



The Kansas Board of Regents Mandatory Retirement Plan

Semi-Annual Investment Review

As of 12/31/2018



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The Kansas Board of Regents Mandatory Retirement Plan

Industry Trends Update

Industry Trends Update

➤ **Higher Education Litigation**

- Approximately 25 Colleges and Universities have faced lawsuits from groups of 403(b) retirement plan participants since 2016.
- Since the September 2018 RPC meeting, 5 Universities have experienced activity related to lawsuits.
 - *University of Rochester (NY) – Participants Voluntarily dropped complaint – January, 2019*
 - *University of Long Island – Participants Voluntarily dropped complaint – February, 2019*
 - *Washington University (St. Louis) – Complaints dismissed – September, 2018*
 - *Duke University – Settled lawsuit for \$10.65 million – December, 2018*
 - *Georgetown University – Complaints dismissed – January, 2019*



➤ **Behavioral Finance and Retirement Readiness**

- Behavioral Finance is the study of “How” participants make investment decisions based on specific behaviors supported by specific data elements.
- Retirement Readiness is the measurement of the participants targeted outcome.
- Targeting a **June 2019 RPC Sub-Committee** meeting with the both TIAA and Voya to explore current capabilities related to participant data capture, incorporating that data into Participant Communication and Education, and measuring participant outcomes.

Private Higher Education Litigation Claims

University	Plans	Plan Providers	Claims	Status
Columbia University New York City, NY	<ul style="list-style-type: none"> Retirement Plan for Officers of Columbia University Columbia University Voluntary Retirement Savings Plan 	TIAA Calvert Investments Vanguard	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> 8/16/16: Doe v. Columbia Univ., US District Court (S.D.N.Y.), No. 1:16-cv-06488, complaint filed (counsel: Sanford Heisler LLP) 8/17/16: Cates v. Trs. of Columbia Univ., US District Court (S.D.N.Y.), No. 1:16-cv-06524, complaint filed (counsel: Schlichter, Bogard & Denton LLP) Dismissal Denied
Cornell University Ithaca, NY	<ul style="list-style-type: none"> Cornell University Retirement Plan for the Employees of the Endowed Colleges of Ithaca Cornell University Tax Deferred Annuity Plan 	TIAA Fidelity	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account 	<ul style="list-style-type: none"> 8/11/16: University issued statement prior to lawsuit at: http://www.news.cornell.edu/stories/2016/08/cornell-continues-monitor-retirement-funds-and-fees 8/17/16: Cunningham v. Cornell Univ., US District Court (S.D.N.Y.), No. 1:16-cv-06525, complaint filed (counsel: Schlichter, Bogard & Denton LLP) Dismissal Denied

			<ul style="list-style-type: none"> Utilizing multiple recordkeepers increased cost 	
Duke University Durham, NC	<ul style="list-style-type: none"> Duke Faculty and Staff Retirement Plan 	TIAA Fidelity VALIC Vanguard	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> 8/10/16: Clark v. Duke Univ., US District Court (M.D. NC) No. 1:16-cv-01044, complaint filed (counsel: Schlichter, Bogard & Denton LLP) 5/11/17: Duke's motion to dismiss suit was denied (Clark v. Duke Univ. M.D. N.C No. 1:16-cv-044 (5/10/17)) Settled – December 2018
Emory University Atlanta, GA	<ul style="list-style-type: none"> Emory University Retirement Plan Emory Healthcare, Inc. Retirement Savings and Matching Plan 	TIAA Fidelity Vanguard	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account 	<ul style="list-style-type: none"> 8/11/16: Henderson v. Emory Univ., U.S District Court (N.D. Ga), No. 1:16-cv-02920, complaint filed (counsel: Schlichter, Bogard & Denton LLP) 5/10/17: Emory's motion to dismiss suit was denied (Henderson v. Emory Univ., N.D. Ga No. 1:16-cv-02920-CAP, 5/10/17). Dismissal Denied
Massachusetts Institute of Technology (MIT) Cambridge, MA	<ul style="list-style-type: none"> MIT Supplemental 401(k) Plan 	Fidelity	<ul style="list-style-type: none"> Potential Conflict of interest – Abby Johnson- President and CEO of Fidelity Investments, is on Board of Trustees 	<ul style="list-style-type: none"> 8/9/16: Tracey v. Mass. Inst. of Tech., U.S District Court (D. Mass.), No. 1:16-cv-11620-NMG, complaint filed (counsel: Schlichter, Bogard & Denton LLP) Dismissal Denied

<p>New York University New York City</p>	<ul style="list-style-type: none"> • New York University Retirement Plan for Members of the Faculty, Professional Research Staff and Administration • NYU School of Medicine Retirement Plan for Members of the Faculty, Professional Research Staff and Administration 	<p>TIAA Vanguard</p>	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account • Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> • 8/9/16: Sacerdote v. N.Y Univ., US District Court (S.D.N.Y), No. 1:16-cv-06284, complaint filed (counsel: Schlichter, Bogard & Denton LLP) • 7-31-18: Judge dismisses lawsuit against NYU. • Dismissed July 2018
<p>Northwestern University Evanston, IL</p>	<ul style="list-style-type: none"> • Northwestern University Retirement Plan • Northwestern University Voluntary Savings Plan 	<p>TIAA Fidelity</p>	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account • Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> • 8/17/16: Divane v. NW Univ., US District Court (N.D. IL), No. 1:16-cv-08157, complaint filed (counsel: Schlichter, Bogard & Denton LLP) • 6/18 Judge dismisses lawsuit against Northwestern University. Denied Plaintiffs motion to amend. • Dismissed May 2018

<p>University of Chicago Chicago, IL</p>	<ul style="list-style-type: none"> University of Chicago Retirement Income Plan University of Chicago Contributory Retirement Plan 	<p>TIAA Vanguard</p>	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account 	<ul style="list-style-type: none"> 5/18/17: Daugherty v. The University of Chicago, US District Court (N.D. IL., No. 1:17-cv-03736, complaint filed (counsel: Wexler Wallace LLP; Schneider Wallace Cottrell Konecky Wotkyns LLP; and Berger & Montague) 5/18: The University of Chicago Settles lawsuit for \$6.5 mil. The university claims no wrong doing. In addition to the financial settlement, the university must not increase per-participant record-keeping fees for three years, and make "reasonable best efforts" to continue trying to reduce them. The university also implemented a new investment menu in April, which included reducing the number of fund options. Settled May 2018
<p>University of Southern California Los Angeles, CA</p>	<ul style="list-style-type: none"> University of Southern California Defined Contribution Retirement Plan University of Southern California Tax Deferred Annuity Plan 	<p>TIAA Fidelity Prudential Vanguard</p>	<ul style="list-style-type: none"> Excessive fees for recordkeeping and administrative services Too many investment options in its retirement plan Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> 8/17/16: Munro v. Univ. of S. Cal., US District Court (C.D. Cal.), No. 2:16-cv-06191, complaint filed (counsel: Schlichter, Bogard & Denton LLP) USC proposed arbitration proceedings with court oversight. Pending

<p>Yale University New Haven, CT</p>	<ul style="list-style-type: none"> • Yale University Retirement Account Plan 	<p>TIAA</p>	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account • Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> • 8/9/16: Vellali v. Yale Univ., US District Court (D. Conn.), No. 3:16-cv-01345, complaint filed (counsel: Schlichter, Bogard & Denton LLP) • Pending
<p>Brown University Providence, RI</p>	<ul style="list-style-type: none"> • Deferred Vesting Retirement Plan • Legacy Retirement Plan • Voluntary 403(b) Retirement Plan 	<p>TIAA Fidelity</p>	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account • Utilizing multiple recordkeepers increased cost 	<ul style="list-style-type: none"> • 7/6/17: Short v. Brown Univ., US District Court (D.R.I), No. 1:17-cv-00318-WES-PAS, complaint filed (counsel: Schneider, Wallace, Cottrell, Konecky, Wotkyns LLP and Sonja L. Deyoe) • 7/11/18: Judge orders partial dismissal of claims, which include multiple layers of fees, too many investment options, loan program. Claims allowed are admin. Fees and poor performance. • Partial Dismissal – July 2018
<p>Georgetown University Washington, DC</p>	<ul style="list-style-type: none"> • Georgetown University Retirement Plan • Voluntary Contribution Plan 	<p>TIAA Fidelity Vanguard</p>	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan 	<ul style="list-style-type: none"> • 2/23/18: US District Court (D.D.C., No. 1:18-cv-00442), complaint filed (counsel: Schneider Wallace Cottrell Konecky Wotkyns LLP; and Berger & Montague) • Dismissed – January 2019

			<ul style="list-style-type: none"> • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account • Utilizing multiple recordkeepers increased cost 	
Washington University St. Louis, MO	<ul style="list-style-type: none"> • Wash U Retirement Savings Plan 	TIAA Vanguard	<ul style="list-style-type: none"> • Excessive fees for recordkeeping and administrative services • Too many investment options in its retirement plan • Offering "historically underperforming" CREF Stock Fund and TIAA Real Estate Account 	<ul style="list-style-type: none"> • 6/8/17: Davis v. Washington Univ.US District Court (E.D.MO), No. 4-17-cv-01641, complaint filed (counsel: Schneider Wallace Cottrell Konecky Wotkyns LLP; and Berger & Montague) • Dismissed September 2018

Sources: ACG, Bloomberg Law, Drinker Biddle, Groom Law



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Recap of Markets and Economy

Q4 2018: The Markets

Overview

2018 was an interesting year for capital markets. The first three quarters can be described as a continuation of a strong bull market fueled by corporate tax reform. Beginning in early October, market participants were unnerved by several factors including the negative impact of trade, tighter monetary policy, a slowing housing market and weaker global growth particularly in Europe and China. Nearly every major asset class finished 2018 with a negative return. The S&P 500 was negative for the first year since 2008. Cash and government bonds were sources of solace.

Fixed Income Markets

- During the quarter, the U.S. Treasury yield curve experienced a flattening shift in rates. The one-month U.S. T-Bill rate increased 32 basis points to 2.44%, while the 10-year U.S. Treasury rate declined 36 basis points to 2.69%. The spread between the 2-year and 10-year U.S. Treasury rates ended the year at 21 basis points.
- As to be expected in periods of heightened volatility, investors sought refuge in US government bonds, posting a positive return of 2.5% for the quarter. Mortgage-backed bonds, many of which are agency-backed, also posted an attractive return of 2.1%. High yield corporate spreads widened amid the increased concern over a weakening economy declining 4.5% for the quarter. The strength of the US dollar had a detrimental effect on locally-issued global bonds over the past year.
- The Federal Open Market Committee to rose rates in December, marking four quarter point rate hikes in calendar year 2018. The current level of 2.25%-2.50%, is slightly below the FOMC long-term projection rate of 2.75%.

Domestic Equity Markets

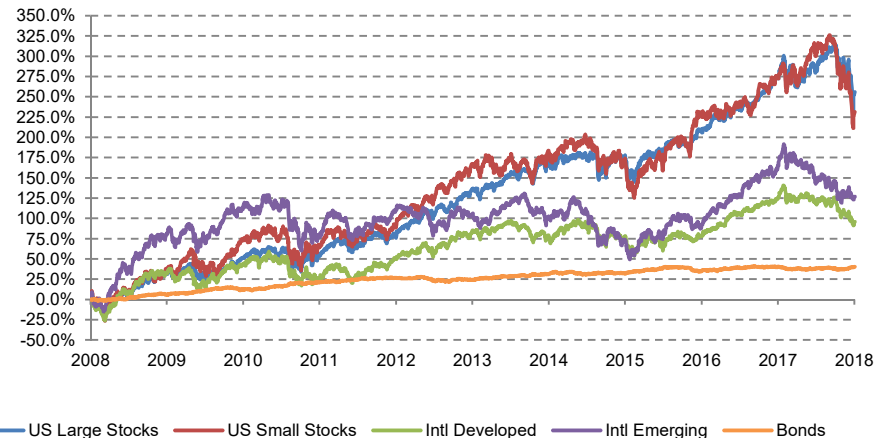
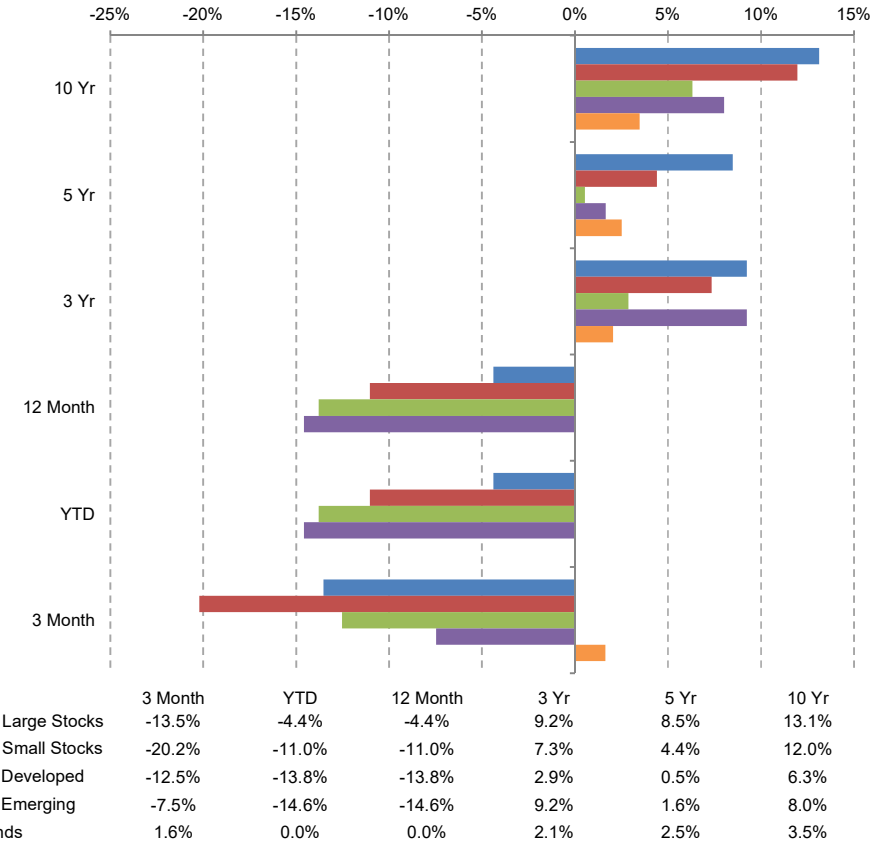
- The S&P 500 returned -13.5% for the quarter and -4.4% in calendar year 2018. Fourth quarter performance was negatively influenced by heightened volatility stemmed from fears over trade tensions and slowing global growth. Large cap stocks outperformed small cap stocks across style groups, and value outperformed growth across capitalization. Traditional defensive sectors such as consumer staples, healthcare, real estate and utilities fared better than more cyclical sectors such as energy, industrials and consumer discretionary.
- Equity valuations decreased during the quarter to a level below the long-term median. The forward P/E of the S&P 500 decreased from 17.3 last quarter to 14.8 and fell below the 25-year median of 15.8.

International Equity Markets

- International equities declined during the quarter and finished 2018 with double digit losses across both developed and emerging market equities. Losses across emerging market equities were slightly muted for the quarter. Brazil and India posted positive returns for the fourth quarter.
- Global market currencies continued to weaken relative to the U.S. dollar, as foreign investors sought the relatively attractive yield of U.S. Treasuries. In 2018, the dollar strengthened by 3.6% versus a broad global basket of currencies, with considerable strength against the euro (+5%) and pound sterling (+6%).

Economic Overview

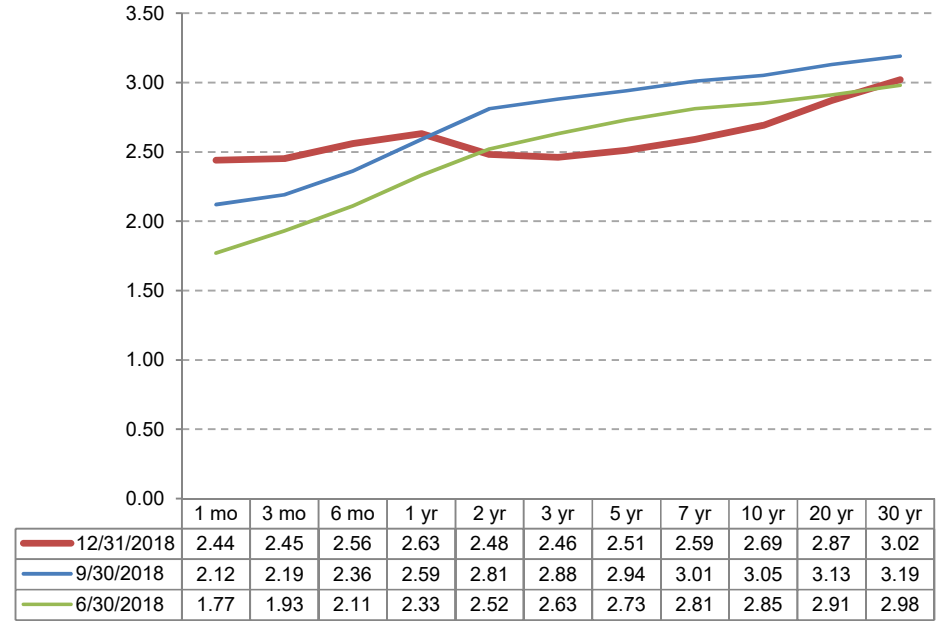
- GDP growth decreased to 3.4% in the third quarter of 2018 from 4.2% in the second quarter. The effect of fiscal stimulus and continued personal consumption remain economic tailwinds. Estimates for fourth quarter 2018 GDP growth is forecasted to decline to 2.7%.
- Labor markets remained tight as the unemployment rates hovered at 3.7%, which is well-below the 50 year average rate of 6.2%. The tight market led to a 3.2% increase in wage growth. This is below the 50 year average wage growth of 4.1%.
- Headline inflation of 2.2% remains below the long-term average of 4.0%. PCE Core, the Fed's desired measure of inflation, held steady at 1.9% during the quarter.



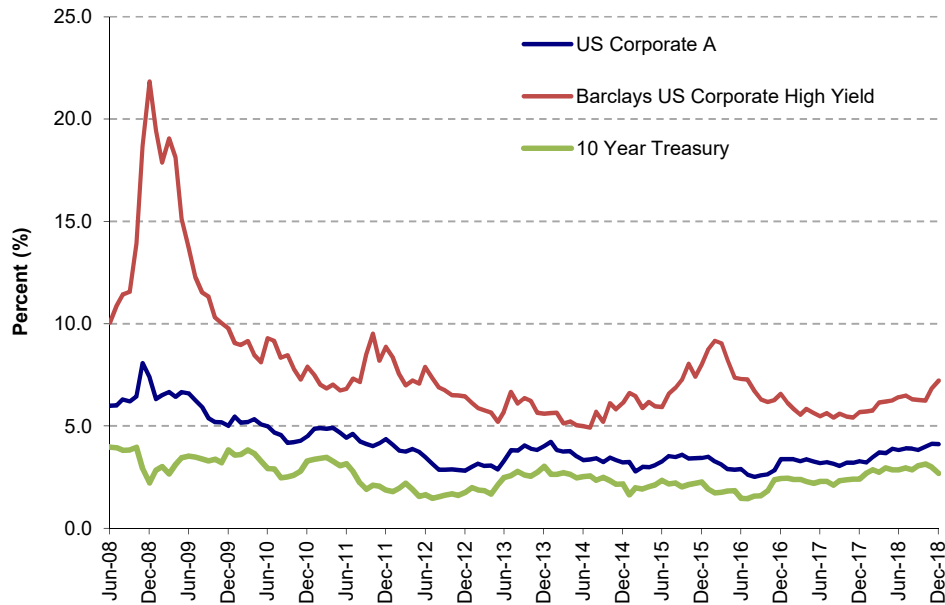
Q4 2018: Fixed Income Markets Summary

		3 Mo	1 Year	3 Year	5 Year	10 Year
Broad Fixed Income Sectors	Aggregate Bond Index	1.6	0.0	2.1	2.5	3.5
	Government	2.5	0.9	1.4	2.0	2.1
	Mortgage-Backed	2.1	1.0	1.7	2.5	3.1
	Corporate	0.0	(2.1)	3.2	3.2	5.5
	High Yield Corporate	(4.5)	(2.1)	7.2	3.8	11.1
	Global ex US	0.9	(2.1)	3.1	(0.0)	1.7
	EM Debt	(0.2)	(2.5)	5.1	4.2	8.5
	TIPS	(0.4)	(1.3)	2.1	1.7	3.6
	Municipal	2.0	1.7	1.9	3.0	4.0
	Inflation	0.4	2.0	2.1	1.5	1.8
Maturity	1-3 Year US Aggregate	1.2	1.6	1.3	1.1	1.7
	3-5 Year US Aggregate	1.8	1.1	1.6	1.9	2.9
	5-7 Year US Aggregate	2.0	0.9	1.8	2.3	3.6
	7-10 Year US Aggregate	2.1	0.2	2.0	2.9	4.3
	10+ Year US Aggregate	0.9	(4.5)	4.0	5.1	5.4

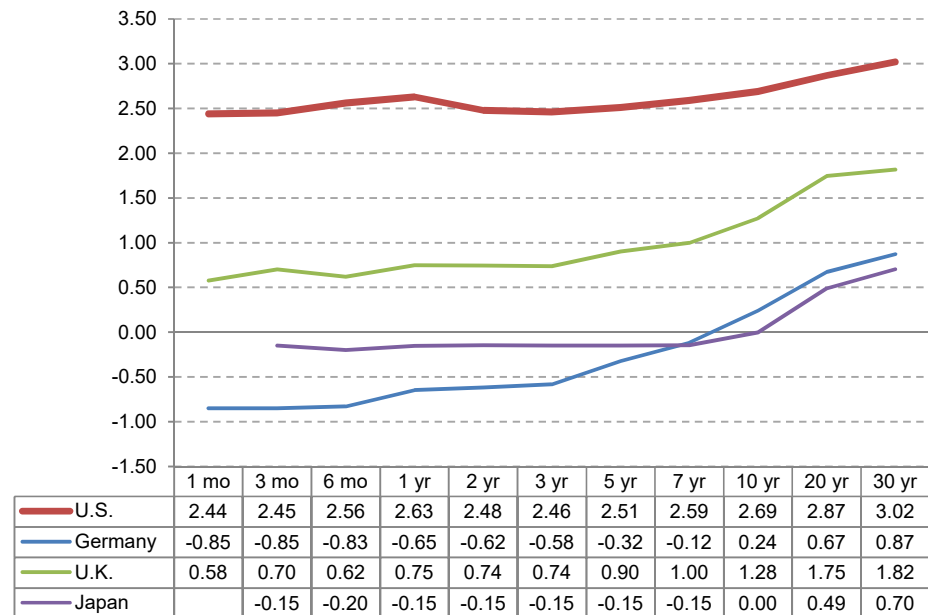
US Treasury Yield Curve



Historical Yields



Global Yield Curve

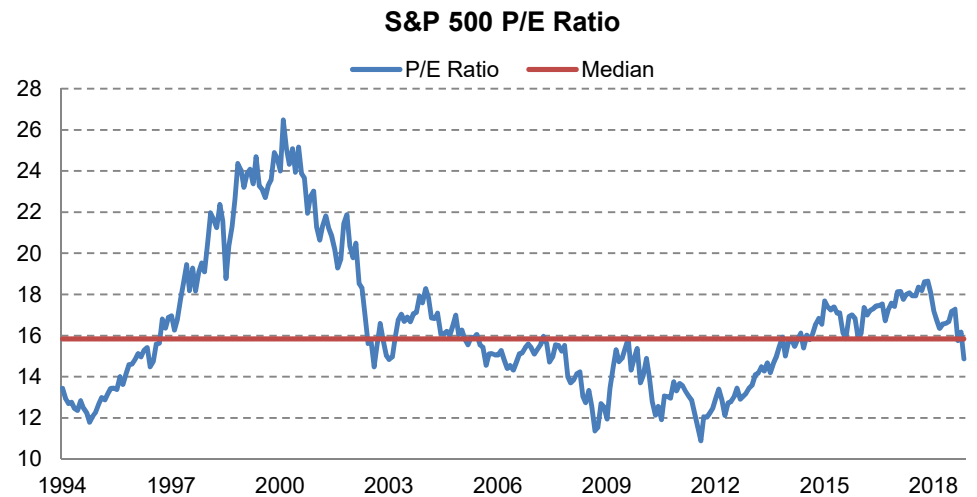
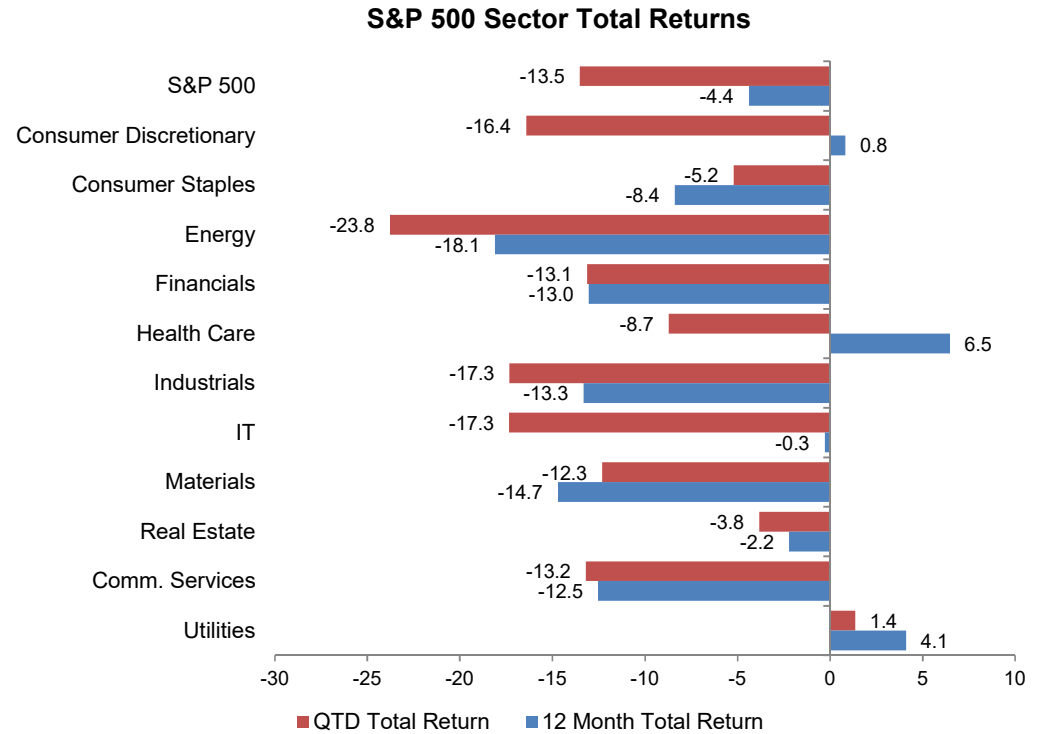


Q4 2018: Domestic Capital Markets Summary

	<u>QTD</u>			<u>YTD</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	(11.7)	(13.8)	(15.9)	(8.3)	(4.8)	(1.5)
Mid	(15.0)	(15.4)	(16.0)	(12.3)	(9.1)	(4.8)
Small	(18.7)	(20.2)	(21.7)	(12.9)	(11.0)	(9.3)

	<u>1 Yr</u>			<u>3 Yrs</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	(8.3)	(4.8)	(1.5)	6.9	9.1	11.1
Mid	(12.3)	(9.1)	(4.8)	6.0	7.0	8.6
Small	(12.9)	(11.0)	(9.3)	7.4	7.3	7.2

	<u>5 Yrs</u>			<u>10 Yrs</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	5.9	8.2	10.4	11.2	13.3	15.3
Mid	5.4	6.2	7.4	13.0	14.0	15.1
Small	3.6	4.4	5.1	10.4	12.0	13.5



Style box returns represented by Russell Indices

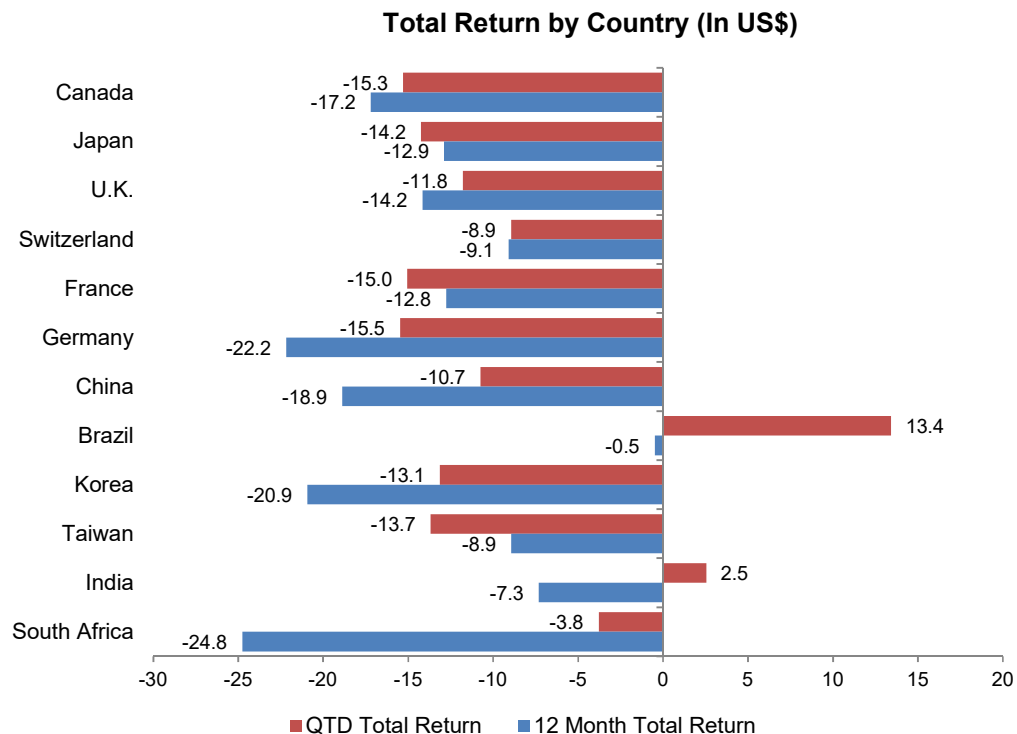
* Based on 12 month forward looking P/E Estimate

Q4 2018: International Capital Markets Summary

	<u>QTD</u>			<u>YTD</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	(10.6)	(10.9)	(11.3)	(13.9)	(13.7)	(13.7)
Mid	(11.3)	(13.6)	(14.8)	(15.0)	(16.1)	(16.6)
Small	(13.1)	(14.4)	(15.8)	(18.2)	(18.2)	(18.3)

	<u>1 Yr</u>			<u>3 Yrs</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	(13.9)	(13.7)	(13.7)	4.7	4.6	4.5
Mid	(15.0)	(16.1)	(16.6)	5.0	3.9	3.2
Small	(18.2)	(18.2)	(18.3)	4.7	3.8	2.9

	<u>5 Yrs</u>			<u>10 Yrs</u>		
	Value	Blend	Growth	Value	Blend	Growth
Large	(0.7)	0.5	1.6	5.6	6.3	7.0
Mid	1.1	1.6	2.0	8.1	7.9	7.7
Small	1.6	2.0	2.3	9.9	10.0	10.1



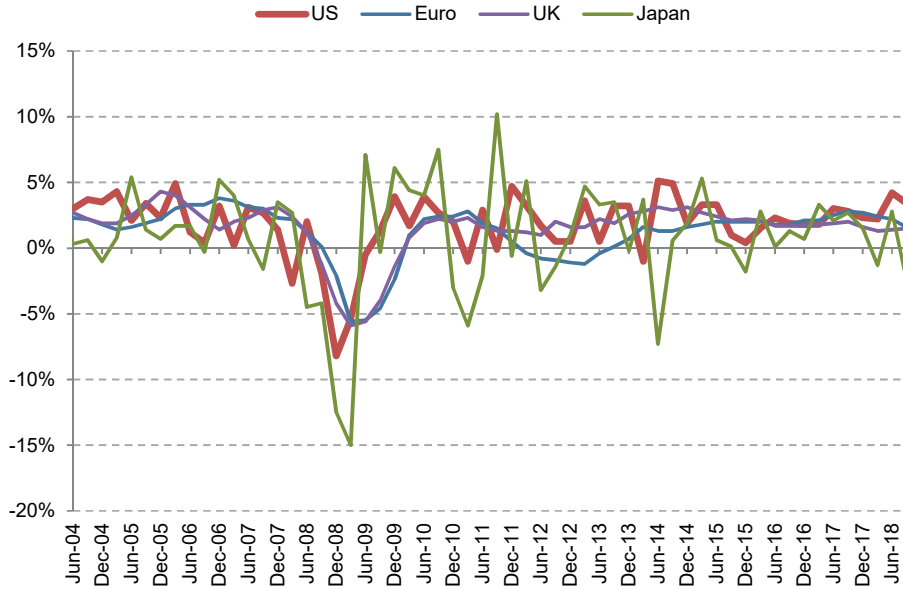
Foreign Currency

		<u>3 Mo</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Baskets	Global ex-US	-0.6	-3.6	0.3	-3.4	-1.3
	EAFE	-0.3	-2.8	0.3	-3.3	-1.2
	Emerging	0.0	-4.5	0.5	-3.4	-1.6
Majors	USD/JPY	-3.5	-2.7	-3.0	0.8	1.9
	USD/EUR	1.2	4.7	-1.8	3.7	2.0
	USD/GBP	2.1	5.9	4.9	5.4	1.4

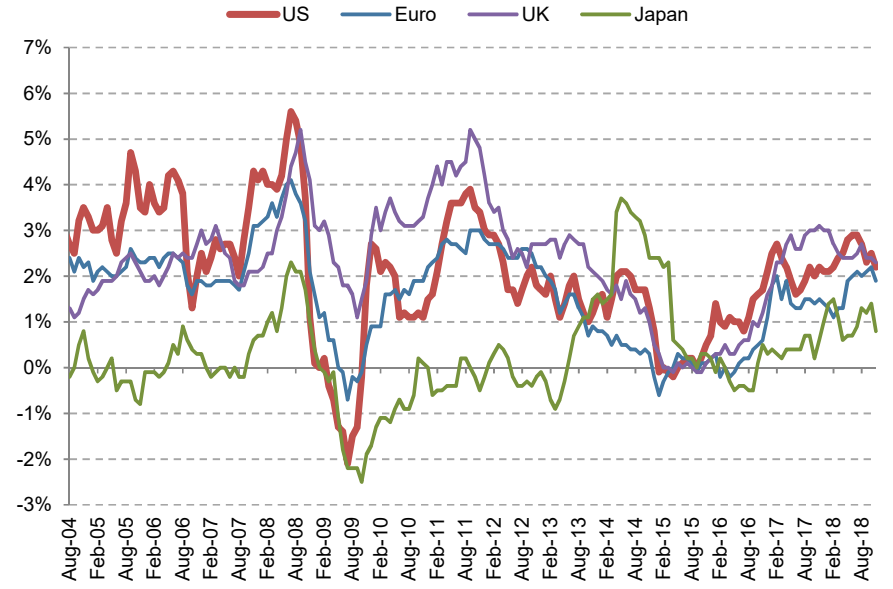
Style box returns represented by MSCI ACWI ex USA Indices

Q4 2018: Economic Summary

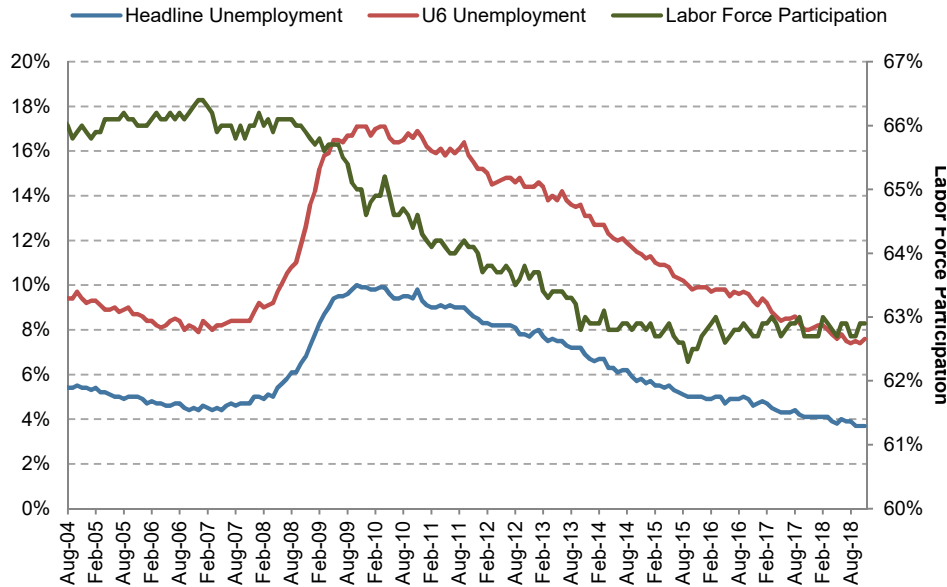
Gross Domestic Product



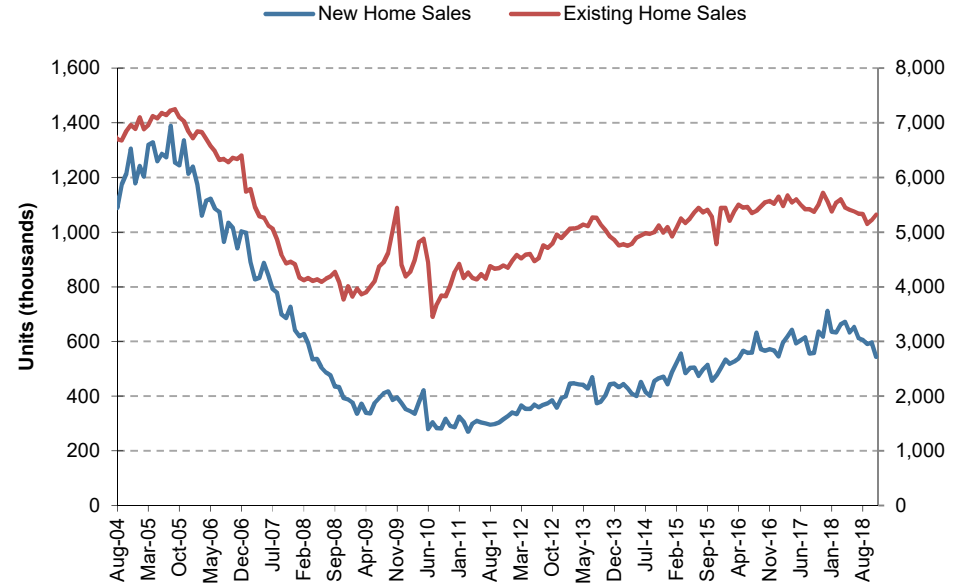
Consumer Prices (Year over Year in Percent)



Employment

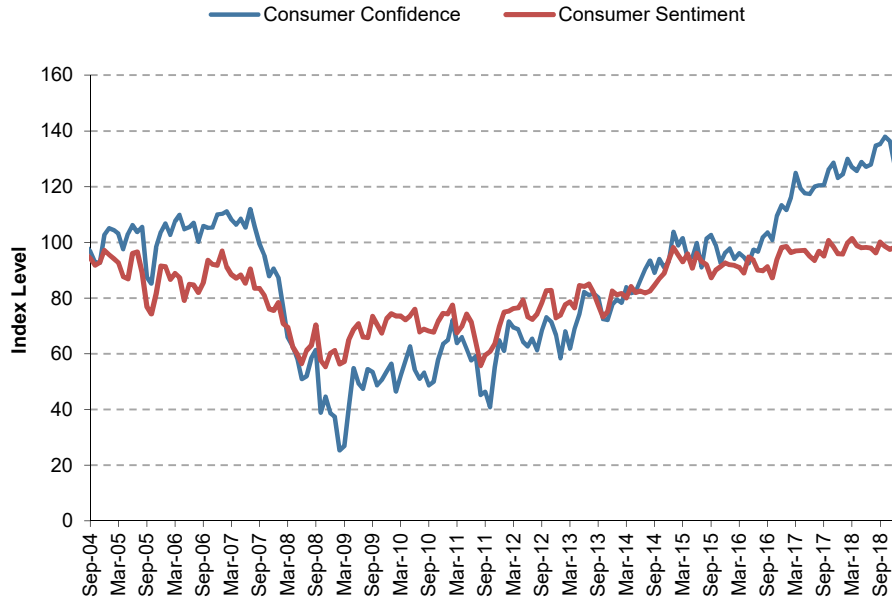


New and Existing Home Sales

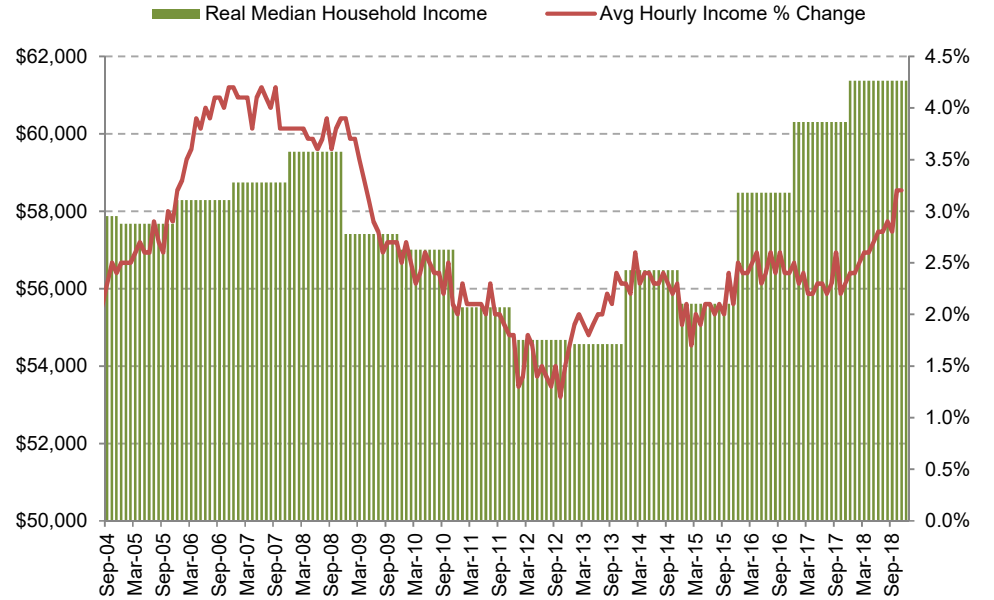


Q4 2018: Economic Summary

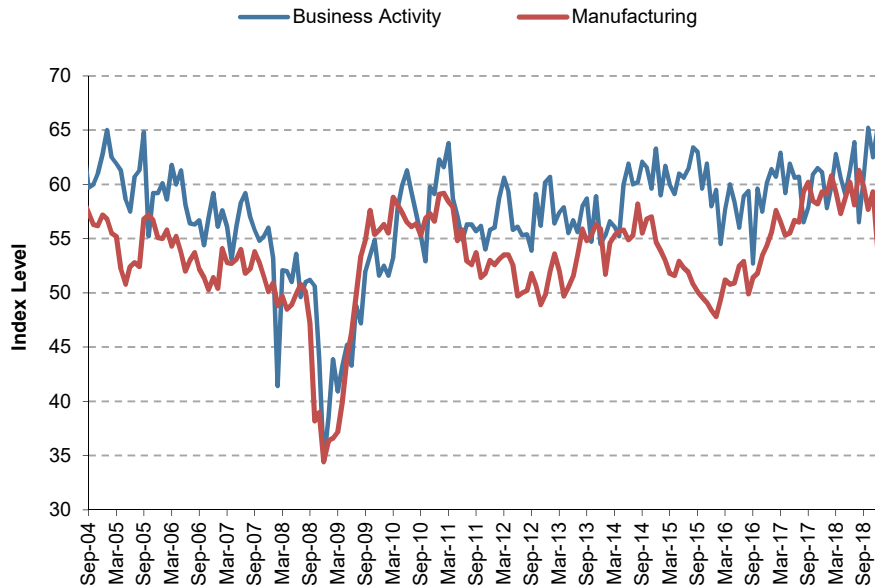
Consumer Confidence



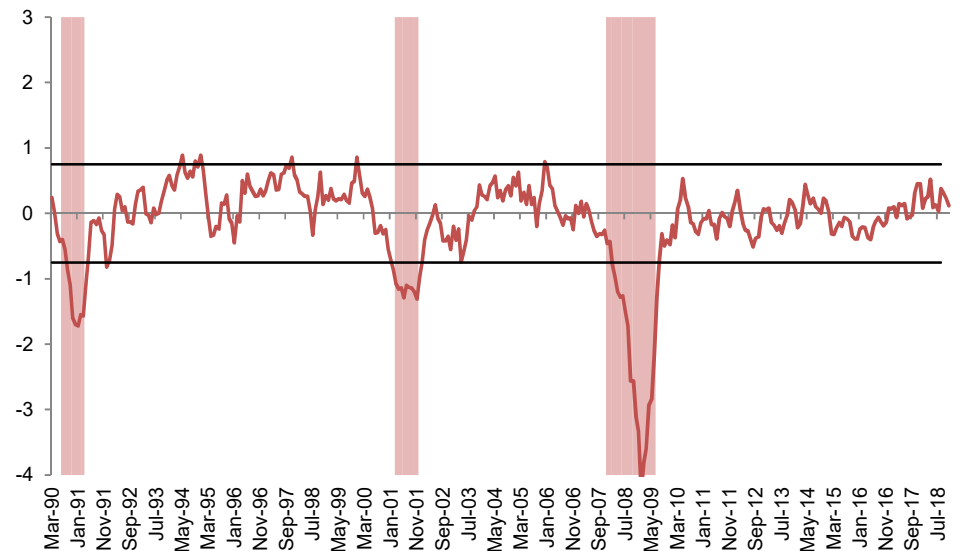
Income and Wages



ISM Business Activity & Manufacturing



CFNAI: (3-Month Moving Average)



Asset Classes - Annual Returns

Data as of 12/31/2018.

<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
39%	5%	79%	27%	8%	18%	39%	14%	1%	21%	37%	2%
11%	2%	58%	27%	4%	18%	34%	10%	1%	21%	25%	2%
8%	0%	37%	19%	3%	17%	32%	6%	1%	17%	22%	0%
7%	-26%	32%	15%	2%	16%	23%	5%	0%	12%	16%	-2%
5%	-34%	27%	15%	0%	16%	7%	2%	-1%	11%	15%	-4%
5%	-36%	26%	8%	-2%	16%	2%	1%	-2%	3%	7%	-11%
4%	-37%	6%	7%	-4%	4%	0%	0%	-4%	2%	4%	-11%
2%	-43%	3%	1%	-12%	2%	-2%	-2%	-5%	1%	2%	-14%
-2%	-53%	0%	0%	-18%	0%	-3%	-5%	-15%	0%	1%	-15%

US Large Cap Stocks
US Mid Cap Stocks
US Small Cap Stocks
Developed Intl Stocks
Emerging Market Stocks

Intermediate-term Bonds
High Yield Bond
Cash
Inflation



The Kansas Board of Regents Mandatory Retirement Plan

Executive Summary

Kansas Board of Regents Mandatory Retirement Plan

4th QUARTER 2018 INVESTMENT EXECUTIVE SUMMARY

Outstanding Items from Last Meeting

- The RPC approved the following recommendations to the TIAA Plan
 - Remove the Wells Fargo Growth – Institutional Fund from Watch (SGRNX)

- Dimensional Target Date Retirement Income Fund
 - The RPC had requested an evaluation of the DFA Target Date Retirement Income Fund at the September meeting and for ACG to provide feedback on whether they should be considered for possible inclusion in the Mandatory Plan.
 - Due to the fund's limited history (incepted in November 2015), ACG recommended that a full evaluation of the funds be made at the Spring RPC meeting.
 - DFA has an interesting but potentially complicated concept to explain to participants that sets it apart from other target date fund competitors.
 - Recommendation: Based on the limited track record, small asset base, and differing investment approach of the DFA Target Date Funds relative to the existing strategies offered by Voya and TIAA, ACG recommends that the DFA Target Date Retirement Income Funds not replace either of the existing target date funds. We would also advise against adding the DFA funds to the lineups as a complimentary target date suites to the existing target date funds.

- Underutilized Fund
 - There are several funds in both the TIAA and Voya Plans that are not heavily utilized (participants & assets). The Amana funds have been excluded from this discussion. Depending on the threshold, ACG would characterize the following funds as underutilized:
 - TIAA
 - Wells Fargo Growth (815 participants, \$27.7M assets)
 - Royce Opportunity (579 participants, \$6.5M assets)
 - AB Small Cap Growth (921 participants, \$11.1 assets)
 - Voya
 - Vanguard Treasury Money Market (144 participants, \$3.6M assets)
 - Champlain Mid Cap (776 participants, \$10.2M assets)
 - American Beacon Small Cap Value (227 participants, \$1.5M assets)
 - Recommendations
 - Keep the following: (TIAA) Royce Opportunity Fund, AB Small Cap Growth; (Voya) Champlain Mid Cap, American Beacon Small Cap Value. These funds are found in asset classes which are not commonly popular with plan participants, however they do offer diversification benefits when combined with other funds to create a portfolio. The removal of these funds would eliminate the sub-asset class category from the Plan and potentially lead to less efficient portfolios.

- o The following is an excerpt from an asset allocation piece that Voya representatives use to walk KBOR participants through when developing a portfolio for the participant based on their overall risk tolerance. Note the greater allocation to mid cap growth equities (Champlain Mid Cap Growth) and small cap value equities (American Beacon Small Cap Value) especially in the more aggressive portfolios.

Asset class	Conservative 20	Conservative 30	Moderate conservative 40	Moderate 50	Moderate 60	Moderate aggressive 70	Moderate aggressive 80	Aggressive 90	Aggressive 98
Cash Equivalents	2%	2%	2%	2%	2%	2%	2%	2%	2%
US Short-Term Fixed Income	17%	15%	12%	9%	6%	3%	0%	0%	0%
US TIPS	5%	5%	4%	3%	2%	2%	0%	0%	0%
US Fixed Income	36%	30%	27%	23%	19%	13%	12%	6%	0%
High Yield Fixed Income	9%	8%	8%	6%	5%	4%	4%	2%	0%
International Fixed Income	3%	2%	0%	0%	0%	0%	0%	0%	0%
Large Cap Value Equities	5%	9%	10%	11%	13%	14%	16%	18%	19%
Large Cap Growth Equities	4%	6%	7%	9%	10%	12%	13%	15%	17%
Mid Cap Value Equities	1%	2%	4%	4%	6%	7%	8%	9%	9%
Champlain Mid Cap Growth									
Mid Cap Growth Equities	1%	0%	2%	3%	5%	5%	6%	6%	7%
American Beacon Small Cap Value									
Small Cap Value Equities	1%	2%	2%	2%	2%	3%	4%	5%	5%
Small Cap Growth Equities	0%	0%	1%	1%	1%	2%	2%	3%	4%
Global REITs	0%	0%	0%	2%	2%	2%	2%	2%	2%
International Equities	6%	8%	10%	11%	13%	15%	17%	19%	21%
International Small Cap Equities	0%	0%	0%	2%	2%	2%	2%	3%	3%
Emerging Market Equities	2%	3%	4%	5%	6%	8%	10%	10%	11%
Emerging Market Fixed Income	6%	6%	5%	5%	4%	4%	2%	0%	0%
Specialty	2%	2%	2%	2%	2%	2%	0%	0%	0%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

- Please see annual recordkeeper recommendations section for (TIAA) Wells Fargo Growth recommendation and (Voya) Vanguard Treasury Money Market recommendation.

- **Current Investment Lineup Recommendations as of 12/31/2018**

- **VOYA**

- Voya Small Cap Opportunities Portfolio I (Small Cap Growth Option) = Place on Watch
 - Modest underperformance relative to both the Russell 2000 Growth benchmark and average small cap growth manager in 2017 was followed by significant underperformance to both in 2018. As a result, the fund now trails the benchmark and lands in the fourth quartile of its peers on a one, three and five-year basis.
 - The management team and investment process have not changed, however there has been significant turnover in their dedicated analyst ranks over the past couple of years. Recently they have replaced both the technology and health care analysts for underlying performance reasons.
 - ACG to provide an update at the September RPC meeting.

- **TIAA**

- TIAA-CREF Large-Cap Value Inst'l. (Large Cap Value Option) = Place on Watch
 - The second half of 2018 turned out to be quite challenging for the fund. When we met in September to review the 6/30 performance results the fund was down -1.16% for the first six months of the year, which outpaced the Russell 1000 Value Index by 0.54% and placed in the 51st percentile relative to its large cap value peers. At the end of December, the fund's 1-year return of -14.10% underperformed the benchmark by -5.83% and peer group average by -5.58%. Much of the weakness was due in large part to poor stock selection in energy, financials, industrials and materials sectors. As a result of the poor 2018 results as well as poor relative returns in 2017, the fund is trailing both the benchmark index and average large cap value peer group manager by a wide margin on a one, three and five-year basis.
 - There was also a manager change in November with Tom Kolefas retiring on November 15, 2018. He had been on the fund for the previous 14 years. The co-manager on TIAA Large Cap Value Fund, Rich Cutler became the Lead Portfolio Manager on the TIAA Mid Cap Value which was also impacted by Mr. Kolefas' retirement. Charles Carr was named the lead Portfolio Manager of the TIAA-CREF Large Cap Value Fund and will be supported by Mr. Cutler on a go-forward basis. Although Mr. Carr has been at TIAA for less than five years, he has over 23 years of equity investment industry experience. Although the fund under Mr. Carr is expected to remain in the large cap value style box, he does intend to reduce the total number of holding in the fund, focus more heavily on larger companies and reduce the fund's overall foreign exposure.
 - ACG to provide an update at the September RPC meeting.
- TIAA-CREF Mid-Cap Value Inst'l. (Mid Cap Value Option) = Place on Watch
 - This fund was also impacted by the retirement of Tom Kolefas on November 15, 2018. Mr. Kolefas had been the lead-portfolio manger on the fund since July 2004. As stated above, Rich Cutler who served as a co-portfolio manager on the Mid-Cap Value Fund will relinquish his lead-portfolio manager responsibilities on the TIAA-CREF Large Cap Value Fund to become the Lead Portfolio Manager on this fund. He will use the same investment process used on the TIAA-CREF Large Cap Value fund and apply it to this one. Although his investment process is similar to that of Mr. Kolefas, we would expect Mr. Cutler to be more willing to focus on lower-quality stocks which are more heavily leveraged. These types of companies tend to perform well coming out of a bear market. However, they will introduce more volatility into the fund.
 - Performance has been trailing the benchmark and average mid cap value peer group manger for across most trailing time periods. Hopefully, the change in management will lead to better results.
 - ACG to provide an update at the September RPC meeting.

- **Provider Lineup Recommendations**

- At the start of each calendar year both TIAA and Voya can propose fund changes which if approved by the RPC at the Spring RPC meeting would be implemented at the start of the third-quarter on July 1st.
- Both TIAA and Voya made a number of proposals and provided their reasoning for the proposal. After evaluating each of the proposals, ACG provides a recommendation and the underlying considerations for our recommendation, and in the case of a fund add/replacement we provided the fund recommendation and provided further supporting analysis in the appendix.

TIAA Proposal & Reasoning	ACG Recommendation	Considerations
Add: Core-Plus Bond Fund – Provides participants with access to high yield and emerging debt plus sectors.	Agree	The current Plan options, the CREF Bond Market Fund, is a traditional intermediate, investment grade bond fund which tracks closely with the Bloomberg Barclays Aggregate Index. Core Plus Managers have wider latitude to invest outside of traditional fixed income sectors such as Treasuries, Agencies, Mortgages and investment grade corporates to add value. These less traditional sectors such as high yield and foreign debt can add different sources of return as well as improved diversification to a portfolio.
Core-Plus Bond Search <ul style="list-style-type: none"> • Background: TIAA provided a number of options. We narrowed the list to a manageable number by reviewing risk-adjust performance, consistency of performance, fees, and management team. • Recommendation: Add the PGIM Total Return Bond R6 Fund to the TIAA Lineup <ul style="list-style-type: none"> ○ Solid consistency of returns ○ Sound risk-adjusted results ○ Long-tenured management team ○ Reasonable fees ○ Lower correlation of results 		
Add: International Fixed Income Fund – Diversification benefits.	Disagree	Adding a core-plus bond strategy should reduce the need for either a foreign or high-yield bond fund.
Add: Small Cap Foreign Equity Fund – Diversification Benefits.	Agree	Despite having four investment options covering the foreign equity category (TIAA-CREF International Index, American Funds EuroPacific Growth, CREF Global Equities and DFA Emerging Markets) the largest small cap exposure from any of the four funds is 2% (CREF Global Equities). See Appendix – “A Case for Foreign Small Cap”
Small Cap Foreign Equity Fund <ul style="list-style-type: none"> • Background: TIAA provided a number of options. We narrowed the list to a manageable number by reviewing risk-adjust performance, consistency of performance, fees, and management team. • Recommendation: Add the Pear Tree Polaris Foreign Value Small Cap R6 Fund to the TIAA Lineup 		

TIAA Proposal & Reasoning	ACG Recommendation	Considerations
<ul style="list-style-type: none"> ○ Only true actively managed fund evaluated ○ Value-orientation –missing from the foreign lineup ○ Strong trailing performance results; 3-year, 5-year, 10-year ○ Relatively small asset base at just over \$1 billion ○ Long-tenured management team 		
Add: Mid Cap Blend Index Fund – low cost, option other than active mid cap.	Agree	TIAA offers both domestic large cap and small cap indexes to KBOR participants. Mid cap is the only cap-range without a dedicated passive (index) option. Given some recent struggles with the TIAA Mid Cap Value and TIAA Mid Cap Growth Funds, there is likely to be some outflows from them to a mid-cap index option.
Mid Cap Blend Index Fund Search		
<ul style="list-style-type: none"> • Recommendation: Add the Vanguard Mid Cap Index Adm. <ul style="list-style-type: none"> ○ Low cost at 5 basis points ○ Low tracking error relative to the index ○ Introduces further fund family diversification 		
Remove: TIAA Money Market Fund – Map assets to TIAA Stable Value	Agree	The Plan offers three principal preservation offerings; TIAA Traditional, TIAA Stable Value and TIAA Money Market. This may be a source of confusion for participants. A 2017 MetLife survey showed that the number of defined contribution plans offering money market funds had decreased since the 2015 money market reform. The survey showed 36% of plans had both Stable Value and Money Market, 46% had Stable Value only, 16% had Money Market only and 2% had other.
Close and Map the CREF Money Market R3 to the TIAA Stable Value Fund		
<ul style="list-style-type: none"> • Due to liquidity restrictions on the TIAA Traditional, it's prudent to have a second principal preservation offering. The plan currently offers three options. • Recommendation: Close and map the funds from the CREF Money Market R3 to the TIAA Stable Value Fund. <ul style="list-style-type: none"> ○ Due to the difference in the duration of the underlying portfolio, stable value funds generally yield approximately 1.00% more return annually over the market cycle relative to money market funds. The TIAA Stable Value Fund essentially provides short- to intermediate-like returns without the volatility. ○ Both the TIAA Stable Value and CREF Money Market fund are fully liquid to participant transfers and withdrawals. Please note, the Stable Value fund will continue to have equity wash restrictions for transfers to competing funds. Also transfers into the Stable Value fund are restricted for 30 days following a transfer out to minimize frequent trading. ○ Performance differences: 		

CREF Money Market vs. TIAA Stable Value

Trailing Returns

Name	3 Month	1 Year	3 Year Annualized	5 Year Annualized	10 Year Annualized
TIAA Stable Value	0.56	2.15	2.02	2.00	
CREF Money Market R3	0.52	1.46	0.69	0.42	
<i>Stable Value less Money Market</i>	<i>0.04</i>	<i>0.69</i>	<i>1.33</i>	<i>1.58</i>	

Calendar Year Returns

Name	2018	2017	2016	2015	2014	2013	2012
TIAA Stable Value	2.15	1.99	1.91	1.94	2.01	2.00	2.38
CREF Money Market R3	1.46	0.50	0.13	0.00	0.00	0.00	0.00
<i>Stable Value less Money Market</i>	<i>0.69</i>	<i>1.49</i>	<i>1.78</i>	<i>1.94</i>	<i>2.01</i>	<i>2.00</i>	<i>2.38</i>

Remove: Wells Fargo Growth Fund and map assts to CREF Growth Fund – The expenses are higher, it doesn’t offer lifetime income and CREF Growth has comparable performance.

Disagree. Re-evaluate in 12 months.

The Wells Fargo Growth Fund went through a three-year period (2014 – 2016) of underperformance relative to the Russell 3000 Growth benchmark and average large cap growth peer group manager. This was followed by a top-decile 2017 return, a top-quartile 2018 return and top-decile 2019 YTD return through March 8. As a result of the recent strong returns, the fund’s one, three, ten and fifteen-year results easily surpass the Russell 3000 Growth benchmark and place the fund in or near the top-quartile of its large growth peers during these periods.

Trailing Total Returns SGRNX

	Daily	Monthly	Quarterly							
Total Return % (03/08/2019)	1-Day	1-Week	1-Month	3-Month	YTD	1-Year	3-Year	5-Year	10-Year	15-Year
SGRNX	-0.20	-3.33	1.93	10.37	15.06	4.33	19.62	9.89	20.03	11.80
Russell 3000 Growth TR USD	-0.14	-2.44	1.43	6.84	11.48	3.24	16.59	11.75	18.62	9.22
Category (LG)	-0.20	-2.49	1.56	6.81	11.34	2.37	15.50	9.76	17.12	8.50
+/- Russell 3000 Growth TR USD	-0.06	-0.89	0.50	3.52	3.57	1.09	3.03	-1.86	1.41	2.58
+/- Category (LG)	0.00	-0.83	0.37	3.56	3.72	1.96	4.13	0.13	2.90	3.30
Rank in Category	50	93	31	6	6	26	10	53	9	2

Voya Proposal & Reasoning	ACG Recommendation	Considerations
<p>Add: Core bond index fund – as a low-cost alternative to the Core Plus – PIMCO Total Return Fund.</p>	<p>Agree</p>	<p>The Voya lineup does not currently offer a passively managed (index) option in the fixed income category. There are a growing number people that would prefer to have a low-cost investment alternative whose sole objective is to provide a rate of return similar to that of a benchmark. Please note, there have been many articles over the past several years documenting the struggles of active managers trying to outperform their index counterparts. These have mainly been on the equity side. As you will see, active fixed income managers have generally underperformed their active manager counterparts on a longer-term basis. However, this hasn't dampened the enthusiasm for core fixed income index funds.</p>
<p>Core Bond Index Search</p> <ul style="list-style-type: none"> • Background: Voya provided two options for consideration the Fidelity U.S. Bond Index priced at 3 basis points and the Vanguard Total Bond Market Index Admiral share class priced at 5 basis points. • Recommendation: Add the Fidelity U.S. Bond Index for the following reasons: <ul style="list-style-type: none"> ○ Less expensive: 3 basis points vs. 5 basis points ○ Similar low overall tracking ○ Similar securities lending practices by both Vanguard and Fidelity ○ Returns are similar, however over the past 32 rolling 5-year time periods (1-month shifts) the Fidelity U.S. Bond Fund has outperformed the Vanguard Total Bond Market Index Adm. in each of the 32 periods. 		
<p>Replace: PIMCO Real Return Fund in the Plan – The fund's total expense ratio increased from 0.46% to 0.88%</p>	<p>Agree</p>	<p>The Financial Industry Regulatory Authority (FINRA) issued new guidance in July that indicated that costs associated with interest expense and dividends on borrowed securities had to be included in a fund's annual report and prospectus net expense ratios. In the case of PIMCO Real Return and other bond funds the cost associated with reverse-repos also needed to be reflected in the expense ratio. As a result, the fund's expense ratio jumped by 42 basis points over night, despite no change in the fund's investment approach. ACG has had numerous discussions with PIMCO to see if they plan on altering their investment strategy to possibly reduce the current expense ratio and the answer thus far has been no. Unfortunately, perception is reality, and most investors will only see that the fund has nearly doubled its fee and won't ask why. Given this reality, we feel it is appropriate for KBOR to look for a replacement option to the PIMCO Real Return fund.</p>
<p>Treasury Inflation-Protected Bond (TIPS) Search</p> <ul style="list-style-type: none"> • Background: Voya provided three options for consideration; the American Funds Inflation Linked Bond Fund (expense 0.36%), the DFA Inflation-Protected Securities (expense 0.12%) and the Fidelity Inflation-Protected Bond Index (Expense 0.05%). • Recommendation: Replace the PIMCO Real Return with the American Funds Inflation Linked Bond R6 <ul style="list-style-type: none"> ○ Strongest trailing returns of the group ○ Strongest three and five-year rolling returns ○ Most favorable five-year risk-reward and up and down-market capture ○ Strongest head-to-head rolling-period-of-time analysis 		

Voya Proposal & Reasoning	ACG Recommendation	Considerations																
<p>Add: Foreign Equity Index Fund as a low-cost alternative to the three actively managed foreign and global funds</p>	<p>Agree</p>	<p>Similar to our comments in the core-bond index search, there are a growing number of investors that watched as higher-cost active managers \struggled to outperform their low-cost index brethren on a consistent enough basis to justify their fees. The addition of a foreign index fund in the lineup will allow these participants the ability to get index like returns at a low price point.</p>																
<p>Foreign Equity Index Search</p> <ul style="list-style-type: none"> Background: Voya provided two alternatives for consideration; the Fidelity International Index (expense = 5 bps.) which tracks the MSCI EAFE and the Vanguard Total International Stock Index – Adm. (expense = 11 bps) which tracks the FTSE Global All Cap ex US Index. Recommendation: Add the Vanguard Total International Stock Index – Adm. (VTIAX) to the Plan <ul style="list-style-type: none"> The decision came down to coverage and opportunity since a head-to-head comparison of the funds is difficult. Please note, that both funds do a good job of tracking the performance of their underlying benchmarks. The Fidelity International Index is solely focused on developed market countries around the globe. Alternatively, the Vanguard Total International Stock Index fund invests in both developed and emerging markets around the world. Since it is a cap-weighted index as emerging (developing) countries continue to grow at a faster pace than developed countries, their representation within the index will continue to grow. Our recommendation is to cast as wide a net a possible from a diversification standpoint which means to select the Vanguard Total International Stock Index for inclusion in the Plan. 																		
<p>Replace: Vanguard Institutional Index with the lower cost Fidelity 500 Index, the Vanguard Mid-Cap Index with the lower cost Fidelity Mid Cap Index and Vanguard Small-Cap Index with the Fidelity Small Cap Index</p>	<p>Disagree</p>	<p>In the war of index price compression, Fidelity currently holds the upper hand. When reviewing Voya’s proposal, it’s easy to see the current price advantage Fidelity has:</p> <table border="1" data-bbox="919 922 1978 1049"> <thead> <tr> <th></th> <th>Fidelity Exp.</th> <th>Vanguard Exp.</th> <th>Diff.</th> </tr> </thead> <tbody> <tr> <td>Large Cap Index</td> <td>0.015%</td> <td>0.035%</td> <td>0.02%</td> </tr> <tr> <td>Mid Cap Index</td> <td>0.025%</td> <td>0.04%</td> <td>0.015%</td> </tr> <tr> <td>Small Cap Index</td> <td>0.025%</td> <td>0.04%</td> <td>0.015%</td> </tr> </tbody> </table> <p>Based on KBOR assets held in all three funds (\$66.24M) the potential cost savings is \$10,679. This equates to \$2.42 per participant based on the 4,394 participants currently invested in them.</p> <p>Our objections for not moving forward with this proposal are fairly simple:</p> <ul style="list-style-type: none"> Vanguard’s fees, although not the lowest, are very competitive and as a result are reasonable What is hard to quantify is the possible participant disruption this would cause for the 4,393 participants using these Vanguard funds. 		Fidelity Exp.	Vanguard Exp.	Diff.	Large Cap Index	0.015%	0.035%	0.02%	Mid Cap Index	0.025%	0.04%	0.015%	Small Cap Index	0.025%	0.04%	0.015%
	Fidelity Exp.	Vanguard Exp.	Diff.															
Large Cap Index	0.015%	0.035%	0.02%															
Mid Cap Index	0.025%	0.04%	0.015%															
Small Cap Index	0.025%	0.04%	0.015%															

Voya Proposal & Reasoning	ACG Recommendation	Considerations
<p>Remove: Vanguard Treasury Money Market Fund – Map assets to Voya Fixed Plus III</p>	<p>Agree in principle.</p> <p>Given the proximity of the fund change; Voya Money Market to the Vanguard Treasury Money Market in July 2019, our recommendation is to have Voya come back to 2020 spring RPC meeting with a similar proposal for the Committee to vote on.</p>	<p>Voya offers two principal preservation offerings; Vanguard Treasury Money Market and Voya Fixed Plus III account. Currently there is a 90-day equity wash provision in place which prevents participants in the Voya Fixed Plus III account from going directly into the Vanguard Treasury money Market fund. Some participants will try to game the system in periods of rising interest rates as money market funds are much quicker to adjust to rising rates than the longer-maturity fixed accounts. The elimination Vanguard Treasury Money Market fund will eliminate this restriction.</p> <p>To our earlier point in the TIAA section, over the long-term there is generally a yield advantage of around 1%-1.5% when comparing the long-term performance results of money market funds versus general account or stable value products.</p>

Asset Class Coverage - TIAA w/Proposed Changes

Domestic Equity			
	Value	Blend	Growth
Large	TIAA-CREF Large-Cap Value	CREF Equity Index CREF Stock TIAA-CREF S&P 500 Index	Amana Growth CREF Growth Keep: Wells Fargo Growth
Mid	TIAA-CREF Mid-Cap Value	Add: Vanguard Mid Cap Index	TIAA-CREF Mid-Cap Growth
Small	Royce Opportunity	TIAA-CREF Small-Cap Blend Index	AB Small Cap Growth
International Equity			
	Value	Blend	Growth
Large		TIAA-CREF International Equity Index	American Funds EuroPacific Growth
Mid			
Small	Add: Pear Tree Polaris Fgn Val SC		
Emerging		DFA Emerging Markets	
Global			CREF Global Equities
Domestic Fixed Income			
	Short	Intermediate	Long
High	Remove: CREF Money Market TIAA Stable Value TIAA Traditional		CREF Inflation-Linked Bond
Medium		CREF Bond Market Add: PGIM Total Return Bond Fund	
Low			
Other			
	Real Estate	Balanced	Foreign Bond
	TIAA Real Estate Account	CREF Social Choice TIAA-CREF Lifecycle Ret Income, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060	Amana Participation
	Other Sectors	Absolute Return	Self-Directed Brokerage

Gold = Passively Managed Index Funds

Navy = Actively Managed Funds

Asset Class Coverage - Voya w/Proposed Changes

Domestic Equity			
	Value	Blend	Growth
Large	BlackRock Equity Dividend	American Fds Fundamental Inv. Parnassus Core Equity Keep: Vanguard Institutional Index	Amana Growth Voya Large Cap Growth
Mid	American Century Mid Cap Value	Keep: Vanguard Mid Cap Index	Champlain Mid Cap
Small	American Beacon Small Cap Value	Keep: Vanguard Small Cap Index	Voya SmallCap Opportunities
International Equity			
	Value	Blend	Growth
Large		Add: Vanguard Total Intl Stock Idx.	American Fds EuroPacific Growth
Mid			
Small			
Emerging			Oppenheimer Dev Markets
Global			VY Oppenheimer Global
Domestic Fixed Income			
	Short	Intermediate	Long
High	Keep: Vanguard Treasury Money Market Voya Fixed Plus III	Add: Fidelity U.S. Bond Index	Replace: PIMCO Real Return w/ Am. Fds Inflation Linked Bds
Medium		PIMCO Total Return	
Low			
Other			
	Real Estate	Balanced	Foreign Bond
	Vanguard Real Estate Index	VY T. Rowe Price Cap. App. Vanguard Target Retirement Income, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060	Amana Participation
	Other Sectors	Absolute Return	Self-Directed Brokerage

Gold = Passively Managed Index Funds

Navy = Actively Managed Funds

Plan Asset Summary

	12/31/2018		6/30/2018		12/31/2017		6/30/2017		12/31/2016		6/30/2016													
Money Market/Stable Value	\$	1,135,421,245	31.3%	\$	1,119,342,923	28.8%	\$	1,099,223,783	28.6%	\$	1,104,708,594	30.2%	\$	1,101,718,719	31.8%	\$	1,098,300,365	32.9%						
Fixed Income (Domestic/Foreign)	\$	180,027,473	5.0%	\$	178,680,050	4.6%	\$	178,149,783	4.6%	\$	171,899,990	4.7%	\$	175,539,900	5.1%	\$	172,456,511	5.2%						
Balanced	\$	532,231,177	14.7%	\$	558,335,678	14.3%	\$	535,089,278	13.9%	\$	480,523,947	13.1%	\$	435,681,384	12.6%	\$	412,646,946	12.4%						
Equity - Domestic	\$	1,349,040,820	37.2%	\$	1,564,954,212	40.2%	\$	1,524,457,716	39.6%	\$	1,411,281,730	38.5%	\$	1,365,636,329	39.4%	\$	1,285,161,618	38.5%						
Equity - Foreign	\$	274,804,021	7.6%	\$	310,244,101	8.0%	\$	304,430,972	7.9%	\$	266,578,539	7.3%	\$	231,177,780	6.7%	\$	222,071,991	6.7%						
Real Estate	\$	158,975,023	4.4%	\$	159,811,703	4.1%	\$	157,197,351	4.1%	\$	154,319,449	4.2%	\$	152,674,667	4.4%	\$	147,378,318	4.4%						
KBOR Mandatory Plan Totals	\$	3,630,499,759		\$	3,891,368,667		\$	3,850,080,270		\$	3,661,487,723		\$	3,462,428,779		\$	3,338,015,749							
Voya			% of Provider Assets	% of Plan Assets			% of Provider Assets	% of Plan Assets			% of Provider Assets	% of Plan Assets			% of Provider Assets	% of Plan Assets								
Money Market/Stable Value	\$	98,663,504	17.3%	2.7%	\$	96,878,671	16.0%	2.5%	\$	94,027,515	0.159659	2.4%	\$	105,771,341	18.3%	2.9%	\$	102,425,667	19.0%	3.0%	\$	97,766,111	17.7%	2.9%
Fixed Income (Domestic/Foreign)	\$	22,323,859	3.9%	0.6%	\$	23,509,330	3.9%	0.6%	\$	23,740,710	4.0%	0.6%	\$	25,178,595	4.3%	0.7%	\$	25,037,135	4.6%	0.7%	\$	29,570,218	5.4%	0.9%
Balanced	\$	114,631,291	20.1%	3.2%	\$	113,794,135	18.8%	2.9%	\$	109,038,579	18.5%	2.8%	\$	102,264,252	17.7%	2.8%	\$	95,435,358	17.7%	2.8%	\$	103,098,367	18.7%	3.1%
Equity - Domestic	\$	260,430,579	45.6%	7.2%	\$	285,068,570	47.0%	7.3%	\$	274,639,059	46.6%	7.1%	\$	265,919,544	45.9%	7.3%	\$	246,623,142	45.7%	7.1%	\$	245,528,349	44.5%	7.4%
Equity - Foreign	\$	58,269,122	10.2%	1.6%	\$	68,518,310	11.3%	1.8%	\$	67,457,618	11.5%	1.8%	\$	59,386,071	10.3%	1.6%	\$	50,049,980	9.3%	1.4%	\$	52,349,264	9.5%	1.6%
Real Estate	\$	16,713,902	2.9%	0.5%	\$	19,003,372	3.1%	0.5%	\$	20,023,597	3.4%	0.5%	\$	20,376,480	3.5%	0.6%	\$	20,587,124	3.8%	0.6%	\$	23,807,570	4.3%	0.7%
Voya Total	\$	571,032,257		15.7%	\$	606,772,387		15.6%	\$	588,927,078		15.3%	\$	578,896,283		15.8%	\$	540,158,406		15.6%	\$	552,119,879		16.5%
TIAA-CREF																								
Money Market/Stable Value	\$	1,023,253,907	34.1%	28.2%	\$	1,008,196,323	31.4%	25.9%	\$	1,000,041,830	31.4%	26.0%	\$	998,937,253	33.2%	27.3%	\$	984,611,257	34.7%	28.4%	\$	984,611,257	36.3%	29.5%
Fixed Income (Domestic/Foreign)	\$	155,803,931	5.2%	4.3%	\$	152,860,208	4.8%	3.9%	\$	153,316,981	4.8%	4.0%	\$	146,721,395	4.9%	4.0%	\$	139,667,999	4.9%	4.0%	\$	139,667,999	5.2%	4.2%
Balanced	\$	414,526,748	13.8%	11.4%	\$	440,915,451	13.7%	11.3%	\$	425,539,169	13.3%	11.1%	\$	378,259,695	12.6%	10.3%	\$	335,305,632	11.8%	9.7%	\$	304,754,796	11.3%	9.1%
Equity - Domestic	\$	1,051,406,807	35.0%	29.0%	\$	1,234,286,111	38.4%	31.7%	\$	1,236,245,242	38.8%	32.1%	\$	1,145,362,186	38.0%	31.3%	\$	1,070,277,251	37.7%	30.9%	\$	991,932,913	36.6%	29.7%
Equity - Foreign	\$	212,762,778	7.1%	5.9%	\$	237,002,231	7.4%	6.1%	\$	235,399,245	7.4%	6.1%	\$	207,192,468	6.9%	5.7%	\$	175,177,786	6.2%	5.1%	\$	164,198,939	6.1%	4.9%
Real Estate	\$	142,256,584	4.7%	3.9%	\$	140,803,428	4.4%	3.6%	\$	137,173,754	4.3%	3.6%	\$	133,942,969	4.4%	3.7%	\$	131,959,931	4.7%	3.8%	\$	123,570,748	4.6%	3.7%
TIAA-CREF Total	\$	3,000,010,755		82.6%	\$	3,214,063,752		82.6%	\$	3,187,716,221		82.8%	\$	3,010,415,966		82.2%	\$	2,836,999,856		81.9%	\$	2,708,736,652		81.1%
Lincoln Financial																								
Money Market/Stable Value	\$	8,844,821	21.2%	0.2%	\$	9,230,322	18.8%	0.2%	\$	-	-	-	\$	-	-	-	\$	9,152,682	18.7%	0.3%	\$	10,297,046	19.1%	0.3%
Fixed Income (Domestic/Foreign)	\$	1,305,638	3.1%	0.0%	\$	1,405,219	2.9%	0.0%	\$	-	-	-	\$	-	-	-	\$	1,640,492	3.4%	0.0%	\$	1,291,917	2.4%	0.0%
Balanced	\$	2,386,190	5.7%	0.1%	\$	2,694,433	5.5%	0.1%	\$	-	-	-	\$	-	-	-	\$	2,858,676	5.8%	0.1%	\$	3,776,807	7.0%	0.1%
Equity - Domestic	\$	26,627,253	63.8%	0.7%	\$	32,569,725	66.3%	0.8%	\$	-	-	-	\$	-	-	-	\$	32,186,904	65.8%	0.9%	\$	35,198,746	65.2%	1.1%
Equity - Foreign	\$	2,563,880	6.1%	0.1%	\$	3,218,827	6.6%	0.1%	\$	-	-	-	\$	-	-	-	\$	3,032,788	6.2%	0.1%	\$	3,447,455	6.4%	0.1%
Real Estate	\$	4,537	0.0%	0.0%	\$	4,903	0.0%	0.0%	\$	-	-	-	\$	-	-	-	\$	13,144	0.0%	0.0%	\$	-	0.0%	0.0%
Lincoln Financial Total	\$	41,732,320		1.1%	\$	49,123,428		1.3%	\$	51,531,388		0.0%	\$	50,005,485		0.0%	\$	48,884,686		1.4%	\$	54,011,971		1.6%
Security Benefit																								
Money Market/Stable Value	\$	4,659,013	26.3%	0.1%	\$	5,037,607	23.5%	0.1%	\$	5,154,438	23.5%	0.1%	\$	-	-	-	\$	5,529,113	15.2%	0.2%	\$	5,625,951	24.3%	0.2%
Fixed Income (Domestic/Foreign)	\$	594,045	3.4%	0.0%	\$	905,294	4.2%	0.0%	\$	1,092,092	5.0%	0.0%	\$	-	-	-	\$	9,194,274	25.3%	0.3%	\$	1,926,377	8.3%	0.1%
Balanced	\$	686,948	3.9%	0.0%	\$	931,659	4.4%	0.0%	\$	511,530	2.3%	0.0%	\$	-	-	-	\$	2,081,718	5.7%	0.1%	\$	1,016,976	4.4%	0.0%
Equity - Domestic	\$	10,576,181	59.7%	0.3%	\$	13,029,806	60.9%	0.3%	\$	13,573,415	62.0%	0.4%	\$	-	-	-	\$	16,549,032	45.5%	0.5%	\$	12,501,610	54.0%	0.4%
Equity - Foreign	\$	1,208,240	6.8%	0.0%	\$	1,504,734	7.0%	0.0%	\$	1,574,109	7.2%	0.0%	\$	-	-	-	\$	2,917,226	8.0%	0.1%	\$	2,076,333	9.0%	0.1%
Real Estate	\$	-	0.0%	0.0%	\$	-	0.0%	0.0%	\$	-	0.0%	0.0%	\$	-	-	-	\$	114,468	0.3%	0.0%	\$	-	0.0%	0.0%
Security Benefit Total	\$	17,724,427		0.5%	\$	21,409,100		0.6%	\$	21,905,583		0.6%	\$	22,169,989		0.0%	\$	36,385,831		1.1%	\$	23,147,247		0.7%



The Kansas Board of Regents Mandatory Retirement Plan

TIAA Summary

Asset Class Coverage - TIAA

Domestic Equity			
	Value	Blend	Growth
Large	TIAA-CREF Large-Cap Value	CREF Equity Index CREF Stock TIAA-CREF S&P 500 Index	Amana Growth CREF Growth Wells Fargo Growth
Mid	TIAA-CREF Mid-Cap Value		TIAA-CREF Mid-Cap Growth
Small	Royce Opportunity	TIAA-CREF Small-Cap Blend Index	AB Small Cap Growth
International Equity			
	Value	Blend	Growth
Large		TIAA-CREF International Equity Index	American Funds EuroPacific Growth
Mid			
Small			
Emerging		DFA Emerging Markets	
Global			CREF Global Equities
Domestic Fixed Income			
	Short	Intermediate	Long
High	CREF Money Market TIAA Stable Value TIAA Traditional		CREF Inflation-Linked Bond
Medium		CREF Bond Market	
Low			
Other			
	Real Estate	Balanced	Foreign Bond
	TIAA Real Estate Account	CREF Social Choice TIAA-CREF Lifecycle Ret Income, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060	Amana Participation
	Other Sectors	Absolute Return	Self-Directed Brokerage

Gold = Passively Managed Index Funds

Navy = Actively Managed Funds

Plan Activity: TIAA-CREF

July 1, 2018 - December 31, 2018

Fund	Beginning Balance 7/1/2018	Contributions	Withdrawals	Exchanges	Inter Vendor Transfers	Fees	Investment Earnings	Plan Servicing Credit	Ending Balance 12/31/2018	Difference b/t Beg. and Ending Balances
TIAA Traditional	\$ 916,422,879	\$ 4,222,190	\$ (31,610,184)	\$ 10,643,104	\$ (600,044)	\$ (72,002)	\$ 19,507,953	\$ (23,509)	\$ 918,490,386	\$ 2,067,507
TIAA Stable Value	50,670,837	667,494	(1,687,211)	5,218,587	(457,818)	-	487,044	13,527	54,912,461	4,241,624
CREF Money Market R3	41,102,606	908,634	(2,929,205)	10,301,403	40,503	-	414,059	13,059	49,851,059	8,748,453
CREF Bond Market R3	103,583,368	1,409,506	(4,182,814)	2,756,437	(366,456)	-	1,547,950	26,972	104,774,963	1,191,595
Amana Participation Institutional	335,779	6,398	(24,801)	72,169	-	-	4,571	98	394,214	58,435
CREF Inflation-Linked Bond R3	48,941,061	751,007	(1,710,870)	3,087,395	(181,674)	-	(265,221)	13,056	50,634,755	1,693,694
TIAA-CREF Large-Cap Value Instl	66,504,414	962,095	(2,053,410)	(2,338,126)	(466,288)	-	(8,413,225)	15,638	54,211,098	(12,293,317)
CREF Stock R3	622,016,189	4,196,098	(18,779,312)	(17,190,134)	(506,085)	-	(62,420,512)	147,713	527,463,958	(94,552,232)
CREF Equity Index R3	90,992,853	1,005,690	(2,588,398)	(4,367,269)	5,499	-	(6,907,948)	21,616	78,162,042	(12,830,810)
TIAA-CREF S&P 500 Index Instl	121,814,051	2,647,085	(5,330,654)	3,324,427	(5,526)	-	(8,404,042)	30,773	114,076,114	(7,737,938)
Amana Growth Institutional	108,365	17,149	(3,807)	573,746	-	-	(128,179)	342	567,615	459,250
Wells Fargo Growth Inst	32,223,212	460,446	(451,387)	(836,853)	(77,002)	-	(3,584,023)	7,661	27,742,053	(4,481,159)
CREF Growth R3	138,904,418	1,358,253	(2,173,787)	(7,601,205)	(65,145)	-	(12,851,855)	31,806	117,602,484	(21,301,934)
TIAA-CREF Mid-Cap Value Instl	66,184,267	932,299	(2,102,187)	(7,739,940)	(81,693)	-	(8,415,528)	14,082	48,791,299	(17,392,967)
TIAA-CREF Mid-Cap Growth Instl	18,073,240	433,041	(1,251,384)	3,906,064	(142,161)	-	(3,076,969)	4,921	17,946,752	(126,488)
Royce Opportunity Instl	8,595,013	188,657	(126,356)	(163,713)	12,619	-	(1,975,902)	1,912	6,532,231	(2,062,783)
TIAA-CREF Small-Cap Blend Idx Inst	54,584,600	936,990	(1,950,299)	3,711,762	(21,382)	-	(10,028,500)	13,466	47,246,636	(7,337,964)
AB Small Cap Growth I	14,285,488	391,396	(427,857)	(1,157,087)	(22,404)	-	(2,008,107)	3,096	11,064,526	(3,220,962)
CREF Global Equities R3	91,315,408	1,153,570	(1,809,090)	1,981,755	(128,232)	-	(10,956,280)	22,141	81,579,271	(9,736,137)
TIAA-CREF International Eq Idx Instl	55,175,667	1,034,097	(1,912,141)	3,225,021	(65,916)	-	(6,209,370)	13,525	51,260,883	(3,914,785)
American Funds Europacific Growth R6	63,140,024	1,027,396	(1,663,200)	(1,364,268)	266,083	-	(8,372,512)	14,425	53,047,949	(10,092,075)
DFA Emerging Markets I	27,371,132	575,454	(651,779)	1,357,762	48,324	-	(1,833,018)	6,802	26,874,676	(496,456)
TIAA Real Estate Account	140,803,428	2,143,787	(4,276,645)	1,015,315	(464,461)	-	2,997,696	37,465	142,256,584	1,453,156
Cref Social Choice R3	85,124,075	973,520	(2,343,762)	(3,910,271)	(127,085)	-	(3,444,784)	20,363	76,292,055	(8,832,019)
TIAA-CREF Lifecycle Retire Income Instl	3,633,260	74,255	(121,080)	198,365	(55,532)	-	(143,088)	940	3,587,120	(46,141)
TIAA-CREF Lifecycle 2010 Institutional	8,681,176	163,415	(245,238)	(128,235)	9,102	-	(342,811)	9,765	8,147,174	(534,002)
TIAA-CREF Lifecycle 2015 Institutional	19,760,334	749,200	(403,281)	216,876	(70,040)	-	(937,943)	8,336	19,323,481	(436,853)
TIAA-CREF Lifecycle 2020 Institutional	26,966,967	1,271,814	(260,486)	(171,026)	-	-	(1,517,487)	7,916	26,297,697	(669,269)
TIAA-CREF Lifecycle 2025 Institutional	37,241,431	1,982,078	(337,198)	(1,810,145)	(15,569)	-	(2,418,672)	9,338	34,651,264	(2,590,167)
TIAA-CREF Lifecycle 2030 Institutional	45,171,832	2,284,393	(347,690)	(1,287,786)	(123,139)	-	(3,529,946)	11,308	42,178,971	(2,992,860)
TIAA-CREF Lifecycle 2035 Institutional	53,912,824	2,873,201	(427,195)	(237,407)	60,300	-	(4,950,084)	13,471	51,245,109	(2,667,715)
TIAA-CREF Lifecycle 2040 Institutional	79,932,732	4,364,791	(978,951)	(756,466)	(11,785)	-	(8,184,236)	19,599	74,385,685	(5,547,048)
TIAA-CREF Lifecycle 2045 Institutional	45,679,351	4,158,103	(458,764)	(473,850)	(131,453)	-	(5,260,796)	11,428	43,524,020	(2,155,331)
TIAA-CREF Lifecycle 2050 Institutional	31,241,586	3,707,445	(533,099)	(258,596)	-	-	(3,732,456)	7,947	30,432,827	(808,759)
TIAA-CREF Lifecycle 2055 Institutional	2,645,681	1,075,855	(57,463)	132,709	(589)	-	(392,887)	845	3,404,150	758,470
TIAA-CREF Lifecycle 2060 Institutional	924,203	188,310	(9,363)	82,100	-	-	(128,326)	270	1,057,194	132,991
Totals	\$ 3,214,063,752	\$ 51,295,112	\$ (96,220,347)	\$ 12,618	\$ (3,745,051)	\$ (72,002)	\$ (165,875,437)	\$ 552,110	\$ 3,000,010,755	\$ (214,052,997)

Performance: TIAA-CREF

July 1, 2018 - December 31, 2018

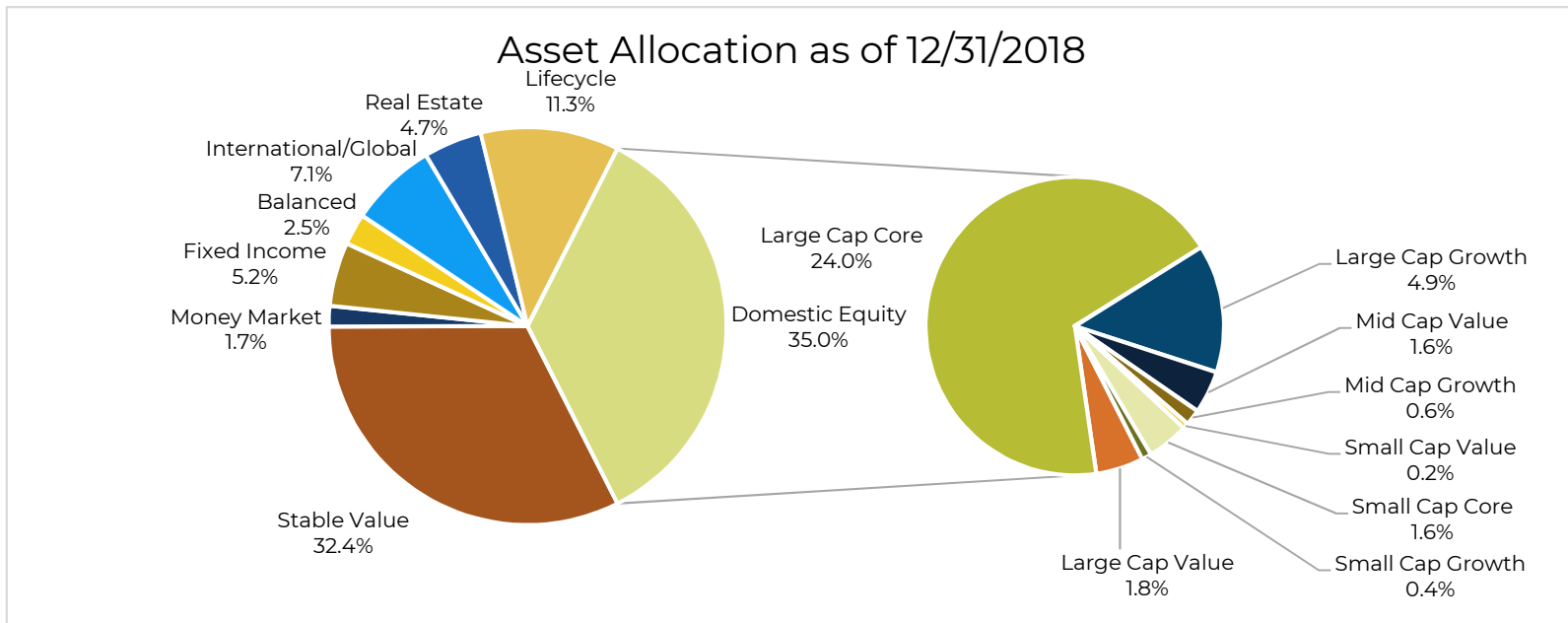
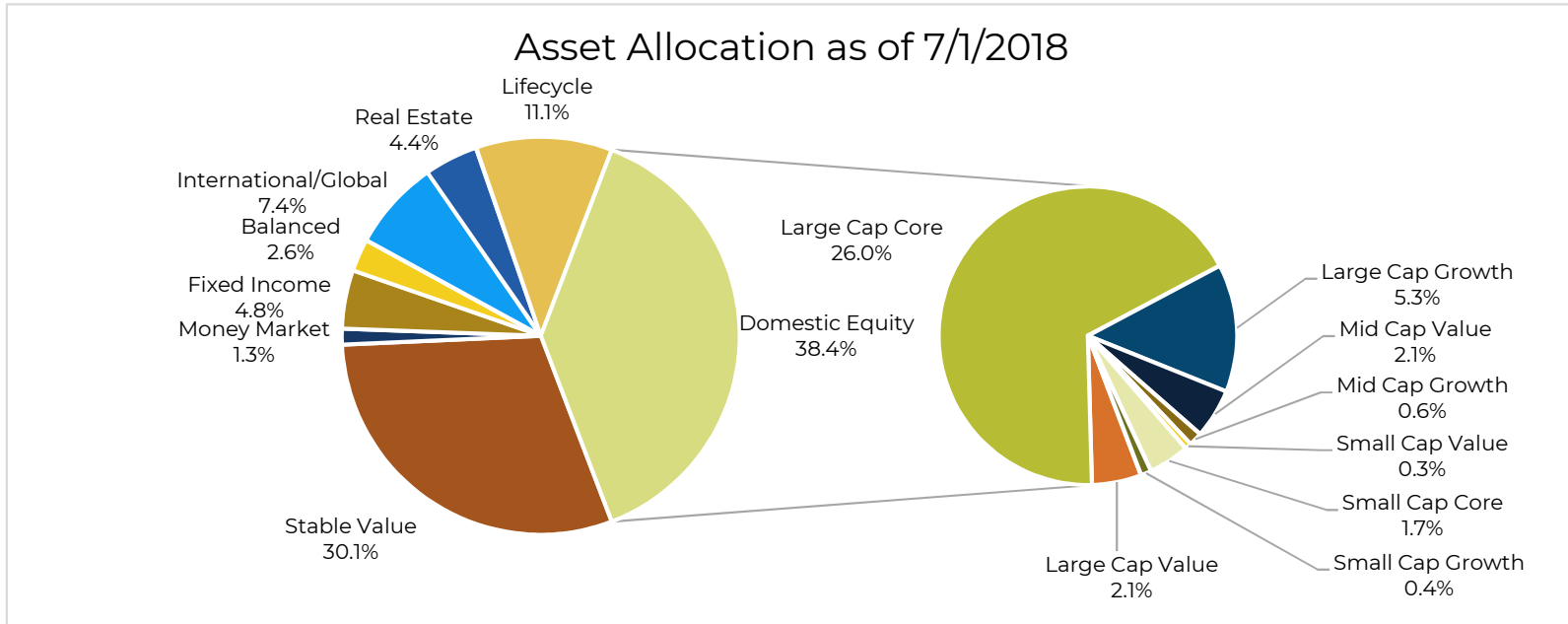
Fund	Beginning Balance: 7/1/2018	Ending Balance: 12/31/2018	Six Month Return
TIAA Traditional	\$ 916,422,879	\$ 918,490,386	1.93%
TIAA Stable Value	\$ 50,670,837	\$ 54,912,461	1.01%
CREF Money Market R3	\$ 41,102,606	\$ 49,851,059	0.95%
CREF Bond Market R3	\$ 103,583,368	\$ 104,774,963	1.50%
Amana Participation Institutional	\$ 335,779	\$ 394,214	1.04%
CREF Inflation-Linked Bond R3	\$ 48,941,061	\$ 50,634,755	-0.56%
TIAA-CREF Large-Cap Value Instl	\$ 66,504,414	\$ 54,211,098	-13.09%
CREF Stock R3	\$ 622,016,189	\$ 527,463,958	-10.49%
CREF Equity Index R3	\$ 90,992,853	\$ 78,162,042	-8.23%
TIAA-CREF S&P 500 Index Instl	\$ 121,814,051	\$ 114,076,114	-6.88%
Amana Growth Institutional	\$ 108,365	\$ 567,615	-1.11%
Wells Fargo Growth Inst	\$ 32,223,212	\$ 27,742,053	-11.12%
CREF Growth R3	\$ 138,904,418	\$ 117,602,484	-9.80%
TIAA-CREF Mid-Cap Value Instl	\$ 66,184,267	\$ 48,791,299	-14.77%
TIAA-CREF Mid-Cap Growth Instl	\$ 18,073,240	\$ 17,946,752	-12.85%
Royce Opportunity Instl	\$ 8,595,013	\$ 6,532,231	-23.00%
TIAA-CREF Small-Cap Blend Idx Inst	\$ 54,584,600	\$ 47,246,636	-17.25%
AB Small Cap Growth I	\$ 14,285,488	\$ 11,064,526	-15.25%
CREF Global Equities R3	\$ 91,315,408	\$ 81,579,271	-11.74%
TIAA-CREF International Eq Idx Instl	\$ 55,175,667	\$ 51,260,883	-11.04%
American Funds Europacific Growth R6	\$ 63,140,024	\$ 53,047,949	-13.33%
DFA Emerging Markets I	\$ 27,371,132	\$ 26,874,676	-6.57%
TIAA Real Estate Account	\$ 140,803,428	\$ 142,256,584	2.14%
Cref Social Choice R3	\$ 85,124,075	\$ 76,292,055	-4.37%
TIAA-CREF Lifecycle Retire Income Instl	\$ 3,633,260	\$ 3,587,120	-3.88%
TIAA-CREF Lifecycle 2010 Institutional	\$ 8,681,176	\$ 8,147,174	-4.00%
TIAA-CREF Lifecycle 2015 Institutional	\$ 19,760,334	\$ 19,323,481	-4.60%
TIAA-CREF Lifecycle 2020 Institutional	\$ 26,966,967	\$ 26,297,697	-5.46%
TIAA-CREF Lifecycle 2025 Institutional	\$ 37,241,431	\$ 34,651,264	-6.58%
TIAA-CREF Lifecycle 2030 Institutional	\$ 45,171,832	\$ 42,178,971	-7.78%
TIAA-CREF Lifecycle 2035 Institutional	\$ 53,912,824	\$ 51,245,109	-8.88%
TIAA-CREF Lifecycle 2040 Institutional	\$ 79,932,732	\$ 74,385,685	-9.99%
TIAA-CREF Lifecycle 2045 Institutional	\$ 45,679,351	\$ 43,524,020	-10.86%
TIAA-CREF Lifecycle 2050 Institutional	\$ 31,241,586	\$ 30,432,827	-11.01%
TIAA-CREF Lifecycle 2055 Institutional	\$ 2,645,681	\$ 3,404,150	-11.16%
TIAA-CREF Lifecycle 2060 Institutional	\$ 924,203	\$ 1,057,194	-11.41%
Totals/Weighted Average Return	\$ 3,214,063,752	\$ 3,000,010,755	-4.85%
Weighted Average Variable Funds Return			-8.08%
Weighted Average Fixed Income Return			1.88%

Fee Analysis: TIAA-CREF

July 1, 2018 - December 31, 2018

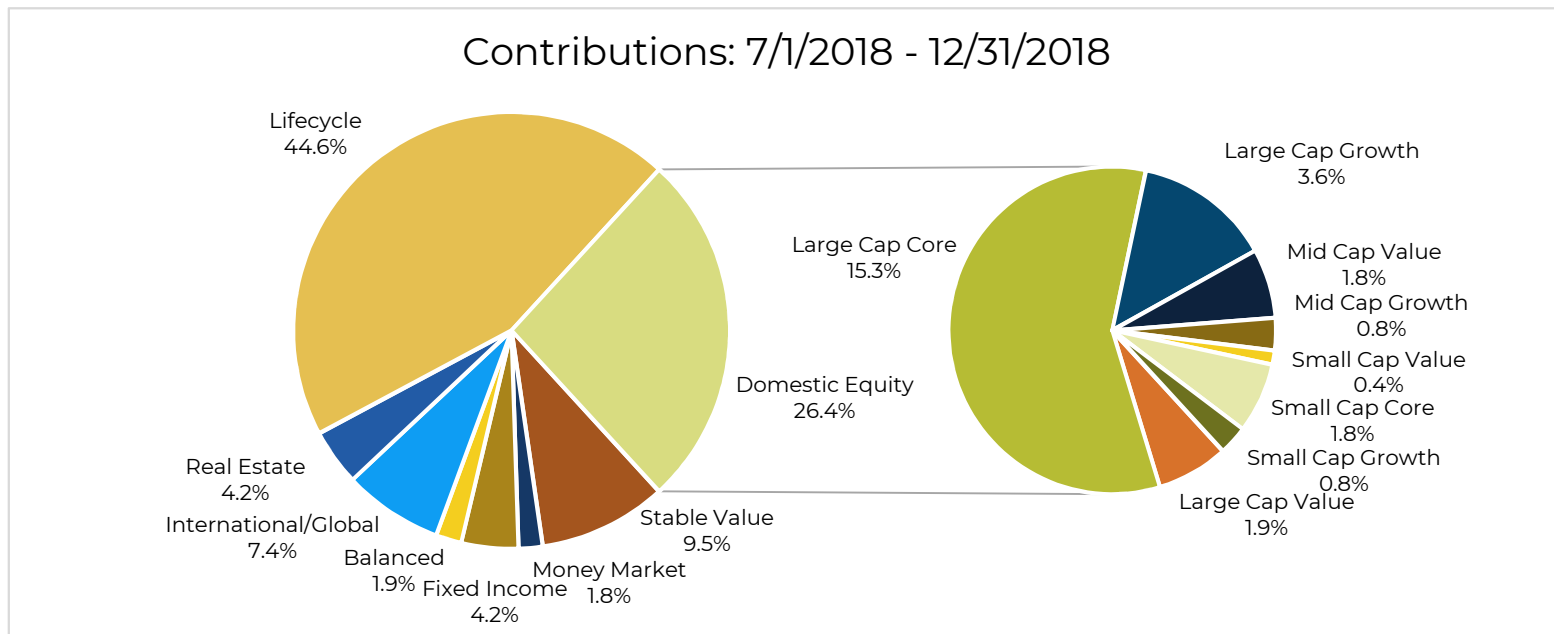
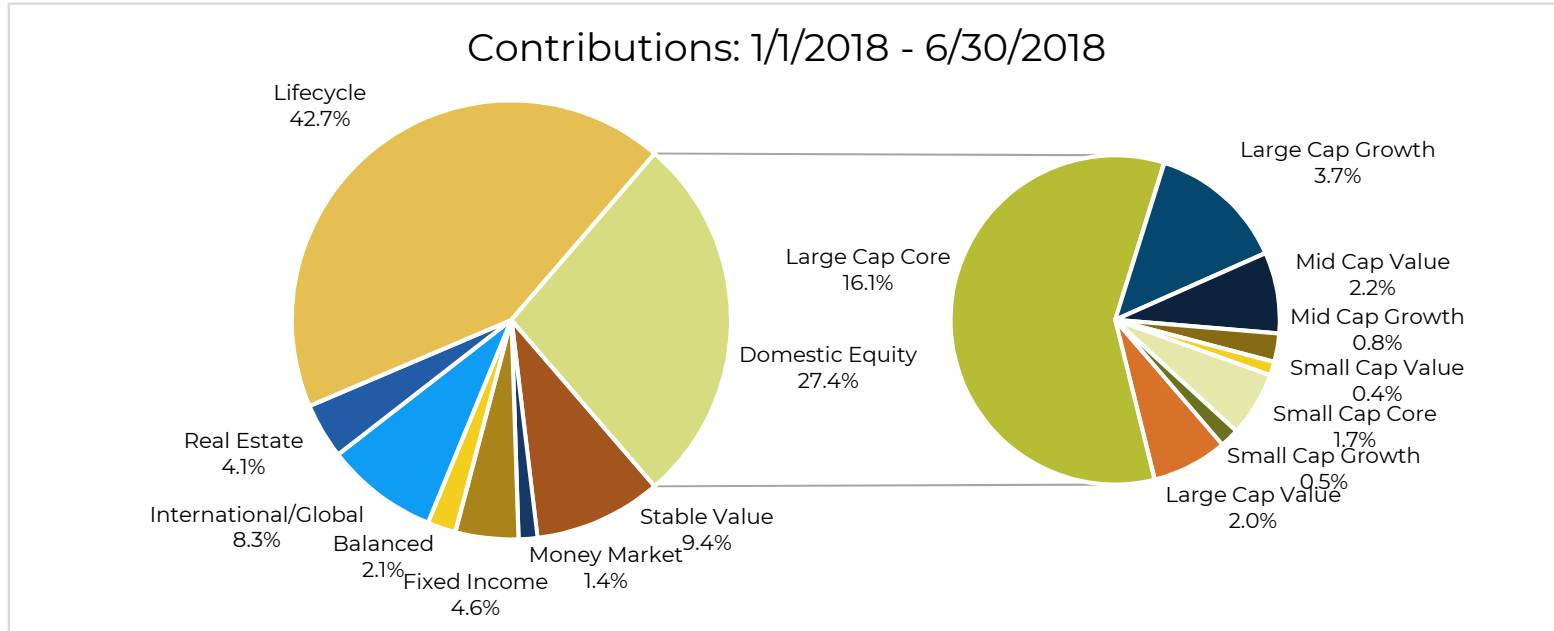
Fund	Ticker	Percent of Balance	Expense Ratio
TIAA Traditional	-	30.6%	0.47%
TIAA Stable Value	-	1.8%	0.50%
CREF Money Market R3	QCMMIX	1.7%	0.40%
CREF Bond Market R3	QCBMIX	3.5%	0.28%
Amana Participation Institutional	AMIPX	0.0%	0.60%
CREF Inflation-Linked Bond R3	QCILIX	1.7%	0.22%
TIAA-CREF Large-Cap Value Instl	TRLIX	1.8%	0.40%
CREF Stock R3	QCSTIX	17.6%	0.30%
CREF Equity Index R3	QCEQIX	2.6%	0.21%
TIAA-CREF S&P 500 Index Instl	TISPX	3.8%	0.05%
Amana Growth Institutional	AMIGX	0.0%	0.86%
Wells Fargo Growth Inst	SGRNX	0.9%	0.75%
CREF Growth R3	QCGRIX	3.9%	0.24%
TIAA-CREF Mid-Cap Value Instl	TIMVX	1.6%	0.39%
TIAA-CREF Mid-Cap Growth Instl	TRPWX	0.6%	0.47%
Royce Opportunity Instl	ROFIX	0.2%	1.08%
TIAA-CREF Small-Cap Blend Idx Inst	TISBX	1.6%	0.06%
AB Small Cap Growth I	QUAIX	0.4%	0.89%
CREF Global Equities R3	QCGLIX	2.7%	0.30%
TIAA-CREF International Eq Idx Instl	TCIEX	1.7%	0.06%
American Funds Europacific Growth R6	RERGX	1.8%	0.49%
DFA Emerging Markets I	DFEMX	0.9%	0.47%
TIAA Real Estate Account	QREARX	4.7%	0.83%
Cref Social Choice R3	QCSCIX	2.5%	0.24%
TIAA-CREF Lifecycle Retire Income Instl	TLRIX	0.1%	0.37%
TIAA-CREF Lifecycle 2010 Institutional	TCTIX	0.3%	0.37%
TIAA-CREF Lifecycle 2015 Institutional	TCNIX	0.6%	0.38%
TIAA-CREF Lifecycle 2020 Institutional	TCWIX	0.9%	0.39%
TIAA-CREF Lifecycle 2025 Institutional	TCYIX	1.2%	0.41%
TIAA-CREF Lifecycle 2030 Institutional	TCRIX	1.4%	0.42%
TIAA-CREF Lifecycle 2035 Institutional	TCIIX	1.7%	0.43%
TIAA-CREF Lifecycle 2040 Institutional	TCOIX	2.5%	0.44%
TIAA-CREF Lifecycle 2045 Institutional	TTFIX	1.5%	0.45%
TIAA-CREF Lifecycle 2050 Institutional	TFTIX	1.0%	0.45%
TIAA-CREF Lifecycle 2055 Institutional	TTRIX	0.1%	0.45%
TIAA-CREF Lifecycle 2060 Institutional	TLXNX	0.0%	0.45%
Totals/Weighted Average Expense Ratio			0.39%
Weighted Average Expense Ratio ex- Stable Value			0.35%

Asset Allocation: TIAA-CREF



*Note: CREF Stock is included in the large cap core allocation, but this strategy has the ability to invest in both domestic and international stocks.

Contributions: TIAA-CREF



*Note: CREF Stock is included in the large cap core allocation, but this strategy has the ability to invest in both domestic and international stocks.

Number of Participants: TIAA-CREF

July 1, 2018 - December 31, 2018

Fund	Number of Participants
TIAA Traditional	10,949
TIAA Stable Value	1,769
CREF Money Market R3	1,597
CREF Bond Market R3	3,830
Amana Participation Instl	17
CREF Inflation-Linked Bond R3	2,863
TIAA-CREF Lg Cap Val Inst	2,568
CREF Equity Index R3	1,929
TIAA-CREF S&P 500 Index Instl	3,090
Amana Growth Institutional	59
Wells Fargo Advantage Growth	815
CREF Growth R3	3,204
TIAA-CREF Mid Cap Val Inst	2,703
TIAA-CREF Mid Cap Gr Inst	1,122
Royce Opportunity Fd	579
TIAA-CREF Sm Cap Bl Idx Inst	2,950
AB Small Cap Growth R6	921
CREF Stock R3	7,307
CREF Global Equities R3	3,468
TIAA-CREF International Eq Idx Inst	2,638
American Funds Europacific Growth R6	2,733
DFA Emerging Markets I	2,201
TIAA Real Estate	6,106
Cref Social Choice R3	1,962
TIAA-Cref Lifecycle Retirement Inc Inst	84
TIAA-Cref Lifecycle 2010 Inst	833
TIAA-Cref Lifecycle 2015 Inst	653
TIAA-Cref Lifecycle 2020 Inst	722
TIAA-Cref Lifecycle 2025 Inst	786
TIAA-Cref Lifecycle 2030 Inst	912
TIAA-Cref Lifecycle 2035 Inst	1,200
TIAA-Cref Lifecycle 2040 Inst	1,940
TIAA-Cref Lifecycle 2045 Inst	1,810
TIAA-Cref Lifecycle 2050 Inst	1,945
TIAA-Cref Lifecycle 2055 Inst	539
TIAA-Cref Lifecycle 2060 Inst	141

Total Unique Participants

24,204

Fiduciary Scorecard

Fund	Near-Term Performance	Long-Term Performance	Management	Operations	Style	Watch List Status Date
CREF Money Market R3	●	●	●	●	●	
TIAA Stable Value	●	●	●	●	●	
TIAA Traditional Benefit Responsive	●	●	●	●	●	
TIAA Traditional Non Benefit Responsive	●	●	●	●	●	
CREF Inflation-Linked Bond R3	●	●	●	●	●	
CREF Bond Market R3	●	●	●	●	●	
Amana Participation Institutional	●	●	●	●	●	
TIAA-CREF Large-Cap Value Instl	●	●	●	●	●	Dec-31-2018
CREF Equity Index R3	●	●	●	●	●	
TIAA-CREF S&P 500 Index Instl	●	●	●	●	●	
Amana Growth Institutional	●	●	●	●	●	
CREF Growth R3	●	●	●	●	●	
Wells Fargo Growth Inst	●	●	●	●	●	
TIAA-CREF Mid-Cap Value Instl	●	●	●	●	●	Dec-31-2018
TIAA-CREF Mid-Cap Growth Instl	●	●	●	●	●	
Royce Opportunity Instl	●	●	●	●	●	
TIAA-CREF Small-Cap Blend Idx Inst	●	●	●	●	●	
AB Small Cap Growth I	●	●	●	●	●	
CREF Global Equities R3	●	●	●	●	●	
TIAA-CREF International Eq Idx Instl	●	●	●	●	●	
American Funds Europacific Growth R6	●	●	●	●	●	
DFA Emerging Markets I	●	●	●	●	●	
TIAA Real Estate Account	●	●	●	●	●	
CREF Social Choice R3	●	●	●	●	●	
CREF Stock R3	●	●	●	●	●	
TIAA-CREF Lifecycle Retire Income Instl	●	●	●	●	●	
TIAA-CREF Lifecycle 2010 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2015 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2020 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2025 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2030 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2035 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2040 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2045 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2050 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2055 Institutional	●	●	●	●	●	
TIAA-CREF Lifecycle 2060 Institutional	●	●	●	●	●	

Fund Notes

Fund	Notes	Recommendation
Amana Participation Institutional	After adjusting for performance, total assets in the strategy have increased by 61% over the trailing twelve months. Assets in the strategy across all share classes are \$65.6 million. 2Q18	No Action
TIAA-CREF Large-Cap Value Instl	<p>This fund trailed its peer group median and the Russell 1000 Value index in four of the trailing five years, including bottom-decile performance in 2018. The fund ranks below peer group median for long-term performance. The management team looks for companies that are undervalued compared to their historical norms that have potential catalysts to bring their stocks to normal levels within the next 18-24 months. The focus on quality in this fund depends on the business cycle: management is willing to hold low-quality stocks in early stages of a bull market and will emphasize strong fundamentals at later periods in a cycle. If management does not predict downturns correctly, the strategy will tend to decline more than the benchmark during down markets then outperform in rebounds. Over the trailing five years, poor stock selection in industrials and stock selection and bad allocation timing in financials were the largest detractors from relative performance. 2018 underperformance was driven by stock selection in energy and financials.</p> <p>Athanasios Kolefas retired on November 19, 2018 and Charles Carr was added to the management team. Kolefas had comanaged the fund since 2004 alongside Richard Cutler, who remains on the strategy. Carr joined TIAA in 2014. This is his first named portfolio management experience, although he has nine years of experience as a buy-side equity analyst and eleven at value-oriented hedge funds. This change warrants continued monitoring. 4Q18</p>	Watch
Amana Growth Institutional	Monem Salam was re-added to the portfolio management team on July 31, 2018. Salam had co-managed the fund from January 2008 to September 2012. He left the team to head Saturna Capital's wholly owned Malaysian subsidiary, Saturna Sdn. Bhd. in Kuala Lumpur. Salam re-joins two other managers on the strategy. Lead PM Nicholas Kaiser has been with the strategy since its inception and was lead PM for all of Salam's tenure. Scott Klimo was added in 2012 after Salam's move. Because Salam has four years of experience on this strategy and the other two managers remain in place, this addition is not expected to change the strategy. 4Q18	No Action
TIAA-CREF Mid-Cap Value Instl	<p>TIAA-CREF Mid-Cap Value has underperformed its peer group and the Russell Mid Cap Value index in five of the past six calendar years, which is weighing on near-term and long-term performance. Poor stock selection drove underperformance over the trailing three years, especially in consumer discretionary and industrials. The management team looks for companies that are undervalued compared to their historical norms and have potential catalysts to bring their stocks to normal levels within the next two years. They focus on quality factors less than some large value peers. The team also tends to keep sector weightings relatively close to the benchmark, and management has failed to add significant value above benchmark during the past ten years. Despite being actively managed, the fund currently shows a correlation of 0.99 with the index over the trailing ten years.</p> <p>Athanasios Kolefas retired on November 19, 2018 and Charles Carr was added to the management team. Kolefas had comanaged the fund since 2004 alongside Richard Cutler, who remains on the strategy. Carr joined TIAA in 2014. This is his first named portfolio management experience, although he has nine years of experience as a buy-side equity analyst and eleven at value-oriented hedge funds. This change warrants continued monitoring. 4Q18</p>	Watch
Royce Opportunity Instl	<p>Lead manager Buzz Zaino stepped down from the portfolio management team on October 1, 2018 in preparation for his retirement, and Robert Kosowsky was added to the portfolio management team. Kosowsky joined Royce in 2015 and was an assistant PM on the Royce Low-Priced Stock and Micro-cap strategies from May 2018 to October 2018. Bill Hench, the fund's successor, has worked with Zaino since 2002 and has co-managed alongside him for the past five years. Zaino will stay on as a senior adviser for some time after he steps down from the fund. Despite the level of preparation, this manager change warrants continued attention due to Kosowsky's short track record as an assistant PM.</p> <p>The fund's assets decreased by 31% over the past year. The fund's assets are \$0.88 billion. 4Q18</p>	No Action
TIAA-CREF Lifecycle Retire Income Instl	On October 1, 2018 Steve Sedmak became a Senior Director on the Multi-Asset Investment Team at TIAA Investments, focusing on Lifecycle and other multi-asset strategies. He joins John Cuniff and Hans Erickson, who have been managing the Lifecycle Series since November of 2007. No other changes have been made to the management of the series. Sedmak joined TIAA in 2016 and has 17 years of industry experience. Prior to joining TIAA, he served as Head of Portfolio Implementation for the Multi-Asset Strategies group at Voya Investment Management. He also served as a Portfolio Manager on the Quantitative Equity team at Voya. Sedmark holds the CFA designation and is a member of the Chicago Quantitative Alliance. 4Q18	No Action
TIAA-CREF Lifecycle 2025 Institutional	The fund's assets increased by 33% over the past year. The fund's assets are \$2.3 billion. 4Q18	No Action

Fund Notes

Fund	Notes	Recommendation
TIAA-CREF Lifecycle 2060 Institutional	The fund's assets increased by 79% over the past year. The fund's assets are \$0.11 billion. 4Q18	No Action

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Money Market-Taxable																		
CREF Money Market R3	0.52	21	-0.04	1.46	56	-0.42	1.46	56	-0.42	0.69	45	-0.32	0.42	46	-0.21	0.22	50	-0.16
ICE BofAML US 3M Trsy Bill TR USD	0.56			1.87			1.87			1.02			0.63			0.37		
Morningstar Money Market - Taxable Avg	0.44			1.41			1.41			0.66			0.40			0.22		
Stable Value																		
TIAA Stable Value	0.47		-0.01	1.81		0.07	1.81		0.07	1.59		-0.07	1.63		0.08	-	-	-
Morningstar US SA Stable Value Avg	0.48			1.74			1.74			1.66			1.55			1.92		
Inflation-Protected Bond																		
CREF Inflation-Linked Bond R3	-0.13	12	-0.08	-0.49	22	-0.24	-0.49	22	-0.24	1.85	49	-0.02	1.42	30	0.23	3.15	51	0.10
BBgBarc US Trsy Infl Note 1-10Y TR USD	-0.05			-0.25			-0.25			1.87			1.20			3.06		
Morningstar Inflation-Protected Bond Avg	-0.95			-1.64			-1.64			1.86			1.14			3.11		
Intermediate-Term Bond																		
CREF Bond Market R3	1.36	33	-0.27	-0.19	37	-0.20	-0.19	37	-0.20	2.45	33	0.39	2.66	26	0.14	3.69	70	0.22
BBgBarc US Agg Bond TR USD	1.64			0.01			0.01			2.06			2.52			3.48		
Morningstar Intermediate-Term Bond Avg	0.87			-0.50			-0.50			2.15			2.27			4.31		
Emerging Markets Bond																		
Amana Participation Institutional	0.48		-0.12	0.31		0.19	0.31		0.19	1.84		-1.12	-	-	-	-	-	-
DJ Sukuk TR USD	0.60			0.12			0.12			2.96			3.29			6.44		
Large Value																		
TIAA-CREF Large-Cap Value Instl	-16.30	92	-4.57	-14.10	94	-5.83	-14.10	94	-5.83	4.66	88	-2.30	3.59	88	-2.36	10.84	52	-0.34
Russell 1000 Value TR USD	-11.72			-8.27			-8.27			6.95			5.95			11.18		
Morningstar Large Value Avg	-12.47			-8.52			-8.52			6.85			5.38			10.91		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Large Blend																		
CREF Equity Index R3	-14.29	67	0.02	-5.37	46	-0.13	-5.37	46	-0.13	8.75	34	-0.22	7.66	36	-0.26	12.83	30	-0.35
Russell 3000 TR USD	-14.30			-5.24			-5.24			8.97			7.91			13.18		
Morningstar Large Blend Avg	-13.53			-6.27			-6.27			7.65			6.66			11.99		
TIAA-CREF S&P 500 Index Instl	-13.51	42	0.01	-4.45	28	-0.07	-4.45	28	-0.07	9.18	17	-0.07	8.43	11	-0.07	13.04	21	-0.08
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Blend Avg	-13.53			-6.27			-6.27			7.65			6.66			11.99		
Large Growth																		
Amana Growth Institutional	-12.29	8	1.23	2.67	11	7.05	2.67	11	7.05	12.71	5	3.45	10.30	17	1.81	12.89	68	-0.22
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Growth Avg	-15.42			-2.09			-2.09			8.94			8.12			13.71		
CREF Growth R3	-16.78	76	-0.89	-2.46	53	-0.95	-2.46	53	-0.95	9.79	39	-1.36	9.87	24	-0.53	14.81	29	-0.48
Russell 1000 Growth TR USD	-15.89			-1.51			-1.51			11.15			10.40			15.29		
Morningstar Large Growth Avg	-15.42			-2.09			-2.09			8.94			8.12			13.71		
Wells Fargo Growth Inst	-17.50	86	-1.17	0.55	22	2.67	0.55	22	2.67	10.56	26	-0.30	7.69	61	-2.30	16.55	9	1.40
Russell 3000 Growth TR USD	-16.33			-2.12			-2.12			10.85			9.99			15.15		
Morningstar Large Growth Avg	-15.42			-2.09			-2.09			8.94			8.12			13.71		
Mid-Cap Value																		
TIAA-CREF Mid-Cap Value Instl	-17.25	70	-2.30	-14.15	67	-1.86	-14.15	67	-1.86	3.85	77	-2.21	3.65	57	-1.79	11.66	56	-1.37
Russell Mid Cap Value TR USD	-14.95			-12.29			-12.29			6.06			5.44			13.03		
Morningstar Mid-Cap Value Avg	-15.70			-12.84			-12.84			5.42			3.88			11.66		
Mid-Cap Growth																		
TIAA-CREF Mid-Cap Growth Instl	-18.61	68	-2.62	-8.17	70	-3.42	-8.17	70	-3.42	5.72	74	-2.87	4.81	71	-2.60	13.83	34	-1.29
Russell Mid Cap Growth TR USD	-15.99			-4.75			-4.75			8.59			7.42			15.12		
Morningstar Mid-Cap Growth Avg	-17.57			-6.65			-6.65			7.25			5.60			13.16		
Small Value																		
Royce Opportunity Instl	-24.05	93	-5.39	-19.83	88	-6.96	-19.83	88	-6.96	8.33	9	0.95	1.84	60	-1.76	13.86	4	3.46
Russell 2000 Value TR USD	-18.67			-12.86			-12.86			7.37			3.61			10.40		
Morningstar Small Value Avg	-19.16			-15.46			-15.46			5.12			1.86			11.00		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Small Blend																		
TIAA-CREF Small-Cap Blend Idx Inst	-20.14	63	0.06	-10.84	32	0.18	-10.84	32	0.18	7.57	25	0.21	4.64	21	0.23	12.11	39	0.13
Russell 2000 TR USD	-20.20			-11.01			-11.01			7.36			4.41			11.97		
Morningstar Small Blend Avg	-19.37			-12.69			-12.69			5.90			3.20			11.60		
Small Growth																		
AB Small Cap Growth I	-22.34	76	-0.69	-0.67	20	8.64	-0.67	20	8.64	12.69	10	5.45	6.93	19	1.80	17.07	2	3.55
Russell 2000 Growth TR USD	-21.65			-9.31			-9.31			7.24			5.13			13.52		
Morningstar Small Growth Avg	-20.82			-5.76			-5.76			8.43			5.13			13.34		
World Large Stock																		
CREF Global Equities R3	-15.10	78	-1.69	-12.36	74	-3.65	-12.36	74	-3.65	4.76	67	-1.54	3.60	56	-0.96	9.49	49	-0.17
MSCI World NR USD	-13.42			-8.71			-8.71			6.30			4.56			9.67		
Morningstar World Large Stock Avg	-12.94			-9.64			-9.64			5.69			3.72			9.33		
Foreign Large Blend																		
TIAA-CREF International Eq Idx Instl	-12.29	40	0.25	-13.25	25	0.54	-13.25	25	0.54	3.24	38	0.37	0.69	29	0.15	6.30	34	-0.01
MSCI EAFE NR USD	-12.54			-13.79			-13.79			2.87			0.53			6.32		
Morningstar Foreign Large Blend Avg	-12.66			-14.58			-14.58			2.64			0.10			5.89		
Foreign Large Growth																		
American Funds Europacific Growth R6	-12.59	33	-1.13	-14.91	58	-0.71	-14.91	58	-0.71	4.08	33	-0.39	1.86	36	1.18	7.69	40	1.11
MSCI ACWI Ex USA NR USD	-11.46			-14.20			-14.20			4.48			0.68			6.57		
Morningstar Foreign Large Growth Avg	-13.87			-14.08			-14.08			3.21			1.38			7.40		
Diversified Emerging Mkts																		
DFA Emerging Markets I	-6.57	37	0.90	-13.62	26	0.95	-13.62	26	0.95	9.76	16	0.51	1.82	22	0.17	8.12	37	0.10
MSCI EM NR USD	-7.47			-14.58			-14.58			9.25			1.65			8.02		
Morningstar Diversified Emerging Mkts Avg	-7.46			-16.07			-16.07			6.99			0.53			7.58		
Real Estate																		
TIAA Real Estate Account	0.95		-0.81	4.79		-3.56	4.79		-3.56	4.79		-3.46	6.91		-3.50	4.56		-2.44
NCREIF ODCE	1.76			8.35			8.35			8.24			10.41			6.99		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Allocation--50% to 70% Equity																		
CREF Social Choice R3	-7.40	27	0.37	-4.29	29	0.27	-4.29	29	0.27	5.51	26	0.20	4.46	30	-0.09	8.43	44	0.15
40% BarCap 42% R3000 18% MSCI EAFE&Can	-7.77			-4.56			-4.56			5.31			4.55			8.28		
Morningstar Allocation--50% to 70% Equity Avg	-8.64			-5.76			-5.76			4.71			3.67			8.33		
Allocation--85%+ Equity																		
CREF Stock R3	-14.56	80	-1.13	-9.65	62	-1.72	-9.65	62	-1.72	6.78	13	-0.90	5.14	11	-0.62	10.83	10	-0.40
70% Russell 3000 / 30% MSCI ACWI ex US	-13.43			-7.93			-7.93			7.68			5.76			11.24		
Morningstar Allocation--85%+ Equity Avg	-13.65			-9.27			-9.27			5.57			3.90			10.12		
Target-Date Retirement																		
TIAA-CREF Lifecycle Retire Income Instl	-5.45	92	-0.68	-3.84	71	-0.90	-3.84	71	-0.90	4.56	6	0.24	3.67	1	-0.03	6.86	10	0.31
CREF Lifecycle Composite Income	-4.77			-2.94			-2.94			4.32			3.71			6.55		
Morningstar Target-Date Retirement Avg	-3.79			-3.16			-3.16			3.44			2.62			5.74		
Target-Date 2000-2010																		
TIAA-CREF Lifecycle 2010 Institutional	-5.62	96	-0.61	-3.92	82	-0.86	-3.92	82	-0.86	4.79	12	0.22	3.85	7	-0.05	7.56	29	0.37
CREF Lifecycle Composite 2010	-5.01			-3.05			-3.05			4.57			3.90			7.19		
Morningstar Target-Date 2000-2010 Avg	-4.30			-3.25			-3.25			4.11			3.22			6.96		
Target-Date 2015																		
TIAA-CREF Lifecycle 2015 Institutional	-6.47	91	-0.74	-4.41	74	-0.93	-4.41	74	-0.93	5.01	15	0.13	4.03	12	-0.09	8.08	22	0.34
CREF Lifecycle Composite 2015	-5.73			-3.48			-3.48			4.88			4.12			7.74		
Morningstar Target-Date 2015 Avg	-5.41			-3.86			-3.86			4.39			3.36			7.49		
Target-Date 2020																		
TIAA-CREF Lifecycle 2020 Institutional	-7.50	90	-0.91	-5.18	76	-1.21	-5.18	76	-1.21	5.34	16	0.02	4.24	11	-0.17	8.66	16	0.29
CREF Lifecycle Composite 2020	-6.60			-3.97			-3.97			5.32			4.41			8.37		
Morningstar Target-Date 2020 Avg	-6.14			-4.49			-4.49			4.54			3.41			7.73		
Target-Date 2025																		
TIAA-CREF Lifecycle 2025 Institutional	-8.89	90	-1.12	-6.05	77	-1.39	-6.05	77	-1.39	5.68	25	-0.10	4.43	15	-0.27	9.23	15	0.23
CREF Lifecycle Composite 2025	-7.77			-4.66			-4.66			5.78			4.71			9.00		
Morningstar Target-Date 2025 Avg	-7.47			-5.34			-5.34			5.05			3.71			8.55		

Performance Summary - Core Funds

	Quarter			Rtn	YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx		Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	
Target-Date 2030																			
TIAA-CREF Lifecycle 2030 Institutional	-10.28	92	-1.35	-7.09	77	-1.74	-7.09	77	-1.74	5.94	30	-0.30	4.56	20	-0.43	9.73	14	0.12	
CREF Lifecycle Composite 2030	-8.93			-5.35			-5.35			6.24			4.99			9.61			
Morningstar Target-Date 2030 Avg	-8.82			-6.25			-6.25			5.45			3.94			8.86			
Target-Date 2035																			
TIAA-CREF Lifecycle 2035 Institutional	-11.70	95	-1.61	-8.04	84	-2.01	-8.04	84	-2.01	6.19	34	-0.48	4.67	24	-0.56	10.17	13	0.00	
CREF Lifecycle Composite 2035	-10.10			-6.03			-6.03			6.67			5.23			10.17			
Morningstar Target-Date 2035 Avg	-10.13			-7.04			-7.04			5.83			4.14			9.44			
Target-Date 2040																			
TIAA-CREF Lifecycle 2040 Institutional	-13.04	99	-1.75	-8.92	86	-2.20	-8.92	86	-2.20	6.46	31	-0.63	4.79	25	-0.66	10.39	12	-0.06	
CREF Lifecycle Composite 2040	-11.29			-6.72			-6.72			7.09			5.45			10.44			
Morningstar Target-Date 2040 Avg	-11.01			-7.74			-7.74			5.96			4.23			9.48			
Target-Date 2045																			
TIAA-CREF Lifecycle 2045 Institutional	-14.08	99	-1.93	-9.59	91	-2.33	-9.59	91	-2.33	6.49	36	-0.74	4.81	28	-0.72	10.38	13	-0.11	
CREF Lifecycle Composite 2045	-12.14			-7.27			-7.27			7.23			5.53			10.49			
Morningstar Target-Date 2045 Avg	-11.71			-8.14			-8.14			6.13			4.30			9.78			
Target-Date 2050																			
TIAA-CREF Lifecycle 2050 Institutional	-14.27	99	-1.94	-9.82	89	-2.45	-9.82	89	-2.45	6.54	34	-0.79	4.85	29	-0.74	10.37	11	-0.14	
CREF Lifecycle Composite 2050	-12.33			-7.38			-7.38			7.33			5.59			10.52			
Morningstar Target-Date 2050 Avg	-11.91			-8.41			-8.41			6.11			4.33			9.60			
Target-Date 2055																			
TIAA-CREF Lifecycle 2055 Institutional	-14.43	99	-1.92	-9.86	89	-2.38	-9.86	89	-2.38	6.63	34	-0.80	4.89	29	-0.76	-	-	-	
CREF Lifecycle Composite 2055	-12.51			-7.48			-7.48			7.43			5.65			-			
Morningstar Target-Date 2055 Avg	-12.12			-8.44			-8.44			6.21			4.42			10.41			
Target-Date 2060+																			
TIAA-CREF Lifecycle 2060 Institutional	-14.69	99	-1.99	-10.06	88	-2.47	-10.06	88	-2.47	6.64	42	-0.89	-	-	-	-	-	-	
CREF Lifecycle Composite 2060	-12.70			-7.59			-7.59			7.53			-			-			
Morningstar Target-Date 2060+ Avg	-12.27			-8.52			-8.52			6.31			4.16			-			

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Money Market-Taxable																					
CREF Money Market R3	1.46		-0.42	0.50		-0.36	0.13		-0.20	0.00		-0.05	0.00		-0.03	0.00		-0.07	0.00		-0.11
ICE BofAML US 3M Trsy Bill TR USD	1.87			0.86			0.33			0.05			0.03			0.07					0.11
Inflation-Protected Bond																					
CREF Inflation-Linked Bond R3	-0.49	22	-0.24	1.85	73	-0.04	4.23	55	0.22	-1.68	43	-1.16	3.32	30	2.41	-9.02	71	-3.44	6.40	56	1.37
BBgBarc US Trsy Infl Note 1-10Y TR USD	-0.25			1.90			4.01			-0.52			0.91			-5.58			5.04		
Morningstar Inflation-Protected Bond Avg	-1.64			2.80			4.64			-2.27			2.61			-7.50			6.30		
Intermediate-Term Bond																					
CREF Bond Market R3	-0.19	37	-0.20	4.12	37	0.58	3.47	38	0.82	0.51	30	-0.04	5.52	50	-0.45	-2.01	65	0.01	5.29	71	1.08
BBgBarc US Agg Bond TR USD	0.01			3.54			2.65			0.55			5.97			-2.02			4.21		
Morningstar Intermediate-Term Bond Avg	-0.50			3.77			3.27			-0.11			5.23			-1.37			6.67		
Emerging Markets Bond																					
Amana Participation Institutional	0.31		0.19	2.68		-1.79	2.56		-1.80	-	-	-	-	-	-	-	-	-	-	-	-
DJ Sukuk TR USD	0.12			4.47			4.35			1.24			6.37			0.22			8.00		
Large Value																					
TIAA-CREF Large-Cap Value Instl	-14.10	94	-5.83	12.52	86	-1.14	18.60	19	1.26	-4.69	70	-0.86	9.16	79	-4.29	34.43	28	1.90	19.68	7	2.18
Russell 1000 Value TR USD	-8.27			13.66			17.34			-3.83			13.45			32.53			17.51		
Morningstar Large Value Avg	-8.52			16.02			15.32			-3.54			10.94			31.91			14.70		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Large Blend																					
CREF Equity Index R3	-5.37	46	-0.13	20.84	54	-0.29	12.49	27	-0.24	0.24	45	-0.24	12.17	52	-0.39	32.99	40	-0.56	15.98	39	-0.43
Russell 3000 TR USD	-5.24			21.13			12.74			0.48			12.56			33.55			16.42		
Morningstar Large Blend Avg	-6.27			20.48			10.90			-0.78			11.65			32.23			15.17		
TIAA-CREF S&P 500 Index Instl	-4.45	28	-0.07	21.77	30	-0.06	11.87	36	-0.09	1.35	21	-0.03	13.60	21	-0.08	32.24	51	-0.14	15.94	41	-0.07
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Blend Avg	-6.27			20.48			10.90			-0.78			11.65			32.23			15.17		
Large Growth																					
Amana Growth Institutional	2.67	11	7.05	29.29	40	7.46	7.85	18	-4.11	-0.21	85	-1.59	14.29	14	0.61	22.95	100	-9.44	11.21	91	-4.79
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Growth Avg	-2.09			27.76			3.55			3.75			10.50			34.59			15.53		
CREF Growth R3	-2.46	53	-0.95	31.83	23	1.62	2.92	57	-4.16	6.46	28	0.80	13.66	20	0.61	35.00	44	1.52	15.87	45	0.61
Russell 1000 Growth TR USD	-1.51			30.21			7.08			5.67			13.05			33.48			15.26		
Morningstar Large Growth Avg	-2.09			27.76			3.55			3.75			10.50			34.59			15.53		
Wells Fargo Growth Inst	0.55	22	2.67	35.14	10	5.55	-0.56	84	-7.95	2.94	59	-2.15	4.12	95	-8.32	33.72	57	-0.51	17.14	34	1.93
Russell 3000 Growth TR USD	-2.12			29.59			7.39			5.09			12.44			34.23			15.21		
Morningstar Large Growth Avg	-2.09			27.76			3.55			3.75			10.50			34.59			15.53		
Mid-Cap Value																					
TIAA-CREF Mid-Cap Value Instl	-14.15	67	-1.86	11.13	76	-2.22	17.40	63	-2.59	-5.35	52	-0.57	12.85	21	-1.90	32.55	76	-0.90	16.60	45	-1.90
Russell Mid Cap Value TR USD	-12.29			13.34			20.00			-4.78			14.75			33.46			18.51		
Morningstar Mid-Cap Value Avg	-12.84			13.54			18.93			-5.60			9.75			35.60			16.17		
Mid-Cap Growth																					
TIAA-CREF Mid-Cap Growth Instl	-8.17	70	-3.42	26.21	33	0.94	1.95	81	-5.38	-0.63	53	-0.43	7.74	45	-4.17	36.78	34	1.04	17.96	16	2.16
Russell Mid Cap Growth TR USD	-4.75			25.27			7.33			-0.20			11.90			35.74			15.81		
Morningstar Mid-Cap Growth Avg	-6.65			24.09			6.90			-0.66			7.19			35.64			14.71		
Small Value																					
Royce Opportunity Instl	-19.83	88	-6.96	22.02	1	14.18	29.94	30	-1.80	-13.46	86	-5.99	-0.41	85	-4.62	43.69	13	9.16	22.70	9	4.65
Russell 2000 Value TR USD	-12.86			7.84			31.74			-7.47			4.22			34.52			18.05		
Morningstar Small Value Avg	-15.46			8.66			27.16			-7.99			3.34			37.09			17.17		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Small Blend																					
TIAA-CREF Small-Cap Blend Idx Inst	-10.84	32	0.18	14.83	24	0.18	21.58	45	0.27	-4.14	44	0.27	5.15	44	0.26	38.98	44	0.16	16.61	39	0.26
Russell 2000 TR USD	-11.01			14.65			21.31			-4.41			4.89			38.82			16.35		
Morningstar Small Blend Avg	-12.69			12.68			21.30			-5.05			4.01			38.63			16.12		
Small Growth																					
AB Small Cap Growth I	-0.67	20	8.64	34.91	7	12.74	6.80	80	-4.52	-0.91	34	0.47	-1.41	86	-7.02	45.72	26	2.42	15.42	32	0.84
Russell 2000 Growth TR USD	-9.31			22.17			11.32			-1.38			5.60			43.30			14.59		
Morningstar Small Growth Avg	-5.76			21.51			12.15			-2.14			2.57			42.12			13.85		
World Large Stock																					
CREF Global Equities R3	-12.36	74	-3.65	24.81	36	2.41	5.11	59	-2.40	-0.34	40	0.53	4.17	39	-0.77	27.27	40	0.60	18.45	29	2.62
MSCI World NR USD	-8.71			22.40			7.51			-0.87			4.94			26.68			15.83		
Morningstar World Large Stock Avg	-9.64			23.89			5.90			-0.89			3.23			25.61			15.95		
Foreign Large Blend																					
TIAA-CREF International Eq Idx Instl	-13.25	25	0.54	25.32	50	0.29	1.22	51	0.22	-0.49	38	0.32	-5.51	53	-0.61	21.96	30	-0.82	19.09	29	1.78
MSCI EAFE NR USD	-13.79			25.03			1.00			-0.81			-4.90			22.78			17.32		
Morningstar Foreign Large Blend Avg	-14.58			25.23			1.51			-1.53			-4.95			19.80			18.00		
Foreign Large Growth																					
American Funds Europacific Growth R6	-14.91	58	-0.71	31.17	42	3.98	1.01	25	-3.48	-0.48	67	5.18	-2.29	32	1.57	20.58	50	5.29	19.64	44	2.81
MSCI ACWI Ex USA NR USD	-14.20			27.19			4.50			-5.66			-3.87			15.29			16.83		
Morningstar Foreign Large Growth Avg	-14.08			30.65			-1.56			1.17			-3.53			20.45			19.05		
Diversified Emerging Mkts																					
DFA Emerging Markets I	-13.62	26	0.95	36.57	41	-0.71	12.09	29	0.90	-15.81	68	-0.89	-1.71	44	0.48	-3.12	64	-0.52	19.16	53	0.93
MSCI EM NR USD	-14.58			37.28			11.19			-14.92			-2.19			-2.60			18.22		
Morningstar Diversified Emerging Mkts Avg	-16.07			34.33			9.04			-13.77			-2.43			0.14			19.24		
Real Estate																					
TIAA Real Estate Account	4.78		-3.57	4.36		-3.25	5.22		-3.55	8.16		-6.84	12.22		-0.28	9.65		-4.29	10.08		-0.86
NCREIF ODCE	8.35			7.62			8.76			15.01			12.49			13.94			10.94		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Allocation--50% to 70% Equity																					
CREF Social Choice R3	-4.29	29	0.27	14.27	41	-0.07	7.40	43	0.38	-0.87	41	-0.99	6.83	41	0.01	16.67	52	0.54	10.98	70	-0.66
40% BarCap 42% R3000 18% MSCI EAFE&Can	-4.56			14.34			7.02			0.12			6.82			16.13			11.64		
Morningstar Allocation--50% to 70% Equity Avg	-5.76			13.46			7.49			-2.02			6.31			16.88			11.73		
Allocation--85%+ Equity																					
CREF Stock R3	-9.65	62	-1.72	23.43	6	0.47	9.17	38	-1.11	-0.84	20	0.51	6.41	40	-1.01	27.83	37	-0.06	17.26	10	0.64
70% Russell 3000 / 30% MSCI ACWI ex US	-7.93			22.96			10.28			-1.35			7.42			27.89			16.63		
Morningstar Allocation--85%+ Equity Avg	-9.27			18.65			9.66			-2.84			5.89			26.87			15.39		
Target-Date Retirement																					
TIAA-CREF Lifecycle Retire Income Instl	-3.84	71	-0.90	12.10	4	1.55	6.04	18	0.23	0.25	1	0.43	4.53	42	-1.34	9.85	17	0.84	11.51	4	2.14
CREF Lifecycle Composite Income	-2.94			10.55			5.81			-0.18			5.86			9.01			9.37		
Morningstar Target-Date Retirement Avg	-3.16			8.71			5.20			-1.23			4.33			6.27			8.62		
Target-Date 2000-2010																					
TIAA-CREF Lifecycle 2010 Institutional	-3.92	82	-0.86	12.76	1	1.57	6.20	49	0.12	0.38	2	0.61	4.59	55	-1.54	12.00	23	0.70	12.67	3	2.31
CREF Lifecycle Composite 2010	-3.05			11.19			6.09			-0.23			6.13			11.29			10.37		
Morningstar Target-Date 2000-2010 Avg	-3.25			10.08			5.99			-0.84			4.76			10.46			10.20		
Target-Date 2015																					
TIAA-CREF Lifecycle 2015 Institutional	-4.41	74	-0.93	13.85	2	1.60	6.40	48	-0.07	0.42	1	0.70	4.78	56	-1.59	13.96	27	0.65	13.47	5	2.25
CREF Lifecycle Composite 2015	-3.48			12.25			6.47			-0.28			6.36			13.32			11.22		
Morningstar Target-Date 2015 Avg	-3.86			11.40			6.22			-1.07			4.93			12.11			11.40		
Target-Date 2020																					
TIAA-CREF Lifecycle 2020 Institutional	-5.18	76	-1.21	15.58	3	1.90	6.66	45	-0.35	0.42	3	0.81	4.86	60	-1.76	16.50	16	0.57	14.62	3	2.41
CREF Lifecycle Composite 2020	-3.97			13.68			7.01			-0.40			6.63			15.93			12.21		
Morningstar Target-Date 2020 Avg	-4.49			12.54			6.38			-1.24			5.11			12.54			11.82		
Target-Date 2025																					
TIAA-CREF Lifecycle 2025 Institutional	-6.05	77	-1.39	17.40	2	2.04	7.00	52	-0.61	0.36	1	0.89	4.87	66	-2.02	19.33	15	0.74	15.60	5	2.41
CREF Lifecycle Composite 2025	-4.66			15.36			7.61			-0.53			6.89			18.60			13.19		
Morningstar Target-Date 2025 Avg	-5.34			14.67			6.90			-1.39			5.30			15.73			13.07		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Target-Date 2030																					
TIAA-CREF Lifecycle 2030 Institutional	-7.09	77	-1.74	19.21	4	2.15	7.33	54	-0.87	0.38	2	1.05	4.71	75	-2.41	22.07	7	0.80	16.53	5	2.34
CREF Lifecycle Composite 2030	-5.35			17.07			8.21		-0.67				7.12		21.27				14.19		
Morningstar Target-Date 2030 Avg	-6.25			16.60			7.41		-1.51				5.45		17.44				13.76		
Target-Date 2035																					
TIAA-CREF Lifecycle 2035 Institutional	-8.04	84	-2.01	21.11	2	2.38	7.52	65	-1.26	0.24	2	1.10	4.67	76	-2.55	24.76	4	0.83	17.32	4	2.14
CREF Lifecycle Composite 2035	-6.03			18.73			8.79		-0.86				7.22		23.93				15.18		
Morningstar Target-Date 2035 Avg	-7.04			18.45			7.72		-1.66				5.43		20.25				14.72		
Target-Date 2040																					
TIAA-CREF Lifecycle 2040 Institutional	-8.92	86	-2.20	22.91	1	2.54	7.78	59	-1.59	0.09	5	1.16	4.63	77	-2.67	26.33	2	0.81	17.52	4	1.97
CREF Lifecycle Composite 2040	-6.72			20.37			9.37		-1.07				7.30		25.52				15.54		
Morningstar Target-Date 2040 Avg	-7.74			19.53			7.99		-1.69				5.64		20.87				14.90		
Target-Date 2045																					
TIAA-CREF Lifecycle 2045 Institutional	-9.59	91	-2.33	23.62	1	2.44	8.06	57	-1.65	0.13	4	1.20	4.61	76	-2.70	26.25	2	0.74	17.56	5	2.02
CREF Lifecycle Composite 2045	-7.27			21.18			9.72		-1.08				7.30		25.52				15.54		
Morningstar Target-Date 2045 Avg	-8.14			20.48			8.11		-1.74				5.52		22.27				15.40		
Target-Date 2050																					
TIAA-CREF Lifecycle 2050 Institutional	-9.82	89	-2.45	24.04	2	2.60	8.10	56	-1.81	0.18	4	1.26	4.59	76	-2.72	26.25	3	0.73	17.53	8	1.99
CREF Lifecycle Composite 2050	-7.38			21.44			9.91		-1.08				7.30		25.52				15.54		
Morningstar Target-Date 2050 Avg	-8.41			20.66			8.23		-1.72				5.71		21.89				15.28		
Target-Date 2055																					
TIAA-CREF Lifecycle 2055 Institutional	-9.86	89	-2.38	24.23	1	2.53	8.27	54	-1.84	0.13	4	1.20	4.58	77	-2.72	26.24	3	0.72	17.65	1	2.10
CREF Lifecycle Composite 2055	-7.48			21.70			10.11		-1.08				7.30		25.52				15.54		
Morningstar Target-Date 2055 Avg	-8.44			21.07			8.19		-1.72				5.66		23.05				15.60		
Target-Date 2060+																					
TIAA-CREF Lifecycle 2060 Institutional	-10.06	88	-2.47	24.40	1	2.44	8.39	45	-1.92	0.19	3	1.27	-	-	-	-	-	-	-	-	-
CREF Lifecycle Composite 2060	-7.59			21.97			10.31		-1.08				-		-				-		
Morningstar Target-Date 2060+ Avg	-8.52			21.26			8.05		-1.01				5.25		24.35				-		

Risk Summary

	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Money Market-Taxable															
CREF Money Market R3	0.86	0.79	0.78	-0.18	-0.08	-0.07	0.18	0.17	0.14						
Morningstar Money Market - Taxable Avg	0.82	0.75	0.73	-0.17	-0.07	-0.05	0.18	0.17	0.13						
Inflation-Protected Bond															
CREF Inflation-Linked Bond R3	1.03	1.17	1.20	-0.05	0.14	-0.39	2.44	3.32	4.72	101	115	116	102	113	128
Morningstar Inflation-Protected Bond Avg	1.13	1.13	1.16	-0.10	-0.11	-0.35	3.01	3.48	4.73	109	114	115	116	121	127
Intermediate-Term Bond															
CREF Bond Market R3	0.93	0.94	0.96	0.46	0.25	0.32	2.68	2.64	2.77	99	99	101	85	92	94
Morningstar Intermediate-Term Bond Avg	0.85	0.86	0.92	0.25	0.03	1.06	2.68	2.65	3.16	91	89	107	81	88	84
Large Value															
TIAA-CREF Large-Cap Value Instl	1.11	1.10	1.08	-2.71	-2.68	-0.97	12.47	12.17	15.83	100	99	104	120	117	109
Morningstar Large Value Avg	0.98	0.98	0.95	0.06	-0.40	0.31	11.41	11.25	14.34	97	95	95	96	98	94
Large Blend															
CREF Equity Index R3	1.00	1.00	1.00	-0.18	-0.22	-0.29	11.31	11.14	13.97	99	99	99	100	100	100
Morningstar Large Blend Avg	0.96	0.97	0.97	-1.00	-1.02	-0.76	11.35	11.28	14.01	92	94	95	98	101	99
TIAA-CREF S&P 500 Index Instl	1.00	1.00	1.00	-0.07	-0.06	-0.06	10.95	10.94	13.59	100	100	100	100	100	100
Morningstar Large Blend Avg	0.99	0.99	1.00	-1.50	-1.68	-1.01	11.35	11.28	14.01	93	93	97	103	104	103

Risk Summary

	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Large Growth															
Amana Growth Institutional	0.96	0.99	0.85	3.51	1.83	1.57	11.19	11.44	12.26	111	107	92	89	97	86
Morningstar Large Growth Avg	1.07	1.04	1.00	-0.60	-0.46	0.70	12.98	12.59	14.65	106	101	102	114	105	100
CREF Growth R3	1.04	1.04	1.03	-1.60	-0.82	-0.81	12.92	12.54	14.17	101	103	102	112	109	107
Morningstar Large Growth Avg	0.99	0.99	1.02	-1.84	-1.93	-1.61	12.98	12.59	14.65	93	93	98	105	106	107
Wells Fargo Growth Inst	1.11	1.08	1.05	-1.12	-2.63	0.73	14.63	13.94	15.44	102	100	108	107	118	107
Morningstar Large Growth Avg	0.98	0.98	1.01	-1.47	-1.48	-1.27	12.98	12.59	14.65	94	95	98	104	106	106
Mid-Cap Value															
TIAA-CREF Mid-Cap Value Instl	1.02	1.01	0.95	-2.16	-1.75	-0.65	12.51	11.71	15.07	90	93	94	103	104	97
Morningstar Mid-Cap Value Avg	1.01	1.02	0.99	-0.56	-1.52	-1.07	12.96	12.39	16.24	96	96	97	99	106	103
Mid-Cap Growth															
TIAA-CREF Mid-Cap Growth Instl	1.06	1.05	1.03	-3.01	-2.72	-1.44	13.99	13.40	15.96	94	97	100	111	114	108
Morningstar Mid-Cap Growth Avg	1.02	1.00	0.99	-1.24	-1.62	-1.44	14.13	13.48	15.90	95	95	96	102	106	105
Small Value															
Royce Opportunity Instl	1.09	1.08	1.17	0.58	-1.73	1.92	18.00	17.09	22.65	101	97	117	96	106	109
Morningstar Small Value Avg	0.95	0.94	0.96	-1.75	-1.45	1.07	16.09	15.26	18.76	88	88	97	96	95	92
Small Blend															
TIAA-CREF Small-Cap Blend Idx Instl	1.00	1.00	1.00	0.20	0.23	0.15	15.98	15.40	18.38	100	101	100	99	99	99
Morningstar Small Blend Avg	0.92	0.91	0.94	-0.91	-0.86	0.33	15.33	14.72	17.90	88	87	93	92	91	91
Small Growth															
AB Small Cap Growth I	1.04	1.03	1.00	4.94	1.74	3.24	17.92	17.64	19.25	113	104	104	89	97	91
Morningstar Small Growth Avg	0.93	0.92	0.92	1.52	0.37	0.85	16.40	15.84	17.87	96	92	93	89	90	90
World Large Stock															
CREF Global Equities R3	1.06	1.02	1.02	-1.74	-0.99	-0.34	11.28	11.13	14.82	101	100	102	115	107	104
Morningstar World Large Stock Avg	0.97	0.97	0.98	-0.38	-0.63	-0.06	11.06	11.25	14.85	95	94	98	98	99	98
Foreign Large Blend															
TIAA-CREF International Eq Idx Instl	0.95	0.96	1.01	0.43	0.14	-0.02	11.03	11.48	16.52	97	96	101	93	95	101
Morningstar Foreign Large Blend Avg	0.95	0.94	0.98	-0.11	-0.42	-0.21	11.36	11.63	16.36	92	91	96	93	94	97
Foreign Large Growth															
American Funds Europacific Growth R6	0.99	0.91	0.92	-0.30	1.18	1.49	11.90	11.36	15.43	97	92	95	99	84	88
Morningstar Foreign Large Growth Avg	0.95	0.92	0.93	-0.98	0.76	1.23	12.11	12.00	15.96	89	89	95	94	85	89

Risk Summary

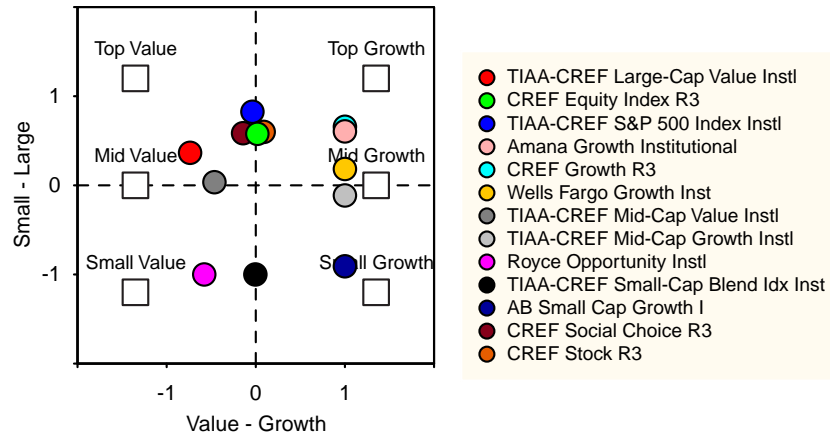
	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Diversified Emerging Mkts															
DFA Emerging Markets I	0.97	0.97	0.98	0.68	0.18	0.24	14.60	14.82	19.04	101	99	99	98	99	98
Morningstar Diversified Emerging Mkts Avg	0.89	0.89	0.96	-1.26	-0.97	-0.05	14.22	14.44	19.28	89	88	95	97	93	96
Allocation--50% to 70% Equity															
CREF Social Choice R3	0.98	0.99	0.98	0.25	-0.03	0.26	6.30	6.41	8.48	100	99	99	97	99	97
Morningstar Allocation--50% to 70% Equity Avg	1.07	1.06	1.06	-0.81	-1.05	-0.34	7.23	7.31	9.41	100	100	104	110	113	108
Allocation--85%+ Equity															
CREF Stock R3	1.02	1.01	1.01	-0.97	-0.63	-0.48	11.05	10.97	14.48	99	99	100	106	103	102
Morningstar Allocation--85%+ Equity Avg	0.95	0.94	0.94	-1.65	-1.47	-0.38	10.73	10.65	13.82	88	88	93	98	98	95
Target-Date Retirement															
TIAA-CREF Lifecycle Retire Income Instl	1.04	1.06	1.06	0.09	-0.22	-0.05	4.63	4.83	6.30	105	104	105	104	107	106
Morningstar Target-Date Retirement Avg	0.84	0.86	0.91	-0.35	-0.63	-0.20	3.85	4.01	5.63	83	82	89	87	92	91
Target-Date 2000-2010															
TIAA-CREF Lifecycle 2010 Institutional	1.04	1.06	1.06	0.08	-0.22	-0.03	4.90	5.21	7.49	104	104	106	104	108	107
Morningstar Target-Date 2000-2010 Avg	0.91	0.95	1.04	-0.15	-0.50	-0.43	4.41	4.73	7.40	90	91	100	91	98	104
Target-Date 2015															
TIAA-CREF Lifecycle 2015 Institutional	1.05	1.06	1.06	-0.04	-0.27	-0.06	5.48	5.75	8.45	104	103	105	105	106	106
Morningstar Target-Date 2015 Avg	0.96	0.98	1.04	-0.31	-0.67	-0.50	5.07	5.40	8.38	92	93	101	94	102	105
Target-Date 2020															
TIAA-CREF Lifecycle 2020 Institutional	1.04	1.05	1.05	-0.15	-0.32	-0.11	6.18	6.48	9.54	103	101	104	105	105	105
Morningstar Target-Date 2020 Avg	0.93	0.92	0.95	-0.44	-0.69	-0.20	5.59	5.80	8.78	89	88	93	93	95	94
Target-Date 2025															
TIAA-CREF Lifecycle 2025 Institutional	1.05	1.06	1.05	-0.31	-0.47	-0.21	7.11	7.42	10.72	104	102	105	109	108	107
Morningstar Target-Date 2025 Avg	0.97	0.97	1.01	-0.55	-0.82	-0.52	6.60	6.83	10.36	94	92	99	99	101	102
Target-Date 2030															
TIAA-CREF Lifecycle 2030 Institutional	1.06	1.06	1.05	-0.55	-0.63	-0.30	8.06	8.33	11.85	103	102	104	110	108	106
Morningstar Target-Date 2030 Avg	0.98	0.98	0.95	-0.64	-0.90	-0.30	7.55	7.77	10.96	95	93	94	101	102	96

Risk Summary

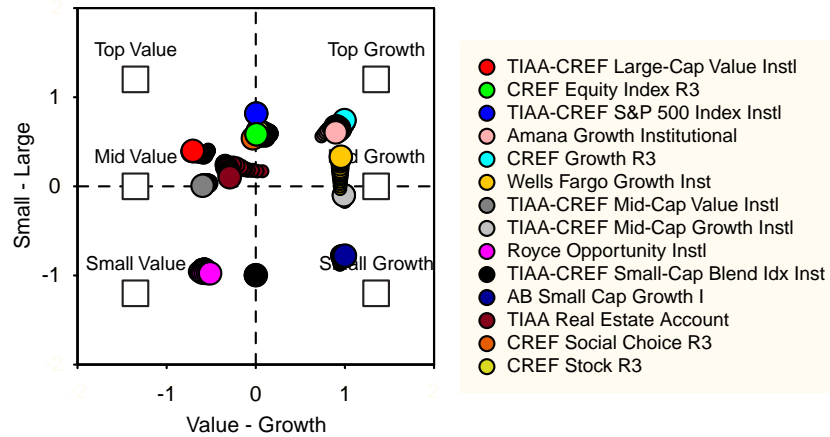
	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Target-Date 2035															
TIAA-CREF Lifecycle 2035 Institutional	1.06	1.05	1.05	-0.73	-0.74	-0.40	8.98	9.22	12.92	103	101	103	111	108	106
Morningstar Target-Date 2035 Avg	1.00	0.99	1.00	-0.77	-1.00	-0.64	8.49	8.70	12.34	96	94	97	103	103	101
Target-Date 2040															
TIAA-CREF Lifecycle 2040 Institutional	1.06	1.05	1.04	-0.88	-0.82	-0.44	9.91	10.08	13.31	103	101	103	113	108	106
Morningstar Target-Date 2040 Avg	0.96	0.95	0.96	-0.84	-0.93	-0.52	9.08	9.19	12.45	93	91	94	99	98	96
Target-Date 2045															
TIAA-CREF Lifecycle 2045 Institutional	1.06	1.05	1.05	-1.01	-0.89	-0.49	10.41	10.37	13.43	104	101	103	114	109	106
Morningstar Target-Date 2045 Avg	0.97	0.98	1.02	-0.88	-1.06	-0.82	9.58	9.66	13.14	94	93	99	100	101	103
Target-Date 2050															
TIAA-CREF Lifecycle 2050 Institutional	1.06	1.05	1.04	-1.06	-0.90	-0.51	10.52	10.43	13.43	103	101	103	113	108	106
Morningstar Target-Date 2050 Avg	0.96	0.97	1.00	-0.93	-1.05	-0.77	9.67	9.71	13.06	93	93	96	100	100	100
Target-Date 2055															
TIAA-CREF Lifecycle 2055 Institutional	1.06	1.05		-1.06	-0.93		10.65	10.52		103	101		113	109	
Morningstar Target-Date 2055 Avg	0.97	0.98	-	-0.99	-1.09	-	9.82	9.88	13.44	93	94	-	101	102	-
Target-Date 2060+															
TIAA-CREF Lifecycle 2060 Institutional	1.06			-1.15			10.79			103			113		
Morningstar Target-Date 2060+ Avg	0.96	-	-	-0.90	-	-	9.81	9.64	-	93	-	-	100	-	-

Equity Fund Style Analysis

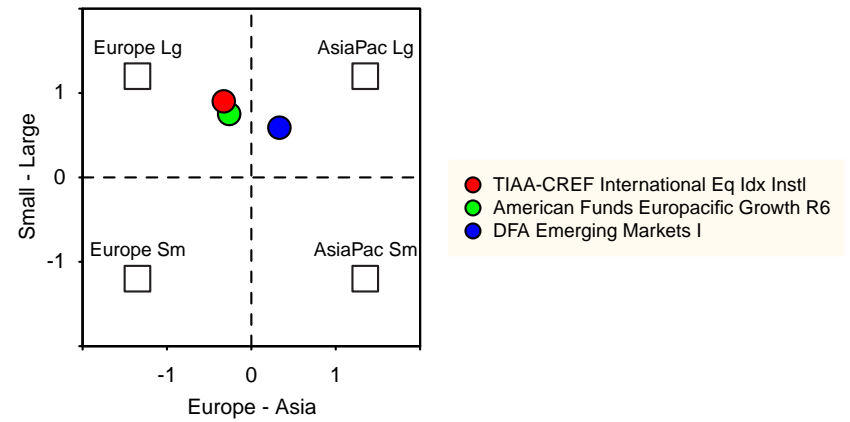
Equity - Single Computation
January 2009 - December 2018



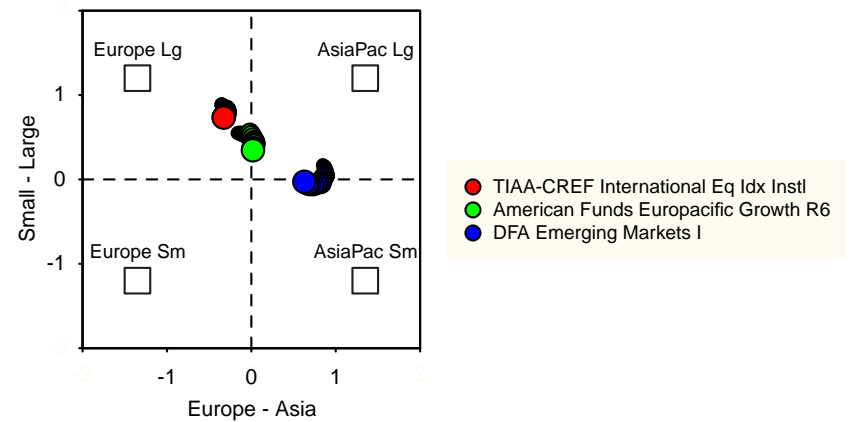
Equity - 12 Month Moving Windows
January 2009 - December 2018



International Equity - Single Computation
January 2009 - December 2018



International Equity - 12 Month Moving Windows
January 2009 - December 2018





The Kansas Board of Regents Mandatory Retirement Plan

Voya Summary

Asset Class Coverage - Voya

Domestic Equity			
	Value	Blend	Growth
Large	BlackRock Equity Dividend	American Fds Fundamental Inv. Parnassus Core Equity Vanguard Institutional Index	Amana Growth Voya Large Cap Growth
Mid	American Century Mid Cap Value	Vanguard Mid Cap Index	Champlain Mid Cap
Small	American Beacon Small Cap Value	Vanguard Small Cap Index	Voya SmallCap Opportunities
International Equity			
	Value	Blend	Growth
Large			American Fds EuroPacific Growth
Mid			
Small			
Emerging			Oppenheimer Dev Markets
Global			VY Oppenheimer Global
Domestic Fixed Income			
	Short	Intermediate	Long
High	Vanguard Treasury Money Market Voya Fixed Plus III		PIMCO Real Return
Medium		PIMCO Total Return	
Low			
Other			
	Real Estate	Balanced	Foreign Bond
	Vanguard Real Estate Index	VY T. Rowe Price Cap. App. Vanguard Target Retirement Income, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060	Amana Participation
	Other Sectors	Absolute Return	Self-Directed Brokerage

Gold = Passively Managed Index Funds

Navy = Actively Managed Funds

Plan Activity: Voya

July 1, 2018 - December 31, 2018

Fund	Beginning Balance 7/1/2018	Contributions	Withdrawals	Exchanges	Intra Vendor Transfers	Fees	Investment Earnings	Plan Servicing Credit	Ending Balance 12/31/2018	Difference Between Beginning and Ending Balances
Voya Fixed Plus Fund 4020	\$ 93,355,524	\$ 1,939,017	\$ (5,809,656)	\$ 2,997,998	\$1,575,571	\$ -	\$ 950,665	\$ -	\$ 95,009,118	\$ 1,653,594
Voya Government Money Market A	3,523,147	-	-	(3,523,891)	-	-	743	-	-	(3,523,147)
Vanguard Treasury Money Market Investor	-	92,060	(184,758)	3,711,585	-	-	35,499	-	3,654,386	3,654,386
Amana Participation Institutional	19,490	2,484	(1,554)	12,099	-	-	169	-	32,688	13,198
PIMCO Total Return Instl	15,913,178	392,945	(375,453)	(1,031,807)	24,677	-	220,850	-	15,144,390	(768,788)
PIMCO Real Return Instl	7,576,662	206,528	(296,909)	(223,069)	11,204	-	(127,634)	-	7,146,781	(429,880)
Blackrock Equity Dividend Instl	12,960,268	356,524	(408,441)	(375,580)	23,941	-	(844,392)	-	11,712,321	(1,247,948)
American Funds Fundamental Invs R6	62,805,628	1,179,119	(1,666,720)	(533,135)	198,305	-	(5,133,586)	-	56,849,611	(5,956,017)
SSGA S&P 500 Index N	13,322,937	2,444	(605)	(13,419,217)	-	-	94,442	-	-	(13,322,937)
Vanguard Institutional Index I	-	525,234	(239,323)	14,923,938	318,556	-	(1,234,125)	-	14,294,280	14,294,280
Parnassus Core Equity Institutional	15,509,108	514,496	(373,004)	(675,674)	37,671	-	(334,300)	-	14,678,298	(830,810)
Amana Growth Institutional	496,929	36,781	(20,868)	539,665	679	-	(49,269)	-	1,003,917	506,988
Voya Large Cap Growth Port I	67,885,923	1,663,642	(1,215,374)	(384,761)	405,787	-	(4,780,327)	-	63,574,889	(4,311,033)
American Century Mid Cap Value I	21,697,036	506,570	(196,395)	(779,571)	47,509	-	(2,606,950)	-	18,668,198	(3,028,838)
Vanguard Mid Cap Index Institutional	27,751,595	813,022	(421,018)	(1,138,473)	217,441	-	(3,148,515)	-	24,074,052	(3,677,543)
Champlain Mid Cap Institutional	8,720,531	331,532	(189,022)	1,696,437	139,941	-	(519,395)	-	10,180,023	1,459,493
American Beacon Small Cp Val Inst	1,865,614	59,879	(32,908)	(52,991)	4,600	-	(354,531)	-	1,489,663	(375,951)
Vanguard Small Cap Index I	30,500,468	943,842	(612,698)	752,765	174,344	-	(4,592,658)	-	27,166,062	(3,334,406)
Voya SmallCap Opportunities Port I	21,552,534	496,491	(328,489)	(651,135)	54,749	-	(4,384,884)	-	16,739,266	(4,813,268)
VY® Oppenheimer Global I	20,914,176	649,481	(473,014)	422,307	93,394	-	(3,186,474)	-	18,419,870	(2,494,307)
American Funds Europacific Growth R6	35,523,738	860,245	(1,028,433)	(1,119,318)	132,196	-	(4,628,699)	-	29,739,730	(5,784,009)
Oppenheimer Developing Markets I	12,080,395	502,414	(270,791)	(998,708)	62,069	-	(1,265,857)	-	10,109,523	(1,970,872)
Voya Real Estate I	19,003,372	-	(2,317)	(19,212,577)	-	-	211,523	-	-	(19,003,372)
Vanguard Real Estate Index Institutional	-	483,104	(429,841)	17,871,376	135,753	-	(1,346,491)	-	16,713,902	16,713,902
VY® T. Rowe Price Capital Apprec I	47,539,419	1,742,758	(1,386,664)	3,052,912	1,328,789	-	(1,057,884)	-	51,219,331	3,679,911
Vanguard Target Retirement Income Inv	20,084,526	412,982	(327,563)	(879,587)	226,642	-	(373,831)	-	19,143,169	(941,357)
Vanguard Target Retirement 2015 Inv	3,869,532	44,147	(134,275)	(400,762)	5,542	-	(111,115)	-	3,273,069	(596,463)
Vanguard Target Retirement 2020 Inv	2,647,796	56,570	(46,260)	(359,878)	-	-	(98,975)	-	2,199,254	(448,542)
Vanguard Target Retirement 2025 Inv	10,823,924	460,408	(203,712)	(540,581)	-	-	(539,772)	-	10,000,268	(823,657)
Vanguard Target Retirement 2030 Inv	2,613,208	143,287	(16,434)	(124,390)	-	-	(154,348)	-	2,461,322	(151,886)
Vanguard Target Retirement 2035 Inv	9,828,078	477,713	(100,910)	791,693	18,291	-	(741,642)	-	10,273,222	445,144
Vanguard Target Retirement 2040 Inv	3,273,129	264,471	(39,348)	210,484	-	-	(277,277)	-	3,431,458	158,330
Vanguard Target Retirement 2045 Inv	9,401,503	490,759	(193,407)	(546,219)	-	-	(749,389)	-	8,403,247	(998,256)
Vanguard Target Retirement 2050 Inv	3,195,643	404,268	(93,392)	(38,499)	-	-	(287,511)	-	3,180,509	(15,134)
Vanguard Target Retirement 2055 Inv	301,911	156,367	(7,237)	25,495	-	-	(38,099)	-	438,436	136,525
Vanguard Target Retirement 2060 Inv	215,465	159,547	-	707	279,665	-	(47,380)	-	608,005	392,540
Totals	\$606,772,387	\$ 17,371,131	\$ (17,126,792)	\$ (361)	\$5,517,312	\$ -	\$ (41,501,421)	\$ -	\$571,032,257	\$ (35,740,131)

Performance: Voya

July 1, 2018 - December 31, 2018

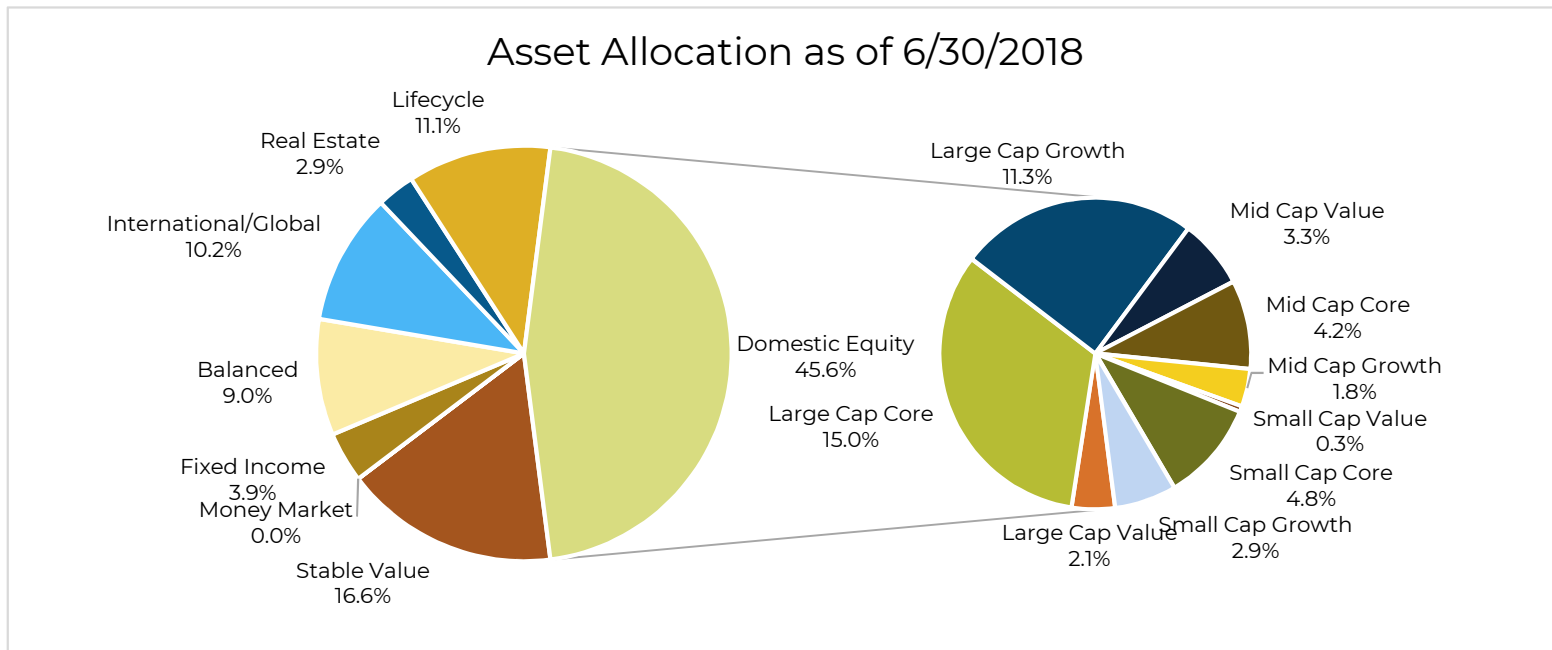
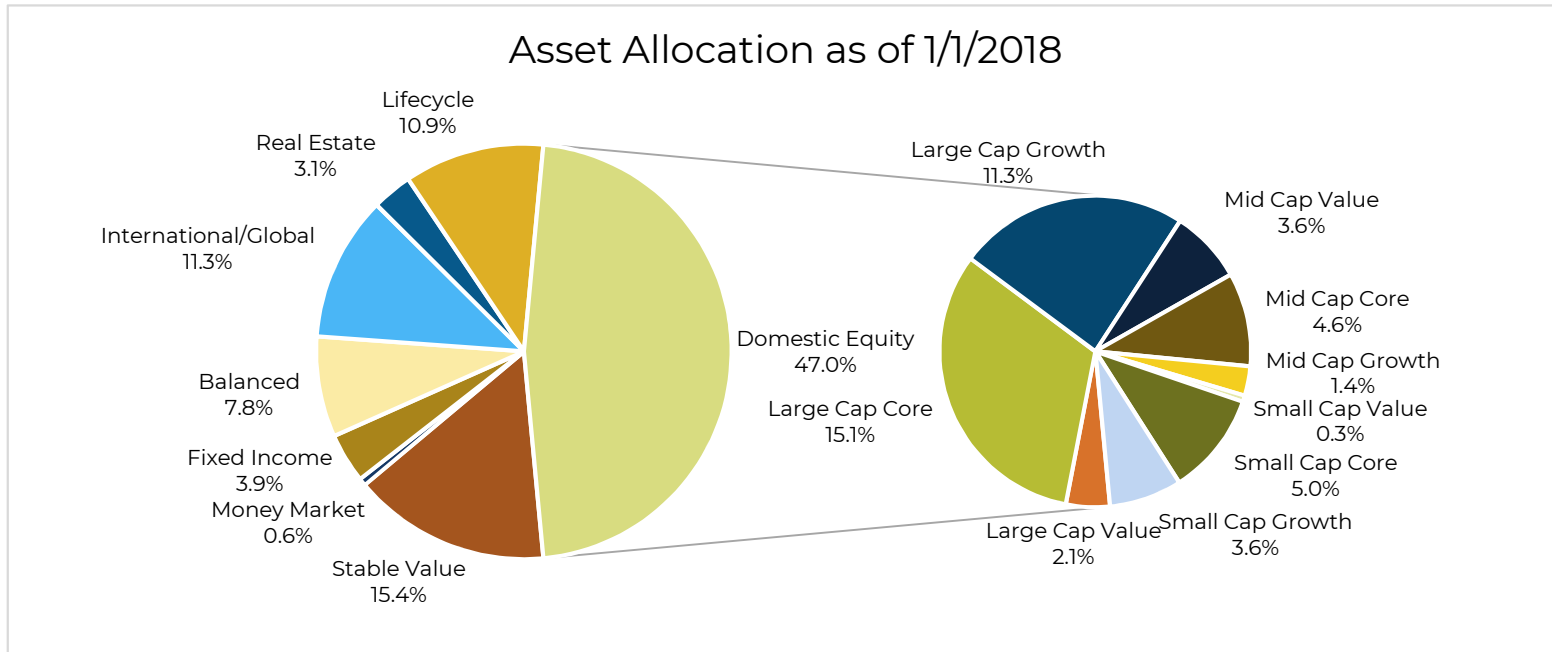
Fund	Beginning Balance: 7/1/2018	Ending Balance: 12/31/2018	Six Month Return
Voya Fixed Plus Fund 4020	\$ 93,355,524	\$ 95,009,118	0.88%
Vanguard Treasury Money Market Investor	\$ -	\$ 3,654,386	1.03%
Amana Participation Institutional	\$ 19,490	\$ 32,688	1.04%
PIMCO Total Return Instl	\$ 15,913,178	\$ 15,144,390	1.47%
PIMCO Real Return Instl	\$ 7,576,662	\$ 7,146,781	-1.72%
Blackrock Equity Dividend Instl	\$ 12,960,268	\$ 11,712,321	-6.80%
American Funds Fundamental Invs R6	\$ 62,805,628	\$ 56,849,611	-8.28%
Vanguard Institutional Index I	\$ -	\$ 14,294,280	-6.87%
Parnassus Core Equity Institutional	\$ 15,509,108	\$ 14,678,298	-2.39%
Amana Growth Institutional	\$ 496,929	\$ 1,003,917	-1.11%
Voya Large Cap Growth Port I	\$ 67,885,923	\$ 63,574,889	-6.94%
American Century Mid Cap Value I	\$ 21,697,036	\$ 18,668,198	-12.18%
Vanguard Mid Cap Index Institutional	\$ 27,751,595	\$ 24,074,052	-11.51%
Champlain Mid Cap Institutional	\$ 8,720,531	\$ 10,180,023	-4.33%
American Beacon Small Cp Val Inst	\$ 1,865,614	\$ 1,489,663	-19.14%
Vanguard Small Cap Index I	\$ 30,500,468	\$ 27,166,062	-14.44%
Voya SmallCap Opportunities Port I	\$ 21,552,534	\$ 16,739,266	-20.73%
VY® Oppenheimer Global I	\$ 20,914,176	\$ 18,419,870	-14.76%
American Funds Europacific Growth R6	\$ 35,523,738	\$ 29,739,730	-13.33%
Oppenheimer Developing Markets I	\$ 12,080,395	\$ 10,109,523	-10.82%
Vanguard Real Estate Index Institutional	\$ -	\$ 16,713,902	-5.94%
VY® T. Rowe Price Capital Apprec I	\$ 47,539,419	\$ 51,219,331	-1.85%
Vanguard Target Retirement Income Inv	\$ 20,084,526	\$ 19,143,169	-1.92%
Vanguard Target Retirement 2015 Inv	\$ 3,869,532	\$ 3,273,069	-2.97%
Vanguard Target Retirement 2020 Inv	\$ 2,647,796	\$ 2,199,254	-4.30%
Vanguard Target Retirement 2025 Inv	\$ 10,823,924	\$ 10,000,268	-5.20%
Vanguard Target Retirement 2030 Inv	\$ 2,613,208	\$ 2,461,322	-6.05%
Vanguard Target Retirement 2035 Inv	\$ 9,828,078	\$ 10,273,222	-6.80%
Vanguard Target Retirement 2040 Inv	\$ 3,273,129	\$ 3,431,458	-7.66%
Vanguard Target Retirement 2045 Inv	\$ 9,401,503	\$ 8,403,247	-8.22%
Vanguard Target Retirement 2050 Inv	\$ 3,195,643	\$ 3,180,509	-8.25%
Vanguard Target Retirement 2055 Inv	\$ 301,911	\$ 438,436	-8.24%
Vanguard Target Retirement 2060 Inv	\$ 215,465	\$ 608,005	-8.24%
Totals/Weighted Average Return	\$ 606,772,387	\$ 571,032,257	-6.38%
Weighted Average Variable Funds Return			-7.82%
Weighted Average Fixed Income Return			0.88%

Fee Analysis: Voya

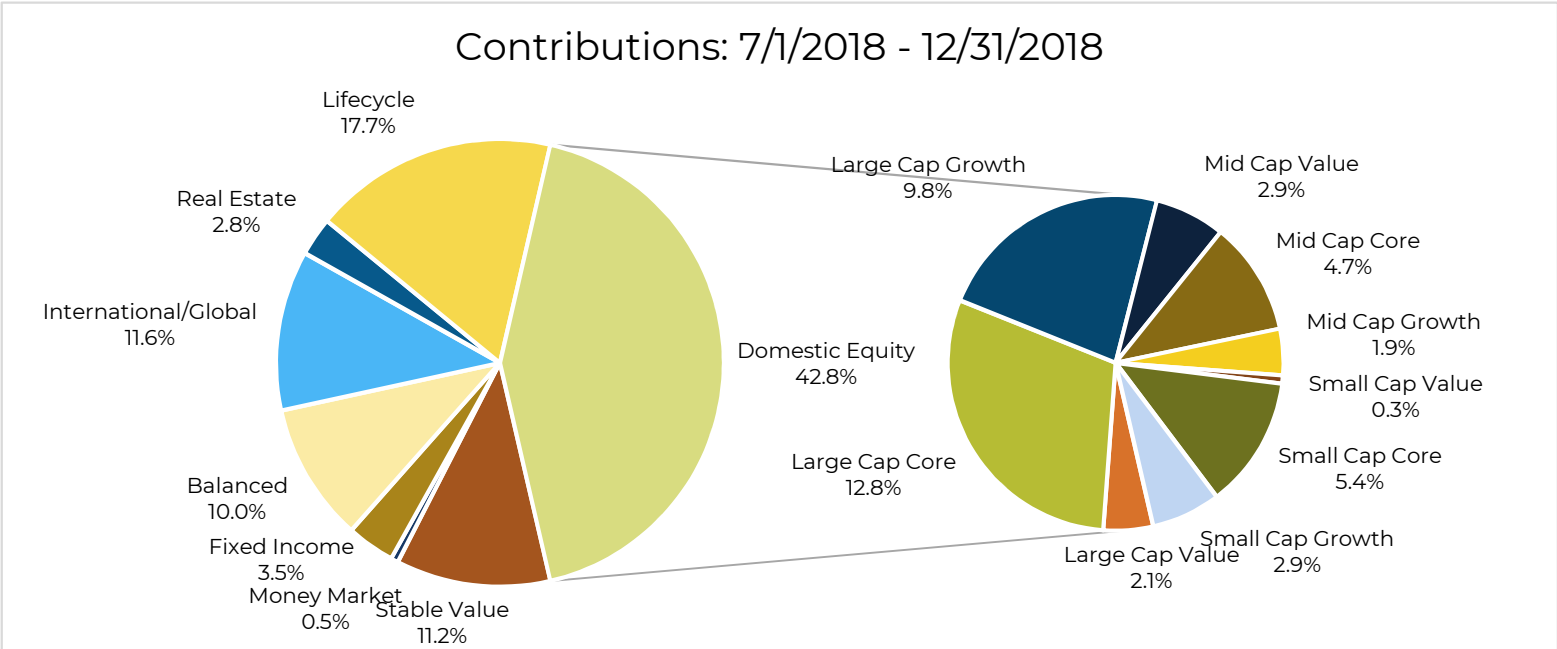
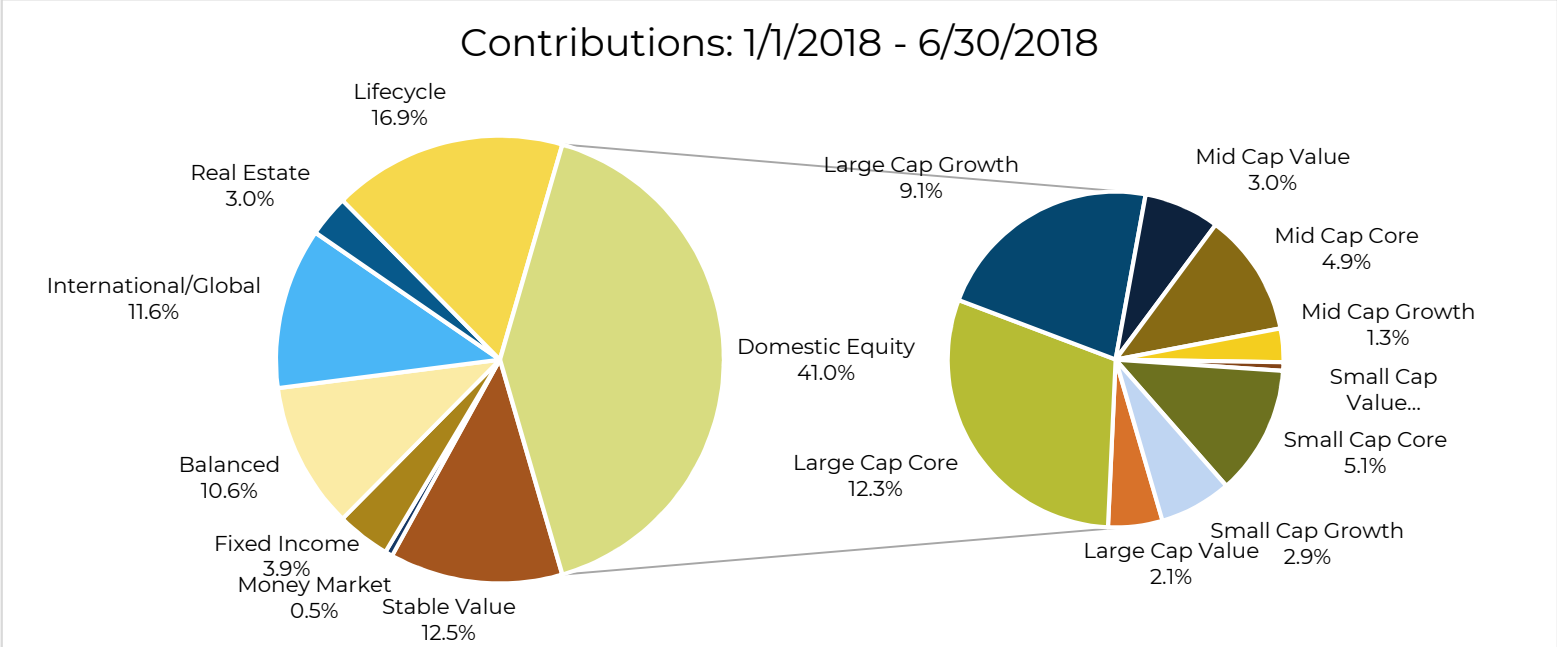
July 1, 2018 - December 31, 2018

Fund	Ticker	Percent of Balance	Expense Ratio
Voya Fixed Plus Fund 4020	-	16.6%	0.36%
Vanguard Treasury Money Market Investor	VUSXX	0.6%	0.09%
Amana Participation Institutional	AMIPX	0.0%	0.62%
PIMCO Total Return Instl	PTTRX	2.7%	0.55%
PIMCO Real Return Instl	PRRIX	1.3%	0.88%
Blackrock Equity Dividend Instl	MADVX	2.1%	0.73%
American Funds Fundamental Invs R6	RFNGX	10.0%	0.30%
Vanguard Institutional Index I	VINIX	2.5%	0.04%
Parnassus Core Equity Institutional	PRILX	2.6%	0.64%
Amana Growth Institutional	AMIGX	0.2%	0.85%
Voya Large Cap Growth Port I	IEOHX	11.1%	0.67%
American Century Mid Cap Value I	AVUAX	3.3%	0.78%
Vanguard Mid Cap Index Institutional	VMCIX	4.2%	0.04%
Champlain Mid Cap Institutional	CIPIX	1.8%	0.90%
American Beacon Small Cp Val Inst	AVFIX	0.3%	0.81%
Vanguard Small Cap Index I	VSCIX	4.8%	0.04%
Voya SmallCap Opportunities Port I	IVSOX	2.9%	0.88%
VY® Oppenheimer Global I	IGMIX	3.2%	0.75%
American Funds Europacific Growth R6	RERGX	5.2%	0.49%
Oppenheimer Developing Markets I	ODVIX	1.8%	0.87%
Vanguard Real Estate Index Institutional	VGSNX	2.9%	0.10%
VY® T. Rowe Price Capital Apprec I	ITRIX	9.0%	0.64%
Vanguard Target Retirement Income Inv	VTINX	3.4%	0.12%
Vanguard Target Retirement 2015 Inv	VTXVX	0.6%	0.13%
Vanguard Target Retirement 2020 Inv	VTWNX	0.4%	0.13%
Vanguard Target Retirement 2025 Inv	VTTVX	1.8%	0.13%
Vanguard Target Retirement 2030 Inv	VTHRXX	0.4%	0.14%
Vanguard Target Retirement 2035 Inv	VTTHX	1.8%	0.14%
Vanguard Target Retirement 2040 Inv	VFORX	0.6%	0.14%
Vanguard Target Retirement 2045 Inv	VTIVX	1.5%	0.15%
Vanguard Target Retirement 2050 Inv	VFIFX	0.6%	0.15%
Vanguard Target Retirement 2055 Inv	VFFVX	0.1%	0.15%
Vanguard Target Retirement 2060 Inv	VTTSX	0.1%	0.15%
Totals/Weighted Average Expense Ratio			0.44%
Weighted Average Expense Ratio ex- Stable Value			0.45%

Asset Allocation: Voya



Contributions by Asset Class: Voya



Number of Participants: Voya

July 1, 2018 - December 31, 2018

Fund	Number of Participants
Voya Fixed Plus Fund 4020	1,524
Vanguard Treasury Money Market	144
Amana Participation Instl	10
PIMCO Total Return Instl	885
PIMCO Real Return Instl	686
Blackrock Equity Dividend	768
American Funds Fundamental Inv R6	1,893
Vanguard Institutional Index I	603
Parnassus Core Equity Instl	1,112
Amana Growth Instl	63
Voya Large Cap Growth Port Inst	2,726
American Century Mid Cap Value Inst	1,093
Vanguard Mid Cap Index Instl	1,740
Champlain Mid Cap Instl	776
American Beacon Small Cap Value Instl	227
Vanguard Small Cap Index Instl	2,051
Voya SmallCap Opportunities Port I	1,196
VY® Oppenheimer Global I	1,453
American Funds Europacific Growth R6	1,933
Oppenheimer Developing Markets I	1,470
Vanguard Real Estate Index Institutional	1,600
VY® T. Rowe Price Capital Apprec Instl	2,095
Vanguard Target Retirement Income	233
Vanguard Target Retirement 2015	55
Vanguard Target Retirement 2020	42
Vanguard Target Retirement 2025	164
Vanguard Target Retirement 2030	68
Vanguard Target Retirement 2035	249
Vanguard Target Retirement 2040	115
Vanguard Target Retirement 2045	277
Vanguard Target Retirement 2050	198
Vanguard Target Retirement 2055	67
Vanguard Target Retirement 2060	62

Total Unique Participants

5,104

Fiduciary Scorecard

Fund	Near-Term Performance	Long-Term Performance	Management	Operations	Style	Watch List Status Date
Vanguard Treasury Money Market Investor	●	●	●	●	●	
Voya Fixed Plus Account III	●	●	●	●	●	
PIMCO Real Return Instl	●	●	●	●	●	
PIMCO Total Return Instl	●	●	●	●	●	
Amana Participation Institutional	●	●	●	●	●	
BlackRock Equity Dividend Instl	●	●	●	●	●	
American Funds Fundamental Invs R6	●	●	●	●	●	
Parnassus Core Equity Institutional	●	●	●	●	●	
Vanguard Institutional Index I	●	●	●	●	●	
Amana Growth Institutional	●	●	●	●	●	
Voya Large Cap Growth Port I	●	●	●	●	●	
American Century Mid Cap Value I	●	●	●	●	●	
Vanguard Mid Cap Index Institutional	●	●	●	●	●	
Champlain Mid Cap Institutional	●	●	●	●	●	
American Beacon Small Cp Val Inst	●	●	●	●	●	
Vanguard Small Cap Index I	●	●	●	●	●	
Voya SmallCap Opportunities Port I	●	●	●	●	●	Dec-31-2018
VY® Oppenheimer Global I	●	●	●	●	●	
American Funds Europacific Growth R6	●	●	●	●	●	
Oppenheimer Developing Markets I	●	●	●	●	●	
Vanguard Real Estate Index Institutional	●	●	●	●	●	
VY® T. Rowe Price Capital Apprec I	●	●	●	●	●	
Vanguard Target Retirement Income Inv	●	●	●	●	●	
Vanguard Target Retirement 2015 Inv	●	●	●	●	●	
Vanguard Target Retirement 2020 Inv	●	●	●	●	●	
Vanguard Target Retirement 2025 Inv	●	●	●	●	●	
Vanguard Target Retirement 2030 Inv	●	●	●	●	●	
Vanguard Target Retirement 2035 Inv	●	●	●	●	●	
Vanguard Target Retirement 2040 Inv	●	●	●	●	●	
Vanguard Target Retirement 2045 Inv	●	●	●	●	●	
Vanguard Target Retirement 2050 Inv	●	●	●	●	●	
Vanguard Target Retirement 2055 Inv	●	●	●	●	●	
Vanguard Target Retirement 2060 Inv	●	●	●	●	●	

Fund Notes

Fund	Notes	Recommendation
PIMCO Total Return Instl	The fund performed in the top third of its peers in the fourth quarter due to its rotation toward higher credit qualities within credit markets. The fund has a sizeable overweight to US Governments and MBS which were among the top performing sectors for the quarter. Within credit, the fund maintains exposure to financials and has increased its position in pipeline credit. The fund's short position in developed non-US securities was also additive to relative results as the US Dollar strengthened. The fund is overweight to the 3-5 year portion of the curve representing 83% of the portfolio. 4Q18	No Action
Amana Participation Institutional	The fund's lumpy relative performance versus the broad-based emerging market bond peer group can be attributed to the fund's philosophy of investing in congruence with Islamic values. This fund has much of the portfolio invested in Sukuk, an interest-free substitute to traditional Western bonds, which are Sharia-law compliant. Many of these are domiciled within the middle east, which have been negatively impacted by fall oil prices and weak global economic growth. 4Q18	No Action
American Funds Fundamental Invs R6	According to Morningstar, the investment style of the fund has drifted toward large cap growth from large cap blend. The fund is managed as a large blend strategy, though tends to have a greater emphasis on growth characteristics than value characteristics. The team will hold non-dividend or low paying growth stocks. As a result, the fund has drifted from large blend to large growth and back several times since inception. The style drift is not due to a change in strategy. 4Q18	No Action
Amana Growth Institutional	Monem Salam was re-added to the portfolio management team on July 31, 2018. Salam had co-managed the fund from January 2008 to September 2012. He left the team to head Saturna Capital's wholly owned Malaysian subsidiary, Saturna Sdn. Bhd. in Kuala Lumpur. Salam re-joins two other managers on the strategy. Lead PM Nicholas Kaiser has been with the strategy since its inception and was lead PM for all of Salam's tenure. Scott Klimo was added in 2012 after Salam's move. Because Salam has four years of experience on this strategy and the other two managers remain in place, this addition is not expected to change the strategy. 4Q18	No Action
Champlain Mid Cap Institutional	Courtney Willson was added to the portfolio management team on November 30, 2018. Wilson has been a senior associate analyst on the strategy since May 2018 covering retail-oriented investments. Prior to joining the firm, she worked at Cowen and Company as a research associate and analyst from 2014 to 2018, and as a research associate at RBC from 2011 to 2014. Willson joins eight other managers on the management team, and her addition is not expected to significantly affect strategy execution. The fund's assets increased by 34% over the past year. Current assets are \$2.58 billion. 4Q18	No Action
Voya SmallCap Opportunities Port I	Significant underperformance in 2017 and 2018 as well as 2009 and 2013 are weighing on near- and long-term performance relative to peers. This strategy focuses on quality companies with strong balance sheets and failed to keep up in low-quality rallies in 2009 and 2013. The fund outperformed the small growth category average by 7.1% in 2008, which is now out of scope of ten-year performance metrics. Near-term underperformance has been attributed to security selection, particularly in health care and consumer discretionary. The fund ranked in the bottom decile of its peer group in 2018 due to security selection in consumer discretionary and health care which detracted -2.9% and -2.3% from performance relative to the benchmark, respectively. 4Q18	Watch
Vanguard Target Retirement 2060 Inv	The fund's assets increased by 38% over the past year. The fund's assets are \$3.16 billion. 4Q18	No Action

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Money Market-Taxable																		
Vanguard Treasury Money Market Investor	0.54		-0.01	1.80		-0.03	1.80		-0.03	0.95		-0.02	0.57		-0.02	0.32		-0.03
BBgBarc US Treasury Bill 1-3 Mon TR USD	0.56			1.82			1.82			0.96			0.59			0.34		
Stable Value																		
Voya Fixed Plus Account III	0.44		-0.04	1.75		0.01	1.75		0.01	1.85		0.19	1.95		0.40	2.33		0.41
Morningstar US SA Stable Value Avg	0.48			1.74			1.74			1.66			1.55			1.92		
Inflation-Protected Bond																		
PIMCO Real Return Instl	-0.93	63	-0.50	-1.97	68	-0.71	-1.97	68	-0.71	2.28	16	0.17	1.48	28	-0.21	4.35	4	0.70
BBgBarc US Treasury US TIPS TR USD	-0.42			-1.26			-1.26			2.11			1.69			3.64		
Morningstar Inflation-Protected Bond Avg	-0.95			-1.64			-1.64			1.86			1.14			3.11		
Intermediate-Term Bond																		
PIMCO Total Return Instl	1.39	32	-0.25	-0.26	40	-0.27	-0.26	40	-0.27	2.46	32	0.41	2.56	31	0.04	4.71	36	1.23
BBgBarc US Agg Bond TR USD	1.64			0.01			0.01			2.06			2.52			3.48		
Morningstar Intermediate-Term Bond Avg	0.87			-0.50			-0.50			2.15			2.27			4.31		
Emerging Markets Bond																		
Amana Participation Institutional	0.48		-0.12	0.31		0.19	0.31		0.19	1.84		-1.12	-	-	-	-	-	-
DJ Sukuk TR USD	0.60			0.12			0.12			2.96			3.29			6.44		
Large Value																		
BlackRock Equity Dividend Instl	-12.23	44	-0.50	-7.17	32	1.10	-7.17	32	1.10	8.00	25	1.04	6.59	22	0.64	10.93	49	-0.25
Russell 1000 Value TR USD	-11.72			-8.27			-8.27			6.95			5.95			11.18		
Morningstar Large Value Avg	-12.47			-8.52			-8.52			6.85			5.38			10.91		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Large Blend																		
American Funds Fundamental Invs R6	-12.40	27	1.12	-6.33	59	-1.94	-6.33	59	-1.94	9.37	12	0.11	8.19	19	-0.30	13.21	16	0.09
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Blend Avg	-13.53			-6.27			-6.27			7.65			6.66			11.99		
Parnassus Core Equity Institutional	-9.54	7	3.98	0.05	3	4.44	0.05	3	4.44	8.93	27	-0.32	8.12	22	-0.37	12.80	31	-0.32
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Blend Avg	-13.53			-6.27			-6.27			7.65			6.66			11.99		
Vanguard Institutional Index I	-13.53	43	-0.01	-4.42	26	-0.04	-4.42	26	-0.04	9.22	15	-0.04	8.46	10	-0.03	13.11	19	-0.01
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Blend Avg	-13.53			-6.27			-6.27			7.65			6.66			11.99		
Large Growth																		
Amana Growth Institutional	-12.29	8	1.23	2.67	11	7.05	2.67	11	7.05	12.71	5	3.45	10.30	17	1.81	12.89	68	-0.22
S&P 500 TR USD	-13.52			-4.38			-4.38			9.26			8.49			13.12		
Morningstar Large Growth Avg	-15.42			-2.09			-2.09			8.94			8.12			13.71		
Voya Large Cap Growth Port I	-14.48	33	1.41	-1.48	43	0.03	-1.48	43	0.03	9.94	36	-1.21	9.94	23	-0.46	15.33	20	0.04
Russell 1000 Growth TR USD	-15.89			-1.51			-1.51			11.15			10.40			15.29		
Morningstar Large Growth Avg	-15.42			-2.09			-2.09			8.94			8.12			13.71		
Mid-Cap Value																		
American Century Mid Cap Value I	-14.91	37	0.04	-12.84	50	-0.55	-12.84	50	-0.55	6.24	33	0.19	6.63	7	1.19	12.54	33	-0.49
Russell Mid Cap Value TR USD	-14.95			-12.29			-12.29			6.06			5.44			13.03		
Morningstar Mid-Cap Value Avg	-15.70			-12.84			-12.84			5.42			3.88			11.66		
Mid-Cap Blend																		
Vanguard Mid Cap Index Institutional	-15.47	39	-0.01	-9.24	32	-0.02	-9.24	32	-0.02	6.39	50	-0.01	6.22	14	-0.03	13.89	10	0.14
CRSP US Mid Cap TR USD	-15.46			-9.22			-9.22			6.40			6.24			13.74		
Morningstar Mid-Cap Blend Avg	-16.19			-11.15			-11.15			5.54			4.00			11.92		
Mid-Cap Growth																		
Champlain Mid Cap Institutional	-11.51	3	4.48	3.76	5	8.51	3.76	5	8.51	13.74	3	5.15	10.01	3	2.60	14.64	19	-0.48
Russell Mid Cap Growth TR USD	-15.99			-4.75			-4.75			8.59			7.42			15.12		
Morningstar Mid-Cap Growth Avg	-17.57			-6.65			-6.65			7.25			5.60			13.16		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Small Value																		
American Beacon Small Cp Val Inst	-20.85	76	-2.19	-15.63	54	-2.76	-15.63	54	-2.76	5.14	47	-2.23	2.93	34	-0.67	11.95	31	1.55
Russell 2000 Value TR USD	-18.67			-12.86			-12.86			7.37			3.61			10.40		
Morningstar Small Value Avg	-19.16			-15.46			-15.46			5.12			1.86			11.00		
Small Blend																		
Vanguard Small Cap Index I	-18.34	29	-0.02	-9.32	21	0.01	-9.32	21	0.01	7.64	23	0.02	5.26	13	0.02	13.60	8	-0.48
CRSP US Small Cap TR USD	-18.33			-9.33			-9.33			7.62			5.24			14.07		
Morningstar Small Blend Avg	-19.37			-12.69			-12.69			5.90			3.20			11.60		
Small Growth																		
Voya SmallCap Opportunities Port I	-22.96	81	-1.31	-15.87	95	-6.56	-15.87	95	-6.56	4.24	91	-3.00	3.46	82	-1.67	12.75	64	-0.77
Russell 2000 Growth TR USD	-21.65			-9.31			-9.31			7.24			5.13			13.52		
Morningstar Small Growth Avg	-20.82			-5.76			-5.76			8.43			5.13			13.34		
World Large Stock																		
VY@ Oppenheimer Global I	-15.95	88	-2.54	-13.19	81	-4.48	-13.19	81	-4.48	5.89	47	-0.41	4.82	28	0.26	11.30	16	1.63
MSCI World NR USD	-13.42			-8.71			-8.71			6.30			4.56			9.67		
Morningstar World Large Stock Avg	-12.94			-9.64			-9.64			5.69			3.72			9.33		
Foreign Large Growth																		
American Funds Europacific Growth R6	-12.59	33	-1.13	-14.91	58	-0.71	-14.91	58	-0.71	4.08	33	-0.39	1.86	36	1.18	7.69	40	1.11
MSCI ACWI Ex USA NR USD	-11.46			-14.20			-14.20			4.48			0.68			6.57		
Morningstar Foreign Large Growth Avg	-13.87			-14.08			-14.08			3.21			1.38			7.40		
Diversified Emerging Mkts																		
Oppenheimer Developing Markets I	-7.78	60	-0.30	-11.79	13	2.78	-11.79	13	2.78	8.63	29	-0.62	1.13	41	-0.51	10.21	7	2.19
MSCI EM NR USD	-7.47			-14.58			-14.58			9.25			1.65			8.02		
Morningstar Diversified Emerging Mkts Avg	-7.46			-16.07			-16.07			6.99			0.53			7.58		
Real Estate																		
Vanguard Real Estate Index Institutional	-6.46	34	-0.02	-5.93	58	-0.05	-5.93	58	-0.05	2.31	46	-0.10	7.41	43	-0.09	12.07	26	0.00
Spliced Index*	-6.44			-5.88			-5.88			2.41			7.50			12.07		
Morningstar Real Estate Avg	-7.18			-5.96			-5.96			2.45			6.92			11.50		

*Spliced Index: MSCI US REIT Index through 1/31/2018; MSCI US Investable Market Real Estate 25/50 Transition Index through July 24,2018; MSCI US Investable Market Real Estate 25/50 Index thereafter

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Allocation--50% to 70% Equity																		
VY® T. Rowe Price Capital Apprec I	-6.31	9	1.25	0.74	1	3.08	0.74	1	3.08	7.98	2	1.48	8.35	1	2.11	12.71	1	3.28
40% BarCap 60% S&P	-7.56			-2.35			-2.35			6.50			6.24			9.42		
Morningstar Allocation--50% to 70% Equity Avg	-8.64			-5.76			-5.76			4.71			3.67			8.33		
Target-Date Retirement																		
Vanguard Target Retirement Income Inv	-3.20	28	0.03	-1.99	19	-0.01	-1.99	19	-0.01	3.82	31	-0.10	3.35	18	-0.17	5.92	49	-0.13
Vanguard Target Retirement Income Composite	-3.24			-1.97			-1.97			3.92			3.51			6.05		
Morningstar Target-Date Retirement Avg	-3.79			-3.16			-3.16			3.44			2.62			5.74		
Target-Date 2015																		
Vanguard Target Retirement 2015 Inv	-4.65	25	0.01	-2.97	20	-0.08	-2.97	20	-0.08	4.72	38	-0.14	4.03	17	-0.18	7.84	39	-0.11
Vanguard Target Retirement 2015 Composite	-4.67			-2.89			-2.89			4.87			4.20			7.95		
Morningstar Target-Date 2015 Avg	-5.41			-3.86			-3.86			4.39			3.36			7.49		
Target-Date 2020																		
Vanguard Target Retirement 2020 Inv	-6.50	59	-0.03	-4.24	42	-0.09	-4.24	42	-0.09	5.32	18	-0.15	4.44	4	-0.20	8.53	23	-0.22
Vanguard Target Retirement 2020 Composite	-6.47			-4.15			-4.15			5.48			4.65			8.75		
Morningstar Target-Date 2020 Avg	-6.14			-4.49			-4.49			4.54			3.41			7.73		
Target-Date 2025																		
Vanguard Target Retirement 2025 Inv	-7.74	61	-0.01	-5.15	42	-0.14	-5.15	42	-0.14	5.73	18	-0.15	4.66	5	-0.20	9.06	24	-0.24
Vanguard Target Retirement 2025 Composite	-7.74			-5.01			-5.01			5.89			4.87			9.29		
Morningstar Target-Date 2025 Avg	-7.47			-5.34			-5.34			5.05			3.71			8.55		
Target-Date 2030																		
Vanguard Target Retirement 2030 Inv	-8.86	48	-0.03	-5.86	37	-0.11	-5.86	37	-0.11	6.07	24	-0.18	4.82	11	-0.11	9.57	22	-0.18
Vanguard Target Retirement 2030 Composite	-8.83			-5.74			-5.74			6.24			4.93			9.75		
Morningstar Target-Date 2030 Avg	-8.82			-6.25			-6.25			5.45			3.94			8.86		
Target-Date 2035																		
Vanguard Target Retirement 2035 Inv	-9.93	41	-0.02	-6.58	32	-0.10	-6.58	32	-0.10	6.41	24	-0.18	4.99	12	-0.22	10.04	16	-0.25
Vanguard Target Retirement 2035 Composite	-9.91			-6.48			-6.48			6.59			5.21			10.29		
Morningstar Target-Date 2035 Avg	-10.13			-7.04			-7.04			5.83			4.14			9.44		

Performance Summary - Core Funds

	Quarter			YTD			1 Year			3 Years			5 Years			10 Years		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Target-Date 2040																		
Vanguard Target Retirement 2040 Inv	-11.03	51	-0.04	-7.32	37	-0.08	-7.32	37	-0.08	6.75	18	-0.16	5.10	11	-0.26	10.26	17	-0.27
Vanguard Target Retirement 2040 Composite	-10.99			-7.24			-7.24			6.91			5.36			10.53		
Morningstar Target-Date 2040 Avg	-11.01			-7.74			-7.74			5.96			4.23			9.48		
Target-Date 2045																		
Vanguard Target Retirement 2045 Inv	-11.78	50	-0.05	-7.90	43	-0.12	-7.90	43	-0.12	6.78	21	-0.17	5.13	12	-0.25	10.26	23	-0.27
Vanguard Target Retirement 2045 Composite	-11.73			-7.78			-7.78			6.95			5.38			10.54		
Morningstar Target-Date 2045 Avg	-11.71			-8.14			-8.14			6.13			4.30			9.78		
Target-Date 2050																		
Vanguard Target Retirement 2050 Inv	-11.79	47	-0.06	-7.90	37	-0.12	-7.90	37	-0.12	6.77	22	-0.18	5.12	12	-0.26	10.27	19	-0.27
Vanguard Target Retirement 2050 Composite	-11.73			-7.78			-7.78			6.95			5.38			10.54		
Morningstar Target-Date 2050 Avg	-11.91			-8.41			-8.41			6.11			4.33			9.60		
Target-Date 2055																		
Vanguard Target Retirement 2055 Inv	-11.76	40	-0.03	-7.89	37	-0.11	-7.89	37	-0.11	6.77	24	-0.17	5.10	17	-0.28	-	-	-
Vanguard Target Retirement 2055 Composite	-11.73			-7.78			-7.78			6.95			5.38			8.42		
Morningstar Target-Date 2055 Avg	-12.12			-8.44			-8.44			6.21			4.42			10.41		
Target-Date 2060+																		
Vanguard Target Retirement 2060 Inv	-11.77	35	-0.03	-7.87	34	-0.09	-7.87	34	-0.09	6.76	32	-0.18	5.10	1	-0.29	-	-	-
Vanguard Target Retirement 2060 Composite	-11.73			-7.78			-7.78			6.95			5.38			6.35		
Morningstar Target-Date 2060+ Avg	-12.27			-8.52			-8.52			6.31			4.16			-		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Money Market-Taxable																					
Vanguard Treasury Money Market Investor	1.80	5	-0.03	0.79	6	-0.02	0.25	8	-0.01	0.02	20	-0.01	0.01	57	-0.02	0.01	30	-0.04	0.02	22	-0.06
BBgBarc US Treasury Bill 1-3 Mon TR USD	1.82			0.82			0.26			0.03			0.02			0.05			0.08		
Morningstar Money Market - Taxable Avg	1.41			0.49			0.09			0.02			0.01			0.01			0.02		
Inflation-Protected Bond																					
PIMCO Real Return Instl	-1.97	68	-0.71	3.92	12	0.91	5.04	23	0.36	-2.75	75	-1.31	3.42	28	-0.22	-9.05	71	-0.44	9.25	8	2.27
BBgBarc US Treasury US TIPS TR USD	-1.26			3.01			4.68			-1.44			3.64			-8.61			6.98		
Morningstar Inflation-Protected Bond Avg	-1.64			2.80			4.64			-2.27			2.61			-7.50			6.30		
Intermediate-Term Bond																					
PIMCO Total Return Instl	-0.26	40	-0.27	5.13	11	1.59	2.60	63	-0.05	0.73	17	0.18	4.69	69	-1.27	-1.92	61	0.10	10.36	8	6.15
BBgBarc US Agg Bond TR USD	0.01			3.54			2.65			0.55			5.97			-2.02			4.21		
Morningstar Intermediate-Term Bond Avg	-0.50			3.77			3.27			-0.11			5.23			-1.37			6.67		
Emerging Markets Bond																					
Amana Participation Institutional	0.31		0.19	2.68		-1.79	2.56		-1.80	-	-	-	-	-	-	-	-	-	-	-	-
DJ Sukuk TR USD	0.12			4.47			4.35			1.24			6.37			0.22			8.00		
Large Value																					
BlackRock Equity Dividend Instl	-7.17	32	1.10	16.76	42	3.09	16.21	40	-1.13	-0.10	12	3.73	9.35	77	-4.11	24.67	92	-7.86	12.18	74	-5.33
Russell 1000 Value TR USD	-8.27			13.66			17.34			-3.83			13.45			32.53			17.51		
Morningstar Large Value Avg	-8.52			16.02			15.32			-3.54			10.94			31.91			14.70		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Large Blend																					
American Funds Fundamental Invs R6	-6.33	59	-1.94	23.72	12	1.89	12.88	22	0.92	3.71	6	2.32	9.27	84	-4.42	31.94	57	-0.44	17.53	15	1.53
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Blend Avg	-6.27			20.48			10.90			-0.78			11.65			32.23			15.17		
Parnassus Core Equity Institutional	0.05	3	4.44	16.81	88	-5.02	10.60	58	-1.36	-0.33	52	-1.72	14.70	11	1.01	34.15	28	1.76	15.64	50	-0.36
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Blend Avg	-6.27			20.48			10.90			-0.78			11.65			32.23			15.17		
Vanguard Institutional Index I	-4.42	26	-0.04	21.79	29	-0.04	11.93	34	-0.03	1.37	21	-0.01	13.65	20	-0.04	32.35	49	-0.04	15.98	40	-0.02
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Blend Avg	-6.27			20.48			10.90			-0.78			11.65			32.23			15.17		
Large Growth																					
Amana Growth Institutional	2.67	11	7.05	29.29	40	7.46	7.85	18	-4.11	-0.21	85	-1.59	14.29	14	0.61	22.95	100	-9.44	11.21	91	-4.79
S&P 500 TR USD	-4.38			21.83			11.96			1.38			13.69			32.39			16.00		
Morningstar Large Growth Avg	-2.09			27.76			3.55			3.75			10.50			34.59			15.53		
Voya Large Cap Growth Port I	-1.48	43	0.03	29.74	37	-0.47	3.96	49	-3.11	6.38	29	0.71	13.62	21	0.57	30.95	79	-2.53	18.10	22	2.84
Russell 1000 Growth TR USD	-1.51			30.21			7.08			5.67			13.05			33.48			15.26		
Morningstar Large Growth Avg	-2.09			27.76			3.55			3.75			10.50			34.59			15.53		
Mid-Cap Value																					
American Century Mid Cap Value I	-12.84	50	-0.55	11.79	70	-1.55	23.07	21	3.07	-1.36	12	3.42	16.55	4	1.80	30.26	90	-3.20	16.66	44	-1.84
Russell Mid Cap Value TR USD	-12.29			13.34			20.00			-4.78			14.75			33.46			18.51		
Morningstar Mid-Cap Value Avg	-12.84			13.54			18.93			-5.60			9.75			35.60			16.17		
Mid-Cap Blend																					
Vanguard Mid Cap Index Institutional	-9.24	32	-0.02	19.29	19	0.00	11.23	77	-0.02	-1.33	19	-0.05	13.78	10	-0.04	35.17	42	-0.10	16.01	64	-0.69
CRSP US Mid Cap TR USD	-9.22			19.30			11.25			-1.28			13.83			35.27			16.69		
Morningstar Mid-Cap Blend Avg	-11.15			15.84			14.55			-4.23			8.18			34.93			16.47		
Mid-Cap Growth																					
Champlain Mid Cap Institutional	3.76	5	8.51	19.50	81	-5.77	18.68	4	11.35	1.41	31	1.61	7.98	42	-3.92	37.56	29	1.82	11.88	78	-3.93
Russell Mid Cap Growth TR USD	-4.75			25.27			7.33			-0.20			11.90			35.74			15.81		
Morningstar Mid-Cap Growth Avg	-6.65			24.09			6.90			-0.66			7.19			35.64			14.71		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Small Value																					
American Beacon Small Cp Val Inst	-15.63	54	-2.76	8.67	49	0.83	26.77	49	-4.97	-5.04	32	2.43	4.70	45	0.49	40.06	27	5.54	16.52	58	-1.53
Russell 2000 Value TR USD	-12.86			7.84			31.74		-7.47				4.22			34.52			18.05		
Morningstar Small Value Avg	-15.46			8.66			27.16		-7.99				3.34			37.09			17.17		
Small Blend																					
Vanguard Small Cap Index I	-9.32	21	0.01	16.25	14	0.01	18.32	76	0.05	-3.63	39	0.05	7.53	17	-0.01	37.80	59	-0.68	18.26	24	-0.33
CRSP US Small Cap TR USD	-9.33			16.24			18.26		-3.68				7.54			38.48			18.59		
Morningstar Small Blend Avg	-12.69			12.68			21.30		-5.05				4.01			38.63			16.12		
Small Growth																					
Voya SmallCap Opportunities Port I	-15.87	95	-6.56	18.73	64	-3.44	13.40	38	2.08	-0.91	34	0.48	5.62	26	0.02	39.07	66	-4.23	15.18	34	0.59
Russell 2000 Growth TR USD	-9.31			22.17			11.32		-1.38				5.60			43.30			14.59		
Morningstar Small Growth Avg	-5.76			21.51			12.15		-2.14				2.57			42.12			13.85		
World Large Stock																					
VY® Oppenheimer Global I	-13.19	81	-4.48	36.49	4	14.09	0.22	89	-7.29	4.13	11	5.00	2.32	64	-2.62	27.12	40	0.45	21.70	10	5.87
MSCI World NR USD	-8.71			22.40			7.51		-0.87				4.94			26.68			15.83		
Morningstar World Large Stock Avg	-9.64			23.89			5.90		-0.89				3.23			25.61			15.95		
Foreign Large Growth																					
American Funds Europacific Growth R6	-14.91	58	-0.71	31.17	42	3.98	1.01	25	-3.48	-0.48	67	5.18	-2.29	32	1.57	20.58	50	5.29	19.64	44	2.81
MSCI ACWI Ex USA NR USD	-14.20			27.19			4.50		-5.66				-3.87			15.29			16.83		
Morningstar Foreign Large Growth Avg	-14.08			30.65			-1.56		1.17				-3.53			20.45			19.05		
Diversified Emerging Mkts																					
Oppenheimer Developing Markets I	-11.79	13	2.78	35.33	49	-1.95	7.38	61	-3.81	-13.67	47	1.25	-4.39	71	-2.20	8.85	12	11.45	21.43	27	3.21
MSCI EM NR USD	-14.58			37.28			11.19		-14.92				-2.19			-2.60			18.22		
Morningstar Diversified Emerging Mkts Avg	-16.07			34.33			9.04		-13.77				-2.43			0.14			19.24		
Real Estate																					
Vanguard Real Estate Index Institutional	-5.93	58	-0.05	4.93	60	-0.14	8.51	17	-0.09	2.45	60	-0.07	30.28	39	-0.10	2.48	27	0.01	17.65	32	-0.12
Spliced Index*	-5.88			5.07			8.60		2.52				30.38			2.47			17.77		
Morningstar Real Estate Avg	-5.96			6.67			7.64		2.22				28.18			2.28			18.33		

*Spliced Index: MSCI US REIT Index through 1/31/2018; MSCI US Investable Market REal Estate 25/50 Transition Index through July 24,2018; MSCI US Investable Market Real Estate 25/50 Index thereafter

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Allocation--50% to 70% Equity																					
VY® T. Rowe Price Capital Apprec I	0.74	1	3.08	15.39	23	1.18	8.31	31	0.01	5.47	1	4.18	12.47	3	1.85	22.49	9	4.94	14.78	7	3.47
40% BarCap 60% S&P	-2.35			14.21			8.31			1.28			10.62			17.56			11.31		
Morningstar Allocation--50% to 70% Equity Avg	-5.76			13.46			7.49			-2.02			6.31			16.88			11.73		
Target-Date Retirement																					
Vanguard Target Retirement Income Inv	-1.99	19	-0.01	8.47	57	-0.20	5.25	44	-0.11	-0.17	16	-0.29	5.54	20	-0.23	5.87	55	-0.15	8.23	73	-0.19
Vanguard Target Retirement Income Composite	-1.97			8.67			5.36			0.12			5.76			6.03			8.42		
Morningstar Target-Date Retirement Avg	-3.16			8.71			5.20			-1.23			4.33			6.27			8.62		
Target-Date 2015																					
Vanguard Target Retirement 2015 Inv	-2.97	20	-0.08	11.50	47	-0.11	6.16	66	-0.24	-0.46	24	-0.25	6.56	6	-0.21	13.00	43	-0.27	11.37	50	-0.09
Vanguard Target Retirement 2015 Composite	-2.89			11.62			6.40			-0.22			6.77			13.27			11.46		
Morningstar Target-Date 2015 Avg	-3.86			11.40			6.22			-1.07			4.93			12.11			11.40		
Target-Date 2020																					
Vanguard Target Retirement 2020 Inv	-4.24	42	-0.09	14.08	17	-0.16	6.95	37	-0.21	-0.68	40	-0.28	7.11	1	-0.26	15.85	27	-0.36	12.35	41	-0.12
Vanguard Target Retirement 2020 Composite	-4.15			14.24			7.16			-0.40			7.37			16.21			12.47		
Morningstar Target-Date 2020 Avg	-4.49			12.54			6.38			-1.24			5.11			12.54			11.82		
Target-Date 2025																					
Vanguard Target Retirement 2025 Inv	-5.15	42	-0.14	15.94	21	-0.14	7.48	33	-0.19	-0.85	35	-0.27	7.17	5	-0.28	18.14	30	-0.38	13.29	43	-0.10
Vanguard Target Retirement 2025 Composite	-5.01			16.08			7.67			-0.58			7.45			18.52			13.39		
Morningstar Target-Date 2025 Avg	-5.34			14.67			6.90			-1.39			5.30			15.73			13.07		
Target-Date 2030																					
Vanguard Target Retirement 2030 Inv	-5.86	37	-0.11	17.52	33	-0.14	7.85	37	-0.28	-1.03	43	0.31	7.17	7	-0.34	20.49	28	-0.39	14.24	40	-0.07
Vanguard Target Retirement 2030 Composite	-5.74			17.67			8.13			-1.34			7.51			20.88			14.31		
Morningstar Target-Date 2030 Avg	-6.25			16.60			7.41			-1.51			5.45			17.44			13.76		
Target-Date 2035																					
Vanguard Target Retirement 2035 Inv	-6.58	32	-0.10	19.12	35	-0.14	8.26	40	-0.29	-1.26	42	-0.23	7.24	7	-0.33	22.82	26	-0.45	15.16	41	-0.07
Vanguard Target Retirement 2035 Composite	-6.48			19.27			8.56			-1.02			7.57			23.27			15.23		
Morningstar Target-Date 2035 Avg	-7.04			18.45			7.72			-1.66			5.43			20.25			14.72		

Performance Summary - Calendar Year

	2018			2017			2016			2015			2014			2013			2012		
	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx	Rtn	Rank	+/-Idx
Target-Date 2040																					
Vanguard Target Retirement 2040 Inv	-7.32	37	-0.08	20.71	25	-0.15	8.73	32	-0.26	-1.59	55	-0.34	7.15	13	-0.46	24.37	23	-0.42	15.56	35	-0.02
Vanguard Target Retirement 2040 Composite	-7.24			20.86			8.99			-1.24			7.61			24.79			15.58		
Morningstar Target-Date 2040 Avg	-7.74			19.53			7.99			-1.69			5.64			20.87			14.90		
Target-Date 2045																					
Vanguard Target Retirement 2045 Inv	-7.90	43	-0.12	21.42	25	-0.13	8.87	34	-0.25	-1.57	49	-0.32	7.16	12	-0.45	24.37	29	-0.42	15.58	48	0.00
Vanguard Target Retirement 2045 Composite	-7.78			21.56			9.12			-1.26			7.61			24.79			15.58		
Morningstar Target-Date 2045 Avg	-8.14			20.48			8.11			-1.74			5.52			22.27			15.40		
Target-Date 2050																					
Vanguard Target Retirement 2050 Inv	-7.90	37	-0.12	21.39	37	-0.17	8.85	37	-0.27	-1.58	55	-0.32	7.18	15	-0.43	24.34	34	-0.45	15.58	45	0.01
Vanguard Target Retirement 2050 Composite	-7.78			21.56			9.12			-1.26			7.61			24.79			15.58		
Morningstar Target-Date 2050 Avg	-8.41			20.66			8.23			-1.72			5.71			21.89			15.28		
Target-Date 2055																					
Vanguard Target Retirement 2055 Inv	-7.89	37	-0.11	21.38	47	-0.18	8.88	37	-0.24	-1.72	54	-0.46	7.19	16	-0.42	24.33	31	-0.46	15.58	52	0.01
Vanguard Target Retirement 2055 Composite	-7.78			21.56			9.12			-1.26			7.61			24.79			15.58		
Morningstar Target-Date 2055 Avg	-8.44			21.07			8.19			-1.72			5.66			23.05			15.60		
Target-Date 2060+																					
Vanguard Target Retirement 2060 Inv	-7.87	34	-0.09	21.36	53	-0.20	8.84	33	-0.28	-1.68	80	-0.43	7.16	1	-0.45	24.35	1	-0.44	-	-	-
Vanguard Target Retirement 2060 Composite	-7.78			21.56			9.12			-1.26			7.61			24.79			15.58		
Morningstar Target-Date 2060+ Avg	-8.52			21.26			8.05			-1.01			5.25			24.35			-		

Risk Summary

	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Money Market-Taxable															
Vanguard Treasury Money Market Investor	1.24	1.24	1.26	-0.01	-0.01	-0.02	0.20	0.20	0.16						
Morningstar Money Market - Taxable Avg	1.13	1.53	1.58	-0.30	-0.17	-0.10	0.18	0.17	0.13						
Inflation-Protected Bond															
PIMCO Real Return Instl	1.01	1.09	1.07	0.16	-0.30	0.47	3.24	4.03	5.40	99	107	112	93	115	107
Morningstar Inflation-Protected Bond Avg	0.88	0.89	0.92	-0.10	-0.42	-0.25	3.01	3.48	4.73	86	86	90	84	94	94
Intermediate-Term Bond															
PIMCO Total Return Instl	0.86	0.93	0.98	0.55	0.17	1.27	2.78	2.92	3.46	96	99	118	79	96	94
Morningstar Intermediate-Term Bond Avg	0.85	0.86	0.92	0.25	0.03	1.06	2.68	2.65	3.16	91	89	107	81	88	84
Large Value															
BlackRock Equity Dividend Instl	0.96	0.96	0.85	1.22	0.81	1.26	10.78	10.68	12.59	101	99	89	92	93	83
Morningstar Large Value Avg	0.98	0.98	0.95	0.06	-0.40	0.31	11.41	11.25	14.34	97	95	95	96	98	94
Large Blend															
American Funds Fundamental Invs R6	0.92	0.97	0.98	0.75	-0.01	0.38	10.34	10.82	13.55	98	98	99	95	100	98
Morningstar Large Blend Avg	0.99	0.99	1.00	-1.50	-1.68	-1.01	11.35	11.28	14.01	93	93	97	103	104	103
Parnassus Core Equity Institutional	0.87	0.87	0.86	0.69	0.60	1.34	10.08	10.04	12.21	90	92	91	84	89	84
Morningstar Large Blend Avg	0.99	0.99	1.00	-1.50	-1.68	-1.01	11.35	11.28	14.01	93	93	97	103	104	103
Vanguard Institutional Index I	1.00	1.00	1.00	-0.04	-0.03	-0.01	10.96	10.95	13.61	100	100	100	100	100	100
Morningstar Large Blend Avg	0.99	0.99	1.00	-1.50	-1.68	-1.01	11.35	11.28	14.01	93	93	97	103	104	103
Large Growth															
Amana Growth Institutional	0.96	0.99	0.85	3.51	1.83	1.57	11.19	11.44	12.26	111	107	92	89	97	86
Morningstar Large Growth Avg	1.07	1.04	1.00	-0.60	-0.46	0.70	12.98	12.59	14.65	106	101	102	114	105	100
Voya Large Cap Growth Port I	0.96	0.98	1.00	-0.70	-0.20	0.06	11.93	11.84	13.95	98	100	101	106	103	101
Morningstar Large Growth Avg	0.99	0.99	1.02	-1.84	-1.93	-1.61	12.98	12.59	14.65	93	93	98	105	106	107

Risk Summary

	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Mid-Cap Value															
American Century Mid Cap Value I	0.97	0.96	0.83	0.34	1.34	1.45	12.08	11.22	13.33	96	99	89	93	90	83
Morningstar Mid-Cap Value Avg	1.01	1.02	0.99	-0.56	-1.52	-1.07	12.96	12.39	16.24	96	96	97	99	106	103
Mid-Cap Blend															
Vanguard Mid Cap Index Institutional	1.00	1.00	1.01	-0.01	-0.02	0.01	12.21	11.69	15.25	100	100	101	100	100	100
Morningstar Mid-Cap Blend Avg	0.98	1.00	1.00	-0.67	-2.04	-1.56	12.89	12.48	15.78	97	94	97	102	109	105
Mid-Cap Growth															
Champlain Mid Cap Institutional	0.81	0.83	0.84	6.01	3.48	1.72	11.52	11.37	13.64	89	88	86	45	64	77
Morningstar Mid-Cap Growth Avg	1.02	1.00	0.99	-1.24	-1.62	-1.44	14.13	13.48	15.90	95	95	96	102	106	105
Small Value															
American Beacon Small Cp Val Inst	1.01	0.99	1.00	-2.14	-0.60	1.39	16.34	15.21	19.02	92	95	102	102	97	96
Morningstar Small Value Avg	0.95	0.94	0.96	-1.75	-1.45	1.07	16.09	15.26	18.76	88	88	97	96	95	92
Small Blend															
Vanguard Small Cap Index I	1.00	1.00	1.02	0.02	0.02	-0.61	14.30	13.65	17.79	100	100	100	100	100	103
Morningstar Small Blend Avg	1.02	1.02	0.99	-1.63	-1.94	-1.96	15.33	14.72	17.90	95	96	95	104	107	104
Small Growth															
Voya SmallCap Opportunities Port I	0.99	0.95	0.93	-2.74	-1.42	0.07	16.69	15.82	17.68	92	91	93	106	97	92
Morningstar Small Growth Avg	0.93	0.92	0.92	1.52	0.37	0.85	16.40	15.84	17.87	96	92	93	89	90	90
World Large Stock															
VY® Oppenheimer Global I	1.22	1.15	1.10	-1.25	-0.13	0.82	13.52	13.09	16.20	121	114	113	136	117	110
Morningstar World Large Stock Avg	0.97	0.97	0.98	-0.38	-0.63	-0.06	11.06	11.25	14.85	95	94	98	98	99	98
Foreign Large Growth															
American Funds Europacific Growth R6	0.99	0.91	0.92	-0.30	1.18	1.49	11.90	11.36	15.43	97	92	95	99	84	88
Morningstar Foreign Large Growth Avg	0.95	0.92	0.93	-0.98	0.76	1.23	12.11	12.00	15.96	89	89	95	94	85	89
Diversified Emerging Mkts															
Oppenheimer Developing Markets I	0.87	0.90	0.94	0.43	-0.40	2.46	13.41	14.45	18.67	87	88	97	84	90	86
Morningstar Diversified Emerging Mkts Avg	0.89	0.89	0.96	-1.26	-0.97	-0.05	14.22	14.44	19.28	89	88	95	97	93	96
Real Estate															
Vanguard Real Estate Index Institutional	0.99	0.99	0.99	-0.54	-0.33	-0.03	13.49	13.92	20.84	97	98	99	100	100	99
Morningstar Real Estate Avg	0.91	0.91	0.93	-0.27	-0.21	0.09	12.84	13.16	19.91	89	90	94	90	90	93

Risk Summary

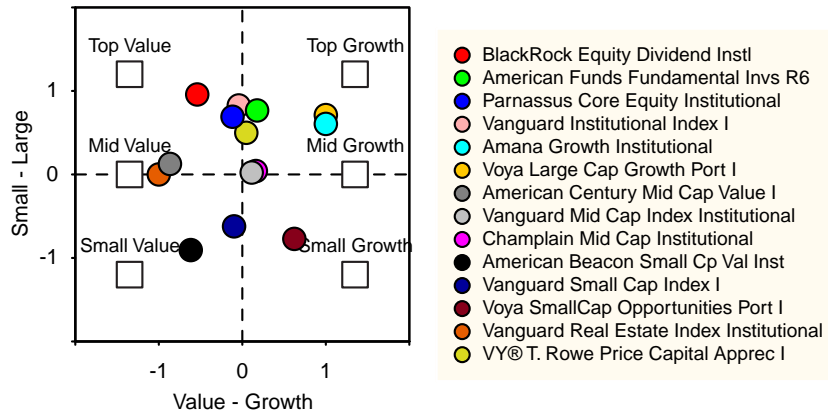
	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Allocation--50% to 70% Equity															
VY® T. Rowe Price Capital Apprec I	0.99	1.02	1.13	1.48	1.88	1.93	6.64	6.89	9.60	107	112	119	91	90	102
Morningstar Allocation--50% to 70% Equity Avg	1.04	1.04	1.10	-1.86	-2.64	-1.79	7.23	7.31	9.41	91	90	102	111	120	119
Target-Date Retirement															
Vanguard Target Retirement Income Inv	0.99	0.99	1.00	-0.06	-0.13	-0.14	3.40	3.48	4.71	97	98	99	97	100	101
Morningstar Target-Date Retirement Avg	1.08	1.09	1.13	-0.67	-1.12	-1.00	3.85	4.01	5.63	100	99	106	115	124	123
Target-Date 2015															
Vanguard Target Retirement 2015 Inv	0.98	0.99	1.00	-0.07	-0.13	-0.14	4.63	5.02	8.05	97	98	99	97	100	100
Morningstar Target-Date 2015 Avg	1.05	1.04	1.04	-0.64	-0.96	-0.68	5.07	5.40	8.38	98	97	101	108	111	107
Target-Date 2020															
Vanguard Target Retirement 2020 Inv	0.99	0.99	1.01	-0.09	-0.16	-0.25	5.86	6.15	9.22	97	98	99	97	100	101
Morningstar Target-Date 2020 Avg	0.92	0.91	0.94	-0.55	-0.87	-0.44	5.59	5.80	8.78	88	87	91	93	96	94
Target-Date 2025															
Vanguard Target Retirement 2025 Inv	0.99	0.99	1.01	-0.08	-0.16	-0.28	6.74	6.99	10.30	98	98	99	98	100	101
Morningstar Target-Date 2025 Avg	0.95	0.96	1.01	-0.57	-0.93	-0.72	6.60	6.83	10.36	91	90	97	96	100	102
Target-Date 2030															
Vanguard Target Retirement 2030 Inv	0.99	0.99	1.01	-0.10	-0.05	-0.21	7.54	7.78	11.35	99	99	100	100	100	101
Morningstar Target-Date 2030 Avg	0.97	0.97	0.95	-0.61	-0.81	-0.39	7.55	7.77	10.96	95	93	94	101	101	96
Target-Date 2035															
Vanguard Target Retirement 2035 Inv	0.99	0.99	1.01	-0.12	-0.18	-0.27	8.36	8.61	12.35	99	99	100	101	101	101
Morningstar Target-Date 2035 Avg	1.00	0.99	1.00	-0.69	-1.00	-0.76	8.49	8.70	12.34	97	95	97	103	104	102
Target-Date 2040															
Vanguard Target Retirement 2040 Inv	0.99	0.99	1.00	-0.09	-0.21	-0.28	9.16	9.38	12.73	99	99	99	100	101	101
Morningstar Target-Date 2040 Avg	0.97	0.96	0.96	-0.71	-0.89	-0.61	9.08	9.19	12.45	94	92	94	99	99	97
Target-Date 2045															
Vanguard Target Retirement 2045 Inv	0.99	0.99	1.00	-0.10	-0.21	-0.29	9.55	9.62	12.82	99	99	99	100	101	101
Morningstar Target-Date 2045 Avg	0.99	0.99	1.02	-0.69	-0.97	-0.89	9.58	9.66	13.14	96	95	99	101	102	104
Target-Date 2050															
Vanguard Target Retirement 2050 Inv	0.99	0.99	1.00	-0.12	-0.21	-0.27	9.56	9.62	12.81	99	99	99	100	101	101
Morningstar Target-Date 2050 Avg	0.99	0.99	1.00	-0.72	-0.94	-0.83	9.67	9.71	13.06	96	95	97	102	102	101

Risk Summary

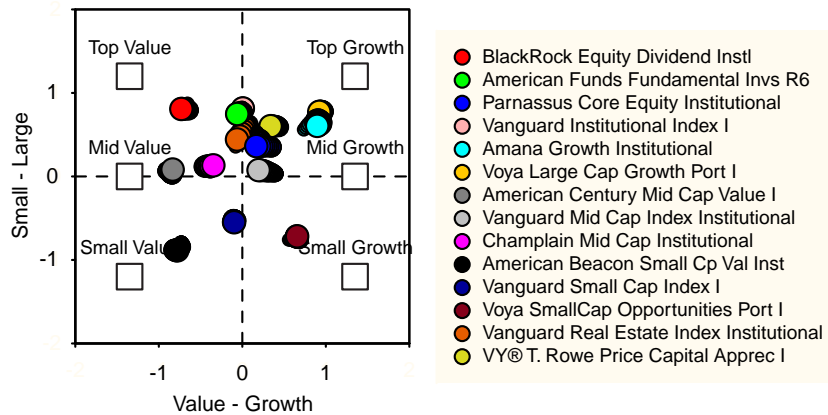
	Beta			Alpha			Standard Deviation			Up Capture Ratio			Down Capture Ratio		
	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs	3 Yrs	5 Yrs	10 Yrs
Target-Date 2055															
Vanguard Target Retirement 2055 Inv	0.99	0.99		-0.10	-0.23		9.53	9.60		99	99		99	101	
Morningstar Target-Date 2055 Avg	1.01	1.01	1.03	-0.75	-0.96	1.92	9.82	9.88	13.44	98	97	100	104	105	105
Target-Date 2060+															
Vanguard Target Retirement 2060 Inv	0.99	0.99		-0.12	-0.24		9.56	9.62		99	99		100	101	
Morningstar Target-Date 2060+ Avg	1.01	0.99	-	-0.63	-1.12	-	9.81	9.64	-	99	95	-	104	104	-

Equity Fund Style Analysis

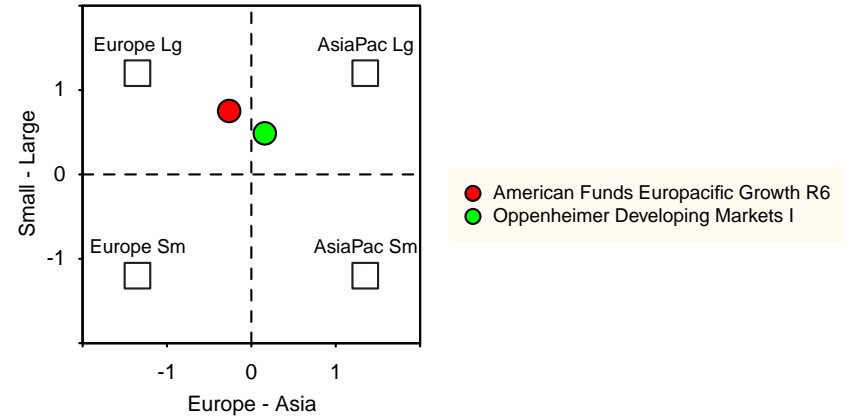
Equity - Single Computation
January 2009 - December 2018



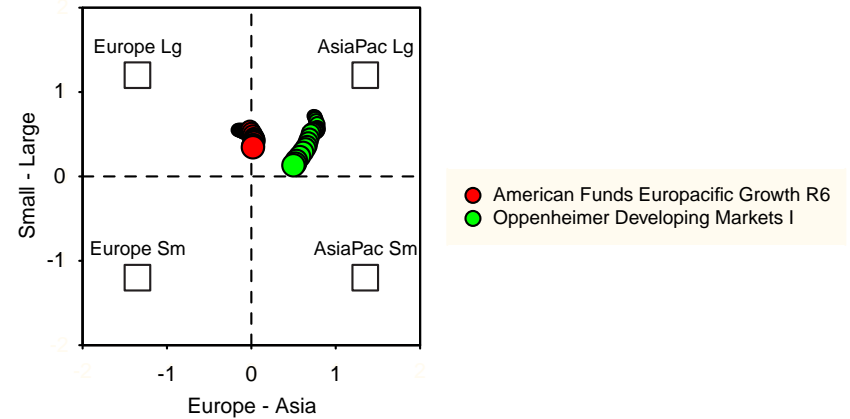
Equity - 12 Month Moving Windows
January 2009 - December 2018



International Equity - Single Computation
January 2009 - December 2018



International Equity - 12 Month Moving Windows
January 2009 - December 2018





The Kansas Board of Regents Mandatory Retirement Plan

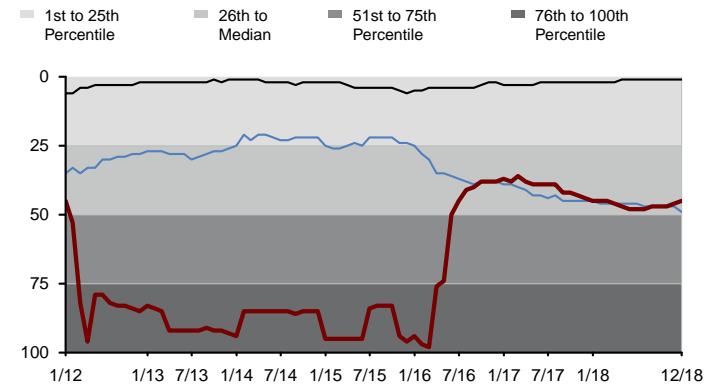
TIAA Detailed Analysis

CREF Money Market R3

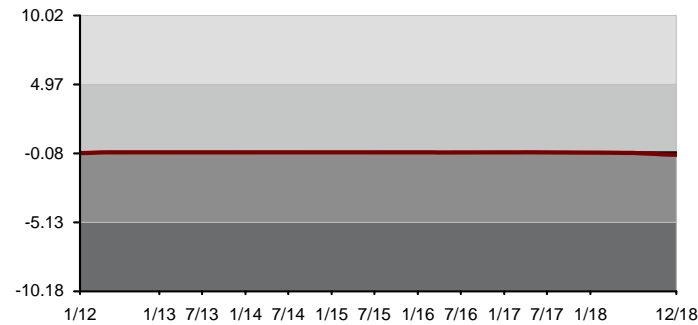
QCMMIX

Index: ICE BofAML US 3M Trsy Bill TR USD
 Category: Money Market-Taxable
 Return Date: 12/31/2018

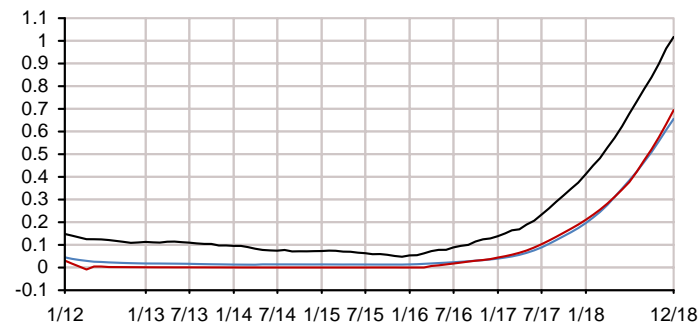
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



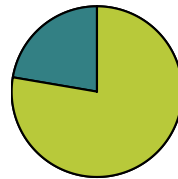
● CREF Money Market R3 ● ICE BofAML US 3M Trsy Bill TR USD ● Morningstar Money Market - Taxable

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	-	-
Holdings - Bonds	57.0	28.0	-
Holdings - Other	159.0	46.0	-
Turnover Ratio	-	20.8	-
Net Expense Ratio	0.2	0.5	-
Gross Expense Ratio	0.2	0.6	-
Avg Mkt Cap (\$MM)	-	-	-
Total Assets (\$MM)	9,900	21,914	-
P/E Ratio	-	-	-
P/B Ratio	-	-	-
P/S Ratio	-	-	-
P/CF Ratio	-	-	-
ROE %	-	-	-
ROA %	-	-	-
Dividend Yld	-	-	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	77.68
Domestic Stock	-
Foreign Stock	-
Domestic Bond	22.31
Foreign Bond	-
Other	-

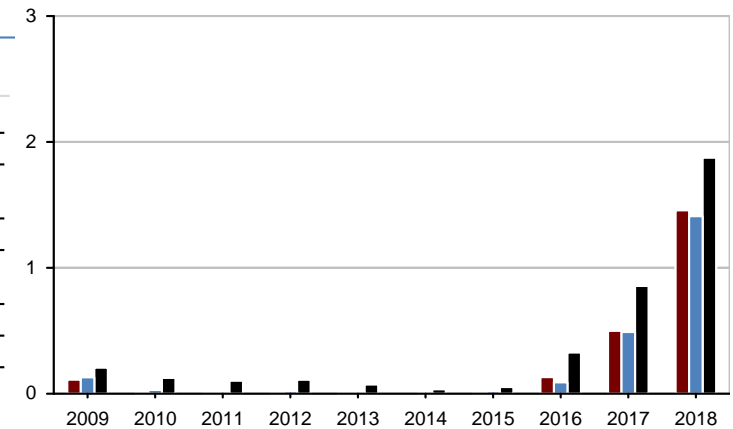
Sector Allocation (%)

	Fund	Avg	Idx
Energy	0.0	-	-
Materials	0.0	-	-
Industrials	0.0	-	-
Cons Discretionary	0.0	0.0	-
Consumer Staples	0.0	0.0	-
Healthcare	0.0	-	-
Financials	0.0	-	-
Info Technology	0.0	-	-
Telecom Services	0.0	0.0	-
Utilities	0.0	-	-

Regional Allocation (%)

	Fund	Idx
United States	100.0	-

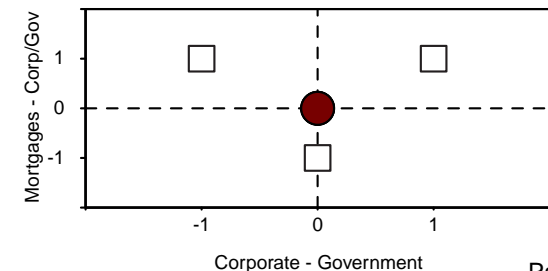
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	0.2	0.0	0.2	0.0
Beta	0.9	0.0	0.8	0.0
Alpha	-0.2	-0.0	-0.1	-0.0
Sharpe	-5.1	0.6	-3.2	-0.2
Sortino	-2.9	-0.1	-2.4	-0.1
Info Ratio	-5.1	0.6	-3.3	-0.2
Down Capture	0.0	5.7	-3.5	17.7
Up Capture	68.3	3.8	66.1	2.7

Historical Style Analysis

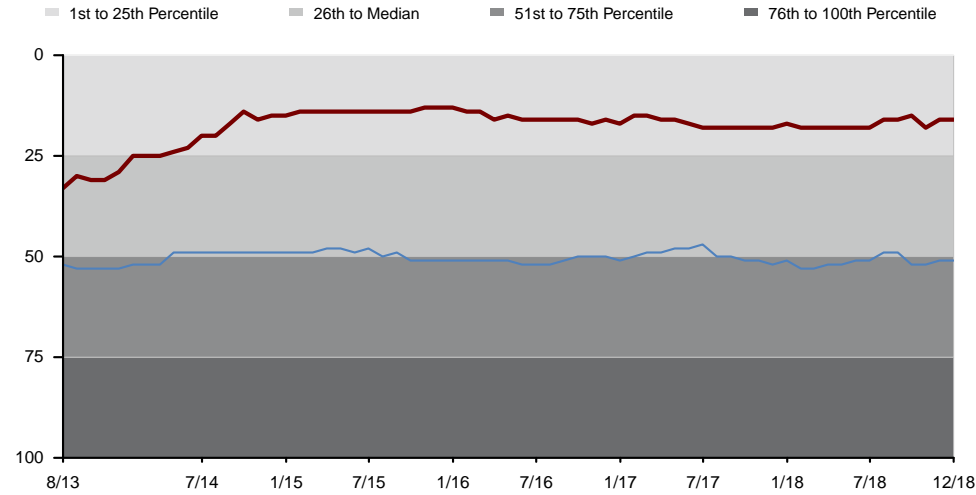


TIAA Stable Value

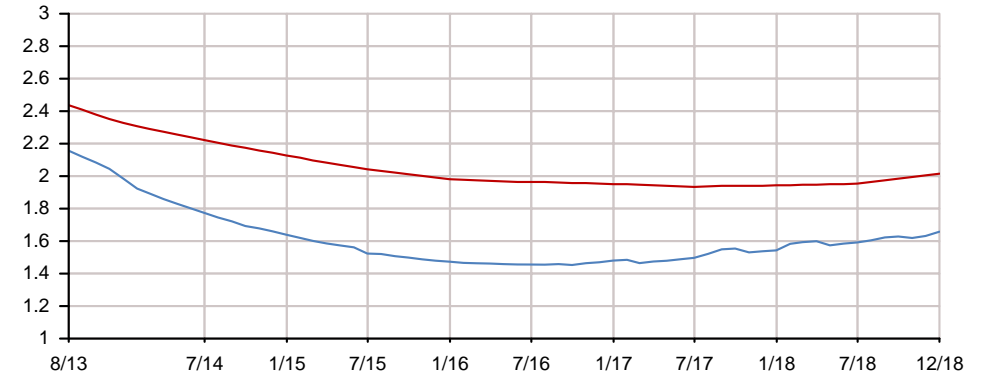
TSVX#

Index: Stable Value Blended Index
Return Date: 12/31/2018

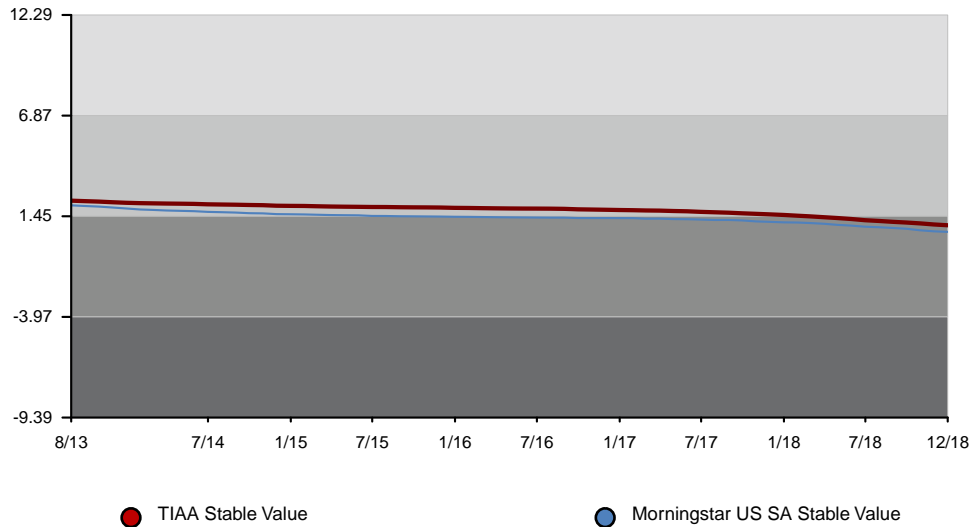
Fund Performance vs. Peer Group (Rolling 36 Months)



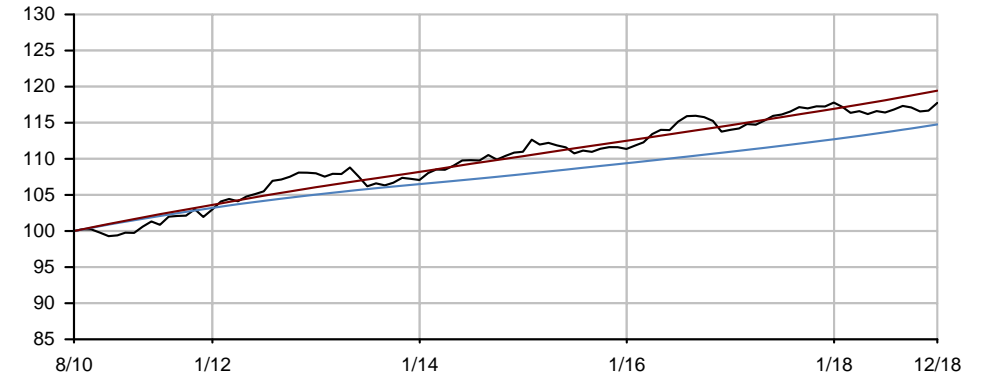
Returns (Rolling 36 Months)



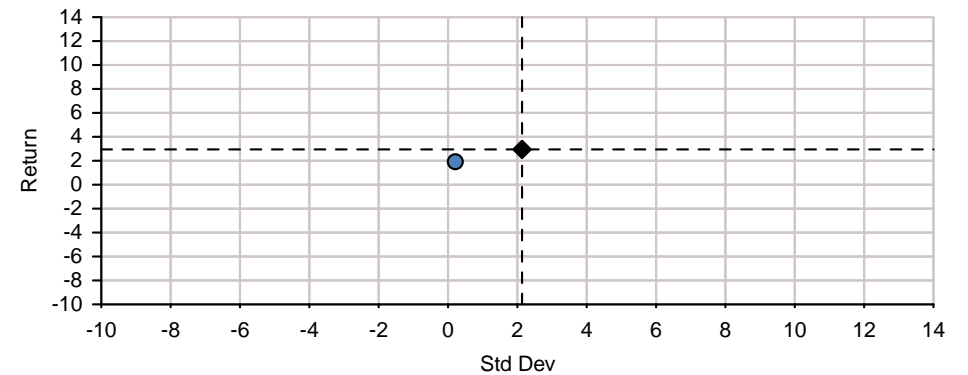
Alpha (Rolling 36 Months)



Growth of \$100



Risk-Reward



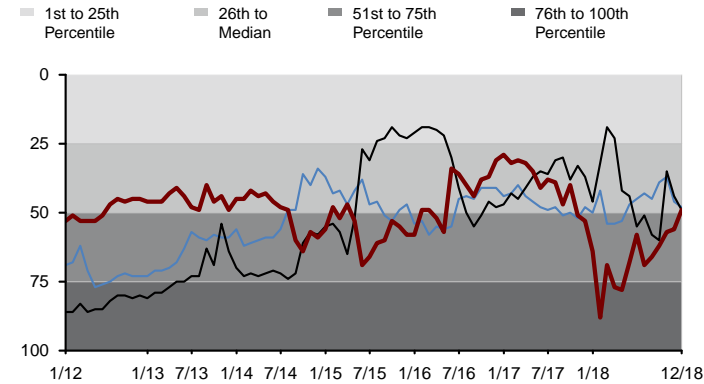
NOTE: Performance data shown on this page is calculated on a gross of fees basis. The rest of the report uses net of fees data to stay consistent with performance measures for other investments.

CREF Inflation-Linked Bond R3

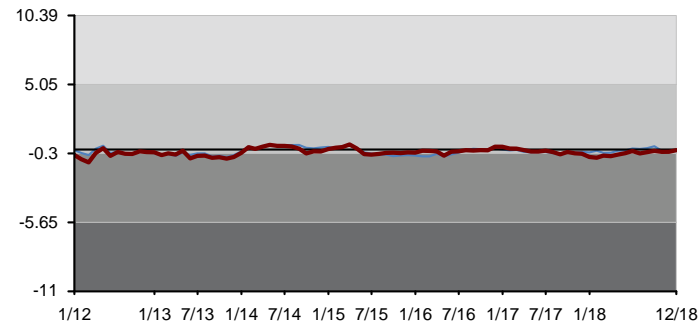
QCILIX

Index: BBgBarc US Trsy Infl Note 1-10Y TR USD
 Category: Inflation-Protected Bond
 Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



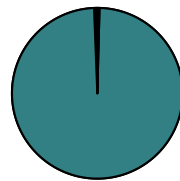
● CREF Inflation-Linked Bond R3 ● BBgBarc US Trsy Infl-Note 1-10Y TR USD ● Morningstar Inflation-Protected Bond

Sector Allocation (%)

Sector Weightings (%)	Fund	Avg
Cash & Equivalents	0.4	5.8
Government	98.4	69.9
Government Related	0.2	8.0
Muni Taxable	0.0	0.0
Muni Tax-Exempt	0.0	0.1
Bank Loan	0.0	1.3
Convertible	0.0	0.3
Corporated Bond	0.2	6.2
Preferred Stock	0.0	0.0
Agency MBS	0.7	2.0
Non-Agency MBS	0.0	0.4
Commercial MBS	0.0	1.3
Covered Bond	0.0	0.0
Asset-Backed	0.0	3.2

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	0.41
Domestic Stock	-
Foreign Stock	-
Domestic Bond	98.99
Foreign Bond	0.36
Other	0.25

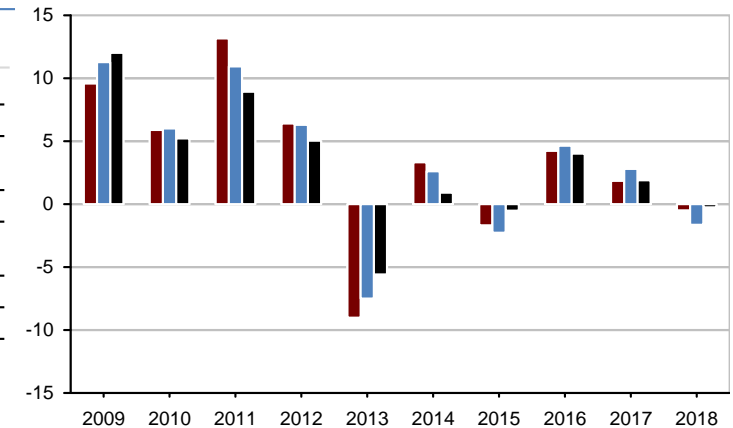
Portfolio Characteristics

	Fund	Avg
Holdings - Bonds	41.0	238.0
Holdings - Other	3.0	34.0
Total Assets (\$MMM)	6,345	2,288
Turnover Ratio	18.0	71.3
Net Expense Ratio	0.2	0.7
Gross Expense Ratio	0.2	0.9
Effective Duration	5.0	5.8
Effective Maturity	5.3	7.4
Avg Credit Quality	3.0	5.3
30 Day SEC Yield	3.0	2.1

Regional Exposure (%)

	Fund	Avg
United States	99.64	
Ukraine	0.28	
India	0.08	

Calendar Year Returns



Risk Statistics

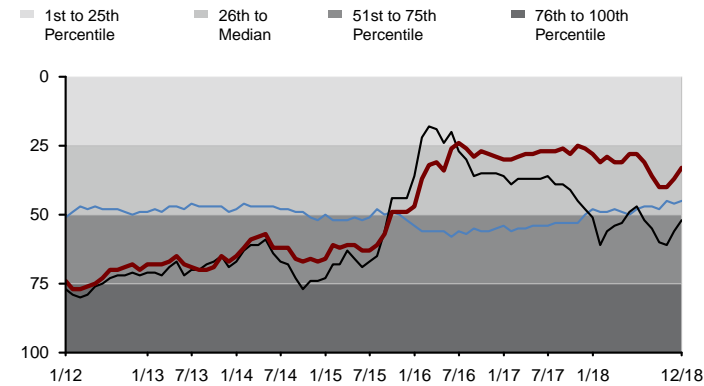
	3 Year		5 Year		Maturity Breakdown (%)	Credit Quality (%)			
	Fund	+/-Avg	Fund	+/-Avg		Fund	Avg		
Std Deviation	2.4	-0.6	3.3	-0.2	1-3 Yrs	26.7	AAA	99.7	80.7
Beta	1.0	0.2	1.2	0.3	3-5 Yrs	27.7	AA	-	3.9
Alpha	-0.1	0.0	0.1	0.6	5-7 Yrs	13.4	A	-	3.1
Sharpe	0.3	0.1	0.3	0.1	7-10 Yrs	24.9	BBB	-	6.8
Sortino	0.5	0.1	0.4	0.2	10-15 Yrs	7.3	BB	-	2.4
Info Ratio	-0.1	0.4	0.2	1.0	15-20 Yrs	0.1	B	-	1.7
Down Capture	102.1	18.5	113.1	19.6	20-30 Yrs	0.1	Below B	-	0.3
Up Capture	100.7	15.0	115.2	29.0	30+ Yrs	-	Not Rated	0.3	1.0

CREF Bond Market R3

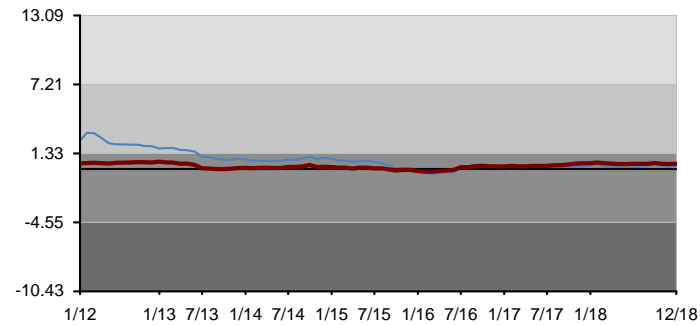
QCBMIX

Index: BBgBarc US Agg Bond TR USD
 Category: Intermediate-Term Bond
 Return Date: 12/31/2018

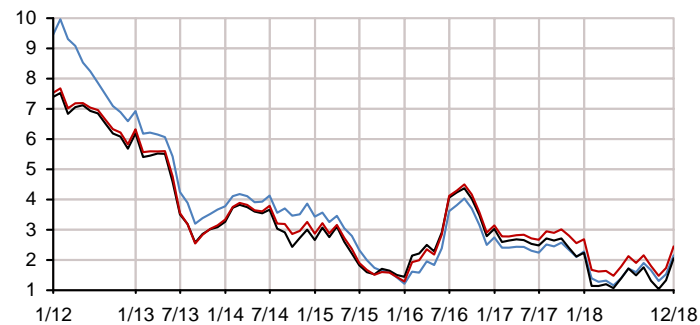
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



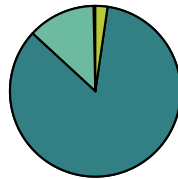
● CREF Bond Market R3 ● BBgBarc US Agg Bond TR USD ● Morningstar Intermediate-Term Bond

Sector Allocation (%)

Sector Weightings (%)	Fund	Avg
Cash & Equivalents	2.3	5.6
Government	17.8	18.0
Government Related	4.0	8.2
Muni Taxable	0.0	0.2
Muni Tax-Exempt	4.1	1.4
Bank Loan	0.0	0.6
Convertible	0.4	0.4
Corporated Bond	32.0	27.9
Preferred Stock	0.1	0.1
Agency MBS	20.3	23.1
Non-Agency MBS	1.3	1.6
Commercial MBS	7.0	3.4
Covered Bond	1.0	0.1
Asset-Backed	9.9	8.5

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.29
Domestic Stock	-
Foreign Stock	-
Domestic Bond	84.11
Foreign Bond	12.74
Other	0.34

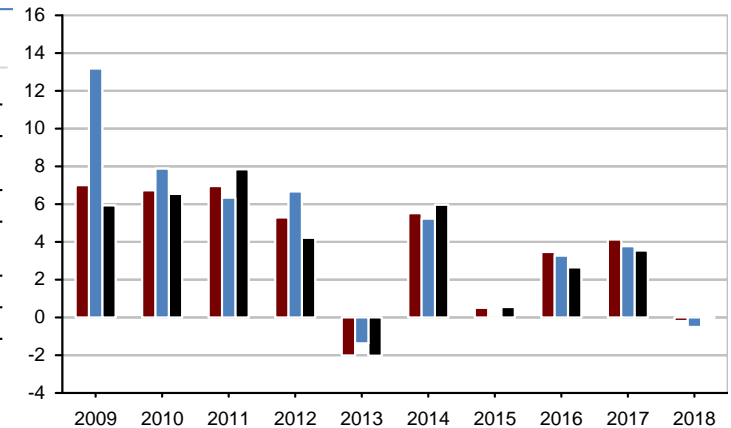
Portfolio Characteristics

	Fund	Avg
Holdings - Bonds	1753.0	1030.0
Holdings - Other	41.0	48.0
Total Assets (\$MMM)	13,221	5,835
Turnover Ratio	140.0	205.8
Net Expense Ratio	0.3	0.7
Gross Expense Ratio	0.3	1.8
Effective Duration	5.8	5.6
Effective Maturity	8.1	8.3
Avg Credit Quality	8.0	8.8
30 Day SEC Yield	3.4	3.1

Regional Exposure (%)

	Fund	Avg
United States	86.9	
Canada	2.72	
United Kingdom	1.26	
Netherlands	1.2	
Japan	0.86	
Germany	0.74	
Mexico	0.51	
France	0.44	
Switzerland	0.36	
Cayman Islands	0.3	

Calendar Year Returns



Risk Statistics

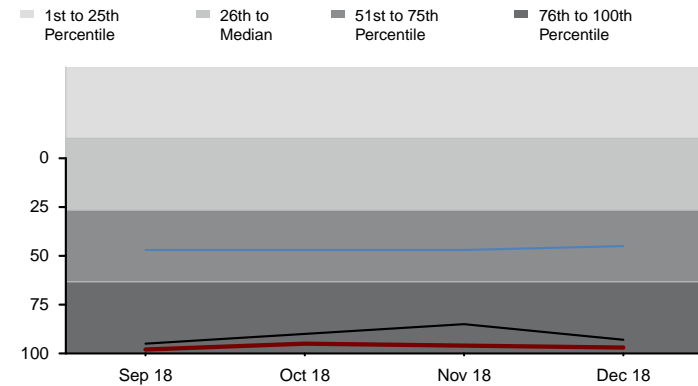
	3 Year		5 Year		Maturity Breakdown (%)	Credit Quality (%)			
	Fund	+/-Avg	Fund	+/-Avg		Fund	Avg		
Std Deviation	2.7	0.0	2.6	-0.0	1-3 Yrs	12.0	AAA	52.9	52.1
Beta	0.9	0.1	0.9	0.1	3-5 Yrs	13.0	AA	7.7	7.9
Alpha	0.5	0.2	0.3	0.2	5-7 Yrs	7.9	A	13.7	12.0
Sharpe	0.5	0.1	0.8	0.1	7-10 Yrs	15.0	BBB	21.0	18.4
Sortino	0.8	0.1	1.3	0.2	10-15 Yrs	6.2	BB	1.9	4.1
Info Ratio	0.9	1.0	0.3	0.7	15-20 Yrs	5.1	B	1.1	2.2
Down Capture	85.2	3.7	92.1	4.4	20-30 Yrs	34.3	Below B	0.5	1.0
Up Capture	99.2	8.3	98.6	9.9	30+ Yrs	3.3	Not Rated	1.2	2.3

Amana Participation Institutional

AMIPX

Index: DJ Sukuk TR USD
Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Sector Allocation (%)

Sector Weightings (%)	Fund
Cash & Equivalents	12.6
Government	0.0
Government Related	12.8
Muni Taxable	0.0
Muni Tax-Exempt	0.0
Bank Loan	0.0
Convertible	0.0
Corporated Bond	74.5
Preferred Stock	0.0
Agency MBS	0.0
Non-Agency MBS	0.0
Commercial MBS	0.0
Covered Bond	0.0
Asset-Backed	0.0

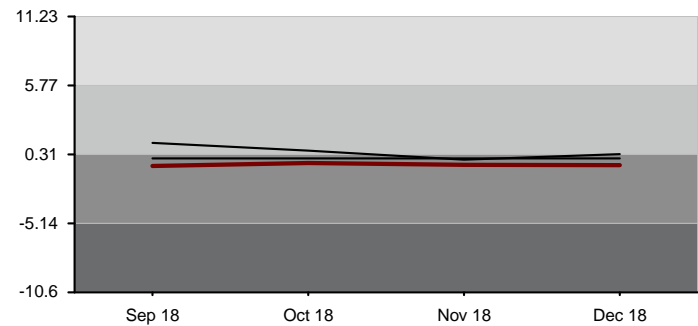
Portfolio Characteristics

	Fund
Holdings - Bonds	25.0
Holdings - Other	4.0
Total Assets (\$MMM)	65
Turnover Ratio	-
Net Expense Ratio	0.6
Gross Expense Ratio	0.6
Effective Duration	3.4
Effective Maturity	3.9
Avg Credit Quality	10.0
30 Day SEC Yield	3.4

Regional Exposure (%)

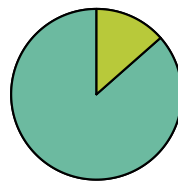
	Fund
United Arab Emirates	36.36
Cayman Islands	11.21
Qatar	10.33
Malaysia	10.19
Saudi Arabia	7.94
Supranational	5.9
United Kingdom	5.44
Indonesia	4.95
Oman	4.71
Vietnam	2.96

Alpha (Rolling 36 Months)



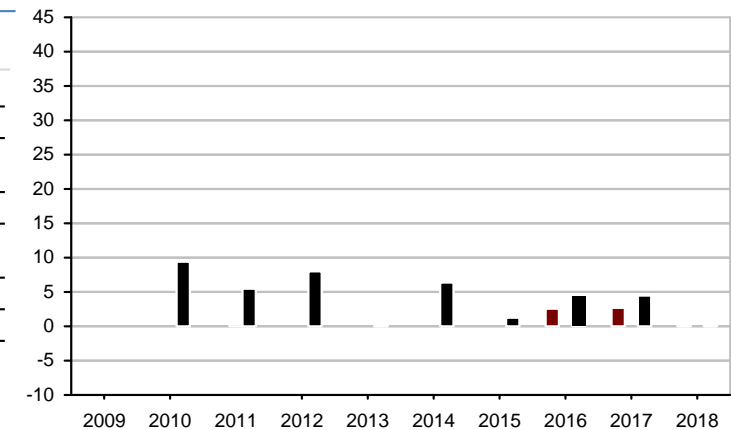
Asset Allocation

Portfolio Date: 11/30/2018

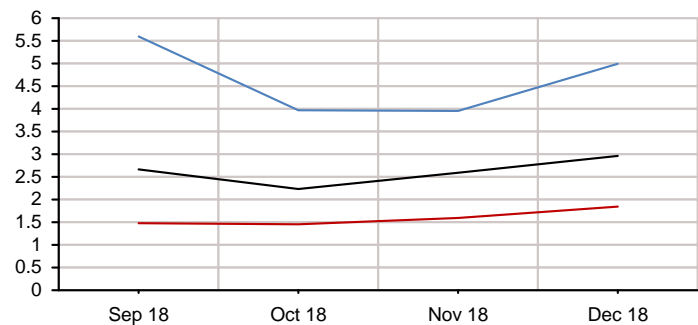


	%
Cash	13.5
Domestic Stock	-
Foreign Stock	-
Domestic Bond	-
Foreign Bond	86.5
Other	-

Calendar Year Returns



Returns (Rolling 36 Months)



● Amana Participation Institutional ● DJ Sukuk TR USD ● Morningstar Emerging-Markets Bond

Risk Statistics

	3 Year Fund	5 Year Fund
Std Deviation	1.7	0.0
Beta	0.7	0.0
Alpha	-0.5	0.0
Sharpe	0.5	0.0
Sortino	0.8	0.0
Info Ratio	-1.3	0.0
Down Capture	76.3	0.0
Up Capture	67.3	0.0

Maturity Breakdown (%)

	Fund
1-3 Yrs	34.0
3-5 Yrs	12.8
5-7 Yrs	32.4
7-10 Yrs	15.1
10-15 Yrs	-
15-20 Yrs	-
20-30 Yrs	-
30+ Yrs	-

Credit Quality (%)

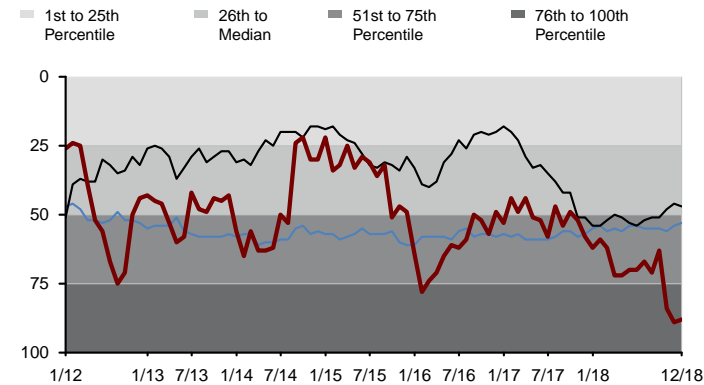
	Fund
AAA	8.3
AA	5.8
A	34.3
BBB	47.3
BB	-
B	4.3
Below B	-
Not Rated	-

TIAA-CREF Large-Cap Value Instl

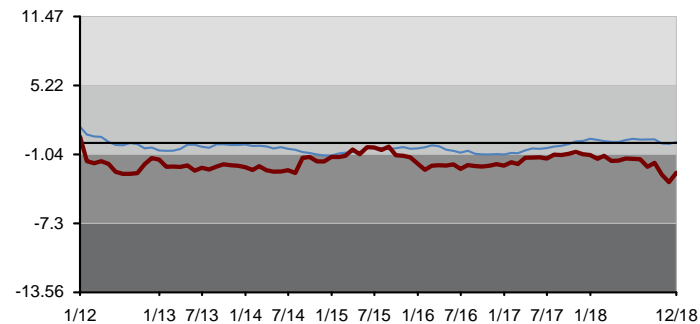
TRLIX

Index: Russell 1000 Value TR USD
 Category: Large Value
 Return Date: 12/31/2018

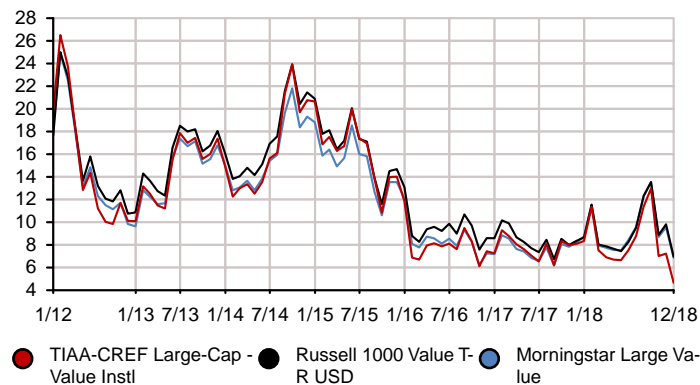
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

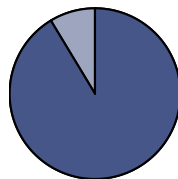


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	169.0	115.0	725.0
Holdings - Bonds	-	6.0	0.0
Holdings - Other	1.0	7.0	-
Turnover Ratio	53.0	58.5	-
Net Expense Ratio	0.4	1.0	-
Gross Expense Ratio	0.4	1.2	-
Avg Mkt Cap (\$MM)	40,450	64,959	56,845
Total Assets (\$MM)	5,637	3,630	-
P/E Ratio	14.6	15.6	13.4
P/B Ratio	1.6	2.2	1.8
P/S Ratio	1.2	1.8	1.5
P/CF Ratio	8.4	41.9	8.8
ROE %	10.0	14.7	-
ROA %	3.0	5.2	-
Dividend Yld	2.5	2.7	2.9

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	-
Domestic Stock	91.35
Foreign Stock	8.65
Domestic Bond	-
Foreign Bond	-
Other	-

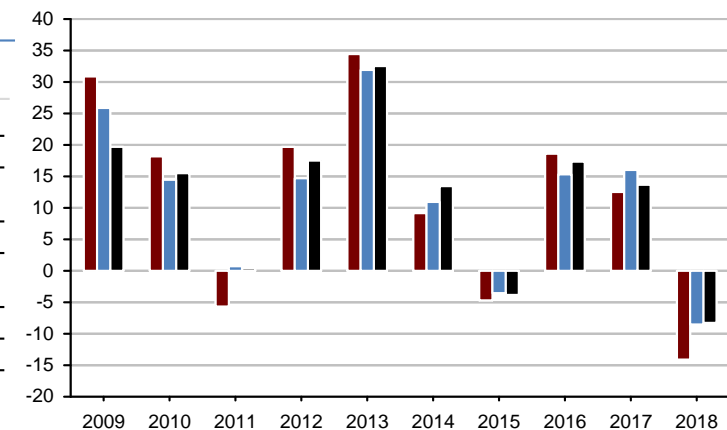
Sector Allocation (%)

	Fund	Avg	Idx
Energy	10.6	9.8	9.4
Materials	4.5	3.3	3.8
Industrials	7.8	9.6	7.6
Cons Discretionary	5.6	6.9	-
Consumer Staples	9.8	9.9	-
Healthcare	15.2	14.8	15.6
Financials	21.8	21.3	22.2
Info Technology	13.2	11.1	9.2
Telecom Services	8.3	5.7	-
Utilities	3.2	5.0	6.4

Top 10 Holdings

	Fund %
Bank of America Corpor...	3.4
Pfizer Inc	2.3
Cisco Systems Inc	2.3
Verizon Communications...	2.1
Wells Fargo & Co	2.1
Citigroup Inc	1.9
CVS Health Corp	1.9
Allergan PLC	1.8
Goldman Sachs Group Inc	1.7
JPMorgan Chase & Co	1.6

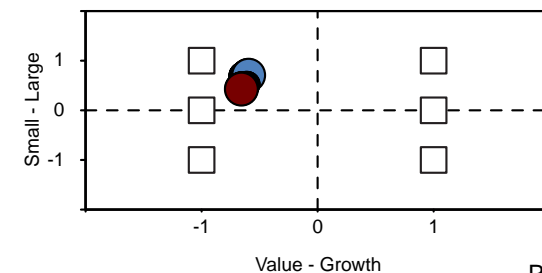
Calendar Year Returns



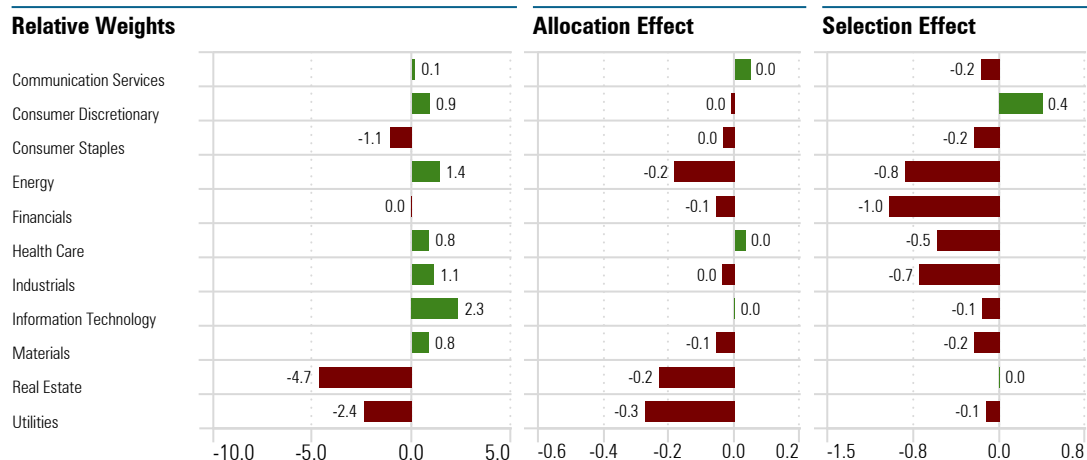
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	12.5	1.1	12.2	0.9
Beta	1.1	0.1	1.1	0.1
Alpha	-2.7	-2.8	-2.7	-2.3
Sharpe	0.3	-0.2	0.3	-0.2
Sortino	0.4	-0.4	0.3	-0.3
Info Ratio	-0.8	-0.7	-0.9	-0.7
Down Capture	118.6	22.9	116.2	18.1
Up Capture	99.5	2.9	98.4	3.2

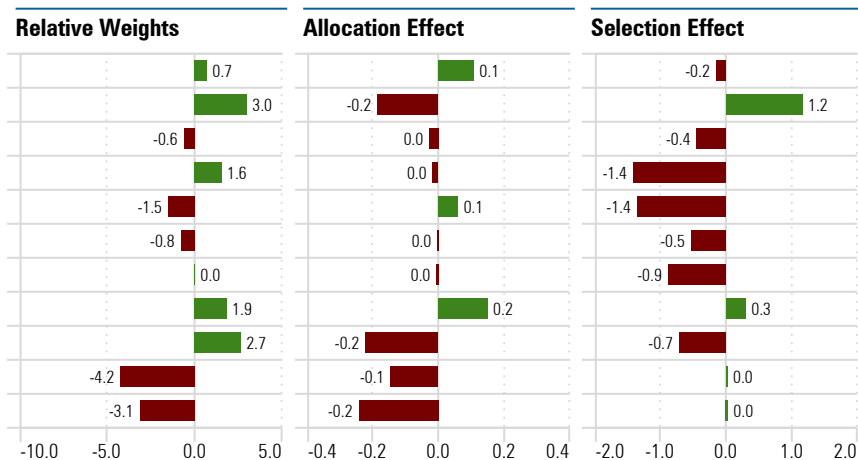
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
MEG Energy Corp	0.10	29.07	0.11
Cree Inc	0.35	16.56	0.10
Deere & Co	0.42	-3.18	0.10
Arcos Dorados Holdings Inc	0.20	33.04	0.08
General Motors Co	0.76	12.71	0.08
Chubb Ltd	0.74	-2.77	0.07
NVR Inc	0.27	-0.53	0.07
Knight-Swift Transportation Holdings Inc A	0.48	0.70	0.07
American Airlines Group Inc	0.47	-2.56	0.07
Tesaro Inc	0.15	18.89	0.07

Leading Contributors

Company	Rescaled Weight	Return	Active Return
Via Varejo SA Unit	0.24	328.41	1.01
Advanced Micro Devices Inc	0.64	107.20	0.53
Pandora Media Inc	0.53	80.29	0.34
Molina Healthcare Inc	0.60	82.20	0.28
Advance Auto Parts Inc	0.52	60.47	0.23
MEG Energy Corp	0.21	76.93	0.18
Schlumberger Ltd	0.09	-14.37	0.17
Target Corp	0.30	37.44	0.16
FirstEnergy Corp	1.02	27.83	0.14
Cardinal Health Inc	0.10	13.81	0.13

Leading Detractors

Company	Rescaled Weight	Return	Active Return
Bombardier Inc	0.54	-53.06	-0.38
Allergan PLC	1.37	-29.52	-0.25
Parsley Energy Inc A	0.85	-31.18	-0.23
Citigroup Inc	2.38	-26.94	-0.19
General Electric Co	0.77	-32.86	-0.18
Advanced Micro Devices Inc	0.40	-31.05	-0.15
Berkshire Hathaway Inc B	0.98	-4.64	-0.14
Intel Corp	1.21	-0.13	-0.13
Concho Resources Inc	0.91	-32.71	-0.13
Goldman Sachs Group Inc	1.54	-25.20	-0.12

Leading Detractors

Company	Rescaled Weight	Return	Active Return
The Kraft Heinz Co	1.59	-31.42	-0.45
Parsley Energy Inc A	1.31	-31.62	-0.37
Weatherford International PLC	0.36	-67.63	-0.30
Berkshire Hathaway Inc B	0.85	3.01	-0.29
Bombardier Inc	0.61	-41.11	-0.27
Allergan PLC	1.48	-16.87	-0.26
Goldman Sachs Group Inc	1.77	-33.52	-0.25
General Electric Co	0.89	-55.39	-0.25
Citigroup Inc	2.35	-28.49	-0.21
Triumph Group Inc	0.57	-37.73	-0.19

TIAA-CREF Large-Cap Value Instl

Near-term Performance

◆ TIAA-CREF Large-Cap Value Instl

◻ Russell 1000 Value TR USD

◇ US Fund Large Value

TIAA-CREF Large-Cap Value Instl - Snapshot

	Fund	Index	Cat Avg
Ticker	TRLIX		
Morningstar Cat	US Fund Large Value	Large Value	Large Value
Morningstar Inst Cat	Large Deep Value		

Equity Style Box



Prosp Net Expense

0.40% 1.01%

US Equity %

97.3 98.5 91.3

Non-US Equity %

2.7% 1.5% 5.4%

Cash %

0.1% 0.0% 1.9%

Bond %

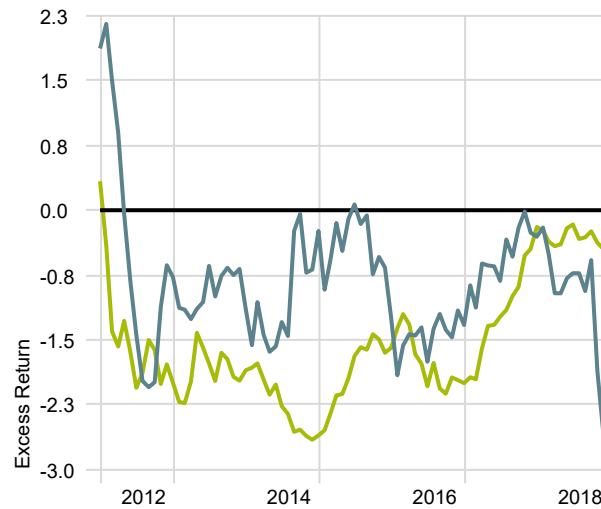
0.0% 0.0% 0.9%

Other %

0.0% 0.0% 0.5%

Rolling 3 Year Returns - Relative to Index

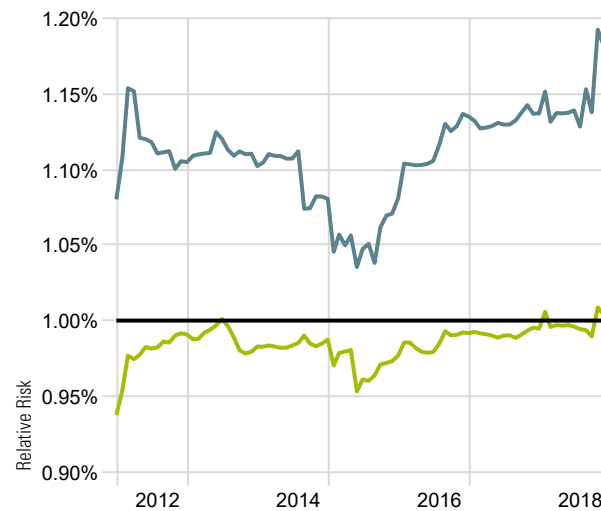
Rolling Window: 3 Years 1 Month shift



— TIAA-CREF Large-Cap Value Instl — Russell 1000 Value TR USD — US Fund Large Value

Rolling 3 Year Risk - Relative to Index

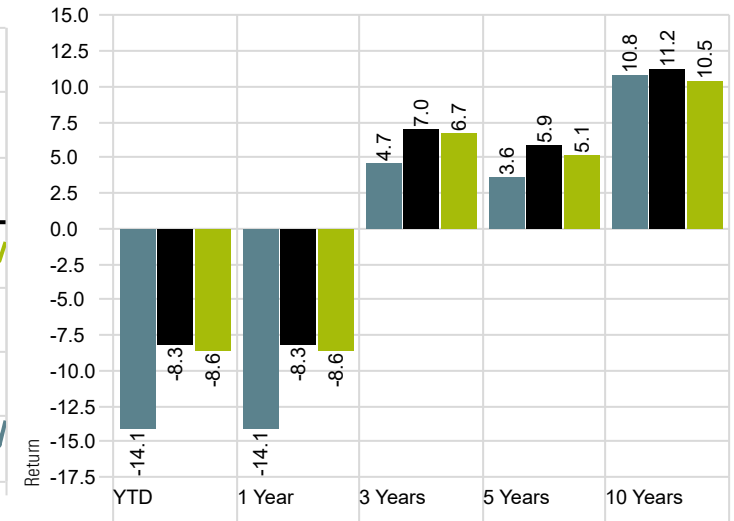
Rolling Window: 3 Years 1 Month shift



— TIAA-CREF Large-Cap Value Instl — Russell 1000 Value TR USD — US Fund Large Value

Returns

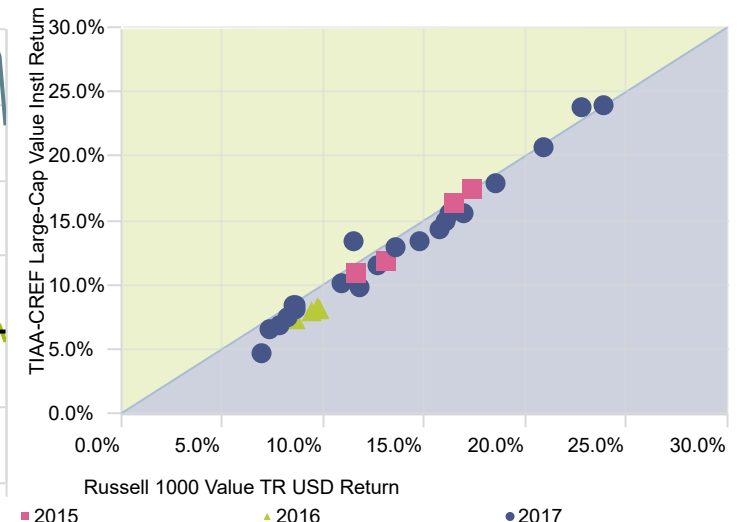
Calculation Benchmark: Russell 1000 Value TR USD



— TIAA-CREF Large-Cap Value Instl — Russell 1000 Value TR USD — US Fund Large Value

Rolling 3 Year Over/Under Benchmark Performance

Rolling Window: 3 Years 3 Months shift

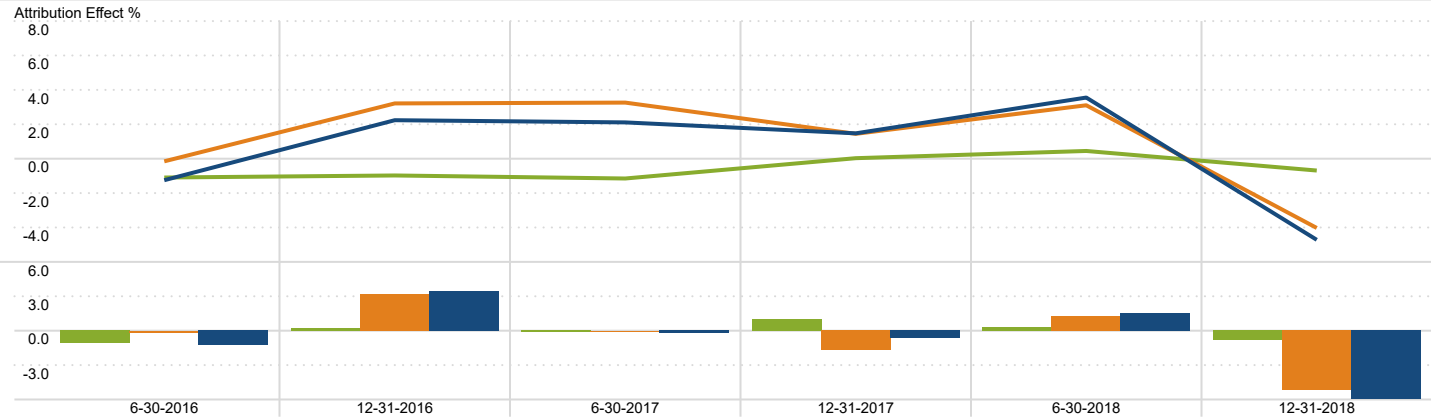


■ 2015 ▲ 2016 ● 2017
— Zero Excess Return

3 Year Cumulative Attribution Effects

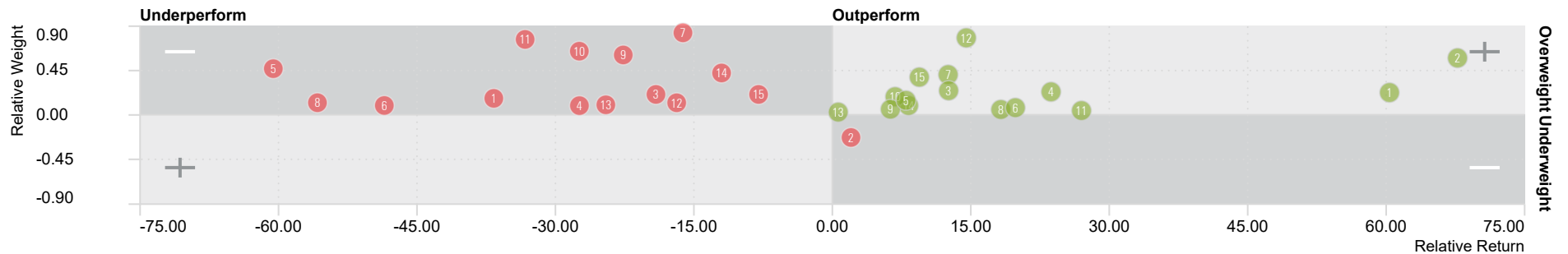
GICS Sector Cumulative Attribution Effects

— Cumulative Allocation Effect
— Cumulative Selection Effect
— Cumulative Active Return



Selection Effects

Time Period: 1/1/2016 to 12/31/2018



Best Selections					Worst Selections				
	GICS Sector	Weight +/-	Return +/-	Effect		GICS Sector	Weight +/-	Return +/-	Effect
1	Via Varejo SA Unit	0.22	60.36	0.65	1	Tronox Ltd	0.17	-36.68	-0.40
2	Advanced Micro Device...	0.57	67.73	0.45	2	McDonald's Corp	-0.23	2.02	-0.38
3	Molina Healthcare Inc	0.24	12.60	0.33	3	Bombardier Inc	0.20	-19.11	-0.36
4	IAC/InterActiveCorp	0.23	23.69	0.30	4	Dynegy Inc	0.09	-27.40	-0.32
5	Advance Auto Parts Inc	0.14	7.97	0.25	5	Weatherford Internation...	0.46	-60.57	-0.32
6	MEG Energy Corp	0.07	19.83	0.25	6	Hertz Global Holdings Inc	0.09	-48.54	-0.28
7	Terex Corp	0.40	12.54	0.22	7	The Kraft Heinz Co	0.82	-16.19	-0.27
8	Axiall Corp	0.05	18.25	0.21	8	Endo International PLC	0.12	-55.79	-0.26
9	Sberbank of Russia PJ...	0.06	6.29	0.19	9	Cenovus Energy Inc	0.60	-22.65	-0.25
10	Nintendo Co Ltd	0.18	6.80	0.19	10	Triumph Group Inc	0.64	-27.41	-0.24
11	Joy Global Inc	0.04	26.99	0.17	11	Allergan PLC	0.76	-33.29	-0.23
12	Pinnacle Foods Inc	0.77	14.51	0.15	12	Teck Resources Ltd Cla...	0.12	-16.87	-0.23
13	SUMCO Corp	0.03	0.64	0.14	13	Fossil Group Inc	0.10	-24.54	-0.22
14	Sands China Ltd	0.09	8.25	0.13	14	Gilead Sciences Inc	0.42	-12.00	-0.21
15	Fortive Corp	0.38	9.42	0.12	15	TechnipFMC PLC	0.20	-7.99	-0.19

TIAA-CREF Large-Cap Value Instl

Near-term Performance

Sector						Morningstar Style Box						Regional					
Time Period: 1/1/2016 to 12/31/2018						Time Period: 1/1/2016 to 12/31/2018						Time Period: 1/1/2016 to 12/31/2018					
	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return		+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return		+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Communication Services	0.54	-1.24	-0.01	-0.07	-0.09	Large Blend	-9.24	-3.85	-0.41	-0.69	-1.10	Africa	0.05	15.15	-0.01	0.00	0.00
Consumer Discretionary	3.42	8.95	-0.17	0.78	0.60	Large Growth	1.63	-1.32	0.24	0.02	0.26	Asia - Developed	0.42		0.02	0.00	0.02
Consumer Staples	0.30	-3.06	-0.09	-0.25	-0.34	Large Value	-3.17	-2.47	0.05	-1.27	-1.22	Asia - Emerging	0.54	-5.84	0.03	-0.01	0.02
Energy	0.59	-1.92	-0.03	-0.18	-0.21	Mid Blend	1.30	7.21	0.10	0.82	0.92	Canada	1.90	-24.65	-0.22	-0.28	-0.50
Financials	-1.63	-2.07	-0.18	-0.55	-0.73	Mid Growth	2.60	-5.00	0.33	-0.30	0.03	Europe - Emerging	0.26		-0.01	0.00	-0.01
Health Care	-0.55	-1.09	0.03	-0.21	-0.18	Mid Value	0.45	1.34	0.00	0.35	0.35	Europe - ex Euro	0.32	-5.34	0.03	-0.06	-0.03
Industrials	-0.47	-4.84	-0.07	-0.44	-0.51	Small Blend	0.68	7.35	0.04	0.14	0.18	Eurozone	1.12	8.83	-0.26	0.16	-0.09
Information Technology	1.84	1.29	0.18	0.13	0.31	Small Growth	2.18	16.08	-0.61	0.53	-0.08	Japan	0.75		0.15	0.00	0.15
Materials	2.43	-8.80	0.07	-0.58	-0.51	Small Value	3.10	-2.52	-1.00	-0.32	-1.32	Latin America	0.43	24.66	0.02	0.35	0.37
Real Estate	-3.84	6.26	0.16	0.03	0.19	Unclassified	0.48	52.74	0.02	0.39	0.41	Middle East	0.32		0.11	0.00	0.11
Utilities	-2.73	0.61	-0.10	0.00	-0.10	Attribution Total	0.00	-1.39	-1.24	-0.33	-1.57	United Kingdom	0.10	-16.29	0.02	-0.06	-0.03
Unclassified	0.09		0.00	0.00	0.00	Bond						United States	-6.30	-1.51	-0.01	-1.51	-1.51
Attribution Total	0.00	-1.39	-0.23	-1.34	-1.57							Unclassified	0.09		0.00	0.00	0.00
Bond												Attribution Total	0.00	-1.39	-0.19	-1.38	-1.57

Factor Exposure

As of Date : 12/31/2018



TIAA-CREF Large-Cap Value Instl

Near-term Performance

P/FCF Ratio

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
p/fcf [29.22 - 22446.02]	-0.89	-4.18	-0.02	-0.76	-0.78
p/fcf [19.64 - 29.22]	-6.47	-0.64	0.07	0.04	0.11
p/fcf [13.95 - 19.64]	-2.72	2.69	-0.16	0.39	0.24
p/fcf [10.39 - 13.95]	-0.99	0.09	-0.04	0.06	0.03
p/fcf [0.76 - 10.39]	-0.07	-2.48	-0.16	-0.45	-0.61
Unclassified	11.15	-2.40	-0.11	-0.44	-0.55
Attribution Total	0.00	-1.39	-0.41	-1.16	-1.57
Bond					

Debt-to-Capital

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Debt to Capital [54.62 - 99.82]	2.80	-3.96	-0.11	-0.95	-1.06
Debt to Capital [45.36 - 54.62]	-2.12	-0.61	0.04	-0.13	-0.09
Debt to Capital [32.49 - 45.36]	-0.37	-4.23	-0.01	-1.11	-1.12
Debt to Capital [22.48 - 32.49]	0.55	-0.13	0.05	-0.08	-0.03
Debt to Capital [0.00 - 22.48]	-4.04	1.42	0.01	0.23	0.24
Unclassified	3.18	1.78	-0.17	0.65	0.49
Attribution Total	0.00	-1.39	-0.19	-1.38	-1.57
Bond					

P/B Ratio

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
P/B 4 Buckets [4.12 - 3498.21]	2.67	-1.55	0.30	-0.45	-0.14
P/B 4 Buckets [2.29 - 4.12]	-5.32	0.28	-0.24	0.12	-0.12
P/B 4 Buckets [1.35 - 2.29]	-6.80	1.05	0.13	0.38	0.51
P/B 4 Buckets [0.00 - 1.35]	8.32	-0.46	-0.94	-0.23	-1.17
Unclassified	1.12	-13.00	-0.07	-0.59	-0.66
Attribution Total	0.00	-1.39	-0.81	-0.76	-1.57
Bond					

EPS Growth

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
NI Growth % 1 yr [105.63 - 11300.00]	1.61	-2.80	0.06	-0.60	-0.54
NI Growth % 1 yr [32.87 - 105.63]	-1.10	0.79	-0.21	0.04	-0.17
NI Growth % 1 yr [5.73 - 32.87]	-2.39	-1.28	-0.02	-0.09	-0.12
NI Growth % 1 yr [-34.23 - 5.73]	-2.68	0.17	0.04	0.05	0.09
NI Growth % 1 yr [-98.86 - -34.23]	-4.26	0.20	-0.22	-0.03	-0.25
Unclassified	8.81	1.90	-1.34	0.76	-0.58
Attribution Total	0.00	-1.39	-1.71	0.14	-1.57
Bond					

Dividend Yield

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Div Yield % [5.00 - +∞)	0.20	-0.92	-0.08	0.01	-0.07
Div Yield % [3.00 - 5.00]	-7.78	-0.58	0.12	-0.21	-0.09
Div Yield % [2.00 - 3.00]	-9.09	-3.16	0.13	-0.61	-0.48
Div Yield % [1.00 - 2.00]	3.78	-1.84	0.13	-0.39	-0.26
Div Yield % [0.01 - 1.00]	1.87	1.91	0.00	0.14	0.14
Div Yield % [0.00 - 0.01]	11.02	-3.52	-0.16	-0.65	-0.81
Attribution Total	0.00	-1.39	0.13	-1.70	-1.57
Bond					

ROE

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
ROE [16.43 - 3622.59]	-6.13	-5.03	-0.25	-1.09	-1.33
ROE [11.55 - 16.43]	-6.23	2.25	-0.06	0.29	0.23
ROE [8.47 - 11.55]	-5.25	0.87	-0.06	0.30	0.24
ROE [4.71 - 8.47]	3.97	-2.14	-0.08	-0.46	-0.54
ROE [-1784.59 - 4.71]	10.85	2.14	-1.13	0.73	-0.40
Unclassified	2.78	-0.55	-0.25	0.49	0.23
Attribution Total	0.00	-1.39	-1.83	0.26	-1.57
Bond					

TIAA-CREF Large-Cap Value Instl

Style Analysis

◆ TIAA-CREF Large-Cap Value Instl

◇ Russell 1000 Value TR USD

◇ US Fund Large Value

TIAA-CREF Large-Cap Value Instl - Snapshot

Inv Bmk1 Cat Avg

Equity Style Box

Style Consistency Medium High High

Style Dispersion High Medium Medium

Average Market Cap (mil) 92,575 61,065 101,469

P/E Ratio (TTM) 14.4 16.8 15.6

P/S Ratio (TTM) 1.8 1.6 1.8

P/B Ratio (TTM) 2.0 2.0 2.1

P/FCF Ratio (TTM) 20.9 22.4 21.9

ROE % (TTM) 17.5 15.0 19.7

ROA % (TTM) 6.1 5.5 6.6

Debt to Capital % (trailing) 42 41 41

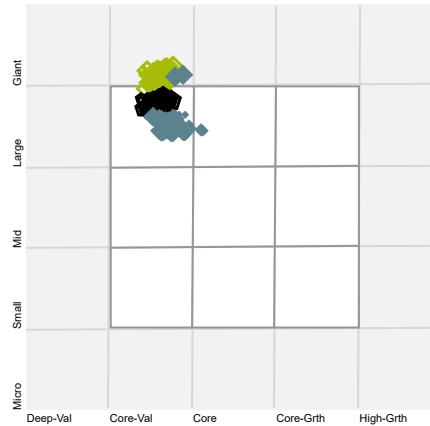
Div Yld % 2.5 2.8 2.8

US Equity % 97.3% 98.5% 91.3%

Non-US Equity % 2.7% 1.5% 5.4%

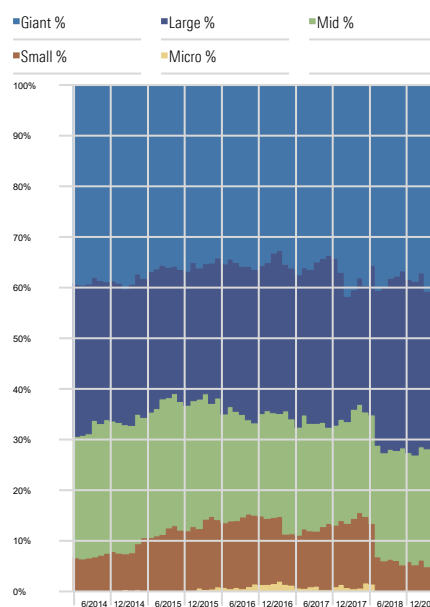
Cash % 0.1% 0.0% 1.9%

Holdings-Based Style Trail



◆ TIAA-CREF Large-Cap Value Instl ◆ Russell 1000 Value TR USD ◆ US Fund Large Value

Equity Market Capitalization



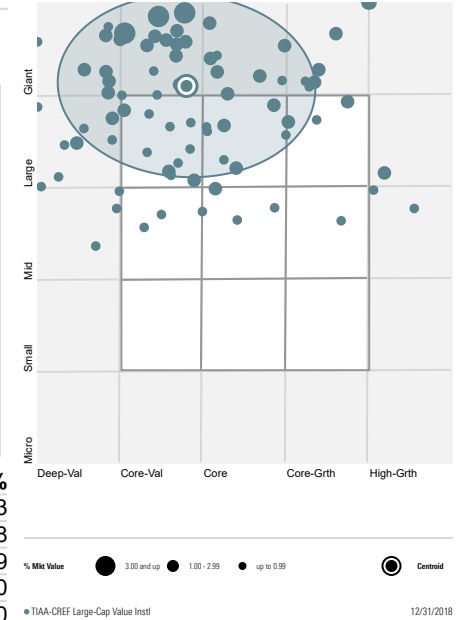
Morningstar Style Box

Portfolio Date: 12/31/2018

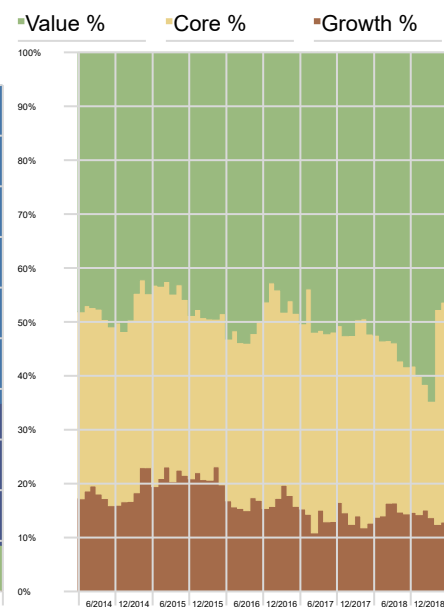
	Value	Blend	Growth
Large	43	38	10
Mid	3	3	3
Small	0	0	0

Market Cap	%
Market Cap Giant %	63
Market Cap Large %	28
Market Cap Mid %	9
Market Cap Small %	0
Market Cap Micro %	0

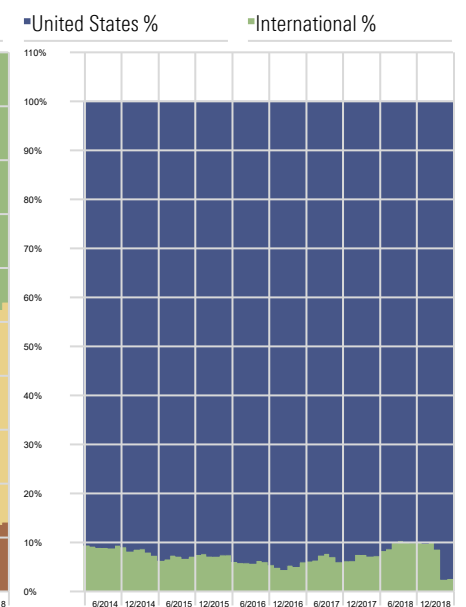
Holdings-Based Style Map



Equity Style Valuation



International Exposure

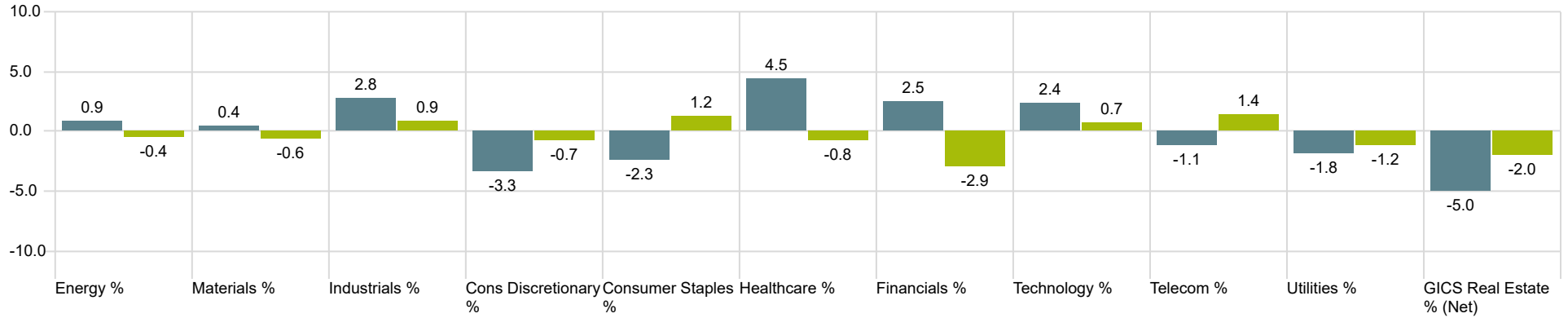


TIAA-CREF Large-Cap Value Instl

Style Analysis

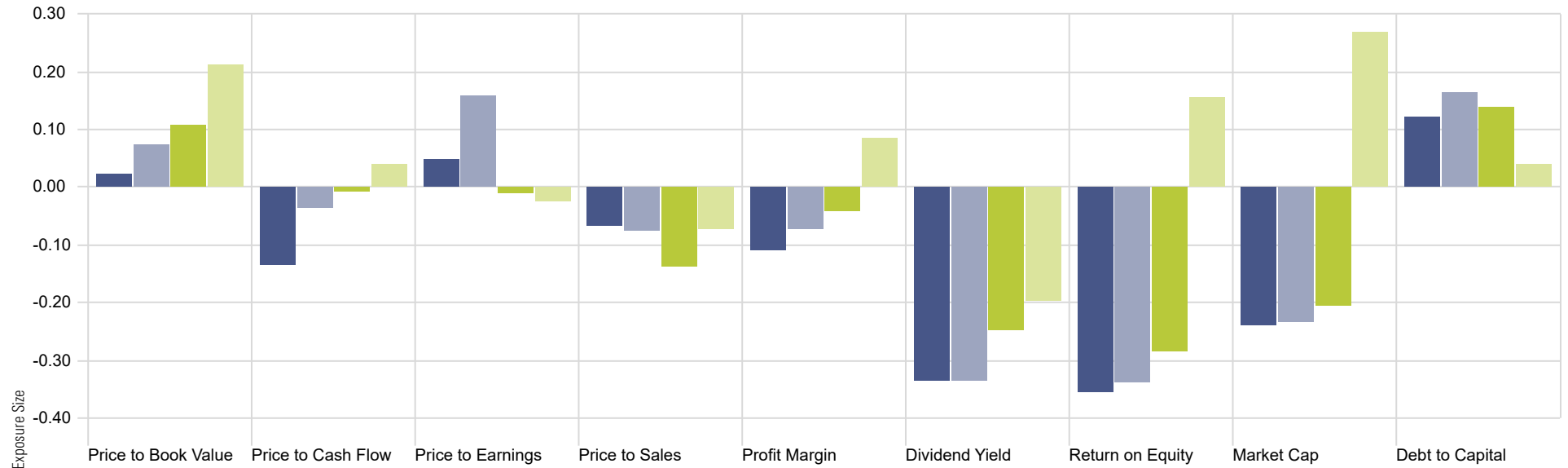
Supplementary Data

Calculation Benchmark: Russell 1000 Value TR USD



■ TIAA-CREF Large-Cap Value Instl ■ Russell 1000 Value TR USD ■ US Fund Large Value

Historical Factor Exposure



■ 12/31/2015 ■ 12/31/2016 ■ 12/31/2017 ■ 12/31/2018

TIAA-CREF Large-Cap Value Instl

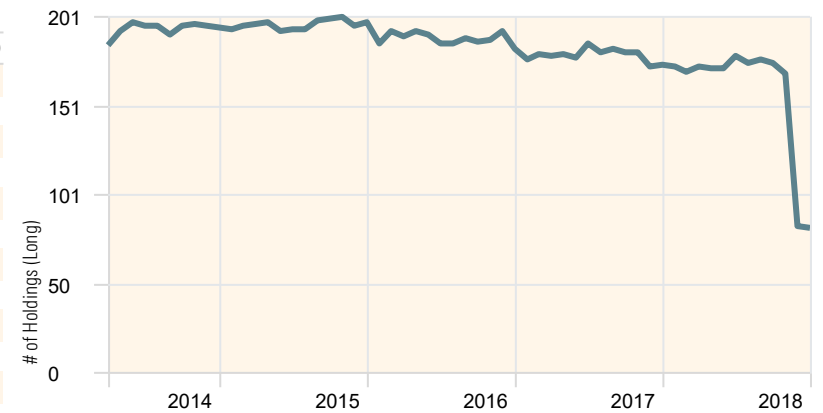
Style Analysis

Top 40 Holdings

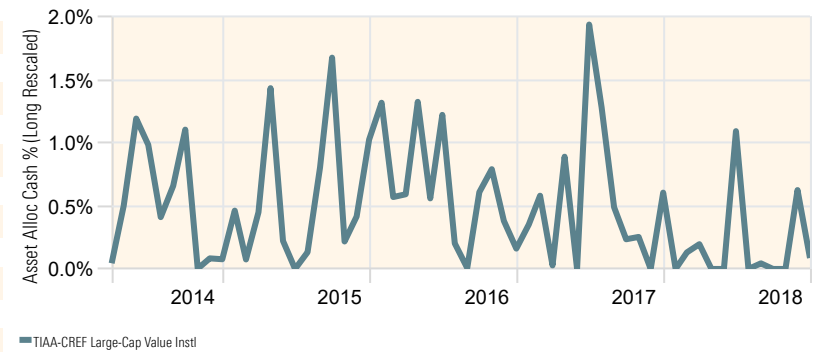
Calculation Benchmark: Russell 1000 Value TR USD Portfolio Date: 12/31/2018

Company	Und Weight	Idx Weight	Share Change	Style	Sector	Return YTD
JPMorgan Chase & Co	4.8%	2.7%	52,140	■	Financial Services	8%
Bank of America Corporation	3.5%	1.9%	0	■	Financial Services	20%
Johnson & Johnson	3.2%	2.4%	0	■	Healthcare	8%
Cisco Systems Inc	2.9%	1.7%	0	■	Technology	19%
Chevron Corp	2.9%	1.8%	0	■	Energy	13%
Citigroup Inc	2.9%	1.1%	0	■	Financial Services	25%
Pfizer Inc	2.6%	2.1%	0	■	Healthcare	0%
Comcast Corp Class A	2.5%	1.3%	0	■	ommunication Services	15%
Procter & Gamble Co	2.4%	1.9%	0	■	Consumer Defensive	8%
Verizon Communications Inc	2.3%	2.0%	0	■	ommunication Services	2%
Merck & Co Inc	2.2%	1.6%	0	■	Healthcare	7%
EOG Resources Inc	2.1%	0.4%	0	■	Energy	11%
Wells Fargo & Co	2.1%	1.7%	0	■	Financial Services	10%
Anthem Inc	2.1%	0.6%	0	■	Healthcare	17%
Berkshire Hathaway Inc B	2.0%	2.9%	0	■	Financial Services	-1%
DowDuPont Inc	1.9%	1.0%	0	■	Basic Materials	0%
Microsoft Corp	1.9%	0.3%	0	■	Technology	11%
Intel Corp	1.7%	1.8%	0	■	Technology	14%
Honeywell International Inc	1.6%	0.3%	0	■	Industrials	18%
Chubb Ltd	1.5%	0.5%	21,485	■	Financial Services	4%
Cigna Corp	1.5%	0.4%	450,000	■	Healthcare	-6%
Abbott Laboratories	1.5%	1.0%	0	■	Healthcare	9%
Concho Resources Inc	1.5%	0.1%	0	■	Energy	8%
UnitedHealth Group Inc	1.4%		0	■	Healthcare	-1%
Deere & Co	1.3%		0	■	Industrials	9%
Union Pacific Corp	1.3%	0.1%	0	■	Industrials	22%
Ingersoll-Rand PLC	1.3%	0.1%	30,000	■	Industrials	16%
NextEra Energy Inc	1.3%	0.7%	0	■	Utilities	9%
Goldman Sachs Group Inc	1.2%	0.5%	0	■	Financial Services	19%
Philip Morris International Inc	1.2%	0.9%	0	■	Consumer Defensive	31%
CVS Health Corp	1.2%	0.7%	75,200	■	Healthcare	-11%
American International Group Ir	1.2%	0.3%	0	■	Financial Services	10%
Oracle Corp	1.2%	0.9%	-100,000	■	Technology	17%
Exxon Mobil Corp	1.1%	2.4%	0	■	Energy	19%
The Home Depot Inc	1.1%		0	■	Consumer Cyclical	8%
PNC Financial Services Group	1.1%	0.5%	0	■	Financial Services	9%
Stanley Black & Decker Inc	1.0%	0.2%	20,338	■	Industrials	11%
Medtronic PLC	1.0%	1.0%	0	■	Healthcare	1%
Ball Corp	1.0%	0.1%	0	■	Consumer Cyclical	20%
Zimmer Biomet Holdings Inc	1.0%	0.2%	0	■	Healthcare	21%

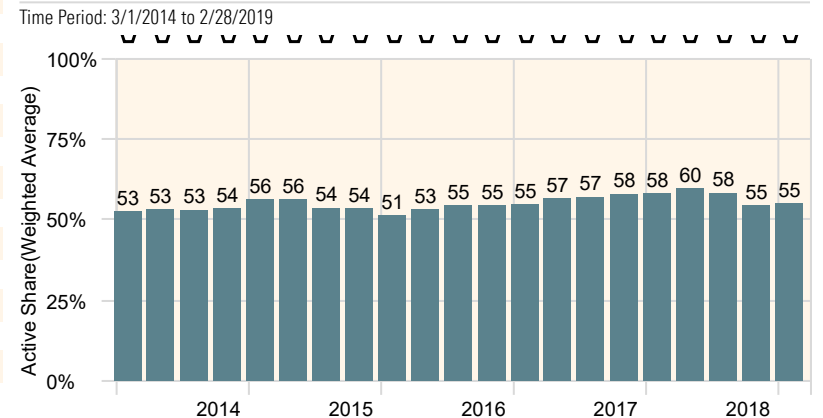
Number of Stock Holdings



Cash Exposure



Historical Active Share

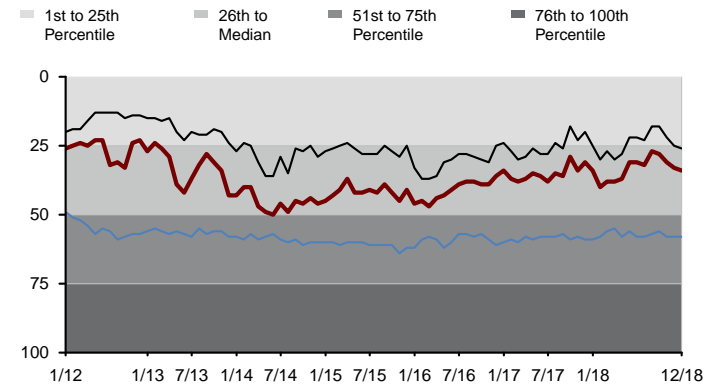


CREF Equity Index R3

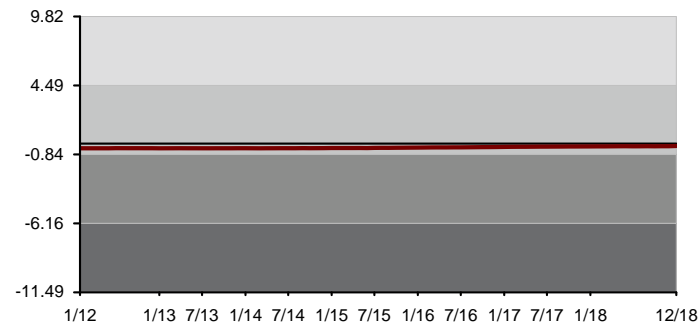
QCEQIX

Index: Russell 3000 TR USD
 Category: Large Blend
 Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

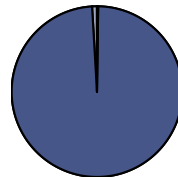


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	2848.0	269.0	3013.0
Holdings - Bonds	-	4.0	0.0
Holdings - Other	8.0	9.0	-
Turnover Ratio	4.0	55.0	-
Net Expense Ratio	0.2	0.9	-
Gross Expense Ratio	0.2	2.5	-
Avg Mkt Cap (\$MM)	59,332	77,281	55,112
Total Assets (\$MM)	16,839	9,701	-
P/E Ratio	18.6	18.6	16.6
P/B Ratio	2.8	3.0	2.6
P/S Ratio	2.0	2.0	1.9
P/CF Ratio	11.5	12.2	10.6
ROE %	21.3	21.7	-
ROA %	7.4	7.4	-
Dividend Yld	1.9	2.0	2.1

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.22
Domestic Stock	98.86
Foreign Stock	0.91
Domestic Bond	-
Foreign Bond	-
Other	0.01

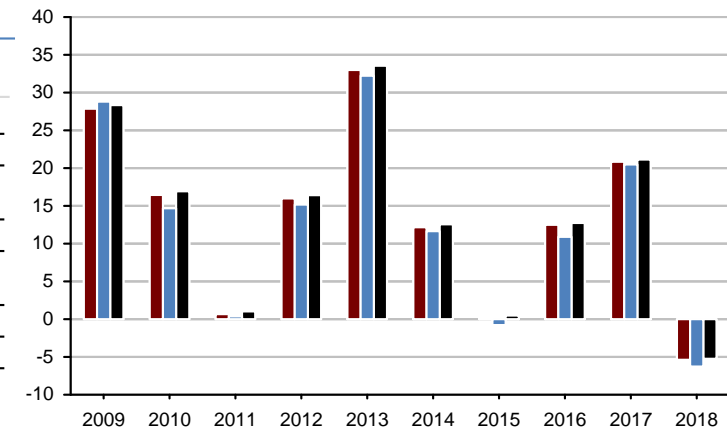
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.4	5.7	4.9
Materials	2.9	3.0	2.9
Industrials	10.5	11.6	10.5
Cons Discretionary	0.0	9.3	-
Consumer Staples	0.0	9.9	-
Healthcare	14.3	14.6	14.8
Financials	15.9	16.4	15.7
Info Technology	22.2	20.3	21.5
Telecom Services	0.0	5.9	-
Utilities	3.0	2.8	3.3

Top 10 Holdings

	Fund %
Apple Inc	3.8
Microsoft Corp	2.9
Amazon.com Inc	2.4
Berkshire Hathaway Inc B	1.4
Johnson & Johnson	1.4
JPMorgan Chase & Co	1.3
Facebook Inc A	1.3
Exxon Mobil Corp	1.2
Alphabet Inc Class C	1.2
Alphabet Inc A	1.2

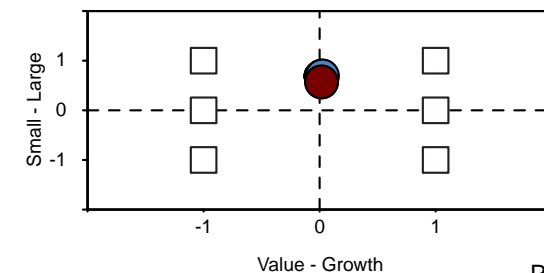
Calendar Year Returns



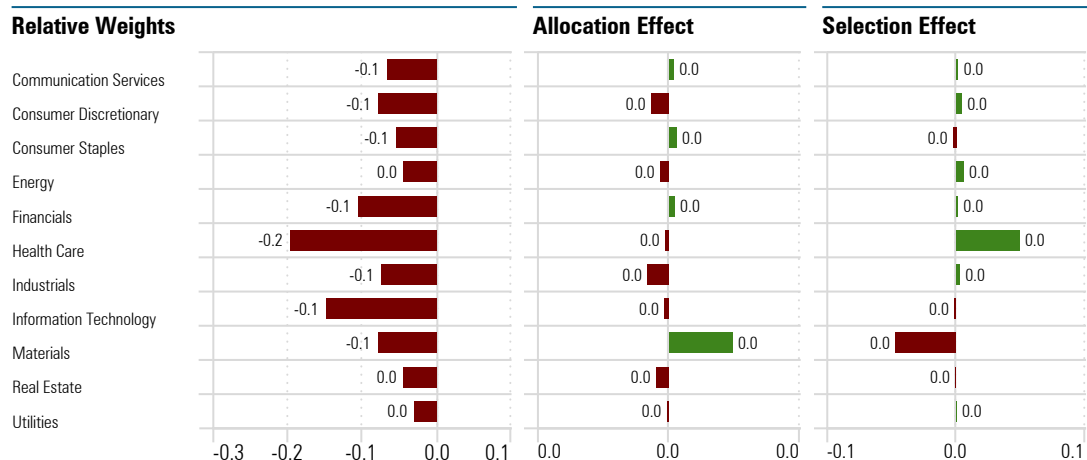
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.3	-0.0	11.1	-0.1
Beta	1.0	0.0	1.0	0.0
Alpha	-0.2	1.0	-0.2	1.1
Sharpe	0.7	0.1	0.7	0.1
Sortino	0.9	0.1	0.9	0.1
Info Ratio	-5.9	-5.4	-6.7	-6.2
Down Capture	100.1	0.0	100.4	-2.2
Up Capture	98.9	6.5	98.9	5.5

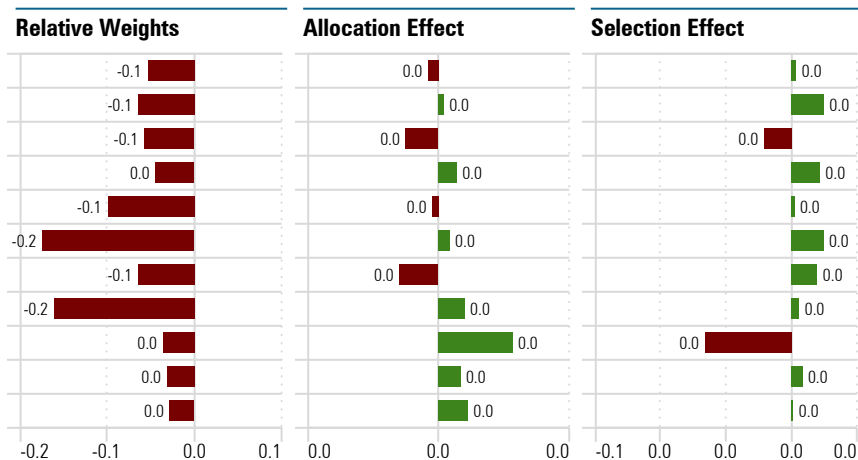
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

	Rescaled Weight	Return	Active Return
Cigna Corp	0.11	7.27	0.01
Michael Kors Holdings Ltd	0.02	-36.19	0.00
G1 Therapeutics Inc	0.00	-63.38	0.00
Merck & Co Inc	0.70	8.49	0.00
Chesapeake Energy Corp	0.01	-53.23	0.00
W&T Offshore Inc	0.00	-57.26	0.00
XPO Logistics Inc	0.04	-50.04	0.00
Apple Inc	3.55	-29.88	0.00
Skyline Champion Corp	0.00	-48.58	0.00
Tesla Inc	0.15	25.69	0.00

Leading Contributors

	Rescaled Weight	Return	Active Return
Cigna Corp	0.14	10.02	0.01
Broadcom Inc	0.33	4.93	0.01
Brookfield Property REIT Inc	0.03	-27.07	0.00
Ultra Petroleum Corp	0.00	-80.35	0.00
Facebook Inc A	1.45	-25.71	0.00
McDermott International Inc	0.01	-63.58	0.00
Michael Kors Holdings Ltd	0.03	-30.50	0.00
Mallinckrodt PLC	0.01	-29.96	0.00
Halcon Resources Corp	0.00	-77.54	0.00
Eli Lilly and Co	0.32	40.45	0.00

Leading Detractors

	Rescaled Weight	Return	Active Return
Linde PLC	0.22	-5.20	-0.02
DowDuPont Inc	0.48	-16.29	0.00
Perrigo Co PLC	0.03	-45.11	0.00
SendGrid Inc	0.00	17.34	0.00
PG&E Corp	0.07	-48.38	0.00
Neurocrine Biosciences Inc	0.04	-41.92	0.00
CME Group Inc Class A	0.22	11.99	0.00
Alexion Pharmaceuticals Inc	0.10	-29.96	0.00
Cracker Barrel Old Country Store Inc	0.01	9.53	0.00
WRKCo Inc A	0.04	-28.65	0.00

Leading Detractors

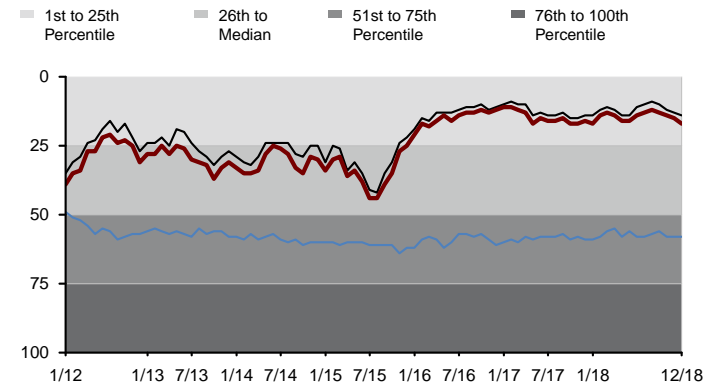
	Rescaled Weight	Return	Active Return
Linde PLC	0.18	0.04	-0.02
Merck & Co Inc	0.57	38.14	-0.02
Keurig Dr Pepper Inc	0.04	32.78	0.00
AbbVie Inc	0.54	-0.98	0.00
Madrigal Pharmaceuticals Inc	0.00	-59.70	0.00
California Resources Corp	0.00	-12.35	0.00
Sarepta Therapeutics Inc	0.02	96.14	0.00
Perrigo Co PLC	0.04	-55.08	0.00
DowDuPont Inc	0.54	-23.15	0.00
Square Inc A	0.06	61.78	0.00

TIAA-CREF S&P 500 Index Instl

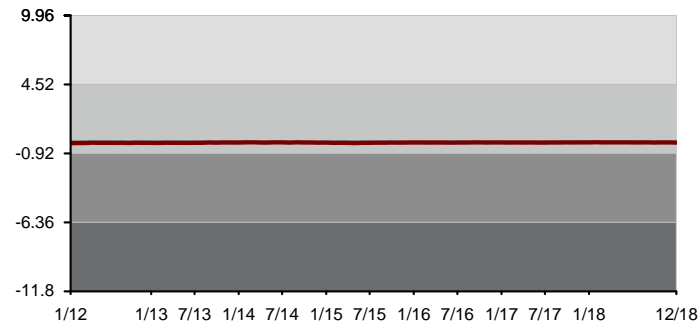
TISPX

Index: S&P 500 TR USD
 Category: Large Blend
 Return Date: 12/31/2018

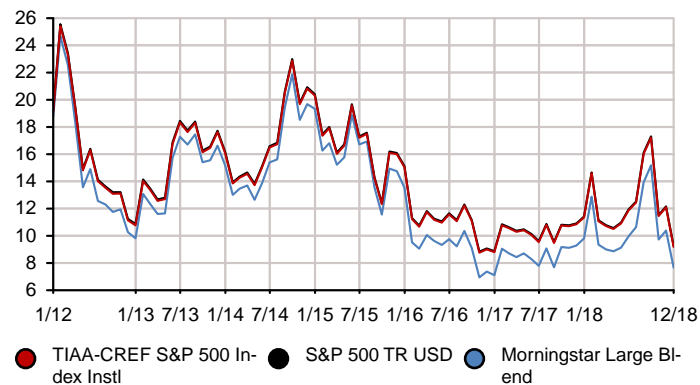
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

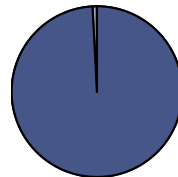


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	505.0	269.0	505.0
Holdings - Bonds	-	4.0	0.0
Holdings - Other	3.0	9.0	-
Turnover Ratio	8.0	55.0	-
Net Expense Ratio	0.1	0.9	-
Gross Expense Ratio	0.1	2.5	-
Avg Mkt Cap (\$MM)	101,586	77,281	93,688
Total Assets (\$MM)	4,395	9,701	-
P/E Ratio	19.1	18.6	17.2
P/B Ratio	2.9	3.0	2.7
P/S Ratio	2.2	2.0	2.0
P/CF Ratio	12.7	12.2	11.8
ROE %	23.4	23.8	-
ROA %	8.2	8.3	-
Dividend Yld	2.0	2.0	2.2

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.03
Domestic Stock	99.15
Foreign Stock	0.82
Domestic Bond	-
Foreign Bond	-
Other	-

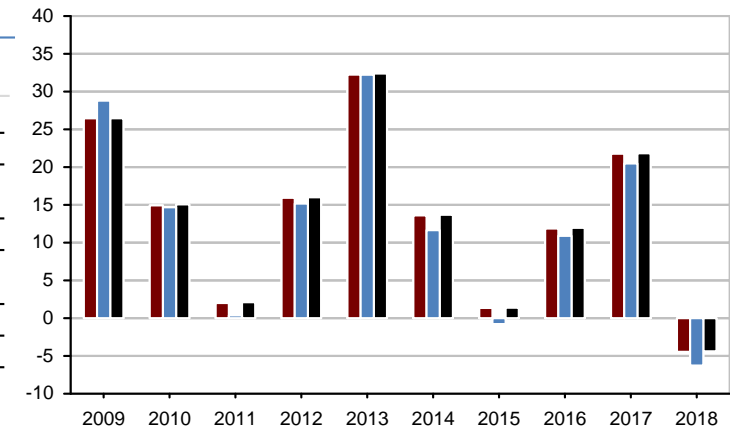
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.7	5.7	5.3
Materials	2.4	3.0	2.6
Industrials	9.9	11.6	9.9
Cons Discretionary	8.6	9.3	-
Consumer Staples	9.2	9.9	-
Healthcare	14.9	14.6	15.5
Financials	16.0	16.4	15.8
Info Technology	22.7	20.3	21.9
Telecom Services	7.5	5.9	-
Utilities	3.1	2.8	3.3

Top 10 Holdings

	Fund %
Apple Inc	4.4
Microsoft Corp	3.6
Amazon.com Inc	2.8
Berkshire Hathaway Inc B	1.8
Johnson & Johnson	1.6
Facebook Inc A	1.6
JPMorgan Chase & Co	1.6
Exxon Mobil Corp	1.5
Alphabet Inc Class C	1.4
Alphabet Inc A	1.4

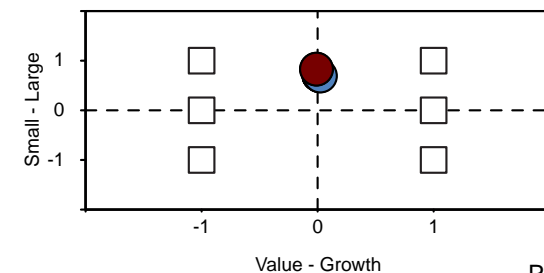
Calendar Year Returns



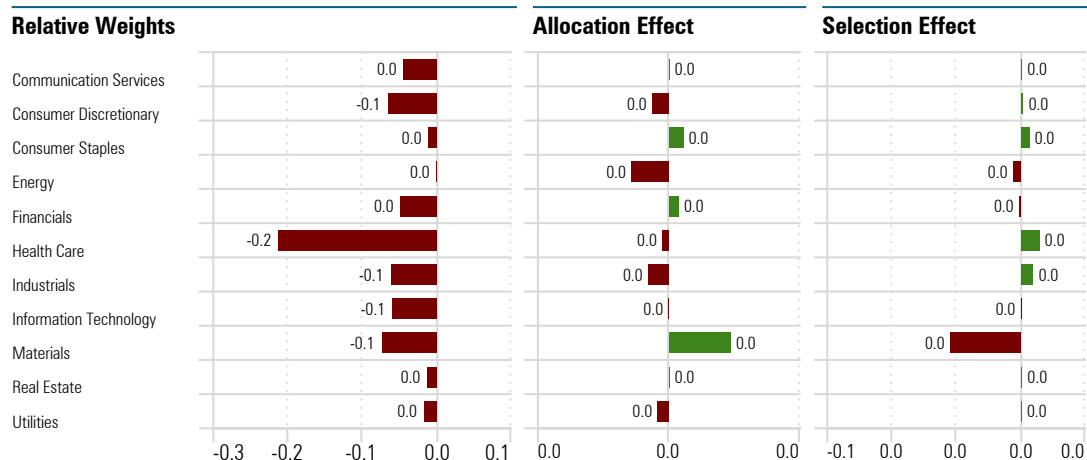
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.0	-0.4	10.9	-0.3
Beta	1.0	0.0	1.0	0.0
Alpha	-0.1	1.1	-0.1	1.3
Sharpe	0.8	0.1	0.7	0.2
Sortino	1.0	0.2	1.1	0.3
Info Ratio	-1.5	-0.9	-1.1	-0.5
Down Capture	100.1	0.1	100.1	-2.4
Up Capture	99.7	7.3	99.7	6.4

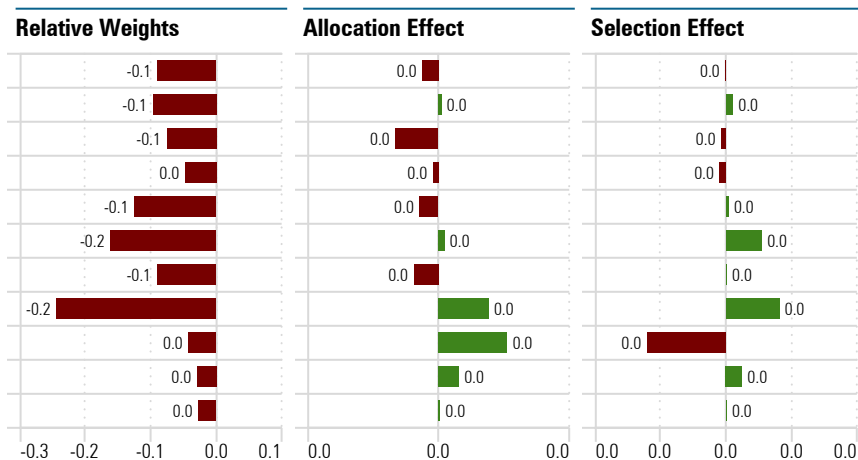
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

	Rescaled Weight	Return	Active Return
Cigna Corp	0.14	7.27	0.01
Lamb Weston Holdings Inc	0.02	-4.09	0.00
Stericycle Inc	0.01	-18.08	0.00
Rollins Inc	0.03	-10.37	0.00
Michael Kors Holdings Ltd	0.03	-36.19	0.00
Ecolab Inc	0.17	-5.73	0.00
Apple Inc	4.05	-29.88	0.00
Newmont Mining Corp	0.07	15.21	0.00
PPG Industries Inc	0.11	-5.91	0.00
Philip Morris International Inc	0.56	-16.83	0.00

Leading Contributors

	Rescaled Weight	Return	Active Return
Cigna Corp	0.18	10.02	0.02
Broadcom Inc	0.35	8.97	0.01
GGP Inc	0.03	-6.87	0.00
Stericycle Inc	0.02	-29.30	0.00
Lamb Weston Holdings Inc	0.00	-4.09	0.00
Microsoft Corp	3.32	20.27	0.00
Becton, Dickinson and Co	0.27	6.62	0.00
Rollins Inc	0.01	-10.37	0.00
Michael Kors Holdings Ltd	0.04	-30.50	0.00
Ecolab Inc	0.16	11.09	0.00

Leading Detractors

	Rescaled Weight	Return	Active Return
Linde PLC	0.26	-5.20	-0.02
CVS Health Corp	0.37	-16.19	-0.01
DowDuPont Inc	0.58	-16.29	0.00
Diamondback Energy Inc	0.02	-16.02	0.00
Starbucks Corp	0.34	13.91	0.00
CME Group Inc Class A	0.26	11.99	0.00
United Technologies Corp	0.42	-23.41	0.00
Chevron Corp	0.96	-10.18	0.00
Maxim Integrated Products Inc	0.02	-9.07	0.00
Regions Financial Corp	0.08	-26.42	0.00

Leading Detractors

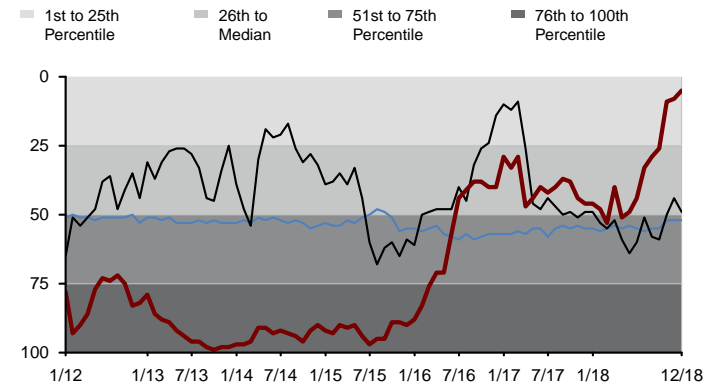
	Rescaled Weight	Return	Active Return
Linde PLC	0.21	0.04	-0.02
CVS Health Corp	0.32	-7.03	-0.01
Dr Pepper Snapple Group Inc	0.04	23.52	0.00
DowDuPont Inc	0.66	-23.15	0.00
Diamondback Energy Inc	0.01	-16.02	0.00
Apple Inc	3.97	-5.39	0.00
Qualcomm Inc	0.38	-7.59	0.00
Starbucks Corp	0.34	14.75	0.00
Amazon.com Inc	2.82	28.43	0.00
Alphabet Inc Class C	1.45	-1.03	0.00

Amana Growth Institutional

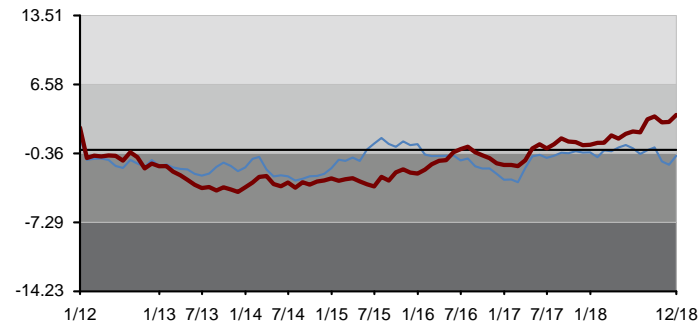
AMIGX

Index: S&P 500 TR USD
 Category: Large Growth
 Return Date: 12/31/2018

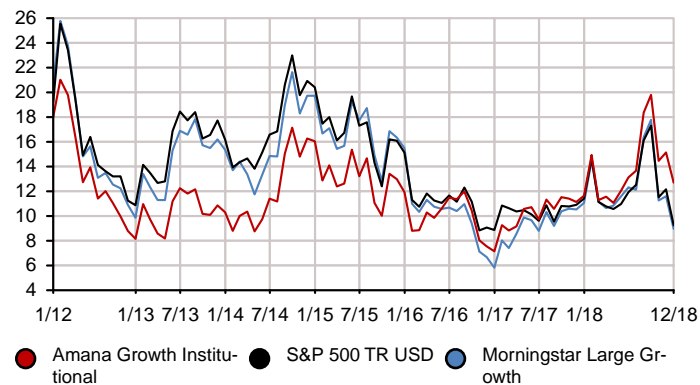
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

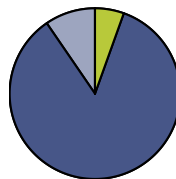


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	34.0	104.0	505.0
Holdings - Bonds	-	-	0.0
Holdings - Other	1.0	7.0	-
Turnover Ratio	-	54.3	-
Net Expense Ratio	0.9	1.1	-
Gross Expense Ratio	0.9	1.7	-
Avg Mkt Cap (\$MM)	66,254	87,396	93,688
Total Assets (\$MM)	1,711	6,022	-
P/E Ratio	27.0	26.2	17.2
P/B Ratio	5.8	5.2	2.7
P/S Ratio	3.4	3.4	2.0
P/CF Ratio	18.6	16.8	11.8
ROE %	28.1	23.8	-
ROA %	11.4	8.3	-
Dividend Yld	1.5	1.0	2.2

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	5.48
Domestic Stock	84.96
Foreign Stock	9.56
Domestic Bond	-
Foreign Bond	-
Other	-

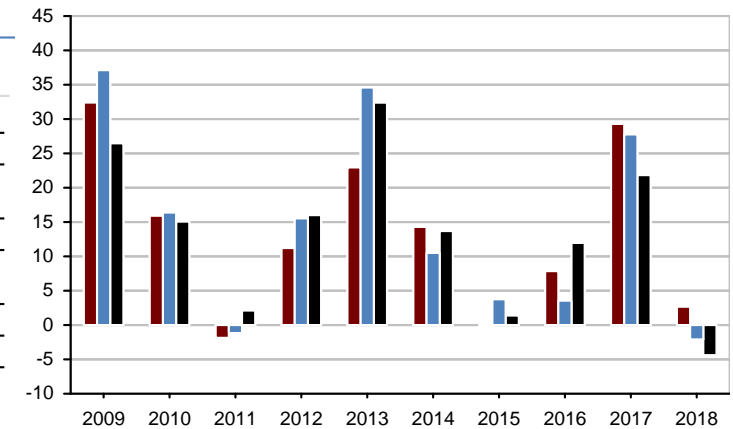
Sector Allocation (%)

	Fund	Avg	Idx
Energy	0.0	2.3	5.3
Materials	0.0	2.1	2.6
Industrials	12.3	10.2	9.9
Cons Discretionary	0.0	12.0	-
Consumer Staples	0.0	8.2	-
Healthcare	20.2	16.0	15.5
Financials	0.0	12.8	15.8
Info Technology	49.3	31.5	21.9
Telecom Services	0.0	8.2	-
Utilities	0.0	0.5	3.3

Top 10 Holdings

	Fund %
Adobe Inc	6.0
Intuit Inc	5.2
Apple Inc	4.8
Church & Dwight Co Inc	4.3
Amgen Inc	4.0
Cisco Systems Inc	3.8
TJX Companies Inc	3.7
The Estee Lauder Compa...	3.5
Agilent Technologies Inc	3.5
Johnson & Johnson	3.3

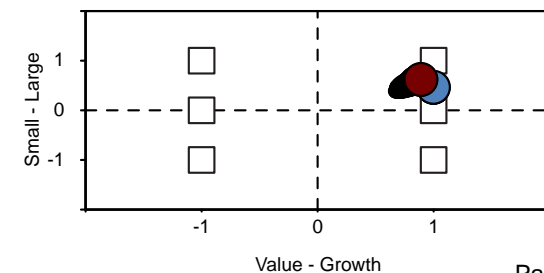
Calendar Year Returns



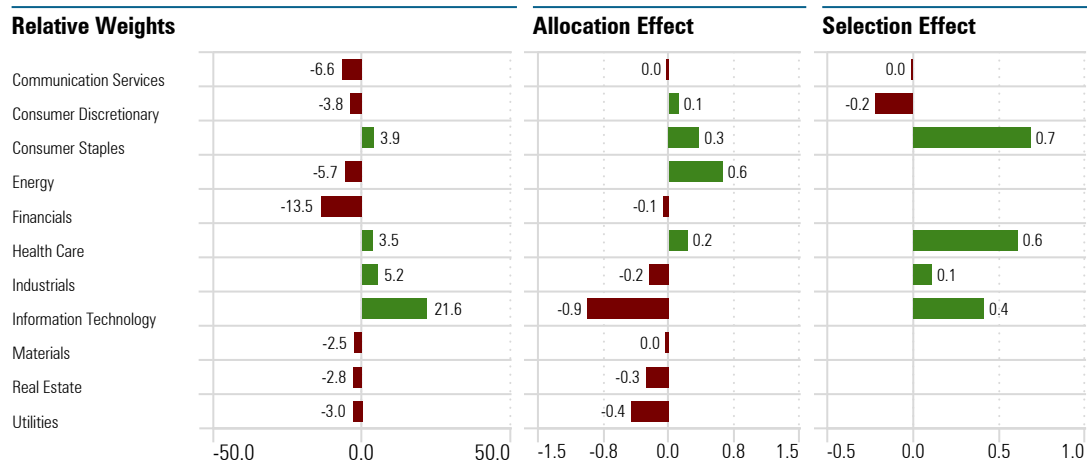
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.2	-1.8	11.4	-1.1
Beta	1.0	-0.0	1.0	-0.0
Alpha	3.5	5.4	1.8	3.8
Sharpe	1.0	0.4	0.9	0.2
Sortino	1.6	0.7	1.4	0.4
Info Ratio	0.9	1.5	0.5	1.1
Down Capture	89.4	-15.2	96.7	-8.9
Up Capture	111.8	19.0	107.5	14.8

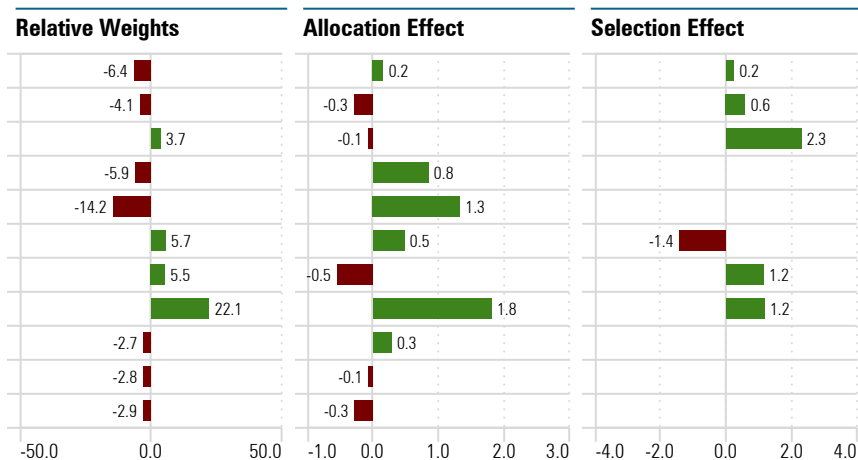
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

	Rescaled Weight	Return	Active Return
Church & Dwight Co Inc	4.15	11.13	0.62
Xilinx Inc	2.89	6.68	0.61
Apple Inc	5.85	-29.88	0.38
Intuit Inc	5.48	-13.25	0.25
Eli Lilly and Co	2.19	8.39	0.25
Keysight Technologies Inc	1.73	-6.34	0.20
Novo Nordisk A/S ADR	2.56	-2.27	0.17
Clorox Co	2.17	2.48	0.15
Agilent Technologies Inc	3.49	-4.13	0.15
Fastenal Co	1.89	-9.16	0.14

Leading Contributors

	Rescaled Weight	Return	Active Return
Church & Dwight Co Inc	3.74	33.23	1.46
Adobe Inc	6.09	29.10	1.30
Intuit Inc	5.10	25.85	1.15
Xilinx Inc	2.59	28.77	0.72
Keysight Technologies Inc	1.61	49.23	0.66
TJX Companies Inc	3.79	18.95	0.53
Norfolk Southern Corp	2.73	5.22	0.44
The Estee Lauder Companies Inc Class A	3.78	3.38	0.40
Eli Lilly and Co	2.21	40.45	0.35
Union Pacific Corp	2.55	5.27	0.31

Leading Detractors

	Rescaled Weight	Return	Active Return
Trimble Inc	3.32	-24.28	-0.22
The Estee Lauder Companies Inc Class A	3.64	-10.20	-0.16
TJX Companies Inc	4.17	-19.83	-0.15
Celgene Corp	0.87	-28.38	-0.12
EMCOR Group Inc	2.79	-20.44	-0.10
Stryker Corp	2.89	-11.48	-0.07
Lowe's Companies Inc	2.27	-19.17	-0.07
Harris Corp	3.35	-20.05	-0.07
Qualcomm Inc	2.88	-20.13	-0.04
SAP SE ADR	1.97	-19.07	-0.02

Leading Detractors

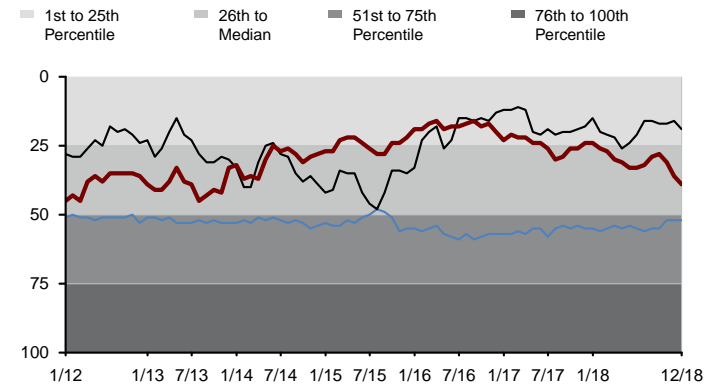
	Rescaled Weight	Return	Active Return
Trimble Inc	3.31	-19.02	-0.67
Novo Nordisk A/S ADR	2.86	-11.88	-0.55
EMCOR Group Inc	3.05	-26.68	-0.54
Dentsply Sirona Inc	0.52	-47.08	-0.39
Celgene Corp	1.02	-38.59	-0.33
ASML Holding NV ADR	3.45	-9.67	-0.28
SAP SE ADR	2.07	-10.05	-0.19
Agilent Technologies Inc	3.53	1.46	-0.15
Qualcomm Inc	2.88	-7.59	-0.11
Stryker Corp	2.92	2.43	-0.11

CREF Growth R3

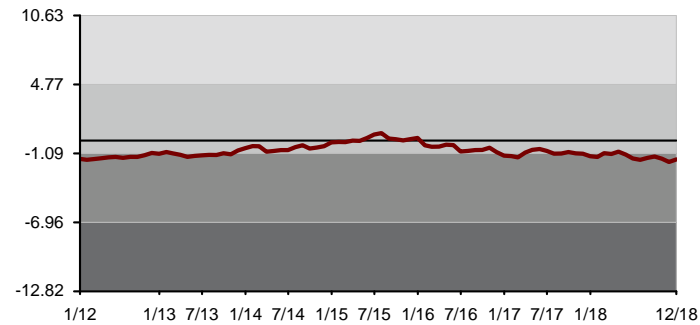
QCGRIX

Index: Russell 1000 Growth TR USD
 Category: Large Growth
 Return Date: 12/31/2018

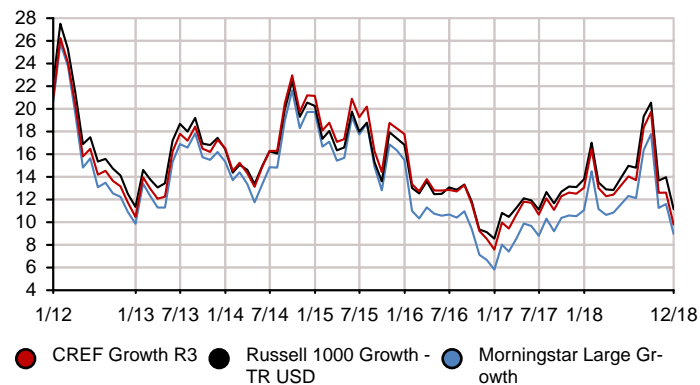
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

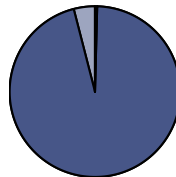


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	596.0	104.0	546.0
Holdings - Bonds	-	-	0.0
Holdings - Other	5.0	7.0	-
Turnover Ratio	48.0	54.3	-
Net Expense Ratio	0.3	1.1	-
Gross Expense Ratio	0.3	1.7	-
Avg Mkt Cap (\$MM)	91,242	87,396	93,288
Total Assets (\$MM)	23,234	6,022	-
P/E Ratio	26.4	26.2	22.4
P/B Ratio	5.5	5.2	5.5
P/S Ratio	2.9	3.4	2.8
P/CF Ratio	16.2	16.8	14.7
ROE %	27.6	30.9	-
ROA %	10.1	10.6	-
Dividend Yld	1.0	1.0	1.4

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.41
Domestic Stock	95.58
Foreign Stock	4.01
Domestic Bond	-
Foreign Bond	-
Other	-

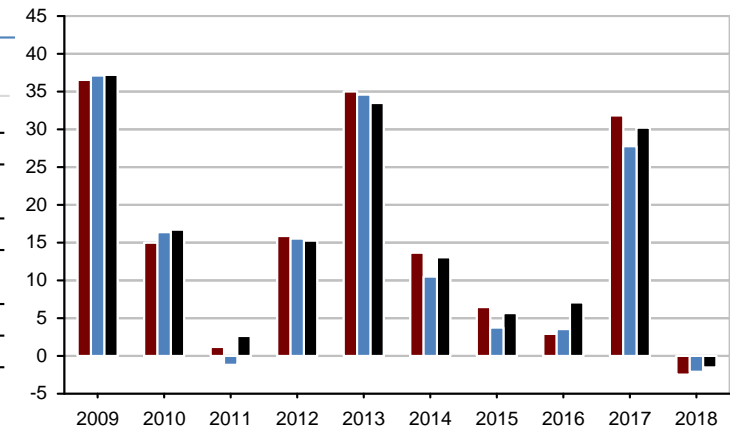
Sector Allocation (%)

	Fund	Avg	Idx
Energy	1.0	2.3	0.8
Materials	1.4	2.1	1.7
Industrials	11.3	10.2	12.9
Cons Discretionary	0.0	12.0	-
Consumer Staples	0.0	8.2	-
Healthcare	13.6	16.0	14.1
Financials	10.0	12.8	9.0
Info Technology	39.2	31.5	34.8
Telecom Services	0.0	8.2	-
Utilities	0.0	0.5	0.0

Top 10 Holdings

	Fund %
Microsoft Corp	6.5
Amazon.com Inc	5.5
Apple Inc	5.0
Alphabet Inc Class C	3.8
Visa Inc Class A	2.8
Facebook Inc A	2.6
Salesforce.com Inc	2.2
Intuit Inc	2.2
Alphabet Inc A	2.1
Mastercard Inc A	2.1

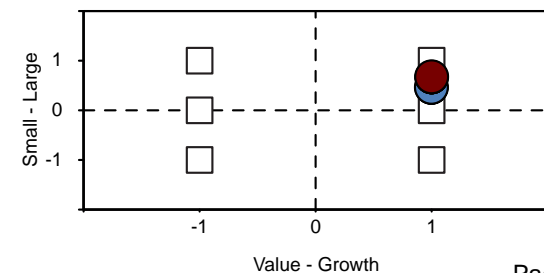
Calendar Year Returns



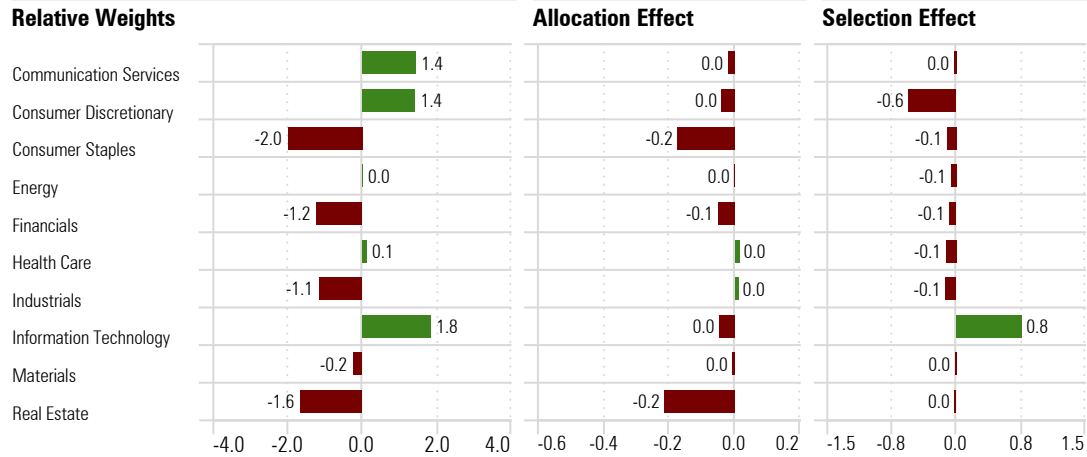
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	12.9	-0.1	12.5	-0.1
Beta	1.0	0.1	1.0	0.1
Alpha	-1.6	0.2	-0.8	1.1
Sharpe	0.7	0.1	0.8	0.1
Sortino	1.0	0.1	1.1	0.2
Info Ratio	-0.8	-0.2	-0.3	0.3
Down Capture	111.8	7.2	108.8	3.2
Up Capture	101.0	8.2	103.0	10.3

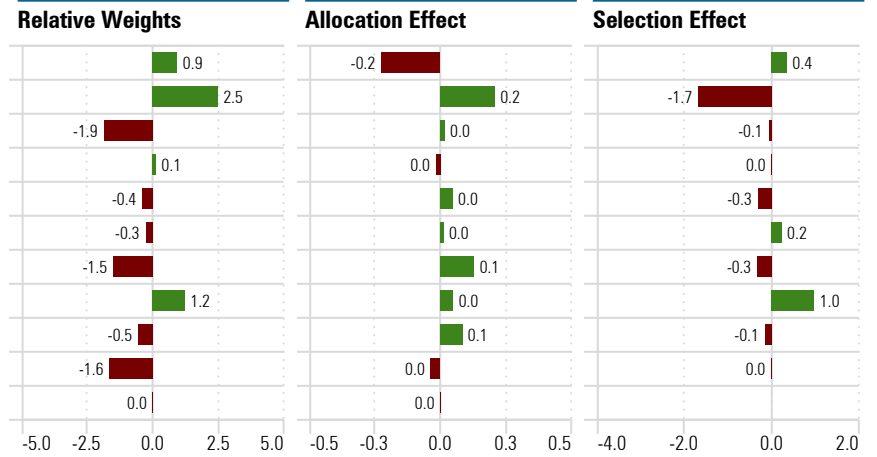
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
Apple Inc	4.58	-29.88	0.38
Intuit Inc	2.21	-13.25	0.11
Salesforce.com Inc	2.32	-13.87	0.08
Tesaro Inc	0.08	90.34	0.08
Alphabet Inc Class C	3.84	-13.23	0.06
Cisco Systems Inc	0.65	-10.94	0.06
Twitter Inc	0.52	0.98	0.06
PayPal Holdings Inc	1.66	-4.27	0.06
Celgene Corp	0.14	-28.38	0.05
Advanced Micro Devices Inc	0.10	-40.24	0.05

Leading Contributors

Company	Rescaled Weight	Return	Active Return
Intuit Inc	1.98	25.85	0.39
Salesforce.com Inc	1.99	33.98	0.38
IAC/InterActiveCorp	0.88	49.69	0.32
McDonald's Corp	0.16	5.78	0.17
Intuitive Surgical Inc	1.19	31.23	0.16
Adobe Inc	1.46	29.10	0.15
Illumina Inc	0.78	37.27	0.13
International Business Machines Corp	0.18	-22.54	0.13
Altria Group Inc	0.13	-27.09	0.13
Facebook Inc A	2.96	-25.71	0.12

Leading Detractors

Company	Rescaled Weight	Return	Active Return
SoftBank Group Corp	0.55	-34.07	-0.17
Starbucks Corp	0.04	13.91	-0.16
GrubHub Inc	0.46	-44.59	-0.13
Tesla Inc	0.09	25.69	-0.10
DXC Technology Co	0.33	-42.97	-0.09
AbbVie Inc	0.52	-1.50	-0.07
ASOS PLC	0.16	-61.41	-0.07
UnitedHealth Group Inc	0.97	-6.06	-0.06
Red Hat Inc	0.09	28.88	-0.06
Lonza Group Ltd	0.49	-24.66	-0.06

Leading Detractors

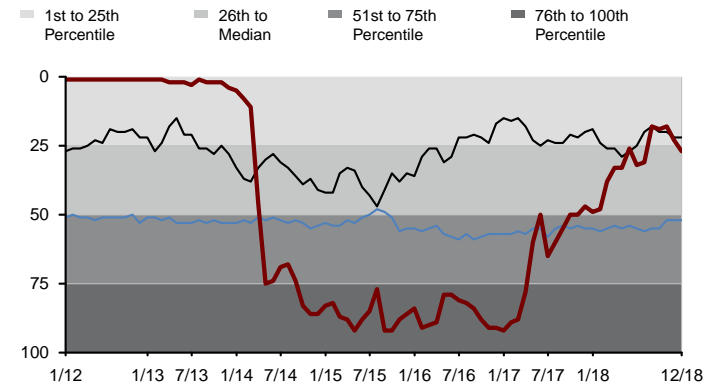
Company	Rescaled Weight	Return	Active Return
Starbucks Corp	0.42	14.75	-0.23
Tencent Holdings Ltd	0.43	-22.61	-0.22
Alibaba Group Holding Ltd ADR	0.56	-20.51	-0.21
eBay Inc	0.54	-25.62	-0.18
SoftBank Group Corp	0.17	-7.32	-0.17
ASOS PLC	0.18	-68.08	-0.16
Applied Materials Inc	0.76	-34.92	-0.16
Broadcom Inc	0.82	8.97	-0.14
Baidu Inc ADR	0.30	-32.28	-0.13
DXC Technology Co	0.42	-37.55	-0.12

Wells Fargo Growth Inst

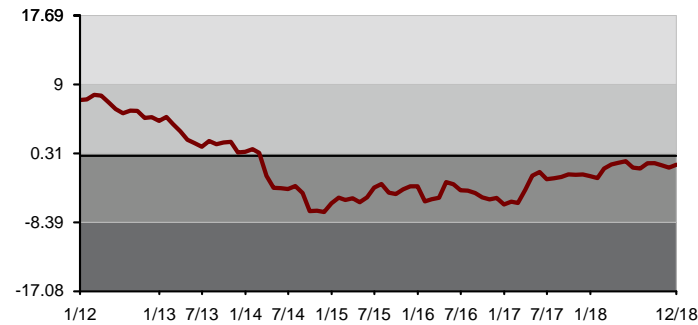
SGRNX

Index: Russell 3000 Growth TR USD
 Category: Large Growth
 Return Date: 12/31/2018

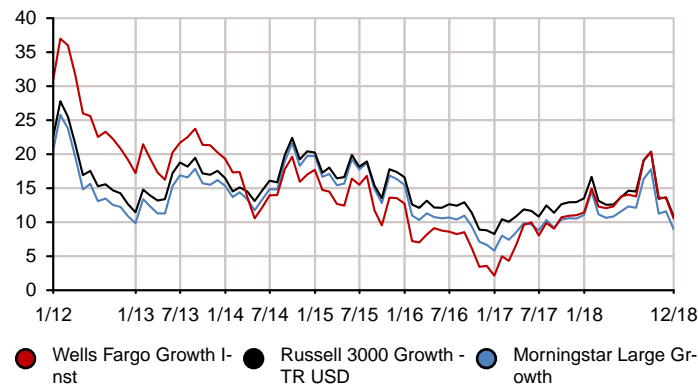
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

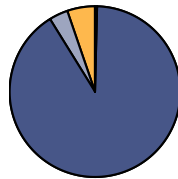


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	95.0	104.0	1803.0
Holdings - Bonds	-	-	0.0
Holdings - Other	2.0	7.0	-
Turnover Ratio	37.0	54.3	-
Net Expense Ratio	0.8	1.1	-
Gross Expense Ratio	0.9	1.7	-
Avg Mkt Cap (\$MM)	48,340	87,396	69,401
Total Assets (\$MM)	3,797	6,022	-
P/E Ratio	26.6	26.2	22.1
P/B Ratio	6.1	5.2	5.3
P/S Ratio	3.8	3.4	2.6
P/CF Ratio	17.6	16.8	14.3
ROE %	21.5	29.3	-
ROA %	8.1	9.8	-
Dividend Yld	0.8	1.0	1.4

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	0.39
Domestic Stock	90.78
Foreign Stock	3.57
Domestic Bond	-
Foreign Bond	-
Other	5.26

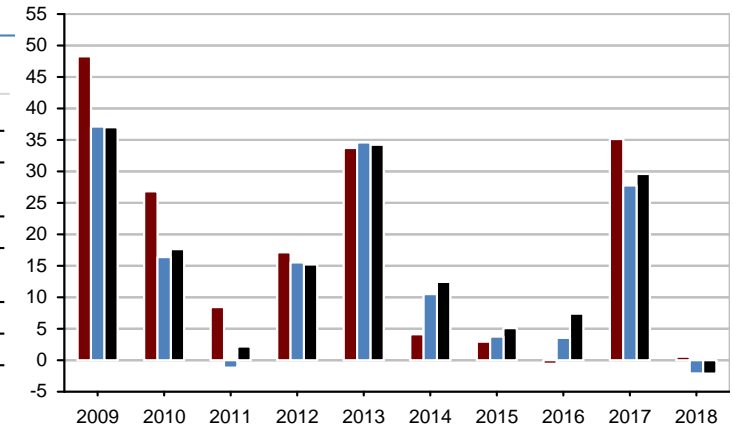
Sector Allocation (%)

	Fund	Avg	Idx
Energy	1.2	2.3	0.8
Materials	2.6	2.1	2.0
Industrials	14.1	10.2	13.1
Cons Discretionary	19.0	12.0	-
Consumer Staples	1.4	8.2	-
Healthcare	6.8	16.0	14.8
Financials	16.0	12.8	8.9
Info Technology	36.7	31.5	33.9
Telecom Services	8.1	8.2	-
Utilities	0.0	0.5	0.0

Top 10 Holdings

	Fund %
Amazon.com Inc	7.3
Alphabet Inc A	5.9
Microsoft Corp	3.9
Visa Inc Class A	3.1
Mastercard Inc A	2.9
Microchip Technology Inc	2.8
MarketAxess Holdings Inc	2.4
Burlington Stores Inc	2.4
Monolithic Power Syste...	2.1
Apple Inc	2.1

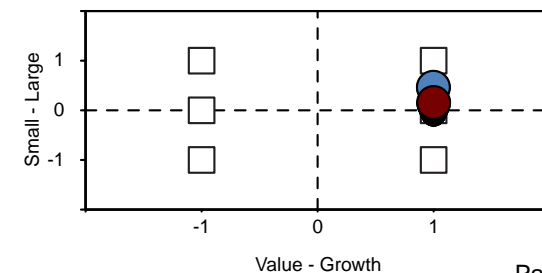
Calendar Year Returns



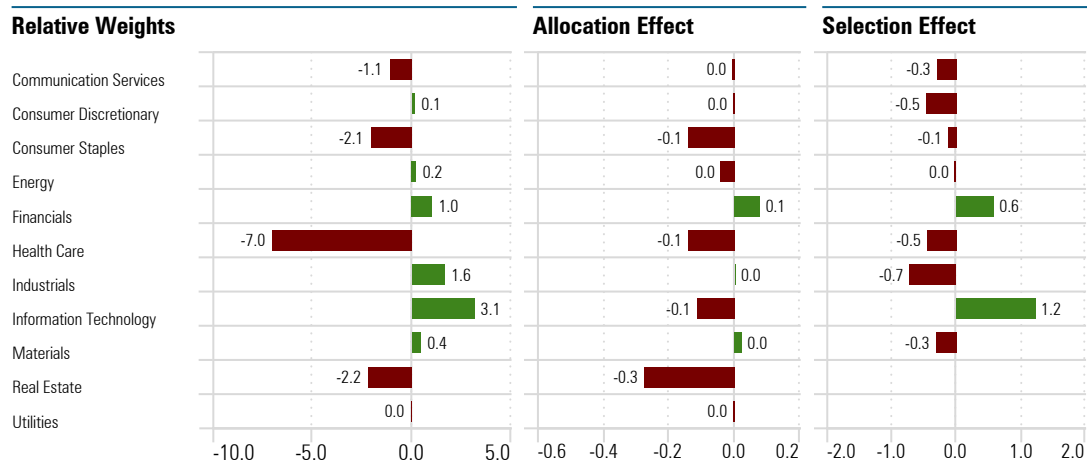
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	14.6	1.7	13.9	1.4
Beta	1.1	0.1	1.1	0.1
Alpha	-1.1	0.7	-2.6	-0.7
Sharpe	0.7	0.0	0.6	-0.1
Sortino	0.9	0.0	0.7	-0.2
Info Ratio	-0.1	0.6	-0.5	0.2
Down Capture	106.2	1.7	117.0	11.4
Up Capture	102.5	9.7	100.1	7.4

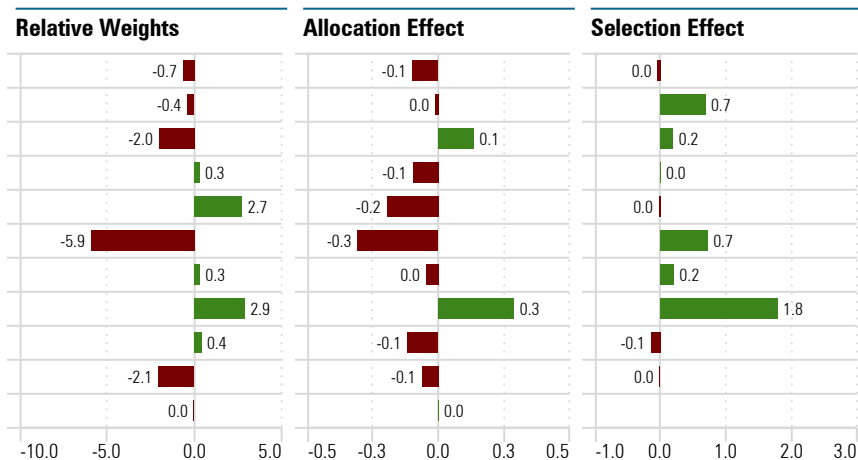
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
MarketAxess Holdings Inc	2.34	18.63	0.56
Apple Inc	2.48	-29.88	0.50
Microchip Technology Inc	2.98	-8.40	0.28
Monolithic Power Systems Inc	1.93	-7.15	0.23
Alphabet Inc A	6.06	-13.43	0.22
MongoDB Inc Class A	0.95	2.69	0.20
SendGrid Inc	0.60	17.34	0.19
Waste Connections Inc	1.70	-6.66	0.16
Burlington Stores Inc	2.54	-0.15	0.14
Texas Instruments Inc	1.90	-11.92	0.12

Leading Contributors

Company	Rescaled Weight	Return	Active Return
Amazon.com Inc	7.40	28.43	0.88
Veeva Systems Inc Class A	1.66	61.58	0.86
MongoDB Inc Class A	0.57	182.14	0.69
Burlington Stores Inc	2.22	32.22	0.66
Boston Scientific Corp	1.58	42.56	0.48
SendGrid Inc	0.25	62.66	0.34
Norfolk Southern Corp	1.84	5.22	0.31
Square Inc A	0.70	61.78	0.30
Twilio Inc A	0.23	278.39	0.27
Waste Connections Inc	1.66	5.06	0.23

Leading Detractors

Company	Rescaled Weight	Return	Active Return
XPO Logistics Inc	1.43	-50.04	-0.51
Milacron Holdings Corp	1.45	-41.28	-0.41
PolyOne Corp	1.42	-34.15	-0.30
Amazon.com Inc	7.81	-25.01	-0.27
Neurocrine Biosciences Inc	0.85	-41.92	-0.25
Roku Inc Class A	0.39	-58.04	-0.23
Square Inc A	0.79	-43.35	-0.17
Microsoft Corp	3.85	-11.19	-0.17
Constellation Brands Inc A	1.15	-25.14	-0.16
Alphabet Inc Class C	0.56	-13.23	-0.13

Leading Detractors

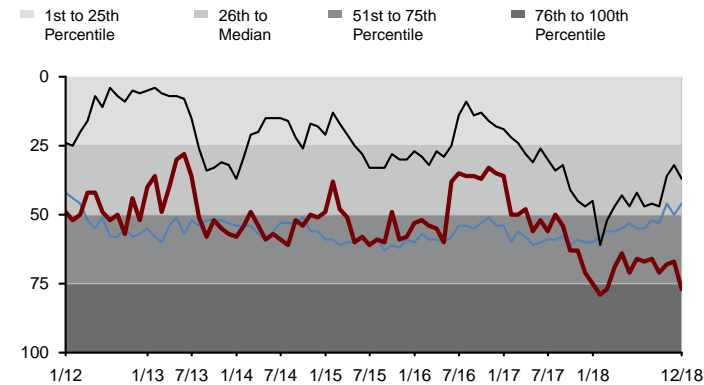
Company	Rescaled Weight	Return	Active Return
Microchip Technology Inc	3.50	-16.71	-0.57
Milacron Holdings Corp	1.53	-37.88	-0.56
Microsoft Corp	3.20	20.27	-0.44
XPO Logistics Inc	1.40	-37.72	-0.43
Facebook Inc A	3.64	-25.71	-0.35
PolyOne Corp	1.40	-33.01	-0.29
Roku Inc Class A	0.10	-58.04	-0.27
Dollar Tree Inc	1.06	-15.83	-0.26
Raymond James Financial Inc	1.10	-15.65	-0.26
Constellation Brands Inc A	1.22	-28.72	-0.24

TIAA-CREF Mid-Cap Value Instl

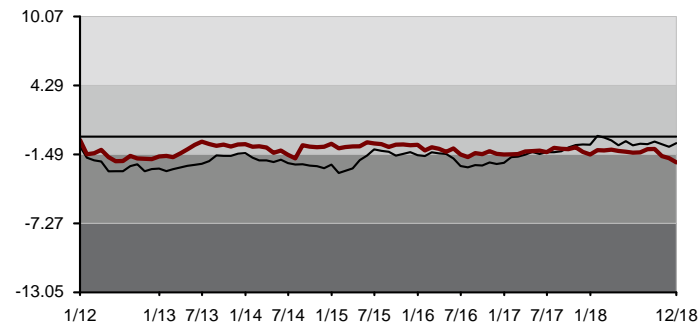
TIMVX

Index: Russell Mid Cap Value TR USD
 Category: Mid-Cap Value
 Return Date: 12/31/2018

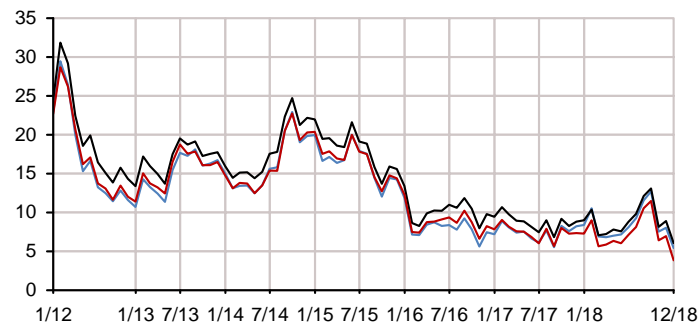
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



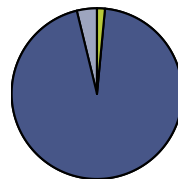
● TIAA-CREF Mid-Cap Value Instl ● Russell Mid Cap Value TR USD ● Morningstar Mid-Cap Value

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	241.0	148.0	592.0
Holdings - Bonds	-	-	0.0
Holdings - Other	4.0	3.0	-
Turnover Ratio	25.0	61.1	-
Net Expense Ratio	0.4	1.1	-
Gross Expense Ratio	0.4	2.3	-
Avg Mkt Cap (\$MM)	11,515	11,715	10,776
Total Assets (\$MM)	3,038	1,689	-
P/E Ratio	14.6	14.9	13.1
P/B Ratio	1.8	1.9	1.6
P/S Ratio	1.3	1.3	1.3
P/CF Ratio	8.0	8.4	6.6
ROE %	13.8	12.5	-
ROA %	4.7	4.2	-
Dividend Yld	2.1	2.2	2.7

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	1.5
Domestic Stock	94.69
Foreign Stock	3.81
Domestic Bond	-
Foreign Bond	-
Other	-

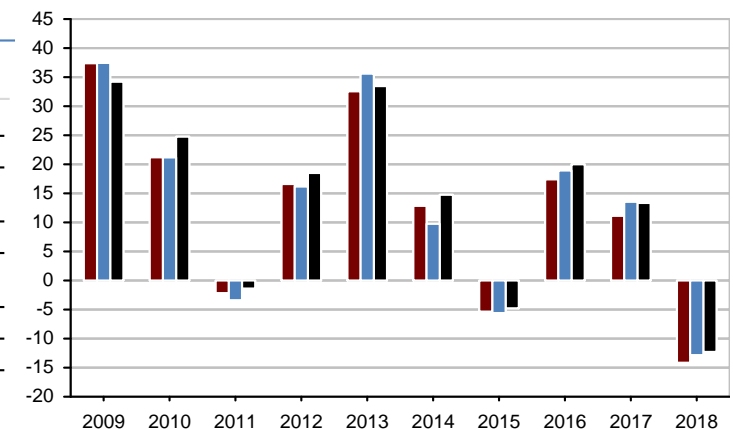
Sector Allocation (%)

	Fund	Avg	Idx
Energy	8.8	7.1	6.0
Materials	7.0	5.0	5.3
Industrials	13.7	14.1	12.7
Cons Discretionary	5.0	8.2	-
Consumer Staples	11.4	11.1	-
Healthcare	7.2	8.2	6.5
Financials	17.6	20.0	16.6
Info Technology	8.0	10.3	8.0
Telecom Services	4.1	2.2	-
Utilities	11.6	6.3	11.7

Top 10 Holdings

	Fund %
DXC Technology Co	1.3
Bunge Ltd	1.3
L3 Technologies Inc	1.3
Marathon Petroleum Corp	1.2
Textron Inc	1.2
Zimmer Biomet Holdings...	1.1
DTE Energy Co	1.1
Sempra Energy	1.0
AvalonBay Communities Inc	1.0
Concho Resources Inc	1.0

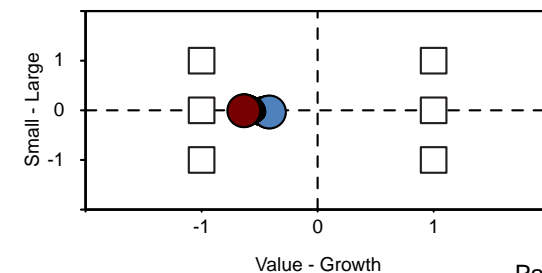
Calendar Year Returns



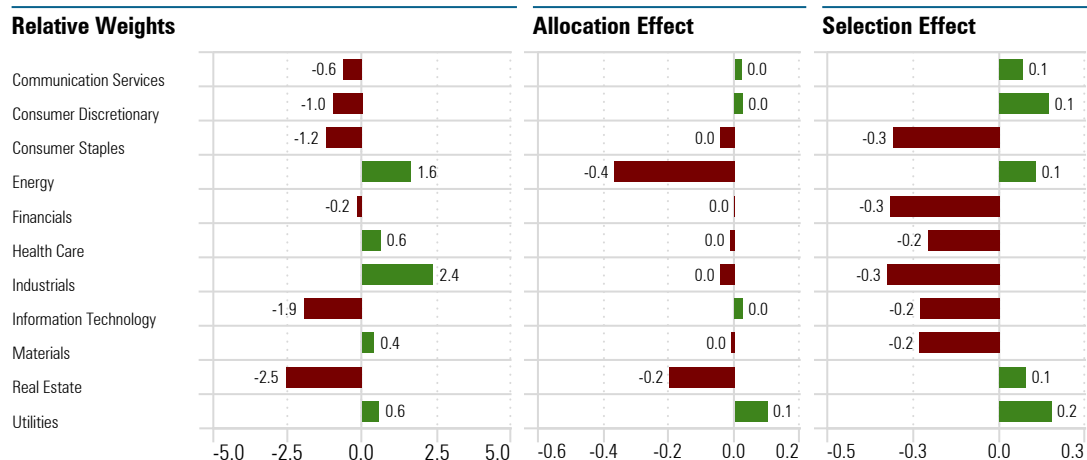
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	12.5	-0.4	11.7	-0.7
Beta	1.0	0.0	1.0	-0.0
Alpha	-2.2	-1.6	-1.8	-0.2
Sharpe	0.3	-0.1	0.3	-0.0
Sortino	0.3	-0.2	0.4	-0.0
Info Ratio	-1.1	-0.9	-1.0	-0.6
Down Capture	102.9	3.8	103.6	-2.1
Up Capture	89.5	-6.3	92.3	-3.1

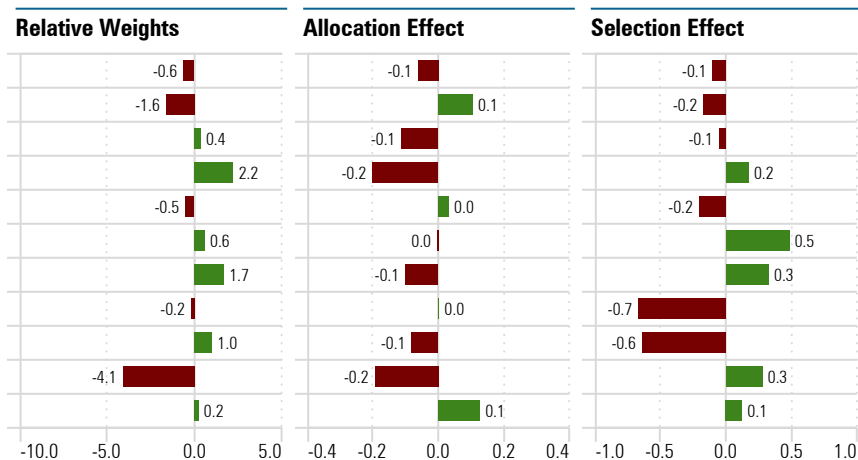
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
PG&E Corp	0.14	-48.38	0.18
Foot Locker Inc	0.93	5.09	0.18
Ciena Corp	0.57	8.55	0.14
Marathon Petroleum Corp	0.92	-25.66	0.10
W R Grace & Co	1.02	-8.82	0.10
Argo Group International Holdings Ltd	0.45	7.08	0.10
Chubb Ltd	0.52	-2.77	0.07
Republic Services Inc Class A	0.80	-0.27	0.07
NVR Inc	0.40	-1.37	0.06
Telephone and Data Systems Inc	0.29	7.43	0.06

Leading Contributors

Company	Rescaled Weight	Return	Active Return
IAC/InterActiveCorp	0.66	49.69	0.28
Ciena Corp	0.60	62.02	0.25
Foot Locker Inc	0.66	18.43	0.23
Ashland Global Holdings Inc	0.87	0.91	0.19
W R Grace & Co	1.03	-6.12	0.18
Marathon Petroleum Corp	0.67	-8.19	0.18
Humana Inc	0.80	16.08	0.17
CSX Corp	0.68	14.47	0.17
Argo Group International Holdings Ltd	0.39	27.59	0.16
TJX Companies Inc	0.43	18.95	0.16

Leading Detractors

Company	Rescaled Weight	Return	Active Return
DXC Technology Co	1.38	-42.97	-0.26
Textron Inc	1.29	-35.63	-0.20
Bunge Ltd	1.27	-21.56	-0.15
Conagra Brands Inc	0.74	-36.75	-0.14
Michael Kors Holdings Ltd	0.43	-44.69	-0.12
Newmont Mining Corp	0.21	15.21	-0.10
SPX FLOW Inc	0.28	-41.50	-0.08
Prologis Inc	1.05	-12.70	-0.07
Evoqua Water Technologies Corp	0.19	-46.01	-0.07
Ameriprise Financial Inc	0.94	-28.81	-0.07

Leading Detractors

Company	Rescaled Weight	Return	Active Return
DXC Technology Co	1.05	-37.55	-0.30
MDC Partners Inc A	0.26	-73.23	-0.26
Ameriprise Financial Inc	1.10	-36.83	-0.23
Tronox Ltd	0.33	-61.62	-0.21
Conagra Brands Inc	0.71	-41.98	-0.15
TE Connectivity Ltd	0.90	-18.87	-0.15
Evoqua Water Technologies Corp	0.25	-59.51	-0.15
CommScope Holding Co Inc	0.38	-56.67	-0.14
Extreme Networks Inc	0.18	-51.28	-0.14
Olin Corp	0.74	-41.85	-0.13

TIAA-CREF Mid-Cap Value Instl

Management

Firm Data

Manager Name Richard Cutler

Manager Tenure (Longest) 16

Manager Tenure (Average) 16

Longest Tenured Manager Name Richard Cutler

Shortest Tenured Manager Name Richard Cutler

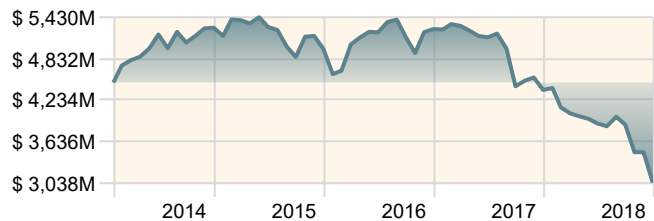
Shortest Tenured Manager Start Date 10/1/2002

Manager Biographies

Richard Cutler since 10/1/2002

Cutler, Managing Director, joined TIAA in 1997 and has been manager since December 2002. He is the lead portfolio manager and is also a managing director. He is in charge of portfolio management for domestic large-cap value portfolios. As an equity analyst at the firm, he covered Asia and technology.

Fund Size - All Share Classes (\$ millions)



Estimated Fund Flows (\$ millions)

3 Mo	\$ -178
6 Mo	\$ -383
1 Yr	\$ -779
3 Yr	\$ -2,835
Est Fund-Level Net Flow Date (Mo-End)	2/28/2019

Historical Turnover Ratio

28	39	43	26	25
2014		2016		2018

TIAA-CREF Mid-Cap Value Instl

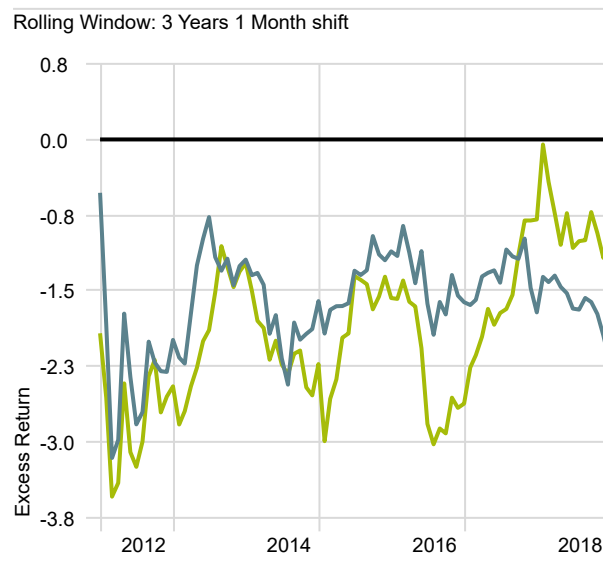
Near-term Performance

- ◆ TIAA-CREF Mid-Cap Value Instl
- ◻ Russell Mid Cap Value TR USD
- ◇ US Fund Mid-Cap Value

TIAA-CREF Mid-Cap Value Instl - Snapshot

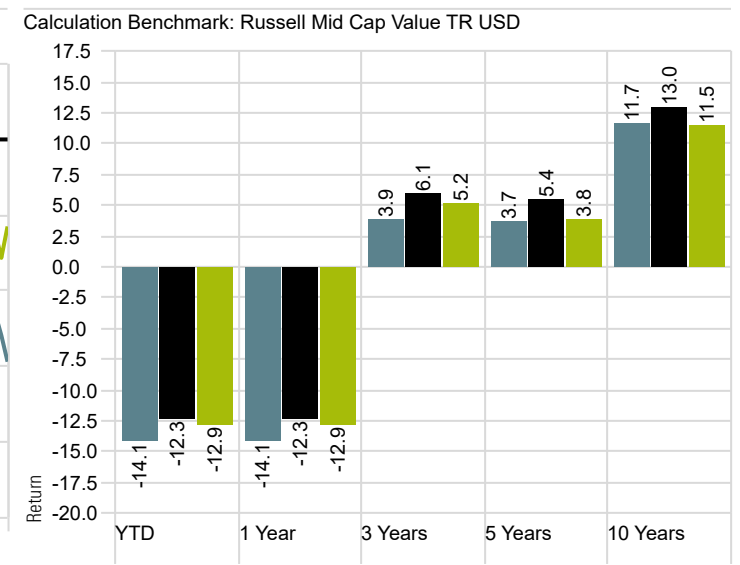
	Fund	Index	Cat Avg
Ticker	TIMVX		
Morningstar Cat	US Fund Mid-Cap Value	Mid-Cap Value	Mid-Cap Value
Morningstar Inst Cat	Mid Core Value		

Rolling 3 Year Returns - Relative to Index



— TIAA-CREF Mid-Cap Value Instl — Russell Mid Cap Value TR USD — US Fund Mid-Cap Value

Returns

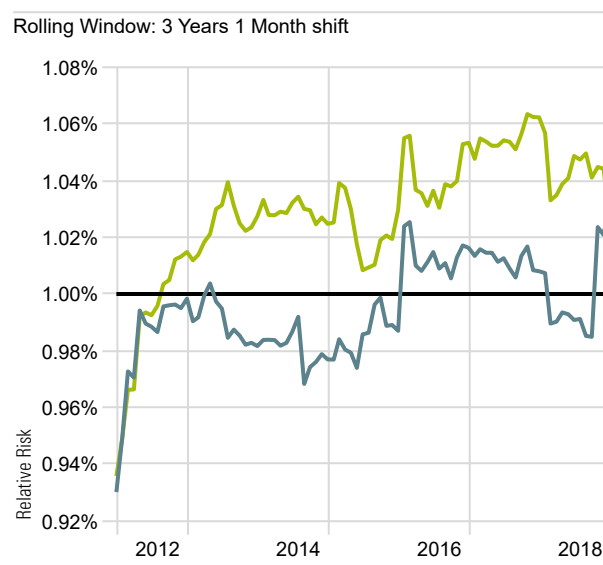


— TIAA-CREF Mid-Cap Value Instl — Russell Mid Cap Value TR USD — US Fund Mid-Cap Value

Equity Style Box

Prosp Net Expense	0.41%		1.12%
US Equity %	95.9	98.5	93.0
Non-US Equity %	3.2%	1.5%	4.4%
Cash %	0.9%	0.0%	2.3%
Bond %	0.0%	0.0%	0.1%
Other %	0.0%	0.0%	0.2%

Rolling 3 Year Risk - Relative to Index

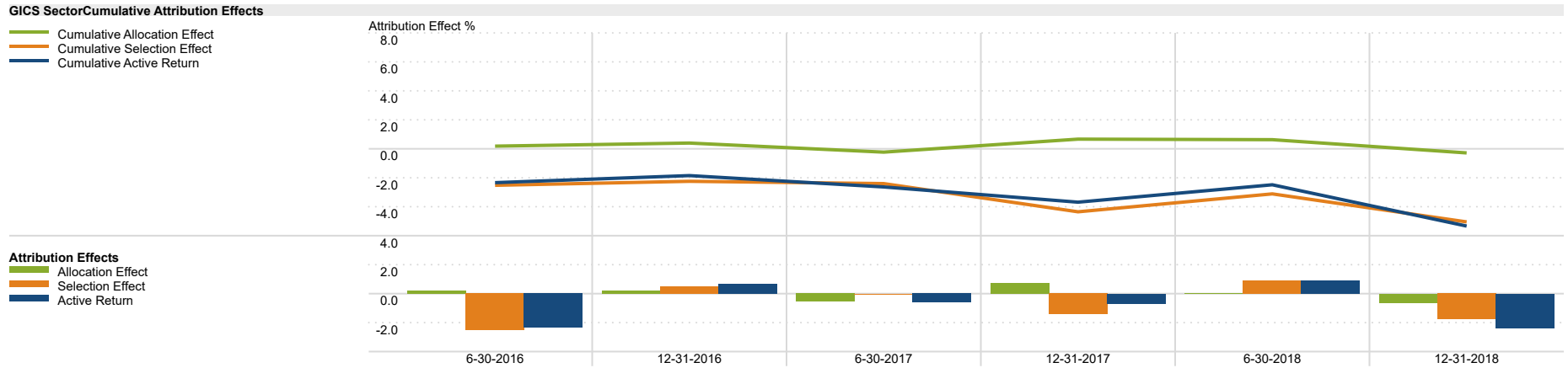


— TIAA-CREF Mid-Cap Value Instl — Russell Mid Cap Value TR USD — US Fund Mid-Cap Value

Rolling 3 Year Over/Under Benchmark Performance

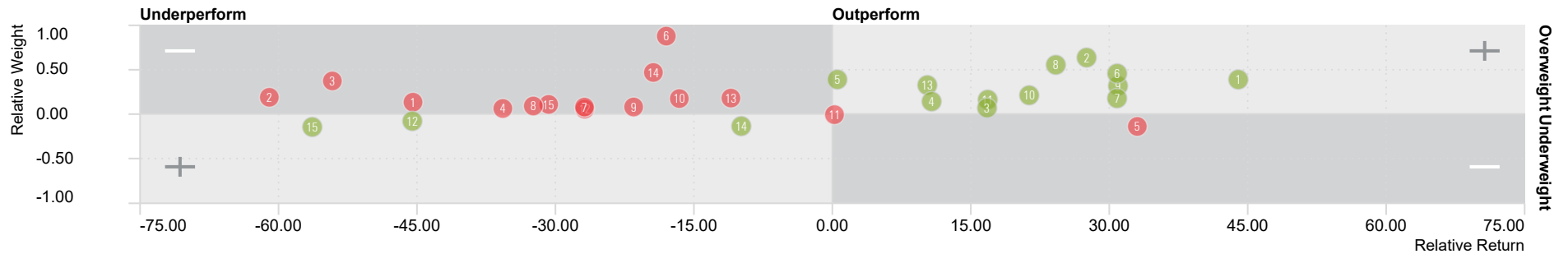


3 Year Cumulative Attribution Effects



Selection Effects

Time Period: 1/1/2016 to 12/31/2018



Best Selections					Worst Selections						
	GICS Sector	Weight +/-	Return +/-	Effect		GICS Sector	Weight +/-	Return +/-	Effect		
1	IAC/InterActiveCorp	Communication Services	0.38	43.98	0.23	1	Tronox Ltd	Materials	0.13	-45.43	-0.38
2	CSX Corp	Industrials	0.63	27.54	0.19	2	Babcock & Wilcox Enter...	Industrials	0.19	-61.00	-0.36
3	Axiall Corp	Materials	0.07	16.76	0.17	3	MDC Partners Inc A	Communication Services	0.37	-54.17	-0.29
4	Mentor Graphics Corp	Information Technology	0.14	10.75	0.16	4	Extreme Networks Inc	Information Technology	0.06	-35.70	-0.17
5	Albemarle Corp	Materials	0.39	0.54	0.14	5	Twitter Inc	Communication Services	-0.14	33.04	-0.17
6	Lonza Group Ltd	Health Care	0.45	30.86	0.13	6	W R Grace & Co	Materials	0.87	-17.99	-0.17
7	Lamb Weston Holdings ...	Consumer Staples	0.17	30.85	0.13	7	Knight-Swift Transportat...	Industrials	0.08	-26.85	-0.16
8	Humana Inc	Health Care	0.55	24.21	0.13	8	Evoqua Water Technolo...	Industrials	0.09	-32.40	-0.16
9	WellCare Health Plans I...	Health Care	0.31	30.95	0.12	9	Red Robin Gourmet Bur...	Consumer Discretionary	0.08	-21.53	-0.16
10	H. Lundbeck A/S	Health Care	0.21	21.32	0.11	10	American Airlines Grou...	Industrials	0.17	-16.58	-0.15
11	Applied Materials Inc	Information Technology	0.16	16.83	0.11	11	Michael Kors Holdings ...	Consumer Discretionary	-0.01	0.23	-0.15
12	Endo International PLC	Health Care	-0.08	-45.51	0.11	12	Dynegy Inc	Utilities	0.05	-26.83	-0.15
13	Norfolk Southern Corp	Industrials	0.32	10.29	0.10	13	Multi Packaging Solutio...	Materials	0.18	-10.99	-0.14
14	Arconic Inc	Industrials	-0.14	-9.86	0.10	14	Mylan NV	Health Care	0.46	-19.39	-0.13
15	Weatherford Internation...	Energy	-0.15	-56.34	0.10	15	First Quantum Minerals ...	Materials	0.11	-30.73	-0.13

TIAA-CREF Mid-Cap Value Instl

Near-term Performance

Sector						Morningstar Style Box						Regional					
Time Period: 1/1/2016 to 12/31/2018						Time Period: 1/1/2016 to 12/31/2018						Time Period: 1/1/2016 to 12/31/2018					
	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return		+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return		+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Communication Services	-0.02	-5.86	-0.05	-0.20	-0.25	Large Blend	2.94	-4.38	0.28	-0.68	-0.41	Africa	-0.03		0.00	0.00	0.00
Consumer Discretionary	-0.71	-6.33	-0.02	-0.52	-0.54	Large Growth	1.37	-6.96	0.27	-0.30	-0.03	Asia - Emerging	0.04	-22.11	0.09	-0.14	-0.05
Consumer Staples	1.54	-0.07	-0.18	0.09	-0.09	Large Value	-0.59	-4.45	0.01	-0.83	-0.81	Canada	0.75		-0.05	0.00	-0.05
Energy	1.92	1.68	-0.28	0.13	-0.14	Mid Blend	-3.71	1.74	-0.01	0.39	0.38	Europe - Emerging	0.05		-0.05	0.00	-0.05
Financials	-0.12	-1.45	0.06	-0.28	-0.22	Mid Growth	1.32	-2.39	0.13	-0.11	0.02	Europe - ex Euro	1.15	-6.95	0.24	-0.15	0.09
Health Care	0.10	9.48	0.03	0.60	0.64	Mid Value	-5.26	-1.89	0.20	-0.60	-0.40	Eurozone	0.51	10.17	-0.19	0.10	-0.09
Industrials	0.27	-3.99	-0.10	-0.41	-0.52	Small Blend	1.37	-2.40	-0.20	-0.09	-0.29	Japan	0.19		0.04	0.00	0.04
Information Technology	1.06	-5.71	0.14	-0.40	-0.26	Small Growth	1.46	16.38	-0.47	0.35	-0.12	Latin America	-0.17		0.01	0.00	0.01
Materials	1.27	-7.84	0.11	-0.56	-0.45	Small Value	1.16	3.03	-0.37	0.23	-0.14	Middle East	0.07		-0.03	0.00	-0.03
Real Estate	-5.09	-1.47	0.24	-0.15	0.10	Unclassified	-0.04	2.05	-0.03	0.05	0.02	United Kingdom	0.48	7.68	-0.21	-0.04	-0.25
Utilities	-0.26	0.00	-0.05	0.01	-0.04	Attribution Total	0.00	-1.61	-0.18	-1.59	-1.78	United States	-3.06	-1.39	0.00	-1.46	-1.47
Unclassified	0.03		0.03	0.00	0.03	Bond						Unclassified	0.03		0.03	0.00	0.03
Attribution Total	0.00	-1.61	-0.10	-1.68	-1.78							Attribution Total	0.00	-1.61	-0.08	-1.70	-1.78
Bond												Bond					

Factor Exposure

As of Date : 12/31/2018



TIAA-CREF Mid-Cap Value Instl

Near-term Performance

P/FCF Ratio

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
p/fcf [32.12 - 22446.02]	1.73	-1.10	0.01	-0.21	-0.20
p/fcf [20.78 - 32.12)	-3.09	4.69	0.01	0.64	0.65
p/fcf [15.23 - 20.78)	0.31	-3.76	0.01	-0.61	-0.60
p/fcf [10.39 - 15.23)	0.53	0.03	0.01	-0.01	0.01
p/fcf [0.76 - 10.39)	-1.99	-5.91	-0.06	-0.91	-0.97
Unclassified	2.51	-2.30	-0.07	-0.60	-0.67
Attribution Total	0.00	-1.61	-0.09	-1.69	-1.78
Bond					

Debt-to-Capital

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Debt to Capital [57.40 - 99.62]	1.67	-4.20	-0.09	-0.94	-1.03
Debt to Capital [47.63 - 57.40)	-2.74	2.09	0.07	0.41	0.49
Debt to Capital [38.68 - 47.63)	-0.78	2.53	0.01	0.45	0.46
Debt to Capital [26.30 - 38.68)	1.82	-2.37	-0.02	-0.54	-0.56
Debt to Capital [0.00 - 26.30)	0.57	-3.84	0.03	-0.80	-0.76
Unclassified	-0.54	-7.84	-0.05	-0.32	-0.36
Attribution Total	0.00	-1.61	-0.04	-1.74	-1.78
Bond					

P/B Ratio

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
P/B 4 Buckets [3.12 - 123.00]	3.29	-6.38	0.29	-1.50	-1.22
P/B 4 Buckets [2.10 - 3.12)	1.54	1.09	0.00	0.31	0.31
P/B 4 Buckets [1.40 - 2.10)	-1.62	-0.83	0.01	-0.24	-0.23
P/B 4 Buckets [0.00 - 1.40)	-2.70	-1.72	0.04	-0.49	-0.45
Unclassified	-0.50	-10.75	0.05	-0.24	-0.19
Attribution Total	0.00	-1.61	0.39	-2.16	-1.78
Bond					

EPS Growth

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
NI Growth % 1 yr [71.34 - 11300.00]	1.72	-0.63	-0.01	-0.12	-0.13
NI Growth % 1 yr [31.65 - 71.34)	2.17	-3.06	0.10	-0.56	-0.46
NI Growth % 1 yr [3.31 - 31.65)	-2.13	-2.29	-0.09	-0.36	-0.46
NI Growth % 1 yr [-27.64 - 3.31)	-0.47	-1.52	-0.02	-0.27	-0.28
NI Growth % 1 yr [-97.25 - -27.64)	-0.92	-0.72	0.00	-0.12	-0.12
Unclassified	-0.37	-2.16	0.09	-0.41	-0.33
Attribution Total	0.00	-1.61	0.06	-1.84	-1.78
Bond					

Dividend Yield

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
Div Yield % [5.00 - +∞)	-2.79	-7.12	-0.02	-0.41	-0.44
Div Yield % [3.00 - 5.00)	-5.12	-1.94	-0.01	-0.34	-0.35
Div Yield % [2.00 - 3.00)	0.61	-0.54	0.00	-0.17	-0.17
Div Yield % [1.00 - 2.00)	0.43	-2.04	0.06	-0.34	-0.28
Div Yield % [0.01 - 1.00)	1.31	2.90	-0.08	0.35	0.27
Div Yield % [0.00 - 0.01)	5.56	-2.24	-0.19	-0.62	-0.81
Attribution Total	0.00	-1.61	-0.23	-1.55	-1.78
Bond					

ROE

Time Period: 1/1/2016 to 12/31/2018

	+/- Weights	+/- Return	Allocation Effect	Selection Effect	Active Return
ROE [14.86 - 3622.59]	1.44	-5.60	-0.05	-1.35	-1.40
ROE [11.12 - 14.86)	0.24	2.61	-0.04	0.49	0.46
ROE [8.08 - 11.12)	-4.17	-0.36	-0.13	-0.06	-0.19
ROE [3.43 - 8.08)	-0.11	1.89	-0.01	0.45	0.45
ROE [-1784.59 - 3.43)	2.88	-2.63	-0.25	-0.55	-0.80
Unclassified	-0.28	-10.23	0.00	-0.29	-0.29
Attribution Total	0.00	-1.61	-0.48	-1.30	-1.78
Bond					

TIAA-CREF Mid-Cap Value Instl

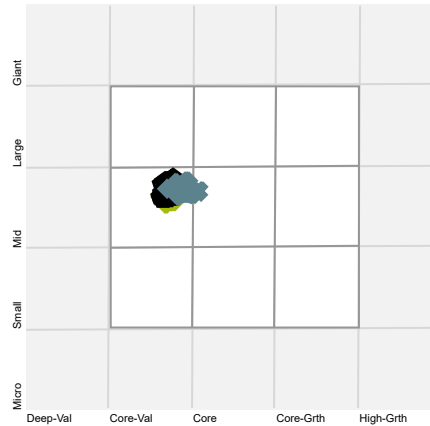
Style Analysis

- ◆ TIAA-CREF Mid-Cap Value Instl
- ◇ Russell Mid Cap Value TR USD
- ◇ US Fund Mid-Cap Value

TIAA-CREF Mid-Cap Value Instl - Snapshot

	Inv	Bmk1	Cat Avg
Equity Style Box			
Style Consistency	High	High	High
Style Dispersion	Medium	Medium	Medium
Average Market Cap (mil)	9,570	12,213	10,371
P/E Ratio (TTM)	12.7	17.3	14.9
P/S Ratio (TTM)	1.1	1.4	1.1
P/B Ratio (TTM)	1.6	1.9	1.9
P/FCF Ratio (TTM)	35.8	32.4	41.2
ROE % (TTM)	12.1	11.7	14.4
ROA % (TTM)	3.7	4.0	5.0
Debt to Capital % (trailing)	43	43	41
Div Yld %	2.3	2.5	1.9
US Equity %	95.9%	98.5%	93.0%
Non-US Equity %	3.2%	1.5%	4.4%
Cash %	0.9%	0.0%	2.3%

Holdings-Based Style Trail



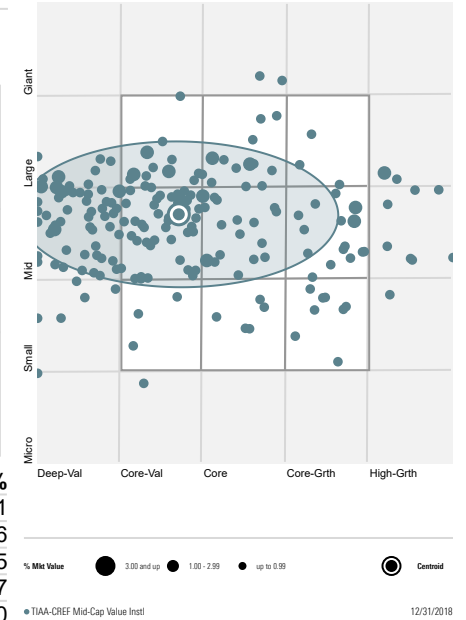
Morningstar Style Box

Portfolio Date: 12/31/2018

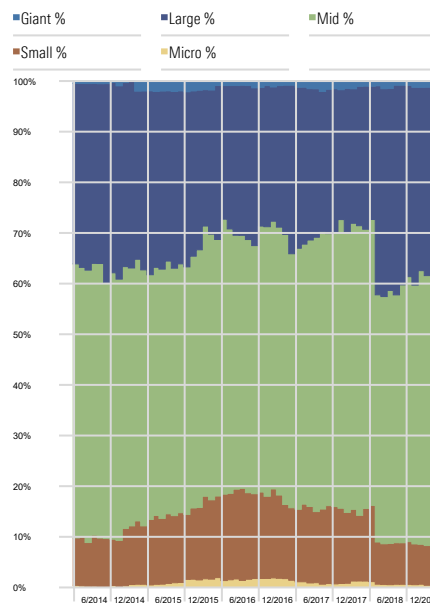
	Value	Blend	Growth
Large	13	12	2
Mid	33	22	11
Small	2	3	2

Market Cap	%
Market Cap Giant %	1
Market Cap Large %	26
Market Cap Mid %	65
Market Cap Small %	7
Market Cap Micro %	0

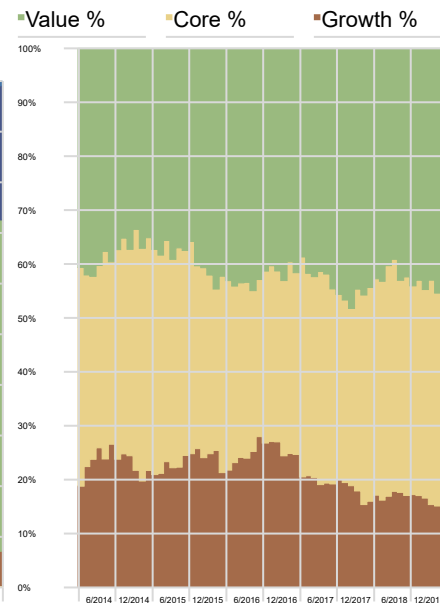
Holdings-Based Style Map



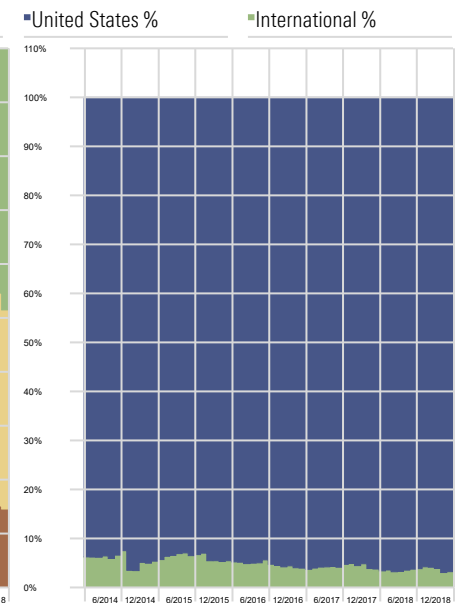
Equity Market Capitalization



Equity Style Valuation



International Exposure

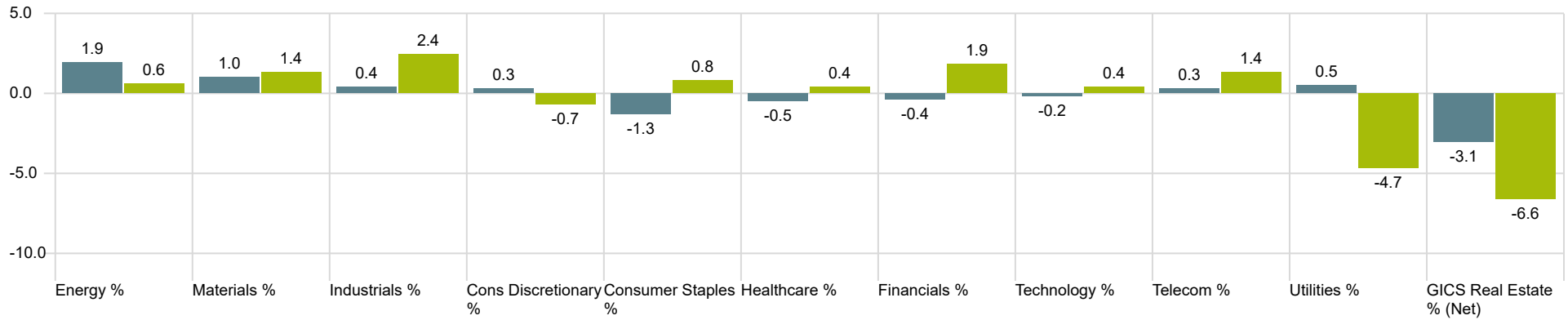


TIAA-CREF Mid-Cap Value Instl

Style Analysis

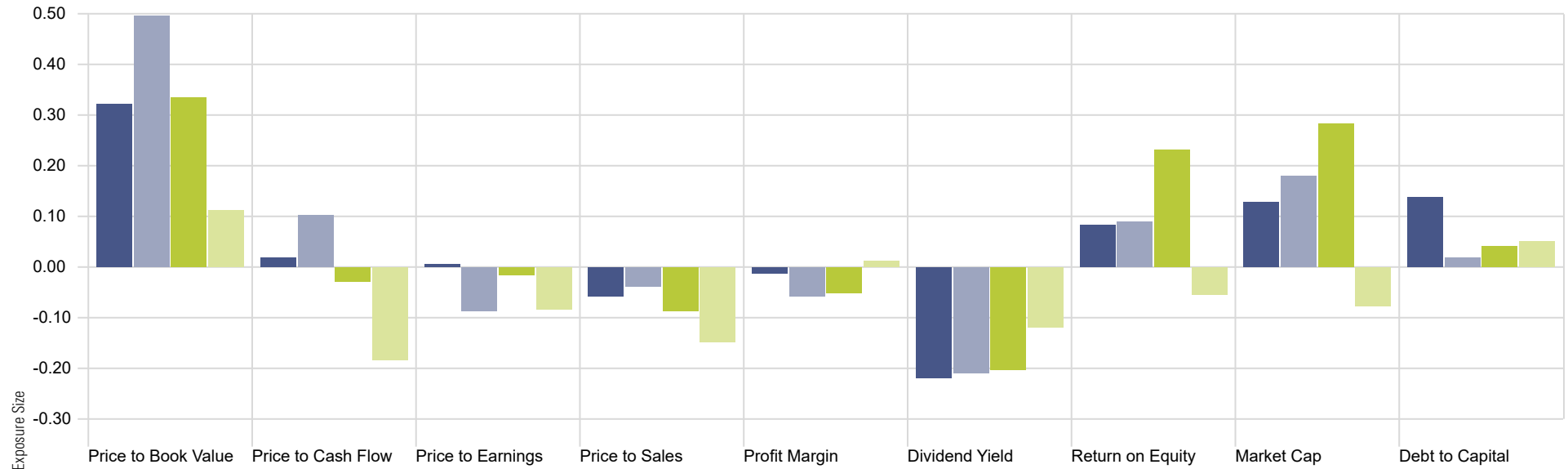
Supplementary Data

Calculation Benchmark: Russell Mid Cap Value TR USD



■ TIAA-CREF Mid-Cap Value Instl ■ Russell Mid Cap Value TR USD ■ US Fund Mid-Cap Value

Historical Factor Exposure



■ 12/31/2015 ■ 12/31/2016 ■ 12/31/2017
 ■ 12/31/2018

TIAA-CREF Mid-Cap Value Instl

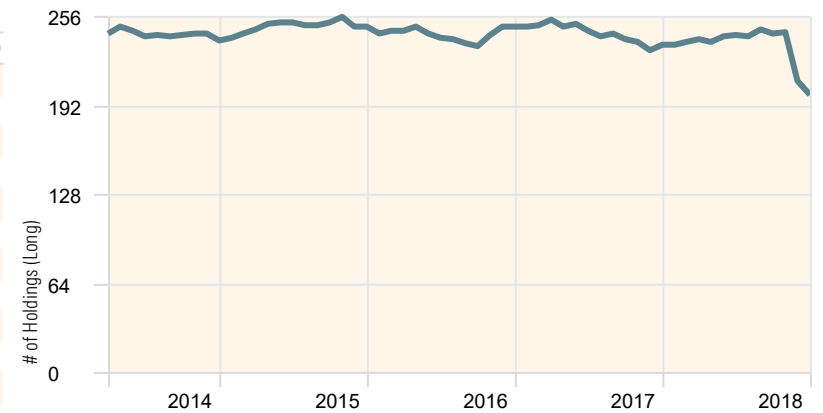
Style Analysis

Top 40 Holdings

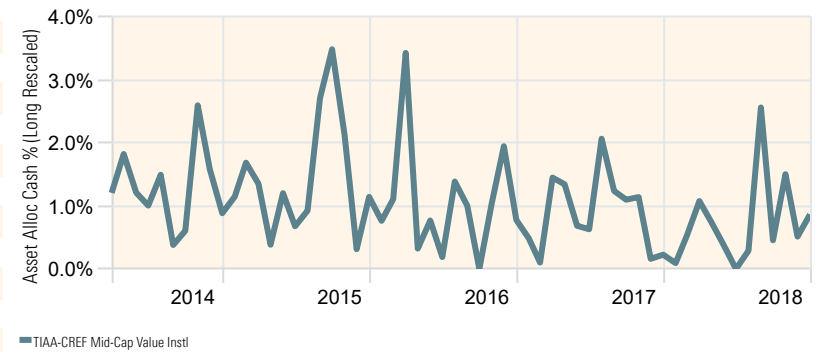
Calculation Benchmark: Russell Mid Cap Value TR USD Portfolio Date: 12/31/2018

und Weight	Idx Weight	Share Change	Style	Sector	Return YTD
L3 Technologies Inc	1.7%	0.4%	46,780	Industrials	22%
Bunge Ltd	1.5%	0.2%	0	Consumer Defensive	0%
Zimmer Biomet Holdings Inc	1.3%	0.6%	0	Healthcare	21%
E*TRADE Financial Corp	1.2%	0.2%	0	Financial Services	15%
The Hartford Financial Services	1.2%	0.4%	0	Financial Services	12%
Concho Resources Inc	1.2%	0.5%	0	Energy	8%
DTE Energy Co	1.2%	0.5%	0	Utilities	11%
Sempra Energy	1.2%	0.8%	0	Utilities	12%
AvalonBay Communities Inc	1.2%	0.6%	0	Real Estate	12%
W R Grace & Co	1.2%	0.0%	0	Basic Materials	21%
PerkinElmer Inc	1.2%	0.2%	112,817	Healthcare	23%
FirstEnergy Corp	1.1%	0.5%	0	Utilities	10%
American Airlines Group Inc	1.1%	0.4%	0	Industrials	8%
Entergy Corp	1.1%	0.4%	120,334	Utilities	9%
Huntington Bancshares Inc	1.1%	0.3%	526,896	Financial Services	21%
Williams Companies Inc	1.0%	0.7%	0	Energy	24%
DXC Technology Co	1.0%	0.4%	-57,988	Technology	27%
Comerica Inc	1.0%	0.3%	0	Financial Services	26%
Welltower Inc	1.0%	0.7%	0	Real Estate	8%
Conagra Brands Inc	1.0%	0.3%	198,461	Consumer Defensive	10%
ITT Inc	1.0%	0.1%	0	Industrials	21%
Alaska Air Group Inc	0.9%	0.2%	0	Industrials	1%
Raymond James Financial Inc	0.9%	0.2%	0	Financial Services	14%
Lear Corp	0.9%	0.2%	13,358	Consumer Cyclical	25%
Federal Home Loan Banks 0.0'	0.9%		26,170,000		
Ingersoll-Rand PLC	0.9%	0.3%	0	Industrials	16%
Public Service Enterprise Group	0.9%	0.7%	0	Utilities	14%
Voya Financial Inc	0.8%	0.2%	0	Financial Services	26%
Zions Bancorp NA	0.8%	0.2%	0	Financial Services	26%
Ventas Inc	0.8%	0.6%	0	Real Estate	6%
Mid-America Apartment Commu	0.8%	0.3%	0	Real Estate	9%
Pinnacle West Capital Corp	0.8%	0.3%	0	Utilities	10%
Boston Properties Inc	0.8%	0.5%	0	Real Estate	17%
Mylan NV	0.8%	0.4%	0	Healthcare	0%
Royal Caribbean Cruises Ltd	0.8%	0.4%	0	Consumer Cyclical	22%
Knight-Swift Transportation Hol	0.8%	0.1%	0	Industrials	35%
WPX Energy Inc Class A	0.8%	0.1%	0	Energy	10%
Parsley Energy Inc A	0.8%	0.0%	0	Energy	16%
NiSource Inc	0.8%	0.2%	0	Utilities	7%
Camden Property Trust	0.7%	0.2%	0	Real Estate	11%

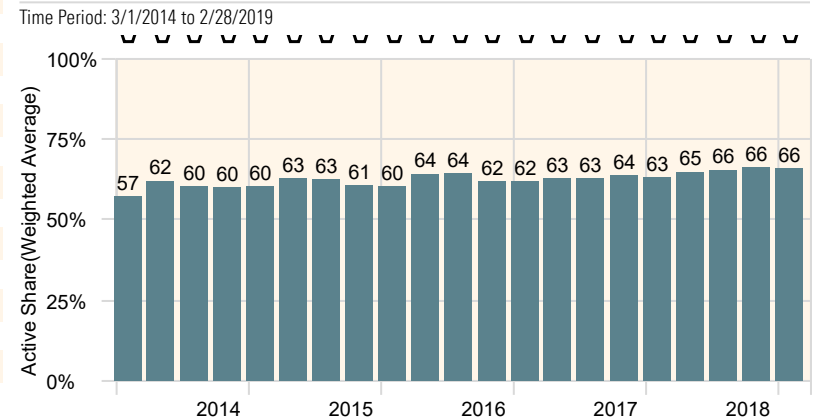
Number of Stock Holdings



Cash Exposure



Historical Active Share

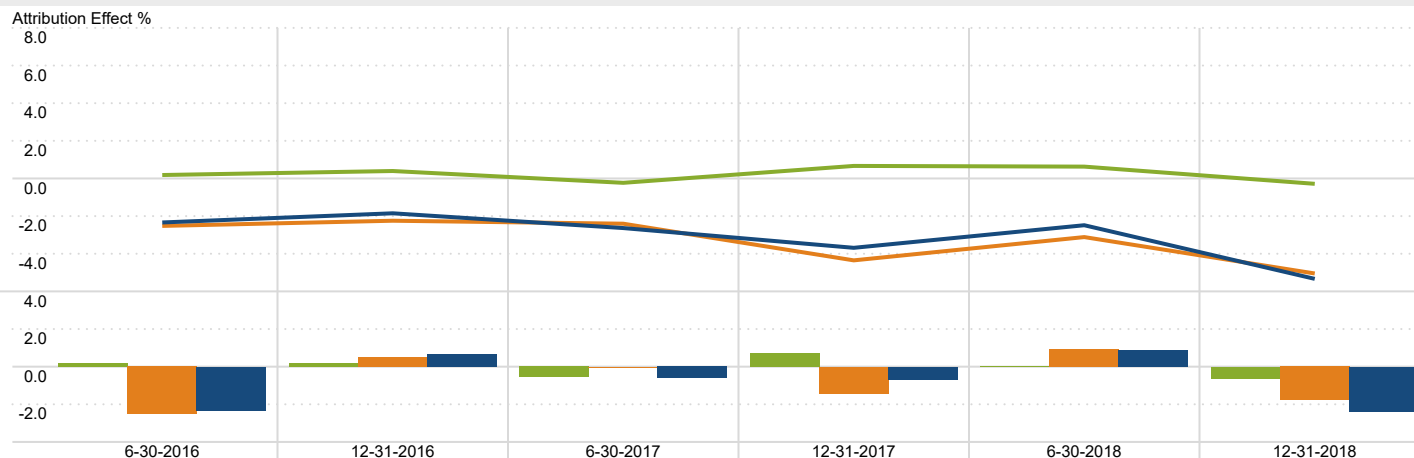


3 Year Cumulative Attribution Effects

Time Period: 1/1/2016 to 12/31/2018

GICS Sector Cumulative Attribution Effects

— Cumulative Allocation Effect
— Cumulative Selection Effect
— Cumulative Active Return



Attribution Effects
■ Allocation Effect
■ Selection Effect
■ Active Return

3 Year GICS Sector Attribution

Time Period: 1/1/2016 to 12/31/2018

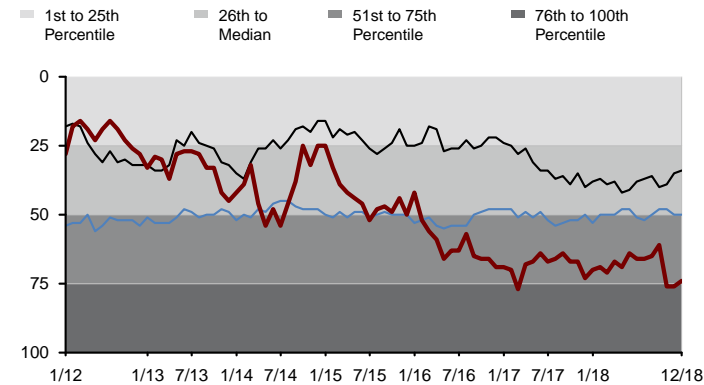
	Weights	Relative Weights	Rescaled Weight	Relative Rescaled Weight	Return	Relative Return	Contribution	Relative Contribution	Allocation Effect	Selection Effect	Active Return
Health Care	5.8	0.0	5.9	0.1	8.6	9.5	0.5	0.7	0.0	0.6	0.64
Real Estate	9.0	-5.2	9.2	-5.1	1.1	-1.5	0.0	-0.4	0.2	-0.1	0.10
Unclassified	0.0	0.0	0.0	0.0	-0.7		0.0	0.0	0.0	0.0	0.03
Utilities	10.8	-0.4	11.0	-0.3	11.3	0.0	1.4	0.0	-0.1	0.0	-0.04
Consumer Staples	5.4	1.5	5.5	1.5	0.3	-0.1	0.2	0.3	-0.2	0.1	-0.09
Energy	10.6	2.0	10.5	1.9	-1.4	1.7	-0.1	0.0	-0.3	0.1	-0.14
Financials	19.0	-0.2	19.0	-0.1	5.9	-1.4	1.3	-0.2	0.1	-0.3	-0.22
Communication Services	3.1	0.0	3.1	0.0	-1.7	-5.9	-0.1	-0.2	-0.1	-0.2	-0.25
Information Technology	8.5	0.9	8.7	1.1	8.7	-5.7	1.0	-0.2	0.1	-0.4	-0.26
Materials	6.9	1.2	7.1	1.3	4.4	-7.8	0.3	-0.4	0.1	-0.6	-0.45

TIAA-CREF Mid-Cap Growth Instl

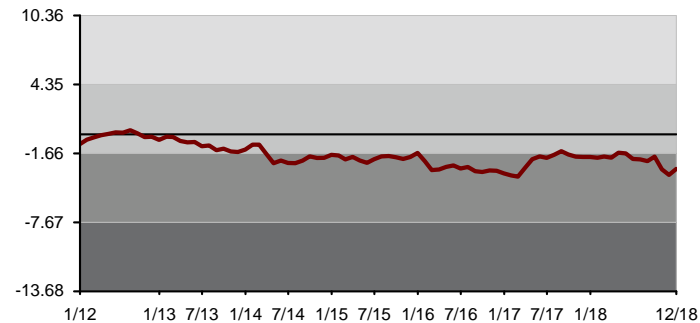
TRPWX

Index: Russell Mid Cap Growth TR USD
 Category: Mid-Cap Growth
 Return Date: 12/31/2018

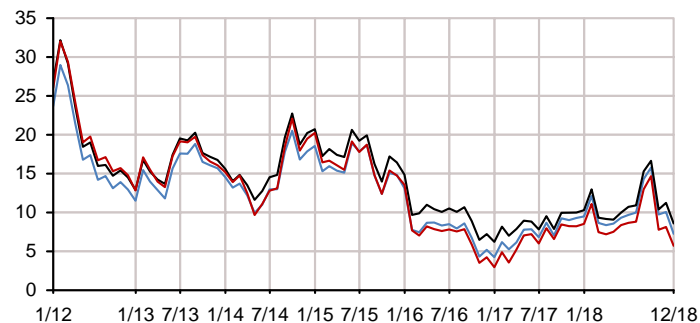
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



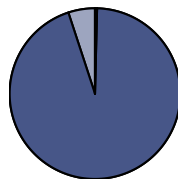
● TIAA-CREF Mid-Cap Growth Instl ● Russell Mid Cap Growth TR USD ● Morningstar Mid-Cap Growth

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	124.0	109.0	418.0
Holdings - Bonds	-	-	0.0
Holdings - Other	3.0	4.0	-
Turnover Ratio	70.0	58.5	-
Net Expense Ratio	0.5	1.2	-
Gross Expense Ratio	0.5	2.5	-
Avg Mkt Cap (\$MM)	11,858	11,559	12,253
Total Assets (\$MM)	1,231	2,169	-
P/E Ratio	22.6	24.8	20.7
P/B Ratio	4.1	4.4	4.9
P/S Ratio	2.1	2.7	2.1
P/CF Ratio	13.1	15.6	13.6
ROE %	16.6	24.7	-
ROA %	4.3	8.2	-
Dividend Yld	0.7	0.7	1.0

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.39
Domestic Stock	94.56
Foreign Stock	5.05
Domestic Bond	-
Foreign Bond	-
Other	-

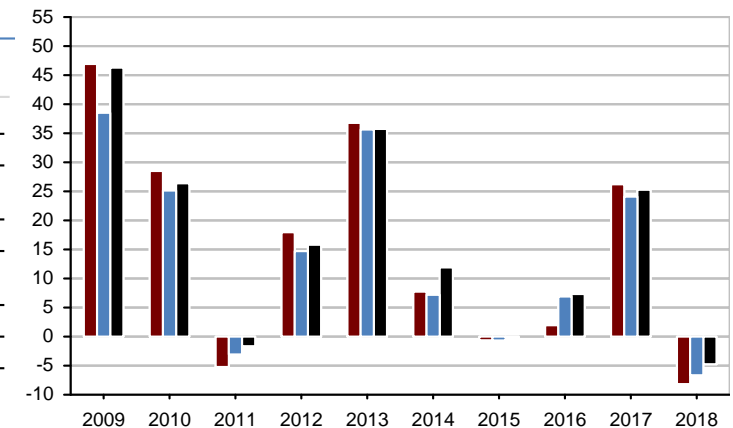
Sector Allocation (%)

	Fund	Avg	Idx
Energy	2.3	2.1	1.5
Materials	3.8	3.0	3.0
Industrials	16.5	17.2	18.4
Cons Discretionary	10.5	13.0	-
Consumer Staples	13.4	8.4	-
Healthcare	10.8	15.6	13.7
Financials	7.1	9.8	7.4
Info Technology	36.5	26.3	29.9
Telecom Services	4.7	3.8	-
Utilities	0.0	0.5	0.0

Top 10 Holdings

	Fund %
iShares Russell Mid-Ca...	2.4
ServiceNow Inc	2.2
Edwards Lifesciences Corp	2.2
Ross Stores Inc	2.0
Fortive Corp	1.7
Amphenol Corp Class A	1.6
O'Reilly Automotive Inc	1.6
Fleetcor Technologies Inc	1.5
Fastenal Co	1.5
Jazz Pharmaceuticals PLC	1.5

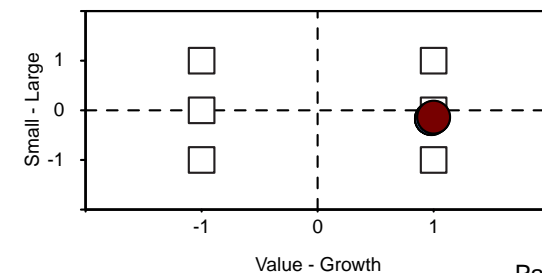
Calendar Year Returns



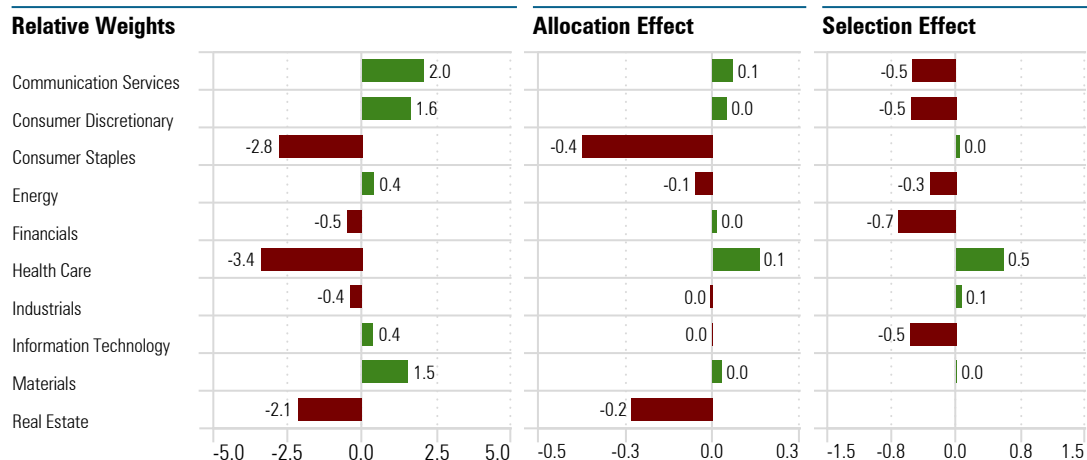
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	14.0	-0.1	13.4	-0.1
Beta	1.1	0.0	1.1	0.1
Alpha	-3.0	-1.8	-2.7	-1.1
Sharpe	0.4	-0.1	0.4	-0.1
Sortino	0.4	-0.2	0.4	-0.1
Info Ratio	-1.0	-0.6	-1.0	-0.5
Down Capture	110.4	8.5	113.1	7.4
Up Capture	93.0	-1.7	96.6	1.6

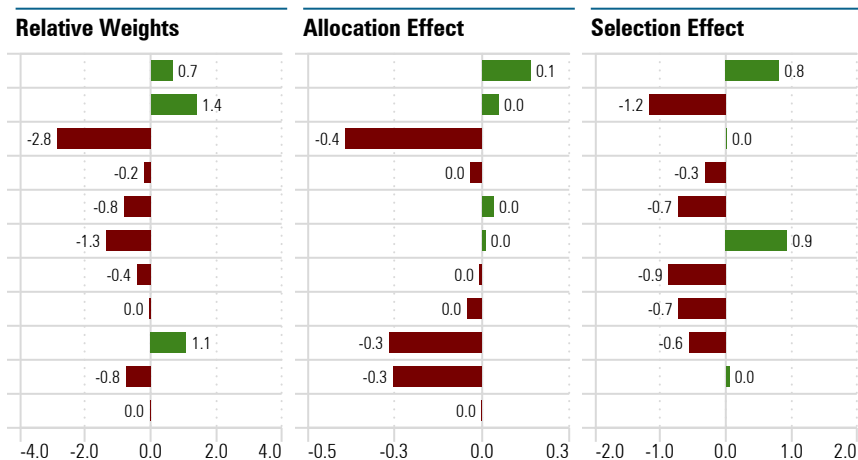
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
Tesaro Inc	0.89	90.34	0.92
Square Inc A	0.34	-43.35	0.19
Zynga Inc Class A	0.83	-2.00	0.12
Edwards Lifesciences Corp	2.29	-12.02	0.11
Planet Fitness Inc A	0.76	-0.76	0.11
Fidelity National Information Services Inc	1.03	-5.69	0.11
Berry Global Group Inc	0.93	-1.78	0.11
Waste Connections Inc	0.91	-6.66	0.09
Under Armour Inc A	0.28	4.19	0.09
Fastenal Co	1.60	-9.16	0.09

Leading Contributors

Company	Rescaled Weight	Return	Active Return
Tesaro Inc	0.42	66.97	0.92
Advanced Micro Devices Inc	0.96	79.57	0.54
Teladoc Health Inc	0.68	42.24	0.52
Planet Fitness Inc A	0.64	54.84	0.34
Edwards Lifesciences Corp	1.88	35.90	0.33
ANGI Homeservices Inc A	0.76	53.63	0.31
Twitter Inc	0.30	-0.93	0.31
RingCentral Inc Class A	0.64	70.33	0.29
World Wrestling Entertainment Inc Class A	0.35	88.71	0.28
IAC/InterActiveCorp	1.13	49.69	0.28

Leading Detractors

Company	Rescaled Weight	Return	Active Return
DXC Technology Co	0.89	-42.97	-0.27
Parsley Energy Inc A	1.08	-45.37	-0.22
GreenSky Inc Class A	0.36	-48.28	-0.22
Spotify Technology SA	0.72	-37.23	-0.17
Coherus BioSciences Inc	0.55	-45.15	-0.16
BRP Inc	0.50	-44.66	-0.16
BWX Technologies Inc	0.74	-27.43	-0.16
Farfetch Ltd Class A	0.84	-34.96	-0.16
GDS Holdings Ltd ADR	0.76	-34.27	-0.16
Tiffany & Co	0.72	-37.13	-0.15

Leading Detractors

Company	Rescaled Weight	Return	Active Return
GreenSky Inc Class A	0.28	-65.22	-0.47
DXC Technology Co	1.36	-37.55	-0.38
Coherent Inc	0.53	-56.37	-0.36
Tronox Ltd	0.65	-61.62	-0.33
Wynn Resorts Ltd	1.28	-33.81	-0.31
Parsley Energy Inc A	0.86	-45.72	-0.31
GDS Holdings Ltd ADR	0.49	-12.09	-0.27
Melco Resorts and Entertainment Ltd ADR	0.81	-37.87	-0.27
BWX Technologies Inc	0.90	-24.42	-0.26
Yum China Holdings Inc	0.60	-21.84	-0.24

Royce Opportunity Instl

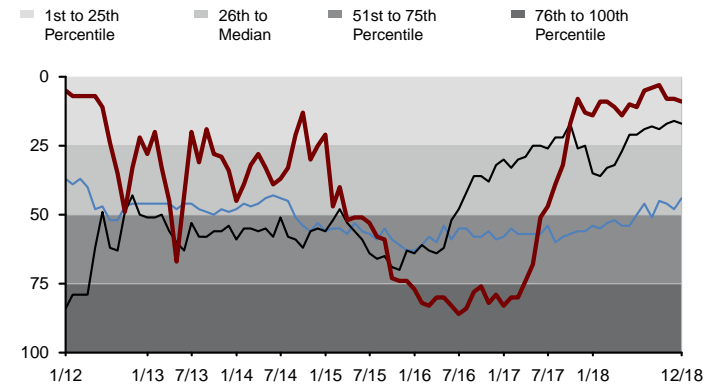
ROFIX

Index: Russell 2000 Value TR USD

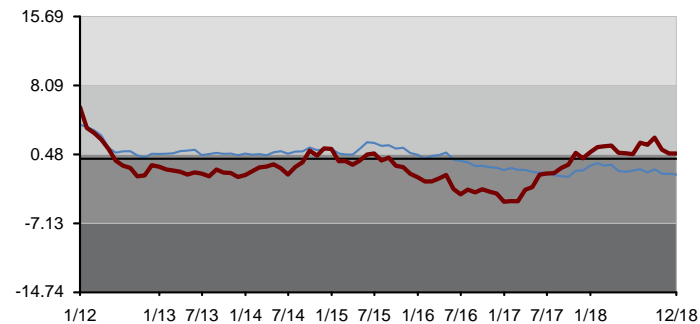
Category: Small Value

Return Date: 12/31/2018

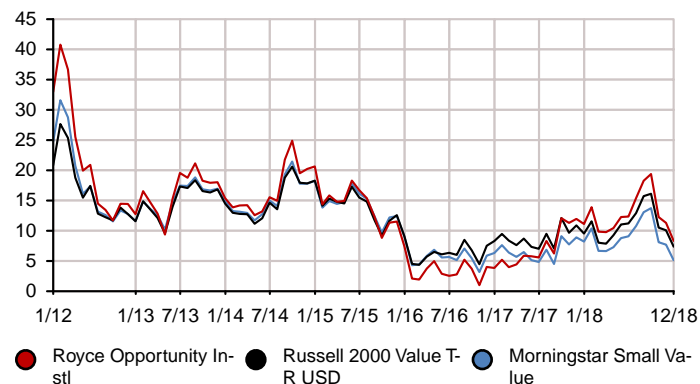
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	261.0	231.0	1385.0
Holdings - Bonds	-	2.0	0.0
Holdings - Other	3.0	5.0	-
Turnover Ratio	43.0	81.8	-
Net Expense Ratio	1.1	1.2	-
Gross Expense Ratio	1.1	2.5	-
Avg Mkt Cap (\$MM)	1,000	2,127	1,444
Total Assets (\$MM)	876	1,231	-
P/E Ratio	12.1	14.3	11.7
P/B Ratio	1.4	1.5	1.2
P/S Ratio	0.6	0.9	0.8
P/CF Ratio	7.2	7.3	5.7
ROE %	3.0	7.6	-
ROA %	0.7	2.3	-
Dividend Yld	0.7	2.0	2.5

Sector Allocation (%)

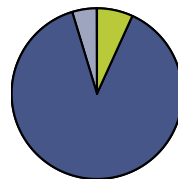
	Fund	Avg	Idx
Energy	5.7	6.2	4.1
Materials	9.2	6.5	4.5
Industrials	25.2	16.7	12.8
Cons Discretionary	11.7	9.2	-
Consumer Staples	9.1	10.0	-
Healthcare	5.7	4.7	3.8
Financials	7.2	23.8	27.2
Info Technology	26.3	11.1	11.2
Telecom Services	6.3	2.4	-
Utilities	0.2	3.7	7.3

Top 10 Holdings

	Fund %
Comtech Telecommunicat...	1.1
Mallinckrodt PLC	1.0
Allegheny Technologies...	1.0
Carpenter Technology Corp	0.9
Ciena Corp	0.9
Granite Construction Inc	0.9
Kratos Defense & Secur...	0.8
Kulicic & Sofa Indus...	0.8
Univar Inc	0.8
Mueller Water Products...	0.8

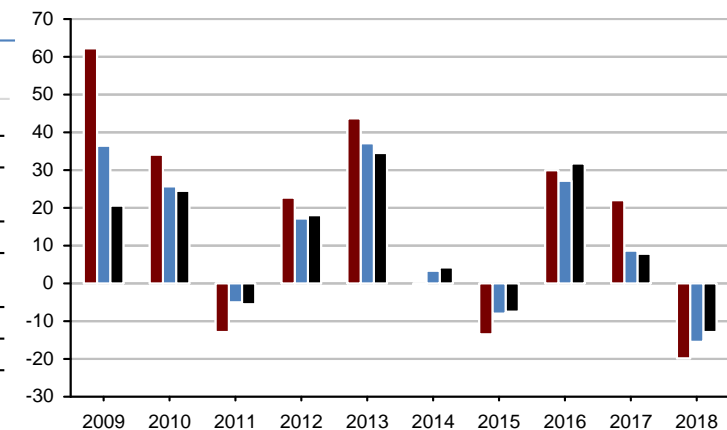
Asset Allocation

Portfolio Date: 09/30/2018



	%
Cash	6.8
Domestic Stock	88.51
Foreign Stock	4.64
Domestic Bond	-
Foreign Bond	-
Other	0.05

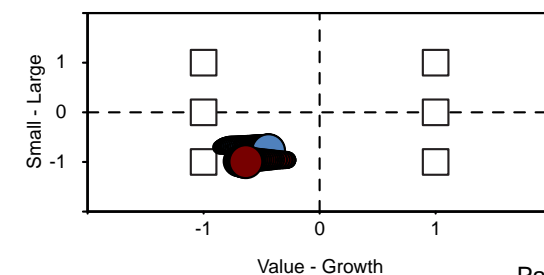
Calendar Year Returns



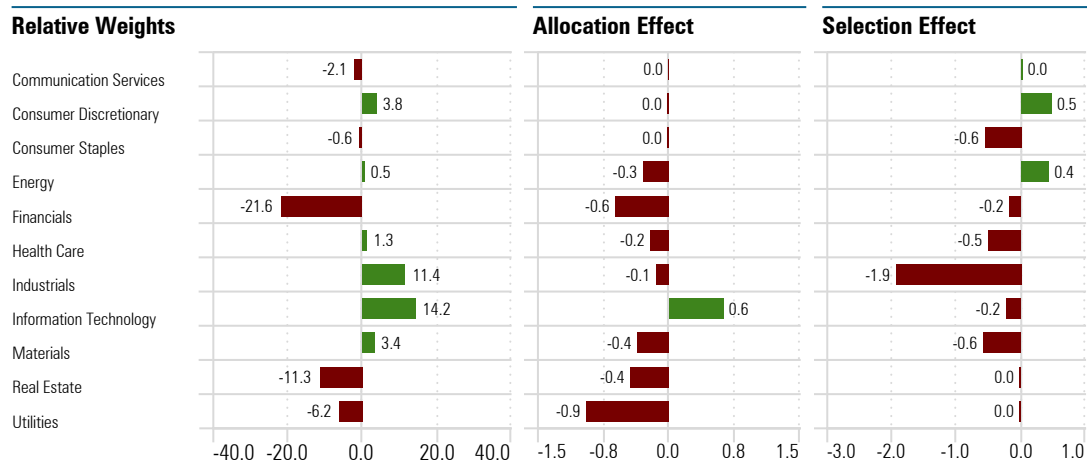
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	18.0	1.9	17.1	1.8
Beta	1.1	0.1	1.1	0.1
Alpha	0.6	2.3	-1.7	-0.3
Sharpe	0.5	0.1	0.2	-0.0
Sortino	0.6	0.2	0.1	-0.0
Info Ratio	0.2	0.8	-0.4	-0.0
Down Capture	95.8	-0.6	105.7	10.4
Up Capture	100.7	13.5	97.1	10.1

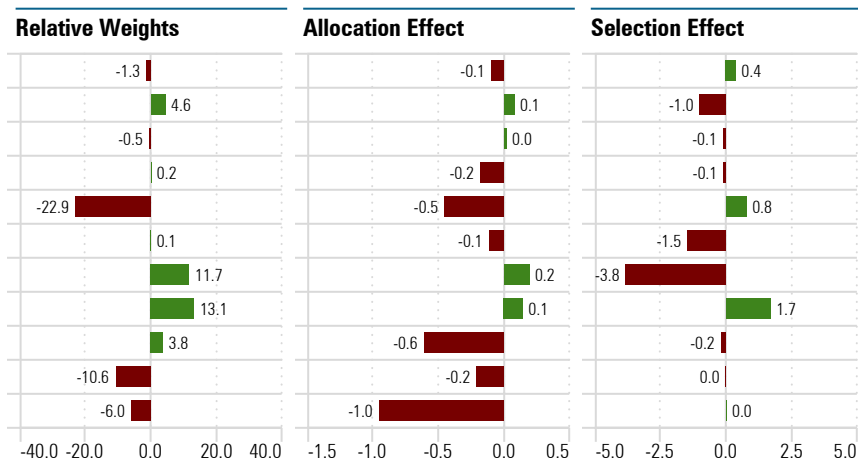
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

	Rescaled Weight	Return	Active Return
Northwest Pipe Co	0.81	17.92	0.26
Belmond Ltd Class A	0.66	37.15	0.25
ARRIS International PLC	0.73	17.62	0.21
K12 Inc	0.56	40.06	0.20
Aerojet Rocketdyne Holdings Inc	0.82	3.65	0.17
El Pollo Loco Holdings Inc	0.50	20.88	0.16
Fabrinet	0.96	10.92	0.13
Hyster-Yale Materials Handling Inc Class A	0.75	1.18	0.12
AngioDynamics Inc	0.61	-7.41	0.12
GasLog Partners LP	0.39	-19.11	0.12

Leading Contributors

	Rescaled Weight	Return	Active Return
Enova International Inc	0.49	89.47	0.55
Fabrinet	0.92	78.78	0.42
Belmond Ltd Class A	0.51	104.33	0.38
Unisys Corp	0.74	42.70	0.36
SUPERVALU Inc	0.50	49.06	0.32
DMC Global Inc	0.52	40.51	0.30
Kratos Defense & Security Solutions Inc	0.75	33.05	0.26
Iridium Communications Inc	0.70	56.36	0.25
Comtech Telecommunications Corp	1.20	11.54	0.25
Northwest Pipe Co	0.69	21.68	0.25

Leading Detractors

	Rescaled Weight	Return	Active Return
Invacare Corp	0.67	-70.42	-0.34
United Natural Foods Inc	0.64	-64.64	-0.32
Westport Fuel Systems Inc	0.67	-55.39	-0.26
Herc Holdings Inc	0.66	-49.24	-0.23
FreightCar America Inc	0.54	-58.37	-0.23
Cree Inc	0.19	12.95	-0.20
Unisys Corp	0.71	-42.99	-0.19
NN Inc	0.43	-56.57	-0.18
Comtech Telecommunications Corp	1.06	-32.69	-0.16
Univar Inc	0.79	-42.14	-0.16

Leading Detractors

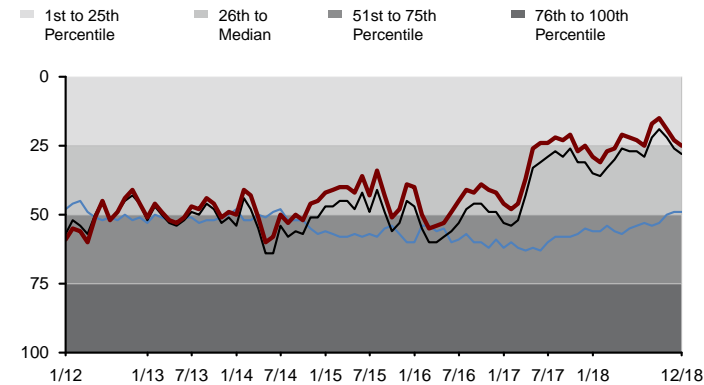
	Rescaled Weight	Return	Active Return
Invacare Corp	0.85	-74.40	-0.63
NN Inc	0.58	-75.22	-0.49
Westport Fuel Systems Inc	0.67	-64.90	-0.47
United Natural Foods Inc	0.42	-78.51	-0.41
Basic Energy Services Inc	0.40	-57.44	-0.41
Herc Holdings Inc	0.72	-58.49	-0.41
Dana Inc	0.80	-56.58	-0.31
FreightCar America Inc	0.53	-60.83	-0.30
NCI Building Systems Inc	0.49	-62.44	-0.28
Astec Industries Inc	0.68	-47.94	-0.25

TIAA-CREF Small-Cap Blend Idx Inst

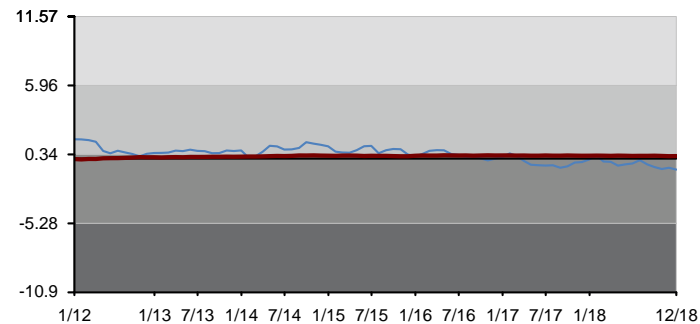
TISBX

Index: Russell 2000 TR USD
 Category: Small Blend
 Return Date: 12/31/2018

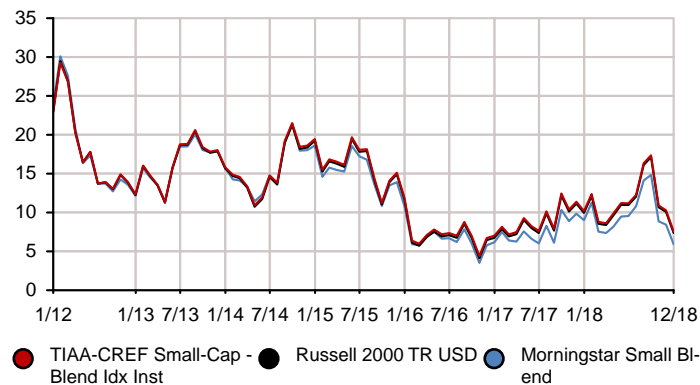
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



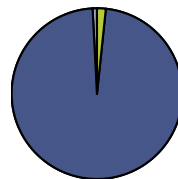
● TIAA-CREF Small-Cap - Blend Idx Inst ● Russell 2000 TR USD ● Morningstar Small Blend

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	2024.0	383.0	2030.0
Holdings - Bonds	-	3.0	0.0
Holdings - Other	6.0	6.0	-
Turnover Ratio	20.0	58.5	-
Net Expense Ratio	0.1	1.1	-
Gross Expense Ratio	0.1	2.9	-
Avg Mkt Cap (\$MM)	1,766	2,286	1,613
Total Assets (\$MM)	2,432	1,280	-
P/E Ratio	16.1	16.7	14.1
P/B Ratio	1.9	2.0	1.7
P/S Ratio	1.1	1.2	1.0
P/CF Ratio	7.9	8.9	7.3
ROE %	7.7	7.5	-
ROA %	0.9	1.0	-
Dividend Yld	1.5	1.5	1.7

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	1.66
Domestic Stock	97.51
Foreign Stock	0.83
Domestic Bond	-
Foreign Bond	-
Other	-

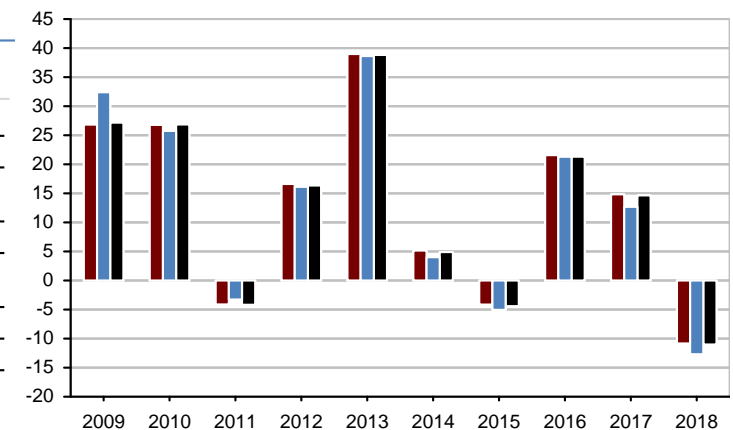
Sector Allocation (%)

	Fund	Avg	Idx
Energy	3.8	4.2	2.8
Materials	5.2	6.0	5.0
Industrials	14.3	17.6	14.2
Cons Discretionary	8.9	9.6	-
Consumer Staples	8.2	10.2	-
Healthcare	14.4	11.0	14.1
Financials	17.0	18.2	17.2
Info Technology	15.6	14.8	16.4
Telecom Services	4.3	3.0	-
Utilities	3.4	2.4	3.8

Top 10 Holdings

	Fund %
E-Mini Russ 2000 Dec18...	1.5
Five Below Inc	0.3
Integrated Device Tech...	0.3
LivaNova PLC	0.3
Haemonetics Corp	0.3
HealthEquity Inc	0.2
Etsy Inc	0.2
HubSpot Inc	0.2
Idacorp Inc	0.2
Primerica Inc	0.2

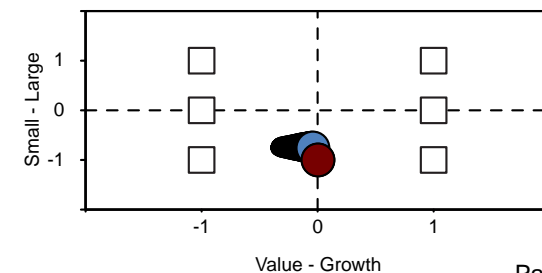
Calendar Year Returns



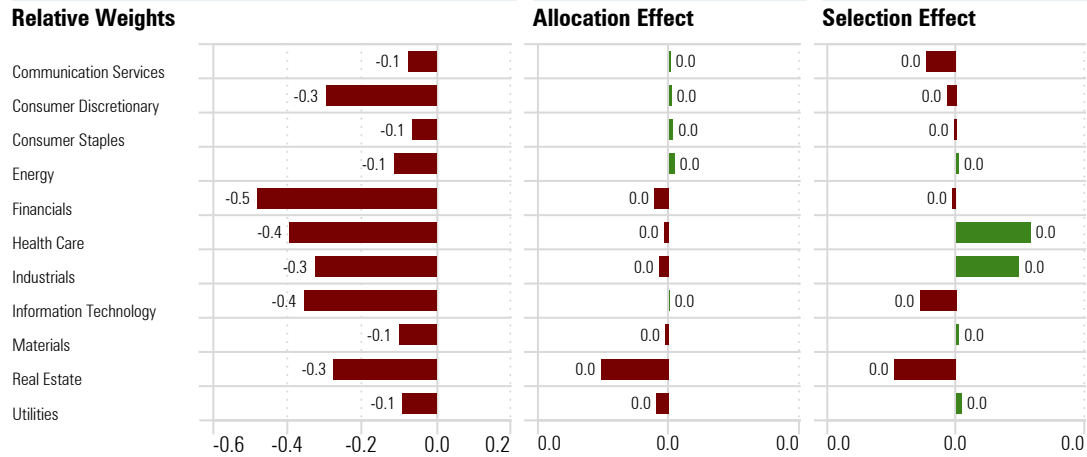
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	16.0	0.6	15.4	0.7
Beta	1.0	0.1	1.0	0.1
Alpha	0.2	1.1	0.2	1.1
Sharpe	0.5	0.1	0.3	0.1
Sortino	0.6	0.1	0.4	0.1
Info Ratio	2.3	2.8	2.6	2.9
Down Capture	99.3	7.5	99.5	8.0
Up Capture	100.4	13.5	100.6	14.4

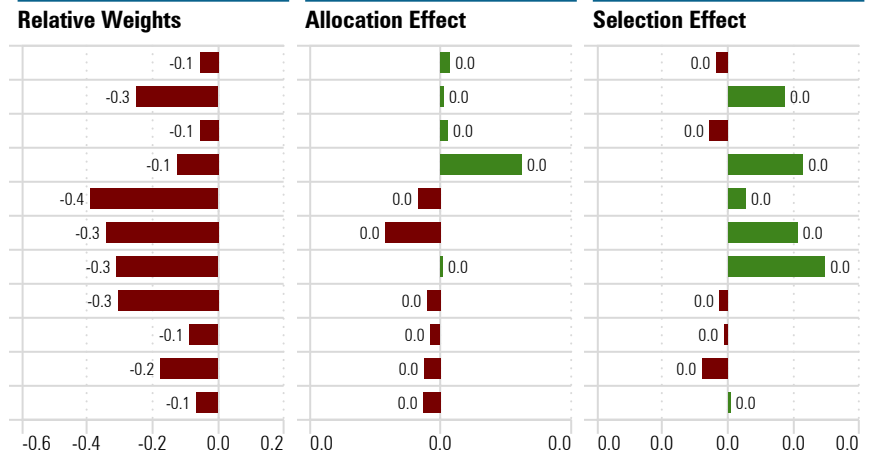
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

	Rescaled Weight	Return	Active Return
Maxar Technologies Ltd	0.04	-49.92	0.01
Government Properties Income Trust	0.03	-18.36	0.00
Synergy Pharmaceuticals Inc	0.01	-75.49	0.00
Ocwen Financial Corp	0.01	-65.99	0.00
Melinta Therapeutics Inc	0.00	-79.93	0.00
Pacific Biosciences of California Inc	0.04	36.78	0.00
Sanchez Energy Corp	0.00	-69.56	0.00
Ardelyx Inc	0.00	-58.85	0.00
eHealth Inc	0.03	35.95	0.00
Sienna Biopharmaceuticals Inc	0.01	-84.35	0.00

Leading Contributors

	Rescaled Weight	Return	Active Return
McDermott International Inc	0.08	-63.58	0.02
Knight-Swift Transportation Holdings Inc A	0.11	-8.27	0.01
Maxar Technologies Ltd	0.04	-66.95	0.01
Biglari Holdings Inc	0.01	-47.98	0.01
Foundation Medicine Inc	0.04	99.50	0.01
Triton International Ltd Ordinary Shares	0.06	6.07	0.01
Orthofix Medical Inc	0.04	1.80	0.01
Government Properties Income Trust	0.06	-45.79	0.01
Synergy Pharmaceuticals Inc	0.02	-81.31	0.00
Babcock & Wilcox Enterprises Inc	0.01	-86.21	0.00

Leading Detractors

	Rescaled Weight	Return	Active Return
RPT Realty	0.04	-16.90	0.00
Selecta Biosciences Inc	0.01	-82.89	0.00
Investors Real Estate Trust	0.02	-10.87	0.00
Cardlytics Inc	0.01	-56.75	0.00
Zafgen Inc	0.01	-57.66	0.00
MoneyGram International Inc	0.01	-62.62	0.00
Internap Corp	0.01	-67.14	0.00
Covia Holdings Corp	0.01	-61.87	0.00
The Container Store Group Inc	0.01	-57.03	0.00
Arbutus Biopharma Corp	0.01	-59.47	0.00

Leading Detractors

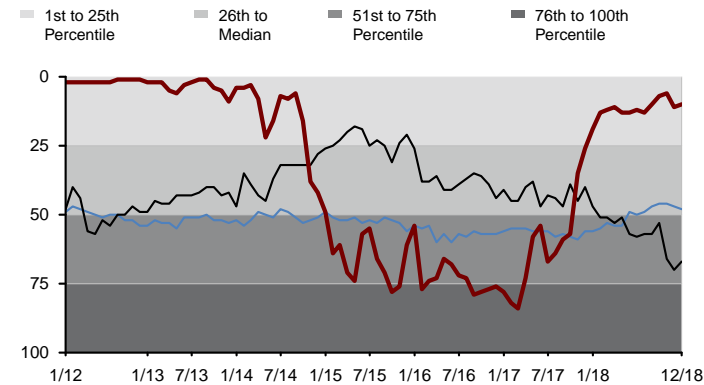
	Rescaled Weight	Return	Active Return
HRG Group Inc	0.04	-22.77	0.00
RPT Realty	0.04	-19.15	0.00
FedNat Holding Co	0.01	-9.18	0.00
Ascena Retail Group Inc	0.02	6.81	0.00
Syndax Pharmaceuticals Inc	0.01	-49.20	0.00
LiveXLive Media Inc	0.00	-14.21	0.00
Investors Real Estate Trust	0.03	-2.43	0.00
KapStone Paper And Packaging Corp	0.11	54.35	0.00
Live Oak Bancshares Inc	0.03	-37.60	0.00
Selecta Biosciences Inc	0.01	-72.88	0.00

AB Small Cap Growth I

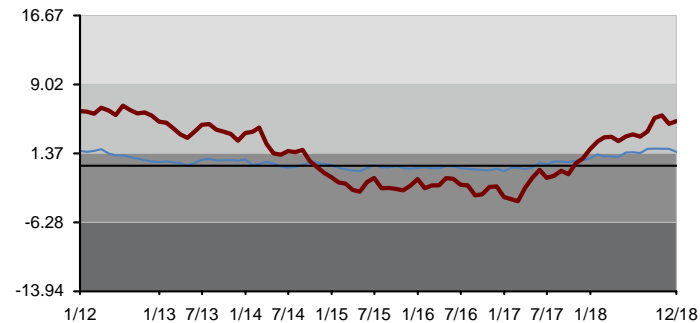
QUAIX

Index: Russell 2000 Growth TR USD
 Category: Small Growth
 Return Date: 12/31/2018

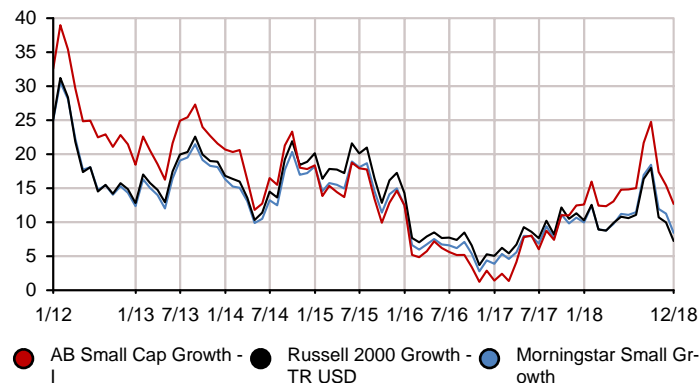
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

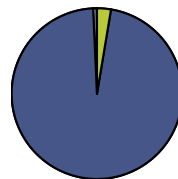


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	99.0	179.0	1257.0
Holdings - Bonds	-	-	0.0
Holdings - Other	4.0	4.0	-
Turnover Ratio	65.0	71.5	-
Net Expense Ratio	0.9	1.2	-
Gross Expense Ratio	0.9	1.9	-
Avg Mkt Cap (\$MM)	3,299	2,942	1,794
Total Assets (\$MM)	1,451	1,261	-
P/E Ratio	23.5	24.6	18.3
P/B Ratio	4.8	3.5	3.2
P/S Ratio	3.0	2.2	1.4
P/CF Ratio	15.7	14.3	10.5
ROE %	7.1	7.5	-
ROA %	-0.2	-0.2	-
Dividend Yld	0.3	0.6	0.8

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.63
Domestic Stock	96.65
Foreign Stock	0.67
Domestic Bond	-
Foreign Bond	-
Other	0.06

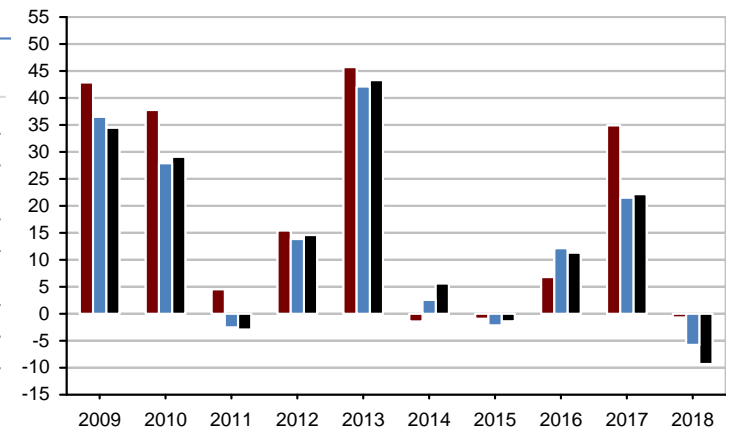
Sector Allocation (%)

	Fund	Avg	Idx
Energy	2.3	2.2	1.6
Materials	3.3	4.2	5.6
Industrials	13.8	15.6	15.5
Cons Discretionary	12.0	10.7	-
Consumer Staples	4.5	9.1	-
Healthcare	21.1	20.4	24.0
Financials	8.0	9.1	7.7
Info Technology	28.8	26.1	21.4
Telecom Services	3.7	4.1	-
Utilities	0.0	0.6	0.5

Top 10 Holdings

	Fund %
Etsy Inc	2.0
Planet Fitness Inc A	2.0
Vocera Communications Inc	1.8
Five Below Inc	1.8
Teladoc Health Inc	1.7
The Trade Desk Inc A	1.7
LHC Group Inc	1.6
iRhythm Technologies Inc	1.6
Bright Horizons Family...	1.5
Exact Sciences Corp	1.5

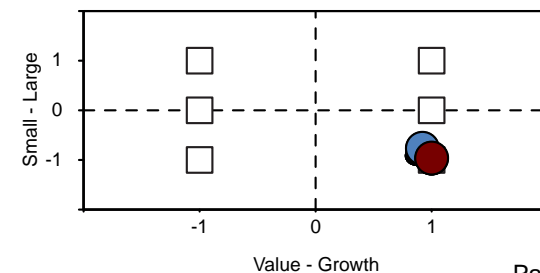
Calendar Year Returns



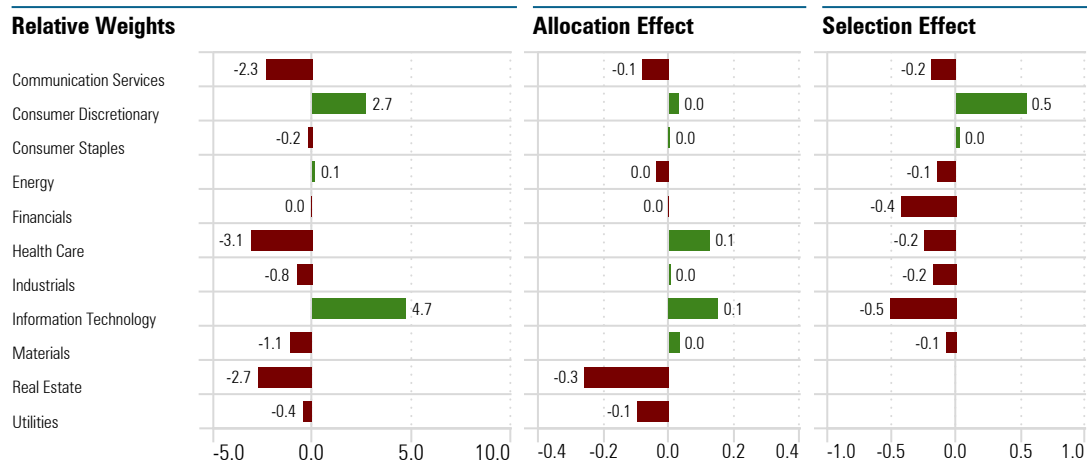
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	17.9	1.5	17.6	1.8
Beta	1.0	0.1	1.0	0.1
Alpha	4.9	3.4	1.7	1.4
Sharpe	0.7	0.2	0.4	0.1
Sortino	0.9	0.3	0.5	0.1
Info Ratio	1.2	0.9	0.3	0.3
Down Capture	89.9	0.4	97.1	6.4
Up Capture	114.6	18.4	105.0	13.9

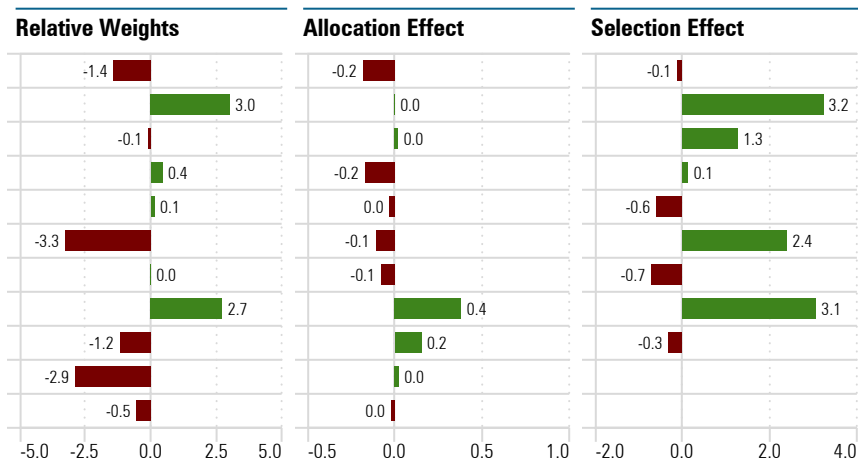
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution



Leading Contributors

Company	Rescaled Weight	Return	Active Return
Vocera Communications Inc	1.67	7.57	0.36
Planet Fitness Inc A	2.01	-0.76	0.29
Ciena Corp	1.18	8.55	0.28
Bright Horizons Family Solutions Inc	1.51	-5.42	0.21
Wingstop Inc	1.17	-1.27	0.18
Etsy Inc	1.78	-7.42	0.16
Intersect ENT Inc	0.83	-1.98	0.16
LHC Group Inc	1.18	-8.85	0.16
Allakos Inc	0.46	16.18	0.15
Icon PLC	1.46	-15.96	0.13

Leading Contributors

Company	Rescaled Weight	Return	Active Return
The Trade Desk Inc A	1.34	153.79	1.00
Planet Fitness Inc A	1.83	54.84	0.80
Five Below Inc	1.81	54.28	0.76
Freshpet Inc	1.41	69.71	0.75
Tactile Systems Technology Inc	1.26	57.18	0.68
Exact Sciences Corp	1.26	26.94	0.60
RingCentral Inc Class A	1.14	70.33	0.51
Teladoc Health Inc	1.80	42.24	0.51
The Chefs' Warehouse Inc	1.25	56.00	0.51
iRhythm Technologies Inc	1.60	23.96	0.43

Leading Detractors

Company	Rescaled Weight	Return	Active Return
H&E Equipment Services Inc	1.14	-45.26	-0.31
Teladoc Health Inc	1.85	-42.59	-0.30
GrubHub Inc	1.07	-44.59	-0.29
Pure Storage Inc A	1.06	-38.03	-0.21
Altair Engineering Inc Class A	1.32	-36.52	-0.20
Wayfair Inc Class A	0.98	-39.00	-0.20
Cadence Bancorp A	1.02	-35.29	-0.17
Aquestive Therapeutics Inc	0.32	-64.02	-0.16
Neurocrine Biosciences Inc	0.89	-41.92	-0.16
Tactile Systems Technology Inc	1.46	-35.89	-0.15

Leading Detractors

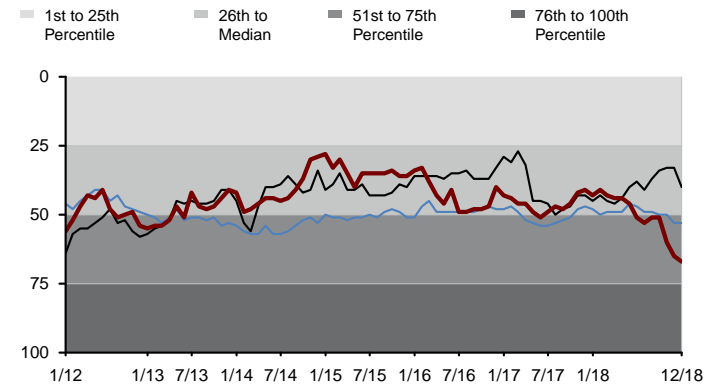
Company	Rescaled Weight	Return	Active Return
Clovis Oncology Inc	0.46	-82.90	-0.56
Gardner Denver Holdings Inc	1.06	-39.73	-0.55
Shutterfly Inc A	0.39	-44.46	-0.53
Floor & Decor Holdings Inc	0.92	-47.45	-0.48
Summit Materials Inc A	0.93	-57.06	-0.47
Knight-Swift Transportation Holdings Inc A	0.95	-45.24	-0.47
Adamas Pharmaceuticals Inc	0.46	-74.80	-0.46
Dycom Industries Inc	1.21	-51.50	-0.45
H&E Equipment Services Inc	1.10	-47.95	-0.45
Hilton Grand Vacations Inc	1.25	-37.09	-0.42

CREF Global Equities R3

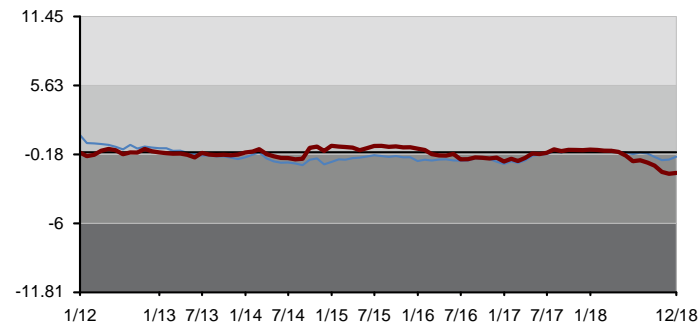
QCGLIX

Index: MSCI World NR USD
 Category: World Large Stock
 Return Date: 12/31/2018

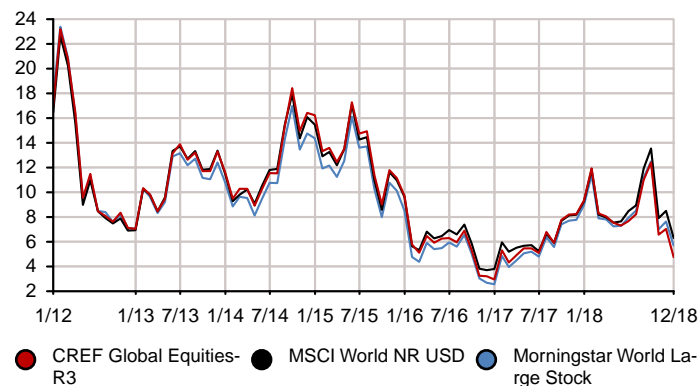
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



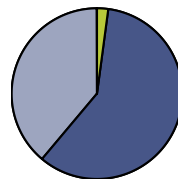
● CREF Global Equities-R3 ● MSCI World NR USD ● Morningstar World Large Stock

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	2891.0	188.0	1631.0
Holdings - Bonds	-	-	0.0
Holdings - Other	56.0	13.0	-
Turnover Ratio	36.0	45.7	-
Net Expense Ratio	0.3	1.2	-
Gross Expense Ratio	0.3	2.2	-
Avg Mkt Cap (\$MM)	54,438	51,160	58,003
Total Assets (\$MM)	18,220	3,655	-
P/E Ratio	15.8	18.2	15.0
P/B Ratio	2.3	2.7	2.0
P/S Ratio	1.6	2.1	1.5
P/CF Ratio	8.6	9.4	7.1
ROE %	20.3	20.6	-
ROA %	7.5	7.3	-
Dividend Yld	2.1	2.3	2.7

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	2.11
Domestic Stock	58.84
Foreign Stock	38.71
Domestic Bond	-
Foreign Bond	-
Other	0.06

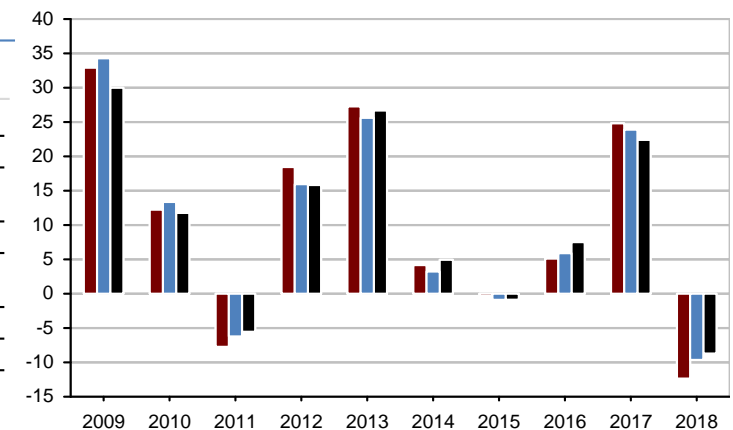
Sector Allocation (%)

	Fund	Avg	Idx
Energy	7.1	5.5	6.0
Materials	4.2	4.2	4.6
Industrials	11.2	11.0	10.9
Cons Discretionary	0.0	7.0	-
Consumer Staples	0.0	13.8	-
Healthcare	13.3	12.8	13.3
Financials	17.6	17.4	17.6
Info Technology	20.9	17.8	16.6
Telecom Services	0.0	7.4	-
Utilities	1.3	2.9	3.4

Regional Allocation (%)

	Fund	Idx
United States	60.32	-
Japan	7.18	-
United Kingdom	5.62	-
China	3.31	-
France	3.19	-
Switzerland	2.65	-
Canada	2.57	-
Netherlands	1.77	-
Germany	1.47	-
South Korea	1.18	-

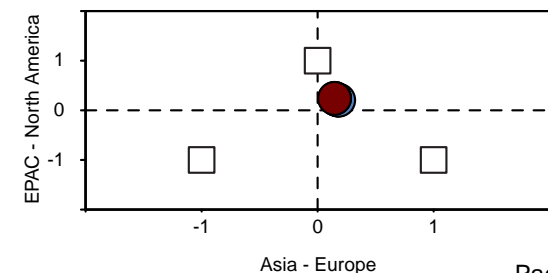
Calendar Year Returns



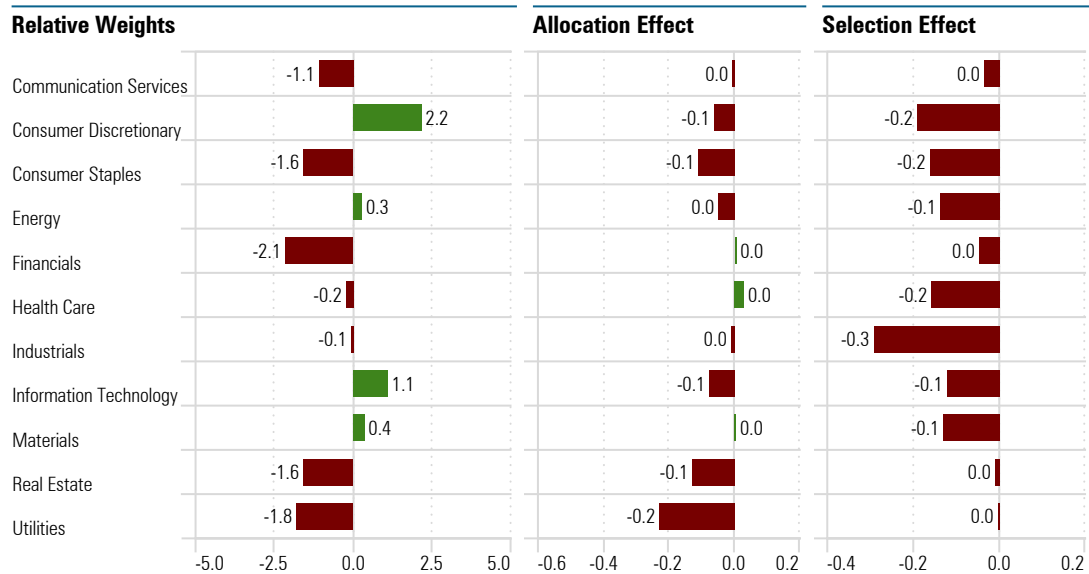
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.3	0.2	11.1	-0.1
Beta	1.1	0.1	1.0	0.1
Alpha	-1.7	-1.1	-1.0	-0.7
Sharpe	0.4	-0.1	0.3	-0.0
Sortino	0.4	-0.2	0.4	-0.0
Info Ratio	-1.0	-0.7	-0.6	-0.5
Down Capture	114.9	14.5	106.6	8.9
Up Capture	101.5	6.4	99.5	4.8

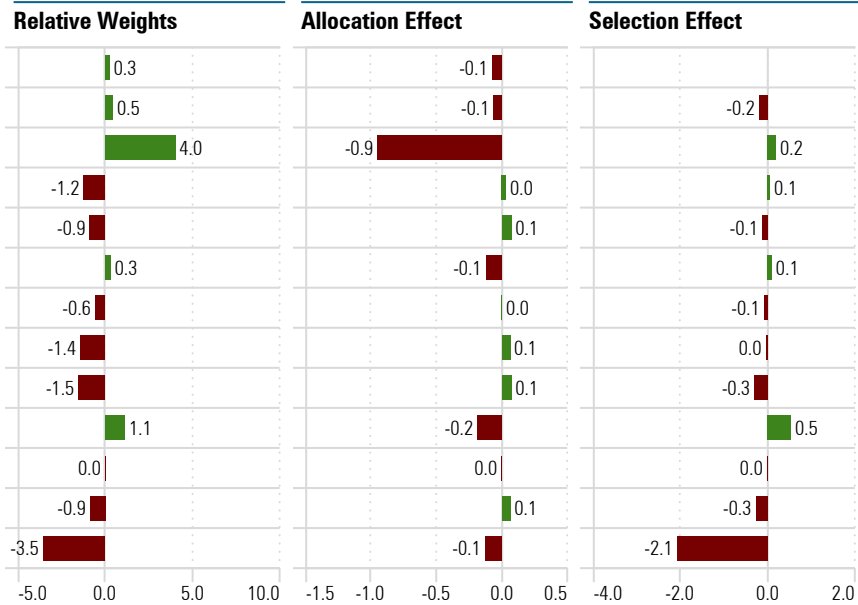
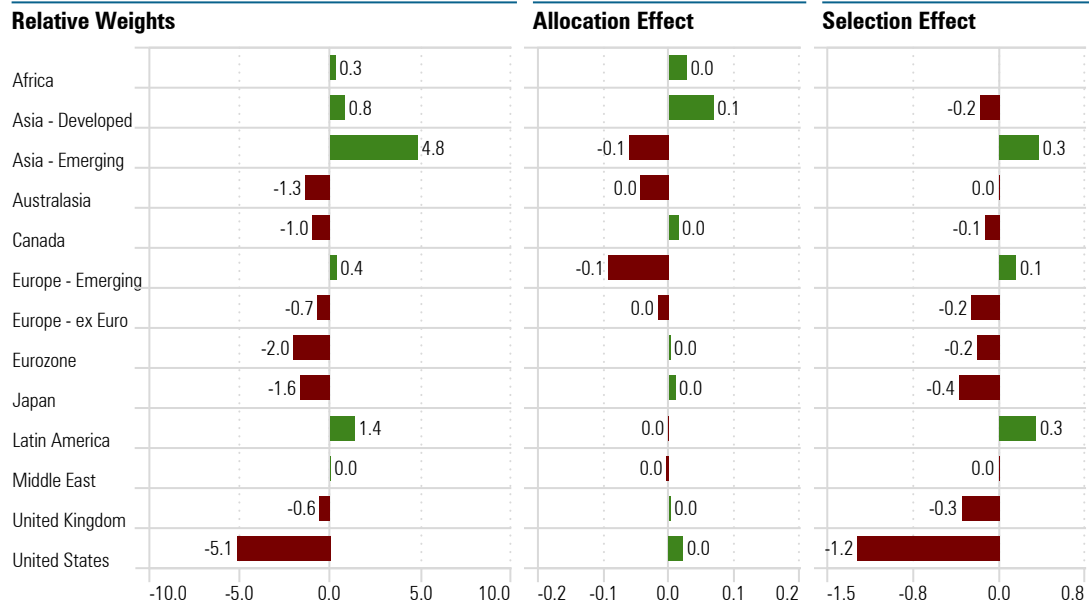
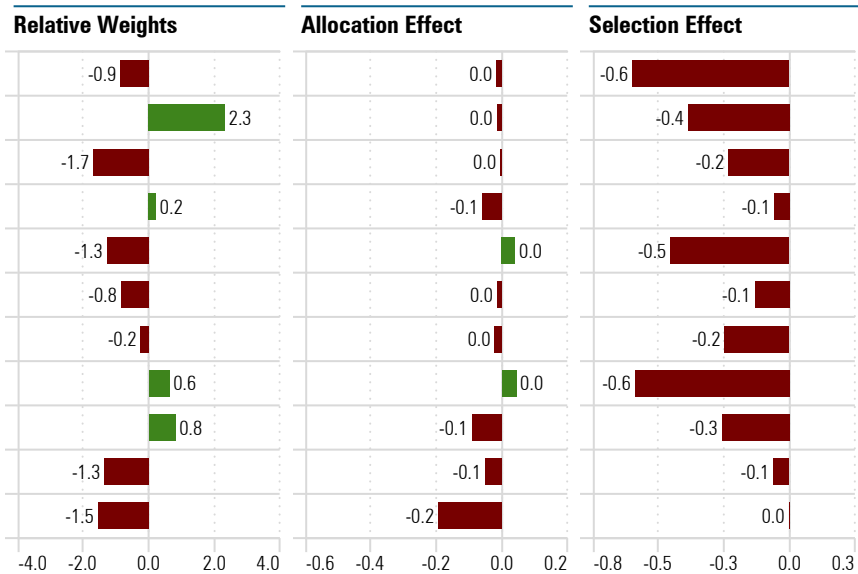
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution

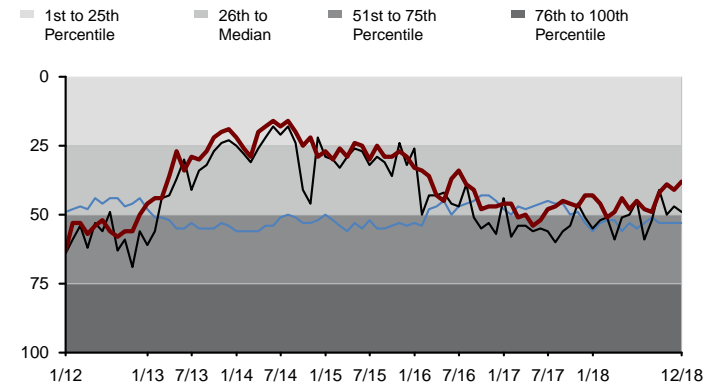


TIAA-CREF International Eq Idx Instl

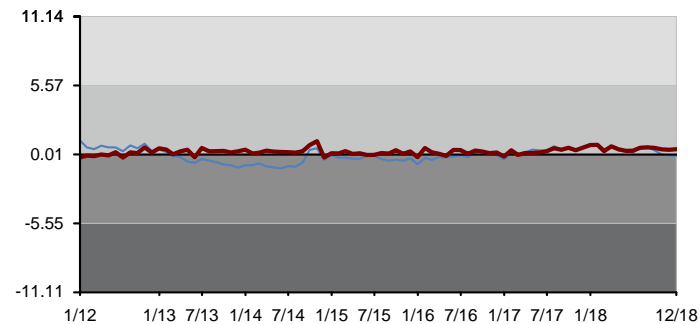
TCIEX

Index: MSCI EAFE NR USD
 Category: Foreign Large Blend
 Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



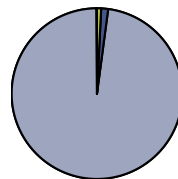
● TIAA-CREF International Eq Idx Instl ● MSCI EAFE NR USD ● Morningstar Foreign - Large Blend

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	925.0	436.0	918.0
Holdings - Bonds	-	7.0	0.0
Holdings - Other	15.0	19.0	-
Turnover Ratio	4.0	46.7	-
Net Expense Ratio	0.1	1.0	-
Gross Expense Ratio	0.1	2.3	-
Avg Mkt Cap (\$MM)	33,747	31,096	32,189
Total Assets (\$MM)	11,025	5,895	-
P/E Ratio	13.2	13.8	12.4
P/B Ratio	1.5	1.7	1.4
P/S Ratio	1.1	1.3	1.1
P/CF Ratio	4.3	5.2	4.3
ROE %	17.0	16.7	-
ROA %	6.4	6.3	-
Dividend Yld	3.4	3.1	3.6

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.78
Domestic Stock	1.32
Foreign Stock	97.76
Domestic Bond	-
Foreign Bond	-
Other	0.14

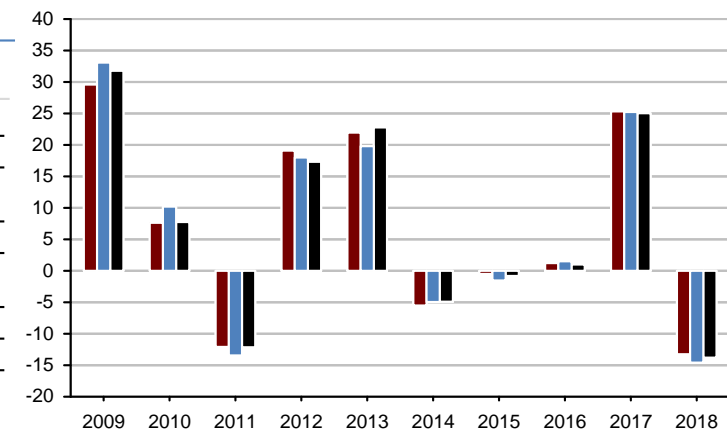
Sector Allocation (%)

	Fund	Avg	Idx
Energy	6.5	6.3	6.0
Materials	7.2	7.6	7.7
Industrials	13.1	12.8	13.1
Cons Discretionary	4.6	5.2	-
Consumer Staples	13.8	15.0	-
Healthcare	11.6	9.8	11.3
Financials	19.5	19.6	19.4
Info Technology	7.9	11.3	7.5
Telecom Services	7.4	7.3	-
Utilities	3.4	2.4	3.8

Regional Allocation (%)

	Fund	Idx
Japan	25.26	-
United Kingdom	16.94	-
France	10.26	-
Germany	9.24	-
Switzerland	8.38	-
Australia	6.37	-
Netherlands	3.1	-
Hong Kong	3.06	-
Spain	3.05	-
Sweden	2.35	-

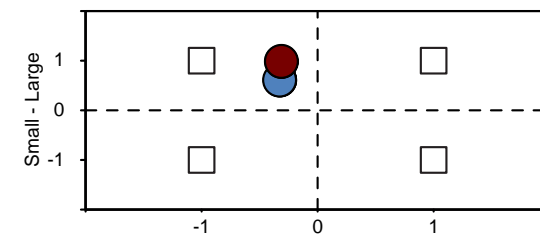
Calendar Year Returns



Risk Statistics

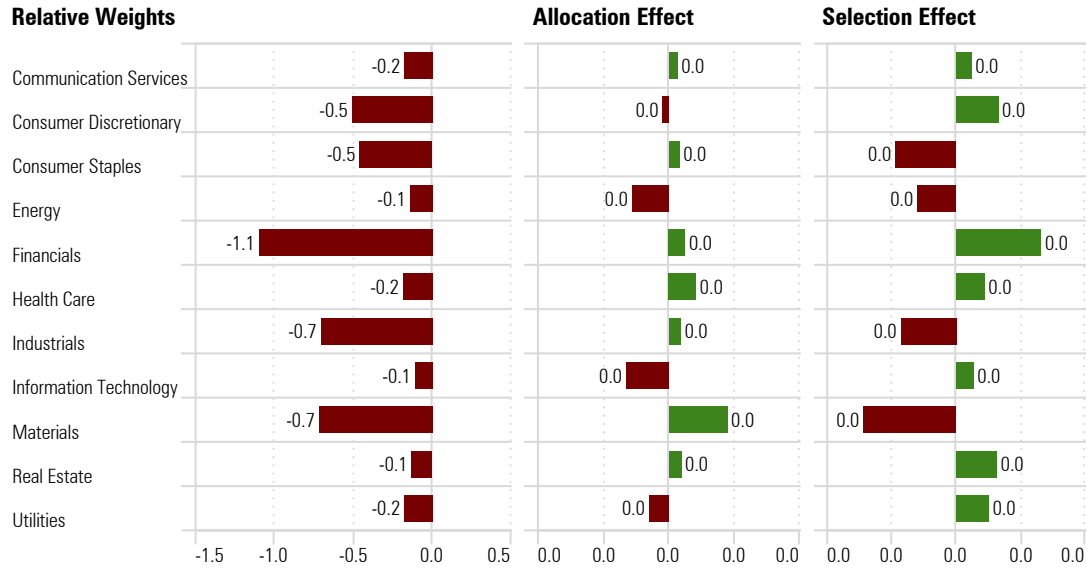
Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.0	-0.3	11.5	-0.2
Beta	1.0	0.0	1.0	0.0
Alpha	0.4	0.5	0.1	0.6
Sharpe	0.3	0.1	0.1	0.0
Sortino	0.3	0.1	0.0	0.1
Info Ratio	0.2	0.3	0.1	0.2
Down Capture	93.8	0.8	95.3	1.5
Up Capture	96.3	4.3	95.7	5.3

Historical Style Analysis

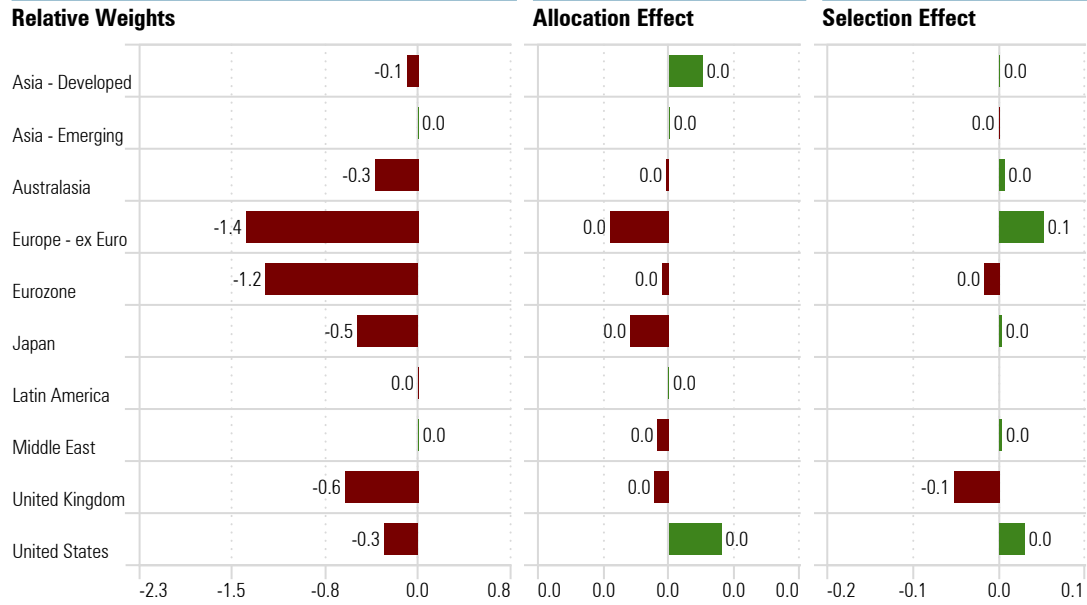
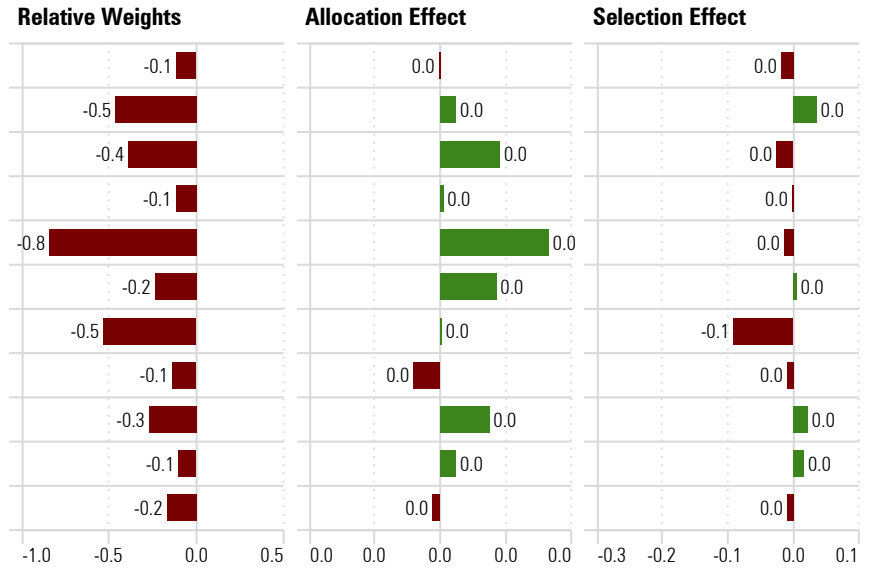


Europe - Asia

One Quarter Performance Attribution



One Year Performance Attribution

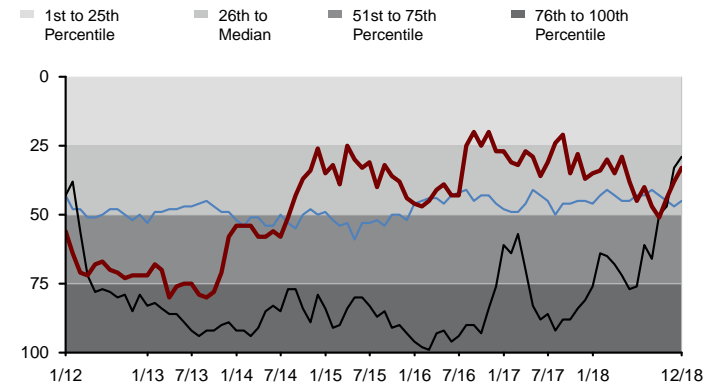


American Funds Europacific Growth R6

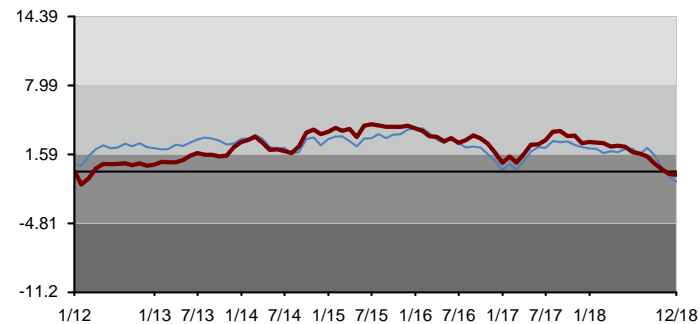
RERGX

Index: MSCI ACWI Ex USA NR USD
 Category: Foreign Large Growth
 Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



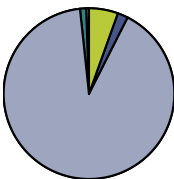
● American Funds Europacific Growth R6 ● MSCI ACWI Ex USA NR USD ● Morningstar Foreign - Large Growth

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	269.0	114.0	2132.0
Holdings - Bonds	11.0	-	0.0
Holdings - Other	112.0	13.0	-
Turnover Ratio	0.5	43.3	-
Net Expense Ratio	0.5	1.1	-
Gross Expense Ratio	0.5	1.5	-
Avg Mkt Cap (\$MM)	44,865	30,107	30,558
Total Assets (\$MM)	138,711	7,012	-
P/E Ratio	14.7	19.3	12.1
P/B Ratio	2.0	2.9	1.4
P/S Ratio	1.6	2.1	1.1
P/CF Ratio	4.9	9.9	4.4
ROE %	18.5	16.8	-
ROA %	7.9	6.6	-
Dividend Yld	2.0	2.1	3.5

Asset Allocation

Portfolio Date: 09/30/2018



	%
Cash	5.48
Domestic Stock	1.97
Foreign Stock	90.73
Domestic Bond	1.17
Foreign Bond	-
Other	0.52

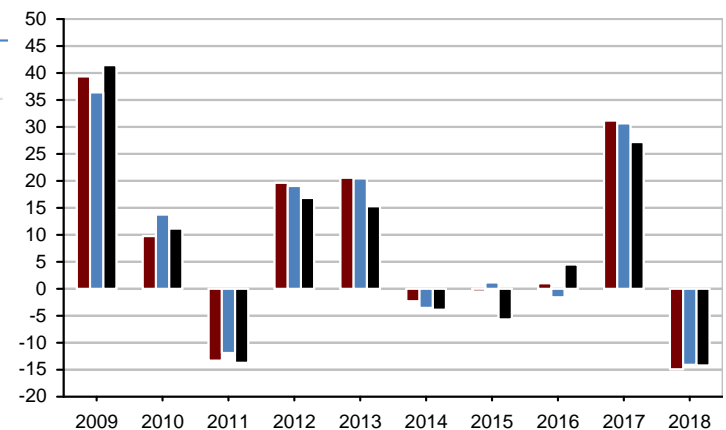
Sector Allocation (%)

	Fund	Avg	Idx
Energy	6.7	3.6	7.3
Materials	8.7	5.7	7.9
Industrials	11.1	13.6	10.7
Cons Discretionary	5.2	7.5	-
Consumer Staples	18.9	15.6	-
Healthcare	8.1	11.2	8.4
Financials	18.3	16.1	22.2
Info Technology	20.1	18.2	11.5
Telecom Services	10.7	6.5	-
Utilities	2.7	0.9	3.4

Regional Allocation (%)

	Fund	Idx
Japan	15.78	-
United Kingdom	11.54	-
India	8.19	-
China	7.95	-
South Korea	7.17	-
France	5.89	-
Hong Kong	4.91	-
Switzerland	4.56	-
Netherlands	4.17	-
Canada	3.99	-

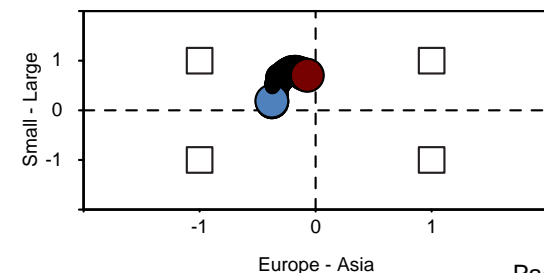
Calendar Year Returns



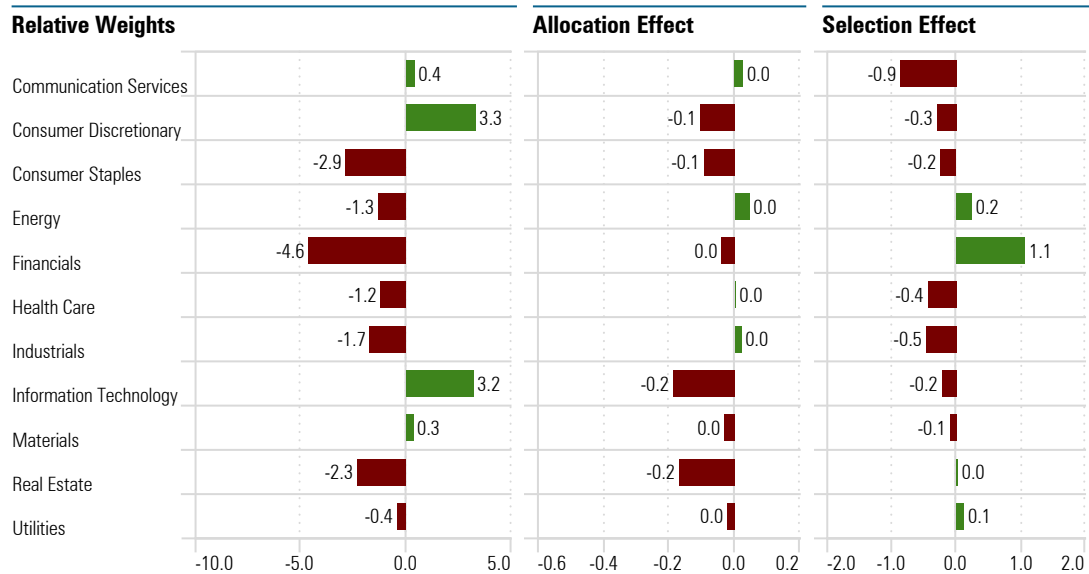
Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.9	-0.2	11.4	-0.6
Beta	1.0	-0.0	0.9	-0.1
Alpha	-0.3	-0.7	1.2	1.3
Sharpe	0.3	0.1	0.2	0.0
Sortino	0.4	0.1	0.2	0.1
Info Ratio	-0.1	-0.2	0.3	0.4
Down Capture	99.1	5.5	85.2	-8.6
Up Capture	96.9	1.1	91.2	-0.9

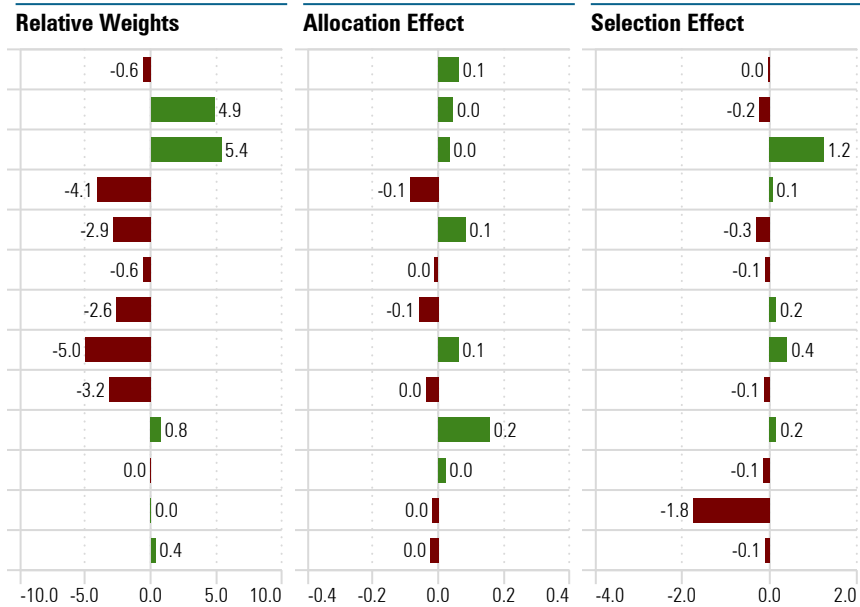
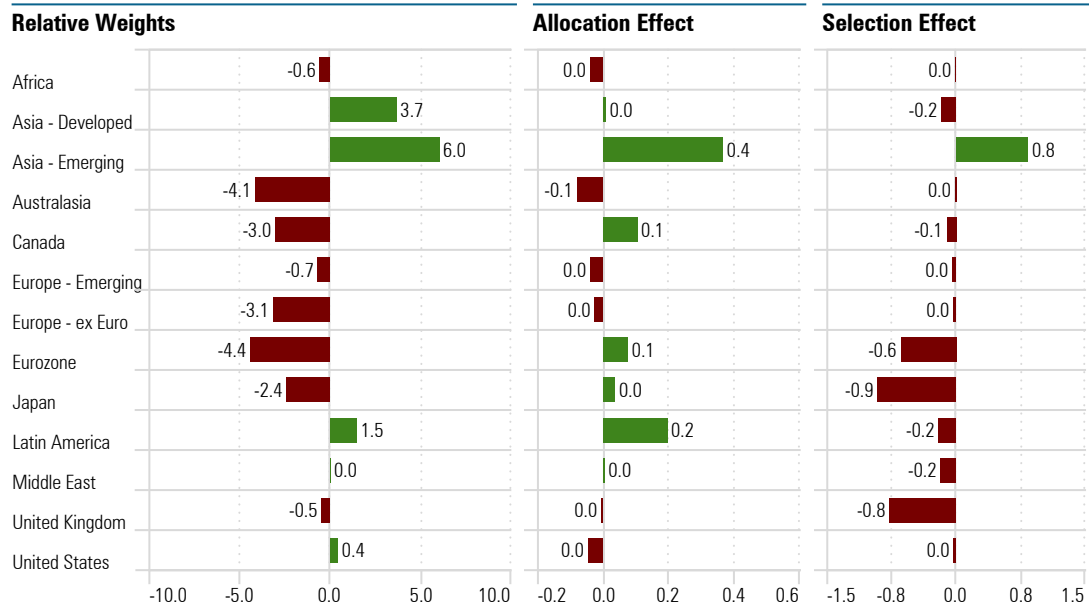
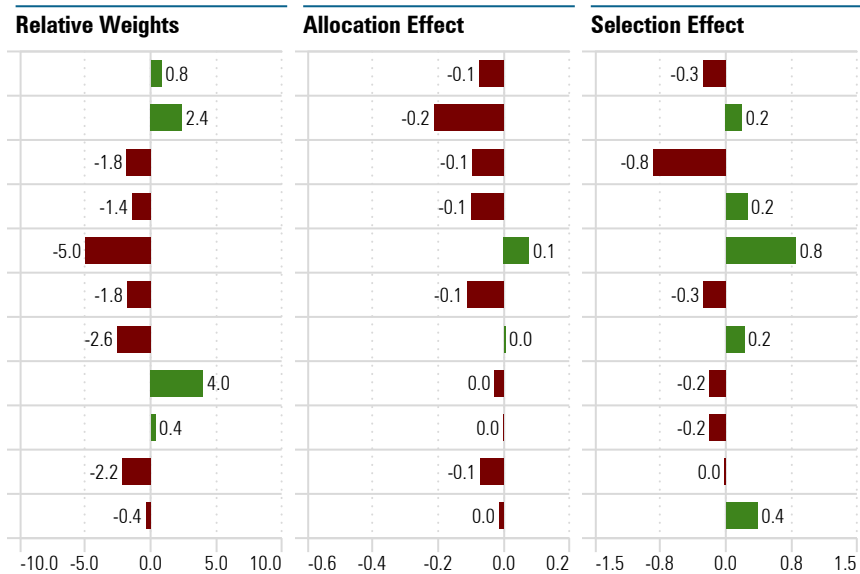
Historical Style Analysis



One Quarter Performance Attribution



One Year Performance Attribution

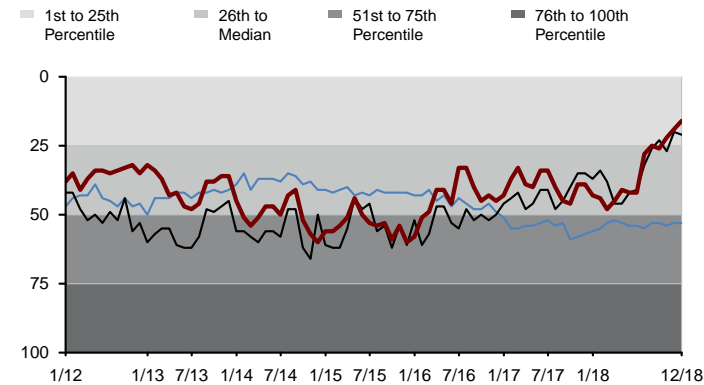


DFA Emerging Markets I

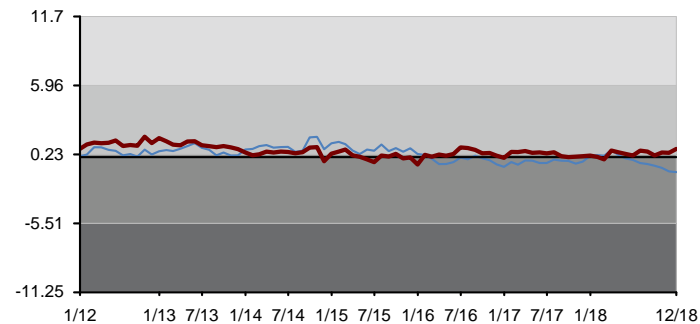
DFEMX

Index: MSCI EM NR USD
 Category: Diversified Emerging Mkts
 Return Date: 12/31/2018

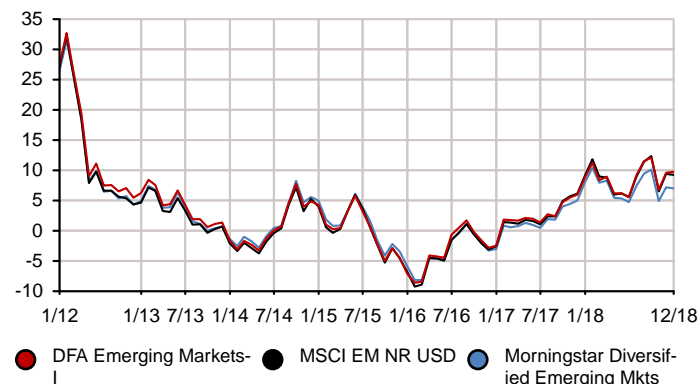
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

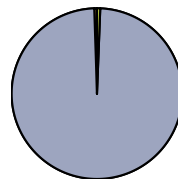


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	1181.0	250.0	1123.0
Holdings - Bonds	-	11.0	0.0
Holdings - Other	45.0	18.0	-
Turnover Ratio	8.0	59.9	-
Net Expense Ratio	0.5	1.3	-
Gross Expense Ratio	0.6	2.8	-
Avg Mkt Cap (\$MM)	18,470	22,913	27,749
Total Assets (\$MM)	5,434	2,222	-
P/E Ratio	11.7	13.3	11.2
P/B Ratio	1.4	1.9	1.4
P/S Ratio	0.9	1.5	1.2
P/CF Ratio	4.7	6.9	4.7
ROE %	17.5	17.8	-
ROA %	7.9	8.1	-
Dividend Yld	3.2	3.2	3.3

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	0.61
Domestic Stock	0.03
Foreign Stock	98.36
Domestic Bond	-
Foreign Bond	-
Other	0.48

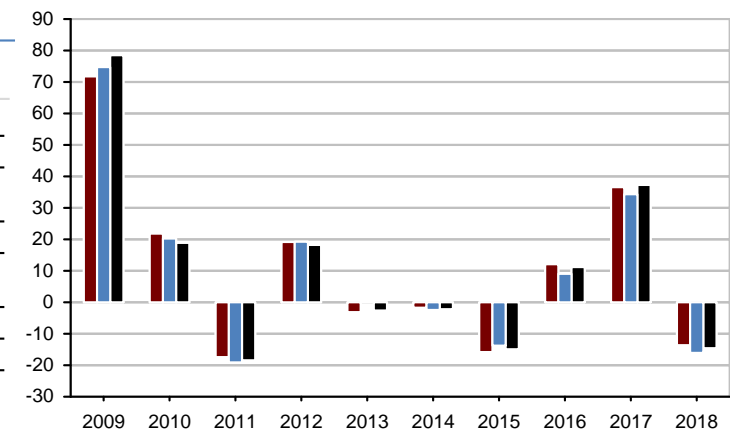
Sector Allocation (%)

	Fund	Avg	Idx
Energy	7.4	6.6	7.7
Materials	10.5	7.4	7.9
Industrials	7.0	6.2	5.1
Cons Discretionary	3.6	5.6	-
Consumer Staples	12.7	12.8	-
Healthcare	2.4	3.8	2.7
Financials	22.0	24.1	24.7
Info Technology	23.3	21.0	23.7
Telecom Services	11.4	9.4	-
Utilities	2.6	2.1	2.6

Regional Allocation (%)

	Fund	Idx
China	17.44	-
South Korea	16.72	-
Taiwan	14.96	-
India	13.52	-
Brazil	7.9	-
South Africa	7.24	-
Mexico	3.56	-
Thailand	3.53	-
Malaysia	3.12	-
Indonesia	2.43	-

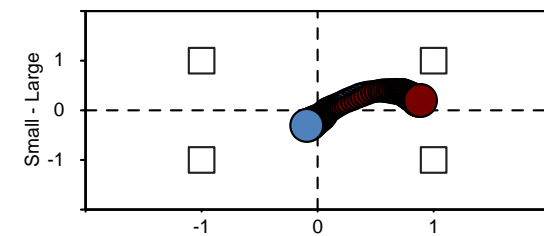
Calendar Year Returns



Risk Statistics

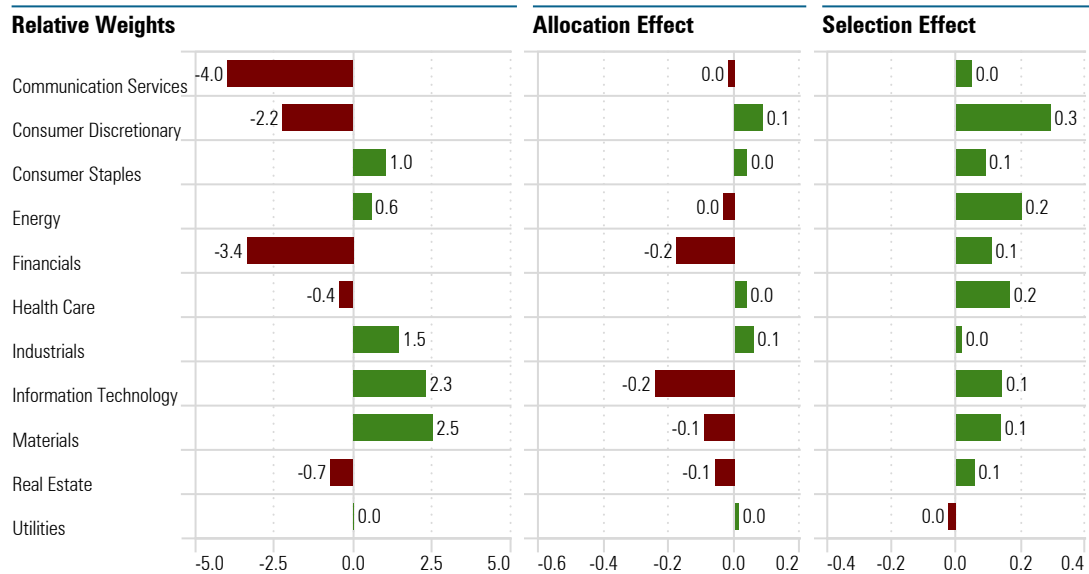
Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	14.6	0.4	14.8	0.4
Beta	1.0	0.1	1.0	0.1
Alpha	0.7	1.9	0.2	1.2
Sharpe	0.6	0.2	0.2	0.1
Sortino	1.0	0.3	0.1	0.1
Info Ratio	0.2	0.6	0.1	0.3
Down Capture	98.5	1.2	98.8	5.1
Up Capture	101.0	12.5	99.4	11.8

Historical Style Analysis

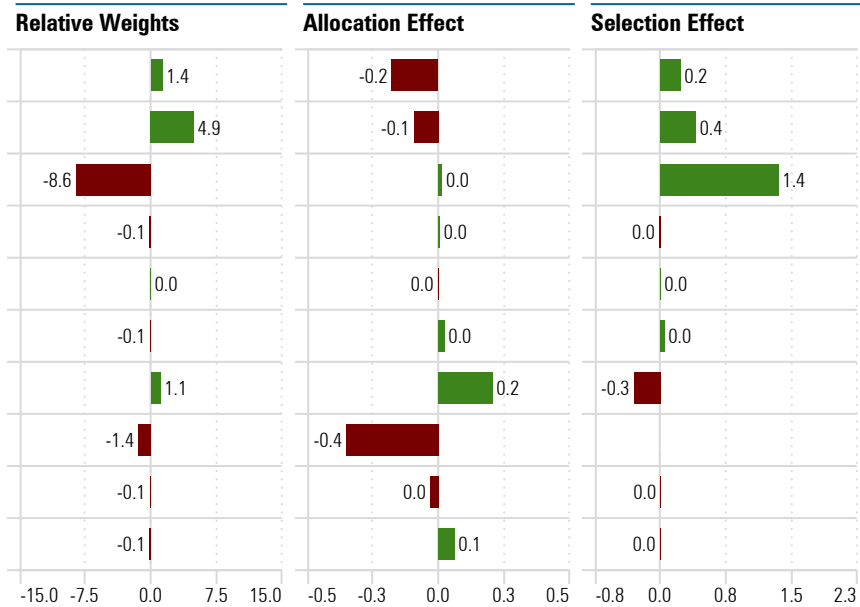
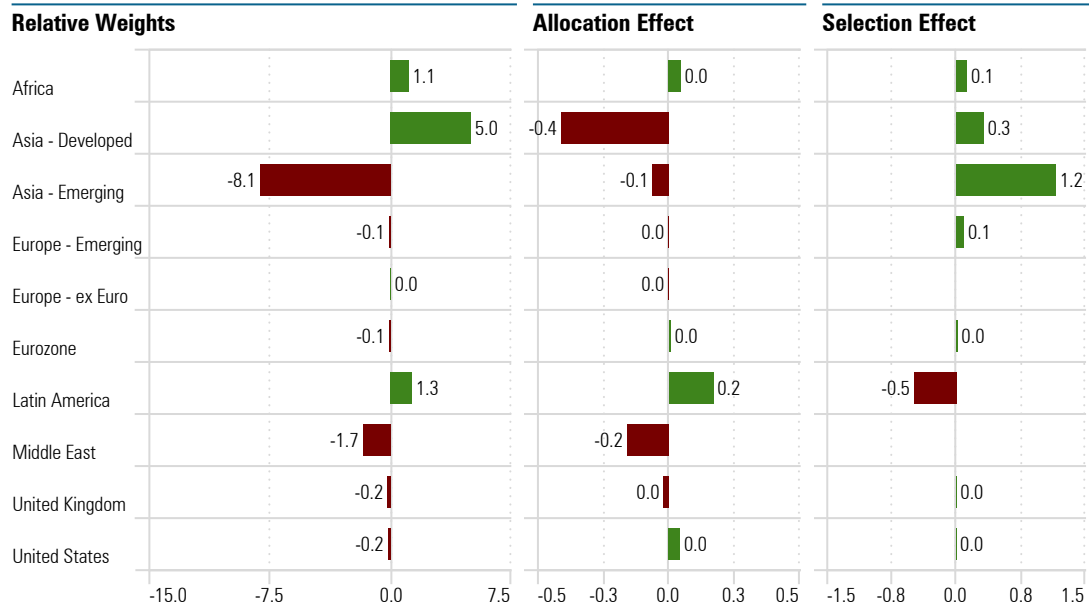
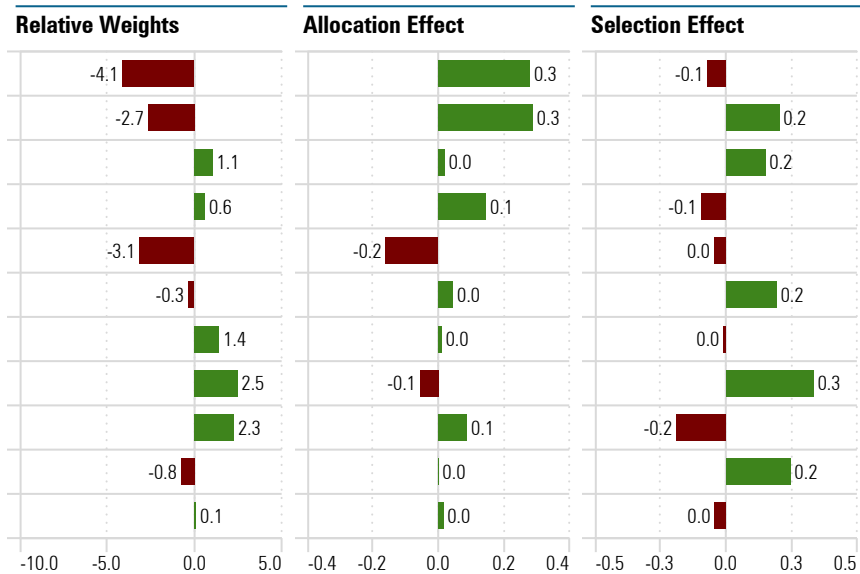


Europe - Asia

One Quarter Performance Attribution



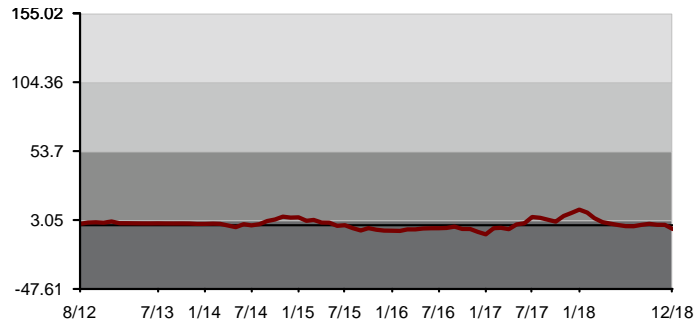
One Year Performance Attribution



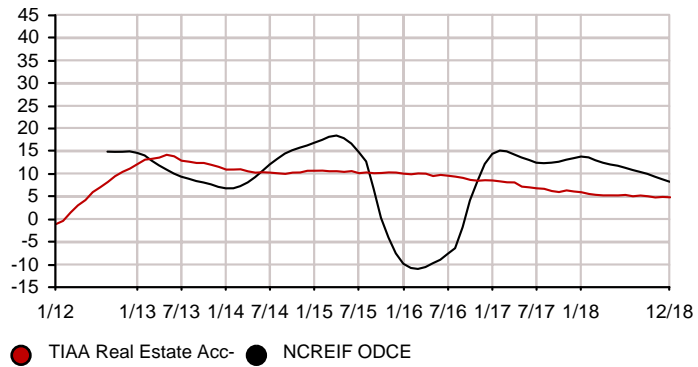
TIAA Real Estate Account

Index: NCREIF ODCE
Category: Real Estate

Alpha (Rolling 36 Months)

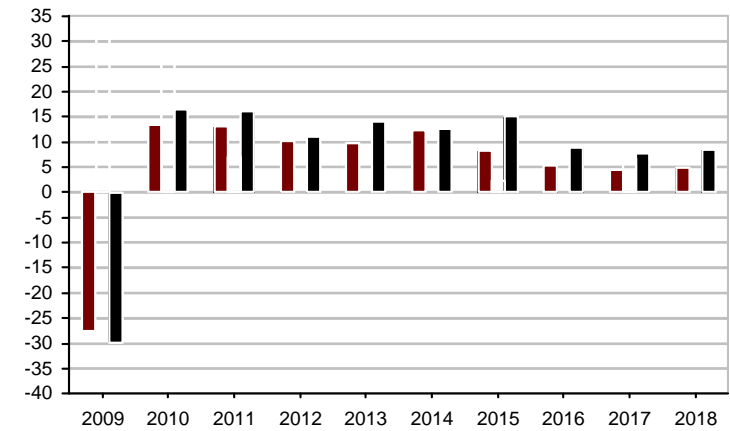


Returns (Rolling 36 Months)



Return Date: 12/31/2018

Calendar Year Returns

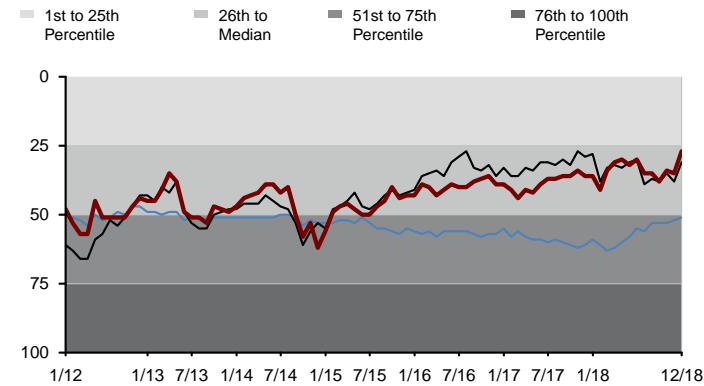


CREF Social Choice R3

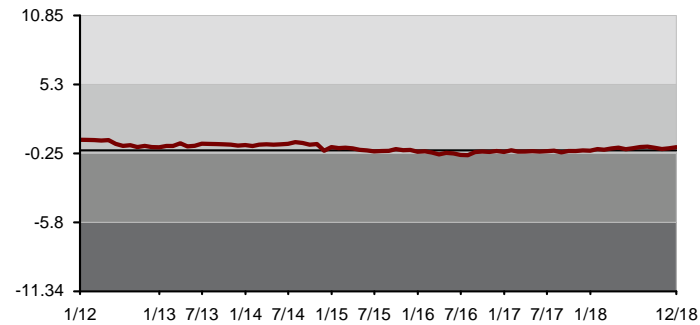
QCSCIX

Index: 40% BarCap|42% R3000|18% MSCI EAFE&Can
 Category: Allocation--50% to 70% Equity
 Return Date: 12/31/2018

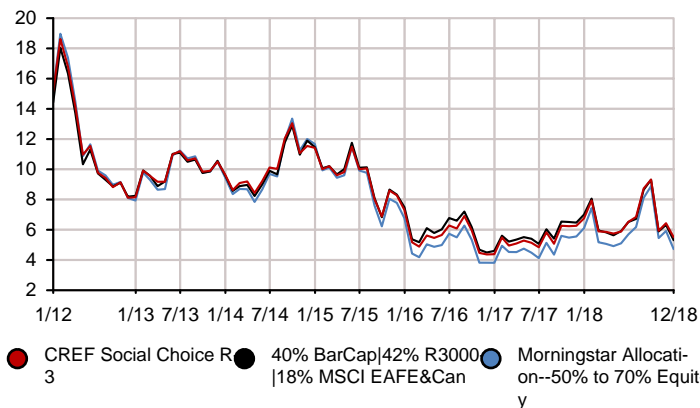
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

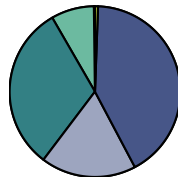


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	1112.0	151.0	-
Holdings - Bonds	769.0	295.0	-
Holdings - Other	17.0	28.0	-
Turnover Ratio	53.0	51.3	-
Net Expense Ratio	0.3	1.1	-
Gross Expense Ratio	0.3	1.7	-
Avg Mkt Cap (\$MM)	43,742	57,441	-
Total Assets (\$MM)	12,861	5,284	-
P/E Ratio	17.6	17.5	-
P/B Ratio	2.4	2.5	-
P/S Ratio	1.7	1.9	-
P/CF Ratio	8.6	9.9	-
ROE %	20.7	-	-
ROA %	7.0	-	-
Dividend Yld	2.3	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	0.57
Domestic Stock	41.62
Foreign Stock	18.03
Domestic Bond	31.3
Foreign Bond	8.12
Other	0.21

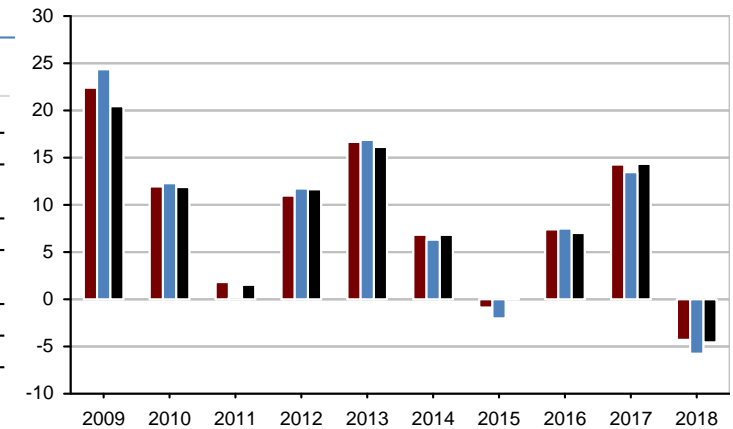
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.4	7.4	-
Materials	4.7	4.0	-
Industrials	10.5	10.4	-
Cons Discretionary	0.0	8.0	-
Consumer Staples	0.0	10.0	-
Healthcare	13.7	13.4	-
Financials	17.7	17.2	-
Info Technology	18.6	17.7	-
Telecom Services	0.0	6.1	-
Utilities	3.7	3.2	-

Top 10 Holdings

	Fund %
Microsoft Corp	1.4
Apple Inc	1.4
United States Treasury...	0.6
UnitedHealth Group Inc	0.6
Bank of America Corpor...	0.6
Procter & Gamble Co	0.6
Cisco Systems Inc	0.5
Merck & Co Inc	0.5
Intel Corp	0.5
The Home Depot Inc	0.5

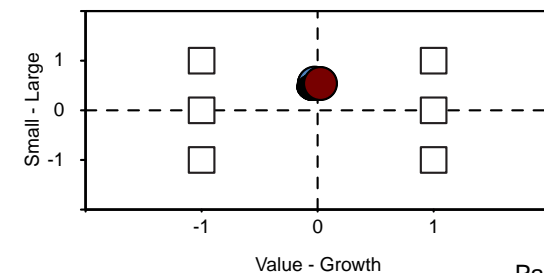
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	6.3	-0.9	6.4	-0.9
Beta	1.0	-0.1	1.0	-0.1
Alpha	0.3	1.6	-0.0	0.5
Sharpe	0.7	0.2	0.6	0.2
Sortino	1.0	0.3	0.9	0.2
Info Ratio	0.3	0.9	-0.1	0.0
Down Capture	96.9	-16.8	99.1	-8.8
Up Capture	100.0	2.5	98.6	-2.9

Historical Style Analysis

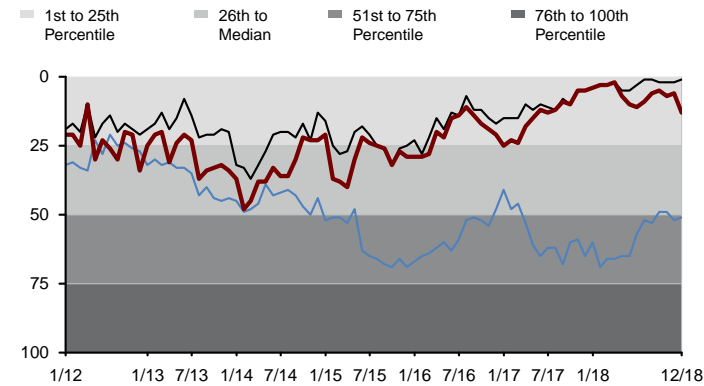


CREF Stock R3

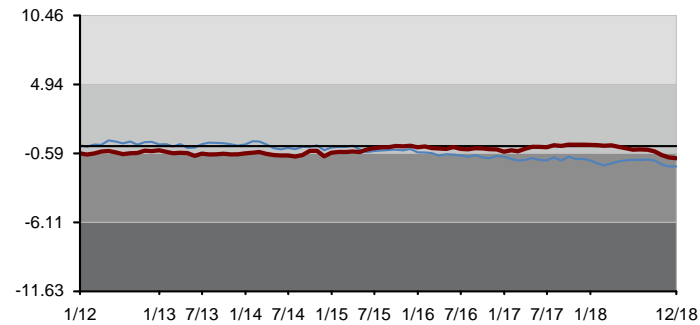
QCSTIX

Index: 70% Russell 3000 / 30% MSCI ACWI ex US
 Category: Allocation--85%+ Equity
 Return Date: 12/31/2018

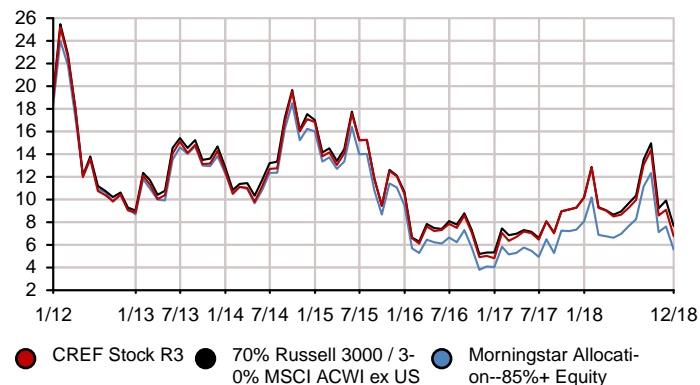
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)

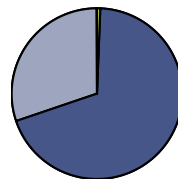


Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	9630.0	94.0	-
Holdings - Bonds	2.0	6.0	-
Holdings - Other	126.0	23.0	-
Turnover Ratio	48.0	46.1	-
Net Expense Ratio	0.3	1.3	-
Gross Expense Ratio	0.3	1.6	-
Avg Mkt Cap (\$MM)	39,432	33,607	-
Total Assets (\$MM)	103,966	1,243	-
P/E Ratio	16.1	16.6	-
P/B Ratio	2.1	2.2	-
P/S Ratio	1.5	1.6	-
P/CF Ratio	8.2	8.5	-
ROE %	19.0	-	-
ROA %	6.9	-	-
Dividend Yld	2.2	2.3	-

Asset Allocation

Portfolio Date: 10/31/2018



	%
Cash	0.62
Domestic Stock	69.12
Foreign Stock	30.08
Domestic Bond	-
Foreign Bond	-
Other	0.1

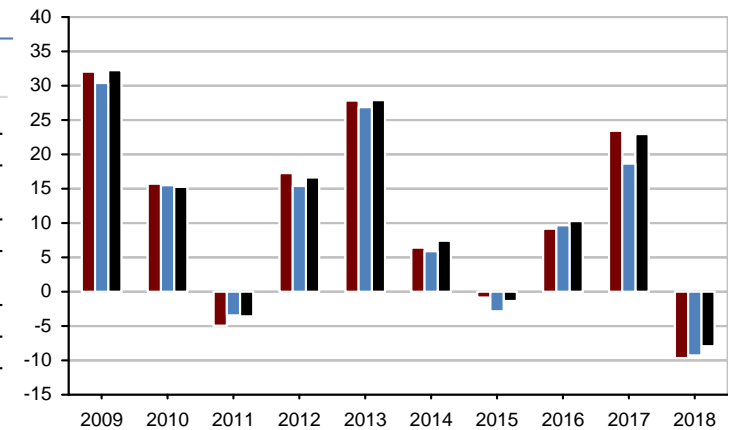
Sector Allocation (%)

	Fund	Avg	Idx
Energy	6.0	6.6	-
Materials	4.5	4.6	-
Industrials	10.7	10.8	-
Cons Discretionary	0.0	8.1	-
Consumer Staples	0.0	10.9	-
Healthcare	12.6	12.4	-
Financials	17.6	17.4	-
Info Technology	19.8	17.6	-
Telecom Services	0.0	6.0	-
Utilities	2.7	2.4	-

Top 10 Holdings

	Fund %
Apple Inc	2.5
Microsoft Corp	1.8
Amazon.com Inc	1.8
JPMorgan Chase & Co	1.2
Alphabet Inc Class C	1.0
Facebook Inc A	0.9
Johnson & Johnson	0.8
Cisco Systems Inc	0.8
Berkshire Hathaway Inc B	0.7
Visa Inc Class A	0.7

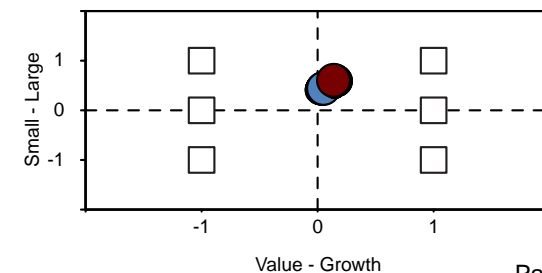
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	11.1	0.3	11.0	0.3
Beta	1.0	0.0	1.0	0.0
Alpha	-1.0	0.9	-0.6	0.4
Sharpe	0.6	0.1	0.5	0.1
Sortino	0.7	0.1	0.6	0.1
Info Ratio	-1.2	-0.3	-0.8	-0.4
Down Capture	105.9	0.7	102.8	1.3
Up Capture	98.8	7.9	98.5	4.5

Historical Style Analysis

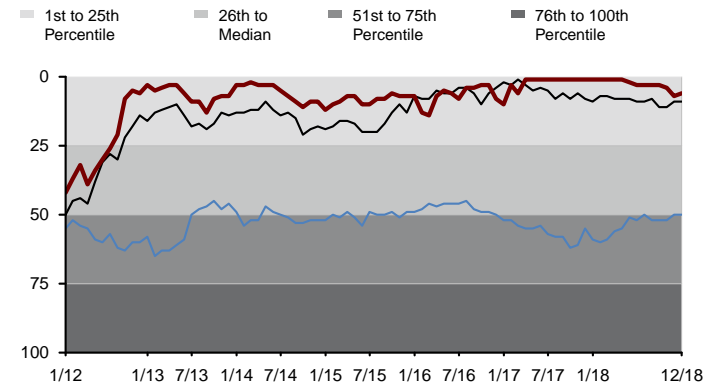


TIAA-CREF Lifecycle Retire Income Instl

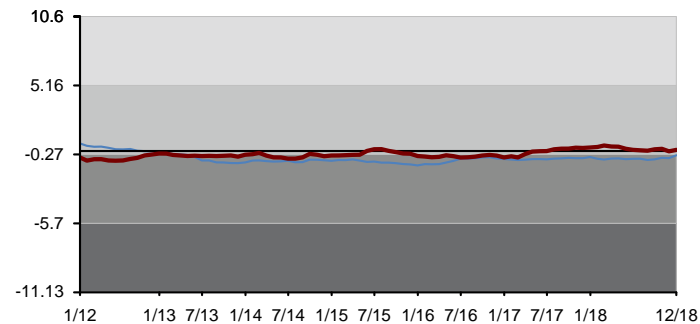
TLRIX

Index: CREF Lifecycle Composite Income
 Category: Target-Date Retirement
 Return Date: 12/31/2018

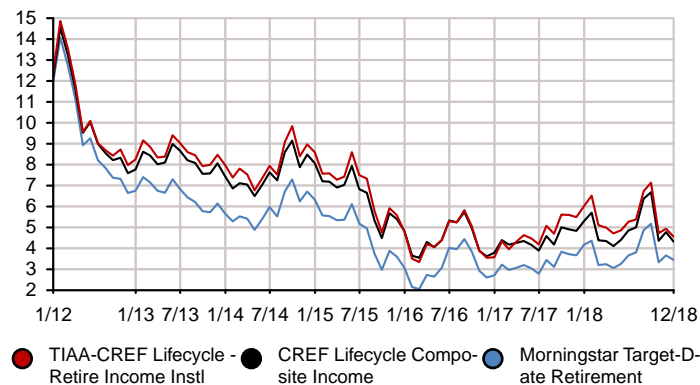
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



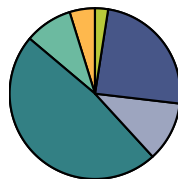
● TIAA-CREF Lifecycle Retire Income Instl ● CREF Lifecycle Composite Income ● Morningstar Target-Date Retirement

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	20.0	-
Turnover Ratio	18.0	40.8	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.5	3.2	-
Avg Mkt Cap (\$MM)	34,897	37,171	-
Total Assets (\$MM)	509	528	-
P/E Ratio	16.0	15.9	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.1	8.1	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.6	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.47
Domestic Stock	24.33
Foreign Stock	11.31
Domestic Bond	47.83
Foreign Bond	9.04
Other	4.79

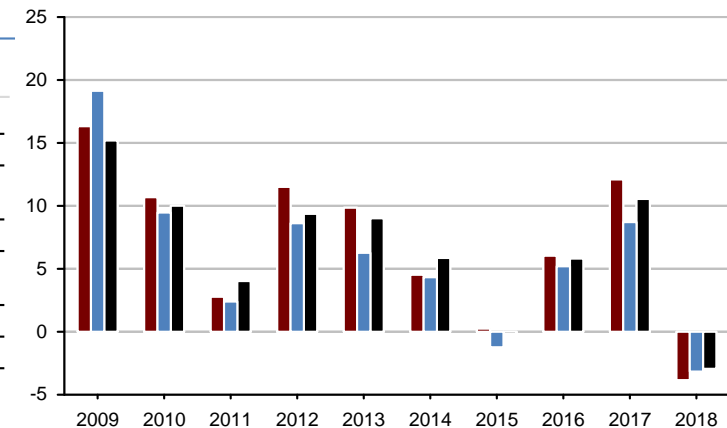
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.5	-
Materials	4.6	4.3	-
Industrials	10.7	10.7	-
Cons Discretionary	7.1	7.8	-
Consumer Staples	11.5	10.8	-
Healthcare	12.2	11.5	-
Financials	16.5	16.7	-
Info Technology	21.8	15.9	-
Telecom Services	7.8	6.0	-
Utilities	2.0	3.4	-

Regional Allocation (%)

	Fund	Idx
United States	78.13	-
Japan	2.73	-
United Kingdom	2.52	-
Canada	1.42	-
France	1.3	-
Germany	1.03	-
Netherlands	0.96	-
Switzerland	0.8	-
China	0.79	-
India	0.59	-

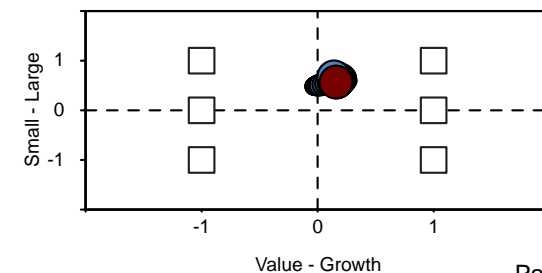
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	4.6	0.8	4.8	0.8
Beta	1.0	-0.3	1.1	-0.2
Alpha	0.1	-0.2	-0.2	-0.1
Sharpe	0.8	0.1	0.6	0.1
Sortino	1.1	0.2	1.0	0.2
Info Ratio	0.3	-0.0	-0.0	-0.2
Down Capture	103.8	-37.3	107.1	-43.7
Up Capture	104.8	-31.0	103.7	-33.1

Historical Style Analysis

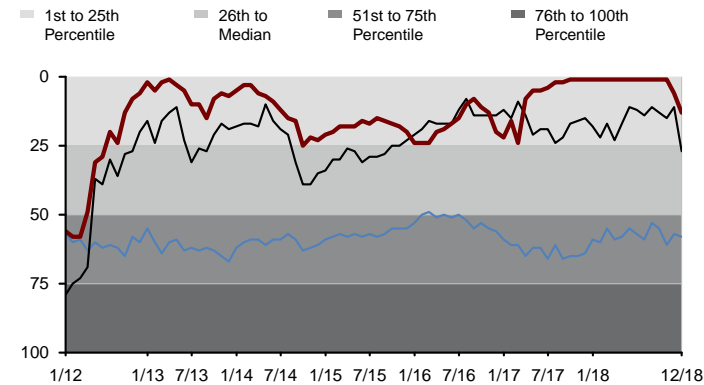


TIAA-CREF Lifecycle 2010 Institutional

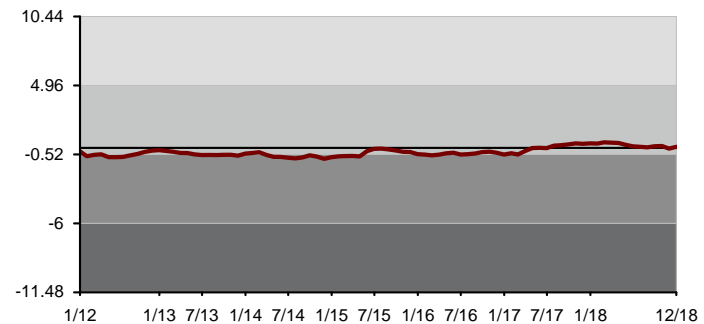
TCTIX

Index: CREF Lifecycle Composite 2010
 Category: Target-Date 2000-2010
 Return Date: 12/31/2018

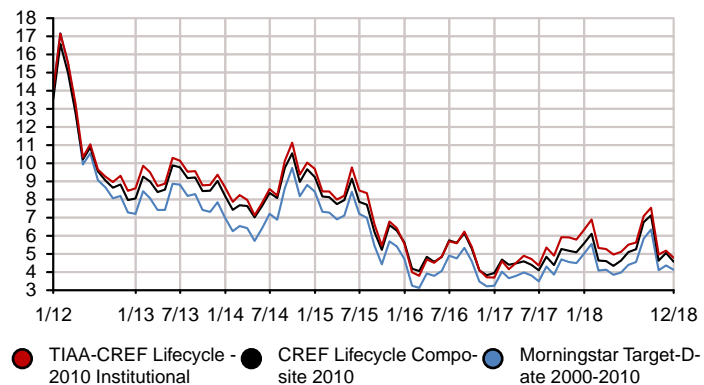
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



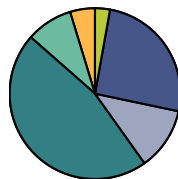
● TIAA-CREF Lifecycle - 2010 Institutional ● CREF Lifecycle Composite 2010 ● Morningstar Target-Date 2000-2010

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	-	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	24.0	-
Turnover Ratio	21.0	32.9	-
Net Expense Ratio	0.4	0.7	-
Gross Expense Ratio	0.5	2.8	-
Avg Mkt Cap (\$MM)	34,940	41,426	-
Total Assets (\$MM)	1,169	579	-
P/E Ratio	15.9	16.1	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.6	-
P/CF Ratio	8.1	8.0	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.4	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.82
Domestic Stock	25.42
Foreign Stock	11.81
Domestic Bond	46.21
Foreign Bond	8.8
Other	4.7

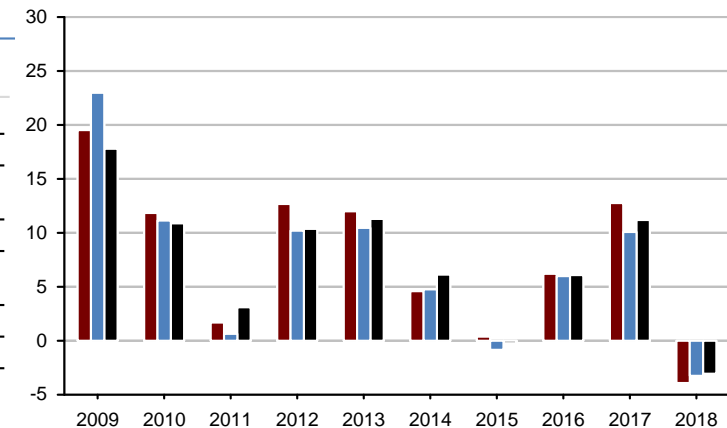
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.7	-
Materials	4.6	4.6	-
Industrials	10.7	10.7	-
Cons Discretionary	7.1	8.3	-
Consumer Staples	11.5	10.9	-
Healthcare	12.2	12.2	-
Financials	16.5	18.4	-
Info Technology	21.8	17.3	-
Telecom Services	7.8	6.6	-
Utilities	2.0	2.7	-

Regional Allocation (%)

	Fund	Idx
United States	77.76	-
Japan	2.83	-
United Kingdom	2.59	-
Canada	1.41	-
France	1.35	-
Germany	1.06	-
Netherlands	0.95	-
Switzerland	0.84	-
China	0.83	-
Brazil	0.6	-

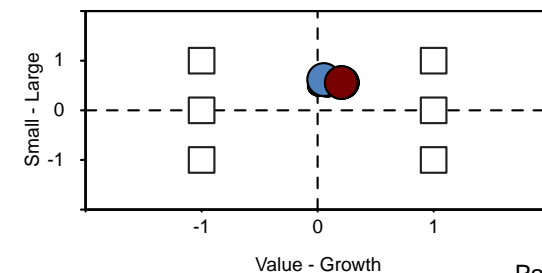
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	4.9	0.5	5.2	0.5
Beta	1.0	-0.5	1.1	-0.4
Alpha	0.1	-0.1	-0.2	0.8
Sharpe	0.8	0.1	0.6	0.1
Sortino	1.1	0.1	0.9	0.1
Info Ratio	0.3	-0.1	-0.1	-0.0
Down Capture	104.1	-58.1	107.4	-57.7
Up Capture	104.6	-43.9	103.9	-25.1

Historical Style Analysis

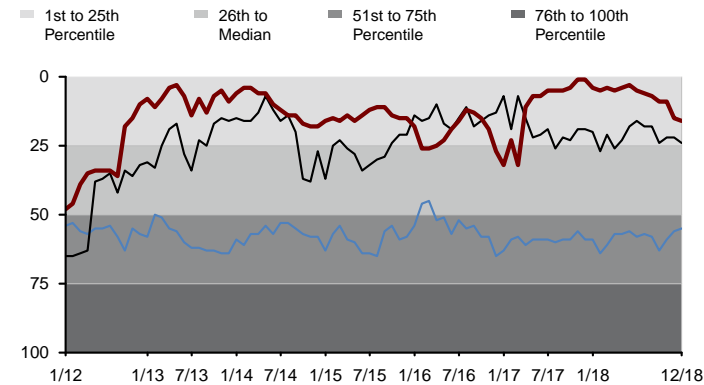


TIAA-CREF Lifecycle 2015 Institutional

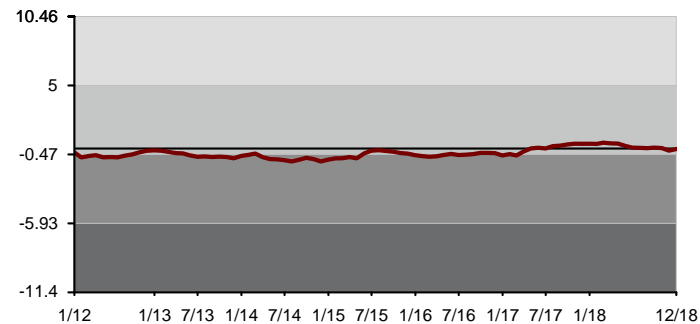
TCNIX

Index: CREF Lifecycle Composite 2015
 Category: Target-Date 2015
 Return Date: 12/31/2018

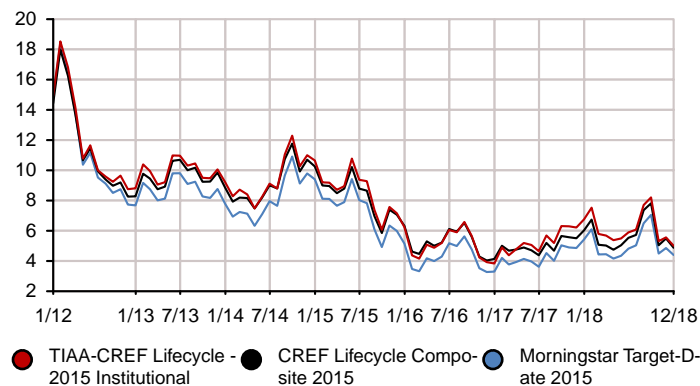
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



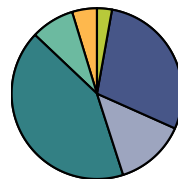
● TIAA-CREF Lifecycle - 2015 Institutional ● CREF Lifecycle Composite 2015 ● Morningstar Target-Date 2015

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	23.0	-
Turnover Ratio	19.0	33.2	-
Net Expense Ratio	0.4	0.7	-
Gross Expense Ratio	0.5	4.6	-
Avg Mkt Cap (\$MM)	34,959	41,272	-
Total Assets (\$MM)	1,773	1,036	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.1	8.4	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.4	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.82
Domestic Stock	28.78
Foreign Stock	13.34
Domestic Bond	41.94
Foreign Bond	8.2
Other	4.7

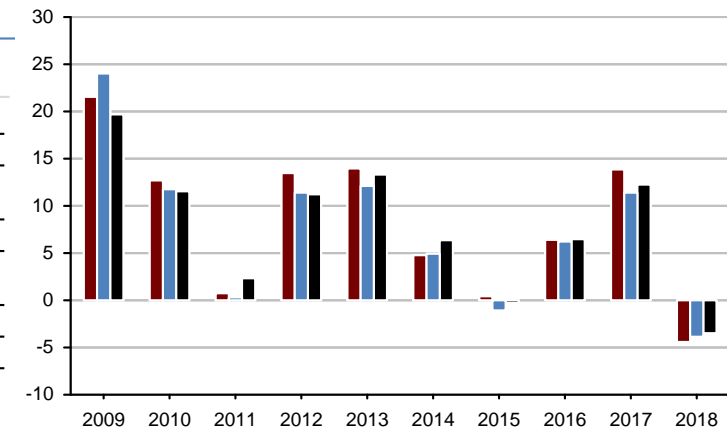
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.3	-
Materials	4.6	4.4	-
Industrials	10.7	10.6	-
Cons Discretionary	7.1	8.1	-
Consumer Staples	11.5	11.2	-
Healthcare	12.2	12.5	-
Financials	16.5	17.2	-
Info Technology	21.8	16.6	-
Telecom Services	7.8	6.5	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	76.72	-
Japan	3.1	-
United Kingdom	2.81	-
France	1.47	-
Canada	1.39	-
Germany	1.14	-
Switzerland	0.93	-
China	0.93	-
Netherlands	0.93	-
Brazil	0.65	-

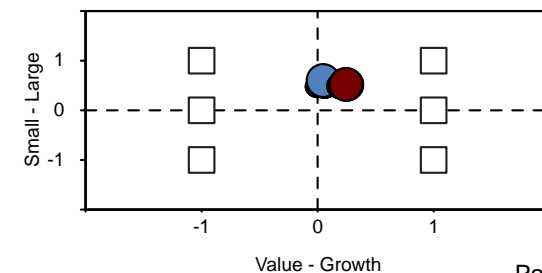
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	5.5	0.4	5.7	0.3
Beta	1.0	-0.5	1.1	-0.4
Alpha	-0.0	0.4	-0.3	1.2
Sharpe	0.7	0.1	0.6	0.1
Sortino	1.0	0.1	0.9	0.1
Info Ratio	0.2	-0.1	-0.1	0.0
Down Capture	105.1	-56.8	106.0	-50.5
Up Capture	104.1	-36.4	102.7	-19.4

Historical Style Analysis

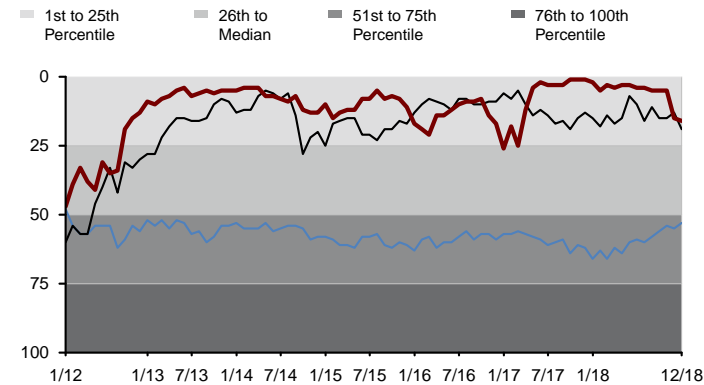


TIAA-CREF Lifecycle 2020 Institutional

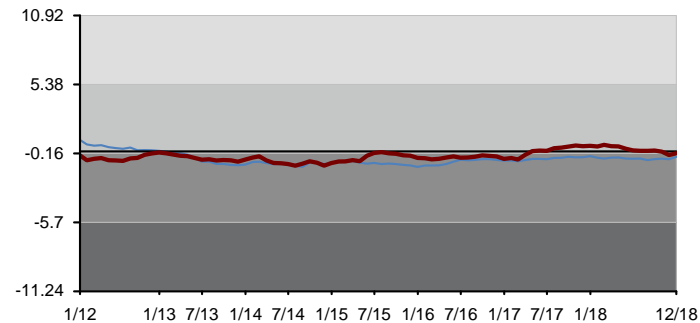
TCWIX

Index: CREF Lifecycle Composite 2020
 Category: Target-Date 2020
 Return Date: 12/31/2018

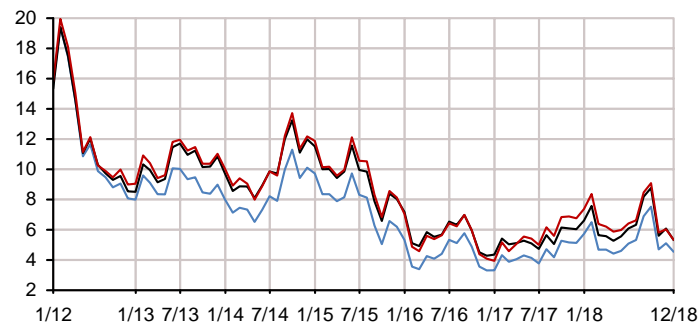
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



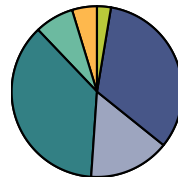
● TIAA-CREF Lifecycle - 2020 Institutional ● CREF Lifecycle Composite 2020 ● Morningstar Target-Date 2020

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	-	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	23.0	-
Turnover Ratio	17.0	36.1	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.5	1.6	-
Avg Mkt Cap (\$MM)	34,984	40,131	-
Total Assets (\$MM)	3,545	2,080	-
P/E Ratio	16.0	16.5	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.1	8.3	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.4	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.63
Domestic Stock	33.06
Foreign Stock	15.28
Domestic Bond	36.71
Foreign Bond	7.38
Other	4.71

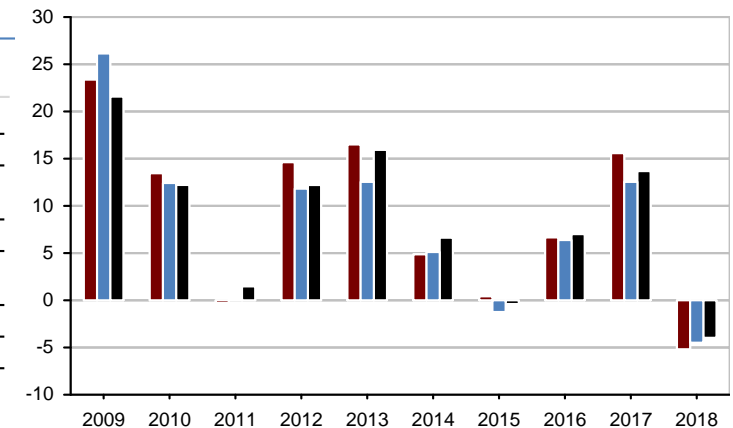
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.1	-
Materials	4.6	4.5	-
Industrials	10.7	11.0	-
Cons Discretionary	7.1	7.9	-
Consumer Staples	11.5	10.6	-
Healthcare	12.2	12.5	-
Financials	16.5	17.2	-
Info Technology	21.8	17.2	-
Telecom Services	7.8	6.5	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	75.54	-
Japan	3.43	-
United Kingdom	3.06	-
France	1.63	-
Canada	1.38	-
Germany	1.24	-
China	1.05	-
Switzerland	1.04	-
Netherlands	0.9	-
Brazil	0.73	-

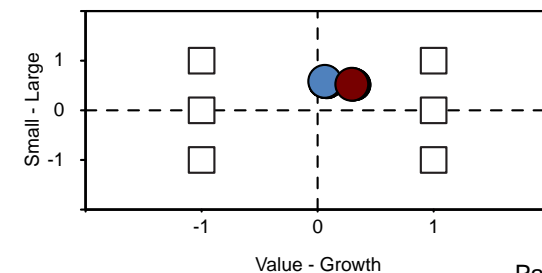
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	6.2	0.6	6.5	0.7
Beta	1.0	-0.3	1.0	-0.2
Alpha	-0.2	0.8	-0.3	1.4
Sharpe	0.7	0.1	0.6	0.1
Sortino	1.0	0.1	0.8	0.1
Info Ratio	0.0	-0.0	-0.2	0.2
Down Capture	105.0	-33.6	104.7	-32.1
Up Capture	103.0	-17.5	101.4	-7.0

Historical Style Analysis



TIAA-CREF Lifecycle 2025 Institutional

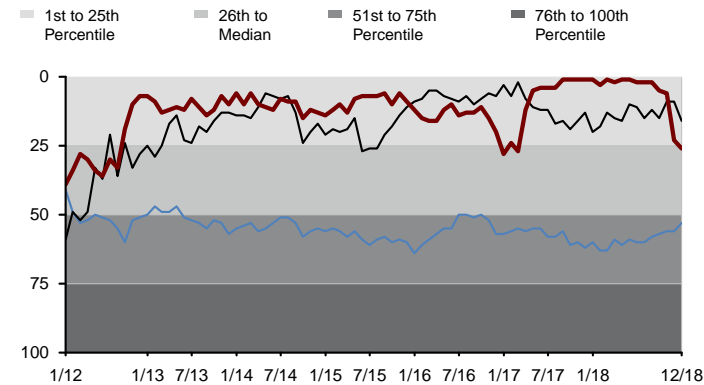
TCYIX

Index: CREF Lifecycle Composite 2025

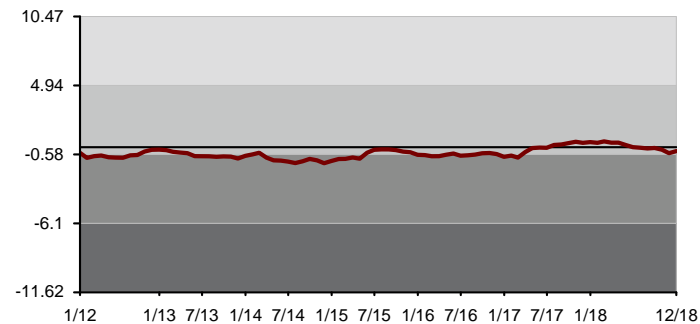
Category: Target-Date 2025

Return Date: 12/31/2018

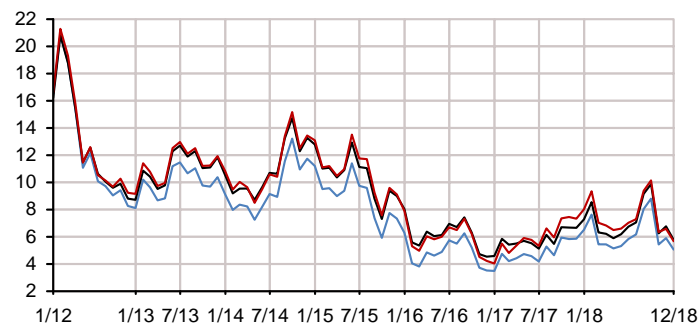
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



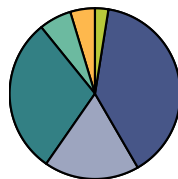
● TIAA-CREF Lifecycle - 2025 Institutional ● CREF Lifecycle Composite 2025 ● Morningstar Target-Date 2025

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	23.0	-
Turnover Ratio	16.0	36.4	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.5	1.7	-
Avg Mkt Cap (\$MM)	35,015	40,490	-
Total Assets (\$MM)	4,139	2,525	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.3	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.1	8.3	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.52
Domestic Stock	39.03
Foreign Stock	17.99
Domestic Bond	29.45
Foreign Bond	6.13
Other	4.67

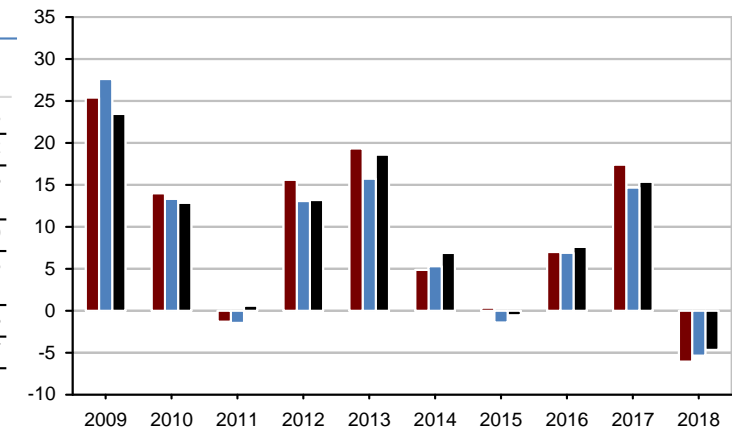
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.0	-
Materials	4.6	4.5	-
Industrials	10.7	11.0	-
Cons Discretionary	7.1	8.0	-
Consumer Staples	11.5	11.1	-
Healthcare	12.2	12.5	-
Financials	16.5	17.1	-
Info Technology	21.8	17.5	-
Telecom Services	7.8	6.2	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	73.93	-
Japan	3.9	-
United Kingdom	3.38	-
France	1.86	-
Germany	1.36	-
Canada	1.35	-
China	1.22	-
Switzerland	1.18	-
Netherlands	0.86	-
Brazil	0.83	-

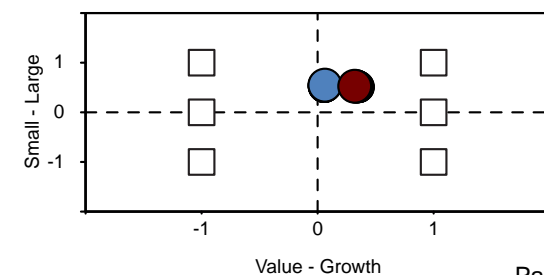
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	7.1	0.5	7.4	0.6
Beta	1.1	-0.2	1.1	-0.1
Alpha	-0.3	0.6	-0.5	1.3
Sharpe	0.7	0.0	0.5	0.1
Sortino	0.9	0.1	0.8	0.1
Info Ratio	-0.1	-0.0	-0.2	0.2
Down Capture	108.9	-13.1	107.4	-15.9
Up Capture	104.2	-5.8	102.6	1.0

Historical Style Analysis

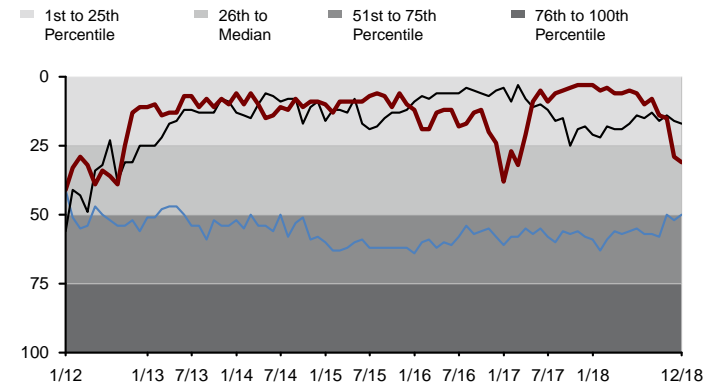


TIAA-CREF Lifecycle 2030 Institutional

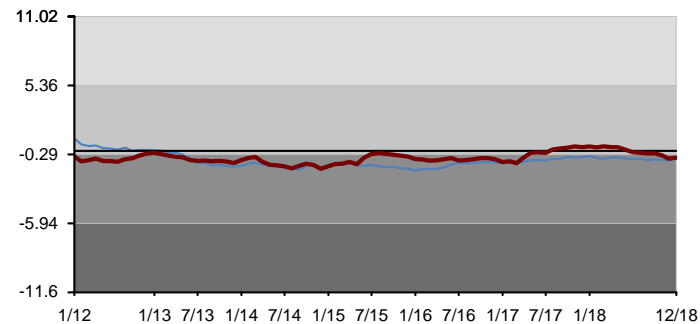
TCRIX

Index: CREF Lifecycle Composite 2030
 Category: Target-Date 2030
 Return Date: 12/31/2018

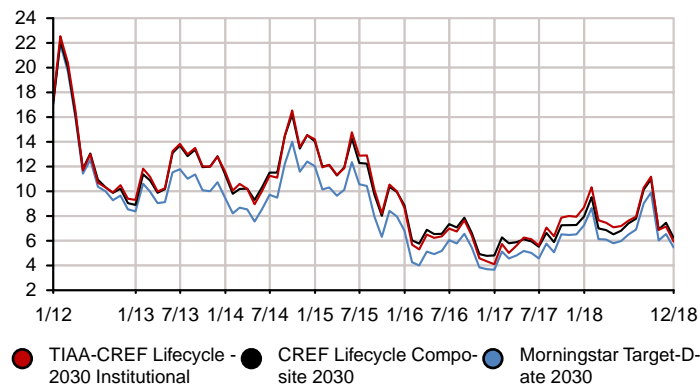
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



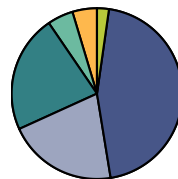
● TIAA-CREF Lifecycle - 2030 Institutional ● CREF Lifecycle Composite 2030 ● Morningstar Target-Date 2030

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	21.0	22.0	-
Turnover Ratio	12.0	35.1	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.5	1.5	-
Avg Mkt Cap (\$MM)	35,032	39,371	-
Total Assets (\$MM)	4,068	2,723	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.3	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.25
Domestic Stock	45.08
Foreign Stock	20.73
Domestic Bond	22.21
Foreign Bond	4.87
Other	4.64

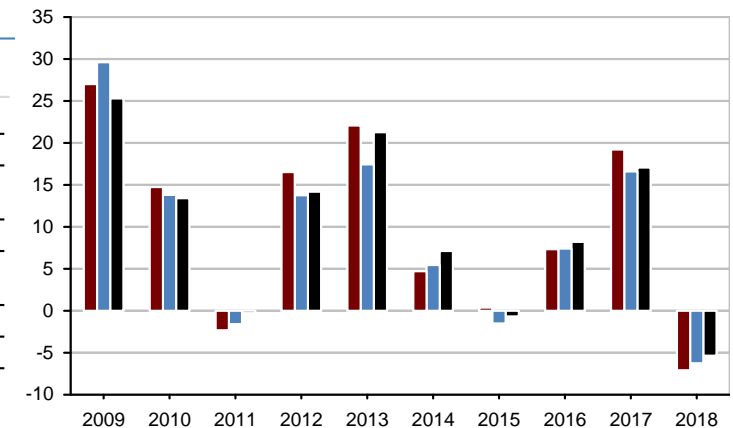
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.0	-
Materials	4.6	4.6	-
Industrials	10.8	11.1	-
Cons Discretionary	7.1	7.7	-
Consumer Staples	11.5	10.4	-
Healthcare	12.2	12.5	-
Financials	16.5	17.1	-
Info Technology	21.8	17.5	-
Telecom Services	7.8	6.6	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	72.41	-
Japan	4.34	-
United Kingdom	3.7	-
France	2.08	-
Germany	1.49	-
China	1.4	-
Canada	1.33	-
Switzerland	1.33	-
Brazil	0.92	-
Netherlands	0.81	-

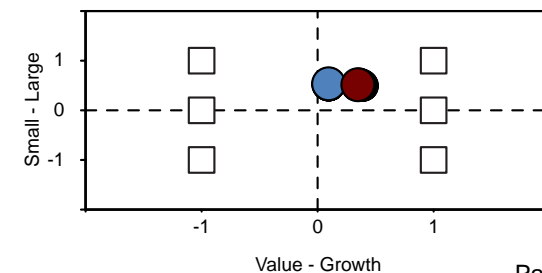
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	8.1	0.5	8.3	0.6
Beta	1.1	-0.0	1.1	-0.0
Alpha	-0.6	0.2	-0.6	1.0
Sharpe	0.6	0.0	0.5	0.0
Sortino	0.8	0.0	0.7	0.1
Info Ratio	-0.3	-0.1	-0.4	0.2
Down Capture	109.9	2.8	107.5	0.7
Up Capture	103.6	3.7	101.8	9.5

Historical Style Analysis

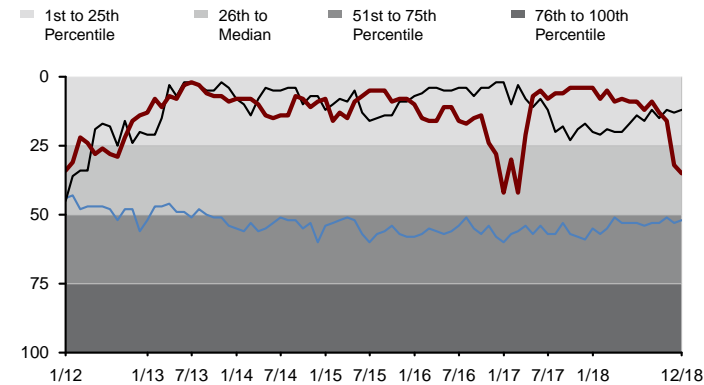


TIAA-CREF Lifecycle 2035 Institutional

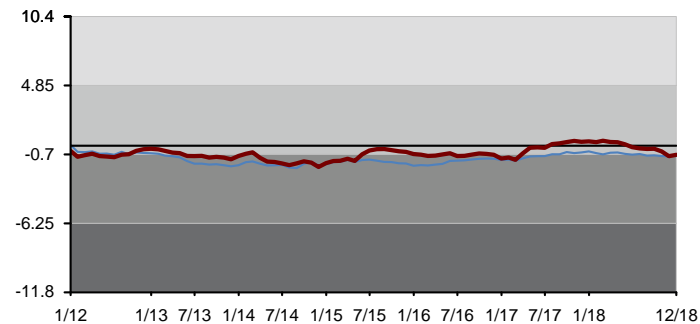
TCIIX

Index: CREF Lifecycle Composite 2035
 Category: Target-Date 2035
 Return Date: 12/31/2018

Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



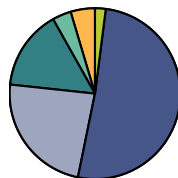
● TIAA-CREF Lifecycle - 2035 Institutional ● CREF Lifecycle Composite 2035 ● Morningstar Target-Date 2035

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	22.0	-
Turnover Ratio	13.0	34.3	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.5	2.3	-
Avg Mkt Cap (\$MM)	35,051	39,320	-
Total Assets (\$MM)	4,108	2,135	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.3	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.3	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	2.02
Domestic Stock	51.08
Foreign Stock	23.45
Domestic Bond	15.11
Foreign Bond	3.55
Other	4.6

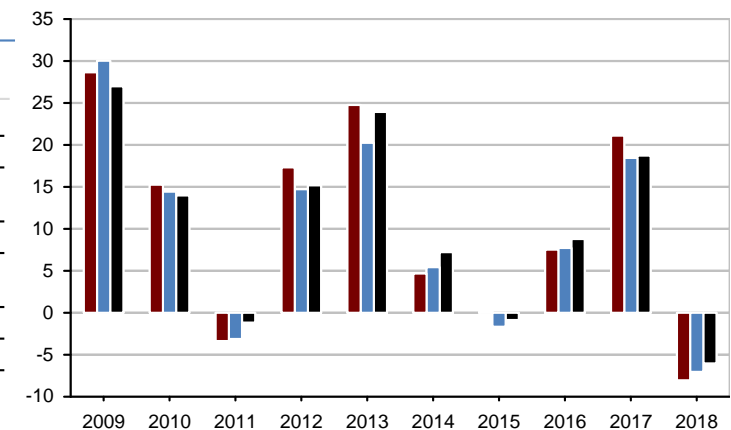
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	5.9	-
Materials	4.6	4.6	-
Industrials	10.8	11.0	-
Cons Discretionary	7.1	7.8	-
Consumer Staples	11.5	11.1	-
Healthcare	12.2	12.5	-
Financials	16.5	17.0	-
Info Technology	21.8	17.6	-
Telecom Services	7.8	6.3	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	70.98	-
Japan	4.78	-
United Kingdom	3.99	-
France	2.29	-
Germany	1.62	-
China	1.57	-
Switzerland	1.47	-
Canada	1.3	-
Brazil	1.03	-
Italy	0.86	-

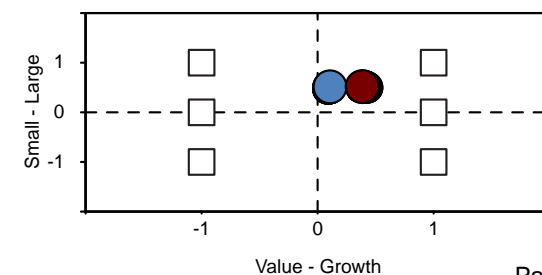
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	9.0	0.5	9.2	0.5
Beta	1.1	0.1	1.1	0.1
Alpha	-0.7	-0.1	-0.7	0.8
Sharpe	0.6	0.0	0.5	0.0
Sortino	0.8	0.0	0.6	0.1
Info Ratio	-0.4	-0.1	-0.4	0.2
Down Capture	110.5	8.3	107.4	6.2
Up Capture	103.1	7.4	101.4	12.6

Historical Style Analysis



TIAA-CREF Lifecycle 2040 Institutional

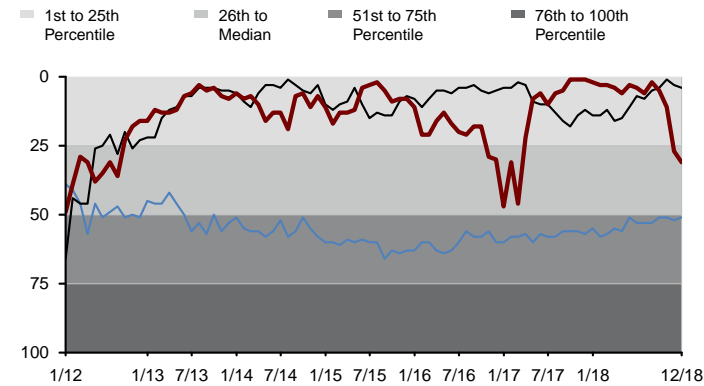
TCOIX

Index: CREF Lifecycle Composite 2040

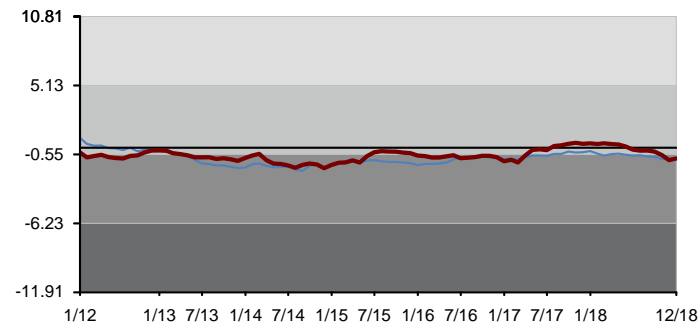
Category: Target-Date 2040

Return Date: 12/31/2018

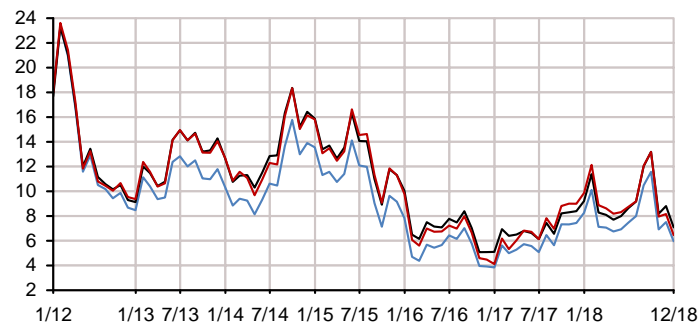
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



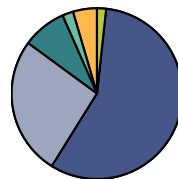
● TIAA-CREF Lifecycle - 2040 Institutional ● CREF Lifecycle Composite 2040 ● Morningstar Target-Date 2040

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	21.0	-
Turnover Ratio	14.0	34.8	-
Net Expense Ratio	0.4	0.8	-
Gross Expense Ratio	0.6	1.8	-
Avg Mkt Cap (\$MM)	35,061	38,256	-
Total Assets (\$MM)	4,910	1,957	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.2	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	1.71
Domestic Stock	57.06
Foreign Stock	26.17
Domestic Bond	8.3
Foreign Bond	2.06
Other	4.54

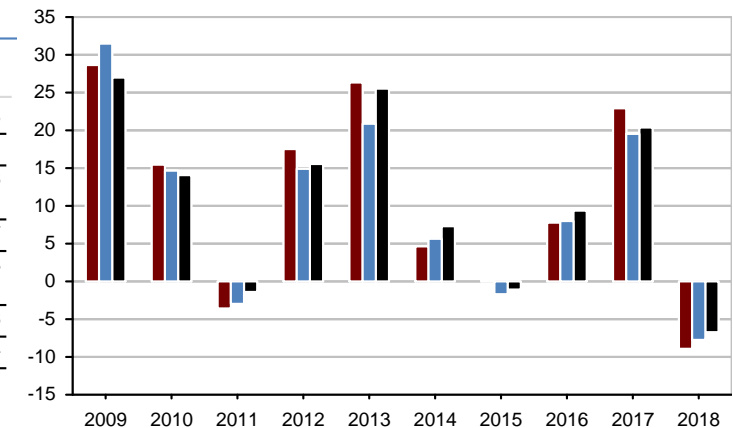
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	5.9	-
Materials	4.6	4.7	-
Industrials	10.8	11.2	-
Cons Discretionary	7.1	7.6	-
Consumer Staples	11.5	10.4	-
Healthcare	12.2	12.4	-
Financials	16.5	17.1	-
Info Technology	21.8	17.6	-
Telecom Services	7.8	6.5	-
Utilities	2.0	3.0	-

Regional Allocation (%)

	Fund	Idx
United States	69.8	-
Japan	5.19	-
United Kingdom	4.21	-
France	2.5	-
Germany	1.75	-
China	1.73	-
Switzerland	1.6	-
Canada	1.29	-
Brazil	1.12	-
Italy	0.94	-

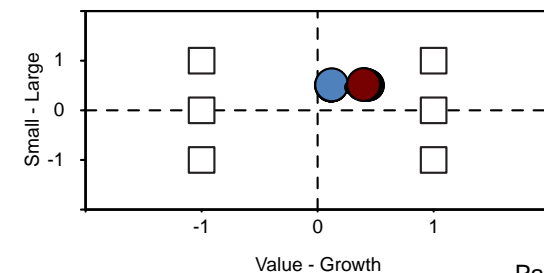
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	9.9	0.8	10.1	0.9
Beta	1.1	0.1	1.0	0.1
Alpha	-0.9	-0.4	-0.8	0.6
Sharpe	0.6	0.0	0.5	0.0
Sortino	0.7	-0.0	0.6	0.0
Info Ratio	-0.4	-0.1	-0.4	0.2
Down Capture	112.1	16.7	107.9	14.0
Up Capture	103.6	13.9	101.5	18.1

Historical Style Analysis

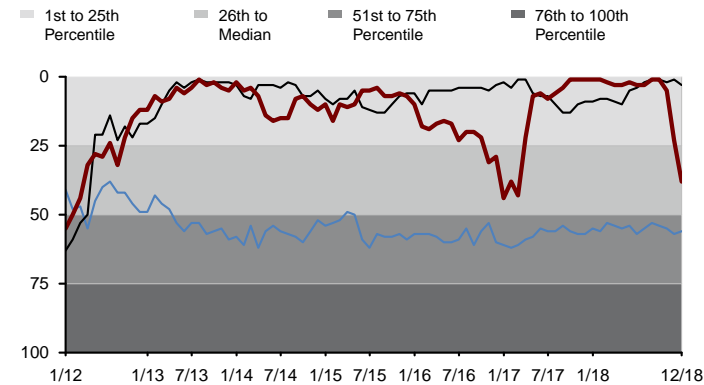


TIAA-CREF Lifecycle 2045 Institutional

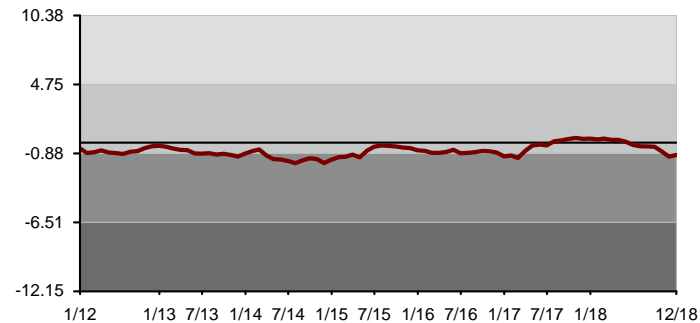
TTFIX

Index: CREF Lifecycle Composite 2045
 Category: Target-Date 2045
 Return Date: 12/31/2018

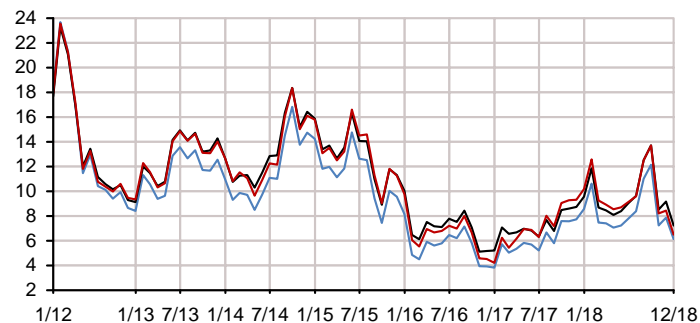
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



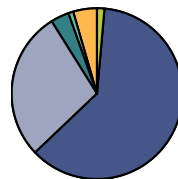
● TIAA-CREF Lifecycle - 2045 Institutional ● CREF Lifecycle Composite 2045 ● Morningstar Target-Date 2045

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	21.0	-
Turnover Ratio	11.0	33.0	-
Net Expense Ratio	0.5	0.8	-
Gross Expense Ratio	0.6	2.4	-
Avg Mkt Cap (\$MM)	35,057	38,811	-
Total Assets (\$MM)	2,677	1,382	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.3	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.2	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	1.4
Domestic Stock	61.41
Foreign Stock	28.16
Domestic Bond	3.46
Foreign Bond	0.94
Other	4.5

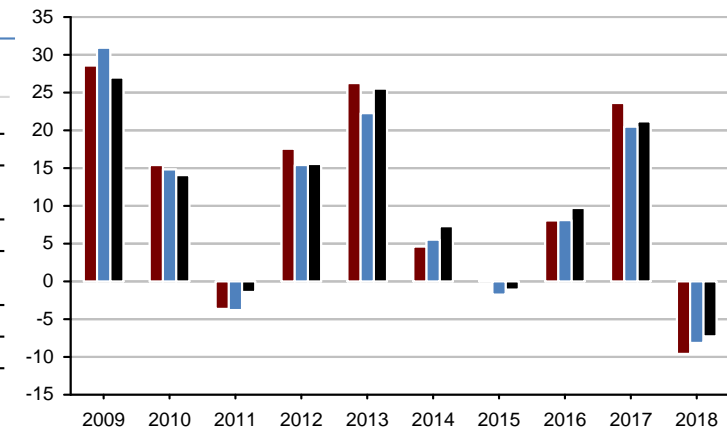
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	5.9	-
Materials	4.6	4.6	-
Industrials	10.8	11.0	-
Cons Discretionary	7.1	7.8	-
Consumer Staples	11.4	11.1	-
Healthcare	12.2	12.4	-
Financials	16.5	17.1	-
Info Technology	21.8	17.6	-
Telecom Services	7.9	6.3	-
Utilities	2.0	2.9	-

Regional Allocation (%)

	Fund	Idx
United States	69.06	-
Japan	5.48	-
United Kingdom	4.37	-
France	2.65	-
China	1.86	-
Germany	1.82	-
Switzerland	1.69	-
Canada	1.28	-
Brazil	1.18	-
Italy	0.99	-

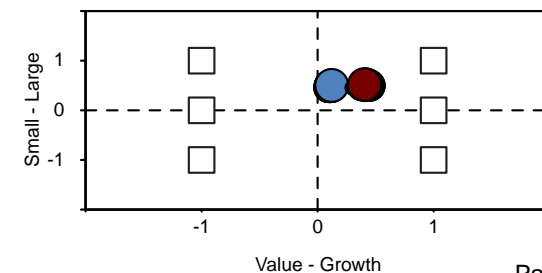
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	10.4	0.8	10.4	0.7
Beta	1.1	0.2	1.1	0.2
Alpha	-1.0	-0.5	-0.9	0.5
Sharpe	0.6	-0.0	0.4	0.0
Sortino	0.7	-0.0	0.6	0.0
Info Ratio	-0.5	-0.1	-0.5	0.2
Down Capture	113.1	22.3	108.2	15.9
Up Capture	103.9	17.6	101.5	19.4

Historical Style Analysis

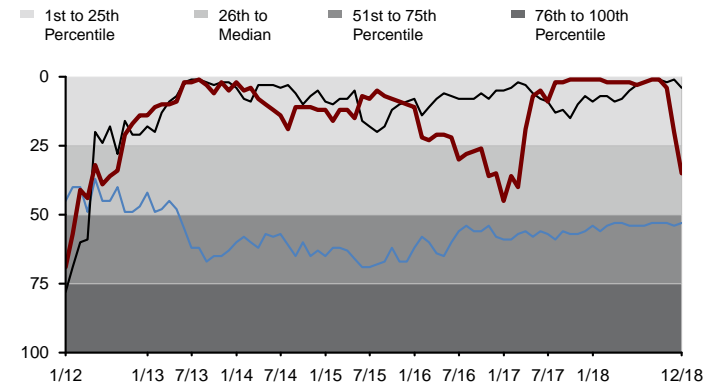


TIAA-CREF Lifecycle 2050 Institutional

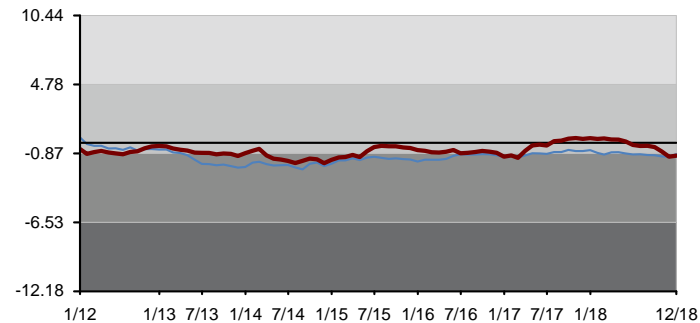
TFTIX

Index: CREF Lifecycle Composite 2050
 Category: Target-Date 2050
 Return Date: 12/31/2018

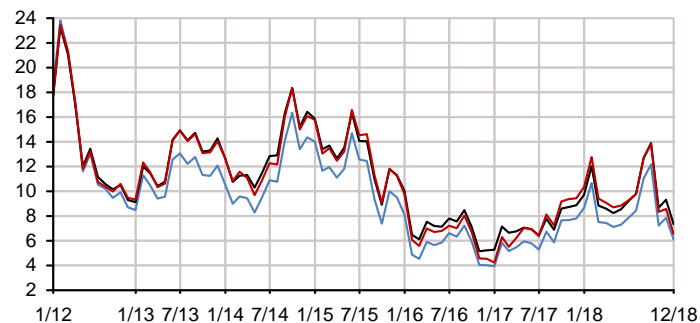
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



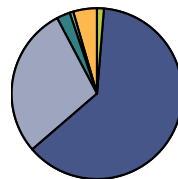
● TIAA-CREF Lifecycle 2050 Institutional ● CREF Lifecycle Composite 2050 ● Morningstar Target-Date 2050

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	20.0	-
Turnover Ratio	10.0	34.9	-
Net Expense Ratio	0.5	0.8	-
Gross Expense Ratio	0.6	1.7	-
Avg Mkt Cap (\$MM)	35,067	38,147	-
Total Assets (\$MM)	1,763	1,083	-
P/E Ratio	16.0	16.5	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.2	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	1.3
Domestic Stock	62.28
Foreign Stock	28.55
Domestic Bond	2.54
Foreign Bond	0.69
Other	4.49

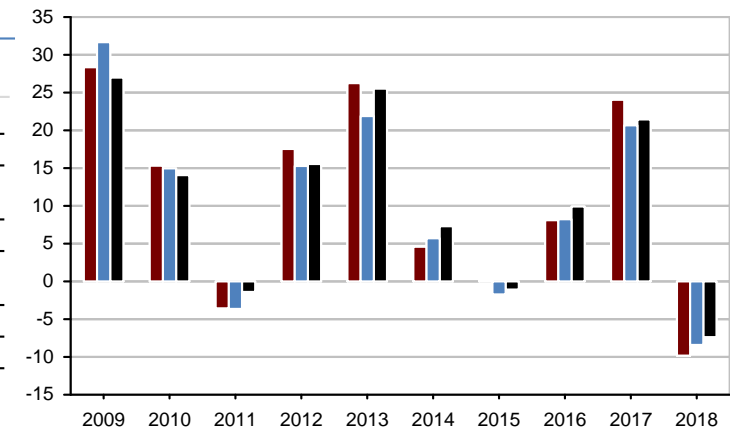
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	5.9	-
Materials	4.6	4.7	-
Industrials	10.8	11.2	-
Cons Discretionary	7.1	7.6	-
Consumer Staples	11.4	10.4	-
Healthcare	12.2	12.4	-
Financials	16.5	17.1	-
Info Technology	21.8	17.6	-
Telecom Services	7.9	6.5	-
Utilities	2.0	2.9	-

Regional Allocation (%)

	Fund	Idx
United States	68.96	-
Japan	5.54	-
United Kingdom	4.41	-
France	2.68	-
China	1.87	-
Germany	1.84	-
Switzerland	1.71	-
Canada	1.29	-
Brazil	1.2	-
Italy	1.0	-

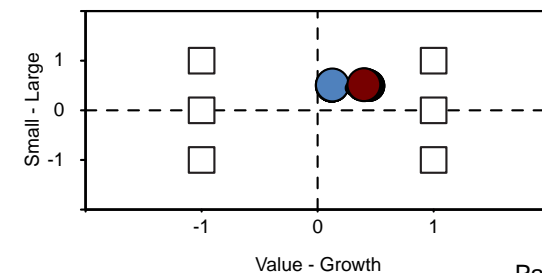
Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	10.5	0.9	10.4	0.7
Beta	1.1	-0.4	1.0	-0.4
Alpha	-1.1	0.8	-0.9	0.3
Sharpe	0.6	-0.0	0.4	0.0
Sortino	0.7	-0.0	0.6	0.0
Info Ratio	-0.5	-0.6	-0.5	-0.6
Down Capture	112.9	-44.5	108.0	-40.5
Up Capture	103.5	-31.2	101.3	-35.7

Historical Style Analysis

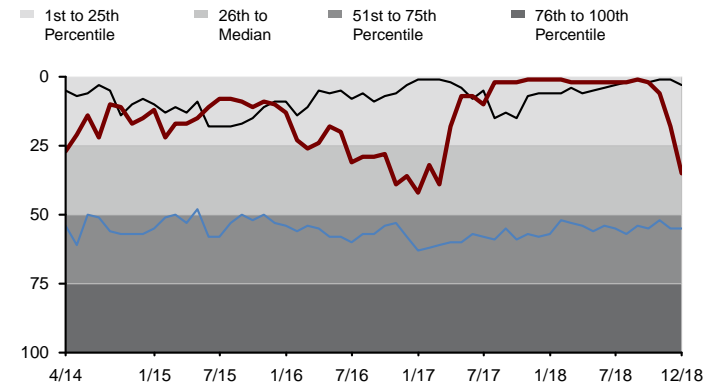


TIAA-CREF Lifecycle 2055 Institutional

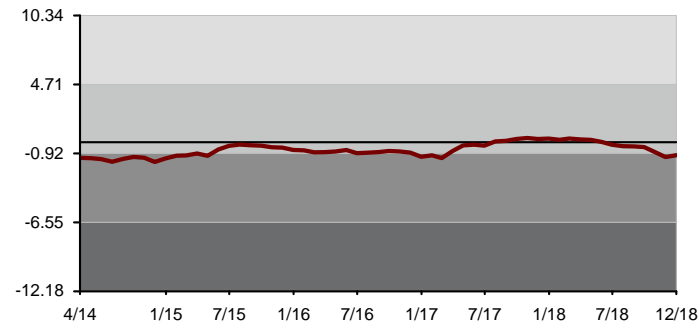
TTRIX

Index: CREF Lifecycle Composite 2055
 Category: Target-Date 2055
 Return Date: 12/31/2018

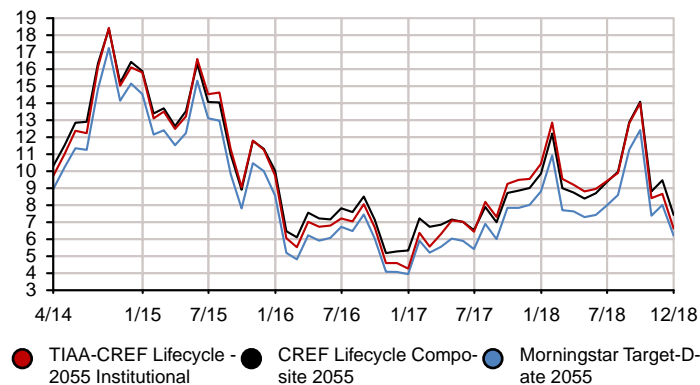
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



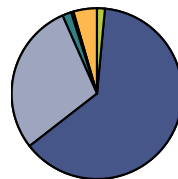
● TIAA-CREF Lifecycle - 2055 Institutional ● CREF Lifecycle Composite 2055 ● Morningstar Target-Date 2055

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	1.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	20.0	-
Turnover Ratio	9.0	31.5	-
Net Expense Ratio	0.5	0.8	-
Gross Expense Ratio	0.6	3.3	-
Avg Mkt Cap (\$MM)	35,040	38,659	-
Total Assets (\$MM)	583	530	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.7	-
P/CF Ratio	8.2	8.2	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	1.49
Domestic Stock	62.91
Foreign Stock	28.86
Domestic Bond	1.7
Foreign Bond	0.45
Other	4.46

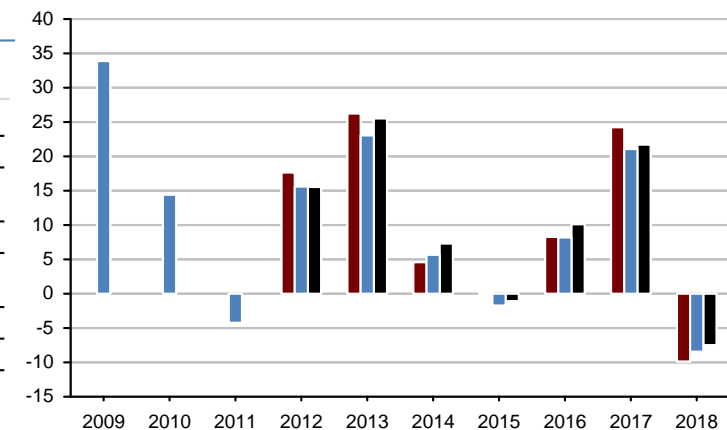
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	5.9	-
Materials	4.6	4.7	-
Industrials	10.8	11.1	-
Cons Discretionary	0.0	8.0	-
Consumer Staples	0.0	11.6	-
Healthcare	12.7	12.4	-
Financials	16.1	17.1	-
Info Technology	21.8	17.7	-
Telecom Services	0.0	6.9	-
Utilities	2.0	2.9	-

Regional Allocation (%)

	Fund	Idx
United States	68.86	-
Japan	5.6	-
United Kingdom	4.45	-
France	2.72	-
China	1.89	-
Germany	1.87	-
Switzerland	1.73	-
Canada	1.29	-
Brazil	1.2	-
Italy	1.01	-

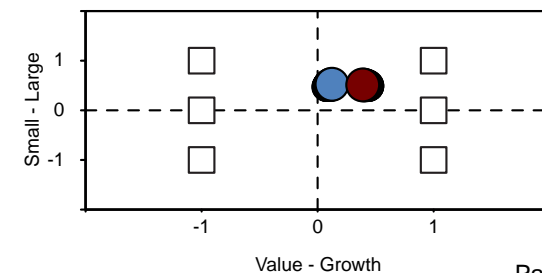
Calendar Year Returns



Risk Statistics

	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	10.6	0.8	10.5	0.6
Beta	1.1	0.2	1.0	0.1
Alpha	-1.1	-0.5	-0.9	0.4
Sharpe	0.6	-0.0	0.4	0.0
Sortino	0.7	-0.0	0.6	0.0
Info Ratio	-0.5	-0.2	-0.5	0.1
Down Capture	112.6	19.4	108.2	13.8
Up Capture	103.3	15.1	101.3	17.1

Historical Style Analysis

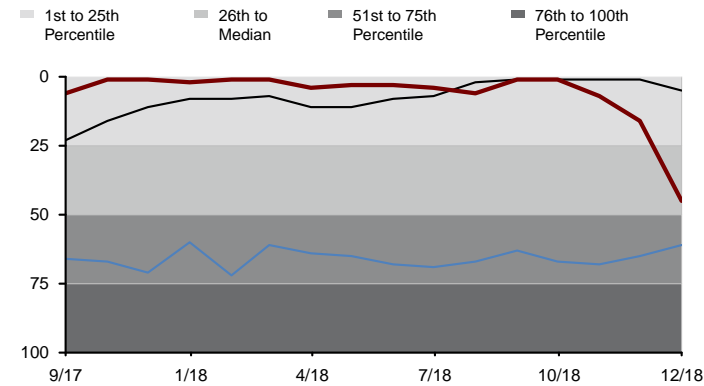


TIAA-CREF Lifecycle 2060 Institutional

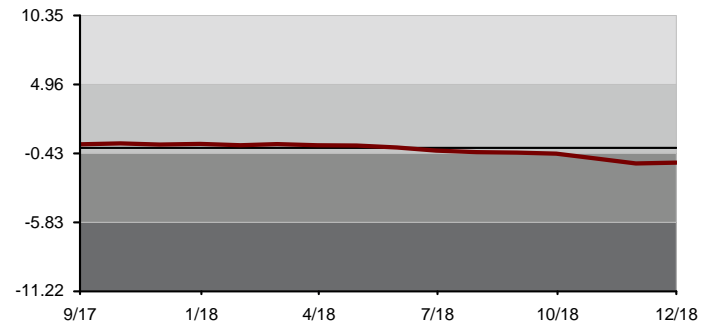
TLXNX

Index: CREF Lifecycle Composite 2060
 Category: Target-Date 2060+
 Return Date: 12/31/2018

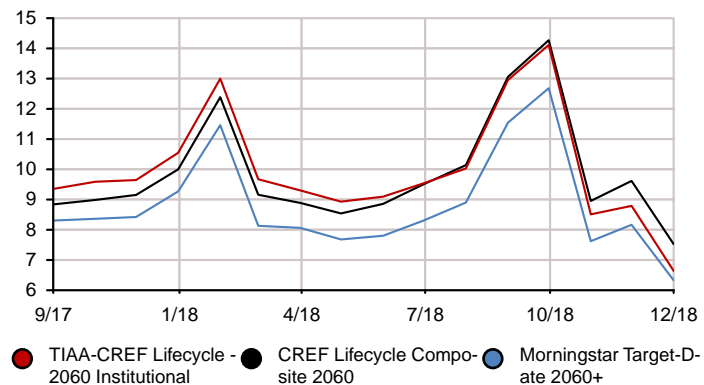
Fund Performance vs. Peer Group (Rolling 36 Months)



Alpha (Rolling 36 Months)



Returns (Rolling 36 Months)



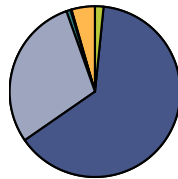
● TIAA-CREF Lifecycle - 2060 Institutional ● CREF Lifecycle Composite 2060 ● Morningstar Target-Date 2060+

Portfolio Characteristics

	Fund	Avg	Idx
Holdings - Stocks	-	2.0	-
Holdings - Bonds	-	-	-
Holdings - Other	19.0	21.0	-
Turnover Ratio	37.0	37.0	-
Net Expense Ratio	0.5	0.8	-
Gross Expense Ratio	0.8	7.9	-
Avg Mkt Cap (\$MM)	35,046	38,410	-
Total Assets (\$MM)	107	142	-
P/E Ratio	16.0	16.6	-
P/B Ratio	2.2	2.2	-
P/S Ratio	1.5	1.6	-
P/CF Ratio	8.2	8.1	-
ROE %	19.8	-	-
ROA %	7.2	-	-
Dividend Yld	2.1	2.3	-

Asset Allocation

Portfolio Date: 11/30/2018



	%
Cash	1.61
Domestic Stock	63.66
Foreign Stock	29.17
Domestic Bond	0.79
Foreign Bond	0.2
Other	4.44

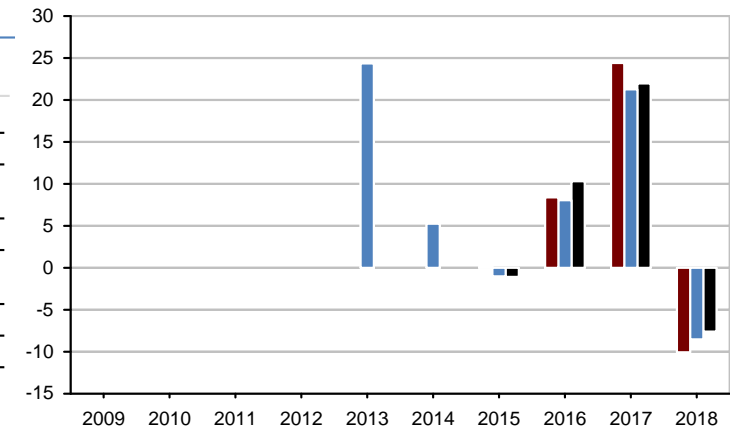
Sector Allocation (%)

	Fund	Avg	Idx
Energy	5.5	6.0	-
Materials	4.6	4.6	-
Industrials	10.8	11.0	-
Cons Discretionary	0.0	-	-
Consumer Staples	0.0	-	-
Healthcare	12.7	12.4	-
Financials	16.1	17.1	-
Info Technology	21.8	17.4	-
Telecom Services	0.0	-	-
Utilities	2.0	2.9	-

Regional Allocation (%)

	Fund	Idx
United States	68.75	-
Japan	5.66	-
United Kingdom	4.47	-
France	2.74	-
China	1.91	-
Germany	1.88	-
Switzerland	1.75	-
Canada	1.3	-
Brazil	1.21	-
Italy	1.03	-

Calendar Year Returns



Risk Statistics

Risk Statistics	3 Year		5 Year	
	Fund	+/-Avg	Fund	+/-Avg
Std Deviation	10.8	1.0	0.0	-9.6
Beta	1.1	0.1	0.0	-1.0
Alpha	-1.2	-0.6	0.0	0.0
Sharpe	0.6	-0.0	0.0	-0.4
Sortino	0.7	-0.0	0.0	-0.5
Info Ratio	-0.6	-0.1	0.0	0.0
Down Capture	112.5	12.5	0.0	-93.7
Up Capture	102.8	7.3	0.0	-93.7

Historical Style Analysis

