

# Western States Office & Professional Employees Pension Fund

Investment Performance Review  
Period Ending: December 31, 2017



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SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

# 4<sup>th</sup> quarter summary

## THE ECONOMIC CLIMATE

- Global growth forecasts for 2018 have been revised higher, most notably in the Eurozone. U.S. expected 2018 GDP growth is 2.6%, above the expansion average.
- The Eurozone has experienced an impressive economic recovery. In the third quarter, real GDP accelerated to 2.6%, the fastest pace of growth since 2011.
- The House and Senate agreed to a final tax bill that was signed into law by President Trump on December 22<sup>nd</sup>. The bill, formally known as the Tax Cuts & Jobs Act, represents a major overhaul of the U.S. tax system.

## PORTFOLIO IMPACTS

- A synchronized pickup in global economic growth, low inflation, strong employment, and accommodative central banks should support global equities moving forward. We recommend maintaining an overweight equity position.
- Markets remain expensive by most measures. However, it is important to note the merits and flaws of various valuation metrics.

## THE INVESTMENT CLIMATE

- Global equities produced strong returns over the quarter and finished the year on a positive note. Emerging market equities led the way, driven by high earnings growth and expansion of valuation multiples off of low levels.
- The outlook for U.S. equity earnings has improved further, following the signing of the Tax Cuts and Jobs Act. S&P 500 earnings expectations for 2018 were revised upwards from 11.1% to 13.1%.
- U.S. high yield spreads became increasingly tight. Credit premiums are near all time lows, which may warrant an underweight to U.S. credit.

## ASSET ALLOCATION ISSUES

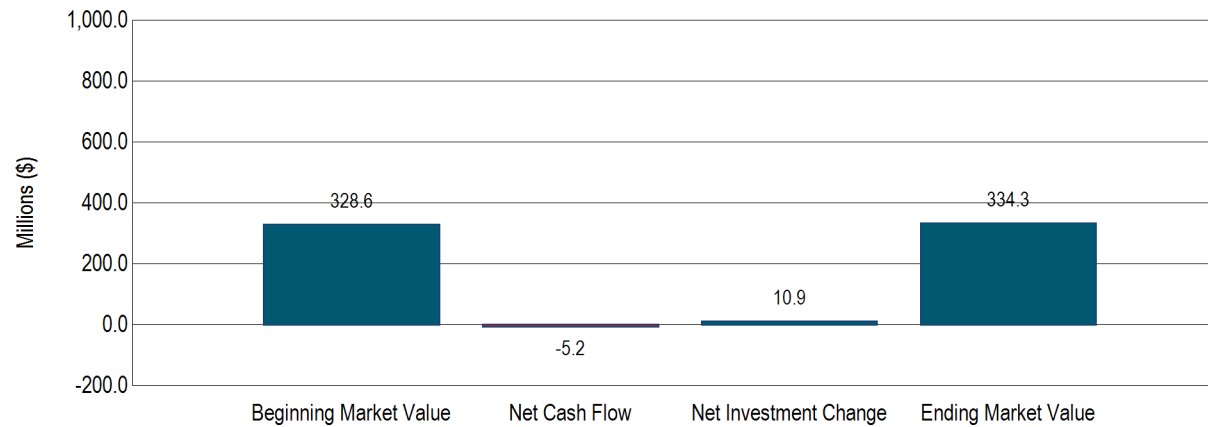
- Risk assets continue to deliver strong performance, fueled by improving fundamentals and accelerating growth. The current environment appears accommodative for further gains.
- Equity volatility is very low, helped by stable economic conditions and inflation. Historically, low volatility has indicated less risk of an equity downside event.

We believe a moderate overweight to risk is warranted

Portfolio Reconciliation

	Last Three Months	Year-To-Date
Beginning Market Value	\$328,599,554	\$320,787,221
Net Cash Flow	-\$5,203,178	-\$27,589,501
Net Investment Change	\$10,870,373	\$41,069,029
Ending Market Value	\$334,266,749	\$334,266,749

Change in Market Value  
Last Three Months



Contributions and withdrawals may include intra-account transfers between managers/funds.

# Total Fund

## Cash Flow by Manager - Last Three Months

Period Ending: December 31, 2017

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
BlackRock Equity Index NL	\$41,802,918	\$0	-\$2,650,000	-\$2,650,000	\$2,649,763	\$41,802,681
INTECH US Managed Volatility LLC	\$30,127,152	\$0	\$0	\$0	\$1,236,162	\$31,363,313
PanAgora US Small Cap Core Stock Selector	\$18,036,115	\$0	\$0	\$0	\$495,118	\$18,531,233
WCM Focused International Growth Fund, L.P.	\$24,265,746	\$0	\$0	\$0	\$1,298,725	\$25,564,471
Causeway International Value Ins	\$14,961,033	\$0	\$0	\$0	\$766,951	\$15,727,984
Brandes International Small Cap Equity	\$6,862,104	\$0	\$0	\$0	\$89,627	\$6,951,730
Loomis Sayles Core Plus	\$72,908,830	\$0	-\$2,600,000	-\$2,600,000	\$598,713	\$70,907,544
ASB Allegiance Real Estate	\$32,357,805	\$0	\$0	\$0	\$585,349	\$32,943,154
Invesco Real Estate II	\$45,438	\$0	\$0	\$0	\$391	\$45,829
JPMorgan Special Situation Property	\$12,968,656	\$51,920	-\$146,608	-\$94,687	\$194,523	\$13,068,491
Grosvenor Institutional Partners LP	\$17,257,903	\$0	\$0	\$0	\$398,992	\$17,656,895
IFM Global Infrastructure (US) LP	\$10,152,501	\$0	-\$6,108	-\$6,108	\$461,715	\$10,608,108
JPMorgan IIF ERISA LP	\$8,655,771	\$0	-\$246,411	-\$246,411	\$253,368	\$8,662,728
Invesco Balanced-Risk Allocation	\$37,889,139	\$24,953	-\$3,250,000	-\$3,225,047	\$1,840,975	\$36,505,068
US Bank Checking Account	\$308,444	\$484,101	\$0	\$484,101	\$0	\$792,546
US Bank Clearing Account	\$0	\$3,134,974	\$0	\$3,134,974	\$0	\$3,134,974
<b>Total</b>	<b>\$328,599,554</b>	<b>\$3,695,949</b>	<b>-\$8,899,127</b>	<b>-\$5,203,178</b>	<b>\$10,870,373</b>	<b>\$334,266,749</b>

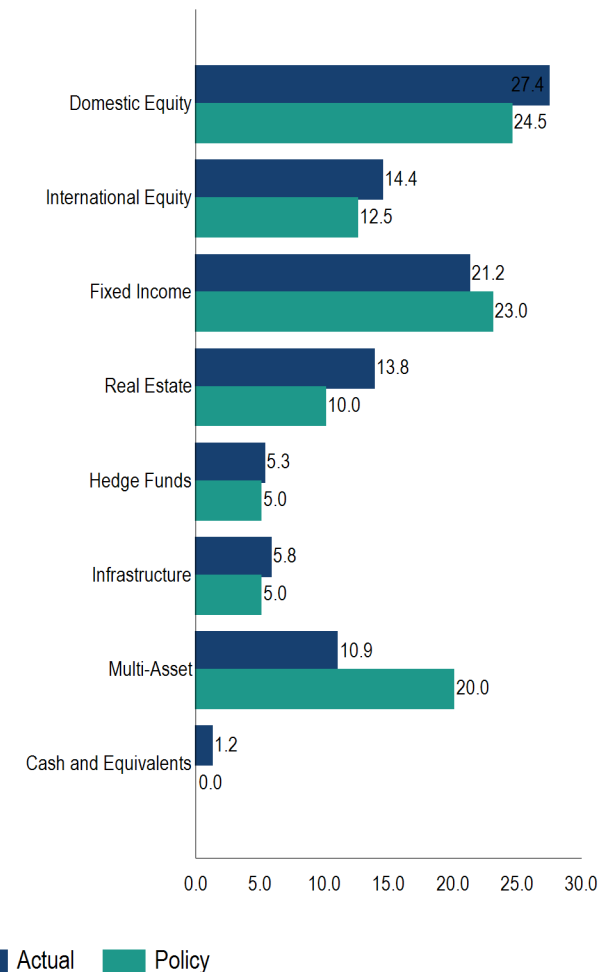
Loomis Sayles Full Discretion liquidated 3/21/2017. Loomis Sayles Core Plus funded 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017.

# Total Fund Executive Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>Total Fund</b>	<b>334,266,749</b>	<b>100.0</b>	<b>3.3</b>	<b>13.1</b>	<b>13.1</b>	<b>6.9</b>	<b>7.8</b>	<b>4.1</b>
<i>Total Fund Policy Index</i>			3.2	13.5	13.5	6.6	7.7	4.6
<i>Target Asset Allocation Policy Index</i>			3.5	13.7	13.7	7.3	8.7	5.7
<i>InvestorForce Tft-Hrtly DB \$250mm-\$1B Net Rank</i>			59	64	64	78	87	98
<b>Total Domestic Equity</b>	<b>91,697,227</b>	<b>27.4</b>	<b>4.9</b>	<b>19.4</b>	<b>19.4</b>	<b>10.3</b>	<b>15.0</b>	<b>8.1</b>
<i>Dow Jones U.S. Total Stock Market</i>			6.3	21.2	21.2	11.1	15.5	8.7
<i>InvestorForce Tft-Hrtly DB US Eq Net Rank</i>			92	71	71	61	44	53
<b>Total International Equity</b>	<b>48,244,185</b>	<b>14.4</b>	<b>4.7</b>	<b>26.6</b>	<b>26.6</b>	<b>6.9</b>	<b>6.4</b>	<b>0.0</b>
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			5.2	27.8	27.8	8.4	7.2	1.6
<i>InvestorForce Tft-Hrtly DB ex-US Eq Net Rank</i>			43	71	71	76	85	97
<b>Total Fixed Income</b>	<b>70,907,544</b>	<b>21.2</b>	<b>0.8</b>	<b>5.6</b>	<b>5.6</b>	<b>3.6</b>	<b>3.4</b>	<b>5.2</b>
<i>Total Fixed Income Benchmark (BBgBarc Aggregate)</i>			0.4	3.5	3.5	2.2	2.1	4.0
<i>InvestorForce Tft-Hrtly DB US Fix Inc Net Rank</i>			15	18	18	23	19	22
<b>Total Real Estate</b>	<b>46,057,474</b>	<b>13.8</b>	<b>1.7</b>	<b>5.0</b>	<b>5.0</b>	<b>9.0</b>	<b>10.4</b>	<b>4.5</b>
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	10.4	11.5	5.0
<b>Total Hedge Funds</b>	<b>17,656,895</b>	<b>5.3</b>	<b>2.3</b>	<b>6.1</b>	<b>6.1</b>	<b>2.6</b>	<b>3.9</b>	<b>--</b>
<i>HFRI Fund of Funds Composite Index</i>			2.0	7.7	7.7	2.6	4.0	--
<b>Total Infrastructure</b>	<b>19,270,836</b>	<b>5.8</b>	<b>3.8</b>	<b>17.9</b>	<b>17.9</b>	<b>8.4</b>	<b>6.3</b>	<b>--</b>
<i>CPI + 5%</i>			1.1	7.2	7.2	6.7	6.5	--
<b>Total Multi-Asset</b>	<b>36,505,068</b>	<b>10.9</b>	<b>5.1</b>	<b>10.7</b>	<b>10.7</b>	<b>5.6</b>	<b>6.3</b>	<b>4.3</b>
<i>60% MSCI ACWI Net/40% CITI WGBI</i>			3.8	17.1	17.1	6.4	6.5	4.2
<i>eV Global Balanced Net Rank</i>			1	99	99	79	99	86
<b>Total Cash</b>	<b>3,927,520</b>	<b>1.2</b>	<b>0.0</b>	<b>3.9</b>	<b>3.9</b>	<b>1.9</b>	<b>-2.4</b>	<b>--</b>

Actual vs Target Allocation (%)



Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite. Target Asset Allocation Policy Index: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Data prior to 3Q 2015 is from previous consultant.

# Total Fund

## Risk Analysis - 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2017

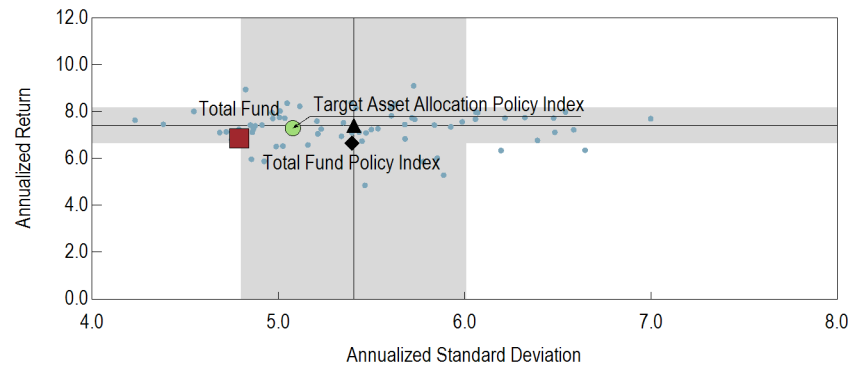
### 3 Year

	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	4.79%	0.21%	1.06%	0.87	0.97	92.71%	80.35%	0.19	1.12%	1.34
Total Fund Policy Index	5.39%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	1.15
Target Asset Allocation Policy Index	5.08%	0.64%	1.10%	0.93	0.98	98.19%	82.68%	0.78	0.83%	1.35

### 5 Year

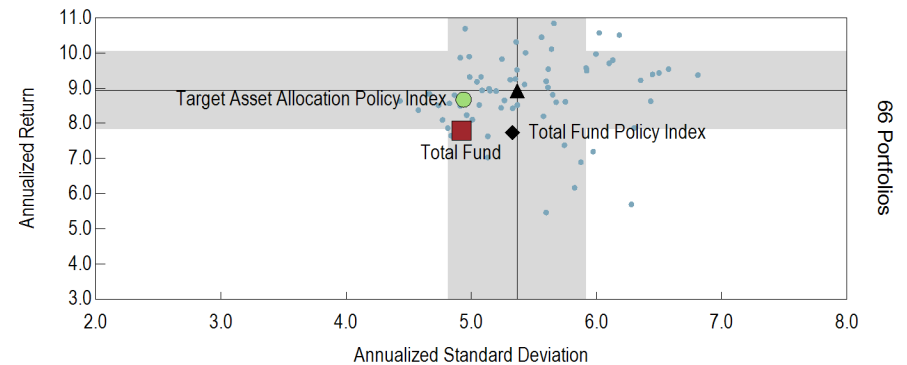
	Anlzd Standard Deviation	Ann Excess BM Return	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio
Total Fund	4.92%	0.06%	0.77%	0.91	0.96	94.18%	87.54%	0.05	1.05%	1.53
Total Fund Policy Index	5.33%	0.00%	0.00%	1.00	1.00	100.00%	100.00%	--	0.00%	1.40
Target Asset Allocation Policy Index	4.94%	0.94%	1.60%	0.91	0.97	100.12%	81.26%	0.99	0.95%	1.70

### 3 Year



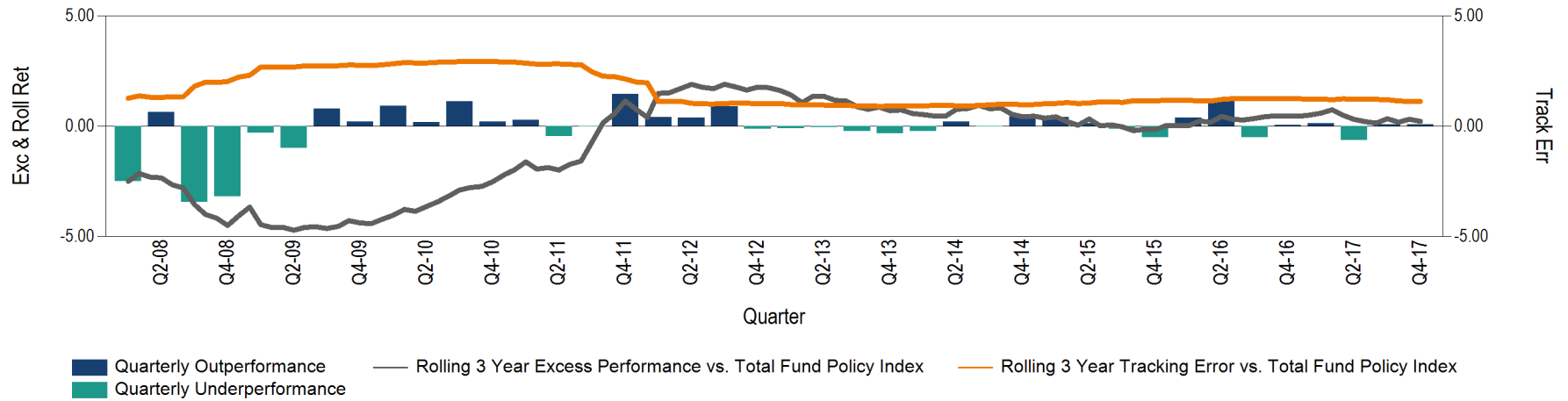
- Total Fund
- ◆ Total Fund Policy Index
- Target Asset Allocation Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Tft-Hrtly DB \$250mm-\$1B Net

### 5 Year

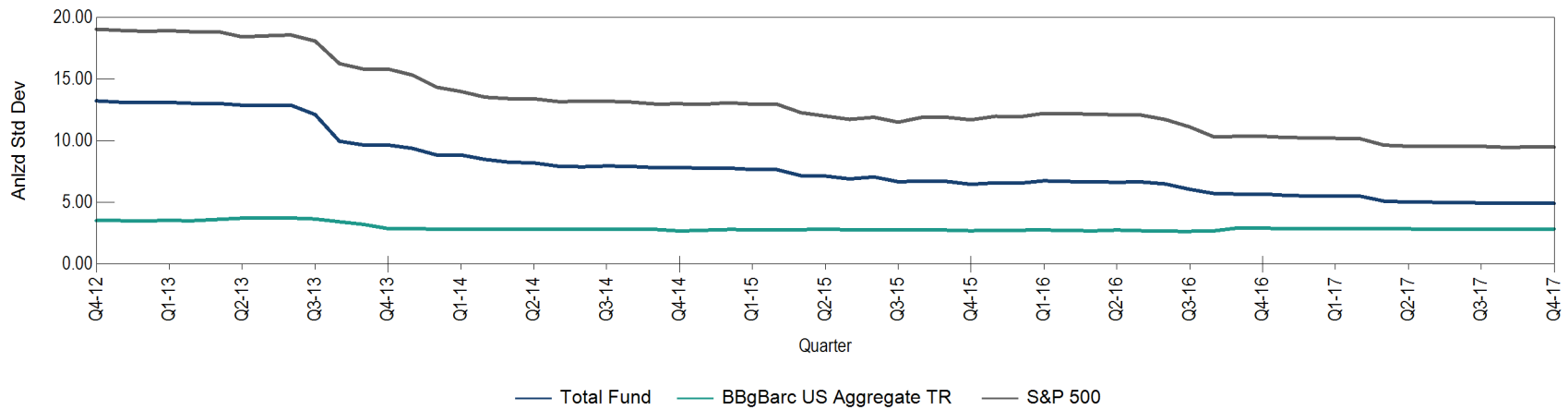


- Total Fund
- ◆ Total Fund Policy Index
- Target Asset Allocation Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Tft-Hrtly DB \$250mm-\$1B Net

Rolling Annualized Excess Performance and Tracking Error



Rolling 5 Year Annualized Standard Deviation



Total Fund  
Executive Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Fund</b>	<b>334,266,749</b>	<b>100.0</b>	<b>3.3</b>	<b>13.1</b>	<b>13.1</b>	<b>6.9</b>	<b>7.8</b>	<b>4.1</b>	<b>13.1</b>	<b>6.9</b>	<b>0.9</b>	<b>5.1</b>	<b>13.5</b>
<i>Total Fund Policy Index</i>			3.2	13.5	13.5	6.6	7.7	4.6	13.5	5.8	1.1	4.7	14.3
<i>Target Asset Allocation Policy Index</i>			3.5	13.7	13.7	7.3	8.7	5.7	13.7	7.2	1.3	7.1	14.6
<i>InvestorForce Tft-Hrtly DB \$250mm-\$1B Net Rank</i>			59	64	64	78	87	98	64	80	39	70	79
<b>Domestic Equity</b>	<b>91,697,227</b>	<b>27.4</b>											
BlackRock Equity Index NL	41,802,681	12.5	6.6	21.8	21.8	11.4	15.8	--	21.8	11.9	1.3	13.8	32.4
S&P 500			6.6	21.8	21.8	11.4	15.8	--	21.8	12.0	1.4	13.7	32.4
<i>eV US Large Cap Core Equity Net Rank</i>			48	46	46	19	25	--	46	21	37	33	43
INTECH US Managed Volatility LLC	31,363,313	9.4	4.1	21.4	21.4	9.8	--	--	21.4	5.7	3.2	15.5	--
Russell 1000			6.6	21.7	21.7	11.2	--	--	21.7	12.1	0.9	13.2	--
<i>eV US Large Cap Core Equity Net Rank</i>			91	51	51	60	--	--	51	84	18	14	--
PanAgora US Small Cap Core Stock Selector	18,531,233	5.5	2.5	10.8	10.8	--	--	--	10.8	20.3	--	--	--
Russell 2000			3.3	14.6	14.6	--	--	--	14.6	21.3	--	--	--
<i>eV US Small Cap Core Equity Net Rank</i>			75	83	83	--	--	--	83	41	--	--	--
<b>International Equity</b>	<b>48,244,185</b>	<b>14.4</b>											
WCM Focused International Growth Fund, L.P.	25,564,471	7.6	5.4	31.1	31.1	--	--	--	31.1	--	--	--	--
MSCI ACWI ex USA			5.0	27.2	27.2	--	--	--	27.2	--	--	--	--
<i>eV ACWI ex-US All Cap Growth Eq Net Rank</i>			49	71	71	--	--	--	71	--	--	--	--
Causeway International Value Ins	15,727,984	4.7	5.1	27.2	27.2	--	--	--	27.2	--	--	--	--
MSCI EAFE			4.2	25.0	25.0	--	--	--	25.0	--	--	--	--
<i>Foreign Large Value MStar MF Rank</i>			11	14	14	--	--	--	14	--	--	--	--
Brandes International Small Cap Equity	6,951,730	2.1	1.3	11.6	11.6	--	--	--	11.6	--	--	--	--
S&P Developed Ex-U.S. SmallCap			6.2	32.4	32.4	--	--	--	32.4	--	--	--	--
<i>eV ACWI ex-US Small Cap Equity Net Rank</i>			98	99	99	--	--	--	99	--	--	--	--
<b>Fixed Income</b>	<b>70,907,544</b>	<b>21.2</b>											
Loomis Sayles Core Plus	70,907,544	21.2	0.8	--	--	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			0.4	--	--	--	--	--	--	--	--	--	--
<i>eV US Core Plus Fixed Inc Net Rank</i>			16	--	--	--	--	--	--	--	--	--	--

Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite. Target Asset Allocation Policy Index: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60% MSCI ACWI Net/40% CITI WGBI). Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017. Parametric liquidated 4/21/2017. Mellon Dynamic liquidated 5/5/2017. Data prior to 3Q 2015 is from previous consultant.



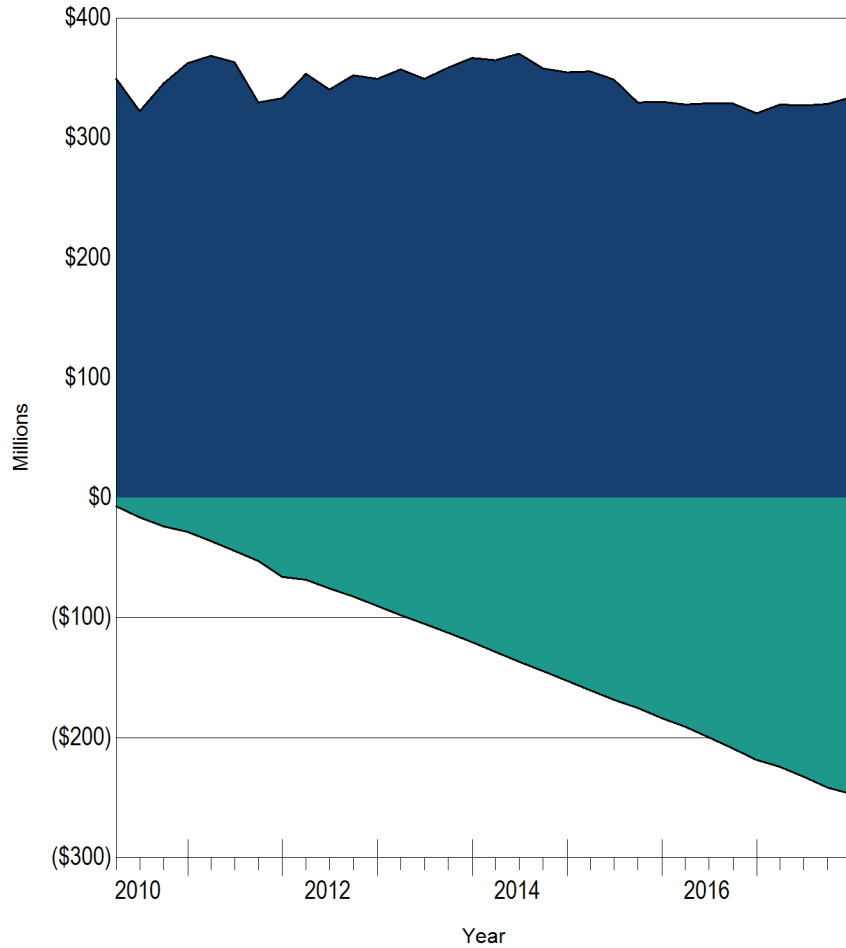
Total Fund  
Executive Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Real Estate</b>	<b>46,057,474</b>	<b>13.8</b>											
ASB Allegiance Real Estate	32,943,154	9.9	1.8	3.9	3.9	--	--	--	3.9	4.5	--	--	--
NCREIF-ODCE			2.1	7.6	7.6	--	--	--	7.6	8.8	--	--	--
Invesco Real Estate II	45,829	0.0	0.9	4.8	4.8	4.0	9.1	--	4.8	1.2	6.1	11.5	23.1
NCREIF-ODCE			2.1	7.6	7.6	10.4	11.5	--	7.6	8.8	15.0	12.5	13.9
JPMorgan Special Situation Property	13,068,491	3.9	1.5	8.0	8.0	11.8	--	--	8.0	8.7	18.9	--	--
NCREIF-ODCE			2.1	7.6	7.6	10.4	--	--	7.6	8.8	15.0	--	--
<b>Hedge Funds</b>	<b>17,656,895</b>	<b>5.3</b>											
Grosvenor Institutional Partners LP	17,656,895	5.3	2.3	6.1	6.1	2.6	5.1	--	6.1	2.3	-0.3	3.2	15.0
HFRI FOF Diversified Index			2.0	6.8	6.8	2.3	3.8	--	6.8	0.4	-0.2	3.4	9.0
<b>Infrastructure</b>	<b>19,270,836</b>	<b>5.8</b>											
IFM Global Infrastructure (US) LP	10,608,108	3.2	4.6	21.1	21.1	10.5	7.8	--	21.1	6.1	5.1	1.3	6.7
CPI + 5%			1.1	7.2	7.2	6.7	6.5	--	7.2	7.2	5.8	5.8	6.6
JPMorgan IIF ERISA LP	8,662,728	2.6	2.9	14.2	14.2	6.1	4.6	--	14.2	1.2	3.4	-1.6	6.8
CPI + 5%			1.1	7.2	7.2	6.7	6.5	--	7.2	7.2	5.8	5.8	6.6
<b>Multi-Asset</b>	<b>36,505,068</b>	<b>10.9</b>											
Invesco Balanced-Risk Allocation	36,505,068	10.9	5.1	10.5	10.5	6.2	5.4	--	10.5	12.2	-3.5	6.3	2.3
60% MSCI ACWI Net/40% CITI WGBI			3.8	17.1	17.1	6.4	6.5	--	17.1	5.5	-2.6	2.3	11.4
Citi 3-Month T-bill +6%			1.7	6.9	6.9	6.4	6.3	--	6.9	6.3	6.0	6.0	6.1
eV Global Balanced Net Rank			1	99	99	66	99	--	99	19	74	37	97
<b>Cash and Equivalents</b>	<b>3,927,520</b>	<b>1.2</b>											
US Bank Checking Account	792,546	0.2											
US Bank Clearing Account	3,134,974	0.9											

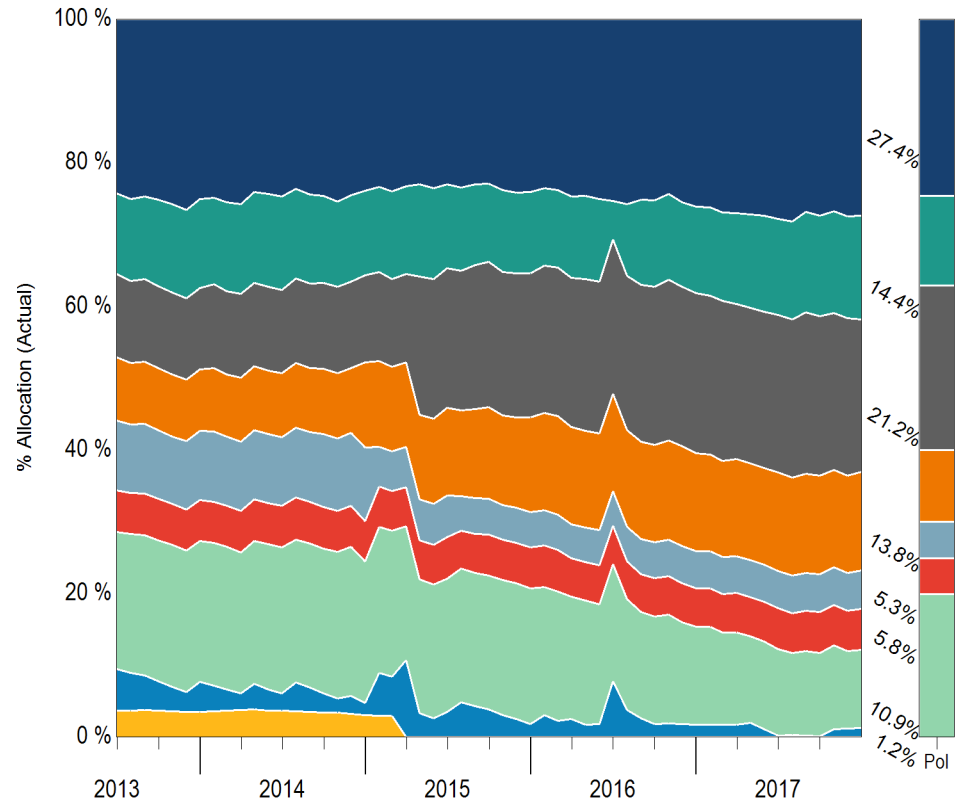
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Market Value History



Market Value Net Cash Flow

Asset Allocation History

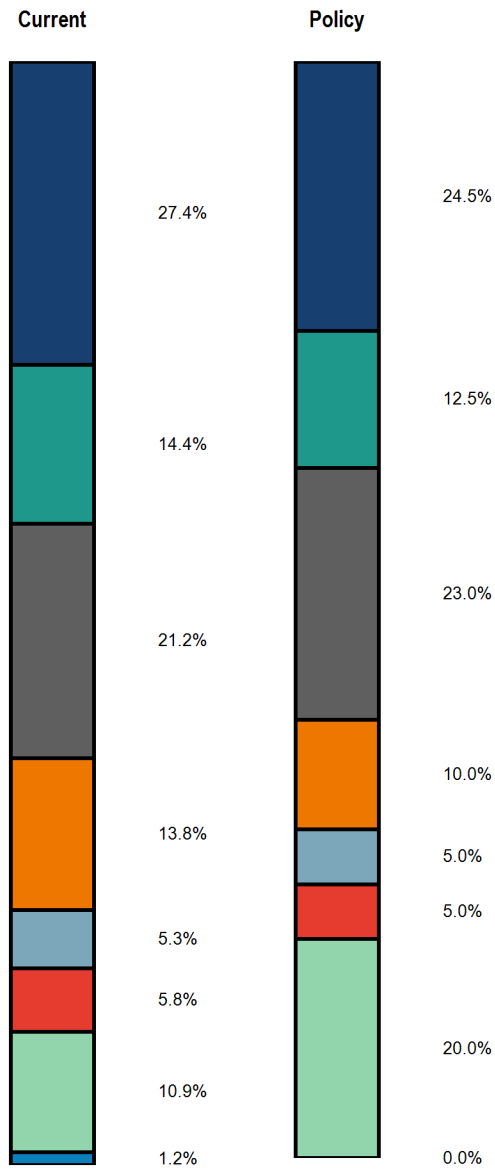


Total Domestic Equity Total Real Estate Total Multi-Asset  
 Total International Equity Total Hedge Funds Total Cash  
 Total Fixed Income Total Infrastructure (closed) Total Commodities

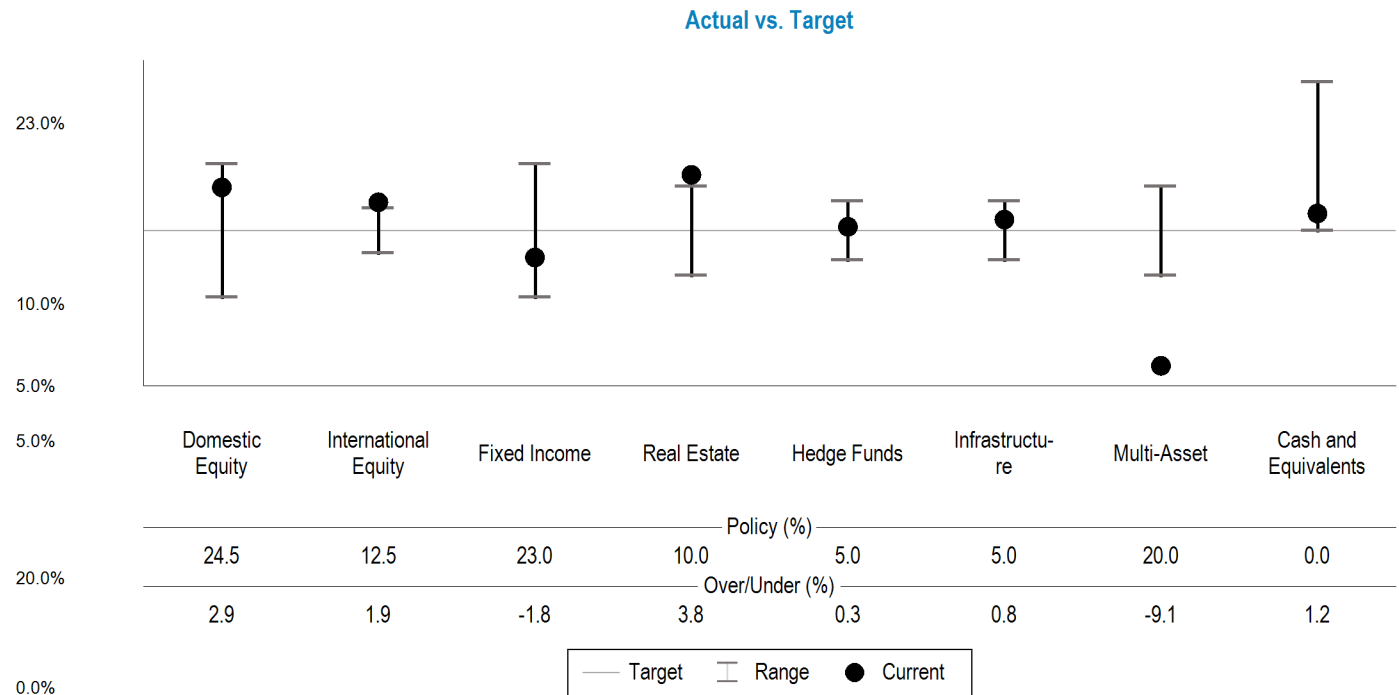
Net cash flow is cumulative.

Total Fund  
Asset Allocation vs. Policy

Period Ending: December 31, 2017



	Current	%	Policy	Difference	Policy Range	Within Range
Domestic Equity	\$91,697,227	27.4%	24.5%	\$9,801,874	20.0% - 29.0%	Yes
International Equity	\$48,244,185	14.4%	12.5%	\$6,460,841	11.0% - 14.0%	No
Fixed Income	\$70,907,544	21.2%	23.0%	-\$5,973,809	18.5% - 27.5%	Yes
Real Estate	\$46,057,474	13.8%	10.0%	\$12,630,799	7.0% - 13.0%	No
Hedge Funds	\$17,656,895	5.3%	5.0%	\$943,558	3.0% - 7.0%	Yes
Infrastructure	\$19,270,836	5.8%	5.0%	\$2,557,499	3.0% - 7.0%	Yes
Multi-Asset	\$36,505,068	10.9%	20.0%	-\$30,348,282	17.0% - 23.0%	No
Cash and Equivalents	\$3,927,520	1.2%	0.0%	\$3,927,520	0.0% - 10.0%	Yes
<b>Total</b>	<b>\$334,266,748</b>	<b>100.0%</b>	<b>100.0%</b>			



Total Fund  
Investment Fund Fee Analysis

Period Ending: December 31, 2017

Name	Asset Class	Fee Schedule	Market Value	% of Portfolio	Estimated Fee Value	Estimated Fee
BlackRock Equity Index NL	Domestic Equity	0.03% of Assets	\$41,802,681	12.5%	\$12,541	0.03%
INTECH US Managed Volatility LLC	Domestic Equity	0.47% of First \$50.0 Mil, 0.44% of Next \$50.0 Mil, 0.40% of Next \$100.0 Mil, 0.36% Thereafter	\$31,363,313	9.4%	\$147,408	0.47%
PanAgora US Small Cap Core Stock Selector	Domestic Equity	0.85% of Assets	\$18,531,233	5.5%	\$157,515	0.85%
WCM Focused International Growth Fund, L.P.	International Equity	0.75% of Assets	\$25,564,471	7.6%	\$191,734	0.75%
Causeway International Value Ins	International Equity	0.90% of Assets	\$15,727,984	4.7%	\$141,552	0.90%
Brandes International Small Cap Equity	International Equity	0.90% of Assets	\$6,951,730	2.1%	\$62,566	0.90%
Loomis Sayles Core Plus	Fixed Income	0.35% of First \$20.0 Mil, 0.25% Thereafter	\$70,907,544	21.2%	\$197,269	0.28%
ASB Allegiance Real Estate	Real Estate	1.25% of First \$5.0 Mil, 1.00% of Next \$10.0 Mil, 0.90% of Next \$60.0 Mil, 0.75% Thereafter	\$32,943,154	9.9%	\$323,988	0.98%
Invesco Real Estate II	Real Estate	0.67% of Assets	\$45,829	0.0%	\$307	0.67%
JPMorgan Special Situation Property	Real Estate	1.60% of Assets	\$13,068,491	3.9%	\$209,096	1.60%
Grosvenor Institutional Partners LP	Hedge Funds	1.15% of First \$25.0 Mil, 1.00% of Next \$25.0 Mil, 0.80% of Next \$50.0 Mil, 0.60% Thereafter	\$17,656,895	5.3%	\$203,054	1.15%
IFM Global Infrastructure (US) LP	Infrastructure	0.97% of Assets	\$10,608,108	3.2%	\$102,899	0.97%
JPMorgan IIF ERISA LP	Infrastructure	1.25% of First \$50.0 Mil, 1.15% of Next \$50.0 Mil, 1.05% Thereafter	\$8,662,728	2.6%	\$108,284	1.25%
Invesco Balanced-Risk Allocation	Multi-Asset	0.40% of First \$100.0 Mil, 0.35% Thereafter	\$36,505,068	10.9%	\$146,020	0.40%
US Bank Checking Account	Cash and Equivalents		\$792,546	0.2%		
US Bank Clearing Account	Cash and Equivalents		\$3,134,974	0.9%		
<b>Total</b>			<b>\$334,266,749</b>	<b>100.0%</b>	<b>\$2,004,232</b>	<b>0.60%</b>

# Total Fund Watch List (Net of Fees)

Period Ending: December 31, 2017

Name	Allocation Group	Status	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5	Rule 6
BlackRock Equity Index NL	Domestic Equity	No Issues	--	--	--	--	--	✓
INTECH US Managed Volatility LLC	Domestic Equity	No Issues	R	R	--	--	✓	--
PanAgora US Small Cap Core Stock Selector	Domestic Equity	No Issues	--	--	--	--	✓	--
WCM Focused International Growth Fund, L.P.	International Equity	No Issues	--	--	--	--	✓	--
Causeway International Value Ins	International Equity	No Issues	--	--	--	--	R	--
Brandes International Small Cap Equity	International Equity	No Issues	--	--	--	--	R	--
Loomis Sayles Core Plus	Fixed Income	No Issues	--	--	--	--	✓	--
ASB Allegiance Real Estate	Real Estate	No Issues	--	--	--	--	✓	--
Invesco Real Estate II	Real Estate	No Issues	R	--	R	--	✓	--
JPMorgan Special Situation Property	Real Estate	No Issues	✓	--	--	--	✓	--
Grosvenor Institutional Partners LP	Hedge Funds	No Issues	✓	--	✓	--	✓	--
IFM Global Infrastructure (US) LP	Infrastructure	No Issues	✓	--	✓	--	✓	--
JPMorgan IIF ERISA LP	Infrastructure	No Issues	R	--	R	--	✓	--
Invesco Balanced-Risk Allocation	Multi-Asset	No Issues	R	R	R	R	✓	--

Rule 1 - Manager has underperformed the benchmark index for the three year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the three year period.

Rule 3 - Manager has underperformed the benchmark index for the five year period.

Rule 4 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 5 - Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy or drift, excessive asset growth, change in ownership and any other reason that raises concern.

Rule 6 - Index Fund Tracking Error exceeds 0.25% of the appropriate benchmark over the one year period.

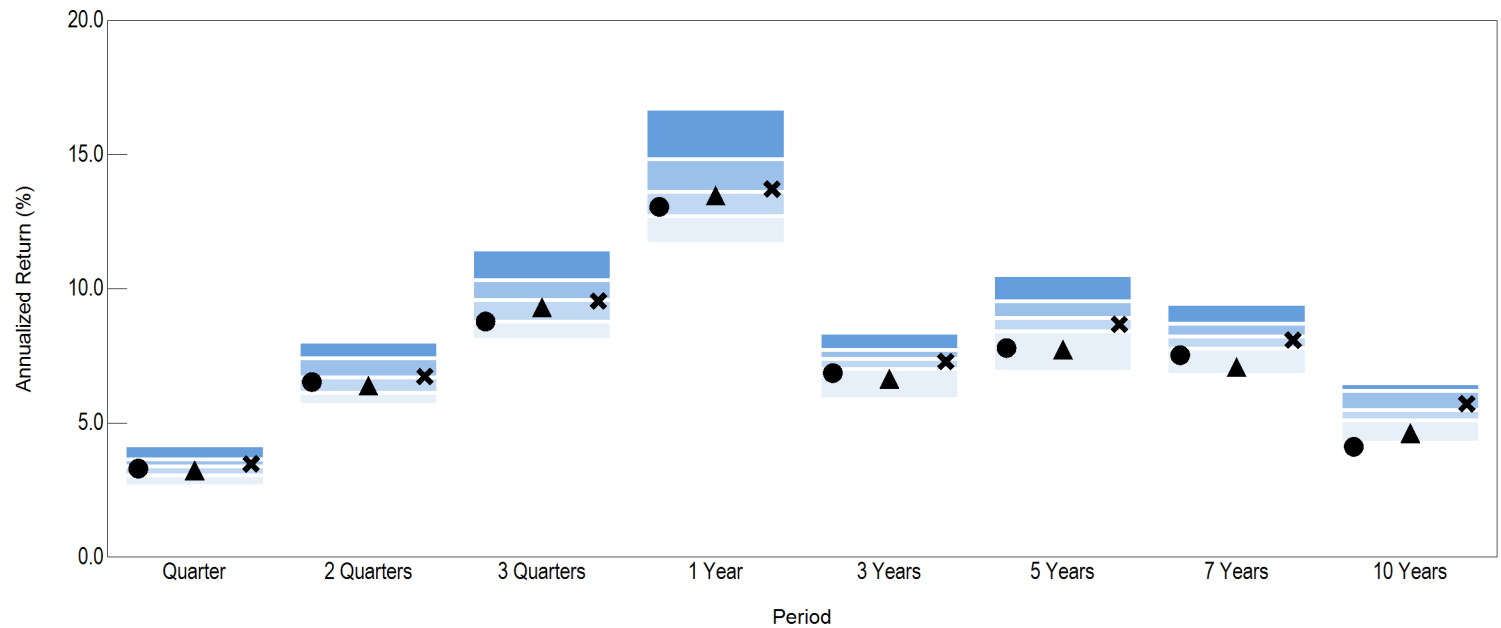
*Causeway: Causeway created a new parent holding company, Causeway Capital Holdings, LLC. The main reason is to provide the firm more financial flexibility to run the business while meeting all regulatory requirements. This is an "informational flag." Brandes: Charles Brandes, founder and chairman is stepping down effective immediately for personal reasons.*

Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: December 31, 2017

Total Fund Cumulative Performance vs. InvestorForce Tft-Hrtly DB \$250mm-\$1B Net



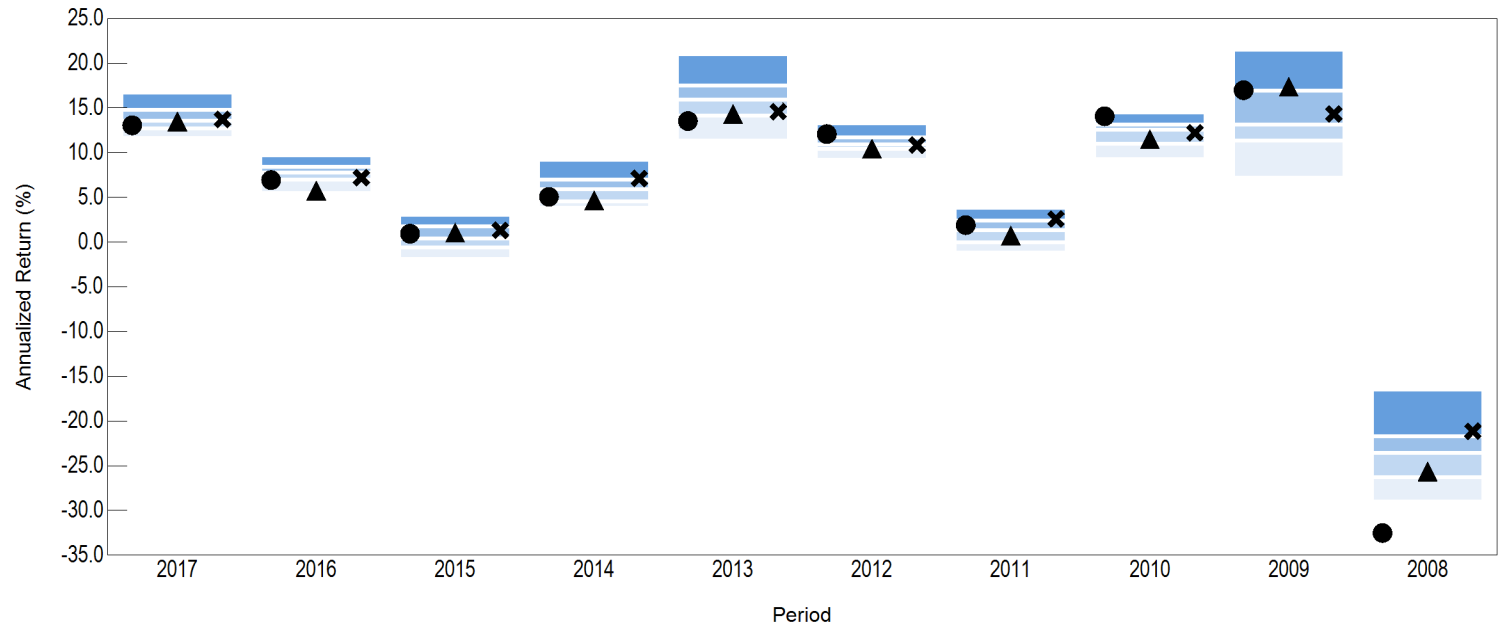
	Return (Rank)															
	Quarter		2 Quarters		3 Quarters		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	4.2		8.0		11.5		16.7		8.3		10.5		9.4		6.5	
25th Percentile	3.7		7.4		10.3		14.9		7.7		9.5		8.7		6.2	
Median	3.4		6.7		9.6		13.6		7.4		8.9		8.2		5.5	
75th Percentile	3.1		6.1		8.8		12.7		7.0		8.4		7.8		5.1	
95th Percentile	2.7		5.7		8.1		11.7		5.9		6.9		6.8		4.3	
# of Portfolios	69		69		69		69		68		66		63		58	
● Total Fund	3.3	(59)	6.5	(65)	8.8	(75)	13.1	(64)	6.9	(78)	7.8	(87)	7.5	(84)	4.1	(98)
▲ Total Fund Policy Index	3.2	(63)	6.4	(67)	9.3	(60)	13.5	(51)	6.6	(85)	7.7	(88)	7.1	(92)	4.6	(86)
✕ Target Asset Allocation Policy Index	3.5	(48)	6.7	(50)	9.5	(52)	13.7	(46)	7.3	(54)	8.7	(59)	8.1	(59)	5.7	(35)

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: December 31, 2017

Total Fund Consecutive Periods vs. InvestorForce Tft-Hrtly DB \$250mm-\$1B Net



	Return (Rank)									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
5th Percentile	16.7	9.7	3.0	9.1	21.0	13.2	3.8	14.5	21.5	-16.5
25th Percentile	14.9	8.4	1.8	7.0	17.5	11.8	2.4	13.2	16.9	-21.7
Median	13.6	7.8	0.4	6.0	15.9	11.0	1.4	12.6	13.1	-23.6
75th Percentile	12.7	7.0	-0.6	4.6	14.2	10.4	0.0	11.0	11.4	-26.3
95th Percentile	11.7	5.5	-1.9	3.9	11.4	9.3	-1.1	9.3	7.2	-28.9
# of Portfolios	69	56	58	55	49	37	34	32	31	30
● Total Fund	13.1 (64)	6.9 (80)	0.9 (39)	5.1 (70)	13.5 (79)	12.1 (20)	1.9 (40)	14.1 (10)	17.0 (25)	-32.5 (99)
▲ Total Fund Policy Index	13.5 (51)	5.8 (93)	1.1 (37)	4.7 (75)	14.3 (70)	10.4 (79)	0.7 (60)	11.5 (66)	17.4 (24)	-25.7 (71)
✕ Target Asset Allocation Policy Index	13.7 (46)	7.2 (69)	1.3 (36)	7.1 (21)	14.6 (66)	10.8 (63)	2.6 (20)	12.2 (58)	14.3 (44)	-21.2 (21)

## Domestic Equity

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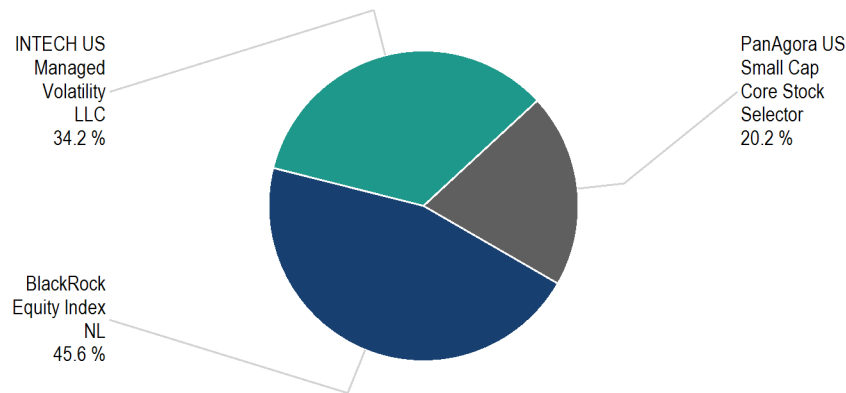


# Total Domestic Equity Performance Summary (Net of Fees)

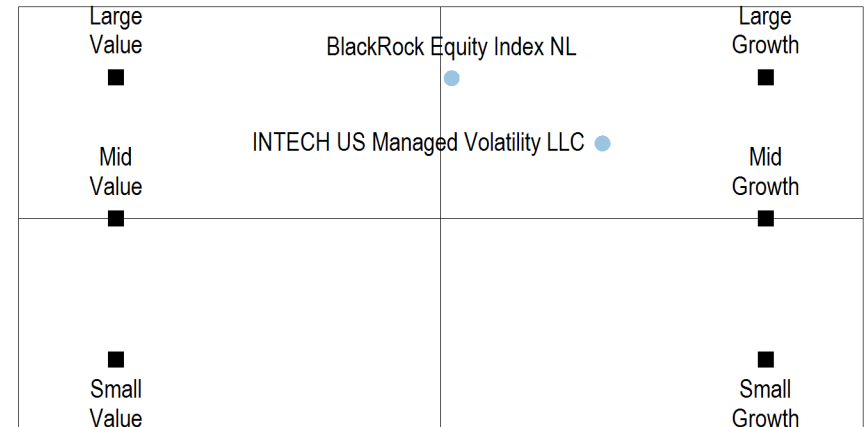
Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Domestic Equity</b>	<b>91,697,227</b>	<b>100.0</b>	<b>4.9</b>	<b>19.4</b>	<b>19.4</b>	<b>10.3</b>	<b>15.0</b>	<b>8.1</b>	<b>19.4</b>	<b>11.5</b>	<b>0.7</b>	<b>12.5</b>	<b>33.5</b>
<i>Dow Jones U.S. Total Stock Market</i>			6.3	21.2	21.2	11.1	15.5	8.7	21.2	12.6	0.4	12.5	33.5
<i>InvestorForce Tft-Hrtly DB US Eq Net Rank</i>			92	71	71	61	44	53	71	61	30	10	66
<b>Domestic Equity</b>	<b>91,697,227</b>	<b>100.0</b>											
BlackRock Equity Index NL	41,802,681	45.6	6.6	21.8	21.8	11.4	15.8	--	21.8	11.9	1.3	13.8	32.4
<i>S&amp;P 500</i>			6.6	21.8	21.8	11.4	15.8	--	21.8	12.0	1.4	13.7	32.4
<i>eV US Large Cap Core Equity Net Rank</i>			48	46	46	19	25	--	46	21	37	33	43
INTECH US Managed Volatility LLC	31,363,313	34.2	4.1	21.4	21.4	9.8	--	--	21.4	5.7	3.2	15.5	--
<i>Russell 1000</i>			6.6	21.7	21.7	11.2	--	--	21.7	12.1	0.9	13.2	--
<i>eV US Large Cap Core Equity Net Rank</i>			91	51	51	60	--	--	51	84	18	14	--
PanAgora US Small Cap Core Stock Selector	18,531,233	20.2	2.5	10.8	10.8	--	--	--	10.8	20.3	--	--	--
<i>Russell 2000</i>			3.3	14.6	14.6	--	--	--	14.6	21.3	--	--	--
<i>eV US Small Cap Core Equity Net Rank</i>			75	83	83	--	--	--	83	41	--	--	--

Total Domestic Equity  
Current Allocation

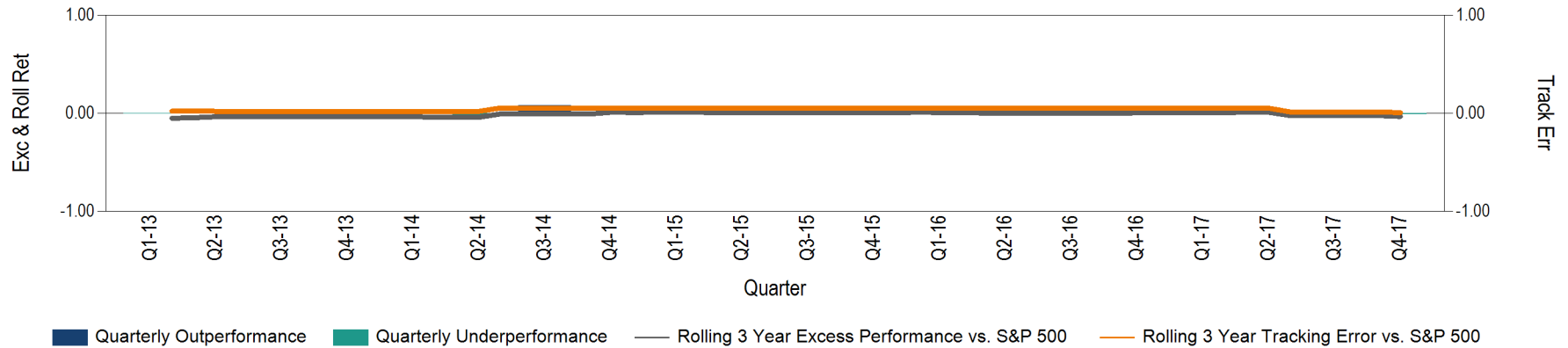


Domestic Effective Style Map  
3 Years

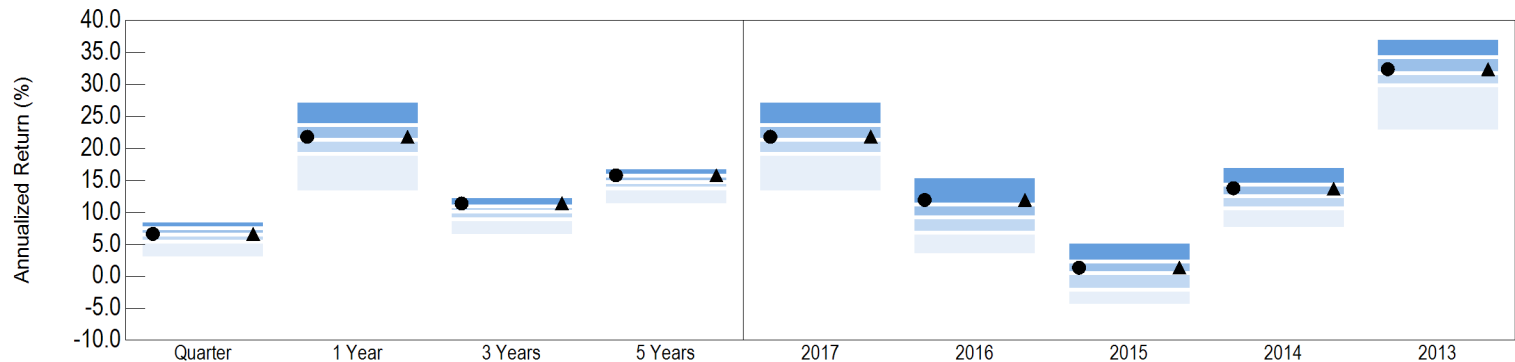


Style map requires 3 years of returns.

Rolling Annualized Excess Performance and Tracking Error

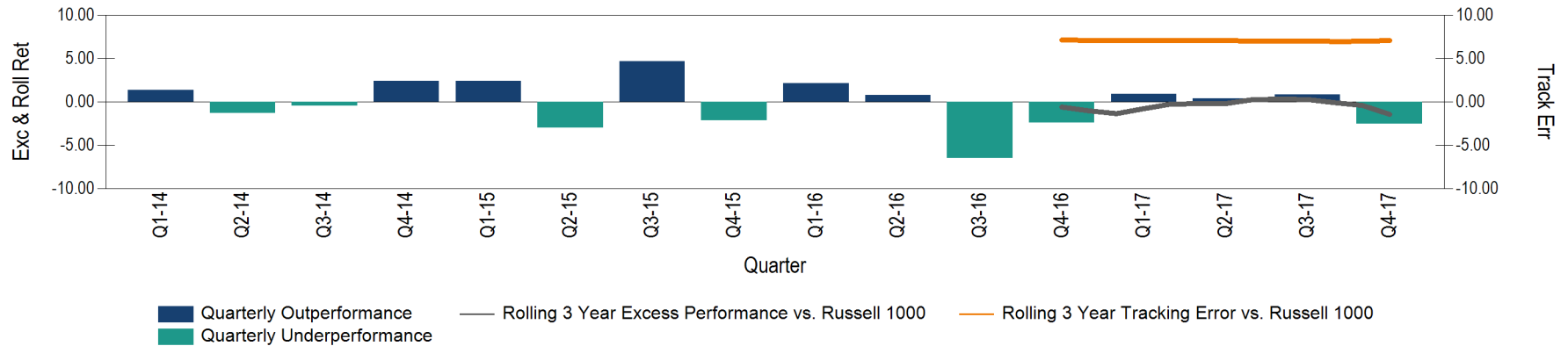


BlackRock Equity Index NL vs. eV US Large Cap Core Equity Net Universe

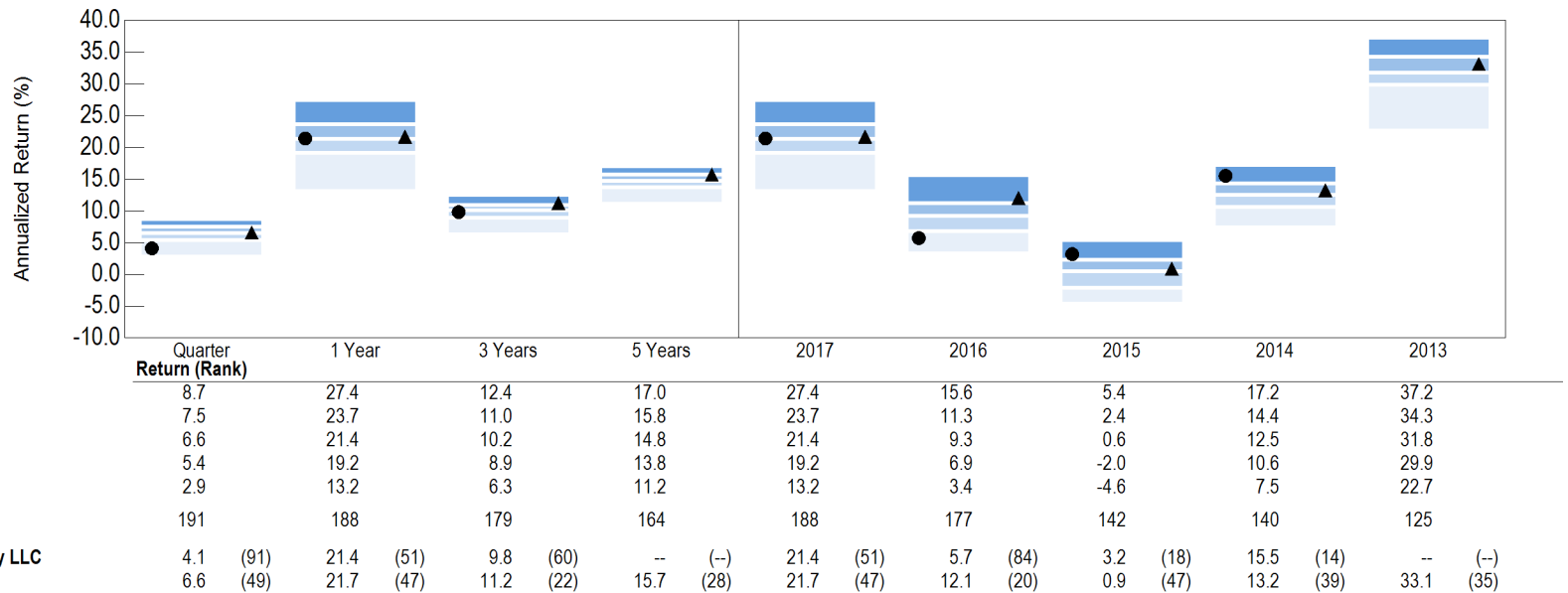


	Quarter	1 Year	3 Years	5 Years	2017	2016	2015	2014	2013
<b>5th Percentile</b>	8.7	27.4	12.4	17.0	27.4	15.6	5.4	17.2	37.2
<b>25th Percentile</b>	7.5	23.7	11.0	15.8	23.7	11.3	2.4	14.4	34.3
<b>Median</b>	6.6	21.4	10.2	14.8	21.4	9.3	0.6	12.5	31.8
<b>75th Percentile</b>	5.4	19.2	8.9	13.8	19.2	6.9	-2.0	10.6	29.9
<b>95th Percentile</b>	2.9	13.2	6.3	11.2	13.2	3.4	-4.6	7.5	22.7
<b># of Portfolios</b>	191	188	179	164	188	177	142	140	125
● BlackRock Equity Index NL	6.6 (48)	21.8 (46)	11.4 (19)	15.8 (25)	21.8 (46)	11.9 (21)	1.3 (37)	13.8 (33)	32.4 (43)
▲ S&P 500	6.6 (48)	21.8 (46)	11.4 (19)	15.8 (25)	21.8 (46)	12.0 (21)	1.4 (37)	13.7 (33)	32.4 (43)

Rolling Annualized Excess Performance and Tracking Error



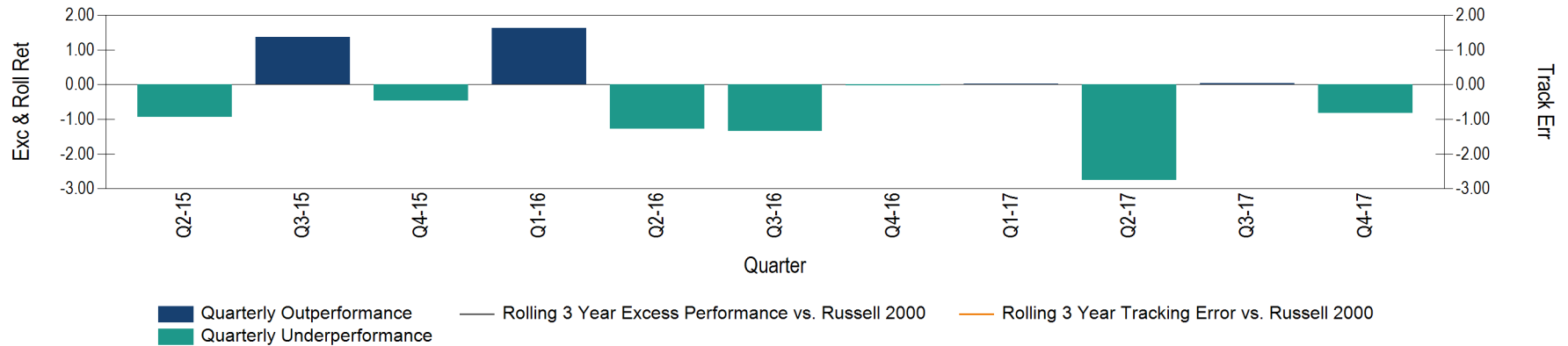
INTECH US Managed Volatility LLC vs. eV US Large Cap Core Equity Net Universe



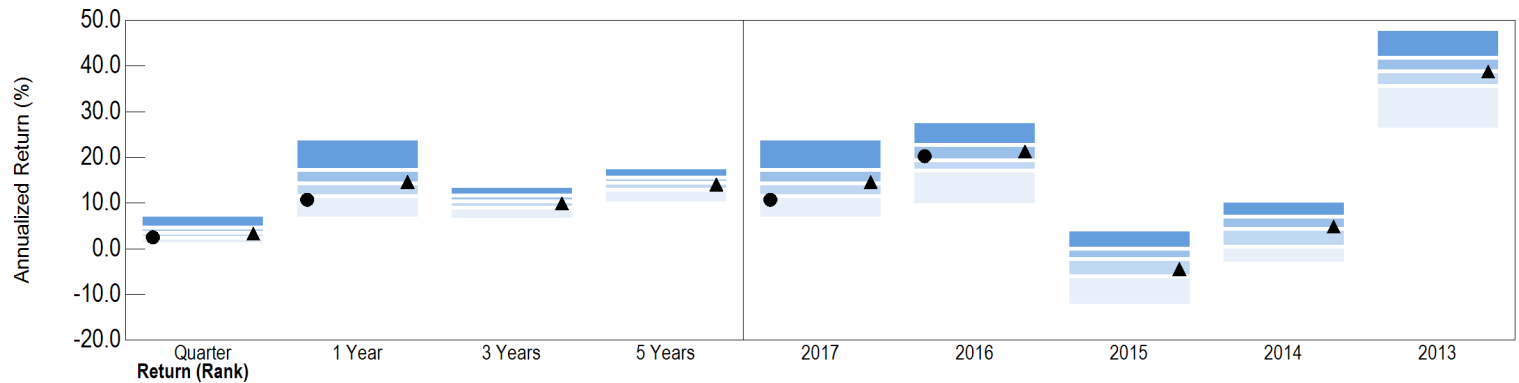
# PanAgora US Small Cap Core Stock Selector Performance Summary (Net of Fees)

Period Ending: December 31, 2017

### Rolling Annualized Excess Performance and Tracking Error



### PanAgora US Small Cap Core Stock Selector vs. eV US Small Cap Core Equity Net Universe



	Quarter	1 Year	3 Years	5 Years	2017	2016	2015	2014	2013
<b>5th Percentile</b>	7.4	24.1	13.8	17.8	24.1	27.8	4.2	10.5	48.0
<b>25th Percentile</b>	4.7	17.3	11.8	15.7	17.3	22.8	0.1	7.2	41.8
<b>Median</b>	3.7	14.4	10.5	14.6	14.4	19.5	-2.1	4.4	38.9
<b>75th Percentile</b>	2.5	11.6	9.0	13.1	11.6	17.3	-5.9	0.6	35.8
<b>95th Percentile</b>	1.1	6.7	6.4	10.0	6.7	9.7	-12.3	-3.1	26.1
<b># of Portfolios</b>	108	106	103	99	106	99	88	77	73
● PanAgora US Small Cap Core Stock Selector	2.5 (75)	10.8 (83)	-- (--)	-- (--)	10.8 (83)	20.3 (41)	-- (--)	-- (--)	-- (--)
▲ Russell 2000	3.3 (59)	14.6 (46)	10.0 (58)	14.1 (58)	14.6 (46)	21.3 (34)	-4.4 (71)	4.9 (47)	38.8 (51)

## International Equity

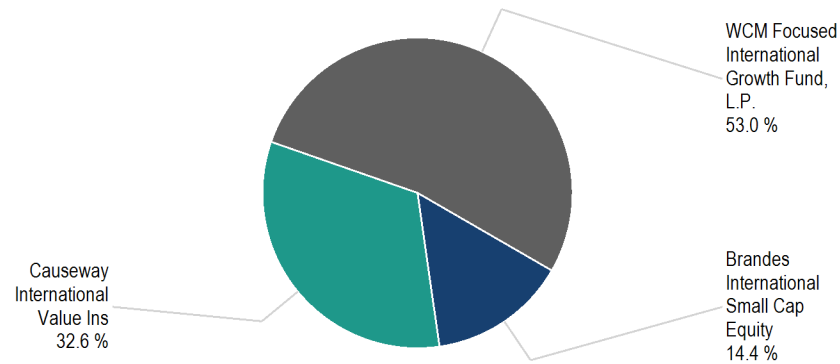
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# Total International Equity Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total International Equity</b>	<b>48,244,185</b>	<b>100.0</b>	<b>4.7</b>	<b>26.6</b>	<b>26.6</b>	<b>6.9</b>	<b>6.4</b>	<b>0.0</b>	<b>26.6</b>	<b>0.9</b>	<b>-4.5</b>	<b>-3.8</b>	<b>16.0</b>
<i>Total Public Int'l Equity Benchmark (MSCI ACWI ex US IMI)</i>			5.2	27.8	27.8	8.4	7.2	1.6	27.8	4.4	-4.6	-3.9	15.8
<i>InvestorForce Tft-Hrtly DB ex-US Eq Net Rank</i>			43	71	71	76	85	97	71	82	51	59	68
<b>International Equity</b>	<b>48,244,185</b>	<b>100.0</b>											
WCM Focused International Growth Fund, L.P.	25,564,471	53.0	5.4	31.1	31.1	--	--	--	31.1	--	--	--	--
<i>MSCI ACWI ex USA</i>			5.0	27.2	27.2	--	--	--	27.2	--	--	--	--
<i>eV ACWI ex-US All Cap Growth Eq Net Rank</i>			49	71	71	--	--	--	71	--	--	--	--
Causeway International Value Ins	15,727,984	32.6	5.1	27.2	27.2	--	--	--	27.2	--	--	--	--
<i>MSCI EAFE</i>			4.2	25.0	25.0	--	--	--	25.0	--	--	--	--
<i>Foreign Large Value MStar MF Rank</i>			11	14	14	--	--	--	14	--	--	--	--
Brandes International Small Cap Equity	6,951,730	14.4	1.3	11.6	11.6	--	--	--	11.6	--	--	--	--
<i>S&amp;P Developed Ex-U.S. SmallCap</i>			6.2	32.4	32.4	--	--	--	32.4	--	--	--	--
<i>eV ACWI ex-US Small Cap Equity Net Rank</i>			98	99	99	--	--	--	99	--	--	--	--

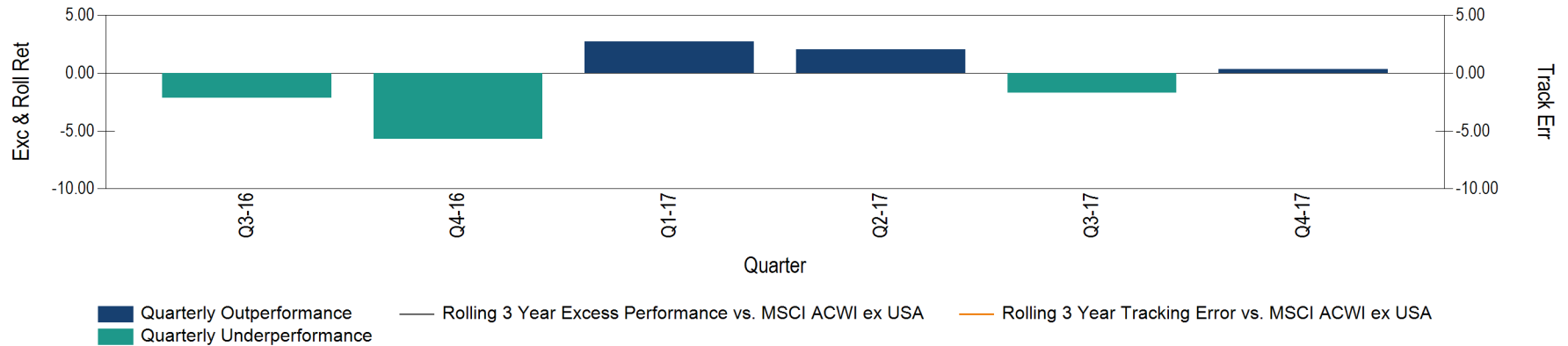
Total International Equity  
Current Allocation



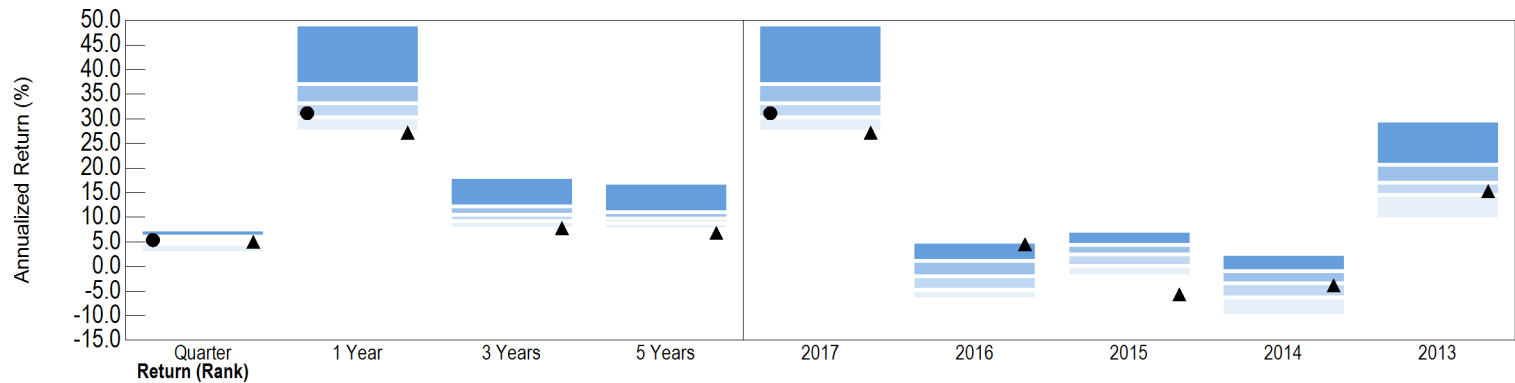
WCM Focused International Growth Fund, L.P.  
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

Rolling Annualized Excess Performance and Tracking Error

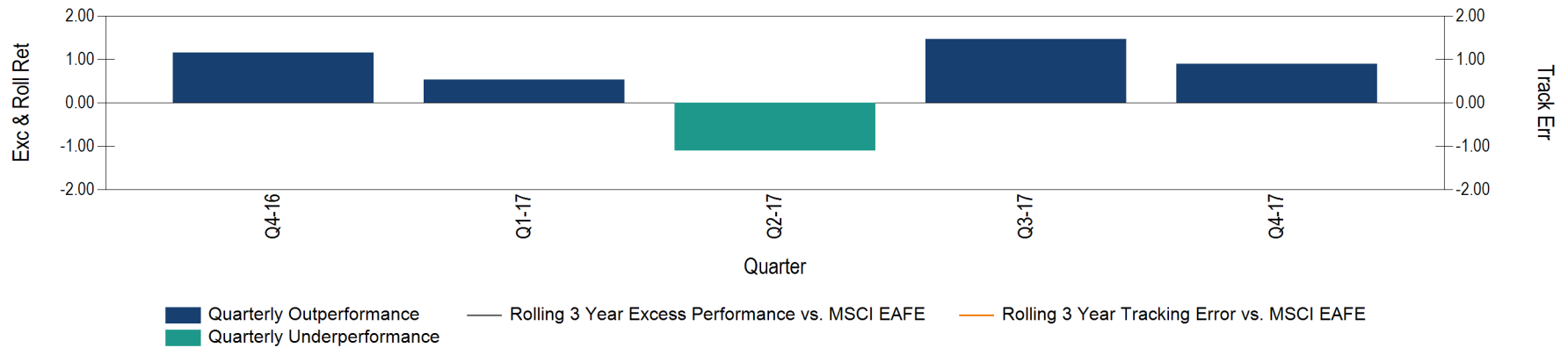


WCM Focused International Growth Fund, L.P. vs. eV ACWI ex-US All Cap Growth Eq Net Universe

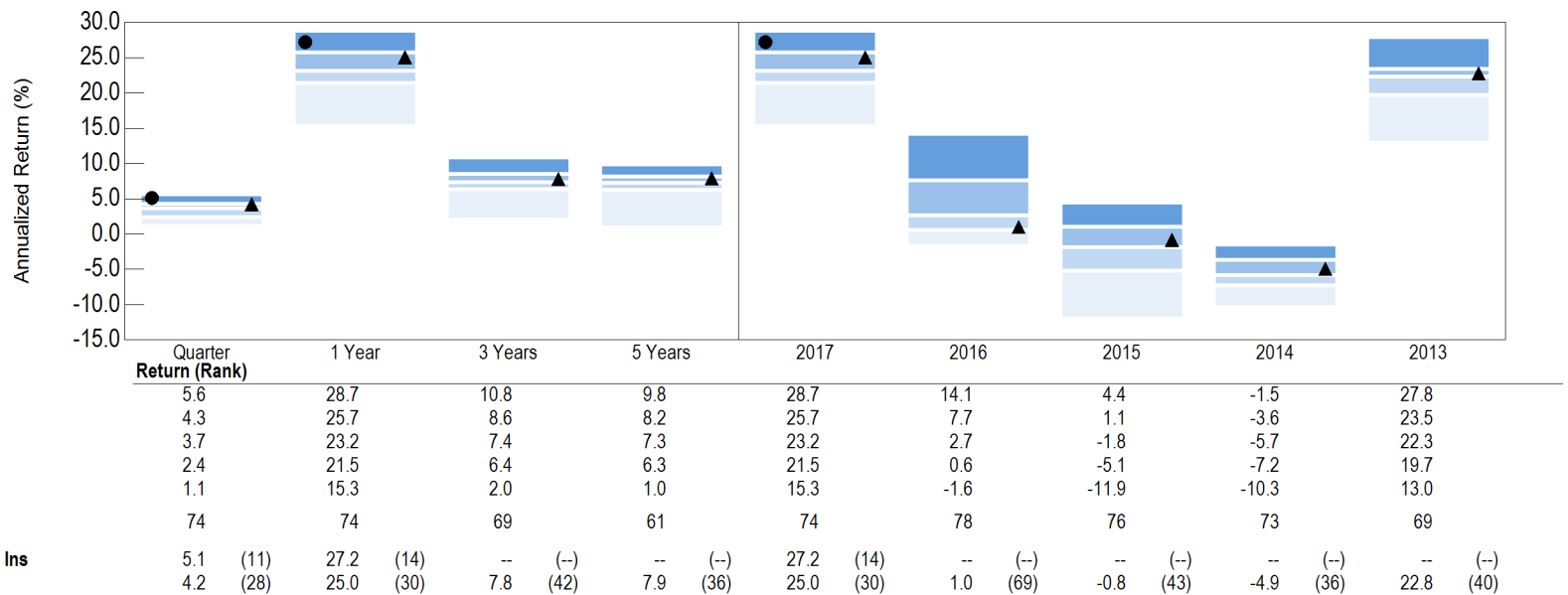


	Quarter	1 Year	3 Years	5 Years	2017	2016	2015	2014	2013
<b>5th Percentile</b>	7.4	49.1	18.1	17.0	49.1	5.0	7.2	2.5	29.5
<b>25th Percentile</b>	6.2	37.2	12.2	11.1	37.2	1.2	4.5	-0.9	20.7
<b>Median</b>	5.3	33.2	10.6	9.7	33.2	-2.0	2.5	-3.4	17.1
<b>75th Percentile</b>	4.8	30.4	9.3	8.9	30.4	-4.7	0.2	-6.3	14.6
<b>95th Percentile</b>	2.8	27.5	7.7	7.6	27.5	-6.6	-1.9	-10.1	9.7
<b># of Portfolios</b>	27	27	26	22	27	25	18	16	12
● WCM Focused International Growth Fund, L.P.	5.4 (49)	31.1 (71)	-- (--)	-- (--)	31.1 (71)	-- (--)	-- (--)	-- (--)	-- (--)
▲ MSCI ACWI ex USA	5.0 (57)	27.2 (96)	7.8 (95)	6.8 (99)	27.2 (96)	4.5 (8)	-5.7 (99)	-3.9 (57)	15.3 (66)

Rolling Annualized Excess Performance and Tracking Error



Causeway International Value Ins vs. Foreign Large Value MStar MF Universe

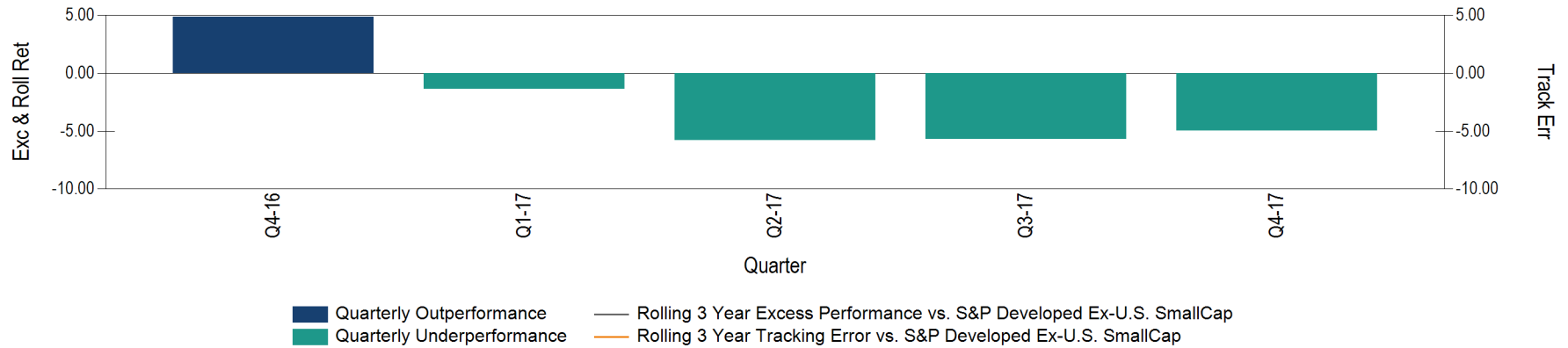




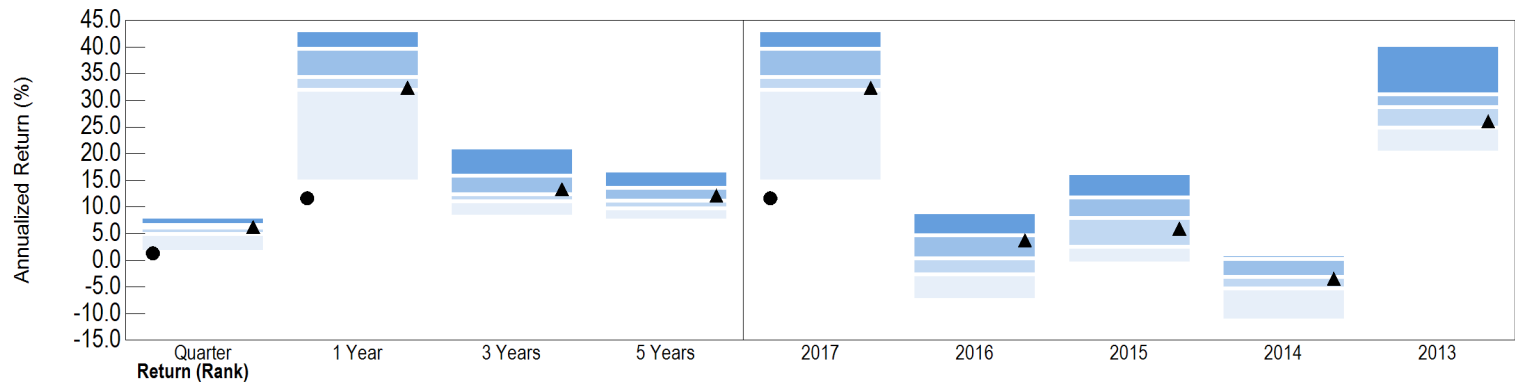
# Brandes International Small Cap Equity Performance Summary (Net of Fees)

Period Ending: December 31, 2017

Rolling Annualized Excess Performance and Tracking Error



Brandes International Small Cap Equity vs. eV ACWI ex-US Small Cap Equity Net Universe



	Quarter	1 Year	3 Years	5 Years	2017	2016	2015	2014	2013
<b>5th Percentile</b>	8.1	43.1	21.1	16.8	43.1	9.0	16.3	1.0	40.3
<b>25th Percentile</b>	6.7	39.7	15.9	13.6	39.7	4.7	11.8	0.3	31.2
<b>Median</b>	6.2	34.4	12.5	11.3	34.4	0.4	8.0	-3.0	28.8
<b>75th Percentile</b>	5.0	32.1	11.1	9.8	32.1	-2.6	2.6	-5.2	25.0
<b>95th Percentile</b>	1.6	14.9	8.3	7.5	14.9	-7.4	-0.5	-11.2	20.3
<b># of Portfolios</b>	45	45	37	27	45	42	27	16	13
● Brandes International Small Cap Equity	1.3 (98)	11.6 (99)	-- (--)	-- (--)	11.6 (99)	-- (--)	-- (--)	-- (--)	-- (--)
▲ S&P Developed Ex-U.S. SmallCap	6.2 (46)	32.4 (68)	13.3 (46)	12.1 (39)	32.4 (68)	3.8 (29)	5.9 (57)	-3.4 (62)	26.1 (71)

## Domestic Fixed Income

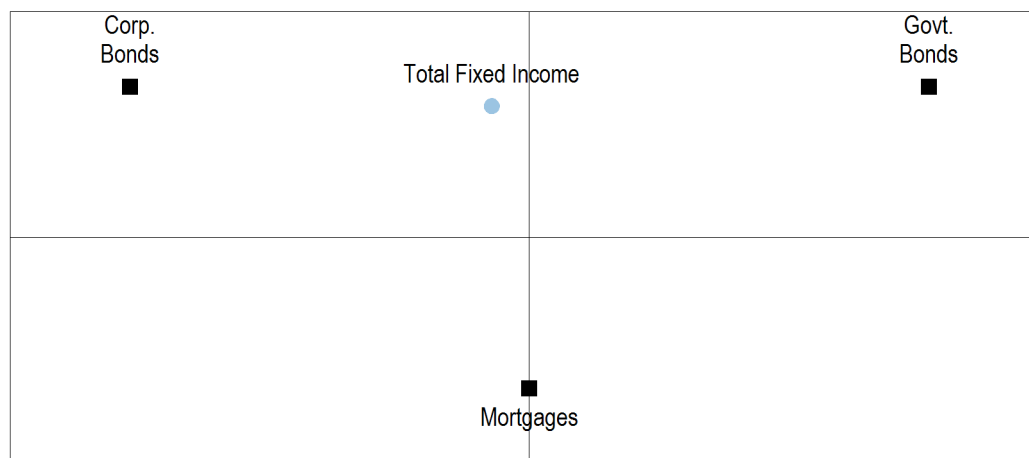
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# Total Fixed Income Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Fixed Income</b>	<b>70,907,544</b>	<b>100.0</b>	<b>0.8</b>	<b>5.6</b>	<b>5.6</b>	<b>3.6</b>	<b>3.4</b>	<b>5.2</b>	<b>5.6</b>	<b>7.5</b>	<b>-2.1</b>	<b>5.9</b>	<b>0.2</b>
<i>Total Fixed Income Benchmark (BBgBarc Aggregate)</i>			0.4	3.5	3.5	2.2	2.1	4.0	3.5	2.6	0.5	6.0	-2.0
<i>InvestorForce Tft-Hrtly DB US Fix Inc Net Rank</i>			15	18	18	23	19	22	18	9	93	10	40
<b>Fixed Income</b>	<b>70,907,544</b>	<b>100.0</b>											
Loomis Sayles Core Plus	70,907,544	100.0	0.8	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>			0.4	--	--	--	--	--	--	--	--	--	--
<i>eV US Core Plus Fixed Inc Net Rank</i>			16	--	--	--	--	--	--	--	--	--	--

Fixed Income Style Map  
3 Years



Loomis Sayles Core Plus replaced Loomis Sayles Full Discretion 3/21/2017.

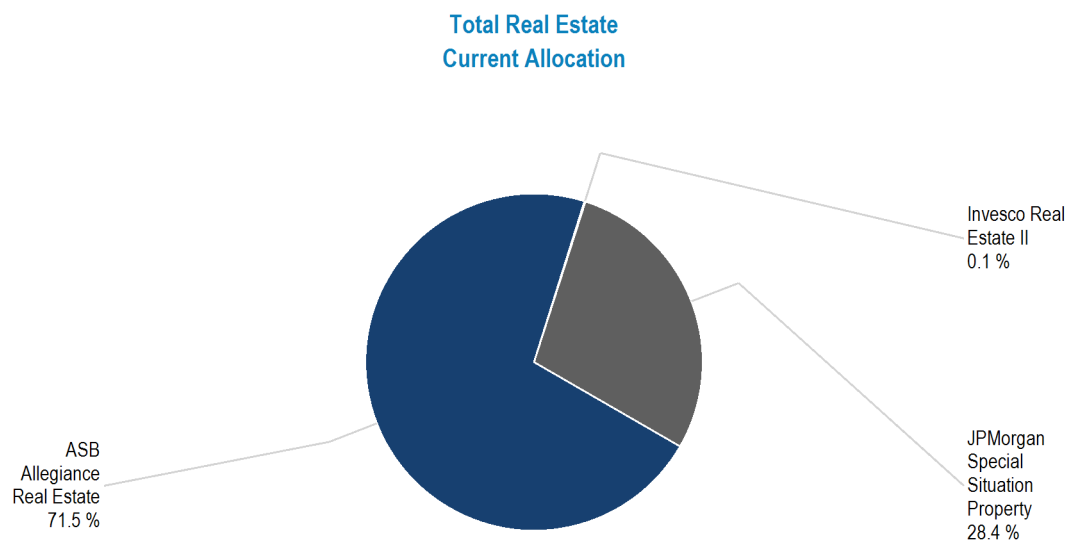
## Alternatives

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Total Real Estate  
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Real Estate</b>	<b>46,057,474</b>	<b>100.0</b>	<b>1.7</b>	<b>5.0</b>	<b>5.0</b>	<b>9.0</b>	<b>10.4</b>	<b>4.5</b>	<b>5.0</b>	<b>5.4</b>	<b>16.9</b>	<b>11.2</b>	<b>14.1</b>
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
<b>Real Estate</b>	<b>46,057,474</b>	<b>100.0</b>											
ASB Allegiance Real Estate	32,943,154	71.5	1.8	3.9	3.9	--	--	--	3.9	4.5	--	--	--
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	--	--	--	7.6	8.8	--	--	--
Invesco Real Estate II	45,829	0.1	0.9	4.8	4.8	4.0	9.1	--	4.8	1.2	6.1	11.5	23.1
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	10.4	11.5	--	7.6	8.8	15.0	12.5	13.9
JPMorgan Special Situation Property	13,068,491	28.4	1.5	8.0	8.0	11.8	--	--	8.0	8.7	18.9	--	--
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	10.4	--	--	7.6	8.8	15.0	--	--



Total Hedge Funds  
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

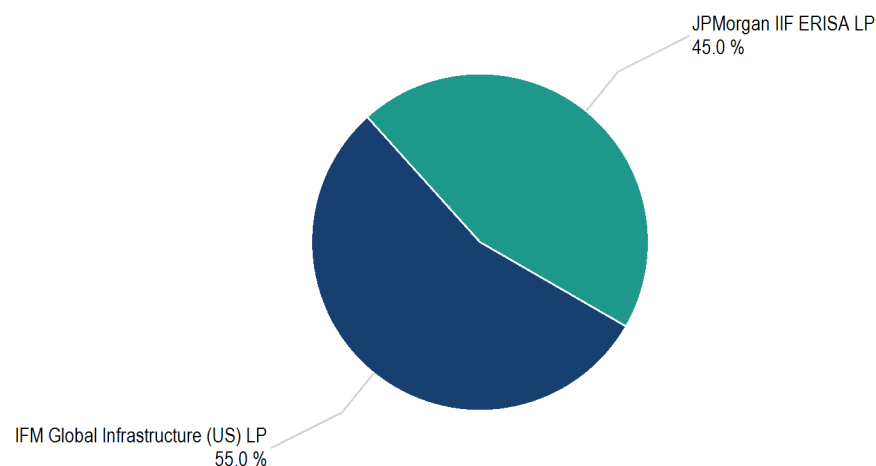
	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Hedge Funds</b>	<b>17,656,895</b>	<b>100.0</b>	<b>2.3</b>	<b>6.1</b>	<b>6.1</b>	<b>2.6</b>	<b>3.9</b>	<b>--</b>	<b>6.1</b>	<b>2.3</b>	<b>-0.3</b>	<b>3.9</b>	<b>7.7</b>
<i>HFRI Fund of Funds Composite Index</i>			2.0	7.7	7.7	2.6	4.0	--	7.7	0.5	-0.3	3.4	9.0
<b>Hedge Funds</b>	<b>17,656,895</b>	<b>100.0</b>											
Grosvenor Institutional Partners LP	17,656,895	100.0	2.3	6.1	6.1	2.6	5.1	--	6.1	2.3	-0.3	3.2	15.0
<i>HFRI FOF Diversified Index</i>			2.0	6.8	6.8	2.3	3.8	--	6.8	0.4	-0.2	3.4	9.0

# Total Infrastructure Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Infrastructure</b>	<b>19,270,836</b>	<b>100.0</b>	<b>3.8</b>	<b>17.9</b>	<b>17.9</b>	<b>8.4</b>	<b>6.3</b>	<b>--</b>	<b>17.9</b>	<b>3.8</b>	<b>4.1</b>	<b>-0.3</b>	<b>6.7</b>
<i>CPI + 5%</i>			1.1	7.2	7.2	6.7	6.5	--	7.2	7.2	5.8	5.8	6.6
<b>Infrastructure</b>	<b>19,270,836</b>	<b>100.0</b>											
IFM Global Infrastructure (US) LP	10,608,108	55.0	4.6	21.1	21.1	10.5	7.8	--	21.1	6.1	5.1	1.3	6.7
<i>CPI + 5%</i>			1.1	7.2	7.2	6.7	6.5	--	7.2	7.2	5.8	5.8	6.6
JPMorgan IIF ERISA LP	8,662,728	45.0	2.9	14.2	14.2	6.1	4.6	--	14.2	1.2	3.4	-1.6	6.8
<i>CPI + 5%</i>			1.1	7.2	7.2	6.7	6.5	--	7.2	7.2	5.8	5.8	6.6

Total Infrastructure  
Current Allocation

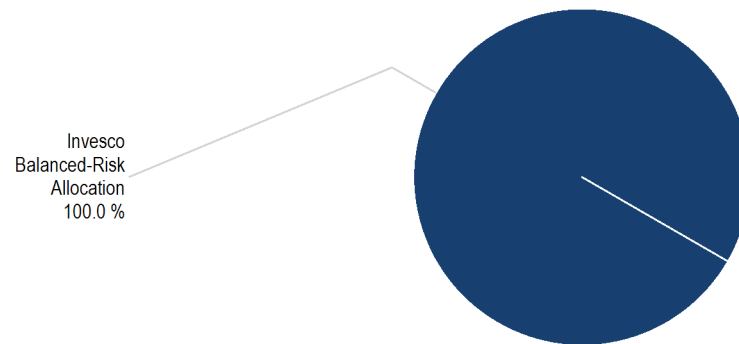


Total Multi-Asset  
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
<b>Total Multi-Asset</b>	<b>36,505,068</b>	<b>100.0</b>	<b>5.1</b>	<b>10.7</b>	<b>10.7</b>	<b>5.6</b>	<b>6.3</b>	<b>4.3</b>	<b>10.7</b>	<b>7.4</b>	<b>-1.0</b>	<b>6.7</b>	<b>7.9</b>
60% MSCI ACWI Net/40% CITI WGBI			3.8	17.1	17.1	6.4	6.5	4.2	17.1	5.5	-2.6	2.3	11.4
eV Global Balanced Net Rank			1	99	99	79	99	86	99	54	38	31	94
<b>Multi-Asset</b>	<b>36,505,068</b>	<b>100.0</b>											
Invesco Balanced-Risk Allocation	36,505,068	100.0	5.1	10.5	10.5	6.2	5.4	--	10.5	12.2	-3.5	6.3	2.3
60% MSCI ACWI Net/40% CITI WGBI			3.8	17.1	17.1	6.4	6.5	--	17.1	5.5	-2.6	2.3	11.4
Citi 3-Month T-bill +6%			1.7	6.9	6.9	6.4	6.3	--	6.9	6.3	6.0	6.0	6.1
eV Global Balanced Net Rank			1	99	99	66	99	--	99	19	74	37	97

Total Multi-Asset  
Current Allocation



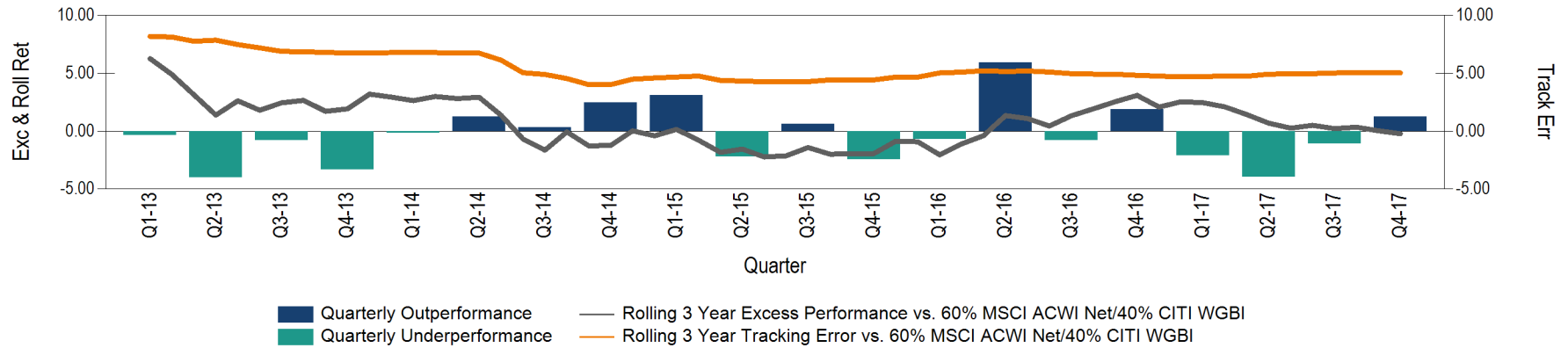
Mellon Dynamic liquidated 5/5/2017.



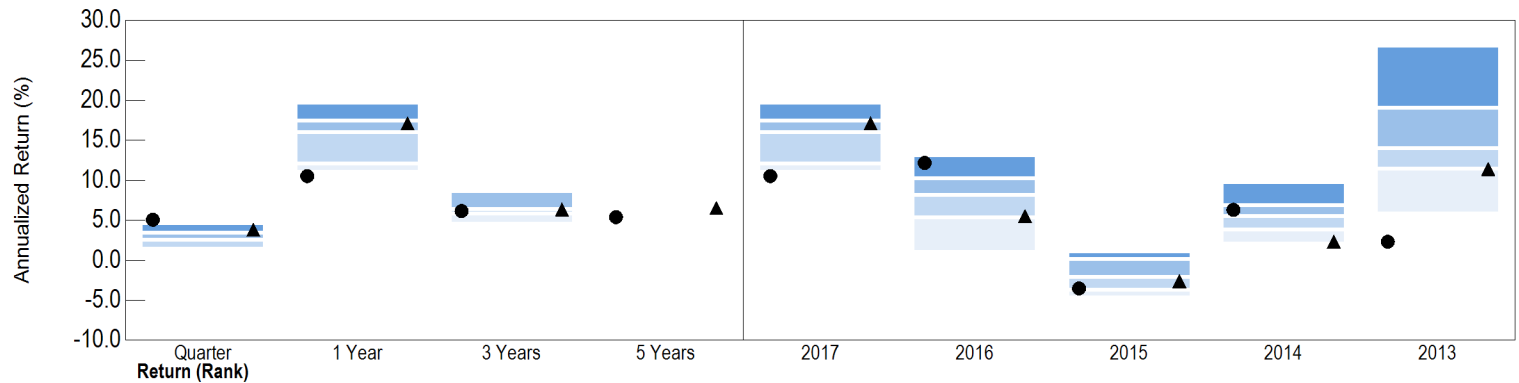
Invesco Balanced-Risk Allocation  
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

Rolling Annualized Excess Performance and Tracking Error



Invesco Balanced-Risk Allocation vs. eV Global Balanced Net Universe



	Quarter	1 Year	3 Years	5 Years	2017	2016	2015	2014	2013
<b>5th Percentile</b>	4.6	19.6	9.1	8.6	19.6	13.1	1.1	9.7	26.8
<b>25th Percentile</b>	3.5	17.5	8.7	8.2	17.5	10.3	0.2	7.0	19.1
<b>Median</b>	2.6	16.1	6.5	7.8	16.1	8.2	-2.0	5.6	14.1
<b>75th Percentile</b>	1.5	12.2	5.9	7.6	12.2	5.4	-3.7	3.9	11.5
<b>95th Percentile</b>	1.2	11.1	4.6	7.1	11.1	1.1	-4.6	2.2	5.9
<b># of Portfolios</b>	9	9	9	5	9	13	13	14	14
● Invesco Balanced-Risk Allocation	5.1 (1)	10.5 (99)	6.2 (66)	5.4 (99)	10.5 (99)	12.2 (19)	-3.5 (74)	6.3 (37)	2.3 (97)
▲ 60% MSCI ACWI Net/40% CITI WGBI	3.8 (20)	17.1 (29)	6.4 (55)	6.5 (99)	17.1 (29)	5.5 (68)	-2.6 (64)	2.3 (94)	11.4 (78)

**Performance Return Calculations**

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

**Data Source**

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

**Illiquid Alternatives**

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

**Manager Line Up**

<b>Manager</b>	<b>Fund Incepted</b>	<b>Data Source</b>	<b>Manager</b>	<b>Fund Incepted</b>	<b>Data Source</b>
BlackRock Equity Index NL	4/30/2010	BlackRock	Invesco Real Estate II	6/30/2008	Invesco
INTECH US Managed Volatility	12/31/2013	INTECH	JPMorgan SSP	12/31/2014	JP Morgan
PanAgora US Small Cap	1/31/2015	PanAgora	Grosvenor Instl Partners LP	10/31/2009	Grosvenor
WCM Focused International Growth	7/1/2016	WCM	IFM Global Infrastructure (US) LP	1/31/2009	IFM
Causeway International Value	7/27/2016	US Bank	JPMorgan IIF ERISA LP	9/30/2010	JP Morgan
Brandes International Small Cap II	8/1/2016	Brandes	Invesco Balanced-Risk Allocation	1/31/2010	Invesco
Loomis Sayles Core Plus	3/21/2017	Loomis Sayles	US Bank Checking Account	N/A	US Bank
ASB Allegiance Real Estate	3/31/2015	ASB	US Bank Clearing Account	N/A	US Bank

**Policy & Custom Index Composition**

Policy Index: 51% MSCI World, 34% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI Fund of Funds Composite.

Target Asset Allocation Policy: 24.5% Dow Jones US Total Stock, 12.5% MSCI ACWI ex US IMI, 23% BBgBarc Aggregate, 10% NCREIF-ODCE, 5% HFRI FoF Composite, 5% CPI + 5%, and 20% (60%MSCI ACWI Net/40% CITI WGBI).

# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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