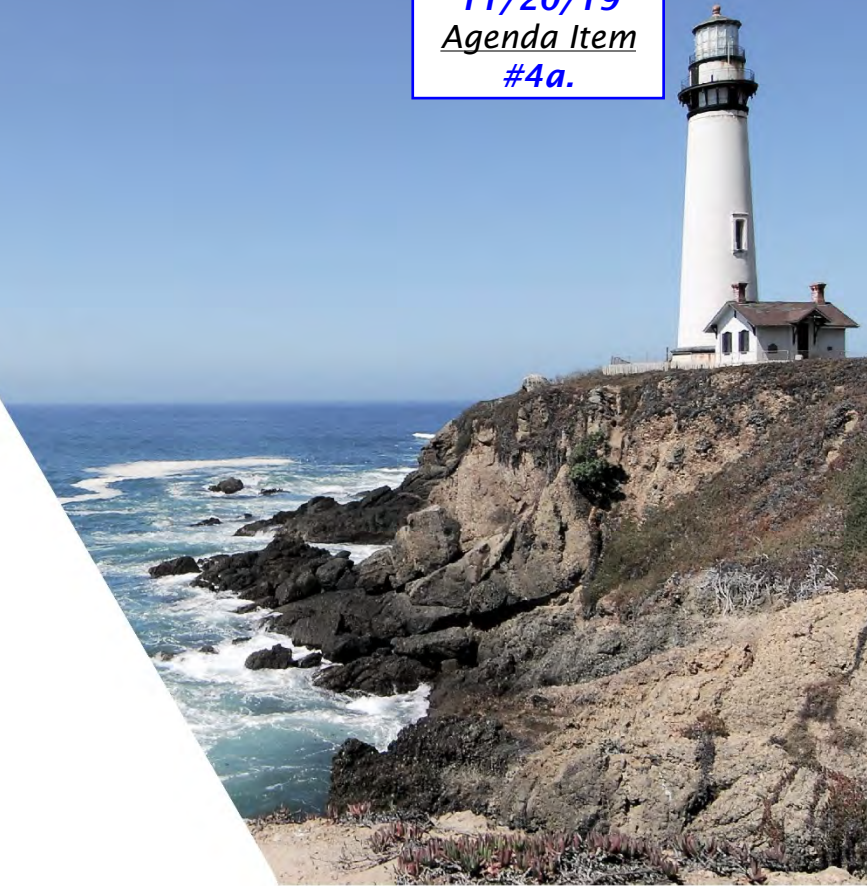


Meeting Date
11/20/19
Agenda Item
#4a.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: SEPTEMBER 30, 2019

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

4TH QUARTER 2019
Investment Landscape

Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

Annual outlooks

PRIVATE EQUITY OUTLOOK

In our annual outlook we discuss the following trends occurring in the private markets:

- Continued strong deal flow in 2018, surpassing the all-time high of 2017.
- Another strong year for M&A activity by strategic buyers in response to slowing global growth to shore up profit margins.
- Europe's continued deployment into new investments to surpass exits by almost 2x, despite the uncertainty of political policies.
- Persistent excess returns above public markets and borrower-friendly leveraged financing driving more capital into the private markets, however investors are gravitating towards larger fund managers with longer track records.
- The continued evolution of secondary markets encompassing increasingly complex transactions.

Topics of interests

CRISIS RISK MITIGATION

We went back in time to find the worst periods in U.S. stock market history. There is always a question regarding whether it is possible to employ risk mitigation within a portfolio without giving up too much in terms of returns or paying too much in expenses.

We briefly examine strategies which are thought to mitigate these effects and find that some are better than others. Most institutional investors already have an effective program of crisis risk mitigation in the form of a significant allocation to high-quality bonds. For those wishing to construct a dedicated crisis risk allocation, we suggest a roadmap.

THE INVESTMENT GOLDEN RULE

Effective capital allocation involves distributing financial resources in a way that aligns the goals and objectives of an organization with its investment program. For institutional investors, this involves designing an appropriate strategic asset allocation (SAA), selecting competent investment managers, and then managing the resulting portfolio well. We believe there is a framework that can help. The "Investment Golden Rule" combines the components of the capital allocation process with the return objective in order to improve investment decisions across the organization. In this paper we analyze some practical examples of the capital allocation process through the lens of this framework.

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3rd quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate). U.S. Q2 consumer spending came in stronger than any time since 2014, while weak business inventory investment acted as a slight drag. **p. 7**
- Trade policies and conflict likely weighed on economic progress. Uncertainty regarding the future of U.S.-China trade relations and supply chain disruptions caused by new tariff impositions are expected to hinder growth in the future. **p. 16**

PORTFOLIO IMPACTS

- U.S. equities outperformed international in Q3 (S&P 500 +1.7%, MSCI EAFE -1.1%) as domestic markets continued to lead. Some convergence of U.S. interest rates with the ultra-low rates of international markets likely supported equity prices over the quarter. **p. 26**
- Core inflation has crept up to cycle-highs in 2019, increasing to 2.4% YoY in September. Headline inflation rose 1.7% YoY, dragged down by falling energy prices. Neither the media nor investors appear to be concerned about rising inflation, as of yet. Investors remain focused on deflationary forces in the global economy. **p. 9**

THE INVESTMENT CLIMATE

- The Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% in both its July and September meetings, bringing the new range for federal funds to 1.75-2.00%. **p. 18**
- Global sovereign bonds rallied, encouraged by muted inflation expectations and dovish guidance from global central banks. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion. **p. 18**

ASSET ALLOCATION ISSUES

- Risk assets were flat over the quarter. Global equities gained 0.0% and U.S. Treasuries gained 2.4% as domestic interest rates fell. Longer duration exposures continued to outperform. **p. 41**
- The U.S. dollar appreciated 2.6% in Q3 relative to a trade-weighted basket of currencies. Dollar volatility has been suppressed so far in 2019, following large swings experienced during years 2014-2018. Emerging market currencies fell -4.0% in Q3 on the back of U.S. dollar strength. These currencies remain depressed relative to history. **p. 36**

A neutral risk stance may be appropriate in today's environment

What drove the market in Q3?

“Trade talks seen as unlikely to mend U.S.-China divide”

U.S. TREASURY FEDERAL BUDGET NET CUSTOMS RECEIPTS (\$BILLIONS)

Apr	May	Jun	Jul	Aug
\$5.24	\$4.93	\$5.61	\$6.47	\$7.01

Article Source: Reuters, September 16th, 2019

“World Economy Sends Up Flares as Manufacturing Slump Hits U.S.”

ISM MANUFACTURING PURCHASING MANAGERS’ INDEX

Apr	May	Jun	Jul	Aug	Sep
52.8	52.1	51.7	51.2	49.1	47.8

Article Source: Bloomberg, September 30th, 2019

“Fed Will Weigh Resuming Balance Sheet Growth at October Meeting”

SIZE OF FEDERAL RESERVE BALANCE SHEET (\$TRILLIONS)

Apr	May	Jun	Jul	Aug	Sep
\$3.93	\$3.85	\$3.83	\$3.78	\$3.76	\$3.86

Article Source: The Wall Street Journal, September 19th, 2019

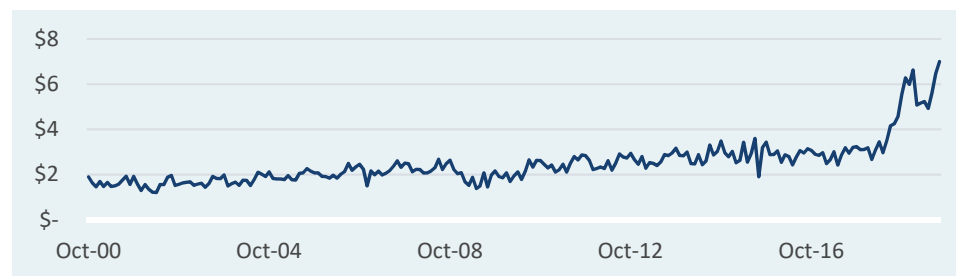
“Can Boris Johnson deliver Brexit as he pledged?”

GBP/USD SPOT EXCHANGE RATE (PRICE OF 1 GBP in USD)

Apr	May	Jun	Jul	Aug	Sep
\$1.30	\$1.26	\$1.27	\$1.22	\$1.22	\$1.23

Article Source: The Australian Financial Review, September 11th, 2019

U.S. TREASURY FEDERAL BUDGET NET RECEIPTS CUSTOMS (\$BILLIONS)



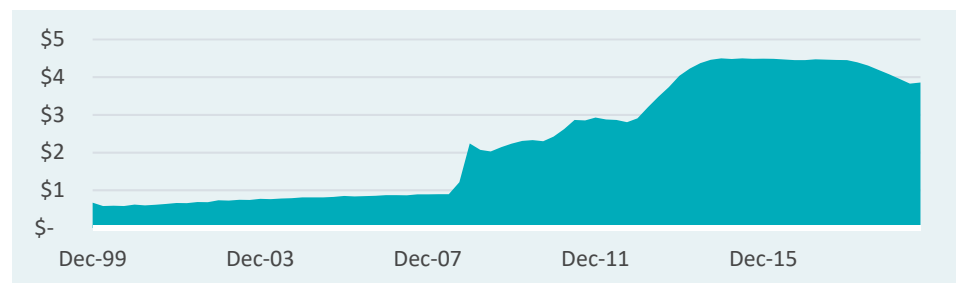
Source: Bloomberg, as of 8/31/19

MANUFACTURING PURCHASING MANAGERS INDEXES (RELATIVE TO 50)



Source: Bloomberg, Federal Reserve, as of 9/30/19. A reading of 0 is considered neutral.

FEDERAL RESERVE BALANCE SHEET (\$TRILLIONS)



Source: Bloomberg, Federal Reserve, as of 9/30/19

Economic environment

U.S. economics summary

- Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate). U.S. Q2 consumer spending came in stronger than any time since 2014, while weak business inventory investment acted as a slight drag.
- U.S-China trade remained a major story in Q3. The U.S. scheduled tariff rate hikes on \$250B in already-tariffed Chinese imports, as well as tariff impositions of up to 15% on the remaining \$300B in Chinese imports not currently exposed to duties. The Chinese retaliated with commensurate tariff adjustments. The two sides agreed to continued trade talks in Washington D.C. at the beginning of October.
- Trade conflict has likely weighed on economic progress. Uncertainty regarding the future of U.S.-China trade relations and supply chain disruptions caused by new tariff impositions are expected to act as a drag on growth in the future.
- Core inflation has crept up to cycle-highs, rising 2.4% YoY in September. Headline inflation increased 1.7% YoY, dragged down by falling energy prices.
- The U.S. unemployment rate reached a 50-year low of 3.5% in September. Historically, the rate of unemployment has risen prior to the beginning of each U.S. recession, which suggests the U.S. expansion may still have room to run.
- Despite record unemployment, wage growth remains lukewarm, decelerating from a cycle high of 3.4% achieved in February, to 2.9% in September.
- In October, the IMF cut its 2019 global economic growth forecast from 3.2% to 3.0%, referencing global trade friction as a primary driver.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% <i>6/30/19</i>	3.2% <i>6/30/18</i>
Inflation (CPI YoY, Core)	2.4% <i>9/30/19</i>	2.3% <i>9/30/18</i>
Expected Inflation (5yr-5yr forward)	1.7% <i>9/30/19</i>	2.2% <i>9/30/18</i>
Fed Funds Target Range	1.75 – 2.00% <i>9/30/19</i>	2.00 – 2.25% <i>9/30/18</i>
10 Year Rate	1.7% <i>9/30/19</i>	3.1% <i>9/30/18</i>
U-3 Unemployment	3.5% <i>9/30/19</i>	3.7% <i>9/30/18</i>
U-6 Unemployment	6.9% <i>9/30/19</i>	7.5% <i>9/30/18</i>

GDP growth

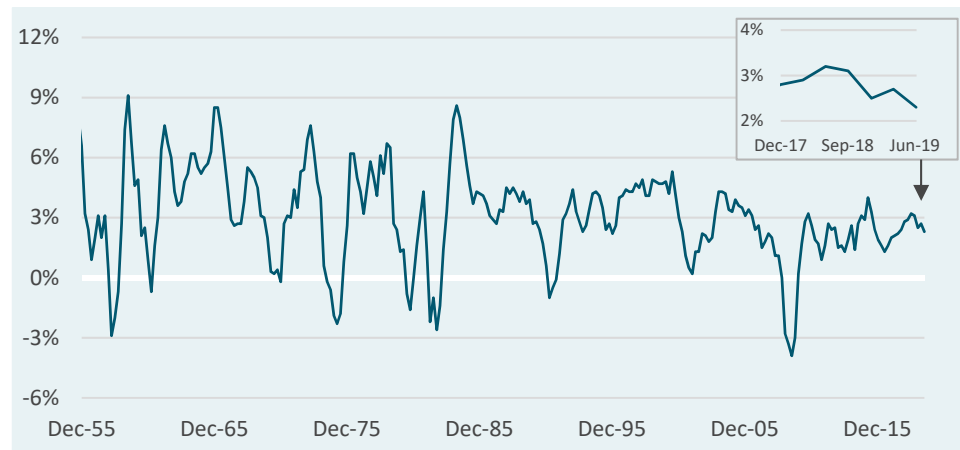
Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate). A lack of corporate inventory investment detracted -0.9% from the overall GDP print, perhaps fueled by frontloaded business purchases in efforts to avoid tariffs. Business investment also acted as a slight drag. Weakness was offset by strength in consumer spending not seen since late 2014. Economists broadly expect U.S. economic growth to moderate to a 2.0% pace in 2020.

economic growth. Uncertainty regarding the future of U.S.-China trade relations and supply chain disruptions caused by new tariff impositions are expected to further weigh on trade, spending, and business investment.

On October 9th, the Federal Reserve Bank of Atlanta GDPNow forecast indicated GDP growth of 1.7% in the third quarter. This forecast has recently fallen due to weaker than expected inventory investment.

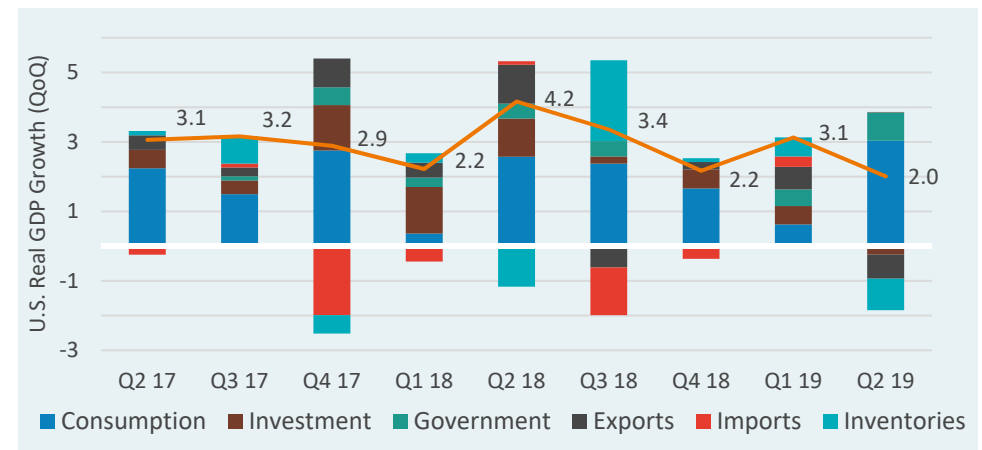
Trade policies and conflict likely resulted in a mild drag on

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 6/30/19

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 6/30/19

Inflation

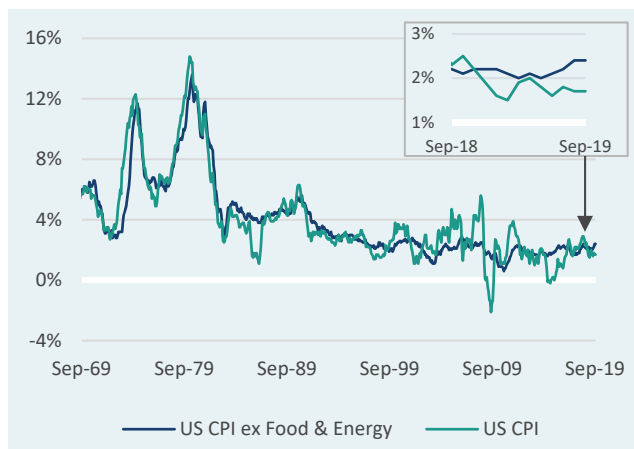
Core inflation has crept up to cycle-highs, rising 2.4% YoY in September. Headline inflation increased 1.7% YoY, held down by falling energy prices. Neither the media nor investors appear to be concerned about rising inflation, as of yet. Investors remain focused on deflationary forces across the global economy.

The market is pricing inflation to be very low over the next 10 years, as indicated by the U.S. 10yr TIPS breakeven inflation rate of 1.52%. This breakeven rate is still a ways

from its cycle low of 1.18% achieved in February 2016, when the price of oil crashed to below \$30 per barrel and pushed inflation down drastically.

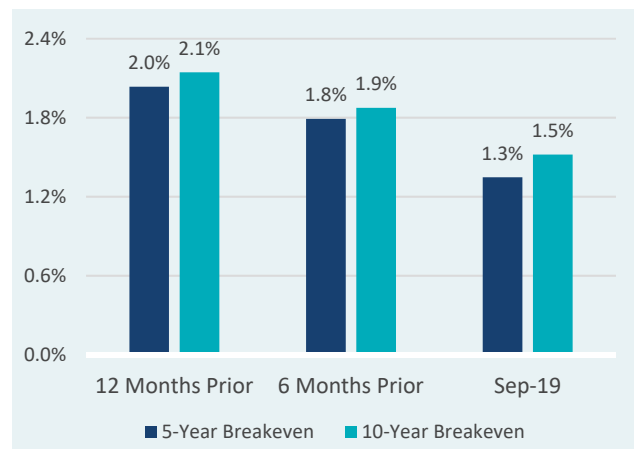
We believe it is likely that inflation will remain subdued. If inflation was to rise persistently, this might place central banks in a perilous position, given their recent unwillingness to raise interest rates. A rising inflation environment would also put upward pressure on interest rates, creating a drag on the global economy.

U.S. CPI (YOY)



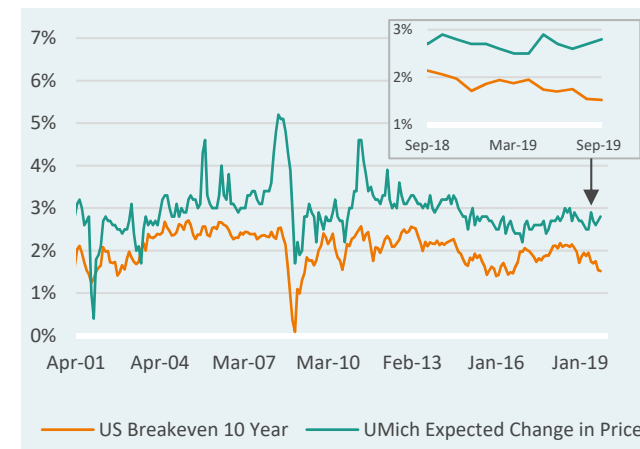
Source: Bloomberg, as of 9/30/19

U.S. BREAKEVEN INFLATION RATES



Source: FRED, as of 9/30/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/19

Labor market

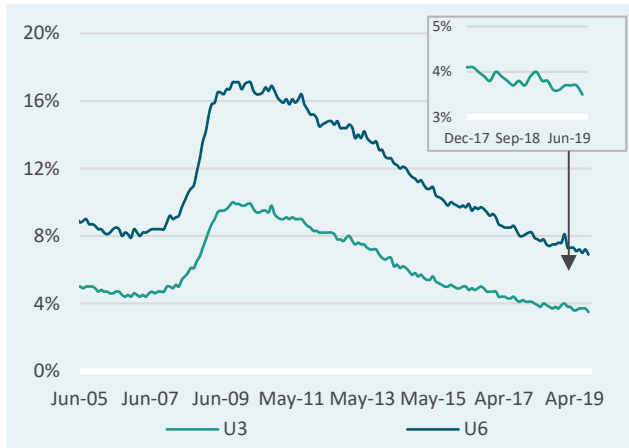
The U.S. unemployment rate reached a 50-year low of 3.5% in September. Historically, the rate of unemployment has risen prior to the beginning of each U.S. recession, which suggests the U.S. expansion may still have room to run. Despite record unemployment, wage growth remains lukewarm, decelerating to 2.9% YoY in September, down from a cycle high of 3.4% YoY achieved in February.

Interestingly, the small pool of U.S. workers who are currently unemployed have been out of work for much

longer, on average, than during past economic cycles. A shift in the composition of U.S. jobs may be contributing to this effect, as many manufacturing jobs have been outsourced/lost, and automated production processes have displaced some workers. Mismatches between the skills of available U.S. job-seekers and the skills required for current jobs appears to be creating some *structural unemployment*. Workers who are *structurally unemployed* require retraining and education to reposition themselves in the labor market.

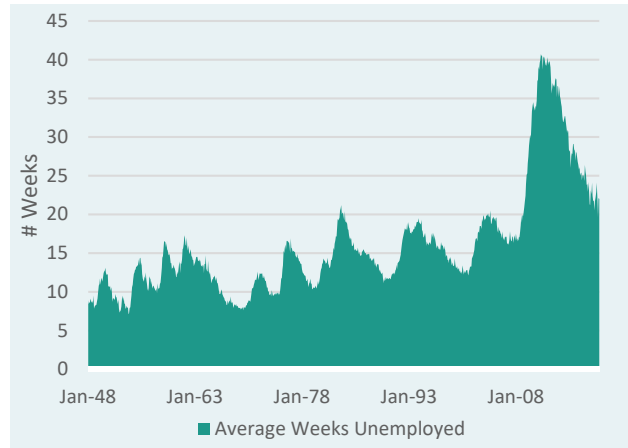
U.S. labor market remains strong, though further upside may be limited

U.S. UNEMPLOYMENT



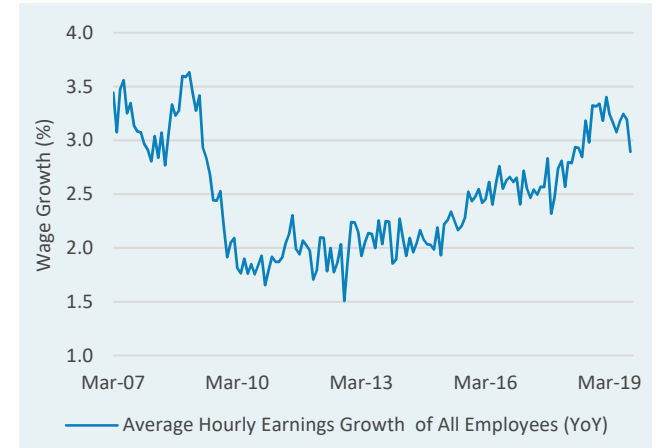
Source: FRED, as of 9/30/19

LENGTH OF UNEMPLOYMENT



Source: FRED, as 9/30/19

U.S. WAGE GROWTH



Source: FRED, as of 9/30/19

The consumer

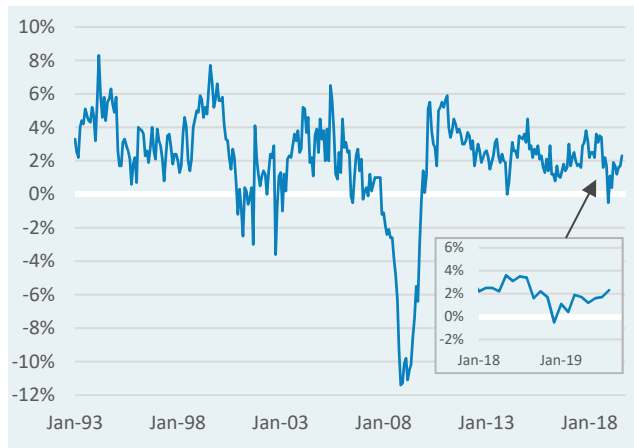
Retail sales fell in late 2018 but recovered year-to-date with a September growth rate of 2.3% YoY. Big-ticket purchases of items such as automobiles and homes have slowed from their 2016 highs.

The U.S. consumer continues to exhibit strength, as the labor market has reached record tightness, sentiment remains solid, and borrowing costs have fallen. However, slowing big ticket purchases will act as a headwind to growth. This slowing may be partly an effect of low interest rate burnout. As interest rates have been low for many years, consumers in need of big-ticket items have likely already purchased those items. Since

consumers are not likely to purchase yet another car or home, the incremental positive impacts of lower interest rates may be limited.

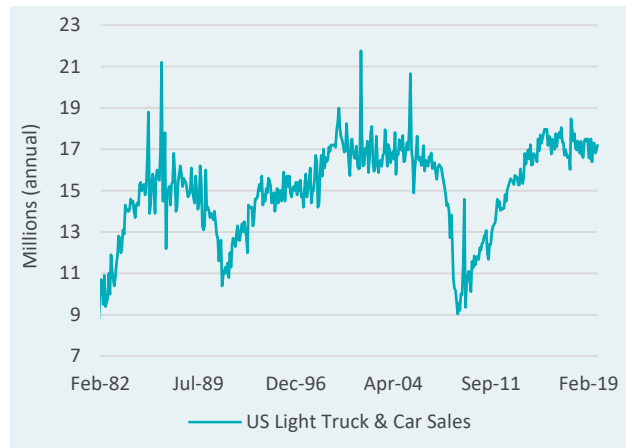
Consumer spending growth throughout this expansion has been a bright spot but has remained moderate, perhaps influenced by memories of the U.S. housing bubble and global financial crisis. Conservative spending habits are reflected in much higher savings rates than those witnessed during the economic boom of the 2000s – during which households spent more of their disposable income than any time since the Great Depression of the 1930s.

REAL RETAIL SALES GROWTH (YOY)



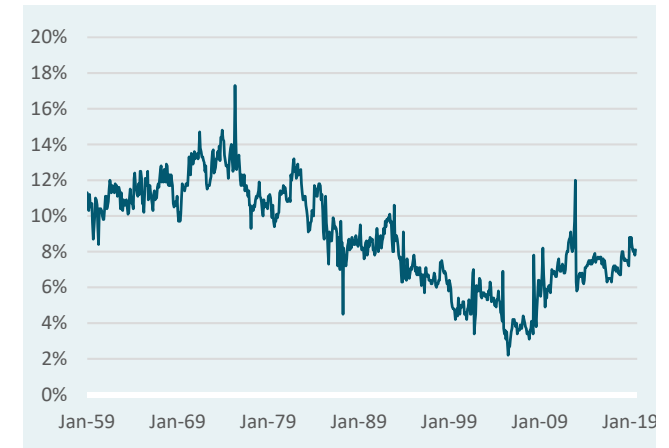
Source: FRED, as of 8/31/19

AUTO SALES



Source: Bloomberg, as of 9/30/19

PERSONAL SAVINGS RATE



Source: FRED, as of 8/31/19

Sentiment

Consumer sentiment faded but remained strong relative to history. The ratcheting up of trade tensions between the U.S. and China cast a shadow over a robust U.S. labor market.

Quits rate data from the Bureau of Labor Statistics indicated that 2.3% of total employed U.S. workers voluntarily quit their jobs in August - a level not seen since April 2001. Policymakers and economists view the quits rate as a measure of job confidence; quits rates typically rise when the labor market is relatively tight, and wages are moving higher.

Over the quarter, the University of Michigan's Consumer Sentiment Index fell from 98.2 to 93.2. Consumers remained more concerned about the near-term future than about the current situation. The two components of the index – Expectations and Current Situation - fell from 89.3 to 83.4 and from 111.9 to 108.5, respectively.

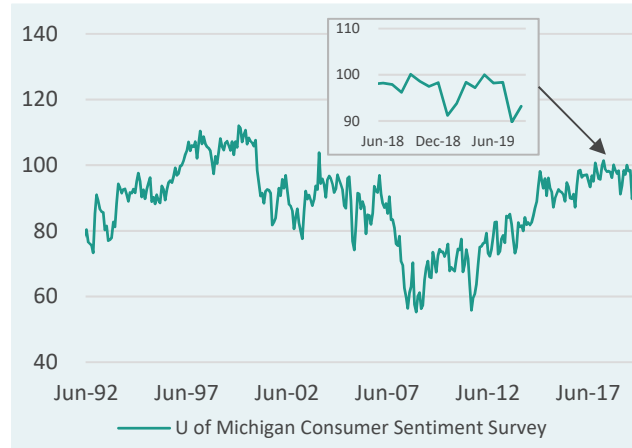
Optimism among small business owners trended lower as well. In the September NFIB report, 30% of small business owners reported they were negatively affected by tariffs.

U.S. WORKER QUIT RATE



Source: FRED, as of 8/31/19

CONSUMER SENTIMENT



Source: University of Michigan, as of 9/30/19 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 9/30/19

Housing

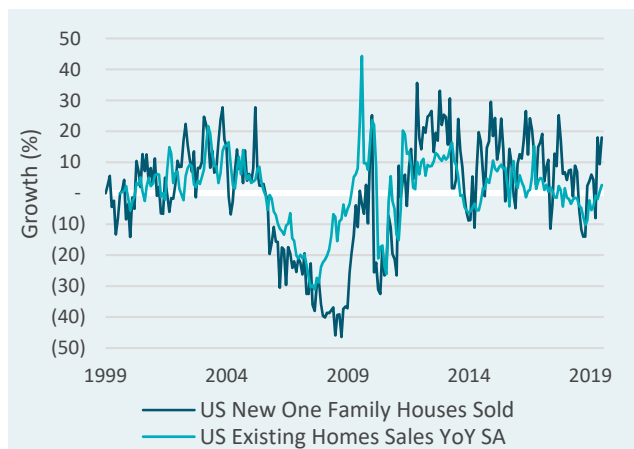
The housing market appears to be cooling off after a strong boom throughout the recent economic expansion. Home prices are falling modestly in some markets, and sales activity slowed in 2018. However, the recent drop in interest rates and mortgage rates has eased the cost of home ownership and may reignite activity.

Existing home sales grew +2.6% YoY in August. New home sales, a far smaller portion of the overall market, grew at a stronger rate of +18% YoY. An increase in new home sales likely reflects rising homebuilder activity in recent years, as indicated by the NAHB Housing Starts and Housing Permits Indices.

Home prices have fallen. The median U.S. home sale price was down -5% YoY in Q2. Falling prices and further weakening of the U.S. economy may create negative momentum as many buyers do not wish to purchase a home in a falling housing market, or in an economy that may be headed for recession.

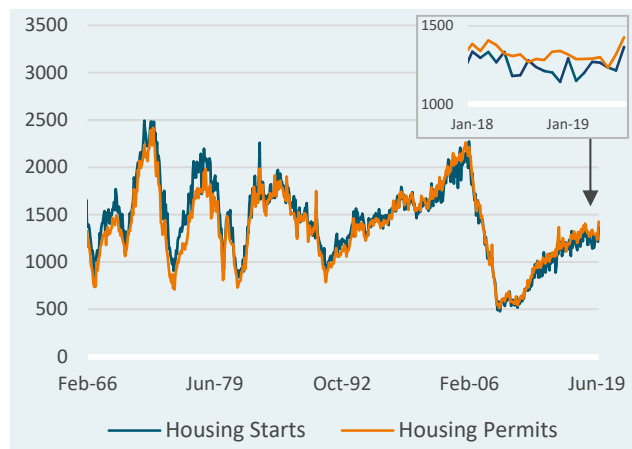
It is always helpful to remember that home price trends can vary meaningfully by location, which means national statistics are sometimes difficult to interpret at a local level.

U.S. HOME SALES (YOY)



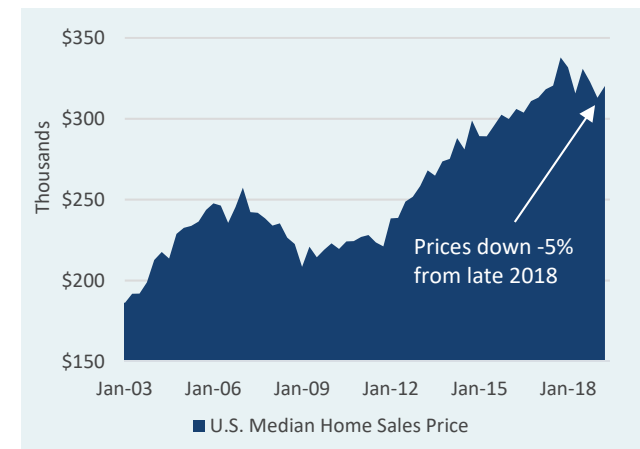
Source: FRED, as of 8/31/19

HOUSING STARTS & PERMITS



Source: Bloomberg, NAHB, as of 8/31/19 (see appendix)

MEDIAN U.S. HOME SALES PRICE



Source: FRED, as of 6/30/19

International economics summary

- The Organization for Economic Development cut its 2019 calendar year forecast for global growth from 3.2% to 2.9% and its 2020 calendar year forecast from 3.4% to 3.0%. Driving the downward revisions were trade tensions, which the OECD estimated would reduce 2019 global growth by 0.6%, cue for central banks to step in and attempt to bolster economic growth through more accommodative policy.
- A major theme in the third quarter was the global manufacturing slowdown, which was illuminated by gloomy European manufacturing PMI data. The Markit Eurozone Manufacturing PMI fell to 45.7, further into contractionary territory indicated by a reading below 50. The German reading fell to 41.7. It has yet to be seen whether manufacturing weakness will spill into the larger services sector, where PMIs still indicate business expansion.
- Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a
- Unemployment rates continued to tick lower around the globe. In the U.S., unemployment hit a 50-year low at 3.5%.
- U.S-China negotiations will likely continue to impact trade around the world. The U.S. scheduled tariff rate hikes on \$250B in already-tariffed Chinese imports, as well as tariff impositions of up to 15% on the remaining \$300B in Chinese imports not currently exposed to duties. The Chinese retaliated with commensurate tariff adjustments. The two sides agreed to continued trade talks in Washington D.C. at the beginning of October.
- Dormant trade tensions between the U.S. and the E.U. saw a resurgence over the quarter – the U.S. applied tariffs between 10-25% on \$7.5B of imports from the E.U.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% <i>6/30/19</i>	1.7% <i>9/30/19</i>	3.5% <i>9/30/19</i>
Eurozone	1.2% <i>6/30/19</i>	0.8% <i>9/30/19</i>	7.4% <i>8/31/19</i>
Japan	1.0% <i>6/30/19</i>	0.4% <i>9/30/19</i>	2.3% <i>5/31/19</i>
BRICS Nations	5.0% <i>6/30/19</i>	3.1% <i>9/30/19</i>	5.1% <i>6/30/19</i>
Brazil	1.0% <i>6/30/19</i>	2.9% <i>9/30/19</i>	11.8% <i>8/31/19</i>
Russia	0.9% <i>6/30/19</i>	4.0% <i>9/30/19</i>	4.3% <i>8/31/19</i>
India	5.8% <i>3/31/19</i>	4.0% <i>9/30/19</i>	8.5% <i>12/31/17</i>
China	6.2% <i>6/30/19</i>	3.0% <i>9/30/19</i>	3.6% <i>6/30/19</i>

International economics

The United States delivered year-over-year GDP growth of 2.3% in the second quarter, extending outperformance relative to other developed nations, which have posted year-over-year growth of around 1.0%.

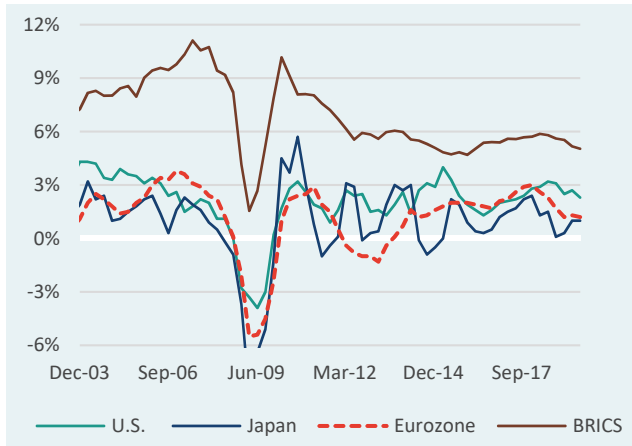
The Organization for Economic Development cut its 2019 calendar year forecast for global growth from 3.2% to 2.9% and its 2020 calendar year forecast from 3.4% to 3.0%.

Driving the downward revisions were trade tensions, which the OECD estimated would reduce 2019 global growth by 0.6%, 2019 U.S. growth by 0.7%, and 2019 Chinese growth by 1.0%

Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a cue for central banks to step in and attempt to bolster economic growth through more accommodative policy. Unemployment rates continued to tick lower around the globe. In the U.S., unemployment hit a 50-year low at 3.5%.

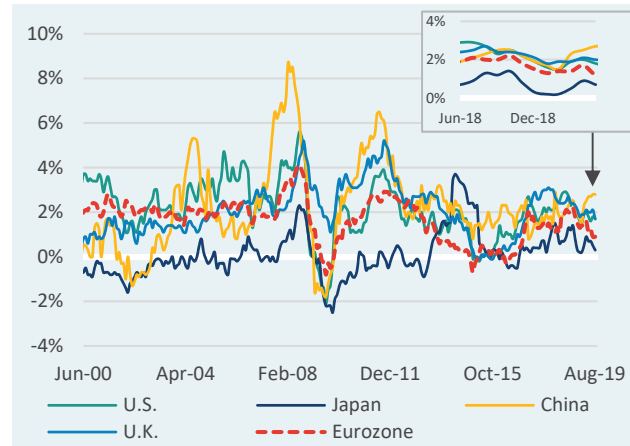
Chinese GDP expanded 6.0% year-over-year in the third quarter, its slowest rate of growth since the first quarter of 1992. Beijing's official target range for 2019 growth is between 6.0-6.5%.

REAL GDP GROWTH (YOY)



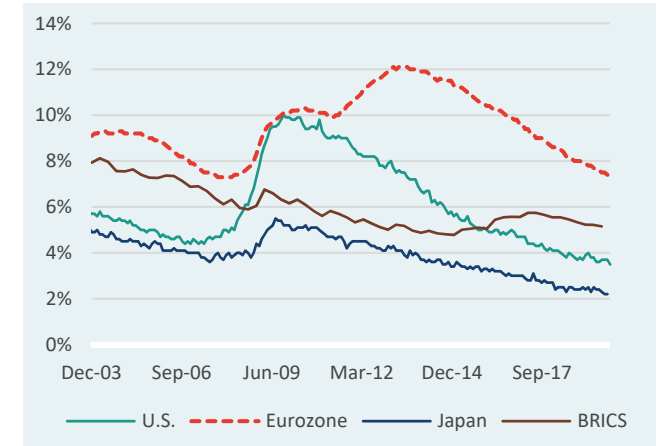
Source: Bloomberg, as of 6/30/19

INFLATION (CPI YOY)



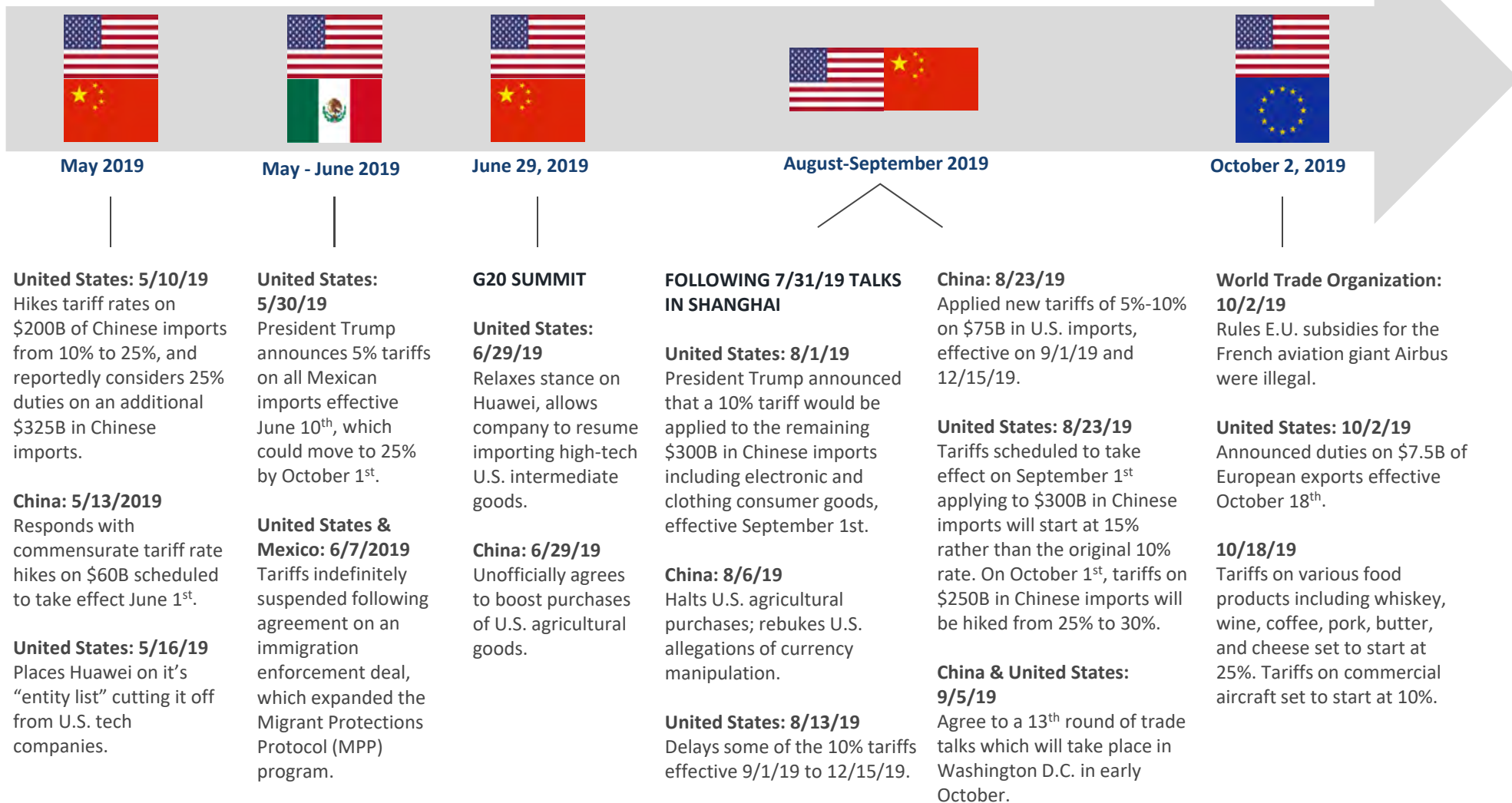
Source: Bloomberg, as of 9/30/19

UNEMPLOYMENT RATE



Source: Bloomberg, as of 9/30/19 or most recent release

Trade update



Source: Wikimedia Commons

Fixed income rates & credit

Interest rate environment

- Global sovereign bonds rallied, encouraged by muted inflation expectations and dovish guidance from global central banks. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion.
- The Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% in both its July and September meetings, bringing the new range for federal funds to 1.75-2.00%.
- FOMC members appear divided on the likely future path of interest rates. Per the September dot plot, 8 of 17 members expect one further 0.25% cut by the end of 2020, 2 expect no change, and 7 expect either one or two 0.25% rate hikes.
- The European Central Bank delivered a fresh stimulus package in September, in line with expectations. The ECB cut its main deposit rate from -0.40% to -0.50% and announced it would restart asset purchases of €20 billion per month, beginning November 1st.
- Global sovereign yields continued to plummet. In Germany, 10-year bond yields touched fresh all-time lows, and the entire German sovereign curve moved below 0%. In Italy, 10-year bond yields fell 1.28% to 0.82%, boosted by the formation of a new coalition government between the Democratic Party and the Five-Star Movement.
- Repo rates, which represent the overnight rate paid by short-term borrowers of cash, surged as overnight liquidity was constrained. The New York Fed intervened, injecting over \$300 billion into money markets over the course of a few weeks. Fed officials viewed the brief spike in repo rates as a financial “plumbing” issue, which could justify an “organic resumption of balance sheet growth”, not to be confused with crisis-era QE policy.

Area	Short Term (3M)	10-Year
United States	1.81%	1.66%
Germany	(0.57%)	(0.57%)
France	(0.59%)	(0.27%)
Spain	(0.54%)	0.15%
Italy	(0.28%)	0.82%
Greece	0.65%	1.35%
U.K.	0.78%	0.49%
Japan	(0.32%)	(0.21%)
Australia	1.06%	1.02%
China	2.33%	3.14%
Brazil	5.04%	7.05%
Russia	6.58%	7.01%

Source: Bloomberg, as of 9/30/19

Rising global debt – two opposing forces

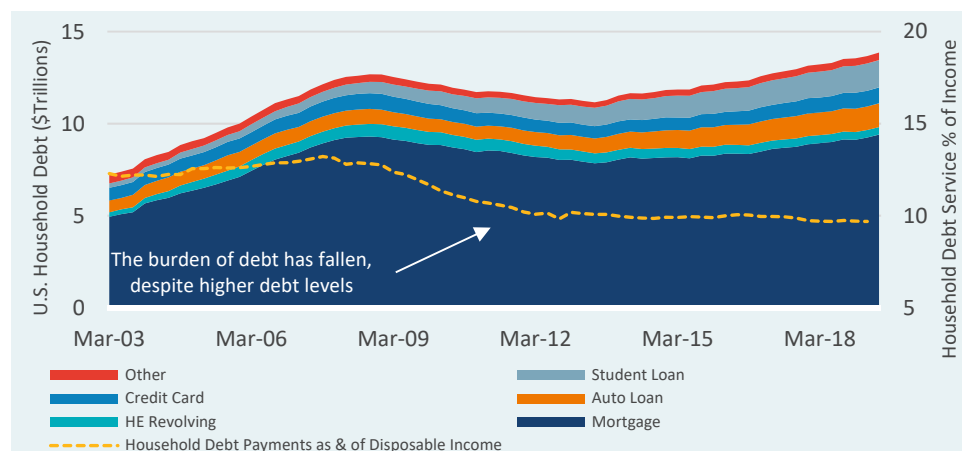
As the world has entered a low interest rate environment, many businesses and households have taken on greater debt. This is a natural trend – cheaper financing makes many purchases economical that were not when interest rates were high. As the cost of debt falls, businesses have also increasingly sought debt as a preferred source of overall financing.

Simultaneously, lower interest rates have offset much of the burden of taking on more debt. Some may argue that if an entity loads up on debt, but interest rates fall enough so that the entity's monthly debt payment does not change, this additional debt does not add significant risk to the entity's situation. It appears this is what is occurring around the world – greater use of debt, with the

burden of that debt largely offset by much lower interest rates. However, we believe risks are heightened in this environment.

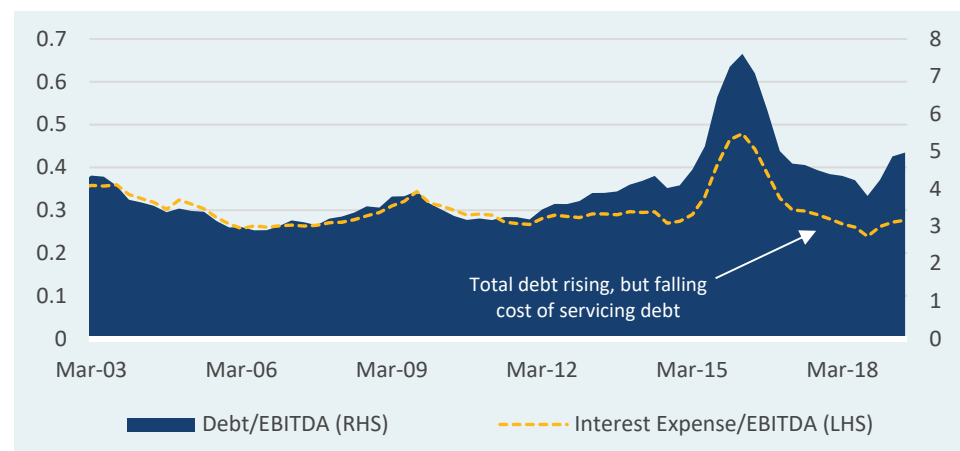
What are the investment implications? Changes in debt levels and interest rates tend to be slow-moving and secular, and difficult to act upon. But these events may in fact be informative about the future. First, expanded budgets and higher debt loads create incentives for governments to keep interest rates low to avoid economic problems. Second, significant corporate profit growth in recent years from financial engineering should not be expected to continue indefinitely. Third, higher debt loads may add to deflationary pressure, if debt service begins to take a greater share of income. We will continue to watch these secular forces.

HOUSEHOLD DEBT BURDEN



Source: FRED, as of 6/30/19

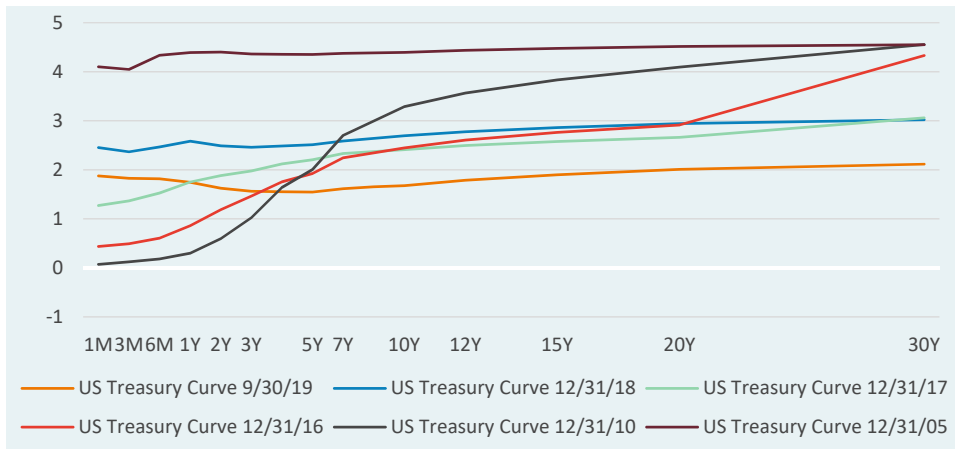
HIGH YIELD DEBT BURDEN



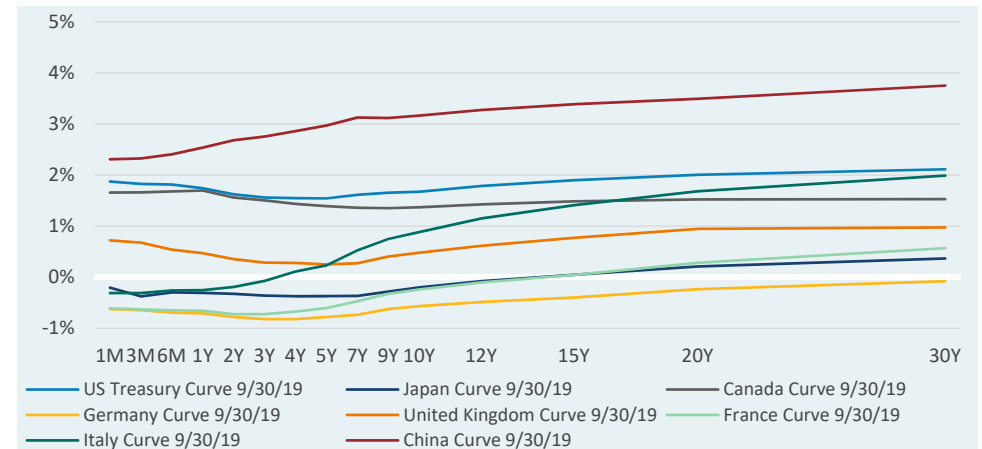
Source: Bank of America Merrill Lynch, as of 6/30/19 – Interest expense divided by total debt

Yield environment

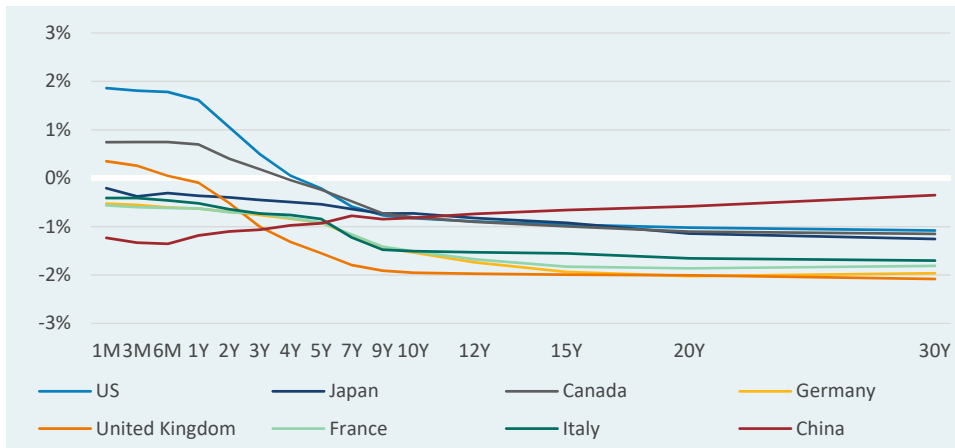
U.S. YIELD CURVE



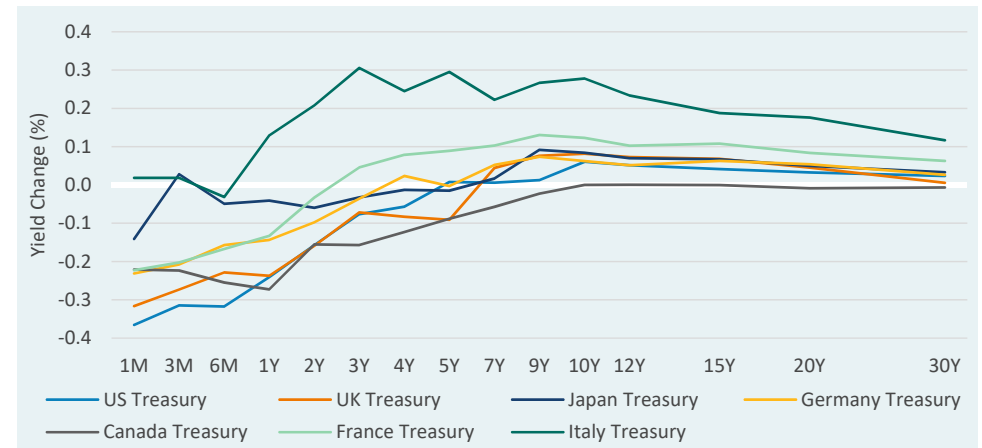
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



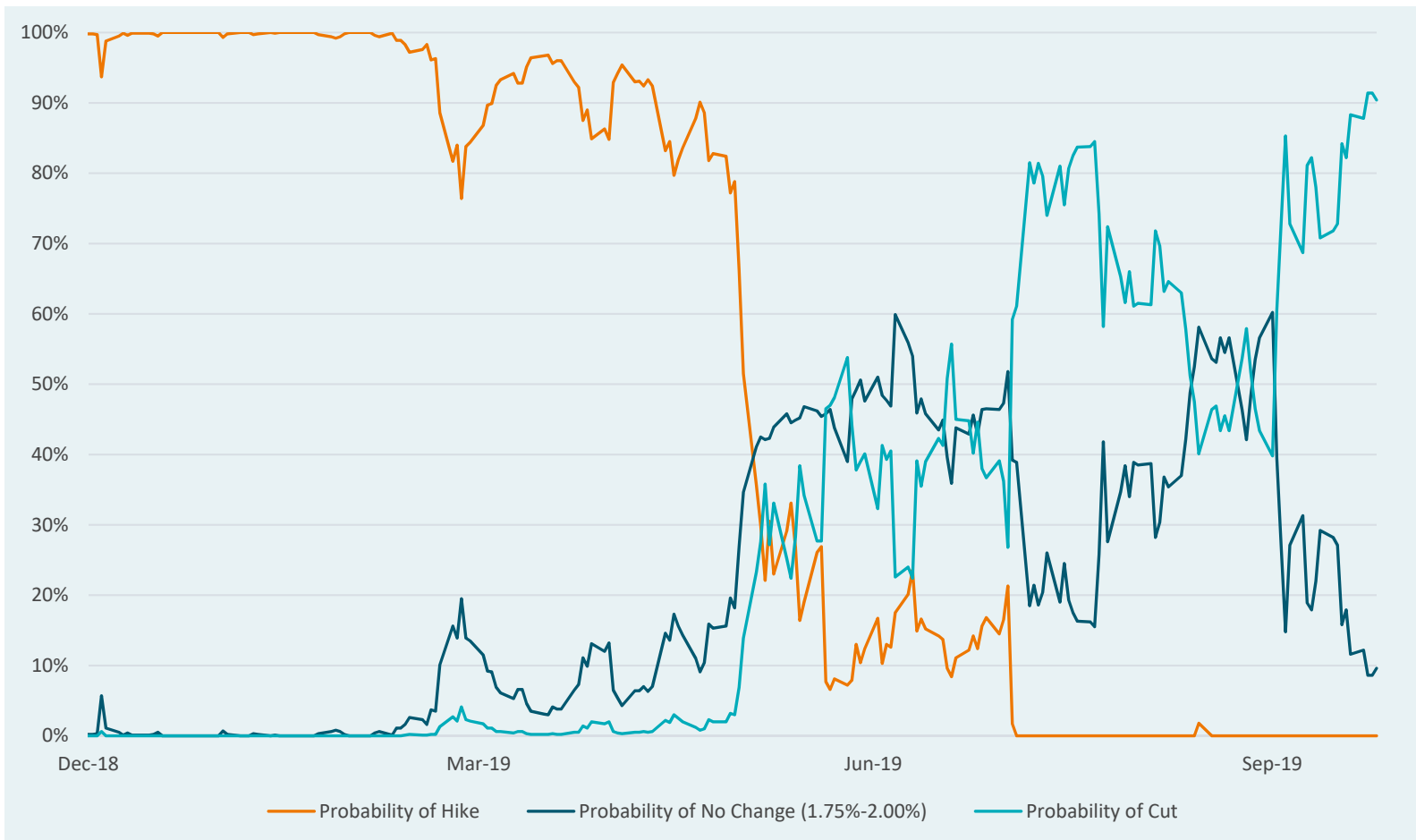
IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/19

October Fed meeting

FUTURES IMPLIED PROBABILITIES FOR OCTOBER FED RATE DECISION



In September, the Fed cut its range for federal funds by 0.25%, in line with expectations

Investors expect the Fed to cut rates again by 0.25% at the October 30th meeting

Source: Bloomberg, as of 10/24/19

Credit environment

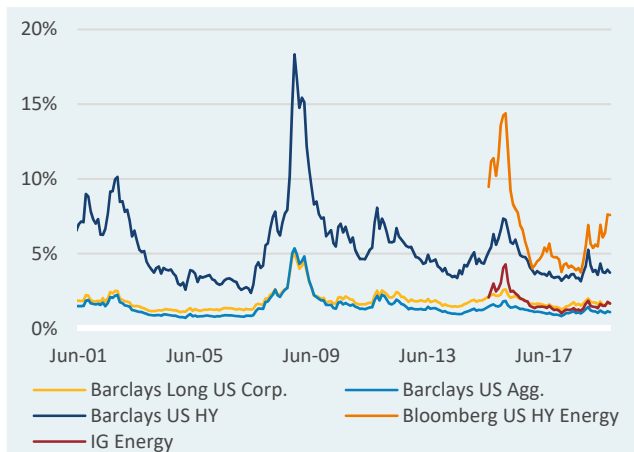
High yield bond spreads tightened slightly during Q3 as below investment grade assets remained somewhat stable over the period. Credit in general has been positively impacted by Federal Reserve dovishness. Anticipation of easier interest rate policies, which could potentially lengthen the credit cycle, has strengthened sentiment for risk assets. BB-rated bonds outperformed both CCC- and B-rated bonds in the third quarter once again. High yield bonds have returned +11.4% YTD, materially outperforming bank loans (+6.4%), but slightly underperforming investment grade credit (+12.6%).

The bank loan market has experienced some modest positive performance as interest rates rose off of their lows during the

quarter. The asset class was impacted by a pause in the Fed's hiking cycle and uncertainty surrounding future moves.

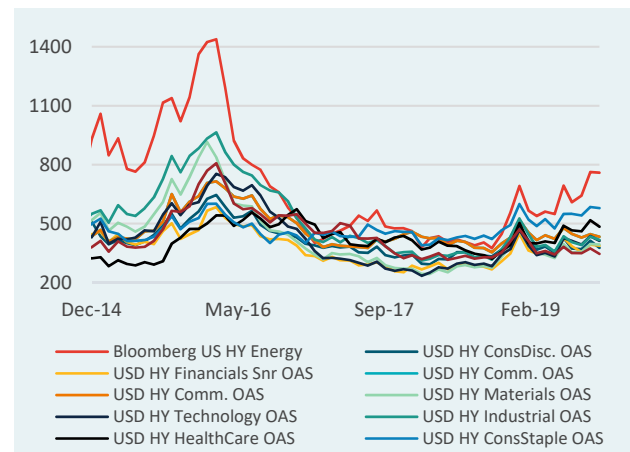
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with widening credit spreads and higher propensity for default activity. An underweight to U.S. investment grade, high yield credit, and bank loans may be warranted, with an overweight to emerging market debt which appears to offer more attractive value. This positioning should result in an overall neutral credit risk stance. Within U.S. markets, higher quality and more liquid assets appear most attractive.

SPREADS



Source: Barclays, Bloomberg, as of 9/30/19

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/19

Market	Credit Spread (OAS)	
	9/30/19	9/30/18
Long U.S. Corp	1.7%	1.5%
U.S. Inv Grade Corp	1.2%	1.1%
U.S. High Yield	3.7%	3.2%
U.S. Bank Loans*	4.5%	3.7%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/19

*Discount margin (4-year life)

Default & issuance

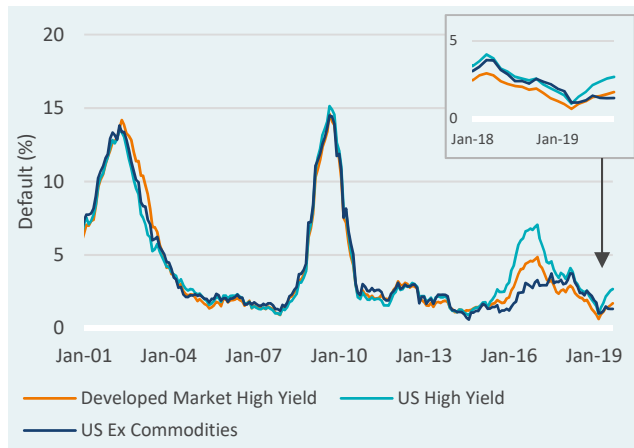
Default activity has been low and stable in the U.S. credit market, despite price volatility. The par-weighted default rate for high yield increased to 2.5% but remains below its long-term average range of 3.0-3.5%. For loans, the par-weighted default rate at the end of the third quarter was 1.4% and remains below the long-term average of 3.1%, according to data from J.P. Morgan. Consumer, retail, telecom, and utilities sectors may be especially prone to stress in the current environment.

Senior loan and high yield markets have essentially

recovered from a wave of defaults seen in 2015-2016 that were generated by energy and metals/mining sectors. High yield bond recovery rates have improved significantly since that time. However, the recent reversal in this recovery trend is notable and worth watching.

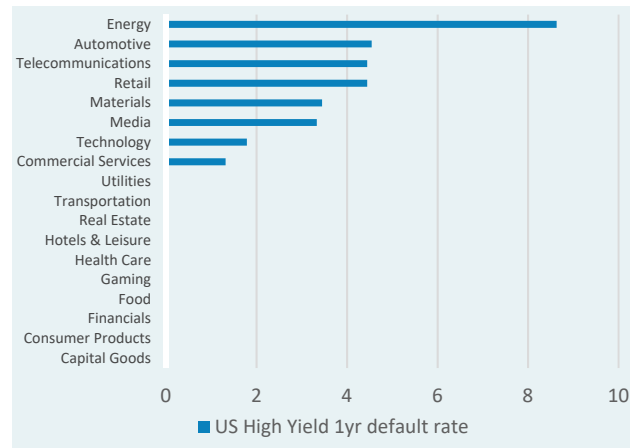
Gross high yield issue activity increased in September as investors took advantage of a dip in yields. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening.

HY DEFAULT RATE (ROLLING 1-YEAR)



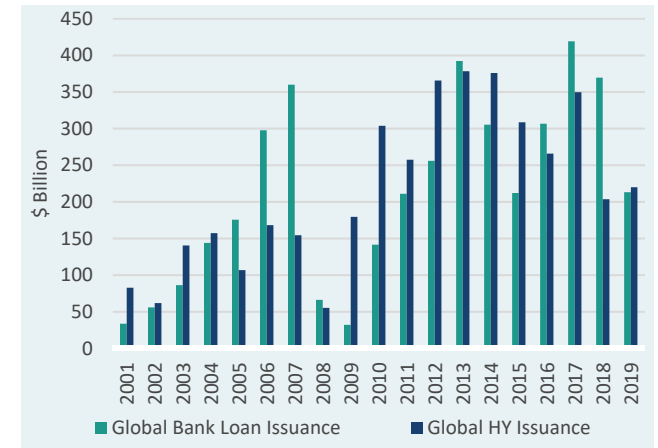
Source: BofA Merrill Lynch, as of 9/30/19

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 9/30/19 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 9/30/19

Equity

Equity environment

- U.S. equities outperformed international in Q3 (S&P 500 +1.7%, MSCI EAFE -1.1%) as domestic markets continued to lead. Some convergence of U.S. interest rates with the ultra-low rates of international markets likely supported equity prices over the quarter. We expect further declines in U.S. yields to be supportive of stocks, as low rates bolster earnings and reduce the attractiveness of fixed income.
- The S&P 500 has delivered moderate returns of 4.3% over the past year. Returns have likely been limited by flat earnings growth of 1.7%, and relatively high valuations. In the third quarter, S&P 500 YoY earnings growth is expected to be -4.1%, which would put U.S. equities on track for three consecutive quarters of earnings loss.
- The U.S. dollar appreciated 2.6% in Q3 relative to a trade-weighted

basket of currencies, which created volatility and currency losses for unhedged investors.

- A large rotation from momentum stocks into value stocks occurred in Q3. The selloff was a multi-standard deviation event, with performance of the prior five months largely reversed in several days. The fall was likely due to a combination of better than expected economic news, monetary/fiscal stimulus expectations, and extreme positioning in these factors.
- Value stock performance was on par with growth stocks during the third quarter (Russell 1000 Value +1.4%, Russell 1000 Growth +1.5%) while small cap stocks underperformed large stocks (Russell 2000 -2.4%, Russell 1000 +1.4%). Year-to-date, the size factor and value factor have continued their run of underperformance.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	1.7%		4.3%	
US Small Cap (Russell 2000)	(2.4%)		(8.9%)	
US Large Value (Russell 1000 Value)	1.4%		4.0%	
US Large Growth (Russell 1000 Growth)	1.5%		3.7%	
International Large (MSCI EAFE)	(1.1%)	2.3%	(1.3%)	4.2%
Eurozone (Euro Stoxx 50)	(1.4%)	3.8%	1.3%	11.5%
U.K. (FTSE 100)	(2.2%)	1.4%	(2.7%)	5.4%
Japan (NIKKEI 225)	2.9%	3.6%	(8.2%)	(5.9%)
Emerging Markets (MSCI Emerging Markets)	(4.2%)	(2.2%)	(2.0%)	(0.4%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/19

Domestic equity

U.S. equities outpaced international in the third quarter (S&P 500 +1.7%, MSCI EAFE -1.1%) as domestic markets continued to lead. Some convergence of U.S. interest rates with the ultra-low rates of international markets likely supported equity prices over the quarter. We expect further declines in U.S. yields to be supportive of stocks, as low rates bolster earnings and reduce the attractiveness of fixed income.

The S&P 500 has delivered moderate returns of 4.3% over the past year. Returns have likely been limited by slow earnings growth of 1.7%, and relatively high valuations. In the third quarter, S&P 500 YoY earnings growth is expected to be -4.1%, which would put U.S.

equities on track for three consecutive quarters of earnings loss. Revenue growth in Q3 is expected to be 2.8% YoY. Investors may point to seemingly lofty earnings growth expectations for 2020 as reason for optimism, though in reality this is a fairly average forecast. Growth expectations are typically high initially, and then fall to a more realistic level as time passes.

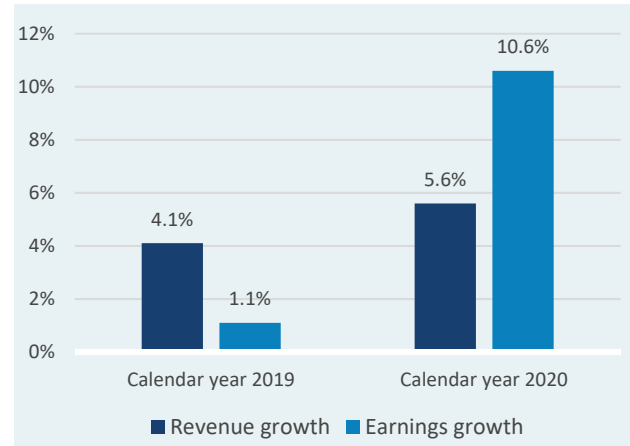
U.S. equities offer lower yields and less attractive valuations relative to other markets around the world, which suggests domestic equities might underperform over the long-term. However, U.S. may continue to outperform over the shorter-term due to relative economic and market strength.

U.S. EQUITIES



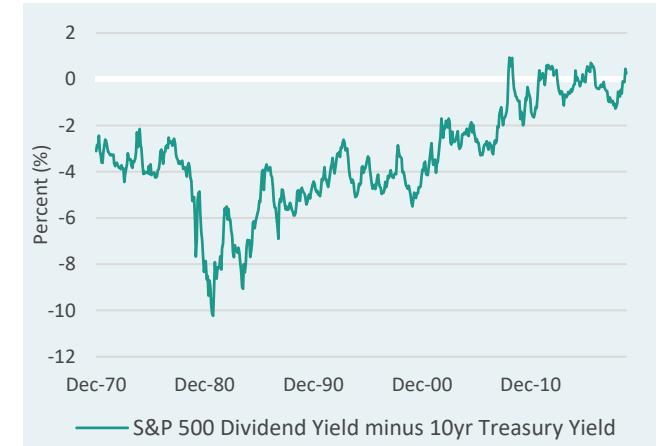
Source: Standard & Poor's, as of 9/30/19

Q3 2019 EARNINGS EXPECTATIONS



Source: FactSet, as of 10/11/19

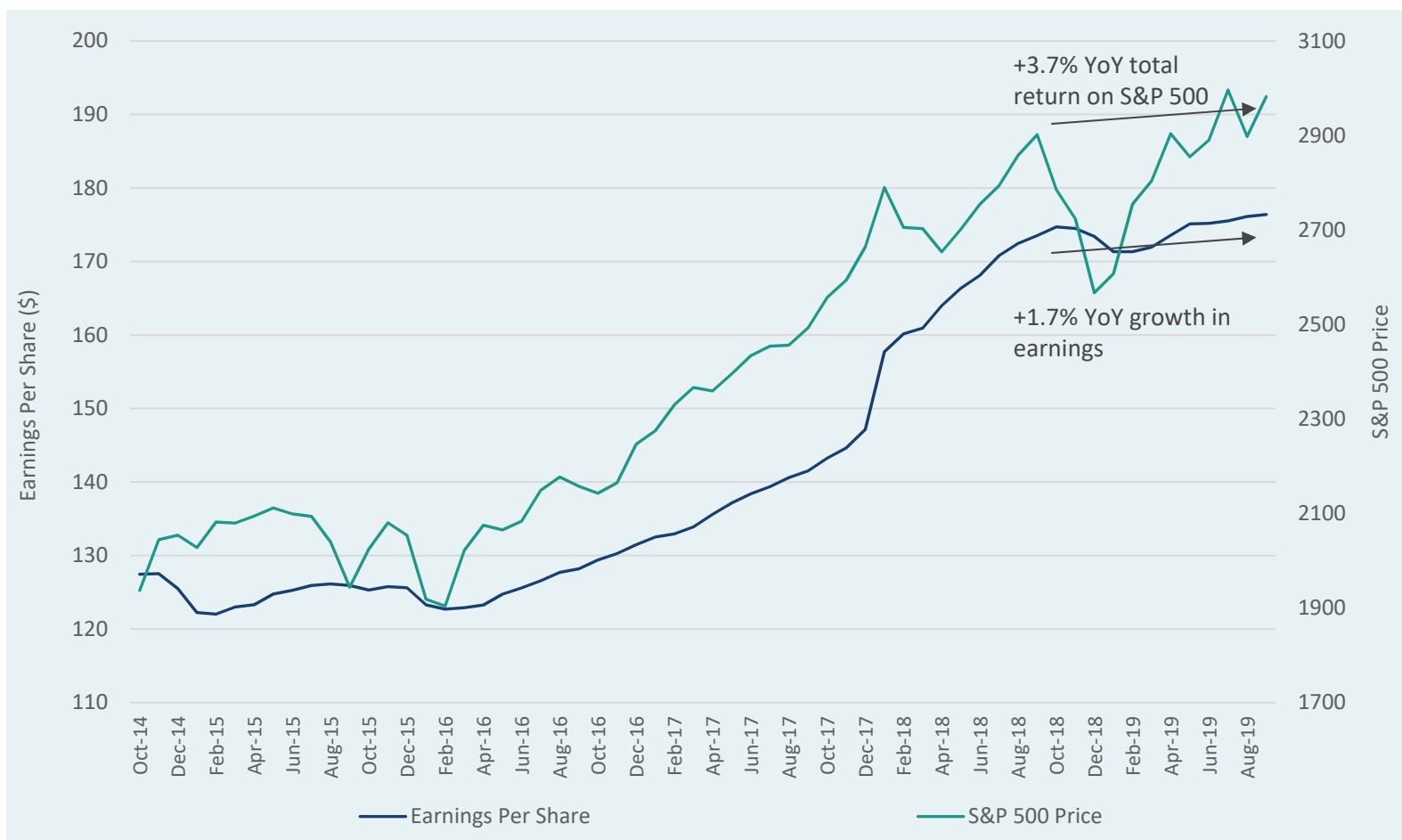
RELATIVE YIELDS



Source: Standard & Poor's, as of 9/30/19

Domestic equity

S&P 500 INDEX PRICE & EARNINGS LEVEL



U.S. equity performance has moderated

If earnings flatten out, this may lead to milder future returns

Source: Standard & Poor's, Bloomberg, as of 9/30/19

Domestic equity size & style

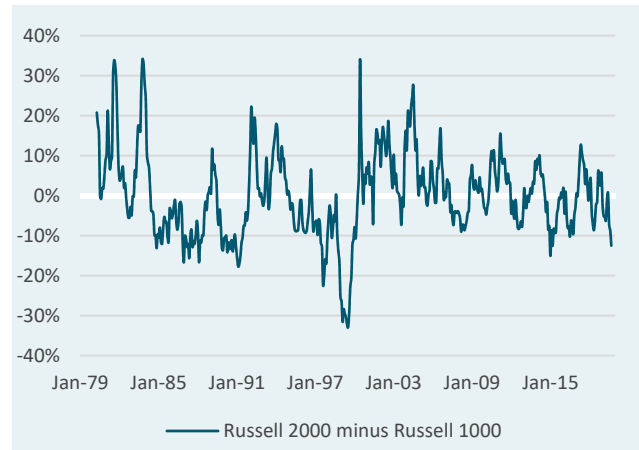
Value stock performance was on par with growth stocks during the third quarter (Russell 1000 Value +1.4%, Russell 1000 Growth +1.5%) while small cap stocks underperformed large stocks (Russell 2000 -2.4%, Russell 1000 +1.4%). Year-to-date, the size factor and value factor have extended their run of weakness.

The impact of sector performance on the value premium was mixed in the third quarter. Financials (+2.0%) and Utilities (+9.3%) outperformed the overall index (S&P 500 +1.7%) which boosted value, but poor Energy (-6.3%) performance counteracted these effects. Information Technology beat the

overall index (+3.3%) which acted as a headwind for value stocks.

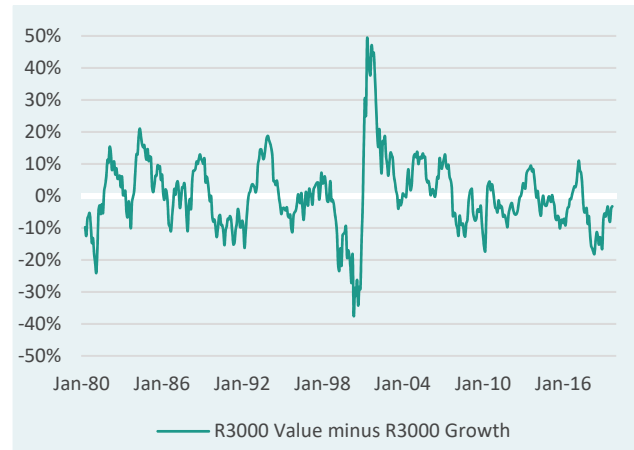
Value stocks have exhibited a long run of underperformance over the past decade. Our view has been that value stocks did not appear attractive, despite persistent performance pain. This was because value stocks had underperformed due to fundamental reasons rather than due to prices becoming stretched. Now, for the first time in this cycle it appears value prices are becoming unusually cheap, as indicated by a large disparity between Russell 1000 Value and Russell 1000 Growth P/E multiples.

SMALL CAP VS LARGE CAP (YOY)



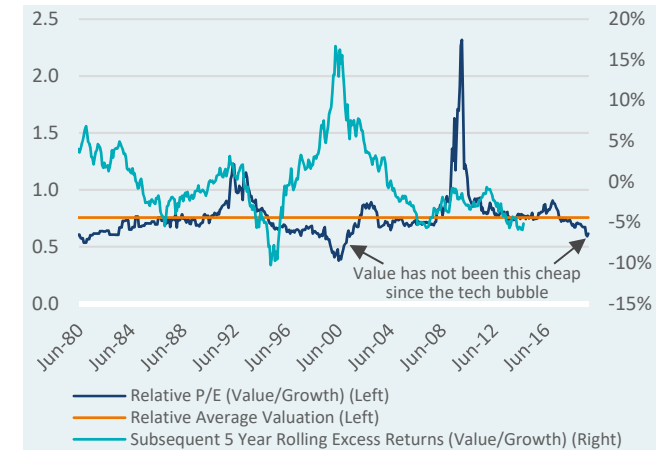
Source: FTSE, as of 9/30/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/19

VALUE STARTING TO LOOK CHEAP



Source: Russell, Bloomberg, as of 9/30/19

Domestic equity style – a closer look

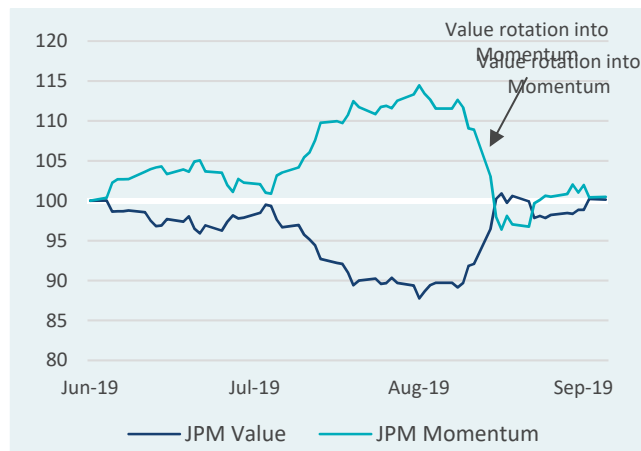
One of the largest rotations in decades into value stocks from momentum stocks occurred in Q3. The selloff was a multi-standard deviation event, with performance accruing from the prior five months largely reversed in several days. The reversal was likely due to a combination of better than expected economic news, monetary/fiscal stimulus expectations, and extreme positioning in these factors.

However, the selloff was short-lived as factor volatility reversed later in September. The Q3 reversal did not negate a long run of poor value results. As mentioned, the value factor

remains cheap relative to history.

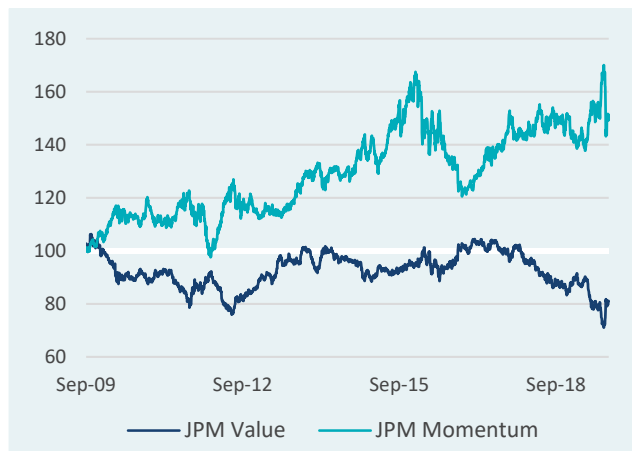
Mean reversion is a key underlying driver of the value factor. After the Global Financial Crisis, the speed at which stocks moved in/out of the respective top (cheap) and bottom (expensive) factor quintiles slowed relative to history. While expensive stocks are now exiting the bottom quintile at a somewhat faster rate, stocks with the most attractive valuations continued to remain cheap for longer periods of time relative to the pre-Global Financial Crisis period.

Q3 CUMULATIVE FACTOR PERFORMANCE
(INDEXED 6/30/2019 = 100)



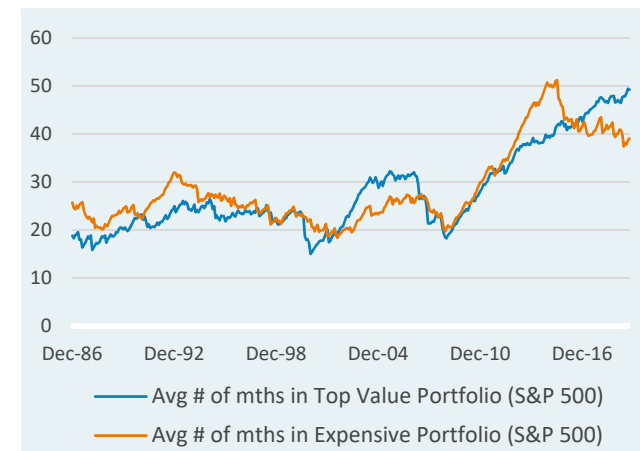
Source: J.P. Morgan Chase & Co., Copyright 2019, as of 9/30/19

10YR CUMULATIVE FACTOR PERFORMANCE
(INDEXED 9/30/2009 = 100)



Source: J.P. Morgan Chase & Co., Copyright 2019, as of 9/30/19

STRUCTURAL HEADWIND TO VALUE



Source: J.P. Morgan Chase & Co., Copyright 2019, as of 9/30/19

International developed equity

International equity performance was impacted heavily by currency movements in the third quarter. In local terms, the MSCI EAFE Index delivered a total return of 1.8%, bringing year-to-date performance to 15.7%. For unhedged U.S. investors however, the MSCI EAFE Index generated a quarterly return of -1.1%, dragging the year-to-date figure to 12.8%. Dollar strength reemerged as a powerful force driving returns due in part to widening interest rate differentials between the U.S. and the rest of the world.

Japanese equities outperformed over the period, delivering a

Q3 return of 3.5% in local terms. Unhedged U.S. investors in the MSCI Japan Index received only 3.1%, as the yen depreciated slightly vs. the U.S. dollar over the period.

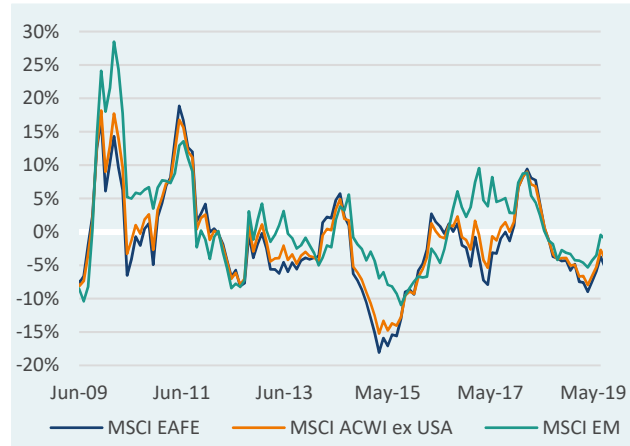
The British pound weakened in July as the new Prime Minister Boris Johnson signaled a much harder line on Brexit than his predecessor's. Toward the end of the quarter, the pound strengthened as markets began pricing a lower likelihood of a "no-deal" Brexit, which many market participants viewed as unfriendly to markets.

INTERNATIONAL DEVELOPED EQUITIES



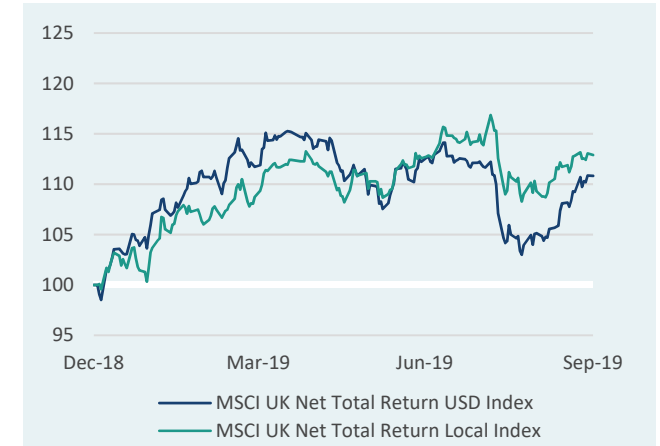
Source: MSCI, as of 9/30/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 9/30/19

U.K. EQUITY PERFORMANCE (YTD)



Source: Bloomberg, as of 9/30/19

Emerging market equity

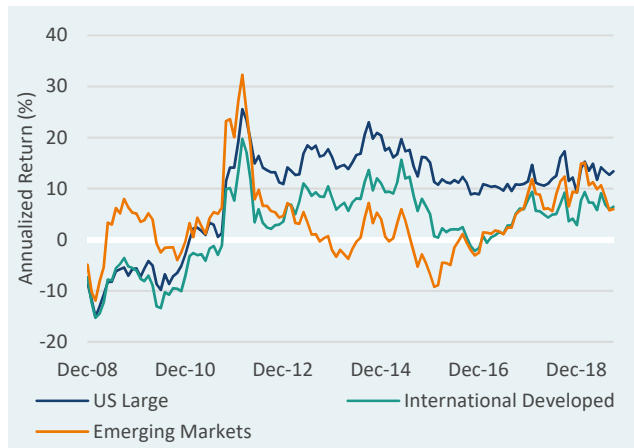
Emerging market equities (MSCI Emerging Markets -4.2%) lagged developed markets (MSCI EAFE -1.1%) over the quarter, while U.S. equities outperformed (S&P 500 +1.7%).

Equity multiples have expanded year-to-date, recovering to the levels of September 2018. Developed and emerging markets continue to appear cheap relative to domestic equity valuations.

We see two opposing forces impacting emerging markets in

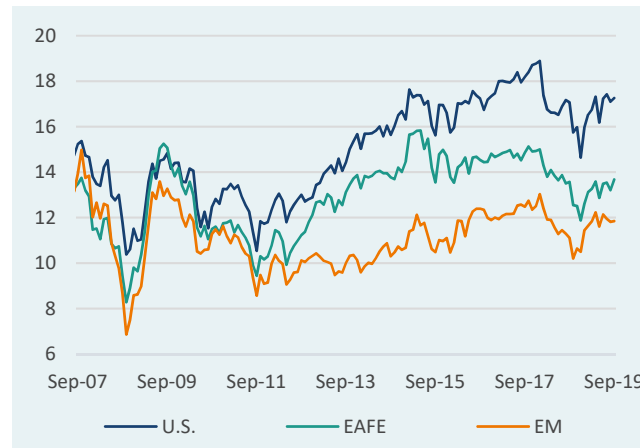
the current environment. The first force is decelerating global growth and a rising probability of recession, which likely bodes poorly for emerging market performance. However, the second force of widespread central bank dovishness may boost emerging market performance in the near term. Specifically, if global growth levels out while central banks unleash another round of easing, there may be material upside to emerging market equities. On balance, we remain moderately bullish on emerging markets, though we are watching developments closely.

EQUITY PERFORMANCE (3-YR ROLLING)



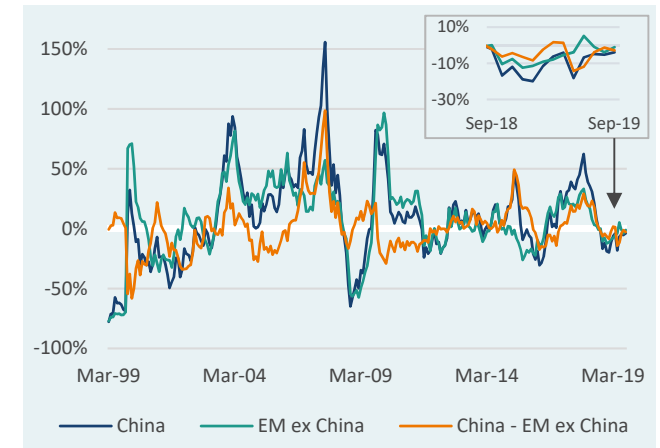
Source: Standard & Poor's, MSCI, as of 9/30/19

FORWARD P/E



Source: MSCI, as of 9/30/19

CHINA & EM: ROLLING 1-YEAR PERFORMANCE (USD)



Source: MSCI, as of 9/30/19

Equity valuations

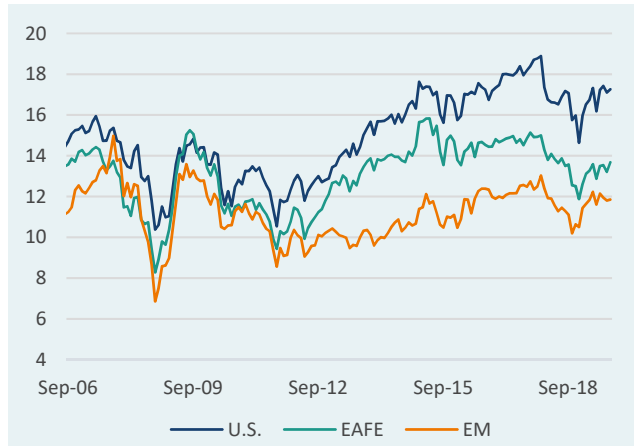
Equity valuations have climbed back up year-to-date as prices recover from their large drop in late 2018. U.S. equities are expensive relative to their long-run average, while international and emerging equities currently sit at normal levels.

The forward P/E multiple on the MSCI US Index ticked up from 17.2x to 17.3x over the quarter and remains above both its 5-year (17.1x) and 10-year (15.3x) averages. International equities remain at a forward P/E multiple (13.7x) between the

5-year (14.2x) and 10-year (13.2x) averages. Emerging market equities became a bit cheaper but are still trading at a forward P/E of 11.9x, above both their 5-year and 10-year averages.

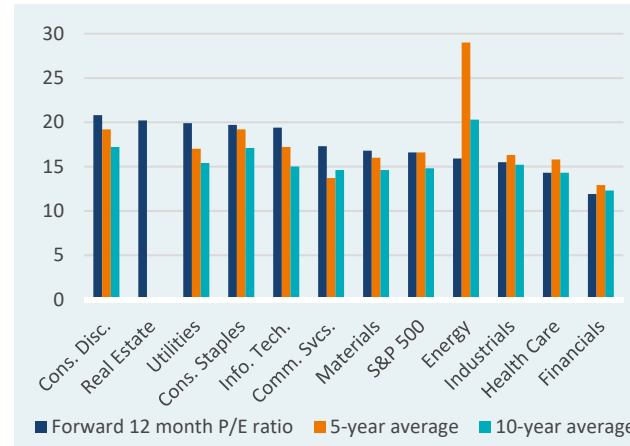
U.S. large cap stocks outperformed most unhedged international and emerging market equities. In a more uncertain geopolitical landscape, investors appear to remain willing to stomach loftier relative valuations in exchange for the quality of U.S. institutions. The U.S. economy is less reliant on exports, and U.S. companies are less reliant on foreign demand, helping to shield U.S. stocks from trade turbulence.

FORWARD P/E RATIOS



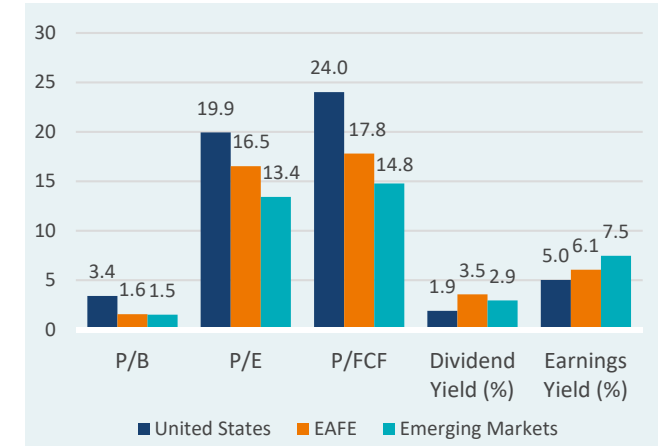
Source: MSCI, 12m forward P/E, as of 9/30/19

S&P 500 INDEX FORWARD SECTOR P/E RATIOS



Source: Standard & Poor's, FactSet, as of 10/11/19

VALUATION METRICS (3-MONTH AVERAGE)



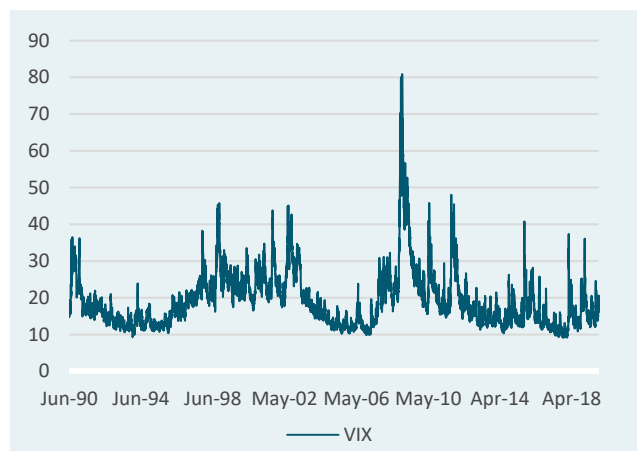
Source: Bloomberg, MSCI as of 9/30/19 - trailing P/E

Equity volatility

Implied volatility on both U.S. stocks and European stocks picked up over the quarter, albeit from depressed levels. The VIX Index which measures the 30-day implied volatility of U.S. stocks jumped to nearly 25.0 in August following a material escalation in U.S.-Chinese trade tensions. By quarter-end, the VIX settled at 16.2, up 1.1 points, and above its year-to-date average of 15.9. In Europe, the V2X Index gauging implied volatility on the Euro Stoxx 50 Index rose from 13.7 to 15.8, above its year-to-date average of 15.4.

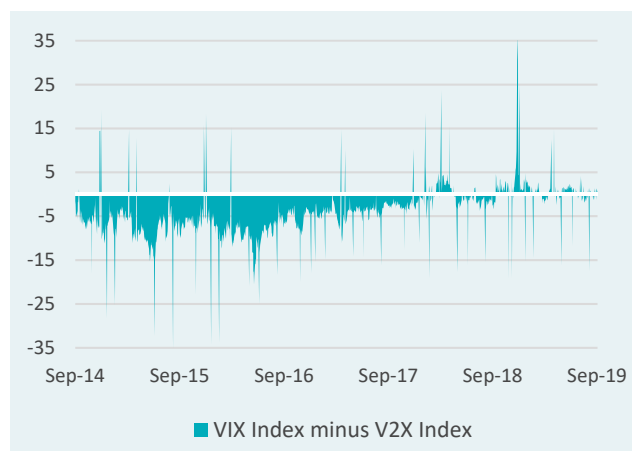
Despite the ratcheting up of trade tension in Q3, the realized trailing 30-day realized volatility on Chinese mainland shares was surprisingly low – falling from 18.0% to 12.9%. In comparison, U.S. 30-day volatility rose from 12.2% to 12.7%. Volatility of U.S. and China equities has only been this close 17% of the time. Looking ahead to Q4, despite realized volatility being low, it is important to remember that Chinese equities have been extremely volatile. As recent as 2014, 30-day annualized volatility reached 60% in mainland China.

U.S. IMPLIED VOLATILITY (VIX)



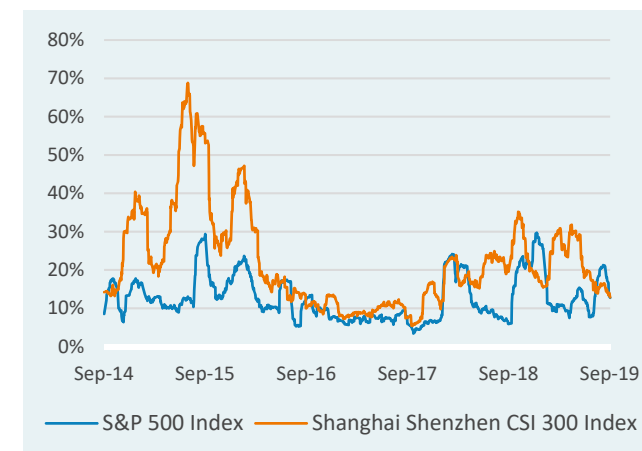
Source: CBOE, as of 9/30/19

U.S. IMPLIED VOLATILITY VS. EUROPEAN IMPLIED VOLATILITY



Source: Bloomberg, as of 9/30/19

30-DAY REALIZED VOLATILITY – U.S. LARGE CAP STOCKS VS. CHINESE MAINLAND STOCKS



Source: Bloomberg, as of 9/30/19

Long-term equity performance



Source: Morningstar, as of 9/30/19

Other assets

Currency

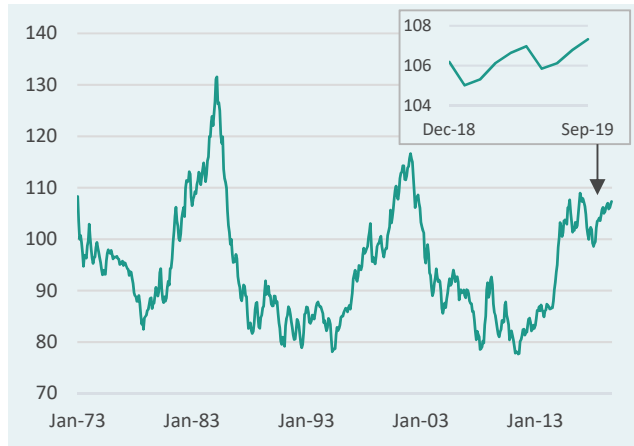
The U.S. dollar appreciated 2.6% in Q3 relative to a trade-weighted basket of currencies. Dollar volatility has been suppressed so far in 2019, following large swings experienced during years 2014-2018. Investors are pricing in a 78% chance of one more 0.25% rate cut by the end of 2019, and a 25% chance of 0.50% in rate cuts. The market continues to price in more aggressive easing than what the Federal Reserve has indicated, which may contribute to volatility if actual easing measures underwhelm the market.

A variety of market scenarios may lead to U.S. dollar

weakness in the short-term, including: aggressive easing by the Federal Reserve which leads to a convergence of U.S. and international interest rates levels, further upside surprise to U.S. inflation, and/or weakening U.S. economic conditions which brings the U.S. more in line with other developed economies.

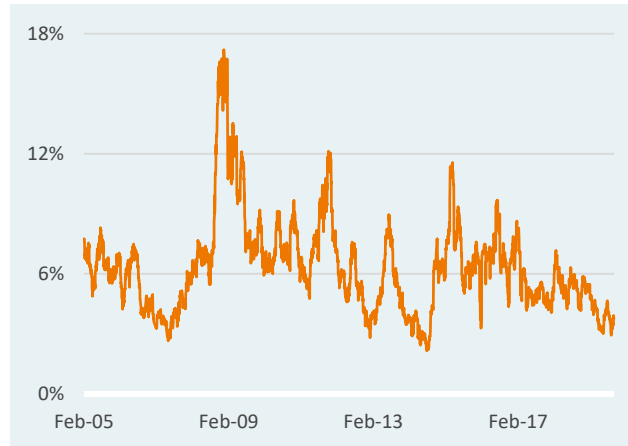
Emerging market currencies fell -4% quarter, on the back of U.S. dollar strength. These currencies remain very depressed relative to history.

U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, Verus, as of 9/30/19

BLOOMBERG DOLLAR SPOT INDEX REALIZED 30-DAY VOLATILITY



Source: Bloomberg, as of 9/30/19

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 9/30/19

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	23.3	13.1	15.4
Large Cap Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	18.5	9.9	13.5
Small Cap Growth	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	16.3	8.8	13.1
Large Cap Value	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	13.8	8.1	11.6
Small Cap Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	11.8	6.6	11.5
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	11.4	6.4	10.0
International Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	9.7	4.6	9.3
US Bonds	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	9.1	4.1	6.4
Small Cap Value	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	7.3	3.3	5.0
Hedge Funds of Funds	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	5.7	2.0	4.1
Emerging Markets Equity	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	3.9	1.9	3.9
Real Estate	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	3.3	0.9	2.9
Commodities	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	1.9	0.4	0.5
Cash	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	1.5	-8.6	-4.3

BEST
↑

WORST
↓

- Large Cap Equity
- Large Cap Value
- Large Cap Growth
- Small Cap Equity
- Small Cap Value

- Small Cap Growth
- International Equity
- Emerging Markets Equity
- US Bonds
- Cash

- Commodities
- Real Estate
- Hedge Funds of Funds
- 60% MSCI ACWI/40% BBgBarc Global Bond

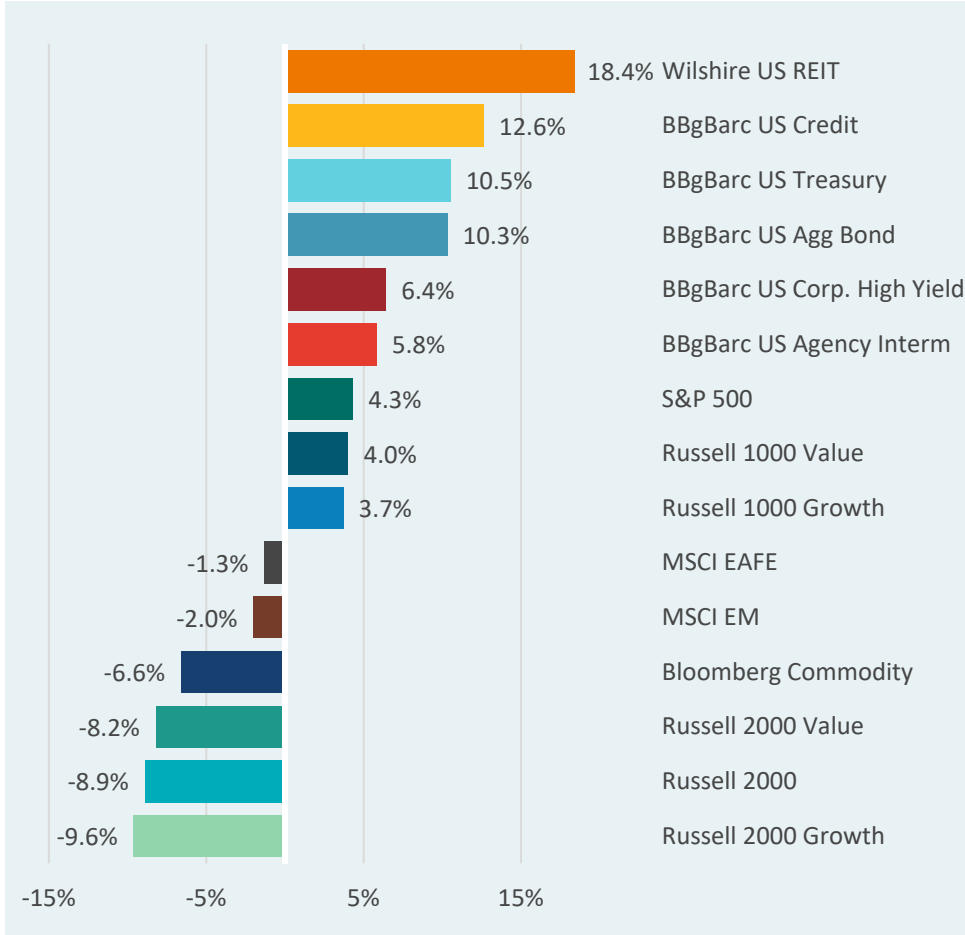
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 6/30/19.

Investment Landscape
4th Quarter 2019

38

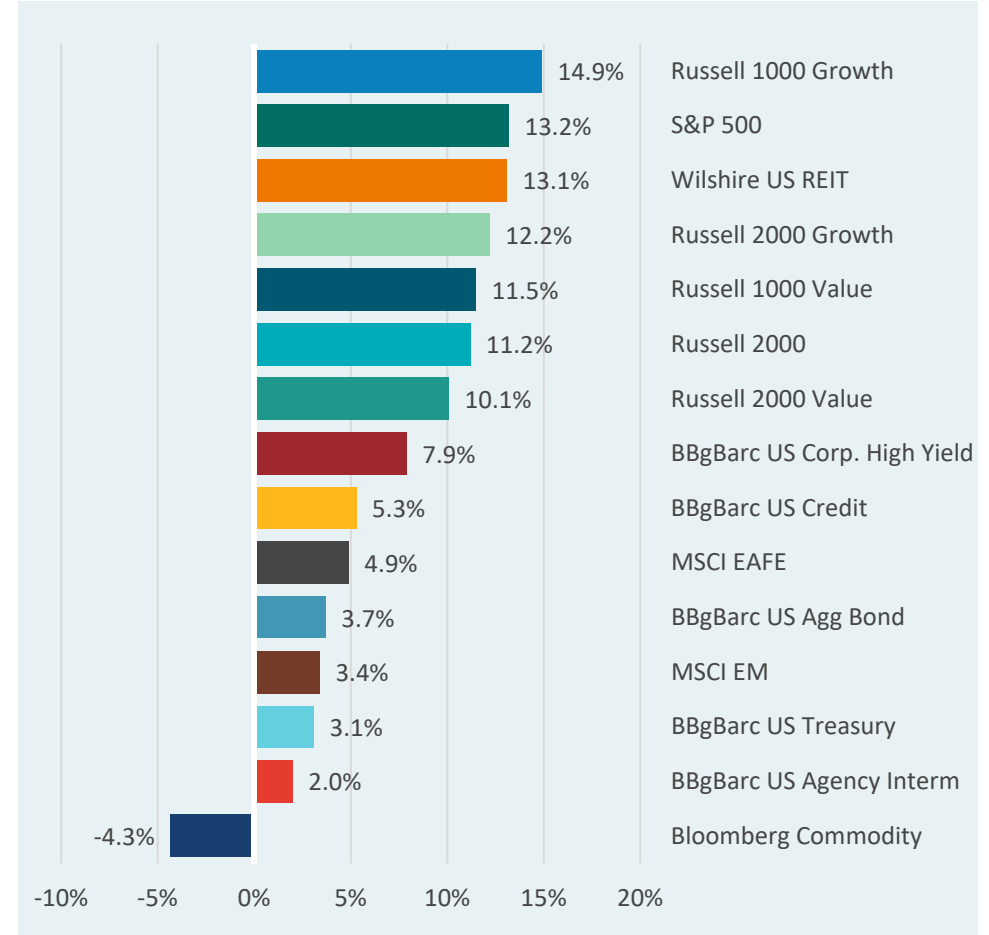
Major asset class returns

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/19

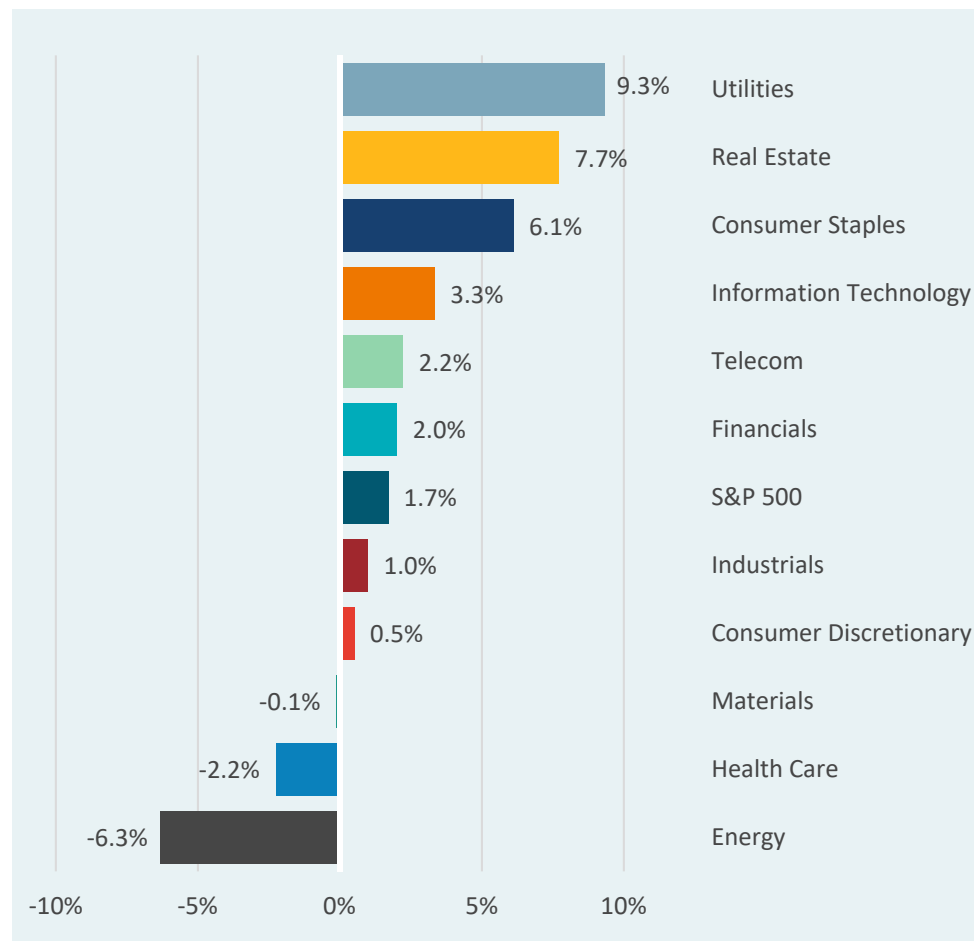
TEN YEARS ENDING SEPTEMBER



Source: Morningstar, as of 9/30/19

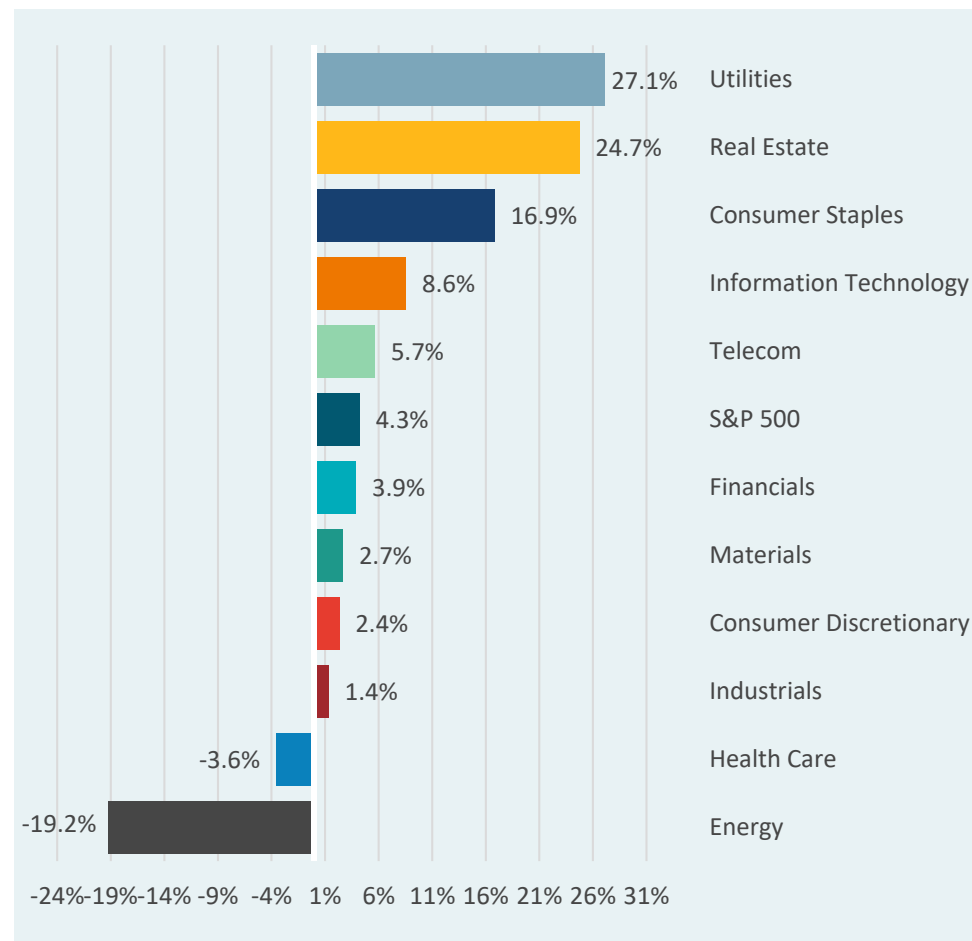
S&P 500 sector returns

Q3



Source: Morningstar, as of 9/30/19

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	1.9	1.7	20.6	4.3	13.4	10.8	13.2
S&P 500 Equal Weighted	3.1	0.8	20.1	3.4	11.1	9.5	13.4
DJ Industrial Average	2.1	1.8	17.5	4.2	16.4	12.3	13.6
Russell Top 200	1.6	1.8	20.0	4.1	14.2	11.2	13.3
Russell 1000	1.7	1.4	20.5	3.9	13.2	10.6	13.2
Russell 2000	2.1	(2.4)	14.2	(8.9)	8.2	8.2	11.2
Russell 3000	1.8	1.2	20.1	2.9	12.8	10.4	13.1
Russell Mid Cap	2.0	0.5	21.9	3.2	10.7	9.1	13.1
Style Index							
Russell 1000 Growth	0.0	1.5	23.3	3.7	16.9	13.4	14.9
Russell 1000 Value	3.6	1.4	17.8	4.0	9.4	7.8	11.5
Russell 2000 Growth	(0.8)	(4.2)	15.3	(9.6)	9.8	9.1	12.2
Russell 2000 Value	5.1	(0.6)	12.8	(8.2)	6.5	7.2	10.1

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	2.1	(0.0)	16.2	1.4	9.7	6.7	8.3
MSCI ACWI ex US	2.6	(1.8)	11.6	(1.2)	6.3	2.9	4.5
MSCI EAFE	2.9	(1.1)	12.8	(1.3)	6.5	3.3	4.9
MSCI EM	1.9	(4.2)	5.9	(2.0)	6.0	2.3	3.4
MSCI EAFE Small Cap	2.8	(0.4)	12.1	(5.9)	5.9	6.0	7.5
Style Index							
MSCI EAFE Growth	1.1	(0.4)	17.9	2.2	7.8	5.5	6.5
MSCI EAFE Value	4.8	(1.7)	7.7	(4.9)	5.1	1.0	3.2
Regional Index							
MSCI UK	4.2	(2.5)	10.1	(2.9)	4.6	0.4	4.8
MSCI Japan	4.0	3.1	11.1	(4.7)	6.2	5.6	5.5
MSCI Euro	2.8	(2.0)	13.9	(1.1)	7.1	2.4	3.1
MSCI EM Asia	2.0	(3.4)	6.0	(3.9)	6.3	4.1	5.2
MSCI EM Latin American	2.6	(5.6)	6.3	6.7	6.8	(0.8)	(0.5)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	(1.4)	1.3	7.6	7.1	2.2	2.4	3.5
BBgBarc US Treasury Bills	0.2	0.6	1.9	2.4	1.5	1.0	0.6
BBgBarc US Agg Bond	(0.5)	2.3	8.5	10.3	2.9	3.4	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	(0.1)	0.6	3.1	4.4	1.5	1.3	1.2
BBgBarc US Treasury Long	(2.5)	7.9	19.8	24.8	4.1	6.8	6.9
BBgBarc US Treasury	(0.8)	2.4	7.7	10.5	2.2	2.9	3.1
Issuer							
BBgBarc US MBS	0.1	1.4	5.6	7.8	2.3	2.8	3.1
BBgBarc US Corp. High Yield	0.4	1.3	11.4	6.4	6.1	5.4	7.9
BBgBarc US Agency Interm	(0.2)	1.0	4.1	5.8	1.9	2.0	2.0
BBgBarc US Credit	(0.7)	3.0	12.6	12.6	4.3	4.5	5.3

OTHER

Index							
Bloomberg Commodity	1.2	(1.8)	3.1	(6.6)	(1.5)	(7.2)	(4.3)
Wilshire US REIT	2.8	7.9	27.2	18.4	7.2	10.2	13.1
CS Leveraged Loans	0.4	0.9	6.4	3.1	4.7	4.1	5.4
Alerian MLP	0.8	(5.1)	11.8	(6.4)	(2.7)	(8.2)	7.0
Regional Index							
JPM EMBI Global Div	(0.5)	1.5	13.0	11.6	4.6	5.7	6.9
JPM GBI-EM Global Div	1.0	(0.8)	7.9	10.1	3.1	0.6	2.5
Hedge Funds							
HFRI Composite	(0.3)	(0.5)	6.7	0.3	3.8	2.9	4.0
HFRI FOF Composite	(0.6)	(1.1)	5.0	(0.2)	3.1	1.9	2.7
Currency (Spot)							
Euro	(1.8)	(0.3)	1.5	5.1	(2.1)	0.3	(1.9)
Pound	1.2	(3.2)	(3.2)	(5.5)	(1.7)	(5.3)	(2.6)
Yen	(1.0)	(4.3)	(4.6)	(6.1)	(1.0)	(2.9)	(2.9)

Source: Morningstar, HFR, as of 9/30/19

Definitions

Bloomberg US Weekly Consumer Comfort Index - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.lanqerresearch.com)

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)

NFIB Small Business Outlook - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

NAHB Housing Market Index - the housing market index is a weighted average of separate diffusion indices for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula $(\text{Good-Poor} + 100)/2$ to the present and future sales series and $(\text{High/Very High-Low/Very Low} + 100)/2$ to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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Contra Costa County Employees' Retirement Association

Investment Performance Review

Period Ending: September 30, 2019



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SEATTLE 206-622-3700

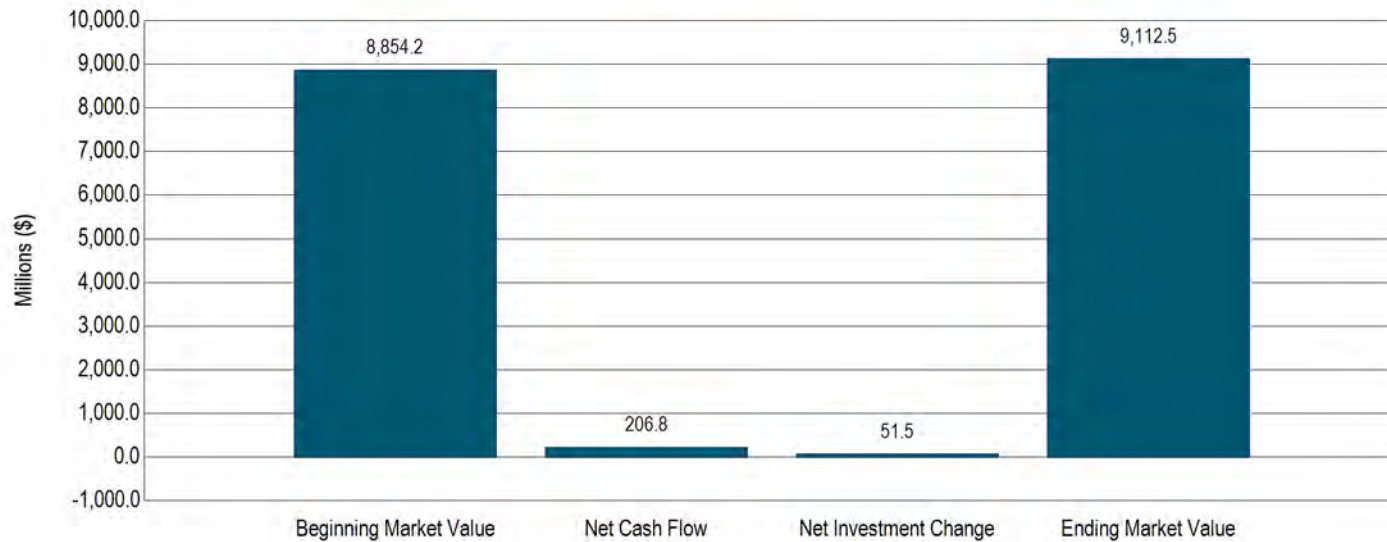
LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Portfolio Reconciliation

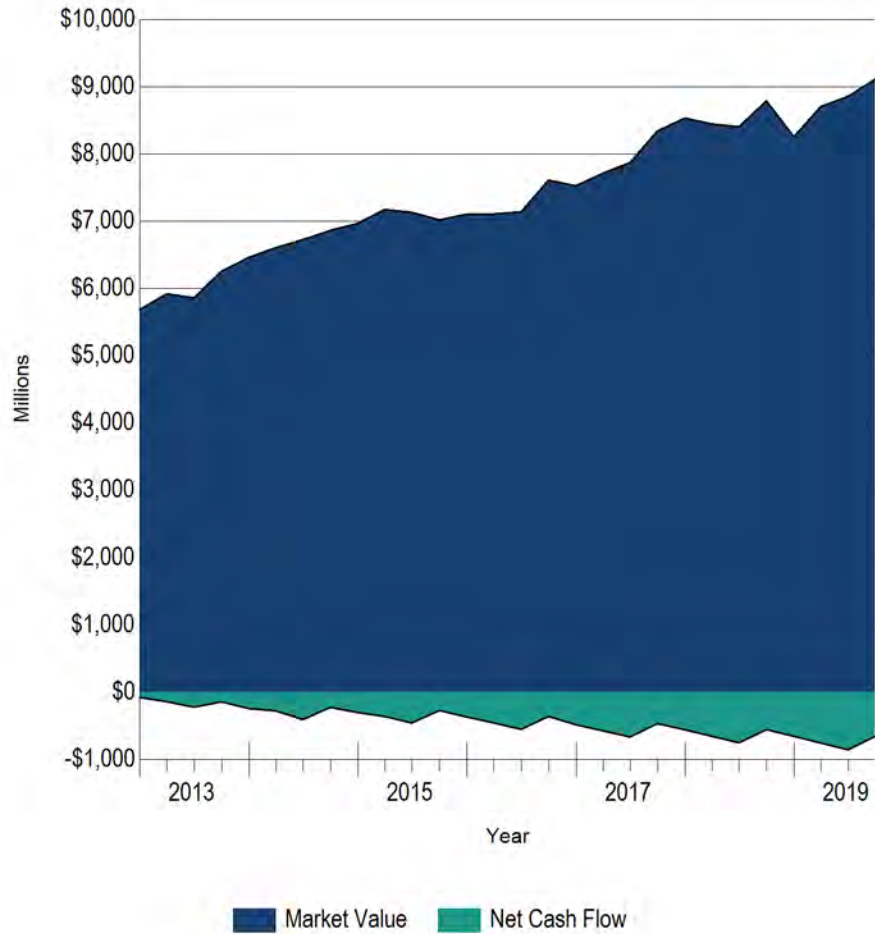
	Last Three Months	Year-To-Date
Beginning Market Value	\$8,854,187,910	\$8,255,873,307
Net Cash Flow	\$206,808,649	\$17,347,992
Net Investment Change	\$51,549,936	\$839,325,197
Ending Market Value	\$9,112,546,495	\$9,112,546,495

**Change in Market Value
Last Three Months**

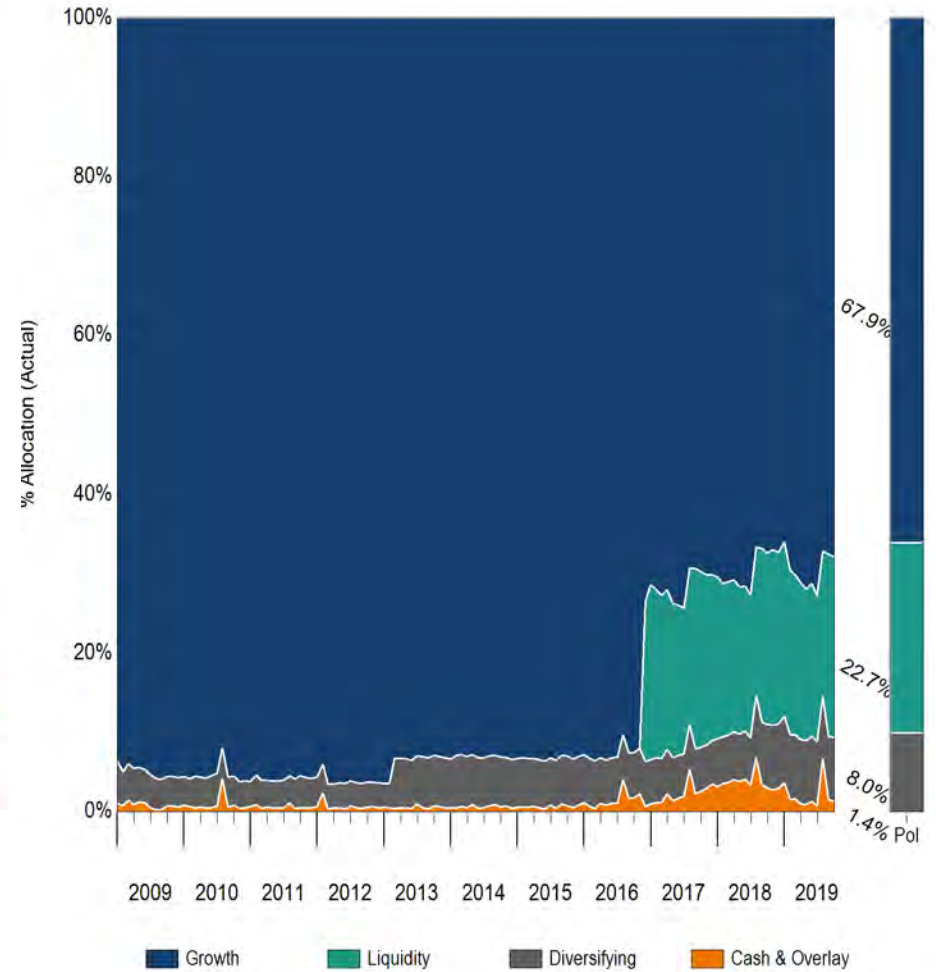


Contributions and withdrawals may include intra-account transfers between managers/funds.

Market Value History
Cumulative Cash Flows



Asset Allocation History

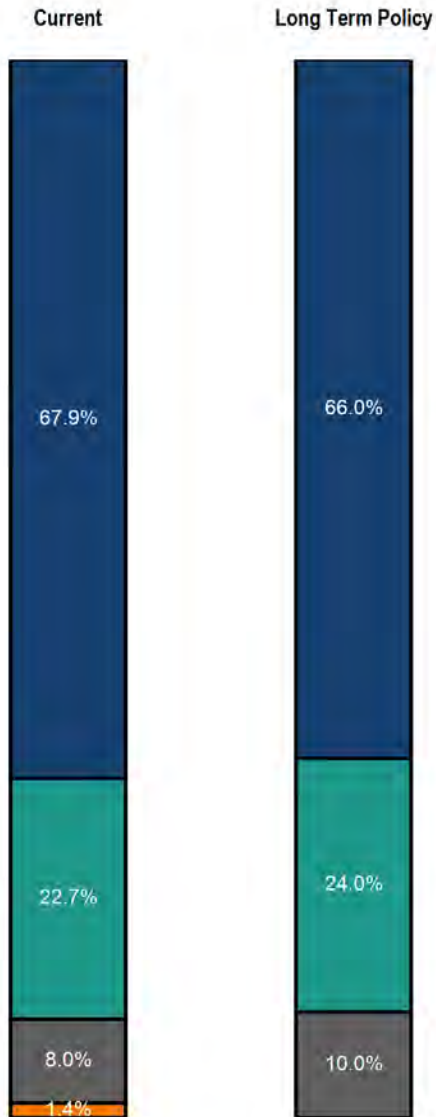


Policy reflects FFP 4-Yr allocations approved in June 2019.

Total Fund

Asset Allocation vs. Long Term Target Policy

Period Ending: September 30, 2019



Allocation vs. Long Term Target

	Current Balance	Current Allocation	Long Term Target	Difference
Growth	\$6,187,514,493	67.9%	66.0%	\$173,233,806
Liquidity	\$2,072,876,610	22.7%	24.0%	-\$114,134,549
Diversifying	\$727,267,101	8.0%	10.0%	-\$183,987,548
Cash & Overlay	\$124,888,291	1.4%	--	\$124,888,291
Total	\$9,112,546,495	100.0%	100.0%	

Allocation vs. Current Targets

	Current Balance	Current Allocation	Current Target	Difference
Growth	\$6,187,514,493	67.9%	68.0%	-\$9,017,124
Liquidity	\$2,072,876,610	22.7%	24.0%	-\$114,134,549
Diversifying	\$727,267,101	8.0%	8.0%	-\$1,736,618
Cash & Overlay	\$124,888,291	1.4%	--	\$124,888,291
Total	\$9,112,546,495	100.0%	100.0%	

Long Term Targets reflect FFP 4-Yr allocations approved in June 2019.
Current Targets reflect targets approved in June 2019.

Total Fund
Executive Summary (Net of Fees)

Period Ending: September 30, 2019

	% of Portfolio	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	100.0	0.5	10.1	4.4	7.0	6.4	8.5	-2.7	13.9	6.9	2.1	7.7
Policy Index		1.0	9.9	5.2	7.6	6.8	9.1	-0.9	13.7	8.9	0.6	9.0
Growth	67.9	0.2	12.1	3.8	8.8	7.6	--	-3.9	18.7	7.6	2.3	8.1
Custom Growth Benchmark		1.1	12.5	5.1	10.0	8.2	--	-2.1	19.3	10.1	0.3	8.4
Diversifying	8.0	1.8	6.2	5.3	1.5	0.8	2.3	-2.3	2.6	0.8	-1.8	1.7
Custom Diversifying Benchmark		1.5	5.6	5.9	3.4	3.8	4.1	1.4	4.7	4.1	2.5	5.4
Liquidity	22.7	0.8	4.2	5.5	--	--	--	1.7	1.4	--	--	--
BBgBarc US Govt/Credit 1-3 Yr. TR		0.7	3.4	4.6	--	--	--	1.6	0.8	--	--	--

*Correlation between the Growth and Diversifying composites is .48, .27 and .26 over the previous 1, 3 and 5 year periods respectively.

Policy Index (7/1/2019-Present): 10% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 24% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate, 2% BBgBarc Global Aggregate, 5% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.0% CPI +4%, 11% S&P 500 +4%(Lagged), 2.5% HFRI EH Equity Market Neutral. Policy Index (7/1/2018-6/30/2019): 11% Russell 3000, 19% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 23% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate, 2% BBgBarc Global Aggregate, 4% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.8% NCREIF Property Index, 7.2% NCREIF ODCE Index, 2.0% CPI +4%, 10% S&P 500 +4%(Lagged), 2.5% HFRI EH Equity Market Neutral. Policy Index (10/1/2017-6/30/2018): 16.3% Russell 3000, 18.8% MSCI ACWI ex-US (Gross), 8.6% MSCI ACWI (Net), 25% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate, 1.9% ICE BofAML High Yield Master II +2%, 4.3% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.5% CPI +4%, 10.1% S&P 500 +4%(Lagged). Policy Index (1/1/2017-9/30/2017): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%(Lagged), 1.6% 90-day T-Bills. Policy Index (4/1/2012-12/31/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills. Policy Index (4/1/2011-3/31/2012): 31% Russell 3000, 10.4% MSCI EAFE (Gross), 9.6% MSCI ACWI (Net), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% Wilshire REIT, 3.1% NCREIF Property Index, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills. Policy Index (4/1/2010-3/31/2011): 35.6% Russell 3000, 10.4% MSCI EAFE (Gross), 5% MSCI ACWI (Net), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% Wilshire REIT, 3.1% NCREIF Property Index, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills. Policy Index (7/1/2009-3/31/2010): 40.6% Russell 3000, 10.4% MSCI EAFE (Gross), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% Wilshire REIT, 3.1% NCREIF Property Index, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

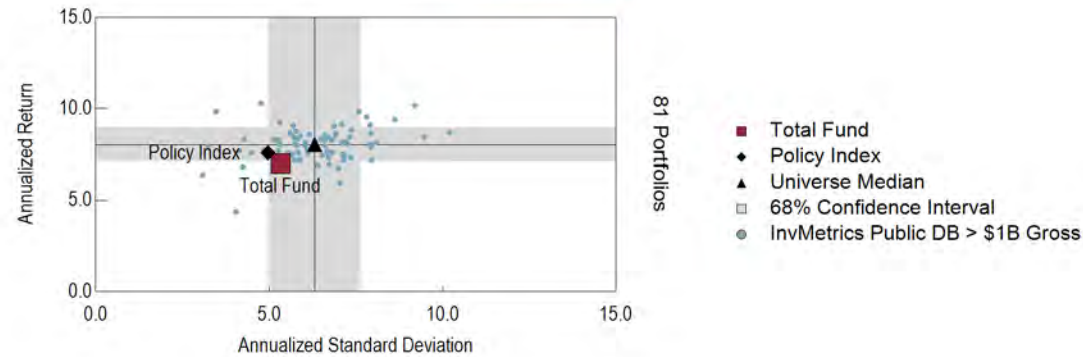
Total Fund
Executive Summary (Net of Fees)

Period Ending: September 30, 2019

3 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	7.00%	-0.56%	5.32%	-0.70%	1.02	1.67%	0.90	1.03	-0.33	96.57%	104.34%

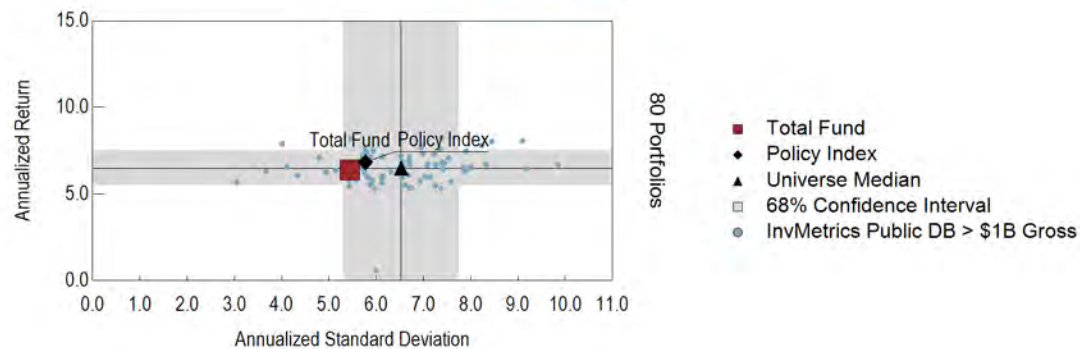
Risk vs. Return



5 Years

	Anlzd Return	Ann Excess BM Return	Anlzd Standard Deviation	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Information Ratio	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Total Fund	6.39%	-0.42%	5.45%	0.29%	0.90	1.82%	0.90	0.99	-0.23	88.35%	87.97%

Risk vs. Return



Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	9,112,546,495	100.0	0.6	10.4	4.7	7.3	6.8	9.1	-2.5	14.2	7.4	2.7	8.4
Policy Index			1.0	9.9	5.2	7.6	6.8	9.1	-0.9	13.7	8.9	0.6	9.0
InvMetrics Public DB > \$1B Gross Rank			49	78	26	84	32	17	25	83	74	5	6
Total Fund ex Overlay & Cash	8,987,658,204	98.6	0.6	10.2	4.7	7.4	6.8	9.1	-2.1	14.1	7.4	2.7	8.4
Policy Index			1.0	9.9	5.2	7.6	6.8	9.1	-0.9	13.7	8.9	0.6	9.0
InvMetrics Public DB > \$1B Gross Rank			49	82	26	80	30	17	20	84	74	5	6
Growth	6,187,514,493	67.9	0.3	12.4	4.1	9.1	8.1	--	-3.6	19.1	8.1	3.0	8.8
Custom Growth Benchmark			1.1	12.5	5.1	10.0	8.2	--	-2.1	19.3	10.1	0.3	8.4
Total Domestic Equity	950,562,255	10.4	-0.2	18.1	-0.7	12.0	10.4	13.3	-7.2	23.9	11.5	1.1	11.4
Russell 3000			1.2	20.1	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
InvMetrics Public DB US Eq Gross Rank			94	92	96	74	37	20	78	6	77	21	50
BlackRock Russell 1000 Index	187,647,476	2.1	1.4	20.5	3.9	--	--	--	-4.8	--	--	--	--
Russell 1000			1.4	20.5	3.9	--	--	--	-4.8	--	--	--	--
eV US Large Cap Equity Gross Rank			52	41	46	--	--	--	47	--	--	--	--
Jackson Square Partners	231,044,330	2.5	0.1	21.0	4.4	13.7	10.7	14.5	-2.0	29.3	-4.4	6.1	13.9
Russell 1000 Growth			1.5	23.3	3.7	16.9	13.4	14.9	-1.5	30.2	7.1	5.7	13.0
eV US Large Cap Growth Equity Gross Rank			59	64	46	85	85	50	59	47	98	37	31
Boston Partners	232,261,879	2.5	1.7	14.9	-0.9	10.9	8.0	12.0	-8.7	20.1	15.1	-3.9	12.0
Russell 1000 Value			1.4	17.8	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
eV US Large Cap Value Equity Gross Rank			51	81	75	40	56	47	55	23	50	65	55
Emerald Advisers	143,146,343	1.6	-6.8	17.3	-8.8	12.2	11.7	15.1	-10.1	28.8	10.1	4.1	7.3
Russell 2000 Growth			-4.2	15.3	-9.6	9.8	9.1	12.2	-9.3	22.2	11.3	-1.4	5.6
eV US Small Cap Growth Equity Gross Rank			76	55	65	62	41	31	85	26	54	19	21
Ceredex	156,462,227	1.7	1.2	15.4	-3.8	6.7	9.2	--	-11.3	11.4	29.8	-4.4	3.3
Russell 2000 Value			-0.6	12.8	-8.2	6.5	7.2	--	-12.9	7.8	31.7	-7.5	4.2
eV US Small Cap Value Equity Gross Rank			24	50	31	60	21	--	25	48	32	52	74

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	1,548,770,876	17.0	-2.8	11.6	0.1	5.0	3.4	5.2	-14.3	25.5	1.2	-1.2	0.3
MSCI ACWI ex USA Gross			-1.7	12.1	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
MSCI EAFE Gross			-1.0	13.3	-0.8	7.0	3.8	5.4	-13.4	25.6	1.5	-0.4	-4.5
InvMetrics Public DB ex-US Eq Gross Rank			93	65	19	86	61	56	44	90	89	28	5
International Equity	898,836,871	9.9	-1.0	15.8	0.9	6.6	4.3	5.7	-13.6	25.3	1.2	-1.2	0.3
MSCI ACWI ex USA Gross			-1.7	12.1	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
InvMetrics Public DB ex-US Eq Gross Rank			12	8	11	43	29	36	21	93	89	28	5
Pyrford	447,988,315	4.9	-1.0	12.6	1.9	5.5	3.6	--	-10.1	19.8	3.4	-2.9	--
MSCI ACWI ex USA Value			-2.8	6.9	-4.5	5.2	0.9	--	-14.0	22.7	8.9	-10.1	--
eV ACWI ex-US Value Equity Gross Rank			25	26	6	41	20	--	5	84	74	59	--
William Blair	450,848,556	4.9	-1.0	19.0	0.0	7.6	4.9	--	-16.8	30.9	-1.4	0.5	-1.2
MSCI ACWI ex USA Growth			-0.8	16.2	2.0	7.4	4.9	--	-14.4	32.0	0.1	-1.3	-2.6
eV ACWI ex-US Growth Equity Gross Rank			32	43	53	67	84	--	69	81	55	69	37
Emerging Markets Equity	649,934,004	7.1	-5.3	6.1	-0.9	--	--	--	-15.3	--	--	--	--
MSCI Emerging Markets			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--
InvMetrics Public DB Emg Mkt Eq Gross Rank			96	68	64	--	--	--	51	--	--	--	--
PIMCO RAE Emerging Markets	332,474,898	3.6	-5.9	3.1	-4.0	--	--	--	-12.3	--	--	--	--
MSCI Emerging Markets			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--
eV Emg Mkts Equity Gross Rank			93	89	86	--	--	--	19	--	--	--	--
TT Emerging Markets	317,459,106	3.5	-4.7	9.6	2.5	--	--	--	-18.4	--	--	--	--
MSCI Emerging Markets			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--
eV Emg Mkts Equity Gross Rank			77	39	31	--	--	--	83	--	--	--	--
Total Global Equity	740,933,715	8.1	0.9	20.1	5.8	10.6	8.7	8.1	-7.8	23.7	7.6	2.2	5.2
MSCI ACWI			0.0	16.2	1.4	9.7	6.7	8.3	-9.4	24.0	7.9	-2.4	4.2
InvMetrics Public DB Glbl Eq Gross Rank			48	1	3	50	30	9	60	79	40	16	41
Artisan Partners	368,952,264	4.0	0.7	24.9	5.9	13.0	11.9	--	-7.9	32.9	5.6	9.2	3.9
MSCI ACWI			0.0	16.2	1.4	9.7	6.7	--	-9.4	24.0	7.9	-2.4	4.2
eV All Global Equity Gross Rank			34	7	27	14	7	--	40	11	61	4	56
First Eagle	371,818,334	4.1	1.0	15.3	5.9	7.1	6.6	--	-7.6	15.1	11.7	0.2	4.5
MSCI ACWI			0.0	16.2	1.4	9.7	6.7	--	-9.4	24.0	7.9	-2.4	4.2
eV All Global Equity Gross Rank			28	62	27	79	66	--	38	89	19	49	51

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Private Credit	520,751,451	5.7	2.6	5.9	9.9	8.6	9.7	14.6	8.3	10.4	8.2	12.9	15.4
ICE BofAML High Yield Master II +2%			1.8	13.2	8.5	8.2	7.5	10.0	-0.3	9.6	19.8	-2.7	4.5
Total High Yield	203,391,255	2.2	1.8	13.0	7.6	5.9	4.8	7.7	-3.2	6.5	14.3	-3.5	1.2
ICE BofAML High Yield Master II			1.2	11.5	6.3	6.1	5.4	7.9	-2.3	7.5	17.5	-4.6	2.5
eV US High Yield Fixed Inc Gross Rank			34	12	30	63	72	67	88	74	47	68	83
Allianz Global Investors	203,391,255	2.2	1.8	13.0	7.6	5.9	4.8	7.7	-3.2	6.5	14.3	-3.5	1.2
ICE BofAML High Yield Master II			1.2	11.5	6.3	6.1	5.4	7.9	-2.3	7.5	17.5	-4.6	2.5
eV US High Yield Fixed Inc Gross Rank			34	12	30	63	72	67	88	74	47	68	83
Total Real Estate	746,988,208	8.2	1.7	7.1	7.6	8.8	10.1	12.8	7.4	11.1	5.5	13.5	20.6
Real Estate Benchmark			2.0	6.4	7.2	6.2	8.6	10.6	6.7	7.1	6.7	8.3	18.8
NCREIF-ODCE			1.3	3.8	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index			1.4	4.8	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
Adelante	80,779,460	0.9	7.7	29.1	21.0	8.8	10.7	13.9	-5.0	7.8	4.1	5.1	33.4
Wilshire REIT			7.9	27.2	18.4	7.2	10.2	13.1	-4.8	4.2	7.2	4.2	31.8
Private Equity	1,023,772,828	11.2	2.0	5.6	7.9	11.5	10.4	11.7	12.1	11.9	9.4	11.6	17.3
S&P 500 Index +4% (Lagged)			5.3	5.6	14.8	18.7	15.1	19.2	22.6	23.3	20.0	3.4	24.5
Risk Parity	452,343,905	5.0	3.0	--	--	--	--	--	--	--	--	--	--
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			0.3	--	--	--	--	--	--	--	--	--	--
AQR Global Risk Premium-EL	228,677,512	2.5	1.9	--	--	--	--	--	--	--	--	--	--
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			0.3	--	--	--	--	--	--	--	--	--	--
PanAgora Risk Parity Multi Asset	223,666,393	2.5	4.2	--	--	--	--	--	--	--	--	--	--
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			0.3	--	--	--	--	--	--	--	--	--	--

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Diversifying	727,267,101	8.0	1.9	6.4	5.5	1.8	1.1	2.7	-2.0	2.8	1.3	-1.4	2.2
<i>Custom Diversifying Benchmark</i>			1.5	5.6	5.9	3.4	3.8	4.1	1.4	4.7	4.1	2.5	5.4
Diversifying Fixed Income	524,100,666	5.8	1.9	8.0	7.8	2.1	3.0	3.7	-1.7	2.8	2.8	1.6	6.6
<i>eV US Core Fixed Inc Gross Rank</i>			92	90	98	99	97	93	99	96	72	15	25
AFL-CIO	337,480,361	3.7	2.2	8.6	10.8	3.2	3.7	4.1	0.6	3.6	2.4	1.6	6.6
<i>BBgBarc US Aggregate TR</i>			2.3	8.5	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
<i>eV US Core Fixed Inc Gross Rank</i>			78	75	29	64	57	74	16	76	87	15	25
Wellington Real Total Return	186,620,305	2.0	1.4	7.0	2.8	0.9	-1.4	--	-5.6	1.9	-0.1	-4.9	-2.5
<i>CPI + 4%</i>			1.2	5.2	5.8	6.1	5.6	--	6.0	6.2	6.2	4.8	4.8
Diversifying Equity	203,166,436	2.2	1.7	2.5	-0.1	--	--	--	--	--	--	--	--
Parametric Defensive Equity	203,166,436	2.2	1.7	2.5	-0.1	--	--	--	--	--	--	--	--
<i>91 Day T-Bill +4%</i>			1.5	4.7	6.3	--	--	--	--	--	--	--	--
Liquidity	2,072,876,610	22.7	0.9	4.3	5.6	--	--	--	1.8	1.5	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			0.7	3.4	4.6	--	--	--	1.6	0.8	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			44	34	21	--	--	--	24	50	--	--	--
DFA Short Credit	501,752,961	5.5	0.9	4.5	5.8	--	--	--	1.2	1.9	--	--	--
<i>ICE BofAML 1-5 Yrs US Corp & Govt TR</i>			0.9	4.5	6.0	--	--	--	1.4	1.3	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			47	25	16	--	--	--	93	26	--	--	--
Insight Short Duration	1,028,461,532	11.3	1.1	3.9	4.7	--	--	--	1.7	1.5	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			0.7	3.4	4.6	--	--	--	1.6	0.8	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			7	54	64	--	--	--	38	50	--	--	--
Sit Short Duration	542,662,117	6.0	0.6	4.8	7.0	--	--	--	2.5	1.3	--	--	--
<i>BBgBarc US Govt 1-3 Yr TR</i>			0.6	3.1	4.4	--	--	--	1.6	0.4	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			97	15	1	--	--	--	1	68	--	--	--
Total Cash	97,820,797	1.1	0.8	2.5	3.2	1.9	1.3	3.0	1.7	0.9	0.9	0.1	-3.0
<i>91 Day T-Bills</i>			0.5	1.7	2.3	1.5	1.0	0.5	1.9	0.9	0.3	0.0	0.0
Cash	97,577,832	1.1	1.0	2.7	3.3	2.0	1.3	3.1	1.7	0.9	0.9	0.1	1.4
State Street Cash/Tax Reclaims	235,873	0.0	-13.1	--	--	--	--	--	--	--	--	--	--
Northern Trust Transition	7,092	0.0	-0.7	--	--	--	--	--	--	--	--	--	--

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. State Street Cash/Tax Reclaims reflects \$11,062 in cash and \$224,874 in potential tax reclaims at State Street after assets were transferred to Northern Trust. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund Performance Summary (Net of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	9,112,546,495	100.0	0.5	10.1	4.4	7.0	6.4	8.5	-2.7	13.9	6.9	2.1	7.7
<i>Policy Index</i>			1.0	9.9	5.2	7.6	6.8	9.1	-0.9	13.7	8.9	0.6	9.0
Total Fund ex Overlay & Cash	8,987,658,204	98.6	0.5	10.0	4.5	7.1	6.4	8.6	-2.4	13.8	6.9	2.1	7.7
<i>Policy Index</i>			1.0	9.9	5.2	7.6	6.8	9.1	-0.9	13.7	8.9	0.6	9.0
Growth	6,187,514,493	67.9	0.2	12.1	3.8	8.8	7.6	--	-3.9	18.7	7.6	2.3	8.1
<i>Custom Growth Benchmark</i>			1.1	12.5	5.1	10.0	8.2	--	-2.1	19.3	10.1	0.3	8.4
Total Domestic Equity	950,562,255	10.4	-0.3	17.7	-1.2	11.5	10.0	12.9	-7.6	23.5	11.1	0.6	11.0
<i>Russell 3000</i>			1.2	20.1	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
BlackRock Russell 1000 Index	187,647,476	2.1	1.4	20.5	3.9	--	--	--	-4.8	--	--	--	--
<i>Russell 1000</i>			1.4	20.5	3.9	--	--	--	-4.8	--	--	--	--
Jackson Square Partners	231,044,330	2.5	0.0	20.6	3.9	13.2	10.2	14.0	-2.4	28.7	-4.8	5.6	13.4
<i>Russell 1000 Growth</i>			1.5	23.3	3.7	16.9	13.4	14.9	-1.5	30.2	7.1	5.7	13.0
Boston Partners	232,261,879	2.5	1.6	14.6	-1.2	10.6	7.7	11.7	-8.9	19.7	14.7	-4.2	11.6
<i>Russell 1000 Value</i>			1.4	17.8	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
Emerald Advisers	143,146,343	1.6	-7.0	16.6	-9.5	11.5	11.1	14.4	-10.7	28.0	9.4	3.5	6.6
<i>Russell 2000 Growth</i>			-4.2	15.3	-9.6	9.8	9.1	12.2	-9.3	22.2	11.3	-1.4	5.6
Ceredex	156,462,227	1.7	1.1	14.9	-4.4	6.1	8.6	--	-11.8	10.7	29.1	-5.0	2.7
<i>Russell 2000 Value</i>			-0.6	12.8	-8.2	6.5	7.2	--	-12.9	7.8	31.7	-7.5	4.2
Total International Equity	1,548,770,876	17.0	-3.0	11.2	-0.4	4.6	3.0	4.8	-14.7	25.0	0.8	-1.6	0.0
<i>MSCI ACWI ex USA Gross</i>			-1.7	12.1	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
<i>MSCI EAFE Gross</i>			-1.0	13.3	-0.8	7.0	3.8	5.4	-13.4	25.6	1.5	-0.4	-4.5
International Equity	898,836,871	9.9	-1.1	15.4	0.5	6.1	3.9	5.3	-13.9	24.8	0.8	-1.6	0.0
<i>MSCI ACWI ex USA Gross</i>			-1.7	12.1	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
Pyrford	447,988,315	4.9	-1.1	12.3	1.5	5.1	3.2	--	-10.5	19.3	3.0	-3.3	--
<i>MSCI ACWI ex USA Value</i>			-2.8	6.9	-4.5	5.2	0.9	--	-14.0	22.7	8.9	-10.1	--
William Blair	450,848,556	4.9	-1.1	18.6	-0.4	7.2	4.5	--	-17.1	30.4	-1.8	0.0	-1.7
<i>MSCI ACWI ex USA Growth</i>			-0.8	16.2	2.0	7.4	4.9	--	-14.4	32.0	0.1	-1.3	-2.6
Emerging Markets Equity	649,934,004	7.1	-5.5	5.7	-1.5	--	--	--	-15.7	--	--	--	--
<i>MSCI Emerging Markets</i>			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--
PIMCO RAE Emerging Markets	332,474,898	3.6	-6.0	2.6	-4.5	--	--	--	-12.6	--	--	--	--
<i>MSCI Emerging Markets</i>			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--
TT Emerging Markets	317,459,106	3.5	-4.9	9.1	1.9	--	--	--	-18.9	--	--	--	--
<i>MSCI Emerging Markets</i>			-4.2	5.9	-2.0	--	--	--	-14.6	--	--	--	--

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Global Equity	740,933,715	8.1	0.7	19.4	5.1	9.8	8.0	7.5	-8.5	22.8	6.9	1.6	4.5
<i>MSCI ACWI</i>			0.0	16.2	1.4	9.7	6.7	8.3	-9.4	24.0	7.9	-2.4	4.2
Artisan Partners	368,952,264	4.0	0.5	24.2	5.1	12.2	11.1	--	-8.6	31.9	4.8	8.4	3.1
<i>MSCI ACWI</i>			0.0	16.2	1.4	9.7	6.7	--	-9.4	24.0	7.9	-2.4	4.2
First Eagle	371,818,334	4.1	0.8	14.7	5.2	6.3	5.8	--	-8.3	14.3	10.9	-0.6	3.7
<i>MSCI ACWI</i>			0.0	16.2	1.4	9.7	6.7	--	-9.4	24.0	7.9	-2.4	4.2
Private Credit	520,751,451	5.7	2.6	5.9	9.9	8.6	9.2	12.7	8.3	10.4	6.9	11.6	12.3
<i>ICE BofAML High Yield Master II +2%</i>			1.8	13.2	8.5	8.2	7.5	10.0	-0.3	9.6	19.8	-2.7	4.5
Total High Yield	203,391,255	2.2	1.5	12.6	7.0	5.5	4.4	7.3	-3.6	6.1	13.9	-3.9	0.8
<i>ICE BofAML High Yield Master II</i>			1.2	11.5	6.3	6.1	5.4	7.9	-2.3	7.5	17.5	-4.6	2.5
Allianz Global Investors	203,391,255	2.2	1.5	12.6	7.0	5.5	4.4	7.2	-3.6	6.1	13.9	-3.9	0.8
<i>ICE BofAML High Yield Master II</i>			1.2	11.5	6.3	6.1	5.4	7.9	-2.3	7.5	17.5	-4.6	2.5
Total Real Estate	746,988,208	8.2	1.7	7.0	7.6	8.7	9.7	11.9	7.4	11.0	4.8	12.4	19.1
<i>Real Estate Benchmark</i>			2.0	6.4	7.2	6.2	8.6	10.6	6.7	7.1	6.7	8.3	18.8
<i>NCREIF-ODCE</i>			1.3	3.8	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
<i>NCREIF Property Index</i>			1.4	4.8	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
Adelante	80,779,460	0.9	7.6	28.6	20.4	8.2	10.1	13.3	-5.5	7.2	3.6	4.6	32.7
<i>Wilshire REIT</i>			7.9	27.2	18.4	7.2	10.2	13.1	-4.8	4.2	7.2	4.2	31.8
Private Equity	1,023,772,828	11.2	2.0	5.6	7.9	11.5	9.9	10.2	12.1	11.9	8.9	9.9	15.2
<i>S&P 500 Index +4% (Lagged)</i>			5.3	5.6	14.8	18.7	15.1	19.2	22.6	23.3	20.0	3.4	24.5
Risk Parity	452,343,905	5.0	3.0	--	--	--	--	--	--	--	--	--	--
<i>60% MSCI ACWI Net/40% BBgBarc Global Aggregate</i>			0.3	--	--	--	--	--	--	--	--	--	--
AQR Global Risk Premium-EL	228,677,512	2.5	1.9	--	--	--	--	--	--	--	--	--	--
<i>60% MSCI ACWI Net/40% BBgBarc Global Aggregate</i>			0.3	--	--	--	--	--	--	--	--	--	--
PanAgora Risk Parity Multi Asset	223,666,393	2.5	4.2	--	--	--	--	--	--	--	--	--	--
<i>60% MSCI ACWI Net/40% BBgBarc Global Aggregate</i>			0.3	--	--	--	--	--	--	--	--	--	--

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Diversifying	727,267,101	8.0	1.8	6.2	5.3	1.5	0.8	2.3	-2.3	2.6	0.8	-1.8	1.7
<i>Custom Diversifying Benchmark</i>			1.5	5.6	5.9	3.4	3.8	4.1	1.4	4.7	4.1	2.5	5.4
Diversifying Fixed Income	524,100,666	5.8	1.9	7.8	7.5	1.8	2.7	3.3	-2.0	2.6	2.3	1.1	6.1
AFL-CIO	337,480,361	3.7	2.1	8.2	10.4	2.8	3.2	3.6	0.2	3.2	1.9	1.1	6.1
<i>BBgBarc US Aggregate TR</i>			2.3	8.5	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
Wellington Real Total Return	186,620,305	2.0	1.4	7.0	2.8	0.9	-1.6	--	-5.6	1.9	-0.6	-5.4	-3.1
<i>CPI + 4%</i>			1.2	5.2	5.8	6.1	5.6	--	6.0	6.2	6.2	4.8	4.8
Diversifying Equity	203,166,436	2.2	1.6	2.3	-0.3	--	--	--	--	--	--	--	--
Parametric Defensive Equity	203,166,436	2.2	1.6	2.3	-0.3	--	--	--	--	--	--	--	--
<i>91 Day T-Bill +4%</i>			1.5	4.7	6.3	--	--	--	--	--	--	--	--
Liquidity	2,072,876,610	22.7	0.8	4.2	5.5	--	--	--	1.7	1.4	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			0.7	3.4	4.6	--	--	--	1.6	0.8	--	--	--
DFA Short Credit	501,752,961	5.5	0.8	4.4	5.7	--	--	--	1.1	1.8	--	--	--
<i>ICE BofAML 1-5 Yrs US Corp & Govt TR</i>			0.9	4.5	6.0	--	--	--	1.4	1.3	--	--	--
Insight Short Duration	1,028,461,532	11.3	1.1	3.9	4.7	--	--	--	1.7	1.5	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			0.7	3.4	4.6	--	--	--	1.6	0.8	--	--	--
Sit Short Duration	542,662,117	6.0	0.6	4.7	6.8	--	--	--	2.3	1.1	--	--	--
<i>BBgBarc US Govt 1-3 Yr TR</i>			0.6	3.1	4.4	--	--	--	1.6	0.4	--	--	--
Total Cash	97,820,797	1.1	0.8	2.5	3.2	1.9	1.3	3.0	1.7	0.9	0.9	0.1	-3.0
91 Day T-Bills			0.5	1.7	2.3	1.5	1.0	0.5	1.9	0.9	0.3	0.0	0.0
Cash	97,577,832	1.1	1.0	2.7	3.3	2.0	1.3	3.1	1.7	0.9	0.9	0.1	1.4
State Street Cash/Tax Reclaims	235,873	0.0	-13.1	--	--	--	--	--	--	--	--	--	--
Northern Trust Transition	7,092	0.0	-0.7	--	--	--	--	--	--	--	--	--	--

Individual closed end funds are not shown in performance summary table. AQR Global Risk Premium funded 1/18/2019. PanAgora Risk Parity funded 3/15/2019. Effective 3/1/2019 the custodian of record switched from State Street to Northern Trust. State Street Cash/Tax Reclaims reflects \$11,062 in cash and \$224,874 in potential tax reclaims at State Street after assets were transferred to Northern Trust. Effective 7/1/2018, Private Credit and Private Equity data provided by StepStone Group.

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2019

StepStone Group Analysis (*)												
Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/19 ¹	Total Commitment	% Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./ Paid-In (DPI) ²	Tot. Value/ Paid-In (TVPI) ³	Latest Valuation
Private Credit												
8/31/2015	Angelo Gordon Energy Credit Opp.	\$4,292,137	\$16,500,000	114%	\$18,750,000	\$0	\$0	\$18,829,566	\$2,319,783	1.00	1.23	6/30/2019
12/18/2017	Stepstone CC Opportunities Fund	\$461,680,861	\$920,000,000	48%	\$442,681,789	\$78,845,579	\$8,202	\$3,945,947	\$484,243,112	0.01	1.05	6/30/2019
7/1/2006	Torchlight II ⁴	\$380,780	\$128,000,000	171%	\$218,263,562	\$0	\$847,082	\$208,563,775	\$0	0.96	0.96	6/30/2019
8/1/2012	Torchlight IV	\$14,487,121	\$60,000,000	141%	\$84,640,541	\$117,207	\$4,264,946	\$100,553,090	\$0	1.19	1.36	9/30/2019
3/12/2015	Torchlight V	\$39,910,552	\$75,000,000	80%	\$60,000,000	\$0	\$27,249,574	\$34,736,131	\$15,000,000	0.58	1.24	6/30/2019
Total Private Credit		\$520,751,451										
% of Portfolio (Market Value)		5.7%										

*All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2019

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/2019 ¹	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁸	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Real Estate												
1/23/2012	Angelo Gordon Realty Fund VIII	\$22,344,968	\$80,000,000	94%	\$75,401,855	\$0	\$814,186	\$98,433,174	\$12,334,302	1.31	1.60	6/30/2019
12/8/2014	Angelo Gordon Realty Fund IX	\$63,601,514	\$65,000,000	86%	\$55,575,000	\$0	\$0	\$8,775,000	\$12,122,500	0.16	1.30	6/30/2019
6/23/2005	DLJ RECP III	\$21,428,214	\$75,000,000	134%	\$100,580,205 ⁴	\$0	\$0	\$69,918,318	\$4,031,338	0.70	0.91	6/30/2019
2/11/2008	DLJ RECP IV	\$80,780,758	\$100,000,000	127%	\$126,533,735 ⁵	\$1,395,246	\$4,742,268	\$83,790,864	\$2,890,809	0.66	1.30	6/30/2019
7/1/2014	DLJ RECP V	\$51,803,026	\$75,000,000	126%	\$94,533,721 ⁶	\$4,665,104	\$15,311,708	\$66,092,692	\$11,098,940	0.70	1.25	6/30/2019
3/19/2019	DLJ RECP VI	\$28,827,136	\$50,000,000	59%	\$29,613,001	\$0	\$0	\$0	\$20,386,999	0.00	0.97	6/30/2019
6/17/1998	Hearthstone II ⁷	-\$1,368	\$25,000,000	80%	\$19,932,386	\$0	\$0	\$19,952,734	\$0	1.00	1.00	6/30/2019
6/30/2013	Invesco Real Estate III ⁷	\$2,940,056	\$35,000,000	93%	\$32,386,423	\$0	\$4,948,623	\$40,990,564	\$2,613,577	1.27	1.36	9/30/2019
6/30/2014	Invesco Real Estate IV ⁷	\$22,645,538	\$35,000,000	85%	\$29,808,739	\$0	\$668,506	\$15,853,299	\$5,191,261	0.53	1.29	9/30/2019
6/30/2013	Invesco Real Estate V	\$18,592,996	\$75,000,000	24%	\$18,018,734	\$0	\$0	\$0	\$56,981,266	0.00	1.03	9/30/2019
7/16/2013	LaSalle Income & Growth VI ⁷	\$28,250,949	\$75,000,000	95%	\$71,428,571	\$0	\$0	\$78,359,290	\$3,571,429	1.10	1.49	6/30/2019
2/28/2017	LaSalle Income & Growth VII	\$50,740,731	\$75,000,000	87%	\$64,959,341	\$0	\$0	\$27,934,401	\$20,836,646	0.43	1.21	6/30/2019
7/3/2013	Long Wharf Fund IV ⁷	\$7,529,410	\$25,000,000	100%	\$25,000,000	\$0	\$295,916	\$29,404,222	\$0	1.18	1.48	9/30/2019
9/30/2016	Long Wharf Fund V ⁷	\$44,066,432	\$50,000,000	100%	\$50,000,000	\$0	\$285,616	\$16,280,133	\$0	0.33	1.21	9/30/2019
12/31/2011	Oaktree REOF V ⁷	\$4,672,553	\$50,000,000	100%	\$50,000,000	\$0	\$0	\$75,028,955	\$25,750,000 ⁹	1.50	1.59	9/30/2019
9/30/2013	Oaktree REOF VI ⁷	\$31,037,707	\$80,000,000	100%	\$80,000,000	\$0	\$1,631,565	\$82,240,973	\$18,400,000 ⁹	1.03	1.42	9/30/2019
4/1/2015	Oaktree REOF VII	\$58,389,163	\$65,000,000	92%	\$59,995,000	\$3,900,000	\$9,100,000	\$13,715,000	\$18,720,000 ⁹	0.23	1.20	9/30/2019
11/10/2013	Paulson Real Estate Fund II ⁷	\$25,503,076	\$20,000,000	97%	\$19,345,623	\$0	\$0	\$5,783,386	\$654,377	0.30	1.62	6/30/2019
1/25/2012	Siguler Guff DREOF	\$32,853,926	\$75,000,000	93%	\$69,375,000	\$0	\$670,908	\$90,263,619	\$5,625,000	1.30	1.77	6/30/2019
8/31/2013	Siguler Guff DREOF II	\$49,835,467	\$70,000,000	89%	\$61,985,000	\$1,575,000	\$1,613,402	\$35,676,509	\$8,015,000	0.58	1.38	6/30/2019
1/27/2016	Siguler Guff DREOF II Co-Inv	\$20,366,495	\$25,000,000	82%	\$20,537,862	\$0	\$5,024,090	\$6,658,891	\$4,462,138	0.32	1.32	6/30/2019
Total Closed End Real Estate		\$666,208,748	\$1,225,000,000	94%	\$1,155,010,197	\$11,535,350	\$45,106,788	\$865,152,023	\$233,685,581	0.75	1.33	
% of Portfolio (Market Value)		7.3%										

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Includes \$7,231,879 in management fees charged outside the fund.

⁵Includes \$11,036,354 in management fees charged outside the fund.

⁶Includes \$831,403 in management fees charged outside the fund.

⁷Capital has been fully called and fund is in redemption.

⁸Total distributions may include recallable distributions

⁹Remaining commitment includes recallable distributions

Total Fund
Closed End Funds - Investment Summary

Period Ending: September 30, 2019

StepStone Group Analysis (*)

Closing Date	Manager Name/Fund Name	Estimated Market Value as of 9/30/19 ¹	Total Commitment	Total % Called	Contributed Capital	Current Qtr. Change in Contributed Capital	Current Qtr. Change in Distributed Capital	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ²	Tot. Value/Paid-In (TVPI) ³	Latest Valuation
Private Equity & Venture Capital												
2/11/2004	Adams Street Partners	\$152,677,629	\$210,000,000	88%	\$185,043,125	\$20,000	\$3,601,224	\$146,505,349	\$24,956,875	0.79	1.62	6/30/2019
12/31/2008	Adams Street Partners II	\$8,487,962	\$30,000,000	95%	\$28,365,000	\$0	\$707,950	\$39,941,957	\$1,635,000	1.41	1.71	6/30/2019
12/31/2008	Adams Street Partners - Fund 5	\$20,904,594	\$40,000,000	77%	\$30,611,900	\$0	\$1,089,372	\$16,634,023	\$9,388,100	0.54	1.23	6/30/2019
1/18/1996	Adams Street Partners - BPF	\$1,802,301	\$9,565,614	97%	\$57,517,409	\$0	\$164,113	\$102,731,103	\$2,048,205	1.79	1.82	3/31/2019
3/31/2016	Adams Street Venture Innovation	\$51,250,010	\$75,000,000	61%	\$45,412,500	\$11,250,000	\$0	\$0	\$29,587,500	0.00	1.13	6/30/2019
5/18/2018	AE Industrial Partners Fund II, LP	\$4,471,762	\$35,000,000	15%	\$5,103,684	\$2,461,217	\$0	\$0	\$29,896,316	0.00	0.88	6/30/2019
11/27/2013	Aether Real Assets III	\$20,601,865	\$25,000,000	91%	\$22,742,851	\$604,968	\$188,985	\$3,606,471	\$4,270,732	0.16	1.06	6/30/2019
11/30/2013	Aether Real Assets III Surplus	\$50,187,546	\$50,000,000	99%	\$49,696,370	\$1,278,979	\$367,118	\$8,516,717	\$3,336,311	0.17	1.18	6/30/2019
1/30/2016	Aether Real Assets IV	\$39,406,953	\$50,000,000	70%	\$35,248,017	\$3,619,700	\$157,497	\$2,039,346	\$16,778,671	0.06	1.18	6/30/2019
11/26/2003	Bay Area Equity Fund I ⁴	\$2,407,545	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$37,018,019	\$0	3.70	3.94	6/30/2019
11/26/2003	Bay Area Equity Fund II ⁴	\$12,346,571	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$2,026,313	\$0	0.20	1.44	6/30/2019
6/30/2013	Commonfund	\$43,771,673	\$50,000,000	87%	\$43,324,995	\$0	\$1,577,981	\$10,460,771	\$6,675,005	0.24	1.25	6/30/2019
7/15/2005	EIF US Power Fund II ⁴	\$6,665,595	\$50,000,000	130%	\$65,029,556	\$0	\$466,219	\$72,650,020	\$0	1.12	1.22	6/30/2019
5/31/2007	EIF US Power Fund III ⁴	\$16,736,968	\$65,000,000	110%	\$71,409,097	\$0	\$878,100	\$73,638,258	\$0	1.03	1.27	6/30/2019
8/31/2010	EIF US Power Fund IV	\$47,326,520	\$50,000,000	127%	\$63,746,288	\$1,786,025	\$296,279	\$25,818,414	\$4	0.41	1.15	6/30/2019
11/28/2016	EIF US Power Fund V	\$41,702,913	\$50,000,000	95%	\$47,434,111	\$3,122,408	\$3,134,908	\$9,192,121	\$9,566,328	0.19	1.07	6/30/2019
2/21/2019	Genstar Capital Partners IX, L.P.	\$5,190,800	\$50,000,000	11%	\$5,671,543	\$5,671,543	\$0	\$0	\$44,328,457	0.00	0.92	6/30/2019
2/28/2010	Oaktree PIF 2009	\$6,003,266	\$40,000,000	87%	\$34,816,108	\$0	\$479,085	\$41,266,355	\$6,308,961	1.19	1.36	9/30/2019
8/15/2013	Ocean Avenue Fund II	\$29,959,808	\$30,000,000	87%	\$26,100,000	\$0	\$1,500,015	\$12,440,759	\$3,900,000	0.48	1.62	6/30/2019
4/15/2016	Ocean Avenue Fund III	\$54,155,372	\$50,000,000	84%	\$42,000,000	\$3,000,000	\$0	\$6,000,000	\$8,000,000	0.14	1.43	6/30/2019
11/30/2007	Paladin III	\$32,754,167	\$25,000,000	134%	\$33,560,037	\$369,924	\$967,804	\$24,870,552	\$256,983	0.74	1.72	6/30/2019
8/22/2011	Pathway 6	\$34,134,179	\$40,000,000	95%	\$37,868,925	\$231,432	\$2,858,998	\$24,111,808	\$4,276,924	0.64	1.54	6/30/2019
7/10/2013	Pathway 7	\$66,838,868	\$70,000,000	92%	\$64,102,037	\$157,500	\$3,417,306	\$21,523,840	\$8,765,254	0.34	1.38	6/30/2019
11/23/2015	Pathway 8	\$43,536,219	\$50,000,000	72%	\$36,133,611	\$1,095,735	\$282,050	\$4,780,767	\$15,380,736	0.13	1.34	6/30/2019
1/19/1999	Pathway	\$15,379,976	\$125,000,000	100%	\$124,799,775	\$69,832	\$1,774,050	\$173,297,134	\$10,925,354	1.39	1.51	6/30/2019
7/31/2009	Pathway 2008	\$18,883,185	\$30,000,000	97%	\$29,082,228	\$249,243	\$1,125,331	\$28,255,024	\$3,269,542	0.97	1.62	6/30/2019
6/3/2014	Siguler Guff CCCERA Opportunities	\$168,042,347	\$200,000,000	74%	\$147,355,741	\$1,000,000	\$1,575,692	\$49,073,188	\$60,224,772	0.33	1.47	6/30/2019
8/31/2013	Siguler Guff Secondary Opportunities	\$175,871	\$50,000,000	60%	\$29,999,802	\$0	\$0	\$42,638,494	\$49,356,046	1.42	1.43	3/31/2019
5/18/2018	Siris Partners IV, L.P.	\$10,333,894	\$35,000,000	30%	\$10,672,964	\$5,332,633	\$0	\$0	\$24,327,036	0.00	0.97	6/30/2019
6/28/2019	TPG Healthcare Partners, L.P.	-\$307,532	\$24,000,000	0%	\$0	\$0	\$0	\$0	\$24,000,000	-	-	6/30/2019
5/24/2019	Trident VIII, L.P.	\$0	\$40,000,000	0%	\$0	\$0	\$0	\$0	\$40,000,000	-	-	-
12/8/2015	Wastewater Opportunity Fund	\$17,944,002	\$25,000,000	83%	\$20,669,204	\$2,485,194	\$0	\$2,031,922	\$4,353,023	0.10	0.97	6/30/2019
Total Private Equity and Venture Capital		\$1,023,772,828	\$1,743,565,614	81%	\$1,413,516,878	\$43,806,333	\$26,610,077	\$981,068,726	\$445,812,135	0.69	1.42	

% of Portfolio (Market Value) 11.2%

* All Data provided by StepStone Group

¹Latest valuation + capital calls - distributions

²(DPI) is equal to (capital returned / capital called)

³(TVPI) is equal to (market value + capital returned) / capital called

⁴Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - IRR Summary

Period Ending: September 30, 2019

Private Credit	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon Energy Cred Opp.	09/24/2015	-	-	-	10.1%	06/30/2019
Stepstone CC Opportunities Fund ¹	02/02/2018	-	-	-	-	-
Torchlight II ⁴	07/01/2006	0.0%	0.2%	-1.2%	-1.0%	09/30/2019
Torchlight IV	08/01/2012	13.1%	13.5%	10.3%	11.0%	09/30/2019
Torchlight V	03/12/2015	18.6%	18.7%	12.1%	12.0%	06/30/2019
Real Estate	Inception	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Angelo Gordon VIII	01/23/2012	-	-	-	15.1%	06/30/2019
Angelo Gordon IX	12/08/2014	-	-	-	12.5%	06/30/2019
DLJ RECP III	06/23/2005	0.0%	0.0%	-2.0%	-2.0%	06/30/2019
DLJ RECP IV	02/11/2008	6.0%	6.0%	4.0%	4.0%	06/30/2019
DLJ RECP V	07/01/2014	23.0%	23.0%	12.0%	12.0%	06/30/2019
DLJ RECP VI ¹	03/19/2019	-	-	-	-	-
Hearthstone II ⁴	06/17/1998	-	30.1%	-	30.1%	06/30/2019
Invesco Fund III ⁴	06/30/2013	15.0%	-	11.8%	-	09/30/2019
Invesco Fund IV ⁴	06/30/2014	17.1%	-	12.6%	-	06/30/2019
Invesco Fund V ¹	02/20/2019	-	-	-	-	-
LaSalle Income & Growth VI ⁴	07/16/2013	14.9%	14.9%	12.3%	12.3%	09/30/2019
LaSalle Income & Growth VII	02/28/2017	14.2%	14.5%	11.5%	11.6%	09/30/2019
Long Wharf IV ⁴	07/03/2013	17.5%	17.6%	12.8%	12.8%	09/30/2019
Long Wharf V ⁴	09/30/2016	16.0%	17.5%	10.7%	11.5%	09/30/2019
Oaktree REOF V ⁴	12/31/2011	16.9%	-	12.5%	-	09/30/2019
Oaktree REOF VI ⁴	09/30/2013	14.3%	-	9.5%	-	06/30/2019
Oaktree REOF VII	04/01/2015	44.8%	-	25.6%	-	09/30/2019
Paulson ⁴	11/10/2013	19.0%	-	13.1%	-	12/31/2018
Siguler Guff I	01/25/2012	14.2%	16.9%	12.7%	13.8%	06/30/2019
Siguler Guff II	08/31/2013	12.8%	12.6%	11.4%	10.3%	06/30/2019
Siguler Guff DREOF II Co-Inv	01/27/2016	14.1%	14.3%	13.0%	11.1%	06/30/2019

¹ Manager has yet to report IRR figure due to no capital invested or meaningful distributions.

² Fund level data includes CCCERA and all other fund investors.

³ Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴ Capital has been fully called and fund is in redemption.

Total Fund
Closed End Funds - IRR Summary

Period Ending: September 30, 2019

Private Equity & Venture Capital	Closing Date	Fund Level (G) ²	CCCERA (G)	Fund Level (N) ^{2,3}	CCCERA (N) ³	IRR Date
Adams Street Partners	2/11/2004	-	12.9%	-	10.6%	6/30/2019
Adams Street Partners II	12/31/2008	-	14.3%	-	11.7%	3/31/2019
Adams Street Partners - Fund 5	12/31/2008	-	8.9%	-	6.6%	6/30/2019
Adams Street Partners Venture	1/18/1996	-	26.5%	-	19.5%	6/30/2019
Adams Street Partners - BPF	3/31/2016	-	14.3%	-	11.6%	6/30/2019
AE Industrial Partners Fund II, LP ¹	5/18/2018	-	-	-	-	-
Aether Real Assets III	11/27/2013	6.1%	6.1%	2.4%	2.4%	6/30/2019
Aether Real Assets III Surplus	11/30/2013	7.0%	-	5.5%	5.5%	6/30/2019
Aether Real Assets IV	1/30/2016	19.3%	19.2%	12.5%	12.4%	6/30/2019
Bay Area Equity Fund I ⁹	11/26/2003	25.8%	25.8%	23.2%	23.2%	6/30/2019
Bay Area Equity Fund II ⁹	11/26/2003	7.0%	7.0%	5.9%	5.9%	6/30/2019
CommonFund	6/30/2013	-	-	-	9.0%	6/30/2019
Energy Investor Fund II ⁹	7/15/2005	6.3%	5.9%	6.6%	3.2%	6/30/2019
Energy Investor Fund III ⁹	5/31/2007	6.5%	6.5%	4.0%	4.0%	6/30/2019
Energy Investor Fund IV	8/31/2010	9.2%	9.3%	5.3%	5.1%	6/30/2019
Energy Investor Fund V	11/28/2016	18.1%	14.7%	11.6%	8.6%	6/30/2019
Genstar Capital Partners IX, L.P. ¹	2/21/2019	-	-	-	-	-
Oaktree PIF 2009	2/28/2010	6.8%	-	6.6%	-	9/30/2019
Ocean Avenue II	8/15/2013	18.9%	-	16.0%	-	6/30/2019
Ocean Avenue III	4/15/2016	41.2%	-	33.3%	-	6/30/2019
Paladin III	11/30/2007	19.0%	-	10.7%	-	6/30/2019
Pathway 6	8/22/2011	17.0%	17.0%	14.4%	14.4%	6/30/2019
Benchmark ⁴		14.4%	-	-	-	6/30/2019
Pathway 7	7/10/2013	16.8%	16.8%	14.1%	14.1%	6/30/2019
Benchmark ⁵		14.4%	-	-	-	6/30/2019
Pathway 8	11/23/2015	21.1%	21.6%	19.0%	19.8%	6/30/2019
Benchmark ⁶		14.4%	-	-	-	6/30/2019
Pathway Private Equity Fund	1/19/1999	10.3%	10.3%	8.4%	8.4%	6/30/2019
Benchmark ⁷		10.4%	-	-	-	6/30/2019
Pathway Private Equity Fund 2008	7/31/2009	14.9%	14.9%	12.3%	12.3%	6/30/2019
Benchmark ⁸		13.2%	-	-	-	6/30/2019
Siguler Guff CCCERA Opportunities	6/3/2014	19.5%	20.1%	18.9%	17.0%	6/30/2019
Siguler Guff Secondary Opportunities	8/31/2013	55.4%	118.7%	49.5%	69.3%	6/30/2019
Siris Partners IV, L.P. ¹	5/18/2018	-	-	-	-	-
TPG Healthcare Partners, L.P. ¹	6/28/2019	-	-	-	-	-
Trident VIII, L.P. ¹	5/24/2019	-	-	-	-	-
Wastewater Opportunity Fund	12/8/2015	5.9%	-	-2.1%	-	6/30/2019

¹Manager has yet to report IRR figure due to no capital invested or meaningful distributions.

²Fund level data includes CCCERA and all other fund investors.

³Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴Private IQ global all private equity median pooled return for vintage years 2011-2014, as of June 30, 2019.

⁵Private IQ global all private equity median pooled return for vintage years 2012-2016, as of June 30, 2019.

⁶Private IQ global all private equity median pooled return for vintage years 2015-2018, as of June 30, 2019.

⁷Private IQ global all private equity median pooled return for vintage years 1999-2011, as of June 30, 2019.

⁸Private IQ global all private equity median pooled return for vintage years 2008-2014, as of June 30, 2019.

⁹Capital has been fully called and fund is in redemption.

Total Fund
Performance Analysis - 3 Years (Net of Fees)

Period Ending: September 30, 2019

	3 Years										
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Jackson Square Partners	13.24%	-3.65%	13.19%	-2.64%	0.94	4.29%	0.90	0.89	-0.85	81.74%	97.19%
Boston Partners	10.58%	1.15%	13.29%	0.66%	1.05	2.93%	0.95	0.68	0.39	106.55%	99.72%
Emerald Advisers	11.47%	1.67%	18.53%	1.43%	1.03	4.77%	0.93	0.54	0.35	103.01%	95.82%
Ceredex	6.08%	-0.46%	16.78%	0.22%	0.90	5.87%	0.89	0.27	-0.08	91.00%	95.30%
Pyrford	5.08%	-0.16%	9.67%	1.25%	0.73	5.47%	0.79	0.37	-0.03	67.38%	69.42%
William Blair	7.17%	-0.20%	12.38%	-0.27%	1.01	2.67%	0.95	0.45	-0.07	95.19%	96.52%
Artisan Partners	12.20%	2.49%	13.01%	2.01%	1.05	5.33%	0.83	0.82	0.47	115.12%	99.66%
First Eagle	6.29%	-3.42%	8.40%	-0.69%	0.72	3.79%	0.94	0.56	-0.90	60.11%	71.34%
Allianz Global Investors	5.49%	-0.58%	4.47%	-0.82%	1.04	0.94%	0.96	0.88	-0.62	96.54%	109.50%
Adelante	8.21%	0.99%	12.46%	1.30%	0.96	1.67%	0.98	0.53	0.60	95.24%	89.45%
AFL-CIO	2.75%	-0.17%	3.15%	0.06%	0.92	0.70%	0.96	0.38	-0.25	89.10%	86.32%
Wellington Real Total Return	0.90%	-5.25%	4.24%	-2.76%	0.60	4.22%	0.01	-0.15	-1.24	23.22%	NM

Performance Analysis excludes closed end funds and those funds without 3years of performance.

Total Fund
Performance Analysis - 5 Years (Net of Fees)

Period Ending: September 30, 2019

	5 Years										
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Jackson Square Partners	10.19%	-3.20%	13.32%	-2.69%	0.96	4.90%	0.87	0.69	-0.65	88.51%	107.48%
Boston Partners	7.69%	-0.10%	13.02%	-0.62%	1.07	2.90%	0.95	0.52	-0.03	105.18%	104.32%
Emerald Advisers	11.06%	1.98%	17.65%	1.96%	1.00	4.92%	0.92	0.57	0.40	108.36%	97.91%
Ceredex	8.61%	1.44%	15.17%	2.29%	0.88	5.72%	0.87	0.50	0.25	92.55%	91.06%
Pyrford	3.17%	2.28%	10.22%	2.55%	0.71	5.70%	0.83	0.22	0.40	60.87%	68.13%
William Blair	4.50%	-0.36%	12.21%	-0.20%	0.97	2.70%	0.95	0.29	-0.13	91.40%	96.36%
Artisan Partners	11.06%	4.41%	13.03%	4.27%	1.02	5.17%	0.84	0.77	0.85	122.87%	90.98%
First Eagle	5.84%	-0.81%	8.57%	1.23%	0.69	4.52%	0.90	0.57	-0.18	58.27%	65.60%
Allianz Global Investors	4.41%	-0.95%	5.26%	-0.67%	0.95	1.23%	0.95	0.65	-0.77	89.94%	101.66%
Adelante	10.13%	-0.04%	13.72%	0.49%	0.95	1.79%	0.99	0.67	-0.02	90.45%	93.49%
AFL-CIO	3.24%	-0.14%	2.84%	0.21%	0.90	0.73%	0.95	0.80	-0.19	87.85%	81.33%
Wellington Real Total Return	-1.64%	-7.22%	5.67%	-8.93%	1.31	5.52%	0.05	-0.46	-1.31	-4.20%	NM

Performance Analysis excludes closed end funds and those funds without 5 years of performance.

Total Fund Investment Fund Fee Analysis

Period Ending: September 30, 2019

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
BlackRock Russell 1000 Index	Growth	0.03% of Assets	\$187,647,476	\$56,294	0.03%
Jackson Square Partners	Growth	0.50% of First 100.0 Mil, 0.40% of Next 150.0 Mil, 0.35% Thereafter	\$231,044,330	\$1,024,177	0.44%
Boston Partners	Growth	0.50% of First 25.0 Mil, 0.30% Thereafter	\$232,261,879	\$746,786	0.32%
Emerald Advisers	Growth	0.75% of First 10.0 Mil, 0.60% Thereafter	\$143,146,343	\$873,878	0.61%
Ceredex	Growth	0.85% of First 10.0 Mil, 0.68% of Next 40.0 Mil, 0.51% Thereafter	\$156,462,227	\$899,957	0.58%
Pyrford	Growth	0.70% of First 50.0 Mil, 0.50% of Next 50.0 Mil, 0.35% Thereafter	\$447,988,315	\$1,817,959	0.41%
William Blair	Growth	0.80% of First 20.0 Mil, 0.60% of Next 30.0 Mil, 0.50% of Next 50.0 Mil, 0.45% of Next 50.0 Mil, 0.40% of Next 50.0 Mil, 0.30% Thereafter	\$450,848,556	\$1,767,546	0.39%
PIMCO RAE Emerging Markets	Growth	0.75% of First 50.0 Mil, 0.68% of Next 50.0 Mil, 0.50% of Next 100.0 Mil, 0.45% Thereafter	\$332,474,898	\$1,808,637	0.54%
TT Emerging Markets	Growth	0.70% of First 100.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$317,459,106	\$2,054,755	0.65%
Artisan Partners	Growth	0.75% of Assets	\$368,952,264	\$2,767,142	0.75%
First Eagle	Growth	0.75% of Assets	\$371,818,334	\$2,788,638	0.75%
Allianz Global Investors	Growth	0.50% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	\$203,391,255	\$811,869	0.40%
AQR Global Risk Premium-EL	Growth	0.38% of Assets	\$228,677,512	\$868,975	0.38%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund
Investment Fund Fee Analysis

Period Ending: September 30, 2019

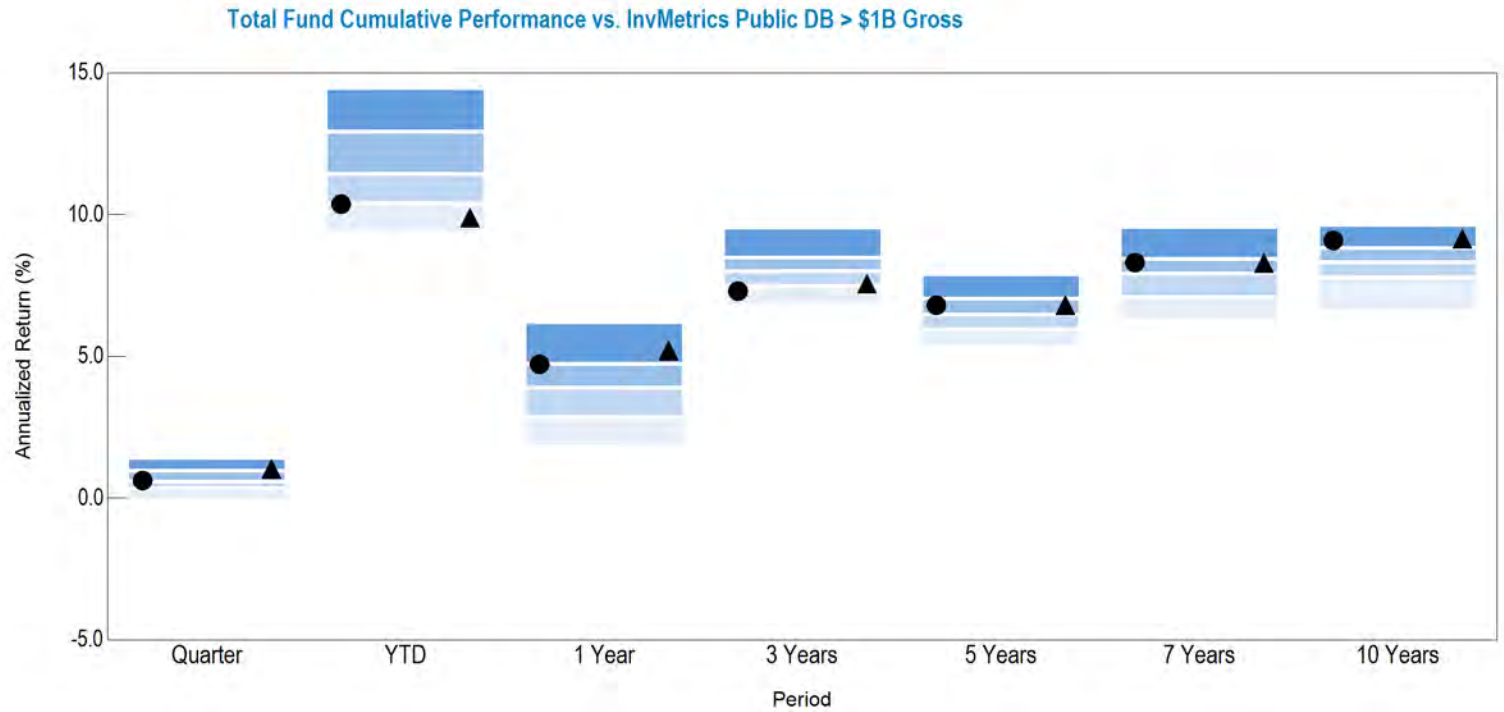
Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
PanAgora Risk Parity Multi Asset	Growth	0.35% of Assets	\$223,666,393	\$782,832	0.35%
AFL-CIO	Diversifying	0.43% of Assets	\$337,480,361	\$1,451,166	0.43%
Wellington Real Total Return	Diversifying	0.35% of Assets	\$186,620,305	\$653,171	0.35%
Parametric Defensive Equity	Diversifying	0.42% of First 200.0 Mil, 0.39% Thereafter	\$203,166,436	\$852,349	0.42%
DFA Short Credit	Liquidity	0.20% of First 25.0 Mil, 0.10% Thereafter	\$501,752,961	\$526,753	0.10%
Insight Short Duration	Liquidity	0.06% of First 500.0 Mil, 0.05% of Next 500.0 Mil, 0.04% Thereafter	\$1,028,461,532	\$561,385	0.05%
Sit Short Duration	Liquidity	0.15% of Assets	\$542,662,117	\$813,993	0.15%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: September 30, 2019



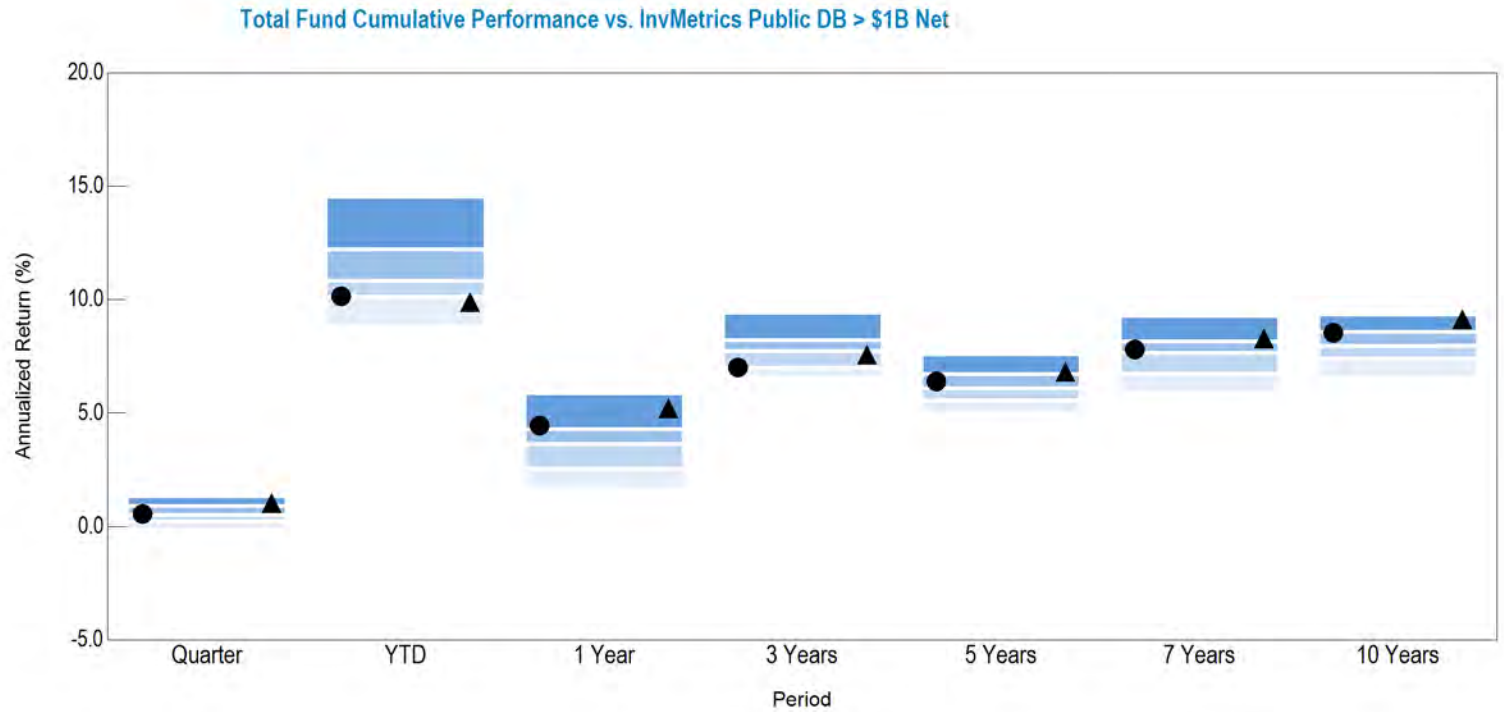
	Return (Rank)													
	Quarter		YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.4	(49)	14.4	(78)	6.2	(26)	9.5	(84)	7.9	(32)	9.6	(33)	9.6	(17)
25th Percentile	1.0	(18)	12.9	(88)	4.8	(15)	8.5	(73)	7.1	(31)	8.5	(35)	8.8	(16)
Median	0.6		11.5		3.9		8.0		6.5		7.9		8.3	
75th Percentile	0.4		10.4		2.9		7.5		6.0		7.1		7.8	
95th Percentile	-0.1		9.4		1.8		6.8		5.4		6.3		6.6	
# of Portfolios	81		81		81		81		80		79		74	
● Total Fund	0.6	(49)	10.4	(78)	4.7	(26)	7.3	(84)	6.8	(32)	8.3	(33)	9.1	(17)
▲ Policy Index	1.0	(18)	9.9	(88)	5.2	(15)	7.6	(73)	6.8	(31)	8.3	(35)	9.1	(16)

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Cumulative Performance (Net of Fees)

Period Ending: September 30, 2019

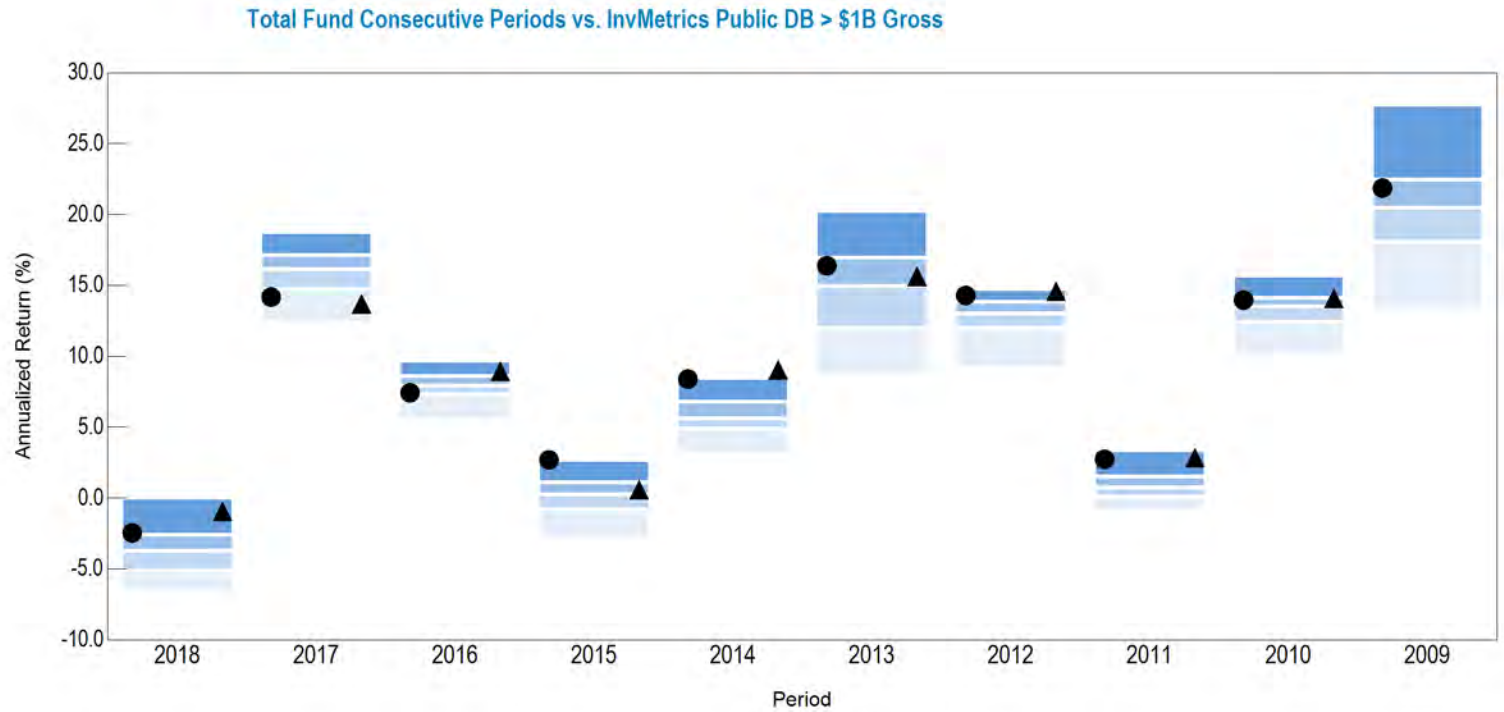


	Return (Rank)										
	Quarter	YTD	1 Year	3 Years	5 Years	7 Years	10 Years				
5th Percentile	1.3	14.5	5.9	9.4	7.6	9.3	9.3				
25th Percentile	0.9	12.2	4.3	8.2	6.7	8.2	8.6				
Median	0.5	10.8	3.6	7.7	6.1	7.7	8.0				
75th Percentile	0.2	10.1	2.6	7.0	5.6	6.8	7.4				
95th Percentile	-0.2	8.9	1.7	6.6	5.0	5.9	6.6				
# of Portfolios	71	71	71	71	69	69	63				
● Total Fund	0.5 (48)	10.1 (75)	4.4 (22)	7.0 (76)	6.4 (36)	7.8 (39)	8.5 (29)				
▲ Policy Index	1.0 (15)	9.9 (80)	5.2 (9)	7.6 (54)	6.8 (23)	8.3 (21)	9.1 (10)				

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: September 30, 2019



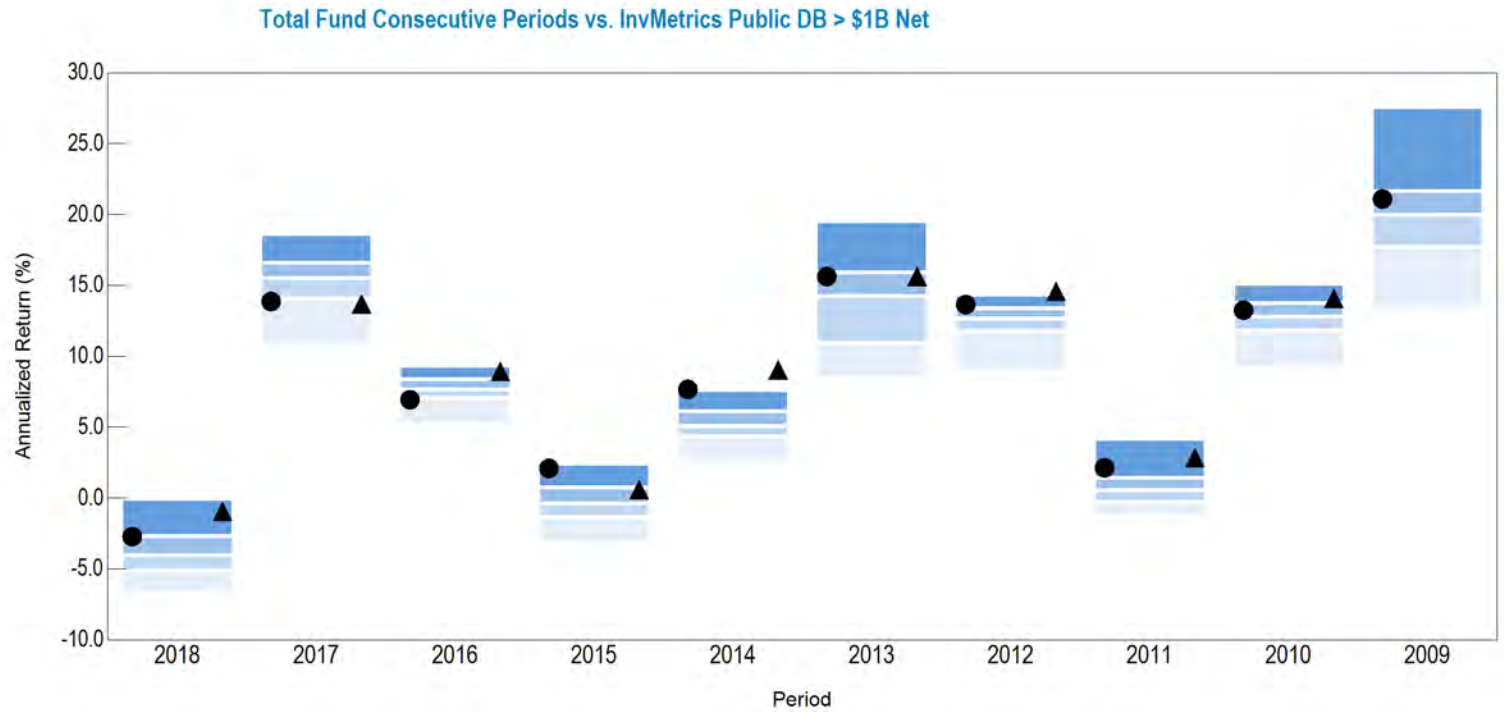
	Return (Rank)									
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
5th Percentile	0.0	18.8	9.7	2.7	8.5	20.2	14.7	3.3	15.7	27.7
25th Percentile	-2.6	17.2	8.6	1.1	6.8	17.0	13.9	1.6	14.2	22.5
Median	-3.7	16.2	8.0	0.3	5.7	15.0	13.0	0.8	13.5	20.5
75th Percentile	-5.1	14.8	7.4	-0.7	4.9	12.0	12.1	0.1	12.5	18.1
95th Percentile	-6.6	12.4	5.5	-2.8	3.1	8.7	9.2	-0.9	10.2	13.4
# of Portfolios	71	98	92	98	79	67	74	68	66	66
● Total Fund	-2.5 (25)	14.2 (83)	7.4 (74)	2.7 (5)	8.4 (6)	16.4 (33)	14.3 (13)	2.7 (9)	14.0 (29)	21.9 (34)
▲ Policy Index	-0.9 (8)	13.7 (89)	8.9 (15)	0.6 (40)	9.0 (2)	15.6 (43)	14.6 (8)	2.8 (9)	14.1 (27)	-- (-)

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: September 30, 2019

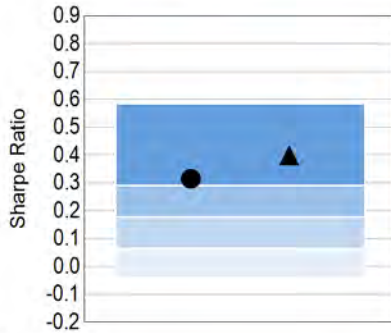


	Return (Rank)									
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
5th Percentile	-0.1	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5
25th Percentile	-2.7	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7
Median	-4.0	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0
75th Percentile	-5.1	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7
95th Percentile	-6.6	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4
# of Portfolios	63	61	62	57	55	48	44	42	41	40
● Total Fund	-2.7 (27)	13.9 (81)	6.9 (78)	2.1 (12)	7.7 (5)	15.6 (33)	13.6 (21)	2.1 (12)	13.3 (34)	21.1 (33)
▲ Policy Index	-0.9 (8)	13.7 (85)	8.9 (13)	0.6 (29)	9.0 (2)	15.6 (33)	14.6 (1)	2.8 (11)	14.1 (15)	-- (-)

Total Fund
Sharpe Ratio Ranking (Gross of Fees)

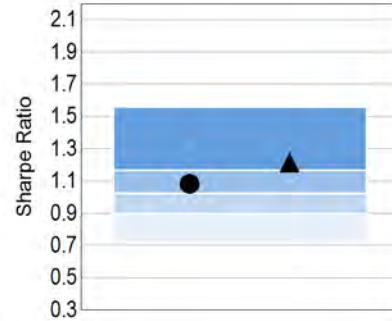
Period Ending: September 30, 2019

Sharpe Ratio
1 Year



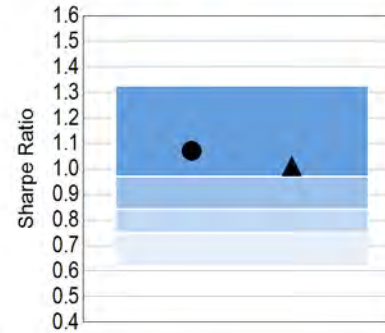
● Total Fund	
Value	0.3
Rank	20
▲ Policy Index	
Value	0.4
Rank	14
Universe	
5th %tile	0.6
25th %tile	0.3
Median	0.2
75th %tile	0.1
95th %tile	0.0

Sharpe Ratio
3 Year



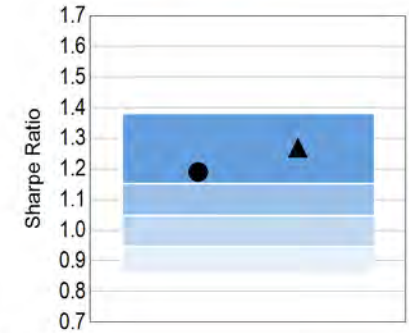
● Total Fund	
Value	1.1
Rank	37
▲ Policy Index	
Value	1.2
Rank	22
Universe	
5th %tile	1.6
25th %tile	1.2
Median	1.0
75th %tile	0.9
95th %tile	0.7

Sharpe Ratio
5 Year



● Total Fund	
Value	1.1
Rank	15
▲ Policy Index	
Value	1.0
Rank	22
Universe	
5th %tile	1.3
25th %tile	1.0
Median	0.8
75th %tile	0.8
95th %tile	0.6

Sharpe Ratio
10 Year



● Total Fund	
Value	1.2
Rank	17
▲ Policy Index	
Value	1.3
Rank	10
Universe	
5th %tile	1.4
25th %tile	1.2
Median	1.0
75th %tile	0.9
95th %tile	0.9

Domestic Equity Managers

Jackson Square Partners Manager Portfolio Overview

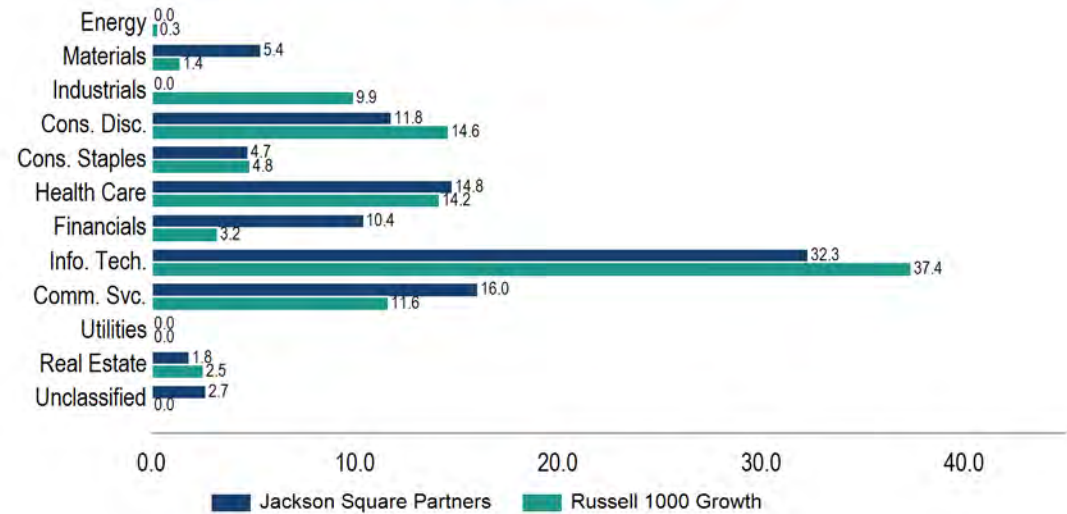
Period Ending: September 30, 2019

Domestic equity large cap growth portfolio concentrated in companies with sustainable long-term growth characteristics. Primary personnel include Jeffrey Van Harte, Christopher Bonavico, Christopher Ericksen, and Daniel Prislin.

Characteristics

	Portfolio	Russell 1000 Growth
Number of Holdings	28	526
Weighted Avg. Market Cap. (\$B)	176.96	300.55
Median Market Cap. (\$B)	43.83	12.24
Price To Earnings	28.92	26.74
Price To Book	5.21	8.05
Price To Sales	2.93	3.09
Return on Equity (%)	22.27	35.42
Yield (%)	0.83	1.21
Beta	0.84	1.00

Sector Allocation (%) vs Russell 1000 Growth



Largest Holdings

	End Weight	Return
MICROSOFT	10.02	4.14
IQVIA HOLDINGS	5.67	-7.16
BALL	5.37	4.22
DOLLAR TREE	5.01	6.30
KKR AND A	4.86	6.78
CONSTELLATION BRANDS 'A'	4.75	5.66
HASBRO	4.72	12.94
CHARTER COMMS.CL.A	4.39	4.29
MASTERCARD	3.91	2.79
ILLUMINA	3.69	-17.37

Top Contributors

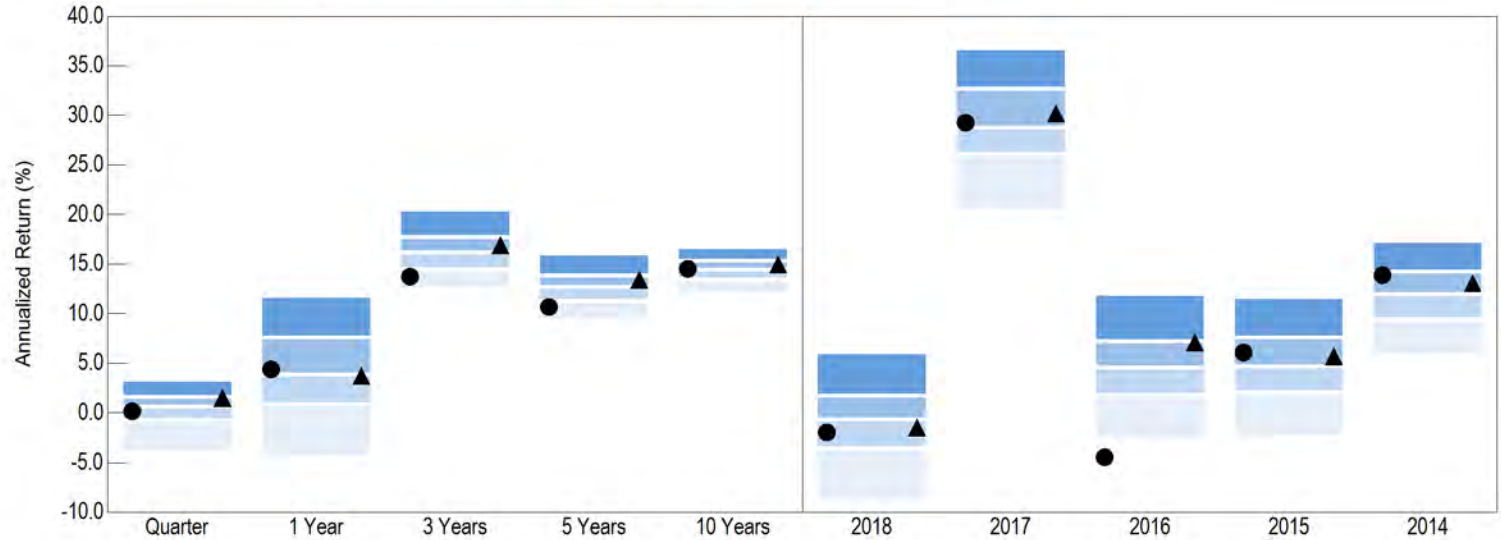
	Avg Wgt	Return	Contribution
HASBRO	1.41	12.94	0.18
APPLIED MATS.	1.18	11.61	0.14
MICROSOFT	3.23	4.14	0.13
DOLLAR GENERAL	0.73	17.87	0.13
TAKE TWO INTACT.SFTW.	1.19	10.40	0.12
DOLLAR TREE	1.78	6.30	0.11
KKR AND A	1.62	6.78	0.11
ALPHABET A	0.77	12.78	0.10
CME GROUP	0.82	9.26	0.08
CONSTELLATION BRANDS 'A'	1.24	5.66	0.07

Bottom Contributors

	Avg Wgt	Return	Contribution
TRIPADVISOR 'A'	1.00	-16.44	-0.16
ILLUMINA	0.89	-17.37	-0.15
IQVIA HOLDINGS	2.04	-7.16	-0.15
PAYPAL HOLDINGS	1.35	-9.50	-0.13
AUTODESK	1.26	-9.33	-0.12
UNITEDHEALTH GROUP	1.11	-10.53	-0.12
LIBERTY GLOBAL SR.C	1.10	-10.33	-0.11
ARISTA NETWORKS	0.85	-7.97	-0.07
LIBERTY GLOBAL CL.A	0.20	-8.30	-0.02
VISA 'A'	1.30	-0.75	-0.01

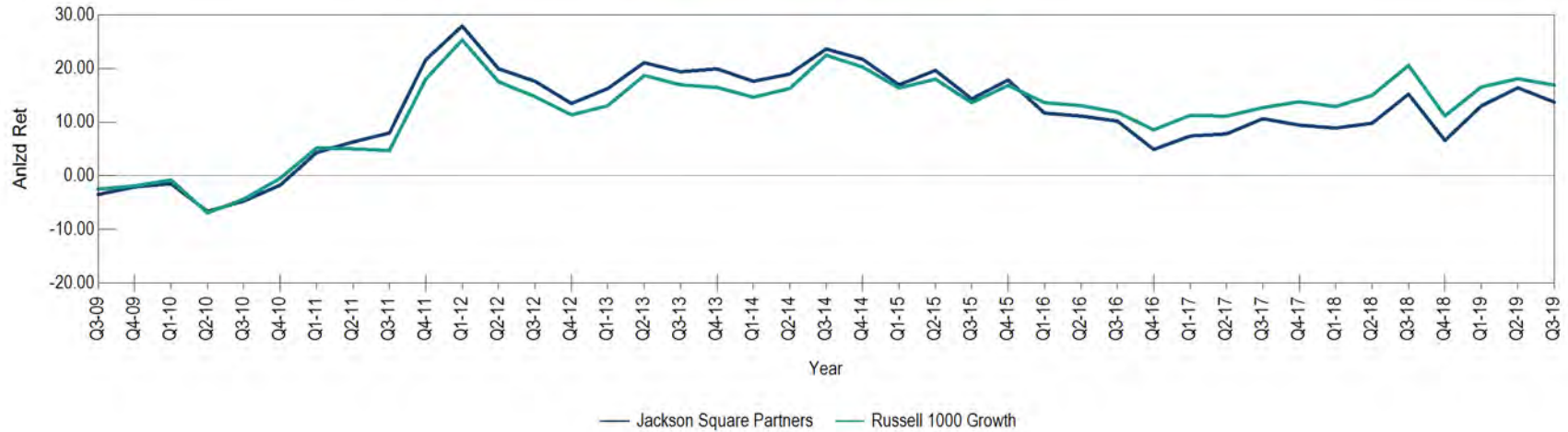
Unclassified sector allocation includes cash allocations.

Jackson Square Partners vs. eV US Large Cap Growth Equity Gross Universe

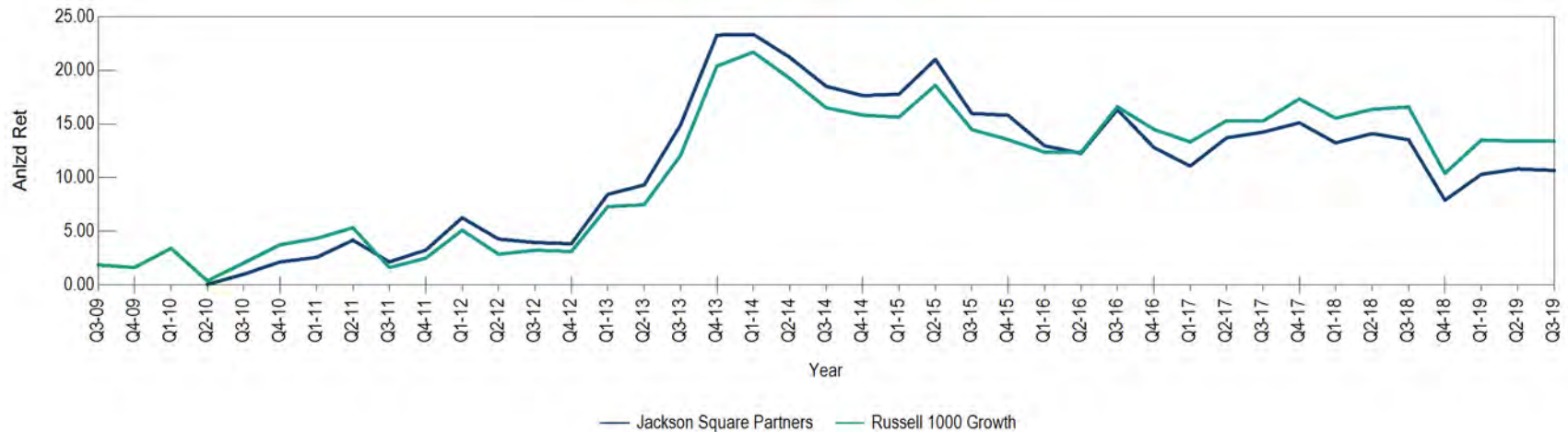


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
5th Percentile	3.3	11.8	20.4	16.0	16.7	6.1	36.7	12.0	11.6	17.3
25th Percentile	1.6	7.6	17.8	13.9	15.3	1.7	32.7	7.3	7.6	14.3
Median	0.6	3.9	16.2	12.7	14.5	-0.6	28.8	4.6	4.7	12.0
75th Percentile	-0.7	0.9	14.5	11.3	13.5	-3.5	26.2	1.8	2.1	9.5
95th Percentile	-3.9	-4.4	12.5	9.3	12.0	-8.8	20.5	-2.7	-2.4	5.8
# of Portfolios	239	239	231	226	202	255	265	282	270	291
● Jackson Square Partners	0.1 (59)	4.4 (46)	13.7 (85)	10.7 (85)	14.5 (50)	-2.0 (59)	29.3 (47)	-4.4 (98)	6.1 (37)	13.9 (31)
▲ Russell 1000 Growth	1.5 (29)	3.7 (53)	16.9 (40)	13.4 (35)	14.9 (35)	-1.5 (57)	30.2 (42)	7.1 (26)	5.7 (42)	13.0 (38)

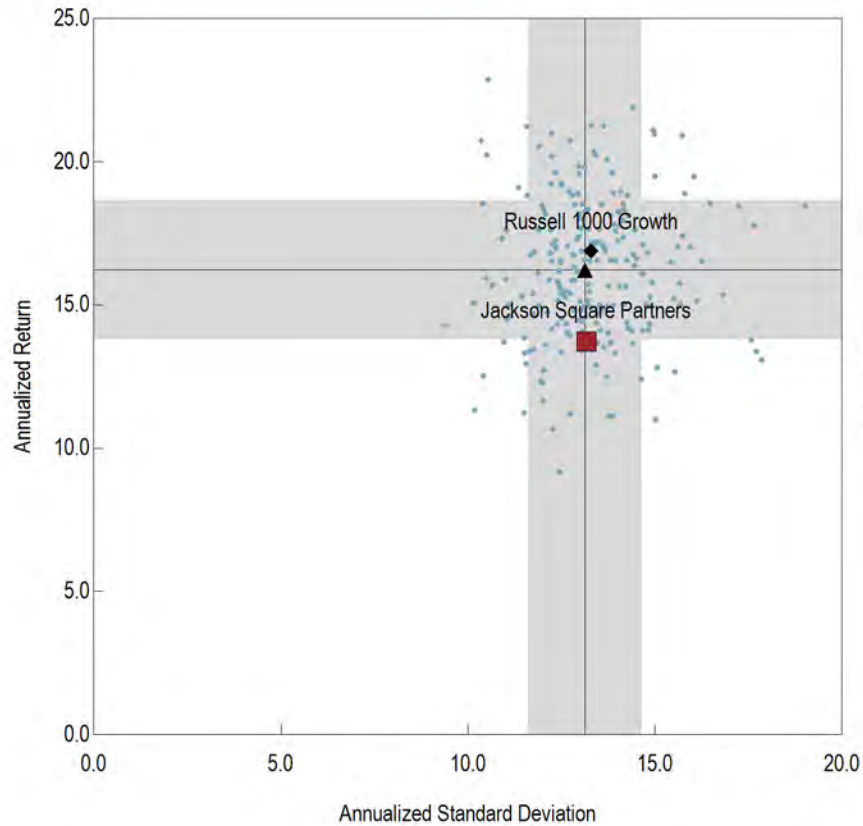
Rolling 3 Year Annualized Return (%)



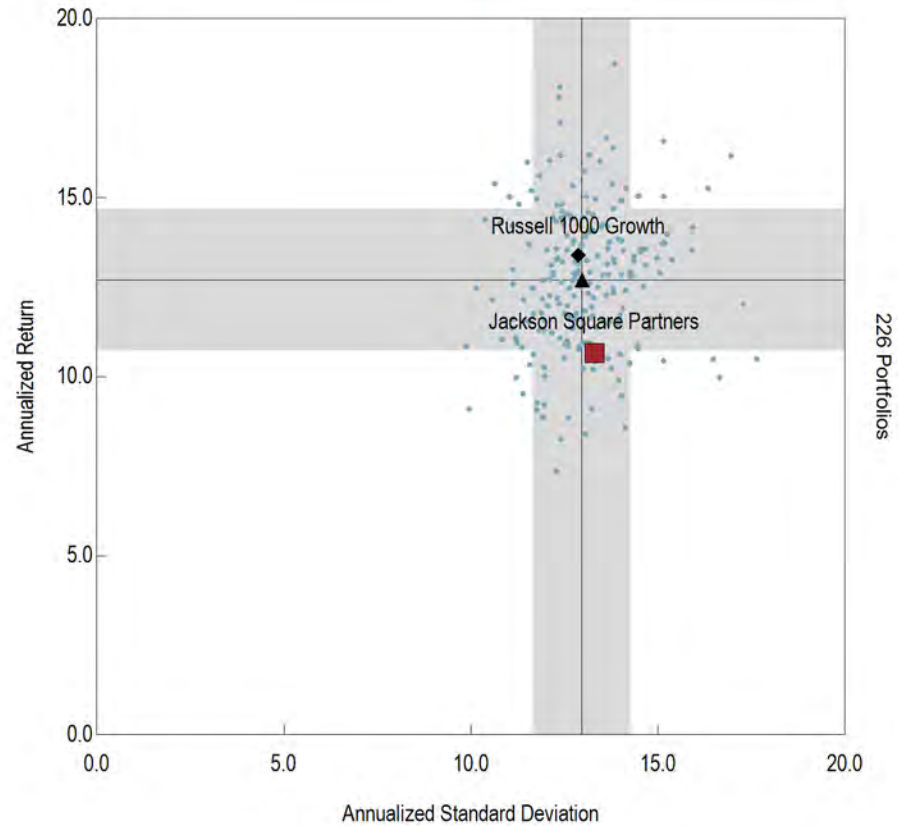
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	13.7%	13.2%	0.9
Russell 1000 Growth	16.9%	13.3%	1.2
eV US Large Cap Growth Equity Gross Median	16.2%	13.1%	1.1

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	10.7%	13.3%	0.7
Russell 1000 Growth	13.4%	12.9%	1.0
eV US Large Cap Growth Equity Gross Median	12.7%	13.0%	0.9

Boston Partners Manager Portfolio Overview

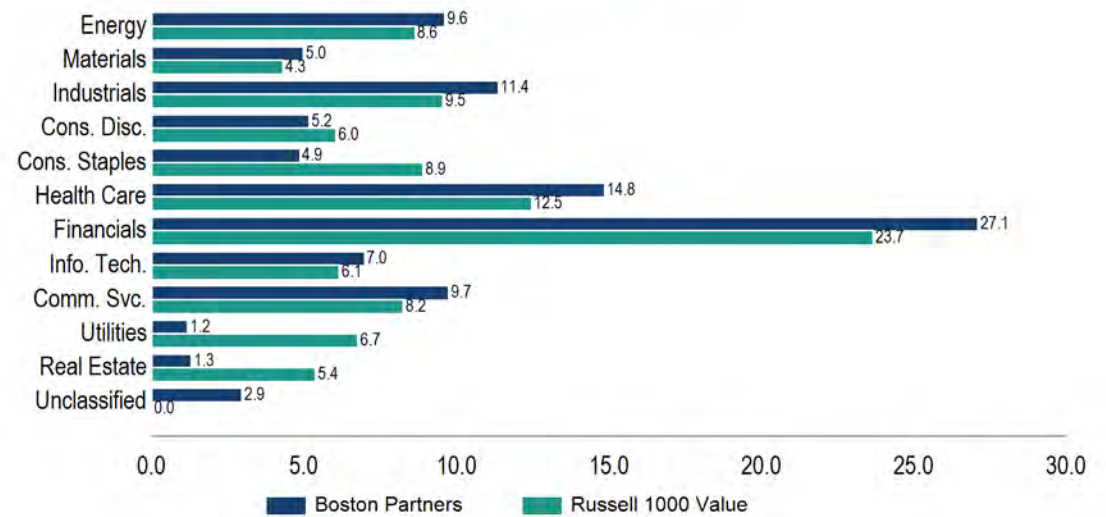
Period Ending: September 30, 2019

Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	81	760
Weighted Avg. Market Cap. (\$B)	126.09	114.23
Median Market Cap. (\$B)	35.82	8.98
Price To Earnings	16.11	16.68
Price To Book	2.20	2.24
Price To Sales	1.32	1.50
Return on Equity (%)	16.87	14.92
Yield (%)	2.16	2.62
Beta	1.05	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
BERKSHIRE HATHAWAY 'B'	4.42	-2.42
BANK OF AMERICA	3.77	1.23
COMCAST A	3.04	7.14
JP MORGAN CHASE & CO.	2.97	6.01
PROCTER & GAMBLE	2.67	14.17
WELLS FARGO & CO	2.57	7.77
VERIZON COMMUNICATIONS	2.47	6.78
CHUBB	2.27	10.13
CITIGROUP	2.21	-0.61
AMERICAN INTL.GP.	2.18	5.14

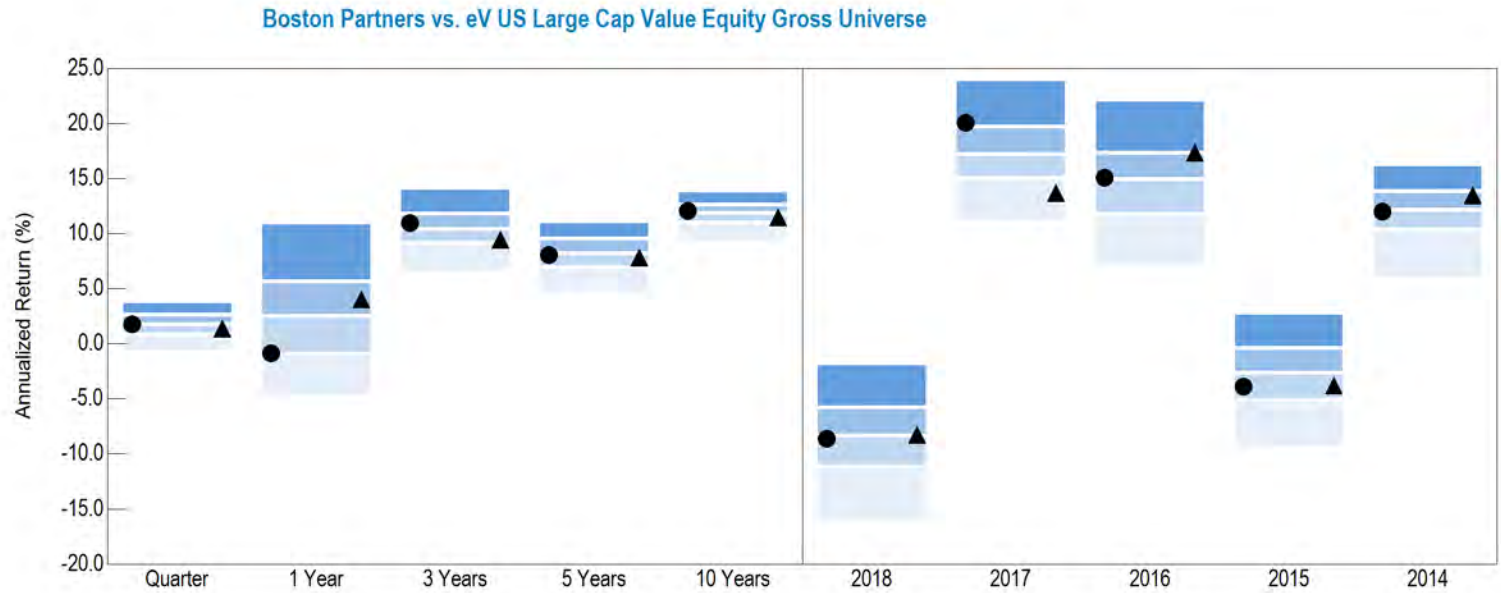
Top Contributors

	Avg Wgt	Return	Contribution
PROCTER & GAMBLE	0.80	14.17	0.11
ALPHABET A	0.64	12.78	0.08
MEDTRONIC	0.63	12.71	0.08
COMCAST A	0.97	7.14	0.07
CHUBB	0.60	10.13	0.06
CVS HEALTH	0.35	16.78	0.06
WELLS FARGO & CO	0.70	7.77	0.05
VERIZON COMMUNICATIONS	0.79	6.78	0.05
BARRICK GOLD (NYS)	0.46	10.12	0.05
NXP SEMICONDUCTORS	0.35	12.17	0.04

Bottom Contributors

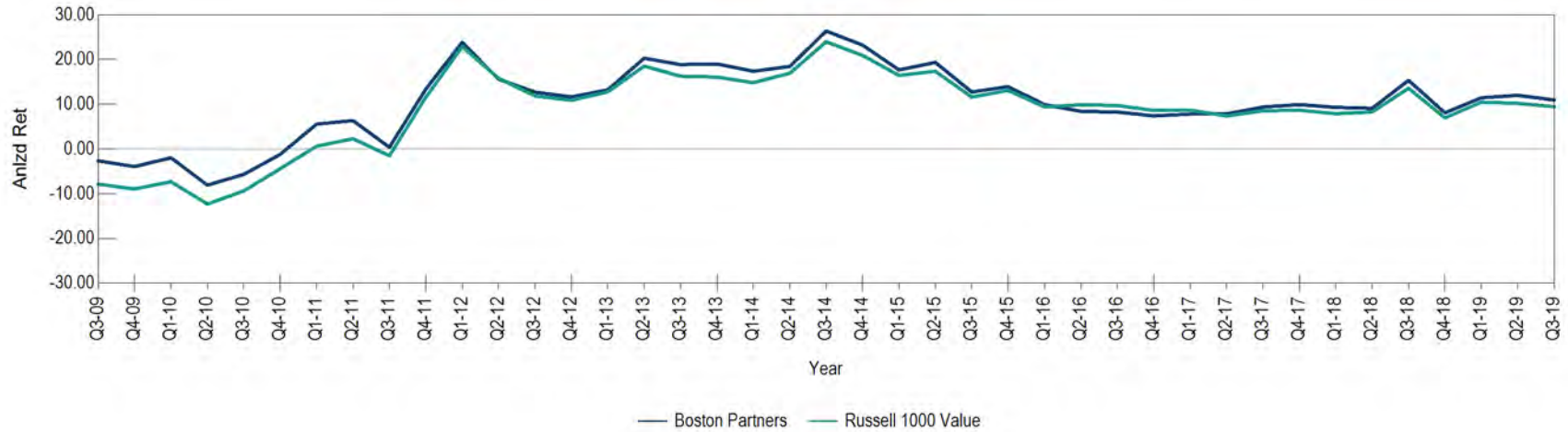
	Avg Wgt	Return	Contribution
PFIZER	0.74	-16.28	-0.12
JOHNSON & JOHNSON	1.14	-6.42	-0.07
ANTHEM	0.50	-14.65	-0.07
CISCO SYSTEMS	0.73	-9.16	-0.07
DXC TECHNOLOGY	0.13	-46.15	-0.06
UNITEDHEALTH GROUP	0.48	-10.53	-0.05
ROYAL DUTCH SHELL A ADR 1:2	0.57	-8.02	-0.05
FOX A	0.28	-13.33	-0.04
PIONEER NTRL.RES.	0.21	-17.97	-0.04
BERKSHIRE HATHAWAY 'B'	1.54	-2.42	-0.04

Unclassified sector allocation includes cash allocations.

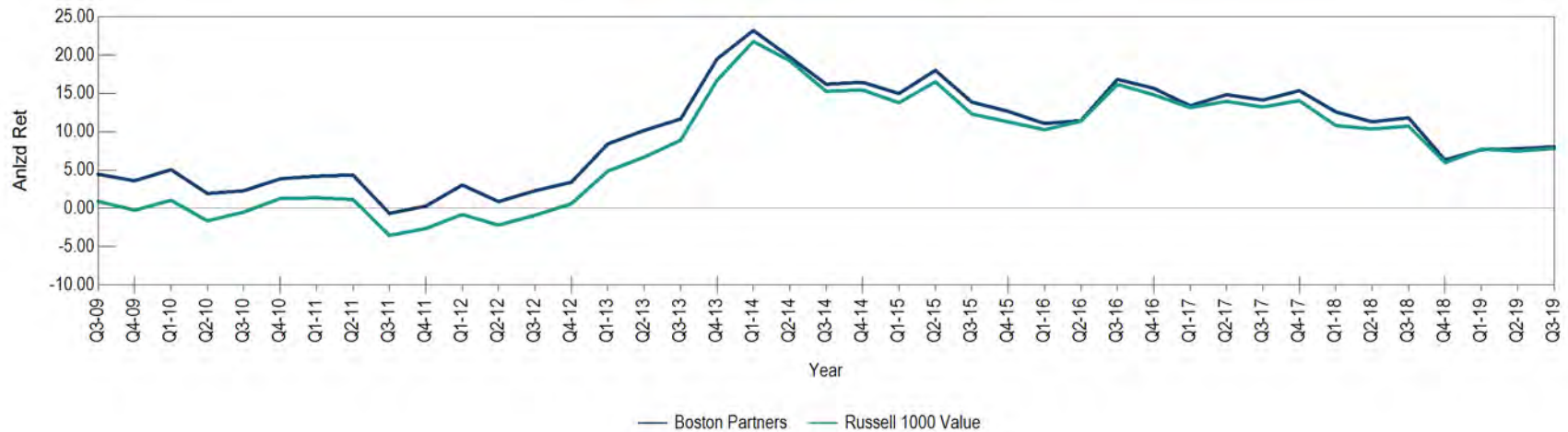


	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
Return (Rank)										
5th Percentile	3.8	11.0	14.1	11.1	13.9	-1.8	24.0	22.1	2.8	16.3
25th Percentile	2.6	5.7	11.8	9.6	12.7	-5.8	19.8	17.4	-0.4	13.9
Median	1.8	2.6	10.5	8.2	11.9	-8.3	17.2	15.0	-2.6	12.2
75th Percentile	0.8	-0.9	9.1	7.0	11.1	-11.1	15.1	11.8	-5.1	10.4
95th Percentile	-0.7	-4.8	6.5	4.6	9.3	-16.1	11.2	7.0	-9.4	5.9
# of Portfolios	314	314	309	304	258	336	342	346	312	307
● Boston Partners	1.7 (51)	-0.9 (75)	10.9 (40)	8.0 (56)	12.0 (47)	-8.7 (55)	20.1 (23)	15.1 (50)	-3.9 (65)	12.0 (55)
▲ Russell 1000 Value	1.4 (62)	4.0 (40)	9.4 (71)	7.8 (64)	11.5 (65)	-8.3 (50)	13.7 (87)	17.3 (26)	-3.8 (64)	13.5 (33)

Rolling 3 Year Annualized Return (%)

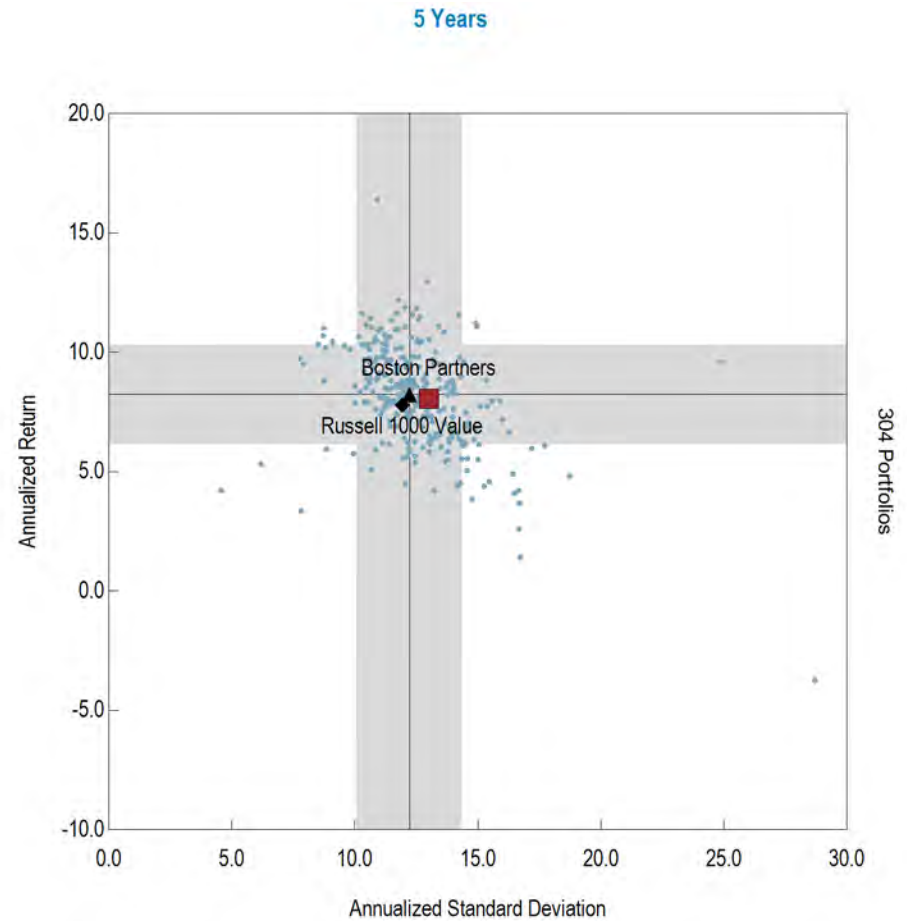
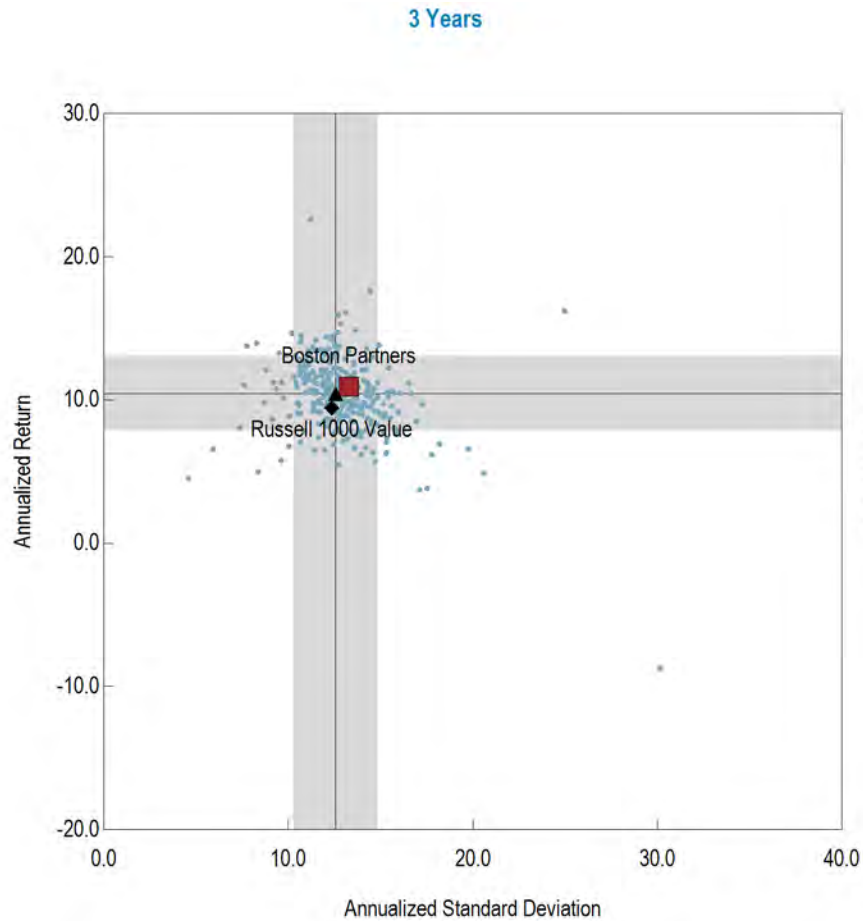


Rolling 5 Year Annualized Return (%)



Boston Partners
 Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2019



	3 Years			5 Years			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio		Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Boston Partners	10.9%	13.3%	0.7	Boston Partners	8.0%	13.0%	0.5
Russell 1000 Value	9.4%	12.3%	0.6	Russell 1000 Value	7.8%	11.9%	0.6
eV US Large Cap Value Equity Gross Median	10.5%	12.6%	0.7	eV US Large Cap Value Equity Gross Median	8.2%	12.2%	0.6

Emerald Advisers Manager Portfolio Overview

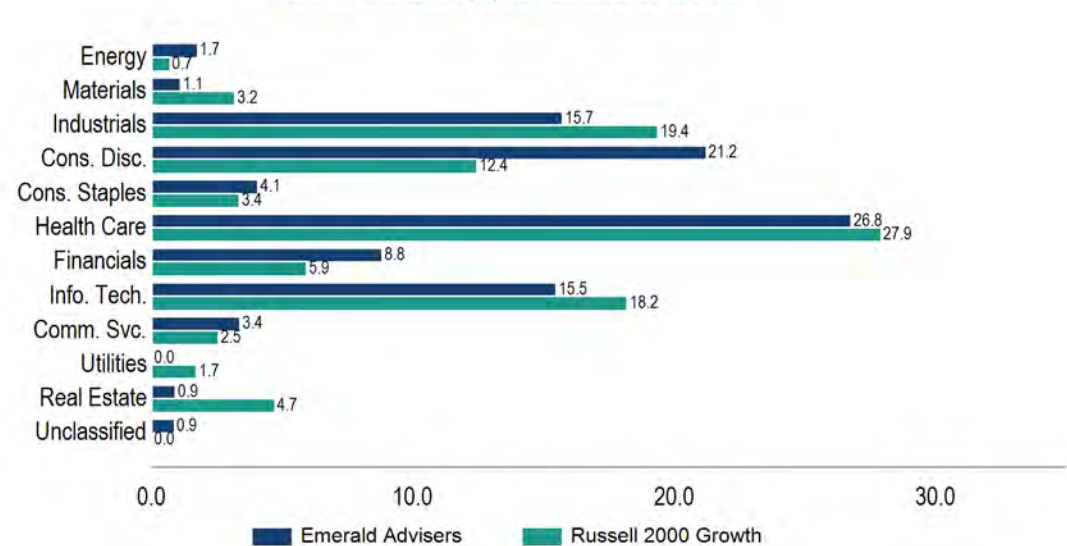
Period Ending: September 30, 2019

Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

Characteristics

	Portfolio	Russell 2000 Growth
Number of Holdings	117	1,144
Weighted Avg. Market Cap. (\$B)	2.74	2.44
Median Market Cap. (\$B)	1.92	0.85
Price To Earnings	26.37	25.60
Price To Book	4.06	4.04
Price To Sales	2.34	1.61
Return on Equity (%)	-9.22	-3.75
Yield (%)	0.51	0.78
Beta	1.13	1.00

Sector Allocation (%) vs Russell 2000 Growth



Largest Holdings

	End Weight	Return
TREX	2.50	26.82
CHEGG	2.45	-22.39
FIVE BELOW	2.08	5.07
CHURCHILL DOWNS	2.01	7.29
CIENA	1.98	-4.62
TETRA TECH	1.97	10.66
FRESHPET	1.94	9.36
THE SIMPLY GOOD FOODS	1.91	20.39
KRATOS DEF&SCTY.SLTN.	1.87	-18.76
FORESCOUT TECHNOLOGIES	1.75	11.99

Top Contributors

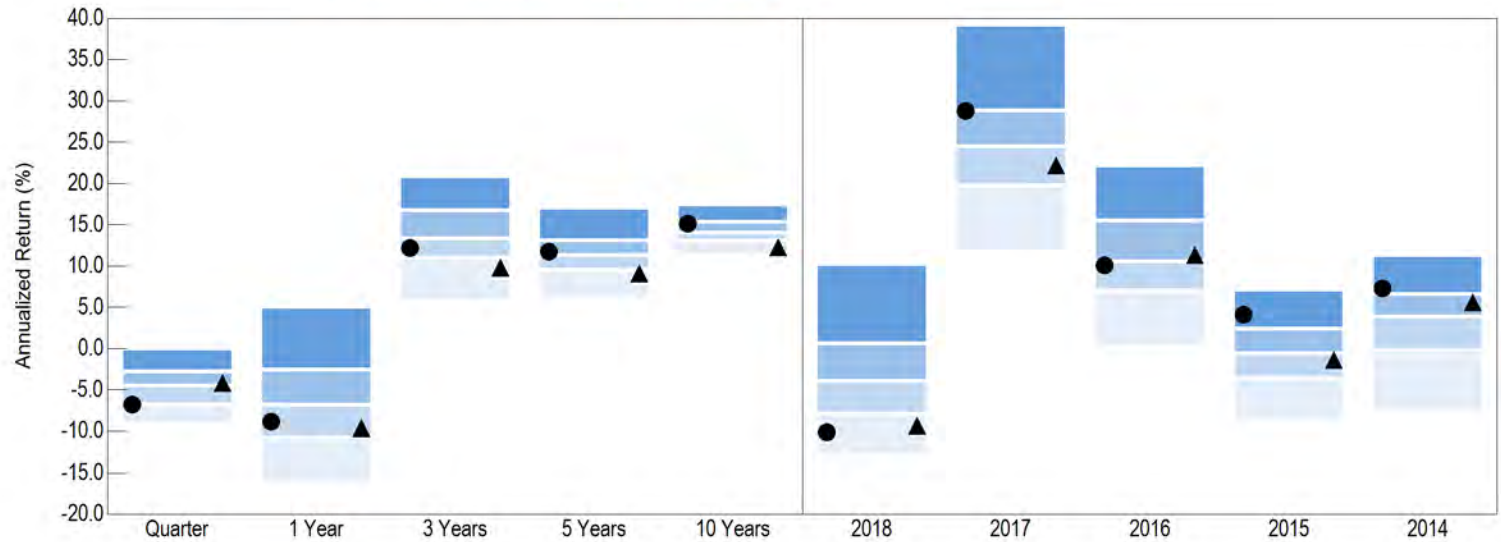
	Avg Wgt	Return	Contribution
TREX	0.68	26.82	0.18
MERITAGE HOMES	0.28	37.03	0.11
MODEL N	0.23	42.36	0.10
THE SIMPLY GOOD FOODS	0.47	20.39	0.10
NEW FORTRESS ENERGY A	0.15	53.97	0.08
KARYOPHARM THERAPEUTICS	0.13	60.60	0.08
MERCURY SYSTEMS	0.49	15.38	0.08
DECIPHERA PHARMS.	0.13	50.51	0.07
TETRA TECH	0.60	10.66	0.06
HORIZON THERAPEUTICS PUBLIC	0.46	13.18	0.06

Bottom Contributors

	Avg Wgt	Return	Contribution
CHEGG	0.96	-22.39	-0.21
PLURALSIGHT A	0.36	-44.61	-0.16
LENDINGTREE	0.58	-26.09	-0.15
RAPID7	0.69	-21.52	-0.15
PLANET FITNESS CL.A	0.66	-20.11	-0.13
GREEN DOT CLASS A	0.26	-48.36	-0.13
OLLIES BARGAIN OUTLET HLDG.	0.36	-32.68	-0.12
KRATOS DEF&SCTY.SLTN.	0.63	-18.76	-0.12
MERIT MEDICAL SYS.	0.23	-48.86	-0.11
PLAYAGS	0.22	-47.15	-0.10

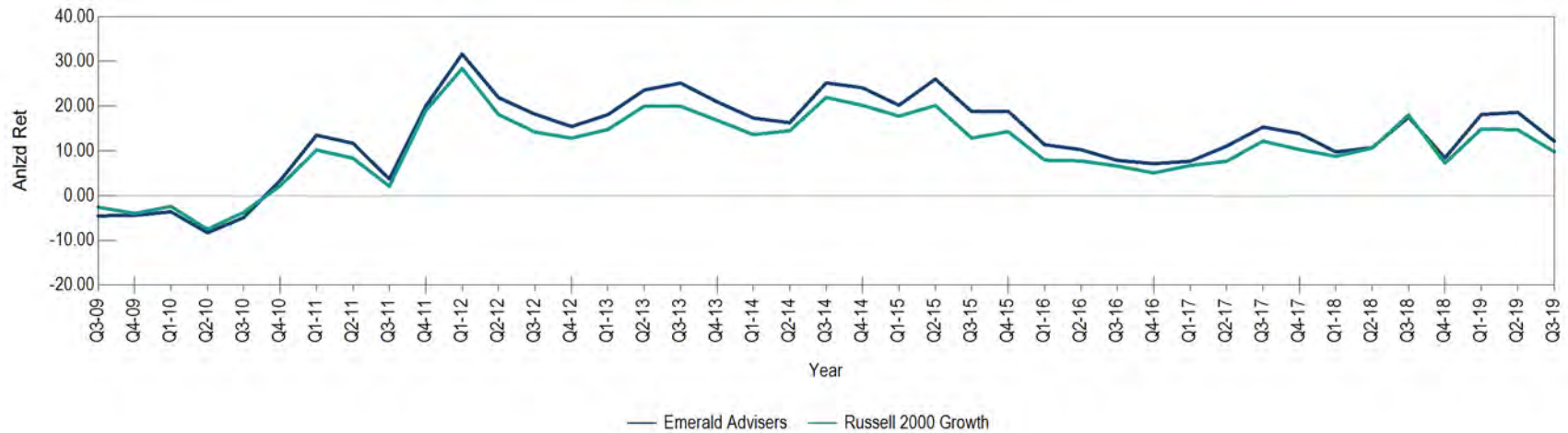
Unclassified sector allocation includes cash allocations.

Emerald Advisers vs. eV US Small Cap Growth Equity Gross Universe

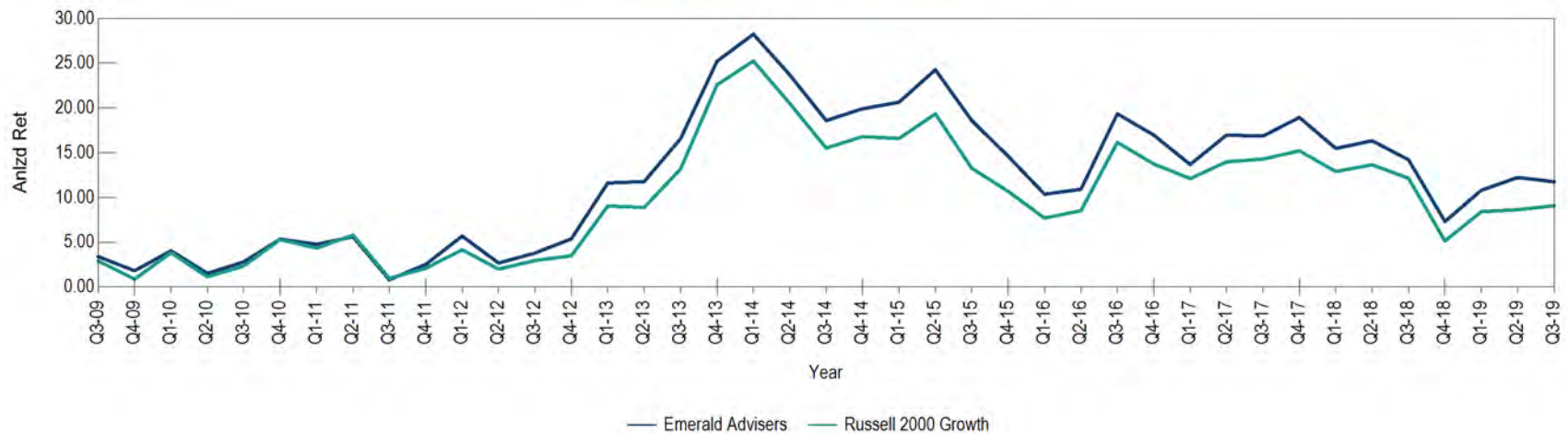


	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014	
5th Percentile	0.0	5.0	20.8	17.1	17.4	10.2	39.2	22.2	7.1	11.3	
25th Percentile	-2.7	-2.5	16.8	13.1	15.4	0.7	28.9	15.5	2.5	6.7	
Median	-4.4	-6.7	13.4	11.4	14.1	-3.9	24.6	10.6	-0.6	3.9	
75th Percentile	-6.7	-10.7	11.1	9.6	13.1	-7.9	19.8	7.1	-3.5	-0.1	
95th Percentile	-9.1	-16.3	5.8	6.1	11.4	-12.8	12.1	0.2	-8.7	-7.6	
# of Portfolios	159	159	155	148	134	164	174	170	154	161	
● Emerald Advisers	-6.8 (76)	-8.8 (65)	12.2 (62)	11.7 (41)	15.1 (31)	-10.1 (85)	28.8 (26)	10.1 (54)	4.1 (19)	7.3 (21)	
▲ Russell 2000 Growth	-4.2 (46)	-9.6 (72)	9.8 (83)	9.1 (79)	12.2 (87)	-9.3 (80)	22.2 (62)	11.3 (49)	-1.4 (59)	5.6 (32)	

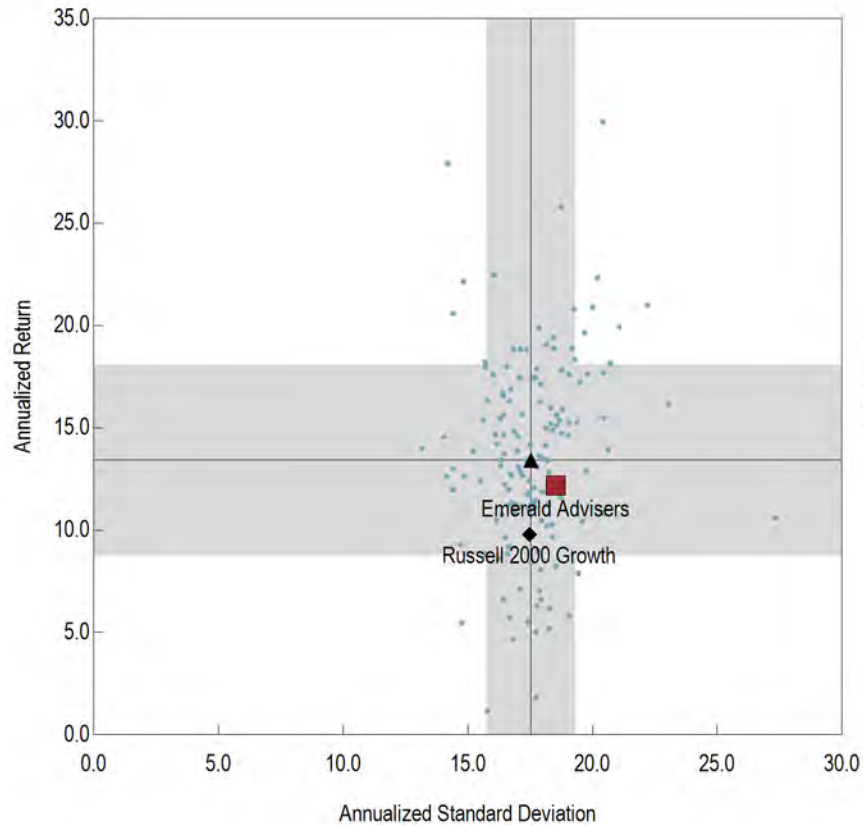
Rolling 3 Year Annualized Return (%)



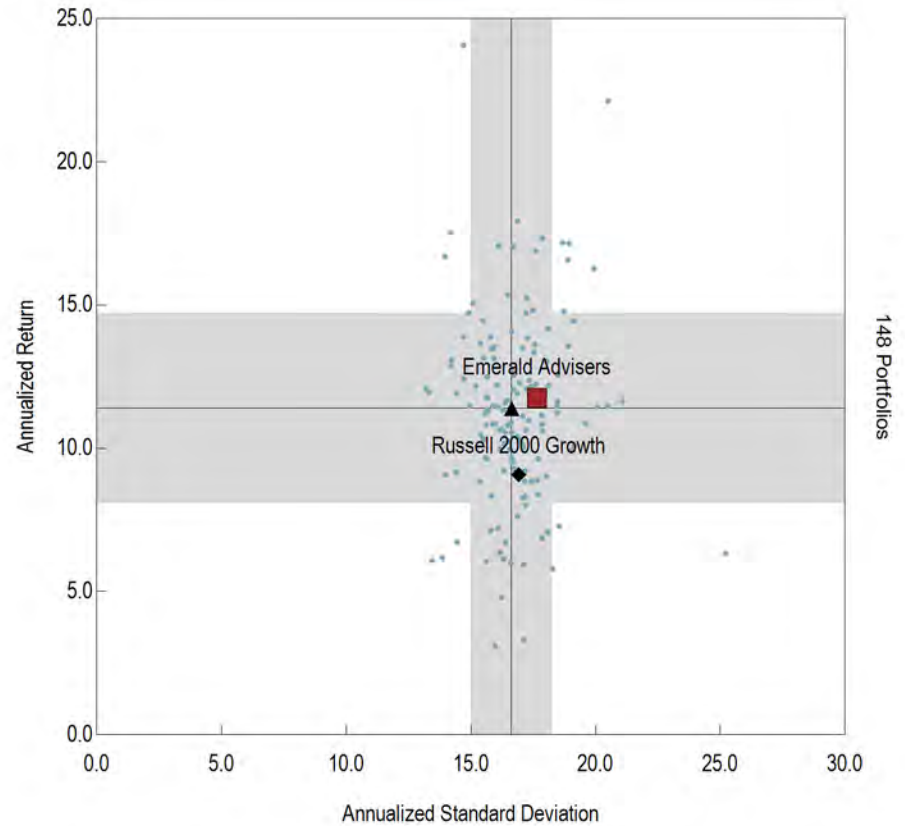
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	12.2%	18.5%	0.6
Russell 2000 Growth	9.8%	17.5%	0.5
eV US Small Cap Growth Equity Gross Median	13.4%	17.5%	0.7

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	11.7%	17.7%	0.6
Russell 2000 Growth	9.1%	16.9%	0.5
eV US Small Cap Growth Equity Gross Median	11.4%	16.6%	0.6

Ceredex Manager Portfolio Overview

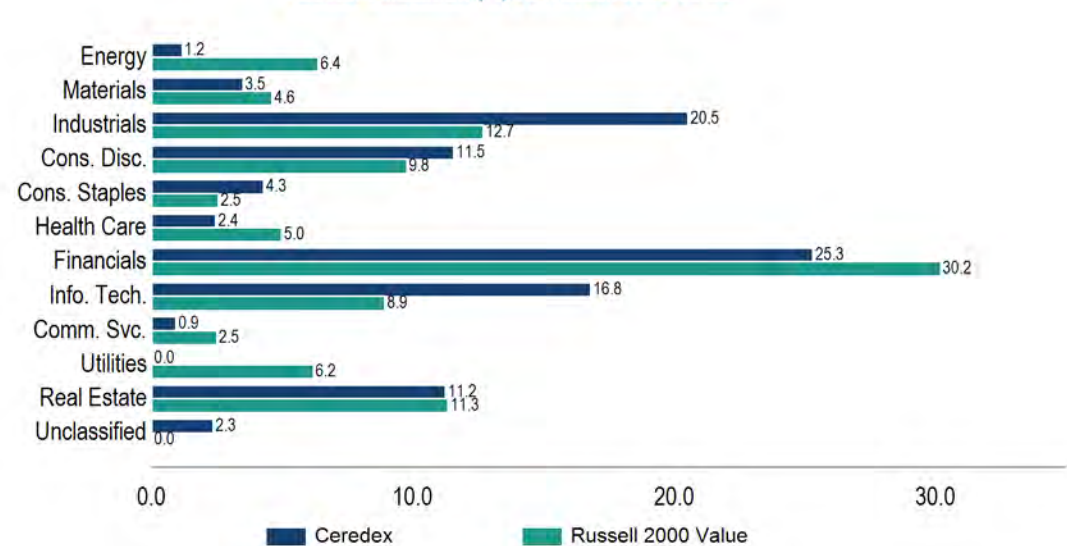
Period Ending: September 30, 2019

Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	82	1,387
Weighted Avg. Market Cap. (\$B)	3.24	1.96
Median Market Cap. (\$B)	2.05	0.62
Price To Earnings	18.25	14.85
Price To Book	2.34	1.62
Price To Sales	1.13	0.92
Return on Equity (%)	14.17	5.44
Yield (%)	2.55	2.21
Beta	0.82	1.00

Sector Allocation (%) vs Russell 2000 Value



Largest Holdings

	End Weight	Return
KEMPER	4.86	-9.36
POWER INTEGRATIONS	4.71	13.00
ENERGIZER HOLDINGS	4.25	13.69
FIRST AMER.FINL.	4.01	10.66
SLM	3.81	-8.90
PHYSICIANS REALTY TST.	3.71	3.14
SABRE	3.45	1.49
CUBIC	3.28	9.44
CHILDRENS PLACE	3.03	-18.69
AMER.EAG.OUTFITTERS	2.72	-3.23

Top Contributors

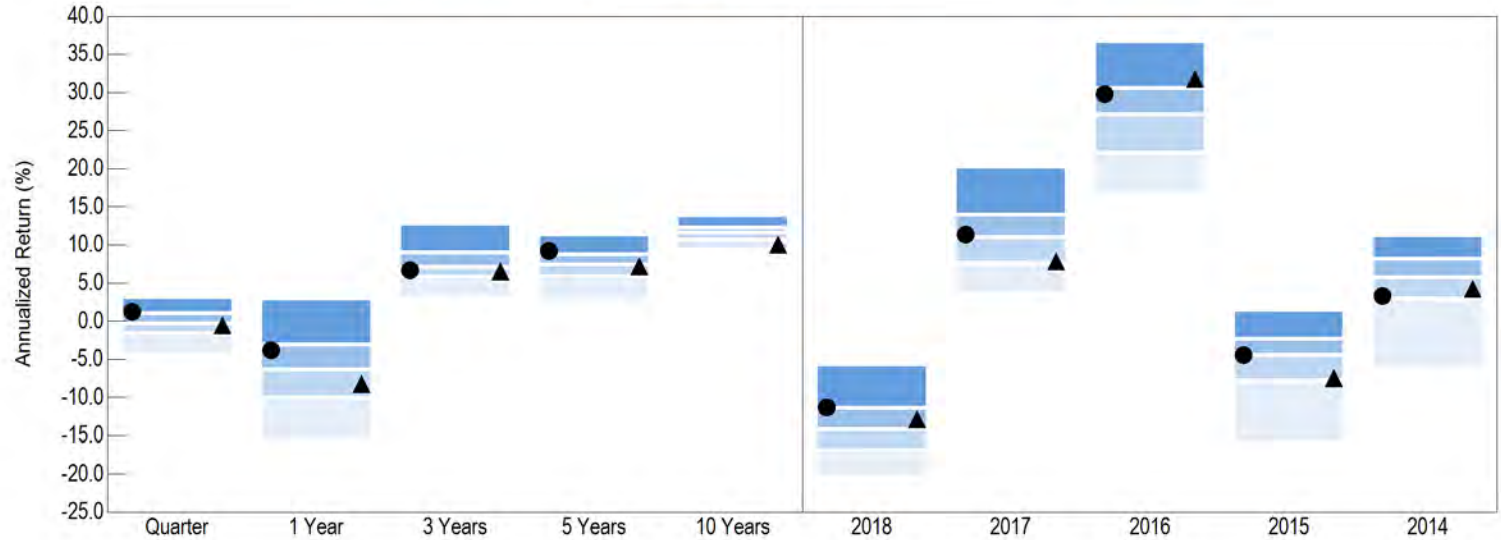
	Avg Wgt	Return	Contribution
POWER INTEGRATIONS	1.81	13.00	0.24
CABOT MICROELS.	0.68	28.28	0.19
ENERGIZER HOLDINGS	1.18	13.69	0.16
OUTFRONT MEDIA	1.17	9.14	0.11
CUBIC	0.99	9.44	0.09
LITHIA MOTORS 'A'	0.73	11.71	0.09
RITCHIE			
BROS.AUCTIONEERS (NYS)	0.41	20.73	0.08
MKS INSTRUMENTS	0.39	18.79	0.07
KNOLL	0.59	11.06	0.06
MONOLITHIC PWR.SYS.	0.39	14.91	0.06

Bottom Contributors

	Avg Wgt	Return	Contribution
CHILDRENS PLACE	1.15	-18.69	-0.22
PHIBRO ANIMAL	0.46	-32.47	-0.15
HLTH.CL.A			
KEMPER	1.54	-9.36	-0.14
GRANITE CON.	0.27	-33.04	-0.09
EVERCORE A	0.88	-8.90	-0.08
US SILICA HOLDINGS	0.31	-24.83	-0.08
B & G FOODS	1.02	-6.84	-0.07
APOGEE ENTERPRISES	0.55	-9.87	-0.05
SM ENERGY	0.19	-22.60	-0.04
WABASH NATIONAL	0.37	-10.37	-0.04

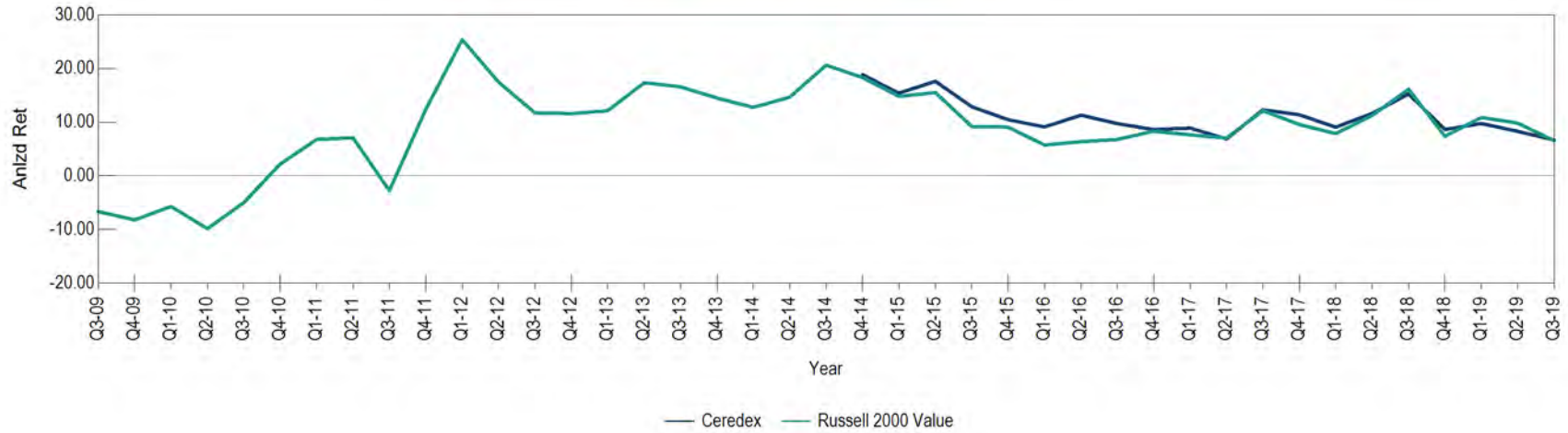
Unclassified sector allocation includes cash allocations.

Ceredex vs. eV US Small Cap Value Equity Gross Universe

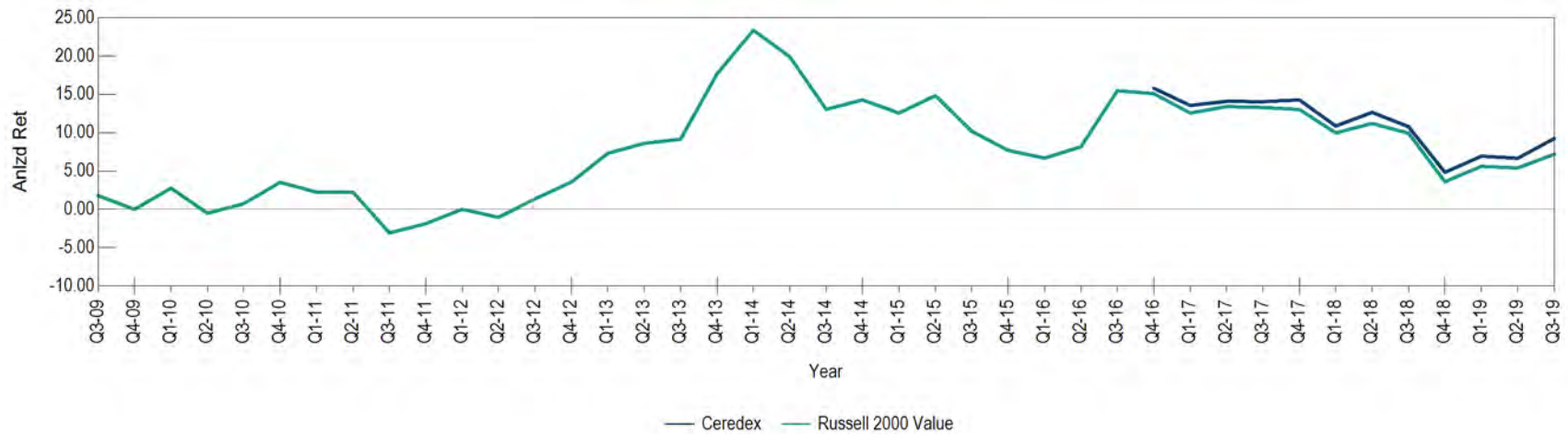


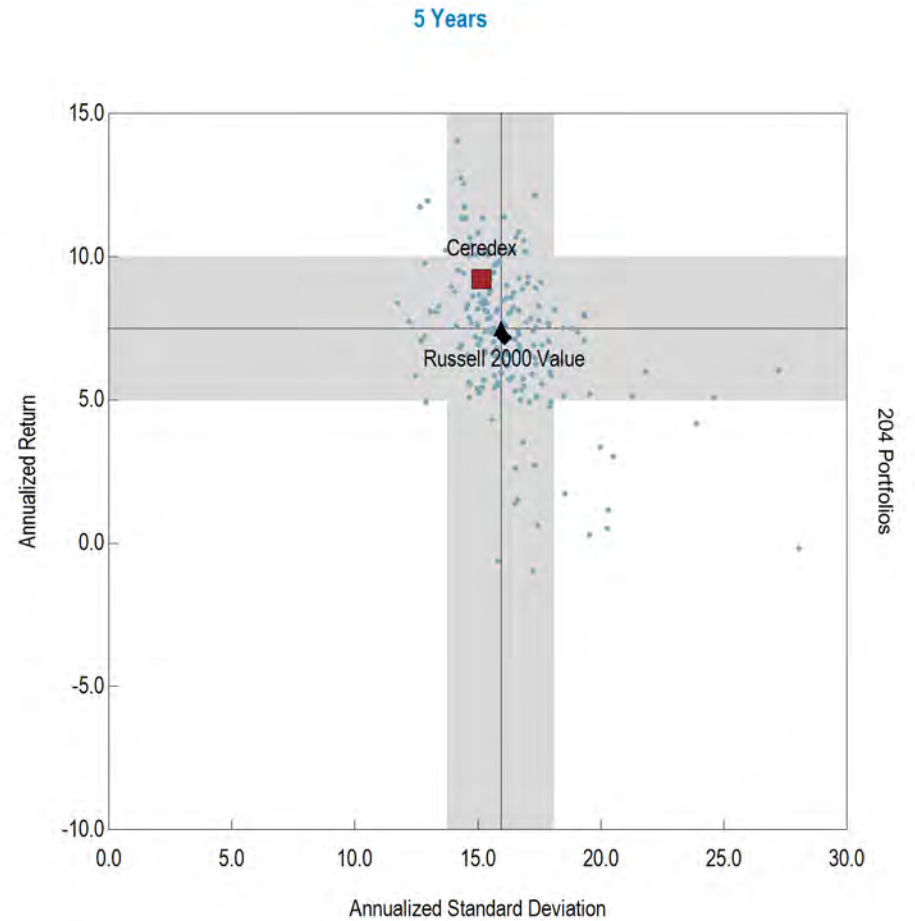
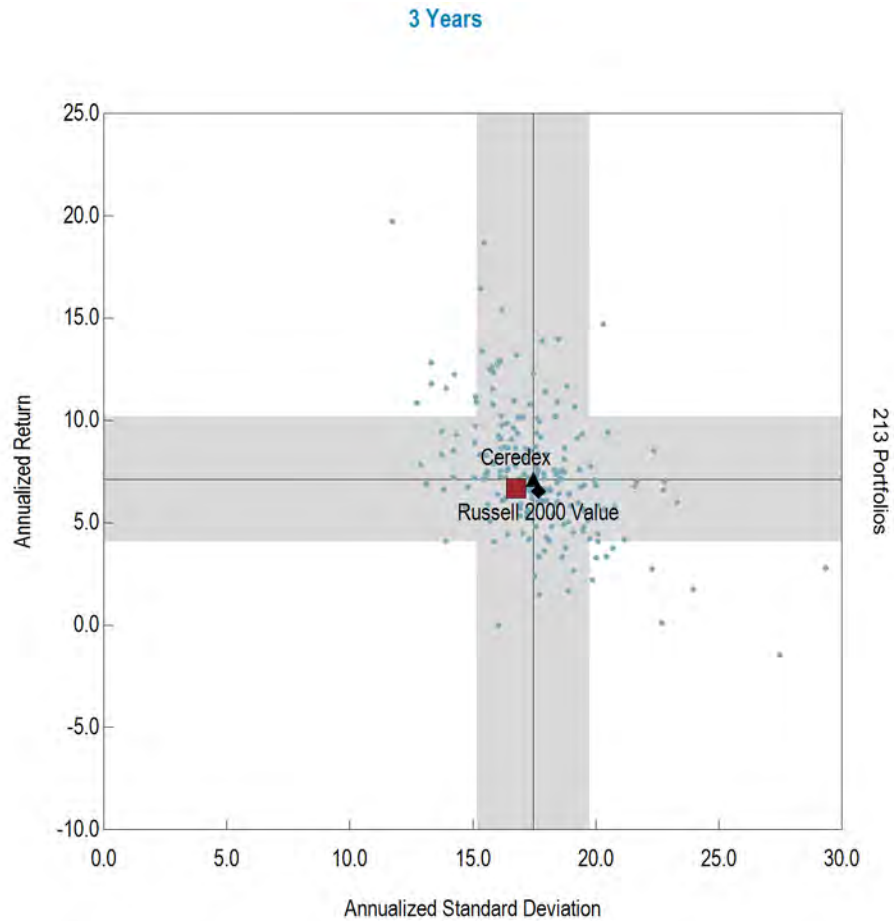
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
5th Percentile	3.1	3.0	12.8	11.4	13.9	-5.7	20.2	36.7	1.5	11.2
25th Percentile	1.1	-3.0	9.1	8.8	12.3	-11.4	14.1	30.7	-2.2	8.2
Median	-0.2	-6.3	7.1	7.5	11.7	-14.0	11.1	27.2	-4.3	5.8
75th Percentile	-1.5	-10.0	5.9	5.9	10.8	-16.7	7.8	22.2	-7.7	3.1
95th Percentile	-4.3	-15.6	3.1	2.6	9.4	-20.2	3.7	16.8	-15.8	-6.3
# of Portfolios	217	217	213	204	181	220	224	222	212	206
● Ceredex	1.2 (24)	-3.8 (31)	6.7 (60)	9.2 (21)	-- (--)	-11.3 (25)	11.4 (48)	29.8 (32)	-4.4 (52)	3.3 (74)
▲ Russell 2000 Value	-0.6 (59)	-8.2 (63)	6.5 (65)	7.2 (57)	10.1 (87)	-12.9 (39)	7.8 (75)	31.7 (17)	-7.5 (74)	4.2 (68)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	6.7%	16.8%	0.3
Russell 2000 Value	6.5%	17.7%	0.3
eV US Small Cap Value Equity Gross Median	7.1%	17.5%	0.3

	5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	9.2%	15.2%	0.5
Russell 2000 Value	7.2%	16.1%	0.4
eV US Small Cap Value Equity Gross Median	7.5%	15.9%	0.4

International Equity Managers

Pyrford Manager Portfolio Overview

Period Ending: September 30, 2019

International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

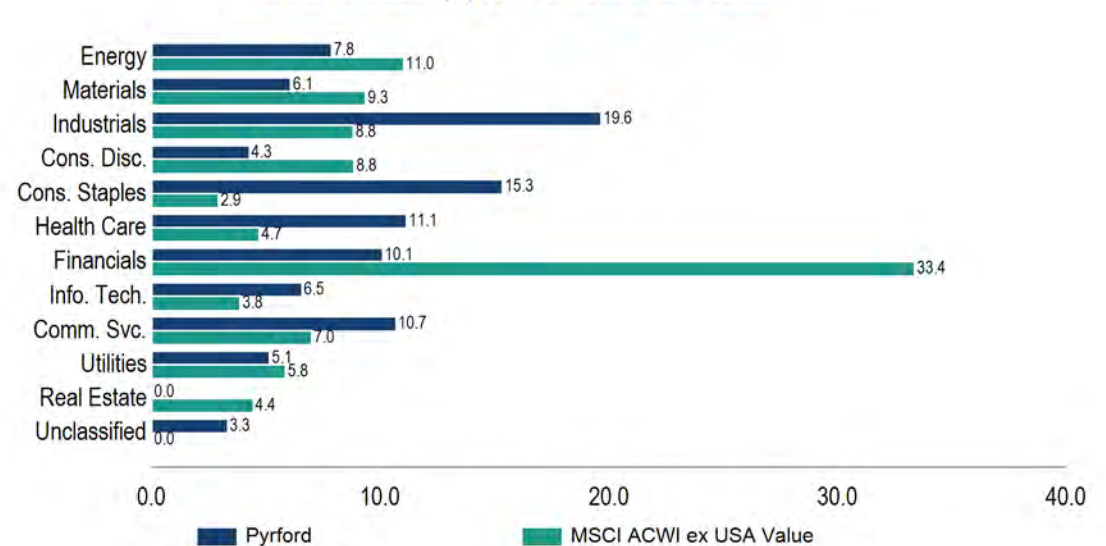
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Value
Number of Holdings	73	1,315
Weighted Avg. Market Cap. (\$B)	64.95	48.64
Median Market Cap. (\$B)	23.02	6.70
Price To Earnings	17.00	11.53
Price To Book	2.40	1.63
Price To Sales	1.52	0.86
Return on Equity (%)	18.15	11.48
Yield (%)	3.81	4.61
Beta	0.86	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	90.0%	73.2%
Emerging*	6.7%	26.8%
Top 10 Largest Countries		
Switzerland	14.2%	3.2%
United Kingdom	13.2%	14.6%
Japan	11.5%	16.9%
Australia	10.9%	4.9%
France	9.3%	6.9%
Germany	9.0%	5.7%
Hong Kong	4.8%	2.5%
Netherlands	4.8%	0.8%
Singapore	4.6%	0.9%
Taiwan*	4.0%	3.0%
Total-Top 10 Largest Countries	86.2%	59.3%

Sector Allocation (%) vs MSCI ACWI ex USA Value



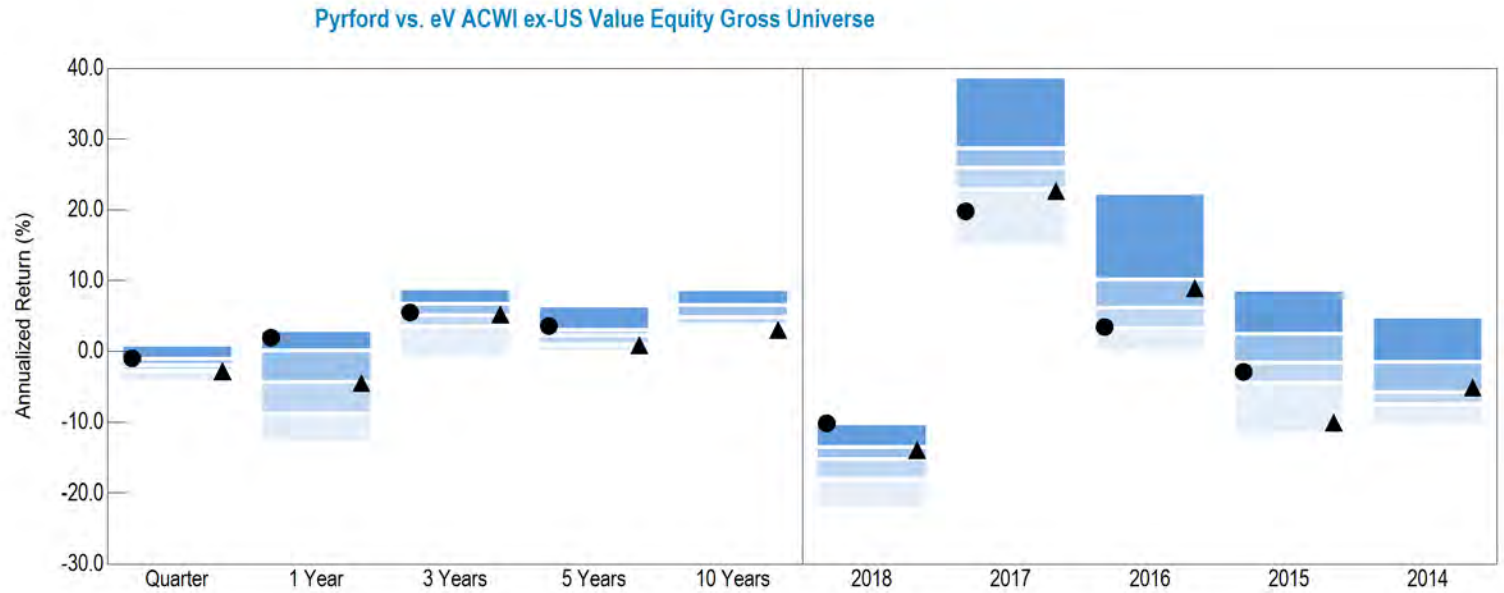
Top Contributors

	Avg Wgt	Return	Contribution
VODAFONE GROUP	1.14	21.29	0.24
WOOLWORTHS GROUP	2.28	9.50	0.22
NESTLE 'R'	3.77	4.76	0.18
TAIWAN SEMICON.MNFG.	1.18	14.80	0.18
ZURICH INSURANCE GROUP	1.51	9.89	0.15
KONINKLIJKE VOPAK	1.31	11.34	0.15
SSE	0.88	14.27	0.13
NIHON KOHDEN	1.38	9.05	0.13
GLAXOSMITHKLINE	1.41	8.36	0.12
SANOFI	1.55	7.27	0.11

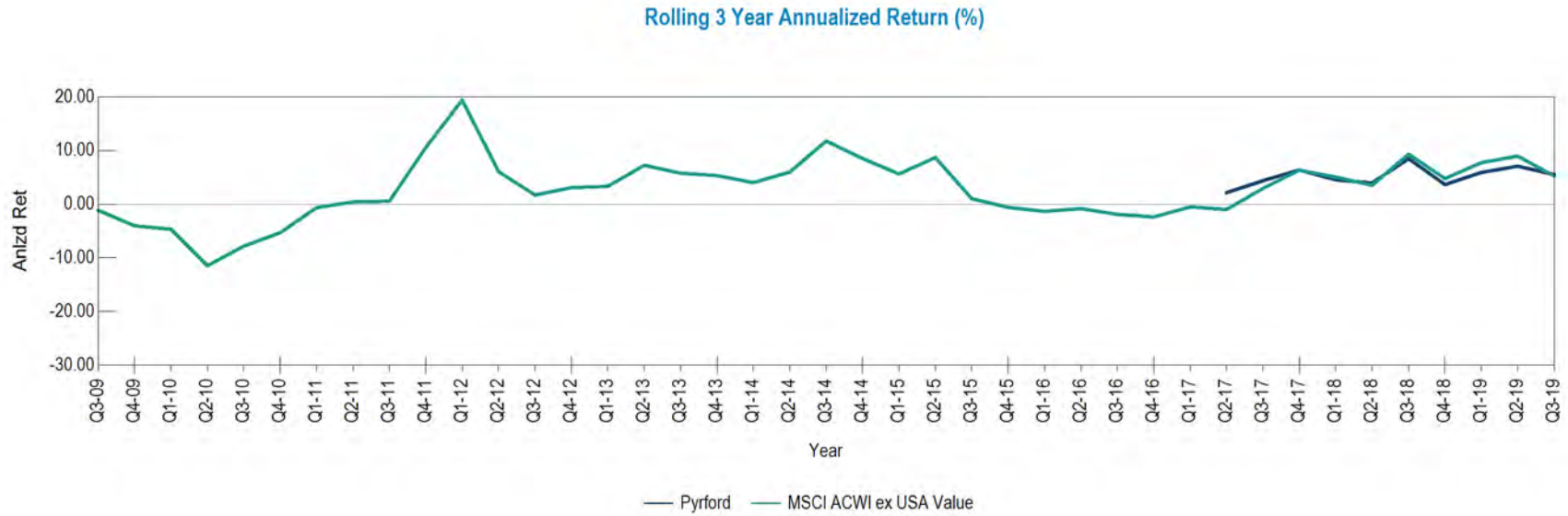
Bottom Contributors

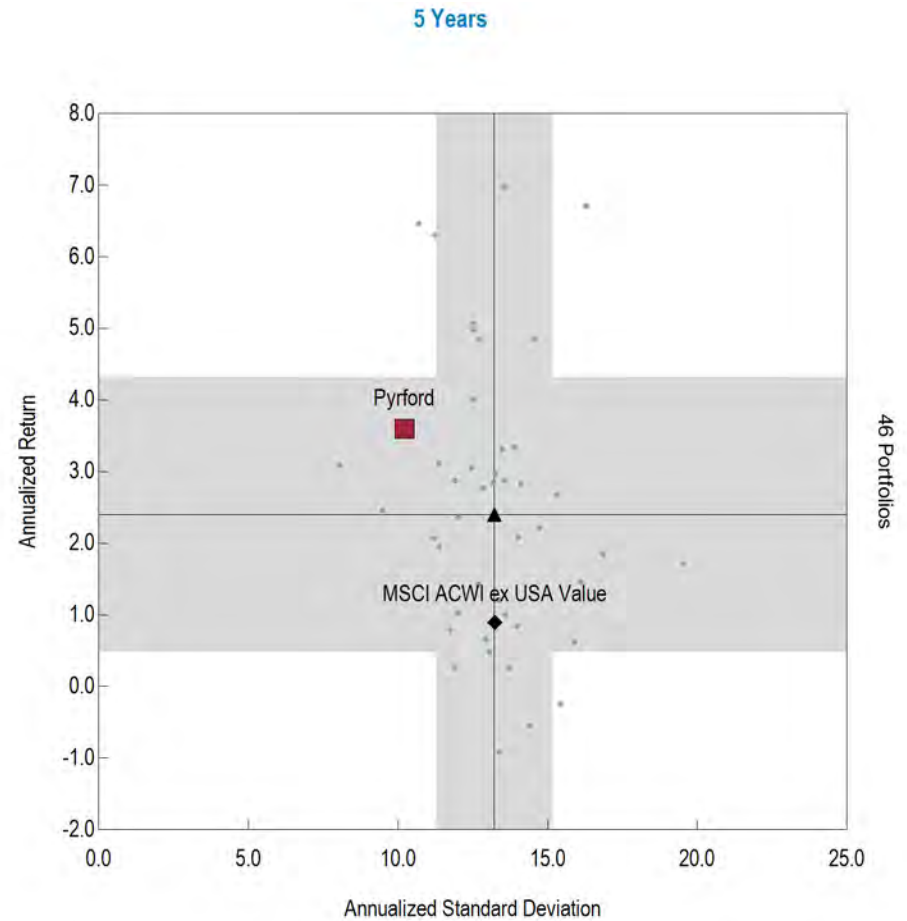
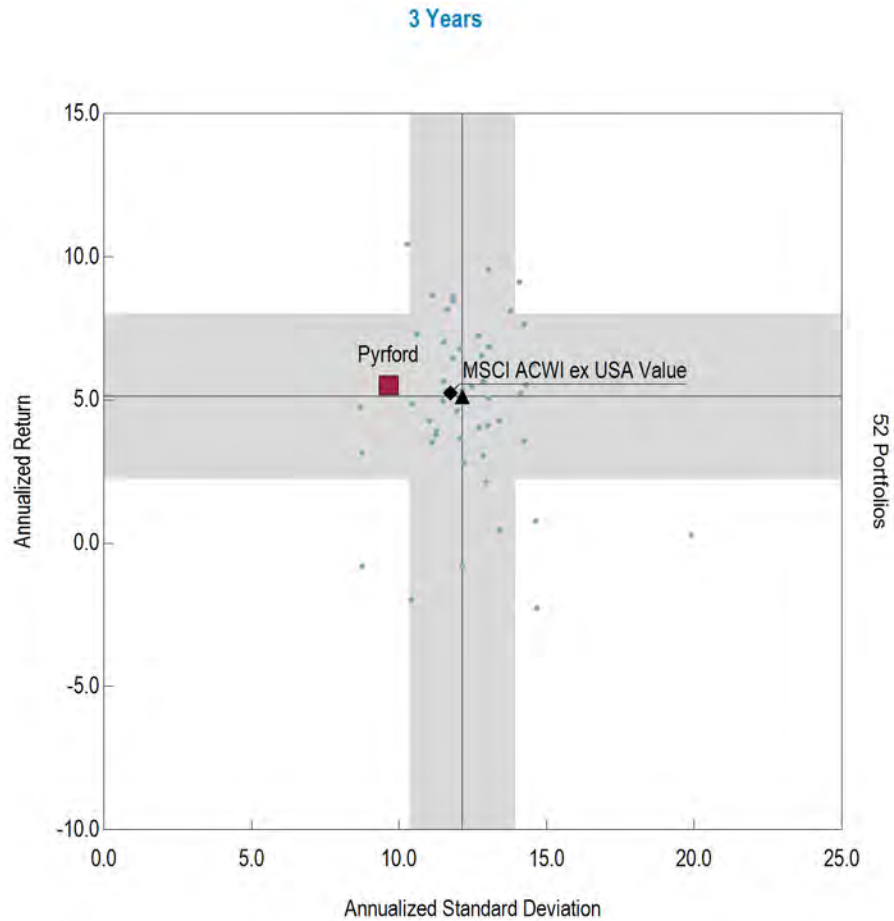
	Avg Wgt	Return	Contribution
BRAMBLES	2.20	-13.83	-0.30
SAP	1.73	-14.09	-0.24
WOODSIDE PETROLEUM	1.71	-12.94	-0.22
SAMPO 'A'	1.39	-14.59	-0.20
AXIATA GROUP	1.17	-14.78	-0.17
SINGAPORE TELECOM	1.49	-10.54	-0.16
NOVARTIS 'R'	3.03	-5.14	-0.16
AIA GROUP	1.19	-12.04	-0.14
COMFORTDELGRO CORPORATION	1.40	-10.13	-0.14
LEGAL & GENERAL	1.44	-8.77	-0.13

Unclassified sector allocation includes cash allocations.



	Quarter		1 Year		3 Years		5 Years		10 Years		2018		2017		2016		2015		2014	
5th Percentile	0.9	3.0	8.9	6.4	8.8	-10.2	38.8	22.3	8.7	4.9	-10.2	38.8	22.3	8.7	4.9	-10.2	38.8	22.3	8.7	4.9
25th Percentile	-1.0	0.2	6.8	3.1	6.6	-13.4	28.8	10.2	2.5	-1.4	-13.4	28.8	10.2	2.5	-1.4	-13.4	28.8	10.2	2.5	-1.4
Median	-1.9	-4.2	5.1	2.4	4.9	-15.2	26.0	6.2	-1.6	-5.7	-15.2	26.0	6.2	-1.6	-5.7	-15.2	26.0	6.2	-1.6	-5.7
75th Percentile	-2.7	-8.7	3.6	1.0	3.8	-17.9	23.0	3.3	-4.3	-7.4	-17.9	23.0	3.3	-4.3	-7.4	-17.9	23.0	3.3	-4.3	-7.4
95th Percentile	-4.3	-13.0	-0.8	-0.1	3.2	-21.9	15.0	-0.1	-11.6	-10.4	-21.9	15.0	-0.1	-11.6	-10.4	-21.9	15.0	-0.1	-11.6	-10.4
# of Portfolios	55	55	52	46	28	54	56	55	45	37	54	56	55	45	37	54	56	55	45	37
● Pyrford	-1.0 (25)	1.9 (6)	5.5 (41)	3.6 (20)	-- (--)	-10.1 (5)	19.8 (84)	3.4 (74)	-2.9 (59)	-- (--)	-10.1 (5)	19.8 (84)	3.4 (74)	-2.9 (59)	-- (--)	-10.1 (5)	19.8 (84)	3.4 (74)	-2.9 (59)	-- (--)
▲ MSCI ACWI ex USA Value	-2.8 (79)	-4.5 (53)	5.2 (47)	0.9 (78)	3.1 (97)	-14.0 (32)	22.7 (77)	8.9 (35)	-10.1 (93)	-5.1 (49)	-14.0 (32)	22.7 (77)	8.9 (35)	-10.1 (93)	-5.1 (49)	-14.0 (32)	22.7 (77)	8.9 (35)	-10.1 (93)	-5.1 (49)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	5.5%	9.6%	0.4
MSCI ACWI ex USA Value	5.2%	11.7%	0.3
eV ACWI ex-US Value Equity Gross Median	5.1%	12.1%	0.3

	5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	3.6%	10.2%	0.3
MSCI ACWI ex USA Value	0.9%	13.2%	0.0
eV ACWI ex-US Value Equity Gross Median	2.4%	13.2%	0.1

William Blair Manager Portfolio Overview

Period Ending: September 30, 2019

International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Jeffrey Urbina.

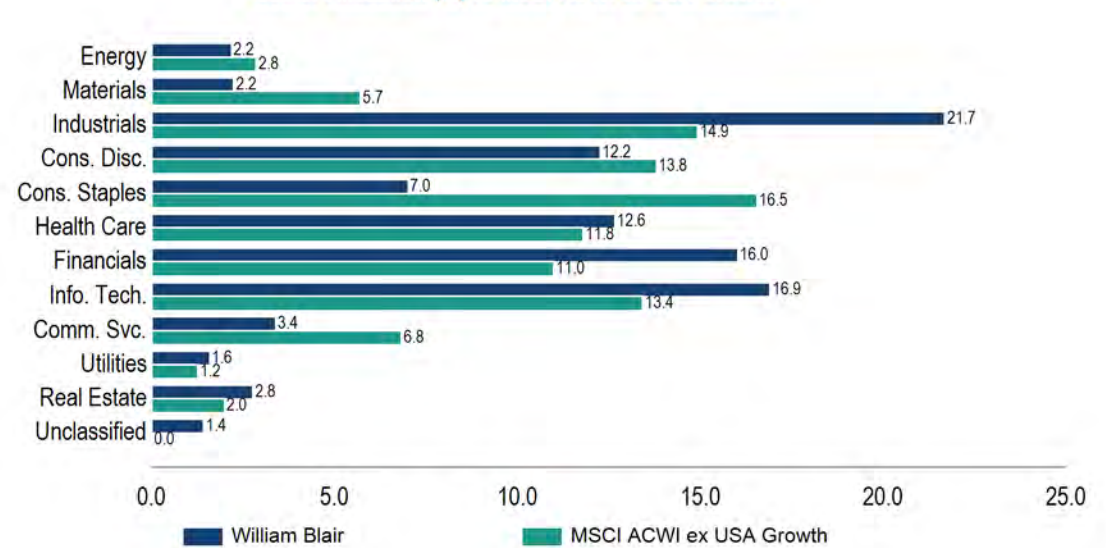
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Growth
Number of Holdings	199	1,151
Weighted Avg. Market Cap. (\$B)	61.44	78.40
Median Market Cap. (\$B)	10.35	7.70
Price To Earnings	25.26	20.79
Price To Book	4.35	3.14
Price To Sales	2.52	1.76
Return on Equity (%)	22.28	18.76
Yield (%)	1.58	2.01
Beta	1.09	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	82.7%	74.0%
Emerging*	16.0%	26.0%
Top 10 Largest Countries		
United Kingdom	13.7%	7.3%
Japan	11.5%	16.3%
France	10.9%	8.1%
Switzerland	6.6%	9.0%
China*	6.0%	8.5%
Hong Kong	5.5%	2.5%
Netherlands	5.2%	4.0%
Canada	5.1%	6.8%
Germany	4.8%	5.7%
Denmark	4.6%	2.1%
Total-Top 10 Largest Countries	74.0%	70.3%

Sector Allocation (%) vs MSCI ACWI ex USA Growth



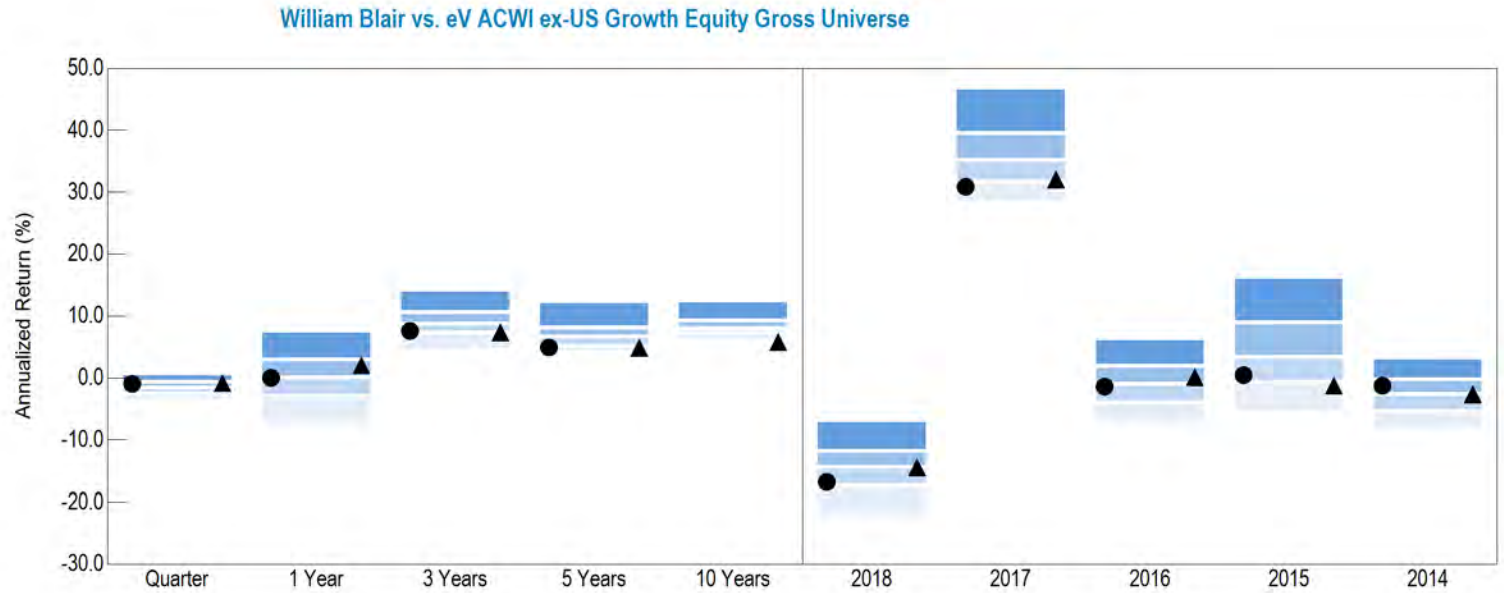
Top Contributors

	Avg Wgt	Return	Contribution
TAIWAN SEMICON.SPN.ADR 1:5	1.33	19.51	0.26
LONDON STOCK EX.GROUP	0.75	29.36	0.22
ASML HOLDING	1.19	18.40	0.22
BROOKFIELD ASSET MAN.'A' (NYS)	1.22	11.46	0.14
COMPASS GROUP	1.61	7.40	0.12
MTU AERO ENGINES HLDG.	1.03	11.35	0.12
SMC	0.66	14.41	0.10
SAFRAN	1.28	7.32	0.09
LI NING	0.42	21.73	0.09
KWEICHOW MOUTAI 'A'	0.65	12.45	0.08

Bottom Contributors

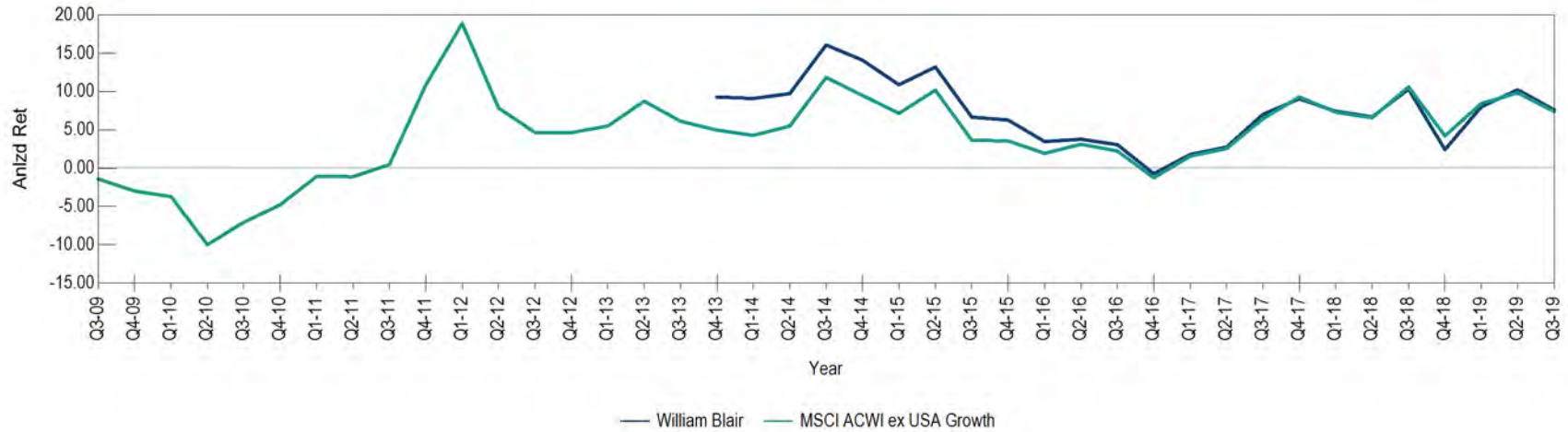
	Avg Wgt	Return	Contribution
AIA GROUP	1.96	-12.04	-0.24
SAP	1.48	-14.09	-0.21
TENCENT HOLDINGS	2.05	-6.67	-0.14
AIRBUS	1.61	-8.47	-0.14
KERING	0.97	-13.94	-0.13
SIKA	0.92	-14.31	-0.13
AMADEUS IT GROUP	1.29	-9.00	-0.12
ROYAL DUTCH SHELL A	1.28	-8.77	-0.11
QIAGEN	0.57	-18.69	-0.11
LVMH	1.44	-6.74	-0.10

Unclassified sector allocation includes cash allocations.

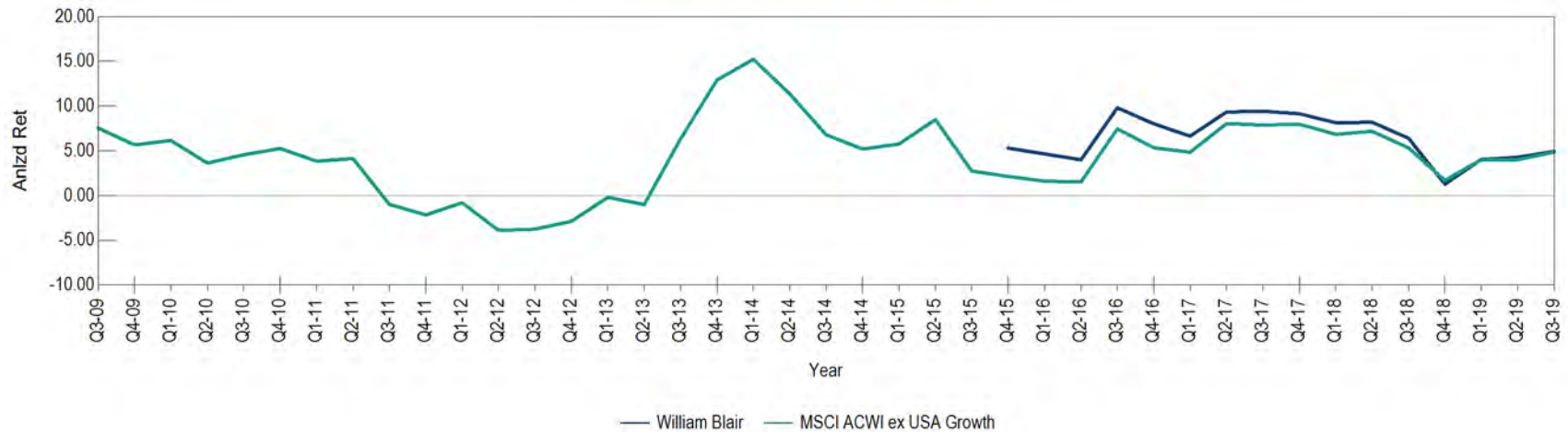


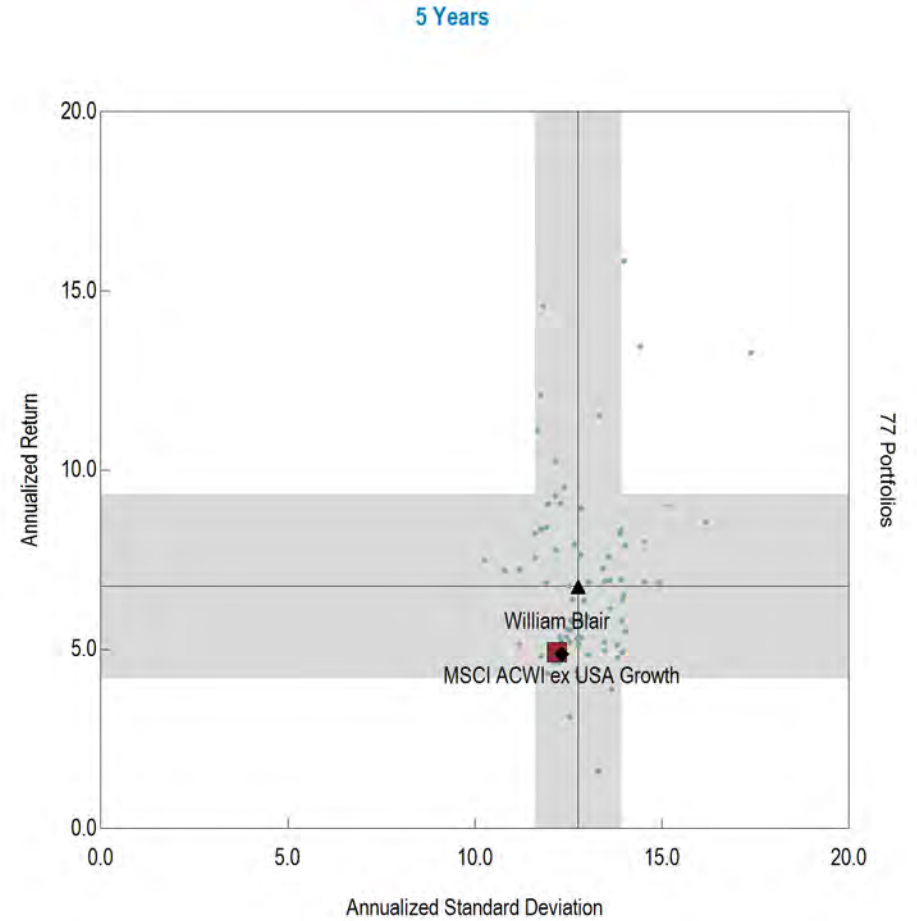
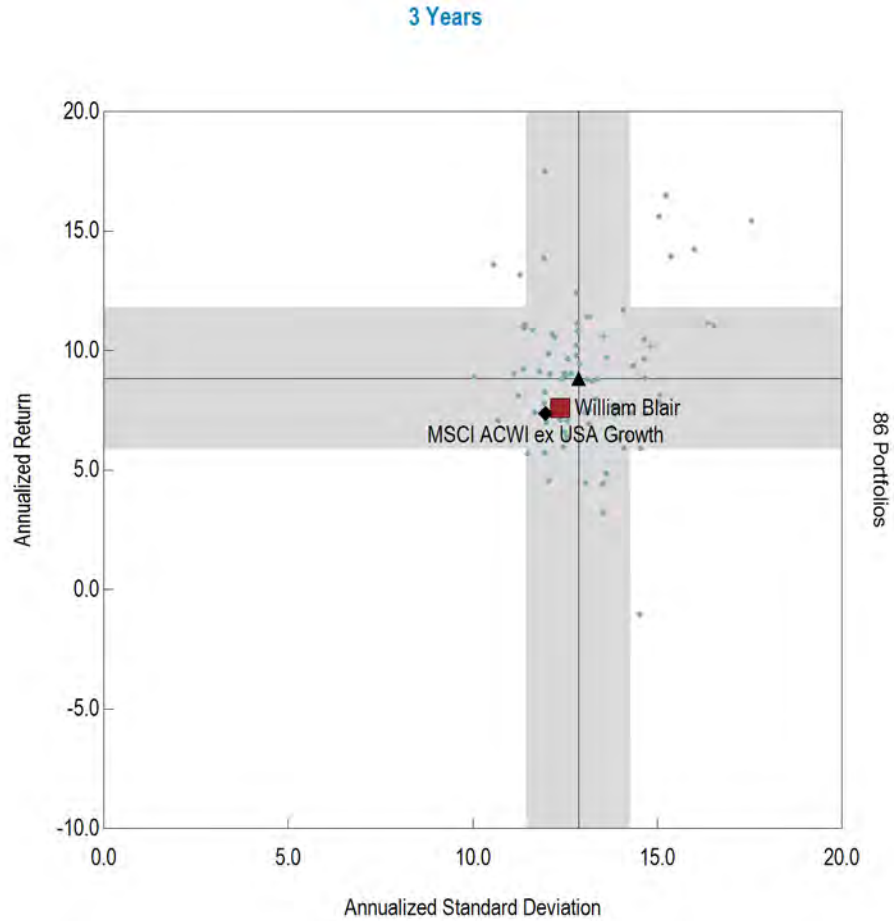
	Return (Rank)													
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014				
5th Percentile	0.6	7.6	14.2	12.3	12.4	-6.8	46.8	6.3	16.3	3.2				
25th Percentile	-0.6	3.1	10.7	8.2	9.4	-11.7	39.6	2.0	9.0	-0.1				
Median	-1.5	0.2	8.8	6.8	8.1	-14.3	35.3	-0.9	3.5	-2.5				
75th Percentile	-2.4	-2.8	7.4	5.2	7.4	-17.2	31.8	-3.9	-0.5	-5.3				
95th Percentile	-3.5	-7.5	4.6	4.3	6.1	-22.3	28.3	-7.4	-5.4	-8.2				
# of Portfolios	89	89	86	77	54	82	94	90	70	50				
● William Blair	-1.0 (32)	0.0 (53)	7.6 (67)	4.9 (84)	-- (--)	-16.8 (69)	30.9 (81)	-1.4 (55)	0.5 (69)	-1.2 (37)				
▲ MSCI ACWI ex USA Growth	-0.8 (30)	2.0 (34)	7.4 (75)	4.9 (86)	5.8 (99)	-14.4 (51)	32.0 (75)	0.1 (45)	-1.3 (83)	-2.6 (53)				

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years			5 Years			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio		Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	7.6%	12.4%	0.5	William Blair	4.9%	12.2%	0.3
MSCI ACWI ex USA Growth	7.4%	12.0%	0.5	MSCI ACWI ex USA Growth	4.9%	12.3%	0.3
eV ACWI ex-US Growth Equity Gross Median	8.8%	12.9%	0.6	eV ACWI ex-US Growth Equity Gross Median	6.8%	12.8%	0.4

PIMCO RAE Emerging Markets Manager Portfolio Overview

Period Ending: September 30, 2019

The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

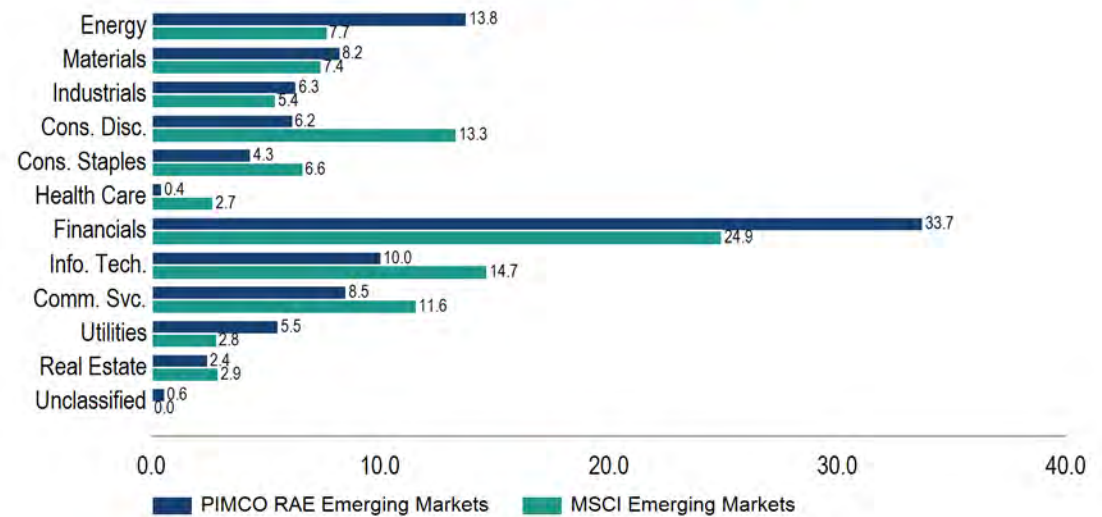
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	627	1,194
Weighted Avg. Market Cap. (\$B)	35.70	80.18
Median Market Cap. (\$B)	3.47	5.31
Price To Earnings	8.24	13.55
Price To Book	1.66	2.42
Price To Sales	0.52	1.26
Return on Equity (%)	10.90	16.77
Yield (%)	4.37	3.10
Beta		1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	8.0%	0.0%
Emerging*	91.4%	100.0%
Top 10 Largest Countries		
China*	17.2%	32.7%
Korea*	16.7%	12.0%
Russia*	11.6%	4.0%
Taiwan*	10.3%	11.2%
Brazil*	8.7%	7.5%
Hong Kong	7.5%	0.0%
India*	5.6%	8.3%
Turkey*	4.7%	0.6%
South Africa*	4.7%	5.2%
Mexico*	2.7%	2.4%
Total-Top 10 Largest Countries	89.7%	83.9%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

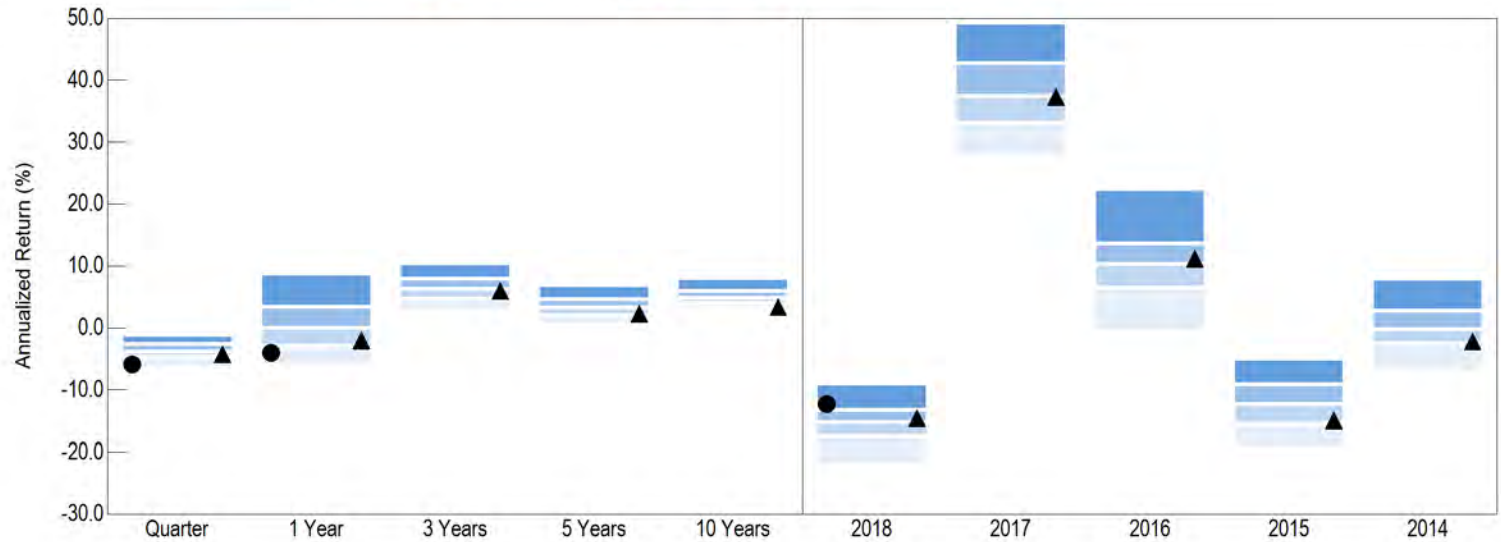
	End Weight	Return	Contribution
SURGUTNEFTEGAS PUBLIC JOINT ADR 1:10	0.92	33.76	0.31
JBS ON	0.67	42.18	0.28
TAIWAN SEMICON.SPN.ADR 1:5	0.83	19.51	0.16
AKBANK	0.44	22.32	0.10
MARFRIG FRIGORIFICOS ON	0.15	61.20	0.09
HACI OMER SABANCI HLDG.	0.58	14.12	0.08
TKI.VAKIFLAR BANKASI	0.28	26.64	0.07
TURKIYE HALK BANKASI	0.42	17.07	0.07
PJSC GAZPROM ADR CDI 1:2	5.09	1.41	0.07
TKI.GARANTI BKS.	0.47	14.93	0.07

Bottom Contributors

	End Weight	Return	Contribution
CHINA CON.BANK 'H'	3.58	-6.64	-0.24
INDL&COML.BOC.'H'	2.25	-8.21	-0.18
BANCO DO BRASIL ON	0.71	-21.28	-0.15
TATA MOTORS	0.50	-29.62	-0.15
SASOL	0.44	-32.80	-0.15
BANK OF CHINA 'H'	2.03	-6.99	-0.14
BNC.BRADESCO PF.SPN.ADR 1:1	0.82	-16.54	-0.14
MTN GROUP	0.81	-14.49	-0.12
LG DISPLAY	0.48	-23.48	-0.11
CHINA MOBILE	1.27	-7.04	-0.09

Unclassified sector allocation includes cash allocations.

PIMCO RAE Emerging Markets vs. eV Emg Mkts Equity Gross Universe



	Return (Rank)															
	Quarter	1 Year	3 Years		5 Years		10 Years		2018	2017	2016	2015		2014		
5th Percentile	-1.2	8.7	10.4	6.9	8.0	-9.0	49.2	22.4	-5.0	8.0						
25th Percentile	-2.5	3.4	8.0	4.7	6.1	-13.2	42.8	13.7	-9.0	2.9						
Median	-3.8	0.0	6.3	3.4	4.9	-15.2	37.6	10.4	-12.2	-0.1						
75th Percentile	-4.6	-2.8	4.8	2.2	4.0	-17.4	33.2	6.6	-15.3	-2.4						
95th Percentile	-6.3	-5.9	2.7	0.6	3.2	-21.8	27.8	-0.6	-19.2	-7.0						
# of Portfolios	360	359	336	296	142	355	343	337	273	251						
● PIMCO RAE Emerging Markets	-5.9 (93)	-4.0 (86)	-- (--)	-- (--)	-- (--)	-12.3 (19)	-- (--)	-- (--)	-- (--)	-- (--)						
▲ MSCI Emerging Markets	-4.2 (62)	-2.0 (69)	6.0 (56)	2.3 (71)	3.4 (92)	-14.6 (43)	37.3 (53)	11.2 (45)	-14.9 (70)	-2.2 (74)						

TT Emerging Markets Manager Portfolio Overview

Period Ending: September 30, 2019

The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded in the Emerging Markets.

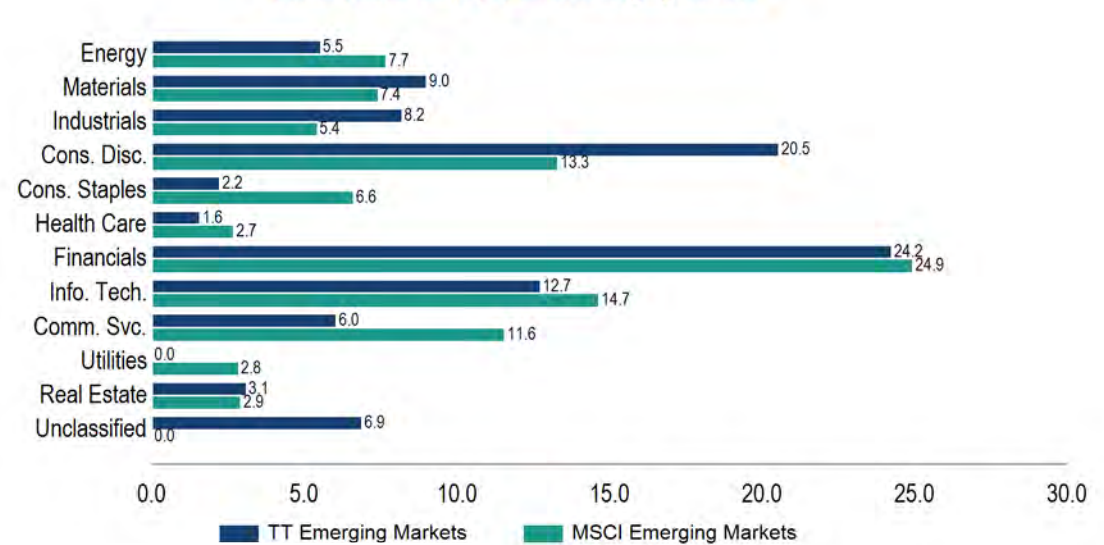
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	71	1,194
Weighted Avg. Market Cap. (\$B)	67.55	80.18
Median Market Cap. (\$B)	9.53	5.31
Price To Earnings	13.06	13.55
Price To Book	2.30	2.42
Price To Sales	1.21	1.26
Return on Equity (%)	16.23	16.77
Yield (%)	2.29	3.10
Beta		1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	23.5%	0.0%
Emerging*	73.9%	100.0%
Frontier**	0.8%	0.0%
Top 10 Largest Countries		
China*	15.4%	32.7%
India*	14.7%	8.3%
Korea*	13.2%	12.0%
Brazil*	10.9%	7.5%
Hong Kong	8.8%	0.0%
Netherlands	5.4%	0.0%
Russia*	5.4%	4.0%
Taiwan*	4.3%	11.2%
South Africa*	3.8%	5.2%
United Kingdom	3.3%	0.0%
Total-Top 10 Largest Countries	85.3%	80.9%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

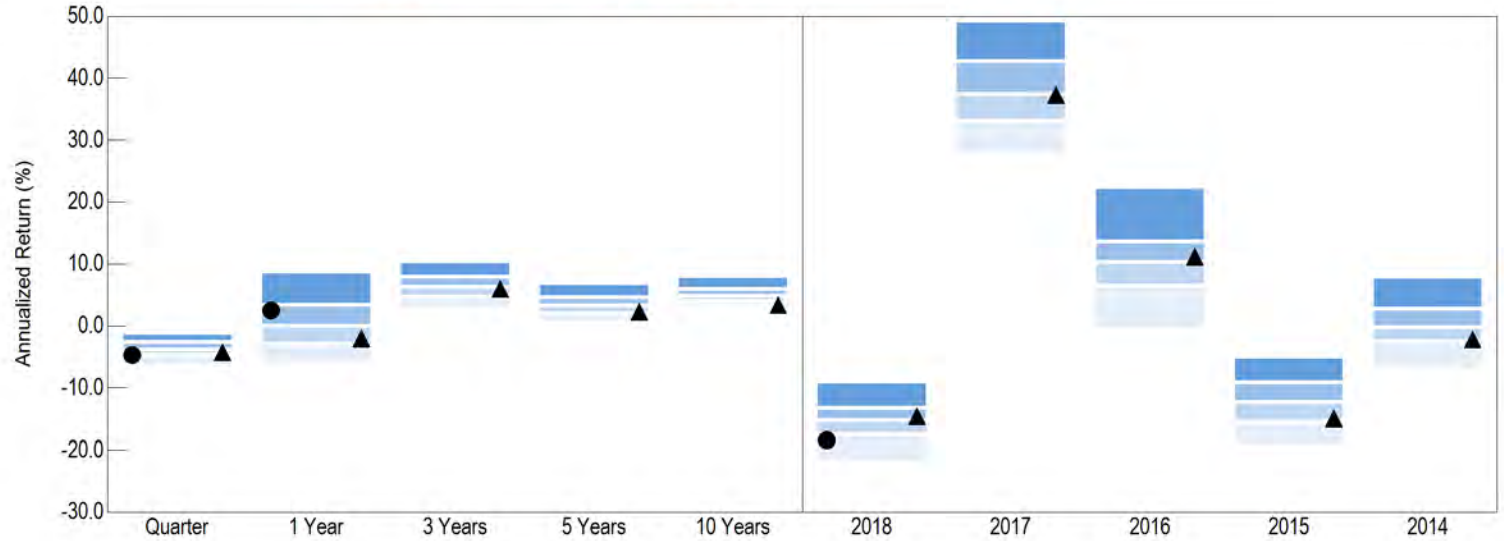
	End Weight	Return	Contribution
PUBLIC JOINT STOCK POLYUS GDR	1.37	24.89	0.34
LARGAN PRECISION	1.75	17.62	0.31
ESTACIO PARTICIPACOES ON	1.13	14.47	0.16
WONIK IPS	0.86	16.48	0.14
PHOENIX MILLS	1.61	7.32	0.12
IRB BRASIL RESSEGUROS ON	1.95	5.54	0.11
MEDICLINIC INTERNATIONAL	1.57	5.18	0.08
PARADE TECHNOLOGIES	0.61	4.73	0.03
EMBASSY OFFICE PARKS REIT UNITS	0.34	8.03	0.03
LUKOIL OAO SPN.ADR 1:1	1.70	1.34	0.02

Bottom Contributors

	End Weight	Return	Contribution
BANCO DO BRASIL ON	1.92	-21.28	-0.41
TRIP COM GROUP ADR 8:1	1.62	-20.64	-0.33
NASPERS	3.83	-8.20	-0.31
VALE ON ADR 1:1	2.12	-14.43	-0.31
FUTURE RETAIL	1.26	-23.52	-0.30
LG	2.40	-12.13	-0.29
PRUDENTIAL	1.74	-15.78	-0.28
CHINA EVERBRIGHT (HSC) INTERNATIONAL	1.69	-14.24	-0.24
LOMA NEGRA SPN.ADR 1:5	0.46	-50.85	-0.23
OCI	1.62	-14.10	-0.23

Unclassified sector allocation includes cash allocations.

TT Emerging Markets vs. eV Emg Mkts Equity Gross Universe



	Return (Rank)															
5th Percentile	-1.2	8.7	10.4	6.9	8.0	-9.0	49.2	22.4	-5.0	8.0						
25th Percentile	-2.5	3.4	8.0	4.7	6.1	-13.2	42.8	13.7	-9.0	2.9						
Median	-3.8	0.0	6.3	3.4	4.9	-15.2	37.6	10.4	-12.2	-0.1						
75th Percentile	-4.6	-2.8	4.8	2.2	4.0	-17.4	33.2	6.6	-15.3	-2.4						
95th Percentile	-6.3	-5.9	2.7	0.6	3.2	-21.8	27.8	-0.6	-19.2	-7.0						
# of Portfolios	360	359	336	296	142	355	343	337	273	251						
● TT Emerging Markets	-4.7 (77)	2.5 (31)	-- (--)	-- (--)	-- (--)	-18.4 (83)	-- (--)	-- (--)	-- (--)	-- (--)						
▲ MSCI Emerging Markets	-4.2 (62)	-2.0 (69)	6.0 (56)	2.3 (71)	3.4 (92)	-14.6 (43)	37.3 (53)	11.2 (45)	-14.9 (70)	-2.2 (74)						

Global Equity Managers

Artisan Partners Manager Portfolio Overview

Period Ending: September 30, 2019

Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craigh Cepukenas, and Matthew Kamm.

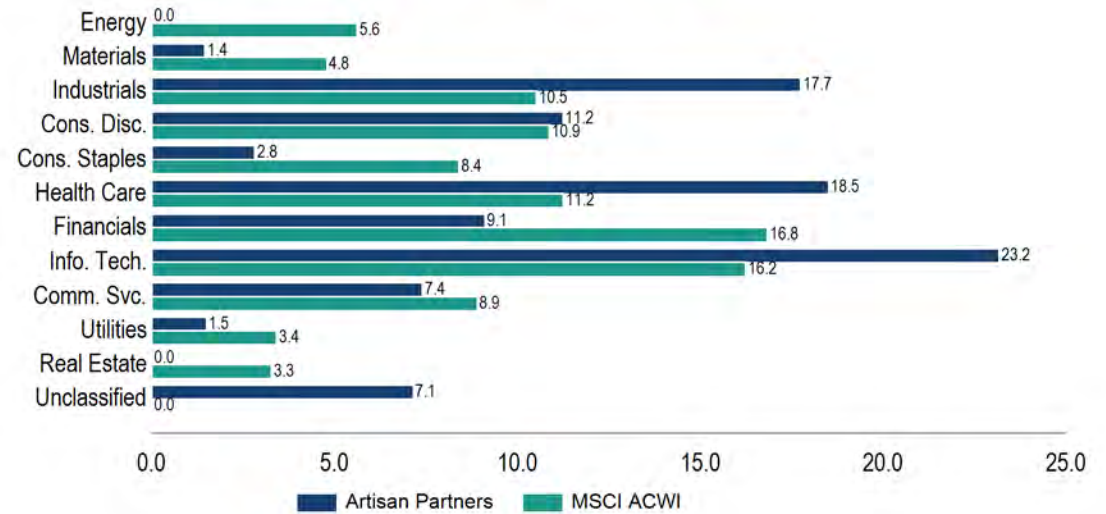
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	46	2,843
Weighted Avg. Market Cap. (\$B)	125.23	150.53
Median Market Cap. (\$B)	31.01	9.01
Price To Earnings	30.77	17.63
Price To Book	5.16	2.95
Price To Sales	3.04	1.54
Return on Equity (%)	22.59	19.71
Yield (%)	0.84	2.52
Beta	1.24	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	92.2%	88.3%
Emerging*	1.1%	11.7%
Top 10 Largest Countries		
United States	58.6%	55.8%
Cash	6.6%	0.0%
Hong Kong	6.4%	1.1%
United Kingdom	6.3%	4.8%
Denmark	5.2%	0.5%
Switzerland	4.6%	2.7%
Japan	2.9%	7.3%
Netherlands	2.2%	1.1%
Spain	2.1%	0.8%
Germany	2.0%	2.5%
Total-Top 10 Largest Countries	97.4%	76.7%

Sector Allocation (%) vs MSCI ACWI



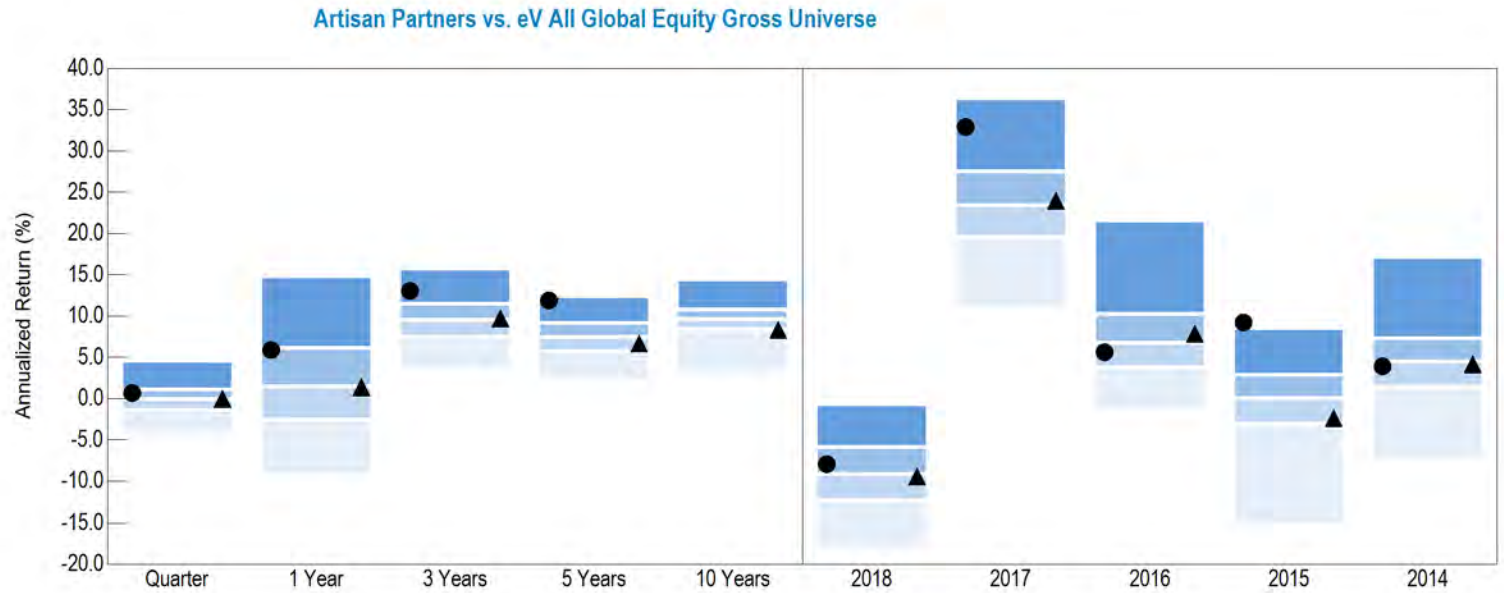
Top Contributors

	Avg Wgt	Return	Contribution
LONDON STOCK EX.GROUP	2.38	29.36	0.70
ASTRAZENECA	3.92	10.32	0.41
WORLDPAY A	3.40	10.16	0.34
IHS MARKIT	6.39	4.96	0.32
L3HARRIS TECHNOLOGIES	2.93	10.71	0.31
ALPHABET A	2.26	12.78	0.29
PAGSEGURO DIGITAL A	1.43	18.83	0.27
GENMAB	2.48	10.25	0.25
TREASURY WINE ESTATES	1.17	20.90	0.24
LOWE'S COMPANIES	2.28	9.55	0.22

Bottom Contributors

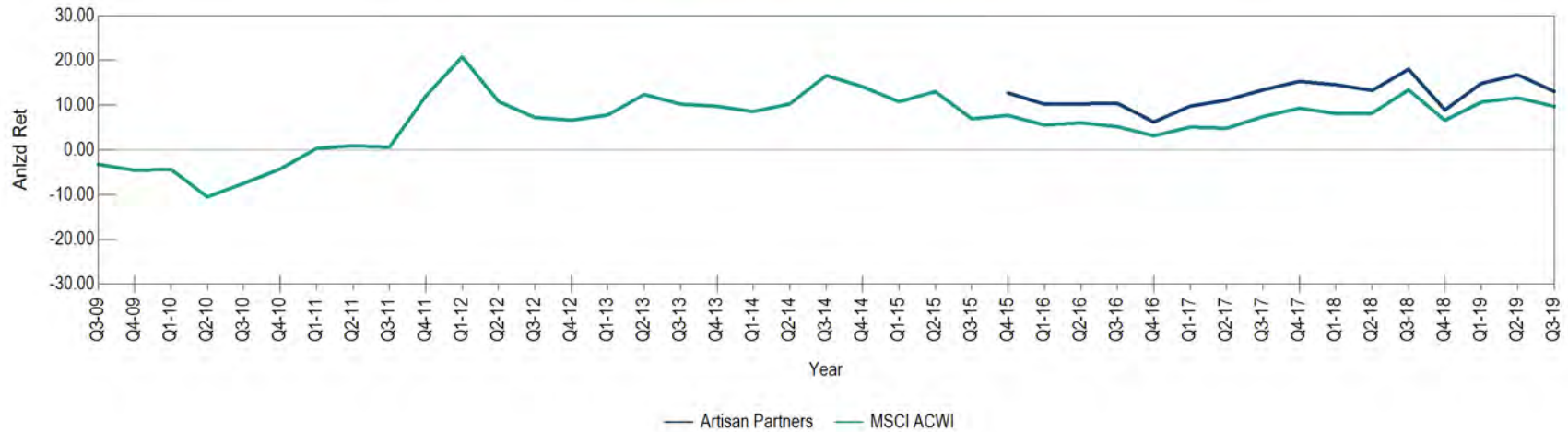
	Avg Wgt	Return	Contribution
ALEXION PHARMS.	2.28	-25.23	-0.57
ANTHEM	2.53	-14.65	-0.37
TECHTRONIC INDS.	4.11	-8.34	-0.34
FORTIVE	1.73	-15.81	-0.27
HDFC BANK ADR 1:3	2.19	-12.09	-0.26
VESTAS WINDSYSTEMS	2.02	-10.24	-0.21
TENCENT HOLDINGS	2.65	-6.67	-0.18
CREE	1.35	-12.78	-0.17
TEMENOS N	2.37	-6.50	-0.15
BOSTON SCIENTIFIC	2.81	-5.33	-0.15

Unclassified sector allocation includes cash allocations.

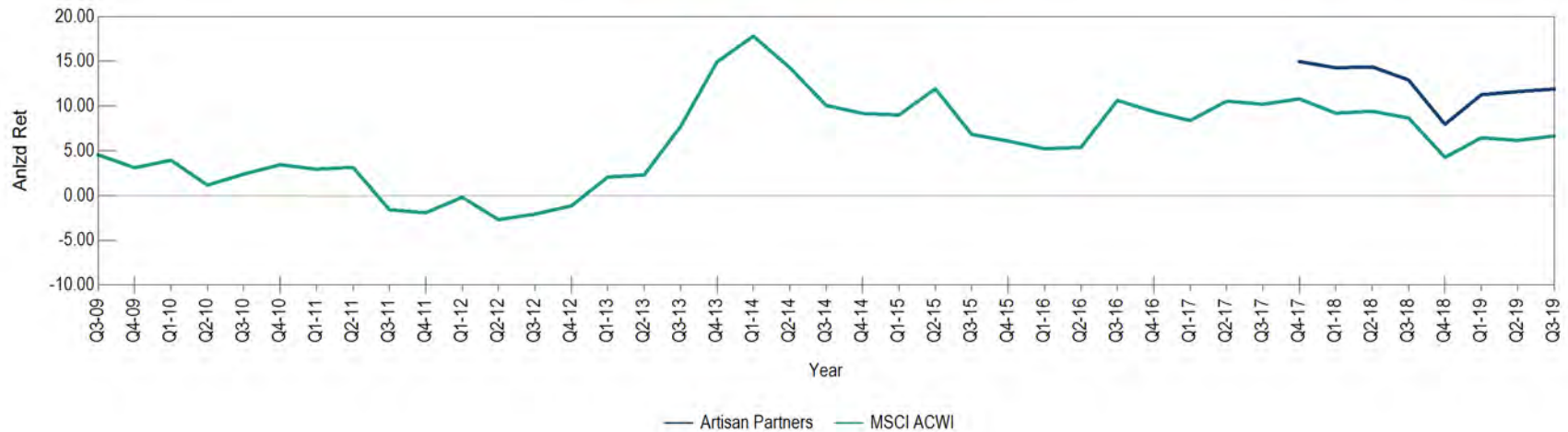


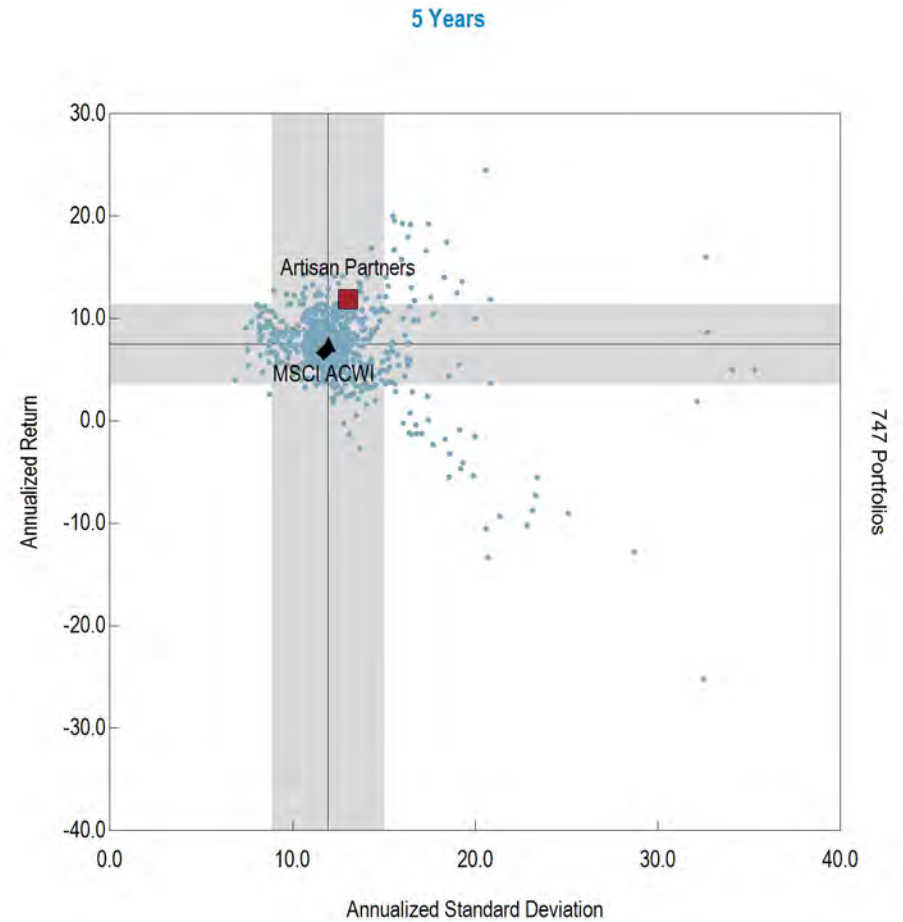
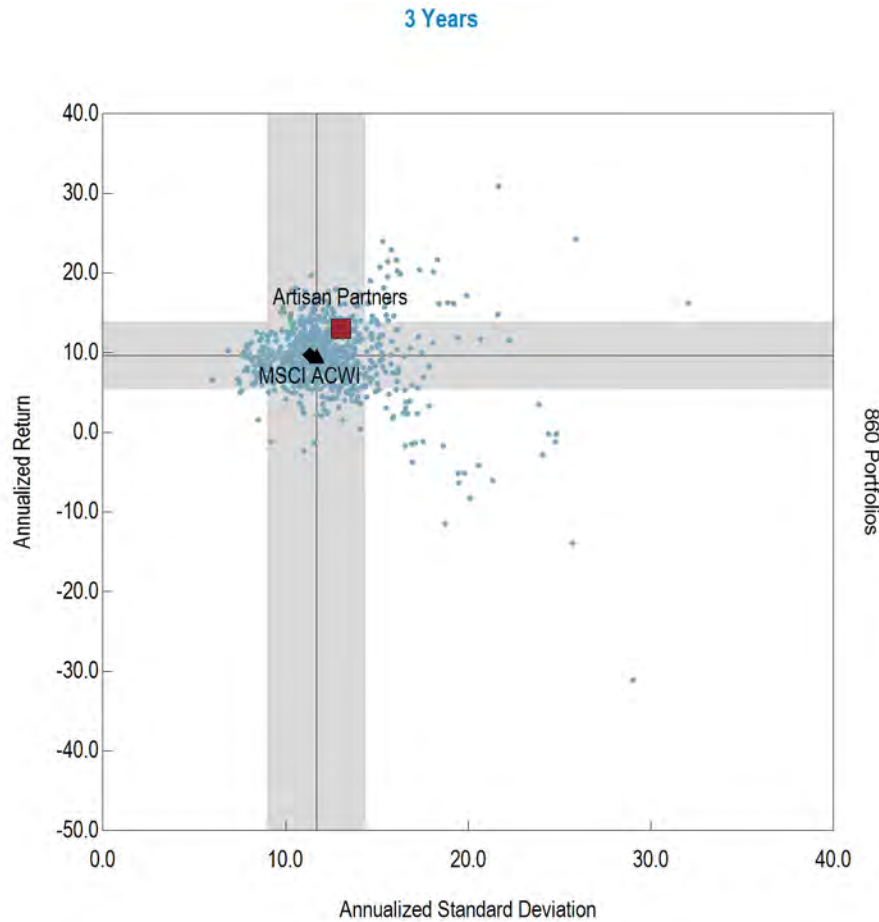
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
5th Percentile	4.6	14.8	15.7	12.4	14.4	-0.7	36.3	21.5	8.5	17.1
25th Percentile	1.2	6.2	11.5	9.2	10.9	-5.8	27.6	10.3	3.0	7.4
Median	0.0	1.5	9.6	7.5	9.7	-9.1	23.5	6.8	0.1	4.6
75th Percentile	-1.3	-2.5	7.5	5.8	8.5	-12.2	19.6	3.9	-2.9	1.5
95th Percentile	-4.4	-9.2	3.7	2.3	3.1	-18.1	11.0	-1.4	-15.1	-7.4
# of Portfolios	920	918	860	747	478	920	880	842	692	609
● Artisan Partners	0.7 (34)	5.9 (27)	13.0 (14)	11.9 (7)	-- (--)	-7.9 (40)	32.9 (11)	5.6 (61)	9.2 (4)	3.9 (56)
▲ MSCI ACWI	0.0 (51)	1.4 (52)	9.7 (49)	6.7 (65)	8.3 (78)	-9.4 (53)	24.0 (47)	7.9 (42)	-2.4 (73)	4.2 (54)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	13.0%	13.0%	0.9
MSCI ACWI	9.7%	11.3%	0.7
eV All Global Equity Gross Median	9.6%	11.7%	0.7

	5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	11.9%	13.0%	0.8
MSCI ACWI	6.7%	11.7%	0.5
eV All Global Equity Gross Median	7.5%	12.0%	0.6

First Eagle Manager Portfolio Overview

Period Ending: September 30, 2019

Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

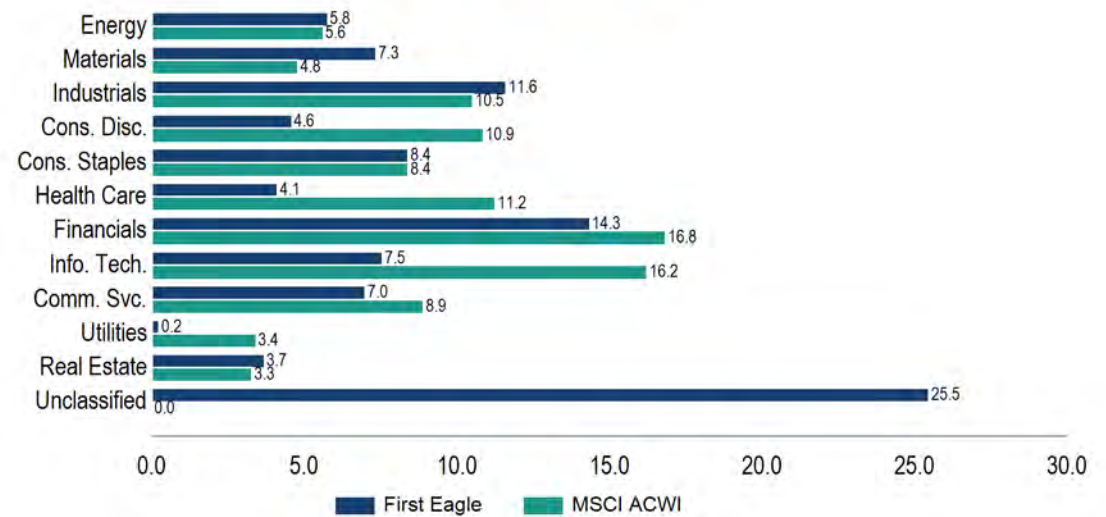
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	140	2,843
Weighted Avg. Market Cap. (\$B)	76.72	150.53
Median Market Cap. (\$B)	20.96	9.01
Price To Earnings	17.01	17.63
Price To Book	2.25	2.95
Price To Sales	1.46	1.54
Return on Equity (%)	14.60	19.71
Yield (%)	2.35	2.52
Beta	0.70	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	80.7%	88.3%
Emerging*	3.8%	11.7%
Cash	15.5%	
Top 10 Largest Countries		
United States	46.7%	55.8%
Cash	15.5%	0.0%
Japan	12.2%	7.3%
France	5.4%	3.3%
United Kingdom	4.8%	4.8%
Canada	3.4%	3.1%
Switzerland	2.1%	2.7%
Korea*	2.0%	1.4%
Singapore	1.5%	0.4%
Sweden	1.0%	0.8%
Total-Top 10 Largest Countries	94.6%	79.6%

Sector Allocation (%) vs MSCI ACWI



Top Contributors

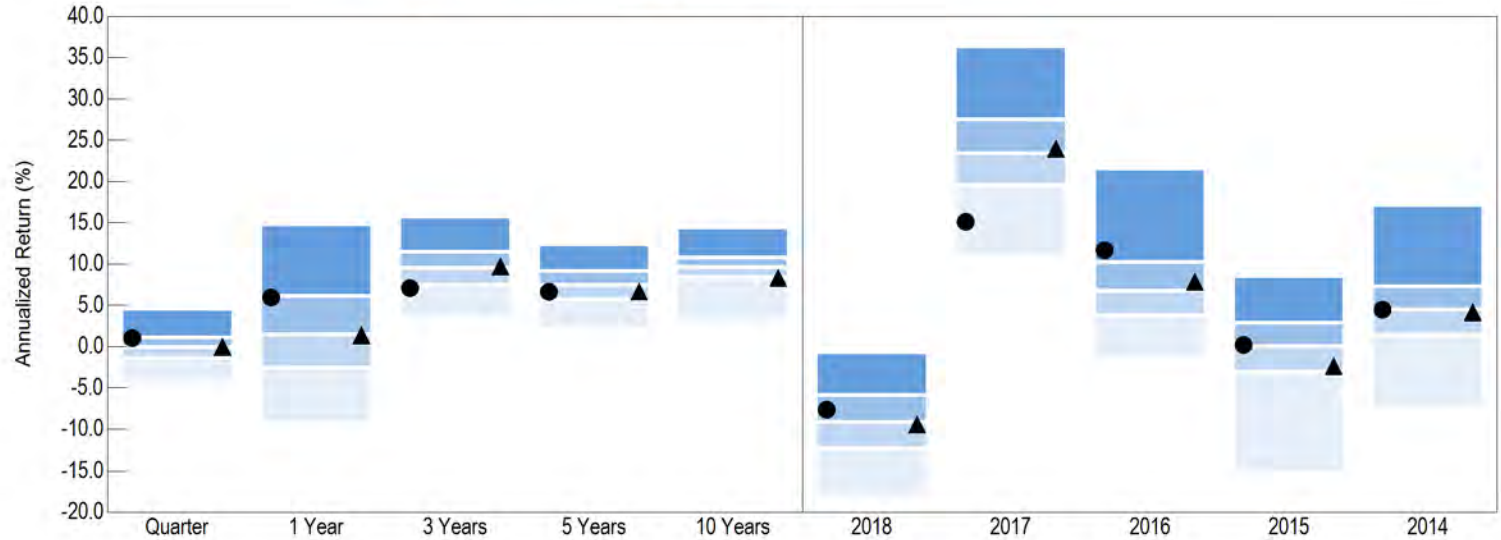
	Avg Wgt	Return	Contribution
SPDR GOLD SHARES	2.99	4.26	0.13
COMCAST A	0.65	7.14	0.05
SOMPO HOLDINGS	0.41	10.00	0.04
WEYERHAEUSER	0.50	6.51	0.03
ALLEGHANY	0.17	17.13	0.03
NTT DOCOMO INC	0.23	11.60	0.03
BRITISH AMERICAN TOBACCO	0.45	5.93	0.03
TAIWAN SEMICON.SPN.ADR 1:5	0.14	19.51	0.03
BB&T	0.27	9.68	0.03
UNIVERSAL HEALTH SVS:'B'	0.18	14.24	0.03

Bottom Contributors

	End Weight	Return	Contribution
SCHLUMBERGER	1.42	-12.66	-0.18
EXXON MOBIL	1.84	-6.70	-0.12
JARDINE MATHESON HDG.	0.76	-14.42	-0.11
TERADATA	0.68	-13.53	-0.09
ANTHEM	0.53	-14.65	-0.08
HEIDELBERGCEMENT	0.73	-10.50	-0.08
ORACLE	2.46	-3.01	-0.07
FLOWSERVE	0.67	-11.00	-0.07
RICHEMONT N	0.63	-11.24	-0.07
NUTRIEN (NYS)	1.19	-5.85	-0.07

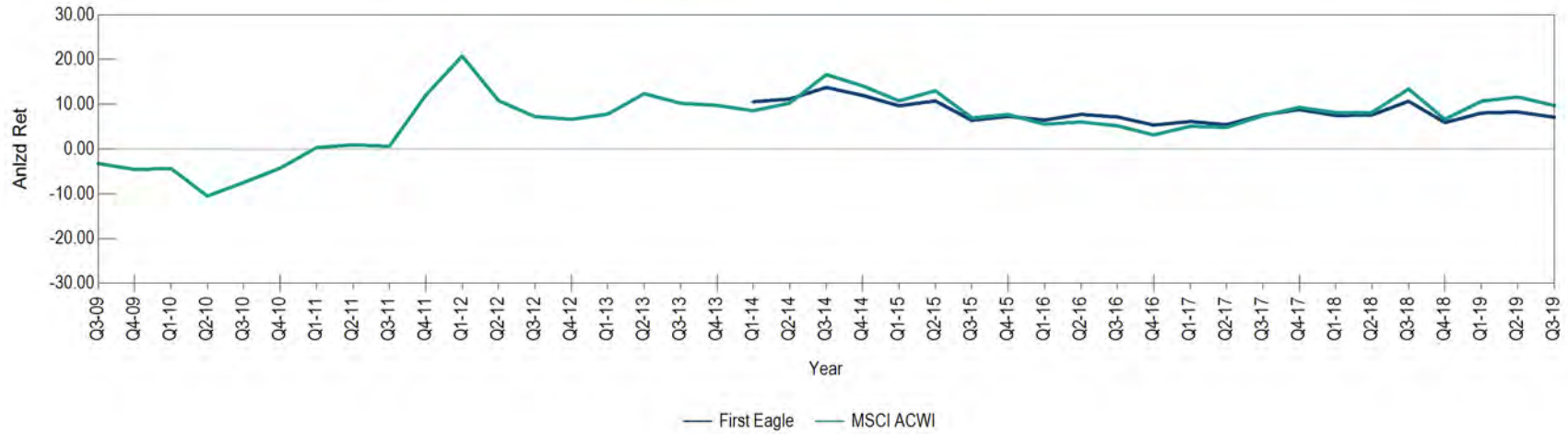
Unclassified sector allocation includes cash allocations and Gold allocations (9.1% as of 9/30/2019).

First Eagle vs. eV All Global Equity Gross Universe

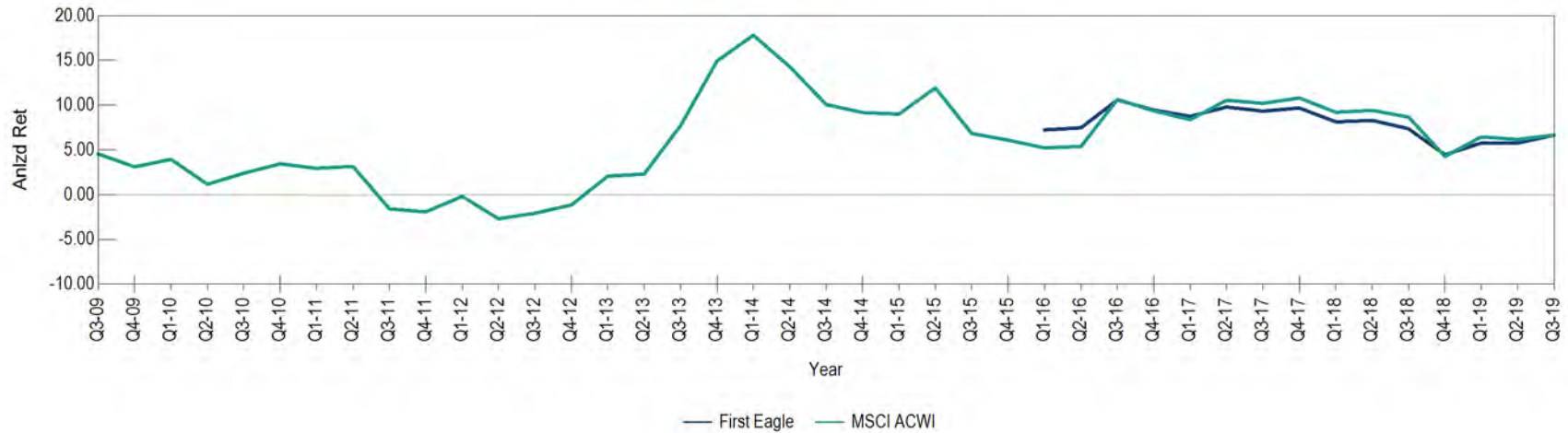


	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
5th Percentile	4.6	14.8	15.7	12.4	14.4	-0.7	36.3	21.5	8.5	17.1
25th Percentile	1.2	6.2	11.5	9.2	10.9	-5.8	27.6	10.3	3.0	7.4
Median	0.0	1.5	9.6	7.5	9.7	-9.1	23.5	6.8	0.1	4.6
75th Percentile	-1.3	-2.5	7.5	5.8	8.5	-12.2	19.6	3.9	-2.9	1.5
95th Percentile	-4.4	-9.2	3.7	2.3	3.1	-18.1	11.0	-1.4	-15.1	-7.4
# of Portfolios	920	918	860	747	478	920	880	842	692	609
● First Eagle	1.0 (28)	5.9 (27)	7.1 (79)	6.6 (66)	-- (--)	-7.6 (38)	15.1 (89)	11.7 (19)	0.2 (49)	4.5 (51)
▲ MSCI ACWI	0.0 (51)	1.4 (52)	9.7 (49)	6.7 (65)	8.3 (78)	-9.4 (53)	24.0 (47)	7.9 (42)	-2.4 (73)	4.2 (54)

Rolling 3 Year Annualized Return (%)

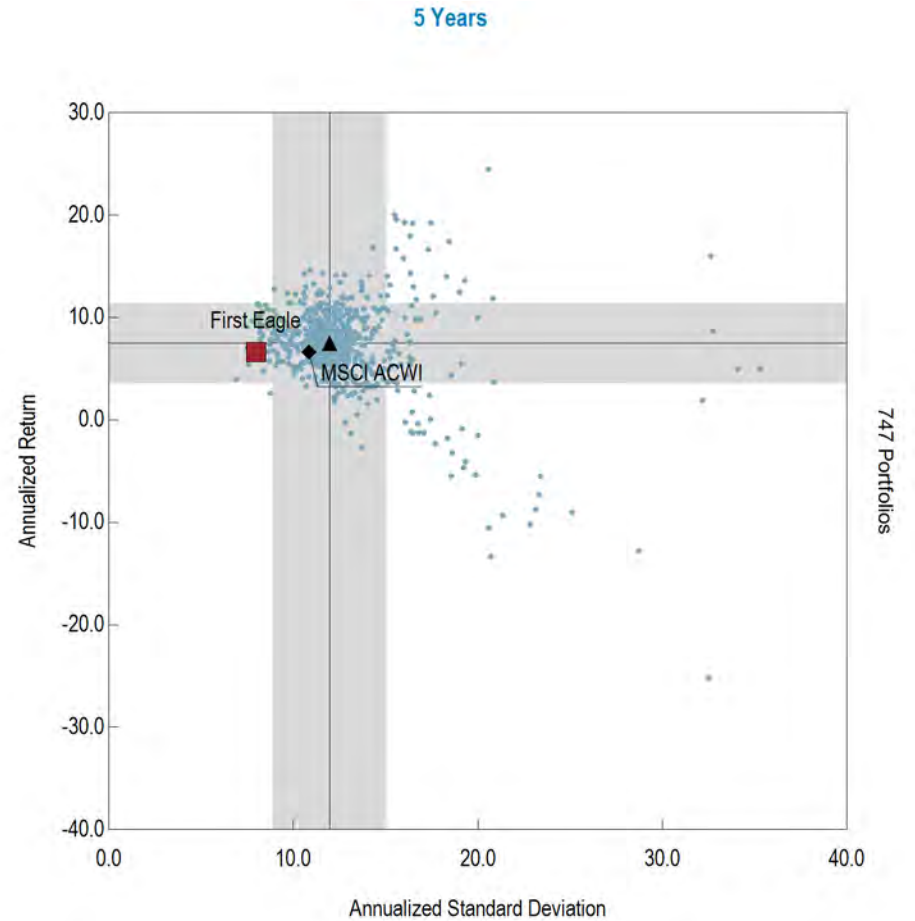
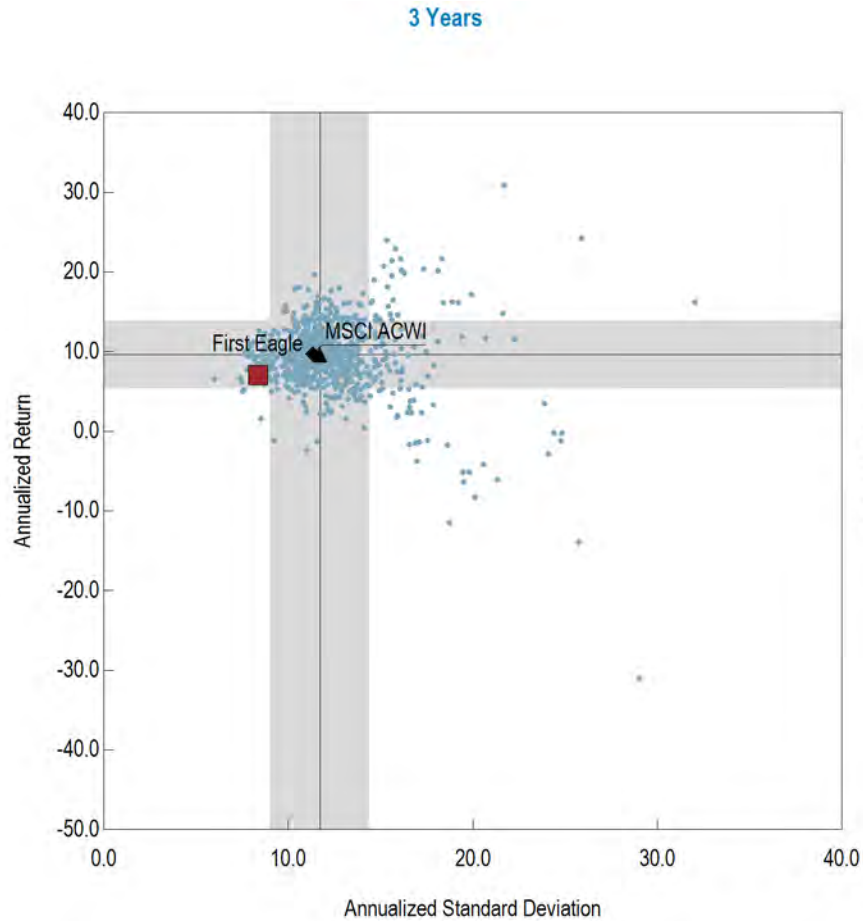


Rolling 5 Year Annualized Return (%)



First Eagle
Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: September 30, 2019



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	7.1%	8.4%	0.7
MSCI ACWI	9.7%	11.3%	0.7
eV All Global Equity Gross Median	9.6%	11.7%	0.7

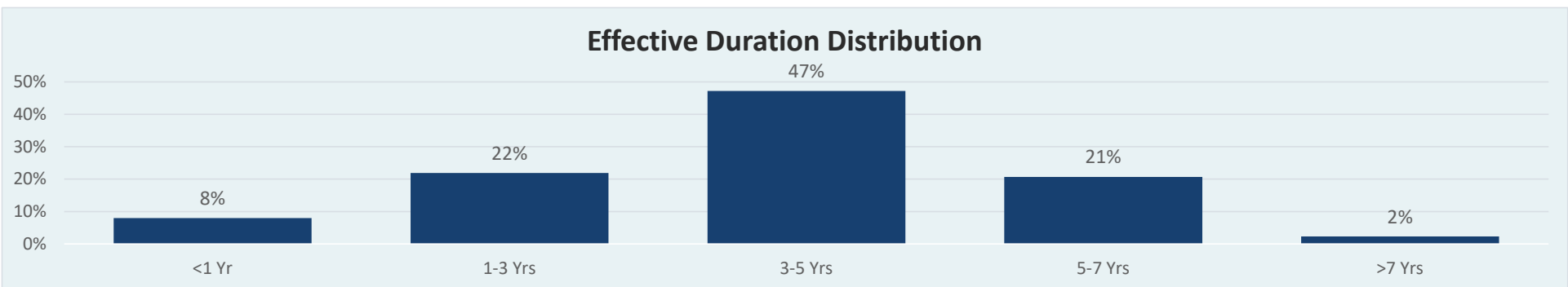
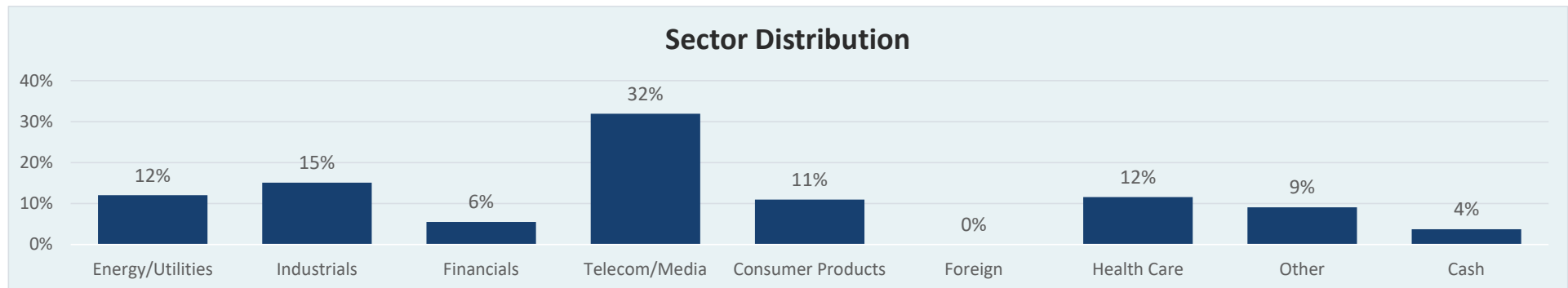
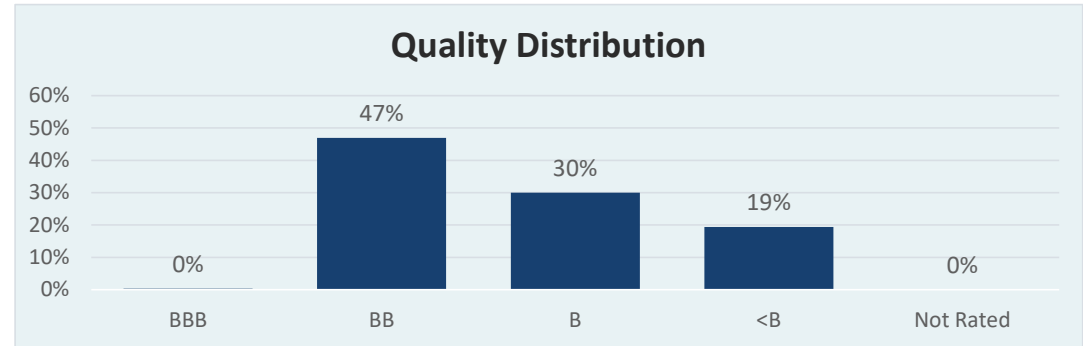
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	6.6%	8.5%	0.7
MSCI ACWI	6.7%	11.7%	0.5
eV All Global Equity Gross Median	7.5%	12.0%	0.6

High Yield Managers

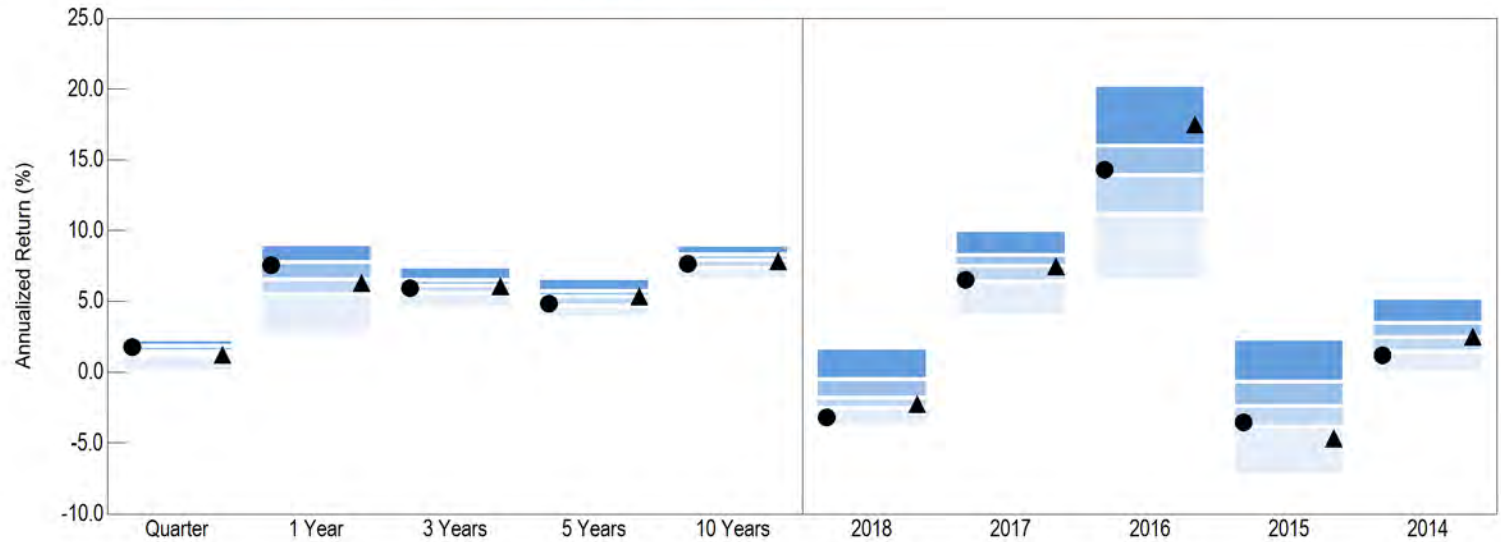
Domestic high yield fixed income portfolio with a focus on security selection. Primary personnel include Douglas Forsyth, Justin Kass, William Stickney, and Michael Yee.

	Allianz	ICE BofAML HY Master II
Effective Duration	3.50	3.40
Yield to Maturity	5.90	6.40
Average Quality	B1	B1
Average Coupon	6.5%	6.4%



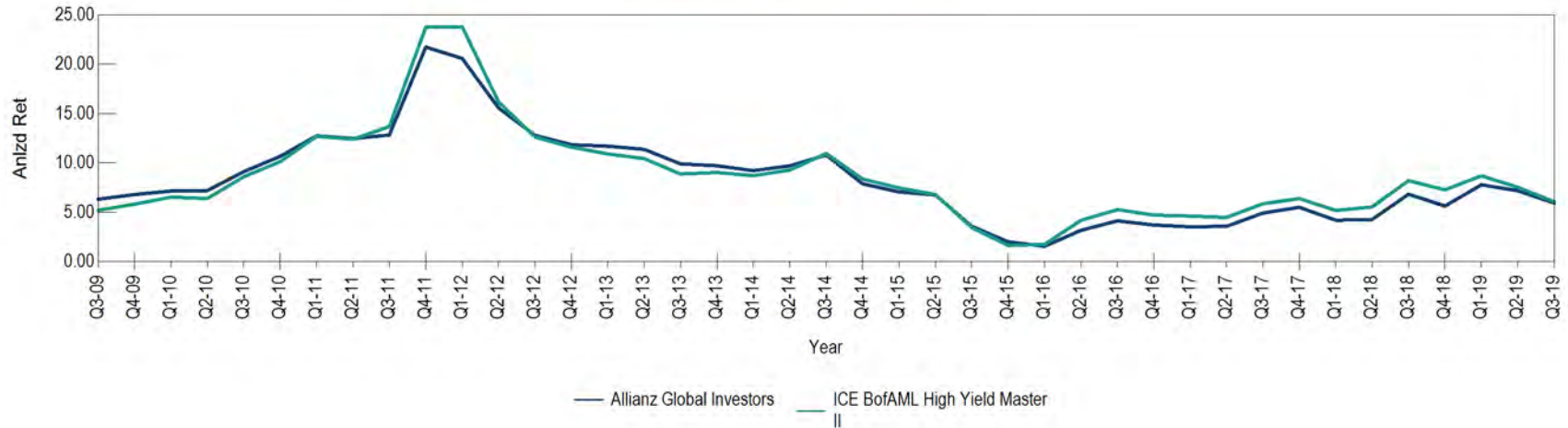
Quality distribution excludes cash.

Allianz Global Investors vs. eV US High Yield Fixed Inc Gross Universe

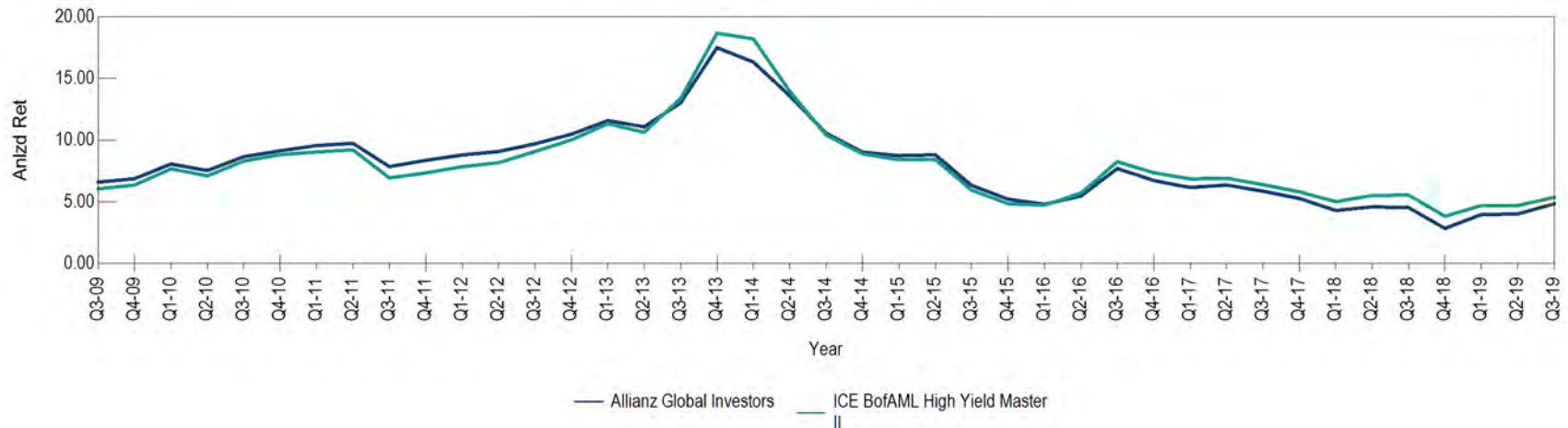


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2018	2017	2016	2015	2014
5th Percentile	2.3	9.0	7.4	6.6	9.0	1.7	10.0	20.3	2.3	5.2
25th Percentile	1.9	7.8	6.5	5.8	8.3	-0.5	8.3	16.0	-0.7	3.5
Median	1.5	6.6	6.1	5.4	7.9	-1.8	7.5	14.0	-2.4	2.5
75th Percentile	1.2	5.6	5.6	4.7	7.4	-2.5	6.5	11.3	-3.8	1.5
95th Percentile	0.1	2.7	4.5	3.9	6.6	-3.8	4.0	6.6	-7.2	0.0
# of Portfolios	203	203	193	181	127	210	198	183	155	141
● Allianz Global Investors	1.8 (34)	7.6 (30)	5.9 (63)	4.8 (72)	7.7 (67)	-3.2 (88)	6.5 (74)	14.3 (47)	-3.5 (68)	1.2 (83)
▲ ICE BofAML High Yield Master II	1.2 (74)	6.3 (60)	6.1 (55)	5.4 (51)	7.9 (56)	-2.3 (69)	7.5 (53)	17.5 (14)	-4.6 (83)	2.5 (50)

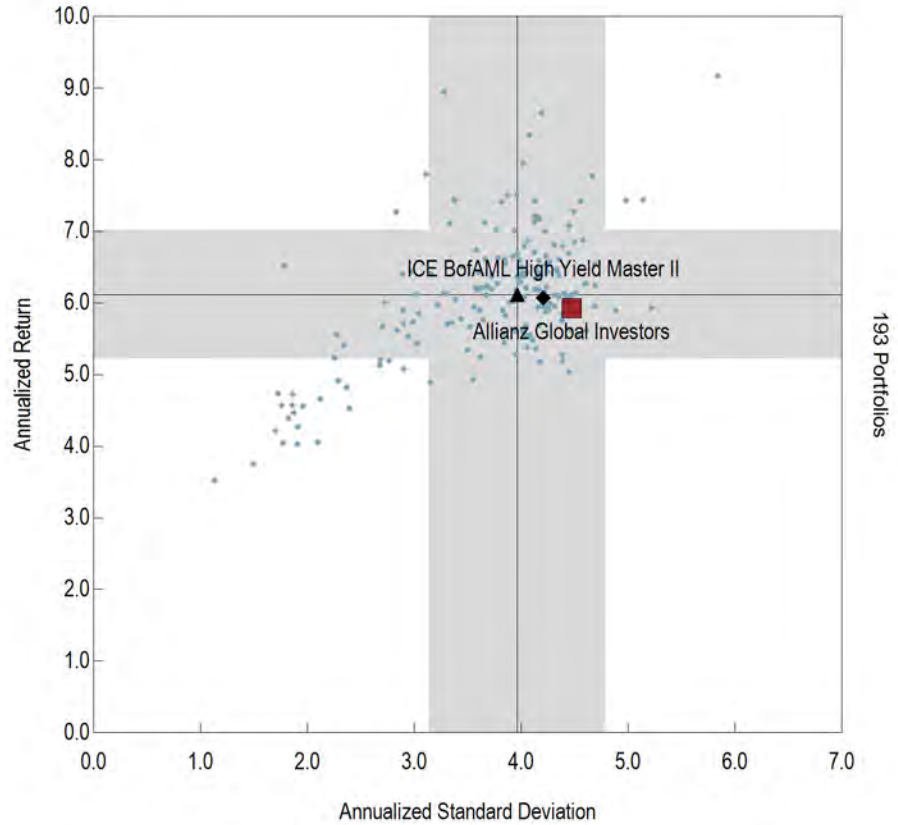
Rolling 3 Year Annualized Return (%)



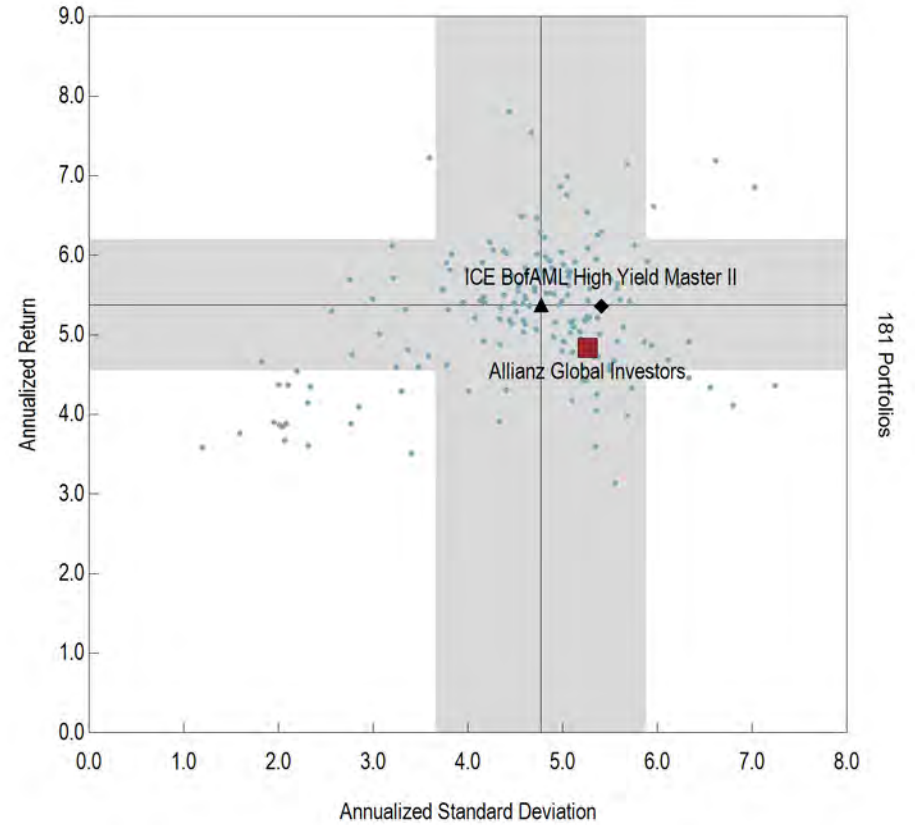
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	5.9%	4.5%	1.0
ICE BofAML High Yield Master II	6.1%	4.2%	1.1
eV US High Yield Fixed Inc Gross Median	6.1%	4.0%	1.2

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	4.8%	5.3%	0.7
ICE BofAML High Yield Master II	5.4%	5.4%	0.8
eV US High Yield Fixed Inc Gross Median	5.4%	4.8%	1.0

Real Estate Managers

Adelante Manager Portfolio Overview

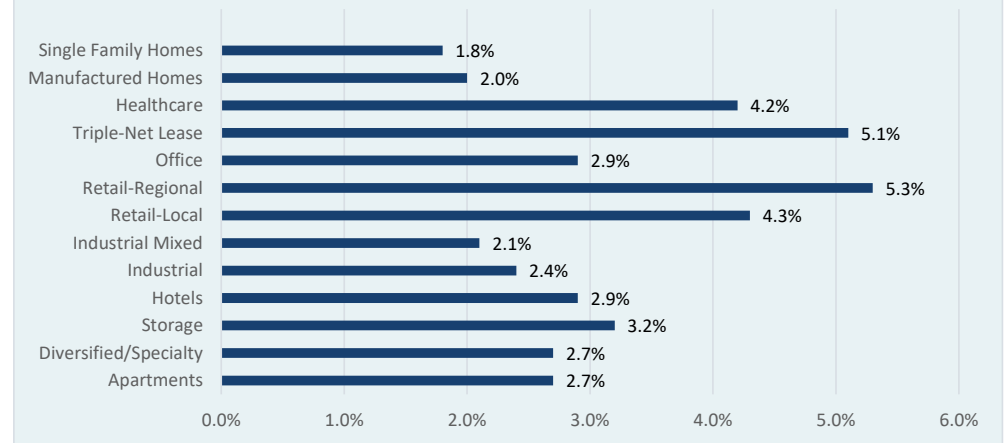
Period Ending: September 30, 2019

Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets

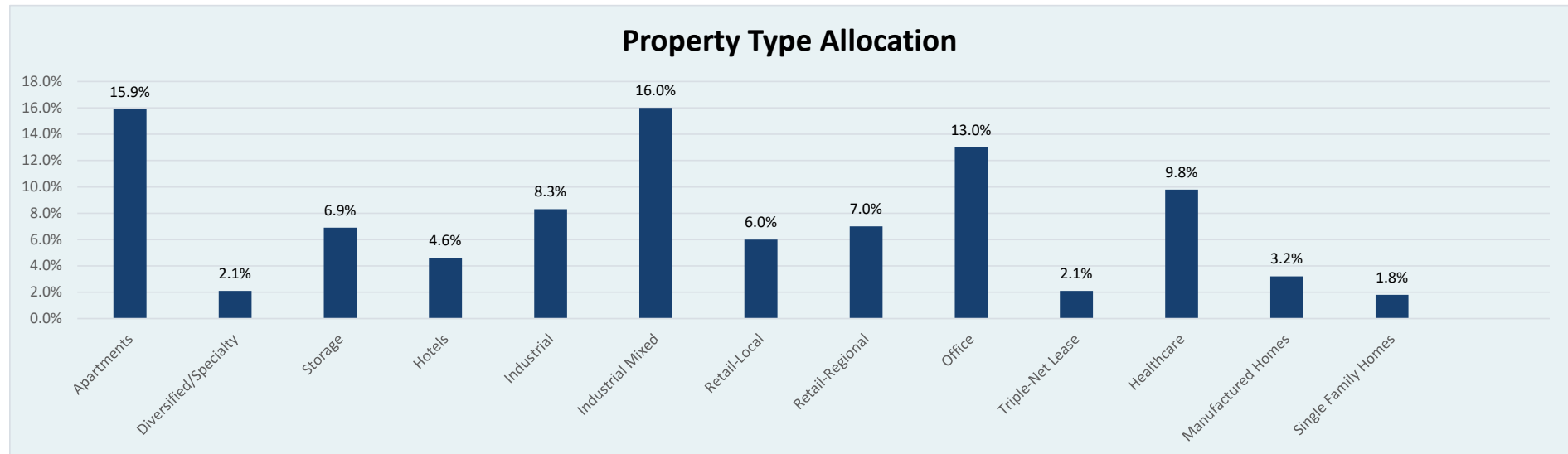
Top Five Holdings

Company	Property Type	Allocation
ProLogis Inc.	Industrial	7.0%
Simon Property Group, Inc.	Regional Retail	5.3%
Equinix Inc	Industrial Mixed	6.7%
Equity Residential	Apartments	6.2%
HCP Inc.	Healthcare	4.6%

Dividend Yield by Property Type



Property Type Allocation

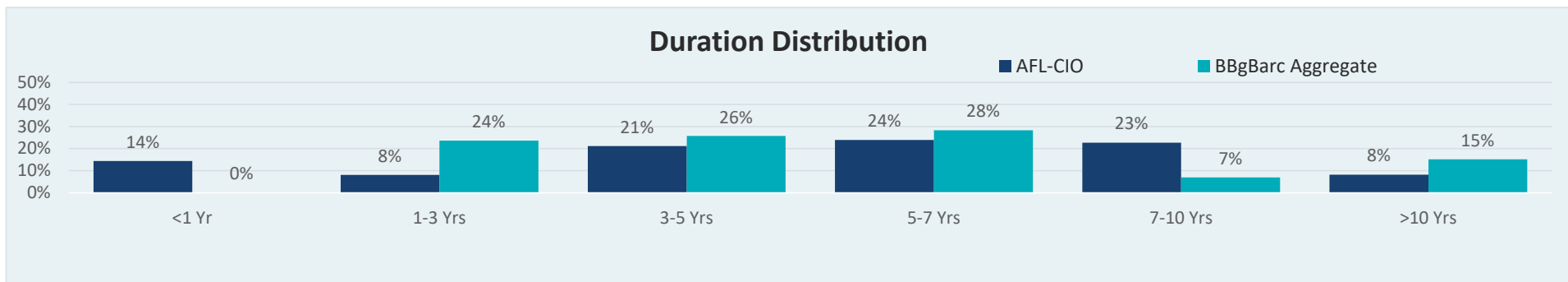
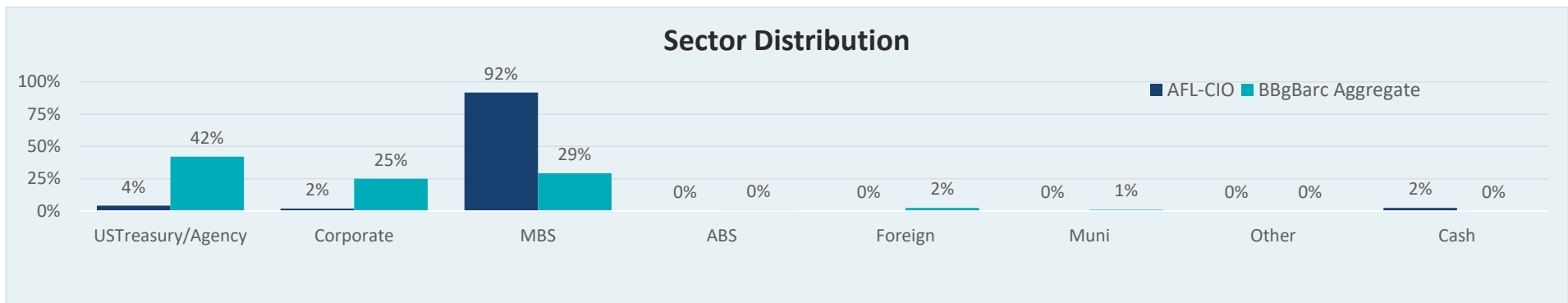
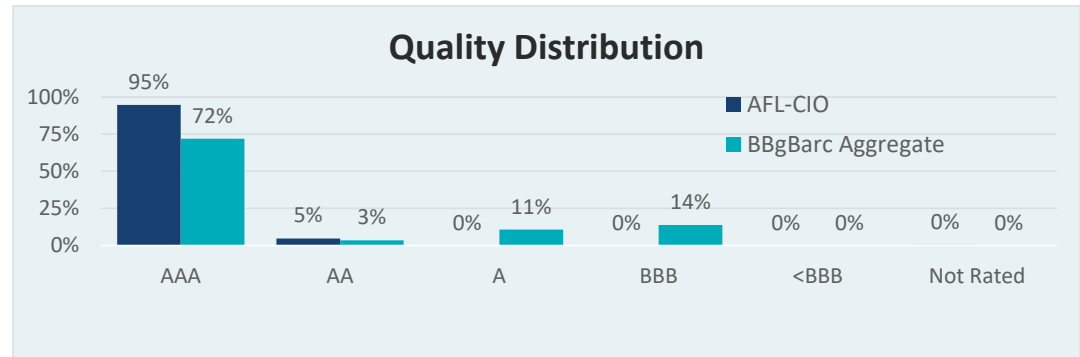


3.5% is allocated to Cash and Cash Equivalents.

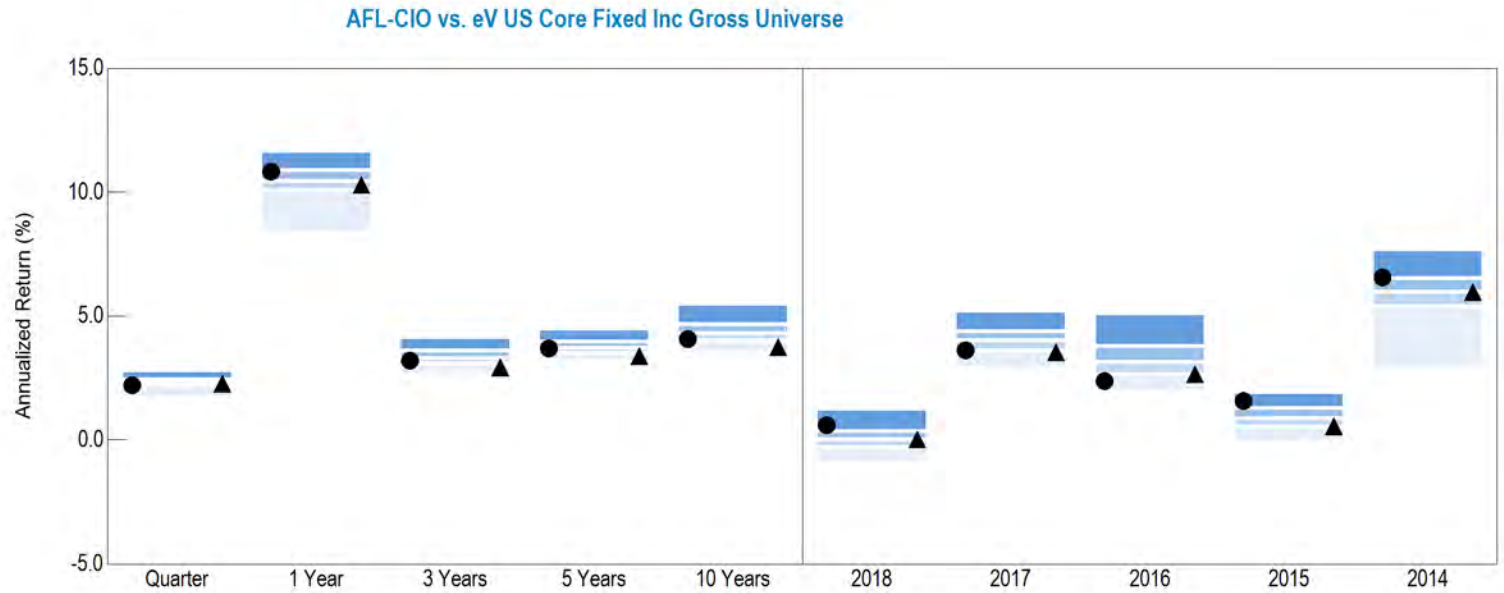
Diversifying Fixed Income Managers

Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	BBgBarc Aggregate
Effective Duration	5.50	5.85
Yield to Maturity	3.15	3.01
Average Quality	AAA	AA
Average Coupon	3.3%	3.3%

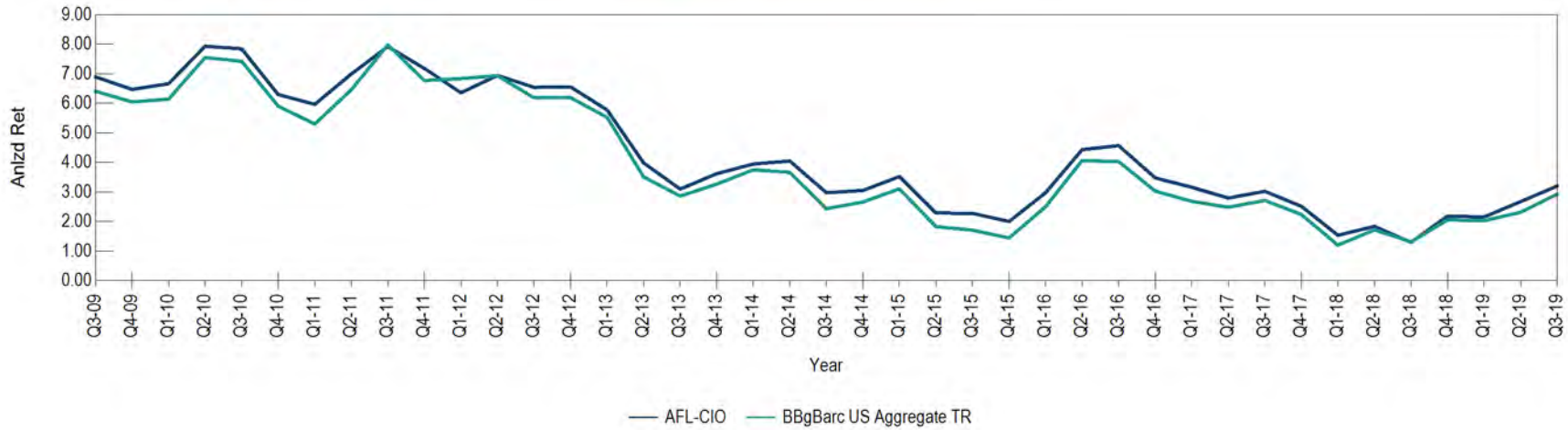


Duration and Quality distributions exclude cash.

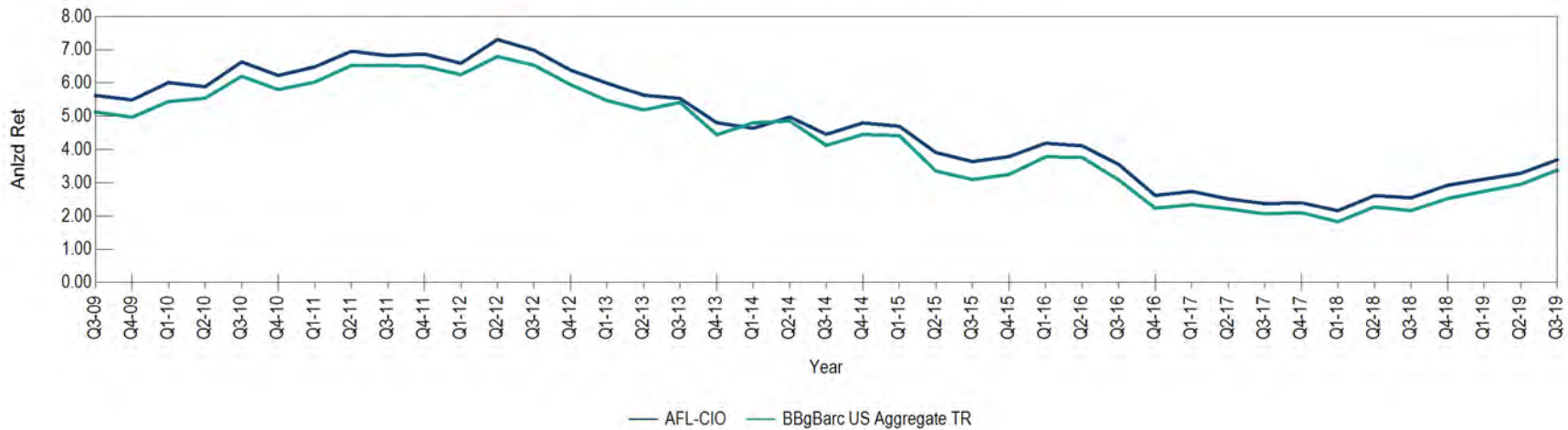


	Return (Rank)									
5th Percentile	2.8	11.7	4.1	4.5	5.5	1.2	5.2	5.1	1.9	7.7
25th Percentile	2.5	10.9	3.6	4.0	4.7	0.4	4.4	3.8	1.3	6.5
Median	2.3	10.5	3.3	3.7	4.3	0.0	4.0	3.2	0.9	6.0
75th Percentile	2.2	10.1	3.1	3.5	4.0	-0.3	3.6	2.7	0.5	5.4
95th Percentile	1.7	8.4	2.7	3.2	3.5	-0.9	2.9	2.0	-0.1	2.9
# of Portfolios	216	216	214	211	195	240	233	223	196	213
● AFL-CIO	2.2 (78)	10.8 (29)	3.2 (64)	3.7 (57)	4.1 (74)	0.6 (16)	3.6 (76)	2.4 (87)	1.6 (15)	6.6 (25)
▲ BBgBarc US Aggregate TR	2.3 (69)	10.3 (65)	2.9 (91)	3.4 (87)	3.7 (92)	0.0 (54)	3.5 (79)	2.6 (77)	0.6 (75)	6.0 (52)

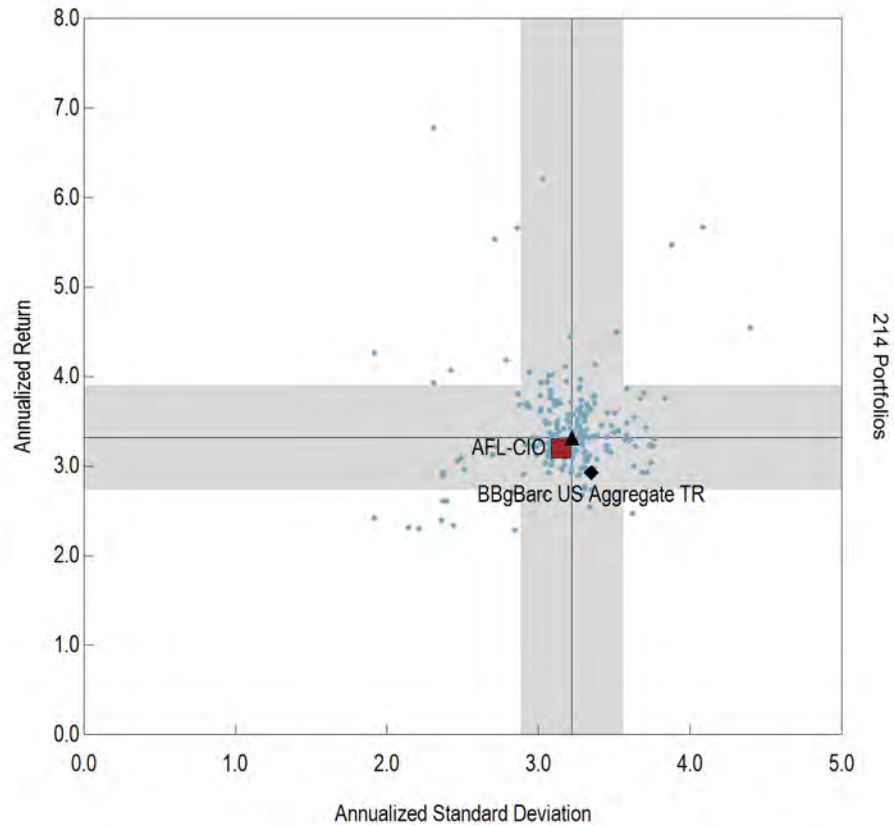
Rolling 3 Year Annualized Return (%)



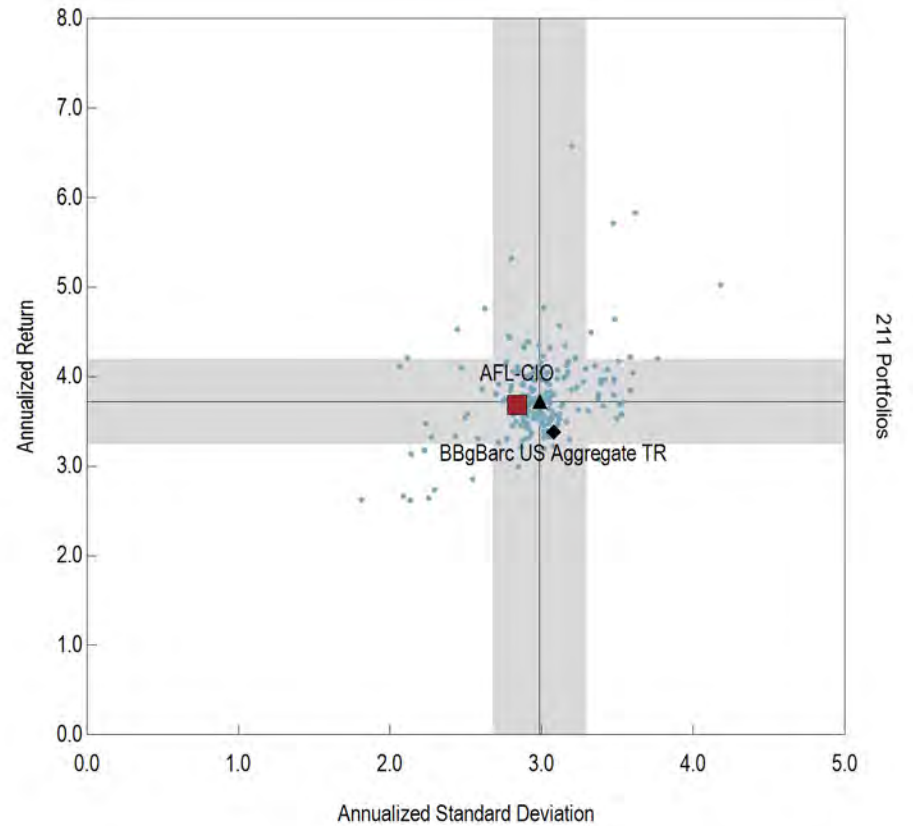
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	3.2%	3.1%	0.5
BBgBarc US Aggregate TR	2.9%	3.3%	0.4
eV US Core Fixed Inc Gross Median	3.3%	3.2%	0.6

5 Years

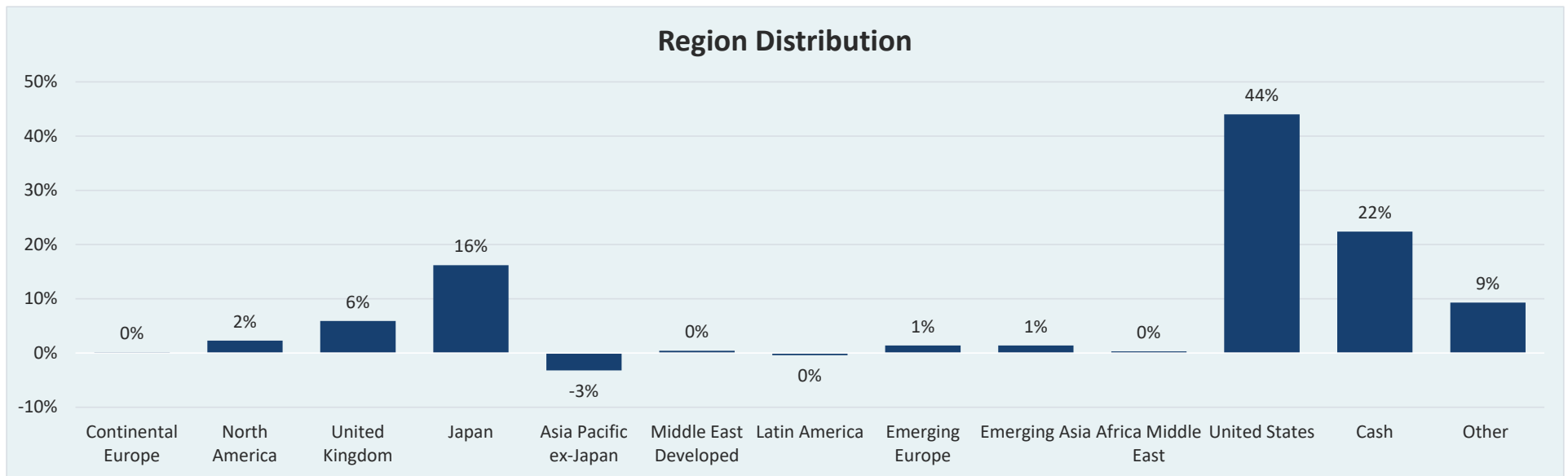
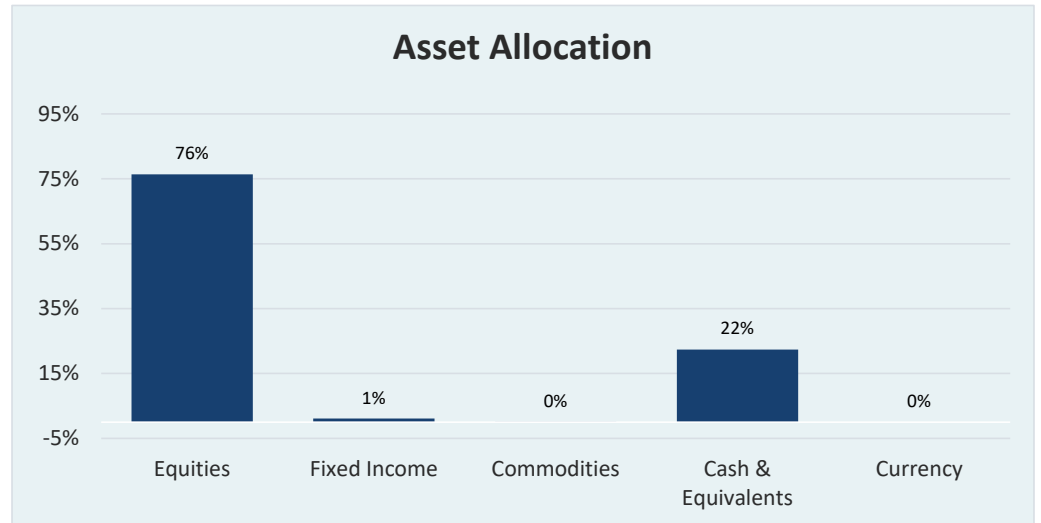
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
AFL-CIO	3.7%	2.8%	1.0
BBgBarc US Aggregate TR	3.4%	3.1%	0.8
eV US Core Fixed Inc Gross Median	3.7%	3.0%	0.9

Wellington Total Return Manager Portfolio Overview

Period Ending: September 30, 2019

Tactical multi-asset class real return strategy with a focus on managing risk of active strategies used to gain exposure to attractive assets of markets.

	Wellington Total Return
Number of Equity Holdings	915
Number of Commodity Holdings	112
Effective Duration (Years)	5.60



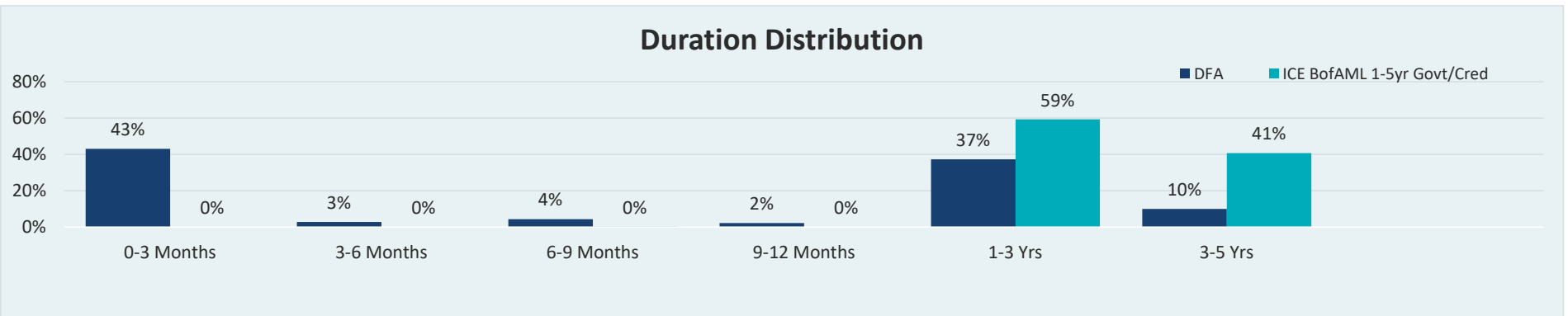
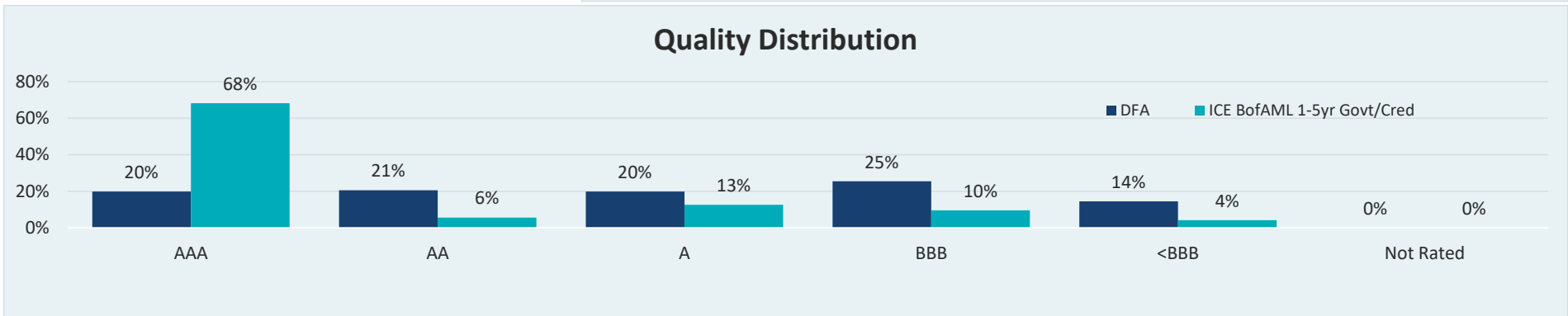
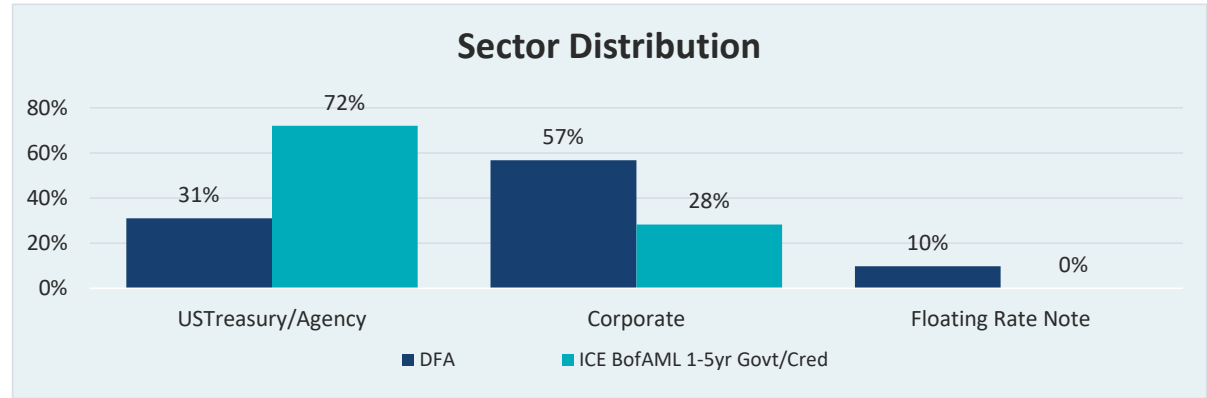
Liquidity Managers

DFA Short Credit
 Manager Portfolio Overview

Period Ending: September 30, 2019

Domestic short term US credit fixed income portfolio that maximizes total return through income and capital appreciation. Primary personnel include Dave Plecha and Joseph Kolerich.

	DFA	ICE BofAML 1-5yr Govt/Cred
Effective Duration	1.15	2.61
Yield to Maturity	2.29	1.88
Average Quality	A+	Aa1
Average Coupon	2.60%	2.63%

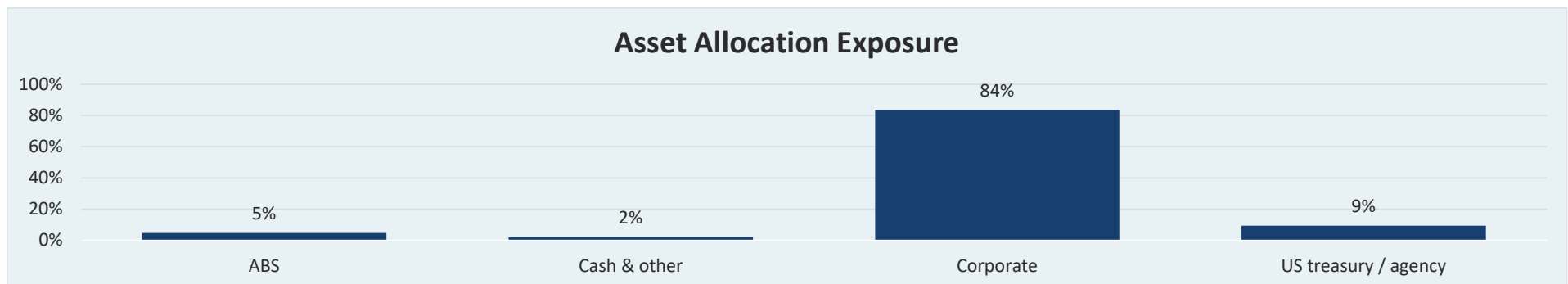
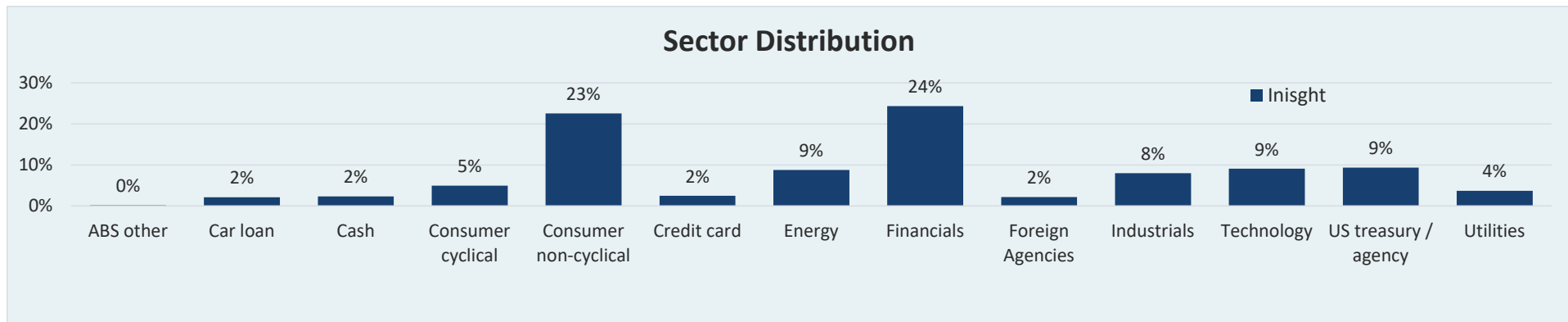
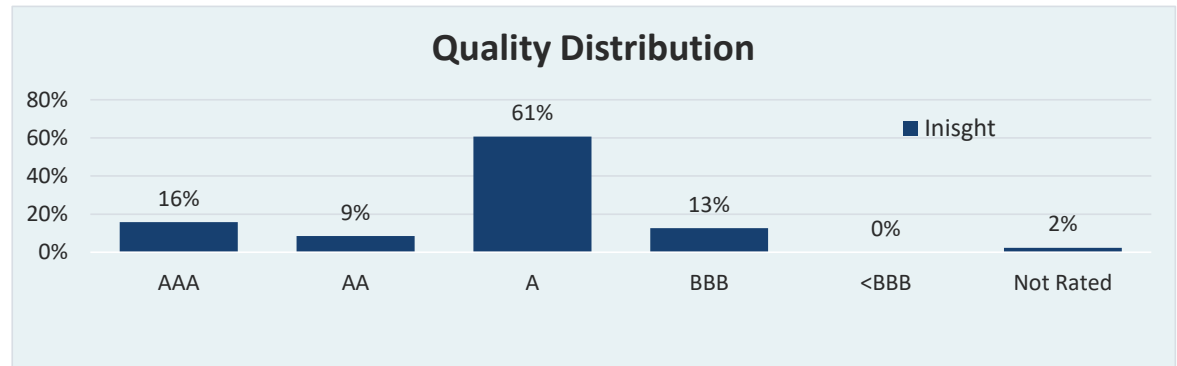


Insight Short Duration Manager Portfolio Overview

Period Ending: September 30, 2019

High quality, short duration multi-sector fixed income portfolio comprised of Treasuries, Agencies, investment grade corporates, and ABS designed specifically to meet CCCERA's liabilities. Key personnel include Gerard Berrigan and Jesse Fogarty.

	Insight	BBgBarc 1-3yr Govt
Effective Duration	1.64	1.89
Yield to Maturity	2.15	1.70
Average Quality	A+	AAA
Average Coupon	2.63%	2.07%

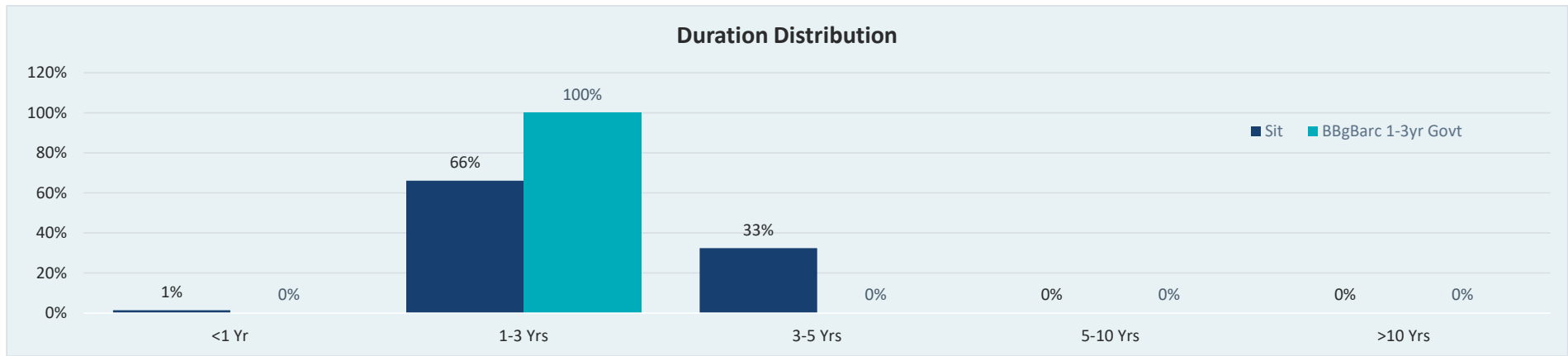
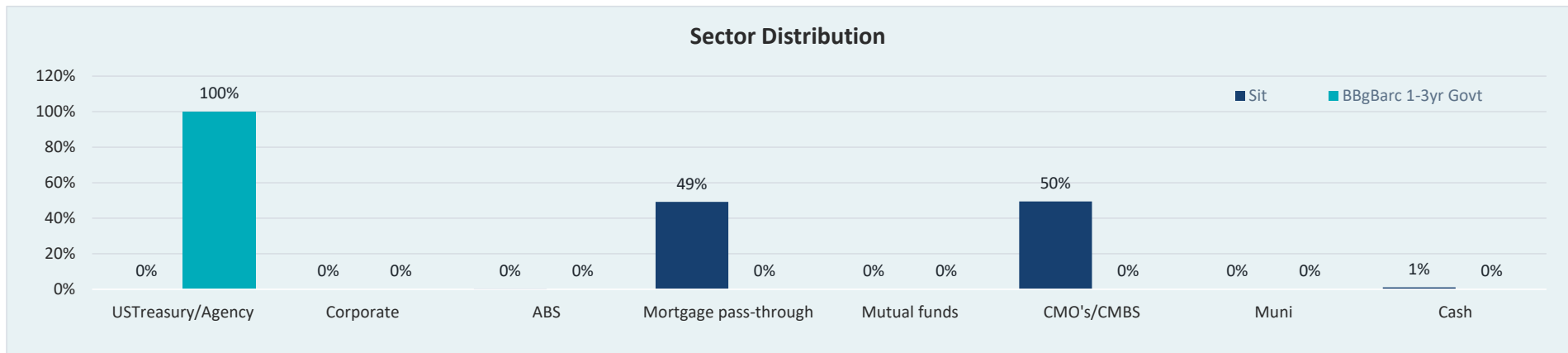
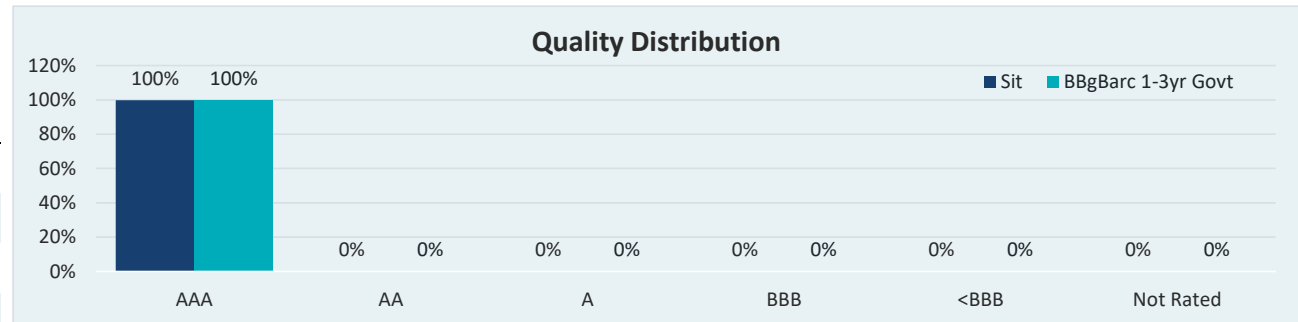


Sit Short Duration Manager Portfolio Overview

Period Ending: September 30, 2019

Short duration fixed income portfolio with a focus on earning high levels of interest income. Primary personnel include Bryce Doty, Paul Jungquist and Michael Brilley.

	Sit	BBgBarc 1-3yr Govt
Adjusted Duration	2.70	1.90
Yield to Maturity	2.50	1.70
Average Quality	AAA	AAA
Average Coupon	6.50%	2.07%



Performance Return Calculations	
Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.	
Data Source	
Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.	
Illiquid Alternatives	
Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.	
Policy & Custom Index Composition	
Policy Index (7/1/2019 - present)	10% Russell 3000, 18% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2% CPI + 4%, 11% S&P 500 +4% (Lagged), 5% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 24% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate, 2% BBgBarc Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (7/1/2018 - 6/30/2019)	11% Russell 3000, 19% MSCI ACWI ex-US (Gross), 11% MSCI ACWI (Net), 1% Wilshire REIT, 1.8% NCREIF Property Index, 7.2% NCREIF ODCE Index, 2% CPI + 4%, 10% S&P 500 +4% (Lagged), 4% ICE BofAML High Yield Master II +2%, 2% ICE BofAML High Yield Master II, 23% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate, 2% BBgBarc Global Aggregate, 2.5% HFRI EH Equity Market Neutral.
Policy Index (10/1/2017 - 6/30/2018)	16.3% Russell 3000, 18.8% MSCI ACWI ex-US (Gross), 8.6% MSCI ACWI (Net), 1% Wilshire REIT, 1.6% NCREIF Property Index, 6.4% NCREIF ODCE Index, 2.5% CPI + 4%, 10.1% S&P 500 +4% (Lagged), 1.9% ICE BofAML High Yield Master II +2%, 4.3% ICE BofAML High Yield Master II, 25% BBgBarc 1-3 Yr Gov/Credit, 3.5% BBgBarc US Aggregate.
Policy Index (1/1/2017 - 9/30/2017)	22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI + 4%, 8.1% S&P 500 +4% (Lagged), 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.8% 91-Day T-Bills.
Policy Index (4/1/2012-12/31/2016)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (4/1/2011-3/31/2012)	31% Russell 3000, 10.4% MSCI EAFE (Gross), 9.6% MSCI ACWI (Net), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (4/1/2010-3/31/2011)	35.6% Russell 3000, 10.4% MSCI EAFE (Gross), 5% MSCI ACWI (Net), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Policy Index (7/1/2009-3/31/2010)	40.6% Russell 3000, 10.4% MSCI EAFE (Gross), 25% BBgBarc U.S. Aggregate, 3% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 8.4% DJ Wilshire REIT, 3.1% NCREIF, 5% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Custom Growth Benchmark (7/1/2019 - present)	14.7% Russell 3000, 26.4% MSCI ACWI ex-US (Gross), 16.2% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.4% NCREIF Property Index, 9.4% NCREIF ODCE Index, 16.2% S&P 500 +4% (Lagged), 7.4% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% BBgBarc Global Bond
Custom Growth Benchmark (7/1/2018 - 6/30/2019)	16.0% Russell 3000, 27.5% MSCI ACWI ex-US (Gross), 15.9% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.6% NCREIF Property Index, 10.4% NCREIF ODCE Index, 14.5% S&P 500 +4% (Lagged), 5.8% ICE BofAML High Yield Master II +2%, 2.9% ICE BofAML High Yield Master II, 2.9% BBgBarc Global Bond
Custom Growth Benchmark (9/30/2017-6/30/2018)	23.6% Russell 3000, 27.2% MSCI ACWI ex-US (Gross), 12.5% MSCI ACWI (Net), 1.5% Wilshire REIT, 2.3% NCREIF Property Index, 9.3% NCREIF ODCE Index, 14.6% S&P 500 +4% (Lagged), 2.8% ICE BofAML High Yield Master II +2%, 6.2% ICE BofAML High Yield Master II
Custom Growth Benchmark (1/1/2017-9/30/2017)	32.6% Russell 3000, 15.7% MSCI ACWI ex-US (Gross), 15.5% MSCI ACWI (Net), 1.4% Wilshire REIT, 2.4% NCREIF Property Index, 9.6% NCREIF ODCE Index, 1.6% CPI +4%, 11.5% S&P 500 +4% (Lagged), 2.4% ICE BofAML High Yield Master II +2%, 7.3% ICE BofAML High Yield Master II
Custom Growth Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Custom Diversifying Benchmark (7/1/2018 - present)	43.75% BBgBarc US Aggregate, 25% CPI + 4%, 31.25% HFRI EH Equity Market Neutral.
Custom Diversifying Benchmark (10/1/2017 - 6/30/2018)	58.33% BBgBarc US Aggregate, 41.67% CPI + 4%.
Custom Diversifying Benchmark (1/1/2017 - 9/30/2017)	56.1% BBgBarc US Aggregate, 43.9% CPI + 4%.
Custom Diversifying Benchmark (Prior to 1/1/2017)	Weighted-average of the benchmarks of the sub-composites that make up the composite.
Real Estate Benchmark (current)	11% Wilshire REIT, 18% NCREIF Property Index, 71% NCREIF ODCE Index.
Real Estate Benchmark (4/1/2012-11/30/2016)	40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-US.

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 1000 Index	4/20/2017	BlackRock	Invesco Real Estate IV	6/30/2014	Invesco
Jackson Square Partners	5/1/2005	Northern Trust	Invesco Real Estate V	2/20/2019	Invesco
Boston Partners	6/1/1995	Northern Trust	Oaktree REOF V	12/31/2011	Oaktree
Emerald Advisors	4/7/2003	Northern Trust	Oaktree REOF VI	9/30/2013	Oaktree
Ceredex	11/6/2011	Northern Trust	Oaktree REOF VII	4/1/2015	Oaktree
Pyrford	4/25/2014	State Street	Siguler Guff DREOF	1/25/2012	Siguler Guff
William Blair	10/29/2010	William Blair	Siguler Guff DREOF II	8/31/2013	Siguler Guff
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Paulson Real Estate Fund II	11/10/2013	Paulson
Artisan Partners	10/1/2012	SEI Trust	AE Industrial Partners Fund II	4/8/2019	StepStone Group
First Eagle	1/18/2011	Northern Trust	Adams Street Partners	3/18/1996	StepStone Group
Allianz Global Investors	4/25/2000	Northern Trust	Adams Street Partners II	1/16/2009	StepStone Group
Adelante	9/30/2001	Northern Trust	Adams Street Partners Venture	4/28/2017	StepStone Group
AQR Global Risk Premium - EL	1/18/2019	AQR	Adams Street Partners - BFP	1/18/1996	StepStone Group
Panagora Risk Parity Multi Asset	3/15/2019	Panagora	Adams Street Partners - Fund 5	9/21/2012	StepStone Group
AFL-CIO	6/30/1991	AFL-CIO	Aether Real Assets IV	3/16/2016	StepStone Group
Wellington Real Total Return	2/26/2013	Northern Trust	Aether Real Assets III	11/27/2013	StepStone Group
Parametric Defensive Equity	7/23/2018	Northern Trust	Aether Real Assets III Surplus	11/30/2013	StepStone Group
Sit Short Duration	11/2/2016	Northern Trust	Bay Area Equity Fund	6/14/2004	StepStone Group
DFA Short Credit	11/21/2016	Northern Trust	Bay Area Equity Fund II	12/7/2009	StepStone Group
Insight Short Duration	11/18/2016	Northern Trust	Commonfund	6/28/2013	StepStone Group
Parametric Overlay	3/29/2017	Northern Trust	EIF US Power Fund II	8/16/2005	StepStone Group
Cash	-	Northern Trust	EIF US Power Fund III	5/30/2007	StepStone Group
Angelo Gordon Energy Credit Opp	9/24/2015	StepStone Group	EIF US Power Fund IV	11/28/2011	StepStone Group
StepStone CC Opportunities Fund	2/1/2018	StepStone Group	EIF US Power Fund V	11/28/2016	StepStone Group
Torchlight II	9/30/2006	StepStone Group	Genstar Capital Partners IX, L.P.	2/21/2019	StepStone Group
Torchlight IV	7/1/2012	StepStone Group	Oaktree PIF 2009	2/28/2010	StepStone Group
Torchlight V	7/1/2012	StepStone Group	Paladin III	11/30/2007	StepStone Group
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	StepStone Group
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	StepStone Group
DLJ RECP III	6/23/2005	DLJ	Pathway 6	5/24/2011	StepStone Group
DLJ RECP IV	2/11/2008	DLJ	Pathway 7	2/7/2013	StepStone Group
DLJ RECP V	7/1/2014	DLJ	Pathway 8	11/23/2015	StepStone Group
DLJ RECP VI	3/19/2019	DLJ	Pathway	11/9/1998	StepStone Group
LaSalle Income & Growth VI	7/16/2013	LaSalle	Pathway 2008	12/26/2008	StepStone Group
LaSalle Income & Growth VII	2/28/2017	LaSalle	Siguler Guff CCCERA Opps	6/3/2014	StepStone Group
Hearthstone II	6/17/1998	Hearthstone	Siguler Guff Secondary Opps	11/30/2016	StepStone Group
Long Wharf Fund IV	7/3/2013	Long Wharf	Siris Partners IV	3/15/2019	StepStone Group
Long Wharf Fund V	9/30/2016	Long Wharf	TPG Healthcare Partners, L.P.	6/28/2019	StepStone Group
Invesco Real Estate II	11/26/2007	Invesco	Trident VIII, L.P.	5/24/2019	StepStone Group
Invesco Real Estate III	6/30/2013	Invesco	Wastewater Opp. Fund	12/8/2015	StepStone Group

Other Disclosures

All data prior to 12/31/2014 was provided by previous consultant.

As of 7/1/2018 all Private Equity and Private Credit data is provided by StepStone Group.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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