



**FIDUCIARY**  
INVESTMENT ADVISORS

*Strategic thinking. Customized solutions.*

# Town of Wilton OPEB

## Quarterly Investment Review - Fourth Quarter 2018

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# FIA 2018 Year-End Firm Update



## ■ Firm Milestones:

- ✓ Celebrated our **12<sup>th</sup>** anniversary as an independent firm
- ✓ Expanded to a **74**-person staff, including **21** experienced Investment Consultants
- ✓ Advised over 350 institutions, with client assets exceeding **\$80 billion**
- ✓ Maintained a client retention ratio in excess of **99%**
- ✓ Opened new office in Wellesley, Massachusetts to expand our service team in the Boston area
- ✓ Recognized two new partners, Devon Francis and Leslie Whitney, as we continued our commitment to expand ownership
- ✓ Experienced growth in each of our service areas, primarily through referrals
  - Defined Contribution Plans
  - Defined Benefit Plans
    - *Corporate*
    - *Municipal*
  - Endowments & Foundations
  - Private Client Services
  - OCIO Services

## ■ Industry Recognition:

- ✓ 2018 **Best-in-Retirement Business IMPACT Award™** by Schwab Advisor Services
- ✓ **Best Places to Work** in Money Management by Pensions & Investments for the fourth time
- ✓ One of the top 50 investment consulting firms, **ranked 34<sup>th</sup> by worldwide institutional assets**, by Pensions & Investments

# FIA 2018 Practice Area Update



We strive to provide significant value-add to our clients in all of our practice areas. Below are some examples of the work we have been doing with clients in recent months:

## ▪ Endowment & Foundation Practice

- ✓ Created **spending simulations** to assist an institution in deciding whether or not to pursue a path of extraordinary spending in order to make necessary capital improvements
- ✓ Provided an analysis of the **private equity markets**, including an educational committee primer, steps to building out a private equity program, cash flow modeling, and potential investment strategies

## ▪ Defined Benefit Practice

- ✓ Continued to assist our corporate pension plans in implementing portfolio **de-risking initiatives** designed to mitigate funding volatility, and served as a strategic partner on several pension **plan terminations**
- ✓ Partnered with our public plan clients to model and implement **diversified portfolio solutions** as the trend around adoption of lower discount rates continued

## ▪ Defined Contribution Practice

- ✓ Facilitated **open market bidding** processes to assist our plan sponsor clients in evaluating plan and participant services relative to their overall cost and allocation method
- ✓ Worked with recordkeepers to **evaluate and benchmark** our clients' key **drivers of participant success** (i.e., plan design features, benefits spending analysis, etc.)

## ▪ Private Wealth Practice

- ✓ Used our decades of wealth management experience to assist our clients with **financial planning, tax planning, and charitable and trust administration**
- ✓ Leveraged our **manager research team** to uncover capital market intelligence relevant to individuals and families

# Our Organization



<b>Mark Wetzel,</b> President	<b>Mike Goss,</b> Executive Vice President	<b>James Romano, CFA,</b> Executive Vice President	<b>Maureen Cooper,</b> Chief Operating Officer	<b>Chris Kachmar, CFA,</b> Managing Partner, Chief Investment Officer	<b>Ryan Gardner,</b> Managing Partner & Senior Consultant	<b>Karen Paulson, CIMA®, PRP,</b> Managing Partner & Senior Consultant	<b>Chris Rowllins, AIF®,</b> Managing Partner & Senior Consultant	<b>Tony Tranghese, CFA,</b> Managing Partner & Senior Consultant
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Consultants	
<b>Jeff Capone,</b> Partner & Sr. Consultant	<b>Robert Lowry, CFA,</b> Consultant & Sr. Research Analyst
<b>Mike Chase,</b> Partner & Sr. Consultant	<b>Andrea McAndrew, CFA,</b> Consultant & Research Analyst
<b>Devon Francis, CIMA®,</b> Partner & Sr. Consultant	<b>Carol McShera,</b> Consultant & Research Analyst
<b>Kevin O'Brien, CFA,</b> Partner & Sr. Consultant	<b>Dennis Scarpa, CFA,</b> Consultant & Research Analyst
<b>Tyler Polk, AIF®,</b> Partner & Sr. Consultant	<b>Eileen Foley Allgrove, JD, MST, CFP®</b> Wealth Advisor, Private Client Group
<b>Vincent Smith, AIF®,</b> Partner & Sr. Consultant	<b>Andrew Salak,</b> Wealth Advisor, Private Client Group
<b>Leslie Whitney, AIF®,</b> Partner & Sr. Consultant	<b>Polina Crotty, CFP®</b> Wealth Advisor & Analyst, Private Client Group
<b>Peter Nadeau, ARPC,</b> Senior Consultant	
<b>Kate Pizzi, CFA, ASA</b> Senior Consultant	
<b>Gregory Adams, ChFC®</b> Consultant	
<b>Scott Boulton,</b> Consultant & Research Analyst	

Client Analysts / Research Analysts
<b>Matt Kaminski, CFA,</b> Partner & Director, Manager Research
<b>Maura Goulart, CFA,</b> Director, Client Services
<b>Katie Marino, AIF®</b> Director, Client Services
Senior Research Analysts: <b>Laura Gineo</b> <b>Anne Haynes</b> <b>Kelly Spencer</b> <b>Susan Woytowicz</b>
Research Analysts: <b>Richard Carey</b> <b>Dan Duffy</b> <b>Oakley Duryea</b> <b>Chris Dziubasik</b> <b>Matt Fratini</b> <b>Chris Ledwith</b> <b>Dan Lojko</b>
<u>Research Analysts:</u> (cont.) <b>Sean McCaffery</b> <b>Matthew Pranaitis</b> <b>Kyle Sherman</b> <b>Matt Smith, CFA</b>
Associate Research Analysts: <b>Zhomart Dairov</b> <b>Melissa Durkin</b> <b>Gavin Johnson</b> <b>Mike Kopec</b> <b>Demarco Palmer</b> <b>Sapan Patel</b> <b>Paige Thompson</b>

Operations & Client Services
<b>Tracey Flynn,</b> Director, Client Services
<b>Sarah Cowenhoven,</b> Operations Analyst
<b>Janet Ramos,</b> Senior Client Service Associate
<b>Joseph Diogostine,</b> Client Service Associate
<b>Felicia Lastra,</b> Client Service Associate
<b>Cindy Vitek,</b> Client Service Associate
<b>Chelsea Wrzesinski,</b> Client Service Associate
<b>Maggie Percival,</b> Accounting Specialist
<b>Carol Morelli,</b> Administrative Assistant
<b>Hannah Olson,</b> Administrative Assistant

Performance / Technology
<b>Patrick Chase, CIPM, PMP,</b> Director, Technology & Performance Monitoring
<b>David Fontaine,</b> Sr. Performance Analyst
<b>Marc Ursin,</b> Sr. Performance Analyst
<b>William Garcia,</b> Performance Analyst
<b>William Horobin,</b> Technology Analyst
<b>Ahmad Nouman, CFA, PRM, CIPM</b> Data & Performance Analyst

Business Development & Marketing
<b>Christian Coleman,</b> Partner & Director, Business Development & Marketing
<b>Jim O'Brien,</b> Business Development Associate
<b>Kristen Klaus,</b> Marketing Consultant
<b>Carrie Gallo,</b> Marketing Associate
<b>Philip Hnatowicz,</b> Marketing Associate
<b>Andre Joyner,</b> Marketing Associate

# Team FIA



Above is a team picture from FIA's annual Community Service Day. In 2018 we continued our practice of giving back to the community by sending teams of individuals to volunteer at eight local organizations: Camp Courant, FoodShare, Chrysalis Center, Salvation Army, My Sister's Place, Covenant Preparatory School, Town of Windsor, and The Gray House.

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*Capital Markets Overview*

## Section 2

*Portfolio and Manager Review*

# Market Review

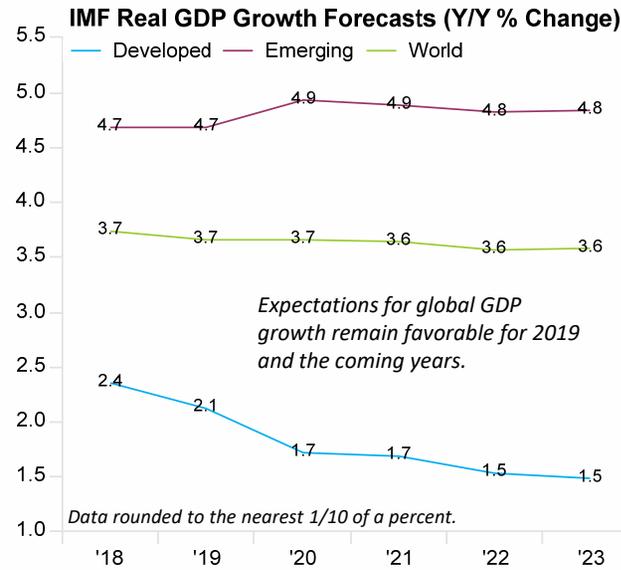
A relatively sound macroeconomic backdrop and a solid earnings environment were unable to detach from a host of concerns that worried investors as the year ended, including, most prominently, the US/China trade dispute, the Fed rate hike campaign, the government shutdown, and Brexit.

Late cycle investing often coincides with bouts of elevated capital market volatility, and return outcomes will periodically dislocate from otherwise solid fundamentals. An acknowledgement of these conditions, paired with the decline in many asset class valuations, informs our preference to embrace selective and thoughtful risk-taking in 2019.

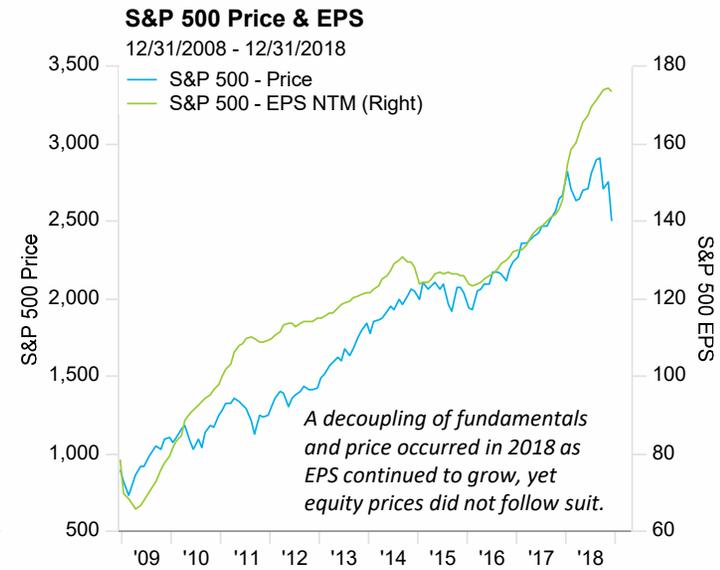
Global equity markets consolidated meaningfully in the quarter, as investor sentiment deteriorated and risk aversion elevated. International equity markets, reacting to somewhat easing geopolitical risks overseas, held up marginally better than their domestic counterparts. Larger capitalization and value names generated better relative returns, as did emerging market equities.

Rates fell across the majority of the curve, boosted by investor demand for fixed income in otherwise unsettled markets. The Fed raised its target rate an additional 25 basis points in December (to 2.25% - 2.5%) while lowering its guidance from three to two rate hikes in 2019. Treasuries generally outpaced credit, and longer maturity bonds, for the most part, outperformed shorted dated paper.

Commodities ended the quarter lower, as weakness within energy weighed heavily on the complex. Oil prices fell dramatically, as fears of slowing global growth weakened the demand outlook. Industrial Metals was the other noteworthy area of underperformance, driven by fears of a demand slowdown in China. Conversely, Precious Metals was the top performing sector, as investors sought out safe haven assets amid the volatility.



FactSet, IMF World Economic Outlook October 2018. Forecasts for 2018 and later.



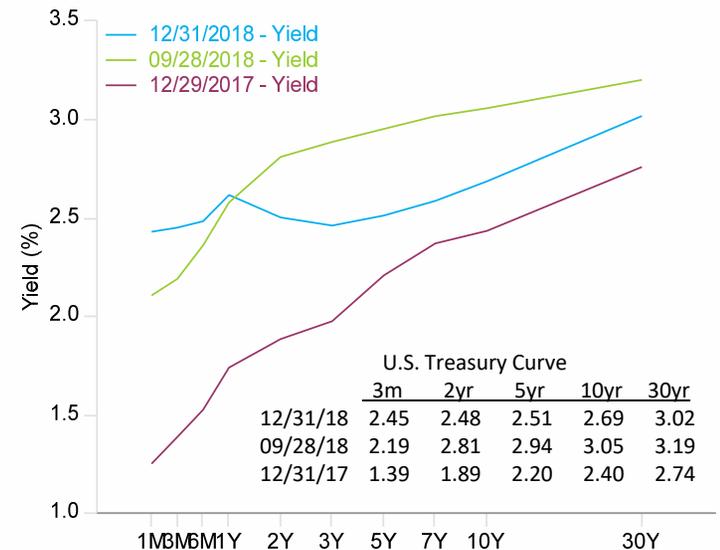
FactSet, S&P

## Equity Valuations - Forward Price to Earnings Ratio

	S&P 500	MSCI EAFE	MSCI EM
9/30/2018	16.9	13.6	11.1
15 Year Avg.	14.7	13.1	11.4
% of 15 Year Avg.	115.0%	103.7%	97.5%
12/31/2018	14.5	11.9	10.6
15 Year Avg.	14.7	13.1	11.4
% of 15 Year Avg.	98.6%	90.8%	93.0%
Multiple Compression Since 9/30/2018	-14.2%	-12.5%	-4.5%

FactSet, S&P, iShares

## United States Treasury Yield Curve



FactSet, U.S. Treasury

# Index Results

U.S. EQUITY	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
S&P 500	(13.5)	(4.4)	(4.4)	9.3	8.5	13.1
Russell 1000	(13.8)	(4.8)	(4.8)	9.1	8.2	13.3
Russell 1000 Value	(11.7)	(8.3)	(8.3)	7.0	5.9	11.2
Russell 1000 Growth	(15.9)	(1.5)	(1.5)	11.1	10.4	15.3
Russell Mid Cap	(15.4)	(9.1)	(9.1)	7.0	6.3	14.0
Russell Mid Cap Value	(15.0)	(12.3)	(12.3)	6.1	5.4	13.0
Russell Mid Cap Growth	(16.0)	(4.8)	(4.8)	8.6	7.4	15.1
Russell 2000	(20.2)	(11.0)	(11.0)	7.4	4.4	12.0
Russell 2000 Value	(18.7)	(12.9)	(12.9)	7.4	3.6	10.4
Russell 2000 Growth	(21.7)	(9.3)	(9.3)	7.2	5.1	13.5
Russell 3000	(14.3)	(5.2)	(5.2)	9.0	7.9	13.2
FTSE NAREIT Equity REITs Index	(6.7)	(4.6)	(4.6)	2.9	7.9	12.1
INTERNATIONAL EQUITY	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
MSCI ACWI ex-US	(11.5)	(14.2)	(14.2)	4.5	0.7	6.6
MSCI EAFE	(12.5)	(13.8)	(13.8)	2.9	0.5	6.3
MSCI EAFE Value	(11.7)	(14.8)	(14.8)	2.8	(0.6)	5.5
MSCI EAFE Growth	(13.3)	(12.8)	(12.8)	2.9	1.6	7.1
MSCI EAFE Small Cap	(16.0)	(17.9)	(17.9)	3.7	3.1	10.5
MSCI EM (Emerging Markets)	(7.5)	(14.6)	(14.6)	9.2	1.6	8.0
FIXED INCOME	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
Barclays U.S. Aggregate Bond	1.6	0.0	0.0	2.1	2.5	3.5
Barclays U.S. Gov/Credit Bond	1.5	(0.4)	(0.4)	2.2	2.5	3.5
Barclays Gov/Credit Long Bond	0.8	(4.7)	(4.7)	4.0	5.4	5.9
Barclays U.S. Corp High Yield	(4.5)	(2.1)	(2.1)	7.2	3.8	11.1
Barclays Municipal Bond	1.7	1.3	1.3	2.3	3.8	4.9
Barclays U.S. TIPS	(0.4)	(1.3)	(1.3)	2.1	1.7	3.6
BofA Merrill 3-Month T-Bill	0.6	1.9	1.9	1.0	0.6	0.4
NON-TRADITIONAL	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
Bloomberg Commodity Index	(9.4)	(11.2)	(11.2)	0.3	(8.8)	(3.8)
HFRI Fund of Funds Index	(4.4)	(3.5)	(3.5)	1.5	1.5	3.2
NCREIF Property Index (09/30/2018)	1.7	5.3	7.2	7.8	9.6	6.4
CPI (09/30/2018)	0.5	1.6	2.3	2.0	1.5	1.4

Sources: Morningstar Direct, Standard & Poor's, Russell, FTSE, MSCI, Barclays Capital, BofA Merrill Lynch, Bloomberg, HFRI, NCREIF. Data as of 12/31/2018 unless otherwise noted.

# Equity & Fixed Income Review

## U.S. Equity Size and Style Returns

QTR				1-Year		
Value	Blend	Growth		Value	Blend	Growth
-11.7	-13.8	-15.9	Large	-8.3	-4.8	-1.5
-15.0	-15.4	-16.0	Mid	-12.3	-9.1	-4.8
-18.7	-20.2	-21.7	Small	-12.9	-11.0	-9.3

Domestic equity markets reversed course during the quarter, bringing returns in 2018 into negative territory. More defensive areas of the market, such as utilities, consumer staples, and health care held up better, with utilities the only sector in positive territory the last three months of the year. Declining oil prices were detrimental to energy stocks, and value stocks gained ground on their growth counterparts.

## International Equity Size and Region Returns (USD)

QTR				1-Year		
Small	Mid	Large		Small	Mid	Large
-16.0	-15.1	-11.8	Dev	-17.9	-16.2	-13.1
-7.2	-4.8	-7.9	EM	-18.6	-13.1	-14.9

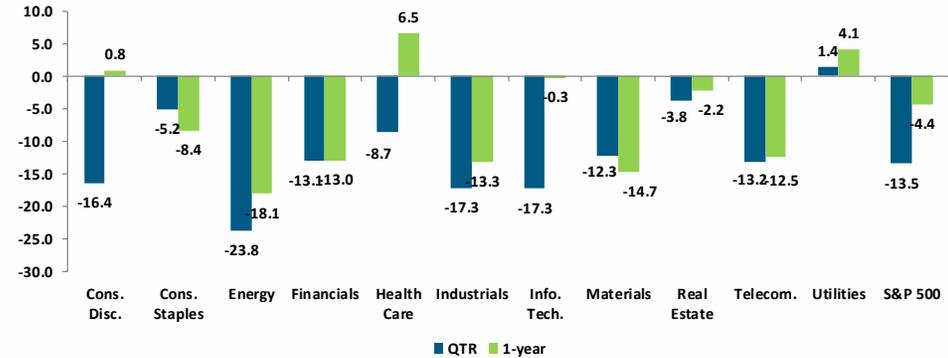
Concerns surrounding the impact of tariffs and uncertainty around the Brexit situation fueled the decline within international equity markets. Developed markets lagged emerging economies, predominately driven by weakness in Europe. A decline in oil prices helped importing regions such as India but negatively impacted exporters such as Russia. Currencies were mixed as the euro fell against the U.S. dollar, while the Japanese yen and some emerging currencies gained ground.

## Fixed Income Term and Quality Returns (USD)

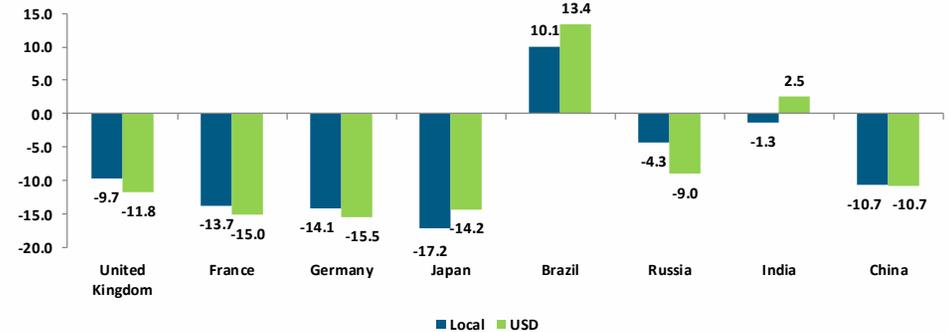
QTR				1-Year		
Short	Interm	Long		Short	Interm	Long
1.3	2.2	4.2	Gov't	1.6	1.4	-1.8
0.8	0.6	-1.8	Corp	1.6	-0.2	-7.2

Declining interest rates during the quarter proved to be beneficial for the broad fixed income market. However, corporate bonds were not immune to the risk-off environment, as credit spreads widened and corporates generally underperformed government bonds. Longer dated bonds largely outpaced shorter duration assets, as the yield curve flattened.

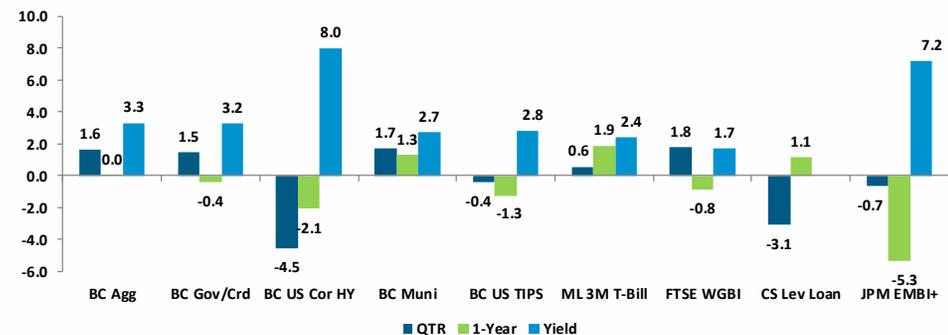
## S&P 500 Sector Returns



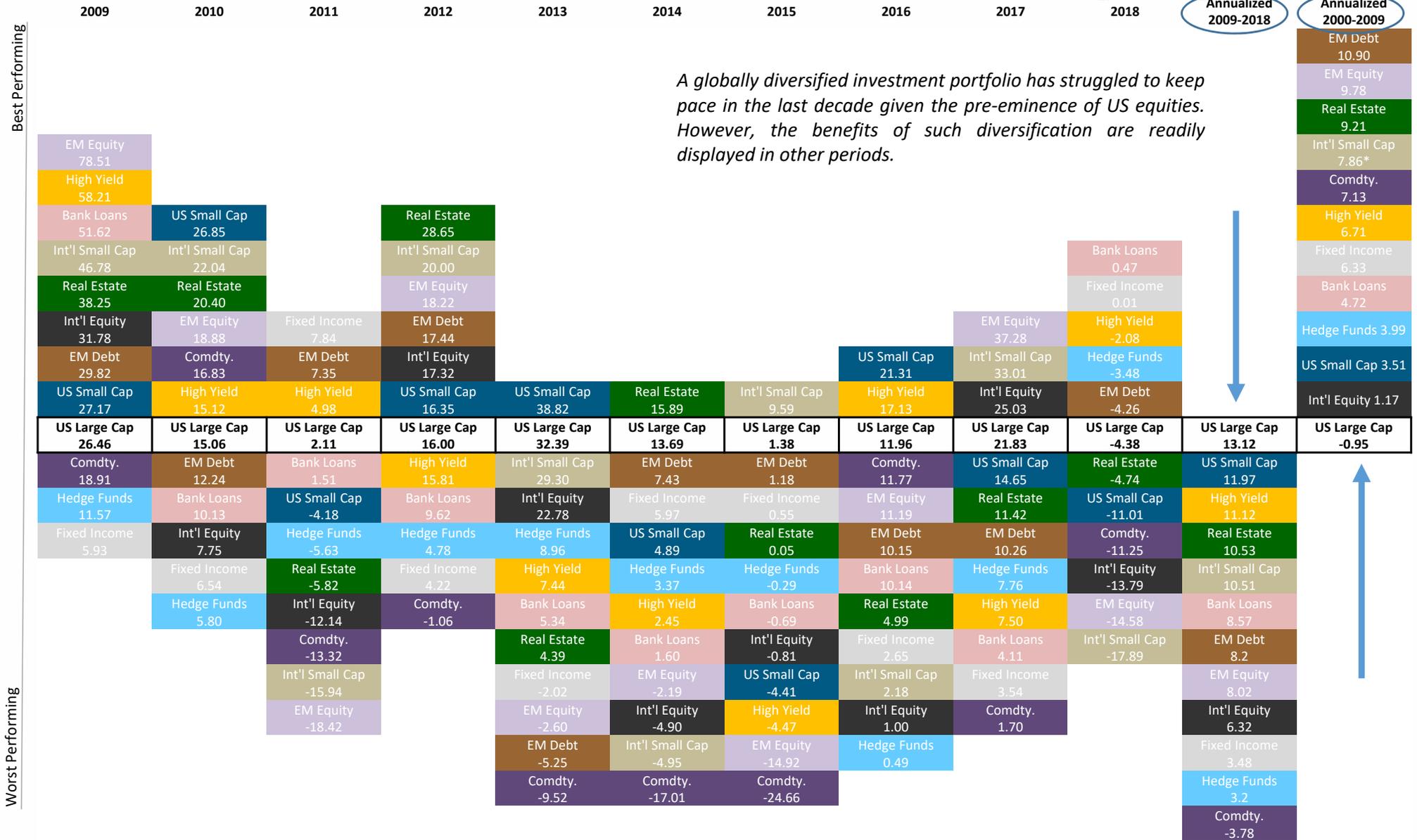
## MSCI Country Results 4Q 2018



## Fixed Income Returns and Yields (%)



# Asset Class Returns - Last 10 Years



US Large Cap = S&P 500 Index, US Small Cap = Russell 2000 Index, High Yield = Bloomberg Barclays HY Corporate Bond Index, Real Estate = FTSE EPRA/NAREIT Developed Index, Int'l Small Cap = MSCI EAFE Small Cap Index, Bank Loans = S&P/LSTA Leveraged Loan Index, EM Debt = JPM EMBI Global Div Index, EM Equity = MSCI Emerging Markets Index, Int'l Equity = MSCI EAFE Index, Fixed Income = Bloomberg Barclays US Aggregate Bond Index, Hedge Funds = HFRI Fund of Funds Index, Comdty. = Bloomberg Commodity Index. \*Data for MSCI EAFE Small Cap Index goes back to February 2001.

# Equity Market Review

## Equity Valuations - Forward P/E (Next 12 Months)

12/31/2003 - 12/31/2018

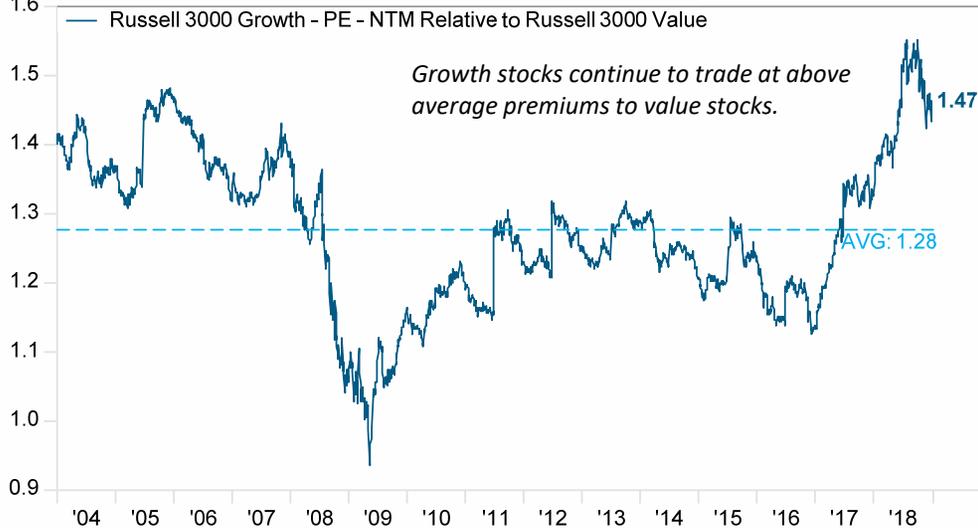


After the recent market pullback, equities now trade modestly below their 15-year average valuations.

FactSet, S&P, iShares

## Relative P/E Next 12 Months

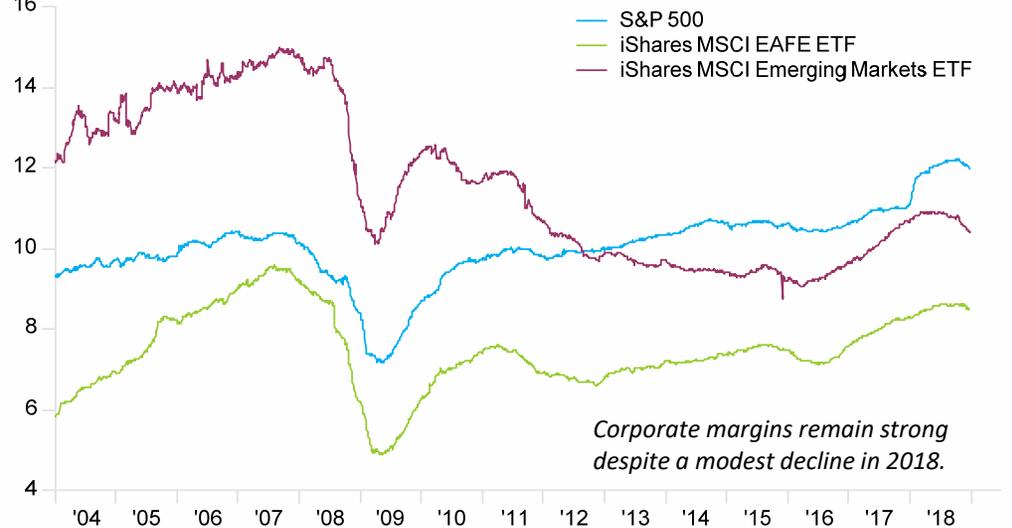
12/31/2003 - 12/31/2018



FactSet, Russell

## Net Profit Margins

12/31/2003 - 12/31/2018



Corporate margins remain strong despite a modest decline in 2018.

FactSet, S&P, iShares

# Fixed Income Review

## Bloomberg Barclays Option Adjusted Spreads (12/31/2013 - 12/31/2018)

U.S. Corporate Investment Grade

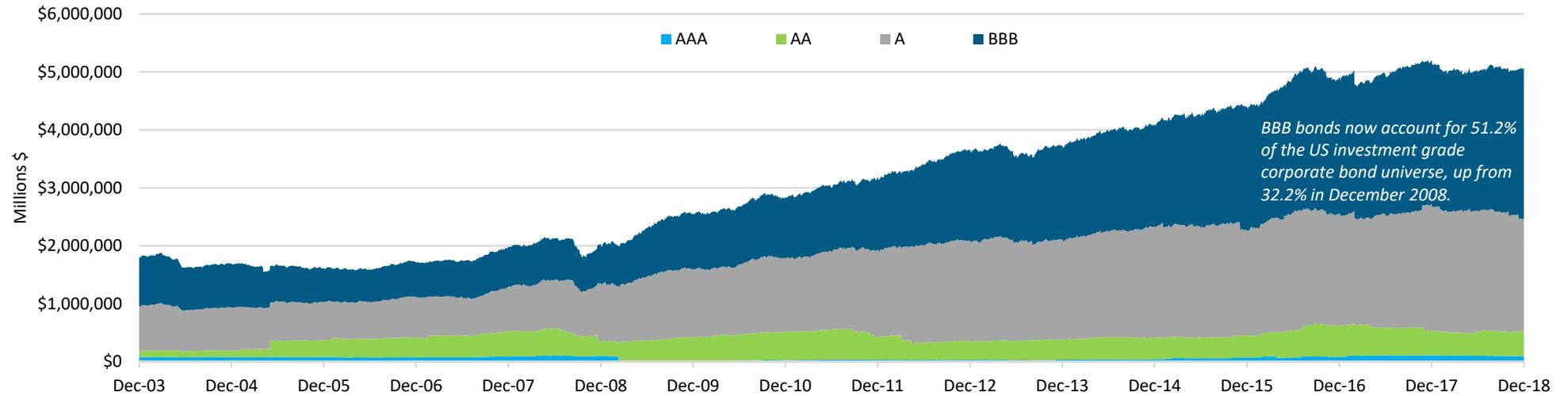


U.S. Corporate High Yield



FactSet, Bloomberg Barclays

## US Investment Grade Corp Bond Market Cap



FactSet, Bloomberg Barclays. As of 12/31/2018.

# Market Viewpoints

Asset Allocation		Rationale
Fixed Income	Equity	A solid economic backdrop and still decent fundamentals lend support to equities, as do the reduced valuation levels incited by the recent market downdraft. However, these advantages are countered by both the myriad of “headline” risks that are likely to continue to pressure investor sentiment and the portfolio stabilizing attributes afforded by fixed income in this late cycle.
Equity		
Domestic	International	Valuations remain tilted in favor of foreign markets, and a moderating dollar could prove beneficial. However, these potential advantages are marginalized by an uneven stream of economic data overseas and the relative strength of such data domestically.
Domestic Large Cap	Domestic Small Cap	The slight valuation advantage in place for small caps at year-end is opposed by their relative vulnerability in “risk-off” (and higher volatility) environments, which are likely to be encountered over the forecast period.
Domestic Value	Domestic Growth	The meaningful valuation advantage in favor of value equities perseveres. It pairs with an expectation that the late cycle conditions in place today (solid GDP growth & enduring earnings) and an expectation for interest rates to grind higher can serve as a foundation for value to regain its footing.
Int’l Developed	Emerging Mkts	Valuations across the international equity landscape remain discounted to longer term averages. These discounts are more acute among many of the emerging markets, and our interests are further enhanced by virtue of robust earnings projections in these arenas. While developed market earnings forecasts are not as hardy, such markets tend to be less susceptible than their emerging market peers to more sustained reductions in investor risk appetite.
Fixed Income		
Treasuries	Credit	Recent widening of spreads may offer a window of opportunity to thoughtfully add credit to portfolios, but our overarching opinion leans more conservatively and is reflective of an aging credit cycle.
Short Duration	Long Duration	The decline in interest rates at year-end (given heightened investor risk aversion) and the reprimands directed by the President at the Fed give us some pause, but we expect that rates will grind higher as the bond market settles on rate neutrality.

*These viewpoints represent FIA’s general assessment of the highlighted capital markets comparisons over the next 18 months. These opinions are subject to modification as conditions in the markets or forecasting periods change. Clients should utilize these rankings in conjunction with other considerations that may be relevant to their particular circumstances.*

## Asset Allocation

### OPEB Plan

As of December 31, 2018

	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
<b>OPEB Plan</b>	<b>7,460,303</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>
<b>Total Short Term Liquidity</b>	<b>416,578</b>	<b>5.6</b>	<b>5.0</b>	<b>0.6</b>
Wells Fargo Government Money Market Fund I	329,555	4.4	0.0	4.4
Webster Cash	87,024	1.2	5.0	-3.8
<b>Fixed Income</b>	<b>2,976,518</b>	<b>39.9</b>	<b>40.0</b>	<b>-0.1</b>
Vanguard Short Term Inflation Protection Adm	372,135	5.0	5.0	0.0
PGIM Total Return Bond R6	1,114,309	14.9	15.0	-0.1
Blackrock Strategic Income Opportunities Fund I	746,676	10.0	10.0	0.0
Eaton Vance Floating Rate	373,190	5.0	5.0	0.0
Templeton Global Bond R6	370,208	5.0	5.0	0.0
<b>Domestic Equity</b>	<b>2,314,207</b>	<b>31.0</b>	<b>30.0</b>	<b>1.0</b>
Vanguard Total Stock Mkt Idx Adm	2,314,207	31.0	30.0	1.0
<b>International Equity</b>	<b>1,407,732</b>	<b>18.9</b>	<b>20.0</b>	<b>-1.1</b>
Vanguard Total International Stock	705,288	9.5	10.0	-0.5
Europacific Growth R6	702,444	9.4	10.0	-0.6
<b>Real Estate</b>	<b>345,267</b>	<b>4.6</b>	<b>5.0</b>	<b>-0.4</b>
Vanguard REIT Index Adm	345,267	4.6	5.0	-0.4

Investments with a zero balance were held in the plan during the reporting period and will be removed once they no longer impact plan performance.  
Asset Allocation weightings may not add up to 100% due to rounding.

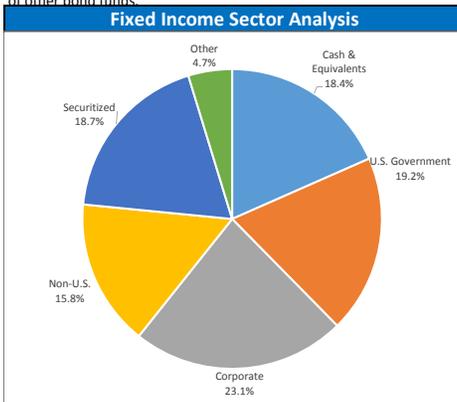
## Wilton OPEB Fixed Income Manager Analysis

As of December 31, 2018

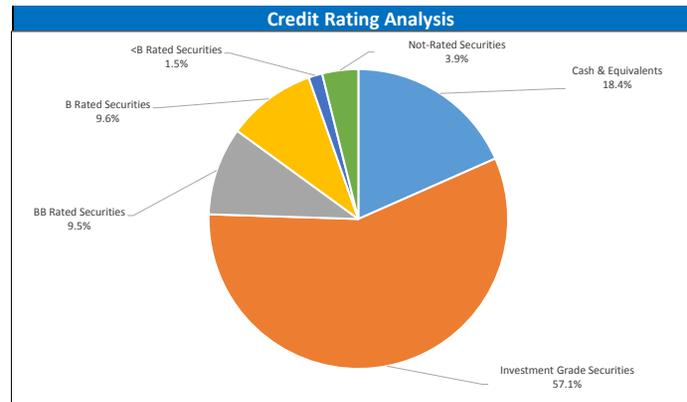
### Manager Characteristics

Fund	Target Total Portfolio Allocation	Fixed Income Portfolio Allocation	Yield	Duration (Years)	Cash & Equivalents	Investment Grade Securities	BB Rated Securities	B Rated Securities	<B Rated Securities	Not-Rated Securities
Webster Cash Account	5%	11%	0.0%	0.0	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
*Vanguard Short Term Inflation Protection	5%	11%	1.5%	2.4	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
PGIM Total Return Bond R6	15%	33%	3.5%	6.2	1.6%	80.5%	7.0%	4.0%	0.4%	6.5%
BlackRock Strategic Income Opportunities	10%	22%	3.4%	2.3	16.0%	55.0%	9.9%	7.6%	3.7%	7.1%
Eaton Vance Floating Rate	5%	11%	4.4%	0.2	4.4%	6.5%	31.9%	51.8%	4.7%	0.7%
Templeton Global Bond	5%	11%	6.0%	-1.6	24.9%	54.6%	12.7%	7.3%	0.0%	0.5%
<b>Fixed Income Portfolio</b>	<b>45%</b>	<b>100%</b>	<b>3.2%</b>	<b>2.7</b>	<b>18.3%</b>	<b>57.0%</b>	<b>9.5%</b>	<b>9.6%</b>	<b>1.5%</b>	<b>3.9%</b>

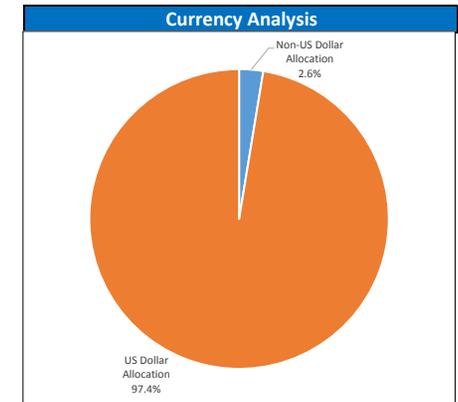
\* This figure is an estimated yield to maturity (YTM) for the fund. It is calculated by adding the trailing 12-month inflation adjustment to the "real" (i.e., before inflation) YTM of the fund. Adding the 12-month inflation adjustment allows the fund's yield to be more directly comparable with those of other bond funds.



\*The 'Other' sector includes all municipal, derivative, and preferred equity holdings.



\*Investment Grade securities include all holdings rated BBB and above, including U.S. Treasuries and cash & equivalents.



### Fixed Income Fund Descriptions

- Vanguard Short-Term Inflation Protection:** This fund employs an indexing investment approach designed to track the performance of the Bloomberg Barclays U.S. Treasury Inflation-Protected Securities (TIPS) 0–5 Year Index. The index is a market-capitalization-weighted index that includes all inflation-protected public obligations issued by the U.S. Treasury with remaining maturities of less than five years. The fund attempts to replicate the target index by investing all, or most, of its assets in the securities that make up the index, holding each security in approximately the same proportion as its weighting in the index.
- Prudential Total Return Bond Q:** This fund seeks total return by investing in a diversified portfolio of bonds from multiple fixed income sectors. The Fund may be suited to investors seeking current income and capital appreciation in a diversified core fixed income fund.
- BlackRock Strategic Income Opportunities Fund:** This fund is a flexible core bond alternative that seeks to offer investors attractive income, returns and meaningful portfolio diversification. Under normal market conditions, the portfolio will invest in a combination of fixed income securities, including, but not limited to: high yield securities, international securities, emerging markets debt and mortgages. The fund may engage in short sales (up to 15% of the fund's total assets) for hedging purposes or to enhance total return. The fund may also invest significantly in non-dollar denominated bonds and bonds of emerging market issuers. The duration of this fund can range from negative two to positive seven years.
- Eaton Vance Floating Rate:** This fund invests broadly across the floating-rate loan market, providing diversified exposure to the asset class. Provides exposure to the loan market's many sectors, credit tiers and issuers. A focus on research and diversification help seek lower volatility than the overall market, while containing risk in difficult environments.
- Templeton Global Bond Fund:** The fund uses a value-based approach to identify sources of high current income worldwide through investments in global interest rates, currency and sovereign credits. The fund's core belief is that fundamental country research is the principal driver in identifying imbalances in the sovereign bond environment. The fund's primary focus includes government and government-related issuance with a 25% maximum limit on below investment grade. The fund regularly enters into various currency-related and other transactions involving derivative instruments. The fund has a flexible duration profile. It has ranged from slightly negative to just over six years but has the potential to go longer.

Sources: Vanguard, Prudential, BlackRock, Eaton Vance, Templeton, and Morningstar

**Important Disclosure Information:** Past performance may not be indicative of future results. Account information has been compiled solely by Fiduciary Investment Advisors, LLC, has not been independently verified, and does not reflect the impact of taxes on non-qualified accounts. In preparing this report, Fiduciary Investment Advisors, LLC has relied upon information provided by third party sources. A copy of our current written disclosure statement discussing our advisory services and fees continues to remain available for your review upon request. Historical performance results for investment indices and/or categories have been provided for general comparison purposes only, and generally do not reflect the deduction of transaction and/or custodial charges, the deduction of an investment management fee, nor the impact of taxes, the incurrence of which would have the effect of decreasing historical performance results. It should not be assumed that your account holdings correspond directly to any comparative indices.

# Total Plan Performance Summary - Wilton, Town of

As of December 31, 2018

## Account Reconciliation

	QTR	YTD	Since Inception	Inception Date
<b>OPEB Plan</b>				<b>05/01/2012</b>
Beginning Market Value	8,008,808	7,903,840	2,652,035	
Net Contributions	49,027	-57,457	3,114,428	
Total Gain/Loss	-597,532	-386,081	1,693,840	
Ending Market Value	7,460,303	7,460,303	7,460,303	

## Wilton OPEB Plan Benchmark Composition

Allocation Mandate	Weight (%)
90 Day U.S. Treasury Bill	5.0
Blmbg. Barc. U.S. Aggregate Index	35.0
Bloomberg Barclays U.S. TIPS Index	5.0
CRSP U.S. Total Market TR Index	30.0
MSCI AC World ex USA (Net)	10.0
FTSE Global ex USA All Cap Index (Net)	10.0
Vanguard Spliced REIT Index	5.0

## Trailing Performance Summary

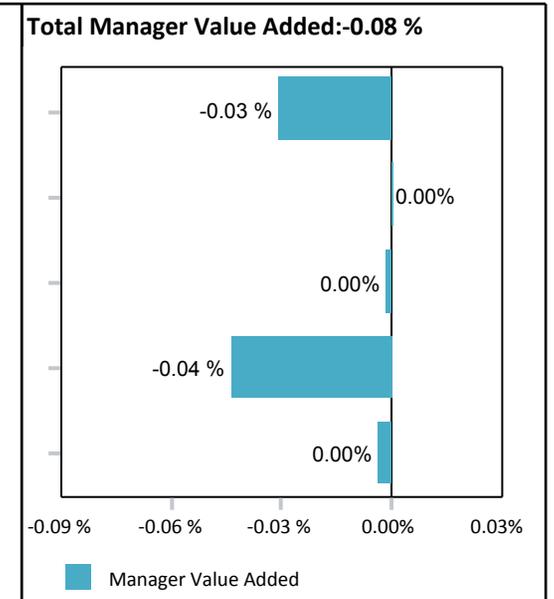
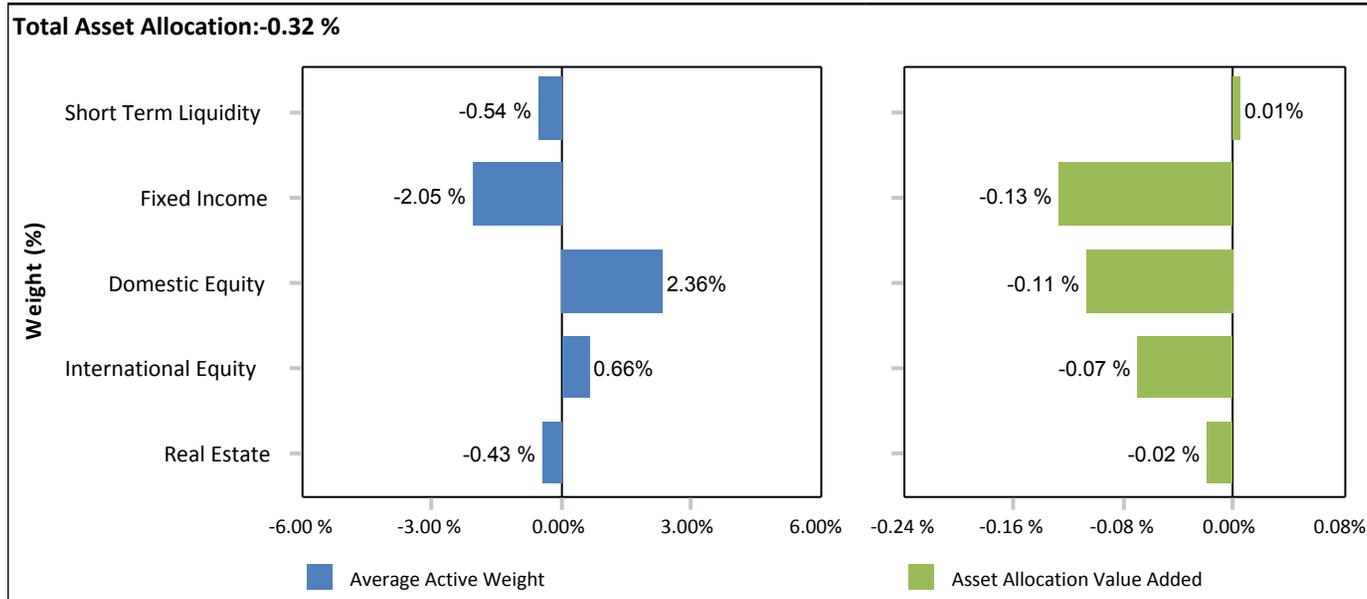
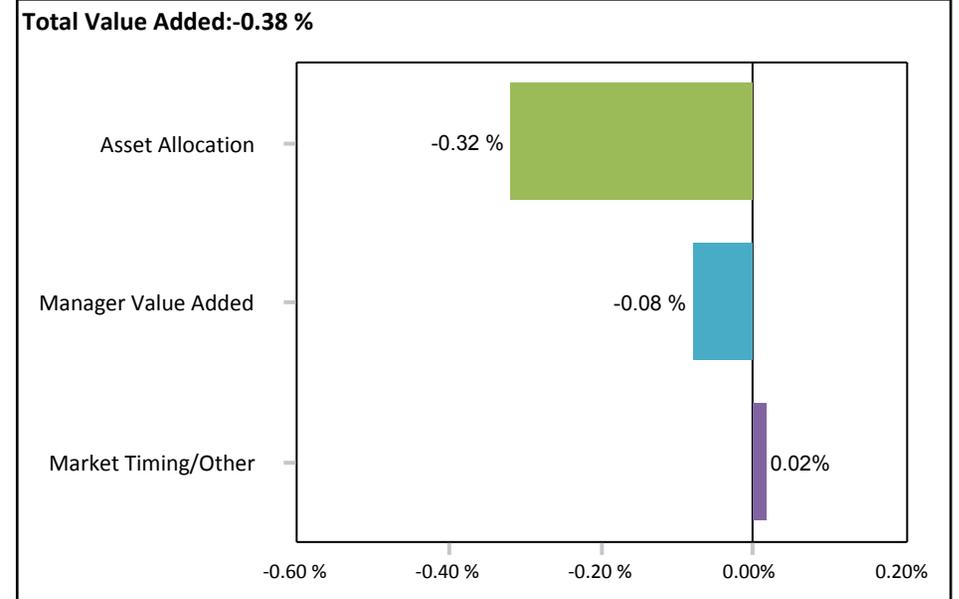
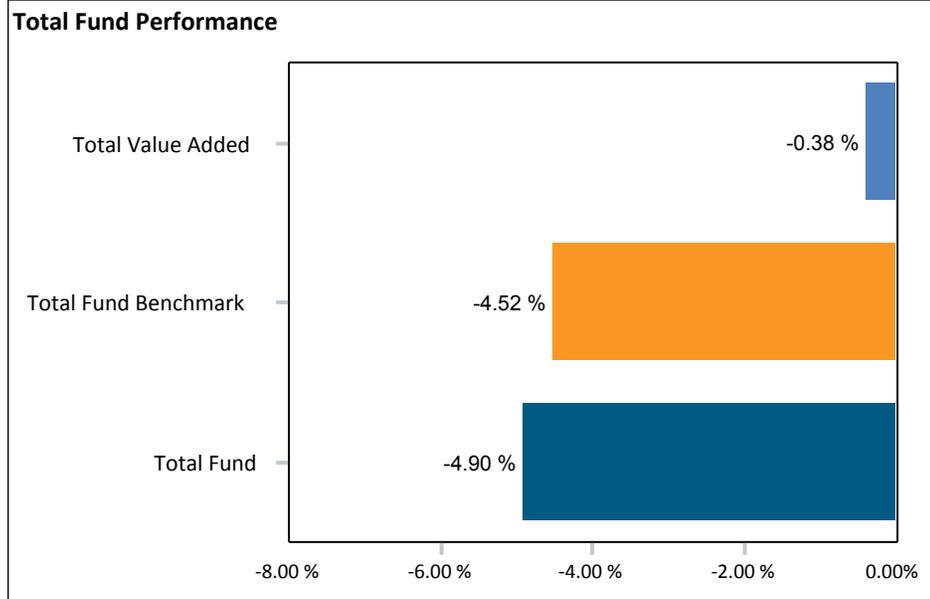
	QTR	Jul-2018 To Dec-2018	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>OPEB Plan</b>	<b>-7.4</b>	<b>-5.2</b>	<b>-4.9</b>	<b>5.2</b>	<b>4.3</b>	<b>N/A</b>	<b>N/A</b>	<b>5.7</b>	<b>05/01/2012</b>
Wilton OPEB Plan Benchmark	-6.4	-4.3	-4.5	4.8	4.0	6.0	N/A	5.3	
Difference	-1.0	-0.9	-0.4	0.4	0.3	N/A	N/A	0.4	

## Calendar Year Performance Summary

	2017	2016	2015	2014	2013	2012	2011	2010
<b>OPEB Plan</b>	<b>14.3</b>	<b>7.2</b>	<b>-0.5</b>	<b>6.4</b>	<b>11.9</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Wilton OPEB Plan Benchmark	13.1	6.5	-0.3	6.3	11.5	10.9	1.4	N/A
Difference	1.2	0.7	-0.2	0.1	0.4	N/A	N/A	N/A

# Total Fund Attribution

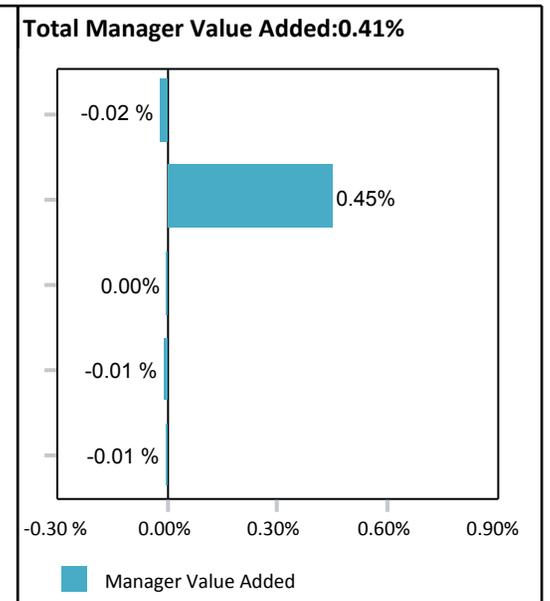
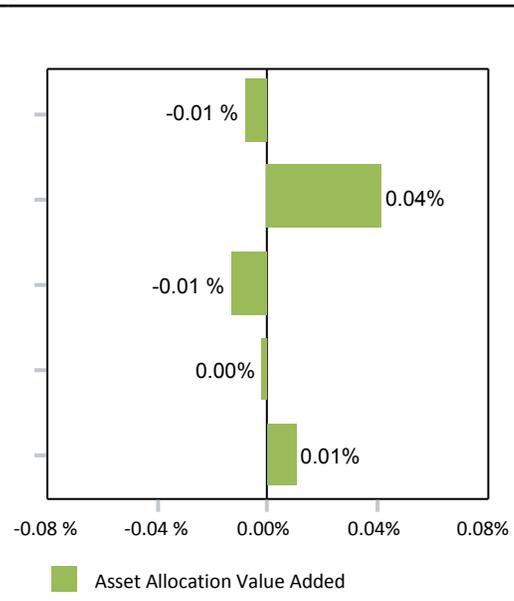
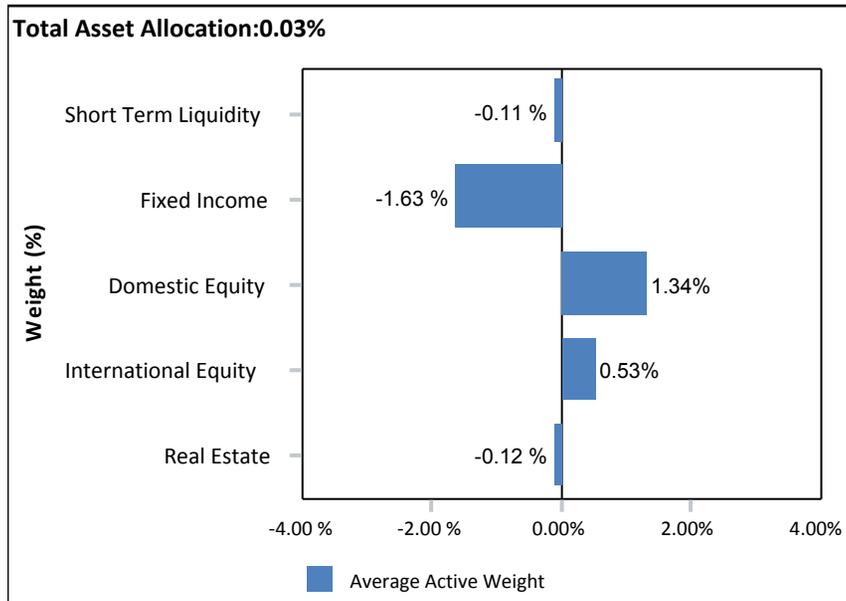
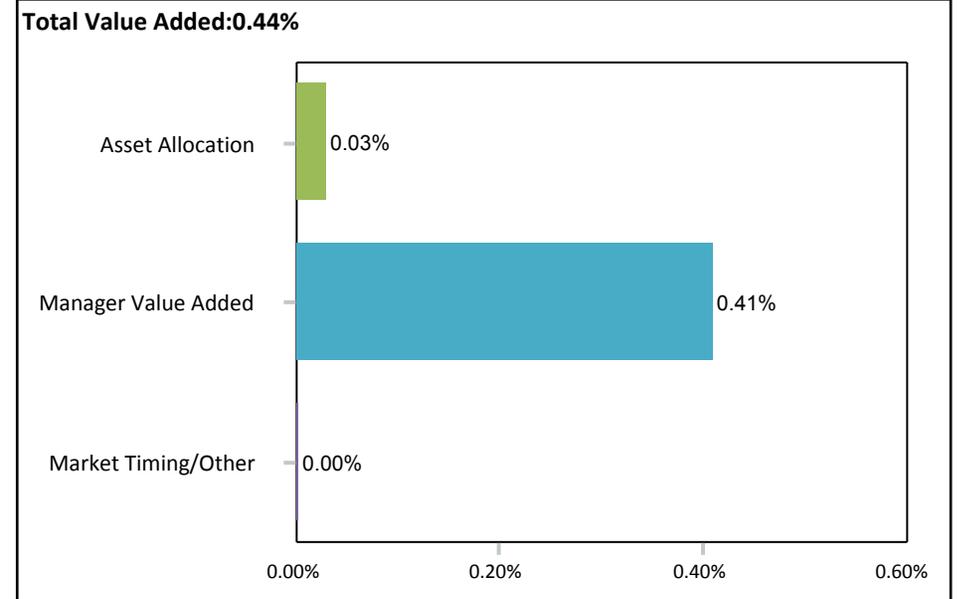
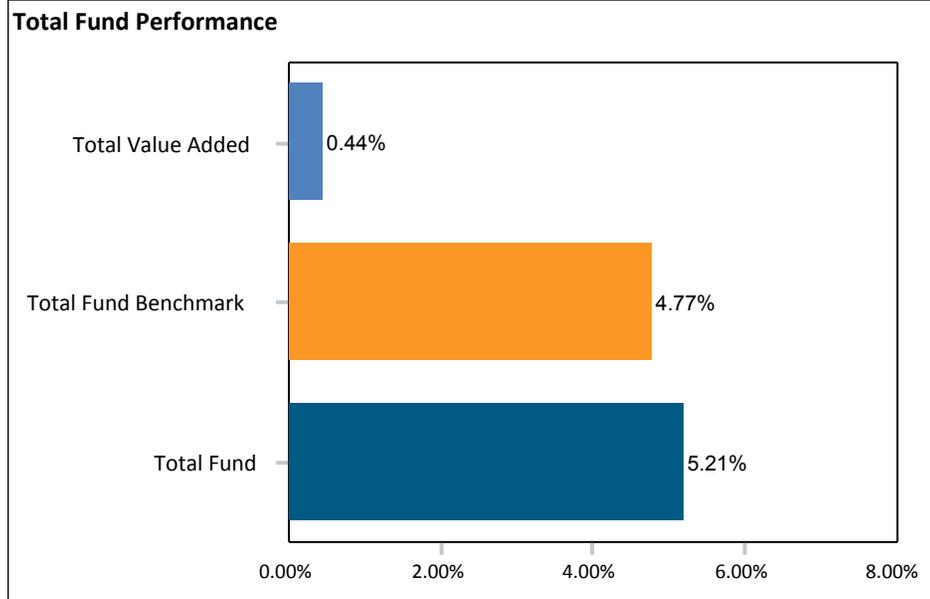
OPEB Plan vs. Wilton OPEB att  
1 Year Ending December 31, 2018



Returns are net of fees unless otherwise noted.

# Total Fund Attribution

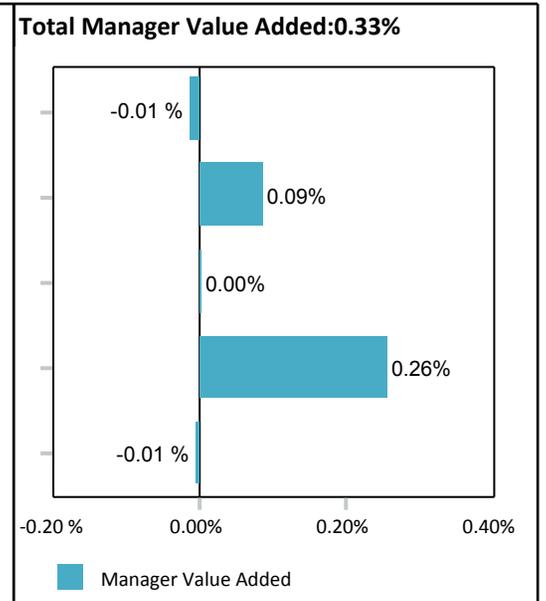
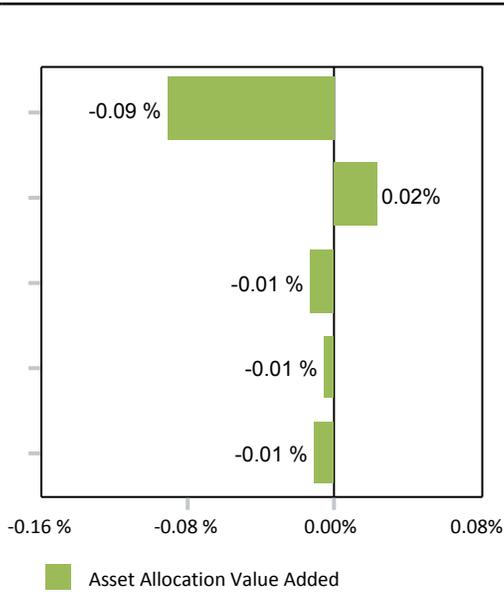
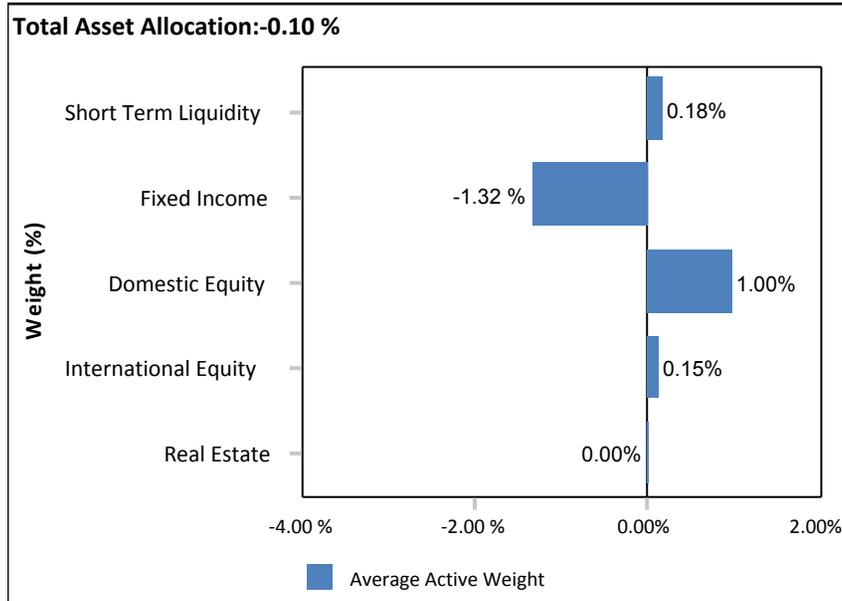
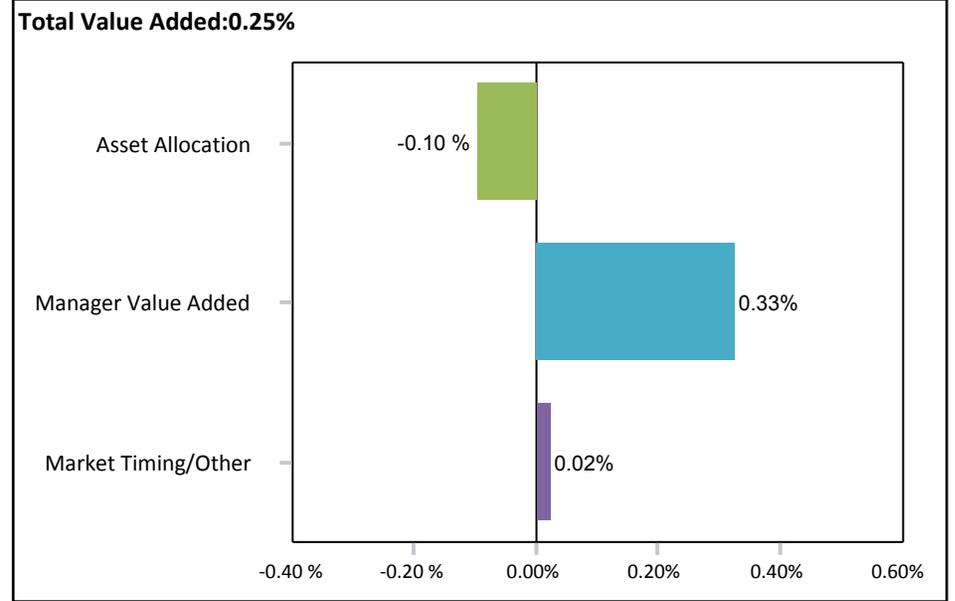
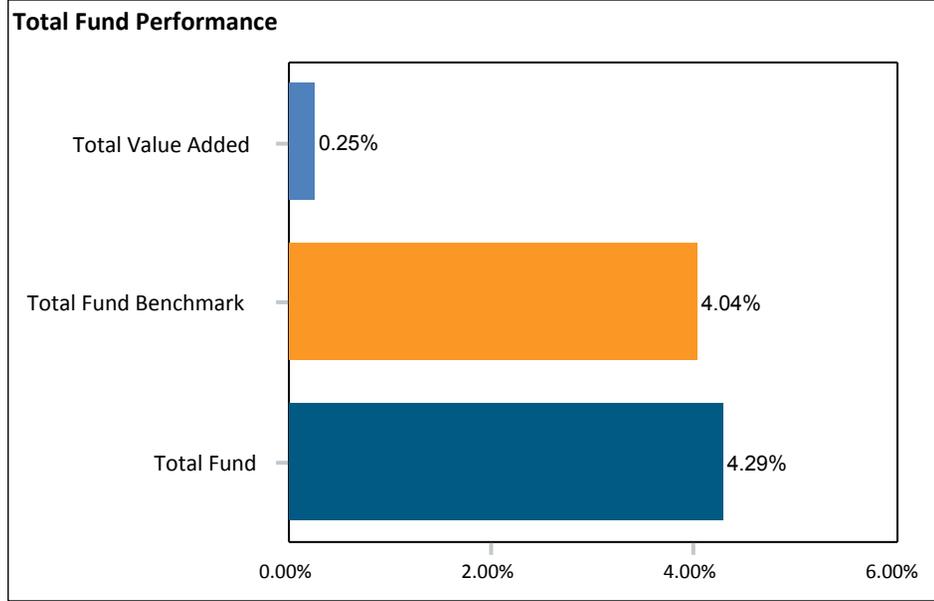
OPEB Plan vs. Wilton OPEB att  
3 Years Ending December 31, 2018



Returns are net of fees unless otherwise noted.

# Total Fund Attribution

OPEB Plan vs. Wilton OPEB att  
5 Years Ending December 31, 2018



Returns are net of fees unless otherwise noted.

## Benchmark Composition

### OPEB Plan

As of December 31, 2018

Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
Dec-2015		May-2012	
90 Day U.S. Treasury Bill	5.0	90 Day U.S. Treasury Bill	15.0
Blmbg. Barc. U.S. Aggregate Index	35.0	Blmbg. Barc. U.S. Aggregate Index	25.0
Bloomberg Barclays U.S. TIPS Index	5.0	Bloomberg Barclays U.S. TIPS Index	5.0
CRSP U.S. Total Market TR Index	30.0	MSCI US Broad Market Index	30.0
MSCI AC World ex USA (Net)	10.0	MSCI AC World ex USA (Net)	20.0
FTSE Global ex USA All Cap Index (Net)	10.0	MSCI U.S. REIT Index	5.0
Vanguard Spliced REIT Index	5.0		
Aug-2014		Feb-2011	
90 Day U.S. Treasury Bill	5.0	Blmbg. Barc. U.S. Aggregate Float Adjusted	45.0
Blmbg. Barc. U.S. Aggregate Index	20.0	MSCI US Broad Market Index	30.0
Blmbg. Barc. U.S. Credit 5-10 Year Index	15.0	FTSE All World - Ex US	20.0
Bloomberg Barclays U.S. TIPS Index	5.0	MSCI U.S. REIT Index	5.0
CRSP U.S. Total Market TR Index	30.0		
MSCI AC World ex USA (Net)	10.0	Nov-2010	
FTSE Global ex USA All Cap Index (Net)	10.0	Blmbg. Barc. U.S. Aggregate Float Adjusted	40.0
MSCI U.S. REIT Index	5.0	MSCI US Broad Market Index	32.0
		FTSE All World - Ex US	20.0
Jun-2013		Blmbg. Barc. 20-30 Year Treasury Strips	5.0
90 Day U.S. Treasury Bill	15.0	MSCI U.S. REIT Index	3.0
Blmbg. Barc. U.S. Aggregate Index	25.0		
Bloomberg Barclays U.S. TIPS Index	5.0	Sep-2010	
CRSP U.S. Total Market TR Index	30.0	Blmbg. Barc. U.S. Aggregate Float Adjusted	40.0
FTSE Global ex USA All Cap Index (Net)	20.0	MSCI US Broad Market Index	33.0
MSCI U.S. REIT Index	5.0	FTSE All World - Ex US	20.0
		MSCI U.S. REIT Index	2.0
		Blmbg. Barc. 20-30 Year Treasury Strips	5.0
		Feb-2010	
		Blmbg. Barc. U.S. Aggregate Float Adjusted	45.0
		MSCI US Broad Market Index	35.0
		FTSE All World - Ex US	20.0

## Manager Performance Overview

### OPEB Plan

As of December 31, 2018

	QTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
<b>Short Term Liquidity</b>						
<b>Wells Fargo Government Money Market Fund I</b>	<b>0.4</b>	<b>1.6</b>	<b>0.9</b>	<b>0.5</b>	<b>0.4</b>	<b>05/01/2012</b>
<i>90 Day U.S. Treasury Bill</i>	<i>0.6</i>	<i>1.9</i>	<i>1.0</i>	<i>0.6</i>	<i>0.5</i>	
<b>Fixed Income</b>						
<b>Fixed Income Composite Benchmark</b>	<b>0.2</b>	<b>0.0</b>	<b>3.3</b>	<b>2.7</b>	<b>3.3</b>	<b>07/01/2010</b>
<i>Fixed Income Composite Benchmark</i>	<i>1.4</i>	<i>-0.1</i>	<i>2.1</i>	<i>2.4</i>	<i>2.6</i>	
<b>Vanguard Short Term Inflation Protection Adm</b>						
<b>Bloomberg Barclays US TIPS 0-5 Year Index</b>	<b>-0.3 (17)</b>	<b>0.5 (3)</b>	<b>1.4 (71)</b>	<b>N/A</b>	<b>0.4 (61)</b>	<b>03/01/2014</b>
<i>Bloomberg Barclays US TIPS 0-5 Year Index</i>	<i>-0.2</i>	<i>0.6</i>	<i>1.4</i>	<i>0.6</i>	<i>0.5</i>	
IM U.S. TIPS (MF) Median	-0.8	-1.6	1.7	0.9	0.6	
<b>PGIM Total Return Bond R6</b>						
<b>Blmbg. Barc. U.S. Aggregate Index</b>	<b>1.4 (18)</b>	<b>-0.6 (38)</b>	<b>3.6 (12)</b>	<b>N/A</b>	<b>3.3 (11)</b>	<b>12/01/2015</b>
<i>Blmbg. Barc. U.S. Aggregate Index</i>	<i>1.6</i>	<i>0.0</i>	<i>2.1</i>	<i>2.5</i>	<i>1.9</i>	
IM U.S. Broad Market Core+ Fixed Income (MF) Median	0.6	-0.9	2.6	2.4	2.2	
<b>Blackrock Strategic Income Opportunities Fund I</b>						
<b>Blmbg. Barc. U.S. Aggregate Index</b>	<b>-0.4 (24)</b>	<b>-0.5 (36)</b>	<b>2.7 (58)</b>	<b>N/A</b>	<b>2.1 (31)</b>	<b>03/01/2014</b>
<i>Blmbg. Barc. U.S. Aggregate Index</i>	<i>1.6</i>	<i>0.0</i>	<i>2.1</i>	<i>2.5</i>	<i>2.2</i>	
<i>Libor (3 month)</i>	<i>0.6</i>	<i>2.1</i>	<i>1.3</i>	<i>0.9</i>	<i>0.9</i>	
IM Alternative Credit Focus (MF) Median	-1.7	-1.6	3.1	1.7	1.5	
<b>Eaton Vance Floating Rate</b>						
<b>S&amp;P/LSTA Leveraged Loan Index</b>	<b>-3.3 (29)</b>	<b>0.8 (8)</b>	<b>5.4 (9)</b>	<b>N/A</b>	<b>3.0 (8)</b>	<b>03/01/2014</b>
<i>S&amp;P/LSTA Leveraged Loan Index</i>	<i>-3.5</i>	<i>0.4</i>	<i>4.8</i>	<i>3.1</i>	<i>3.0</i>	
IM U.S. Bank Loans (MF) Median	-3.6	-0.3	4.1	2.3	2.2	
<b>Templeton Global Bond R6</b>						
<b>FTSE World Government Bond Index</b>	<b>1.7 (10)</b>	<b>1.5 (7)</b>	<b>3.6 (22)</b>	<b>N/A</b>	<b>1.9 (26)</b>	<b>03/01/2014</b>
<i>FTSE World Government Bond Index</i>	<i>1.8</i>	<i>-0.8</i>	<i>2.7</i>	<i>0.8</i>	<i>0.2</i>	
IM Global Fixed Income (MF) Median	0.3	-1.8	2.7	1.3	0.9	

Returns for periods less than one year are not annualized. Returns are net of fees unless otherwise noted.

## Manager Performance Overview

### OPEB Plan

As of December 31, 2018

	QTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
<b>Domestic Equity</b>	<b>-14.3</b>	<b>-5.2</b>	<b>9.0</b>	<b>7.9</b>	<b>13.2</b>	<b>07/01/2010</b>
<i>CRSP U.S. Total Market TR Index</i>	-14.3	-5.2	9.0	7.9	13.2	
<b>Vanguard Total Stock Mkt Idx Adm</b>	<b>-14.3 (47)</b>	<b>-5.2 (27)</b>	<b>9.0 (11)</b>	<b>7.9 (12)</b>	<b>12.4 (13)</b>	<b>01/01/2012</b>
<i>CRSP US Total Market Spliced Index</i>	-14.3	-5.2	9.0	7.9	12.5	
IM U.S. Multi-Cap Core Equity (MF) Median	-14.4	-7.2	7.0	5.8	10.9	
<b>International Equity</b>	<b>-12.1</b>	<b>-14.7</b>	<b>4.4</b>	<b>2.1</b>	<b>6.3</b>	<b>07/01/2010</b>
<i>OPEB International Equity Composite Benchmark</i>	-11.6	-14.4	4.5	0.9	5.1	
<b>Vanguard Total International Stock</b>	<b>-11.7 (8)</b>	<b>-14.4 (42)</b>	<b>4.5 (4)</b>	<b>0.9 (1)</b>	<b>4.0 (43)</b>	<b>05/01/2012</b>
<i>FTSE Global All Cap ex US Spliced Index</i>	-11.8	-14.6	4.4	1.0	4.0	
IM International Large Cap Core Equity (MF) Median	-13.7	-14.9	1.6	-0.5	3.8	
<b>Europacific Growth R6</b>	<b>-12.6 (28)</b>	<b>-14.9 (51)</b>	<b>4.1 (5)</b>	<b>N/A</b>	<b>1.6 (1)</b>	<b>09/01/2014</b>
<i>MSCI AC World ex USA (Net)</i>	-11.5	-14.2	4.5	0.7	-0.4	
IM International Large Cap Core Equity (MF) Median	-13.7	-14.9	1.6	-0.5	-1.2	
<b>Real Estate</b>	<b>-6.4</b>	<b>-5.9</b>	<b>2.3</b>	<b>7.4</b>	<b>9.6</b>	<b>07/01/2010</b>
<i>Vanguard Spliced REIT Index</i>	-6.4	-5.9	2.4	7.5	10.2	
<b>Vanguard REIT Index Adm</b>	<b>-6.4 (32)</b>	<b>-5.9 (55)</b>	<b>2.3 (40)</b>	<b>7.4 (35)</b>	<b>8.1 (25)</b>	<b>01/01/2012</b>
<i>Vanguard Spliced REIT Index</i>	-6.4	-5.9	2.4	7.5	8.2	
IM Real Estate Sector (MF) Median	-6.8	-5.7	1.9	6.9	7.5	

The inception date expressed on the Manager Performance Overview page(s) represents the first day of the first full month following the purchase of the investment. Performance figures shown at the fund level begin on this inception date. Inception dates for asset class composites reflect the start date at which these returns could be calculated using historical and existing system capabilities and may vary from the inception dates of underlying component strategies. Composite performance includes all funds held in the composite since inception.

Returns are net of fees unless otherwise stated. Mutual fund performance stated above may differ slightly from the current share class's historical performance due to share class exchanges.

Returns for periods less than one year are not annualized. Returns are net of fees unless otherwise noted.

## Manager Commentary

OPEB Plan

As of December 31, 2018

Manager	Manager Status
<b>Fixed Income</b>	
Vanguard Short-Term Inflation Protection Adm (VTAPX)	Maintain
PGIM Total Return Bond R6 (PTRQX)	Maintain
BlackRock Strategic Income Opportunities I (BSIIX)	Maintain
Eaton Vance Floating Rate Fund I (EIBLX)	Maintain
Templeton Global Bond R6 (TGBAX)	Maintain
<b>Domestic Equity</b>	
Vanguard Total Stock Market Index Adm (VTSAX)	Maintain
<b>International Equity</b>	
Vanguard Total International Stock Index Adm (VTIAX)	Maintain
American Funds EuroPacific Growth Fund R6 (RERGX)	Maintain
<b>Real Estate</b>	
Vanguard REIT Index Fund Adm (VGSLX)	Maintain

## Manager Gain/Loss Summary

### OPEB Plan

	Market Value As of 10/01/2018	Net Flows	Return On Investment	Market Value As of 12/31/2018
<u>Short Term Liquidity</u>				
Wells Fargo Government Money Market Fund I	282,879	45,434	1,241	329,555
Webster Cash	83,375	3,593	56	87,024
<b>Total Short Term Liquidity</b>	<b>366,254</b>	<b>49,027</b>	<b>1,297</b>	<b>416,578</b>
<u>Fixed Income</u>				
Vanguard Short Term Inflation Protection Adm	373,077	-	-942	372,135
PGIM Total Return Bond R6	1,099,315	-	14,994	1,114,309
Blackrock Strategic Income Opportunities Fund I	749,984	-	-3,308	746,676
Eaton Vance Floating Rate	385,828	-	-12,638	373,190
Templeton Global Bond R6	363,844	-	6,364	370,208
<b>Total Fixed Income</b>	<b>2,972,048</b>	<b>-</b>	<b>4,470</b>	<b>2,976,518</b>
<u>Domestic Equity</u>				
Vanguard Total Stock Mkt Idx Adm	2,699,245	-	-385,038	2,314,207
<b>Total Domestic Equity</b>	<b>2,699,245</b>	<b>-</b>	<b>-385,038</b>	<b>2,314,207</b>
<u>International Equity</u>				
Vanguard Total International Stock	798,573	-	-93,286	705,288
Europacific Growth R6	803,654	-	-101,209	702,444
<b>Total International Equity</b>	<b>1,602,227</b>	<b>-</b>	<b>-194,495</b>	<b>1,407,732</b>
<u>Real Estate</u>				
Vanguard REIT Index Adm	369,033	-	-23,767	345,267
<b>Total Real Estate</b>	<b>369,033</b>	<b>-</b>	<b>-23,767</b>	<b>345,267</b>
<b>Total OPEB Plan</b>	<b>8,008,808</b>	<b>49,027</b>	<b>-597,532</b>	<b>7,460,303</b>

## Market Values & Flow Summary

### OPEB Plan

Since Inception Ending December 31, 2018

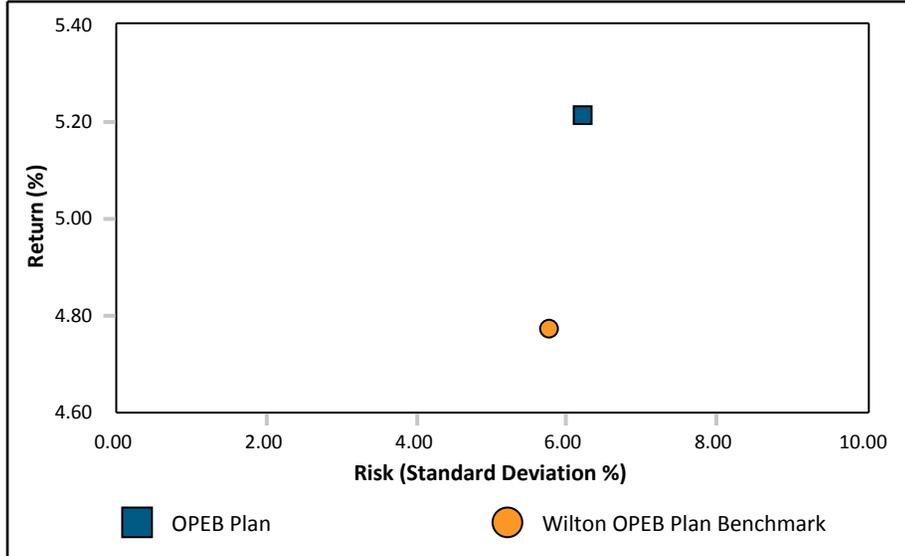
Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	% Return
Jun-2012	-	-	-	2,584,821	N/A
Sep-2012	2,584,821	52,505	108,286	2,745,613	4.4
Dec-2012	2,745,613	-28,346	48,881	2,766,147	1.8
Mar-2013	2,766,147	-42,296	122,759	2,846,610	4.5
Jun-2013	2,846,610	-112,997	-27,166	2,706,447	-0.8
Sep-2013	2,706,447	1,184,916	132,639	4,024,003	4.4
Dec-2013	4,024,003	48,525	138,167	4,210,695	3.4
Mar-2014	4,210,695	-38,329	92,501	4,264,867	2.1
Jun-2014	4,264,867	-7,625	143,450	4,400,692	3.4
Sep-2014	4,400,692	646,970	-41,679	5,005,983	-0.9
Dec-2014	5,005,983	-78,067	88,383	5,016,299	1.8
Mar-2015	5,016,299	-59,602	117,531	5,074,228	2.3
Jun-2015	5,074,228	-101,963	-26,965	4,945,300	-0.6
Sep-2015	4,945,300	541,244	-248,601	5,237,943	-4.6
Dec-2015	5,237,943	46,709	136,727	5,421,380	2.6
Mar-2016	5,421,380	-2,820	59,982	5,478,542	1.1
Jun-2016	5,478,542	15,860	109,680	5,604,083	2.0
Sep-2016	5,604,083	710,909	187,934	6,502,926	3.2
Dec-2016	6,502,926	106,571	41,084	6,650,581	0.6
Mar-2017	6,650,581	54,494	282,665	6,987,741	4.2
Jun-2017	6,987,741	-394,765	188,597	6,781,573	2.7
Sep-2017	6,781,573	138,672	229,640	7,149,885	3.4
Dec-2017	7,149,885	516,120	237,835	7,903,840	3.3
Mar-2018	7,903,840	-225,757	-39,835	7,638,248	-0.5
Jun-2018	7,638,248	71,314	59,156	7,768,718	0.8
Sep-2018	7,768,718	47,959	192,131	8,008,808	2.5
Dec-2018	8,008,808	49,027	-597,532	7,460,303	-7.4

# Town of Wilton - Pension

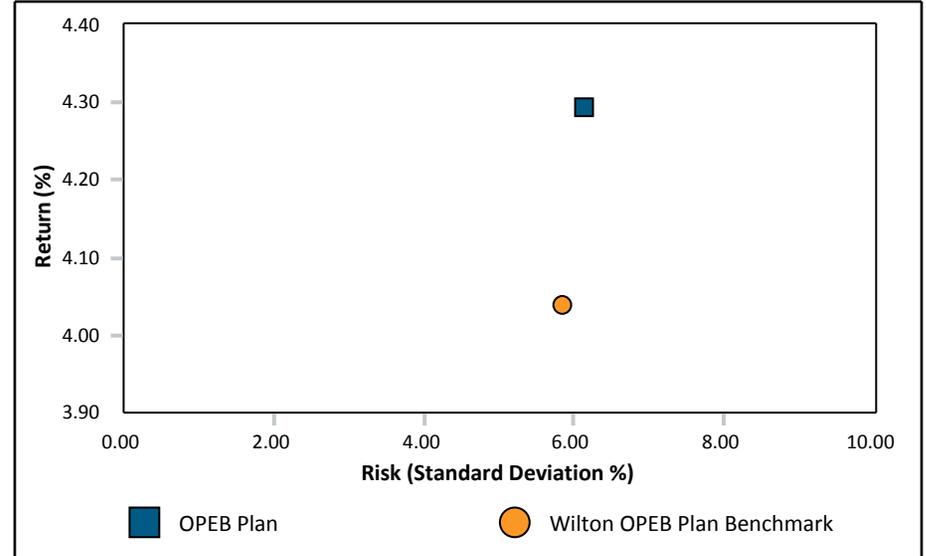
## Risk vs. Return

As of December 31, 2018

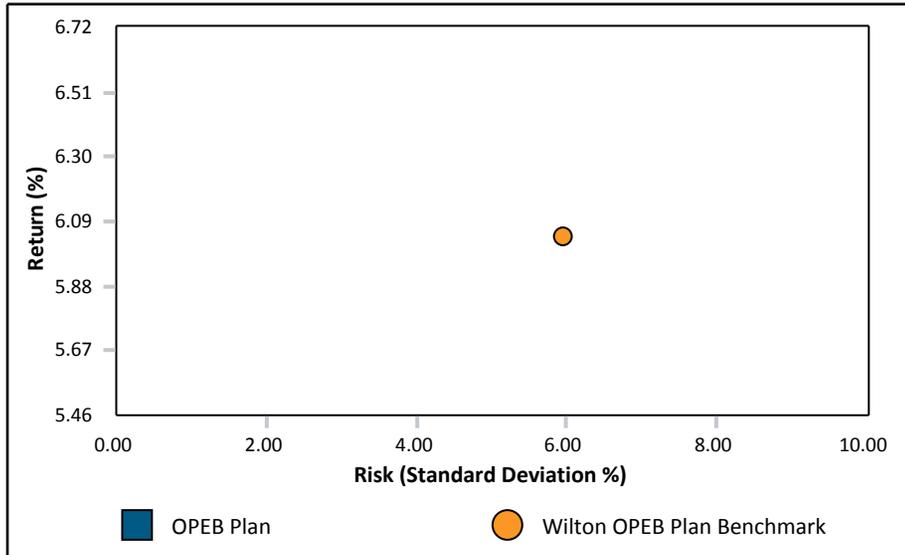
### 3 Year Risk and Return



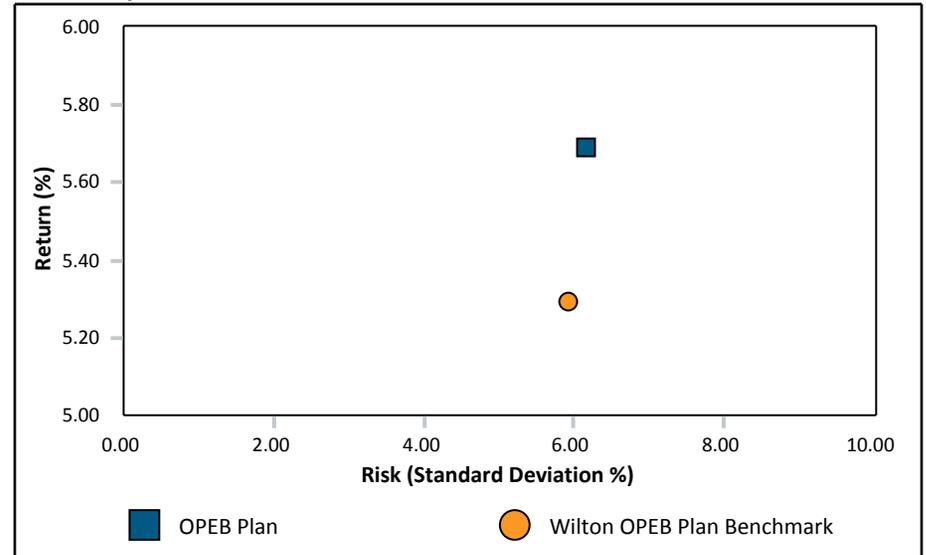
### 5 Year Risk and Return



### 7 Year Risk and Return



### Since Inception Risk and Return



# Town of Wilton - Pension

## MPT Statistical Data

As of December 31, 2018

### 3 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
OPEB Plan	5.21	6.23	4.34	0.69	0.43	1.05	0.98	1.07	0.13
Wilton OPEB Plan Benchmark	4.77	5.77	4.01	0.66	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.99	0.21	0.01	N/A	-0.66	5.81	0.03	-0.01	1.02

### 5 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
OPEB Plan	4.29	6.15	4.14	0.61	0.29	0.92	0.98	1.04	0.10
Wilton OPEB Plan Benchmark	4.04	5.87	3.93	0.60	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.61	0.21	0.01	N/A	-0.60	5.89	0.01	0.00	0.62

### 7 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
OPEB Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wilton OPEB Plan Benchmark	6.04	5.96	3.79	0.94	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.45	0.19	0.01	N/A	-0.94	5.99	0.02	0.00	0.48

### Since Inception Historical MPT Statistics

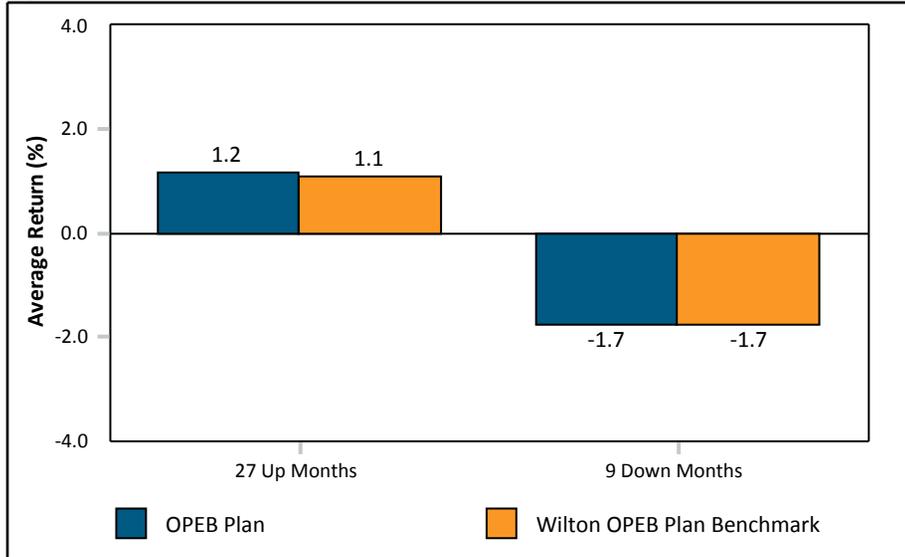
	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha	Inception Date
OPEB Plan	5.69	6.18	4.05	0.85	0.45	0.87	0.98	1.03	0.23	05/01/2012
Wilton OPEB Plan Benchmark	5.29	5.93	3.88	0.82	N/A	0.00	1.00	1.00	0.00	05/01/2012
90 Day U.S. Treasury Bill	0.47	0.20	0.01	N/A	-0.82	5.96	0.01	0.00	0.49	05/01/2012

# Town of Wilton - Pension

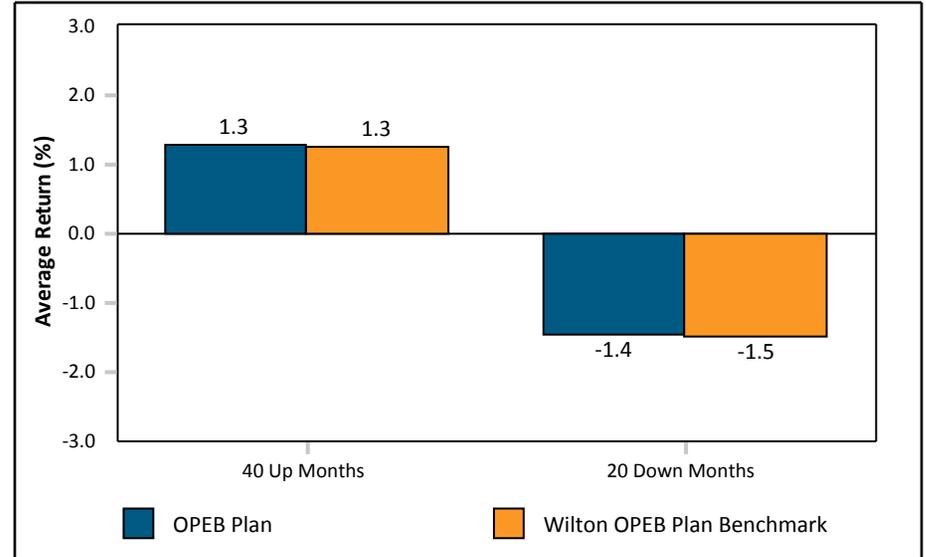
## Market Capture Report

As of December 31, 2018

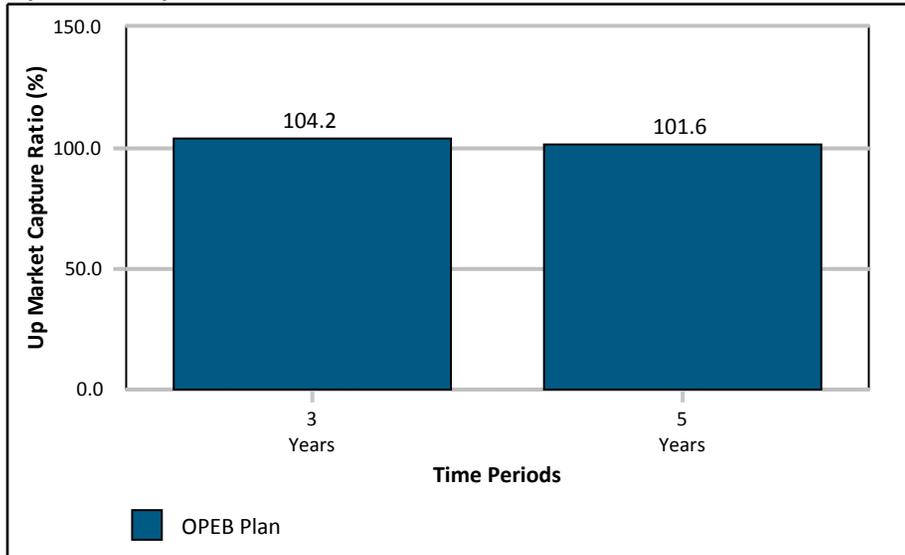
Up/Down Markets - 3 Years



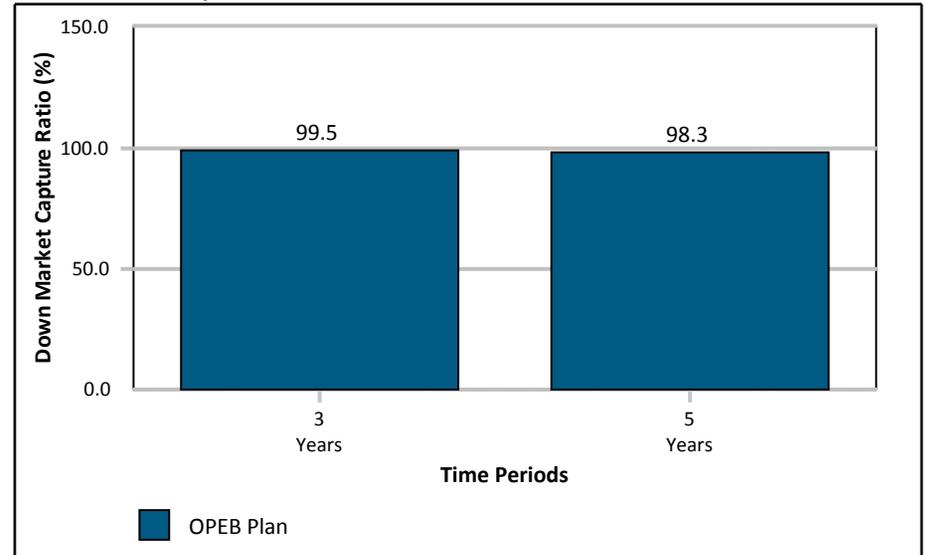
Up/Down Markets - 5 Years



Up Market Capture Ratio



Down Market Capture Ratio



# Estimated Fee Analysis

As of December 31, 2018

MANAGER	TARGET ALLOCATION	FEE SCHEDULE
Vanguard Short Term Inflation Protection	5.0%	0.06%
BlackRock Strategic Income Opportunities Fund I	10.0%	0.90%
PGIM Total Return Bond R6	15.0%	0.41%
Eaton Vance Floating Rate Fund	5.0%	0.79%
Templeton Global Bond Fund R6	5.0%	0.56%
Vanguard Total Stock Mkt Idx Adm	30.0%	0.04%
Vanguard Total International Stock Adm	10.0%	0.11%
American Funds EuroPacific Growth R6 Fund	10.0%	0.49%
Vanguard Real Estate Index Adm	5.0%	0.12%
<b>Weighted Average Investment Management Fee</b>		<b>0.30%</b>

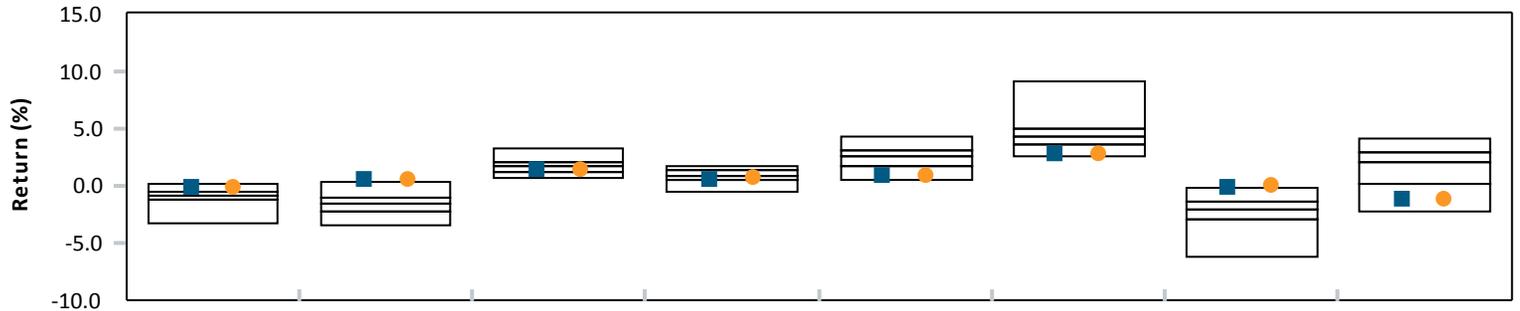
*DISCLOSURE: The figures on this page have been obtained from sources we deem to be reliable. FIA has not independently verified this information.*

# Manager Evaluation

## Vanguard Short-Term Inflation Protection Adm

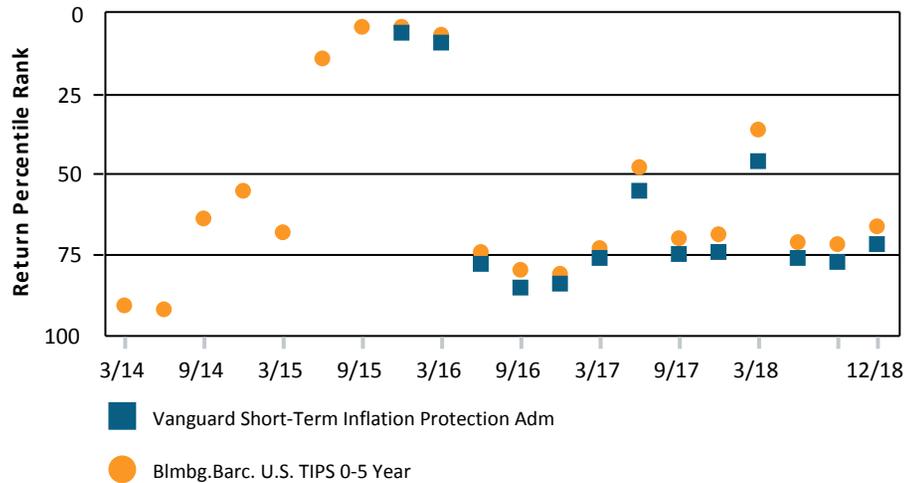
As of December 31, 2018

### Peer Group Analysis vs. IM U.S. TIPS (MF)

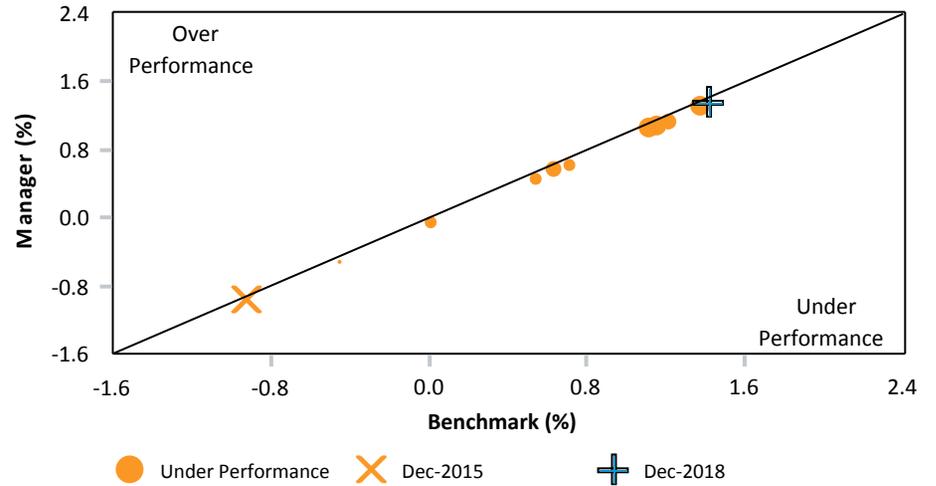


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ Vanguard Short-Term Inflation Protection Adm	-0.3 (17)	0.5 (3)	1.4 (72)	0.5 (73)	0.8 (91)	2.7 (92)	-0.2 (7)	-1.2 (88)
● Blmbg.Bar. U.S. TIPS 0-5 Year	-0.2 (14)	0.6 (1)	1.4 (66)	0.6 (68)	0.9 (90)	2.8 (90)	0.0 (2)	-1.1 (87)
5th Percentile	0.1	0.4	3.2	1.8	4.2	9.1	-0.2	4.1
1st Quartile	-0.5	-1.0	2.0	1.3	3.1	5.0	-1.4	3.0
Median	-0.8	-1.6	1.7	0.9	2.6	4.4	-2.1	2.1
3rd Quartile	-1.2	-2.2	1.3	0.5	1.7	3.6	-2.9	0.1
95th Percentile	-3.3	-3.5	0.7	-0.4	0.6	2.5	-6.1	-2.2

### 3 Year Rolling Percentile Ranking vs. IM U.S. TIPS (MF)



### 3 Year Rolling Under/Over Performance vs. Blmbg.Bar. U.S. TIPS 0-5 Year



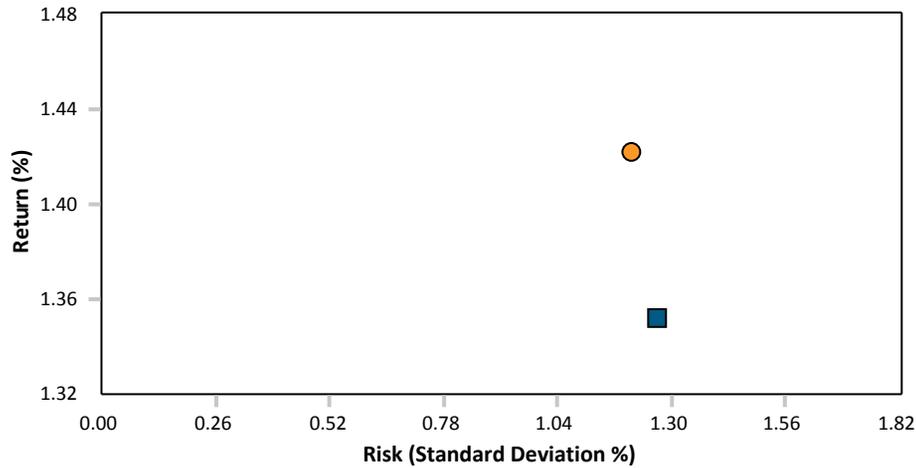
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Short-Term Inflation Protection Adm

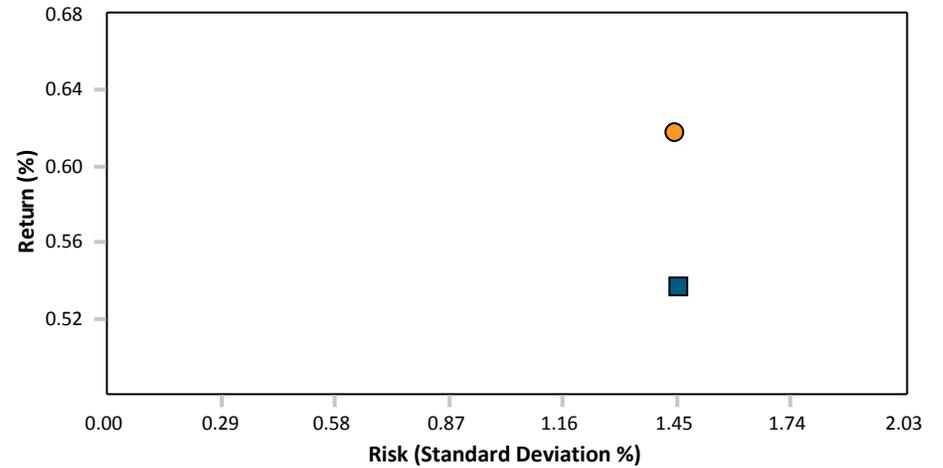
As of December 31, 2018

### 3 Year Risk and Return



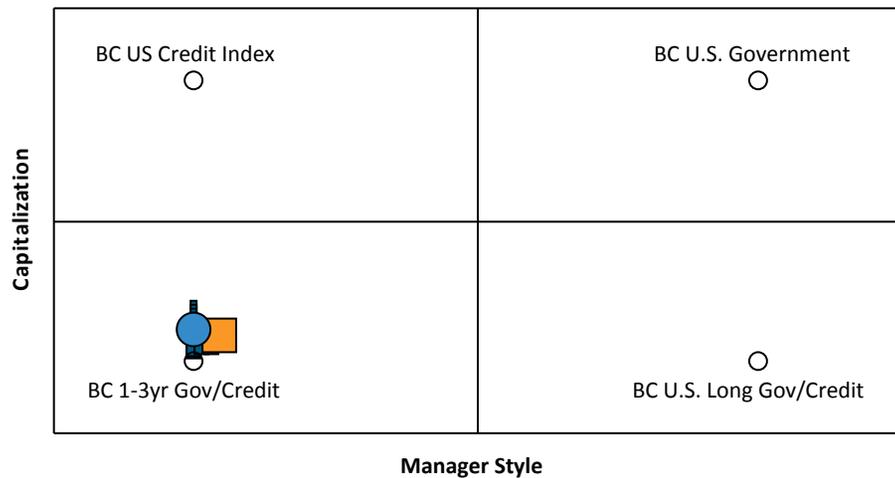
- Vanguard Short-Term Inflation Protection Adm
- Blmbg.Bar. U.S. TIPS 0-5 Year

### 5 Year Risk and Return



- Vanguard Short-Term Inflation Protection Adm
- Blmbg.Bar. U.S. TIPS 0-5 Year

### Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

### MPT Statistics vs. Blmbg.Bar. U.S. TIPS 0-5 Year

	3 Years	5 Years
Return	1.4	0.5
Standard Deviation	1.3	1.5
vs. Blmbg.Bar. U.S. TIPS 0-5 Year		
Alpha	-0.1	-0.1
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	38.9	36.7
Up Market Capture	99.3	97.7
Down Market Capture	105.2	102.0
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.3	0.0

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Short-Term Inflation Protection Adm

As of December 31, 2018

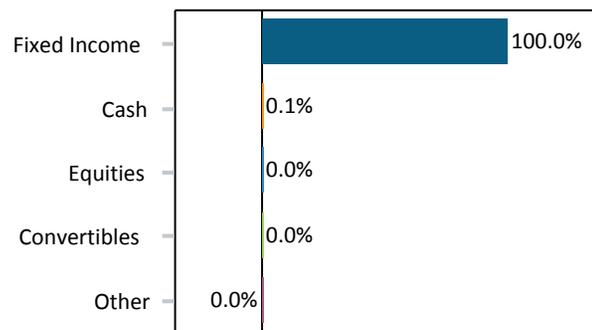
### Mutual Fund Information

Fund Name :	Vanguard Malvern Funds: Vanguard Short-Term Inflation-Protected Securities Index Fund; Admiral Class Shares	Portfolio Assets :	\$27,059 Million
Fund Family :	Vanguard Group Inc	Fund Assets :	\$6,594 Million
Ticker :	VTAPX	Portfolio Manager :	Joshua C. Barrickman
Inception Date :	10/16/2012	PM Tenure :	2012
Portfolio Turnover :	25%		

### Fund Investment Policy

The Fund seeks to track the performance of a benchmark index that measures the investment return of inflation-protected public obligations of the US Treasury with remaining maturities of less than 5 years. The Fund use indexing to track the Bloomberg Barclays US Treasury Inflation-Protected Securities 0-5 Year Index.

### Asset Allocation as of 09/30/18



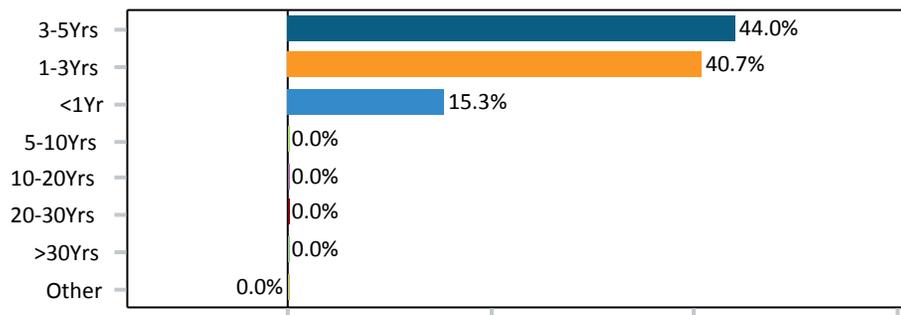
### Top 10 Securities as of 09/30/18

Treasury Notes/Bonds	100.0 %
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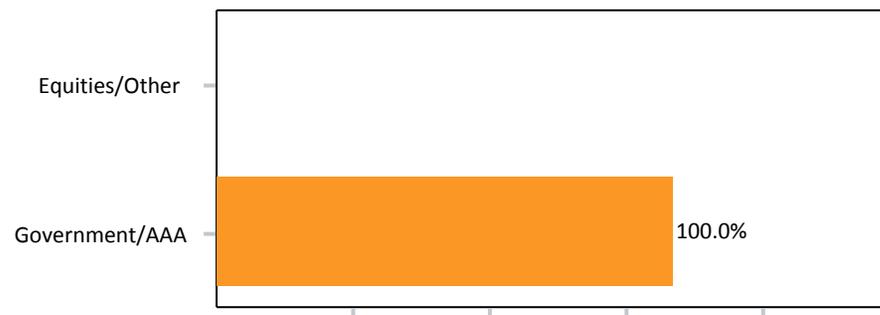
### Fixed Income Characteristics as of 09/30/18

Avg. Coupon	0.49 %
Nominal Maturity	N/A
Effective Maturity	2.71 Years
Duration	2.66 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	AAA

### Maturity Distribution as of 09/30/18



### Quality Allocation as of 09/30/18

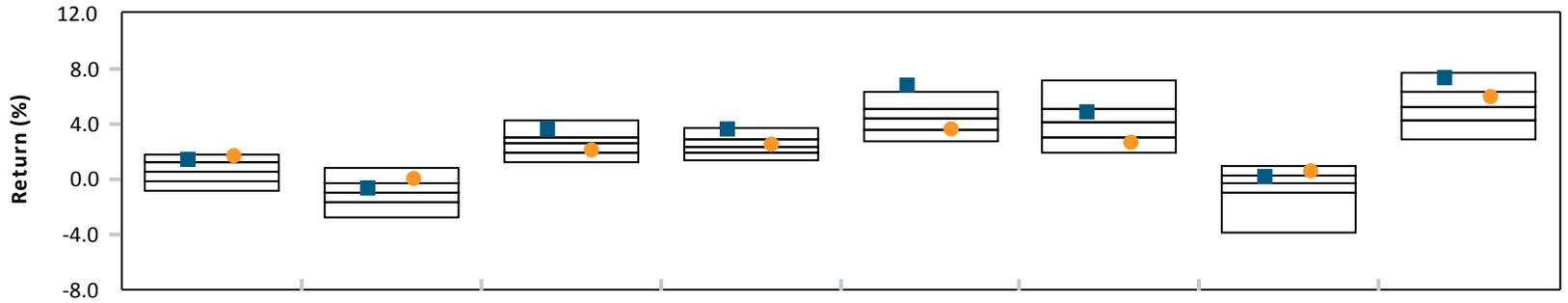


Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

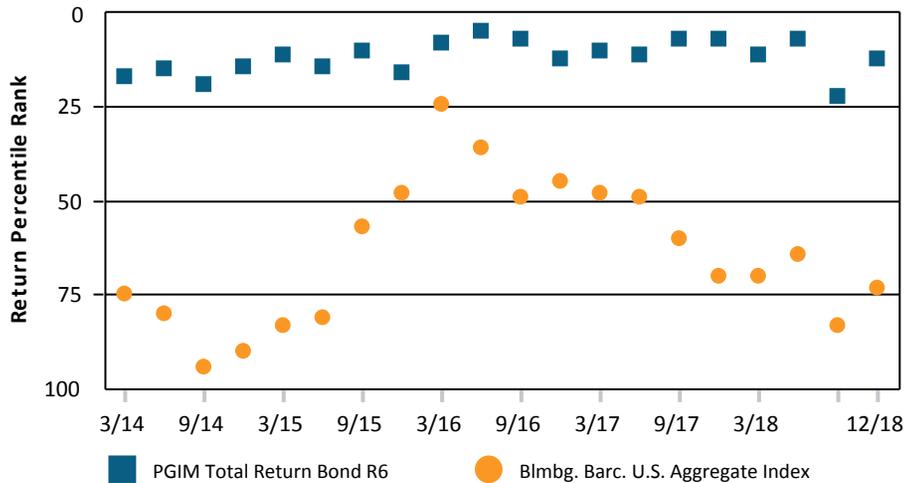
**PGIM Total Return Bond R6**  
As of December 31, 2018

## Peer Group Analysis vs. IM U.S. Broad Market Core+ Fixed Income (MF)

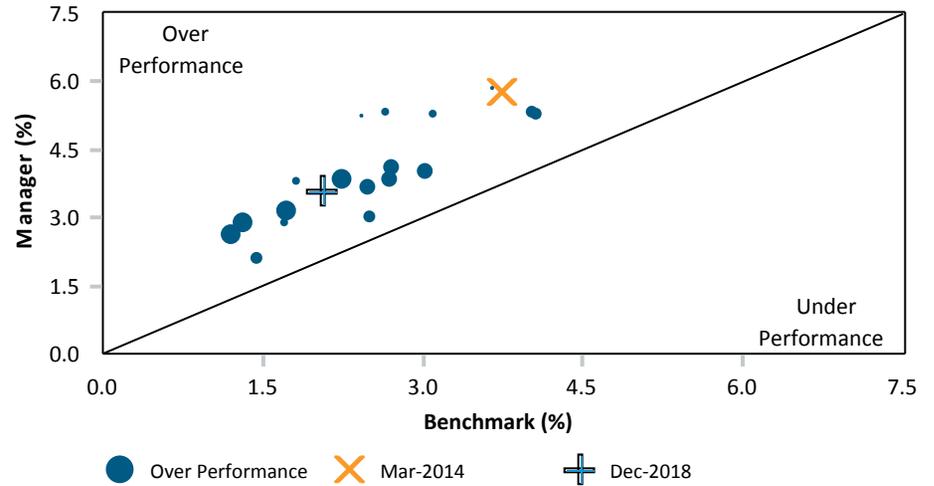


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ PGIM Total Return Bond R6	1.4 (18)	-0.6 (38)	3.6 (12)	3.6 (6)	6.7 (2)	4.8 (31)	0.1 (35)	7.3 (10)
● Blmbg. Barc. U.S. Aggregate Index	1.6 (9)	0.0 (19)	2.1 (73)	2.5 (46)	3.5 (76)	2.6 (83)	0.5 (13)	6.0 (32)
5th Percentile	1.8	0.8	4.3	3.7	6.3	7.2	1.0	7.7
1st Quartile	1.2	-0.3	3.0	2.9	5.1	5.1	0.3	6.3
Median	0.6	-0.9	2.6	2.4	4.5	4.2	-0.3	5.2
3rd Quartile	-0.1	-1.7	2.0	2.0	3.6	3.0	-0.9	4.2
95th Percentile	-0.9	-2.8	1.2	1.3	2.7	1.9	-3.8	2.9

## 3 Year Rolling Percentile Ranking vs. IM U.S. Broad Market Core+ Fixed Income



## 3 Year Rolling Under/Over Performance vs. Blmbg. Barc. U.S. Aggregate Index

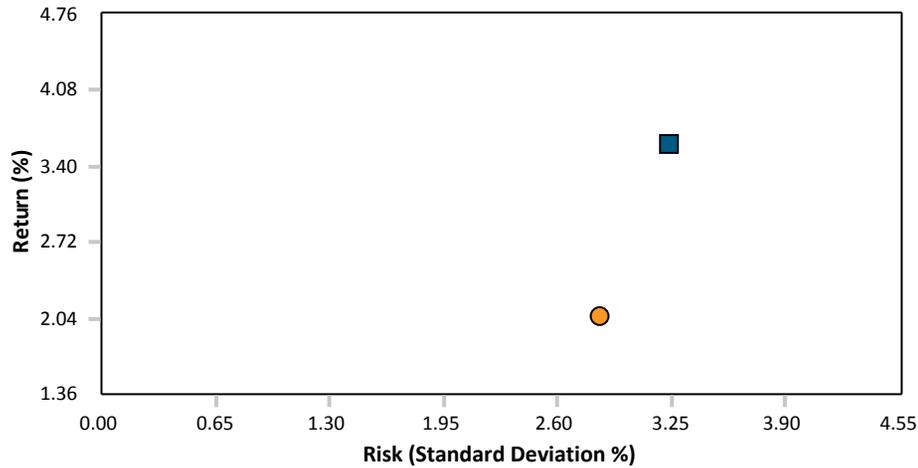


Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

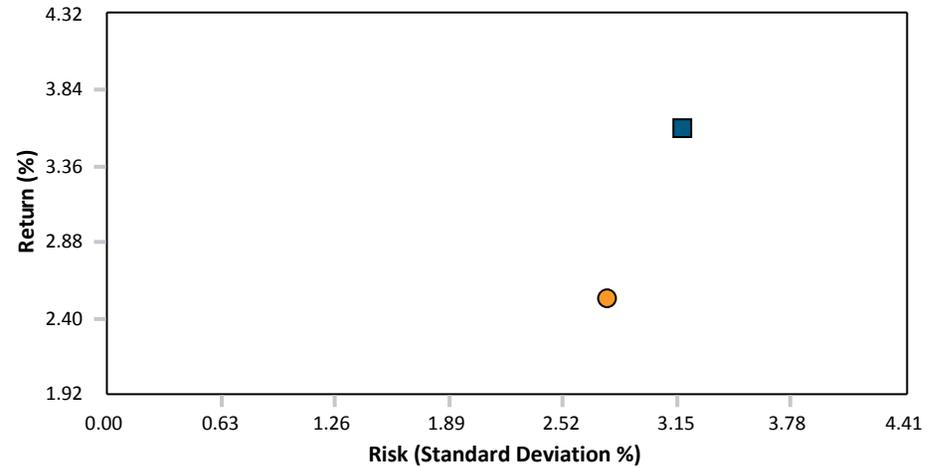
**PGIM Total Return Bond R6**  
As of December 31, 2018

## 3 Year Risk and Return



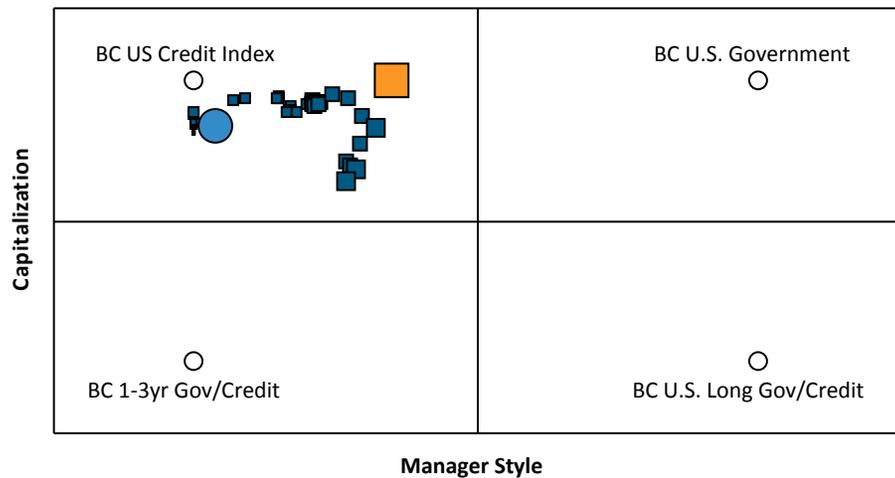
- PGIM Total Return Bond R6
- Blmbg. Barc. U.S. Aggregate Index

## 5 Year Risk and Return



- PGIM Total Return Bond R6
- Blmbg. Barc. U.S. Aggregate Index

## Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

## MPT Statistics vs. Blmbg. Barc. U.S. Aggregate Index

	3 Years	5 Years
Return	3.6	3.6
Standard Deviation	3.2	3.2
vs. Blmbg. Barc. U.S. Aggregate Index		
Alpha	1.3	0.8
Beta	1.1	1.1
R-Squared	0.9	0.9
Consistency	69.4	65.0
Up Market Capture	128.0	122.3
Down Market Capture	95.3	103.3
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.8	0.9

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## PGIM Total Return Bond R6

Report Date December 31, 2018

### Mutual Fund Information

Fund Name :	Prudential Investment Portfolios, Inc 17: PGIM Total Return Bond Fund; Class R6 Shares	Portfolio Assets :	\$35,937 Million
Fund Family :	Prudential Investments LLC	Fund Assets :	\$14,430 Million
Ticker :	PTRQX	Portfolio Manager :	Team Managed
Inception Date :	12/27/2010	PM Tenure :	
Portfolio Turnover :	56%		

### Fund Investment Policy

The Fund seeks total return. The Fund invests at least 80% of its investable assets in bonds. The Fund's investment subadviser allocates assets among different debt securities, including US Government securities, mortgage-related and asset-backed securities, corporate debt securities and foreign securities.

### Asset Allocation as of 09/30/18



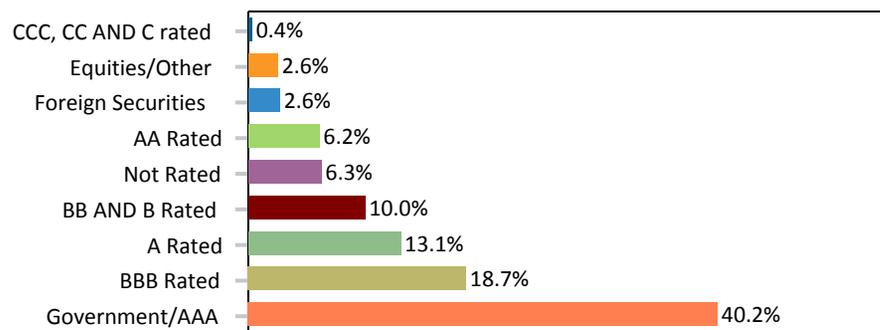
### Top 10 Securities as of 09/30/18

Corporate Notes/Bonds	32.0 %
Asset Backed Securities	31.0 %
US\$ Denominated Fgn. Gvt.	13.6 %
GNMA and Other Mtg Backed	11.2 %
Treasury Notes/Bonds	3.7 %
Fgn. Currency Denominated Bonds	2.6 %
Government Agency Securities	2.3 %

### Equity Characteristics as of 09/30/18

Avg. Coupon	3.26 %
Nominal Maturity	7.40 Years
Effective Maturity	N/A
Duration	6.58 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	A

### Sector Allocation as of 09/30/18



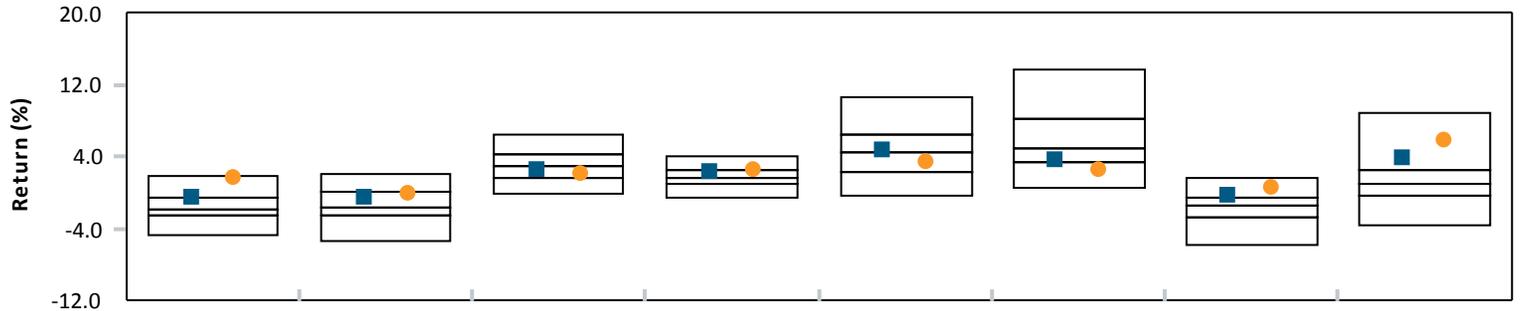
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## BlackRock Strategic Income Opportunities Instl

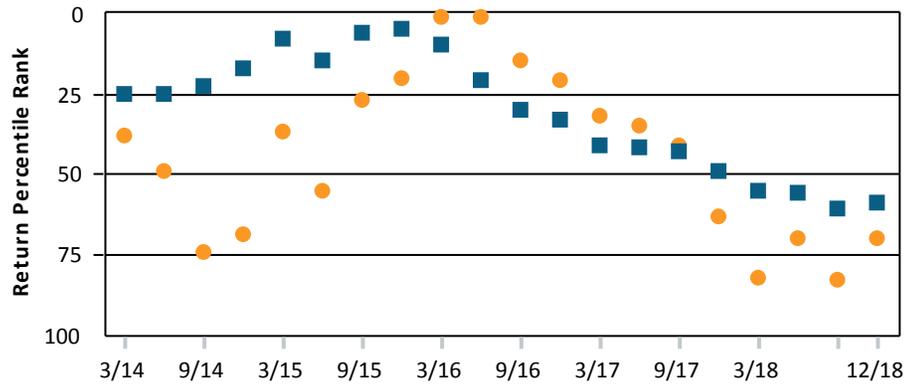
As of December 31, 2018

### Peer Group Analysis vs. IM Alternative Credit Focus (MF)



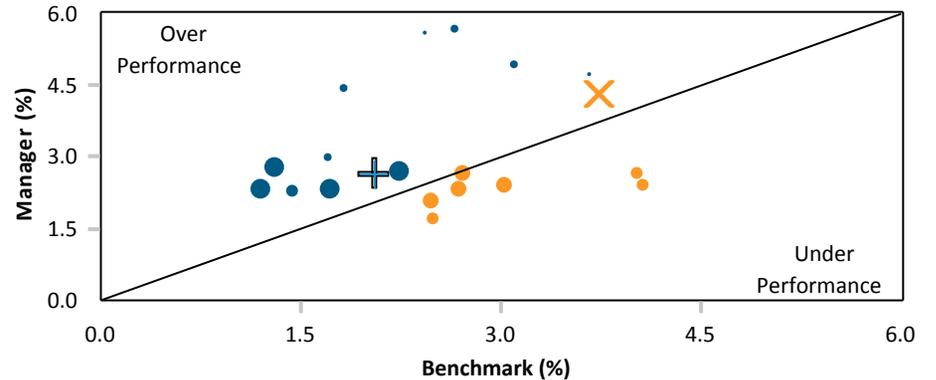
	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
BlackRock Strategic Income Opportunities Instl	-0.4 (24)	-0.5 (36)	2.6 (59)	2.3 (34)	4.9 (45)	3.6 (74)	-0.3 (22)	3.9 (14)
Blmbg. Barc. U.S. Aggregate Index	1.6 (6)	0.0 (27)	2.1 (70)	2.5 (27)	3.5 (64)	2.6 (83)	0.5 (11)	6.0 (9)
5th Percentile	1.9	2.2	6.4	4.1	10.7	13.8	1.6	8.9
1st Quartile	-0.6	0.1	4.3	2.6	6.5	8.4	-0.5	2.5
Median	-1.7	-1.6	3.1	1.7	4.6	5.1	-1.3	1.1
3rd Quartile	-2.5	-2.6	1.6	1.0	2.3	3.5	-2.8	-0.4
95th Percentile	-4.7	-5.5	-0.1	-0.6	-0.3	0.6	-5.7	-3.7

### 3 Year Rolling Percentile Ranking vs. IM Alternative Credit Focus (MF)



■ BlackRock Strategic Income Opportunities Instl  
● Blmbg. Barc. U.S. Aggregate Index

### 3 Year Rolling Under/Over Performance vs. Blmbg. Barc. U.S. Aggregate Index



● Over Performance    ● Under Performance  
X Mar-2014    + Dec-2018

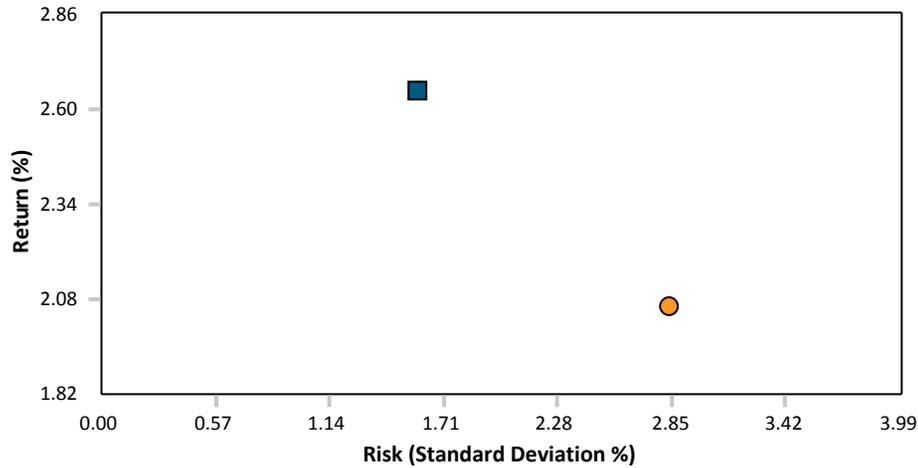
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## BlackRock Strategic Income Opportunities Instl

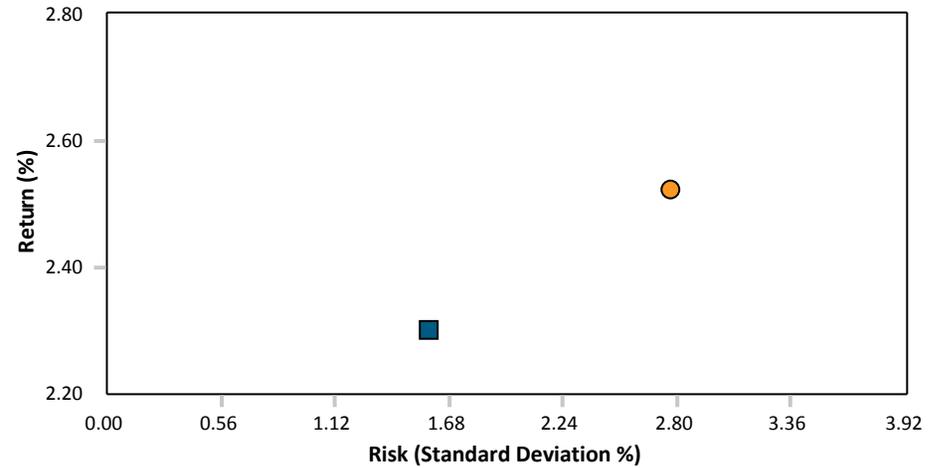
As of December 31, 2018

### 3 Year Risk and Return



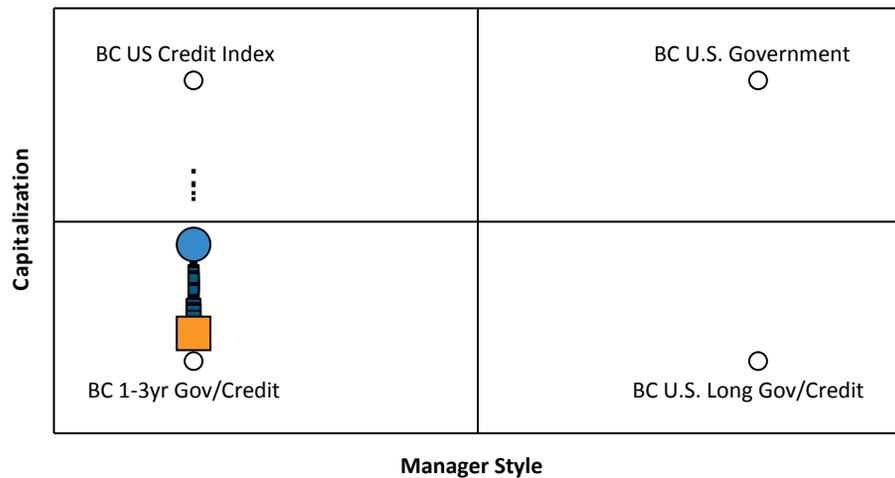
- BlackRock Strategic Income Opportunities Instl
- Blmbg. Barc. U.S. Aggregate Index

### 5 Year Risk and Return



- BlackRock Strategic Income Opportunities Instl
- Blmbg. Barc. U.S. Aggregate Index

### Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

### MPT Statistics vs. Blmbg. Barc. U.S. Aggregate Index

	3 Years	5 Years
Return	2.6	2.3
Standard Deviation	1.6	1.6
vs. Blmbg. Barc. U.S. Aggregate Index		
Alpha	2.6	2.0
Beta	0.0	0.1
R-Squared	0.0	0.0
Consistency	61.1	55.0
Up Market Capture	42.4	42.2
Down Market Capture	-19.6	-5.1
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	1.0	1.0

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## BlackRock Strategic Income Opportunities Instl

Report Date December 31, 2018

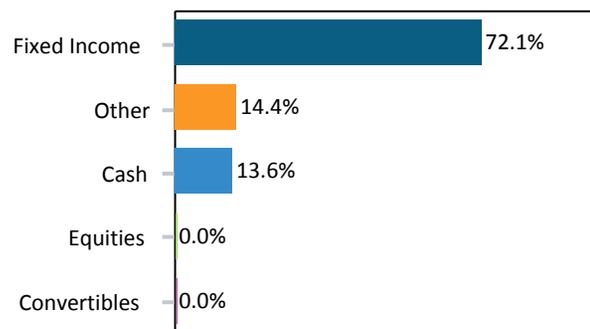
### Mutual Fund Information

Fund Name :	BlackRock Funds V: BlackRock Strategic Income Opportunities Portfolio; Institutional Shares	Portfolio Assets :	\$33,979 Million
Fund Family :	BlackRock Inc	Fund Assets :	\$23,637 Million
Ticker :	BSIIX	Portfolio Manager :	Rieder/Miller
Inception Date :	02/05/2008	PM Tenure :	2010--2011
Portfolio Turnover :	1,576%		

### Fund Investment Policy

The Fund seeks total return as is consistent with the preservation of capital. The Fund will invest opportunistically across the spectrum of fixed income sectors and securities. Allocations to all sectors are unconstrained and the fund may invest in non-investment-grade, non-dollar-denominated and emerging markets.

### Asset Allocation as of 09/30/18



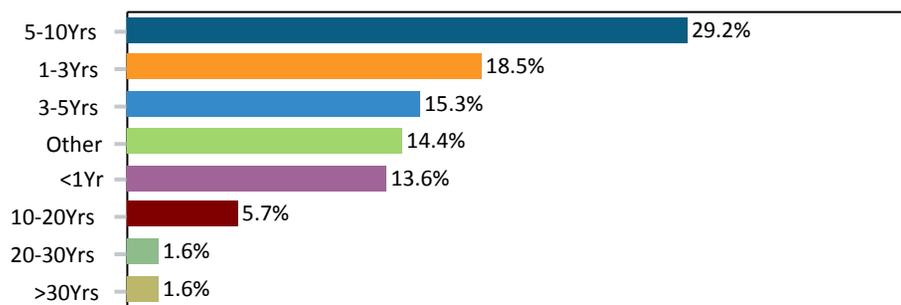
### Top 10 Securities as of 09/30/18

GNMA and Other Mtg Backed	30.1 %
Corporate Notes/Bonds	24.9 %
Treasury Notes/Bonds	9.0 %
Fgn. Currency Denominated Bonds	5.0 %
Asset Backed Securities	3.1 %

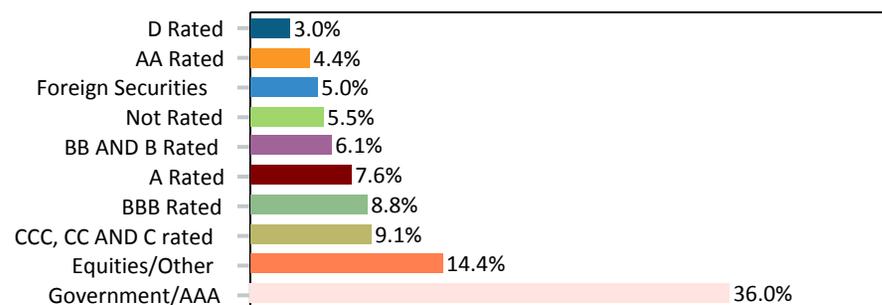
### Fixed Income Characteristics as of 09/30/18

Avg. Coupon	4.34 %
Nominal Maturity	N/A
Effective Maturity	5.99 Years
Duration	2.11 Years
SEC 30 Day Yield	4.4
Avg. Credit Quality	A

### Maturity Distribution as of 09/30/18



### Quality Allocation as of 09/30/18



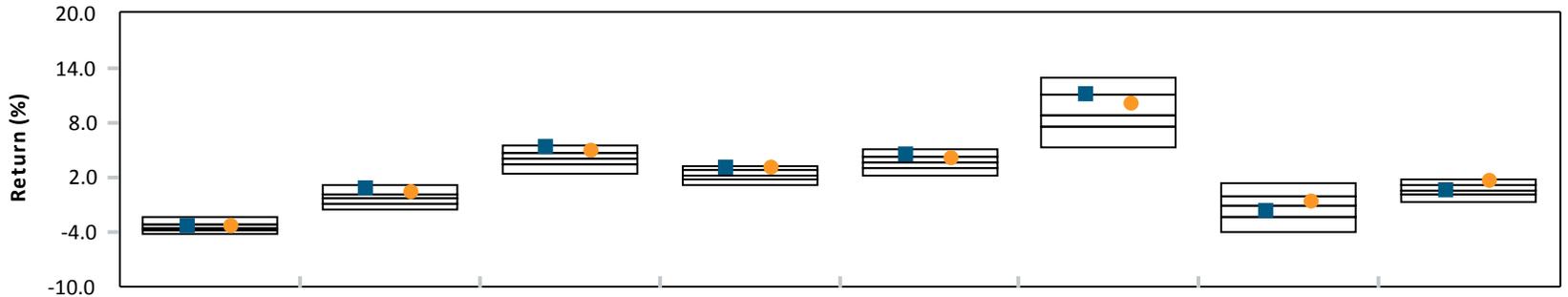
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Eaton Vance Floating Rate Instl

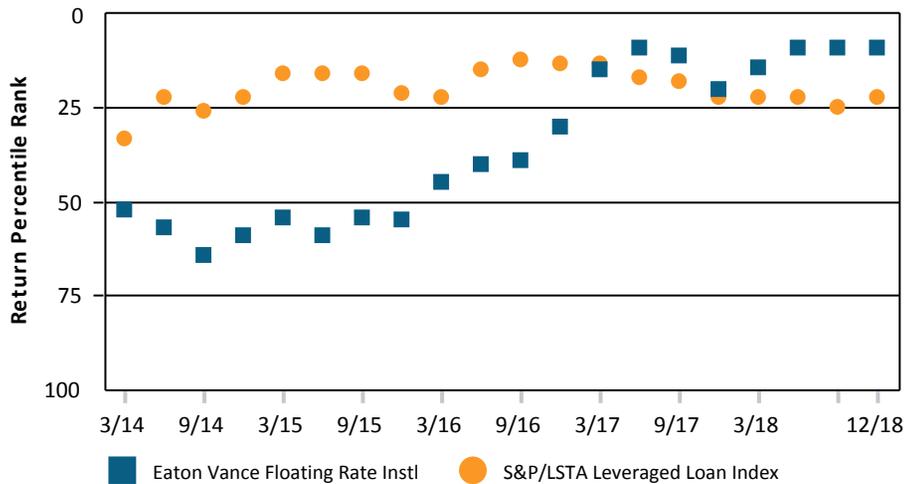
As of December 31, 2018

### Peer Group Analysis vs. IM U.S. Bank Loans (MF)

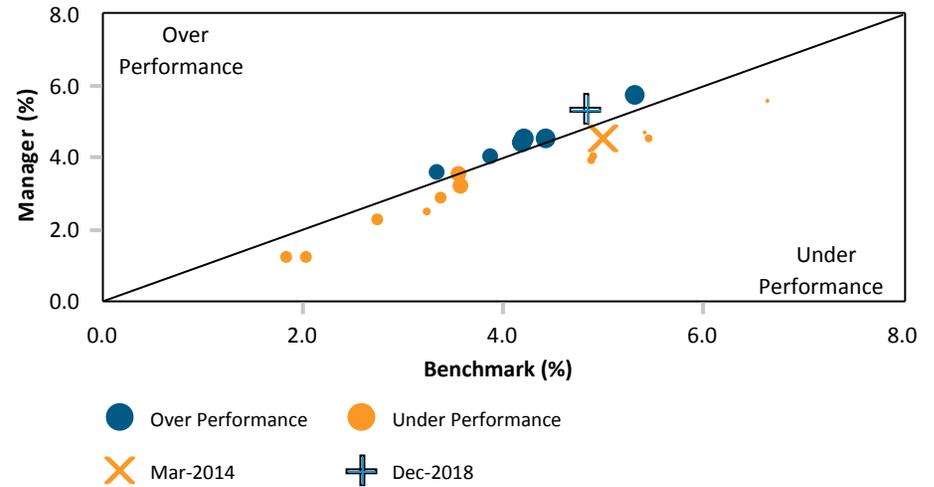


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
Eaton Vance Floating Rate Instl	-3.3 (30)	0.8 (9)	5.3 (9)	3.0 (13)	4.5 (16)	11.1 (25)	-1.6 (59)	0.6 (46)
S&P/LSTA Leveraged Loan Index	-3.5 (39)	0.4 (15)	4.8 (22)	3.1 (7)	4.1 (28)	10.2 (35)	-0.7 (41)	1.6 (8)
5th Percentile	-2.4	1.1	5.6	3.1	5.0	13.0	1.4	1.8
1st Quartile	-3.2	0.2	4.7	2.7	4.2	11.0	0.0	1.1
Median	-3.6	-0.3	4.1	2.3	3.6	8.9	-1.2	0.5
3rd Quartile	-3.9	-0.8	3.4	1.9	3.1	7.6	-2.4	0.0
95th Percentile	-4.3	-1.6	2.4	1.1	2.2	5.3	-4.0	-0.8

### 3 Year Rolling Percentile Ranking vs. IM U.S. Bank Loans (MF)



### 3 Year Rolling Under/Over Performance vs. S&P/LSTA Leveraged Loan Index

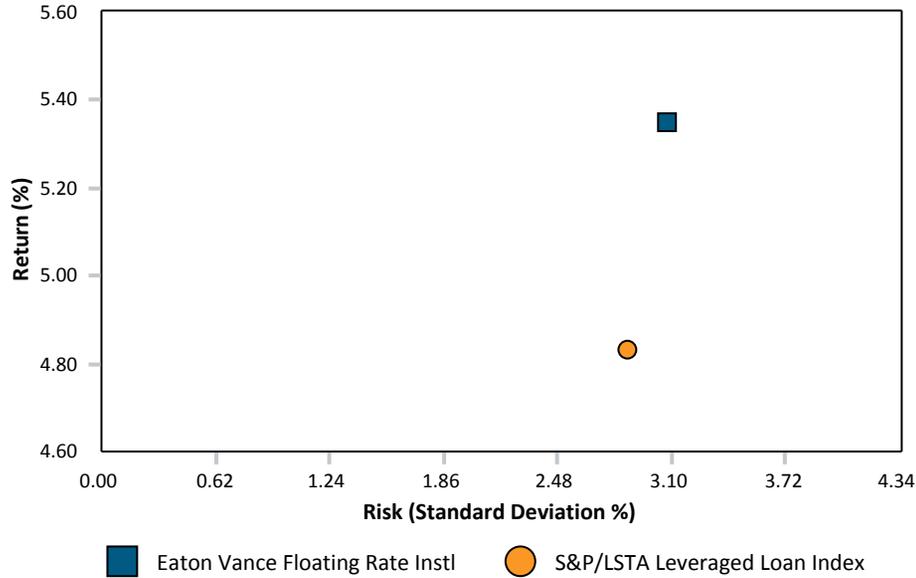


Mutual fund data sourced from Lipper Analytical Services.

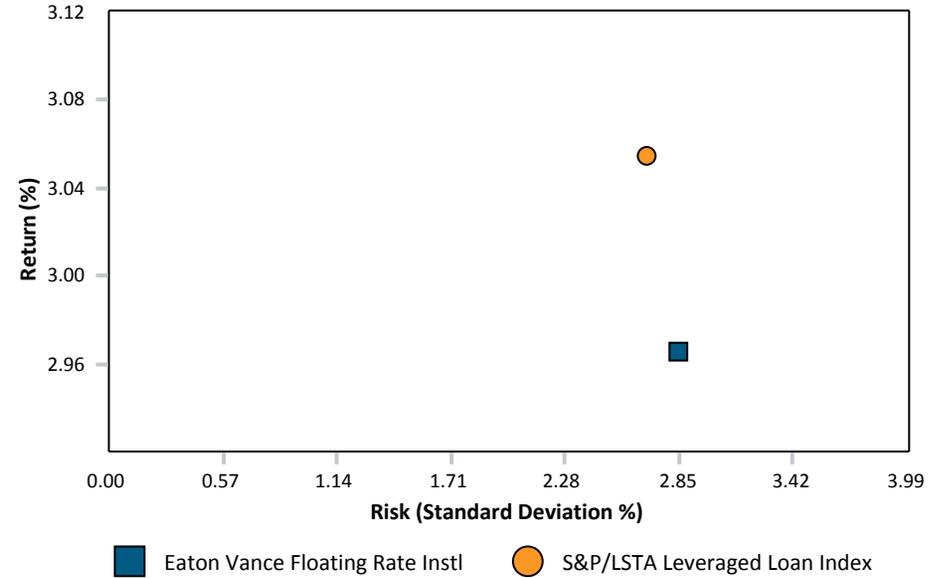
# Manager Evaluation

Eaton Vance Floating Rate Instl  
As of December 31, 2018

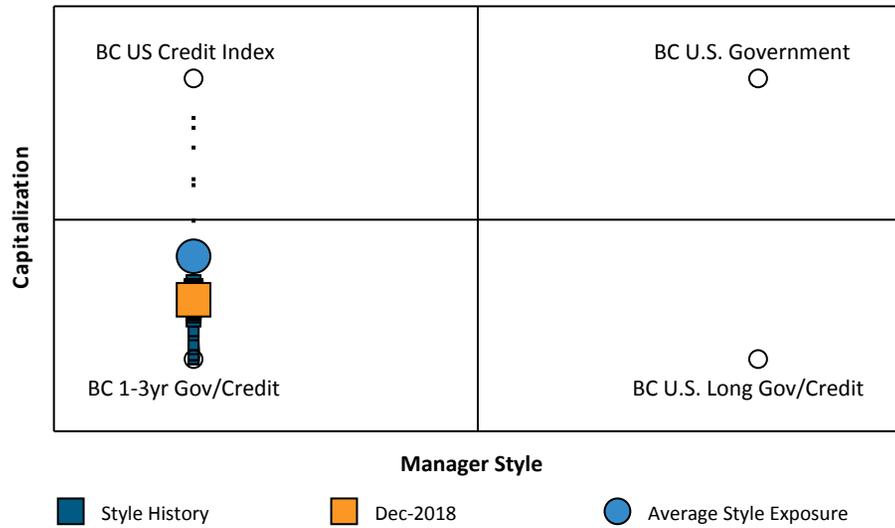
## 3 Year Risk and Return



## 5 Year Risk and Return



## Style Map - 3 Years



## MPT Statistics vs. S&P/LSTA Leveraged Loan Index

	3 Years	5 Years
Return	5.3	3.0
Standard Deviation	3.1	2.8
vs. S&P/LSTA Leveraged Loan Index		
Alpha	0.2	-0.2
Beta	1.1	1.0
R-Squared	1.0	1.0
Consistency	55.6	43.3
Up Market Capture	107.4	97.5
Down Market Capture	98.0	97.9
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	1.4	0.8

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Eaton Vance Floating Rate Instl

Report Date December 31, 2018

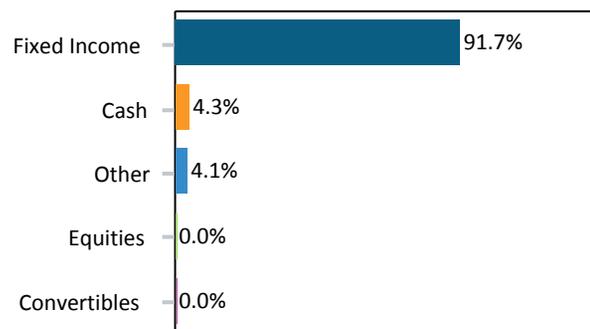
### Mutual Fund Information

Fund Name :	Eaton Vance Mutual Funds Trust: Eaton Vance Floating-Rate Fund; Institutional Class Shares	Portfolio Assets :	\$8,582 Million
Fund Family :	Eaton Vance Management	Fund Assets :	\$6,453 Million
Ticker :	EIBLX	Portfolio Manager :	Page/Russ
Inception Date :	01/30/2001	PM Tenure :	2001--2007
Portfolio Turnover :	42%		

### Fund Investment Policy

The Fund seeks to provide a high level of current income. To do so, the Fund invests primarily in senior secured floating rate loans and high yield, high risk corporate bonds. The Fund invests at least 65% of its assets in debt obligations issued in connection with corporations who are restructuring.

### Asset Allocation as of 09/30/18



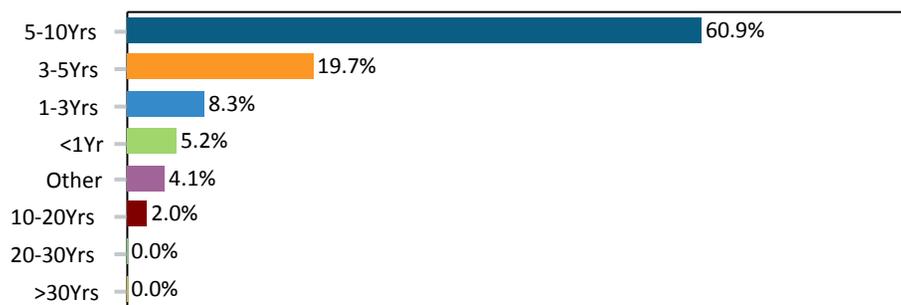
### Top 10 Securities as of 09/30/18

Corporate Notes/Bonds 91.7%

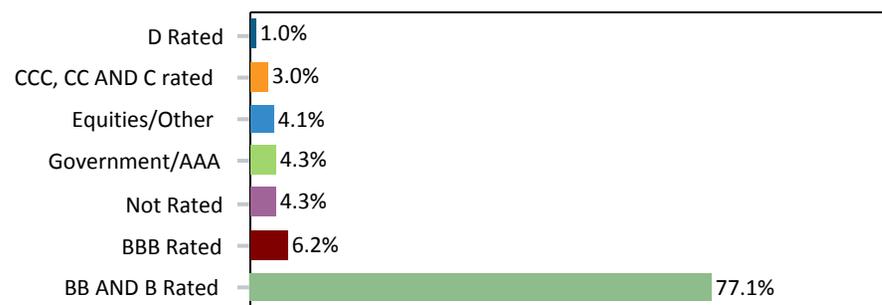
### Fixed Income Characteristics as of 09/30/18

Avg. Coupon	5.38 %
Nominal Maturity	N/A
Effective Maturity	5.36 Years
Duration	0.21 Years
SEC 30 Day Yield	3.8
Avg. Credit Quality	BB

### Maturity Distribution as of 09/30/18



### Quality Allocation as of 09/30/18



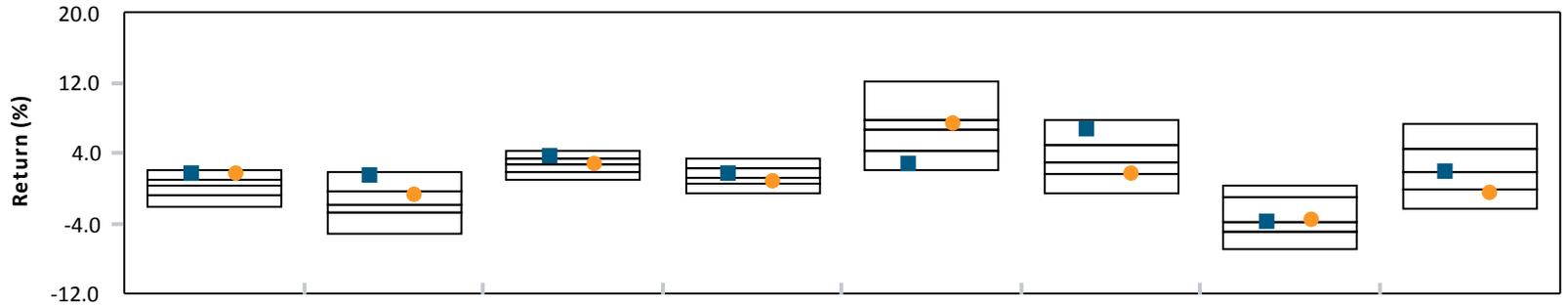
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Templeton Global Bond R6

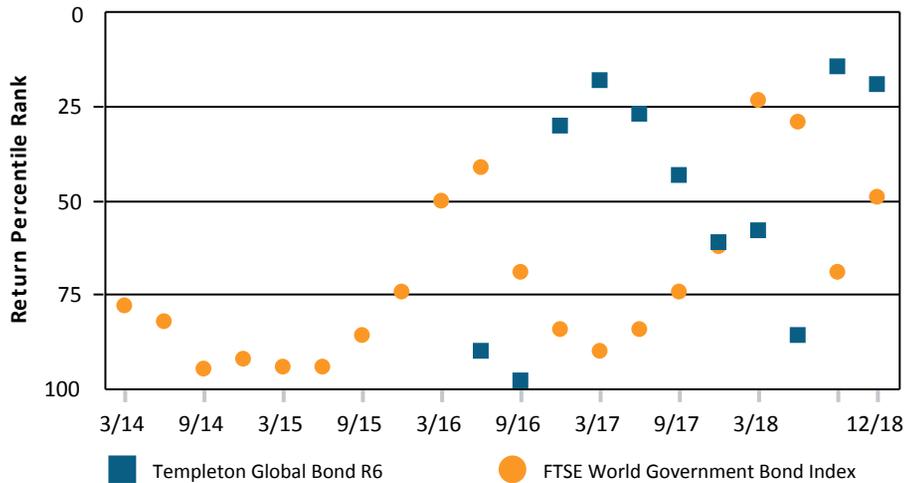
As of December 31, 2018

### Peer Group Analysis vs. IM Global Fixed Income (MF)

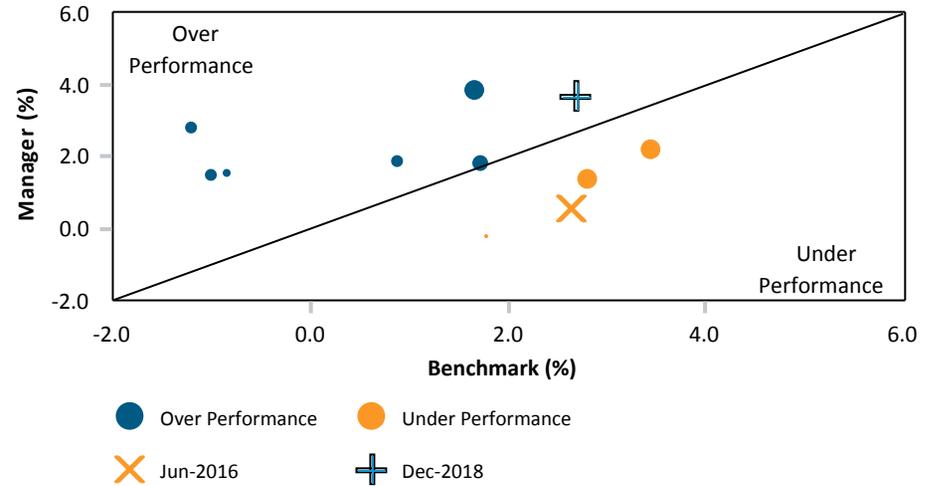


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ Templeton Global Bond R6	1.7 (10)	1.6 (7)	3.7 (19)	1.8 (33)	2.8 (87)	6.8 (9)	-3.9 (52)	2.0 (49)
● FTSE World Government Bond Index	1.8 (10)	-0.8 (34)	2.7 (49)	0.8 (70)	7.5 (35)	1.6 (80)	-3.6 (46)	-0.5 (79)
5th Percentile	2.1	1.8	4.4	3.4	12.3	8.0	0.4	7.4
1st Quartile	1.0	-0.4	3.4	2.3	7.9	4.9	-0.9	4.5
Median	0.3	-1.8	2.7	1.3	6.8	2.9	-3.8	1.9
3rd Quartile	-0.8	-2.8	1.9	0.7	4.4	1.7	-4.9	-0.1
95th Percentile	-2.1	-5.1	1.1	-0.5	2.2	-0.6	-7.0	-2.3

### 3 Year Rolling Percentile Ranking vs. IM Global Fixed Income (MF)



### 3 Year Rolling Under/Over Performance vs. FTSE World Government Bond Index



Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Templeton Global Bond R6

Report Date December 31, 2018

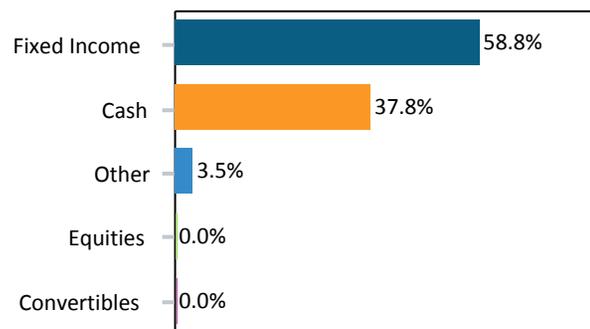
### Mutual Fund Information

Fund Name :	Templeton Income Trust: Templeton Global Bond Fund; Class R6 Shares	Portfolio Assets :	\$35,079 Million
Fund Family :	Franklin Templeton Investments	Fund Assets :	\$4,185 Million
Ticker :	FBNRX	Portfolio Manager :	Hasenstab/Desai
Inception Date :	05/01/2013	PM Tenure :	2013--2013
Portfolio Turnover :	42%		

### Fund Investment Policy

The Fund seeks current income with capital appreciation and growth of income by investing at least 80% of its net assets in "bonds." In addition, the Fund's assets will be invested in issuers located in at least three countries including the U.S.

### Asset Allocation as of 09/30/18



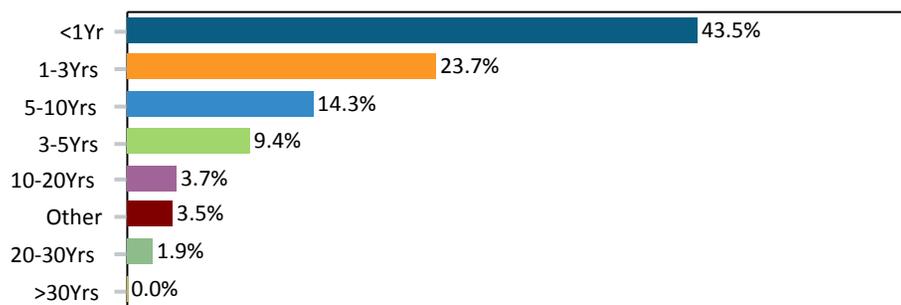
### Top 10 Securities as of 09/30/18

Government Agency Securities	31.1 %
Fgn. Currency Denominated Bonds	24.5 %
Corporate Notes/Bonds	2.7 %
Treasury Notes/Bonds	0.5 %

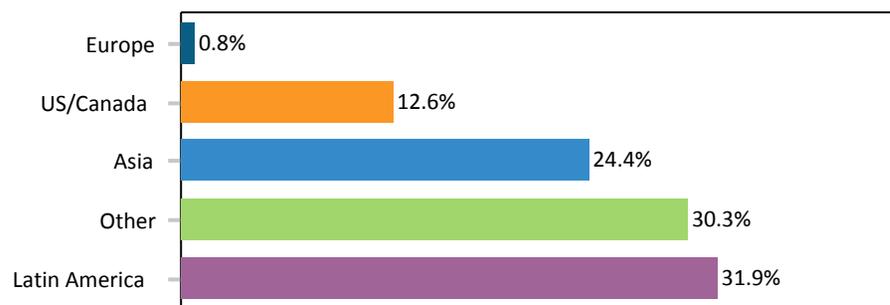
### Fixed Income Characteristics as of 09/30/18

Avg. Coupon	4.49 %
Nominal Maturity	2.91 Years
Effective Maturity	N/A
Duration	-1.34 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	N/A

### Maturity Distribution as of 09/30/18



### Quality Allocation as of 09/30/18



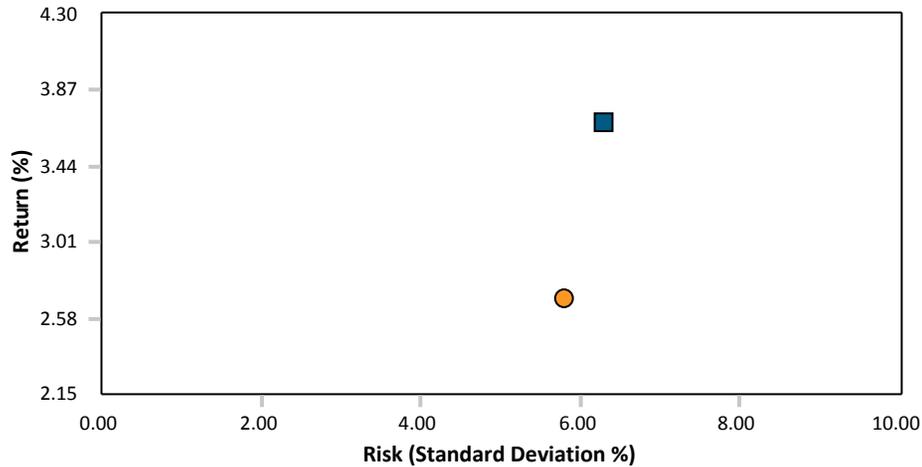
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Templeton Global Bond R6

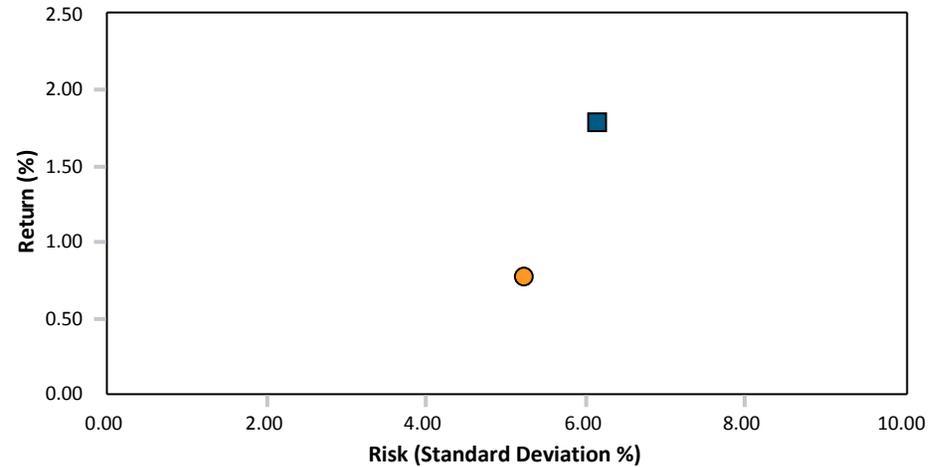
As of December 31, 2018

### 3 Year Risk and Return



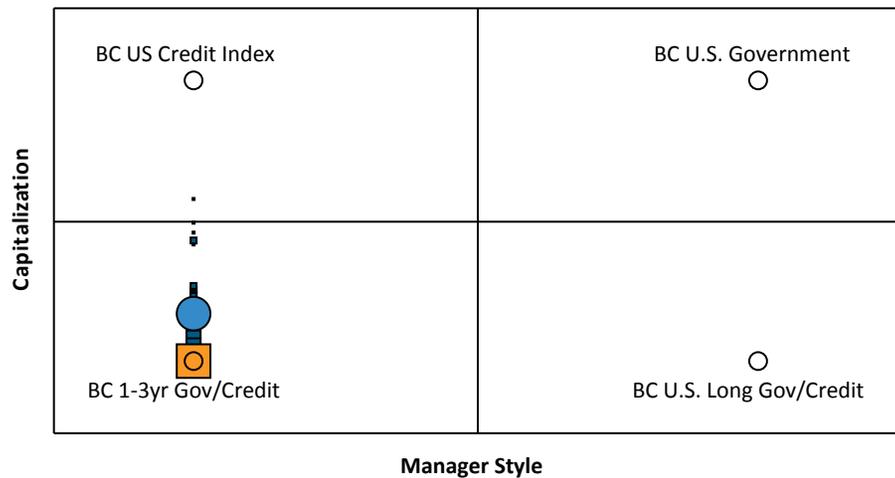
- Templeton Global Bond R6
- FTSE World Government Bond Index

### 5 Year Risk and Return



- Templeton Global Bond R6
- FTSE World Government Bond Index

### Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

### MPT Statistics vs. FTSE World Government Bond Index

	3 Years	5 Years
Return	3.7	1.8
Standard Deviation	6.3	6.2
vs. FTSE World Government Bond Index		
Alpha	4.6	2.2
Beta	-0.2	-0.2
R-Squared	0.0	0.0
Consistency	44.4	48.3
Up Market Capture	6.9	-9.1
Down Market Capture	-48.2	-40.1
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.4	0.2

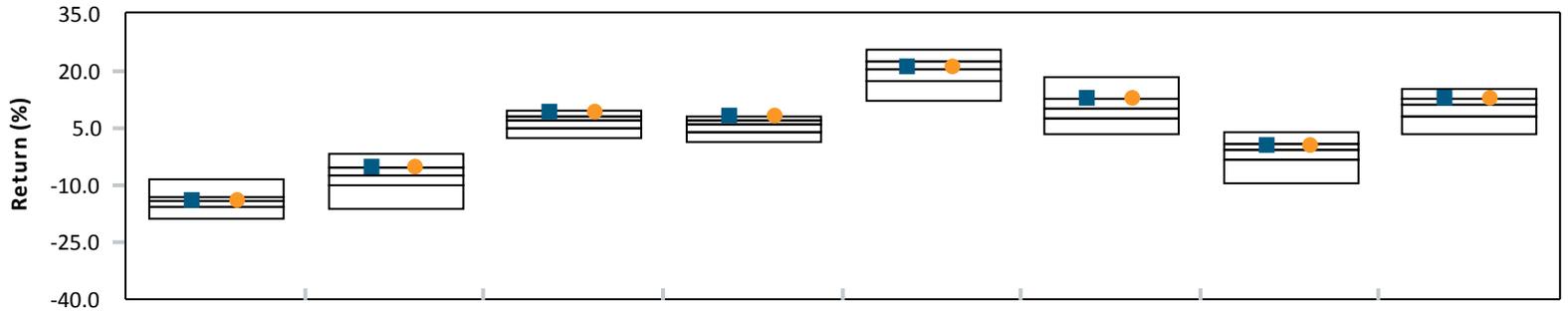
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Total Stock Market Index Adm

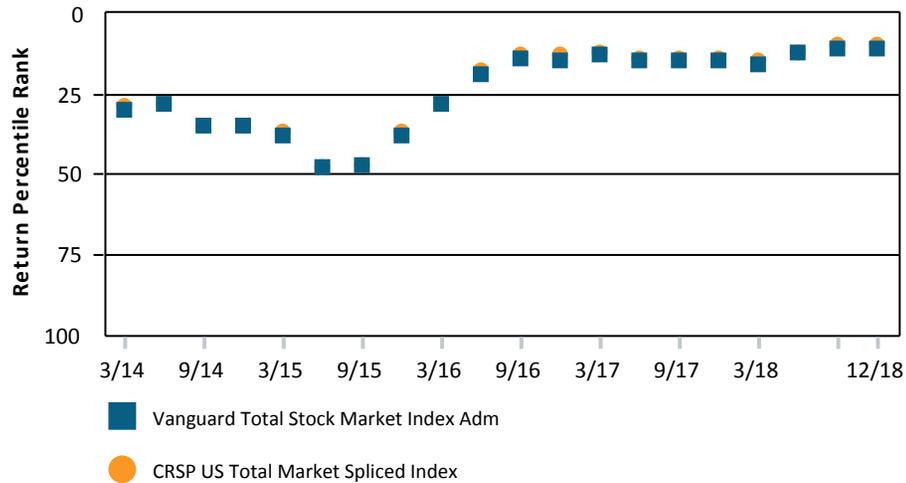
As of December 31, 2018

### Peer Group Analysis vs. IM U.S. Multi-Cap Core Equity (MF)

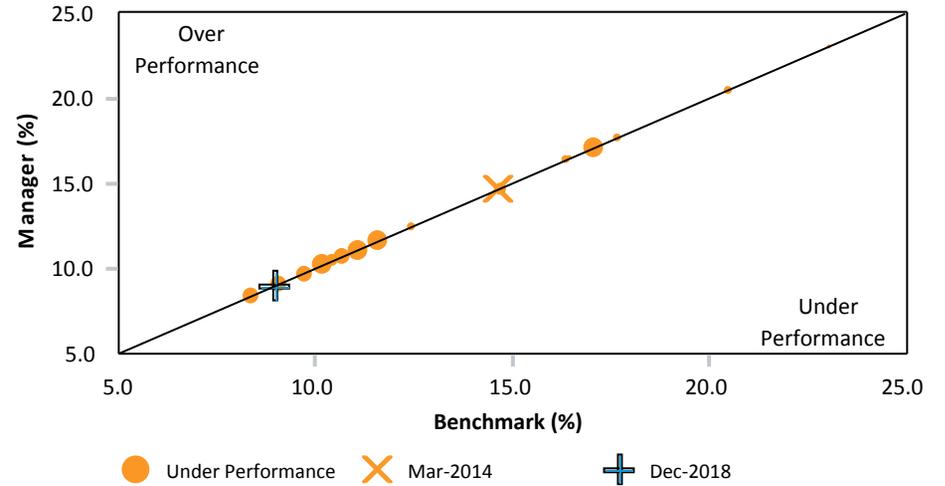


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ Vanguard Total Stock Market Index Adm	-14.3 (47)	-5.2 (27)	9.0 (11)	7.9 (12)	21.2 (39)	12.7 (28)	0.4 (33)	12.6 (30)
● CRSP US Total Market Spliced Index	-14.3 (46)	-5.2 (27)	9.0 (10)	7.9 (11)	21.2 (38)	12.7 (28)	0.4 (33)	12.6 (29)
5th Percentile	-8.6	-2.0	9.5	8.3	25.5	18.7	4.0	15.6
1st Quartile	-13.1	-5.1	8.3	7.2	22.4	12.8	0.7	12.8
Median	-14.4	-7.2	7.0	5.8	20.6	9.9	-0.8	11.0
3rd Quartile	-15.9	-9.8	5.2	4.2	17.4	7.6	-3.5	7.9
95th Percentile	-19.0	-16.4	2.6	1.3	12.2	3.6	-9.7	3.4

### 3 Year Rolling Percentile Ranking vs. IM U.S. Multi-Cap Core Equity (MF)



### 3 Year Rolling Under/Over Performance vs. CRSP US Total Market Spliced Index



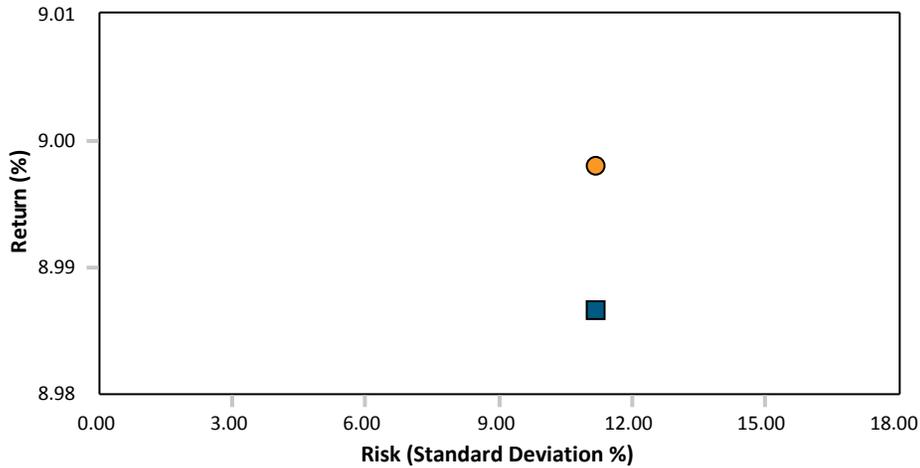
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Total Stock Market Index Adm

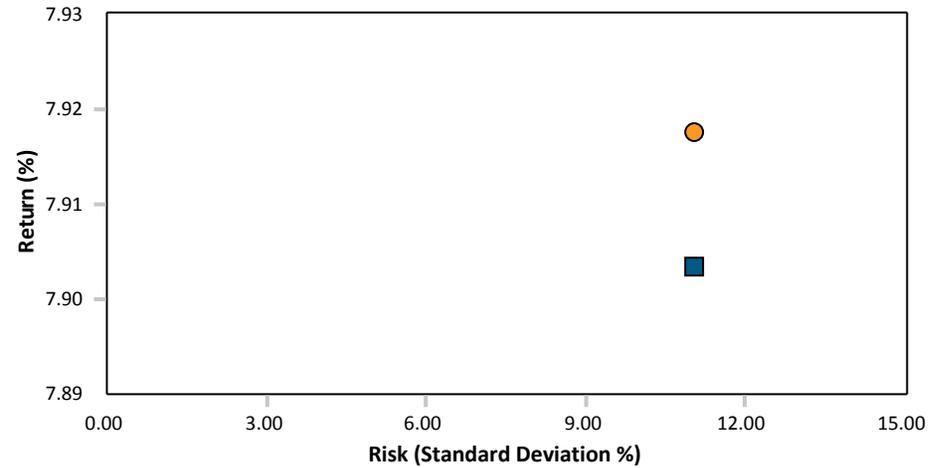
As of December 31, 2018

### 3 Year Risk and Return



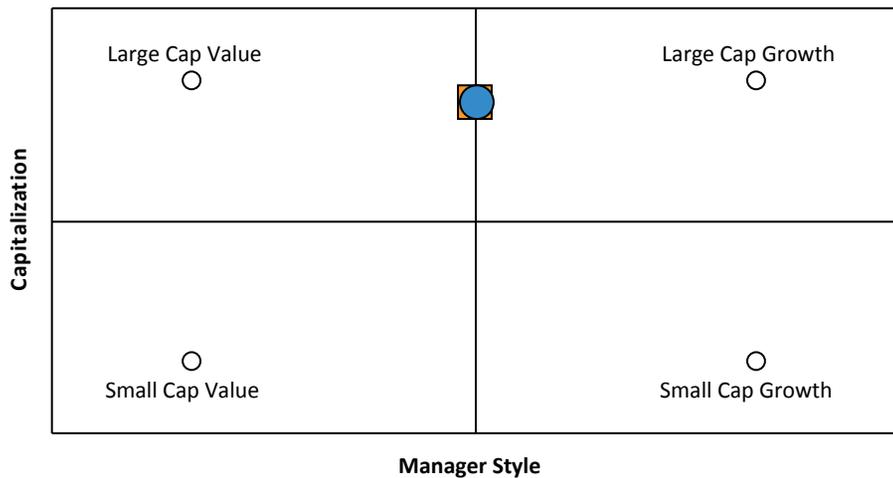
- Vanguard Total Stock Market Index Adm
- CRSP US Total Market Spliced Index

### 5 Year Risk and Return



- Vanguard Total Stock Market Index Adm
- CRSP US Total Market Spliced Index

### Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

### MPT Statistics vs. CRSP US Total Market Spliced Index

	3 Years	5 Years
Return	9.0	7.9
Standard Deviation	11.2	11.1
vs. CRSP US Total Market Spliced Index		
Alpha	0.0	0.0
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	44.4	46.7
Up Market Capture	100.0	100.0
Down Market Capture	100.1	100.1
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.7	0.7

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Total Stock Market Index Adm

Report Date December 31, 2018

### Mutual Fund Information

Fund Name :	Vanguard Index Funds: Vanguard Total Stock Market Index Fund; Admiral Class Shares	Portfolio Assets :	\$733,672 Million
Fund Family :	Vanguard Group Inc	Fund Assets :	\$203,889 Million
Ticker :	VTSAX	Portfolio Manager :	O'Reilly/Nejman
Inception Date :	11/13/2000	PM Tenure :	2016--2016
Portfolio Turnover :	3%		

### Fund Investment Policy

The Fund seeks to track the performance of a benchmark index that measures the investment return of the overall stock market. The Fund employs an indexing investment approach to track the performance of the CRSP US Total Market Index. The Fund invests by holding a collection of securities that approximates the Index.

### Asset Allocation as of 11/30/18



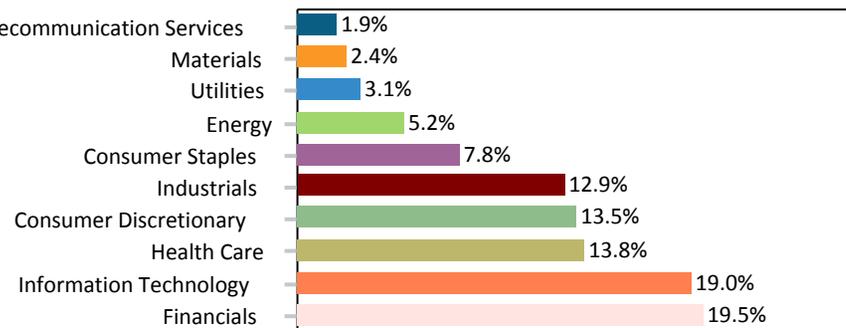
### Top 10 Securities as of 11/30/18

Microsoft Corp ORD	3.0 %
Apple Inc ORD	2.8 %
Amazon.com Inc ORD	2.5 %
Berkshire Hathaway Inc ORD	1.5 %
Johnson & Johnson ORD	1.4 %
JPMorgan Chase & Co ORD	1.3 %
Facebook Inc ORD	1.2 %
Exxon Mobil Corp ORD	1.2 %
Alphabet Inc ORD 1	1.2 %
Alphabet Inc ORD 2	1.2 %

### Equity Characteristics as of 11/30/18

Total Securities	3,642
Avg. Market Cap	\$171,666 Million
P/E	25.9
P/B	6.7
Div. Yield	2.5%
Annual EPS	22.4
5Yr EPS	12.9
3Yr EPS Growth	12.9

### Sector Allocation as of 11/30/18

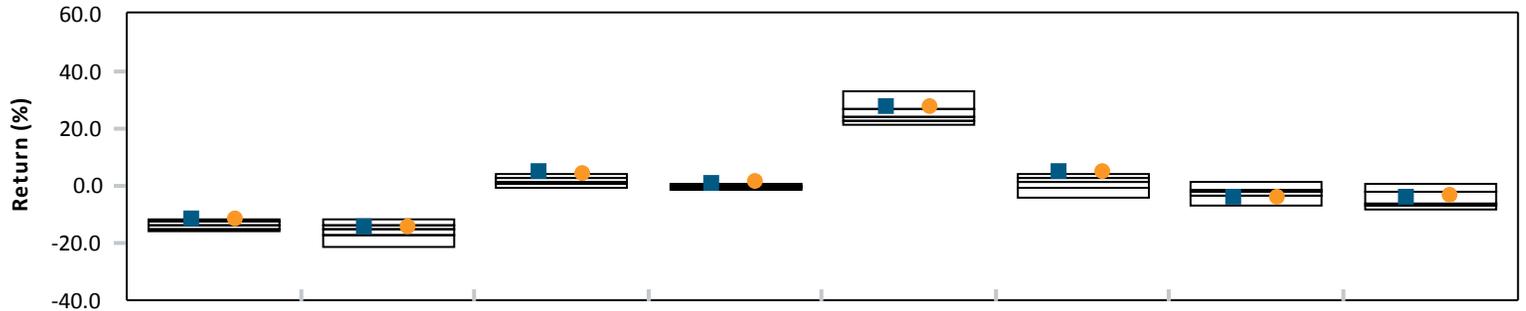


# Manager Evaluation

## Vanguard Total International Stock Index Adm

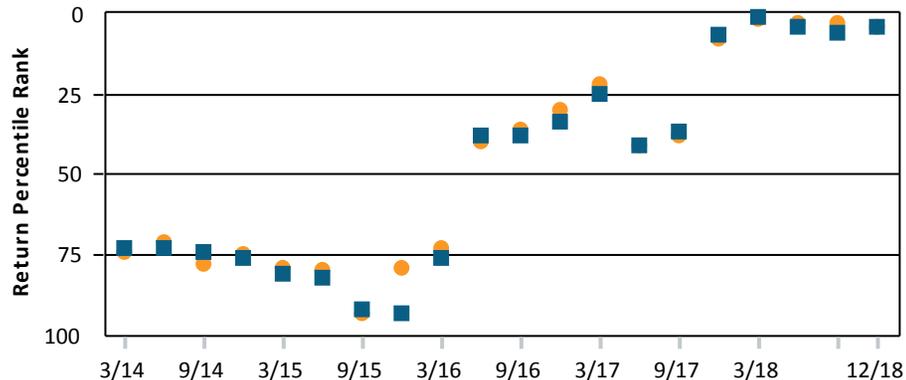
As of December 31, 2018

### Peer Group Analysis vs. IM International Large Cap Core Equity (MF)



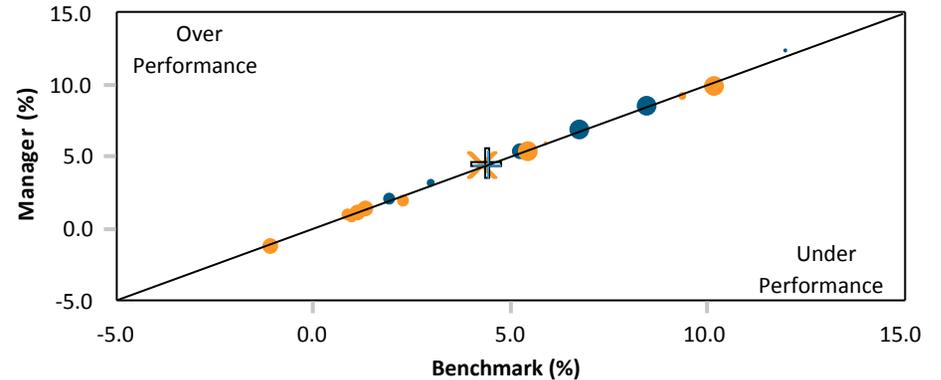
	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ Vanguard Total International Stock Index Adm	-11.7 (8)	-14.4 (42)	4.5 (4)	0.9 (1)	27.6 (15)	4.7 (5)	-4.3 (77)	-4.2 (30)
● FTSE Global All Cap ex US Spliced Index	-11.8 (8)	-14.6 (43)	4.4 (4)	1.0 (1)	27.4 (16)	4.7 (5)	-4.3 (77)	-3.4 (27)
5th Percentile	-11.6	-11.6	4.1	0.6	33.0	4.3	1.4	0.8
1st Quartile	-12.3	-13.6	2.7	-0.1	26.7	2.6	-1.0	-1.7
Median	-13.7	-14.9	1.6	-0.5	24.5	1.4	-2.4	-5.9
3rd Quartile	-15.2	-17.6	0.6	-1.0	23.1	-0.8	-3.7	-6.7
95th Percentile	-15.7	-21.7	-0.4	-1.5	21.3	-3.8	-7.2	-8.0

### 3 Year Rolling Percentile Ranking vs. IM International Large Cap Core Equity (MF)



■ Vanguard Total International Stock Index Adm  
● FTSE Global All Cap ex US Spliced Index

### 3 Year Rolling Under/Over Performance vs. FTSE Global All Cap ex US Spliced Index



● Over Performance    ● Under Performance  
X Mar-2014    + Dec-2018

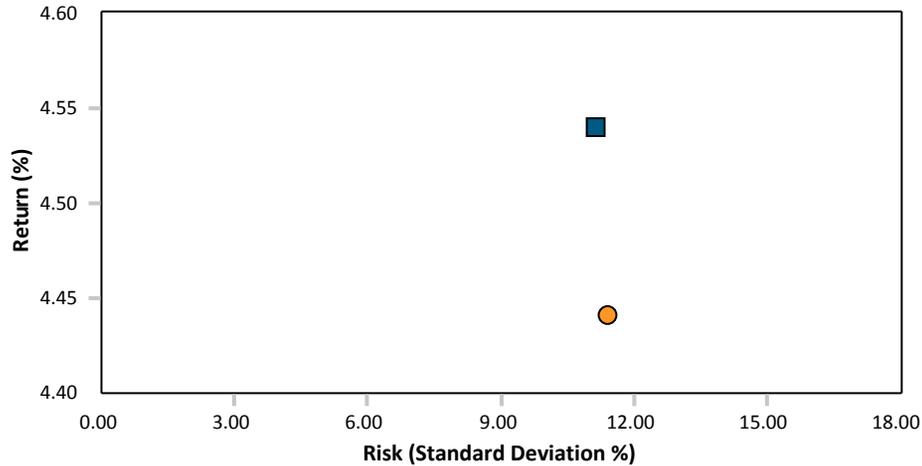
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Total International Stock Index Adm

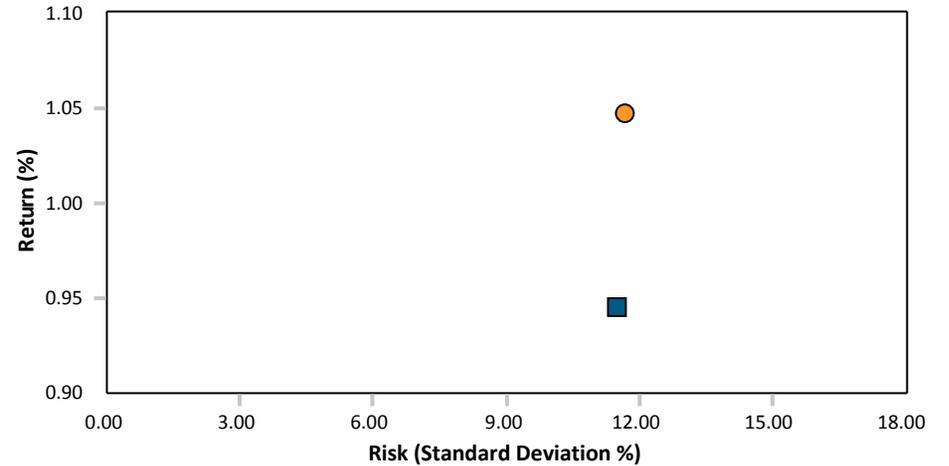
As of December 31, 2018

### 3 Year Risk and Return



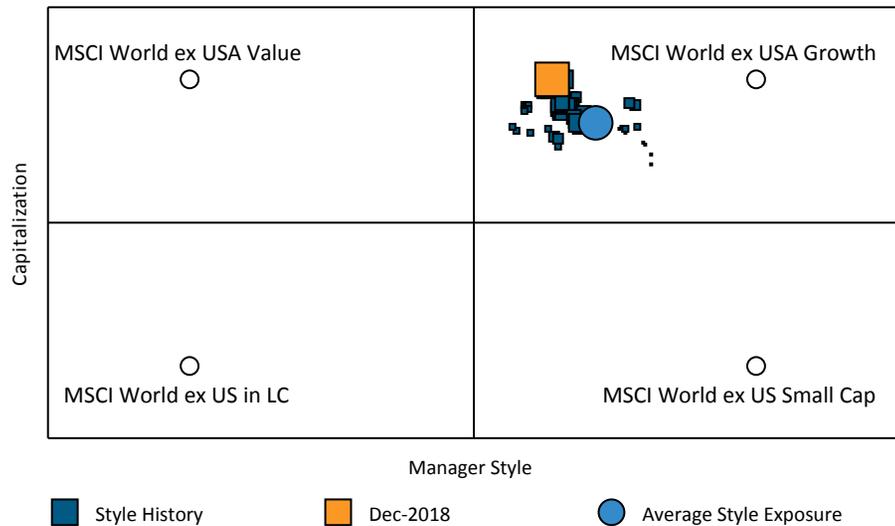
- Vanguard Total International Stock Index Adm
- FTSE Global All Cap ex US Spliced Index

### 5 Year Risk and Return



- Vanguard Total International Stock Index Adm
- FTSE Global All Cap ex US Spliced Index

### Style Map - 3 Years



### MPT Statistics vs. FTSE Global All Cap ex US Spliced Index

	3 Years	5 Years
Return	4.5	0.9
Standard Deviation	11.2	11.5
vs. FTSE Global All Cap ex US Spliced Index		
Alpha	0.2	-0.1
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	50.0	48.3
Up Market Capture	97.8	97.3
Down Market Capture	96.4	97.9
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.4	0.1

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Total International Stock Index Adm

Report Date December 31, 2018

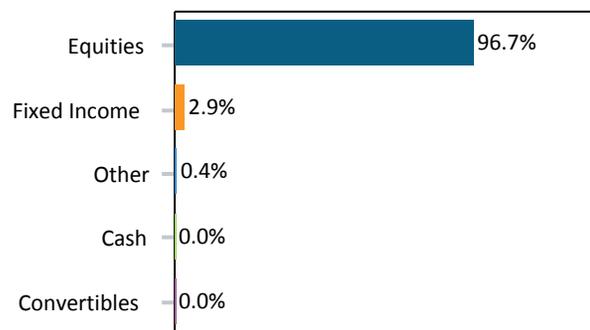
### Mutual Fund Information

Fund Name :	Vanguard STAR Funds: Vanguard Total International Stock Index Fund; Admiral Shares	Portfolio Assets :	\$344,457 Million
Fund Family :	Vanguard Group Inc	Fund Assets :	\$66,521 Million
Ticker :	VTIAX	Portfolio Manager :	Perre/Franquin
Inception Date :	11/29/2010	PM Tenure :	2010--2017
Portfolio Turnover :	3%		

### Fund Investment Policy

The Fund seeks to track the performance of a benchmark index that measures the investment return of stocks issued by companies located in developed and emerging markets, excluding the United States. The Fund employs an indexing investment approach designed to track the performance of the FTSE Global All Cap ex US Index.

### Asset Allocation as of 11/30/18



### Top 10 Securities as of 11/30/18

Vanguard Market Liquidity Fund	2.9 %
Nestle SA ORD	1.1 %
Tencent Holdings Ltd ORD	1.0 %
Novartis AG ORD	0.9 %
Roche Holding AG Par	0.8 %
Samsung Electronics Co Ltd ORD	0.8 %
Alibaba Group Holding Ltd DR	0.8 %
Taiwan Semiconductor Manufacturing	0.8 %
HSBC Holdings PLC ORD	0.7 %
Toyota Motor Corp ORD	0.7 %

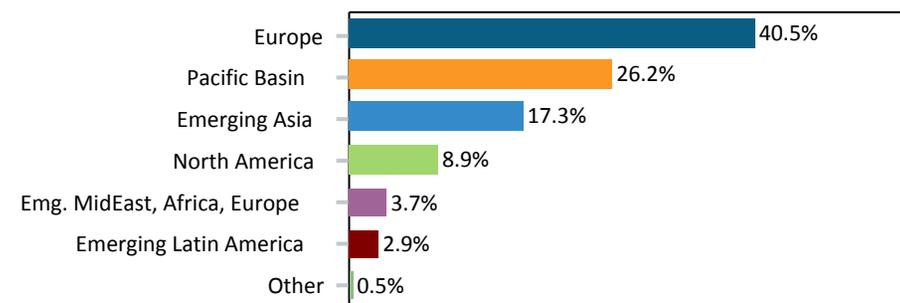
### Top 5 Countries as of 11/30/18

Japan	17.4 %
United Kingdom	9.7 %
Canada	6.6 %
China	6.0 %
France	5.9 %

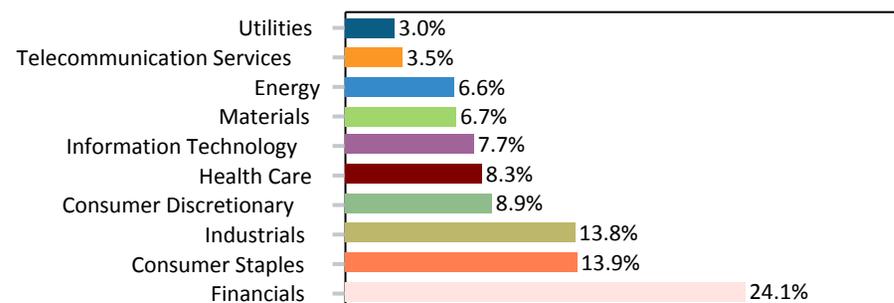
### Equity Characteristics as of 11/30/18

Total Securities	6,298
Avg. Market Cap	\$55,331 Million
P/E	19.3
P/B	3.1
Div. Yield	3.3%
Annual EPS	27.1

### Region Allocation as of 11/30/18



### Sector Allocation as of 11/30/18



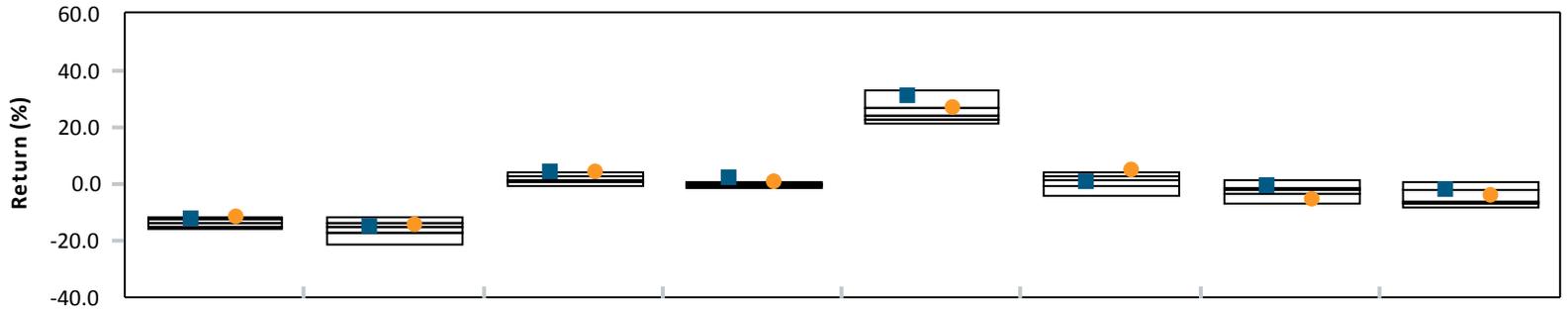
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## American Funds EuroPacific Growth R6

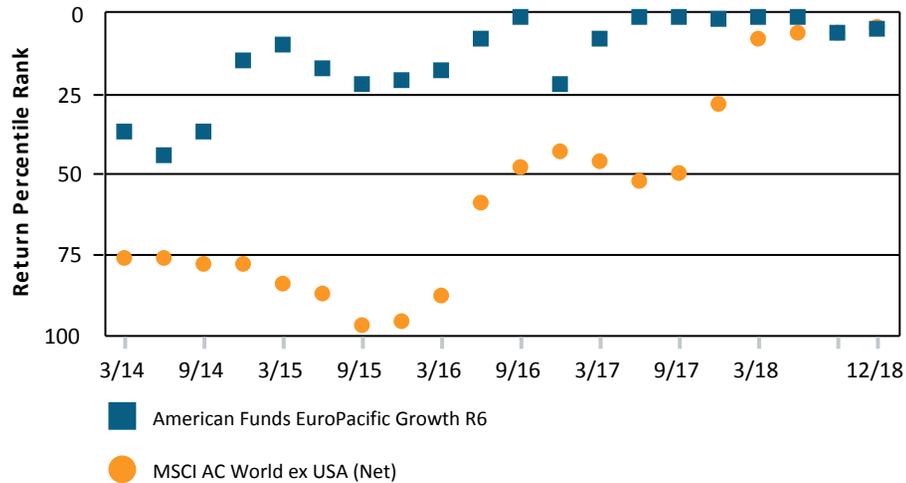
As of December 31, 2018

### Peer Group Analysis vs. IM International Large Cap Core Equity (MF)

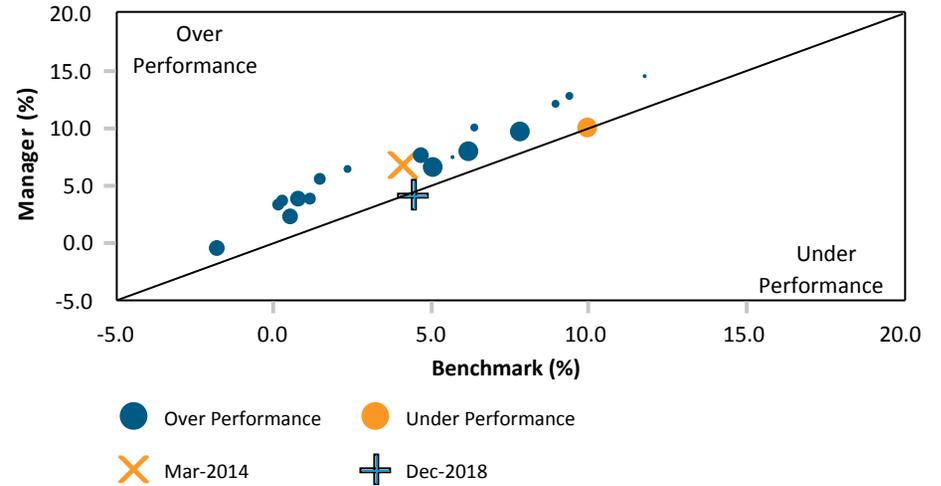


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
American Funds EuroPacific Growth R6	-12.6 (28)	-14.9 (51)	4.1 (5)	1.9 (1)	31.2 (9)	1.0 (57)	-0.5 (16)	-2.3 (26)
MSCI AC World ex USA (Net)	-11.5 (5)	-14.2 (39)	4.5 (4)	0.7 (3)	27.2 (17)	4.5 (5)	-5.7 (88)	-3.9 (28)
5th Percentile	-11.6	-11.6	4.1	0.6	33.0	4.3	1.4	0.8
1st Quartile	-12.3	-13.6	2.7	-0.1	26.7	2.6	-1.0	-1.7
Median	-13.7	-14.9	1.6	-0.5	24.5	1.4	-2.4	-5.9
3rd Quartile	-15.2	-17.6	0.6	-1.0	23.1	-0.8	-3.7	-6.7
95th Percentile	-15.7	-21.7	-0.4	-1.5	21.3	-3.8	-7.2	-8.0

### 3 Year Rolling Percentile Ranking vs. IM International Large Cap Core Equity (MF)



### 3 Year Rolling Under/Over Performance vs. MSCI AC World ex USA (Net)



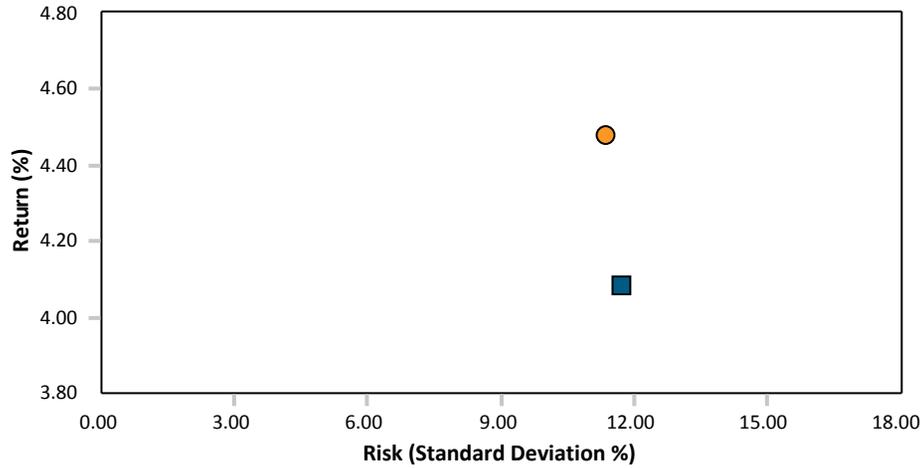
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## American Funds EuroPacific Growth R6

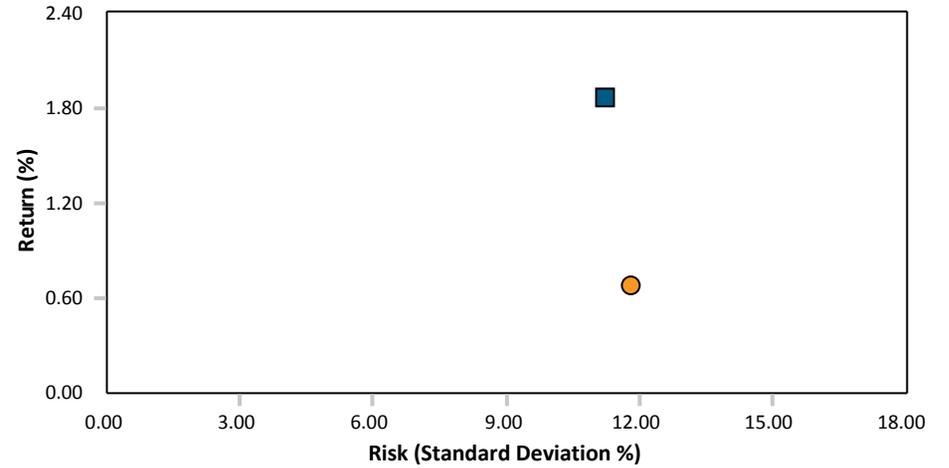
As of December 31, 2018

### 3 Year Risk and Return



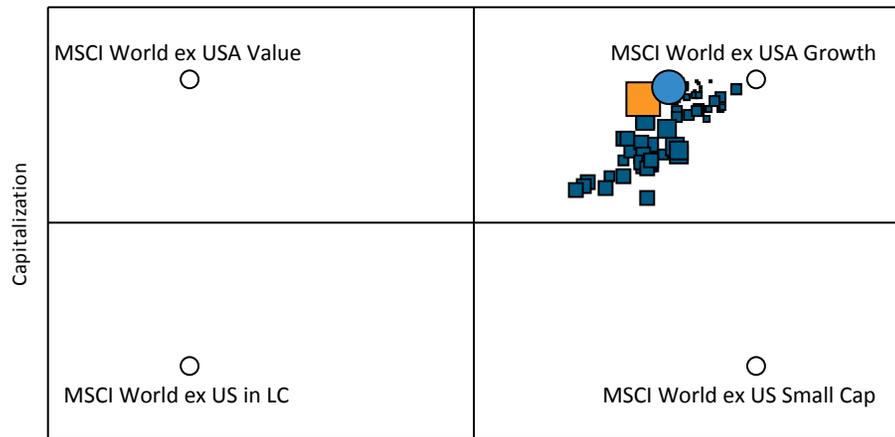
- American Funds EuroPacific Growth R6
- MSCI AC World ex USA (Net)

### 5 Year Risk and Return



- American Funds EuroPacific Growth R6
- MSCI AC World ex USA (Net)

### Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

### MPT Statistics vs. MSCI AC World ex USA (Net)

	3 Years	5 Years
Return	4.1	1.9
Standard Deviation	11.7	11.3
vs. MSCI AC World ex USA (Net)		
Alpha	-0.3	1.2
Beta	1.0	0.9
R-Squared	0.9	0.9
Consistency	47.2	53.3
Up Market Capture	97.3	91.9
Down Market Capture	98.8	84.1
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.3	0.2

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## American Funds EuroPacific Growth R6

Report Date December 31, 2018

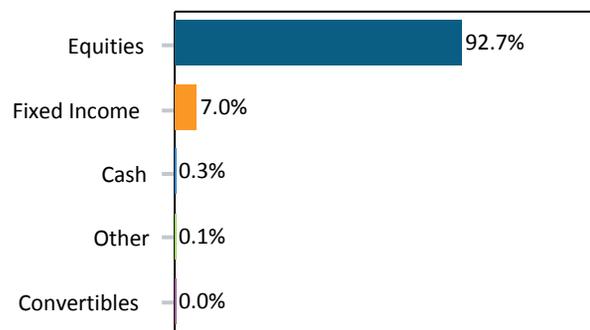
### Mutual Fund Information

Fund Name :	EuroPacific Growth Fund; Class R6 Shares	Portfolio Assets :	\$138,715 Million
Fund Family :	American Funds	Fund Assets :	\$59,719 Million
Ticker :	RERGX	Portfolio Manager :	Team Managed
Inception Date :	05/01/2009	PM Tenure :	
Portfolio Turnover :	29%		

### Fund Investment Policy

The Fund seeks to provide long-term growth of capital by investing in companies based outside the United States. The Fund invests in companies based chiefly in Europe and the Pacific Basin, ranging from small firms to large corporations.

### Asset Allocation as of 09/30/18



### Top 10 Securities as of 09/30/18

AIA Group Ltd ORD	2.7 %
Airbus SE ORD	2.5 %
Nintendo Co Ltd ORD	2.3 %
Samsung Electronics Co Ltd ORD	2.3 %
Reliance Industries Ltd ORD	2.3 %
HDFC Bank Ltd ORD	2.0 %
Alibaba Group Holding Ltd DR	1.8 %
Sony Corp ORD	1.7 %
ASML Holding NV ORD	1.6 %
Taiwan Semiconductor Manufacturing	1.6 %

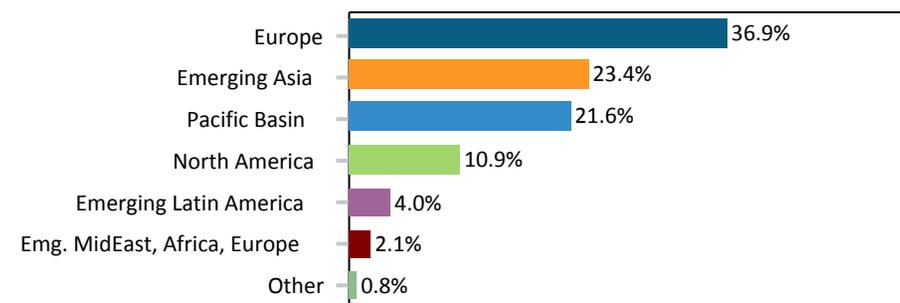
### Top 5 Countries as of 09/30/18

Japan	14.8 %
United Kingdom	8.5 %
India	7.7 %
China	7.0 %
United States	6.4 %

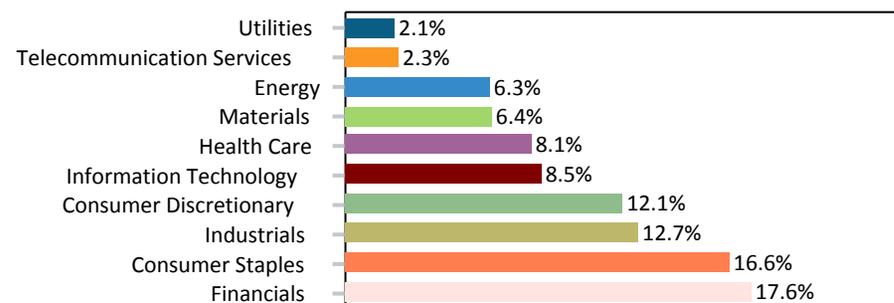
### Equity Characteristics as of 09/30/18

Total Securities	393
Avg. Market Cap	\$80,063 Million
P/E	25.2
P/B	4.6
Div. Yield	1.9%
Annual EPS	35.9

### Region Allocation as of 09/30/18



### Sector Allocation as of 09/30/18



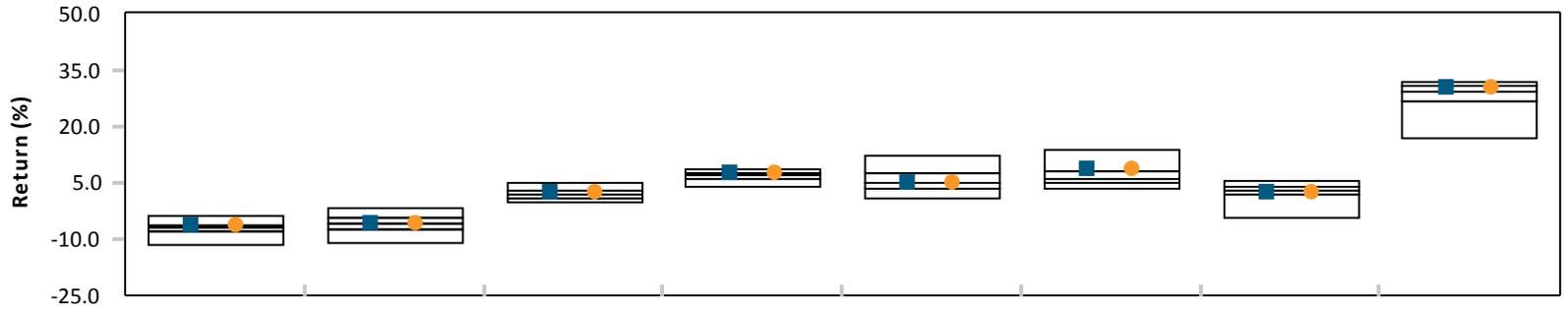
Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Real Estate Index Fund Adm

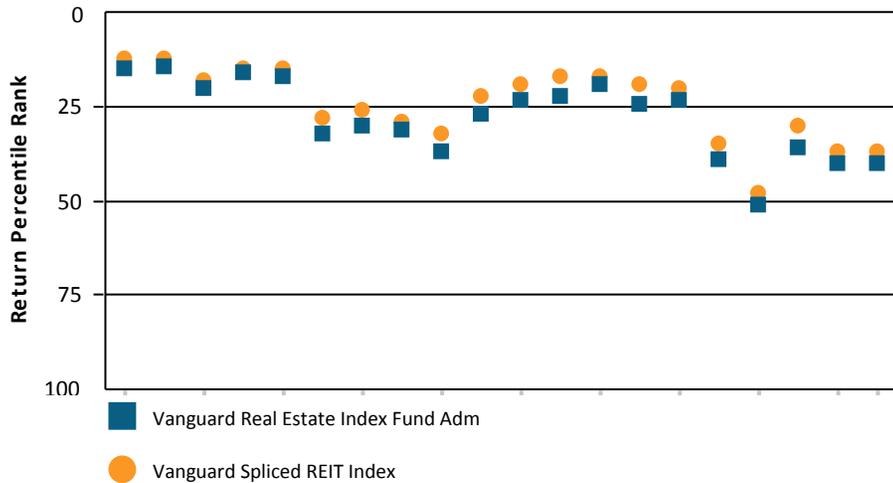
As of December 31, 2018

### Peer Group Analysis vs. IM Real Estate Sector (MF)

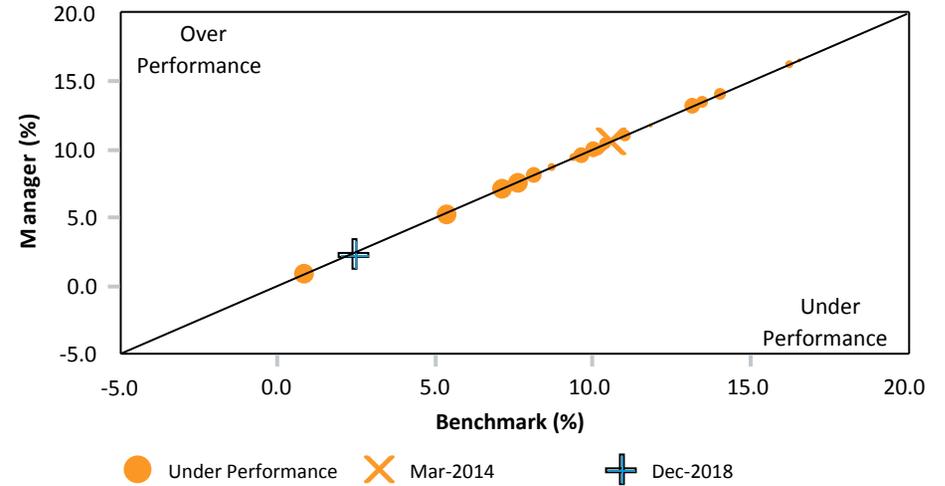


	QTR	1 Year	3 Years	5 Years	2017	2016	2015	2014
■ Vanguard Real Estate Index Fund Adm	-6.4 (32)	-5.9 (55)	2.3 (40)	7.4 (35)	4.9 (55)	8.5 (19)	2.4 (63)	30.3 (32)
● Vanguard Spliced REIT Index	-6.4 (32)	-5.9 (53)	2.4 (37)	7.5 (31)	5.1 (51)	8.6 (18)	2.5 (59)	30.4 (30)
5th Percentile	-3.8	-1.9	4.7	8.6	12.1	13.6	5.3	32.1
1st Quartile	-6.2	-4.4	3.1	7.7	7.5	8.0	4.0	30.7
Median	-6.8	-5.7	1.9	6.9	5.1	6.2	2.9	29.4
3rd Quartile	-8.0	-7.3	0.9	6.1	3.7	5.0	1.8	26.6
95th Percentile	-11.4	-11.0	-0.4	4.0	0.9	3.4	-4.3	16.7

### 3 Year Rolling Percentile Ranking vs. IM Real Estate Sector (MF)



### 3 Year Rolling Under/Over Performance vs. Vanguard Spliced REIT Index

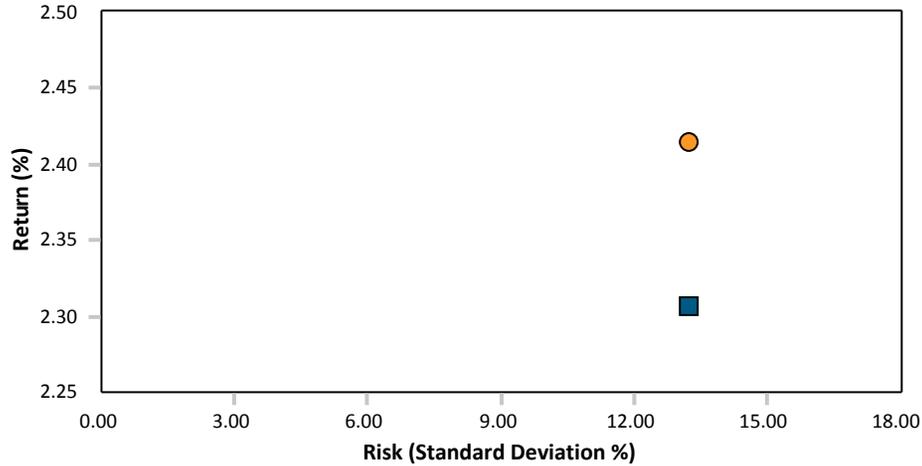


Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

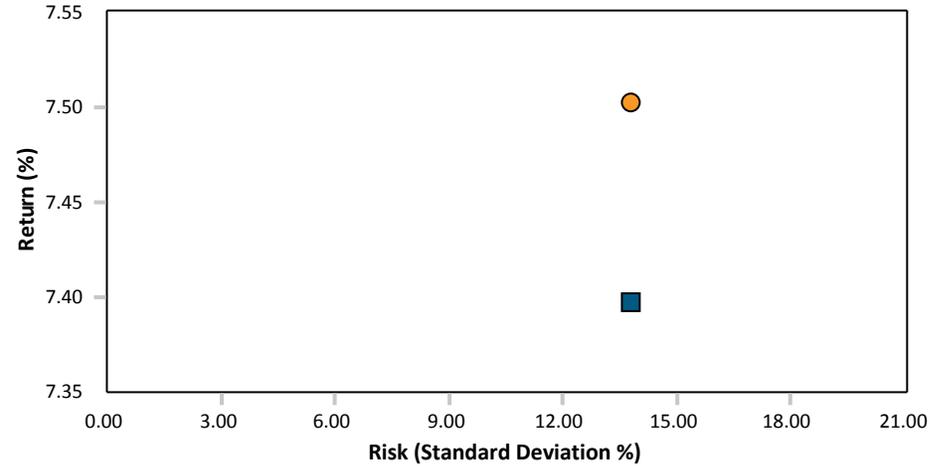
Vanguard Real Estate Index Fund Adm  
As of December 31, 2018

## 3 Year Risk and Return



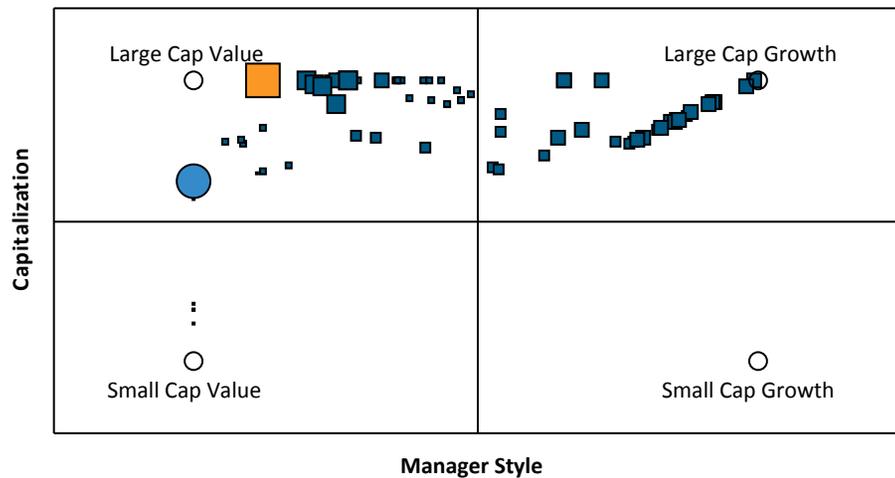
- Vanguard Real Estate Index Fund Adm
- Vanguard Spliced REIT Index

## 5 Year Risk and Return



- Vanguard Real Estate Index Fund Adm
- Vanguard Spliced REIT Index

## Style Map - 3 Years



- Style History
- Dec-2018
- Average Style Exposure

## MPT Statistics vs. Vanguard Spliced REIT Index

	3 Years	5 Years
Return	2.3	7.4
Standard Deviation	13.3	13.8
vs. Vanguard Spliced REIT Index		
Alpha	-0.1	-0.1
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	5.6	8.3
Up Market Capture	99.8	99.8
Down Market Capture	100.4	100.3
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.2	0.5

Mutual fund data sourced from Lipper Analytical Services.

# Manager Evaluation

## Vanguard Real Estate Index Fund Adm

Report Date December 31, 2018

### Mutual Fund Information

Fund Name :	Vanguard Specialized Funds: Vanguard Real Estate Index Fund; Admiral Shares	Portfolio Assets :	\$60,778 Million
Fund Family :	Vanguard Group Inc	Fund Assets :	\$17,863 Million
Ticker :	VGSLX	Portfolio Manager :	O'Reilly/Nejman
Inception Date :	11/12/2001	PM Tenure :	2001--2016
Portfolio Turnover :	6%		

### Fund Investment Policy

The Fund seeks to provide a high level of income and moderate long-term capital appreciation by tracking the performance of a benchmark index that measures the performance of publicly traded equity REITs and other real estate-related investments. The Fund employs indexing to track the performance of the Index.

### Asset Allocation as of 11/30/18



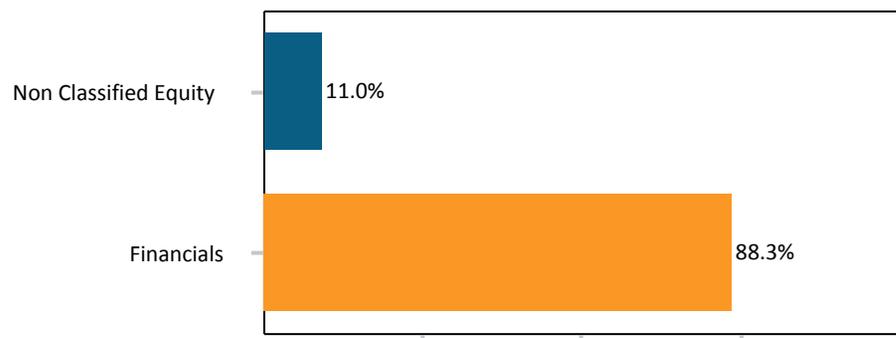
### Top 10 Securities as of 11/30/18

Vanguard Real Estate II Index Fund;Insti	11.0 %
American Tower Corp ORD	5.9 %
Simon Property Group Inc ORD	4.7 %
Crown Castle International Corp	3.9 %
Prologis Inc ORD	3.5 %
Public Storage ORD	2.7 %
Equinix Inc ORD	2.5 %
Welltower Inc ORD	2.2 %
AvalonBay Communities Inc ORD	2.2 %
Equity Residential ORD	2.2 %

### Equity Characteristics as of 11/30/18

Total Securities	193
Avg. Market Cap	\$22,135 Million
P/E	39.5
P/B	4.4
Div. Yield	4.0%
Annual EPS	6.3
5Yr EPS	11.6
3Yr EPS Growth	11.4

### Sector Allocation as of 11/30/18



## Benchmark Composition

OPEB Plan

As of December 31, 2018

Allocation Mandate	Weight (%)
Dec-2015	
Blmbg. Barc. U.S. Aggregate Index	87.5
Bloomberg Barclays U.S. TIPS Index	12.5
Aug-2014	
Blmbg. Barc. U.S. Aggregate Index	50.0
Blmbg. Barc. U.S. Credit 5-10 Year Index	37.5
Bloomberg Barclays U.S. TIPS Index	12.5
May-2012	
Blmbg. Barc. U.S. Aggregate Index	83.3
Bloomberg Barclays U.S. TIPS Index	16.7
Mar-1997	
Blmbg. Barc. U.S. Aggregate Float Adjusted	100.0

## Benchmark Composition

OPEB Plan

As of December 31, 2018

Allocation Mandate	Weight (%)
Aug-2014	
MSCI AC World ex USA (Net)	50.0
FTSE Global ex USA All Cap Index (Net)	50.0
Jun-2013	
FTSE Global ex USA All Cap Index (Net)	100.0
May-2012	
MSCI AC World ex USA (Net)	100.0
Mar-1997	
FTSE All World - Ex US	100.0

## Prospectus Links

As of December 31, 2018

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<b><u>FUND FAMILY</u></b>	<b><u>WEB SITE</u></b>
Blackrock	<a href="http://www.blackrock.com">www.blackrock.com</a>
American Funds	<a href="http://www.americanfunds.com">www.americanfunds.com</a>
Eaton Vance	<a href="http://www.eatonvance.com">www.eatonvance.com</a>
Templeton	<a href="http://www.franklintempleton.com">www.franklintempleton.com</a>
Prudential	<a href="http://www.prudential.com">www.prudential.com</a>
Vanguard	<a href="http://www.vanguard.com">www.vanguard.com</a>

## Investment Statistics – Descriptions

Statistic	Description
<b>Active Return</b>	Arithmetic difference between the manager's return and the benchmark return over a specified period.
<b>Excess Return</b>	Arithmetic difference between the manager's return and the risk-free return over a specified period.
<b>Standard Deviation</b>	Represents the degree of variation, or dispersion, of a portfolio's return in relation to its mean return. It is a measure of volatility or investment risk.
<b>Downside Risk</b>	A measure of the standard deviation, or volatility, of a portfolio's negative returns in relation to the mean of the negative returns over a specified period. The higher the figure, the riskier the portfolio in negative performance environments.
<b>Sharpe Ratio</b>	Represents the excess return over the risk-free return divided by the standard deviation of the portfolio's return. The ratio shows how well a portfolio performs versus a risk-free investment. The higher the value, the better the portfolio's historical risk-adjusted performance.
<b>Tracking Error</b>	A measure of the standard deviation of a portfolio's excess return over the return of appropriate market benchmark. Tracking error measures how closely a portfolio follows or tracks the index to which it is benchmarked.
<b>Information Ratio</b>	A measure of a portfolio's active return over its benchmark divided by the tracking error. A higher ratio indicates a manager's ability to consistently add active return relative to a benchmark.
<b>Beta</b>	A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk. A beta of 1.0 implies a portfolio is perfectly correlated to the market.
<b>Alpha</b>	A measure of the portfolio's value added relative to a benchmark, given its level of systematic risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market, or a portfolio's non-systematic return.
<b>Consistency</b>	Also known as batting average, the percentage of quarters that a portfolio achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the portfolio's active performance.
<b>R-Squared</b>	Also known as the coefficient of determination, R-Squared ( $R^2$ ) represents the percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. A high $R^2$ means a higher correlation of the portfolio's performance to that of the appropriate benchmark.
<b>Up Market Capture</b>	The ratio of a portfolio's average return over the benchmark during periods of positive benchmark return. Higher values indicate better performance in positive markets compared to the benchmark.
<b>Down Market Capture</b>	The ratio of a portfolio's average return over the benchmark during periods of negative benchmark return. Lower values indicate better performance (and better protection of capital) in down markets compared to the benchmark.
<b>Style Map</b>	Using returns-based style analysis, the style map gauges the adherence of a portfolio to its style mandate. The trend of the style plots identifies style drift, or lack thereof.
<b>Private Equity Investments</b>	
<b>Internal Rate of Return (IRR)</b>	An annualized money weighted return used primarily to measure performance of private equity investments. It represents the discount rate that makes the present value of the since inception paid-in capital and distributions associated with an investment equal to zero.
<b>Investment Multiple (TVPI)</b>	Also known as the total value paid-in capital. Multiple is calculated by dividing the fund's cumulative distributions and net asset value by the paid-in capital. The TVPI shows an investor the fund's total value as a multiple of its cost basis since inception.
<b>Realization Multiple (DPI)</b>	Also known as the distributions to paid-in capital (DPI) multiple. This is calculated by dividing the cumulative distributions by paid-in capital. It represents how much of an investor's invested capital has been returned to investors. A fund has broken even when multiple is greater than 1.0.
<b>RVPI Multiple (RVPI)</b>	Calculated by dividing residual value, or net asset value, by paid-in capital including fees paid and other expenses incurred. It measures how much of the fund's return is unrealized and dependent on the market value of its investments.
<b>PIC Multiple (PIC)</b>	Calculated by dividing paid-in capital by committed capital. This ratio allows a potential investor to see the percentage of a fund's committed capital that has been drawn down to date.

## Data Source Acknowledgements, Links and Disclaimers

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