

6.A.

Verus⁷⁷⁷



PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS



PERIOD ENDING: JUNE 30, 2019

Investment Performance Review for

Imperial County Employees' Retirement System

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Investment Landscape

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**PERSPECTIVES
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3RD QUARTER 2019
Investment Landscape

Recent Verus research

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

Annual outlooks

REAL ASSETS OUTLOOK

Inflation fears have been subdued in the market over the past year. Both core CPI and headline CPI have been declining over the past nine months and came in at 2.0% and 1.9%, respectively, in March. Over the past twelve months, core CPI has ranged between 2.0 and 2.3%, near the Fed's inflation target. At this stage of the market cycle, we view the risk of deflation from an economic slowdown to be of greater concern than unanticipated inflation.

Topics of interest

A PRACTICAL UNDERSTANDING OF LDI

For corporate pension plans, LDI can be an effective way to reduce the range of outcomes in funded status, which has particular appeal given the asymmetric trade-off associated with a declining funded status relative to a stronger funded status.

Our Topics of Interest paper aims to provide a practical introduction into these issues to assist plan sponsors in evaluating whether LDI makes sense for their organization.

LDI GLIDE PATH CREATION

Our latest Topics of Interest paper on LDI glide path creation seeks to explain the methodology and considerations of building a glide path for a pension plan. It addresses the following points:

- How much of the plan's allocation should be deployed in an LDI strategy?
- How do we align a glide path with the plan's objectives and financial constraints?
- How does the risk of our glide path differ based on changing objectives and financial constraints?

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2nd quarter summary

THE ECONOMIC CLIMATE

- U.S. real GDP expanded 3.2% YoY in Q1 (3.1% quarterly annualized rate). Year-over-year growth was the strongest since the second quarter of 2015. The U.S. Congressional Budget Office expects the U.S. economy to slow to a 2.1% pace in 2020, near the growth rate of other developed markets. [p. 7](#)
- Effective May 10th, U.S. tariff rates on \$200 billion in Chinese imports were hiked from 10% to 25%, and the Chinese responded with commensurate tariff rate hikes. In June, Presidents Trump and Xi met on the sidelines of the G20 summit in Osaka. The meeting yielded a “trade truce” in which both countries agreed to pause any additional tariffs. [p. 14](#)

PORTFOLIO IMPACTS

- Equity performance in Q2 appears to have been largely driven by higher prices, rather than improved earnings expectations. Estimated Q2 S&P 500 earnings worsened from -0.5% to -2.6% during this time. [p. 25](#)
- U.S. inflation remained stable at 2.1% YoY in June, excluding food & energy. Headline inflation rose 1.6% YoY, dragged down by falling energy prices. Core inflation has been range-bound over the past five years, fluctuating between 1.7% and 2.3%. Investors and consumers expect this trend to continue. [p. 9](#)

THE INVESTMENT CLIMATE

- The Federal Open Market Committee left the range for its benchmark interest rate unchanged at 2.25%-2.50% and reiterated that it would continue to act appropriately to sustain the expansion. Markets interpreted the press conference as confirmation of a 0.25% rate cut in July. [p. 18 & 19](#)
- European Central Bank President Mario Draghi issued dovish forward guidance, announcing that “additional stimulus” was on the table should the economic backdrop worsen, and inflation remain subdued. European and international developed sovereign yields have fallen along with U.S. yields. German 10-year bunds closed the month at new lows of -0.33%. [p. 18 & 19](#)

ASSET ALLOCATION ISSUES

- Risk assets delivered strong returns over the quarter. Global Equities gained +3.6% and U.S. high yield gained +2.5%. Longer duration exposures generally outperformed as interest rates fell. [p. 41](#)
- U.S. equity prices have continued to rise on expectations of nearly three interest rate cuts in 2019 and perhaps an assumption that U.S. earnings exceptionalism will extend into the future. If domestic conditions converge with other developed economies and these expectations turn out to be overly optimistic, we believe U.S. equities may possess greater downside risk. [p. 26](#)

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

What drove the market in Q2?

"US-China trade truce leaves markets with big questions"

U.S. SOYBEAN EXPORTS TO CHINA (METRIC TONS) (000s)

Jan	Feb	Mar	Apr	May	Jun
133	3,217	1,256	719	1,219	1,670

Article Source: CNN, July 1st, 2019

"Bond-Yield Plunge Confounds the World's Economy"

VALUE OF GLOBAL NEGATIVE-YIELDING DEBT (USD TRILLIONS)

Jan	Feb	Mar	Apr	May	Jun
8.85	8.81	10.40	10.03	11.27	12.92

Article Source: Wall Street Journal, June 23rd, 2019

"Fed holds rates steady, but opens the door for a rate cut in the future"

FUTURES IMPLIED PROBABILITY (%) OF CUTTING RATES BY JULY

Jan	Feb	Mar	Apr	May	Jun
7.1	5.4	23.6	31.9	47.8	100.0

Article Source: CNBC, June 19th, 2019

"Draghi Sees Prospect of More ECB Stimulus Amid Weak Inflation"

EUROZONE CONSUMER PRICE INFLATION (YoY %)

Jan	Feb	Mar	Apr	May	Jun
1.4	1.5	1.4	1.7	1.2	1.3

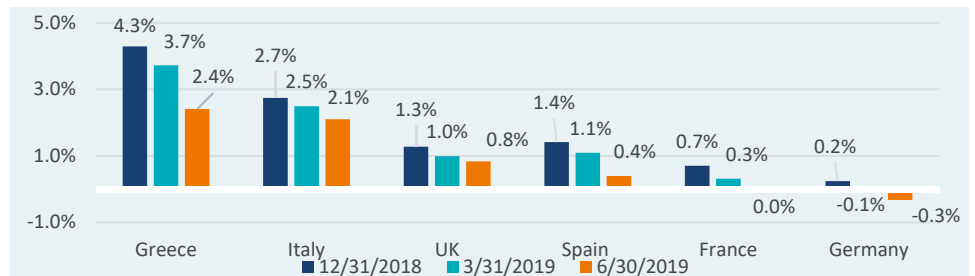
Article Source: Bloomberg, June 18th, 2019

RELATIVE EQUITY MARKET PERFORMANCE (CHINA VS. U.S.)



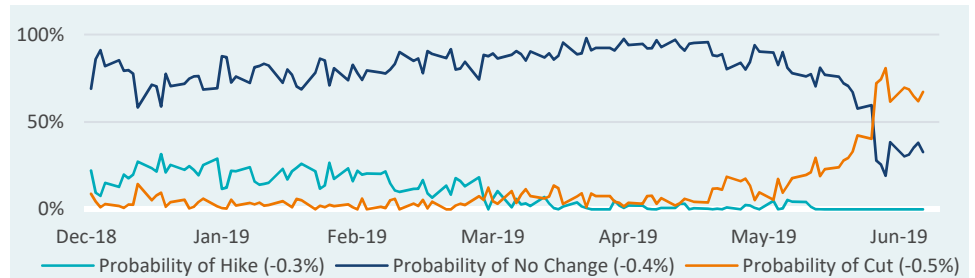
Source: Bloomberg, as of 6/30/19

TEN-YEAR EUROPEAN SOVEREIGN YIELDS



Source: Bloomberg, as of 6/30/19

PROBABILITY OF THE ECB CUTTING ITS MAIN RATE BY SEPTEMBER



Source: Bloomberg, as of 6/30/19

Economic environment

U.S. economics summary

- U.S. real GDP expanded 3.2% YoY in Q1 (3.1% quarterly annualized rate). Year-over-year growth was the strongest since the second quarter of 2015.
- The U.S. economy is expected to slow to a 2.1% pace in 2020, near the growth rate of other developed markets, as indicated by the U.S. Congressional Budget Office.
- U.S.-China trade remained central to headlines over the quarter. Effective May 10th, U.S. tariff rates on \$200 billion in Chinese imports were hiked from 10% to 25%, and the Chinese responded with commensurate tariff increases. In June, Presidents Trump and Xi met on the sidelines of the G20 summit in Osaka. The meeting yielded a “trade truce” in which both countries agreed to pause any additional tariff rate hikes.
- Headline CPI inflation fell from a YoY rate of 1.9% in March to 1.6% in June. PCE inflation, the Fed’s preferred inflation gauge, ticked up from a YoY rate of 1.5% at the end of the 1st quarter to 1.6% in May.
- Average hourly earnings grew 3.1% YoY in June, below expectations of 3.2%. The average non-farm private workweek fell slightly from 34.5 hours per week to 34.4.
- The labor market continued to show strength in Q2. The U-3 unemployment rate touched 50-year lows at 3.6% in May and ended the quarter in June at 3.7%.
- The Federal Open Market Committee messaged that it would continue to “act as appropriate to sustain the expansion”, which markets viewed as dovish. Over the quarter, expectations for additional 2019 rate cuts moved from a 64% chance of a 0.25% cut to a 61% chance of 0.75% in cuts.

	Most Recent	12 Months Prior
GDP (YoY)	3.2% 3/31/19	2.6% 3/31/18
Inflation (CPI YoY, Core)	2.1% 6/30/19	2.2% 6/30/18
Expected Inflation (5yr-5yr forward)	1.9% 6/30/19	2.2% 6/30/18
Fed Funds Target Range	2.25 – 2.50% 6/30/19	1.75 – 2.00% 6/30/18
10 Year Rate	2.0% 6/30/19	2.9% 6/30/18
U-3 Unemployment	3.7% 6/30/19	4.0% 6/30/18
U-6 Unemployment	7.2% 6/30/19	7.8% 6/30/18

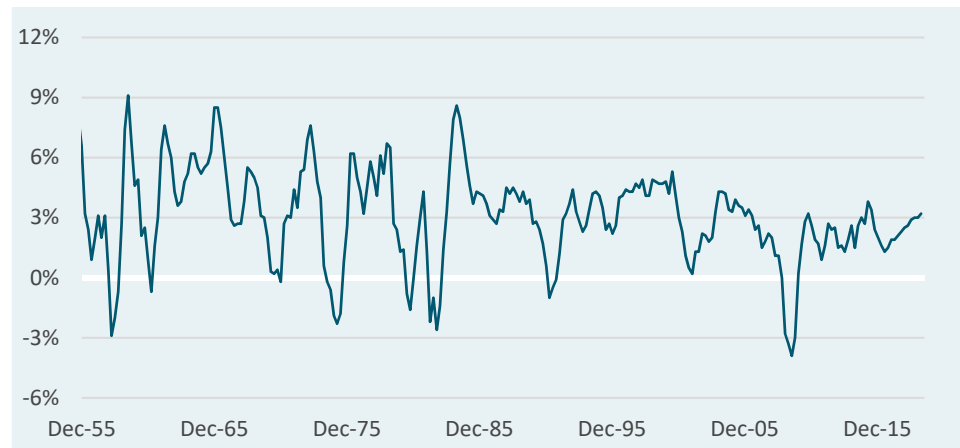
GDP growth

Real GDP grew at an annualized quarterly rate of 3.1% in the first quarter, ahead of analysts' estimates for a 2.3% expansion. Inventory builds and net exports, which tend to be more volatile components of GDP, contributed 1.7% to the print, their most significant addition since 2013. Corporate inventory builds added 0.6% to the overall 3.1% GDP print, a contribution which ranked in the 74th percentile over the past five years. Looking ahead, trade balance volatility may persist as firms around the globe adjust to evolving international trade policies.

U.S. economic growth appears to face many of the same headwinds. The lack of a definitive trade resolution between the U.S. and China, supply chain disruptions caused by new tariff impositions, and the upside limitations of an unemployment rate near 50-year lows may dampen growth prospects for the second quarter. On June 28th, the Federal Reserve Bank of Atlanta GDPNow forecast indicated annualized quarterly GDP growth of 1.5% in the second quarter. This forecast suggests consumer expenditures will provide the greatest contribution of 2.5% to overall growth.

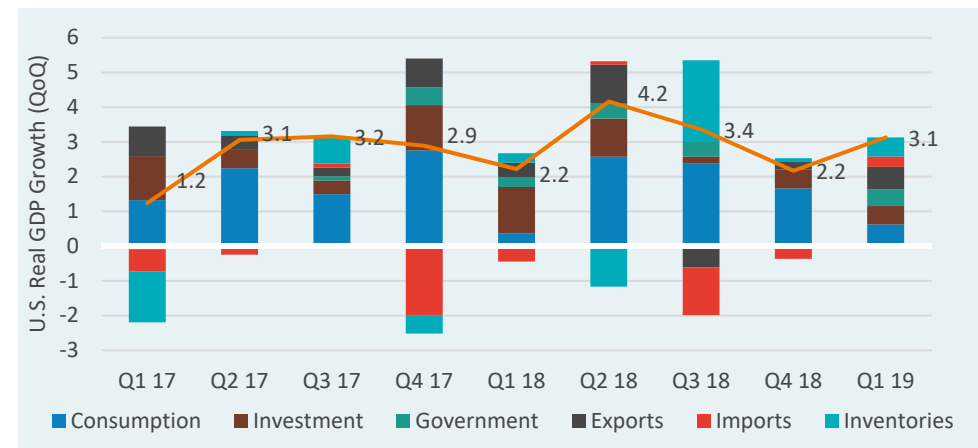
The U.S. economy is expected to slow to 2.1% in 2020, near the growth rate of the developed world

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 3/31/19

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 3/31/19

Inflation

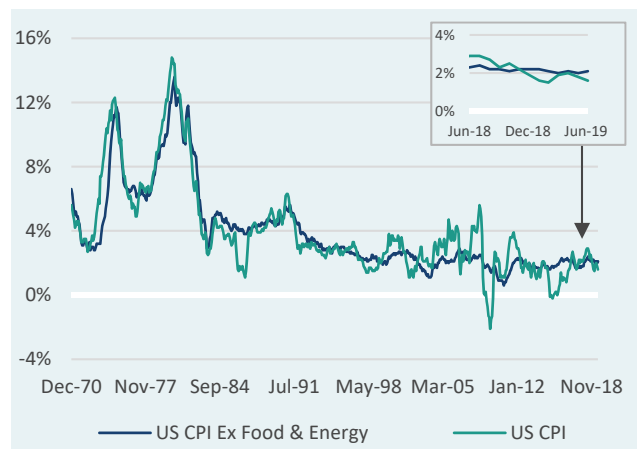
U.S. core inflation (ex-food & energy) remained stable at 2.1% YoY in June. Headline inflation rose 1.6% YoY, dragged down by falling energy prices year-over-year. Core inflation has been range-bound over the past five years, fluctuating between 1.7% and 2.3%. Investors and consumers generally expect this trend to continue, as indicated by market pricing and consumer surveys.

The market is pricing inflation to fall over the next five years (as indicated by U.S. TIPS 5-year breakeven rate of 1.5%) and

is pricing inflation to stay lower for longer (U.S. TIPS 10-year breakeven rate of 1.7%).

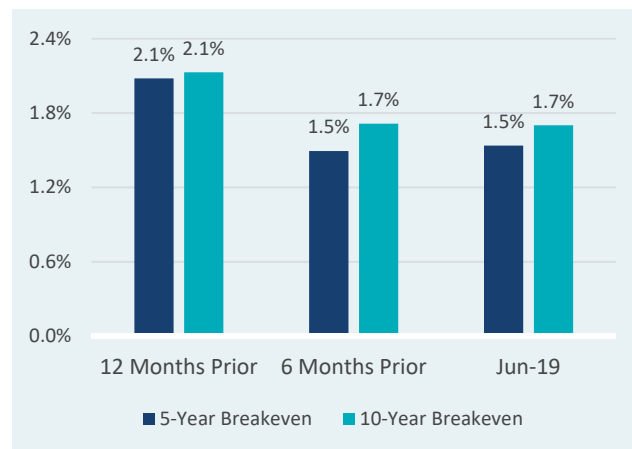
We believe subdued inflation of around 2% has been, and will be, a key influence on Federal Reserve policy. Lower inflation provides the Fed with more legroom for easier positioning to support economic growth and strong employment. If the inflation trend were to shift in either direction, this may put Fed officials in a more tenuous position. We will be watching inflation trends closely.

U.S. CPI (YOY)



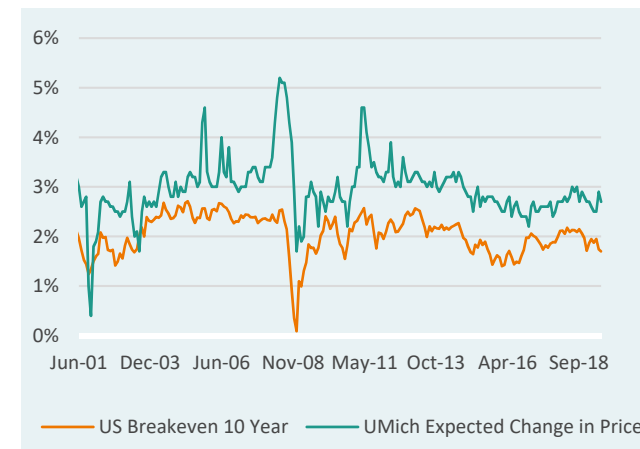
Source: Bloomberg, as of 6/30/19

U.S. BREAKEVEN INFLATION RATES



Source: FRED, as of 6/30/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 6/30/19

Labor market

The U.S. labor market remains tight. Unemployment during the quarter reached a level of strength not seen since 1969. Nonfarm payrolls expanded by 224,000 in June, well above the consensus estimate of 160,000. The number of U.S. job openings now exceed the number of jobs available.

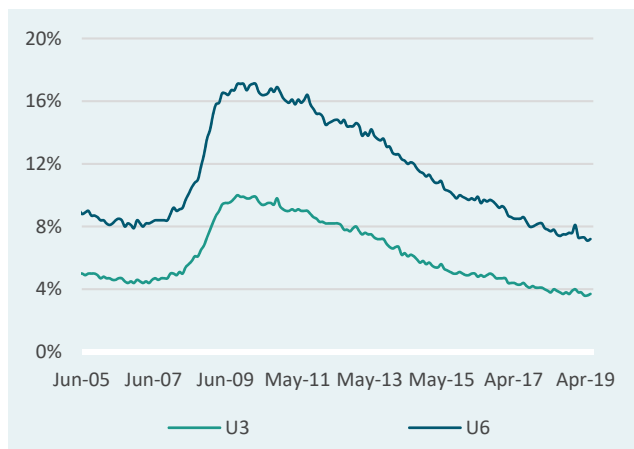
The U.S. unemployment rate was 3.7% in June, according to the narrower U-3 measure which only encompasses those workers seeking a job. The broader U-6 unemployment rate was 7.2%, which also includes discouraged and part-time workers who seek full-time employment.

Given the relatively limited number of unemployed persons and the high percentage of companies reporting that jobs are hard to fill, we believe it may be difficult for job growth to continue at its recent pace.

Wages have grown modestly but have slowed year-to-date. Weak wage growth limits the spending power of consumers, but also reduces the risk of corporate margin deterioration and may limit general price inflation. In June, average hourly earnings rose 3.1% year-over-year.

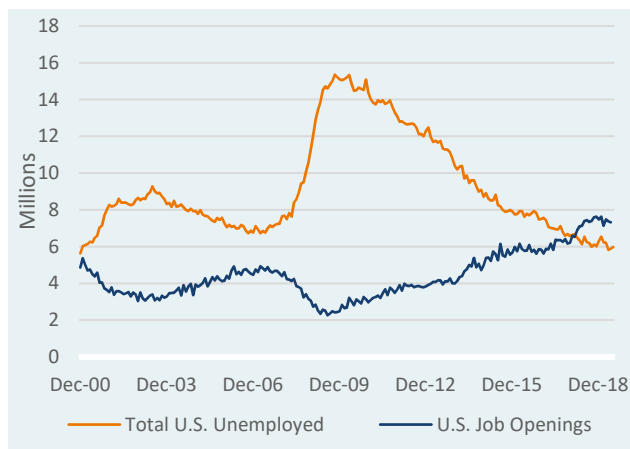
U.S. labor market remains strong, though further upside may be limited

U.S. UNEMPLOYMENT



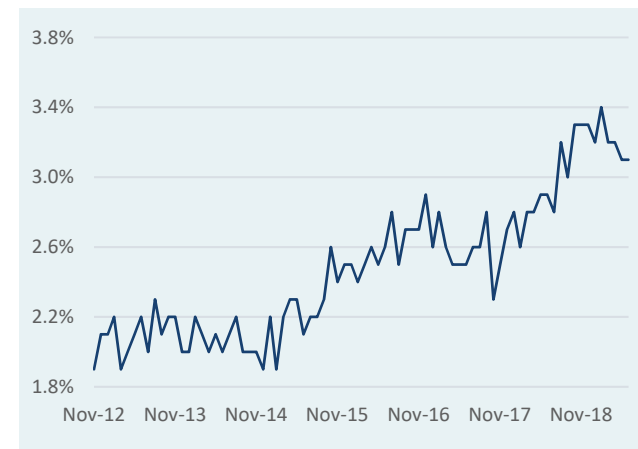
Source: FRED, as of 6/30/19

U.S. JOB OPENINGS VS. UNEMPLOYED



Source: Bloomberg, as 6/30/19

U.S. WAGE GROWTH



Source: FRED, as of 6/30/19

The consumer

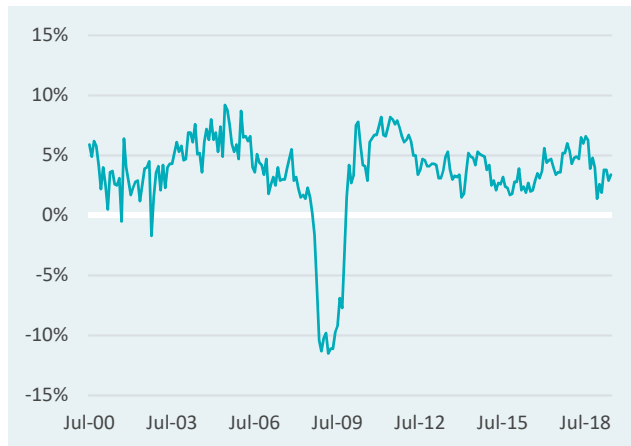
Headline retail sales grew 3.4% from the prior year in June. Core retail sales, which exclude spending on automobiles, gasoline, building materials, and food services, grew at a strong pace of 4.6% from the prior year. Typically, core retail sales correspond most closely with the consumer expenditures component of the quarterly GDP calculation.

U.S. personal incomes grew at a YoY rate of 4.1% in May, up from 3.5% at the end of the first quarter. Personal consumption expenditures grew at a YoY rate of 4.2% in May, slightly lower than the pace of 4.4% at the end of Q1. Benign

inflation, improving real wages, and consumers' perceptions of a strong labor market have all likely played a key role in the resilience of consumer spending patterns as of late.

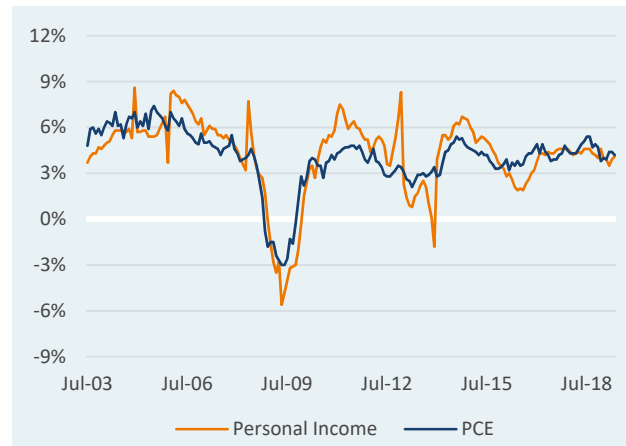
Consumer credit growth has remained tempered over the expansion, but the composition of that credit has shifted. Over the past ten years, student loans have increased their share while mortgage debt has decreased its share.

REAL RETAIL SALES GROWTH (YOY)



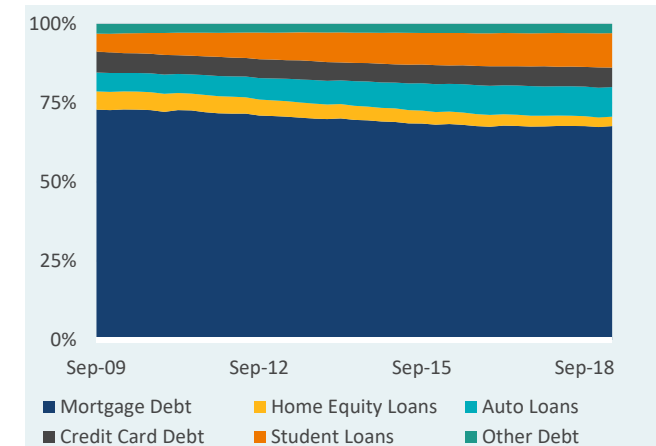
Source: Bloomberg, as of 6/30/19

PERSONAL INCOME AND NOMINAL PERSONAL CONSUMPTION EXPENDITURES (YOY)



Source: Bloomberg, as of 5/31/19

SHARE OF CONSUMER CREDIT OUTSTANDING



Source: Federal Reserve Bank of NY, Bloomberg as of 6/30/19

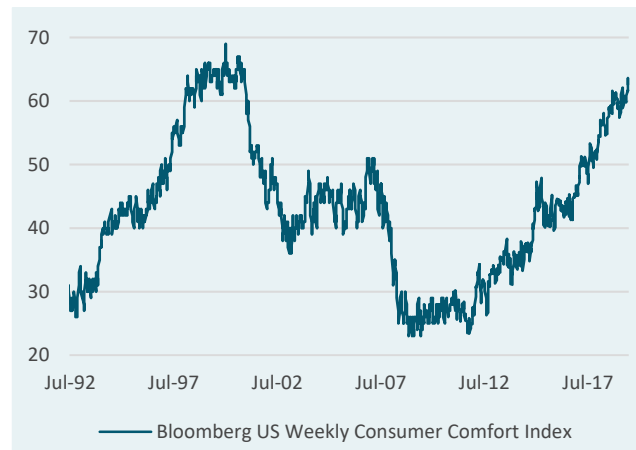
Sentiment

Consumer sentiment indicators were mixed over the quarter but remain very strong relative to history. In May, the University of Michigan Consumer Sentiment Index registered its highest reading since September 2018 at 100.0 but ended the quarter at 98.2, slightly below its March reading. According to the University of Michigan, consumers were concerned about the impact of ongoing trade tensions on the economic outlook and a moderating job market.

The Bloomberg Consumer Comfort Index rose from 58.9 to 62.6 over the quarter, remaining at cycle highs.

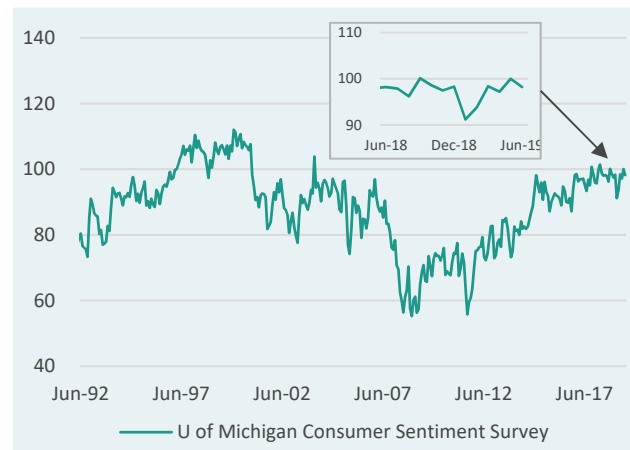
The Conference Board's Consumer Confidence Index advanced in April and May before falling at quarter-end. In June, the indicator fell from 131.3 to 121.5, below expectations for a slight dip to 131.0. While the index remained at a high level, consumers were less optimistic about the current economic climate and the near-term future. The percentage of consumers expecting business conditions to improve in the next six months fell from 21.4% to 18.1% and the percentage expecting conditions to worsen rose from 8.8% to 13.1%.

CONSUMER COMFORT INDEX



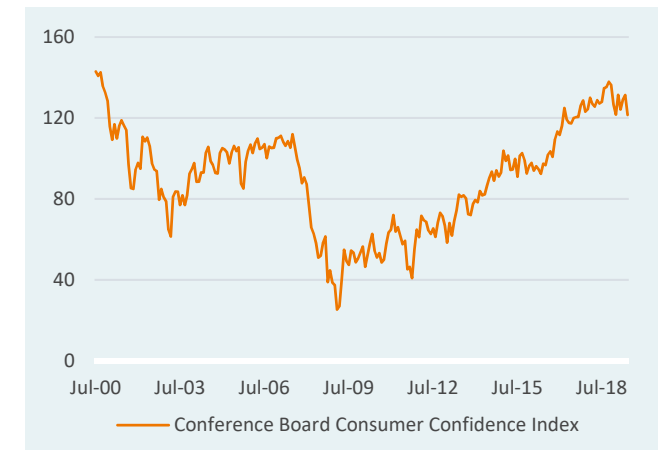
Source: Bloomberg, as of 6/30/19 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 6/30/19 (see Appendix)

CONSUMER CONFIDENCE



Source: Conference Board, as of 6/30/19 (see Appendix)

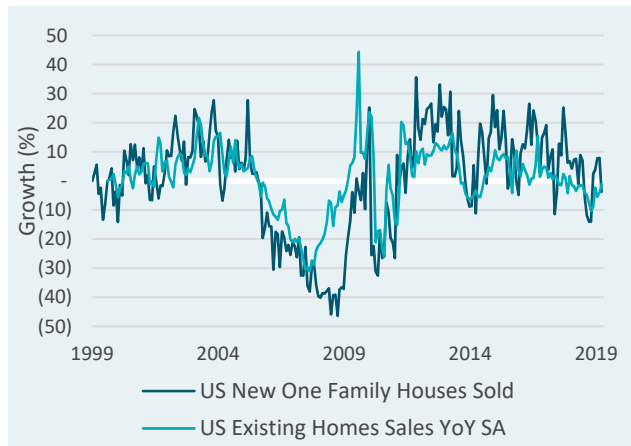
Housing

Some weakness has appeared in the U.S. housing market. U.S. home sales appear to have peaked in late 2017 and have continued to fall, declining -1.1% YoY in May. Higher prices have damaged affordability, and rising interest rates through the end of 2018 likely contributed to weaker purchase activity. On the other hand, the notable shift of the Federal Reserve from rate hikes to rate cuts, and the subsequent drop in interest rates and therefore mortgage rates, may help reignite buying activity.

Housing starts in May were down -4.7% from one year prior, while building permits fell -0.5%. Slowing home construction activity may reflect affordability issues and/or falling homebuilder optimism.

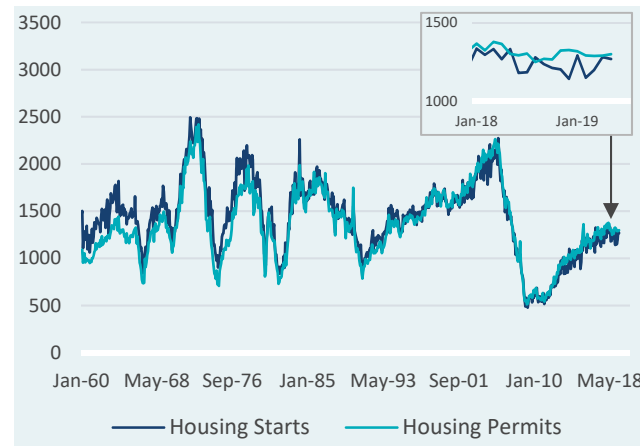
Home prices have fallen slightly. The median U.S. home sale price was down -3% year-over-year as of May. Home price trends can vary significantly by location, which means national statistics are sometimes difficult to interpret at a local level.

U.S. HOME SALES (YOY)



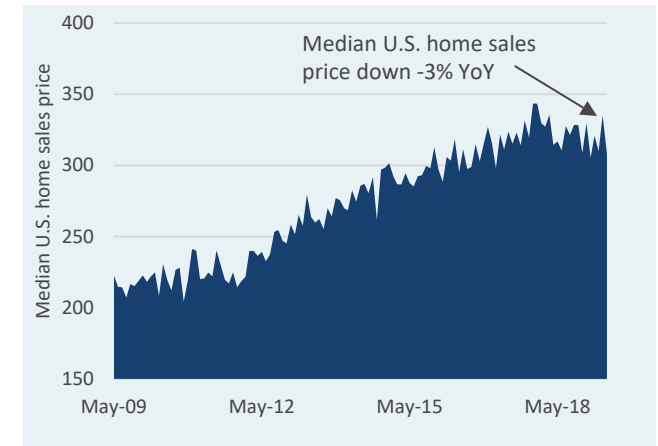
Source: FRED, as of 5/31/19

HOUSING STARTS & PERMITS



Source: Bloomberg, NAHB, as of 5/31/19 (see appendix)

MEDIAN U.S. HOME SALES PRICE



Source: FRED, as of 5/31/19

International economics summary

- U.S.-China trade remained central to headlines over the quarter. Effective May 10th, U.S. tariff rates on \$200 billion in Chinese imports were hiked from 10% to 25%, and the Chinese responded with commensurate tariff rate hikes. In June, Presidents Trump and Xi met on the sidelines of the G20 summit in Osaka. The meeting yielded a “trade truce” in which both countries agreed to pause any additional tariff rate hikes.
- The U.K. Prime Minister Theresa May announced her resignation effective June 7th. In July, Boris Johnson defeated Jeremy Hunt and will replace Theresa May as Britain’s next prime minister. Mr. Johnson has taken a harder line on Brexit than Mr. Hunt, and his election likely increases the probability that the U.K. exits the E.U. without a deal.
- President Trump called off prospective 5% tariffs on Mexican imports after the two countries signed an immigration deal aimed at reducing illegal border crossings. The deal expanded the Migrant Protection Protocols program, which requires asylum-seekers to wait on the Mexican side of the border while their cases are reviewed.
- Chinese GDP growth slowed 0.2% to 6.2% YoY in the second quarter, its slowest rate in 27 years. On a brighter note, YoY growth in industrial production and retail sales both surprised to the upside, supporting the view that Beijing’s countercyclical easing measures have proven effective.
- The Citi Global Economic Surprise Index fell from -18.8 to -27.7 in June, registering its 15th consecutive month in negative territory.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.2% 3/31/19	1.6% 6/30/19	3.7% 6/30/19
Eurozone	1.2% 3/31/19	1.1% 5/31/19	7.5% 5/31/19
Japan	0.9% 3/31/19	0.7% 5/31/19	2.4% 5/31/19
BRICS Nations	5.2% 3/31/19	2.4% 3/31/19	5.2% 3/31/19
Brazil	1.4% 3/31/19	3.4% 6/30/19	12.4% 6/30/19
Russia	2.7% 12/31/18	4.7% 6/30/19	4.5% 5/31/19
India	7.2% 12/31/18	3.2% 6/30/19	8.5% 12/31/17
China	6.4% 3/31/19	2.7% 6/30/19	3.7% 3/31/19

International economics

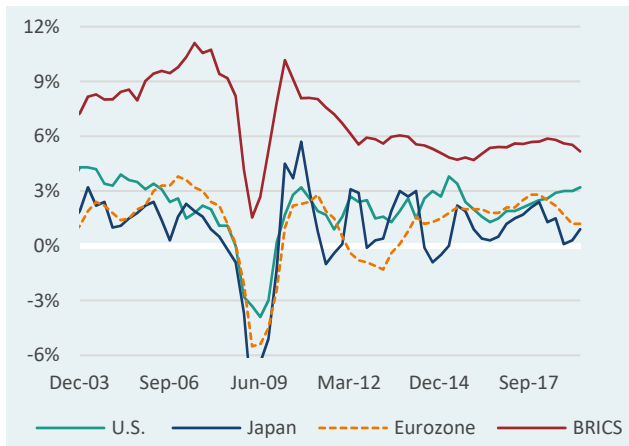
Developed countries are generally exhibiting growth rates between 1-2% YoY. The U.S. remains an exception, at a 3.2% pace, though the domestic economy is forecast to slow to around 2.1% in 2020 as government stimulus fades. Economists expect global growth of 3.3% in both 2019 and 2020, according to Bloomberg.

Inflation remains stable and subdued in developed economies, at or below 2%. Emerging economies have also exhibited lower than average inflation – a 2.4% rate across the BRICS nations. Employment continues to improve in most

markets, though the rate of job gains in some economies appears to be slowing.

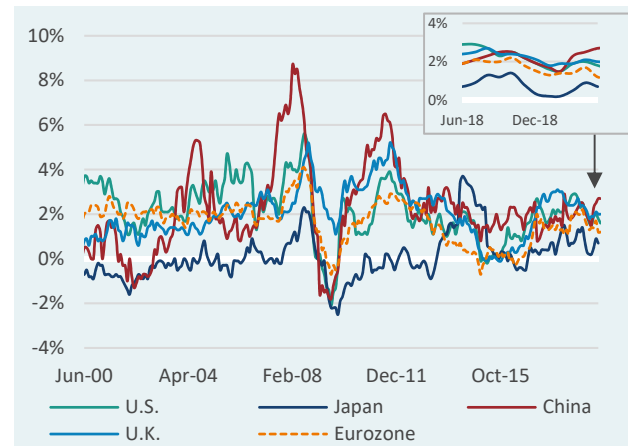
The U.K. Prime Minister Theresa May announced her resignation effective June 7th. In July, Boris Johnson defeated Jeremy Hunt and will replace Theresa May as Britain's next prime minister. Mr. Johnson has taken a harder line on Brexit than Mr. Hunt, and his election likely increases the probability that the U.K. exits the E.U. without a deal.

REAL GDP GROWTH (YOY)



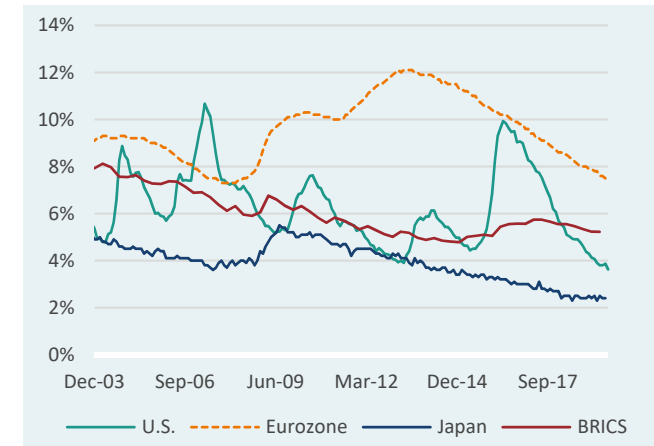
Source: Bloomberg, as of 3/31/19

INFLATION (CPI YOY)



Source: Bloomberg, as of 6/30/19

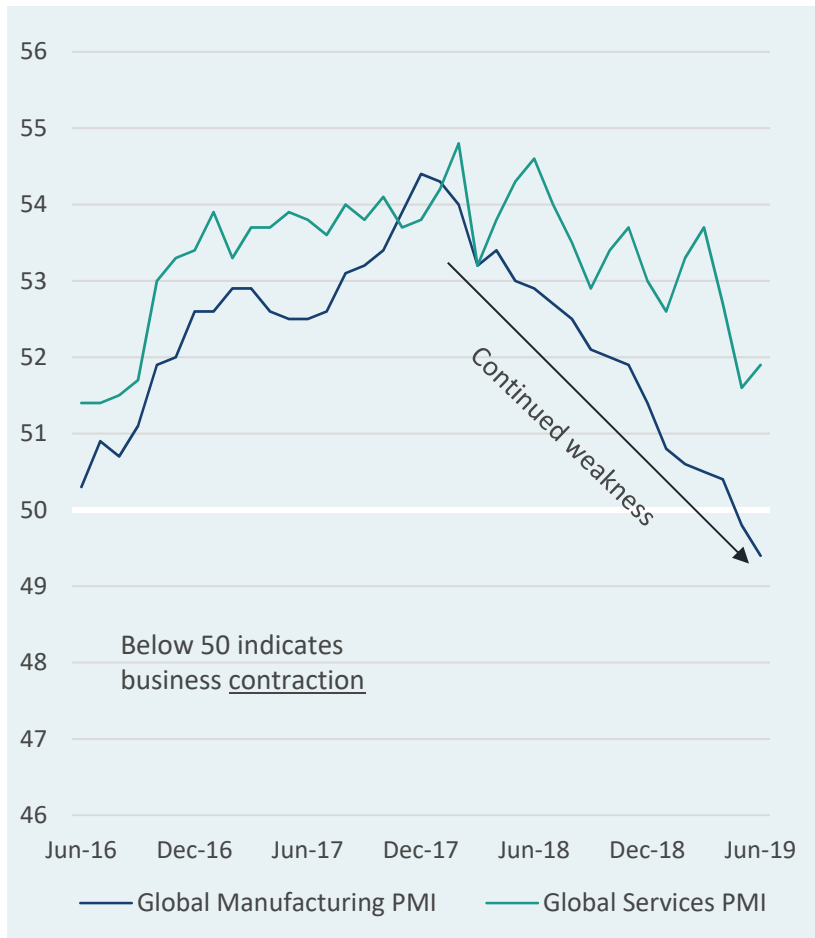
UNEMPLOYMENT RATE



Source: Bloomberg, as of 6/30/19 or most recent release

Global PMI

GLOBAL PMI



Source: JPMorgan, as of 6/30/19

- The PMI business surveys attempt to gauge business sentiment and conditions around the world.
- Surveys have indicated weakening since late 2017 and resumed their decline in the second quarter.
- The Global Manufacturing PMI fell from 50.5 in March to 49.4 in June, below the neutral level of 50.0 that separates expansion from contraction. The stickier Services PMI, which is less cyclical in nature than the Manufacturing PMI, fell from 53.7 to 51.9 over Q2.
- Developed economy Manufacturing PMI readings (48.9) have weakened materially over the past year and are now below emerging economy readings (49.9). Services PMI readings remain similar for developed and emerging economies at 52.0 and 51.5, respectively.
- Surveys remain above levels that might indicate recession.

Fixed income rates & credit

Interest rate environment

— The Federal Open Market Committee left the range for its benchmark interest rate unchanged at 2.25%-2.50% and reiterated that it would continue to act appropriately to sustain the expansion. Markets viewed the Fed's press conference as successful in setting expectations for a 0.25% rate cut in July.

— The fed funds futures market now implies 2 or even 3 rate cuts (0.50% to 0.75% total cuts) as likely by the end of 2019. The market's expectation of three rate cuts seems aggressive, and we worry about possible downside to risk markets if the Fed does not deliver on these expectations.

— U.S. Treasury yields continued to push lower following the messaging from the Federal Reserve. The 10-year U.S. Treasury yield finished the quarter at 2.00%, down from 3.14% in Q4 2018.

— European Central Bank President

Mario Draghi announced "additional stimulus" was on the table should the economic backdrop worsen and inflation remain subdued. Over the month, the likelihood that the ECB would cut its main deposit rate from -0.40% to -0.50% by its September meeting rose from 18% to 67%, as indicated by market pricing.

— European and international developed sovereign yields have fallen along with U.S. yields. German 10-year bunds closed the month at new lows of -0.33%.

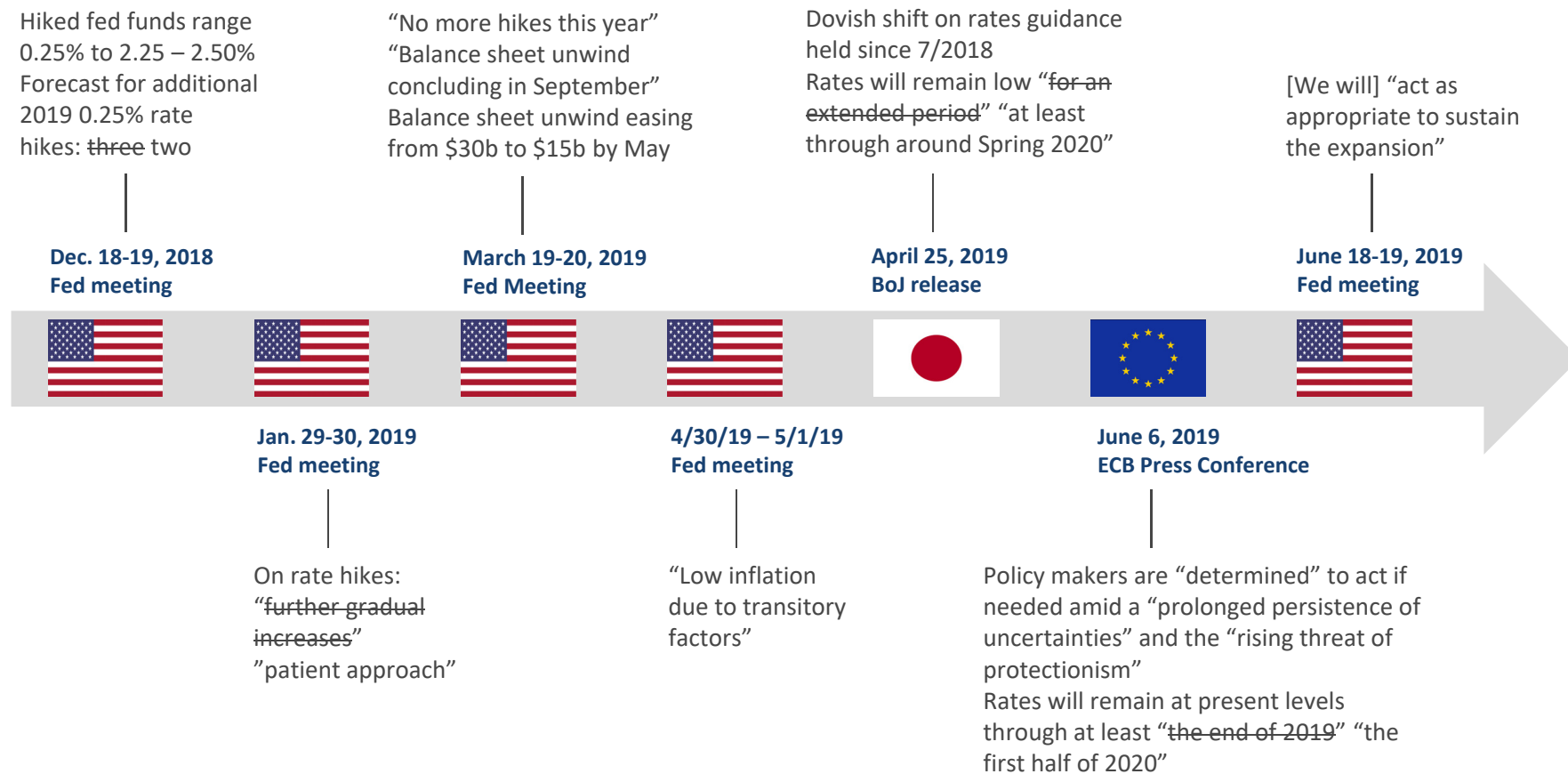
— High yield bond spreads tightened alongside equities as the asset class was positively impacted by Federal Reserve dovishness. Anticipation of easier interest rate policies, which could potentially lengthen the credit cycle, has strengthened sentiment for risk assets.

— Emerging market bonds delivered outsized returns in Q2. The JPM GBI-EM Index returned +5.6% and the JPM EMBI Index returned +4.1%.

Area	Short Term (3M)	10-Year
United States	2.09%	2.00%
Germany	(0.57%)	(0.33%)
France	(0.55%)	(0.01%)
Spain	(0.47%)	0.39%
Italy	(0.14%)	2.10%
Greece	0.99%	2.41%
U.K.	0.78%	0.83%
Japan	(0.08%)	(0.17%)
Australia	1.43%	1.32%
China	2.25%	3.21%
Brazil	6.24%	7.44%
Russia	8.03%	8.26%

Source: Bloomberg, as of 6/30/19

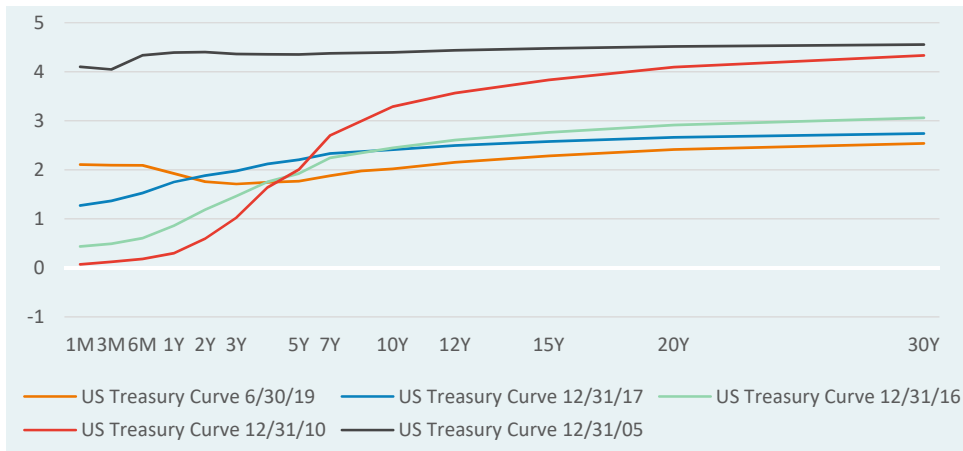
Central bank reversal



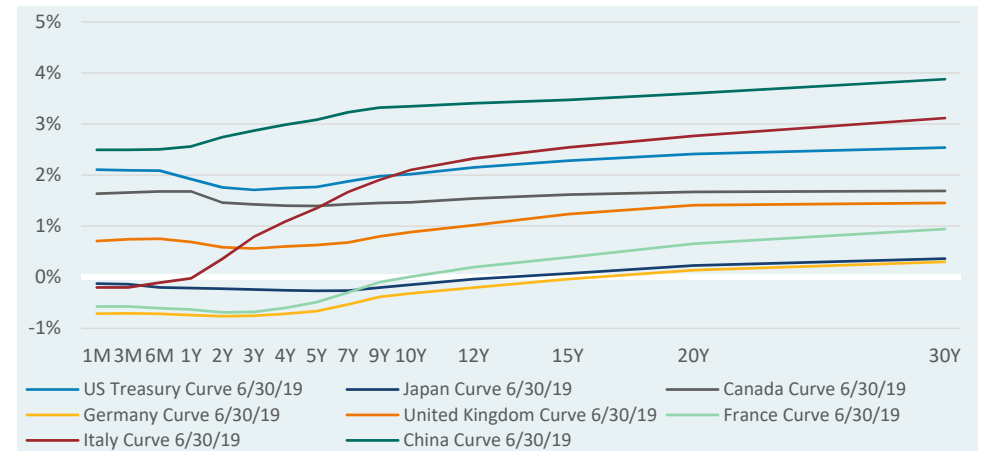
Source: Wikimedia Commons

Yield environment

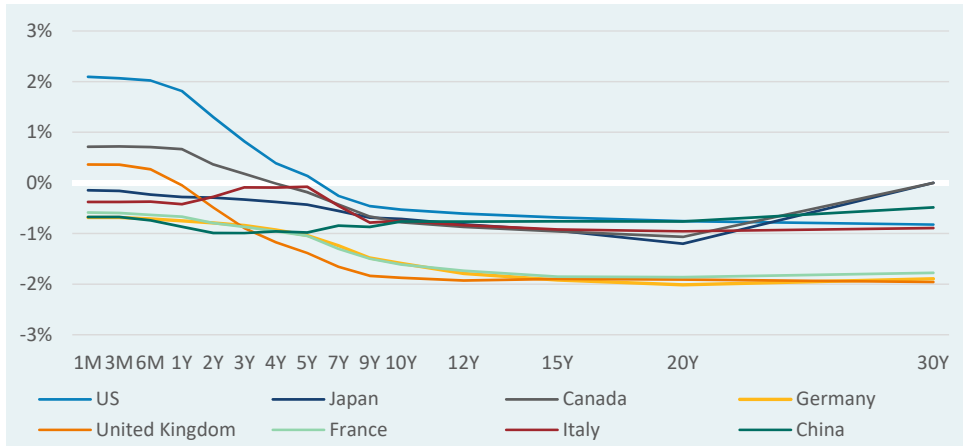
U.S. YIELD CURVE



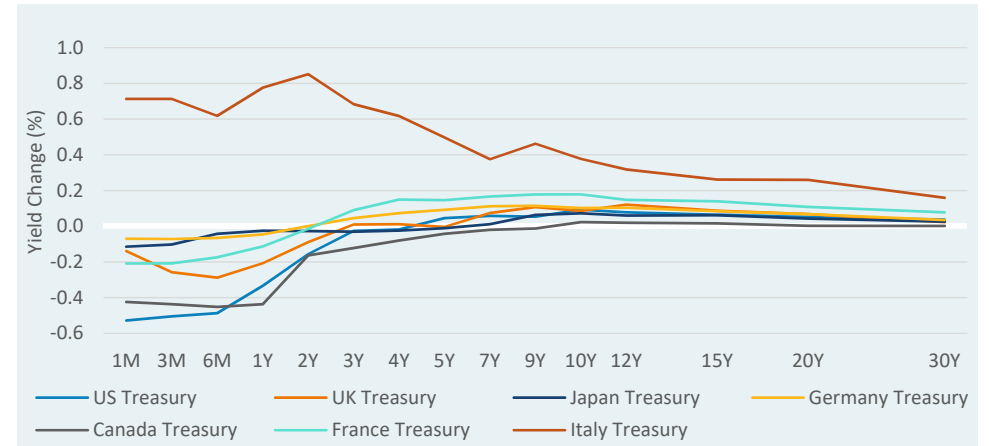
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



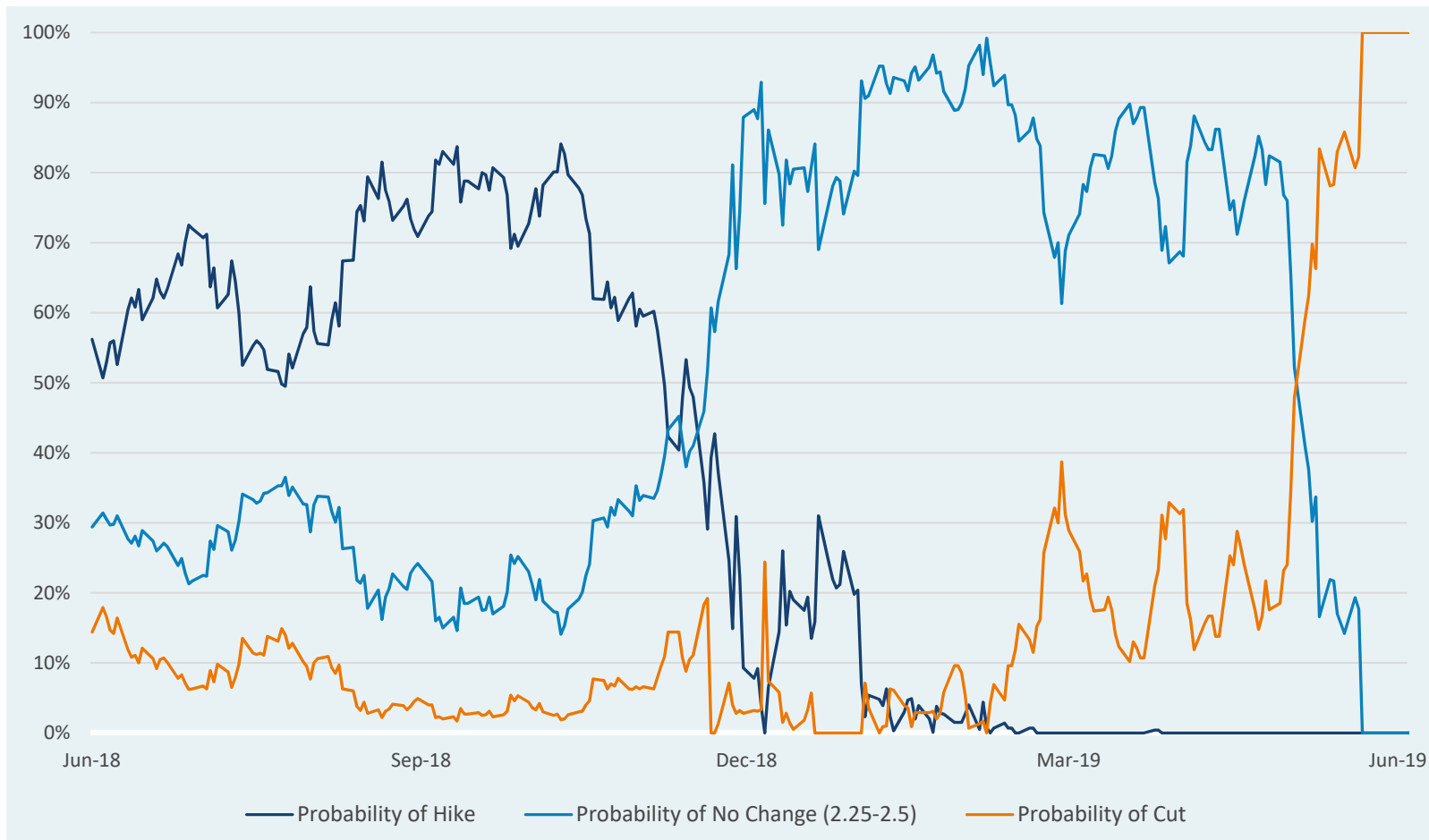
IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 6/30/19

July Fed meeting

FUTURES IMPLIED PROBABILITIES FOR JULY FED RATE DECISION



In April and May, dovish guidance from global central banks made its way into fed funds futures pricing

In June, the Fed pledged to “act appropriately to sustain the expansion” and a 0.25% cut became 100% priced in July

Source: Bloomberg, as of 6/30/19

Credit environment

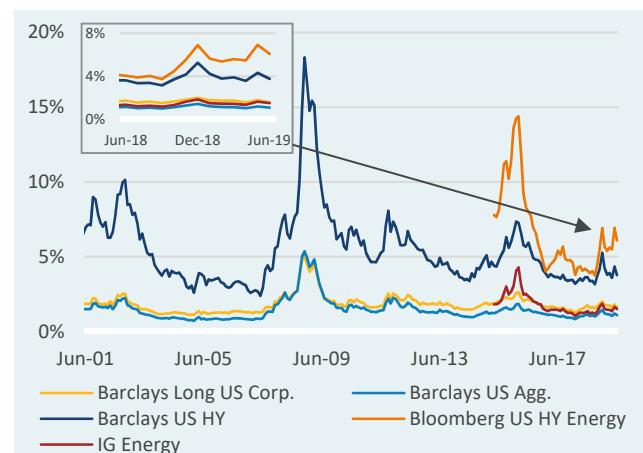
High yield bond spreads tightened alongside equities as the asset class was positively impacted by Federal Reserve dovishness. Anticipation of easier interest rate policies, which could potentially lengthen the credit cycle, has strengthened sentiment for risk assets. BB-rated bonds outperformed both CCC- and B-rated bonds in the second quarter. High yield bonds have returned +9.9% YTD, outperforming investment grade credit (+9.4%) and bank loans (+5.7%).

Bank loan prices continued to decline as demand for the asset class was impacted by a pause in the Fed's hiking cycle and uncertainty surrounding future moves from the Fed. Loan funds

have reported their ninth consecutive monthly outflow in June, totaling over \$40 billion in total. Bank loans have returned +0.3% YTD, underperforming both high yield and investment grade bonds.

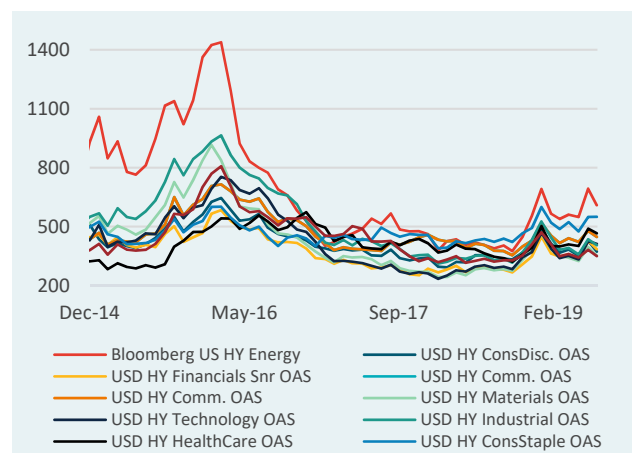
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with a jump in credit spreads and steep credit losses. An underweight to U.S. investment grade, high yield credit, and bank loans may be warranted. Within credit, higher quality and more liquid assets appear most attractive.

SPREADS



Source: Barclays, Bloomberg, as of 6/30/19

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 6/30/19

Market	Credit Spread (OAS)	
	6/30/19	6/30/18
Long U.S. Corp	1.6%	1.8%
U.S. Agg Corp	1.1%	1.2%
U.S. High Yield	3.8%	3.6%
U.S. Bank Loans*	4.4%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 6/30/19

*Discount margin (4-year life)

Default & issuance

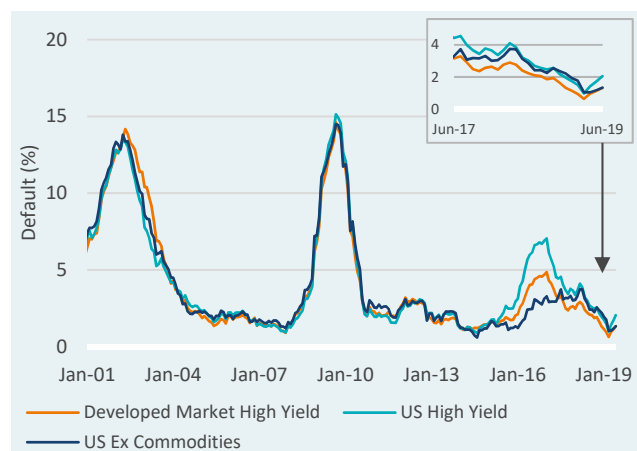
Default activity has been low and stable in the U.S. credit market, despite price volatility. The par-weighted default rate for high yield increased to 1.5% but remains below its long-term average range of 3.0-3.5%. For loans, the par-weighted default rate at the end of the second quarter was 1.3% and remains below the long-term average of 3.1%, according to data from J.P. Morgan. Consumer, retail, telecom, and utilities sectors have been more prone to defaults.

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.

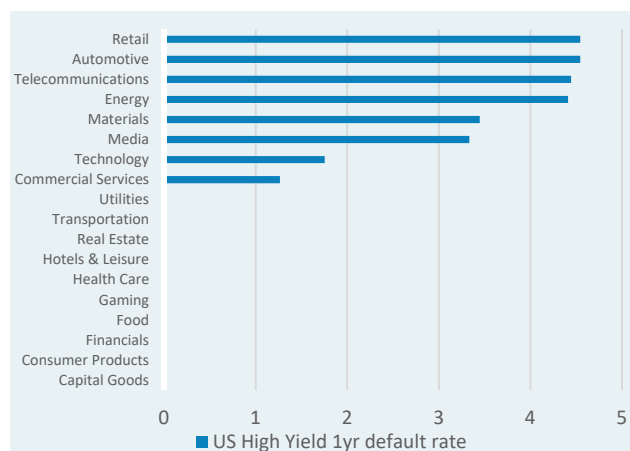
Gross high yield issue activity increased in June as investors took advantage of a dip in yields. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening.

HY DEFAULT RATE (ROLLING 1-YEAR)



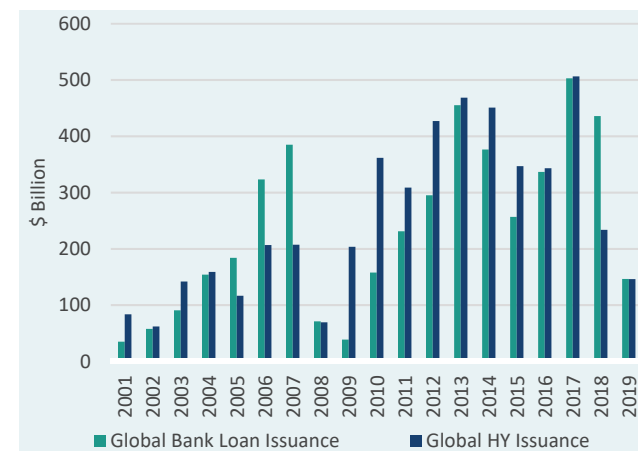
Source: BofA Merrill Lynch, as of 6/30/19

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



Source: BofA Merrill Lynch, as of 6/30/19 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 6/30/19

Equity

Equity environment

- The Russell 1000 Index slightly outperformed international developed equities in Q2, gaining +4.2% while the MSCI EAFE Index gained +3.7%. Perceptions of an accommodative Federal Reserve and views that U.S.-China relations are on a productive track likely impacted price movement.
- Equity performance in Q2 appears to have been largely driven by higher prices, rather than improved earnings expectations. The valuation expansion of equity markets (U.S., international developed, emerging markets) aligned with performance over the quarter.
- According to FactSet, estimated Q2 S&P 500 YoY earnings worsened from -0.5% to -2.6% in Q2. Nine of eleven sectors saw downward revisions to EPS estimates. Further negative revisions will likely act as a headwind to equity performance.
- Currency movement had a material positive impact on unhedged exposure to the U.K. (+3.1%) and Japan (+2.3%) over the quarter, though currency movement had a negligible impact on overall international equity performance (MSCI EAFE). Unhedged currency movement on a 1-year basis has had a substantially negative effect on investors' performance.
- The J.P. Morgan Emerging Market Currency Index gained +0.5% in the second quarter, stabilizing after a downward trend since 2018.
- Size and value factors continued to underperform. Small-cap equities lagged large-cap by -2.1% during the quarter and -13.3% over the past year (Russell 2000 vs. Russell 1000). Value equities underperformed growth by -0.8% over the quarter and by -3.1% over the past year (Russell 1000 Value vs Russell 1000 Growth).

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	4.2%		10.0%	
US Small Cap (Russell 2000)	2.1%		(3.3%)	
US Large Value (Russell 1000 Value)	3.8%		8.5%	
US Large Growth (Russell 1000 Growth)	4.6%		11.6%	
International Large (MSCI EAFE)	3.7%	3.5%	1.1%	4.8%
Eurozone (Euro Stoxx 50)	6.2%	6.4%	0.4%	8.6%
U.K. (FTSE 100)	4.0%	0.9%	(2.3%)	3.7%
Japan (NIKKEI 225)	3.1%	0.8%	0.1%	(2.6%)
Emerging Markets (MSCI Emerging Markets)	0.6%	0.1%	1.2%	1.7%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 6/30/19

Domestic equity

U.S. equities outperformed in the second quarter following a strong rebound in the first quarter. The S&P 500 Index delivered a total return of 4.3%, bringing its first-half return to 18.5%. Perceptions of an accommodative Federal Reserve and views that U.S-China relations were on a productive track likely impacted price movement.

Over the last decade, U.S. equities have led global equity indices, which is not typically the case. In prior periods, U.S. equities have ranked from slightly below average to slightly above average among regional indices. Furthermore, a

portion of U.S. equity outperformance has been due to a move towards high prices, which will most likely negatively impact future performance.

A number of secular trends have helped create a supportive environment for U.S. stocks. Technological advances, falling interest rates and therefore costs of corporate borrowing, and lower corporate tax rates have all helped to boost profit margins to all-time-highs. As expectations moderate, these margins may be increasingly scrutinized by investors.

U.S. EQUITIES



Source: Standard & Poors, as of 6/30/19

SECULAR TRENDS SUPPORTING MARGINS



Source: FRED, BLS, Bloomberg, Verus, as of 6/30/19

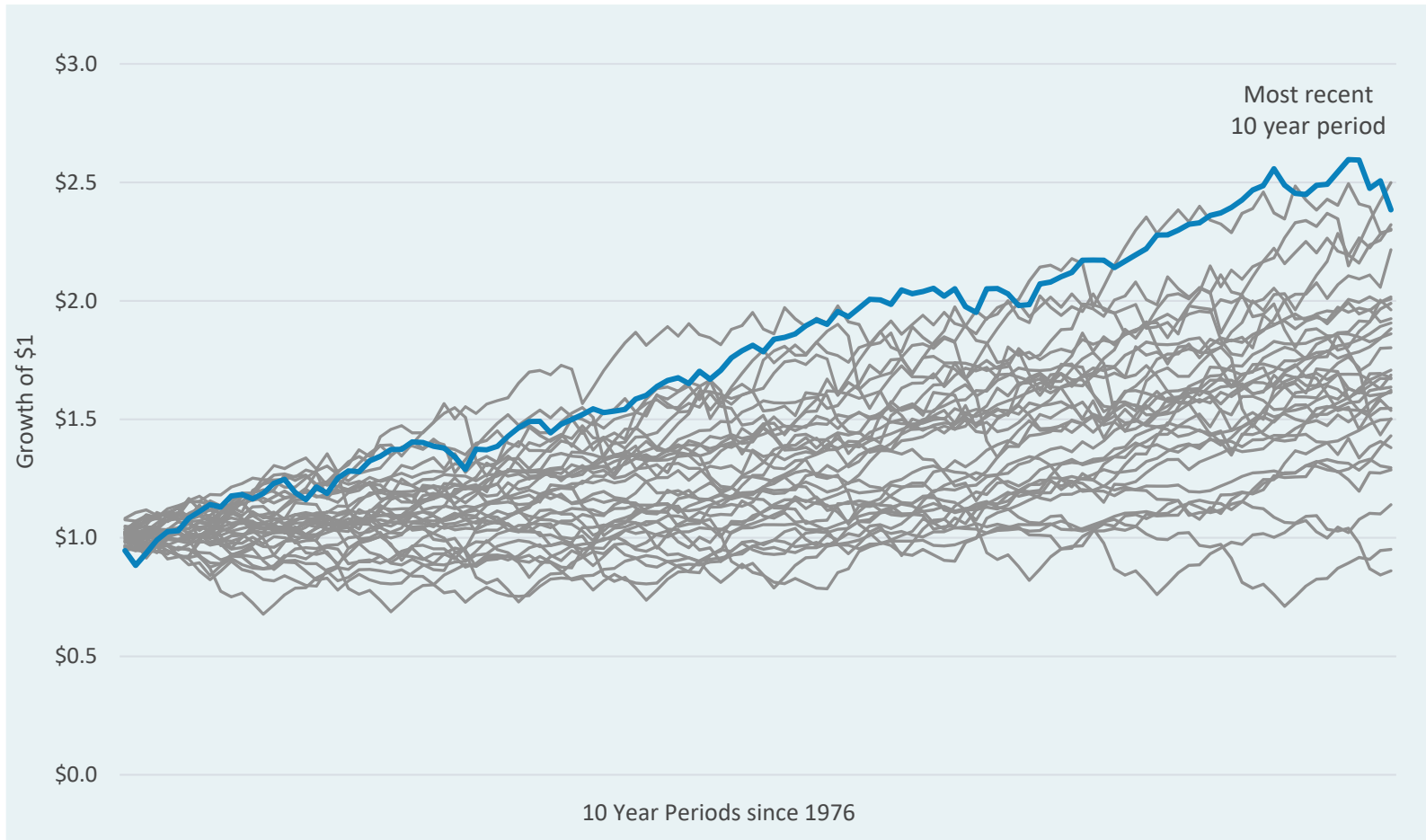
U.S. RELATIVE PERFORMANCE - HISTORICAL

	2014-2019	2009-2014	2004-2009	1999-2004	1994-1999
Best ↑	United States	United States	China	Australia	Sweden
	Australia	Sweden	India	India	Spain
	France	Japan	Spain	Canada	France
	India	Germany	Australia	United States	United States
	UK	Switzerland	Sweden	Spain	Germany
	Italy	India	Canada	Switzerland	Switzerland
	Japan	Australia	Germany	UK	UK
	Sweden	UK	UK	Italy	Canada
	Canada	Canada	Switzerland	France	Australia
	Switzerland	France	France	Sweden	India
	Germany	Spain	United States	Japan	Japan
	China	China	Japan	Germany	
Worst ↓	Spain	Italy	Italy		

Source: Verus, as of 6/30/19

Domestic equity

DOMESTIC 60/40 EXCESS RETURNS



U.S. asset performance over the past 10 years has been unusually strong

Investors should not necessarily expect U.S. outperformance to continue

Source: Verus, 60/40 (S&P 500 / BBgBarc US Aggregate Bond), excess return over T-bills since 1973

Domestic equity size & style

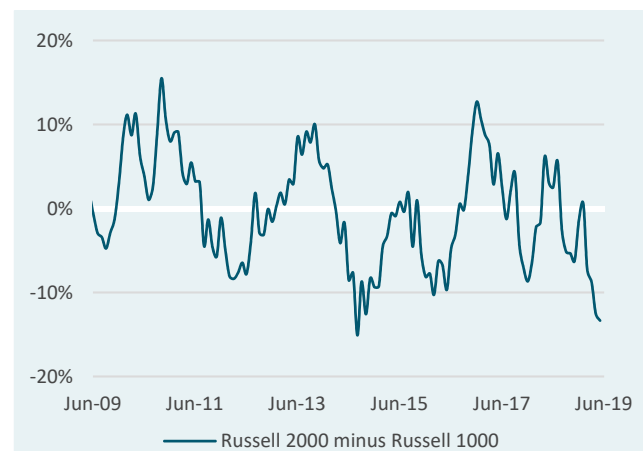
Size and value factors continued to underperform. Small-cap equities lagged large-cap by -2.1% during the quarter and -13.3% over the past year (Russell 2000 vs. Russell 1000). Value equities underperformed growth by -0.8% over the quarter and by -3.1% over the past year (Russell 1000 Value vs Russell 1000 Growth).

Similar to Q1, the impact of sector performance on the value premium was more nuanced in the second quarter. Financials (+8.0%) and Materials (+6.3%) outperformed the overall index (S&P 500 +13.6%), but Energy (-2.8%)

underperformed. Information Technology performed better than the overall index (+6.1%) which acted as a headwind for value stocks.

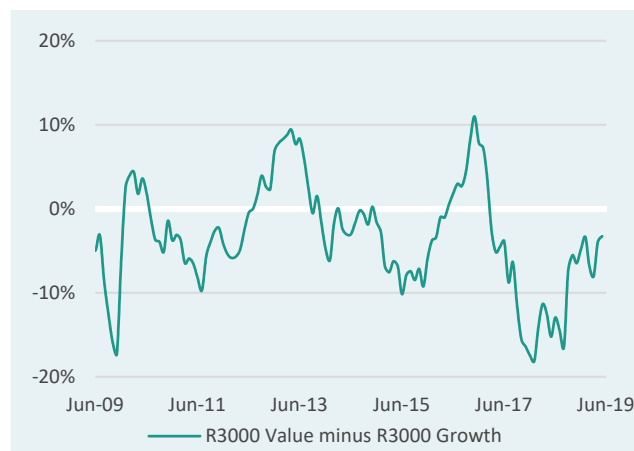
Both small cap and value premia have exhibited underperformance for an extended period of time. Longer periods of underperformance do not necessarily indicate an investment opportunity if value stocks and small cap stocks remain fairly-priced. This appears to be the case today, as neither value stocks nor small cap stocks are particularly cheap by traditional measures.

SMALL CAP VS LARGE CAP (YOY)



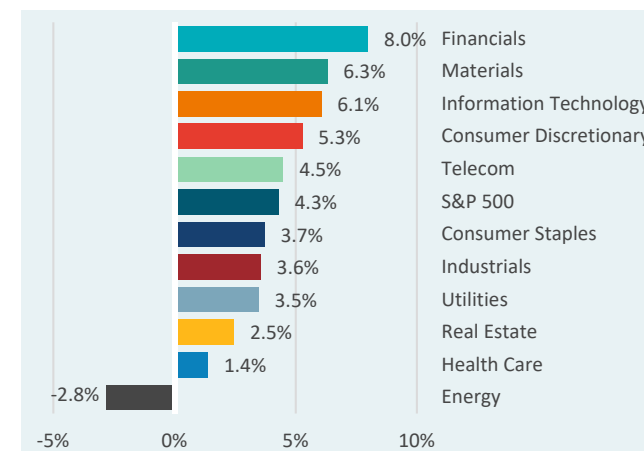
Source: FTSE, as of 6/30/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 6/30/19

Q2 S&P 500 SECTOR RETURNS



Source: Morningstar, as of 6/30/19

International developed equity

International developed equities posted a second consecutive quarter of solid performance. The MSCI EAFE Index returned +3.9% for the quarter (+14.5% YTD). On a currency hedged basis, the MSCI EAFE Index returned +3.5% for the quarter (+15.2% YTD), indicating that unhedged U.S. investors in EAFE equities benefited from non-dollar exposure over the quarter, but not in the year-to-date.

Japanese equities, which represent about 24% of the MSCI EAFE Index, underperformed, and gained only +0.5% in Q2. Japan's exposure China's economy, which in Q2 grew at its slowest pace in 27 years, likely weighed on performance.

U.K. equities underperformed the international developed equities on an unhedged basis, with the FTSE 100 Index delivering a +3.3% return for the quarter. In U.S. dollar terms, the FTSE 100 Index returned +4.0% in Q2, indicating that the weakness in the British Pound relative to the dollar presented headwinds for unhedged U.S. investors.

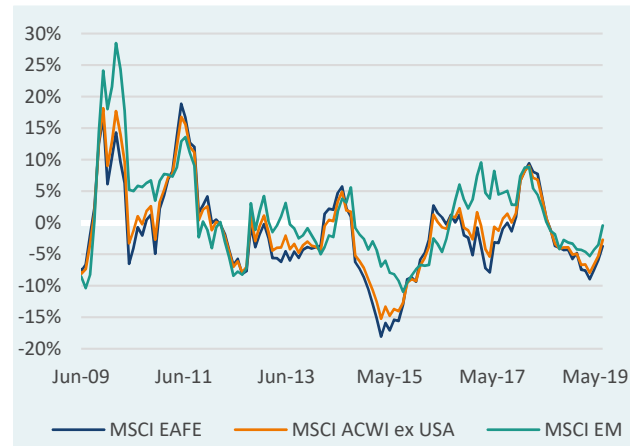
Wage gains and employment have been strong in the U.K., which would typically prompt higher rates and a stronger currency, but the uncertainty surrounding Brexit has likely had a significant impact on the British Pound.

INTERNATIONAL DEVELOPED EQUITIES



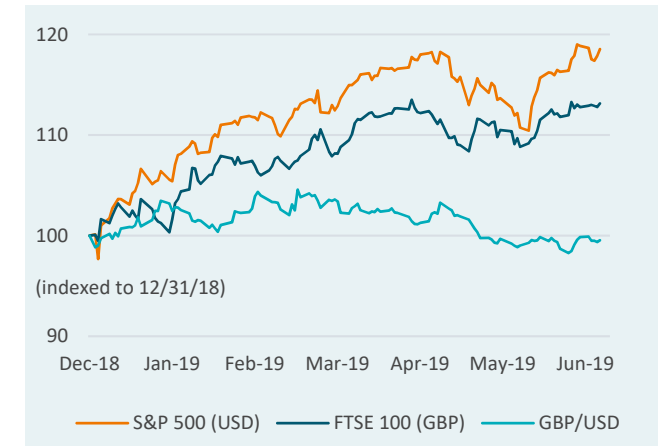
Source: MSCI, as of 6/30/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 6/30/19

YTD CUMULATIVE PERFORMANCE (U.S. VS. U.K.)



Source: Bloomberg, as of 6/30/19

Emerging market equity

Emerging market equity performance (MSCI Emerging Markets +0.6%) lagged developed markets (MSCI EAFE +3.7%) over the quarter, while U.S. equities outperformed (Russell 1000 +4.2%). Economists expect emerging market economies to accelerate modestly in 2020 and expect developed economies to slow. This divergence may provide a tailwind to emerging market equity performance. Recent central bank dovishness may also boost returns, as easing conditions have often had an outsized positive impact on the emerging markets.

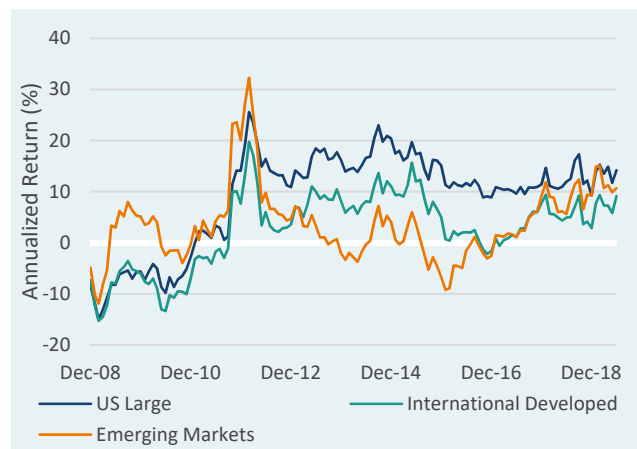
kept near their long-term average - the U.S. being an exception. The divide between U.S. equity valuations and the rest of the world remains wide.

Decelerating global growth and a rising probability of recession presents unique risks to emerging markets, as these markets typically exhibit a higher beta during market downside and upside moves. However, a recession does not appear to be on the immediate horizon, and we believe recent central bank easing may lead to emerging market outperformance in the interim.

Moderate growth and central bank easing may boost emerging market equities

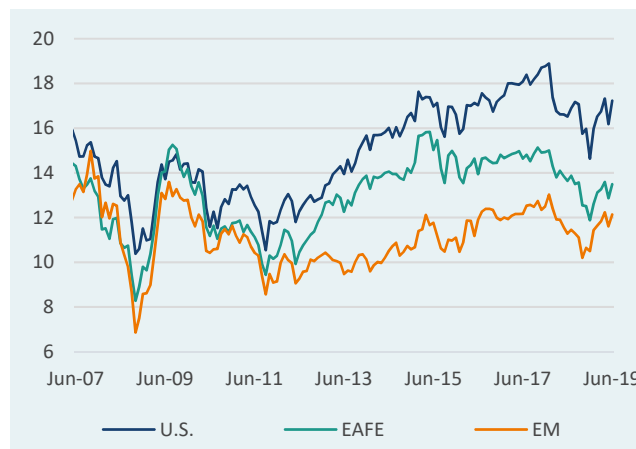
Equity multiples expanded in the second quarter but have

EQUITY PERFORMANCE (3-YR ROLLING)



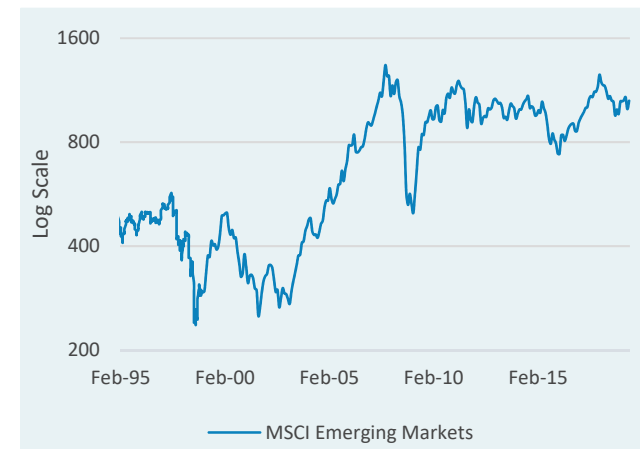
Source: Standard & Poor's, MSCI, as of 6/30/19

FORWARD P/E



Source: MSCI, as of 6/30/19

EMERGING MARKET PERFORMANCE



Source: MSCI, as of 6/30/19

Equity valuations

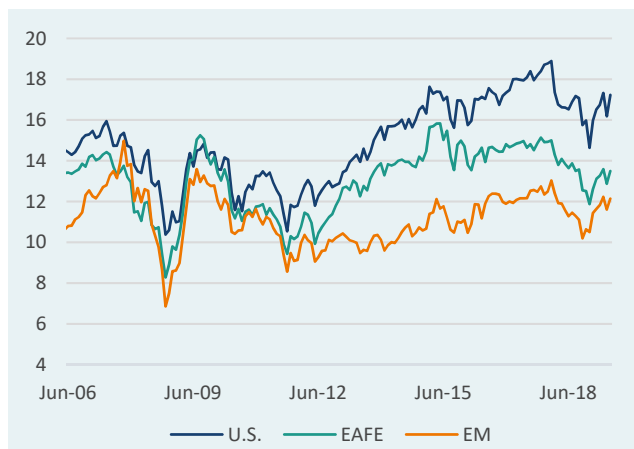
Equity performance in Q2 appears to have been largely driven by higher prices, rather than improved earnings expectations. Valuation expansion of equity markets (U.S., international developed, emerging markets) aligned with performance over the quarter.

The U.S. equity forward P/E multiple sits at 17.2x, with international equities at 13.5x and emerging markets at 12.1x. International and emerging equity valuations remain near their long-term average, while U.S. equities appear expensive relative to history. U.S. equities currently trade at a 27%

forward premium to EAFE equities, and a 42% premium over emerging.

We believe there are reasons that EAFE equity markets warrant cheap valuations, particularly in Europe, but it is difficult to know whether the current valuation gap is justified. As U.S. corporate earnings expectations, business conditions, and economic growth seem to be converging somewhat with the rest of the developed world, investors may begin to question whether such elevated U.S. valuations are appropriate.

FORWARD P/E RATIOS



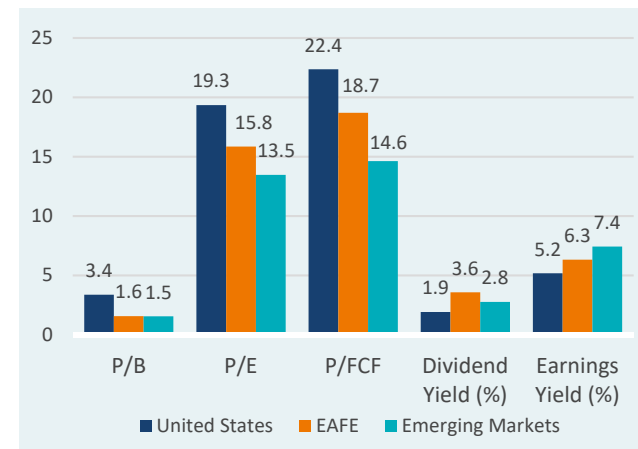
Source: MSCI, as of 6/30/19

U.S. CORPORATE EARNINGS GROWTH (YOY)



Source: Standard & Poor's, as of 6/30/19

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 6/30/19 - trailing P/E

Equity volatility

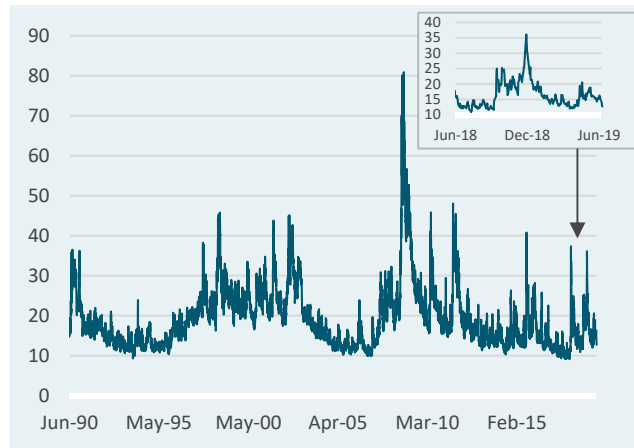
Implied volatility remained depressed over the quarter, as indicated by the VIX Index. Though the implied volatility measure reached as high as 20.6 in the days following the Trump administration's decision to hike tariff rates on Chinese imports, the VIX Index traded mostly below its long-term average. Out of sixty-three trading days in the second quarter, the VIX Index closed above its historical daily average of 19.2 only three times.

The rolling realized 90-day volatility of the S&P 500 Index retreated from 19.5% to 11.4% over the second quarter. At

quarter-end, the 30-day forward implied volatility of the S&P 500 Index exceeded that of the Euro Stoxx 50 Index. Historically, the VIX has traded at a discount to the V2X, the proxy for expected European equity volatility.

Some pundits have expressed concerns about the low levels of realized volatility despite geopolitical and trade conflict. Other investors have argued that a healthy, less-leveraged financial system is the major driver of a low-vol environment, and that the impacts of geopolitics may be overblown.

U.S. IMPLIED VOLATILITY (VIX)



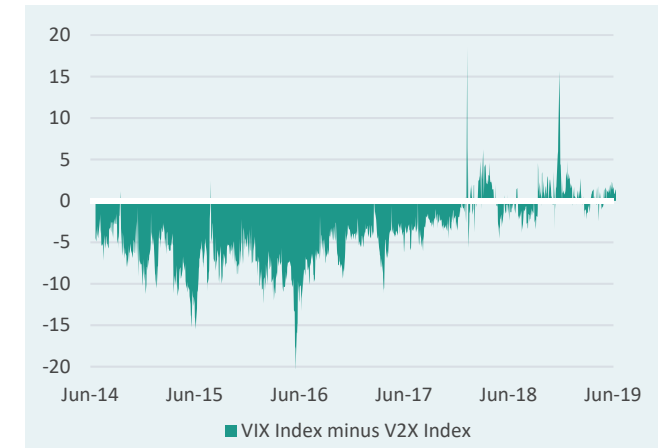
Source: CBOE, as of 6/30/19

REALIZED 90-DAY VOLATILITY



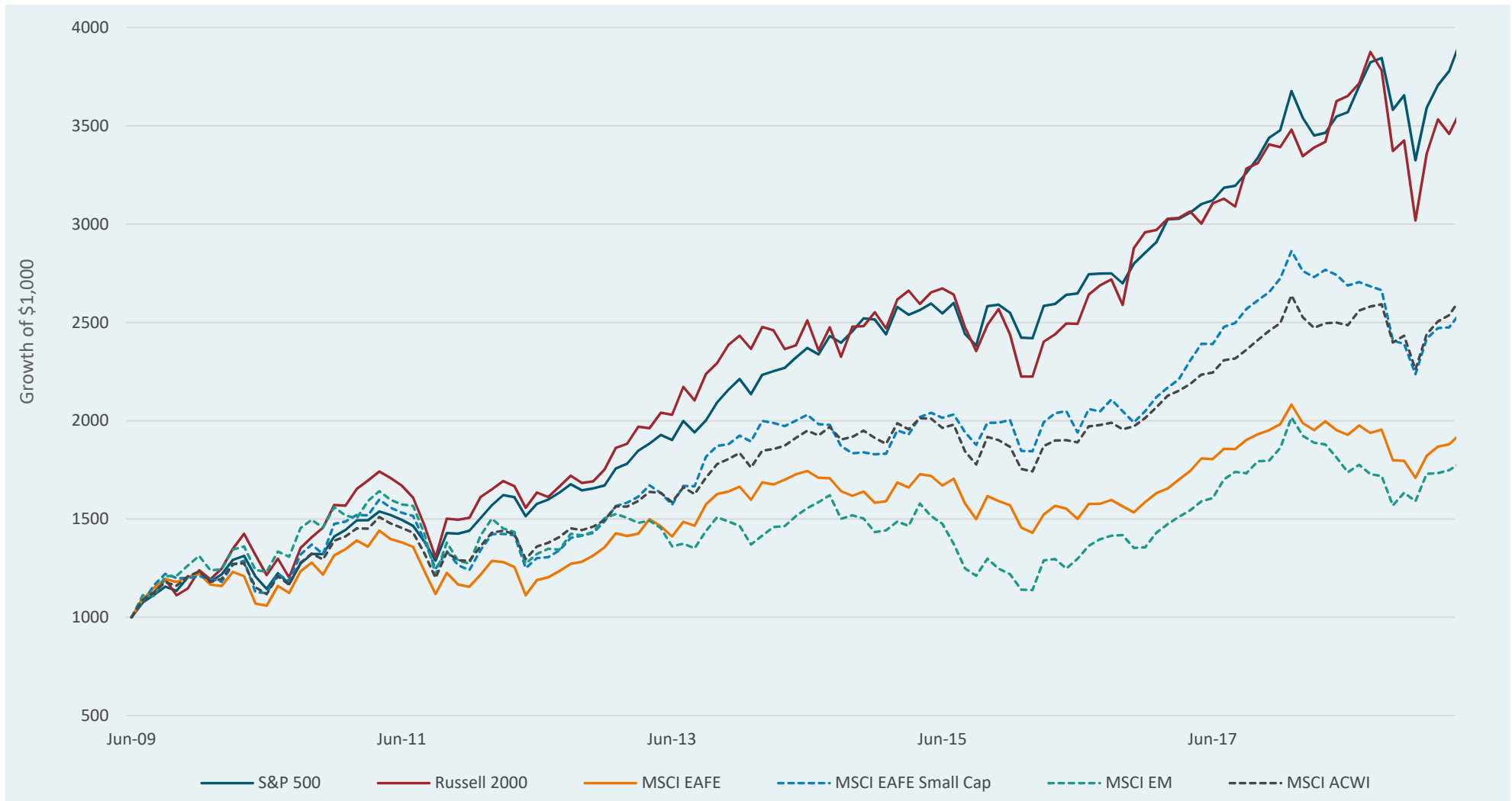
Source: Bloomberg, as of 6/30/19

U.S. IMPLIED VOLATILITY VS. EUROPEAN IMPLIED VOLATILITY



Source: Bloomberg, as of 6/30/19

Long-term equity performance



Source: Morningstar, as of 6/30/19

Other assets

Currency

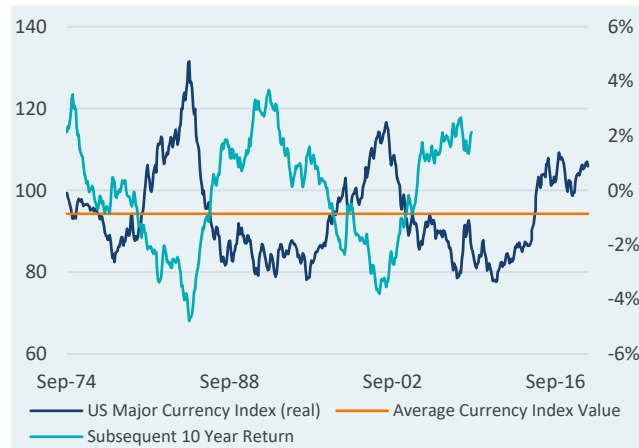
The U.S. dollar depreciated -0.2% in Q2 relative to a trade-weighted basket of currencies. After a period of strength in April and May, the dollar weakened significantly vs. developed currency pairs in June as the Federal Reserve issued dovish guidance. By the end of the quarter, markets were pricing between 0.50% and 0.75% in cuts to the federal funds range in 2019. In Europe, investors were pricing between 0.1% and 0.2% in cuts to the ECB's main deposit rate, which was already in negative territory at -0.40%.

Some analysts attributed the dollar's weakness relative to the euro as a byproduct of converging interest rate differentials driven by the Fed's ability to cut rates more significantly than the ECB.

Emerging market currencies rose in the second quarter, with the JPM Emerging Markets Currency Index gaining 0.5%. The South African Rand led the complex higher.

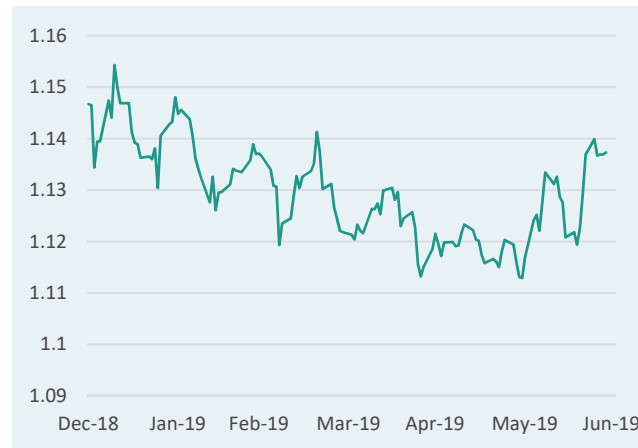
Surprise central bank dovishness has likely contributed to currency movement

U.S. DOLLAR TRADE WEIGHTED INDEX



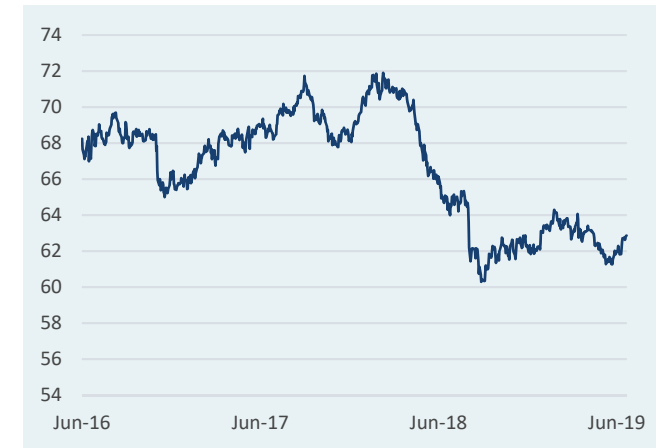
Source: Federal Reserve, Verus, as of 6/30/19

EUR/USD



Source: Bloomberg, as of 6/30/19

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 6/30/19

Hedge funds

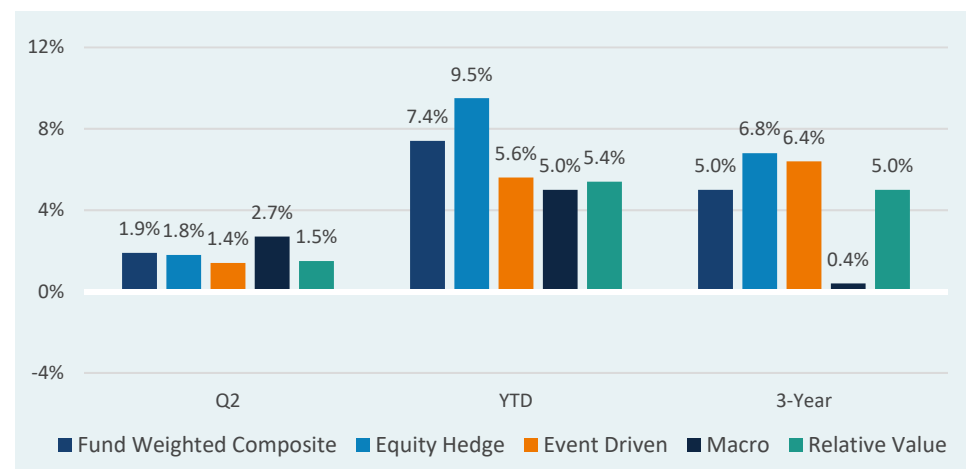
Hedge fund performance was generally positive across strategy types during the second quarter (HFRI Hedge Fund Weighted Composite +1.9% in Q2, +7.4% YTD). This marked the best first half of the year since 2009. Quantitative macro strategies, including CTAs, were the best performing sub strategy group in 2019 Q2 (+2.7%).

Within equities, technology focused funds stood out as top performers (+2.9%) for the quarter. As a group, value-oriented managers (+2.3%) outperformed growth-oriented

peers (+1.6%). Most other strategy types were modestly positive. Healthcare focused strategies (-0.1%) lagged peers due in part to fears of a changing regulatory environment.

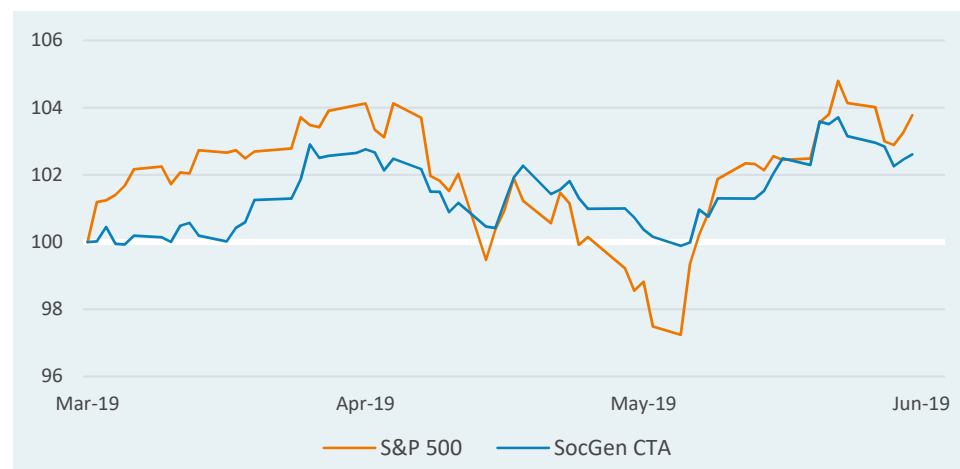
Within the fixed income-oriented strategy set, managers trading corporate bonds (+2.5%) and credit arbitrage (+2.2%) strategies were the best performers during the quarter. Managers trading convertibles (+1.7%), asset backed (+1.4%) and distress (+1.3%) posted more muted gains.

HFRI HEDGE FUND STYLE PERFORMANCE



Source: HFRI, as of 6/30/19

Q2 2019 CUMULATIVE PERFORMANCE (INDEXED TO 3/31/19)



Source: Standard & Poor's, Société Générale, as of 6/30/19

Appendix

Periodic table of returns

BEST

↑

↓

WORST

	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	21.5	13.4	16.3
Small Cap Growth	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	20.4	10.5	14.8
Large Cap Equity	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	18.8	8.6	14.4
Small Cap Equity	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	17.0	8.5	13.4
Large Cap Value	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	16.2	7.5	13.2
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	14.0	7.1	12.4
Small Cap Value	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	13.5	5.4	9.1
60/40 Global Portfolio	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	12.0	4.3	7.4
Emerging Markets Equity	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	10.6	2.9	6.9
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	6.3	2.5	5.8
US Bonds	-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	6.1	2.2	3.9
Commodities	-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	5.1	2.2	3.2
Real Estate	-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	1.8	0.9	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	1.2	-9.1	-3.7

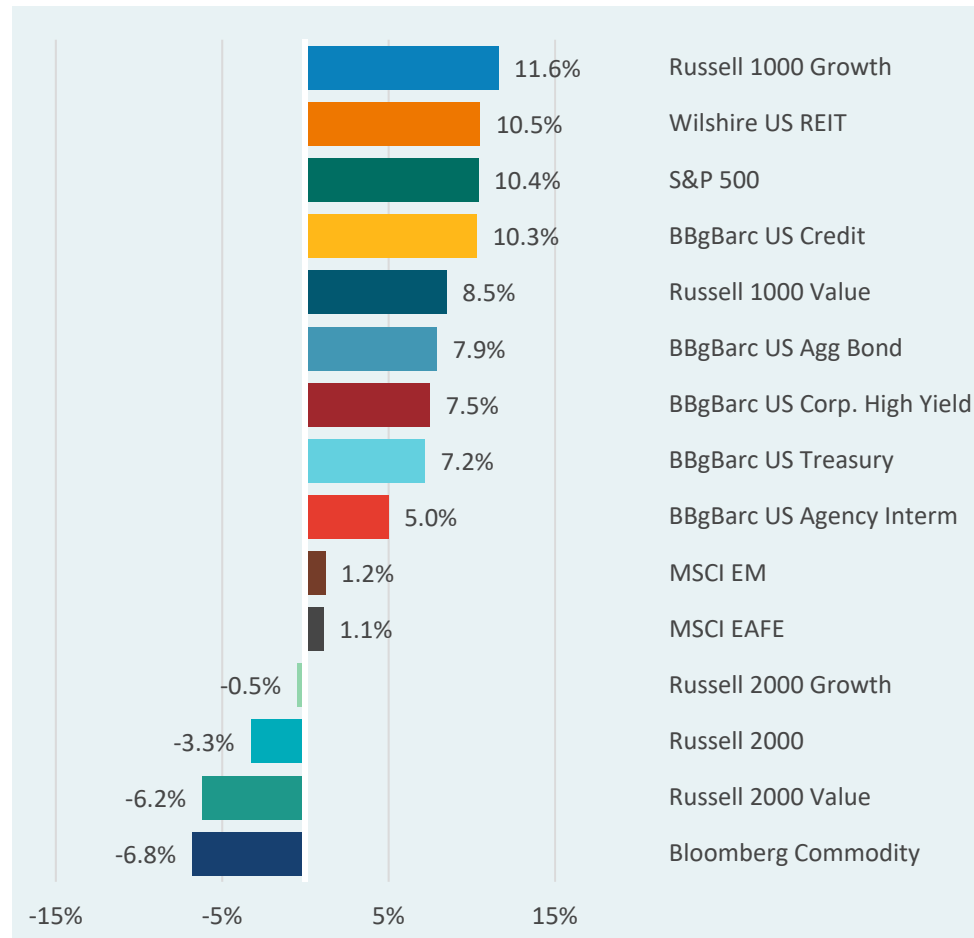
Legend:

- 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 3/31/19.

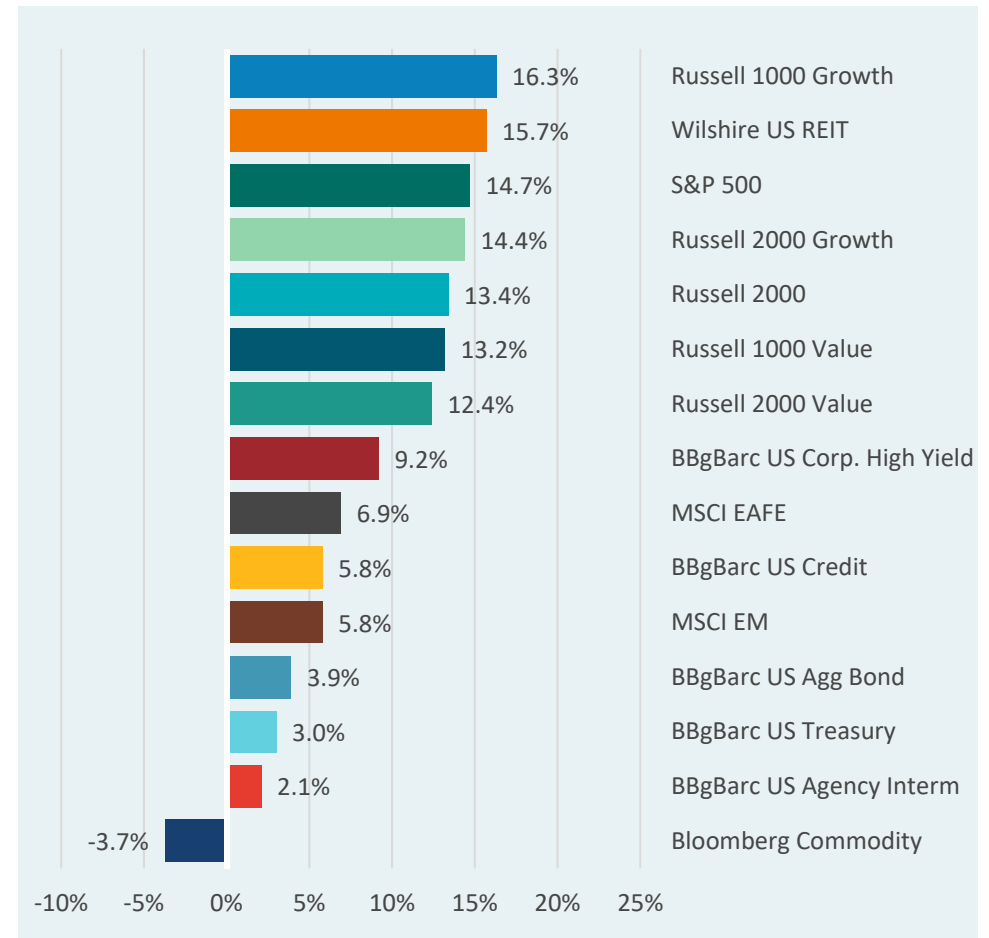
Major asset class returns

ONE YEAR ENDING JUNE



Source: Morningstar, as of 6/30/19

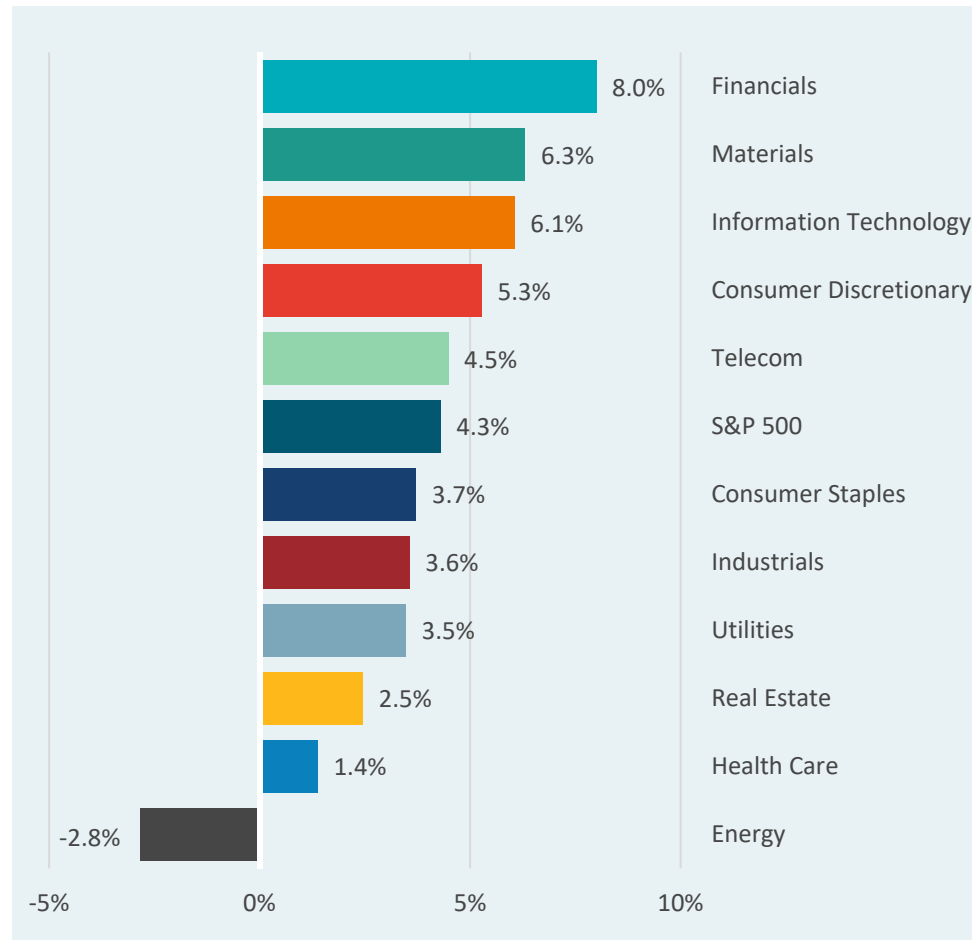
TEN YEARS ENDING JUNE



Source: Morningstar, as of 6/30/19

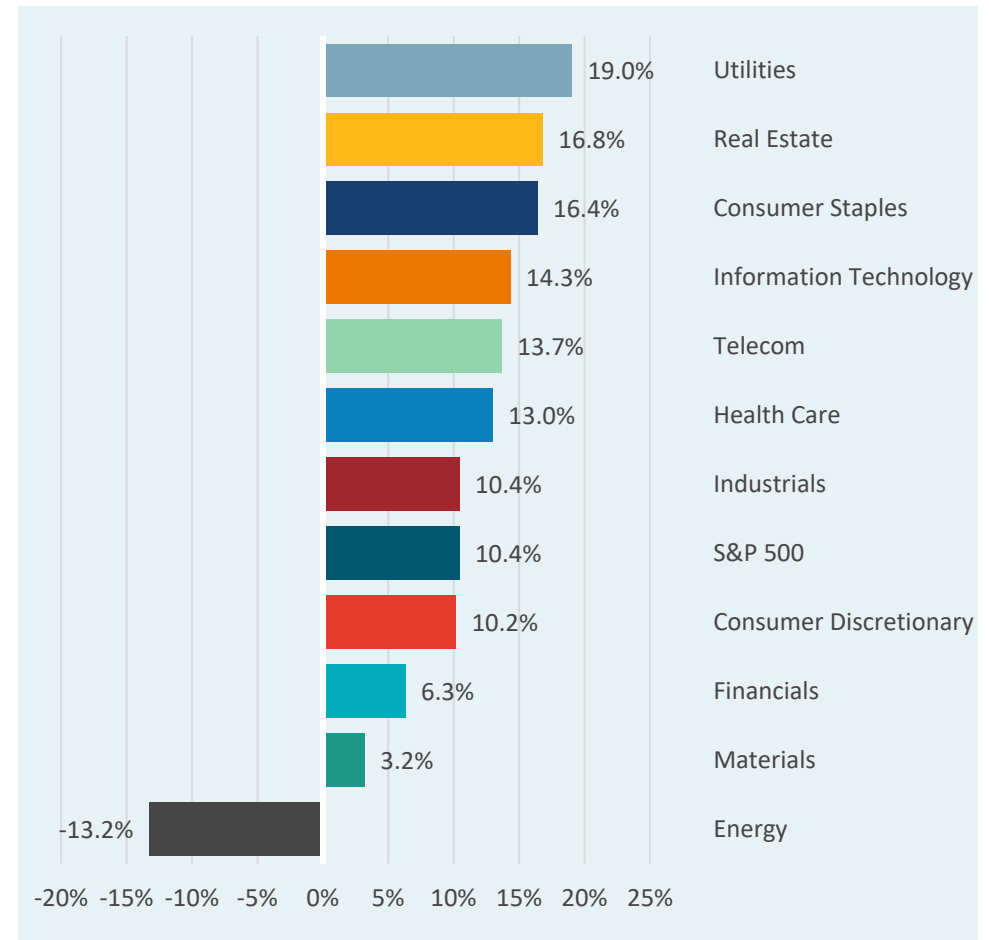
S&P 500 sector returns

Q2



Source: Morningstar, as of 6/30/19

ONE YEAR ENDING JUNE



Source: Morningstar, as of 6/30/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	7.0	4.3	18.5	10.4	14.2	10.7	14.7
S&P 500 Equal Weighted	7.5	3.7	19.2	8.2	12.4	9.1	15.6
DJ Industrial Average	7.3	3.2	15.4	12.2	16.8	12.3	15.0
Russell Top 200	7.1	4.3	17.9	10.9	14.9	11.2	14.6
Russell 1000	7.0	4.2	18.8	10.0	14.1	10.5	14.8
Russell 2000	7.1	2.1	17.0	(3.3)	12.3	7.1	13.4
Russell 3000	7.0	4.1	18.7	9.0	14.0	10.2	14.7
Russell Mid Cap	6.9	4.1	21.3	7.8	12.2	8.6	15.2
Style Index							
Russell 1000 Growth	6.9	4.6	21.5	11.6	18.1	13.4	16.3
Russell 1000 Value	7.2	3.8	16.2	8.5	10.2	7.5	13.2
Russell 2000 Growth	7.7	2.7	20.4	(0.5)	14.7	8.6	14.4
Russell 2000 Value	6.4	1.4	13.5	(6.2)	9.8	5.4	12.4

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	6.5	3.6	16.2	5.7	11.6	6.2	10.1
MSCI ACWI ex US	6.0	3.0	13.6	1.3	9.4	2.2	6.5
MSCI EAFE	5.9	3.7	14.0	1.1	9.1	2.2	6.9
MSCI EM	6.2	0.6	10.6	1.2	10.7	2.5	5.8
MSCI EAFE Small Cap	4.2	1.7	12.5	(6.3)	9.1	4.4	9.7
Style Index							
MSCI EAFE Growth	6.5	5.7	18.5	4.2	9.7	4.4	8.2
MSCI EAFE Value	5.3	1.5	9.6	(2.1)	8.5	0.1	5.5
Regional Index							
MSCI UK	5.0	0.9	12.9	(2.0)	6.9	(0.3)	6.8
MSCI Japan	3.7	1.0	7.7	(4.2)	8.1	4.5	5.8
MSCI Euro	7.6	5.9	16.2	0.5	10.4	1.1	5.6
MSCI EM Asia	6.4	(1.2)	9.7	(2.3)	11.2	4.5	7.5
MSCI EM Latin American	6.2	4.4	12.6	18.4	10.8	(0.8)	2.3

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	0.9	2.9	6.2	4.8	2.1	1.8	3.6
BBgBarc US Treasury Bills	0.2	0.7	1.3	2.4	1.4	0.9	0.5
BBgBarc US Agg Bond	1.3	3.1	6.1	7.9	2.3	2.9	3.9
Duration							
BBgBarc US Treasury 1-3 Yr	0.5	1.5	2.5	4.0	1.3	1.2	1.2
BBgBarc US Treasury Long	1.3	6.0	11.0	12.3	1.3	5.7	6.5
BBgBarc US Treasury	0.9	3.0	5.2	7.2	1.3	2.5	3.0
Issuer							
BBgBarc US MBS	0.7	2.0	4.2	6.2	2.1	2.6	3.2
BBgBarc US Corp. High Yield	2.3	2.5	9.9	7.5	7.5	4.7	9.2
BBgBarc US Agency Interm	0.6	1.7	3.1	5.0	1.6	1.8	2.1
BBgBarc US Credit	2.3	4.3	9.4	10.3	3.7	3.9	5.8

OTHER

Index							
Bloomberg Commodity	2.7	(1.2)	5.1	(6.8)	(2.2)	(9.1)	(3.7)
Wilshire US REIT	1.4	1.6	17.9	10.5	4.1	7.8	15.7
CS Leveraged Loans	0.2	1.6	5.4	4.1	5.4	3.9	6.3
Alerian MLP	2.6	0.3	17.8	5.5	(0.4)	(6.5)	9.1
Regional Index							
JPM EMBI Global Div	3.4	4.1	11.3	12.4	5.5	5.3	7.8
JPM GBI-EM Global Div	5.5	5.6	8.7	9.0	4.2	(0.5)	3.4
Hedge Funds							
HFRI Composite	2.6	2.0	7.6	1.6	5.1	3.0	4.7
HFRI FOF Composite	1.7	1.6	6.3	1.3	4.3	2.2	3.2
Currency (Spot)							
Euro	2.2	1.4	(0.4)	(2.5)	0.8	(3.6)	(2.1)
Pound	1.0	(2.3)	(0.1)	(3.6)	(1.6)	(5.7)	(2.5)
Yen	0.8	2.7	1.8	2.8	(1.6)	(1.2)	(1.1)

Source: Morningstar, HFR, as of 6/30/19

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.langerresearch.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 $\frac{(\text{Good-Poor} + 100)}{2}$ to the present and future sales series and $\frac{(\text{High/Very High-Low/Very Low} + 100)}{2}$ 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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Imperial County Employees' Retirement System

Investment Performance Review

Period Ending: June 30, 2019



VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

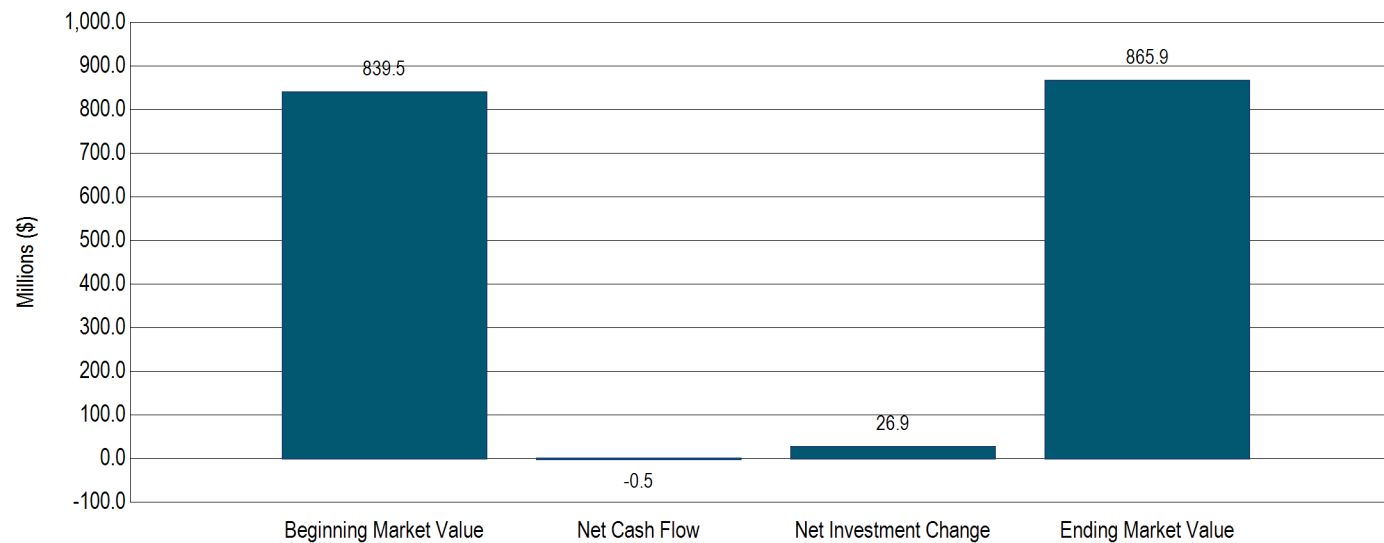
Total Fund
Portfolio Reconciliation

Period Ending: June 30, 2019

Portfolio Reconciliation

	Last Three Months	Fiscal Year-To-Date	One Year
Beginning Market Value	\$839,513,891	\$820,270,584	\$820,270,584
Net Cash Flow	-\$542,114	-\$5,754,110	-\$5,754,110
Net Investment Change	\$26,905,400	\$51,360,702	\$51,360,702
Ending Market Value	\$865,877,177	\$865,877,177	\$865,877,177

Change in Market Value
Last Three Months

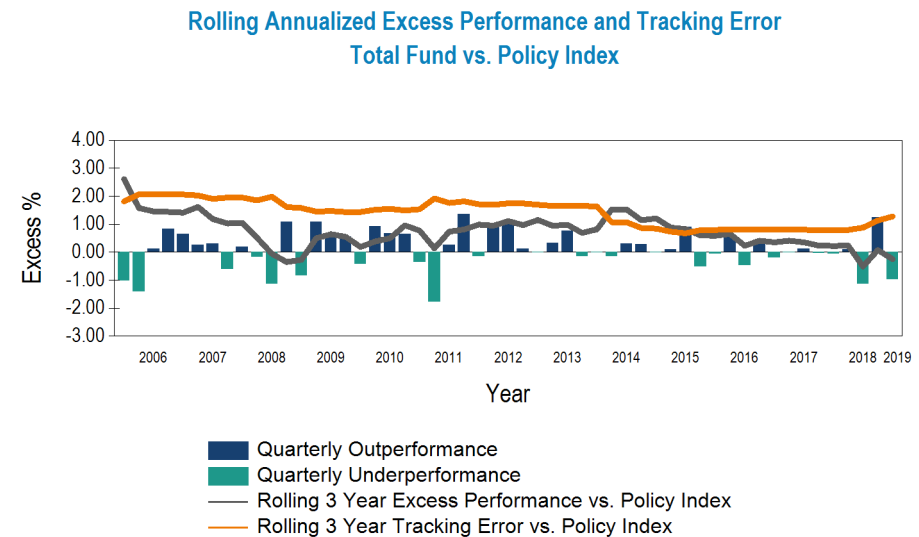
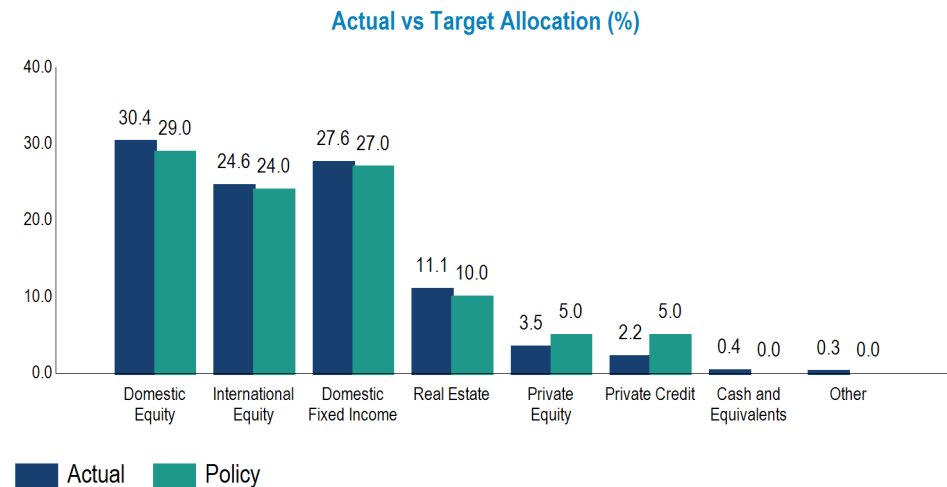


Contributions and withdrawals may include intra-account transfers between managers/funds. Fee transactions are excluded from Portfolio Reconciliation.

Total Fund Executive Summary (Gross of Fees)

Period Ending: June 30, 2019

	QTD	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	3.2	11.2	6.4	6.4	9.0	5.9	9.5
Total Fund ex Parametric	3.2	11.2	6.4	6.4	9.0	5.9	9.4
Policy Index	4.2	11.0	7.3	7.3	9.2	5.8	8.8
InvMetrics Public DB Gross Rank	48	63	43	43	45	52	34
Total Domestic Equity	4.1	18.7	9.0	9.0	14.1	9.9	14.8
Russell 3000	4.1	18.7	9.0	9.0	14.0	10.2	14.7
InvMetrics Public DB US Eq Gross Rank	53	48	31	31	31	41	28
Total International Equity	3.0	13.5	1.2	1.2	9.8	2.8	7.0
MSCI ACWI ex USA Gross	3.2	14.0	1.8	1.8	9.9	2.6	7.0
InvMetrics Public DB ex-US Eq Gross Rank	46	55	35	35	26	47	66
Total Fixed Income	3.1	6.8	7.6	7.6	3.3	3.3	5.3
BBgBarc US Aggregate TR	3.1	6.1	7.9	7.9	2.3	2.9	3.9
InvMetrics Public DB Total Fix Inc Gross Rank	28	32	33	33	49	29	40
Total Real Estate	1.2	3.0	6.4	6.4	6.6	9.5	9.6
NCREIF-ODCE	1.0	2.4	6.4	6.4	7.6	9.8	9.9
Total Private Equity	5.6	4.6	15.6	15.6	17.3	17.3	--
Russell 3000 +3% (Lagged)	14.9	-0.8	12.0	12.0	16.9	13.6	--
Total Private Credit	2.2	4.5	9.5	9.5	--	--	--
BBgBarc High Yield +2% (Lagged)	7.8	3.4	8.0	8.0	--	--	--
Total Opportunistic	-4.5	-11.6	-6.1	-6.1	8.2	7.9	20.4
Assumption Rate + 1%	2.0	4.0	8.3	8.3	8.3	8.4	8.8

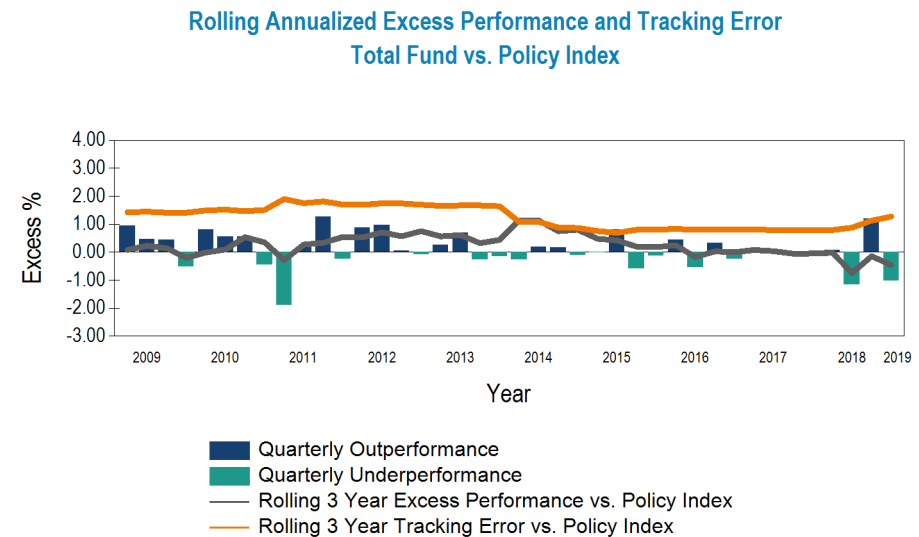
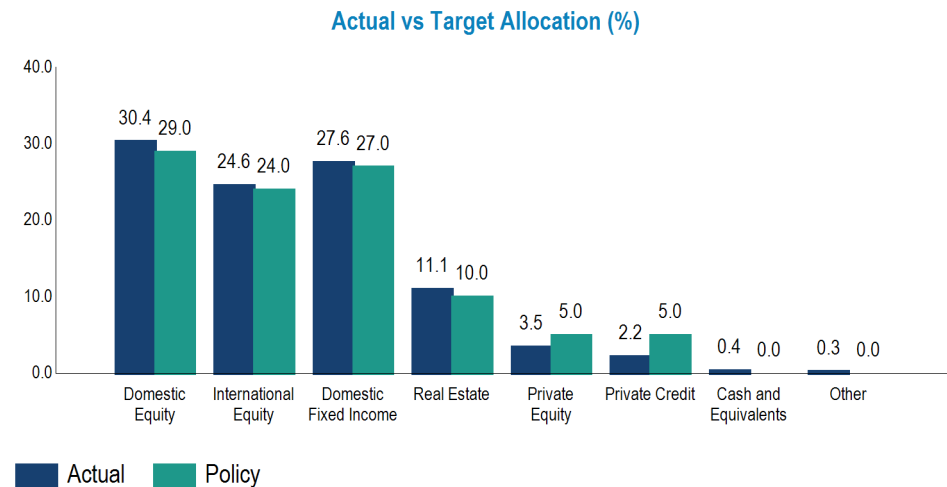


New Policy Index (as of 10/1/2018): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc US Aggregate, 10% NCREIF Property Index, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (10/1/2016 to 9/30/2018): 29% Russell 3000, 24% MSCI ACWI Ex USA Gross, 27% BBgBarc Aggregate, 5% NCREIF Property Index, 5% NCREIF Property Index +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (G) gross of fees. 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 Executive Summary (Net of Fees)

Period Ending: June 30, 2019

	QTD	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	3.2	11.2	6.2	6.2	8.8	5.6	9.1
<i>Total Fund ex Parametric</i>	3.2	11.2	6.2	6.2	8.8	5.6	9.1
<i>Policy Index</i>	4.2	11.0	7.3	7.3	9.2	5.8	8.8
Total Domestic Equity	4.1	18.7	9.0	9.0	14.1	9.8	14.6
<i>Russell 3000</i>	4.1	18.7	9.0	9.0	14.0	10.2	14.7
Total International Equity	2.9	13.4	0.8	0.8	9.4	2.5	6.5
<i>MSCI ACWI ex USA Gross</i>	3.2	14.0	1.8	1.8	9.9	2.6	7.0
Total Fixed Income	3.1	6.7	7.3	7.3	3.0	3.0	5.0
<i>BBgBarc US Aggregate TR</i>	3.1	6.1	7.9	7.9	2.3	2.9	3.9
Total Real Estate	1.2	3.0	6.4	6.4	6.4	9.0	9.0
<i>NCREIF-ODCE</i>	1.0	2.4	6.4	6.4	7.6	9.8	9.9
Total Private Equity	5.6	4.6	15.6	15.6	17.0	16.1	--
<i>Russell 3000 +3% (Lagged)</i>	14.9	-0.8	12.0	12.0	16.9	13.6	--
Total Private Credit	2.2	4.5	9.5	9.5	--	--	--
<i>BBgBarc High Yield +2% (Lagged)</i>	7.8	3.4	8.0	8.0	--	--	--
Total Opportunistic	-4.5	-11.6	-6.1	-6.1	7.9	7.0	19.1
<i>Assumption Rate + 1%</i>	2.0	4.0	8.3	8.3	8.3	8.4	8.8



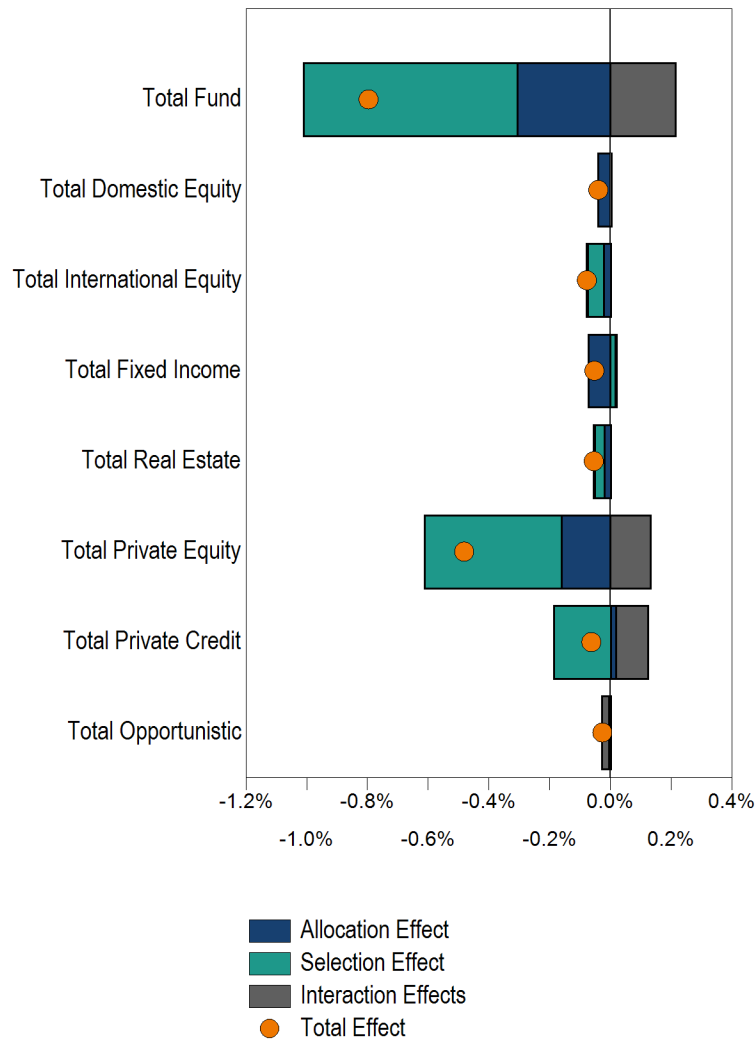
New Policy Index (as of 10/1/2018): 29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc US Aggregate, 10% NCREIF Property Index, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior Policy Index (10/1/2016 to 9/30/2018): 29% Russell 3000, 24% MSCI ACWI Ex USA Gross, 27% BBgBarc Aggregate, 5% NCREIF Property Index, 5% NCREIF Property Index +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Prior quarter Private Equity returns and index data are used. All returns are (G) gross of fees. 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

Attribution Analysis - Asset Class Level (Gross of Fees)

Period Ending: June 30, 2019

Attribution Effects



Performance Attribution

	Quarter	YTD
Wtd. Actual Return	3.24%	11.34%
Wtd. Index Return *	4.20%	11.55%
Excess Return	-0.96%	-0.21%
Selection Effect	-0.78%	0.30%
Allocation Effect	-0.43%	-0.39%
Interaction Effect	0.26%	-0.12%

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	4.1%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	3.0%	3.2%	-0.2%	0.0%	0.0%	0.0%	-0.1%
Total Fixed Income	3.1%	3.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	1.2%	1.5%	-0.3%	0.0%	-0.1%	0.0%	-0.2%
Total Private Equity	5.6%	14.9%	-9.2%	-0.5%	-0.2%	0.1%	-0.5%
Total Private Credit	2.2%	7.8%	-5.6%	-0.3%	-0.1%	0.2%	-0.2%
Total Opportunistic	-4.5%	2.0%	-6.5%	0.0%	0.0%	0.0%	0.0%
Total	3.2%	4.2%	-1.0%	-0.8%	-0.4%	0.3%	-1.0%

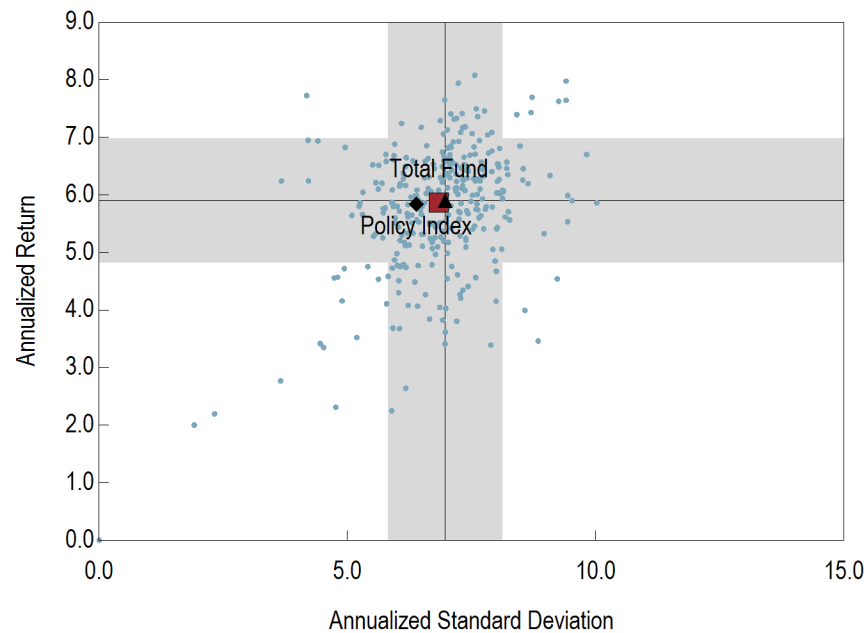
Weighted returns shown in attribution analysis may differ from actual returns.

Total Fund Risk Analysis - 5 Years (Gross of Fees)

Period Ending: June 30, 2019

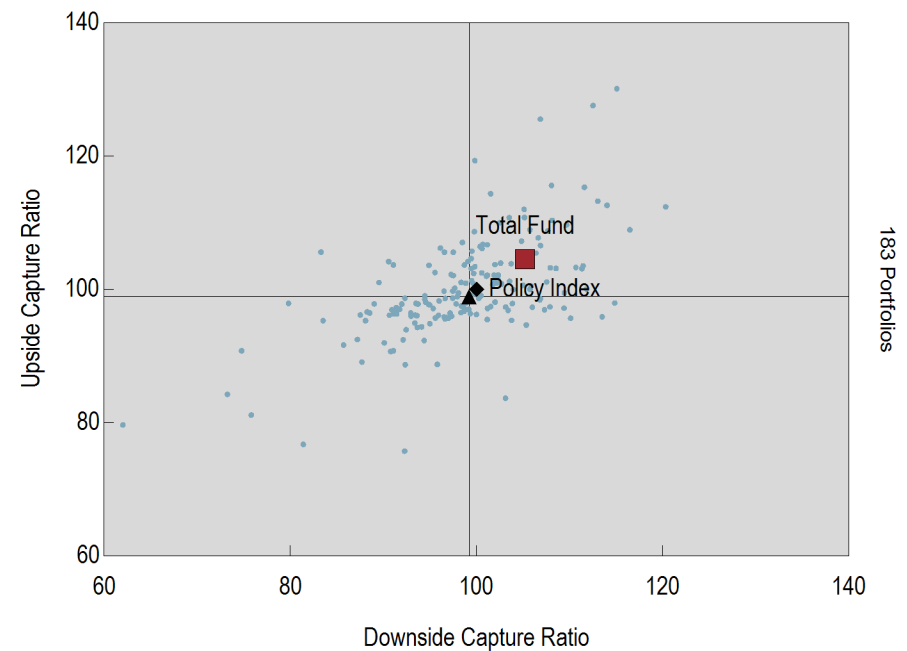
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	5.87%	0.02%	6.84%	-0.34%	1.06	0.96%	0.98	0.73	0.02	104.51%	105.19%

Risk vs. Return



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

Up Markets vs. Down Markets

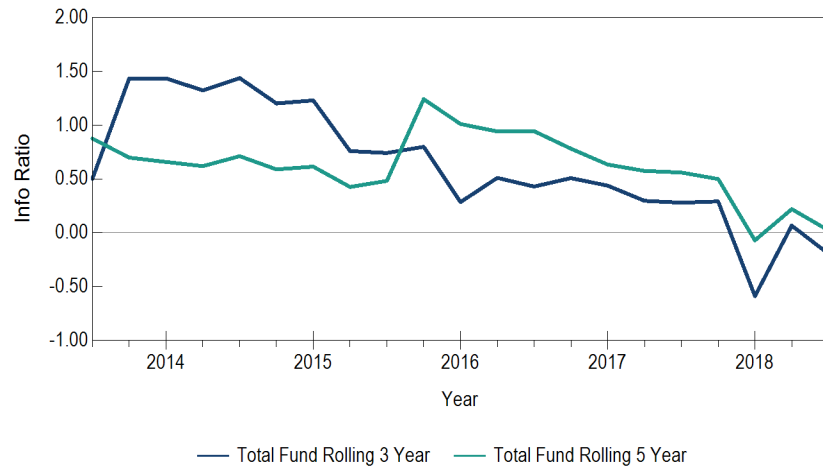


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

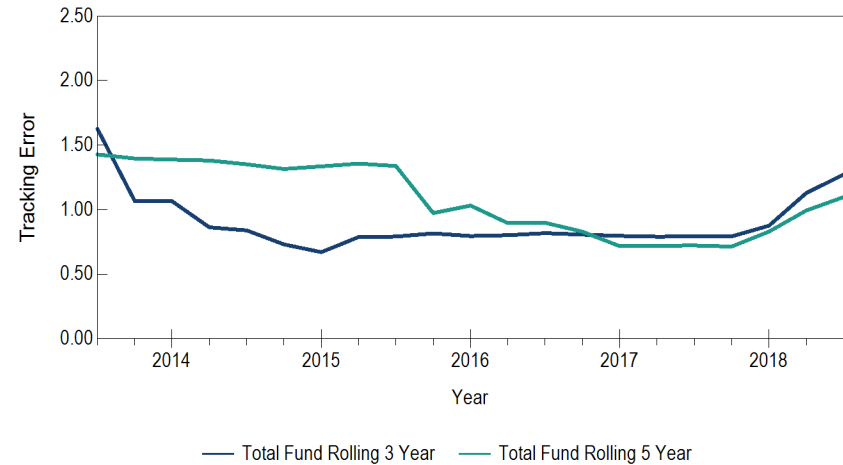
Total Fund Rolling Risk Statistics (Gross of Fees)

Period Ending: June 30, 2019

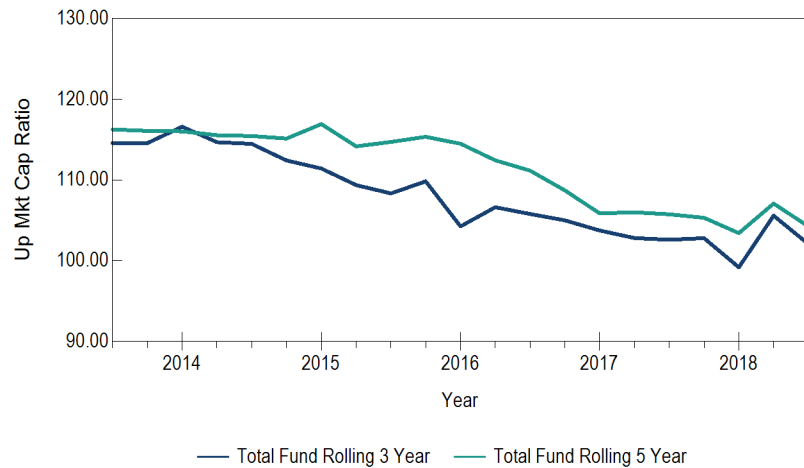
Rolling Information Ratio



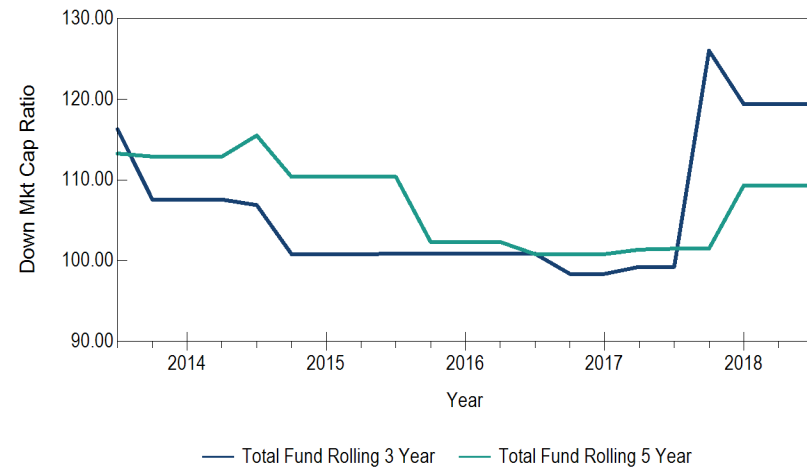
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



Total Fund

Performance Summary (Gross of Fees)

Period Ending: June 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014	Inception	Inception Date
Total Fund	865,877,177	100.0	3.2	11.2	6.4	6.4	9.0	5.9	9.5	-4.0	16.2	7.8	0.0	4.8	9.2	Mar-89
Policy Index			4.2	11.0	7.3	7.3	9.2	5.8	8.8	-2.8	15.9	8.3	-1.2	4.9	--	Mar-89
InvMetrics Public DB Gross Rank			48	63	43	43	45	52	34	50	30	49	53	74	7	Mar-89
Total Fund ex Parametric			3.2	11.2	6.4	6.4	9.0	5.9	9.4	-4.0	16.2	7.8	0.0	4.9	9.2	Mar-89
Policy Index			4.2	11.0	7.3	7.3	9.2	5.8	8.8	-2.8	15.9	8.3	-1.2	4.9	--	Mar-89
InvMetrics Public DB Gross Rank			48	63	43	43	45	52	35	50	30	49	53	72	7	Mar-89
Total Domestic Equity	262,816,129	30.4	4.1	18.7	9.0	9.0	14.1	9.9	14.8	-5.2	21.2	12.9	0.3	10.2	--	
Russell 3000			4.1	18.7	9.0	9.0	14.0	10.2	14.7	-5.2	21.1	12.7	0.5	12.6	--	
InvMetrics Public DB US Eq Gross Rank			53	48	31	31	31	41	28	35	35	51	44	73	--	
BlackRock Russell 3000	262,816,129	30.4	4.1	18.7	9.0	9.0	14.1	--	--	-5.2	21.2	12.9	--	--	12.4	Dec-15
Russell 3000			4.1	18.7	9.0	9.0	14.0	--	--	-5.2	21.1	12.7	--	--	12.1	Dec-15
eV US All Cap Core Equity Gross Rank			56	47	50	50	43	--	--	49	49	35	--	--	44	Dec-15
Total International Equity	212,957,293	24.6	3.0	13.5	1.2	1.2	9.8	2.8	7.0	-14.0	28.3	4.7	-3.5	-4.4	--	
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4	--	
InvMetrics Public DB ex-US Eq Gross Rank			46	55	35	35	26	47	66	35	59	40	57	74	--	
BlackRock International Equity	146,521,759	16.9	3.9	14.4	1.5	1.5	9.6	2.6	7.3	-13.4	25.5	1.5	-0.5	-4.7	7.2	Jul-03
MSCI EAFE Gross			4.0	14.5	1.6	1.6	9.6	2.7	7.4	-13.4	25.6	1.5	-0.4	-4.5	7.3	Jul-03
eV All EAFE Equity Gross Rank			33	42	32	32	43	69	80	35	65	47	67	64	70	Jul-03
DFA Emerging Markets Value	31,745,291	3.7	0.4	7.7	2.5	2.5	11.8	2.6	5.9	-11.4	34.5	20.5	-18.3	-3.9	4.5	Jan-07
MSCI Emerging Markets Gross			0.7	10.8	1.6	1.6	11.1	2.9	6.2	-14.2	37.8	11.6	-14.6	-1.8	4.4	Jan-07
eV Emg Mkts Equity Gross Rank			80	90	44	44	34	70	94	16	70	7	92	84	60	Jan-07
Harding Loevner Emerging Markets	34,690,243	4.0	1.6	15.6	-1.3	-1.3	--	--	--	-18.6	35.0	--	--	--	8.1	Jul-16
MSCI Emerging Markets Gross			0.7	10.8	1.6	1.6	--	--	--	-14.2	37.8	--	--	--	9.5	Jul-16
eV Emg Mkts Equity Gross Rank			47	17	80	80	--	--	--	84	68	--	--	--	60	Jul-16
Total Fixed Income	238,902,271	27.6	3.1	6.8	7.6	7.6	3.3	3.3	5.3	-0.5	4.6	5.1	-0.3	5.9	--	
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0	--	
InvMetrics Public DB Total Fix Inc Gross Rank			28	32	33	33	49	29	40	58	59	41	55	15	--	
Tortoise Capital	99,177,506	11.5	3.2	7.0	8.4	8.4	3.5	3.9	5.7	0.2	4.5	5.1	1.2	7.0	6.5	Dec-92
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0	5.4	Dec-92
eV US Core Plus Fixed Inc Gross Rank			54	51	44	44	53	22	41	24	70	45	15	16	40	Dec-92
MackKay Shields Core Plus Opportunities	95,990,873	11.1	3.2	6.8	7.9	7.9	3.4	--	--	-0.7	4.9	5.1	--	--	2.9	Mar-15
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	--	--	0.0	3.5	2.6	--	--	2.7	Mar-15
eV US Core Plus Fixed Inc Gross Rank			53	61	77	77	60	--	--	69	54	46	--	--	89	Mar-15

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.

Total Fund Performance Summary (Gross of Fees)

Period Ending: June 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014	Inception	Inception Date
BlackRock US TIPS	43,733,892	5.1	2.9	6.2	4.9	4.9	2.3	1.9	3.8	-1.1	3.2	4.8	-1.2	3.6	4.2	Apr-07
BBgBarc US TIPS TR			2.9	6.2	4.8	4.8	2.1	1.8	3.6	-1.3	3.0	4.7	-1.4	3.6	4.0	Apr-07
eV US TIPS / Inflation Fixed Inc Gross Rank			33	50	35	35	50	42	55	47	46	37	43	45	66	Apr-07
Total Real Estate	95,781,690	11.1	1.2	3.0	6.4	6.4	6.6	9.5	9.6	7.5	5.8	7.5	16.1	13.0	--	
NCREIF ODCE			1.0	2.4	6.0	6.0	6.7	8.7	9.2	7.1	7.0	8.0	13.3	11.8	--	
ASB Real Estate	36,485,098	4.2	1.2	3.0	6.0	6.0	5.4	8.8	--	6.6	4.0	5.6	17.3	13.5	9.7	Dec-12
NCREIF-ODCE			1.0	2.4	6.4	6.4	7.6	9.8	--	8.3	7.6	8.8	15.0	12.5	10.5	Dec-12
NCREIF Property Index			1.5	3.3	6.5	6.5	6.9	8.8	--	6.7	7.0	8.0	13.3	11.8	9.4	Dec-12
Clarion Lion	36,954,606	4.3	1.2	3.0	6.7	6.7	7.7	10.5	9.9	8.6	7.9	9.1	15.7	13.2	5.4	Dec-06
NCREIF-ODCE			1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.3	7.6	8.8	15.0	12.5	6.1	Dec-06
NCREIF Property Index			1.5	3.3	6.5	6.5	6.9	8.8	9.2	6.7	7.0	8.0	13.3	11.8	6.9	Dec-06
ARA American Strategic Value Realty	20,588,785	2.4	1.5	3.8	7.3	7.3	--	--	--	--	--	--	--	--	8.3	Jan-18
NCREIF ODCE +2%			0.3	2.3	6.8	6.8	--	--	--	--	--	--	--	--	7.4	Jan-18
1221 State St. Corp	1,753,200	0.2	0.0	0.0	0.0	0.0	5.5	3.3	1.1	0.0	0.0	17.5	0.0	0.0	1.1	Sep-08
Total Private Equity																
Harbourvest Buyout IX	7,433,234	0.9	0.0	7.3	13.2	13.2	19.7	18.2	--	16.3	28.5	13.9	14.2	20.9	14.6	Jun-11
Harbourvest Credit Opps IX	1,280,685	0.1	0.0	4.3	6.2	6.2	13.1	12.4	--	7.8	15.0	18.1	7.8	20.6	14.2	Jun-11
Harbourvest International PE VI	2,887,264	0.3	0.0	3.7	4.6	4.6	13.7	12.3	--	8.0	27.5	7.4	11.9	18.0	7.7	Mar-10
Harbourvest Venture IX	4,525,058	0.5	0.0	5.6	17.7	17.7	16.0	16.9	--	24.3	14.9	4.9	17.6	31.0	14.7	Jun-11
Harbourvest 2017 Global Fund	12,580,256	1.5	0.0	5.0	3.6	3.6	--	--	--	7.9	--	--	--	--	12.4	Sep-17
Harbourvest 2018 Global Fund	1,431,318	0.2	0.0	8.9	--	--	--	--	--	--	--	--	--	--	2.2	Dec-18
Russell 3000 + 3%			4.9	20.4	--	--	--	--	--	--	--	--	--	--	9.5	Dec-18
Total Private Credit																
Portfolio Advisors	19,256,407	2.2	2.2	4.5	9.5	9.5	--	--	--	6.7	--	--	--	--	6.7	Oct-17
BBgBarc High Yield +2% (Lagged)			7.8	3.4	8.0	8.0	--	--	--	5.1	--	--	--	--	5.9	Oct-17
Total Opportunistic																
KKR Mezzanine Partners	2,174,410	0.3	-3.3	-7.3	1.5	1.5	8.9	8.0	--	25.3	8.7	5.6	5.9	12.7	11.6	Apr-11
PIMCO BRAVO	227,169	0.0	-14.4	-35.4	-40.4	-40.4	2.8	4.4	--	77.8	-12.4	12.5	2.2	20.0	13.6	May-11
Total Cash																
Cash Account	3,623,992	0.4	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0	--	
91 Day T-Bills			0.6	1.2	2.3	2.3	1.4	0.9	--	1.9	0.9	0.3	0.0	0.0	--	

Since Inception ranking is from the beginning of the first complete month. Templeton Foreign Equity liquidated 10/27/2015. TimesSquare, BlackRock Russell 1000 and T. Rowe liquidated 12/10/2015. BlackRock Russell 3000 funded 12/10/2015. Harding Loevner funded 7/5/2016. Parametric liquidated 7/5/2016. Vontobel liquidated 7/13/2016. Gresham MTAP liquidated 8/22/2016. BlackRock Commodities liquidated 9/2/2016. ARA American Strategic Value Realty funded 1/4/2018.

Total Fund
Performance Summary (Net of Fees)

Period Ending: June 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014	Inception	Inception Date
Total Fund	865,877,177	100.0	3.2	11.2	6.2	6.2	8.8	5.6	9.1	-4.1	16.0	7.4	-0.4	4.4	8.8	Mar-89
Policy Index			4.2	11.0	7.3	7.3	9.2	5.8	8.8	-2.8	15.9	8.3	-1.2	4.9	--	Mar-89
Total Fund ex Parametric			3.2	11.2	6.2	6.2	8.8	5.6	9.1	-4.1	16.0	7.5	-0.4	4.4	8.8	Mar-89
Policy Index			4.2	11.0	7.3	7.3	9.2	5.8	8.8	-2.8	15.9	8.3	-1.2	4.9	--	Mar-89
Total Domestic Equity	262,816,129	30.4	4.1	18.7	9.0	9.0	14.1	9.8	14.6	-5.2	21.2	12.8	0.1	10.0	--	
Russell 3000			4.1	18.7	9.0	9.0	14.0	10.2	14.7	-5.2	21.1	12.7	0.5	12.6	--	
BlackRock Russell 3000	262,816,129	30.4	4.1	18.7	9.0	9.0	14.1	--	--	-5.2	21.2	12.8	--	--	12.4	Dec-15
Russell 3000			4.1	18.7	9.0	9.0	14.0	--	--	-5.2	21.1	12.7	--	--	12.1	Dec-15
Total International Equity	212,957,293	24.6	2.9	13.4	0.8	0.8	9.4	2.5	6.5	-14.3	27.9	4.4	-4.0	-4.9	--	
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4	--	
BlackRock International Equity	146,521,759	16.9	3.9	14.3	1.4	1.4	9.5	2.5	7.1	-13.5	25.4	1.3	-0.6	-4.8	7.1	Jul-03
MSCI EAFE Gross			4.0	14.5	1.6	1.6	9.6	2.7	7.4	-13.4	25.6	1.5	-0.4	-4.5	7.3	Jul-03
DFA Emerging Markets Value	31,745,291	3.7	0.3	7.5	2.0	2.0	11.2	2.0	5.3	-11.9	33.8	19.8	-18.8	-4.4	3.9	Jan-07
MSCI Emerging Markets Gross			0.7	10.8	1.6	1.6	11.1	2.9	6.2	-14.2	37.8	11.6	-14.6	-1.8	4.4	Jan-07
Harding Loevner Emerging Markets	34,690,243	4.0	1.3	15.0	-2.3	-2.3	--	--	--	-19.5	33.6	--	--	--	7.0	Jul-16
MSCI Emerging Markets Gross			0.7	10.8	1.6	1.6	--	--	--	-14.2	37.8	--	--	--	9.5	Jul-16
Total Fixed Income	238,902,271	27.6	3.1	6.7	7.3	7.3	3.0	3.0	5.0	-0.8	4.3	4.8	-0.6	5.6	--	
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0	--	
Tortoise Capital	99,177,506	11.5	3.1	6.9	8.1	8.1	3.2	3.6	5.4	-0.1	4.3	4.8	0.9	6.7	6.2	Dec-92
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0	5.4	Dec-92
MacKay Shields Core Plus Opportunities	95,990,873	11.1	3.1	6.6	7.5	7.5	3.1	--	--	-1.0	4.5	4.7	--	--	2.6	Mar-15
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3	--	--	0.0	3.5	2.6	--	--	2.7	Mar-15
BlackRock US TIPS	43,733,892	5.1	2.9	6.2	4.9	4.9	2.2	1.8	3.7	-1.2	3.2	4.8	-1.3	3.6	4.1	Apr-07
BBgBarc US TIPS TR			2.9	6.2	4.8	4.8	2.1	1.8	3.6	-1.3	3.0	4.7	-1.4	3.6	4.0	Apr-07

Total Fund
Performance Summary (Net of Fees)

Period Ending: June 30, 2019

	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014	Inception	Inception Date
Total Real Estate	95,781,690	11.1	1.2	3.0	6.4	6.4	6.4	9.0	9.0	7.5	5.8	6.5	15.0	11.6	--	
NCREIF ODCE			1.0	2.4	6.0	6.0	6.7	8.7	9.2	7.1	7.0	8.0	13.3	11.8	--	
ASB Real Estate	36,485,098	4.2	1.2	3.0	6.0	6.0	5.2	8.3	--	6.6	4.0	4.6	16.2	12.5	9.1	Dec-12
NCREIF-ODCE			1.0	2.4	6.4	6.4	7.6	9.8	--	8.3	7.6	8.8	15.0	12.5	10.5	Dec-12
NCREIF Property Index			1.5	3.3	6.5	6.5	6.9	8.8	--	6.7	7.0	8.0	13.3	11.8	9.4	Dec-12
Clarion Lion	36,954,606	4.3	1.2	3.0	6.7	6.7	7.5	10.0	9.1	8.6	7.9	8.0	14.6	12.2	4.5	Dec-06
NCREIF-ODCE			1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.3	7.6	8.8	15.0	12.5	6.1	Dec-06
NCREIF Property Index			1.5	3.3	6.5	6.5	6.9	8.8	9.2	6.7	7.0	8.0	13.3	11.8	6.9	Dec-06
ARA American Strategic Value Realty	20,588,785	2.4	1.5	3.8	7.3	7.3	--	--	--	--	--	--	--	--	8.3	Jan-18
NCREIF ODCE +2%			0.3	2.3	6.8	6.8	--	--	--	--	--	--	--	--	7.4	Jan-18
1221 State St. Corp	1,753,200	0.2	0.0	0.0	0.0	0.0	5.5	3.3	1.1	0.0	0.0	17.5	0.0	0.0	1.1	Sep-08
Total Private Equity																
Harbourvest Buyout IX	7,433,234	0.9	0.0	7.3	13.2	13.2	19.7	18.2	--	16.3	28.5	13.9	14.2	20.9	14.6	Jun-11
Harbourvest Credit Opps IX	1,280,685	0.1	0.0	4.3	6.2	6.2	13.1	12.4	--	7.8	15.0	18.1	7.8	20.6	14.2	Jun-11
Harbourvest International PE VI	2,887,264	0.3	0.0	3.7	4.6	4.6	13.7	12.3	--	8.0	27.5	7.4	11.9	18.0	7.5	Mar-10
Harbourvest Venture IX	4,525,058	0.5	0.0	5.6	17.7	17.7	16.0	16.9	--	24.3	14.9	4.9	17.6	31.0	14.7	Jun-11
Harbourvest 2017 Global Fund	12,580,256	1.5	0.0	5.0	3.6	3.6	--	--	--	7.9	--	--	--	--	12.4	Sep-17
Harbourvest 2018 Global Fund	1,431,318	0.2	0.0	8.9	--	--	--	--	--	--	--	--	--	--	2.2	Dec-18
Russell 3000 + 3%			4.9	20.4	--	--	--	--	--	--	--	--	--	--	9.5	Dec-18
Total Private Credit																
Portfolio Advisors	19,256,407	2.2	2.2	4.5	9.5	9.5	--	--	--	6.7	--	--	--	--	6.7	Oct-17
BBgBarc High Yield +2% (Lagged)			7.8	3.4	8.0	8.0	--	--	--	5.1	--	--	--	--	5.9	Oct-17
Total Opportunistic																
KKR Mezzanine Partners	2,174,410	0.3	-3.3	-7.3	1.5	1.5	8.6	7.1	--	25.3	8.7	4.0	4.1	11.3	10.6	Apr-11
PIMCO BRAVO	227,169	0.0	-14.4	-35.4	-40.4	-40.4	2.2	3.9	--	77.8	-12.4	11.2	1.0	18.9	12.7	May-11
Total Cash																
Cash Account	3,623,992	0.4	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0	0.0	--	
91 Day T-Bills			0.6	1.2	2.3	2.3	1.4	0.9	--	1.9	0.9	0.3	0.0	0.0	--	

Investment Manager

Performance Analysis - 3 & 5 Years (Net of Fees)

Period Ending: June 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
BlackRock Russell 3000	14.06%	0.04%	12.53%	0.04%	1.00	0.04%	1.00	1.01	0.96	100.19%	99.98%
BlackRock International Equity	9.46%	-0.19%	11.10%	-0.21%	1.00	0.16%	1.00	0.73	-1.19	99.77%	101.00%
DFA Emerging Markets Value	11.21%	0.14%	13.60%	0.73%	0.95	3.63%	0.93	0.72	0.04	97.14%	96.38%
Tortoise Capital	3.24%	0.93%	2.77%	1.21%	0.88	0.84%	0.93	0.68	1.11	103.66%	75.27%
Mackay Shields Core Plus Opportunities	3.07%	0.76%	2.88%	0.95%	0.91	0.82%	0.93	0.58	0.92	103.75%	81.15%
BlackRock US TIPS	2.20%	0.11%	2.94%	0.11%	1.00	0.03%	1.00	0.29	3.49	101.32%	98.61%
ASB Real Estate	5.25%	-2.32%	2.42%	-0.07%	0.70	1.38%	0.82	1.61	-1.68	69.21%	--
Clarion Lion	7.52%	-0.05%	3.19%	-0.03%	1.00	0.67%	0.96	1.93	-0.08	101.07%	--

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
BlackRock International Equity	2.53%	-0.21%	12.31%	-0.21%	1.00	0.12%	1.00	0.14	-1.67	99.60%	100.63%
DFA Emerging Markets Value	1.99%	-0.88%	16.68%	-0.96%	1.03	3.81%	0.95	0.07	-0.23	102.86%	103.51%
Tortoise Capital	3.61%	0.66%	2.80%	0.92%	0.91	0.87%	0.91	0.99	0.76	104.79%	84.97%
BlackRock US TIPS	1.83%	0.07%	3.55%	0.05%	1.01	0.13%	1.00	0.28	0.55	101.45%	100.00%
ASB Real Estate	8.25%	-1.50%	4.48%	-1.30%	0.98	1.80%	0.84	1.65	-0.83	86.03%	--
Clarion Lion	9.94%	0.18%	4.57%	-0.51%	1.07	0.93%	0.96	1.99	0.20	106.68%	--

Private Equity Non Marketable Securities Overview

Period Ending: June 30, 2019

Vintage	Manager & Fund Name	Estimated 6/30 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁴	IRR Date	
2011	HarbourVest IX-Buyout	\$7,433,234	\$10,000,000	\$8,275,000	83%	\$1,725,000	\$5,767,092	\$7,282,197	69.7%	159.5%	17.3%	12/31/18	
2011	HarbourVest IX-Credit	\$1,280,685	\$2,000,000	\$1,500,000	75%	\$500,000	\$885,469	\$1,235,080	59.0%	144.4%	13.8%	12/31/18	
2008	HarbourVest Int'l VI ⁵	\$2,887,264	\$3,712,930	\$2,605,981	70%	\$1,106,949	\$1,852,543	\$2,728,273	71.1%	181.9%	14.5%	12/31/18	
2011	HarbourVest IX-Venture	\$4,525,058	\$4,000,000	\$3,800,000	95%	\$200,000	\$2,211,941	\$4,651,709	58.2%	177.3%	17.2%	12/31/18	
2017	HarbourVest 2017 Global	\$12,580,256	\$30,000,000	\$12,000,000	40%	\$18,000,000	\$1,187,853	\$11,985,552	9.9%	114.7%	16.1%	12/31/18	
2018	HarbourVest 2018 Global	\$1,431,318	\$20,000,000	\$1,400,000	7%	\$18,600,000	\$0	\$1,314,191	0.0%	102.2%	-7.1%	12/31/18	
Total Illiquid Private Equity		\$30,137,815	\$69,712,930	\$29,580,981	42%	\$40,131,949	\$11,904,898	\$29,197,002	98.7%	138.9%			
% of Portfolio (Market Value)		3.5%						Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense ⁶	
								HarbourVest IX-Buyout	\$24,897	\$0	\$0	\$8,272	\$33,169
								HarbourVest IX-Credit	\$4,973	\$0	\$0	\$2,192	\$7,165
								HarbourVest Int'l VI	\$6,728	\$0	\$0	\$36	\$6,764
								HarbourVest IX-Venture	\$9,976	\$0	\$0	\$135	\$10,111
								HarbourVest 2017 Global	\$48,214	\$0	\$0	\$39,397	\$87,611
								HarbourVest 2018 Global	\$22,500	\$0	\$0	\$13,525	\$36,025
									\$117,288	\$0	\$0	\$63,557	\$180,845

¹(DPI) is equal to (capital returned / capital called)²(TVPI) is equal to (market value + capital returned) / capital called³Last known market value + capital calls - distributions (preliminary MV's as of 3/31/19)⁴Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.⁵HarbourVest International Private Equity Partners VI-Partnership Fund L.P. values are originally presented in euros and are calculated to dollars using XE™.⁶All fees and expenses are for 1Q 2019

HarbourVest 2017 Global Fund first capital call issued 9/21/2017. Portfolio Advisors first capital call issued 10/5/2017. HarbourVest 2018 Global Fund first capital call issued 12/13/2018.

Private Credit Non Marketable Securities Overview

¹ (DPI) is equal to (capital returned / capital called)	\$64,859	\$134,729	\$16,601	\$0	\$21,920	\$238,109
² (TVPI) is equal to (market value + capital returned) / capital called						
³ Last known market value + capital calls - distributions (preliminary MV's as of 3/31/19)						
⁴ Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.						
⁵ All fees and expenses are for 1Q 2019						
⁶ The Fund issued its first capital call on October 26, 2018. As such it does not consider the IRR to be meaningful.						
⁷ Given the nature of the ACE IV strategy, Ares will begin reporting fund-level IRR metrics beginning in Q3 2019, one year after the fund's first investment.						

Opportunistic Non Marketable Securities Overview

Period Ending: June 30, 2019

Vintage	Manager & Fund Name	Estimated 6/30 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value for IRR	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date	
2010	KKR Mezzanine ⁶	\$2,174,410	\$10,000,000	\$10,000,000	100%	\$0	\$13,137,486	\$2,174,410	131.4%	153.1%	8.2%	3/31/19	
2011	PIMCO BRAVO ⁴	\$227,169	\$10,000,000	\$10,000,000	100%	\$0	\$18,054,734	\$227,169	180.5%	182.8%	22.1%	3/31/19	
Total Illiquid Opportunistic		\$2,401,579	\$20,000,000	\$20,000,000	100%	\$0	\$31,192,220	\$2,401,579	12.0%	168.0%			
% of Portfolio (Market Value)		0.3%											
							Management Fee	Accrued Carried Interest	Admin Fee	Interest Expense	Other Expense	Total Expense ⁷	
							KKR Mezzanine	\$7,844	\$18,550	\$0	\$0	\$3,798	\$30,192
							PIMCO BRAVO	\$0	\$9,471	\$89	\$1	\$439	\$10,000
								\$7,844	\$28,021	\$89	\$1	\$4,237	\$40,192

¹(DPI) is equal to (capital returned / capital called)²(TVPI) is equal to (market value + capital returned) / capital called³Last known market value + capital calls - distributions (preliminary MV's as of 3/31/19)⁴Investment period ended, no further capital to be called.⁵Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.⁶KKR: Total capital called is \$11,796,786, which includes recycled distributions. Unused capital commitment is \$1,054,718 after including distribution proceeds available for reinvestment⁷All fees and expenses are for 1Q 2019

Total Fund
Financial Reconciliation (Last Three Months)

Period Ending: June 30, 2019

Manager	Beginning Market Value	Contributions	Disbursements	Fees ²	Net Cash Flow	Investment Income	Capital Gain/ Loss	Total Gains/Earnings/ Losses	Ending Market Value
Blackrock Russell 3000 Index	\$261,335,937	\$0	(\$9,161,884)	\$0	(\$9,161,884)	\$0	\$10,642,077	\$10,642,077	\$262,816,129
DFA Emerging Markets	\$31,654,761	\$0	\$0	\$0	\$0	\$0	\$90,530	\$90,530	\$31,745,291
Harding Loevner Emerging Markets	\$34,150,869	\$0	\$0	\$0	\$0	\$0	\$539,374	\$539,374	\$34,690,243
Blackrock International Equity	\$140,998,352	\$0	\$0	\$0	\$0	\$0	\$5,523,407	\$5,523,407	\$146,521,759
Tortoise Capital	\$96,095,440	\$0	\$0	\$0	\$0	\$0	\$3,082,066	\$3,082,066	\$99,177,506
MacKay Shields Core Plus Opp.	\$93,190,132	\$5,637,958	(\$5,639,413)	\$0	(\$1,456)	\$0	\$2,802,197	\$2,802,197	\$95,990,873
Blackrock US TIPS	\$42,509,247	\$0	\$0	\$0	\$0	\$0	\$1,224,645	\$1,224,645	\$43,733,892
Clarion Lion Properties	\$36,524,454	\$360,999	(\$365,584)	(\$92,881)	(\$97,466)	\$0	\$527,618	\$527,618	\$36,954,606
ICERS State Street Real Estate	\$1,780,700	\$13,619	(\$41,129)	\$0	(\$27,510)	\$10	\$0	\$10	\$1,753,200
ASB Allegiance Real Estate	\$35,981,713	\$80,910	\$0	(\$80,910)	\$0	\$263,645	\$239,740	\$503,385	\$36,485,098
ARA American Strategic Value Realty	\$12,678,398	\$7,665,000	\$0	\$0	\$7,665,000	\$0	\$245,387	\$245,387	\$20,588,785
Portfolio Advisors Credit Strategies Fund	\$12,227,783	\$0	\$0	(\$109,980)	(\$109,980)	\$86,417	\$231,995	\$318,412	\$12,436,215
Crescent Direct Lending II	\$2,563,926	\$759,026	\$0	(\$60,758)	\$698,268	\$139,152	(\$4,368)	\$134,784	\$3,396,978
Audax Direct Lending A	\$547,083	\$554,333	(\$19,580)	(\$27,827)	\$506,926	\$41,579	\$7,665	\$49,244	\$1,103,253
Ares Capital Europe IV	\$2,235,660	\$0	(\$31,265)	(\$39,544)	(\$70,809)	\$66,331	\$66,533	\$132,864	\$2,297,715
Lone Star Fund XI	\$0	\$22,246	\$0	\$0	\$22,246	\$0	\$0	\$0	\$22,246
PIMCO BRAVO ¹	\$265,255	\$0	\$0	(\$10,000)	(\$10,000)	\$417	(\$28,503)	(\$28,086)	\$227,169
KKR Mezzanine I ¹	\$2,248,609	\$0	\$0	(\$30,192)	(\$30,192)	\$71,151	(\$115,158)	(\$44,007)	\$2,174,410
HarbourVest International VI ¹	\$2,948,949	\$0	(\$172,102)	(\$6,764)	(\$178,866)	\$0	\$117,181	\$117,181	\$2,887,264
HarbourVest Buyout IX ¹	\$6,863,283	\$250,000	(\$178,239)	(\$33,169)	\$38,592	\$742	\$530,617	\$531,359	\$7,433,234
HarbourVest Credit Opportunities IX ¹	\$1,195,812	\$50,000	(\$16,262)	(\$7,165)	\$26,573	\$1,351	\$56,949	\$58,300	\$1,280,685
HarbourVest Venture IX ¹	\$4,497,252	\$0	(\$226,241)	(\$10,111)	(\$236,352)	\$574	\$263,584	\$264,158	\$4,525,058
HarbourVest 2017 Global ¹	\$12,382,710	\$0	\$0	(\$87,611)	(\$87,611)	\$1,292	\$283,865	\$285,157	\$12,580,256
HarbourVest 2018 Global ¹	\$1,361,992	\$0	\$0	(\$36,025)	(\$36,025)	\$5,150	\$100,201	\$105,351	\$1,431,318
Cash	\$3,708,497	\$452,111	(\$536,616)	\$0	(\$84,505)	\$0	\$0	\$0	\$3,623,992
Totals	\$839,946,815	\$15,846,201	(\$16,388,315)	(\$632,937)	(\$1,175,050)	\$677,810	\$26,427,602	\$27,105,412	\$865,877,177

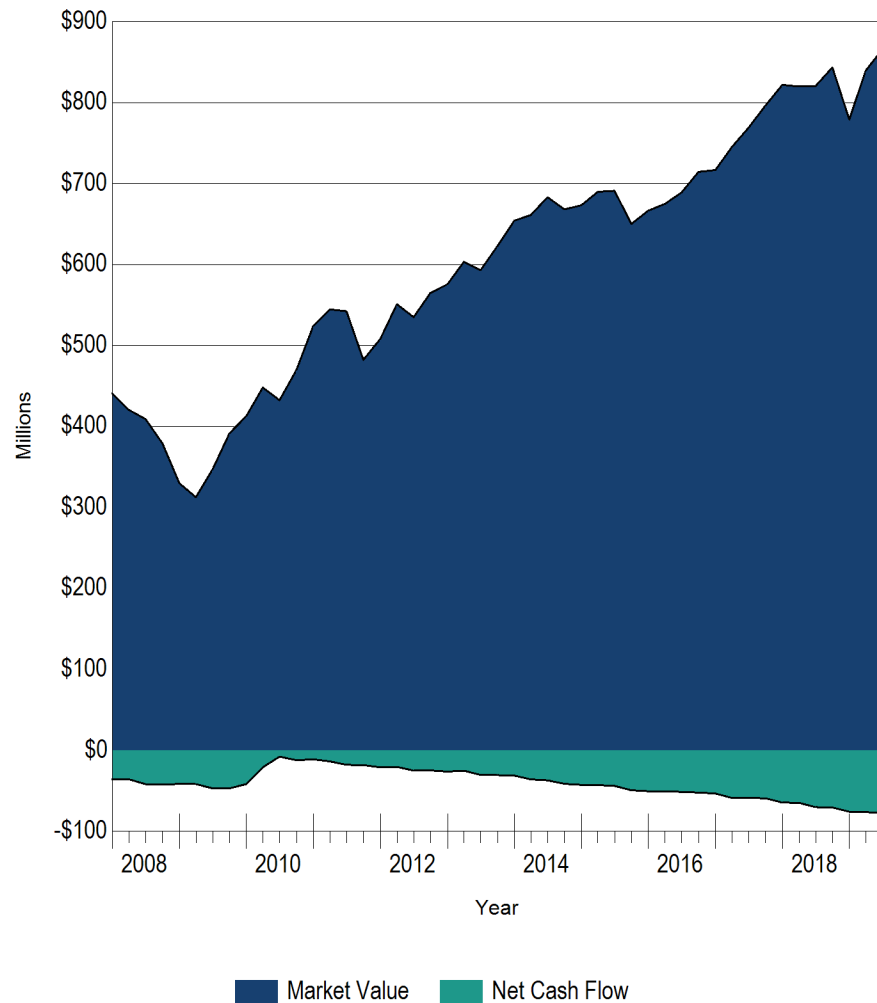
¹Market value as of 12/31/2018/ +/- 1Q19 calls and distributions

²Fee transactions not included in the Portfolio Reconciliation page at beginning of report

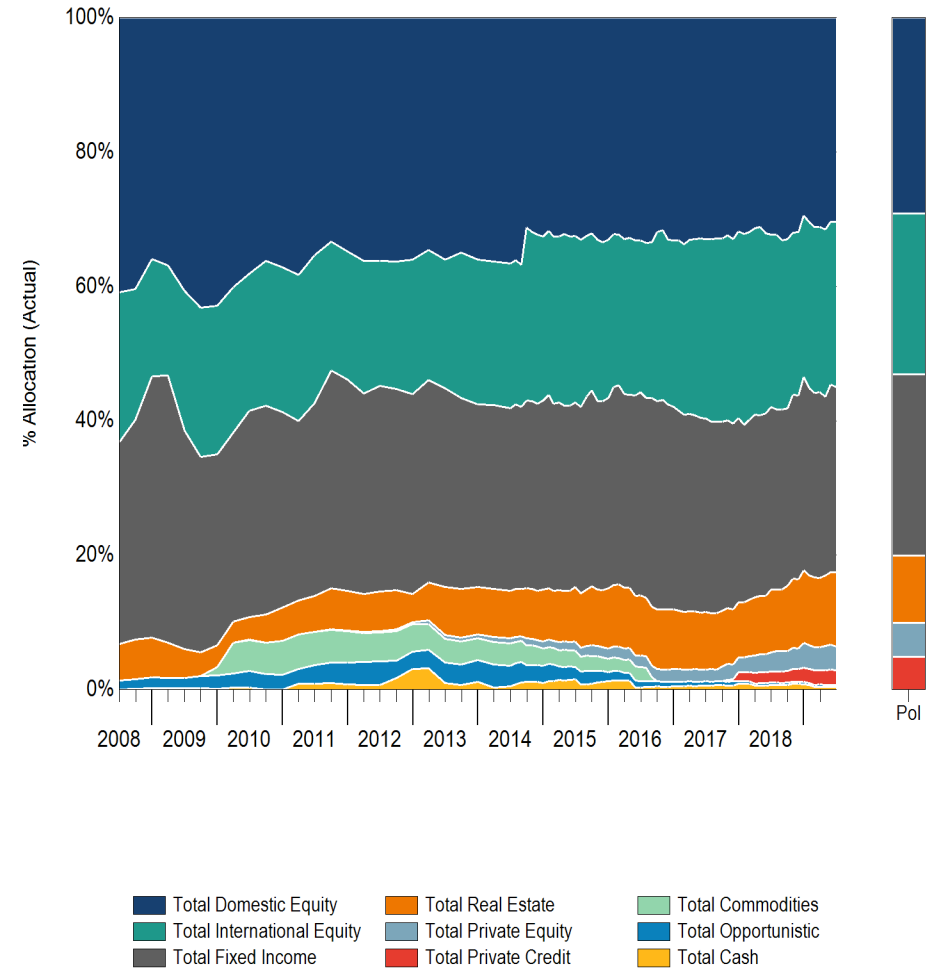
Total Fund Asset Allocation History

Period Ending: June 30, 2019

Market Value History

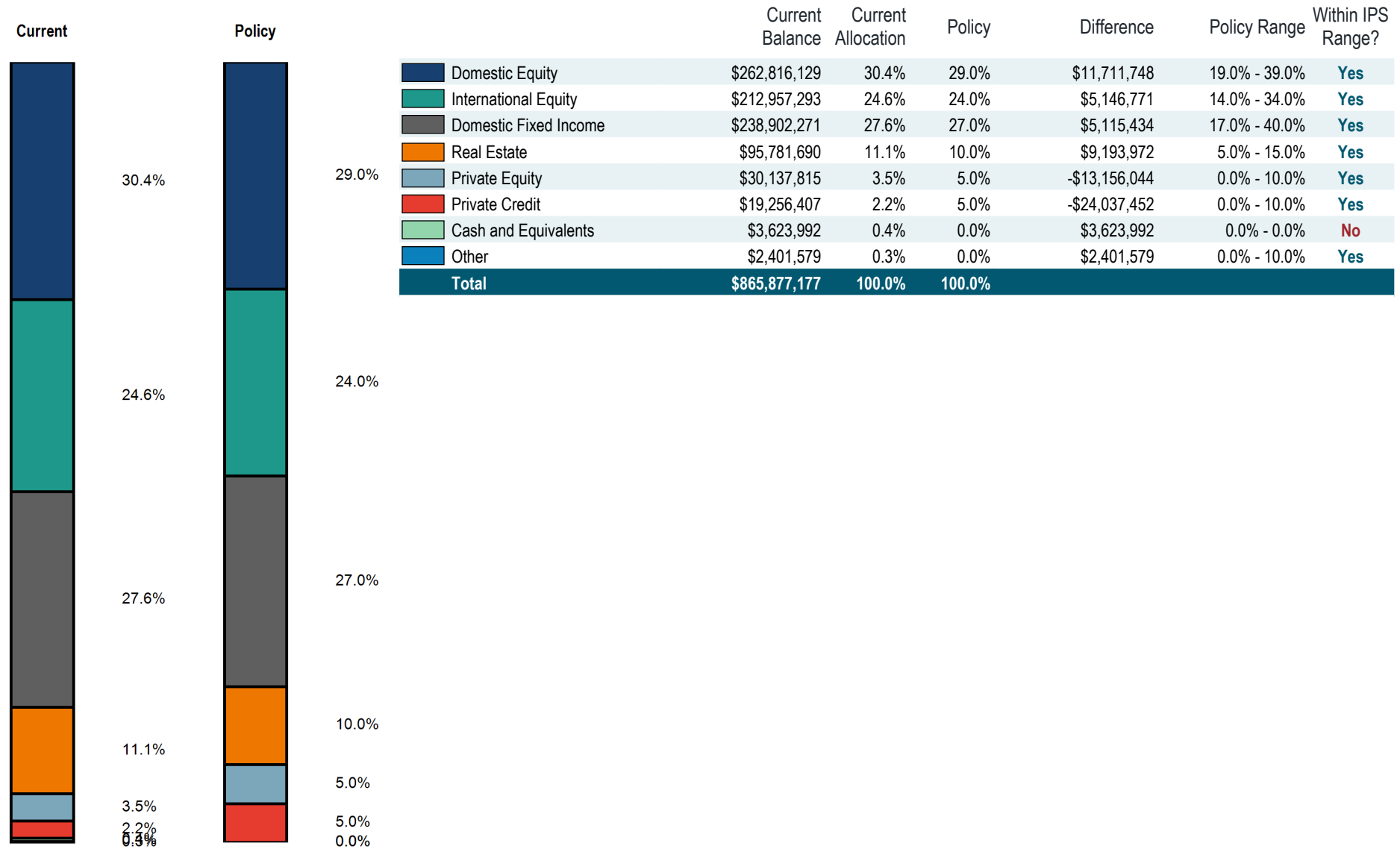


Asset Allocation History



Total Fund
Asset Allocation vs. Policy

Period Ending: June 30, 2019



Total Fund Investment Fee Analysis

Period Ending: June 30, 2019

Account	Fee Schedule	Market Value As of 6/30/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
1221 State St. Corp	No Fee	\$1,753,200	0.2%	--	--
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	\$20,588,785	2.4%	\$252,065	1.22%
ASB Real Estate	1.25% of First 5.0 Mil, 1.00% of Next 10.0 Mil, 0.75% Thereafter	\$36,485,098	4.2%	\$323,638	0.89%
BlackRock International Equity	0.15% of First 50.0 Mil, 0.10% of Next 50.0 Mil	\$146,521,759	17.1%	\$125,000	0.09%
BlackRock Russell 3000	0.03% of Assets	\$262,816,129	30.6%	\$78,845	0.03%
BlackRock US TIPS	0.07% of Assets	\$43,733,892	5.1%	\$30,614	0.07%
Cash Account	No Fee	\$3,623,992	0.4%	--	--
Clarion Lion	1.25% of First 10.0 Mil, 1.00% of Next 15.0 Mil, 0.85% Thereafter	\$36,954,606	4.3%	\$376,614	1.02%
DFA Emerging Markets Value	0.57% of Assets	\$31,745,291	3.7%	\$180,948	0.57%
Harbourvest 2017 Global Fund	262,500 Annually	\$12,580,256	1.5%	\$262,500	2.09%
Harbourvest 2018 Global Fund	138,000 Annually	\$1,431,318	0.2%	\$138,000	9.64%
Harbourvest Buyout IX	100,000 Annually	\$7,433,234	0.9%	\$100,000	1.35%
Harbourvest Credit Ops IX	20,000 Annually	\$1,280,685	0.1%	\$20,000	1.56%
Harbourvest International PE VI	35,000 Annually	\$2,887,264	0.3%	\$35,000	1.21%
Harbourvest Venture IX	40,000 Annually	\$4,525,058	0.5%	\$40,000	0.88%
Harding Loevner Emerging Markets	1.05% of Assets	\$34,690,243	4.0%	\$364,248	1.05%
KKR Mezzanine Partners	150,000 Annually	\$2,174,410	0.3%	\$150,000	6.90%
MacKay Shields Core Plus Opportunities	0.35% of Assets	\$95,990,873	11.2%	\$335,968	0.35%
PIMCO BRAVO	1.90% of Assets	\$227,169	0.0%	\$4,316	1.90%
Portfolio Advisors Credit Strategies Fund	180,000 Annually	\$12,436,215	1.4%	\$180,000	1.45%
Tortoise Capital	0.29% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$99,177,506	11.5%	\$282,656	0.28%
Investment Management Fee		\$859,056,984	100.0%	\$3,280,412	0.38%

*HarbourVest, KKR and PIMCO BRAVO fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund.

*HarbourVest International Private Equity VI fees are based on committed Euros, actual US Dollar amount will fluctuate based on exchange rates.

*Verus advisory fee shown for disclosure purposes only and is not included in total investment management fee calculations.

*Portfolio Advisors fee is 0.20% on committed capital and 1.00% on invested capital.

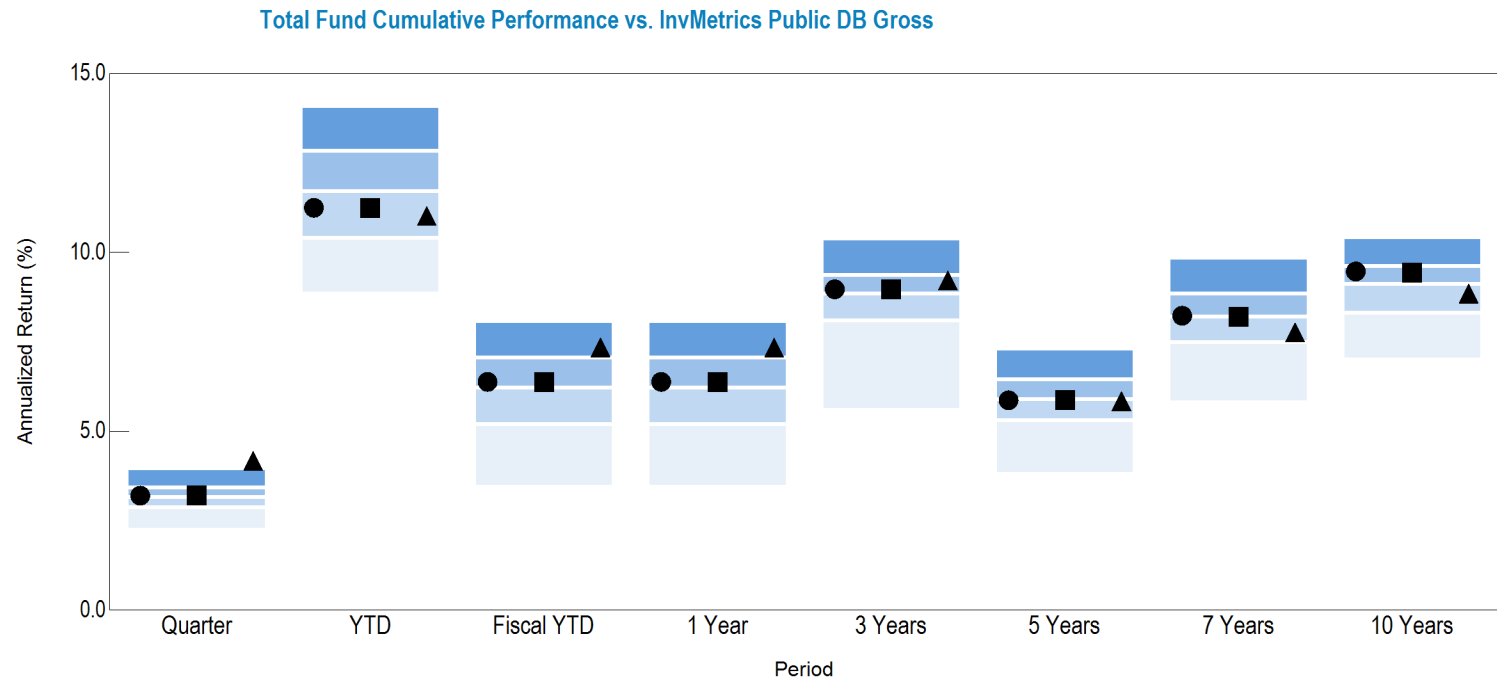
*Total fund market value excludes other investments managed by Portfolio Advisors.

*HarbourVest funds annual fee amounts calculated by applying the average annual fee charged to each fund over its expected lifecycle by its respective capital commitment.

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: June 30, 2019

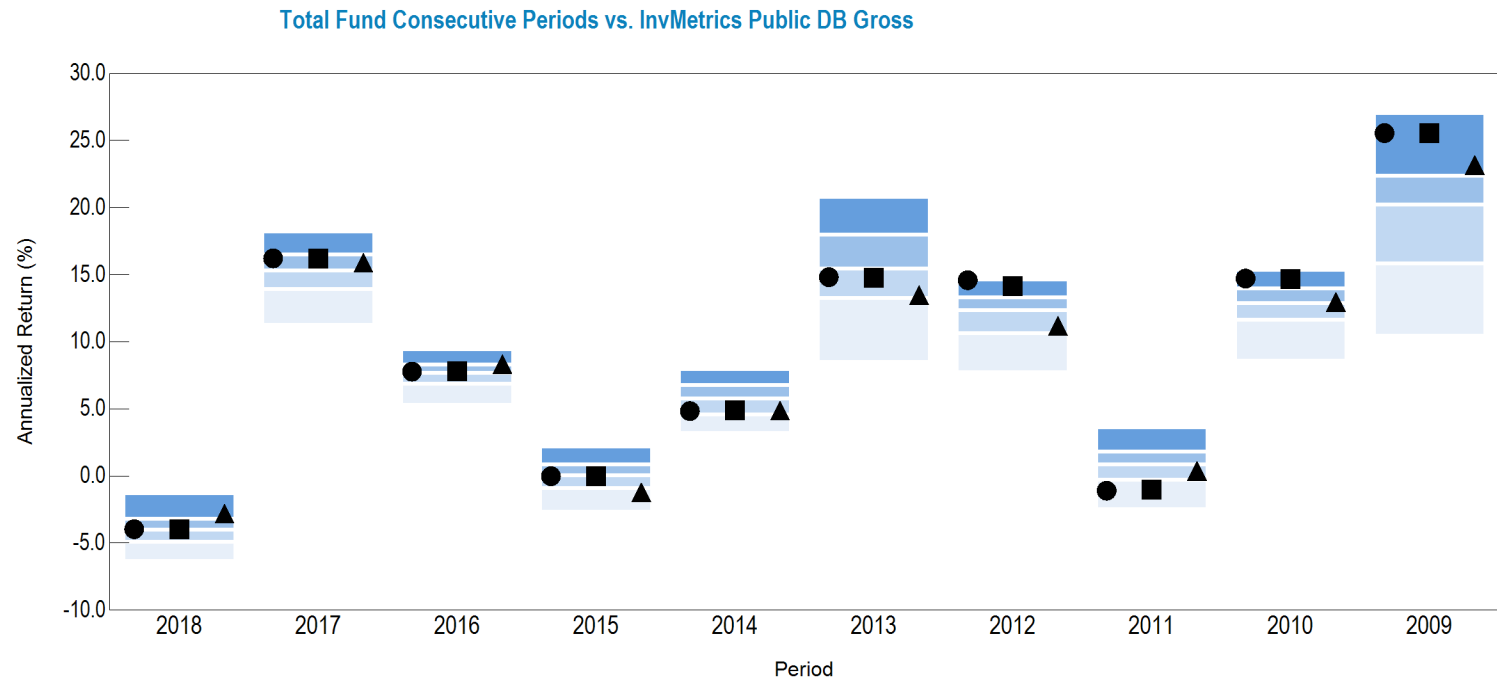


	Return (Rank)											
5th Percentile	4.0		14.1		8.1		8.1		10.4		7.3	
25th Percentile	3.4		12.8		7.1		7.1		9.4		6.5	
Median	3.2		11.7		6.2		6.2		8.9		5.9	
75th Percentile	2.9		10.4		5.2		5.2		8.1		5.3	
95th Percentile	2.3		8.9		3.4		3.4		5.6		3.8	
# of Portfolios	355		354		349		349		340		324	
● Total Fund	3.2	(48)	11.2	(63)	6.4	(43)	6.4	(43)	9.0	(45)	5.9	(52)
■ Total Fund ex Parametric	3.2	(48)	11.2	(63)	6.4	(43)	6.4	(43)	9.0	(45)	5.9	(52)
▲ Policy Index	4.2	(3)	11.0	(68)	7.3	(17)	7.3	(17)	9.2	(30)	5.8	(54)

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: June 30, 2019

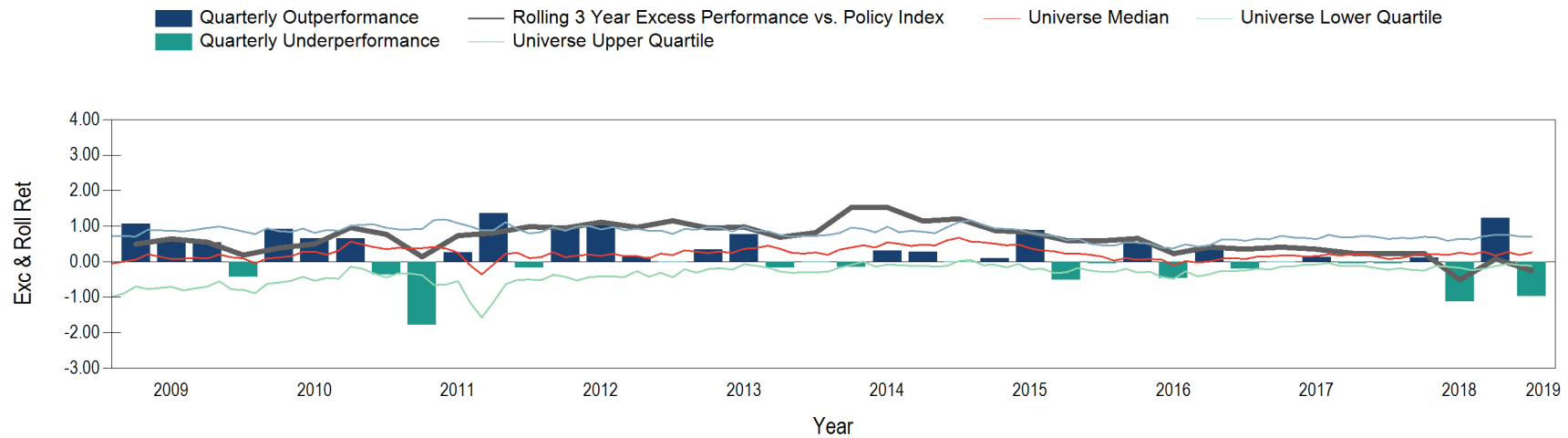


	Return (Rank)									
5th Percentile	-1.3	18.2	9.4	2.2	8.0	20.8	14.6	3.6	15.4	27.0
25th Percentile	-3.1	16.5	8.4	0.9	6.8	18.0	13.4	1.9	14.0	22.4
Median	-4.0	15.3	7.7	0.1	5.8	15.5	12.4	0.9	12.9	20.2
75th Percentile	-4.9	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	11.7	15.9
95th Percentile	-6.3	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	8.6	10.5
# of Portfolios	319	304	305	316	248	231	236	206	188	184
● Total Fund	-4.0 (50)	16.2 (30)	7.8 (49)	0.0 (53)	4.8 (74)	14.8 (59)	14.6 (6)	-1.1 (89)	14.7 (13)	25.6 (11)
■ Total Fund ex Parametric	-4.0 (50)	16.2 (30)	7.8 (49)	0.0 (53)	4.9 (72)	14.7 (59)	14.2 (11)	-1.0 (88)	14.7 (15)	25.6 (11)
▲ Policy Index	-2.8 (18)	15.9 (40)	8.3 (26)	-1.2 (81)	4.9 (72)	13.5 (74)	11.2 (72)	0.4 (63)	13.0 (49)	23.2 (23)

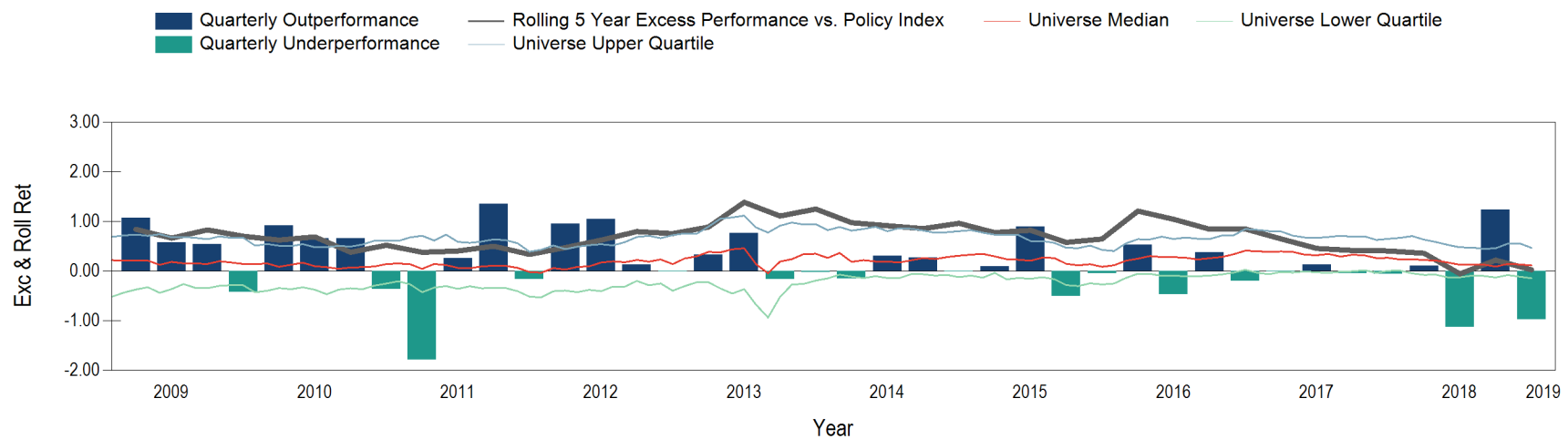
Total Fund
Rolling Return Analysis (Gross of Fees)

Period Ending: June 30, 2019

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

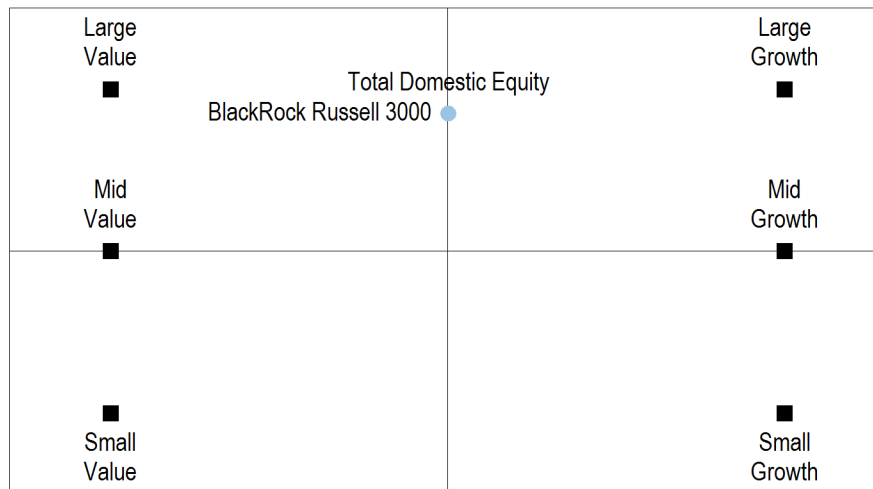


Total Domestic Equity
Asset Class Overview (Gross of Fees)

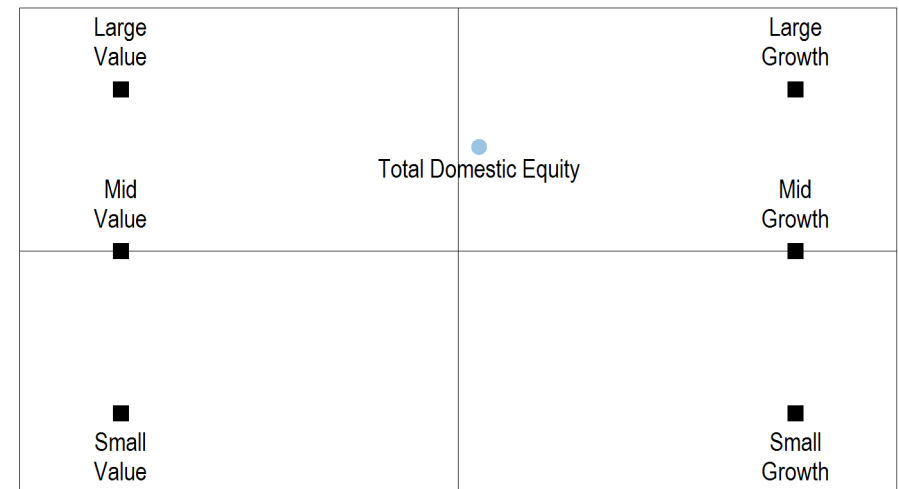
Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	262,816,129	4.1	18.7	9.0	9.0	14.1	9.9	14.8	-5.2	21.2	12.9	0.3	10.2
<i>Russell 3000</i>		4.1	18.7	9.0	9.0	14.0	10.2	14.7	-5.2	21.1	12.7	0.5	12.6
<i>InvMetrics Public DB US Eq Gross Rank</i>		53	48	31	31	31	41	28	35	35	51	44	73
BlackRock Russell 3000	262,816,129	4.1	18.7	9.0	9.0	14.1	--	--	-5.2	21.2	12.9	--	--
<i>Russell 3000</i>		4.1	18.7	9.0	9.0	14.0	--	--	-5.2	21.1	12.7	--	--
<i>eV US All Cap Core Equity Gross Rank</i>		56	47	50	50	43	--	--	49	49	35	--	--

U.S. Effective Style Map
3 Years Ending June 30, 2019



U.S. Effective Style Map
5 Years Ending June 30, 2019



Total Domestic Equity
Asset Class Overview (Net of Fees)

Period Ending: June 30, 2019

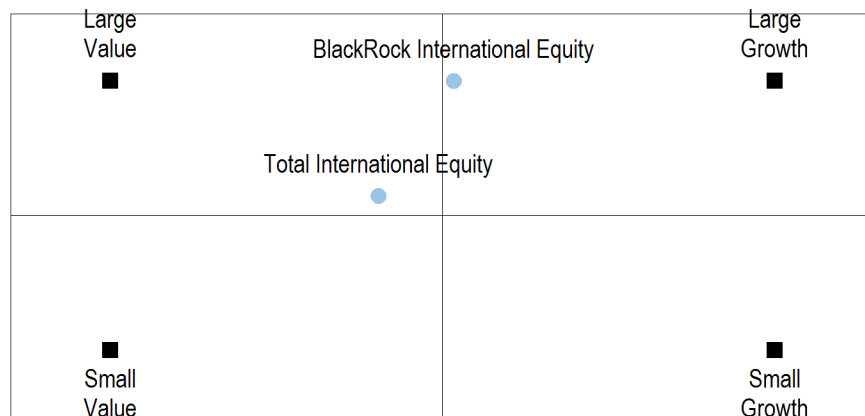
	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	262,816,129	4.1	18.7	9.0	9.0	14.1	9.8	14.6	-5.2	21.2	12.8	0.1	10.0
<i>Russell 3000</i>		<i>4.1</i>	<i>18.7</i>	<i>9.0</i>	<i>9.0</i>	<i>14.0</i>	<i>10.2</i>	<i>14.7</i>	<i>-5.2</i>	<i>21.1</i>	<i>12.7</i>	<i>0.5</i>	<i>12.6</i>
BlackRock Russell 3000	262,816,129	4.1	18.7	9.0	9.0	14.1	--	--	-5.2	21.2	12.8	--	--
<i>Russell 3000</i>		<i>4.1</i>	<i>18.7</i>	<i>9.0</i>	<i>9.0</i>	<i>14.0</i>	<i>--</i>	<i>--</i>	<i>-5.2</i>	<i>21.1</i>	<i>12.7</i>	<i>--</i>	<i>--</i>

Total International Equity Asset Class Overview (Gross of Fees)

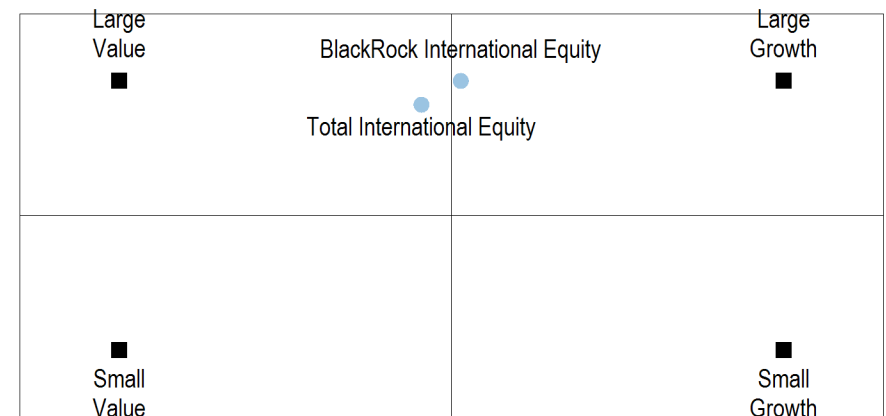
Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	212,957,293	3.0	13.5	1.2	1.2	9.8	2.8	7.0	-14.0	28.3	4.7	-3.5	-4.4
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4
InvMetrics Public DB ex-US Eq Gross Rank		46	55	35	35	26	47	66	35	59	40	57	74
BlackRock International Equity	146,521,759	3.9	14.4	1.5	1.5	9.6	2.6	7.3	-13.4	25.5	1.5	-0.5	-4.7
MSCI EAFE Gross		4.0	14.5	1.6	1.6	9.6	2.7	7.4	-13.4	25.6	1.5	-0.4	-4.5
eV All EAFE Equity Gross Rank		33	42	32	32	43	69	80	35	65	47	67	64
DFA Emerging Markets Value	31,745,291	0.4	7.7	2.5	2.5	11.8	2.6	5.9	-11.4	34.5	20.5	-18.3	-3.9
MSCI Emerging Markets Gross		0.7	10.8	1.6	1.6	11.1	2.9	6.2	-14.2	37.8	11.6	-14.6	-1.8
eV Emg Mkts Equity Gross Rank		80	90	44	44	34	70	94	16	70	7	92	84
Harding Loevner Emerging Markets	34,690,243	1.6	15.6	-1.3	-1.3	--	--	--	-18.6	35.0	--	--	--
MSCI Emerging Markets Gross		0.7	10.8	1.6	1.6	--	--	--	-14.2	37.8	--	--	--
eV Emg Mkts Equity Gross Rank		47	17	80	80	--	--	--	84	68	--	--	--

EAFE Effective Style Map
3 Years Ending June 30, 2019



EAFE Effective Style Map
5 Years Ending June 30, 2019

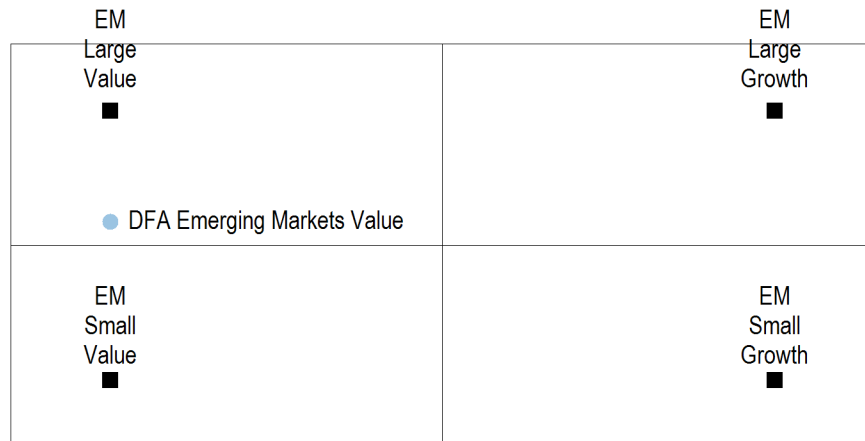


Total International Equity
Asset Class Overview (Net of Fees)

Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	212,957,293	2.9	13.4	0.8	0.8	9.4	2.5	6.5	-14.3	27.9	4.4	-4.0	-4.9
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4
BlackRock International Equity	146,521,759	3.9	14.3	1.4	1.4	9.5	2.5	7.1	-13.5	25.4	1.3	-0.6	-4.8
MSCI EAFE Gross		4.0	14.5	1.6	1.6	9.6	2.7	7.4	-13.4	25.6	1.5	-0.4	-4.5
DFA Emerging Markets Value	31,745,291	0.3	7.5	2.0	2.0	11.2	2.0	5.3	-11.9	33.8	19.8	-18.8	-4.4
MSCI Emerging Markets Gross		0.7	10.8	1.6	1.6	11.1	2.9	6.2	-14.2	37.8	11.6	-14.6	-1.8
Harding Loevner Emerging Markets	34,690,243	1.3	15.0	-2.3	-2.3	--	--	--	-19.5	33.6	--	--	--
MSCI Emerging Markets Gross		0.7	10.8	1.6	1.6	--	--	--	-14.2	37.8	--	--	--

EM Effective Style Map
3 Years 3 Months Ending June 30, 2019

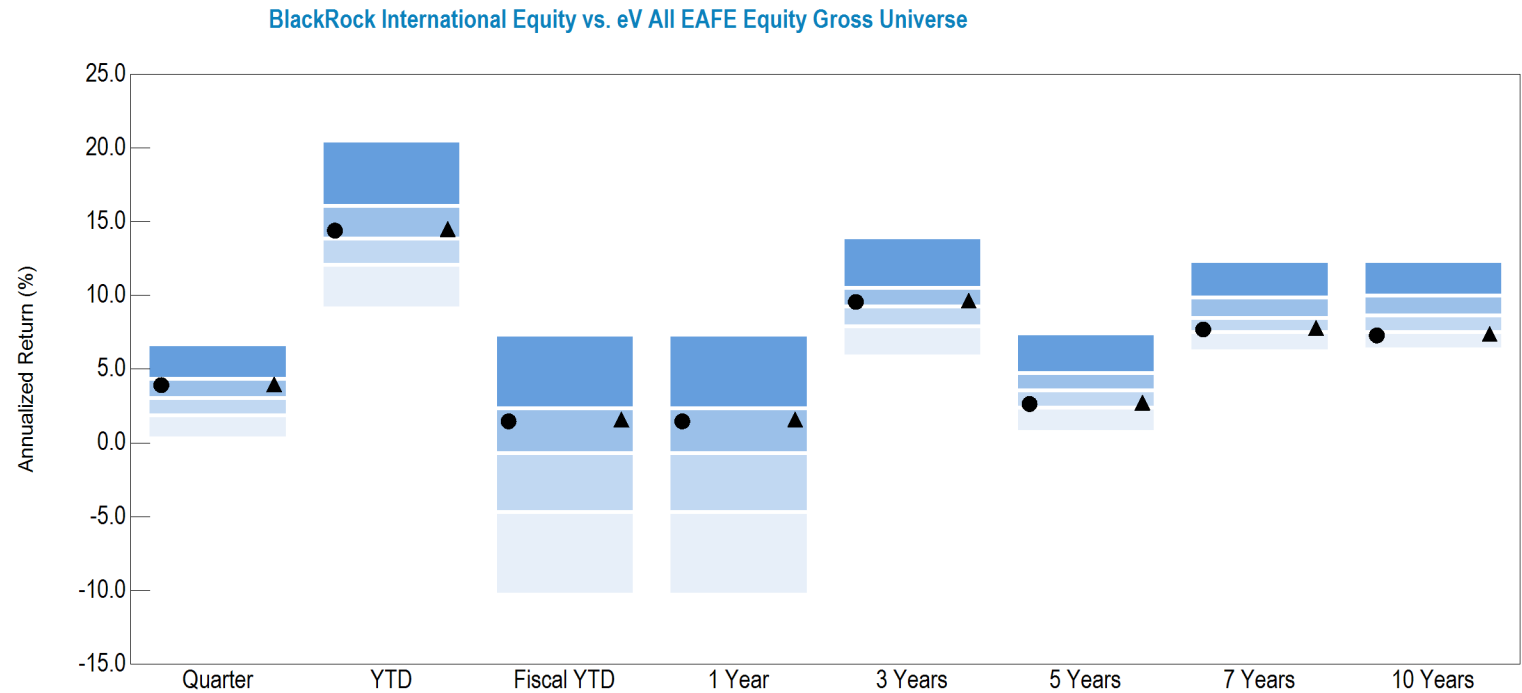


EM Effective Style Map
5 Years 3 Months Ending June 30, 2019



BlackRock International Equity
Cumulative Performance Comparison (Gross of Fees)

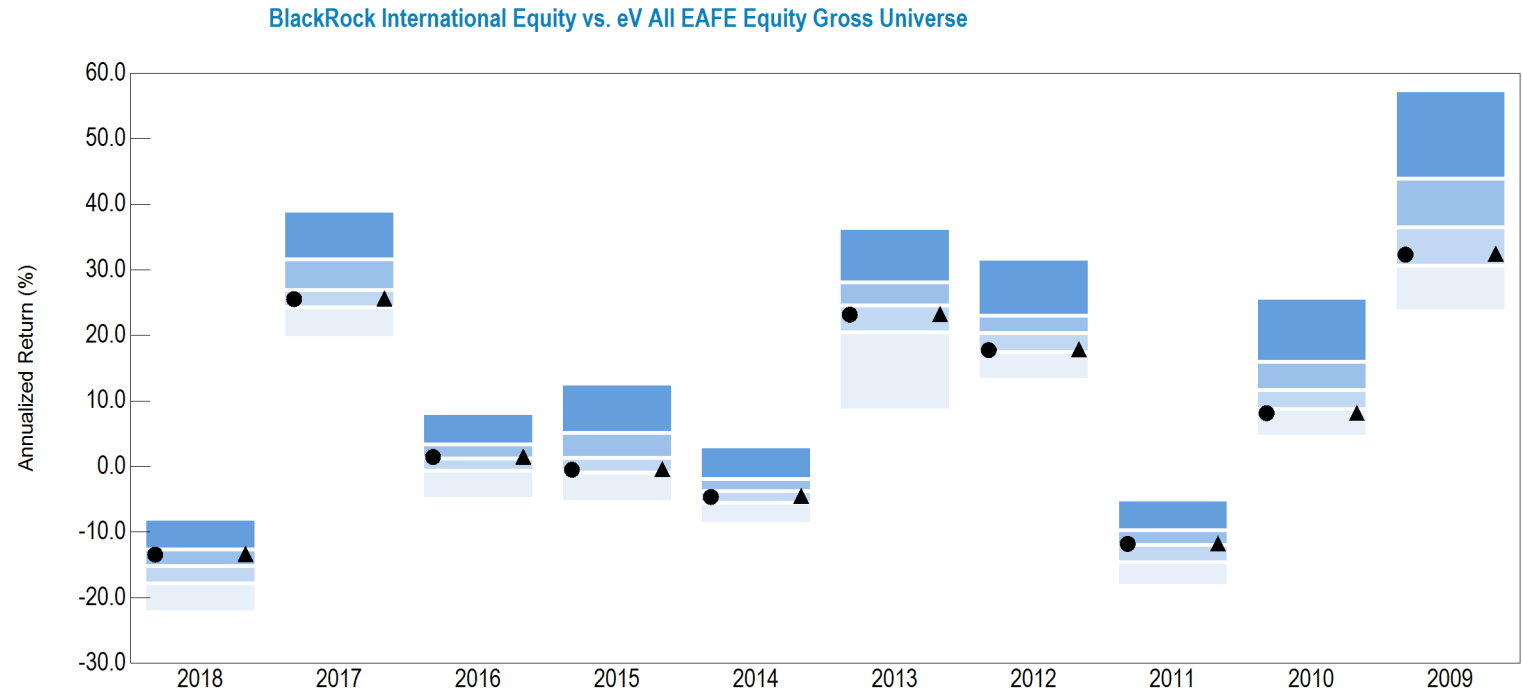
Period Ending: June 30, 2019



	Return (Rank)													
5th Percentile	6.7		20.5		7.3		7.3		13.9		7.4		12.3	
25th Percentile	4.4		16.1		2.4		2.4		10.5		4.8		9.9	
Median	3.1		13.9		-0.7		-0.7		9.3		3.6		8.5	
75th Percentile	1.9		12.1		-4.7		-4.7		7.9		2.4		7.5	
95th Percentile	0.3		9.2		-10.3		-10.3		5.9		0.8		6.2	
# of Portfolios	396		396		396		396		379		337		303	
● BlackRock International Equity	3.9	(33)	14.4	(42)	1.5	(32)	1.5	(32)	9.6	(43)	2.6	(69)	7.7	(72)
▲ MSCI EAFE Gross	4.0	(33)	14.5	(40)	1.6	(31)	1.6	(31)	9.6	(41)	2.7	(66)	7.8	(69)
													7.3	(80)
													7.4	(79)

BlackRock International Equity
Consecutive Performance Comparison (Gross of Fees)

Period Ending: June 30, 2019

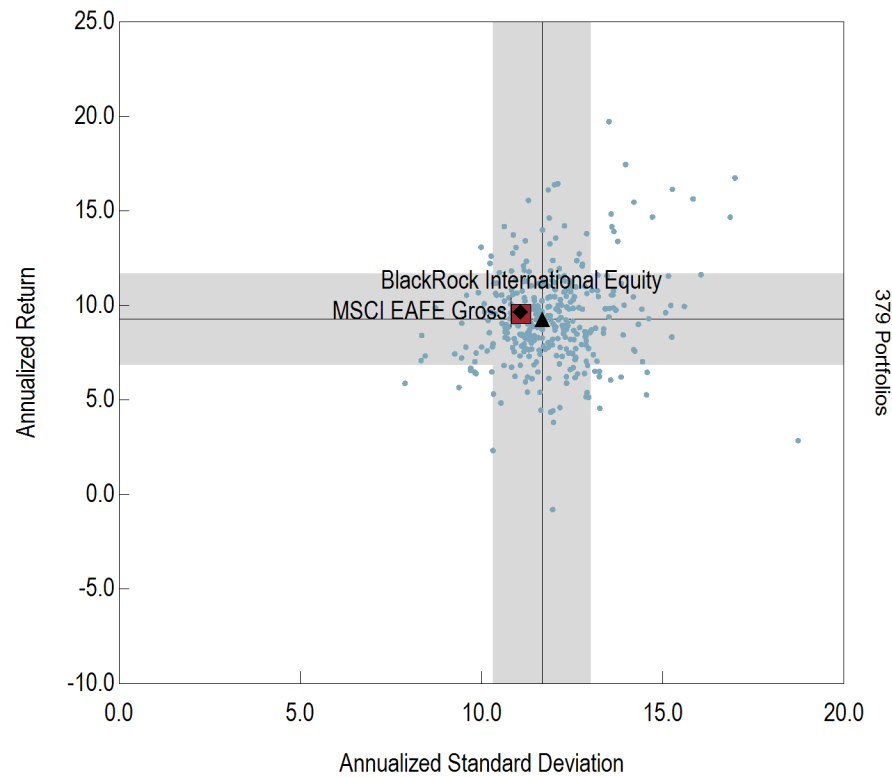


	Return (Rank)									
5th Percentile	-8.0	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7	57.3
25th Percentile	-12.6	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1	44.0
Median	-15.1	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7	36.5
75th Percentile	-17.8	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7	30.7
95th Percentile	-22.2	19.7	-4.9	-5.4	-8.6	8.6	13.3	-18.2	4.6	23.7
# of Portfolios	391	370	350	325	314	284	263	278	352	455
● BlackRock International Equity	-13.4 (35)	25.5 (65)	1.5 (47)	-0.5 (67)	-4.7 (64)	23.2 (61)	17.8 (74)	-11.8 (48)	8.1 (79)	32.3 (68)
▲ MSCI EAFE Gross	-13.4 (35)	25.6 (63)	1.5 (47)	-0.4 (66)	-4.5 (60)	23.3 (60)	17.9 (72)	-11.7 (47)	8.2 (78)	32.5 (67)

BlackRock International Equity Risk vs Return Three & Five Year (Gross of Fees)

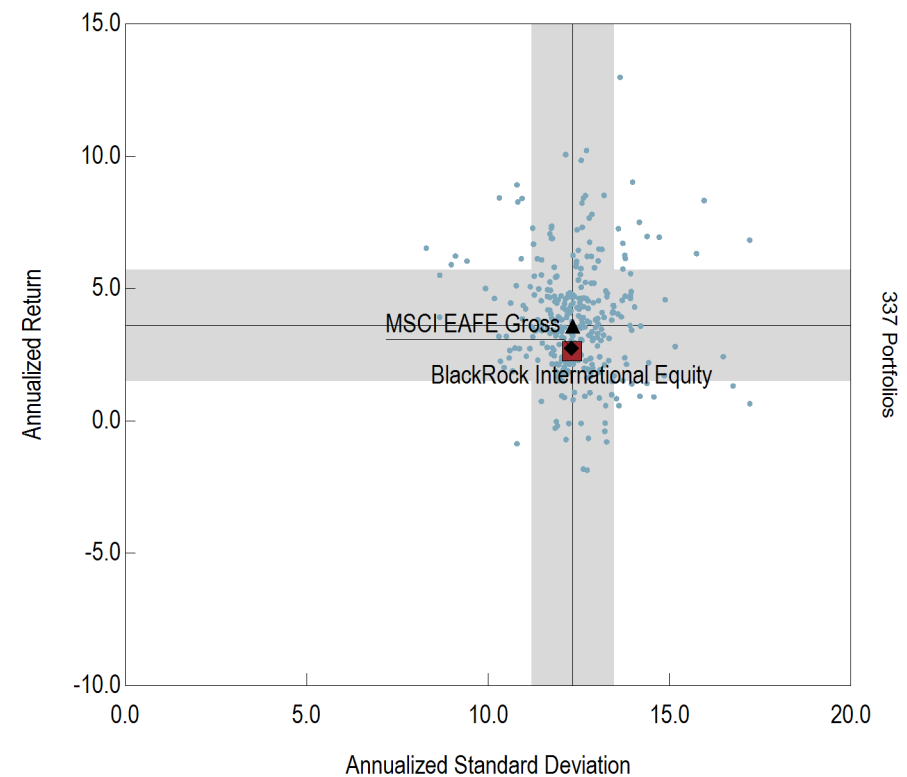
Period Ending: June 30, 2019

Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2019



- BlackRock International Equity
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

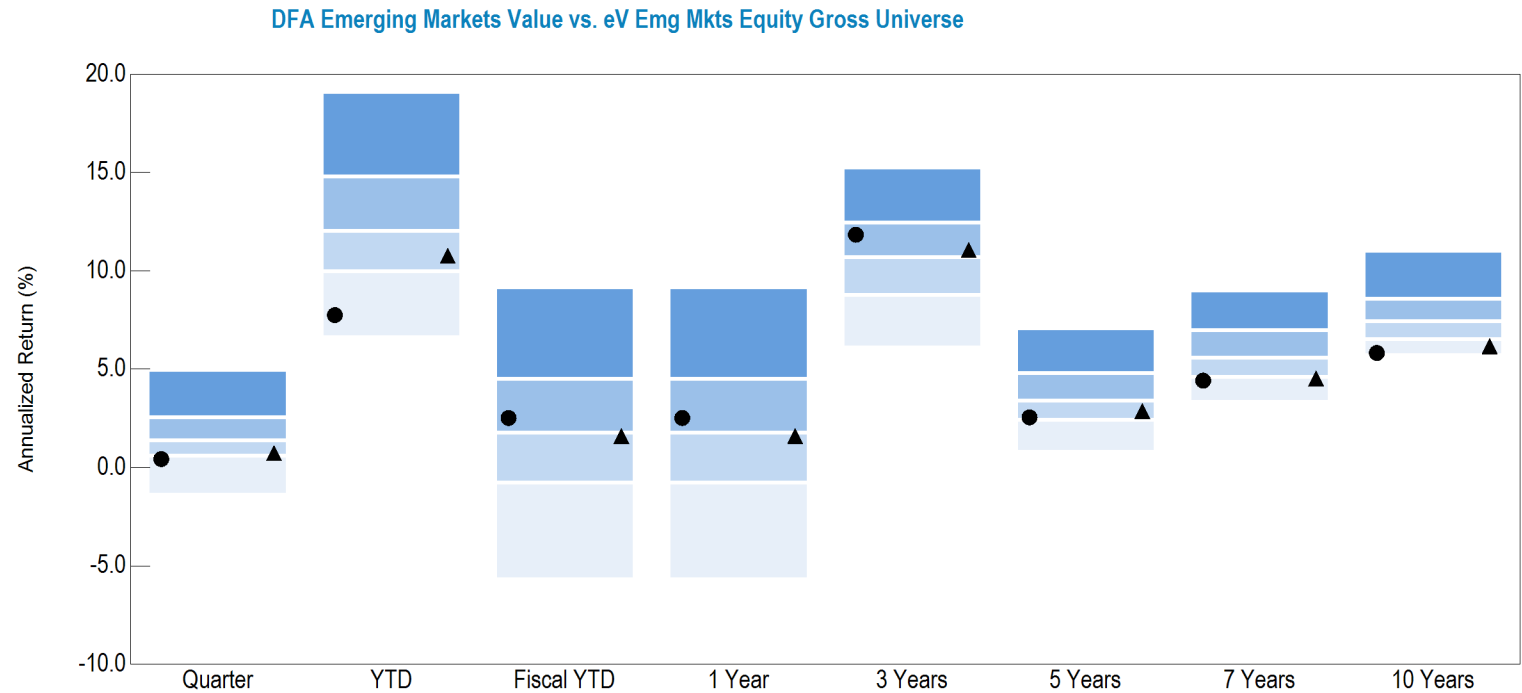
Annualized Return vs. Annualized Standard Deviation
5 Years Ending June 30, 2019



- BlackRock International Equity
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

DFA Emerging Markets Value
Cumulative Performance Comparison (Gross of Fees)

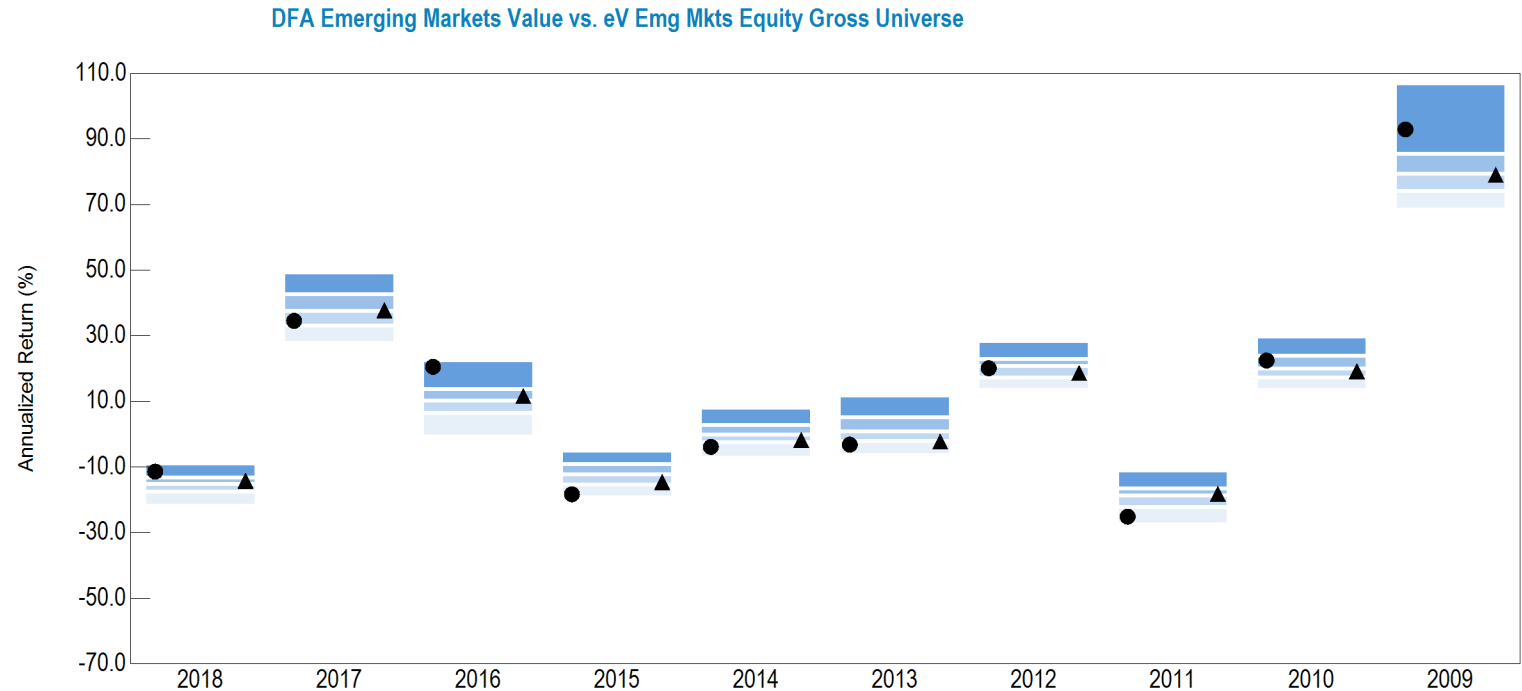
Period Ending: June 30, 2019



	Return (Rank)											
5th Percentile	5.0		19.1		9.2		9.2		15.2		7.1	
25th Percentile	2.6		14.8		4.5		4.5		12.5		4.8	
Median	1.4		12.0		1.8		1.8		10.7		3.4	
75th Percentile	0.6		10.0		-0.7		-0.7		8.8		2.4	
95th Percentile	-1.4		6.7		-5.7		-5.7		6.1		0.8	
# of Portfolios	365		365		365		365		340		296	
● DFA Emerging Markets Value	0.4	(80)	7.7	(90)	2.5	(44)	2.5	(44)	11.8	(34)	2.6	(70)
▲ MSCI Emerging Markets Gross	0.7	(72)	10.8	(63)	1.6	(52)	1.6	(52)	11.1	(46)	2.9	(64)
											4.4	(79)
											4.5	(77)
											5.8	(94)
											6.2	(86)

DFA Emerging Markets Value
Consecutive Performance Comparison (Gross of Fees)

Period Ending: June 30, 2019

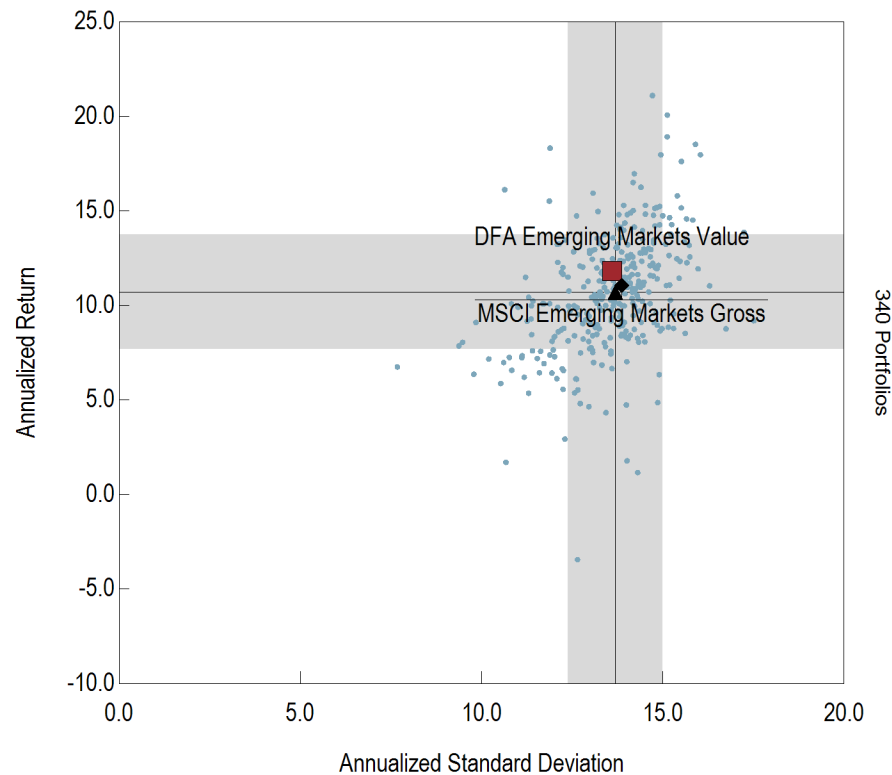


	Return (Rank)									
5th Percentile	-9.0	49.2	22.4	-5.0	8.0	11.7	28.4	-11.1	29.6	106.8
25th Percentile	-13.2	42.8	13.7	-9.0	2.9	5.2	23.0	-16.4	23.9	85.5
Median	-15.2	37.6	10.4	-12.2	-0.1	1.0	20.9	-18.6	20.1	79.5
75th Percentile	-17.4	33.2	6.6	-15.3	-2.4	-2.0	17.3	-22.2	17.3	74.3
95th Percentile	-21.8	27.8	-0.6	-19.2	-7.0	-6.3	13.7	-27.3	13.7	68.5
# of Portfolios	355	343	337	273	251	198	155	139	113	113
● DFA Emerging Markets Value	-11.4 (16)	34.5 (70)	20.5 (7)	-18.3 (92)	-3.9 (84)	-3.2 (84)	20.1 (56)	-25.2 (92)	22.4 (34)	92.9 (12)
▲ MSCI Emerging Markets Gross	-14.2 (37)	37.8 (49)	11.6 (40)	-14.6 (67)	-1.8 (69)	-2.3 (78)	18.6 (68)	-18.2 (45)	19.2 (62)	79.0 (54)

DFA Emerging Markets Value
Risk vs Return Three & Five Year (Gross of Fees)

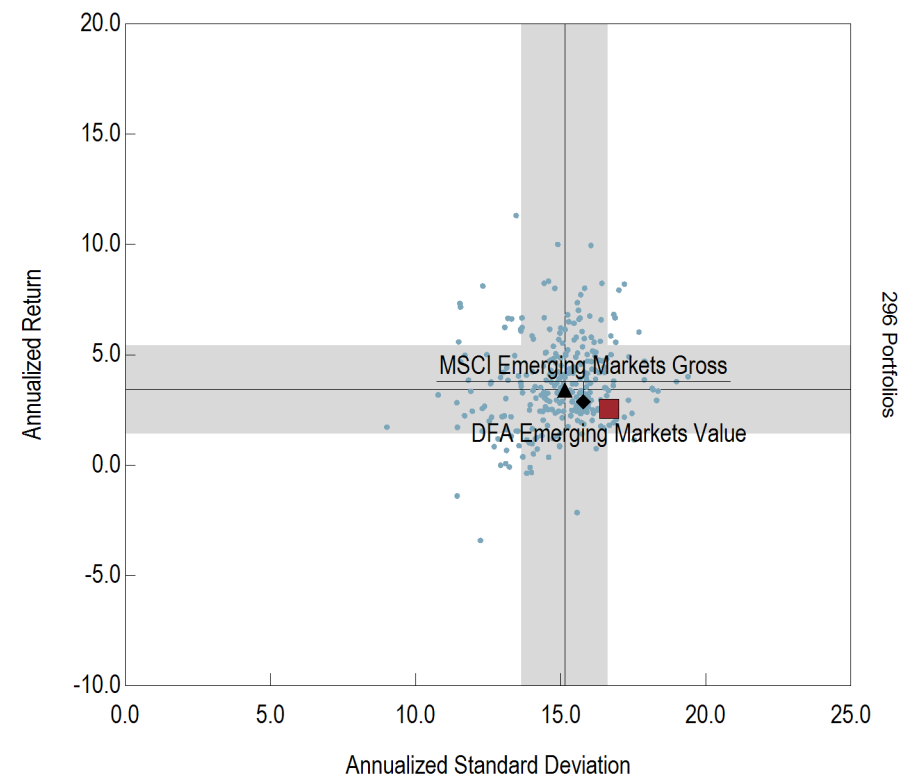
Period Ending: June 30, 2019

Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2019



- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts Equity Gross

Annualized Return vs. Annualized Standard Deviation
5 Years Ending June 30, 2019

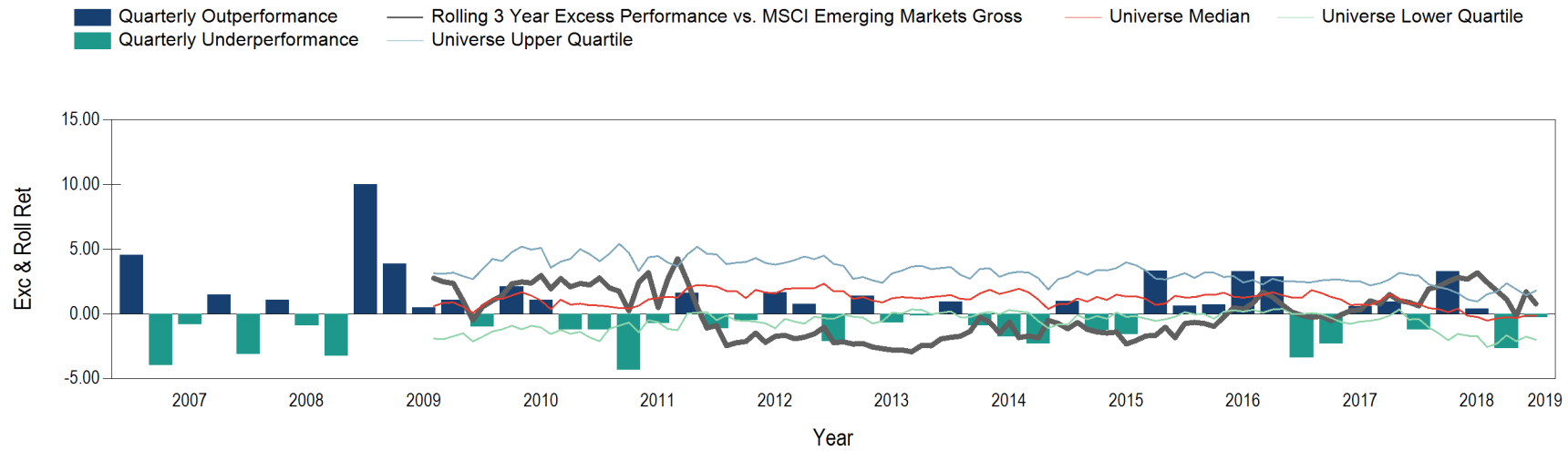


- DFA Emerging Markets Value
- ◆ MSCI Emerging Markets Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV Emg Mkts Equity Gross

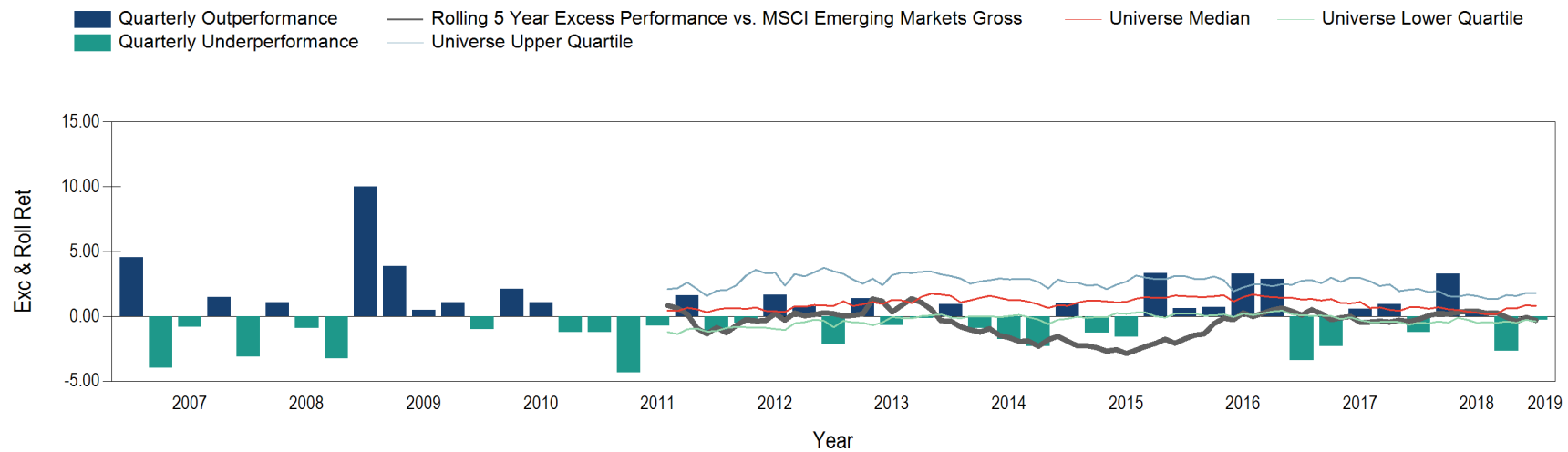
DFA Emerging Markets Value
Rolling Return Analysis (Gross of Fees)

Period Ending: June 30, 2019

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

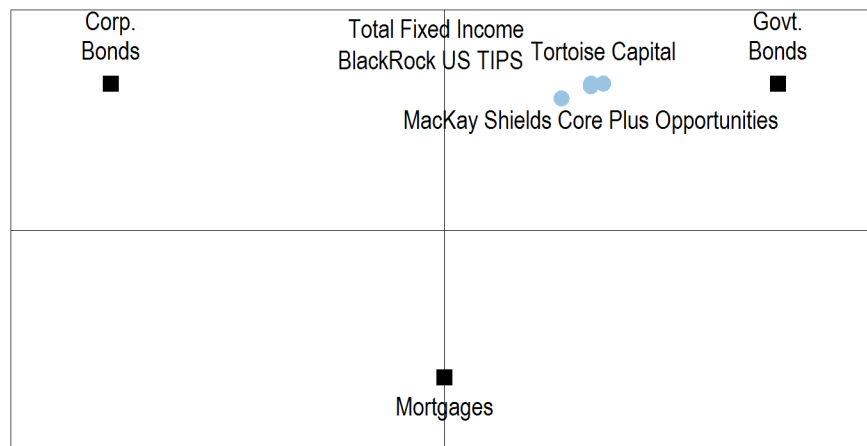


Total Fixed Income
Asset Class Overview (Gross of Fees)

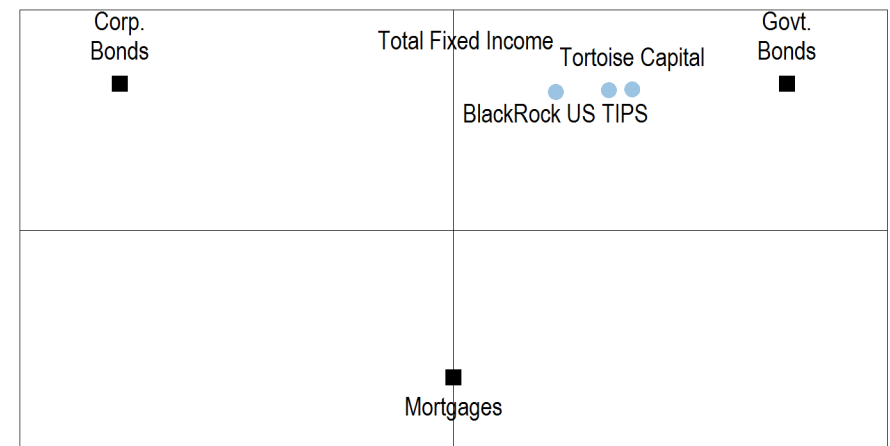
Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	238,902,271	3.1	6.8	7.6	7.6	3.3	3.3	5.3	-0.5	4.6	5.1	-0.3	5.9
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0
InvMetrics Public DB Total Fix Inc Gross Rank		28	32	33	33	49	29	40	58	59	41	55	15
Tortoise Capital	99,177,506	3.2	7.0	8.4	8.4	3.5	3.9	5.7	0.2	4.5	5.1	1.2	7.0
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0
eV US Core Plus Fixed Inc Gross Rank		54	51	44	44	53	22	41	24	70	45	15	16
Mackay Shields Core Plus Opportunities	95,990,873	3.2	6.8	7.9	7.9	3.4	--	--	-0.7	4.9	5.1	--	--
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	--	--	0.0	3.5	2.6	--	--
eV US Core Plus Fixed Inc Gross Rank		53	61	77	77	60	--	--	69	54	46	--	--
BlackRock US TIPS	43,733,892	2.9	6.2	4.9	4.9	2.3	1.9	3.8	-1.1	3.2	4.8	-1.2	3.6
BBgBarc US TIPS TR		2.9	6.2	4.8	4.8	2.1	1.8	3.6	-1.3	3.0	4.7	-1.4	3.6
eV US TIPS / Inflation Fixed Inc Gross Rank		33	50	35	35	50	42	55	47	46	37	43	45

Fixed Income Style Map
3 Years Ending June 30, 2019



Fixed Income Style Map
5 Years Ending June 30, 2019



Total Fixed Income

Asset Class Overview (Net of Fees)

Period Ending: June 30, 2019

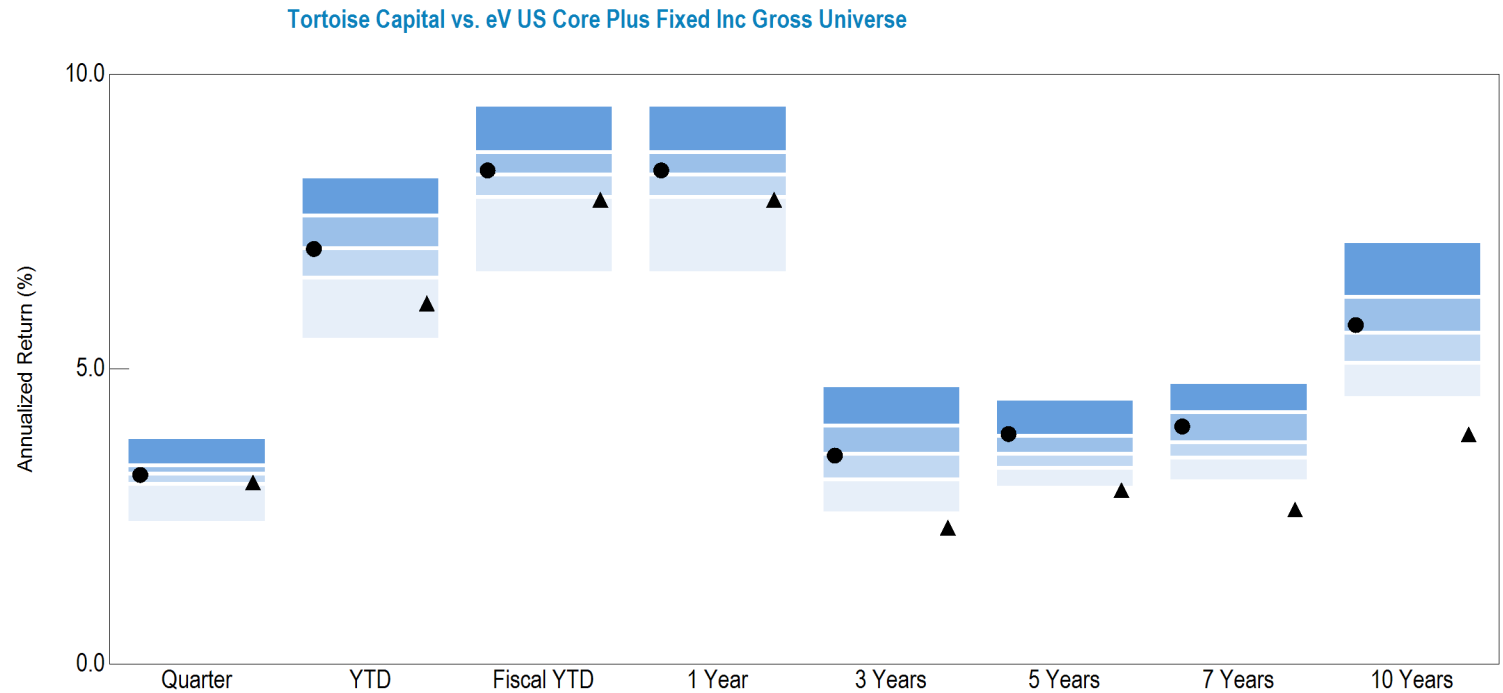
	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	238,902,271	3.1	6.7	7.3	7.3	3.0	3.0	5.0	-0.8	4.3	4.8	-0.6	5.6
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0
Tortoise Capital	99,177,506	3.1	6.9	8.1	8.1	3.2	3.6	5.4	-0.1	4.3	4.8	0.9	6.7
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	2.9	3.9	0.0	3.5	2.6	0.6	6.0
Mackay Shields Core Plus Opportunities	95,990,873	3.1	6.6	7.5	7.5	3.1	--	--	-1.0	4.5	4.7	--	--
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3	--	--	0.0	3.5	2.6	--	--
BlackRock US TIPS	43,733,892	2.9	6.2	4.9	4.9	2.2	1.8	3.7	-1.2	3.2	4.8	-1.3	3.6
BBgBarc US TIPS TR		2.9	6.2	4.8	4.8	2.1	1.8	3.6	-1.3	3.0	4.7	-1.4	3.6

Correlation Matrix
Last 5 Years

	Total Fixed Income	Tortoise Capital	Mackay Shields Core Plus Opportunities	BlackRock US TIPS	BBgBarc US Aggregate TR
Total Fixed Income	1.00	--	--	--	--
Tortoise Capital	0.99	1.00	--	--	--
Mackay Shields Core Plus Opportunities	--	--	--	--	--
BlackRock US TIPS	0.87	0.82	--	1.00	--
BBgBarc US Aggregate TR	0.94	0.96	--	0.75	1.00

Tortoise Capital
Cumulative Performance Comparison (Gross of Fees)

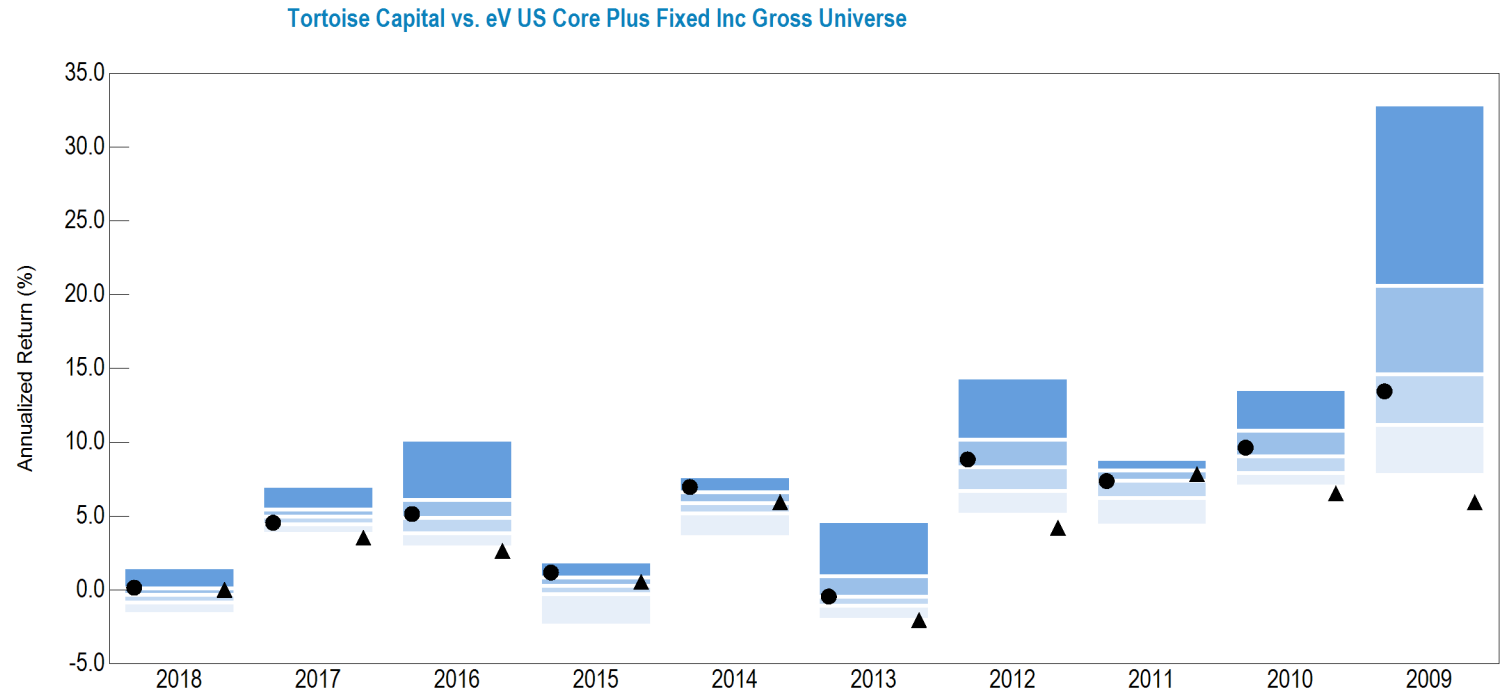
Period Ending: June 30, 2019



	Return (Rank)							
5th Percentile	3.8	8.3	9.5	9.5	4.7	4.5	4.8	7.2
25th Percentile	3.4	7.6	8.7	8.7	4.1	3.9	4.3	6.2
Median	3.2	7.1	8.3	8.3	3.6	3.6	3.8	5.6
75th Percentile	3.1	6.6	7.9	7.9	3.1	3.3	3.5	5.1
95th Percentile	2.4	5.5	6.6	6.6	2.6	3.0	3.1	4.5
# of Portfolios	119	119	119	119	116	109	106	99
● Tortoise Capital	3.2 (54)	7.0 (51)	8.4 (44)	8.4 (44)	3.5 (53)	3.9 (22)	4.0 (33)	5.7 (41)
▲ BBgBarc US Aggregate TR	3.1 (74)	6.1 (91)	7.9 (77)	7.9 (77)	2.3 (99)	2.9 (97)	2.6 (99)	3.9 (99)

Tortoise Capital
Consecutive Performance Comparison (Gross of Fees)

Period Ending: June 30, 2019

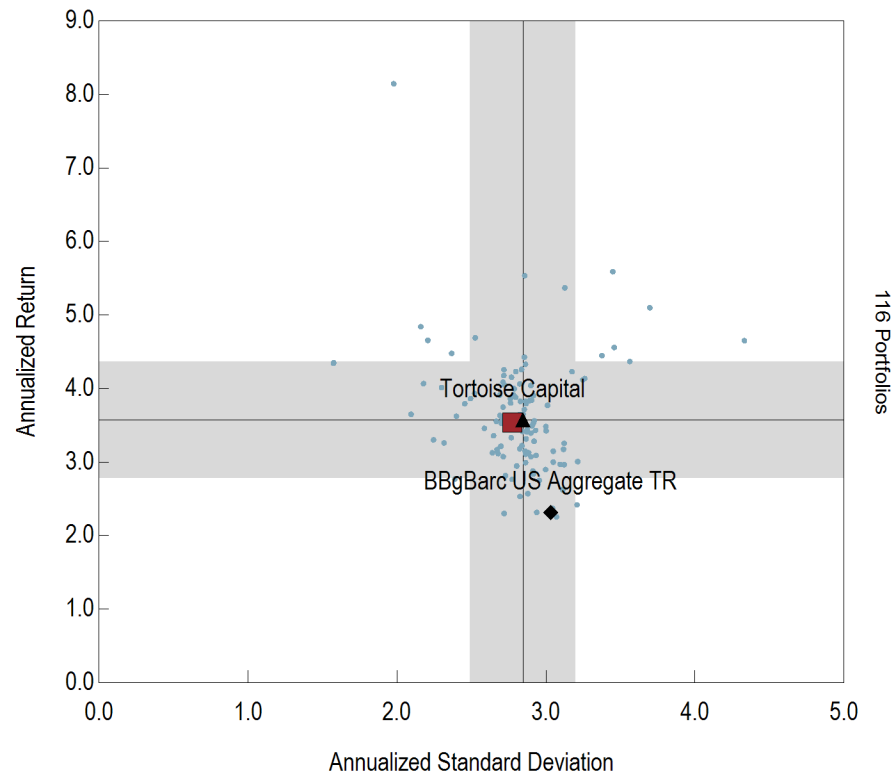


	Return (Rank)									
5th Percentile	1.5	7.0	10.1	1.9	7.7	4.6	14.4	8.8	13.6	32.9
25th Percentile	0.1	5.5	6.1	0.9	6.7	1.0	10.2	8.1	10.8	20.6
Median	-0.3	5.0	4.9	0.3	5.9	-0.4	8.3	7.4	9.1	14.6
75th Percentile	-0.8	4.5	3.9	-0.2	5.2	-1.0	6.7	6.3	8.0	11.2
95th Percentile	-1.6	3.8	2.9	-2.4	3.6	-2.0	5.1	4.4	7.0	7.8
# of Portfolios	120	122	134	115	118	116	124	118	123	128
● Tortoise Capital	0.2 (24)	4.5 (70)	5.1 (45)	1.2 (15)	7.0 (16)	-0.4 (52)	8.8 (45)	7.4 (51)	9.6 (40)	13.5 (55)
▲ BBgBarc US Aggregate TR	0.0 (31)	3.5 (99)	2.6 (97)	0.6 (42)	6.0 (50)	-2.0 (96)	4.2 (97)	7.8 (37)	6.5 (97)	5.9 (99)

Tortoise Capital Risk vs Return Three & Five Year (Gross of Fees)

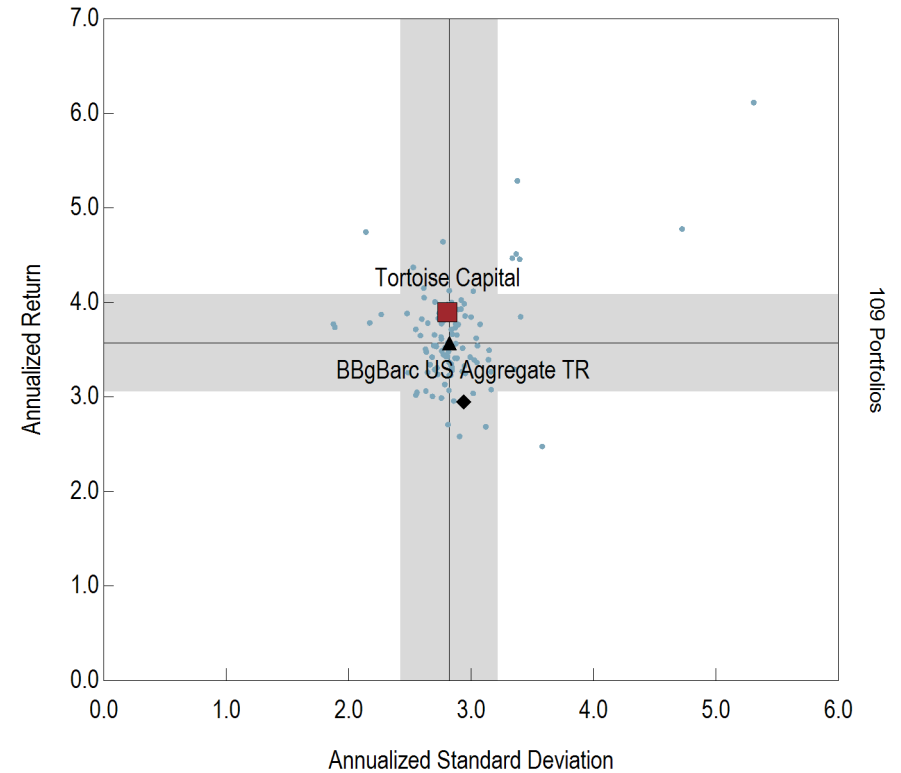
Period Ending: June 30, 2019

Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2019



- Tortoise Capital
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation
5 Years Ending June 30, 2019

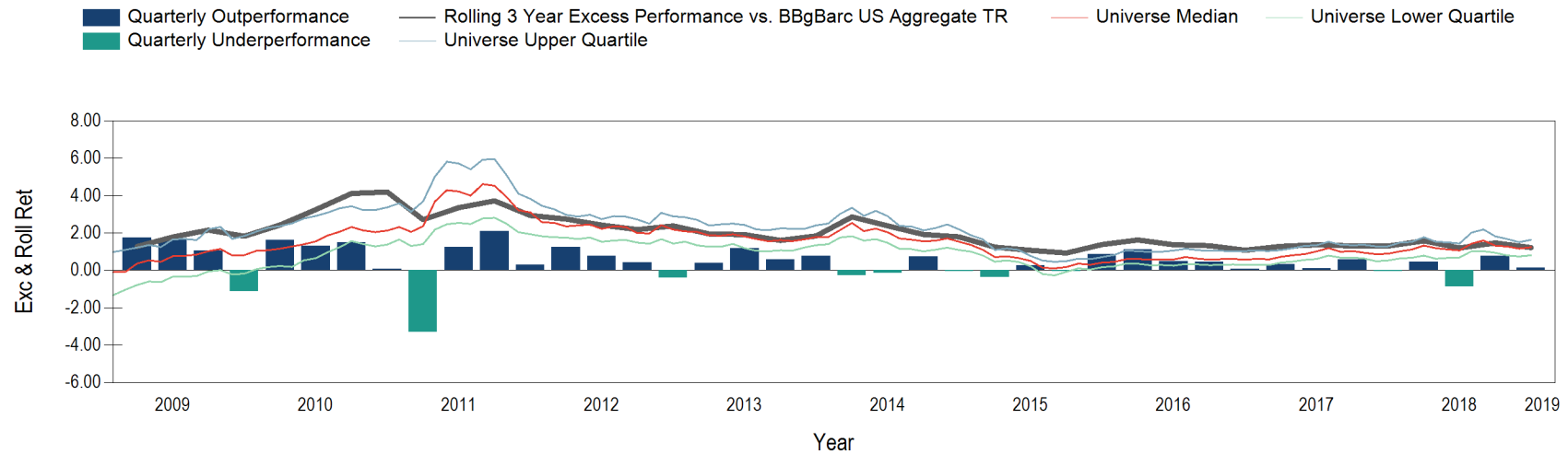


- Tortoise Capital
- ◆ BBgBarc US Aggregate TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US Core Plus Fixed Inc Gross

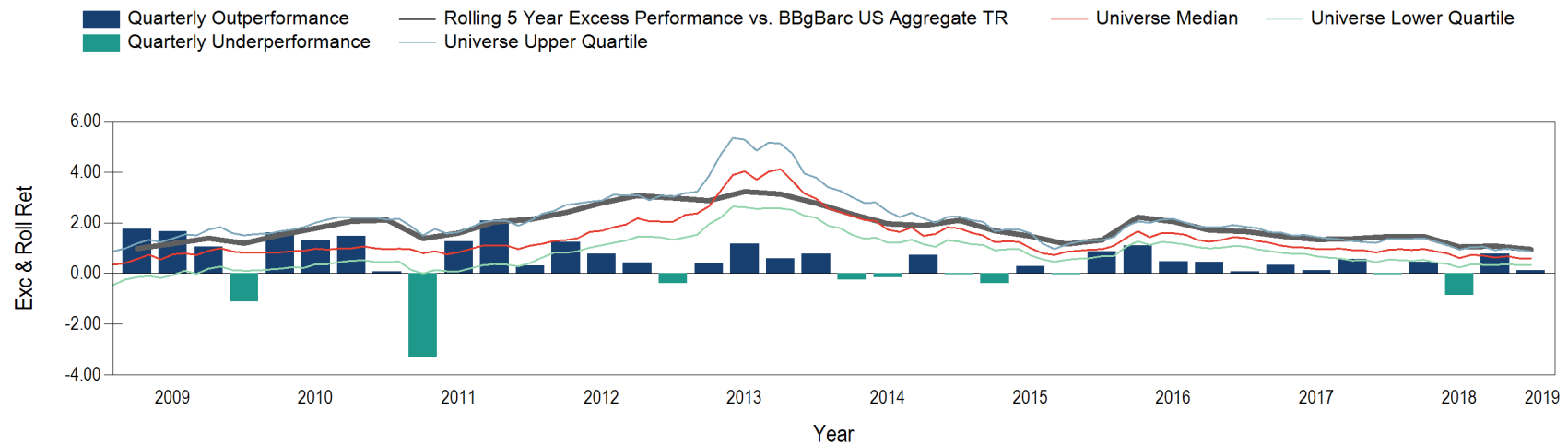
Tortoise Capital
Rolling Return Analysis (Gross of Fees)

Period Ending: June 30, 2019

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

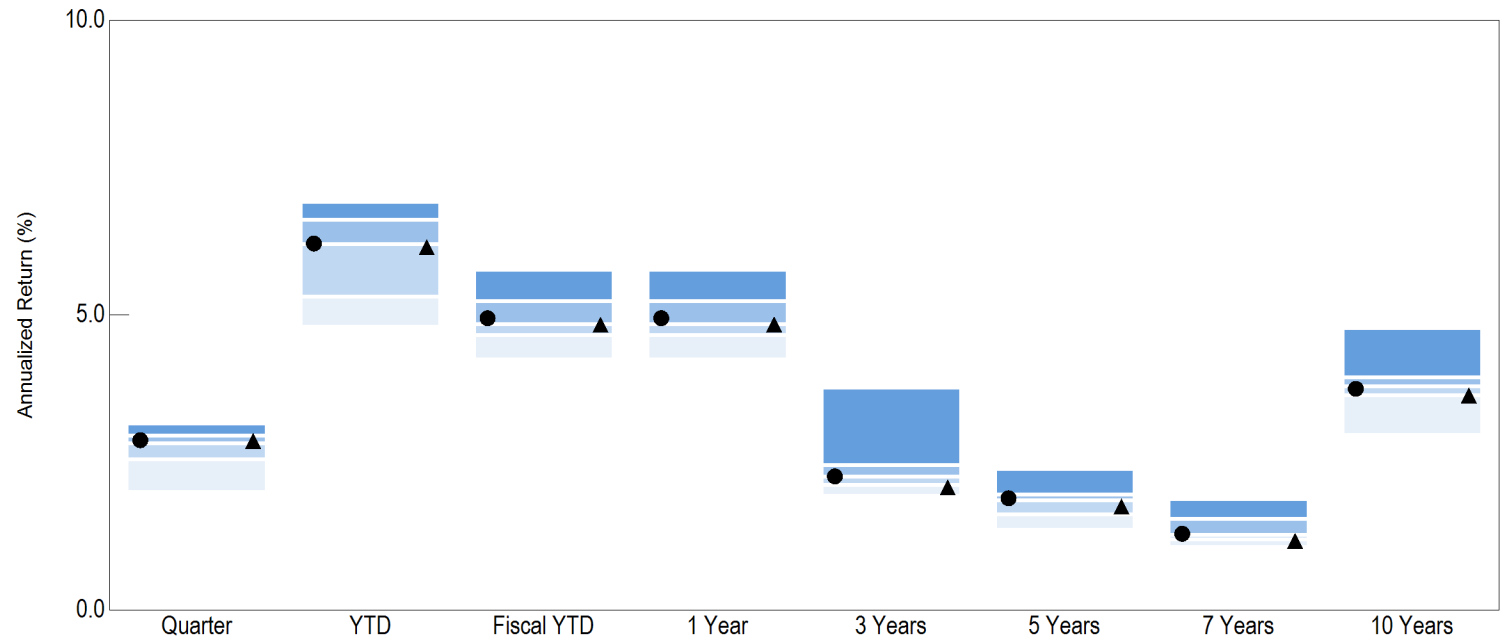


BlackRock US TIPS

Cumulative Performance Comparison (Gross of Fees)

Period Ending: June 30, 2019

BlackRock US TIPS vs. eV US TIPS / Inflation Fixed Inc Gross Universe

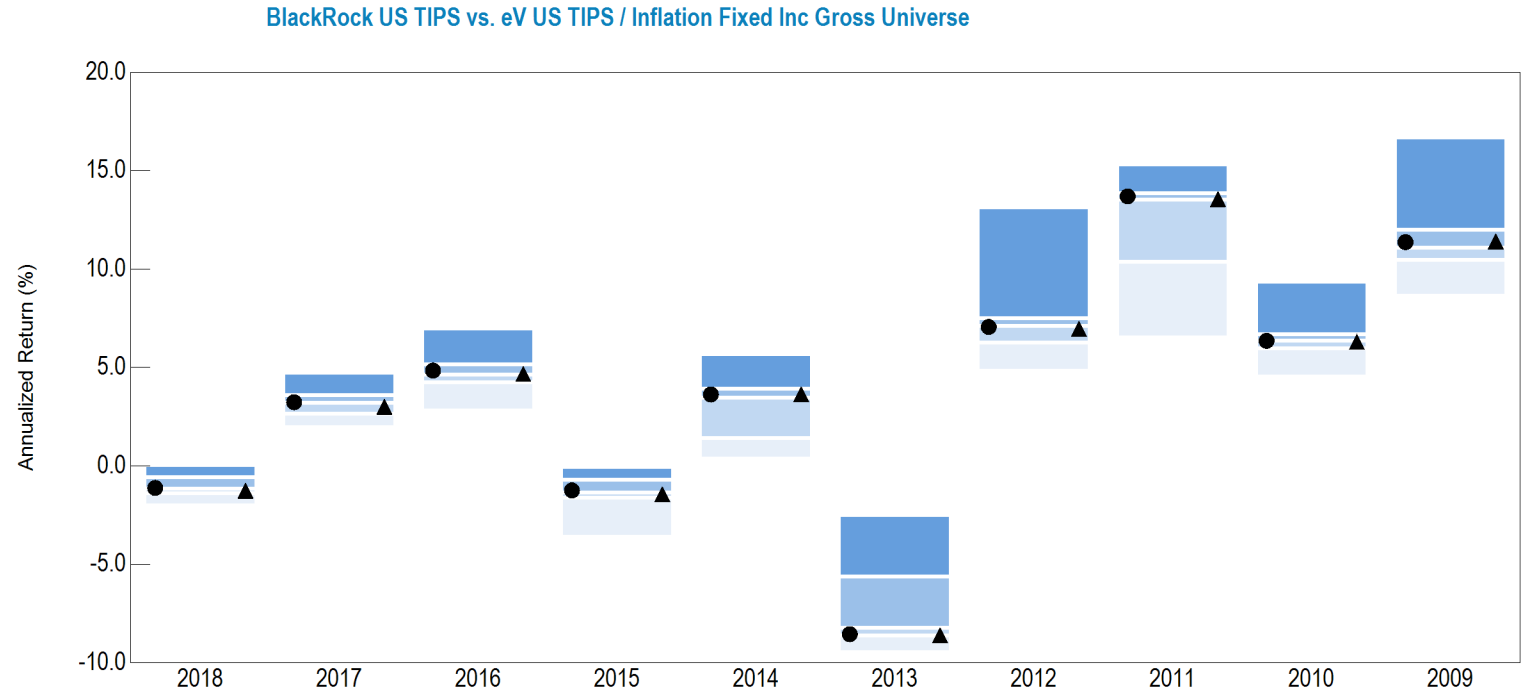


	Return (Rank)							
5th Percentile	3.2	6.9	5.8	5.8	3.8	2.4	1.9	4.8
25th Percentile	3.0	6.6	5.2	5.2	2.5	2.0	1.6	4.0
Median	2.8	6.2	4.8	4.8	2.3	1.9	1.3	3.8
75th Percentile	2.6	5.3	4.7	4.7	2.1	1.6	1.2	3.6
95th Percentile	2.0	4.8	4.3	4.3	1.9	1.4	1.1	3.0
# of Portfolios	38	38	38	38	38	36	36	30
● BlackRock US TIPS	2.9 (33)	6.2 (50)	4.9 (35)	4.9 (35)	2.3 (50)	1.9 (42)	1.3 (46)	3.8 (55)
▲ BBgBarc US TIPS TR	2.9 (38)	6.2 (62)	4.8 (54)	4.8 (54)	2.1 (82)	1.8 (61)	1.2 (80)	3.6 (77)

BlackRock US TIPS

Consecutive Performance Comparison (Gross of Fees)

Period Ending: June 30, 2019



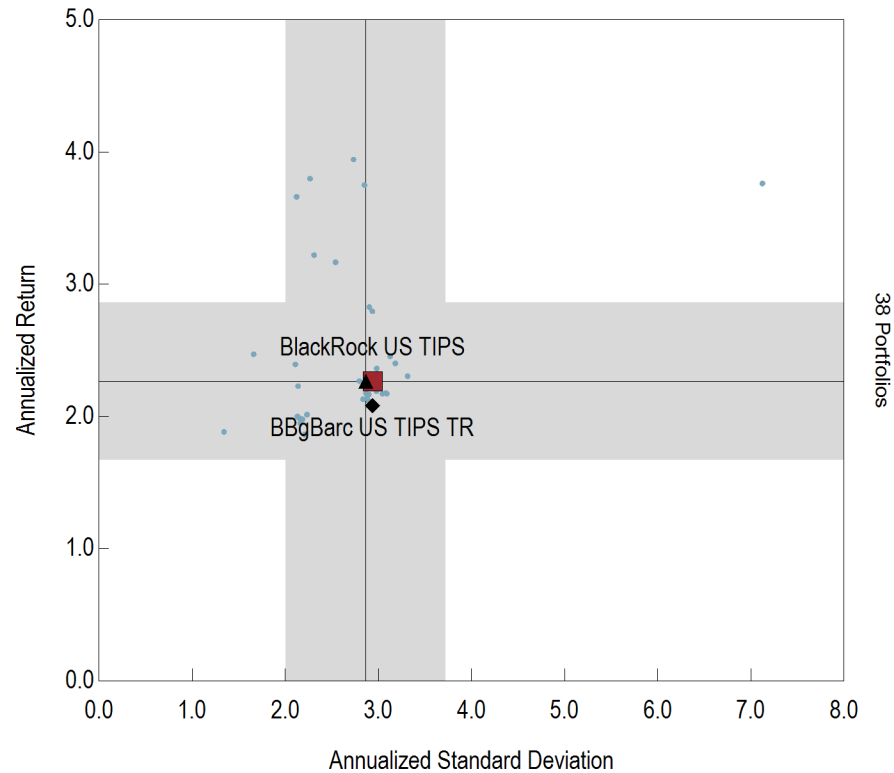
	Return (Rank)									
5th Percentile	0.0	4.7	7.0	-0.1	5.7	-2.5	13.1	15.3	9.4	16.7
25th Percentile	-0.6	3.6	5.2	-0.7	4.0	-5.6	7.5	13.9	6.7	12.0
Median	-1.1	3.2	4.7	-1.3	3.5	-8.2	7.1	13.5	6.4	11.1
75th Percentile	-1.4	2.7	4.3	-1.6	1.4	-8.6	6.3	10.4	6.0	10.5
95th Percentile	-2.0	2.0	2.8	-3.6	0.4	-9.4	4.9	6.6	4.6	8.7
# of Portfolios	41	38	42	44	50	43	43	47	39	37
● BlackRock US TIPS	-1.1 (47)	3.2 (46)	4.8 (37)	-1.2 (43)	3.6 (45)	-8.5 (62)	7.1 (59)	13.7 (37)	6.4 (52)	11.4 (36)
▲ BBgBarc US TIPS TR	-1.3 (65)	3.0 (71)	4.7 (47)	-1.4 (59)	3.6 (44)	-8.6 (76)	7.0 (66)	13.6 (49)	6.3 (57)	11.4 (35)

BlackRock US TIPS

Risk vs Return Three & Five Year (Gross of Fees)

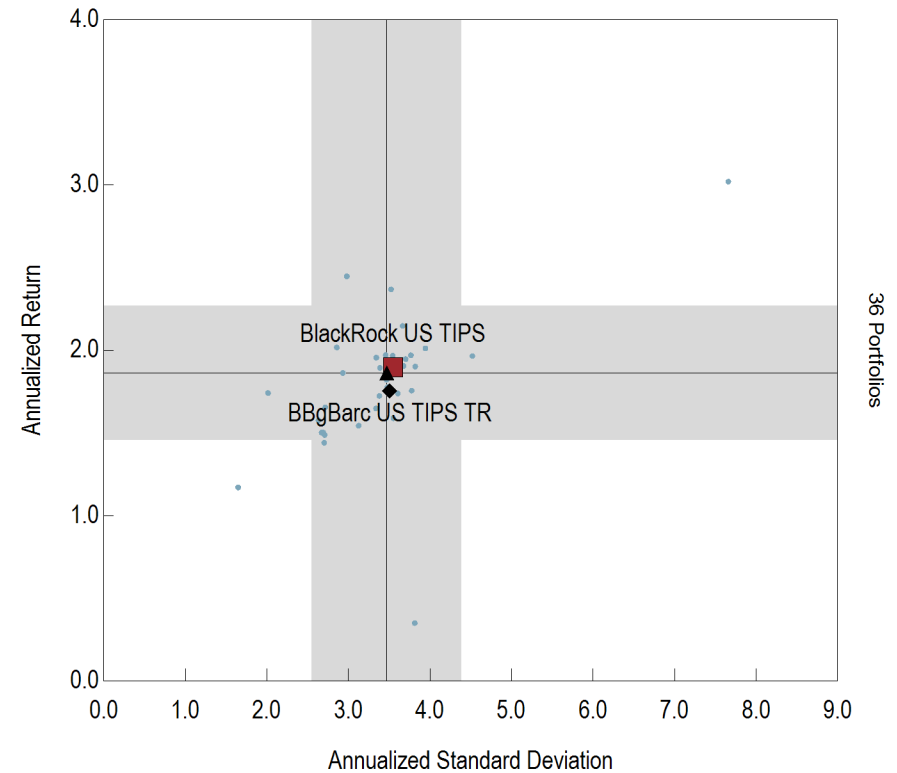
Period Ending: June 30, 2019

Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2019



- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation
5 Years Ending June 30, 2019



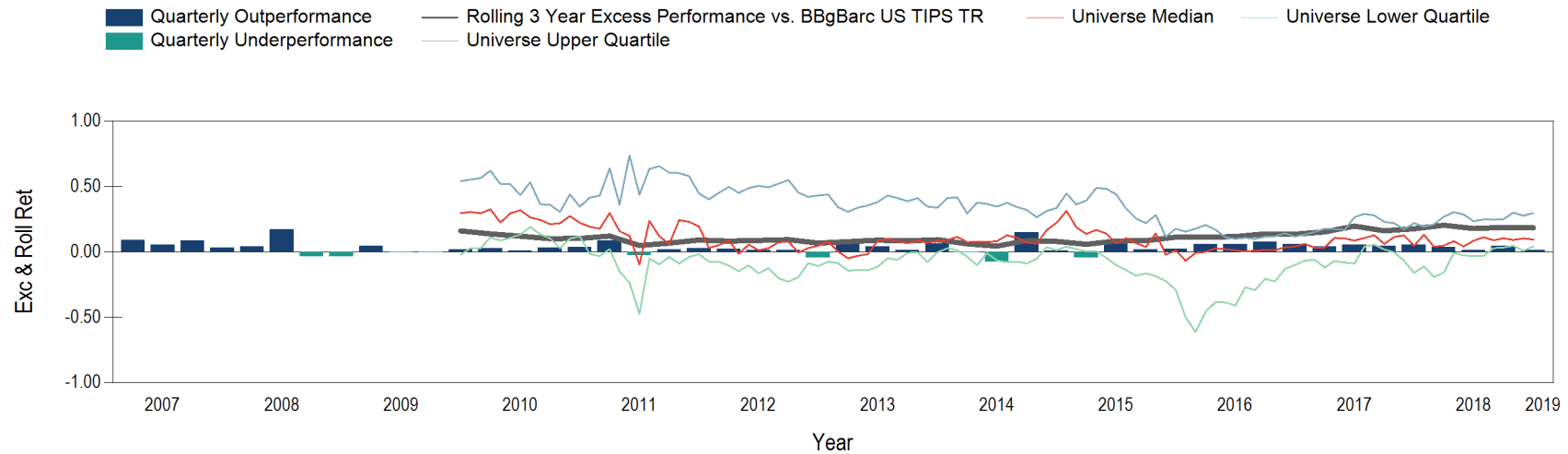
- BlackRock US TIPS
- ◆ BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross

BlackRock US TIPS

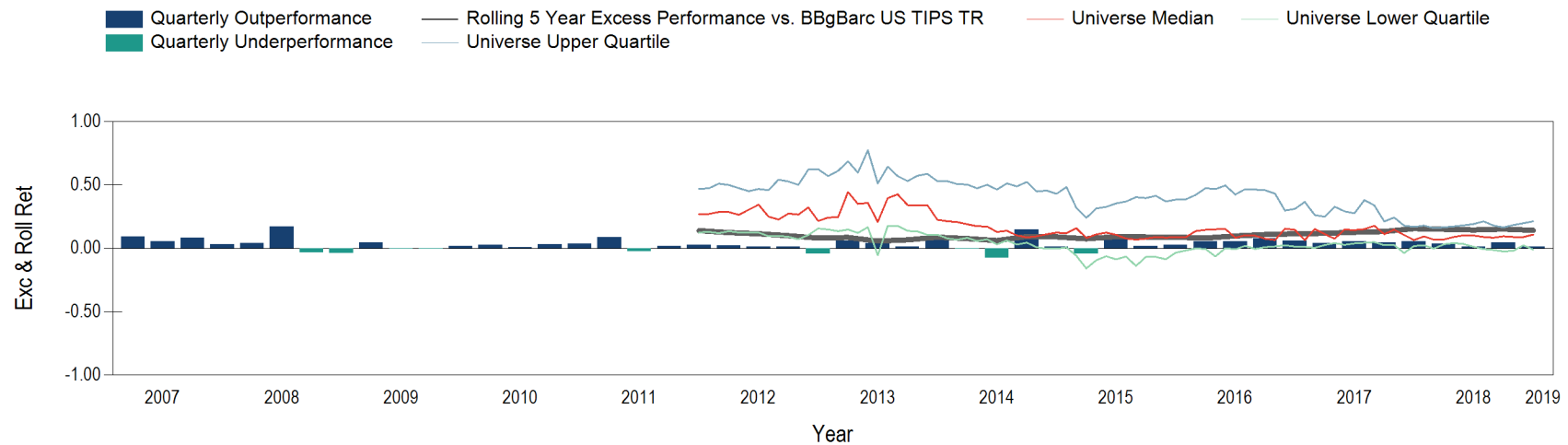
Rolling Return Analysis (Gross of Fees)

Period Ending: June 30, 2019

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance

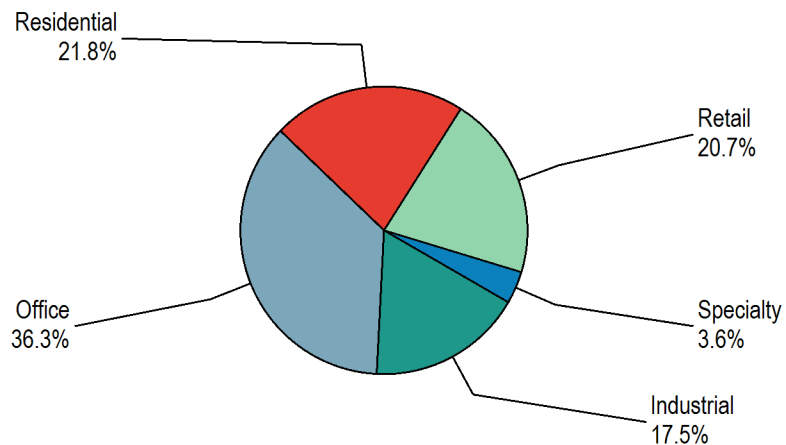


Total Real Estate
Asset Class Overview (Gross of Fees)

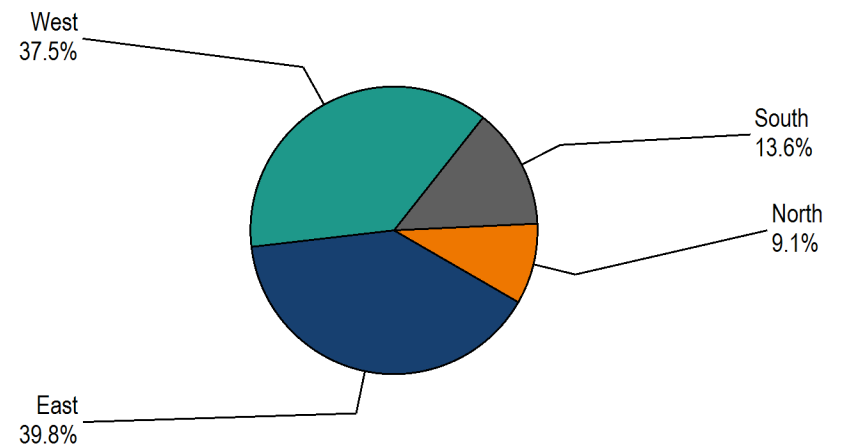
Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	95,781,690	1.2	3.0	6.4	6.4	6.6	9.5	9.6	7.5	5.8	7.5	16.1	13.0
NCREIF ODCE		1.0	2.4	6.0	6.0	6.7	8.7	9.2	7.1	7.0	8.0	13.3	11.8
ASB Real Estate	36,485,098	1.2	3.0	6.0	6.0	5.4	8.8	--	6.6	4.0	5.6	17.3	13.5
NCREIF-ODCE		1.0	2.4	6.4	6.4	7.6	9.8	--	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.5	3.3	6.5	6.5	6.9	8.8	--	6.7	7.0	8.0	13.3	11.8
Clarion Lion	36,954,606	1.2	3.0	6.7	6.7	7.7	10.5	9.9	8.6	7.9	9.1	15.7	13.2
NCREIF-ODCE		1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.5	3.3	6.5	6.5	6.9	8.8	9.2	6.7	7.0	8.0	13.3	11.8
ARA American Strategic Value Realty	20,588,785	1.5	3.8	7.3	7.3	--	--	--	--	--	--	--	--
NCREIF ODCE +2%		0.3	2.3	6.8	6.8	--	--	--	--	--	--	--	--
1221 State St. Corp	1,753,200	0.0	0.0	0.0	0.0	5.5	3.3	1.1	0.0	0.0	17.5	0.0	0.0

Property Type Allocation
Allocation as of June 30, 2019



Geographic Diversification
Allocation as of June 30, 2019



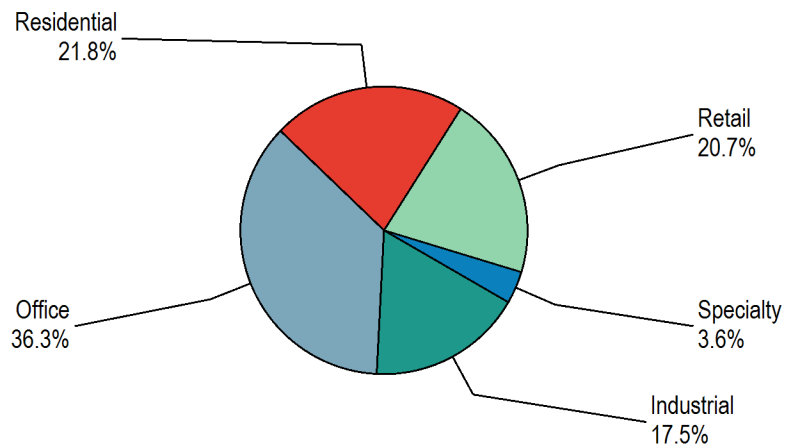
ARA American Strategic Value Realty funded 1/4/2018.

Total Real Estate
Asset Class Overview (Net of Fees)

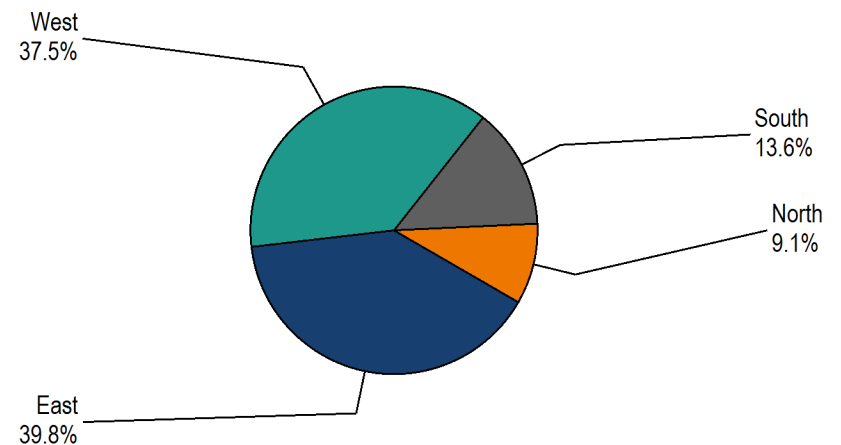
Period Ending: June 30, 2019

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	95,781,690	1.2	3.0	6.4	6.4	6.4	9.0	9.0	7.5	5.8	6.5	15.0	11.6
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ASB Real Estate	36,485,098	1.2	3.0	6.0	6.0	5.2	8.3	--	6.6	4.0	4.6	16.2	12.5
NCREIF-ODCE		1.0	2.4	6.4	6.4	7.6	9.8	--	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.5	3.3	6.5	6.5	6.9	8.8	--	6.7	7.0	8.0	13.3	11.8
Clarion Lion	36,954,606	1.2	3.0	6.7	6.7	7.5	10.0	9.1	8.6	7.9	8.0	14.6	12.2
NCREIF-ODCE		1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.3	7.6	8.8	15.0	12.5
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1221 State St. Corp	1,753,200	0.0	0.0	0.0	0.0	5.5	3.3	1.1	0.0	0.0	17.5	0.0	0.0

Property Type Allocation
Allocation as of June 30, 2019



Geographic Diversification
Allocation as of June 30, 2019



ARA American Strategic Value Realty funded 1/4/2018.

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.

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 3000	12/10/2015	J.P. Morgan	1221 State Street Corp	9/30/2008	ICERS/Union Bank
BlackRock International Equity	7/3/2003	J.P. Morgan	Cash	-	J.P. Morgan
DFA Emerging Markets Value	1/11/2007	J.P. Morgan	HarbourVest IX-Buyout	2011 ¹	HarbourVest
Harding Loevner	7/5/2016	Harding Loevner	HarbourVest IX-Credit	2011 ¹	HarbourVest
Bradford & Marzec Fixed (Tortoise Capital)	12/1/1992	J.P. Morgan	HarbourVest International VI	2008 ¹	HarbourVest
MacKay Shields Core Plus Ops	3/2/2015	CITCO	Harbourvest IX-Venture	2011 ¹	HarbourVest
BlackRock US TIPS	4/11/2007	J.P. Morgan	Harbourvest 2017 Global	2017 ¹	HarbourVest
ASB Real Estate	12/31/2012	ASB Real Estate	Harbourvest 2018 Global	2018 ¹	HarbourVest
Clarion Lion	12/31/2006	Clarion Lion	KKR Mezzanine	2010 ¹	KKR
Portfolio Advisors	10/31/2017	Portfolio Advisors	PIMCO BRAVO	2011 ¹	PIMCO
			ARA American Strategic Value Realty	1/4/2018	ARA

¹Represents fund vintage year.

Policy & Custom Index Composition

Policy Index (10/1/2018-Current)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc Aggregate, 10% NCREIF Property, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged).
Policy Index (10/1/2016-9/30/2018)	29% Russell 3000, 24% MSCI ACWI ex USA Gross, 27% BBgBarc Aggregate, 5% NCREIF Property, 5% NCREIF Property +2%, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged).
Policy Index (7/1/2014-9/30/2016)	29% Russell 3000, 25% MSCI ACWI ex-US (Gross), 30% Barclays U.S. Aggregate, 6% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (Lagged).

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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