



FIDUCIARY
INVESTMENT ADVISORS

Strategic thinking. Customized solutions.

Watertown Contributory Retirement System

Quarterly Investment Review - Third Quarter 2019

Please Save the Date

FIA 2020 Client Conference

Friday, June 12, 2020

Gurney's Newport Resort & Marina

1 Goat Island, Newport, RI

www.gurneysresorts.com/newport

- For overnight accommodations, please call (833) 235-7500 and mention the FIA Client Conference for a discounted rate of \$299 (available until May 14, 2020)
- Pre-conference New England clambake or sunset sail excursion on Thursday, June 11
- Conference attendees and their guests will also receive 20% off services at Seawater, Gurney's onsite spa
- Transportation to downtown Newport provided via complimentary shuttle



Formal invitation to follow

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Fiduciary Governance Calendar

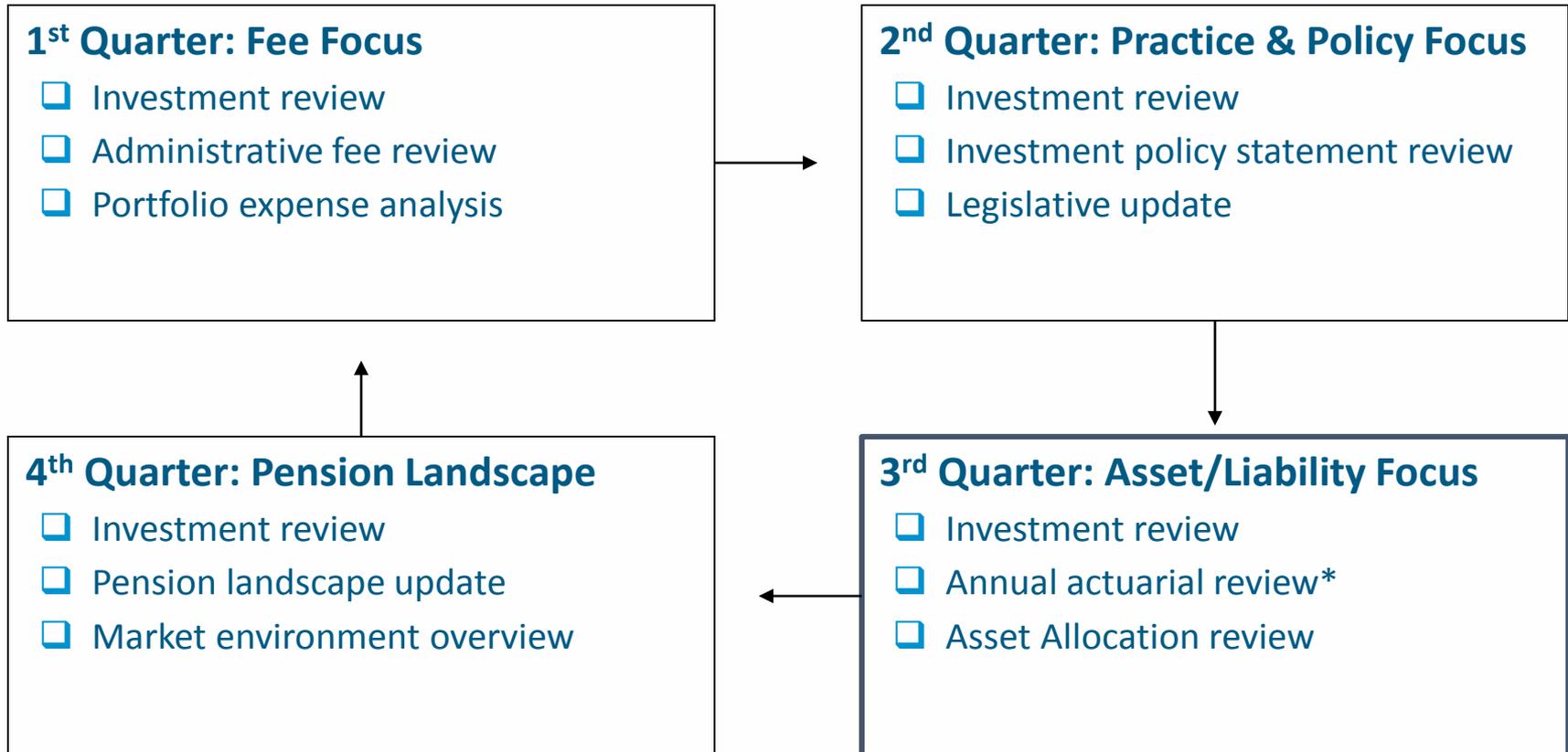
Section 2

Capital Markets Overview

Section 3

Portfolio and Manager Review

Defined Benefit Fiduciary Governance Calendar



* Timing of actuarial and liability review dependent on client's individual plan and /or fiscal year and actuarial input.

Actuarial Review

Watertown Retirement System

Sherman Actuarial Services Actuarial Valuation Report, January 1, 2018

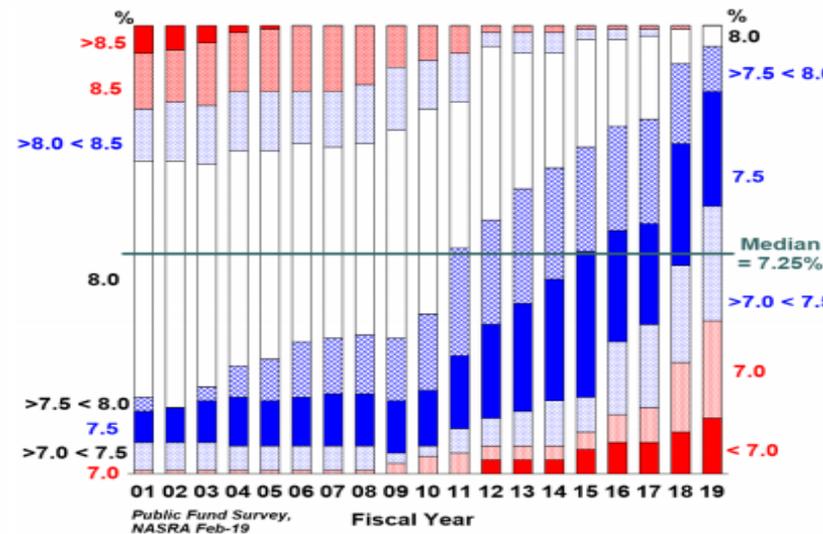
	Most Recent Date As of 1/1/2018	Previous Year Date As of 1/1/2017
Actuarial Value of Assets	\$181,766,705	\$161,808,944
Total Accrued Liability	\$206,008,967	\$197,794,001
Funded Ratio	88.2%	81.8%
Actuarial Return Assumption	7.9%	7.9%

Source: Sherman Actuarial Services, 2018 Valuation Report

Public Plans – Investment Return Assumptions

Public pension plan investment return assumptions trend lower

- Directionally, investment return assumptions for public plans **have trended lower** over the last few years influenced by changes in economic and financial conditions.
- Plans have taken a **measured approach** to adopting lower investment return assumptions by working closely with the plan actuary to analyze the potential cost impact in conjunction with other actuarial assumptions.
- It's important to note that investment earnings account for a majority of public pension financing. An investment return that is **set too low** can overstate liabilities and costs at the expense of current taxpayers, while an investment rate **set too high** will understate liabilities at the expense of future taxpayers.



- A plan's actuary and its investment advisor can assist in establishing a **prudent investment policy** by predicting the cost of future benefits and working collaboratively with the plan sponsor to determine an asset allocation which, when combined with **adequate contributions**, can generate sufficient growth to meet pension obligations.

Asset Allocation Analysis

- **Asset allocation** is the primary determinant of long-term investment results.¹
- **Asset allocation** should be reviewed periodically to confirm that the risk and return expectations of the investment portfolio remain in-line with the long-term goals and strategy of the plan.
- FIA utilizes **mean-variance optimization**, which is augmented by **Monte Carlo simulation**, as the basis for asset allocation analysis. These exercises are conducted via a software package called Stylus.
- The analysis relies heavily on data input. FIA develops **risk and return assumptions** for each major asset class on an annual basis. The annual process is as follows:
 - ✓ The FIA Investment Committee discusses the current economic landscape, reviews the previous year's assumptions, and compares FIA's current thinking with that of other industry thought leaders
 - ✓ FIA gathers survey data of the risk/return assumptions from over 20 investment firms
 - ✓ Standing assumptions are either verified or updated
 - ✓ Assumptions are developed for both a **full market cycle** outlook (7-10 year) and a **long-term** outlook (20 year)
- **Correlations** (how asset classes behave in reference to one another) also significantly impact asset allocation analysis.
 - ✓ Correlation information is historical in nature (rather than forward-looking)
- The industry trend has been to lower **actuarial investment return assumptions** based on lower capital market expectations. Given the current market environment, full market cycle (7-10 year) return assumptions are lower than long term (20 year) assumptions.

¹ Brinson, G.P., Singer, B.D. and Beebower, G.I., "Determinants of Portfolio Performance II: An Update", Financial Analysts Journal, May-June 1991.

Asset Allocation Analysis

FIA Asset Class Assumptions:

Asset Class	Watertown Retirement System Target Allocation (%)	Return Assumptions: Full Market Cycle 7-10 Year (%)	Return Assumptions: Full Market Cycle 20 Year (%)	Risk: Standard Deviation (%)
Cash	0.00	1.95	2.65	0.65
Short Duration	0.00	2.10	2.75	2.10
Core Fixed Income	19.00	3.05	3.85	5.30
Long Duration Fixed Income	0.00	3.50	4.35	10.50
High Yield Fixed Income	2.50	4.60	5.35	10.20
Global Fixed Income	4.00	3.60	4.05	7.90
U.S. Large Cap	23.00	6.20	7.15	16.50
U.S. Small Cap	7.50	6.65	7.55	20.15
International Developed	18.50	6.95	7.85	18.70
Emerging Markets	3.00	7.90	8.65	25.00
Commodities	0.00	4.15	4.75	17.45
REITs	1.50	6.00	6.35	17.25
Private Real Estate	8.50	5.80	6.50	14.00
Hedge Funds	7.50	5.25	6.00	8.40
Private Equity	5.00	9.00	10.00	22.50

- Risk/return assumptions are developed on an annual basis
- Risk/return assumptions are forward-looking in nature
- Return assumptions are nominal (not real)

Asset Allocation Study

Watertown Retirement System

October 2019

Capital Market Return Assumptions: 20-Year

Disclaimer: The information contained in this report has been taken from trade and statistical services and other sourced deemed reliable, although its accuracy cannot be guaranteed, and it should not be relied upon as such. The output derived from our existing capital market assumptions and any opinions expressed herein reflect our judgement at this point in time and are subject to change without notice. Past performance should not be considered representative of future results. There is no guarantee that a portfolio will meet its expected return objective and/or maintain a level of risk within the stated parameters of this analysis. Moreover, you should not assume that any discussion or information contained in this document serves as the receipt of, or as a substitute for, personalized investment advice from Fiduciary Investment Advisors. Fiduciary Investment Advisors is neither a law firm nor a certified public accounting firm and no portion of the content should be construed as legal or accounting advice. Please remember to contact Fiduciary Investment Advisors, in writing, if there are any changes in your financial situation or investment objectives for the purpose of reviewing, evaluating, or revising our previous recommendations and/or services.

DESCRIPTION OF THE ANALYTICS



ASSET ALLOCATION MODELING

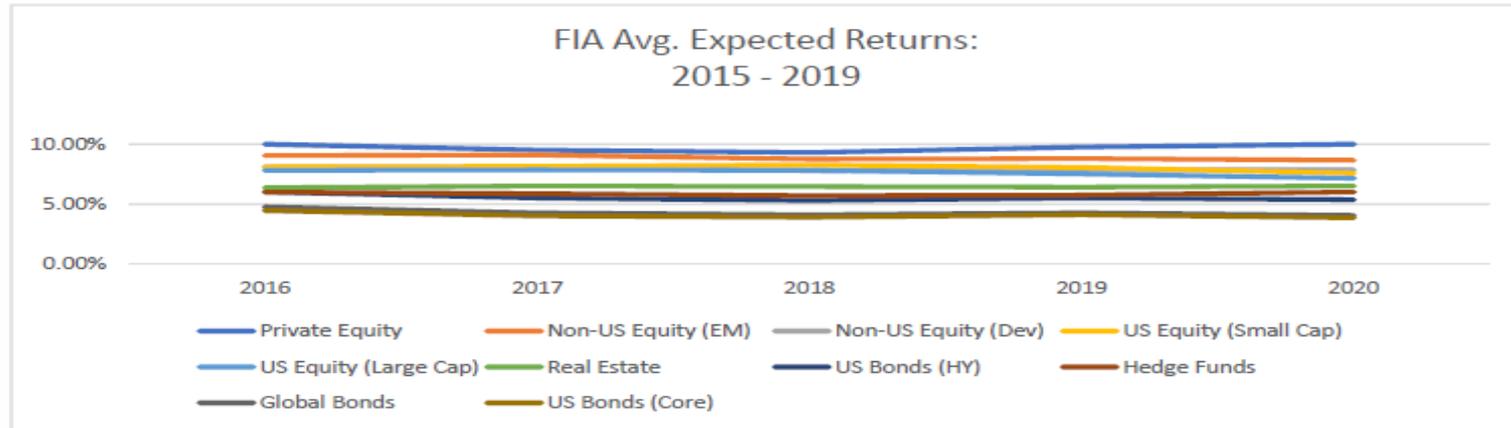
- The allocation strategy adopted by a client will be its primary determinant of long-term investment results.
- The model utilizes mean-variance optimization, which is augmented by Monte Carlo simulation, as the basis for analyzing the desirability of various asset allocation strategies.
- The modeling effort provides a spectrum of portfolio outcomes, from least to most aggressive (typically defined by the degree of use of the higher return, higher volatility asset classes), for client consideration.
- The output provides the basis for clients to explicitly frame their existing and/or desired risk and return posture against other portfolio mixes.
- The effects, and potential benefits, of adding previously unused asset classes can be modeled and analyzed.
- The modeling permits the application of “real world” asset class constraints to ensure that pragmatic, actionable allocation strategies are generated.

CAPITAL MARKET ASSUMPTIONS

- The Investment Committee at FIA formally reviews the assumptions utilized as inputs for asset allocation studies on, at least, an annual basis.
- The Committee reviews and sets long-term return, risk, and correlation parameters for the major asset classes.
- While historical asset class outcomes serve as an important guide in setting assumptions, the Committee factors in existing capital market conditions to refine its expectations.
- The Committee complements its own thinking with that of other thought leaders in the capital markets.
- The Committee operates under the basic premise that those asset classes with higher expected returns are generally anticipated to be more volatile as well. In addition, those asset classes possessing low correlations to existing portfolio holdings may be worthy additions to an investment strategy marked by their absence.

Asset Class Expected Returns

Year by Year History: 2016 - 2020



	2016	2017	2018	2019	2020
Private Equity	10.00%	9.50%	9.30%	9.75%	10.00%
Non-US Equity (EM)	9.05%	9.10%	8.75%	8.80%	8.65%
Non-US Equity (Dev)	8.10%	8.05%	7.80%	7.85%	7.85%
US Equity (Small Cap)	8.10%	8.15%	8.25%	8.05%	7.55%
US Equity (Large Cap)	7.80%	7.85%	7.80%	7.50%	7.15%
Real Estate	6.35%	6.50%	6.45%	6.40%	6.50%
US Bonds (HY)	6.00%	5.50%	5.30%	5.50%	5.35%
Hedge Funds	6.00%	5.85%	5.70%	5.75%	6.00%
Global Bonds	4.75%	4.25%	4.10%	4.25%	4.05%
US Bonds (Core)	4.45%	4.00%	3.90%	4.10%	3.85%

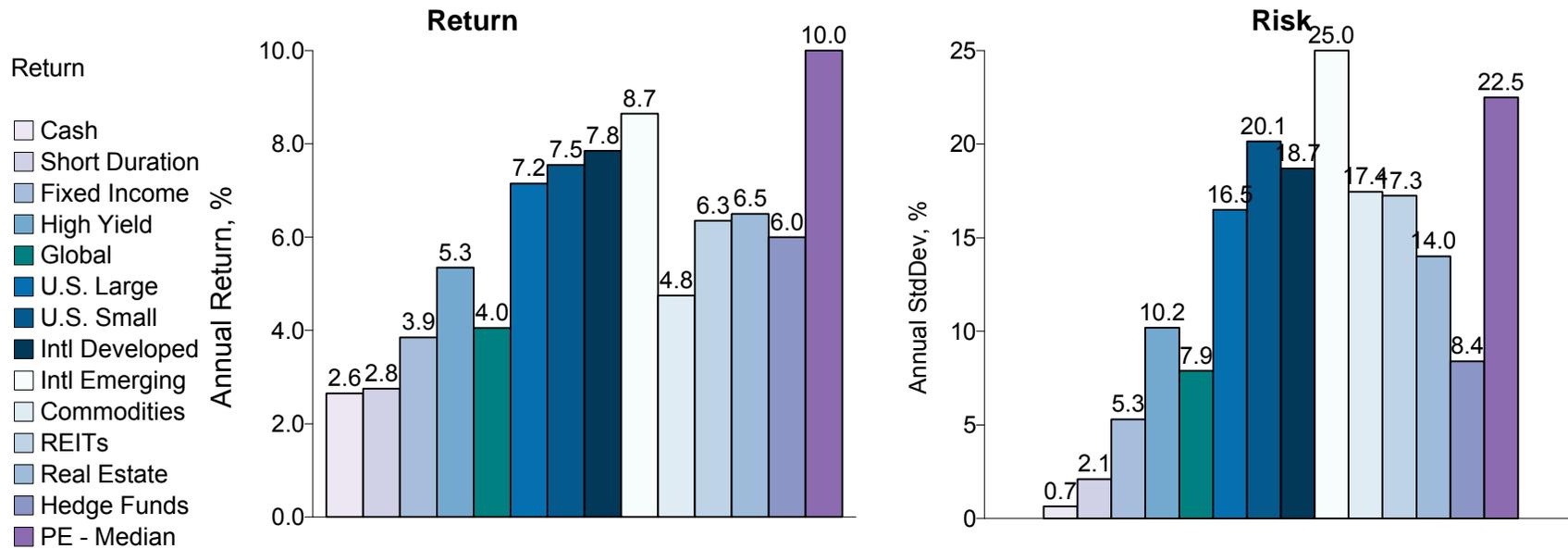
Watertown Portfolio:

Private Equity	5.0%
Non-US Equity (EM)	3.0%
Non-US Equity (Dev)	18.5%
US Equity (Small Cap)	5.5%
US Equity (Large Cap)	25.0%
Real Estate	10.0%
US Bonds (HY)	2.5%
Hedge Funds	7.5%
Global Bonds	4.0%
US Bonds (Core)	19.0%

Watertown Portfolio Expected Return History:

	2016	2017	2018	2019	2020
	6.94%	6.80%	6.68%	6.68%	6.54%

CAPITAL MARKET ASSUMPTIONS



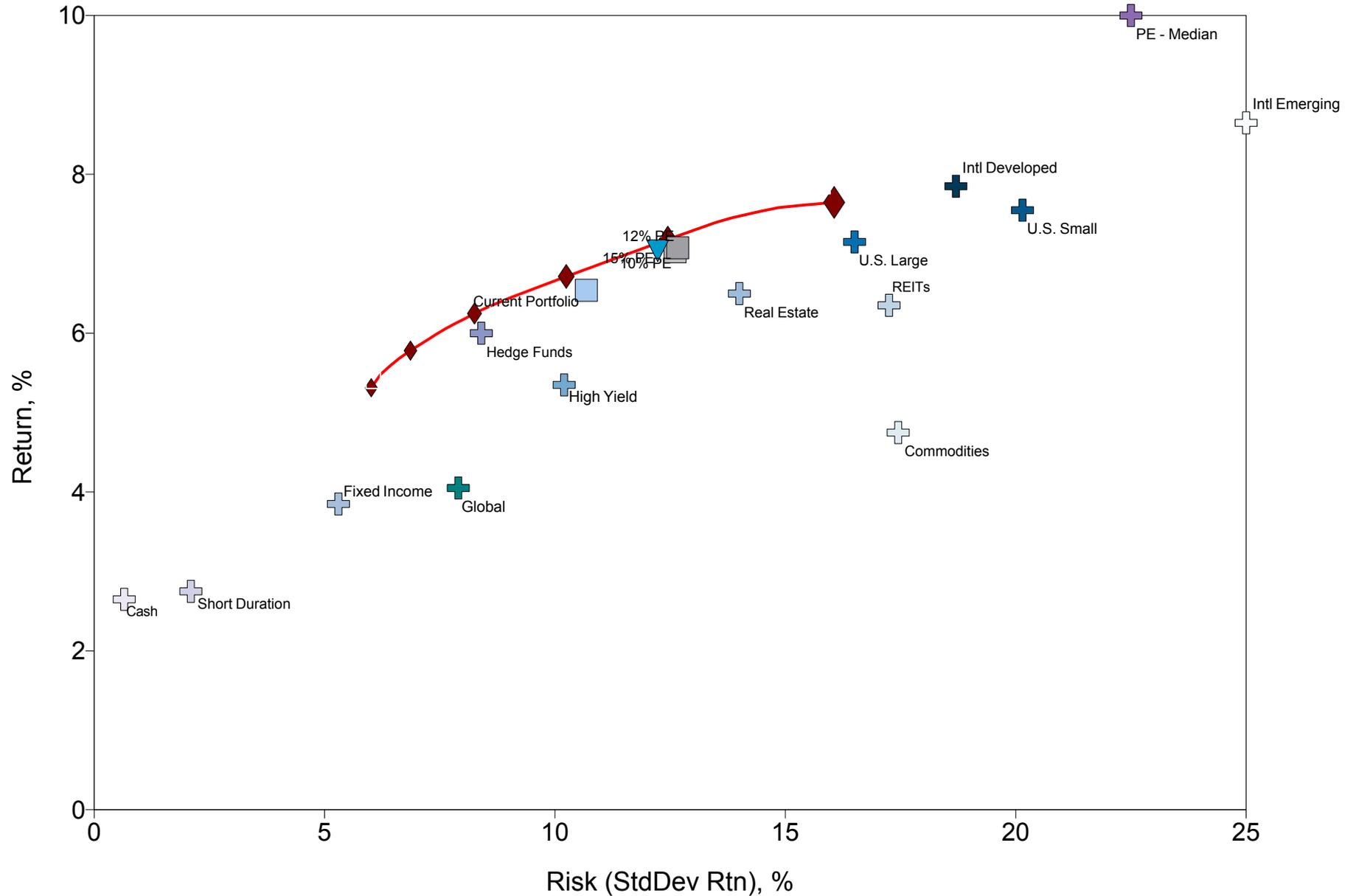
Asset Allocation Inputs, %

	Return, %	StdDev Rtn, %
Cash	2.65	0.65
Short Duration	2.75	2.10
Fixed Income	3.85	5.30
High Yield	5.35	10.20
Global	4.05	7.90
U.S. Large	7.15	16.50
U.S. Small	7.55	20.15
Intl Developed	7.85	18.70
Intl Emerging	8.65	25.00
Commodities	4.75	17.45
REITs	6.35	17.25
Real Estate	6.50	14.00
Hedge Funds	6.00	8.40
PE - Median	10.00	22.50

PORTFOLIO EFFICIENCY

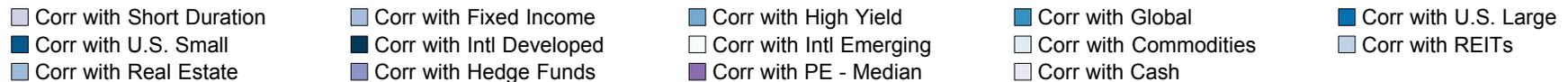
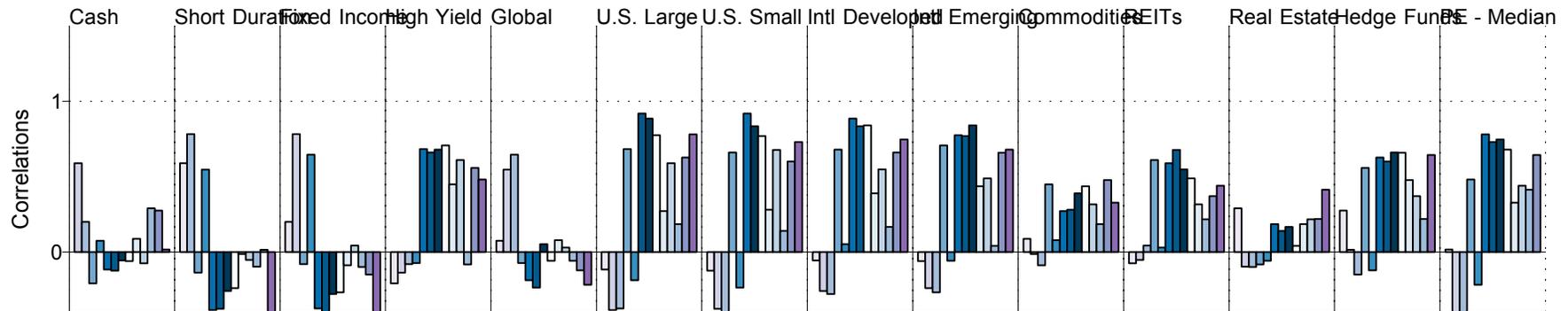
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Efficient Frontier: Return vs. Risk (StdDev Rtn)



CORRELATIONS

Correlation Inputs

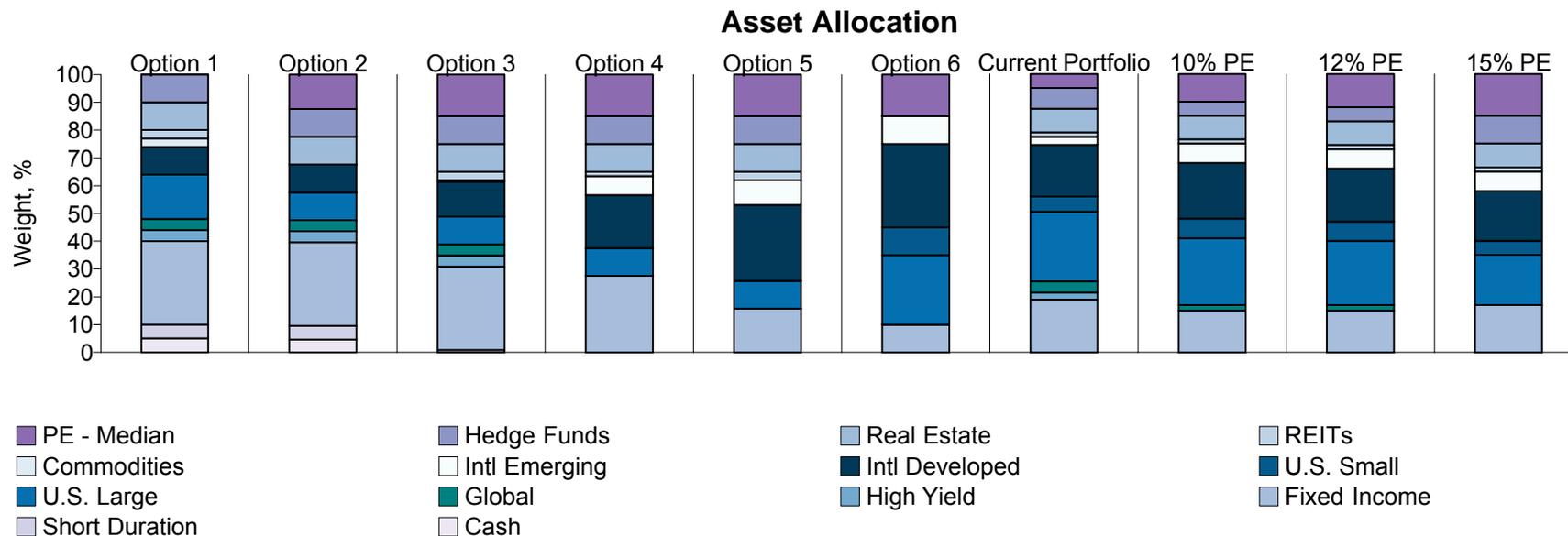


Correlation Matrix

	Return, %	StdDev Rtn, %	Corr with Cash	Corr with Short Duration	Corr with Fixed Income	Corr with High Yield	Corr with Global	Corr with U.S. Large	Corr with U.S. Small	Corr with Intl Developed	Corr with Intl Emerging	Corr with Commodities	Corr with REITs	Corr with Real Estate	Corr with Hedge Funds	Corr with PE - Median
Cash	2.65	0.65	1.00	0.59	0.20	-0.21	0.07	-0.12	-0.12	-0.06	-0.06	0.09	-0.08	0.29	0.27	0.02
Short Duration	2.75	2.10	0.59	1.00	0.78	-0.14	0.55	-0.39	-0.38	-0.26	-0.24	-0.01	-0.05	-0.10	0.01	-0.42
Fixed Income	3.85	5.30	0.20	0.78	1.00	-0.08	0.64	-0.38	-0.40	-0.28	-0.27	-0.09	0.04	-0.10	-0.15	-0.41
High Yield	5.35	10.20	-0.21	-0.14	-0.08	1.00	-0.07	0.68	0.66	0.68	0.71	0.45	0.61	-0.08	0.56	0.48
Global	4.05	7.90	0.07	0.55	0.64	-0.07	1.00	-0.19	-0.24	0.05	-0.06	0.08	0.03	-0.06	-0.12	-0.22
U.S. Large	7.15	16.50	-0.12	-0.39	-0.38	0.68	-0.19	1.00	0.92	0.89	0.77	0.27	0.59	0.18	0.63	0.78
U.S. Small	7.55	20.15	-0.12	-0.38	-0.40	0.66	-0.24	0.92	1.00	0.83	0.77	0.28	0.68	0.14	0.60	0.73
Intl Developed	7.85	18.70	-0.06	-0.26	-0.28	0.68	0.05	0.89	0.83	1.00	0.84	0.39	0.55	0.17	0.66	0.75
Intl Emerging	8.65	25.00	-0.06	-0.24	-0.27	0.71	-0.06	0.77	0.77	0.84	1.00	0.43	0.49	0.04	0.66	0.68
Commodities	4.75	17.45	0.09	-0.01	-0.09	0.45	0.08	0.27	0.28	0.39	0.43	1.00	0.32	0.19	0.48	0.33
REITs	6.35	17.25	-0.08	-0.05	0.04	0.61	0.03	0.59	0.68	0.55	0.49	0.32	1.00	0.22	0.37	0.44
Real Estate	6.50	14.00	0.29	-0.10	-0.10	-0.08	-0.06	0.18	0.14	0.17	0.04	0.19	0.22	1.00	0.22	0.41
Hedge Funds	6.00	8.40	0.27	0.01	-0.15	0.56	-0.12	0.63	0.60	0.66	0.66	0.48	0.37	0.22	1.00	0.64
PE - Median	10.00	22.50	0.02	-0.42	-0.41	0.48	-0.22	0.78	0.73	0.75	0.68	0.33	0.44	0.41	0.64	1.00

ASSET ALLOCATION

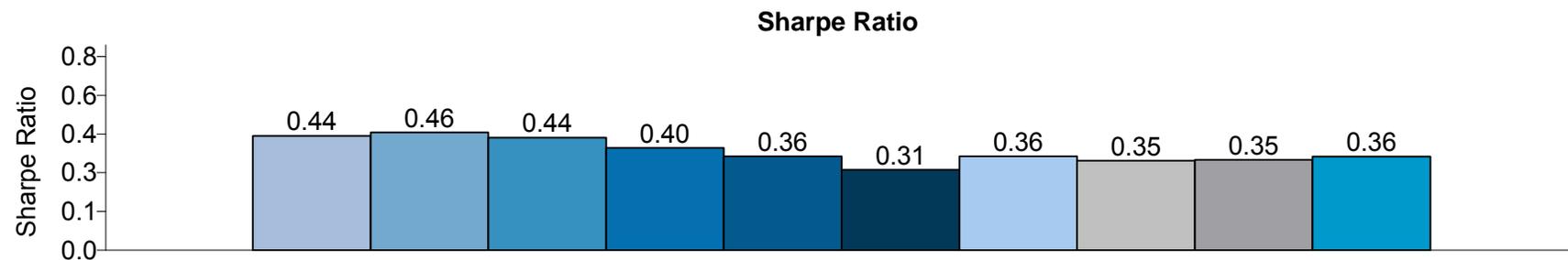
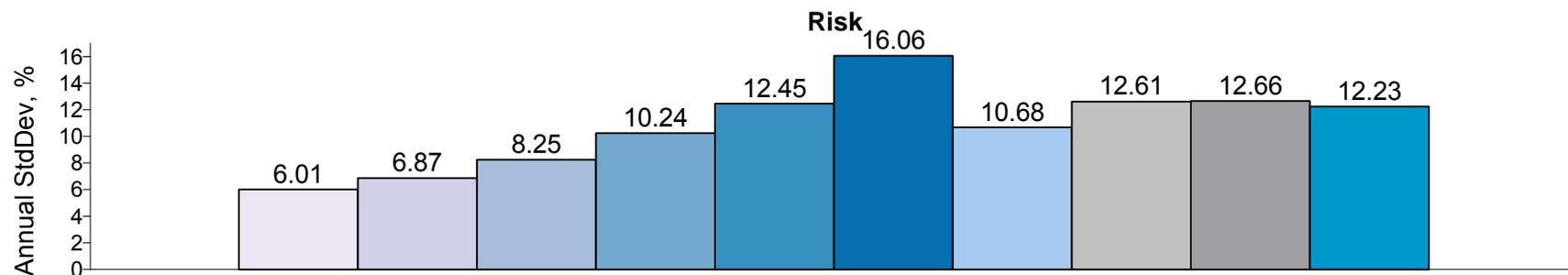
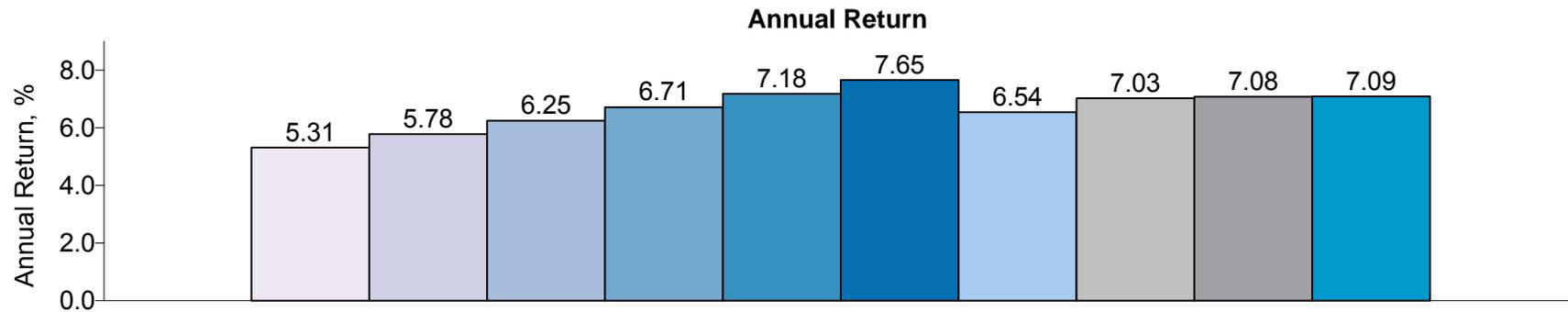
Constrained



	Portfolio Assets, %													
	Cash	Short Duration	Fixed Income	High Yield	Global	U.S. Large	U.S. Small	Intl Developed	Intl Emerging	Commodities	REITs	Real Estate	Hedge Funds	PE - Median
Option 1	5.0	5.0	30.0	4.0	4.0	16.0	0.0	10.0	0.0	3.0	3.0	10.0	10.0	0.0
Option 2	4.6	5.0	30.0	4.0	4.0	10.0	0.0	10.0	0.0	0.0	0.0	10.0	10.0	12.4
Option 3	0.0	0.8	30.0	4.0	4.0	10.0	0.0	12.6	0.6	0.0	3.0	10.0	10.0	15.0
Option 4	0.0	0.0	27.5	0.0	0.0	10.0	0.0	19.1	6.8	0.0	1.5	10.0	10.0	15.0
Option 5	0.0	0.0	15.7	0.0	0.0	10.0	0.0	27.4	8.9	0.0	3.0	10.0	10.0	15.0
Option 6	0.0	0.0	10.0	0.0	0.0	25.0	10.0	30.0	10.0	0.0	0.0	0.0	0.0	15.0
Current Portfolio	0.0	0.0	19.0	2.5	4.0	25.0	5.5	18.5	3.0	0.0	1.5	8.5	7.5	5.0
10% PE	0.0	0.0	15.0	0.0	2.0	24.0	7.0	20.0	7.0	0.0	1.5	8.5	5.0	10.0
12% PE	0.0	0.0	15.0	0.0	2.0	23.0	7.0	19.0	7.0	0.0	1.5	8.5	5.0	12.0
15% PE	0.0	0.0	17.0	0.0	0.0	18.0	5.0	18.0	7.0	0.0	1.5	8.5	10.0	15.0

PORTFOLIO RISK & RETURN

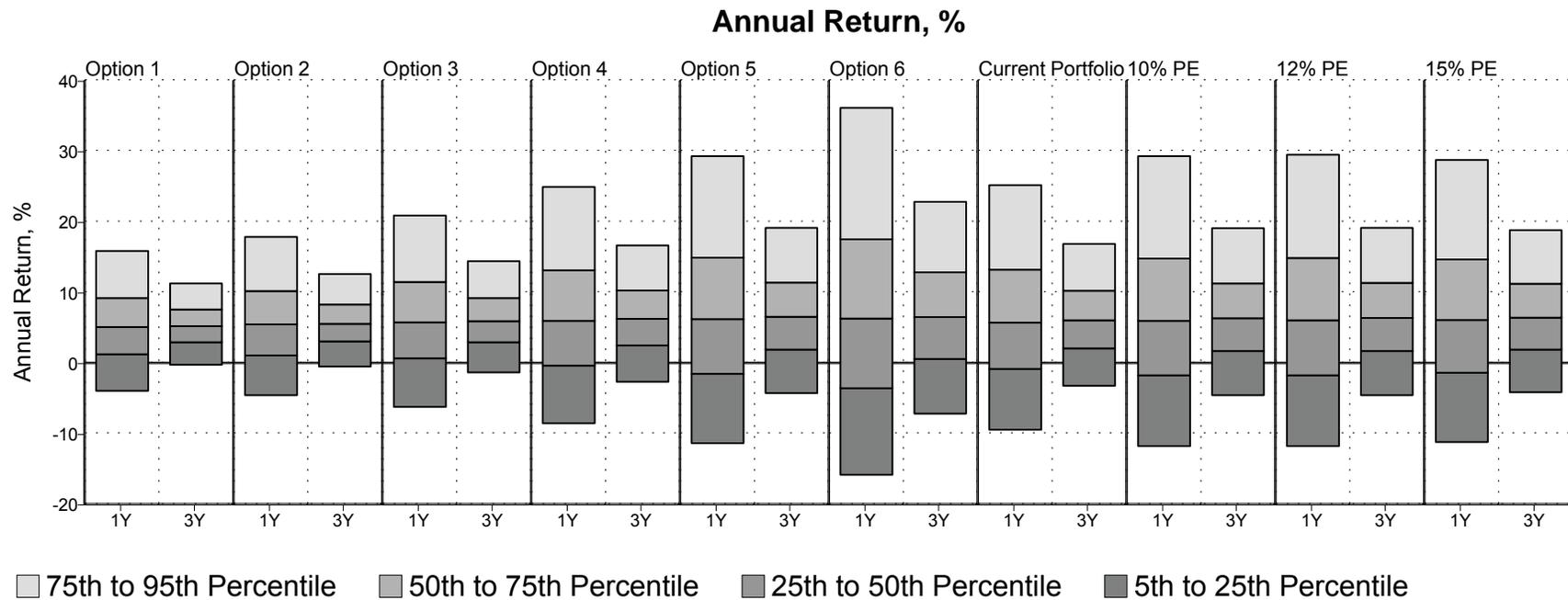
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Option 1 Option 2 Option 3 Option 4 Option 5 Option 6 Current Portfolio 10% PE 12% PE 15% PE

PORTFOLIO RETURN DISTRIBUTIONS 1YR/3YR

Constrained



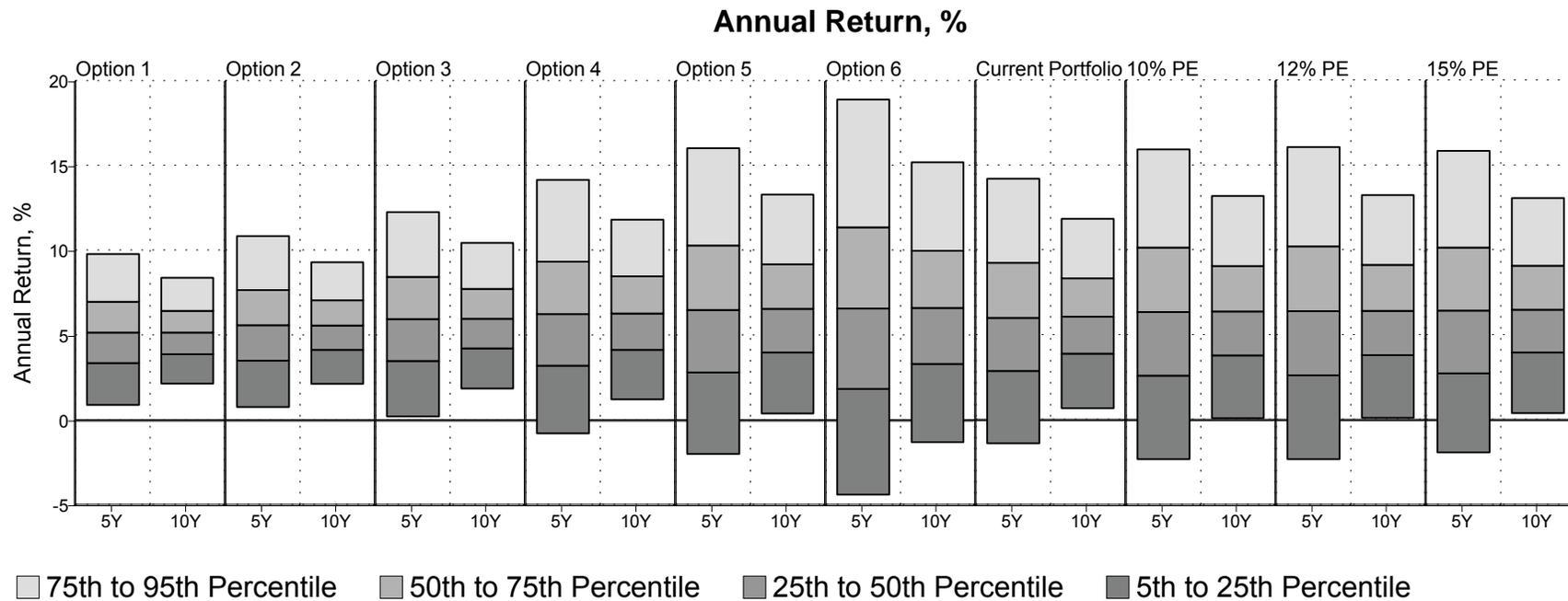
Monte-Carlo Lognormal Simulations

Annual Return, %

	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6		Current Portfolio		10% PE		12% PE		15% PE	
	1Y	3Y	1Y	3Y	1Y	3Y	1Y	3Y	1Y	3Y										
5th Percentile	-4.1	-0.4	-4.7	-0.6	-6.3	-1.4	-8.6	-2.8	-11.5	-4.4	-16.0	-7.3	-9.6	-3.4	-11.9	-4.7	-11.9	-4.7	-11.3	-4.2
25th Percentile	1.1	2.8	1.0	2.9	0.5	2.8	-0.5	2.4	-1.6	1.8	-3.7	0.5	-1.0	1.9	-1.9	1.6	-1.8	1.6	-1.5	1.8
50th Percentile	5.0	5.1	5.3	5.5	5.7	5.8	5.9	6.1	6.1	6.4	6.2	6.4	5.6	5.9	5.9	6.2	5.9	6.3	6.0	6.3
75th Percentile	9.1	7.5	10.1	8.2	11.4	9.1	13.0	10.2	14.8	11.3	17.4	12.8	13.1	10.1	14.7	11.2	14.8	11.2	14.6	11.1
95th Percentile	15.8	11.2	17.8	12.5	20.8	14.3	24.8	16.5	29.2	19.0	36.0	22.7	25.1	16.8	29.2	19.0	29.4	19.0	28.6	18.7

PORTFOLIO RETURN DISTRIBUTIONS 5YR/10YR

Constrained



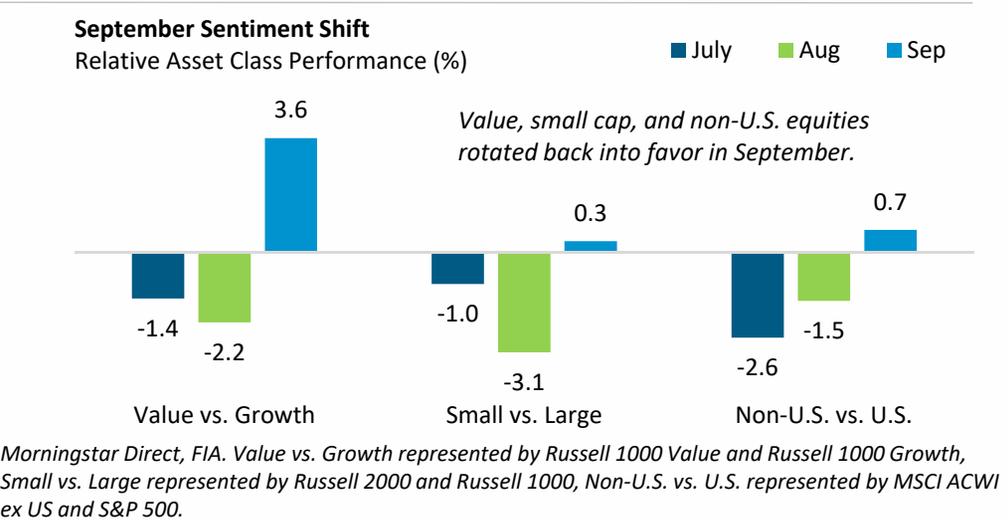
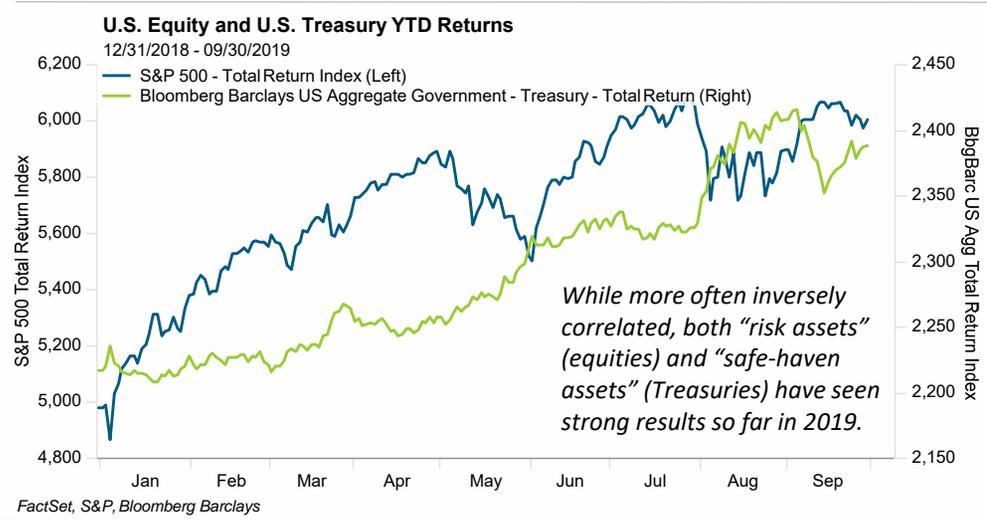
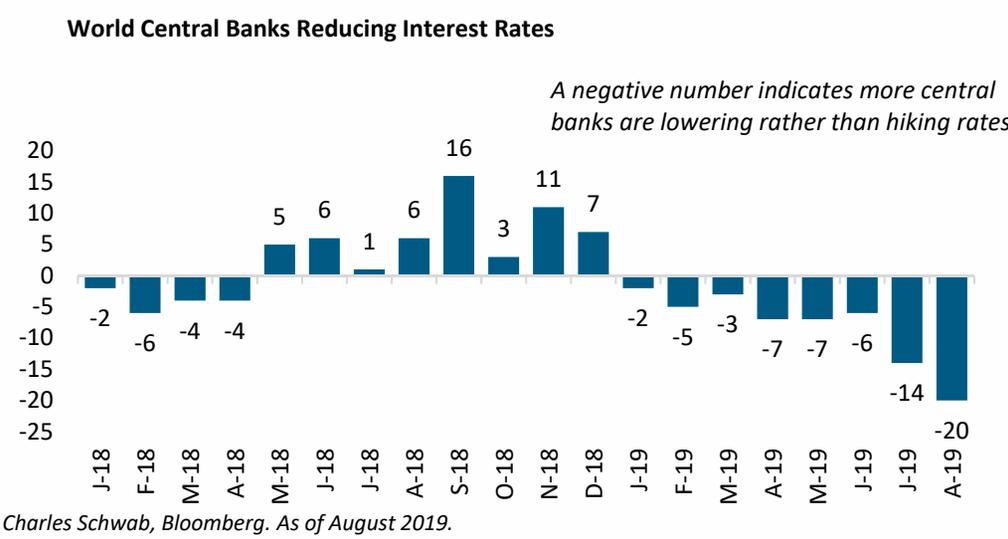
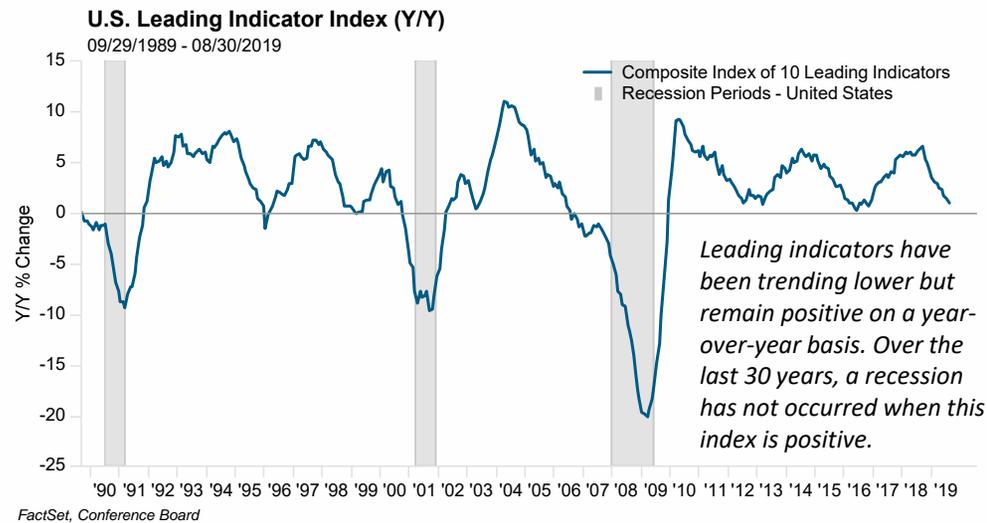
Monte-Carlo Lognormal Simulations

Annual Return, %

	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6		Current Portfolio		10% PE		12% PE		15% PE	
	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y
5th Percentile	0.9	2.1	0.7	2.1	0.2	1.8	-0.8	1.2	-2.0	0.4	-4.4	-1.3	-1.4	0.7	-2.3	0.1	-2.3	0.1	-2.0	0.4
25th Percentile	3.3	3.9	3.5	4.1	3.4	4.2	3.2	4.1	2.8	4.0	1.8	3.3	2.9	3.9	2.6	3.8	2.6	3.8	2.7	3.9
50th Percentile	5.1	5.1	5.6	5.5	5.9	5.9	6.2	6.2	6.5	6.5	6.5	6.6	6.0	6.0	6.3	6.4	6.4	6.4	6.4	6.5
75th Percentile	6.9	6.4	7.6	7.0	8.4	7.7	9.3	8.4	10.3	9.2	11.3	10.0	9.2	8.3	10.1	9.0	10.2	9.1	10.1	9.1
95th Percentile	9.8	8.4	10.8	9.3	12.2	10.4	14.1	11.8	16.0	13.3	18.9	15.2	14.2	11.8	15.9	13.2	16.1	13.2	15.8	13.1

Economic & Market Conditions

- While resilient, a moderating global economy has served as the basis for a renewed round of central bank stimulus.
- Investors' attention continues to be drawn to U.S./China trade negotiations, Brexit, a mature earnings cycle, and negative yielding debt.
- Market performance was mixed in the quarter, although a noteworthy shift in sentiment was on display in September.



Index Results

U.S. EQUITY	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
S&P 500	1.7	20.6	4.3	13.4	10.8	13.2
Russell 1000	1.4	20.5	3.9	13.2	10.6	13.2
Russell 1000 Value	1.4	17.8	4.0	9.4	7.8	11.5
Russell 1000 Growth	1.5	23.3	3.7	16.9	13.4	14.9
Russell Mid Cap	0.5	21.9	3.2	10.7	9.1	13.1
Russell Mid Cap Value	1.2	19.5	1.6	7.8	7.6	12.3
Russell Mid Cap Growth	(0.7)	25.2	5.2	14.5	11.1	14.1
Russell 2000	(2.4)	14.2	(8.9)	8.2	8.2	11.2
Russell 2000 Value	(0.6)	12.8	(8.2)	6.5	7.2	10.1
Russell 2000 Growth	(4.2)	15.3	(9.6)	9.8	9.1	12.2
Russell 3000	1.2	20.1	2.9	12.8	10.4	13.1
FTSE NAREIT Equity REITs Index	7.8	27.0	18.4	7.4	10.3	13.0
INTERNATIONAL EQUITY	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
MSCI ACWI ex-US	(1.8)	11.6	(1.2)	6.3	2.9	4.5
MSCI EAFE	(1.1)	12.8	(1.3)	6.5	3.3	4.9
MSCI EAFE Value	(1.7)	7.7	(4.9)	5.1	1.0	3.2
MSCI EAFE Growth	(0.4)	17.9	2.2	7.8	5.5	6.5
MSCI EAFE Small Cap	(0.4)	12.1	(5.9)	5.9	6.0	7.5
MSCI EM (Emerging Markets)	(4.2)	5.9	(2.0)	6.0	2.3	3.4
FIXED INCOME	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
Barclays U.S. Aggregate Bond	2.3	8.5	10.3	2.9	3.4	3.7
Barclays U.S. Gov/Credit Bond	2.6	9.7	11.3	3.2	3.6	3.9
Barclays Gov/Credit Long Bond	6.6	20.9	21.9	5.6	6.8	7.4
Barclays U.S. Corp High Yield	1.3	11.4	6.4	6.1	5.4	7.9
Barclays Municipal Bond	1.6	6.7	8.6	3.2	3.7	4.2
Barclays U.S. TIPS	1.3	7.6	7.1	2.2	2.4	3.5
BofA Merrill 3-Month T-Bill	0.6	1.8	2.4	1.5	1.0	0.5
NON-TRADITIONAL	QUARTER	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR
Bloomberg Commodity Index	(1.8)	3.1	(6.6)	(1.5)	(7.2)	(4.3)
HFRI Fund of Funds Index	(1.1)	5.0	(0.2)	3.1	1.9	2.7
NCREIF Property Index (6/30/2019)	1.5	3.3	6.5	6.9	8.8	9.2
CPI (6/30/2019)	0.4	1.4	1.7	2.1	1.5	1.7

Sources: Morningstar Direct, Standard & Poor's, Russell, FTSE, MSCI, Barclays Capital, BofA Merrill Lynch, Bloomberg, HFRI, NCREIF. Data as of 09/30/2019 unless otherwise noted.

Equity & Fixed Income Review

U.S. Equity Size and Style Returns

QTR				1-Year		
Value	Blend	Growth		Value	Blend	Growth
1.4	1.4	1.5	Large	4.0	3.9	3.7
1.2	0.5	-0.7	Mid	1.6	3.2	5.2
-0.6	-2.4	-4.2	Small	-8.2	-8.9	-9.6

U.S. equities were mixed during the quarter. Large capitalization stocks outperformed both mid and small cap, the latter of which produced negative returns. Growth vs. value leadership was mixed in the quarter, with value coming back into favor across the capitalization spectrum in September. Utilities, real estate, and consumer staples were the top sectors this quarter, as these “bond proxies” benefited from investors’ continuing search for yield.

International Equity Size and Region Returns (USD)

QTR				1-Year		
Small	Mid	Large		Small	Mid	Large
-0.4	-0.6	-1.2	Dev	-5.9	-4.1	-0.6
-4.6	-5.7	-4.0	EM	-5.5	-2.7	-1.9

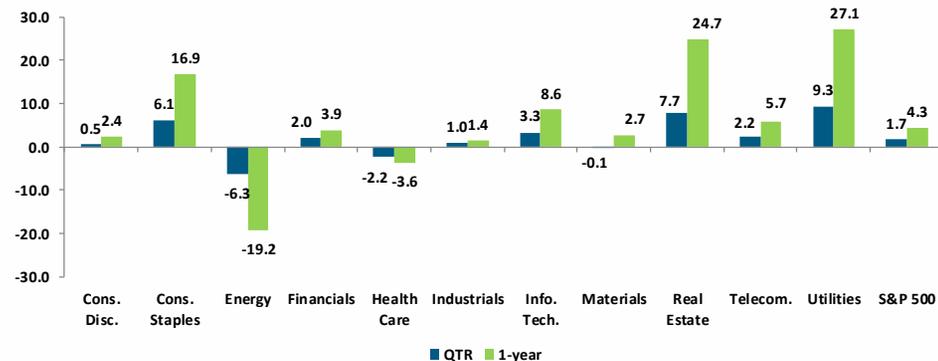
Many countries generated positive returns on a local currency basis, but a strengthening U.S. dollar resulted in negative returns for U.S. investors. Developed markets outperformed emerging markets, benefiting from an easing ECB while U.S.-China trade uncertainty weighed more heavily on the emerging region. Japan was one of the best performing areas of international markets during the quarter.

Fixed Income Term and Quality Returns (USD)

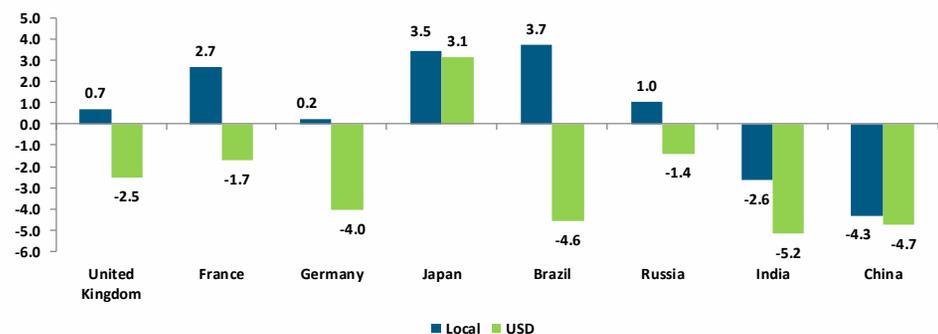
QTR				1-Year		
Short	Interm	Long		Short	Interm	Long
0.6	1.2	7.8	Gov't	4.4	7.5	24.6
1.0	1.7	5.6	Corp	5.2	9.6	20.1

The Federal Reserve cut their benchmark rate two times during the quarter, sending interest rates lower. Long duration bonds, which are more sensitive to interest rate movements, outperformed short duration bonds. Investment grade corporate bonds were one of the best performing sectors during the quarter, outpacing Treasuries, mortgage-related, and other securitized assets.

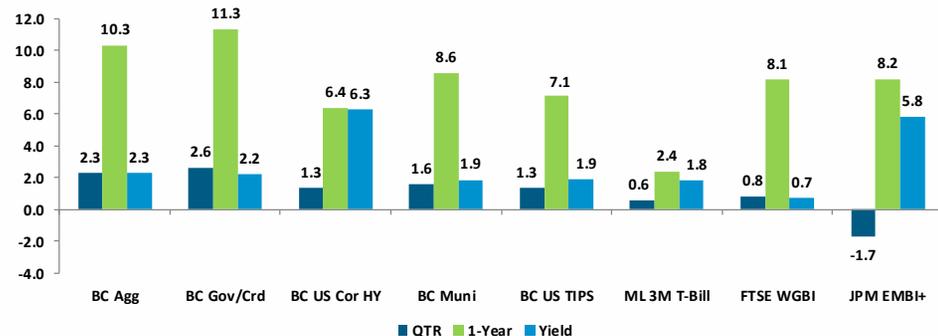
S&P 500 Sector Returns



MSCI Country Results 3Q 2019



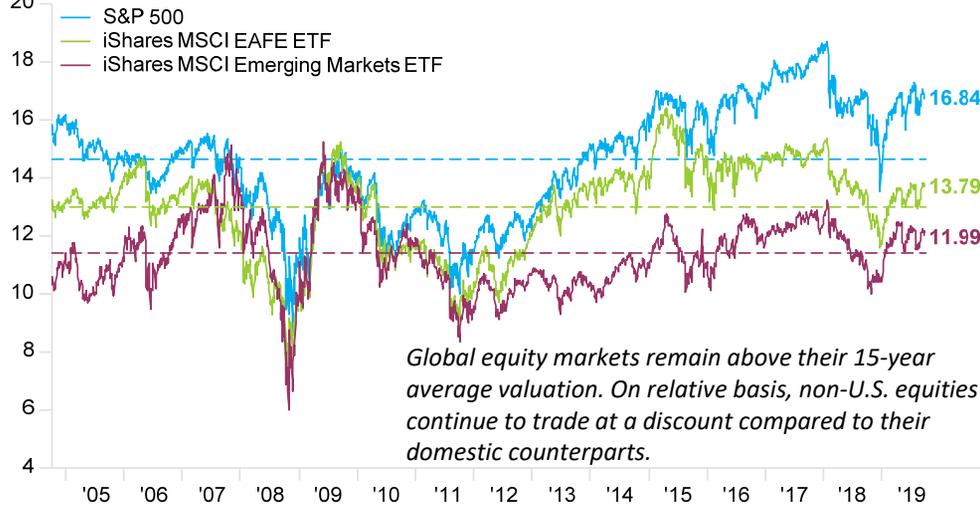
Fixed Income Returns and Yields (%)



Equity Market Perspectives

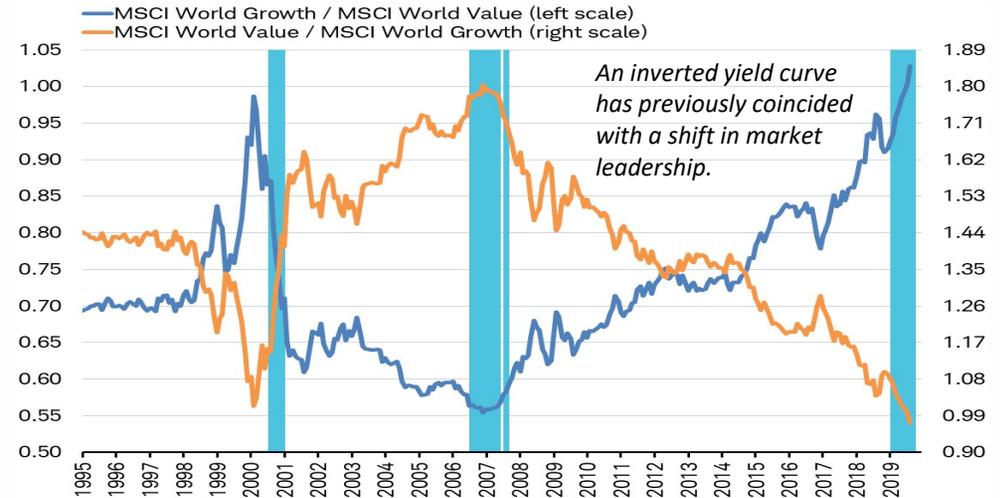
Equity Valuations - Forward P/E

09/30/2004 - 09/30/2019



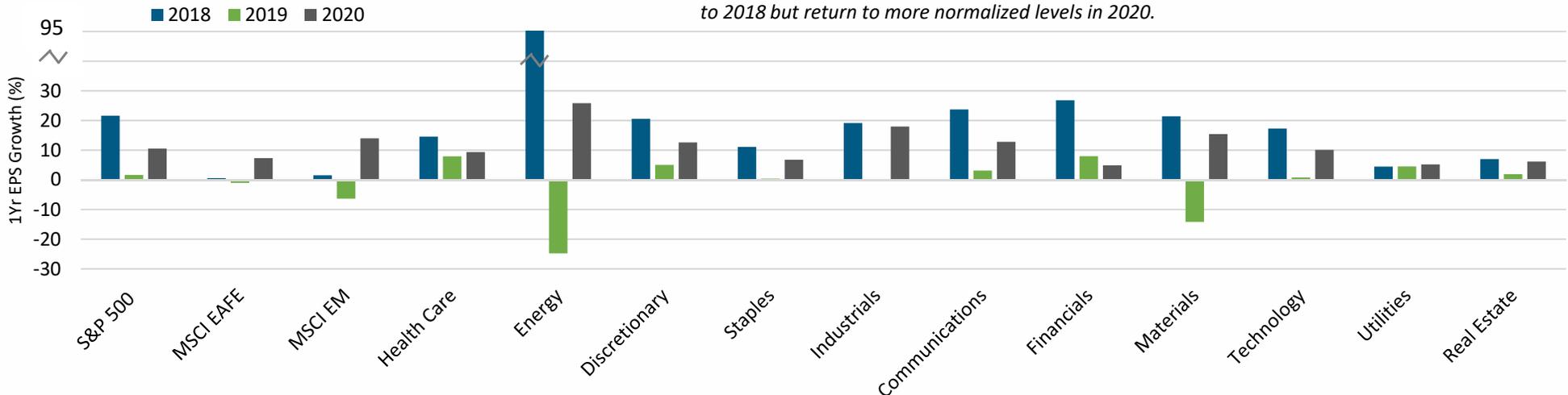
FactSet, S&P, iShares

Growth vs Value Relative Performance



Sources: Charles Schwab, Bloomberg, data as of 9/4/2019. Chart depicts relative performance of Growth vs. Value stocks in the MSCI World Index. Shaded areas represent periods of U.S. yield curve inversion.

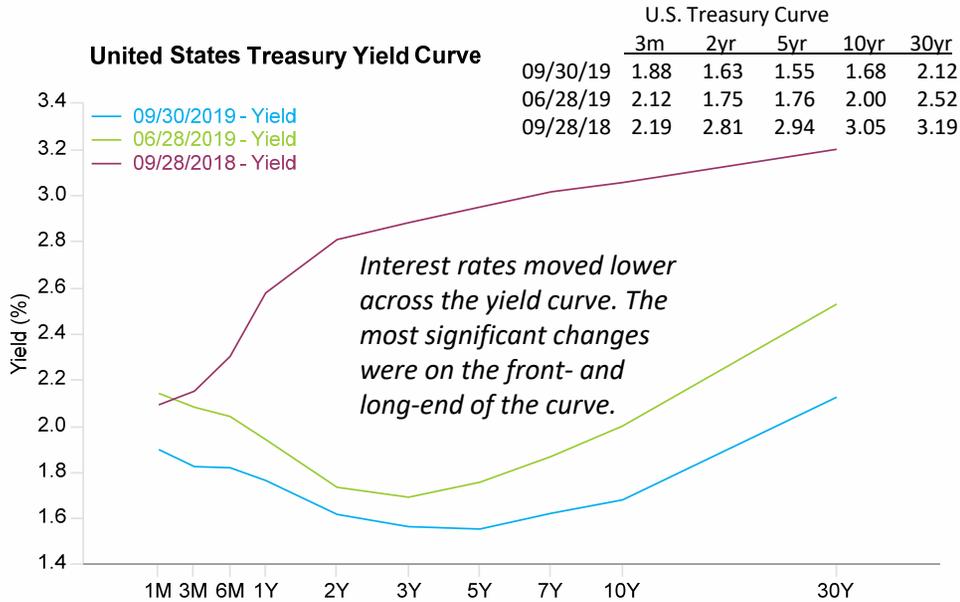
Equity Earnings Growth Estimates



Earnings growth is expected to slow in 2019 compared to 2018 but return to more normalized levels in 2020.

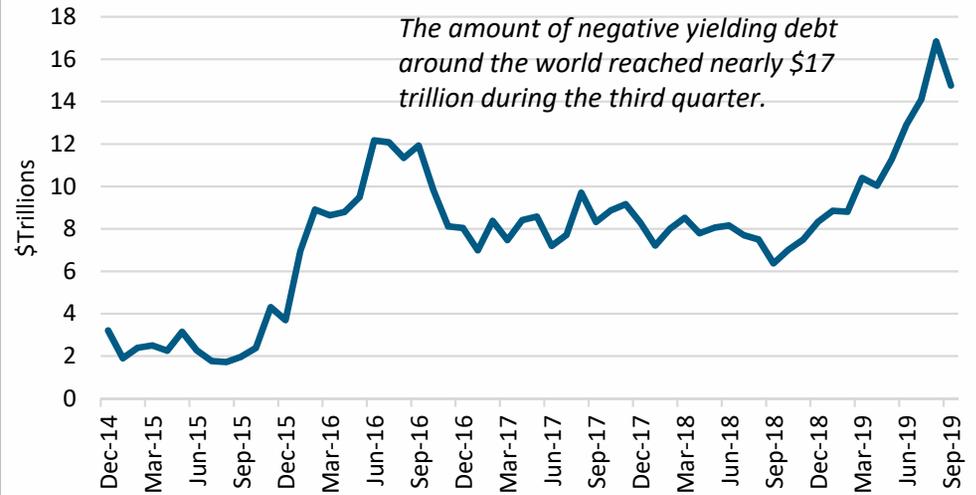
FactSet, S&P, iShares. Sectors are based on S&P 500 Sectors. Data for 2019 and 2020 are estimates.

Fixed Income Market Perspectives



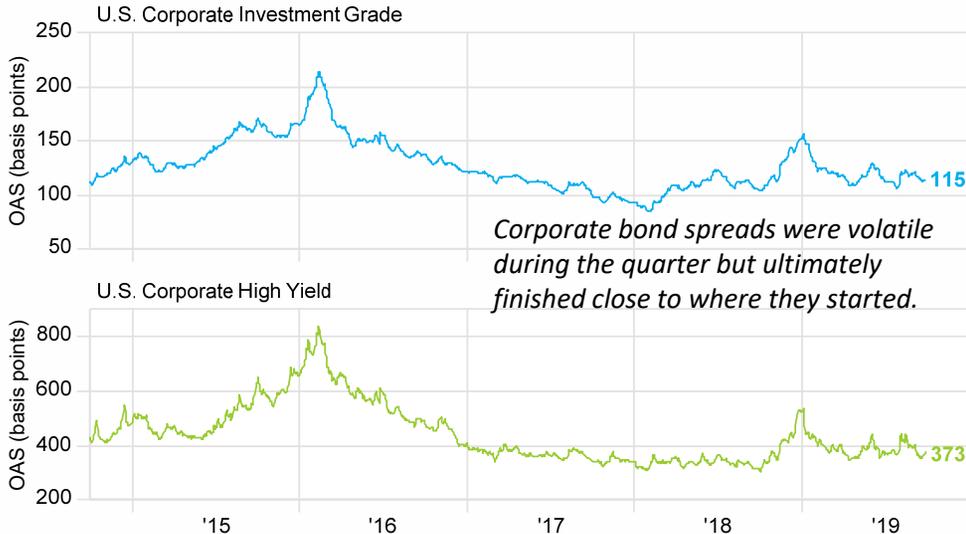
FactSet, U.S. Treasury

Global Negative Yielding Debt



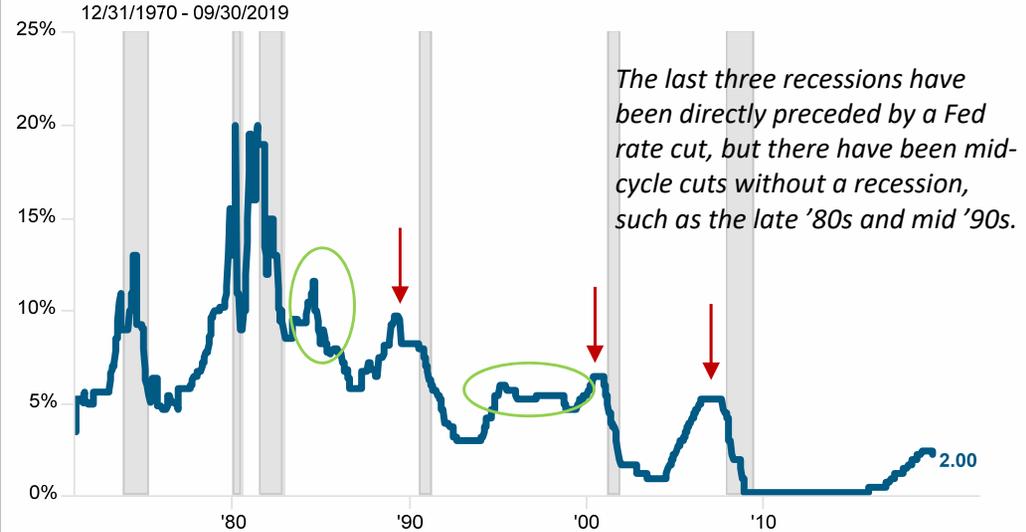
IR+M, Bloomberg Barclays. As of 9/30/19.

Bloomberg Barclays Option Adjusted Spreads (09/30/2014 - 09/30/2019)



FactSet, Bloomberg Barclays

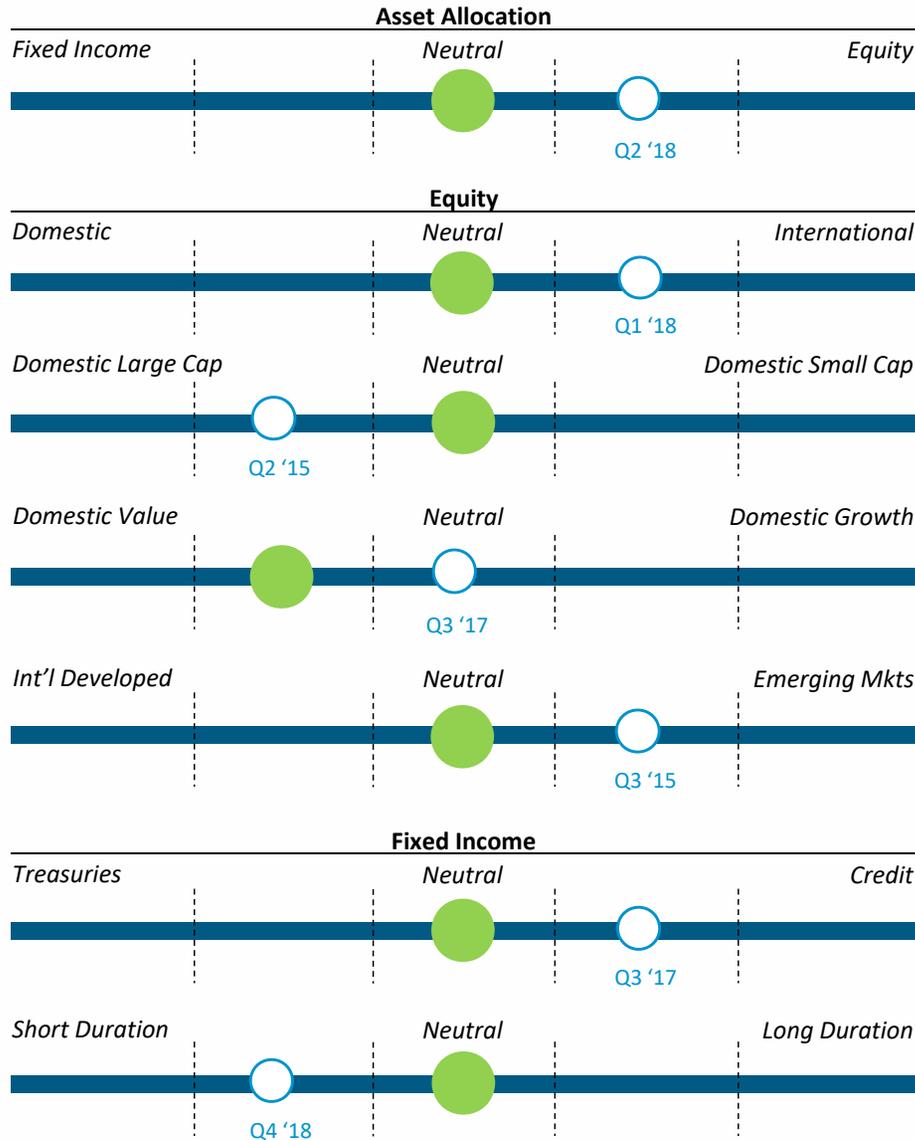
US Federal Funds Rate (Upper Target)



FactSet, Federal Reserve. Gray bands indicate recession.

Investing Viewpoints

- Current Stance
- Previous Stance (date indicates when we last changed our stance)



Rationale

Equities offer the potential for higher returns near-term, should the increasing accommodations being offered by central banks rekindle a moderating global economy. However, episodes of heightened volatility, coupled with somewhat elevated valuations, lead us to a neutral stance.

Valuation comparisons endure in favor of international equities but a more challenging economic backdrop, central banks' lower margins of error in their policy specifications, and a more acute exposure to trade frictions temper this advantage.

Differences in valuations across the capitalization spectrum are fairly muted and combine with our expectation that the pace and effect of those matters that may serve to influence returns (e.g. trade negotiations) will likely be uneven and varied, which informs our neutral stance. We readily concede that the sheer magnitude of near-term underperformance of small caps could serve as the basis for relative outperformance in a sustained "risk-on" environment.

Value equities continue to trade near historic discounts to their growth counterparts. Stabilizing interest rates and increasing investor caution were on display in September and, consistent with our expectations, value handily outpaced growth. We expect such conditions to exist more consistently over our forecast period, setting the stage for potential outperformance of value stocks.

We anticipate that international equities will continue to take their cues from developments that arise on the central bank stimulus and U.S./China trade negotiation fronts. Developments on both of these fronts are likely to remain highly varied, however, and the slight valuation advantages in place for emerging equities are countered by their vulnerability in times of stress.

Treasury valuations appear "full" as yields remain extraordinarily low and the yield curve flat. Meanwhile, well-behaved (and relatively tight) spreads somewhat diminish any marginal appeal for credit. We expect Treasuries will garner near term support from the prospects of further Fed rate cuts while credit offers still meaningful incremental yield in an otherwise yield-starved environment.

An expectation for range bound interest rates continues to anchor our near-term forecast. We foresee rates across the entirety of the yield curve receiving support from a host of circumstances, most predominantly central bank interventions on the front end of the yield curve and recalibrated investor sentiments arising from a moderating global economy further out the curve.

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 - Watertown Retirement System

As of September 30, 2019

Name	Market Value (\$) ¹	Asset Allocation (%)	Target Allocation (%)	Difference (%)
Collective US Gov't STIF	1,885,502	0.9	0.0	0.9
Fixed Income				
IRM Core Bond Fund	36,457,278	17.3	17.0	0.3
Eaton Vance Trust CIT High Yield Fund	5,277,780	2.5	2.5	0.0
Brandywine Global Opportunistic Fixed Income	8,313,149	4.0	4.0	-0.0
Total Fixed Income	50,048,207	23.8	23.5	0.3
Asset Allocation				
Wellington Opportunistic Investment Allocation	6,118,961	2.9	3.0	-0.1
PineBridge Global Dynamic Asset Allocation	6,029,459	2.9	3.0	-0.1
Total Asset Allocation	12,148,421	5.8	6.0	-0.2
Domestic Equity				
PRIT Domestic Equity	16,027,790	7.6	7.7	-0.1
Columbia U.S. Contrarian Core Equity Private Fund	25,768,663	12.3	12.0	0.3
Lee Munder Mid Cap Core Collective Fund	11,073,239	5.3	5.5	-0.2
Wellington Small Cap 2000 Portfolio	6,223,788	3.0	3.0	-0.0
Total Domestic Equity	59,093,481	28.1	28.2	-0.1
International Equity				
EARNEST Partners International Equity	17,690,855	8.4	8.6	-0.2
MFS Institutional International Equity	18,467,662	8.8	8.6	0.2
Acadian International Small Cap Equity	4,756,482	2.3	2.6	-0.3
Total International Equity	40,914,999	19.5	19.8	-0.3
Real Estate				
PRIT Core Real Estate	14,968,287	7.1	7.0	0.1
TA Realty Core Property Fund, LP	3,946,632	1.9	1.5	0.4
American Strategic Value Realty Fund	931,805	0.4	1.0	-0.6
TerraCap Partners IV	1,087,495	0.5	0.5	0.0
Arsenal Real Estate Fund I-A	44,935	0.0	0.0	0.0
Total Real Estate	20,979,154	10.0	10.0	-0.0
Hedge Funds				
PRIT Hedge Funds	15,691,514	7.5	7.5	-0.0
Total Hedge Funds	15,691,514	7.5	7.5	-0.0
Private Equity				
Auda Venture LP	86,158	0.0		
RCP IV, LP	413,380	0.2	5.0	-0.5
PRIT Vintage Year Program ³	8,874,187	4.2		
Total Private Equity	9,373,724	4.5	5.0	-0.5
Total Fund	210,135,002	100.0	100.0	

¹Valuations for TA Realty, American Realty Advisors, TerraCap Partners, Arsenal, Auda and RCP are reported with a quarter lag as of 12/31/18, and are adjusted for any cash flow activity in the reporting period.

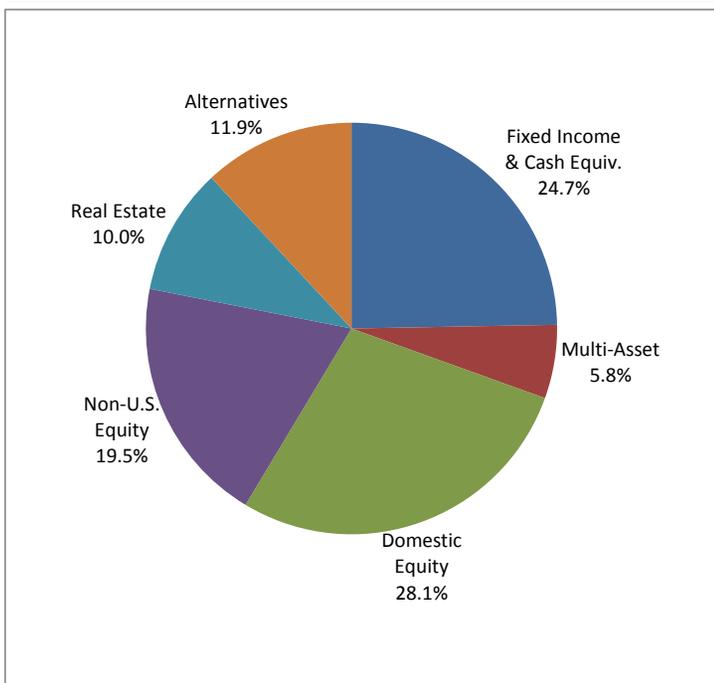
³Breakdown by Vintage Year is provided on Summary of Illiquid Investments page.

Watertown Retirement System

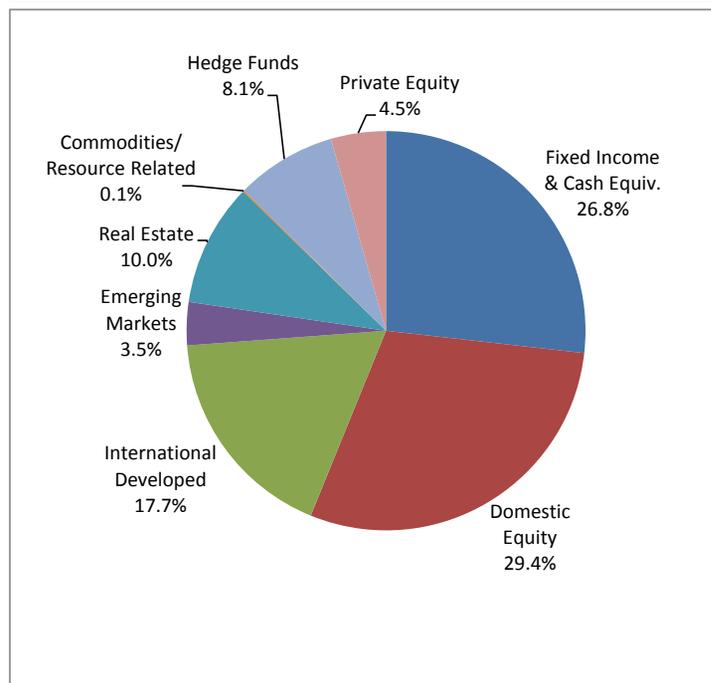
Asset Allocation

As of September 30, 2019

Asset Allocation by Mandate Type



Asset Allocation by Asset Class



Asset Class Look Through

Wellington Opportunistic Investment Fund allocation as of 9/30/2019 consisted of approximately: 40% fixed income & cash equivalents, 20% domestic equity, 26% developed international equity, 13% emerging markets, and 1% commodities. Please note, percentages may not sum to 100 due to rounding.

PineBridge Global Dynamic Asset Allocation Fund allocation as of 9/30/2019 consisted of approximately: 32% fixed income & cash equivalents, 23% domestic equity, 6% developed international equity, 13% emerging markets, 3% commodities, and 23% hedge funds. Please note, percentages may not sum to 100 due to rounding.

International Breakdown:

Earnest Partners - 73% developed, 27% emerging
 MFS International - 95% developed, 5% emerging
 Acadian Small Cap - 100% developed

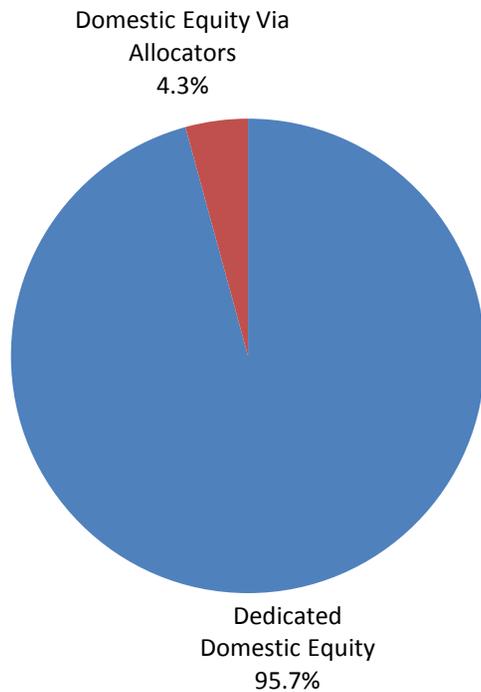
DISCLAIMER: The "look through" information provided above has been gathered from sources deemed to be reliable, including Morningstar and the managers. The asset class look through on the right is designed to give a general representation of how portfolio assets are allocated among various asset classes. However, the information may include discrepancies, based on how managers classify certain holdings.

Watertown Retirement System

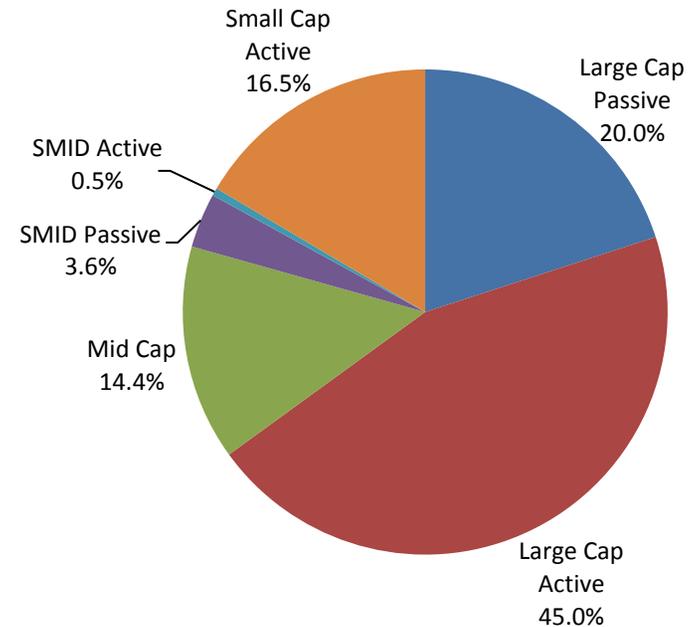
Domestic Equity Look Through

As of September 30, 2019

Asset Allocation by Mandate Type



Asset Allocation by Asset Class



PRIT Domestic Equity allocation: 77% Passive Large Cap, 14% Passive SMID Cap (Russell 2500 Index), 2% Active SMID, 7% Active Small-Mid, primarily Small Cap. Domestic Equity allocation in the Asset Allocation strategies assume the allocation in US Equity is primarily in large cap equity.

DISCLAIMER: The "look through" information provided above has been gathered from sources deemed to be reliable, including Morningstar and the managers. The asset class look through on the right is designed to give a general representation of how portfolio assets are allocated among various asset classes. However, the information may include discrepancies, based on how managers classify certain holdings.

Total Plan Performance Summary

As of September 30, 2019

Account Reconciliation

	QTR	YTD	Since Inception	Inception Date
Total Fund Composite				10/01/1999
Beginning Market Value	198,347,704	183,211,932	89,230,180	
Net Contributions	10,498,159	4,650,254	35,899,599	
Total Gain/Loss	1,289,138	22,272,816	85,005,223	
Ending Market Value	210,135,002	210,135,002	210,135,002	

** Data displayed in the Since Inception column is as of 1/1/2007. Historical market values and flow information prior to 1/1/2007 was not available from the prior consultant. The stated inception date of 10/1/1999 is the plan's performance inception date.

Policy Index Composition

Allocation Mandate	Weight (%)
Blmbg. Barc. U.S. Aggregate Index	20.00
ICE BofAML US High Yield Master II Constrained	2.50
FTSE World Government Bond Index	2.50
Russell 3000 Index	35.00
MSCI AC World ex USA (Net)	20.00
MSCI EAFE Small Cap (net) Index	2.50
PRIM Custom Total RE Benchmark	10.00
HFRI Fund of Funds Composite Index	7.50

Trailing Performance Summary

	QTR	YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Total Fund Composite	0.6	12.3	3.8	7.4	6.2	7.6	7.9	6.0	10/01/1999
Policy Index	0.7	13.1	4.2	7.8	6.4	7.8	8.2	6.1	
Difference	-0.1	-0.8	-0.4	-0.4	-0.2	-0.2	-0.3	-0.1	

Calendar Year Performance Summary

	2018	2017	2016	2015	2014	2013	2012	2011
Total Fund Composite	-4.9	15.6	6.6	1.0	6.6	15.6	12.3	-1.2
Policy Index	-4.9	15.8	7.4	0.4	6.1	16.7	12.6	0.9
Difference	0.0	-0.2	-0.8	0.6	0.5	-1.1	-0.3	-2.1

Investment performance history data prior to 3/31/2010 was sourced from prior consultant.

Manager Performance Overview

As of September 30, 2019

	QTR	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Total Fund Composite	0.6	12.3	3.8	7.4	6.2	7.9	6.0	10/01/1999
<i>Policy Index</i>	0.7	13.1	4.2	7.8	6.4	8.2	6.1	
PRIT General Allocation Fund **	1.3	11.3	4.3	8.3	7.1	8.4	9.0	02/01/1985
<i>PRIT Benchmark</i>	1.4	11.3	5.5	8.5	7.0	8.2	9.7	
<u>Short Term Liquidity</u>								
Collective US Govt STIF Fund	0.6	1.6	2.0	1.1	0.7	0.4	1.2	03/01/2004
<i>90 Day U.S. Treasury Bill</i>	0.6	1.8	2.4	1.5	1.0	0.5	1.3	
Fixed Income	1.6	8.5	8.9	3.2	3.4	4.4	4.4	04/01/2007
<i>Fixed Income Benchmark</i>	2.0	8.6	9.7	3.1	3.4	4.0	4.4	
IRM Core Bond Fund LLC	2.3 (24)	8.9 (39)	10.4 (19)	3.1 (26)	3.5 (19)	4.2 (34)	5.3 (16)	07/01/2000
<i>Blmbg. Barc. U.S. Aggregate Index</i>	2.3	8.5	10.3	2.9	3.4	3.7	5.0	
IM U.S. Broad Market Core Fixed Income (MF) Median	2.2	8.7	9.8	2.9	3.1	3.9	4.9	
Eaton Vance Trust CIT High Yield Fund	1.7 (14)	11.5 (31)	7.0 (17)	N/A	N/A	N/A	6.5 (17)	04/01/2018
<i>ICE BofAML US High Yield Master II Constrained</i>	1.2	11.5	6.3	N/A	N/A	N/A	6.5	
IM U.S. High Yield Bonds (MF) Median	1.2	10.8	5.3	N/A	N/A	N/A	5.4	
Brandywine Global Opportunistic Fixed Income	-1.6 (96)	5.0 (84)	3.7 (92)	1.8 (66)	1.6 (70)	N/A	3.1 (24)	06/01/2011
<i>FTSE World Government Bond Index</i>	0.8	6.3	8.1	1.2	1.8	N/A	1.2	
IM Global Fixed Income (MF) Median	1.0	7.1	7.7	2.3	2.2	N/A	2.2	
Asset Allocation	-0.6	7.7	0.4	3.4	2.8	N/A	4.9	08/01/2010
<i>65% MSCI AC World ND/ 35% Blmbg Brclys US Agg</i>	0.8	13.7	4.8	7.5	5.7	N/A	7.1	
WTC-CIF Opportunistic Invst Allocation	0.4	10.7	3.2	4.8	4.0	N/A	3.9	11/01/2010
<i>Wellington Opportunistic Index</i>	0.8	13.7	4.8	7.5	5.7	N/A	6.7	
PineBridge Global Dynamic Asset Allocation Fund LLC	-1.8	N/A	N/A	N/A	N/A	N/A	1.2	02/01/2019
<i>60% MSCI AC World 40% BC AGG</i>	0.9	N/A	N/A	N/A	N/A	N/A	7.7	

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

Manager Performance Overview

As of September 30, 2019

	QTR	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Domestic Equity	0.7	20.4	1.7	11.0	9.6	12.5	8.7	04/01/2007
<i>Domestic Equity Benchmark</i>	1.2	20.1	2.9	12.8	10.4	13.1	8.0	
PRIT Domestic Equity	0.7 (77)	19.8 (47)	2.1 (61)	12.7 (42)	10.2 (29)	N/A	14.1 (24)	07/01/2010
<i>PRIT Equity Benchmark</i>	1.1	20.0	2.6	12.6	10.4	N/A	14.2	
IM U.S. Large Cap Core Equity (MF) Median	1.5	19.5	3.2	12.3	9.4	N/A	13.2	
Columbia US Contrarian Core Equity Fund	2.0 (30)	21.9 (20)	4.4 (37)	11.5 (63)	N/A	N/A	9.5 (35)	01/01/2015
<i>Russell 1000 Index</i>	1.4	20.5	3.9	13.2	N/A	N/A	10.1	
IM U.S. Large Cap Core Equity (MF) Median	1.5	19.5	3.2	12.3	N/A	N/A	8.9	
LMCG Mid Cap Collective Fund	-0.8 (85)	17.9 (71)	-3.2 (78)	6.9 (73)	6.9 (51)	N/A	9.2 (35)	06/01/2011
<i>Russell Midcap Index</i>	0.5	21.9	3.2	10.7	9.1	N/A	10.7	
IM U.S. Mid Cap Core Equity (MF) Median	0.9	19.7	0.9	8.8	6.9	N/A	8.5	
Wellington Small Cap 2000	-2.0 (74)	20.2 (3)	-2.0 (4)	11.7 (1)	10.5 (3)	14.4 (1)	12.0 (N/A)	04/01/1991
<i>Russell 2000 Index</i>	-2.4	14.2	-8.9	8.2	8.2	11.2	9.5	
IM U.S. Small Cap Core Equity (MF) Median	-0.9	12.6	-9.9	7.0	7.4	10.8	N/A	
International Equity	-1.5	14.1	-0.3	7.8	4.3	6.3	4.0	04/01/2007
<i>International Equity Benchmark</i>	-1.6	11.6	-1.8	6.3	3.3	4.8	2.4	
Earnest Partners Intl Equity	-2.1 (64)	11.3 (65)	-2.7 (40)	6.5 (21)	2.2 (33)	4.7 (30)	3.8 (16)	08/01/2008
<i>MSCI AC World ex USA (Net)</i>	-1.8	11.6	-1.2	6.3	2.9	4.5	2.6	
IM International Large Cap Core Equity (MF) Median	-1.3	12.0	-3.2	5.2	1.4	4.1	2.5	
MFS Intl International Equity Fund	-0.9 (38)	17.8 (10)	4.6 (2)	9.7 (1)	5.6 (1)	N/A	7.1 (1)	12/01/2010
<i>MSCI EAFE (Net) Index</i>	-1.1	12.8	-1.3	6.5	3.3	N/A	5.3	
IM International Large Cap Core Equity (MF) Median	-1.3	12.0	-3.2	5.2	1.4	N/A	4.4	
Acadian Intl Small Cap Fund	-1.6 (37)	10.7 (60)	-8.7 (67)	6.2 (36)	6.5 (22)	N/A	7.4 (23)	02/01/2011
<i>MSCI EAFE Small Cap (net) Index</i>	-0.4	12.1	-5.9	5.9	6.0	N/A	6.2	
IM International Small Cap Equity (SA+CF+MF) Median	-1.9	11.4	-7.1	5.1	4.9	N/A	6.0	

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

Manager Performance Overview

As of September 30, 2019

	QTR	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Real Estate	1.9	6.5	6.0	6.1	8.4	7.8	1.9	04/01/2007
<i>Real Estate Benchmark</i>	2.2	7.9	8.2	7.0	8.8	9.9	6.8	
PRIT Real Estate Fund	2.5	7.9	6.6	6.9	9.1	N/A	9.8	06/01/2011
<i>PRIM Custom Total RE Benchmark</i>	2.2	7.9	8.2	6.9	8.7	N/A	9.9	
TA Realty Core Property Fund, LP	0.0	4.0	6.4	N/A	N/A	N/A	11.6	04/01/2018
<i>NCREIF Property Index</i>	1.4	4.8	6.2	N/A	N/A	N/A	6.5	
American Strategic Value Realty Fund	1.8	5.7	7.3	N/A	N/A	N/A	7.0	07/01/2018
<i>NCREIF Property Index</i>	1.4	4.8	6.2	N/A	N/A	N/A	6.4	
TerraCap Partners IV	0.0	-2.0	2.8	N/A	N/A	N/A	7.1	07/01/2018
<i>NCREIF Property Index</i>	1.4	4.8	6.2	N/A	N/A	N/A	6.4	
Arsenal Real Estate Fund I-A	0.0	-1.5	-35.0	-44.5	-31.9	-17.6	-18.4	04/01/2006
<i>NCREIF Property Index</i>	1.4	4.8	6.2	6.8	8.6	9.8	7.4	
Hedge Funds	-0.2	5.9	2.1	4.9	3.1	N/A	4.7	07/01/2010
<i>HFRI Fund of Funds Composite Index</i>	-0.9	5.2	0.0	3.2	2.0	N/A	2.9	
PRIT Hedge Funds	-0.2	5.9	2.1	4.9	3.1	N/A	4.7	07/01/2010
<i>HFRI Fund of Funds Composite Index</i>	-0.9	5.2	0.0	3.2	2.0	N/A	2.9	
Private Equity	4.5	9.9	14.6	19.6	19.9	18.2	12.4	04/01/2007
Auda Venture LP	0.0	0.8	-2.3	13.0	13.9	14.1	3.0	12/01/2000
<i>S&P 500 + 5%</i>	2.9	25.0	9.5	19.1	16.4	18.9	11.8	
RCP Fund IV	0.0	13.1	16.7	21.4	24.2	22.3	18.8	01/01/2007
<i>S&P 500 + 5%</i>	2.9	25.0	9.5	19.1	16.4	18.9	13.7	
PRIT VY Investments	4.9	9.6	14.5	19.2	17.3	N/A	0.9	04/01/2011
<i>Russell 3000 Index</i>	1.2	20.1	2.9	12.8	10.4	N/A	11.9	
PRIT Vintage 2011	1.5	5.6	12.0	19.9	21.4	N/A	3.6	04/01/2011
<i>Russell 3000 Index</i>	1.2	20.1	2.9	12.8	10.4	N/A	11.9	

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

Manager Performance Overview

As of September 30, 2019

	QTR	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
PRIT Vintage 2012	2.7	4.5	6.9	17.3	15.2	N/A	-17.4	06/01/2012
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>12.8</i>	<i>10.4</i>	<i>N/A</i>	<i>13.9</i>	
PRIT Vintage 2013	9.6	16.1	20.7	18.3	12.8	N/A	7.6	07/01/2013
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>12.8</i>	<i>10.4</i>	<i>N/A</i>	<i>12.2</i>	
PRIT Vintage 2014	4.8	10.6	19.4	23.4	13.8	N/A	5.9	06/01/2014
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>12.8</i>	<i>10.4</i>	<i>N/A</i>	<i>10.3</i>	
PRIT Vintage 2015	8.9	18.2	25.7	24.6	N/A	N/A	12.6	04/01/2015
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>12.8</i>	<i>N/A</i>	<i>N/A</i>	<i>10.0</i>	
PRIT Vintage 2016	2.4	1.9	5.2	0.6	N/A	N/A	-10.5	04/01/2016
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>12.8</i>	<i>N/A</i>	<i>N/A</i>	<i>13.1</i>	
PRIT Vintage 2017	3.9	11.1	8.7	N/A	N/A	N/A	6.9	05/01/2017
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>11.1</i>	
PRIT Vintage 2018	0.2	-1.7	-3.3	N/A	N/A	N/A	-12.5	06/01/2018
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>20.1</i>	<i>2.9</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>8.1</i>	
PRIT Vintage 2019	2.3	N/A	N/A	N/A	N/A	N/A	1.6	04/01/2019
<i>Russell 3000 Index</i>	<i>1.2</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>5.3</i>	

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. Your performance may differ slightly if the fund was purchased during the previous month. Actual performance is captured at the total plan level.

Investment returns are derived from custodian valuations and may deviate slightly from fund level returns displayed in other pages in your report which can result in minor differences in universe rankings. Mutual fund performance may differ from the current share class's historical performance due to share class exchanges.

** PRIT General Allocation Fund performance is provided net of fees for comparative purposes only.

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

Private Real Estate IRR Comparative

As of September 30, 2019

	QTR	YTD	1 Year	2 Years	3 Years	Since Inception	Inception Date
TA Realty Core Property Fund, LP	0.0	4.0	6.3	N/A	N/A	10.1	04/02/2018
American Strategic Value Realty Fund	1.8	5.7	7.5	N/A	N/A	7.5	06/27/2018
TerraCap Partners IV	0.0	-2.0	2.9	N/A	N/A	7.5	07/17/2018

In accordance with Global Investment Performance Standards, Private Equity manager returns are presented using Internal Rate of Return (IRR) calculations. The IRRs contained in this report are calculated by FIA based on information provided by the general partner (e.g. cash flows and valuations). These IRR calculations have not been confirmed by the general partners. The result of FIA's IRR calculation may differ from that generated by the general partner or other limited partners, primarily due to lack of industry valuation standards, differences in the investment pace and strategy of various funds, date of close, sale of distributed stock, and other factors.

Manager Commentary

As of September 30, 2019

Manager	Manager Status	Comments
Fixed Income		
IRM Core Bond Fund LLC	Maintain	3Q 2019 – The IR+M Core Bond portfolio produced a positive absolute return during the third quarter, performing in line with the Bloomberg Barclays U.S. Aggregate Bond Index. Spread sectors generally outperformed similar duration Treasuries and, as a result, the strategy’s overweight to corporate bonds proved to be beneficial. Issue selection was mixed with favorable results within financials and RMBS, but negative selection within transportation and CMBS issues. The team at IR+M is cautiously optimistic, balancing a relatively stable U.S. economy with valuations that continue to be stretched. The team still favors spread sectors over Treasuries but is mindful of liquidity and downside protection. In-line with its philosophy, the portfolio remains neutral to the benchmark in duration and is focused on bottom-up issue selection and sector rotation.
Eaton Vance Trust CIT High Yield Fund	Maintain	3Q 2019 - Commentary not available at time of report production.
Brandywine Global Opportunistic Fixed Income	Maintain	3Q 2019 – The Brandywine Global Opportunities Fixed Income strategy declined during the third quarter and underperformed its benchmark. As markets digested a cascade of negative economic and geopolitical developments and fresh central bank stimulus, global bonds rallied in the period amid a flight to safety in the developed world and a search for yield in the emerging world. The strategy’s weak performance in this environment was primarily driven by currency. Although an underweight exposure to the euro and a lack of exposure to the Japanese yen did have a positive impact, the portfolio’s minimal ownership of U.S. dollars and exposure to a basket of foreign currencies was detrimental amid the strong U.S. dollar environment. On the positive side, duration provided significant absolute returns from the portfolio’s holdings of Treasuries and EM bonds, with Mexican and Brazilian bonds powering the gains, as global rates moved sharply lower. Yields fell across global curves with the 10-year Treasury posting its largest quarterly decline in several years, the 30-year Treasury hitting a record low, and the entire German yield curve entering negative territory. However, relative duration performance suffered due to the absence of holdings in Japanese government bonds and other low or negative-yielding European debt.
Asset Allocation		
WTC-CIF Opportunistic Invst Allocation	Maintain	3Q 2019 – The Wellington Opportunistic Investment strategy produced a positive absolute return during the third quarter but lagged the blended benchmark (65% MSCI AC World Index/35% Barclays U.S. Aggregate Bond Index). The portfolio continues to face market headwinds as core asset classes (U.S. equities and traditional fixed income) have outperformed diversifying areas such as non-U.S. and emerging market equities. For the quarter, weighing on results were the portfolio’s India Awakes and Health Care Watchdog, and Dislocated Contrarian Value themes. On the other hand, the strategy’s Activist Government and Technology Evolution themes had a positive impact on results. The Activist Government theme benefited from rising gold prices which was a tailwind for investments in gold miners. Additionally, the defense equity component performed well. There were no major allocation shifts in the portfolio during the quarter. Some positions were trimmed including precious metal equities, defense equities, and European infrastructure. The strategy was moved back to a Maintain status. Brian Garvey, the lead portfolio manager on the strategy, has followed through on items he identified, following Mark Lynch’s departure earlier in the year, that would address portfolio performance, most notably on the equity side. These include implementing more exposures with specialist managers at Wellington, more active management of theme exposures, and putting Opportunistic Investment team members on each of Wellington’s new investment hubs. Mr. Garvey has taken actions consistent with the above initiatives and we believe these to be a positive for the strategy going forward.
PineBridge Global Dynamic Asset Allocation Fund LLC	No Status	3Q 2019 – The PineBridge Global Dynamic Asset Allocation strategy produced a negative return during the third quarter and underperformed its benchmark. The portfolio’s underweight to U.S. equities was again a headwind as U.S. stocks outpaced their international counterparts. However, exposure to U.S. financials was beneficial. Also adding to results was the portfolio’s investments in Brazilian and Japanese equities. However, this was not enough to offset set weakness in other areas of the portfolio. Currency positioning had a negative impact as the U.S. dollar gained ground against many major currencies, including the euro and Brazilian real. Additionally, exposure to U.S. small cap equity weighed on performance. The team at PineBridge believes there is still room to run for cyclical areas of the economy as central banks are shifting to more accommodative stances and global trade tensions are seemingly easing. As such, the team has been adding to cyclical equities over defensive.
Domestic Equity		
PRIT Domestic Equity	Maintain	3Q 2019 - Commentary not available at time of report production.
Columbia US Contrarian Core Equity Fund	Maintain	3Q 2019 - Commentary not available at time of report production.
LMCG Mid Cap Collective Fund	Watch 3Q 2019	3Q 2019 - Commentary not available at time of report production.

Manager Commentary

As of September 30, 2019

Manager	Manager Status	Comments
Wellington Small Cap 2000	Maintain	3Q 2019 – The Wellington Small Cap 2000 Portfolio outperformed the Russell 2000 Index in the third quarter. Small cap stocks underperformed their larger peers during the quarter as market volatility increased and investor risk appetites decreased. Regarding attribution, weak stock selection in healthcare and industrials was overwhelmed by strong selection in the consumer discretionary, technology and energy sectors. Within consumer discretionary and energy, the portfolio's top relative contributors were an overweight to TopBuild and not owning McDermott International, respectively. Within healthcare and industrials, the portfolio's top relative detractors were overweights to Merit Medical Systems and Granite Construction, respectively.
International Equity		
Earnest Partners Intl Equity	Maintain	3Q 2019 – The EARNEST Partners International strategy declined during the third quarter and performed in line with its benchmark, the MSCI ACWI ex-US. International equities ended a volatile quarter lower in dollar terms as markets were again driven by a steady mix of negative and positive economic and geopolitical news flow and were negatively impacted by a strong U.S. dollar. At the portfolio level, stock selection was positive for the quarter as the high-quality nature of its holdings held up well amid the market volatility. However, traditional defensive sectors outperformed in this market environment, which was a headwind to performance as the portfolio is relatively underweight sectors like consumer staples and utilities. From a regional perspective, stock selection was positive, particularly in Latin America and Japan, where fundamentals have played a larger role in stock prices, and investors tend to be less focused on macroeconomic factors like trade and Brexit. Stock selection was also positive in emerging markets; however, the portfolio's overweight to developing countries detracted from performance as developed market stocks outperformed in the period.
MFS Instl International Equity Fund	Maintain	3Q 2019 – The MFS Institutional International Equity strategy declined during the third quarter but modestly outpaced its benchmark, the MSCI EAFE Index. International equities were mixed as investor uncertainty about global growth and trade weighed on sentiment while central banks responded by loosening monetary policy. Returns for dollar-based investors were negatively impacted by headwinds from continued strength in the dollar. The strategy's relative outperformance in the period was driven by healthcare and energy due to a combination of positive stock selection within the two sectors and favorable allocations stemming from an underweight to the weak energy sector and an overweight to the outperforming healthcare sector. Conversely, these relative gains were partially offset by negative stock selection in the information technology and consumer staples sectors.
Acadian Intl Small Cap Fund	Maintain	3Q 2019 – The Acadian Non-US Small Cap Equity strategy declined during the third quarter and underperformed its benchmark, the MSCI EAFE Small Cap Index. From a regional perspective, stock selection in Japan, Australia, and the UK were the key sources of the portfolio's underperformance. Meanwhile, these losses were partially offset by opportunistic exposure in Canada, a significant overweight exposure to Israel, and positive stock selection in the Netherlands. On a sector basis, negative stock selection in the materials and healthcare sectors and an underweight exposure and weak stock selection in the outperforming real estate sector were the primary detractors for the period. On the positive side, stock selection in the financials and consumer discretionary sectors added value.
Real Estate		
PRIT Real Estate Fund	Maintain	The PRIT Real Estate Account provides diversified exposure to the commercial real estate market through exposure to physical assets and public securities. Approximately 80% of the portfolio is invested in separate account core portfolios with Invesco, LaSalle, AEW, and JP Morgan. The Core portfolio includes portfolio debt of approximately \$1 billion. The portfolio also includes dedicated allocations to Global REIT portfolios managed by CenterSquare, Invesco, Presima, and Brookfield. Non-Core portfolio investments of approximately \$500 million include allocations with Carlyle Group and DivcoWest. There is also a modest allocation to economically targeted investments. The PRIT board expects to identify additional real estate opportunities in the upcoming year and will formally evaluate their advisory relationship. Townsend currently serves as Real Estate Consultant.
TA Realty Core Property Fund, LP	Maintain	3Q 2019 - Commentary not available at time of report production.
American Strategic Value Realty Fund	Maintain	3Q 2019 - Commentary not available at time of report production.
TerraCap Partners IV	Maintain	3Q 2019 - Commentary not available at time of report production.
Arsenal Real Estate Fund I-A	Illiquid Inherited	3Q 2019 - Commentary not available at time of report production.

Manager Commentary

As of September 30, 2019

Manager	Manager Status	Comments
Hedge Funds		
PRIT Hedge Funds	Maintain	The PRIT Hedge Fund segmented portfolio consists primarily of direct hedge funds which comprise approximately 85% of the capital invested across 28 direct fund investments. The portfolio's active Fund of Funds allocation, which accounts for 15% of the program, focuses on emerging managers and is managed by PAAMCO. Residual capital in the fund of funds closed portfolios is being overseen and actively wound down by Arden, advisor to the PRIM Board. Earlier in 2017, the PRIM Board merged the 4% target allocation to portfolio completion strategies, which currently includes three risk premia strategies, a residential real estate holding, an agricultural investment and an equity hedge, with the 9% hedge fund allocation for a combined PCS allocation of 13%. Participating investors will continue to access the Hedge Funds sleeve on a stand-alone basis.
Private Equity		
Auda Venture LP	Illiquid Inherited	Commentary is reported as of calendar year end 2016. This Fund is reported on a one quarter lag. As of December 31, 2016, the Fund has produced a net IRR of 1.9% and a net multiple of contributed capital of 1.2x. During the quarter, the Fund did not call capital from investors and made no distributions. To date, 104% of total contributed capital has been distributed to investors. There are 53 remaining portfolio companies across the portfolio's 11 underlying funds. Approximately \$21 million of the portfolio's \$163 million in total value remains active in the portfolio.
RCP Fund IV	Illiquid Inherited	This Fund is reported on a one quarter lag. As of December 31, 2016 the Fund reported a new IRR of 14.3% and has returned a total of 134.4% of paid in capital to investors. The portfolio made its 37th distribution during the fourth quarter following multiple liquidity events in the underlying portfolio. The portfolio's net return on invested capital ended the quarter at 1.9x. Both the IRR and multiples moved slightly higher during the quarter. The portfolio has also made additional distributions early in 2017 although a portion was held back as a capital call.
PRIT VY Investments	Maintain	The PRIT Private Equity Vintage year program is raised annually seeking to make approximately 30 investment decisions per year. The strategy has two key components: special equity and venture capital. Special equity is comprised of opportunities across large buyouts, small and mid-cap buyouts, and growth equity. The portfolio is built through commitments to a number of private partnerships and can also include co-investments. The private equity program is overseen by Senior Investment Officer, Michael Bailey.

Manager Investment Gain/Loss Summary

Quarter Ending September 30, 2019

	Market Value As of 07/01/2019	Net Flows	Return On Investment	Market Value As of 09/30/2019
<u>Short Term Liquidity</u>				
Collective US Govt STIF Fund	-219,567	2,080,388	24,681	1,885,502
Total Short Term Liquidity	-219,567	2,080,388	24,681	1,885,502
<u>Fixed Income</u>				
IRM Core Bond Fund LLC	33,330,910	2,310,000	816,368	36,457,278
Eaton Vance Trust CIT High Yield Fund	4,879,107	310,000	88,673	5,277,780
Brandywine Global Opportunistic Fixed Income	7,698,805	750,000	-135,656	8,313,149
Total Fixed Income	45,908,821	3,370,000	769,385	50,048,207
<u>Asset Allocation</u>				
WTC-CIF Opportunistic Invst Allocation	6,093,084	-	25,877	6,118,961
PineBridge Global Dynamic Asset Allocation Fund LLC	5,581,926	550,000	-102,467	6,029,459
Total Asset Allocation	11,675,010	550,000	-76,589	12,148,421
<u>Domestic Equity</u>				
PRIT Domestic Equity	15,618,058	300,000	109,732	16,027,790
Columbia US Contrarian Core Equity Fund	25,273,269	-	495,394	25,768,663
LMCG Mid Cap Collective Fund	10,458,848	700,000	-85,608	11,073,239
Wellington Small Cap 2000	6,350,950	-	-127,162	6,223,788
Total Domestic Equity	57,701,125	1,000,000	392,356	59,093,481
<u>International Equity</u>				
Earnest Partners Intl Equity	17,151,997	900,000	-361,142	17,690,855
MFS Intl International Equity Fund	17,676,749	950,000	-159,087	18,467,662
Acadian Intl Small Cap Fund	4,832,942	-	-76,460	4,756,482
Total International Equity	39,661,688	1,850,000	-596,689	40,914,999

Manager Investment Gain/Loss Summary

Quarter Ending September 30, 2019

	Market Value As of 07/01/2019	Net Flows	Return On Investment	Market Value As of 09/30/2019
<u>Real Estate</u>				
PRIT Real Estate Fund	13,796,369	800,000	371,918	14,968,287
TA Realty Core Property Fund, LP	3,946,632	-	-	3,946,632
American Strategic Value Realty Fund	915,063	-	16,742	931,805
TerraCap Partners IV	1,122,842	-35,347	-	1,087,495
Arsenal Real Estate Fund I-A	44,935	-	-	44,935
Total Real Estate	19,825,841	764,653	388,659	20,979,154
<u>Hedge Funds</u>				
PRIT Hedge Funds	14,718,030	1,000,000	-26,515	15,691,514
Total Hedge Funds	14,718,030	1,000,000	-26,515	15,691,514
<u>Private Equity</u>				
Auda Venture LP	116,158	-30,000	-	86,158
RCP Fund IV	672,372	-258,993	-	413,380
PRIT Vintage 2011	1,139,906	-29,343	16,601	1,127,164
PRIT Vintage 2012	968,677	-22,605	25,308	971,380
PRIT Vintage 2013	1,067,774	-49,936	96,956	1,114,794
PRIT Vintage 2014	1,299,204	4,406	62,679	1,366,289
PRIT Vintage 2015	1,732,233	-30,448	151,554	1,853,339
PRIT Vintage 2016	719,368	-42,169	16,325	693,524
PRIT Vintage 2017	832,799	110,603	37,180	980,581
PRIT Vintage 2018	410,317	105,059	1,595	516,972
PRIT Vintage 2019	117,949	126,544	5,651	250,144
Total Private Equity	9,076,756	-116,882	413,850	9,373,724
Total Fund Composite	198,347,704	10,498,159	1,289,138	210,135,002

Market Value & Flow Summary

January 1, 2007 To September 30, 2019

Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	% Return
Dec-2006	-	-	-	89,230,180	N/A
Mar-2007	89,230,180	-1,452,000	2,119,807	89,897,987	2.3
Jun-2007	89,897,987	-1,819,719	4,083,544	92,161,812	4.6
Sep-2007	92,161,812	4,632,269	846,853	97,640,934	0.9
Dec-2007	97,640,934	-1,249,275	-1,131,003	95,260,656	-1.2
Mar-2008	95,260,656	-1,792,164	-5,030,268	88,438,224	-5.3
Jun-2008	88,438,224	-1,815,961	78,271	86,700,534	0.1
Sep-2008	86,700,534	4,911,404	-8,574,440	83,037,498	-9.2
Dec-2008	83,037,498	-1,492,765	-13,101,380	68,443,353	-15.8
Mar-2009	68,443,353	-1,235,448	-5,286,840	61,921,064	-7.7
Jun-2009	61,921,064	545,007	6,676,722	69,142,792	10.8
Sep-2009	69,142,792	2,411,486	7,754,039	79,308,316	10.9
Dec-2009	79,308,316	-1,279,156	2,632,754	80,661,914	3.4
Mar-2010	80,661,914	-1,922,947	3,126,385	81,865,352	4.1
Jun-2010	81,865,352	-1,925,000	-4,203,687	75,736,665	-5.2
Sep-2010	75,736,665	5,886,079	6,954,108	88,576,852	8.4
Dec-2010	88,576,852	-1,724,125	5,510,048	92,362,776	6.3
Mar-2011	92,362,776	-1,700,936	4,147,117	94,808,957	4.5
Jun-2011	94,808,957	-1,865,526	211,020	93,154,452	0.2
Sep-2011	93,154,452	6,658,409	-10,467,449	89,345,412	-10.4
Dec-2011	89,345,412	-2,092,157	4,734,765	91,988,020	5.3
Mar-2012	91,988,020	-2,409,805	7,144,754	96,722,969	7.8
Jun-2012	96,722,969	-1,772,726	-2,681,394	92,268,849	-2.8
Sep-2012	92,268,849	7,452,391	4,711,288	104,432,529	4.7
Dec-2012	104,432,529	-2,350,397	2,444,417	104,526,549	2.4
Mar-2013	104,526,549	-1,858,369	5,250,456	107,918,636	5.0
Jun-2013	107,918,636	-1,987,842	233,385	106,164,179	0.2
Sep-2013	106,164,179	8,048,762	4,867,503	119,080,444	4.2
Dec-2013	119,080,444	-2,186,900	6,362,761	123,256,305	5.4
Mar-2014	123,256,305	-2,278,454	2,325,881	123,303,733	1.9
Jun-2014	123,303,733	-2,288,304	4,577,761	125,593,191	3.8

Market Value & Flow Summary

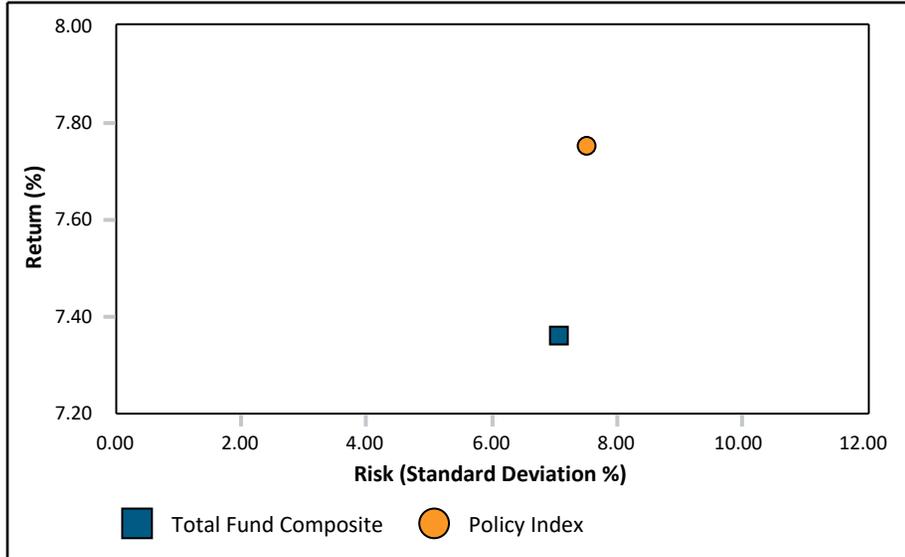
January 1, 2007 To September 30, 2019

Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	% Return
Sep-2014	125,593,191	10,268,246	-1,388,534	134,472,902	-1.0
Dec-2014	134,472,902	-2,378,442	2,458,142	134,552,603	1.8
Mar-2015	134,552,603	-2,246,378	3,961,230	136,267,455	3.0
Jun-2015	136,267,455	-2,431,339	626,466	134,462,581	0.4
Sep-2015	134,462,581	11,403,254	-7,359,560	138,506,275	-5.0
Dec-2015	138,506,275	-2,460,269	3,853,192	139,899,197	2.8
Mar-2016	139,899,197	-2,498,851	819,948	138,220,294	0.6
Jun-2016	138,220,294	-2,785,444	2,126,432	137,561,282	1.5
Sep-2016	137,561,282	12,738,176	6,043,012	156,342,470	4.0
Dec-2016	156,342,470	-2,537,607	469,452	154,274,315	0.3
Mar-2017	154,274,315	-2,722,539	7,091,039	158,642,816	4.6
Jun-2017	158,642,816	-2,413,060	5,793,050	162,022,805	3.7
Sep-2017	162,022,805	14,079,967	5,793,985	181,896,757	3.3
Dec-2017	181,896,757	-2,754,427	5,718,358	184,860,688	3.2
Mar-2018	184,860,688	-3,098,102	-754,895	181,007,690	-0.4
Jun-2018	181,007,690	-2,224,279	1,822,461	180,605,873	1.0
Sep-2018	180,605,873	16,257,221	4,362,452	201,225,545	2.2
Dec-2018	201,225,545	-2,992,611	-15,021,002	183,211,932	-7.5
Mar-2019	183,211,932	-3,071,501	14,339,023	194,479,454	7.9
Jun-2019	194,479,454	-2,776,405	6,644,655	198,347,704	3.4
Sep-2019	198,347,704	10,498,159	1,289,138	210,135,002	0.6

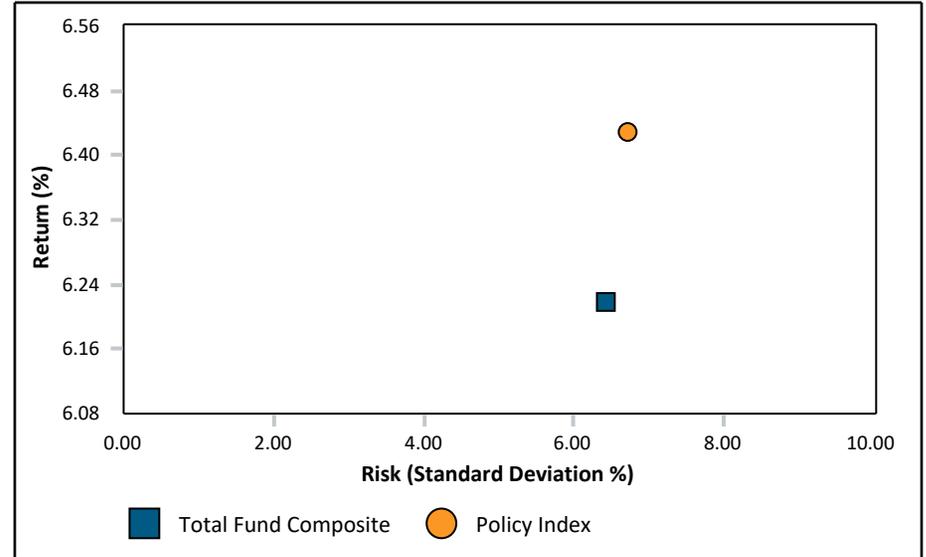
Risk vs. Return Analysis

As of September 30, 2019

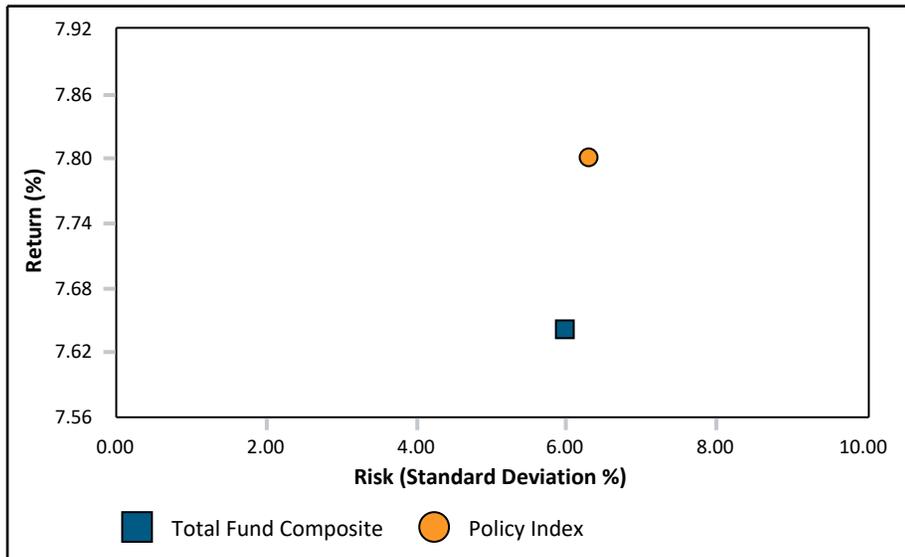
3 Year Risk and Return



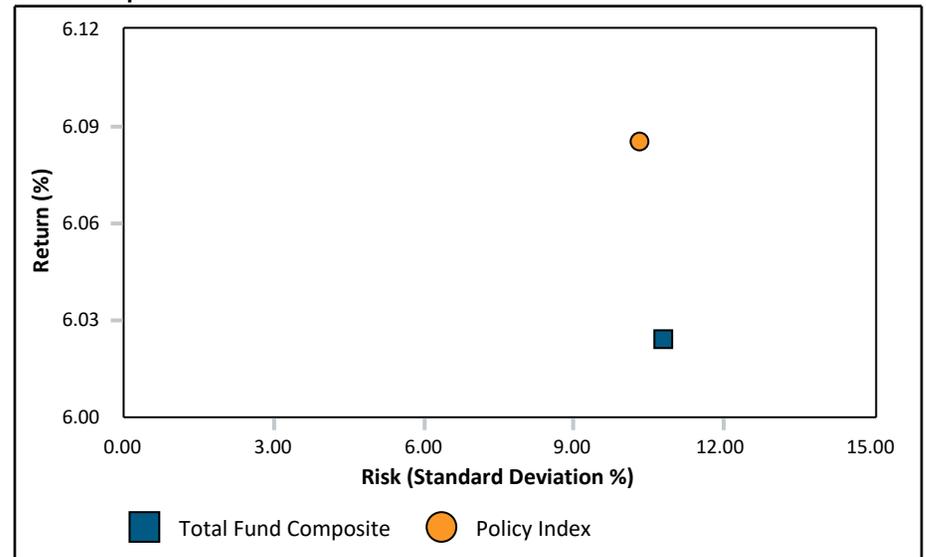
5 Year Risk and Return



7 Year Risk and Return



Since Inception Risk and Return



MPT Statistics

As of September 30, 2019

3 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Total Fund Composite	7.36	7.09	4.34	0.82	-0.46	0.88	0.99	0.94	0.09
Policy Index	7.75	7.53	4.56	0.83	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	1.54	0.38	0.00	N/A	-0.83	7.58	0.01	-0.01	1.58

5 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Total Fund Composite	6.22	6.43	4.04	0.83	-0.26	0.85	0.99	0.95	0.11
Policy Index	6.43	6.72	4.20	0.83	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.96	0.46	0.00	N/A	-0.83	6.72	0.00	0.00	0.95

7 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Total Fund Composite	7.64	5.99	3.44	1.14	-0.20	0.86	0.98	0.94	0.28
Policy Index	7.80	6.30	3.57	1.12	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.70	0.44	0.00	N/A	-1.12	6.34	0.00	0.00	0.73

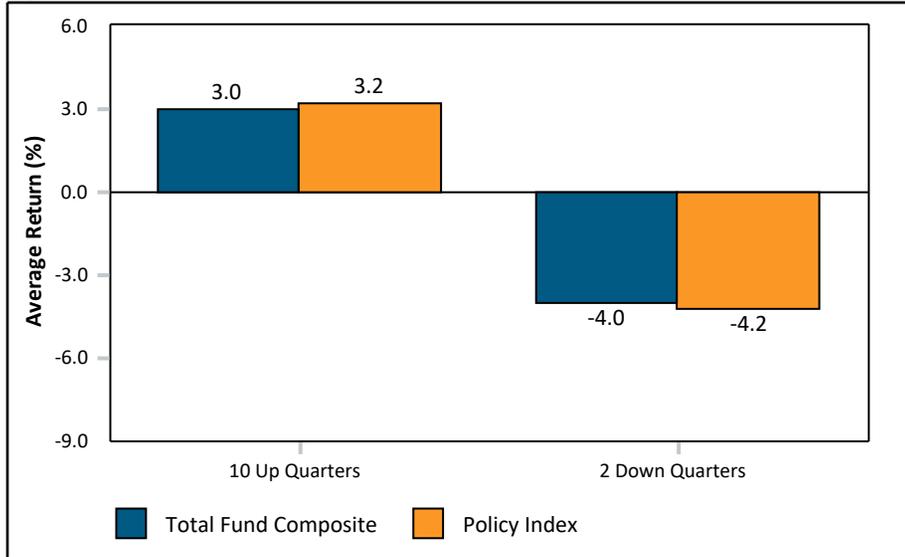
Since Inception Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha	Inception Date
Total Fund Composite	6.02	10.79	6.74	0.43	-0.01	2.20	0.96	1.02	-0.15	10/01/1999
Policy Index	6.09	10.34	6.48	0.45	N/A	0.00	1.00	1.00	0.00	10/01/1999
90 Day U.S. Treasury Bill	1.77	0.96	0.00	N/A	-0.45	10.49	0.01	-0.01	1.85	10/01/1999

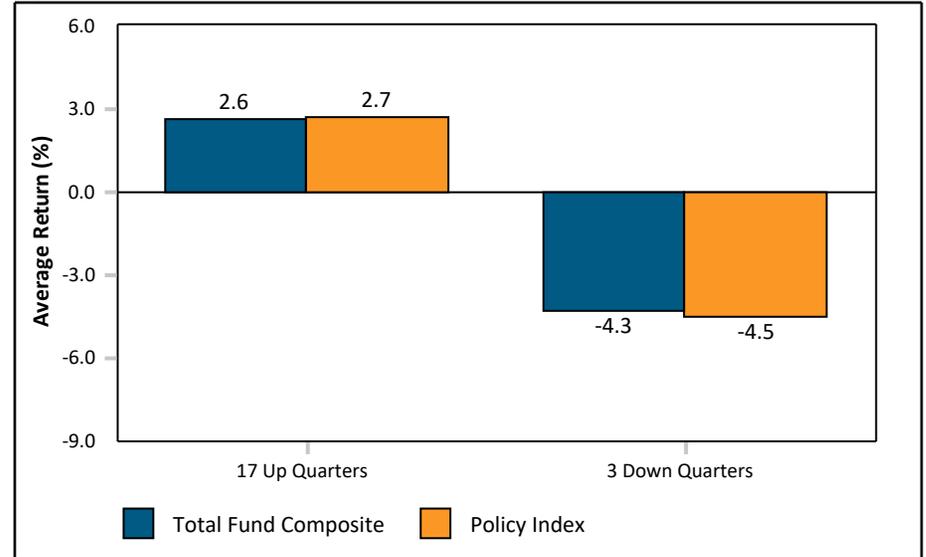
Market Capture Report

As of September 30, 2019

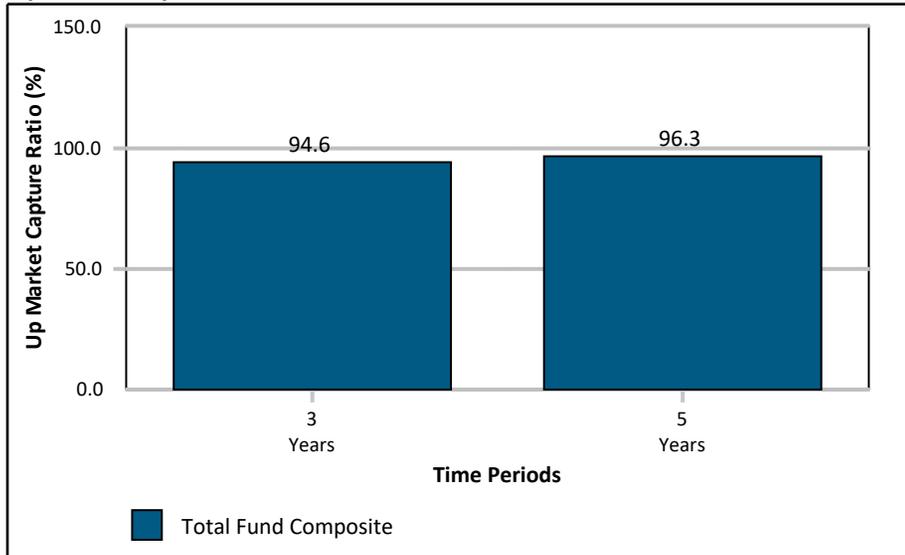
Up/Down Markets - 3 Years



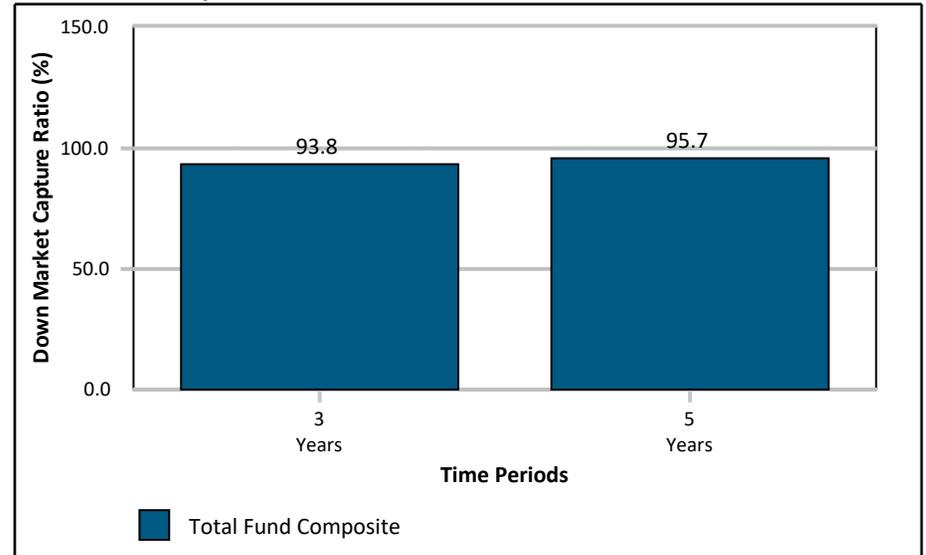
Up/Down Markets - 5 Years



Up Market Capture Ratio



Down Market Capture Ratio



Liquidity Analysis

As of September 30, 2019

Investment	Initial Lock-up Period	Terms	Investment Date
IRM Core Bond Fund	None	Daily liquidity: requires 5 business days notice	Jul-00
Eaton Vance Trust CIT High Yield Fund	None	Daily Liquidity	Mar-18
Brandywine Global Opportunistic Fund	None	Daily liquidity: contributions require 24 hours notice; redemptions require 10 days notice	Jun-11
Wellington Opportunistic Investment Allocation Fund	None	Monthly contributions and/or redemptions with 30 days notice	Nov-10
PRIT Domestic Equity Account	None	Monthly liquidity for contributions and withdrawals on first business day; redemptions require 5 days notice	Jul-10
Columbia U.S. Contrarian Core Equity Fund	None	Monthly liquidity for contributions; withdrawals on first business day with wire T+10 business days; 30 days notice required	Jan-15
Lee Munder Mid Cap Collective Fund	None	Daily liquidity for contributions and withdrawals, subject to T+1	Jan-15
Wellington Small Cap 2000 Portfolio	None	Monthly liquidity for contributions and withdrawals on first business day; notice by 22nd prior to month the flow occurs	Oct-99
Earnest Partners International Equity Fund	None	Monthly liquidity for contributions and withdrawals; 5 business days notice required	Aug-08
MFS Institutional International Equity Fund	None	Daily liquidity for contributions and withdrawals, subject to T+1	Dec-10
Acadian International Small Cap Fund	None	Daily liquidity for contributions and withdrawals, 7 business days requested	Feb-11
PRIT Real Estate Fund	None	Monthly liquidity for contributions and withdrawals on first business day; 5 days notice required	Jun-11
TA Realty Core Property Fund, LP	Reducing percentage over 3 year period	Quarterly liquidity for withdrawals on first business day; 45 days notice required.	Apr-18
American Strategic Value Realty Fund	One-year	Quarterly liquidity for withdrawals on first business day subject to liquidity restraints due to fund activity; 30 days notice required	Jul-18
TerraCap Partners IV	8 year term plus two one-year extension options	Not applicable	Aug-18
Arsenal Real Estate Fund I-A	In Extension	Not applicable	Apr-06
PRIT Hedge Funds	None	Quarterly liquidity for contributions and withdrawals on first business day; 30 days notice required	Jul-10
Auda Venture LP	In Extension	Not applicable	Dec-00
RCP Fund IV	Term expires 12/31/18 and is subject to three one-year extensions	Not applicable	Jan-07
PRIT Vintage Year Funds	Illiquid Generally 10-15 Years	Commitments must be made annually in December. Drawdowns occur monthly on first business day.	Apr-11

Summary of Private Equity Investments

As of September 30, 2019

Direct/Non-Core Real Estate¹

Investment	Commitment	Adjusted Commitment	Drawdowns to Date	% Drawn	Remaining Commitment	Distributions to Date	Ending Capital Balance	Notes on Fund Terms/Extensions
TerraCap Partners IV	\$1,000,000	N/A	\$1,000,000	100.0%	\$0	\$64,962	\$1,087,495	The fund was fully called on July 17, 2018 including \$58,438 in notional interest also due
Arsenal Real Estate Fund I-A	\$1,000,000	N/A	\$1,000,000	100.0%	\$0	\$296,196	\$44,935	The fund is winding down and the manager intends to sell the three remaining land investments in the near future.
Total Private Real Estate	\$2,000,000		\$2,000,000	100.0%	\$0	\$361,158	\$1,132,430	

Private Equity²

Investment	Commitment	Adjusted Commitment	Drawdowns to Date	% Drawn	Remaining Commitment	Distributions to Date	Ending Capital Balance	Notes on Fund Terms/Extensions
Auda Venture LP	\$3,000,000	\$3,000,000	\$2,205,000	73.5%	\$95,686	\$2,635,473	\$86,158	Fund in harvesting phase; term was recently extended to December 15, 2018.
RCP Fund IV	\$3,000,000	\$3,000,000	\$3,284,717	109.5%	\$0	\$6,116,537	\$413,380	Term expires December 31, 2018 and is subject to three one-year extensions.
PRIT VY Program³								
PRIT Vintage 2011	\$1,500,000	\$1,372,500	\$1,224,562	81.6%	\$275,438	\$1,383,140	\$1,127,164	Illiquid: 10-15 time horizon
PRIT Vintage 2012	\$1,500,000	\$936,000	\$826,077	55.1%	\$673,923	\$607,690	\$971,380	Illiquid: 10-15 time horizon
PRIT Vintage 2013	\$1,500,000	\$1,141,688	\$984,227	65.6%	\$515,773	\$462,267	\$1,114,794	Illiquid: 10-15 time horizon
PRIT Vintage 2014	\$1,500,000	\$1,362,271	\$1,095,730	73.0%	\$404,270	\$410,780	\$1,366,289	Illiquid: 10-15 time horizon
PRIT Vintage 2015	\$2,000,000	\$1,644,330	\$1,292,821	64.6%	\$707,179	\$271,957	\$1,853,339	Illiquid: 10-15 time horizon
PRIT Vintage 2016	\$2,000,000	\$1,108,608	\$714,433	35.7%	\$1,285,567	\$78,624	\$693,524	Illiquid: 10-15 time horizon
PRIT Vintage 2017	\$3,000,000	\$3,104,284	\$894,704	29.8%	\$2,105,296	\$23,860	\$980,581	Illiquid: 10-15 time horizon
PRIT Vintage 2018	\$3,000,000	\$2,871,599	\$573,390	19.1%	\$2,426,610	\$54,057	\$516,972	Illiquid: 10-15 time horizon
PRIT Vintage 2019	\$3,500,000	\$2,655,373	\$237,111	6.8%	\$3,262,890	\$655	\$250,144	Illiquid: 10-15 time horizon
Total PRIT VY Program	\$19,500,000	\$16,196,652	\$7,843,055	40.2%	\$11,656,945	\$3,293,031	\$8,874,187	
Total Private Equity	\$25,500,000	\$22,196,652	\$13,332,772	52.3%	\$11,752,631	\$12,045,041	\$9,373,724	

¹Ending capital balances for Arsenal and TerraCap Partners IV are as of 3/31/19 and are adjusted for any capital activity during the current quarter.

²Ending capital balances for Auda and RCP IV are reported on a quarter lag as of 6/30/19 and are adjusted for any capital activity in the current quarter. Undrawn capital for Auda Ventures will not be called; both funds are actively in the harvesting phase.

³Ending capital balances for PRIT VY Program assets are reported as of 9/30/2019.

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

Estimated Fee Analysis

As of September 30, 2019

MANAGER	TARGET ALLOCATION	MARKET VALUE	FEE SCHEDULE ²	ESTIMATED ANNUALIZED TOTALS ¹
IRM Core Bond Fund	17.0%	36,457,278	0.28%	\$102,080
Eaton Vance Trust CIT High Yield Fund	2.5%	5,277,780	0.50% for accounts under \$75M	\$26,389
Brandywine Global Opportunistic Fixed Income	4.0%	8,313,149	0.45%	\$37,409
Wellington Opportunistic Investment Allocation ³	3.0%	6,118,961	0.65%	\$39,773
PineBridge Global Dynamic Asset Allocation	3.0%	6,029,459	0.75%	\$45,221
PRIT Domestic Equity	7.7%	16,027,790	0.10%	\$16,028
Columbia U.S. Contrarian Core Equity Private Fund	12.0%	25,768,663	0.50%	\$128,843
Lee Munder Mid Cap Core Collective Fund	5.5%	11,073,239	0.75% on first \$25 Mil; 0.70% on next \$25 Mil; 0.65% over \$50 Mil	\$83,049
Wellington Small Cap 2000 Portfolio ³	3.0%	6,223,788	0.90% on first \$25 Mil; 0.80% on next \$25 Mil; 0.70% on next \$50 Mil; negotiable thereafter	\$56,014
EARNEST Partners International Equity	8.6%	17,690,855	1.00%	\$176,909
MFS Institutional International Equity	8.60%	18,467,662	0.71%	\$131,120
Acadian International Small Cap Equity	2.60%	4,756,482	0.75%	\$35,674
PRIT Core Real Estate ⁴	7.0%	14,968,287	0.46%	\$68,854
TA Realty Core Property Fund, LP	1.5%	3,946,632	0.70%	\$27,626
American Strategic Value Realty Fund ⁵	1.0%	931,805	1.25% on first \$10 Mil; 1.20% on next \$15 Mil; 1.10% on next \$25 Mil; 1.00% thereafter	\$11,648
TerraCap Partners IV ⁶	0.5%	1,087,495	1.50%	\$16,312
Arsenal Real Estate Fund I-A ⁷	0.0%	44,935	1.00% on invested equity Estimate reflects approx. annualized fees based on 2Q19 fees paid	\$1,344
PRIT Hedge Funds ⁴	7.5%	15,691,514	1.25%	\$196,144
Auda Venture LP ⁸	5.0%	86,158	1.00% on invested capital	\$862
RCP Fund IV ⁹		413,380	0.75% of contributions Estimate reflects approx. annualized fees based on 2Q19 fees paid	\$2,316
PRIT Vintage Year Portfolios ⁴		8,874,187	1.00%	\$88,742
Average Weighted Investment Management Fee			0.62%	Approximately \$1,236,000

TA Realty, American Realty Advisors, TerraCap, Arsenal, Auda and RCP valued as of 6/30/19, adjusted for capital calls and distributions in the quarter.

Footnotes: ¹Estimated Annualized Totals does not include applicable incentive fees. ²Management fees for commingled funds may not include additional underlying fund expenses such as custody, audit, legal and administrative expenses that are typically deducted from the net asset value of the fund. ³Wellington: Opportunistic Investment Allocation Fund fee structure changed to performance based with a lower base fee of 0.65% effective 1/1/2015; the maximum annual fee provided that the manager meets performance based objectives is the original fee of 1.10%; Wellington has waived minimum annual fee for the Small Cap 2000 portfolio. ⁴PRIT Investments reflect expense ratios as of most recent fiscal year end (FY 2018 CAFR) and will vary year-to-year depending on performance incentive fees paid out to managers. Fees for Vintage Year portfolios vary widely; the estimated fee of 1.00% is expected as the management fee over the life of the investments. ⁵American Strategic Value Realty Fund fee reflects base fee not including carried interest of 20% after 10% preferred return. ⁶TerraCap Partners IV fee reflects base fee not including carried interest of 20% after 8% preferred return and 30% after 15% secondary preferred return. ⁷Arsenal Real Estate Fund I-A reflects annualized management fee paid in 1Q 2019 and excludes carried interest. ⁸Auda Ventures LP fee reflects base fee not including carried interest of 5% after 10% preferred return - management fee represents the estimated annual fee for 2018 and excludes underlying fund expenses; ⁹RCP Fund IV fee reflects estimated annual base fee, expenses and underlying fund fees based on fees paid during 2Q 2019 and excludes carried interest of 5% after 10% preferred return. Fund of fund fees are shown at the fund of fund level and may not include fees charged by underlying investment managers/funds.

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

**The Watertown Retirement System
Investment Mandates - Procurement Review**

Color legend: Near term expirations - Extend or Issue RFP in next 6 months
Issue RFP in next 12 months

Update as of October 2019

Asset Class	Style	Manager/Mandate	RFP Last Issued (Mo/Yr)	Most Recent IMA/Contract/Side Letter Date (Mo/Yr)	Current Length of Term (Yrs)	Current Term/Contract Expiration (Mo/Yr)	Status of Extensions	New Term/Contract Expiration (Mo/Yr)	Anticipated RFP/Search Date
Fixed Income	Core/Core Plus	IRM Core Bond Fund (CF)	Apr-14	Aug-14	5	July-19	2 Years	Jul-21	Jan-21
	High Yield	Eaton Vance Trust High Yield Fund (CF)	Jun-17	Feb-18	7	Feb-25	N/A	Feb-25	Aug-24
	Global Bonds	Brandywine Global Opportunistic Bond Fund (CF)	May-17	Jul-17	7	Jul-24	N/A	Jul-24	Jan-24
Domestic Equity	Core Equity	PRIT Domestic Equity Account	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Core Equity	Columbia Contrarian Core Equity Private Fund (CF)	Apr-14	Nov-14	5	Nov-19	2 Years	Nov-21	May-21
	Mid Cap	Lee Munder Mid Cap Core Collective Fund (CF)	Jan-18	Mar-18	7	Mar-25	N/A	Mar-25	Sep-24
	Small Cap	Wellington Small Cap 2000 Portfolio (CF)	Feb-17	Jul-17	7	Jul-24	N/A	Jul-24	Jan-24
International Equity	International Equity	Earnest Partners International Pooled Group Trust (CF)	Apr-14	Oct-14	5	Oct-19	2 Years	Oct-21	Apr-21
	International Equity	MFS Instl International Equity (MF)	Apr-14	Aug-14	5	Aug-19	2 Years	Aug-21	Feb-21
	International Small Cap	Acadian Int'l Small Cap (CF)	Feb-17	Jun-17	7	Jun-24	N/A	June-24	Dec-23
Asset Allocation	Asset Allocation	Wellington Opportunistic Investment Allocation (CF)	Jun-18	Nov-18	7	Nov-25	N/A	Nov-25	May-25
	Asset Allocation	PineBridge Global Dynamic Asset Allocation (CF)	Jun-18	Nov-18	7	Nov-25	N/A	Nov-25	May-25
Real Estate	Real Estate	PRIT Real Estate Account	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Real Estate	American Realty Advisors Strategic Value Realty	Dec-17	Jun-18	7	Jun-25	N/A	Jun-25	Dec-24
	Real Estate	TA Realty Core Property Fund	Sep-17	Mar-18	7	Mar-25	N/A	Mar-25	Sep-24
	Real Estate (Illiquid)	TerraCap Management TerraCap Partners IV	Dec-17	N/A	Closed End	N/A	N/A	N/A	N/A
	Real Estate (Winding Down)	Arsenal Real Estate	Illiquid Inherited	N/A	Closed End	N/A	N/A	N/A	N/A

**The Watertown Retirement System
Investment Mandates - Procurement Review**

Color legend:

Near term expirations - Extend or Issue RFP in next 6 months
Issue RFP in next 12 months

Update as of October 2019

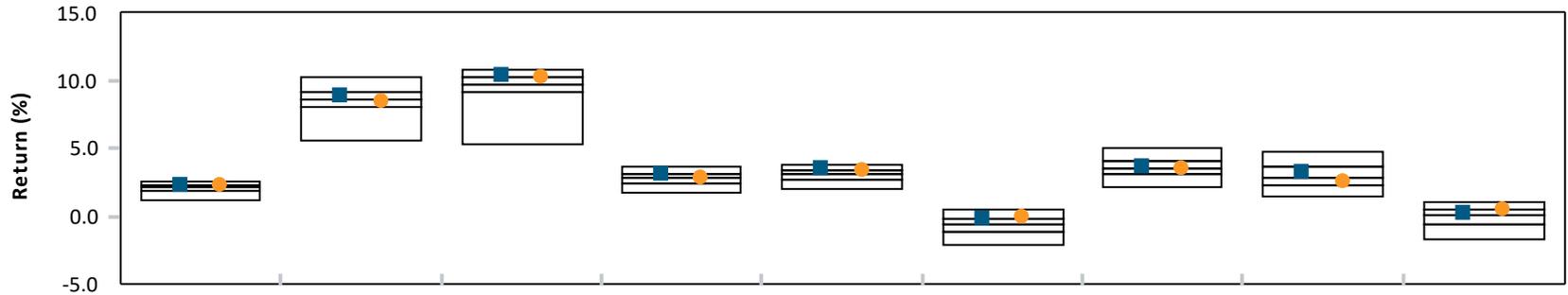
Asset Class	Style	Manager/Mandate	RFP Last Issued (Mo/Yr)	Most Recent IMA/Contract/Side Letter Date (Mo/Yr)	Current Length of Term (Yrs)	Current Term/Contract Expiration (Mo/Yr)	Status of Extensions	New Term/Contract Expiration (Mo/Yr)	Anticipated RFP/Search Date
Hedge Funds	Hedge Funds	PRIT Hedge Funds Account	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Private Equity	Private Equity (Illiquid)	Auda Ventures LP	Illiquid Inherited	N/A	Closed End	N/A	N/A	N/A	N/A
	Private Equity (Illiquid)	RCP IV	Illiquid Inherited	N/A	Closed End	N/A	N/A	N/A	N/A
	Private Equity (Illiquid)	PRIT Vintage Year	N/A	N/A	Closed End	N/A	N/A	N/A	N/A
Other Investment Related Vendors	Custodian	People's United Bank	Apr-18	Nov-18	7	Nov-25	N/A	Nov-25	May-25
	Investment Consultant	Fiduciary Investment Advisors		Mar-15	5	Mar-20	N/A	March-20	Sep-19
	Actuarial Services	Sherman Actuarial Services		Dec-12	5	Dec-17	2 Years	December-19	Dec-19
	Legal Services	Attorney Thomas Gibson		Nov-18	7	Nov-25	N/A	Nov-25	May-25

Manager Evaluation

IRM Core Bond Fund LLC

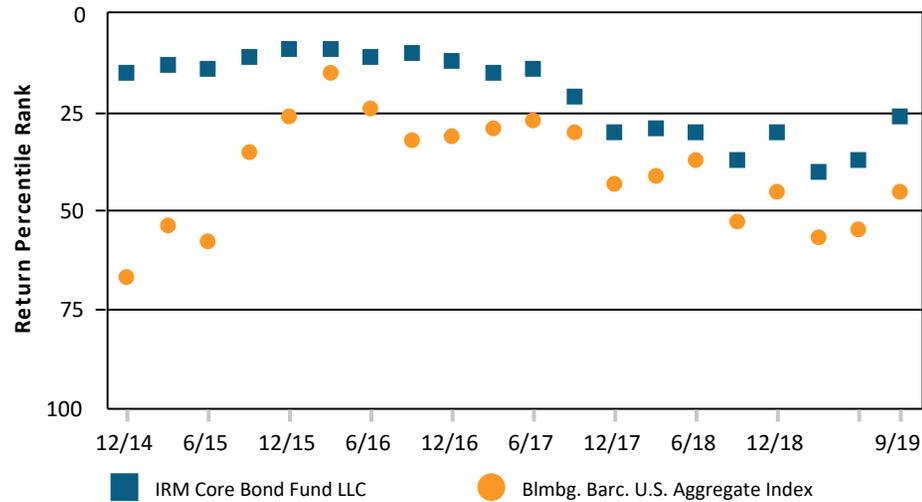
As of September 30, 2019

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

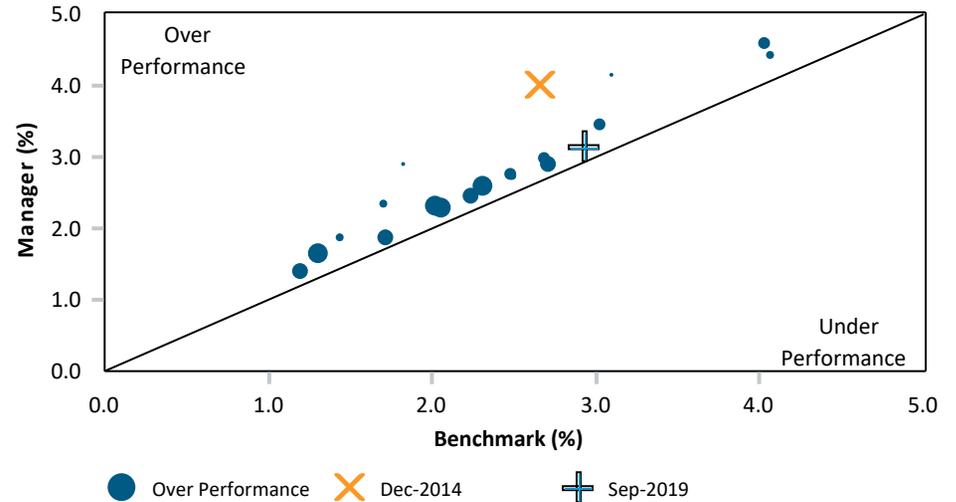


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
IRM Core Bond Fund LLC	2.3 (24)	8.9 (39)	10.4 (19)	3.1 (26)	3.5 (19)	-0.2 (26)	3.7 (46)	3.3 (36)	0.3 (37)
Blmbg. Barc. U.S. Aggregate Index	2.3 (33)	8.5 (57)	10.3 (24)	2.9 (45)	3.4 (27)	0.0 (18)	3.5 (53)	2.6 (61)	0.5 (20)
5th Percentile	2.6	10.3	10.9	3.7	3.9	0.6	5.0	4.8	1.1
1st Quartile	2.3	9.2	10.3	3.2	3.4	-0.2	4.1	3.7	0.5
Median	2.2	8.7	9.8	2.9	3.1	-0.6	3.6	2.9	0.1
3rd Quartile	1.9	8.1	9.2	2.4	2.8	-1.1	3.1	2.4	-0.6
95th Percentile	1.2	5.7	5.4	1.8	2.1	-2.1	2.1	1.5	-1.7

3 Year Rolling Percentile Ranking vs. IM U.S. Broad Market Core Fixed Income (MF)



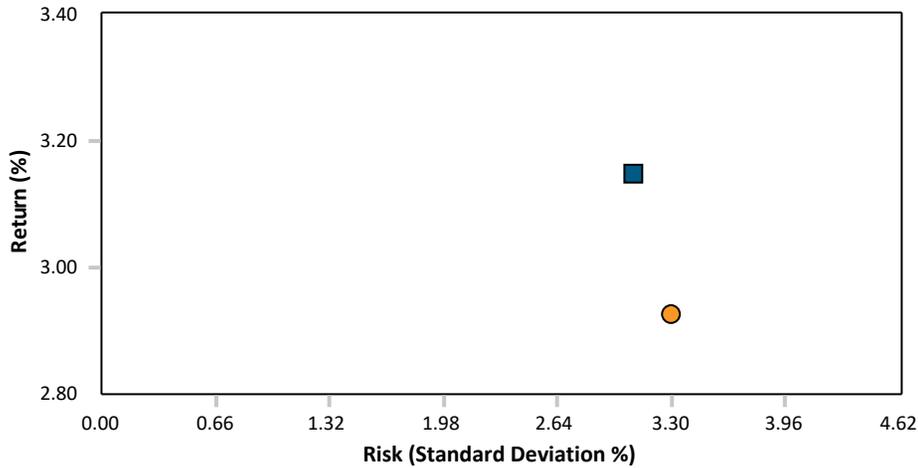
3 Year Rolling Under/Over Performance vs. Blmbg. Barc. U.S. Aggregate Index



Manager Evaluation

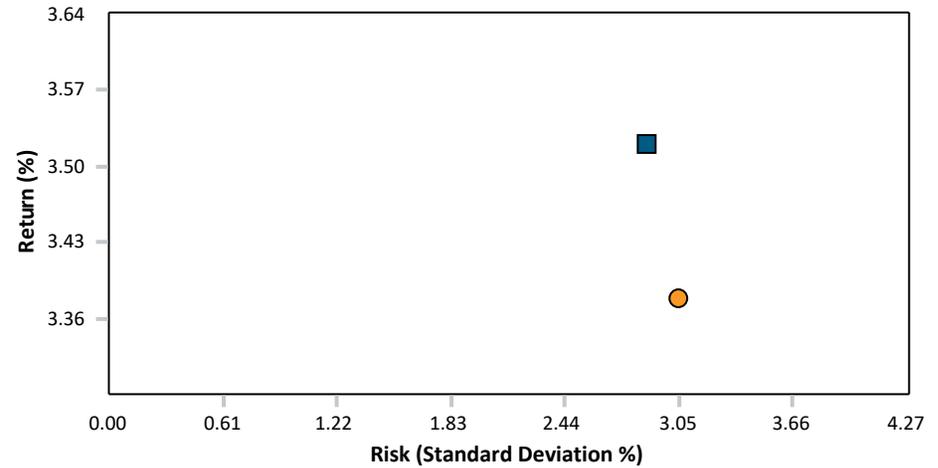
IRM Core Bond Fund LLC
As of September 30, 2019

3 Year Risk and Return



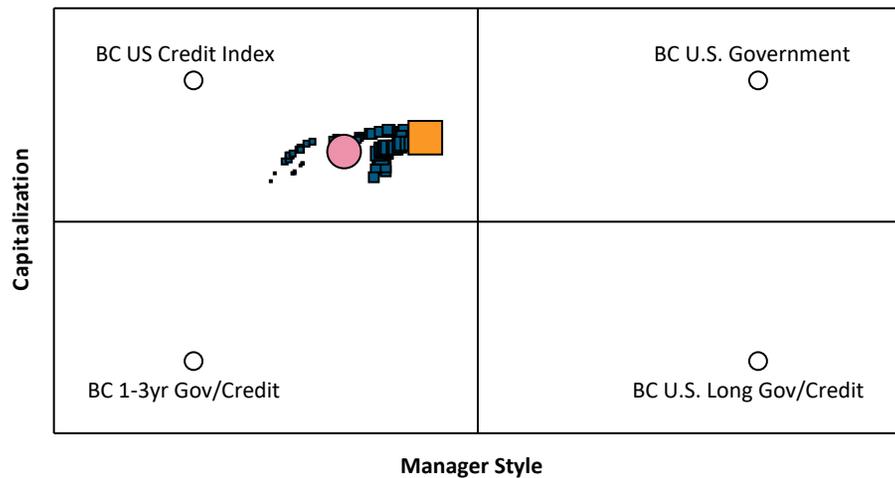
- IRM Core Bond Fund LLC
- Blmbg. Barc. U.S. Aggregate Index

5 Year Risk and Return



- IRM Core Bond Fund LLC
- Blmbg. Barc. U.S. Aggregate Index

Style Map - 3 Years



- Style History
- Sep-2019
- Average Style Exposure

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

	3 Years	5 Years
Return	3.1	3.5
Standard Deviation	3.1	2.9
vs. Blmbg. Barc. U.S. Aggregate Index		
Alpha	0.4	0.3
Beta	0.9	0.9
R-Squared	1.0	1.0
Consistency	61.1	56.7
Up Market Capture	97.8	98.8
Down Market Capture	88.5	91.9
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.5	0.9

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Income Research & Management

As of 09/30/2019

Portfolio Information

Firm Name	Income Research & Management	Portfolio Manager	Team Managed
Product Name	Core Bond Fund	Fund Style	Fixed Income - Core
Portfolio Assets	\$36,457,278	Style Benchmark	Bloomberg Barclays Aggregate Bond Index
Inception Date	10/1/2007		

Portfolio Investment Policy

This fund invests in fixed income instruments, including government and agency issues, corporate issues, and asset-backed securities.

Sector Weightings

	<u>% of Portfolio</u>
Treasury	20.4%
Agency	3.7%
Financials	10.2%
Industrials	3.2%
Utilities	18.3%
Non-Corporates	0.0%
Mortgage Backed	29.2%
Asset Backed	7.4%
CMBS	5.5%
Muni	1.8%
Cash	0.4%

Fixed Income Characteristics

Maturity		
less than 1 year		6.3%
1 to 3 years		16.4%
3 to 5 years		34.5%
5 to 10 years		22.8%
10 to 20 years		10.9%
Over 20 years		9.1%

	<u># of yrs</u>
Portfolio Average	8.34
Duration at Quarter End	5.695516

Credit Quality Allocations

<u>Quality</u>	<u>% of Port.</u>	<u>Quality</u>	<u>% of Port.</u>
AAA	65.4%	BB	0.6%
AA	2.4%	B	0.0%
A	11.2%	Below B	0.0%
BBB	20.5%	N/R	0.0%

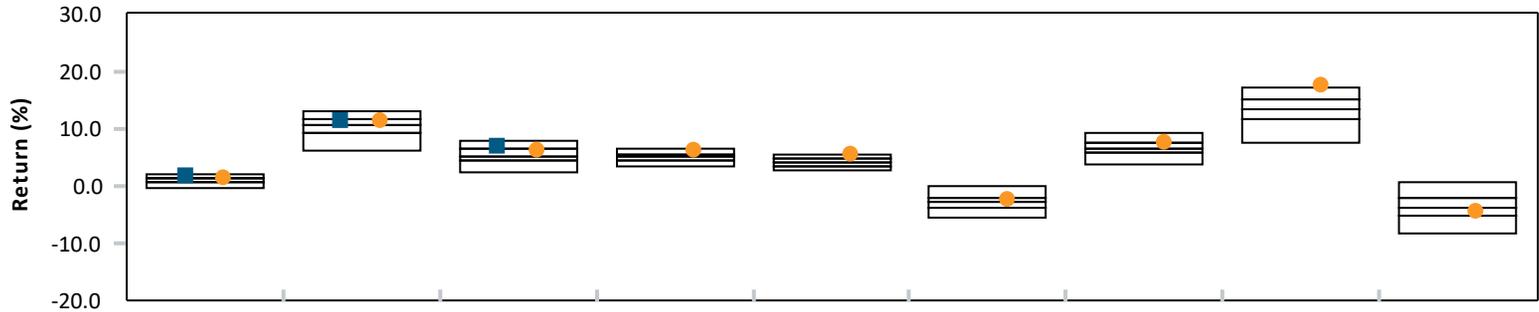
Average Quality = AA2/AA-

Manager Evaluation

Eaton Vance Trust CIT High Yield Fund

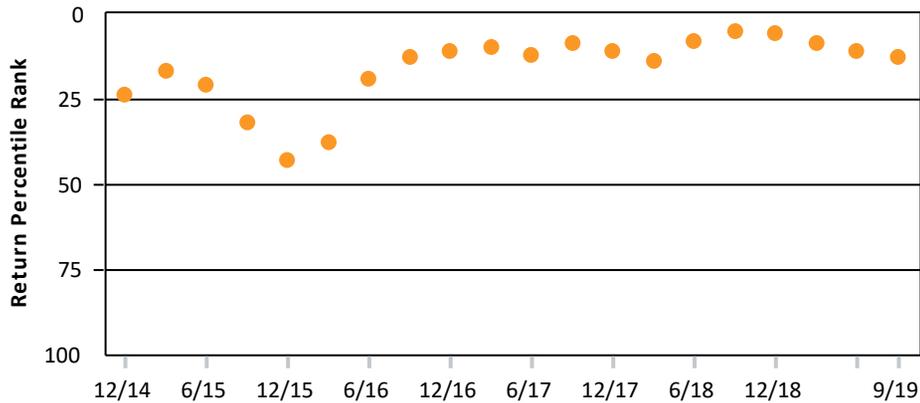
As of September 30, 2019

Peer Group Analysis vs. IM U.S. High Yield Bonds (MF)



	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
Eaton Vance Trust CIT High Yield Fund	1.7 (14)	11.5 (31)	7.0 (17)	N/A	N/A	N/A	N/A	N/A	N/A
ICE BofAML US High Yield Master II Constrained	1.2 (52)	11.5 (32)	6.3 (29)	6.1 (13)	5.4 (9)	-2.3 (32)	7.5 (25)	17.5 (5)	-4.6 (64)
5th Percentile	2.0	13.0	8.0	6.5	5.5	0.0	9.4	17.3	0.5
1st Quartile	1.5	11.7	6.4	5.7	4.8	-2.0	7.5	15.3	-1.9
Median	1.2	10.8	5.3	5.2	4.1	-2.9	6.7	13.5	-3.8
3rd Quartile	0.8	9.2	4.4	4.4	3.6	-3.8	5.8	11.8	-5.3
95th Percentile	-0.3	6.2	2.5	3.4	2.6	-5.4	3.7	7.6	-8.3

3 Year Rolling Percentile Ranking vs. IM U.S. High Yield Bonds (MF)



■ Eaton Vance Trust CIT High Yield Fund
● ICE BofAML US High Yield Master II Constrained

3 Year Rolling Under/Over Performance vs. ICE BofAML US High Yield Master II

Not Enough Data.

Manager Evaluation

Eaton Vance Trust High Yield Bond CIT

As of 09/30/2019

Portfolio Information

Firm Name	Eaton Vance	Portfolio Manager	Michael Weilheimer, Steve Concannon
Product Name	Eaton Vance High Yield Bond	Fund Style	Commingled vehicle
Portfolio Assets	\$5,277,780	Style Benchmark	BofA Merrill Lynch U.S. High Yield Master II Constrained Index
Inception Date	3/5/2018		

Portfolio Investment Policy

Eaton Vance seeks to identify opportunities as value changes in the market using a combination of bottom up research and a Market Factor analysis. Security selection is expected to drive the majority of excess returns over time. Analysts seek to identify credits with attractive return prospects per unit of risk. The research process centers on qualitative assessment, quantitative analysis, structural analysis, and relative value analysis. The Market Factor component begins with an overall macroeconomic assessment. Top down analysis seeks to identify optimal market biases and risk/return positioning to compliment bottom up research.

Sector Weightings

	<u>% of Portfolio</u>
Treasury	0.0%
Agency	0.5%
Financials	7.6%
Industrials	85.4%
Utilities	3.9%
Non-Corporates	0.0%
Mortgage Backed	0.0%
Asset Backed	0.0%
CMBS	0.0%
Muni	0.0%
Cash	2.6%

Fixed Income Characteristics

Maturity	
less than 1 year	2.7%
1 to 3 years	8.9%
3 to 5 years	25.8%
5 to 10 years	59.8%
10 to 20 years	1.7%
Over 20 years	1.0%

	<u># of yrs</u>
Portfolio Average	5.73
Duration at Quarter End	2.61

Credit Quality Allocations

<u>Quality</u>	<u>% of Port.</u>	<u>Quality</u>	<u>% of Port.</u>
AAA	2.6%	BB	49.5%
AA	0.0%	B	36.1%
A	0.0%	Below B	6.2%
BBB	5.5%	N/R	0.1%

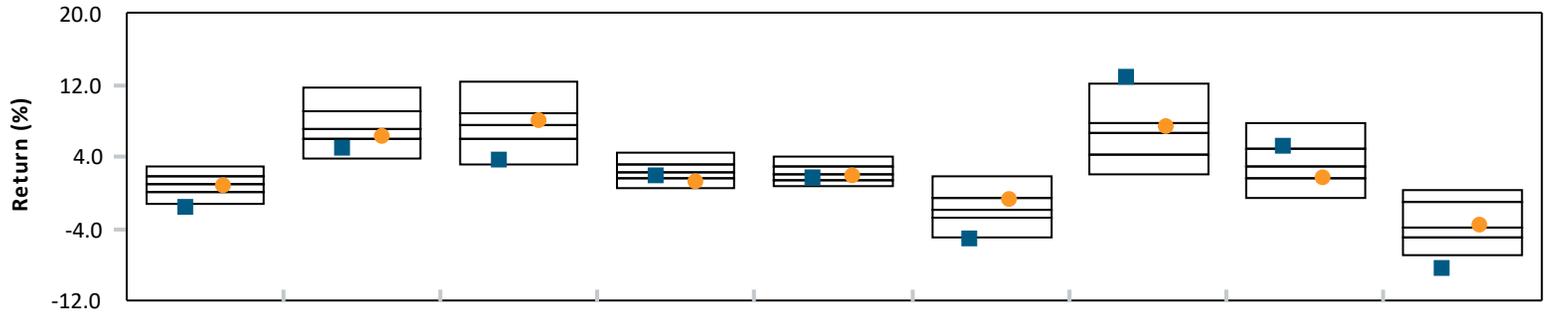
Average Quality = B1/B+

Manager Evaluation

Brandywine Global Opportunistic Fixed Income

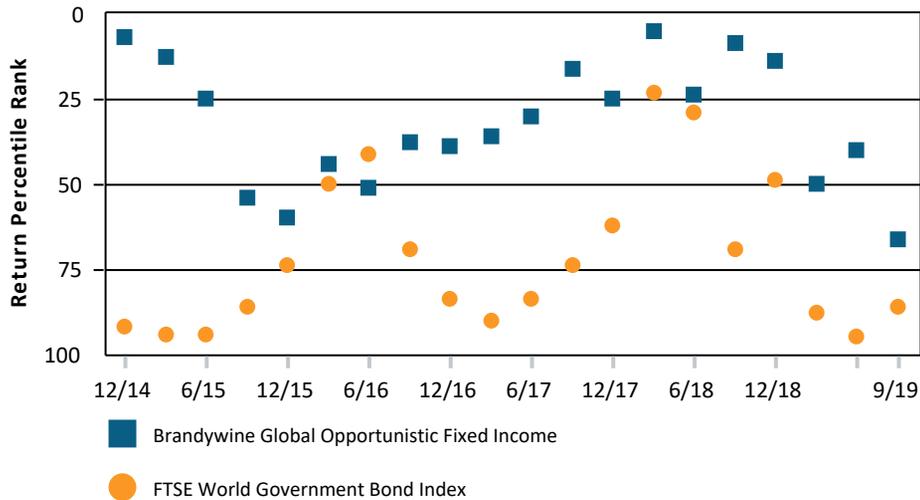
As of September 30, 2019

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

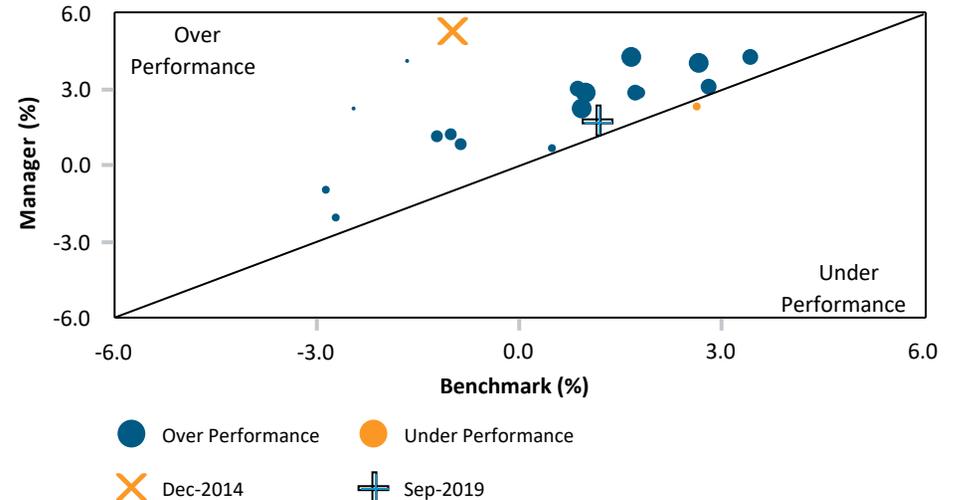


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
■ Brandywine Global Opportunistic Fixed Income	-1.6 (96)	5.0 (84)	3.7 (92)	1.8 (66)	1.6 (70)	-5.2 (96)	12.9 (3)	5.2 (20)	-8.4 (96)
● FTSE World Government Bond Index	0.8 (52)	6.3 (72)	8.1 (39)	1.2 (86)	1.8 (61)	-0.8 (35)	7.5 (35)	1.6 (80)	-3.6 (46)
5th Percentile	3.1	11.8	12.5	4.6	4.0	1.8	12.3	8.0	0.4
1st Quartile	1.9	9.1	8.9	3.3	2.9	-0.4	7.9	4.9	-0.9
Median	1.0	7.1	7.7	2.3	2.2	-1.8	6.8	2.9	-3.8
3rd Quartile	0.2	6.1	6.1	1.6	1.5	-2.8	4.4	1.7	-4.9
95th Percentile	-1.3	3.8	3.2	0.5	0.9	-5.0	2.2	-0.6	-7.0

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



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

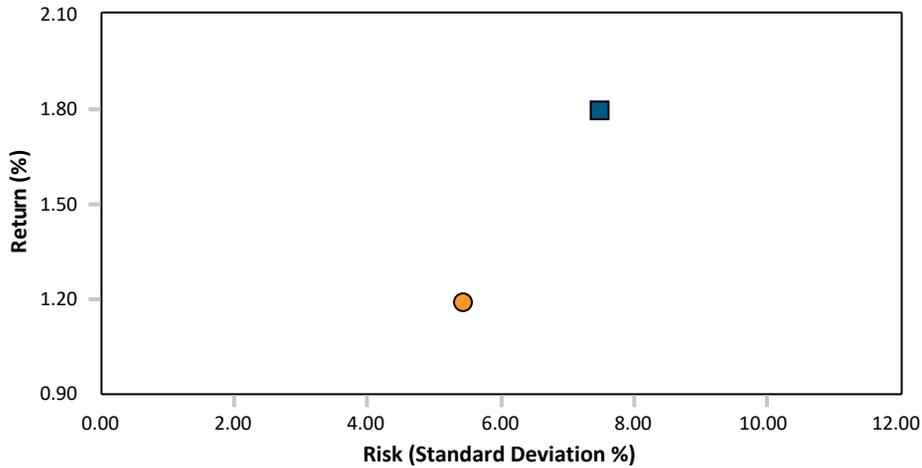


Manager Evaluation

Brandywine Global Opportunistic Fixed Income

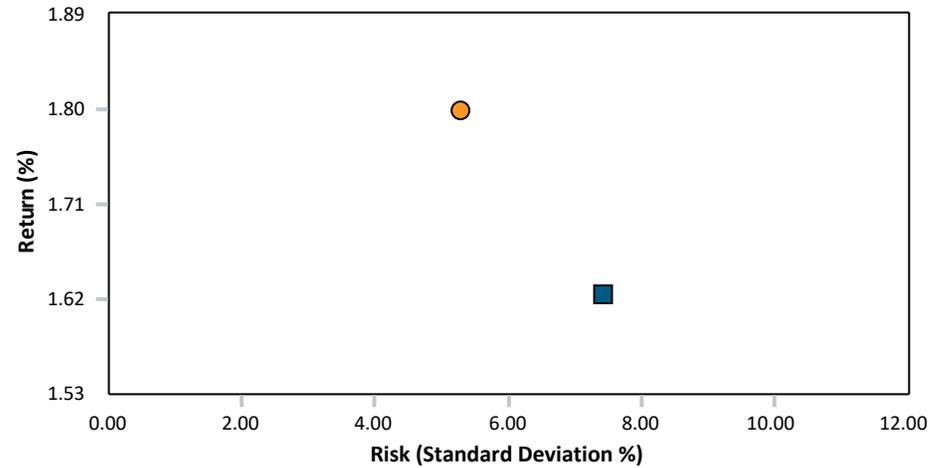
As of September 30, 2019

3 Year Risk and Return



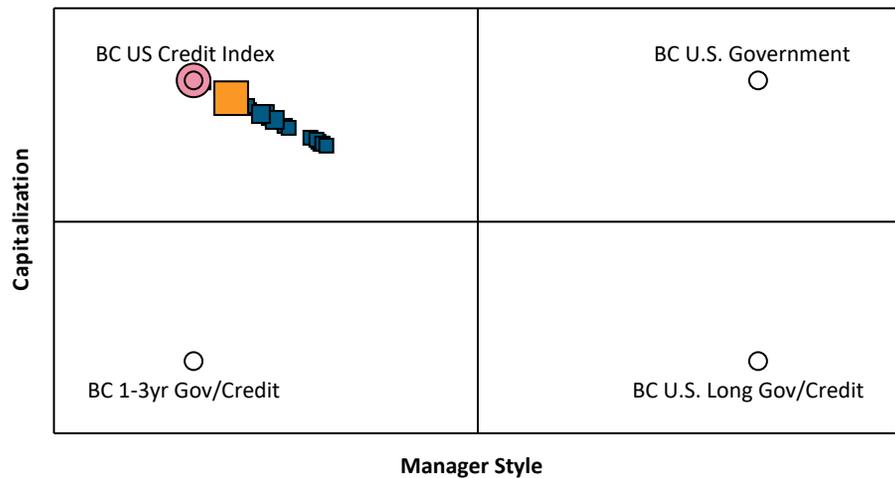
- Brandywine Global Opportunistic Fixed Income
- FTSE World Government Bond Index

5 Year Risk and Return



- Brandywine Global Opportunistic Fixed Income
- FTSE World Government Bond Index

Style Map - 3 Years



- Style History
- Sep-2019
- Average Style Exposure

MPT Statistics vs. FTSE World Government Bond Index

	3 Years	5 Years
Return	1.8	1.6
Standard Deviation	7.5	7.4
vs. FTSE World Government Bond Index		
Alpha	0.7	-0.1
Beta	1.0	1.0
R-Squared	0.5	0.5
Consistency	44.4	48.3
Up Market Capture	121.7	100.2
Down Market Capture	115.2	100.8
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.1	0.1

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Brandywine Global Asset Management

As of 09/30/2019

Portfolio Information

Firm Name	Brandywine Global Asset Management	Portfolio Manager	Team Managed
Product Name	Brandywine Global Opportunistic Fund	Fund Style	Fixed Income - Global Bonds
Portfolio Assets		Style Benchmark	Citigroup World Government Bond Index
Inception Date	6/1/2011		

Portfolio Investment Policy

The Fund invests primarily in debt and fixed income securities of domestic and foreign issuers located in developed countries. The Fund considers any country that has a sovereign debt rating of A- or better from at least one nationally recognized statistical rating organization at the time of purchase to be a developed country. The Fund may opportunistically invest in high yield and emerging markets debt.

Sector Weightings

	<u>% of Portfolio</u>
Treasury	85.4%
Agency	4.0%
Financials	4.0%
Industrials	5.4%
Utilities	0.0%
Non-Corporates	-0.9%
Mortgage Backed	1.3%
Asset Backed	0.0%
CMBS	0.0%
Muni	0.0%
Cash	0.8%

Fixed Income Characteristics

	<u>% of Portfolio</u>
Maturity	
less than 1 year	6.8%
1 to 3 years	38.0%
3 to 5 years	2.9%
5 to 10 years	20.4%
10 to 20 years	5.4%
Over 20 years	26.5%
	<u># of yrs</u>
Portfolio Average	10.59
Duration at Quarter End	5.87

Credit Quality Allocations

<u>Quality</u>	<u>% of Port.</u>	<u>Quality</u>	<u>% of Port.</u>
AAA	45.7%	BB	8.9%
AA	2.4%	B	0.8%
A	27.5%	Below B	0.0%
BBB	14.5%	N/R	0.2%

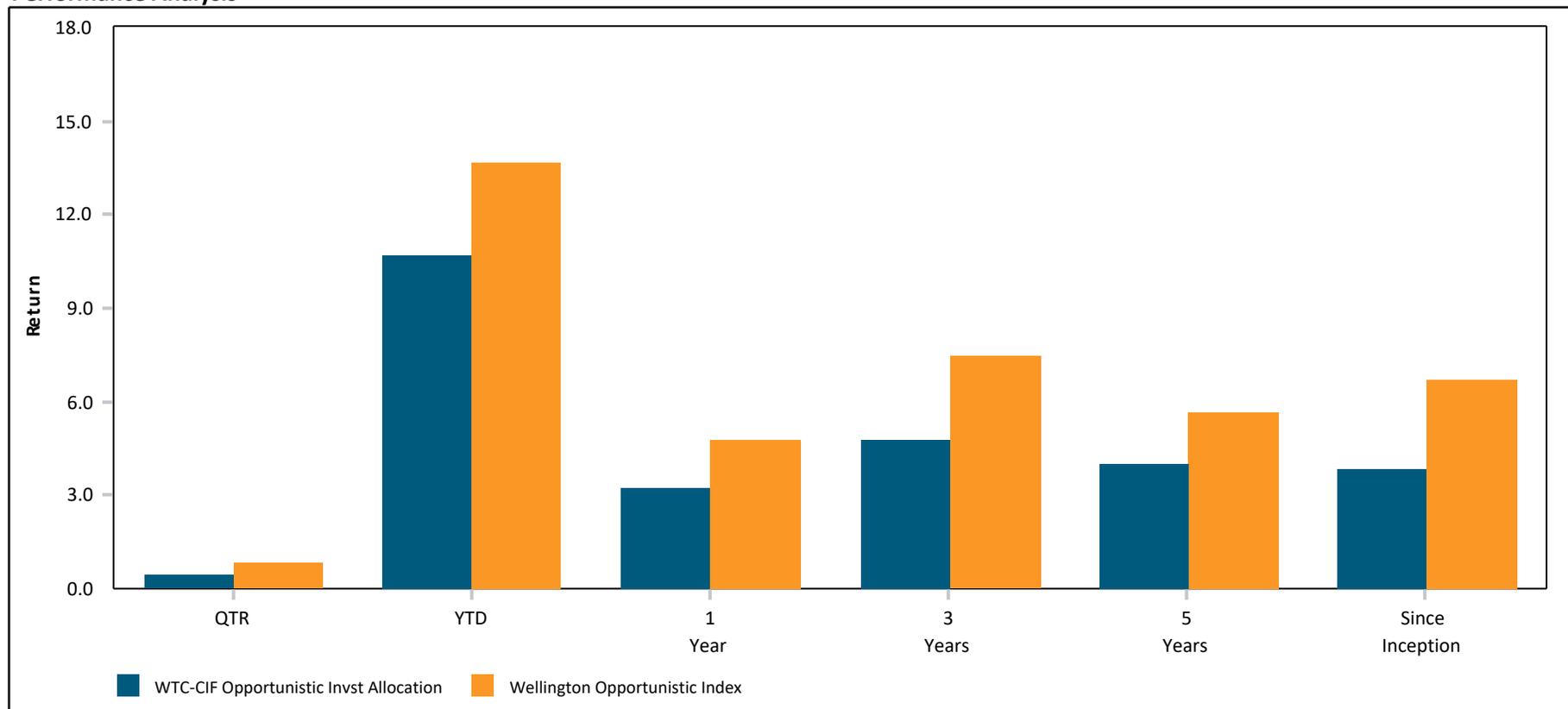
Average Quality = A+

Manager Evaluation

WTC-CIF Opportunistic Invst Allocation

As of September 30, 2019

Performance Analysis

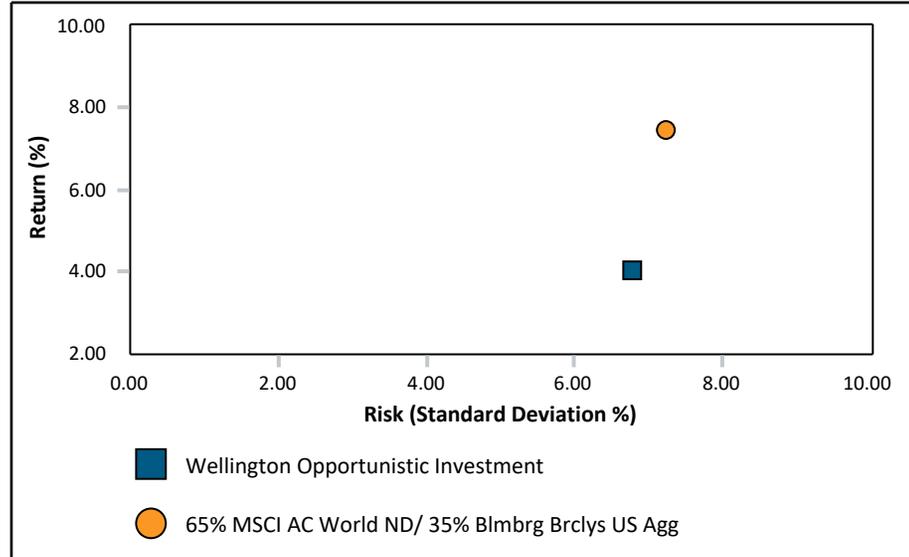


	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
WTC-CIF Opportunistic Invst Allocation	0.4	10.7	3.2	4.8	4.0	3.9	11/01/2010
Wellington Opportunistic Index	0.8	13.7	4.8	7.5	5.7	6.7	
Difference	-0.4	-3.0	-1.6	-2.7	-1.7	-2.8	

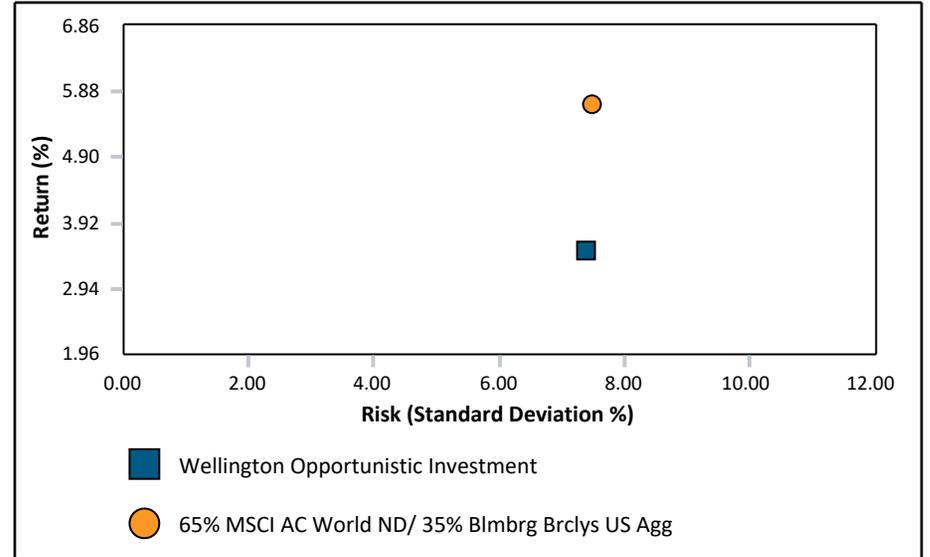
Manager Evaluation

Wellington Opportunistic Investment - Risk vs Return As of September 30, 2019

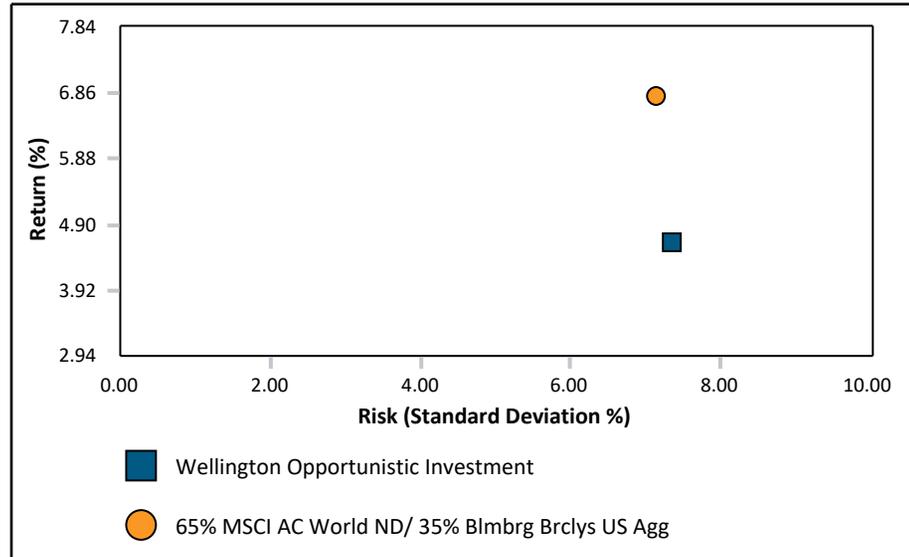
3 Year Risk and Return



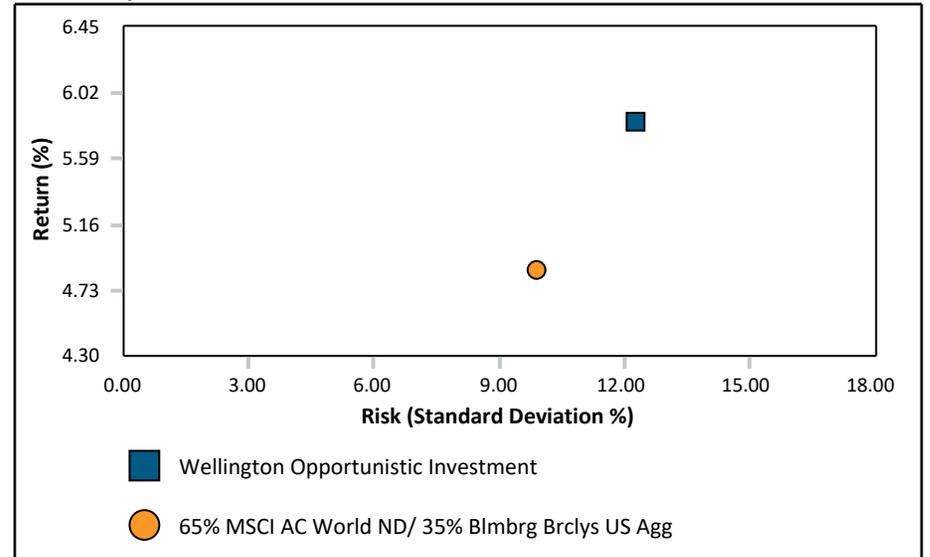
5 Year Risk and Return



7 Year Risk and Return



Since Inception Risk and Return



Returns for this exhibit are based on the investment composite gross returns from the manager, and then adjusted to reflect the stated management fee.

Manager Evaluation

Wellington Opportunistic Investment - MPT Statistics

As of September 30, 2019

3 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Wellington Opportunistic Investment	4.01	6.79	4.63	0.39	-1.16	2.86	0.84	0.86	-2.25
65% MSCI AC World ND/ 35% Blmbrg Brclys US Agg	7.46	7.24	4.68	0.82	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	1.54	0.22	0.00	N/A	-0.82	7.26	0.00	0.00	1.54

5 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Wellington Opportunistic Investment	3.49	7.42	4.90	0.37	-0.73	2.89	0.86	0.91	-1.59
65% MSCI AC World ND/ 35% Blmbrg Brclys US Agg	5.68	7.51	4.70	0.65	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.96	0.27	0.01	N/A	-0.65	7.50	0.00	0.00	0.95

7 Year Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha
Wellington Opportunistic Investment	4.61	7.37	4.73	0.55	-0.75	2.76	0.86	0.96	-1.76
65% MSCI AC World ND/ 35% Blmbrg Brclys US Agg	6.81	7.16	4.31	0.86	N/A	0.00	1.00	1.00	0.00
90 Day U.S. Treasury Bill	0.70	0.25	0.01	N/A	-0.86	7.16	0.00	0.00	0.70

Since Inception Historical MPT Statistics

	Return	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Tracking Error	R-Squared	Beta	Alpha	Inception Date
Wellington Opportunistic Investment	5.83	12.30	8.53	0.38	0.24	4.89	0.85	1.14	0.45	03/01/2000
65% MSCI AC World ND/ 35% Blmbrg Brclys US Agg	4.86	9.95	6.88	0.36	N/A	0.00	1.00	1.00	0.00	03/01/2000
90 Day U.S. Treasury Bill	1.70	0.55	0.01	N/A	-0.36	10.02	0.01	-0.01	1.74	03/01/2000

Returns for this exhibit are based on the investment composite gross return from the manager, and adjusted for the management fee.

Manager Evaluation

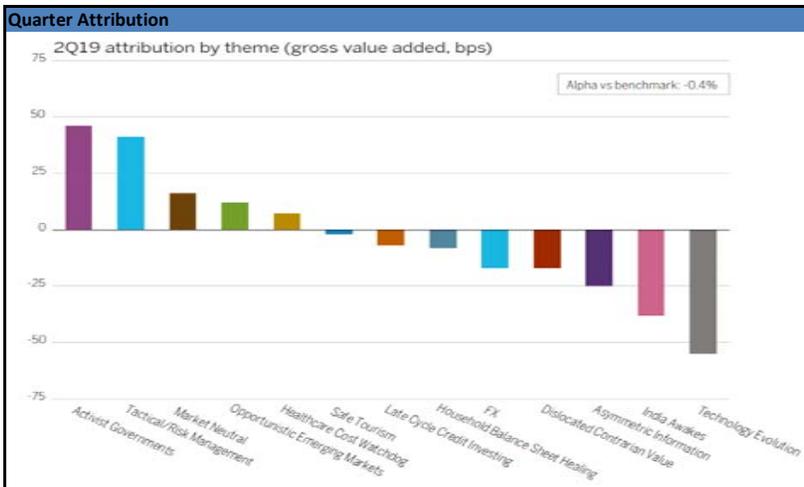
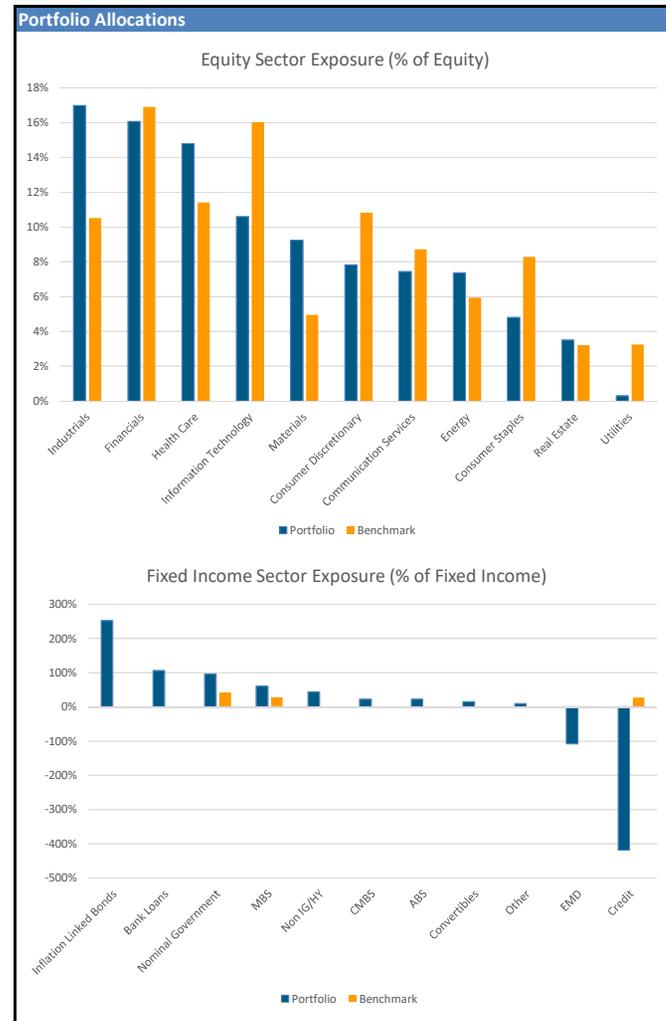
Wellington Opportunistic Investment Allocation

As of June 30, 2019

Portfolio Information	
Fund Style: Multi Asset Manager	Inception Date: April 2000
Firm AUM: \$1.1 TT	Strategy AUM: \$2.3 BB

Fund Investment Policy
Wellington Opportunistic Investment seeks to provide concentrated exposure to Wellington's best asset allocation ideas in the equity and fixed income markets. Their themes can extend to a multi-year horizon which leads to long holding periods.

Thematic Exposures			
	Jun-19	Mar-19	Difference
Themes			
Technology Evolution <i>Asia technology, automotive technology and cellular infrastructure build out</i>	13%	15%	-2%
Activist Governments <i>Inflation sensitive assets in response to currency devaluation and monetary policy</i>	12%	18%	-6%
Household Balance Sheet Healing <i>The consumer balance sheet is robust and mortgage fundamentals are improving</i>	3%	4%	-1%
Market Neutral <i>Variety of market neutral and long/short fixed income and equity exposures.</i>	31%	26%	5%
Opportunistic Emerging Markets Debt <i>Structural improvement relative to developed world drives spread tightening</i>	7%	5%	2%
India Awakes <i>New government with active reform agenda to increase productivity and income growth</i>	6%	5%	1%
Healthcare Watchdog <i>Companies that will provide solutions for reduced healthcare costs, primarily HMOs</i>	6%	5%	1%
Late Cycle Credit Investing <i>The global recovery and inflationary pressures will move rates higher over time</i>	7%	7%	0%
Safe Tourism <i>A focus on companies in isolated regions where tourism is a large part of GDP</i>	0%	4%	-4%
Dislocated Contrarian Value <i>Non-U.S. value equities to capture the value-growth performance disparity</i>	8%	2%	6%
Asymmetric Information <i>Dislocations due to the rise of passive investing and increased regulation</i>	12%	0%	12%
Non-Thematic <i>Short-term opportunistic positions, specialist managers, risk management</i>	17%	21%	-4%



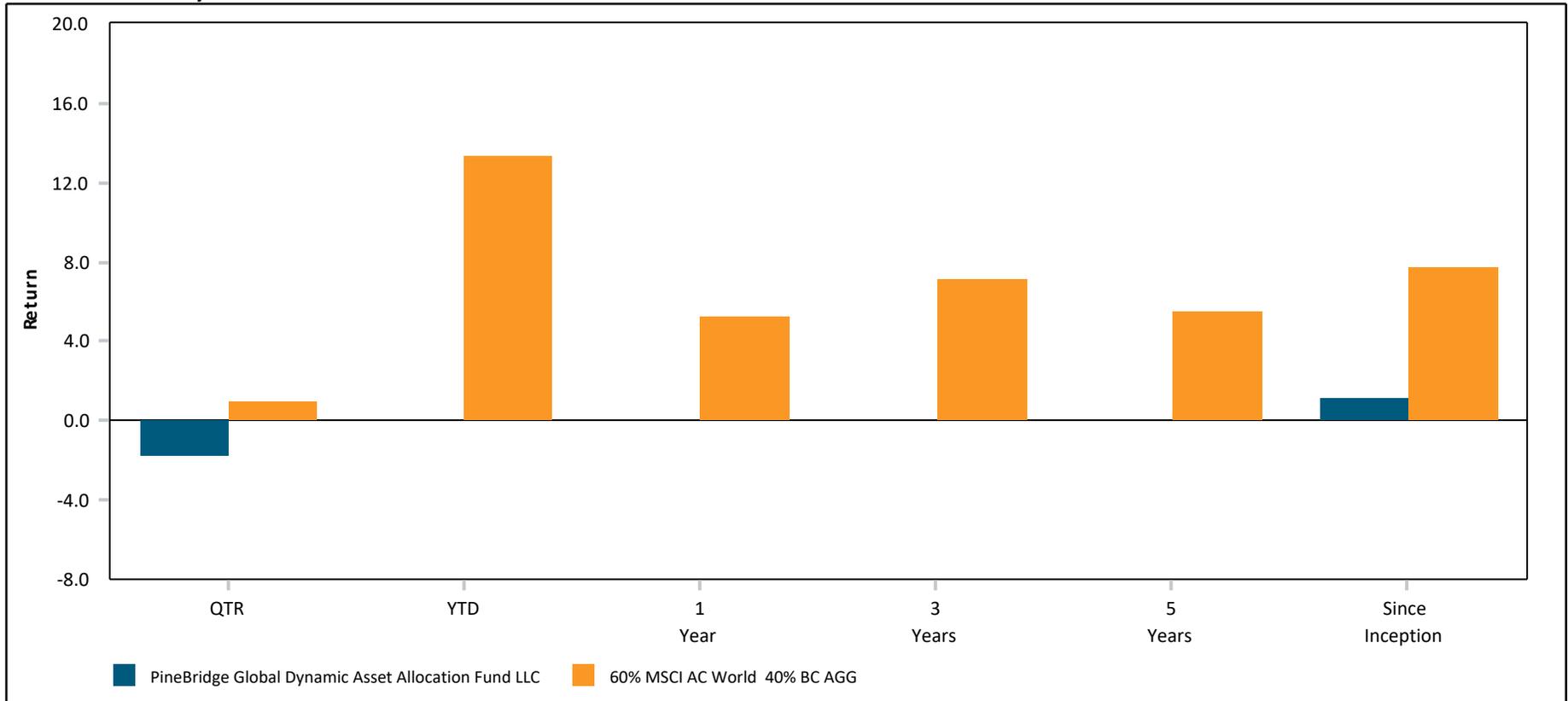
Source: Wellington

Manager Evaluation

PineBridge Global Dynamic Asset Allocation Fund LLC

As of September 30, 2019

Performance Analysis

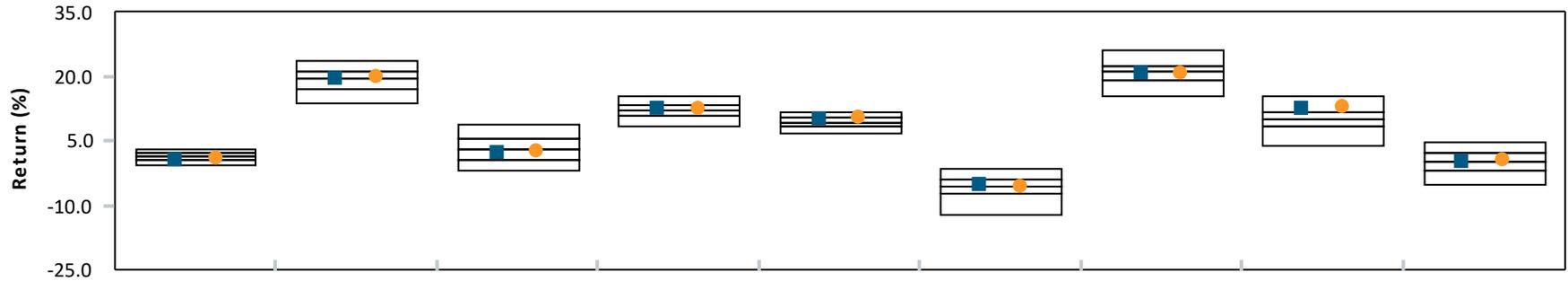


	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
PineBridge Global Dynamic Asset Allocation Fund LLC	-1.8	N/A	N/A	N/A	N/A	1.2	02/01/2019
60% MSCI AC World 40% BC AGG	0.9	13.3	5.3	7.1	5.5	7.7	
Difference	-2.7	N/A	N/A	N/A	N/A	-6.5	

Manager Evaluation

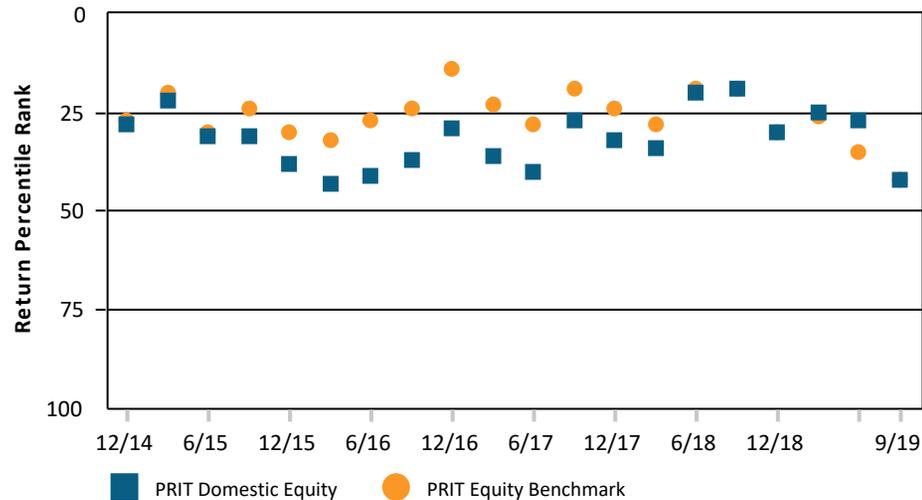
PRIT Domestic Equity
As of September 30, 2019

Peer Group Analysis vs. IM U.S. Large Cap Core Equity (MF)

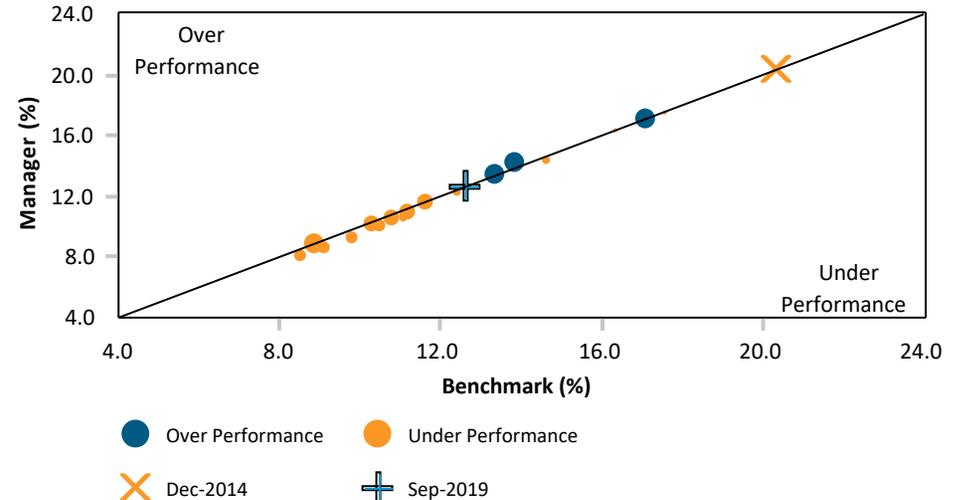


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
PRIT Domestic Equity	0.7 (77)	19.8 (47)	2.1 (61)	12.7 (42)	10.2 (29)	-5.2 (42)	20.7 (57)	12.8 (20)	0.1 (52)
PRIT Equity Benchmark	1.1 (65)	20.0 (43)	2.6 (57)	12.6 (42)	10.4 (26)	-5.5 (48)	20.8 (56)	13.1 (17)	0.5 (47)
5th Percentile	3.3	24.0	9.1	15.4	11.7	-1.4	26.2	15.5	4.9
1st Quartile	2.2	21.5	5.8	13.4	10.4	-3.7	22.8	12.0	2.2
Median	1.5	19.5	3.2	12.3	9.4	-5.6	21.2	10.1	0.3
3rd Quartile	0.7	17.2	0.7	10.9	8.4	-7.2	19.3	8.3	-1.7
95th Percentile	-0.7	13.8	-2.0	8.7	6.9	-12.0	15.5	3.8	-5.0

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



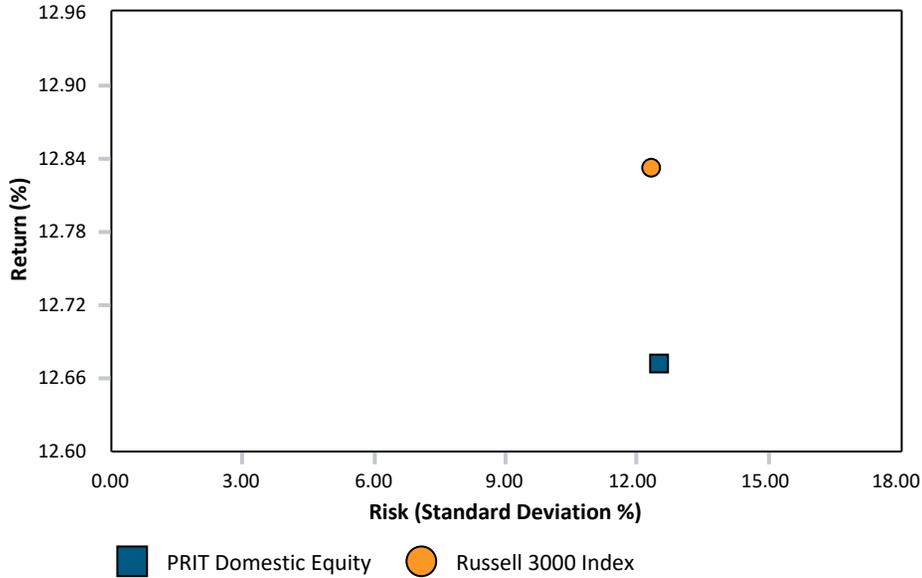
3 Year Rolling Under/Over Performance vs. PRIT Equity Benchmark



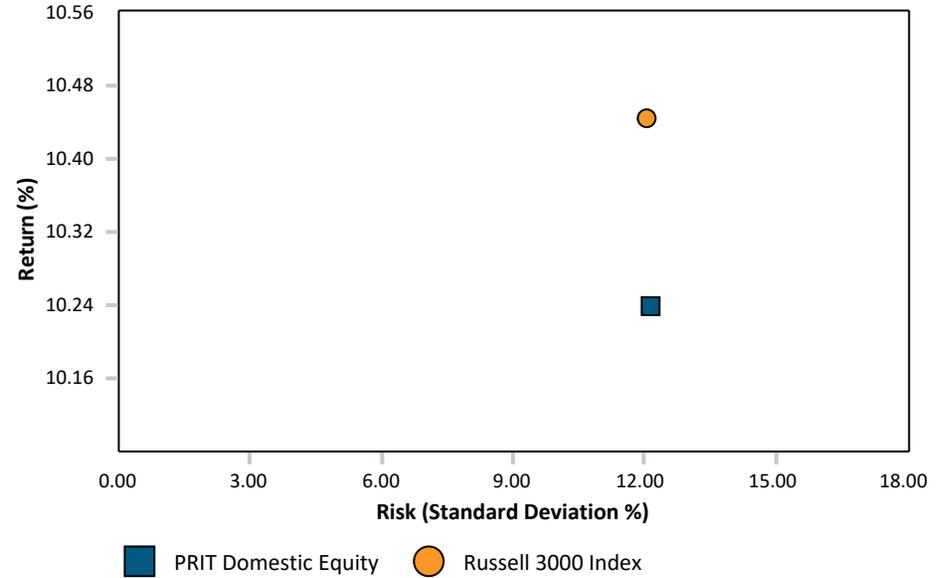
Manager Evaluation

PRIT Domestic Equity
As of September 30, 2019

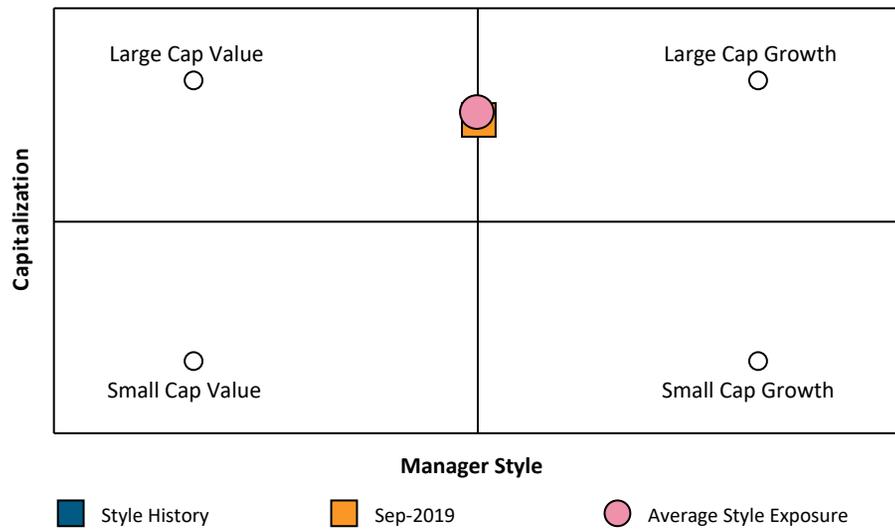
3 Year Risk and Return



5 Year Risk and Return



Style Map - 3 Years



MPT Statistics vs. Russell 3000 Index

	3 Years	5 Years
Return	12.7	10.2
Standard Deviation	12.5	12.2
vs. Russell 3000 Index		
Alpha	-0.3	-0.3
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	50.0	53.3
Up Market Capture	99.8	99.5
Down Market Capture	100.8	100.6
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.9	0.8

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

PRIT Domestic Equity Account As of September 30, 2019

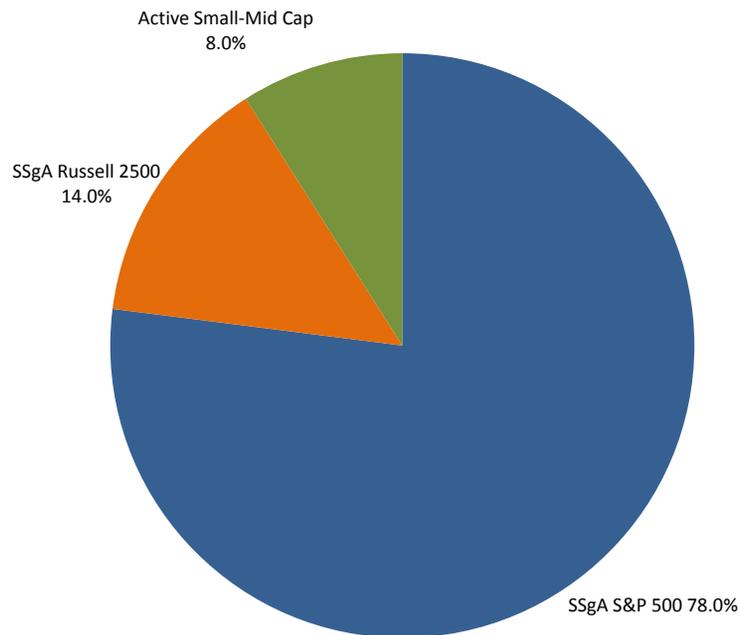
Portfolio Information

Fund Style: U.S. Core Equity
AUM: \$13.7 Bn
Inception Date: February 1985
Percent of PRIT Fund: 19.1%

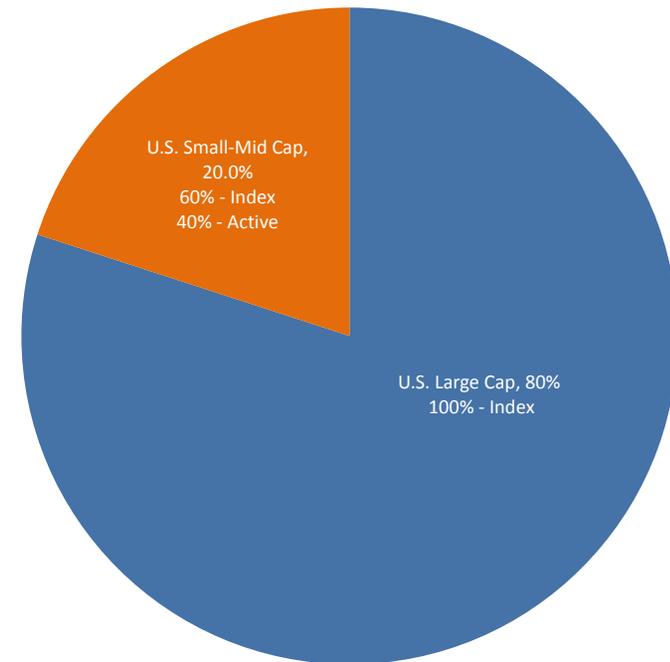
Fund Investment Policy

PRIM is seeking to generate returns that are slightly better than the blended benchmark through an allocation to active management for a portion of the Small to Mid Cap allocation.

Strategy Allocations by Manager



Strategy Allocation Targets

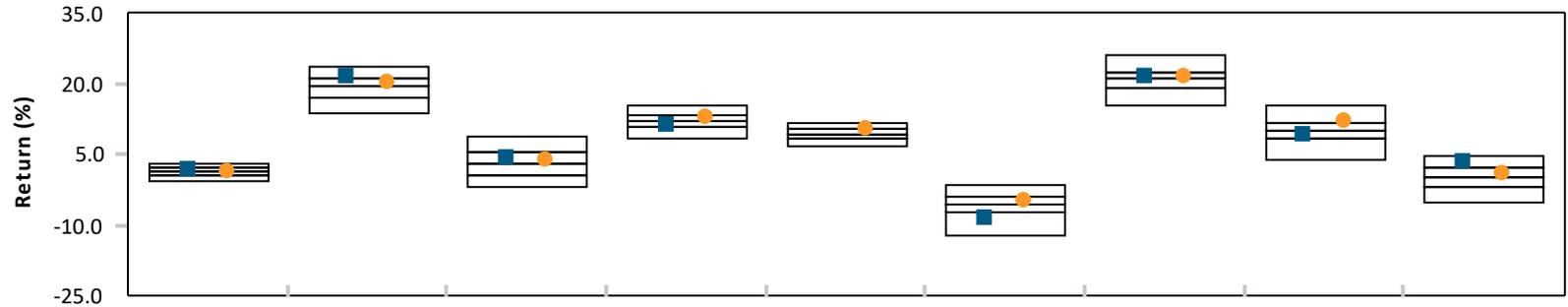


Manager Evaluation

Columbia US Contrarian Core Equity Fund

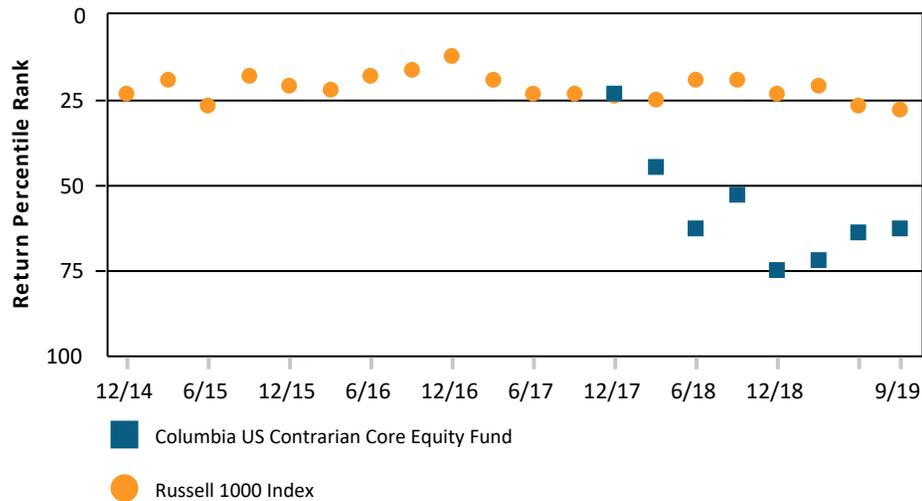
As of September 30, 2019

Peer Group Analysis vs. IM U.S. Large Cap Core Equity (MF)

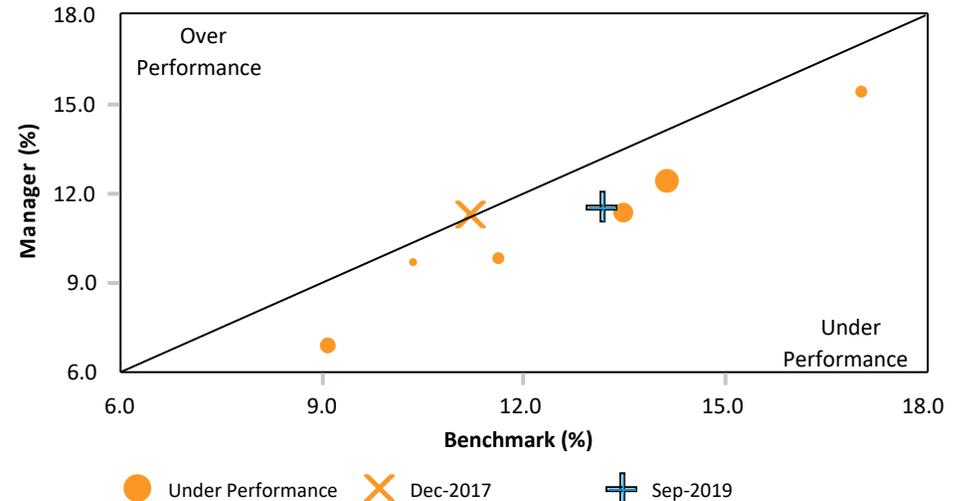


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
■ Columbia US Contrarian Core Equity Fund	2.0 (30)	21.9 (20)	4.4 (37)	11.5 (63)	N/A	-8.3 (86)	21.7 (40)	9.3 (62)	3.5 (11)
● Russell 1000 Index	1.4 (53)	20.5 (36)	3.9 (43)	13.2 (28)	10.6 (19)	-4.8 (36)	21.7 (41)	12.1 (25)	0.9 (40)
5th Percentile	3.3	24.0	9.1	15.4	11.7	-1.4	26.2	15.5	4.9
1st Quartile	2.2	21.5	5.8	13.4	10.4	-3.7	22.8	12.0	2.2
Median	1.5	19.5	3.2	12.3	9.4	-5.6	21.2	10.1	0.3
3rd Quartile	0.7	17.2	0.7	10.9	8.4	-7.2	19.3	8.3	-1.7
95th Percentile	-0.7	13.8	-2.0	8.7	6.9	-12.0	15.5	3.8	-5.0

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



3 Year Rolling Under/Over Performance vs. Russell 1000 Index

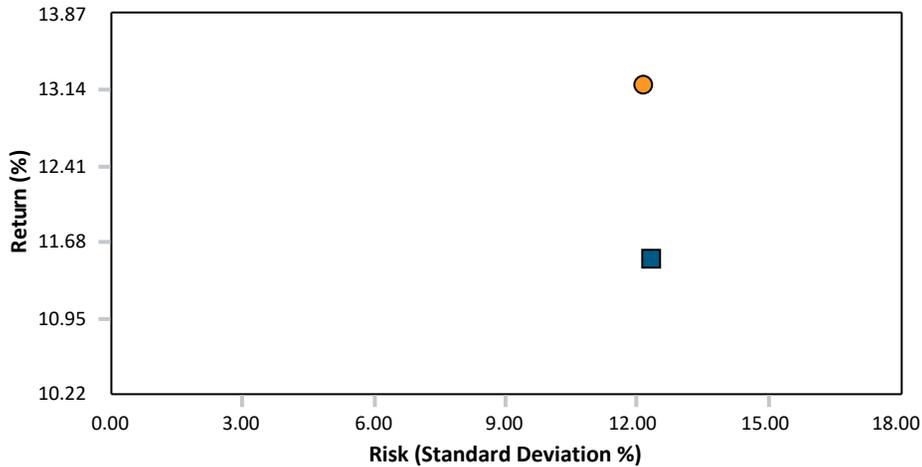


Manager Evaluation

Columbia US Contrarian Core Equity Fund

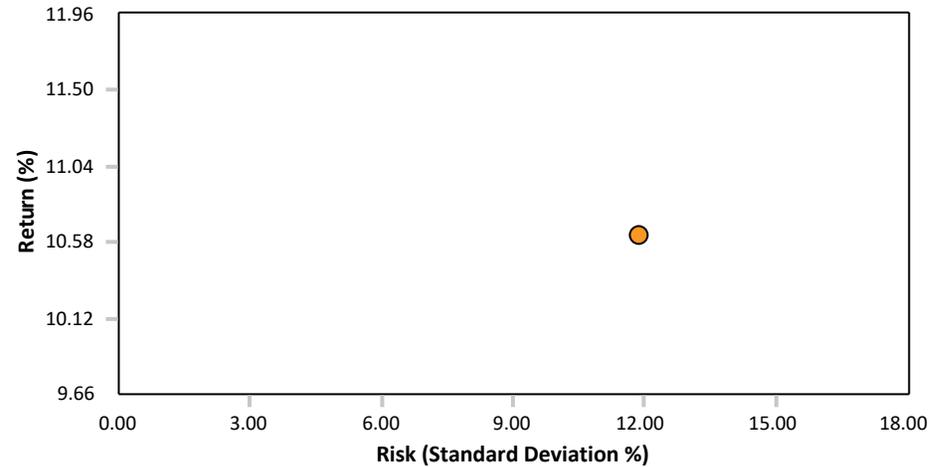
As of September 30, 2019

3 Year Risk and Return



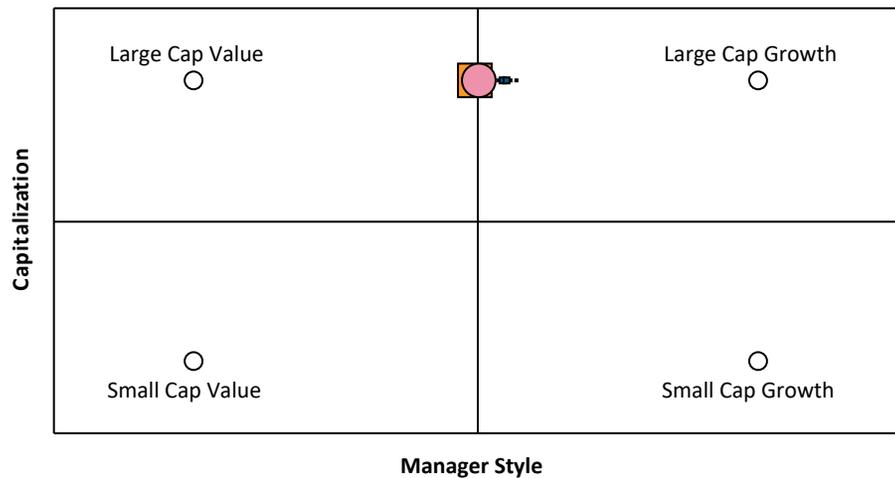
- Columbia US Contrarian Core Equity Fund
- Russell 1000 Index

5 Year Risk and Return



- Columbia US Contrarian Core Equity Fund
- Russell 1000 Index

Style Map - 3 Years



- Style History
- Sep-2019
- Average Style Exposure

MPT Statistics vs. Russell 1000 Index

	3 Years	5 Years
Return	11.5	N/A
Standard Deviation	12.3	N/A
vs. Russell 1000 Index		
Alpha	-1.5	N/A
Beta	1.0	N/A
R-Squared	1.0	N/A
Consistency	50.0	N/A
Up Market Capture	96.4	N/A
Down Market Capture	105.6	N/A
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.8	N/A

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Columbia Management Contrarian U.S. Core Equity Fund

As of 09/30/2019

Portfolio Information

Firm Name	Columbia Management	Portfolio Manager	Team Managed
Product Name	Columbia U.S. Contrarian Core Equity Fund	PM Tenure	-
Portfolio Assets	\$25.8 million	Fund Style	Large Cap Core
Inception Date	1/1/2015	Style Benchmark	S&P 500 Index

Portfolio Investment Policy

The Columbia U.S. Contrarian Core Equity Fund seeks to achieve a total return consisting of long-term capital appreciation and current income. The Fund invests primarily in large cap stocks of U.S. companies that have the potential for long-term growth and current income. The minimum market capitalization guideline is \$2 billion. The manager employs fundamental research combined with quantitative analysis and risk management to construct portfolios.

Largest Equity Holdings

<u>Stock</u>	<u>% of Portfolio</u>
1. Microsoft	5.8
2. Apple	4.2
3. Berkshire Hathaway-Cl B	4.1
4. Amazon.com	3.1
5. JP Morgan Chase	3.1
6. Medtronic	3.0
7. Comcast	2.9
8. Mastercard - A	2.9
9. Citigroup	2.7
10. Chevron	2.4

Largest Contributors & Detractors

<u>Contributors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
Apple	4.2	0.50
Medtronic	3.0	0.35
Northrop Grumman	2.1	0.30
AT&T	2.1	0.27
Alphabet-Cl C	2.3	0.26
<u>Detractors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
Amazon.com	3.1	-0.29
EOG Resources	1.2	-0.26
Pfizer	1.1	-0.23
Anthem	0.7	-0.20
Facebook -Class A	1.3	-0.14

Sector Weightings

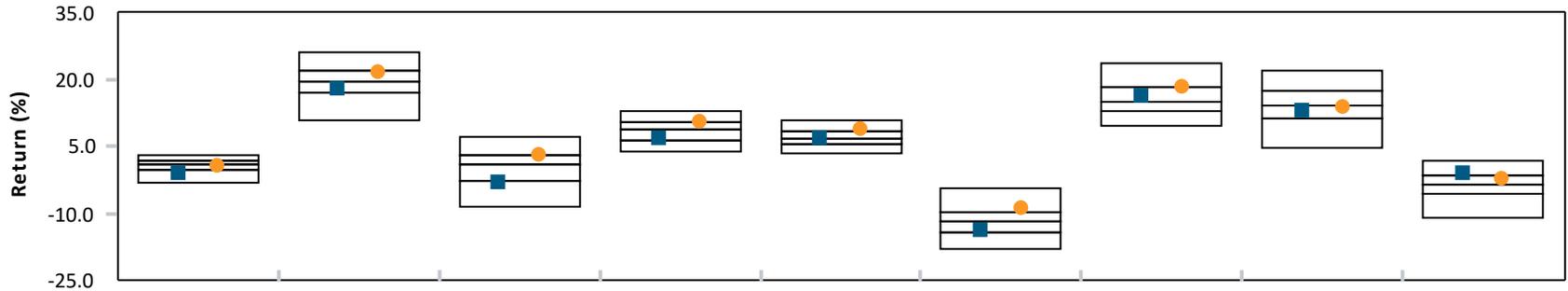
<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>	<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>
Communication Services	13.8%	9.8%	Industrials	6.3%	9.7%
Consumer Discretionary	8.7%	10.3%	Materials	25.0%	22.0%
Consumer Staples	5.7%	7.0%	Real Estate	3.9%	2.8%
Energy	5.0%	4.3%	Technology	1.4%	4.0%
Financials	13.7%	13.2%	Utilities	1.0%	3.4%
Health Care	11.7%	13.3%	Cash	3.8%	0.0%

Manager Evaluation

LMCG Mid Cap Collective Fund

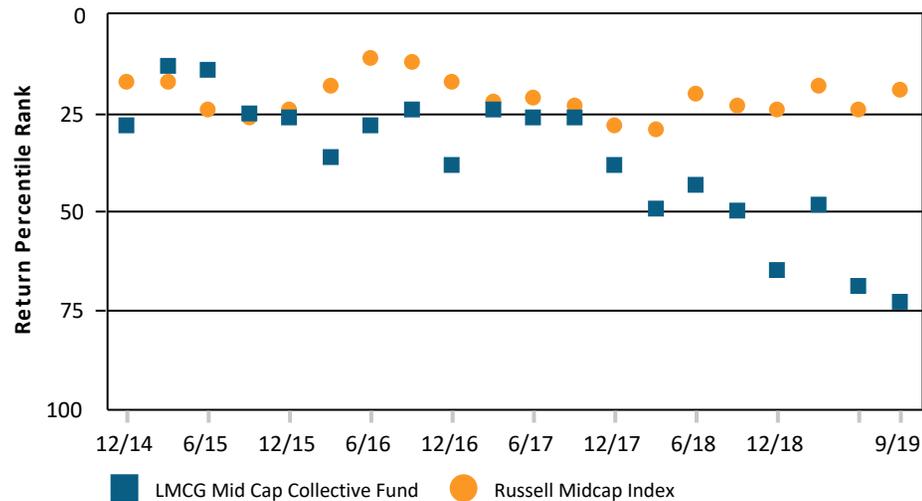
As of September 30, 2019

Peer Group Analysis vs. IM U.S. Mid Cap Core Equity (MF)

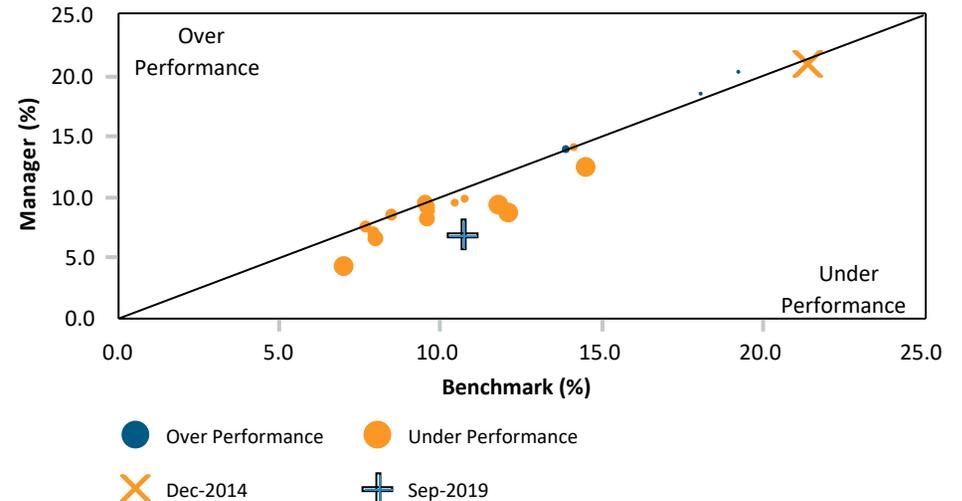


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
LMCG Mid Cap Collective Fund	-0.8 (85)	17.9 (71)	-3.2 (78)	6.9 (73)	6.9 (51)	-14.0 (74)	16.5 (40)	12.9 (63)	-1.1 (21)
Russell Midcap Index	0.5 (64)	21.9 (26)	3.2 (26)	10.7 (19)	9.1 (18)	-9.1 (20)	18.5 (25)	13.8 (57)	-2.4 (33)
5th Percentile	3.1	26.5	7.4	12.9	10.9	-4.1	24.0	22.1	1.8
1st Quartile	1.7	22.1	3.2	10.5	8.5	-9.7	18.5	17.8	-1.6
Median	0.9	19.7	0.9	8.8	6.9	-11.6	15.3	14.4	-3.4
3rd Quartile	-0.2	17.3	-2.5	6.4	5.5	-14.3	13.0	11.2	-5.7
95th Percentile	-3.1	11.1	-8.5	4.1	3.4	-18.0	9.9	4.6	-10.9

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



3 Year Rolling Under/Over Performance vs. Russell Midcap Index

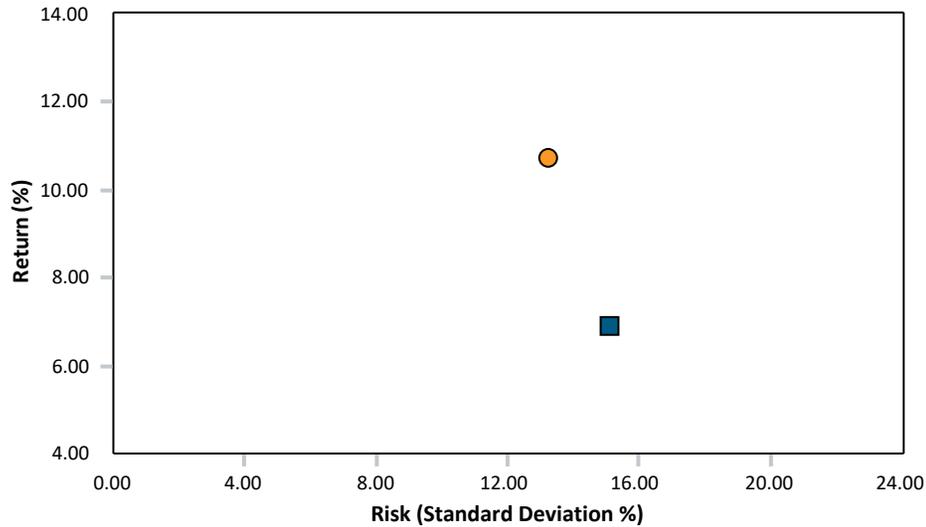


Manager Evaluation

LMCG Mid Cap Collective Fund

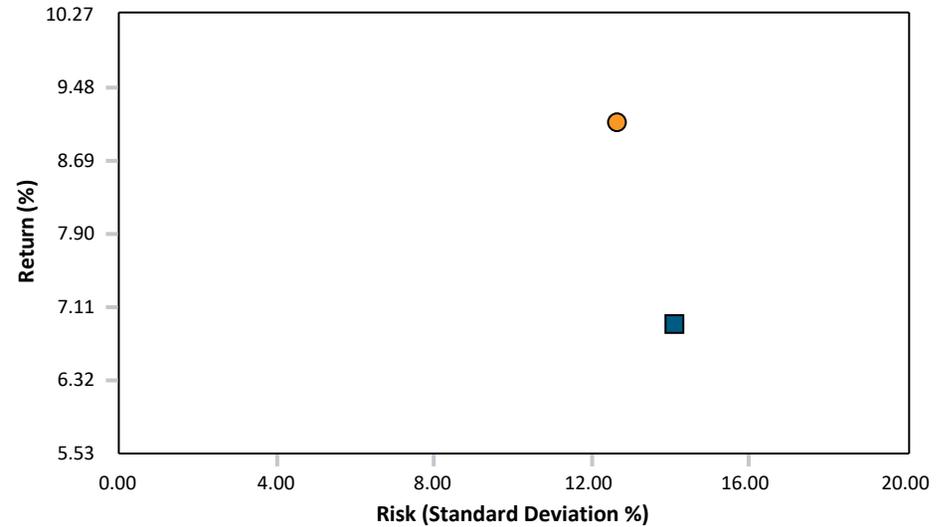
As of September 30, 2019

3 Year Risk and Return



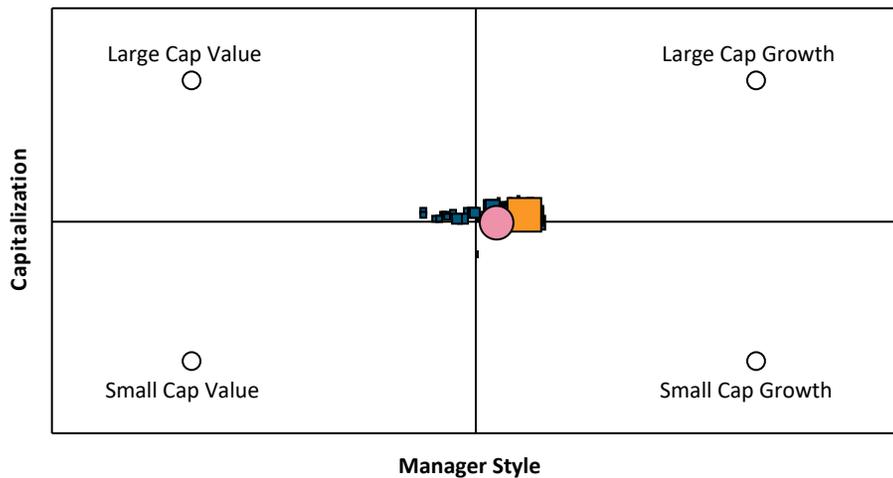
■ LMC Mid Cap Collective Fund ● Russell Midcap Index

5 Year Risk and Return



■ LMC Mid Cap Collective Fund ● Russell Midcap Index

Style Map - 3 Years



■ Style History ■ Sep-2019 ● Average Style Exposure

MPT Statistics vs. Russell Midcap Index

	3 Years	5 Years
Return	6.9	6.9
Standard Deviation	15.1	14.1
vs. Russell Midcap Index		
Alpha	-4.5	-2.7
Beta	1.1	1.1
R-Squared	1.0	1.0
Consistency	38.9	46.7
Up Market Capture	96.3	99.3
Down Market Capture	119.7	114.3
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.4	0.5

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Lee Munder Capital Group - Mid Cap Core Collective Fund

As of 09/30/2019

Portfolio Information

Firm Name	Lee Munder Capital Group	Portfolio Manager	Team based
Product Name	Mid Cap Core Collective Fund		
Portfolio Assets	\$11,073,239	Fund Style	Mid Cap Core Equity
Inception Date	6/1/2011	Style Benchmark	Russell MidCap Index

Portfolio Investment Policy

Lee Munder's Mid Cap Core investment process emphasizes mid cap companies with higher return on capital, free cash flow and strong balance sheets. Many of the portfolio's companies have dominant positions in a niche area within their industries.

Largest Equity Holdings

<u>Stock</u>	<u>% of Portfolio</u>
1. Encompass Health Corporation	2.6
2. Fidelity National Information Services, Inc.	2.2
3. Synopsys, Inc.	2.1
4. LKQ Corporation	2.0
5. MACOM Technology Solutions Holdings, Inc.	1.9
6. Evergy, Inc.	1.9
7. NiSource Inc.	1.8
8. Dollar General Corporation	1.8
9. Marriott Vacations Worldwide Corporation	1.8
10. DTE Energy Company	1.8

Largest Contributors & Detractors

<u>Contributors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
MACOM Technology Solutions Holc	1.7	0.55
LKQ Corporation	1.8	0.32
Dollar General Corporation	1.7	0.30
Evergy, Inc.	1.8	0.20
Fidelity National Information Servic	2.3	0.18
<u>Detractors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
Merit Medical Systems, Inc.	0.8	-0.48
PTC, Inc.	1.5	-0.43
Mimecast Limited	1.4	-0.40
Boingo Wireless, Inc.	0.7	-0.36
Berry Global Group Inc.	1.1	-0.34

Sector Weightings

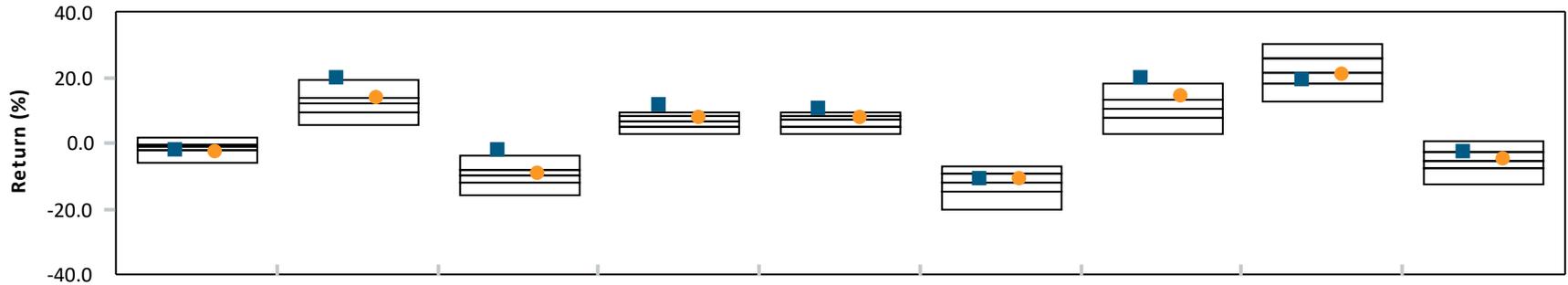
<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>	<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>
Communication Services	1.9%	4.1%	Industrials	8.0%	13.7%
Consumer Discretionary	12.6%	11.5%	Materials	7.7%	5.2%
Consumer Staples	7.9%	4.1%	Real Estate	7.0%	10.1%
Energy	1.8%	3.9%	Technology	16.1%	17.2%
Financials	11.6%	13.3%	Utilities	7.9%	7.2%
Health Care	14.8%	9.8%	Cash	2.7%	0.0%

Manager Evaluation

Wellington Small Cap 2000

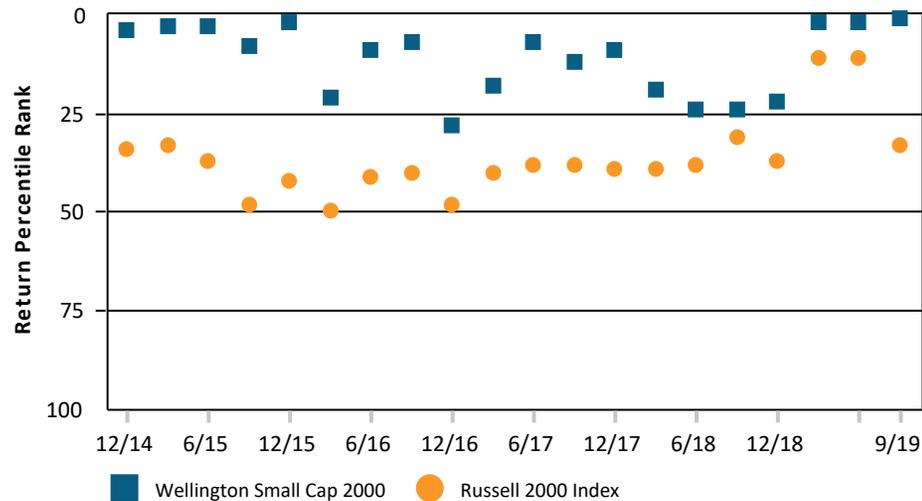
As of September 30, 2019

Peer Group Analysis vs. IM U.S. Small Cap Core Equity (MF)

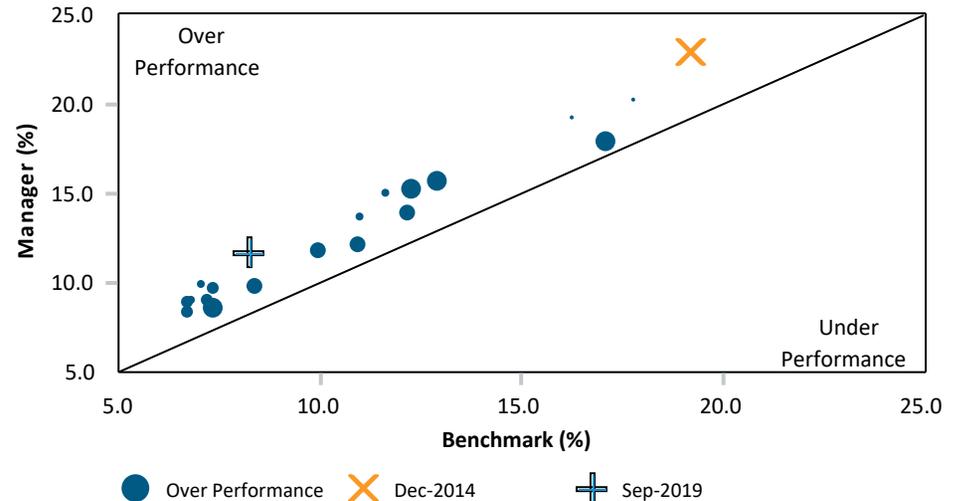


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
Wellington Small Cap 2000	-2.0 (74)	20.2 (3)	-2.0 (4)	11.7 (1)	10.5 (3)	-10.7 (42)	20.1 (3)	19.5 (70)	-2.6 (26)
Russell 2000 Index	-2.4 (80)	14.2 (22)	-8.9 (35)	8.2 (33)	8.2 (39)	-11.0 (45)	14.6 (18)	21.3 (55)	-4.4 (43)
5th Percentile	2.0	19.5	-3.8	9.4	9.8	-6.9	18.5	30.8	0.6
1st Quartile	0.0	14.0	-7.8	8.7	8.8	-9.3	13.6	25.9	-2.6
Median	-0.9	12.6	-9.9	7.0	7.4	-11.8	10.8	22.0	-5.1
3rd Quartile	-2.2	9.7	-12.0	5.3	5.3	-14.6	8.2	18.5	-7.3
95th Percentile	-5.5	5.5	-15.8	2.9	2.9	-20.2	2.8	12.9	-12.2

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



3 Year Rolling Under/Over Performance vs. Russell 2000 Index

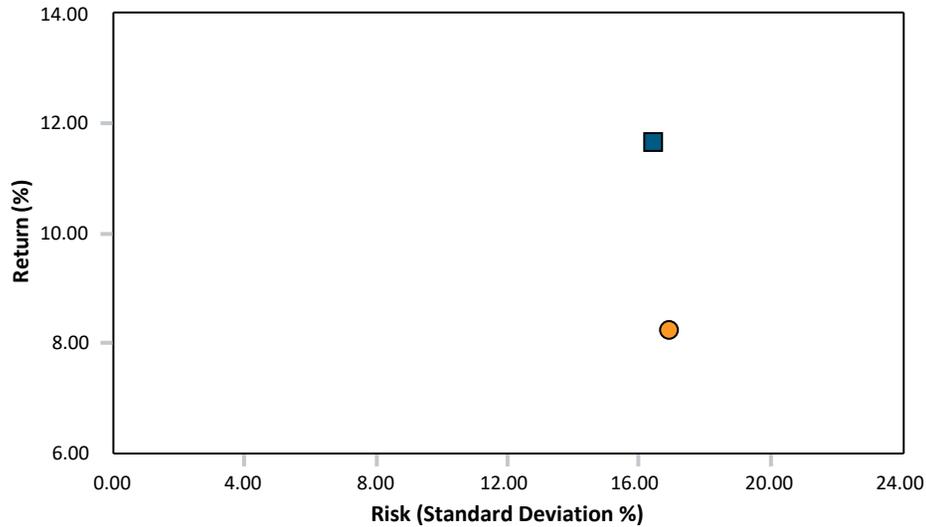


Manager Evaluation

Wellington Small Cap 2000

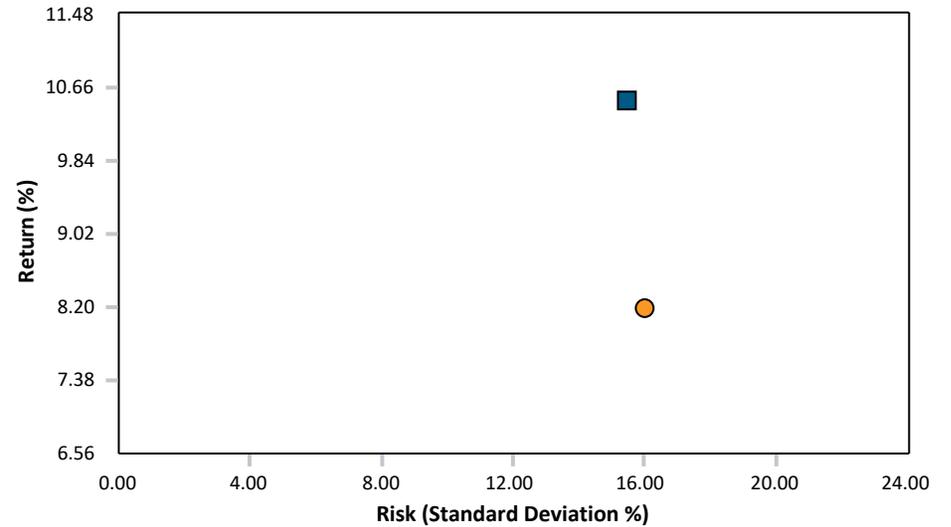
As of September 30, 2019

3 Year Risk and Return



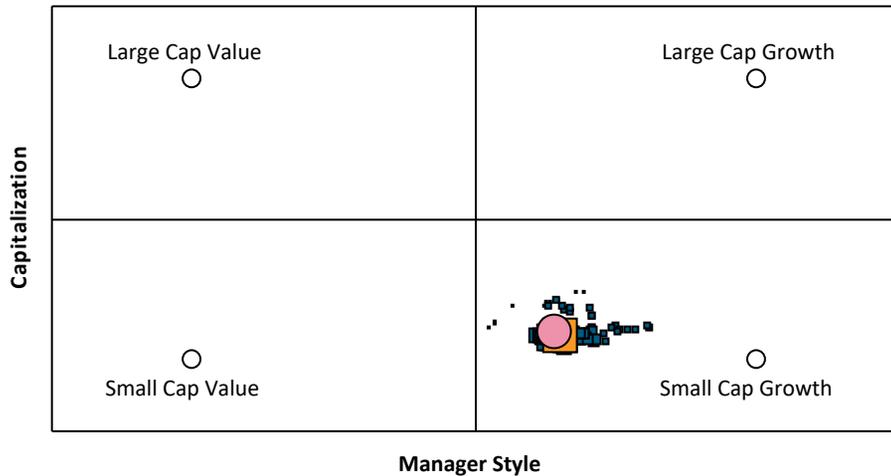
Wellington Small Cap 2000 Russell 2000 Index

5 Year Risk and Return



Wellington Small Cap 2000 Russell 2000 Index

Style Map - 3 Years



Style History Sep-2019 Average Style Exposure

MPT Statistics vs. Russell 2000 Index

	3 Years	5 Years
Return	11.7	10.5
Standard Deviation	16.5	15.5
vs. Russell 2000 Index		
Alpha	3.5	2.5
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	63.9	55.0
Up Market Capture	102.6	99.1
Down Market Capture	86.4	86.5
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.7	0.7

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Wellington Management - Small Cap 2000 Portfolio

As of 06/30/2019

Portfolio Information

Firm Name	Wellington Management	Portfolio Manager	Mark Mandell, Cheryl Duckworth, Camilla Martin
Product Name	Small Cap 2000 Portfolio	PM Tenure	Average: 17 Years
Portfolio Assets		Fund Style	Small Cap Core Equity
Inception Date	10/1/1999	Style Benchmark	Russell 2000 Index

Portfolio Investment Policy

The investment objective of the Small Cap 2000 Portfolio is to achieve long-term total return in excess of the Russell 2000 Index by focusing on adding value through superior security selection. The Portfolio invests in equity securities of US companies, emphasizing those that have above-average potential for capital appreciation.

Largest Equity Holdings

<u>Stock</u>	<u>% of Portfolio</u>
1. National Storage Aff	1.7
2. TopBuild Corp	1.7
3. PS Business Pks Inc	1.5
4. TriNet Group Inc	1.4
5. Performance Food Grp	1.3
6. Trupanion Inc	1.2
7. Allele Inc	1.2
8. Granite Construction	1.1
9. Rexford Indus Realty	1.1
10. MGIC Investment Corp	1.1

Largest Contributors & Detractors

<u>Contributors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
TopBuild Corp	1.7	0.39
Skyline Champ Corp	0.8	0.27
Itron Inc	0.9	0.25
G1 Therapeutics Inc	0.4	0.19
Globant SA	0.5	0.18
<u>Detractors</u>	<u>% of Portfolio</u>	<u>Bps Contribution</u>
Array Biopharma Inc	0.0	0.00
Cardtronics PLC	0.6	-0.19
Green Plains Inc	0.3	-0.18
Edgewell Personal Ca	0.0	-0.20
Axcelis Technologies	0.4	-0.14

Sector Weightings

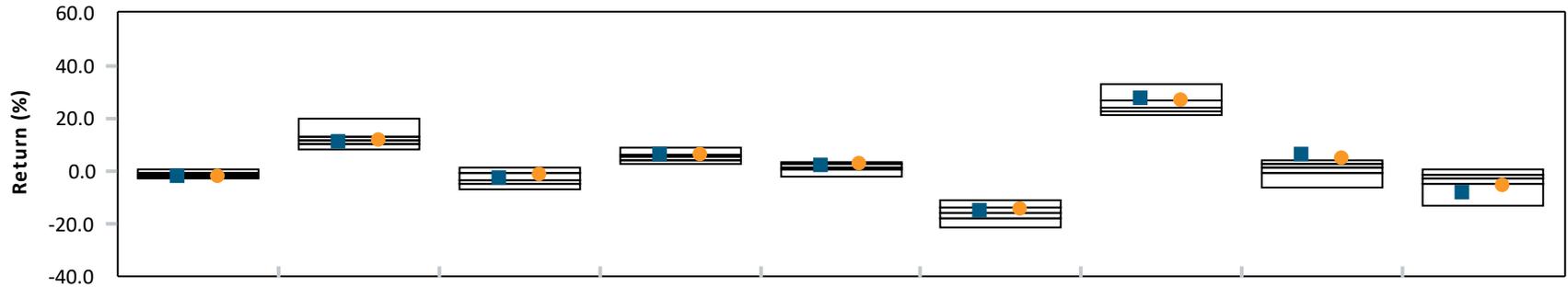
<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>	<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>
Communication Services	1.8%	3.0%	Industrials	12.8%	15.3%
Consumer Discretionary	11.1%	11.7%	Materials	4.9%	3.8%
Consumer Staples	4.2%	2.7%	Real Estate	10.1%	7.5%
Energy	2.9%	3.3%	Technology	14.7%	15.3%
Financials	18.6%	17.6%	Utilities	3.1%	3.9%
Health Care	15.9%	15.9%	Cash	0.0%	0.0%

Manager Evaluation

Earnest Partners Intl Equity

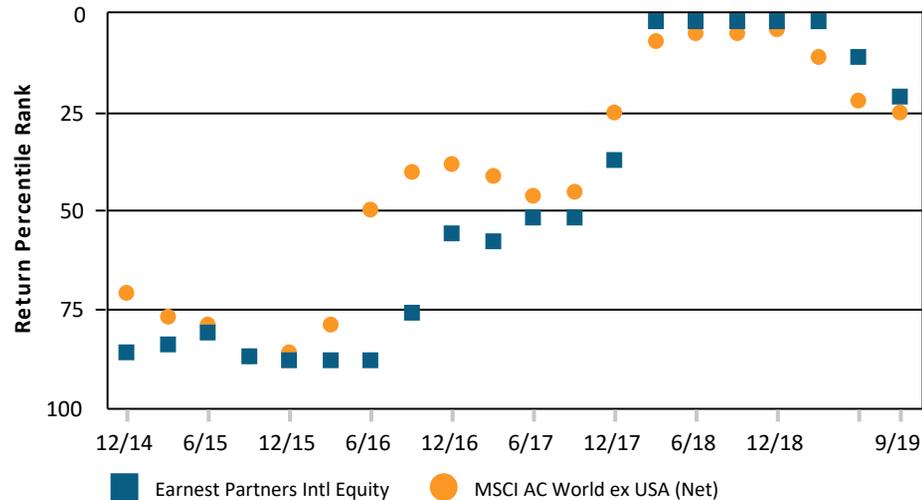
As of September 30, 2019

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

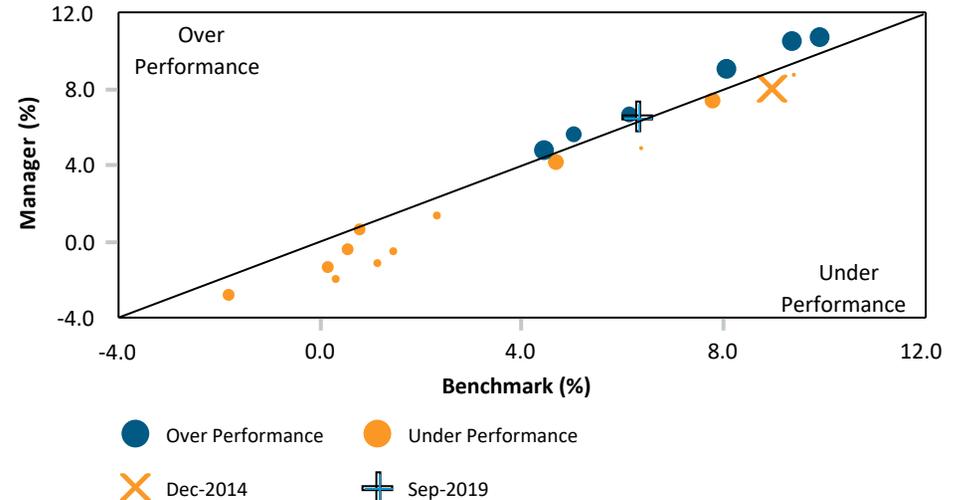


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
■ Earnest Partners Intl Equity	-2.1 (64)	11.3 (65)	-2.7 (40)	6.5 (21)	2.2 (33)	-14.9 (44)	27.8 (14)	6.0 (4)	-8.4 (86)
● MSCI AC World ex USA (Net)	-1.8 (61)	11.6 (59)	-1.2 (29)	6.3 (25)	2.9 (23)	-14.2 (33)	27.2 (17)	4.5 (5)	-5.7 (78)
5th Percentile	0.6	20.3	1.5	8.9	3.4	-11.1	32.9	4.0	0.9
1st Quartile	-0.5	13.4	-0.8	6.3	2.6	-13.9	26.7	2.5	-1.7
Median	-1.3	12.0	-3.2	5.2	1.4	-15.7	24.4	1.3	-2.7
3rd Quartile	-2.4	10.7	-5.1	3.9	0.9	-17.6	23.0	-0.9	-5.0
95th Percentile	-2.9	8.3	-6.6	2.8	-2.3	-21.6	21.4	-6.5	-13.3

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)

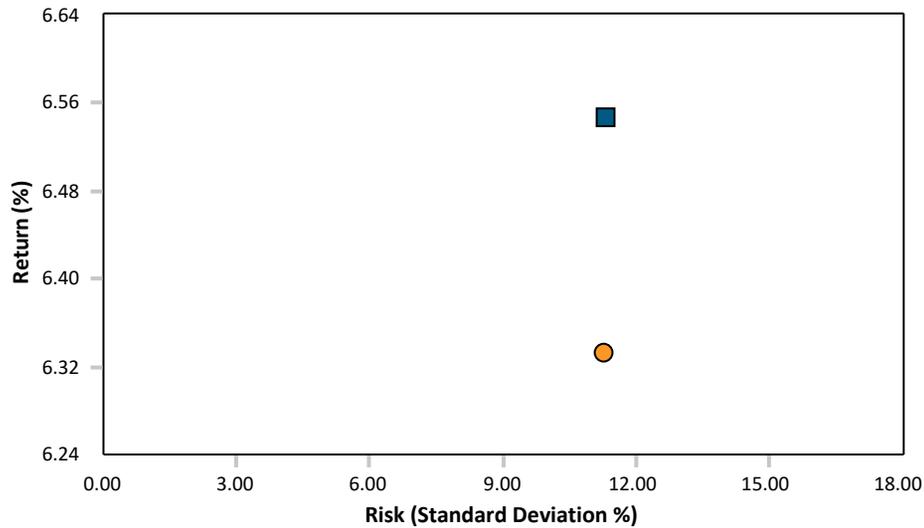


Manager Evaluation

Earnest Partners Intl Equity

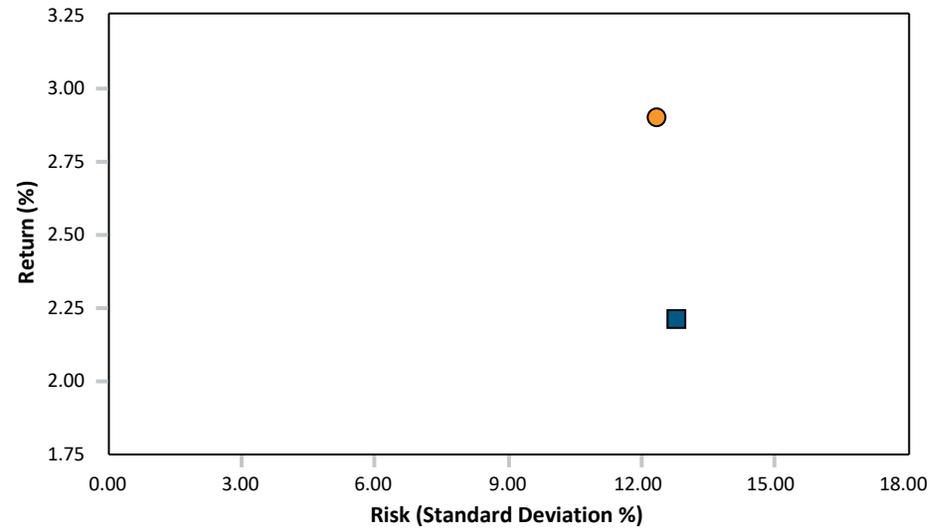
As of September 30, 2019

3 Year Risk and Return



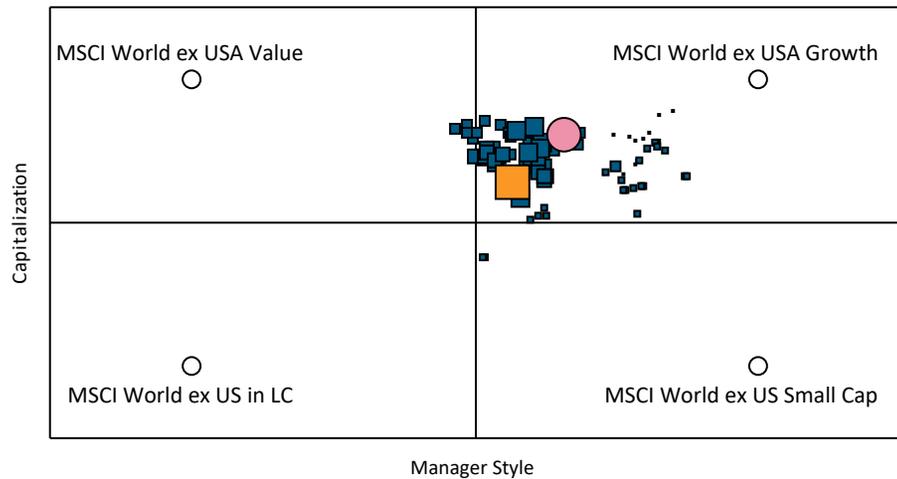
■ Earnest Partners Intl Equity ● MSCI AC World ex USA (Net)

5 Year Risk and Return



■ Earnest Partners Intl Equity ● MSCI AC World ex USA (Net)

Style Map - 3 Years



■ Style History ■ Sep-2019 ● Average Style Exposure

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

	3 Years	5 Years
Return	6.5	2.2
Standard Deviation	11.4	12.8
vs. MSCI AC World ex USA (Net)		
Alpha	0.3	-0.7
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	55.6	55.0
Up Market Capture	97.1	99.2
Down Market Capture	93.9	103.1
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.5	0.2

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

EARNEST Partners - International Pooled Group Trust

As of September 30, 2019

Portfolio Information

Firm Name	Earnest Partners	Portfolio Manager	Team based
Product Name	International Pooled Group Trust	PM Tenure	Average 20 Years
Strategy Assets	\$17.7 Million	Fund Style	International ex-U.S. Equity
Inception Date	8/1/2008	Style Benchmark	MSCI ACWI ex-U.S. Index

Portfolio Investment Policy

Earnest Partners seeks to outperform the benchmark while controlling volatility and risk. Security selection is driven by the firm's proprietary screening tool - Return Pattern Recognition, fundamental analysis and risk management. The Fund typically holds up to 30% in Emerging Markets. The manager uses a statistical approach referred to as downside deviation to measure and constrain the likelihood of underperforming the assigned benchmark.

Largest Equity Holdings

<u>Stock</u>	<u>Portfolio Wt.</u>
1 ICON Plc	4.1%
2 Amadeus IT Group SA Class A	2.9%
3 Diageo Plc	2.9%
4 Taiwan Semiconductor Manufacturing Co., Ltd.	2.6%
5 Novartis AG Sponsored ADR	2.5%
6 NICE Ltd Sponsored ADR	2.4%
7 Secom Co., Ltd.	2.3%
8 Roche Holding Ltd.	2.3%
9 Everest Re Group, Ltd.	2.2%
10 DNB ASA	<u>2.2%</u>
	26.4%

Largest Contributors & Detractors / Country Weightings

<u>Top Contributors</u>	<u>Portfolio Wt.</u>	<u>Bottom Contributors</u>
		Data not available from manager.
<u>Country</u>	<u>Portfolio Wt.</u>	<u>Benchmark Wt.</u>
Americas (ex US)	6.7%	7.0%
Asia (ex Japan)	3.6%	8.2%
Europe (ex UK)	39.7%	31.8%
Japan	7.3%	16.5%
Middle East/Africa	4.1%	0.4%
United Kingdom	11.3%	10.3%
Emerging Markets	27.4%	25.9%

Sector Weightings

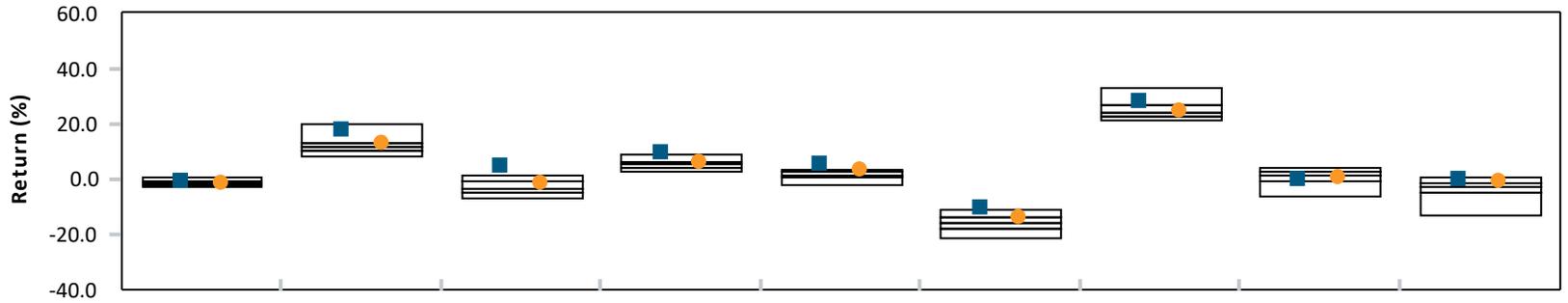
<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>	<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>
Communication Services	2.8%	6.8%	Industrials	5.9%	11.9%
Consumer Discretionary	11.5%	11.4%	Information Technology	15.8%	8.9%
Consumer Staples	9.1%	10.2%	Materials	9.5%	7.3%
Energy	5.4%	6.7%	Real Estate	1.9%	3.2%
Financials	23.9%	21.6%	Utilities	0.0%	3.5%
Health Care	14.2%	8.5%			

Manager Evaluation

MFS Instl International Equity Fund

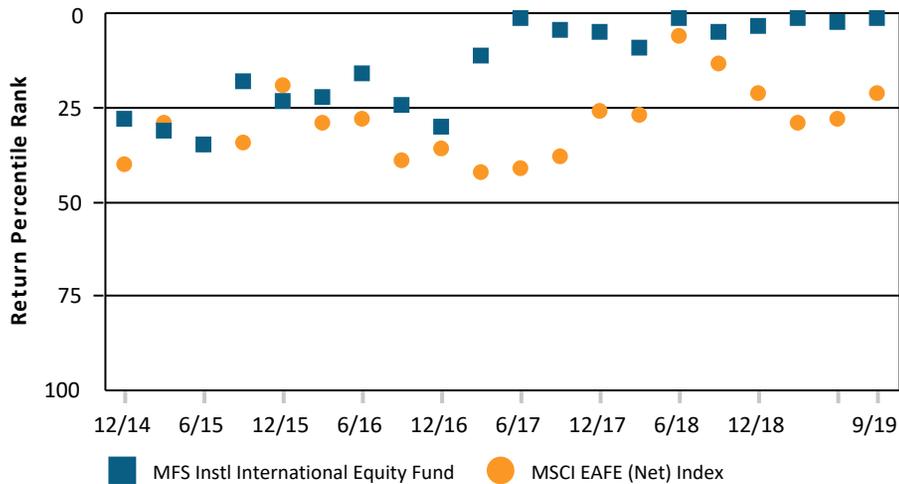
As of September 30, 2019

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

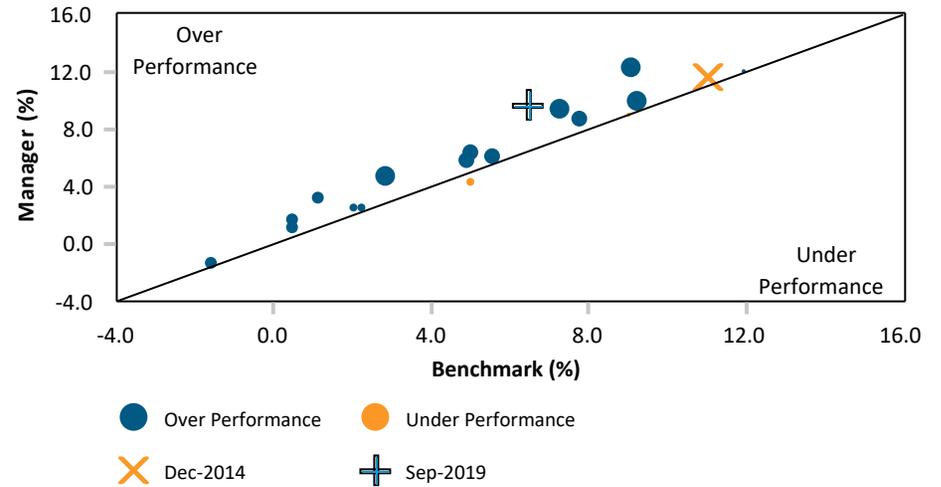


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
■ MFS Instl International Equity Fund	-0.9 (38)	17.8 (10)	4.6 (2)	9.7 (1)	5.6 (1)	-10.7 (5)	28.0 (12)	0.3 (61)	0.0 (11)
● MSCI EAFE (Net) Index	-1.1 (43)	12.8 (36)	-1.3 (29)	6.5 (21)	3.3 (14)	-13.8 (25)	25.0 (38)	1.0 (53)	-0.8 (15)
5th Percentile	0.6	20.3	1.5	8.9	3.4	-11.1	32.9	4.0	0.9
1st Quartile	-0.5	13.4	-0.8	6.3	2.6	-13.9	26.7	2.5	-1.7
Median	-1.3	12.0	-3.2	5.2	1.4	-15.7	24.4	1.3	-2.7
3rd Quartile	-2.4	10.7	-5.1	3.9	0.9	-17.6	23.0	-0.9	-5.0
95th Percentile	-2.9	8.3	-6.6	2.8	-2.3	-21.6	21.4	-6.5	-13.3

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



3 Year Rolling Under/Over Performance vs. MSCI EAFE (Net) Index



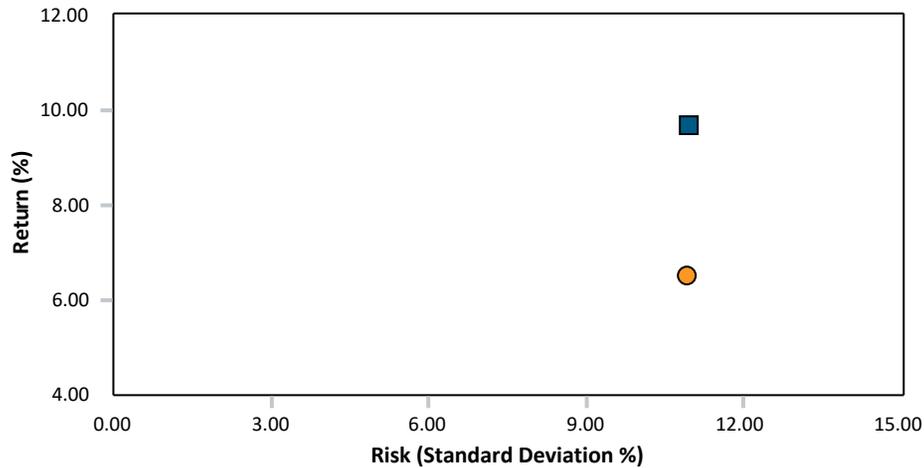
Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

MFS Instl International Equity Fund

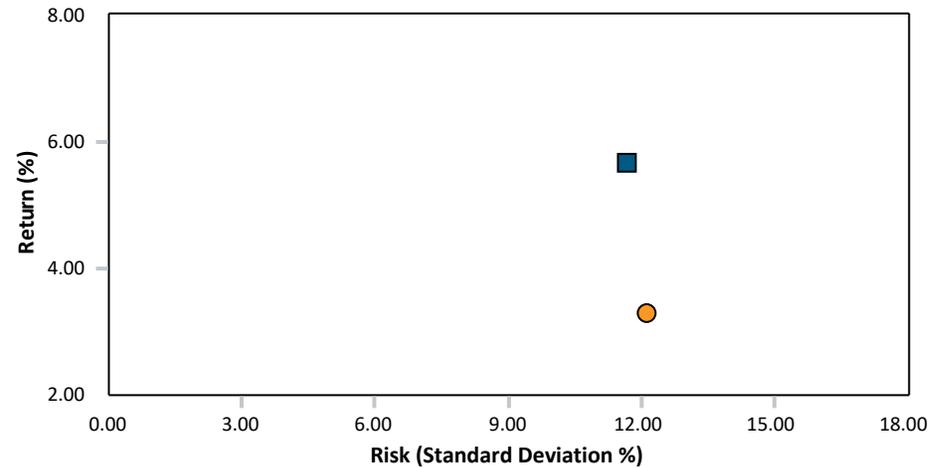
As of September 30, 2019

3 Year Risk and Return



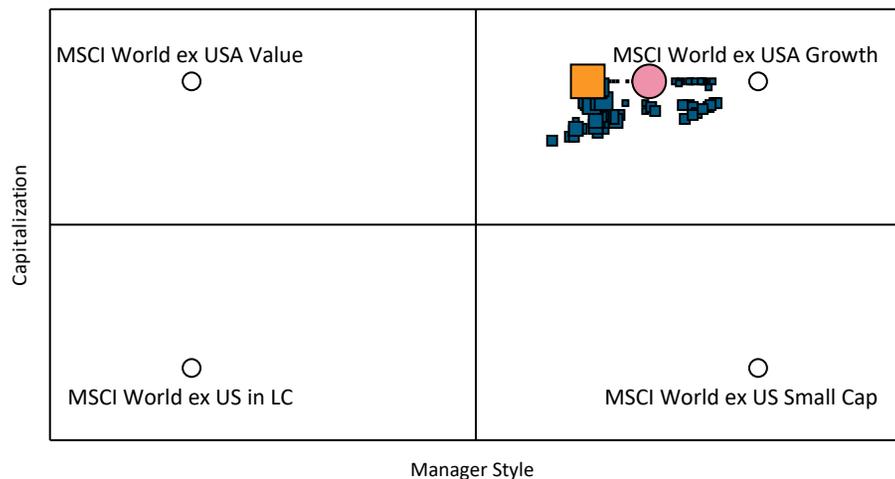
- MFS Instl International Equity Fund
- MSCI EAFE (Net) Index

5 Year Risk and Return



- MFS Instl International Equity Fund
- MSCI EAFE (Net) Index

Style Map - 3 Years



- Style History
- Sep-2019
- Average Style Exposure

MPT Statistics vs. MSCI EAFE (Net) Index

	3 Years	5 Years
Return	9.7	5.6
Standard Deviation	11.0	11.7
vs. MSCI EAFE (Net) Index		
Alpha	3.3	2.5
Beta	1.0	0.9
R-Squared	0.9	0.9
Consistency	55.6	51.7
Up Market Capture	105.3	101.1
Down Market Capture	84.4	86.7
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.8	0.4

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

MFS Intl International Equity Fund

Report Date September 30, 2019

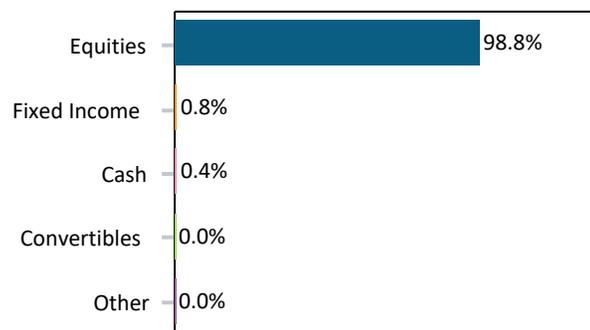
Mutual Fund Information

Fund Name :	MFS Institutional Trust: MFS Institutional International Equity Fund	Portfolio Assets :	\$10,288 Million
Fund Family :	MFS Investment Management	Fund Assets :	\$10,288 Million
Ticker :	MIEIX	Portfolio Manager :	Ling/Benzinho
Inception Date :	01/31/1996	PM Tenure :	2009--2016
Portfolio Turnover :	14%		

Fund Investment Policy

The Fund seeks capital appreciation. The Fund normally invests at least 80% of its net assets in non-U.S. equity securities. The Fund uses a bottom-up investment approach. Stocks are selected primarily based on fundamental analysis of issuers and their potential.

Asset Allocation as of 07/31/19



Top 10 Securities as of 07/31/19

Nestle SA ORD	4.4 %
AIA Group Ltd ORD	3.0 %
Roche Holding AG Par	2.9 %
Schneider Electric SE ORD	2.7 %
Air Liquide SA ORD	2.7 %
SAP SE ORD	2.6 %
Hoya Corp ORD	2.6 %
LVMH Moet Hennessy Louis Vuitton	2.3 %
Beiersdorf AG ORD	2.2 %
Canadian National Railway Co ORD	2.2 %

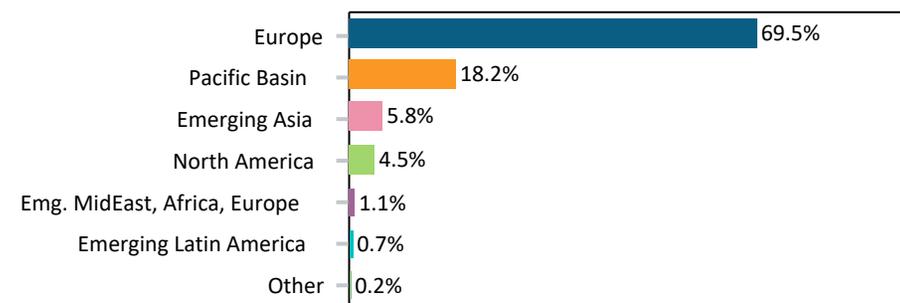
Top 5 Countries as of 07/31/19

France	16.2 %
United Kingdom	14.0 %
Japan	14.0 %
Switzerland	13.8 %
Germany	9.6 %

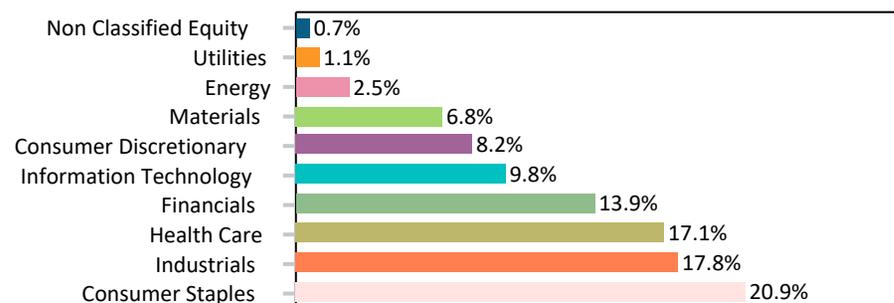
Equity Characteristics as of 07/31/19

Total Securities	78
Avg. Market Cap	\$77,354 Million
P/E	26.8
P/B	4.7
Div. Yield	2.6%
Annual EPS	5.7

Region Allocation as of 07/31/19



Sector Allocation as of 07/31/19



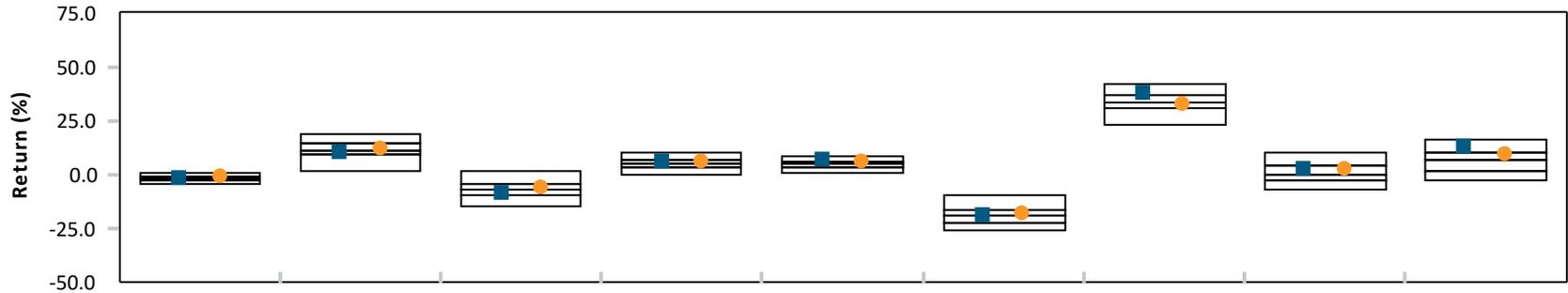
Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Acadian Intl Small Cap Fund

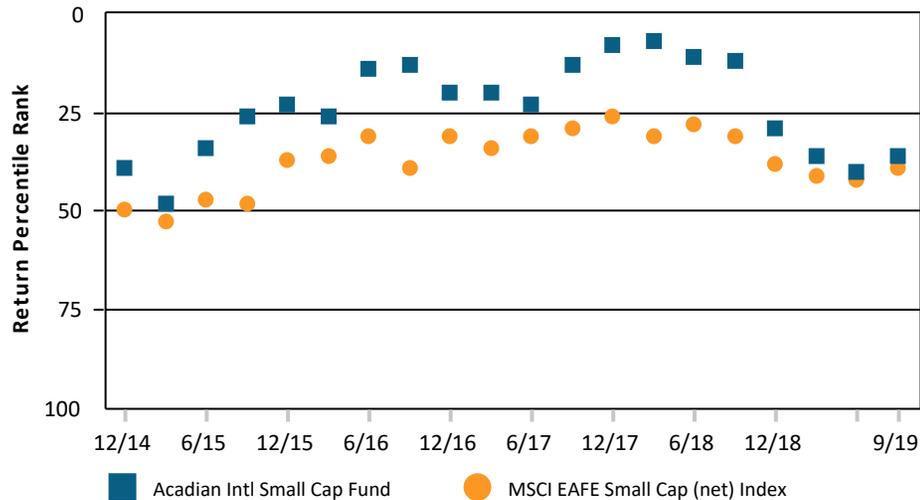
As of September 30, 2019

Peer Group Analysis vs. IM International Small Cap Equity (SA+CF+MF)

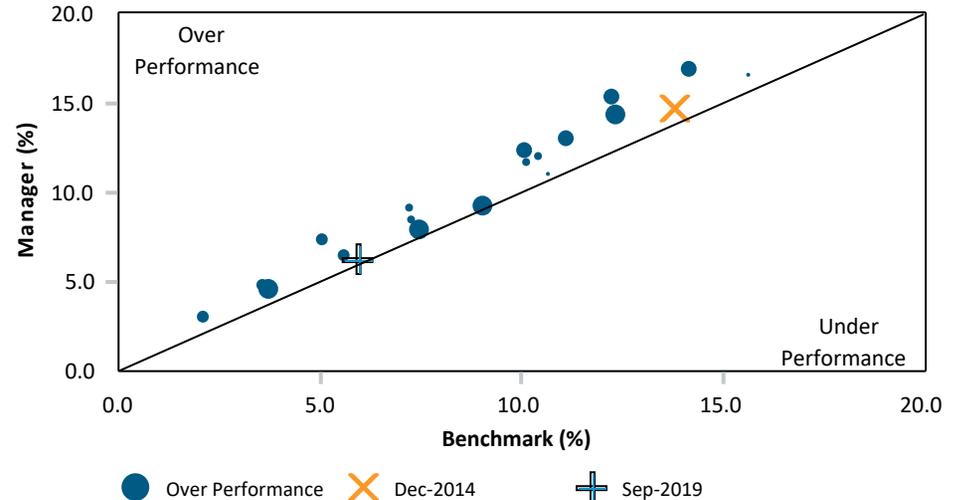


	QTR	YTD	1 Year	3 Years	5 Years	2018	2017	2016	2015
Acadian Intl Small Cap Fund	-1.6 (37)	10.7 (60)	-8.7 (67)	6.2 (36)	6.5 (22)	-19.2 (51)	37.9 (23)	2.7 (34)	12.9 (16)
MSCI EAFE Small Cap (net) Index	-0.4 (13)	12.1 (43)	-5.9 (41)	5.9 (39)	6.0 (31)	-17.9 (38)	33.0 (59)	2.2 (37)	9.6 (34)
5th Percentile	0.5	18.6	1.5	10.8	9.0	-9.3	42.6	10.5	16.3
1st Quartile	-1.2	14.6	-3.9	7.0	6.2	-16.0	37.3	4.7	10.3
Median	-1.9	11.4	-7.1	5.1	4.9	-19.2	33.9	0.1	6.8
3rd Quartile	-2.9	9.1	-9.9	3.7	3.1	-22.6	31.0	-2.9	2.0
95th Percentile	-4.4	1.9	-14.3	0.1	0.6	-26.1	23.1	-7.3	-2.2

3 Year Rolling Percentile Ranking vs. IM International Small Cap Equity (SA+CF+MF)



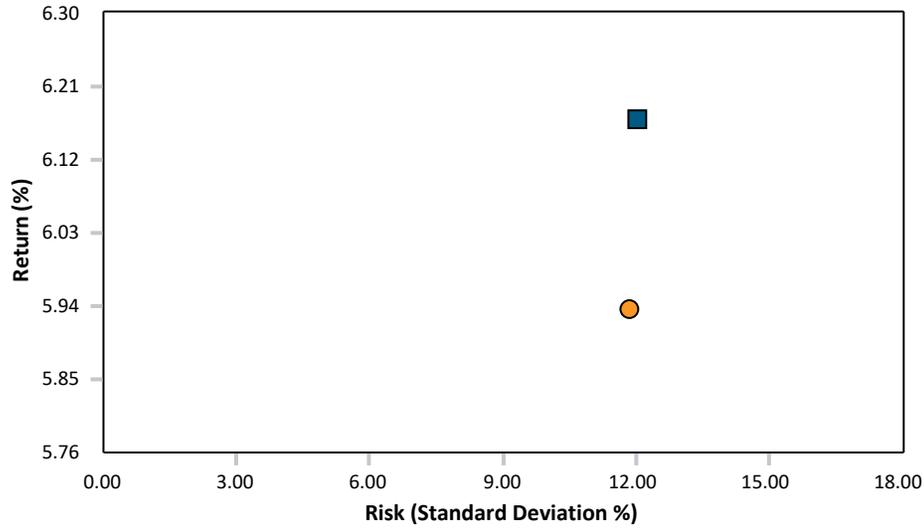
3 Year Rolling Under/Over Performance vs. MSCI EAFE Small Cap (net) Index



Manager Evaluation

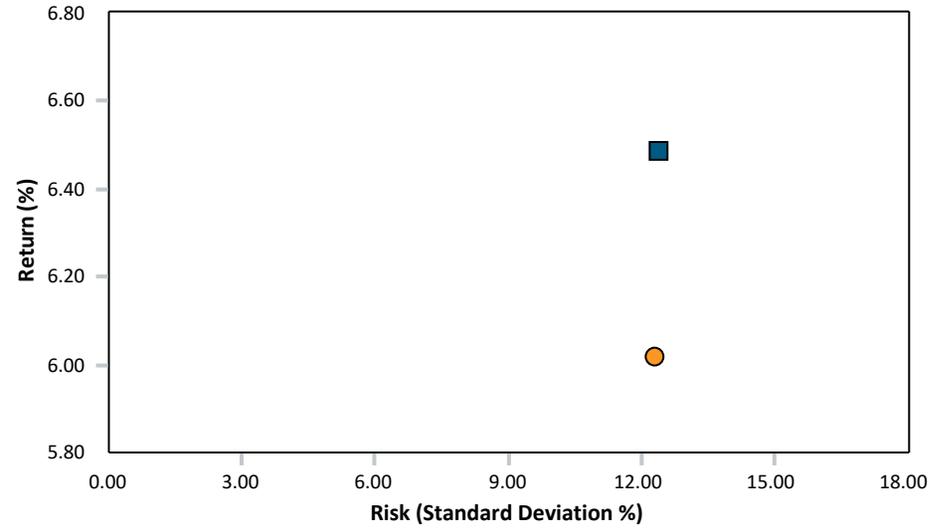
Acadian Intl Small Cap Fund
As of September 30, 2019

3 Year Risk and Return



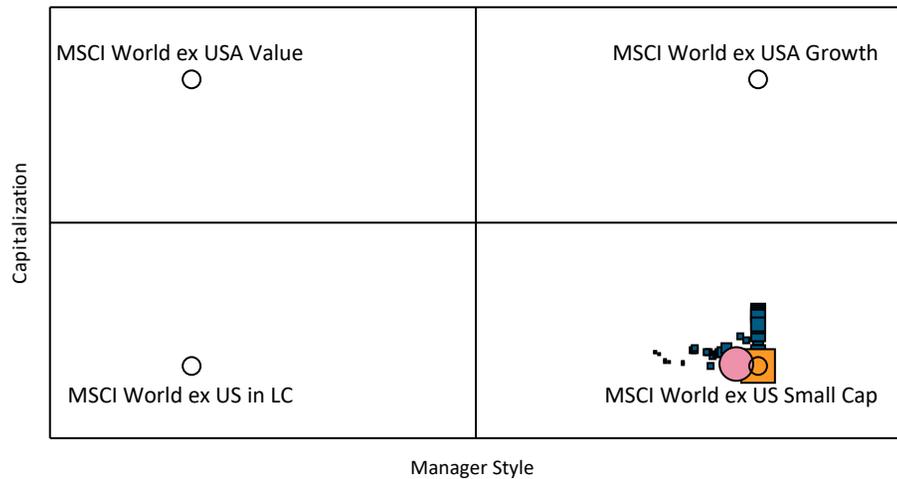
■ Acadian Intl Small Cap Fund ● MSCI EAFE Small Cap (net) Index

5 Year Risk and Return



■ Acadian Intl Small Cap Fund ● MSCI EAFE Small Cap (net) Index

Style Map - 3 Years



■ Style History ■ Sep-2019 ● Average Style Exposure

MPT Statistics vs. MSCI EAFE Small Cap (net) Index

	3 Years	5 Years
Return	6.2	6.5
Standard Deviation	12.1	12.4
vs. MSCI EAFE Small Cap (net) Index		
Alpha	0.3	0.6
Beta	1.0	1.0
R-Squared	1.0	1.0
Consistency	55.6	55.0
Up Market Capture	96.8	99.9
Down Market Capture	93.5	96.5
vs. 90 Day U.S. Treasury Bill		
Sharpe Ratio	0.4	0.5

Mutual fund data sourced from Lipper Analytical Services.

Manager Evaluation

Acadian Asset Management - Acadian International Small Cap Fund
As of 06/30/2019

Portfolio Information

Firm Name	Acadian Asset Management	Portfolio Manager	Team based
Product Name	Acadian International Small Cap Fund	PM Tenure	Average 14 Years
Strategy Assets	\$ 1,267,994,477.86	Fund Style	International Small Cap Equity
Inception Date	2/1/2011	Style Benchmark	MSCI EAFE Small Cap Index

Portfolio Investment Policy

Acadian uses a quantitative investment process, aimed at isolating companies that are poised to benefit from value, growth, quality and technical factors. The firm uses the model to predict the expected relative performance of each investment in its universe. Portfolio optimization is used to construct a balanced, risk-controlled portfolio within 4-7% tracking error, and +/- 5% industry/country constraints. The fund may hold up to 20% of assets in securities located in Emerging Markets.

Largest Equity Holdings		Largest Contributors & Detractors / Country Weightings			
<u>Stock</u>	<u>Active Weight</u>	<u>Top Contributors</u>	<u>Portfolio Wt.</u>	<u>Bottom Contributors</u>	<u>Portfolio Wt.</u>
1. ISRAEL DISC BK LTD CL A	2.0%	ISRAEL DISCOUNT BANK LTD	1.9%	UBISOFT ENTERTAINMENT SA	1.2%
2. OZ MINERALS LTD SHS	1.3%	INFOCOM CORP	0.8%	SWEDISH ORPHAN BIOVITRUM AB	0.8%
3. UBI SOFT ENTMNT SA MONTREUIL ACT	1.4%	BARCO NV	0.8%	OZ MINERALS LTD	1.4%
4. NET ONE SYSTEMS CO NPV	1.3%	NIHON UNISYS LTD	0.8%	DNO ASA	0.5%
5. ICON PLC SHS	1.2%	ICON ORD SHS	1.3%	BIESE SPA	0.2%
6. EVRAZ PLC LONDON SHS	1.0%				
7. TIS INC. NPV	1.1%				
8. SWEDISH ORPHAN BIOVITRUM AB SHS	0.8%	Europe ex UK	<u>Portfolio Wt.</u> 34.1%	<u>Benchmark Wt.</u> 39.5%	
9. VENTURE CORPORATION LTD SHS	0.9%	UK	13.0%	18.0%	
10. MICHAEL PAGE INTL PLC SHS	0.8%	Asia ex Japan	13.6%	12.6%	
		Japan	33.8%	29.9%	
		North America	4.4%	0.0%	
		Emerging Markets	0.1%	0.0%	

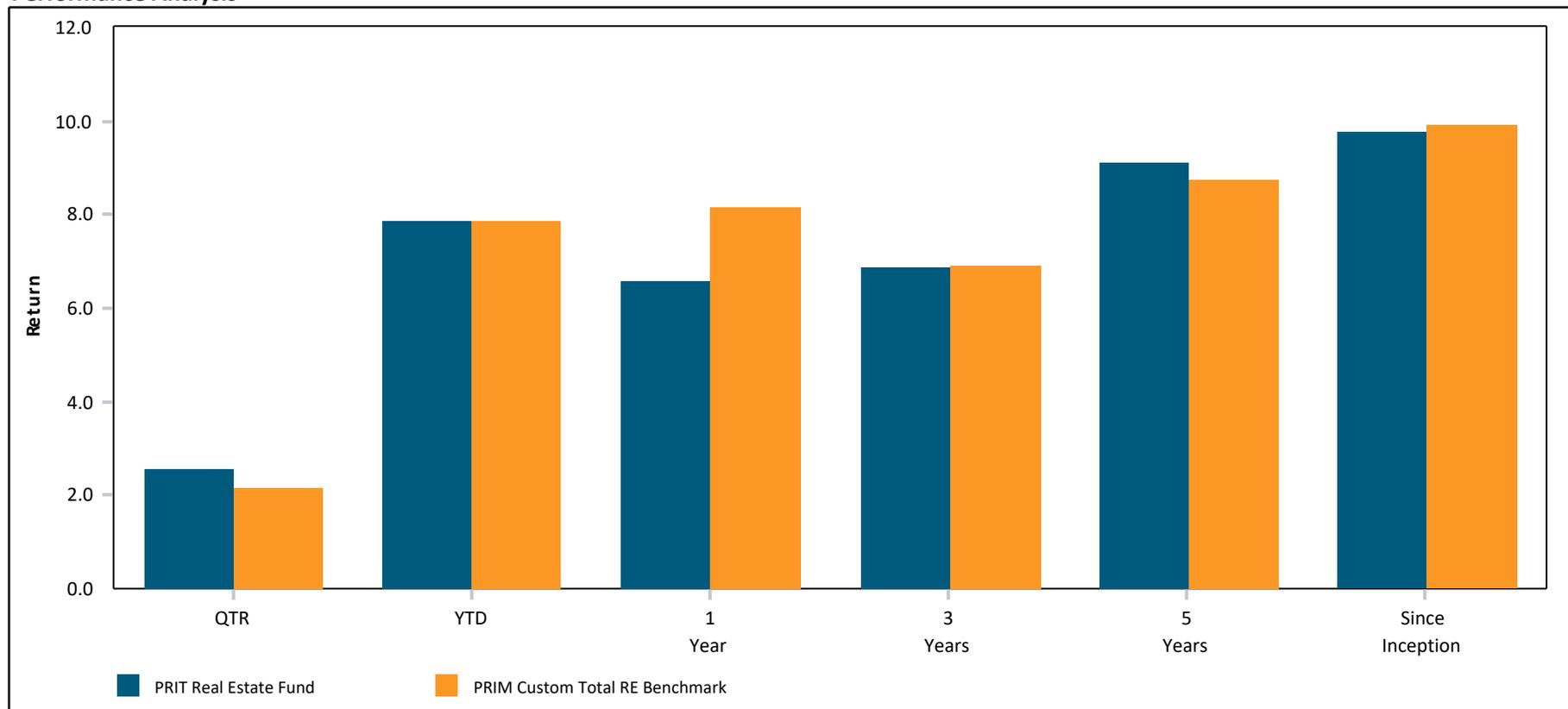
Sector Weightings					
<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>	<u>Sector</u>	<u>Port. Wt.</u>	<u>Bmk Wt.</u>
Consumer Discretionary	15.2%	12.4%	Industrials	16.0%	21.5%
Consumer Staples	2.3%	6.3%	Information Technology	15.7%	9.4%
Energy	3.2%	2.7%	Materials	10.1%	8.6%
Financials	10.0%	10.9%	Comm Services	4.9%	5.1%
Real Estate	7.2%	13.1%	Utilities	2.0%	2.4%
Health Care	12.5%	7.6%			

Manager Evaluation

PRIT Real Estate Fund

As of September 30, 2019

Performance Analysis



	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
PRIT Real Estate Fund	2.5	7.9	6.6	6.9	9.1	9.8	06/01/2011
PRIM Custom Total RE Benchmark	2.2	7.9	8.2	6.9	8.7	9.9	
Difference	0.3	0.0	-1.6	0.0	0.4	-0.1	

Manager Evaluation

PRIT Real Estate Account

Portfolio Information

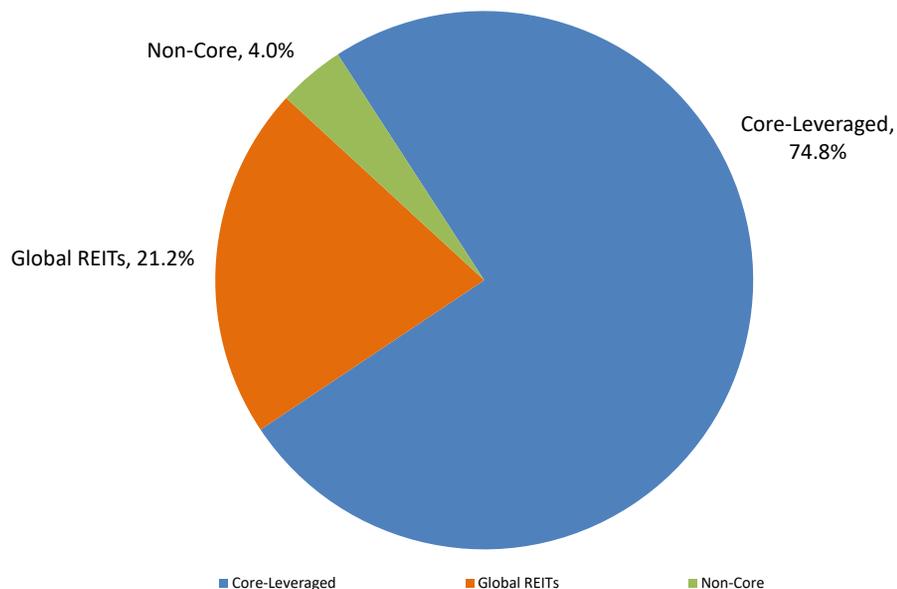
Fund Style: Real Estate - combined

PRIT Real Estate as percentage of PRIT Fund: 9.4%

Target Allocations

Fund Investment Policy

The PRIT Real Estate Account provides diversified exposure to the commercial real estate market through exposure to physical assets and public securities. Approximately 70% of the portfolio is invested in separate account core portfolios with Invesco, LaSalle, and AEW. The Core portfolio includes portfolio debt of approximately \$1 billion. The portfolio also includes dedicated allocations to Global REIT portfolios managed by CenterSquare, Presima, and Brookfield. Non-Core portfolio investments of approximately \$300 million include allocations with Carlyle Group and DivcoWest. Townsend serves as Real Estate Consultant to the PRIM Board.



Active Core
Invesco, LaSalle
AEW

Global REITs
CenterSquare
Presima
Brookfield

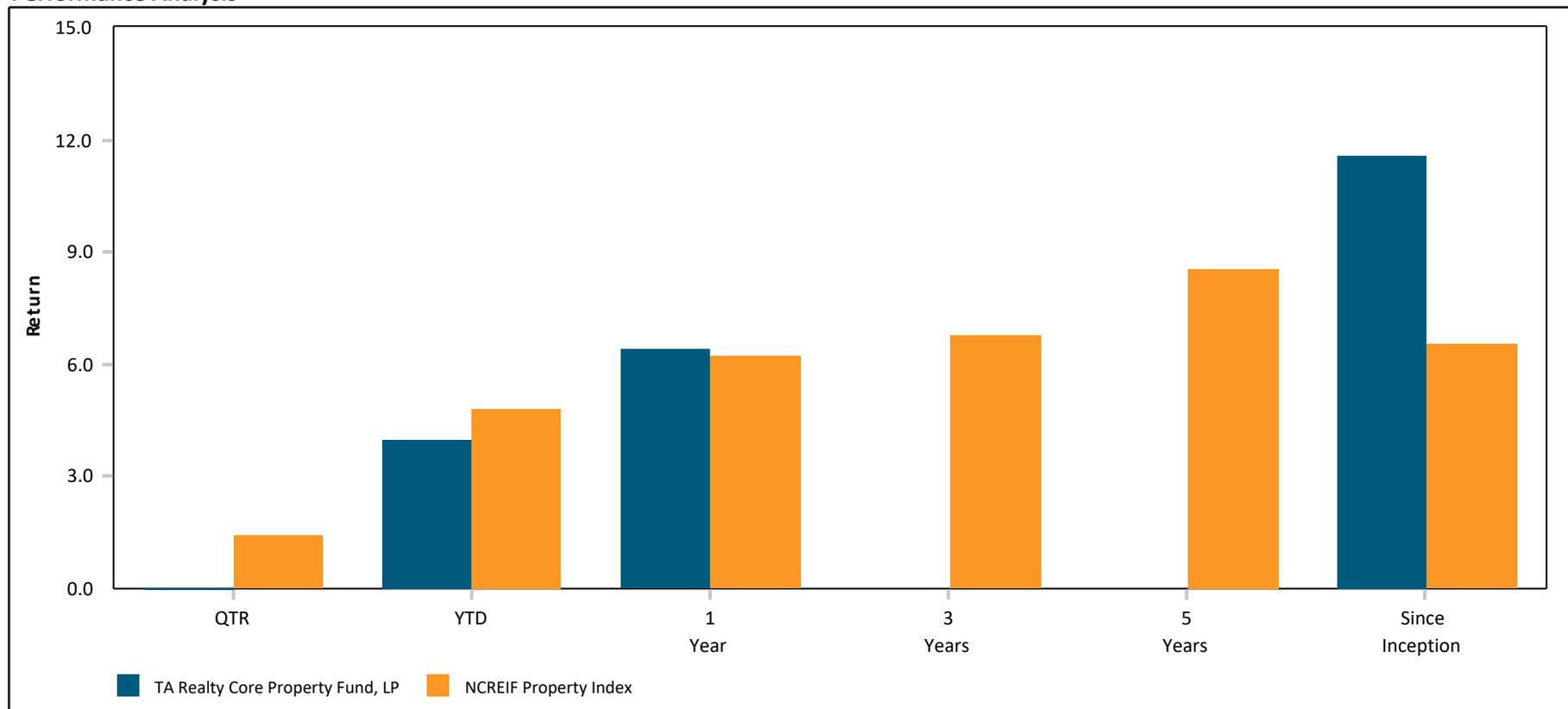
Non-Core
Carlyle Group
DivcoWest

Manager Evaluation

TA Realty Core Property Fund, LP

As of September 30, 2019

Performance Analysis



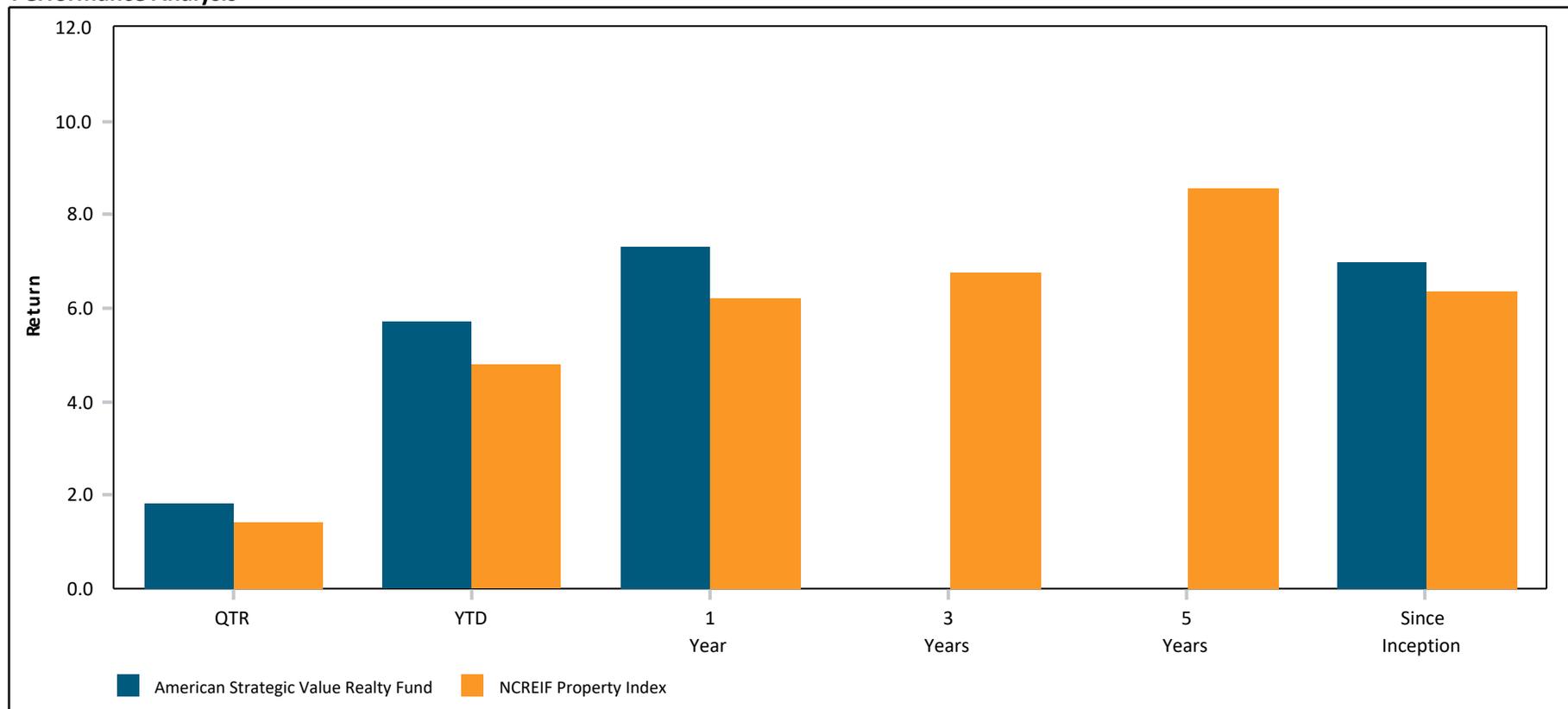
	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
TA Realty Core Property Fund, LP	0.0	4.0	6.4	N/A	N/A	11.6	04/01/2018
NCREIF Property Index	1.4	4.8	6.2	6.8	8.6	6.5	
Difference	-1.4	-0.8	0.2	N/A	N/A	5.1	

Manager Evaluation

American Strategic Value Realty Fund

As of September 30, 2019

Performance Analysis



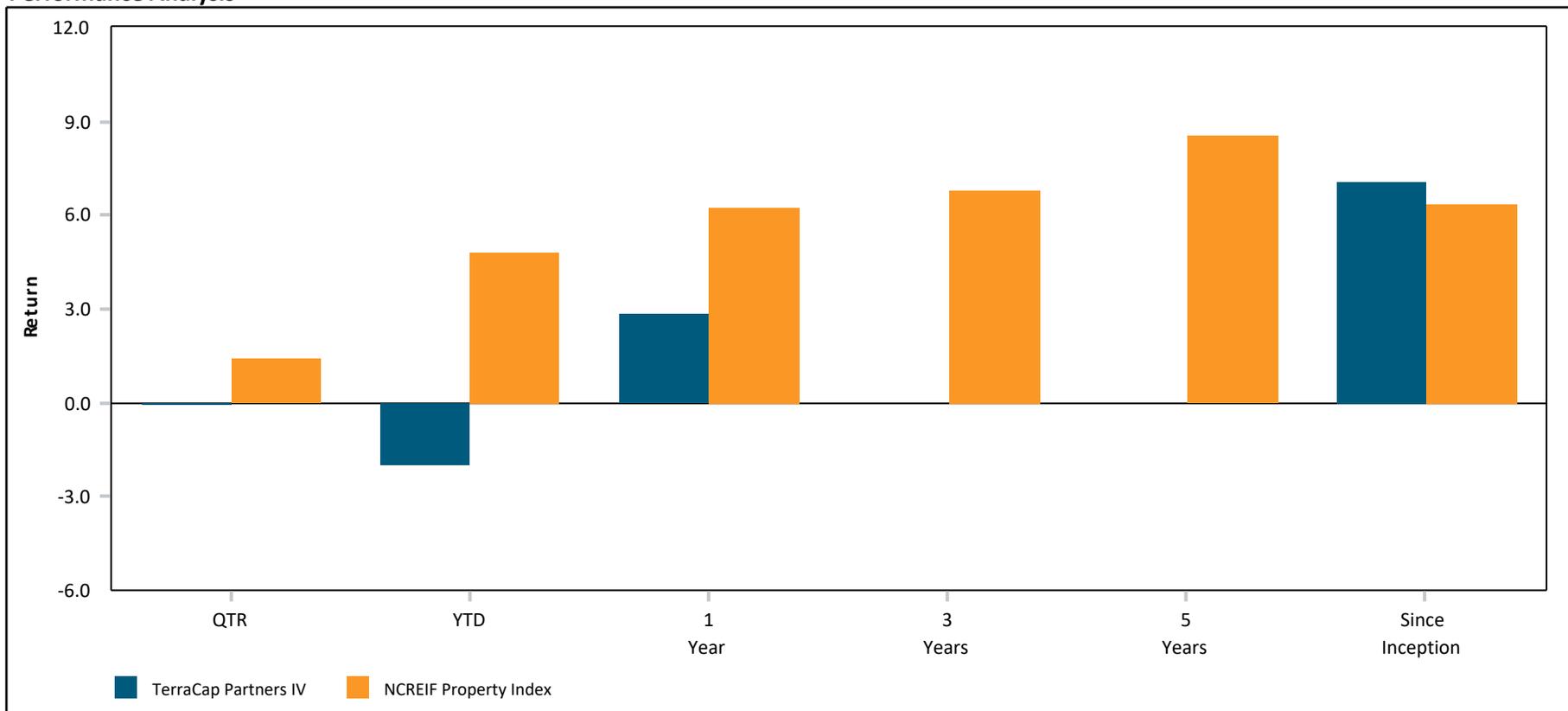
	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
American Strategic Value Realty Fund	1.8	5.7	7.3	N/A	N/A	7.0	07/01/2018
NCREIF Property Index	1.4	4.8	6.2	6.8	8.6	6.4	
Difference	0.4	0.9	1.1	N/A	N/A	0.6	

Manager Evaluation

TerraCap Partners IV

As of September 30, 2019

Performance Analysis

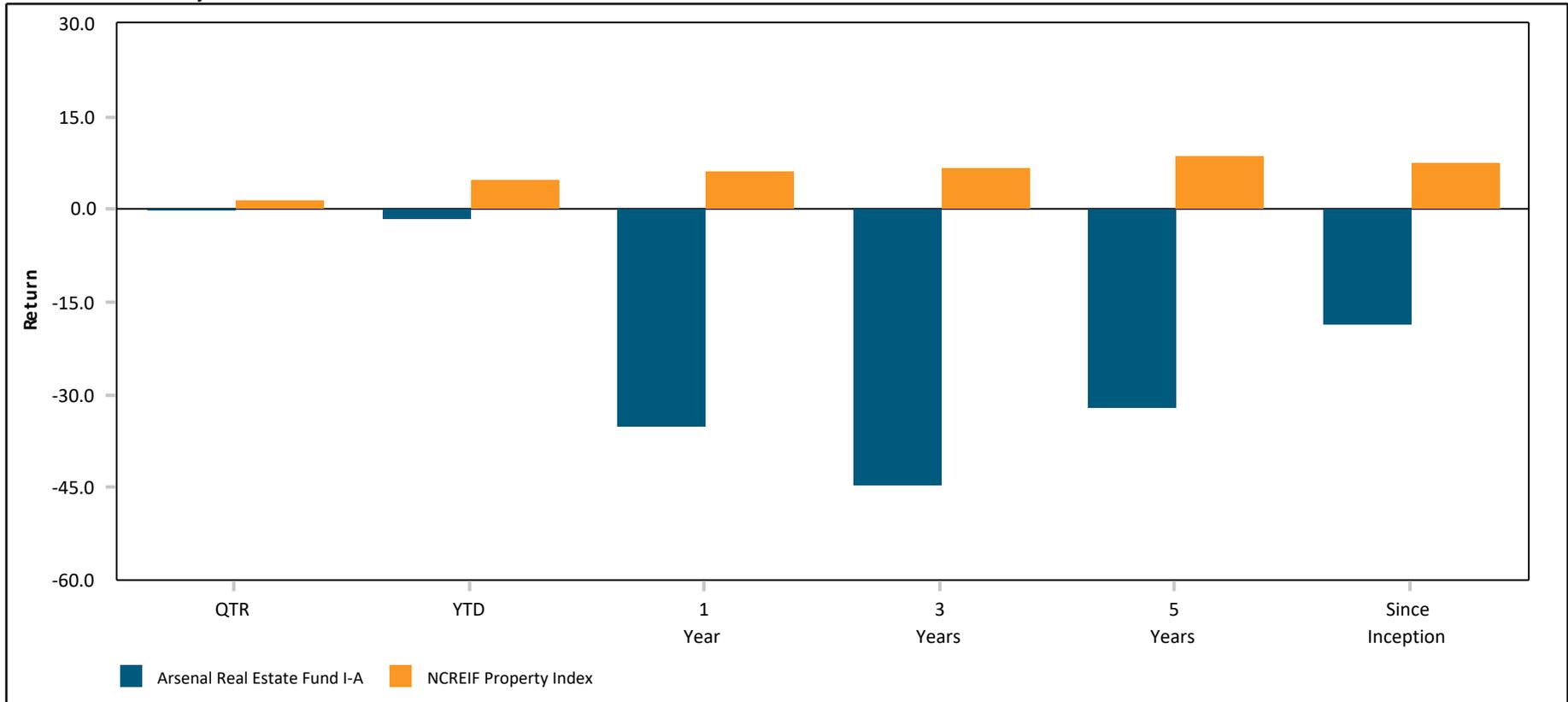


	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
TerraCap Partners IV	0.0	-2.0	2.8	N/A	N/A	7.1	07/01/2018
NCREIF Property Index	1.4	4.8	6.2	6.8	8.6	6.4	
Difference	-1.4	-6.8	-3.4	N/A	N/A	0.7	

Manager Evaluation

Arsenal Real Estate Fund I-A
As of September 30, 2019

Performance Analysis



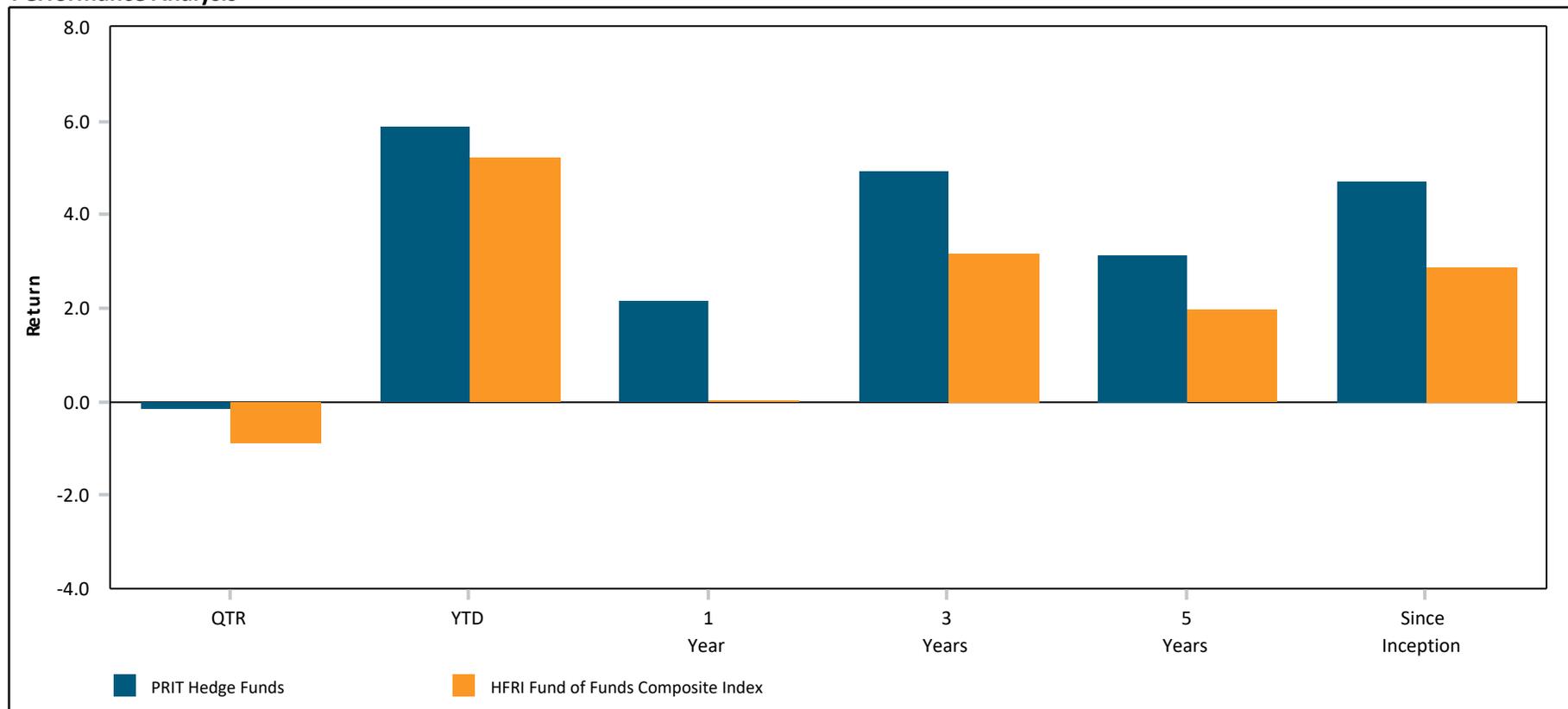
	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Arsenal Real Estate Fund I-A	0.0	-1.5	-35.0	-44.5	-31.9	-18.4	04/01/2006
NCREIF Property Index	1.4	4.8	6.2	6.8	8.6	7.4	
Difference	-1.4	-6.3	-41.2	-51.3	-40.5	-25.8	

Manager Evaluation

PRIT Hedge Funds

As of September 30, 2019

Performance Analysis

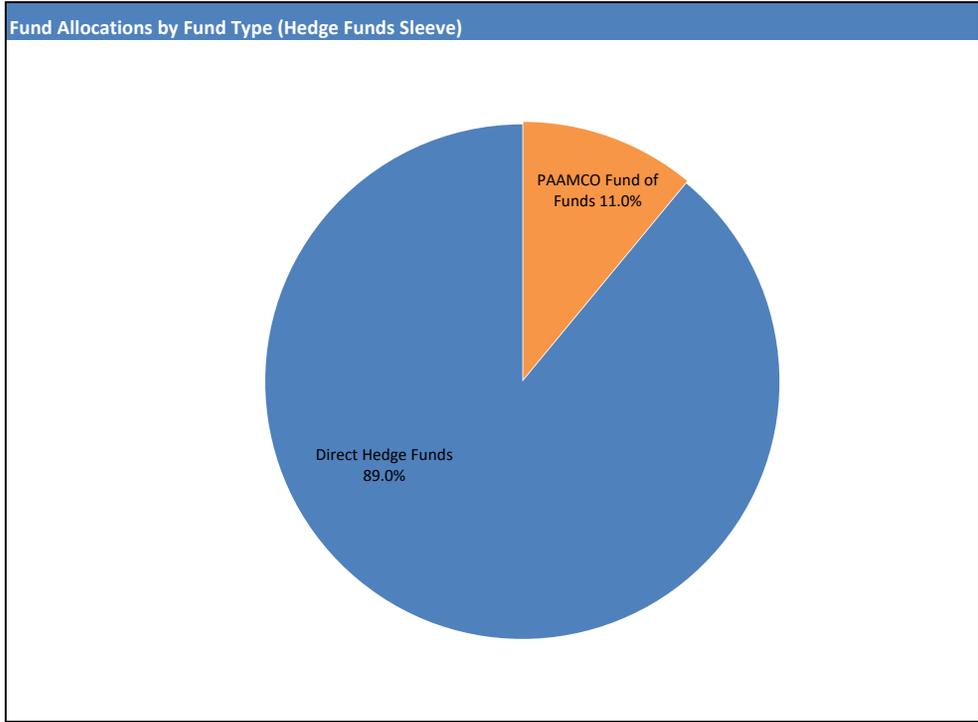


	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
PRIT Hedge Funds	-0.2	5.9	2.1	4.9	3.1	4.7	07/01/2010
HFRI Fund of Funds Composite Index	-0.9	5.2	0.0	3.2	1.9	2.9	
Difference	0.7	0.7	2.1	1.7	1.2	1.8	

Manager Evaluation

PRIT Hedge Funds

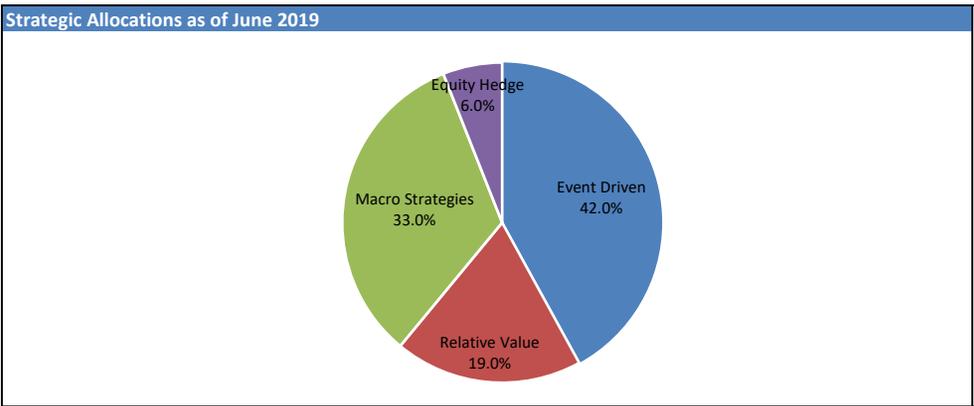
Portfolio Information	
Fund Style: Direct and Fund of Funds	Inception Date: July 2004
PRIT Fund AUM: \$74.8 Bn as of 6/30/19	Hedge Funds as % of PRIT Fund: 10.0%



Fund Investment Policy

The PRIT Hedge Funds allocation seeks to generate attractive long term absolute performance. This is accomplished via direct hedge funds and a fund of funds tasked with generating returns independent of the direction of the broader markets. The PRIM Board has transitioned the portfolio from a fund of funds structure to one that is predominantly direct hedge funds with a long-term target of 85% of assets in direct investments. The active fund of funds mandate with PAAMCO is focused on emerging managers. PRIM is currently working to migrate hedge fund assets to PRIM's dedicated managed account platform. Other initiatives include an alternative beta analysis framework, a hedge fund replication strategy and position based portfolio risk monitoring.

Effective February 2017, the PRIM Board approved plans to merge the Portfolio Completion Strategy allocation with the Hedge Funds allocation for a combined target a risk reducing "PCS" allocation of 13.0%. Other mandates in the allocation include risk premia strategies, real assets and an equity hedge overlay. Hedge Funds, as a sleeve which includes the fund of fund and direct allocations, will continue to be available for local systems to invest through segmentation.

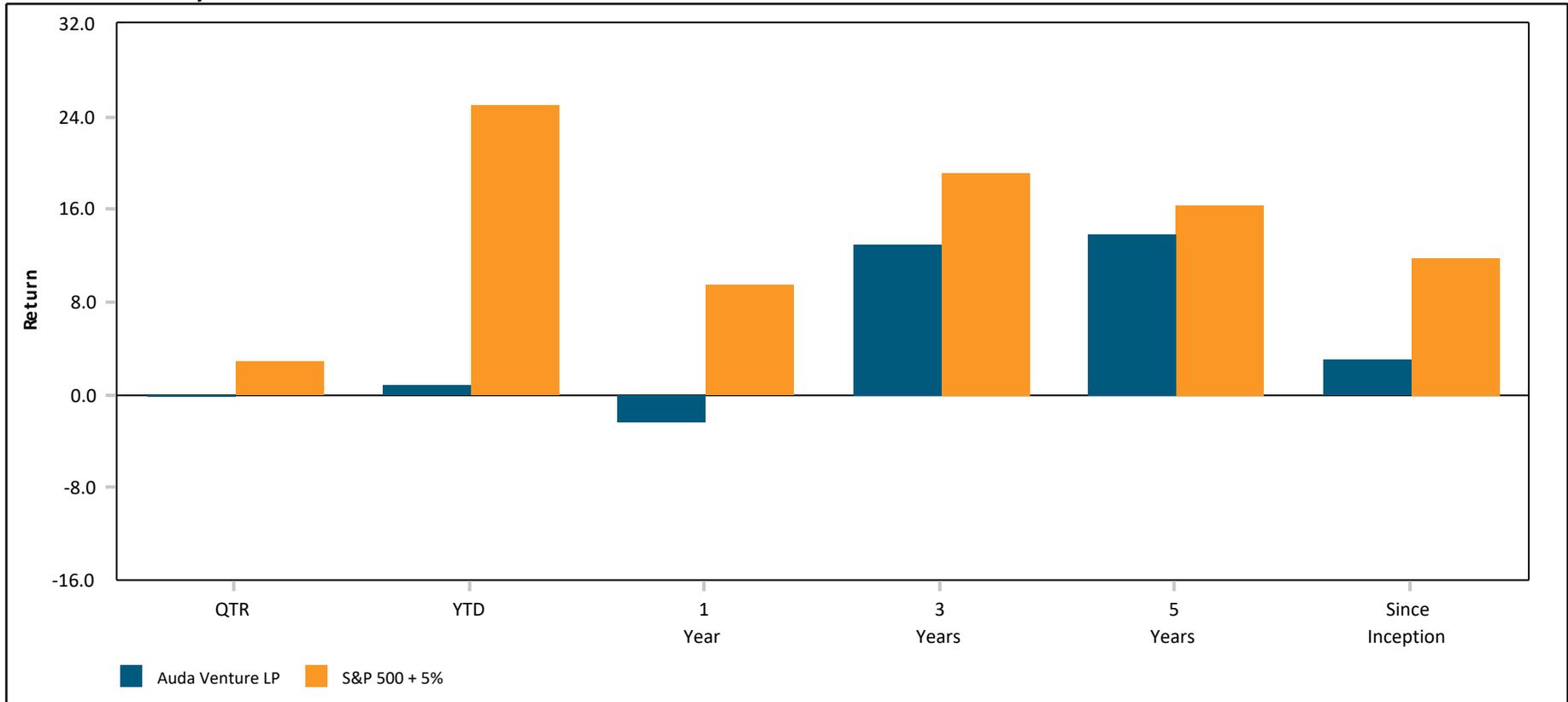


Manager Evaluation

Auda Venture LP

As of September 30, 2019

Performance Analysis



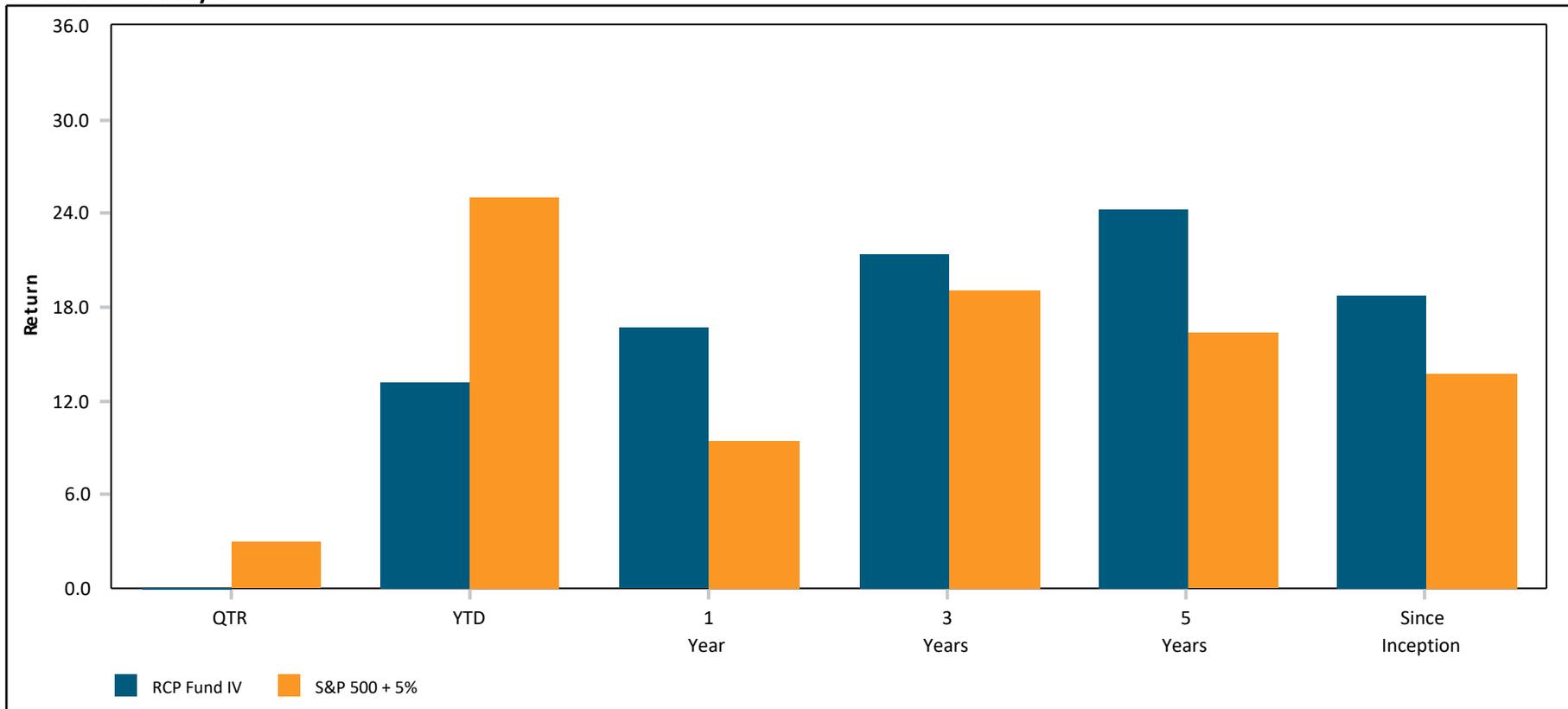
	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Auda Venture LP	0.0	0.8	-2.3	13.0	13.9	3.0	12/01/2000
S&P 500 + 5%	2.9	25.0	9.5	19.1	16.4	11.8	
Difference	-2.9	-24.2	-11.8	-6.1	-2.5	-8.8	

Manager Evaluation

RCP Fund IV

As of September 30, 2019

Performance Analysis



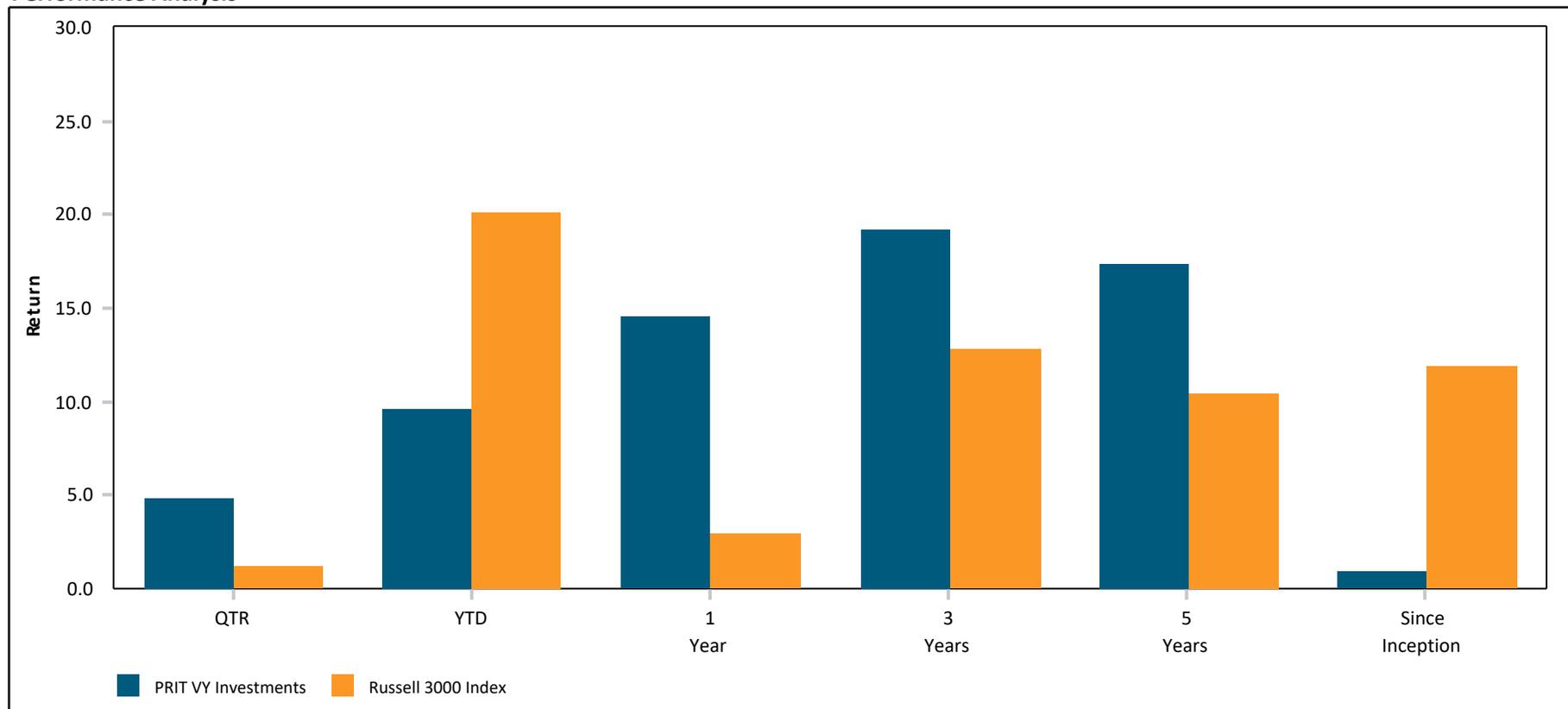
	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
RCP Fund IV	0.0	13.1	16.7	21.4	24.2	18.8	01/01/2007
S&P 500 + 5%	2.9	25.0	9.5	19.1	16.4	13.7	
Difference	-2.9	-11.9	7.2	2.3	7.8	5.1	

Manager Evaluation

PRIT VY Investments

As of September 30, 2019

Performance Analysis



	QTR	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
PRIT VY Investments	4.9	9.6	14.5	19.2	17.3	0.9	04/01/2011
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	11.9	
Difference	3.7	-10.5	11.6	6.4	6.9	-11.0	

Manager Performance Overview - PRIT VY Investments

As of September 30, 2019

	QTR	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
PRIT VY Investments	4.9	9.6	14.5	19.2	17.3	N/A	0.9	04/01/2011
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	N/A	11.9	
PRIT Vintage 2011	1.5	5.6	12.0	19.9	21.4	N/A	3.6	04/01/2011
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	N/A	11.9	
PRIT Vintage 2012	2.7	4.5	6.9	17.3	15.2	N/A	-17.4	06/01/2012
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	N/A	13.9	
PRIT Vintage 2013	9.6	16.1	20.7	18.3	12.8	N/A	7.6	07/01/2013
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	N/A	12.2	
PRIT Vintage 2014	4.8	10.6	19.4	23.4	13.8	N/A	5.9	06/01/2014
Russell 3000 Index	1.2	20.1	2.9	12.8	10.4	N/A	10.3	
PRIT Vintage 2015	8.9	18.2	25.7	24.6	N/A	N/A	12.6	04/01/2015
Russell 3000 Index	1.2	20.1	2.9	12.8	N/A	N/A	10.0	
PRIT Vintage 2016	2.4	1.9	5.2	0.6	N/A	N/A	-10.5	04/01/2016
Russell 3000 Index	1.2	20.1	2.9	12.8	N/A	N/A	13.1	
PRIT Vintage 2017	3.9	11.1	8.7	N/A	N/A	N/A	6.9	05/01/2017
Russell 3000 Index	1.2	20.1	2.9	N/A	N/A	N/A	11.1	
PRIT Vintage 2018	0.2	-1.7	-3.3	N/A	N/A	N/A	-12.5	06/01/2018
Russell 3000 Index	1.2	20.1	2.9	N/A	N/A	N/A	8.1	
PRIT Vintage 2019	2.3	N/A	N/A	N/A	N/A	N/A	1.6	04/01/2019
Russell 3000 Index	1.2	N/A	N/A	N/A	N/A	N/A	5.3	

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. Your performance may differ slightly if the fund was purchased during the previous month. Actual performance is captured at the total plan level.

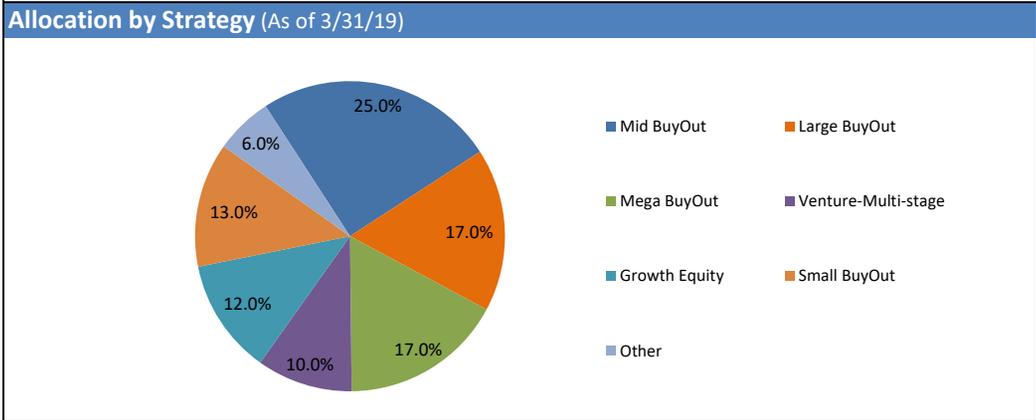
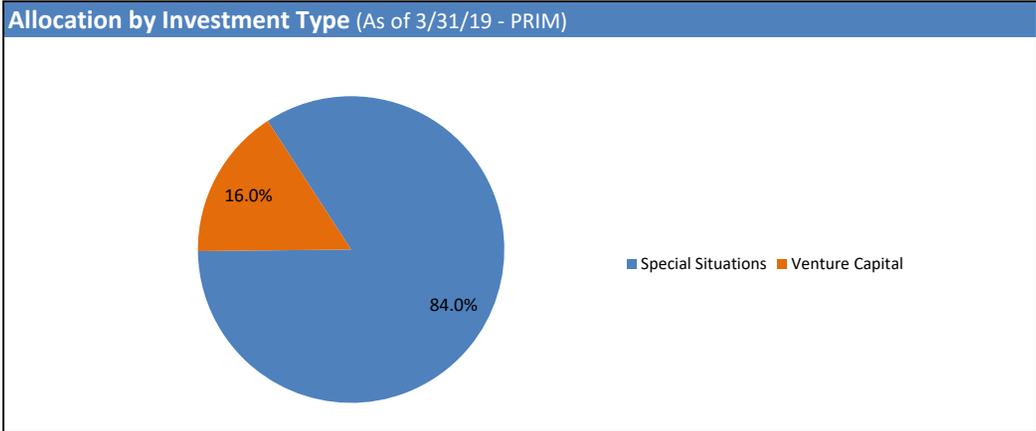
Investment returns are derived from custodian valuations and may deviate slightly from fund level returns displayed in other pages in your report which can result in minor differences in universe rankings. Mutual fund performance may differ from the current share class's historical performance due to share class exchanges.

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

Manager Evaluation

PRIT Private Equity Program

Portfolio Information
Fund Style: Private Equity
PRIT Private Equity Target Allocation: 11.3% of PRIT Fund



Fund Investment Policy

PRIM's private equity program seeks to earn a return that provides a premium over investment in public market equities over a long-term market cycle. The program is a significant component of the General Allocation Fund and is available to local Retirement Systems on a segmented basis. The PRIM Board generally targets commitments on a Vintage Year basis which typically range from \$1.0-1.5 Billion annually. The portfolio consists of allocations to special situations private equity (primarily buyout) and venture capital, and is diversified by strategy and manager. Systems wishing to make a commitment to the program provide notice at each calendar year end for the prospective vintage year. The commitment is long term and illiquid. Hamilton Lane serves as PRIM's investment adviser for the allocation.

Benchmark Composition

Policy Index

As of September 30, 2019

Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
Apr-2018		Jul-2011	
Blmbg. Barc. U.S. Aggregate Index	20.0	Blmbg. Barc. U.S. Aggregate Index	20.0
ICE BofAML US High Yield Master II Constrained	2.5	Guggenheim High-Yield Index	2.5
FTSE World Government Bond Index	2.5	FTSE World Government Bond Index	2.5
Russell 3000 Index	35.0	Russell 3000 Index	37.5
MSCI AC World ex USA (Net)	20.0	MSCI AC World ex USA (Net)	17.5
MSCI EAFE Small Cap (net) Index	2.5	MSCI EAFE Small Cap (net) Index	2.5
PRIM Custom Total RE Benchmark	10.0	NCREIF Property Index	5.0
HFRI Fund of Funds Composite Index	7.5	PRIM Custom Total RE Benchmark	5.0
		HFRI Fund of Funds Composite Index	7.5
Jan-2017		Jan-2009	
Blmbg. Barc. U.S. Aggregate Index	20.0	Blmbg. Barc. U.S. Aggregate Index	25.0
Guggenheim High-Yield Index	2.5	Blmbg. Barc. U.S. Corp High Yield	3.0
FTSE World Government Bond Index	2.5	Russell 3000 Index	30.0
Russell 3000 Index	35.0	MSCI AC World ex USA (Net)	17.0
MSCI AC World ex USA (Net)	20.0	NCREIF Property Index	15.0
MSCI EAFE Small Cap (net) Index	2.5	S&P 500 + 5%	7.0
PRIM Custom Total RE Benchmark	10.0	90 Day T-Bill + 5%	3.0
HFRI Fund of Funds Composite Index	7.5		
Jan-2014		Jan-2008	
Blmbg. Barc. U.S. Aggregate Index	20.0	Blmbg. Barc. U.S. Aggregate Index	17.0
Guggenheim High-Yield Index	2.5	Blmbg. Barc. U.S. Corp High Yield	4.0
FTSE World Government Bond Index	2.5	FTSE Non-U.S. World Government Bond	4.0
Russell 3000 Index	35.0	S&P 500 Index	28.0
MSCI AC World ex USA (Net)	20.0	Russell 2000 Index	7.0
MSCI EAFE Small Cap (net) Index	2.5	Russell Midcap Index	7.0
NCREIF Property Index	2.0	MSCI EAFE (Net) Index	15.0
PRIM Custom Total RE Benchmark	8.0	MSCI Emerging Markets Index	3.0
HFRI Fund of Funds Composite Index	7.5	NCREIF Property Index	10.0
		90 Day T-Bill + 5%	5.0

Benchmark Composition

Policy Index

As of September 30, 2019

Allocation Mandate	Weight (%)
Jul-2006	
Blmbg. Barc. U.S. Aggregate Index	17.0
Blmbg. Barc. U.S. Corp High Yield	4.5
FTSE Non-U.S. World Government Bond	4.0
S&P 500 Index	16.5
Russell 2000 Index	14.0
Russell Midcap Growth Index	6.5
Russell Midcap Value Index	8.5
MSCI EAFE Index	14.0
MSCI Emerging Markets Index	3.0
NCREIF Property Index	7.0
S&P 500 + 4%	5.0
Oct-2000	
Blmbg. Barc. U.S. Aggregate Index	20.0
Blmbg. Barc. U.S. Corp High Yield	4.5
FTSE Non-U.S. World Government Bond	4.0
S&P 500 Index	31.5
Russell 2000 Index	14.0
MSCI EAFE Index	14.0
NCREIF Property Index	7.0
S&P 500 + 4%	5.0
Jan-1979	
S&P 500 Index	45.0
Russell 2000 Index	10.0
NCREIF Property Index	6.0
MSCI EAFE Index	11.0
Blmbg. Barc. U.S. Aggregate Index	28.0

Benchmark Composition

Fixed Income Benchmark

As of September 30, 2019

Allocation Mandate	Weight (%)
Apr-2018	
Blmbg. Barc. U.S. Aggregate Index	80.0
ICE BofAML US High Yield Master II Constrained	10.0
FTSE World Government Bond Index	10.0
Jul-2011	
Blmbg. Barc. U.S. Aggregate Index	80.0
Guggenheim High-Yield Index	10.0
FTSE World Government Bond Index	10.0
Jan-2009	
Blmbg. Barc. U.S. Aggregate Index	89.3
Blmbg. Barc. U.S. Corp High Yield	10.7
Jan-2008	
Blmbg. Barc. U.S. Aggregate Index	68.0
Blmbg. Barc. U.S. Corp High Yield	16.0
FTSE Non-U.S. World Government Bond	16.0
Apr-2007	
Blmbg. Barc. U.S. Aggregate Index	66.7
Blmbg. Barc. U.S. Corp High Yield	17.6
FTSE Non-U.S. World Government Bond	15.7

Benchmark Composition

Domestic Equity Benchmark

As of September 30, 2019

Allocation Mandate	Weight (%)
Jan-2009	
Russell 3000 Index	100.0
Jan-2008	
S&P 500 Index	66.7
Russell 2000 Index	16.7
Russell Midcap Index	16.7
Apr-2007	
S&P 500 Index	36.3
Russell 2000 Index	30.8
Russell Midcap Growth Index	14.3
Russell Midcap Value Index	18.7

Benchmark Composition

International Equity Benchmark

As of September 30, 2019

Allocation Mandate	Weight (%)
Jan-2014	
MSCI AC World ex USA (Net)	88.9
MSCI EAFE Small Cap (net) Index	11.1
Jul-2011	
MSCI AC World ex USA (Net)	87.5
MSCI EAFE Small Cap (net) Index	12.5
Jan-2009	
MSCI AC World ex USA (Net)	100.0
Jan-2008	
MSCI EAFE Index	83.3
MSCI Emerging Markets Index	16.7
Apr-2007	
MSCI EAFE Index	82.4
MSCI Emerging Markets Index	17.6

Prospectus Links - For Mutual Fund Investments

As of September 30, 2019

<u>FUND FAMILY</u>	<u>WEB SITE</u>
MFS Institutional	www.mfs.com

Investment Statistics – Descriptions

Statistic	Description
Active Return	Arithmetic difference between the manager's return and the benchmark return over a specified period.
Excess Return	Arithmetic difference between the manager's return and the risk-free return over a specified period.
Standard Deviation	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.
Downside Risk	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.
Sharpe Ratio	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.
Tracking Error	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.
Information Ratio	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.
Beta	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.
Alpha	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.
Consistency	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.
R-Squared	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.
Up Market Capture	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.
Down Market Capture	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.
Style Map	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.
Private Equity Investments	
Internal Rate of Return (IRR)	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.
Investment Multiple (TVPI)	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.
Realization Multiple (DPI)	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.
RVPI Multiple (RVPI)	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.
PIC Multiple (PIC)	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.

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