

Fresno County Employees' Retirement Association

Investment Performance Review
Period Ending: December 31, 2019



VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

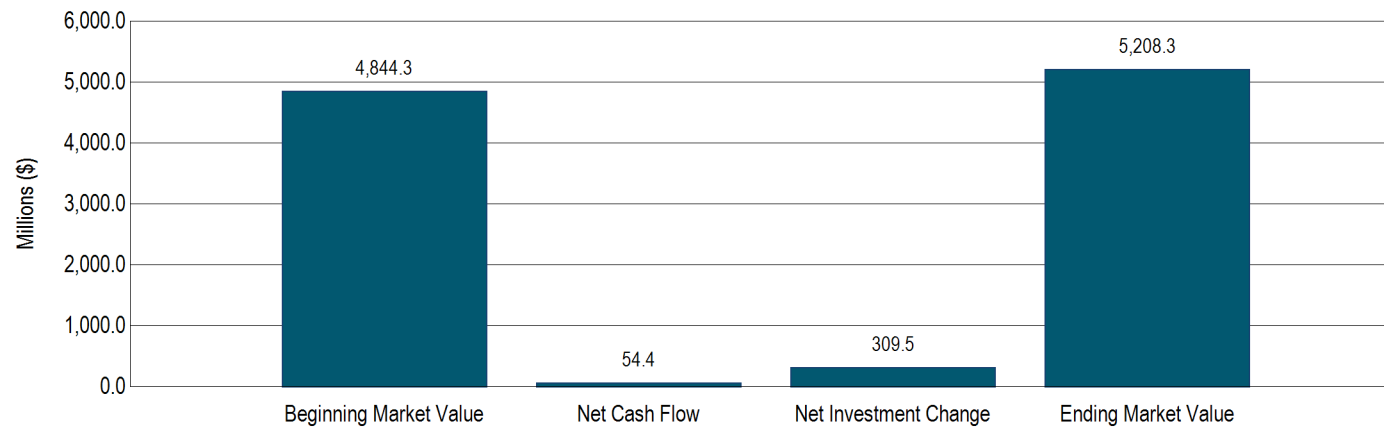
Total Fund
Portfolio Reconciliation

Period Ending: December 31, 2019

Portfolio Reconciliation

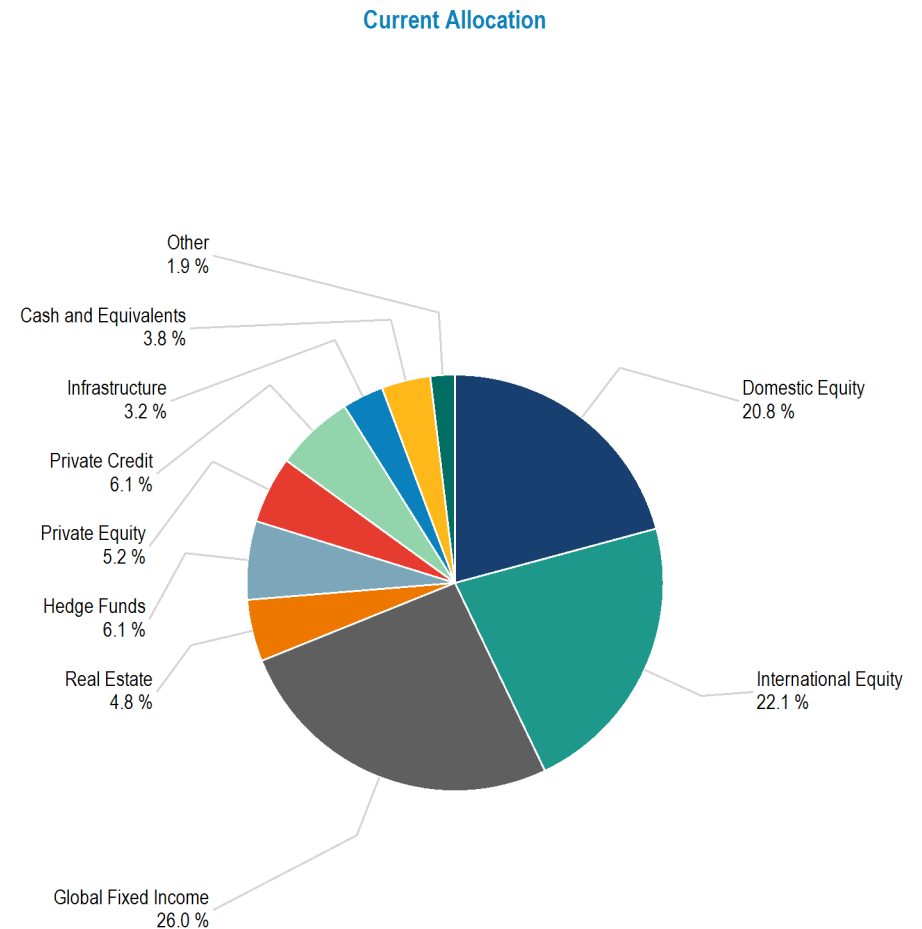
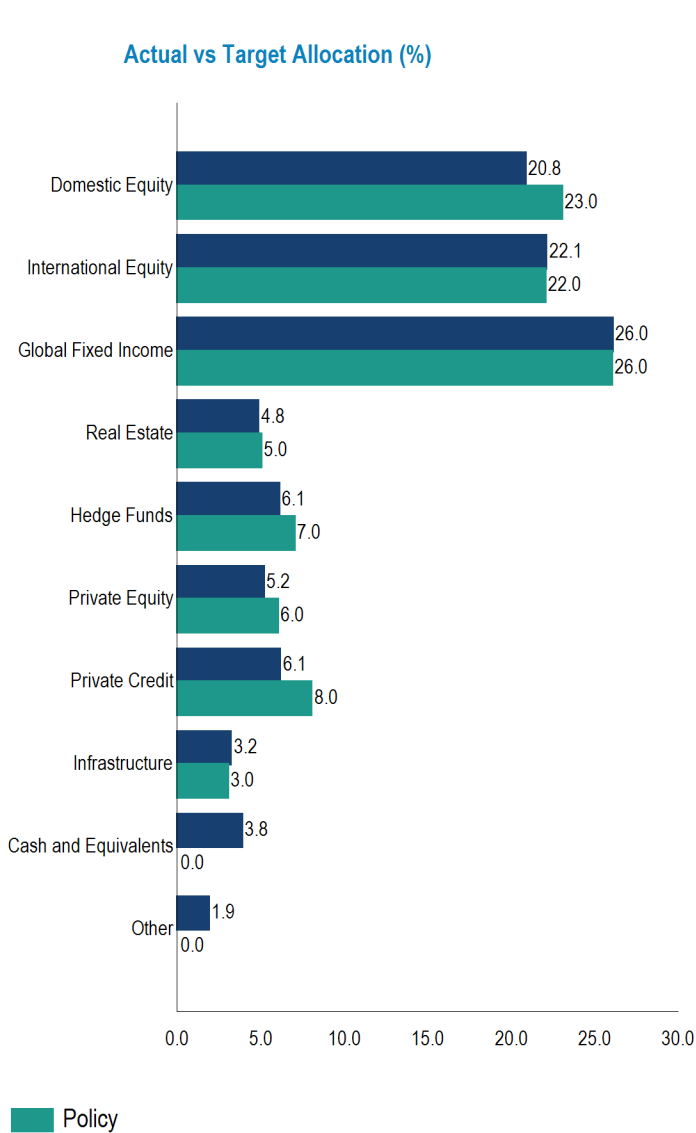
	Last Three Months	Year-To-Date
Beginning Market Value	\$4,844,327,550	\$4,470,075,824
Net Cash Flow	\$54,445,211	-\$22,005,386
Net Investment Change	\$309,482,974	\$760,185,297
Ending Market Value	\$5,208,255,734	\$5,208,255,734

Change in Market Value
Last Three Months



Total Fund Asset Allocation

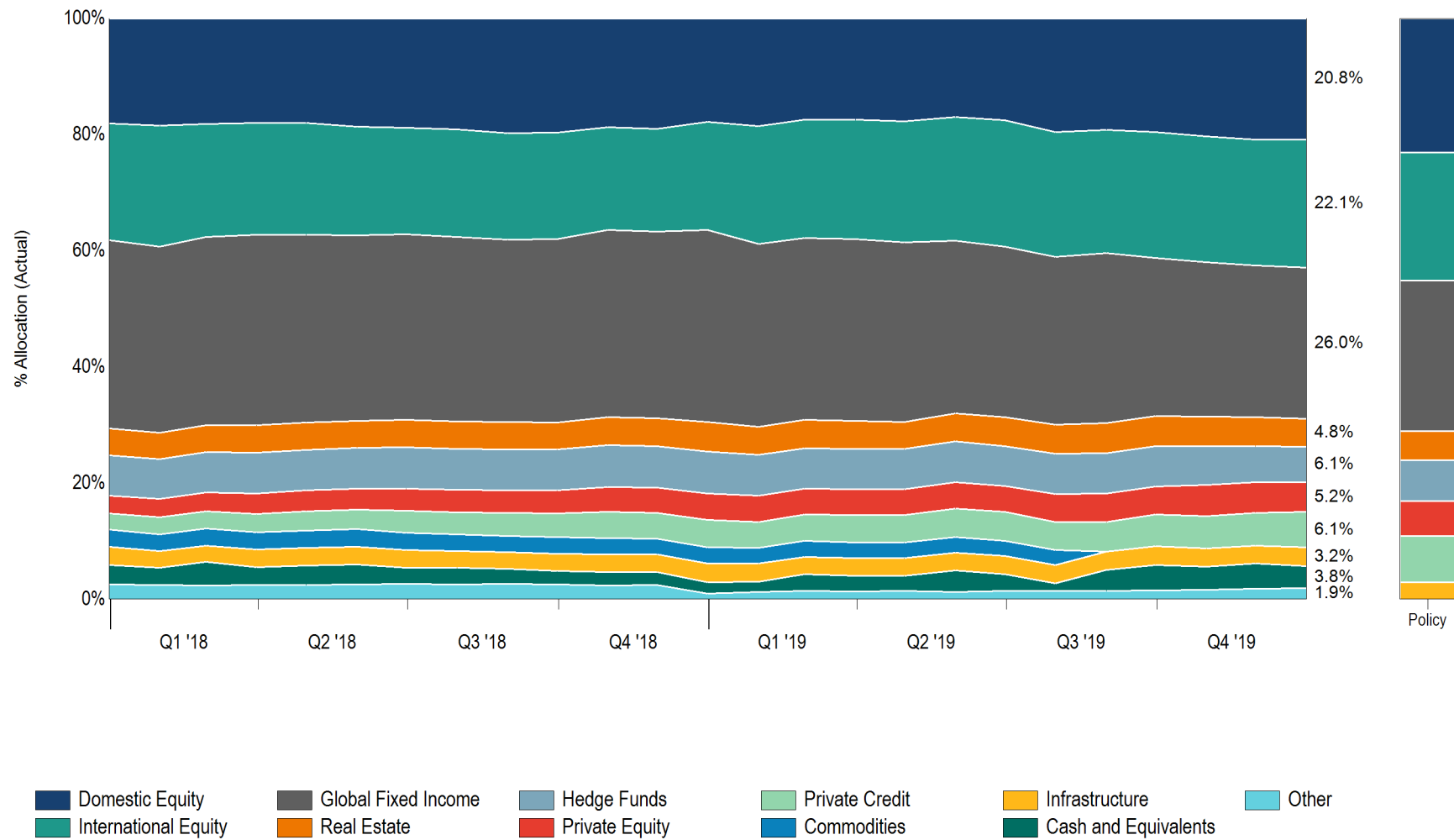
Period Ending: December 31, 2019



Other consists of cash held for the overlay program. The target allocation reflects the most recent asset allocation targets per Asset Allocation Glidepath in IPS.

Total Fund Asset Allocation History

Period Ending: December 31, 2019



Total Fund Executive Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	2019	2018	2017	2016	2015
Total Fund	5,208,255,734	100.0	6.2	6.4	16.8	8.9	6.1	7.8	6.7	16.8	-3.6	14.6	6.7	-2.5
Policy Index			5.2	5.7	15.0	8.3	5.8	7.2	5.8	15.0	-3.2	14.0	6.5	-1.7
InvMetrics Public DB > \$1B Net Rank			3	12	52	51	92	65	35	52	41	67	80	86
Total Equity	2,234,382,988	42.9	9.6	8.7	26.0	12.3	7.9	9.9	--	26.0	-9.5	24.2	6.1	-2.6
MSCI ACWI IMI NR			9.0	8.9	26.4	12.1	8.3	8.9	7.0	26.4	-10.1	23.9	8.4	-2.2
Total Domestic Equity	1,084,849,744	20.8	9.6	9.4	28.0	13.5	10.1	13.0	--	28.0	-5.1	20.2	8.9	1.5
Russell 3000			9.1	10.4	31.0	14.6	11.2	13.4	9.0	31.0	-5.2	21.1	12.7	0.5
Total International Equity	1,149,533,244	22.1	9.5	8.1	24.2	11.3	5.6	6.2	--	24.2	-13.6	28.5	3.0	-7.5
MSCI ACWI ex USA Gross			9.0	7.1	22.1	10.4	6.0	5.4	5.7	22.1	-13.8	27.8	5.0	-5.3
Total Fixed Income	1,356,045,447	26.0	2.8	3.0	11.0	5.2	3.5	4.8	--	11.0	-2.9	8.0	6.7	-4.5
BBgBarc Global Aggregate*			0.5	1.2	6.8	4.3	2.3	2.8	3.5	6.8	-1.2	7.4	2.1	-3.2
Total Real Estate	251,123,953	4.8	2.4	3.5	6.4	7.4	8.9	10.0	--	6.4	9.2	6.8	8.5	13.9
NCREIF ODCE Net			1.3	2.4	4.4	6.1	8.0	10.4	6.7	4.4	7.4	6.7	7.8	13.9
Total Infrastructure	165,183,101	3.2	5.2	7.5	14.6	17.9	--	--	--	14.6	20.1	19.0	6.1	--
NCREIF ODCE Net			1.3	2.4	4.4	6.1	8.0	10.4	6.7	4.4	7.4	6.7	7.8	13.9
Total Hedge Funds	316,354,905	6.1	2.9	2.5	7.3	3.7	2.8	2.9	3.4	7.3	-0.7	4.6	3.0	0.0
HFRI Fund of Funds Composite Index			3.1	2.1	8.4	3.9	2.4	2.8	2.8	8.4	-4.0	7.8	0.5	-0.3
Total Private Equity 1 Qtr Lagged	268,886,276	5.2	8.1	13.6	16.7	14.2	11.3	12.6	12.5	16.7	12.0	13.9	10.7	3.8
Russell 2000 1 Qtr Lagged			-2.4	-0.4	-8.9	5.2	6.2	10.8	7.2	-8.9	15.2	10.9	21.3	-4.4
Total Private Credit 1 Qtr Lagged	318,848,600	6.1	5.4	4.3	5.3	7.0	5.1	14.2	12.7	5.3	7.6	8.1	7.4	-2.5
BBgBarc US Corp. High Yield 1 Qtr Lagged			1.3	3.9	6.4	5.5	5.6	7.3	7.0	6.4	3.0	7.0	17.1	-4.5
Total Custodied Cash	53,086,234	1.0	1.8	3.0	4.5	2.2	1.5	1.1	--	4.5	1.9	0.1	0.8	0.0
91 Day T-Bills			0.4	0.9	2.1	1.6	1.1	0.6	1.3	2.1	1.9	0.9	0.3	0.0
Total County Cash	146,927,072	2.8	0.2	0.7	2.2	--	--	--	--	2.2	2.4	--	--	--
91 Day T-Bills			0.4	0.9	2.1	1.6	1.1	0.6	1.3	2.1	1.9	0.9	0.3	0.0

Policy Index (Floating policy weights updated as of 12/31/2019. See Data Sources and Methodology for monthly policy breakout): 23% Russell 3000 Index, 26% BBgBarc Global Aggregate Index, 22% MSCI ACWI ex US, 0.84% Russell 2000, 1.88% BBgBarc US Corp. High Yield, 5.16% Private Equity Neutralized, 6.12% Private Credit Neutralized, 7% HFRI FoF Composite, & 8% NCREIF ODCE Net. Composite total market values reflect manager exposures and any underlying cash balances. De-risking of the Plan commenced on April 30, 2014. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. *Prior to 3/31/2014 BBgBarc U.S. Aggregate Index and as of 4/1/2014 BBgBarc Global Aggregate Index.

Total Fund Executive Summary (Gross of Fees)

Period Ending: December 31, 2019

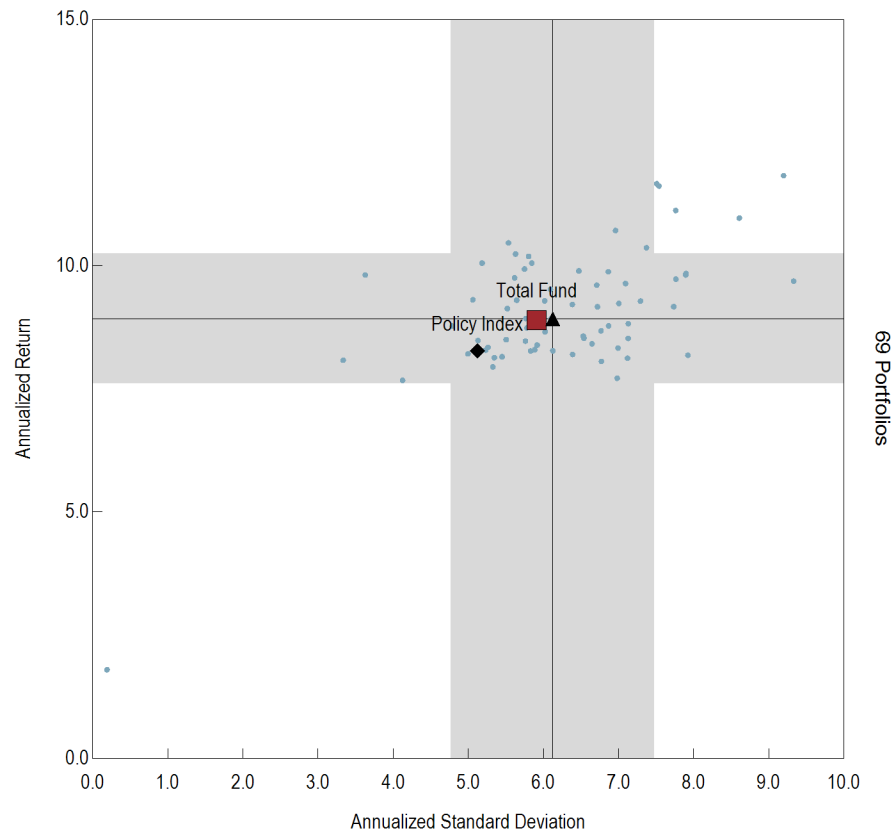
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Total Infrastructure	165,183,101	3.2	5.2	7.5	14.6	17.9	--	--	--	--	14.6	20.1	19.0	7.2	--
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Total Hedge Funds	316,354,905	6.1	2.9	2.5	7.3	3.7	3.1	3.7	--	--	7.3	-0.7	4.6	3.8	0.9
<i>HFRI Fund of Funds Composite Index</i>			3.1	2.1	8.4	3.9	2.4	2.8	2.8	3.4	8.4	-4.0	7.8	0.5	-0.3
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Total County Cash	146,927,072	2.8	0.2	0.7	2.2	--	--	--	--	--	2.2	2.4	--	--	--
<i>91 Day T-Bills</i>			0.4	0.9	2.1	1.6	1.1	0.6	1.3	1.6	2.1	1.9	0.9	0.3	0.0

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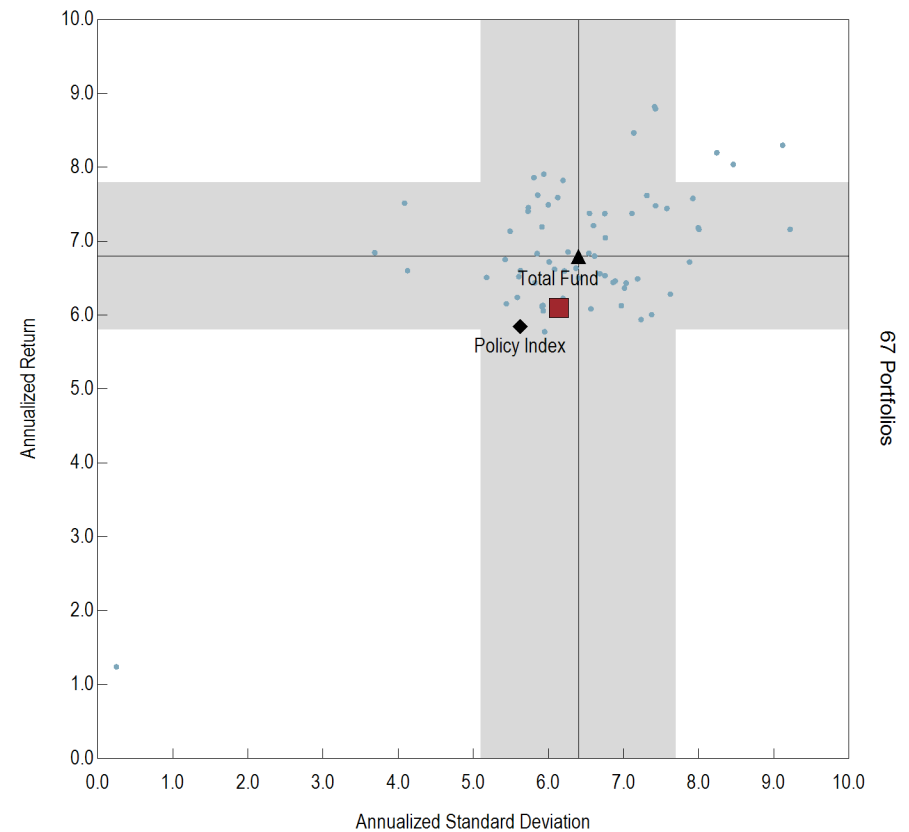
Total Fund Risk Analysis (Net of Fees)

Period Ending: December 31, 2019

3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Total Fund	8.9%	5.9%	1.2
Policy Index	8.3%	5.1%	1.3
InvMetrics Public DB > \$1B Net Median	8.9%	6.1%	1.2

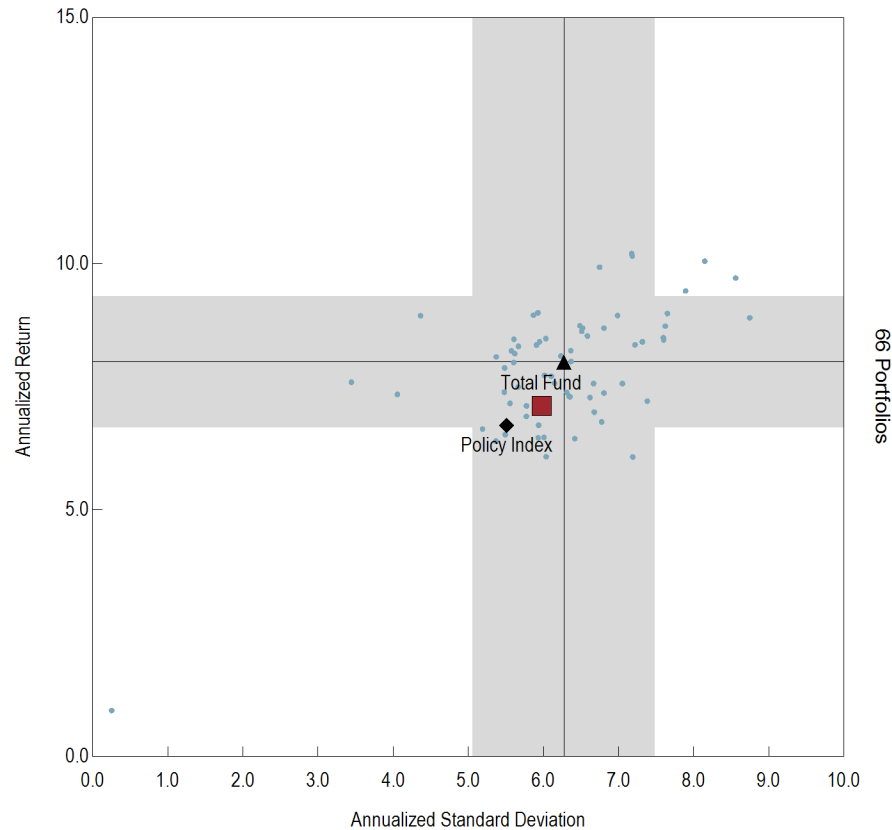
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Total Fund	6.1%	6.1%	0.8
Policy Index	5.8%	5.6%	0.9
InvMetrics Public DB > \$1B Net Median	6.8%	6.4%	0.9

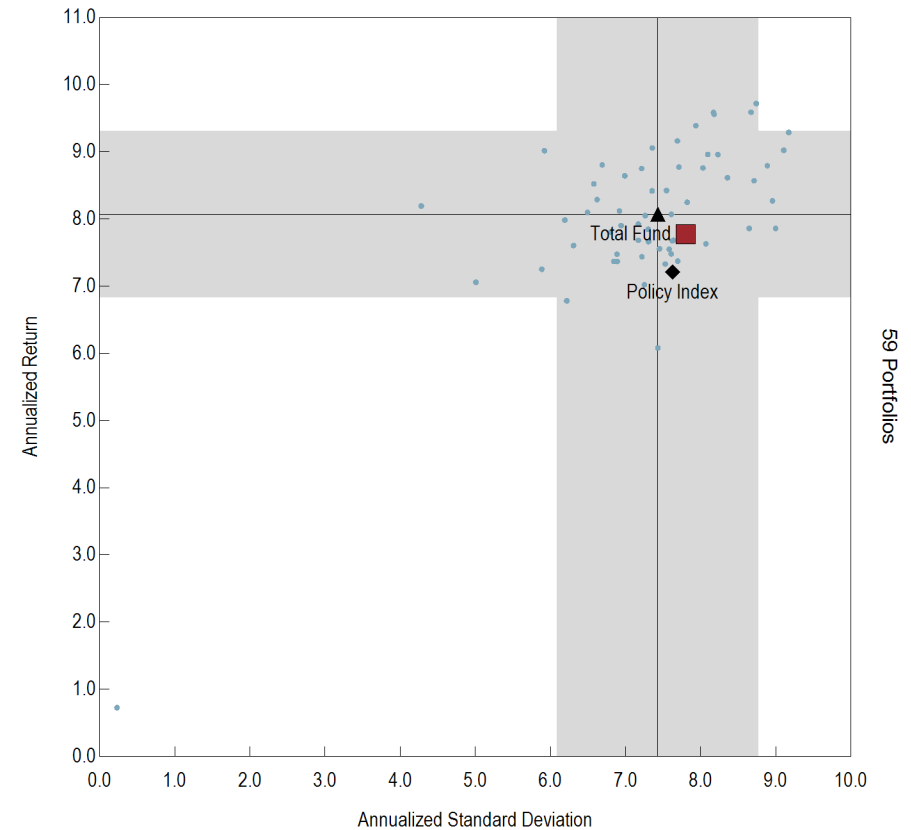
Total Fund Risk Analysis (Net of Fees)

Period Ending: December 31, 2019

7 Years



10 Years



7 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Total Fund	7.1%	6.0%	1.1
Policy Index	6.7%	5.5%	1.1
InvMetrics Public DB > \$1B Net Median	8.0%	6.3%	1.1

10 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Total Fund	7.8%	7.8%	0.9
Policy Index	7.2%	7.6%	0.9
InvMetrics Public DB > \$1B Net Median	8.1%	7.4%	1.0

Total Fund Risk Analysis (Net of Fees)

Period Ending: December 31, 2019

3 Years

	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
Total Fund	5.91%	-0.53%	1.14	0.97	112.87%	116.70%	0.53	1.19%	1.23	1.96
Total Equity	11.38%	0.36%	0.99	0.99	99.31%	97.71%	0.18	1.07%	0.93	1.30
Total Domestic Equity	12.53%	-1.18%	1.01	0.99	94.43%	99.96%	-0.77	1.44%	0.94	1.12
Total International Equity	11.36%	1.13%	0.98	0.98	102.37%	96.74%	0.63	1.48%	0.85	1.72
Total Domestic Fixed Income	2.35%	3.54%	0.29	0.13	71.11%	-15.28%	0.23	3.01%	1.30	3.78
Total Real Estate	2.26%	2.73%	0.77	0.77	90.91%	--	1.04	1.24%	2.56	--
Total Hedge Funds	2.83%	1.04%	0.68	0.80	71.77%	51.06%	-0.12	1.73%	0.72	1.60
Total Alternative Illiquids	5.58%	10.91%	-0.02	0.00	25.58%	-13.94%	-0.49	13.75%	1.61	112.40

5 Years

	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
Total Fund	6.14%	-0.13%	1.06	0.95	104.81%	102.74%	0.18	1.41%	0.82	1.52
Total Equity	11.73%	-0.33%	0.99	0.99	95.09%	98.64%	-0.37	1.19%	0.58	0.91
Total Domestic Equity	12.63%	-1.43%	1.02	0.98	94.47%	101.98%	-0.69	1.69%	0.71	1.04
Total International Equity	12.08%	-0.09%	0.95	0.97	91.82%	96.62%	-0.19	2.03%	0.38	0.77
Total Domestic Fixed Income	2.74%	2.46%	0.49	0.29	81.48%	30.86%	0.32	2.79%	1.06	2.70
Total Real Estate	3.78%	1.08%	0.98	0.85	100.25%	--	0.62	1.48%	2.08	105.25
Total Hedge Funds	3.29%	0.94%	0.79	0.81	85.10%	70.63%	0.27	1.65%	0.54	1.02
Total Alternative Illiquids	5.20%	8.20%	0.02	0.00	18.63%	-12.63%	-0.42	13.07%	1.43	1.60

Total Fund Risk Analysis (Net of Fees)

Period Ending: December 31, 2019

7 Years

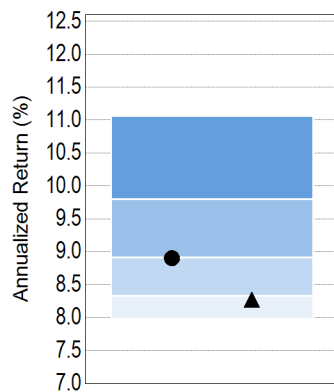
	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
Total Fund	5.98%	-0.01%	1.06	0.95	104.87%	97.42%	0.29	1.33%	1.06	1.38
Total Equity	10.66%	0.24%	1.01	0.99	100.42%	95.27%	0.22	1.29%	0.87	0.97
Total Domestic Equity	11.05%	-1.01%	1.01	0.97	91.70%	97.86%	-0.45	1.92%	1.15	1.12
Total International Equity	11.48%	0.30%	0.99	0.96	100.47%	97.41%	0.12	2.18%	0.47	0.73
Total Domestic Fixed Income	3.38%	1.42%	0.79	0.53	104.92%	53.97%	0.35	2.42%	0.83	2.06
Total Real Estate	1.82%	2.70%	0.77	0.48	107.99%	--	0.41	1.36%	4.94	--
Total Hedge Funds	3.78%	0.79%	0.81	0.81	96.88%	86.41%	0.07	1.83%	0.74	0.94
Total Alternative Illiquids	5.02%	7.41%	0.13	0.07	31.13%	-8.79%	-0.72	10.64%	1.75	2.98

10 Years

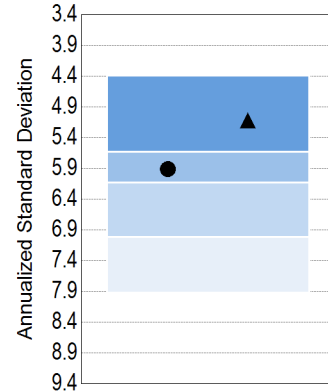
	Anlzd Standard Deviation	Anlzd Alpha	Beta	R-Squared	Up Mkt Capture Ratio	Down Mkt Capture Ratio	Information Ratio	Tracking Error	Sharpe Ratio	Sortino Ratio
Total Fund	7.80%	0.51%	1.01	0.97	106.70%	97.30%	0.42	1.36%	0.92	1.20
Total Equity	13.35%	1.12%	0.98	0.99	105.72%	95.11%	0.67	1.46%	0.70	0.82
Total Domestic Equity	13.90%	-0.78%	1.03	0.98	97.72%	101.77%	-0.19	1.95%	0.90	1.04
Total International Equity	13.85%	1.03%	0.95	0.98	99.30%	94.18%	0.34	2.29%	0.41	0.58
Total Domestic Fixed Income	3.37%	2.46%	0.73	0.45	122.46%	49.64%	0.55	2.63%	1.37	2.97
Total Real Estate	2.29%	4.46%	0.53	0.25	94.68%	--	-0.17	2.21%	4.14	--
Total Hedge Funds	3.31%	1.26%	0.58	0.64	75.23%	57.01%	0.02	2.76%	0.71	0.95
Total Alternative Illiquids	5.33%	6.63%	0.19	0.22	24.74%	9.46%	-0.55	11.87%	1.71	2.20

Total Fund vs. InvestorForce Public DB > \$1B Net Universe

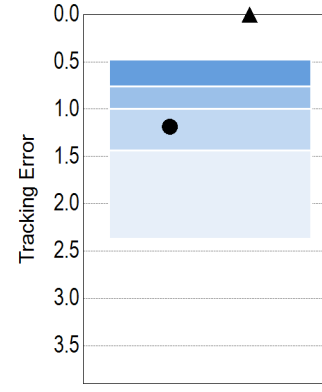
Annualized Return



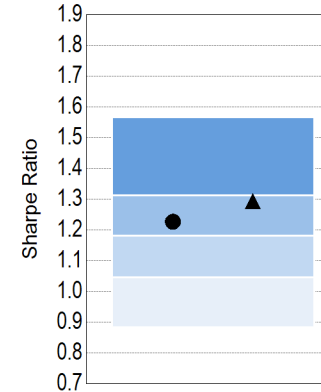
Annualized Standard Deviation



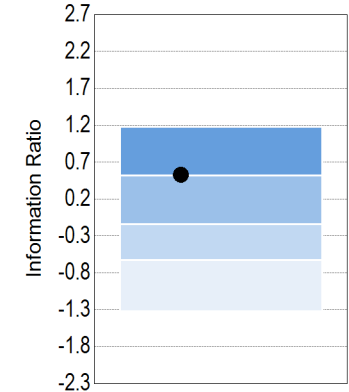
Tracking Error



Sharpe Ratio



Information Ratio



● Total Fund
Value 8.9
Rank 51
▲ Policy Index
Value 8.3
Rank 81

● Total Fund
Value 5.9
Rank 42
▲ Policy Index
Value 5.1
Rank 11

● Total Fund
Value 1.2
Rank 64
▲ Policy Index
Value 0.0
Rank 1

● Total Fund
Value 1.2
Rank 39
▲ Policy Index
Value 1.3
Rank 28

● Total Fund
Value 0.5
Rank 25
▲ Policy Index
Value --
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Universe
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25th %tile 9.8
Median 8.9
75th %tile 8.3
95th %tile 8.0

Universe
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25th %tile 5.6
Median 6.1
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95th %tile 7.9

Universe
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Median 1.0
75th %tile 1.4
95th %tile 2.4

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25th %tile 1.3
Median 1.2
75th %tile 1.0
95th %tile 0.9

Universe
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25th %tile 0.5
Median -0.1
75th %tile -0.6
95th %tile -1.3

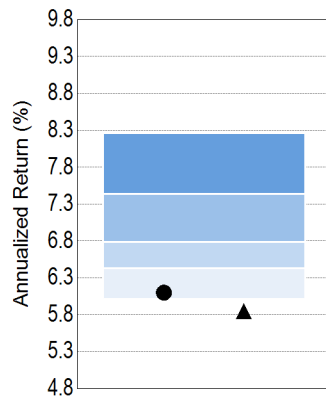
Total Fund

Peer Universe Statistics - 5 Years (Net of Fees)

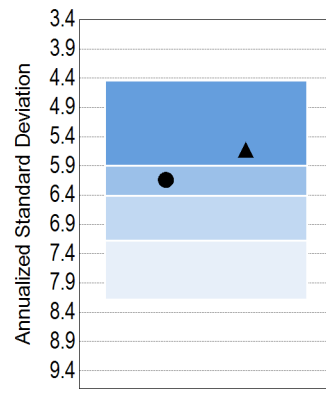
Period Ending: December 31, 2019

Total Fund vs. InvestorForce Public DB > \$1B Net Universe

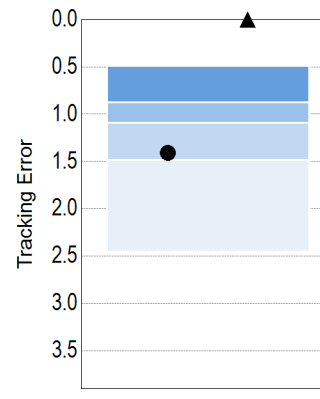
Annualized Return



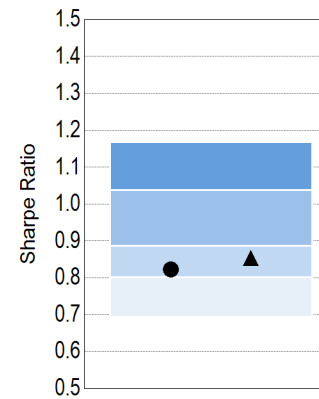
Annualized Standard Deviation



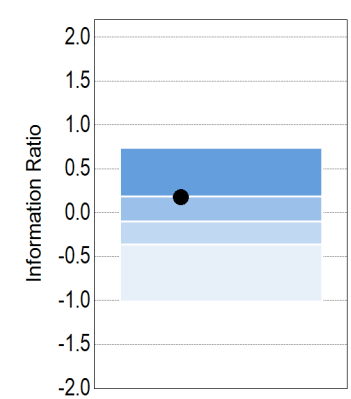
Tracking Error



Sharpe Ratio



Information Ratio



● Total Fund
Value
Rank
▲ Policy Index
Value
Rank

6.1
92
5.8
98

● Total Fund
Value
Rank
▲ Policy Index
Value
Rank

6.1
42
5.6
15

● Total Fund
Value
Rank
▲ Policy Index
Value
Rank

1.4
75
0.0
1

● Total Fund
Value
Rank
▲ Policy Index
Value
Rank

0.8
73
0.9
62

● Total Fund
Value
Rank
▲ Policy Index
Value
Rank

0.2
27
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Universe
5th %tile
25th %tile
Median
75th %tile
95th %tile

8.3
7.4
6.8
6.4
6.0

Universe
5th %tile
25th %tile
Median
75th %tile
95th %tile

4.4
5.9
6.4
7.2
8.2

Universe
5th %tile
25th %tile
Median
75th %tile
95th %tile

0.5
0.9
1.1
1.5
2.4

Universe
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25th %tile
Median
75th %tile
95th %tile

1.2
1.0
0.9
0.8
0.7

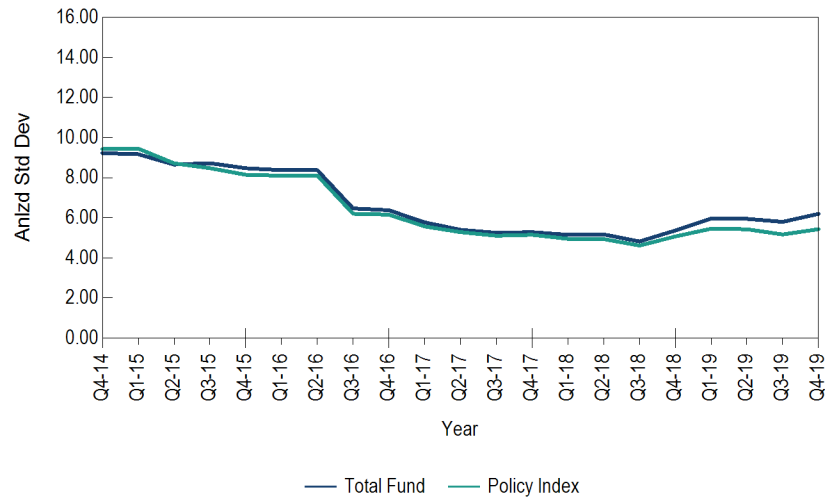
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Median
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-0.4
-1.0

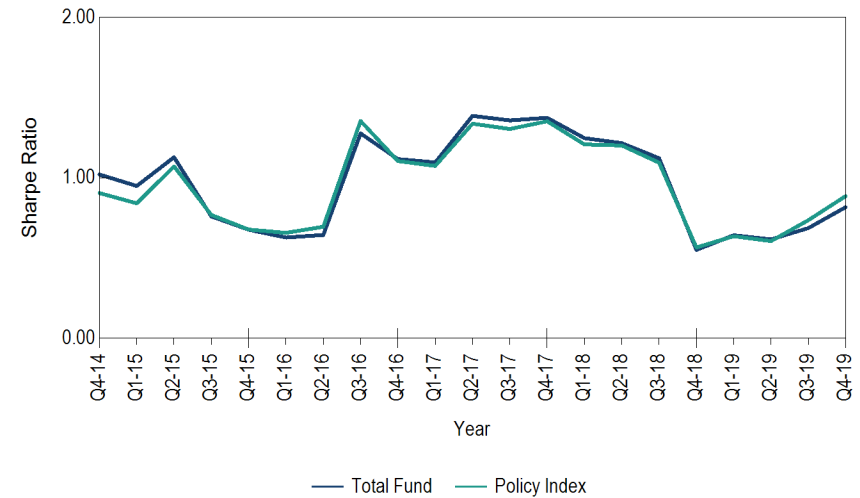
Total Fund Risk Analysis - 5 Years (Net of Fees)

Period Ending: December 31, 2019

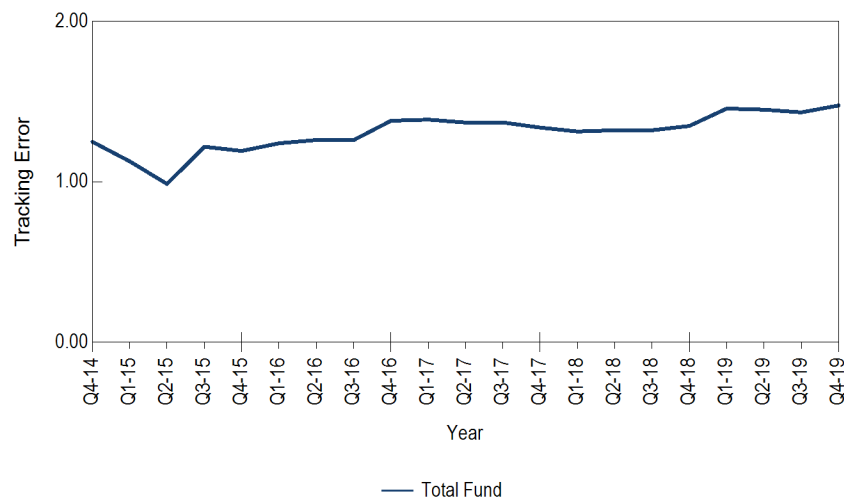
Rolling 5 Year Annualized Standard Deviation



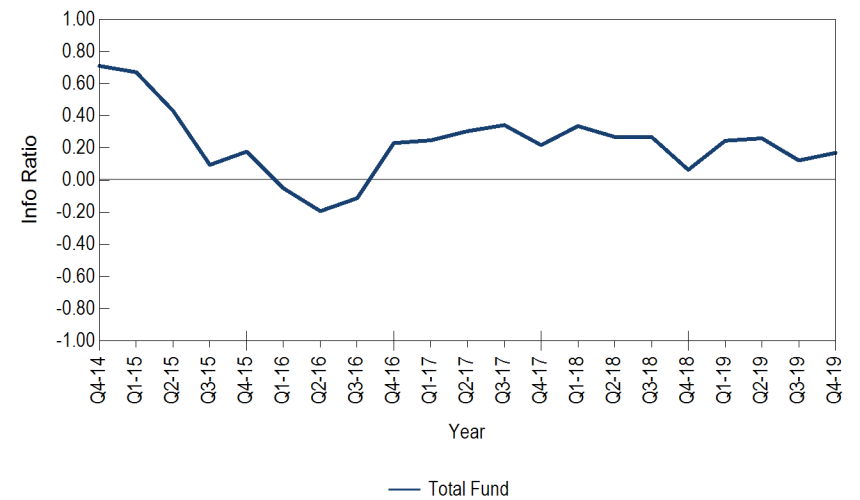
Rolling 5 Year Sharpe Ratio



Rolling 5 Year Tracking Error



Rolling 5 Year Information Ratio



Total Fund

Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fund	5,208,255,734	100.0	6.2	6.4	16.8	8.9	6.1	7.8	16.8	-3.6	14.6	6.7	-2.5	7.3	Jun-02
<i>Policy Index</i>			5.2	5.7	15.0	8.3	5.8	7.2	15.0	-3.2	14.0	6.5	-1.7	6.6	Jun-02
Total Fund Ex Parametric	5,111,173,891	98.1	5.9	5.9	15.8	8.5	--	--	15.8	-3.1	13.9	--	--	8.5	Dec-16
<i>Policy Index</i>			5.2	5.7	15.0	8.3	5.8	7.2	15.0	-3.2	14.0	6.5	-1.7	8.3	Dec-16
Total Equity	2,234,382,988	42.9	9.6	8.7	26.0	12.3	7.9	9.9	26.0	-9.5	24.2	6.1	-2.6	--	
<i>MSCI ACWI IMI NR</i>			9.0	8.9	26.4	12.1	8.3	8.9	26.4	-10.1	23.9	8.4	-2.2	--	
Total Domestic Equity	1,084,849,744	20.8	9.6	9.4	28.0	13.5	10.1	13.0	28.0	-5.1	20.2	8.9	1.5	--	Mar-97
<i>Russell 3000</i>			9.1	10.4	31.0	14.6	11.2	13.4	31.0	-5.2	21.1	12.7	0.5	8.8	Mar-97
S&P 500 Index Fund	560,201,786	10.8	--	--	--	--	--	--	--	--	--	--	--	3.7	Dec-19
<i>S&P 500</i>			9.1	10.9	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4	3.7	Dec-19
T. Rowe Price Large Cap Growth	135,178,329	2.6	10.1	9.2	29.5	--	--	--	29.5	--	--	--	--	23.2	Oct-18
<i>Russell 1000 Growth</i>			10.6	12.3	36.4	20.5	14.6	15.2	36.4	-1.5	30.2	7.1	5.7	27.9	Oct-18
Aronson Johnson Ortiz	131,228,573	2.5	6.6	6.4	21.7	8.0	6.6	11.2	21.7	-11.4	16.7	9.5	-0.1	10.1	Dec-95
<i>Russell 1000 Value</i>			7.4	8.9	26.5	9.7	8.3	11.8	26.5	-8.3	13.7	17.3	-3.8	9.0	Dec-95
PIMCO StocksPLUS Small Fund	258,217,812	5.0	10.6	9.4	29.3	--	--	--	29.3	--	--	--	--	8.0	Feb-18
<i>Russell 2000</i>			9.9	7.3	25.5	8.6	8.2	11.8	25.5	-11.0	14.6	21.3	-4.4	7.0	Feb-18
Total International Equity	1,149,533,244	22.1	9.5	8.1	24.2	11.3	5.6	6.2	24.2	-13.6	28.5	3.0	-7.5	--	
<i>MSCI ACWI ex USA Gross</i>			9.0	7.1	22.1	10.4	6.0	5.4	22.1	-13.8	27.8	5.0	-5.3	--	
EAFE Index Fund	281,936,677	5.4	--	--	--	--	--	--	--	--	--	--	--	2.5	Dec-19
<i>MSCI EAFE</i>			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8	3.5	Dec-19
Artisan International Growth	191,818,238	3.7	8.0	8.8	31.3	15.7	6.6	--	31.3	-10.2	31.5	-9.0	-2.2	7.6	Apr-13
<i>MSCI EAFE</i>			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8	5.8	Apr-13
Research Affiliates International Equity	194,145,867	3.7	7.5	7.0	17.9	7.8	5.2	--	17.9	-15.5	25.7	9.3	-5.9	4.6	Apr-11
<i>MSCI EAFE</i>			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8	4.4	Apr-11
Mondrian International Small Cap	167,532,103	3.2	11.3	9.1	25.1	12.3	7.8	9.1	25.1	-14.6	32.4	0.1	2.7	9.6	Nov-09
<i>S&P Developed Ex-U.S. SmallCap</i>			11.7	10.1	24.7	10.4	8.2	8.3	24.7	-18.4	32.4	3.8	5.9	8.5	Nov-09
Mondrian Emerging Markets	156,084,473	3.0	12.9	7.4	18.3	9.1	3.4	3.4	18.3	-13.8	27.2	9.0	-16.3	5.7	Nov-05
<i>MSCI Emerging Markets</i>			11.8	7.1	18.4	11.6	5.6	3.7	18.4	-14.6	37.3	11.2	-14.9	6.2	Nov-05
Baillie Gifford Emerging Markets	158,015,886	3.0	13.0	9.1	28.0	--	--	--	28.0	--	--	--	--	28.0	Dec-18
<i>MSCI Emerging Markets</i>			11.8	7.1	18.4	11.6	5.6	3.7	18.4	-14.6	37.3	11.2	-14.9	18.4	Dec-18

*Prior to 3/31/2014 BBGBarc U.S. Aggregate Index and as of 4/1/2014 BBGBarc Global Aggregate Index. Baillie Gifford Emerging Markets funded 12/10/2018. T. Rowe Price replaced Ivy on 10/18/2018. Systematic liquidated on 2/4/2019. Invesco Commodities liquidated 8/16/2019. SSgA S&P 500 Flagship Fund liquidated 12/2/2019. S&P 500 Index Fund and MSCI EAFE funded 12/6/2019.

Total Fund Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fixed Income	1,356,045,447	26.0	2.8	3.0	11.0	5.2	3.5	4.8	11.0	-2.9	8.0	6.7	-4.5	--	
<i>BBgBarc Global Aggregate*</i>			0.5	1.2	6.8	4.3	2.3	2.8	6.8	-1.2	7.4	2.1	-3.2	--	
Western Asset Investment Grade Credit	188,004,253	3.6	1.5	4.0	14.9	6.2	5.0	--	14.9	-2.3	6.8	7.0	-0.5	5.1	Oct-14
<i>BBgBarc US Credit TR</i>			1.1	4.1	13.8	5.8	4.4	5.3	13.8	-2.1	6.2	5.6	-0.8	4.5	Oct-14
RBC Access Capital	49,368,455	0.9	0.7	2.0	6.4	--	--	--	6.4	--	--	--	--	7.9	Oct-18
<i>BBgBarc US Securitized Index</i>			0.6	2.0	6.4	3.3	2.6	3.3	6.4	1.0	2.5	1.8	1.5	7.9	Oct-18
Loomis Sayles High Yield	256,712,159	4.9	2.5	2.3	11.5	5.3	4.8	--	11.5	-2.3	7.1	14.4	-5.2	4.6	Oct-14
<i>BBgBarc US High Yield TR</i>			2.6	4.0	14.3	6.4	6.1	7.6	14.3	-2.1	7.5	17.1	-4.5	5.6	Oct-14
Eaton Vance Senior Loan Fund	190,806,201	3.7	1.8	2.8	7.5	4.0	4.2	--	7.5	0.7	4.0	9.9	-0.8	4.0	Oct-14
<i>S&P/LSTA Leveraged Loan Index</i>			1.7	2.7	8.6	4.3	4.4	5.0	8.6	0.4	4.1	10.2	-0.7	4.1	Oct-14
Eaton Vance Institutional Senior Loan Plus Fund	22,816,765	0.4	2.5	4.1	11.3	4.4	--	--	11.3	-1.3	3.6	--	--	4.5	Jan-17
<i>S&P/LSTA Leveraged Loan Index</i>			1.7	2.7	8.6	4.3	4.4	5.0	8.6	0.4	4.1	10.2	-0.7	4.3	Jan-17
Northern Trust Collective TIPS Index Fund	187,913,499	3.6	--	--	--	--	--	--	--	--	--	--	--	0.0	Dec-19
<i>BBgBarc US TIPS TR</i>			0.8	2.1	8.4	3.3	2.6	3.4	8.4	-1.3	3.0	4.7	-1.4	-0.1	Dec-19
Brandywine Global Sovereign	266,832,408	5.1	4.1	2.2	8.7	5.0	1.6	--	8.7	-4.7	11.9	3.8	-9.8	1.6	Jan-15
<i>FTSE WGBI TR</i>			-0.4	0.5	5.9	4.1	2.0	1.9	5.9	-0.8	7.5	1.6	-3.6	2.1	Jan-15
PIMCO Emerging Local Bond Ins	193,591,708	3.7	6.3	5.0	17.1	7.6	2.9	--	17.1	-7.7	15.4	10.7	-16.3	1.1	Jul-13
<i>JP Morgan GBI EM Global Diversified TR USD</i>			5.2	4.4	13.5	7.0	2.8	2.7	13.5	-6.2	15.2	9.9	-14.9	1.0	Jul-13
Total Real Estate	251,123,953	4.8	2.4	3.5	6.4	7.4	8.9	10.0	6.4	9.2	6.8	8.5	13.9	--	
<i>NCREIF ODCE Net</i>			1.3	2.4	4.4	6.1	8.0	10.4	4.4	7.4	6.7	7.8	13.9	--	
Invesco Core Real Estate	182,939,706	3.5	2.1	3.9	5.7	7.2	8.7	10.7	5.7	8.5	7.5	8.3	13.7	4.8	Oct-07
<i>NCREIF ODCE Net</i>			1.3	2.4	4.4	6.1	8.0	10.4	4.4	7.4	6.7	7.8	13.9	4.4	Oct-07
FCERA Realty Group LLC	7,947,614	0.2													
Closed End Real Estate 1 Qtr Lagged	60,236,634	1.2	3.5	2.9	10.8	9.7	10.6	--	10.8	14.1	4.3	9.0	14.9	--	
<i>NCREIF ODCE Net 1 Qtr Lagged</i>			1.1	1.9	4.6	5.7	7.7	10.3	4.6	7.7	4.7	7.8	13.9	--	
Total Infrastructure	165,183,101	3.2	5.2	7.5	14.6	17.9	--	--	14.6	20.1	19.0	6.1	--	--	
<i>NCREIF ODCE Net</i>			1.3	2.4	4.4	6.1	8.0	10.4	4.4	7.4	6.7	7.8	13.9	--	
IFM Infrastructure	165,183,101	3.2	5.2	7.5	14.6	17.9	--	--	14.6	20.1	19.0	6.1	--	13.5	May-15
<i>NCREIF ODCE Net</i>			1.3	2.4	4.4	6.1	8.0	10.4	4.4	7.4	6.7	7.8	13.9	7.9	May-15

RBC Access Capital funded 10/10/2018. Invesco Commodities liquidated 8/16/2019. SSgA TIPS liquidated 12/16/2019. Northern Trust Collective TIPS Index Fund funded 12/20/2019.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Hedge Funds	316,354,905	6.1	2.9	2.5	7.3	3.7	2.8	2.9	7.3	-0.7	4.6	3.0	0.0	--	
<i>HFRI Fund of Funds Composite Index</i>			3.1	2.1	8.4	3.9	2.4	2.8	8.4	-4.0	7.8	0.5	-0.3	--	
Grosvenor	172,852,057	3.3	3.1	2.6	6.3	3.8	2.8	4.3	6.3	-1.2	6.4	2.6	0.0	4.5	Oct-09
<i>HFRI Fund of Funds Composite Index</i>			3.1	2.1	8.4	3.9	2.4	2.8	8.4	-4.0	7.8	0.5	-0.3	2.9	Oct-09
GCM Better Futures Fund	143,502,848	2.8	2.6	2.4	8.3	3.6	--	--	8.3	-0.2	2.8	--	--	4.3	Sep-16
<i>HFRI Fund of Funds Composite Index</i>			3.1	2.1	8.4	3.9	2.4	2.8	8.4	-4.0	7.8	0.5	-0.3	3.9	Sep-16
Total Private Equity 1 Qtr Lagged	268,886,276	5.2	8.1	13.6	16.7	14.2	11.3	12.6	16.7	12.0	13.9	10.7	3.8	--	
<i>Russell 2000 1 Qtr Lagged</i>			-2.4	-0.4	-8.9	5.2	6.2	10.8	-8.9	15.2	10.9	21.3	-4.4	--	
Total Private Credit 1 Qtr Lagged	318,848,600	6.1	5.4	4.3	5.3	7.0	5.1	14.2	5.3	7.6	8.1	7.4	-2.5	--	
<i>BBgBarc US Corp. High Yield 1 Qtr Lagged</i>			1.3	3.9	6.4	5.5	5.6	7.3	6.4	3.0	7.0	17.1	-4.5	--	
Total Custodied Cash	53,086,234	1.0	1.8	3.0	4.5	2.2	1.5	1.1	4.5	1.9	0.1	0.8	0.0	--	
<i>91 Day T-Bills</i>			0.4	0.9	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0	--	
Total County Cash	146,927,072	2.8	0.2	0.7	2.2	--	--	--	2.2	2.4	--	--	--	--	
<i>91 Day T-Bills</i>			0.4	0.9	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0	--	
Total Parametric Overlay	97,081,843	1.9													

Real Estate Closed End Funds (Net of Fees)

Period Ending: December 31, 2019

Real Estate - Closed End Funds											
Fund	Inception Date	% of Portfolio	Total Commitment	Contributions	Distributions	Estimated Market Value	One Quarter Return	One Year Return	Three Years Return	Five Years Return	(IRR) Since Inception
Kennedy Wilson Real Estate Fund VI	2019	0.4%	\$30,000,000	\$19,134,259	\$0	\$19,742,678	6.7%	N/A	N/A	N/A	N/A
Invesco Value-Add Fund V	2017	0.1%	\$30,000,000	\$7,207,494	\$1,893,498	\$7,808,539	4.8%	N/A	N/A	N/A	N/A
Kennedy Wilson Real Estate Fund V	2016	0.2%	\$30,000,000	\$28,113,444	\$26,673,766	\$11,325,136	3.1%	12.0%	13.4%	N/A	13.6%
Gerding Edlen Green Cities III	2016	0.4%	\$20,000,000	\$19,244,481	\$2,323,638	\$21,360,281	0.2%	8.6%	5.4%	N/A	8.8%
% of Total Fund (Market Value)						0.8%					

Private Equity Non Marketable Securities Overview

Period Ending: December 31, 2019

Private Equity								
Fund	Vintage Year	Commitment	Unfunded	Paid-In Capital	Capital Distributed	NAV*	TVPI	Since Inception IRR
Legacy Portfolio								
Blackstone Capital Partners IV, L.P.	2003	\$20,000,000	\$597,726	\$22,648,846	\$52,986,317	\$506,927	2.40x	29.61%
Hamilton Lane Private Equity Fund IX L.P.	2016	\$100,000,000	\$27,040,013	\$72,959,987	\$18,486,194	\$76,517,023	1.30x	15.69%
Hamilton Lane Private Equity Fund VI, LP	2007	\$70,000,000	\$7,388,235	\$62,611,765	\$82,855,768	\$18,111,445	1.70x	9.53%
Horsley Bridge XI Growth Buyout L.P.	2016	\$30,000,000	\$13,633,347	\$16,366,653	\$525,613	\$20,824,666	1.10x	9.29%
Landmark Equity Partners XIV, L.P.	2009	\$30,000,000	\$932,893	\$29,069,268	\$33,263,308	\$4,545,161	1.30x	9.83%
New Mountain Partners III, L.P.	2007	\$15,000,000	\$1,028,824	\$15,363,060	\$20,426,018	\$10,757,205	2.00x	13.33%
Warburg Pincus Equity Partners, L.P.	1998	\$20,000,000	\$0	\$20,000,000	\$33,046,892	\$78,128	1.70x	10.26%
Warburg Pincus Private Equity VIII, L.P.	2001	\$25,000,000	\$0	\$26,100,000	\$58,286,084	\$91,156	2.20x	14.50%
Warburg Pincus Private Equity X, L.P.	2007	\$25,000,000	\$0	\$25,046,896	\$32,595,278	\$4,684,022	1.70x	9.05%
Warburg Pincus Private Equity XII, L.P.	2015	\$34,000,000	\$3,349,000	\$30,668,364	\$2,527,346	\$36,921,281	1.20x	12.92%
Total Legacy Portfolio		\$369,000,000	\$53,970,038	\$320,834,839	\$334,998,818	\$173,037,015	1.60x	12.99%
Hamilton Lane Portfolio								
Aurora Equity Partners VI, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$0	N/A	N/A
Avista Capital Partners IV, L.P.	2018	\$10,000,000	\$1,844,298	\$10,115,099	\$4,768,802	\$9,660,686	1.30x	37.47%
Avista Capital Partners V, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$0	N/A	N/A
Cinven Seventh Fund	2019	\$8,364,583	\$8,364,583	\$0	\$0	\$0	N/A	N/A
Gridiron Capital Fund IV, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$0	N/A	N/A
H.I.G. Growth Buyouts & Equity Fund III, L.P.	2019	\$10,000,000	\$9,695,026	\$304,974	\$0	\$137,320	0.50x	-0.55x
Hamilton Lane Secondary Fund IV, L.P.	2017	\$75,000,000	\$28,307,940	\$53,101,121	\$13,833,249	\$60,493,729	1.20x	20.34%
K4 Private Investors, L.P.	2018	\$5,000,000	\$2,682,760	\$2,317,240	\$507	\$4,013,597	0.90x	(8.33%)
Kelso Investment Associates X, L.P.	2018	\$7,500,000	\$6,815,740	\$698,515	\$16,704	\$1,962,893	1.10x	11.09%
NewQuest Asia Fund IV, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$0	N/A	N/A
Platinum Equity Capital Partners V, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$34,096	N/A	N/A
Platinum Equity Small Cap Fund, L.P.	2018	\$7,500,000	\$6,809,258	\$719,542	\$28,800	\$1,409,547	0.50x	(63.60%)
SK Capital Partners Fund V, L.P.	2018	\$10,000,000	\$8,775,954	\$1,224,046	\$3,497	\$4,248,302	0.90x	(9.70%)
Thomas H. Lee Equity Fund VIII, L.P.	2019	\$7,500,000	\$6,310,596	\$1,189,404	\$0	\$2,220,866	1.20x	90.74%
TPG Partners VIII, L.P.	2019	\$10,000,000	\$10,000,000	\$0	\$0	\$99,852	N/A	N/A
Verdane Capital X AB	2019	\$6,823,994	\$6,823,994	\$0	\$0	\$11,568,374	N/A	N/A
ZMC III, L.P.	2019	\$6,764,374	\$6,764,374	\$0	\$0	\$0	N/A	N/A
Total Hamilton Lane Portfolio		\$214,452,951	\$153,194,523	\$69,669,941	\$18,651,559	\$95,849,262	1.20x	20.31%
Total Private Equity		\$583,452,951	\$207,164,561	\$390,504,780	\$353,650,377	\$268,886,276	1.50x	13.11%

*NAV provided by Hamilton Lane as of 9/30/2019 adjusted for cash flows that occurred during Q4 2019.

Private Credit Non Marketable Securities Overview

Period Ending: December 31, 2019

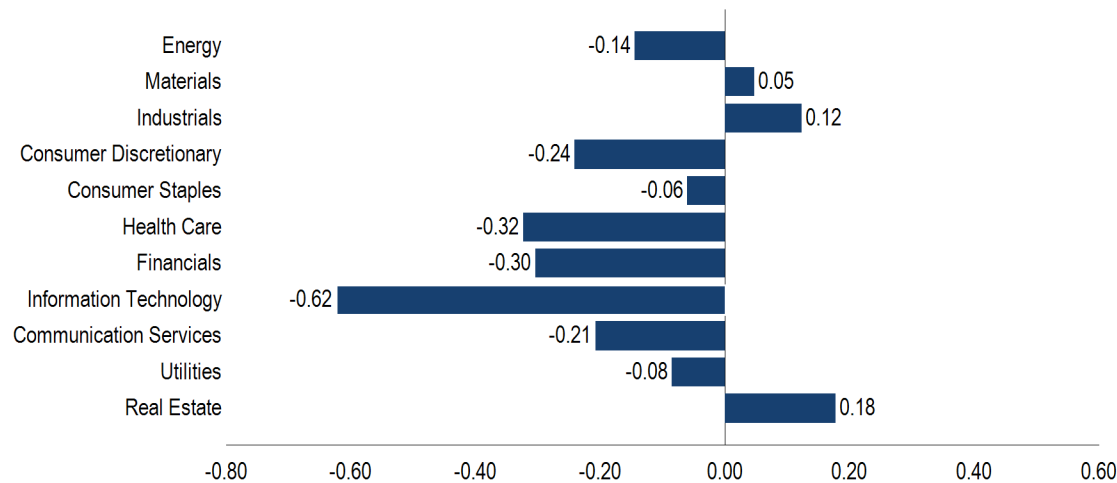
Private Credit								
Fund	Vintage Year	Commitment	Unfunded	Paid-In Capital	Capital Distributed	NAV	TVPI	Since Inception IRR
Legacy Portfolio								
EQT European Special Situations Debt	2017	\$40,000,000	\$27,067,258	\$14,605,754	\$1,798,455	\$15,201,498	1.16	10.00%
OHA Strategic Credit Fund II	2016	\$40,000,000	\$24,000,000	\$16,000,000	\$0	\$16,993,316	1.06	13.70%
TSSP Adjacent Opportunities Partners	2016	\$30,000,000	\$12,106,645	\$33,300,666	\$16,095,459	\$20,534,755	1.10	9.40%
GSO European Senior Debt	2015	\$30,000,000	\$7,984,550	\$26,751,240	\$16,420,619	\$17,358,548	1.26	9.50%
CVI Credit Value Fund III	2015	\$30,000,000	\$1,500,000	\$28,500,000	\$20,184,134	\$15,556,503	1.25	8.91%
Colony Distressed Credit III	2014	\$20,000,000	\$2,734,614	\$21,939,049	\$18,820,992	\$8,828,800	1.26	9.00%
Oaktree Opportunities IX	2012	\$15,000,000	\$0	\$15,000,000	\$7,184,315	\$10,602,497	1.19	3.70%
KKR Mezanine Partners	2010	\$30,000,000	\$2,982,882	\$36,219,088	\$37,615,912	\$7,042,837	1.23	8.20%
Angelo Gordon VII	2010	\$30,000,000	\$0	\$30,000,000	\$36,133,271	\$688,360	1.23	4.95%
Colony Distressed Credit I	2009	\$40,000,000	\$0	\$42,267,927	\$63,855,850	\$394,952	1.52	13.00%
Lone Star Fund IV	2002	\$20,000,000	\$954,801	\$19,045,199	\$44,404,793	\$64,099	2.33	30.71%
Total Legacy Portfolio		\$325,000,000	\$79,330,750	\$283,628,923	\$262,513,801	\$113,266,164	1.28	
Carlyle Portfolio								
TCG BDC II	2017	\$150,000,000	\$43,366,526	\$106,633,474	\$8,397,096	\$88,361,994	0.91	9.30%
CPC V	2017	\$150,000,000	\$59,740,669	\$110,233,125	\$19,973,793	\$95,969,101	1.05	8.70%
AlpInvest FC Credit Fund	2017	\$100,000,000	\$74,767,621	\$25,232,379	\$6,725,672	\$19,280,935	1.03	2.96%
Total Carlyle Portfolio		\$400,000,000	\$177,874,816	\$242,098,978	\$35,096,562	\$203,612,030	1.04	
Total Private Credit		\$725,000,000	\$257,205,566	\$525,727,900	\$297,610,362	\$316,878,195		

Data provided by Carlyle.

Total Domestic Equity Performance Attribution by Sector (Net of Fees)

Period Ending: December 31, 2019

**Total Domestic Equity vs. Russell 3000
Current Quarter**



GICS Sector	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess Return	Allocation Effect (Local)	Selection Effect (Local)	Active Contrib.	Passive Contrib.	Total Contrib.
Energy	6.15%	4.33%	1.82%	4.20%	5.62%	-1.42%	-0.06%	-0.08%	-0.14%	-0.15%	-0.30%
Materials	3.34%	2.90%	0.43%	8.58%	6.88%	1.70%	-0.01%	0.06%	0.05%	-0.07%	-0.02%
Industrials	9.77%	10.17%	-0.39%	7.13%	5.93%	1.20%	0.01%	0.12%	0.12%	-0.33%	-0.20%
Consumer Discretionary	7.99%	10.44%	-2.45%	2.06%	5.90%	-3.83%	0.07%	-0.31%	-0.24%	-0.34%	-0.58%
Consumer Staples	8.87%	6.57%	2.30%	4.23%	3.65%	0.58%	-0.11%	0.05%	-0.06%	-0.36%	-0.42%
Health Care	13.60%	13.53%	0.07%	12.59%	15.07%	-2.49%	0.01%	-0.33%	-0.32%	0.80%	0.48%
Financials	19.17%	13.57%	5.60%	7.88%	9.67%	-1.78%	0.03%	-0.34%	-0.30%	0.07%	-0.23%
Information Technology	13.07%	21.46%	-8.39%	12.34%	14.01%	-1.66%	-0.41%	-0.22%	-0.62%	1.05%	0.42%
Communication Services	8.70%	9.47%	-0.77%	6.68%	9.03%	-2.36%	0.00%	-0.21%	-0.21%	-0.01%	-0.22%
Utilities	5.15%	3.36%	1.79%	1.71%	0.38%	1.33%	-0.16%	0.07%	-0.08%	-0.29%	-0.38%
Real Estate	4.18%	4.20%	-0.01%	4.64%	0.64%	4.01%	0.01%	0.17%	0.18%	-0.36%	-0.18%
Unclassified	0.01%	0.00%	0.00%	11.74%	9.13%	2.60%	0.00%	0.00%	0.00%	0.00%	0.00%
Total				7.49%	9.13%	-1.64%	-0.61%	-1.02%	-1.64%	0.00%	-1.64%

Total Domestic Equity
Performance Attribution Summary (Net of Fees)

Period Ending: December 31, 2019

Portfolio: Total Domestic Equity
Benchmark: Russell 3000

Portfolio Total Return 9.63%

	Equity Only
Portfolio	7.49%
Benchmark	<u>9.14%</u>
Return From Active Mgmt	-1.64%

Local Returns	
Portfolio	7.49%
Benchmark	<u>9.11%</u>
Active Equity Return	-1.62%

Country Selection	0.01%
Stock Selection	-1.63%

Currency Contributions	
Portfolio	0.00%
Benchmark	<u>0.02%</u>
Active Currency Contributions	-0.02%

Chart uses return-based methodology

Total International Equity
Performance Attribution by Country (Net of Fees)

Period Ending: December 31, 2019

Total International Equity vs. MSCI ACWI ex USA

Current Quarter

	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess USD Return	Active Return	Allocation Effect (Local)	Selection Effect (Local)	Currency Effect
ARGENTINA	0.00%	0.05%	-0.05%	--	16.41%	-16.41%	0.00%	0.00%	0.00%	0.00%
AUSTRALIA	3.67%	4.73%	-1.06%	1.20%	4.29%	-3.09%	-0.07%	0.09%	-0.10%	-0.06%
AUSTRIA	0.11%	0.15%	-0.04%	12.31%	8.03%	4.29%	0.00%	0.00%	0.01%	0.00%
BELGIUM	0.50%	0.68%	-0.18%	5.63%	-1.55%	7.18%	0.05%	0.02%	0.04%	0.00%
BRAZIL	2.21%	1.97%	0.24%	11.92%	14.39%	-2.47%	-0.06%	0.02%	-0.05%	-0.03%
CANADA	6.16%	6.94%	-0.78%	5.33%	5.03%	0.30%	0.02%	0.03%	0.04%	-0.05%
CHILE	0.00%	0.25%	-0.25%	--	-9.57%	9.57%	0.04%	0.03%	0.00%	0.01%
CHINA	0.00%	8.62%	-8.62%	6.05%	14.52%	-8.47%	-0.72%	-0.65%	-0.01%	-0.06%
COLOMBIA	0.00%	0.11%	-0.11%	--	14.65%	-14.65%	-0.01%	0.00%	0.00%	-0.01%
CZECH REPUBLIC	0.00%	0.04%	-0.04%	--	8.45%	-8.45%	0.00%	0.00%	0.00%	0.00%
DENMARK	1.62%	1.16%	0.47%	9.94%	13.13%	-3.19%	-0.02%	0.03%	-0.07%	0.01%
EGYPT	0.00%	0.04%	-0.04%	--	5.78%	-5.78%	0.00%	0.00%	0.00%	0.00%
FINLAND	0.14%	0.67%	-0.53%	12.03%	3.03%	9.01%	0.03%	0.03%	0.01%	-0.02%
FRANCE	12.43%	7.50%	4.93%	9.30%	8.55%	0.76%	0.22%	-0.04%	0.10%	0.16%
GERMANY	14.06%	5.68%	8.37%	2.84%	9.78%	-6.94%	-0.70%	0.03%	-0.98%	0.25%
GREECE	0.00%	0.08%	-0.08%	--	12.86%	-12.86%	-0.01%	0.00%	0.00%	0.00%
HONG KONG	3.39%	2.46%	0.93%	11.50%	7.56%	3.94%	0.15%	0.01%	0.13%	0.01%
HUNGARY	0.00%	0.08%	-0.08%	--	22.39%	-22.39%	-0.01%	-0.01%	0.00%	0.00%
INDIA	0.00%	2.20%	-2.20%	--	5.50%	-5.50%	0.02%	0.00%	0.00%	0.02%
INDONESIA	0.00%	0.55%	-0.55%	--	7.34%	-7.34%	-0.01%	0.01%	0.00%	-0.01%
IRELAND	0.72%	0.36%	0.36%	30.06%	18.62%	11.44%	0.09%	0.02%	0.07%	0.00%
ISRAEL	0.60%	0.38%	0.23%	9.87%	7.73%	2.15%	0.01%	0.00%	0.01%	0.00%
ITALY	3.54%	1.56%	1.98%	7.17%	8.45%	-1.28%	0.00%	-0.03%	-0.04%	0.07%
JAPAN	16.37%	16.53%	-0.15%	6.90%	7.64%	-0.74%	-0.11%	0.00%	-0.11%	0.01%
KOREA	0.00%	3.15%	-3.15%	--	12.23%	-12.23%	-0.19%	-0.07%	0.00%	-0.12%
LUXEMBOURG	0.04%	0.00%	0.04%	-18.59%	8.93%	-27.52%	-0.01%	0.00%	-0.02%	0.00%

Total International Equity
Performance Attribution by Country (Net of Fees)

Period Ending: December 31, 2019

	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess USD Return	Active Return	Allocation Effect (Local)	Selection Effect (Local)	Currency Effect
MALAYSIA	0.00%	0.54%	-0.54%	--	3.16%	-3.16%	0.02%	0.03%	0.00%	-0.01%
MEXICO	0.00%	0.65%	-0.65%	--	6.30%	-6.30%	0.00%	0.03%	0.00%	-0.03%
NETHERLANDS	3.26%	2.64%	0.63%	9.18%	7.64%	1.54%	0.07%	0.00%	0.04%	0.02%
NEW ZEALAND	0.73%	0.16%	0.56%	9.03%	17.51%	-8.47%	-0.01%	-0.02%	0.00%	0.01%
NORWAY	0.45%	0.44%	0.01%	3.37%	4.47%	-1.10%	-0.01%	0.00%	-0.01%	0.00%
Other Countries	0.44%	0.00%	0.44%	21.41%	8.93%	12.48%	0.06%	0.00%	0.05%	0.01%
PAKISTAN	0.00%	0.01%	-0.01%	--	27.07%	-27.07%	0.00%	0.00%	0.00%	0.00%
PERU	0.00%	0.10%	-0.10%	--	6.06%	-6.06%	0.00%	0.00%	0.00%	0.00%
PHILIPPINES	0.00%	0.29%	-0.29%	--	2.96%	-2.96%	0.01%	0.02%	0.00%	-0.01%
POLAND	0.00%	0.27%	-0.27%	--	3.88%	-3.88%	0.01%	0.02%	0.00%	-0.02%
PORTUGAL	0.12%	0.10%	0.02%	11.78%	8.63%	3.15%	0.00%	0.00%	0.00%	0.00%
QATAR	0.00%	0.26%	-0.26%	--	2.44%	-2.44%	0.01%	0.01%	0.00%	0.00%
RUSSIA	0.22%	1.05%	-0.82%	8.31%	17.85%	-9.53%	-0.10%	-0.06%	0.01%	-0.05%
SAUDI ARABIA	0.00%	0.65%	-0.65%	--	3.63%	-3.63%	0.02%	0.02%	0.00%	0.00%
SINGAPORE	1.69%	0.86%	0.82%	6.53%	7.53%	-1.00%	0.02%	0.03%	-0.01%	0.01%
SOUTH AFRICA	0.01%	1.37%	-1.36%	-10.20%	12.94%	-23.14%	-0.08%	0.02%	0.00%	-0.11%
SPAIN	1.84%	1.91%	-0.07%	2.63%	5.98%	-3.35%	-0.08%	0.00%	-0.07%	0.00%
SWEDEN	1.47%	1.74%	-0.28%	6.24%	13.45%	-7.21%	-0.12%	0.00%	-0.09%	-0.03%
SWITZERLAND	6.82%	6.18%	0.64%	6.57%	7.68%	-1.12%	-0.06%	-0.01%	-0.08%	0.03%
TAIWAN	0.00%	2.96%	-2.96%	--	17.99%	-17.99%	-0.35%	-0.23%	0.00%	-0.12%
THAILAND	0.00%	0.76%	-0.76%	--	-0.82%	0.82%	0.05%	0.07%	0.00%	-0.02%
TURKEY	0.00%	0.15%	-0.15%	--	0.20%	-0.20%	0.01%	0.00%	0.00%	0.01%
UNITED ARAB EMIRATES	0.00%	0.18%	-0.18%	--	-1.05%	1.05%	0.01%	0.01%	0.00%	0.00%
UNITED KINGDOM	10.44%	10.81%	-0.37%	12.36%	9.93%	2.42%	0.19%	0.01%	0.23%	-0.05%
UNITED STATES	6.95%	0.00%	6.95%	6.28%	9.04%	-2.76%	0.02%	0.22%	-0.22%	0.02%
	100.00%	100.00%	0.00%	7.34%	8.93%	-1.59%	-1.59%	-0.31%	-1.13%	-0.16%

Total International Equity Performance Attribution by Currency (Net of Fees)

Period Ending: December 31, 2019

Total International Equity vs. MSCI ACWI ex USA

Current Quarter

Currency Name	Portfolio Weight	Index Weight	Excess Weight	Currency Return	Portfolio Contrib.	Index Contrib.	Active Contrib.	Currency Effect
	0.44%	0.00%	0.44%	--	0.00%	2.73%	-2.73%	0.01%
Argentinian Nuevo Peso	0.00%	0.05%	-0.05%	-3.83%	0.00%	0.00%	0.00%	0.00%
Australian Dollar	3.67%	4.73%	-1.06%	3.74%	4.10%	4.23%	-0.13%	-0.06%
Baht	0.00%	0.76%	-0.76%	2.11%	0.00%	2.05%	-2.05%	-0.02%
Canadian Dollar	6.16%	6.94%	-0.78%	1.40%	1.88%	2.16%	-0.29%	-0.05%
Chilean Peso	0.00%	0.25%	-0.25%	-3.08%	0.00%	-2.95%	2.95%	0.01%
Colombian Peso	0.00%	0.11%	-0.11%	6.10%	0.00%	6.49%	-6.49%	-0.01%
Cruzeiro Real	2.21%	1.97%	0.24%	3.56%	2.27%	3.92%	-1.65%	-0.03%
Czech Koruna	0.00%	0.04%	-0.04%	4.32%	0.00%	4.76%	-4.76%	0.00%
Danish Krone	1.62%	1.16%	0.47%	2.71%	3.07%	3.16%	-0.09%	0.01%
Egyptian Pound	0.00%	0.04%	-0.04%	1.41%	0.00%	1.41%	-1.41%	0.00%
Emirati dirham	0.00%	0.18%	-0.18%	0.00%	0.00%	0.00%	0.00%	0.00%
Euro	36.76%	21.32%	15.44%	2.77%	3.01%	3.08%	-0.07%	0.48%
Forint	0.00%	0.08%	-0.08%	4.23%	0.00%	5.03%	-5.03%	0.00%
Hong Kong Dollar	3.39%	2.46%	0.93%	0.67%	0.68%	0.60%	0.07%	0.01%
Indian Rupee	0.00%	2.20%	-2.20%	-0.63%	0.00%	-0.76%	0.76%	0.02%
Mexican New Peso	0.00%	0.65%	-0.65%	4.68%	0.00%	4.63%	-4.63%	-0.03%
New Sol	0.00%	0.10%	-0.10%	2.08%	0.00%	0.00%	0.00%	0.00%
New Taiwan Dollar	0.00%	2.96%	-2.96%	3.30%	0.00%	3.98%	-3.98%	-0.12%
New Zealand Dollar	0.73%	0.16%	0.56%	7.34%	7.69%	8.29%	-0.60%	0.01%
New Zloty	0.00%	0.27%	-0.27%	5.53%	0.00%	5.75%	-5.75%	-0.02%
Norwegian Krone	0.45%	0.44%	0.01%	3.49%	3.40%	3.43%	-0.04%	0.00%
Pakistani Rupee	0.00%	0.01%	-0.01%	0.92%	0.00%	1.19%	-1.19%	0.00%
Philippines Peso	0.00%	0.29%	-0.29%	2.34%	0.00%	2.35%	-2.35%	-0.01%
Pound Sterling	10.44%	10.81%	-0.37%	6.41%	7.82%	7.63%	0.19%	-0.05%
Qatari rial	0.00%	0.26%	-0.26%	0.00%	0.00%	0.00%	0.00%	0.00%
Rand	0.01%	1.37%	-1.36%	7.70%	2.58%	8.31%	-5.72%	-0.11%
Ringgit (Malaysian Dollar)	0.00%	0.54%	-0.54%	1.96%	0.00%	2.38%	-2.38%	-0.01%

Total International Equity

Performance Attribution by Currency (Net of Fees)

Period Ending: December 31, 2019

Currency Name	Portfolio Weight	Index Weight	Excess Weight	Currency Return	Portfolio Contrib.	Index Contrib.	Active Contrib.	Currency Effect
Rupiah	0.00%	0.55%	-0.55%	1.94%	0.00%	2.38%	-2.38%	-0.01%
Russian Federation Rouble	0.22%	1.05%	-0.82%	4.67%	0.00%	4.47%	-4.47%	-0.05%
Saudi Arabian Riyal	0.00%	0.65%	-0.65%	0.00%	0.00%	0.00%	0.00%	0.00%
Shekel	0.60%	0.38%	0.23%	0.43%	0.23%	0.39%	-0.16%	0.00%
Singapore Dollar	1.69%	0.86%	0.82%	2.56%	2.68%	2.98%	-0.29%	0.01%
South Korean Won	0.00%	3.15%	-3.15%	3.43%	0.00%	3.72%	-3.72%	-0.12%
Swedish Krona	1.47%	1.74%	-0.28%	5.51%	5.09%	5.44%	-0.35%	-0.03%
Swiss Franc	6.82%	6.18%	0.64%	2.89%	3.08%	3.11%	-0.03%	0.03%
Turkish Lira	0.00%	0.15%	-0.15%	-4.98%	0.00%	-5.40%	5.40%	0.01%
US Dollar	6.95%	0.00%	6.95%	0.00%	0.24%	2.73%	-2.50%	0.02%
Yen	16.37%	16.53%	-0.15%	-0.83%	-0.59%	-0.60%	0.00%	0.01%
Yuan Renminbi	0.00%	8.62%	-8.62%	2.15%	0.00%	0.67%	-0.67%	-0.06%
	100.00%	100.00%	0.00%		2.64%	2.73%	-0.10%	-0.16%

Total International Equity
Performance Attribution by Region (Net of Fees)

Period Ending: December 31, 2019

Total International Equity vs. MSCI ACWI ex USA
Current Quarter

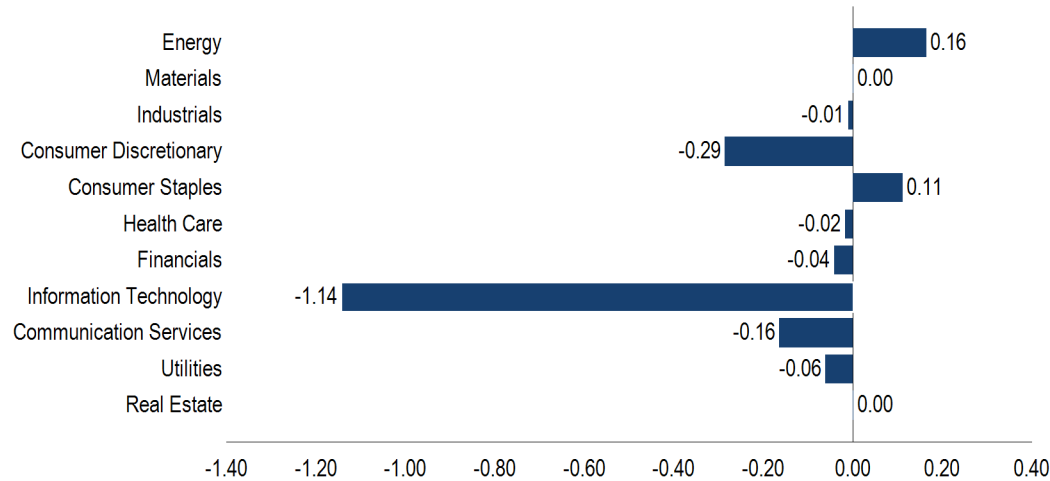
Region	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess USD Return	Allocation Effect (Local)	Selection Effect (Local)	Active Contrib.	Passive Contrib.	Total Contrib.
Americas	15.31%	10.08%	5.24%	6.59%	6.75%	-0.16%	-0.11%	0.11%	0.00%	-0.22%	-0.22%
Europe	57.78%	43.08%	14.71%	7.55%	9.10%	-1.55%	-0.23%	-0.23%	-0.46%	0.07%	-0.39%
Asia/Pacific	25.85%	43.82%	-17.96%	6.70%	9.35%	-2.66%	-0.38%	-0.80%	-1.18%	0.18%	-0.99%
Other	1.05%	3.03%	-1.98%	13.72%	7.71%	6.01%	0.04%	0.00%	0.04%	-0.04%	0.00%
Total				7.34%	8.93%	-1.59%	-0.67%	-0.92%	-1.59%	0.00%	-1.59%

Region	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess USD Return	Allocation Effect (Local)	Selection Effect (Local)	Active Contrib.	Passive Contrib.	Total Contrib.
Americas	15.31%	10.08%	5.24%	6.59%	6.75%	-0.16%	-0.11%	0.11%	0.00%	-0.22%	-0.22%
Europe	57.78%	43.08%	14.71%	7.55%	9.10%	-1.55%	-0.23%	-0.23%	-0.46%	0.07%	-0.39%
Asia/Pacific	25.85%	43.82%	-17.96%	6.70%	9.35%	-2.66%	-0.38%	-0.80%	-1.18%	0.18%	-0.99%
Other	1.05%	3.03%	-1.98%	13.72%	7.71%	6.01%	0.04%	0.00%	0.04%	-0.04%	0.00%
Total				7.34%	8.93%	-1.59%	-0.67%	-0.92%	-1.59%	0.00%	-1.59%

Total International Equity Performance Attribution by Sector (Net of Fees)

Period Ending: December 31, 2019

Total International Equity vs. MSCI ACWI ex USA
Current Quarter



GICS Sector	Portfolio Weight	Index Weight	Excess Weight	Portfolio USD Return	Index USD Return	Excess Return	Allocation Effect (Local)	Selection Effect (Local)	Active Contrib.	Passive Contrib.	Total Contrib.
Energy	4.49%	6.77%	-2.28%	8.15%	6.65%	1.51%	0.07%	-0.03%	0.04%	-0.16%	-0.12%
Materials	6.81%	7.45%	-0.63%	10.22%	10.76%	-0.55%	0.01%	-0.06%	-0.05%	0.14%	0.09%
Industrials	18.51%	11.94%	6.57%	9.38%	9.63%	-0.25%	0.10%	0.10%	0.20%	0.08%	0.28%
Consumer Discretionary	8.41%	11.56%	-3.15%	8.53%	11.25%	-2.72%	-0.10%	-0.27%	-0.37%	0.27%	-0.10%
Consumer Staples	7.61%	9.93%	-2.32%	0.97%	1.95%	-0.99%	0.21%	-0.17%	0.03%	-0.69%	-0.66%
Health Care	9.13%	8.34%	0.79%	10.85%	12.51%	-1.66%	0.05%	-0.12%	-0.07%	0.30%	0.23%
Financials	24.23%	21.74%	2.49%	7.90%	8.17%	-0.27%	-0.07%	0.09%	0.02%	-0.17%	-0.15%
Information Technology	7.01%	8.78%	-1.77%	0.42%	15.31%	-14.89%	-0.20%	-1.01%	-1.21%	0.56%	-0.65%
Communication Services	5.12%	6.88%	-1.76%	3.63%	7.02%	-3.39%	0.02%	-0.21%	-0.19%	-0.13%	-0.32%
Utilities	5.51%	3.46%	2.05%	4.69%	4.85%	-0.15%	-0.06%	0.04%	-0.01%	-0.14%	-0.15%
Real Estate	1.92%	3.15%	-1.23%	5.54%	7.30%	-1.75%	0.03%	-0.05%	-0.02%	-0.05%	-0.07%
Unclassified	1.25%	0.00%	1.25%	13.93%	--	0.00%	0.02%	0.03%	0.05%	0.00%	0.05%

Total International Equity
Performance Attribution Summary (Net of Fees)

Period Ending: December 31, 2019

Portfolio: Total International Equity
Benchmark: MSCI ACWI ex USA

Portfolio Total Return 9.53%

	Equity Only
Portfolio	7.34%
Benchmark	<u>8.93%</u>
Return From Active Mgmt	-1.59%

Local Returns	
Portfolio	4.79%
Benchmark	<u>6.22%</u>
Active Equity Return	-1.43%

Country Selection	-0.31%
Stock Selection	-1.13%

Currency Contributions	
Portfolio	2.64%
Benchmark	<u>2.73%</u>
Active Currency Contributions	-0.10%

Chart uses return-based methodology

Total Fund Watch List (Net of Fees)

Period Ending: December 31, 2019

Name	Allocation Group	Status	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5	Rule 6
T. Rowe Price Large Cap Growth	Domestic Equity Large Cap Growth	No Issues	--	--	--	--	--	--
Aronson Johnson Ortiz	Domestic Equity Large Cap Value	Watch	✓	✗	✗	✗	✗	--
PIMCO StocksPLUS Small Fund	Domestic Equity Small Cap Core	No Issues	--	--	--	--	--	--
Artisan International Growth	International Equity	No Issues	✓	✓	✓	✗	✓	--
Research Affiliates International Equity	International Equity	No Issues	✗	✗	✗	✗	✗	--
Mondrian International Small Cap	International Equity Small Cap	No Issues	✗	✓	✗	✗	✗	--
Mondrian Emerging Markets	Emerging Markets Equity	No Issues	✗	✗	✗	✗	✗	--
Baillie Gifford Emerging Markets	Emerging Markets Equity	No Issues	--	--	--	--	--	✗

Rule 1 - Manager has underperformed the benchmark index more than half the time over the last 20 quarters

Rule 2 - Equity manager has returned less than 110% of the benchmark index for the three year period.

Rule 3 - Manager has underperformed the 50th percentile in the appropriate style universe in more than two of the last five years of consecutive returns.

Rule 4 - Manager's Sharpe Ratio is worse than the 50th Percentile in an appropriate style universe for the five year period $(\text{five year return minus five year risk free rate})/(\text{standard deviation})$.

Rule 5 - Manager's Information Ratio is worse than the 50th Percentile in an appropriate style universe for the five year period $(\text{excess return over benchmark})/(\text{tracking error})$.

Rule 6 - 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.

Watch List standards are run against historical composite returns prior to manager since inception. Baillie Gifford Emerging Markets- Provisional: In 4Q2019, Baillie Gifford announced Co-PM Richard Sneller will be retiring in May 2020.

Total Fund Watch List (Net of Fees)

Period Ending: December 31, 2019

Name	Allocation Group	Status	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5	Rule 6
Brandywine Global Sovereign	Global Fixed Income	No Issues	✓	✓	✗	✗	✗	--
RBC Access Capital	Domestic Fixed Income Mortgage	No Issues	--	--	--	--	--	--
Western Asset Investment Grade Credit	Domestic Fixed Income	No Issues	✓	✓	✓	✓	✓	--
Loomis Sayles High Yield	Domestic Fixed Income High Yield	No Issues	✗	✗	✓	✗	✗	--
Eaton Vance Senior Loan Fund	Domestic Fixed Income Bank Loans	No Issues	✓	✗	✓	✗	✗	--
PIMCO Emerging Local Bond Ins	Emerging Markets Fixed Income	Watch	✓	✓	✓	✓	✓	--
Invesco Core Real Estate	Real Estate	No Issues	✗	✗	✗	--	--	--

Rule 1 - Manager has underperformed the benchmark index more than half the time over the last 20 quarters

Rule 2 - Fixed Income manager has returned less than 105% of the benchmark index for the three year period.

Rule 3 - Manager has underperformed the 50th percentile in the appropriate style universe in more than two of the last five years of consecutive returns.

Rule 4 - Manager's Sharpe Ratio is worse than the 50th Percentile in an appropriate style universe for the five year period $(\text{five year return minus five year risk free rate})/(\text{standard deviation})$.

Rule 5 - Manager's Information Ratio is worse than the 50th Percentile in an appropriate style universe for the five year period $(\text{excess return over benchmark})/(\text{tracking error})$.

Rule 6 - 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.

Watch List standards are run against historical composite returns prior to manager since inception.

Total Fund Manager Rankings Page

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Fund	5,208,255,734	100.0	6.2	6.4	16.8	8.9	6.1	7.8	16.8	-3.6	14.6	6.7	-2.5
Policy Index			5.2	5.7	15.0	8.3	5.8	7.2	15.0	-3.2	14.0	6.5	-1.7
InvMetrics Public DB > \$1B Net Rank			3	12	52	51	92	65	52	41	67	80	86
S&P 500 Index Fund	560,201,786	10.8	--	--	--	--	--	--	--	--	--	--	--
S&P 500			9.1	10.9	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4
eV US Large Cap Core Equity Gross Rank			--	--	--	--	--	--	--	--	--	--	--
T. Rowe Price Large Cap Growth	135,178,329	2.6	10.1	9.2	29.5	--	--	--	29.5	--	--	--	--
Russell 1000 Growth			10.6	12.3	36.4	20.5	14.6	15.2	36.4	-1.5	30.2	7.1	5.7
eV US Large Cap Growth Equity Net Rank			36	59	82	--	--	--	82	--	--	--	--
Aronson Johnson Ortiz	131,228,573	2.5	6.6	6.4	21.7	8.0	6.6	11.2	21.7	-11.4	16.7	9.5	-0.1
Russell 1000 Value			7.4	8.9	26.5	9.7	8.3	11.8	26.5	-8.3	13.7	17.3	-3.8
eV US Large Cap Value Equity Net Rank			76	93	89	83	82	57	89	72	50	83	16
PIMCO StocksPLUS Small Fund	258,217,812	5.0	10.6	9.4	29.3	--	--	--	29.3	--	--	--	--
Russell 2000			9.9	7.3	25.5	8.6	8.2	11.8	25.5	-11.0	14.6	21.3	-4.4
eV US Small Cap Core Equity Net Rank			14	10	15	--	--	--	15	--	--	--	--
EAFE Index Fund	281,936,677	5.4	--	--	--	--	--	--	--	--	--	--	--
MSCI EAFE			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8
eV EAFE All Cap Growth Net Rank			--	--	--	--	--	--	--	--	--	--	--
Artisan International Growth	191,818,238	3.7	8.0	8.8	31.3	15.7	6.6	--	31.3	-10.2	31.5	-9.0	-2.2
MSCI EAFE			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8
eV EAFE All Cap Growth Net Rank			98	37	32	21	68	--	32	7	45	97	85
Research Affiliates International Equity	194,145,867	3.7	7.5	7.0	17.9	7.8	5.2	--	17.9	-15.5	25.7	9.3	-5.9
MSCI EAFE			8.2	7.0	22.0	9.6	5.7	5.5	22.0	-13.8	25.0	1.0	-0.8
eV EAFE All Cap Value Net Rank			77	39	56	39	32	--	56	50	28	1	96
Mondrian International Small Cap	167,532,103	3.2	11.3	9.1	25.1	12.3	7.8	9.1	25.1	-14.6	32.4	0.1	2.7
S&P Developed Ex-U.S. SmallCap			11.7	10.1	24.7	10.4	8.2	8.3	24.7	-18.4	32.4	3.8	5.9
eV EAFE Small Cap Value Net Rank			77	99	32	28	68	52	32	22	66	88	95
Mondrian Emerging Markets	156,084,473	3.0	12.9	7.4	18.3	9.1	3.4	3.4	18.3	-13.8	27.2	9.0	-16.3
MSCI Emerging Markets			11.8	7.1	18.4	11.6	5.6	3.7	18.4	-14.6	37.3	11.2	-14.9
eV Emg Mkts All Cap Value Equity Net Rank			11	23	42	66	87	76	42	48	93	81	49
Baillie Gifford Emerging Markets	158,015,886	3.0	13.0	9.1	28.0	--	--	--	28.0	--	--	--	--
MSCI Emerging Markets			11.8	7.1	18.4	11.6	5.6	3.7	18.4	-14.6	37.3	11.2	-14.9
Diversified Emerging Mkts MStar MF Rank			12	18	14	--	--	--	14	--	--	--	--

Total Fund
Manager Rankings Page

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Western Asset Investment Grade Credit	188,004,253	3.6	1.5	4.0	14.9	6.2	5.0	--	14.9	-2.3	6.8	7.0	-0.5
BBgBarc US Credit TR			1.1	4.1	13.8	5.8	4.4	5.3	13.8	-2.1	6.2	5.6	-0.8
eV US Corporate Fixed Inc Net Rank			14	65	31	23	22	--	31	34	39	40	40
RBC Access Capital	49,368,455	0.9	0.7	2.0	6.4	--	--	--	6.4	--	--	--	--
BBgBarc US Securitized Index			0.6	2.0	6.4	3.3	2.6	3.3	6.4	1.0	2.5	1.8	1.5
eV US Securitized Fixed Inc Net Rank			32	36	54	--	--	--	54	--	--	--	--
Loomis Sayles High Yield	256,712,159	4.9	2.5	2.3	11.5	5.3	4.8	--	11.5	-2.3	7.1	14.4	-5.2
BBgBarc US High Yield TR			2.6	4.0	14.3	6.4	6.1	7.6	14.3	-2.1	7.5	17.1	-4.5
eV US High Yield Fixed Inc Net Rank			45	89	72	74	80	--	72	52	47	42	79
Eaton Vance Senior Loan Fund	190,806,201	3.7	1.8	2.8	7.5	4.0	4.2	--	7.5	0.7	4.0	9.9	-0.8
S&P/LSTA Leveraged Loan Index			1.7	2.7	8.6	4.3	4.4	5.0	8.6	0.4	4.1	10.2	-0.7
eV US Float-Rate Bank Loan Fixed Inc Net Rank			25	30	80	42	47	--	80	16	40	33	85
Eaton Vance Institutional Senior Loan Plus Fund	22,816,765	0.4	2.5	4.1	11.3	4.4	--	--	11.3	-1.3	3.6	--	--
S&P/LSTA Leveraged Loan Index			1.7	2.7	8.6	4.3	4.4	5.0	8.6	0.4	4.1	10.2	-0.7
eV US Float-Rate Bank Loan Fixed Inc Net Rank			1	2	2	18	--	--	2	97	64	--	--
Northern Trust Collective TIPS Index Fund	187,913,499	3.6	--	--	--	--	--	--	--	--	--	--	--
BBgBarc US TIPS TR			0.8	2.1	8.4	3.3	2.6	3.4	8.4	-1.3	3.0	4.7	-1.4
eV US TIPS / Inflation Fixed Inc Net Rank			--	--	--	--	--	--	--	--	--	--	--
Brandywine Global Sovereign	266,832,408	5.1	4.1	2.2	8.7	5.0	1.6	--	8.7	-4.7	11.9	3.8	-9.8
FTSE WGBI TR			-0.4	0.5	5.9	4.1	2.0	1.9	5.9	-0.8	7.5	1.6	-3.6
eV Global Government Fixed Inc Net Rank			1	1	1	1	69	--	1	92	4	23	99
PIMCO Emerging Local Bond Ins	193,591,708	3.7	6.3	5.0	17.1	7.6	2.9	--	17.1	-7.7	15.4	10.7	-16.3
JP Morgan GBI EM Global Diversified TR USD			5.2	4.4	13.5	7.0	2.8	2.7	13.5	-6.2	15.2	9.9	-14.9
eV Emg Mkts Fixed Inc - Local Currency Net Rank			4	10	3	7	38	--	3	54	39	18	91

Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2019

Account	Fee Schedule	Market Value As of 12/31/2019	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
S&P 500 Index Fund	0.01% of Assets	\$560,201,786	\$56,020	0.01%
T. Rowe Price Large Cap Growth	0.35% of Assets	\$135,178,329	\$473,124	0.35%
Aronson Johnson Ortiz	0.30% of First 250.0 Mil, 0.20% of Next 250.0 Mil, 0.15% of Next 500.0 Mil, 0.13% Thereafter	\$131,228,573	\$393,686	0.30%
PIMCO StocksPLUS Small Fund	0.50% of First 150.0 Mil, 0.45% Thereafter	\$258,217,812	\$1,236,980	0.48%
EAFE Index Fund	0.03% of Assets	\$281,936,677	\$80,352	0.03%
Artisan International Growth	0.30% of Assets	\$191,818,238	\$575,455	0.30%
Research Affiliates International Equity	0.12% of Assets	\$194,145,867	\$232,975	0.12%
Mondrian International Small Cap	0.85% of First 25.0 Mil, 0.65% of Next 50.0 Mil, 0.63% of Next 50.0 Mil, 0.60% Thereafter	\$167,532,103	\$1,105,193	0.66%
Mondrian Emerging Markets	1.00% of First 25.0 Mil, 0.75% of Next 50.0 Mil, 0.60% Thereafter	\$156,084,473	\$1,111,507	0.71%
Baillie Gifford Emerging Markets	0.85% of Assets	\$158,015,886	\$1,343,135	0.85%
Western Asset Investment Grade Credit	0.30% of First 100.0 Mil, 0.15% Thereafter	\$188,004,253	\$432,006	0.23%
RBC Access Capital	0.30% of First 100.0 Mil, 0.20% Thereafter	\$49,368,455	\$148,105	0.30%
Loomis Sayles High Yield	0.50% of Assets	\$256,712,159	\$1,283,561	0.50%

This fee analysis only reflects base fees for investment management, does not incorporate performance-based fees, and excludes fees paid to closed end real estate managers, private equity managers and GCM Better Futures Fund. Closed end real estate and private equity fees have other components which cannot be easily captured in this simplified format.

** Managers with incentive fee include: Ivy, Research Affiliates, Western Asset, Artisan, Brandywine, and Invesco Commodities. Performance based fees are not included in the fee analysis. AJO has performance based fees.*

Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2019

Account	Fee Schedule	Market Value As of 12/31/2019	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Eaton Vance Senior Loan Fund	0.55% of First 50.0 Mil, 0.50% of Next 50.0 Mil, 0.40% Thereafter	\$190,806,201	\$888,225	0.47%
Eaton Vance Institutional Senior Loan Plus Fund	0.40% of Assets	\$22,816,765	\$91,267	0.40%
Northern Trust Collective TIPS Index Fund	0.02% of Assets	\$187,913,499	\$32,885	0.02%
Brandywine Global Sovereign	0.36% of Assets	\$266,832,408	\$960,597	0.36%
PIMCO Emerging Local Bond Ins	0.50% of First 100.0 Mil, 0.45% Thereafter	\$193,591,708	\$921,163	0.48%
Invesco Core Real Estate	0.90% of First 75.0 Mil, 0.80% Thereafter	\$182,939,706	\$1,538,518	0.84%
Invesco US Value-Add Fund V	No Fee	\$7,808,539	--	--
Kennedy Wilson Real Estate Fund VI	No Fee	\$19,742,678	--	--
IFM Infrastructure	0.97% of Assets	\$165,183,101	\$1,602,276	0.97%
Grosvenor	1.15% of First 25.0 Mil, 1.00% of Next 25.0 Mil, 0.80% of Next 50.0 Mil, 0.60% Thereafter	\$172,852,057	\$1,374,612	0.80%
Parametric Overlay	0.15% of First 25.0 Mil, 0.10% of Next 75.0 Mil, 0.04% Thereafter	\$97,081,843	\$109,582	0.11%
Investment Management Fee		\$4,236,013,115	\$15,991,223	0.38%

This fee analysis only reflects base fees for investment management, does not incorporate performance-based fees, and excludes fees paid to closed end real estate managers, private equity managers and GCM Better Futures Fund. Closed end real estate and private equity fees have other components which cannot be easily captured in this simplified format.

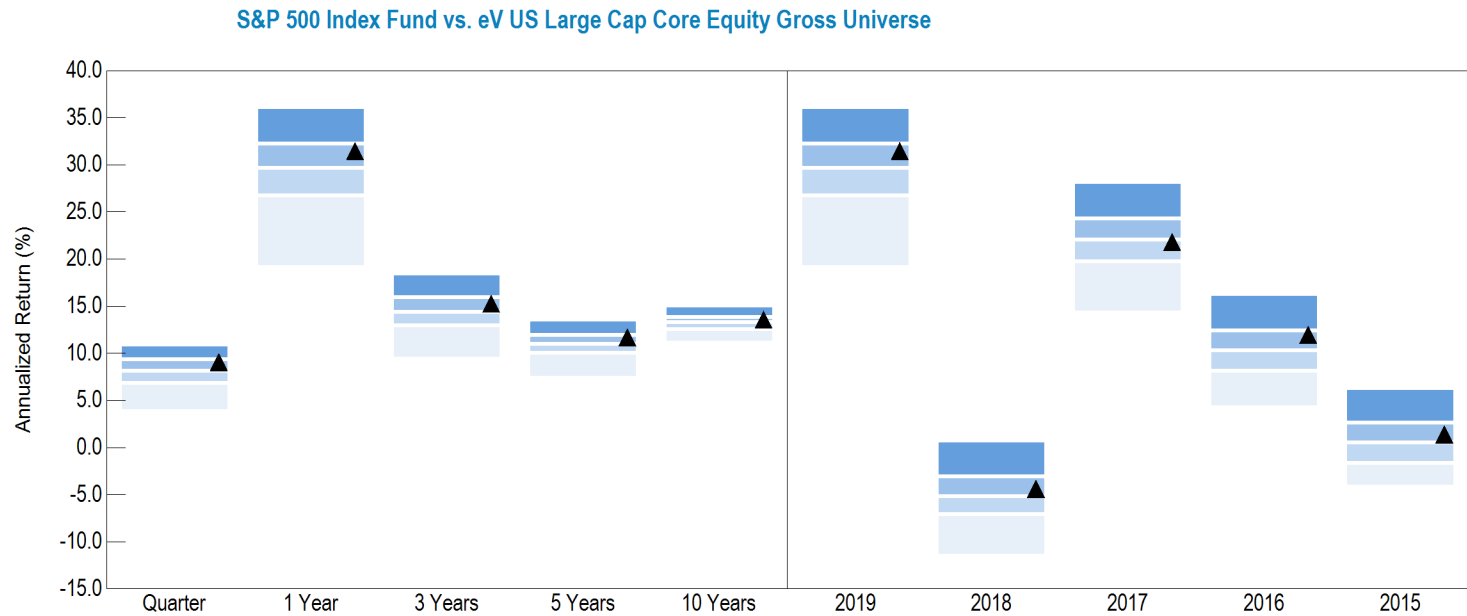
** Managers with incentive fee include: Ivy, Research Affiliates, Western Asset, Artisan, Brandywine, and Invesco Commodities. Performance based fees are not included in the fee analysis. AJO has performance based fees.*

Domestic Equity Managers

S&P 500 Index Fund

Manager Performance Comparisons (Net of Fees)

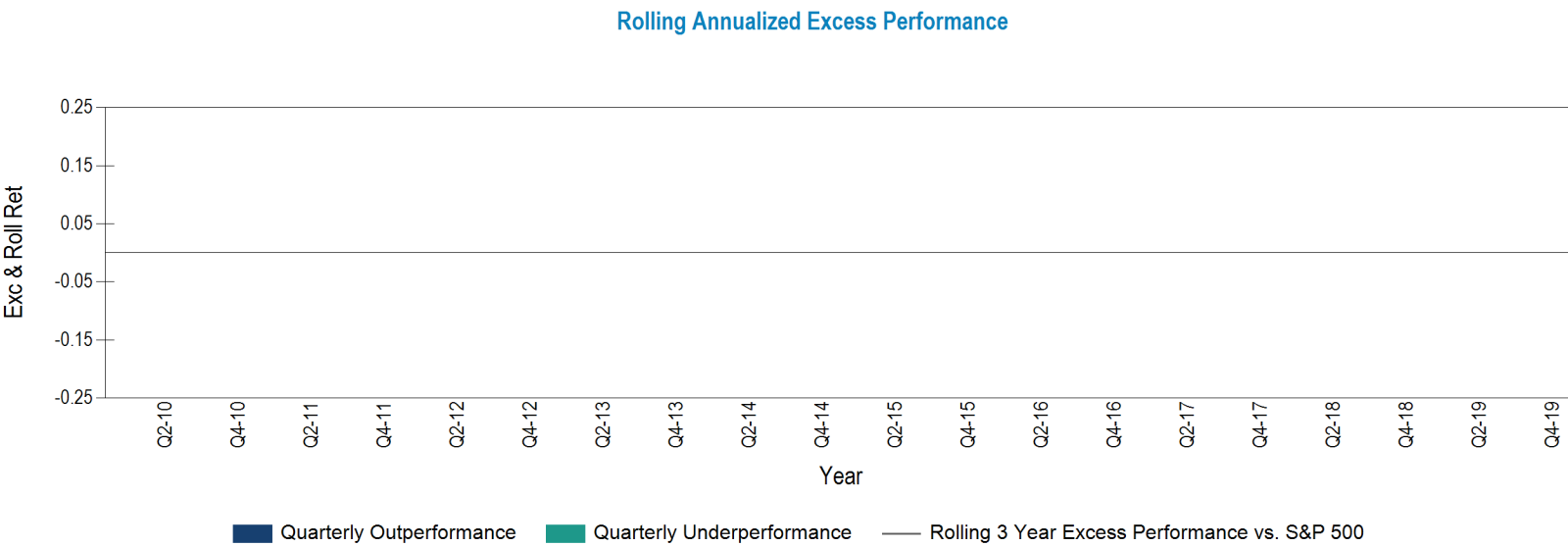
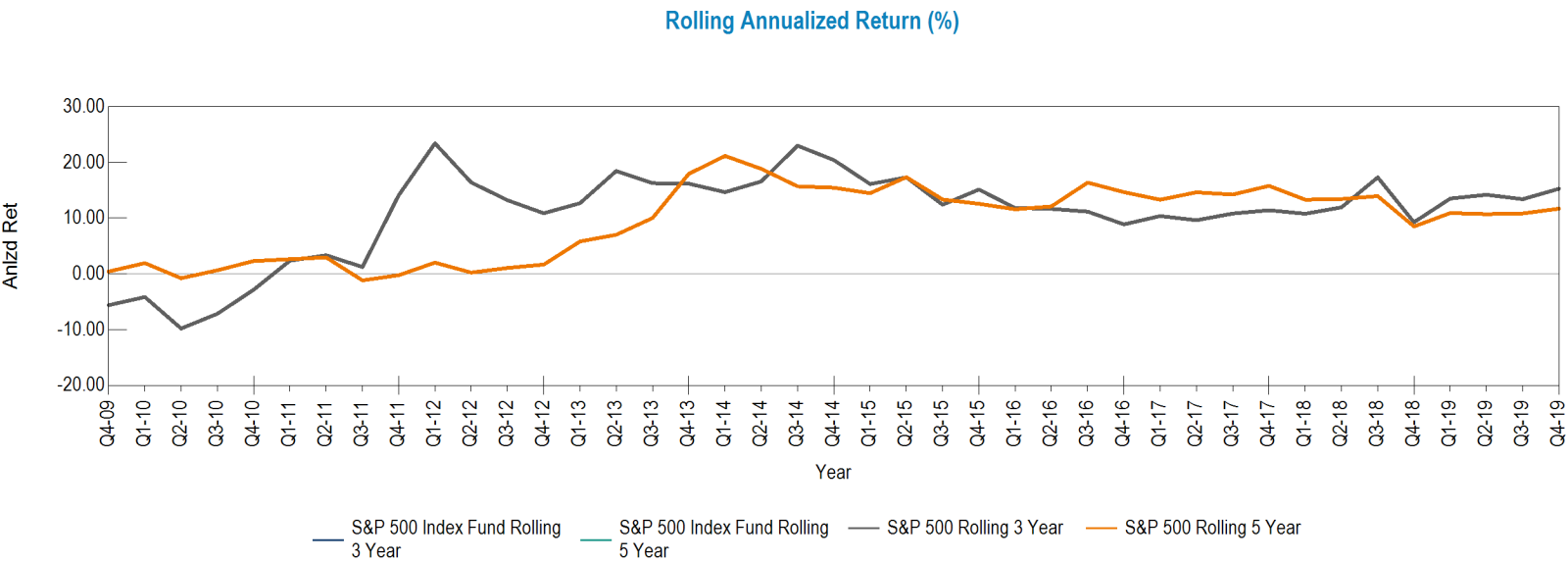
Period Ending: December 31, 2019



		Return (Rank)																			
5th Percentile		10.9	36.1	18.4	13.5	15.1	36.1	0.7	28.2	16.3	6.3										
25th Percentile		9.4	32.3	16.0	12.0	13.9	32.3	-3.0	24.3	12.5	2.7										
Median		8.2	29.7	14.5	11.0	13.3	29.7	-5.1	22.1	10.4	0.6										
75th Percentile		6.9	26.8	13.0	10.1	12.6	26.8	-7.1	19.8	8.2	-1.6										
95th Percentile		3.9	19.2	9.4	7.5	11.2	19.2	-11.4	14.4	4.3	-4.1										
# of Portfolios		318	318	305	287	223	318	316	318	308	267										
●	S&P 500 Index Fund	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)		
▲	S&P 500	9.1	(32)	31.5	(33)	15.3	(36)	11.7	(33)	13.6	(39)	31.5	(33)	-4.4	(40)	21.8	(53)	12.0	(31)	1.4	(42)

S&P 500 Index Fund
Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

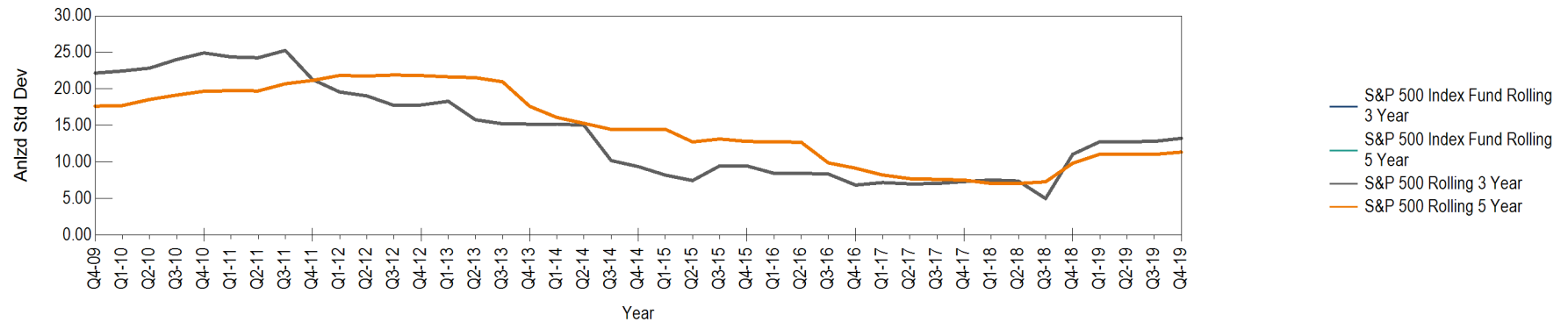


S&P 500 Index Fund

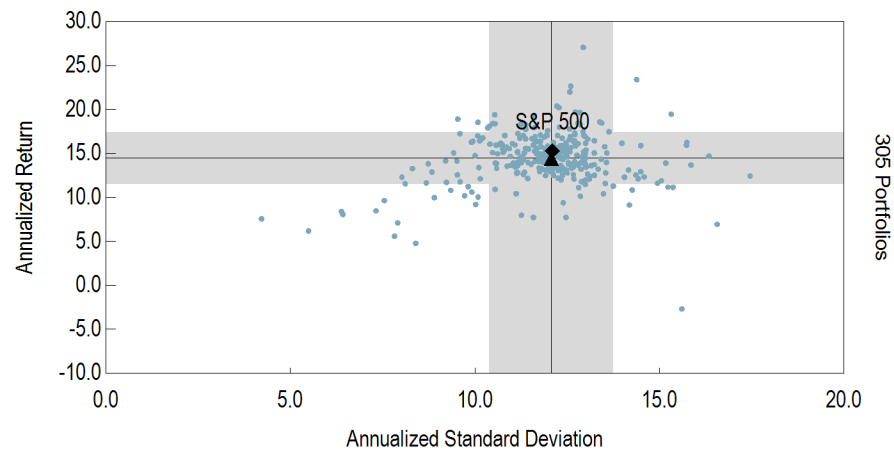
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

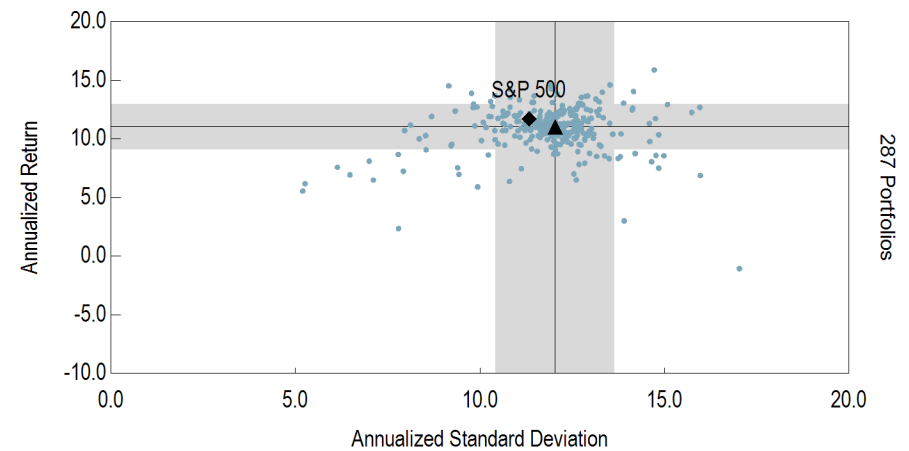
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
S&P 500 Index Fund	--	--	--
S&P 500	15.3%	12.1%	1.1
eV US Large Cap Core Equity Gross Median	14.5%	12.1%	1.1

5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
S&P 500 Index Fund	--	--	--
S&P 500	11.7%	11.3%	0.9
eV US Large Cap Core Equity Gross Median	11.0%	12.0%	0.8

S&P 500 Index Fund

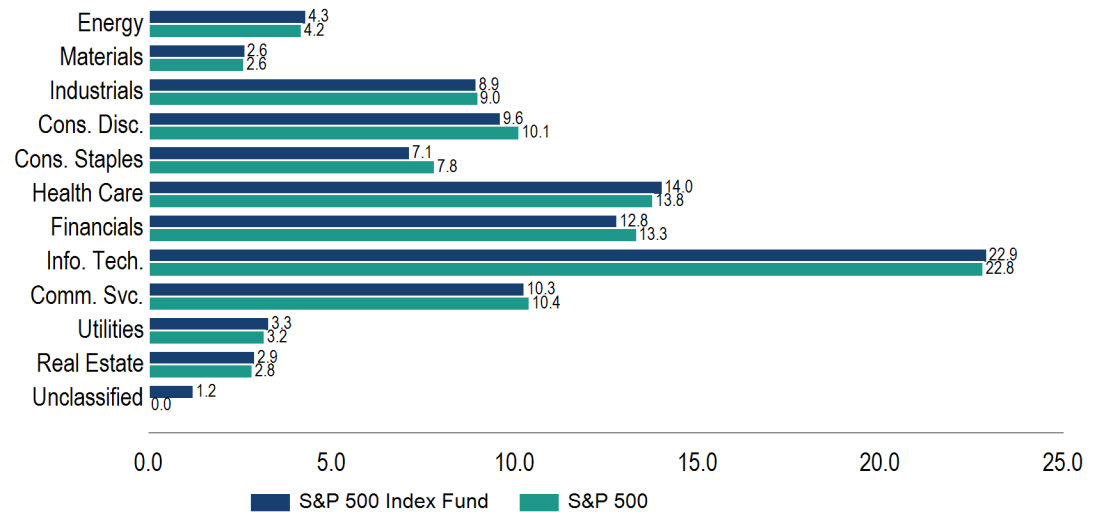
Manager Portfolio Overview (Net of Fees)

Period Ending: December 31, 2019

Characteristics

	Portfolio	S&P 500
Number of Holdings	506	505
Weighted Avg. Market Cap. (\$B)	269.63	272.00
Median Market Cap. (\$B)	23.48	23.59
Price To Earnings	23.03	23.01
Price To Book	3.87	3.87
Price To Sales	2.14	2.10
Return on Equity (%)	26.22	26.11
Yield (%)	1.86	1.83
Beta		1.00

Sector Allocation (%) vs S&P 500



Largest Holdings

	End Weight	Return
APPLE	4.52	31.50
MICROSOFT	4.44	13.82
AMAZON.COM	2.84	6.45
FACEBOOK CLASS A	1.82	15.26
BERKSHIRE HATHAWAY 'B'	1.63	8.88
JP MORGAN CHASE & CO.	1.61	19.40
ALPHABET A	1.48	9.68
ALPHABET 'C'	1.47	9.68
JOHNSON & JOHNSON	1.42	13.53
VISA 'A'	1.19	9.42

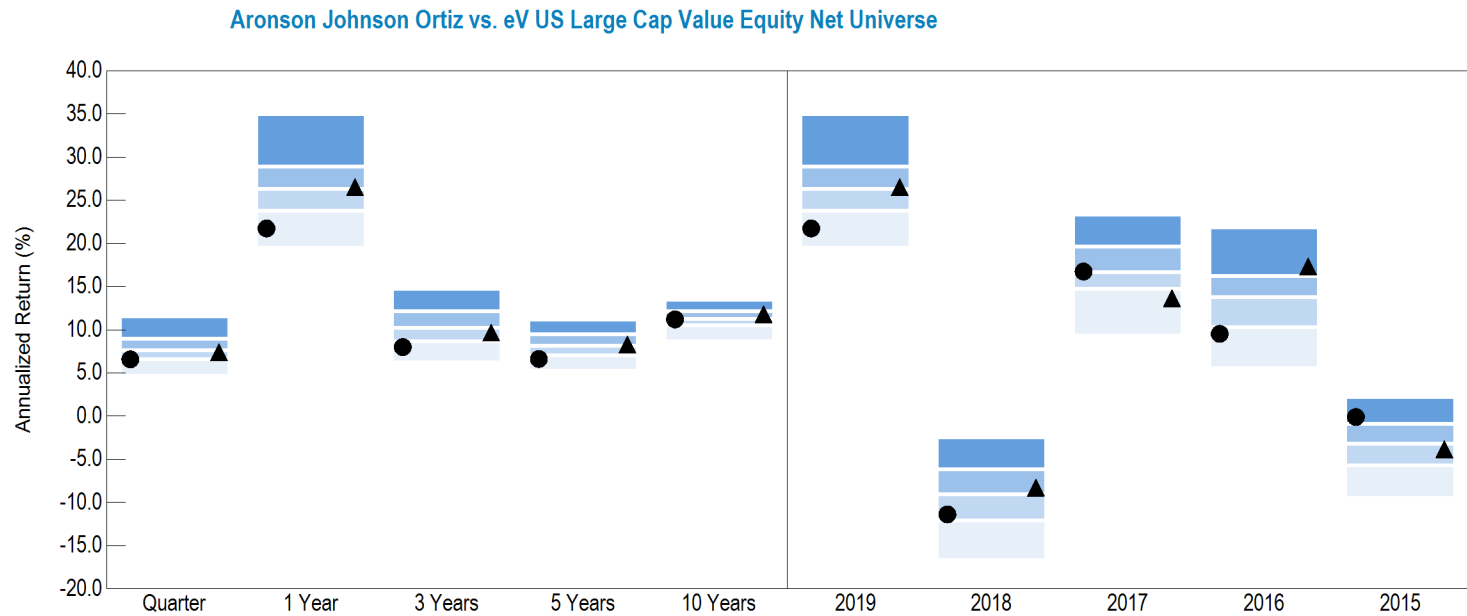
Top Contributors

	End Weight	Return	Contribution
APPLE	4.52	31.50	1.43
MICROSOFT	4.44	13.82	0.61
UNITEDHEALTH GROUP	1.03	35.80	0.37
JP MORGAN CHASE & CO.	1.61	19.40	0.31
FACEBOOK CLASS A	1.82	15.26	0.28
BANK OF AMERICA	1.05	21.40	0.23
JOHNSON & JOHNSON	1.42	13.53	0.19
NVIDIA	0.53	35.27	0.19
AMAZON.COM	2.84	6.45	0.18
INTEL	0.96	16.78	0.16

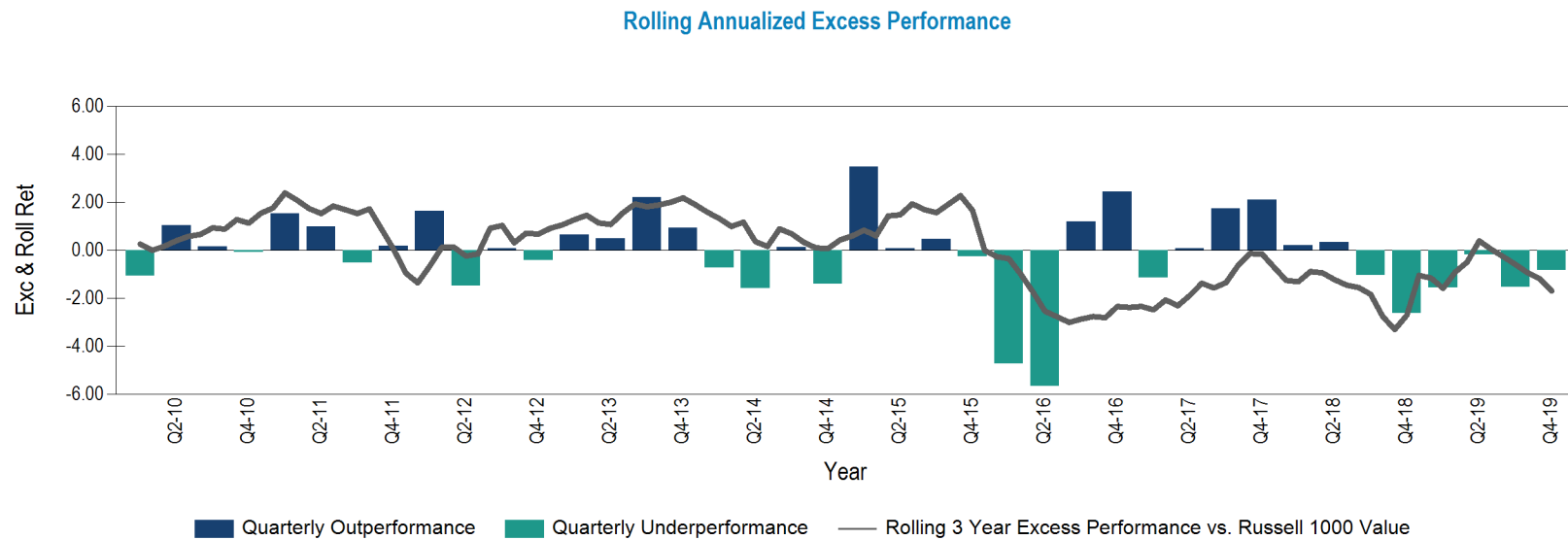
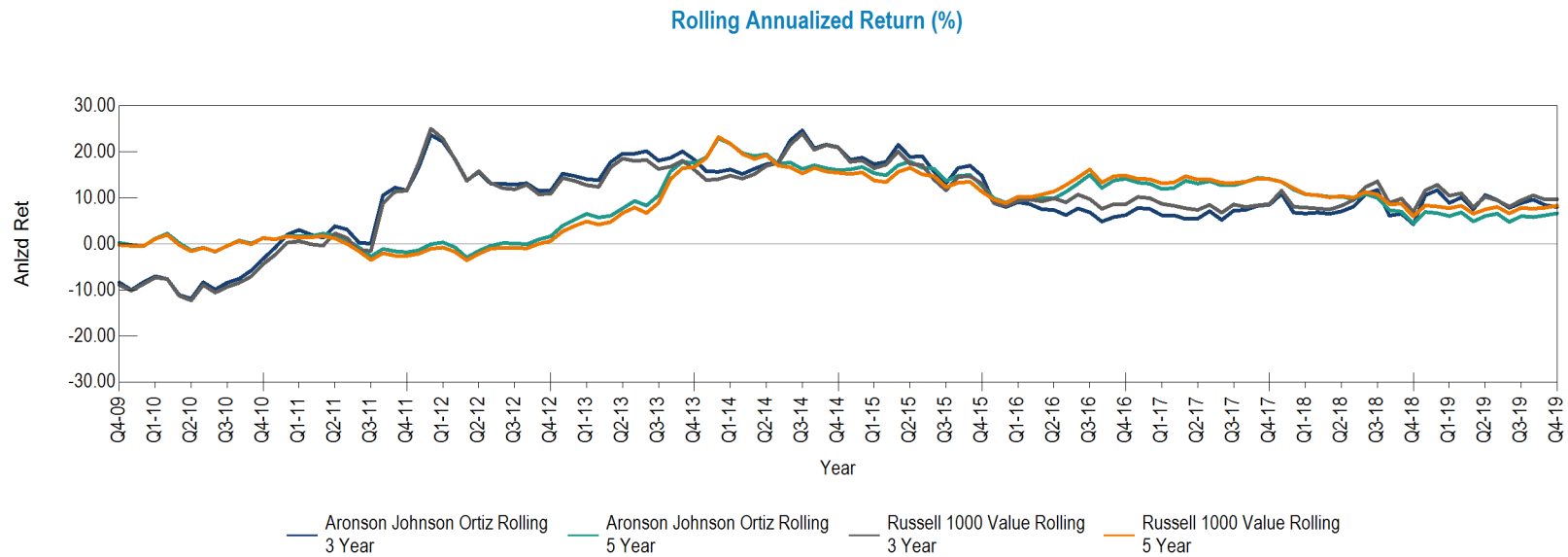
Bottom Contributors

	End Weight	Return	Contribution
BOEING	0.64	-13.89	-0.09
HOME DEPOT	0.88	-5.28	-0.05
MCDONALDS	0.55	-7.37	-0.04
INTERNATIONAL BUS.MCHS.	0.44	-6.74	-0.03
TWITTER	0.09	-22.21	-0.02
DUPONT DE NEMOURS	0.18	-9.56	-0.02
CISCO SYSTEMS	0.75	-2.21	-0.02
VENTAS	0.08	-19.85	-0.02
NORTHROP GRUMMAN	0.20	-7.88	-0.02
PUBLIC STORAGE	0.12	-12.32	-0.01

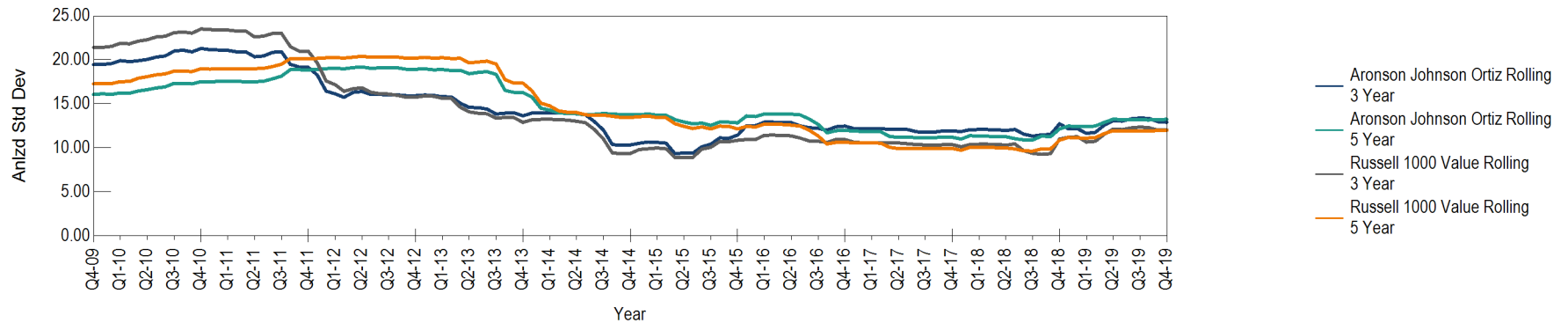
Unclassified sector allocation includes cash allocations.



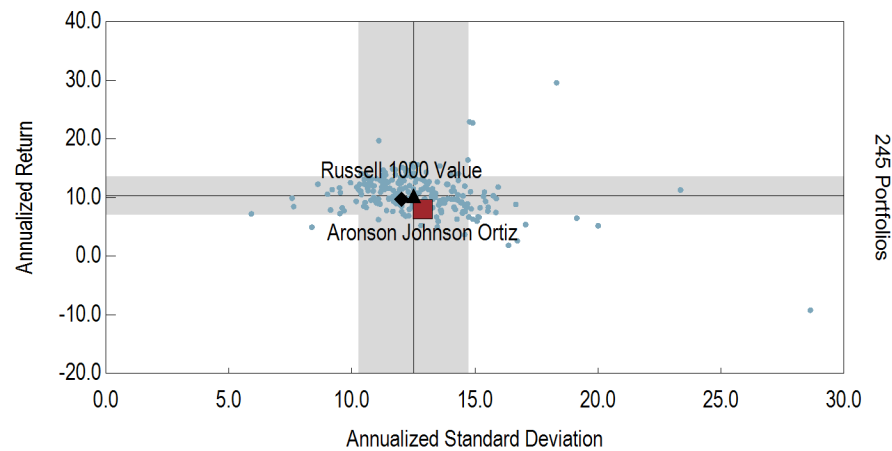
	Return (Rank)									
5th Percentile	11.5	34.9	14.7	11.1	13.4	34.9	-2.5	23.3	21.8	2.2
25th Percentile	9.0	28.9	12.2	9.5	12.2	28.9	-6.1	19.7	16.3	-0.8
Median	7.7	26.3	10.3	8.2	11.3	26.3	-9.0	16.7	13.8	-3.1
75th Percentile	6.6	23.8	8.7	7.1	10.5	23.8	-12.0	14.8	10.4	-5.7
95th Percentile	4.7	19.5	6.3	5.3	8.7	19.5	-16.7	9.4	5.6	-9.4
# of Portfolios	249	249	245	233	186	249	239	231	225	195
● Aronson Johnson Ortiz	6.6 (76)	21.7 (89)	8.0 (83)	6.6 (82)	11.2 (57)	21.7 (89)	-11.4 (72)	16.7 (50)	9.5 (83)	-0.1 (16)
▲ Russell 1000 Value	7.4 (57)	26.5 (49)	9.7 (62)	8.3 (50)	11.8 (38)	26.5 (49)	-8.3 (43)	13.7 (86)	17.3 (19)	-3.8 (59)



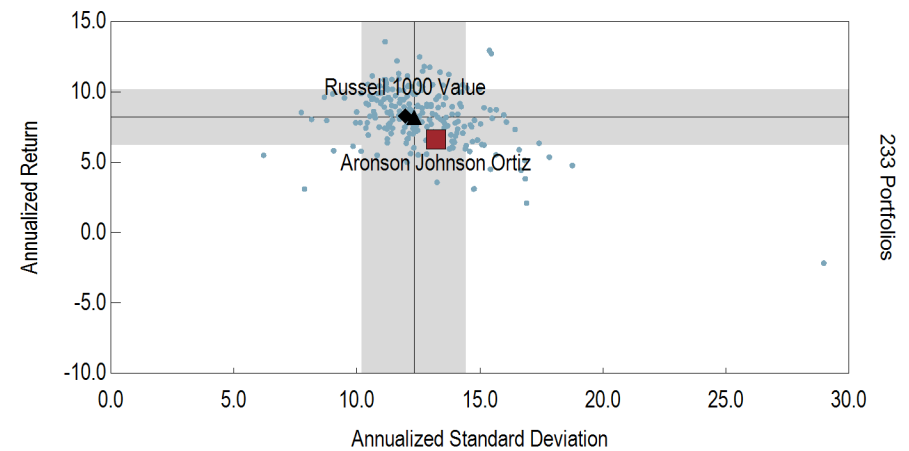
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Aronson Johnson Ortiz	8.0%	12.9%	0.5
Russell 1000 Value	9.7%	12.0%	0.7
eV US Large Cap Value Equity Net Median	10.3%	12.5%	0.7

5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Aronson Johnson Ortiz	6.6%	13.2%	0.4
Russell 1000 Value	8.3%	12.0%	0.6
eV US Large Cap Value Equity Net Median	8.2%	12.3%	0.6

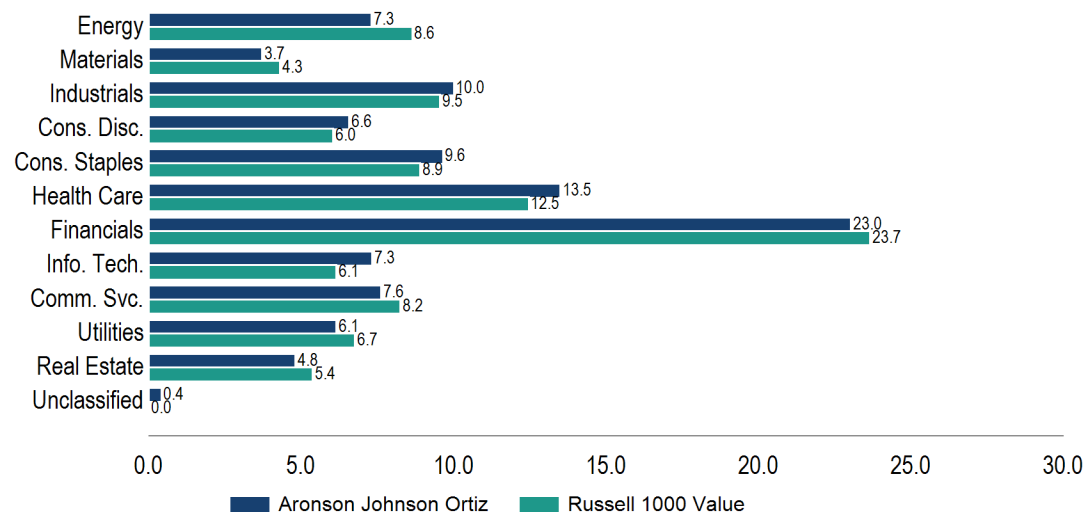
Aronson Johnson Ortiz Manager Portfolio Overview (Net of Fees)

Period Ending: December 31, 2019

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	132	764
Weighted Avg. Market Cap. (\$B)	75.12	123.34
Median Market Cap. (\$B)	10.21	9.64
Price To Earnings	15.10	18.48
Price To Book	2.35	2.32
Price To Sales	1.00	1.51
Return on Equity (%)	18.78	13.97
Yield (%)	2.11	2.49
Beta	1.06	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
JOHNSON & JOHNSON	3.52	13.53
VERIZON COMMUNICATIONS	2.97	2.78
CITIGROUP	2.58	16.45
PFIZER	2.21	10.11
PROCTER & GAMBLE	2.11	1.06
CHEVRON	2.04	2.61
MONDELEZ INTERNATIONAL CL.A	1.77	0.08
METLIFE	1.54	9.08
PHILLIPS 66	1.52	9.63
EXELON	1.50	-4.86

Top Contributors

	Avg Wgt	Return	Contribution
JOHNSON & JOHNSON	3.39	13.53	0.46
CITIGROUP	2.46	16.45	0.40
AES	1.36	22.76	0.31
VARIAN MEDICAL SYSTEMS	1.30	19.25	0.25
ELI LILLY	1.24	18.21	0.23
CITIZENS FINANCIAL GROUP	1.39	15.97	0.22
PFIZER	2.16	10.11	0.22
MANPOWERGROUP	1.21	16.62	0.20
CBRE GROUP CLASS A	1.22	15.62	0.19
RELIANCE STEEL AND ALMN.	0.89	20.75	0.18

Bottom Contributors

	Avg Wgt	Return	Contribution
ALLY FINANCIAL	1.31	-7.33	-0.10
EBAY	1.20	-7.00	-0.08
EXELON	1.54	-4.86	-0.08
HOLLYFRONTIER	1.29	-4.83	-0.06
PUB.SER.ENTER.GP.	1.06	-4.11	-0.04
COLGATE-PALM.	0.72	-5.75	-0.04
OLD REPUBLIC INTL.	0.97	-4.23	-0.04
AMC NETWORKS CL.A	0.19	-19.26	-0.04
TERADATA	0.27	-13.65	-0.04
EXPEDIA GROUP	0.18	-19.26	-0.04

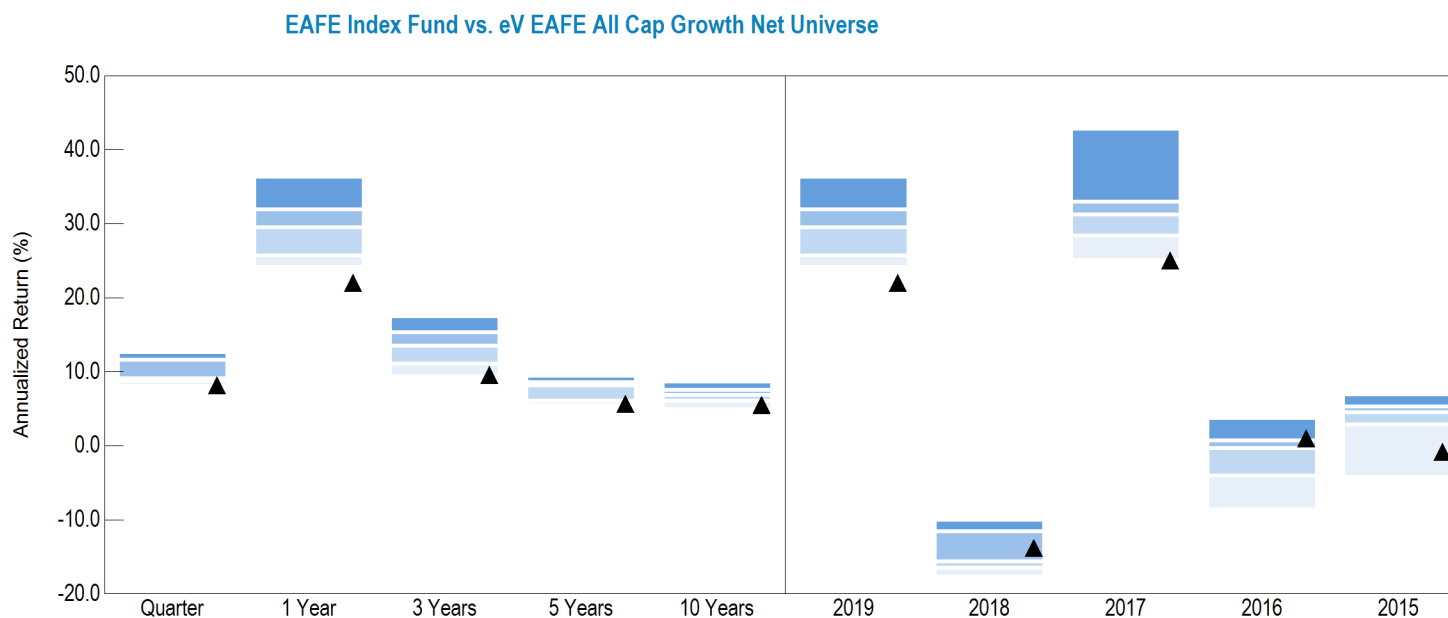
Unclassified sector allocation includes cash allocations.

International Equity Managers

EAFE Index Fund

Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019



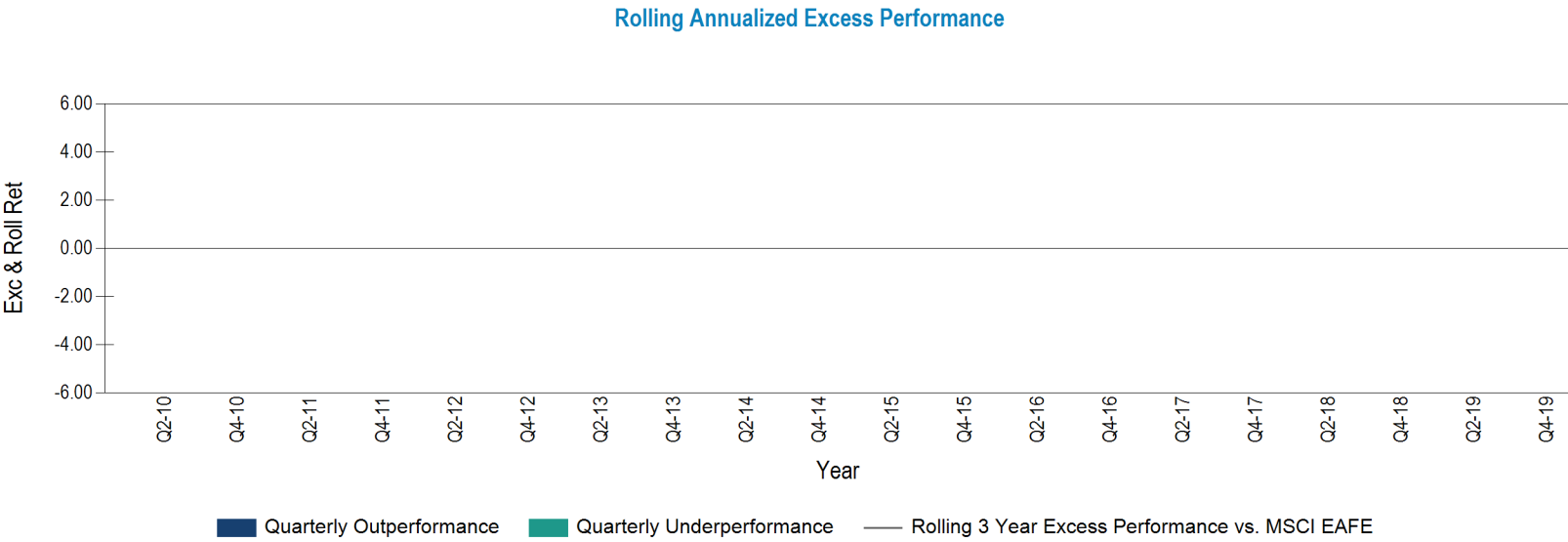
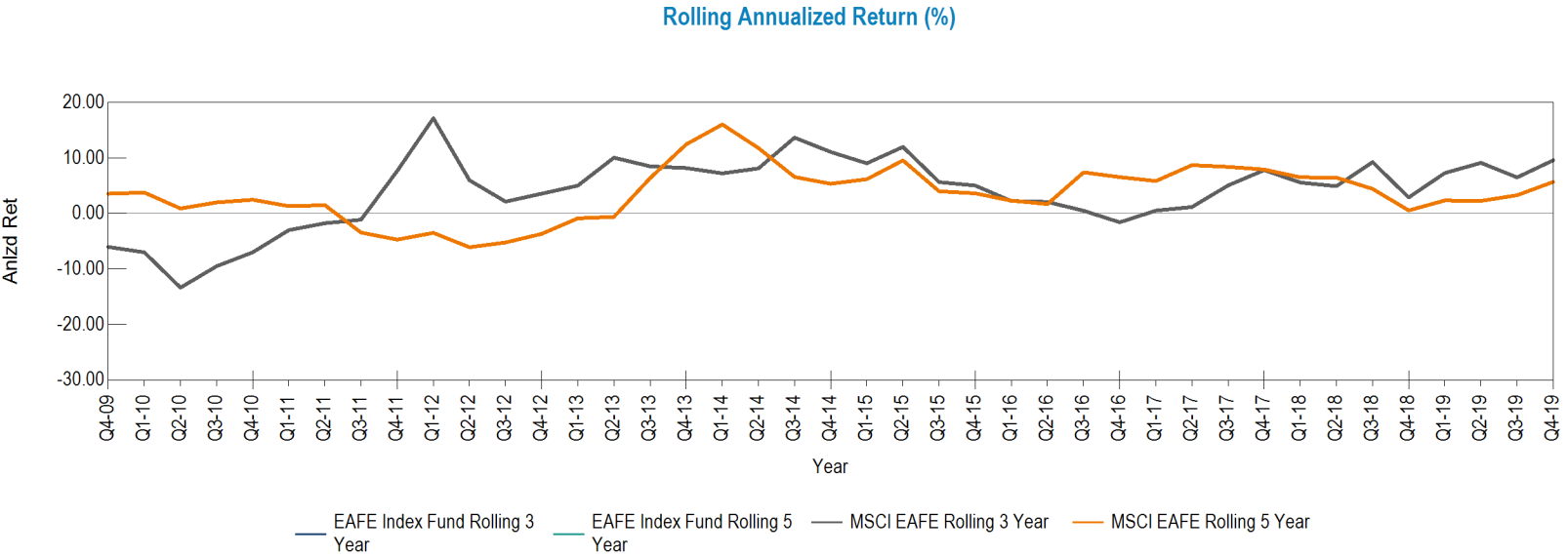
	Return (Rank)																			
5th Percentile	12.7		36.3		17.4		9.4		8.6		36.3		-10.0		42.8		3.7		6.9	
25th Percentile	11.6		32.0		15.4		8.7		7.6		32.0		-11.5		33.0		0.8		5.4	
Median	9.2		29.5		13.6		8.2		6.9		29.5		-15.6		31.3		-0.3		4.6	
75th Percentile	8.8		25.7		11.2		6.1		6.2		25.7		-16.4		28.5		-4.0		3.0	
95th Percentile	8.1		24.2		9.4		5.5		5.0		24.2		-17.6		25.1		-8.5		-4.1	
# of Portfolios	14		14		14		12		10		14		12		12		13		9	
● EAFE Index Fund	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ MSCI EAFE	8.2	(95)	22.0	(99)	9.6	(91)	5.7	(93)	5.5	(92)	22.0	(99)	-13.8	(42)	25.0	(96)	1.0	(21)	-0.8	(83)

Returns prior to inception date are composite returns.

EAFE Index Fund

Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019



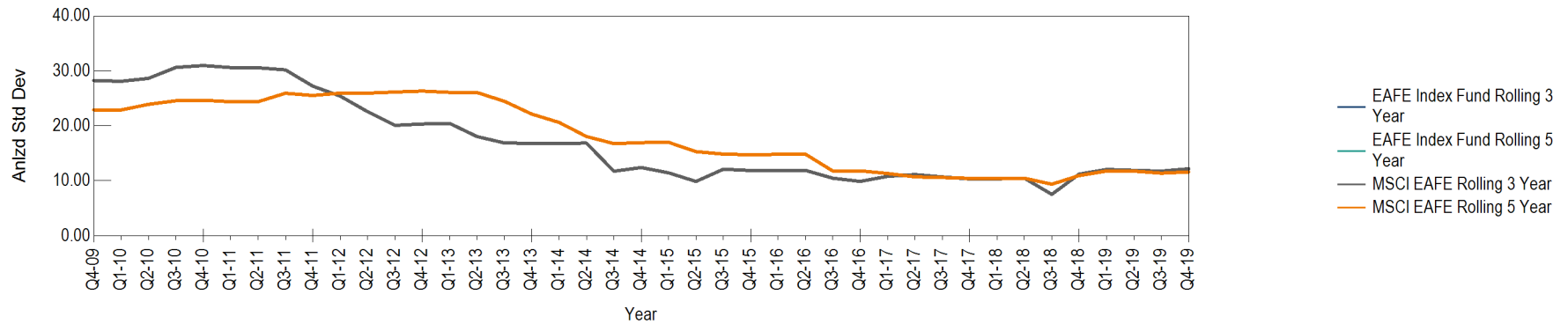
Returns prior to inception date are composite returns.

EAFE Index Fund

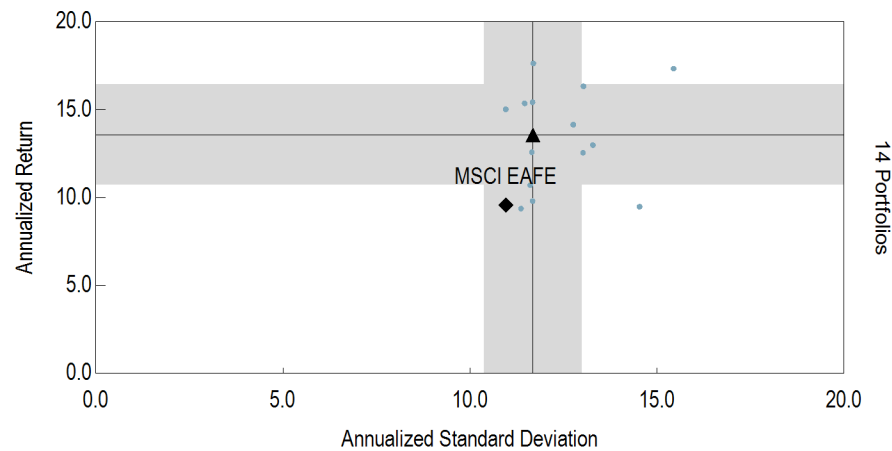
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

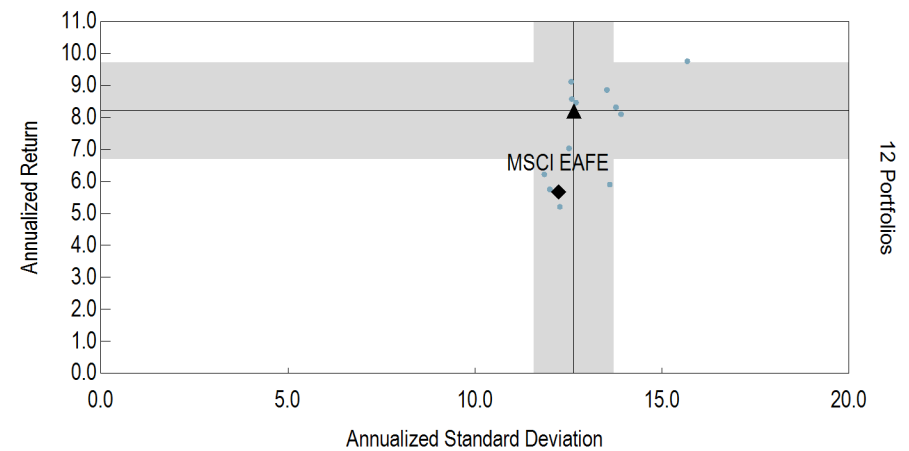
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
EAFE Index Fund	--	--	--
MSCI EAFE	9.6%	11.0%	0.7
eV EAFE All Cap Growth Net Median	13.6%	11.7%	1.0

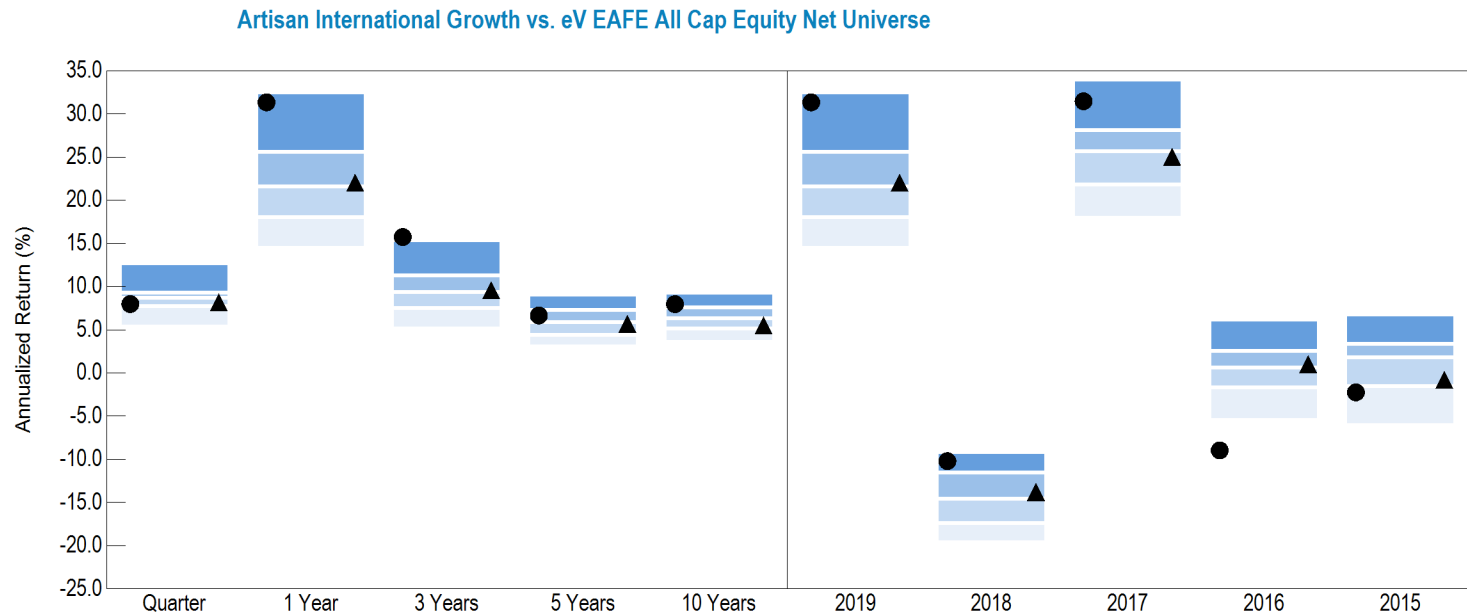
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
EAFE Index Fund	--	--	--
MSCI EAFE	5.7%	12.2%	0.4
eV EAFE All Cap Growth Net Median	8.2%	12.6%	0.5

Returns prior to inception date are composite returns.

Artisan International Growth Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019



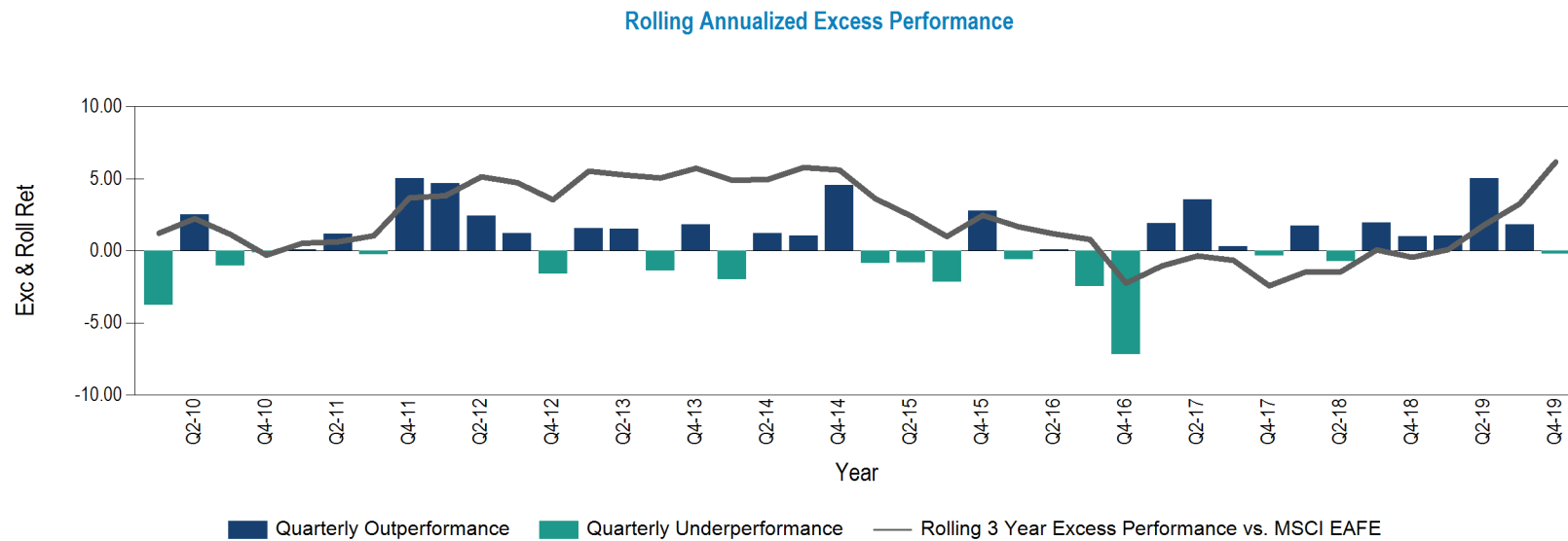
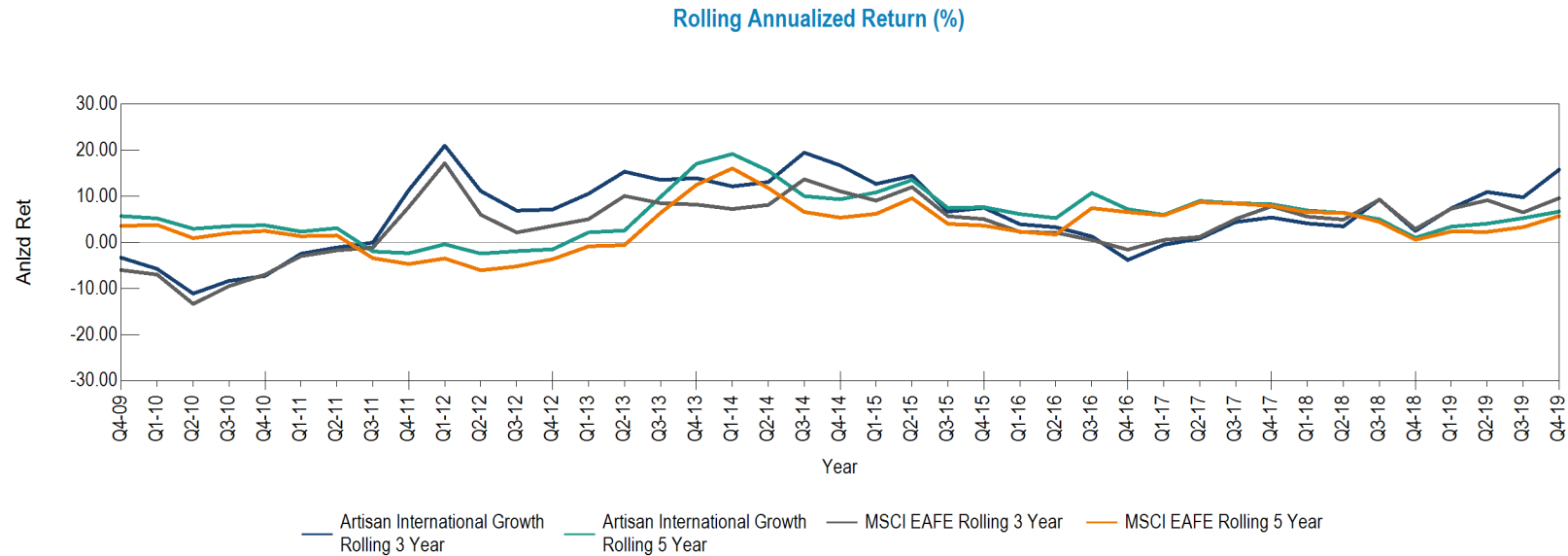
	Return (Rank)									
5th Percentile	12.6	32.5	15.4	9.1	9.3	32.5	-9.2	33.9	6.2	6.8
25th Percentile	9.4	25.6	11.3	7.3	7.6	25.6	-11.5	28.1	2.6	3.4
Median	8.7	21.6	9.4	5.9	6.4	21.6	-14.6	25.7	0.6	1.8
75th Percentile	7.8	18.1	7.6	4.4	5.2	18.1	-17.4	21.8	-1.7	-1.5
95th Percentile	5.4	14.5	5.2	3.1	3.6	14.5	-19.6	18.0	-5.4	-6.0
# of Portfolios	77	77	74	65	50	77	72	70	64	58
● Artisan International Growth	8.0 (73)	31.3 (9)	15.7 (4)	6.6 (39)	8.0 (18)	31.3 (9)	-10.2 (13)	31.5 (13)	-9.0 (99)	-2.2 (80)
▲ MSCI EAFE	8.2 (68)	22.0 (48)	9.6 (47)	5.7 (54)	5.5 (69)	22.0 (48)	-13.8 (47)	25.0 (59)	1.0 (46)	-0.8 (71)

Returns prior to inception date are composite returns.

Artisan International Growth

Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019



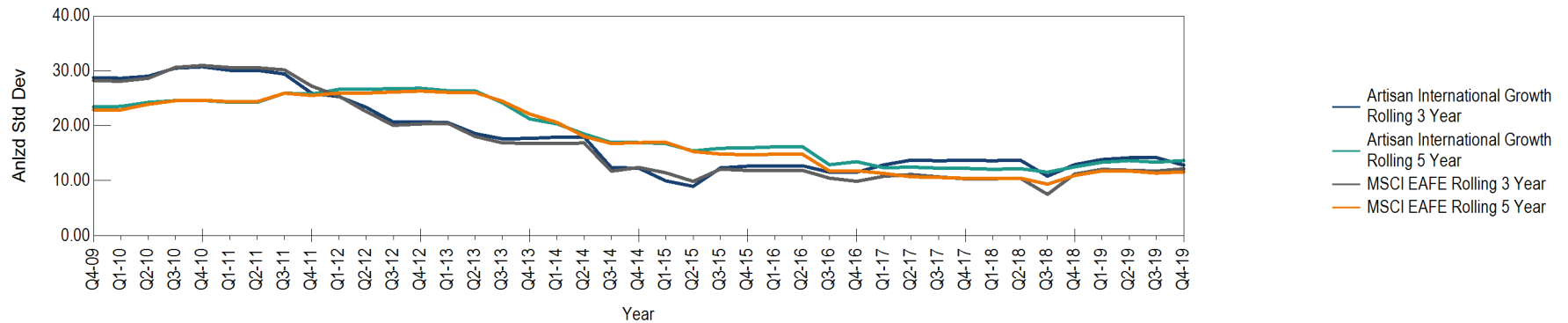
Returns prior to inception date are composite returns.

Artisan International Growth

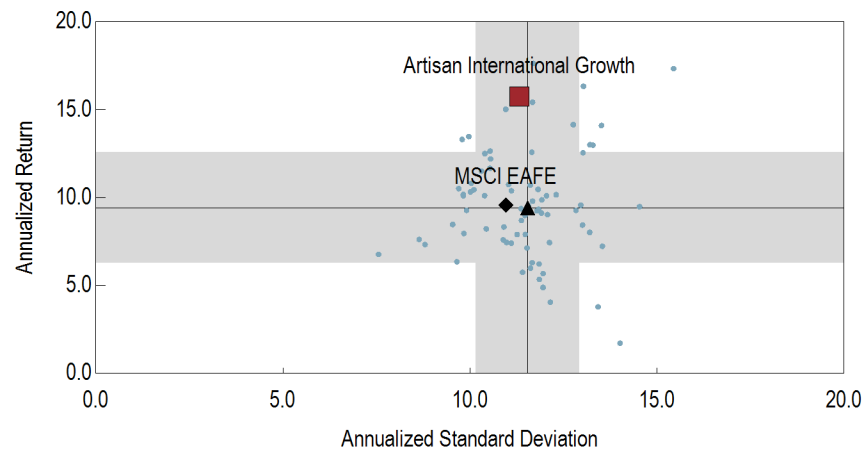
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

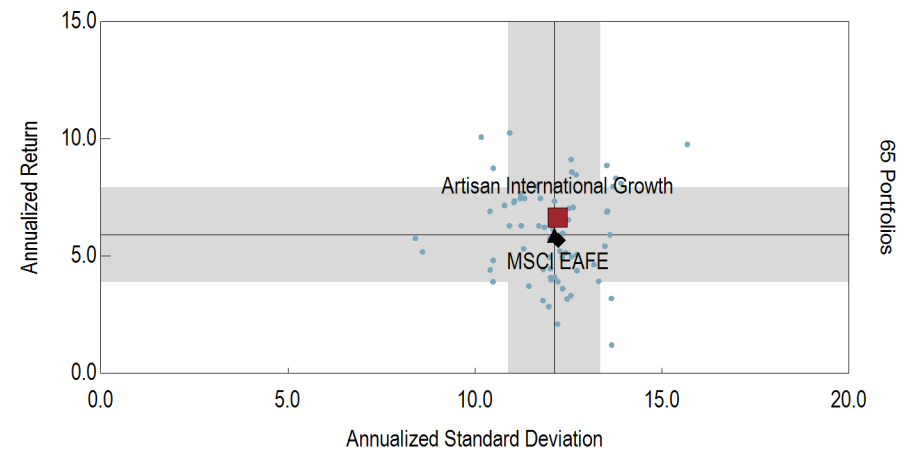
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Artisan International Growth	15.7%	11.3%	1.2
MSCI EAFE	9.6%	11.0%	0.7
eV EAFE All Cap Growth Net Median	13.6%	11.7%	1.0

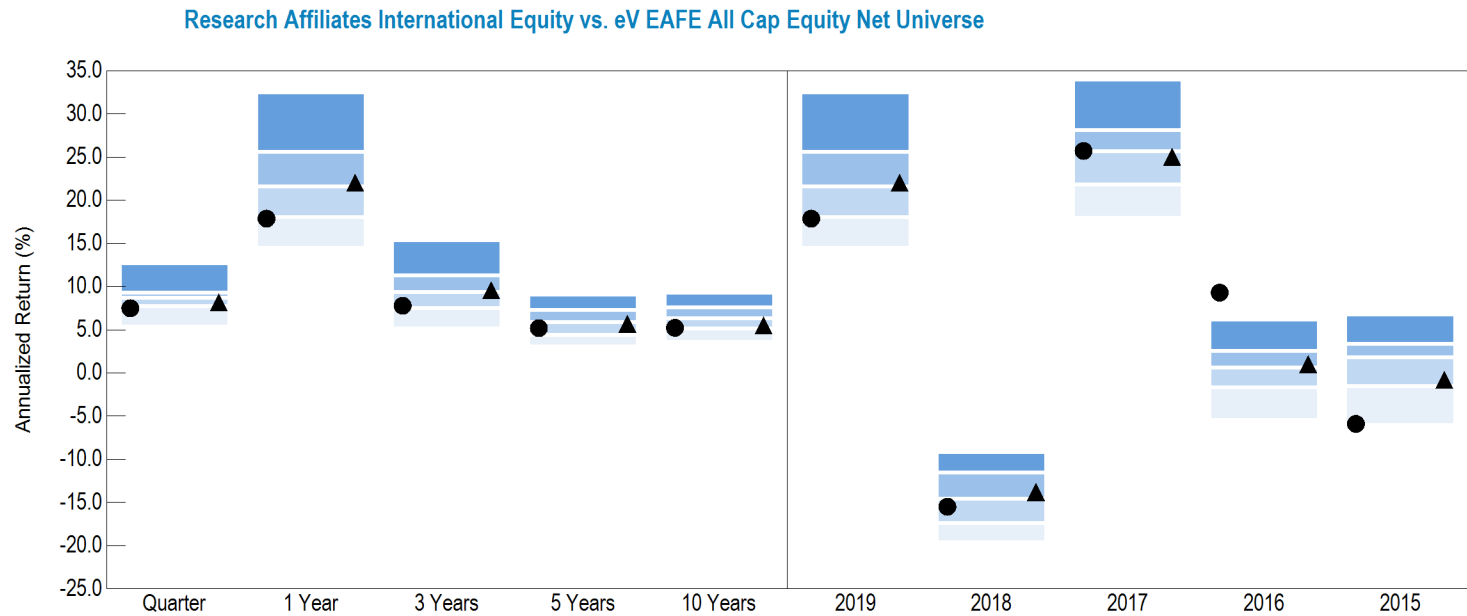
5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Artisan International Growth	6.6%	12.2%	0.5
MSCI EAFE	5.7%	12.2%	0.4
eV EAFE All Cap Growth Net Median	8.2%	12.6%	0.5

Returns prior to inception date are composite returns.

Research Affiliates International Equity Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

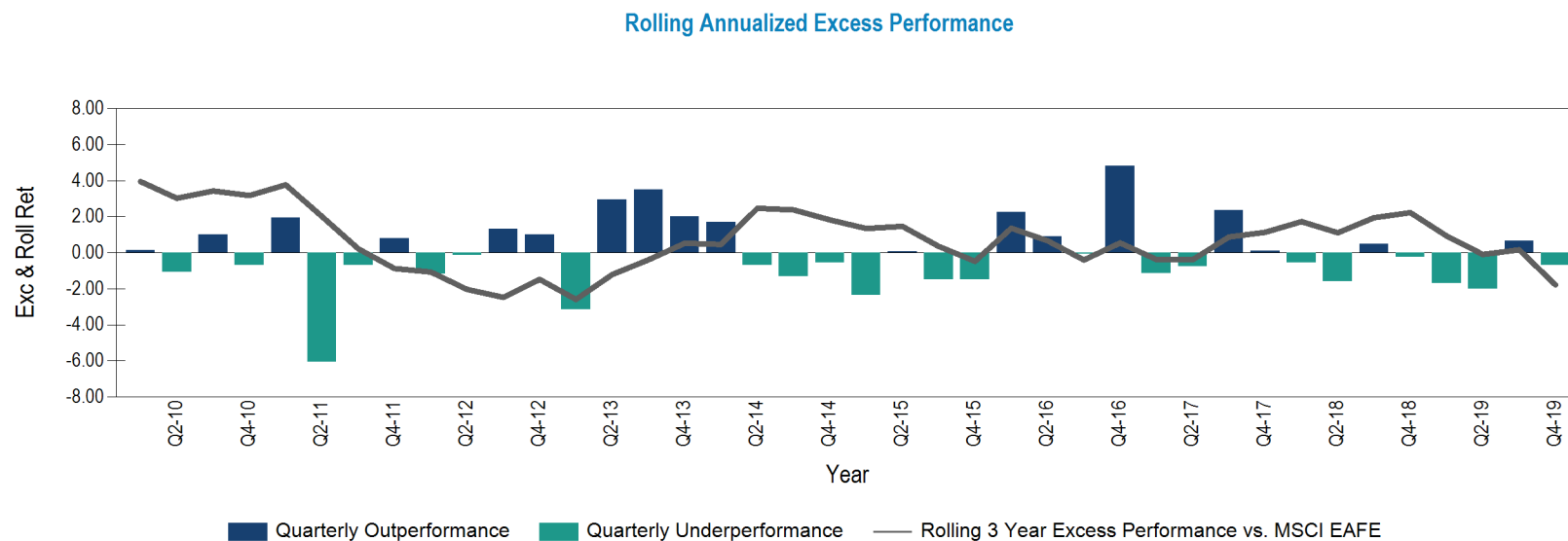
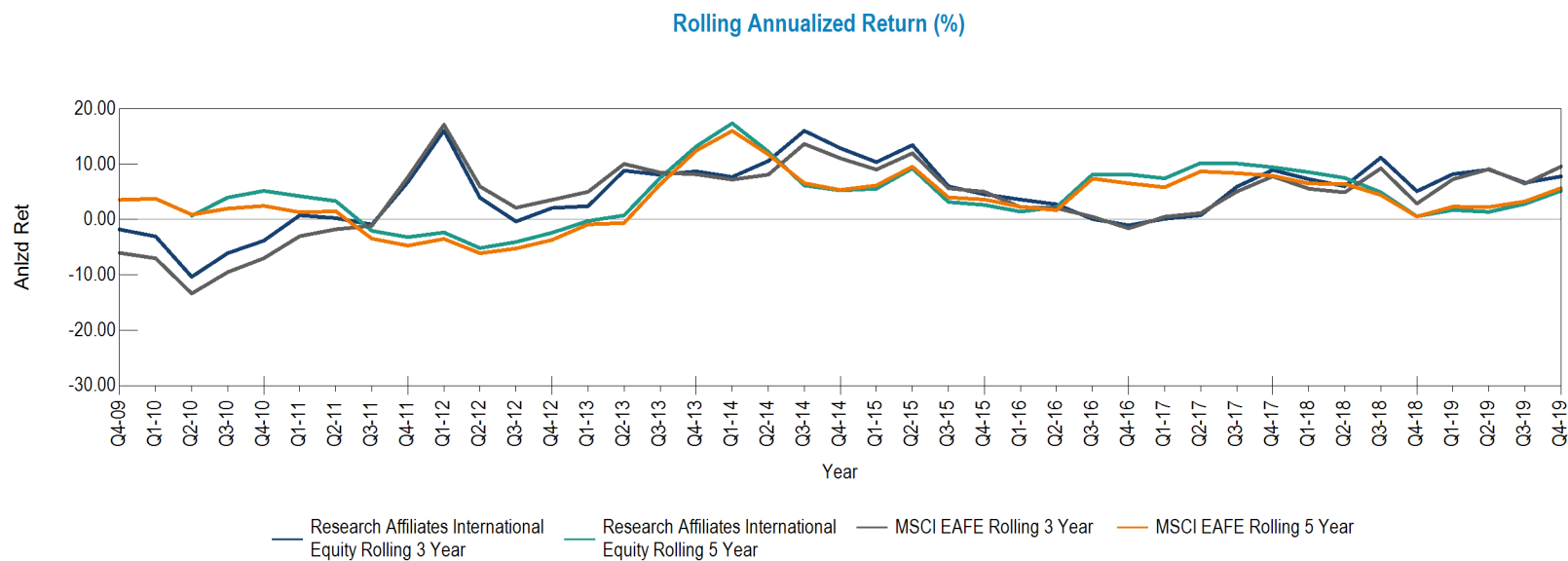


	Return (Rank)									
5th Percentile	12.6	32.5	15.4	9.1	9.3	32.5	-9.2	33.9	6.2	6.8
25th Percentile	9.4	25.6	11.3	7.3	7.6	25.6	-11.5	28.1	2.6	3.4
Median	8.7	21.6	9.4	5.9	6.4	21.6	-14.6	25.7	0.6	1.8
75th Percentile	7.8	18.1	7.6	4.4	5.2	18.1	-17.4	21.8	-1.7	-1.5
95th Percentile	5.4	14.5	5.2	3.1	3.6	14.5	-19.6	18.0	-5.4	-6.0
# of Portfolios	77	77	74	65	50	77	72	70	64	58
● Research Affiliates International Equity	7.5 (83)	17.9 (79)	7.8 (74)	5.2 (59)	5.2 (73)	17.9 (79)	-15.5 (57)	25.7 (51)	9.3 (1)	-5.9 (95)
▲ MSCI EAFE	8.2 (68)	22.0 (48)	9.6 (47)	5.7 (54)	5.5 (69)	22.0 (48)	-13.8 (47)	25.0 (59)	1.0 (46)	-0.8 (71)

Returns prior to inception date are composite returns.

Research Affiliates International Equity Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

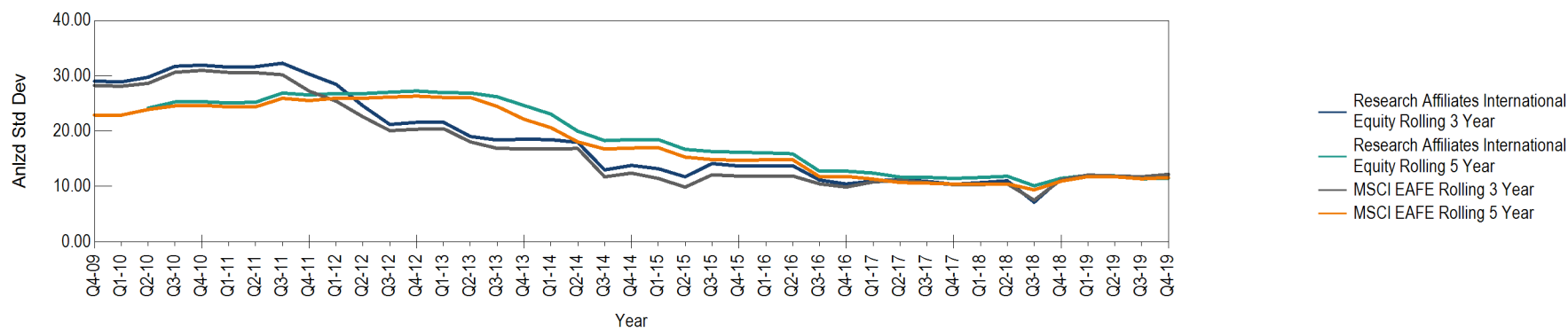


Returns prior to inception date are composite returns.

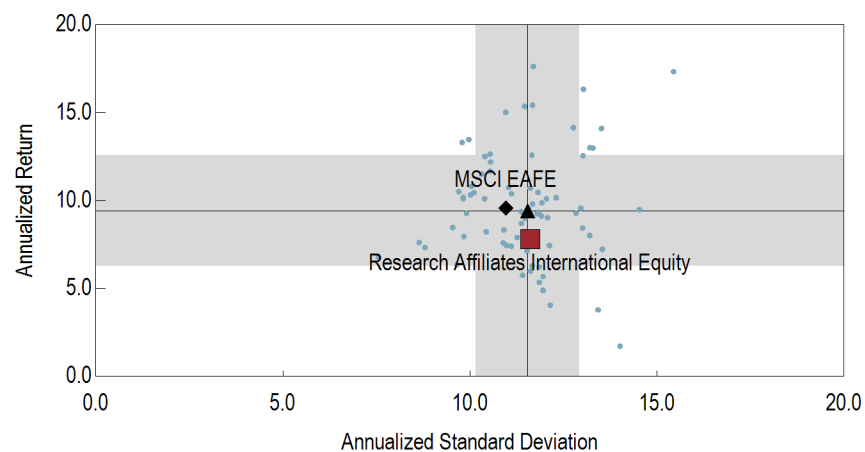
Research Affiliates International Equity Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

Rolling Annualized Standard Deviation



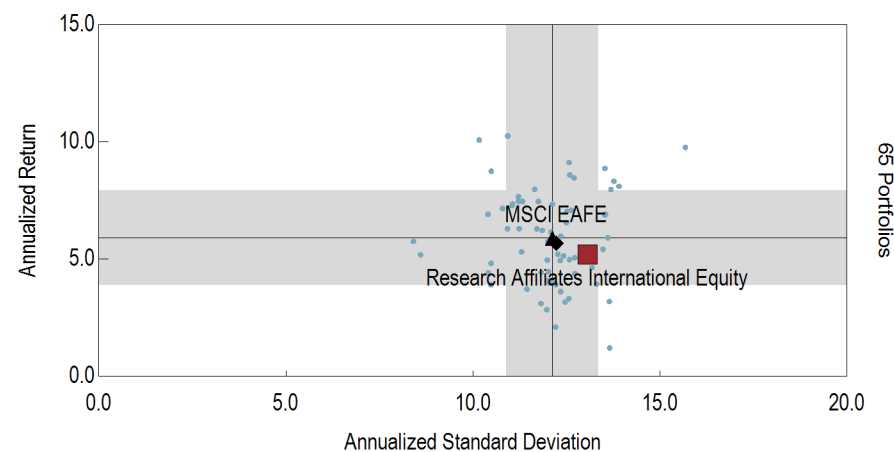
3 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Research Affiliates International Equity	7.8%	11.6%	0.5
MSCI EAFE	9.6%	11.0%	0.7
eV EAFE All Cap Equity Net Median	9.4%	11.5%	0.7

5 Years



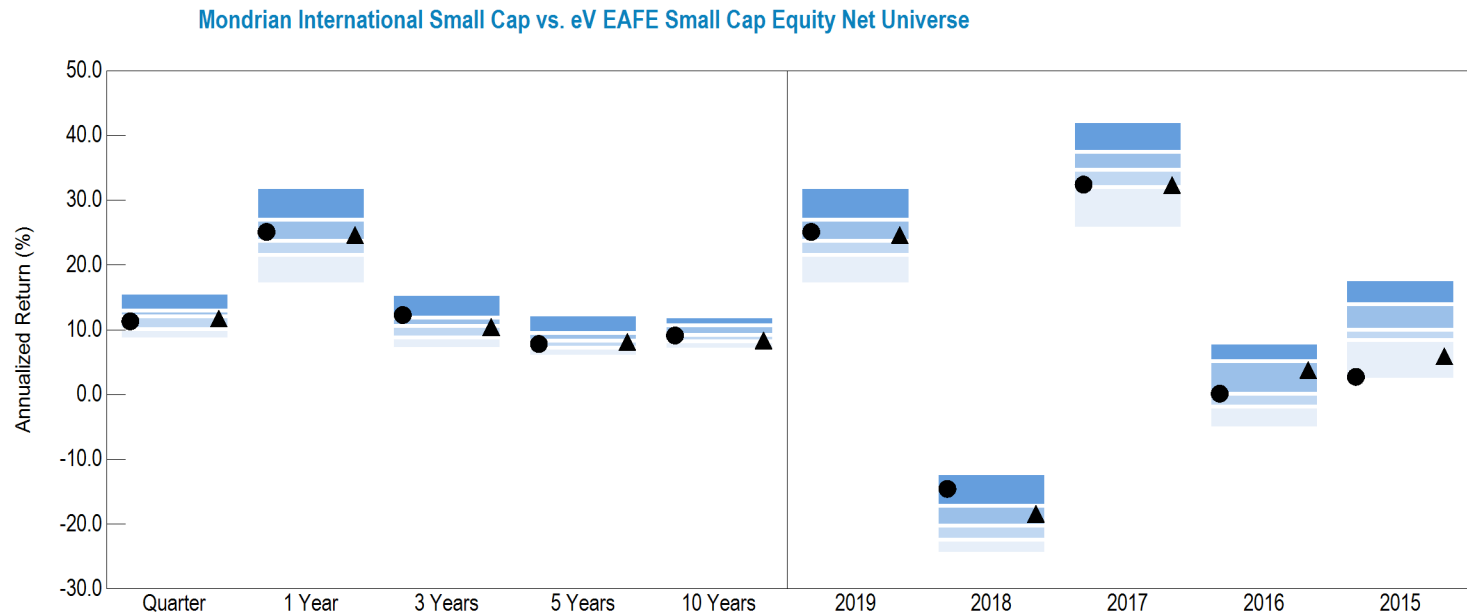
5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Research Affiliates International Equity	5.2%	13.1%	0.3
MSCI EAFE	5.7%	12.2%	0.4
eV EAFE All Cap Equity Net Median	5.9%	12.1%	0.4

Returns prior to inception date are composite returns.

Mondrian International Small Cap
Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

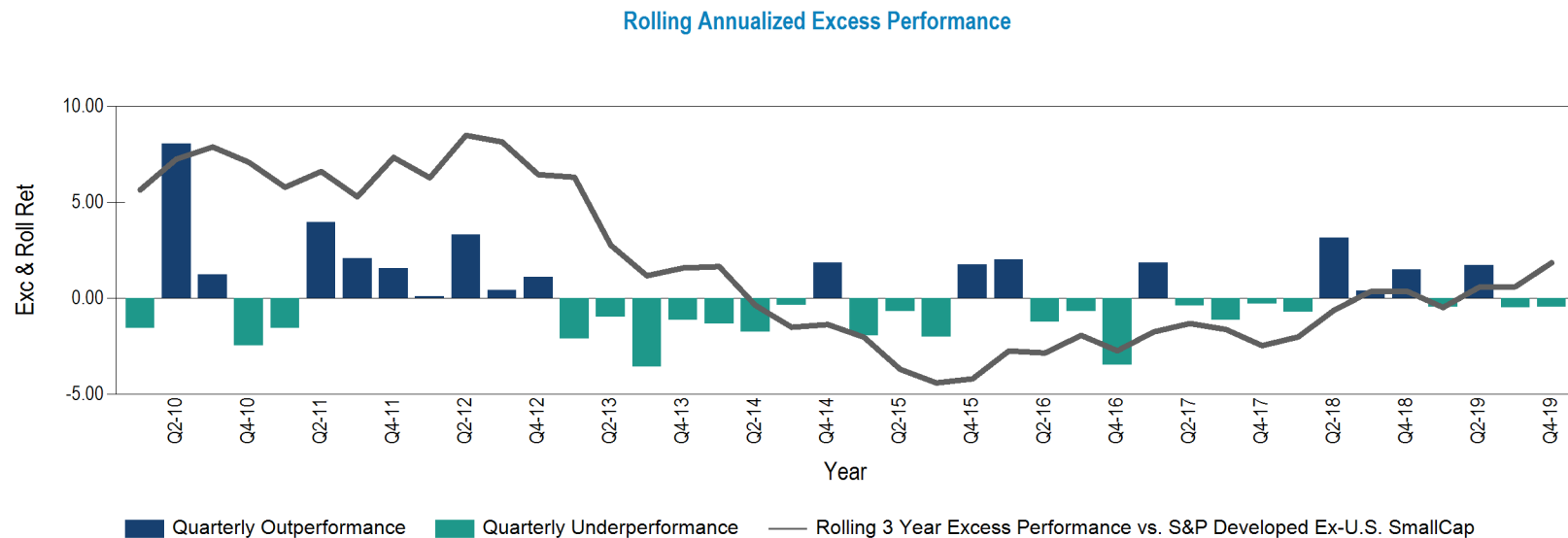
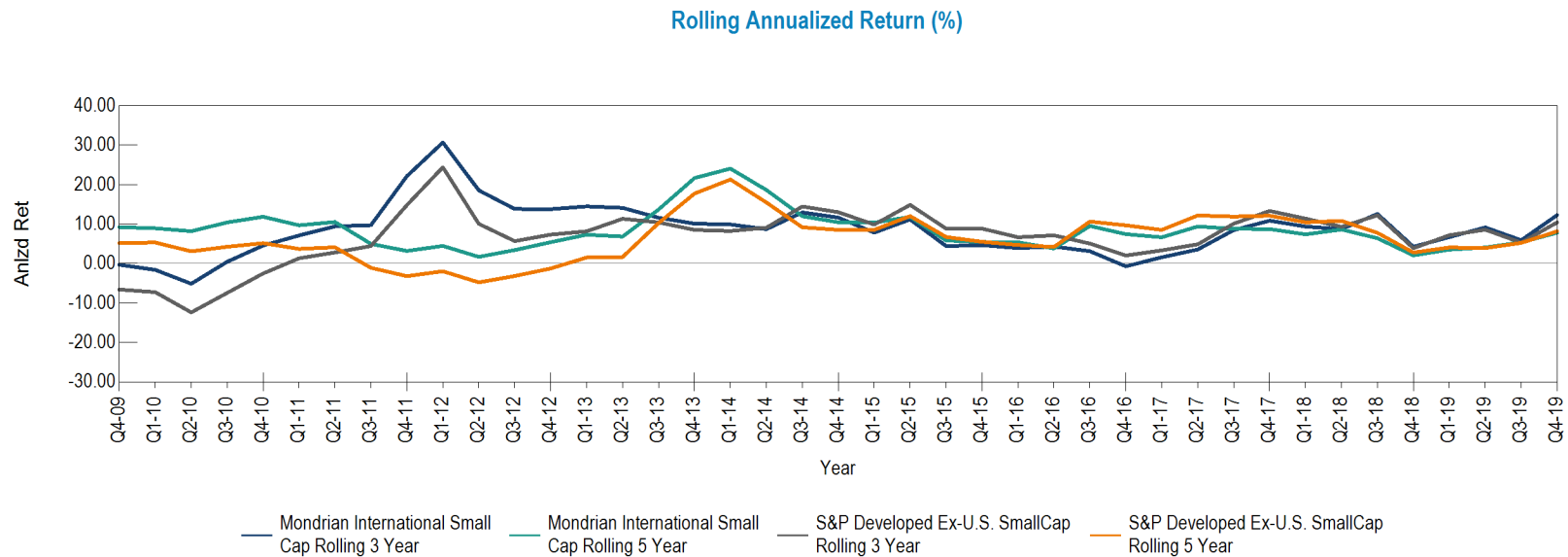


	Return (Rank)									
5th Percentile	15.7	32.0	15.5	12.4	12.1	32.0	-12.1	42.2	7.9	17.8
25th Percentile	13.0	27.1	11.9	9.6	10.7	27.1	-17.1	37.6	5.2	14.0
Median	12.1	23.8	10.6	8.4	9.3	23.8	-20.2	34.8	0.1	10.1
75th Percentile	10.2	21.7	8.9	7.3	8.3	21.7	-22.3	32.1	-1.8	8.5
95th Percentile	8.6	17.1	7.1	5.9	6.9	17.1	-24.6	25.7	-5.2	2.3
# of Portfolios	59	58	55	45	28	58	57	52	41	31
● Mondrian International Small Cap	11.3 (63)	25.1 (40)	12.3 (24)	7.8 (67)	9.1 (59)	25.1 (40)	-14.6 (11)	32.4 (74)	0.1 (50)	2.7 (94)
▲ S&P Developed Ex-U.S. SmallCap	11.7 (58)	24.7 (43)	10.4 (54)	8.2 (54)	8.3 (73)	24.7 (43)	-18.4 (29)	32.4 (74)	3.8 (29)	5.9 (84)

Returns prior to inception date are composite returns.

Mondrian International Small Cap Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

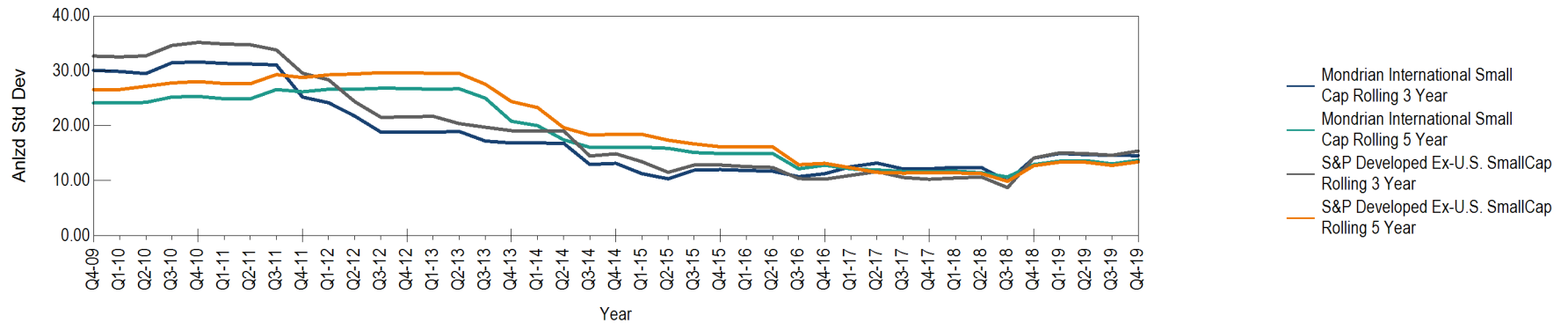


Returns prior to inception date are composite returns.

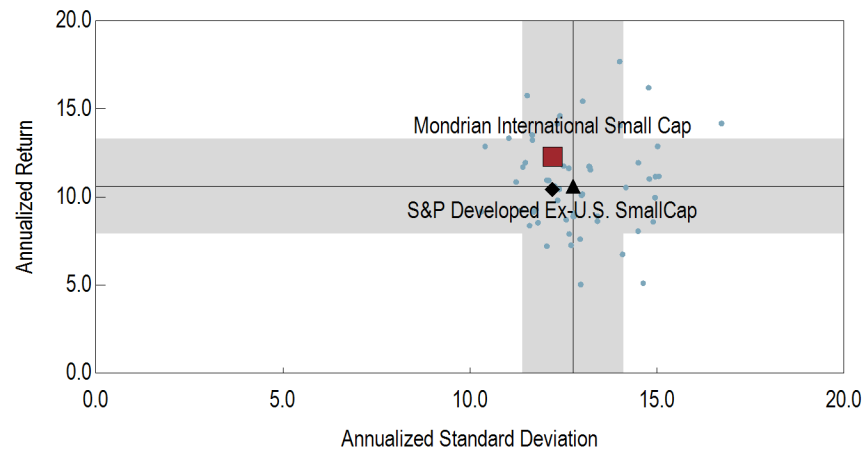
Mondrian International Small Cap Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

Rolling Annualized Standard Deviation



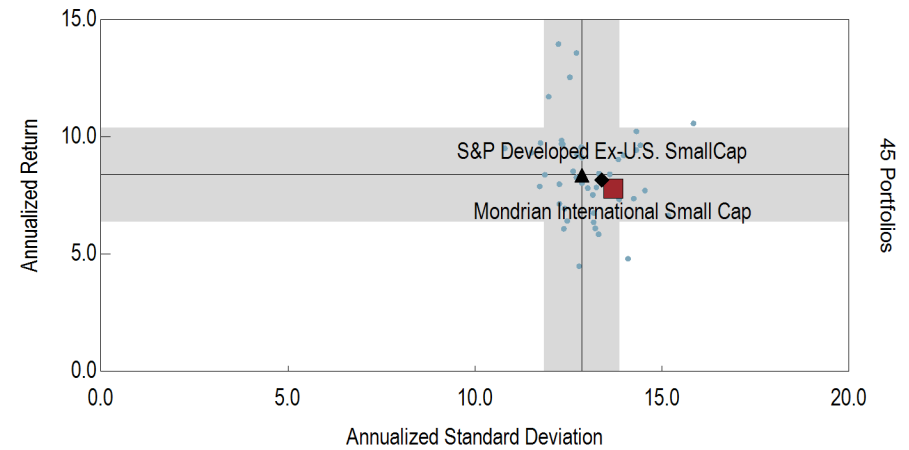
3 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Mondrian International Small Cap	12.3%	12.2%	0.9
S&P Developed Ex-U.S. SmallCap	10.4%	12.2%	0.7
eV EAFE Small Cap Equity Net Median	10.6%	12.8%	0.7

5 Years



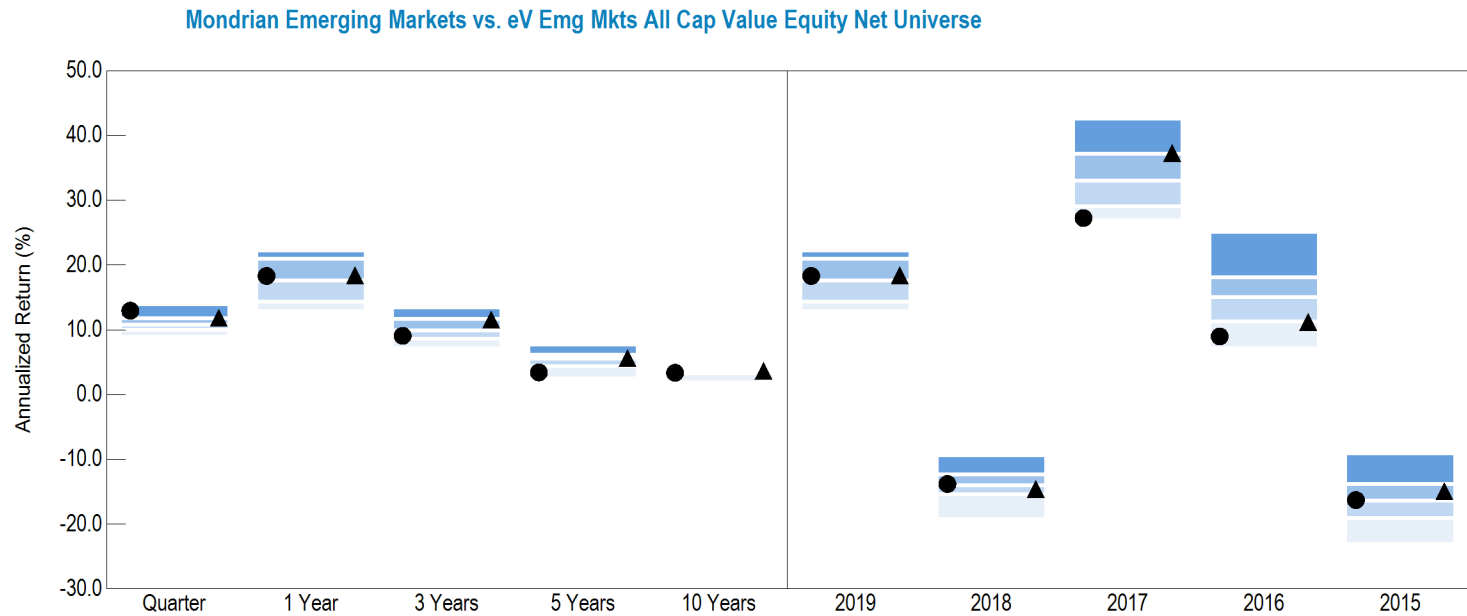
5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Mondrian International Small Cap	7.8%	13.7%	0.5
S&P Developed Ex-U.S. SmallCap	8.2%	13.4%	0.5
eV EAFE Small Cap Equity Net Median	8.4%	12.9%	0.6

Returns prior to inception date are composite returns.

Mondrian Emerging Markets
Manager Performance Comparisons (Net of Fees)

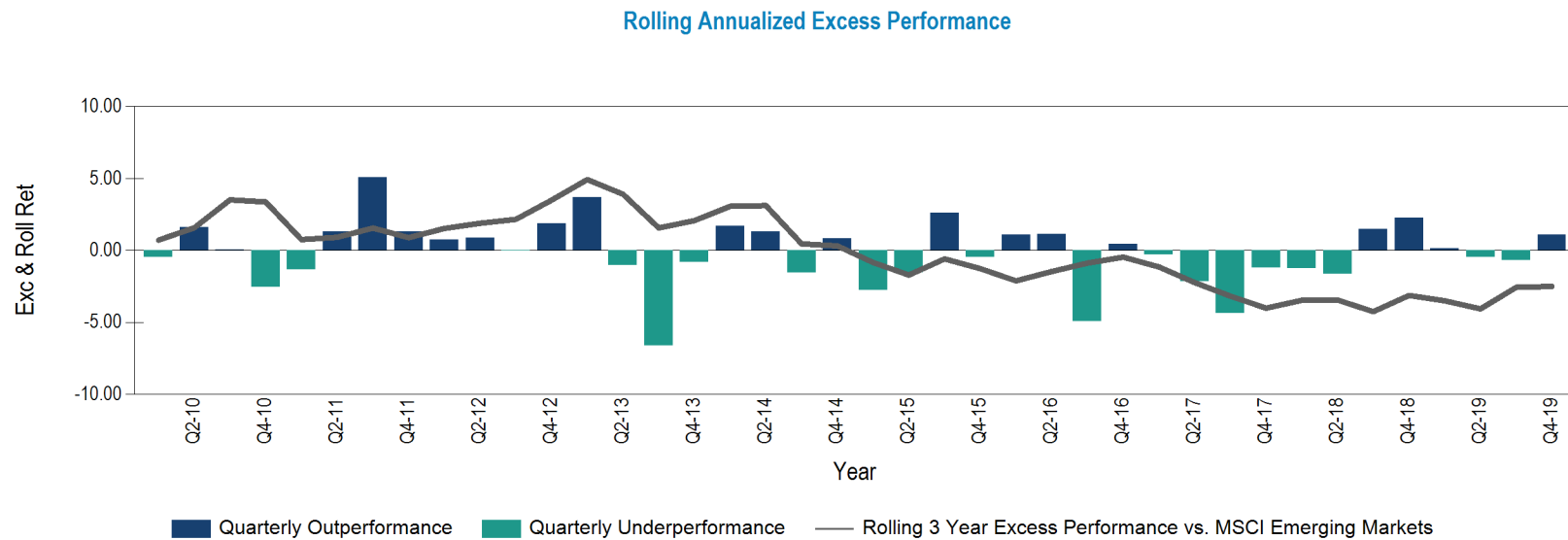
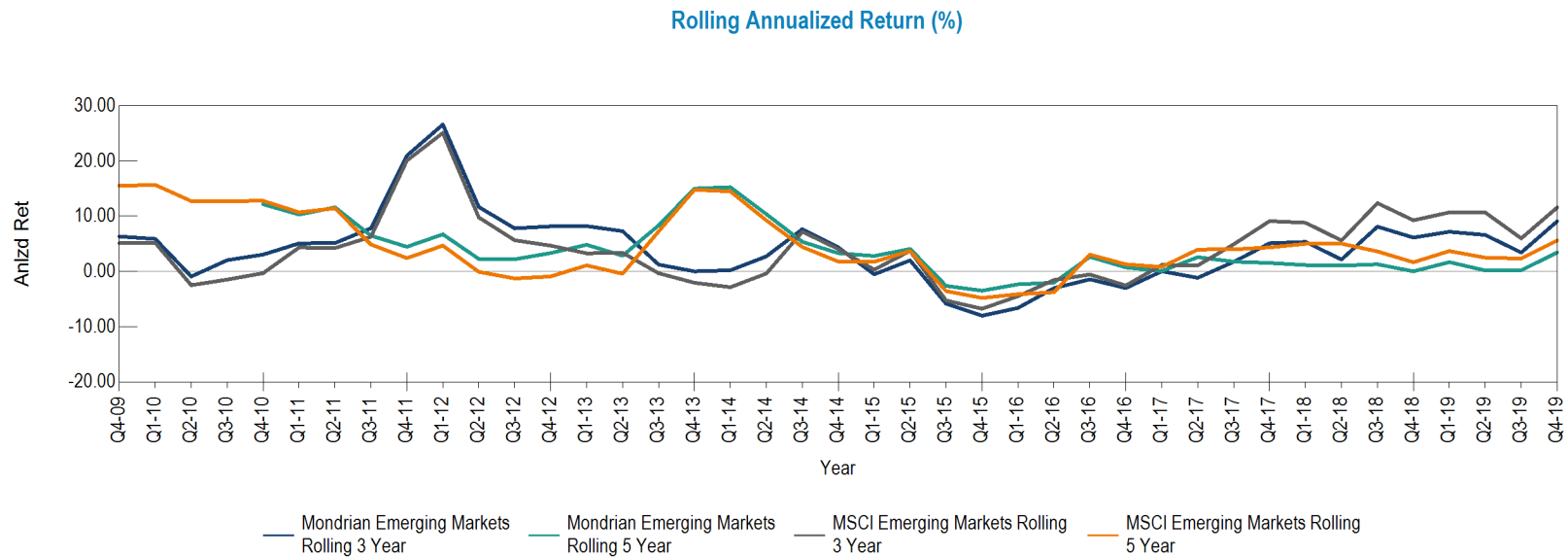
Period Ending: December 31, 2019



	Return (Rank)									
5th Percentile	13.9	22.2	13.4	7.7	4.8	22.2	-9.4	42.6	25.1	-9.1
25th Percentile	11.8	21.0	11.7	6.2	4.2	21.0	-12.3	37.2	18.2	-13.8
Median	10.9	17.7	9.9	5.6	3.6	17.7	-14.0	33.1	15.1	-16.4
75th Percentile	10.1	14.4	8.7	4.4	3.4	14.4	-15.3	29.1	11.4	-19.0
95th Percentile	9.0	12.9	7.2	2.5	1.9	12.9	-19.2	26.9	7.2	-23.1
# of Portfolios	22	22	20	18	8	22	25	22	22	20
● Mondrian Emerging Markets	12.9 (11)	18.3 (42)	9.1 (66)	3.4 (87)	3.4 (76)	18.3 (42)	-13.8 (48)	27.2 (93)	9.0 (81)	-16.3 (49)
▲ MSCI Emerging Markets	11.8 (20)	18.4 (42)	11.6 (28)	5.6 (51)	3.7 (46)	18.4 (42)	-14.6 (59)	37.3 (20)	11.2 (76)	-14.9 (32)

Mondrian Emerging Markets Rolling Manager Performance (Net of Fees)

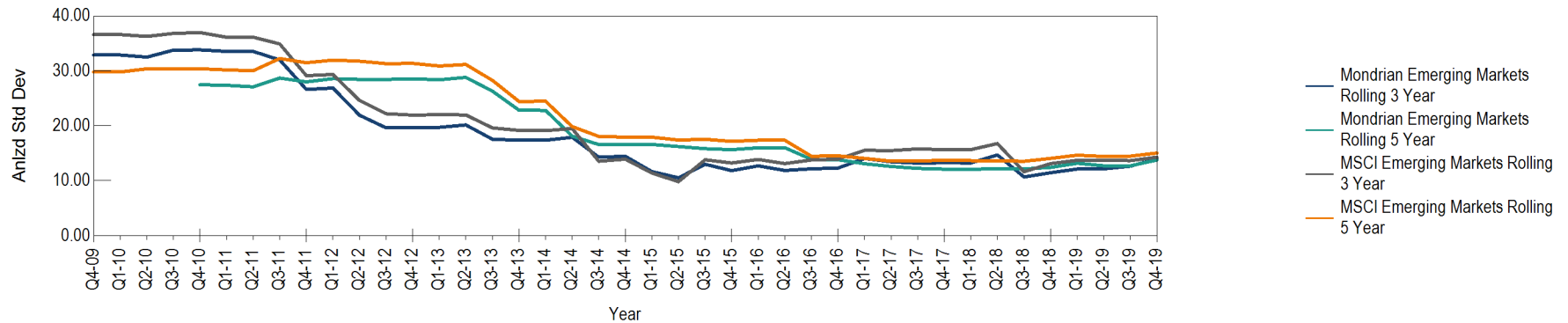
Period Ending: December 31, 2019



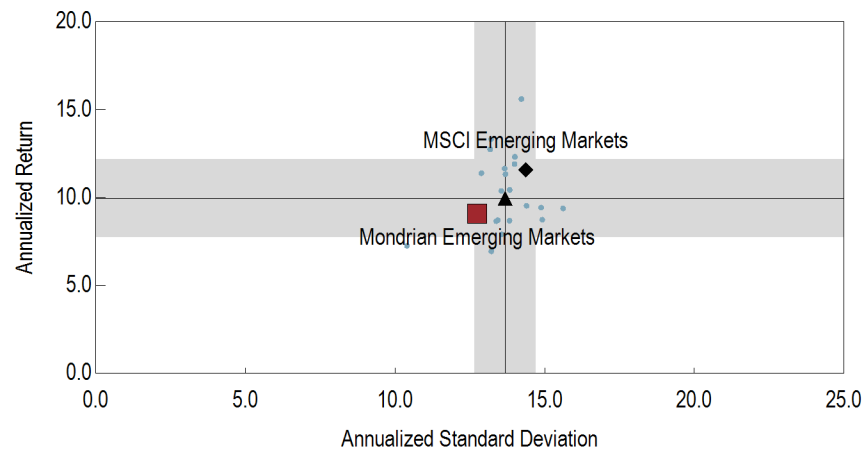
Mondrian Emerging Markets Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

Rolling Annualized Standard Deviation



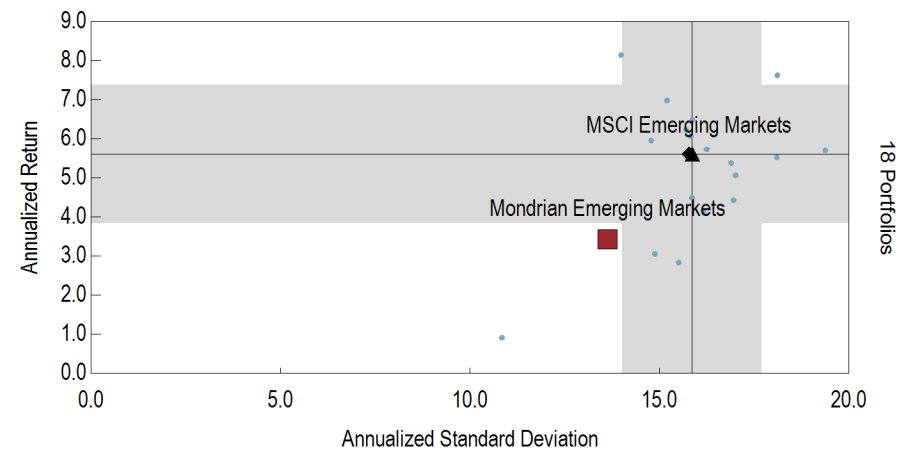
3 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Mondrian Emerging Markets	9.1%	12.7%	0.6
MSCI Emerging Markets	11.6%	14.4%	0.7
eV Emg Mkts All Cap Value Equity Net Median	9.9%	13.7%	0.6

5 Years



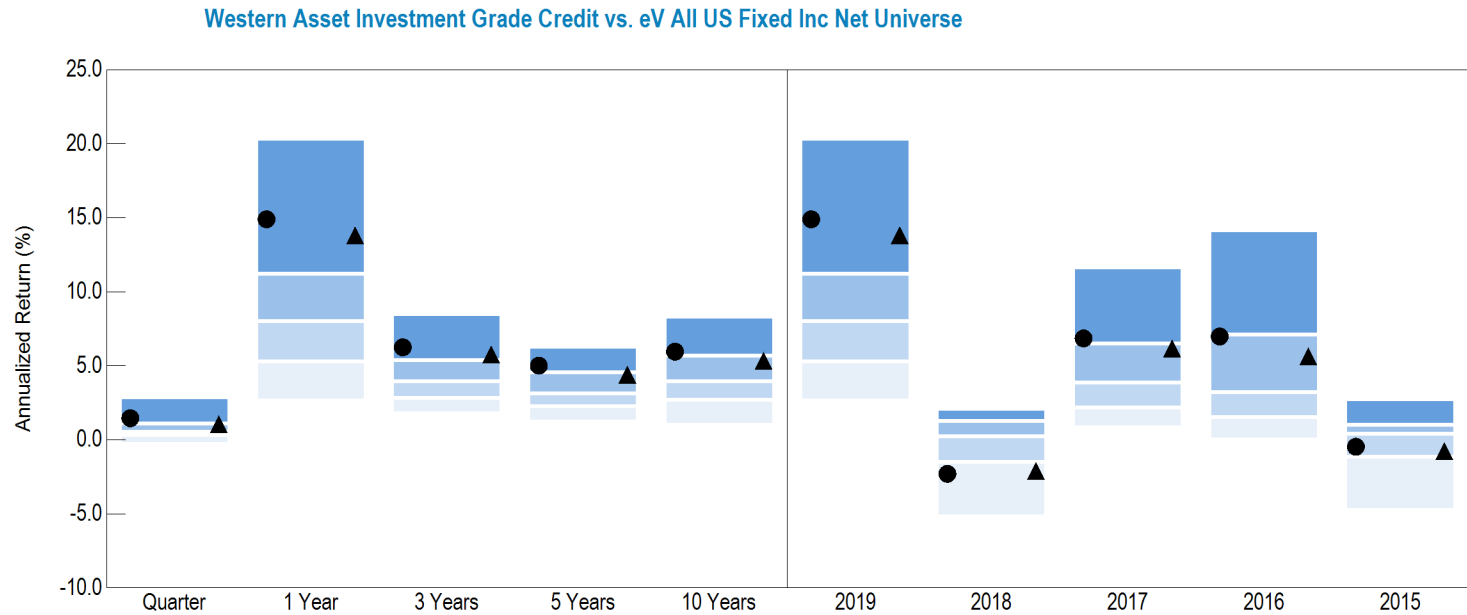
5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Mondrian Emerging Markets	3.4%	13.6%	0.2
MSCI Emerging Markets	5.6%	15.8%	0.3
eV Emg Mkts All Cap Value Equity Net Median	5.6%	15.9%	0.3

Fixed Income Managers

Western Asset Investment Grade Credit
Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

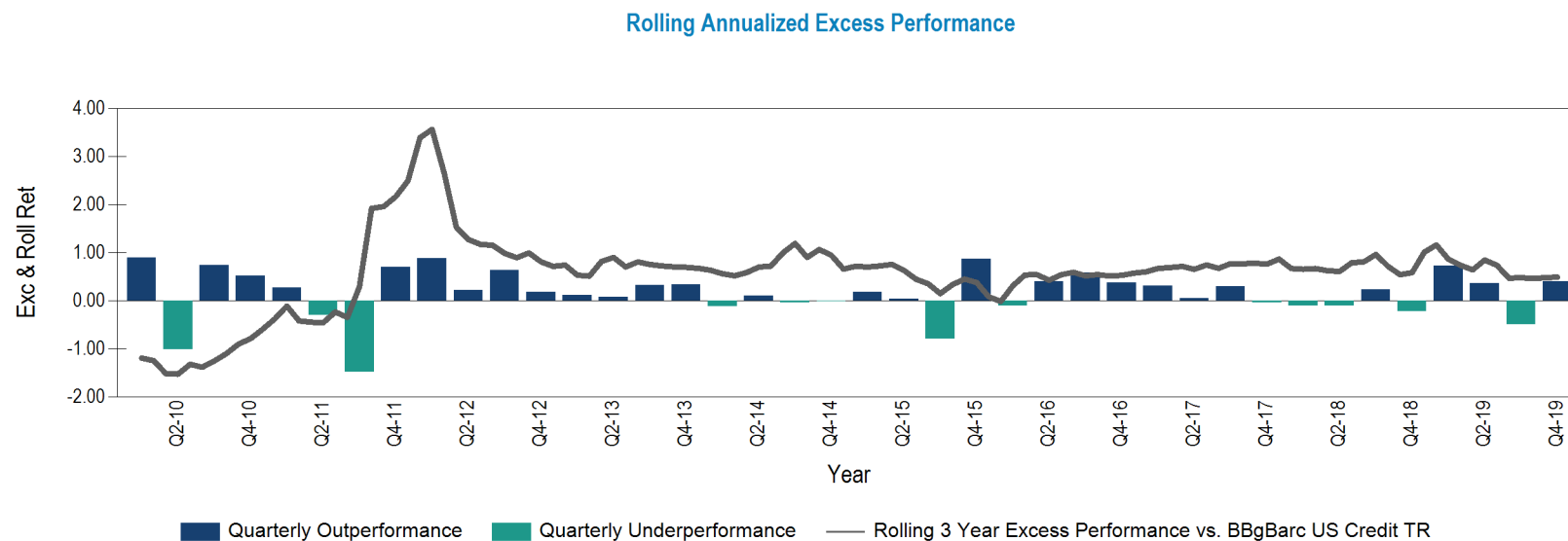
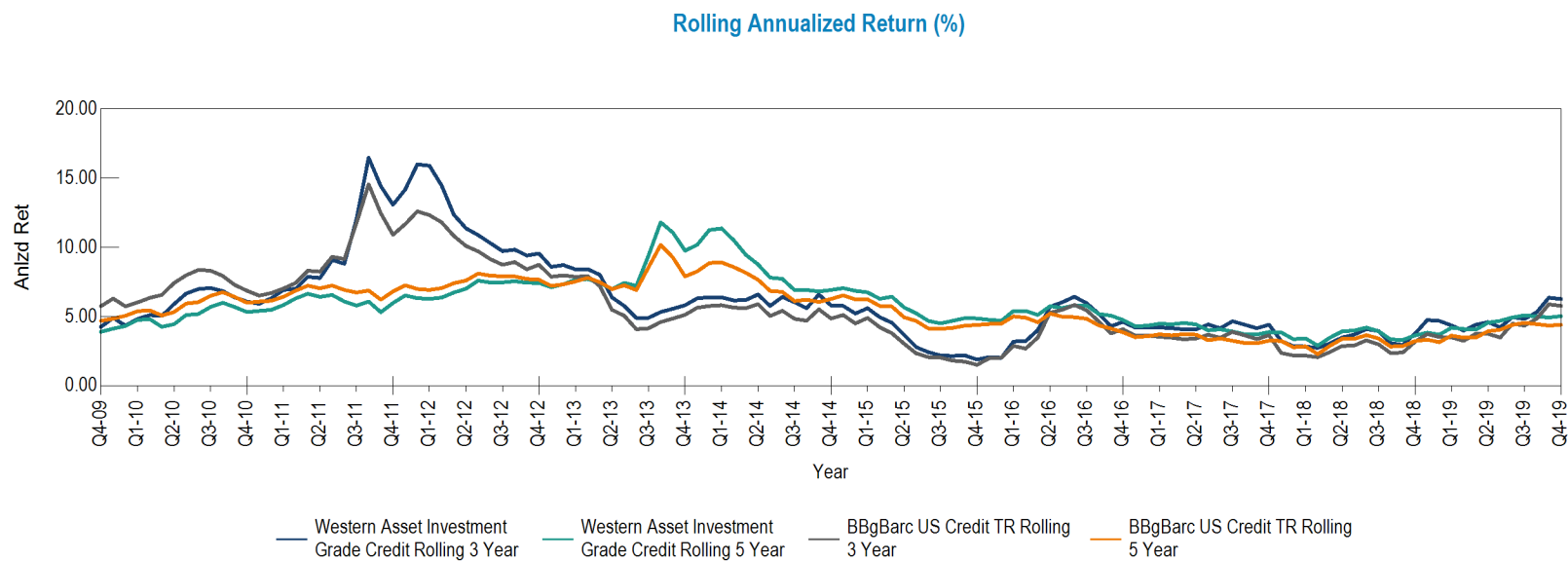


	Return (Rank)									
5th Percentile	2.8	20.3	8.5	6.3	8.3	20.3	2.1	11.6	14.1	2.7
25th Percentile	1.1	11.2	5.4	4.6	5.7	11.2	1.3	6.5	7.1	1.0
Median	0.6	8.1	4.0	3.2	4.0	8.1	0.3	3.9	3.3	0.4
75th Percentile	0.3	5.3	2.8	2.3	2.7	5.3	-1.5	2.2	1.6	-1.1
95th Percentile	-0.3	2.7	1.8	1.3	1.1	2.7	-5.2	0.9	0.0	-4.7
# of Portfolios	1,258	1,248	1,198	1,122	878	1,248	1,173	1,135	1,033	827
● Western Asset Investment Grade Credit	1.5 (19)	14.9 (14)	6.2 (15)	5.0 (20)	6.0 (23)	14.9 (14)	-2.3 (81)	6.8 (23)	7.0 (26)	-0.5 (70)
▲ BBgBarc US Credit TR	1.1 (27)	13.8 (19)	5.8 (22)	4.4 (29)	5.3 (30)	13.8 (19)	-2.1 (79)	6.2 (28)	5.6 (33)	-0.8 (74)

Returns prior to inception date are composite returns.

Western Asset Investment Grade Credit Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

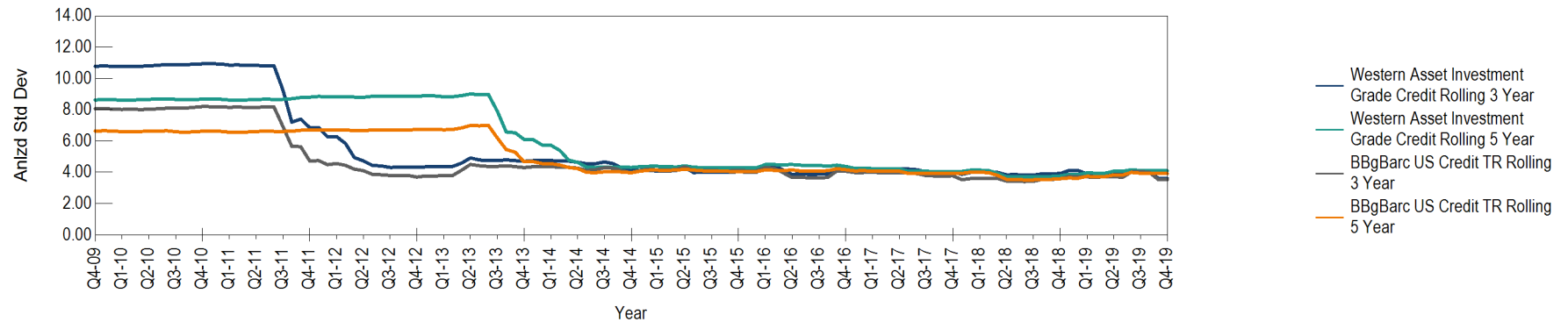


Returns prior to inception date are composite returns.

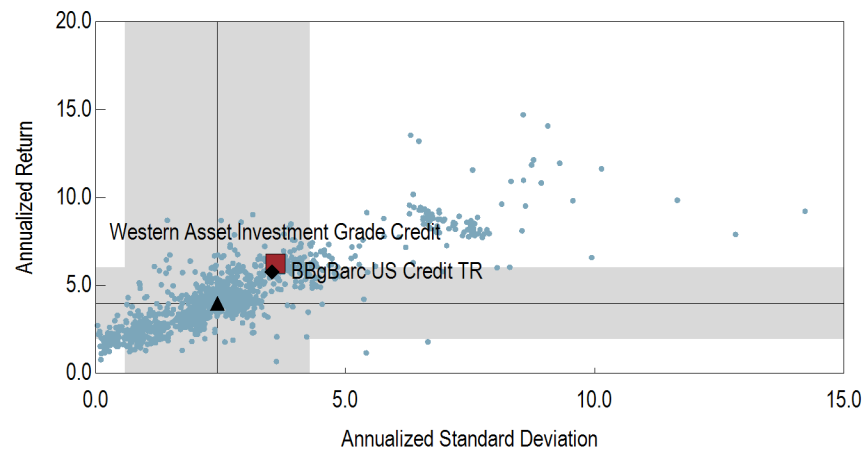
Western Asset Investment Grade Credit Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

Rolling Annualized Standard Deviation



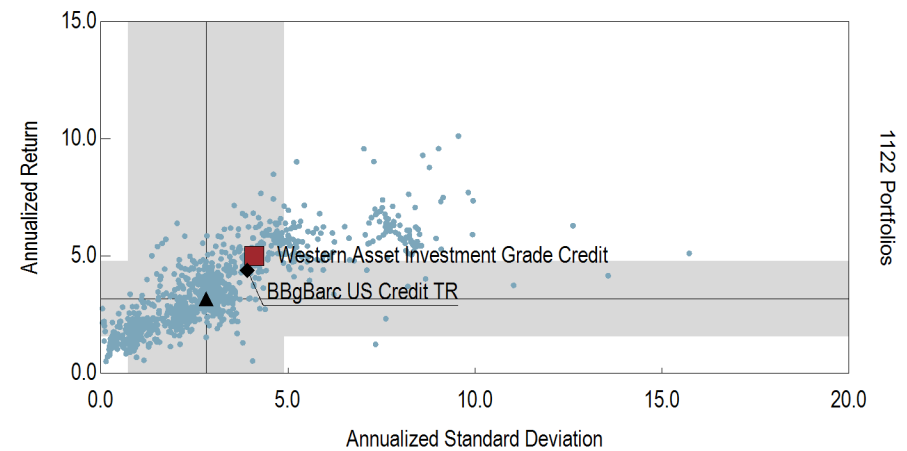
3 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Western Asset Investment Grade Credit	6.2%	3.6%	1.3
BBgBarc US Credit TR	5.8%	3.5%	1.2
eV All US Fixed Inc Net Median	4.0%	2.4%	1.0

5 Years



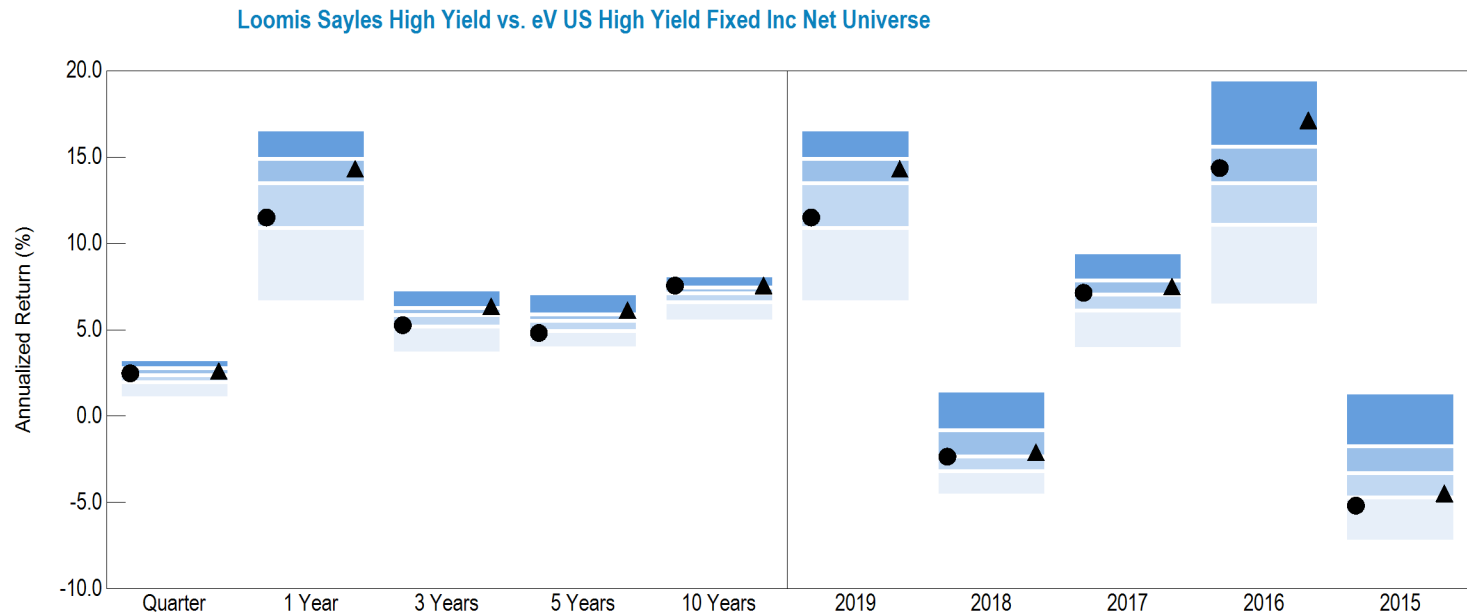
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Western Asset Investment Grade Credit	5.0%	4.1%	1.0
BBgBarc US Credit TR	4.4%	3.9%	0.9
eV All US Fixed Inc Net Median	3.2%	2.8%	0.8

Returns prior to inception date are composite returns.

Loomis Sayles High Yield
Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

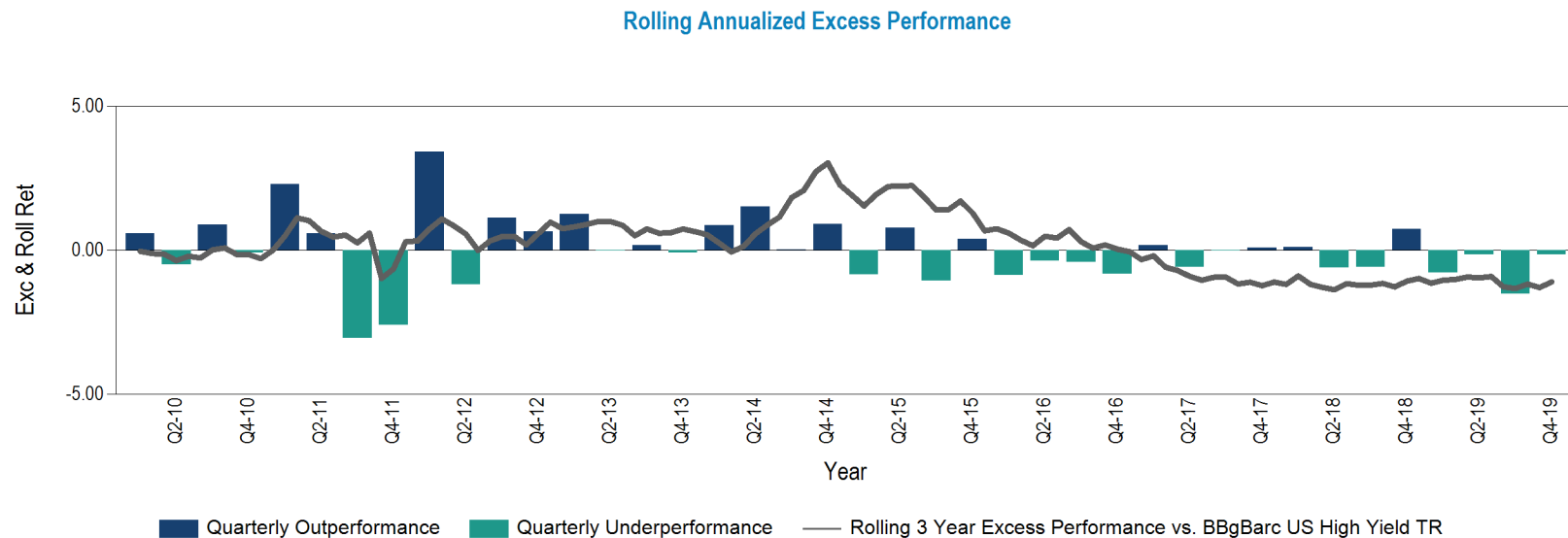
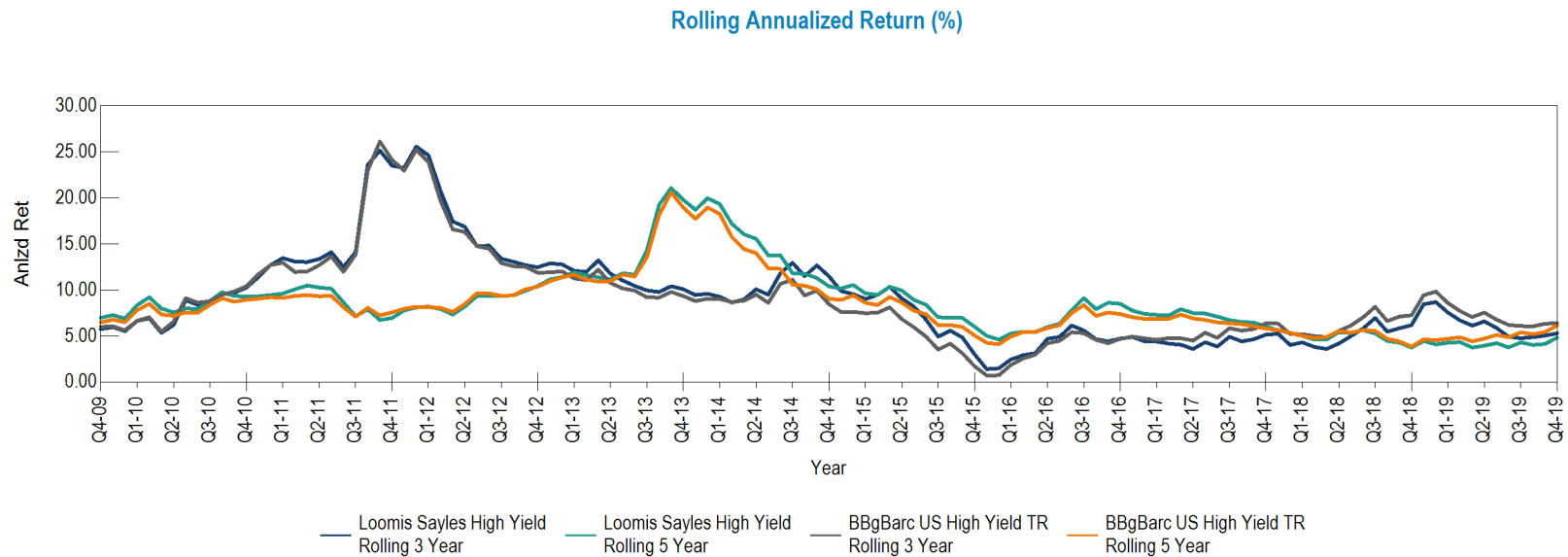


	Return (Rank)									
5th Percentile	3.3	16.6	7.3	7.1	8.1	16.6	1.4	9.5	19.5	1.4
25th Percentile	2.8	14.9	6.3	5.9	7.4	14.9	-0.8	7.9	15.6	-1.7
Median	2.4	13.5	5.9	5.6	7.1	13.5	-2.3	7.1	13.5	-3.3
75th Percentile	2.0	10.9	5.2	4.9	6.6	10.9	-3.2	6.1	11.1	-4.7
95th Percentile	1.0	6.6	3.7	3.9	5.5	6.6	-4.6	3.9	6.4	-7.2
# of Portfolios	144	144	139	125	82	144	136	129	114	88
● Loomis Sayles High Yield	2.5 (45)	11.5 (72)	5.3 (74)	4.8 (80)	7.6 (19)	11.5 (72)	-2.3 (52)	7.1 (47)	14.4 (42)	-5.2 (79)
▲ BBgBarc US High Yield TR	2.6 (35)	14.3 (37)	6.4 (22)	6.1 (19)	7.6 (17)	14.3 (37)	-2.1 (46)	7.5 (39)	17.1 (12)	-4.5 (73)

Returns prior to inception date are composite returns.

Loomis Sayles High Yield Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

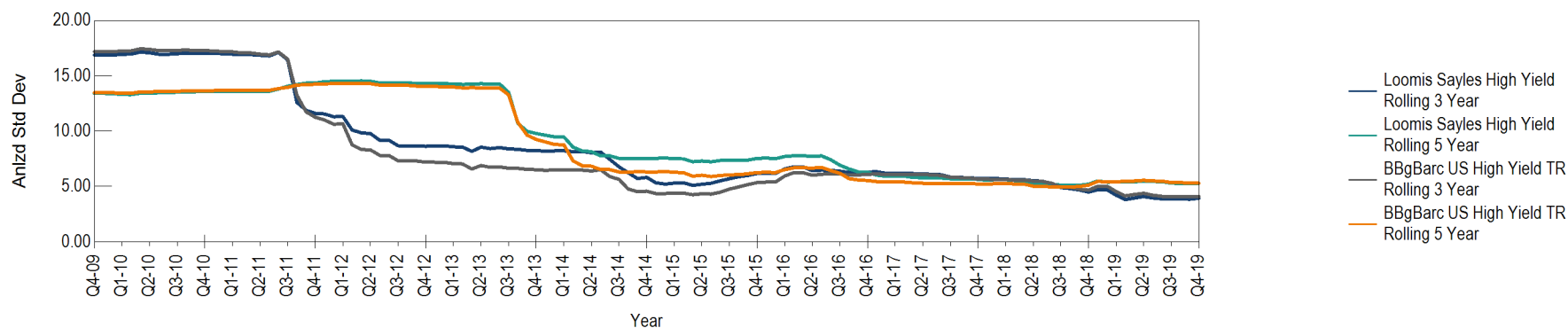


Returns prior to inception date are composite returns.

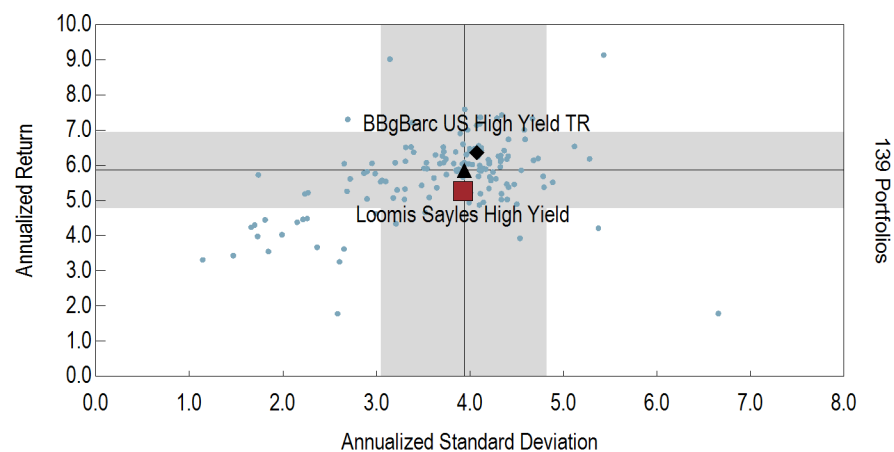
Loomis Sayles High Yield Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

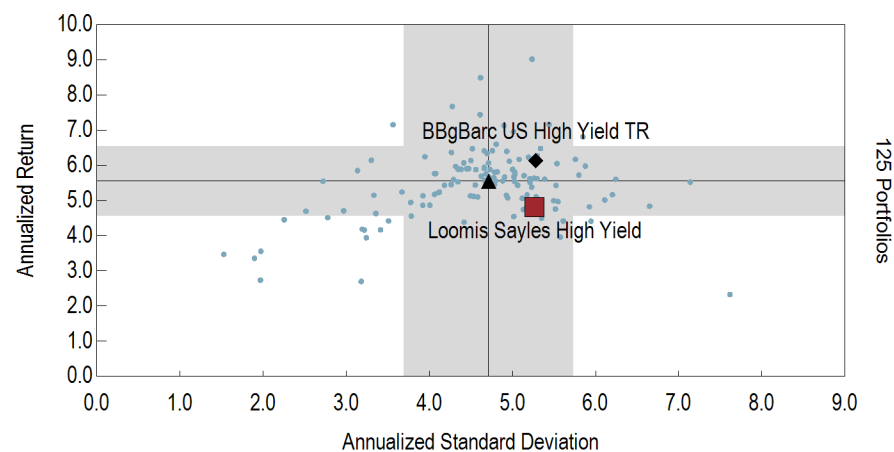
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Loomis Sayles High Yield	5.3%	3.9%	0.9
BBgBarc US High Yield TR	6.4%	4.1%	1.2
eV US High Yield Fixed Inc Net Median	5.9%	3.9%	1.1

5 Years

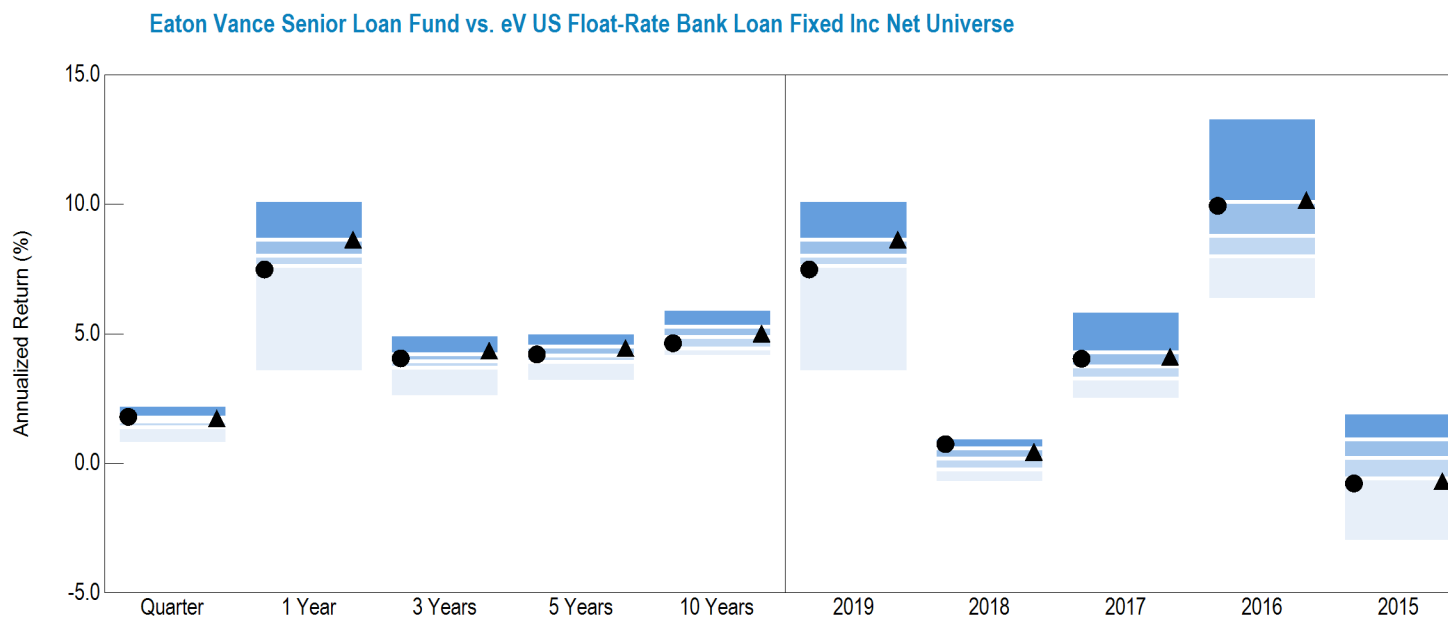
	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Loomis Sayles High Yield	4.8%	5.3%	0.7
BBgBarc US High Yield TR	6.1%	5.3%	1.0
eV US High Yield Fixed Inc Net Median	5.6%	4.7%	1.0

Returns prior to inception date are composite returns.

Eaton Vance Senior Loan Fund

Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019



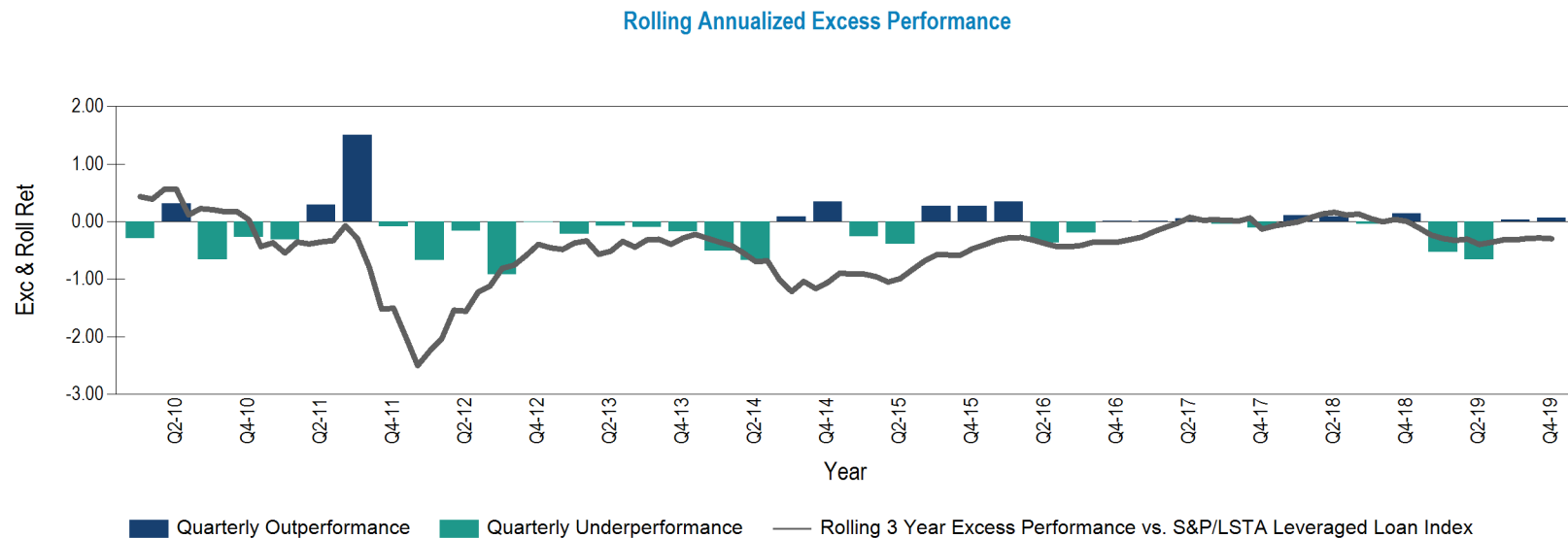
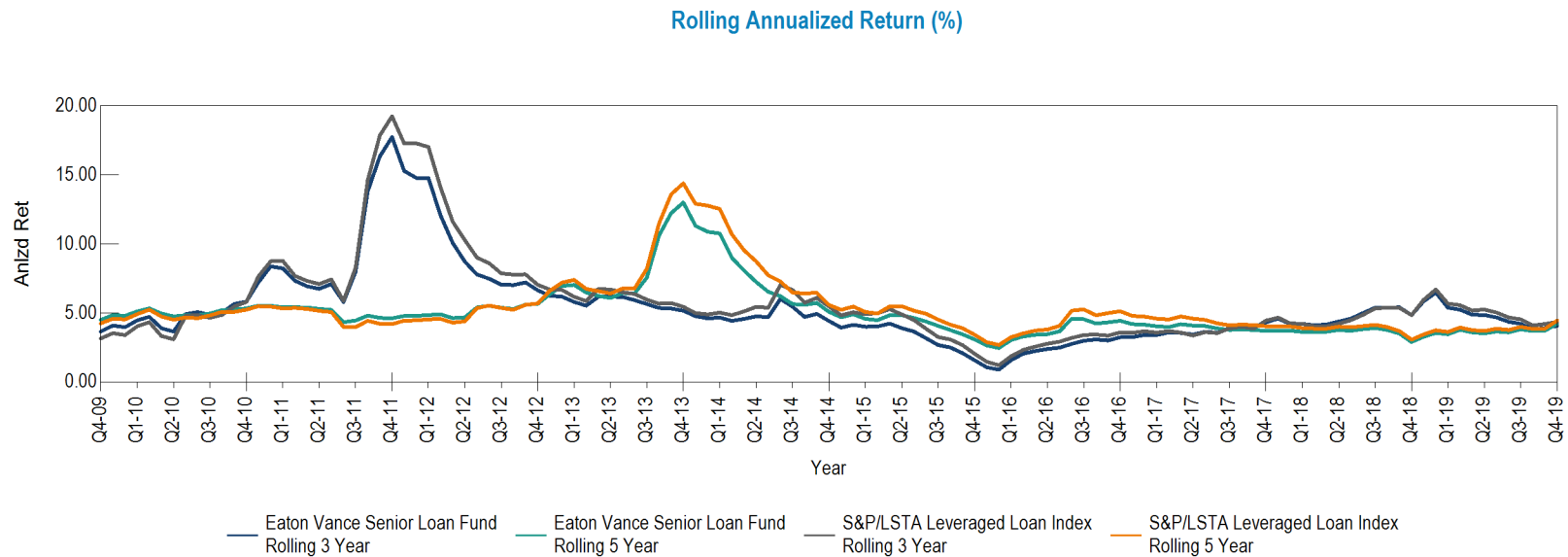
	Return (Rank)									
5th Percentile	2.2	10.1	5.0	5.0	6.0	10.1	1.0	5.9	13.3	2.0
25th Percentile	1.8	8.7	4.2	4.5	5.3	8.7	0.6	4.3	10.1	0.9
Median	1.6	8.0	4.0	4.2	4.9	8.0	0.2	3.8	8.8	0.2
75th Percentile	1.4	7.6	3.7	3.9	4.4	7.6	-0.2	3.3	8.0	-0.6
95th Percentile	0.8	3.5	2.6	3.2	4.1	3.5	-0.8	2.5	6.3	-3.0
# of Portfolios	50	50	48	47	32	50	47	48	45	30
● Eaton Vance Senior Loan Fund	1.8 (25)	7.5 (80)	4.0 (42)	4.2 (47)	4.6 (72)	7.5 (80)	0.7 (16)	4.0 (40)	9.9 (33)	-0.8 (85)
▲ S&P/LSTA Leveraged Loan Index	1.7 (27)	8.6 (26)	4.3 (20)	4.4 (35)	5.0 (46)	8.6 (26)	0.4 (36)	4.1 (35)	10.2 (25)	-0.7 (81)

Returns prior to inception date are composite returns.

Eaton Vance Senior Loan Fund

Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019



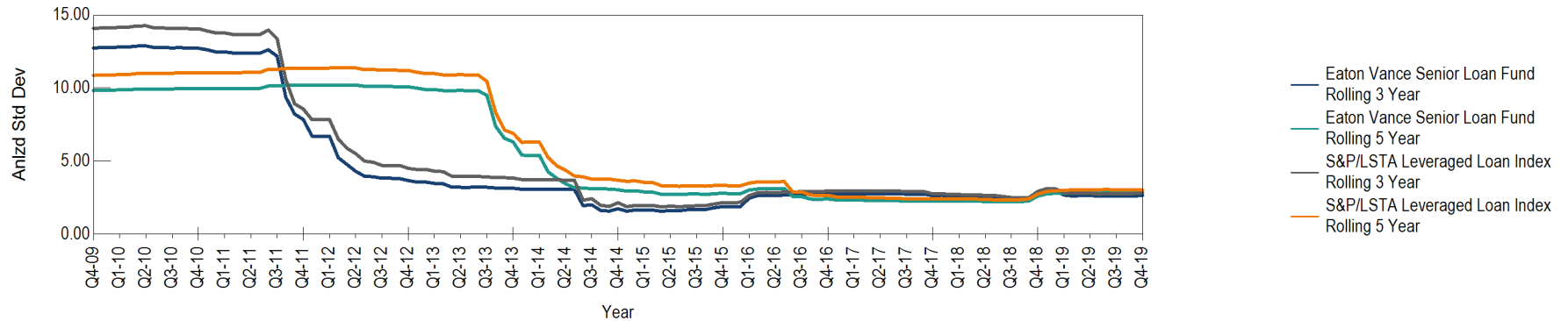
Returns prior to inception date are composite returns.

Eaton Vance Senior Loan Fund

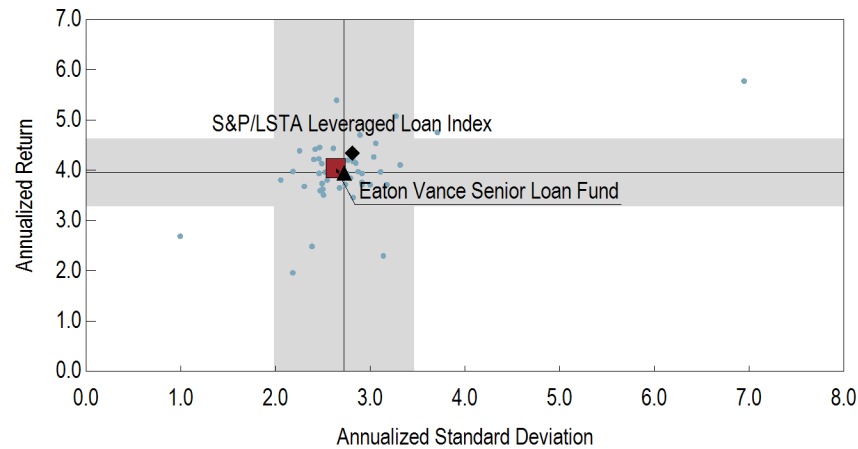
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

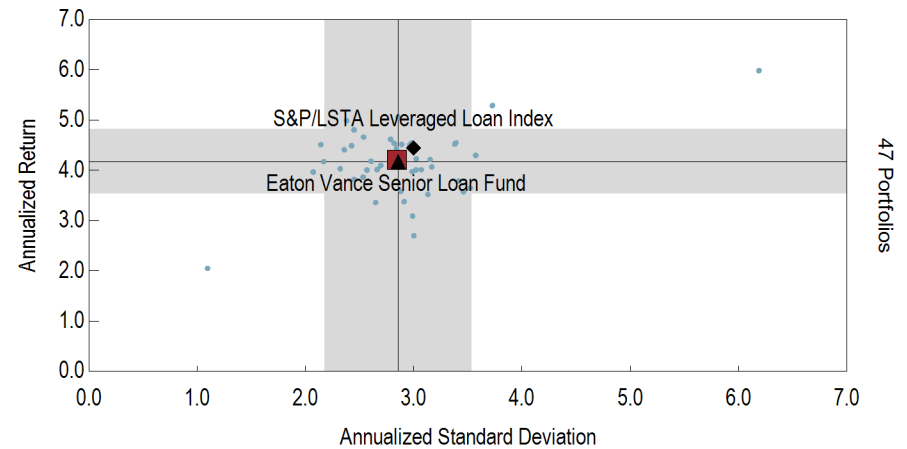
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Eaton Vance Senior Loan Fund	4.0%	2.6%	0.9
S&P/LSTA Leveraged Loan Index	4.3%	2.8%	1.0
eV US Float-Rate Bank Loan Fixed Inc Net Median	4.0%	2.7%	0.8

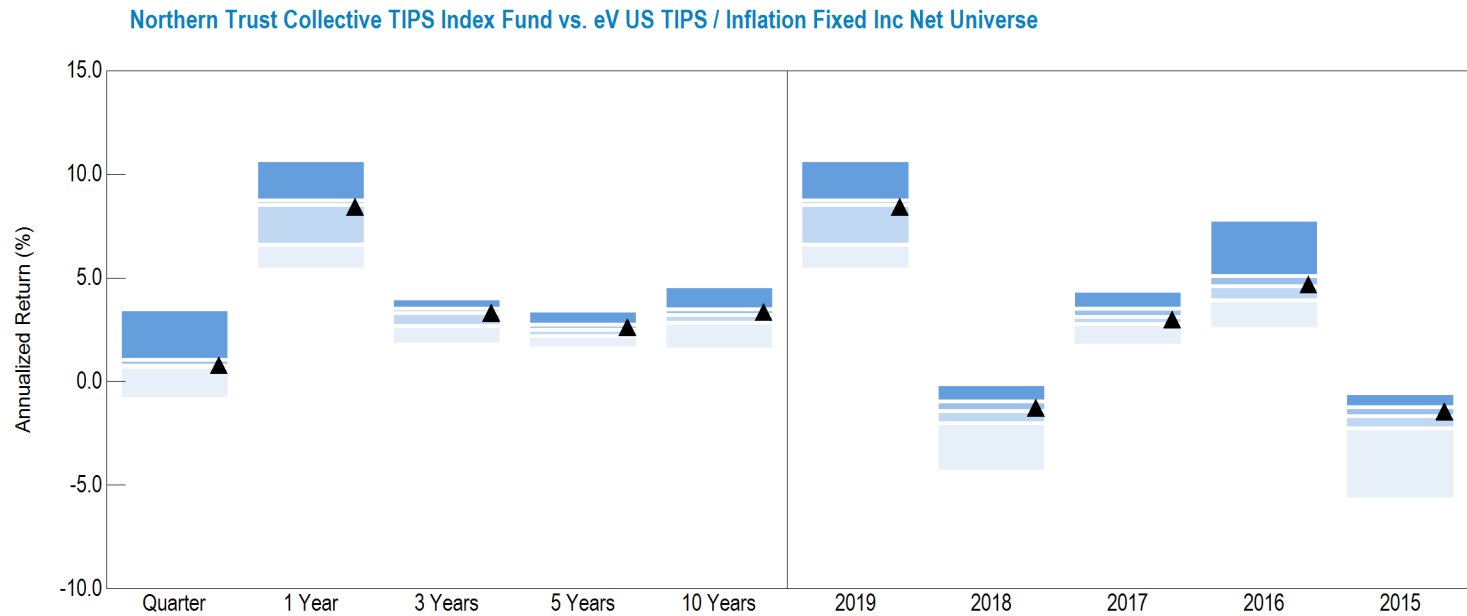
5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Eaton Vance Senior Loan Fund	4.2%	2.8%	1.1
S&P/LSTA Leveraged Loan Index	4.4%	3.0%	1.1
eV US Float-Rate Bank Loan Fixed Inc Net Median	4.2%	2.9%	1.1

Returns prior to inception date are composite returns.

Northern Trust Collective TIPS Index Fund
 Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

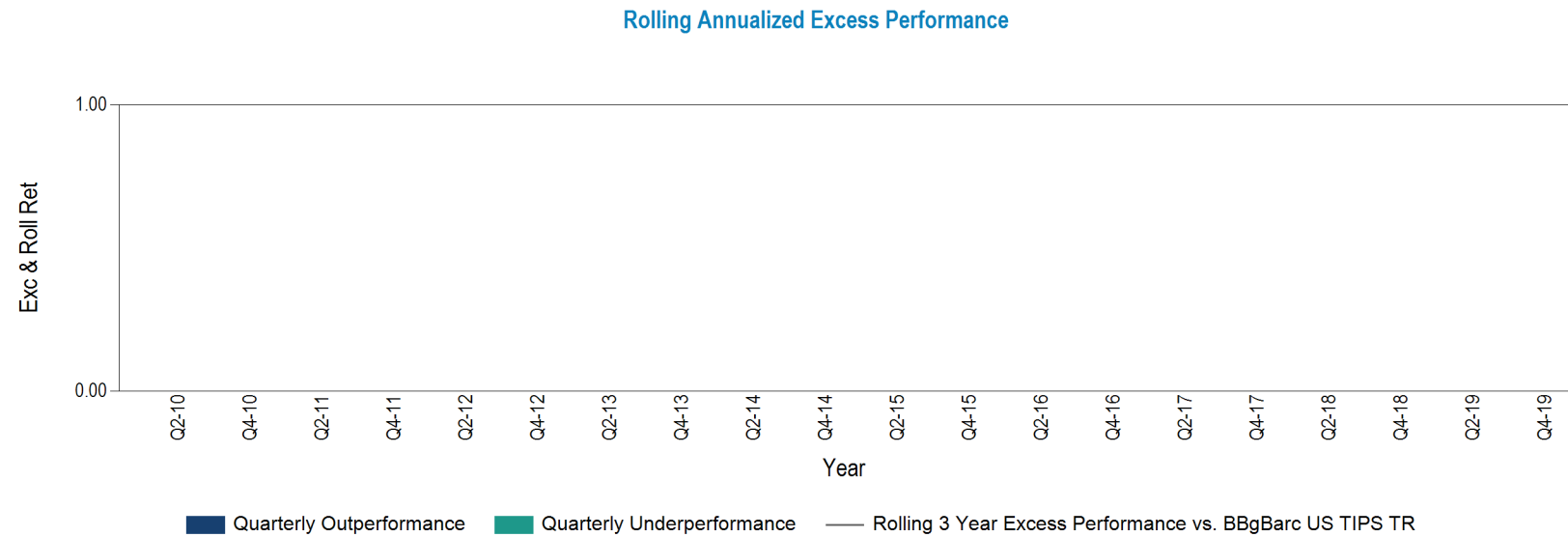
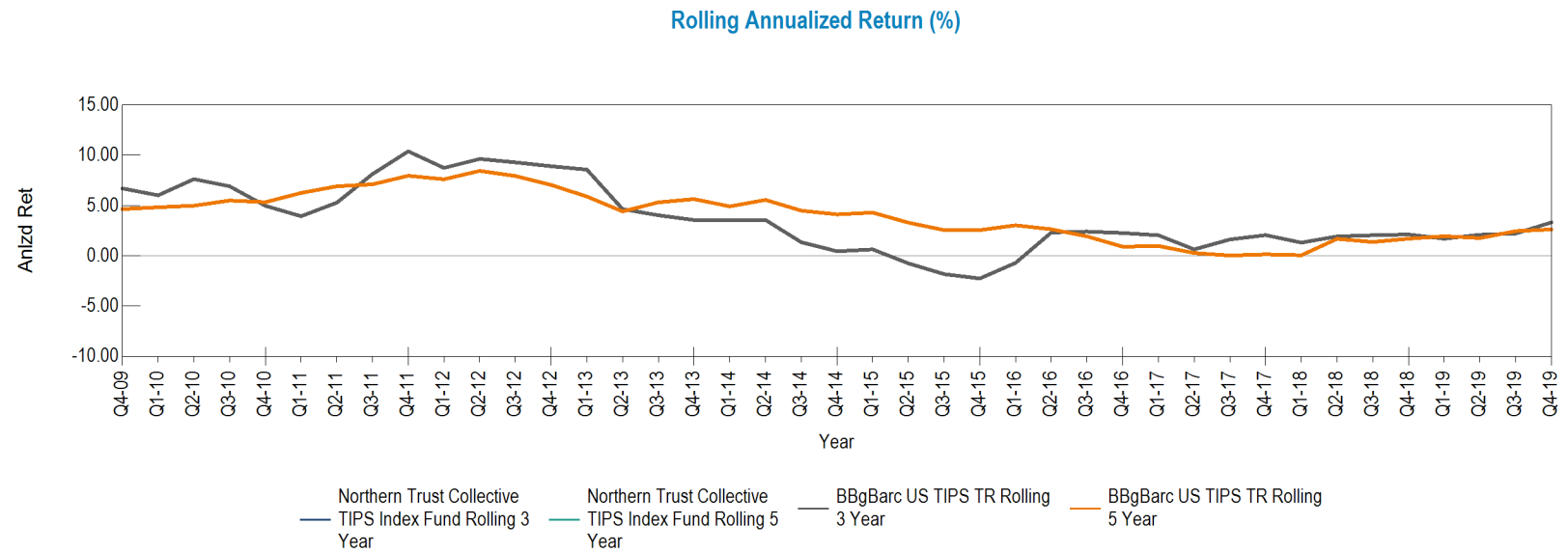


	Return (Rank)																			
5th Percentile	3.5	10.7	4.0	3.4	4.6	10.7	-0.1	4.4	7.8	-0.6										
25th Percentile	1.1	8.7	3.5	2.7	3.5	8.7	-0.9	3.5	5.1	-1.2										
Median	0.8	8.5	3.3	2.5	3.2	8.5	-1.4	3.1	4.6	-1.6										
75th Percentile	0.7	6.6	2.7	2.2	2.8	6.6	-2.0	2.8	3.9	-2.2										
95th Percentile	-0.8	5.4	1.8	1.6	1.5	5.4	-4.3	1.7	2.5	-5.7										
# of Portfolios	19	19	19	18	12	19	21	20	22	22										
● Northern Trust Collective TIPS Index Fund	--	--	--	--	--	--	--	--	--	--										
▲ BBgBarc US TIPS TR	0.8	8.4	3.3	2.6	3.4	8.4	-1.3	3.0	4.7	-1.4										

Northern Trust Collective TIPS Index Fund

Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

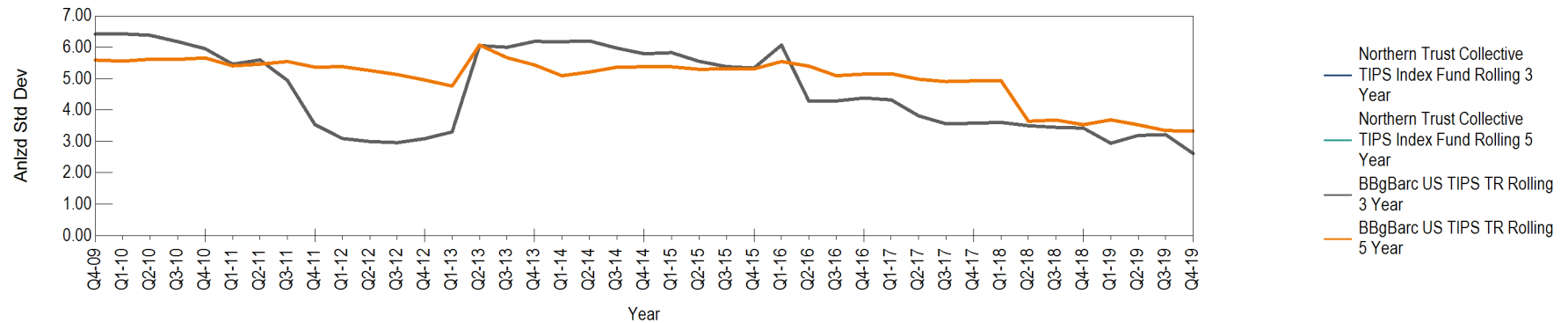


Northern Trust Collective TIPS Index Fund

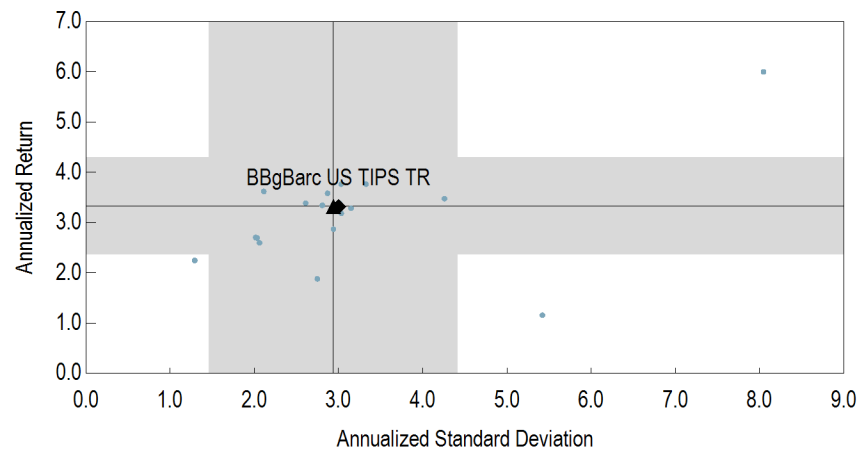
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

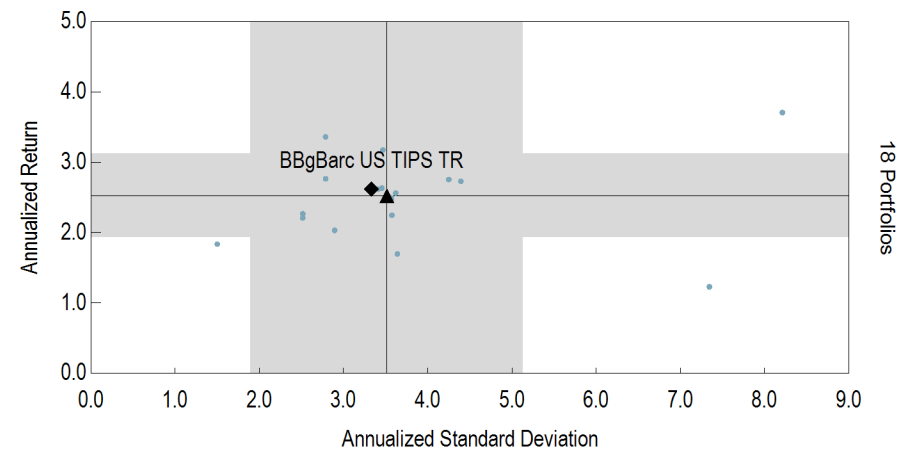
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

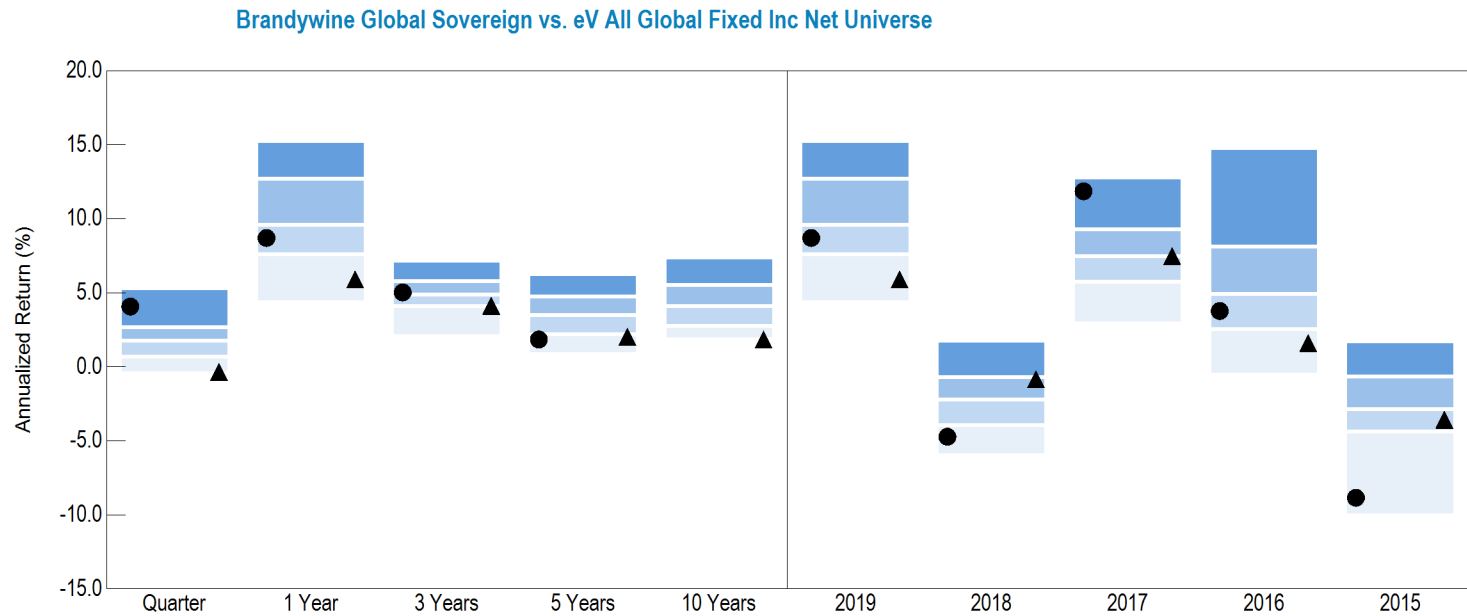
	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Northern Trust Collective TIPS Index Fund	--	--	--
BBgBarc US TIPS TR	3.3%	3.0%	0.6
eV US TIPS / Inflation Fixed Inc Net Median	3.3%	2.9%	0.5

5 Years

	Annualized Return	Annualized Standard Deviation	Sharpe Ratio
Northern Trust Collective TIPS Index Fund	--	--	--
BBgBarc US TIPS TR	2.6%	3.3%	0.5
eV US TIPS / Inflation Fixed Inc Net Median	2.5%	3.5%	0.4

Brandywine Global Sovereign
Manager Performance Comparisons (Net of Fees)

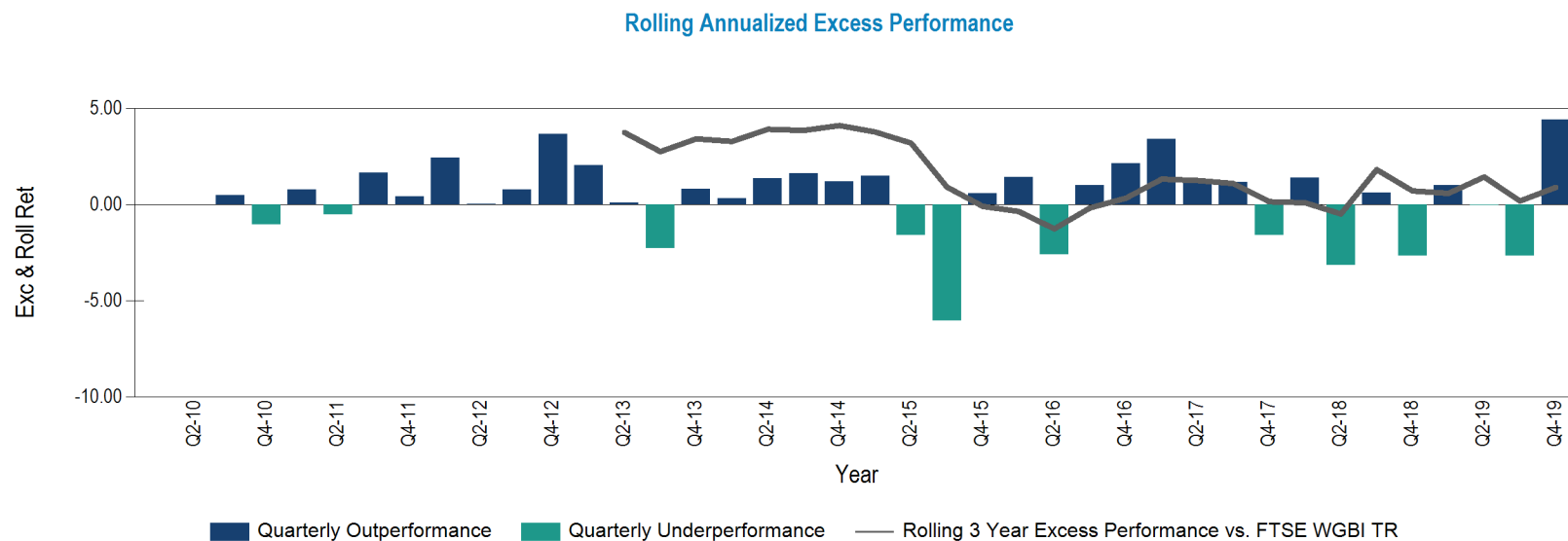
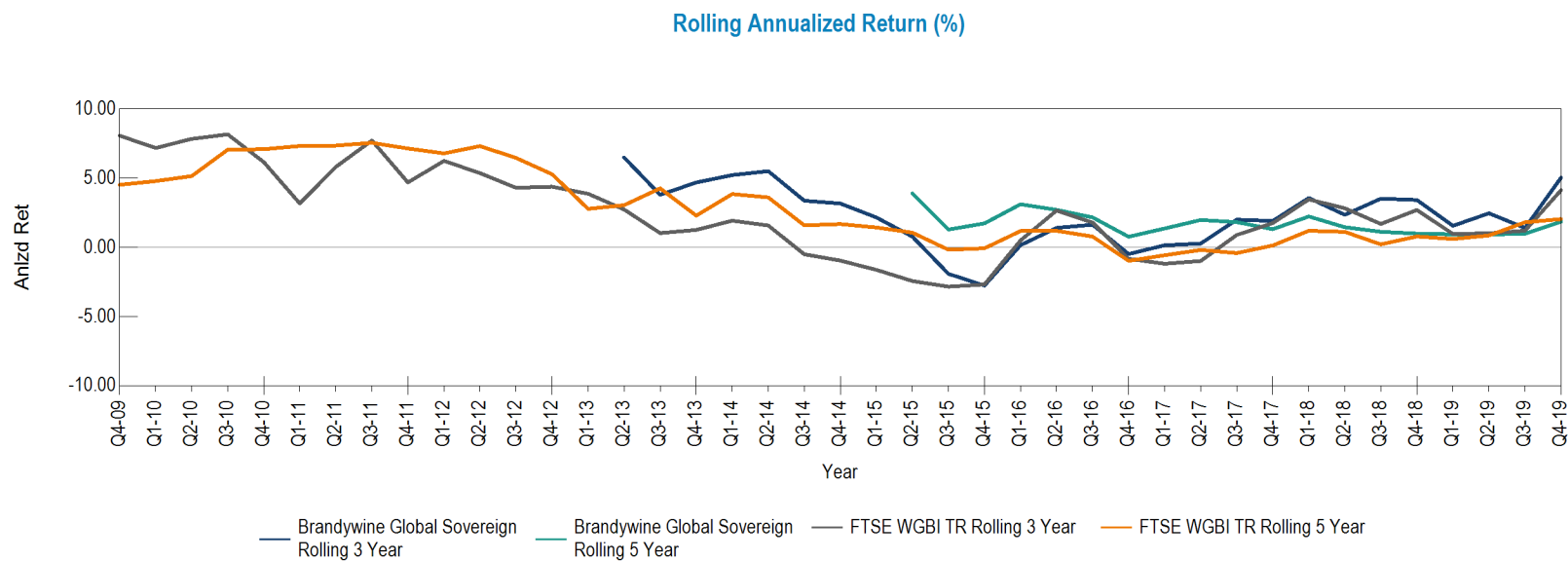
Period Ending: December 31, 2019



	Return (Rank)									
5th Percentile	5.3	15.2	7.1	6.3	7.3	15.2	1.7	12.8	14.7	1.7
25th Percentile	2.7	12.7	5.8	4.8	5.6	12.7	-0.7	9.3	8.1	-0.6
Median	1.8	9.6	4.9	3.5	4.1	9.6	-2.2	7.5	5.0	-2.9
75th Percentile	0.7	7.6	4.1	2.2	2.8	7.6	-3.9	5.8	2.6	-4.4
95th Percentile	-0.4	4.4	2.1	0.9	1.9	4.4	-6.0	2.9	-0.5	-10.0
# of Portfolios	241	239	227	206	124	239	218	214	209	175
● Brandywine Global Sovereign	4.1 (10)	8.7 (60)	5.0 (46)	1.8 (84)	-- (--)	8.7 (60)	-4.7 (87)	11.9 (6)	3.8 (63)	-8.8 (93)
▲ FTSE WGBI TR	-0.4 (93)	5.9 (87)	4.1 (76)	2.0 (80)	1.9 (96)	5.9 (87)	-0.8 (27)	7.5 (51)	1.6 (81)	-3.6 (63)

Brandywine Global Sovereign Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

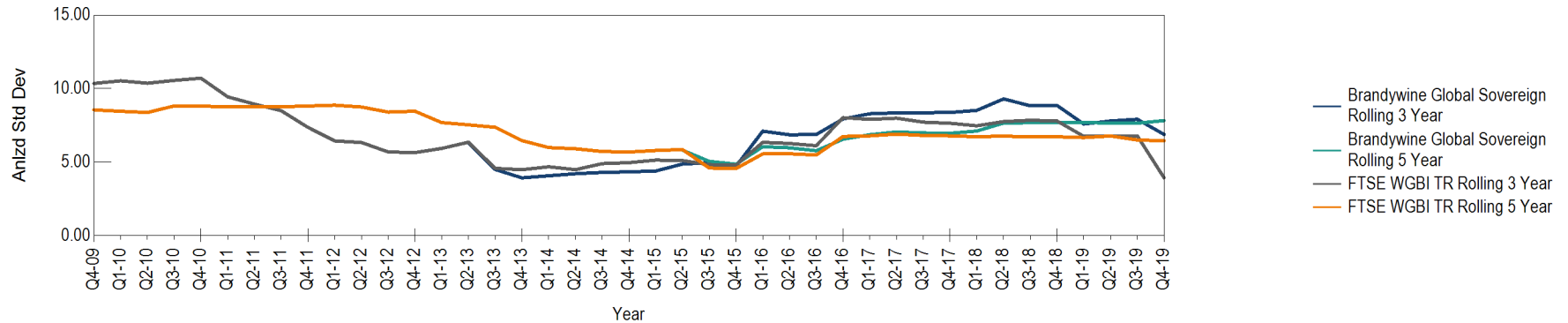


Brandywine Global Sovereign

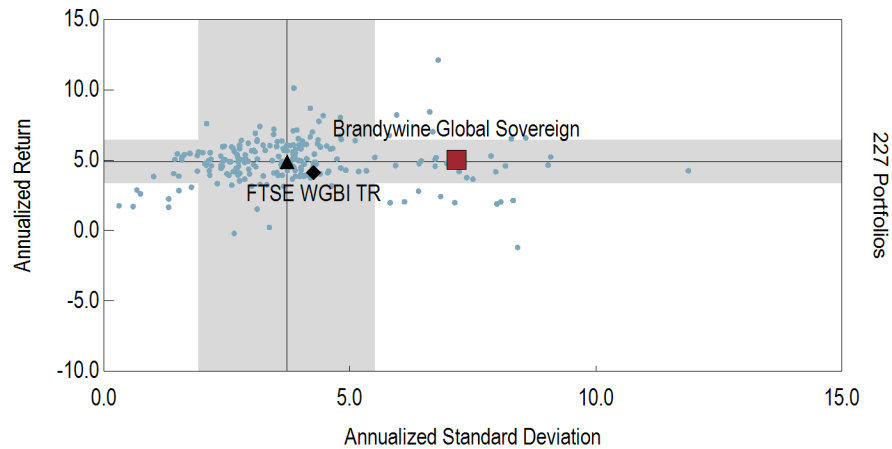
Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

Rolling Annualized Standard Deviation

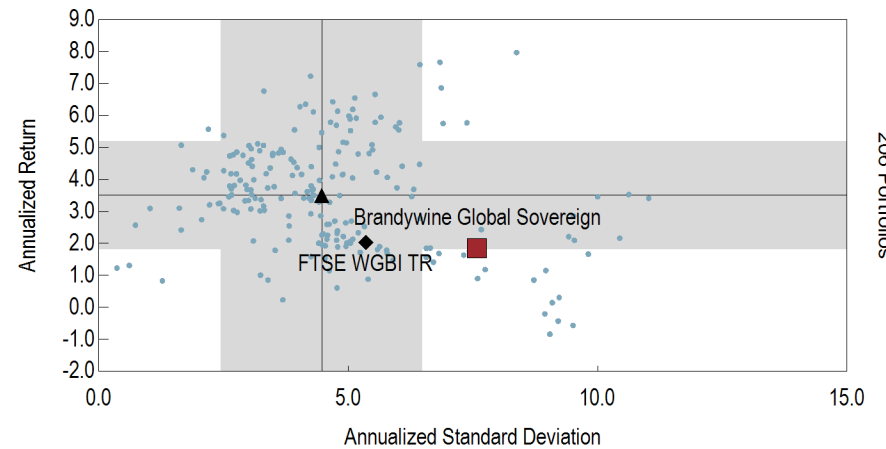


3 Years



227 Portfolios

5 Years



206 Portfolios

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Brandywine Global Sovereign	5.0%	7.2%	0.5
FTSE WGBI TR	4.1%	4.3%	0.6
eV All Global Fixed Inc Net Median	4.9%	3.7%	0.9

5 Years

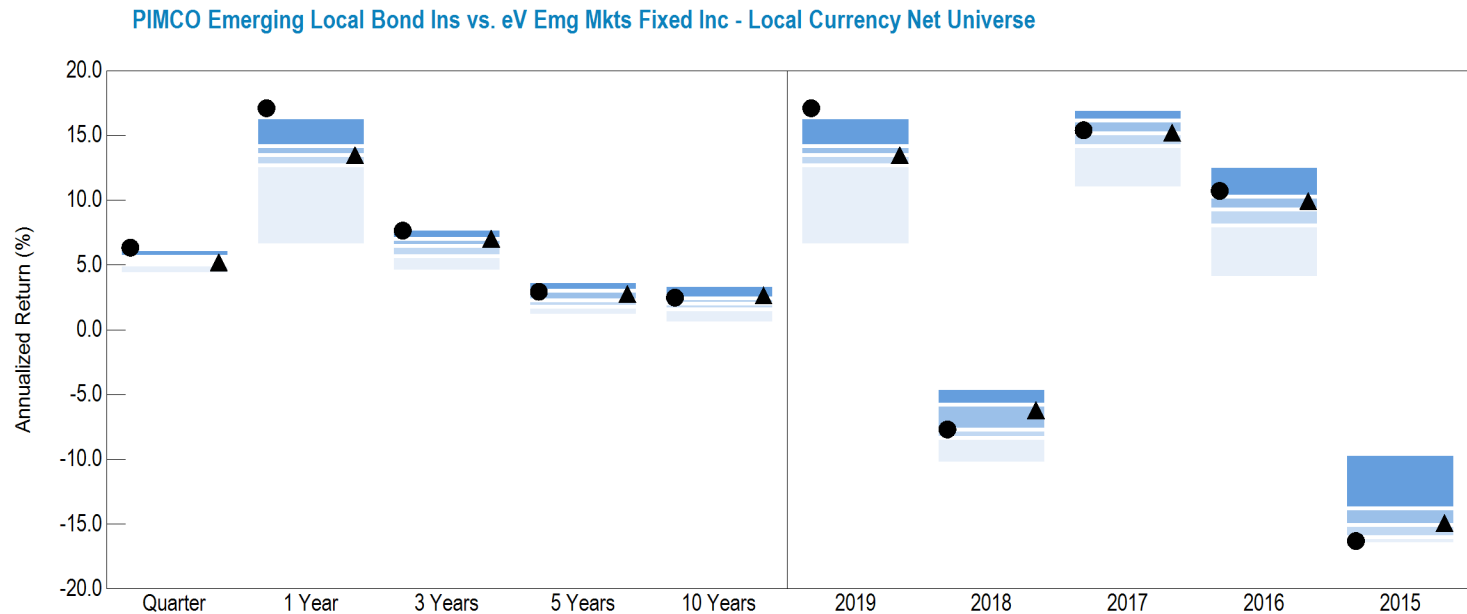
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Brandywine Global Sovereign	1.8%	7.6%	0.1
FTSE WGBI TR	2.0%	5.4%	0.2
eV All Global Fixed Inc Net Median	3.5%	4.5%	0.6

Returns prior to inception date are composite returns.

PIMCO Emerging Local Bond Ins

Manager Performance Comparisons (Net of Fees)

Period Ending: December 31, 2019

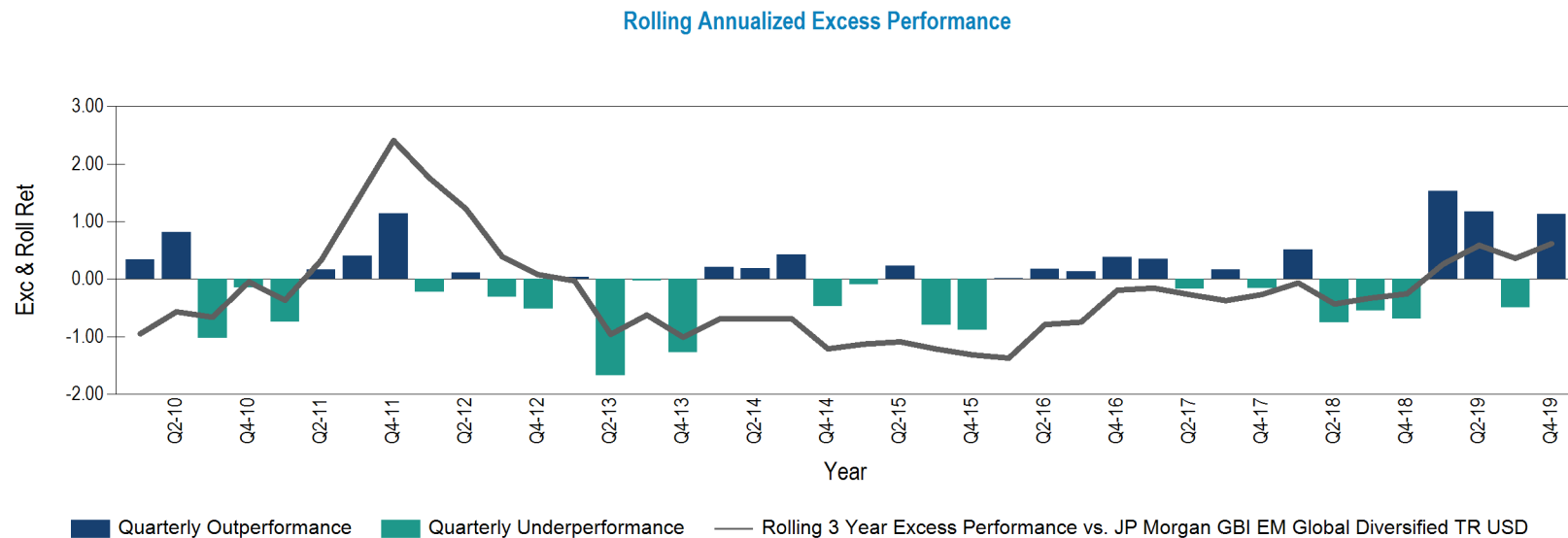
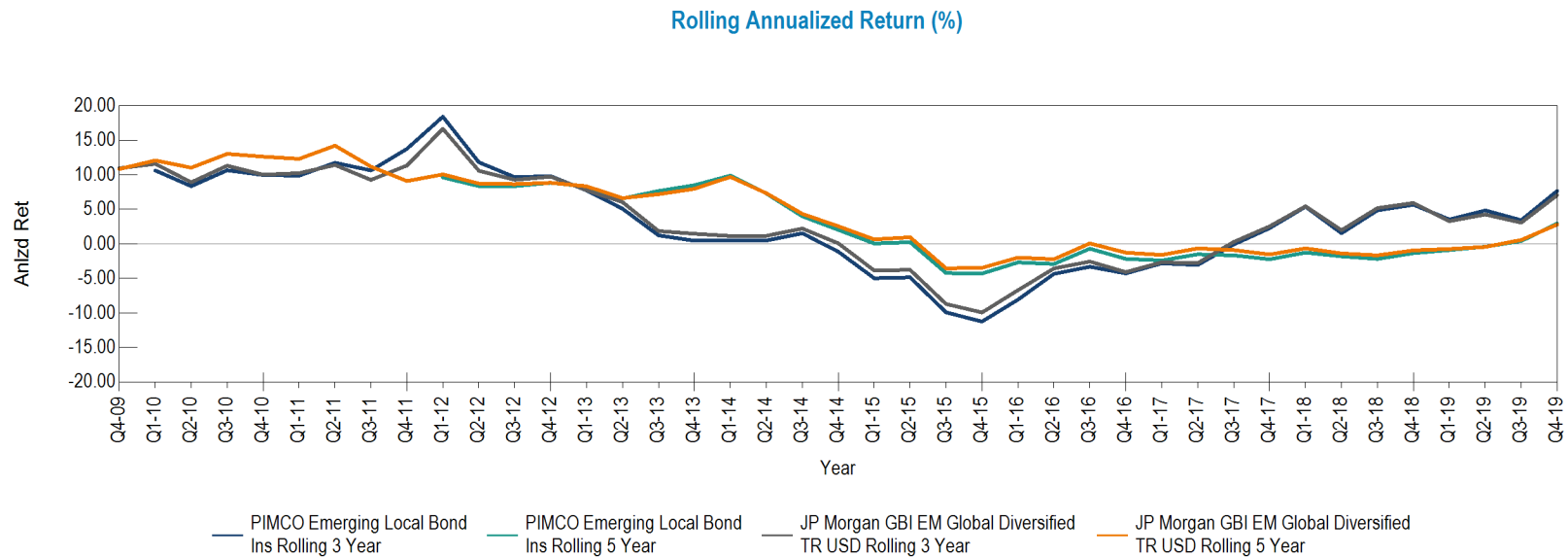


	Return (Rank)									
5th Percentile	6.2	16.4	7.8	3.7	3.4	16.4	-4.5	17.0	12.6	-9.6
25th Percentile	5.6	14.2	7.0	3.0	2.4	14.2	-5.8	16.2	10.3	-13.7
Median	5.4	13.5	6.5	2.3	2.0	13.5	-7.7	15.2	9.3	-15.0
75th Percentile	5.1	12.7	5.7	1.8	1.6	12.7	-8.3	14.2	8.1	-16.0
95th Percentile	4.3	6.5	4.5	1.1	0.5	6.5	-10.3	11.0	4.0	-16.5
# of Portfolios	35	35	33	33	16	35	33	31	30	29
● PIMCO Emerging Local Bond Ins	6.3 (4)	17.1 (3)	7.6 (7)	2.9 (38)	2.5 (20)	17.1 (3)	-7.7 (54)	15.4 (39)	10.7 (18)	-16.3 (91)
▲ JP Morgan GBI EM Global Diversified TR USD	5.2 (70)	13.5 (51)	7.0 (27)	2.8 (45)	2.7 (18)	13.5 (51)	-6.2 (33)	15.2 (47)	9.9 (33)	-14.9 (47)

Returns prior to inception date are composite returns.

PIMCO Emerging Local Bond Ins Rolling Manager Performance (Net of Fees)

Period Ending: December 31, 2019

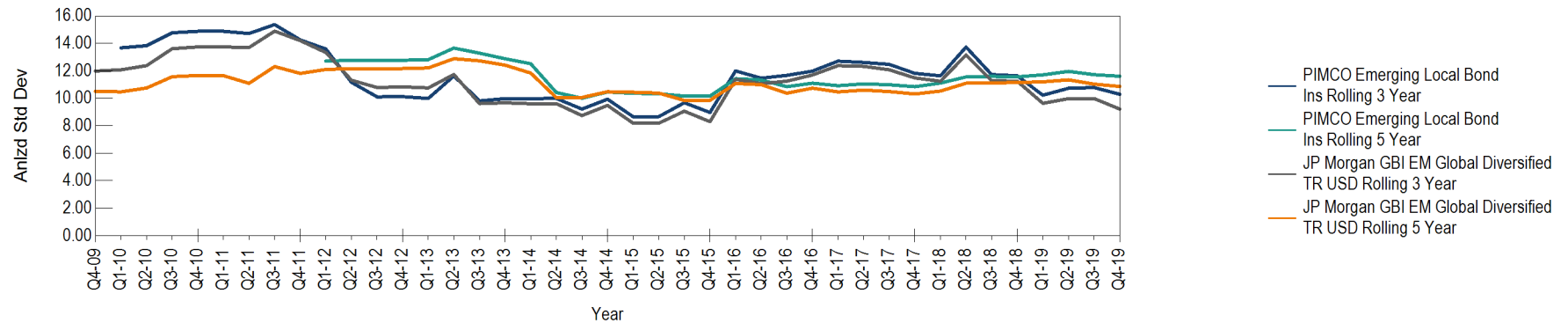


Returns prior to inception date are composite returns.

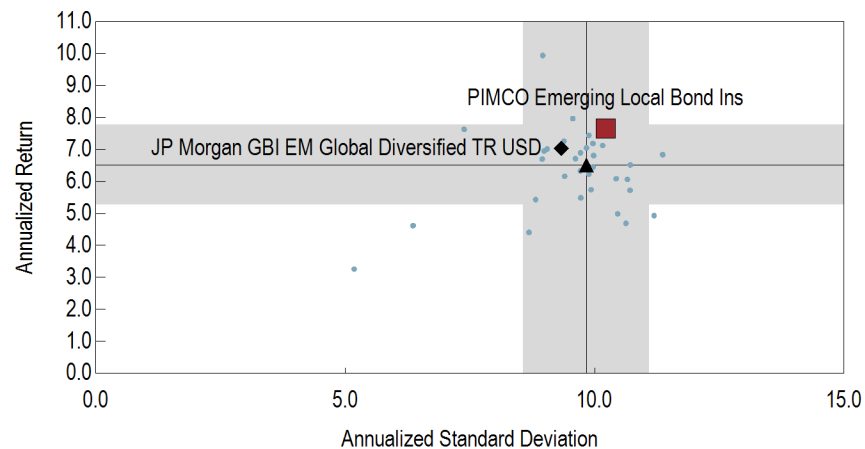
PIMCO Emerging Local Bond Ins Risk vs. Return 3 & 5 Year (Net of Fees)

Period Ending: December 31, 2019

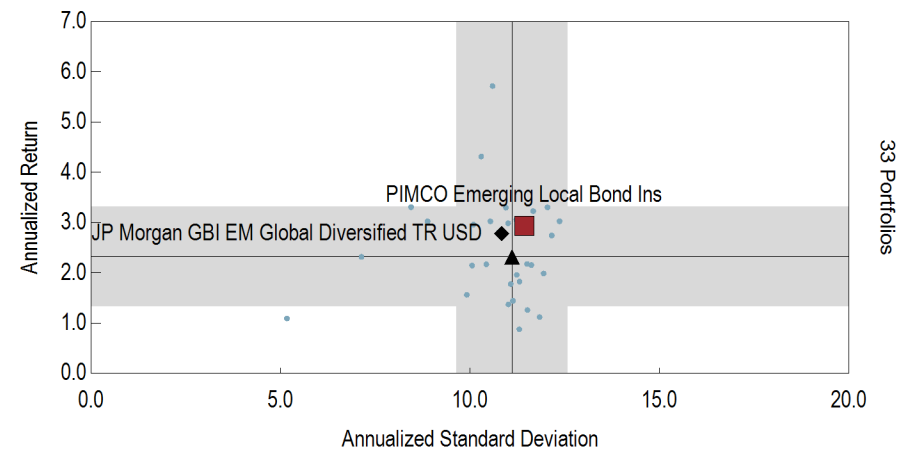
Rolling Annualized Standard Deviation



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
PIMCO Emerging Local Bond Ins	7.6%	10.2%	0.6
JP Morgan GBI EM Global Diversified TR USD	7.0%	9.3%	0.6
eV Emg Mkts Fixed Inc - Local Currency Net Median	6.5%	9.8%	0.5

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
PIMCO Emerging Local Bond Ins	2.9%	11.4%	0.2
JP Morgan GBI EM Global Diversified TR USD	2.8%	10.8%	0.2
eV Emg Mkts Fixed Inc - Local Currency Net Median	2.3%	11.1%	0.1

Returns prior to inception date are composite returns.

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

Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
Benefits Payment Cash	N/A	Northern Trust	GSO European Senior Debt	7/7/1905	Carlyle
Custodied	N/A	Northern Trust	CVI Credit Value Fund III	7/7/1905	Carlyle
County Cash	N/A	FCERA	Warburg Pincus XII	7/7/1905	Hamilton Lane
Aronson Johnson Ortiz	12/4/1995	Northern Trust	Gerding Edlen Green Cities III	2016	Gerding Edlen
Warburg Pincus	1998	Hamilton Lane	Hamilton Lane PE Fund IX	2016	Hamilton Lane
TCW Shop III	1998	Carlyle	Kennedy Wilson Real Estate V	2016	Kennedy Wilson
Warburg Pincus VIII	2001	Hamilton Lane	TSSP Adjacent Opportunities	2016	Carlyle
Blackstone IV	2002	Hamilton Lane	OHA Strategic Credit Fund II, L.P.	2016	Carlyle
Lonestar IV	2002	Carlyle	Horsley Bridge XI GBO	2016	Hamilton Lane
TCW Shop IV	2002	Carlyle	GCM Better Futures Fund	7/8/1905	Grosvenor
Mondrian Emerging Markets	11/17/2005	Mondrian	Parametric Overlay	7/8/1905	Northern Trust
Invesco Core Real Estate	10/1/2007	Invesco	EQT European S. Situations Debt	7/9/1905	Carlyle
New Mountain III	6/29/1905	Hamilton Lane	Eaton Vance Ins. Sr Loan Plus	2017	Eaton Vance
Hamilton Lane VI	2007	Hamilton Lane	PIMCO StocksPLUS Small Fund	4/31/2018	PIMCO
Warburg Pincus X	2007	Hamilton Lane	Hamilton Lane Secondary Fund IV	2017	Hamilton Lane
Landmark Equity Partners XIV	2008	Hamilton Lane	TCG BDC II	2017	Carlyle
Grosvenor	10/31/2009	Grosvenor	AlpInvest FC Credit Fund, L.P.	2017	Carlyle
Mondrian Int'l Small Cap	11/2/2009	Mondrian	CPC V, L.P.	2017	Carlyle
Colony Distressed Credit I	2009	Carlyle	Kelso Investment Associates X, L.P.	7/10/1905	Hamilton Lane
TA Associates Realty 9	7/1/1905	TA Associates	Avista Capital Partners IV	7/10/1905	Hamilton Lane
Systematic Small/Mid Value	10/8/2010	Northern Trust	Platinum Equity Small Cap Fund	7/10/1905	Hamilton Lane
KKR Mezzanine Partners I	7/2/1905	Carlyle	T. Rowe Price Large Cap Growth	10/23/2018	Northern Trust
Angelo Gordon Cap. Recov. VII	2010	Carlyle	Baillie Gifford Emerging Markets	12/10/2018	Baillie Gifford
RAFI International Equity	4/30/2011	Northern Trust	K4 Private Investors, L.P.	2018	Hamilton Lane
Oaktree Opportunities Fund IX	2012	Carlyle	SK Capital Partners Fund V, L.P.	2018	Hamilton Lane
Artisan International Growth	4/1/2013	Northern Trust	Thomas H. Lee Equity Fund VIII, L.P.	2019	Hamilton Lane
PIMCO Emerging Local Bond	7/31/2013	Northern Trust	H.I.G. Growth Buyouts & Equity Fund III	2019	Hamilton Lane
WAMCO Credit Index	10/1/2014	Northern Trust	RBC Access Capital	10/10/2018	Northern Trust
Loomis Sayles High Yield	10/1/2014	Northern Trust	Invesco US Value-Add Fund V	2/20/2019	Invesco
Eaton Vance Senior Loan	10/1/2014	Eaton Vance	Northern Trust S&P 500 Index Fund	12/6/2019	Northern Trust
Colony Distressed Credit III	7/6/1905	Carlyle	EAFE Index Fund	12/6/2019	Northern Trust
Brandywine Global Sovereign	1/31/2015	Northern Trust	Northern Trust Collective TIPS Index Fund	12/20/2019	Northern Trust
IFM Global Infrastructure	5/1/2015	IFM			

Policy & Custom Index Composition

Floating Policy Index (12/1/2019-12/31/2019)	22% Russell 3000 Index, 26% BBgBarc Global Aggregate Index, 22% MSCI ACWI ex US, 0.84% Russell 2000, 1.88% BBgBarc US Corp. High Yield, 5.16% Private Equity Neutralized, 6.12% Private Credit Neutralized, 7% HFRI FoF Composite, & 8% NCREIF ODCE Net.
(11/1/2019-11/30/2019)	22% Russell 3000 Index, 26% BBgBarc Global Aggregate Index, 22% MSCI ACWI ex US, 0.77% Russell 2000, 2.32% BBgBarc US Corp. High Yield, 5.23% Private Equity Neutralized, 5.68% Private Credit Neutralized, 7% HFRI FoF Composite, & 8% NCREIF ODCE Net.
(10/1/2019-10/31/2019)	22% Russell 3000 Index, 26% BBgBarc Global Aggregate Index, 22% MSCI ACWI ex US, 0.63% Russell 2000, 2.45% BBgBarc US Corp. High Yield, 5.37% Private Equity Neutralized, 5.55% Private Credit Neutralized, 7% HFRI FoF Composite, & 8% NCREIF ODCE Net.

BBgBarc Global Aggregate* Prior to 3/31/2014 BBgBarc U.S. Aggregate Index and as of 4/1/2014 BBgBarc Global Aggregate Index.

**The term neutralized indicates that the benchmark performance was set equal to the asset class composite.

Other Disclosures

A non-cash contribution was made matching the investment manager fee for Invesco Real Estate and non-cash contributions were made estimating the investment manager fee for Invesco Commodities.
Fresno County Employees' Retirement Association fiscal year end is June 30.

Glossary

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: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

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: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

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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