1:2	-0.2%	-26.3%
SHANGHAI INTL.ARPT.'A'	-0.2%	-13.4%
AIA GROUP	-0.2%	-7.1%

Equity Sector Attribution											
	Total Effects	Selection Effect	Attribution Effects				Returns		Sector Weights		
			Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.8%	1.6%	0.1%	-0.9%	10.7%	-10.5%	3.2%	8.1%			
Materials	0.3%	0.2%	-0.1%	0.2%	-7.0%	-10.9%	9.8%	7.9%			
Industrials	-0.7%	-0.8%	-0.1%	0.2%	-20.3%	-3.1%	3.3%	5.5%			
Consumer Discretionary	1.9%	2.0%	0.1%	-0.1%	8.0%	-11.6%	9.4%	10.5%			
Consumer Staples	0.1%	-0.2%	0.2%	0.1%	-5.5%	-4.7%	13.7%	6.5%			
Health Care	0.2%	0.0%	0.2%	0.0%	-16.7%	-16.0%	1.0%	3.1%			
Financials	1.3%	0.9%	0.1%	0.3%	3.6%	-1.0%	25.5%	23.1%			
Information Technology	0.2%	0.1%	0.1%	0.0%	-14.8%	-15.7%	15.2%	15.9%			
Communication Services	0.2%	0.2%	0.0%	0.0%	-5.4%	-7.2%	13.3%	14.0%			
Utilities	-0.3%	--	-0.3%	--	--	3.6%	0.0%	2.4%			
Real Estate	0.7%	0.2%	0.2%	0.3%	9.9%	1.5%	5.4%	2.9%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>4.8%</b>	<b>=</b>	<b>4.2%</b>	<b>+</b>	<b>0.5%</b>	<b>+</b>	<b>0.1%</b>	<b>-2.7%</b>	<b>-7.5%</b>	<b>100.0%</b>	<b>100.0%</b>



# TOTAL EMERGING MARKET EQUITY

Total Emerging Market Equity Performance Attribution vs. MSCI Emerging Markets  
Quarter Ending December 31, 2018



	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
<b>Totals</b>									
Americas	1.3%	0.6%	20.5%	11.4%	0.1%	0.8%	0.0%	0.0%	0.9%
Europe	-4.4%	-7.3%	5.0%	5.6%	0.0%	0.0%	0.1%	0.0%	0.1%
Asia/Pacific	-4.3%	-9.4%	69.6%	74.5%	3.2%	0.1%	0.5%	-0.2%	3.6%
Other	5.1%	-1.9%	4.9%	8.5%	0.4%	-0.2%	0.1%	-0.2%	0.1%
<b>Total</b>	<b>-2.7%</b>	<b>-7.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>3.7%</b>	<b>0.6%</b>	<b>0.8%</b>	<b>-0.3%</b>	<b>4.8%</b>
<b>Totals</b>									
Developed	-3.7%	--	18.5%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%
Emerging*	-2.5%	-7.5%	81.5%	100.0%	4.0%	0.0%	0.8%	-0.7%	4.1%



# TOTAL EMERGING MARKET EQUITY

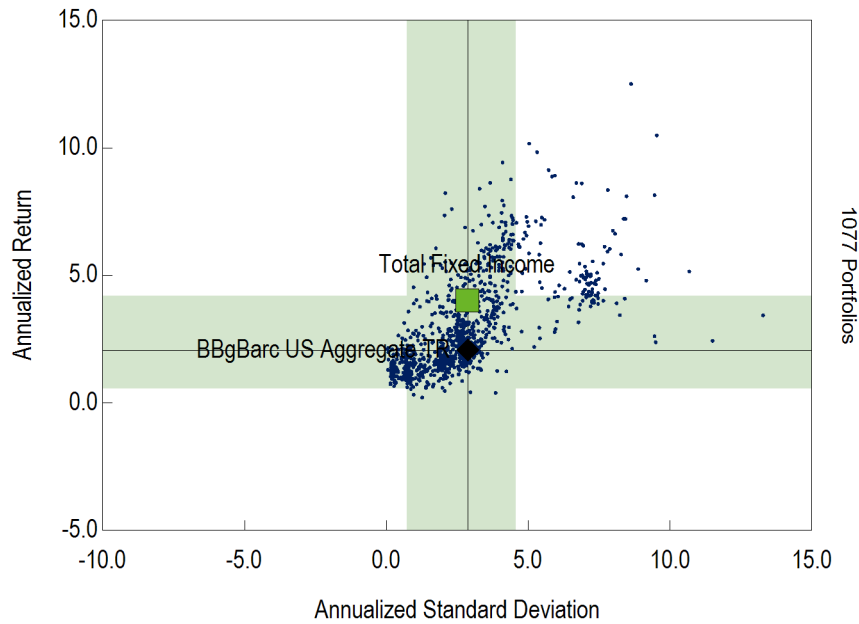
Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>Americas</b>				
Brazil*	10.8%	6.2%	17.7%	13.6%
Chile*	2.1%	1.1%	-8.0%	-8.3%
Mexico*	5.9%	3.2%	-23.7%	-18.7%
United States	1.7%	0.0%	-4.2%	-13.8%
<b>Total-Americas</b>	<b>20.5%</b>	<b>11.4%</b>	<b>1.3%</b>	<b>0.6%</b>
<b>Europe</b>				
Hungary*	0.5%	0.3%	4.3%	5.8%
Poland*	0.8%	1.2%	0.7%	-2.7%
Russia*	3.2%	3.6%	-6.8%	-9.2%
United Kingdom	0.5%	0.0%	-6.5%	-11.8%
<b>Total-Europe</b>	<b>5.0%</b>	<b>5.6%</b>	<b>-4.4%</b>	<b>-7.3%</b>

Country Allocation				
	Manager	Index	Manager	Index
	Allocation (USD)	Allocation (USD)	Return (USD)	Return (USD)
<b>AsiaPacific</b>				
China*	11.1%	30.9%	-13.8%	-10.6%
Hong Kong	16.3%	0.0%	-3.5%	-4.5%
India*	13.9%	8.6%	5.3%	2.6%
Indonesia*	5.3%	1.9%	12.6%	9.8%
Korea*	10.0%	14.9%	-15.7%	-14.2%
Malaysia*	1.5%	2.4%	-0.8%	-5.8%
Philippines*	3.5%	1.0%	8.2%	5.2%
Taiwan*	5.3%	12.3%	-14.7%	-13.6%
Thailand*	2.8%	2.5%	-8.1%	-10.3%
<b>Total-AsiaPacific</b>	<b>69.6%</b>	<b>74.5%</b>	<b>-4.3%</b>	<b>-9.4%</b>
<b>Other</b>				
South Africa*	3.7%	6.2%	0.4%	-3.5%
Turkey*	1.1%	0.6%	22.0%	4.9%
<b>Total-Other</b>	<b>4.9%</b>	<b>8.5%</b>	<b>5.4%</b>	<b>-1.9%</b>
<b>Totals</b>				
Developed	18.5%	0.0%	-4.6%	--
Emerging*	81.5%	100.0%	-2.5%	-7.5%



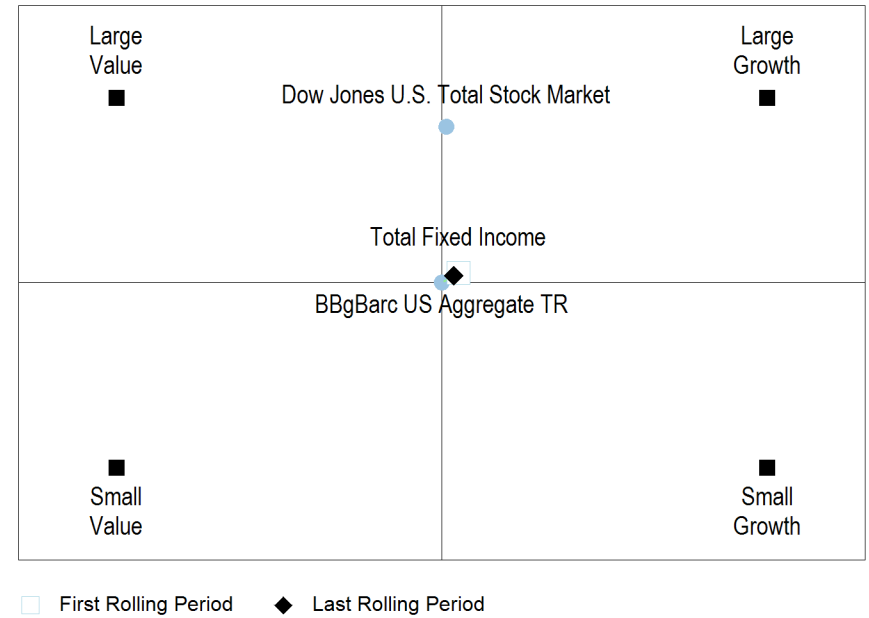
# TOTAL FIXED INCOME COMPOSITE

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



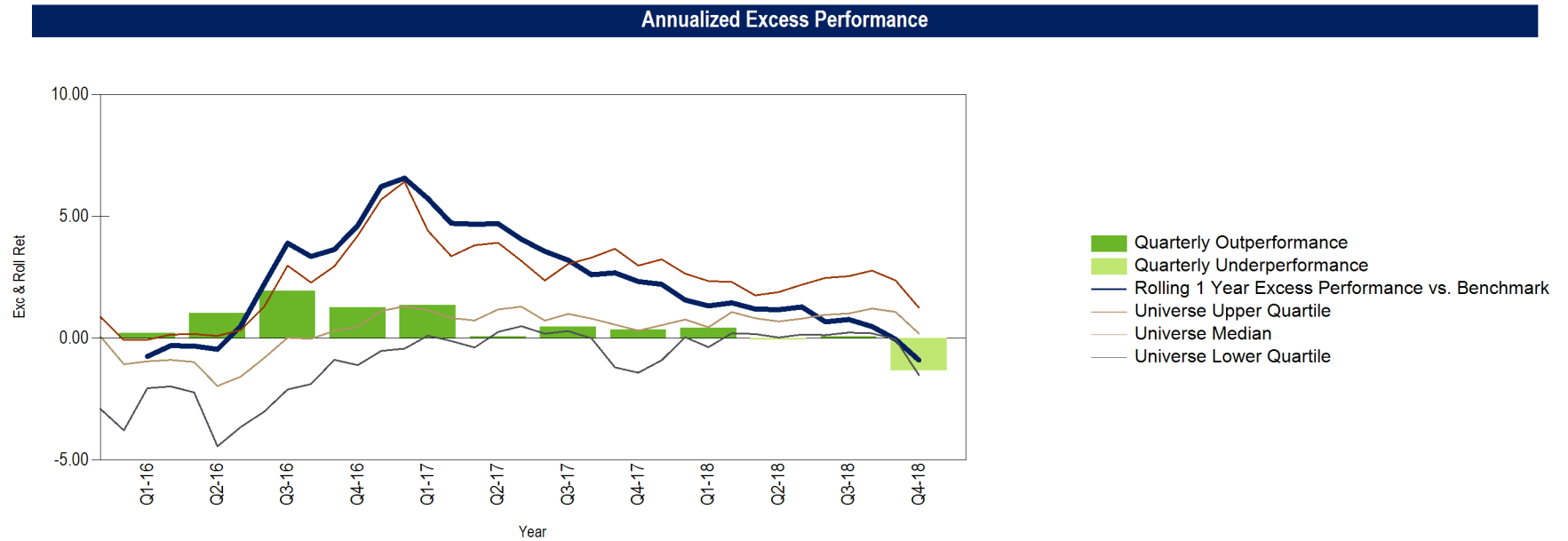
- Total Fixed Income
- ◆ BBgBarc US Aggregate TR
- 68% Confidence Interval
- eV All US Fixed Inc Net

U.S. Effective Style Map  
3 Years Ending December 31, 2018



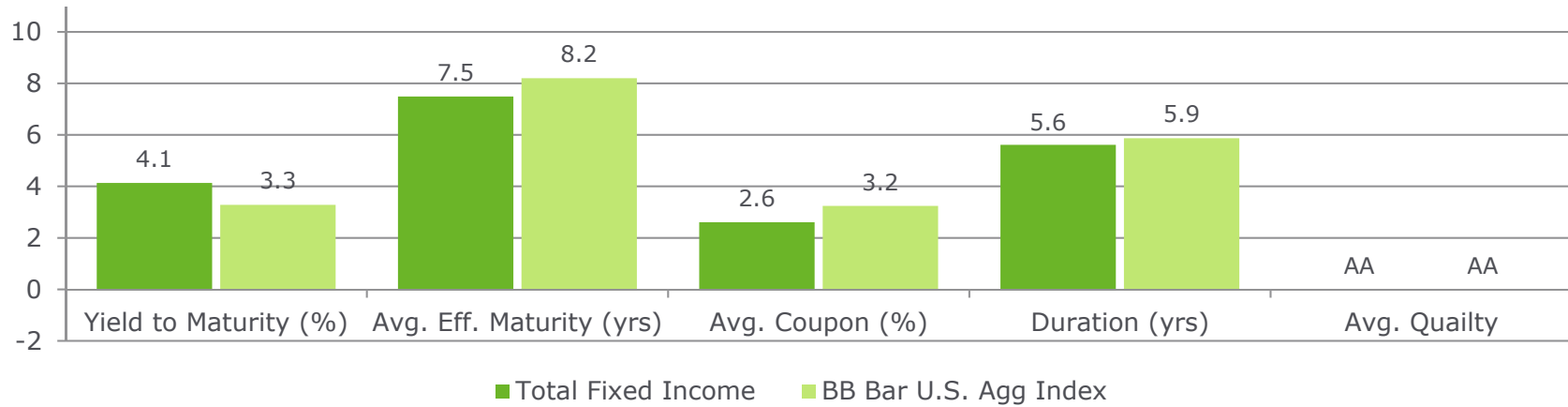


# TOTAL FIXED INCOME COMPOSITE

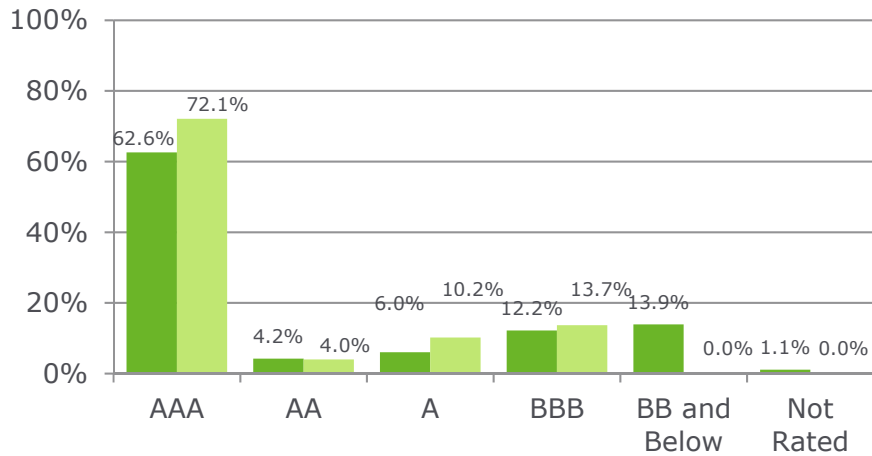


# TOTAL FIXED INCOME

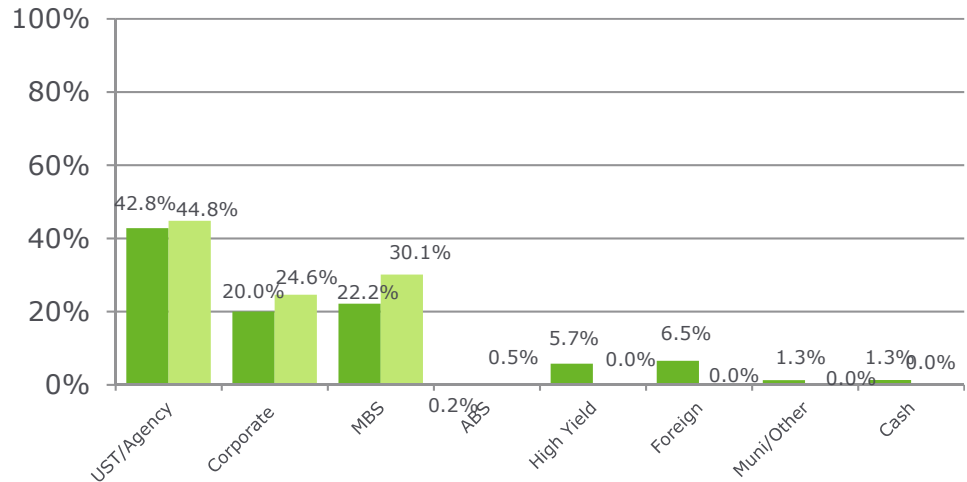
## Characteristics



## Quality Rating



## Sectors



# APPENDIX

NEPC, LLC

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# SAVE THE DATE



MAY 7-8, 2019 | BOSTON PARK PLAZA | #NEPC\_CONFERENCE



## NEPC's 24<sup>th</sup> Annual Investment Conference

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



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- **Past performance is no guarantee of future results.**
- **The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**
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