
APRIL 4, 2019

**AGENDA ITEM 5
INFORMATION ITEM**

SCHOLARSHARE INVESTMENT BOARD

Review and Analysis of Investment Performance for ScholarShare 529 for Fourth Quarter 2018.

Background

The ScholarShare Investment Board (SIB or Board) and its investment consultant monitor all portfolios in ScholarShare 529 (Plan) in accordance with the ScholarShare Monitoring Procedures and Criteria adopted by the Board.

In this item, SIB will review and discuss “Investment Performance Report” (Exhibit A) for the Plan for fourth quarter 2018, provided by TIAA-CREF Tuition Financing, Inc., and the “Investment Performance Status Report” (Exhibit B) for fourth quarter 2018, provided by Pension Consulting Alliance, LLC (PCA) (now Meketa Investment Group). Exhibit B provides comparisons for each underlying fund allocated to the portfolios used in the Plan to applicable benchmark criteria and labels the current status of funds as “positive,” “acceptable,” “caution,” or “watch.”

For the fourth quarter of 2018:

- Six underlying funds were in the “positive” status, and
- 12 underlying funds were in the “acceptable” status
- One underlying fund was in the “caution” status (currently also on “watch” status).

As outlined in its memo (Exhibit C), the Board’s investment consultant is recommending that:

- The TIAA-CREF Social Choice Equity Fund remain on “watch” status; and
- No new funds qualify for “watch” status.

Presenters

Jeremy Thiessen, Senior Director, TIAA-CREF Tuition Financing, Inc.
Glenn Friedman, Manager, TIAA-CREF Tuition Financing, Inc.
Eric White, Executive Vice President, Meketa Investment Group

Quarterly Investment Report

4th Quarter, 2018

BUILT TO PERFORM.

CREATED TO SERVE.

For Institutional client use only. Not for distribution.

Before investing in the ScholarShare 529 College Savings Plan, you should consider the investment objectives, risks, charges, and expenses. The information contained in this report is subject to further change and amendments over time. Some changes may occur due to the result of adjustments. For a prospectus containing this and other information, as well as a Participant Agreement and Disclosure Statement, please call 1-800-544-5248 or view it online at www.scholarshare529.com. Please read these documents carefully before investing.

TIAA-CREF Tuition Financing, Inc., Program Manager. TIAA-CREF Individual & Institutional Services, LLC, member FINRA and SIPC, distributor and underwriter for the ScholarShare 529 College Savings Plan.

ScholarShare529 

Market Overview: Q4 2018

Key Themes

- The third quarter's economic optimism quickly turned sour as the fourth quarter saw continued concerns about global growth, a flattening yield curve, falling oil prices, risk of recession, and international trade policy and relations. Clearly, markets do not like uncertainty, and this was reflected across the capital structure.

Equities

- Volatility accelerated in the fourth quarter, as the VIX[®] rose 110%. Defensive factors and strategies went from laggards to leaders in this riskier environment, as Utilities, Real Estate, and Consumer Staples were the top performing sectors.

Fixed Income

- The Federal Reserve raised the fed funds rate by 25 basis points (0.25%), to a target range of 2.25%-2.50%—its fourth hike of 2018. This was the first time in over a year that the Fed's rate decision was not a foregone conclusion. With financial markets reflecting a less certain outlook for economic growth than in the past, the Fed adopted a less hawkish tone.

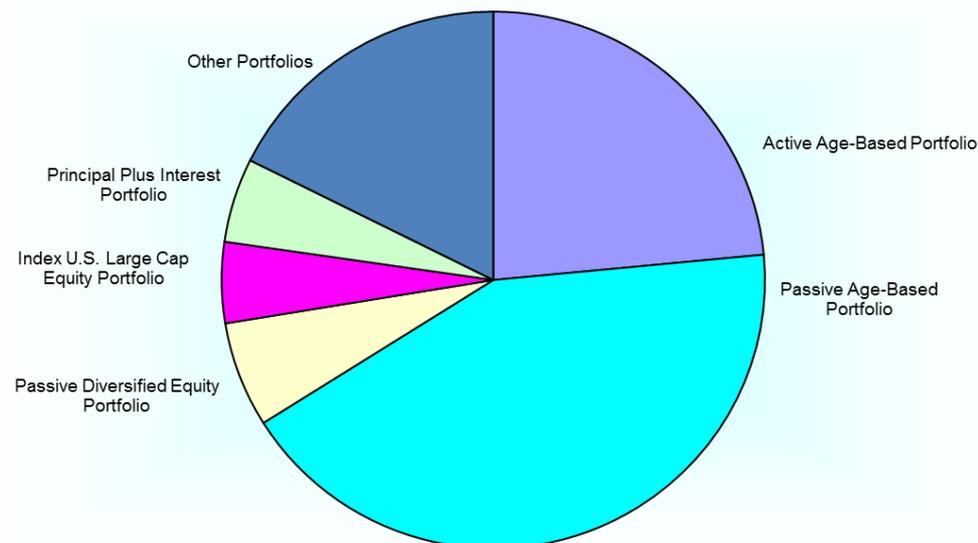
Asset Class	3 Month	1 Year	3 Year	5 Year
U.S. Equities	-14.30	-5.24	8.97	7.91
U.S. Growth Stocks	-15.89	-1.51	11.15	10.40
U.S. Value Stocks	-11.72	-8.27	6.95	5.95
U.S. Mid-Cap Stocks	-15.37	-9.06	7.04	6.26
U.S. Small-Cap Stocks	-20.20	-11.01	7.36	4.41
Int'l Developed Stocks	-12.54	-13.79	2.87	0.53
Emerging Markets Stocks	-7.47	-14.58	9.25	1.65
Real Estate Stocks	-6.06	-4.04	4.24	8.32
U.S. Investment Grade Bonds	1.64	0.01	2.06	2.52
Long-dated U.S. Treasuries	0.78	-4.68	4.03	5.37
Inflation-Linked Bonds	-0.05	-0.25	1.87	1.20
High Yield Bonds	-3.87	-2.04	6.34	3.87
Commodities	-9.41	-11.25	0.30	-8.80
Cash	0.57	1.89	1.03	0.64
Annualized Tuition Inflation Ending as of 2018-2019 Academic Year* (%)				
Educational Institution		1 Year	3 Year	5 Year
National Average Public 4-Year In-state		2.51	2.75	2.85
National Average Private Nonprofit 4-Year		3.26	3.48	3.53
Consumer Price Index, December 2018		1.92	2.04	1.51

*Data are for the entire academic year and are average total charges for full-time attendance. Tuition and fees were enrollment weighted. SOURCES: CollegeBoard, Trends in College Pricing 2018 and U.S. Department of Labor: Bureau of Labor Statistics

Past performance is not indicative of future results. You can not invest directly in an index. U.S. Equities – Russell 3000 Index; U.S. Growth Stocks – Russell 1000 Growth Index; U.S. Value Stocks – Russell 1000 Value Index; U.S. Mid Cap Stocks – Russell Midcap Index; U.S. Small-Cap Stocks – Russell 2000 Index; International Developed Markets – MSCI EAFE Index; Emerging Markets – MSCI Emerging Markets Index; Real Estate Stocks – FTSE NAREIT All Equity REITS Index; U.S. Investment Grade Bonds – Bloomberg Barclays U.S. Aggregate Bond Index; U.S. Treasuries – Bloomberg Barclays U.S. Government/Credit Long Index; Inflation-Linked Bonds – Bloomberg Barclays TIPS 1-10 Years Index; High Yield Bonds – BofA Merrill Lynch BB/B Cash Pay Index; Commodities - Bloomberg Commodity Index; Cash - Bloomberg Barclays U.S. 3 month Treasury Bellweathers Index C34631

Assets by Portfolio as of Q4 2018

Total Assets: \$8.25 Billion

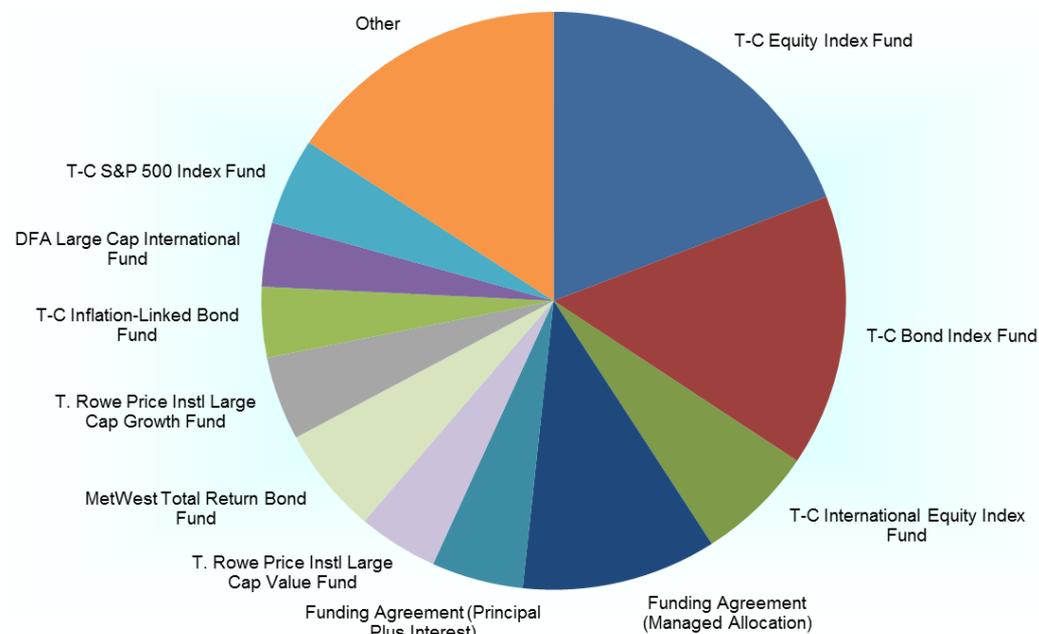


Portfolio	% of Assets	\$ Millions	Portfolio	% of Assets	\$ Millions
Passive Age-Based Portfolio	42.57%	\$ 3,513	Index U.S. Large Cap Equity Portfolio	4.87%	\$ 402
Active Age-Based Portfolio	23.49%	\$ 1,939	Principal Plus Interest Portfolio	5.07%	\$ 419
Passive Diversified Equity Portfolio	6.35%	\$ 524	Other Portfolios (see below)	17.64%	\$ 1,456

Other Portfolios

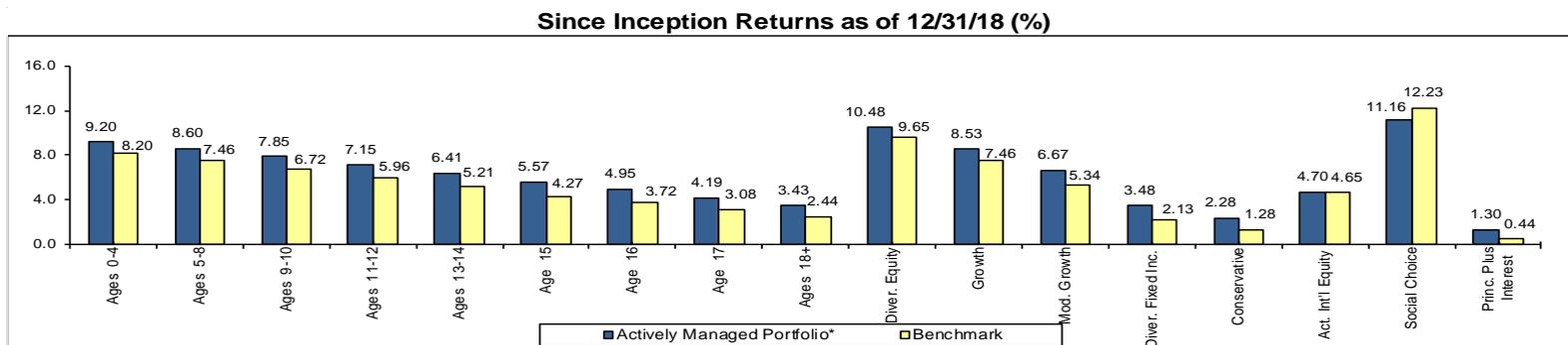
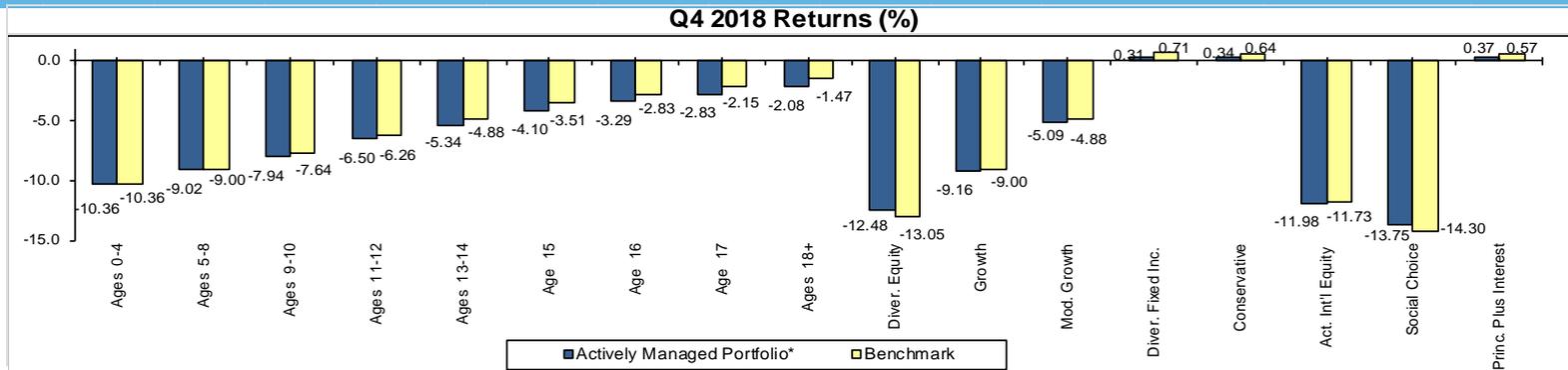
Index U.S. Equity Portfolio	4.53%	\$ 374	Active Moderate Growth Portfolio	0.66%	\$ 54
Active Diversified Equity Portfolio	2.85%	\$ 235	Passive Moderate Growth Portfolio	0.60%	\$ 49
Social Choice Portfolio	1.88%	\$ 155	Passive Conservative Portfolio	0.50%	\$ 41
Active Growth Portfolio	1.87%	\$ 154	Active Conservative Portfolio	0.44%	\$ 37
Passive Growth Portfolio	1.40%	\$ 115	Active International Equity Portfolio	0.32%	\$ 26
Index International Equity Portfolio	1.39%	\$ 114	Active Diversified Fixed Income Portfolio	0.27%	\$ 22
Index Bond Portfolio	0.72%	\$ 59	Passive Diversified Fixed Income Portfolio	0.23%	\$ 19

Assets by Underlying Fund as of Q4 2018



Fund	% of Assets	\$ Millions	Fund	% of Assets	\$ Millions
T-C Equity Index Fund	19.13%	\$ 1,578	T-C S&P 500 Index Fund	4.87%	\$ 402
T-C Bond Index Fund	15.21%	\$ 1,255	T. Rowe Price Instl Large Cap Growth Fund	4.67%	\$ 385
Funding Agreement (Managed Allocation)	10.79%	\$ 890	T. Rowe Price Instl Large Cap Value Fund	4.43%	\$ 366
T-C International Equity Index Fund	6.56%	\$ 541	T-C Inflation-Linked Bond Fund	3.95%	\$ 326
Metropolitan West Total Return Bond Fund	5.96%	\$ 492	DFA Large Cap International Fund	3.57%	\$ 295
Funding Agreement (Principal Plus Interest)	5.07%	\$ 419	Other	15.78%	\$ 1,302
Other Funds					
T-C Real Estate Securities Fund	2.91%	\$ 239	T-C Emerging Markets Equity Index Fund	1.53%	\$ 134
PIMCO Income Fund	2.39%	\$ 169	T-C Small Cap Equity Fund	1.06%	\$ 87
PIMCO Real Return Fund	2.09%	\$ 150	T. Rowe Price Instl Floating Rate Fund	1.04%	\$ 74
T-C High Yield Bond Fund	2.02%	\$ 167	DFA Emerging Markets Core Equity Portfolio	0.86%	\$ 64
T-C Social Choice Equity Fund	1.88%	\$ 154			

Actively Managed Portfolios vs Composite Benchmarks Q4 and Since Inception Returns (%)



* Returns are net of most recent weighted average Underlying Fund Fees, Program Management Fees and State Administrative Fees (5 bps).

- Total nonfarm payroll employment increased by 312,000 in December, considerably more than many estimates. At the same time, the unemployment rate rose to 3.9%, though many experts agree the rise is due to the higher labor force participation rate.
- Average hourly earnings of all employees on private nonfarm payrolls showed a strong 3.15% year-over-year increase.
- The Conference Board's index of leading economic indicators (LEI) improved in October for the thirteenth consecutive month.
- All age bands in the Actively Managed Portfolios had negative absolute returns in Q4, and all bands either underperformed or performed in line with their blended benchmarks.
- Contributing to absolute returns was the MetWest Total Return Bond Fund and PIMCO Income Fund, which generated 1.49% and 0.74% in Q4, respectively. Also contributing to absolute performance was the TIAA Life Funding Agreement, which added 0.37% in the quarter.
- A number of funds contributed to relative returns. The T. Rowe Price Large Cap Growth Fund, DFA Emerging Markets Core Equity Portfolio, and the TIAA-CREF Quant Small Cap Equity Fund all outperformed their respective benchmarks. It was primarily the fixed income funds that underperformed in Q4, reflected in the underperformance in the older age bands.

Actively Managed Portfolios vs Composite Benchmarks

Investment Portfolios	Average Annual Total Return						Inception Date
	3 Month	YTD	1 Year	3 Year	5 Year	Since Inception	
Active Age-Based Portfolios**							
Active Age-Based Portfolio 0-4	-10.36%	-5.54%	-5.54%	7.21%	5.80%	9.20%	11/04/11
Blended Benchmark Returns	-10.36%	-6.28%	-6.28%	6.43%	5.21%	8.20%	
Difference	0.00%	0.74%	0.74%	0.78%	0.59%	1.00%	
Active Age-Based Portfolio 5-8	-9.02%	-4.70%	-4.70%	6.87%	5.56%	8.60%	11/04/11
Blended Benchmark Returns	-9.00%	-5.47%	-5.47%	5.96%	4.91%	7.46%	
Difference	-0.02%	0.77%	0.77%	0.91%	0.65%	1.14%	
Active Age-Based Portfolio 9-10	-7.94%	-4.40%	-4.40%	6.19%	5.10%	7.85%	11/04/11
Blended Benchmark Returns	-7.64%	-4.68%	-4.68%	5.47%	4.59%	6.72%	
Difference	-0.30%	0.28%	0.28%	0.72%	0.51%	1.13%	
Active Age-Based Portfolio 11-12	-6.50%	-3.64%	-3.64%	5.75%	4.74%	7.15%	11/04/11
Blended Benchmark Returns	-6.26%	-3.89%	-3.89%	4.98%	4.26%	5.96%	
Difference	-0.24%	0.25%	0.25%	0.77%	0.48%	1.19%	
Active Age-Based Portfolio 13-14	-5.34%	-3.11%	-3.11%	5.15%	4.33%	6.41%	11/04/11
Blended Benchmark Returns	-4.88%	-3.12%	-3.12%	4.48%	3.92%	5.21%	
Difference	-0.46%	0.01%	0.01%	0.67%	0.41%	1.20%	
Active Age-Based Portfolio 15	-4.10%	-2.25%	-2.25%	4.63%	3.94%	5.57%	11/04/11
Blended Benchmark Returns	-3.51%	-2.17%	-2.17%	3.83%	3.38%	4.27%	
Difference	-0.59%	-0.08%	-0.08%	0.80%	0.56%	1.30%	
Active Age-Based Portfolio 16	-3.29%	-1.67%	-1.67%	4.11%	3.55%	4.95%	11/04/11
Blended Benchmark Returns	-2.83%	-1.59%	-1.59%	3.43%	3.02%	3.72%	
Difference	-0.46%	-0.08%	-0.08%	0.68%	0.53%	1.23%	
Active Age-Based Portfolio 17	-2.83%	-1.32%	-1.32%	3.54%	3.07%	4.19%	11/04/11
Blended Benchmark Returns	-2.15%	-0.92%	-0.92%	2.96%	2.56%	3.08%	
Difference	-0.68%	-0.40%	-0.40%	0.58%	0.51%	1.11%	
Active Age-Based Portfolio 18 & Over	-2.08%	-0.70%	-0.70%	2.97%	2.59%	3.43%	11/04/11
Blended Benchmark Returns	-1.47%	-0.25%	-0.25%	2.49%	2.09%	2.44%	
Difference	-0.61%	-0.45%	-0.45%	0.48%	0.50%	0.99%	
Active Multi-Fund Investment Portfolios							
Active Diversified Equity Portfolio	-12.48%	-6.72%	-6.72%	8.12%	6.43%	10.48%	11/04/11
Blended Benchmark Returns	-13.05%	-7.93%	-7.93%	7.34%	5.79%	9.65%	
Difference	0.57%	1.21%	1.21%	0.78%	0.64%	0.83%	
Active Growth Portfolio	-9.16%	-4.92%	-4.92%	6.69%	5.44%	8.53%	11/04/11
Blended Benchmark Returns	-9.00%	-5.47%	-5.47%	5.96%	4.91%	7.46%	
Difference	-0.16%	0.55%	0.55%	0.73%	0.53%	1.07%	
Active Moderate Growth Portfolio	-5.09%	-2.76%	-2.76%	5.34%	4.48%	6.67%	11/09/11
Blended Benchmark Returns	-4.88%	-3.12%	-3.12%	4.48%	3.92%	5.34%	
Difference	-0.21%	0.36%	0.36%	0.86%	0.56%	1.33%	
Active Conservative Portfolio	0.34%	0.51%	0.51%	2.10%	1.97%	2.28%	11/04/11
Blended Benchmark Returns	0.64%	0.85%	0.85%	1.69%	1.53%	1.28%	
Difference	-0.30%	-0.34%	-0.34%	0.41%	0.44%	1.00%	
Active International Equity Portfolio	-11.98%	-14.43%	-14.43%	4.54%	0.65%	4.70%	11/10/11
Blended Benchmark Returns	-11.73%	-14.15%	-14.15%	4.38%	0.67%	4.65%	
Difference	-0.25%	-0.28%	-0.28%	0.16%	-0.02%	0.05%	
Active Diversified Fixed Income Portfolio	0.31%	-0.16%	-0.16%	2.99%	2.82%	3.48%	11/08/11
Blended Benchmark Returns	0.71%	-0.17%	-0.17%	2.37%	2.45%	2.13%	
Difference	-0.40%	0.01%	0.01%	0.62%	0.37%	1.35%	
Active Single Fund Investment Portfolios							
Social Choice Portfolio	-13.75%	-5.62%	-5.62%	8.96%	6.99%	11.16%	11/04/11
Benchmark Returns	-14.30%	-5.24%	-5.24%	8.97%	7.91%	12.23%	
Difference	0.55%	-0.38%	-0.38%	-0.01%	-0.92%	-1.07%	
Principal Plus Interest Portfolio**	0.37%	1.39%	1.39%	1.31%	1.21%	1.30%	11/04/11
Benchmark Returns	0.57%	1.86%	1.86%	0.99%	0.60%	0.66%	
Difference	-0.20%	-0.47%	-0.47%	0.32%	0.61%	1.24%	

* Returns are net of most recent weighted average Underlying Fund Fees, Program Management Fees and State Administrative Fees (5 bps).

**The crediting rate of 1.70% for the TC Life Funding Agreement in the Active Age-Based Portfolio for the Principal Plus Interest Portfolio are guaranteed through 12/31/19.

Asset Allocation, Fees, and Performance

Active Age-Based Portfolio Age of Beneficiary	Q4 Portfolio Return	Q4 Blended Benchmk Return	Annual Asset Based Fees (bp)*	T. Rowe Price Instl Large Cap Growth Fund	T. Rowe Price Instl Large Cap Value Fund	T. Rowe Price Instl Floating Rate Fund	TIAA- CREF Quant Small Cap Equity Fund	TIAA- CREF Real Estate Securities Fund	DFA Large Cap International Portfolio	DFA Emerging Markets Core Equity I Portfolio	MetWest Total Return Bond Fund	PIMCO Real Return Fund	PIMCO Income Fund	T-C Life Funding Agreement
Underlying Fund Expenses (bp)				56	57	57	41	51	24	53	37	45	50	N/A
0 - 4	-10.36%	-10.36%	54	22.68%	22.68%	2.00%	5.04%	5.60%	19.20%	4.80%	10.00%	4.00%	4.00%	0.00%
5 - 8	-9.02%	-9.00%	54	19.85%	19.85%	3.00%	4.40%	4.90%	16.80%	4.20%	15.00%	6.00%	6.00%	0.00%
9 - 10	-7.94%	-7.64%	54	17.01%	17.01%	4.00%	3.78%	4.20%	14.40%	3.60%	20.00%	8.00%	8.00%	0.00%
11 - 12	-6.50%	-6.26%	53	14.18%	14.18%	5.00%	3.14%	3.50%	12.00%	3.00%	25.00%	10.00%	10.00%	0.00%
13 - 14	-5.34%	-4.88%	53	11.34%	11.34%	6.00%	2.52%	2.80%	9.60%	2.40%	30.00%	12.00%	12.00%	0.00%
15	-4.10%	-3.51%	48	8.51%	8.51%	6.00%	1.88%	2.10%	7.20%	1.80%	30.00%	12.00%	12.00%	10.00%
16	-3.29%	-2.83%	44	7.09%	7.09%	5.50%	1.57%	1.75%	6.00%	1.50%	27.50%	11.00%	11.00%	20.00%
17	-2.83%	-2.15%	37	5.67%	5.67%	4.50%	1.26%	1.40%	4.80%	1.20%	22.50%	9.00%	9.00%	35.00%
18+	-2.08%	-1.47%	30	4.25%	4.25%	3.50%	0.95%	1.05%	3.60%	0.90%	17.50%	7.00%	7.00%	50.00%

Active Multi-Fund Investment Portfolios

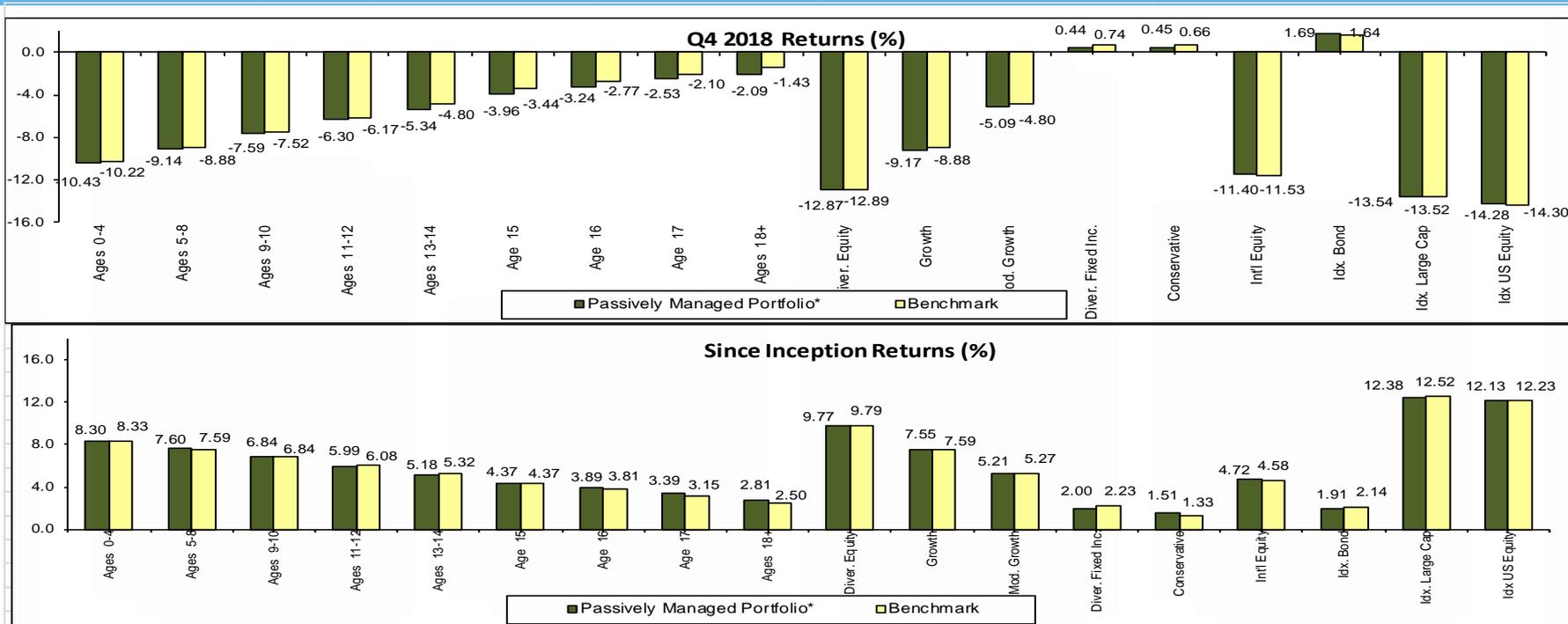
Active Diversified Equity Portfolio	-12.48%	-13.05%	55	28.35%	28.35%		6.30%	7.00%	24.00%	6.00%				
Active Growth Portfolio	-9.16%	-9.00%	54	19.85%	19.85%	3.00%	4.40%	4.90%	16.80%	4.20%	15.00%	6.00%	6.00%	
Active Moderate Growth Portfolio	-5.09%	-4.88%	53	11.34%	11.34%	6.00%	2.52%	2.80%	9.60%	2.40%	30.00%	12.00%	12.00%	
Active Diversified Fixed Income Portfolio	0.31%	0.71%	51			10.00%					50.00%	20.00%	20.00%	
Active Conservative Portfolio	0.34%	0.64%	30			5.00%					25.00%	10.00%	10.00%	50.00%
Active International Equity Portfolio	-11.98%	-11.73%	38						80.00%	20.00%				
Fund's Performance vs Benchmk Q4 2018 (bp)				304	(45)	58	81	14	(51)	108	(15)	(51)	(90)	(20)

Active Single Fund Investment Portfolios

Investment Portfolios	Q4 Portfolio Return	Q4 Blended Benchmk Return	Annual Asset Based Fees (bp)*	Percent Allocation	Underlying Mutual Fund	Fund's Performance vs Benchmk Q4 2018 (bp)
Social Choice Portfolio	-13.75%	-14.30%	27	100.00%	TIAA-CREF Social Choice Equity Fund	58
Principal Plus Interest Portfolio	0.37%	0.57%	N/A	100.00%	TIAA-CREF Life Co. Funding Agreement	(20)

* Asset Based Fees include most recent weighted average Underlying Fund Fees, Program Management Fees and State Administrative Fees (5 bps).

Passively Managed Portfolios vs Composite Benchmarks Q4 and Since Inception Returns (%)



* Returns are net of most recent weighted average Underlying Fund Fees and Program Management Fees for the quarter, as well as State Administrative Fees (5 bps) before 11/12/13.

- After a strong third quarter, U.S. equities ended the fourth quarter firmly in the red, primarily because of a challenging December, which brought the year's returns into negative territory. Volatility remained very high around the holiday season.
- As yields declined in a risk-off environment, the Bloomberg Barclays U.S. Aggregate Bond Index returned 1.64%. The fourth quarter canceled out the negative returns from the first three quarters, and the index ended the year essentially flat.
- All age bands in the Passively Managed Portfolios posted negative absolute returns for the quarter and underperformed their blended benchmarks.
- Negative absolute returns were primarily driven by the TIAA-CREF Equity Index Fund, TIAA-CREF International Equity Index Fund, and TIAA-CREF Emerging Markets Equity Index Fund, all of which had largely negative returns during a risk-off period.
- Many Multi-Fund and Single Fund Portfolios also saw negative absolute returns. More conservative investment portfolios had higher returns and more aggressive portfolios with risk assets had lower returns in Q4.
- The Index Bond Portfolio, whose underlying fund aims to track returns of the Bloomberg Barclays U.S. Aggregate Bond Index before fees, had the highest absolute returns of all portfolios in Q4, returning 1.69%. In another reversal from last quarter, the lowest absolute returns came from the Index U.S. Equity Portfolio, which returned -14.28%.

Passively Managed Portfolios vs Composite Benchmarks

Investment Portfolios	Average Annual Total Return						Inception Date
	3 Month	YTD	1 Year	3 Year	5 Year	Since Inception	
Passive Age-Based Portfolio**							
Passive Age-Based Portfolio 0-4	-10.43%	-6.15%	-6.15%	6.39%	5.23%	8.30%	11/04/11
Blended Benchmark Returns	-10.22%	-6.11%	-6.11%	6.41%	5.28%	8.33%	
Difference	-0.21%	-0.04%	-0.04%	-0.02%	-0.05%	-0.03%	
Passive Age-Based Portfolio 5-8	-9.14%	-5.48%	-5.48%	6.00%	4.97%	7.60%	11/04/11
Blended Benchmark Returns	-8.88%	-5.33%	-5.33%	5.95%	4.97%	7.59%	
Difference	-0.26%	-0.15%	-0.15%	0.05%	0.00%	0.01%	
Passive Age-Based Portfolio 9-10	-7.59%	-4.52%	-4.52%	5.49%	4.63%	6.84%	11/04/11
Blended Benchmark Returns	-7.52%	-4.57%	-4.57%	5.48%	4.64%	6.84%	
Difference	-0.07%	0.05%	0.05%	0.01%	-0.01%	0.00%	
Passive Age-Based Portfolio 11-12	-6.30%	-3.68%	-3.68%	4.91%	4.19%	5.99%	11/04/11
Blended Benchmark Returns	-6.17%	-3.81%	-3.81%	5.00%	4.31%	6.08%	
Difference	-0.13%	0.13%	0.13%	-0.09%	-0.12%	-0.09%	
Passive Age-Based Portfolio 13-14	-5.34%	-3.50%	-3.50%	4.32%	3.78%	5.18%	11/04/11
Blended Benchmark Returns	-4.80%	-3.07%	-3.07%	4.51%	3.96%	5.32%	
Difference	-0.54%	-0.43%	-0.43%	-0.19%	-0.18%	-0.14%	
Passive Age-Based Portfolio 15	-3.96%	-2.65%	-2.65%	3.81%	3.36%	4.37%	11/04/11
Blended Benchmark Returns	-3.44%	-2.14%	-2.14%	3.86%	3.42%	4.37%	
Difference	-0.52%	-0.51%	-0.51%	-0.05%	-0.06%	0.00%	
Passive Age-Based Portfolio 16	-3.24%	-2.01%	-2.01%	3.48%	3.08%	3.89%	11/04/11
Blended Benchmark Returns	-2.77%	-1.57%	-1.57%	3.46%	3.05%	3.81%	
Difference	-0.47%	-0.44%	-0.44%	0.02%	0.03%	0.08%	
Passive Age-Based Portfolio 17	-2.53%	-1.32%	-1.32%	3.13%	2.75%	3.39%	11/04/11
Blended Benchmark Returns	-2.10%	-0.91%	-0.91%	2.98%	2.58%	3.15%	
Difference	-0.43%	-0.41%	-0.41%	0.15%	0.17%	0.24%	
Passive Age-Based Portfolio 18 & Over	-2.09%	-0.89%	-0.89%	2.62%	2.32%	2.81%	11/04/11
Blended Benchmark Returns	-1.43%	-0.24%	-0.24%	2.51%	2.11%	2.50%	
Difference	-0.66%	-0.65%	-0.65%	0.11%	0.21%	0.31%	
Passive Multi-Fund Investment Portfolios							
Passive Diversified Equity Portfolio	-12.87%	-7.63%	-7.63%	7.29%	5.90%	9.77%	11/04/11
Blended Benchmark Returns	-12.89%	-7.70%	-7.70%	7.29%	5.88%	9.79%	
Difference	0.02%	0.07%	0.07%	0.00%	0.02%	-0.02%	
Passive Growth Portfolio	-9.17%	-5.56%	-5.56%	5.85%	4.92%	7.55%	11/04/11
Blended Benchmark Returns	-8.88%	-5.33%	-5.33%	5.95%	4.97%	7.59%	
Difference	-0.29%	-0.23%	-0.23%	-0.10%	-0.05%	-0.04%	
Passive Moderate Growth Portfolio	-5.09%	-3.23%	-3.23%	4.48%	3.86%	5.21%	11/08/11
Blended Benchmark Returns	-4.80%	-3.07%	-3.07%	4.51%	3.96%	5.27%	
Difference	-0.29%	-0.16%	-0.16%	-0.03%	-0.10%	-0.06%	
Passive Conservative Portfolio	0.45%	0.45%	0.45%	1.77%	1.70%	1.51%	11/04/11
Blended Benchmark Returns	0.66%	0.81%	0.81%	1.73%	1.54%	1.33%	
Difference	-0.21%	-0.36%	-0.36%	0.04%	0.16%	0.18%	
Index International Equity Portfolio	-11.40%	-13.39%	-13.39%	4.53%	0.95%	4.72%	11/04/11
Blended Benchmark Returns	-11.53%	-13.91%	-13.91%	4.18%	0.83%	4.58%	
Difference	0.13%	0.52%	0.52%	0.35%	0.12%	0.14%	
Passive Diversified Fixed Income Portfolio	0.44%	-0.43%	-0.43%	2.27%	2.26%	2.00%	11/08/11
Blended Benchmark Returns	0.74%	-0.24%	-0.24%	2.45%	2.47%	2.23%	
Difference	-0.30%	-0.19%	-0.19%	-0.18%	-0.21%	-0.23%	
Passive Single Fund Investment Portfolios							
Index Bond Portfolio	1.69%	-0.09%	-0.09%	1.87%	2.36%	1.91%	11/04/11
Benchmark Returns	1.64%	0.01%	0.01%	2.06%	2.52%	2.14%	
Difference	0.05%	-0.10%	-0.10%	-0.19%	-0.16%	-0.23%	
Index U.S. Large Cap Equity Portfolio	-13.54%	-4.51%	-4.51%	9.14%	8.38%	12.38%	11/04/11
Benchmark Returns	-13.52%	-4.38%	-4.38%	9.26%	8.49%	12.52%	
Difference	-0.02%	-0.13%	-0.13%	-0.12%	-0.11%	-0.14%	
Index U.S. Equity Portfolio	-14.28%	-5.26%	-5.26%	8.94%	7.86%	12.13%	11/04/11
Benchmark Returns	-14.30%	-5.24%	-5.24%	8.97%	7.91%	12.23%	
Difference	0.02%	-0.02%	-0.02%	-0.03%	-0.05%	-0.10%	

* Returns are net of most recent weighted average Underlying Fund Fees and Program Management Fees for the quarter, as well as State Administrative Fees (5 bps) before 11/12/13.

**The crediting rate of 1.70% for the TC Life Funding Agreement in the Passive Age-Based Portfolio is guaranteed through 12/31/19.

Asset Allocation, Fees, and Performance

Passive Age-Based Portfolio Age of Beneficiary	Q4 Portfolio Return	Q4 Blended Benchmk Return	Annual Asset Based Fees (bp)*	TIAA-CREF Equity Index Fund	TIAA-CREF International Equity Index Fund	TIAA-CREF Emerging Markets Equity Index Fund	TIAA-CREF Real Estate Securities Fund	TIAA-CREF Bond Index Fund	TIAA-CREF Inflation- Linked Bond Fund	TIAA-CREF High Yield Fund	T-C Life Funding Agreement
Underlying Fund Expenses (bp)				5	6	21	51	12	26	36	N/A
0 - 4	-10.43%	-10.22%	14	50.40%	19.20%	4.80%	5.60%	14.00%	4.00%	2.00%	0.00%
5 - 8	-9.14%	-8.88%	15	44.10%	16.80%	4.20%	4.90%	21.00%	6.00%	3.00%	0.00%
9 - 10	-7.59%	-7.52%	16	37.80%	14.40%	3.60%	4.20%	28.00%	8.00%	4.00%	0.00%
11 - 12	-6.30%	-6.17%	16	31.50%	12.00%	3.00%	3.50%	35.00%	10.00%	5.00%	0.00%
13 - 14	-5.34%	-4.80%	17	25.20%	9.60%	2.40%	2.80%	42.00%	12.00%	6.00%	0.00%
15	-3.96%	-3.44%	16	18.90%	7.20%	1.80%	2.10%	42.00%	12.00%	6.00%	10.00%
16	-3.24%	-2.77%	15	15.75%	6.00%	1.50%	1.75%	38.50%	11.00%	5.50%	20.00%
17	-2.53%	-2.10%	13	12.60%	4.80%	1.20%	1.40%	31.50%	9.00%	4.50%	35.00%
18 +	-2.09%	-1.43%	10	9.45%	3.60%	0.90%	1.05%	24.50%	7.00%	3.50%	50.00%

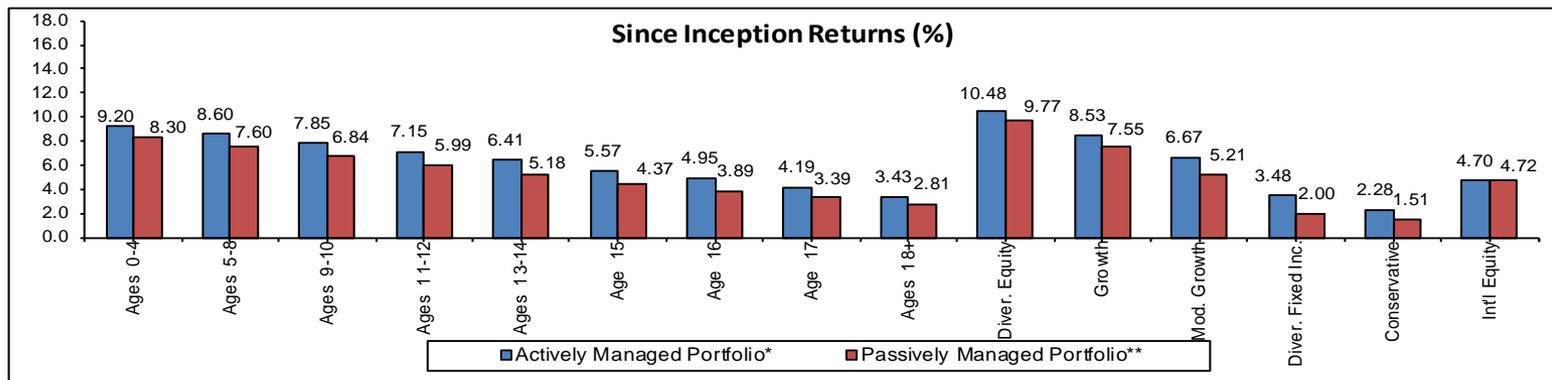
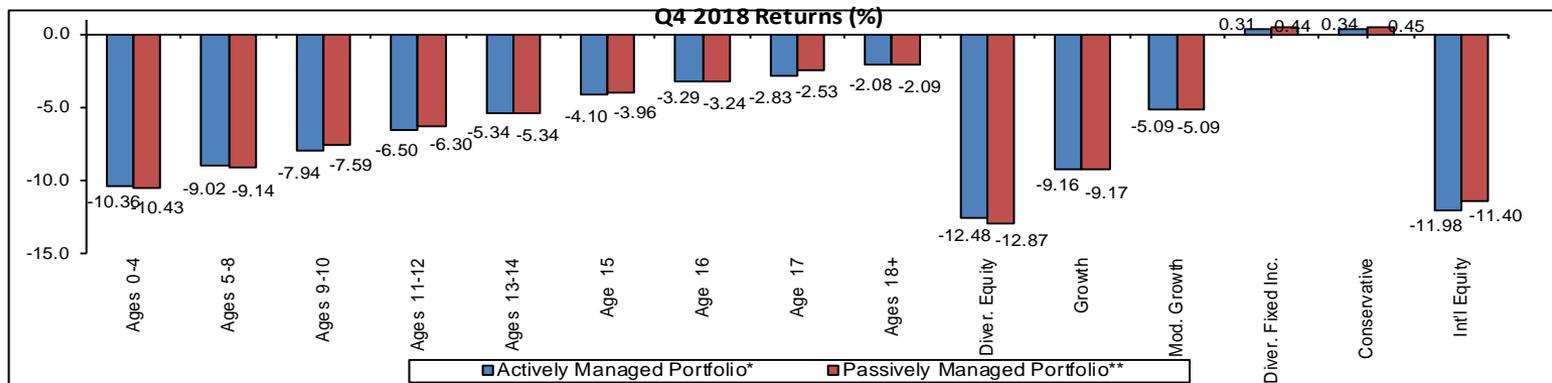
Passive Multi-Fund Investment Portfolios

Passive Diversified Equity Portfolio	-12.87%	-12.89%	12	63.00%	24.00%	6.00%	7.00%				
Passive Growth Portfolio	-9.17%	-8.88%	15	44.10%	16.80%	4.20%	4.90%	21.00%	6.00%	3.00%	
Passive Moderate Growth Portfolio	-5.09%	-4.80%	17	25.20%	9.60%	2.40%	2.80%	42.00%	12.00%	6.00%	
Passive Diversified Fixed Income Portfolio	0.44%	0.74%	20					70.00%	20.00%	10.00%	
Passive Conservative Portfolio	0.45%	0.66%	12					35.00%	10.00%	5.00%	50.00%
Index International Equity Portfolio	-11.40%	-11.53%	12		80.00%	20.00%					
Fund's Performance vs Benchmk Q4 2018 (bp)				5	25	16	14	4	(8)	(143)	(20)

Investment Portfolios	Q4 Portfolio Return	Q4 Blended Benchmk Return	Annual Asset Based Fees (bp)*	Percent Allocation	Underlying Mutual Fund	Fund's Performanc e vs Benchmk Q4 2018 (bp)
Index Bond Portfolio	1.69%	1.64%	15	100.00%	TIAA-CREF Bond Index Fund	4
Index U.S. Large Cap Equity Portfolio	-13.54%	-13.52%	9	100.00%	TIAA-CREF S&P 500 Index Fund	1
Index U.S. Equity Portfolio	-14.28%	-14.30%	8	100.00%	TIAA-CREF Equity Index Fund	5

* Asset Based Fees include most recent weighted average Underlying Fund Fees and Program Management Fees.

Actively Managed Portfolios vs. Passively Managed Portfolios



* Returns are net of most recent weighted average Underlying Fund Fees, Program Management Fees, and State Administrative Fees (5 bps).

** Returns are net of most recent weighted average Underlying Fund Fees, Program Management Fees, and State Administrative Fees (5 bps) before 11/12/13.

- In Q4, some Actively Managed Portfolios outperformed the Passively Managed Portfolios.
- Certain underlying funds in the Active Portfolios outperformed their benchmark, which resulted in higher returns for some portfolios with allocations to those funds compared to their passive counterparts. For example, the T. Rowe Price Large Cap Growth Fund and the DFA Emerging Markets Core Equity Portfolio both outperformed their respective benchmarks. However, the DFA Large Cap International Portfolio underperformed, which moderated any of Active's outperformance.
- Since Inception returns largely continue to favor the Actively Managed Portfolios.

Underlying Funds vs. Benchmarks Option

	Average Annual Total Return							Fund Incept. Date
	3 Month	YTD	1 Year	3 Year	5 Year	Life		
TIAA-CREF FUNDS								
T-C Bond Index Fund	1.68%	-0.02%	-0.02%	1.92%	2.41%	3.01%	09/14/2009	
Bloomberg Barclays U.S. Aggregate Bond Index	1.64%	0.01%	0.01%	2.06%	2.52%	3.20%		
Difference	0.04%	-0.03%	-0.03%	-0.14%	-0.11%	-0.19%		
T-C Emerging Markets Equity Index Fund*	-7.31%	-14.57%	-14.57%	9.25%	1.46%	2.01%	08/31/2010	
MSCI Emerging Markets® Index	-7.47%	-14.58%	-14.58%	9.25%	1.65%	2.37%		
Difference	0.16%	0.01%	0.01%	0.00%	-0.19%	-0.36%		
T-C Equity Index Fund	-14.25%	-5.22%	-5.22%	8.97%	7.90%	5.44%	07/01/1999	
Russell 3000 Index	-14.30%	-5.24%	-5.24%	8.97%	7.91%	5.50%		
Difference	0.05%	0.02%	0.02%	0.00%	-0.01%	-0.06%		
T-C High Yield Bond Fund	-5.30%	-2.66%	-2.66%	6.19%	3.39%	6.36%	03/31/2006	
ICE BofAML BB/B Cash Pay Index	-3.87%	-2.04%	-2.04%	6.34%	3.88%	6.35%		
Difference	-1.43%	-0.62%	-0.62%	-0.15%	-0.49%	0.01%		
T-C Inflation-Linked Bond Fund	-0.13%	-0.49%	-0.49%	1.62%	1.32%	3.76%	10/01/2002	
Bloomberg Barclays 1-10 Year U.S. TIPS Index	-0.05%	-0.25%	-0.25%	1.87%	1.20%	3.54%		
Difference	-0.08%	-0.24%	-0.24%	-0.25%	0.12%	0.22%		
T-C International Equity Index Fund*	-12.29%	-13.25%	-13.25%	3.24%	0.69%	6.94%	10/01/2002	
MSCI EAFE Index	-12.54%	-13.79%	-13.79%	2.87%	0.53%	6.89%		
Difference	0.25%	0.54%	0.54%	0.37%	0.16%	0.05%		
T-C Real Estate Securities Fund	-5.92%	-4.04%	-4.04%	4.00%	8.56%	9.75%	10/01/2002	
FTSE NAREIT Equity Index	-6.06%	-4.04%	-4.04%	4.24%	8.32%	9.99%		
Difference	0.14%	0.00%	0.00%	-0.24%	0.24%	-0.24%		
T-C S&P 500 Index Fund	-13.51%	-4.45%	-4.45%	9.18%	8.43%	9.02%	10/01/2002	
S&P 500 Index	-13.52%	-4.38%	-4.38%	9.26%	8.50%	9.11%		
Difference	0.01%	-0.07%	-0.07%	-0.08%	-0.07%	-0.09%		
T-C Quant Small Cap Equity Fund	-19.39%	-11.97%	-11.97%	6.70%	5.40%	9.91%	10/01/2002	
Russell 2000 Index	-20.20%	-11.01%	-11.01%	7.36%	4.41%	9.77%		
Difference	0.81%	-0.96%	-0.96%	-0.66%	0.99%	0.14%		
T-C Social Choice Equity Fund	-13.72%	-5.53%	-5.53%	9.04%	7.08%	5.23%	07/01/1999	
Russell 3000 Index	-14.30%	-5.24%	-5.24%	8.97%	7.91%	5.50%		
Difference	0.58%	-0.29%	-0.29%	0.07%	-0.83%	-0.27%		
DFA FUNDS								
DFA Emerging Markets Core Equity Portfolio*	-6.39%	-15.25%	-15.25%	9.15%	1.87%	6.99%	04/05/2005	
MSCI Emerging Markets® Index	-7.47%	-14.58%	-14.58%	9.25%	1.65%	6.69%		
Difference	1.08%	-0.67%	-0.67%	-0.10%	0.22%	0.30%		
DFA Large Cap International Portfolio*	-13.29%	-14.14%	-14.14%	3.55%	0.44%	5.18%	07/17/1991	
MSCI World Ex US Index	-12.78%	-14.09%	-14.09%	3.11%	0.34%	5.25%		
Difference	-0.51%	-0.05%	-0.05%	0.44%	0.10%	-0.07%		
METWEST FUNDS								
MetWest Total Return Bond Fund	1.49%	0.29%	0.29%	2.10%	2.52%	3.40%	07/01/1999	
Bloomberg Barclays U.S. Aggregate Bond Index	1.64%	0.01%	0.01%	2.06%	2.52%	2.43%		
Difference	-0.15%	0.28%	0.28%	0.04%	0.00%	0.97%		
PIMCO FUNDS								
PIMCO Income Fund	0.74%	0.58%	0.58%	5.89%	5.49%	8.26%	03/30/2007	
Barclays Capital U.S. Aggregate Bond Index	1.64%	0.01%	0.01%	2.06%	2.52%	3.86%		
Difference	-0.90%	0.57%	0.57%	3.83%	2.97%	4.40%		
PIMCO Real Return Fund	-0.93%	-1.97%	-1.97%	2.28%	1.48%	5.53%	01/29/1997	
Bloomberg Barclays U.S. TIPS Index	-0.42%	-1.26%	-1.26%	2.11%	1.69%	-		
Difference	-0.51%	-0.71%	-0.71%	0.17%	-0.21%	-		
T. ROWE PRICE FUNDS								
T. Rowe Price Instl Floating Rate Fund	-2.90%	0.38%	0.38%	4.00%	3.04%	4.81%	01/31/2008	
S&P/LSTA Performing Loan Index	-3.48%	0.60%	0.60%	5.01%	3.37%	5.01%		
Difference	0.58%	-0.22%	-0.22%	-1.01%	-0.33%	-0.20%		
T. Rowe Price Instl Large Cap Growth Fund	-12.85%	4.32%	4.32%	13.93%	12.10%	9.98%	10/31/2001	
Russell 1000 Growth Index	-15.89%	-1.51%	-1.51%	11.15%	10.41%	7.69%		
Difference	3.04%	5.83%	5.83%	2.78%	1.69%	2.29%		
T. Rowe Price Instl Large Cap Value Fund	-12.17%	-9.35%	-9.35%	7.16%	6.13%	7.52%	3/31/2000	
Russell 1000 Value Index	-11.72%	-8.27%	-8.27%	6.95%	5.95%	6.15%		
Difference	-0.45%	-1.08%	-1.08%	0.21%	0.18%	1.37%		

* For funds holding securities traded on foreign exchange that close before the U.S. market, fair value pricing creates tracking error relative to a benchmark index that uses foreign closing prices.



TIAA-CREF Tuition Financing, Inc.

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2018

SCHOLARSHARE COLLEGE SAVINGS PLAN
INVESTMENT PERFORMANCE STATUS REPORT



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AGENDA

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TAKEAWAYS

- All actively-managed and passively-managed age-based portfolios posted negative absolute results for the quarter primarily due to negative returns in public equities. Actively-managed portfolios in the early age bands outperformed their passive counterparts, while portfolios in the mid and latter age-bands tracked or underperformed their passively-managed equivalents.
- The rampant volatility of October and December culminated in a historically poor quarter for global equity markets.
- US equities performed poorly over the quarter, generating double digit negative returns across market capitalization and style. Value outperformed growth stocks across market capitalizations and large cap stocks provided the strongest returns across styles. The T. Rowe Price Large Cap Growth fund was the best benchmark relative performer overall for the period.
- International equities also provided negative absolute results for the quarter. For the period, the DFA Emerging Markets Core Equity fund outperformed its benchmark but gains were partially offset by the DFA Large Cap International fund which posted the weakest benchmark relative results of the Program's equity funds.
- Fixed income posted null to modestly positive results for the quarter, with the exception of high yield which ended the period in negative territory. Coinciding with severe equity market declines in December was the strong performance of US Treasury bonds. The T-C High Yield Bond fund was the weakest performer from an absolute and benchmark relative perspective.

SECTION 1

ECONOMIC OVERVIEW

Overview: Real U.S. GDP increased by 3.4% (third estimate) in the third quarter of 2018. GDP growth was driven by increases in personal consumption expenditures, private inventory investments, government spending, and nonresidential fixed investment, while a decrease in exports and residential fixed investments detracted from GDP growth over the quarter. At quarter-end, the unemployment rate increased to 3.9%. The seasonally adjusted Consumer Price Index for All Urban Consumers increased by 1.2% on an annualized basis during the quarter. Commodities fell during the second quarter, and the 1-year return for a basket of commodities was negative at -11.2%. Global equity returns were negative for the quarter at -12.7% (MSCI ACWI). The U.S. Dollar appreciated against the Euro and Pound by 1.2% and 2.1%, respectively. The Dollar depreciated against the Yen by 3.5%.

Economic Growth

- Real GDP increased at an annualized rate of 3.4 percent in the third quarter of 2018.
- Real GDP growth was driven by increases in personal consumption expenditures, private inventory investments, government spending, and nonresidential fixed investment.
- GDP growth was partially offset during the quarter by a decrease in exports and residential fixed investments.

Annualized Quarterly GDP Growth



Inflation

- The Consumer Price Index for All Urban Consumers (CPI-U) increased by 1.2 percent during the fourth quarter on an annualized basis after seasonal adjustment.
- Quarterly percentage changes may be adjusted between data publications due to periodic updates in seasonal factors.
- Core CPI-U increased by 2.5 percent for the quarter on an annualized basis after seasonal adjustment.
- Over the last 12 months, core CPI-U increased by 2.2 percent after seasonal adjustment.

CPI-U After Seasonal Adjustment



Unemployment

- The U.S. economy gained approximately 762,000 jobs in the fourth quarter of 2018.
- The unemployment rate increased to 3.9% at quarter-end.
- The majority of jobs gained occurred in education and health services, professional and business services, and leisure and hospitality. No sectors suffered from job loss, however, information and utilities had the lowest job growth over the quarter.

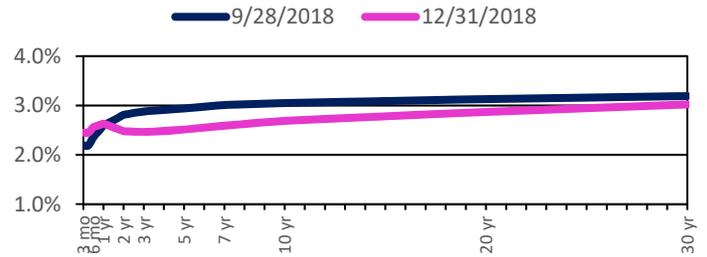
Unemployment Rate



Interest Rates & U.S. Dollar

- Certain parts of the yield curve slightly inverted over the quarter with shorter yields rising while intermediate and long-term yields decreased over the quarter.
- On December 19th, the Federal Reserve raised the federal funds rate for the third time in 2018. The current target is between 2.25 and 2.50 percent.
- The U.S. Dollar appreciated against the Euro and Pound by 1.2% and 2.1%, respectively, but depreciated against the Yen by 3.5%.

Treasury Yield Curve Changes

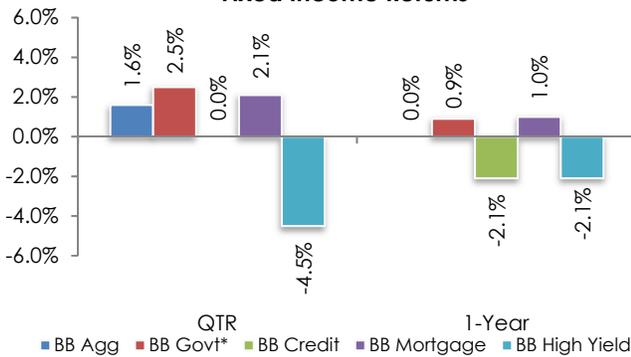


Source: US Treasury Department

Fixed Income

- Investment Grade bonds performed well over the quarter. High Yield provided relatively weak performance as they were down -4.5% for the quarter while Government bonds provided the strongest returns during the period with a return of 2.5%.
- Over the trailing 1-year period, High Yield and Credit lagged all other sectors with a -2.1% return. Conversely, Mortgages provided the strongest return over the 1-year period with 1.0%.

Fixed Income Returns



*U.S. Treasuries and Agencies

US Fixed Income Sector Performance (BB Aggregate Index)

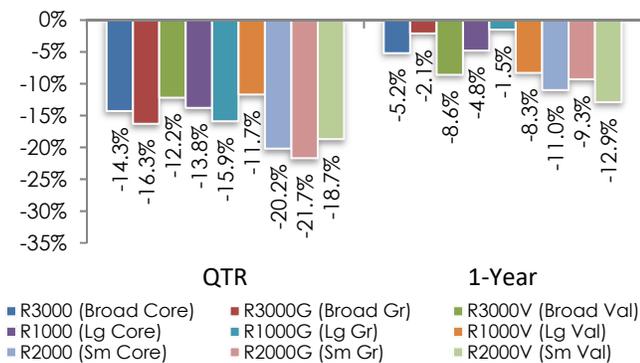
Sector	Weight	QTR	1 Year
Governments*	42.2%	2.4%	0.8%
Agencies	2.8%	1.2%	0.3%
Inv. Grade Credit	24.3%	-0.2%	-2.5%
MBS	28.2%	2.1%	1.0%
ABS	0.5%	1.2%	1.8%
CMBS	2.0%	1.7%	0.8%

*U.S. Treasuries and Government Related

U.S. Equities

- U.S. equities performed poorly over the quarter as they provided double digit negative returns across market capitalization and style. Value outperformed growth stocks across market capitalizations. In terms of market capitalization, large cap stocks provided the strongest returns across styles. Large cap value stocks returned this quarter's strongest return at -11.7%, and small cap growth stocks provided the weakest result at -21.7%.
- During the trailing 1-year period, U.S. equities produced negative returns. Large cap growth stocks were the top performer, returning -1.5%. Conversely, small cap value trailed all other market caps and styles with a return of -12.9%.

U.S. Equity Returns

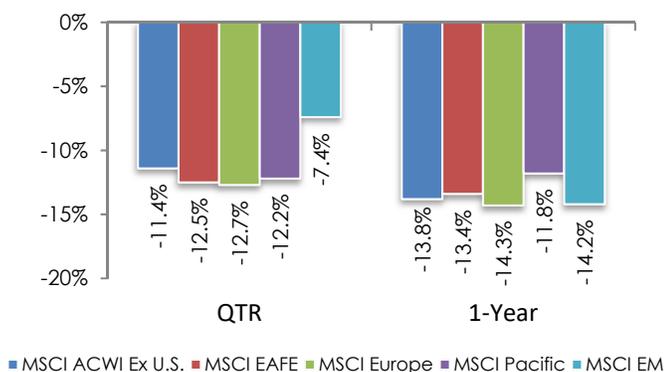


U.S. Equity Sector Performance (Russell 3000 Index)			
Sector	Weight	QTR	1 Year
Information Tech.	19.8%	-17.4%	3.2%
Health Care	15.1%	-10.9%	-12.8%
Financials	14.2%	-13.5%	5.2%
Consumer Disc.	10.2%	-16.4%	-14.2%
Industrials	10.1%	-18.1%	-1.0%
Comm. Services	8.9%	-13.3%	-6.2%
Consumer Staples	6.6%	-5.6%	-8.3%
Energy	5.2%	-25.8%	-19.7%
Real Estate	3.8%	-6.3%	-4.5%
Utilities	3.1%	0.8%	-17.0%
Materials	3.0%	-14.9%	4.4%

International Equities

- International equities provided negative returns across the board in the fourth quarter. Europe modestly trailed all other regions with a return of -12.7%.
- Over the trailing 1-year period, the Pacific led all other regions with a return of -11.8%, while Europe slightly trailed all other regions with a -14.3% return.

International Equity Returns (GD in USD)



International Equity Region Performance (GD in USD) (MSCI ACWI ex U.S.)			
Sector	Weight	QTR	1 Year
Europe Ex. UK	30.7%	-13.0%	-14.4%
Emerging Markets	26.0%	-7.4%	-14.2%
Japan	16.6%	-14.2%	-12.6%
United Kingdom	11.4%	-11.8%	-14.1%
Pacific Ex. Japan	8.4%	-7.9%	-10.2%
Canada	6.5%	-15.1%	-16.6%

Market Summary – Multi-term Performance*

Indexes	Month	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Global Equity							
MSCI AC World Index	-7.0%	-12.7%	-8.9%	7.2%	4.8%	10.0%	5.0%
Domestic Equity							
S&P 500	-9.0%	-13.5%	-4.4%	9.3%	8.5%	13.1%	5.6%
Russell 3000	-9.3%	-14.3%	-5.2%	9.0%	7.9%	13.2%	6.0%
Russell 3000 Growth	-8.8%	-16.3%	-2.1%	10.9%	10.0%	15.2%	5.1%
Russell 3000 Value	-9.8%	-12.2%	-8.6%	7.0%	5.8%	11.1%	6.3%
Russell 1000	-9.1%	-13.8%	-4.8%	9.1%	8.2%	13.3%	5.9%
Russell 1000 Growth	-8.6%	-15.9%	-1.5%	11.1%	10.4%	15.3%	5.1%
Russell 1000 Value	-9.6%	-11.7%	-8.3%	7.0%	5.9%	11.2%	6.2%
Russell 2000	-11.9%	-20.2%	-11.0%	7.4%	4.4%	12.0%	7.4%
Russell 2000 Growth	-11.7%	-21.7%	-9.3%	7.2%	5.1%	13.5%	6.1%
Russell 2000 Value	-12.1%	-18.7%	-12.9%	7.4%	3.6%	10.4%	8.2%
Russell Microcap	-12.1%	-22.1%	-13.1%	5.8%	3.1%	11.7%	---
Alerian MLP Index	-9.4%	-17.3%	-12.4%	-1.1%	-7.3%	9.6%	---
CBOE BXM Index	-7.7%	-10.8%	-4.8%	4.8%	5.1%	8.0%	5.0%
International Equity							
MSCI AC World Index ex USA	-4.5%	-11.4%	-13.8%	5.0%	1.1%	7.1%	4.6%
MSCI EAFE	-4.8%	-12.5%	-13.4%	3.4%	1.0%	6.8%	4.0%
MSCI Europe	-4.6%	-12.7%	-14.3%	2.7%	0.0%	6.8%	3.7%
MSCI Pacific	-5.1%	-12.2%	-11.8%	4.8%	3.0%	7.0%	4.5%
MSCI EM (Emerging Markets)	-2.6%	-7.4%	-14.2%	9.7%	2.0%	8.4%	8.8%
Fixed Income							
BB Universal	1.6%	1.2%	-0.3%	2.6%	2.7%	4.1%	4.8%
Global Agg. - Hedged	1.4%	1.7%	1.8%	2.9%	3.4%	3.8%	4.6%
BB Aggregate Bond	1.8%	1.6%	0.0%	2.1%	2.5%	3.5%	4.5%
BB Government	2.1%	2.5%	0.9%	1.4%	2.0%	2.1%	4.1%
BB Credit Bond	1.5%	0.0%	-2.1%	3.2%	3.2%	5.5%	5.2%
BB Mortgage Backed Securities	1.8%	2.1%	1.0%	1.7%	2.5%	3.1%	4.6%
BB High Yield	-2.1%	-4.5%	-2.1%	7.2%	3.8%	11.1%	6.6%
BCBWGIL All Maturities - Hedged	1.2%	0.5%	0.1%	4.5%	4.2%	4.6%	---
Emerging Markets Debt	1.4%	-0.2%	-2.5%	5.1%	4.2%	8.5%	9.0%
Real Estate							
NCREIF	0.6%	1.8%	8.4%	8.2%	10.4%	7.0%	8.6%
FTSE NAREIT All Equity Index	-7.7%	-6.1%	-4.1%	4.6%	8.3%	12.4%	9.6%
Commodity Index							
Bloomberg Commodity Index	-6.9%	-9.4%	-11.2%	0.3%	-8.8%	-3.8%	1.8%

* Performance is annualized for periods greater than one year.

Annual Asset Class Performance

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Best ↑	26.0	34.5	32.6	39.8	36.3	79.0	35.9	29.9	18.6	33.6	27.4	15.2	18.3	37.8	8.3
	20.7	20.2	28.0	16.1	24.0	76.4	19.2	16.0	17.9	27.6	25.1	4.4	17.5	25.6	0.0
	16.7	14.0	26.9	12.7	5.2	57.5	16.9	13.9	16.8	23.4	12.6	0.5	12.7	24.6	-1.3
	15.8	11.4	26.1	12.5	-2.4	35.4	16.1	13.6	16.4	23.3	12.3	0.5	11.6	21.1	-1.8
	12.6	8.1	21.5	12.2	-10.4	32.5	15.2	7.8	15.6	13.3	6.0	-0.4	9.3	8.5	-2.3
	11.9	6.5	16.1	11.6	-26.4	28.3	13.2	4.4	11.0	12.8	4.8	-1.2	8.5	7.8	-5.2
	10.9	6.3	15.7	11.6	-36.9	11.4	9.4	1.0	7.0	7.4	4.7	-1.4	5.1	7.5	-8.9
	8.5	6.1	11.8	9.8	-37.3	5.9	8.2	-6.9	4.8	-2.0	3.6	-1.8	4.7	3.5	-10.0
	7.7	2.8	4.3	7.0	-41.8	1.5	8.2	-8.7	4.2	-2.3	2.5	-4.6	2.6	3.0	-12.4
	5.2	2.7	1.8	5.1	-43.1	-12.9	6.5	-11.7	3.6	-8.6	-1.8	-14.6	1.5	-4.5	-13.4
↓ Worst	4.3	2.4	0.5	2.2	-53.2	-30.7	6.3	-18.2	-14.3	-12.7	-4.5	-32.6	1.3	-6.5	-14.2

MSCI ACWI	Russell 3000 Index	Alerian MLP Index	MSCI EAFE Index	MSCI Emerging Markets	BB Agg	ICE BofAML High Yield	BB Long Treasury	BB TIPS Index	CS MF 18% Vol Index	NCREIF ODCE
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SECTION 2

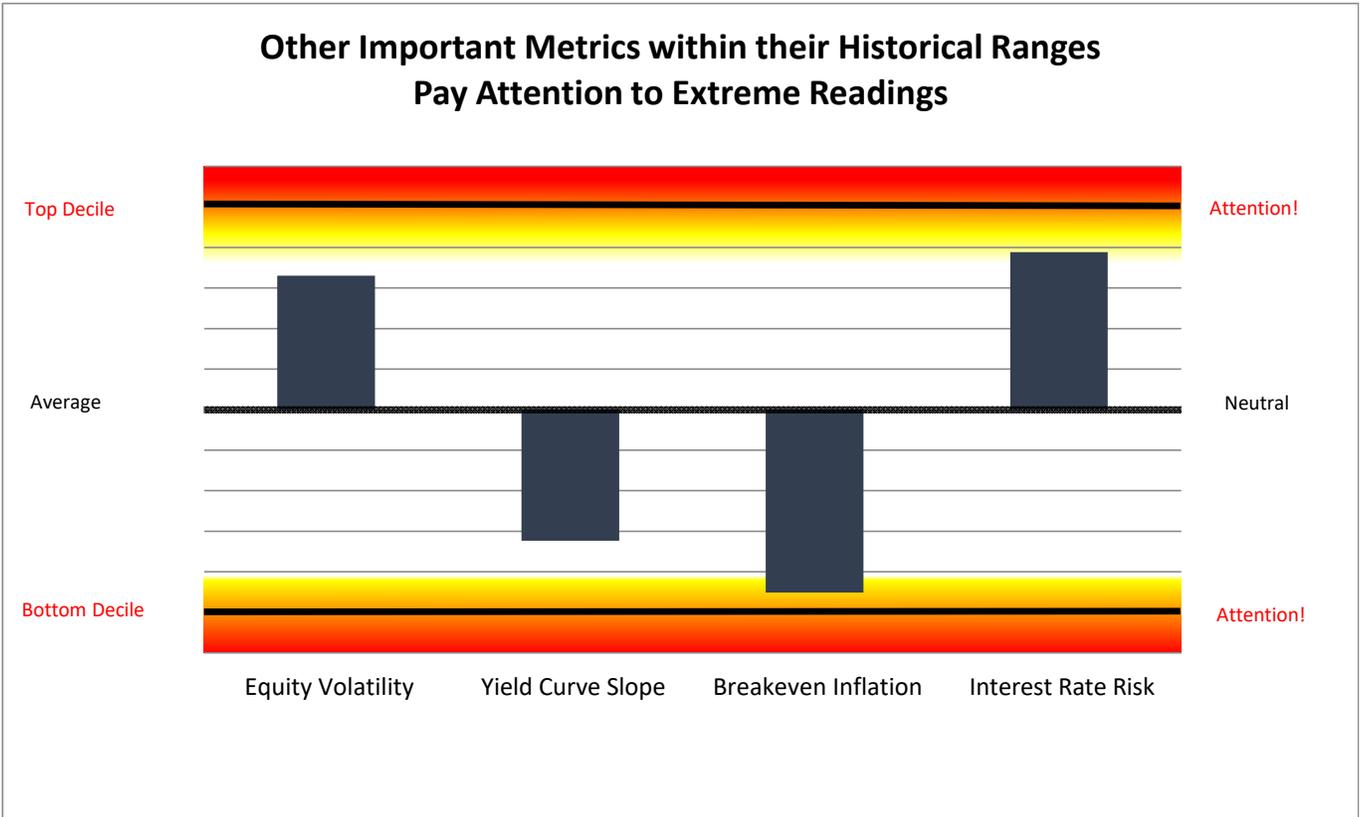
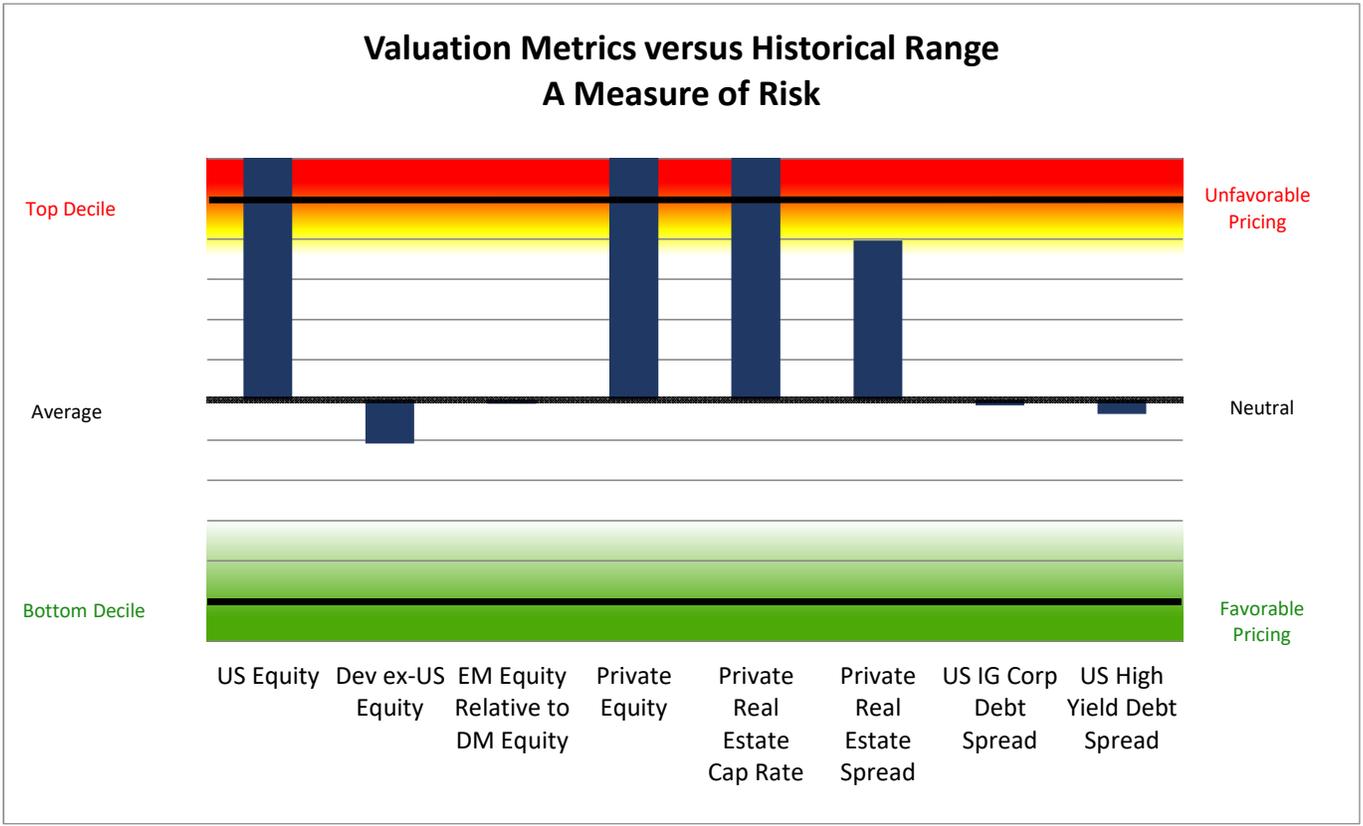
INVESTMENT MARKET RISK METRICS

Takeaways

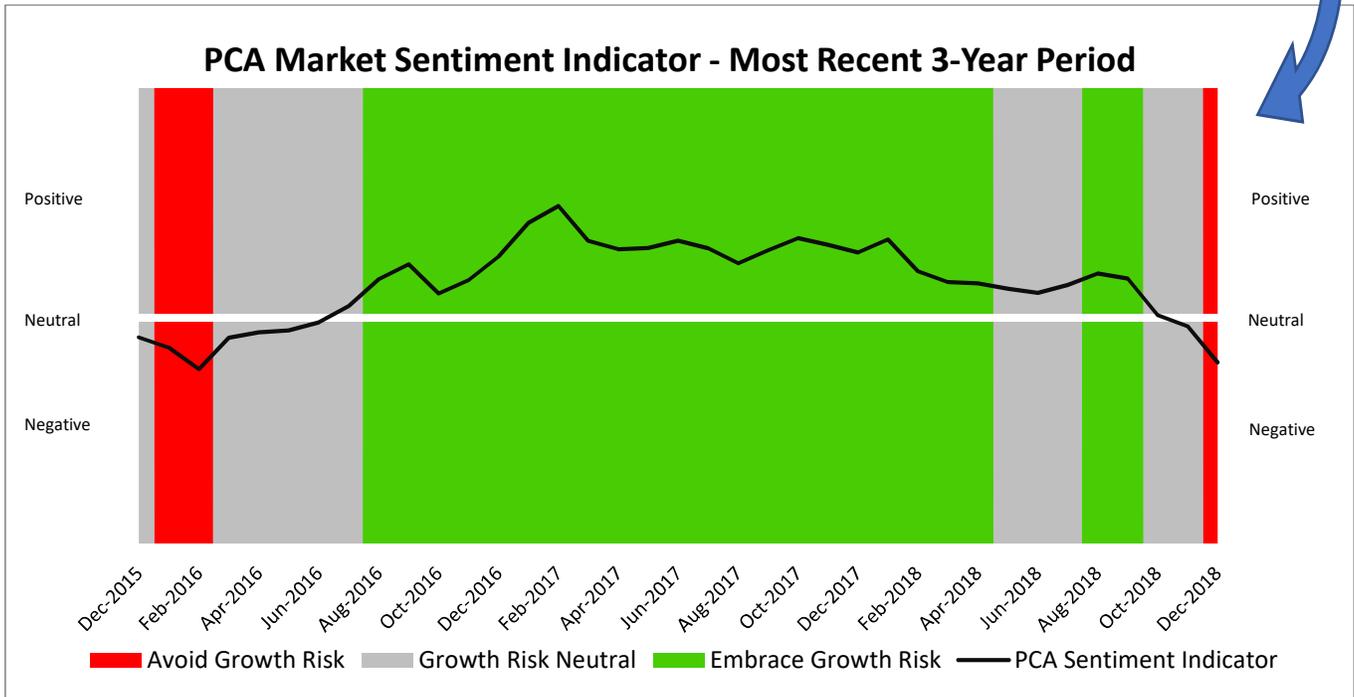
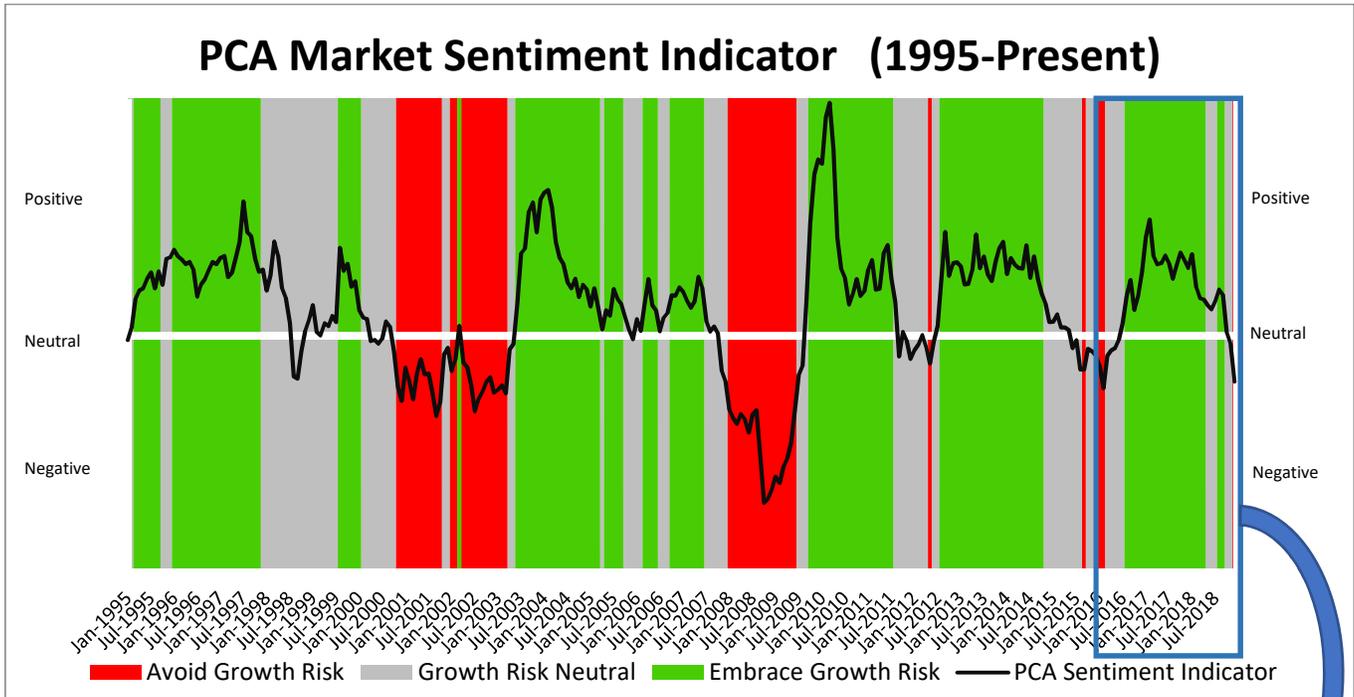
- December completed what proved to be a challenging year for nearly all risk-based assets. While calendar year returns for most markets were well within expectations (albeit negative), the rampant volatility of October and December culminated in a historically poor quarter for global equity markets.
- Despite recent market declines, U.S. Equity markets remain expensive whereas non-U.S. markets remain reasonably valued.
- U.S. Credit spreads have widened to historical average levels.
- Coinciding with severe equity market declines in December was the strong performance of U.S. Treasury bonds. As a result of this activity, duration risk has increased and the yield curve has continued to flatten.
- Risk assets have entered a higher risk regime that appears to be gaining traction. Implied equity market volatility (i.e., VIX) spent the majority of December above its long-term average level of 19.3, including spending several days above 30 near month-end.
- PCA's Market Sentiment Indicator flipped to negative (**red**) as a result of negative one-year returns in equity markets and corporate bond spreads.
- **Economies and markets appear to be in transition.** Diverging global economic growth, diverging global monetary policy, and ongoing geopolitical turmoil has resulted in a high degree of uncertainty in the global capital markets.

¹See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

Risk Overview



Market Sentiment



Information Behind Current Sentiment Reading

Bond Spread Momentum Trailing-Twelve Months
 Equity Return Momentum Trailing-Twelve Months
 Agreement Between Bond Spread and Equity Spread Momentum Measures?

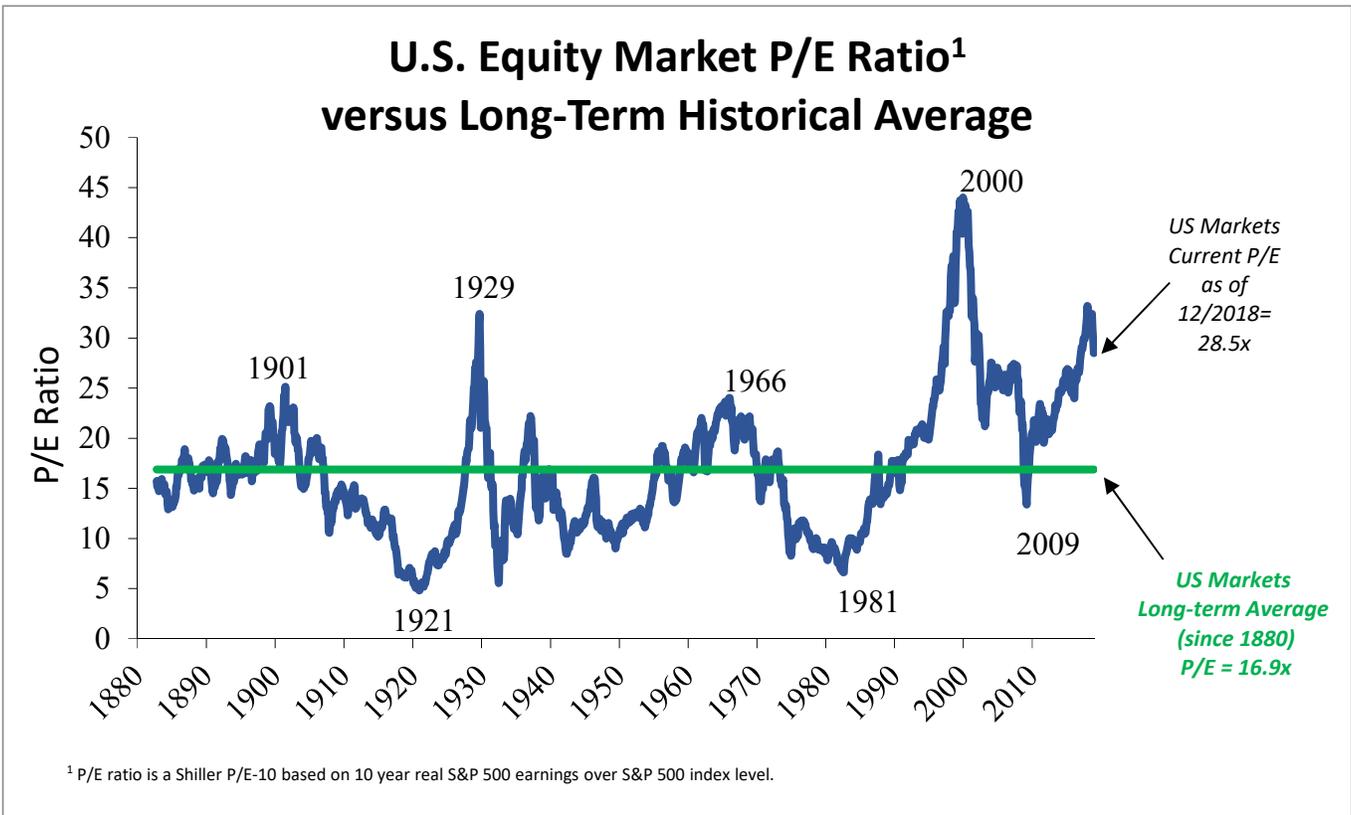
Negative	
Negative	
Agree	

Growth Risk Visibility (Current Overall Sentiment)

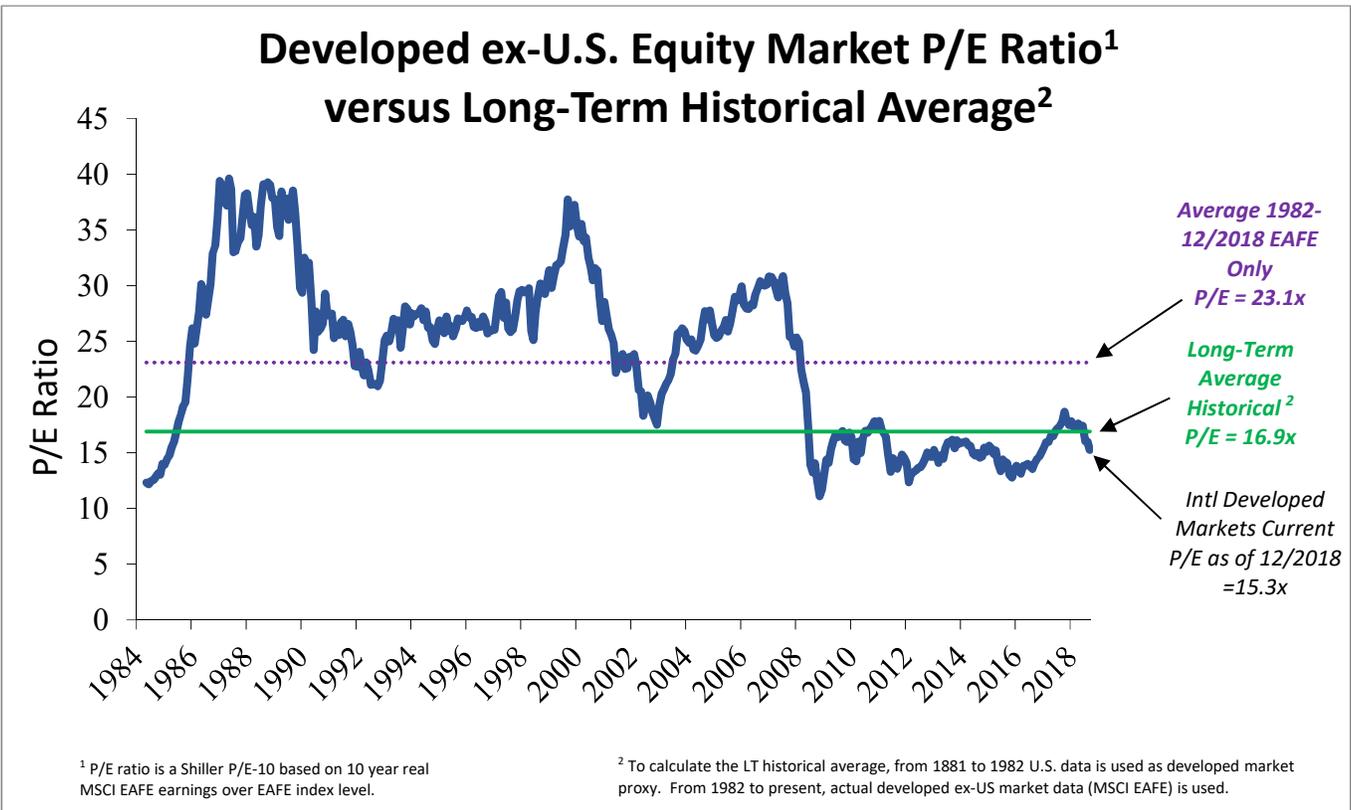
Negative	
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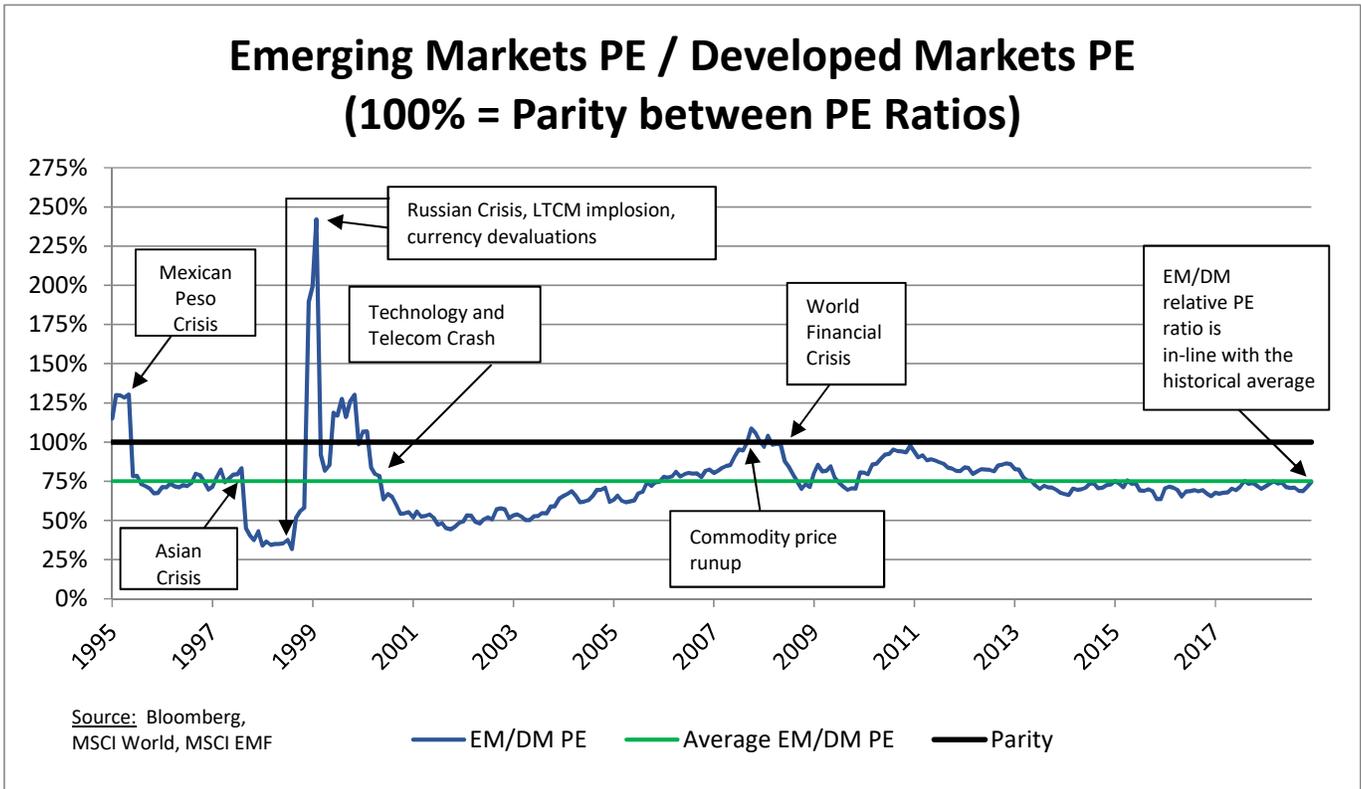
Developed Public Equity Markets



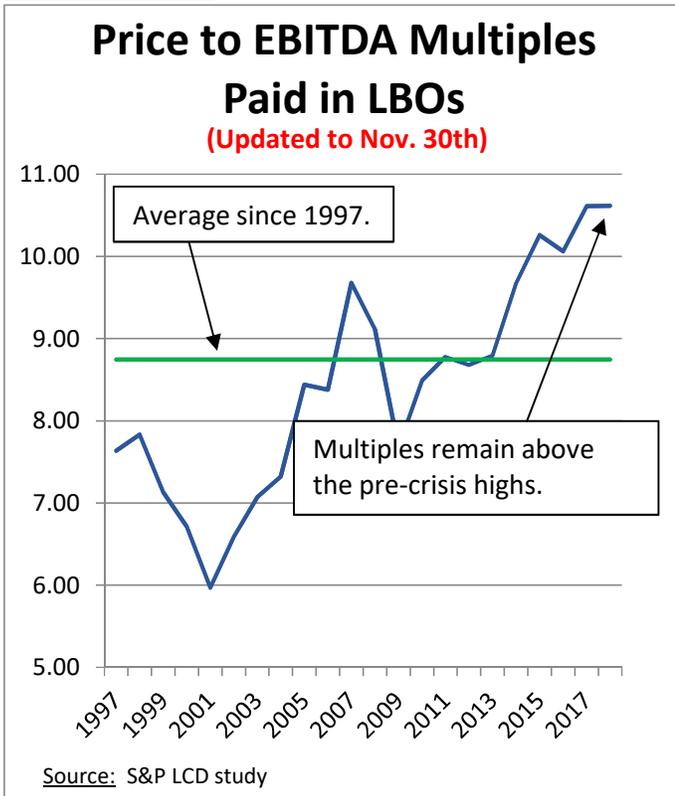
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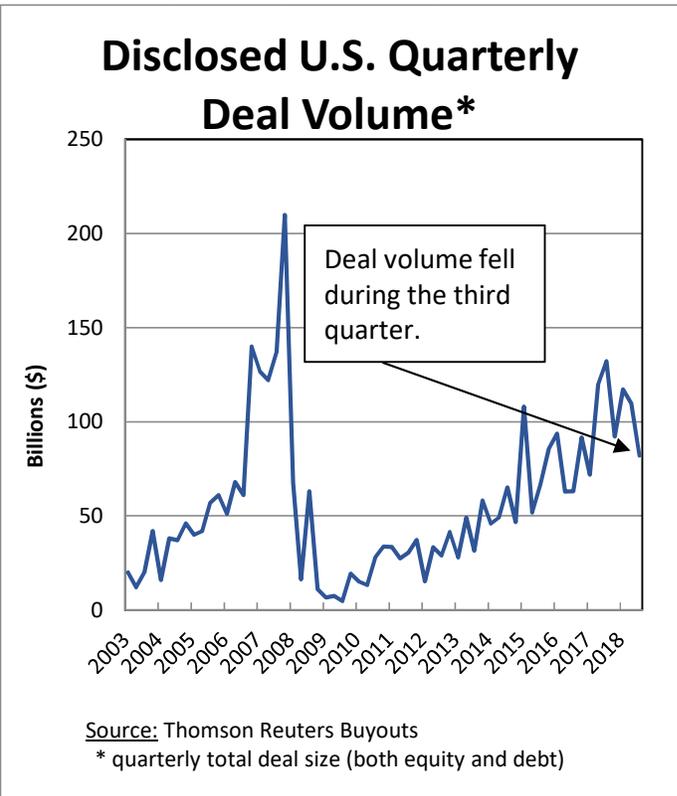
Emerging Market Public Equity Markets



US Private Equity

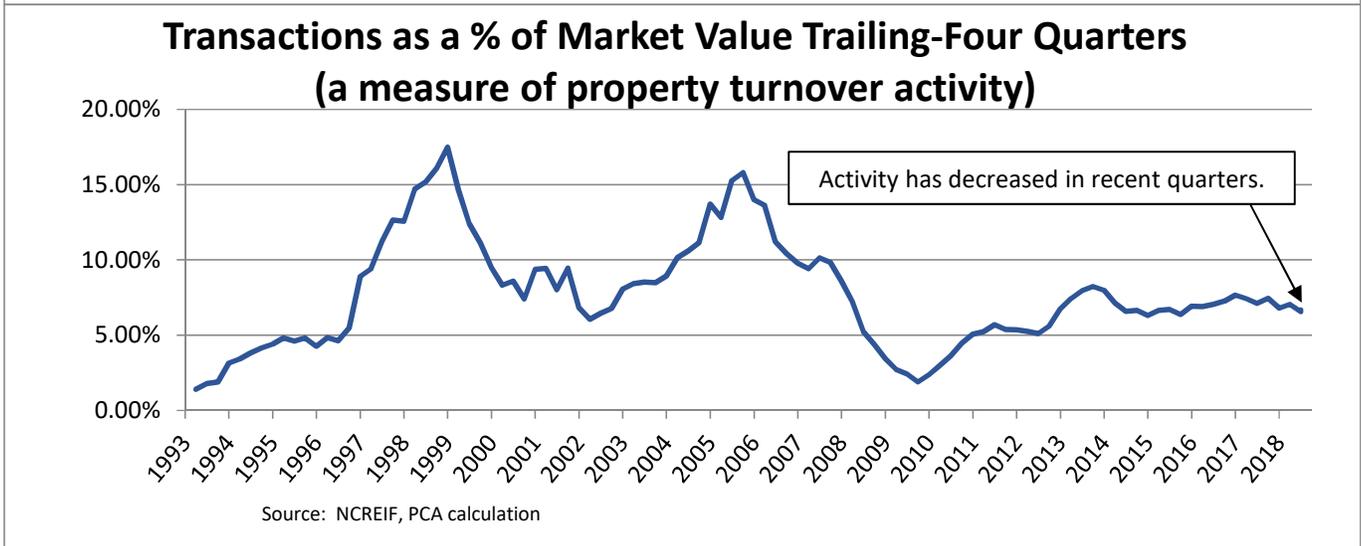
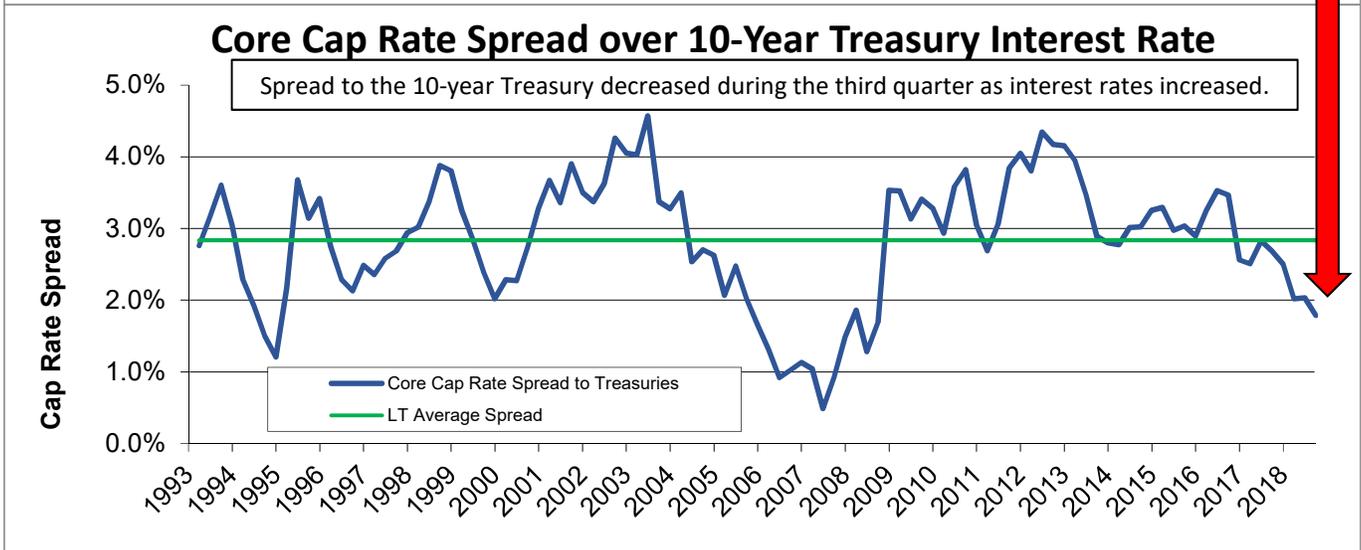
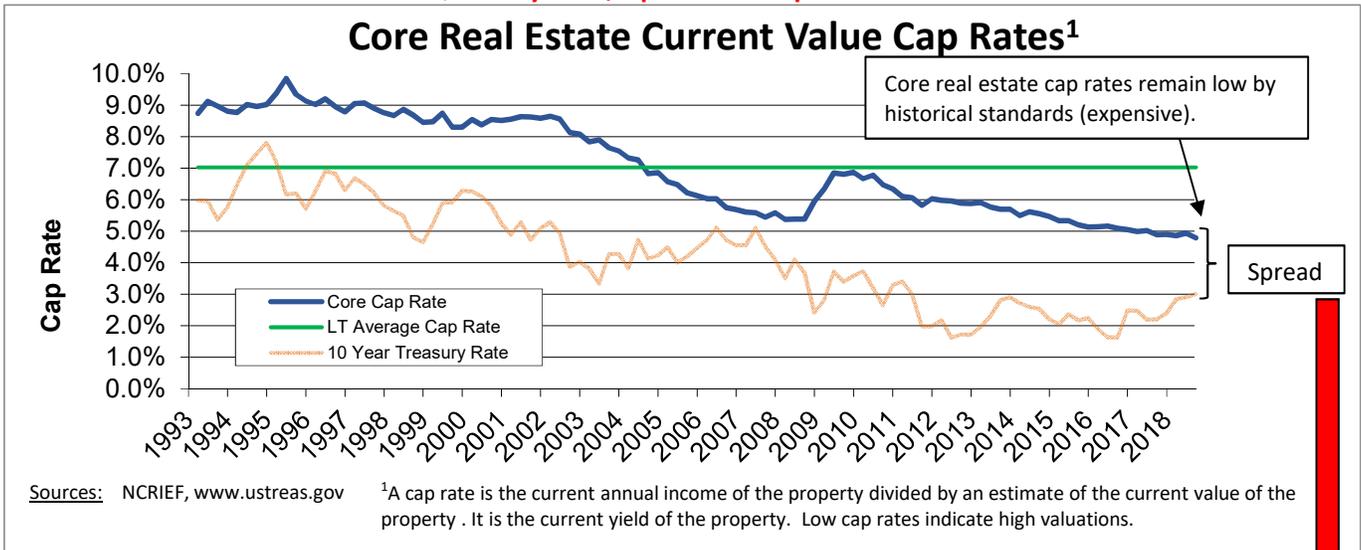


Quarterly Data, Updated to September 30th



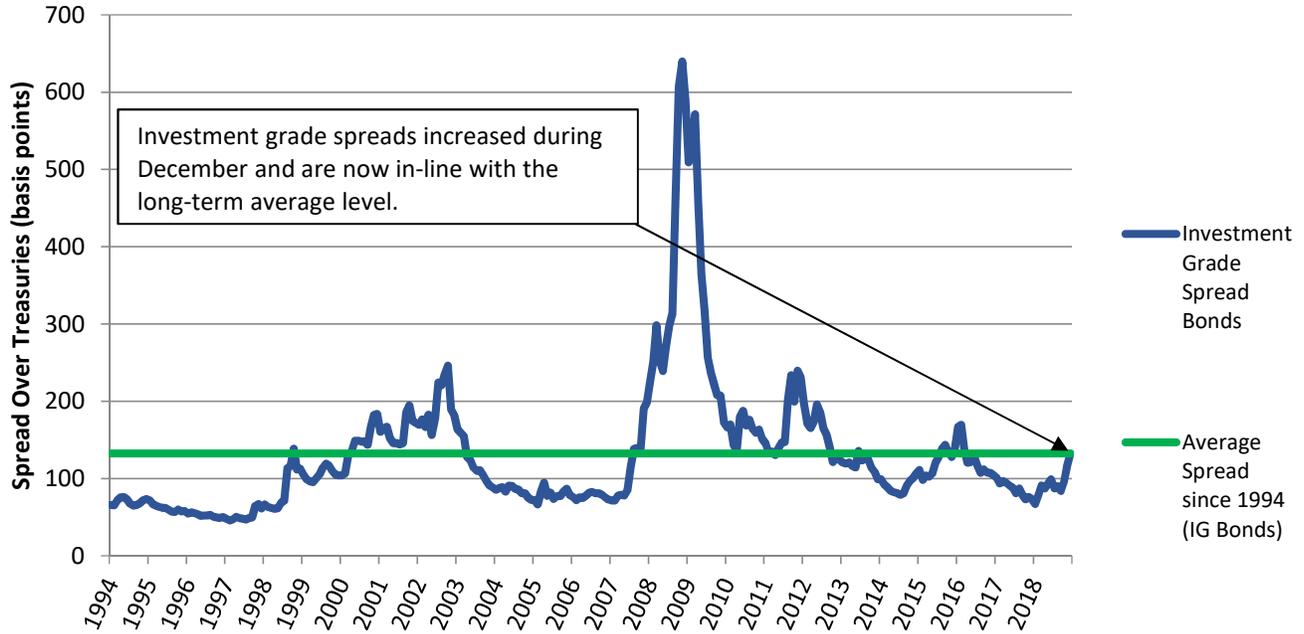
Private Real Estate

Quarterly Data, Updated to September 30th.



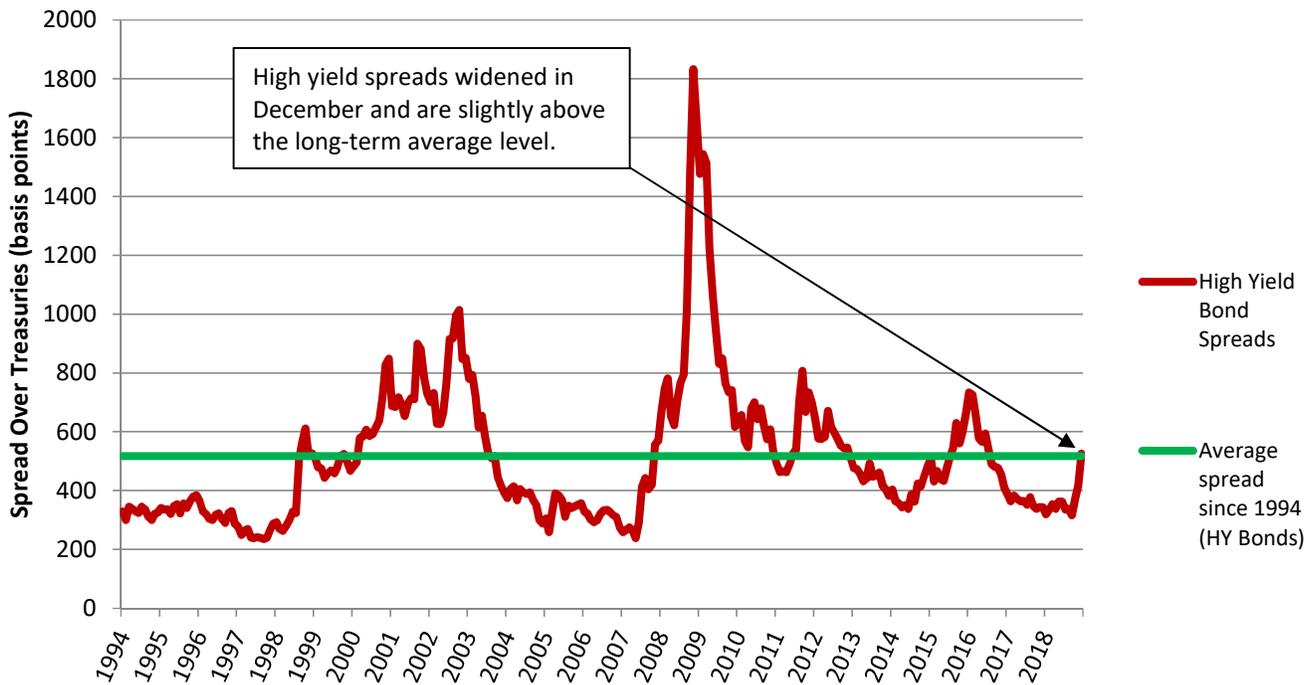
Credit Market US Fixed Income

Investment Grade Corporate Bond Spreads



Source: LehmanLive: Barclays Capital US Corporate Investment Grade Index Intermediate Component.

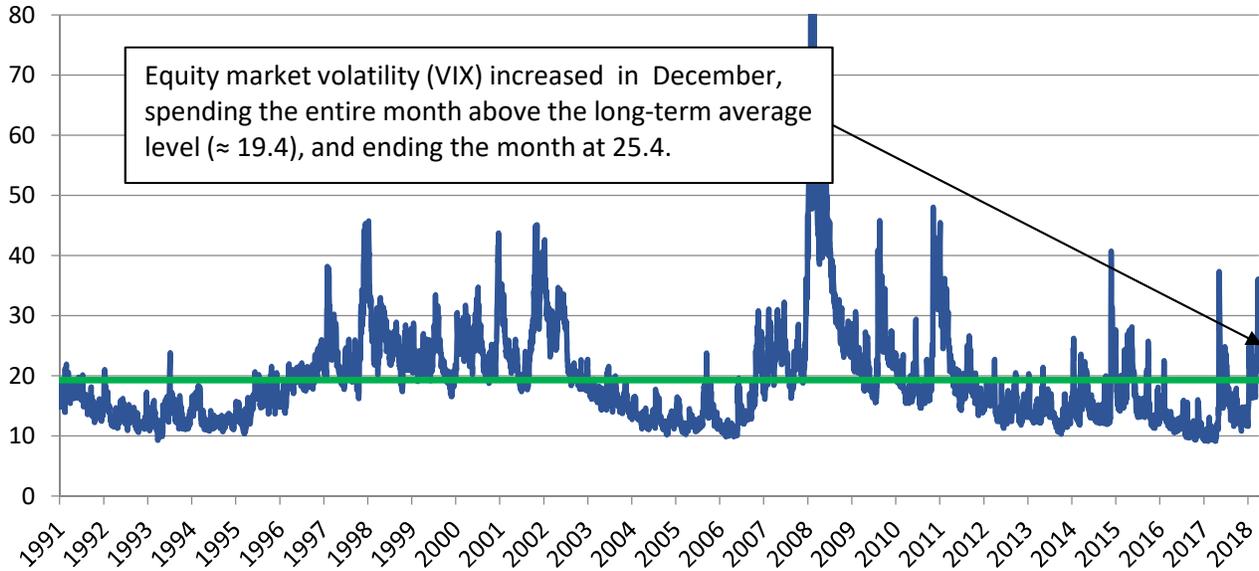
High Yield Corporate Bond Spreads



Source: LehmanLive: Barclays Capital U.S. Corporate High Yield Index.

Other Market Metrics

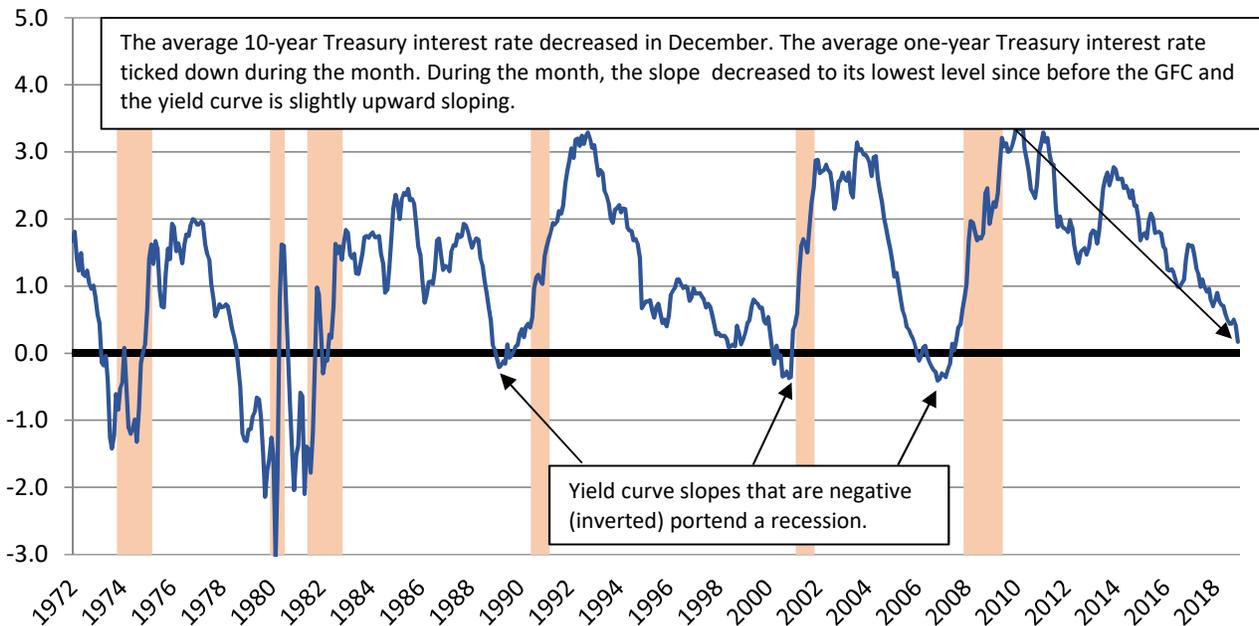
VIX - a measure of equity market fear / uncertainty



Source: <http://www.cboe.com/micro/vix/historical.aspx>

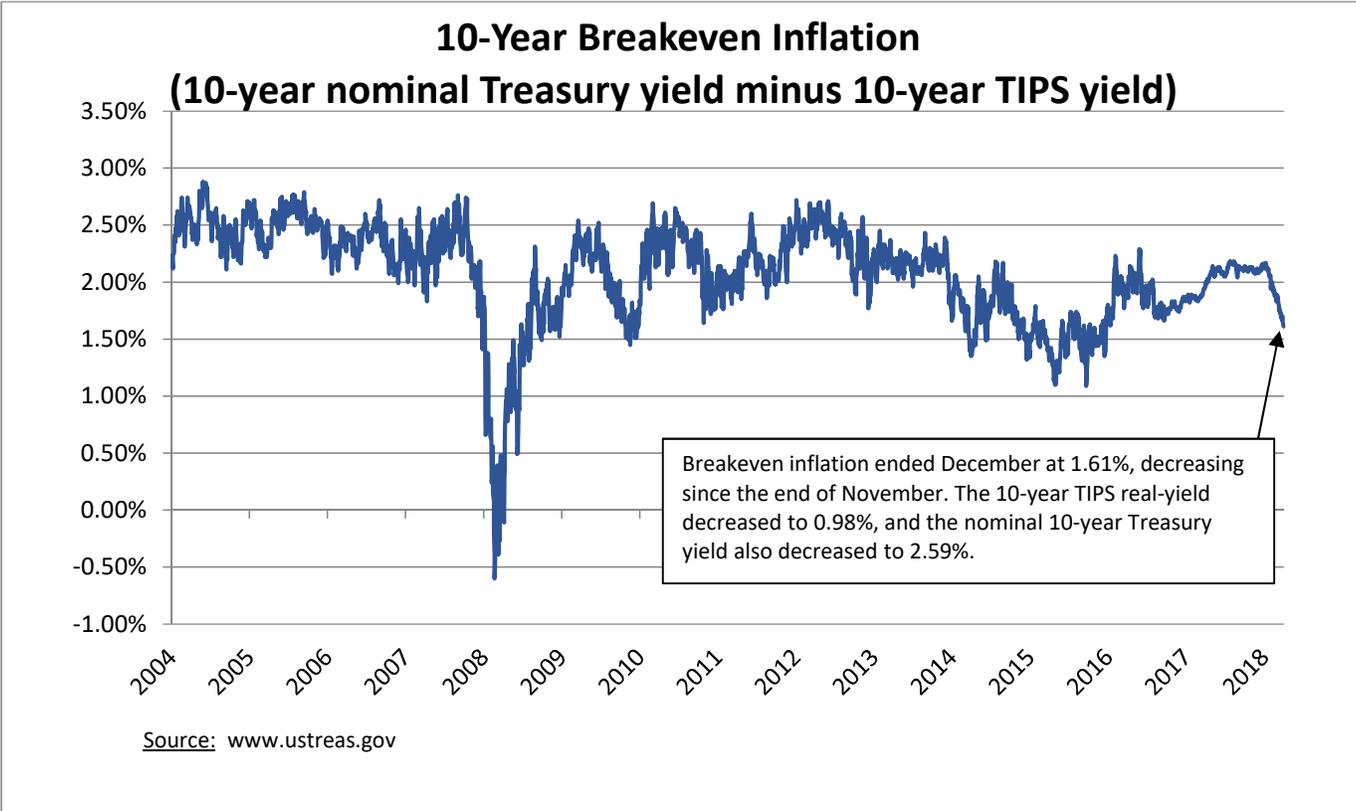
(Please note the difference in time scales)

Yield Curve Slope

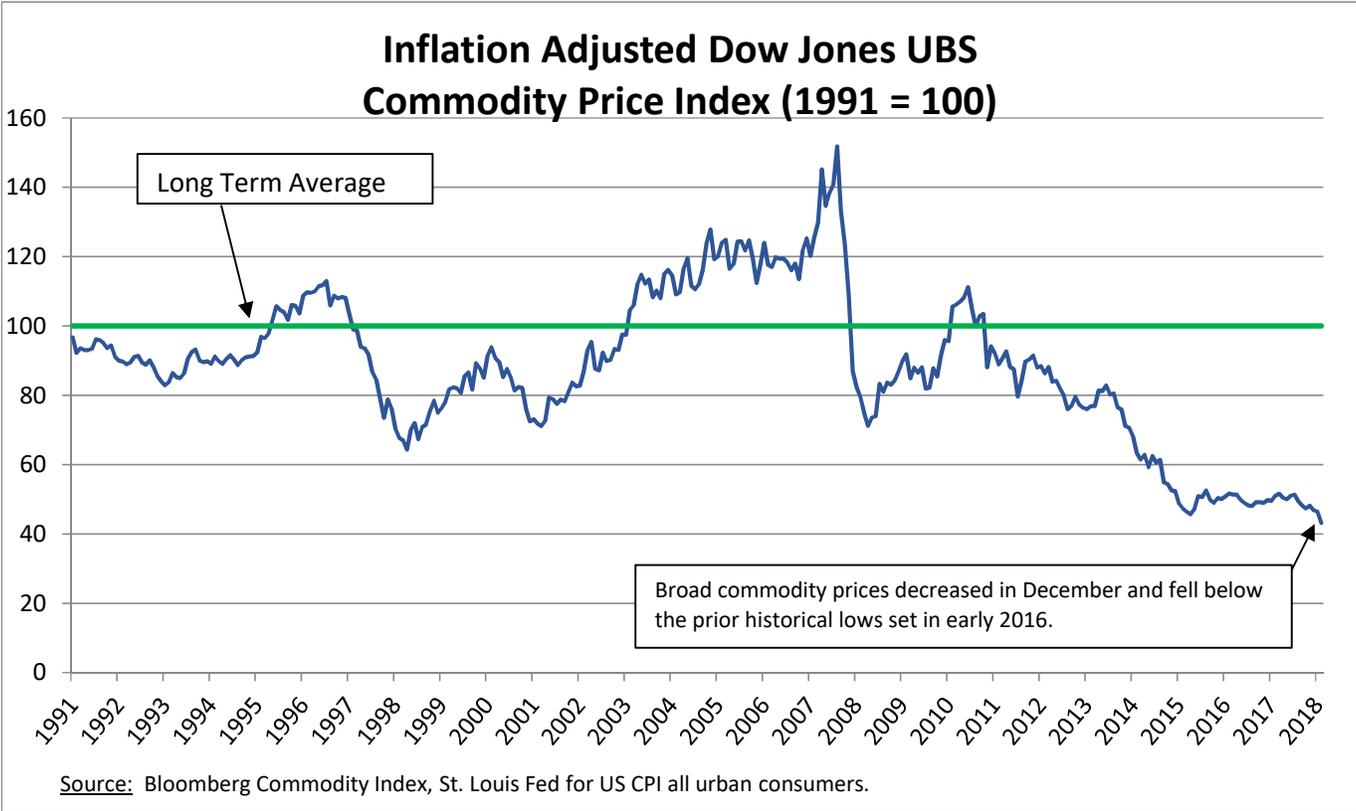


Source: www.ustreas.gov (10 yr treasury yield minus 1 year treasury yield)

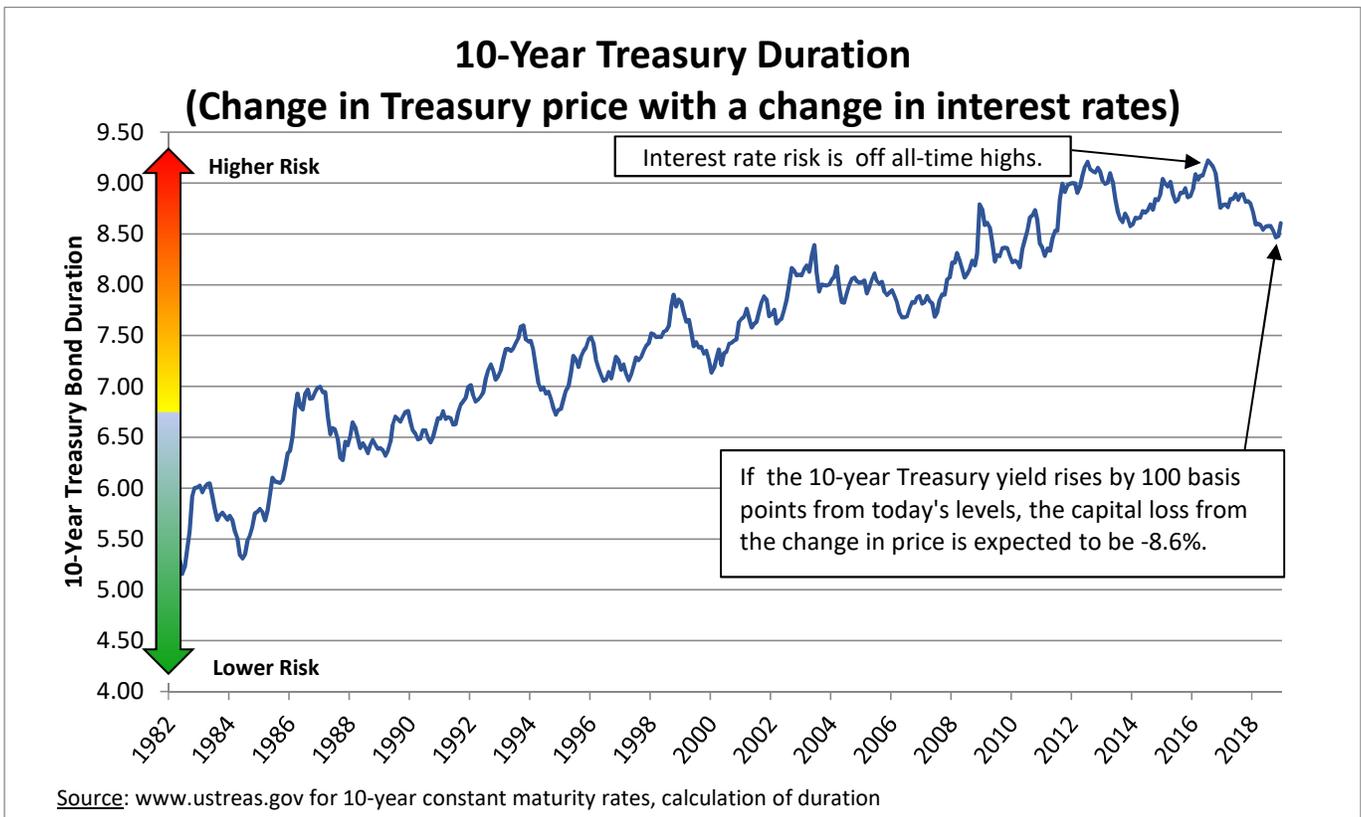
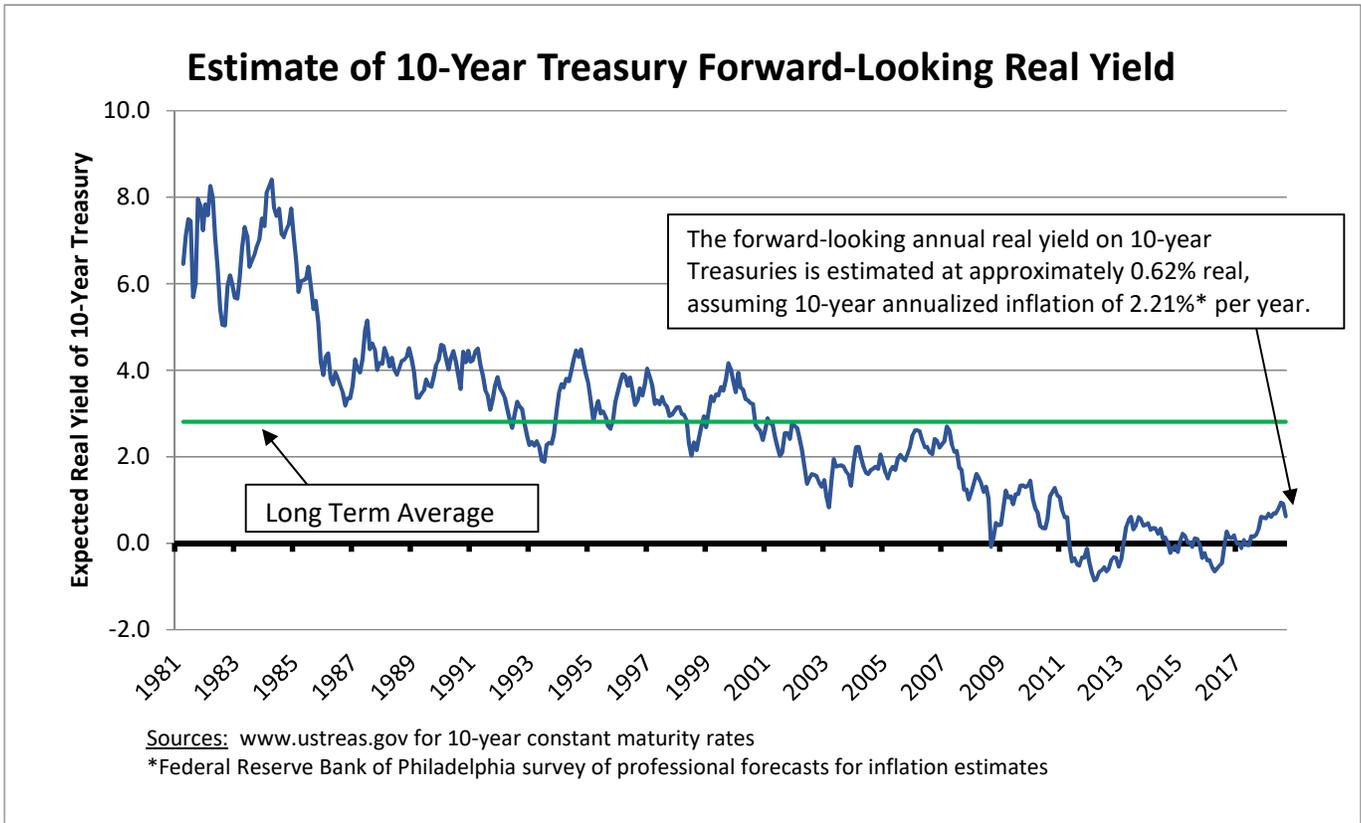
Measures of Inflation Expectations



(Please note the difference in time scales)



Measures of U.S. Treasury Interest Rate Risk



Appendix

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

US Equity Markets:

Metric: P/E ratio = Price / "Normalized" earnings for the S&P 500 Index

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published quarterly earnings. The price= P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the S&P 500 index). Equity markets are very volatile. Prices fluctuate significantly during normal times and extremely during periods of market stress or euphoria. Therefore, developing a measure of earnings power (E) which is stable is vitally important, if the measure is to provide insight. While equity prices can and do double, or get cut in half, real earnings power does not change nearly as much. Therefore, we have selected a well known measure of real, stable earnings power developed by Yale Professor Robert Shiller known as the Shiller E-10. The calculation of E-10 is simply the average real annual earnings over the past 10 years. Over 10 years, the earnings shenanigans and boom and bust levels of earnings tend to even out (and often times get restated). Therefore, this earnings statistic gives a reasonably stable, slow-to-change estimate of average real earnings power for the index. Professor Shiller's data and calculation of the E-10 are available on his website at <http://www.econ.yale.edu/~shiller/data.htm>. We have used his data as the base for our calculations. Details of the theoretical justification behind the measure can be found in his book *Irrational Exuberance* [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005].

Developed Equity Markets Excluding the US:

Metric: P/E ratio = Price / "Normalized" earnings for the MSCI EAFE Index

To represent the price of non-US developed equity markets, we have chosen the MSCI EAFE index. This index has the longest published history of price for non-US developed equities. The price= P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the MSCI EAFE index). The price level of this index is available starting in December 1969. Again, for the reasons described above, we elected to use the Shiller E-10 as our measure of earnings (E). Since 12/1972, a monthly price earnings ratio is available from MSCI. Using this quoted ratio, we have backed out the implied trailing-twelve month earnings of the EAFE index for each month from 12/1972 to the present. These annualized earnings are then inflation adjusted using CPI-U to represent real earnings in US dollar terms for each time period. The Shiller E-10 for the EAFE index (10 year average real earnings) is calculated in the same manner as detailed above.

However, we do not believe that the pricing and earnings history of the EAFE markets are long enough to be a reliable representation of pricing history for developed market equities outside of the US. Therefore, in constructing the Long-Term Average Historical P/E for developed ex-US equities for comparison purposes, we have elected to use the US equity market as a developed market proxy, from 1881 to 1982. This lowers the Long-Term Average Historical P/E considerably. We believe this methodology provides a more realistic historical comparison for a market with a relatively short history.

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

Emerging Market Equity Markets:

Metric: Ratio of Emerging Market P/E Ratio to Developed Market P/E Ratio

To represent the Emerging Markets P/E Ratio, we have chosen the MSCI Emerging Market Free Index, which has P/E data back to January 1995 on Bloomberg. To represent the Developed Markets PE Ratio, we have chosen the MSCI World Index, which also has data back to January 1995 on Bloomberg. Although there are issues with published, single time period P/E ratios, in which the denominator effect can cause large movements, we feel that the information contained in such movements will alert investors to market activity that they will want to interpret.

US Private Equity Markets:

Metrics: S&P LCD Average EBITDA Multiples Paid in LBOs and US Quarterly Deal Volume

The Average Purchase Price to EBITDA multiples paid in LBOs is published quarterly by S&P in their LCD study. This is the total price paid (both equity and debt) over the trailing-twelve month EBITDA (earnings before interest, taxes, depreciation and amortization) as calculated by S&P LCD. This is the relevant, high-level pricing metric that private equity managers use in assessing deals. Data is published monthly.

US quarterly deal volume for private equity is the total deal volume in \$ billions (both equity and debt) reported in the quarter by Thomson Reuters Buyouts. This metric gives a measure of the level of activity in the market. Data is published quarterly.

U.S Private Real Estate Markets:

Metrics: US Cap Rates, Cap Rate Spreads, and Transactions as a % of Market Value

Real estate cap rates are a measure of the price paid in the market to acquire properties versus their annualized income generation before financing costs (NOI=net operating income). The data, published by NCREIF, describes completed and leased properties (core) on an unleveraged basis. We chose to use current value cap rates. These are capitalization rates from properties that were revalued during the quarter. This data relies on estimates of value and therefore tends to be lagging (estimated prices are slower to rise and slower to fall than transaction prices). The data is published quarterly.

Spreads between the cap rate (described above) and the 10-year nominal Treasury yield, indicate a measure of the cost of properties versus a current measure of the cost of financing.

Transactions as a % of Market Value Trailing-Four Quarters is a measure of property turnover activity in the NCREIF Universe. This quarterly metric is a measure of activity in the market.

Credit Markets US Fixed Income:

Metric: Spreads

The absolute level of spreads over treasuries and spread trends (widening / narrowing) are good indicators of credit risk in the fixed income markets. Spreads incorporate estimates of future default, but can also be driven by technical dislocations in the fixed income markets. Abnormally narrow spreads (relative to historical levels) indicate higher levels of valuation risk, wide spreads indicate lower levels of valuation risk and / or elevated default fears. Investment grade bond spreads are represented by the Barclays Capital US Corporate Investment Grade Index Intermediate Component. The high yield corporate bond spreads are represented by the Barclays Capital US Corporate High Yield Index.

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

Measure of Equity Market Fear / Uncertainty

Metric: VIX – Measure of implied option volatility for U.S. equity markets

The VIX is a key measure of near-term volatility conveyed by implied volatility of S&P 500 index option prices. VIX increases with uncertainty and fear. Stocks and the VIX are negatively correlated. Volatility tends to spike when equity markets fall.

Measure of Monetary Policy

Metric: Yield Curve Slope

We calculate the yield curve slope as the 10 year treasury yield minus the 1 year treasury yield. When the yield curve slope is zero or negative, this is a signal to pay attention. A negative yield curve slope signals lower rates in the future, caused by a contraction in economic activity. Recessions are typically preceded by an inverted (negatively sloped) yield curve. A very steep yield curve (2 or greater) indicates a large difference between shorter-term interest rates (the 1 year rate) and longer-term rates (the 10 year rate). This can signal expansion in economic activity in the future, or merely higher future interest rates.

Measures of US Inflation Expectations

Metrics: Breakeven Inflation and Inflation Adjusted Commodity Prices

Inflation is a very important indicator impacting all assets and financial instruments. Breakeven inflation is calculated as the 10 year nominal treasury yield minus the 10 year real yield on US TIPS (treasury inflation protected securities). Abnormally low long-term inflation expectations are indicative of deflationary fears. A rapid rise in breakeven inflation indicates an acceleration in inflationary expectations as market participants sell nominal treasuries and buy TIPS. If breakeven inflation continues to rise quarter over quarter, this is a signal of inflationary worries rising, which may cause Fed action and / or dollar decline.

Commodity price movement (above the rate of inflation) is an indication of anticipated inflation caused by real global economic activity putting pressure on resource prices. We calculate this metric by adjusted in the Dow Jones UBS Commodity Index (formerly Dow Jones AIG Commodity Index) by US CPI-U. While rising commodity prices will not necessarily translate to higher US inflation, higher US inflation will likely show up in higher commodity prices, particularly if world economic activity is robust.

These two measures of anticipated inflation can, and often are, conflicting.

Measures of US Treasury Bond Interest Rate Risk

Metrics: 10-Year Treasury Forward-Looking Real Yield and 10-Year Treasury Duration

The expected annualized real yield of the 10 year U.S. Treasury Bond is a measure of valuation risk for U.S. Treasuries. A low real yield means investors will accept a low rate of expected return for the certainty of receiving their nominal cash flows. PCA estimates the expected annualized real yield by subtracting an estimate of expected 10 year inflation (produced by the Survey of Professional Forecasters as collected by the Federal Reserve Bank of Philadelphia), from the 10 year Treasury constant maturity interest rate.

Duration for the 10-Year Treasury Bond is calculated based on the current yield and a price of 100. This is a measure of expected percentage movements in the price of the bond based on small movements in percentage yield. We make no attempt to account for convexity.

Definition of “extreme” metric readings

A metric reading is defined as “extreme” if the metric reading is in the top or bottom decile of its historical readings. These “extreme” reading should cause the reader to pay attention. These metrics have reverted toward their mean values in the past.

PCA Market Sentiment Indicator

Explanation, Construction and Q&A

By:

Pension Consulting Alliance, LLC.

PCA has created the PCA Market Sentiment Indicator (PMSI) to complement our valuation-focused PCA Investment Market Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This paper explores:

- What is the PCA Market Sentiment Indicator (PMSI)?
- How do I read the indicator graph?
- How is the PCA Market Sentiment Indicator (PMSI) constructed?
- What do changes in the indicator mean?



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PCA Market Sentiment Indicator

PCA has created a market sentiment indicator for monthly publication (the PMSI – see below) to complement PCA's Investment Market Risk Metrics.

PCA's Investment Market Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market corrections take place. The PMSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation based concerns. Once the PMSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, PCA believes the Risk Metrics and PMSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the PCA PMSI:

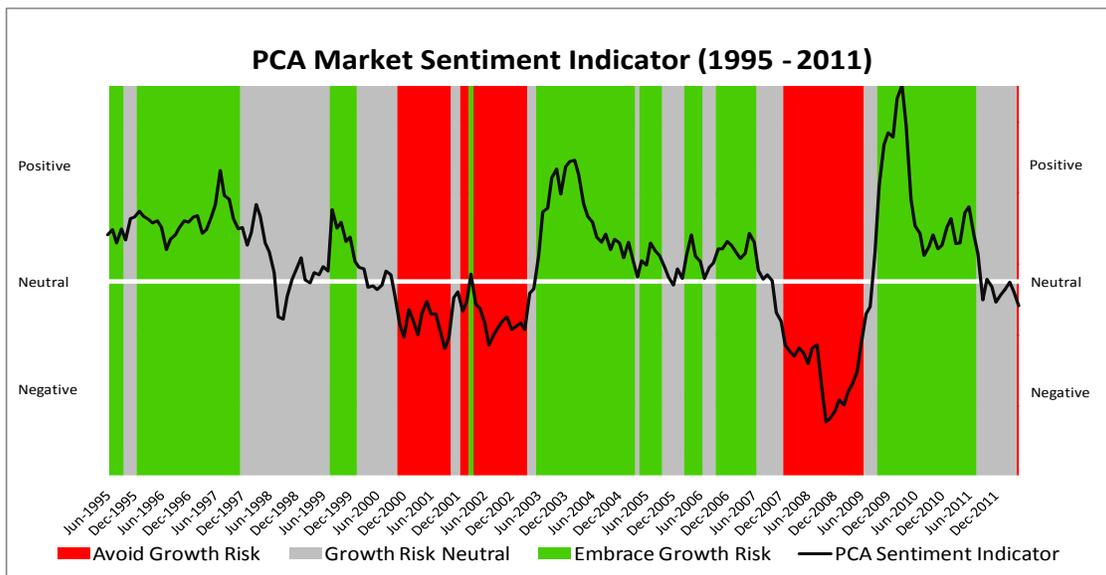
What is the PCA Market Sentiment Indicator (PMSI)?

The PMSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The PMSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the PCA Market Sentiment Indicator (PMSI) graph?

Simply put, the PMSI is a color coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the PMSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the PMSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



PCA Market Sentiment Indicator

How is the PCA Market Sentiment Indicator (PMSI) Constructed?

The PMSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

1. Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
2. Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight). The scale of this measure is adjusted to match that of the stock return momentum measure.

The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure. The color reading on the graph is determined as follows:

1. If both stock return momentum and bond spread momentum are positive = GREEN (positive)
2. If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
3. If both stock return momentum and bond spread momentum are negative = RED (negative)

What does the PCA Market Sentiment Indicator (PMSI) mean? Why might it be useful?

There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12 month period. The PMSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

ⁱ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

ⁱⁱ "Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010
<http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

SECTION 3

REVIEW OF SCHOLARSHARE POLICY

REVIEW OF SCHOLARSHARE POLICY

Active Funds

<u>Fund</u>	<u>Asset Class</u>	<u>Benchmark</u>
T. Rowe Price Instl Large Cap Growth	Domestic Equity	Russell 1000 Growth TR USD
T. Rowe Price Instl Large Cap Value	Domestic Equity	Russell 1000 Value TR USD
TIAA-CREF Small Cap Equity	Domestic Equity	Russell 2000 TR USD
TIAA-CREF Social Choice Equity	Domestic Equity	Russell 3000 TR USD
TIAA-CREF Real Estate Securities	Domestic Equity	FTSE NAREIT All Equity REITs TR
DFA Large Cap International	International Equity	MSCI World ex US NR USD
DFA Emerging Markets Core Equity	International Equity	MSCI EM NR USD
Metropolitan West Total Return Bond	Fixed Income	BBg BarCap US Agg Bond TR USD
PIMCO Real Return	Fixed Income	BBg BarCap US Trsy US TIPS TR USD
PIMCO Income	Fixed Income	BBg BarCap US Agg Bond TR USD
TIAA-CREF Inflation-Linked Bond	Fixed Income	BBg BarCap US TIPS 1-10 year TR USD
T. Rowe Price Institutional Floating Rate	High Yield	S&P/LSTA Performing Loan TR
TIAA-CREF High Yield Bond	High Yield	BofA ML US HY C Pay BB-B Constd TR

Passive Funds

<u>Fund</u>	<u>Asset Class</u>	<u>Benchmark</u>
TIAA-CREF Equity Index	Domestic Equity	Russell 3000 TR USD
TIAA-CREF S&P 500 Index	Domestic Equity	S&P 500 TR
TIAA-CREF International Equity Index	International Equity	MSCI EAFE NR USD
TIAA-CREF Emerging Markets Equity Index	International Equity	MSCI EM NR USD
TIAA-CREF Bond Index	Fixed Income	BBg BarCap US Agg Bond TR USD

T-C Life Funding Agreements

T-C Life Funding Agreements*	---	---
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*Investment through a funding agreement with TIAA-CREF Life Insurance Company. Not benchmarked to an index, rather, portfolio performance is monitored using a set of qualitative guidelines.

REVIEW OF SCHOLARSHARE POLICY

Performance Criteria for Placing a Fund on Watch

Actively Managed Funds

Asset Class	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (> 60 months)
Domestic Equity	Fund return < bench return -3.5% for 6 consecutive months	Fund return < bench return -1.75% for 6 consecutive months	VRR< 0.97 for 6 consecutive months
International Equity	Fund return < bench return -4.5% for 6 consecutive months	Fund return < bench return -2.0% for 6 consecutive months	VRR< 0.97 for 6 consecutive months
Fixed Income	Fund return < bench return -1.0% for 6 consecutive months	Fund return < bench return -0.5% for 6 consecutive months	VRR< 0.98 for 6 consecutive months
High Yield	Fund return < bench return -6.5% for 6 consecutive months	Fund return < bench return -3.25% for 6 consecutive months	VRR< 0.96 for 6 consecutive months

Passively Managed Funds

Asset Class	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (rolling 60-month periods)
Domestic Equity	Tracking Error > 0.30% for 6 consecutive months	Tracking Error> 0.25% for 6 consecutive months	Fd annlzd return < bench annlzd return -0.30% for 6 consecutive months
International Equity	Tracking Error > 0.75% for 6 consecutive months	Tracking Error> 0.70% for 6 consecutive months	Fd annlzd return < bench annlzd return -0.30% for 6 consecutive months
Fixed Income	Tracking Error > 0.40% for 6 consecutive months	Tracking Error> 0.55% for 6 consecutive months	Fd annlzd return < bench annlzd return -0.35% for 6 consecutive months

- [1] Return discounts from a benchmark return based on 2/3rds of the typical tracking error estimates of the specified type of fund manager.
- [2] Annualized return is the average annual return of either the manager or its benchmark.
- [3] VRR – Value Relative Ratio – is calculated as: Manager Cumulative Return / Benchmark Cumulative Return.
- [4] Tracking error is a measure of the volatility of the average annual difference between the manager's return and the benchmark's return.

REVIEW OF SCHOLARSHARE POLICY

Performance Criteria for Placing a Fund on Watch (Continued)

T-C Life Funding Agreements (based on non-investment performance criteria)

Fund Name	Financial Strength	Mortgage Portfolio	Bond Portfolio	Account Diversification
T-C Life Funding Agreements	Moody's = Aaa Standard & Poor's = AAA A.M. Best = A+++ Fitch = AAA	100% in Good Standing	At least 90% Investment Grade	Portfolio is diversified across asset classes and types

The T-C Life Funding Agreements are measured against a set of non-investment performance criteria (see above) in a published TIAA-CREF report every quarter.

REVIEW OF SCHOLARSHARE POLICY

Investment Status Schedule

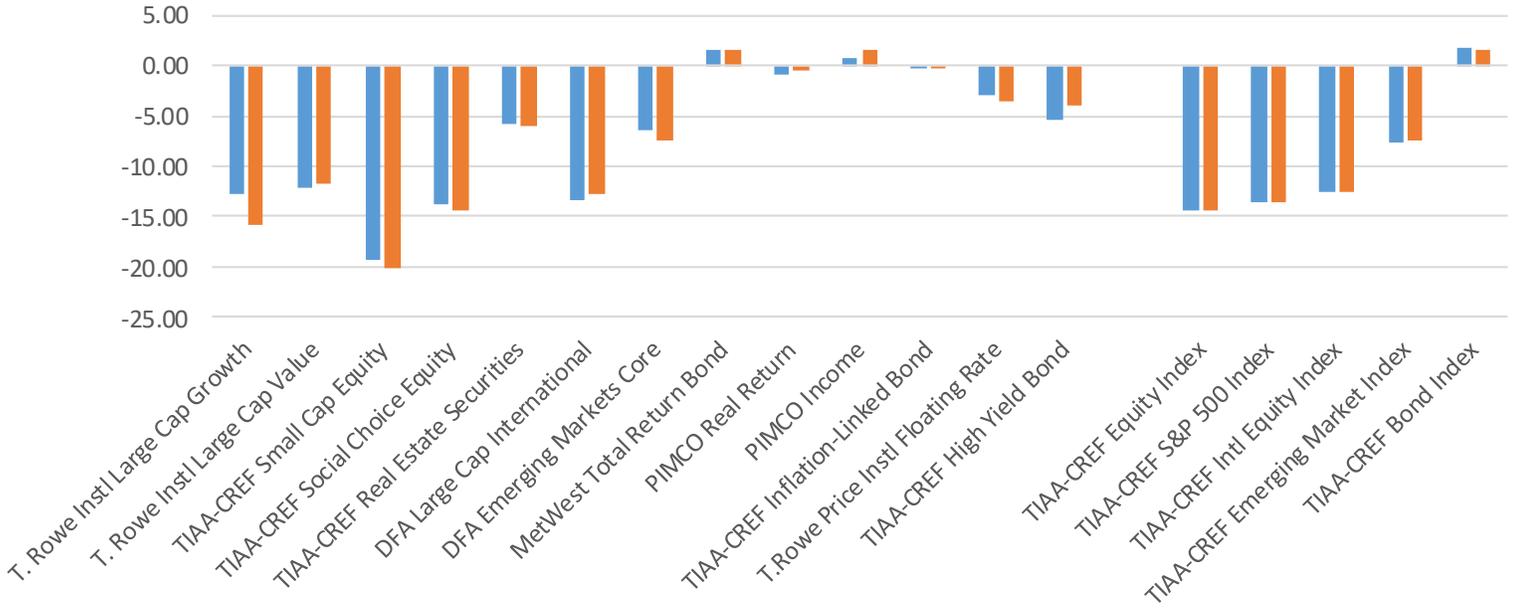
Performance Category	Actively Managed Portfolios	Passively Managed Portfolios
Positive	<ul style="list-style-type: none"> Performance exceeds the benchmark. 	<ul style="list-style-type: none"> Performance exceeds the benchmark (first 1-12 month period), or Tracking error is within the allowable range¹ (short, medium, and long time periods).
Acceptable	<ul style="list-style-type: none"> Performance meets or is under the benchmark and is within the allowable range. 	<ul style="list-style-type: none"> Performance does not exceed the benchmark but is within the allowable range (first 1-12 month period only).
Caution	<ul style="list-style-type: none"> Performance is below allowable range but either: <ol style="list-style-type: none"> for less than six consecutive months, or the Board has not taken (or decided not to take) a formal action to place the asset class or individual fund portfolio on Watch even though performance has been below allowable range for six months or longer. 	<ul style="list-style-type: none"> Tracking error falls outside of the allowable range but either <ol style="list-style-type: none"> for less than six consecutive months, or the Board has not voted to place the asset class or stand alone fund on Watch
Watch ²	<ul style="list-style-type: none"> Performance is below allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund on Watch. 	<ul style="list-style-type: none"> Tracking error falls outside of the allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund portfolio on Watch.

¹ Ranges are shown in the Investment Performance Criteria Schedules.

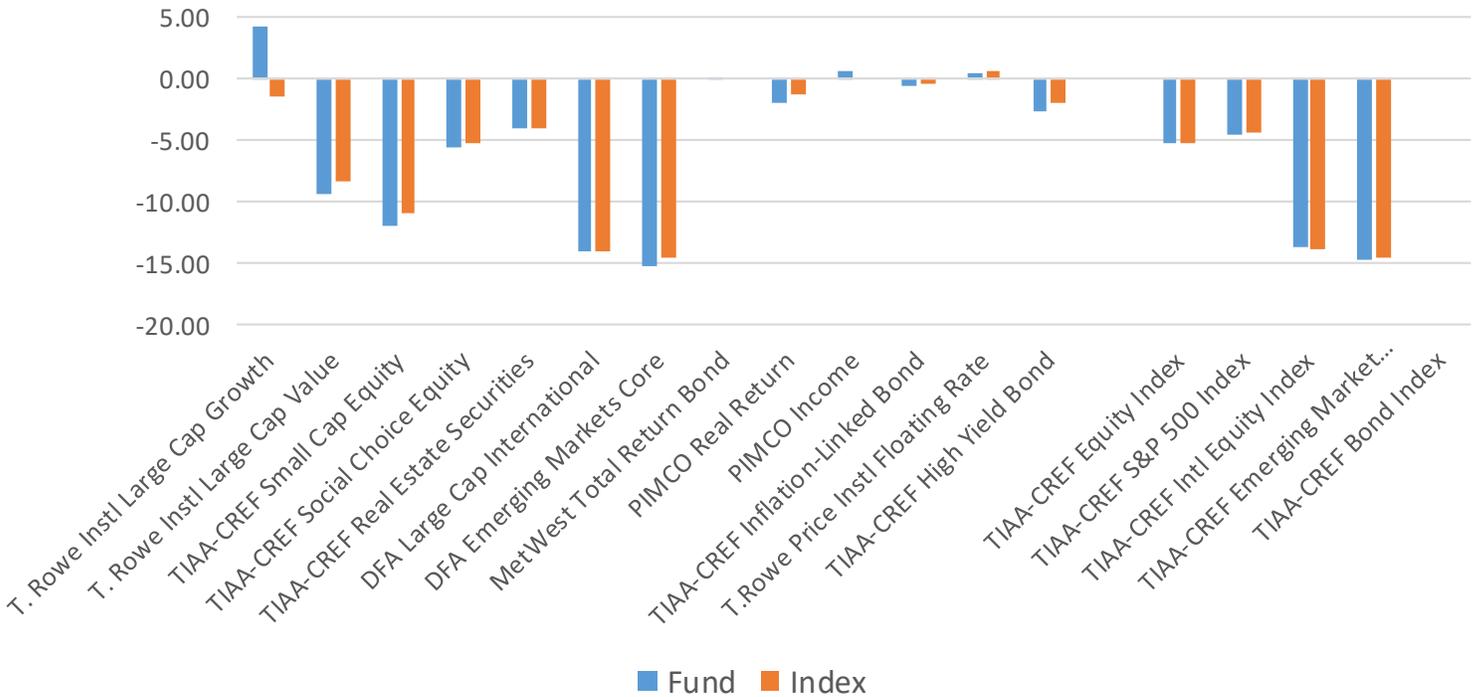
² The amount of time generally required before an investment is put on watch.

SUMMARY OF FUND PERFORMANCE 12/31/18

Quarter



1 Year



■ Fund ■ Index

SUMMARY OF FUND PERFORMANCE STATUS

Program	Total Funds	Positive	Acceptable	Caution	Watch [^]
Number of Funds	19	6	12	1	1
% of Funds	100%	32%	63%	5%	5%
% of Program Assets	100%	39%	59%	2%	2%
Fund Status \uparrow	--	--	--	--	--
Fund Status \downarrow	2	--	2	--	--
Domestic Equity Funds	7	1	5	1	1
Intl Equity Funds	4	2	2	--	--
Fixed Income Funds	5	2	3	--	--
High Yield Funds	2	--	2	--	--
Funding Agreement	1	1	--	--	--

[^]Includes funds on Watch and new funds qualifying for Watch status. Number has not been adjusted to remove funds no longer qualifying for Watch.

- Ninety-five percent of the Program’s funds have either a Positive or Acceptable performance status
- The status of two funds declined over the quarter
 - T.Rowe Price Institutional Large Cap Value
 - PIMCO Real Return
- No new funds qualify for “Watch” status

SUMMARY OF FUND PERFORMANCE STATUS

Funds	Prior Quarter		Current Quarter	
	Status	On Watch	Status	On Watch
Active Funds				
T. Rowe Price Instl Large Cap Growth	Positive		Positive	
T. Rowe Price Instl Large Cap Value	Positive		Acceptable	
TIAA-CREF Small Cap Equity	Acceptable		Acceptable	
TIAA-CREF Social Choice Equity	Caution	7/1/17	Caution	7/1/17
TIAA-CREF Real Estate Securities	Acceptable		Acceptable	
DFA Large Cap International	Positive		Positive	
DFA Emerging Markets Core Equity	Acceptable		Acceptable	
Metropolitan West Total Return Bond	Positive		Positive	
PIMCO Real Return	Positive		Acceptable	
PIMCO Income	Positive		Positive	
TIAA-CREF Inflation-Linked Bond	Acceptable		Acceptable	
T. Rowe Price Instl Floating Rate	Acceptable		Acceptable	
TIAA-CREF High-Yield Bond	Acceptable		Acceptable	
Passive Funds				
TIAA-CREF Equity Index	Acceptable		Acceptable	
TIAA-CREF S&P 500 Index	Acceptable		Acceptable	
TIAA-CREF International Equity Index	Positive		Positive	
TIAA-CREF Emerging Markets Index	Acceptable		Acceptable	
TIAA-CREF Bond Index	Acceptable		Acceptable	
T-C Life Funding Agreements				
T-C Life Funding Agreements	Positive		Positive	

- Current status is based on Short-Term (rolling 12-month) and Medium-Term (rolling 36-month) evaluation results.
- According to the Investment Status Schedule on the previous page, the portfolio's overall "Current Status" equals the lowest status as achieved by one or more of the criteria during the quarter.

SUMMARY OF FUND ASSETS

Assets as of 12/31/2018

Funds	Assets (\$)	% of Total
Active Funds		
T. Rowe Price Instl Large Cap Growth	385,177,082	4.67%
T. Rowe Price Instl Large Cap Value	365,620,456	4.43%
TIAA-CREF Small Cap Equity	87,101,335	1.06%
TIAA-CREF Social Choice Equity	155,146,934	1.88%
TIAA-CREF Real Estate Securities	239,996,511	2.91%
DFA Large Cap International	294,628,533	3.57%
DFA Emerging Markets Core Equity	71,231,252	0.86%
Metropolitan West Total Return Bond	491,917,200	5.96%
PIMCO Real Return	172,436,516	2.09%
PIMCO Income	196,793,042	2.38%
TIAA-CREF Inflation-Linked Bond	325,722,032	3.95%
T. Rowe Price Instl Floating Rate	86,088,489	1.04%
TIAA-CREF High-Yield Bond	166,492,501	2.02%
Active Funds Total	3,038,351,884	36.82%
Passive Funds		
TIAA-CREF Equity Index	1,579,837,550	19.15%
TIAA-CREF S&P 500 Index	402,013,412	4.87%
TIAA-CREF International Equity Index	540,992,198	6.56%
TIAA-CREF Emerging Markets Index	126,305,413	1.53%
TIAA-CREF Bond Index	1,254,865,681	15.21%
Passive Funds Total	3,904,014,254	47.31%
T-C Life Funding Agreements		
T-C Life Funding Agreements	1,308,955,215	15.86%
TOTAL	\$8,251,321,353	100%

PORTFOLIO MANAGEMENT OVERVIEW

Fund	Ticker	Current PM Team	Recent PM Departures*
T.Rowe Price Large Cap Growth	TRLGX	01/01/2017- Taymour R. Tamaddon	12/31/2002-01/01/2017 Robert W. Sharps
T.Rowe Price Large Cap Value	TILCX	03/31/2000-02/25/2010-01/01/2015- John D. Linehan Mark S. Finn Heather K. McPherson	
TIAA-CREF Small Cap Equity	TISEX	12/31/2006-03/01/2016- Adam Cao Pei Chen	12/31/2004-03/01/2016 Michael S. Shing
TIAA-CREF Social Choice Equity	TISCX	12/31/2005-05/30/2014- Philip James Campagna Lei Liao	
TIAA-CREF Real Estate Securities	TIREX	12/31/2005-07/10/2006- David Copp Brendan W. Lee	
DFA Large Cap International	DFALX	02/28/2010-02/28/2010-07/21/2015-07/21/2015- Joseph H. Chi Jed S. Fogdall Mary T. Phillips Bhanu P. Singh	12/31/1998-02/28/2016 02/28/2012-02/28/2017 Karen E. Umland Henry F. Gray
DFA Emerging Markets Core Equity	DFCEX	02/28/2010-02/28/2010-07/21/2015-07/21/2015-02/28/2017- Joseph H. Chi Jed S. Fogdall Allen Pu Bhanu P. Singh Mary T. Phillips	
Metropolitan West Total Return Bond	MWTIX	03/31/1997-03/31/1997-03/31/1997-12/31/2004- Stephen M. Kane Laird R. Landman Tad Rivelle Bryan T. Whalen	
PIMCO Real Return	PRRIX	12/31/2007-01/09/2019- Mihir P. Worah Stephen A. Rodosky	01/02/2015-01/09/2019 Jeramie Banet
PIMCO Income	PIMIX	03/30/2007-03/15/2013-07/30/2018- Daniel J. Ivascyn Alfred T. Murata Joshua Anderson	
TIAA-CREF Inflation-Linked Bond	TIILX	08/21/2008-08/01/2016 John Michael Cerra Nicholas Travaglinio	10/01/2011-08/01/2016 Stephen M. Liberatore
T.Rowe Price Floating Rate	RPIFX	05/01/2009- Paul M. Massaro	
TIAA-CREF High Yield	TIHYX	03/31/2006-10/01/2011- Kevin R. Lorenz Jean C. Lin	
TIAA-CREF Equity Index	TIEIX	12/31/2005-05/30/2014- Philip James Campagna Lei Liao	
TIAA-CREF S&P 500 Index	TISPX	12/31/2005-05/30/2014- Philip James Campagna Lei Liao	
TIAA-CREF International Equity Index	TCIEX	08/01/2005-05/30/2014- Philip James Campagna Lei Liao	
TIAA-CREF Emerging Markets Equity Index	TEQLX	08/31/2010-05/30/2014- Philip James Campagna Lei Liao	
TIAA-CREF Bond Index	TBIIX	12/31/2009-08/24/2011- Lijun (Kevin) Chen James Tsang	

*Recent is defined as having occurred in the last three years.
Source: MorningStar

- PIMCO Real Return – Departure of manager Jeramie Banet in January 2019; added portfolio manager Stephen A. Rodosky. Mihir Worah, who has been the lead portfolio manager on the fund since December 2007 and also serves as the CIO of the Real Return and Asset Allocation team, remains on the strategy.

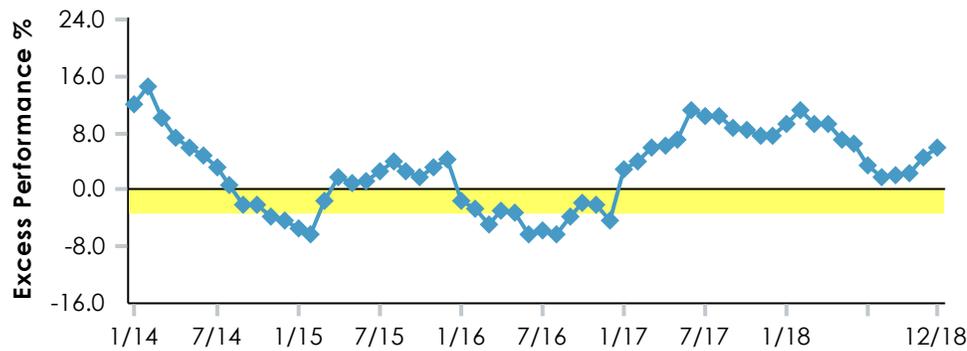
SECTION 4

SENSITIVITY ANALYSES

ACTIVE FUNDS

TRowe Price Large Cap Growth I vs. Russell 1000 Growth Index

Short-term (Rolling 12 Months Excess Performance)

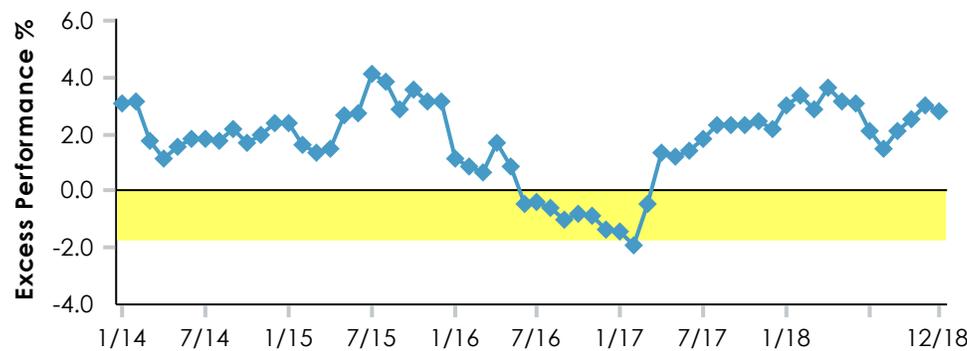


Short-Term Performance

Positive

Probationary Performance -3.50%

Medium-term (Rolling 36 Months Excess Performance)

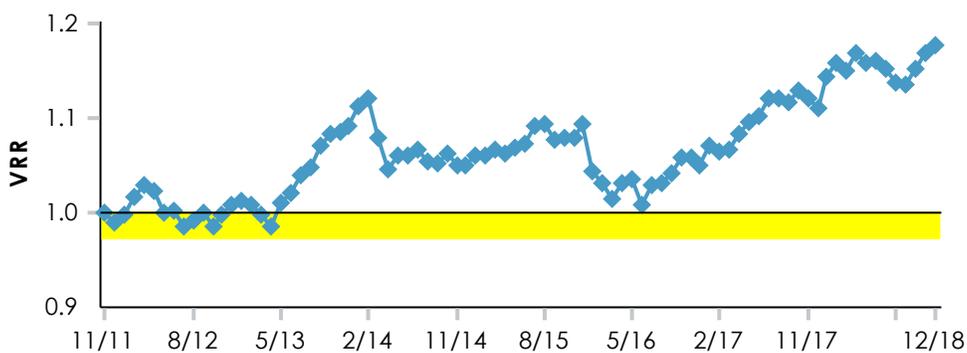


Medium-Term Performance

Positive

Probationary Performance -1.75%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TRowe Price Large Cap Growth I	-12.8 (11)	4.3 (6)	13.9 (1)	12.1 (3)	16.6 (1)
Russell 1000 Growth Index	-15.9 (53)	-1.5 (58)	11.1 (17)	10.4 (15)	13.9 (21)
IM U.S. Large Cap Growth Equity (MF) Median	-15.8	-0.9	9.6	9.1	12.9

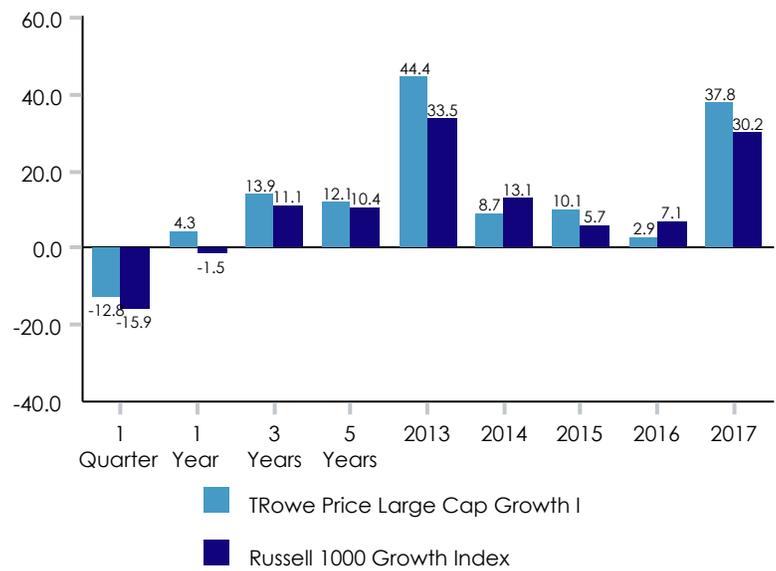
Monitoring Status

Positive

Mutual Fund Info

Product Name : T Rowe Price I LgCp Gro (TRLGX)
 Fund Family : T Rowe Price Associates Inc
 Ticker : TRLGX
 Peer Group : IM U.S. Large Cap Growth Equity (MF)
 Benchmark : Russell 1000 Growth Index
 Fund Inception : 10/31/2001
 Portfolio Manager : Taymour R. Tamaddon
 Total Assets : \$17,933 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.6%
 Net Expense : 0.6%
 Turnover : 36%

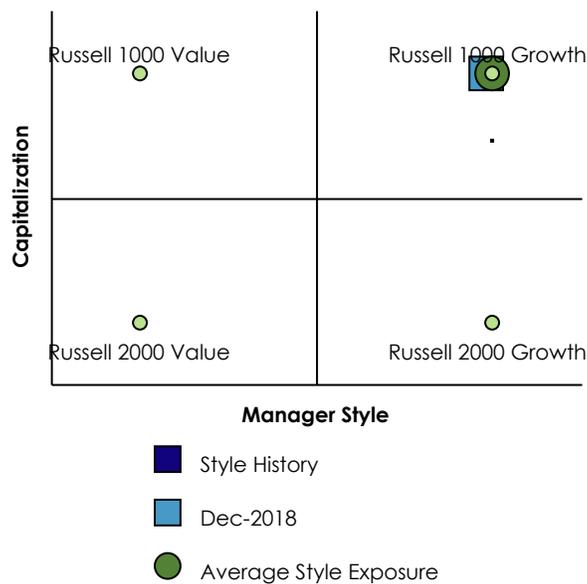
Comparative Performance



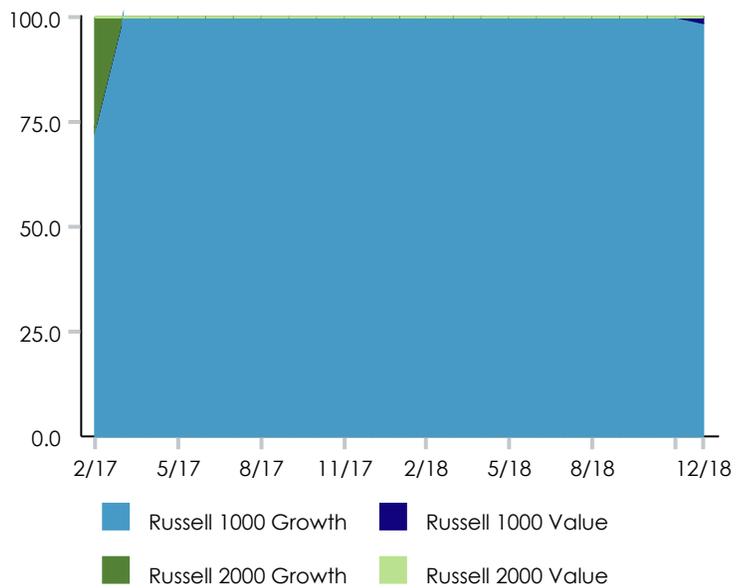
Fund Investment Policy

The Fund seeks long-term capital appreciation through investments in the common stocks of large-capitalization growth companies.

Style Map (3 Years)



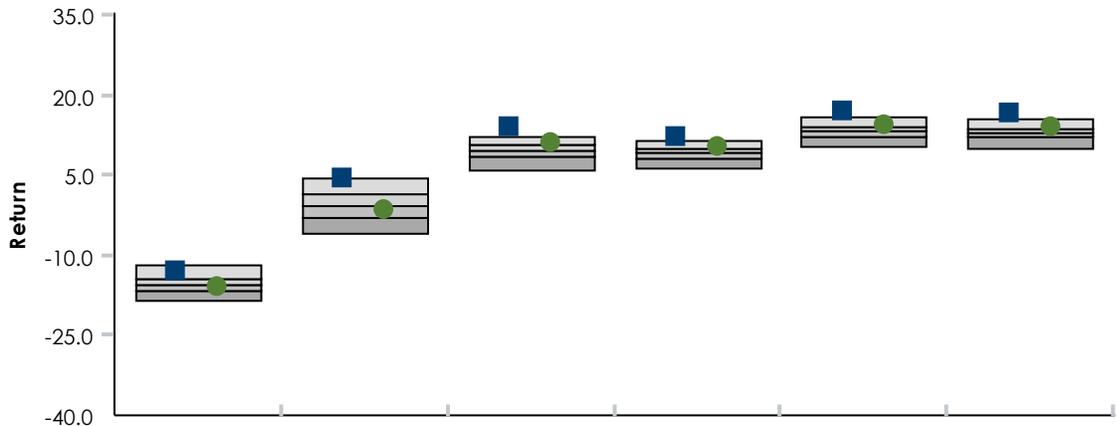
Style History (3 Years)



Historical Statistics (3 Years)

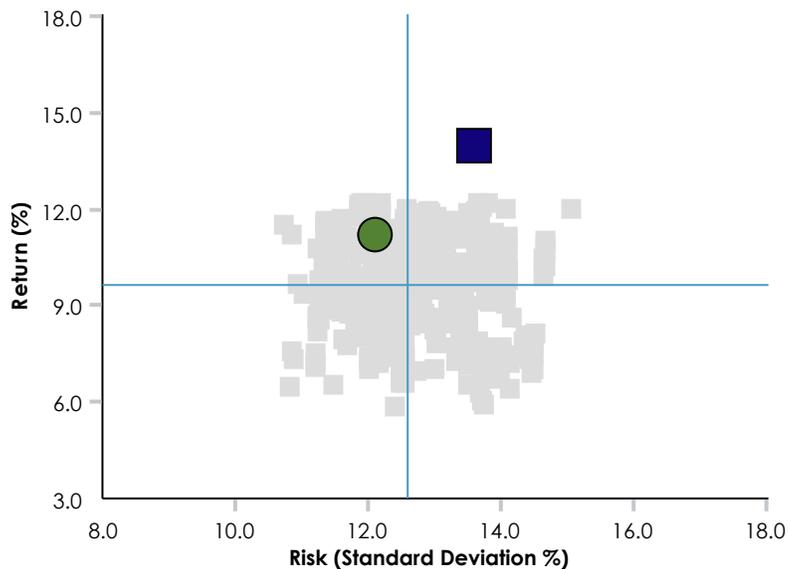
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TRowe Price Large Cap Growth I	13.9	13.6	1.0	2.2	1.0	0.9	5.0	0.5	114.6	105.3
Russell 1000 Growth Index	11.1	12.1	0.9	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Large Cap Growth Equity (MF) Median	9.6	12.6	0.7	-1.5	1.0	0.9	3.5	-0.4	96.8	107.5

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TRowe Price Large Cap Growth I	-12.8 (11)	4.3 (6)	13.9 (1)	12.1 (3)	17.0 (1)	16.6 (1)
● Russell 1000 Growth Index	-15.9 (53)	-1.5 (58)	11.1 (17)	10.4 (15)	14.1 (24)	13.9 (21)
Median	-15.8	-0.9	9.6	9.1	13.3	12.9

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TRowe Price Large Cap Growth I	13.9	13.6
● Russell 1000 Growth Index	11.1	12.1
— Median	9.6	12.6

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	25	114.6
Down Markets	11	105.3
Batting Average		
Up Markets	25	60.0
Down Markets	11	63.6
Overall	36	61.1

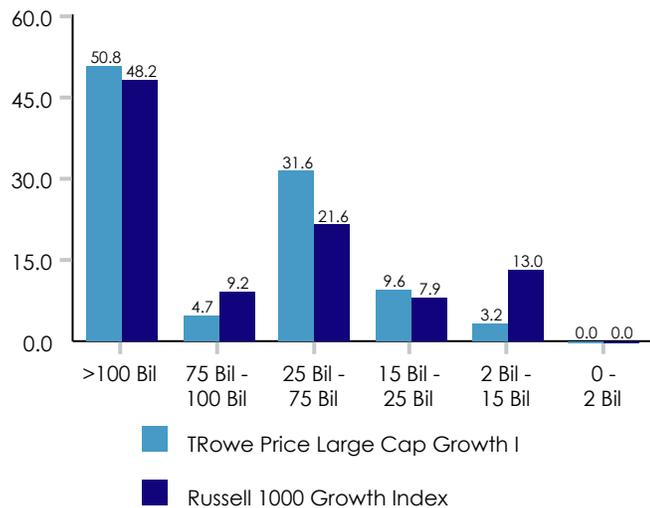
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	261,136	241,405
Median Mkt. Cap (\$M)	42,907	10,325
Price/Earnings ratio	28.1	22.7
Price/Book ratio	5.7	6.1
5 Yr. EPS Growth Rate (%)	26.6	23.6
Current Yield (%)	0.9	1.5
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	61	546

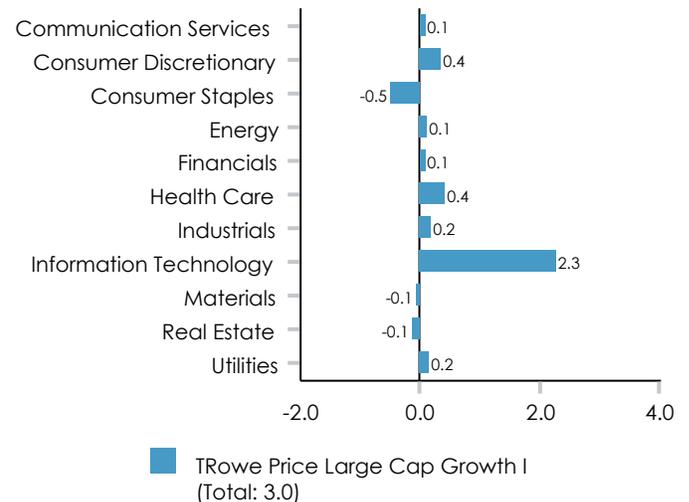
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Amazon.com Inc	8.5	5.3	-25.0
Microsoft Corp	6.7	6.3	-10.8
Boeing Co	5.3	1.5	-12.9
Alphabet Inc	5.0	2.7	-13.4
Visa Inc	4.9	2.0	-11.9
Facebook Inc	3.9	2.7	-20.3
Unitedhealth Group Inc	3.2	2.1	-6.1
Cigna Corp	3.0	0.2	-8.8
Tencent Holdings LTD	2.4	0.0	-2.9
Alphabet Inc	2.4	2.7	-13.2
% of Portfolio	45.3	25.5	

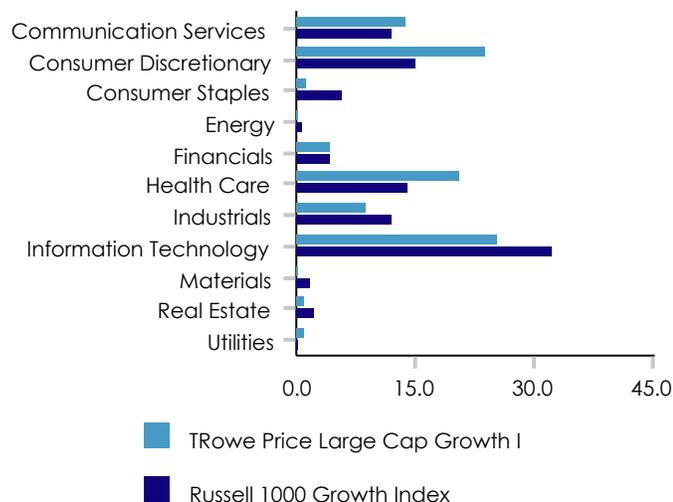
Market Cap Distribution (As of 12/31/2018)



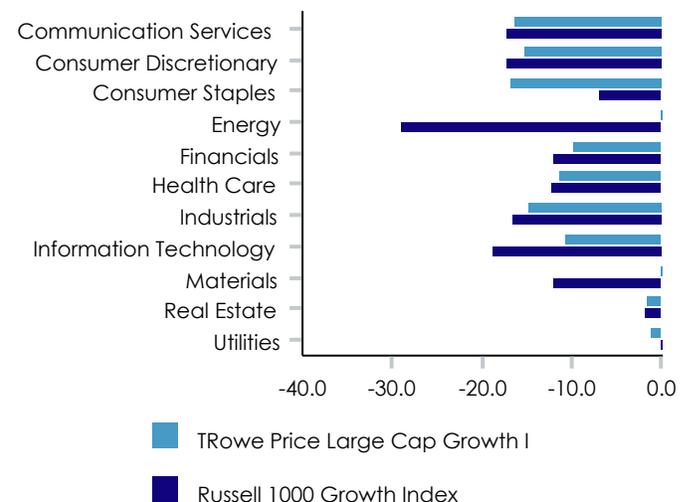
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

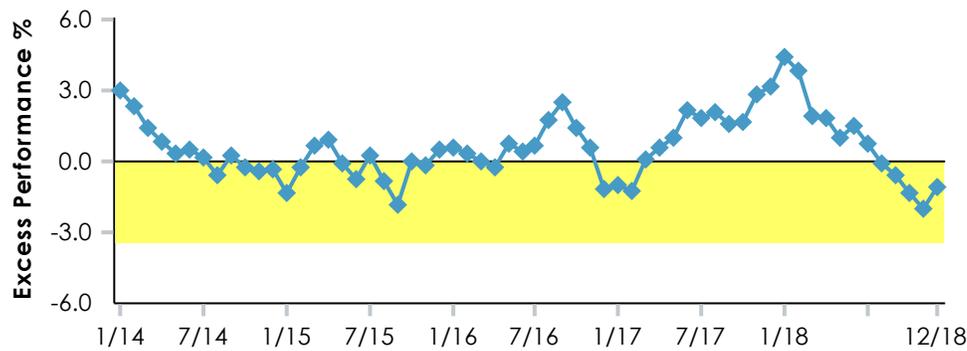


Sector Performance (1 Quarter as of 12/31/2018)



TRowe Price Large Cap Value I vs. Russell 1000 Value Index

Short-term (Rolling 12 Months Excess Performance)

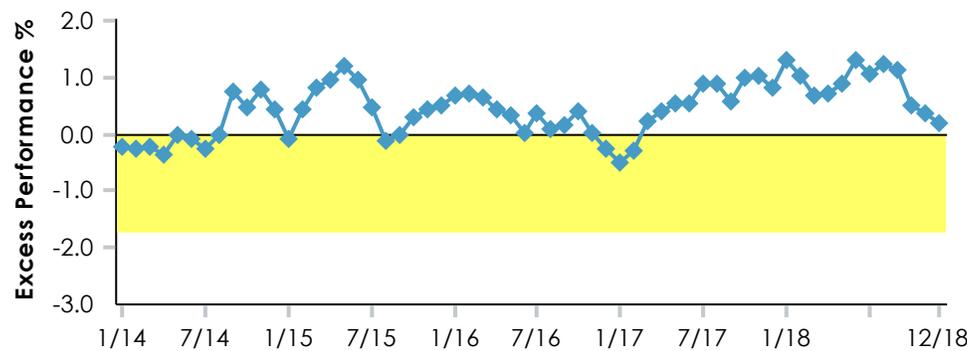


Short-Term Performance

Acceptable

Probationary Performance -3.50%

Medium-term (Rolling 36 Months Excess Performance)

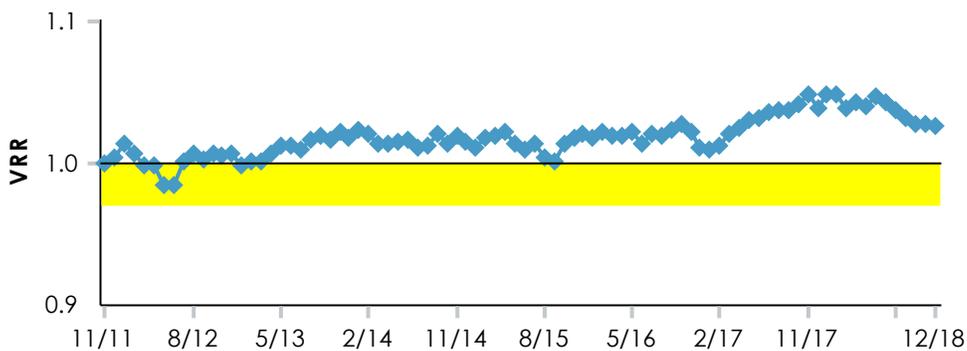


Medium-Term Performance

Positive

Probationary Performance -1.75%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TRowe Price Large Cap Value I	-12.2 (37)	-9.3 (58)	7.2 (30)	6.1 (23)	11.6 (12)
Russell 1000 Value Index	-11.7 (29)	-8.3 (35)	7.0 (37)	5.9 (29)	11.2 (21)
IM U.S. Large Cap Value Equity (MF) Median	-12.9	-9.0	6.5	5.3	10.4

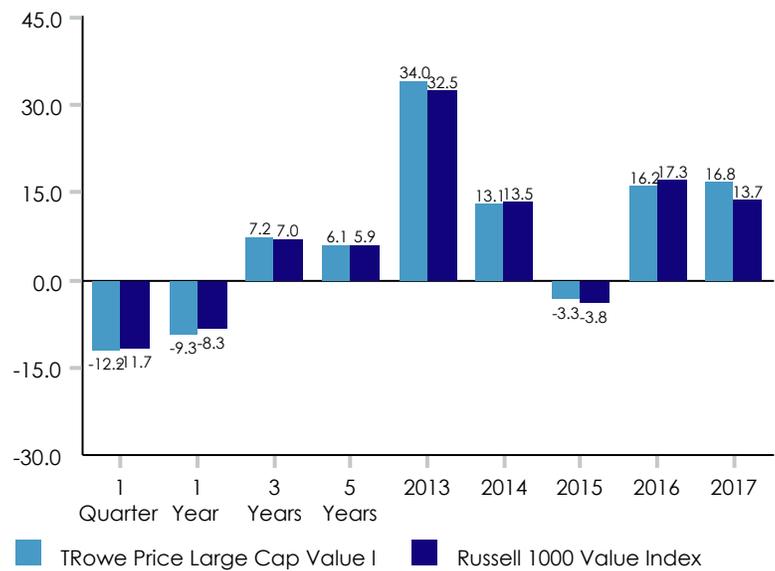
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : T Rowe Price I LgCp Val (TILCX)
 Fund Family : T Rowe Price Associates Inc
 Ticker : TILCX
 Peer Group : IM U.S. Large Cap Value Equity (MF)
 Benchmark : Russell 1000 Value Index
 Fund Inception : 03/31/2000
 Portfolio Manager : Team Managed
 Total Assets : \$3,176 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.6%
 Net Expense : 0.6%
 Turnover : 31%

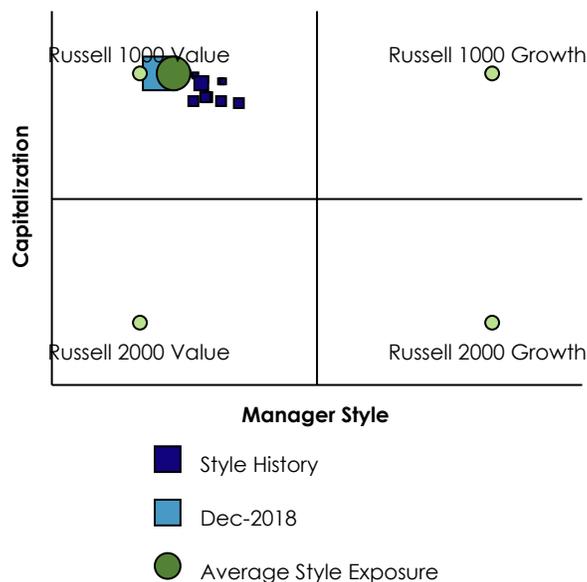
Comparative Performance



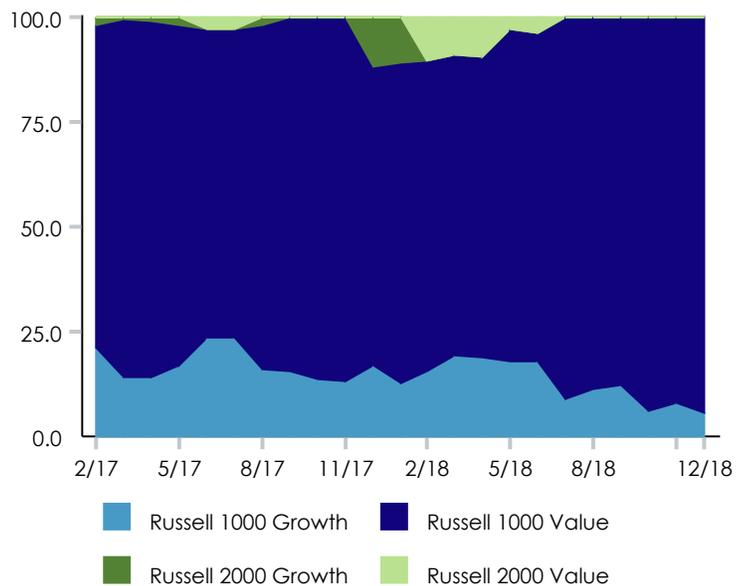
Fund Investment Policy

The Fund seeks to provide long-term capital appreciation and secondarily income. The Fund will normally invest at least 80% of its net assets (including any borrowings for investment purposes) in securities of large-cap companies that the portfolio manager regards as undervalued.

Style Map (3 Years)



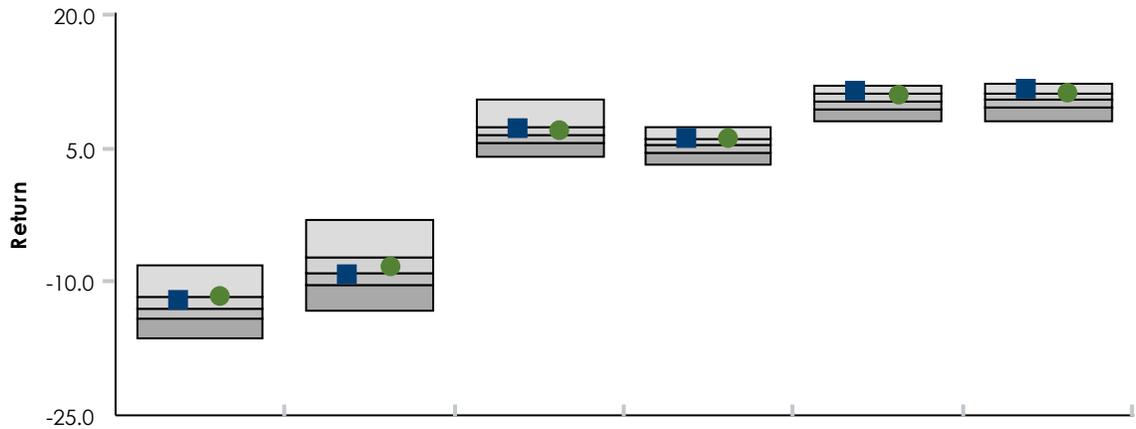
Style History (3 Years)



Historical Statistics (3 Years)

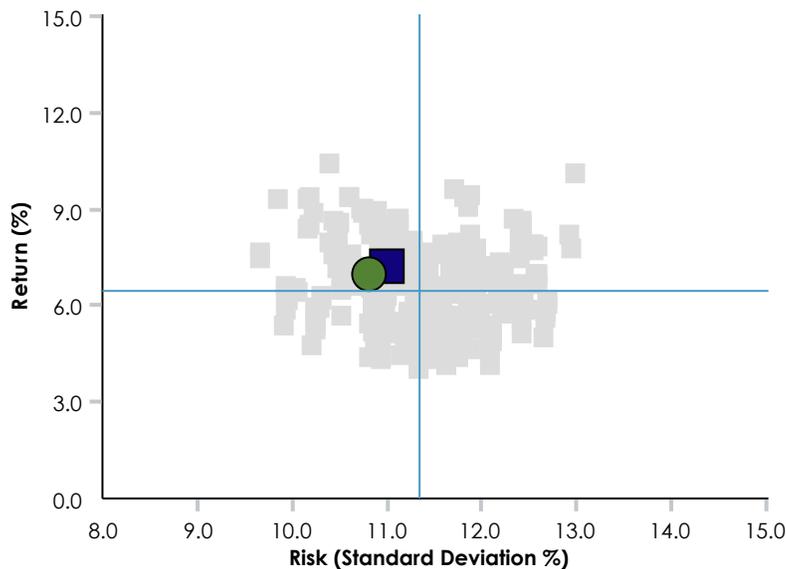
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TRowe Price Large Cap Value I	7.2	11.0	0.6	0.2	1.0	1.0	1.8	0.1	98.2	94.7
Russell 1000 Value Index	7.0	10.8	0.6	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Large Cap Value Equity (MF) Median	6.5	11.4	0.5	-0.5	1.0	0.9	3.0	-0.1	99.7	103.2

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TRowe Price Large Cap Value I	-12.2 (37)	-9.3 (58)	7.2 (30)	6.1 (23)	11.4 (16)	11.6 (12)
● Russell 1000 Value Index	-11.7 (29)	-8.3 (35)	7.0 (37)	5.9 (29)	11.0 (26)	11.2 (21)
Median	-12.9	-9.0	6.5	5.3	10.2	10.4

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TRowe Price Large Cap Value I	7.2	11.0
● Russell 1000 Value Index	7.0	10.8
— Median	6.5	11.4

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	24	98.2
Down Markets	12	94.7
Batting Average		
Up Markets	24	41.7
Down Markets	12	58.3
Overall	36	47.2

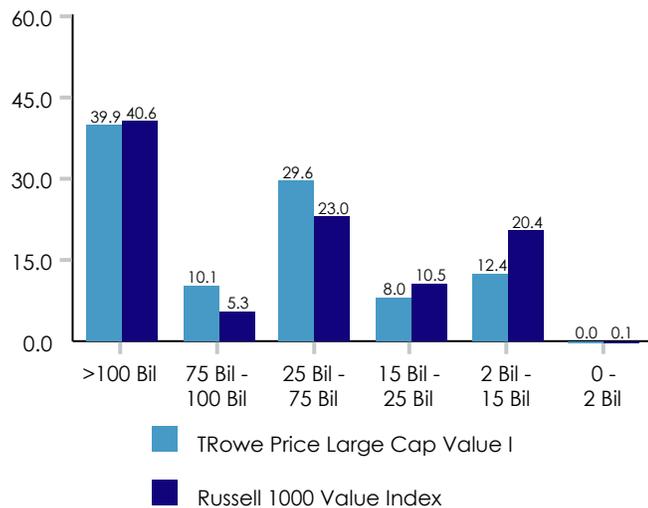
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	131,202	119,166
Median Mkt. Cap (\$M)	41,908	8,313
Price/Earnings ratio	13.9	13.7
Price/Book ratio	2.1	2.1
5 Yr. EPS Growth Rate (%)	7.0	8.6
Current Yield (%)	3.2	2.9
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	80	725

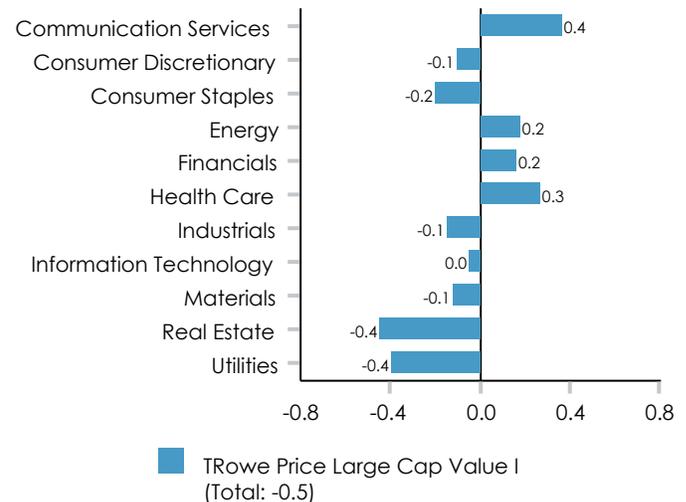
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
JPMorgan Chase & Co	3.7	2.7	-12.9
Microsoft Corp	3.6	0.3	-10.8
Wells Fargo & Co	3.4	1.7	-11.6
Pfizer Inc	3.0	2.1	-0.2
TOTAL SA	2.7	0.0	-17.9
Merck & Co Inc.	2.5	1.6	8.5
Cisco Systems Inc	2.4	1.7	-10.3
Twenty-First Century Fox Inc	2.4	0.2	4.3
Medtronic PLC	2.4	1.0	-7.0
Verizon Communications Inc	2.3	2.0	6.5
% of Portfolio	28.4	13.3	

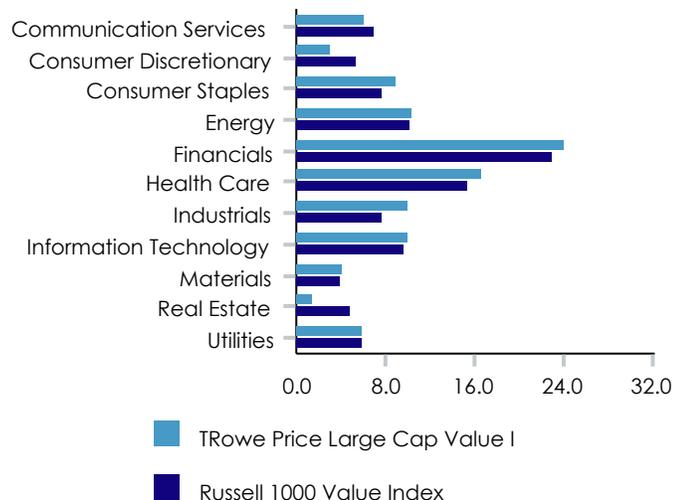
Market Cap Distribution (As of 12/31/2018)



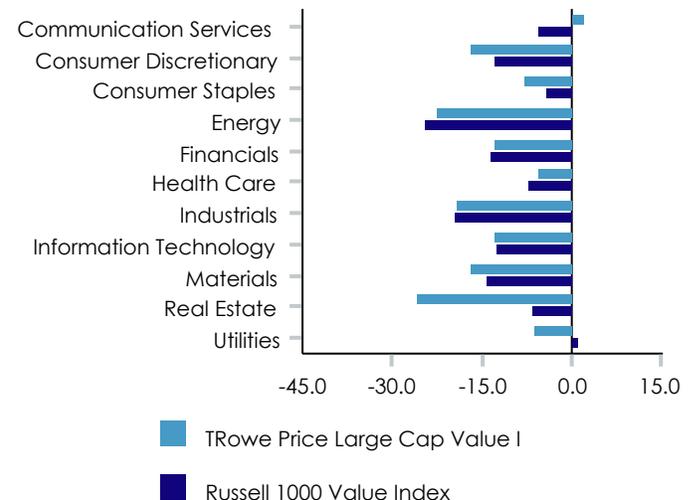
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

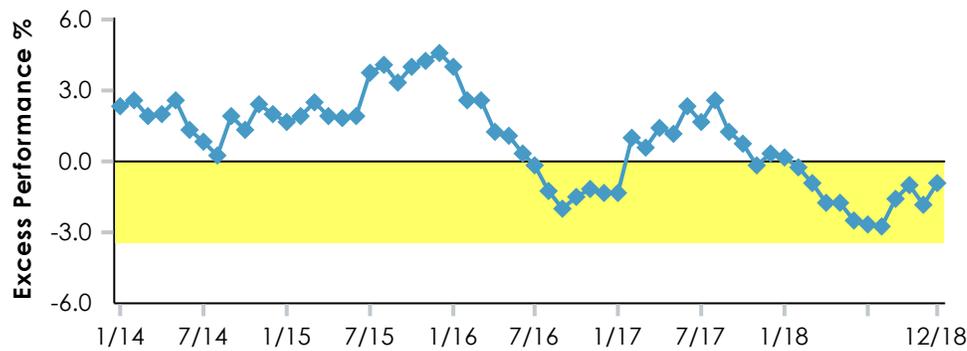


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Small Cap Equity I vs. Russell 2000 Index

Short-term (Rolling 12 Months Excess Performance)

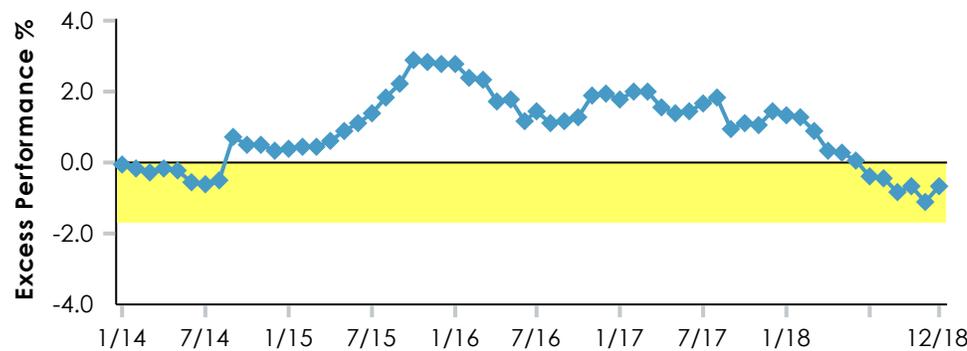


Short-Term Performance

Acceptable

Probationary Performance -3.50%

Medium-term (Rolling 36 Months Excess Performance)

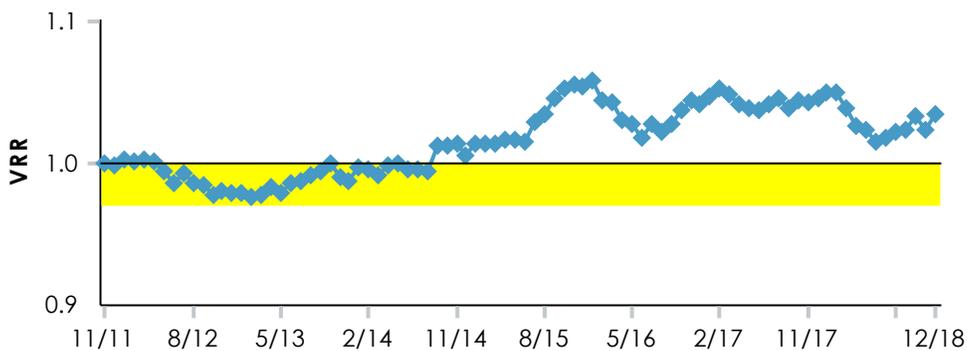


Medium-Term Performance

Acceptable

Probationary Performance -1.75%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Small Cap Equity I	-19.4 (58)	-12.0 (44)	6.7 (38)	5.4 (15)	10.9 (14)
Russell 2000 Index	-20.2 (72)	-11.0 (31)	7.4 (27)	4.4 (33)	10.4 (27)
IM U.S. SMID Cap Core Equity (MF) Median	-18.9	-12.5	5.9	3.7	9.5

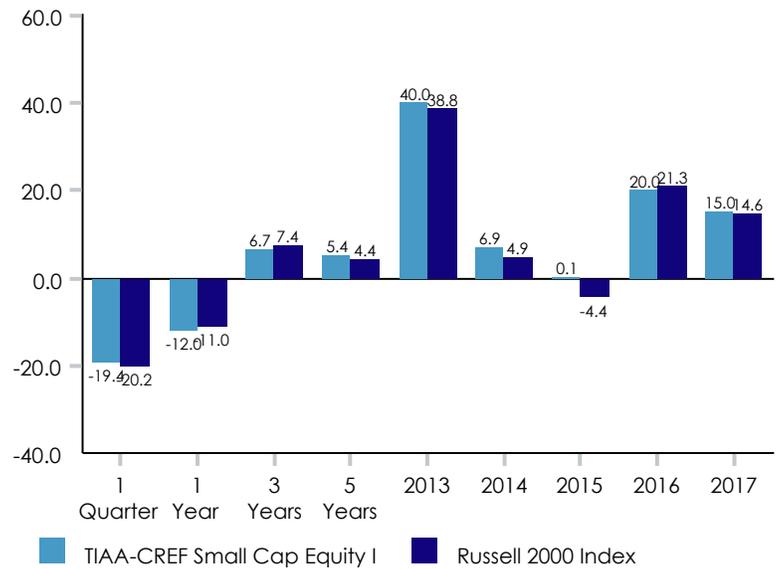
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Qnt SCE;Inst (TISEX)
 Fund Family : TIAA-CREF
 Ticker : TISEX
 Peer Group : IM U.S. SMID Cap Core Equity (MF)
 Benchmark : Russell 2500 Index
 Fund Inception : 10/01/2002
 Portfolio Manager : Cao/Chen
 Total Assets : \$1,669 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.4%
 Net Expense : 0.4%
 Turnover : 87%

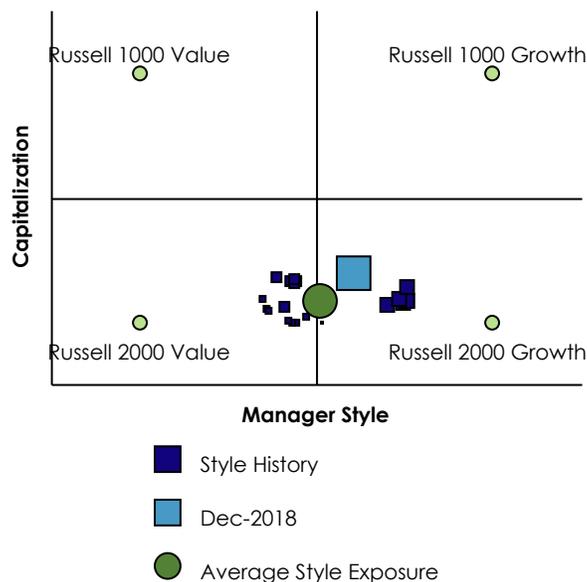
Comparative Performance



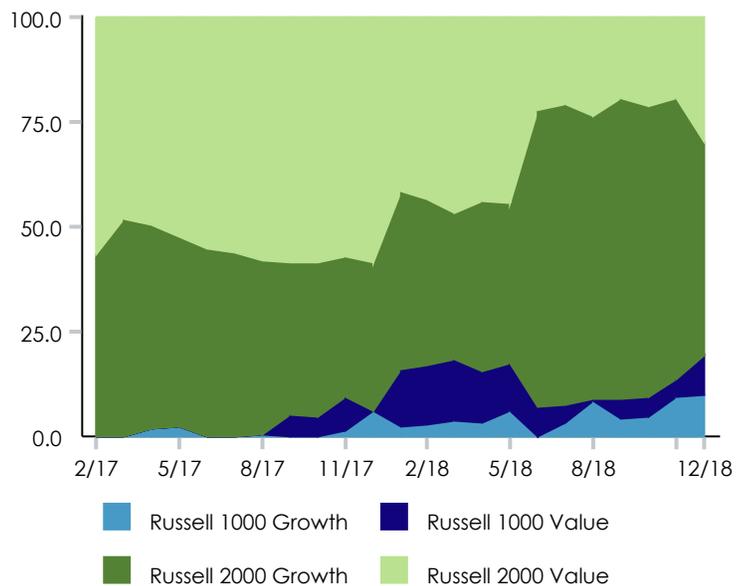
Fund Investment Policy

The Fund seeks a favorable long-term total return, mainly through capital appreciation, primarily from equity securities of smaller domestic companies. The Fund invests at least 80% in equity securities of smaller domestic companies, across a wide range of sectors, growth rates and valuations.

Style Map (3 Years)



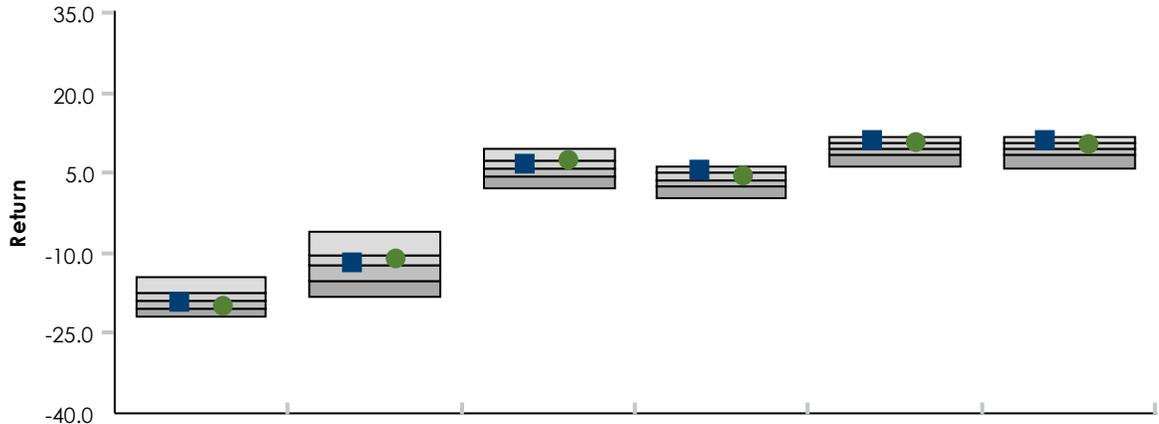
Style History (3 Years)



Historical Statistics (3 Years)

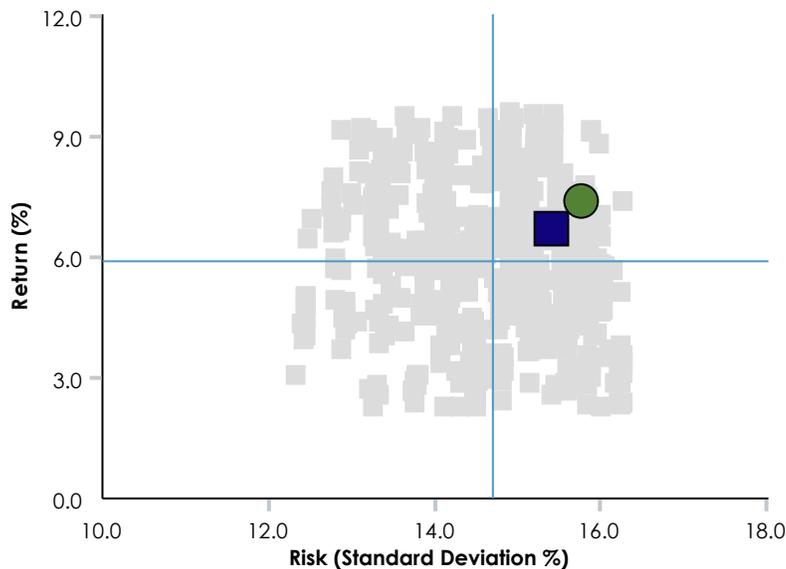
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Small Cap Equity I	6.7	15.4	0.4	-0.4	1.0	1.0	2.3	-0.3	95.2	97.1
Russell 2000 Index	7.4	15.8	0.5	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. SMID Cap Core Equity (MF) Median	5.9	14.7	0.4	-0.7	0.9	0.9	4.1	-0.4	86.1	89.7

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Small Cap Equity I	-19.4 (58)	-12.0 (44)	6.7 (38)	5.4 (15)	11.0 (14)	10.9 (14)
● Russell 2000 Index	-20.2 (72)	-11.0 (31)	7.4 (27)	4.4 (33)	10.4 (28)	10.4 (27)
Median	-18.9	-12.5	5.9	3.7	9.6	9.5

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Small Cap Equity I	6.7	15.4
● Russell 2000 Index	7.4	15.8
— Median	5.9	14.7

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	25	95.2
Down Markets	11	97.1
Batting Average		
Up Markets	25	40.0
Down Markets	11	72.7
Overall	36	50.0

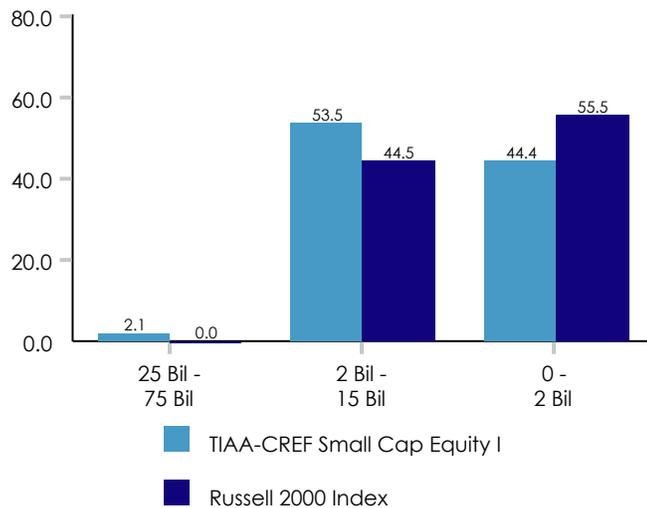
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	3,285	2,012
Median Mkt. Cap (\$M)	1,700	707
Price/Earnings ratio	16.0	15.1
Price/Book ratio	2.5	2.3
5 Yr. EPS Growth Rate (%)	16.4	11.9
Current Yield (%)	1.3	1.6
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	307	2,032

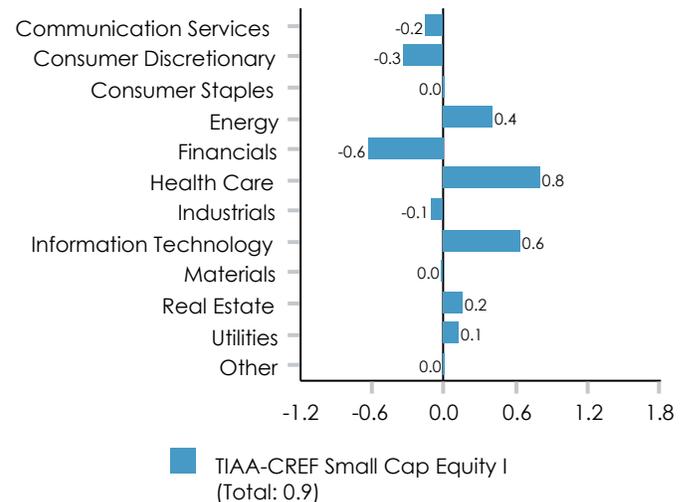
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
iShares Russell 2000 ETF	2.1	0.0	-20.3
Insperty Inc.	0.9	0.2	-20.7
Portland Gen. Elec. Co.	0.8	0.2	1.4
Five Below Inc	0.8	0.3	-21.3
EMCOR Group Inc.	0.8	0.2	-20.4
Lancaster Colony Corp	0.8	0.2	19.0
New Jersey Resources Corp	0.7	0.2	-0.4
Integer Holdings Corp	0.7	0.1	-8.1
PS Business Parks Inc.	0.7	0.1	3.9
Hill-Rom Holdings Inc	0.7	0.0	-6.0
% of Portfolio	9.0	1.5	

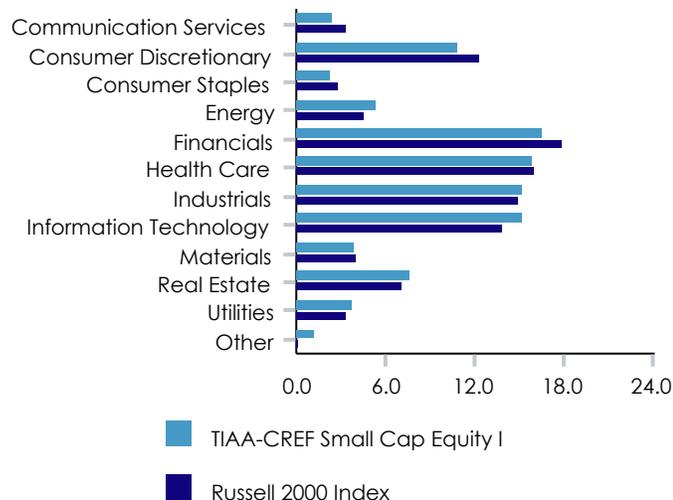
Market Cap Distribution (As of 12/31/2018)



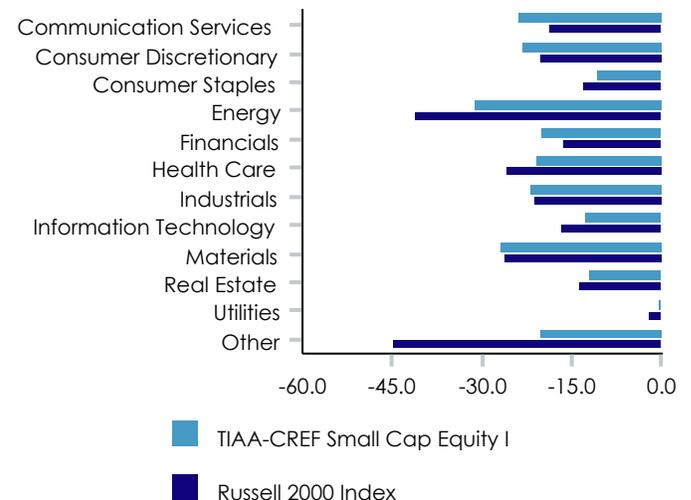
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

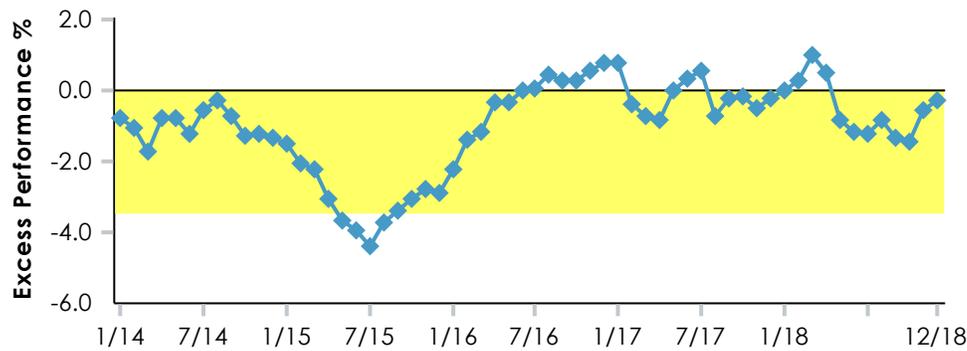


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Social Choice Equity I vs. Russell 3000 Index

Short-term (Rolling 12 Months Excess Performance)

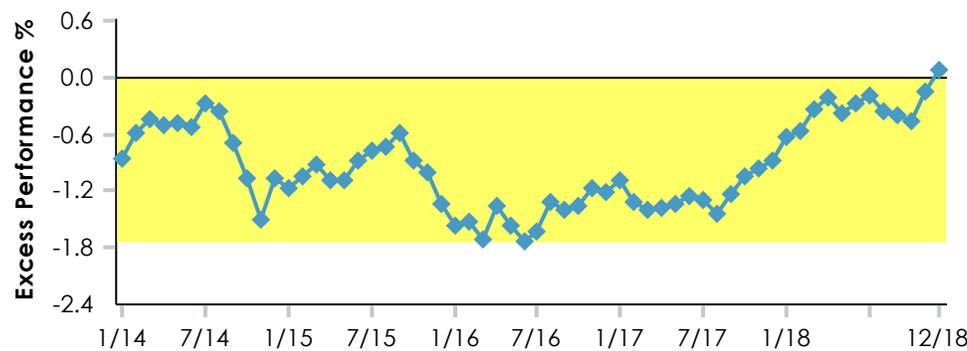


Short-Term Performance

Acceptable

Probationary Performance -3.50%

Medium-term (Rolling 36 Months Excess Performance)

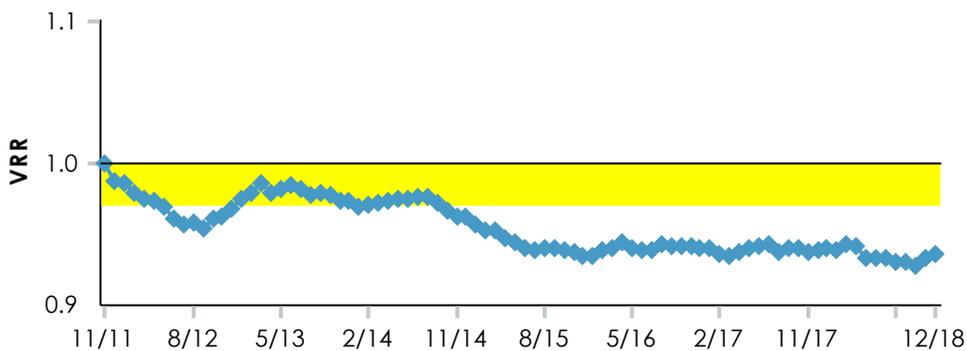


Medium-Term Performance

Positive

Probationary Performance -1.75%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Caution - Long-term Criteria for placing Fund on Watch took effect as of 2Q 2017

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Social Choice Equity I	-13.7 (49)	-5.5 (49)	9.0 (25)	7.1 (52)	11.4 (55)
Russell 3000 Index	-14.3 (67)	-5.2 (43)	9.0 (27)	7.9 (26)	12.4 (23)
IM U.S. Large Cap Core Equity (MF) Median	-13.8	-5.6	8.0	7.1	11.5

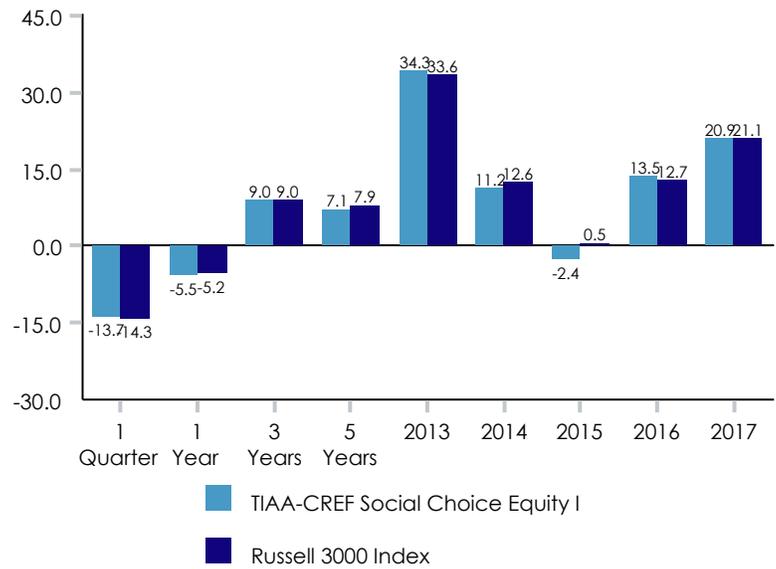
Monitoring Status

Caution / On Watch

Mutual Fund Info

Product Name : TIAA-CREF:Soc Ch Eq;Inst (TISCX)
 Fund Family : TIAA-CREF
 Ticker : TISCX
 Peer Group : IM U.S. Multi-Cap Core Equity (MF)
 Benchmark : Russell 3000 Index
 Fund Inception : 07/01/1999
 Portfolio Manager : Campagna/Liao
 Total Assets : \$2,897 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.2%
 Net Expense : 0.2%
 Turnover : 29%

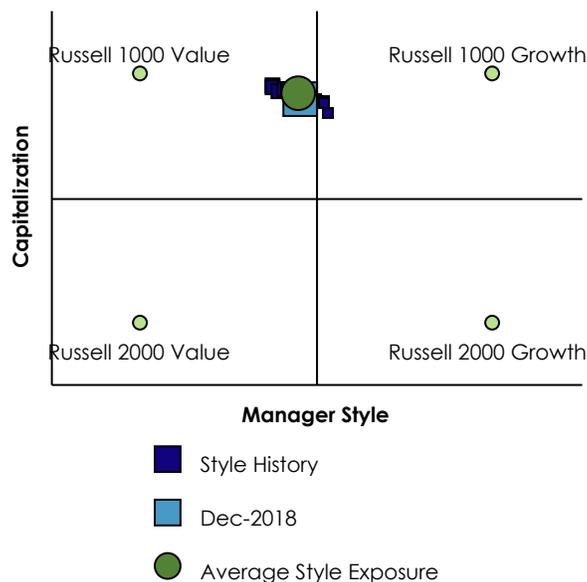
Comparative Performance



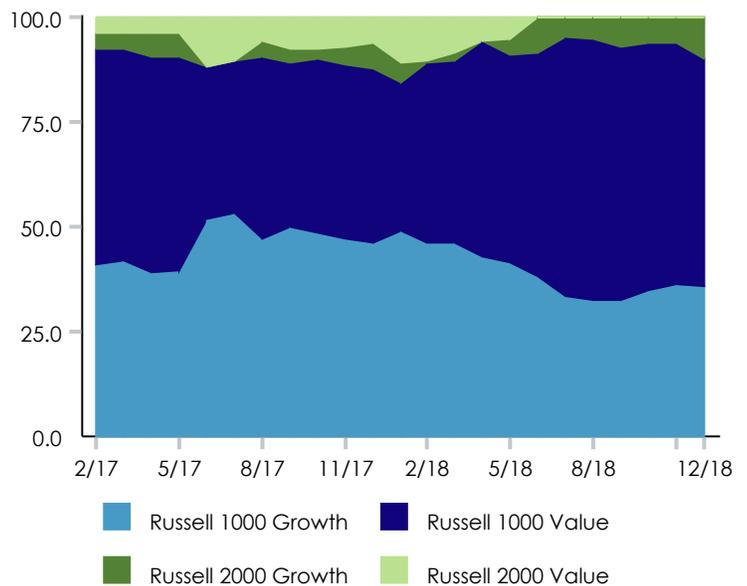
Fund Investment Policy

The Fund seeks a favorable long-term rate of return. The Fund attempts to track the return of the U.S. stock market as represented by its benchmark, the Russell 3000 Index, while investing only in companies whose activities are consistent with the Funds social criteria.

Style Map (3 Years)



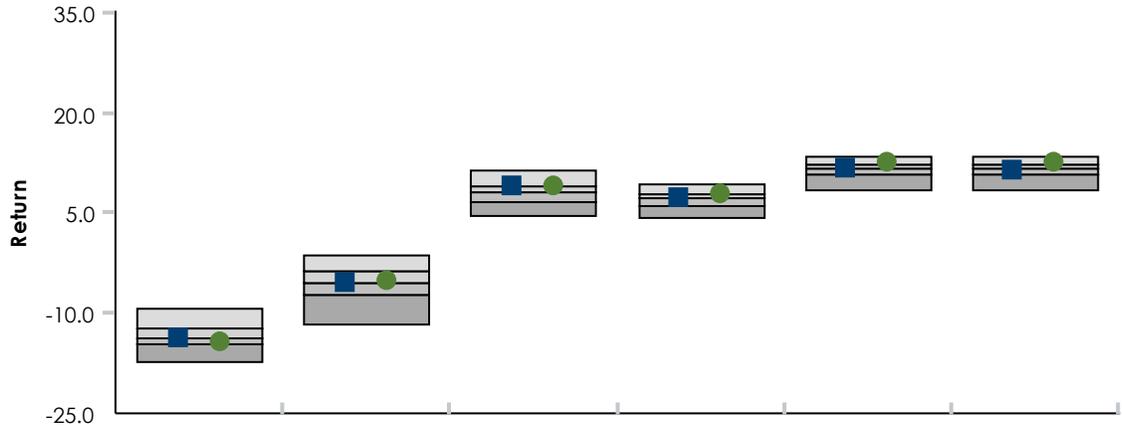
Style History (3 Years)



Historical Statistics (3 Years)

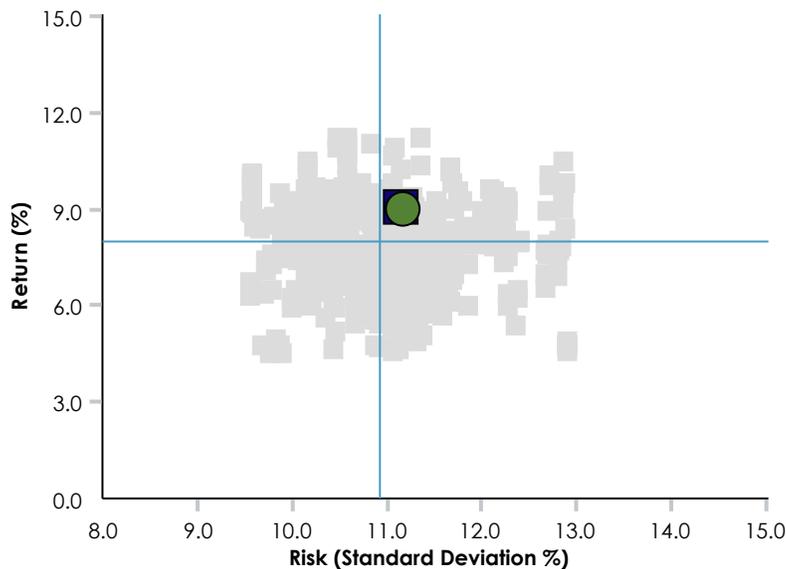
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Social Choice Equity I	9.0	11.2	0.7	0.1	1.0	1.0	1.1	0.1	99.1	97.5
Russell 3000 Index	9.0	11.2	0.7	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Large Cap Core Equity (MF) Median	8.0	10.9	0.7	-0.5	1.0	0.9	2.9	-0.3	93.3	97.8

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Social Choice Equity I	-13.7 (49)	-5.5 (49)	9.0 (25)	7.1 (52)	11.6 (51)	11.4 (55)
● Russell 3000 Index	-14.3 (67)	-5.2 (43)	9.0 (27)	7.9 (26)	12.5 (23)	12.4 (23)
Median	-13.8	-5.6	8.0	7.1	11.6	11.5

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Social Choice Equity I	9.0	11.2
● Russell 3000 Index	9.0	11.2
— Median	8.0	10.9

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	29	99.1
Down Markets	7	97.5
Batting Average		
Up Markets	29	44.8
Down Markets	7	57.1
Overall	36	47.2

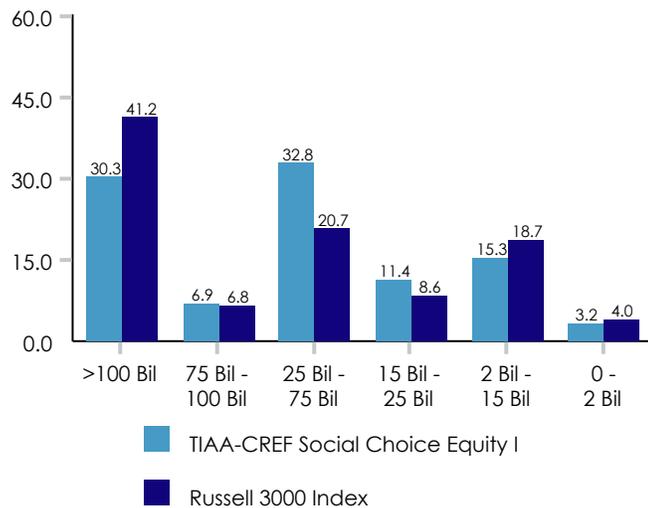
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	129,755	167,103
Median Mkt. Cap (\$M)	3,933	1,418
Price/Earnings ratio	18.1	17.0
Price/Book ratio	3.4	3.0
5 Yr. EPS Growth Rate (%)	14.0	15.9
Current Yield (%)	2.1	2.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	689	3,015

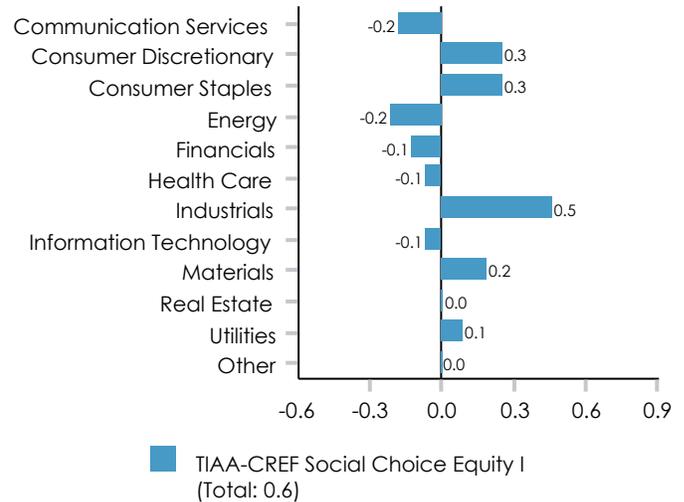
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Microsoft Corp	3.5	3.1	-10.8
Apple Inc	3.2	3.0	-29.9
Unitedhealth Group Inc	1.4	0.9	-6.1
Procter & Gamble Co (The)	1.4	0.9	11.4
Bank of America Corp	1.4	0.9	-15.9
Merck & Co Inc.	1.3	0.8	8.5
Cisco Systems Inc	1.3	0.8	-10.3
Alphabet Inc	1.3	1.3	-13.2
Home Depot Inc. (The)	1.3	0.8	-16.6
Alphabet Inc	1.2	1.2	-13.4
% of Portfolio	17.3	13.7	

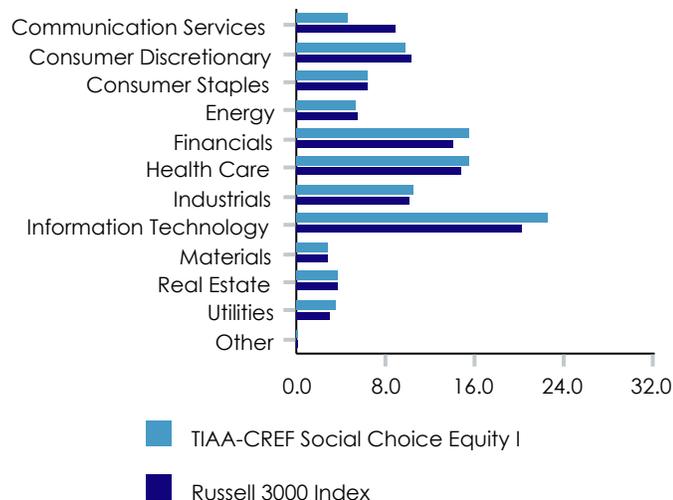
Market Cap Distribution (As of 12/31/2018)



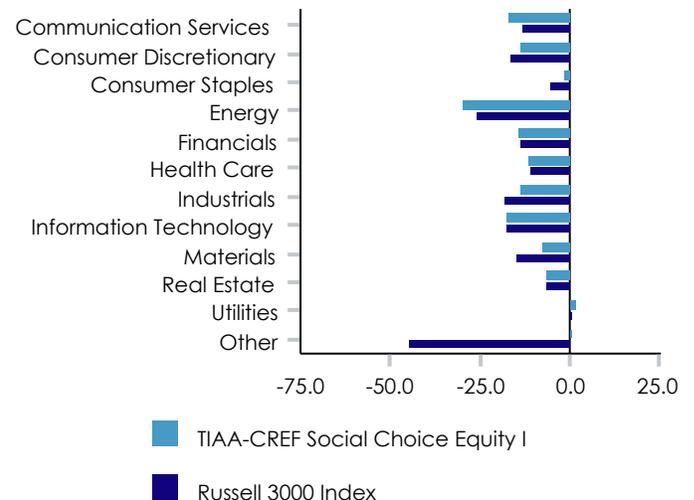
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

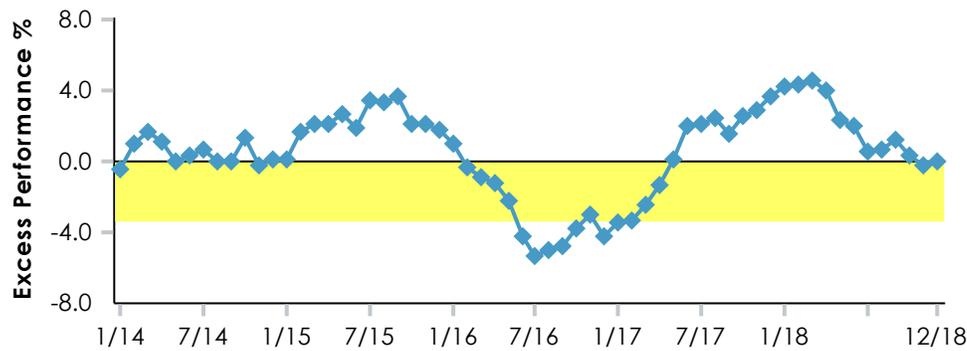


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Real Estate Securities I vs. FTSE NAREIT All Equity REITs

Short-term (Rolling 12 Months Excess Performance)

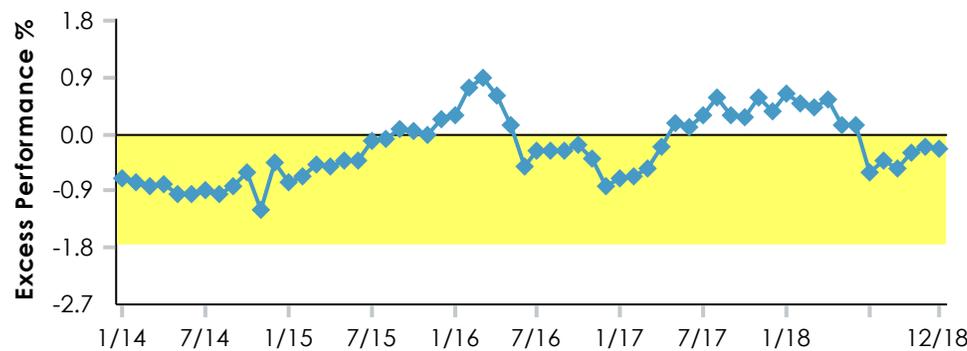


Short-Term Performance

Positive

Probationary Performance -3.50%

Medium-term (Rolling 36 Months Excess Performance)

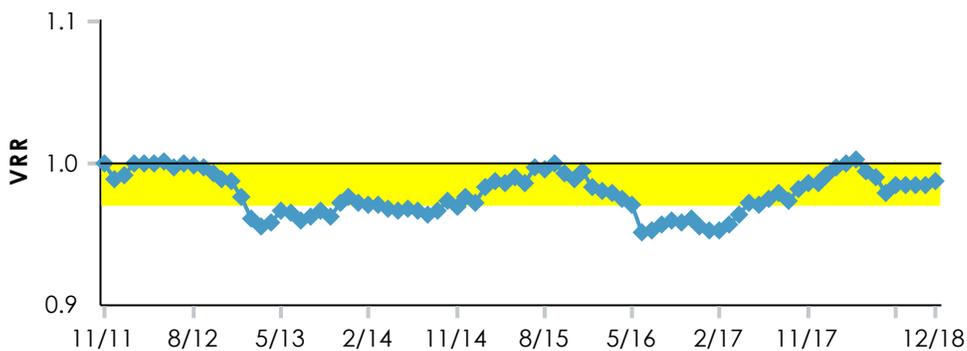


Medium-Term Performance

Acceptable

Probationary Performance -1.75%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Acceptable - Long-term Criteria for placing Fund on Watch took effect as of 2Q 2017

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Real Estate Securities I	-5.9 (17)	-4.0 (17)	4.0 (10)	8.6 (7)	9.5 (7)
FTSE NAREIT All Equity REITs	-6.1 (24)	-4.0 (17)	4.2 (9)	8.3 (12)	9.7 (4)
IM Real Estate Sector (MF) Median	-6.8	-5.7	1.9	6.9	8.0

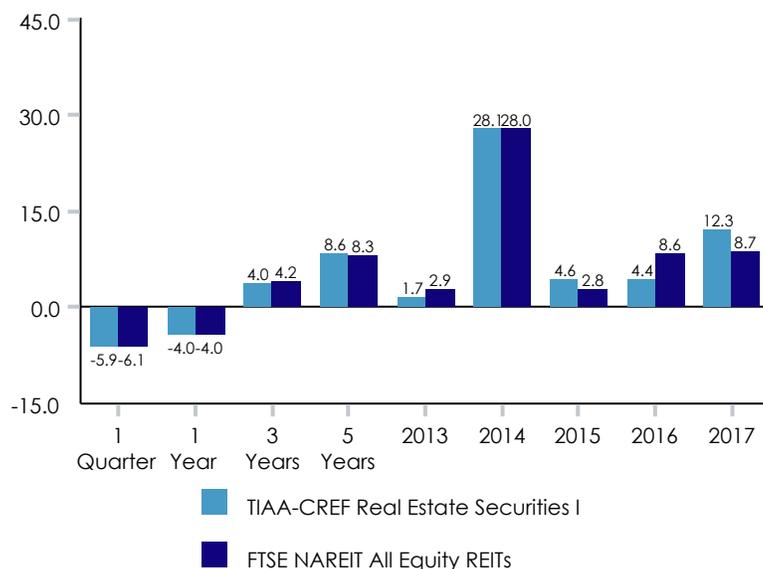
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Real Est;Inst (TIREX)
 Fund Family : TIAA-CREF
 Ticker : TIREX
 Peer Group : IM Real Estate Sector (MF)
 Benchmark : Wilshire U.S. REIT Index
 Fund Inception : 10/01/2002
 Portfolio Manager : Copp/Lee
 Total Assets : \$1,509 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.5%
 Net Expense : 0.5%
 Turnover : 30%

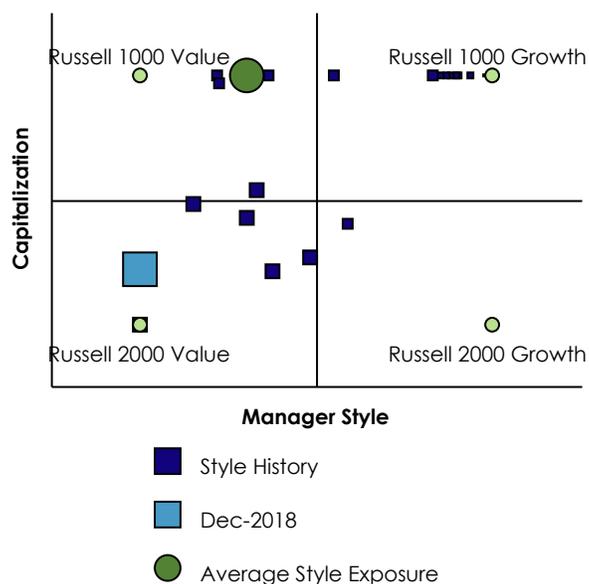
Comparative Performance



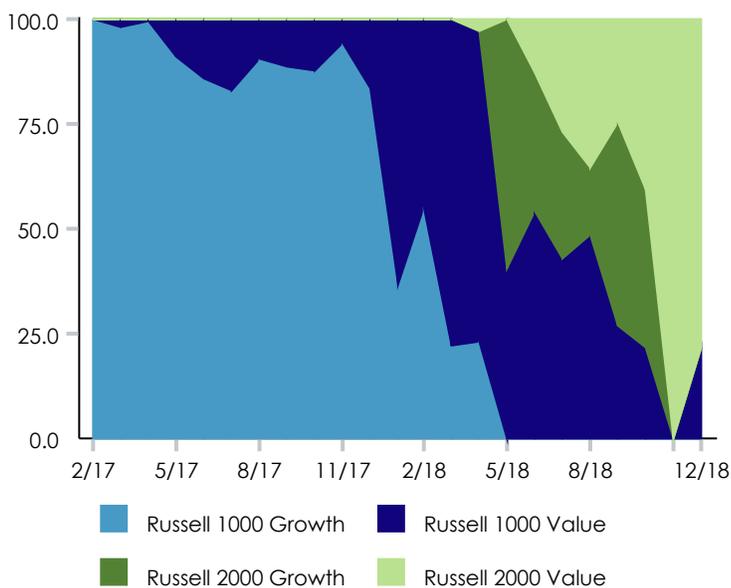
Fund Investment Policy

The Fund seeks to obtain a favorable long-term total return through both capital appreciation and current income, by investing primarily in equity and fixed-income securities of companies principally engaged in or related to the real estate industry.

Style Map (3 Years)



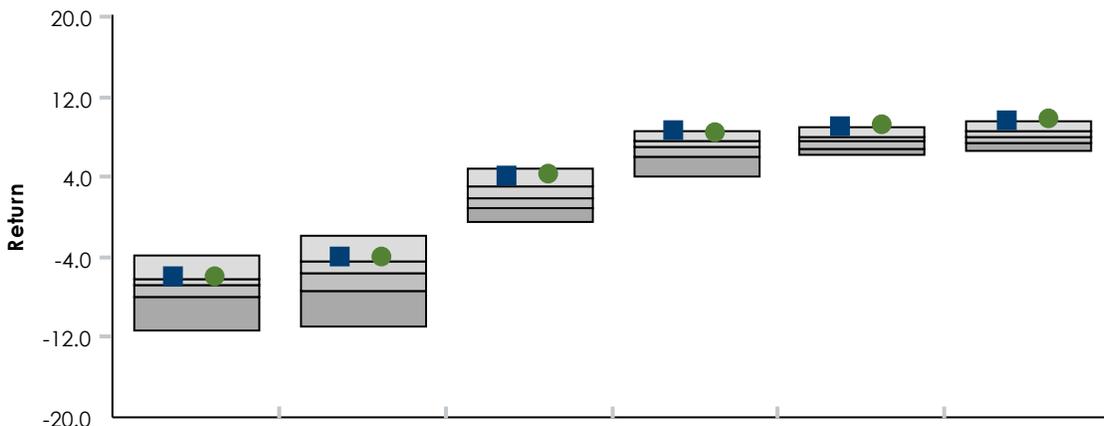
Style History (3 Years)



Historical Statistics (3 Years)

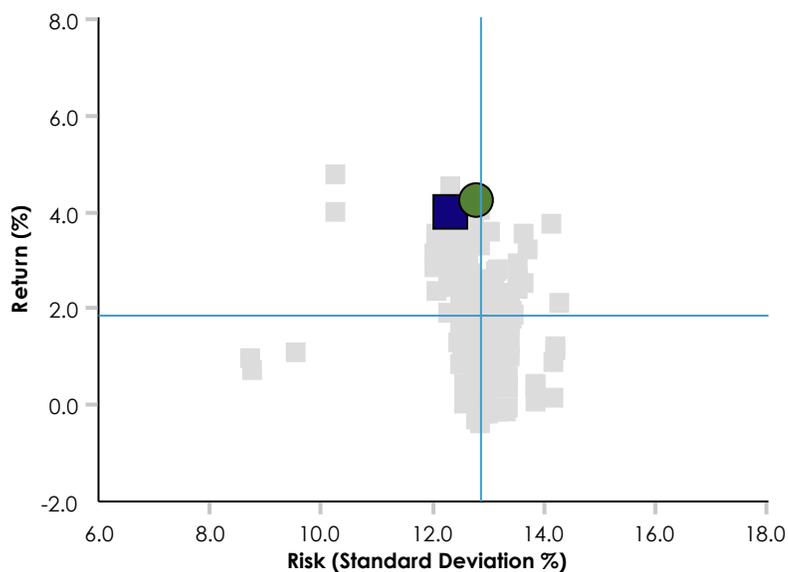
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Real Estate Securities I	4.0	12.3	0.3	-0.1	1.0	1.0	2.0	-0.1	96.5	97.3
FTSE NAREIT All Equity REITs	4.2	12.8	0.3	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM Real Estate Sector (MF) Median	1.9	12.9	0.1	-2.2	1.0	1.0	2.0	-1.0	92.6	106.2

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Real Estate Securities I	-5.9 (17)	-4.0 (17)	4.0 (10)	8.6 (7)	9.0 (6)	9.5 (7)
● FTSE NAREIT All Equity REITs	-6.1 (24)	-4.0 (17)	4.2 (9)	8.3 (12)	9.1 (5)	9.7 (4)
Median	-6.8	-5.7	1.9	6.9	7.5	8.0

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Real Estate Securities I	4.0	12.3
● FTSE NAREIT All Equity REITs	4.2	12.8
— Median	1.9	12.9

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	20	96.5
Down Markets	16	97.3
Batting Average		
Up Markets	20	45.0
Down Markets	16	62.5
Overall	36	52.8

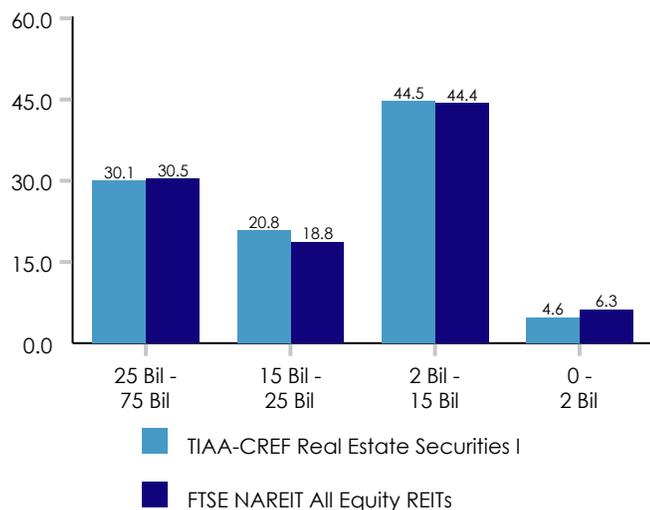
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	21,180	21,603
Median Mkt. Cap (\$M)	7,588	2,657
Price/Earnings ratio	32.7	28.7
Price/Book ratio	2.4	2.5
5 Yr. EPS Growth Rate (%)	20.1	19.1
Current Yield (%)	3.7	4.5
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	54	171

Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Simon Property Group Inc.	7.4	5.5	-3.9
American Tower Corp	5.2	7.4	9.5
Prologis Inc	4.8	3.9	-12.7
AvalonBay Communities Inc.	4.1	2.6	-3.1
Boston Properties Inc	4.0	1.8	-7.8
Crown Castle International Corp	4.0	4.8	-1.5
Rexford Industrial Realty Inc	3.6	0.3	-7.3
Sun Communities Inc.	3.4	0.9	0.9
Essex Property Trust Inc.	3.3	1.7	0.1
Equinix Inc	3.3	3.0	-18.1
% of Portfolio	43.1	31.9	

Market Cap Distribution (As of 12/31/2018)



Sector Attribution (1 Quarter as of 12/31/2018)

No data found.

Sector Allocation (1 Quarter as of 12/31/2018)

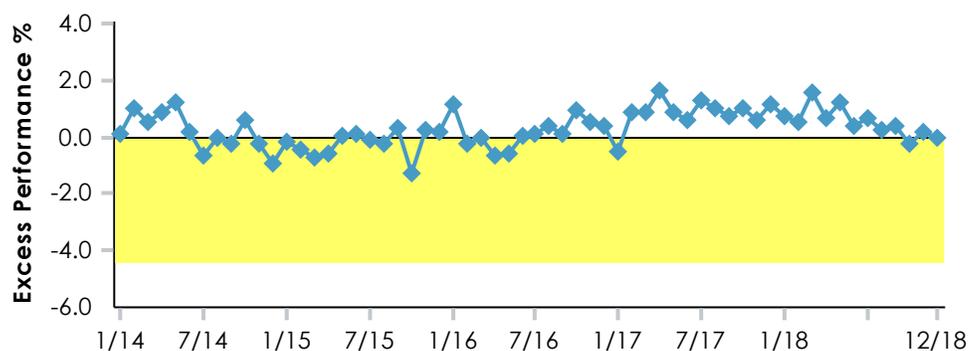
No data found.

Sector Performance (1 Quarter as of 12/31/2018)

No data found.

DFA Large Cap International I vs. MSCI World ex-U.S. (net)

Short-term (Rolling 12 Months Excess Performance)

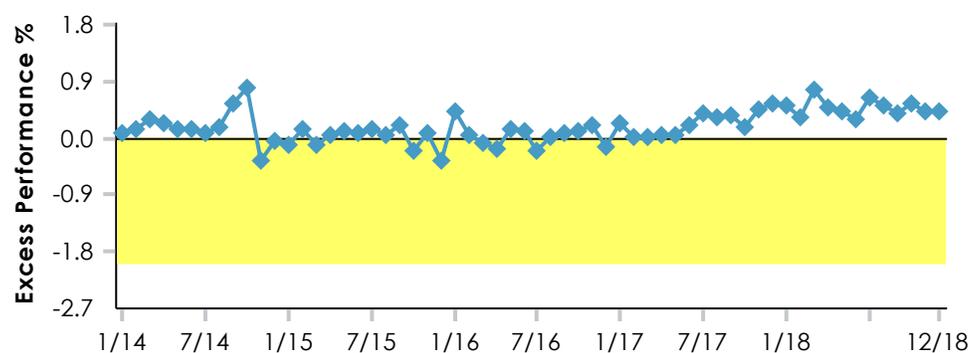


Short-Term Performance

Positive

Probationary Performance -4.50%

Medium-term (Rolling 36 Months Excess Performance)

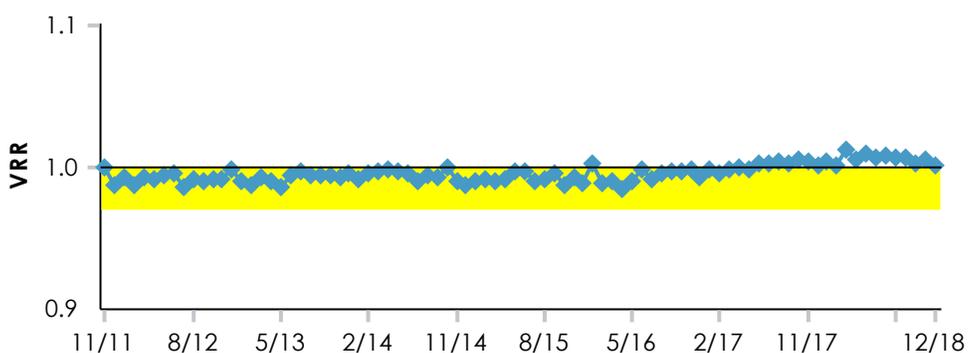


Medium-Term Performance

Positive

Probationary Performance -2.00%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
DFA Large Cap International I	-13.3 (63)	-14.1 (36)	3.6 (26)	0.4 (46)	5.1 (44)
MSCI World ex-U.S. (net)	-12.8 (48)	-14.1 (35)	3.1 (36)	0.3 (51)	5.0 (44)
IM International Multi-Cap Core Equity (MF) Median	-12.9	-14.9	2.7	0.4	4.9

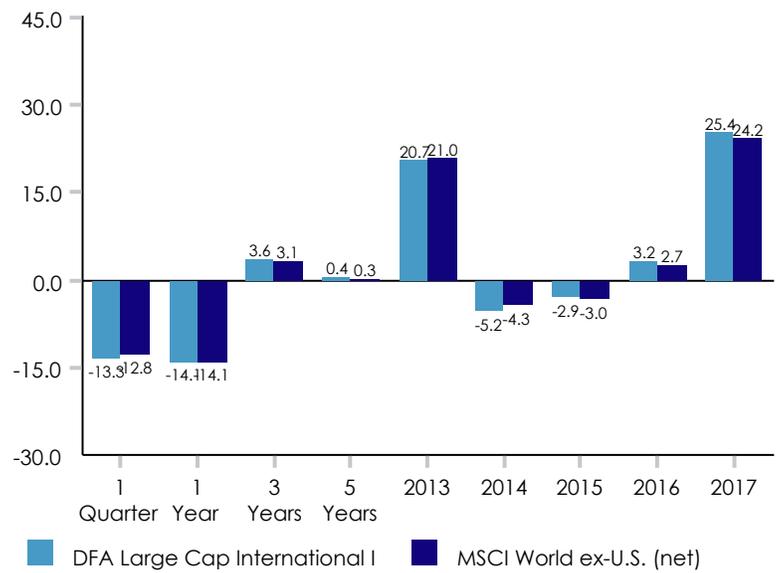
Monitoring Status

Positive

Mutual Fund Info

Product Name : DFA Large Cap Intl;I (DFALX)
 Fund Family : Dimensional Fund Advisors LP
 Ticker : DFALX
 Peer Group : IM International Multi-Cap Core Equity (MF)
 Benchmark : MSCI EAFE IMI
 Fund Inception : 07/15/1991
 Portfolio Manager : Team Managed
 Total Assets : \$4,941 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.2%
 Net Expense : 0.2%
 Turnover : 10%

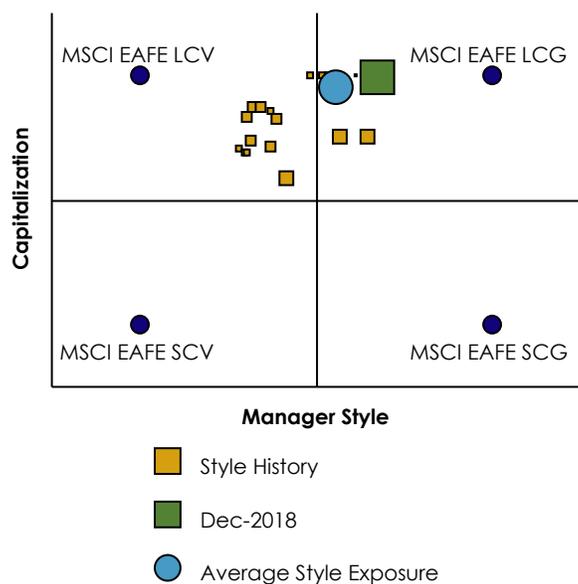
Comparative Performance



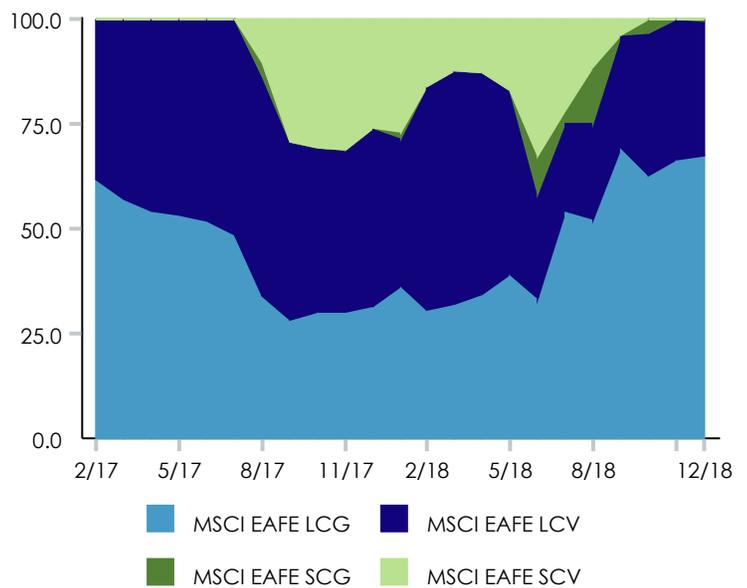
Fund Investment Policy

The Fund seeks to achieve long-term capital appreciation by investing in the stocks of large companies in Europe, Australia, and the Far East.

Style Map (3 Years)



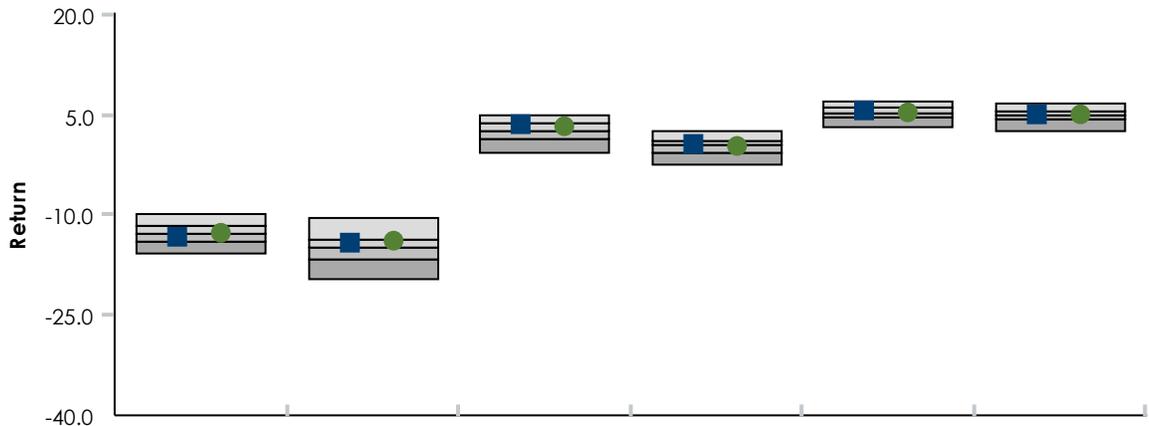
Style History (3 Years)



Historical Statistics (3 Years)

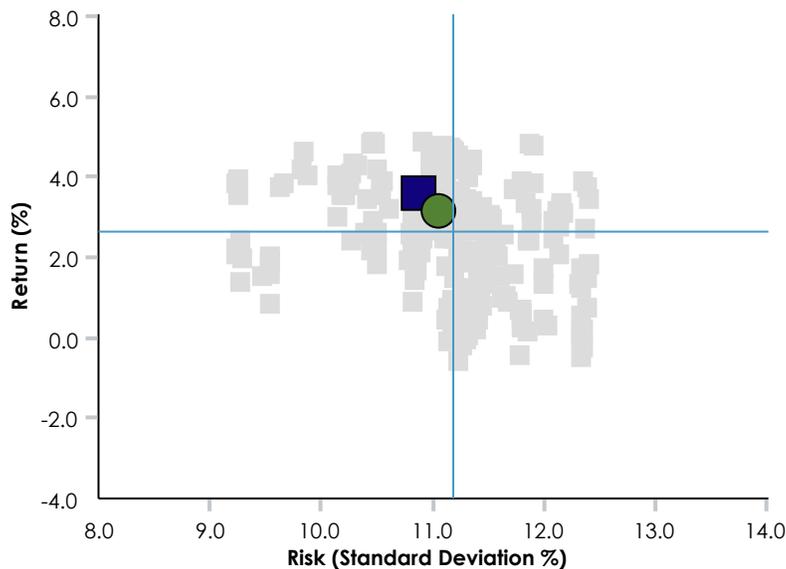
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
DFA Large Cap International I	3.6	10.9	0.3	0.5	1.0	1.0	1.8	0.2	98.8	95.4
MSCI World ex-U.S. (net)	3.1	11.1	0.2	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM International Multi-Cap Core Equity (MF) Median	2.7	11.2	0.2	-0.3	1.0	0.9	3.2	-0.2	96.0	98.8

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ DFA Large Cap International I	-13.3 (63)	-14.1 (36)	3.6 (26)	0.4 (46)	5.5 (42)	5.1 (44)
● MSCI World ex-U.S. (net)	-12.8 (48)	-14.1 (35)	3.1 (36)	0.3 (51)	5.3 (52)	5.0 (44)
Median	-12.9	-14.9	2.7	0.4	5.3	4.9

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ DFA Large Cap International I	3.6	10.9
● MSCI World ex-U.S. (net)	3.1	11.1
— Median	2.7	11.2

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	21	98.8
Down Markets	15	95.4
Batting Average		
Up Markets	21	52.4
Down Markets	15	53.3
Overall	36	52.8

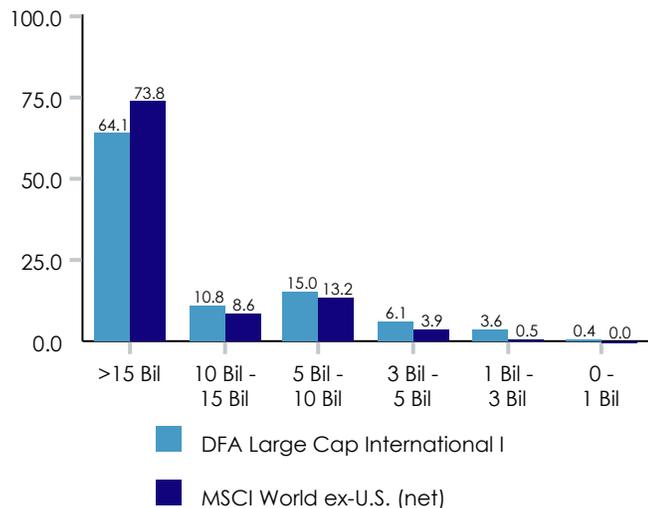
Portfolio Characteristics (As of 7/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	49,085	53,808
Median Mkt. Cap (\$M)	7,581	9,266
Price/Earnings ratio	12.1	12.4
Price/Book ratio	2.0	2.1
5 Yr. EPS Growth Rate (%)	10.1	9.7
Current Yield (%)	3.3	3.7
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	1,380	1,011

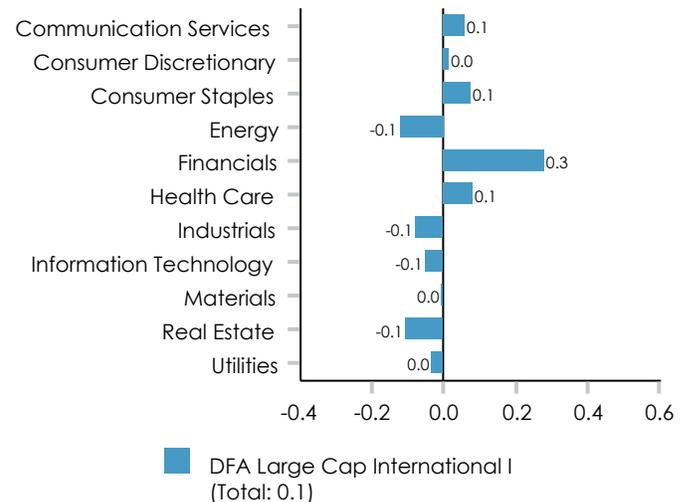
Top 10 Holdings (As of 7/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Nestle SA	1.6	1.8	-3.3
Fujitsu Ltd	1.3	0.1	-12.5
Roche Holding AG	1.3	1.3	1.6
Royal Dutch Shell PLC	1.0	1.0	-13.2
NOVARTIS AG	0.9	0.0	N/A
Hitachi Ltd	0.9	0.2	-21.3
BP PLC	0.8	0.9	-16.5
AIA Group Ltd	0.7	0.7	-7.1
Royal Bank of Canada	0.6	0.7	-13.7
Total SA Oil & Gas	0.6	0.9	-17.4
% of Portfolio	9.7	7.6	

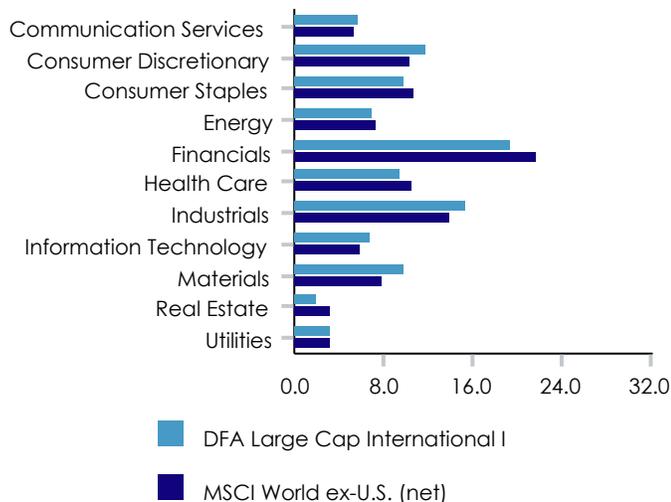
Market Cap Distribution (As of 7/31/2018)



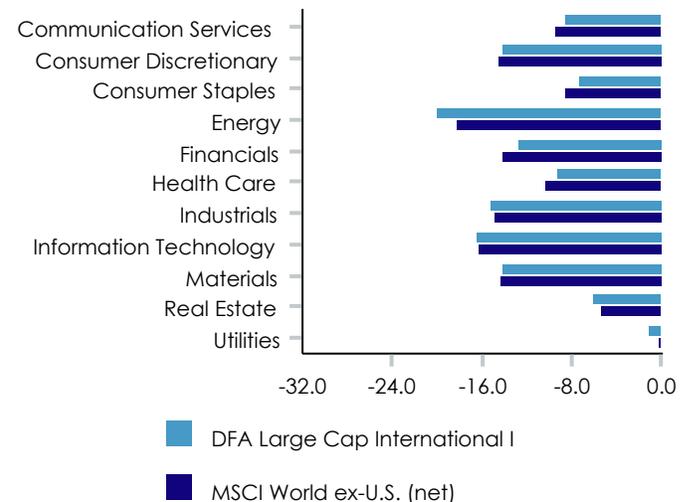
Sector Attribution (1 Quarter as of 7/31/2018)



Sector Allocation (1 Quarter as of 7/31/2018)

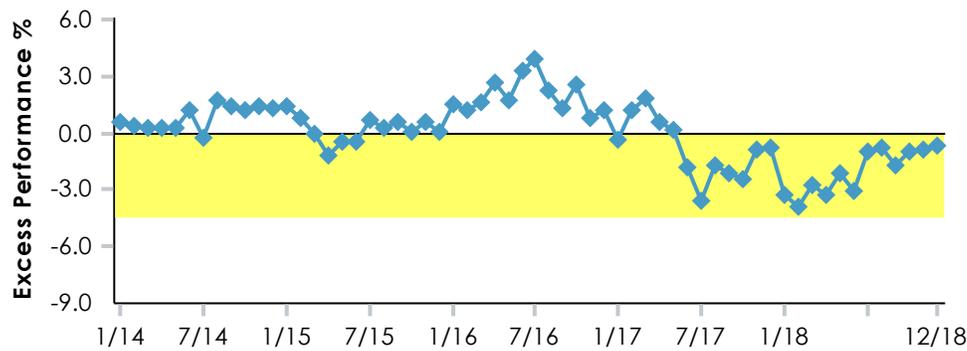


Sector Performance (1 Quarter as of 7/31/2018)



DFA Emerging Markets Core Equity I vs. MSCI Emerging Markets (Net) Index

Short-term (Rolling 12 Months Excess Performance)

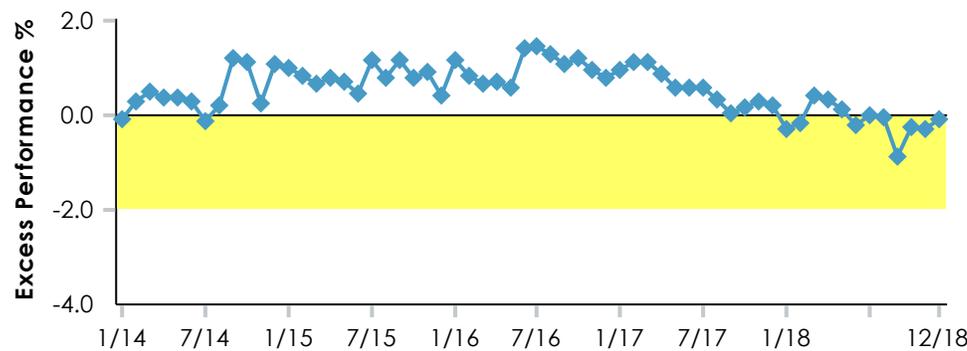


Short-Term Performance

Acceptable

Probationary Performance -4.50%

Medium-term (Rolling 36 Months Excess Performance)

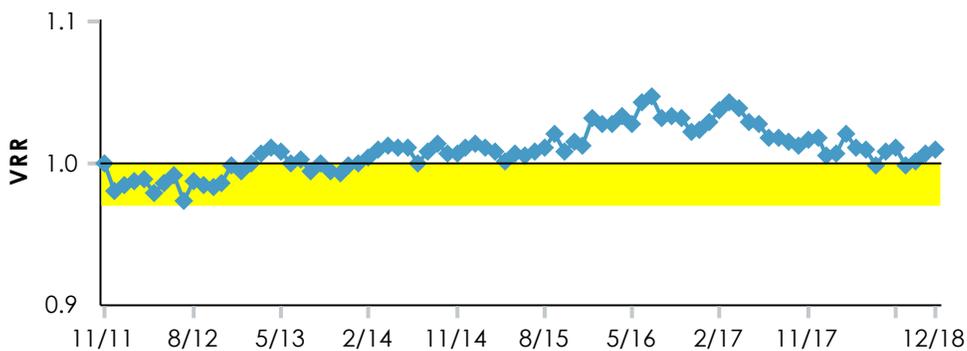


Medium-Term Performance

Acceptable

Probationary Performance -2.00%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.97

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
DFA Emerging Markets Core Equity I	-6.4 (34)	-15.2 (39)	9.1 (18)	1.9 (21)	3.2 (34)
MSCI Emerging Markets (Net) Index	-7.5 (48)	-14.6 (30)	9.2 (17)	1.6 (27)	3.0 (37)
IM Emerging Markets Equity (MF) Median	-7.6	-16.4	6.9	0.9	2.4

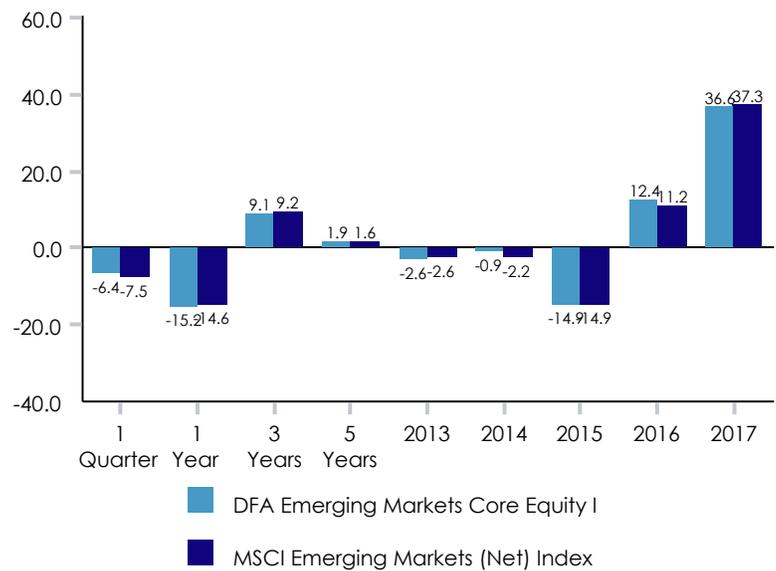
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : DFA Emg Mkts Core Eq;l (DFCEX)
 Fund Family : Dimensional Fund Advisors LP
 Ticker : DFCEX
 Peer Group : IM Emerging Markets Equity (MF)
 Benchmark : MSCI Emerging Markets Index
 Fund Inception : 04/05/2005
 Portfolio Manager : Team Managed
 Total Assets : \$28,069 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.5%
 Net Expense : 0.5%
 Turnover : 4%

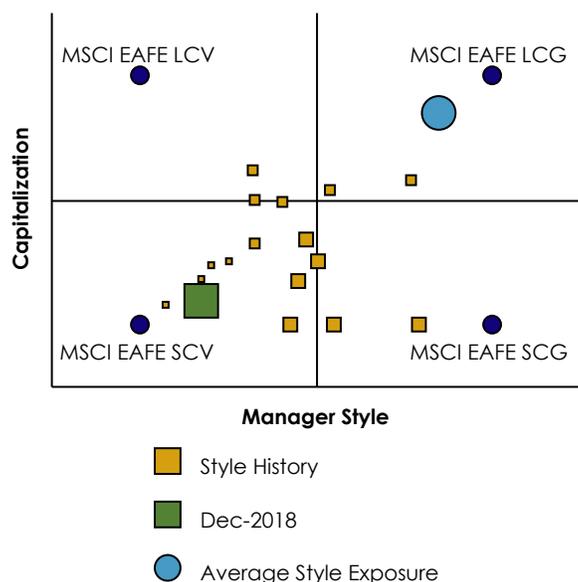
Comparative Performance



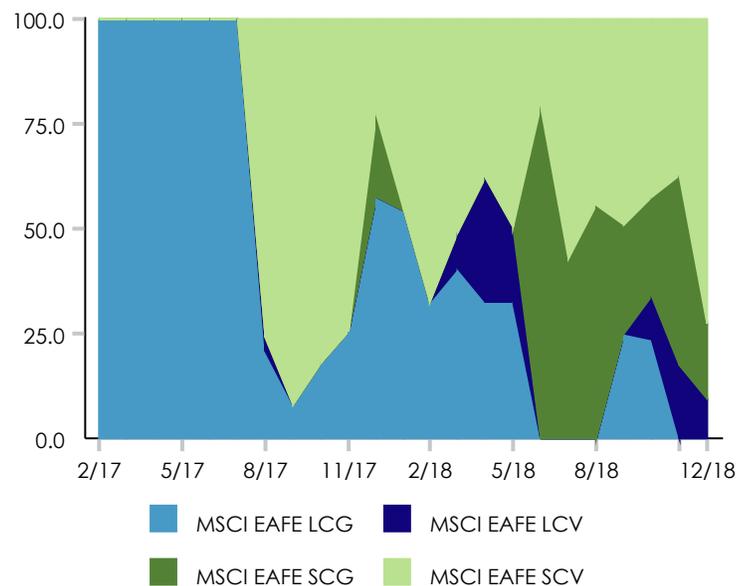
Fund Investment Policy

The Fund seeks long-term capital appreciation. The Fund invests in a broad and diverse group of securities associated with emerging markets, including frontier markets, with an increased exposure to securities of small cap issuers and securities that it considers to be value securities.

Style Map (3 Years)



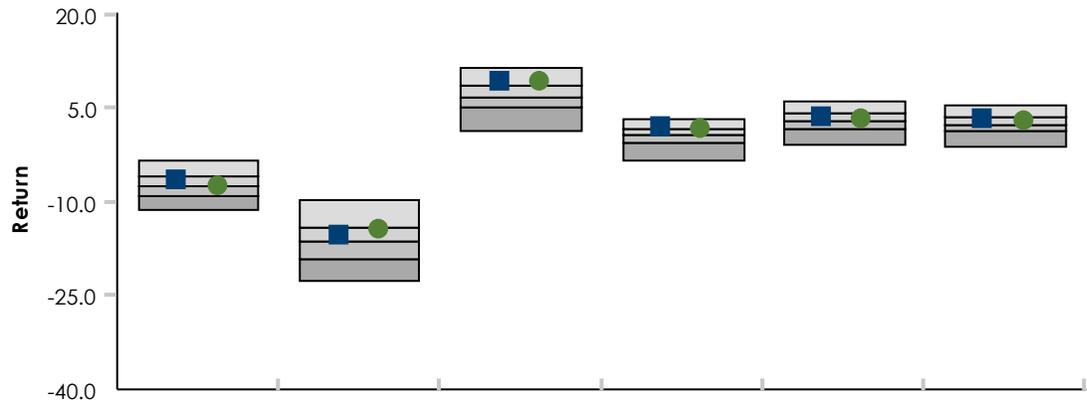
Style History (3 Years)



Historical Statistics (3 Years)

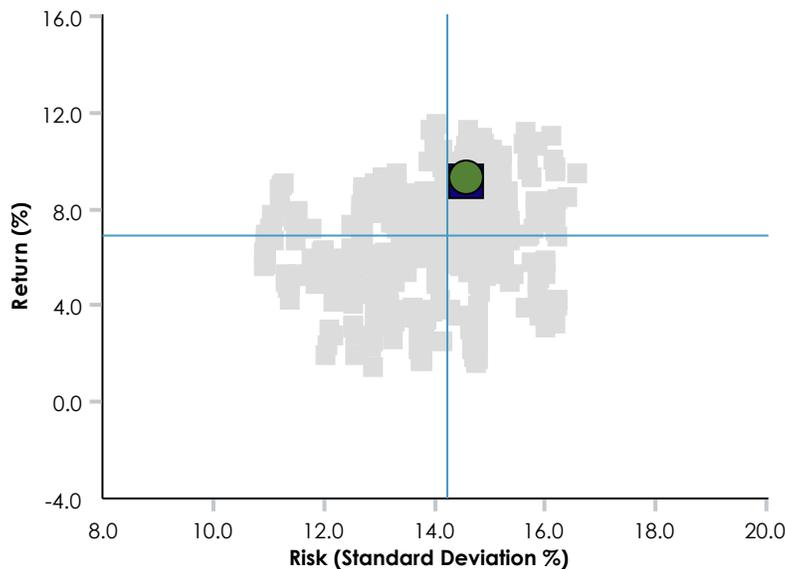
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
DFA Emerging Markets Core Equity I	9.1	14.6	0.6	0.1	1.0	1.0	2.7	0.0	101.6	103.3
MSCI Emerging Markets (Net) Index	9.2	14.6	0.6	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM Emerging Markets Equity (MF) Median	6.9	14.2	0.5	-1.1	0.9	0.9	4.8	-0.5	91.6	99.1

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ DFA Emerging Markets Core Equity I	-6.4 (34)	-15.2 (39)	9.1 (18)	1.9 (21)	3.7 (36)	3.2 (34)
● MSCI Emerging Markets (Net) Index	-7.5 (48)	-14.6 (30)	9.2 (17)	1.6 (27)	3.2 (45)	3.0 (37)
Median	-7.6	-16.4	6.9	0.9	3.0	2.4

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ DFA Emerging Markets Core Equity I	9.1	14.6
● MSCI Emerging Markets (Net) Index	9.2	14.6
— Median	6.9	14.2

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	101.6
Down Markets	14	103.3
Batting Average		
Up Markets	22	59.1
Down Markets	14	42.9
Overall	36	52.8

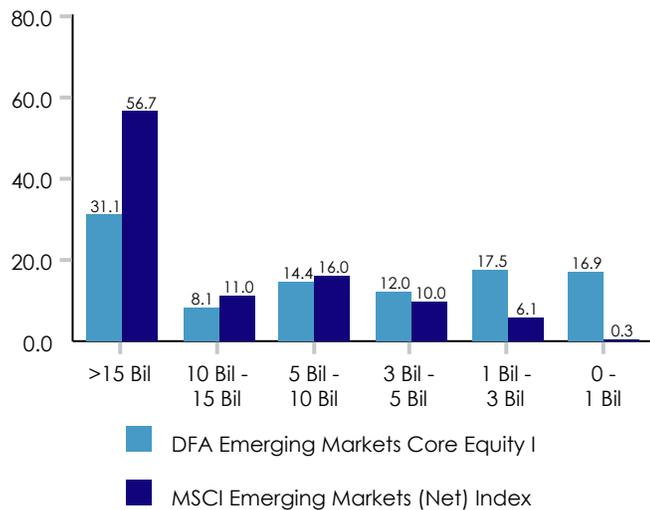
Portfolio Characteristics (As of 7/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	31,265	70,373
Median Mkt. Cap (\$M)	350	4,928
Price/Earnings ratio	11.4	11.1
Price/Book ratio	2.1	2.4
5 Yr. EPS Growth Rate (%)	11.5	13.5
Current Yield (%)	3.2	3.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	4,969	1,125

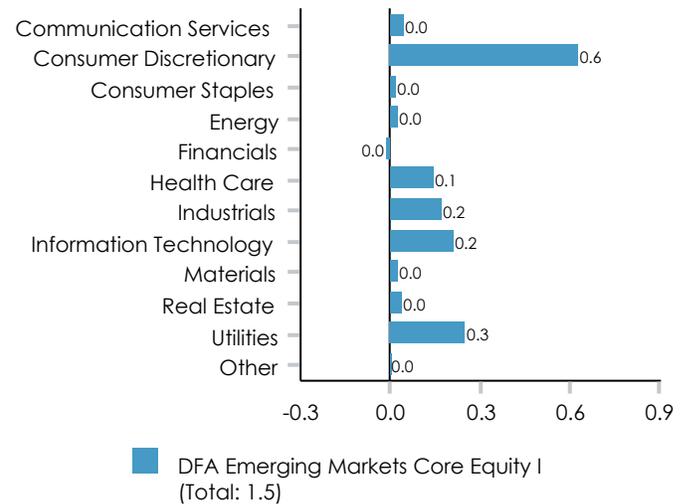
Top 10 Holdings (As of 7/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Tencent Holdings LTD	1.8	4.8	-2.9
Taiwan Semiconductor	1.7	3.8	-16.4
Taiwan Semiconductor	1.3	3.8	-14.4
Vale SA	1.0	0.9	-11.9
China Construction Bank Corp	0.8	1.6	-5.6
Alibaba Group Holding Ltd	0.8	3.7	-16.8
SK Hynix Inc	0.7	0.7	-16.1
Ping An Insurance Group	0.7	1.0	-13.1
Hon Hai Precision Industry	0.5	0.6	-8.3
Reliance Industries Ltd	0.5	1.0	-7.1
% of Portfolio	9.8	21.9	

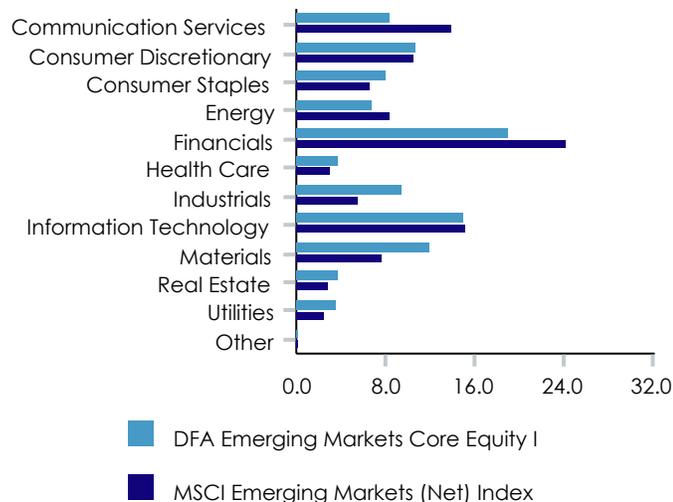
Market Cap Distribution (As of 7/31/2018)



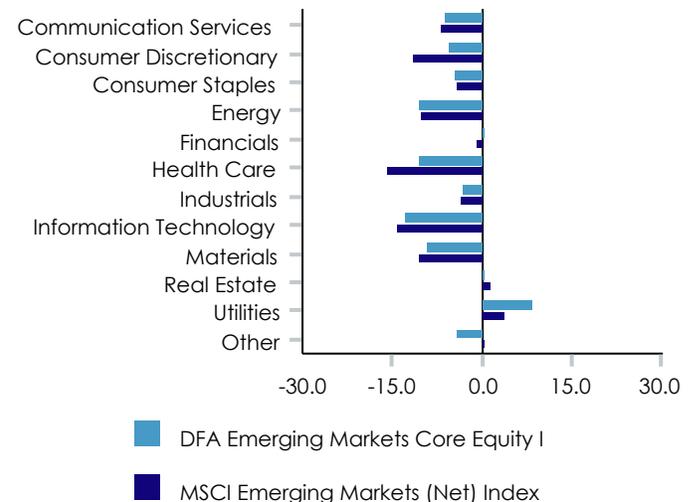
Sector Attribution (1 Quarter as of 7/31/2018)



Sector Allocation (1 Quarter as of 7/31/2018)

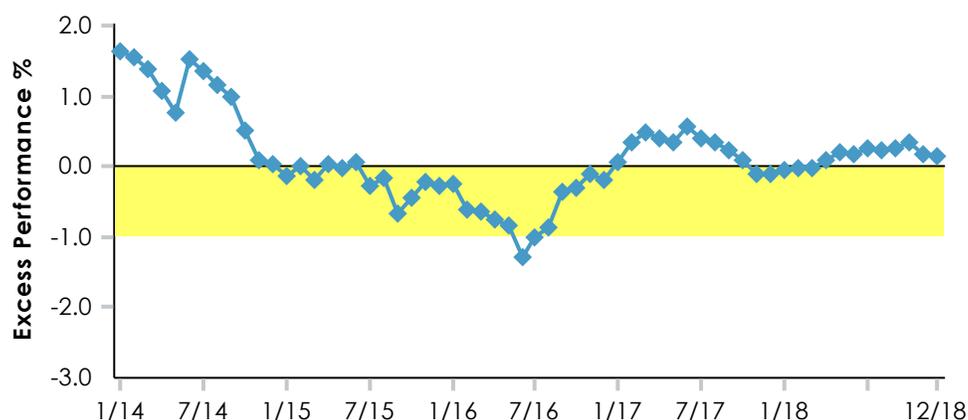


Sector Performance (1 Quarter as of 7/31/2018)



Metropolitan West Total Return Bond I vs. BBg BC U.S. Aggregate Index

Short-term (Rolling 12 Months Excess Performance)

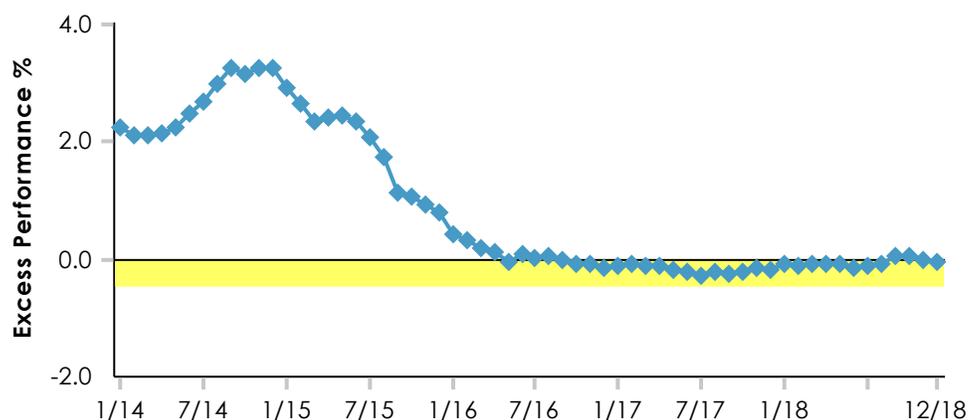


Short-Term Performance

Positive

Probationary Performance -1.00%

Medium-term (Rolling 36 Months Excess Performance)



Medium-Term Performance

Positive

Probationary Performance -0.50%

- Long-term criteria to take effect 1Q 2021

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (10/2015)
Metropolitan West Total Return Bond I	1.5 (12)	0.2 (16)	2.0 (74)	2.4 (49)	1.7 (70)
BBg BC U.S. Aggregate Index	1.6 (9)	0.0 (19)	2.1 (73)	2.5 (46)	1.7 (71)
IM U.S. Broad Market Core+ Fixed Income (MF) Median	0.6	-0.9	2.6	2.4	2.2

Monitoring Status

Positive

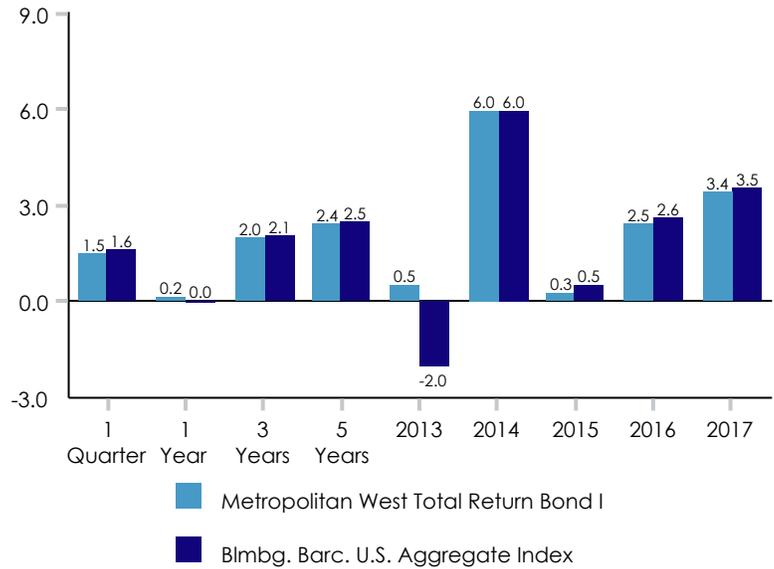
Metropolitan West Total Return Bond I

December 31, 2018

Mutual Fund Info

Product Name : Met West:Total Return:I (MWTIX)
 Fund Family : Metropolitan West Asset Management LLC
 Ticker : MWTIX
 Peer Group : IM U.S. Broad Market Core+ Fixed Income (MF)
 Benchmark : Bloomberg Barclays U.S. Aggregate
 Fund Inception : 03/31/2000
 Portfolio Manager : Team Managed
 Total Assets : \$39,532 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.5%
 Net Expense : 0.5%
 Turnover : 291%

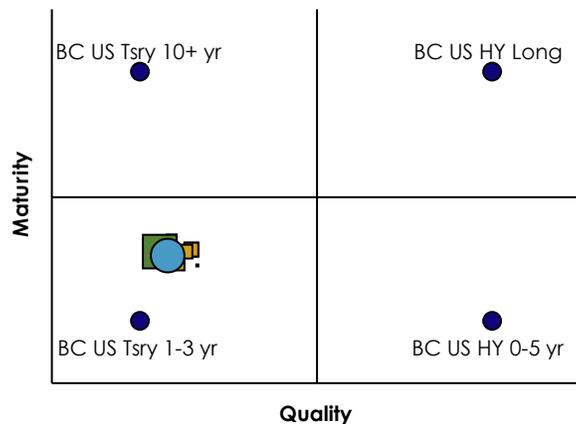
Comparative Performance



Fund Investment Policy

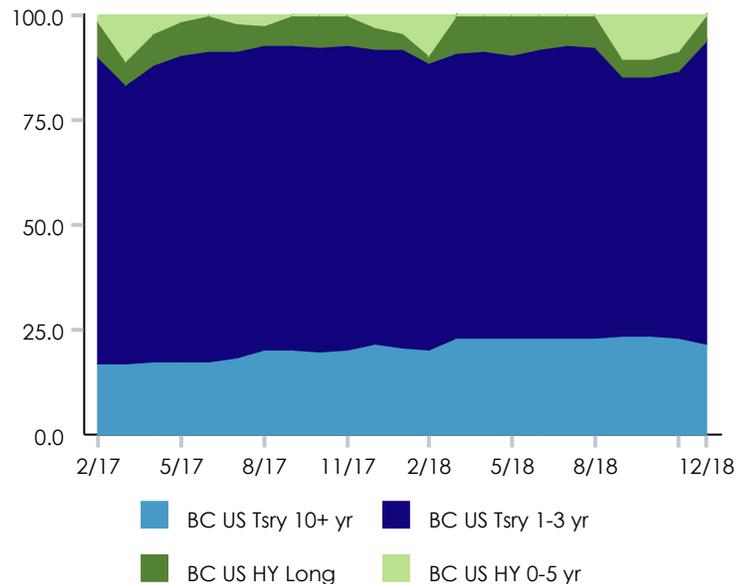
The Fund seeks to outperform the broad bond market by applying specialized management expertise to and allocating capital among U.S. government, corporate, high yield, and mortgage-backed sectors.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

Style History (3 Years)



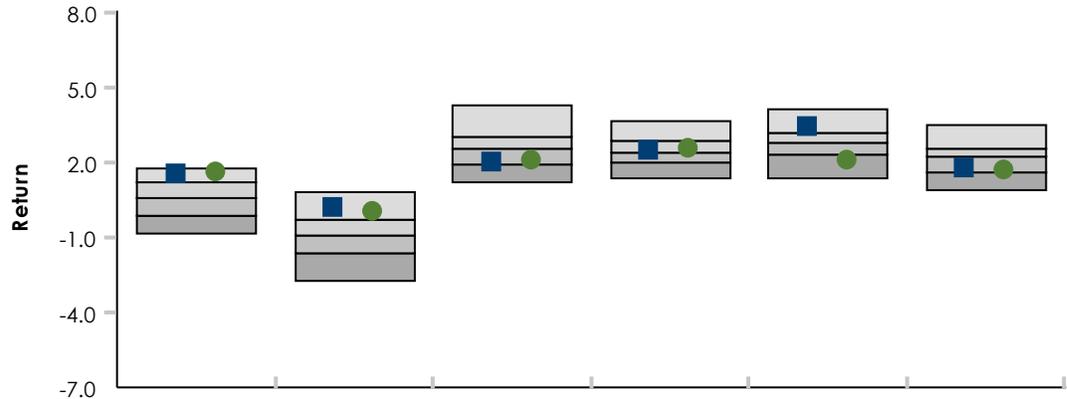
Metropolitan West Total Return Bond I

December 31, 2018

Historical Statistics (3 Years)

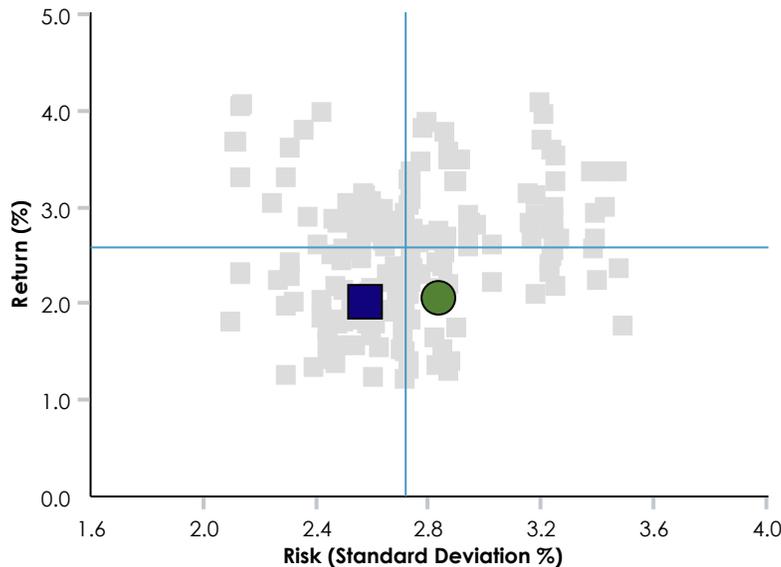
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
Metropolitan West Total Return Bond I	2.0	2.6	0.4	0.1	0.9	1.0	0.4	-0.1	92.0	88.2
Blmbg. Barc. U.S. Aggregate Index	2.1	2.8	0.4	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Broad Market Core+ Fixed Income (MF) Median	2.6	2.7	0.6	0.8	0.9	0.8	1.3	0.4	96.0	82.5

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Oct-2015
■ Metropolitan West Total Return Bond I	1.5 (12)	0.2 (16)	2.0 (74)	2.4 (49)	3.4 (18)	1.7 (70)
● Blmbg. Barc. U.S. Aggregate Index	1.6 (9)	0.0 (19)	2.1 (73)	2.5 (46)	2.1 (84)	1.7 (71)
Median	0.6	-0.9	2.6	2.4	2.8	2.2

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ Metropolitan West Total Return Bond I	2.0	2.6
● Blmbg. Barc. U.S. Aggregate Index	2.1	2.8
— Median	2.6	2.7

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	92.0
Down Markets	14	88.2
Batting Average		
Up Markets	22	27.3
Down Markets	14	71.4
Overall	36	44.4

Metropolitan West Total Return Bond I

December 31, 2018

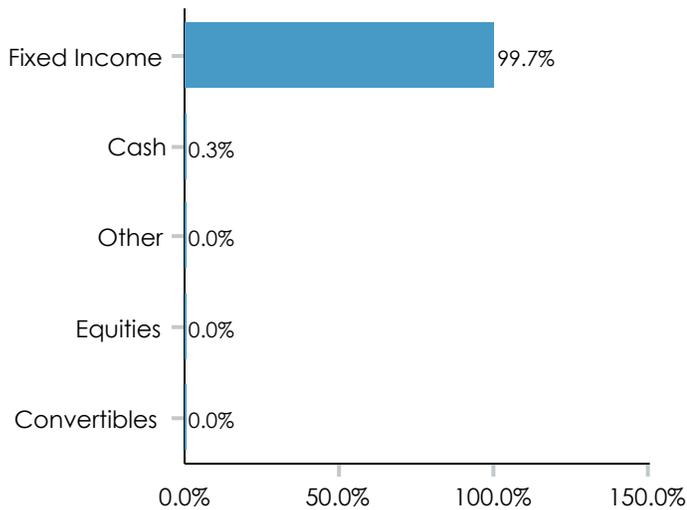
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	3.32 %
Nominal Maturity	7.52 Years
Effective Maturity	N/A
Duration	6.05 Years
SEC 30 Day Yield	3.9
Avg. Credit Quality	AA

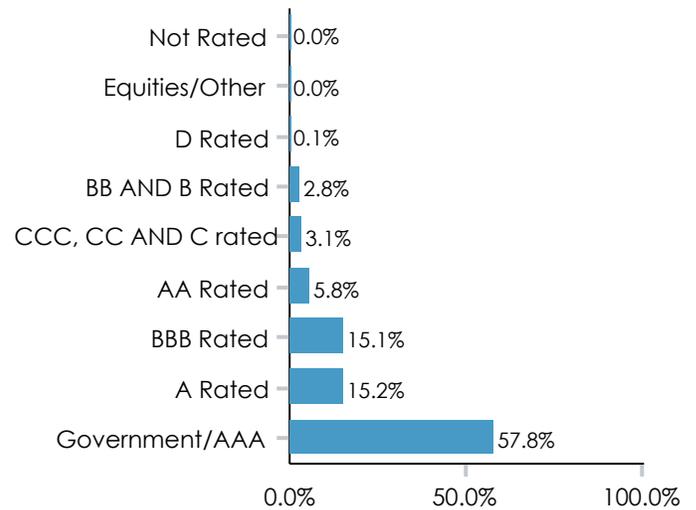
Top 10 Holdings (As of 9/30/2018)

GNMA and Other Mtg Backed	40.2 %
Corporate Notes/Bonds	35.1 %
Government Agency Securities	18.9 %
Asset Backed Securities	5.6 %

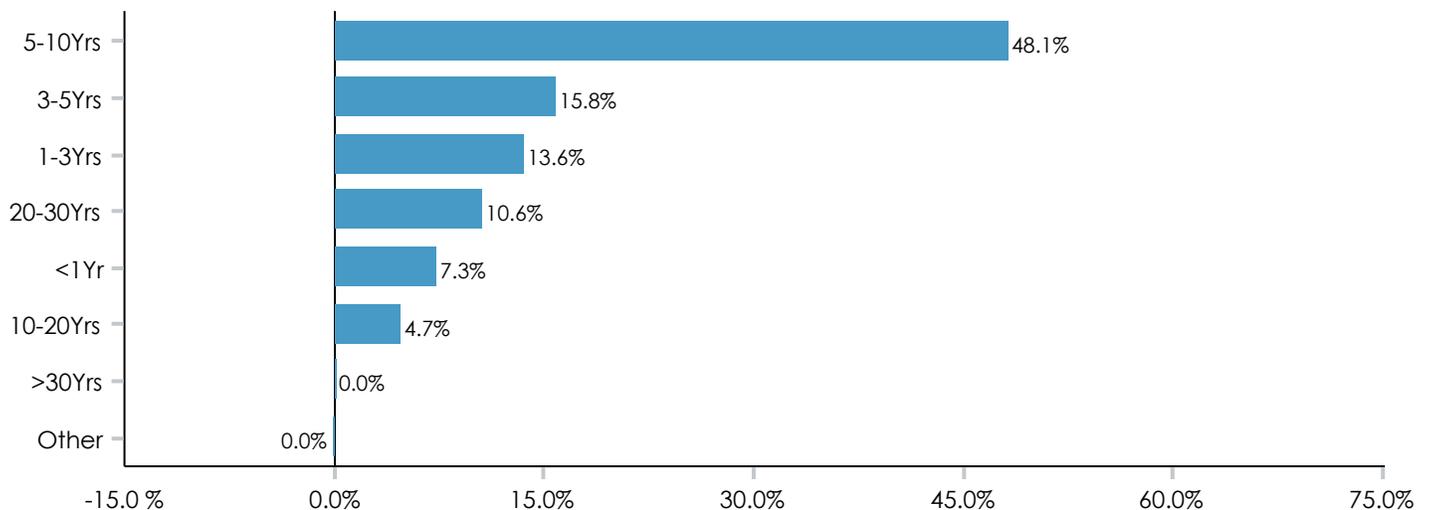
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)

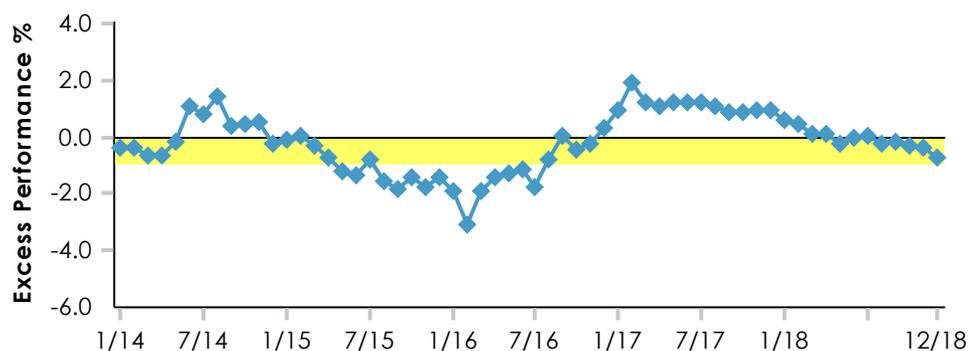


Maturity Distribution (As of 12/31/2018)



PIMCO Real Return vs. Bloomberg Barclays U.S. TIPS Index

Short-term (Rolling 12 Months Excess Performance)

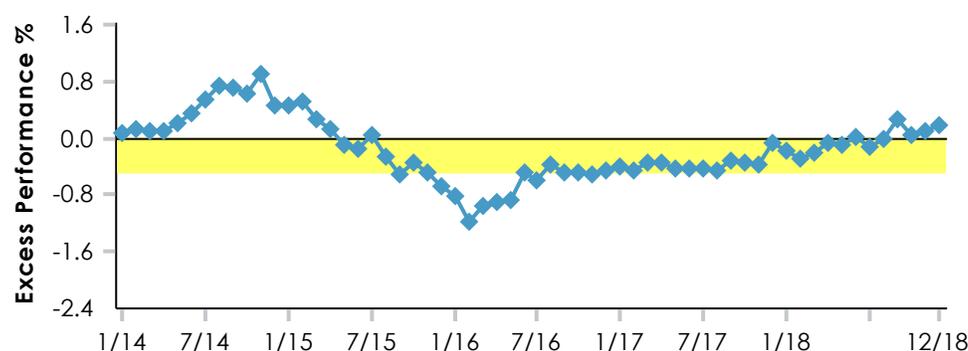


Short-Term Performance

Acceptable

Probationary Performance -1.00%

Medium-term (Rolling 36 Months Excess Performance)

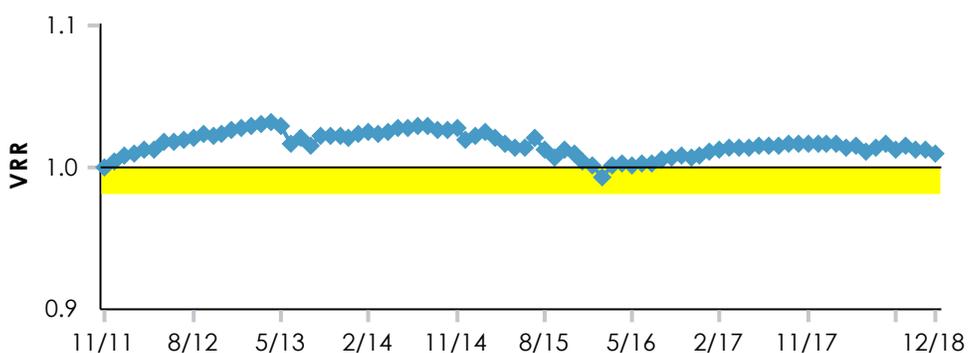


Medium-Term Performance

Positive

Probationary Performance -0.50%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.98

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
PIMCO Real Return	-0.9 (58)	-2.0 (66)	2.3 (16)	1.5 (19)	1.0 (9)
Bloomberg Barclays U.S. TIPS Index	-0.4 (24)	-1.3 (35)	2.1 (23)	1.7 (7)	0.9 (15)
IM U.S. TIPS (MF) Median	-0.8	-1.6	1.7	0.9	0.4

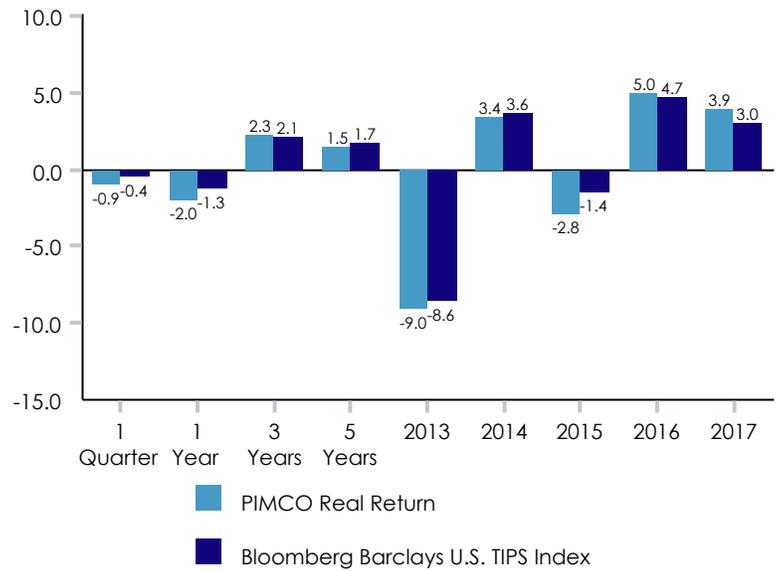
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : PIMCO:Real Return;Inst (PRRIX)
 Fund Family : PIMCO
 Ticker : PRRIX
 Peer Group : IM U.S. TIPS (MF)
 Benchmark : Bloomberg Barclays U.S. TIPS
 Fund Inception : 01/29/1997
 Portfolio Manager : Worah/Rodosky
 Total Assets : \$5,387 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.9%
 Net Expense : 0.9%
 Turnover : 165%

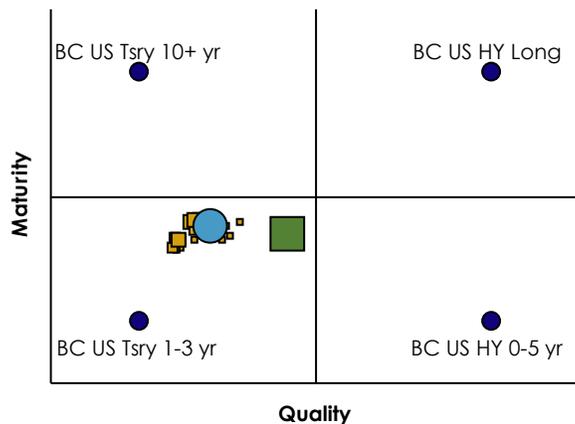
Comparative Performance



Fund Investment Policy

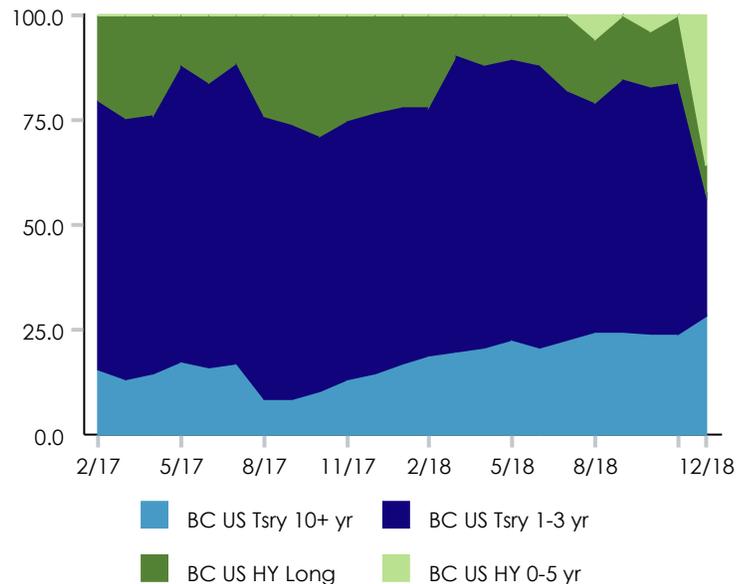
The Fund seeks to maximize real return consistent with preservation of real capital and prudent investment management. It invests at least 80% of its net assets in inflation-indexed bonds of varying maturities issued by the U.S. and non-U.S. governments, their agencies or instrumentalities, and corporations.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

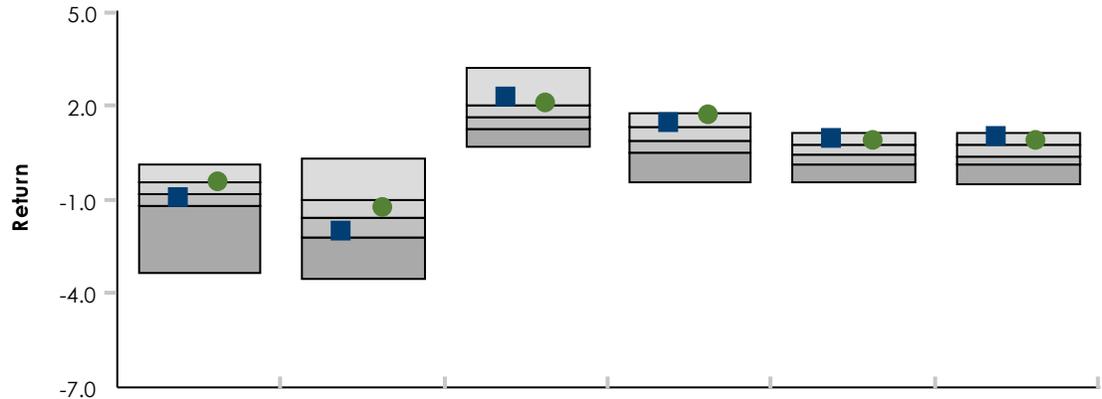
Style History (3 Years)



Historical Statistics (3 Years)

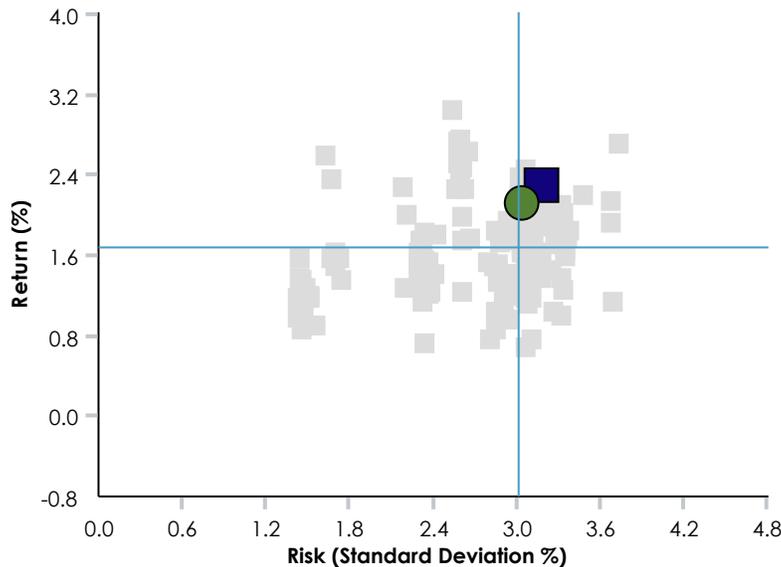
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
PIMCO Real Return	2.3	3.2	0.4	0.2	1.0	0.9	0.9	0.2	98.8	92.9
Bloomberg Barclays U.S. TIPS Index	2.1	3.1	0.4	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. TIPS (MF) Median	1.7	3.0	0.3	-0.1	0.9	0.9	0.9	-0.4	84.4	93.7

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ PIMCO Real Return	-0.9 (58)	-2.0 (66)	2.3 (16)	1.5 (19)	1.0 (13)	1.0 (9)
● Bloomberg Barclays U.S. TIPS Index	-0.4 (24)	-1.3 (35)	2.1 (23)	1.7 (7)	0.9 (15)	0.9 (15)
Median	-0.8	-1.6	1.7	0.9	0.4	0.4

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ PIMCO Real Return	2.3	3.2
● Bloomberg Barclays U.S. TIPS Index	2.1	3.1
— Median	1.7	3.0

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	21	98.8
Down Markets	15	92.9
Batting Average		
Up Markets	21	57.1
Down Markets	15	73.3
Overall	36	63.9

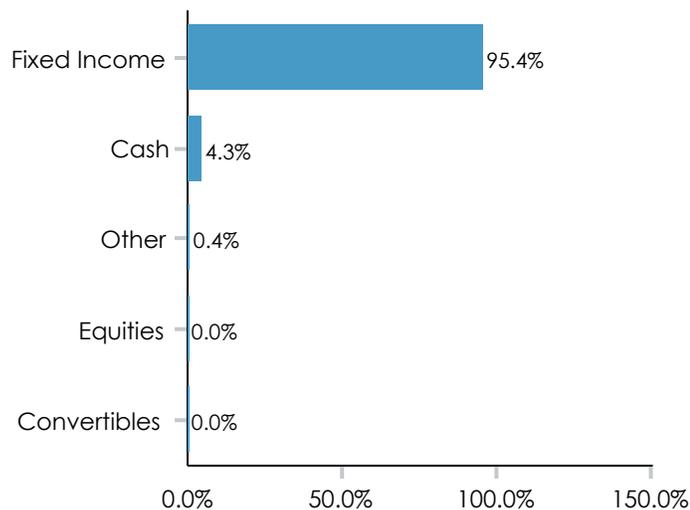
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	1.68 %
Nominal Maturity	6.31 Years
Effective Maturity	N/A
Duration	6.69 Years
SEC 30 Day Yield	2.2
Avg. Credit Quality	AAA

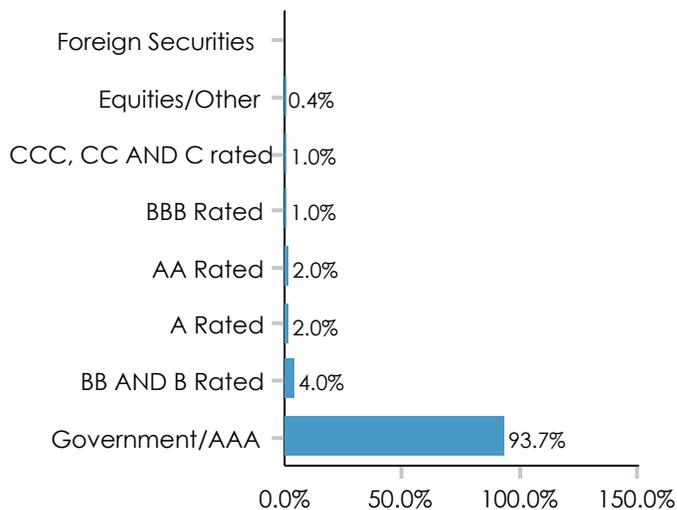
Top 10 Holdings (As of 9/30/2018)

Government Agency Securities	81.4 %
GNMA and Other Mtg Backed	20.1 %
Corporate Notes/Bonds	2.5 %

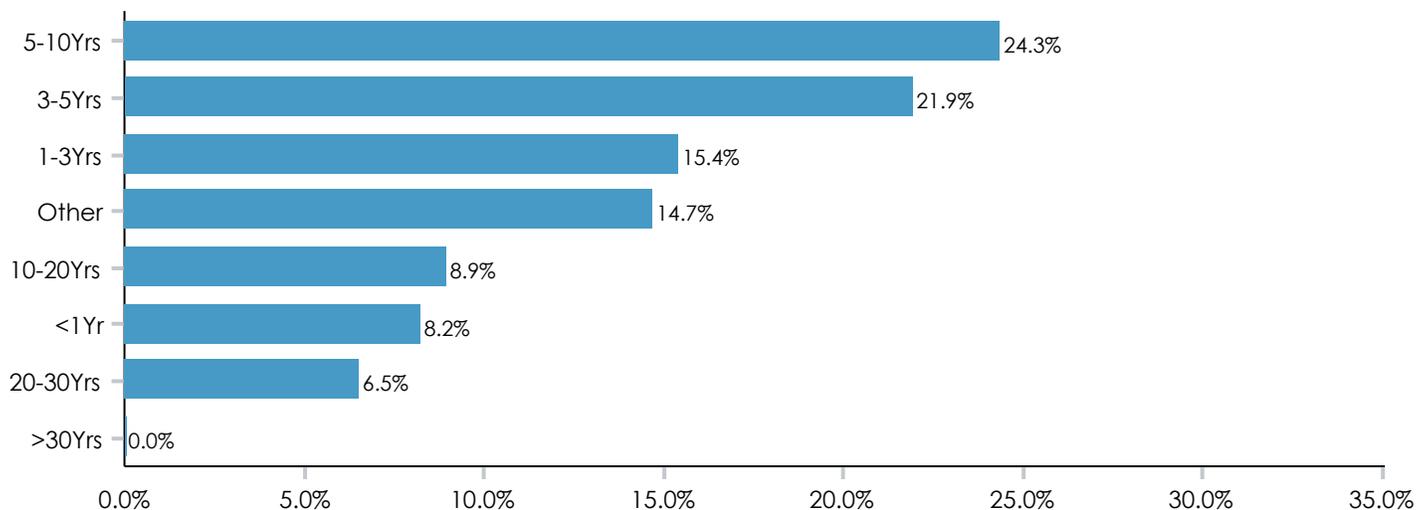
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)

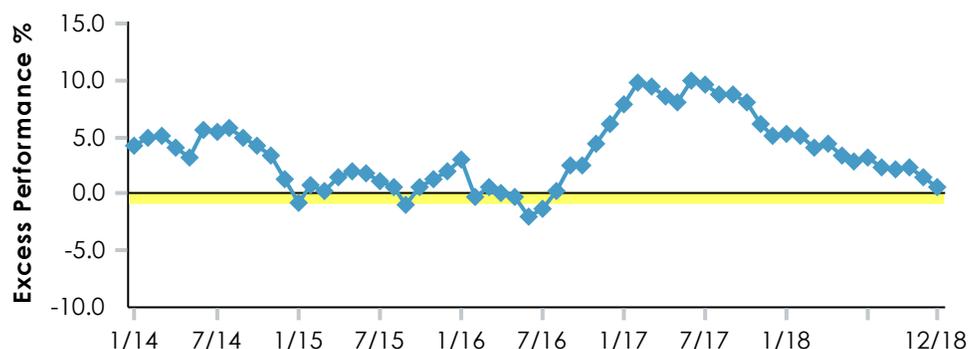


Maturity Distribution (As of 12/31/2018)



PIMCO Income I vs. Blmbg. Barc. U.S. Aggregate Index

Short-term (Rolling 12 Months Excess Performance)

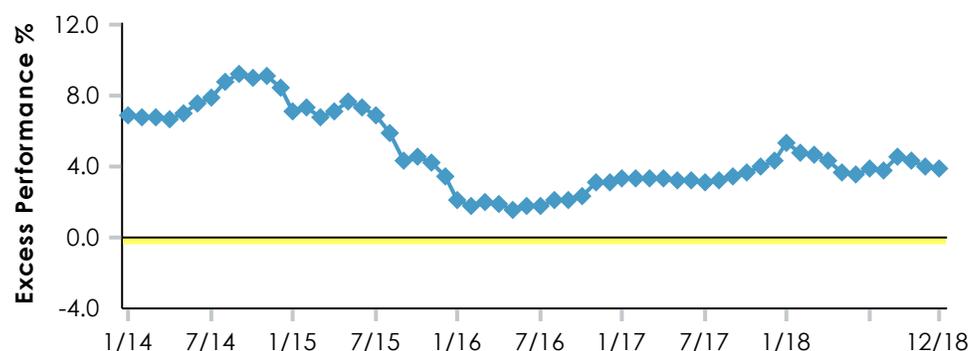


Short-Term Performance

Positive

Probationary Performance -1.00%

Medium-term (Rolling 36 Months Excess Performance)

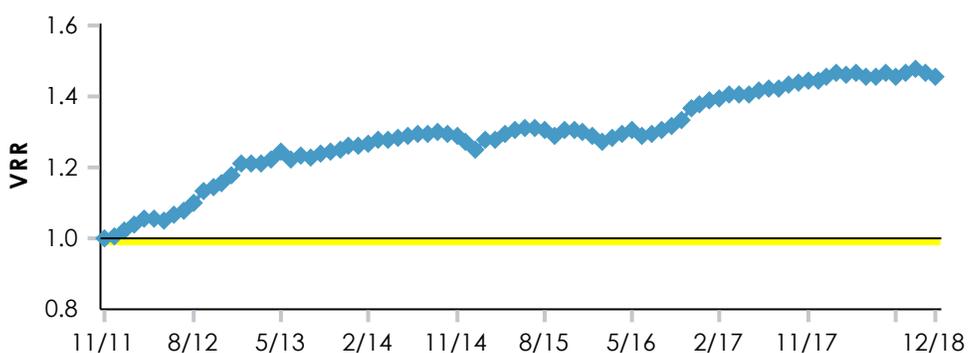


Medium-Term Performance

Positive

Probationary Performance -0.50%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Positive

Probationary Performance < 0.98

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
PIMCO Income I	0.7 (14)	0.6 (17)	5.9 (6)	5.5 (2)	7.8 (1)
Blmbg. Barc. U.S. Aggregate Index	1.6 (2)	0.0 (26)	2.1 (85)	2.5 (52)	2.2 (90)
IM Multi-Sector General Bond (MF) Median	-1.5	-1.5	3.7	2.6	3.6

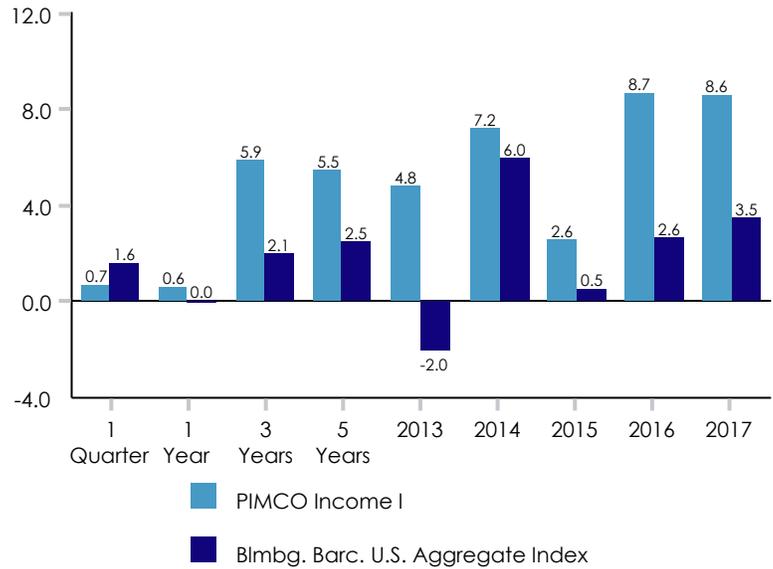
Monitoring Status

Positive

Mutual Fund Info

Product Name : PIMCO:Income;Inst (PIMIX)
 Fund Family : PIMCO
 Ticker : PIMIX
 Peer Group : IM Multi-Sector General Bond (MF)
 Benchmark : Bloomberg Barclays U.S. Aggregate
 Fund Inception : 03/30/2007
 Portfolio Manager : Ivascyn/Murata
 Total Assets : \$56,876 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.7%
 Net Expense : 0.7%
 Turnover : 266%

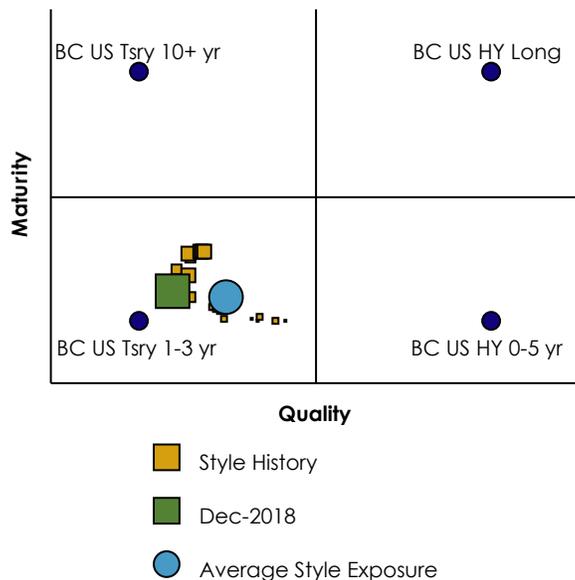
Comparative Performance



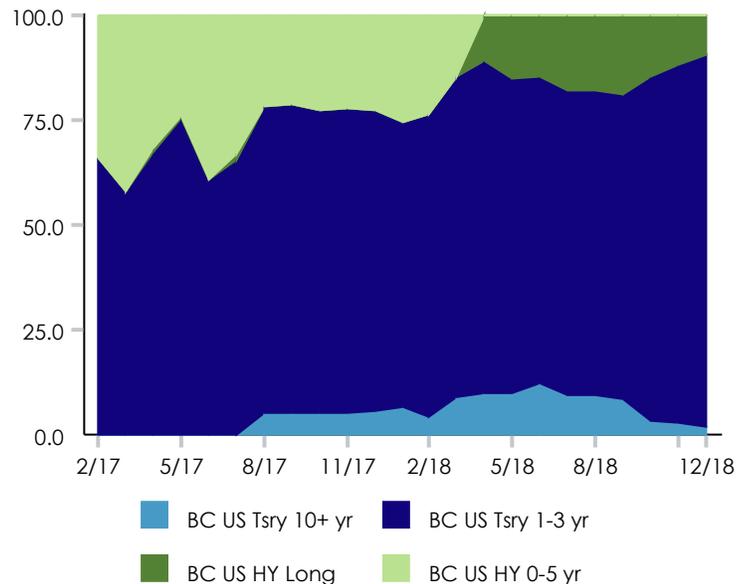
Fund Investment Policy

The Fund seeks to maximize current income. The Fund typically invests at least 65% of its total assets in a multi-sector portfolio of fixed income instruments of varying maturities. The Fund will generally allocate its assets among several investment sectors.

Style Map (3 Years)



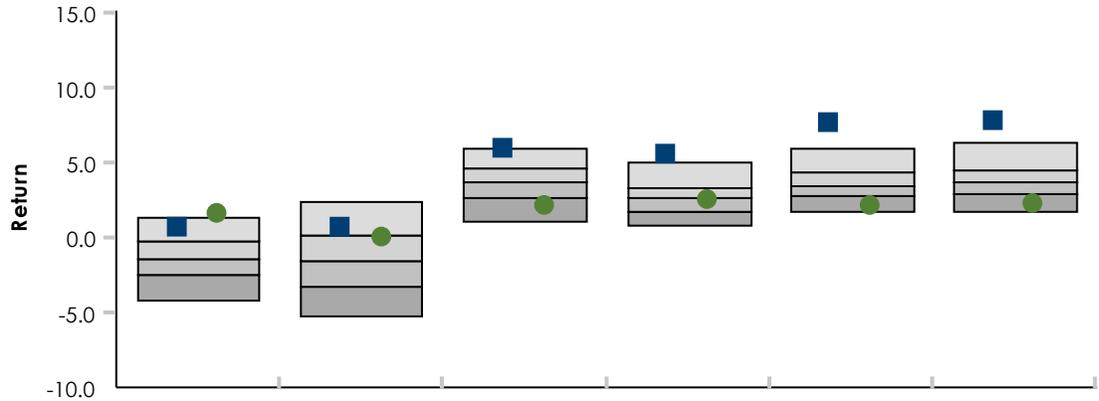
Style History (3 Years)



Historical Statistics (3 Years)

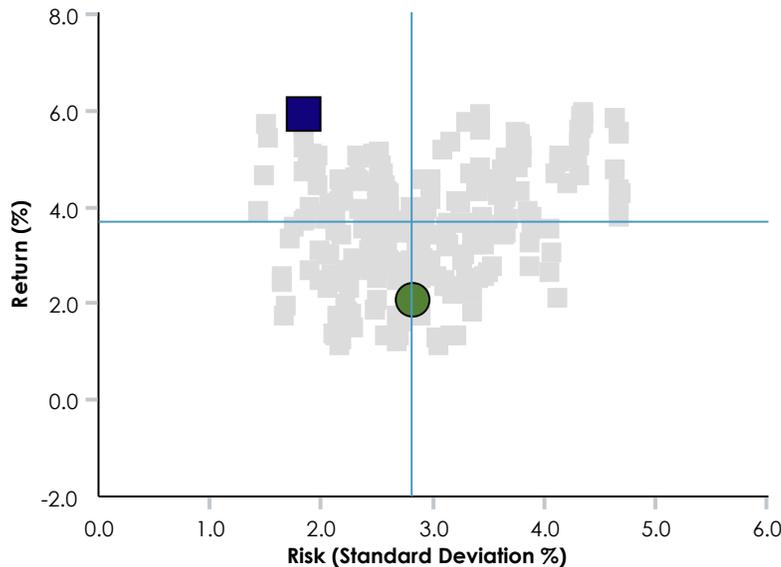
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
PIMCO Income I	5.9	1.9	2.5	5.3	0.3	0.2	2.6	1.4	97.9	-34.9
Blmbg. Barc. U.S. Aggregate Index	2.1	2.8	0.4	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM Multi-Sector General Bond (MF) Median	3.7	2.8	0.9	2.9	0.4	0.2	3.2	0.5	88.2	21.2

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ PIMCO Income I	0.7 (14)	0.6 (17)	5.9 (6)	5.5 (2)	7.6 (1)	7.8 (1)
● Blmbg. Barc. U.S. Aggregate Index	1.6 (2)	0.0 (26)	2.1 (85)	2.5 (52)	2.1 (89)	2.2 (90)
Median	-1.5	-1.5	3.7	2.6	3.5	3.6

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ PIMCO Income I	5.9	1.9
● Blmbg. Barc. U.S. Aggregate Index	2.1	2.8
— Median	3.7	2.8

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	97.9
Down Markets	14	-34.9
Batting Average		
Up Markets	22	54.5
Down Markets	14	100.0
Overall	36	72.2

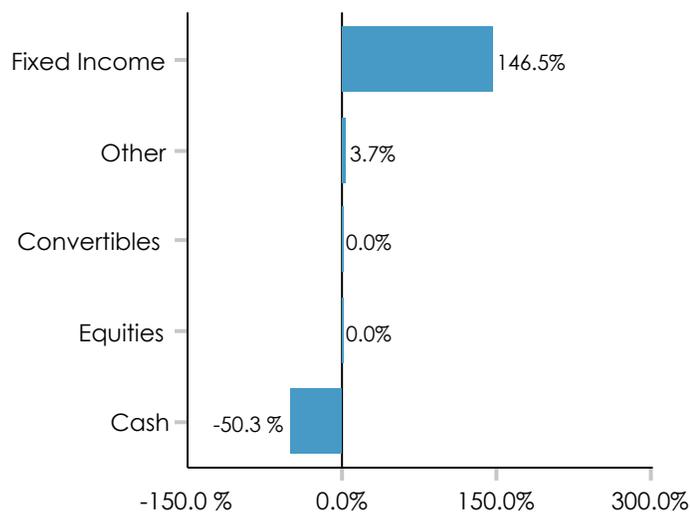
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	3.95 %
Nominal Maturity	3.80 Years
Effective Maturity	N/A
Duration	1.96 Years
SEC 30 Day Yield	6.7
Avg. Credit Quality	BBB

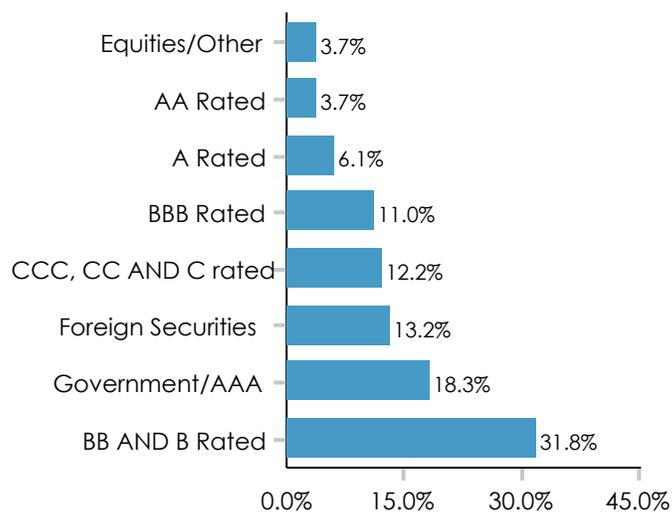
Top 10 Holdings (As of 9/30/2018)

GNMA and Other Mtg Backed	59.5 %
Government Agency Securities	41.3 %
Treasury Notes/Bonds	25.5 %
Corporate Notes/Bonds	20.3 %
Fgn. Currency Denominated Bonds	13.2 %
Convertible Securities	0.0%

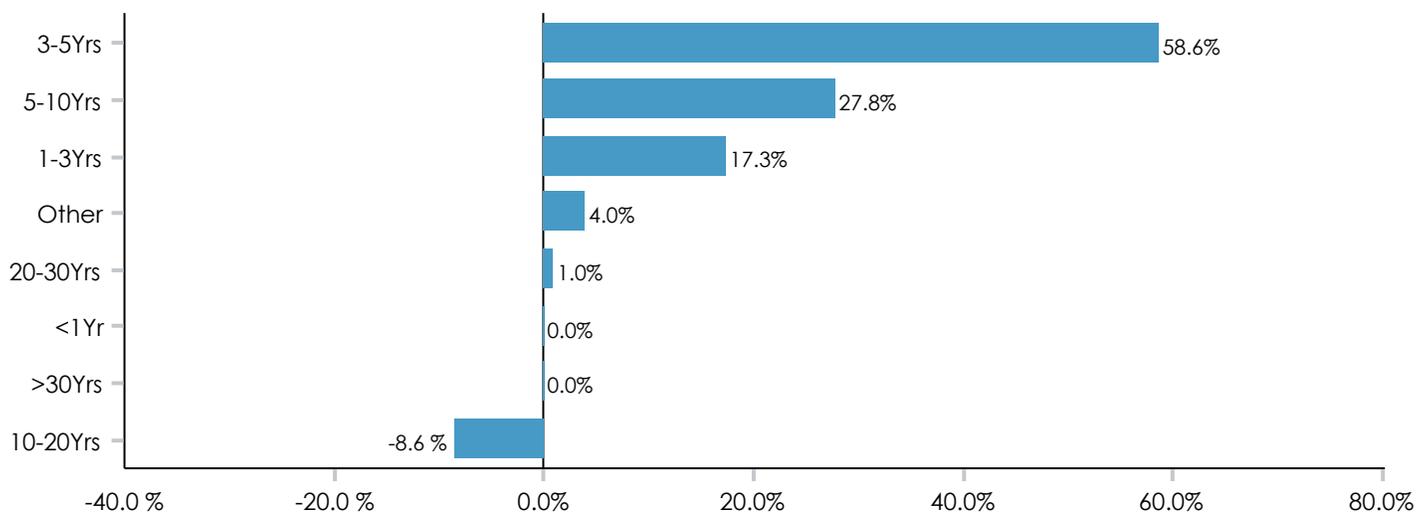
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)

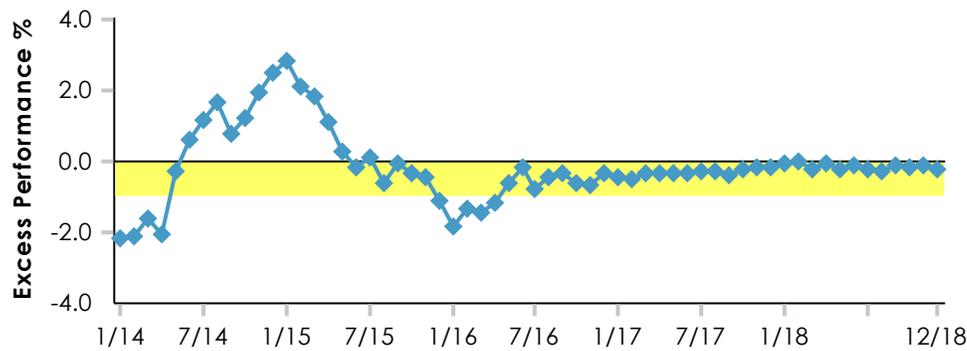


Maturity Distribution (As of 12/31/2018)



TIAA-CREF Inflation Link Bond I vs. Blmbg. Barc. U.S. TIPS 1-10 Year

Short-term (Rolling 12 Months Excess Performance)

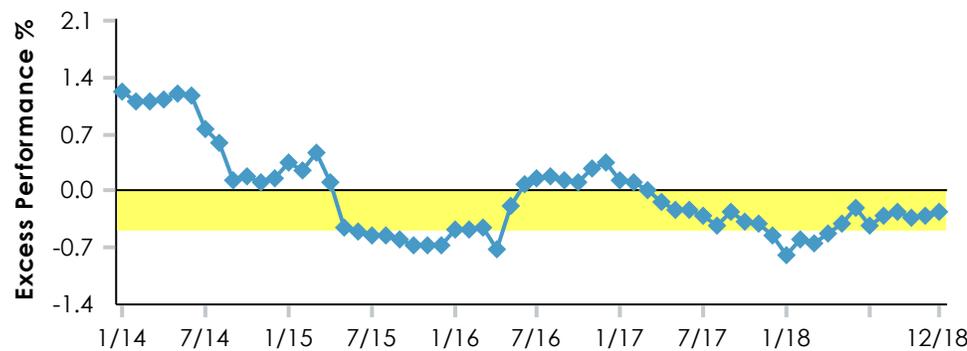


Short-Term Performance

Acceptable

Probationary Performance -1.00%

Medium-term (Rolling 36 Months Excess Performance)

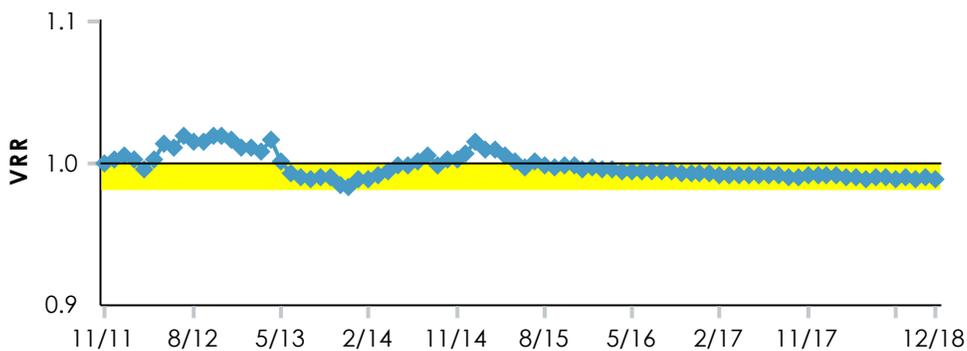


Medium-Term Performance

Acceptable

Probationary Performance -0.50%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Acceptable

Probationary Performance < 0.98

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Inflation Link Bond I	-0.1 (11)	-0.5 (16)	1.6 (55)	1.3 (25)	0.5 (43)
Blmbg. Barc. U.S. TIPS 1-10 Year	-0.1 (9)	-0.3 (13)	1.9 (39)	1.2 (28)	0.7 (28)
IM U.S. TIPS (MF) Median	-0.8	-1.6	1.7	0.9	0.4

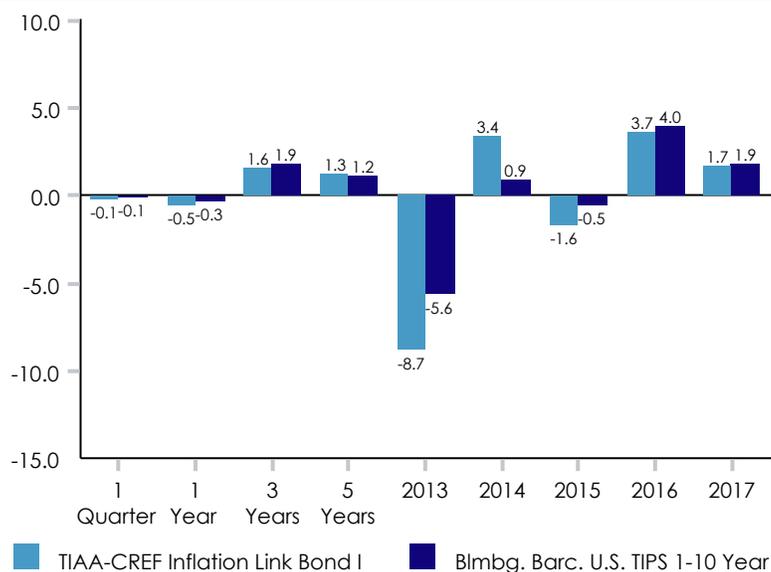
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Infl Bond;Inst (TIILX)
 Fund Family : TIAA-CREF
 Ticker : TIILX
 Peer Group : IM U.S. TIPS (MF)
 Benchmark : Bloomberg Barclays U.S. TIPS
 Fund Inception : 10/01/2002
 Portfolio Manager : Cerra/Travaglino
 Total Assets : \$1,613 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.3%
 Net Expense : 0.3%
 Turnover : 17%

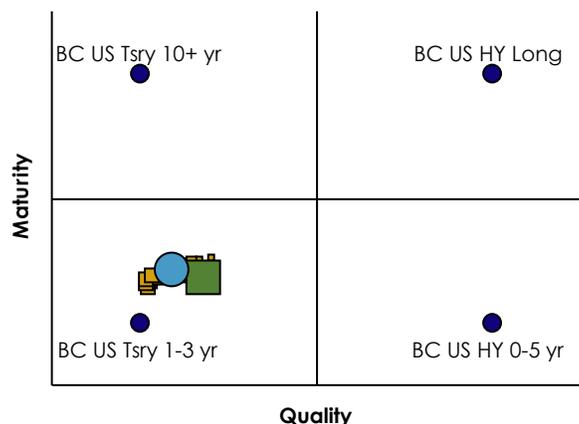
Comparative Performance



Fund Investment Policy

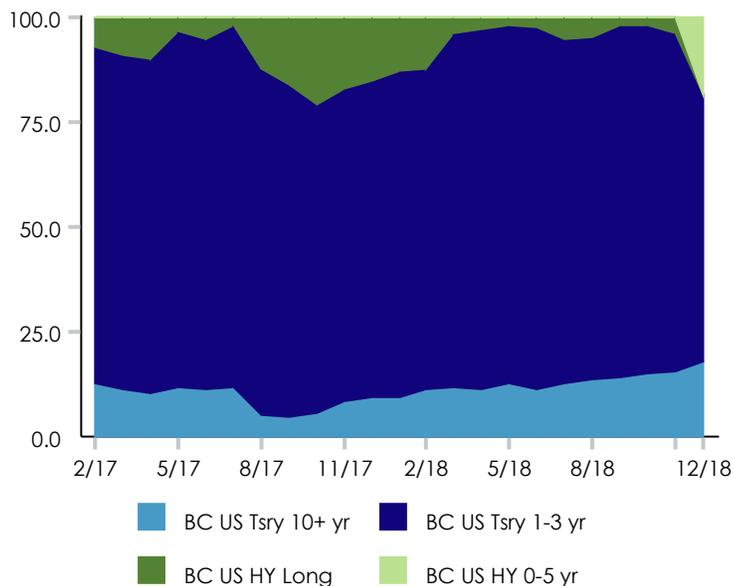
The Fund seeks a long-term rate of return that outpaces inflation primarily through investment in inflation-indexed bonds. The Fund invests primarily in U.S. Treasury Inflation-Indexed Securities ("TIIS"). The Fund can also invest in other inflation-indexed bonds issued or guaranteed by the U.S. Government.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

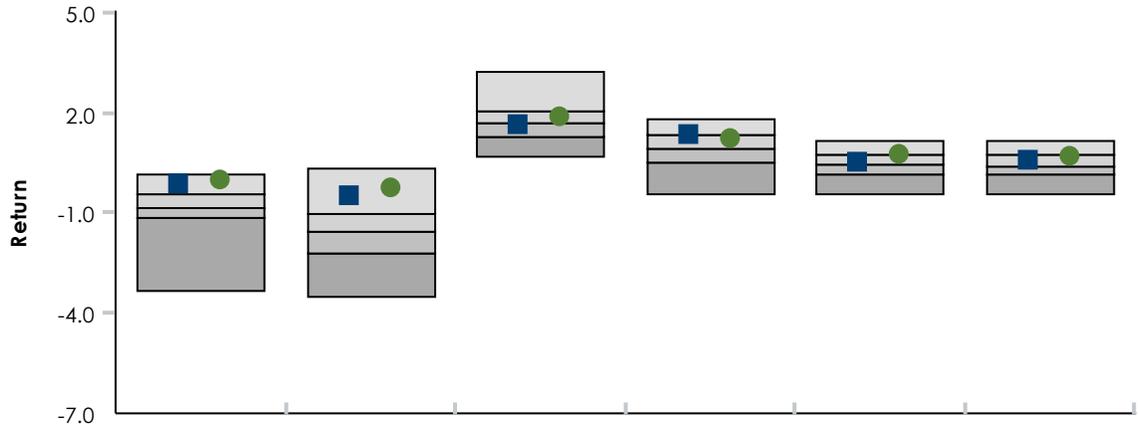
Style History (3 Years)



Historical Statistics (3 Years)

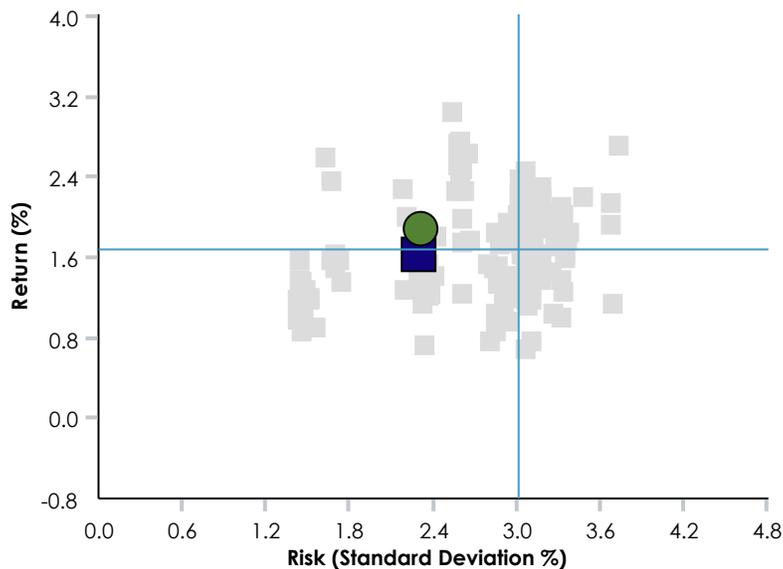
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Inflation Link Bond I	1.6	2.3	0.3	-0.2	1.0	1.0	0.2	-1.1	95.3	101.9
Blmbg. Barc. U.S. TIPS 1-10 Year	1.9	2.3	0.4	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. TIPS (MF) Median	1.7	3.0	0.3	-0.4	1.2	0.9	1.1	-0.1	106.9	127.6

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Inflation Link Bond I	-0.1 (11)	-0.5 (16)	1.6 (55)	1.3 (25)	0.5 (43)	0.5 (43)
● Blmbg. Barc. U.S. TIPS 1-10 Year	-0.1 (9)	-0.3 (13)	1.9 (39)	1.2 (28)	0.7 (27)	0.7 (28)
Median	-0.8	-1.6	1.7	0.9	0.4	0.4

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Inflation Link Bond I	1.6	2.3
● Blmbg. Barc. U.S. TIPS 1-10 Year	1.9	2.3
— Median	1.7	3.0

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	95.3
Down Markets	14	101.9
Batting Average		
Up Markets	22	50.0
Down Markets	14	57.1
Overall	36	52.8

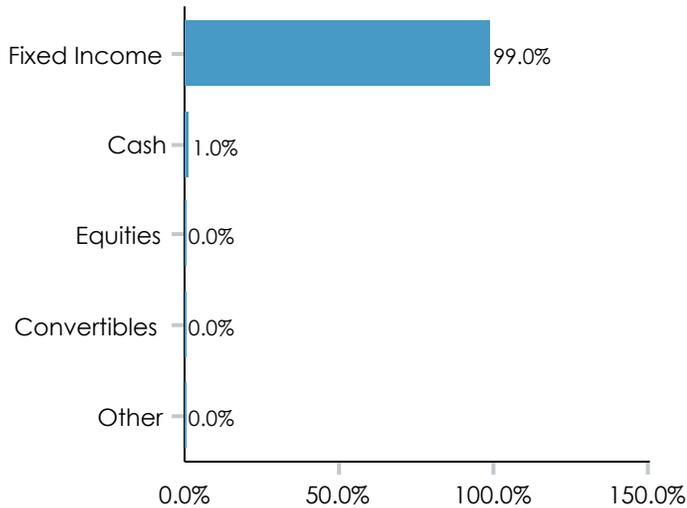
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	0.87 %
Nominal Maturity	5.43 Years
Effective Maturity	N/A
Duration	5.07 Years
SEC 30 Day Yield	0.6
Avg. Credit Quality	AAA

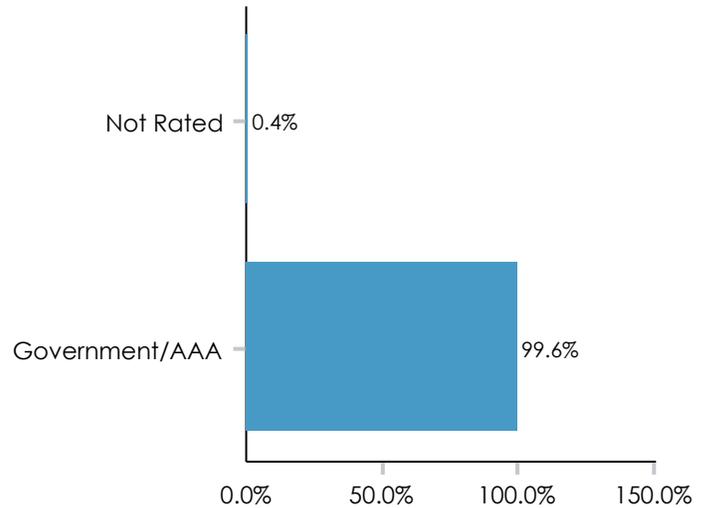
Top 10 Holdings (As of 9/30/2018)

Treasury Notes/Bonds	97.4 %
Government Agency Securities	1.1 %
GNMA and Other Mtg Backed	0.3 %
US\$ Denominated Fgn. Gvt.	0.2 %

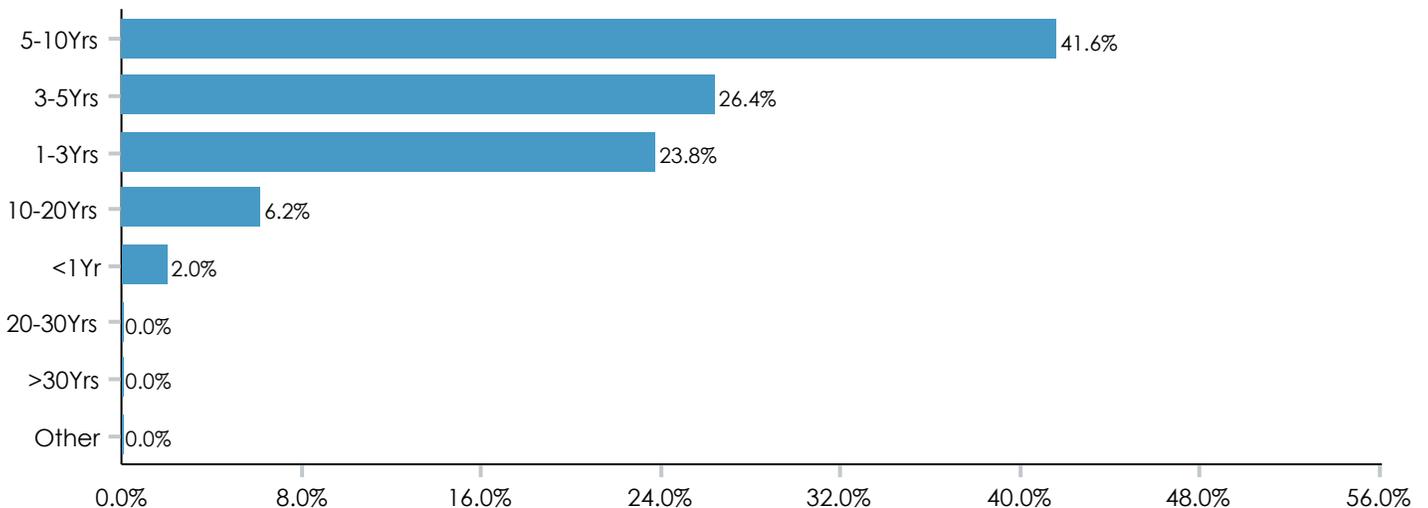
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)

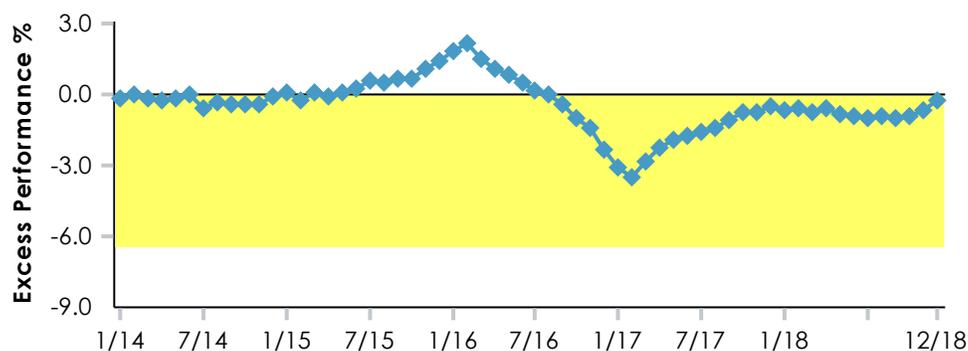


Maturity Distribution (As of 12/31/2018)



T. Rowe Price Floating Rate I vs. S&P/LSTA Performing Loans Index

Short-term (Rolling 12 Months Excess Performance)

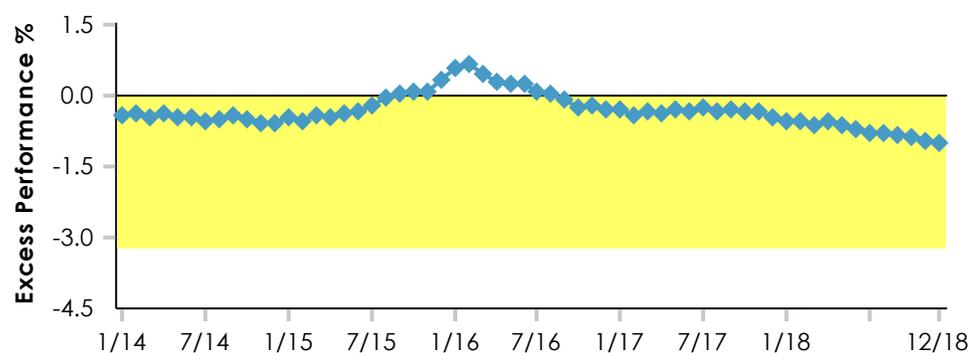


Short-Term Performance

Acceptable

Probationary Performance -6.50%

Medium-term (Rolling 36 Months Excess Performance)

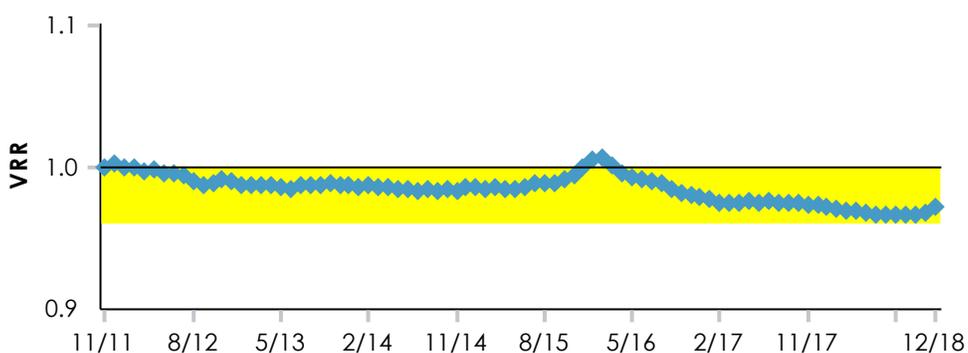


Medium-Term Performance

Acceptable

Probationary Performance -3.25%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Acceptable

Probationary Performance < 0.96

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
T. Rowe Price Floating Rate I	-2.9 (16)	0.4 (18)	4.0 (53)	3.0 (8)	4.2 (21)
S&P/LSTA Performing Loans Index	-3.5 (40)	0.6 (10)	5.0 (20)	3.4 (2)	4.6 (9)
IM U.S. Bank Loans (MF) Median	-3.6	-0.3	4.1	2.3	3.6

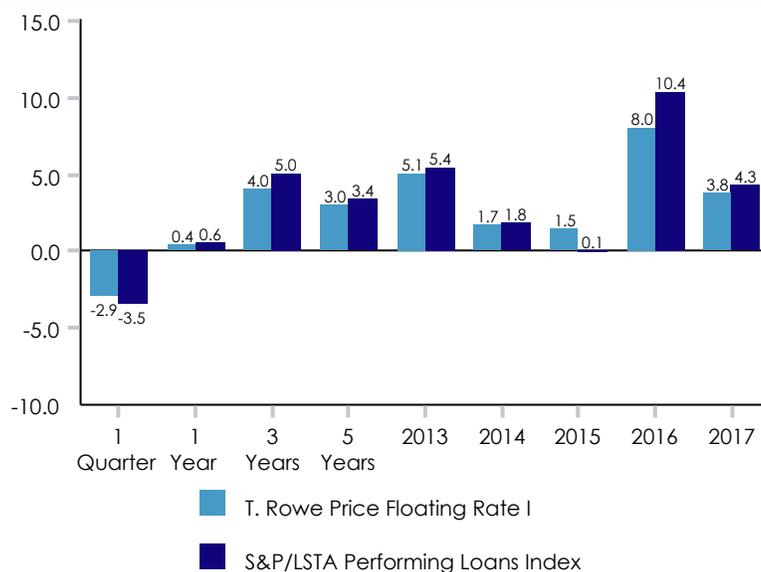
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : T Rowe Price Inst:FR (RPIFX)
 Fund Family : T Rowe Price Associates Inc
 Ticker : RPIFX
 Peer Group : IM U.S. Bank Loans (MF)
 Benchmark : S&P/LSTA Leveraged Loan Index
 Fund Inception : 01/31/2008
 Portfolio Manager : Paul M. Massaro
 Total Assets : \$3,714 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.6%
 Net Expense : 0.6%
 Turnover : 54%

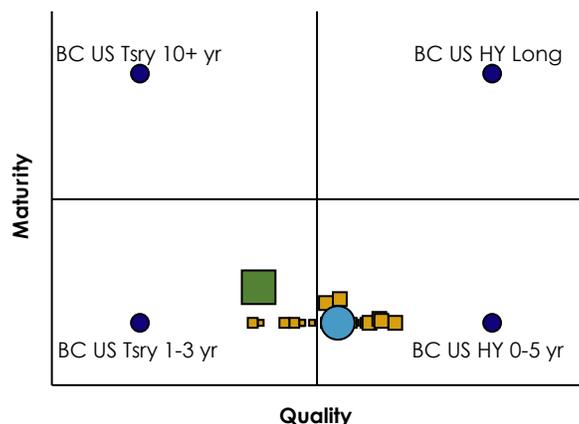
Comparative Performance



Fund Investment Policy

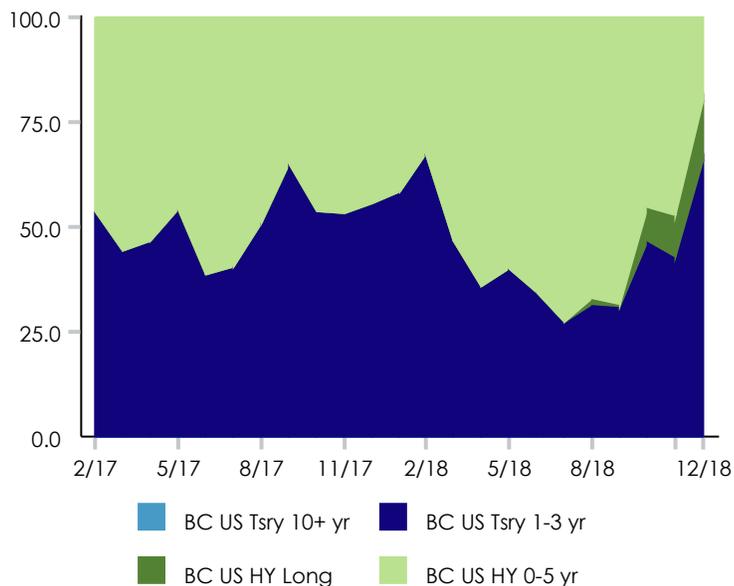
The Fund seeks high current income and, secondarily, capital appreciation. The Fund seeks to normally invest at least 80% of net assets in floating rate loans and debt securities.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

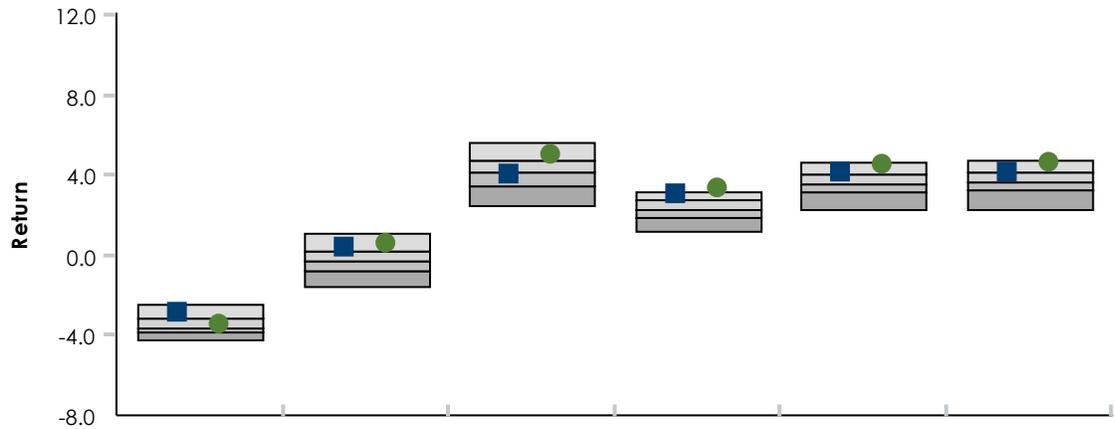
Style History (3 Years)



Historical Statistics (3 Years)

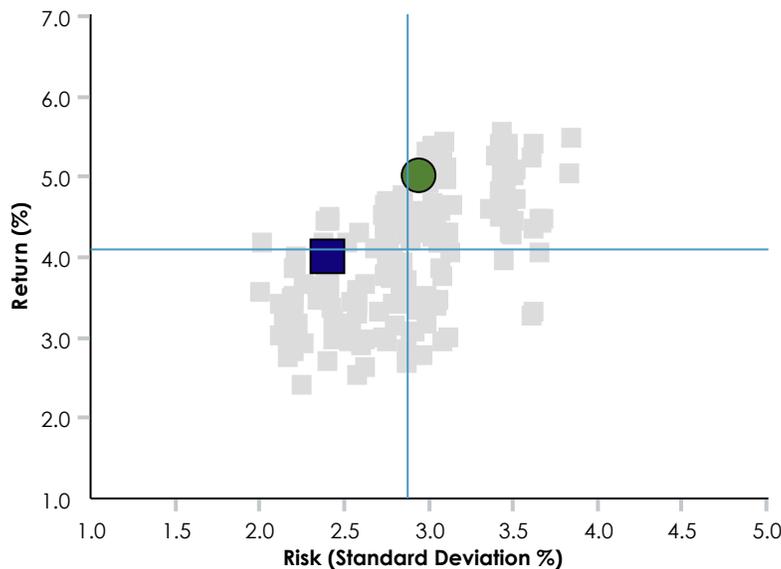
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
T. Rowe Price Floating Rate I	4.0	2.4	1.2	0.0	0.8	1.0	0.7	-1.4	80.0	79.7
S&P/LSTA Performing Loans Index	5.0	2.9	1.3	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Bank Loans (MF) Median	4.1	2.9	1.0	-0.7	1.0	1.0	0.8	-1.3	86.5	108.3

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ T. Rowe Price Floating Rate I	-2.9 (16)	0.4 (18)	4.0 (53)	3.0 (8)	4.1 (22)	4.2 (21)
● S&P/LSTA Performing Loans Index	-3.5 (40)	0.6 (10)	5.0 (20)	3.4 (2)	4.6 (6)	4.6 (9)
Median	-3.6	-0.3	4.1	2.3	3.5	3.6

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ T. Rowe Price Floating Rate I	4.0	2.4
● S&P/LSTA Performing Loans Index	5.0	2.9
— Median	4.1	2.9

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	28	80.0
Down Markets	8	79.7
Batting Average		
Up Markets	28	21.4
Down Markets	8	62.5
Overall	36	30.6

T. Rowe Price Floating Rate I

December 31, 2018

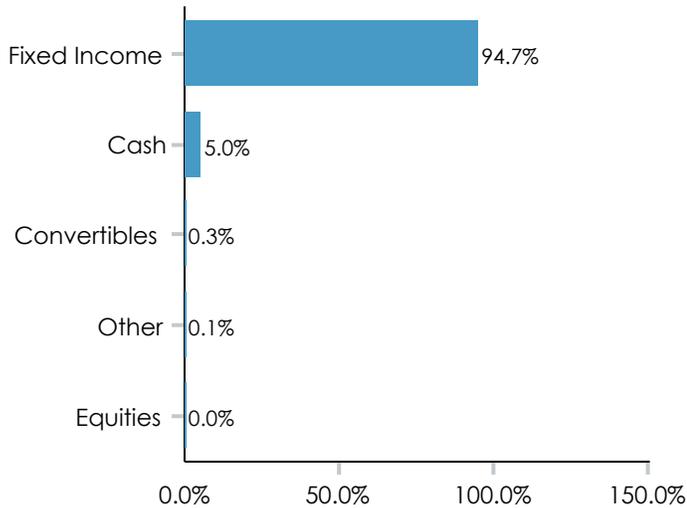
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	6.01 %
Nominal Maturity	N/A
Effective Maturity	5.38 Years
Duration	0.33 Years
SEC 30 Day Yield	5.5
Avg. Credit Quality	BB

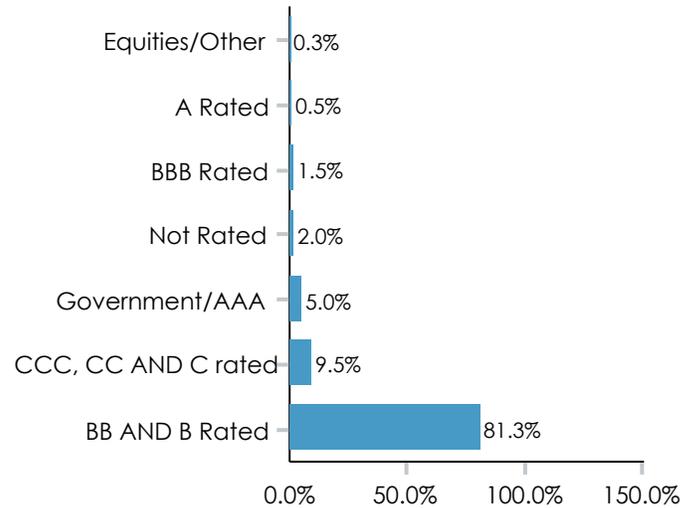
Top 10 Holdings (As of 9/30/2018)

Corporate Notes/Bonds	87.1 %
US\$ Denominated Fgn. Gvt.	7.5 %
Convertible Securities	0.3 %
Treasury Notes/Bonds	0.0%

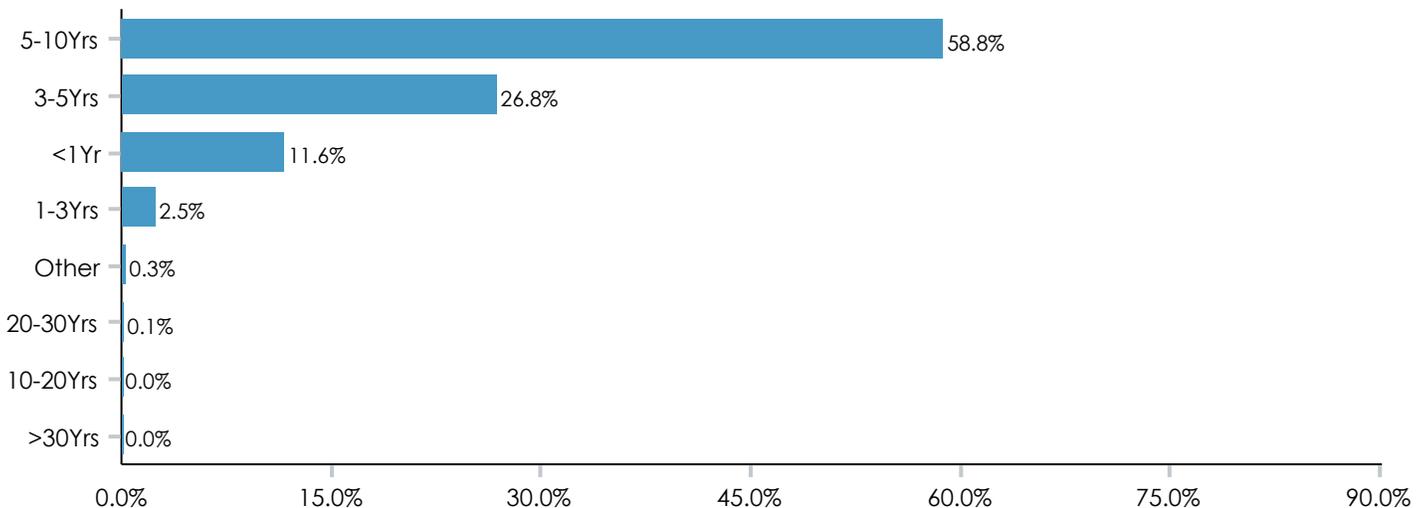
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)

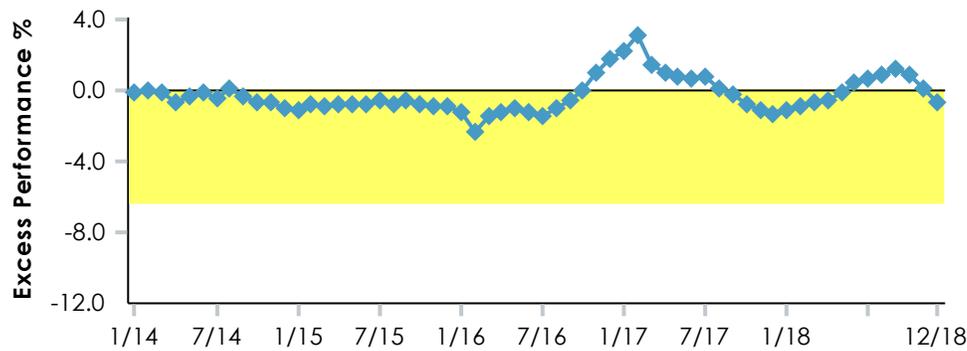


Maturity Distribution (As of 12/31/2018)



TIAA-CREF High-Yield I vs. ICE BofAML High Yield BB-B Constrained Index

Short-term (Rolling 12 Months Excess Performance)

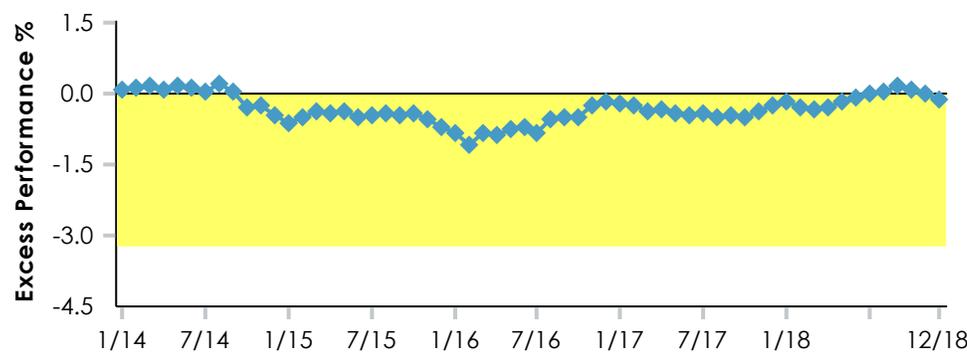


Short-Term Performance

Positive

Probationary Performance -6.50%

Medium-term (Rolling 36 Months Excess Performance)

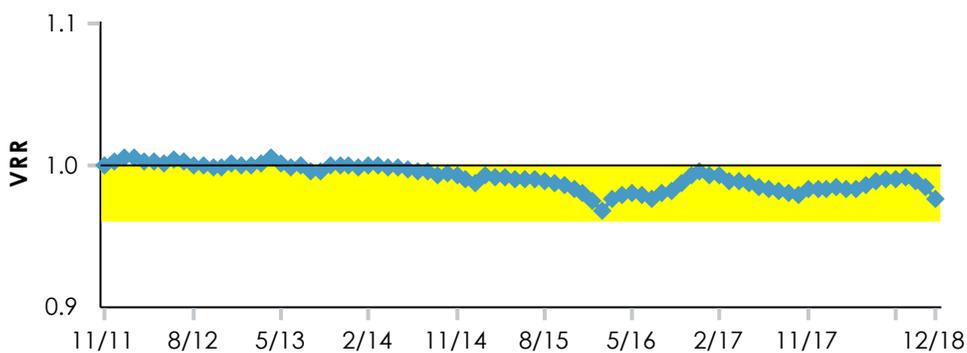


Medium-Term Performance

Positive

Probationary Performance -3.25%

Long-term (December 1, 2011 To December 31, 2018 VRR)



Long-Term Performance

Acceptable

Probationary Performance < 0.96

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF High-Yield I	-5.3 (74)	-2.7 (42)	6.2 (28)	3.4 (19)	5.6 (30)
ICE BofAML High Yield BB-B Constrained Index	-3.9 (24)	-2.0 (27)	6.3 (24)	3.9 (8)	6.0 (20)
IM U.S. High Yield Bonds (MF) Median	-4.8	-2.9	5.5	2.7	5.3

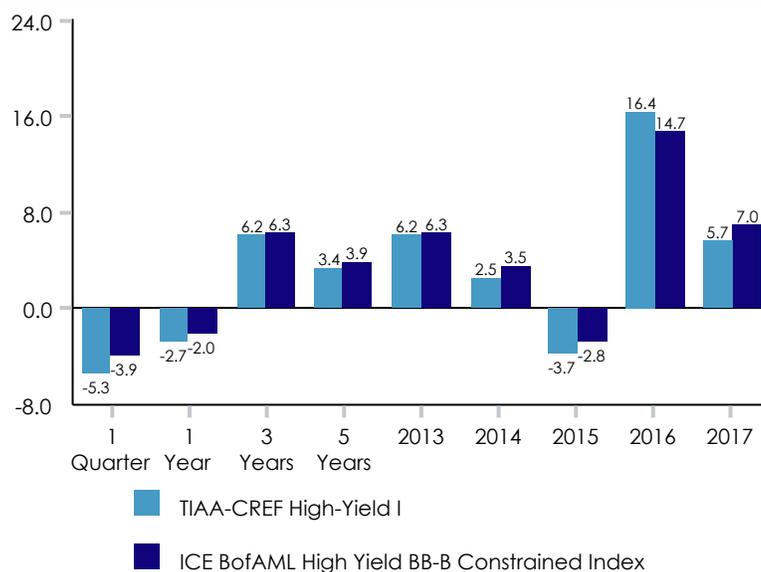
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Hi-Yld;Inst (TIHYX)
 Fund Family : TIAA-CREF
 Ticker : TIHYX
 Peer Group : IM U.S. High Yield Bonds (MF)
 Benchmark : FTSE High Yield Market Index
 Fund Inception : 03/31/2006
 Portfolio Manager : Lorenz/Lin
 Total Assets : \$2,962 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.4%
 Net Expense : 0.4%
 Turnover : 40%

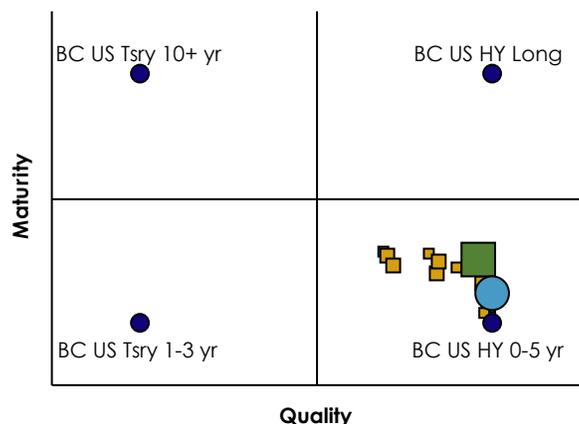
Comparative Performance



Fund Investment Policy

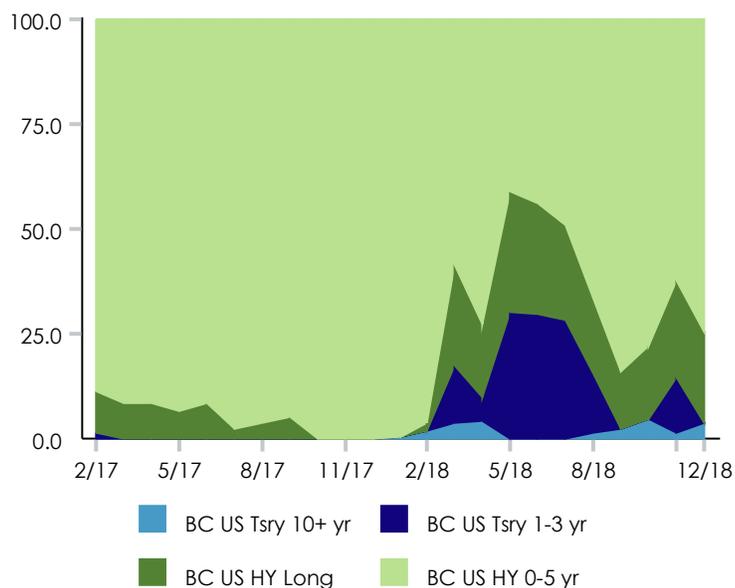
The Fund seeks high current income and, when consistent with its primary objective, capital appreciation. The Fund achieves this objective by investing at least 80% of its assets in debt and other fixed-income securities rated lower than investment grade or other high-yielding debt securities.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

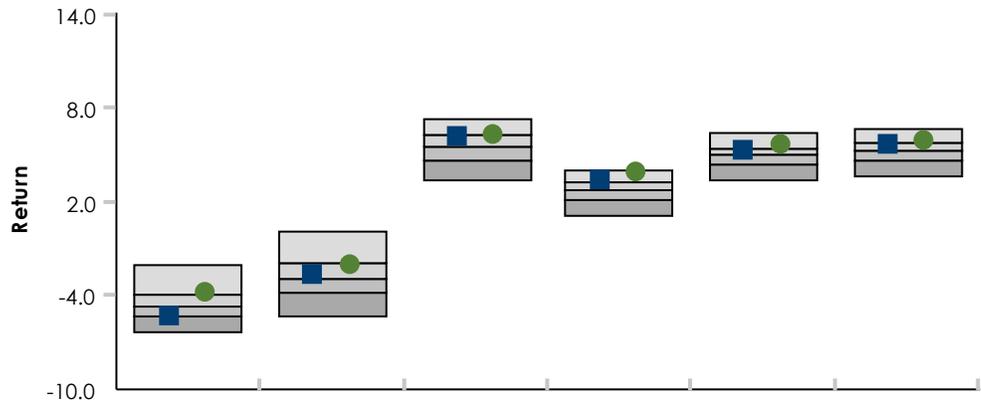
Style History (3 Years)



Historical Statistics (3 Years)

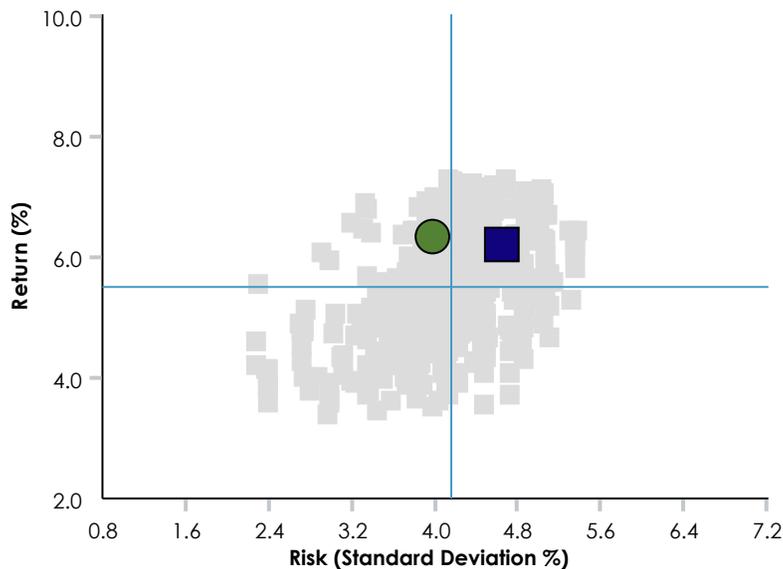
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF High-Yield I	6.2	4.7	1.1	-0.9	1.1	0.9	1.2	-0.1	103.1	114.3
ICE BofAML High Yield BB-B Constrained Index	6.3	4.0	1.3	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. High Yield Bonds (MF) Median	5.5	4.2	1.1	-0.7	1.0	0.9	1.3	-0.6	95.3	112.7

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF High-Yield I	-5.3 (74)	-2.7 (42)	6.2 (28)	3.4 (19)	5.3 (32)	5.6 (30)
● ICE BofAML High Yield BB-B Constrained Index	-3.9 (24)	-2.0 (27)	6.3 (24)	3.9 (8)	5.7 (19)	6.0 (20)
Median	-4.8	-2.9	5.5	2.7	5.0	5.3

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF High-Yield I	6.2	4.7
● ICE BofAML High Yield BB-B Constrained Index	6.3	4.0
— Median	5.5	4.2

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	26	103.1
Down Markets	10	114.3
Batting Average		
Up Markets	26	53.8
Down Markets	10	40.0
Overall	36	50.0

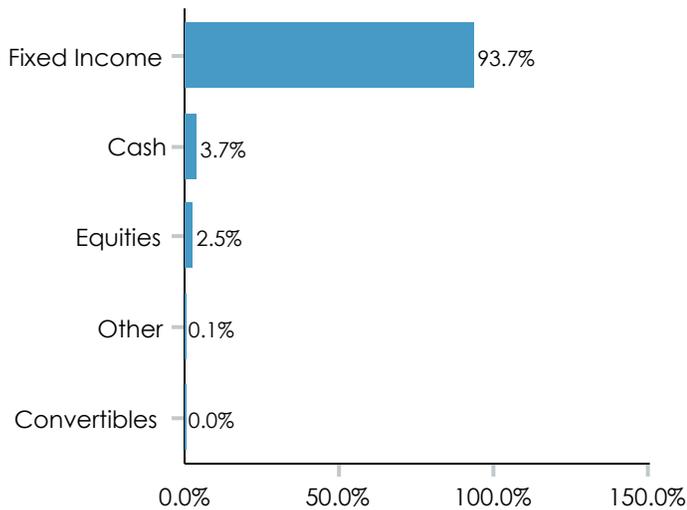
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	6.15 %
Nominal Maturity	6.61 Years
Effective Maturity	N/A
Duration	3.78 Years
SEC 30 Day Yield	6.4
Avg. Credit Quality	A

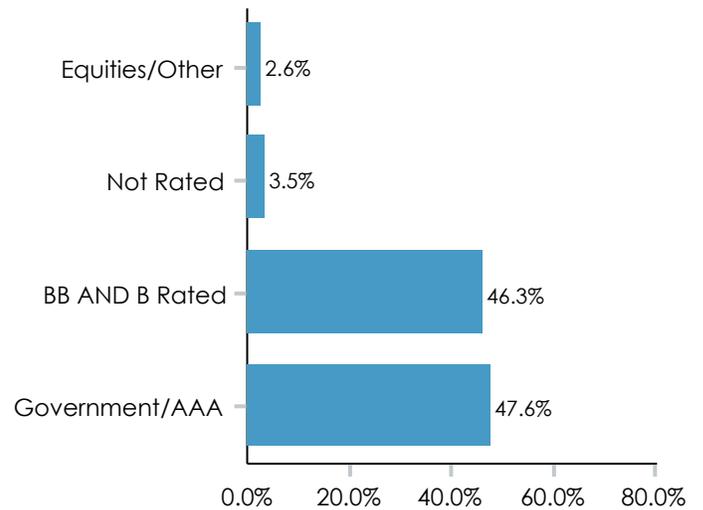
Top 10 Holdings (As of 9/30/2018)

Corporate Notes/Bonds	80.8 %
US\$ Denominated Fgn. Gvt.	12.9 %
Common Stock	2.5 %

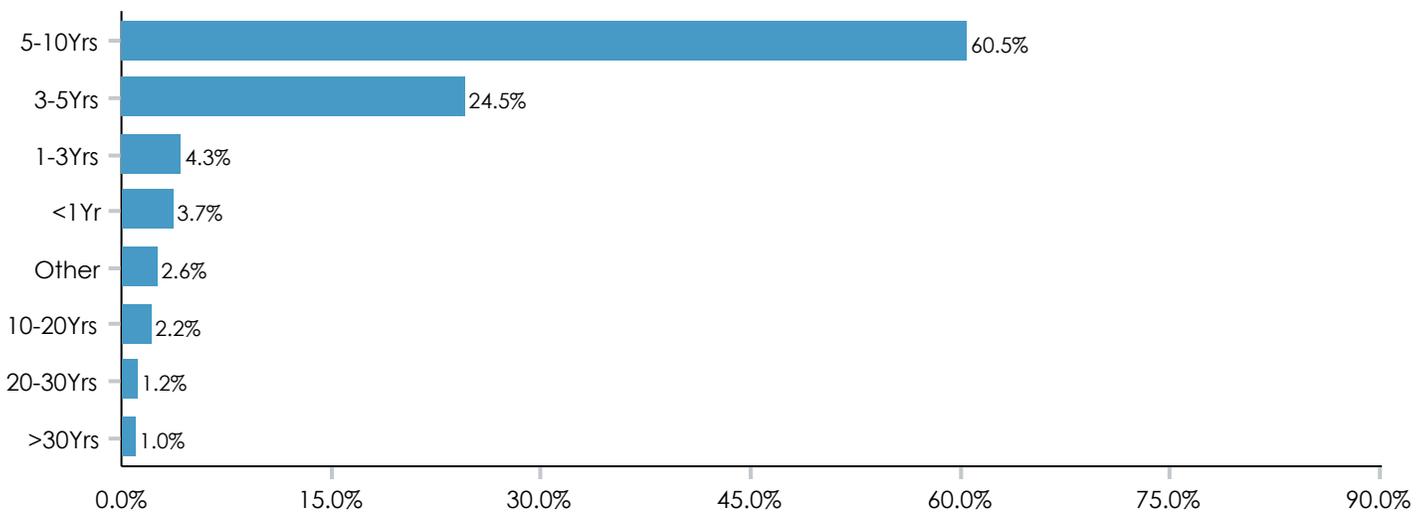
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)



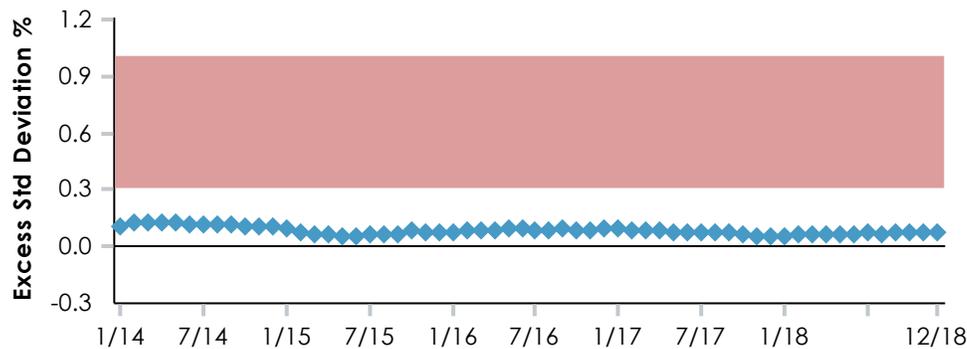
Maturity Distribution (As of 12/31/2018)



PASSIVE FUNDS

TIAA-CREF Equity Index I vs. Russell 3000 Index

Short-term (Rolling 12 Months Tracking Error)

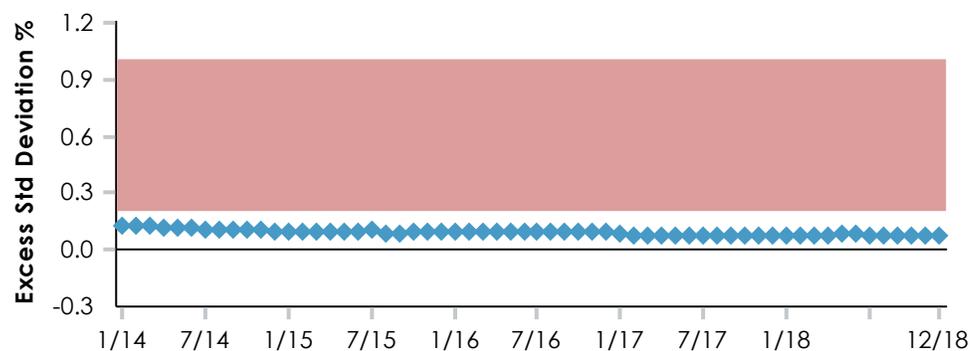


Short-Term Performance

Positive

Probationary Performance 0.30%

Medium-term (Rolling 36 Months Tracking Error)

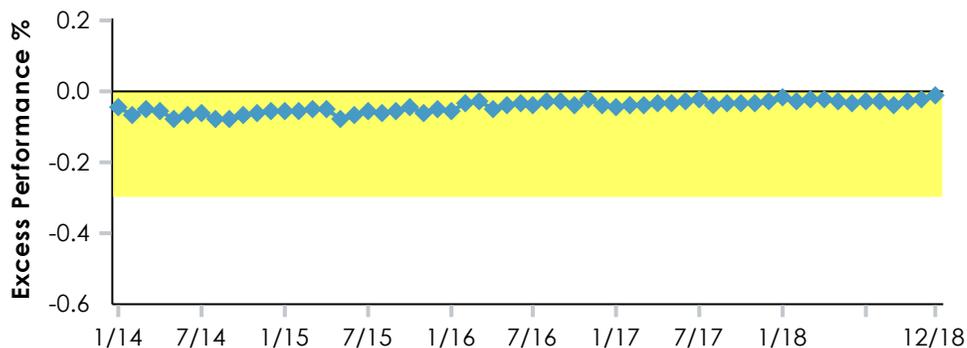


Medium-Term Performance

Positive

Probationary Performance 0.25%

Long-term (Rolling 60 Months Excess Performance)



Long-Term Performance

Acceptable

Probationary Performance -0.30%

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Equity Index I	-14.3 (46)	-5.2 (27)	9.0 (11)	7.9 (12)	12.4 (13)
Russell 3000 Index	-14.3 (48)	-5.2 (27)	9.0 (11)	7.9 (12)	12.4 (12)
IM U.S. Multi-Cap Core Equity (MF) Median	-14.4	-7.2	7.0	5.8	10.8

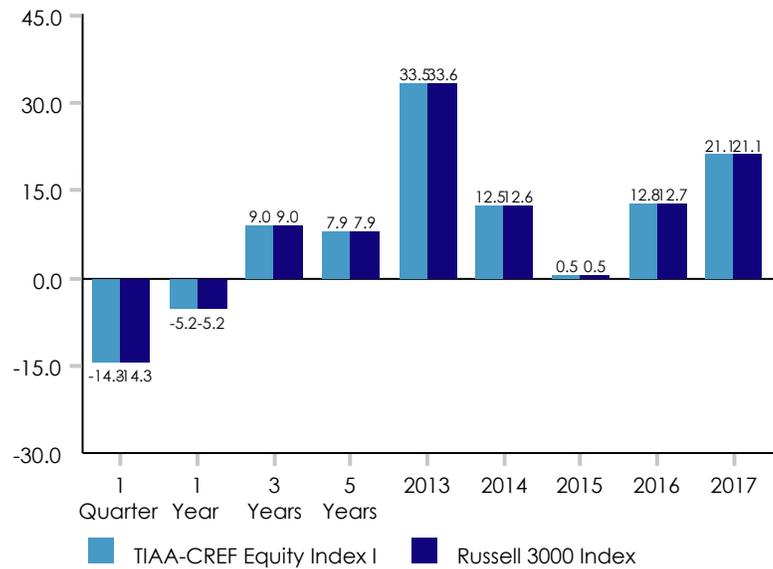
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Eq Idx;Inst (TIEIX)
 Fund Family : TIAA-CREF
 Ticker : TIEIX
 Peer Group : IM U.S. Multi-Cap Core Equity (MF)
 Benchmark : Russell 3000 Index
 Fund Inception : 07/01/1999
 Portfolio Manager : Campana/Liao
 Total Assets : \$8,188 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.1%
 Net Expense : 0.1%
 Turnover : 5%

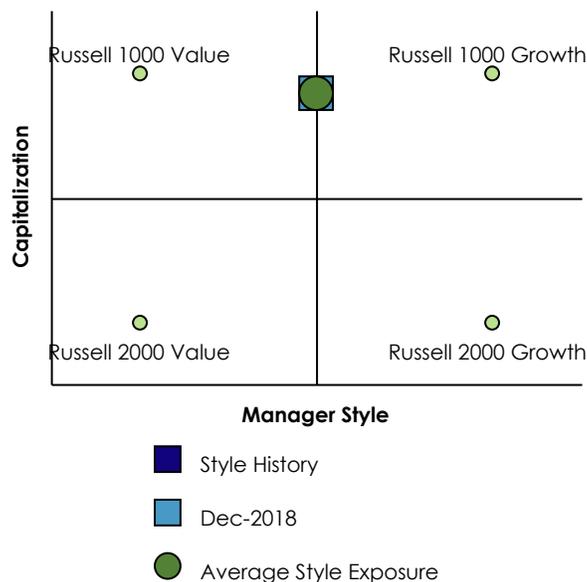
Comparative Performance



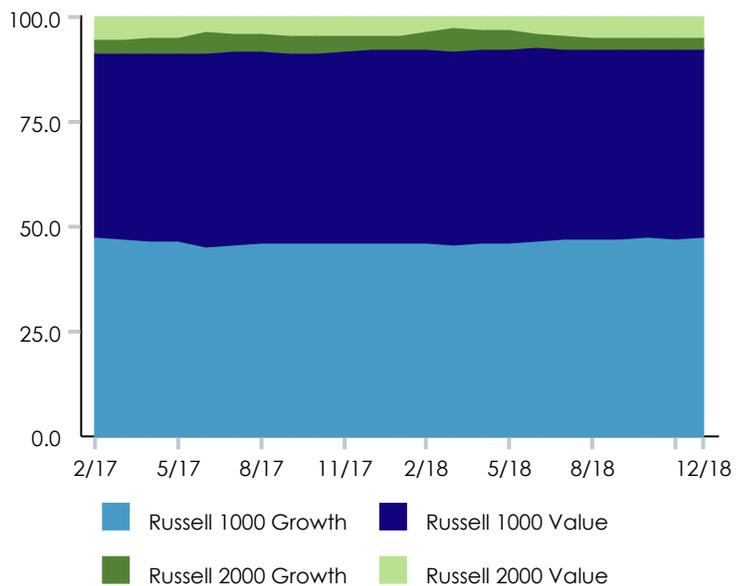
Fund Investment Policy

The Fund seeks a favorable long-term total return. Under normal circumstances, the Fund invests at least 80% of its assets (net assets, plus the amount of any borrowings for investment purposes) in securities of its benchmark index (the Russell 3000 Index) and in equity securities.

Style Map (3 Years)



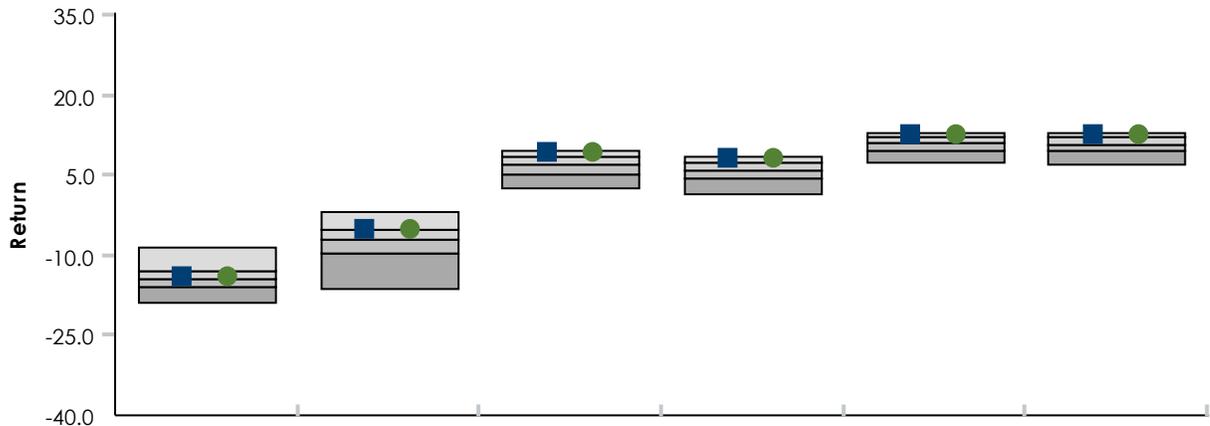
Style History (3 Years)



Historical Statistics (3 Years)

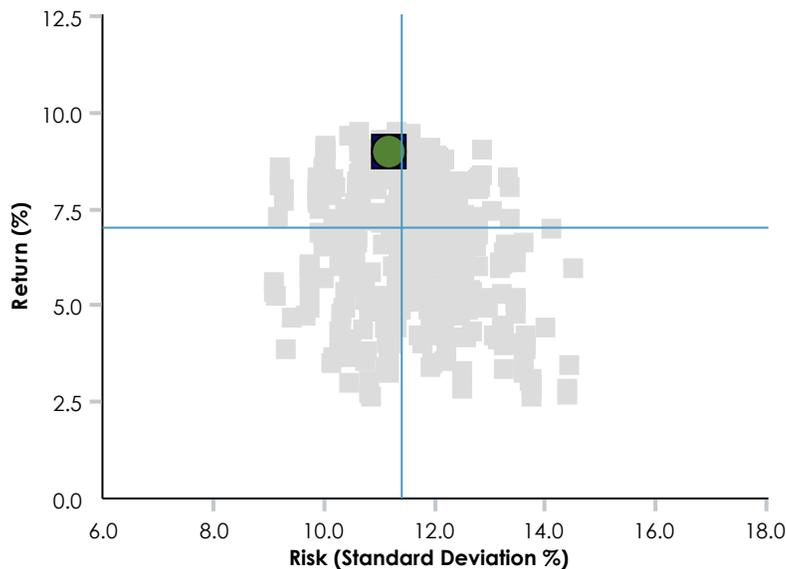
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Equity Index I	9.0	11.2	0.7	0.0	1.0	1.0	0.1	0.0	100.1	100.1
Russell 3000 Index	9.0	11.2	0.7	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Multi-Cap Core Equity (MF) Median	7.0	11.4	0.6	-1.6	1.0	0.9	3.3	-0.6	91.4	100.3

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Equity Index I	-14.3 (46)	-5.2 (27)	9.0 (11)	7.9 (12)	12.4 (14)	12.4 (13)
● Russell 3000 Index	-14.3 (48)	-5.2 (27)	9.0 (11)	7.9 (12)	12.5 (13)	12.4 (12)
Median	-14.4	-7.2	7.0	5.8	10.9	10.8

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Equity Index I	9.0	11.2
● Russell 3000 Index	9.0	11.2
— Median	7.0	11.4

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	29	100.1
Down Markets	7	100.1
Batting Average		
Up Markets	29	44.8
Down Markets	7	42.9
Overall	36	44.4

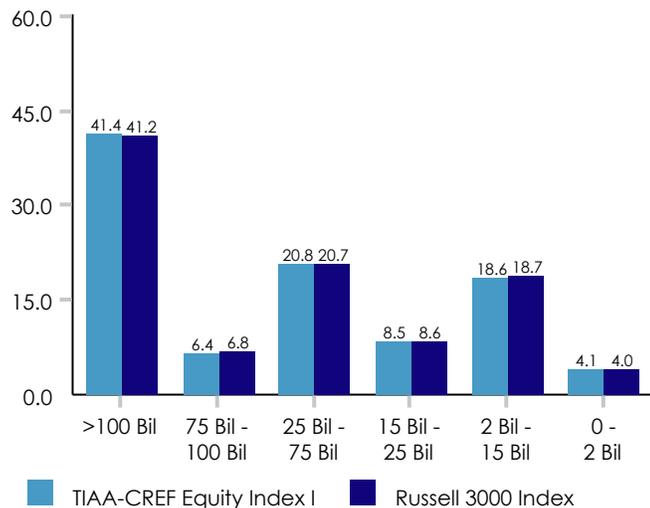
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	167,596	167,103
Median Mkt. Cap (\$M)	1,620	1,418
Price/Earnings ratio	17.0	17.0
Price/Book ratio	3.0	3.0
5 Yr. EPS Growth Rate (%)	15.9	15.9
Current Yield (%)	2.1	2.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	2,815	3,015

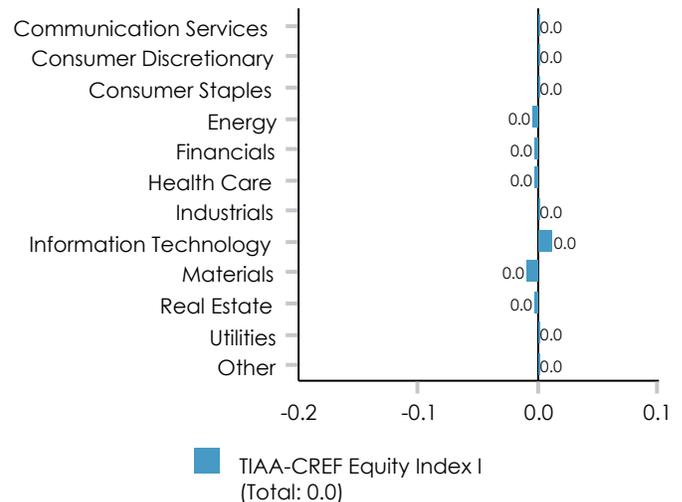
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Microsoft Corp	3.1	3.1	-10.8
Apple Inc	3.0	3.0	-29.9
Amazon.com Inc	2.4	2.4	-25.0
Berkshire Hathaway Inc	1.6	1.6	-4.6
Johnson & Johnson	1.4	1.4	-6.0
JPMorgan Chase & Co	1.3	1.3	-12.9
Alphabet Inc	1.3	1.3	-13.2
Alphabet Inc	1.2	1.2	-13.4
Facebook Inc	1.2	1.2	-20.3
Exxon Mobil Corp	1.2	1.1	-19.0
% of Portfolio	17.7	17.6	

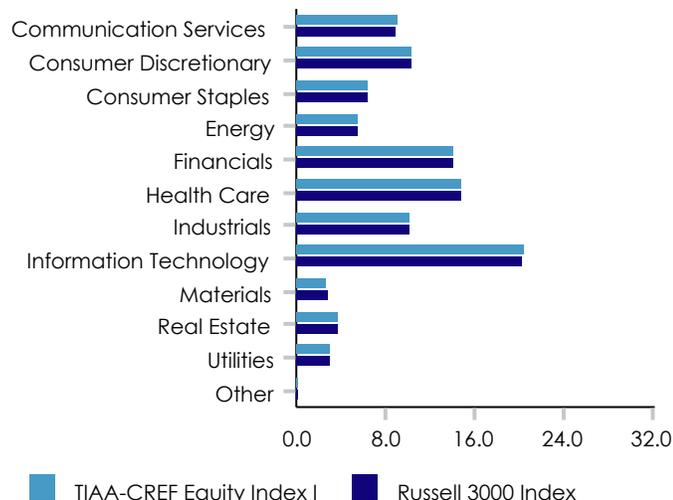
Market Cap Distribution (As of 12/31/2018)



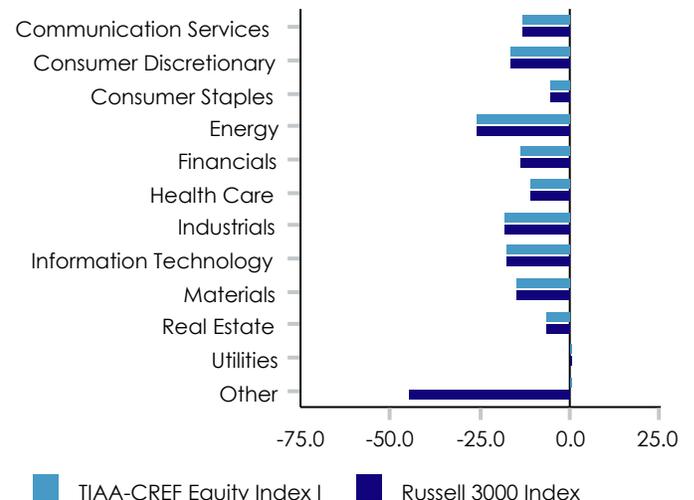
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

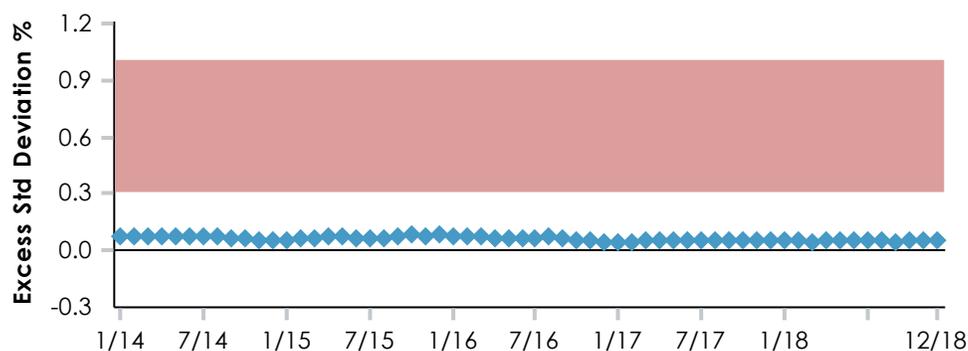


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF S&P 500 Index I vs. S&P 500 Index

Short-term (Rolling 12 Months Tracking Error)

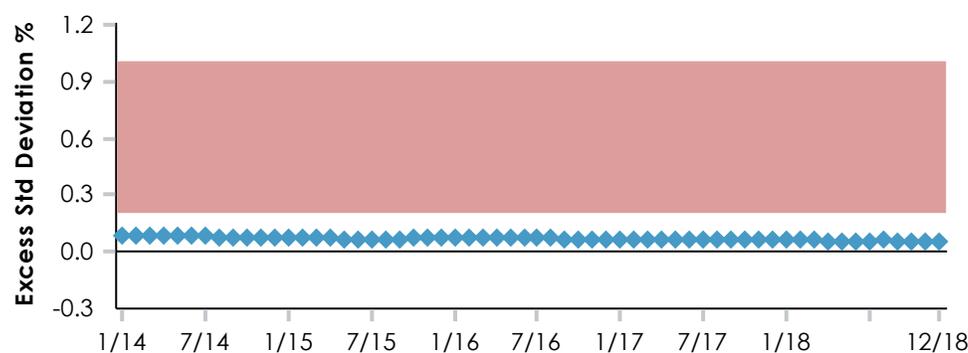


Short-Term Performance

Positive

Probationary Performance 0.30%

Medium-term (Rolling 36 Months Tracking Error)

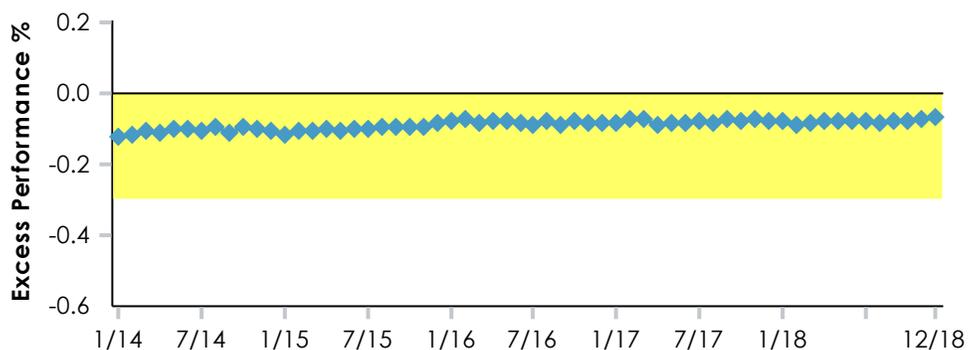


Medium-Term Performance

Positive

Probationary Performance 0.25%

Long-term (Rolling 60 Months Excess Performance)



Long-Term Performance

Acceptable

Probationary Performance -0.30%

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF S&P 500 Index I	-13.5 (14)	-4.5 (21)	9.2 (12)	8.4 (10)	12.6 (10)
S&P 500 Index	-13.5 (16)	-4.4 (6)	9.3 (2)	8.5 (1)	12.7 (1)
IM S&P 500 Index (MF) Median	-13.6	-4.7	8.9	8.1	12.2

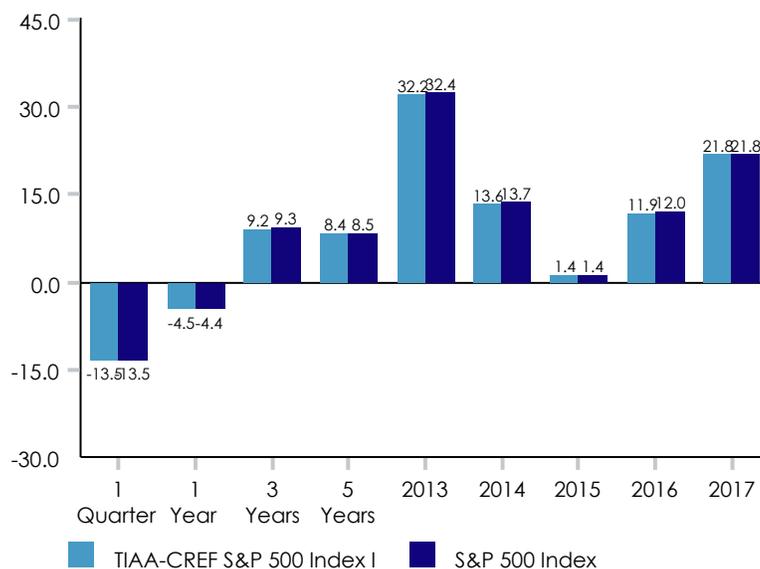
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:S&P500 Idx;Ins (TISPX)
 Fund Family : TIAA-CREF
 Ticker : TISPX
 Peer Group : IM S&P 500 Index (MF)
 Benchmark : S&P 500 Index
 Fund Inception : 10/01/2002
 Portfolio Manager : Campagna/Liao
 Total Assets : \$3,495 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.1%
 Net Expense : 0.1%
 Turnover : 8%

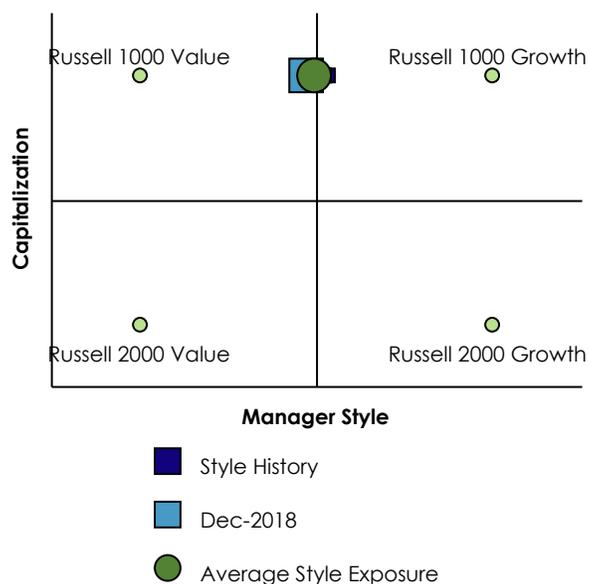
Comparative Performance



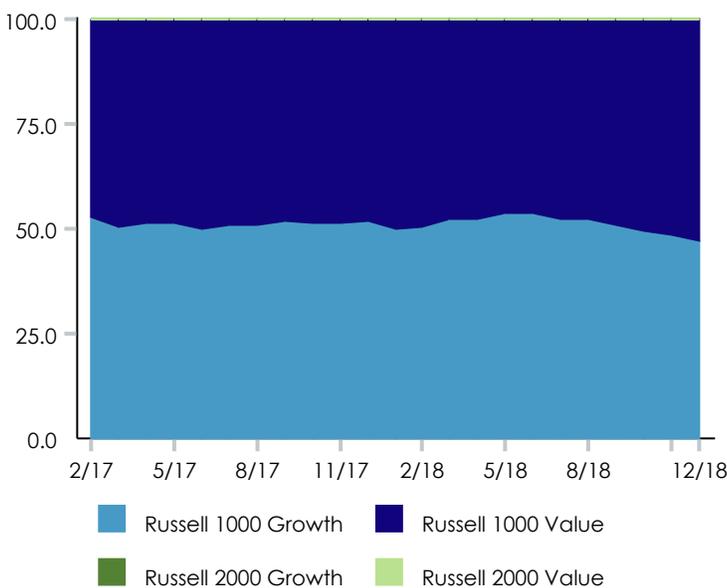
Fund Investment Policy

The Fund seeks a favorable long-term total return, mainly through capital appreciation, by investing primarily in a portfolio of equity securities of large domestic companies selected to track U.S. equity markets based on a market index.

Style Map (3 Years)



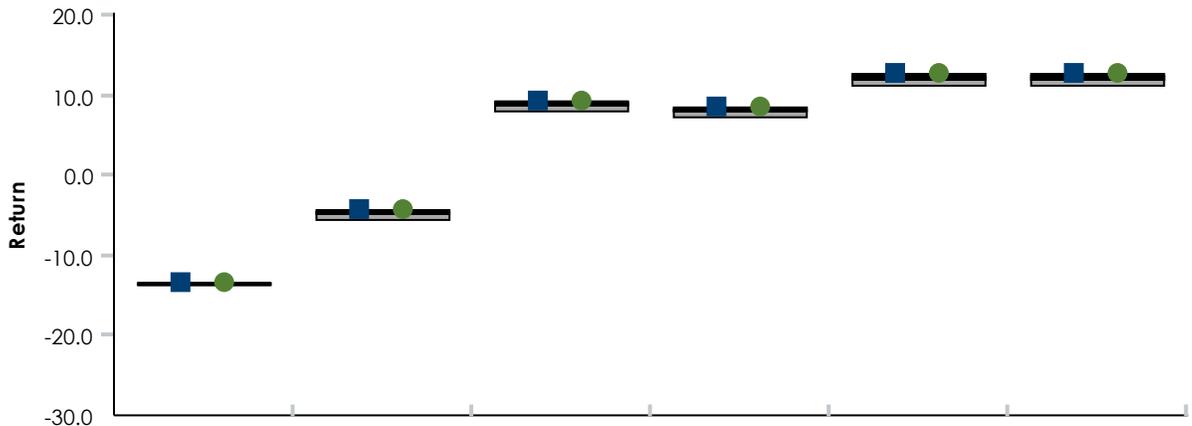
Style History (3 Years)



Historical Statistics (3 Years)

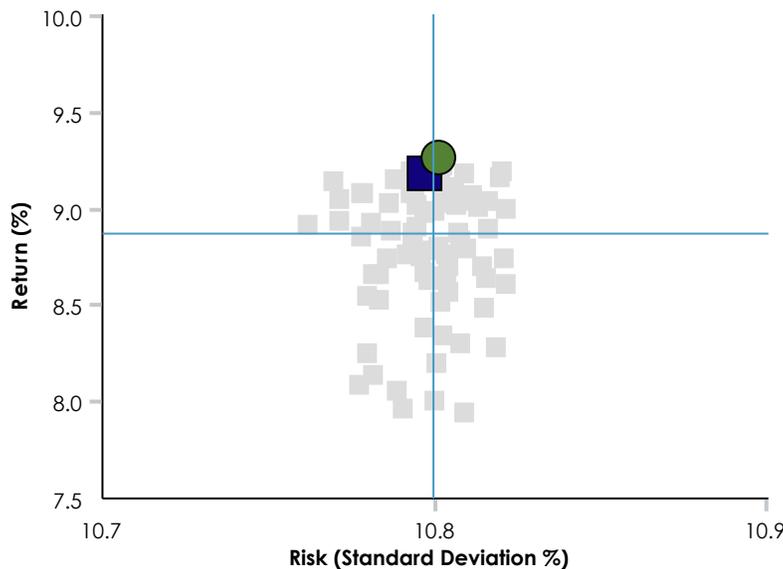
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF S&P 500 Index I	9.2	10.8	0.8	-0.1	1.0	1.0	0.0	-1.4	99.7	100.1
S&P 500 Index	9.3	10.8	0.8	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM S&P 500 Index (MF) Median	8.9	10.8	0.8	-0.3	1.0	1.0	0.1	-5.3	98.4	100.7

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF S&P 500 Index I	-13.5 (14)	-4.5 (21)	9.2 (12)	8.4 (10)	12.6 (8)	12.6 (10)
● S&P 500 Index	-13.5 (16)	-4.4 (6)	9.3 (2)	8.5 (1)	12.7 (1)	12.7 (1)
Median	-13.6	-4.7	8.9	8.1	12.2	12.2

Peer Group Scattergram (3 Years)



Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	29	99.7
Down Markets	7	100.1
Batting Average		
Up Markets	29	24.1
Down Markets	7	14.3
Overall	36	22.2

	Return	Standard Deviation
■ TIAA-CREF S&P 500 Index I	9.2	10.8
● S&P 500 Index	9.3	10.8
— Median	8.9	10.8

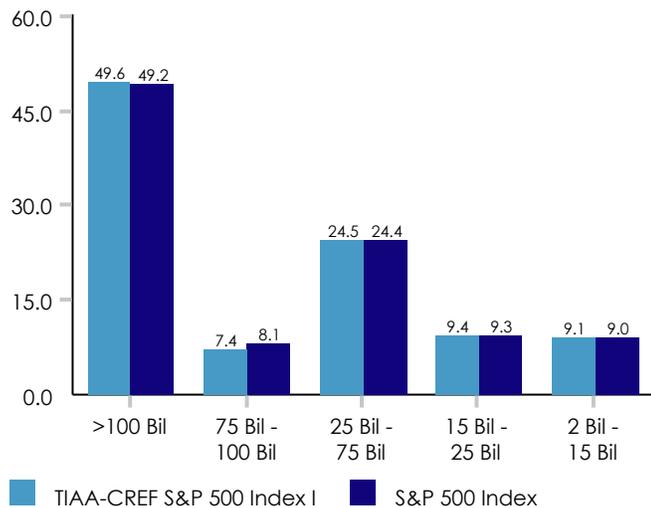
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	199,225	198,165
Median Mkt. Cap (\$M)	18,253	18,449
Price/Earnings ratio	17.3	17.4
Price/Book ratio	3.1	3.2
5 Yr. EPS Growth Rate (%)	16.1	16.0
Current Yield (%)	2.2	2.2
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	502	505

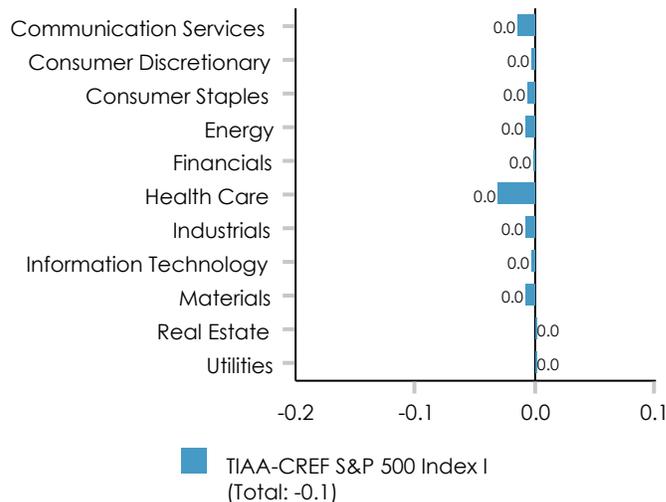
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Microsoft Corp	3.8	3.7	-10.8
Apple Inc	3.4	3.4	-29.9
Amazon.com Inc	3.0	2.9	-25.0
Berkshire Hathaway Inc	1.9	1.9	-4.6
Johnson & Johnson	1.7	1.6	-6.0
JPMorgan Chase & Co	1.6	1.5	-12.9
Alphabet Inc	1.5	1.5	-13.2
Facebook Inc	1.5	1.5	-20.3
Alphabet Inc	1.5	1.5	-13.4
Exxon Mobil Corp	1.4	1.4	-19.0
% of Portfolio	21.3	20.9	

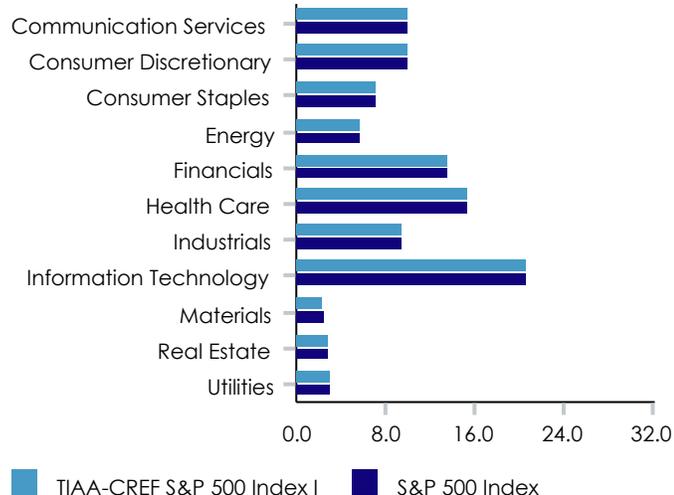
Market Cap Distribution (As of 12/31/2018)



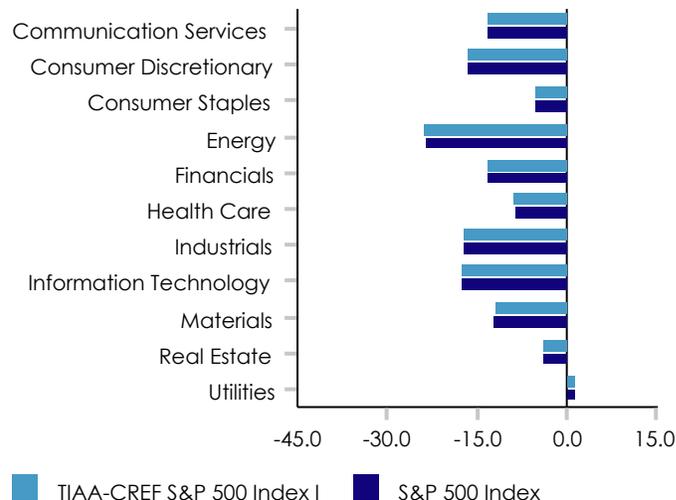
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

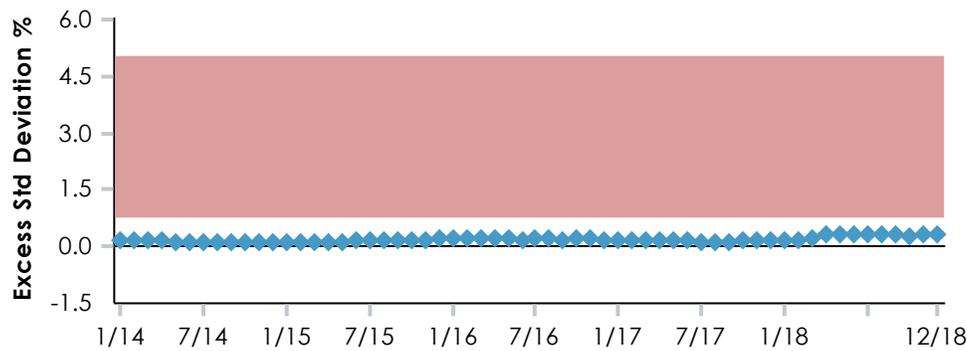


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Interational Equity Index I (actual) vs. MSCI EAFE (Net) Index

Short-term (Rolling 12 Months Tracking Error)

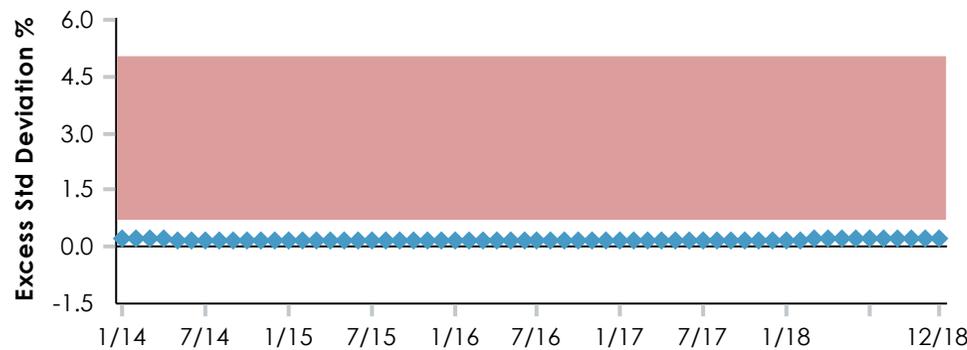


Short-Term Performance

Positive

Probationary Performance 0.75%

Medium-term (Rolling 36 Months Tracking Error)

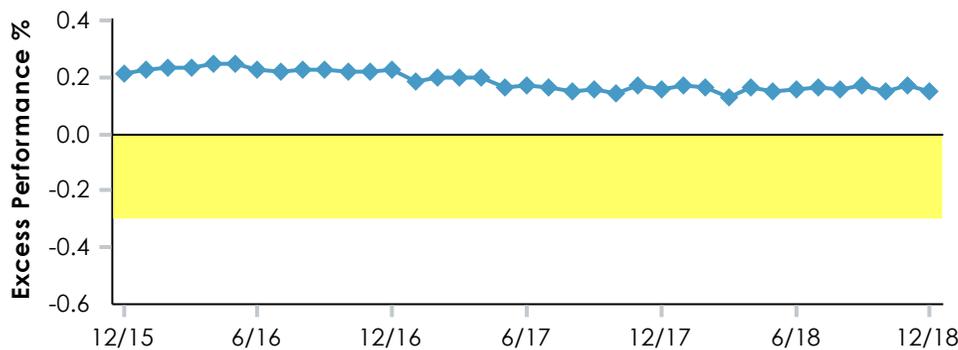


Medium-Term Performance

Positive

Probationary Performance 0.70%

Long-term (Rolling 60 Months Excess Performance)



Long-Term Performance

Positive

Probationary Performance -0.30%

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Interational Equity Index I (actual)	-12.6 (41)	-13.7 (25)	3.0 (39)	0.7 (35)	5.7 (21)
MSCI EAFE (Net) Index	-12.5 (39)	-13.8 (28)	2.9 (44)	0.5 (41)	5.5 (26)
IM International Multi-Cap Core Equity (MF) Median	-12.9	-14.9	2.7	0.4	4.9

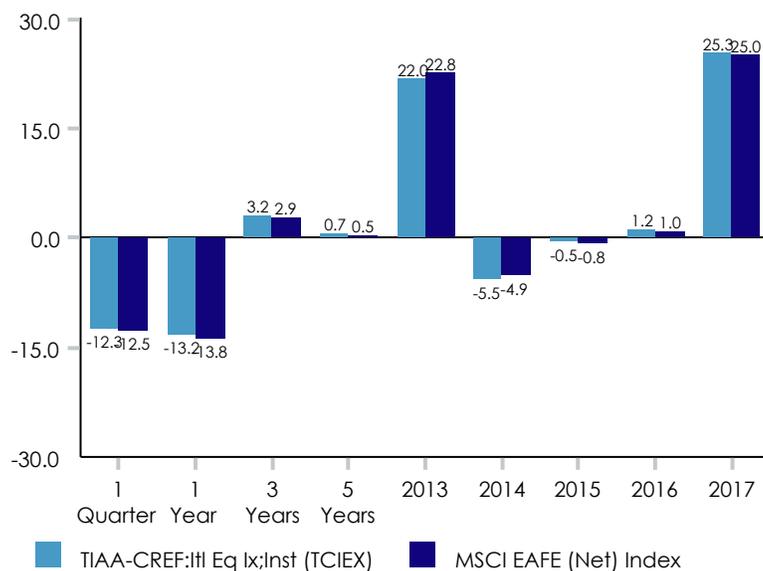
Monitoring Status

Positive

Mutual Fund Info

Product Name : TIAA-CREF:Itl Eq Ix;Inst (TCIEX)
 Fund Family : TIAA-CREF
 Ticker : TCIEX
 Peer Group : IM International Multi-Cap Core Equity (MF)
 Benchmark : MSCI EAFE IMI
 Fund Inception : 10/01/2002
 Portfolio Manager : Campagna/Liao
 Total Assets : \$7,949 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.1%
 Net Expense : 0.1%
 Turnover : 4%

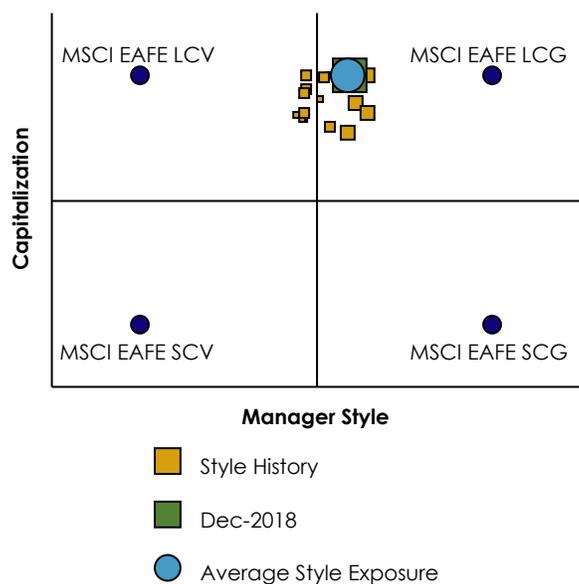
Comparative Performance



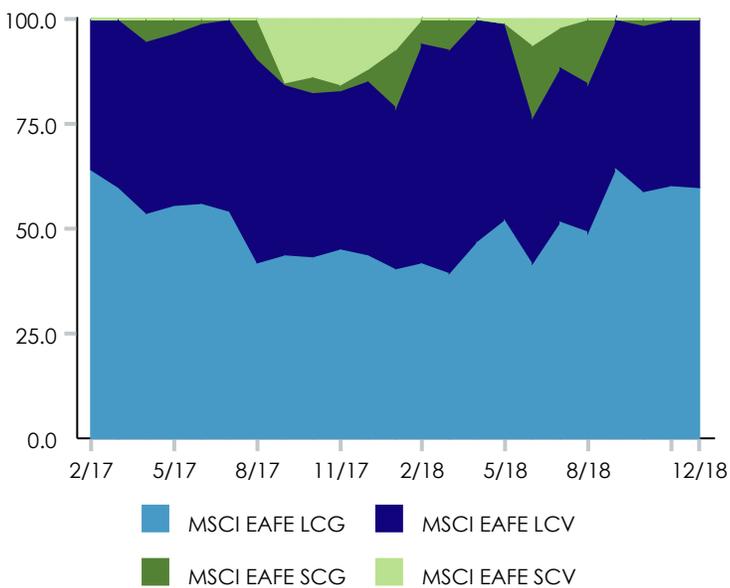
Fund Investment Policy

The Fund seeks a favorable long-term total return, mainly through capital appreciation. The Fund has a policy of investing, under normal circumstances, at least 80% of its assets (net assets, plus the amount of any borrowings for investment purposes) in the equity securities of its benchmark index, the MSCI EAFE Index.

Style Map (3 Years)



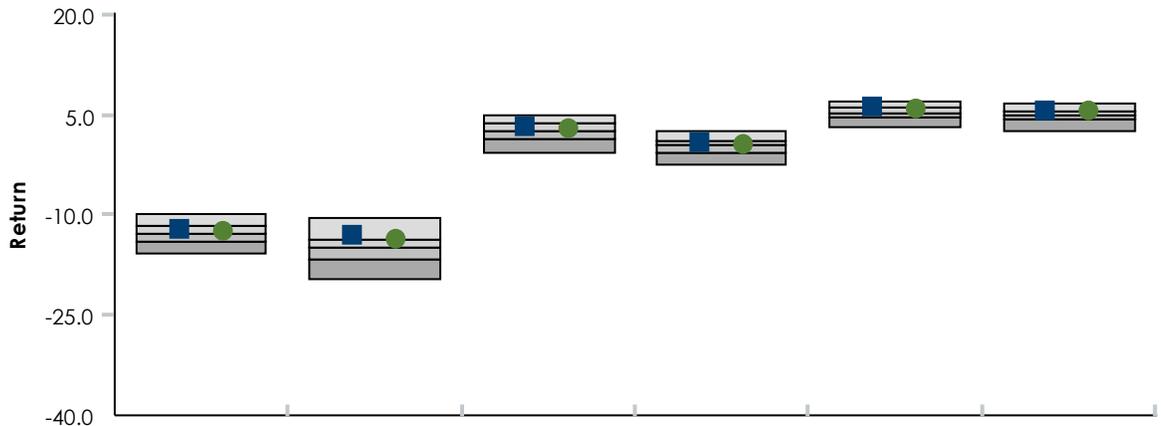
Style History (3 Years)



Historical Statistics (3 Years)

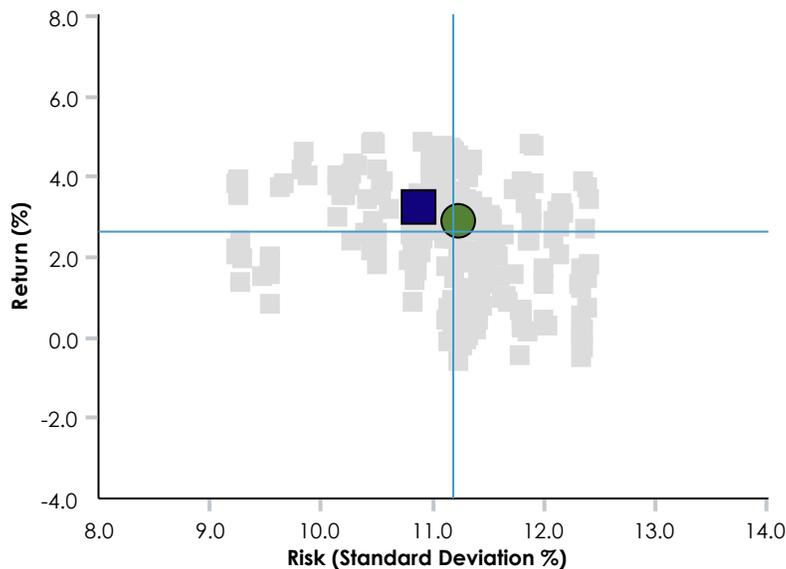
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF:Itl Eq Ix;Inst (TCIEX)	3.2	10.9	0.3	0.5	1.0	1.0	1.9	0.2	96.5	93.4
MSCI EAFE (Net) Index	2.9	11.2	0.2	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM International Multi-Cap Core Equity (MF) Median	2.7	11.2	0.2	-0.1	1.0	0.9	3.2	-0.1	93.8	94.6

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF:Itl Eq Ix;Inst (TCIEX)	-12.3 (33)	-13.2 (18)	3.2 (32)	0.7 (35)	6.0 (24)	5.6 (26)
● MSCI EAFE (Net) Index	-12.5 (39)	-13.8 (28)	2.9 (44)	0.5 (41)	5.8 (30)	5.5 (26)
Median	-12.9	-14.9	2.7	0.4	5.3	4.9

Peer Group Scattergram (3 Years)



Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	20	96.5
Down Markets	16	93.4
Batting Average		
Up Markets	20	50.0
Down Markets	16	62.5
Overall	36	55.6

	Return	Standard Deviation
■ TIAA-CREF:Itl Eq Ix;Inst (TCIEX)	3.2	10.9
● MSCI EAFE (Net) Index	2.9	11.2
— Median	2.7	11.2

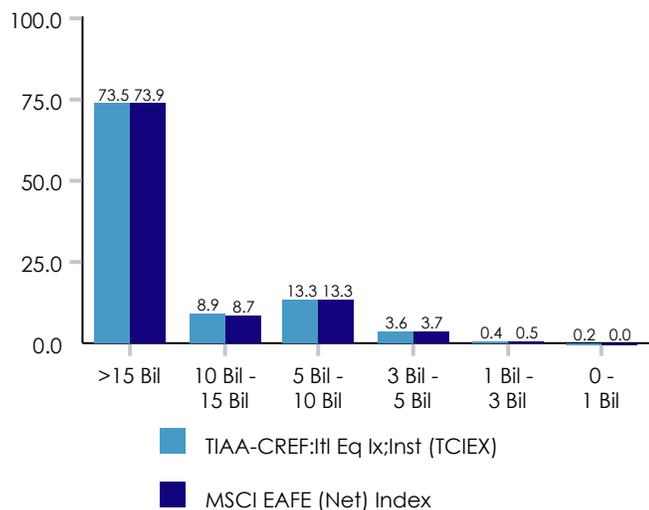
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	55,911	55,194
Median Mkt. Cap (\$M)	9,422	9,372
Price/Earnings ratio	12.2	12.3
Price/Book ratio	2.1	2.1
5 Yr. EPS Growth Rate (%)	10.0	9.8
Current Yield (%)	3.3	3.7
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	916	920

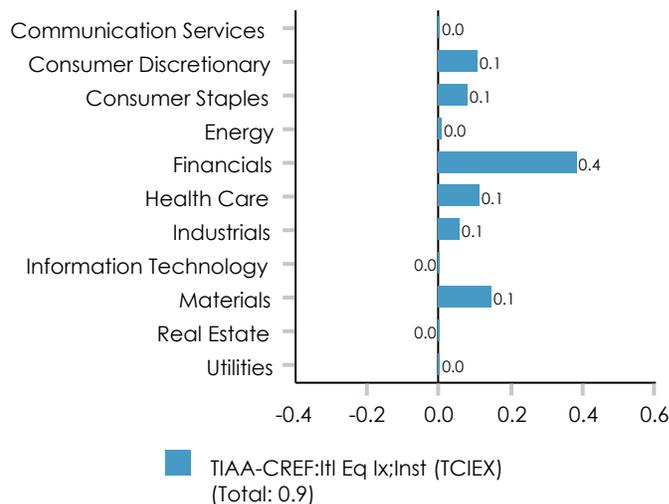
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quarterly Return (%)
Nestle SA	2.0	2.0	-3.3
NOVARTIS AG	1.5	0.0	N/A
Roche Holding AG	1.4	1.4	1.6
HSBC Holdings PLC	1.3	1.3	-4.5
Royal Dutch Shell PLC	1.1	1.1	-13.2
Toyota Motor Corp	1.1	1.1	-6.6
Total SA Oil & Gas	1.0	1.0	-17.4
BP PLC	1.0	1.0	-16.6
Royal Dutch Shell PLC	0.9	0.9	-13.7
AIA Group Ltd	0.8	0.8	-7.1
% of Portfolio	12.1	10.6	

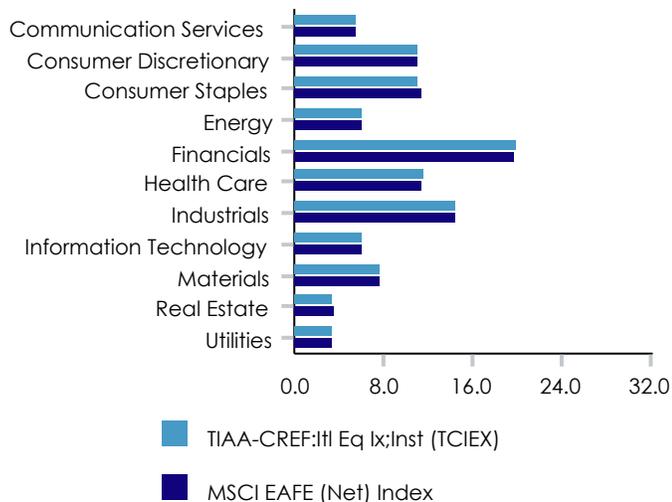
Market Cap Distribution (As of 12/31/2018)



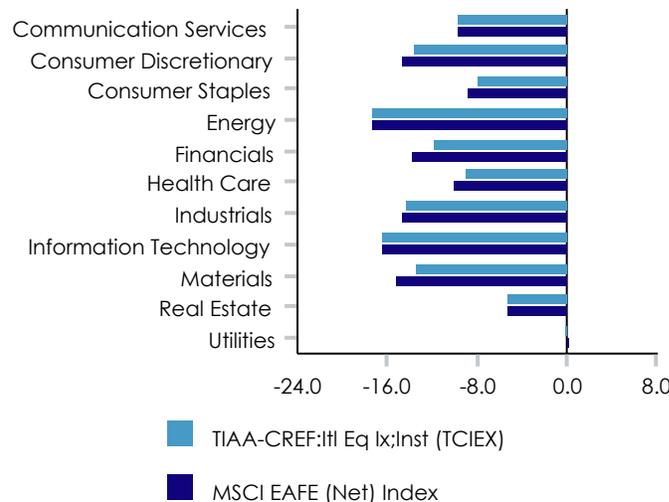
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

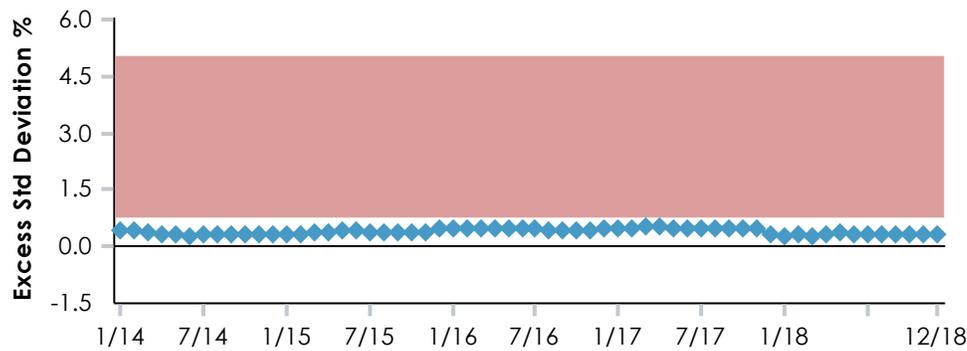


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Emerging Markets Equity Index (actual) vs. MSCI Emerging Markets

Short-term (Rolling 12 Months Tracking Error)

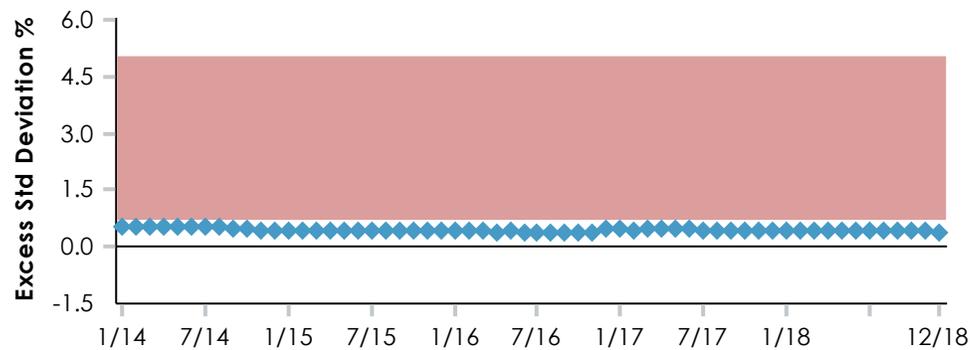


Short-Term Performance

Positive

Probationary Performance 0.75%

Medium-term (Rolling 36 Months Tracking Error)

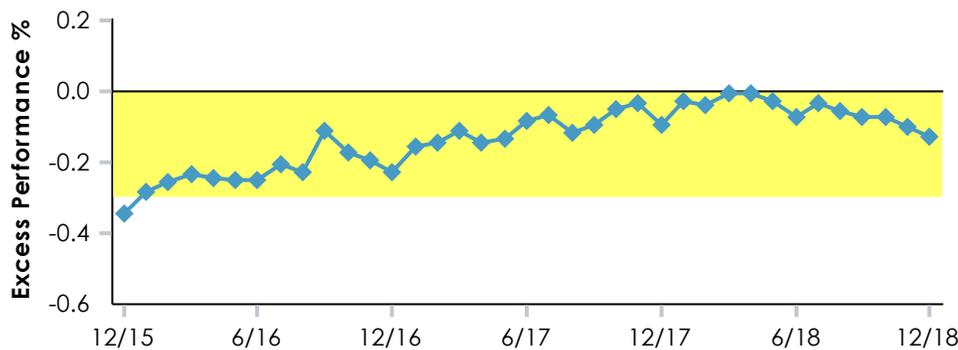


Medium-Term Performance

Positive

Probationary Performance 0.70%

Long-term (Rolling 60 Months Excess Performance)



Long-Term Performance

Acceptable

Probationary Performance -0.30%

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Emerging Markets Equity Index (actual)	-7.6 (49)	-14.8 (35)	9.2 (18)	1.5 (30)	2.8 (42)
MSCI Emerging Markets (Net)	-7.5 (48)	-14.6 (30)	9.2 (17)	1.6 (27)	3.0 (37)
IM Emerging Markets Equity (MF) Median	-7.6	-16.4	6.9	0.9	2.4

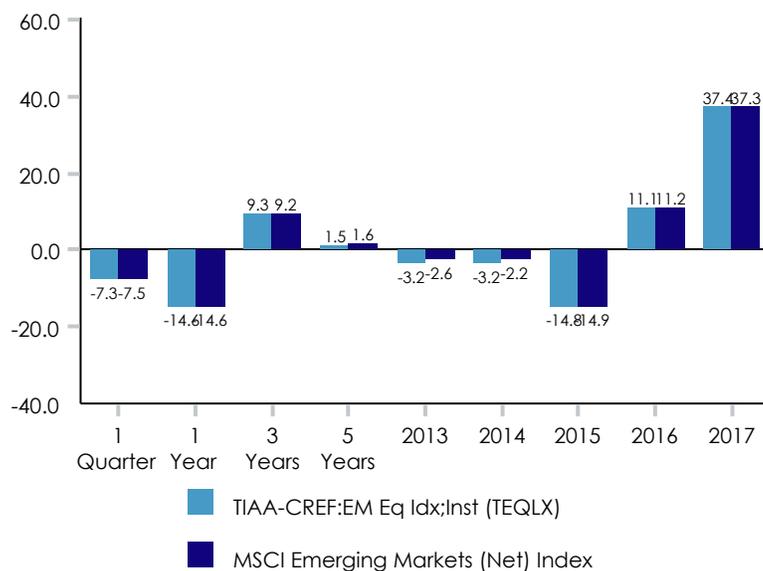
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:EM Eq Idx;Inst (TEQLX)
 Fund Family : TIAA-CREF
 Ticker : TEQLX
 Peer Group : IM Emerging Markets Equity (MF)
 Benchmark : MSCI Emerging Markets Index
 Fund Inception : 08/31/2010
 Portfolio Manager : Campagna/Liao
 Total Assets : \$1,402 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.2%
 Net Expense : 0.2%
 Turnover : 27%

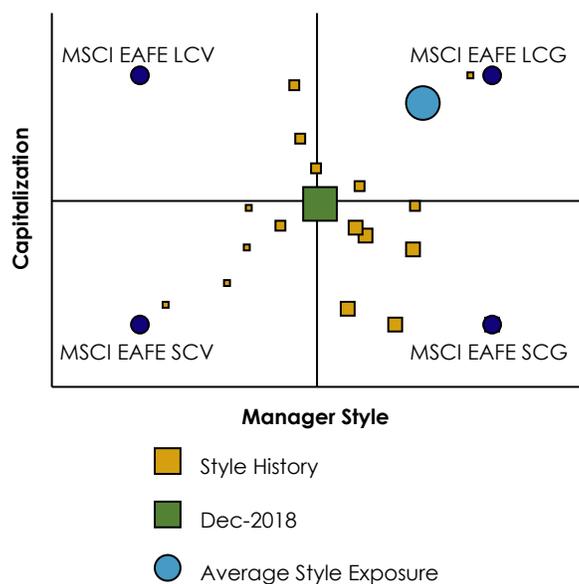
Comparative Performance



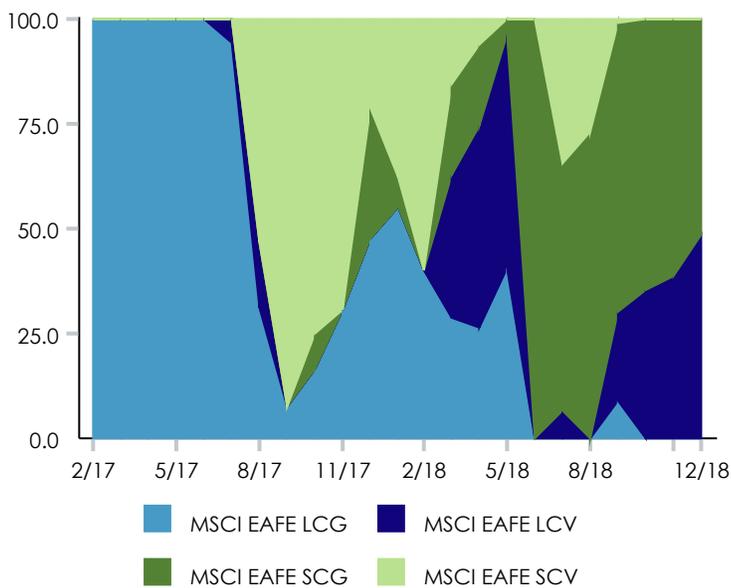
Fund Investment Policy

The Fund seeks a favorable long-term total return. The Fund seeks a favorable long-term total return from a diversified portfolio of equity securities selected to track publicly-traded stocks in emerging markets, as represented by its benchmark index, the MSCI Emerging Markets Index.

Style Map (3 Years)



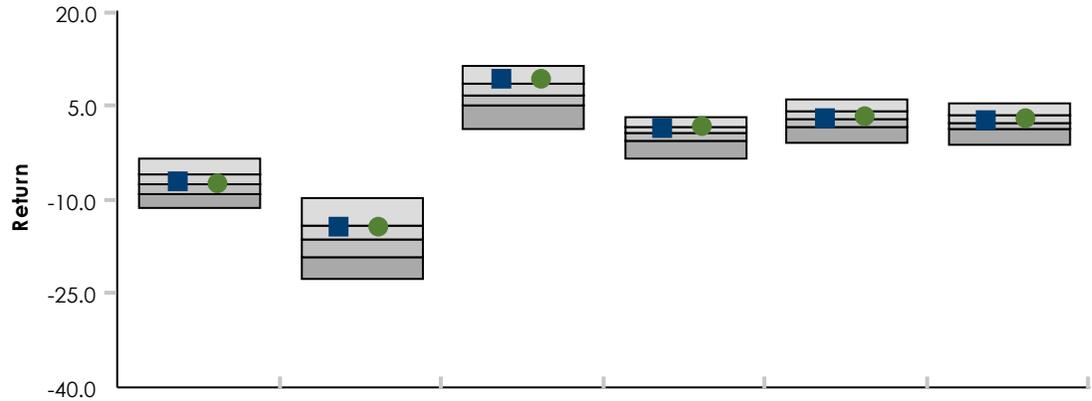
Style History (3 Years)



Historical Statistics (3 Years)

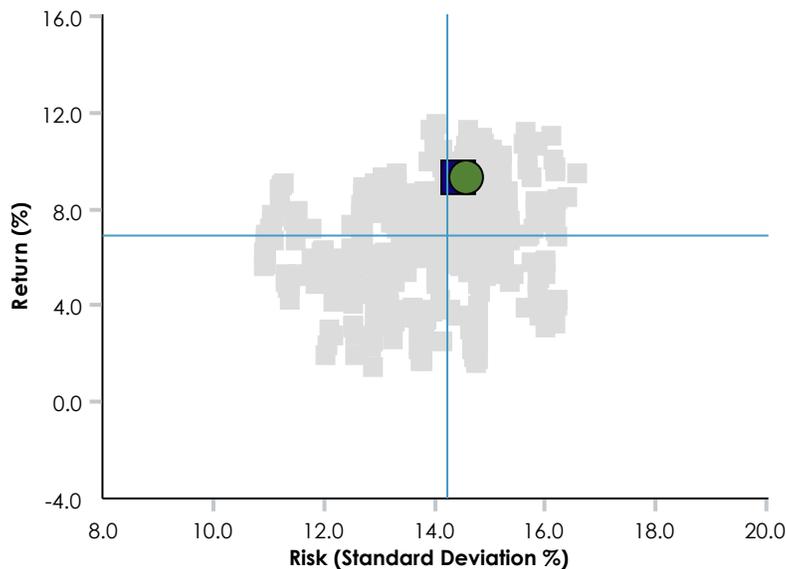
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF:EM Eq Idx;Inst (TEQLX)	9.3	14.5	0.6	0.1	1.0	1.0	1.6	0.0	99.8	99.8
MSCI Emerging Markets (Net) Index	9.2	14.6	0.6	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM Emerging Markets Equity (MF) Median	6.9	14.2	0.5	-1.1	0.9	0.9	4.8	-0.5	91.6	99.1

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF:EM Eq Idx;Inst (TEQLX)	-7.3 (45)	-14.6 (30)	9.3 (17)	1.5 (31)	3.1 (49)	2.5 (49)
● MSCI Emerging Markets (Net) Index	-7.5 (48)	-14.6 (30)	9.2 (17)	1.6 (27)	3.2 (45)	3.0 (37)
Median	-7.6	-16.4	6.9	0.9	3.0	2.4

Peer Group Scattergram (3 Years)



Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	99.8
Down Markets	14	99.8
Batting Average		
Up Markets	22	50.0
Down Markets	14	50.0
Overall	36	50.0

	Return	Standard Deviation
■ TIAA-CREF:EM Eq Idx;Inst (TEQLX)	9.3	14.5
● MSCI Emerging Markets (Net) Index	9.2	14.6
— Median	6.9	14.2

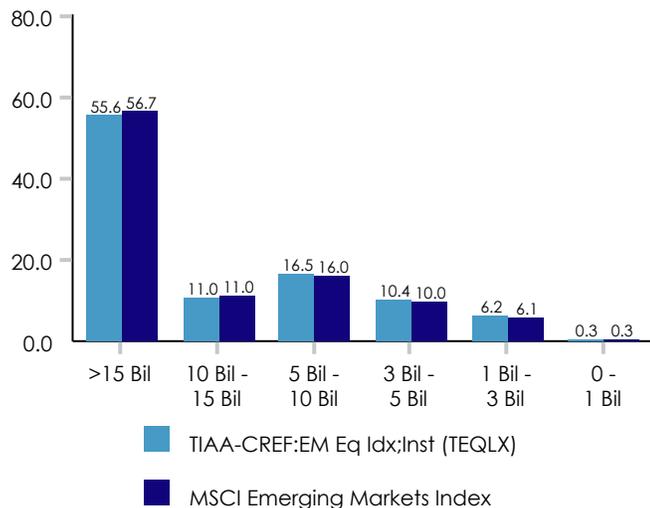
Portfolio Characteristics (As of 12/31/2018)

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	65,623	70,373
Median Mkt. Cap (\$M)	5,184	4,928
Price/Earnings ratio	11.8	11.1
Price/Book ratio	2.4	2.4
5 Yr. EPS Growth Rate (%)	13.3	13.5
Current Yield (%)	3.0	3.1
Beta (5 Years, Monthly)	1.0	1.0
Number of Stocks	1,026	1,125

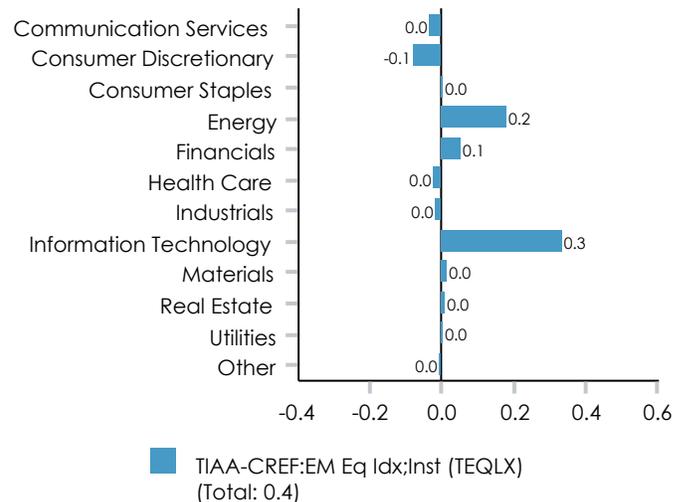
Top 10 Holdings (As of 12/31/2018)

	Portfolio Weight (%)	Benchmark Weight (%)	Quality Rating
Tencent Holdings LTD	4.9	4.8	-
Taiwan Semiconductor	3.9	3.8	-1
Alibaba Group Holding Ltd	3.8	3.7	-1
Naspers Ltd	1.9	1.8	-
China Construction Bank Corp	1.7	1.6	-
China Mobile Ltd	1.3	1.2	-
Vanguard FTSE Emerging Markets ETF	1.2	0.0	-
Ind & Comm Bank of China	1.1	1.0	-
Ping An Insurance Group	1.0	1.0	-1
Reliance Industries Ltd	1.0	1.0	-
% of Portfolio	21.8	19.9	

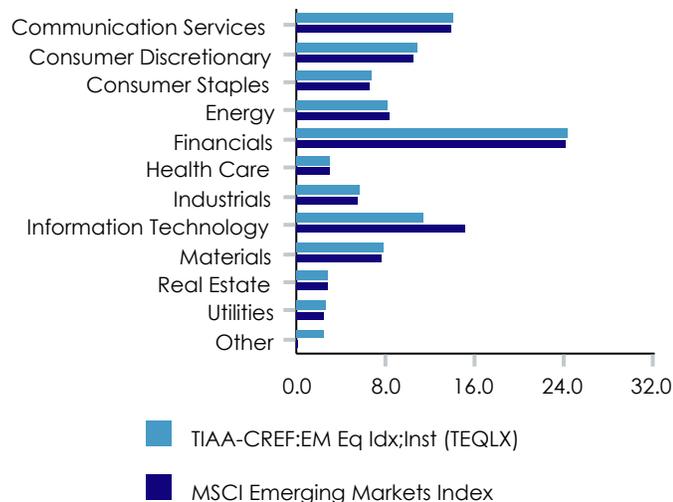
Market Cap Distribution (As of 12/31/2018)



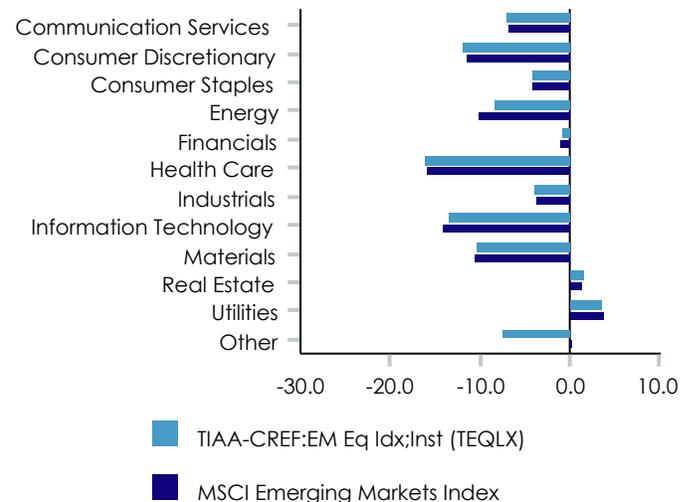
Sector Attribution (1 Quarter as of 12/31/2018)



Sector Allocation (1 Quarter as of 12/31/2018)

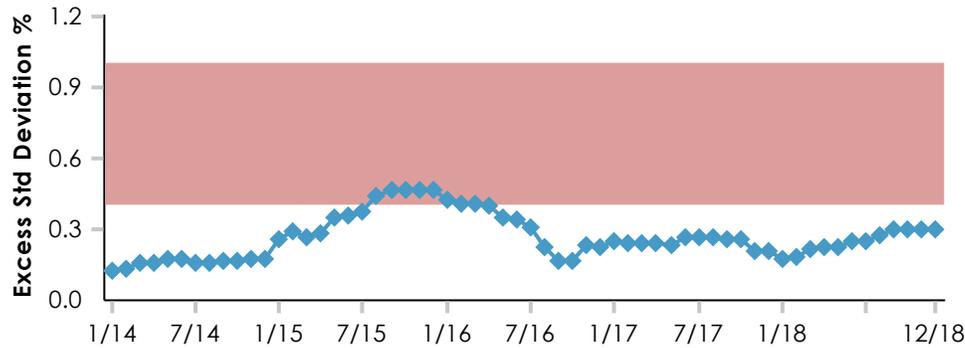


Sector Performance (1 Quarter as of 12/31/2018)



TIAA-CREF Bond Index I vs. BBg BC U.S. Aggregate Index

Short-term (Rolling 12 Months Tracking Error)

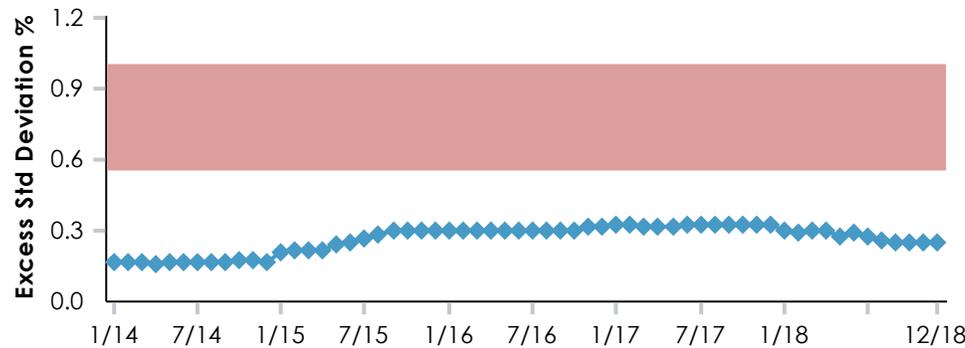


Short-Term Performance

Positive

Probationary Performance 0.40%

Medium-term (Rolling 36 Months Tracking Error)

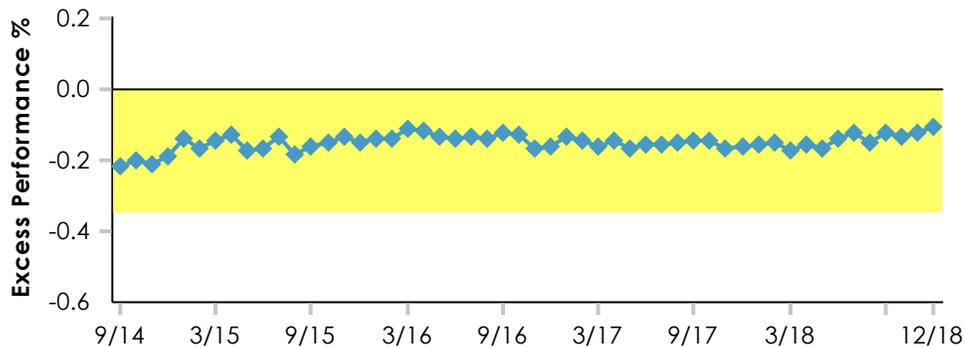


Medium-Term Performance

Positive

Probationary Performance 0.55%

Long-term (Rolling 60 Months Excess Performance)



Long-Term Performance

Acceptable

Probationary Performance -0.35%

Annualized Performance Results (Net of management fees)

	Qtr	1 Year	3 Years	5 Years	Inception (12/2011)
TIAA-CREF Bond Index I	1.7 (8)	0.0 (19)	1.9 (58)	2.4 (38)	2.1 (67)
BBg BC U.S. Aggregate Index	1.6 (11)	0.0 (18)	2.1 (45)	2.5 (28)	2.2 (58)
IM U.S. Broad Market Core Fixed Income (MF) Median	1.0	-0.6	2.0	2.3	2.3

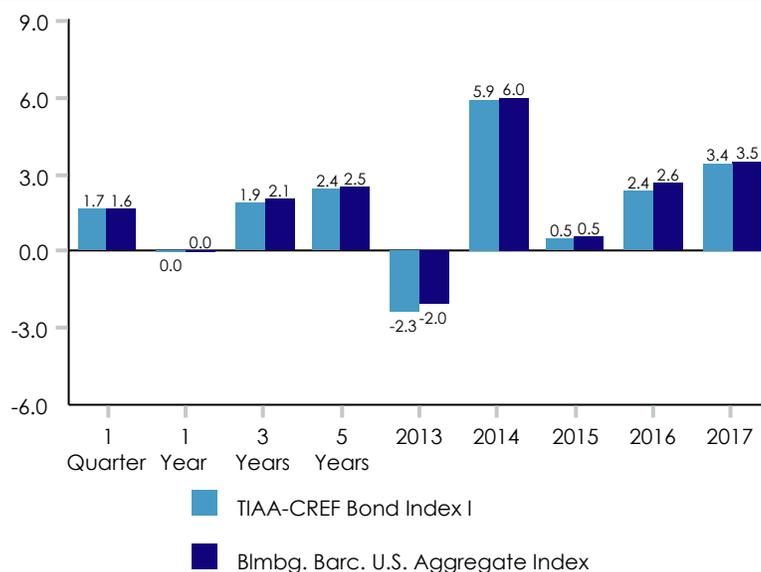
Monitoring Status

Acceptable

Mutual Fund Info

Product Name : TIAA-CREF:Bond Indx;Inst (TBIX)
 Fund Family : TIAA-CREF
 Ticker : TBIX
 Peer Group : IM U.S. Broad Market Core Fixed Income (MF)
 Benchmark : Bloomberg Barclays U.S. Aggregate
 Fund Inception : 09/14/2009
 Portfolio Manager : Chen/Tsang
 Total Assets : \$6,266 Million
 Total Assets Date : 01/31/2019
 Gross Expense : 0.1%
 Net Expense : 0.1%
 Turnover : 15%

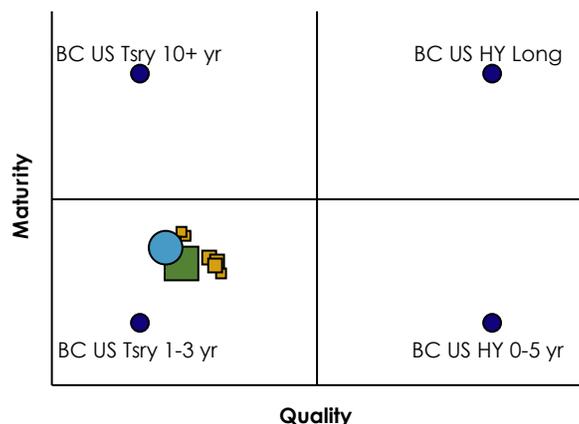
Comparative Performance



Fund Investment Policy

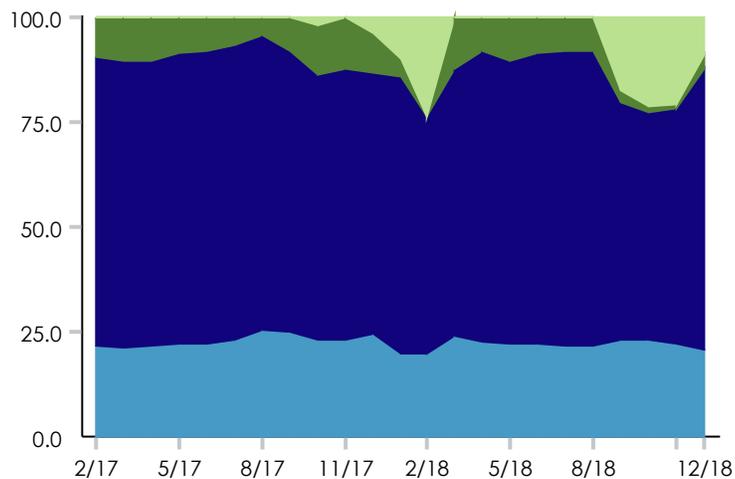
The Fund seeks a favorable long term total return. The Fund invests at least 80% of its assets bonds within its benchmark and portfolio tracking index, the Barclay's Capital U.S. Aggregate Bond Index.

Style Map (3 Years)



- Style History
- Dec-2018
- Average Style Exposure

Style History (3 Years)

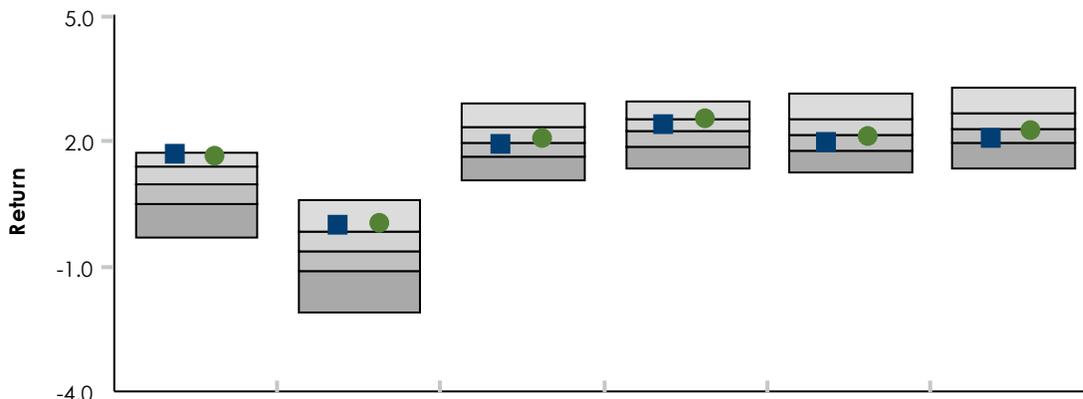


- BC US Tstry 10+ yr
- BC US Tstry 1-3 yr
- BC US HY Long
- BC US HY 0-5 yr

Historical Statistics (3 Years)

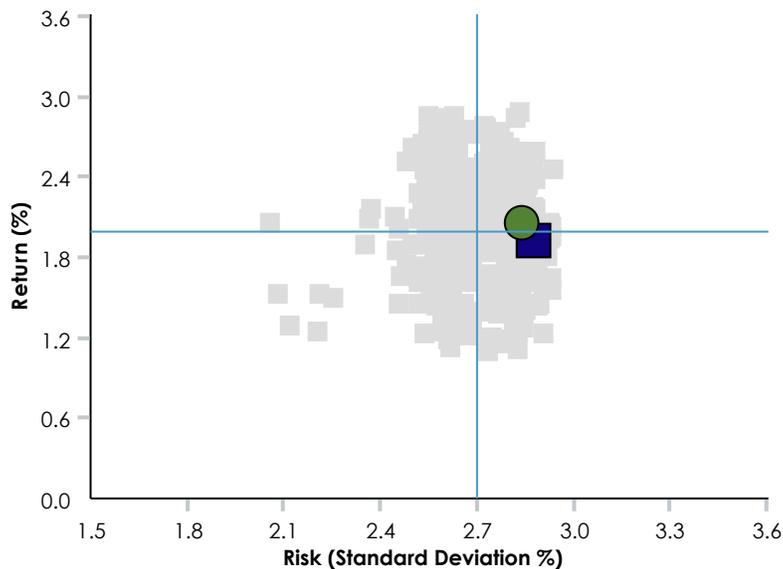
	Return	Standard Deviation	Sharpe Ratio	Alpha	Beta	R-Squared	Tracking Error	Information Ratio	Up Market Capture	Down Market Capture
TIAA-CREF Bond Index I	1.9	2.9	0.3	-0.2	1.0	1.0	0.3	-0.5	96.4	98.4
Blmbg. Barc. U.S. Aggregate Index	2.1	2.8	0.4	0.0	1.0	1.0	0.0	N/A	100.0	100.0
IM U.S. Broad Market Core Fixed Income (MF) Median	2.0	2.7	0.4	0.1	0.9	0.9	0.7	-0.1	94.4	92.2

Peer Group Analysis



	1 Quarter	1 Year	3 Years	5 Years	7 Years	Since Inception Dec-2011
■ TIAA-CREF Bond Index I	1.7 (8)	0.0 (19)	1.9 (58)	2.4 (38)	2.0 (67)	2.1 (67)
● Blmbg. Barc. U.S. Aggregate Index	1.6 (11)	0.0 (18)	2.1 (45)	2.5 (28)	2.1 (58)	2.2 (58)
Median	1.0	-0.6	2.0	2.3	2.2	2.3

Peer Group Scattergram (3 Years)



	Return	Standard Deviation
■ TIAA-CREF Bond Index I	1.9	2.9
● Blmbg. Barc. U.S. Aggregate Index	2.1	2.8
— Median	2.0	2.7

Performance Statistics (3 Years)

	Months	%
Market Capture		
Up Markets	22	96.4
Down Markets	14	98.4
Batting Average		
Up Markets	22	40.9
Down Markets	14	50.0
Overall	36	44.4

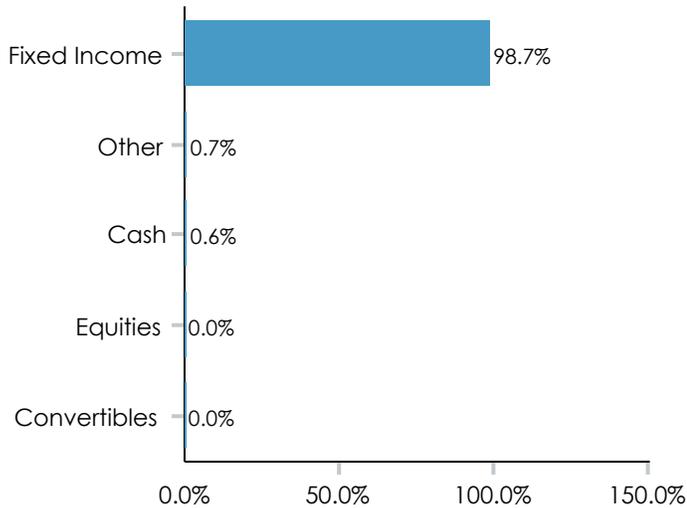
Portfolio Characteristics (As of 12/31/2018)

Avg. Coupon	3.10 %
Nominal Maturity	8.33 Years
Effective Maturity	N/A
Duration	6.05 Years
SEC 30 Day Yield	2.8
Avg. Credit Quality	AA

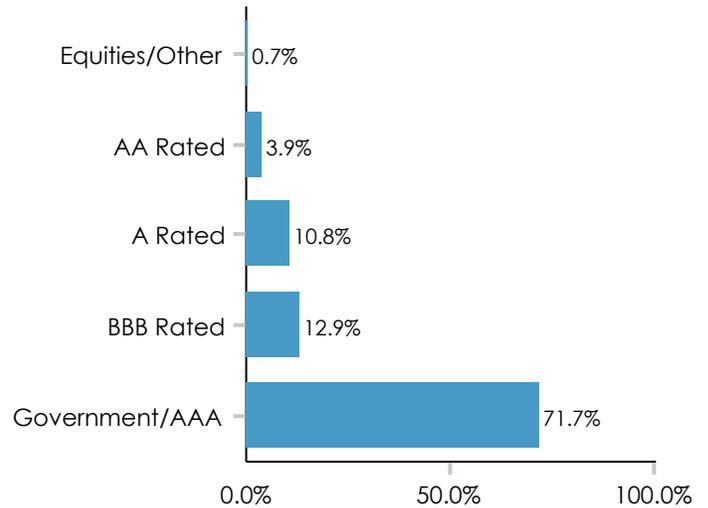
Top 10 Holdings (As of 9/30/2018)

Treasury Notes/Bonds	37.8 %
GNMA and Other Mtg Backed	29.7 %
Corporate Notes/Bonds	20.2 %
US\$ Denominated Fgn. Gvt.	8.7 %
Government Agency Securities	1.5 %
Asset Backed Securities	0.8 %

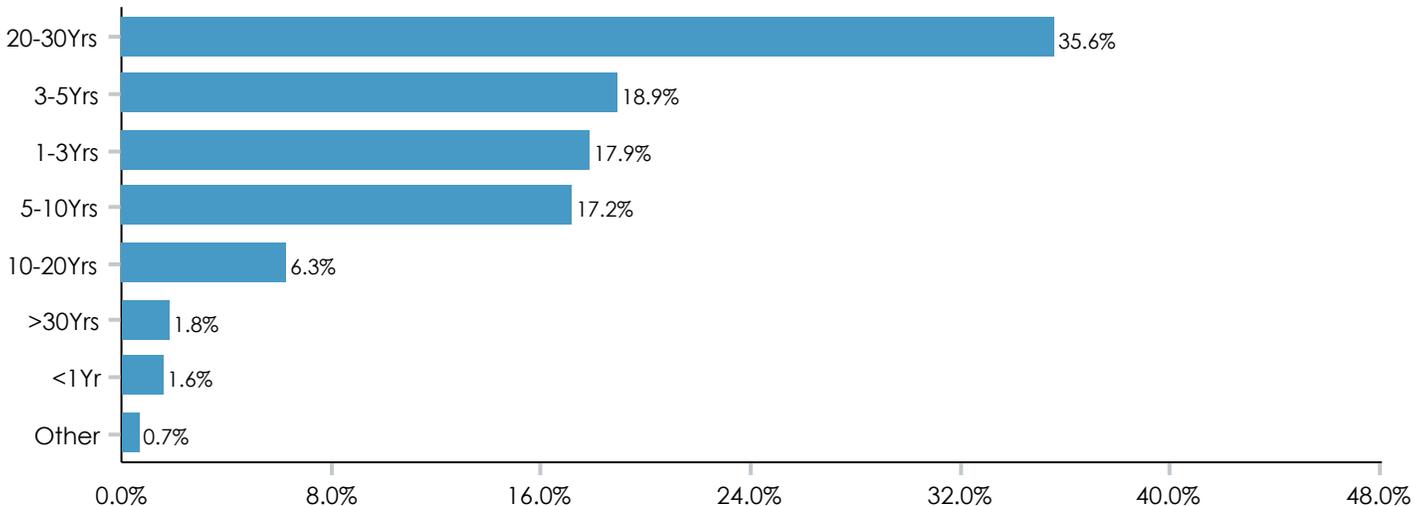
Asset Allocation (As of 9/30/2018)



Quality Allocation (As of 9/30/2018)



Maturity Distribution (As of 12/31/2018)



T-C LIFE FUNDING AGREEMENTS

T-C LIFE FUNDING AGREEMENTS

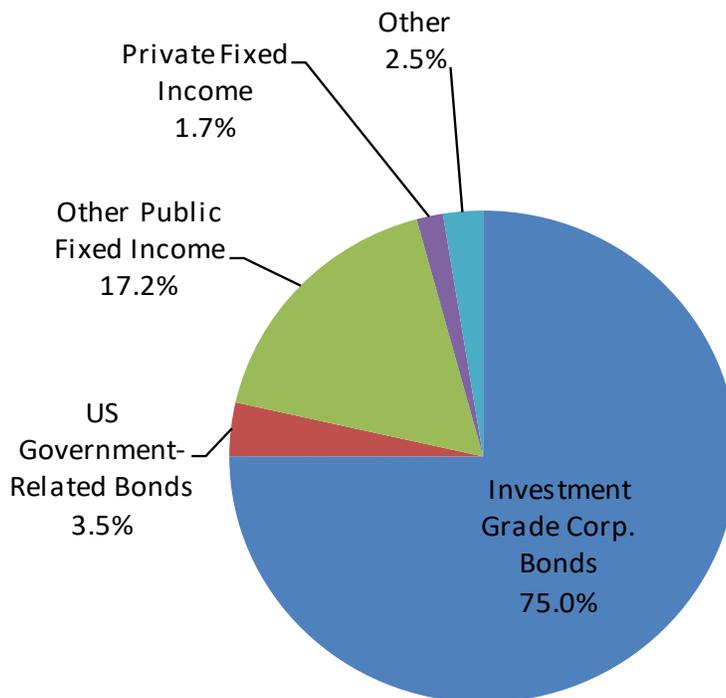
(based on non-investment performance criteria)

Criteria	Status as of 12/31/2018	Status as of 9/30/2018	Status as of 6/30/2018	Status as of 3/31/2018
Financial Strength	Moody's = Aa1 Standard & Poor's = AA+ A.M. Best = A++ Fitch = AAA	Moody's = Aa1 Standard & Poor's = AA+ A.M. Best = A++ Fitch = AAA	Moody's = Aa1 Standard & Poor's = AA+ A.M. Best = A++ Fitch = AAA	Moody's = Aa1 Standard & Poor's = AA+ A.M. Best = A++ Fitch = AAA
Mortgage Portfolio	100% in Good Standing*			
Bond Portfolio	99.4% in Investment Grade (at least 90%)	99.34% in Investment Grade (at least 90%)	99.48% in Investment Grade (at least 90%)	99.40% in Investment Grade (at least 90%)
Account Diversification	Portfolio is diversified across asset classes and types (see chart below)	Portfolio is diversified across asset classes and types (see chart below)	Portfolio is diversified across asset classes and types (see chart below)	Portfolio is diversified across asset classes and types (see chart below)

*Portfolio did not contain any commercial mortgages.

Note, prior-period investment status will shift to the right.

Source: TIAA-CREF



Current Status

Positive

SECTION 5

SUMMARY POINTS

SUMMARY POINTS

	Criteria Utilized for Performance Watch Status			
	On Watch	Short-term	Medium-term	Long-term
T. Rowe Price Instl Large Cap Growth	No	---	---	---
T. Rowe Price Instl Large Cap Value	No	---	---	---
TIAA-CREF Small Cap Equity	No	---	---	---
TIAA-CREF Social Choice Equity	Yes	---	---	✓
TIAA-CREF Real Estate Securities	No	---	---	---
DFA Large Cap International	No	---	---	---
DFA Emerging Markets Core Equity	No	---	---	---
Metropolitan West Total Return Bond	No	---	---	N/A
PIMCO Real Return	No	---	---	---
PIMCO Income	No	---	---	---
TIAA-CREF Inflation-Linked Bond	No	---	---	---
T. Rowe Price Instl Floating Rate	No	---	---	---
TIAA-CREF High Yield Bond	No	---	---	---
TIAA-CREF Equity Index	No	---	---	---
TIAA-CREF S&P 500 Index	No	---	---	---
TIAA-CREF International Eq Index	No	---	---	---
TIAA-CREF Emerging Markets Eq Index	No	---	---	---
TIAA-CREF Bond Index	No	---	---	---
T-C Life Funding Agreements	No	N/A	N/A	N/A
Total	1 of 19	0 of 18 eligible portfolios	0 of 18 eligible portfolios	1 of 17 eligible portfolios

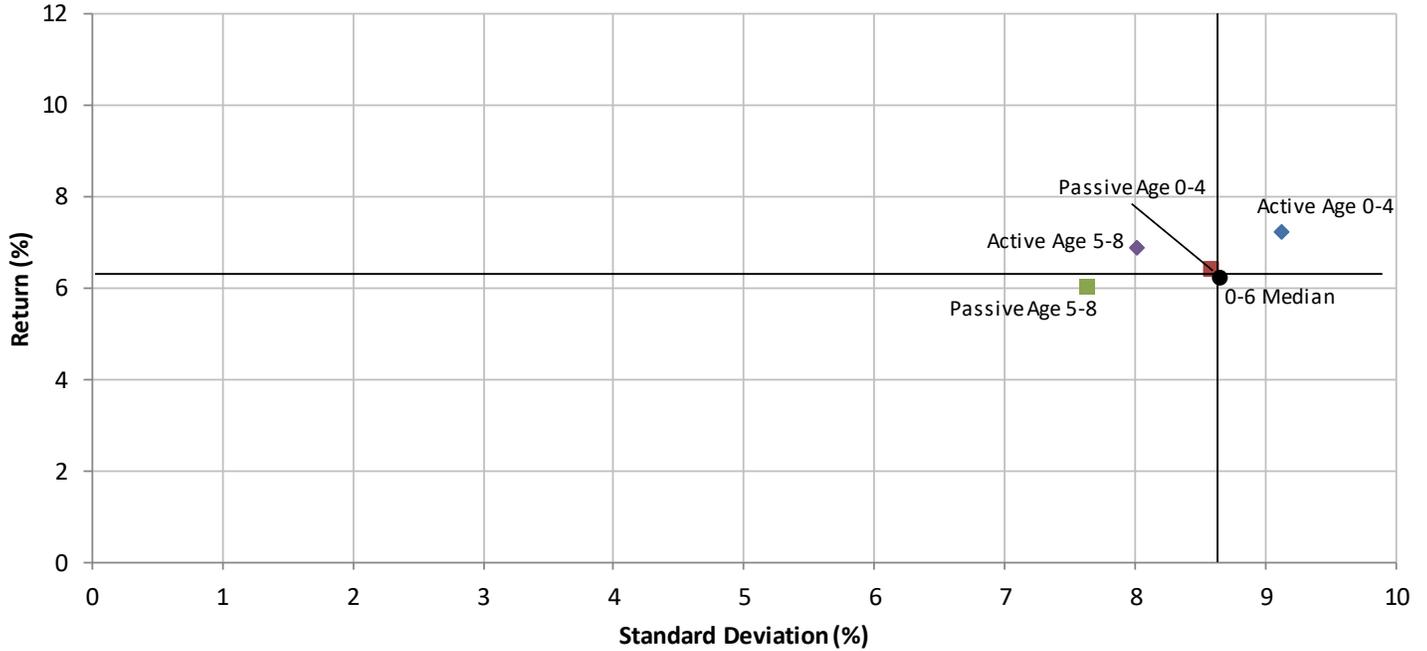
- Performance-based watch status criteria is on a *relative* basis
 - Absolute results may still be negative
- Criteria set up to evaluate managers over differing time periods

SECTION 6

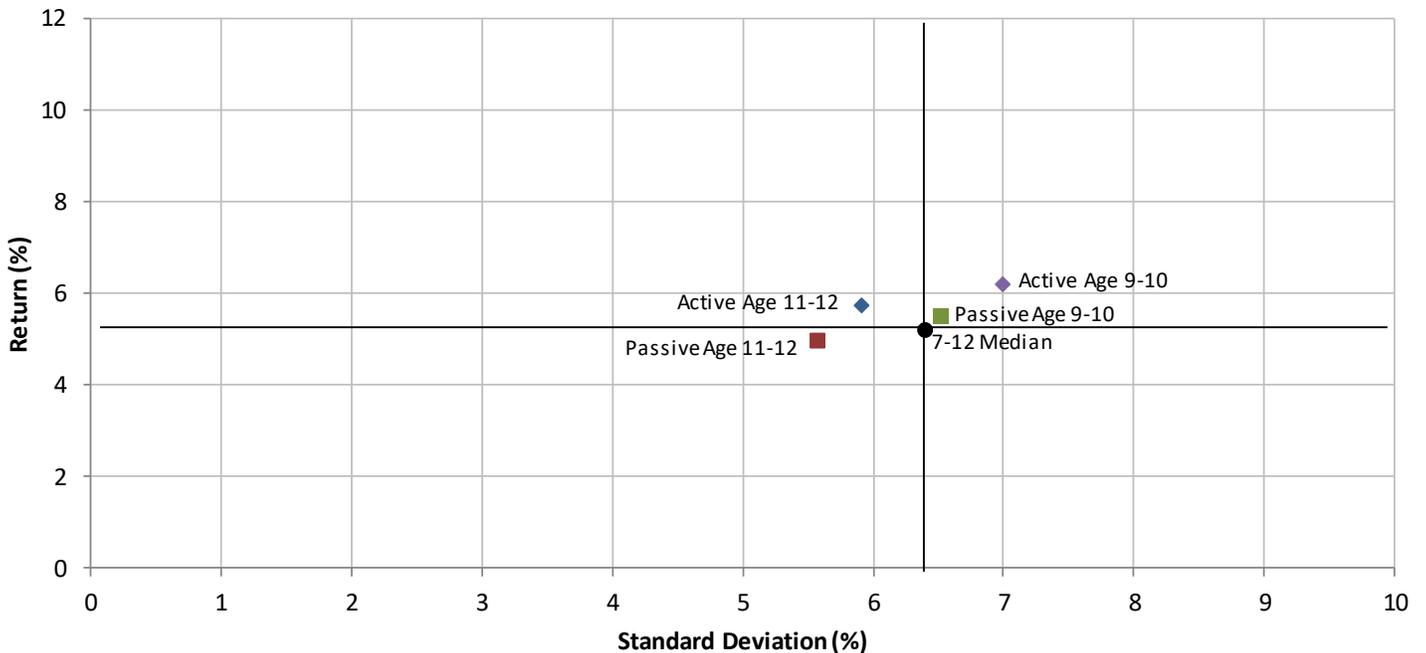
AGE-BASED FUND ANALYSIS

SCHOLARSHARE AGE-BASED FUND – RISK/RETURN

AGE 0-6 : 3-YEAR (as of 12/31/2018)



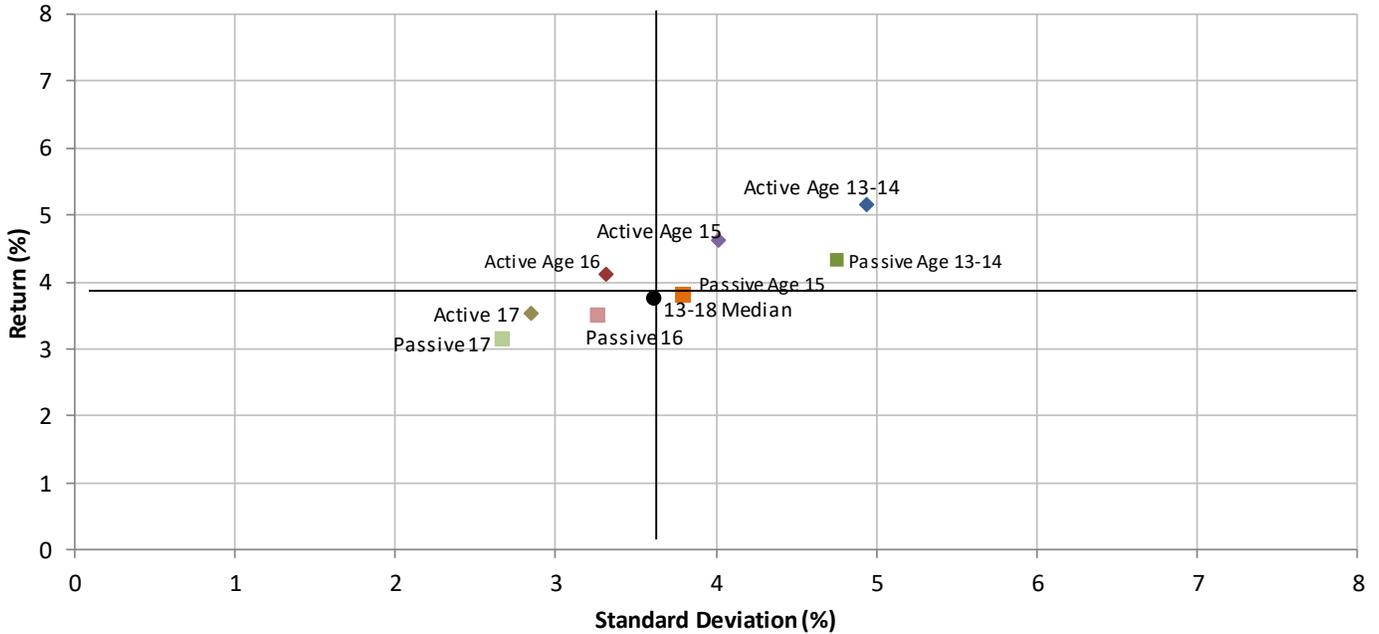
AGE 7-13 : 3-YEAR (as of 12/31/2018)



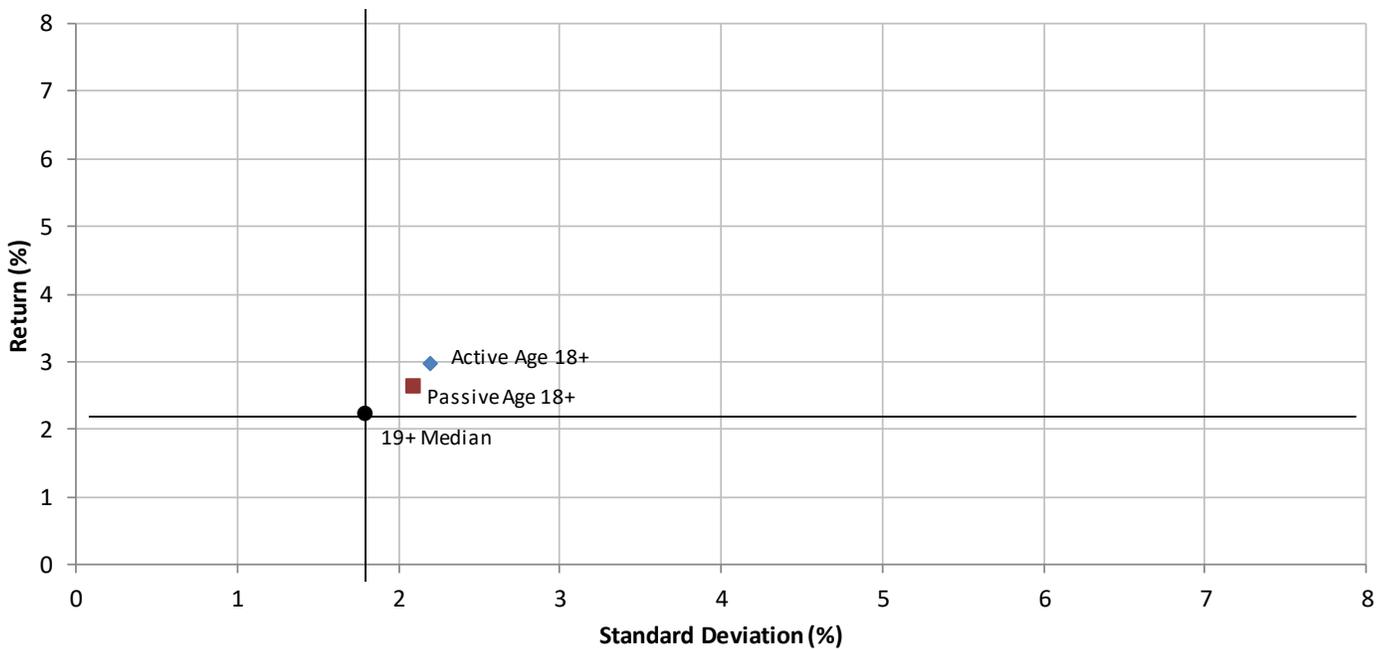
Source: Morningstar

SCHOLARSHARE AGE-BASED FUND – RISK/RETURN

AGE 13-18 : 3-YEAR (as of 12/31/2018)



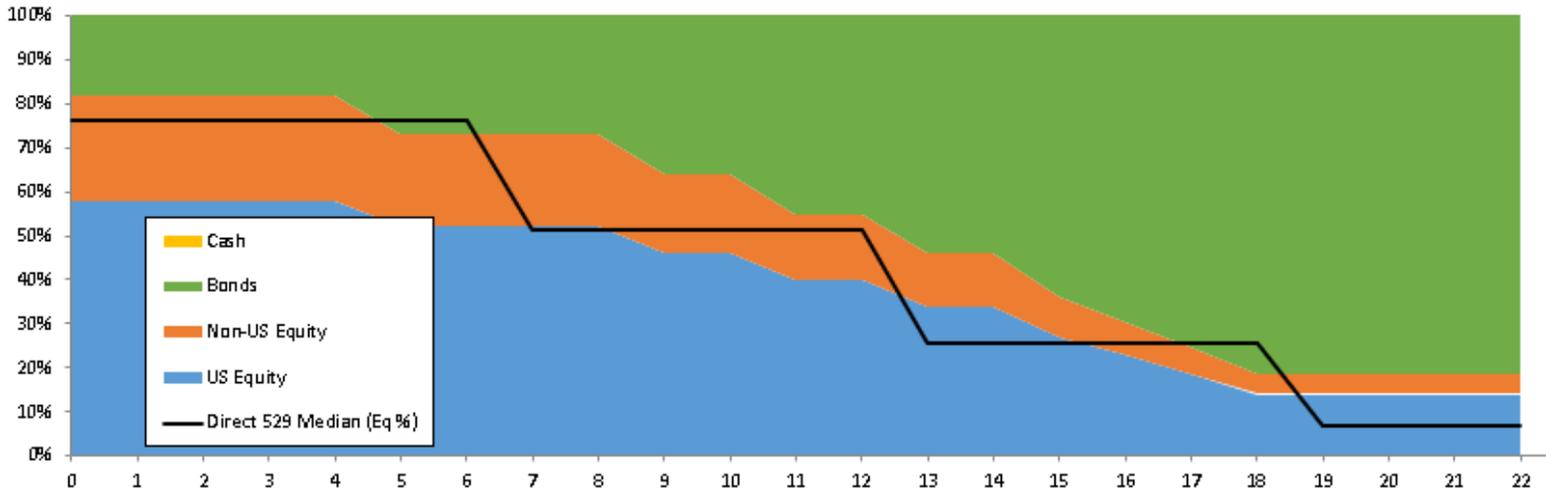
AGE 19+ : 3-YEAR (as of 12/31/2018)



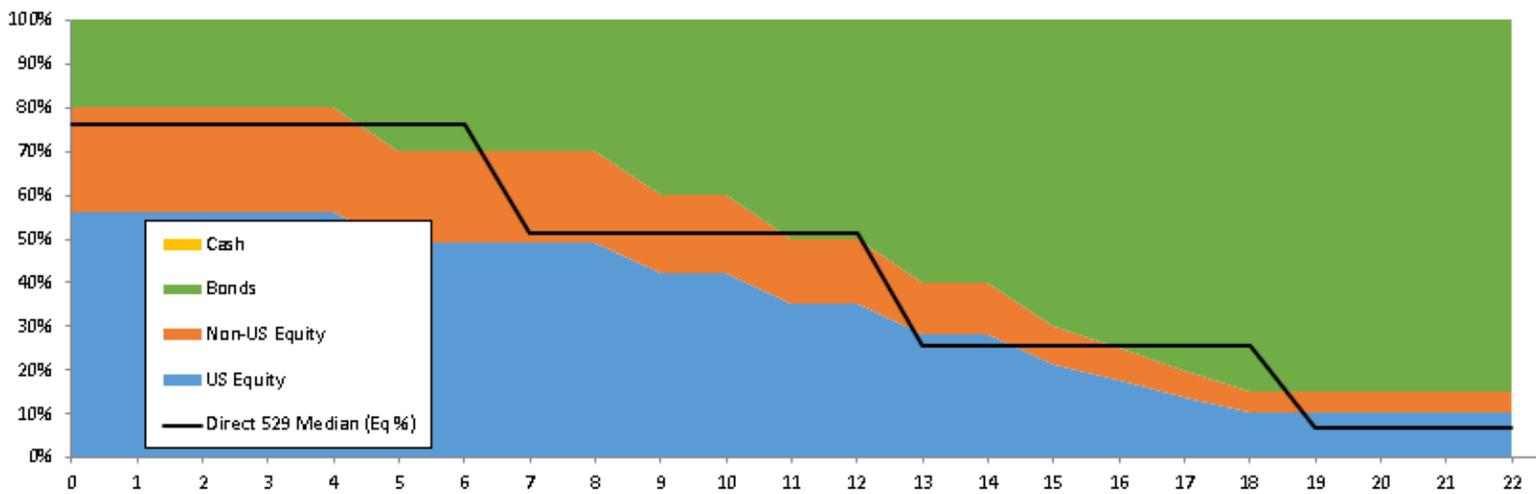
Source: Morningstar

SCHOLARSHARE AGE-BASED GLIDEPATH

ACTIVE AGE-BASED PORTFOLIO



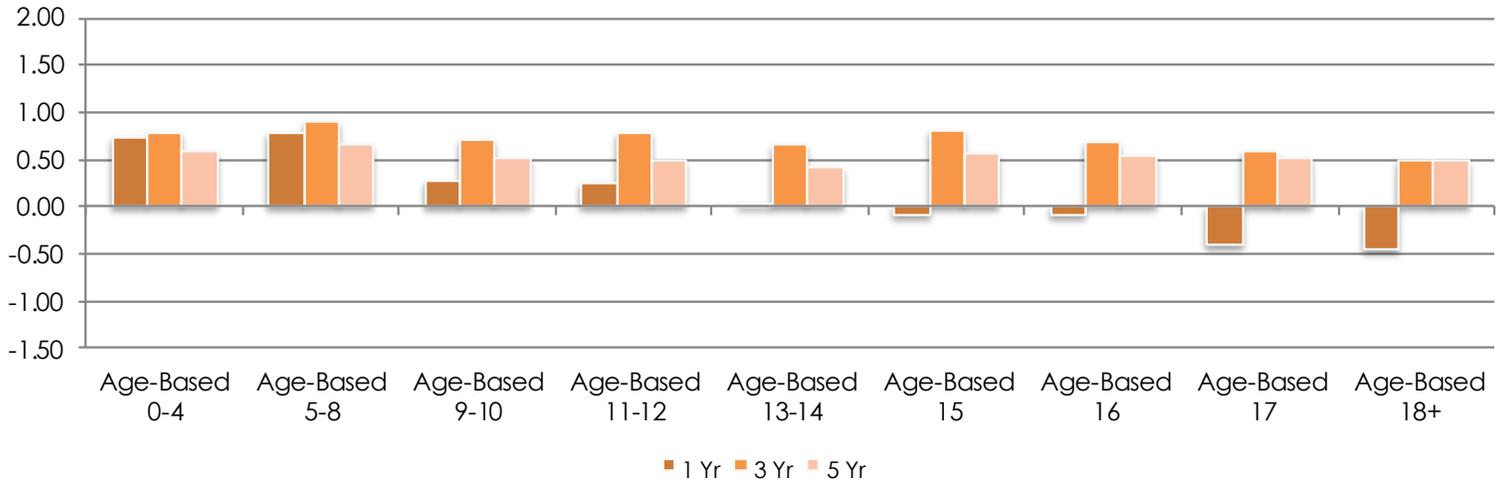
PASSIVE AGE-BASED PORTFOLIO



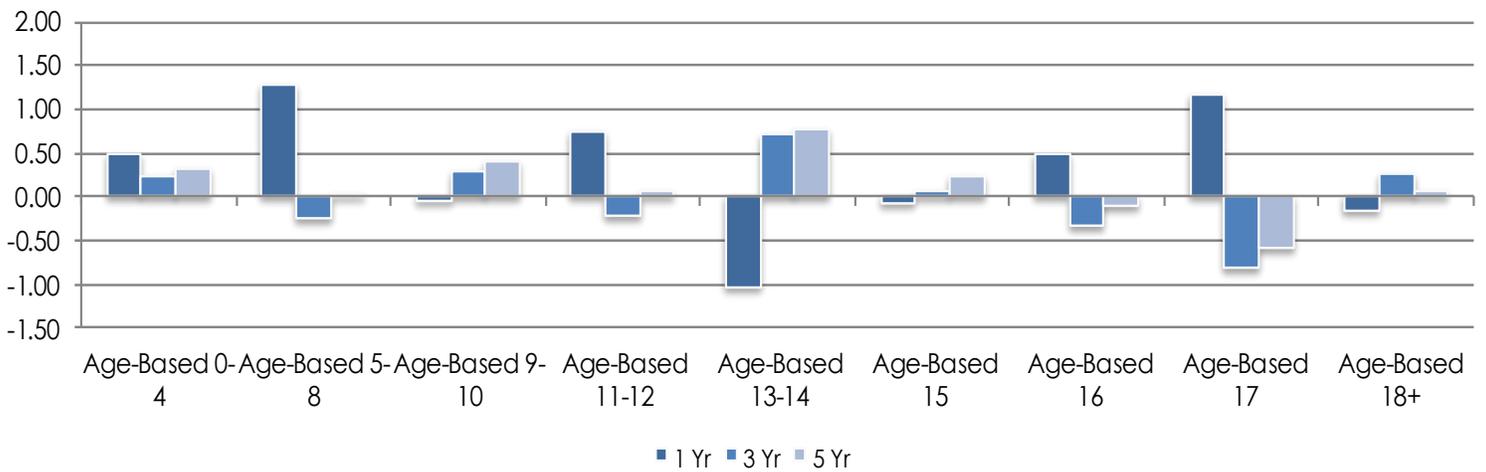
SCHOLARSHARE AGE-BASED ATTRIBUTION

ACTIVE AGE-BASED PORTFOLIO

Contribution to Return From Selection



Contribution to Return From Allocation



APPENDIX

GLOSSARY

Annualized Return – The average annual return of either the manager or its benchmark.

Excess Performance – Manager returns in excess of the benchmark returns.

Standard Deviation – A measure of dispersion of a set of data from its mean.

Excess Standard Deviation – A measure of the volatility of the average annual difference between the manager's return and the benchmark's return, same as tracking error.

VRR – Value Relative Ratio – Is calculated as: $\text{Manager Cumulative Return} / \text{Benchmark Cumulative Return}$.

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Date: March 11, 2019

To: ScholarShare Investment Board (SIB)

From: Pension Consulting Alliance, LLC (PCA)

CC: Eric White, CFA – PCA; Kay Ceserani – PCA

RE: Review of Underlying Funds Qualifying for “Watch” Status

Summary

PCA has conducted a review of the underlying funds in the ScholarShare College Savings Plan. The review included a quantitative analysis of the underlying funds based on specific performance criteria (as per the *Monitoring Procedures and Criteria*) as well as a qualitative analysis, including a review of organizational concerns, stability of personnel, changes in investment objectives, etc. This memo summarizes the period from October 1, 2018 through December 31, 2018.

At the end of the period, **one fund, the TIAA-CREF Social Choice Equity Fund, remains on “Watch” status, and no new funds qualify for “Watch” status.** At the April 2018 SIB meeting, the SIB elected to keep the TIAA-CREF Social Choice Equity fund on “Watch” status as PCA conducts more research to identify a benchmark more aligned with the strategy’s ESG focus. PCA recommends the TIAA-CREF Social Choice Equity Fund remain on “Watch” as the SIB discusses options for monitoring the fund going forward. This fund is discussed in more detail on the following pages.

**Performance of Funds on Watch Status
As of 12/31/2018**

Funds on Watch Status	Board Action Date	Watch Status Start Date	No. Months Since Watch Began	Excess Perf. Since Watch Began
TIAA-CREF Social Choice Equity	10/4/2017	7/1/2017	18	(0.4%)

Background

New Funds Qualifying for "Watch" Status

PCA has conducted a review of the underlying funds in the ScholarShare College Savings Plan (see also the 4Q 2018 ScholarShare College Savings Plan Investment Performance Status Report) and determined that no additional funds qualify for "Watch" status at this time.

Funds Currently on "Watch" Status

As of December 31, 2018, one fund, the TIAA-CREF Social Choice Equity Fund, remains on "Watch" status for performance concerns. The fund is discussed in further detail below.

TIAA-CREF Social Choice Equity Fund

The fund was placed on "Watch" status for performance concerns upon breaching the long-term investment monitoring guidelines as per the Program's *Monitoring Procedures and Criteria* as of the period ended June 30, 2017.

Investment Role in Program

The investment seeks a favorable long-term total return that reflects the investment performance of the overall U.S. stock market while giving special consideration to certain environmental, social, and governance ("ESG") criteria. Under normal circumstances, the fund invests at least 80% of its assets in equity securities. The fund attempts to achieve the return of the U.S. stock market as represented by its benchmark, the Russell 3000 Index, while investing only in companies whose activities are consistent with the fund's ESG criteria.

History and Organizational Structure

In October 2014, TIAA completed its acquisition of Nuveen Investments. In 2016, the executive management, distribution teams, marketing organization and other non-investment functions of TIAA-CREF Asset Management and Nuveen Investments were combined into a unified operating structure. In January of 2017, the company rebranded the organization as Nuveen to deliver all their capabilities under one name and operating mandate; Nuveen has become the umbrella brand for TIAA's asset management capabilities, including TIAA Investments, which oversees TIAA-CREF branded mutual funds.

Nuveen brings together the investment heritage of two 100-year-old companies and the specialist knowledge of their affiliates to be a global asset manager dedicated to helping their clients achieve their investment goals. Nuveen has been providing investment solutions and strategies to a wide range of clients worldwide, including institutional investors, intermediaries, plan sponsors, investment and pension consultants, and individual investors. They are one of the largest global asset managers across multiple asset classes.

Teachers Insurance and Annuity Association of America® (TIAA®) has built its reputation on its long-term investment capabilities, below-average expenses and seasoned portfolio managers. Their extensive capabilities give their portfolio managers access to investment opportunities throughout the world.

Investment Team

Philip James Campagna is the lead portfolio manager for the fund. Mr. Campagna is a quantitative portfolio manager and has portfolio management responsibilities for all TIAA-CREF equity index strategies and the Social Choice Equity fund. He joined TIAA-CREF in February 2005, became a manager on the Social Choice Equity fund at the end of 2005, and has more than 15

years of investment experience. His prior experience includes seven years at Mellon Capital Management where he was responsible for several mandates and was an index strategy manager.

Lei Liao joined Mr. Campagna as a portfolio manager on the fund in May 2014. Mr. Liao is a managing director and equity index portfolio manager for TIAA. He has 13 years of industry experience, including several years at Northern Trust as a senior equity portfolio manager.

Both portfolio managers are responsible for the day-to-day investment management of the strategy. A team led by Amy O'Brien, Nuveen's Director of Social Investing, oversees the social screening for this strategy and several other socially screened portfolios. The team has grown over recent years and had 18 members as of January 2019, eight of whom were hired in 2018 in a conscious effort to boost Nuveen's ESG capabilities.

Investment Philosophy and Approach

The Social Choice Equity fund's underlying philosophy is to offer competitive returns consistent with the performance of the Russell 3000 Index while giving special consideration to certain ESG criteria. The strategy seeks returns consistent with a broad U.S. core equity benchmark and a portfolio that has higher ESG performance quality relative to the benchmark.

TIAA's ESG criteria for the Social Choice Equity fund seeks to include companies that are leaders within their respective sectors on ESG performance. This performance should reflect a company's positive and negative impacts on its key stakeholders: employees, communities, customers, suppliers, and the planet. Public company performance evaluations should be based on the ESG factors most relevant to the industry a company operates in while also reflecting a company's adherence to international norms and conventions. Typically, ESG performance categories can include: environmental factors related to climate change, natural resource use, waste management, and environmental opportunities; social factors related to human capital, product safety, and social opportunities; and governance factors related to corporate governance, business ethics, and government & public policy.

Additionally, the eligible universe:

- Has no categorical industry exclusions; however, companies' exposure to historically controversial businesses (e.g., alcohol, firearms, tobacco) is incorporated into their overall ESG performance assessment. While not automatically excluded from the fund, companies with exposure are typically ineligible for inclusion.
- Balances considerations of company strengths and weaknesses in ESG performance.
- Leverages a research process that is built upon diverse sources and the input of multiple stakeholders.
- Results in a portfolio with significantly higher ESG performance than the benchmark.

Consistent with the approach used in all TIAA Asset Management's Social Choice products, TIAA partners with leading independent ESG research providers to implement the ESG guidelines and criteria they have established for the fund. Their partnership with established ESG research partners increases the transparency of the ESG evaluation processes and decisions and provides TIAA Asset Management's equity portfolio managers with broadly diversified and reasonably sized eligible investment universes from which to build portfolios that can achieve their investment mandates.

The team has developed a comprehensive and robust due diligence process to evaluate existing and potential ESG research partners. All potential research partners are assessed per an internally developed framework that includes consideration of the partner's track record and history in ESG research and analysis, analytical capabilities, sources of data utilized, comprehensive factors that encompass a broad range of ESG issues, and consistent ESG methodologies applied across regions.

Nuveen's responsible investing team currently works in collaboration with the social-investment department at MSCI, one of the two largest socially responsible investing research firms in the world. The MSCI team does most of the detailed SRI analysis of individual companies, while Nuveen's team focuses more on the big picture, deciding what screening criteria the strategy should use, as well as overseeing corporate engagement and community investing. The strategy formerly used a standard set of ESG criteria from MSCI, but in 2018 Nuveen and the MSCI teams collaborated to create customized criteria for the strategy. Now, the ESG score threshold for companies to be eligible for portfolio inclusion is generally higher, but ESG momentum is also taken into account, thus advantaging firms with an improving ESG profile. Following more than a decade of stability, these recent changes were designed to improve the strategy's environmental, social, and governance profile, and isn't expected to necessarily have much effect on returns. After the social responsible team at MSCI ranks the stocks in the MSCI Investable Market Index according to how well they meet ESG criteria established by Nuveen's team, the quantitative team at TIAA-CREF narrows the acceptable list.

The portfolio managers for the Social Choice Equity fund begin with the eligible universe of securities and, combining industry-recognized optimization techniques with proprietary enhancements, seek to match the risk characteristics of the fund's underlying benchmark: the Russell 3000 Index. The intent is to neutralize, to the extent possible, the inherent biases introduced by the constrained universe of securities. Using a non-proprietary, industry-recognized risk model, the team can avoid unintended exposure to any common or security-specific sources of risk. Its models are designed to replicate the risk characteristics of the Russell 3000 Index and do not try to identify specific stocks that will perform better or worse than the Index. This results in a well-balanced and diversified portfolio that allows them to better track the benchmark with minimal risk. The portfolio's sector weightings do not deviate too far from the benchmark because the process is designed to avoid large sector bets. The fund keeps underweightings in certain industries, such as big oil companies and money-center banks, and overweightings in other areas to keep sector weightings close to the benchmark. These differences frequently help or hurt the fund relative to the broader market in the short-term but have tended to balance out over time. Since Mr. Campagna joined the portfolio management team in late 2005, there has been less of an emphasis on excluding companies and more on finding stocks that best fit a set of positive criteria.

The risk model incorporates industry and style factors to capture risk due to the sources common to the universe of equity securities and a sub-model to capture security-specific risk. The models use covariance factors to target risk characteristics like the Index, including 13 fundamental factors and 55 industry group factors. The risk model is reviewed periodically by BARRA to ensure relevance, accuracy, and reliability. While there are no quantifiable formal tracking error guidelines, ex-post tracking has generally been in the range of 100 to 150 basis points versus the underlying benchmarks.

The investment team typically sells or trims a position when either the optimization model or the risk model recommends a reduction in a stock's weighting due to changes in the stock's or the

benchmark's characteristics. If a stock needs to be eliminated because of ESG criteria, a sale is initiated in an orderly fashion to minimize market impact.

Performance

The fund posted mixed results versus its prospectus benchmark, the Russell 3000 Index, across the periods reported. Short- and medium-term results tracked or outperformed the benchmark, while results over the extended periods underperformed the index. Some stocks that are in the Russell 3000 Index are not part of the fund's eligible investment universe due to the exclusion of certain stocks based on the fund's ESG criteria; the social screening eliminates some stocks that are prominent in the benchmark (i.e., Facebook, Exxon Mobil, etc.). Thus, some individual securities in the eligible universe may be either overweighted or underweighted relative to the benchmark, which is determined through quantitative modeling.

For the quarter, the fund exceeded the Russell 3000 Index by 60 basis points primarily due to individual stock selection. Not owning Amazon.com Inc., whose stock suffered steep losses in the volatile quarter, largely contributed to the fund's performance; the stock is ineligible for inclusion in the portfolio based on ESG criteria. Additionally, overweight positions in Starbucks Corporation and Proctor & Gamble Company, aided performance as shares of both companies experienced outsized gains in the period. Short-term results remained in the Acceptable range, while medium-term results improved to the edge of the Positive range. Despite relative gains for the quarter, long-term results continued its trend in the Caution range.

Trailing Performance Results, Net of Fees
Ending December 31, 2018

Fund	Quarter	1 Year	3 Years	5 Years	Since Addition (12/2011)
TIAA-CREF Social Choice Equity	(13.7)	(5.5)	9.0	7.1	11.4
<i>Russell 3000 Index</i>	<i>(14.3)</i>	<i>(5.2)</i>	<i>9.0</i>	<i>7.9</i>	<i>12.4</i>
Difference	0.6	(0.3)	0.0	(0.8)	(1.0)
Percentile Rank*	49	49	25	52	55

*IM US Large Cap Core Equity Universe. 1 = Best, 100 = Worst.

The fund's results primarily placed in-line with the Large Cap Core peer median except for the trailing 3-year period where the fund's absolute results matched the benchmark and placed in the first quartile.

The fund continues to earn a Morningstar Sustainability Rating of 'High,' with a Sustainability Score in the top 10% of its category. The high sustainability markings are a sign that the fund has done a good job of adhering to ESG standards. When looking at other institutional Large Cap Blend funds with a Morningstar Sustainability Rating of 'High', the TIAA-CREF Social Choice Equity fund trailed the custom peer median over the 1-year period but outperformed over the extended 3-year, 5-year, and since Program inception periods. Note, over the since inception period, only three of 23 reported funds in the custom peer group outperformed the Russell 3000 Index.

Annualized Risk-Adjusted Performance				
	1-year	3-year	5-year	Since 12/2011
TIAA-CREF Social Choice Equity				
Return	(5.5%)	9.0%	7.1%	11.4%
Peer Group Percentile Rank*	63	15	48	46
Custom Peer Group Median*				
Return	(5.0%)	7.9%	7.0%	11.2%
Russell 3000 Index				
Return	(5.2%)	9.0%	7.9%	12.4%

*33 funds as of 12/31/2018

Since being added to the Program in late 2011, on a calendar year basis, the fund has struggled versus its benchmark over five of the last seven years. In 2012, the fund trailed about two-thirds of its peers and the Russell 3000 Index by (2.4%) as not holding Apple stock in the portfolio detracted. The portfolio posted strong gains and ranked in the top quartile of the peer group in the bull market of 2013; this time, the absence of Apple stock benefitted results as the stock struggled and performance improved to the Acceptable range throughout the period. In 2014 and 2015, the fund underperformed the benchmark by (1.4%) and (2.9%), respectively. During these periods, the fund's exclusion of certain ineligible holdings negatively impacted performance. For 2015, notable names that were not owned by the fund due to the ESG criteria included Amazon, Facebook, and General Electric; these specific exclusions that produced strong results detracted from relative results. The fund's performance improved in 2016 to exceed the benchmark by 80 basis points and ranked in the top quartile of the peer group. The fund has exhibited a historical tendency to perform relatively well in speculation-driven bull markets where risk is favorable. Over the two most recent calendar years (2017 and 2018), the fund performed roughly in-line with the benchmark and the peer group.

Calendar Year Performance Results, Net of Fees

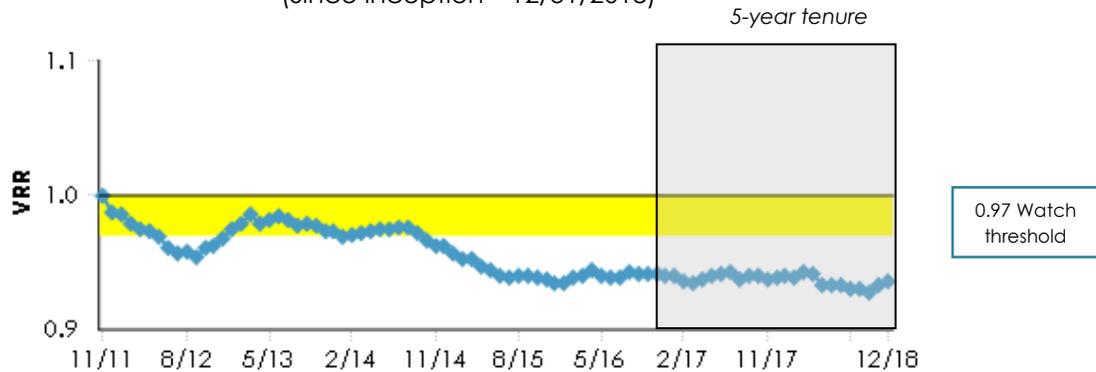
Ending December 31

Fund	2012	2013	2014	2015	2016	2017	2018
TIAA-CREF Social Choice Equity	14.0	34.3	11.2	-2.4	13.5	20.9	(5.5)
<i>Russell 3000 Index</i>	<i>16.4</i>	<i>33.6</i>	<i>12.6</i>	<i>0.5</i>	<i>12.7</i>	<i>21.1</i>	<i>(5.2)</i>
Difference	(2.4)	0.7	(1.4)	(2.9)	0.8	(0.2)	(0.3)
Percentile Rank*	69	20	53	75	16	50	49

*IM US Large Cap Core Equity Universe. 1 = Best, 100 = Worst.

The graph below shows the cumulative relative results of the TIAA-CREF Social Choice Equity portfolio since being added to the Program in late 2011. A VRR of greater than 1.0 would represent outperformance of the portfolio versus its respective benchmark. It is evident that the portfolio's relative underperformance soon after being added to the Program has had a significant impact on longer-term results and will likely continue for some time to come.

Long-Term Performance – Value Relative Ratio (VRR)
(Since Inception – 12/31/2018)



When evaluating the fund on several quantitative factors, the fund's strict ESG focus will cause the fund to deviate from its benchmark, but the strategy's use of quantitative modeling should result in overall risk characteristics similar to that of the index. The table below summarizes the fund's 5-year portfolio statistics versus its benchmark.

Risk/Return Stats
(5-Years ending 12/31/18)

	Return	StdDev	Alpha ¹	Beta ²	Sharpe Ratio ³	Up Mkt Capture	Down Mkt Capture
T-C Social Choice Equity	7.08	11.18	-0.75	1.00	0.61	96.89	102.05
Russell 3000	7.91	11.17	0.00	1.00	0.68	100.00	100.00
Custom Peer Group Median	7.04	11.27	-1.36	0.99	0.60	93.65	103.52

Versus the benchmark, the fund has exhibited a similar level of volatility (as measured by Standard Deviation) and comparable Sharpe Ratio. The fund's Beta also remains in-line with the benchmark. Reviewing these statistics, it is evident the fund has been able to meet its risk objectives while being consistent with its investment philosophy and process.

Recommendation

Upon reviewing the performance of the TIAA-CREF Social Choice Equity fund, PCA continues to find the long-term performance deviations versus its current benchmark to be reasonable. The fund has delivered long-term results in-line with peer ESG funds and has demonstrated risk characteristics like the benchmark, therefore meeting its investment objectives while maintaining its investment philosophy.

¹ Alpha: Is the difference between a Manager's performance and the Manager's expected performance given its market sensitivity or Beta. It is used as a measure of value added by a Manager. A positive Alpha indicates that a Manager has performed better than its Beta would predict. In contrast, a negative Alpha indicates the portfolio has underperformed given the expectations set by Beta.

² Beta: Is defined as a Manager's sensitivity to the market movements and is used to evaluate market related or systemic risk. Beta is a measure of the linear relationship, over time, of the Manager's returns and those of the Benchmark.

³ Sharpe Ratio. Is used to characterize how well the return of the portfolio compensates for the risk taken. The higher the portfolio's Sharpe Ratio, the better the portfolio's returns have been relative to the risk taken on. Sharpe Ratio = (Portfolio Return - Risk Free Rate) / Standard Deviation.

At the April 2018 SIB meeting, the SIB elected that the TIAA-CREF Social Choice Equity fund remain on “Watch” status. The SIB requested that PCA conduct research to possibly identify a benchmark more closely aligned with the strategy’s ESG focus that can be used for performance monitoring purposes. Upon research, PCA identified the Russell 3000 ESG Index as a possible suitable benchmark. The Russell 3000 ESG Index is a new benchmark still being developed by FTSE Russell and ESG research firm Sustainalytics and is a sustainable version of the fund’s prospectus benchmark, the Russell 3000 index. PCA will continue monitoring the availability of the new index which is expected to be released sometime in 2019.

PCA recommends that the TIAA-CREF Social Choice Equity Fund remain on “Watch” as the SIB continues to discuss options for monitoring the fund going forward.

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