

# MEETING MATERIALS

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## **Merced County Employees' Retirement Association**

Second Quarter 2019 Full Review

August 22, 2019



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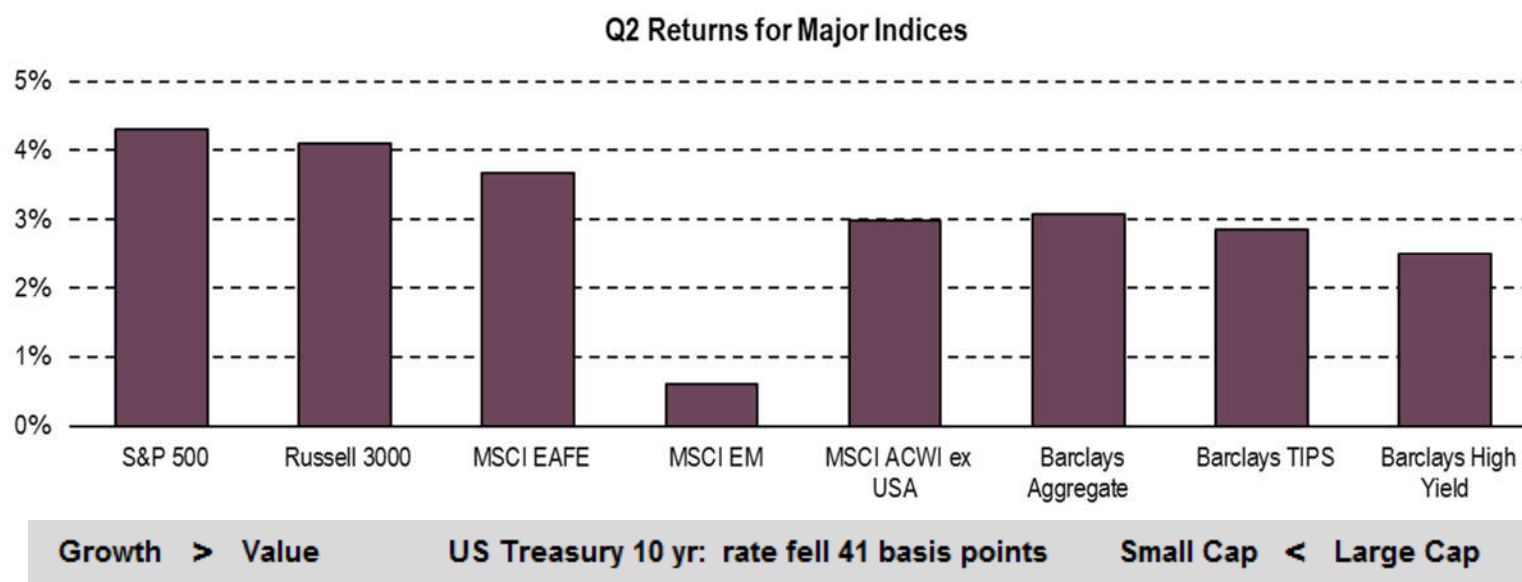
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## **Executive Summary As of June 30, 2019**

## Market Summary for the Second Quarter 2019

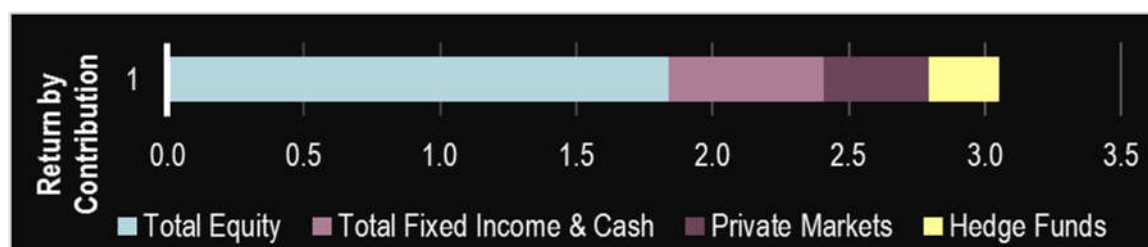
Despite weakening economic data, world stocks and credit advanced – likely fueled by improved sentiments as trade tensions were diminished after the G-20 summit and by expectations of continued easy monetary policy around the world. In addition, markets have priced in future rate cuts, which have been supportive of traditional safe haven assets such as U.S. Treasuries. U.S. Equity was up +4.1%, while International Developed Equity markets were not too far behind at +3.7%, as expressed by the Russell 3000 and MSCI EAFE Indexes, respectively. Emerging markets lagged, with relatively flat results for the quarter, with the MSCI Emerging Markets Index posting a +0.6% return. Fixed Income markets were up in the quarter, as rates fell and credit spreads tightened, with investment-grade bonds outpacing high yield bonds.



## Executive Summary – Q2 2019

Total Market Value		QTD Absolute Results		QTD Relative Results
Q2 2019	\$862,466,585	MCERA	+3.1	
Q1 2019	\$835,769,508	Policy Benchmark	+2.4	MCERA vs Policy Benchmark <b>+0.7</b>

## Contribution to QTD Return



All major aggregates posted positive results for Q2 2019.

Total Equity was the key driver for positive contribution toward MCERA's return for the quarter. The U.S. Equity sleeve was responsible for most of the positive contribution, reporting +4.6% for the period. International Developed Equity also posted strong results at +3.7%, while Emerging Markets Equity lagged at +1.4%.

In Q2, Total Fixed Income & Cash was also a strong positive contributor, mainly from the U.S. Fixed Income composite, which posted a return of +2.6%. Opportunistic Credit category has yet to meaningfully contribute to overall returns as it was just recently established.

Private Markets and Hedge Funds also posted positive results in the second quarter, with the former aided by strong results from Infrastructure and Natural Resources.

For the fiscal-year, the MCERA Fund reported a return of +5.2%, exceeding the Policy Benchmark by +0.5%.

Policy Target Check		Overall Portfolio Trailing Performance				
2 asset classes not within range: <i>U.S. Equity &amp; Private Equity</i>		Trailing Returns				
		1-Year	3-Year	5-Year	5-Year Std Dev	5-Year Sharpe
		5.2	8.9	5.9	6.8	0.7
		4.7	9.1	6.2	6.4	0.8
MCERA						
Policy BMK						

## Public Manager Highlights Q2 2019

**4 out of 5 Active Public Managers<sup>1</sup> either outpaced or matched their respective benchmarks for Q2 2019.**

### Total Equity (Active):

- The U.S. Equity sleeve (+4.6%) exceeded the custom segment benchmark (+3.8%) by 80 basis points. In this space, Mellon Dynamic reported a +5.8% return, which helped elevate the U.S. Equity segment return over the benchmark return. The extended U.S. equity positions within the fund drove positive performance in the quarter, primarily from June and April. In May, the strategy declined as the equity markets sold off, but was still able to outperform the S&P 500 due to its long Treasury position. Relative to its peers, this manager was top quartile.
- The two U.S. small cap managers (DFA & PanAgora), kept pace with the Russell 2000 for the period. PanAgora was able to exceed the benchmark by a modest amount (30 basis points), benefiting from its strong security selection in the Health Care sector.

### Total Fixed Income (Active):

- The U.S. Fixed Income composite posted a return of +2.6 for the quarter. The only active manager in this sleeve, Barrow Hanley reported a return of +3.0%, trailing the Barclays U.S. Aggregate Index by 10 basis points. The manager's security selection in Industrials, detracted from performance, as this position was shorter in duration relative to the index. A notable contributor to performance was the overweight to the corporate sector, as spreads tightened.
- PIMCO and GoldenTree were funded within the Opportunistic Credit segment during the quarter. Both managers did not meaningfully contribute during the quarter as PIMCO was funded in May and GoldenTree in June.

### Public Passive Managers:

- Nothing to report for all passive managers (including SSgA Real Asset Fund).

<sup>1</sup> Excludes Private Markets and Hedge Fund managers. Acadian, Driehaus, PIMCO, and GoldenTree were also excluded as these managers have not been in the MCERA Fund for a full quarter.

## **Manager Updates / Recommendations / Watch List**

### **Asset Allocation Update**

- We expect Private Equity to remain underweight relative to targets for the next several years. As such, other asset classes will be overweight during that time, including Public Equities and Fixed Income.
- The two new International Small Cap Managers (Acadian and Driehaus) were funded in April with the proceeds from the full liquidation of Copper Rock.
- In April, the relative positioning between U.S. Equity and Developed International Equity was adjusted to correct the overweight to International Developed. Specifically, we moved \$10 million from Mellon International to Mellon Dynamic U.S Equity.
- Also in April, Barrow Hanley was reduced by approximately half to fund the Vanguard Total Bond Market Index Fund, mainly as a way of reducing fees.
- Opportunistic Funds (GoldenTree Multi-Sector Strategy and PIMCO Income) were established during Q2. We will also incorporate the new Opportunistic Funds benchmark as a component to the overall Policy benchmark in the July performance report.

### **Performance Report Update**

- Private Real Estate has been separated from the Real Assets category as the Board approved to have a specific allocation target for that category. Historical data prior to Jan 1, 2019 for Real Assets will still reflect Private Real Estate. Please note that this will have no impact to overall Fund level results.

### **Watch List**

No funds on the watch list.

### Active Manager Expectations

Manager	Strategy Description	Beta (High/Low/Neutral)	Tracking Error Range (bps)	Environments Manager Underperforms
<b>Domestic Equity</b>				
DFA U.S. Small Cap Trust	Very diversified small cap portfolio, tilts toward value	Neutral	2.0% to 2.7%	In growth-oriented markets
PanAgora U.S. Small Cap Core Stock Selector	Diversified, quantitatively managed small cap portfolio	Neutral	2.5% to 4.0%	In low quality rallies or at market inflection points
Mellon Capital MCM Dynamic U.S. Equity	Very diversified, quantitative, large cap core portfolio	Neutral (higher in more recent periods)	2.5% to 5.0%	When investors misprice forward looking return/risk characteristics; when returns are concentrated in one sector
<b>Developed Markets Equity (Non-U.S.)</b>				
Driehaus International Small Cap Growth	Diversified growth manager that seeks to invest in companies experiencing positive growth inflections, using a combination of fundamental and macroeconomic analysis.	Low	4.0% to 7.0%	At market inflection points, with abrupt leadership change. Deep value, low quality market environments.
Acadian ACWI ex US Small Cap Equity	Very diversified international small cap portfolio, employing highly adaptive quantitative models	Neutral	2.5% to 4.5%	During narrow markets, abrupt changes in leadership. In "value" challenged periods.
<b>Emerging Markets Equity</b>				
Wells Capital Berkeley St Emerging Markets	Diversified, quality-at-a-reasonable price manager	Low	3.5% to 4.0%	Deep value, low quality market environments
<b>Investment Grade Bonds</b>				
Barrow Hanley Core Fixed Income	Conservative, low tracking-error core strategy focused on bottom-up security selection	Neutral	0.2% to 0.7%	At market Inflection points, but should track the index very closely
<b>Opportunistic Credit</b>				
PIMCO Income	Global multi-sector, benchmark agnostic approach, utilizing firm's resources to identify best income ideas while staying senior in the capital structure	Low	1.5% to 3.5%	During periods of lower quality bond rallies and volatility in interest rates and certain currencies
GoldenTree Multi-Sector Credit	Bottom-up security selection, managing risk and adding value through credit sector rotation	Low	2.5% to 4.5%	During initial periods of economic recovery and rapid spread tightening



## Manager Monitor

Manager	Significant Events (Yes/No)	Last Meeting with Board of Retirement	Last Meeting with MIG	Comments
<b>Domestic Equity Assets</b>				
Mellon Capital BNY Mellon MCM Dynamic US Equity Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
Mellon Capital EB DV Large Cap Stock Index Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
DFA US Small Cap Trust	No	-	Aug 2018	Co-CEO resignation (8/17) – Our view is that the departure is immaterial to the investment thesis for DFA's products. Met with DFA to discuss non-U.S. equities in August of this year.
PanAgora US Small Cap Core Stock Selector	No	-	Aug 2018	CEO Eric Sorensen, who is credited with turning the firm around, has not announced a plan to retire and no formal succession plan is in place. We do not recommend any changes at this time.
<b>Developed Markets Equity (Non-U.S.) Assets</b>				
Driehaus International Small Cap Growth	No	-	May 2019	Regular onsite to discuss organizational update.
Acadian ACWI ex US Small Cap Equity	No	-	Mar 2019	Onsite meeting to go over Non-US small cap strategies.
Mellon Capital EB DV International Stock Index Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
<b>Emerging Markets Equity Assets</b>				
Wells Capital Berkeley Street Emerging Markets Fund	No	-	July 2019	Met with Bob Hrabchak (product specialist) with overview of EM strategy – very quality oriented and valuation sensitive with a long-term view.
<b>US Fixed Income Assets</b>				
Barrow Hanley Core Fixed Income Fund	No	Apr 2019	Aug 2018	John Williams, founder of fixed income group retired in Feb 2018. Retirement was announced well in advance.
Vanguard Short Term Treasury Index Fund	No	-	July 2017	Review of Target Date Retirement Funds.
<b>Opportunistic Credit</b>				
PIMCO Income Fund	No	-	Mar 2019	Regular high-level meeting discussing positioning and detractors.
GoldenTree Multi-Sector Credit	No	-	July 2019	Meeting in London for regular strategy update.
<b>Private Equity Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.
<b>Real Assets Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.
<b>Hedge Fund Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.

### Active Manager Peer Rankings

Investment Managers	Product	Peer Group	Market Value (\$ mm)	YTD June	1 YR	3 YR	5 YR	10 YR	Client Inception	Years in portfolio
DFA	US Small Cap Equity Strategy	US Small Cap Core	17.9	65	62	65	58	46	Jun-14	5.0
PanAgora	US Small Cap Core Stock Selector	US Small Cap Core	18.1	47	76	50	49	8	Sep-13	5.8
Mellon Capital	Dynamic US Equity Strategy	US Large Cap Core	91.5	6	23	7	2	1	Dec-12	6.5
Acadian	All-Country World ex US Small Cap	Non-US Div Small Cap	10.1	51	39	20	45	20	May-19	0.1
Driehaus	International Small Cap Growth	Non-US Div Small Cap	10.4	23	29	24	17	9	May-19	0.1
Wells Capital	Berkeley Street Emerging Markets	Emerging Markets	68.4	17	32	40	26	39	Mar-12	7.3
Barrow Hanley	Core Fixed Income	US Core Fixed Income	60.3	65	51	67	56	75	Mar-10	9.3
PIMCO	Income Fund	GI Multi-Sector Fixed Income	20.7	81	38	11	1	1	May-19	0.1
GoldenTree	Multi-Sector Credit Strategy	GI Multi-Sector Fixed Income	20.5	49	78	9	5	--	Jun-19	--

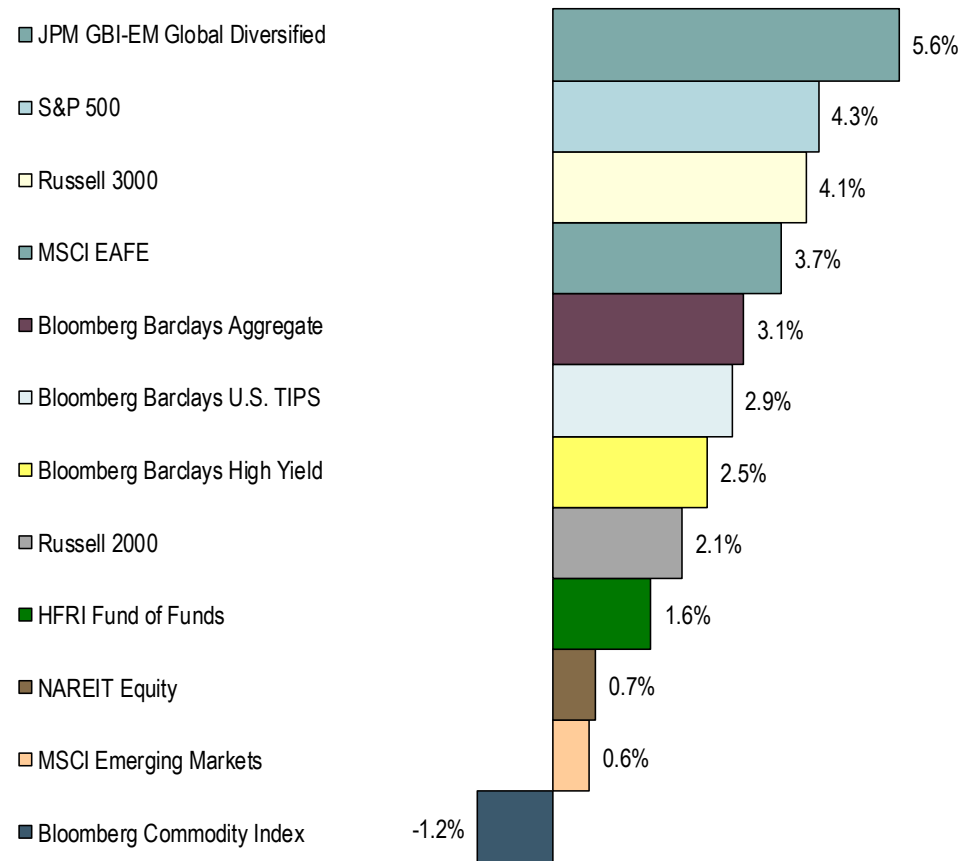
Source: eVestment universe data.

Shaded values are rankings prior to Client inception in the strategy.

Ranks are based on gross of fee returns for extended periods (shaded values).

## **The World Markets Second Quarter of 2019**

## The World Markets<sup>1</sup> Second Quarter of 2019



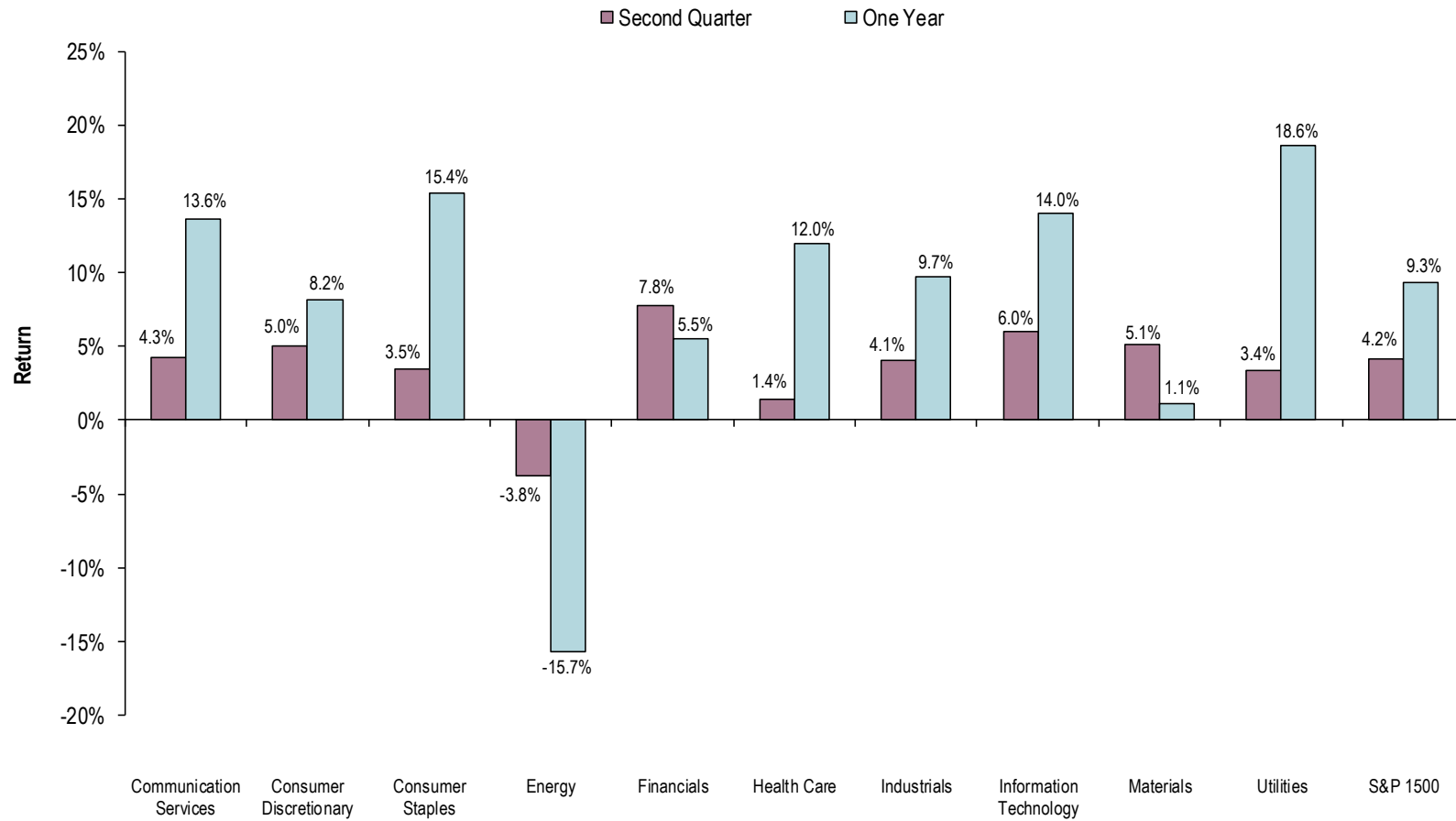
<sup>1</sup> Source: InvestorForce.

Index Returns<sup>1</sup>

	2Q19 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Domestic Equity</b>					
S&P 500	4.3	10.4	14.2	10.7	14.7
Russell 3000	4.1	9.0	14.0	10.2	14.7
Russell 1000	4.2	10.0	14.1	10.5	14.8
Russell 1000 Growth	4.6	11.6	18.1	13.4	16.3
Russell 1000 Value	3.8	8.5	10.2	7.5	13.2
Russell MidCap	4.1	7.8	12.2	8.6	15.2
Russell MidCap Growth	5.4	13.9	16.5	11.1	16.0
Russell MidCap Value	3.2	3.7	8.9	6.7	14.6
Russell 2000	2.1	-3.3	12.3	7.1	13.4
Russell 2000 Growth	2.7	-0.5	14.7	8.6	14.4
Russell 2000 Value	1.4	-6.2	9.8	5.4	12.4
<b>Foreign Equity</b>					
MSCI ACWI (ex. U.S.)	3.0	1.3	9.4	2.2	6.5
MSCI EAFE	3.7	1.1	9.1	2.2	6.9
MSCI EAFE (Local Currency)	2.8	2.2	9.8	5.9	8.3
MSCI EAFE Small Cap	1.7	-6.3	9.1	4.4	9.7
MSCI Emerging Markets	0.6	1.2	10.7	2.5	5.8
MSCI Emerging Markets (Local Currency)	7.4	9.4	13.8	7.6	8.6
<b>Fixed Income</b>					
Bloomberg Barclays Universal	3.1	8.1	2.8	3.2	4.4
Bloomberg Barclays Aggregate	3.1	7.9	2.3	2.9	3.9
Bloomberg Barclays U.S. TIPS	2.9	4.8	2.1	1.8	3.6
Bloomberg Barclays High Yield	2.5	7.5	7.5	4.7	9.2
JPM GBI-EM Global Diversified	5.6	9.0	4.2	-0.5	3.4
<b>Other</b>					
NAREIT Equity	0.7	10.1	3.8	7.7	15.3
Bloomberg Commodity Index	-1.2	-6.8	-2.2	-9.1	-3.7
HFRI Fund of Funds	1.6	1.3	4.3	2.2	3.2

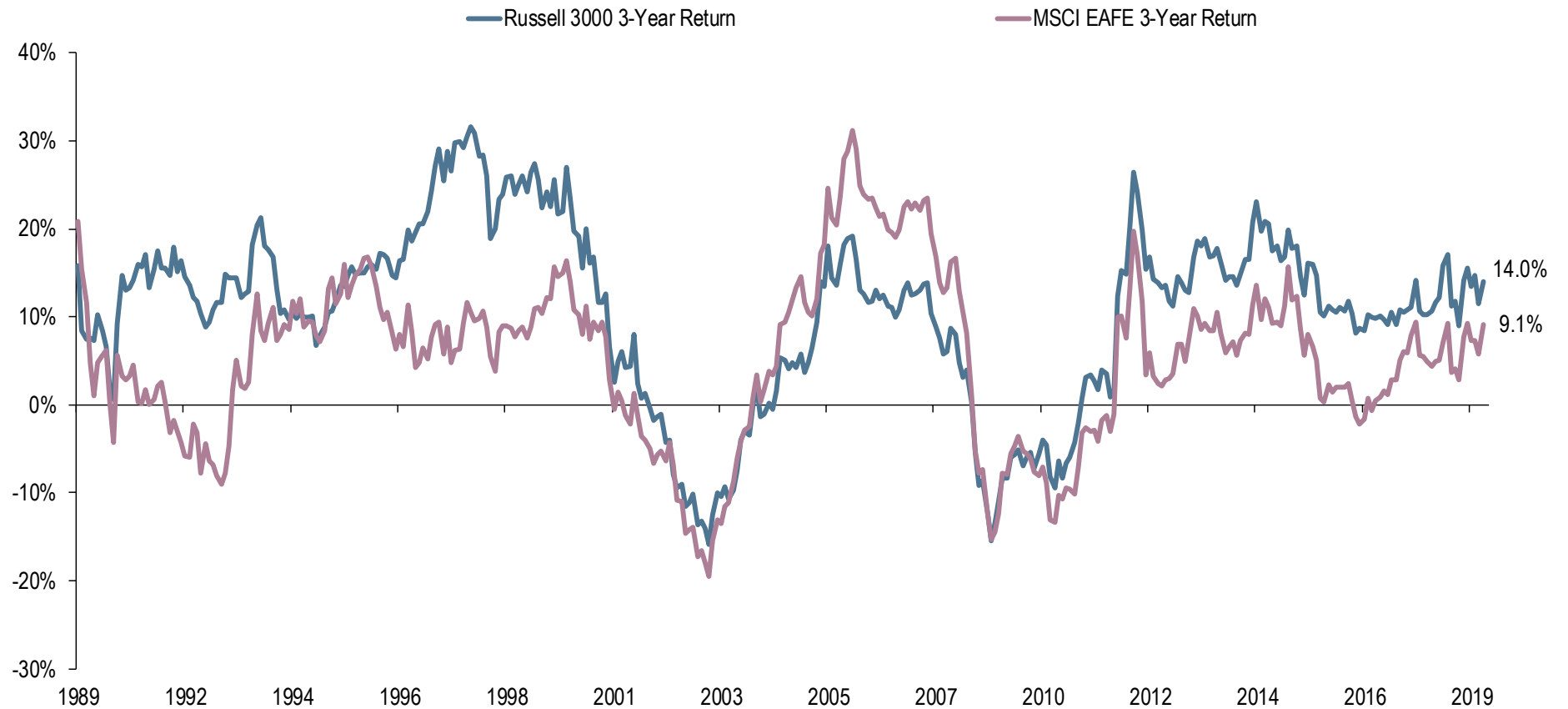
<sup>1</sup> Source: InvestorForce.

## S&P Sector Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce. Represents S&P 1500 (All Cap) data.

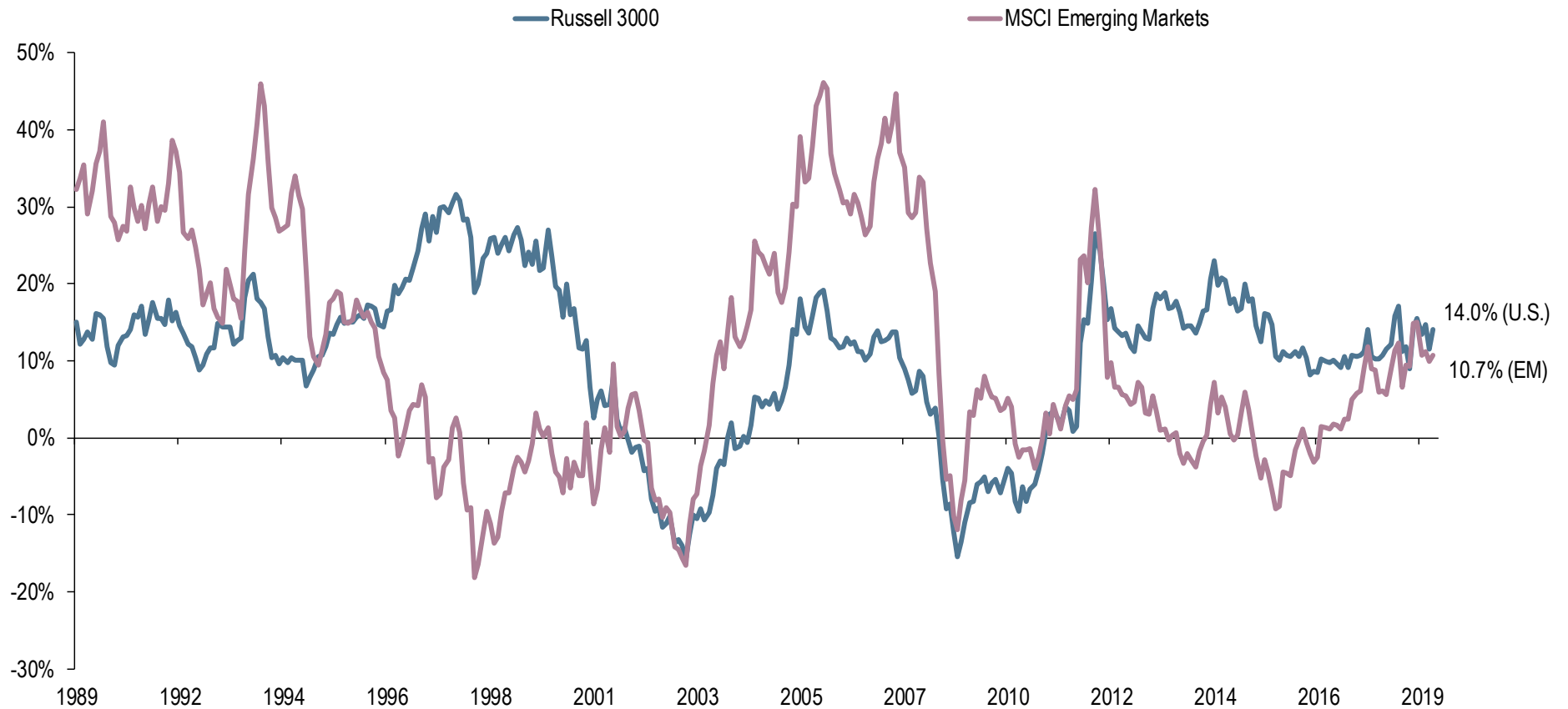
## U.S. and Developed Market Foreign Equity Rolling Three-Year Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce.



## U.S. and Emerging Market Equity Rolling Three-Year Returns<sup>1</sup>

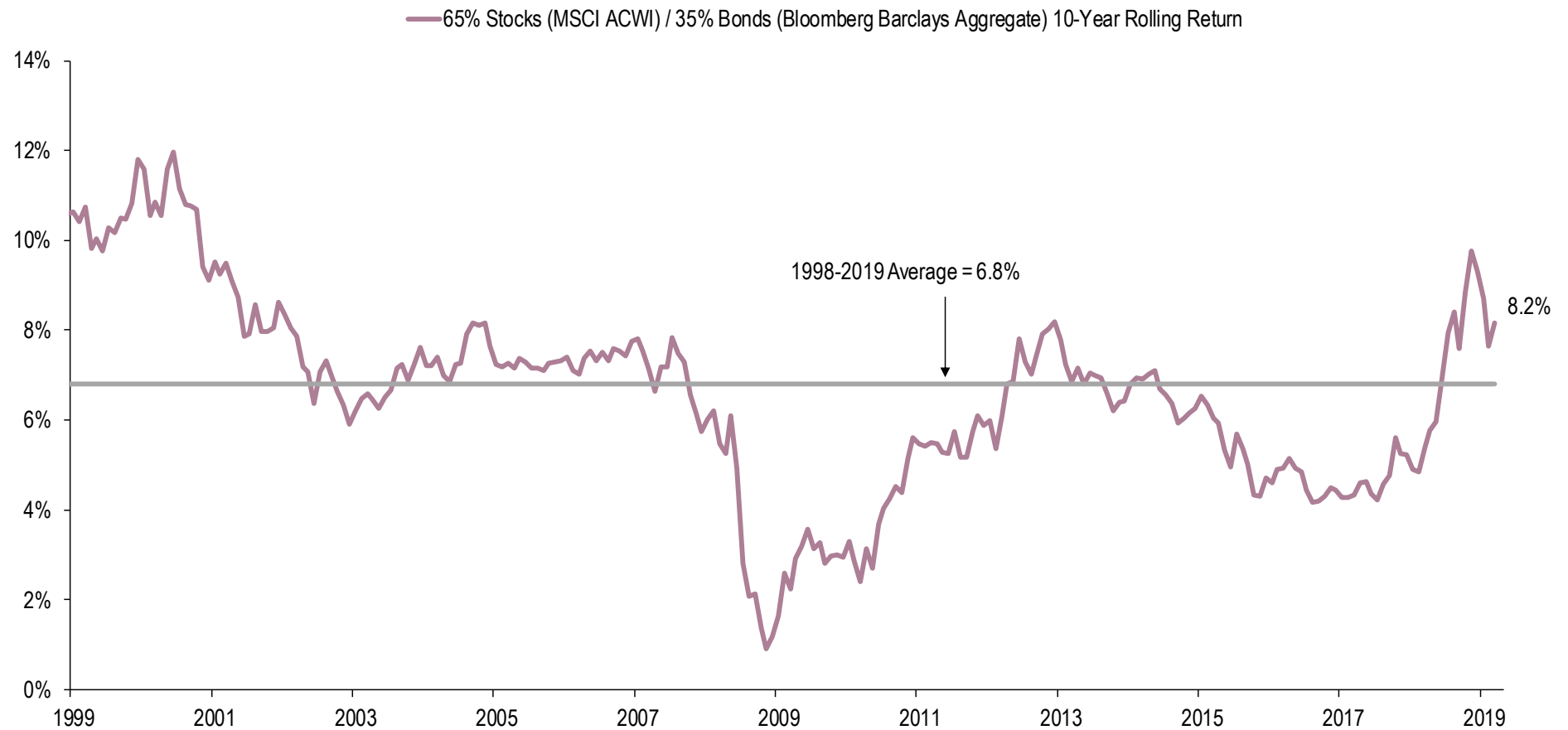


<sup>1</sup> Source: InvestorForce.





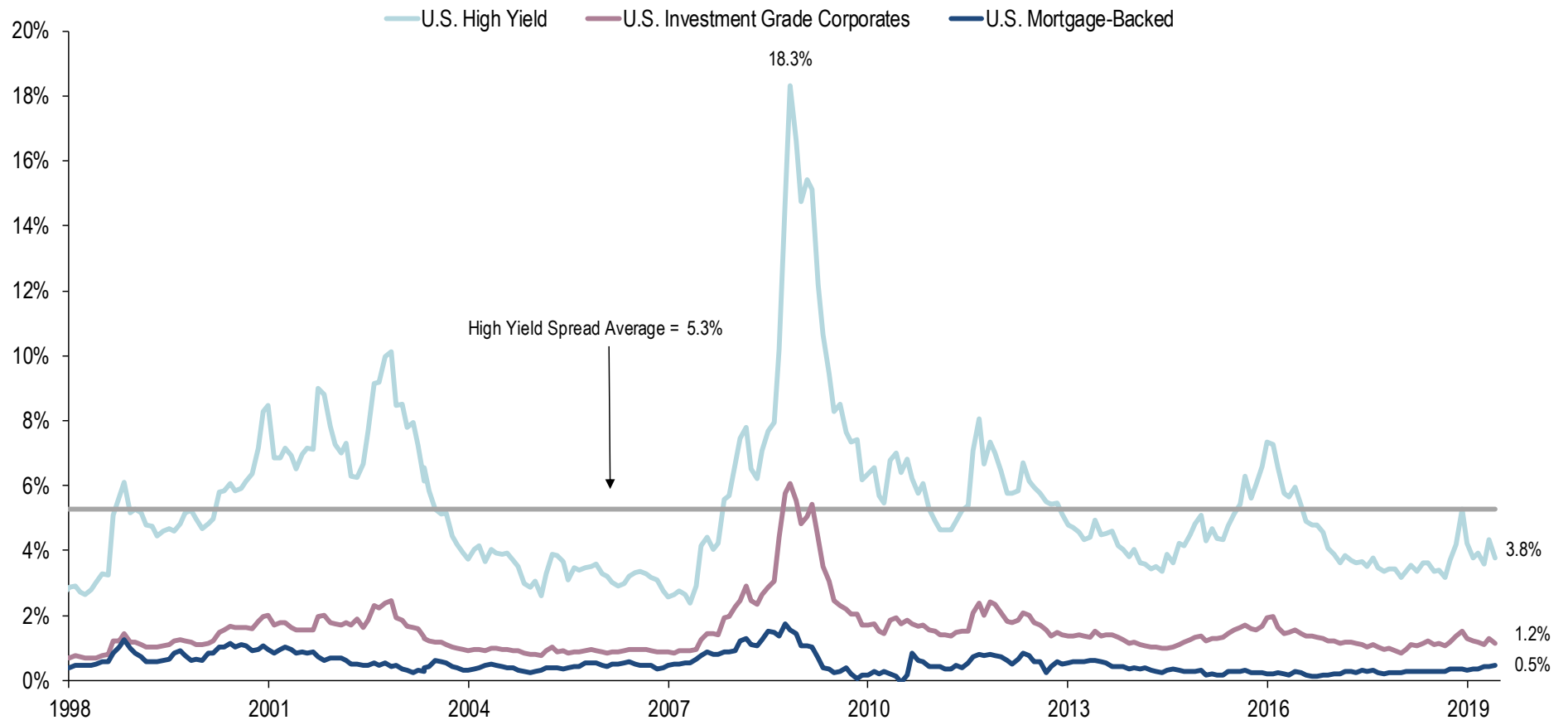
## Rolling Ten-Year Returns: 65% Stocks and 35% Bonds<sup>1</sup>



<sup>1</sup> Source: InvestorForce.



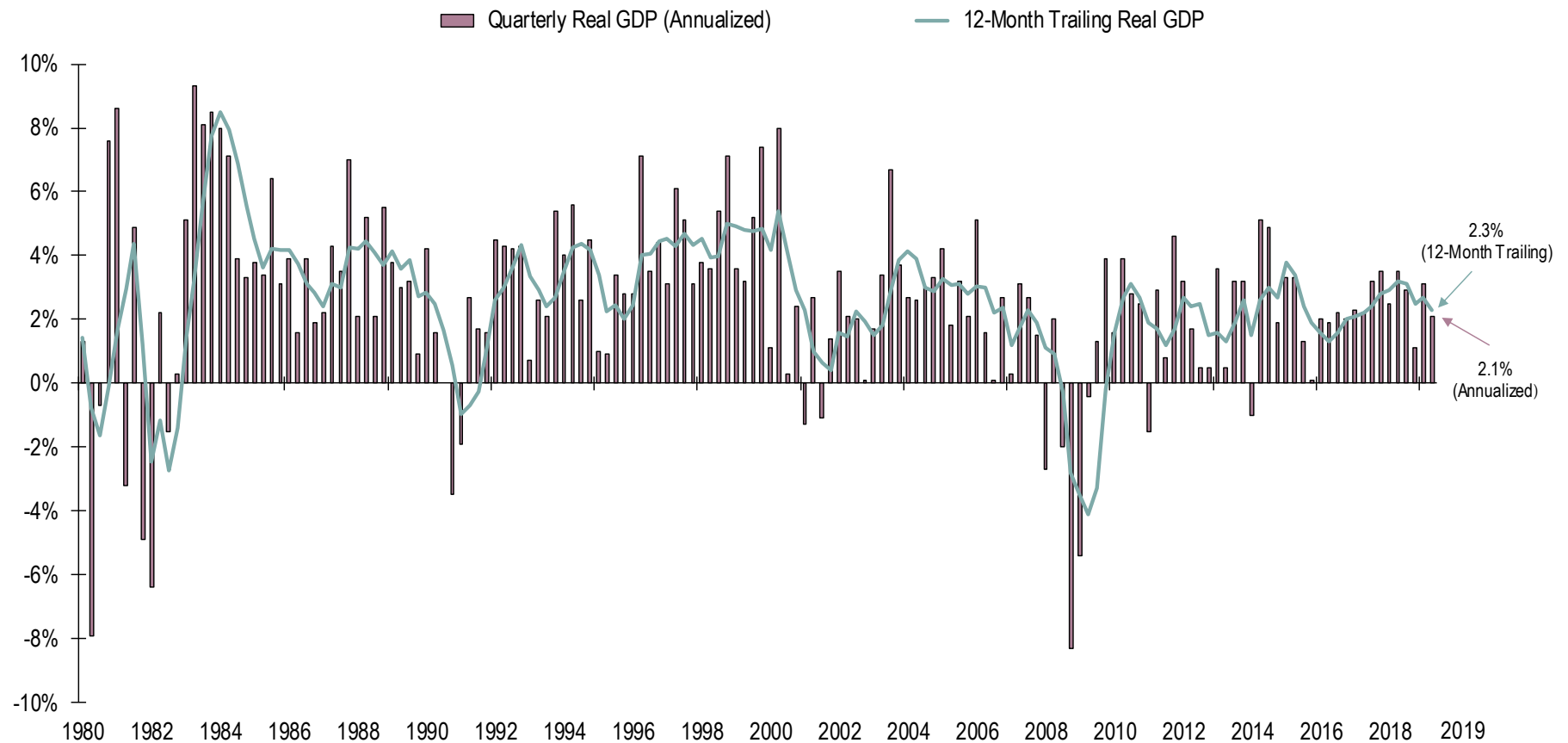
## Credit Spreads vs. U.S. Treasury Bonds<sup>1,2</sup>



<sup>1</sup> Source: Barclays Live.

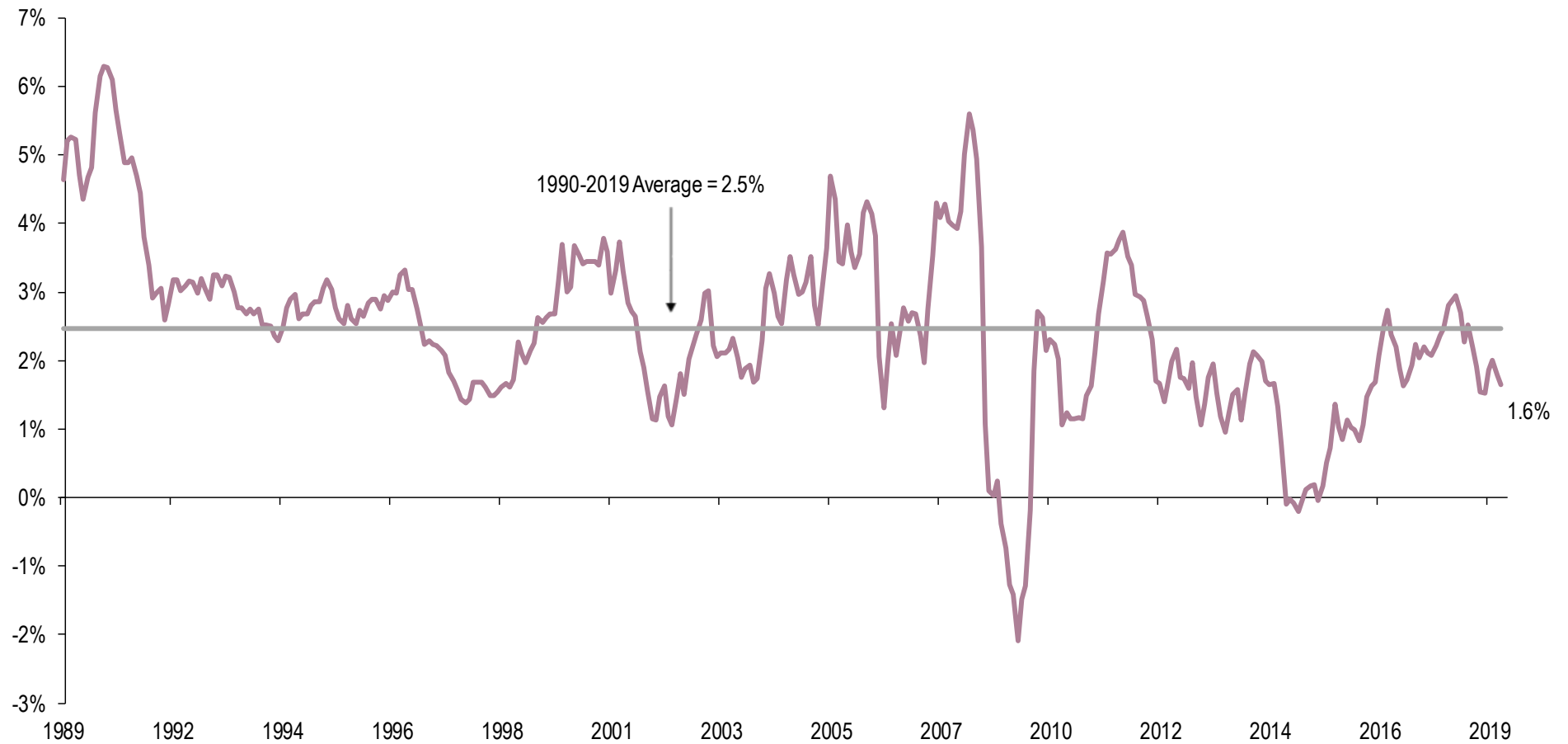
<sup>2</sup> The median high yield spread was 4.8% from 1997-2019.

## U.S. Real Gross Domestic Product (GDP) Growth<sup>1</sup>



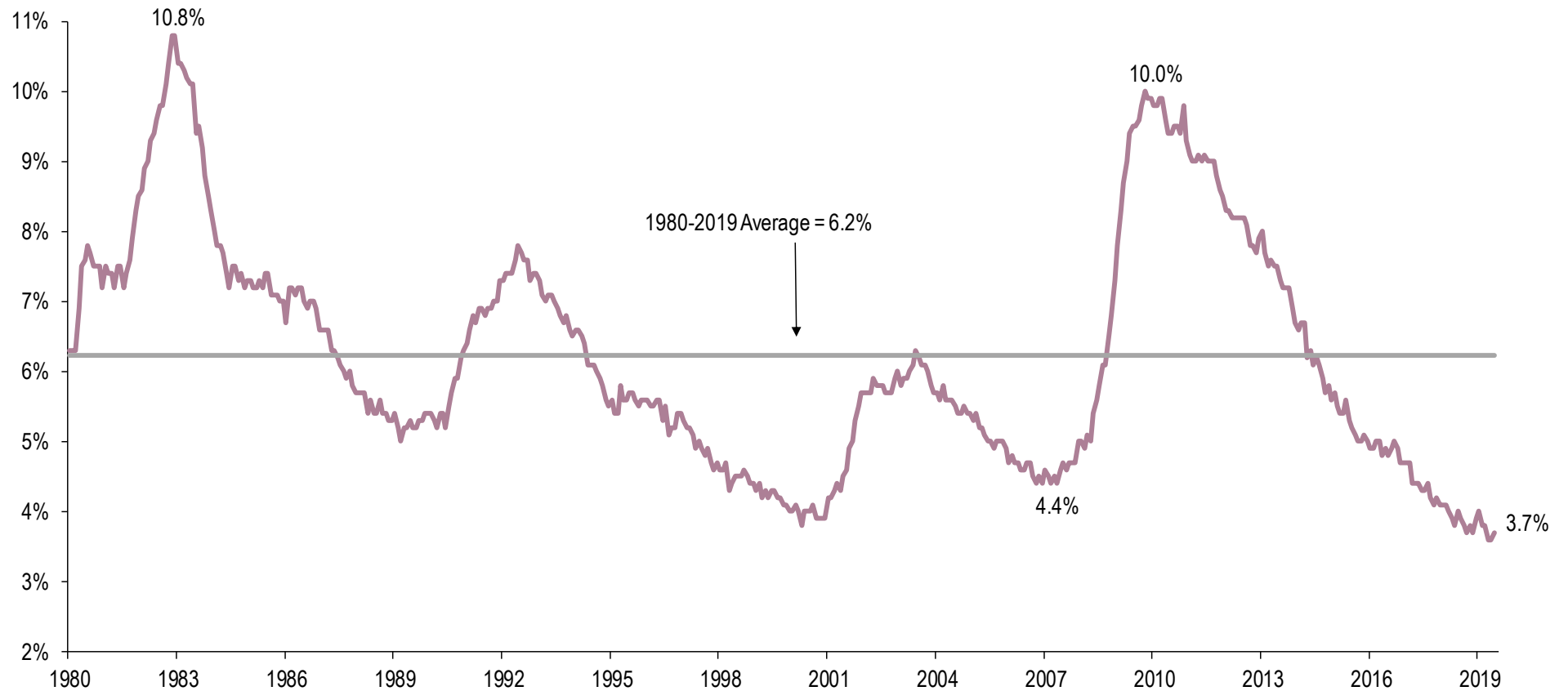
<sup>1</sup> Source: Bureau of Economic Analysis. Data is as of Q2 2019 and represents the first estimate.

## U.S. Inflation (CPI) Trailing Twelve Months<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is non-seasonally adjusted CPI, which may be volatile in the short-term. Data is as of June 30, 2019.

## U.S. Unemployment<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is as of June 30, 2019.



## Capital Markets Outlook & Risk Metrics

As of July 31, 2019

## Capital Markets Outlook

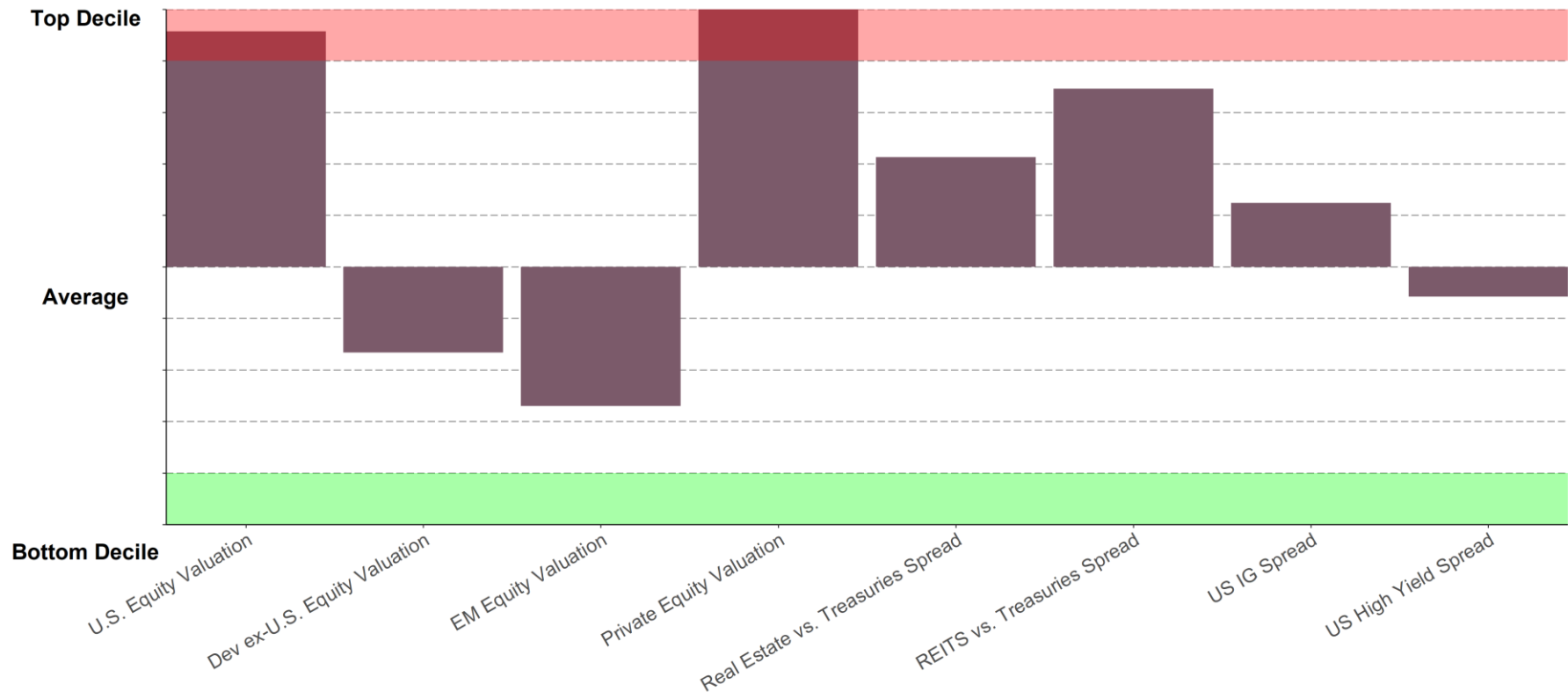
### Takeaways

- While not as strong as June, July was another profitable month for U.S. Equity markets whereas Non-U.S. Equity markets experienced marginal declines. YTD returns across Global Equity markets are in the double-digits, with several segments of the U.S. Equity market leading the pack at 20%+. Additionally, interest rates in the middle and long-end of the curve have continued to decline, with U.S. Long Bonds producing YTD returns of over 11%.
- In an effort to combat global growth uncertainty and persistently low inflation, the Federal Reserve elected to cut rates for the first time in a decade. The full impact of this decision on economic data and the capital markets is likely to remain uncertain over the near term.
- Geopolitical events, especially trade wars between the U.S. and China, are expected to provide variable shocks to the global economy and capital markets for the foreseeable future.
- U.S. Equity markets remain expensive whereas Non-U.S. Equity markets remain reasonably valued relative to their history.
- Implied equity market volatility<sup>1</sup> remained well-below its historical average (~19) throughout July while ticking up to 16 at month-end.
- The Market Sentiment Indicator<sup>2</sup> returned to **neutral** at month end.
- Market uncertainty as measured by Systemic Risk remains low, but there is potential for negative surprises, as global economies navigate their respective “late-cycle” dynamics and geopolitical events continue to unfold, as evidenced by early market movements in August.

<sup>1</sup> As measured by VIX Index.

<sup>2</sup> See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

### Risk Overview/Dashboard (1) (As of July 31, 2019)<sup>1</sup>

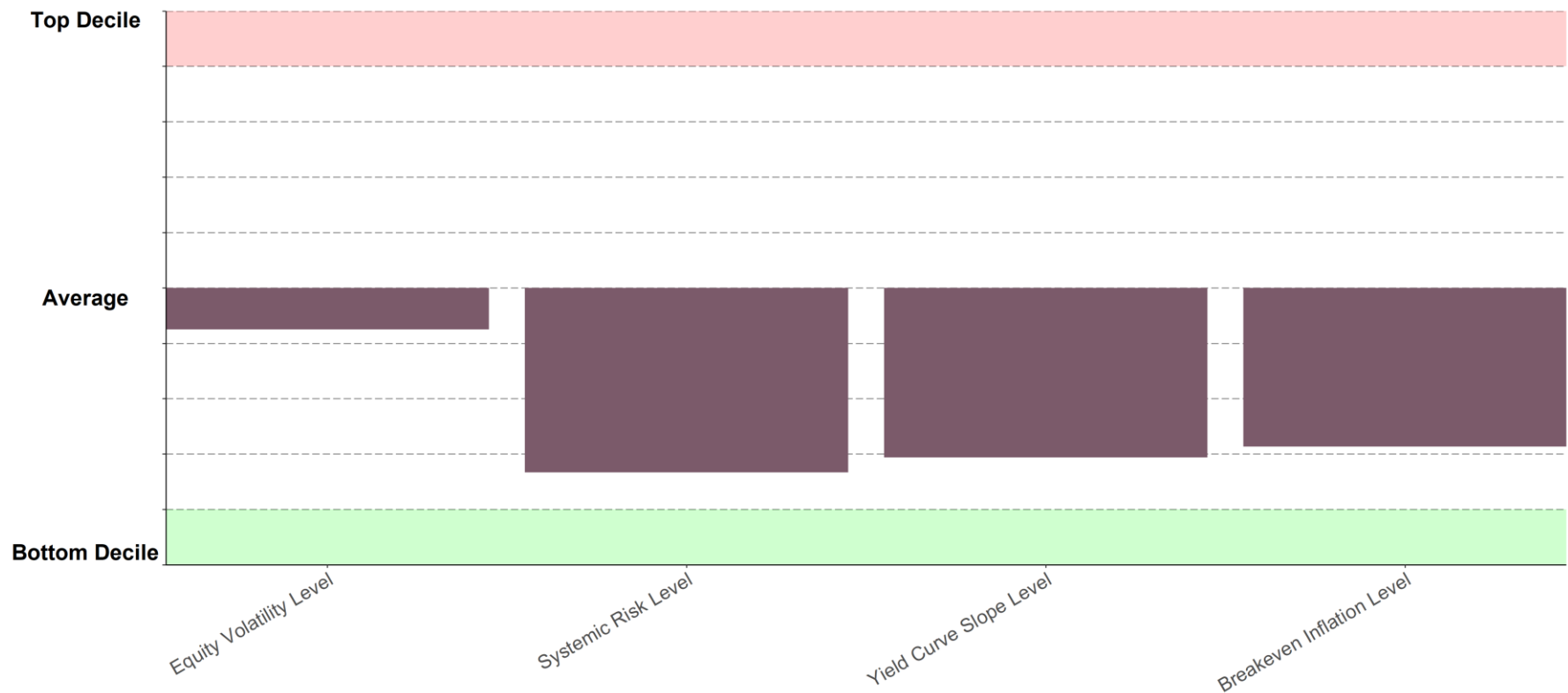


- Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

<sup>1</sup> With the exception of Private Equity Valuation that are available annually and data is as of December 31, 2018.

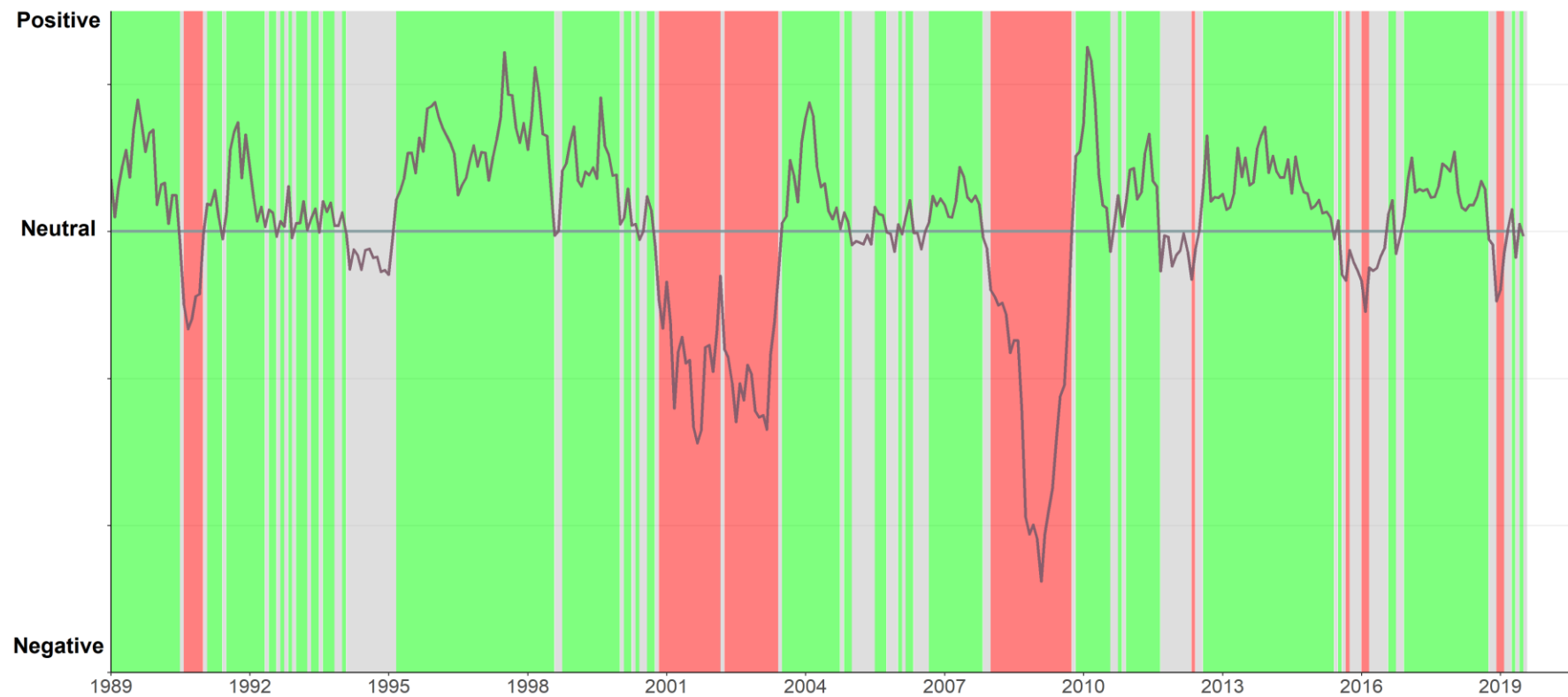


### Risk Overview/Dashboard (2) (As of July 31, 2019)

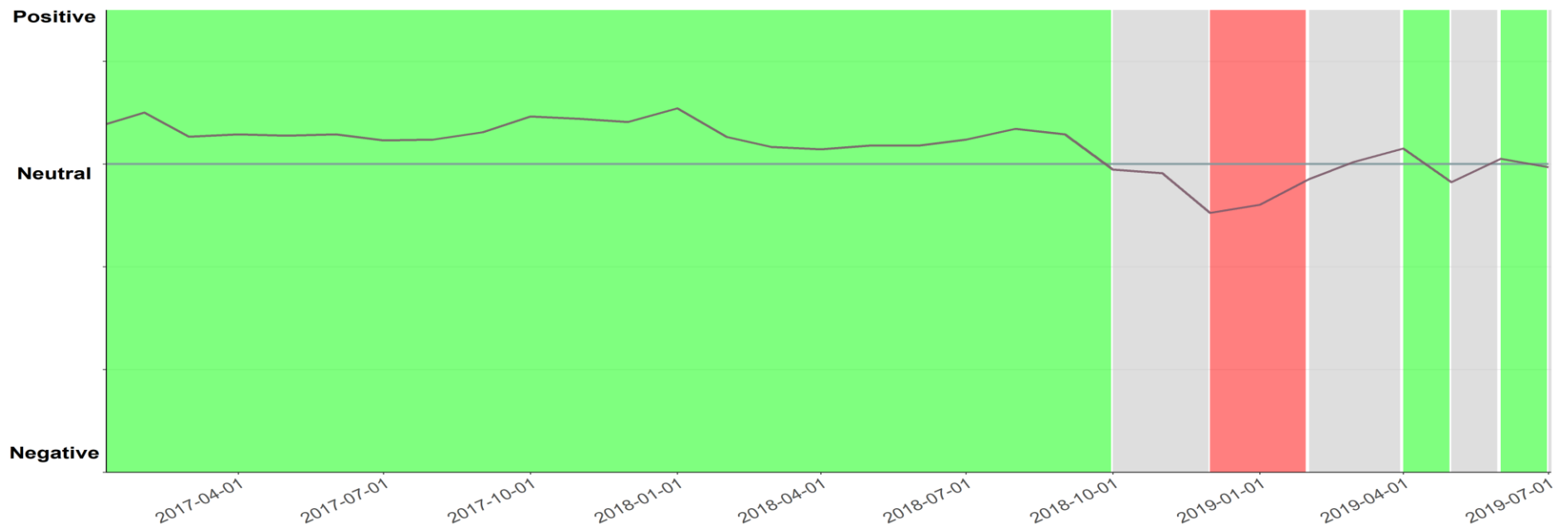


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

## Market Sentiment Indicator (All History) (As of July 31, 2019)



### Market Sentiment Indicator (Last Three Years) (As of July 31, 2019)



## U.S. Equity Cyclically Adjusted P/E<sup>1</sup> (As of July 31, 2019)



- This chart details one valuation metric for U.S. Equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> U.S. Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.

### Small Cap P/E vs. Large Cap P/E<sup>1</sup> (As of July 31, 2019)



- This chart compares the relative attractiveness of Small Cap U.S. Equities vs. Large Cap U.S. Equities on a valuation basis. A higher (lower) figure indicates that Large Cap (Small Cap) is more attractive.

<sup>1</sup> Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

### Growth P/E vs. Value P/E<sup>1</sup> (As of July 31, 2019)



- This chart compares the relative attractiveness of U.S. Growth Equities vs. U.S. Value Equities on a valuation basis. A higher (lower) figure indicates that Value (Growth) is more attractive.

<sup>1</sup> Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

## Developed International Equity Cyclically Adjusted P/E<sup>1</sup> (As of July 31, 2019)



- This chart details one valuation metric for Developed International Equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Developed International Equity (MSCI EAFE ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.

## Emerging Market Equity Cyclically Adjusted P/E<sup>1</sup> (As of July 31, 2019)

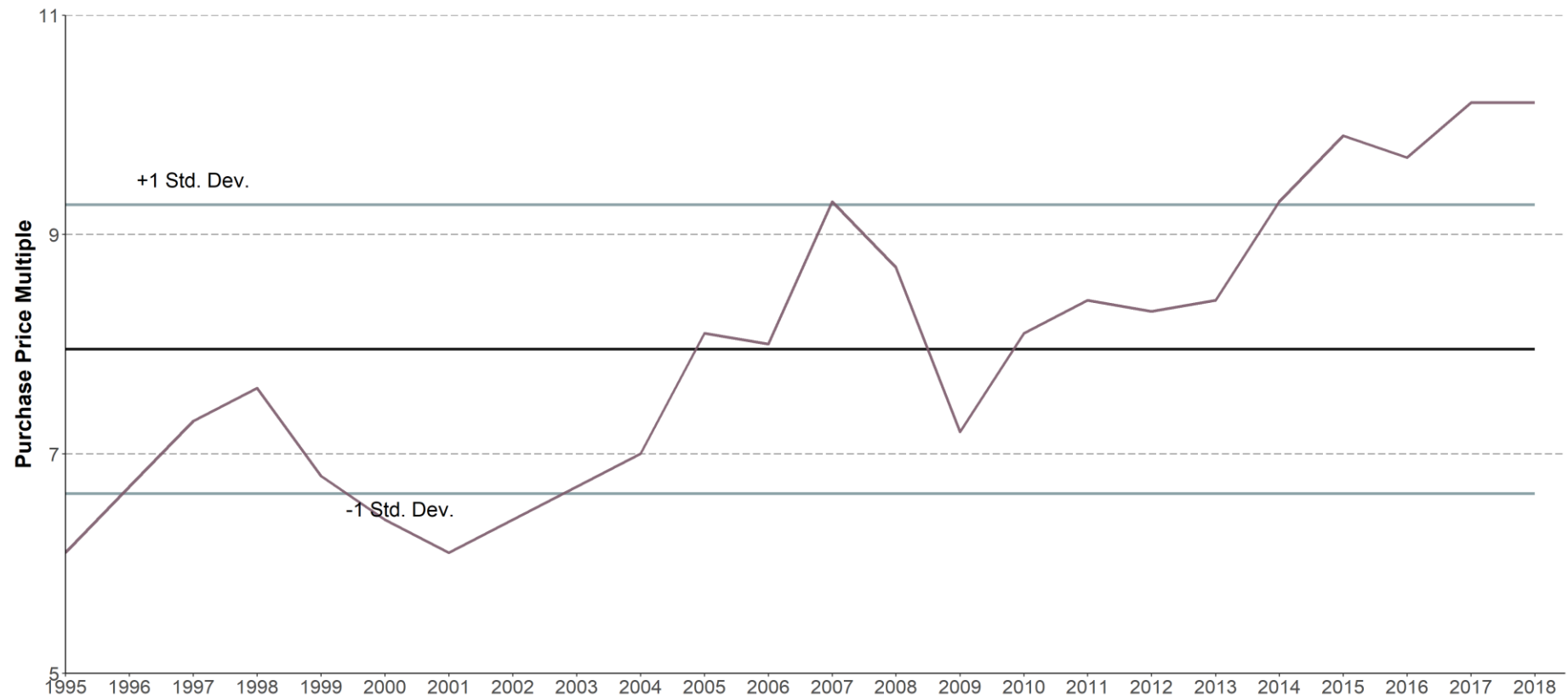


- This chart details one valuation metric for Emerging Markets Equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.



### Private Equity Multiples<sup>1</sup> (As of December 31, 2018)<sup>2</sup>

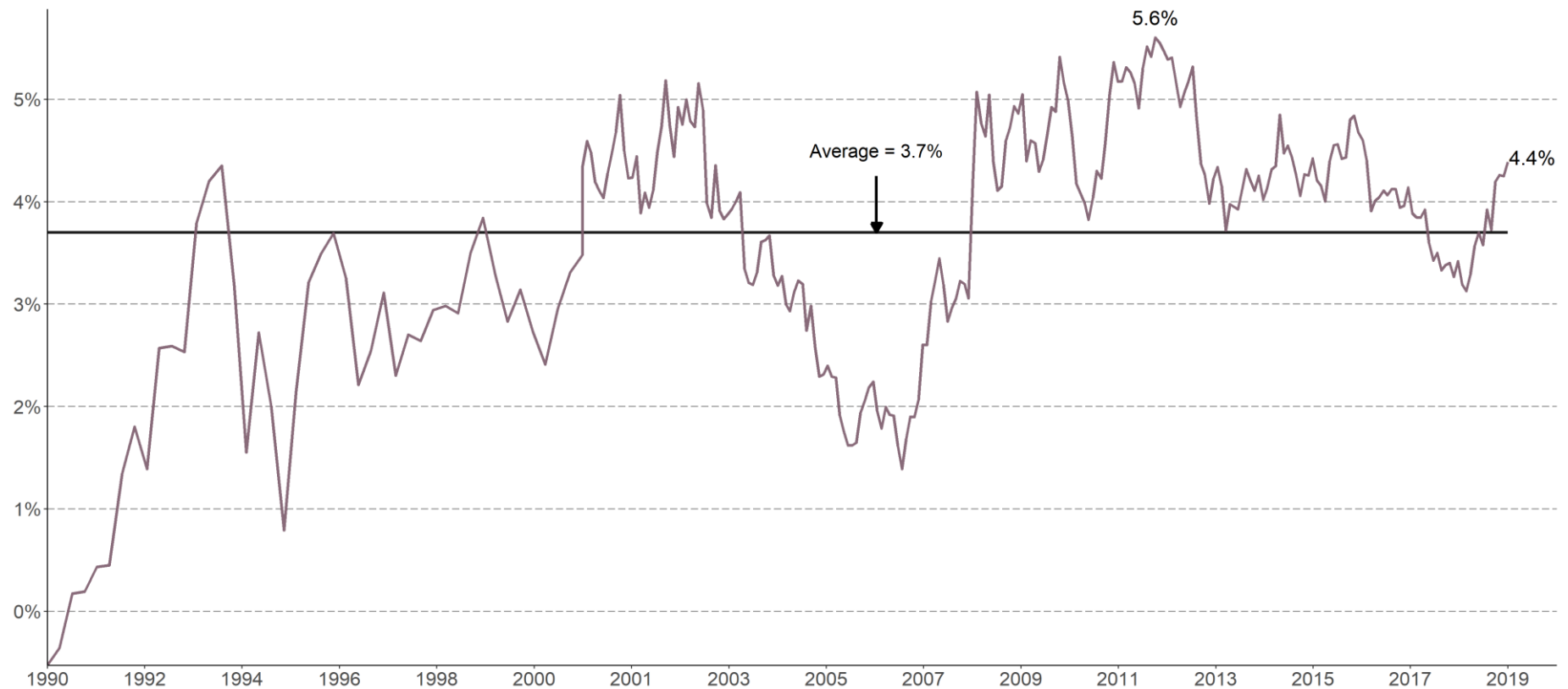


- This chart details one valuation metric for the Private Equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

<sup>2</sup> Only annual figures available.

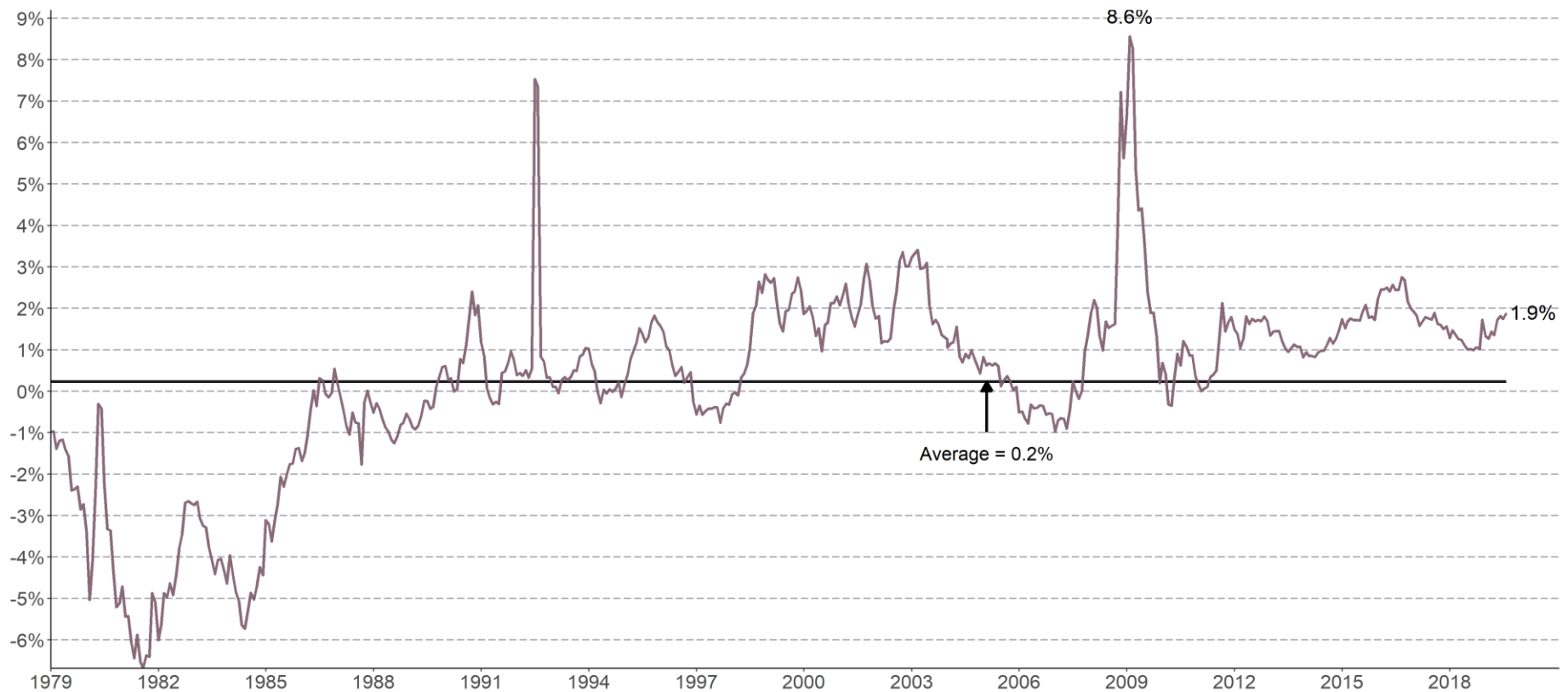
### Core Real Estate Spread vs. Ten-Year Treasury<sup>1</sup> (As of July 31, 2019)



- This chart details one valuation metric for the Private Core Real Estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

<sup>1</sup> Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, U.S. Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.

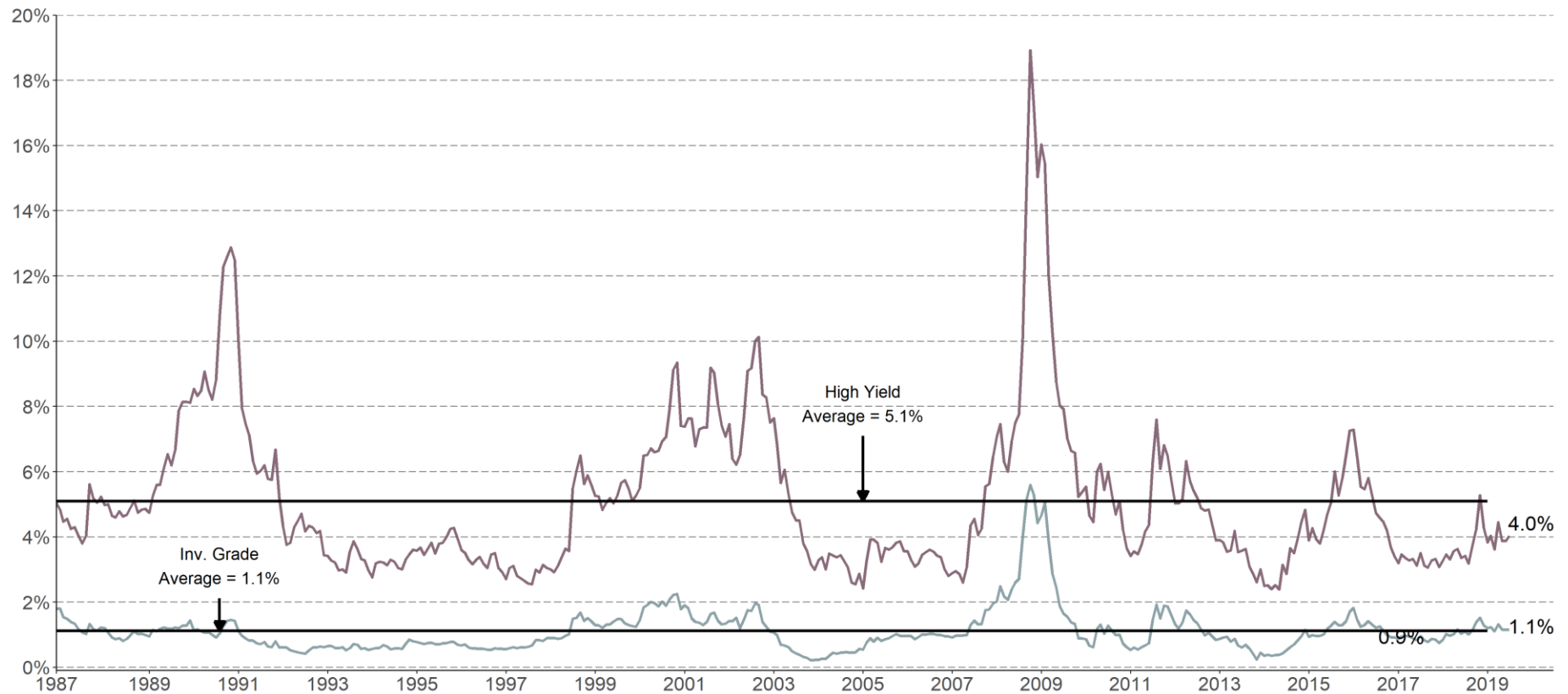
## REITs Dividend Yield Spread vs. Ten-Year Treasury<sup>1</sup> (As of July 31, 2019)



- This chart details one valuation metric for the Public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

<sup>1</sup> REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, U.S. Treasury. REITs are proxied by the yield for the NAREIT Equity index.

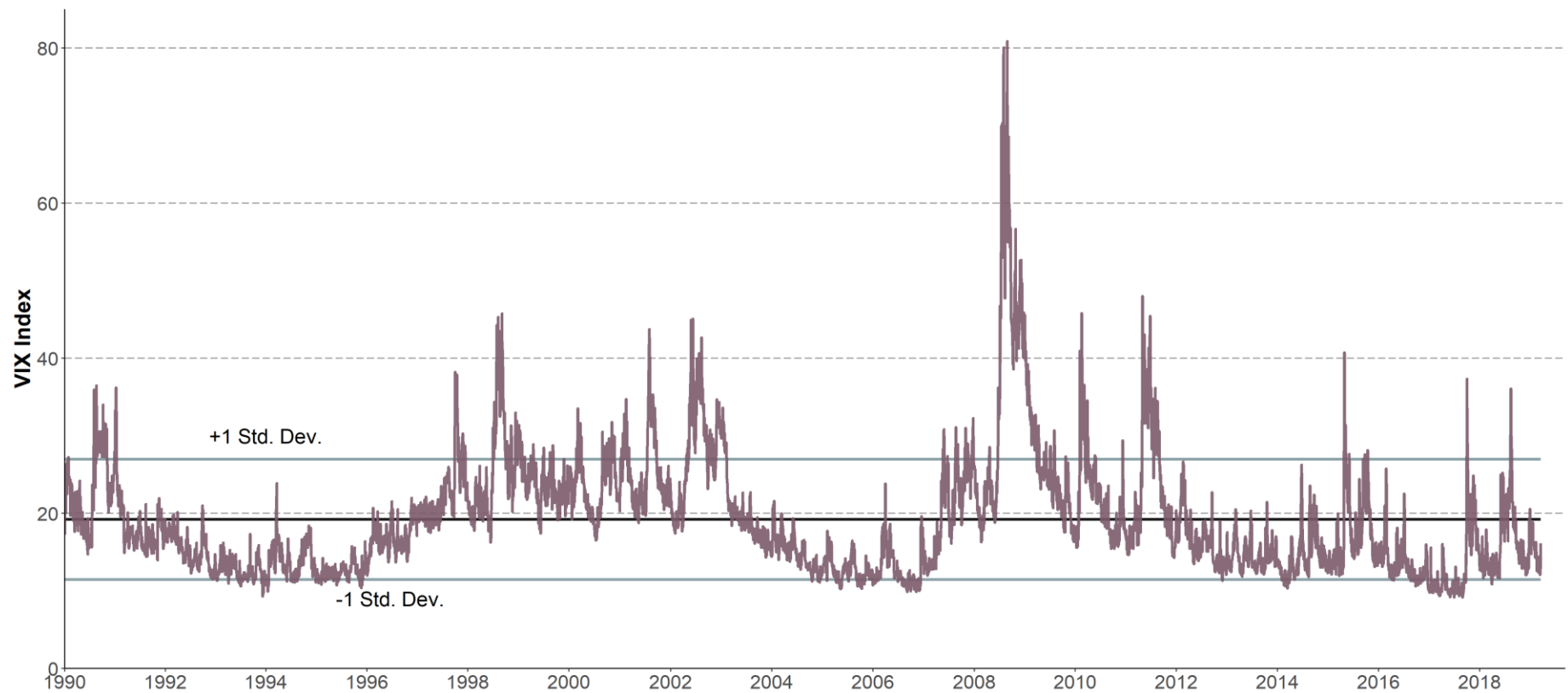
## Credit Spreads<sup>1</sup> (As of July 31, 2019)



- This chart details one valuation metric for the U.S. Credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

<sup>1</sup> Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays U.S. Corporate Investment Grade index.

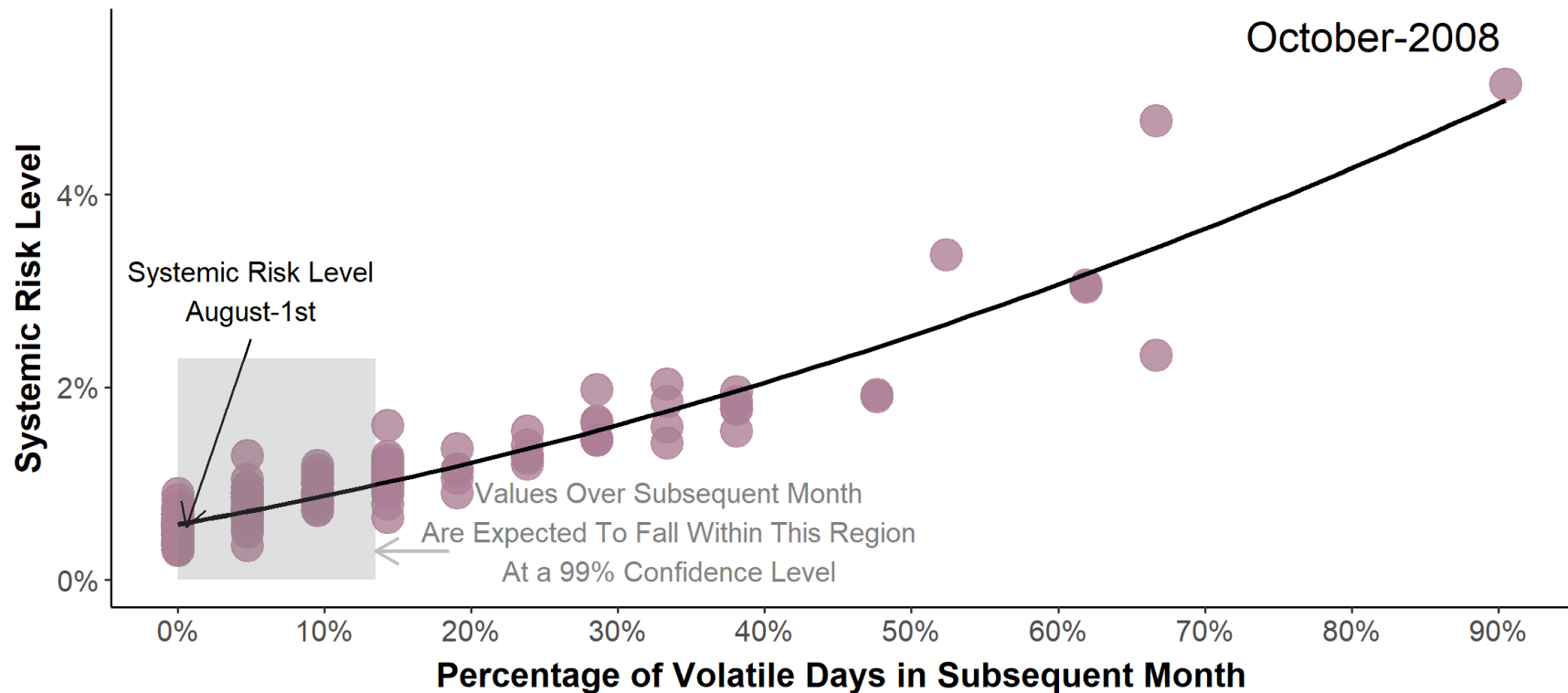
### Equity Volatility<sup>1</sup> (As of July 31, 2019)



- This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

<sup>1</sup> Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for U.S. equity markets.

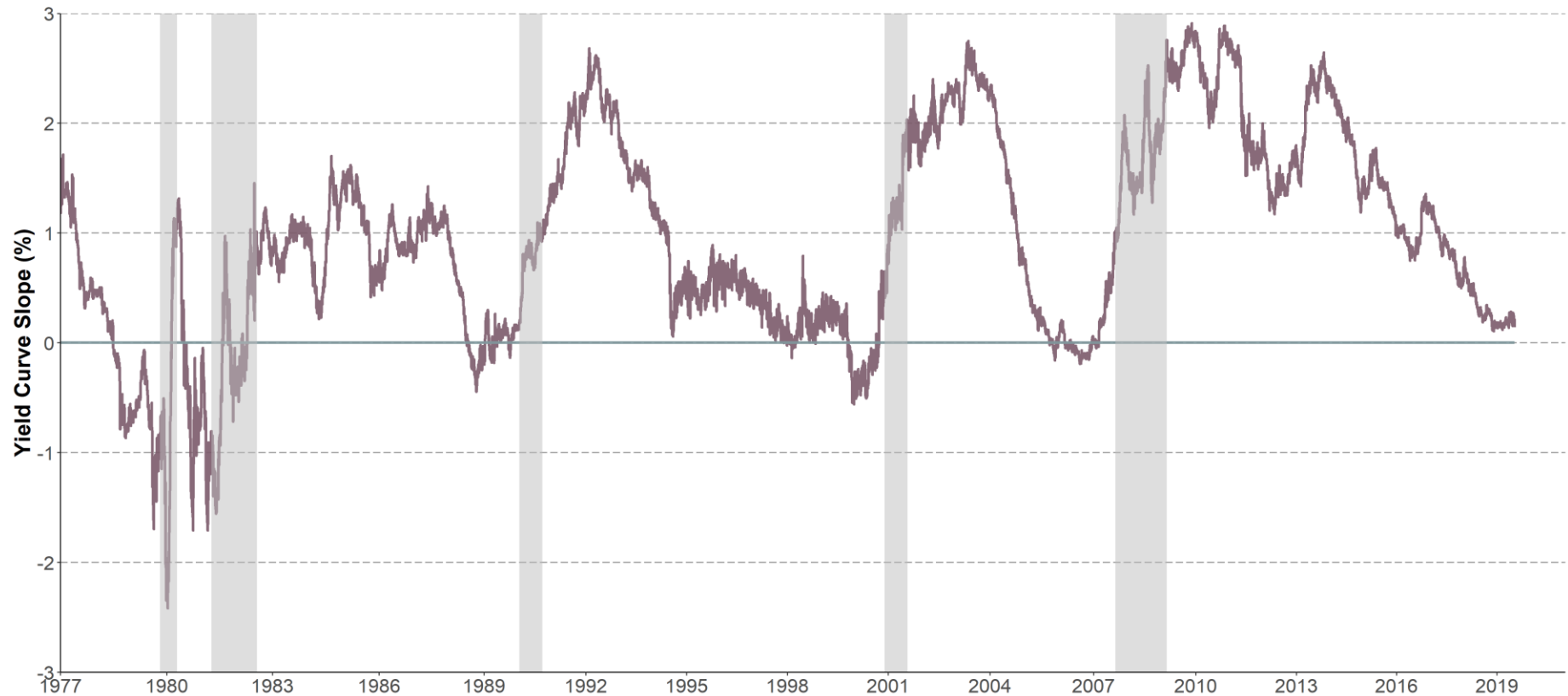
### Systemic Risk and Volatile Market Days<sup>1</sup> (As of August 1, 2019)



- Systemic Risk is a measure of ‘System-wide’ risk, which indicates herding type behavior. This chart shows that starting in August this measure is low and that subsequently we can expect the number of turbulent days in August to be low.

<sup>1</sup> Source: Meketa Investment Group, as of August 1, 2019. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

### Yield Curve Slope (Ten Minus Two)<sup>1</sup> (As of July 31, 2019)



- This chart details the historical difference in yields between ten-year and two-year U.S. Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

<sup>1</sup> Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year U.S. Treasury Yield and 2-Year U.S. Treasury Yield.

### Ten-Year Breakeven Inflation<sup>1</sup> (As of July 31, 2019)

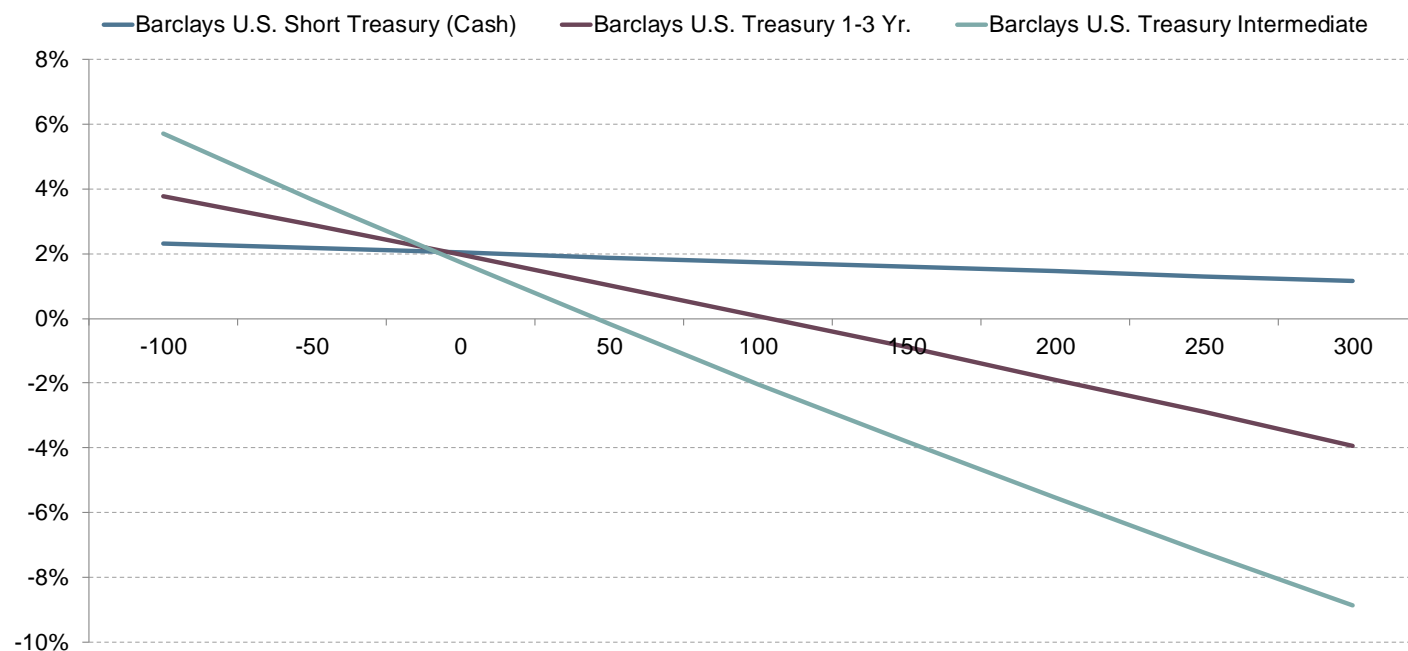


- This chart details the difference between nominal and inflation-adjusted U.S. Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

<sup>1</sup> Ten-Year Breakeven Inflation – Source: U.S. Treasury and Federal Reserve. Data is as of June 30, 2019 for TIPS and Treasuries. Inflation is measured by the Consumer Price Index (CPI-U NSA).



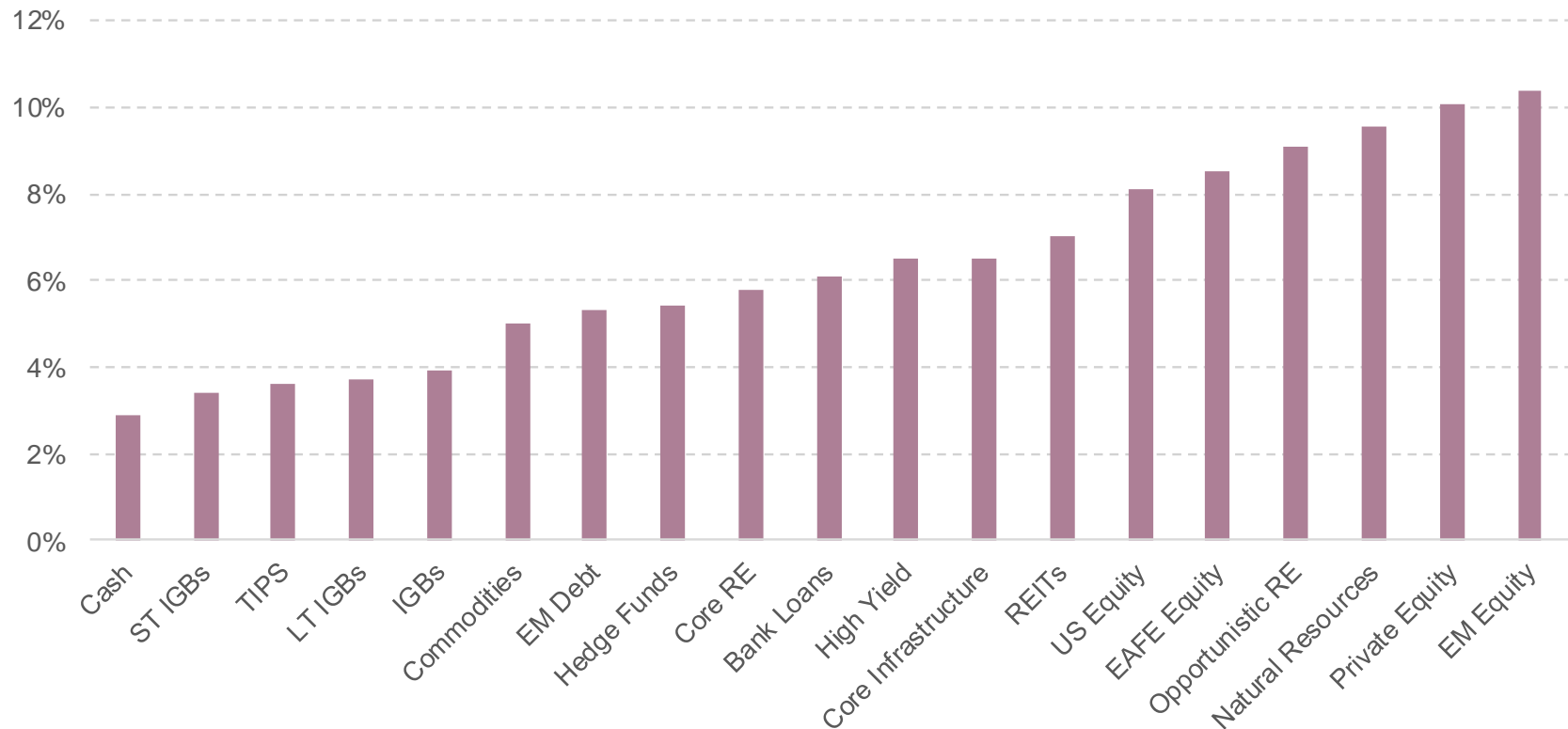
### Total Return Given Changes in Interest Rates (bps)<sup>1</sup> (As of July 31, 2019)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays U.S. Short Treasury (Cash)	2.3%	2.2%	2.0%	1.9%	1.7%	1.6%	1.5%	1.3%	1.2%	0.29	2.03%
Barclays U.S. Treasury 1-3 Yr.	3.8%	2.9%	2.0%	1.0%	0.1%	-0.9%	-1.9%	-2.9%	-3.9%	1.85	1.97%
Barclays U.S. Treasury Intermediate	5.7%	3.7%	1.7%	-0.2%	-2.0%	-3.8%	-5.6%	-7.2%	-8.9%	3.86	1.73%
Barclays U.S. Treasury Long	22.3%	11.8%	2.3%	-6.1%	-13.6%	-20.0%	-25.3%	-29.7%	-32.9%	17.95	2.32%

<sup>1</sup> Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Data is as of July 31, 2019 via Barclays, Bloomberg, and Meketa Investment Group.

### Long-Term Outlook – 20-Year Annualized Expected Returns<sup>1</sup>



- This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

<sup>1</sup> Source: Meketa Investment Group's 2019 Annual Asset Study.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- U.S. Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.
- Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month “as reported” earnings.
- Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month “as reported” earnings.
- Developed International Equity (MSCI EAFE ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.
- Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years
- Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs
- Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, U.S. Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.
- REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, U.S. Treasury. REITs are proxied by the yield for the NAREIT Equity index.
- Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays U.S. Corporate Investment Grade index.

<sup>1</sup> All Data as of July 31, 2019.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for U.S. equity markets.
- Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.
  - Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.
- Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year U.S. Treasury Yield and 2-Year U.S. Treasury Yield.
- Ten-Year Breakeven Inflation – Source: U.S. Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

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<sup>1</sup> All Data as of July 31, 2019.

# **Meketa Market Sentiment Indicator**

## Explanation, Construction and Q&A

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

This appendix explores:

- What is the Meketa Market Sentiment Indicator?
- How do I read the indicator graph?
- How is the Meketa Market Sentiment Indicator constructed?
- What do changes in the indicator mean?

**Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.**

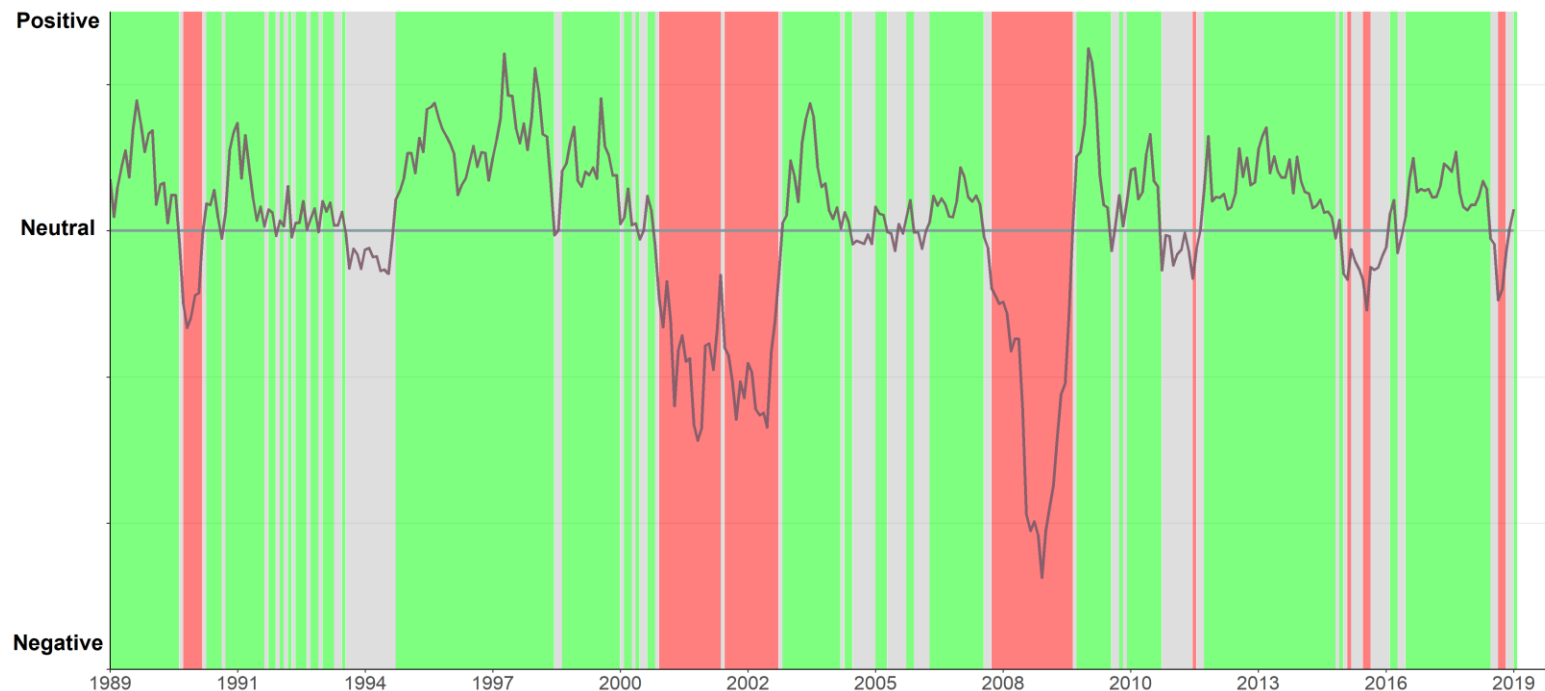
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk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

#### **What is the Meketa Market Sentiment Indicator (MIG-MSI)?**

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

## How do I read the Meketa Market Sentiment Indicator graph?

- Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.
- Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.





## How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
  - Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
  - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
  - Both measures are converted to Z-scores and then combined to get an “apples to apples” comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure.<sup>1</sup> The color reading on the graph is determined as follows:
  - If both stock return momentum and bond spread momentum are positive = GREEN (positive)
  - If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
  - If both stock return momentum and bond spread momentum are negative = RED (negative)

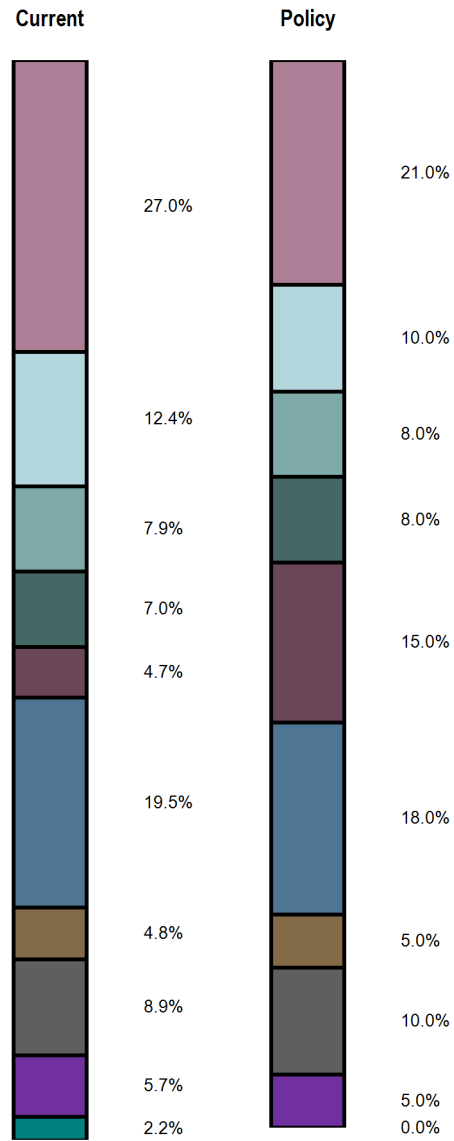
<sup>1</sup> Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.  
“Time Series Momentum” Moskowitz, Ooi, Pedersen, August 2010. <http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

**What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?**

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

## **Quarterly Review As of June 30, 2019**

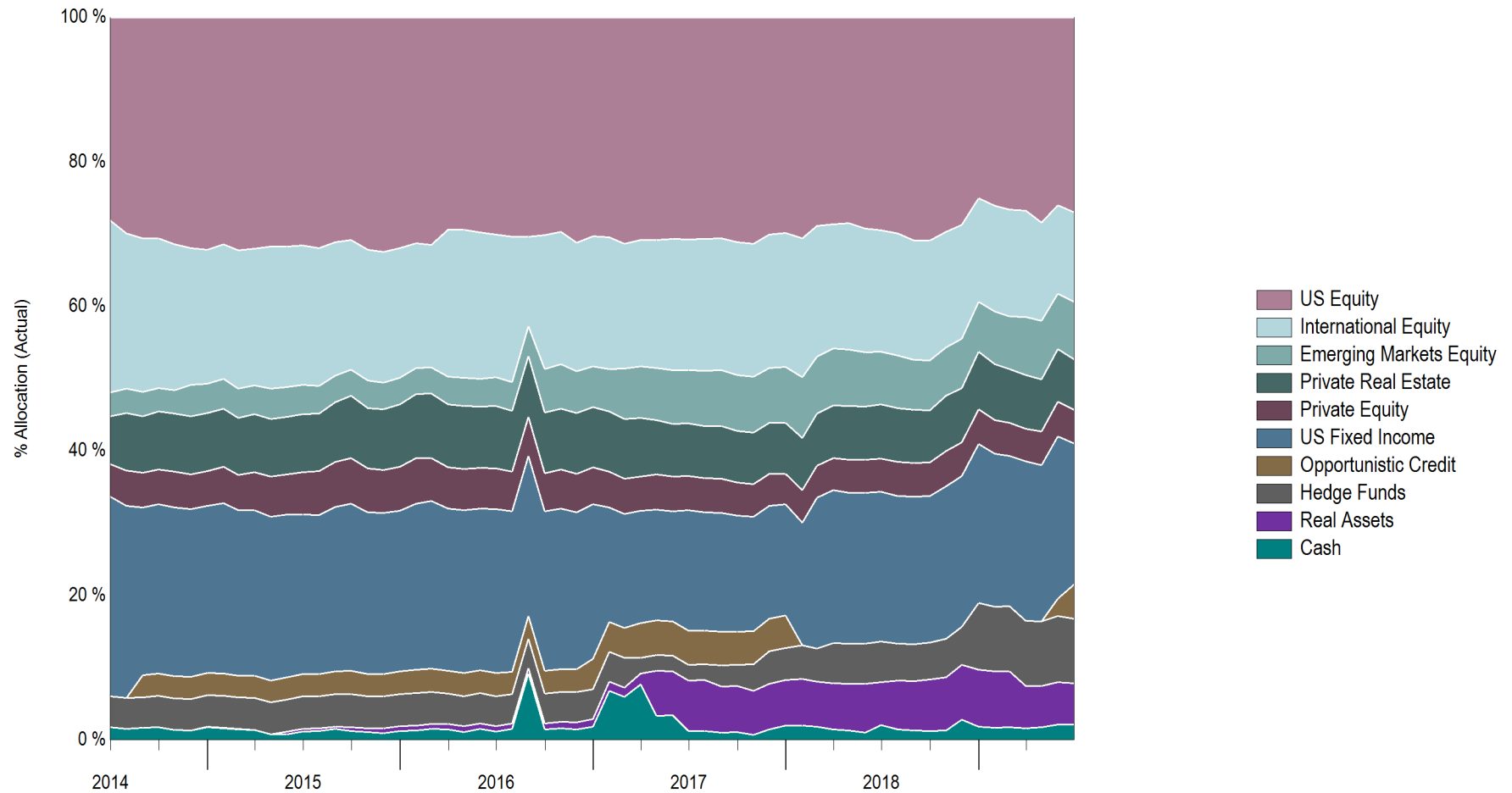
As of June 30, 2019



## Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
US Equity	\$232,624,452	27.0%	21.0%	6.0%	15.0% - 26.0%	No
International Equity	\$107,110,987	12.4%	10.0%	2.4%	5.0% - 15.0%	Yes
Emerging Markets Equity	\$68,361,487	7.9%	8.0%	-0.1%	4.0% - 12.0%	Yes
Private Real Estate	\$60,064,007	7.0%	8.0%	-1.0%	6.0% - 10.0%	Yes
Private Equity	\$40,517,030	4.7%	15.0%	-10.3%	5.0% - 20.0%	No
US Fixed Income	\$167,981,969	19.5%	18.0%	1.5%	13.0% - 23.0%	Yes
Opportunistic Credit	\$41,230,710	4.8%	5.0%	-0.2%	3.0% - 7.0%	Yes
Hedge Funds	\$76,689,639	8.9%	10.0%	-1.1%	5.0% - 15.0%	Yes
Real Assets	\$49,211,420	5.7%	5.0%	0.7%	3.0% - 7.0%	Yes
Cash	\$18,674,884	2.2%	0.0%	2.2%	0.0% - 5.0%	Yes
<b>Total</b>	<b>\$862,466,585</b>	<b>100.0%</b>	<b>100.0%</b>			

Asset Allocation History  
5 Years Ending June 30, 2019



As of June 30, 2019

## Asset Class Performance Summary

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund (Net)*</b>	<b>862,466,585</b>	<b>100.0</b>	<b>3.1</b>	<b>11.0</b>	<b>5.2</b>	<b>8.9</b>	<b>5.9</b>	<b>9.2</b>	<b>8.0</b>	<b>Dec-94</b>
<b>Total Fund (Gross)*</b>			<b>3.2</b>	<b>11.1</b>	<b>5.4</b>	<b>9.2</b>	<b>6.2</b>	<b>9.5</b>	<b>8.1</b>	
<i>Policy Index</i>			<i>2.4</i>	<i>10.0</i>	<i>4.7</i>	<i>9.1</i>	<i>6.2</i>	<i>9.7</i>	<i>6.0</i>	<i>Dec-94</i>
<b>Total Fund w/o Alternatives (Net)</b>	<b>617,309,605</b>	<b>71.6</b>	<b>3.6</b>	<b>13.7</b>	<b>5.4</b>	<b>9.5</b>	<b>5.9</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<b>Total Fund w/o Alternatives (Gross)</b>			<b>3.7</b>	<b>13.9</b>	<b>5.7</b>	<b>9.8</b>	<b>6.2</b>	<b>--</b>	<b>--</b>	
<i>Policy Index w/o AI</i>			<i>3.2</i>	<i>12.8</i>	<i>5.8</i>	<i>9.4</i>	<i>5.7</i>	<i>--</i>	<i>--</i>	<i>Dec-94</i>
<b>US Equity (Net)</b>	<b>232,624,452</b>	<b>27.0</b>	<b>4.6</b>	<b>19.8</b>	<b>8.2</b>	<b>14.4</b>	<b>11.0</b>	<b>14.9</b>	<b>10.0</b>	<b>Dec-94</b>
<b>US Equity (Gross)</b>			<b>4.7</b>	<b>20.0</b>	<b>8.4</b>	<b>14.6</b>	<b>11.2</b>	<b>15.1</b>	<b>10.1</b>	
<i>80% R1000 / 20% R2000</i>			<i>3.8</i>	<i>18.5</i>	<i>7.3</i>	<i>13.8</i>	<i>9.8</i>	<i>14.5</i>	<i>9.9</i>	<i>Dec-94</i>
<b>International Equity (Net)</b>	<b>175,472,474</b>	<b>20.3</b>	<b>2.8</b>	<b>14.6</b>	<b>0.6</b>	<b>9.3</b>	<b>2.0</b>	<b>7.2</b>	<b>5.2</b>	<b>Dec-98</b>
<b>International Equity (Gross)</b>			<b>2.9</b>	<b>14.8</b>	<b>1.0</b>	<b>9.7</b>	<b>2.5</b>	<b>7.7</b>	<b>5.4</b>	
<i>International Equity Custom</i>			<i>2.5</i>	<i>12.9</i>	<i>1.2</i>	<i>10.1</i>	<i>2.7</i>	<i>6.9</i>	<i>4.3</i>	<i>Dec-98</i>
<b>Developed International Equity (Net)</b>	<b>107,110,987</b>	<b>12.4</b>	<b>3.7</b>	<b>14.4</b>	<b>-0.3</b>	<b>9.0</b>	<b>1.8</b>	<b>7.5</b>	<b>3.2</b>	<b>Jan-08</b>
<b>Developed International Equity (Gross)</b>			<b>3.7</b>	<b>14.4</b>	<b>-0.1</b>	<b>9.2</b>	<b>2.2</b>	<b>8.0</b>	<b>3.7</b>	
<i>MSCI EAFE</i>			<i>3.7</i>	<i>14.0</i>	<i>1.1</i>	<i>9.1</i>	<i>2.2</i>	<i>6.9</i>	<i>2.4</i>	<i>Jan-08</i>
<b>Emerging Markets Equity (Net)</b>	<b>68,361,487</b>	<b>7.9</b>	<b>1.4</b>	<b>15.4</b>	<b>2.8</b>	<b>10.6</b>	<b>3.6</b>	<b>--</b>	<b>3.5</b>	<b>Apr-12</b>
<b>Emerging Markets Equity (Gross)</b>			<b>1.7</b>	<b>15.9</b>	<b>3.8</b>	<b>11.7</b>	<b>4.6</b>	<b>--</b>	<b>4.4</b>	
<i>MSCI Emerging Markets</i>			<i>0.6</i>	<i>10.6</i>	<i>1.2</i>	<i>10.7</i>	<i>2.5</i>	<i>5.8</i>	<i>2.9</i>	<i>Apr-12</i>
<b>US Fixed Income (Net)</b>	<b>167,981,969</b>	<b>19.5</b>	<b>2.6</b>	<b>5.2</b>	<b>6.8</b>	<b>3.2</b>	<b>3.1</b>	<b>4.6</b>	<b>5.3</b>	<b>Dec-94</b>
<b>US Fixed Income (Gross)</b>			<b>2.6</b>	<b>5.3</b>	<b>7.0</b>	<b>3.4</b>	<b>3.2</b>	<b>5.0</b>	<b>5.5</b>	
<i>US Fixed Custom</i>			<i>2.8</i>	<i>5.4</i>	<i>7.2</i>	<i>3.3</i>	<i>3.2</i>	<i>4.1</i>	<i>5.7</i>	<i>Dec-94</i>
<b>Opportunistic Credit (Net)</b>	<b>41,230,710</b>	<b>4.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.5</b>	<b>May-19</b>
<b>Opportunistic Credit (Gross)</b>			<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.5</b>	
<i>50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans</i>			<i>2.6</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>1.8</i>	<i>May-19</i>

Data prior to March 2018 provided by prior consultant.



As of June 30, 2019

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Estate (Net)</b>	<b>60,064,007</b>	<b>7.0</b>	<b>0.1</b>	<b>2.5</b>	<b>5.9</b>	<b>6.8</b>	<b>7.3</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Private Real Estate (Gross)</b>			<b>0.1</b>	<b>2.5</b>	<b>5.9</b>	<b>6.9</b>	<b>8.0</b>	<b>9.3</b>	<b>8.6</b>	
<i>NCREIF ODCE (net)</i>			<i>0.8</i>	<i>2.0</i>	<i>5.5</i>	<i>6.6</i>	<i>8.8</i>	<i>8.9</i>	<i>7.4</i>	<i>Mar-99</i>
<b>Private Equity (Net)</b>	<b>40,517,030</b>	<b>4.7</b>	<b>3.1</b>	<b>3.8</b>	<b>9.5</b>	<b>12.4</b>	<b>9.9</b>	<b>9.8</b>	<b>8.1</b>	<b>Jun-05</b>
<b>Private Equity (Gross)</b>			<b>3.1</b>	<b>3.8</b>	<b>9.5</b>	<b>12.4</b>	<b>9.9</b>	<b>10.0</b>	<b>8.3</b>	
<i>Thomson Reuters Cambridge Private Equity Index</i>			<i>0.0</i>	<i>5.6</i>	<i>9.2</i>	<i>16.0</i>	<i>13.1</i>	<i>--</i>	<i>--</i>	<i>Jun-05</i>
<b>Hedge Fund (Net)</b>	<b>76,689,639</b>	<b>8.9</b>	<b>2.3</b>	<b>6.1</b>	<b>1.8</b>	<b>7.3</b>	<b>4.0</b>	<b>--</b>	<b>4.0</b>	<b>Jun-14</b>
<b>Hedge Fund (Gross)</b>			<b>2.4</b>	<b>6.3</b>	<b>2.0</b>	<b>7.5</b>	<b>4.1</b>	<b>--</b>	<b>4.1</b>	
<i>Hedge Fund Custom</i>			<i>1.5</i>	<i>6.1</i>	<i>1.1</i>	<i>4.4</i>	<i>2.8</i>	<i>--</i>	<i>2.8</i>	<i>Jun-14</i>
<b>Real Assets (Net)</b>	<b>49,211,420</b>	<b>5.7</b>	<b>4.0</b>	<b>8.8</b>	<b>9.5</b>	<b>7.6</b>	<b>7.7</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Real Assets (Gross)</b>			<b>4.0</b>	<b>8.9</b>	<b>9.6</b>	<b>7.8</b>	<b>8.4</b>	<b>--</b>	<b>--</b>	
<i>Real Asset Custom</i>			<i>3.4</i>	<i>17.1</i>	<i>13.5</i>	<i>11.1</i>	<i>8.2</i>	<i>--</i>	<i>--</i>	<i>Mar-99</i>
<b>Private Infrastructure (Net)</b>	<b>21,200,777</b>	<b>2.5</b>	<b>5.9</b>	<b>6.2</b>	<b>10.6</b>	<b>11.0</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	<b>Dec-14</b>
<b>Private Infrastructure (Gross)</b>			<b>5.9</b>	<b>6.2</b>	<b>10.6</b>	<b>11.0</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	
<i>S&amp;P Global Infrastructure Net TR USD</i>			<i>4.9</i>	<i>19.5</i>	<i>11.0</i>	<i>7.8</i>	<i>3.9</i>	<i>--</i>	<i>5.0</i>	<i>Dec-14</i>
<b>Private Natural Resources (Net)</b>	<b>11,227,932</b>	<b>1.3</b>	<b>4.7</b>	<b>6.0</b>	<b>12.9</b>	<b>16.5</b>	<b>--</b>	<b>--</b>	<b>17.5</b>	<b>Sep-15</b>
<b>Private Natural Resources (Gross)</b>			<b>4.7</b>	<b>6.0</b>	<b>12.9</b>	<b>16.5</b>	<b>--</b>	<b>--</b>	<b>17.5</b>	
<i>S&amp;P Global Natural Resources Index TR USD</i>			<i>1.3</i>	<i>13.8</i>	<i>-4.0</i>	<i>11.4</i>	<i>0.7</i>	<i>3.5</i>	<i>13.8</i>	<i>Sep-15</i>
<b>Cash (Net)</b>	<b>18,674,884</b>	<b>2.2</b>	<b>0.3</b>	<b>0.6</b>	<b>1.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>Cash (Gross)</b>			<b>0.3</b>	<b>0.6</b>	<b>1.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

Real Assets includes State Street Real Asset NL Fund



As of June 30, 2019

## Trailing Net Performance

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund*</b>	<b>862,466,585</b>	<b>100.0</b>	<b>--</b>	<b>3.1</b>	<b>11.0</b>	<b>5.2</b>	<b>8.9</b>	<b>5.9</b>	<b>9.2</b>	<b>8.0</b>	<b>Dec-94</b>
Policy Index				2.4	10.0	4.7	9.1	6.2	9.7	6.0	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Median				3.1	11.8	5.7	8.8	5.7	9.1	7.6	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Rank				47	76	70	48	40	43	37	Dec-94
<b>Total Fund w/o Alternatives</b>	<b>617,309,605</b>	<b>71.6</b>	<b>71.6</b>	<b>3.6</b>	<b>13.7</b>	<b>5.4</b>	<b>9.5</b>	<b>5.9</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
Policy Index w/o AI				3.2	12.8	5.8	9.4	5.7	--	--	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Median				3.1	11.8	5.7	8.8	5.7	9.1	7.6	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Rank				11	11	62	21	40	--	--	Dec-94
<b>US Equity</b>	<b>232,624,452</b>	<b>27.0</b>	<b>37.7</b>	<b>4.6</b>	<b>19.8</b>	<b>8.2</b>	<b>14.4</b>	<b>11.0</b>	<b>14.9</b>	<b>10.0</b>	<b>Dec-94</b>
80% R1000 / 20% R2000				3.8	18.5	7.3	13.8	9.8	14.5	9.9	Dec-94
InvMetrics All DB US Eq Net Median				4.1	18.7	7.9	13.7	9.5	14.1	9.7	Dec-94
InvMetrics All DB US Eq Net Rank				22	18	46	20	4	9	30	Dec-94
Mellon Dynamic US Equity	91,534,687	10.6	39.3	5.8	22.6	12.2	16.0	13.2	--	17.3	Dec-12
S&P 500				4.3	18.5	10.4	14.2	10.7	14.7	14.1	Dec-12
eV US Large Cap Core Equity Net Median				4.1	17.3	8.3	12.9	9.3	13.9	13.2	Dec-12
eV US Large Cap Core Equity Net Rank				13	6	23	7	2	--	1	Dec-12
Mellon Large Cap	105,071,828	12.2	45.2	4.3	18.9	10.1	14.2	--	--	13.9	Mar-16
Russell 1000				4.2	18.8	10.0	14.1	10.5	14.8	13.9	Mar-16
eV US Large Cap Core Equity Net Median				4.1	17.3	8.3	12.9	9.3	13.9	12.5	Mar-16
eV US Large Cap Core Equity Net Rank				44	32	39	25	--	--	23	Mar-16
DFA Small Cap	17,900,894	2.1	7.7	2.1	14.4	-4.8	10.6	6.9	--	6.9	Jun-14
Russell 2000				2.1	17.0	-3.3	12.3	7.1	13.4	7.1	Jun-14
eV US Small Cap Core Equity Net Median				2.5	16.6	-3.2	11.4	7.1	13.4	7.1	Jun-14
eV US Small Cap Core Equity Net Rank				58	65	62	65	58	--	58	Jun-14

Historical returns for the US Equity Composite prior to January 2012 and for the International Equity Composite prior to December 2010 are gross only.





As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
PanAgora	18,117,043	2.1	7.8	2.4	17.1	-6.2	11.4	7.2	--	8.9	Sep-13
Russell 2000				2.1	17.0	-3.3	12.3	7.1	13.4	8.3	Sep-13
eV US Small Cap Core Equity Net Median				2.5	16.6	-3.2	11.4	7.1	13.4	8.6	Sep-13
eV US Small Cap Core Equity Net Rank				53	47	76	50	49	--	43	Sep-13
<b>International Equity</b>	<b>175,472,474</b>	<b>20.3</b>	<b>28.4</b>	<b>2.8</b>	<b>14.6</b>	<b>0.6</b>	<b>9.3</b>	<b>2.0</b>	<b>7.2</b>	<b>5.2</b>	<b>Dec-98</b>
International Equity Custom				2.5	12.9	1.2	10.1	2.7	6.9	4.3	Dec-98
InvMetrics All DB ex-US Eq Net Median				2.9	13.8	0.2	9.1	2.4	7.0	5.1	Dec-98
InvMetrics All DB ex-US Eq Net Rank				57	34	41	43	67	43	42	Dec-98
<b>Developed International Equity</b>	<b>107,110,987</b>	<b>12.4</b>	<b>61.0</b>	<b>3.7</b>	<b>14.4</b>	<b>-0.3</b>	<b>9.0</b>	<b>1.8</b>	<b>7.5</b>	<b>3.2</b>	<b>Jan-08</b>
MSCI EAFE				3.7	14.0	1.1	9.1	2.2	6.9	2.4	Jan-08
Mellon International	86,579,295	10.0	80.8	3.9	14.4	1.5	9.5	--	--	8.4	Mar-16
MSCI EAFE				3.7	14.0	1.1	9.1	2.2	6.9	7.9	Mar-16
eV All EAFE Equity Net Median				2.8	13.1	-1.8	8.7	3.1	8.1	7.3	Mar-16
eV All EAFE Equity Net Rank				30	36	29	32	--	--	29	Mar-16
Acadian ACWI ex U.S. Small Cap Equity	10,144,239	1.2	9.5	--	--	--	--	--	--	-0.1	May-19
MSCI ACWI ex US Small Cap				1.2	11.6	-5.9	7.8	2.8	8.5	-1.0	May-19
eV ACWI ex-US Small Cap Equity Net Median				3.2	14.7	-5.6	9.7	4.8	11.0	0.3	May-19
eV ACWI ex-US Small Cap Equity Net Rank				--	--	--	--	--	--	56	May-19
Driehaus International Small Cap Growth	10,387,453	1.2	9.7	--	--	--	--	--	--	2.3	May-19
MSCI ACWI ex US Small Cap Growth NR USD				1.8	13.6	-6.4	7.6	3.5	8.8	-0.9	May-19
eV ACWI ex-US Small Cap Equity Net Median				3.2	14.7	-5.6	9.7	4.8	11.0	0.3	May-19
eV ACWI ex-US Small Cap Equity Net Rank				--	--	--	--	--	--	7	May-19

Developed International Equity and Emerging Markets Equity composites were only reported as one composite prior to March 2018.

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets Equity</b>	<b>68,361,487</b>	<b>7.9</b>	<b>39.0</b>	<b>1.4</b>	<b>15.4</b>	<b>2.8</b>	<b>10.6</b>	<b>3.6</b>	<b>--</b>	<b>3.5</b>	<b>Apr-12</b>
MSCI Emerging Markets				0.6	10.6	1.2	10.7	2.5	5.8	2.9	Apr-12
Wells Capital	68,361,487	7.9	100.0	1.4	15.4	2.8	10.6	3.6	--	3.2	Mar-12
MSCI Emerging Markets				0.6	10.6	1.2	10.7	2.5	5.8	2.7	Mar-12
eV Emg Mkts Equity Net Median				1.4	12.0	0.9	9.9	2.5	6.7	3.4	Mar-12
eV Emg Mkts Equity Net Rank				49	17	32	40	26	--	56	Mar-12
<b>US Fixed Income</b>	<b>167,981,969</b>	<b>19.5</b>	<b>27.2</b>	<b>2.6</b>	<b>5.2</b>	<b>6.8</b>	<b>3.2</b>	<b>3.1</b>	<b>4.6</b>	<b>5.3</b>	<b>Dec-94</b>
US Fixed Custom				2.8	5.4	7.2	3.3	3.2	4.1	5.7	Dec-94
InvMetrics All DB US Fix Inc Net Median				2.8	6.1	7.2	3.1	3.1	4.9	5.9	Dec-94
InvMetrics All DB US Fix Inc Net Rank				66	72	63	47	52	62	86	Dec-94
Barrow Hanley	60,275,334	7.0	35.9	3.0	6.2	7.9	2.3	3.0	--	3.6	Mar-10
BBgBarc US Aggregate TR				3.1	6.1	7.9	2.3	2.9	3.9	3.6	Mar-10
eV US Core Fixed Inc Net Median				3.1	6.4	7.9	2.5	3.0	4.3	3.8	Mar-10
eV US Core Fixed Inc Net Rank				64	65	51	67	56	--	67	Mar-10
Vanguard Short-Term Treasury Index Fund	48,261,982	5.6	28.7	1.4	2.4	3.9	--	--	--	3.2	Feb-18
BBgBarc US Govt 1-3 Yr TR				1.5	2.5	4.0	1.3	1.2	1.2	3.3	Feb-18
BBgBarc US Govt 1-5 Yr TR				1.8	3.1	4.9	1.3	1.5	1.7	4.0	Feb-18
eV US Short Duration Fixed Inc Net Median				1.5	2.9	4.3	1.8	1.7	2.1	3.6	Feb-18
eV US Short Duration Fixed Inc Net Rank				63	87	73	--	--	--	77	Feb-18

Historical returns for the US Fixed Income Composite prior to December 2010 and for Barrow Hanley prior to June 2010 are gross only.



As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Vanguard Total Bond Market Index Fund	59,444,652	6.9	35.4	--	--	--	--	--	--	3.0	May-19
BBgBarc US Aggregate TR				3.1	6.1	7.9	2.3	2.9	3.9	3.1	May-19
eV US Core Fixed Inc Net Median				3.1	6.4	7.9	2.5	3.0	4.3	3.0	May-19
eV US Core Fixed Inc Net Rank				--	--	--	--	--	--	47	May-19
<b>Opportunistic Credit</b>	<b>41,230,710</b>	<b>4.8</b>	<b>6.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.5</b>	<b>May-19</b>
50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans				2.6	--	--	--	--	--	1.8	May-19
PIMCO Income Fund	20,730,710	2.4	50.3	--	--	--	--	--	--	1.5	Apr-19
BBgBarc US Aggregate TR				3.1	6.1	7.9	2.3	2.9	3.9	3.1	Apr-19
GoldenTree Multi-Sector Credit	20,500,000	2.4	49.7	--	--	--	--	--	--	0.0	Jun-19
50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans				2.6	--	--	--	--	--	1.3	Jun-19
<b>Private Real Estate</b>	<b>60,064,007</b>	<b>7.0</b>	<b>7.0</b>	<b>0.1</b>	<b>2.5</b>	<b>5.9</b>	<b>6.8</b>	<b>7.3</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
NCREIF ODCE (net)				0.8	2.0	5.5	6.6	8.8	8.9	7.4	Mar-99
InvMetrics All DB Real Estate Pub+Priv Net Median				1.2	2.7	6.1	6.8	8.8	8.7	8.5	Mar-99
InvMetrics All DB Real Estate Pub+Priv Net Rank				83	60	62	49	86	--	--	Mar-99
Greenfield Gap VII	9,160,956	1.1	15.3	0.3	4.3	9.7	12.3	--	--	12.5	Dec-14
Patron Capital V	5,513,926	0.6	9.2	-3.3	2.1	3.0	15.8	--	--	13.8	Jan-16

Private Real Estate results prior to 1/1/2019 were included in the Real Assets composite. All results for the Private Real Estate composite that include the period prior to 1/1/2019 will reflect only the latest lineup of managers that Meketa received information for, therefore it may not reflect the entire Private Real Estate composite at that given time.

All private markets performance and market values reflect a 3/31/2019 capital account balance unless otherwise noted.

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
UBS Trumbull Property	42,792,873	5.0	71.2	0.5	2.2	5.5	4.8	7.0	7.6	7.2	Mar-99
Carlyle Realty VIII	408,626	0.0	0.7	-1.4	-7.7	-29.7	--	--	--	-35.9	Dec-17
Taconic CRE Dislocation Fund II	1,702,011	0.2	2.8	0.6	-0.1	--	--	--	--	-0.1	Nov-18
Carmel Partners Investment Fund VII	110,615	0.0	0.2	-20.4	--	--	--	--	--	-20.4	Apr-19
AG Realty Value Fund X, L.P.	375,000	0.0	0.6	--	--	--	--	--	--	0.0	Jun-19
<b>Private Equity</b>	<b>40,517,030</b>	<b>4.7</b>	<b>4.7</b>	<b>3.1</b>	<b>3.8</b>	<b>9.5</b>	<b>12.4</b>	<b>9.9</b>	<b>9.8</b>	<b>8.1</b>	<b>Jun-05</b>
Thomson Reuters Cambridge Private Equity Index				0.0	5.6	9.2	16.0	13.1	--	--	Jun-05
InvMetrics All DB Private Eq Net Median				2.4	3.3	9.4	11.4	10.1	10.5	10.1	Jun-05
InvMetrics All DB Private Eq Net Rank				43	39	50	43	53	69	65	Jun-05
Adams Street	7,767,832	0.9	19.2	6.2	4.6	13.8	14.4	12.5	12.7	7.2	Sep-05
Invesco IV	474,703	0.1	1.2	0.0	0.0	-19.1	6.2	6.5	9.3	8.1	Jun-05
Invesco VI	6,331,897	0.7	15.6	2.7	2.7	8.1	13.0	21.0	--	11.8	Jun-13
Ocean Avenue II	9,960,647	1.2	24.6	2.4	10.5	16.5	22.7	12.3	--	12.3	Jun-14
Pantheon I	959,057	0.1	2.4	2.1	-1.0	4.0	7.2	4.7	7.0	3.6	Dec-05
Pantheon II	3,968,967	0.5	9.8	4.5	5.4	16.0	15.3	12.2	--	12.0	Dec-11
Pantheon Secondary	1,061,777	0.1	2.6	5.5	1.0	19.5	7.5	3.8	3.2	4.1	Jun-07
Raven Asset Fund II	3,399,247	0.4	8.4	1.3	4.2	8.3	0.8	--	--	-0.9	Aug-14

Historical returns for Invesco IV prior to April 2012 are gross only.

Adams Street includes Adams Street 2005, Adams Street 2007, and Adams Street 2011.

Pantheon I includes Pantheon US Fund VI and Pantheon Europe Fund IV.

Pantheon II Includes Pantheon US Fund IX, Pantheon Asia Fund VI, and Pantheon Europe Fund VII.

Pantheon Secondary includes Pantheon GLO SEC III B.

The market values for Invesco IV and AG Realty Value Fund X reflect a 12/31/2018 capital account balance.



As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Davidson Kempner Long-Term Distressed Opportunities Fund IV	3,373,913	0.4	8.3	1.0	3.8	16.2	--	--	--	13.4	Apr-18
GTCR Fund XII	917,737	0.1	2.3	6.8	-27.8	-27.8	--	--	--	-26.0	Jun-18
Carrick Capital Partners III	1,029,352	0.1	2.5	-3.3	-10.0	--	--	--	--	-14.3	Aug-18
Cressey & Company Fund VI	1,021,901	0.1	2.5	-5.0	-15.6	--	--	--	--	-15.6	Jan-19
TCV X	250,000	0.0	0.6	0.0	--	--	--	--	--	0.0	Apr-19
<b>Hedge Fund</b>	<b>76,689,639</b>	<b>8.9</b>	<b>8.9</b>	<b>2.3</b>	<b>6.1</b>	<b>1.8</b>	<b>7.3</b>	<b>4.0</b>	<b>--</b>	<b>4.0</b>	<b>Jun-14</b>
<i>Hedge Fund Custom</i>				1.5	6.1	1.1	4.4	2.8	--	2.8	Jun-14
<i>InvMetrics All DB Hedge Funds Net Median</i>				1.6	5.4	1.4	4.9	2.4	4.8	2.4	Jun-14
<i>InvMetrics All DB Hedge Funds Net Rank</i>				20	39	49	15	21	--	21	Jun-14
OZ Domestic II	10,546,778	1.2	13.8	4.0	13.6	6.3	10.0	6.3	--	6.3	Jun-14
Graham Absolute Return	7,551,218	0.9	9.8	4.4	7.8	3.2	--	--	--	4.1	Aug-17
Wellington-Archipelago	11,936,605	1.4	15.6	1.8	10.6	3.3	--	--	--	5.0	Aug-17
KLS Diversified	9,221,327	1.1	12.0	1.1	1.6	-1.5	--	--	--	2.0	Oct-17
Winton	6,064,513	0.7	7.9	-0.3	0.0	-1.8	--	--	--	1.2	Oct-17
Marshall Wace Eureka	3,235,014	0.4	4.2	1.4	5.9	0.0	--	--	--	3.8	Nov-17
Silver Point Capital	12,385,155	1.4	16.1	2.0	4.2	-0.7	--	--	--	2.3	Nov-17
Laurion Capital	5,413,951	0.6	7.1	4.3	5.9	--	--	--	--	9.3	Aug-18
Taconic Opportunity Fund	10,335,080	1.2	13.5	1.8	3.7	--	--	--	--	--	Dec-18

As of June 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Real Assets</b>	<b>49,211,420</b>	<b>5.7</b>	<b>5.7</b>	<b>4.0</b>	<b>8.8</b>	<b>9.5</b>	<b>7.6</b>	<b>7.7</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
Real Asset Custom				3.4	17.1	13.5	11.1	8.2	--	--	Mar-99
SSgA	16,782,711	1.9	34.1	1.3	10.3	1.7	--	--	--	4.4	Apr-17
Real Asset NL Custom Blended Index				1.5	10.6	2.1	--	--	--	4.7	Apr-17
<b>Private Infrastructure</b>	<b>21,200,777</b>	<b>2.5</b>	<b>43.1</b>	<b>5.9</b>	<b>6.2</b>	<b>10.6</b>	<b>11.0</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	<b>Dec-14</b>
S&P Global Infrastructure Net TR USD				4.9	19.5	11.0	7.8	3.9	--	5.0	Dec-14
KKR Global II	10,882,403	1.3	51.3	4.7	5.0	11.2	10.9	--	--	10.5	Dec-14
North Haven Infrastructure II	8,396,630	1.0	39.6	7.8	7.8	12.7	12.1	--	--	7.6	May-15
ISQ Global Infrastructure Fund II	1,344,818	0.2	6.3	4.8	10.8	-24.5	--	--	--	-24.5	Jul-18
KKR Global Infrastructure Investors III	576,926	0.1	2.7	-5.0	-15.4	--	--	--	--	-15.4	Jan-19
<b>Private Natural Resources</b>	<b>11,227,932</b>	<b>1.3</b>	<b>22.8</b>	<b>4.7</b>	<b>6.0</b>	<b>12.9</b>	<b>16.5</b>	<b>--</b>	<b>--</b>	<b>17.5</b>	<b>Sep-15</b>
S&P Global Natural Resources Index TR USD				1.3	13.8	-4.0	11.4	0.7	3.5	13.8	Sep-15
EnCap XI	778,503	0.1	6.9	-0.7	-5.2	-14.6	--	--	--	-31.5	Jul-17
EnCap IV	962,256	0.1	8.6	14.4	15.0	4.0	--	--	--	-3.4	Feb-18
GSO Energy Opportunities	4,402,657	0.5	39.2	4.4	2.5	7.7	17.2	--	--	16.9	Nov-15
Taurus Mining	2,842,006	0.3	25.3	4.1	9.2	19.8	15.1	--	--	18.0	Sep-15
Taurus Mining Annex	2,242,510	0.3	20.0	3.8	11.4	28.4	--	--	--	29.7	Jan-17
<b>Cash</b>	<b>18,674,884</b>	<b>2.2</b>	<b>2.2</b>	<b>0.3</b>	<b>0.6</b>	<b>1.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
Cash	13,019,255	1.5	69.7	0.5	0.9	1.7	1.2	0.9	--	--	Sep-03
Treasury Cash	5,655,629	0.7	30.3								

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

As of June 30, 2019

## Benchmark History

As of June 30, 2019

Total Fund		
7/1/2019	Present	21% US Equity Custom / 18% International Equity Custom / 18% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net) / 5% 50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans
1/1/2019	6/30/2019	21% US Equity Custom / 18% International Equity Custom / 23% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net)
1/1/2017	12/31/2018	27% US Equity Custom / 23% International Equity Custom / 22% US Fixed Custom / 5% Hedge Fund Custom / 9% Thomson Reuters Cambridge Private Equity Index / 14% Real Asset Custom
US Equity		
12/31/1994	Present	80% Russell 1000 / 20% Russell 2000
International Equity		
1/1/2019	Present	56% MSCI EAFE Gross / 44% MSCI Emerging Markets Gross
1/1/2017	12/31/2018	69.56% MSCI EAFE Gross / 30.44% MSCI Emerging Markets Gross
7/1/2013	12/31/2016	MSCI ACWI ex USA Gross
US Fixed Income		
3/1/2018	Present	77.27% BBgBarc US Aggregate TR / 22.73% BBgBarc US Govt 1-5 Yr TR
1/1/2017	2/28/2018	77.27% BBgBarc US Aggregate TR / 22.73% Credit Suisse Leveraged Loans
8/1/2014	12/31/2016	71.93% BBgBarc US Aggregate TR / 17.54% ICE BofAML US High Yield TR / 10.53% Credit Suisse Leveraged Loans
Hedge Fund		
7/1/2017	Present	100% HFRI Fund of Funds Composite Index
1/1/2015	6/30/2017	50% HFRI Fund of Funds Composite Index / 50% HFRI RV: Multi-Strategy Index
Real Assets		
1/1/2019	Present	50% S&P Global Natural Resources Index TR USD / 50% S&P Global Infrastructure TR USD
6/1/2013	12/31/2018	57.14% NCREIF ODCE (net) / 21.43% S&P Global Natural Resources Index TR USD / 21.43% S&P Global Infrastructure TR USD

Total Fund

As of June 30, 2019

Benchmark History  
As of June 30, 2019

SSgA		
4/30/2017	Present	25% Bloomberg Roll Select Commodities Index TR USD / 25% S&P Global LargeMidCap Commodity and Resources NR USD / 10% S&P Global Infrastructure TR USD / 15% DJ US Select REIT TR USD / 25% BBgBarc US TIPS TR



As of June 30, 2019

**Statistics Summary**  
**5 Years Ending June 30, 2019**

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	5.92%	6.82%	-0.23	1.05	0.74	1.14%
Policy Index	6.17%	6.43%	--	1.00	0.82	0.00%
InvMetrics Public DB \$250mm-\$1B Net Median	5.71%	7.08%	-0.18	0.99	0.70	1.06%

As of June 30, 2019

## Annual Investment Expense Analysis

As Of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
<b>Total Fund w/o Alternatives</b>		<b>\$617,309,605</b>		
<b>US Equity</b>		<b>\$232,624,452</b>		
Mellon Dynamic US Equity	0.30% of Assets	\$91,534,687	0.30%	\$274,604
Mellon Large Cap	0.04% of First 100.0 Mil, 0.02% Thereafter	\$105,071,828	0.04%	\$41,014
DFA Small Cap	0.35% of Assets	\$17,900,894	0.35%	\$62,653
PanAgora	0.80% of Assets	\$18,117,043	0.80%	\$144,936
<b>International Equity</b>		<b>\$175,472,474</b>		
<b>Developed International Equity</b>		<b>\$107,110,987</b>		
Mellon International	0.04% of Assets	\$86,579,295	0.04%	\$34,632
Acadian ACWI ex U.S. Small Cap Equity	0.99% of Assets	\$10,144,239	0.99%	\$100,428
Driehaus International Small Cap Growth	0.90% of Assets	\$10,387,453	0.90%	\$93,487
<b>Emerging Markets Equity</b>		<b>\$68,361,487</b>		
Wells Capital	0.90% of First 100.0 Mil, 0.85% Thereafter	\$68,361,487	0.90%	\$615,253
<b>US Fixed Income</b>		<b>\$167,981,969</b>		
Barrow Hanley	0.30% of First 50.0 Mil, 0.20% of Next 100.0 Mil, 0.15% Thereafter	\$60,275,334	0.28%	\$170,551
Vanguard Short-Term Treasury Index Fund	0.05% of Assets	\$48,261,982	0.05%	\$24,131
Vanguard Total Bond Market Index Fund	0.04% of Assets	\$59,444,652	0.04%	\$20,806
<b>Opportunistic Credit</b>		<b>\$41,230,710</b>		
PIMCO Income Fund	0.50% of Assets	\$20,730,710	0.50%	\$103,654
GoldenTree Multi-Sector Credit	0.75% of Assets	\$20,500,000	0.75%	\$153,750
<b>Private Real Estate</b>		<b>\$60,064,007</b>		
Greenfield Gap VII		\$9,160,956		
Patron Capital V		\$5,513,926		
UBS Trumbull Property		\$42,792,873		
Carlyle Realty VIII		\$408,626		

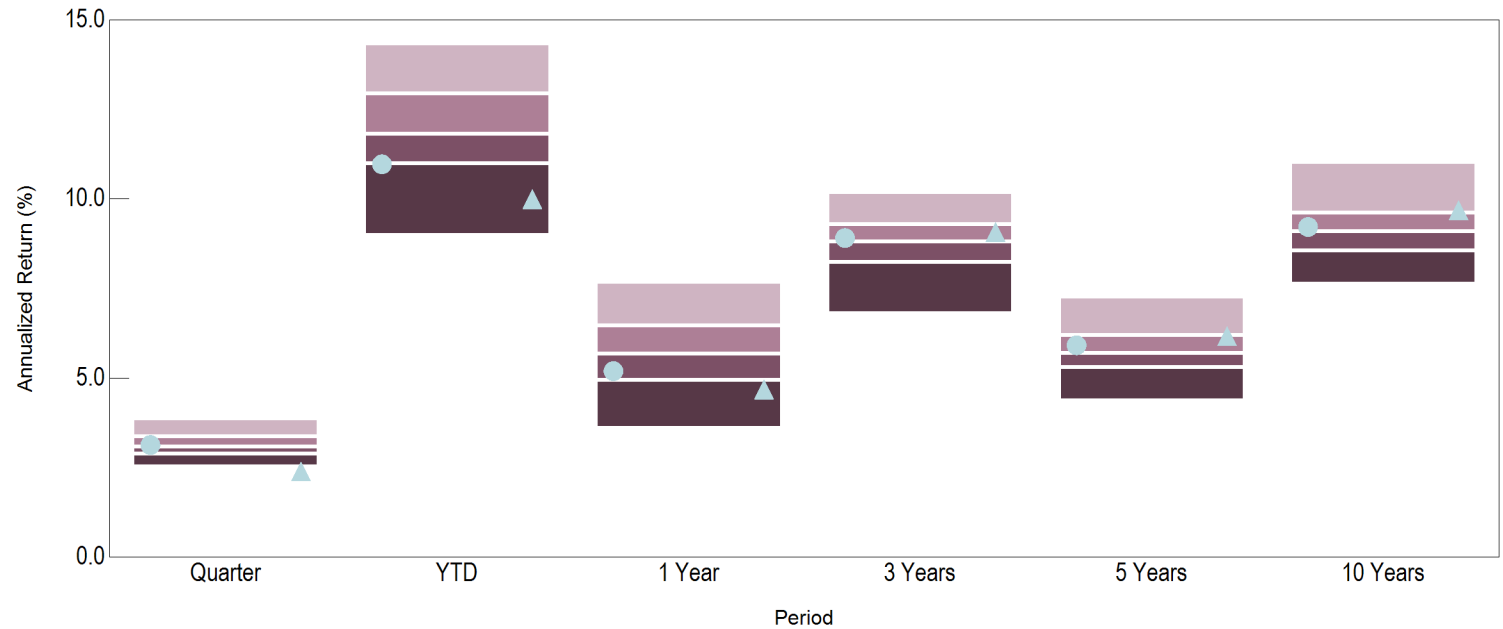
As of June 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
Taconic CRE Dislocation Fund II		\$1,702,011		
Carmel Partners Investment Fund VII		\$110,615		
AG Realty Value Fund X, L.P.		\$375,000		
Invesco IV		\$474,703		
Invesco VI		\$6,331,897		
Ocean Avenue II		\$9,960,647		
Pantheon I		\$959,057		
Pantheon II		\$3,968,967		
Pantheon Secondary		\$1,061,777		
Raven Asset Fund II		\$3,399,247		
Davidson Kempner Long-Term Distressed Opportunities Fund IV		\$3,373,913		
GTCR Fund XII		\$917,737		
Carrick Capital Partners III		\$1,029,352		
Cressey & Company Fund VI		\$1,021,901		
TCV X		\$250,000		
<b>Hedge Fund</b>		<b>\$76,689,639</b>		
OZ Domestic II	Performance-based 1.50 and 20.00	\$10,546,778	1.97%	\$207,727
Graham Absolute Return	Performance-based 1.75 and 20.00	\$7,551,218	2.12%	\$160,274
Wellington-Archipelago	Performance-based 1.00 and 20.00	\$11,936,605	1.49%	\$177,758
KLS Diversified	Performance-based 2.00 and 20.00	\$9,221,327	2.13%	\$196,126
Winton	Performance-based 0.90 and 20.00	\$6,064,513	0.90%	\$54,581
Marshall Wace Eureka	Performance-based 2.00 and 20.00	\$3,235,014	2.21%	\$71,405
Silver Point Capital	Performance-based 2.00 and 20.00	\$12,385,155	2.04%	\$253,120
Laurion Capital		\$5,413,951		
Taconic Opportunity Fund		\$10,335,080		
<b>Real Assets</b>		<b>\$49,211,420</b>		
SSgA	0.30% of First 50.0 Mil, 0.27% of Next 50.0 Mil, 0.25% Thereafter	\$16,782,711	0.30%	\$50,348

As of June 30, 2019

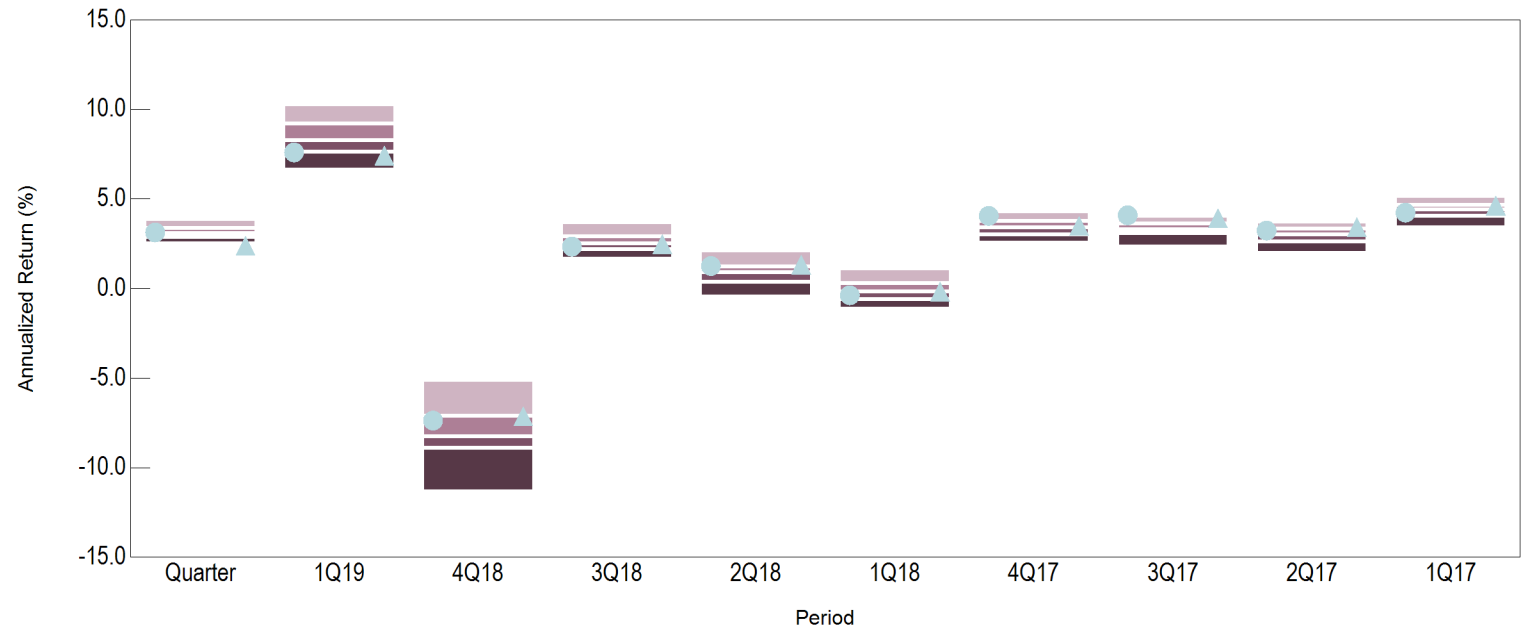
Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
<b>Private Infrastructure</b>		<b>\$21,200,777</b>		
KKR Global II		\$10,882,403		
North Haven Infrastructure II		\$8,396,630		
ISQ Global Infrastructure Fund II		\$1,344,818		
KKR Global Infrastructure Investors III		\$576,926		
<b>Private Natural Resources</b>		<b>\$11,227,932</b>		
EnCap XI		\$778,503		
EnCap IV		\$962,256		
GSO Energy Opportunities		\$4,402,657		
Taurus Mining		\$2,842,006		
Taurus Mining Annex		\$2,242,510		
<b>Cash</b>		<b>\$18,674,884</b>		
Cash		\$13,019,255		
Treasury Cash		\$5,655,629		

InvMetrics Public DB \$250mm-\$1B Net Return Comparison  
Ending June 30, 2019



	Return (Rank)											
5th Percentile	3.9		14.3		7.7		10.2		7.3		11.0	
25th Percentile	3.4		13.0		6.5		9.3		6.2		9.6	
Median	3.1		11.8		5.7		8.8		5.7		9.1	
75th Percentile	2.9		11.0		5.0		8.2		5.3		8.6	
95th Percentile	2.5		9.0		3.6		6.8		4.4		7.6	
# of Portfolios	74		74		74		72		65		53	
● Total Fund	3.1	(47)	11.0	(76)	5.2	(70)	8.9	(48)	5.9	(40)	9.2	(43)
▲ Policy Index	2.4	(98)	10.0	(89)	4.7	(80)	9.1	(42)	6.2	(27)	9.7	(24)

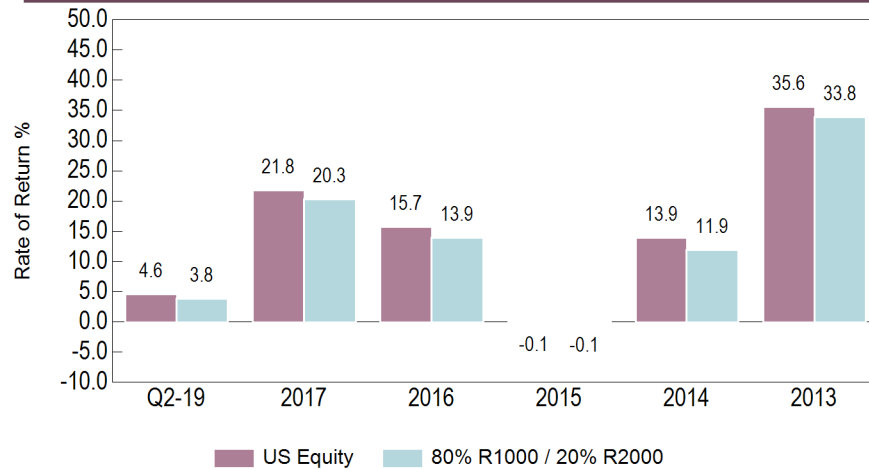
InvMetrics Public DB \$250mm-\$1B Net Return Comparison  
Ending June 30, 2019



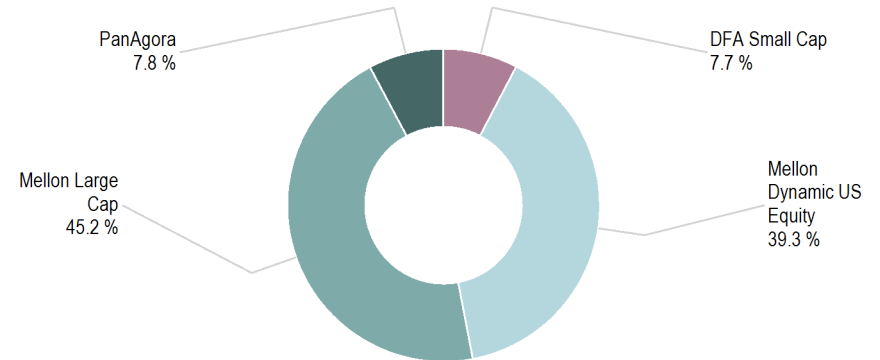
	Return (Rank)									
5th Percentile	3.9	10.3	-5.1	3.7	2.1	1.1	4.3	4.1	3.7	5.1
25th Percentile	3.4	9.2	-7.1	2.9	1.3	0.3	3.8	3.6	3.4	4.7
Median	3.1	8.3	-8.2	2.5	0.9	-0.1	3.4	3.3	3.0	4.4
75th Percentile	2.9	7.6	-8.9	2.2	0.4	-0.6	3.1	3.1	2.7	4.1
95th Percentile	2.5	6.7	-11.3	1.7	-0.4	-1.1	2.6	2.4	2.0	3.5
# of Portfolios	74	77	73	57	61	56	59	61	61	64
● Total Fund	3.1 (47)	7.6 (77)	-7.4 (33)	2.3 (68)	1.3 (25)	-0.4 (66)	4.1 (16)	4.1 (4)	3.2 (29)	4.2 (65)
▲ Policy Index	2.4 (98)	7.4 (83)	-7.1 (29)	2.5 (56)	1.3 (23)	-0.2 (54)	3.5 (43)	3.9 (10)	3.4 (23)	4.6 (35)

As of June 30, 2019

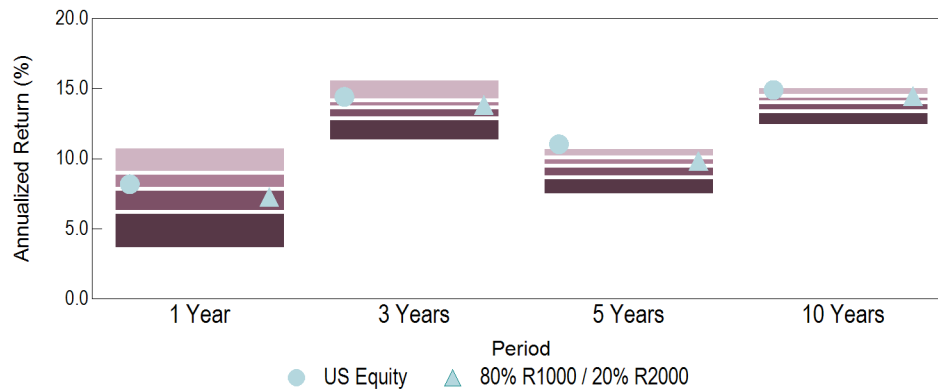
### Return Summary



### Current Allocation

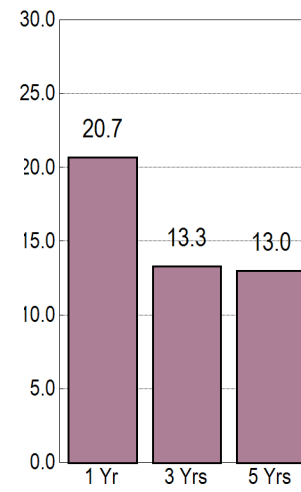


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>US Equity</b>	<b>8.2</b>	<b>14.4</b>	<b>11.0</b>	<b>14.9</b>
80% R1000 / 20% R2000	7.3	13.8	9.8	14.5
InvMetrics All DB US Eq Net Median	7.9	13.7	9.5	14.1
InvMetrics All DB US Eq Net Rank	46	20	4	9



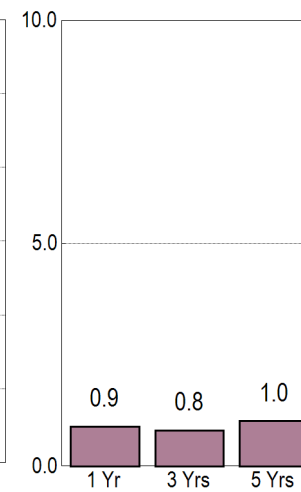
### Anzld. Std. Deviation

#### US Equity



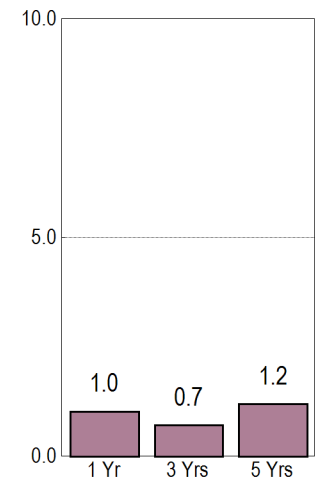
### Tracking Error

#### US Equity



### Information Ratio

#### US Equity



## US Equity

As of June 30, 2019

US Equity Characteristics  
vs Russell 3000

	Portfolio Q2-19	Index Q2-19
<b>Characteristics</b>		
Weighted Avg. Market Cap. (\$B)	176.4	190.7
Median Market Cap (\$B)	2.4	1.6
P/E Ratio	20.2	20.5
Yield	1.8	1.9
EPS Growth - 5 Yrs.	12.7	13.0
Price to Book	3.3	3.4
Beta (holdings; domestic)	1.0	1.0

US Equity Sector Distribution  
vs Russell 3000

	Portfolio Q2-19	Index Q2-19
<b>Sector Distribution</b>		
Energy	4.3	4.7
Materials	2.9	3.0
Industrials	10.3	10.2
Consumer Discretionary	10.2	10.4
Consumer Staples	6.0	6.5
Health Care	12.7	14.0
Financials	12.8	13.6
Information Technology	18.7	21.4
Communication Services	8.1	9.1
Utilities	3.1	3.2
Real Estate	3.1	3.9

## Top Holdings

UST Bill 09/19/19 When Iss	5.2%
MICROSOFT	3.0%
CASH - USD	2.7%
APPLE	2.6%
AMAZON.COM	2.3%
FACEBOOK CLASS A	1.4%
BERKSHIRE HATHAWAY 'B'	1.2%
JOHNSON & JOHNSON	1.1%
JP MORGAN CHASE & CO.	1.1%
ALPHABET 'C'	1.0%

## Best Performers

	Return %
IOVANCE BIOTHERAPEUTICS	157.8%
ARQULE	129.9%
RAFAEL HOLDINGS B	127.3%
ADVERUM BIOTCHS.	126.9%
CHIMERIX	105.7%
ZYNEX	99.8%
CCA INDS. (XSC)	95.4%
ARRAY BIOPHARMA	90.0%
MELINTA THERAPEUTICS	87.3%
ADIANT	87.3%

## Worst Performers

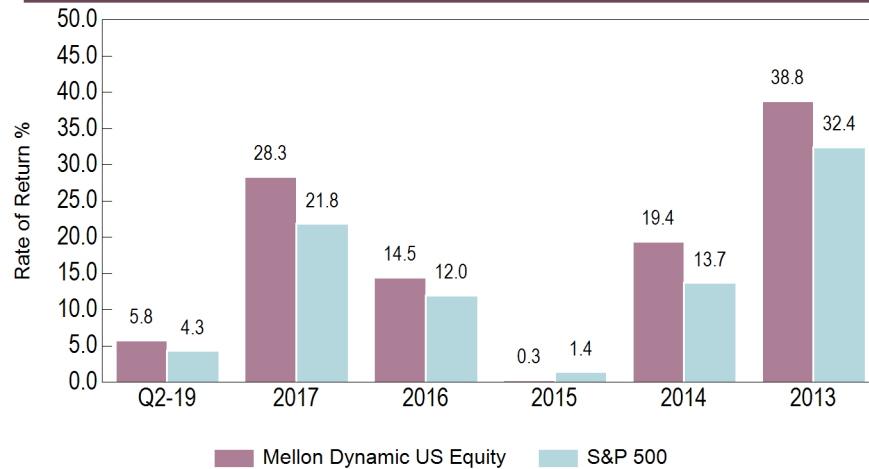
	Return %
ORCHIDS PAPER (XSC) PRODUCTS	-95.1%
INSYS THERAPEUTICS	-93.5%
FTD COMPANIES	-93.1%
WEATHERFORD INTL.	-92.8%
KONA GRILL	-91.8%
BRISTOW GROUP	-91.4%
HALCON RESOURCES	-86.9%
PIONEER ENERGY SERVICES	-85.7%
ACER THERAPEUTICS	-84.0%
FRED'S 'A'	-80.1%



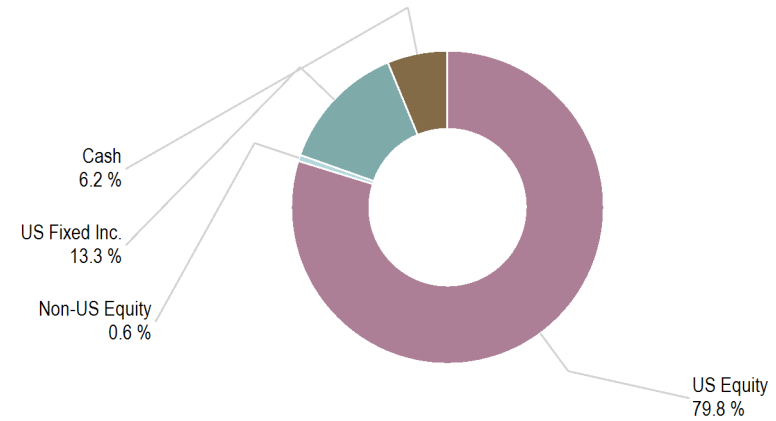
Mellon Dynamic US Equity

As of June 30, 2019

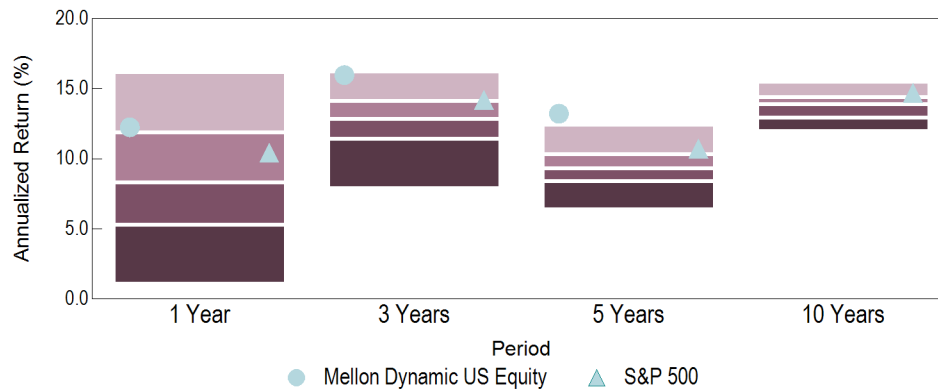
Return Summary



Current Allocation

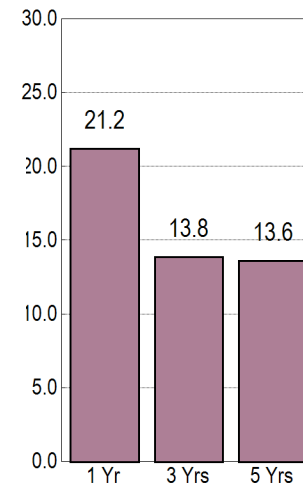


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon Dynamic US Equity	12.2	16.0	13.2	--
S&P 500	10.4	14.2	10.7	14.7
eV US Large Cap Core Equity Net Median	8.3	12.9	9.3	13.9
eV US Large Cap Core Equity Net Rank	23	7	2	--



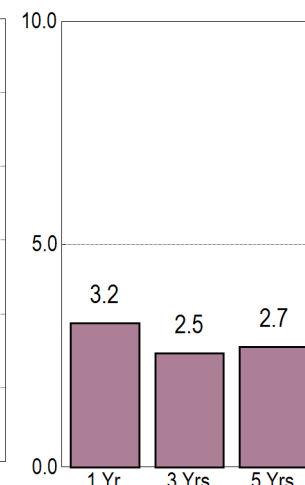
Anzld. Std. Deviation

Mellon Dynamic US Equity



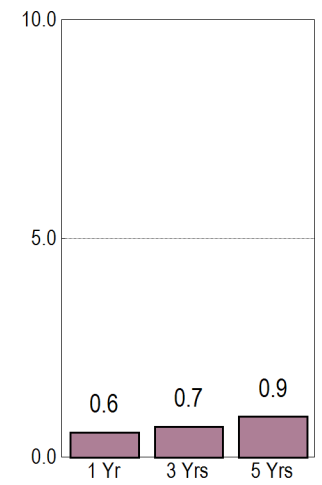
Tracking Error

Mellon Dynamic US Equity



Information Ratio

Mellon Dynamic US Equity



## Mellon Dynamic US Equity

As of June 30, 2019

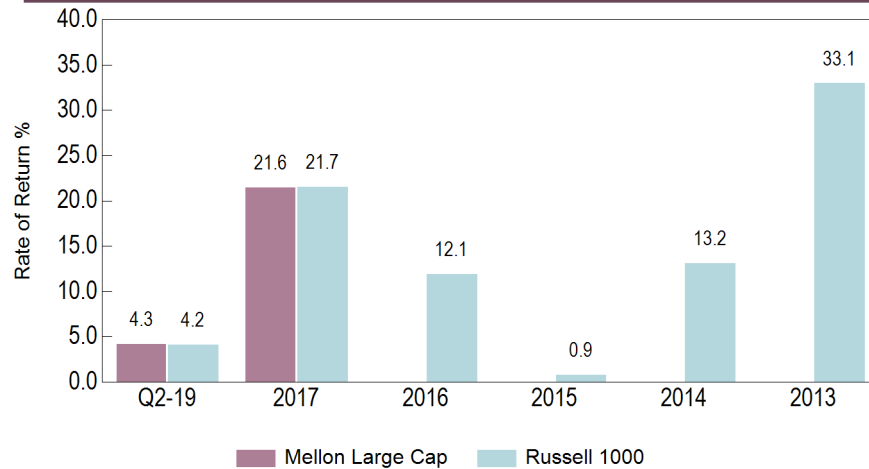
Account Information		Account Characteristics		Sector Distribution			
Account Name	Mellon Dynamic US Equity	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19		
Investment Style	Active	Characteristics		Sector Distribution			
Inception Date	12/31/12	Weighted Avg.	224.8	225.0	Energy	4.1	5.0
Account Type	US Equity	Market Cap. (\$B)			Materials	2.3	2.8
Benchmark	S&P 500	Median Market Cap (\$B)	22.1	22.1	Industrials	7.5	9.4
Universe	eV US Large Cap Core Equity Net	P/E Ratio	20.6	20.6	Consumer Discretionary	8.2	10.2
		Yield	2.0	2.0	Consumer Staples	5.9	7.3
		EPS Growth - 5 Yrs.	12.8	12.8	Health Care	11.4	14.2
		Price to Book	3.6	3.6	Financials	10.5	13.1
		Beta (holdings; domestic)	1.0	1.0	Information Technology	17.3	21.5
					Communication Services	8.2	10.2
					Utilities	2.7	3.3
					Real Estate	2.5	3.1

Top Holdings		Best Performers		Worst Performers	
UST Bill 09/19/19 When Iss	13.3%		Return %		Return %
CASH - USD	6.2%	ANADARKO PETROLEUM	55.8%	MYLAN	-32.8%
MICROSOFT	3.4%	ARCONIC	35.2%	GAP	-30.7%
APPLE	2.8%	TOTAL SYSTEM SERVICES	35.1%	FOOT LOCKER	-30.4%
AMAZON.COM	2.6%	QUALCOMM	34.6%	KOHL'S	-29.9%
FACEBOOK CLASS A	1.5%	MARKETAXESS HOLDINGS	30.9%	NORDSTROM	-27.4%
BERKSHIRE HATHAWAY 'B'	1.4%	CERNER	28.4%	CAPRI HOLDINGS	-24.2%
JOHNSON & JOHNSON	1.2%	WALT DISNEY	25.8%	REGENERON PHARMS.	-23.8%
JP MORGAN CHASE & CO.	1.2%	HASBRO	25.1%	COVETRUS	-23.2%
ALPHABET 'C'	1.1%	AMERICAN INTL.GP.	24.5%	OCCIDENTAL PTL.	-22.8%
		CARMAX	24.4%	PVH	-22.4%

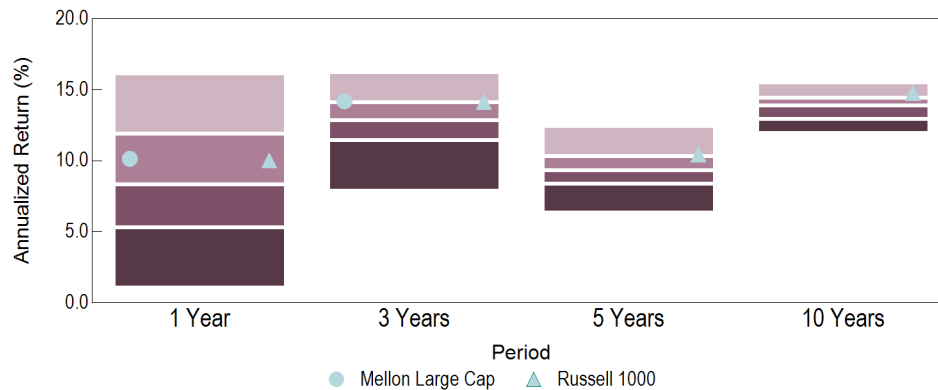
Current Allocations do not depict asset class weights based on long/short positions.



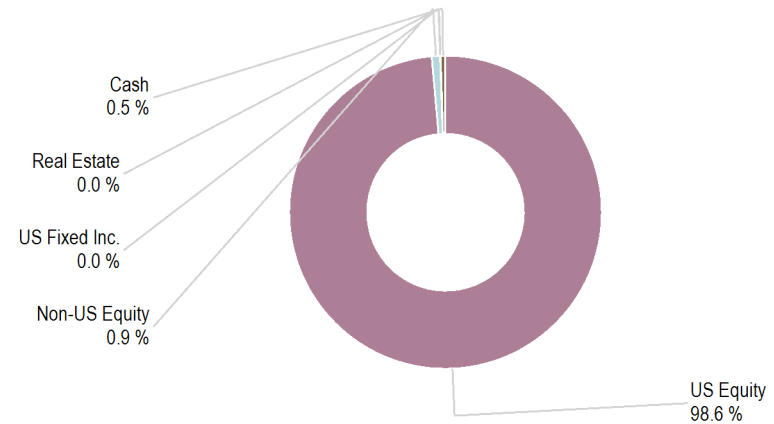
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon Large Cap	10.1	14.2	--	--
Russell 1000	10.0	14.1	10.5	14.8
eV US Large Cap Core Equity Net Median	8.3	12.9	9.3	13.9
eV US Large Cap Core Equity Net Rank	39	25	--	--

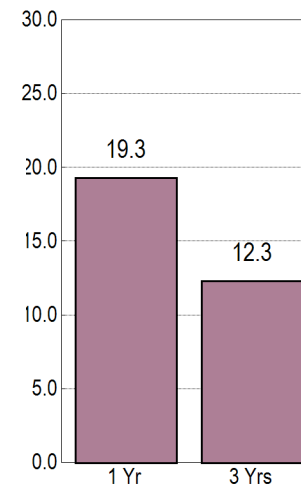


### Current Allocation



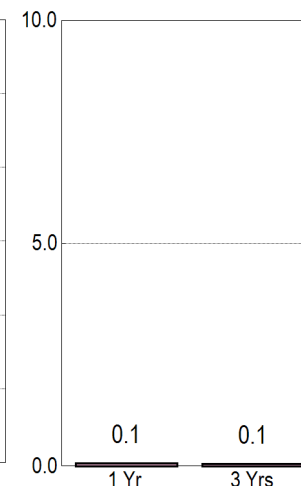
### Anzld. Std. Deviation

#### Mellon Large Cap



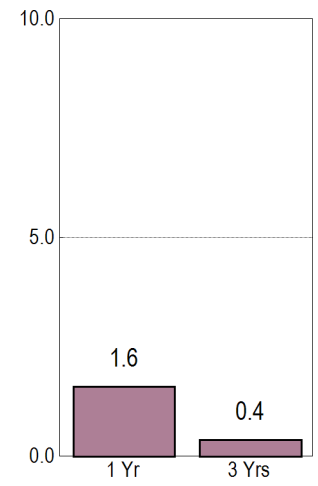
### Tracking Error

#### Mellon Large Cap



### Information Ratio

#### Mellon Large Cap



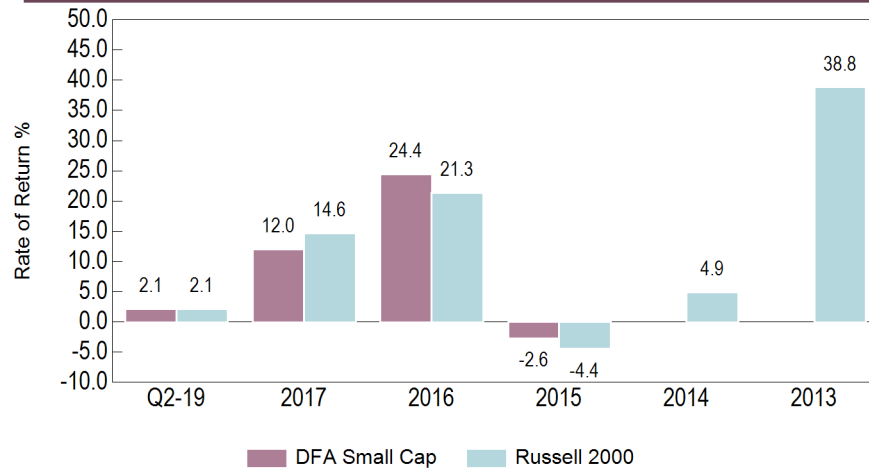
## Mellon Large Cap

As of June 30, 2019

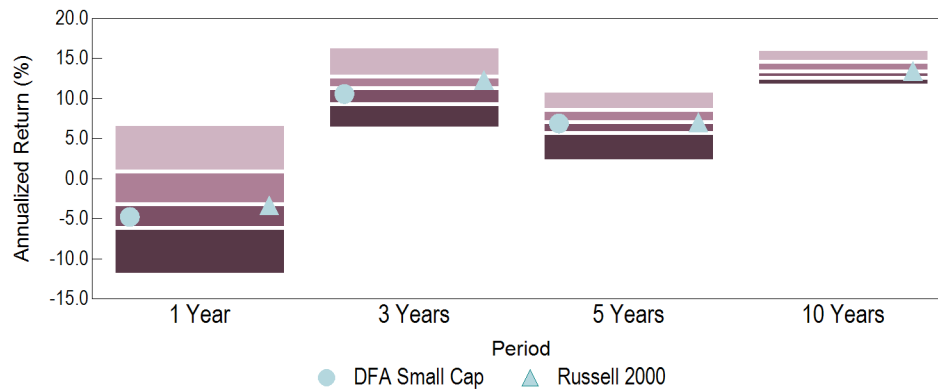
Account Information		Account Characteristics		Sector Distribution			
Account Name	Mellon Large Cap	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19		
Investment Style	Passive	Characteristics		Sector Distribution			
Inception Date	3/31/16	Weighted Avg.	203.0	204.6	Energy	4.7	4.8
Account Type	US Stock Large	Market Cap. (\$B)			Materials	2.9	2.9
Benchmark	Russell 1000	Median Market Cap (\$B)	9.8	10.3	Industrials	9.7	9.8
Universe	eV US Large Cap Core Equity Net	P/E Ratio	20.8	20.6	Consumer Discretionary	10.3	10.3
		Yield	1.9	1.9	Consumer Staples	6.7	6.7
		EPS Growth - 5 Yrs.	13.2	13.0	Health Care	13.7	13.9
		Price to Book	3.6	3.5	Financials	13.1	13.3
		Beta (holdings; domestic)	1.0	1.0	Information Technology	21.8	21.8
					Communication Services	9.7	9.6
					Utilities	3.2	3.2
					Real Estate	3.7	3.7

Top Holdings		Best Performers		Worst Performers	
MICROSOFT	3.7%		Return %		Return %
APPLE	3.3%	ADIENT	87.3%	WEATHERFORD INTL.	-92.8%
AMAZON.COM	2.9%	ANADARKO PETROLEUM	55.8%	2U	-46.9%
FACEBOOK CLASS A	1.7%	CYPRESS SEMICON.	49.8%	ALKERMES	-38.2%
BERKSHIRE HATHAWAY 'B'	1.5%	OKTA CL.A	49.3%	RANGE RES.	-37.7%
JOHNSON & JOHNSON	1.3%	ERIE INDEMNITY 'A'	43.2%	ANTERO RESOURCES	-37.4%
JP MORGAN CHASE & CO.	1.3%	HEICO	41.1%	CHESAPEAKE ENERGY	-37.1%
ALPHABET 'C'	1.2%	ROKU	40.4%	RPC	-36.5%
ALPHABET A	1.2%	SINCLAIR BROADCAST 'A'	39.9%	REALOGY HOLDINGS	-35.8%
EXXON MOBIL	1.2%	LEGG MASON	39.9%	CHEMOURS	-34.7%
		COUPA SOFTWARE	39.2%	UNITED THERAPEUTICS	-33.5%

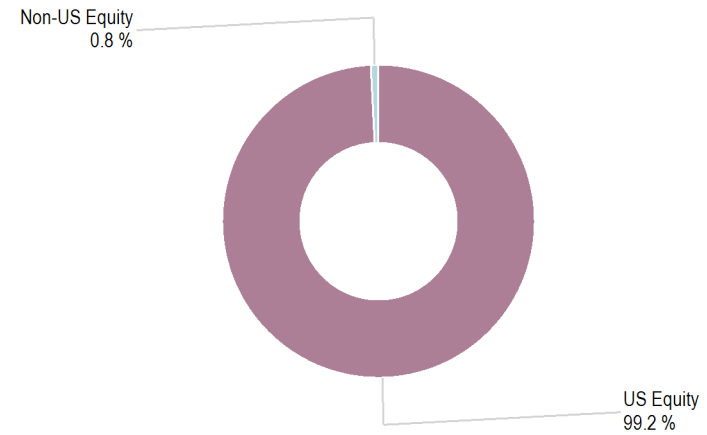
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
DFA Small Cap	-4.8	10.6	6.9	--
Russell 2000	-3.3	12.3	7.1	13.4
eV US Small Cap Core Equity Net Median	-3.2	11.4	7.1	13.4
eV US Small Cap Core Equity Net Rank	62	65	58	--

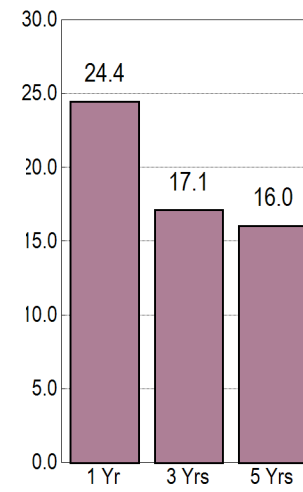


### Current Allocation



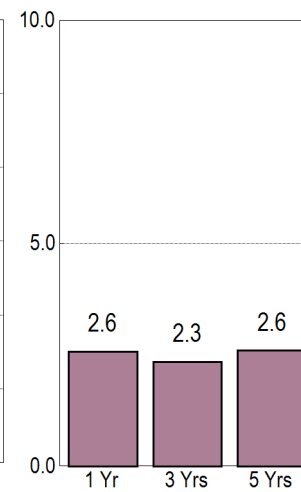
### Anzld. Std. Deviation

#### DFA Small Cap



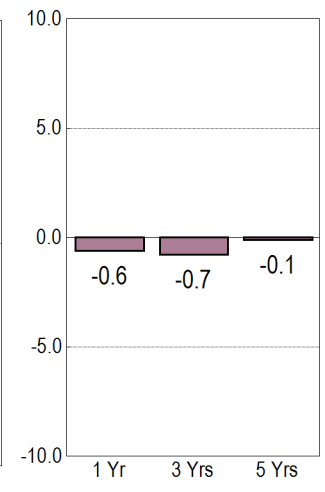
### Tracking Error

#### DFA Small Cap



### Information Ratio

#### DFA Small Cap



## DFA Small Cap

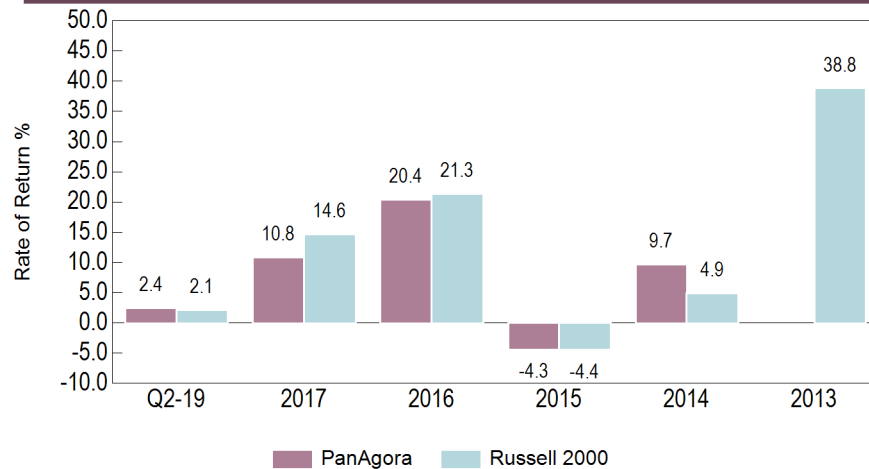
As of June 30, 2019

Account Information		Account Characteristics		Sector Distribution	
Account Name	DFA Small Cap	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	6/30/14	Weighted Avg.	2.2	Energy	4.2
Account Type	US Stock Small	Market Cap. (\$B)	2.6	Materials	5.9
Benchmark	Russell 2000	Median Market Cap (\$B)	0.7	Industrials	21.2
Universe	eV US Small Cap Core Equity Net	P/E Ratio	17.9	Consumer Discretionary	14.4
		Yield	1.3	Consumer Staples	4.6
		EPS Growth - 5 Yrs.	9.6	Health Care	8.2
		Price to Book	2.3	Financials	19.9
		Beta (holdings; domestic)	1.2	Information Technology	13.2
				Communication Services	3.8
				Utilities	3.9
				Real Estate	0.7
					7.5

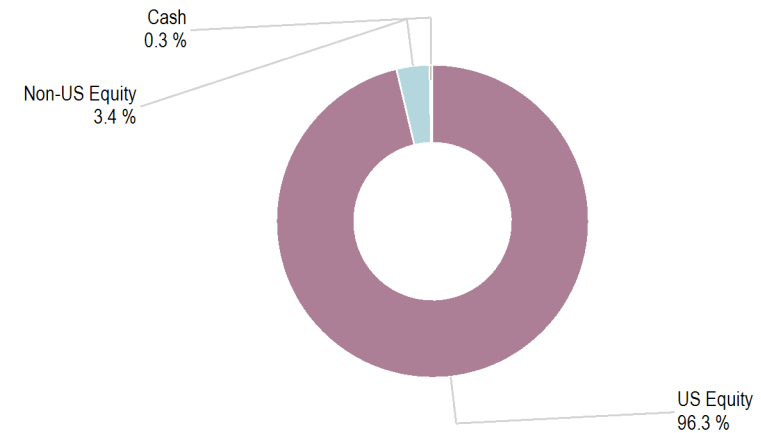
  

Top Holdings		Best Performers		Worst Performers	
DECKERS OUTDOOR	0.4%		Return %		Return %
ARMSTRONG WORLD INDS.	0.3%	IOVANCE BIOTHERAPEUTICS	157.8%	ORCHIDS PAPER (XSC) PRODUCTS	-95.1%
TETRA TECH	0.3%	RAFAEL HOLDINGS B	127.3%	FTD COMPANIES	-93.1%
AARON'S	0.3%	ADVERUM BIOTCHS.	126.9%	KONA GRILL	-91.8%
FIRSTCASH	0.3%	CHIMERIX	105.7%	BRISTOW GROUP	-91.4%
PNM RESOURCES	0.3%	ZYNEX	99.8%	HALCON RESOURCES	-86.9%
ACI WORLDWIDE	0.3%	CCA INDS. (XSC)	95.4%	PIONEER ENERGY SERVICES	-85.7%
ZYNGA 'A'	0.3%	MELINTA THERAPEUTICS	87.3%	ACER THERAPEUTICS	-84.0%
JOHN BEAN TECHNOLOGIES	0.3%	ADIANT	87.3%	FRED'S 'A'	-80.1%
SEABOARD	0.3%	HORIZON GLOBAL	85.1%	COMSCORE	-74.5%
		G1 THERAPEUTICS	84.7%	SUPERIOR ENERGY SVS.	-72.2%

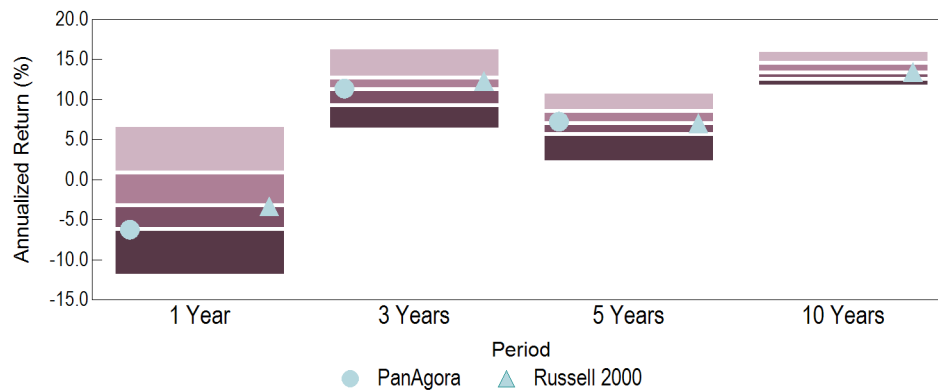
### Return Summary



### Current Allocation

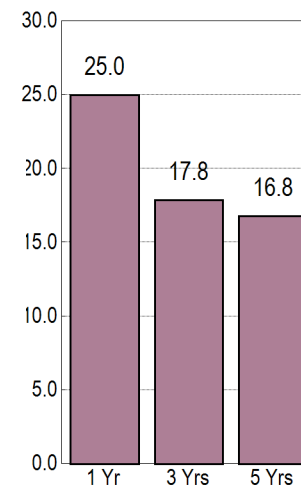


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PanAgora	-6.2	11.4	7.2	--
Russell 2000	-3.3	12.3	7.1	13.4
eV US Small Cap Core Equity Net Median	-3.2	11.4	7.1	13.4
eV US Small Cap Core Equity Net Rank	76	50	49	--



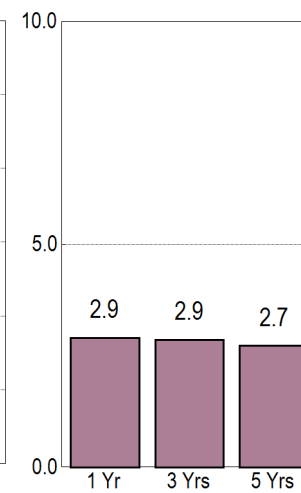
### Anzld. Std. Deviation

#### PanAgora



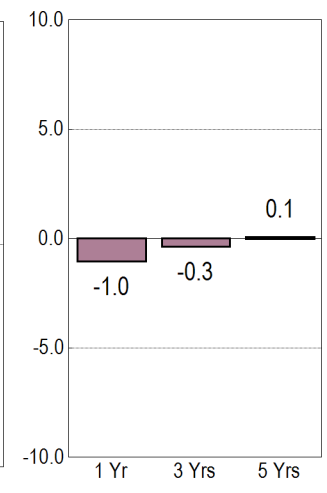
### Tracking Error

#### PanAgora



### Information Ratio

#### PanAgora



As of June 30, 2019

Account Information		Account Characteristics		Sector Distribution	
Account Name	PanAgora	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	9/30/13	Weighted Avg.	3.1	2.7	3.2
Account Type	US Stock Small Cap Core	Market Cap. (\$B)		3.6	3.8
Benchmark	Russell 2000	Median Market Cap (\$B)	0.8	16.2	15.2
Universe	eV US Small Cap Core Equity Net	P/E Ratio	18.7	14.8	11.8
		Yield	1.2	4.8	2.7
		EPS Growth - 5 Yrs.	11.7	17.9	15.9
		Price to Book	2.6	14.5	17.7
		Beta (holdings; domestic)	1.2	13.0	15.4
				Communication Services	3.0
				Utilities	3.9
				Real Estate	7.5

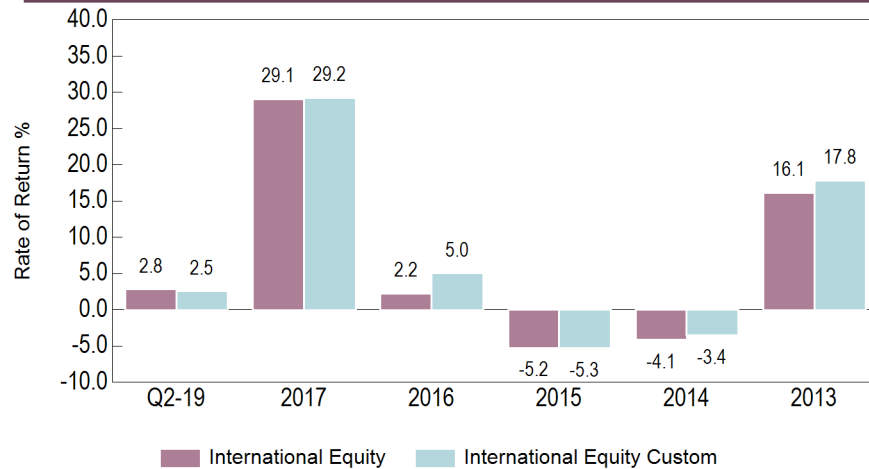
  

Top Holdings		Best Performers		Worst Performers	
ISHARES RUSSELL 2000 ETF	2.1%		Return %		Return %
PORTLAND GEN.ELEC.	1.5%	ARQULE	129.9%	INSYS THERAPEUTICS	-93.5%
INSPERITY	1.5%	ARRAY BIOPHARMA	90.0%	PIONEER ENERGY SERVICES	-85.7%
WOODWARD	1.4%	SYNDAX PHARMACEUTICALS	77.3%	KIRKLAND'S	-67.9%
PNM RESOURCES	1.4%	RECRO PHARMA	73.5%	J JILL	-63.8%
FIVE BELOW	1.4%	AMBER ROAD	50.6%	ADURO BIOTECH	-61.3%
VERINT SYSTEMS	1.3%	NATIONAL RESEARCH	49.7%	MALLINCKRODT	-57.8%
ARRAY BIOPHARMA	1.2%	AKORN	46.3%	FIVE PRIME THERAPEUTICS	-55.0%
DECKERS OUTDOOR	1.2%	FOSTER (LB)	45.3%	TOWN SPORTS INTL.HDG.	-54.4%
HORIZON THERAPEUTICS PUBLIC	1.2%	ROKU	40.4%	ENDO INTERNATIONAL	-48.7%
		CYTOKINETICS	39.1%	NOVAVAX	-46.8%

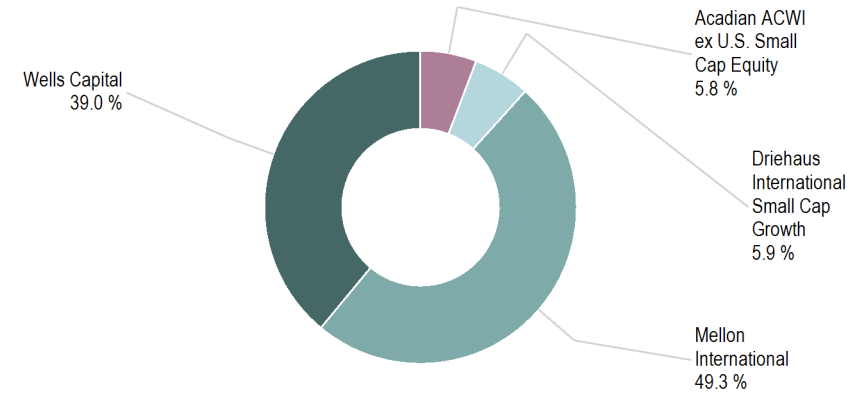


As of June 30, 2019

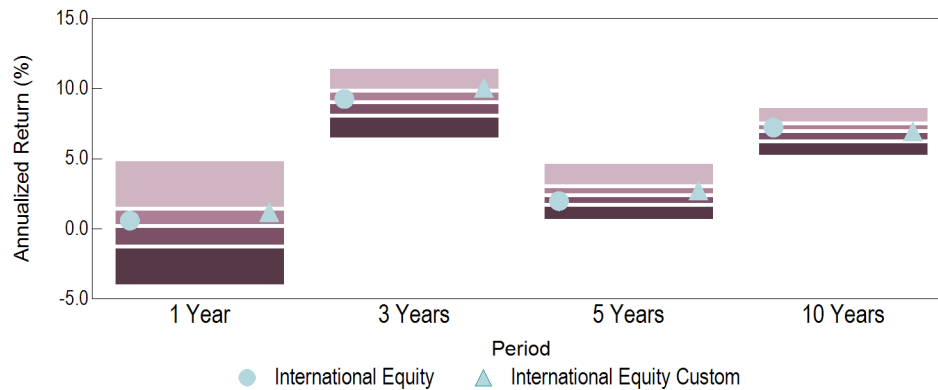
Return Summary



Current Allocation

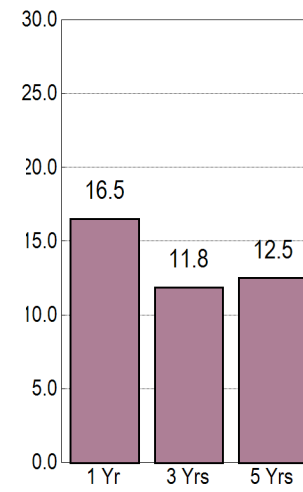


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>International Equity</b>	<b>0.6</b>	<b>9.3</b>	<b>2.0</b>	<b>7.2</b>
<i>International Equity Custom</i>	1.2	10.1	2.7	6.9
<i>InvMetrics All DB ex-US Eq Net Median</i>	0.2	9.1	2.4	7.0
<i>InvMetrics All DB ex-US Eq Net Rank</i>	41	43	67	43



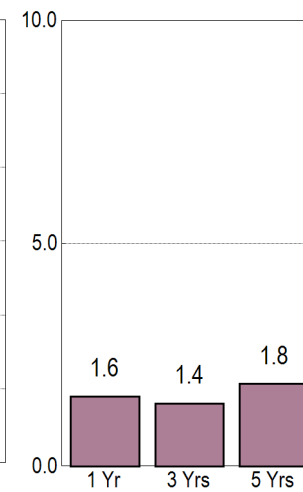
Anzld. Std. Deviation

International Equity



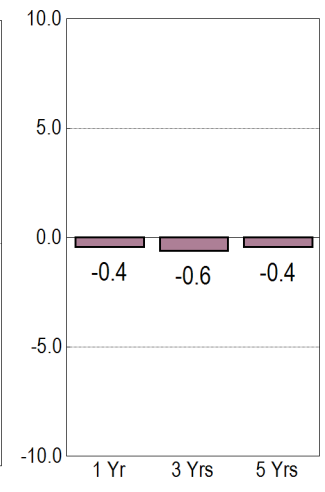
Tracking Error

International Equity



Information Ratio

International Equity



## International Equity

As of June 30, 2019

International Equity Characteristics  
vs MSCI ACWI ex USA

	Portfolio Q2-19	Index Q2-19
<b>Characteristics</b>		
Weighted Avg. Market Cap. (\$B)	53.9	65.4
Median Market Cap (\$B)	3.8	7.6
P/E Ratio	15.9	15.0
Yield	3.1	3.2
EPS Growth - 5 Yrs.	9.6	9.6
Price to Book	2.5	2.3
Beta (holdings; domestic)	1.0	1.0

International Equity Sector Distribution  
vs MSCI ACWI ex USA

	Portfolio Q2-19	Index Q2-19
<b>Sector Distribution</b>		
Energy	4.2	7.1
Materials	7.1	7.7
Industrials	13.6	12.0
Consumer Discretionary	13.4	11.3
Consumer Staples	10.3	9.8
Health Care	9.1	8.3
Financials	17.8	21.9
Information Technology	9.2	8.5
Communication Services	8.7	6.9
Utilities	2.6	3.4
Real Estate	3.0	3.2

## Top Holdings

HDFC BANK ADR 1:3	1.8%
NESTLE 'R'	1.5%
TAIWAN SEMICON.SPN.ADR 1:5	1.4%
ALIBABA GROUP HOLDING ADR 1:8	1.3%
NEW ORIENTAL ED.& TECH. GP.ADS 1:1 ADR	1.0%
NOVARTIS 'R'	0.9%
ROCHE HOLDING	0.9%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	0.9%
HSBC HOLDINGS	0.8%
VIPSHOP HOLDINGS ADR 5:1	0.7%

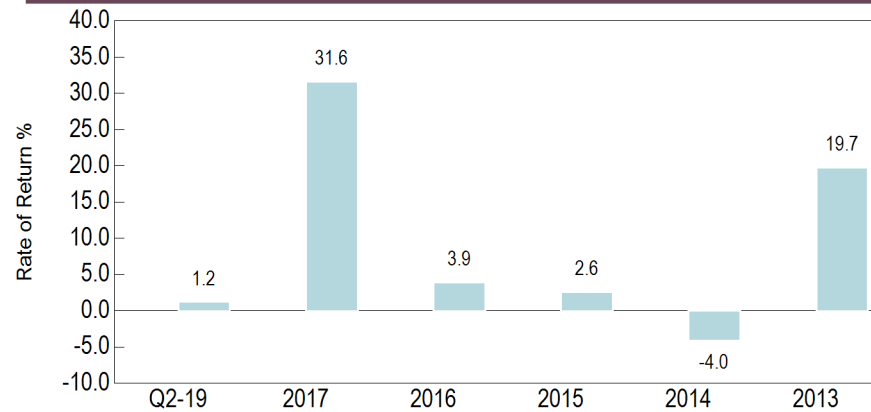
## Best Performers

	Return %
TRANSAT A T VTG.& VAR. VTG.SH.S.	196.0%
GINEBRA SAN MIGUEL	125.3%
ASIA CEMENT (CHINA) HDG.	76.1%
GOLFZON	73.9%
PEGASUS HAVA TASIMACILIGI A LTD.	63.8%
EOLUS VIND B	57.8%
MEGAPORT	57.7%
GAMES WORKSHOP	55.5%
JUMBO INTERACTIVE	54.5%
GBST HOLDINGS	51.5%

## Worst Performers

	Return %
INDIVIOR	-56.6%
CHINA RAPID FINANCE ADR 'A'1:1	-54.6%
AURELIA METALS	-45.1%
PENDRAGON	-41.5%
TEVA PHARM.INDS.ADR 1:1	-41.1%
INTERNATIONAL PSNL.FIN.	-37.5%
BEST WORLD INTL. SUSP - SUSP.10/05/19	-37.3%
ATEAM	-35.2%
EXCEL	-33.3%
AMERIGO RESOURCES	-33.1%

### Return Summary

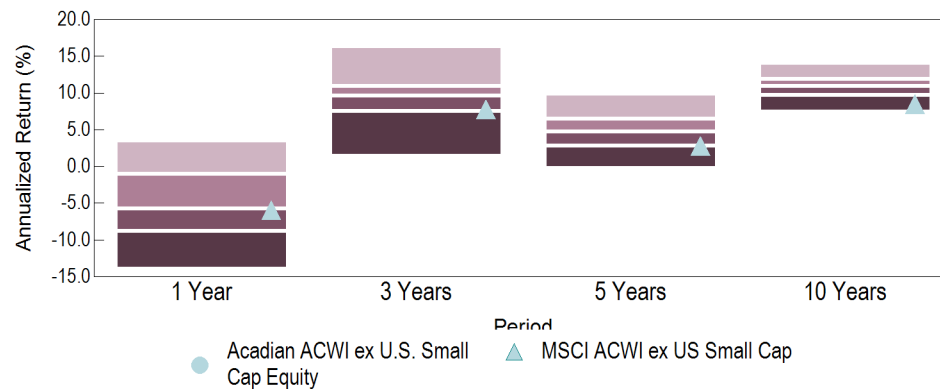
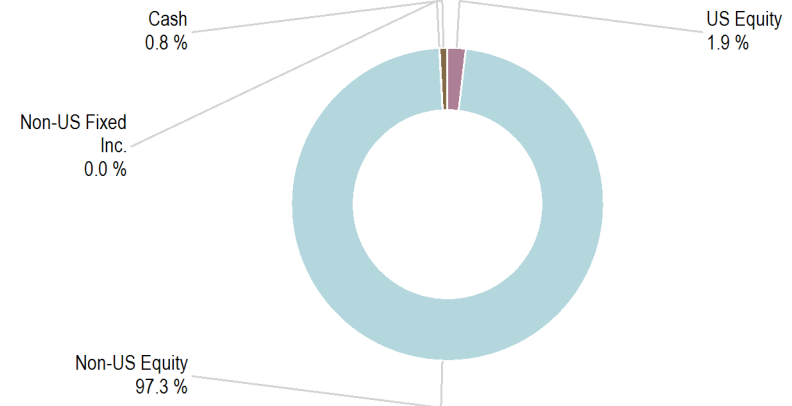


Acadian ACWI ex U.S. Small Cap Equity

MSCI ACWI ex US Small Cap

	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Acadian ACWI ex U.S. Small Cap Equity	--	--	--	--
MSCI ACWI ex US Small Cap	-5.9	7.8	2.8	8.5
eV ACWI ex-US Small Cap Equity Net Median	-5.6	9.7	4.8	11.0
eV ACWI ex-US Small Cap Equity Net Rank	--	--	--	--

### Current Allocation



## Acadian ACWI ex U.S. Small Cap Equity

As of June 30, 2019

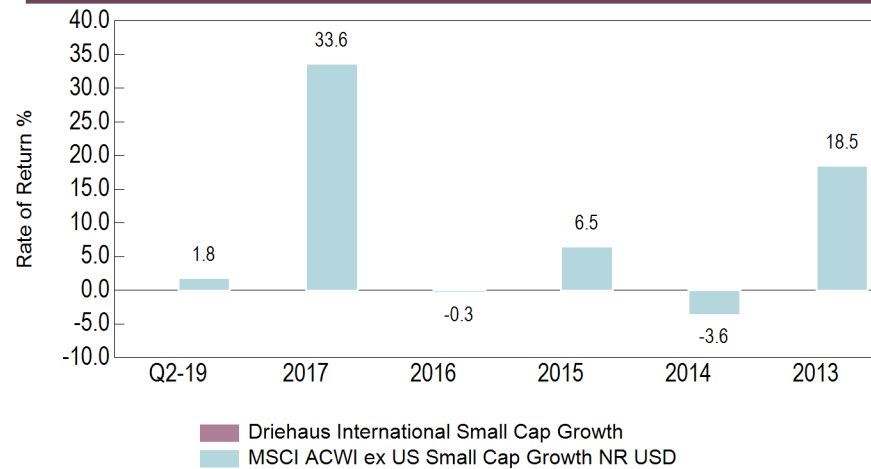
Account Information		Account Characteristics		Sector Distribution			
Account Name	Acadian ACWI ex U.S. Small Cap Equity	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19		
Investment Style	Active	Characteristics		Sector Distribution			
Inception Date	5/01/19	Weighted Avg.	2.1	2.5	Energy	4.9	3.8
Account Type	International	Market Cap. (\$B)			Materials	13.7	10.0
Benchmark	MSCI ACWI ex US Small Cap	Median Market Cap (\$B)	0.3	1.0	Industrials	11.5	20.8
Universe	eV ACWI ex-US Small Cap Equity Net	P/E Ratio	11.2	15.1	Consumer Discretionary	11.2	11.8
		Yield	3.0	2.7	Consumer Staples	2.2	6.1
		EPS Growth - 5 Yrs.	15.6	12.2	Health Care	10.0	7.2
		Price to Book	2.1	2.1	Financials	14.3	10.7
		Beta (holdings; domestic)	0.9	0.9	Information Technology	17.0	8.9
					Communication Services	4.1	4.8
					Utilities	1.5	3.0
					Real Estate	6.2	12.8

Top Holdings		Best Performers		Worst Performers	
QUEBECOR 'B'	1.6%		Return %		Return %
CANADIAN WESTERN BANK	1.6%	TRANSAT A T VTG.& VAR. VTG.SHS.	196.0%	INDIVIOR	-56.6%
IA FINANCIAL	1.6%	GINEBRA SAN MIGUEL	125.3%	AURELIA METALS	-45.1%
EVRAZ	1.5%	ASIA CEMENT (CHINA) HDG.	76.1%	PENDRAGON	-41.5%
CYBER ARK SOFTWARE	1.4%	GOLFZON	73.9%	INTERNATIONAL PSNL.FIN.	-37.5%
ILUKA RESOURCES	1.3%	EOLUS VIND B	57.8%	BEST WORLD INTL. SUSP - SUSP.10/05/19	-37.3%
EVOLUTION MINING	1.1%	GAMES WORKSHOP	55.5%	ATEAM	-35.2%
DISCOUNT	1.1%	JUMBO INTERACTIVE	54.5%	EXCEL	-33.3%
DAR ALARKAN RLST.DEV.	1.0%	GBST HOLDINGS	51.5%	AMERIGO RESOURCES	-33.1%
ASIA CEMENT (CHINA) HDG.	1.0%	SYSTEMA	50.6%	THE REJECT SHOP	-31.8%
		WIZ SOLUCOES E CORRETAGEM DE SEGUROS ON	48.4%	CLEAR MEDIA	-31.7%

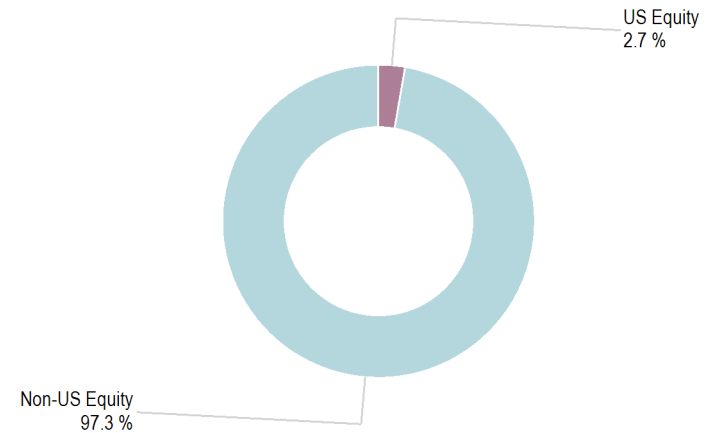
# Driehaus International Small Cap Growth

As of June 30, 2019

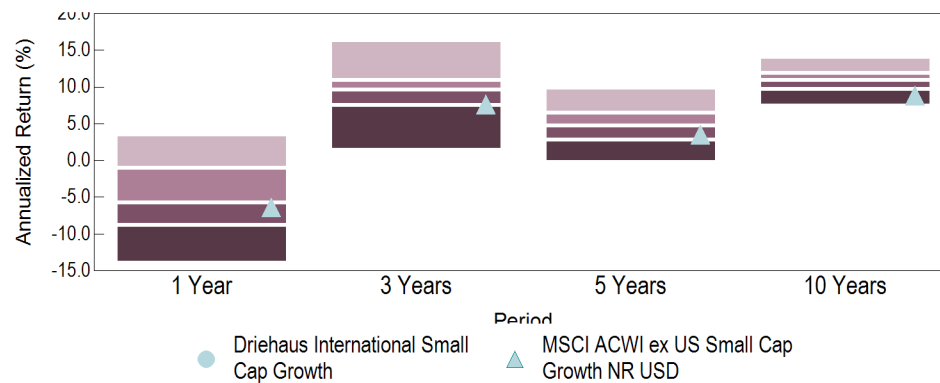
## Return Summary



## Current Allocation



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Driehaus International Small Cap Growth	--	--	--	--
MSCI ACWI ex US Small Cap Growth NR USD	-6.4	7.6	3.5	8.8
eV ACWI ex-US Small Cap Equity Net Median	-5.6	9.7	4.8	11.0
eV ACWI ex-US Small Cap Equity Net Rank	--	--	--	--



## DrieHaus International Small Cap Growth

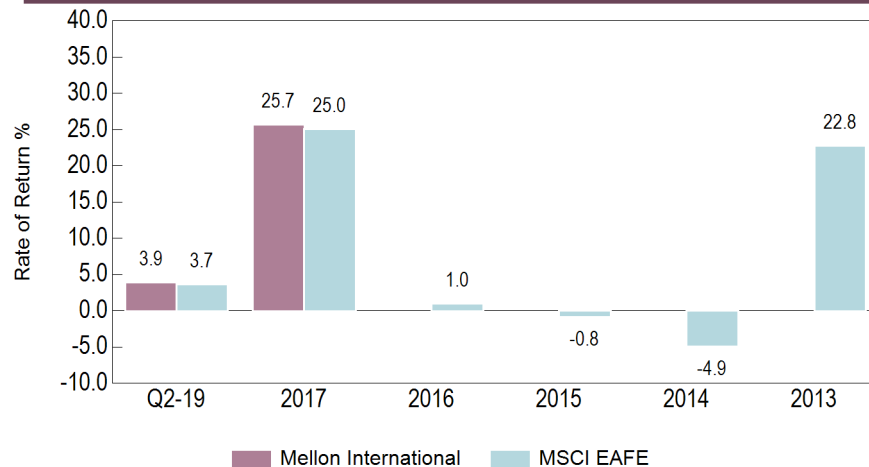
As of June 30, 2019

Account Information		Account Characteristics		Sector Distribution	
Account Name	DrieHaus International Small Cap Growth	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q2-19	Q2-19	Q2-19	Q2-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	5/01/19	Weighted Avg.	4.8	Energy	2.4
Account Type	International	Market Cap. (\$B)	2.5	Materials	6.1
Benchmark	MSCI ACWI ex US Small Cap Growth NR USD	Median Market Cap (\$B)	1.0	Industrials	25.1
Universe	eV ACWI ex-US Small Cap Equity Net	P/E Ratio	15.1	Consumer Discretionary	11.8
		Yield	2.7	Consumer Staples	6.1
		EPS Growth - 5 Yrs.	12.2	Health Care	7.2
		Price to Book	2.1	Financials	10.7
		Beta (holdings; domestic)	0.9	Information Technology	8.9
				Communication Services	4.8
				Utilities	3.0
				Real Estate	12.8

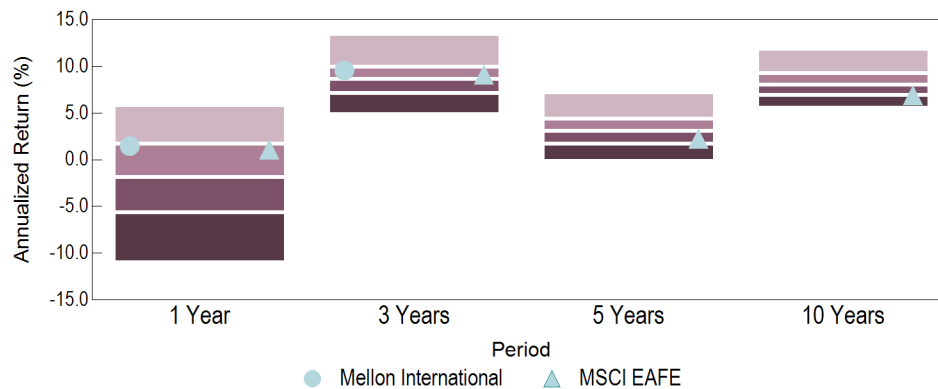
  

Top Holdings		Best Performers		Worst Performers	
PUMA	2.0%		Return %		Return %
LEONARDO	1.9%	PEGASUS HAVA TASIMACILIGI A LTD.	63.8%	CIMC ENRIC HOLDINGS	-19.5%
CELLNEX TELECOM	1.7%	MEGAPORT	57.7%	SHIMADZU	-15.2%
LI NING	1.7%	LI NING	51.3%	ENTERTAINMENT ONE (DI)	-13.2%
PARKLAND FUEL	1.7%	ENDAVA ADR 1:1	46.3%	UBISOFT ENTERTAINMENT CAT A	-12.0%
SCOUT24 (XET)	1.7%	AMS	45.5%	B&M EUROPEAN VAL.RET.	-11.6%
WEIR GROUP	1.6%	X5 RETAIL GP.GDR REG 'S'	44.3%	UNITED ARROWS	-10.3%
TECAN 'R'	1.5%	BARCO NEW	38.9%	TECHNOPRO HOLDINGS	-9.8%
CRODA INTERNATIONAL	1.5%	DUZONBIZON	31.2%	ZHUZHOU CRRC TIMES ELECTRIC 'H'	-9.8%
CCL INDS.'B'	1.5%	INTERMEDIATE CAPITAL GP.	30.0%	NICHIAS	-9.2%
		KOBE BUSSAN	27.9%	BALFOUR BEATTY	-8.6%

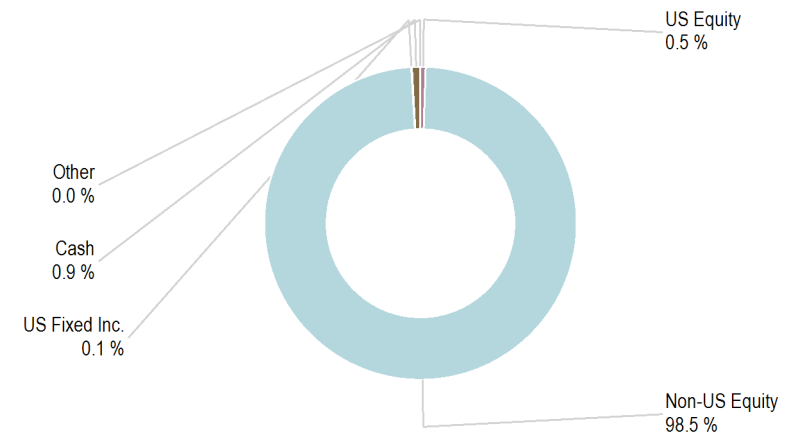
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon International	1.5	9.5	--	--
MSCI EAFE	1.1	9.1	2.2	6.9
eV All EAFE Equity Net Median	-1.8	8.7	3.1	8.1
eV All EAFE Equity Net Rank	29	32	--	--

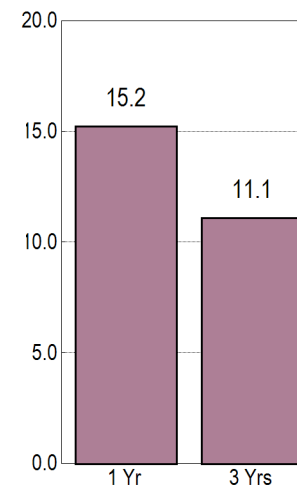


### Current Allocation



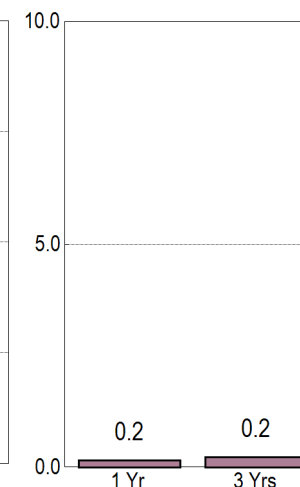
### Anzld. Std. Deviation

#### Mellon International



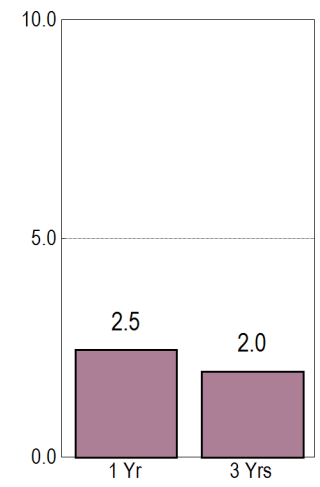
### Tracking Error

#### Mellon International



### Information Ratio

#### Mellon International



## Mellon International

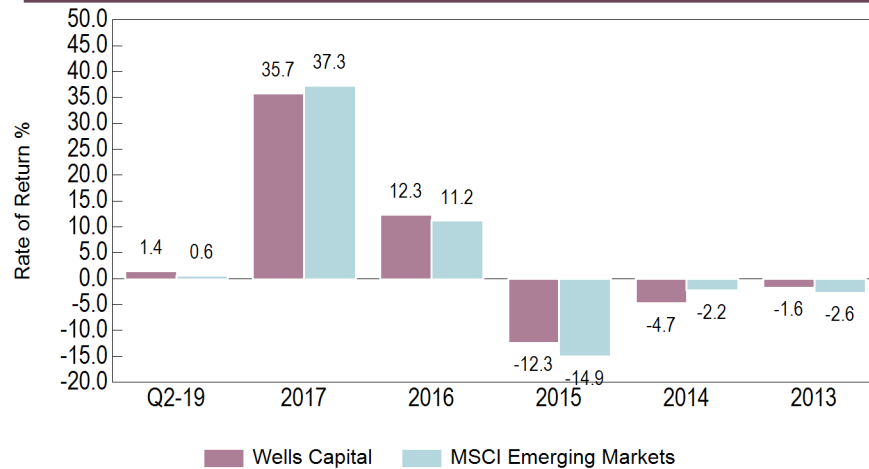
As of June 30, 2019

Account Information		Account Characteristics		Sector Distribution			
Account Name	Mellon International		Portfolio		Portfolio	Index	
Account Structure	Commingled Fund		Q2-19		Q2-19	Q2-19	
Investment Style	Passive	Characteristics		Sector Distribution			
Inception Date	3/31/16	Weighted Avg.	61.3	61.2	Energy	5.4	5.5
Account Type	International	Market Cap. (\$B)			Materials	7.3	7.4
Benchmark	MSCI EAFE	Median Market Cap (\$B)	10.1	10.1	Industrials	14.7	14.9
Universe	eV All EAFE Equity Net	P/E Ratio	15.5	15.5	Consumer Discretionary	11.0	11.1
		Yield	3.4	3.4	Consumer Staples	11.6	11.6
		EPS Growth - 5 Yrs.	7.9	7.9	Health Care	11.1	11.2
		Price to Book	2.3	2.3	Financials	18.7	18.9
		Beta (holdings; domestic)	1.0	1.0	Information Technology	6.6	6.7
					Communication Services	5.3	5.4
					Utilities	3.7	3.7
					Real Estate	3.5	3.6

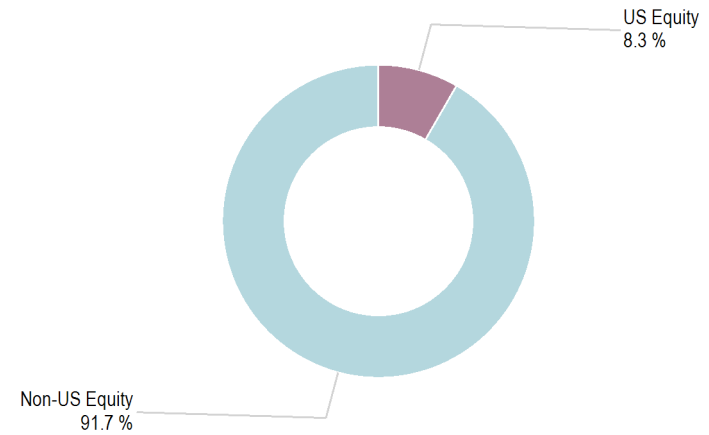
Top Holdings		Best Performers		Worst Performers	
NESTLE 'R'	2.2%		Return %		Return %
NOVARTIS 'R'	1.4%	PERSOL HOLDINGS	45.1%	TEVA PHARM.INDS.ADR 1:1	-41.1%
ROCHE HOLDING	1.4%	AXEL SPRINGER	43.3%	IMPERIAL BRANDS	-30.2%
HSBC HOLDINGS	1.2%	TAIYO NIPPON SANJO	39.4%	RYOHIN KEIKAKU	-28.7%
ROYAL DUTCH SHELL A(LON)	1.0%	WIRECARD	34.4%	UMICORE	-27.2%
TOYOTA MOTOR	1.0%	FORTESCUE METALS GP.	34.4%	PANDORA	-24.0%
BP	1.0%	MERLIN ENTERTAINMENTS	29.8%	SUMITOMO DAINIPPON PHA.	-23.3%
SAP	1.0%	FAST RETAILING	28.6%	DEUTSCHE WOHNEN BR.SHS.	-22.4%
TOTAL	0.9%	NINTENDO	28.5%	KANSAI ELECTRIC PWR.	-22.3%
AIA GROUP	0.9%	ADIDAS	28.1%	TAISEI	-21.8%
		SONY FINANCIAL HOLDINGS	27.3%	COLRUYT	-21.5%



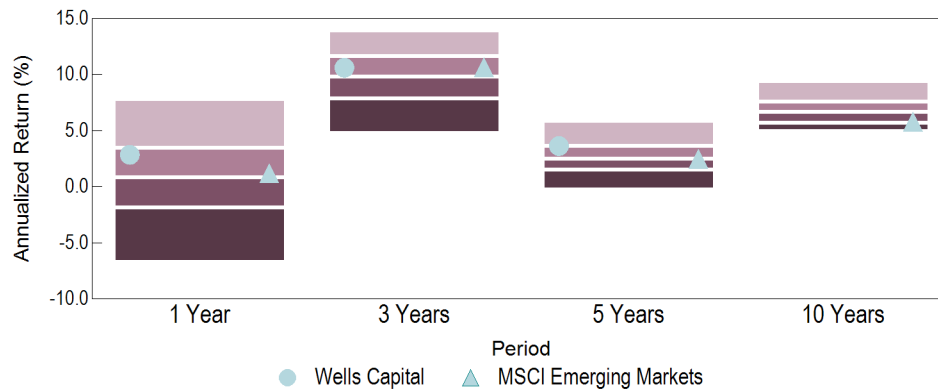
### Return Summary



### Current Allocation

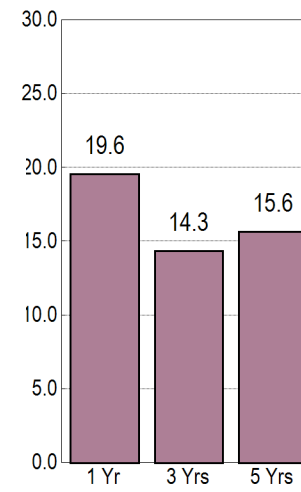


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Wells Capital	2.8	10.6	3.6	--
MSCI Emerging Markets	1.2	10.7	2.5	5.8
eV Emg Mkts Equity Net Median	0.9	9.9	2.5	6.7
eV Emg Mkts Equity Net Rank	32	40	26	--



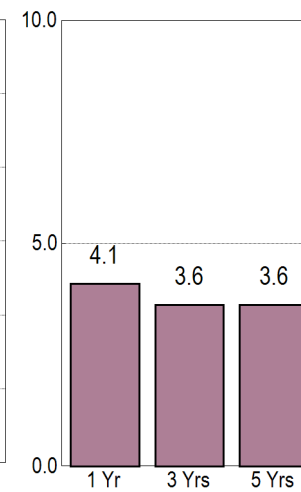
### Anzld. Std. Deviation

#### Wells Capital



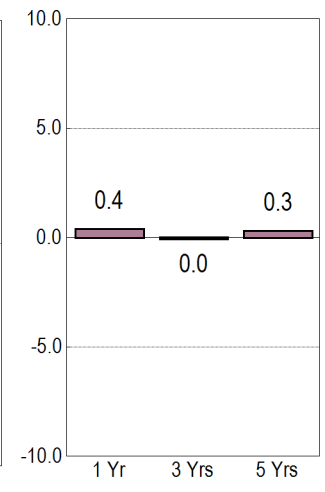
### Tracking Error

#### Wells Capital



### Information Ratio

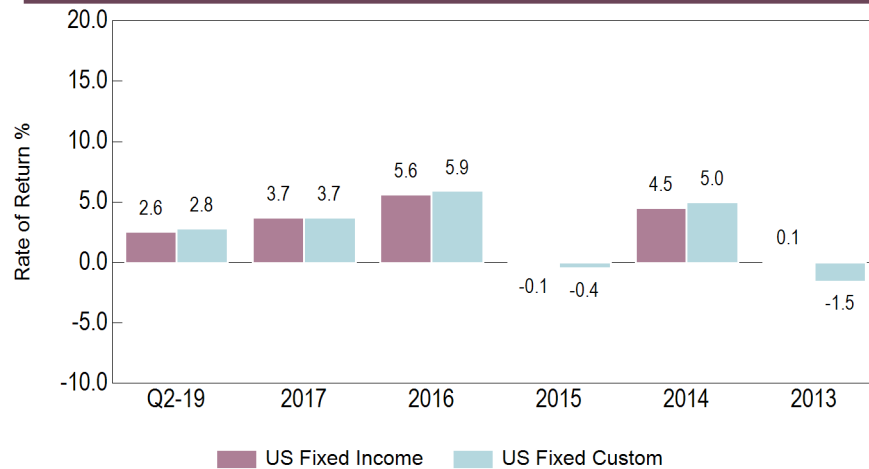
#### Wells Capital



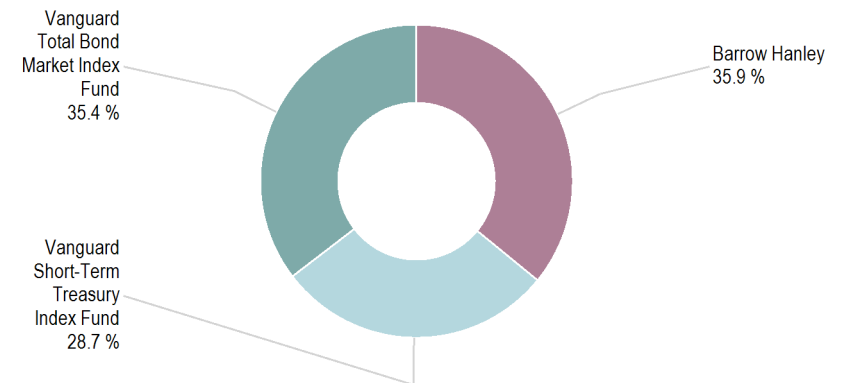


As of June 30, 2019

### Return Summary



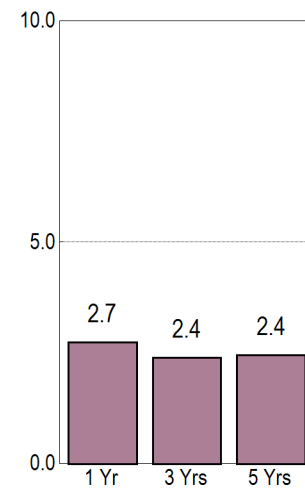
### Current Allocation



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>US Fixed Income</b>	<b>6.8</b>	<b>3.2</b>	<b>3.1</b>	<b>4.6</b>
US Fixed Custom	7.2	3.3	3.2	4.1
InvMetrics All DB US Fix Inc Net Median	7.2	3.1	3.1	4.9
InvMetrics All DB US Fix Inc Net Rank	63	47	52	62

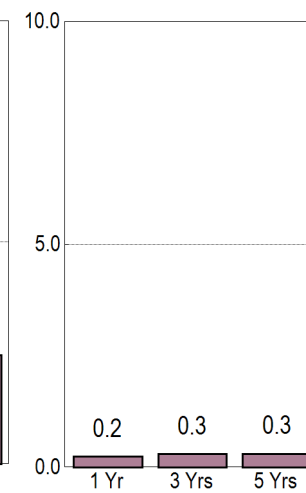
### Anzld. Std. Deviation

US Fixed Income



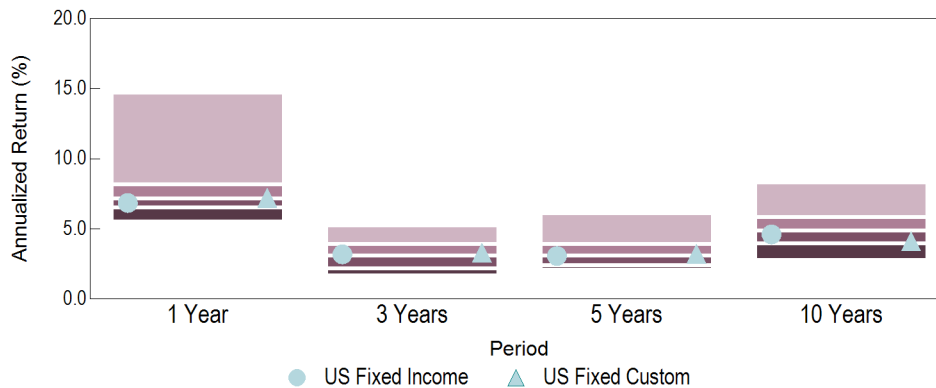
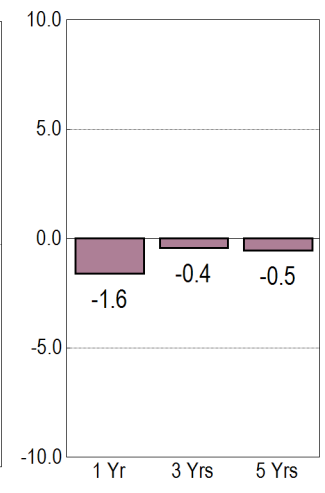
### Tracking Error

US Fixed Income



### Information Ratio

US Fixed Income



## US Fixed Income

As of June 30, 2019

**US Fixed Income Fixed Income Characteristics**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q2-19	Q2-19	Q1-19	Q1-19
<b>Fixed Income Characteristics</b>				
Yield to Maturity	2.33	2.52	2.84	2.93
Average Duration	4.74	6.14	4.86	5.82
Average Quality	AA	AA	AA	AA
Weighted Average Maturity	8.13	13.01	9.27	13.00

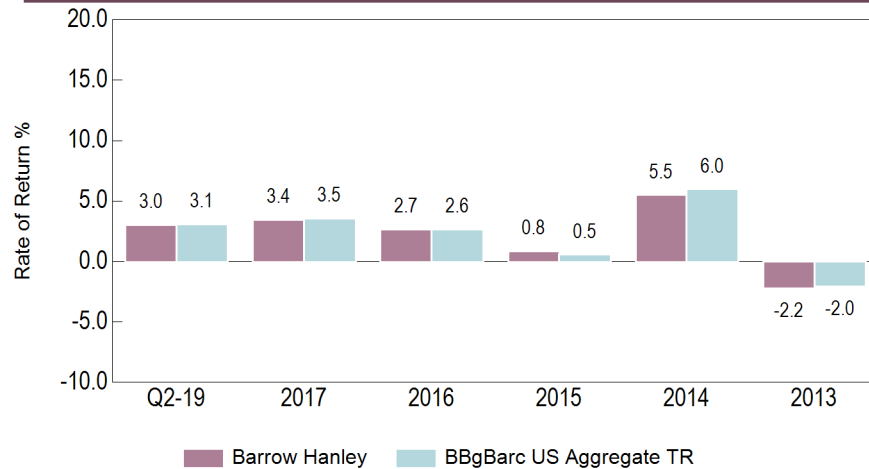
**US Fixed Income Fixed Income Duration**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q2-19	Q2-19	Q1-19	Q1-19
<b>Credit Quality Allocation</b>				
AAA	75.27	72.16	73.06	72.45
AA	2.42	3.44	2.75	3.42
A	10.01	10.68	12.25	10.55
BBB	12.30	13.72	11.95	13.57

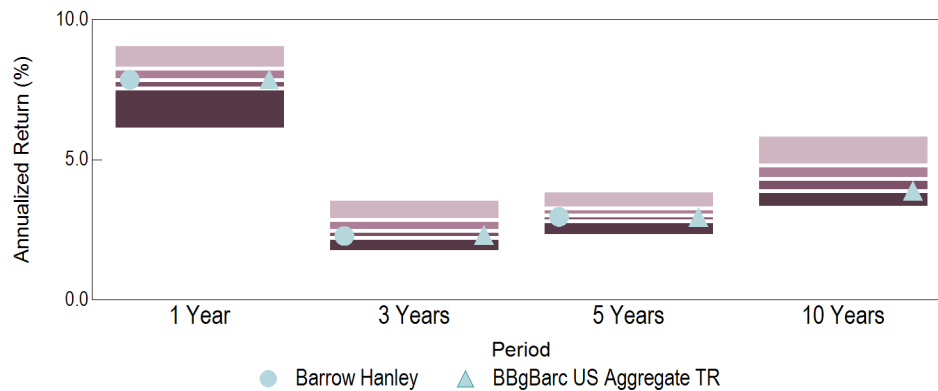
**US Fixed Income Fixed Income Sector Allocation**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q2-19	Q2-19	Q1-19	Q1-19
<b>US Sector Allocation</b>				
UST/Agency	51.59	42.04	42.40	41.73
Corporate	22.49	25.00	26.47	24.70
MBS	20.27	29.22	25.64	29.78
ABS	2.54	0.46	3.64	0.50
Foreign	1.93	2.35	0.22	2.37
Muni	0.65	0.92	0.88	0.92
Other	0.02	--	--	--
Cash	0.52	--	0.75	--

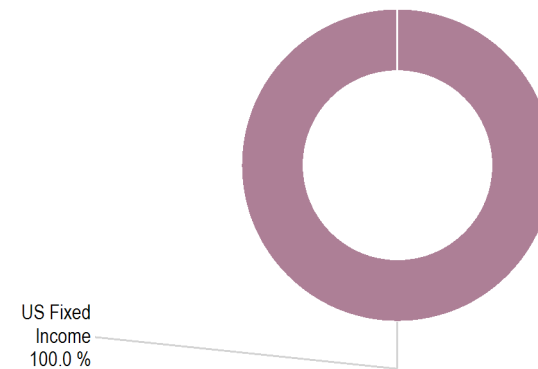
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Barrow Hanley	7.9	2.3	3.0	--
BBgBarc US Aggregate TR	7.9	2.3	2.9	3.9
eV US Core Fixed Inc Net Median	7.9	2.5	3.0	4.3
eV US Core Fixed Inc Net Rank	51	67	56	--

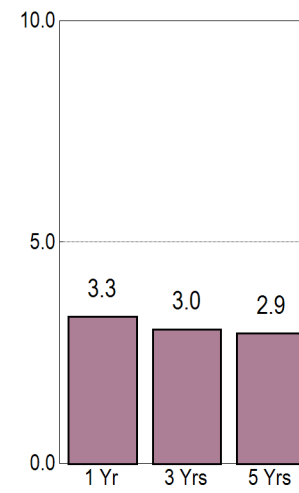


### Current Allocation



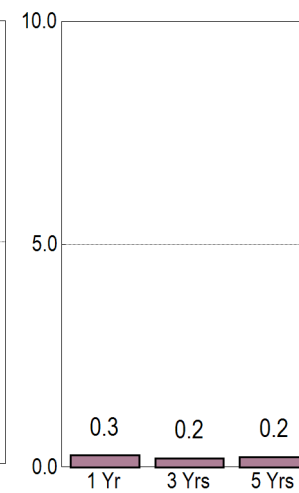
### Anzld. Std. Deviation

#### Barrow Hanley



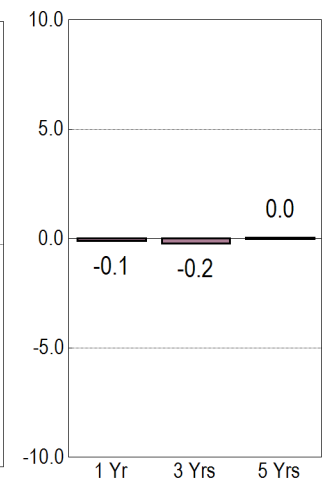
### Tracking Error

#### Barrow Hanley



### Information Ratio

#### Barrow Hanley



As of June 30, 2019

Account Information		Fixed Income Characteristics		Fixed Income Characteristics	
Account Name	Barrow Hanley	Portfolio	Index	Portfolio	Index
Account Structure	Separate Account	Q2-19	Q2-19	Q2-19	Q2-19
Investment Style	Active				
Inception Date	3/31/10	Fixed Income Characteristics		Credit Quality Allocation	
Account Type	US Fixed Income Core	Yield to Maturity	2.61 2.52	AAA	62.90 72.16
Benchmark	BBgBarc US Aggregate TR	Average Duration	5.75 6.14	AA	3.29 3.44
Universe	eV US Core Fixed Inc Net	Average Quality	AA AA	A	16.90 10.68
		Weighted Average Maturity	8.07 13.01	BBB	16.90 13.72

## Vanguard Short-Term Treasury Index Fund

As of June 30, 2019

## Description:

The investment seeks to track the performance of a market-weighted government bond index with a short-term dollar-weighted average maturity.

The fund employs an indexing investment approach designed to track the performance of the Bloomberg Barclays US Treasury 1-3 Year Bond Index. This index includes fixed income securities issued by the U.S. Treasury (not including inflation-protected securities), all with maturities between 1 and 3 years. At least 80% of the fund's assets will be invested in bonds included in the index.

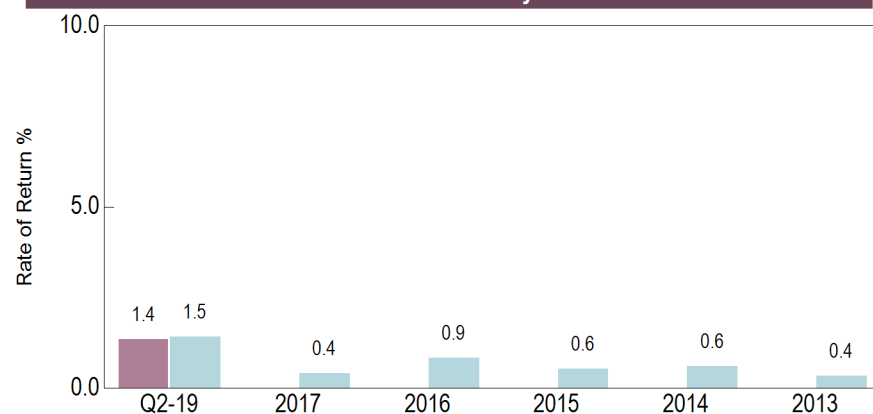
Portfolio Fund Information as of June 30, 2019		Top Holdings as of June 30, 2019		Fund Characteristics as of June 30, 2019	
Ticker	VSBIX	UNITED STATES TREASURY NOTES 1.25%	2.52%	Sharpe Ratio (3 Year)	
Morningstar Category	Short Government	UNITED STATES TREASURY NOTES 2.62%	2.29%	Average Duration	1.93
Average Market Cap (\$mm)		UNITED STATES TREASURY NOTES 1.75%	2.26%	Effective Duration	1.93
Net Assets (\$mm)	976.06	UNITED STATES TREASURY NOTES 1.38%	2.19%	Modified Duration	
% Assets in Top 10 Holdings	21.51	UNITED STATES TREASURY NOTES 2.25%	2.14%	Average Coupon	2.06%
Total Number of Holdings	94	UNITED STATES TREASURY NOTES 2.12%	2.13%	Average Effective Maturity	2.00
Manager Name	Joshua C. Barrickman	UNITED STATES TREASURY NOTES 1.88%	2.06%	R-Squared (3 Year)	
Manager Tenure	6	UNITED STATES TREASURY NOTES 1.75%	2.04%	Alpha (3 Year)	
Expense Ratio	0.05%	UNITED STATES TREASURY NOTES 1.75%	1.98%	Beta (3 Year)	
Closed to New Investors	No	UNITED STATES TREASURY NOTES 1.25%	1.91%		

Maturities as of June 30, 2019		Fixed Income Sectors as of June 30, 2019		Credit Quality as of June 30, 2019	
1 to 3 Years	99.67%	GOVERNMENT	99.87%	AAA	99.87%
3 to 5 Years	0.33%	MUNICIPAL	0.00%	AA	0.00%
5 to 7 Years	0.00%	CORPORATE	0.00%	A	0.00%
7 to 10 Years	0.00%	SECURITIZED	0.00%	BBB	0.13%
10 to 15 Years	0.00%	CASH & EQUIVALENTS	0.13%	BB	0.00%
15 to 20 Years	0.00%	DERIVATIVE	0.00%	B	0.00%
20 to 30 Years	0.00%			Below B	0.00%
Greater than 30 Years	0.00%			Not Rated	0.00%

## Vanguard Short-Term Treasury Index Fund

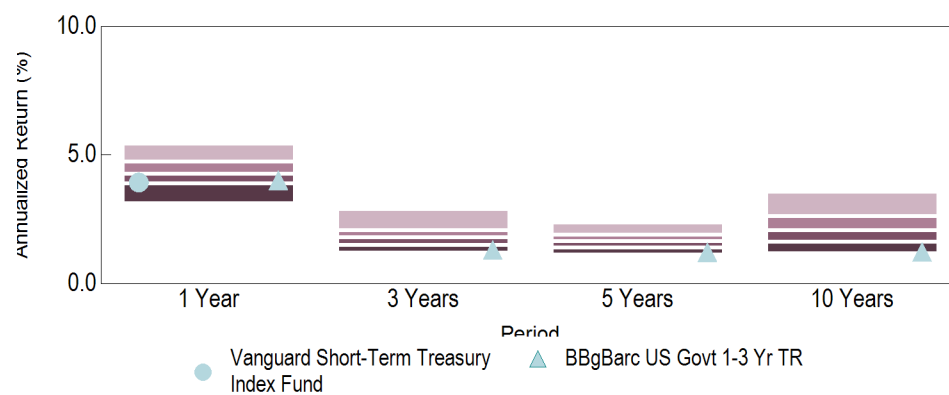
As of June 30, 2019

## Return Summary



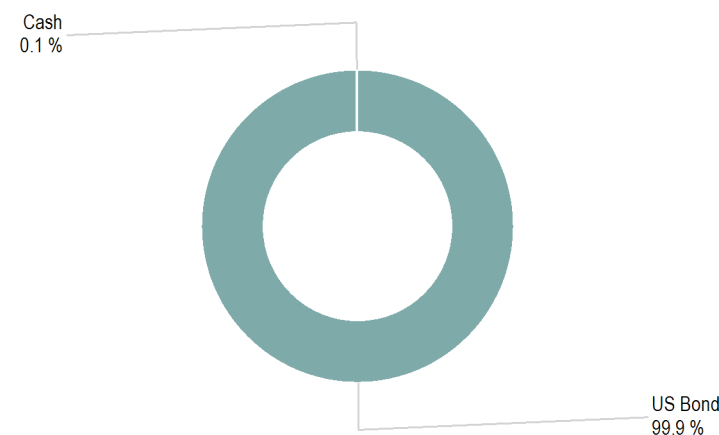
Vanguard Short-Term Treasury Index Fund BBgBarc US Govt 1-3 Yr TR

	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Vanguard Short-Term Treasury Index Fund	3.9	--	--	--
BBgBarc US Govt 1-3 Yr TR	4.0	1.3	1.2	1.2
eV US Short Duration Fixed Inc Net Median	4.3	1.8	1.7	2.1
eV US Short Duration Fixed Inc Net Rank	73	--	--	--



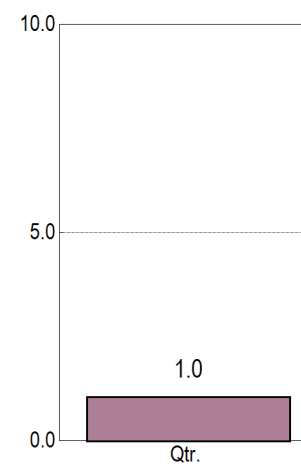
Vanguard Short-Term Treasury Index Fund BBgBarc US Govt 1-3 Yr TR

## Mutual Fund Allocation as of June 30, 2019



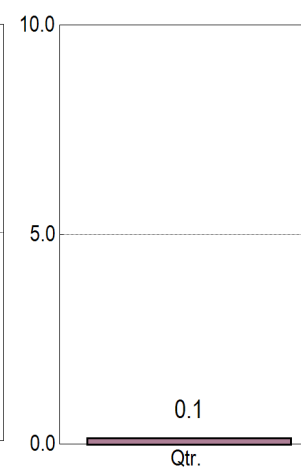
## Anzld. Std. Deviation

Vanguard Short-Term Treasury Index Fund



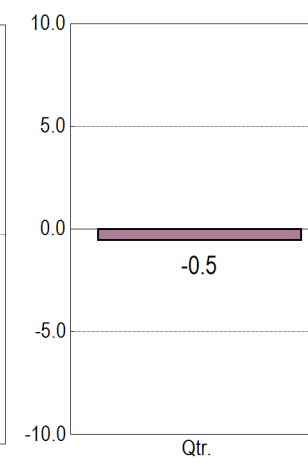
## Tracking Error

Vanguard Short-Term Treasury Index Fund



## Information Ratio

Vanguard Short-Term Treasury Index Fund

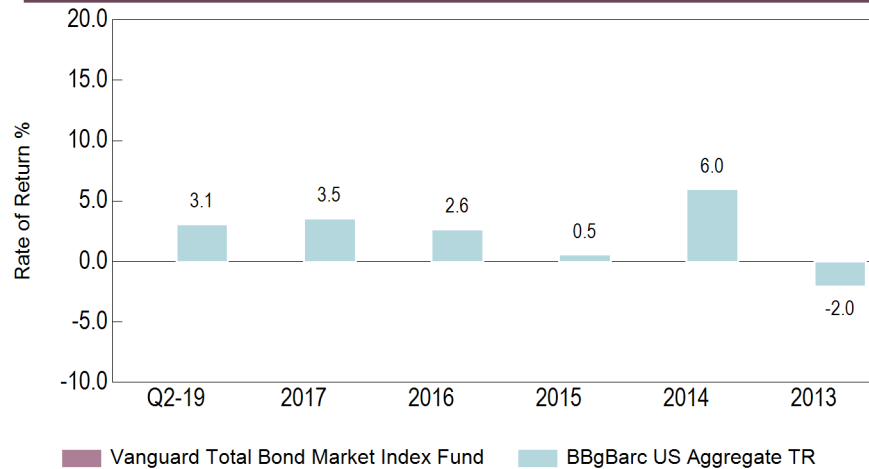




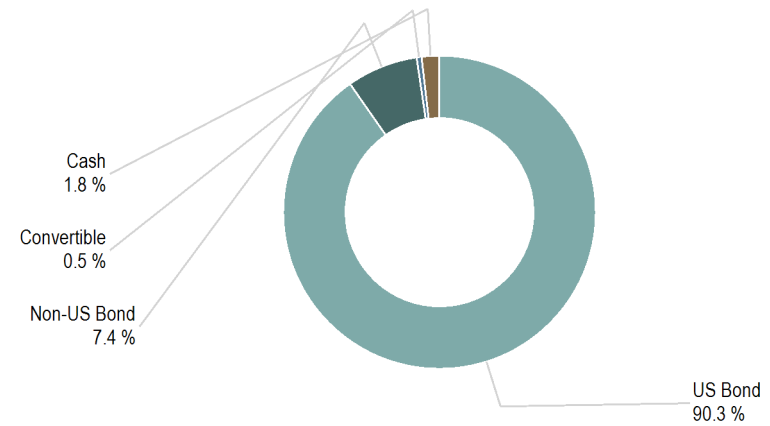
Vanguard Total Bond Market Index Fund

As of June 30, 2019

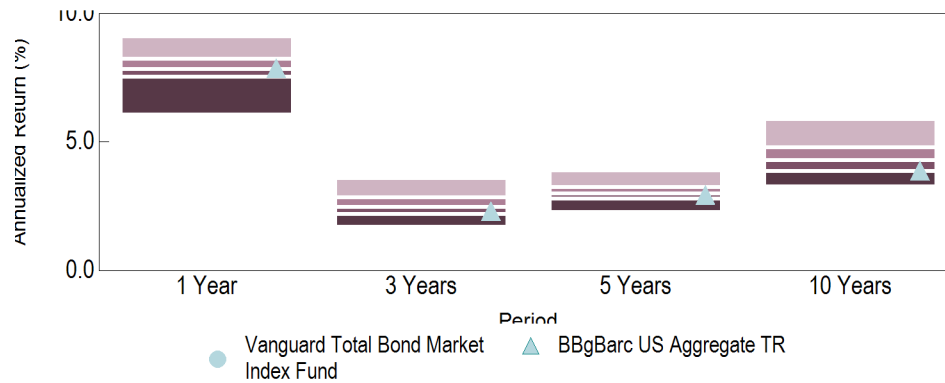
Return Summary



Mutual Fund Allocation as of June 30, 2019



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Vanguard Total Bond Market Index Fund	--	--	--	--
BBgBarc US Aggregate TR	7.9	2.3	2.9	3.9
eV US Core Fixed Inc Net Median	7.9	2.5	3.0	4.3
eV US Core Fixed Inc Net Rank	--	--	--	--



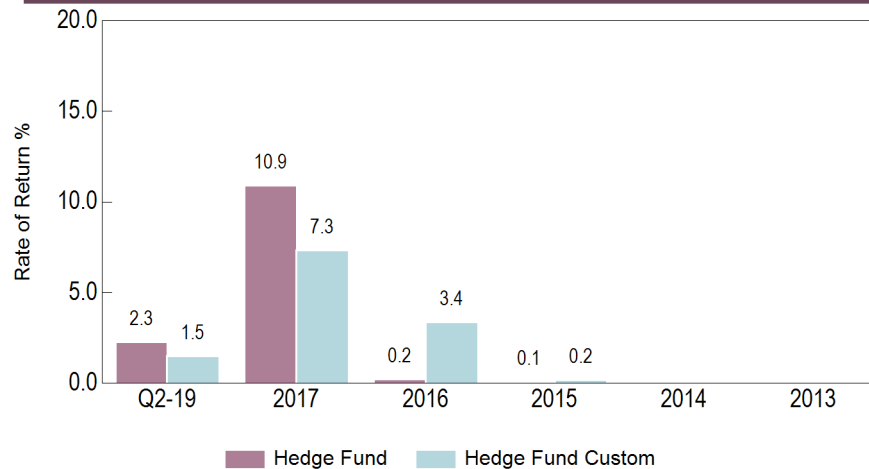
## Vanguard Total Bond Market Index Fund

As of June 30, 2019

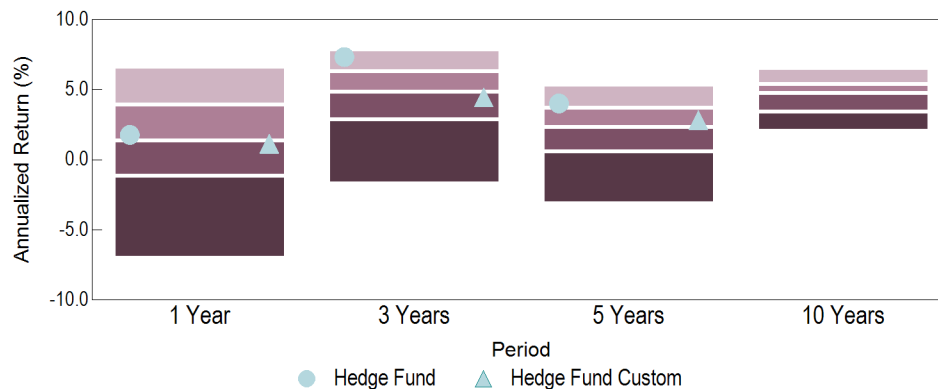
Account Information		Fixed Income Characteristics		Fixed Income Characteristics	
Account Name	Vanguard Total Bond Market Index Fund	Portfolio	Index	Portfolio	Index
Account Structure	Mutual Fund	Q2-19	Q2-19	Q2-19	Q2-19
Investment Style	Passive				
Inception Date	5/01/19	Fixed Income Characteristics		Credit Quality Allocation	
Account Type	US Fixed Income	Yield to Maturity	2.492.52	AAA	67.8372.16
Benchmark	BBgBarc US Aggregate TR	Average Duration	6.006.14	AA	3.503.44
Universe	eV US Core Fixed Inc Net	Average Quality	AAAA	A	11.1410.68
		Weighted Average Maturity	8.2013.01	BBB	17.5313.72

As of June 30, 2019

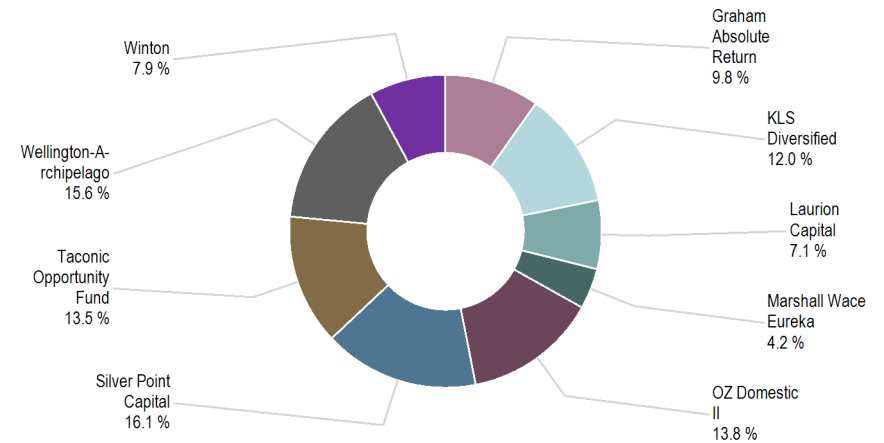
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Hedge Fund</b>	<b>1.8</b>	<b>7.3</b>	<b>4.0</b>	<b>--</b>
Hedge Fund Custom	1.1	4.4	2.8	--
InvMetrics All DB Hedge Funds Net Median	1.4	4.9	2.4	4.8
InvMetrics All DB Hedge Funds Net Rank	49	15	21	--

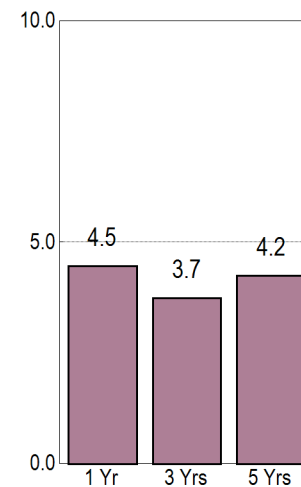


### Current Allocation



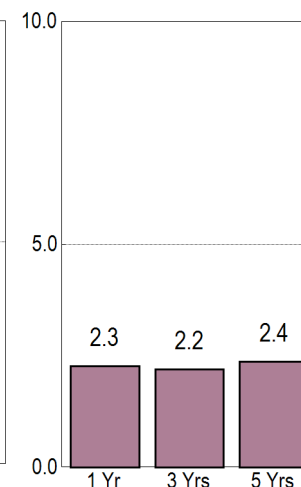
### Anzld. Std. Deviation

#### Hedge Fund



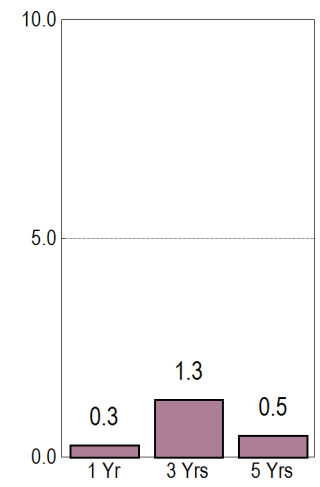
### Tracking Error

#### Hedge Fund

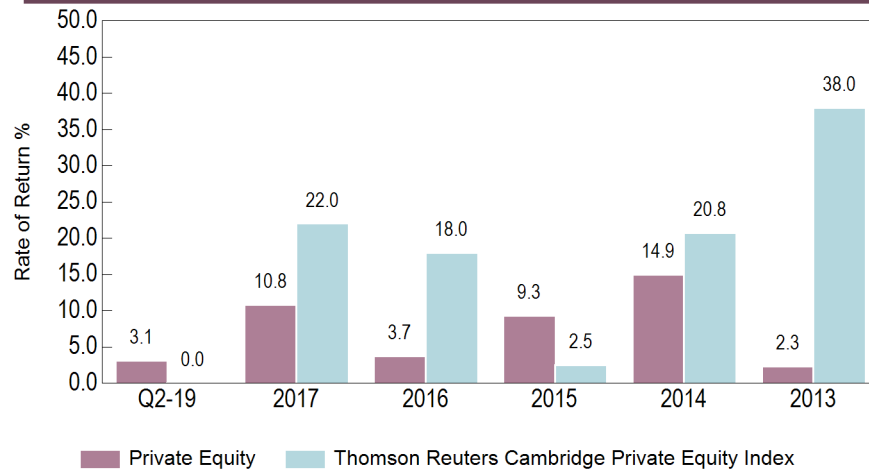


### Information Ratio

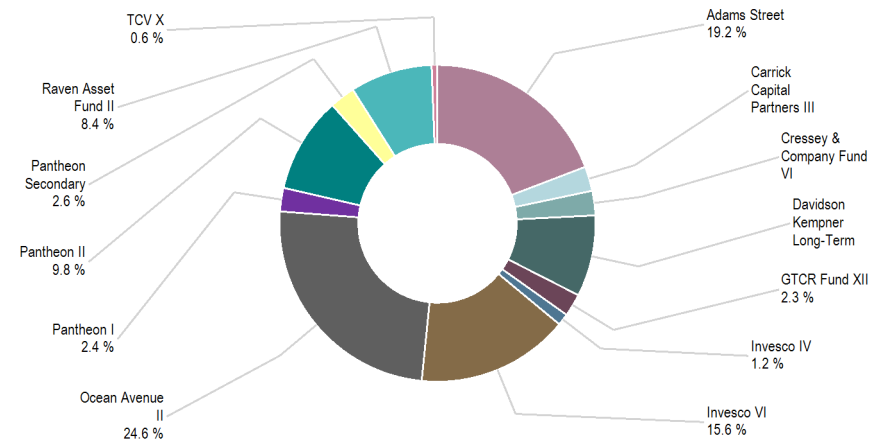
#### Hedge Fund



Return Summary



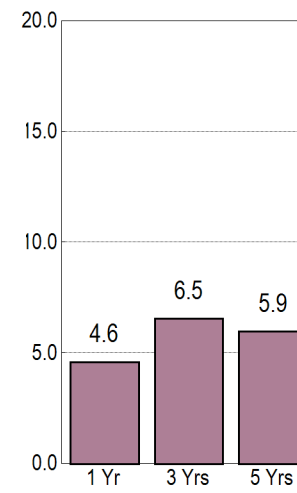
Current Allocation



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Private Equity</b>	<b>9.5</b>	<b>12.4</b>	<b>9.9</b>	<b>9.8</b>
Thomson Reuters Cambridge Private Equity Index	9.2	16.0	13.1	--
InvMetrics All DB Private Eq Net Median	9.4	11.4	10.1	10.5
InvMetrics All DB Private Eq Net Rank	50	43	53	69

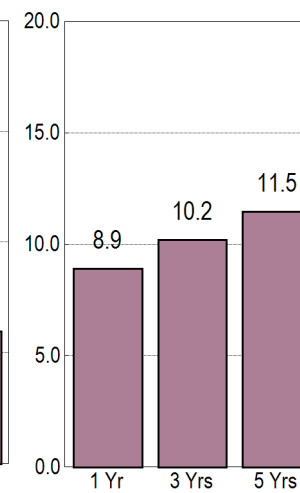
Anzld. Std. Deviation

Private Equity



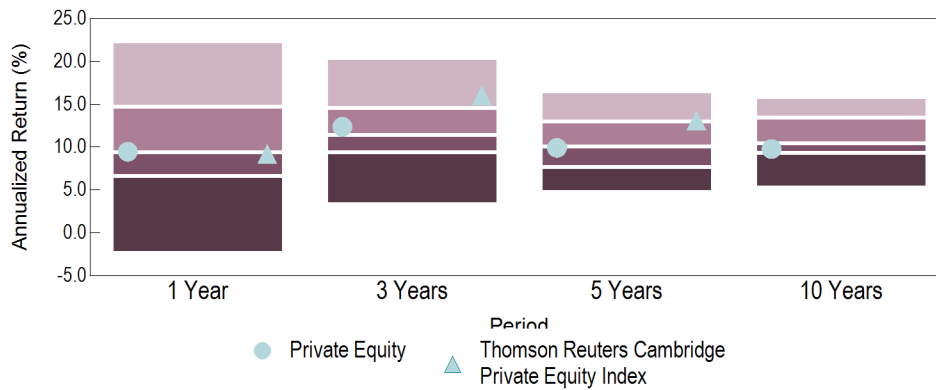
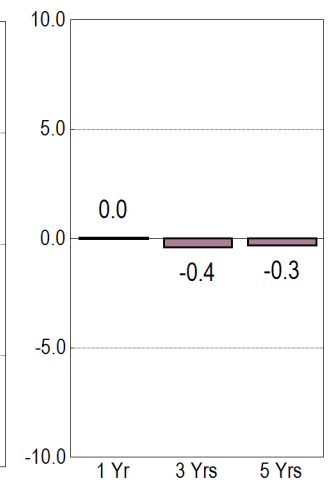
Tracking Error

Private Equity



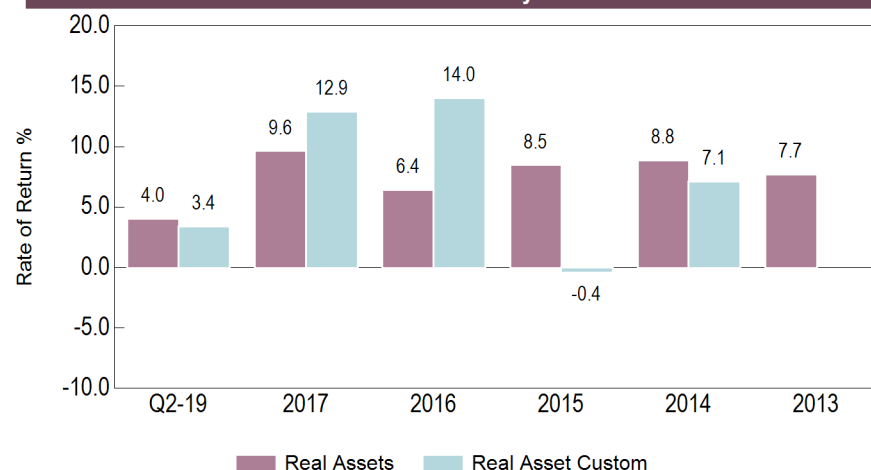
Information Ratio

Private Equity



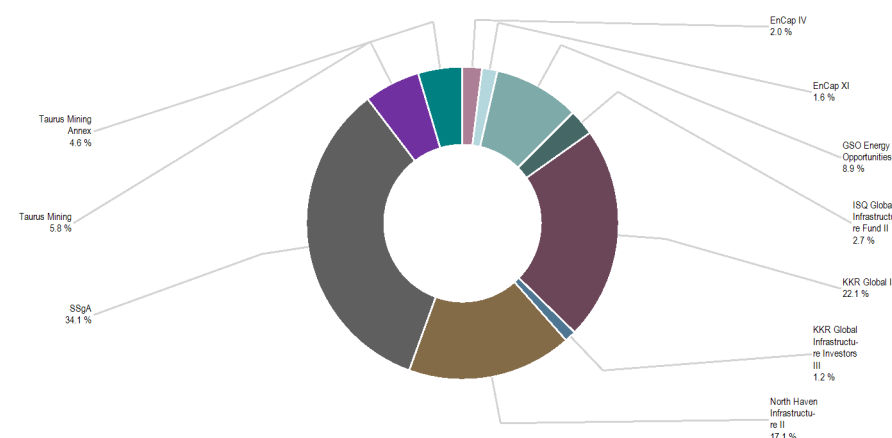
As of June 30, 2019

Return Summary



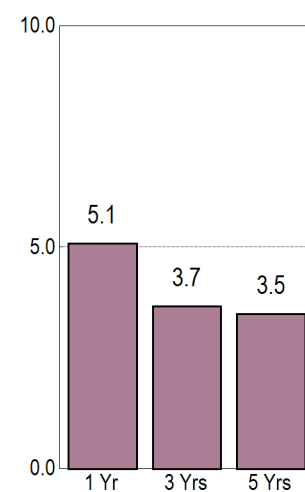
	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Real Assets</b>	<b>9.5</b>	<b>7.6</b>	<b>7.7</b>	<b>--</b>
<i>Real Asset Custom</i>	<i>13.5</i>	<i>11.1</i>	<i>8.2</i>	<i>--</i>

Current Allocation



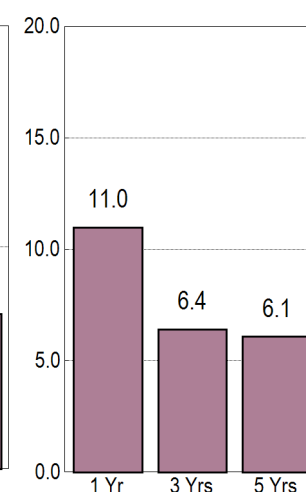
Anzld. Std. Deviation

Real Assets



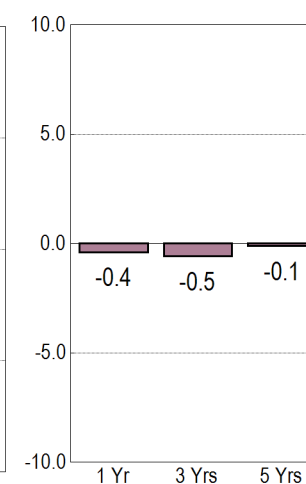
Tracking Error

Real Assets



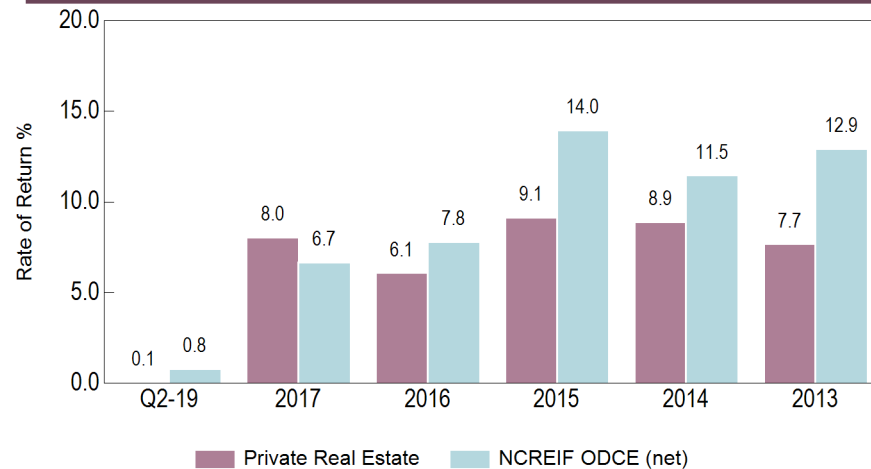
Information Ratio

Real Assets

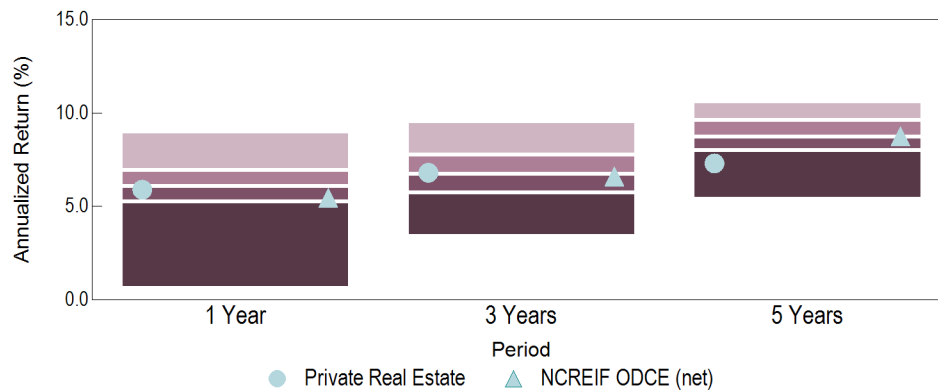


As of June 30, 2019

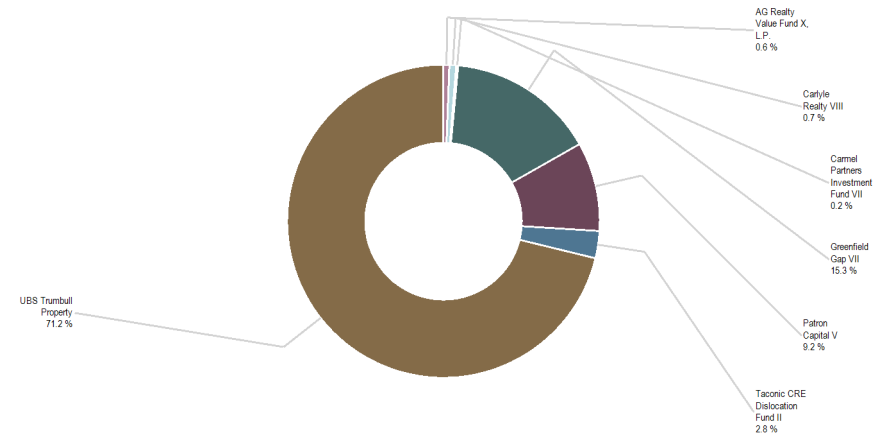
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Private Real Estate	5.9	6.8	7.3	--
NCREIF ODCE (net)	5.5	6.6	8.8	8.9

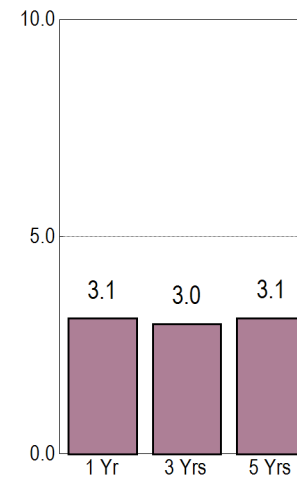


### Current Allocation



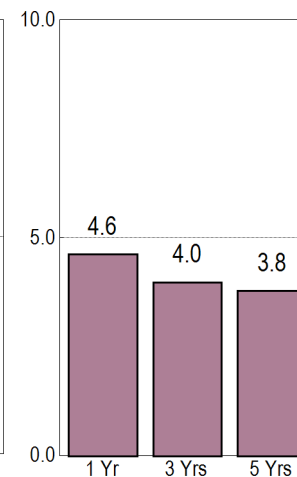
### Anzld. Std. Deviation

#### Private Real Estate



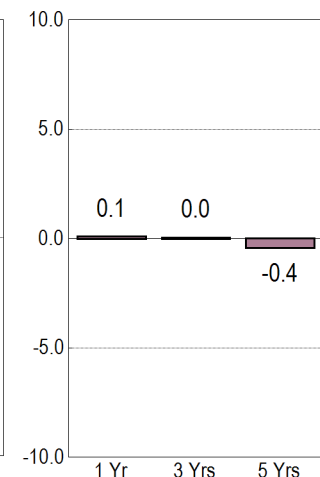
### Tracking Error

#### Private Real Estate

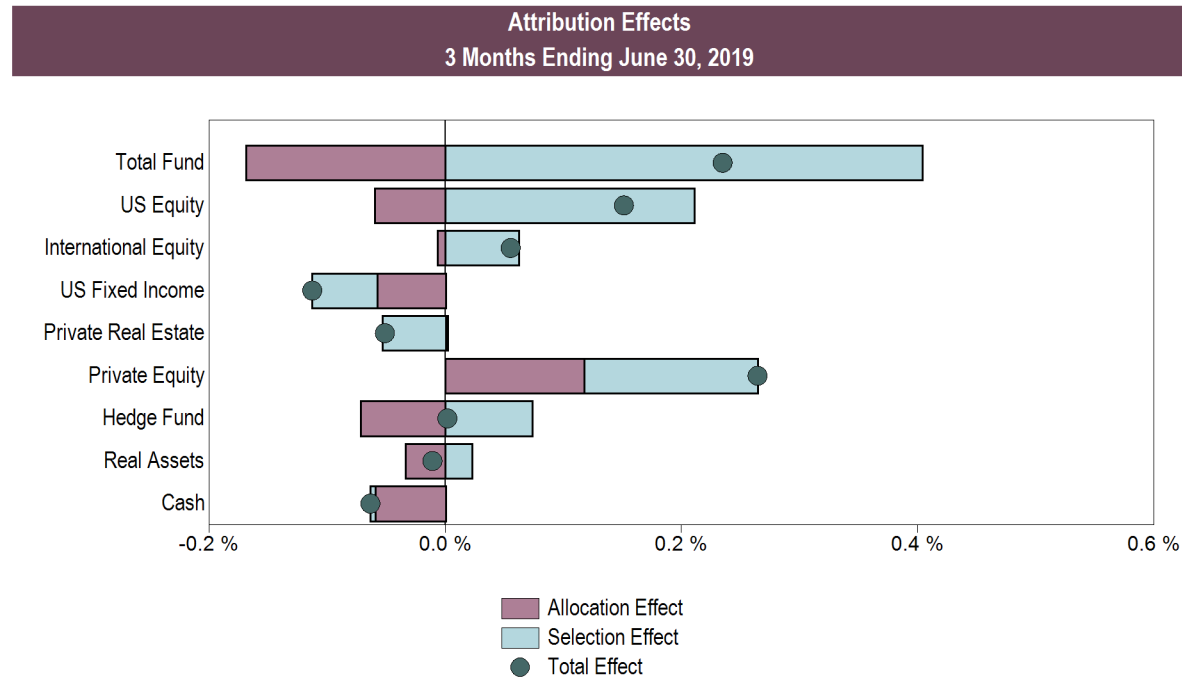


### Information Ratio

#### Private Real Estate



As of June 30, 2019



3 Months Ending June 30, 2019						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
US Equity	4.6%	3.8%	0.8%	0.2%	-0.1%	0.2%
International Equity	2.8%	2.5%	0.3%	0.1%	0.0%	0.1%
US Fixed Income	2.6%	2.8%	-0.2%	-0.1%	-0.1%	-0.1%
Private Real Estate	0.1%	0.8%	-0.7%	-0.1%	0.0%	-0.1%
Private Equity	3.1%	0.0%	3.1%	0.1%	0.1%	0.3%
Hedge Fund	2.3%	1.5%	0.8%	0.1%	-0.1%	0.0%
Real Assets	4.0%	3.4%	0.6%	0.0%	0.0%	0.0%
Cash	0.3%	0.6%	-0.2%	0.0%	-0.1%	-0.1%
<b>Total</b>	<b>2.9%</b>	<b>2.9%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>-0.2%</b>	<b>0.2%</b>

## **Disclaimer, Glossary, and Notes**



WE HAVE PREPARED THIS QUARTERLY REPORT FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION.

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.  
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991.

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.