

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



PERIOD ENDING: JUNE 30, 2019

Investment Performance Review for

Tulare County Employees' Retirement Association

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Investment Landscape

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Investment Performance

Review



Recent Verus research

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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 50year 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



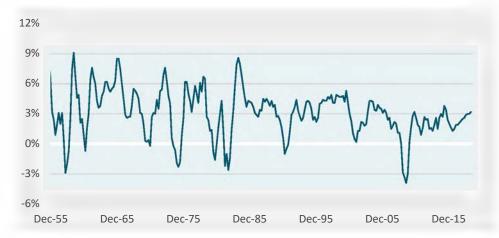
GDP growth

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)



U.S. BREAKEVEN INFLATION RATES



Source: FRED, as of 6/30/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 6/30/19



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.

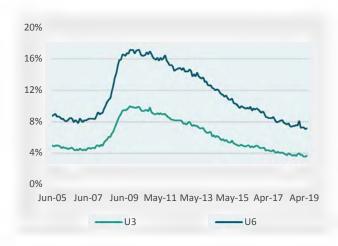
The U.S. unemployment rate was 3.7% in June, according to the narrower U-3 measure which only encompasses those workers seeking a job. The broader U-6 unemployment rate was 7.2%, which also includes discouraged and part-time workers who seek full-time employment.

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

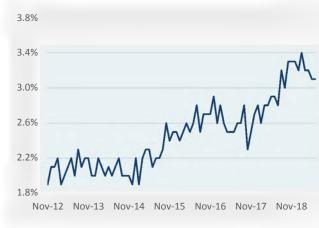


U.S. JOB OPENINGS VS. UNEMPLOYED



Source: Bloomberg, as 6/30/19

U.S. WAGE GROWTH



Source: FRED, as of 6/30/19



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.

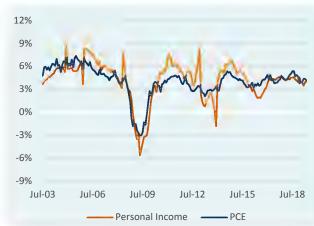
Consumer credit growth has remained tempered over the expansion, but the composition of that credit has shifted. Over the past ten years, student loans have increased their share while mortgage debt has decreased its share.

REAL RETAIL SALES GROWTH (YOY)



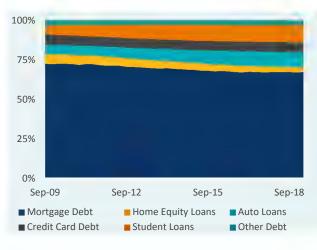
Source: Bloomberg, as of 6/30/19

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.

GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
3.2% 3/31/19	1.6% 6/30/19	3.7% 6/30/19
1.2% 3/31/19	1.1% 5/31/19	7.5% 5/31/19
0.9% 3/31/19	0.7% 5/31/19	2.4% 5/31/19
5.2% 3/31/19	2.4% 3/31/19	5.2% 3/31/19
1.4% 3/31/19	3.4% 6/30/19	12.4% 6/30/19
2.7% 12/31/18	4.7% <i>6/30/19</i>	4.5% 5/31/19
7.2% 12/31/18	3.2% 6/30/19	8.5% 12/31/17
6.4% 3/31/19	2.7% 6/30/19	3.7% 3/31/19
	(Real, YoY) 3.2% 3/31/19 1.2% 3/31/19 0.9% 3/31/19 5.2% 3/31/19 1.4% 3/31/19 2.7% 12/31/18 7.2% 12/31/18 6.4%	(Real, YoY) (CPI, YoY) 3.2% 1.6% 6/30/19 1.2% 1.1% 5/31/19 0.9% 0.7% 3/31/19 5.2% 2.4% 3/31/19 5.2% 2.4% 3/31/19 1.4% 3.4% 6/30/19 2.7% 4.7% 6/30/19 7.2% 3.2% 6/30/19 7.2% 3.2% 6/30/19 6.4% 2.7%



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

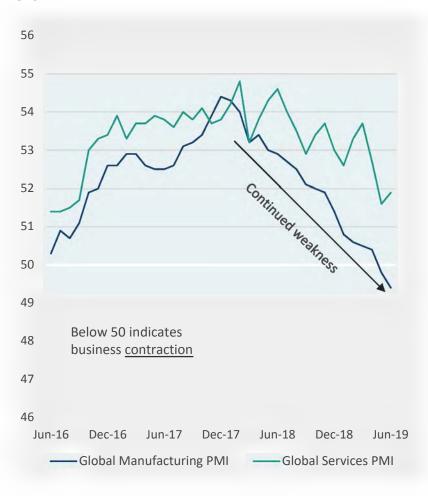


Source: Bloomberg, as of 6/30/19 or most recent release



Global PMI

GLOBAL PMI



- 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.

Source: JPMorgan, as of 6/30/19



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 10year U.S. Treasury yield finished the quarter at 2.00%, down from 3.14% in Q4 2018.
- European Central Bank President

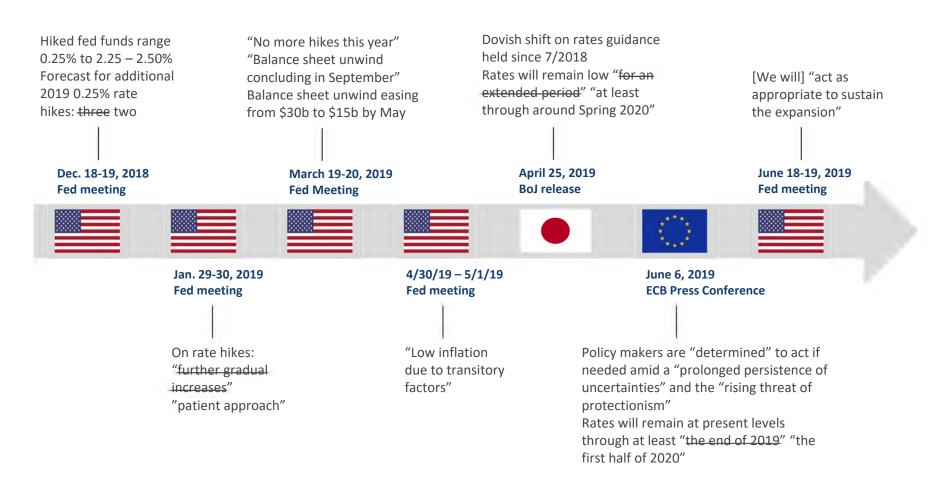
- Mario Draghi announced "additional stimulus" was on the table should the economic backdrop worsen and inflation remain subdued. Over the month, the likelihood that the ECB would cut its main deposit rate from -0.40% to -0.50% by its September meeting rose from 18% to 67%, as indicated by market pricing.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

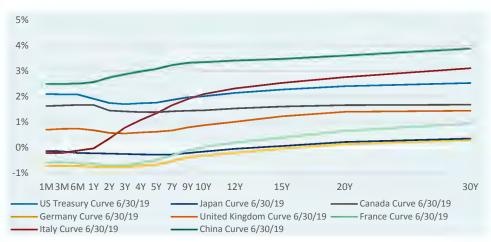


Yield environment

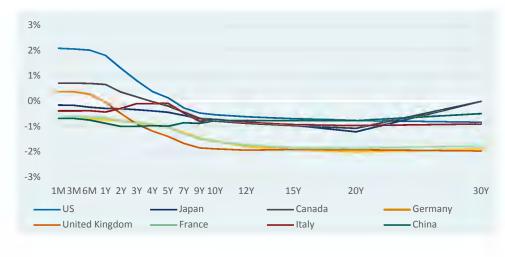
U.S. YIELD CURVE



GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR

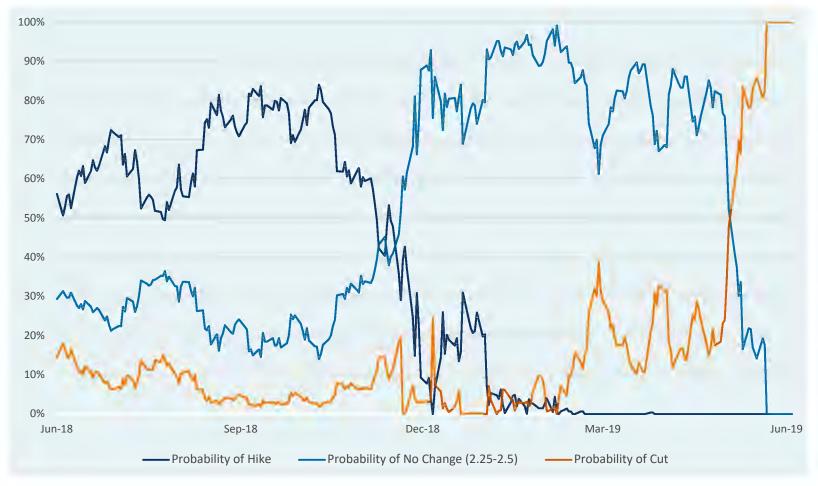


Source: Bloomberg, as of 6/30/19



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

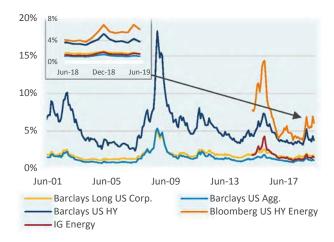
High yield bond spreads tightened alongside equities as the asset class was positively impacted by Federal Reserve dovishness. Anticipation of easier interest rate policies, which could potentially lengthen the credit cycle, has strengthened sentiment for risk assets. BB-rated bonds outperformed both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

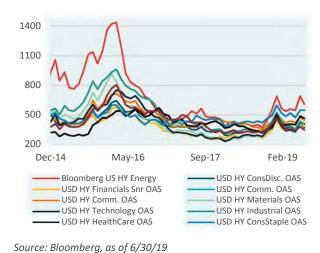
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with a jump in credit spreads and steep credit losses. An underweight to U.S. investment grade, high yield credit, and bank 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)



	Credit Spread (OAS)		
Market	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.

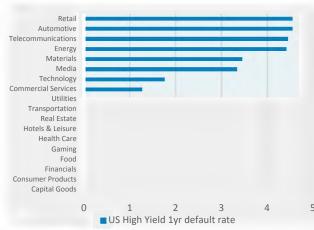
Gross high yield issue activity increased in June as investors took advantage of a dip in yields. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening.

HY DEFAULT RATE (ROLLING 1-YEAR)



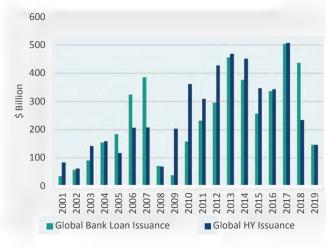
Source: BofA Merrill Lynch, as of 6/30/19

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 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 TOT	AL 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	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

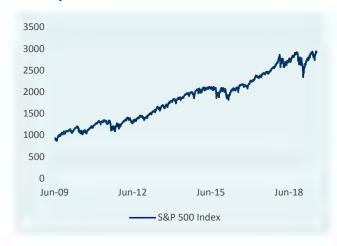
U.S. equities outperformed in the second quarter following a strong rebound in the first quarter. The S&P 500 Index delivered a total return of 4.3%, bringing its first-half return to 18.5%. Perceptions of an accommodative Federal Reserve and views that U.S-China relations were on a productive track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

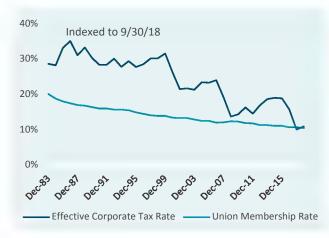
portion of U.S. equity outperformance has been due to a move towards high prices, which will most likely negatively impact future performance.

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

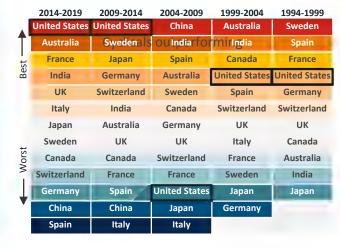


SECULAR TRENDS SUPPORTING MARGINS



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

U.S. RELATIVE PERFORMANCE - HISTORICAL



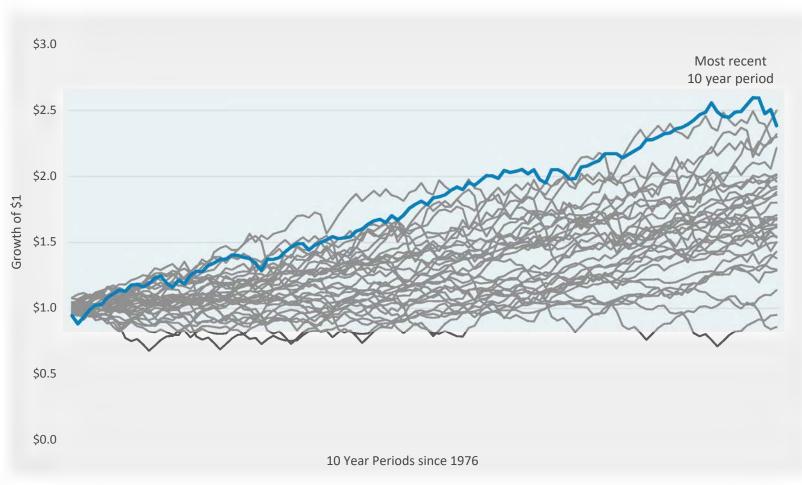
Source: Verus, as of 6/30/19



Source: Standard & Poors, 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

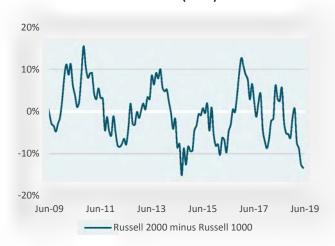
Size and value factors continued to underperform. Small-cap equities lagged large-cap by -2.1% during the quarter and -13.3% over the past year (Russell 2000 vs. Russell 1000). Value equities underperformed growth by -0.8% over the quarter and by -3.1% over the past year (Russell 1000 Value vs Russell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

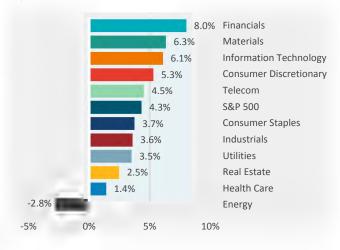


VALUE VS GROWTH (YOY)



Source: FTSE, as of 6/30/19

Q2 S&P 500 SECTOR RETURNS



Source: Morningstar, as of 6/30/19



Source: FTSE, as of 6/30/19

International developed equity

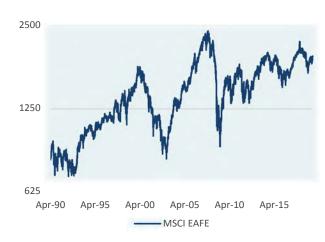
International developed equities posted a second consecutive quarter of solid performance. The MSCI EAFE Index returned +3.9% for the quarter (+14.5% YTD). On a currency hedged basis, the MSCI EAFE Index returned +3.5% for the quarter (+15.2% YTD), indicating that unhedged U.S. investors in EAFE equities 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)



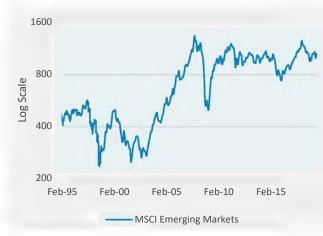
Source: Standard & Poor's, MSCI, as of 6/30/19

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.

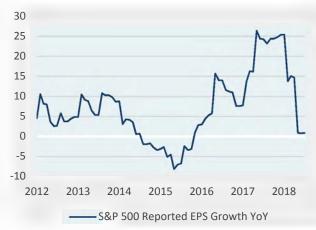
We believe there are reasons that EAFE equity markets warrant cheap valuations, particularly in Europe, but it is difficult to know whether the current valuation gap is justified. As U.S. corporate earnings expectations, business conditions, and economic growth seem to be converging somewhat with the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

FORWARD P/E RATIOS



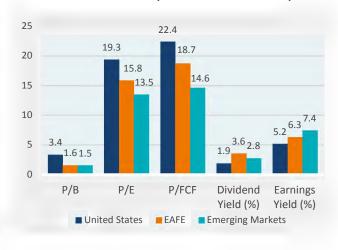
Source: MSCI, as of 6/30/19

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

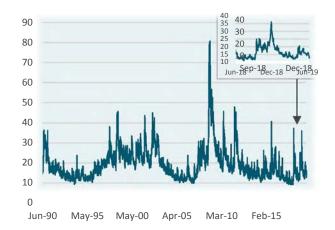
Implied volatility remained depressed over the quarter, as indicated by the VIX Index. Though the implied volatility measure reached as high as 20.6 in the days following the Trump administration's decision to hike tariff rates on Chinese imports, the VIX Index traded mostly below its long-term average. 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

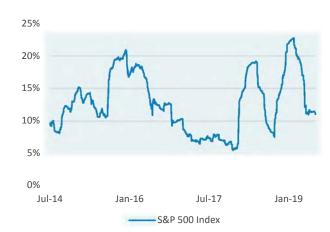
quarter-end, the 30-day forward implied volatility of the S&P 500 Index exceeded that of the Euro Stoxx 50 Index. Historically, the VIX has traded at a discount to the V2X, the proxy for expected European equity volatility.

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)



REALIZED 90-DAY VOLATILITY



Source: Bloomberg, as of 6/30/19

U.S. IMPLIED VOLATILITY VS. EUROPEAN IMPLIED VOLATILITY

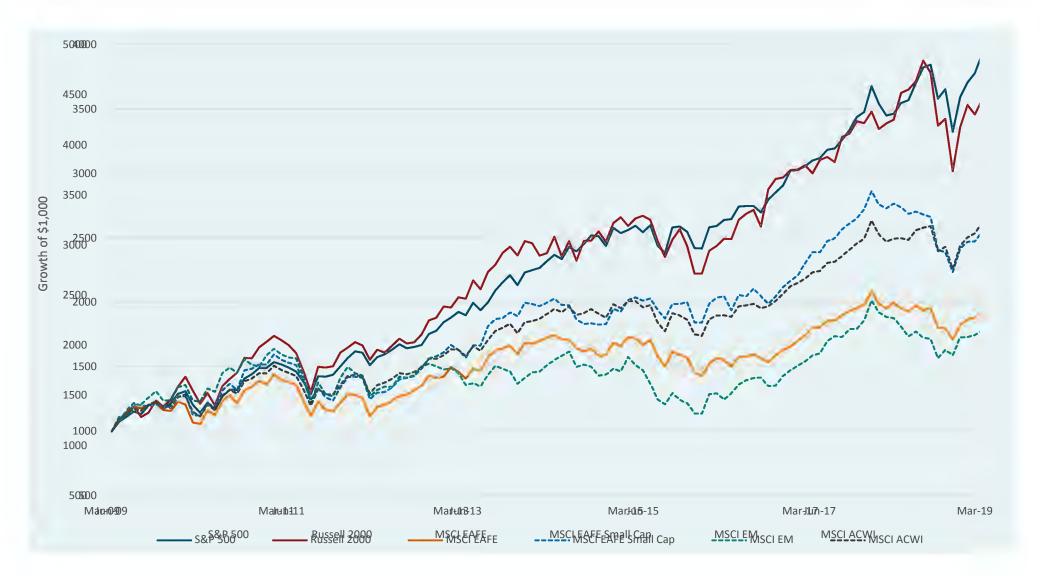


Source: Bloomberg, as of 6/30/19



Source: CBOE, as of 6/30/19

Long-term equity performance



Source: Morningstar, as of 6/30/19







Currency

The U.S. dollar depreciated -0.2% in Q2 relative to a tradeweighted 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



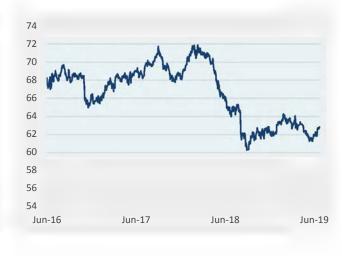
Source: Federal Reserve, Verus, as of 6/30/19

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

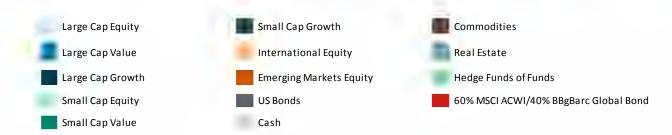






Periodic table of returns

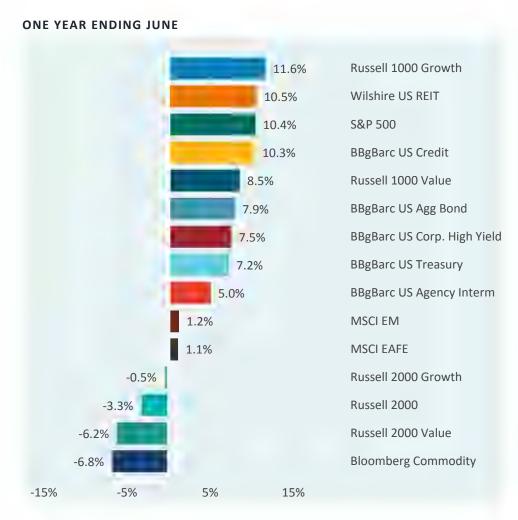
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	21.5	13.4	16.3
Small Cap Growth	27.0	43.1	22.8	8.4	10.3	48.5	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

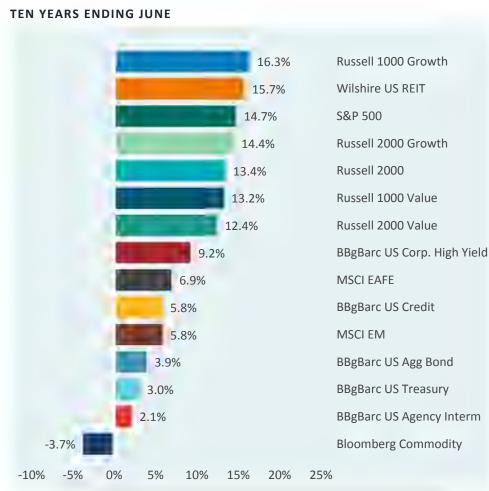


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 3/31/19.

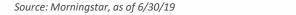


Major asset class returns



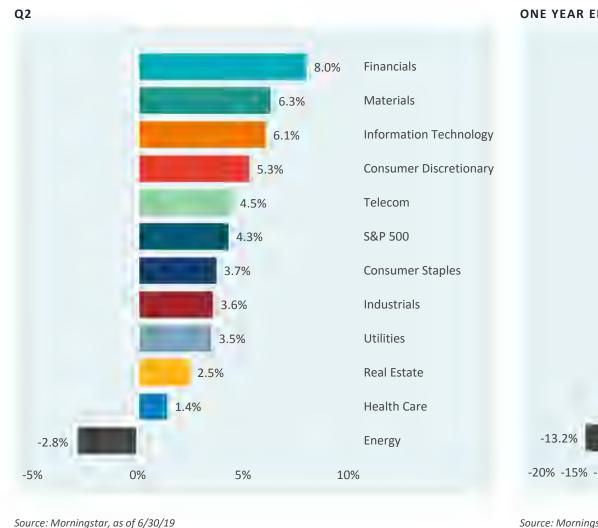


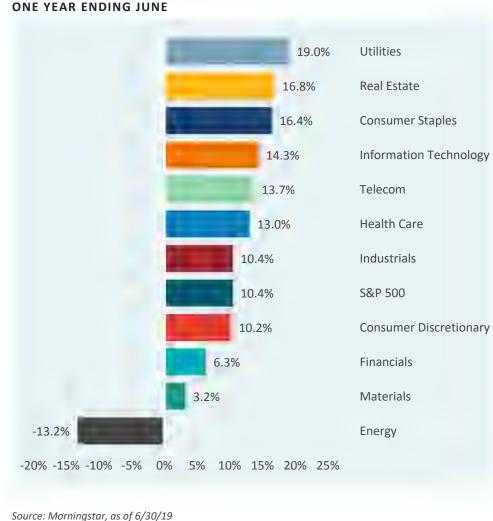
Source: Morningstar, as of 6/30/19





S&P 500 sector returns







Detailed index returns

DOMESTIC EQUITY								FIXED INCOME							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year		Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index								Broad Index							
S&P 500	7.0	4.3	18.5	10.4	14.2	10.7	14.7	BBgBarc US TIPS	0.9	2.9	6.2	4.8	2.1	1.8	3.6
S&P 500 Equal Weighted	7.5	3.7	19.2	8.2	12.4	9.1	15.6	BBgBarc US Treasury Bills	0.2	0.7	1.3	2.4	1.4	0.9	0.5
DJ Industrial Average	7.3	3.2	15.4	12.2	16.8	12.3	15.0	BBgBarc US Agg Bond	1.3	3.1	6.1	7.9	2.3	2.9	3.9
Russell Top 200	7.1	4.3	17.9	10.9	14.9	11.2	14.6	Duration							
Russell 1000	7.0	4.2	18.8	10.0	14.1	10.5	14.8	BBgBarc US Treasury 1-3 Yr	0.5	1.5	2.5	4.0	1.3	1.2	1.2
Russell 2000	7.1	2.1	17.0	(3.3)	12.3	7.1	13.4	BBgBarc US Treasury Long	1.3	6.0	11.0	12.3	1.3	5.7	6.5
Russell 3000	7.0	4.1	18.7	9.0	14.0	10.2	14.7	BBgBarc US Treasury	0.9	3.0	5.2	7.2	1.3	2.5	3.0
Russell Mid Cap	6.9	4.1	21.3	7.8	12.2	8.6	15.2	Issuer							
Style Index								BBgBarc US MBS	0.7	2.0	4.2	6.2	2.1	2.6	3.2
Russell 1000 Growth	6.9	4.6	21.5	11.6	18.1	13.4	16.3	BBgBarc US Corp. High Yield	2.3	2.5	9.9	7.5	7.5	4.7	9.2
Russell 1000 Value	7.2	3.8	16.2	8.5	10.2	7.5	13.2	BBgBarc US Agency Interm	0.6	1.7	3.1	5.0	1.6	1.8	2.1
Russell 2000 Growth	7.7	2.7	20.4	(0.5)	14.7	8.6	14.4	BBgBarc US Credit	2.3	4.3	9.4	10.3	3.7	3.9	5.8
Russell 2000 Value	6.4	1.4	13.5	(6.2)	9.8	5.4	12.4								
INTERNATIONAL EQUITY	,							OTHER							
Broad Index								Index							
MSCI ACWI	6.5	3.6	16.2	5.7	11.6	6.2	10.1	Bloomberg Commodity	2.7	(1.2)	5.1	(6.8)	(2.2)	(9.1)	(3.7)
MSCI ACWI ex US	6.0	3.0	13.6	1.3	9.4	2.2	6.5	Wilshire US REIT	1.4	1.6	17.9	10.5	4.1	7.8	15.7
MSCI EAFE	5.9	3.7	14.0	1.1	9.1	2.2	6.9	CS Leveraged Loans	0.2	1.6	5.4	4.1	5.4	3.9	6.3
MSCI EM	6.2	0.6	10.6	1.2	10.7	2.5	5.8	Alerian MLP	2.6	0.3	17.8	5.5	(0.4)	(6.5)	9.1
MSCI EAFE Small Cap	4.2	1.7	12.5	(6.3)	9.1	4.4	9.7	Regional Index							
Style Index								JPM EMBI Global Div	3.4	4.1	11.3	12.4	5.5	5.3	7.8
MSCI EAFE Growth	6.5	5.7	18.5	4.2	9.7	4.4	8.2	JPM GBI-EM Global Div	5.5	5.6	8.7	9.0	4.2	(0.5)	3.4
MSCI EAFE Value	5.3	1.5	9.6	(2.1)	8.5	0.1	5.5	Hedge Funds							
Regional Index								HFRI Composite	2.6	2.0	7.6	1.6	5.1	3.0	4.7
MSCI UK	5.0	0.9	12.9	(2.0)	6.9	(0.3)	6.8	HFRI FOF Composite	1.7	1.6	6.3	1.3	4.3	2.2	3.2
MSCI Japan	3.7	1.0	7.7	(4.2)	8.1	4.5	5.8	Currency (Spot)							
MSCI Euro	7.6	5.9	16.2	0.5	10.4	1.1	5.6	Euro	2.2	1.4	(0.4)	(2.5)	0.8	(3.6)	(2.1)
MSCI EM Asia	6.4	(1.2)	9.7	(2.3)	11.2	4.5	7.5	Pound	1.0	(2.3)	(0.1)	(3.6)	(1.6)	(5.7)	(2.5)
MSCI EM Latin American	6.2	4.4	12.6	18.4	10.8	(8.0)	2.3	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 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 induces 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 "(Good-Poor + 100)/2" to the present and future sales series and "(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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Tulare County Employees' Retirement Association

Investment Performance Review Period Ending: June 30, 2019

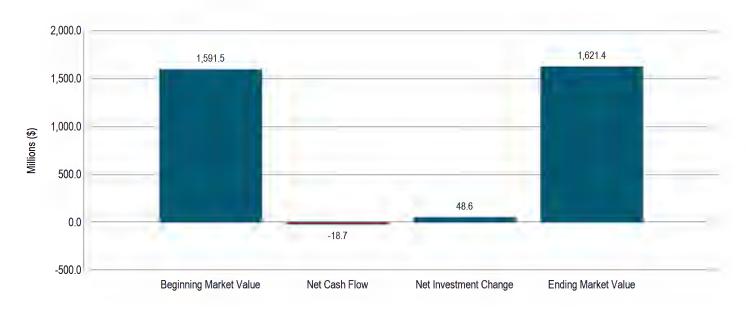


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SEATTLE 206-622-3700 LOS ANGELES 310-297-1777 SAN FRANCISCO 415-362-3484

	Fiscal Year-To-Date
Beginning Market Value	\$1,574,960,897
Net Cash Flow	-\$47,752,790
Net Investment Change	\$94,201,407
Ending Market Value	\$1,621,409,514

Change in Market Value Last Three Months



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



_	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	3.1	10.0	6.3	6.3	8.6	5.2	8.5	6.3	6.5
Policy Index	3.1	10.1	7.0	7.0	8.4	5.3	8.6	6.6	6.0
InvMetrics Public DB Gross Rank	56	86	47	47	58	79	68	72	16
Total Fund x Parametric	3.1	9.9	6.2	6.2	8.6	5.1			
Policy Index	3.1	10.1	7.0	7.0	8.4	5.3			
InvMetrics Public DB Gross Rank	57	86	51	51	62	80			
Total Domestic Equity	4.5	18.8	8.0	8.0	14.9	10.6	15.0	9.3	8.8
Russell 3000	4.1	18.7	9.0	9.0	14.0	10.2	14.7	8.9	6.3
InvMetrics Public DB US Eq Gross Rank	34	45	52	52	15	17	16	19	1
Total International Equity	4.1	16.1	3.9	3.9	10.3	2.8	6.8	5.3	4.7
MSCI ACWI ex USA Gross	3.2	14.0	1.8	1.8	9.9	2.6	7.0	6.3	5.0
InvMetrics Public DB ex- US Eq Gross Rank	9	11	7	7	21	50	74	81	67
Total Global Equity	1.0	14.4	2.7	2.7	10.7	-	-	-	
MSCI ACWI Gross	3.8	16.6	6.3	6.3	12.2				
InvMetrics Public DB Glbl Eq Gross Rank	99	72	78	78	66				
Total Fixed Income	2.8	5.7	7.5	7.5	3.6	3.1	5.5	4.9	5.4
BBgBarc US Aggregate TR	3.1	6.1	7.9	7.9	2.3	2.9	3.9	4.3	4.9
InvMetrics Public DB US Fix Inc Gross Rank	34	39	27	27	19	41	19	43	52
Total Domestic Fixed Income	3.1	6.5	7.9	7.9	3.4	3.3	-	-	-
BBgBarc US Aggregate TR	3.1	6.1	7.9	7.9	2.3	2.9			-
Total Global Fixed Income	1.7	3.2	6.5	6.5	4.7	2.2	-	-	- 4
JPM GBI Global TR USD	3.5	5.4	5.7	5.7	0.9	1.2			



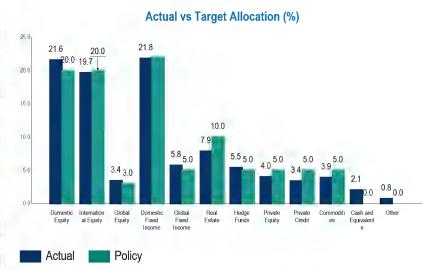
Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



New Policy Index as of 10/1/2018: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Real Assets	1.0	4.1	2.3	2.3	4.6	3.2		-	
Real Assets Composite Benchmark	0.6	4.0	2.0	2.0	3.9	2.7		-	-
Total Real Estate	1.6	2.5	7.0	7.0	6.6	9.5	7.9	7.4	8.4
NCREIF Property Index	1.5	3.3	6.5	6.5	6.9	8.8	9.2	8.7	
NCREIF-ODCE	1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.0	8.4
Total Commodities	-0.3	7.2	-7.3	-7.3	0.6	-7.6		_	-
Bloomberg Commodity Index TR USD	-1.2	5.1	-6.8	-6.8	-2.2	-9.1			_
Commodities Broad Basket MStar MF Rank	15	37	49	49	35	23			
Total Alternatives	3.0	5.6	9.5	9.5	7.9	1.8	3.9	-	-
CPI + 5%	2.0	4.5	6.7	6.7	7.1	6.5	6.8		
Total Private Equity	4.1	8.0	17.8	17.8	13.8	11.7	13.8		= =
Total Private Credit	3.5	3.1	11.2	11.2	-		-	-	-
Total Liquid Alts/HFoF	2.0	5.5	2.4	2.4	5.4	2.9		-	- 1
CPI + 5%	2.0	4.5	6.7	6.7	7.1	6.5			
Total Opportunistic	-4.5	-11.8	-6.2	-6.2	8.5	8.0	-		-



Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



New Policy Index as of 10/1/2018: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs 2	20 Yrs
otal Fund	3.1	9.8	6.0	6.0	8.3	4.8	8.2	5.9	6.1
Policy Index	3.1	10.1	7.0	7.0	8.4	5.3	8.6	6.6	6.0
Total Fund x Parametric	3.0	9.7	6.0	6.0	8.2	4.7			-
Policy Index	3.1	10.1	7.0	7.0	8.4	5.3			-
Total Domestic Equity	4.4	18.6	7.6	7.6	14.5	10.2	14.6	8.9	8.4
Russell 3000	4.1	18.7	9.0	9.0	14.0	10.2	14.7	8.9	6.3
Total International Equity	4.0	15.9	3.5	3.5	9.9	2.4	6.4	5.0	4.3
MSCI ACWI ex USA Gross	3.2	14.0	1.8	1.8	9.9	2.6	7.0	6.3	5.0
Total Global Equity	0.8	14.0	1.9	1.9	9.8		-	-	٠,
MSCI ACWI Gross	3.8	16.6	6.3	6.3	12.2				-
Total Fixed Income	2.8	5.6	7.2	7.2	3.3	2.8	5.2	4.6	5.1
BBgBarc US Aggregate TR	3.1	6.1	7.9	7.9	2.3	2.9	3.9	4.3	4.9
Total Domestic Fixed Income	3.0	6.3	7.6	7.6	3.1	3.0			-
BBgBarc US Aggregate TR	3.1	6.1	7.9	7.9	2.3	2.9			-
Total Global Fixed Income	1.7	3.1	6.1	6.1	4.2	1.7			-
JPM GBI Global TR USD	3.5	5.4	5.7	5.7	0.9	1.2			_
Total Real Assets	1.0	4.1	2.3	2.3	4.5	2.8		-	
Real Assets Composite Benchmark	0.6	4.0	2.0	2.0	3.9	2.7	-		-
Total Real Estate	1.6	2.5	7.0	7.0	6.5	9.1	7.6	6.7	7.0
NCREIF Property Index	1.5	3.3	6.5	6.5	6.9	8.8	9.2	8.7	_
NCREIF-ODCE	1.0	2.4	6.4	6.4	7.6	9.8	9.9	8.0	8.4
Total Commodities	-0.3	7.2	-7.3	-7.3	0.4	-8.0			-
Bloomberg Commodity Index TR USD	-1.2	5.1	-6.8	-6.8	-2.2	-9.1			
Total Alternatives	3.0	5.6	9.5	9.5	7.7	1.3	3.4		-
CPI + 5%	2.0	4.5	6.7	6.7	7.1	6.5	6.8		-
Total Private Equity	4.1	8.0	17.8	17.8	13.4	10.7	13.3	-	
Total Private Credit	3.5	3.1	11.2	11.2			-	-	
Total Liquid Alts/HFoF	2.0	5.5	2.4	2.4	5.2	2.5	-	-	
CPI + 5%	2.0	4.5	6.7	6.7	7.1	6.5			
Total Opportunistic	-4.5	-11.8	-6.2	-6.2	8.1	6.9			



Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index

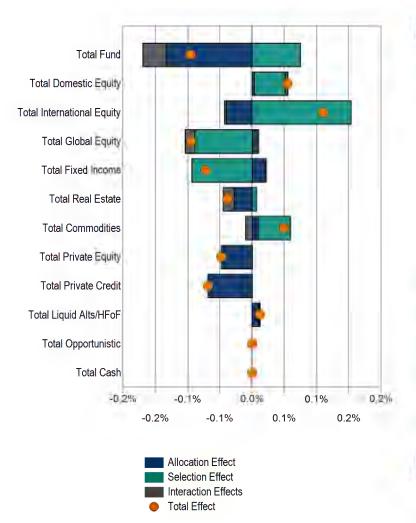
Policy



New Policy Index as of 10/1/2018: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Private Equity Returns, 5% Private Credit Returns. All return periods greater than 1-year are rolling annualized returns. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



Attribution Effects 3 Months Ending June 30, 2019



Performance Attribution

	Last 3 Mo.	YTD
Wtd. Actual Return	3.0%	9.7%
Wtd. Index Return *	3.1%	10.1%
Excess Return	-0.1%	-0.4%
Selection Effect	0.1%	0.2%
Allocation Effect	-0.1%	-0.6%
Interaction Effect	0.0%	0.0%

^{*}Calculated from policy benchmark returns and policy weightings of each compenent of the policy benchmark.

Attribution Summary 3 Months Ending June 30, 2019

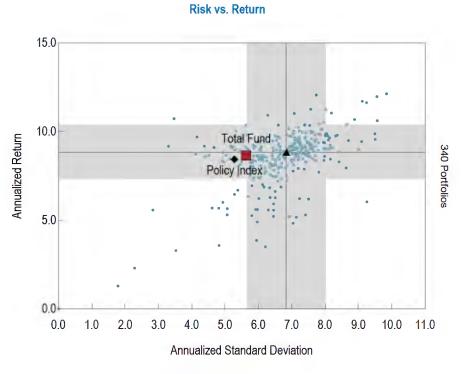
	Wtd.	Vtd. Index	Excess	Selection	Allocation	Interaction	Total
	Actual * Return	Return	Return	Effect	Effect	Effects	Effects
Total Domestic Equity	4.4%	4.1%	0.3%	0.0%	0.0%	0.0%	0.1%
Total International Equity	4.0%	3.2%	0.8%	0.2%	0.0%	0.0%	0.1%
Total Global Equity	0.8%	3.8%	-3.0%	-0.1%	0.0%	0.0%	-0.1%
Total Fixed Income	2.8%	3.1%	-0.3%	-0.1%	0.0%	0.0%	-0.1%
Total Real Estate	1.6%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%
Total Commodities	-0.3%	-1.2%	0.9%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	4.1%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Private Credit	3.5%	3.5%	0.0%	0.0%	-0.1%	0.0%	-0.1%
Total Liquid Alts/HFoF	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic							
Total Cash							-
Total	3.0%	3.1%	-0.1%	0.1%	-0.1%	0.0%	-0.1%

Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.



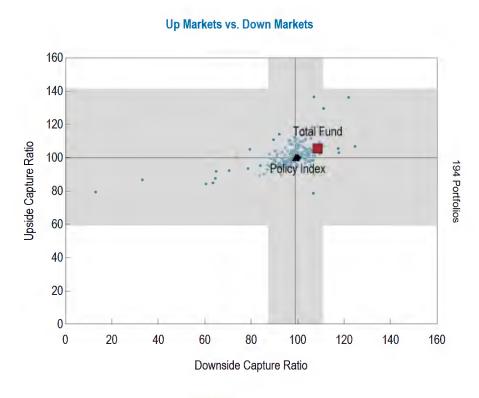
Period Ending: June 3	30,	2019
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	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.29%	8.30%	-1.09%	1.05	0.96%	0.99	0.48	-0.78	100.08%	108.45%



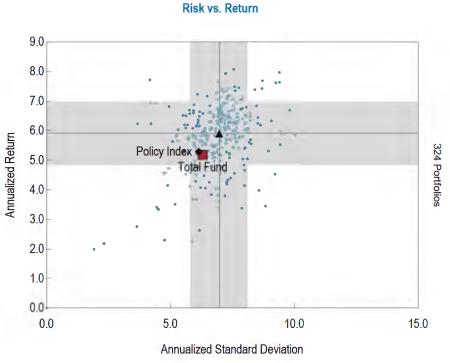


- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross



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

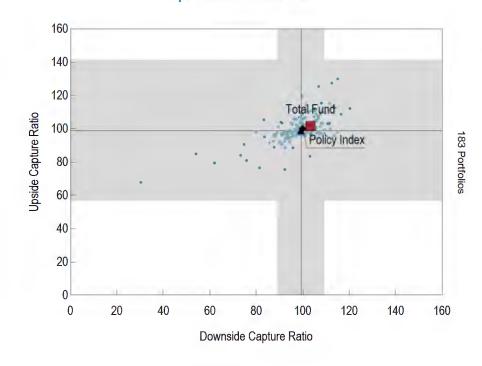
	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	5.18%	6.30%	-0.21%	1.02	0.78%	0.98	0.69	-0.14	101.49%	103.30%





- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

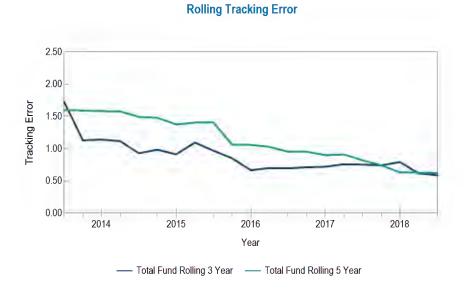
Up Markets vs. Down Markets



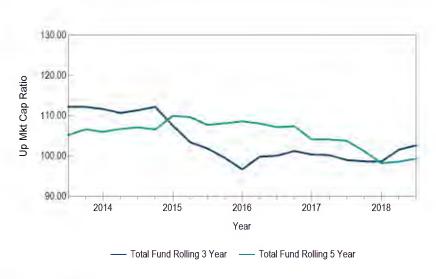
- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

Rolling Information Ratio





Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	1,621,409,514	100.0	3.1	10.0	6.3	6.3	8.6	5.2	8.5	-2.6	14.3	7.6	-1.2	4.2
Policy Index			3.1	10.1	7.0	7.0	8.4	5.3	8.6	-2.4	14.0	8.0	-1.1	4.6
InvMetrics Public DB Gross Rank			56	86	47	47	58	79	68	15	71	53	80	83
Total Fund x Parametric	1,612,475,931	99.4	3.1	9.9	6.2	6.2	8.6	5.1		-2.6	14.2	7.6	-1.1	4.1
Policy Index			3.1	10.1	7.0	7.0	8.4	5.3		-2.4	14.0	8.0	-1.1	4.6
InvMetrics Public DB Gross Rank			57	86	51	51	62	80		15	72	53	80	87
Total Domestic Equity	350,733,207	21.6	4.5	18.8	8.0	8.0	14.9	10.6	15.0	-5.0	22.3	11.5	1.6	12.4
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			34	45	52	52	15	17	16	29	16	77	10	17
SSGA S&P 500 Flagship Fund	66,877,481	4.1	4.3	18.5	10.5	10.5	14.2	10.8		-4.4	21.9	12.0	1.5	13.7
S&P 500			4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank			47	42	39	39	38	34		40	52	31	40	42
QMA Large Cap Core	63,089,763	3.9	3.6	17.0	6.9	6.9	13.7	10.3	15.1	-6.5	22.5	12.5	2.1	15.6
S&P 500			4.3	18.5	10.4	10.4	14.2	10.7	14.7	-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank			67	60	70	70	53	45	27	70	42	25	31	20
Ivy Large Cap Growth	71,651,479	4.4	7.0	24.2	15.7	15.7	20.8	14.4		3.2	30.2	2.1	7.6	12.8
Russell 1000 Growth			4.6	21.5	11.6	11.6	18.1	13.4		-1.5	30.2	7.1	5.7	13.0
eV US Large Cap Growth Equity Gross Rank			12	26	19	19	18	19		15	42	72	26	40
Boston Partners Large Cap Value	63,285,513	3.9	3.1	13.0	5.0	5.0	12.0	7.7	13.5	-8.6	20.1	14.7	-3.9	11.8
Russell 1000 Value			3.8	16.2	8.5	8.5	10.2	7.5	13.2	-8.3	13.7	17.3	-3.8	13.5
eV US Large Cap Value Equity Gross Rank			66	87	65	65	35	55	46	55	22	54	65	58
SSGA Russell Small Cap Completeness Index	27,546,913	1.7	3.2	19.5	2.3	2.3	13.3	7.9		-9.2	18.2	16.5	-3.5	7.4
Russell Small Cap Completeness			3.2	19.6	2.4	2.4	13.4	7.9		-9.2	18.3	16.6	-3.4	7.4
eV US Small Cap Core Equity Gross Rank			40	25	21	21	34	47		37	23	84	68	37
William Blair SMID Cap Growth	32,127,039	2.0	6.6	25.1	11.1	11.1	19.7	14.7	17.6	-0.9	30.4	8.2	6.1	9.8
Russell 2500 Growth			4.1	23.9	6.1	6.1	16.1	10.0	15.7	-7.5	24.5	9.7	-0.2	7.1
eV US Mid Cap Growth Equity Gross Rank			50	65	74	74	26	9	15	29	16	22	7	33
Lee Munder Small Value	26,155,019	1.6	2.5	16.5	-3.9	-3.9	8.7	6.9	13.2	-14.7	8.6	28.4	0.4	5.1
Russell 2000 Value			1.4	13.5	-6.2	-6.2	9.8	5.4	12.4	-12.9	7.8	31.7	-7.5	4.2
eV US Small Cap Value Equity Gross Rank			43	37	43	43	67	29	69	56	68	38	9	60



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
otal International Equity	319,231,802	19.7	4.1	16.1	3.9	3.9	10.3	2.8	6.8	-14.3	26.9	6.2	-5.9	-4.8
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			9	11	7	7	21	50	74	43	80	13	85	83
SSGA MSCI ACWI Ex US Index Fund	104,973,243	6.5	3.1	13.8	1.6	1.6	9.7	2.4		-14.0	27.6	4.8	-5.5	-3.6
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank			49	51	31	31	40	75		42	49	17	96	49
PIMCO RAE Fundamental Global Ex US Fund	101,959,176	6.3	1.8	9.8	-1.0	-1.0	9.5	1.3		-14.7	26.7	13.5	-10.9	-5.7
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank			78	93	53	53	43	92		47	53	1	99	79
SGA Global Growth	112,299,383	6.9	7.4	24.9	11.2	11.2								
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8								
eV ACWI ex-US Core Equity Gross Rank			2	2	1	1								
otal Global Equity	55,865,605	3.4	1.0	14.4	2.7	2.7	10.7		-	-15.3	33.7	16.1	-11.5	-
MSCI ACWI Gross			3.8	16.6	6.3	6.3	12.2			-8.9	24.6	8.5	-1.8	
InvMetrics Public DB Glbl Eq Gross Rank			99	72	78	78	66			94	1	2	99	
Skellig DST Water Fund	55,865,605	3.4	1.0	14.4	2.7	2.7	10.7			-15.3	33.7	16.1	-11.5	
MSCI ACWI Gross			3.8	16.6	6.3	6.3	12.2			-8.9	24.6	8.5	-1.8	
eV Global All Cap Equity Gross Rank			89	66	70	70	61			91	9	6	96	
otal Fixed Income	447,645,156	27.6	2.8	5.7	7.5	7.5	3.6	3.1	5.5	0.5	4.3	5.5	-0.8	4.6
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
InvMetrics Public DB US Fix Inc Gross Rank			34	39	27	27	19	41	19	51	50	37	77	69
Total Domestic Fixed Income		_	-		- 1				_	_				
BlackRock Fixed Income	172,768,025	10.7	3.1	6.1	8.3	8.3	2.7	3.3	4.5	0.4	3.9	3.1	1.1	6.2
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 All US Fixed Inc Gross Rank			32	48	29	29	56	50	51	54	54	53	39	29
Doubleline Core Plus	90,134,357	5.6	3.1	6.3	7.3	7.3	3.1			0.0	4.2	4.8		
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			67	89	90	90	79			33	86	52		
MacKay Shields Core Plus	91.240.182	5.6	3.2	6.8	7.9	7.9	3.5			-0.6	5.0	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			63	62	77	77	58			67	52	46		



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Global Fixed Income					- 310									
Franklin Templeton Global Bond Plus	93,502,591	5.8	1.7	3.2	6.5	6.5	4.7	2.1		2.4	3.0	6.8	-3.5	2.4
JPM GBI Global TR USD			3.5	5.4	5.7	5.7	0.9	1.2		-0.7	6.8	1.6	-2.6	0.7
eV Global Fixed Inc Unhedged Gross Rank			88	93	46	46	34	50		6	96	24	67	50
Total Real Assets	191,957,126	11.8	1.0	4.1	2.3	2.3	4.6	3.2	-	1.6	5.0	10.4	0.4	
Real Assets Composite Benchmark			0.6	4.0	2.0	2.0	3.9	2.7		0.5	5.2	9.4	-0.7	_
Total Real Estate	127,970,572	7.9	1.6	2.5	7.0	7.0	6.6	9.5	7.9	8.8	4.3	9.0	16.0	13.1
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
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
RREEF America II	127,893,497	7.9	1.6	2.5	6.9	6.9	6.8	9.7	10.7	8.6	4.4	9.3	16.7	13.0
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
TA Associates Realty	77,075	0.0	0.0	-5.7	3.9	3.9	5.6	8.4	4.4	16.2	5.2	4.6	16.7	15.1
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
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



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Commodities	63,986,554	3.9	-0.3	7.2	-7.3	-7.3	0.6	-7.6		-12.6	7.5	14.5	-26.3	-
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Commodities Broad Basket MStar MF Rank			15	37	49	49	35	23		64	15	27	80	
Gresham MTAP Commodity Builder	31,579,512	1.9	-1.7	5.5	-9.2	-9.2	-0.7	-8.5		-12.7	5.9	12.3	-25.4	-16.1
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	-17.0
Commodities Broad Basket MStar MF Rank			63	51	87	87	43	58		65	28	53	71	34
Wellington Commodity	32,407,042	2.0	1.1	8.8	-5.4	-5.4	1.7	-6.5		-12.6	9.1	15.8	-25.7	
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Commodities Broad Basket MStar MF Rank			1	19	10	10	10	19		64	7	13	73	
Total Liquid Alts/HFoF	88,411,683	5.5	2.0	5.5	2.4	2.4	5.4	2.9		0.9	5.4	0.3	0.7	5.4
CPI + 5%			2.0	4.5	6.7	6.7	7.1	6.5		7.0	7.2	7.2	5.8	5.8
Aetos Capital	44,202,732	2.7	1.9	5.9	2.8	2.8	4.9	3.3	5.2	-1.9	6.8	2.6	1.2	5.2
ICE BofAML 90 DAY T-BILLS + 400 bps			1.4	2.7	5.4	5.4	4.4	3.9	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	44,208,951	2.7	2.2	5.1	2.1	2.1	5.8			3.8	4.0	0.6		
ICE BofAML 90 DAY T-BILLS + 400 bps			1.4	2.7	5.4	5.4	4.4			4.9	3.9	3.3		



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
otal Fund	1,621,409,514	100.0	3.1	9.8	6.0	6.0	8.3	4.8	8.2	-2.9	13.9	7.1	-1.6	3.8
Policy Index			3.1	10.1	7.0	7.0	8.4	5.3	8.6	-2.4	14.0	8.0	-1.1	4.6
Total Fund x Parametric	1,612,475,931	99.4	3.0	9.7	6.0	6.0	8.2	4.7	-	-2.9	13.8	7.0	-1.6	3.7
Policy Index			3.1	10.1	7.0	7.0	8.4	5.3		-2.4	14.0	8.0	-1.1	4.6
Total Domestic Equity	350,733,207	21.6	4.4	18.6	7.6	7.6	14.5	10.2	14.6	-5.4	21.9	11.1	1.2	12.0
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
SSGA S&P 500 Flagship Fund	66,877,481	4.1	4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
S&P 500			4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
QMA Large Cap Core	63,089,763	3.9	3.5	16.8	6.6	6.6	13.3	10.0	14.7	-6.8	22.1	12.1	1.8	15.2
S&P 500			4.3	18.5	10.4	10.4	14.2	10.7	14.7	-4.4	21.8	12.0	1.4	13.7
Ivy Large Cap Growth	71,651,479	4.4	6.9	23.8	15.1	15.1	20.2	13.8		2.7	29.5	1.6	7.1	12.3
Russell 1000 Growth			4.6	21.5	11.6	11.6	18.1	13.4		-1.5	30.2	7.1	5.7	13.0
Boston Partners Large Cap Value	63,285,513	3.9	3.0	12.8	4.5	4.5	11.5	7.2	13.1	-9.0	19.6	14.2	-4.4	11.4
Russell 1000 Value			3.8	16.2	8.5	8.5	10.2	7.5	13.2	-8.3	13.7	17.3	-3.8	13.5
SSGA Russell Small Cap Completeness Index	27,546,913	1.7	3.1	19.5	2.3	2.3	13.2	7.8		-9.2	18.1	16.5	-3.5	7.3
Russell Small Cap Completeness			3.2	19.6	2.4	2.4	13.4	7.9		-9.2	18.3	16.6	-3.4	7.4
William Blair SMID Cap Growth	32,127,039	2.0	6.4	24.6	10.1	10.1	18.7	13.7	16.6	-1.7	29.3	7.2	5.2	8.8
Russell 2500 Growth			4.1	23.9	6.1	6.1	16.1	10.0	15.7	-7.5	24.5	9.7	-0.2	7.1
Lee Munder Small Value	26,155,019	1.6	2.3	16.0	-4.7	-4.7	7.7	6.0	12.1	-15.5	7.7	27.3	-0.5	4.
Russell 2000 Value			1.4	13.5	-6.2	-6.2	9.8	5.4	12.4	-12.9	7.8	31.7	-7.5	4.2
Total International Equity	319,231,802	19.7	4.0	15.9	3.5	3.5	9.9	2.4	6.4	-14.5	26.5	5.9	-6.2	-5.0
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
SSGA MSCI ACWI Ex US Index Fund	104,973,243	6.5	3.1	13.8	1.5	1.5	9.6	2.4		-14.0	27.5	4.7	-5.5	-3.7
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
PIMCO RAE Fundamental Global Ex US Fund	101,959,176	6.3	1.6	9.5	-1.5	-1.5	9.0	0.8		-15.1	26.0	13.0	-11.4	-5.9
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
SGA Global Growth	112,299,383	6.9	7.3	24.6	10.7	10.7								_
MSCI ACWI ex USA Gross			3.2	14.0	1.8	1.8								_
Total Global Equity	55,865,605	3.4	0.8	14.0	1.9	1.9	9.8	-		-15.9	32.6	15.1	-12.3	
MSCI ACWI Gross			3.8	16.6	6.3	6.3	12.2			-8.9	24.6	8.5	-1.8	-
Skellig DST Water Fund	55,865,605	3.4	0.8	14.0	1.9	1.9	9.8			-15.9	32.6	15.1	-12.3	
MSCI ACWI Gross			3.8	16.6	6.3	6.3	12.2			-8.9	24.6	8.5	-1.8	



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
Total Fixed Income	447,645,156	27.6	2.8	5.6	7.2	7.2	3.3	2.8	5.2	0.1	3.9	5.1	-1.1	4.3
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
Total Domestic Fixed Income														
BlackRock Fixed Income	172,768,025	10.7	3.0	6.0	8.0	8.0	2.4	3.0	4.3	0.1	3.6	2.9	0.8	6.0
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
Doubleline Core Plus	90,134,357	5.6	3.1	6.1	7.0	7.0	2.8			-0.3	3.9	4.6		
BBgBarc US Aggregate TR			3.1	6.1	7.9	7.9	2.3			0.0	3.5	2.6		
MacKay Shields Core Plus	91,240,182	5.6	3.1	6.6	7.4	7.4	3.0			-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		
Total Global Fixed Income					- 1									
Franklin Templeton Global Bond Plus	93,502,591	5.8	1.7	3.1	6.1	6.1	4.2	1.6	-	1.9	2.4	6.1	-4.1	1.9
JPM GBI Global TR USD			3.5	5.4	5.7	5.7	0.9	1.2		-0.7	6.8	1.6	-2.6	0.7
Total Real Assets	191,957,126	11.8	1.0	4.1	2.3	2.3	4.5	2.8	_	1.6	5.0	9.5	-0.4	-
Real Assets Composite Benchmark			0.6	4.0	2.0	2.0	3.9	2.7		0.5	5.2	9.4	-0.7	_
Total Real Estate	127,970,572	7.9	1.6	2.5	7.0	7.0	6.5	9.1	7.6	8.8	4.3	8.0	15.1	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
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
RREEF America II	127,893,497	7.9	1.6	2.5	6.9	6.9	6.6	9.2	10.1	8.6	4.4	8.2	15.7	12.0
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
TA Associates Realty	77,075	0.0	0.0	-5.7	3.9	3.9	5.4	7.8	3.4	16.2	5.2	3.7	15.4	14.6
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
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

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
Total Commodities	63,986,554	3.9	-0.3	7.2	-7.3	-7.3	0.4	-8.0		-12.6	7.5	13.6	-26.8	-
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Gresham MTAP Commodity Builder	31,579,512	1.9	-1.7	5.5	-9.2	-9.2	-0.8	-8.9		-12.7	5.9	11.5	-25.9	-16.8
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	-17.0
Wellington Commodity	32,407,042	2.0	1.1	8.8	-5.4	-5.4	1.5	-6.9		-12.6	9.1	14.9	-26.3	
Bloomberg Commodity Index TR USD			-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Total Liquid Alts/HFoF	88,411,683	5.5	2.0	5.5	2.4	2.4	5.2	2.5		0.9	5.4	-0.5	0.0	4.6
CPI + 5%			2.0	4.5	6.7	6.7	7.1	6.5		7.0	7.2	7.2	5.8	5.8
Aetos Capital	44,202,732	2.7	1.9	5.9	2.8	2.8	4.8	2.9	4.9	-1.9	6.8	1.8	0.5	4.5
ICE BofAML 90 DAY T-BILLS + 400 bps			1.4	2.7	5.4	5.4	4.4	3.9	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	44,208,951	2.7	2.2	5.1	2.1	2.1	5.7			3.8	4.0	-0.1		
ICE BofAML 90 DAY T-BILLS + 400 bps			1.4	2.7	5.4	5.4	4.4			4.9	3.9	3.3		

	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
SSGA S&P 500 Flagship Fund	10.77%	12.04%	0.05%	1.00	0.04%	1.00	0.82	1.33	100.33%	99.96%
QMA Large Cap Core	10.34%	12.69%	-0.88%	1.05	1.57%	0.99	0.75	-0.23	99.95%	102.13%
Ivy Large Cap Growth	14.44%	12.84%	1.62%	0.96	3.13%	0.94	1.06	0.33	100.20%	94.40%
Boston Partners Large Cap Value	7.69%	13.01%	-0.26%	1.07	2.89%	0.95	0.53	0.08	106.03%	103.06%
SSGA Russell Small Cap Completeness Index	7.90%	14.80%	-0.02%	1.00	0.08%	1.00	0.48	-0.52	99.66%	99.97%
William Blair SMID Cap Growth	14.68%	14.08%	6.20%	0.85	4.10%	0.94	0.98	1.14	96.81%	79.94%
Lee Munder Small Value	6.94%	15.73%	1.87%	0.94	3.05%	0.97	0.39	0.51	92.76%	91.78%
SSGA MSCI ACWI Ex US Index Fund	2.43%	12.54%	-0.22%	1.00	0.06%	1.00	0.13	-3.78	99.02%	100.38%
PIMCO RAE Fundamental Global Ex US Fund	1.31%	13.41%	-1.44%	1.04	3.23%	0.94	0.03	-0.41	104.92%	107.46%
BlackRock Fixed Income	3.27%	2.83%	0.45%	0.95	0.39%	0.98	0.86	0.82	101.76%	91.83%
Franklin Templeton Global Bond Plus	2.12%	5.55%	2.33%	-0.18	8.17%	0.03	0.23	0.12	-4.72%	-49.54%
RREEF America II	9.91%	4.31%	3.50%	0.66	3.61%	0.41	2.11	0.04	59.39%	
TA Associates Realty	8.37%	6.09%	2.40%	0.68	5.67%	0.17	1.24	-0.08	56.11%	
Gresham MTAP Commodity Builder	-8.51%	12.32%	0.56%	0.99	3.20%	0.93	-0.76	0.20	111.34%	100.70%
Aetos Capital	3.26%	3.19%	2.35%	0.23	3.19%	0.00	0.76	-0.20	82.70%	

							IRR Analysis	as of IRR date				
Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 6/30/2019 ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁶	IRR Date
Private E	quity					-						
2005	BlackRock Private Capital II ⁷	\$4,274,994	\$15,000,000	\$15,000,000	100%	\$0	\$20,083,396	\$4,497,868	133.9%	162.4%	6.9%	03/31/19
2016	Ocean Avenue Fund III	\$19,536,186	\$20,000,000	\$15,600,000	78%	\$4,400,000	\$2,400,000	\$17,136,186	15.4%	140.6%	35.6%	03/31/19
2004	Pantheon USA Fund VI	\$3,322,815	\$15,000,000	\$14,175,000	95%	\$825,000	\$19,160,925	\$3,480,315	135.2%	158.6%	7.2%	03/31/19
2016	Pathway Private Equity Fund Investors 8	\$17,216,125	\$20,000,000	\$12,375,213	62%	\$7,624,787	\$775,156	\$16,910,482	6.3%	145.4%	19.3%	03/31/19
2017	Pathway Private Equity Fund Investors 9	\$6,915,420	\$20,000,000	\$6,040,926	30%	\$13,959,074	\$75,744	\$0	1.3%	115.7%	N/A	N/A
2011	Stepstone Secondary Opportunities Fund II8	\$14,377,918	\$27,500,000	\$27,500,000	100%	\$0	\$21,731,407	\$14,986,217	79.0%	131.3%	12.6%	03/31/19
Private C	redit											
2016	TPG Diversified Credit	\$55,596,156	\$80,000,000	\$49,447,264	62%	\$30,552,736	\$485,608	\$50,391,072	1.0%	113.4%	9.2%	03/31/19
Private R	eal Estate											
2007	TA Associates VIII	\$77,075	\$30,000,000	\$30,000,000	100%	\$0	\$30,234,128	\$77,075	100.8%	101.0%	-0.1%	03/31/19
Opportur	nistic											
2010	KKR Mezzanine Partners	\$3,261,635	\$15,000,000	\$15,000,000	100%	\$0	\$17,819,791	\$3,261,635	118.8%	140.5%	8.2%	03/31/19
2011	PIMCO Bravo	\$281,773	\$15,000,000	\$15,000,000	100%	\$0	\$27,147,672	\$281,773	181.0%	182.9%	22.1%	03/31/19
	Total Private Markets % of Portfolio (Market Value)	\$124,860,097 7.7%	\$257,500,000	\$200,138,403	78%	\$57,361,597	\$139,913,828	\$111,022,623	69.9%	132.3%	***************************************	******************

¹(DPI) is equal to (capital returned / capital called)



²(TVPI) is equal to (market value + capital returned) / capital called

³Last known market value + capital calls - distributions

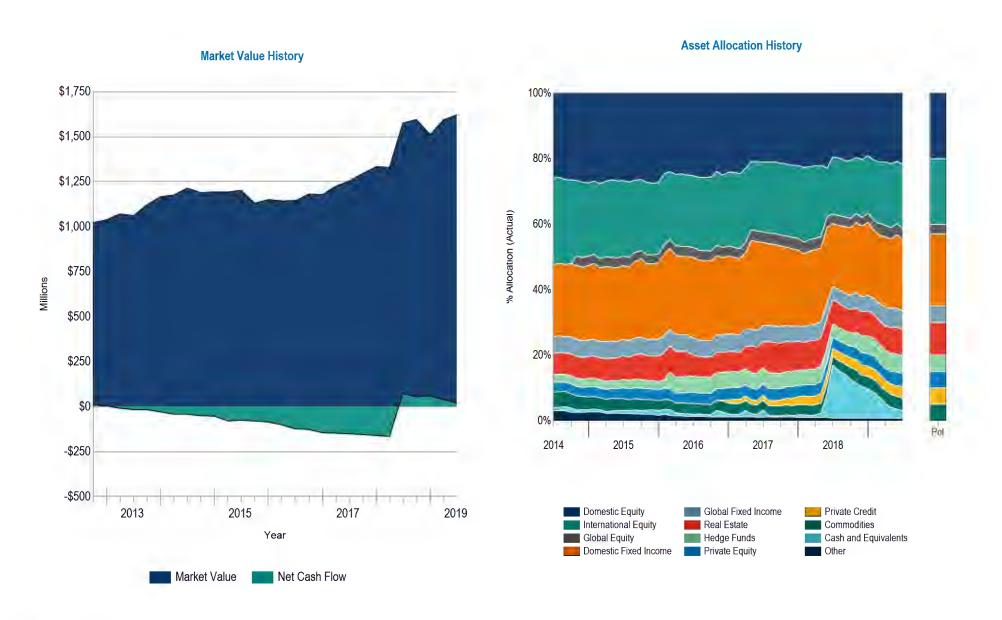
⁴IRR currently unavailable for these funds.

⁵Investment period ended, no further capital to be called.

⁶Net 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.

⁷BlackRock: Total capital called is \$15,519,967 which includes recycled distributions.

⁸StepStone: \$8,782,174 in recallable distributions



Net Cash flow history prior to 4Q 2010 is not available due to lack of data from previous consultant.





7.9%

5.5%

4.0% 3.4%

3.9%

2.1% 0.8% 10.0%

5.0%

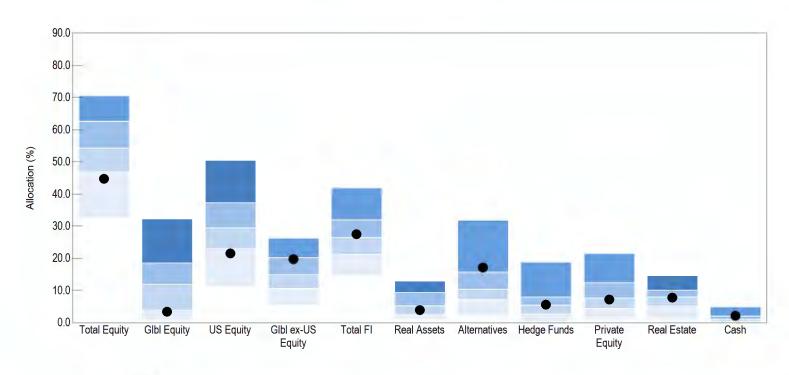
5.0%

5.0%

5.0%

0.0%

Total Plan Allocation vs. InvMetrics Public DB Gross As of June 30, 2019



5th Percentile 25th Percentile Median 75th Percentile 95th Percentile # of Portfolios

Total Fund

Allocat	ion (Ra	nk)																				
70.6		32.4		50.6		26.3		42.0		13.1		31.9		18.8		21.5		14.7		4.8		
62.7		18.8		37.4		20.3		32.0		9.5		15.7		7.9		12.5		10.2		2.1		
54.4		12.0		29.4		14.9		26.5		5.2		10.5		5.5		7.7		8.0		1.1		
47.1		3.7		23.0		10.8		21.3		2.6		7.2		2.7		4.5		5.3		0.4		
32.6		8.0		11.2		5.6		14.6		1.0		2.0		0.4		1.0		1.0		0.1		
244		84		170		203		244		73		158		75		110		166		228		
44.8	(81)	3.4	(80)	21.6	(78)	19.7	(30)	27.6	(43)	3.9	(65)	17.1	(21)	5.7	(42)	7.2	(56)	7.9	(52)	2.1	(26)	

Account	Fee Schedule	Market Value As of 6/30/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Aetos Capital	0.70% of Assets	\$44,202,732	2.7%	\$309,419	0.70%
BlackRock Alternative Advisors	120,000 Annually	\$4,274,994	0.3%	\$120,000	2.81%
BlackRock Fixed Income	0.25% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$172,768,025	10.7%	\$431,920	0.25%
Boston Partners Large Cap Value	0.45% of First 50.0 Mil, 0.35% of Next 50.0 Mil, 0.30% Thereafter	\$63,285,513	3.9%	\$271,499	0.43%
Doubleline Core Plus	0.28% of First 100.0 Mil, 0.25% Thereafter	\$90,134,357	5.6%	\$252,376	0.28%
Franklin Templeton Global Bond Plus	0.62% of First 50.0 Mil, 0.51% of Next 50.0 Mil, 0.45% Thereafter	\$93,502,591	5.8%	\$531,863	0.57%
Gresham MTAP Commodity Builder	0.75% of Assets	\$31,579,512	1.9%	\$236,846	0.75%
Ivy Large Cap Growth	0.60% of First 25.0 Mil, 0.50% of Next 25.0 Mil, 0.40% Thereafter	\$71,651,479	4.4%	\$361,606	0.50%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	0.38% of Assets	\$3,261,635	0.2%	\$12,231	0.38%
Lee Munder Small Value	0.90% of First 25.0 Mil, 0.85% of Next 75.0 Mil, 0.30% Thereafter	\$26,155,019	1.6%	\$234,818	0.90%
MacKay Shields Core Plus	0.40% of Assets	\$91,240,182	5.6%	\$364,961	0.40%
Mellon Capital Cash Account	No Fee	\$33,848,331	2.1%		
Ocean Avenue Fund III	0.85% of Assets	\$19,536,186	1.2%	\$166,058	0.85%
Pantheon Ventures	0.47% of Assets	\$3,322,815	0.2%	\$15,750	0.47%
Parametric	Asset Based Fee: 0.0375% (Quarterly) Retainer Fee: \$4,500 (Quarterly) Minimum Expense: \$50,000 (Annual)	\$8,933,583	0.6%		
Pathway Private Equity Fund Investors 8	0.61% of Assets	\$17,173,458	1.1%	\$104,758	0.61%
Pathway Private Equity Fund Investors 9	0.58% of Assets	\$6,946,969	0.4%	\$40,292	0.58%
PIMCO Bravo	1.60% of Assets	\$281,773	0.0%	\$18,033	6.40%
PIMCO RAE Fundamental Global Ex US Fund	0.78% of First 25.0 Mil, 0.43% of Next 75.0 Mil, 0.38% Thereafter	\$101,959,176	6.3%	\$524,945	0.51%

*In addition to a management fee, Aetos charges a 10% incentive fee above a hurdle rate of the average three-month Treasury Bill rate in effect during the relevant incentive fee calculation. Fees shown for Pathway are estimated effective average fees over 15-year fund lifespan.

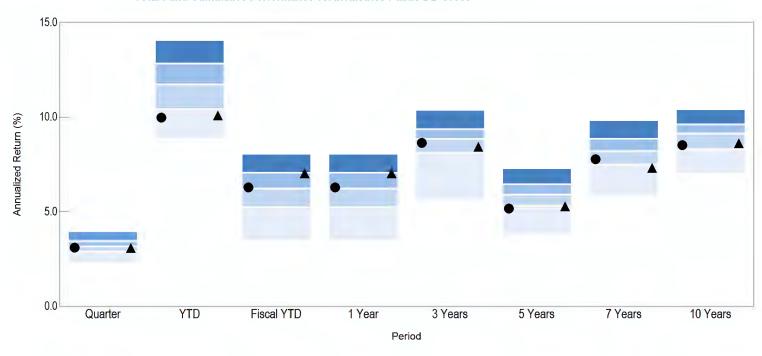


Account	Fee Schedule	Market Value As of 6/30/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
QMA Large Cap Core	0.35% of First 50.0 Mil, 0.30% of Next 50.0 Mil, 0.25% Thereafter	\$63,089,763	3.9%	\$214,269	0.34%
RREEF America II	0.95% of Assets	\$127,893,497	7.9%	\$1,214,988	0.95%
SGA Global Growth	0.45% of Assets	\$112,299,383	6.9%	\$505,347	0.45%
Skellig DST Water Fund	0.77% of Assets	\$55,865,605	3.4%	\$427,372	0.76%
SSGA MSCI ACWI Ex US Index Fund	0.08% of First 25.0 Mil, 0.07% of Next 25.0 Mil, 0.06% Thereafter	\$104,973,243	6.5%	\$70,484	0.07%
SSGA Russell Small Cap Completeness Index	0.05% of First 25.0 Mil, 0.05% of Next 25.0 Mil, 0.04% Thereafter	\$27,546,913	1.7%	\$13,773	0.05%
SSGA S&P 500 Flagship Fund	0.03% of Assets	\$66,877,481	4.1%	\$20,063	0.03%
Stepstone Secondary Opportunities Fund II	343,750 Annually	\$14,377,918	0.9%	\$343,750	2.39%
TA Associates Realty	0.60% of Assets	\$77,075	0.0%	\$462	0.60%
Titan Advisors	.70% on AUM, 7.5% on performance, 5% hurdle rate.	\$44,208,951	2.7%		
TPG Diversified Credit	No Fee	\$55,567,692	3.4%		
Wellington Commodity	0.75% of Assets	\$32,407,042	2.0%	\$243,053	0.75%
William Blair SMID Cap Growth	0.95% of First 10.0 Mil, 0.80% of Next 20.0 Mil, 0.75% of Next 20.0 Mil, 0.70% of Next 50.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$32,127,039	2.0%	\$270,953	0.84%
Investment Management Fee		\$1,621,369,932	100.0%	\$7,321,892	0.45%

^{*}TPG fee schedule is as follows: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term investor designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period (3) TICP 30bps on remaining capital contributions.



Total Fund Cumulative Performance vs. InvMetrics Public DB Gross

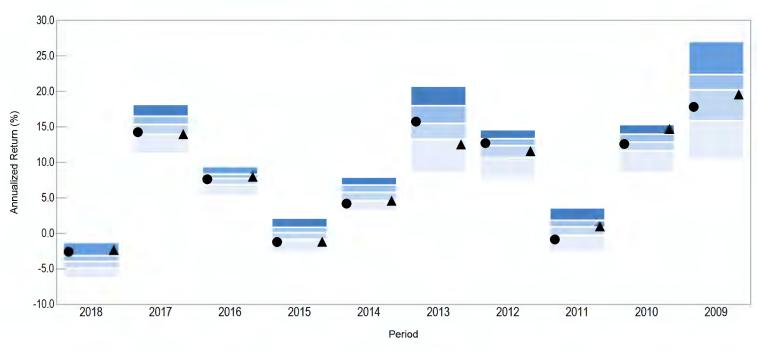


5th Percentile 25th Percentile Median 75th Percentile 95th Percentile # of Portfolios

■ Total Fund▲ Policy Index

Return (Ra	ink)														
4.0		14.1		8.1		8.1		10.4		7.3		9.8		10.4	
3.4		12.8		7.1		7.1		9.4		6.5		8.9		9.6	
3.2		11.7		6.2		6.2		8.9		5.9		8.2		9.1	
2.9		10.4		5.2		5.2		8.1		5.3		7.5		8.3	
2.3		8.9		3.4		3.4		5.6		3.8		5.8		7.0	
355		354		349		349		340		324		309		279	
3.1	(56)	10.0	(86)	6.3	(47)	6.3	(47)	8.6	(58)	5.2	(79)	7.8	(65)	8.5	(68)
3.1	(57)	10.1	(84)	7.0	(27)	7.0	(27)	8.4	(67)	5.3	(76)	7.3	(79)	8.6	(66)



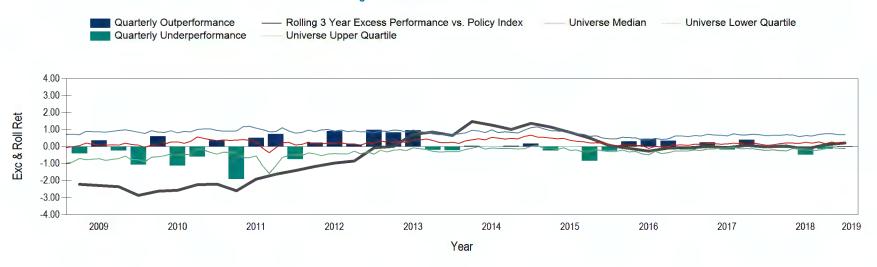


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

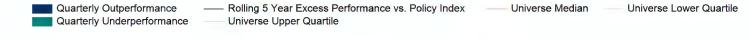
■ Total Fund▲ Policy Index

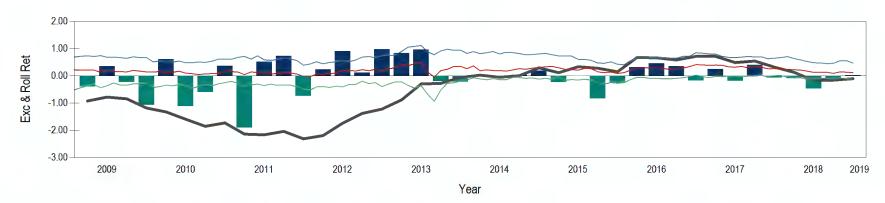
Return (Ran	k)								
-1.3	18.2	9.4	2.2	8.0	20.8	14.6	3.6	15.4	27.0
-3.1	16.5	8.4	0.9	6.8	18.0	13.4	1.9	14.0	22.4
-4.0	15.3	7.7	0.1	5.8	15.5	12.4	0.9	12.9	20.2
-4.9	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	11.7	15.9
-6.3	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	8.6	10.5
319	304	305	316	248	231	236	206	188	184
-2.6 (15)	, ,	7.6 (53)	-1.2 (80)	4.2 (83)	15.8 (49)	12.8 (43)	-0.8 (86)	12.6 (57)	17.8 (67)
-2.4 (12)	14.0 (74)	8.0 (40)	-1.1 (80)	4.6 (75)	12.6 (80)	11.6 (67)	1.0 (46)	14.7 (13)	19.6 (53)

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance



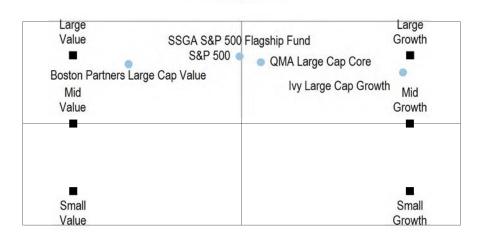


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	350,733,207	4.5	18.8	8.0	8.0	14.9	10.6	15.0	-5.0	22.3	11.5	1.6	12.4
Russell 3000		4.1	18.7	9.0	9.0	14.0	10.2	14.7	-5.2	21.1	12.7	0.5	12.6
InvMetrics Public DB US Eq Gross Rank		34	45	52	52	15	17	16	29	16	77	10	17
SSGA S&P 500 Flagship Fund	66,877,481	4.3	18.5	10.5	10.5	14.2	10.8		-4.4	21.9	12.0	1.5	13.7
S&P 500		4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank		47	42	39	39	38	34		40	52	31	40	42
QMA Large Cap Core	63,089,763	3.6	17.0	6.9	6.9	13.7	10.3	15.1	-6.5	22.5	12.5	2.1	15.6
S&P 500		4.3	18.5	10.4	10.4	14.2	10.7	14.7	-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank		67	60	70	70	53	45	27	70	42	25	31	20
Ivy Large Cap Growth	71,651,479	7.0	24.2	15.7	15.7	20.8	14.4		3.2	30.2	2.1	7.6	12.8
Russell 1000 Growth		4.6	21.5	11.6	11.6	18.1	13.4		-1.5	30.2	7.1	5.7	13.0
eV US Large Cap Growth Equity Gross Rank		12	26	19	19	18	19		15	42	72	26	40
Boston Partners Large Cap Value	63,285,513	3.1	13.0	5.0	5.0	12.0	7.7	13.5	-8.6	20.1	14.7	-3.9	11.8
Russell 1000 Value		3.8	16.2	8.5	8.5	10.2	7.5	13.2	-8.3	13.7	17.3	-3.8	13.5
eV US Large Cap Value Equity Gross Rank		66	87	65	65	35	55	46	55	22	54	65	58

U.S. Effective Style Map 3 Years

Large Large Value SSGA S&P 500 Flagship Fund Growth S&P 500 Ivy Large Cap Growth QMA Large Cap Core Mid Boston Partners Large Cap Value Value Mid Growth Small Small Value Growth

U.S. Effective Style Map 5 Years



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



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
SSGA Russell Small Cap Completeness Index	27,546,913	3.2	19.5	2.3	2.3	13.3	7.9		-9.2	18.2	16.5	-3.5	7.4
Russell Small Cap Completeness		3.2	19.6	2.4	2.4	13.4	7.9		-9.2	18.3	16.6	-3.4	7.4
eV US Small Cap Core Equity Gross Rank		40	25	21	21	34	47		37	23	84	68	37
William Blair SMID Cap Growth	32,127,039	6.6	25.1	11.1	11.1	19.7	14.7	17.6	-0.9	30.4	8.2	6.1	9.8
Russell 2500 Growth		4.1	23.9	6.1	6.1	16.1	10.0	15.7	-7.5	24.5	9.7	-0.2	7.1
eV US Mid Cap Growth Equity Gross Rank		50	65	74	74	26	9	15	29	16	22	7	33
Lee Munder Small Value	26,155,019	2.5	16.5	-3.9	-3.9	8.7	6.9	13.2	-14.7	8.6	28.4	0.4	5.1
Russell 2000 Value		1.4	13.5	-6.2	-6.2	9.8	5.4	12.4	-12.9	7.8	31.7	-7.5	4.2
eV US Small Cap Value Equity Gross Rank		43	37	43	43	67	29	69	56	68	38	9	60

U.S. Effective Style Map 3 Years



U.S. Effective Style Map 5 Years



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



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	350,733,207	4.4	18.6	7.6	7.6	14.5	10.2	14.6	-5.4	21.9	11.1	1.2	12.0
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
SSGA S&P 500 Flagship Fund	66,877,481	4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
S&P 500		4.3	18.5	10.4	10.4	14.2	10.7		-4.4	21.8	12.0	1.4	13.7
QMA Large Cap Core	63,089,763	3.5	16.8	6.6	6.6	13.3	10.0	14.7	-6.8	22.1	12.1	1.8	15.2
S&P 500		4.3	18.5	10.4	10.4	14.2	10.7	14.7	-4.4	21.8	12.0	1.4	13.7
Ivy Large Cap Growth	71,651,479	6.9	23.8	15.1	15.1	20.2	13.8		2.7	29.5	1.6	7.1	12.3
Russell 1000 Growth		4.6	21.5	11.6	11.6	18.1	13.4		-1.5	30.2	7.1	5.7	13.0
Boston Partners Large Cap Value	63,285,513	3.0	12.8	4.5	4.5	11.5	7.2	13.1	-9.0	19.6	14.2	-4.4	11.4
Russell 1000 Value		3.8	16.2	8.5	8.5	10.2	7.5	13.2	-8.3	13.7	17.3	-3.8	13.5
SSGA Russell Small Cap Completeness Index	27,546,913	3.1	19.5	2.3	2.3	13.2	7.8		-9.2	18.1	16.5	-3.5	7.3
Russell Small Cap Completeness		3.2	19.6	2.4	2.4	13.4	7.9		-9.2	18.3	16.6	-3.4	7.4
William Blair SMID Cap Growth	32,127,039	6.4	24.6	10.1	10.1	18.7	13.7	16.6	-1.7	29.3	7.2	5.2	8.8
Russell 2500 Growth		4.1	23.9	6.1	6.1	16.1	10.0	15.7	-7.5	24.5	9.7	-0.2	7.1
Lee Munder Small Value	26,155,019	2.3	16.0	-4.7	-4.7	7.7	6.0	12.1	-15.5	7.7	27.3	-0.5	4.1
Russell 2000 Value		1.4	13.5	-6.2	-6.2	9.8	5.4	12.4	-12.9	7.8	31.7	-7.5	4.2

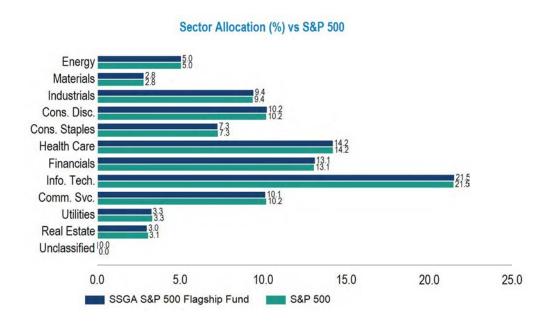
Seca Sep Storing	Q _l	A Large	S&CS	OSTON	Pather Co.	VIII	ian Bai	SMOCS	SGA RIV	Sell Spice	Jan Cap C	Onnoletene	is had	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
SSGA S&P 500 Flagship Fund	-		140	89.9	42	95.2	65	87.1	6	12.7	0	0.0	2	0.2
QMA Large Cap Core	140	60.2			19	53.2	36	62.0	3	4.7	5	5.2	60	5.2
lvy Large Cap Growth	42	29.1	19	22.2			8	13.2	2	3.0	0	0.0	1	0.4
Boston Partners Large Cap Value	65	27.7	36	31.1	8	22.2			0	0.0	0	0.0	7	1.6
William Blair SMID Cap Growth	6	0.3	3	0.2	2	3.7	0	0.0			1	1.4	58	7.0
Lee Munder Small Value	0	0.0	5	0.7	0	0.0	0	0.0	1	2.9			87	4.8
SSGA Russell Small Cap Completeness Index	2	0.0	60	8.1	1	2.8	7	4.6	58	78.3	87	93.2		

Correlation Matrix 6 Months Ending June 30, 2019

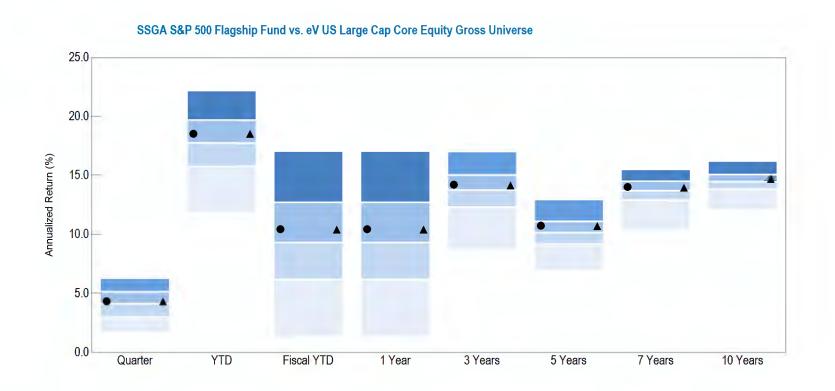
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₩.	OO PLAGES AND LANG	No Capo Cope	Cap Grown	e C.	Can Minder	Sn. Conok	(e _{1/e}	.0	
	No Fund	"do Cope	Growth .	Value	Growth.	Allo Allo	S Index	540 SOO	
SSGA S&P 500 Flagship Fund	1.00							-	
QMA Large Cap Core	1.00	1.00							
lvy Large Cap Growth	1.00	0.99	1.00			-		-	
Boston Partners Large Cap Value	0.98	0.99	0.98	1.00		-		-	
William Blair SMID Cap Growth	0.94	0.94	0.96	0.96	1.00	-		-	
Lee Munder Small Value	0.95	0.96	0.96	0.98	1.00	1.00		-	
SSGA Russell Small Cap Completeness Index	0.95	0.96	0.97	0.98	0.99	1.00	1.00	-	
S&P 500	1.00	1.00	1.00	0.99	0.94	0.95	0.95	1.00	

-	па	rac	LCI	ЮЦ	

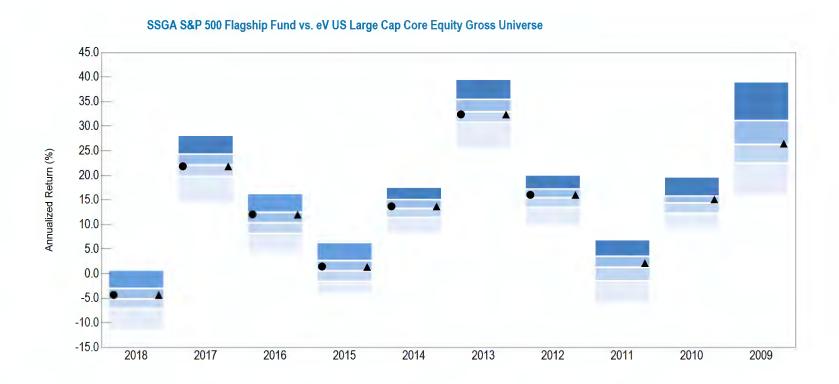
	Portfolio	S&P 500
Number of Holdings	507	505
Weighted Avg. Market Cap. (\$B)	226.42	225.01
Median Market Cap. (\$B)	22.05	22.14
Price To Earnings	20.59	20.58
Price To Book	3.61	3.60
Price To Sales	2.11	2.12
Return on Equity (%)	26.62	26.92
Yield (%)	1.96	1.96
Beta	1.00	1.00



Top Holdings	Т	op Contributo	rs		tors				
Ending Period Weigl	nt		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
MICROSOFT	4.22%	MICROSOFT	3.83	14.00	0.54	ALPHABET 'C'	1.53	-7.88	-0.12
APPLE	3.54%	FACEBOOK CLASS A	1.68	15.78	0.27	ALPHABET A	1.49	-7.99	-0.12
AMAZON.COM	3.20%	WALT DISNEY	0.83	25.77	0.21	INTEL	1.02	-10.31	-0.11
FACEBOOK CLASS A	1.90%	AMAZON.COM	3.11	6.34	0.20	3M	0.51	-15.85	-0.08
BERKSHIRE HATHAWAY 'B'	1.69%	APPLE	3.60	4.60	0.17	ALTRIA GROUP	0.46	-16.26	-0.08
JOHNSON & JOHNSON	1.52%	JP MORGAN CHASE & CO.	1.41	11.28	0.16	ELI LILLY	0.47	-14.15	-0.07
JP MORGAN CHASE & CO.	1.49%	VISA 'A'	1.16	11.28	0.13	EXXON MOBIL	1.45	-4.08	-0.06
ALPHABET 'C'	1.36%	MASTERCARD	0.90	12.51	0.11	PHILIP MORRIS INTL.	0.58	-9.84	-0.06
EXXON MOBIL	1.33%	QUALCOMM	0.29	34.62	0.10	OCCIDENTAL PTL.	0.21	-22.81	-0.05
ALPHABET A	1.33%	BERKSHIRE HATHAWAY 'B'	1.65	6.11	0.10	ABBVIE	0.51	-8.57	-0.04
Total	21.58%								

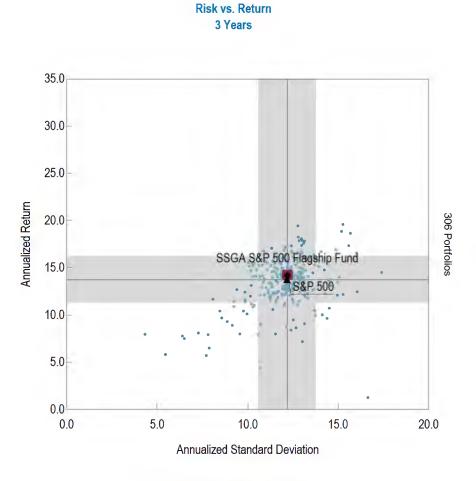


	Return (R	ank)														
5th Percentile	6.3		22.2		17.1		17.1		17.0		13.0		15.5		16.2	
25th Percentile	5.1		19.7		12.7		12.7		15.0		11.1		14.5		15.1	
Median	4.1		17.7		9.3		9.3		13.8		10.2		13.7		14.5	
75th Percentile	3.0		15.8		6.2		6.2		12.3		9.2		12.9		13.8	
95th Percentile	1.7		11.9		1.3		1.3		8.7		6.9		10.4		12.0	
# of Portfolios	320		320		320		320		306		287		260		228	
SSGA S&P 500 Flagship FundS&P 500	4.3 4.3	(47) (47)	18.5 18.5	(42) (42)	10.5 10.4	(39) (40)	10.5 10.4	(39) (40)	14.2 14.2	(38) (39)	10.8 10.7	(34) (35)	14.0 14.0	(41) (43)	 14.7	() (40)



	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
۰	SSGA S&P 500 Flagship Fund
•	S&P 500

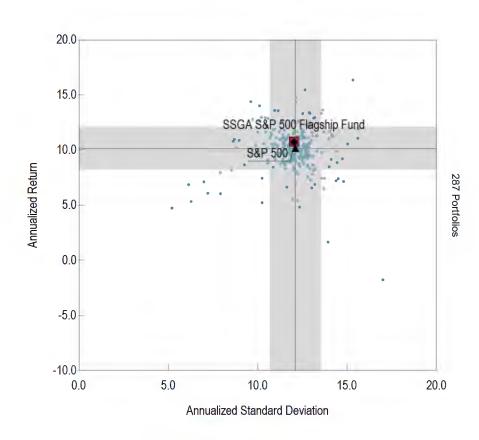
Return	(Rank)																		
0.7		28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1	
-3.0		24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2	
-5.1		22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3	
-7.1		19.8		8.2		-1.6		11.4		30.8		13.4		-1.5		12.3		22.6	
-11.4		14.4		4.3		-4.1		8.2		25.4		9.8		-5.9		9.1		16.1	
316		318		308		267		267		261		254		259		254		280	
-4.4	(40)	21.9	(52)	12.0	(31)	1.5	(40)	13.7	(42)	32.4	(58)	16.1	(39)		()		()		()
-4.4	(40)	21.8	(53)	12.0	(31)	1.4	(42)	13.7	(42)	32.4	(58)	16.0	(41)	2.1	(40)	15.1	(37)	26.5	(48)





- S&P 500
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

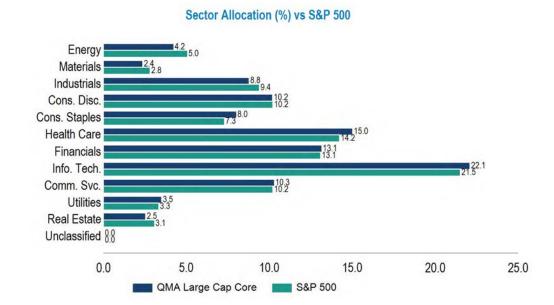




SSGA S&P 500 Flagship Fund

- S&P 500
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

	Portfolio	S&P 500
Number of Holdings	210	505
Weighted Avg. Market Cap. (\$B)	204.46	225.01
Median Market Cap. (\$B)	27.28	22.14
Price To Earnings	17.59	20.58
Price To Book	3.07	3.60
Price To Sales	1.40	2.12
Return on Equity (%)	23.44	26.92
Yield (%)	2.10	1.96
Beta	1.06	1.00

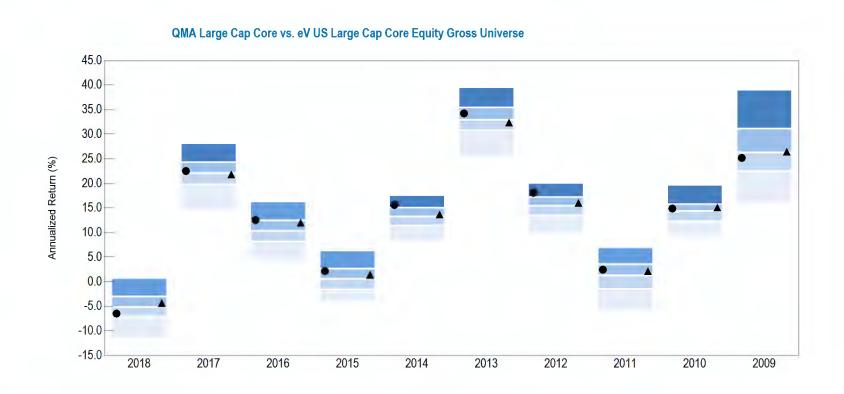


Top Holdings			Top Contributo	ors					
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
MICROSOFT	4.76%	MICROSOFT	4.38	14.00	0.61	FOOT LOCKER	0.62	-30.41	-0.19
APPLE	2.65%	FACEBOOK CLASS A	2.08	15.78	0.33	INTEL	1.62	-10.31	-0.17
FACEBOOK CLASS A	2.43%	WALT DISNEY	1.19	25.77	0.31	ALTRIA GROUP	1.01	-16.26	-0.16
AMAZON.COM	1.96%	APPLE	2.94	4.60	0.14	ALPHABET 'C'	2.07	-7.88	-0.16
VISA 'A'	1.80%	JP MORGAN CHASE & CO.	1.18	11.28	0.13	ALPHABET A	1.43	-7.99	-0.11
PROCTER & GAMBLE	1.78%	METLIFE	0.69	17.76	0.12	COGNIZANT TECH.SLTN.'A'	0.77	-12.22	-0.09
CISCO SYSTEMS	1.62%	AMAZON.COM	1.90	6.34	0.12	NRG ENERGY	0.46	-17.27	-0.08
BANK OF AMERICA	1.54%	TYSON FOODS 'A'	0.65	16.86	0.11	DXC TECHNOLOGY	0.57	-13.87	-0.08
CHEVRON	1.51%	PROCTER & GAMBLE	1.74	6.12	0.11	WALGREENS BOOTS	0.59	-12.87	-0.08
VERIZON COMMUNICATIONS	1.47%	AT&T	1.18	8.57	0.10	ALLIANCE	0.59	-12.07	-0.00
Total	21.52%					QURATE RETAIL SERIES A	0.32	-22.47	-0.07



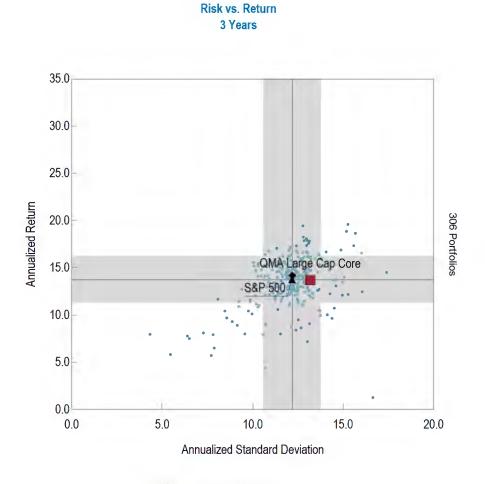
	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
۰	QMA Large Cap Core
▲	S&P 500

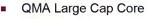
Return (Ra	nk)														
6.3		22.2		17.1		17.1		17.0		13.0		15.5		16.2	
5.1		19.7		12.7		12.7		15.0		11.1		14.5		15.1	
4.1		17.7		9.3		9.3		13.8		10.2		13.7		14.5	
3.0		15.8		6.2		6.2		12.3		9.2		12.9		13.8	
1.7		11.9		1.3		1.3		8.7		6.9		10.4		12.0	
320		320		320		320		306		287		260		228	
3.6	(67)	17.0	(60)	6.9	(70)	6.9	(70)	13.7	(53)	10.3	(45)	14.3	(30)	15.1	(27)
4.3	(47)	18.5	(42)	10.4	(40)	10.4	(40)	14.2	(39)	10.7	(35)	14.0	(43)	14.7	(40)



	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
;	# of Portfolios
٠	QMA Large Cap Core
•	S&P 500

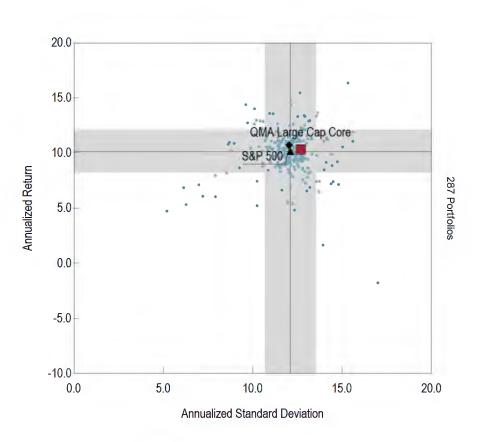
Return	(Rank)																		
0.7		28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1	
-3.0		24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2	
-5.1		22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3	
-7.1		19.8		8.2		-1.6		11.4		30.8		13.4		-1.5		12.3		22.6	
-11.4		14.4		4.3		-4.1		8.2		25.4		9.8		-5.9		9.1		16.1	
316		318		308		267		267		261		254		259		254		280	
-6.5 -4.4	(70) (40)	22.5 21.8	(42) (53)	12.5 12.0	(25) (31)	2.1 1.4	(31) (42)	15.6 13.7	(20) (42)	34.3 32.4	(37) (58)	18.1 16.0	(18) (41)	2.4 2.1	(34) (40)	14.9 15.1	(40) (37)	25.2 26.5	(58) (48)



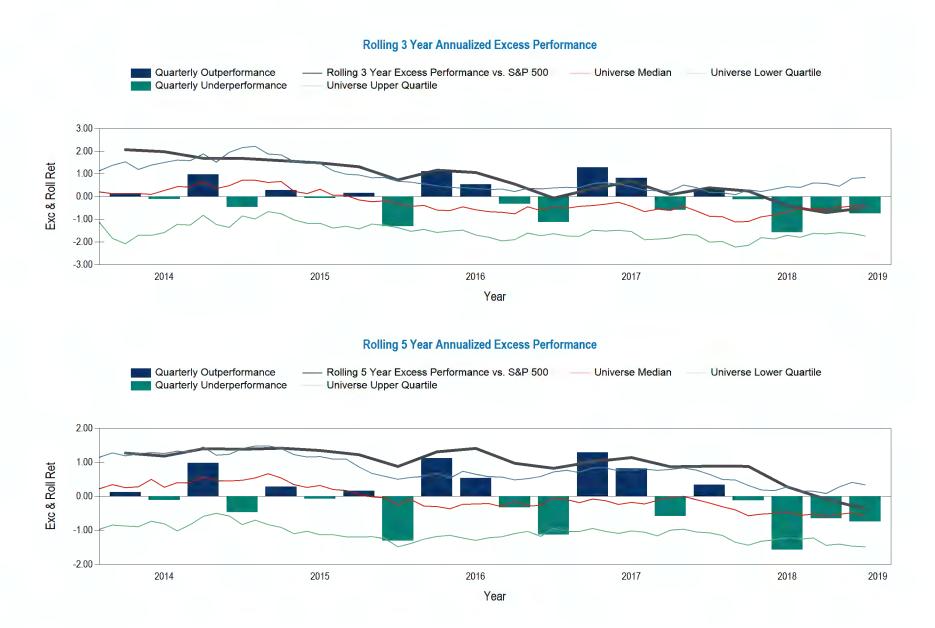


- S&P 500
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

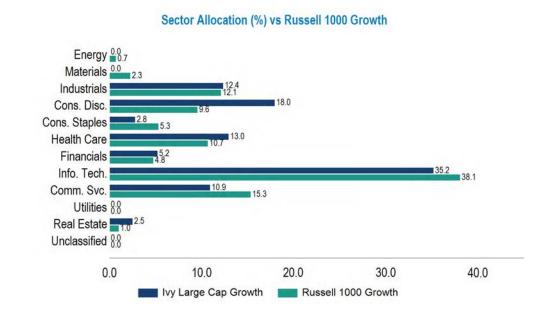




- QMA Large Cap Core
- S&P 500
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross



	Portfolio	Russell 1000 Growth
Number of Holdings	44	546
Weighted Avg. Market Cap. (\$B)	287.21	283.38
Median Market Cap. (\$B)	73.71	12.11
Price To Earnings	31.65	24.92
Price To Book	8.22	7.20
Price To Sales	4.41	2.87
Return on Equity (%)	48.54	37.58
Yield (%)	0.87	1.26
Beta	0.94	1.00



Top Holdings	Top Holdings			rs		Bottom Contributors						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MICROSOFT	8.67%	MICROSOFT	7.93	14.00	1.11	ALPHABET A	5.00	-7.99	-0.40			
AMAZON.COM	5.07%	CME GROUP	3.31	18.38	0.61	INTUITIVE SURGICAL	2.16	-8.07	-0.17			
VISA 'A'	4.89%	VISA 'A'	4.57	11.28	0.52	HUNT JB TRANSPORT SVS.	1.47	-9.51	-0.14			
APPLE	4.59%	COSTAR GP.	2.54	18.79	0.48	ALPHABET 'C'	1.61	-7.88	-0.13			
ALPHABET A	4.42%	MASTERCARD	3.56	12.51	0.45	ABIOMED	0.90	-8.79	-0.08			
CME GROUP	3.76%	VERISIGN	2.59	15.20	0.39	SALESFORCE.COM	1.74	-4.19	-0.07			
ZOETIS	3.08%	ZOETIS	2.84	12.92	0.37	BOEING	1.43	-4.01	-0.06			
PAYPAL HOLDINGS	3.08%	VERISK ANALYTICS CL.A	3.39	10.31	0.35	CHARLES SCHWAB	0.45	-5.65	-0.03			
VERISK ANALYTICS CL.A	3.03%	PAYPAL HOLDINGS	3.09	10.23	0.32	UNITEDHEALTH GROUP	1.77	-0.88	-0.02			
ADOBE (NAS)	2.96%	AMAZON.COM	4.96	6.34	0.31	ULTA BEAUTY	1.25	-0.53	-0.01			
Total	43.56%											



5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios
hoy Largo Can G

Return (R	ank)														
7.5		27.6		19.5		19.5		23.6		16.1		18.2		18.1	
6.0		24.2		14.8		14.8		20.0		14.3		16.7		16.9	
5.2		21.7		12.0		12.0		18.0		12.9		15.5		15.9	
4.0		19.7		9.0		9.0		16.1		11.3		14.3		14.9	
2.5		16.2		3.8		3.8		13.3		9.0		12.7		13.2	
256		256		256		256		248		243		229		218	
7.0	(12)	24.2	(26)	15.7	(19)	15.7	(19)	20.8	(18)	14.4	(19)	17.0	(20)		()
4.6	(62)	21.5	(53)	11.6	(55)	11.6	(55)	18.1	(49)	13.4	(41)	15.8	(45)	16.3	(39)

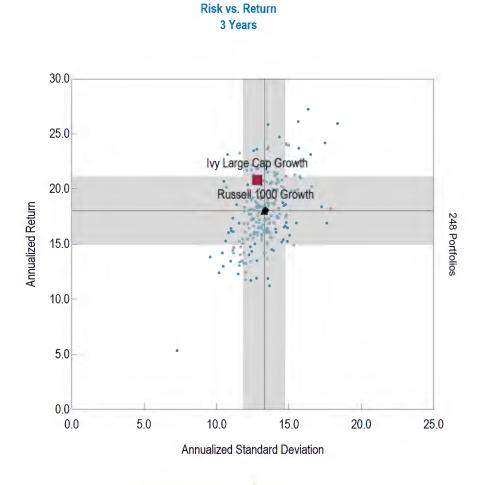
Ivy Large Cap GrowthRussell 1000 Growth



5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

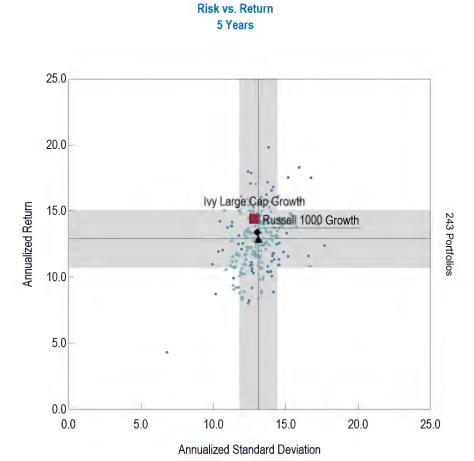
Ivy Large Cap Growth
 Russell 1000 Growth

Return (Rai	nk)								
6.1	36.7	12.0	11.6	17.3	42.8	21.6	6.4	24.4	49.5
1.7	32.7	7.3	7.6	14.3	37.3	18.2	2.2	19.1	38.6
-0.6	28.8	4.6	4.7	12.0	34.3	15.7	-0.3	16.1	34.0
-3.5	26.2	1.8	2.1	9.5	31.0	13.4	-3.2	13.2	28.7
-8.8	20.5	-2.7	-2.4	5.8	26.6	10.2	-8.0	9.6	17.7
255	265	282	270	291	274	274	294	304	350
3.2 (15	30.2 (42)	2.1 (72)	7.6 (26)	12.8 (40)	37.3 (25)	13.0 (78)	3.6 (17)	()	()
-1.5 (57	7) 30.2 (42)	7.1 (26)	5.7 (42)	13.0 (38)	33.5 (56)	15.3 (55)	2.6 (22)	16.7 (46)	37.2 (33)

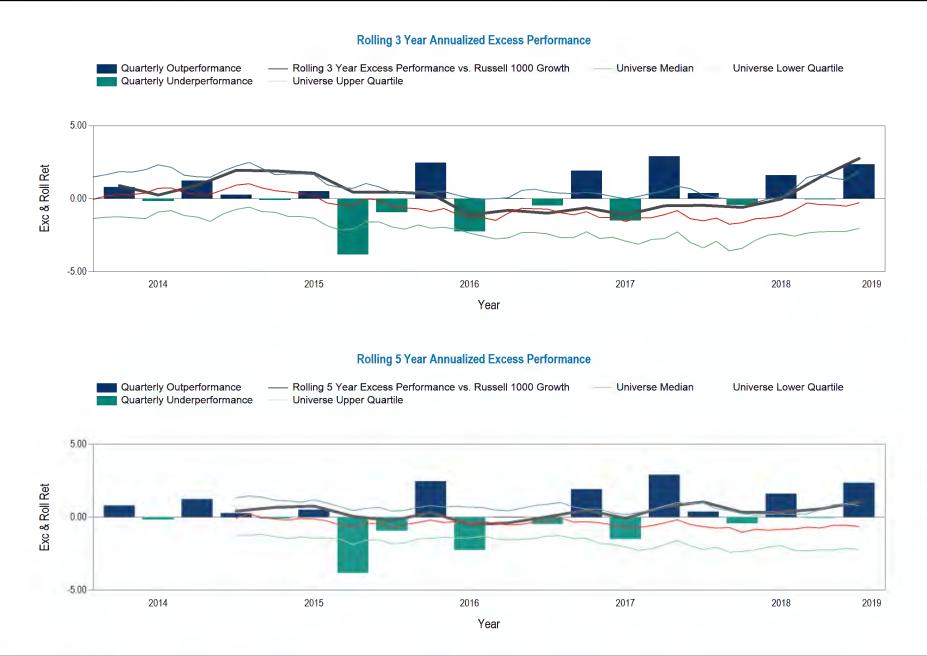


Ivy Large Cap Growth

- Russell 1000 Growth
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Growth Equity Gross

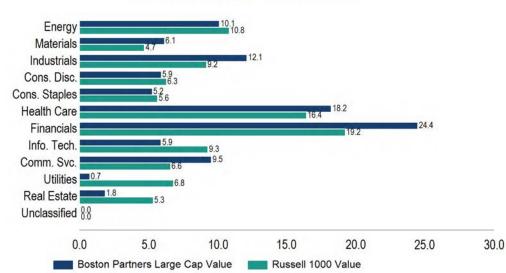


- Ivy Large Cap Growth
- · Russell 1000 Growth
- ▲ Universe Median
- 68% Confidence Interval
- eV US Large Cap Growth Equity Gross

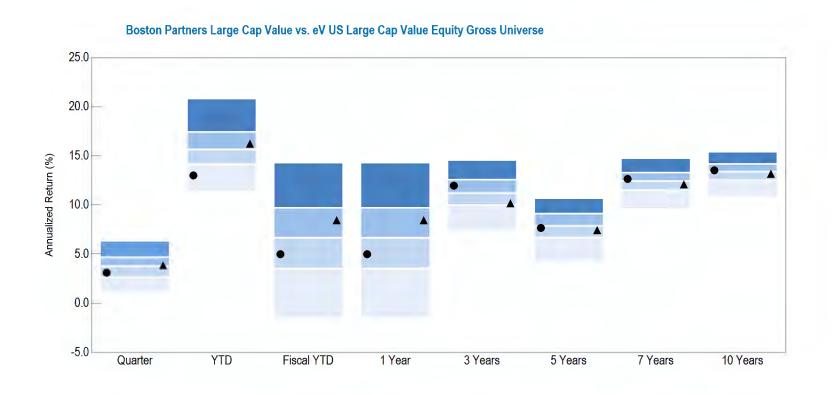


	Portfolio	Russell 1000 Value
Number of Holdings	83	722
Weighted Avg. Market Cap. (\$B)	132.10	123.11
Median Market Cap. (\$B)	37.03	9.18
Price To Earnings	16.75	17.41
Price To Book	2.30	2.28
Price To Sales	1.51	1.54
Return on Equity (%)	16.42	14.42
Yield (%)	2.17	2.58
Beta	1.06	1.00

Sector Allocation (%) vs Russell 1000 Value

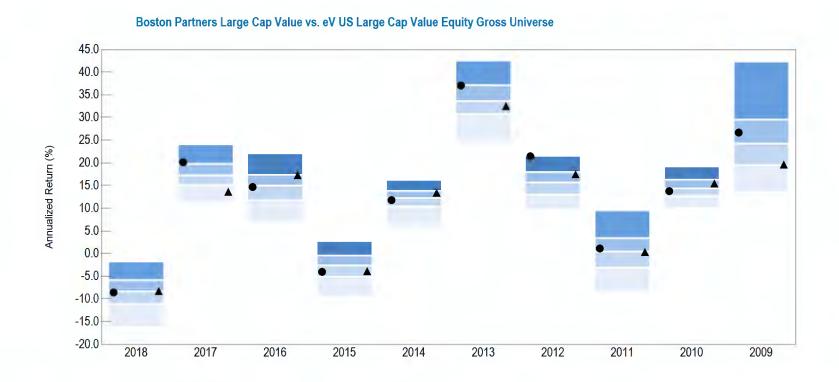


Top Holdings	1	Top Contributo	rs			Bottom Contributors				
Ending Period Weight		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
BERKSHIRE HATHAWAY 'B' 4.7	7% AMERICAN INTL.GP.	1.79	24.48	0.44	DXC TECHNOLOGY	1.86	-13.87	-0.26		
BANK OF AMERICA 3.5	OITIODOLID	2.67	13.27	0.35	ALPHABET A	1.82	-7.99	-0.15		
JOHNSON & JOHNSON 3.5	DEDICOLUDE LIATUANANCIDI	4.15	6.11	0.25	CONOCOPHILLIPS	1.44	-8.15	-0.12		
COMCAST A 3.0	OOMOAOT A	3.56	6.31	0.22	NOBLE ENERGY	1.22	-8.99	-0.11		
PROCTER & GAMBLE 2.4	DANIK OF AMEDICA	3.40	5.68	0.19	CIMAREX EN.	0.68	-14.87	-0.10		
VERIZON COMMUNICATIONS 2.4	DDOOTED & OAMBLE	2.99	6.12	0.18	SL GREEN REALTY	0.99	-9.67	-0.10		
CITIGROUP 2.3	ALLOTATE ODD OUG	1.96	8.54	0.17	LOWE'S COMPANIES	1.07	-7.43	-0.08		
CHEVRON 2.3	DELTA AID LINEO	1.52	10.55	0.16	APERGY	0.34	-18.31	-0.06		
PFIZER 2.3	A ON LOL A OO A	1.04	13.33	0.14	VERIZON	2.57	-2.39	-0.06		
CISCO SYSTEMS 2.2	MEDEDONIO	1.84	6.93	0.13	COMMUNICATIONS	2.57	-2.39	-0.06		
Total 28.9	5 /0		2.00	3.10	UNITED PARCEL SER.'	3' 0.83	-6.69	-0.06		



	Return (R	ank)														
5th Percentile	6.4		20.8		14.3		14.3		14.6		10.7		14.8		15.4	
25th Percentile	4.7		17.4		9.7		9.7		12.6		9.1		13.3		14.2	
Median	3.8		15.6		6.7		6.7		11.2		7.9		12.4		13.4	
75th Percentile	2.6		14.1		3.5		3.5		10.0		6.7		11.5		12.5	
95th Percentile	1.1		11.4		-1.5		-1.5		7.3		4.2		9.6		10.9	
# of Portfolios	333		333		333		333		329		322		305		273	
 Boston Partners Large Cap Value Russell 1000 Value 	3.1 3.8	(66) (49)	13.0 16.2	(87) (40)	5.0 8.5	(65) (34)	5.0 8.5	(65) (34)	12.0 10.2	(35) (71)	7.7 7.5	(55) (60)	12.6 12.1	(44) (59)	13.5 13.2	(46) (57)





5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios
Boston Partners Large Cap Value
A Russell 1000 Value

Return (Ra	nk)								
-1.8	24.0	22.1	2.8	16.3	42.5	21.5	9.5	19.2	42.3
-5.8	19.8	17.4	-0.4	13.9	37.2	18.0	3.4	16.3	29.5
-8.3	17.2	15.0	-2.6	12.2	33.6	15.7	0.5	14.3	24.3
-11.1	15.1	11.8	-5.1	10.4	30.8	13.0	-3.1	12.7	19.6
-16.1	11.2	7.0	-9.4	5.9	24.6	9.6	-8.6	10.1	13.5
336	342	346	312	307	310	303	310	323	360
-8.6 (55	5) 20.1 (2	22) 14.7 (54)	-3.9 (65)	11.8 (58)	37.0 (26)	21.5 (6	5) 1.2 (43)	13.8 (61)	26.7 (35)
-8.3 (50)) 13.7 (8	37) 17.3 (26)	-3.8 (64)	13.5 (33)	32.5 (60)	17.5 (30	0.4 (51)	15.5 (35)	19.7 (75)

Verus⁷⁷

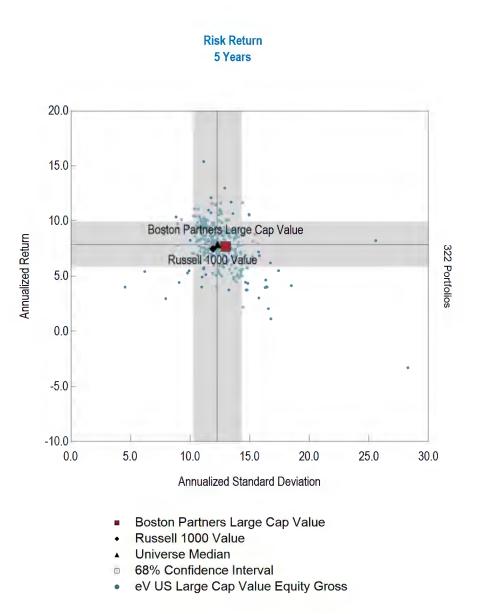
Risk vs. Return

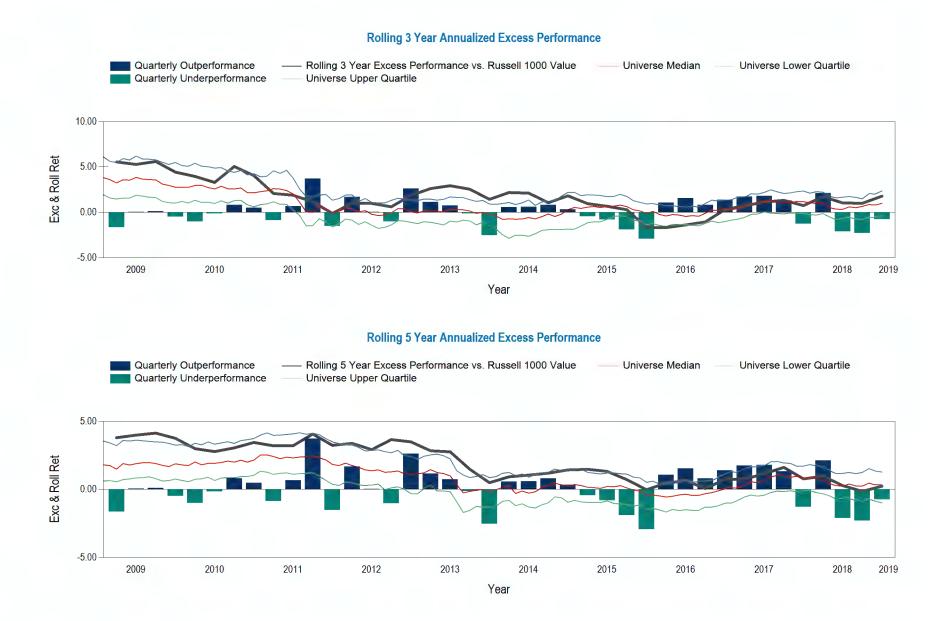
3 Years

25.0 20.0 15.0 Boston Partners Large Cap Value Annualized Return 10.0 329 Portfolios 5.0 0.0 -5.0 -10.05.0 15.0 20.0 25.0 30.0 35.0 0.0 10.0 Annualized Standard Deviation

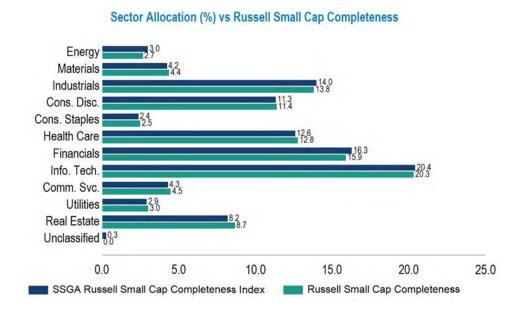


- Russell 1000 Value
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Value Equity Gross



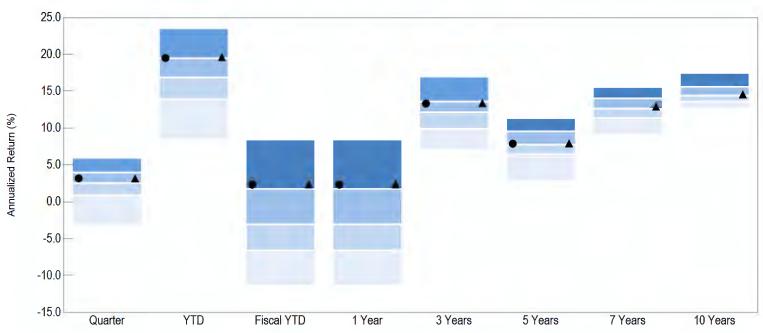


	Portfolio	Russell Small Cap Completeness
Number of Holdings	2,448	2,450
Weighted Avg. Market Cap. (\$B)	7.73	7.77
Median Market Cap. (\$B)	1.12	1.12
Price To Earnings	20.37	20.46
Price To Book	2.80	2.82
Price To Sales	1.39	1.40
Return on Equity (%)	6.81	6.93
Yield (%)	1.45	1.43
Beta	0.99	1.00



Top Holdings	1	Top Contributo	rs		Bottom Contributors						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
SERVICENOW	1.00%	SERVICENOW	0.92	11.39	0.11	TESLA	0.81	-20.15	-0.16		
WORLDPAY A	0.75%	ARRAY BIOPHARMA	0.10	90.03	0.09	PALO ALTO NETWORKS	0.46	-16.11	-0.07		
NXP SEMICONDUCTORS	0.68%	VEEVA SYSTEMS CL.A	0.33	27.79	0.09	CHEMOURS	0.14	-34.73	-0.05		
TESLA	0.63%	EXACT SCIS.	0.22	36.27	0.08	ALKERMES	0.12	-38.23	-0.05		
WORKDAY CLASS A	0.61%	OKTA CL.A	0.15	49.29	0.07	IONIS PHARMACEUTICALS	0.21	-20.82	-0.04		
T-MOBILE US	0.47%	NXP SEMICONDUCTORS	0.63	10.72	0.07	ALNYLAM	0.19	-22.35	-0.04		
SQUARE CL.A	0.43%	COSTAR GP.	0.35	18.79	0.07	PHARMACEUTICALS					
LAS VEGAS SANDS	0.43%	MARKETAXESS HOLDINGS	0.19	30.85	0.06	2U	0.08	-46.87	-0.04		
VEEVA SYSTEMS CL.A	0.41%	TABLEAU SOFTWARE CL.A	0.19	30.44	0.06	UNITED THERAPEUTICS	0.11	-33.49	-0.04		
		WORLDPAY A	0.72	7.97	0.06	NUTANIX CL.A	0.11	-31.27	-0.03		
COSTAR GP.	0.41%	WORLDIAIA	0.72	7.57	0.00	BLUEBIRD BIO	0.18	-19.15	-0.03		
Total	5.82%					-					

SSGA Russell Small Cap Completeness Index vs. eV US Small Cap Core Equity Gross Universe



	Return (R	lank)														
5th Percentile	5.9		23.5		8.4		8.4		17.0		11.4		15.6		17.5	
25th Percentile	4.0		19.5		1.8		1.8		13.6		9.6		14.1		15.6	
Median	2.5		16.9		-3.1		-3.1		12.1		7.8		12.6		14.4	
75th Percentile	0.9		13.9		-6.6		-6.6		9.9		6.5		11.4		13.6	
95th Percentile	-3.2		8.4		-11.4		-11.4		7.0		2.8		9.1		12.6	
# of Portfolios	170		170		170		170		163		159		149		130	
 SSGA Russell Small Cap Completeness Ind Russell Small Cap Completeness 	3.2 3.2	(40) (39)	19.5 19.6	(25) (24)	2.3 2.4	(21) (21)	2.3 2.4	(21) (21)	13.3 13.4	(34) (32)	7.9 7.9	(47) (47)	 12.9	() (46)	 14.6	() (47)

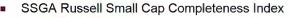
SSGA Russell Small Cap Completeness Index vs. eV US Small Cap Core Equity Gross Universe



	Return (Ra	nk)									
5th Percentile	-2.3	24.9	29.1	4.8	11.3	49.7	23.4	5.7	36.7	55.4	
25th Percentile	-7.2	17.6	23.8	0.7	8.5	43.8	19.4	0.9	30.8	36.5	
Median	-10.8	14.9	20.6	-1.8	5.6	40.3	17.2	-1.4	27.4	29.9	
75th Percentile	-14.1	12.0	18.6	-5.1	2.6	36.9	14.0	-5.2	24.5	23.7	
95th Percentile	-18.9	7.5	11.0	-10.6	-3.1	29.1	10.1	-10.3	18.9	16.7	
# of Portfolios	173	171	168	151	142	133	127	122	125	136	
 SSGA Russell Small Cap Completeness Inc Russell Small Cap Completeness 	lex -9.2 (3) -9.2 (3)	,	(23) 16.5 (23) 16.6	(84) -3.5 (84) -3.4	(68) 7.4 (68) 7.4	(37) (40) 38.5	() (66) 18.0	() (39) -3.9	() (72) 26.6	() (56) 37.7	() (24)

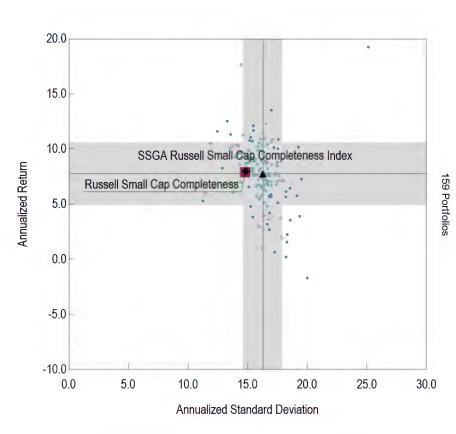
Risk vs. Return

3 Years 40.0 30.0 Annualized Return 163 Portfolios 20.0 SSGA Russell Small Cap Completeness Index Russell Small Cap Completeness 10.0 0.0 0.0 5.0 10.0 15.0 20.0 25.0 Annualized Standard Deviation



- Russell Small Cap Completeness
- Universe Median
- 68% Confidence Interval
- eV US Small Cap Core Equity Gross



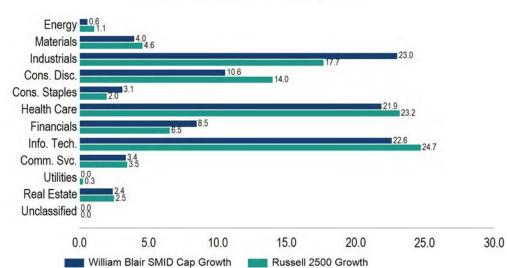


- SSGA Russell Small Cap Completeness Index
- Russell Small Cap Completeness
- Universe Median
- 68% Confidence Interval
- eV US Small Cap Core Equity Gross

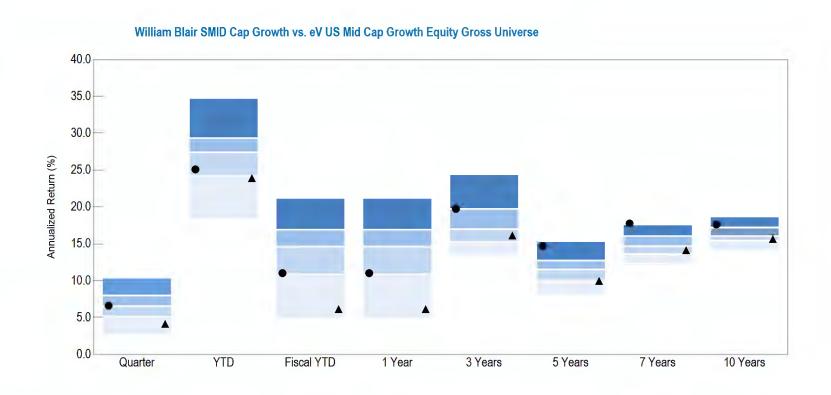


	Portfolio	Russell 2500 Growth
Number of Holdings	71	1,477
Weighted Avg. Market Cap. (\$B)	7.83	6.32
Median Market Cap. (\$B)	6.26	1.15
Price To Earnings	30.67	24.83
Price To Book	5.29	4.90
Price To Sales	2.33	1.82
Return on Equity (%)	19.33	10.29
Yield (%)	0.56	0.75
Beta	0.91	1.00

Sector Allocation (%) vs Russell 2500 Growth

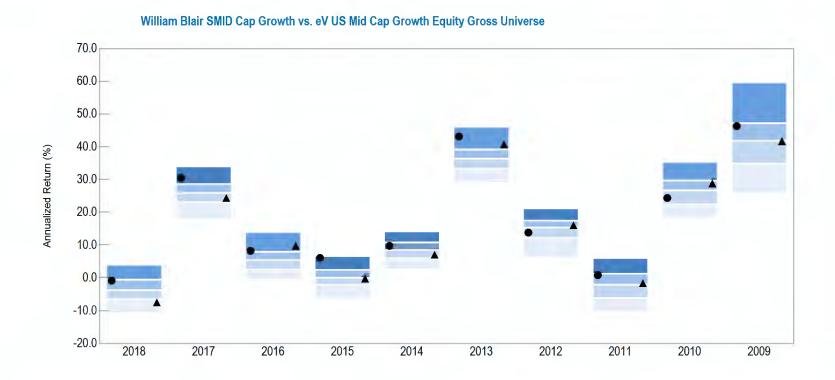


Top Holdings			Top Contributor	'S		Bottom Contributors						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
EURONET WWD.	3.30%	COPART	3.31	23.35	0.77	PURE STORAGE CL.A	2.29	-29.92	-0.68			
COPART	3.09%	VEEVA SYSTEMS CL.A	2.23	27.79	0.62	2U	0.99	-46.87	-0.46			
BWX TECHNOLOGIES	2.92%	COSTAR GP.	3.26	18.79	0.61	INOGEN	0.91	-30.00	-0.27			
INSULET	2.74%	BALL	2.50	21.26	0.53	PORTOLA	1.15	-21.82	-0.25			
BURLINGTON STORES	2.57%	INSULET	2.06	25.54	0.53	PHARMACEUTICALS						
GRAND CANYON EDUCATION	2.38%	EURONET WWD.	2.90	17.99	0.52	LAMB WESTON HOLDINGS	1.23	-15.20	-0.19			
TREX	2.35%	CATALENT	1.48	33.56	0.50	HORIZON THERAPEUTICS PUBLIC	1.55	-8.97	-0.14			
MARTIN MRTA.MATS.	2.27%	EXACT SCIS.	1.25	36.27	0.45	GODADDY CL.A	1.55	-6.70	-0.10			
TRANSUNION	2.25%	HEICO NEW 'A'	1.96	23.05	0.45	LIGAND PHARMS.'B'	0.98	-0.70 -9.20				
CBOE GLOBAL MARKETS(BTS)	2.21%	BOOZ ALLEN	2.77	14.28	0.40				-0.09			
Total	26.09%	HAMILTN.HLDG.	2.11	14.20	0.40	HEALTHCARE SVS.GP.	1.15	-7.53	-0.09			
Total	20.09 /0					BRIGHTSPHERE INVESTMENT GROUP	0.51	-15.09	-0.08			



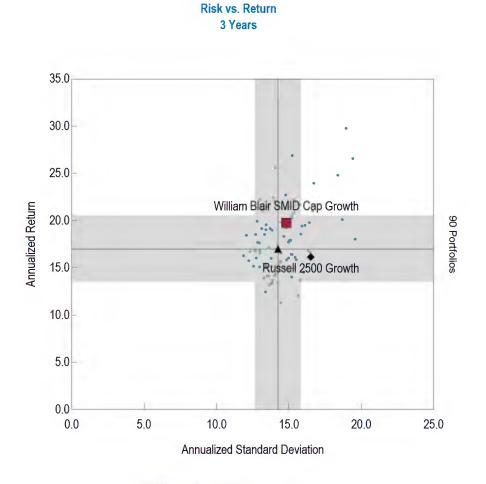
	Return (Ra	ink)														
5th Percentile	10.4		34.8		21.3		21.3		24.4		15.4		17.6		18.7	
25th Percentile	8.0		29.3		17.0		17.0		19.7		12.8		16.1		17.2	
Median	6.5		27.4		14.6		14.6		17.0		11.5		14.7		16.1	
75th Percentile	5.1		24.2		10.8		10.8		15.2		10.0		13.6		15.4	
95th Percentile	2.6		18.3		4.9		4.9		13.4		8.1		12.3		14.0	
# of Portfolios	92		92		92		92		90		89		84		76	
 William Blair SMID Cap Growth Russell 2500 Growth 	6.6 4.1	(50) (81)	25.1 23.9	(65) (78)	11.1 6.1	(74) (92)	11.1 6.1	(74) (92)	19.7 16.1	(26) (63)	14.7 10.0	(9) (76)	17.8 14.1	(4) (66)	17.6 15.7	(15) (62)





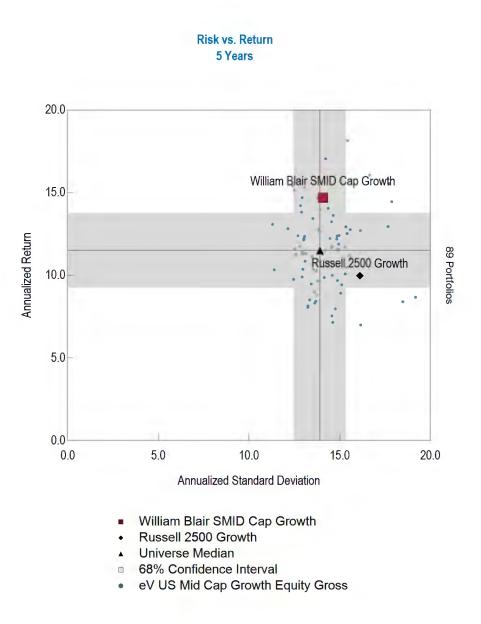
	Return	(Rank)																		
5th Percentile	4.0		34.0		13.9		6.7		14.2		46.0		21.3		6.1		35.3		59.6	
25th Percentile	-0.5		28.7		8.0		2.5		10.9		39.2		17.6		1.3		29.8		47.2	
Median	-3.7		25.9		5.4		0.0		8.6		36.4		15.4		-2.1		26.7		41.9	
75th Percentile	-6.5		23.1		2.6		-2.1		6.1		33.2		12.2		-6.1		22.5		34.9	
95th Percentile	-10.8		17.7		-0.5		-6.3		2.6		29.0		6.0		-10.4		18.3		25.7	
# of Portfolios	93		97		105		105		117		106		111		122		127		142	
William Blair SMID Cap Growth	-0.9	(29)	30.4	(16)	8.2	(22)	6.1	(7)	9.8	(33)	43.1	(11)	13.8	(68)	0.9	(28)	24.4	(65)	46.3	(30)
▲ Russell 2500 Growth	-7.5	(79)	24.5	(62)	9.7	(13)	-0.2	(55)	7.1	(65)	40.7	(17)	16.1	(44)	-1.6	(46)	28.9	(35)	41.7	(51)

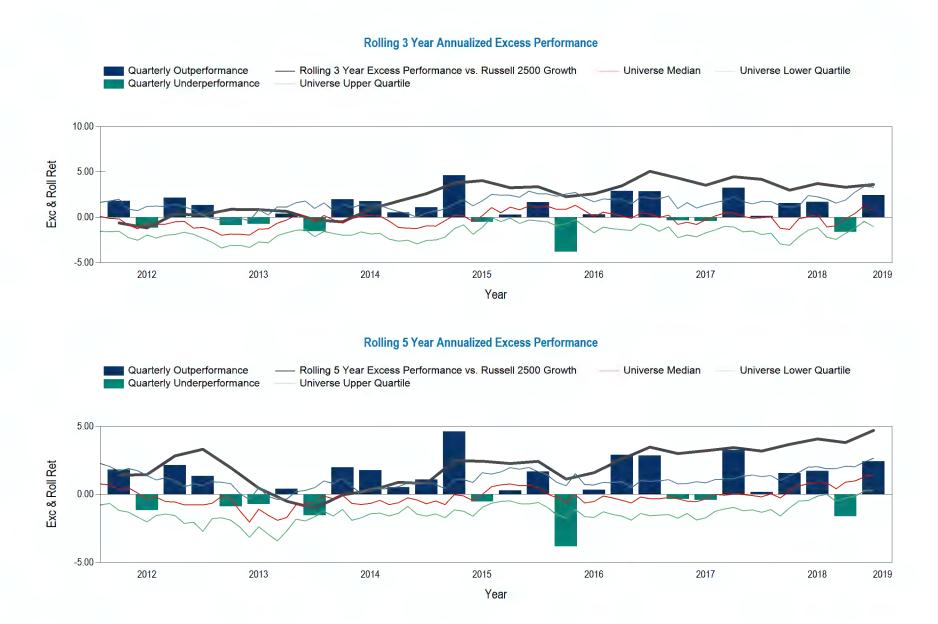






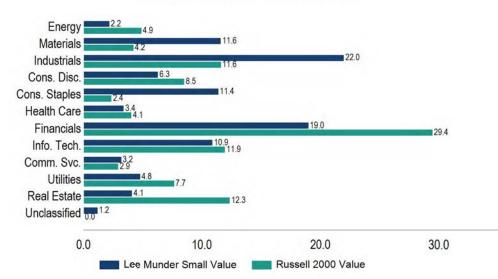
- Russell 2500 Growth
- ▲ Universe Median
- 68% Confidence Interval
- eV US Mid Cap Growth Equity Gross



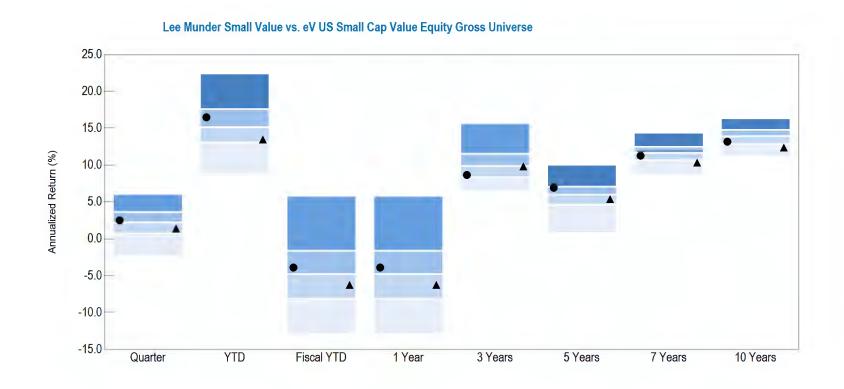


	Portfolio	Russell 2000 Value
Number of Holdings	92	1,347
Weighted Avg. Market Cap. (\$B)	3.16	2.18
Median Market Cap. (\$B)	2.70	0.67
Price To Earnings	16.67	16.21
Price To Book	1.90	1.68
Price To Sales	1.03	0.94
Return on Equity (%)	11.39	5.99
Yield (%)	1.62	2.23
Beta	0.97	1.00

Sector Allocation (%) vs Russell 2000 Value



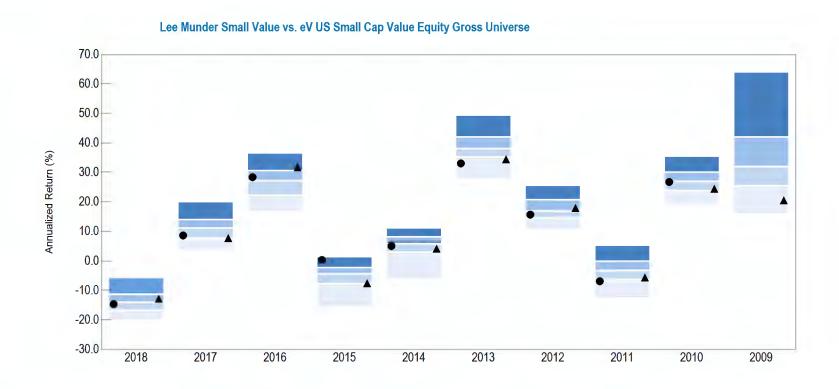
Top Holdings		Top Contributo	rs		Bottom Contributors						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
STERLING BANCORP	2.33%	GENERAC HOLDINGS	1.10	35.49	0.39	LIVENT	1.00	-43.65	-0.44		
MACOM TECH.SLTN.HDG.	2.12%	STERLING BANCORP	2.00	14.59	0.29	TREEHOUSE FOODS	1.90	-16.19	-0.31		
BLACKSTONE MGE.TST.CL.A	2.02%	MANTECH INTL.'A'	1.30	22.42	0.29	CONDUENT	0.80	-30.66	-0.25		
DARLING INGREDIENTS	2.02%	HEXCEL	1.30	17.19	0.22	MACOM TECH.SLTN.HDG.	2.40	-9.46	-0.23		
IBERIABANK	2.02%	CACI INTERNATIONAL 'A'	1.70	12.40	0.21	TEAM	1.50	-12.46	-0.19		
CACI INTERNATIONAL 'A'	1.92%	CIRCOR INTL.	0.50	41.10	0.21	DARLING INGREDIENTS	1.90	-8.13	-0.15		
MURPHY USA	1.92%	ITT	1.50	13.17	0.20	NEXSTAR MEDIA GROUP	2.30	-6.42	-0.15		
PORTLAND GEN.ELEC.	1.92%	MILACRON HOLDINGS	0.90	21.91	0.20	CL.A	2.50	-0.42	-0.13		
TREEHOUSE FOODS	1.82%	FNB	1.60	12.23	0.20	CARRIZO O&G.	0.70	-19.65	-0.14		
FNB	1.72%	HOSTESS BRANDS CL.A	1.20	15.52	0.19	KORN FERRY	1.30	-10.52	-0.14		
	= / -					CALLON PTL.DEL.	1.00	-12.72	-0.13		
Total	19.82%										



	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
۰	Lee Munder Small Value
▲	Russell 2000 Value

Return (R	ank)														
6.1		22.4		5.8		5.8		15.7		10.1		14.4		16.4	
3.6		17.6		-1.6		-1.6		11.5		7.1		12.5		14.8	
2.2		15.1		-4.8		-4.8		9.9		6.0		11.7		13.9	
0.7		13.1		-8.2		-8.2		8.3		4.6		10.7		12.9	
-2.4		8.8		-12.9		-12.9		6.4		0.8		8.7		11.1	
221		221		221		221		216		206		197		183	
2.5	(43)	16.5	(37)	-3.9	(43)	-3.9	(43)	8.7	(67)	6.9	(29)	11.3	(61)	13.2	(69)
1.4	(68)	13.5	(72)	-6.2	(61)	-6.2	(61)	9.8	(51)	5.4	(63)	10.3	(81)	12.4	(84)

1/070		777
Ver	us	*



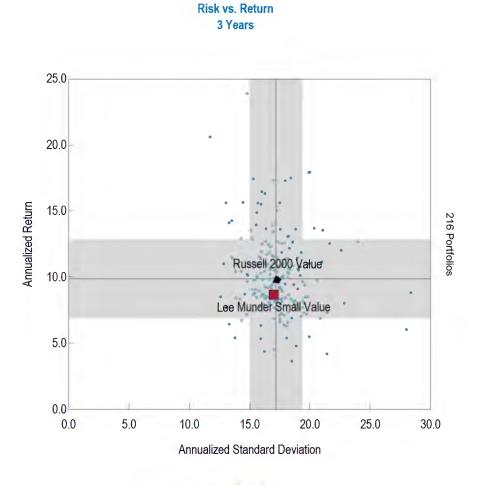
5th Percentile 25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

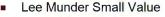
Lee Munder Small Value

Russell 2000 Value

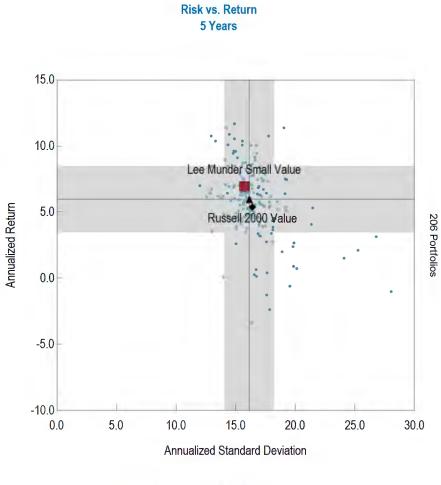
eturn (Ra -5.7	20.2	36.	7	1.5		11.2		49.4		25.7		5.3		35.6		64.2	
11.4	14.1	30.	7	-2.2		8.2		42.1		20.8		0.0		30.2		42.1	
14.0	11.1	27.	2	-4.3		5.8		38.1		16.9		-3.3		26.9		32.0	
16.7	7.8	22.	2	-7.7		3.1		35.2		14.7		-6.2		23.8		25.5	
20.2	3.7	16.	3	-15.8		-6.3		27.8		10.3		-12.6		19.2		16.1	
220	224	22	2	212		206		199		187		177		186		197	
-14.7 (56	8.6	(68) 28.	4 (38)	0.4	(9)	5.1	(60)	33.1	(85)	15.7	(61)	-6.9	(79)	26.8	(54)		()
-12.9 (39	7.8	(75) 31.	7 (17)	-7.5	(74)	4.2	(68)	34.5	(78)	18.1	(43)	-5.5	(69)	24.5	(72)	20.6	(85)





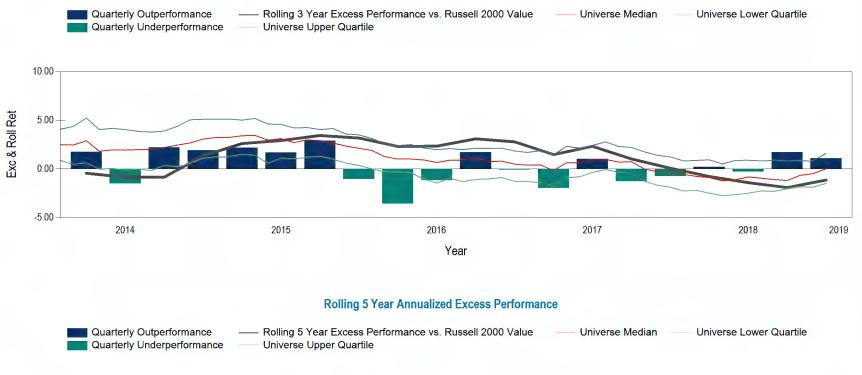


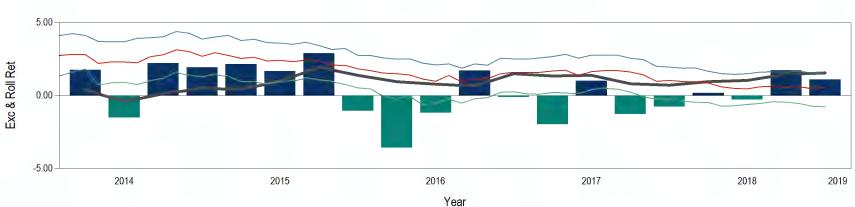
- Russell 2000 Value
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- eV US Small Cap Value Equity Gross



- Lee Munder Small Value
- Russell 2000 Value
- ▲ Universe Median
- 68% Confidence Interval
- eV US Small Cap Value Equity Gross

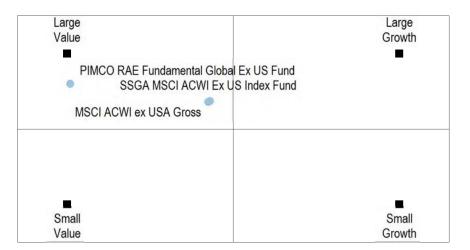
Rolling 3 Year Annualized Excess Performance



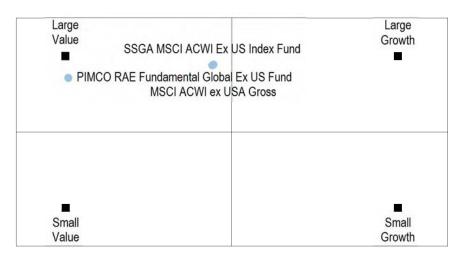


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	319,231,802	4.1	16.1	3.9	3.9	10.3	2.8	6.8	-14.3	26.9	6.2	-5.9	-4.8
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4
InvMetrics Public DB ex-US Eq Gross Rank		9	11	7	7	21	50	74	43	80	13	85	83
SSGA MSCI ACWI Ex US Index Fund	104,973,243	3.1	13.8	1.6	1.6	9.7	2.4		-14.0	27.6	4.8	-5.5	-3.6
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank		49	51	31	31	40	75		42	49	17	96	49
PIMCO RAE Fundamental Global Ex US Fund	101,959,176	1.8	9.8	-1.0	-1.0	9.5	1.3		-14.7	26.7	13.5	-10.9	-5.7
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank		78	93	53	53	43	92		47	53	1	99	79
SGA Global Growth	112,299,383	7.4	24.9	11.2	11.2								
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8								
eV ACWI ex-US Core Equity Gross Rank		2	2	1	1								

EAFE Effective Style Map 3 Years



EAFE Effective Style Map 5 Years

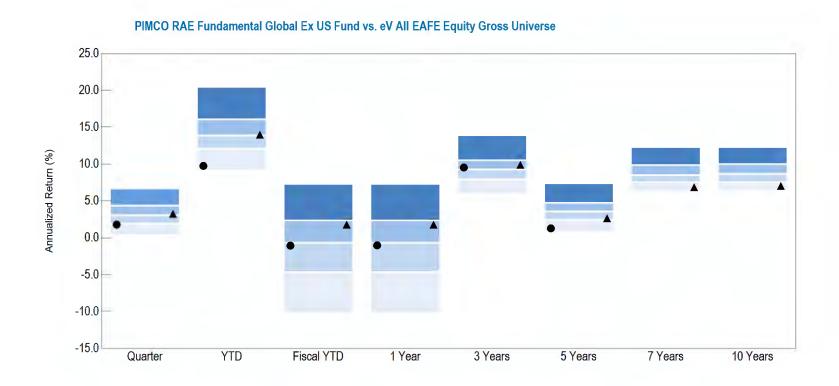


Research Affiliates converted to PIMCO RAE Fundamental Global Ex US Fund on 6/5/15 (performance prior to this date represents previously held Enhanced RAFI Global ex US). Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

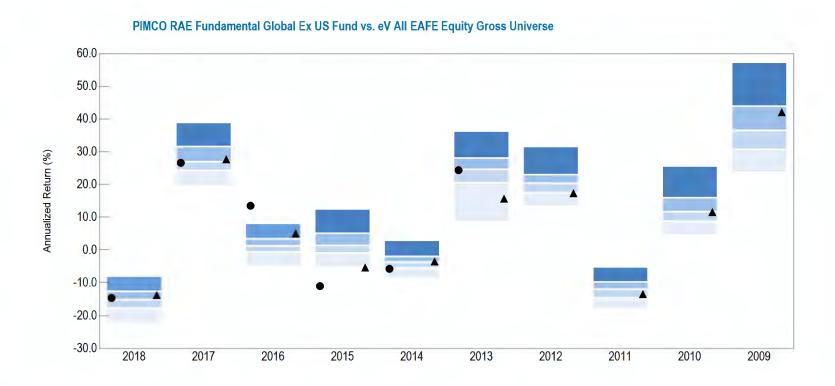


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	319,231,802	4.0	15.9	3.5	3.5	9.9	2.4	6.4	-14.5	26.5	5.9	-6.2	-5.0
MSCI ACWI ex USA Gross	- 0	3.2	14.0	1.8	1.8	9.9	2.6	7.0	-13.8	27.8	5.0	-5.3	-3.4
SSGA MSCI ACWI Ex US Index Fund	104,973,243	3.1	13.8	1.5	1.5	9.6	2.4		-14.0	27.5	4.7	-5.5	-3.7
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
PIMCO RAE Fundamental Global Ex US Fund	101,959,176	1.6	9.5	-1.5	-1.5	9.0	8.0		-15.1	26.0	13.0	-11.4	-5.9
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8	9.9	2.6		-13.8	27.8	5.0	-5.3	-3.4
SGA Global Growth	112,299,383	7.3	24.6	10.7	10.7								
MSCI ACWI ex USA Gross		3.2	14.0	1.8	1.8								

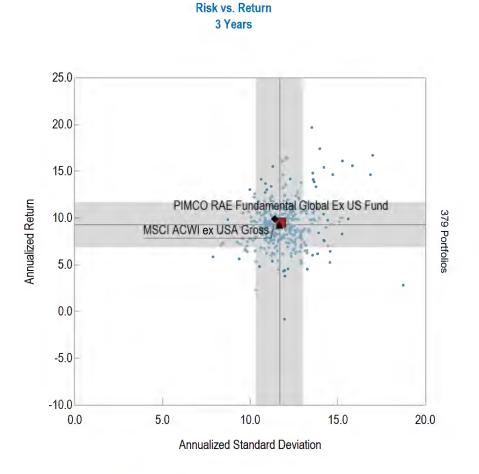
Research Affiliates converted to PIMCO RAE Fundamental Global Ex US Fund on 6/5/15 (performance prior to this date represents previously held Enhanced RAFI Global ex US).



	Return (R	lank)														
5th Percentile	6.7		20.5		7.3		7.3		13.9		7.4		12.3		12.3	
25th Percentile	4.4		16.1		2.4		2.4		10.5		4.8		9.9		10.0	
Median	3.1		13.9		-0.7		-0.7		9.3		3.6		8.5		8.7	
75th Percentile	1.9		12.1		-4.7		-4.7		7.9		2.4		7.5		7.5	
95th Percentile	0.3		9.2		-10.3		-10.3		5.9		8.0		6.2		6.4	
# of Portfolios	396		396		396		396		379		337		303		271	
 PIMCO RAE Fundamental Global Ex US Fund MSCI ACWI ex USA Gross 	1.8 3.2	(78) (48)	9.8 14.0	(93) (50)	-1.0 1.8	(53) (30)	-1.0 1.8	(53) (30)	9.5 9.9	(43) (34)	1.3 2.6	(92) (69)	6.9	() (91)	7.0	() (88)



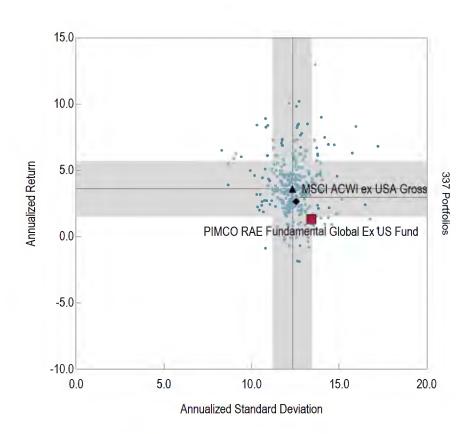
	Return (Rank	()								
5th Percentile	-8.0	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7	57.3
25th Percentile	-12.6	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1	44.0
Median	-15.1	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7	36.5
75th Percentile	-17.8	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7	30.7
95th Percentile	-22.2	19.7	-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
 PIMCO RAE Fundamental Global Ex US MSCI ACWI ex USA Gross 	Fund -14.7 (47) -13.8 (40)	26.7 (53) 27.8 (48)	13.5 (1) 5.0 (16)	-10.9 (99) -5.3 (95)	-5.7 (79) -3.4 (47)	24.5 (51) 15.8 (90)	() 17.4 (77)	() -13.3 (62)	() 11.6 (52)	() 42.1 (30)



PIMCO RAE Fundamental Global Ex US Fund

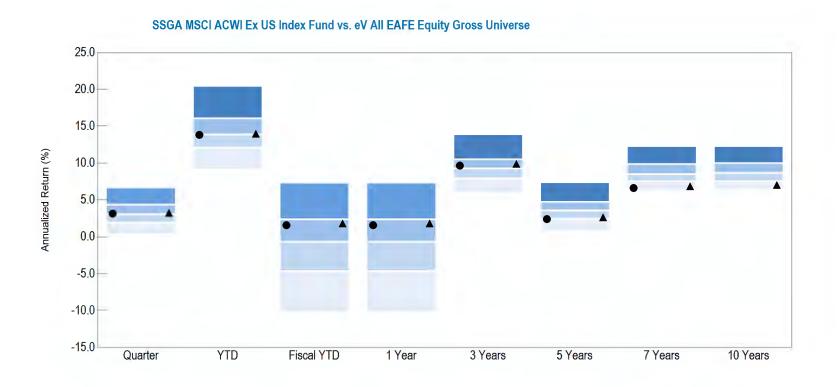
- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross





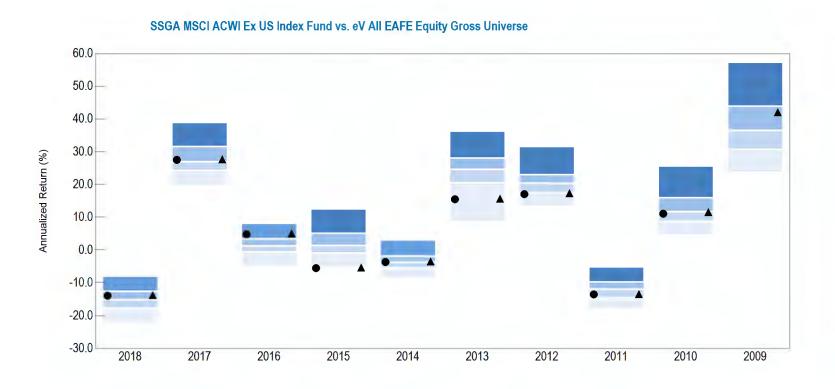
PIMCO RAE Fundamental Global Ex US Fund

- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



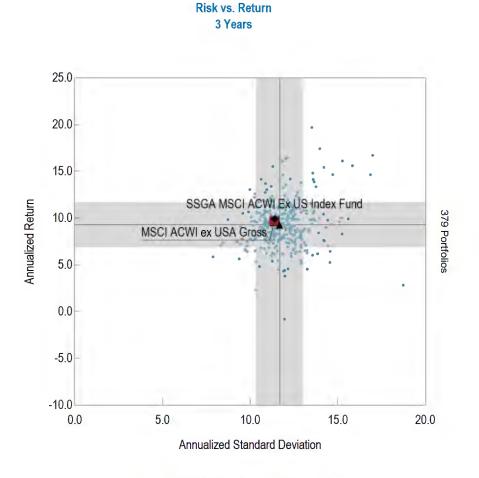
	Return (R	ank)														
5th Percentile	6.7		20.5		7.3		7.3		13.9		7.4		12.3		12.3	
25th Percentile	4.4		16.1		2.4		2.4		10.5		4.8		9.9		10.0	
Median	3.1		13.9		-0.7		-0.7		9.3		3.6		8.5		8.7	
75th Percentile	1.9		12.1		-4.7		-4.7		7.9		2.4		7.5		7.5	
95th Percentile	0.3		9.2		-10.3		-10.3		5.9		0.8		6.2		6.4	
# of Portfolios	396		396		396		396		379		337		303		271	
 SSGA MSCI ACWI Ex US Index Fund MSCI ACWI ex USA Gross 	3.1 3.2	(49) (48)	13.8 14.0	(51) (50)	1.6 1.8	(31) (30)	1.6 1.8	(31) (30)	9.7 9.9	(40) (34)	2.4 2.6	(75) (69)	6.6 6.9	(93) (91)	7.0	() (88)





	Return (Ran	k)								
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
 SSGA MSCI ACWI Ex US Index Fund MSCI ACWI ex USA Gross 	-14.0 (42) -13.8 (40)	27.6 (49) 27.8 (48)	4.8 (17) 5.0 (16)	-5.5 (96) -5.3 (95)	-3.6 (49) -3.4 (47)	15.5 (90) 15.8 (90)	17.1 (81 17.4 (77) -13.5 (64)) -13.3 (62)	11.2 (55) 11.6 (52)	() 42.1 (30)

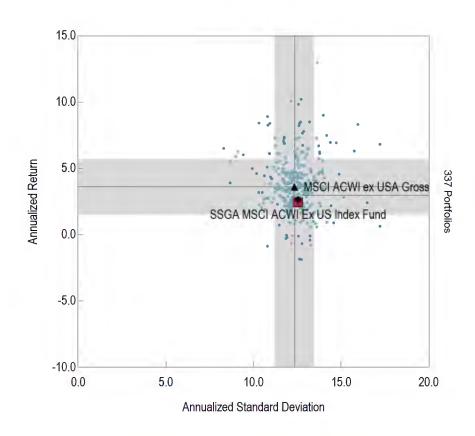






- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross





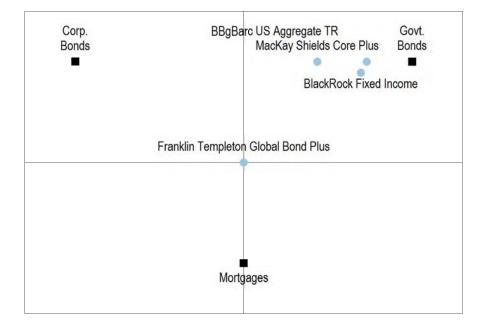
- SSGA MSCI ACWI Ex US Index Fund
- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	447,645,156	2.8	5.7	7.5	7.5	3.6	3.1	5.5	0.5	4.3	5.5	-0.8	4.6
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
InvMetrics Public DB US Fix Inc Gross Rank		34	39	27	27	19	41	19	51	50	37	77	69
Total Domestic Fixed Income									_				
BlackRock Fixed Income	172,768,025	3.1	6.1	8.3	8.3	2.7	3.3	4.5	0.4	3.9	3.1	1.1	6.2
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 All US Fixed Inc Gross Rank		32	48	29	29	56	50	51	54	54	53	39	29
Doubleline Core Plus	90,134,357	3.1	6.3	7.3	7.3	3.1			0.0	4.2	4.8		
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		67	89	90	90	79			33	86	52		
MacKay Shields Core Plus	91,240,182	3.2	6.8	7.9	7.9	3.5			-0.6	5.0	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		63	62	77	77	58			67	52	46		
Total Global Fixed Income				_									-
Franklin Templeton Global Bond Plus	93,502,591	1.7	3.2	6.5	6.5	4.7	2.1	-	2.4	3.0	6.8	-3.5	2.4
JPM GBI Global TR USD		3.5	5.4	5.7	5.7	0.9	1.2		-0.7	6.8	1.6	-2.6	0.7
eV Global Fixed Inc Unhedged Gross Rank		88	93	46	46	34	50		6	96	24	67	50

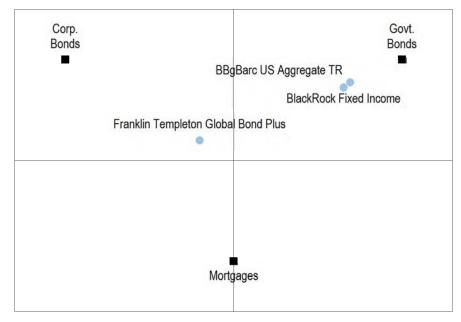
Vertas Transition Account used to liquidated PIMCO Core Plus on 11/15/15, remaining balance is residual cash. MacKay Shields and Doubleline funded 12/1/15. SSGA TIPS liquidated in 4Q18. Shenkman HY liquidated 1Q19 and has a residual cash balance of \$189,116 included in market value. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



Fixed Income Style Map 3 Years



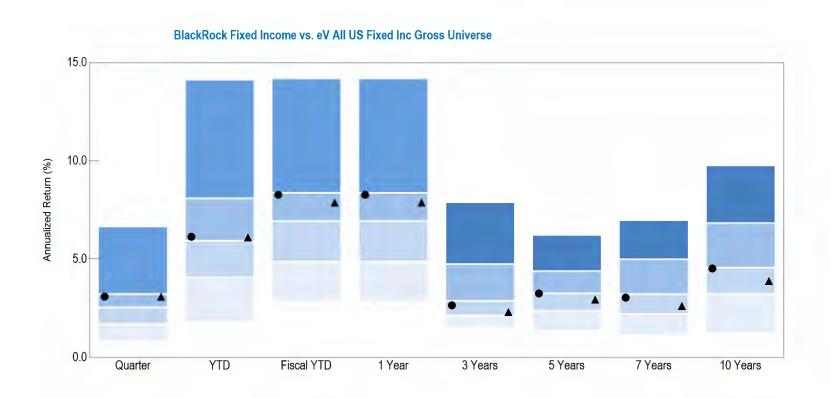
Fixed Income Style Map 5 Years



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	447,645,156	2.8	5.6	7.2	7.2	3.3	2.8	5.2	0.1	3.9	5.1	-1.1	4.3
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
Total Domestic Fixed Income					_				_			_	-
BlackRock Fixed Income	172,768,025	3.0	6.0	8.0	8.0	2.4	3.0	4.3	0.1	3.6	2.9	0.8	6.0
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
Doubleline Core Plus	90,134,357	3.1	6.1	7.0	7.0	2.8			-0.3	3.9	4.6		_
BBgBarc US Aggregate TR		3.1	6.1	7.9	7.9	2.3			0.0	3.5	2.6		
MacKay Shields Core Plus	91,240,182	3.1	6.6	7.4	7.4	3.0			-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		
Total Global Fixed Income									-				
Franklin Templeton Global Bond Plus	93,502,591	1.7	3.1	6.1	6.1	4.2	1.6	-	1.9	2.4	6.1	-4.1	1.9
JPM GBI Global TR USD		3.5	5.4	5.7	5.7	0.9	1.2		-0.7	6.8	1.6	-2.6	0.7

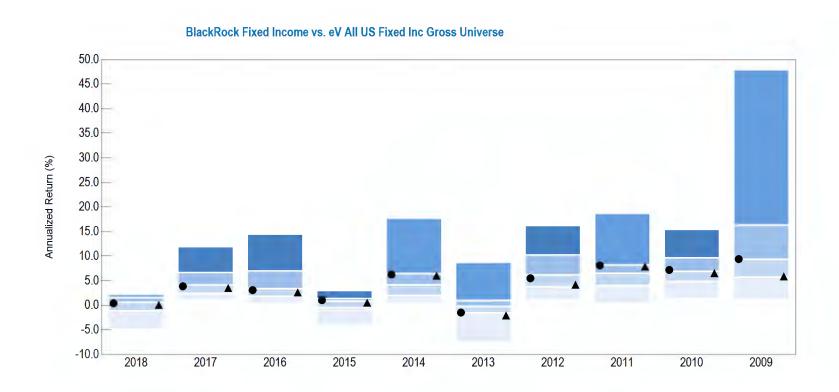
Vertas Transition Account used to liquidated PIMCO Core Plus on 11/15/15, remaining balance is residual cash. MacKay Shields and Doubleline funded 12/1/15. SSGA TIps liquidated in 4Q18.





	Return (R	ank)														
5th Percentile	6.6		14.1		14.2		14.2		7.9		6.2		7.0		9.8	
25th Percentile	3.2		8.1		8.4		8.4		4.8		4.4		5.0		6.8	
Median	2.5		5.9		6.9		6.9		2.9		3.3		3.2		4.6	
75th Percentile	1.7		4.0		4.9		4.9		2.1		2.4		2.2		3.2	
95th Percentile	8.0		1.8		2.8		2.8		1.6		1.3		1.1		1.2	
# of Portfolios	1,906		1,906		1,906		1,906		1,852		1,770		1,673		1,440	
 BlackRock Fixed Income BBgBarc US Aggregate TR 	3.1 3.1	(32) (33)	6.1 6.1	(48) (48)	8.3 7.9	(29) (37)	8.3 7.9	(29) (37)	2.7 2.3	(56) (68)	3.3 2.9	(50) (60)	3.1 2.6	(54) (65)	4.5 3.9	(51) (62)

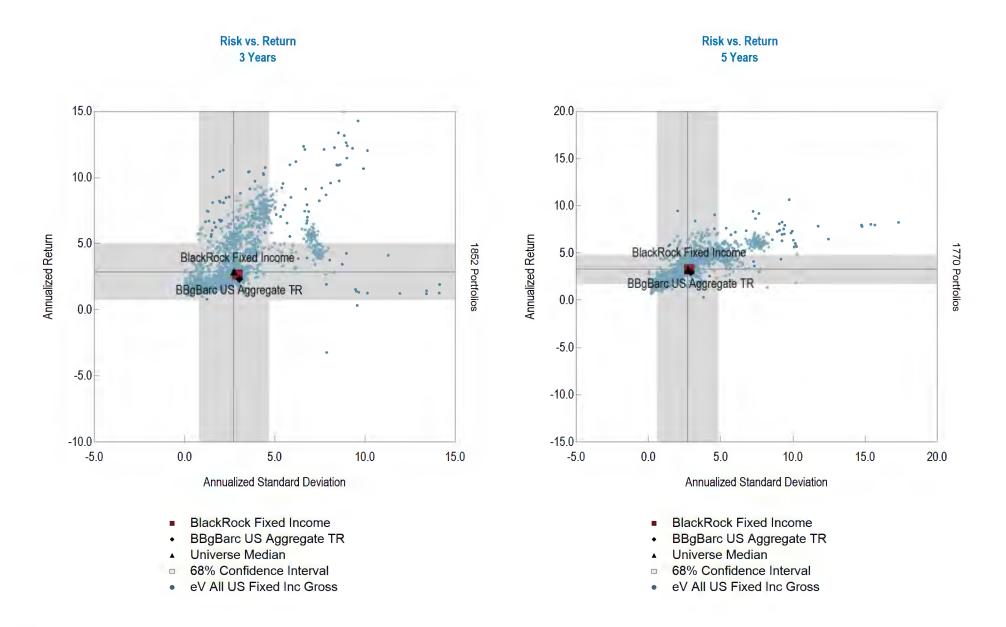




	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
۰	BlackRock Fixed I

BlackRock Fixed Income
 BBgBarc US Aggregate TR

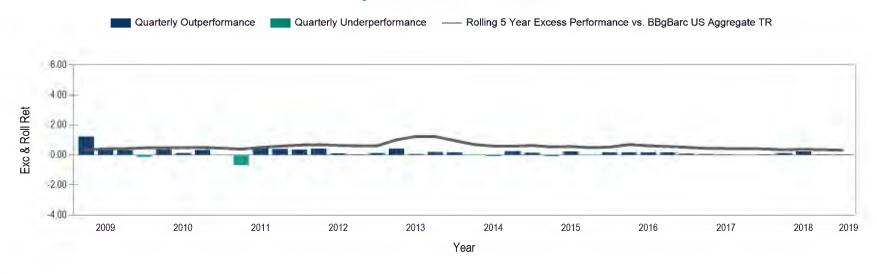
Return	(Rank)																	
2.2		12.0		14.5		3.0		17.7		8.7		16.2		18.6		15.5		47.9	
1.5		6.6		7.0		1.4		6.4		0.9		10.2		8.2		9.7		16.3	
0.6		4.1		3.3		0.8		4.2		-0.3		6.1		6.5		6.9		9.3	
-1.1		2.4		1.8		-0.5		2.0		-1.5		3.8		4.0		4.8		5.7	
-4.9		1.1		0.4		-4.1		0.5		-7.5		1.1		0.4		1.4		1.2	
1,899		1,843		1,722		1,394		1,364		1,281		1,241		1,211		1,157		1,287	
0.4	(54)	3.9	(54)	3.1	(53)	1.1	(39)	6.2	(29)	-1.5	(75)	5.5	(56)	8.1	(28)	7.2	(45)	9.4	(50)
0.0	(61)	3.5	(59)	2.6	(60)	0.6	(59)	6.0	(33)	-2.0	(83)	4.2	(70)	7.8	(32)	6.5	(57)	5.9	(73)



Rolling 3 Year Annualized Excess Performance



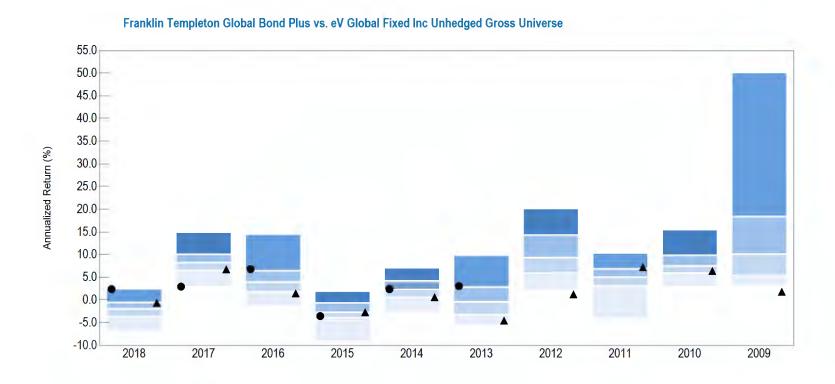
Rolling 5 Year Annualized Excess Performance



Franklin Templeton Global Bond Plus vs. eV Global Fixed Inc Unhedged Gross Universe 15.0 10.0 5.0 Quarter YTD Fiscal YTD 1 Year 3 Years 5 Years 7 Years 10 Years

	Return (R	ank)														
5th Percentile	4.4		10.3		9.4		9.4		7.8		5.1		7.0		8.8	
25th Percentile	3.8		8.1		7.6		7.6		5.3		3.5		4.3		6.1	
Median	3.3		6.4		6.2		6.2		3.3		2.1		2.8		4.2	
75th Percentile	2.4		5.4		4.8		4.8		2.1		1.3		1.8		3.3	
95th Percentile	1.2		2.3		2.2		2.2		0.9		-0.2		8.0		2.3	
# of Portfolios	233		233		233		233		222		203		170		125	
Franklin Templeton Global Bond PlusJPM GBI Global TR USD	1.7 3.5	(88) (38)	3.2 5.4	(93) (76)	6.5 5.7	(46) (61)	6.5 5.7	(46) (61)	4.7 0.9	(34) (95)	2.1 1.2	(50) (80)	3.7 1.0	(36) (92)	2.5	() (94)

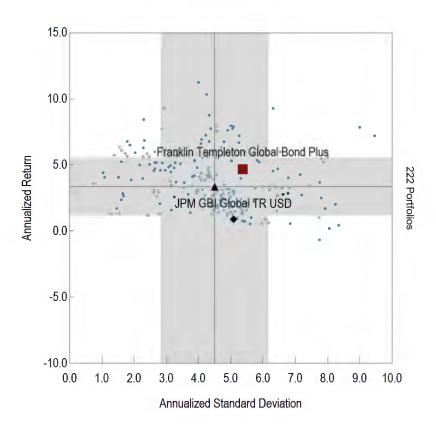




	Return (Ran	k)								
5th Percentile	2.5	15.0	14.5	2.0	7.1	9.8	20.2	10.4	15.5	50.1
25th Percentile	-0.5	10.1	6.5	-0.6	4.2	2.8	14.3	6.9	9.9	18.4
Median	-2.0	8.2	4.0	-2.7	2.3	-0.4	9.4	5.0	7.5	10.1
75th Percentile	-3.7	6.5	1.8	-4.0	0.6	-3.2	5.9	3.2	6.0	5.4
95th Percentile	-7.0	3.0	-1.5	-9.2	-2.7	-5.6	2.2	-4.2	3.0	3.2
# of Portfolios	231	231	221	189	159	142	118	108	76	72
Franklin Templeton Global Bond PlusJPM GBI Global TR USD	2.4 (6) -0.7 (27)	3.0 (96) 6.8 (72)	6.8 (24) 1.6 (79)	-3.5 (67) -2.6 (48)	2.4 (50) 0.7 (75)	3.0 (23) -4.5 (89)	() 1.3 (98)	() 7.2 (19)	() 6.4 (72)	() 1.9 (99)

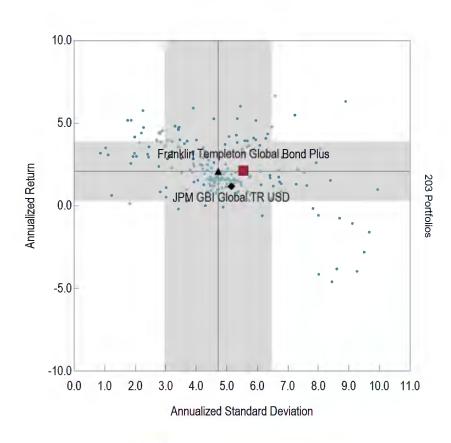


Risk vs. Return 3 Years



- Franklin Templeton Global Bond Plus
- JPM GBI Global TR USD
- ▲ Universe Median
- 68% Confidence Interval
- eV Global Fixed Inc Unhedged Gross

Risk vs. Return 5 Years



- Franklin Templeton Global Bond Plus
- JPM GBI Global TR USD
- Universe Median
- 68% Confidence Interval
- eV Global Fixed Inc Unhedged Gross

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	127,970,572	1.6	2.5	7.0	7.0	6.6	9.5	7.9	8.8	4.3	9.0	16.0	13.1
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
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
RREEF America II	127,893,497	1.6	2.5	6.9	6.9	6.8	9.7	10.7	8.6	4.4	9.3	16.7	13.0
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
TA Associates Realty	77,075	0.0	-5.7	3.9	3.9	5.6	8.4	4.4	16.2	5.2	4.6	16.7	15.1
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
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

Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. RREEF liquidated in 1Q 2018.



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	127,970,572	1.6	2.5	7.0	7.0	6.5	9.1	7.6	8.8	4.3	8.0	15.1	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
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
RREEF America II	127,893,497	1.6	2.5	6.9	6.9	6.6	9.2	10.1	8.6	4.4	8.2	15.7	12.0
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
TA Associates Realty	77,075	0.0	-5.7	3.9	3.9	5.4	7.8	3.4	16.2	5.2	3.7	15.4	14.6
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
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

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Commodities	63,986,554	-0.3	7.2	-7.3	-7.3	0.6	-7.6	-	-12.6	7.5	14.5	-26.3	
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Commodities Broad Basket MStar MF Rank		15	37	49	49	35	23		64	15	27	80	
Gresham MTAP Commodity Builder	31,579,512	-1.7	5.5	-9.2	-9.2	-0.7	-8.5		-12.7	5.9	12.3	-25.4	-16.1
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	-17.0
Commodities Broad Basket MStar MF Rank		63	51	87	87	43	58		65	28	53	71	34
Wellington Commodity	32,407,042	1.1	8.8	-5.4	-5.4	1.7	-6.5		-12.6	9.1	15.8	-25.7	
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Commodities Broad Basket MStar MF Rank		1	19	10	10	10	19		64	7	13	73	

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



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Commodities	63,986,554	-0.3	7.2	-7.3	-7.3	0.4	-8.0		-12.6	7.5	13.6	-26.8	
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	
Gresham MTAP Commodity Builder	31,579,512	-1.7	5.5	-9.2	-9.2	-0.8	-8.9		-12.7	5.9	11.5	-25.9	-16.8
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	-17.0
Wellington Commodity	32,407,042	1.1	8.8	-5.4	-5.4	1.5	-6.9		-12.6	9.1	14.9	-26.3	
Bloomberg Commodity Index TR USD		-1.2	5.1	-6.8	-6.8	-2.2	-9.1		-11.2	1.7	11.8	-24.7	

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Liquid Alts/HFoF	88,411,683	2.0	5.5	2.4	2.4	5.4	2.9	-	0.9	5.4	0.3	0.7	5.4
CPI + 5%	- 31	2.0	4.5	6.7	6.7	7.1	6.5		7.0	7.2	7.2	5.8	5.8
Aetos Capital	44,202,732	1.9	5.9	2.8	2.8	4.9	3.3	5.2	-1.9	6.8	2.6	1.2	5.2
ICE BofAML 90 DAY T-BILLS + 400 bps		1.4	2.7	5.4	5.4	4.4	3.9	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	44,208,951	2.2	5.1	2.1	2.1	5.8			3.8	4.0	0.6		
ICE BofAML 90 DAY T-BILLS + 400 bps		1.4	2.7	5.4	5.4	4.4			4.9	3.9	3.3		-

UBP liquidated 12/31/2015. Titan Advisors funded 2/1/2016. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Liquid Alts/HFoF	88,411,683	2.0	5.5	2.4	2.4	5.2	2.5	-	0.9	5.4	-0.5	0.0	4.6
CPI + 5%		2.0	4.5	6.7	6.7	7.1	6.5		7.0	7.2	7.2	5.8	5.8
Aetos Capital	44,202,732	1.9	5.9	2.8	2.8	4.8	2.9	4.9	-1.9	6.8	1.8	0.5	4.5
ICE BofAML 90 DAY T-BILLS + 400 bps		1.4	2.7	5.4	5.4	4.4	3.9	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	44,208,951	2.2	5.1	2.1	2.1	5.7			3.8	4.0	-0.1		
ICE BofAML 90 DAY T-BILLS + 400 bps		1.4	2.7	5.4	5.4	4.4			4.9	3.9	3.3		

UBP liquidated 12/31/2015. Titan Advisors funded 2/1/2016.

Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are linked geometrically 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	Fund_Incepted	Data Source	<u>Manager</u>	Fund Incepted	Data Source
SSGA S&P 500 Flagship Fund	7/27/2011	SSGA	RREEF America II	3/1/2003	Deutsche
QMA Large Cap Core	12/1/2008	BNY	TA Associates Realty	6/1/2007	TA Realty
Waddell & Reed	6/4/2010	BNY	Gresham MTAP Commodity	12/31/2013	Gresham
Robeco Boston Partners	2/1/1999	BNY	Wellington Commodity	1/3/2014	Wellington
William Blair Mid Cap Grw	12/1/2006	BNY	Aetos Capital	6/1/2005	Aetos
Lee Munder Small Value	8/26/2009	BNY	BlackRock Private Capital II	7/13/2005	BlackRock
SSGA Russell Sm Cap Idx	5/17/2013	SSGA	Pantheon USA Fund VI	7/26/2005	Pantheon
PIMCO RAE	8/14/2012	PIMCO	PIMCO BRAVO	1/14/2011	PIMCO
SSGA MSCI ACWI ex US	1/1/2010	SSGA	KKR Mezzanine Partners	7/8/2011	KKR
SGA Global Growth	6/4/2018	SGA	Stepstone Secondary Opps II	5/10/2013	Stepstone
Skellig DST Water Fund	10/28/2014	KBI	Titan Advisors	2/1/2016	Titan
BlackRock Fixed Income	12/1/1995	BNY	Ocean Avenue	5/27/2016	Ocean Ave
Doubleline Core Plus	12/1/2015	BNY	Pathway	4/12/2016	Pathway
MacKay Shields Core Plus	12/1/2015	MacKay	TPG Diversified Credit	11/21/2016	TPG
Franklin Templeton Global	4/3/2012	BNY			

Policy & Custom Index Composition

Policy Index:

20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Private Equity Returns, 5% Private Credit Returns.

Other Disclosures



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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Beachmark 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: Portfolio Excess Return / 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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