





PERIOD ENDING: SEPTEMBER 30, 2019

Investment Performance Review for

Tulare County Employees' Retirement Association

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SEATTLE 206-622-3700 LOS ANGELES 300-297-1777 SAN FRANCISCO 415-362-3484

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Review



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Annual outlooks

PRIVATE EQUITY OUTLOOK

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

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

Topics of interests

CRISIS RISK MITIGATION

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

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

THE INVESTMENT GOLDEN RULE

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

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3rd quarter summary

THE ECONOMIC CLIMATE

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

PORTFOLIO IMPACTS

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

THE INVESTMENT CLIMATE

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

ASSET ALLOCATION ISSUES

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

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

What drove the market in Q3?

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

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

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

Article Source: Reuters, September 16th, 2019

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

ISM MANUFACTURING PURCHASING MANAGERS' INDEX

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

Article Source: Bloomberg, September 30th, 2019

"Fed Will Weigh Resuming Balance Sheet Growth at October Meeting"

SIZE OF FEDERAL RESERVE BALANCE SHEET (\$TRILLIONS)

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

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

"Can Boris Johnson deliver Brexit as he pledged?"

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

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

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

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



Source: Bloomberg, as of 8/31/19

MANUFACTURING PURCHASING MANAGERS INDEXES (RELATIVE TO 50)



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

FEDERAL RESERVE BALANCE SHEET (\$TRILLIONS)



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



Economic environment



U.S. economics summary

- Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate).
 U.S. Q2 consumer spending came in stronger than any time since 2014, while weak business inventory investment acted as a slight drag.
- U.S-China trade remained a major story in Q3. The U.S. scheduled tariff rate hikes on \$250B in already-tariffed Chinese imports, as well as tariff impositions of up to 15% on the remaining \$300B in Chinese imports not currently exposed to duties. The Chinese retaliated with commensurate tariff adjustments. The two sides agreed to continued trade talks in Washington D.C. at the beginning of October.
- Trade conflict has likely weighed on economic progress. Uncertainty regarding the future of U.S.-China trade relations and supply chain disruptions caused by new tariff

- impositions are expected to act as a drag on growth in the future.
- Core inflation has crept up to cyclehighs, rising 2.4% YoY in
 September. Headline inflation increased 1.7% YoY, dragged down by falling energy prices.
- The U.S. unemployment rate reached a 50-year low of 3.5% in September. Historically, the rate of unemployment has risen prior to the beginning of each U.S. recession, which suggests the U.S. expansion may still have room to run.
- Despite record unemployment, wage growth remains lukewarm, decelerating from a cycle high of 3.4% achieved in February, to 2.9% in September.
- In October, the IMF cut its 2019 global economic growth forecast from 3.2% to 3.0%, referencing global trade friction as a primary driver.

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



GDP growth

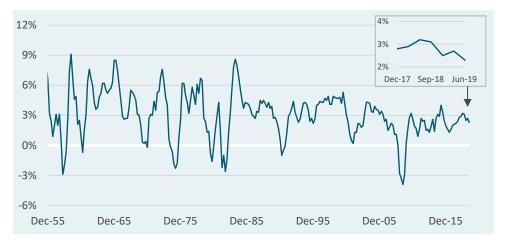
Real GDP grew at a 2.3% rate year-over-year in the second quarter (2.0% quarterly annualized rate). A lack of corporate inventory investment detracted -0.9% from the overall GDP print, perhaps fueled by frontloaded business purchases in efforts to avoid tariffs. Business investment also acted as a slight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

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

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

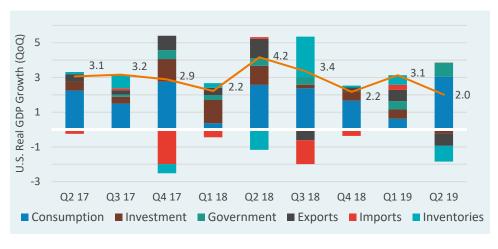
Trade policies and conflict likely resulted in a mild drag on

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 6/30/19

U.S. GDP GROWTH ATTRIBUTION



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



Inflation

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

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

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

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

U.S. CPI (YOY)



U.S. BREAKEVEN INFLATION RATES



Source: FRED, as of 9/30/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/19



Source: Bloomberg, as of 9/30/19

Labor market

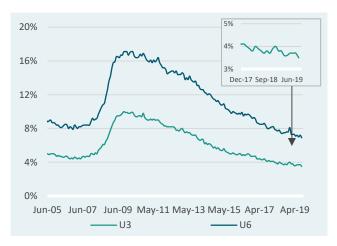
The U.S. unemployment rate reached a 50-year low of 3.5% in September. Historically, the rate of unemployment has risen prior to the beginning of each U.S. recession, which suggests the U.S. expansion may still have room to run. Despite record unemployment, wage growth remains lukewarm, decelerating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

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

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

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

U.S. UNEMPLOYMENT



LENGTH OF UNEMPLOYMENT



U.S. WAGE GROWTH



Source: FRED, as 9/30/19

Source: FRED, as of 9/30/19



Source: FRED, as of 9/30/19

The consumer

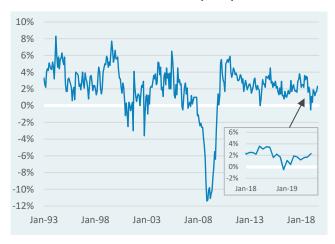
Retail sales fell in late 2018 but recovered year-to-date with a September growth rate of 2.3% YoY. Big-ticket purchases of items such as automobiles and homes have slowed from their 2016 highs.

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

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

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

REAL RETAIL SALES GROWTH (YOY)



AUTO SALES



PERSONAL SAVINGS RATE

Source: FRED, as of 8/31/19



Source: FRED, as of 8/31/19 Source: Bloomberg, as of 9/30/19



Investment Landscape 4th Quarter 2019

Sentiment

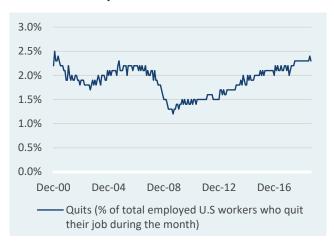
Consumer sentiment faded but remained strong relative to history. The ratcheting up of trade tensions between the U.S. and China cast a shadow over a robust U.S. labor market.

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

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

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

U.S. WORKER QUIT RATE



Source: FRED, as of 8/31/19

CONSUMER SENTIMENT



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

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 9/30/19



Housing

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

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

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

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

U.S. HOME SALES (YOY)



HOUSING STARTS & PERMITS



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

MEDIAN U.S. HOME SALES PRICE



Source: FRED, as of 6/30/19



Source: FRED, as of 8/31/19

International economics summary

- The Organization for Economic Development cut its 2019 calendar year forecast for global growth from 3.2% to 2.9% and its 2020 calendar year forecast from 3.4% to 3.0%. Driving the downward revisions were trade tensions, which the OECD estimated would reduce 2019 global growth by 0.6%,
- A major theme in the third quarter was the global manufacturing slowdown, which was illuminated by gloomy European manufacturing PMI data. The Markit Eurozone Manufacturing PMI fell to 45.7, further into contractionary territory indicated by a reading below 50. The German reading fell to 41.7. It has yet to be seen whether manufacturing weakness will spill into the larger services sector, where PMIs still indicate business expansion.
- Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a

- cue for central banks to step in and attempt to bolster economic growth through more accommodative policy.
- Unemployment rates continued to tick lower around the globe. In the U.S., unemployment hit a 50-year low at 3.5%.
- U.S-China negotiations will likely continue to impact trade around the world. The U.S. scheduled tariff rate hikes on \$250B in alreadytariffed Chinese imports, as well as tariff impositions of up to 15% on the remaining \$300B in Chinese imports not currently exposed to duties. The Chinese retaliated with commensurate tariff adjustments. The two sides agreed to continued trade talks in Washington D.C. at the beginning of October.
- Dormant trade tensions between the U.S. and the E.U. saw a resurgence over the quarter – the U.S. applied tariffs between 10-25% on \$7.5B of imports from the E.U.

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



International economics

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

The Organization for Economic Development cut its 2019 calendar year forecast for global growth from 3.2% to 2.9% and its 2020 calendar year forecast from 3.4% to 3.0%. Driving the downward revisions were trade tensions, which the OECD estimated would reduce 2019 global growth by 0.6%, 2019 U.S. growth by 0.7%, and 2019 Chinese growth by 1.0%

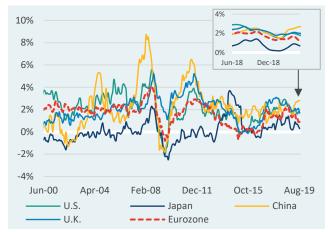
Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a cue for central banks to step in and attempt to bolster economic growth through more accommodative policy. Unemployment rates continued to tick lower around the globe. In the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

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

REAL GDP GROWTH (YOY)



INFLATION (CPI YOY)



Source: Bloomberg, as of 9/30/19

UNEMPLOYMENT RATE



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



Source: Bloomberg, as of 6/30/19

Trade update



United States: 5/10/19

Hikes tariff rates on \$200B of Chinese imports from 10% to 25%, and reportedly considers 25% duties on an additional \$325B in Chinese imports.

China: 5/13/2019

Responds with commensurate tariff rate hikes on \$60B scheduled to take effect June 1st.

United States: 5/16/19

Places Huawei on it's "entity list" cutting it off from U.S. tech companies.

United States: 5/30/19

President Trump announces 5% tariffs on all Mexican imports effective June 10th, which could move to 25% by October 1st.

United States & Mexico: 6/7/2019

Tariffs indefinitely suspended following agreement on an immigration enforcement deal, which expanded the Migrant Protections Protocol (MPP) program.

G20 SUMMIT

United States: 6/29/19

Relaxes stance on Huawei, allows company to resume importing high-tech U.S. intermediate goods.

China: 6/29/19

Unofficially agrees to boost purchases of U.S. agricultural goods.

FOLLOWING 7/31/19 TALKS IN SHANGHAI

United States: 8/1/19

President Trump announced that a 10% tariff would be applied to the remaining \$300B in Chinese imports including electronic and clothing consumer goods, effective September 1st.

China: 8/6/19

Halts U.S. agricultural purchases; rebukes U.S. allegations of currency manipulation.

United States: 8/13/19

Delays some of the 10% tariffs effective 9/1/19 to 12/15/19.

China: 8/23/19

Applied new tariffs of 5%-10% on \$75B in U.S. imports, effective on 9/1/19 and 12/15/19.

United States: 8/23/19

Tariffs scheduled to take effect on September 1st applying to \$300B in Chinese imports will start at 15% rather than the original 10% rate. On October 1st, tariffs on \$250B in Chinese imports will be hiked from 25% to 30%.

China & United States: 9/5/19

Agree to a 13th round of trade talks which will take place in Washington D.C. in early October.

World Trade Organization: 10/2/19

Rules E.U. subsidies for the French aviation giant Airbus were illegal.

United States: 10/2/19

Announced duties on \$7.5B of European exports effective October 18th.

10/18/19

Tariffs on various food products including whiskey, wine, coffee, pork, butter, and cheese set to start at 25%. Tariffs on commercial aircraft set to start at 10%.

Source: Wikimedia Commons



Fixed income rates & credit



Interest rate environment

- Global sovereign bonds rallied, encouraged by muted inflation expectations and dovish guidance from global central banks. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion.
- The Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% in both its July and September meetings, bringing the new range for federal funds to 1.75-2.00%.
- FOMC members appear divided on the likely future path of interest rates. Per the September dot plot, 8 of 17 members expect one further 0.25% cut by the end of 2020, 2 expect no change, and 7 expect either one or two 0.25% rate hikes.
- The European Central Bank delivered a fresh stimulus package in September, in line with expectations. The ECB cut its main deposit rate from -0.40% to -0.50%

- and announced it would restart asset purchases of €20 billion per month, beginning November 1st.
- Global sovereign yields continued to plummet. In Germany, 10-year bond yields touched fresh all-time lows, and the entire German sovereign curve moved below 0%. In Italy, 10year bond yields fell 1.28% to 0.82%, boosted by the formation of a new coalition government between the Democratic Party and the Five-Star Movement.
- Repo rates, which represent the overnight rate paid by short-term borrowers of cash, surged as overnight liquidity was constrained. The New York Fed intervened, injecting over \$300 billion into money markets over the course of a few weeks. Fed officials viewed the brief spike in repo rates as a financial "plumbing" issue, which could justify an "organic resumption of balance sheet growth", not to be confused with crisis-era QE policy.

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

Source: Bloomberg, as of 9/30/19



Rising global debt – two opposing forces

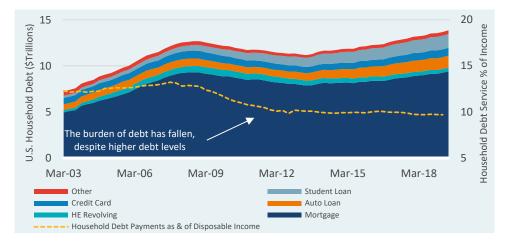
As the world has entered a low interest rate environment, many businesses and households have taken on greater debt. This is a natural trend – cheaper financing makes many purchases economical that were not when interest rates were high. As the cost of debt falls, businesses have also increasingly sought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

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

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

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

HOUSEHOLD DEBT BURDEN



HIGH YIELD DEBT BURDEN



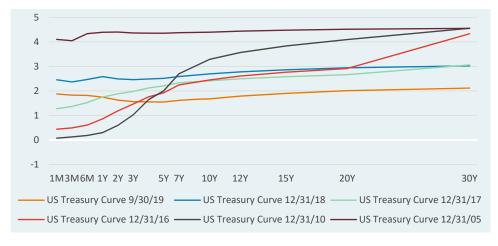
Source: FRED, as of 6/30/19

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

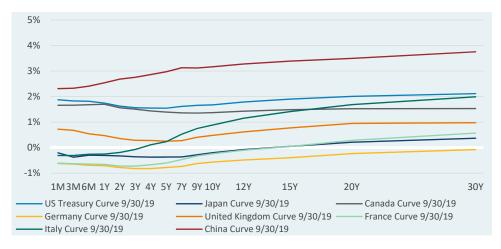


Yield environment

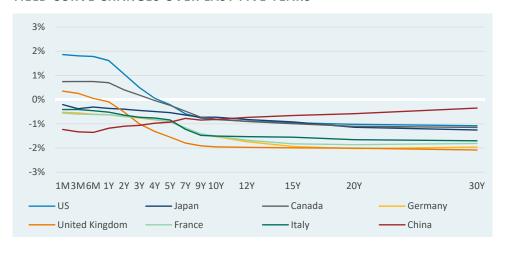
U.S. YIELD CURVE



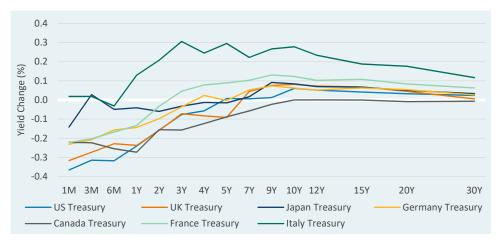
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR

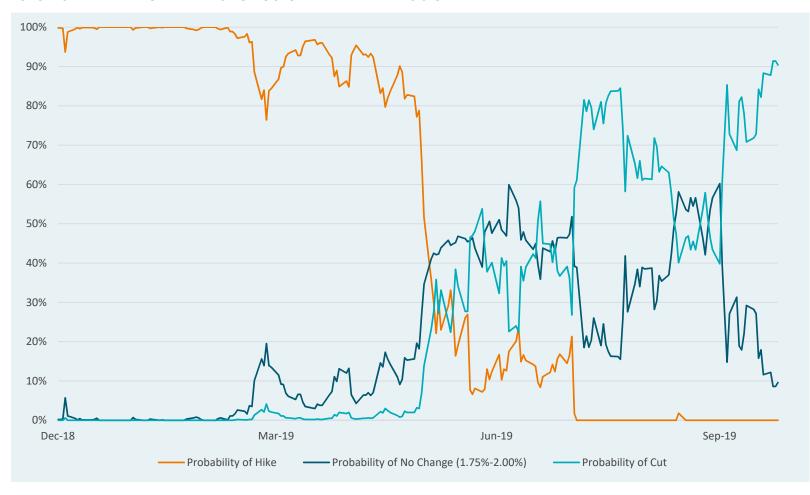


Source: Bloomberg, as of 9/30/19



October Fed meeting

FUTURES IMPLIED PROBABILITIES FOR OCTOBER FED RATE DECISION



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

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

Source: Bloomberg, as of 10/24/19



Credit environment

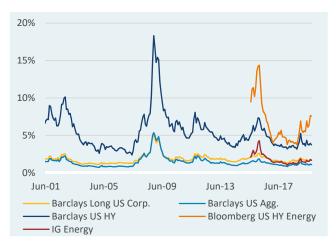
High yield bond spreads tightened slightly during Q3 as below investment grade assets remained somewhat stable over the period. Credit in general has been positively impacted by Federal Reserve dovishness. Anticipation of easier interest rate policies, which could potentially lengthen the credit cycle,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

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

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

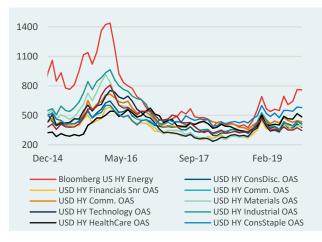
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with widening credit spreads and higher propensity for default activity. An underweight to U.S. investment grade, high yield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

SPREADS



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

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/19

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

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

*Discount margin (4-year life)



Default & issuance

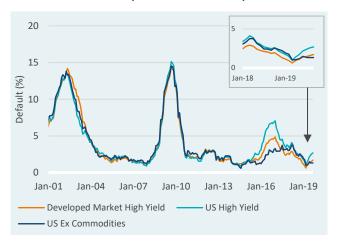
Default activity has been low and stable in the U.S. credit market, despite price volatility. The par-weighted default rate for high yield increased to 2.5% but remains below its long-term average range of 3.0-3.5%. For loans, the par-weighted default rate at the end of the third quarter was 1.4% and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

Senior loan and high yield markets have essentially

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

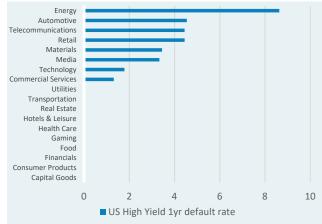
Gross high yield issue activity increased in September as investors took advantage of a dip in yields. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening.

HY DEFAULT RATE (ROLLING 1-YEAR)



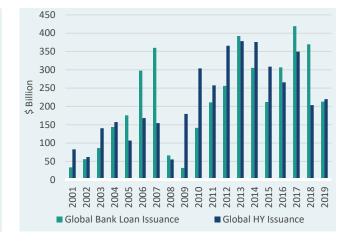
Source: BofA Merrill Lynch, as of 9/30/19

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



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

GLOBAL ISSUANCE (\$ BILLIONS)



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







Equity environment

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

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

	QTD TOTA	L RETURN	1 YEAR TO	AL RETURN
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	1.7	7%	4.3%	
US Small Cap (Russell 2000)	(2.4	1%)	(8.9	9%)
US Large Value (Russell 1000 Value)	1.4%		4.	0%
US Large Growth (Russell 1000 Growth)	1.5%		3.7%	
International Large (MSCI EAFE)	(1.1%)	2.3%	(1.3%)	4.2%
Eurozone (Euro Stoxx 50)	(1.4%)	3.8%	1.3%	11.5%
U.K. (FTSE 100)	(2.2%)	1.4%	(2.7%)	5.4%
Japan (NIKKEI 225)	2.9%	3.6%	(8.2%)	(5.9%)
Emerging Markets (MSCI Emerging Markets)	(4.2%)	(2.2%)	(2.0%)	(0.4%)

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



Domestic equity

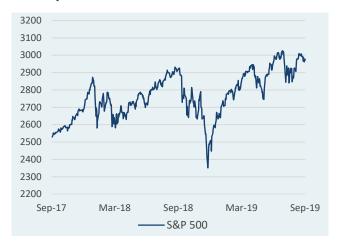
U.S. equities outpaced international in the third quarter (S&P 500 +1.7%, MSCI EAFE -1.1%) as domestic markets continued to lead. Some convergence of U.S. interest rates with the ultra-low rates of international markets likely supported equity prices over the quarter. We expect further declines in U.S.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

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

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

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

U.S. EQUITIES



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

Q3 2019 EARNINGS EXPECTATIONS



Source: FactSet, as of 10/11/19

RELATIVE YIELDS



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



Domestic equity

S&P 500 INDEX PRICE & EARNINGS LEVEL



U.S. equity performance has moderated

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

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



Domestic equity size & style

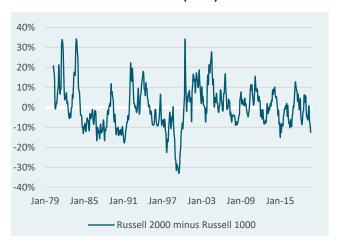
Value stock performance was on par with growth stocks during the third quarter (Russell 1000 Value +1.4%, Russell 1000 Growth +1.5%) while small cap stocks underperformed large stocks (Russell 2000 -2.4%, Russell 1000 +1.4%). Year-to-date, the size factor and value factor have extended their run of weakness.

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

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

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

SMALL CAP VS LARGE CAP (YOY)



VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/19

VALUE STARTING TO LOOK CHEAP



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



Source: FTSE, as of 9/30/19

Domestic equity style – a closer look

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

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

remains cheap relative to history.

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

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



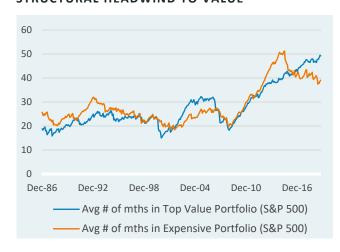
Source: J.P. Morgan Chase & Co., Copyright 2019, as of 9/30/19

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



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

STRUCTURAL HEADWIND TO VALUE



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



International developed equity

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

Japanese equities outperformed over the period, delivering a

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

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

INTERNATIONAL DEVELOPED EQUITIES



EFFECT OF CURRENCY (1-YEAR ROLLING)



U.K. EQUITY PERFORMANCE (YTD)



Source: MSCI, as of 9/30/19

Source: Bloomberg, as of 9/30/19



Source: MSCI, as of 9/30/19

Emerging market equity

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

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

We see two opposing forces impacting emerging markets in

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

EQUITY PERFORMANCE (3-YR ROLLING)



FORWARD P/E



CHINA & EM: ROLLING 1-YEAR PERFORMANCE



Source: MSCI, as of 9/30/19

Source: MSCI, as of 9/30/19

(USD)



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

Equity valuations

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

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

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

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

FORWARD P/E RATIOS



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

S&P 500 INDEX FORWARD SECTOR P/E RATIOS



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

VALUATION METRICS (3-MONTH AVERAGE)



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

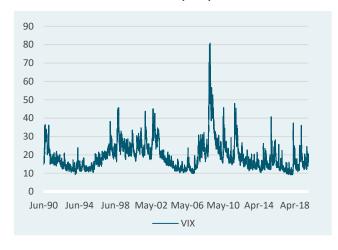


Equity volatility

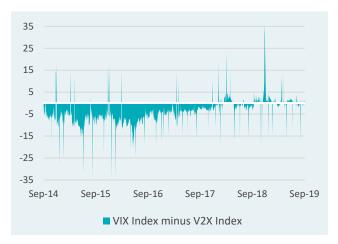
Implied volatility on both U.S. stocks and European stocks picked up over the quarter, albeit from depressed levels. The VIX Index which measures the 30-day implied volatility of U.S. stocks jumped to nearly 25.0 in August following a material escalation in U.S.-Chinese trade tensions. By quarter-end,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

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

U.S. IMPLIED VOLATILITY (VIX)



U.S. IMPLIED VOLATILITY VS. EUROPEAN IMPLIED VOLATILITY



Source: Bloomberg, as of 9/30/19

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

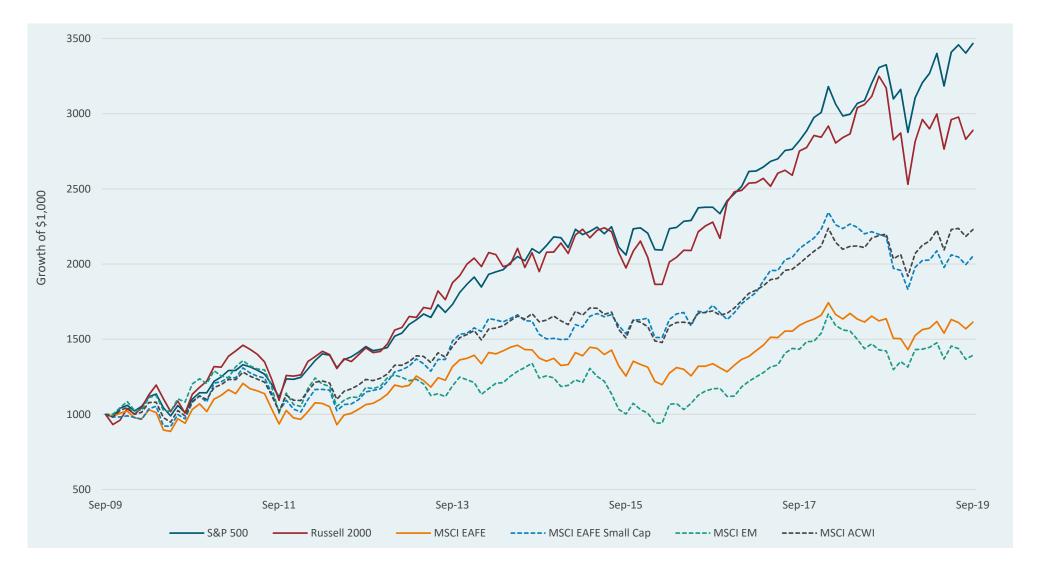


Source: Bloomberg, as of 9/30/19



Source: CBOE, as of 9/30/19

Long-term equity performance



Source: Morningstar, as of 9/30/19



Other assets



Currency

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

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

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

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

U.S. DOLLAR TRADE WEIGHTED INDEX



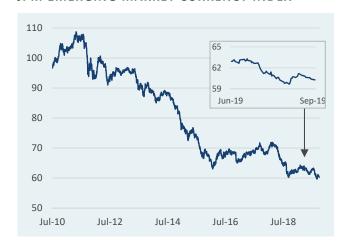
Source: Federal Reserve, Verus, as of 9/30/19

BLOOMBERG DOLLAR SPOT INDEX REALIZED 30-DAY VOLATILITY



Source: Bloomberg, as of 9/30/19

JPM EMERGING MARKET CURRENCY INDEX



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



Appendix



Periodic table of returns

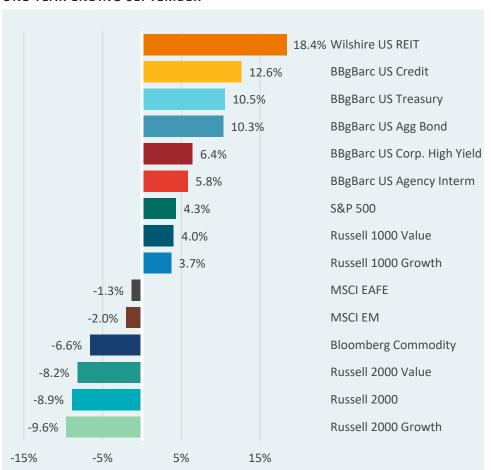
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	23.3	13.1	15.4
Large Cap Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	18.5	9.9	13.5
Small Cap Growth	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	16.3	8.8	13.1
Large Cap Value	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	13.8	8.1	11.6
Small Cap Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	11.8	6.6	11.5
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	11.4	6.4	10.0
International Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	9.7	4.6	9.3
US Bonds	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	9.1	4.1	6.4
Small Cap Value	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	7.3	3.3	5.0
Hedge Funds of Funds	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	5.7	2.0	4.1
Emerging Markets Equity	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	3.9	1.9	3.9
Real Estate	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	3.3	0.9	2.9
Commodities	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	1.9	0.4	0.5
Cash	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	1.5	-8.6	-4.3
			Large	Cap Equ	ıity			9	Small Ca	ap Grov	vth			Commodities										
			Large	Cap Val	ue			ı	nterna	tional E	quity			Re	eal Esta	te								
	Large Cap Growth				E	Emergir	ng Mark	ets Equ	ity		Hedge Funds of Funds													
Small Cap Equity				US Bonds 60% MSCI ACWI/40% BBgBarc Global Bond																				
Small Cap Value						Cash																		

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, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 6/30/19.

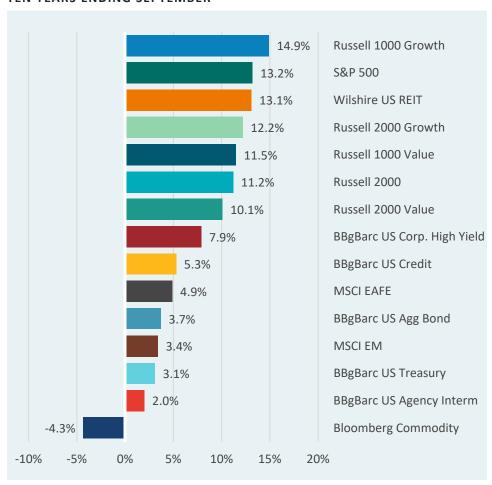


Major asset class returns

ONE YEAR ENDING SEPTEMBER



TEN YEARS ENDING SEPTEMBER



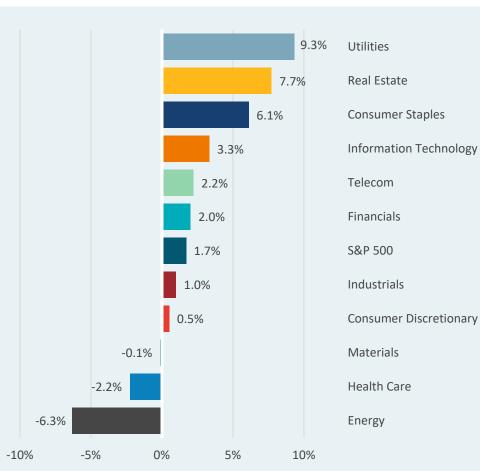
Source: Morningstar, as of 9/30/19

Source: Morningstar, as of 9/30/19

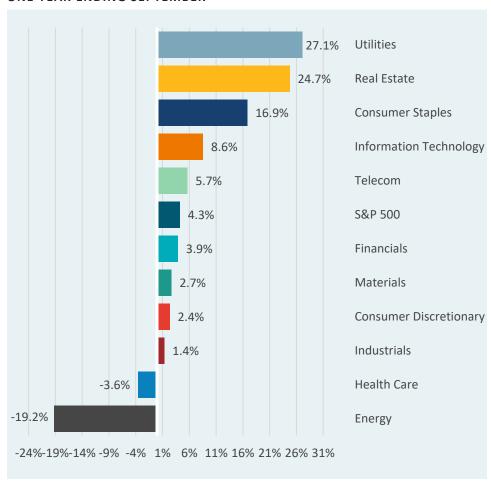


S&P 500 sector returns

Q3



ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/19

Source: Morningstar, as of 9/30/19



Detailed index returns

DOIVIES	IIC	EQUI	1 1

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

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	(1.4)	1.3	7.6	7.1	2.2	2.4	3.5
BBgBarc US Treasury Bills	0.2	0.6	1.9	2.4	1.5	1.0	0.6
BBgBarc US Agg Bond	(0.5)	2.3	8.5	10.3	2.9	3.4	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	(0.1)	0.6	3.1	4.4	1.5	1.3	1.2
BBgBarc US Treasury Long	(2.5)	7.9	19.8	24.8	4.1	6.8	6.9
BBgBarc US Treasury	(8.0)	2.4	7.7	10.5	2.2	2.9	3.1
Issuer							
BBgBarc US MBS	0.1	1.4	5.6	7.8	2.3	2.8	3.1
BBgBarc US Corp. High Yield	0.4	1.3	11.4	6.4	6.1	5.4	7.9
BBgBarc US Agency Interm	(0.2)	1.0	4.1	5.8	1.9	2.0	2.0
BBgBarc US Credit	(0.7)	3.0	12.6	12.6	4.3	4.5	5.3

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	2.1	(0.0)	16.2	1.4	9.7	6.7	8.3
MSCI ACWI ex US	2.6	(1.8)	11.6	(1.2)	6.3	2.9	4.5
MSCI EAFE	2.9	(1.1)	12.8	(1.3)	6.5	3.3	4.9
MSCI EM	1.9	(4.2)	5.9	(2.0)	6.0	2.3	3.4
MSCI EAFE Small Cap	2.8	(0.4)	12.1	(5.9)	5.9	6.0	7.5
Style Index							
MSCI EAFE Growth	1.1	(0.4)	17.9	2.2	7.8	5.5	6.5
MSCI EAFE Value	4.8	(1.7)	7.7	(4.9)	5.1	1.0	3.2
Regional Index							
MSCI UK	4.2	(2.5)	10.1	(2.9)	4.6	0.4	4.8
MSCI Japan	4.0	3.1	11.1	(4.7)	6.2	5.6	5.5
MSCI Euro	2.8	(2.0)	13.9	(1.1)	7.1	2.4	3.1
MSCI EM Asia	2.0	(3.4)	6.0	(3.9)	6.3	4.1	5.2
MSCI EM Latin American	2.6	(5.6)	6.3	6.7	6.8	(8.0)	(0.5)

THER

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

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



Definitions

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

Notices & disclosures

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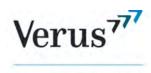
The material may include estimates, outlooks, projections and other "forward-looking statements." Such statements can be identified by the use of terminology such as "believes," "expects," "may," "will," "should," "anticipates," or the negative of any of the foregoing or comparable terminology, or by discussion of strategy, or assumptions such as economic conditions underlying other statements. No assurance can be given that future results described or implied by any forward looking information will be achieved. Actual events may differ significantly from those presented. Investing entails risks, including possible loss of principal. Risk controls and models do not promise any level of performance or guarantee against loss of principal.

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Tulare County Employees' Retirement Association

Investment Performance Review Period Ending: September 30, 2019



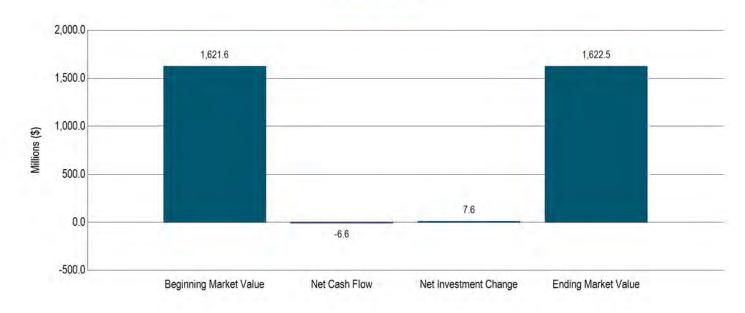
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SEATTLE 206-622-3700 LOS ANGELES 310-297-1777 SAN FRANCISCO 415-362-3484

Fiscal Year-To-Date

Beginning Market Value	\$1,621,558,305
Net Cash Flow	-\$6,601,539
Net Investment Change	\$7,554,146
Ending Market Value	\$1,622,510,913

Change in Market Value Last Three Months



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



Executive Summary (Gross of Fees)

	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	0.5	10.5	0.5	4.5	7.6	5.6	7.4	6.3	6.5
Policy Index	0.9	11.0	0.9	5.5	7.6	5.8	7.5	6.7	6.1
InvMetrics Public DB Gross Rank	73	92	73	41	68	85	77	79	30
Total Fund x Parametric	0.5	10.5	0.5	4.5	7.5	5.6			
Policy Index	0.9	11.0	0.9	5.5	7.6	5.8			
InvMetrics Public DB Gross Rank	71	92	71	42	69	85			
Total Domestic Equity	1.2	20.2	1.2	1.9	13.5	10.8	13.4	9.6	9.1
Russell 3000	1.2	20.1	1.2	2.9	12.8	10.4	13.1	9.1	6.7
InvMetrics Public DB US Eq Gross Rank	37	40	37	64	17	25	22	19	1
Total International Equity	-1.9	13.9	-1.9	0.8	7.3	3.6	4.4	5.0	4.3
MSCI ACWI ex USA Gross	-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	6.1	4.7
InvMetrics Public DB ex- US Eq Gross Rank	52	11	52	11	11	51	90	85	81
Total Global Equity	0.1	14.6	0.1	0.6	8.2		-	-	
MSCI ACWI Gross	0.1	16.7	0.1	1.9	10.3				
InvMetrics Public DB Glbl Eq Gross Rank	70	79	70	70	86				
Total Fixed Income	1.3	7.1	1.3	8.4	3.7	3.4	4.8	4.7	5.4
BBgBarc US Aggregate TR	2.3	8.5	2.3	10.3	2.9	3.4	3.7	4.2	5.0
InvMetrics Public DB US Fix Inc Gross Rank	88	51	88	51	25	47	25	35	57
Total Domestic Fixed Income	2.3	8.9	2.3	10.0	3.7	3.8			
BBgBarc US Aggregate TR	2.3	8.5	2.3	10.3	2.9	3.4			
Total Global Fixed Income	-3.2	0.0	-3.2	1.8	3.9	1.5	-		
JPM GBI Global TR USD	1.1	6.6	1.1	8.7	1.2	2.1			

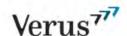


Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index

Actual

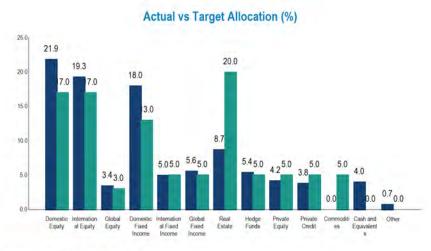


New Policy Index as of 7/1/2019: 17% Russell 3000, 17% MSCI ACWI ex US, 3% MSCI ACWI, 13% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 15% NCREIF-ODCE, 5% NCREIF-ODCE + 200 bps, 5% Bloomberg Commodity, 5% Private Equity Returns, 5% Private Credit Returns, 5% 90 Day T-Bills + 400 bps. 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.



Executive Summary (Gross of Fees)

	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Emerging Markets Fixed Income			1.0	-					
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			0.4						
Total Real Assets	0.7	4.8	0.7	2.0	4.6	3.7			
Real Assets Composite Benchmark	0.3	4.3	0.3	1.9	4.0	3.2			
Total Real Estate	1.5	4.1	1.5	6.5	6.4	9.0	8.7	7.5	8.4
NCREIF-ODCE	1.3	3.8	1.3	5.6	7.3	9.3	10.9	7.9	8.3
NCREIF Property Index	1.4	4.8	1.4	6.2	6.8	8.6	9.8	8.6	
Total Alternatives	1.3	7.0	1.3	8.5	8.2	2.9	3.5		
CPI + 5%	1.5	6.0	1.5	6.8	7.2	6.6	6.8		
Total Private Equity	3.0	11.2	3.0	17.8	15.0	11.9	13.9		
Total Private Credit	2.9	6.1	2.9	10.2	-				
									,
Total Liquid Alts/HFoF	-0.9	4.6	-0.9	0.6	4.1	2.7			
ICE BofAML 90 DAY T- BILLS + 400 bps	1.3	4.1	1.3	5.5	4.6	4.0			
Total Opportunistic	-0.5	-12.3	-0.5	-7.3	7.3	7.1	-		

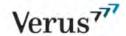


Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index

Actual



New Policy Index as of 7/1/2019: 17% Russell 3000, 17% MSCI ACWI ex US, 3% MSCI ACWI, 13% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 15% NCREIF-ODCE, 5% NCREIF-ODCE + 200 bps, 5% Bloomberg Commodity, 5% Private Equity Returns, 5% Private Credit Returns, 5% 90 Day T-Bills + 400 bps. 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.

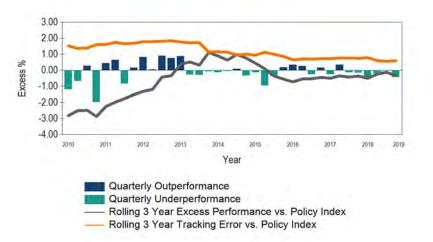


Executive Summary (Net of Fees)

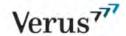
	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs 1	0 Yrs 1	5 Yrs 2	0 Yrs
Total Fund	0.4	10.3	0.4	4.2	7.3	5.3	7.1	5.9	6.1
Policy Index	0.9	11.0	0.9	5.5	7.6	5.8	7.5	6.7	6.1
Total Fund x Parametric	0.5	10.2	0.5	4.2	7.2	5.2			
Policy Index	0.9	11.0	0.9	5.5	7.6	5.8			
Total Domestic Equity	1.1	19.9	1.1	1.5	13.1	10.4	13.0	9.2	8.7
Russell 3000	1.2	20.1	1.2	2.9	12.8	10.4	13.1	9.1	6.7
Total International Equity	-2.0	13.6	-2.0	0.5	6.9	3.2	4.1	4.7	3.9
MSCI ACWI ex USA Gross	-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	6.1	4.7
Total Global Equity	-0.1	13.9	-0.1	-0.1	7.4				
MSCI ACWI Gross	0.1	16.7	0.1	1.9	10.3				
Total Fixed Income	1.2	6.9	1.2	8.0	3.4	3.1	4.5	4.5	5.2
BBgBarc US Aggregate TR	2.3	8.5	2.3	10.3	2.9	3.4	3.7	4.2	5.0
Total Domestic Fixed Income	2.2	8.6	2.2	9.7	3.4	3.6	-		
BBgBarc US Aggregate TR	2.3	8.5	2.3	10.3	2.9	3.4			
Total Global Fixed Income	-3.3	-0.3	-3.3	1.4	3.4	1.0	-		
JPM GBI Global TR USD	1.1	6.6	1.1	8.7	1.2	2.1			
Total Emerging Markets Fixed Income			0.9						
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			0.4						
Total Real Assets	0.7	4.8	0.7	2.0	4.5	3.4	-		
Real Assets Composite Benchmark	0.3	4.3	0.3	1.9	4.0	3.2			1
Total Real Estate	1.5	4.1	1.5	6.5	6.3	8.6	8.5	6.8	7.6
NCREIF-ODCE	1.3	3.8	1.3	5.6	7.3	9.3	10.9	7.9	8.3
NCREIF Property Index	1.4	4.8	1.4	6.2	6.8	8.6	9.8	8.6	



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



New Policy Index as of 7/1/2019: 17% Russell 3000, 17% MSCI ACWI ex US, 3% MSCI ACWI, 13% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 15% NCREIF-ODCE, 5% NCREIF-ODCE + 200 bps, 5% Bloomberg Commodity, 5% Private Equity Returns, 5% Private Credit Returns, 5% 90 Day T-Bills + 400 bps. 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.

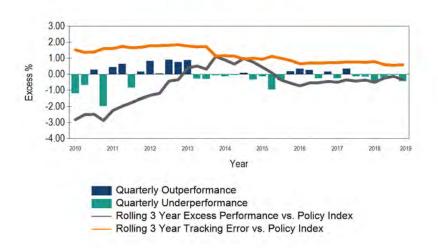


Executive Summary (Net of Fees)

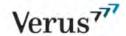
	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs 1	5 Yrs 20	Yrs
Total Alternatives	1.3	7.0	1.3	8.5	8.1	2.5	3.1		
CPI + 5%	1.5	6.0	1.5	6.8	7.2	6.6	6.8		
Total Private Equity	3.0	11.2	3.0	17.8	14.9	11.1	13.4		
Total Private Credit	2.9	6.1	2.9	10.2	-		-		
Total Liquid Alts/HFoF	-0.9	4.6	-0.9	0.6	4.0	2.3	-	-	
ICE BofAML 90 DAY T-BILLS + 400 bps	1.3	4.1	1.3	5.5	4.6	4.0			
Total Opportunistic	-0.5	-12.3	-0.5	-7.3	7.2	6.3			



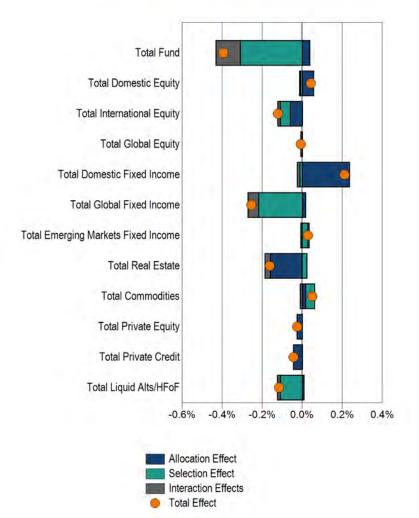
Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



New Policy Index as of 7/1/2019: 17% Russell 3000, 17% MSCI ACWI ex US, 3% MSCI ACWI, 13% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 15% NCREIF-ODCE, 5% NCREIF-ODCE + 200 bps, 5% Bloomberg Commodity, 5% Private Equity Returns, 5% Private Credit Returns, 5% 90 Day T-Bills + 400 bps. 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 September 30, 2019



Performance Attribution

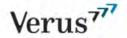
	Last 3 Mo.
Wtd. Actual Return	0.5%
Wtd. Index Return *	0.9%
Excess Return	-0.4%
Selection Effect	-0.3%
Allocation Effect	0.0%
Interaction Effect	-0.1%

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

Attribution Summary 3 Months Ending September 30, 2019

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	1.1%	1.2%	-0.1%	0.0%	0.1%	0.0%	0.0%
Total International Equity	-2.0%	-1.7%	-0.3%	0.0%	-0.1%	0.0%	-0.1%
Total Global Equity	-0.1%	0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%
Total Domestic Fixed Income	2.2%	2.3%	-0.1%	0.0%	0.2%	0.0%	0.2%
Total Global Fixed Income	-3.3%	1.1%	-4.4%	-0.2%	0.0%	-0.1%	-0.3%
Total Emerging Markets Fixed Income	0.9%	0.4%	0.6%	0.0%	0.0%	0.0%	0.0%
Total Real Estate	1.5%	1.4%	0.1%	0.0%	-0.2%	0.0%	-0.2%
Total Commodities	-1.0%	-1.8%	0.8%	0.0%	0.0%	0.0%	0.1%
Total Private Equity	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Private Credit	2.9%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Liquid Alts/HFoF	-0.9%	1.3%	-2.2%	-0.1%	0.0%	0.0%	-0.1%
Total	0.5%	0.9%	-0.4%	-0.3%	0.0%	-0.1%	-0.4%

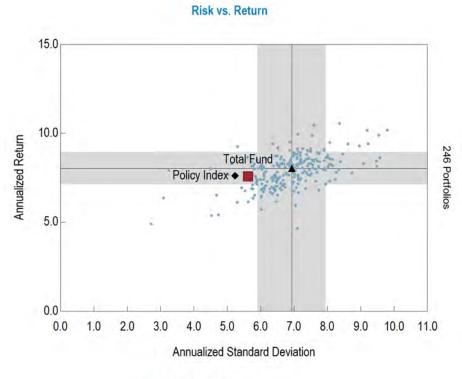
Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.



Total Fund

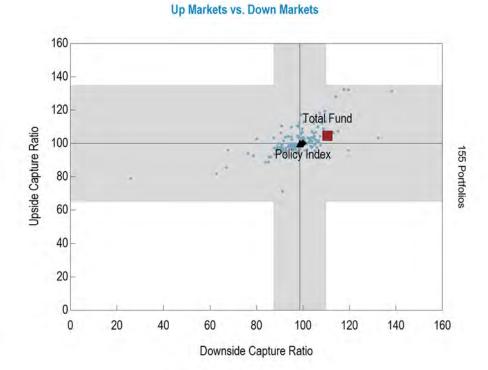
Risk Analysis - 3 Years (Gross of Fees)

	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	7.58%	5.62%	-0.51%	1.06	0.87%	0.98	1.08	-0.03	104.66%	110.53%

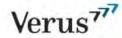




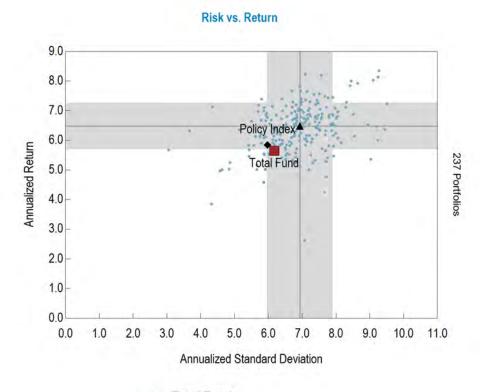
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross



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

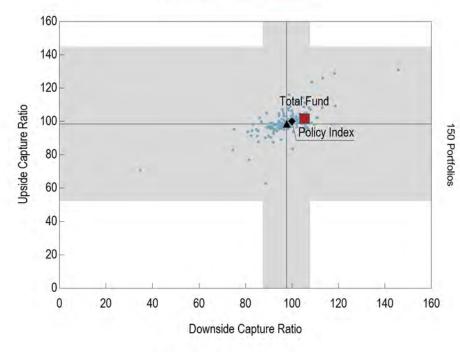


	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	5.64%	6.17%	-0.34%	1.02	0.79%	0.98	0.76	-0.25	101.78%	105.34%

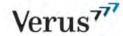


- **Total Fund**
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

Up Markets vs. Down Markets



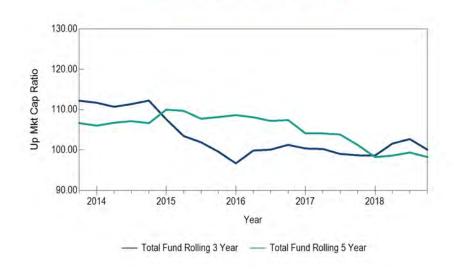
- **Total Fund**
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross



Rolling Information Ratio



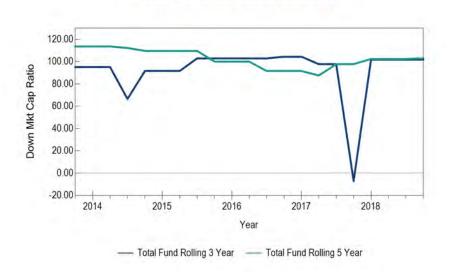
Rolling Up Market Capture Ratio (%)

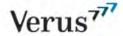


Rolling Tracking Error



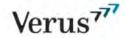
Rolling Down Market Capture Ratio (%)





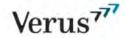
	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	1,622,510,913	100.0	0.5	10.5	0.5	4.5	7.6	5.6	7.4	-2.6	14.3	7.6	-1.2	4.2
Policy Index			0.9	11.0	0.9	5.5	7.6	5.8	7.5	-2.4	14.0	8.0	-1.1	4.6
InvMetrics Public DB Gross Rank			73	92	73	41	68	85	77	15	71	53	80	83
Total Fund x Parametric	1,613,977,585	99.5	0.5	10.5	0.5	4.5	7.5	5.6		-2.6	14.2	7.6	-1.1	4.1
Policy Index			0.9	11.0	0.9	5.5	7.6	5.8		-2.4	14.0	8.0	-1.1	4.6
InvMetrics Public DB Gross Rank			71	92	71	42	69	85		15	72	53	80	87
Total Domestic Equity	354,611,309	21.9	1.2	20.2	1.2	1.9	13.5	10.8	13.4	-5.0	22.3	11.5	1.6	12.4
Russell 3000			1.2	20.1	1.2	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
InvMetrics Public DB US Eq Gross Rank			37	40	37	64	17	25	22	29	16	77	10	17
SSGA S&P 500 Flagship Fund	68,015,799	4.2	1.7	20.6	1.7	4.3	13.4	10.9		-4.4	21.9	12.0	1.5	13.7
S&P 500			1.7	20.6	1.7	4.3	13.4	10.8		-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank			52	42	52	44	39	34		40	52	31	40	42
QMA Large Cap Core	63,484,296	3.9	0.7	17.9	0.7	0.1	12.1	10.2	13.5	-6.5	22.5	12.5	2.1	15.6
S&P 500			1.7	20.6	1.7	4.3	13.4	10.8	13.2	-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank			79	67	79	79	66	53	31	70	42	25	31	20
Ivy Large Cap Growth	73,103,495	4.5	2.2	26.8	2.2	8.7	19.0	14.4		3.2	30.2	2.1	7.6	12.8
Russell 1000 Growth			1.5	23.3	1.5	3.7	16.9	13.4		-1.5	30.2	7.1	5.7	13.0
eV US Large Cap Growth Equity Gross Rank			18	14	18	18	13	19		15	42	72	26	40
Boston Partners Large Cap Value	64,324,875	4.0	1.8	15.0	1.8	-0.9	11.0	8.0	12.0	-8.6	20.1	14.7	-3.9	11.8
Russell 1000 Value			1.4	17.8	1.4	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
eV US Large Cap Value Equity Gross Rank			51	80	51	76	40	56	47	55	22	54	65	58
SSGA Russell Small Cap Completeness Index	27,074,351	1.7	-1.7	17.4	-1.7	-3.6	10.1	8.6		-9.2	18.2	16.5	-3.5	7.4
Russell Small Cap Completeness			-1.7	17.5	-1.7	-3.6	10.1	8.6		-9.2	18.3	16.6	-3.4	7.4
eV US Small Cap Core Equity Gross Rank			54	32	54	23	31	56		37	23	84	68	37
William Blair SMID Cap Growth	32,398,347	2.0	1.1	26.5	1.1	3.2	18.9	15.4	16.1	-0.9	30.4	8.2	6.1	9.8
Russell 2500 Growth			-3.2	20.0	-3.2	-4.1	12.3	10.2	13.5	-7.5	24.5	9.7	-0.2	7.1
eV US Mid Cap Growth Equity Gross Rank			11	50	11	61	16	5	9	29	16	22	7	33
Lee Munder Small Value	26,210,146	1.6	0.4	17.0	0.4	-5.2	7.0	8.6	11.0	-14.7	8.6	28.4	0.4	5.1
Russell 2000 Value			-0.6	12.8	-0.6	-8.2	6.5	7.2	10.1	-12.9	7.8	31.7	-7.5	4.2
eV US Small Cap Value Equity Gross Rank			37	36	37	40	53	29	73	56	68	38	9	60

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. Titan Advisors funded 2/1/2016. RREEF liquidated 3/15/2018. Fidelity International Growth liquidated to fund SGA Global Growth in 2Q18. SSGA TIPS liquidated in 12/28/18. Shenkman High Yield liquidated 3/11/2019. PGIM EMD funded 8/26/19. Gresham Commodity and Wellington Commodity liquidated 9/27/19.



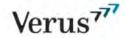
	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	312,973,649	19.3	-1.9	13.9	-1.9	0.8	7.3	3.6	4.4	-14.3	26.9	6.2	-5.9	-4.8
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
InvMetrics Public DB ex-US Eq Gross Rank			52	11	52	11	11	51	90	43	80	13	85	83
SSGA MSCI ACWI Ex US Index Fund	103,145,677	6.4	-1.7	11.9	-1.7	-0.9	6.6	3.2	4.7	-14.0	27.6	4.8	-5.5	-3.6
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank			69	61	69	29	47	78	90	42	49	17	96	49
PIMCO RAE Fundamental Global Ex US Fund	100,135,353	6.2	-1.7	7.9	-1.7	-4.3	6.4	2.4		-14.7	26.7	13.5	-10.9	-5.7
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank			68	93	68	60	52	90		47	53	1	99	79
SGA Global Growth	109,692,619	6.8	-2.2	22.1	-2.2	7.8								
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7								
eV ACWI ex-US Core Equity Gross Rank			66	1	66	1								
Total Global Equity	55,835,999	3.4	0.1	14.6	0.1	0.6	8.2			-15.3	33.7	16.1	-11.5	
MSCI ACWI Gross			0.1	16.7	0.1	1.9	10.3			-8.9	24.6	8.5	-1.8	
InvMetrics Public DB Glbl Eq Gross Rank			70	79	70	70	86			94	1	2	99	
Skellig DST Water Fund	55,835,999	3.4	0.1	14.6	0.1	0.6	8.2			-15.3	33.7	16.1	-11.5	
MSCI ACWI Gross			0.1	16.7	0.1	1.9	10.3			-8.9	24.6	8.5	-1.8	
eV Global All Cap Equity Gross Rank			37	64	37	49	71			91	9	6	96	
Total Fixed Income	463,170,650	28.5	1.3	7.1	1.3	8.4	3.7	3.4	4.8	0.5	4.3	5.5	-0.8	4.6
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
InvMetrics Public DB US Fix Inc Gross Rank			88	51	88	51	25	47	25	51	50	37	77	69
Total Domestic Fixed Income														
BlackRock Fixed Income	106,615,896	6.6	2.4	8.6	2.4	10.7	3.2	3.7	4.3	0.4	3.9	3.1	1.1	6.2
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
eV All US Fixed Inc Gross Rank			25	43	25	22	54	49	51	54	54	53	39	29
Doubleline Core Plus	91,700,549	5.7	1.7	8.1	1.7	8.8	3.3			0.0	4.2	4.8		
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
eV US Core Plus Fixed Inc Gross Rank			91	90	91	92	93			33	86	52		
MacKay Shields Core Plus	93,513,146	5.8	2.6	9.6	2.6	10.2	3.7			-0.6	5.0	5.1		
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
eV US Core Plus Fixed Inc Gross Rank			14	50	14	63	66			67	52	46		

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. Titan Advisors funded 2/1/2016. RREEF liquidated 3/15/2018. Fidelity International Growth liquidated to fund SGA Global Growth in 2Q18. SSGA TIPS liquidated in 12/28/18. Shenkman High Yield liquidated 3/11/2019. PGIM EMD funded 8/26/19. Gresham Commodity and Wellington Commodity liquidated 9/27/19.

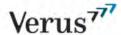


	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Global Fixed Income														
Franklin Templeton Global Bond Plus	90,552,267	5.6	-3.2	0.0	-3.2	1.8	3.9	1.5		2.4	3.0	6.8	-3.5	2.4
JPM GBI Global TR USD			1.1	6.6	1.1	8.7	1.2	2.1		-0.7	6.8	1.6	-2.6	0.7
eV Global Fixed Inc Unhedged Gross Rank			98	98	98	93	38	85		6	96	24	67	50
Total Emerging Markets Fixed Income														
PGIM Emerging Markets Debt	80,788,792	5.0												
50% JPM EMBI Global Div/50% JPM GBI EM Global Div														
eV Emg Mkt Fixed Inc Unhedged Gross Rank														
Total Real Assets	141,503,132	8.7	0.7	4.8	0.7	2.0	4.6	3.7		1.6	5.0	10.4	0.4	
Real Assets Composite Benchmark			0.3	4.3	0.3	1.9	4.0	3.2		0.5	5.2	9.4	-0.7	
Total Real Estate	141,503,132	8.7	1.5	4.1	1.5	6.5	6.4	9.0	8.7	8.8	4.3	9.0	16.0	13.1
NCREIF-ODCE			1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index			1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
RREEF America II	141,483,889	8.7	1.6	4.1	1.6	6.5	6.6	9.1	11.3	8.6	4.4	9.3	16.7	13.0
NCREIF-ODCE			1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index			1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
Total Liquid Alts/HFoF	87,612,612	5.4	-0.9	4.6	-0.9	0.6	4.1	2.7		0.9	5.4	0.3	0.7	5.4
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6	4.0		4.9	3.9	3.3	3.1	3.5
Aetos Capital	44,138,206	2.7	-0.1	5.8	-0.1	1.5	3.9	3.2	4.6	-1.9	6.8	2.6	1.2	5.2
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6	4.0	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	43,474,407	2.7	-1.7	3.3	-1.7	-0.1	4.3			3.8	4.0	0.6		
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6			4.9	3.9	3.3		

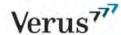
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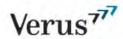
	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fund	1,622,510,913	100.0	0.4	10.3	0.4	4.2	7.3	5.3	7.1	-2.9	13.9	7.1	-1.6	3.8
Policy Index			0.9	11.0	0.9	5.5	7.6	5.8	7.5	-2.4	14.0	8.0	-1.1	4.6
Total Fund x Parametric	1,613,977,585	99.5	0.5	10.2	0.5	4.2	7.2	5.2		-2.9	13.8	7.0	-1.6	3.7
Policy Index			0.9	11.0	0.9	5.5	7.6	5.8		-2.4	14.0	8.0	-1.1	4.6
Total Domestic Equity	354,611,309	21.9	1.1	19.9	1.1	1.5	13.1	10.4	13.0	-5.4	21.9	11.1	1.2	12.0
Russell 3000			1.2	20.1	1.2	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
SSGA S&P 500 Flagship Fund	68,015,799	4.2	1.7	20.5	1.7	4.2	13.4	10.9		-4.4	21.8	12.0	1.4	13.7
S&P 500			1.7	20.6	1.7	4.3	13.4	10.8		-4.4	21.8	12.0	1.4	13.7
QMA Large Cap Core	63,484,296	3.9	0.6	17.6	0.6	-0.3	11.7	9.8	13.2	-6.8	22.1	12.1	1.8	15.2
S&P 500			1.7	20.6	1.7	4.3	13.4	10.8	13.2	-4.4	21.8	12.0	1.4	13.7
Ivy Large Cap Growth	73,103,495	4.5	2.0	26.4	2.0	8.2	18.3	13.8		2.7	29.5	1.6	7.1	12.3
Russell 1000 Growth			1.5	23.3	1.5	3.7	16.9	13.4		-1.5	30.2	7.1	5.7	13.0
Boston Partners Large Cap Value	64,324,875	4.0	1.7	14.6	1.7	-1.3	10.5	7.5	11.5	-9.0	19.6	14.2	-4.4	11.4
Russell 1000 Value			1.4	17.8	1.4	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
SSGA Russell Small Cap Completeness Index	27,074,351	1.7	-1.7	17.4	-1.7	-3.6	10.0	8.5		-9.2	18.1	16.5	-3.5	7.3
Russell Small Cap Completeness			-1.7	17.5	-1.7	-3.6	10.1	8.6		-9.2	18.3	16.6	-3.4	7.4
William Blair SMID Cap Growth	32,398,347	2.0	0.9	25.7	0.9	2.4	17.9	14.4	15.1	-1.7	29.3	7.2	5.2	8.8
Russell 2500 Growth			-3.2	20.0	-3.2	-4.1	12.3	10.2	13.5	-7.5	24.5	9.7	-0.2	7.1
Lee Munder Small Value	26,210,146	1.6	0.2	16.2	0.2	-6.0	6.0	7.6	9.9	-15.5	7.7	27.3	-0.5	4.1
Russell 2000 Value			-0.6	12.8	-0.6	-8.2	6.5	7.2	10.1	-12.9	7.8	31.7	-7.5	4.2
Total International Equity	312,973,649	19.3	-2.0	13.6	-2.0	0.5	6.9	3.2	4.1	-14.5	26.5	5.9	-6.2	-5.0
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
SSGA MSCI ACWI Ex US Index Fund	103,145,677	6.4	-1.8	11.8	-1.8	-1.0	6.6	3.1	4.6	-14.0	27.5	4.7	-5.5	-3.7
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
PIMCO RAE Fundamental Global Ex US Fund	100,135,353	6.2	-1.8	7.5	-1.8	-4.8	5.9	1.9		-15.1	26.0	13.0	-11.4	-5.9
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7	6.8	3.4		-13.8	27.8	5.0	-5.3	-3.4
SGA Global Growth	109,692,619	6.8	-2.3	21.7	-2.3	7.3								
MSCI ACWI ex USA Gross			-1.7	12.1	-1.7	-0.7								
Total Global Equity	55,835,999	3.4	-0.1	13.9	-0.1	-0.1	7.4			-15.9	32.6	15.1	-12.3	
MSCI ACWI Gross			0.1	16.7	0.1	1.9	10.3			-8.9	24.6	8.5	-1.8	
Skellig DST Water Fund	55,835,999	3.4	-0.1	13.9	-0.1	-0.1	7.4			-15.9	32.6	15.1	-12.3	
MSCI ACWI Gross			0.1	16.7	0.1	1.9	10.3			-8.9	24.6	8.5	-1.8	



	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	463,170,650	28.5	1.2	6.9	1.2	8.0	3.4	3.1	4.5	0.1	3.9	5.1	-1.1	4.3
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
Total Domestic Fixed Income														
BlackRock Fixed Income	106,615,896	6.6	2.3	8.4	2.3	10.4	3.0	3.5	4.0	0.1	3.6	2.9	8.0	6.0
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
Doubleline Core Plus	91,700,549	5.7	1.7	7.9	1.7	8.5	3.0			-0.3	3.9	4.6		
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
MacKay Shields Core Plus	93,513,146	5.8	2.5	9.2	2.5	9.8	3.3			-1.0	4.5	4.7		
BBgBarc US Aggregate TR			2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
Total Global Fixed Income														
Franklin Templeton Global Bond Plus	90,552,267	5.6	-3.3	-0.3	-3.3	1.4	3.4	0.9		1.9	2.4	6.1	-4.1	1.9
JPM GBI Global TR USD			1.1	6.6	1.1	8.7	1.2	2.1		-0.7	6.8	1.6	-2.6	0.7
Total Emerging Markets Fixed Income														
PGIM Emerging Markets Debt	80,788,792	5.0												
50% JPM EMBI Global Div/50% JPM GBI EM Global Div														
Total Real Assets	141,503,132	8.7	0.7	4.8	0.7	2.0	4.5	3.4		1.6	5.0	9.5	-0.4	
Real Assets Composite Benchmark			0.3	4.3	0.3	1.9	4.0	3.2		0.5	5.2	9.4	-0.7	
Total Real Estate	141,503,132	8.7	1.5	4.1	1.5	6.5	6.3	8.6	8.5	8.8	4.3	8.0	15.1	12.5
NCREIF-ODCE			1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index			1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
RREEF America II	141,483,889	8.7	1.6	4.1	1.6	6.5	6.5	8.7	10.7	8.6	4.4	8.2	15.7	12.0
NCREIF-ODCE			1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index			1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
Total Liquid Alts/HFoF	87,612,612	5.4	-0.9	4.6	-0.9	0.6	4.0	2.3		0.9	5.4	-0.5	0.0	4.6
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6	4.0		4.9	3.9	3.3	3.1	3.5
Aetos Capital	44,138,206	2.7	-0.1	5.8	-0.1	1.5	3.8	2.8	4.2	-1.9	6.8	1.8	0.5	4.5
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6	4.0	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	43,474,407	2.7	-1.7	3.3	-1.7	-0.1	4.3			3.8	4.0	-0.1		
ICE BofAML 90 DAY T-BILLS + 400 bps			1.3	4.1	1.3	5.5	4.6			4.9	3.9	3.3		

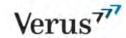


	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
SSGA S&P 500 Flagship Fund	10.89%	11.93%	0.05%	1.00	0.04%	1.00	0.83	1.30	100.34%	99.98%
QMA Large Cap Core	10.22%	12.67%	-1.19%	1.05	1.72%	0.98	0.73	-0.36	100.54%	104.16%
Ivy Large Cap Growth	14.41%	12.68%	1.61%	0.96	3.13%	0.94	1.06	0.32	99.45%	93.56%
Boston Partners Large Cap Value	7.99%	13.01%	-0.32%	1.07	2.89%	0.95	0.54	0.07	106.54%	103.69%
SSGA Russell Small Cap Completeness Index	8.58%	14.44%	-0.02%	1.00	0.09%	1.00	0.53	-0.51	99.75%	100.03%
William Blair SMID Cap Growth	15.44%	13.83%	6.72%	0.85	4.12%	0.94	1.05	1.27	100.13%	78.30%
Lee Munder Small Value	8.55%	15.33%	1.85%	0.93	3.18%	0.96	0.50	0.44	91.93%	90.90%
SSGA MSCI ACWI Ex US Index Fund	3.17%	12.47%	-0.21%	1.00	0.06%	1.00	0.18	-3.75	99.04%	100.39%
PIMCO RAE Fundamental Global Ex US Fund	2.42%	13.37%	-1.11%	1.04	3.30%	0.94	0.11	-0.30	107.25%	107.36%
BlackRock Fixed Income	3.72%	2.95%	0.51%	0.95	0.39%	0.98	0.94	0.86	101.75%	90.93%
Franklin Templeton Global Bond Plus	1.45%	6.19%	2.19%	-0.35	9.12%	0.09	0.08	-0.07	-17.75%	-69.07%
RREEF America II	9.37%	4.21%	3.52%	0.63	3.69%	0.36	2.00	0.01	55.50%	
TA Associates Realty	5.10%	8.14%	-1.37%	0.76	7.70%	0.12	0.51	-0.45	50.69%	
Aetos Capital	3.18%	3.20%	4.01%	-0.21	3.21%	0.00	0.69	-0.26	77.95%	



							IRR Analysis	as of IRR date				
Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 9/30/2019 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 Ed	quity											
2004	Pantheon USA Fund VI	\$2,951,004	\$15,000,000	\$14,175,000	95%	\$825,000	\$19,625,924	\$3,416,003	138.5%	159.3%	7.2%	06/30/19
2005	BlackRock Private Capital II7	\$3,239,411	\$15,000,000	\$15,000,000	100%	\$0	\$21,118,979	\$4,497,868	140.8%	162.4%	6.9%	03/31/19
2011	Stepstone Secondary Opportunities Fund II8	\$13,187,792	\$27,500,000	\$27,500,000	100%	\$0	\$23,169,148	\$14,625,533	84.3%	132.2%	12.5%	06/30/19
2016	Ocean Avenue Fund III	\$21,598,930	\$20,000,000	\$16,800,000	84%	\$3,200,000	\$2,400,000	\$19,536,186	14.3%	142.9%	33.3%	06/30/19
2016	Pathway Private Equity Fund Investors 8	\$18,183,429	\$20,000,000	\$12,729,063	64%	\$7,270,937	\$797,976	\$17,852,399	6.3%	149.1%	19.0%	06/30/19
2017	Pathway Private Equity Fund Investors 9	\$7,839,764	\$20,000,000	\$6,648,897	33%	\$13,351,103	\$75,744	\$0	1.1%	119.0%	N/A	N/A
2019	Ocean Avenue Fund IV	\$1,000,000	\$20,000,000	\$1,000,000	5%	\$19,000,000	\$0	\$0	0.0%	100.0%	N/A	N/A
Private C	redit				9							
2016	TPG Diversified Credit	\$61,835,614	\$80,000,000	\$54,045,357	68%	\$25,954,643	\$485,608	\$57,209,057	0.9%	115.3%	9.8%	06/30/19
Private Re	eal Estate									- 45		
2007	TA Associates VIII	\$19,243	\$30,000,000	\$30,000,000	100%	\$0	\$30,282,992	\$68,107	100.9%	101.0%	-0.1%	06/30/19
Opportun	istic											
2010	KKR Mezzanine Partners	\$3,423,844	\$15,000,000	\$15,000,000	100%	\$0	\$17,819,791	\$3,376,657	118.8%	141.6%	8.3%	06/30/19
2011	PIMCO Bravo	\$148,451	\$15,000,000	\$15,000,000	100%	\$0	\$27,147,672	\$148,451	181.0%	182.0%	22.0%	06/30/19
										······································		
	Total Private Markets	\$133,427,482	\$277,500,000	\$207,898,318	75%	\$69,601,682	\$142,923,835	\$120,730,261	68.7%	132.9%		
	% of Portfolio (Market Value)	8.2%										

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

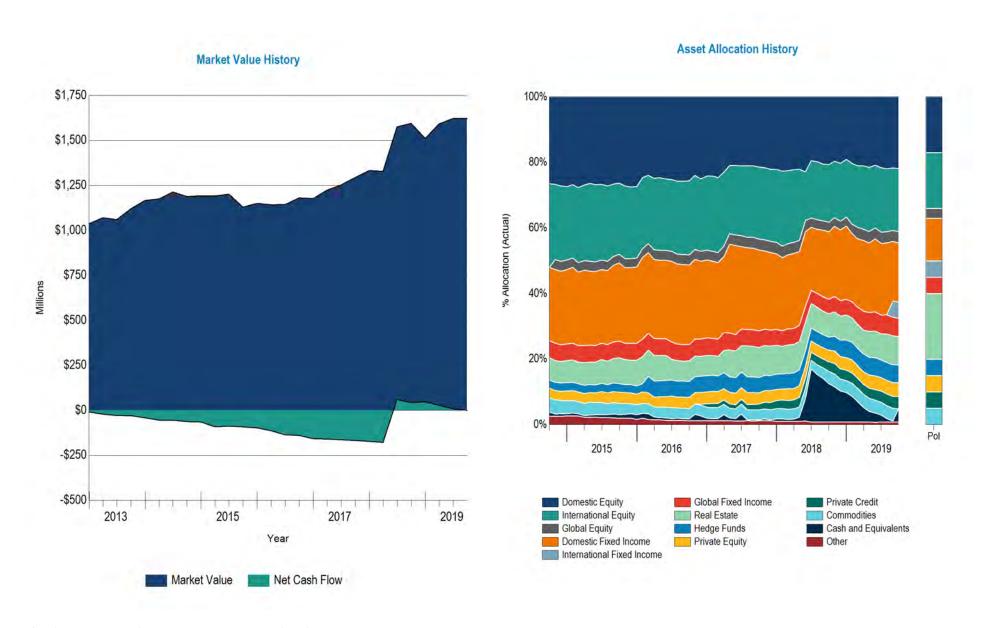
⁴IRR currently unavailable for these funds.

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

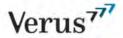
⁶Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

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

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



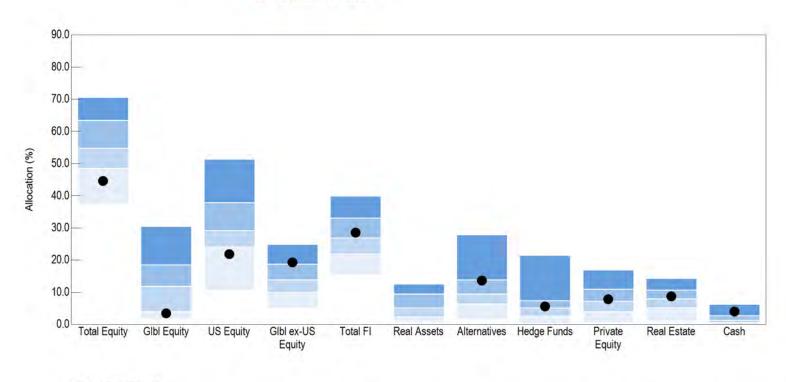
Net Cash flow history prior to 4Q 2010 is not available due to lack of data from previous consultant.



Current	Policy			Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IF Range?
			Domestic Equity	\$354,611,309	21.9%	17.0%	\$78,784,453	10.0% - 30.0%	Yes
			International Equity	\$312,973,649	19.3%	17.0%	\$37,146,794	10.0% - 30.0%	Yes
		17.0%	Global Equity	\$55,835,999	3.4%	3.0%	\$7,160,672	0.0% - 5.0%	Yes
21.9%	6		Domestic Fixed Income	\$291,829,591	18.0%	13.0%	\$80,903,172	10.0% - 30.0%	Yes
			International Fixed Income	\$80,788,792	5.0%	5.0%	-\$336,753	0.0% - 10.0%	Yes
			Global Fixed Income	\$90,552,267	5.6%	5.0%	\$9,426,721	0.0% - 10.0%	Yes
			Real Estate	\$141,503,132	8.7%	20.0%	-\$182,999,051	5.0% - 35.0%	Yes
		17.0%	Hedge Funds	\$87,612,612	5.4%	5.0%	\$6,487,067	0.0% - 10.0%	Yes
			Private Equity	\$68,000,330	4.2%	5.0%	-\$13,125,216	0.0% - 10.0%	Yes
19.3%	o .		Private Credit	\$61,835,614	3.8%	5.0%	-\$19,289,932	0.0% - 10.0%	Yes
	1	3.0%	Commodities			5.0%	-\$81,125,546	0.0% - 10.0%	Yes
			Cash and Equivalents	\$64,861,995	4.0%		\$64,861,995		No
3.4%		12.00/	Other	\$12,105,623	0.7%		\$12,105,623		No
0.470		13.0%	Total	£4 COO E40 O40	400.00/	400.00/			
		5.0%	Total	\$1,622,510,913	100.0%	100.0%			
18.0% 5.0%		5.0% 5.0%	Total	\$1,622,510,913	100.0%	100.0%			
			Total	\$1,622,510,913	100.0%	100.0%			
5.0%		5.0%	Total	\$1,622,510,913	100.0%	100.0%			
5.0% 5.6%		5.0% 20.0% 5.0%	Total	\$1,622,510,913	100.0%	100.0%			
5.0% 5.6% 8.7%		5.0%	Total	\$1,622,510,913	100.0%	100.0%			
5.0% 5.6% 8.7% 5.4%		5.0% 20.0% 5.0%	Total	\$1,622,510,913	100.0%	100.0%			



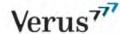
Total Plan Allocation vs. InvMetrics Public DB Gross
As of September 30, 2019



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

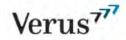
Total Fund

Alloca	tion (Ra	ank)																			
70.6		30.4		51.4		24.9		40.0	11	12.6	27.8		21.5		16.9		14.3		6.3		-
63.6		18.7		37.9		18.8		33.2		9.6	14.0		7.5		11.0		10.7		2.8		_
54.8		12.0		29.3		14.0		26.9		5.2	9.6		5.2		7.3		8.1		1.3		-
48.6		4.1		24.2		10.1		22.0		2.4	6.5		2.7		4.1		5.2		0.7		_
37.4		1.7		10.7		5.2		15.4		8.0	1.6		0.4		0.7		0.9		0.0		
202		75		135		170		198		50	127		64		81		146		186		-
44.6	(86)	3.4	(83)	21.9	(82)	19.3	(23)	28.5	(44)		 13.6	(27)	5.6	(44)	7.8	(45)	8.7	(44)	4.0	(11)	



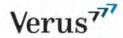
Account	Fee Schedule	Market Value As of 9/30/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Aetos Capital	0.70% of Assets	\$44,138,206	2.7%	\$308,967	0.70%
BlackRock Alternative Advisors	120,000 Annually	\$3,239,411	0.2%	\$120,000	3.70%
BlackRock Fixed Income	0.25% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$106,615,896	6.6%	\$266,540	0.25%
Boston Partners Large Cap Value	0.45% of First 50.0 Mil, 0.35% of Next 50.0 Mil, 0.30% Thereafter	\$64,324,875	4.0%	\$275,137	0.43%
Doubleline Core Plus	0.28% of First 100.0 Mil, 0.25% Thereafter	\$91,700,549	5.7%	\$256,762	0.28%
Franklin Templeton Global Bond Plus	0.62% of First 50.0 Mil, 0.51% of Next 50.0 Mil, 0.45% Thereafter	\$90,552,267	5.6%	\$516,817	0.57%
Ivy Large Cap Growth	0.60% of First 25.0 Mil, 0.50% of Next 25.0 Mil, 0.40% Thereafter	\$73,103,495	4.5%	\$367,414	0.50%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	0.38% of Assets	\$3,423,844	0.2%	\$12,839	0.38%
Lee Munder Small Value	0.90% of First 25.0 Mil, 0.85% of Next 75.0 Mil, 0.30% Thereafter	\$26,210,146	1.6%	\$235,286	0.90%
MacKay Shields Core Plus	0.40% of Assets	\$93,513,146	5.8%	\$374,053	0.40%
Mellon Capital Cash Account	No Fee	\$64,861,995	4.0%		
Ocean Avenue Fund III	0.85% of Assets	\$21,598,930	1.3%	\$183,591	0.85%
Ocean Avenue Fund IV	1.25% of Assets	\$1,000,000	0.1%	\$12,500	1.25%
Pantheon Ventures	0.47% of Assets	\$2,951,004	0.2%	\$13,988	0.47%
Parametric	Asset Based Fee: 0.0375% (Quarterly) Retainer Fee: \$4,500 (Quarterly) Minimum Expense: \$50,000 (Annual)	\$8,533,328	0.5%		
Pathway Private Equity Fund Investors 8	0.61% of Assets	\$18,183,429	1.1%	\$110,919	0.61%
Pathway Private Equity Fund Investors 9	0.58% of Assets	\$7,839,764	0.5%	\$45,471	0.58%
PGIM Emerging Markets Debt	0.55% of First 75.0 Mil, 0.45% of Next 100.0 Mil, 0.35% Thereafter	\$80,788,792	5.0%	\$438,550	0.54%
PIMCO Bravo	1.60% of Assets	\$148,451	0.0%	\$9,501	6.40%

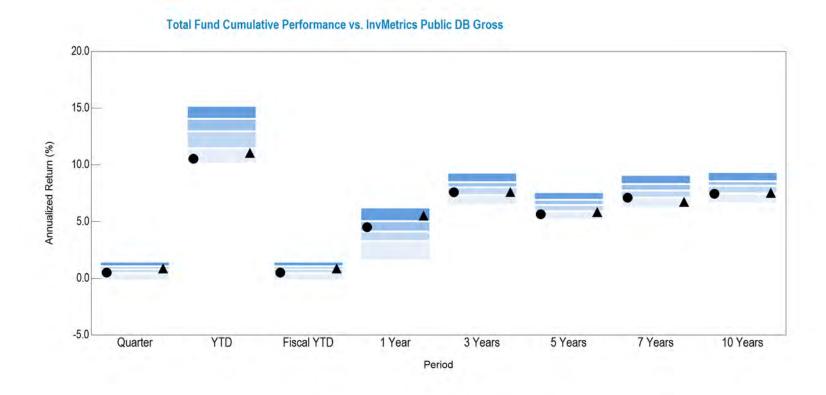
*In addition to a management fee, Aetos charges a 10% incentive fee above a hurdle rate of the average three-month Treasury Bill rate in effect during the relevant incentive fee calculation. Fees shown for Pathway are estimated effective average fees over 15-year fund lifespan.



Account	Fee Schedule	Market Value As of 9/30/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PIMCO RAE Fundamental Global Ex US Fund	0.78% of First 25.0 Mil, 0.43% of Next 75.0 Mil, 0.38% Thereafter	\$100,135,353	6.2%	\$518,014	0.52%
QMA Large Cap Core	0.35% of First 50.0 Mil, 0.30% of Next 50.0 Mil, 0.25% Thereafter	\$63,484,296	3.9%	\$215,453	0.34%
RREEF America II	0.95% of Assets	\$141,483,889	8.7%	\$1,344,097	0.95%
SGA Global Growth	0.45% of Assets	\$109,692,619	6.8%	\$493,617	0.45%
Skellig DST Water Fund	0.77% of Assets	\$55,835,999	3.4%	\$427,145	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	\$103,145,677	6.4%	\$69,387	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	\$27,074,351	1.7%	\$13,537	0.05%
SSGA S&P 500 Flagship Fund	0.03% of Assets	\$68,015,799	4.2%	\$20,405	0.03%
Stepstone Secondary Opportunities Fund II	343,750 Annually	\$13,187,792	0.8%	\$343,750	2.61%
TA Associates Realty	0.60% of Assets	\$19,243	0.0%	\$115	0.60%
Titan Advisors	.70% on AUM, 7.5% on performance, 5% hurdle rate.	\$43,474,407	2.7%	-	
TPG Diversified Credit	No Fee	\$61,835,614	3.8%		
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	\$32,398,347	2.0%	\$272,988	0.84%
Investment Management Fee		\$1,622,510,913	100.0%	\$7,266,842	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.



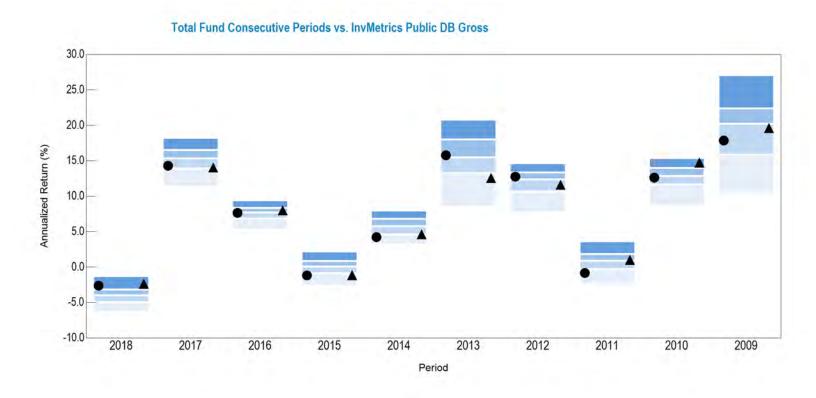


5th Per	centile
25th Pe	rcentile
Median	
75th Pe	rcentile
95th Pe	rcentile
# of Po	rtfolios

● Total Fund ▲ Policy Index

Return (R	lank)															
1.5		15.2		1.5		6.2		9.3		7.6		9.1		9.4		
1.1		14.1		1.1		5.0		8.5		6.9		8.3		8.6		
0.8		13.0		0.8		4.1		8.0		6.5		7.8		8.2		
0.5		11.5		0.5		3.3		7.3		5.9		7.1		7.5		
-0.2		10.2		-0.2		1.6		6.5		5.2		6.2		6.7		
262		259		262		256		246		237		224		199		
0.5	(73)	10.5	(92)	0.5	(73)	4.5	(41)	7.6	(68)	5.6	(85)	7.1	(76)	7.4	(77)	
0.9	(46)	11.0	(82)	0.9	(46)	5.5	(12)	7.6	(67)	5.8	(79)	6.7	(87)	7.5	(72)	



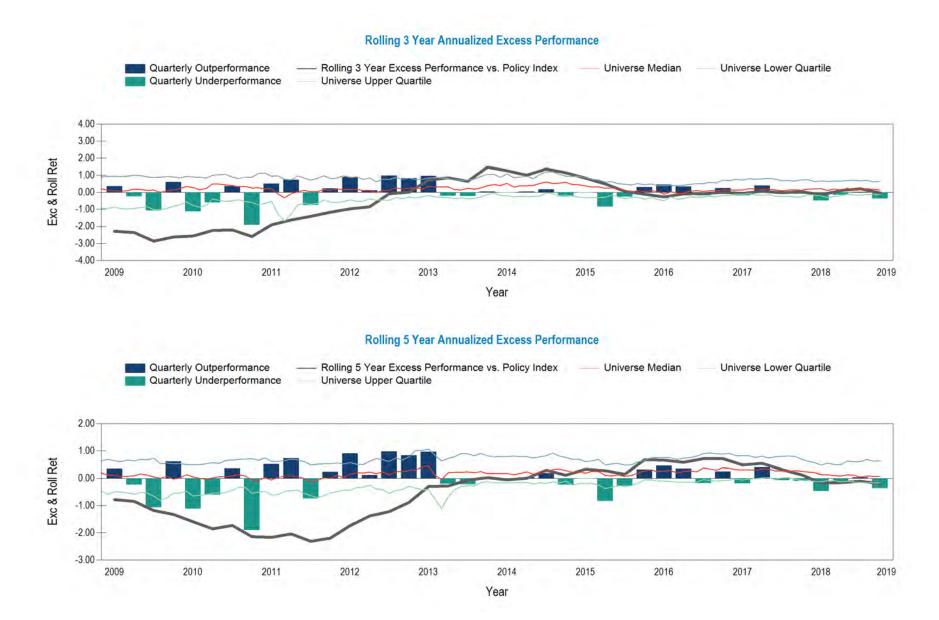


5th Percentile 25th Percentile Median 75th Percentile 95th Percentile # of Portfolios

■ Total Fund▲ Policy Index

Return	(Rank)																		
-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)	14.3	(71)	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)

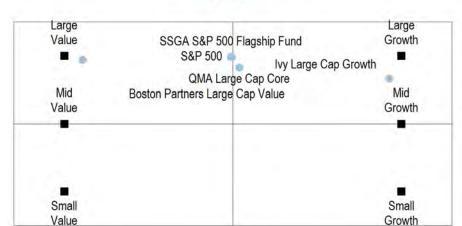




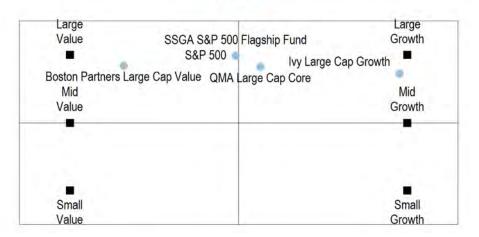


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	354,611,309	1.2	20.2	1.2	1.9	13.5	10.8	13.4	-5.0	22.3	11.5	1.6	12.4
Russell 3000		1.2	20.1	1.2	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
InvMetrics Public DB US Eq Gross Rank		37	40	37	64	17	25	22	29	16	77	10	17
SSGA S&P 500 Flagship Fund	68,015,799	1.7	20.6	1.7	4.3	13.4	10.9		-4.4	21.9	12.0	1.5	13.7
S&P 500		1.7	20.6	1.7	4.3	13.4	10.8		-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank		52	42	52	44	39	34		40	52	31	40	42
QMA Large Cap Core	63,484,296	0.7	17.9	0.7	0.1	12.1	10.2	13.5	-6.5	22.5	12.5	2.1	15.6
S&P 500		1.7	20.6	1.7	4.3	13.4	10.8	13.2	-4.4	21.8	12.0	1.4	13.7
eV US Large Cap Core Equity Gross Rank		79	67	79	79	66	53	31	70	42	25	31	20
Ivy Large Cap Growth	73,103,495	2.2	26.8	2.2	8.7	19.0	14.4		3.2	30.2	2.1	7.6	12.8
Russell 1000 Growth		1.5	23.3	1.5	3.7	16.9	13.4		-1.5	30.2	7.1	5.7	13.0
eV US Large Cap Growth Equity Gross Rank		18	14	18	18	13	19		15	42	72	26	40
Boston Partners Large Cap Value	64,324,875	1.8	15.0	1.8	-0.9	11.0	8.0	12.0	-8.6	20.1	14.7	-3.9	11.8
Russell 1000 Value		1.4	17.8	1.4	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
eV US Large Cap Value Equity Gross Rank		51	80	51	76	40	56	47	55	22	54	65	58

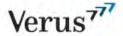
U.S. Effective Style Map 3 Years



U.S. Effective Style Map 5 Years



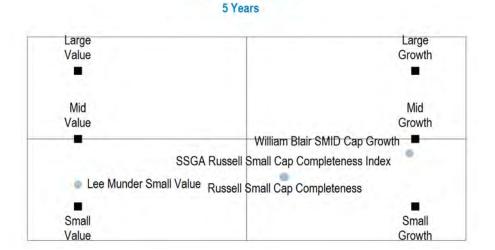
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
SSGA Russell Small Cap Completeness Index	27,074,351	-1.7	17.4	-1.7	-3.6	10.1	8.6		-9.2	18.2	16.5	-3.5	7.4
Russell Small Cap Completeness		-1.7	17.5	-1.7	-3.6	10.1	8.6		-9.2	18.3	16.6	-3.4	7.4
eV US Small Cap Core Equity Gross Rank		54	32	54	23	31	56		37	23	84	68	37
William Blair SMID Cap Growth	32,398,347	1.1	26.5	1.1	3.2	18.9	15.4	16.1	-0.9	30.4	8.2	6.1	9.8
Russell 2500 Growth		-3.2	20.0	-3.2	-4.1	12.3	10.2	13.5	-7.5	24.5	9.7	-0.2	7.1
eV US Mid Cap Growth Equity Gross Rank		11	50	11	61	16	5	9	29	16	22	7	33
Lee Munder Small Value	26,210,146	0.4	17.0	0.4	-5.2	7.0	8.6	11.0	-14.7	8.6	28.4	0.4	5.1
Russell 2000 Value		-0.6	12.8	-0.6	-8.2	6.5	7.2	10.1	-12.9	7.8	31.7	-7.5	4.2
eV US Small Cap Value Equity Gross Rank		37	36	37	40	53	29	73	56	68	38	9	60

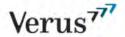
3 Years Large Large Value Growth Mid Mid Value Growth William Blair SMID Cap Growth 🖫 SSGA Russell Small Cap Completeness Index Russell Small Cap Completeness Lee Munder Small Value Small Small Value Growth

U.S. Effective Style Map

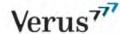


U.S. Effective Style Map

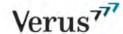
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



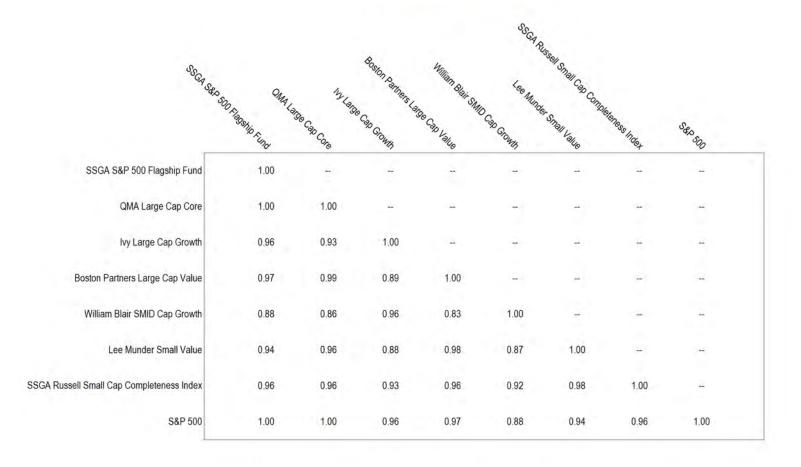
	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Domestic Equity	354,611,309	1.1	19.9	1.1	1.5	13.1	10.4	13.0	-5.4	21.9	11.1	1.2	12.0
Russell 3000		1.2	20.1	1.2	2.9	12.8	10.4	13.1	-5.2	21.1	12.7	0.5	12.6
SSGA S&P 500 Flagship Fund	68,015,799	1.7	20.5	1.7	4.2	13.4	10.9		-4.4	21.8	12.0	1.4	13.7
S&P 500		1.7	20.6	1.7	4.3	13.4	10.8		-4.4	21.8	12.0	1.4	13.7
QMA Large Cap Core	63,484,296	0.6	17.6	0.6	-0.3	11.7	9.8	13.2	-6.8	22.1	12.1	1.8	15.2
S&P 500		1.7	20.6	1.7	4.3	13.4	10.8	13.2	-4.4	21.8	12.0	1.4	13.7
Ivy Large Cap Growth	73,103,495	2.0	26.4	2.0	8.2	18.3	13.8		2.7	29.5	1.6	7.1	12.3
Russell 1000 Growth		1.5	23.3	1.5	3.7	16.9	13.4		-1.5	30.2	7.1	5.7	13.0
Boston Partners Large Cap Value	64,324,875	1.7	14.6	1.7	-1.3	10.5	7.5	11.5	-9.0	19.6	14.2	-4.4	11.4
Russell 1000 Value		1.4	17.8	1.4	4.0	9.4	7.8	11.5	-8.3	13.7	17.3	-3.8	13.5
SSGA Russell Small Cap Completeness Index	27,074,351	-1.7	17.4	-1.7	-3.6	10.0	8.5		-9.2	18.1	16.5	-3.5	7.3
Russell Small Cap Completeness		-1.7	17.5	-1.7	-3.6	10.1	8.6		-9.2	18.3	16.6	-3.4	7.4
William Blair SMID Cap Growth	32,398,347	0.9	25.7	0.9	2.4	17.9	14.4	15.1	-1.7	29.3	7.2	5.2	8.8
Russell 2500 Growth		-3.2	20.0	-3.2	-4.1	12.3	10.2	13.5	-7.5	24.5	9.7	-0.2	7.1
Lee Munder Small Value	26,210,146	0.2	16.2	0.2	-6.0	6.0	7.6	9.9	-15.5	7.7	27.3	-0.5	4.1
Russell 2000 Value		-0.6	12.8	-0.6	-8.2	6.5	7.2	10.1	-12.9	7.8	31.7	-7.5	4.2

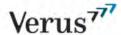


SSCA SAR SOO FIAGO	Q _A	MA Large	13 Can	Anglos Car	Partner	Will state	an Blan	SMOCS	SGA RIV	Sell She	Cap C	Ondelene	256	
	*#	%	**Co ₁₀	%	* #	%	#	%	**************************************	%	#	%	noet #	%
SSGA S&P 500 Flagship Fund	ŀ	-	139	90.0	43	95.8	66	89.6	7	12.2	0	0.0	0	0.0
QMA Large Cap Core	139	60.2			21	58.2	29	52.7	4	8.6	6	5.5	59	4.5
Ivy Large Cap Growth	43	30.1	21	25.3	***	1 1 1 1	7	11.1	0	0.0	0	0.0	1	0.4
Boston Partners Large Cap Value	66	26.6	29	28.7	7	20.1			0	0.0	0	0.0	7	1.1
William Blair SMID Cap Growth	7	0.4	4	0.7	0	0.0	0	0.0	-		1	1.5	55	6.1
Lee Munder Small Value	0	0.0	6	0.8	0	0.0	0	0.0	1	3.3	- 2	-	85	4.7
SSGA Russell Small Cap Completeness Index	0	0.0	59	8.1	1	2.3	7	3.6	55	78.5	85	93.4	ė	

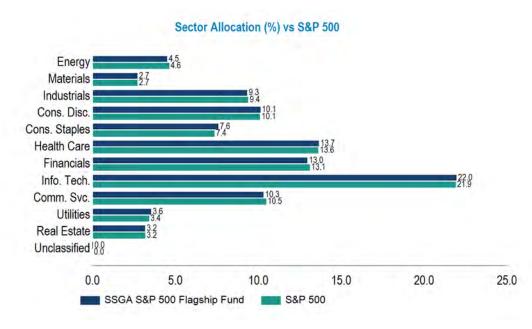


Correlation Matrix
9 Months Ending September 30, 2019

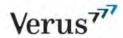




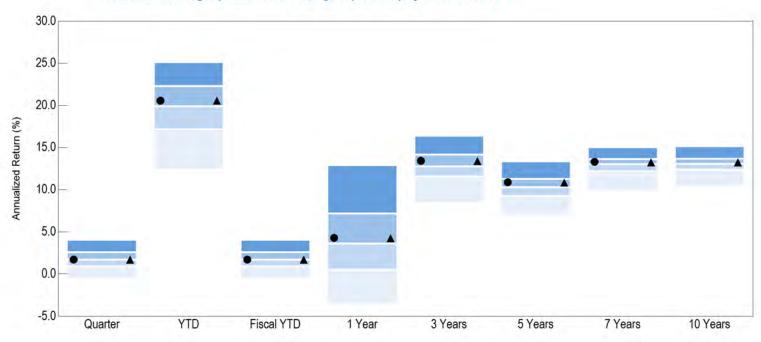
	Portfolio	S&P 500
Number of Holdings	505	505
Weighted Avg. Market Cap. (\$B)	231.58	230.50
Median Market Cap. (\$B)	22.53	22.53
Price To Earnings	20.63	20.51
Price To Book	3.68	3.65
Price To Sales	2.12	2.11
Return on Equity (%)	26.65	26.53
Yield (%)	1.97	1.96
Beta	1.00	1.00



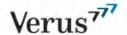
Top Holdings			Top Contributor	rs		Bottom Contributors						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MICROSOFT	4.31%	APPLE	3.54	13.60	0.48	AMAZON.COM	3.20	-8.33	-0.27			
APPLE	3.86%	MICROSOFT	4.22	4.14	0.17	NETFLIX	0.66	-27.14	-0.18			
AMAZON.COM	2.92%	ALPHABET 'C'	1.36	12.78	0.17	PFIZER	0.99	-16.28	-0.16			
FACEBOOK CLASS A	1.73%	ALPHABET A	1.33	12.78	0.17	FACEBOOK CLASS A	1.90	-7.73	-0.15			
BERKSHIRE HATHAWAY 'B'	1.65%	PROCTER & GAMBLE	1.12	14.17	0.16	UNITEDHEALTH GROUP	0.96	-10.53	-0.10			
JP MORGAN CHASE & CO.	1.53%	AT&T	1.00	14.64	0.15	JOHNSON & JOHNSON	1.52	-6.42	-0.10			
ALPHABET 'C'	1.49%	HOME DEPOT	0.94	12.24	0.11	EXXON MOBIL	1.33	-6.70	-0.09			
ALPHABET A	1.48%	JP MORGAN CHASE & CO.	1.49	6.01	0.09	CISCO SYSTEMS	0.97	-9.16	-0.09			
JOHNSON & JOHNSON	1.38%	INTEL	0.89	8.37	0.07	WALT DISNEY	1.00	-6.10	-0.06			
PROCTER & GAMBLE	1.26%	MEDTRONIC	0.53	12.71	0.07	GENERAL ELECTRIC	0.37	-14.77	-0.06			
Total	21 62%											



SSGA S&P 500 Flagship Fund vs. eV US Large Cap Core Equity Gross Universe



	Return (R	lank)															
5th Percentile	4.0		25.1		4.0		12.9		16.4		13.4		15.0		15.1		
25th Percentile	2.6		22.3		2.6		7.2		14.2		11.3		13.7		13.7		
Median	1.7		19.9		1.7		3.6		12.8		10.3		13.0		13.1		
75th Percentile	0.9		17.2		0.9		0.5		11.6		9.3		12.2		12.4		
95th Percentile	-0.5		12.4		-0.5		-3.5		8.5		7.0		9.9		10.4		
# of Portfolios	294		294		294		294		282		266		241		206		
 SSGA S&P 500 Flagship Fund 	1.7	(52)	20.6	(42)	1.7	(52)	4.3	(44)	13.4	(39)	10.9	(34)	13.3	(39)		()	
▲ S&P 500	1.7	(52)	20.6	(42)	1.7	(52)	4.3	(44)	13.4	(40)	10.8	(36)	13.3	(40)	13.2	(44)	



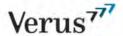
-15.0

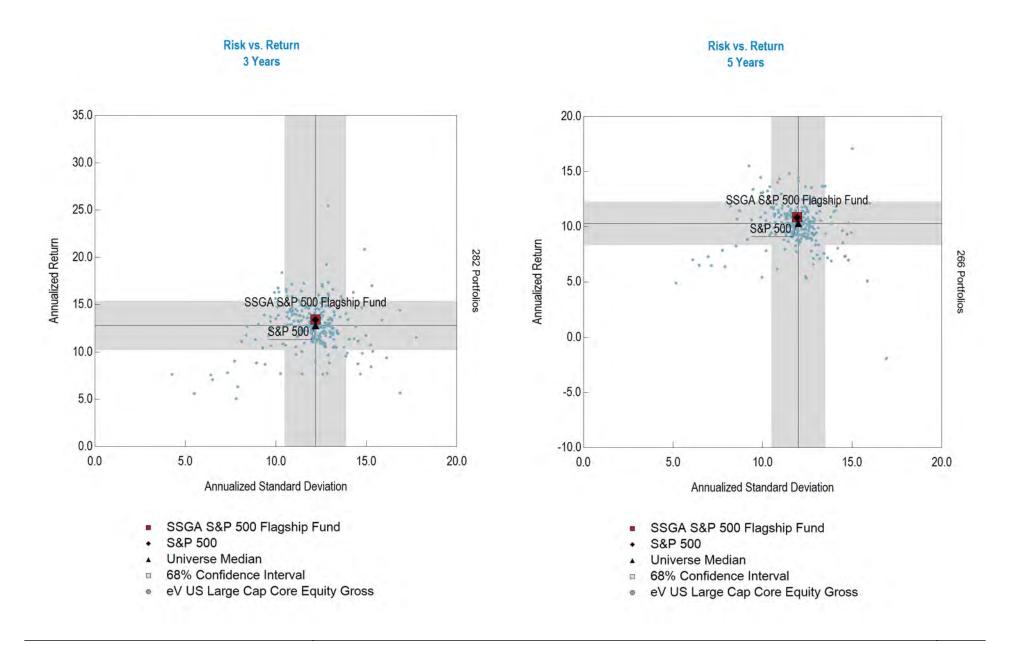
SSGA S&P 500 Flagship Fund vs. eV US Large Cap Core Equity Gross Universe

45.0
40.0
35.0
30.0
25.0
15.0
0.0
0.0
-5.0
-10.0

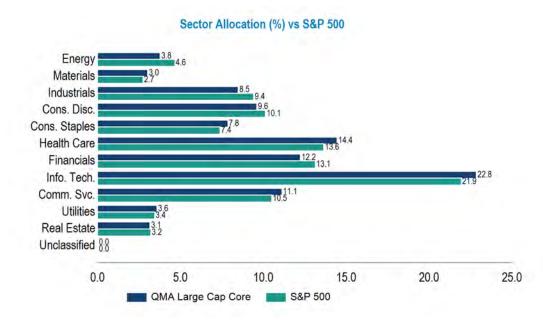
	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	SSGA S&P 500 Flagship Fund
•	S&P 500

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)	

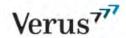




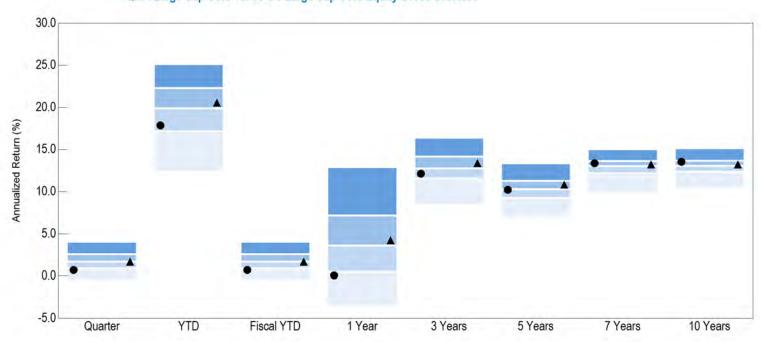
	Portfolio	S&P 500
Number of Holdings	209	505
Weighted Avg. Market Cap. (\$B)	225.26	230.50
Median Market Cap. (\$B)	24.83	22.53
Price To Earnings	17.73	20.51
Price To Book	3.26	3.65
Price To Sales	1.38	2.11
Return on Equity (%)	25.21	26.53
Yield (%)	2.13	1.96
Beta	1.06	1.00



Top Holdings			Top Contributor	S		טם	MOIII COIMIDU	1019	
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
MICROSOFT	4.90%	APPLE	2.65	13.60	0.36	DXC TECHNOLOGY	0.60	-46.15	-0.28
APPLE	4.46%	PROCTER & GAMBLE	1.78	14.17	0.25	FACEBOOK CLASS A	2.43	-7.73	-0.19
FACEBOOK CLASS A	2.22%	MICROSOFT	4.76	4.14	0.20	AMAZON.COM	1.96	-8.33	-0.16
AMAZON.COM	1.78%	AT&T	1.25	14.64	0.18	CISCO SYSTEMS	1.62	-9.16	-0.15
ALPHABET 'C'	1.78%	ALPHABET 'C'	1.25	12.78	0.16	GENERAL ELECTRIC	0.92	-14.77	-0.14
VISA 'A'	1.77%	MEDTRONIC	1.10	12.71	0.14	ALEXION PHARMS.	0.48	-25.23	-0.12
PROCTER & GAMBLE	1.73%	ALPHABET A	0.93	12.78	0.12	UNITEDHEALTH GROUP	0.97	-10.53	-0.10
VERIZON COMMUNICATIONS	1.54%	INTEL	1.25	8.37	0.10	TAPESTRY	0.58	-16.69	-0.10
BANK OF AMERICA	1.54%	VERIZON	4 47	0.70	0.40	FLUOR	0.21	-42.54	-0.09
ALPHABET A	1.52%	COMMUNICATIONS	1.47	6.78	0.10	JOHNSON & JOHNSON	1.18	-6.42	-0.08
Total	23.24%	ZIMMER BIOMET HDG.	0.53	16.80	0.09				



QMA Large Cap Core vs. eV US Large Cap Core Equity Gross Universe



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

Return (F	Rank)														
4.0		25.1		4.0		12.9		16.4		13.4		15.0		15.1	
2.6		22.3		2.6		7.2		14.2		11.3		13.7		13.7	
1.7		19.9		1.7		3.6		12.8		10.3		13.0		13.1	
0.9		17.2		0.9		0.5		11.6		9.3		12.2		12.4	
-0.5		12.4		-0.5		-3.5		8.5		7.0		9.9		10.4	
294		294		294		294		282		266		241		206	
0.7	(79)	17.9	(67)	0.7	(79)	0.1	(79)	12.1	(66)	10.2	(53)	13.4	(35)	13.5	(31)
1.7	(52)	20.6	(42)	1.7	(52)	4.3	(44)	13.4	(40)	10.8	(36)	13.3	(40)	13.2	(44)



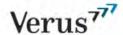
QMA Large Cap Core vs. eV US Large Cap Core Equity Gross Universe

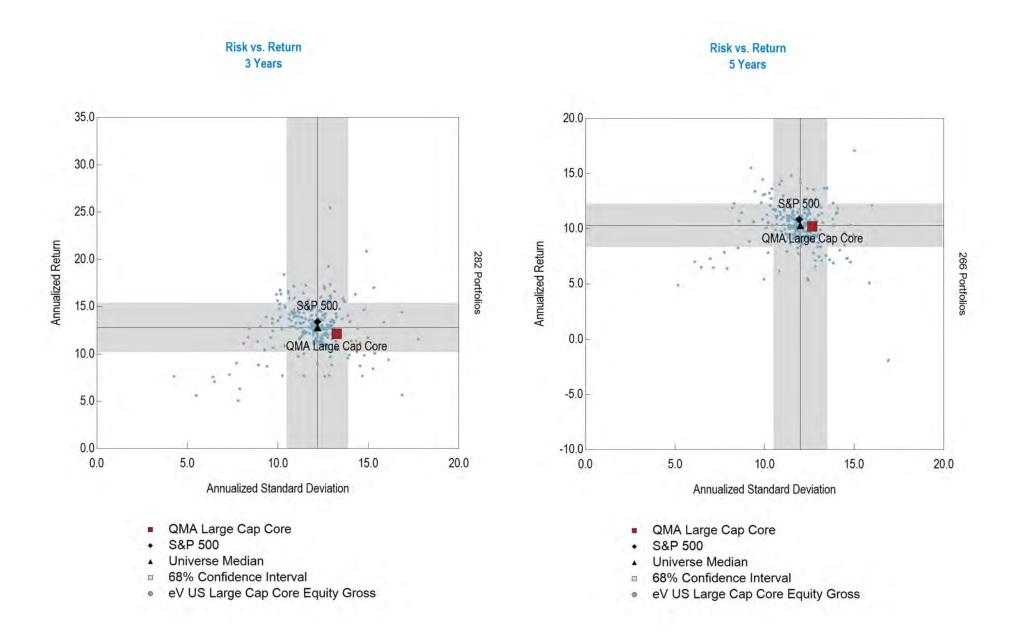


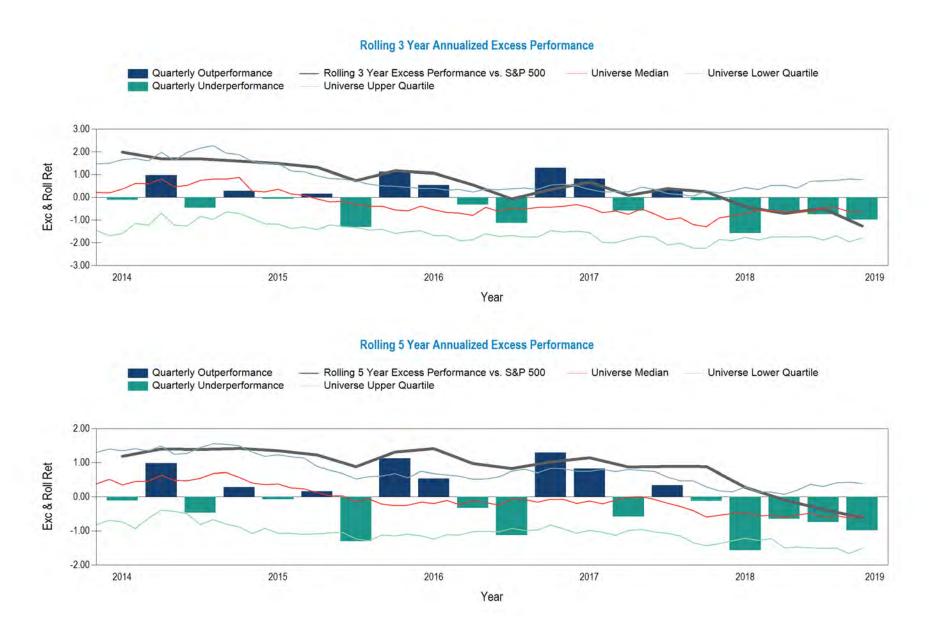
51	h Percentile
2	5th Percentile
M	edian
75	th Percentile
9	5th Percentile
#	of Portfolios

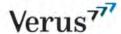
QMA Large Cap Core S&P 500

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	(70)	22.5	(42)	12.5	(25)	2.1	(31)	15.6	(20)	34.3	(37)	18.1	(18)	2.4	(34)	14.9	(40)	25.2	(58)
-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)

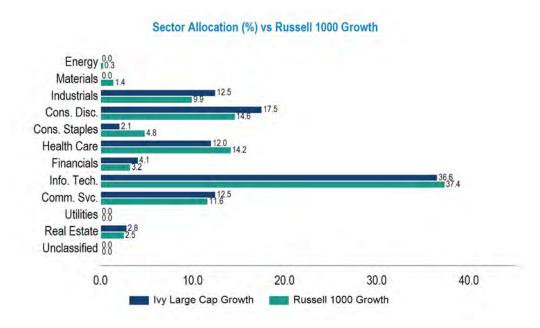




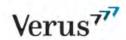




	Portfolio	Russell 1000 Growth
Number of Holdings	45	526
Weighted Avg. Market Cap. (\$B)	293.76	300.55
Median Market Cap. (\$B)	75.68	12.24
Price To Earnings	30.67	26.74
Price To Book	8.31	8.05
Price To Sales	4.12	3.09
Return on Equity (%)	39.22	35.42
Yield (%)	0.86	1.21
Beta	0.94	1.00



Top Holdings			Top Contributor	rs			DOLLOIN CONLINU	ເບເວ	
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
MICROSOFT	8.84%	APPLE	4.59	13.60	0.62	AMAZON.COM	5.07	-8.33	-0.42
APPLE	5.11%	ALPHABET A	4.42	12.78	0.57	PFIZER	1.87	-16.28	-0.30
ALPHABET A	4.90%	MICROSOFT	8.67	4.14	0.36	PAYPAL HOLDINGS	3.08	-9.50	-0.29
VISA 'A'	4.76%	CME GROUP	3.76	9.26	0.35	ABIOMED	0.91	-31.71	-0.29
AMAZON.COM	4.57%	NIKE 'B'	2.56	12.17	0.31	ILLUMINA	1.41	-17.37	-0.25
VERISK ANALYTICS CL.A	3.22%	ZOETIS A	3.08	9.94	0.31	FACEBOOK CLASS A	2.84	-7.73	-0.22
ZOETIS A	3.11%	HOME DEPOT	2.36	12.24	0.29	ULTA BEAUTY	0.73	-27.74	-0.20
FACEBOOK CLASS A	3.07%	NORTHROP GRUMMAN	1.54	16.41	0.25	VERISIGN	2.00	-9.82	-0.20
BOOKING HOLDINGS	2.85%	VERISK ANALYTICS CL.A	3.03	8.15	0.25	ADOBE (NAS)	2.96	-6.24	-0.18
NIKE 'B'	2.81%	HUNT JB TRANSPORT SVS		21.36	0.21	UNITEDHEALTH GROUP	1.68	-10.53	-0.18
Total	43 24%								

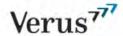


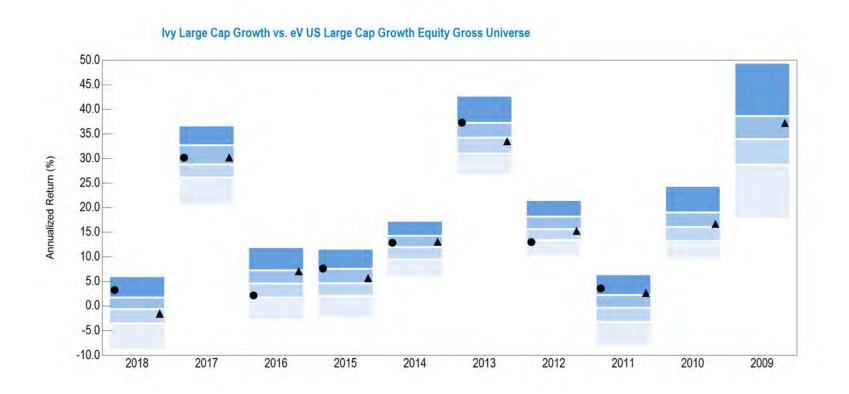
Ivy Large Cap Growth vs. eV US Large Cap Growth Equity Gross Universe 30.0 25.0 20.0 Annualized Return (%) 15.0 10.0 5.0 0.0 -5.0 YTD Quarter Fiscal YTD 1 Year 3 Years 5 Years 7 Years 10 Years

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

Ivy Large Cap Growth
 Russell 1000 Growth

Return (R	ank)														
3.3		28.0		3.3		11.8		20.4		16.0		17.0		16.7	
1.6		25.1		1.6		7.6		17.8		13.9		15.7		15.3	
0.6		22.4		0.6		3.9		16.2		12.7		14.6		14.5	
-0.7		19.9		-0.7		0.9		14.5		11.3		13.6		13.5	
-3.9		16.5		-3.9		-4.4		12.5		9.3		12.0		12.0	
239		239		239		239		231		226		212		202	
2.2	(18)	26.8	(14)	2.2	(18)	8.7	(18)	19.0	(13)	14.4	(19)	16.4	(12)	-	()
1.5	(29)	23.3	(40)	1.5	(29)	3.7	(53)	16.9	(40)	13.4	(35)	15.0	(38)	14.9	(35)

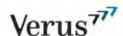


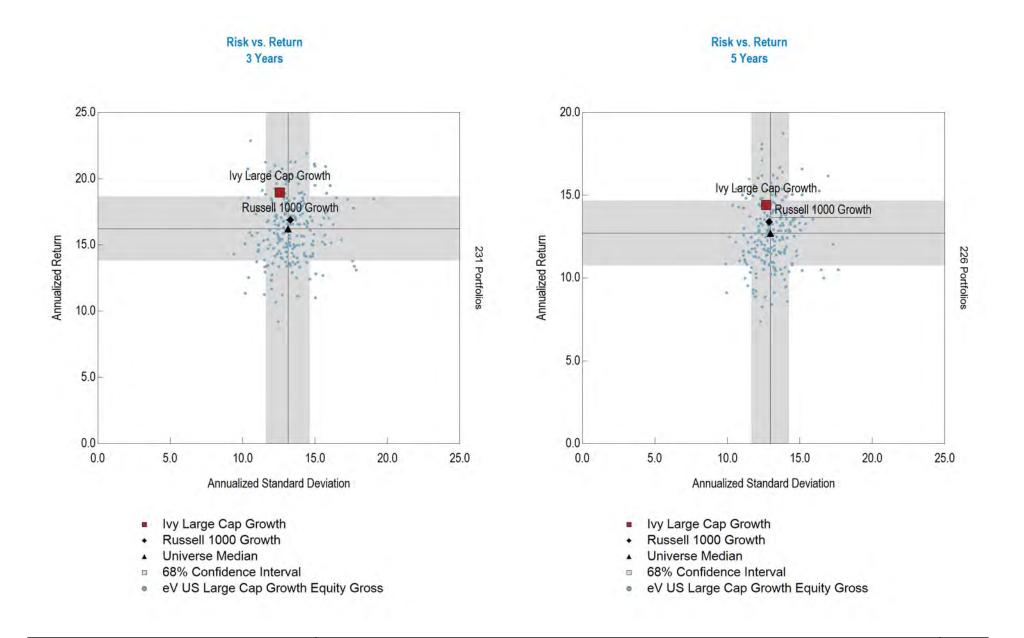


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
of Portfolios

- 1	F OT PORTIONS
•	Ivy Large Cap Growth
•	Russell 1000 Growth

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)	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)

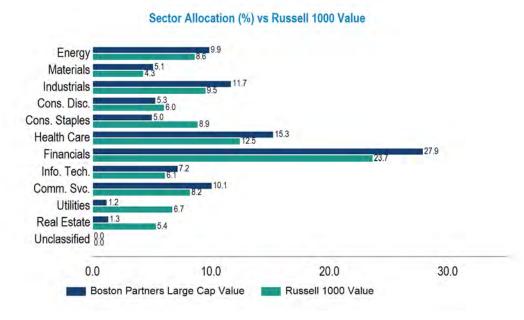




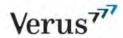




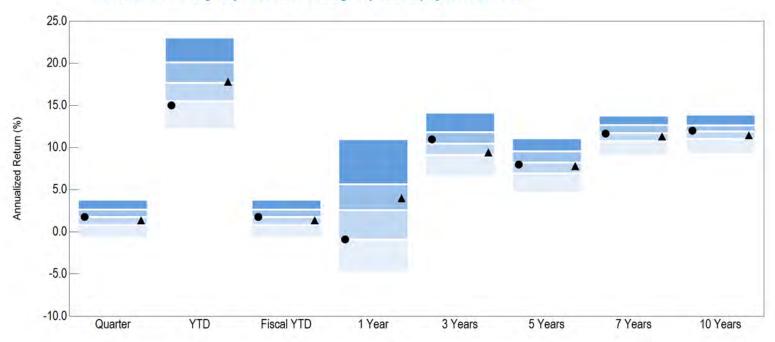
	Portfolio	Russell 1000 Value
Number of Holdings	80	760
Weighted Avg. Market Cap. (\$B)	126.15	114.23
Median Market Cap. (\$B)	35.82	8.98
Price To Earnings	16.11	16.68
Price To Book	2.20	2.24
Price To Sales	1.32	1.50
Return on Equity (%)	16.89	14.92
Yield (%)	2.16	2.62
Beta	1.06	1.00



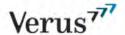
Top Holdings			Top Contributor	rs		DOL	OIII COIIIIIDU	เบเอ	
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
BERKSHIRE HATHAWAY 'B'	4.57%	PROCTER & GAMBLE	2.48	14.17	0.35	PFIZER	2.29	-16.28	-0.37
BANK OF AMERICA	3.88%	ALPHABET A	1.99	12.78	0.25	ANTHEM	1.55	-14.65	-0.23
COMCAST A	3.15%	MEDTRONIC	1.94	12.71	0.25	JOHNSON & JOHNSON	3.53	-6.42	-0.23
JP MORGAN CHASE & CO.	3.06%	COMCAST A	3.02	7.14	0.22	CISCO SYSTEMS	2.28	-9.16	-0.21
PROCTER & GAMBLE	2.77%	CHUBB	1.81	10.13	0.18	DXC TECHNOLOGY	0.40	-46.15	-0.18
WELLS FARGO & CO	2.64%	CVS HEALTH	1.08	16.78	0.18	UNITEDHEALTH GROUP	1.48	-10.53	-0.16
VERIZON COMMUNICATIONS	2.54%	WELLS FARGO & CO	2.17	7.77	0.17	ROYAL DUTCH SHELL A ADR 1:2	1.77	-8.02	-0.14
CHUBB	2.27%	VERIZON COMMUNICATIONS	2.45	6.78	0.17	FOX A	0.88	-13.33	-0.12
CITIGROUP	2.25%		1.43	10.12	0.15	BERKSHIRE HATHAWAY 'B'	4.77	-2.42	-0.12
UNITED TECHNOLOGIES	2.25%	BARRICK GOLD (NYS)				PIONEER NTRL.RES.	0.64	-2. 4 2 -17.97	-0.12
Total	29.38%	NXP SEMICONDUCTORS	1.08	12.17	0.13	FIUNCER WIRLINES.	0.04	-17.97	-0.11



Boston Partners Large Cap Value vs. eV US Large Cap Value Equity Gross Universe



Return (R	ank)														
3.8		23.1		3.8		11.0		14.1		11.1		13.8		13.9	
2.6		20.1		2.6		5.7		11.8		9.6		12.7		12.7	
1.8		17.7		1.8		2.6		10.5		8.2		11.7		11.9	
8.0		15.5		0.8		-0.9		9.1		7.0		10.8		11.1	
-0.7		12.2		-0.7		-4.8		6.5		4.6		9.1		9.3	
314		314		314		314		309		304		289		258	
1.8	(51)	15.0	(80)	1.8	(51)	-0.9	(76)	11.0	(40)	8.0	(56)	11.7	(53)	12.0	(47)
1.4	(62)	17.8	(50)	1.4	(62)	4.0	(40)	9.4	(71)	7.8	(64)	11.3	(64)	11.5	(65)
	3.8 2.6 1.8 0.8 -0.7 314	2.6 1.8 0.8 -0.7 314 1.8 (51)	3.8 23.1 2.6 20.1 1.8 17.7 0.8 15.5 -0.7 12.2 314 314 1.8 (51) 15.0	3.8 23.1 2.6 20.1 1.8 17.7 0.8 15.5 -0.7 12.2 314 314 1.8 (51) 15.0 (80)	3.8 23.1 3.8 2.6 20.1 2.6 1.8 17.7 1.8 0.8 15.5 0.8 -0.7 12.2 -0.7 314 314 314 1.8 (51) 15.0 (80) 1.8	3.8 23.1 3.8 2.6 20.1 2.6 1.8 17.7 1.8 0.8 15.5 0.8 -0.7 12.2 -0.7 314 314 314 1.8 (51) 15.0 (80) 1.8 (51)	3.8 23.1 3.8 11.0 2.6 20.1 2.6 5.7 1.8 17.7 1.8 2.6 0.8 15.5 0.8 -0.9 -0.7 12.2 -0.7 -4.8 314 314 314 314 1.8 (51) 15.0 (80) 1.8 (51) -0.9	3.8 23.1 3.8 11.0 2.6 20.1 2.6 5.7 1.8 17.7 1.8 2.6 0.8 15.5 0.8 -0.9 -0.7 12.2 -0.7 -4.8 314 314 314 314 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76)	3.8 23.1 3.8 11.0 14.1 2.6 20.1 2.6 5.7 11.8 1.8 17.7 1.8 2.6 10.5 0.8 15.5 0.8 -0.9 9.1 -0.7 12.2 -0.7 -4.8 6.5 314 314 314 314 309 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0	3.8 23.1 3.8 11.0 14.1 2.6 20.1 2.6 5.7 11.8 1.8 17.7 1.8 2.6 10.5 0.8 15.5 0.8 -0.9 9.1 -0.7 12.2 -0.7 -4.8 6.5 314 314 314 314 309 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40)	3.8 23.1 3.8 11.0 14.1 11.1 2.6 20.1 2.6 5.7 11.8 9.6 1.8 17.7 1.8 2.6 10.5 8.2 0.8 15.5 0.8 -0.9 9.1 7.0 -0.7 12.2 -0.7 -4.8 6.5 4.6 314 314 314 314 309 304 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40) 8.0	3.8 23.1 3.8 11.0 14.1 11.1 2.6 20.1 2.6 5.7 11.8 9.6 1.8 17.7 1.8 2.6 10.5 8.2 0.8 15.5 0.8 -0.9 9.1 7.0 -0.7 12.2 -0.7 -4.8 6.5 4.6 314 314 314 314 309 304 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40) 8.0 (56)	3.8 23.1 3.8 11.0 14.1 11.1 13.8 2.6 20.1 2.6 5.7 11.8 9.6 12.7 1.8 17.7 1.8 2.6 10.5 8.2 11.7 0.8 15.5 0.8 -0.9 9.1 7.0 10.8 -0.7 12.2 -0.7 -4.8 6.5 4.6 9.1 314 314 314 314 309 304 289 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40) 8.0 (56) 11.7	3.8 23.1 3.8 11.0 14.1 11.1 13.8 2.6 20.1 2.6 5.7 11.8 9.6 12.7 1.8 17.7 1.8 2.6 10.5 8.2 11.7 0.8 15.5 0.8 -0.9 9.1 7.0 10.8 -0.7 12.2 -0.7 -4.8 6.5 4.6 9.1 314 314 314 314 309 304 289 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40) 8.0 (56) 11.7 (53)	3.8 23.1 3.8 11.0 14.1 11.1 13.8 13.9 2.6 20.1 2.6 5.7 11.8 9.6 12.7 12.7 1.8 17.7 1.8 2.6 10.5 8.2 11.7 11.9 0.8 15.5 0.8 -0.9 9.1 7.0 10.8 11.1 -0.7 12.2 -0.7 -4.8 6.5 4.6 9.1 9.3 314 314 314 314 309 304 289 258 1.8 (51) 15.0 (80) 1.8 (51) -0.9 (76) 11.0 (40) 8.0 (56) 11.7 (53) 12.0



-20.0

2018

2017

2016

2015

Boston Partners Large Cap Value vs. eV US Large Cap Value Equity Gross Universe 45.0 40.0 35.0 30.0 25.0 Annualized Return (%) 20.0 15.0 10.0 5.0 0.0 -5.0 -10.0 -15.0

2014

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

Boston Partners Large Cap Value Russell 1000 Value

Return	(Rank)																			
-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)	20.1	(22)	14.7	(54)	-3.9	(65)	11.8	(58)	37.0	(26)	21.5	(6)	1.2	(43)	13.8	(61)	26.7	(35)	
-8.3	(50)	13.7	(87)	17.3	(26)	-3.8	(64)	13.5	(33)	32.5	(60)	17.5	(30)	0.4	(51)	15.5	(35)	19.7	(75)	

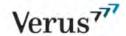
2013

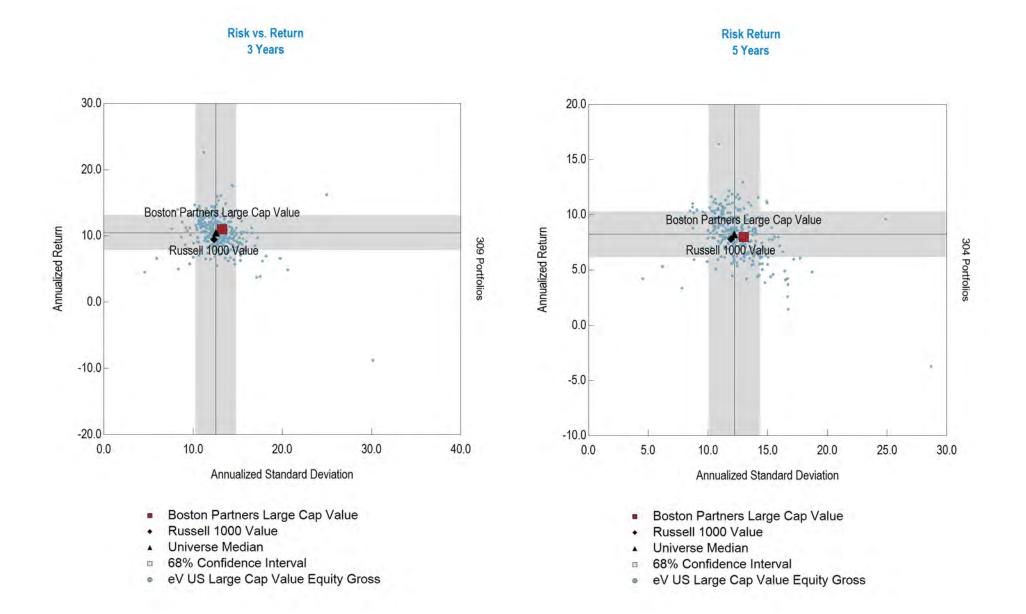
2012

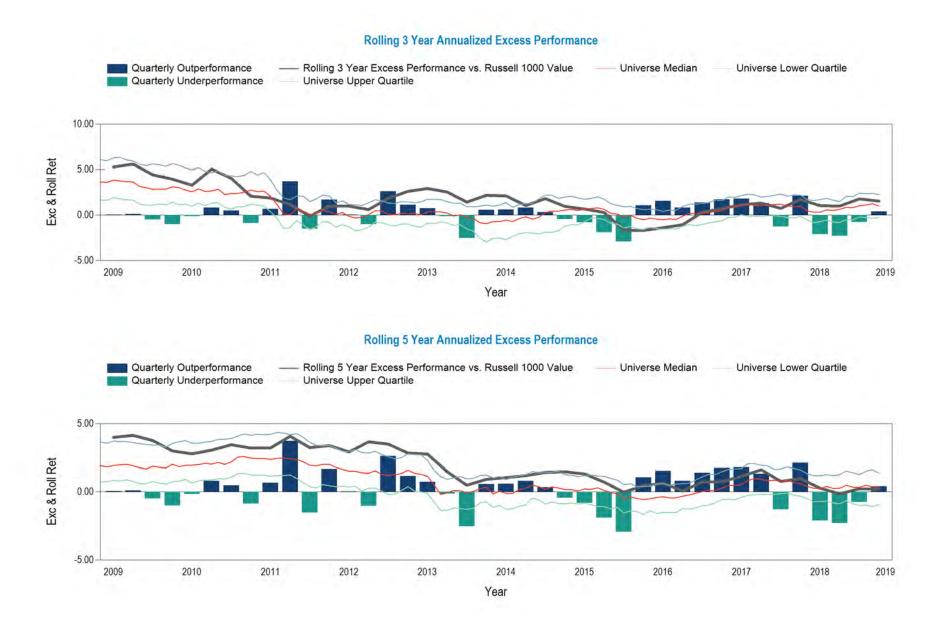
2011

2010

2009



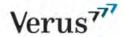




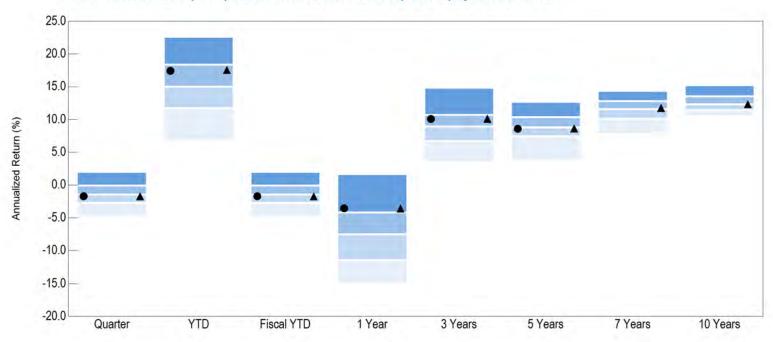
	Portfolio	Russell Small Cap Completeness
Number of Holdings	2,439	2,484
Weighted Avg. Market Cap. (\$B)	6.97	7.05
Median Market Cap. (\$B)	1.09	1.05
Price To Earnings	20.48	20.54
Price To Book	2.79	2.84
Price To Sales	1.43	1.43
Return on Equity (%)	5.70	5.66
Yield (%)	1.51	1.46
Beta	0.99	1.00



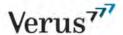
Top Holdings			Top Contributo	rs		DOLLOHI CONTINUATORS					
Ending Period Weig	ht		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
SERVICENOW	0.99%	NXP SEMICONDUCTORS	0.68	12.17	0.08	PG&E	0.24	-56.37	-0.14		
TESLA	0.71%	WORLDPAY A	0.75	10.16	0.08	WORKDAY CLASS A	0.61	-17.33	-0.11		
WORKDAY CLASS A	0.57%	INSULET	0.14	38.16	0.05	SAREPTA THERAPEUTICS	0.21	-50.43	-0.10		
LULULEMON ATHLETICA	0.47%	TESLA	0.63	7.79	0.05	SERVICENOW	1.00	-7.55	-0.08		
COSTAR GP.	0.44%	CYRUSONE	0.12	37.93	0.05	EXACT SCIS.	0.29	-23.44	-0.07		
SQUARE CL.A	0.44%	BURLINGTON STORES	0.23	17.44	0.04	BIOMARIN PHARM.	0.31	-21.31	-0.07		
VEEVA SYSTEMS CL.A	0.41%	ARCH CAP.GP.	0.29	13.21	0.04	SQUARE CL.A	0.43	-14.59	-0.06		
LAS VEGAS SANDS	0.41%	ARAMARK	0.18	21.21	0.04	PTC	0.21	-24.04	-0.05		
PALO ALTO NETWORKS	0.40%	CDW	0.33	11.32	0.04	TWILIO 'A'	0.26	-19.35	-0.05		
SPLUNK	0.37%	TERADYNE (XSC)	0.17	21.08	0.04	ELANCO ANIMAL HEALTH	0.23	-21.33	-0.05		
Total	5 21%										



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



Return (R	ank)														
2.0		22.6		2.0		1.6		14.8		12.7		14.3		15.2	
-0.1		18.4		-0.1		-4.2		10.7		10.4		12.8		13.6	
-1.5		15.0		-1.5		-7.5		8.9		8.8		11.6		12.3	
-2.7		11.8		-2.7		-11.5		6.7		7.4		10.2		11.5	
-4.7		6.7		-4.7		-14.9		3.5		3.8		7.8		10.6	
154		154		154		154		149		147		138		121	
-1.7	(54)	17.4	(32)	-1.7	(54)	-3.6	(23)	10.1	(31)	8.6	(56)		()		()
-1.7	(55)	17.5	(30)	-1.7	(55)	-3.6	(23)	10.1	(30)	8.6	(56)	11.8	(47)	12.3	(51)
	2.0 -0.1 -1.5 -2.7 -4.7 154	-0.1 -1.5 -2.7 -4.7 154	2.0 22.6 -0.1 18.4 -1.5 15.0 -2.7 11.8 -4.7 6.7 154 154 -1.7 (54) 17.4	2.0 22.6 -0.1 18.4 -1.5 15.0 -2.7 11.8 -4.7 6.7 154 154 -1.7 (54) 17.4 (32)	2.0 22.6 2.0 -0.1 18.4 -0.1 -1.5 15.0 -1.5 -2.7 11.8 -2.7 -4.7 6.7 -4.7 154 154 154 -1.7 (54) 17.4 (32) -1.7	2.0 22.6 2.0 -0.1 18.4 -0.1 -1.5 15.0 -1.5 -2.7 11.8 -2.7 -4.7 6.7 -4.7 154 154 154 -1.7 (54) 17.4 (32) -1.7 (54)	2.0 22.6 2.0 1.6 -0.1 18.4 -0.1 -4.2 -1.5 15.0 -1.5 -7.5 -2.7 11.8 -2.7 -11.5 -4.7 6.7 -4.7 -14.9 154 154 154 154 154 17.4 (32) -1.7 (54) -3.6	2.0 22.6 2.0 1.6 -0.1 18.4 -0.1 -4.2 -1.5 15.0 -1.5 -7.5 -2.7 11.8 -2.7 -11.5 -4.7 6.7 -4.7 -14.9 154 154 154 154 157 -1.7 (54) -3.6 (23)	2.0 22.6 2.0 1.6 14.8 -0.1 18.4 -0.1 -4.2 10.7 -1.5 15.0 -1.5 -7.5 8.9 -2.7 11.8 -2.7 -11.5 6.7 -4.7 6.7 -4.7 -14.9 3.5 154 154 154 154 149 154 17.4 (32) -1.7 (54) -3.6 (23) 10.1	2.0 22.6 2.0 1.6 14.8 -0.1 18.4 -0.1 -4.2 10.7 -1.5 15.0 -1.5 -7.5 8.9 -2.7 11.8 -2.7 -11.5 6.7 -4.7 6.7 -4.7 -14.9 3.5 154 154 154 154 149 154 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31)	2.0 22.6 2.0 1.6 14.8 12.7 -0.1 18.4 -0.1 -4.2 10.7 10.4 -1.5 15.0 -1.5 -7.5 8.9 8.8 -2.7 11.8 -2.7 -11.5 6.7 7.4 -4.7 6.7 -4.7 -14.9 3.5 3.8 154 154 154 154 149 147 -1.7 (54) 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31) 8.6	2.0 22.6 2.0 1.6 14.8 12.7 -0.1 18.4 -0.1 -4.2 10.7 10.4 -1.5 15.0 -1.5 -7.5 8.9 8.8 -2.7 11.8 -2.7 -11.5 6.7 7.4 -4.7 6.7 -4.7 -14.9 3.5 3.8 154 154 154 154 149 147 -1.7 (54) 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31) 8.6 (56)	2.0 22.6 2.0 1.6 14.8 12.7 14.3 -0.1 18.4 -0.1 -4.2 10.7 10.4 12.8 -1.5 15.0 -1.5 -7.5 8.9 8.8 11.6 -2.7 11.8 -2.7 -11.5 6.7 7.4 10.2 -4.7 6.7 -4.7 -14.9 3.5 3.8 7.8 154 154 154 154 149 147 138 -1.7 (54) 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31) 8.6 (56)	2.0 22.6 2.0 1.6 14.8 12.7 14.3 -0.1 18.4 -0.1 -4.2 10.7 10.4 12.8 -1.5 15.0 -1.5 -7.5 8.9 8.8 11.6 -2.7 11.8 -2.7 -11.5 6.7 7.4 10.2 -4.7 6.7 -4.7 -14.9 3.5 3.8 7.8 154 154 154 154 149 147 138 -1.7 (54) 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31) 8.6 (56) ()	2.0 22.6 2.0 1.6 14.8 12.7 14.3 15.2 -0.1 18.4 -0.1 -4.2 10.7 10.4 12.8 13.6 -1.5 15.0 -1.5 -7.5 8.9 8.8 11.6 12.3 -2.7 11.8 -2.7 -11.5 6.7 7.4 10.2 11.5 -4.7 6.7 -4.7 -14.9 3.5 3.8 7.8 10.6 154 154 154 149 147 138 121 -1.7 (54) 17.4 (32) -1.7 (54) -3.6 (23) 10.1 (31) 8.6 (56) ()

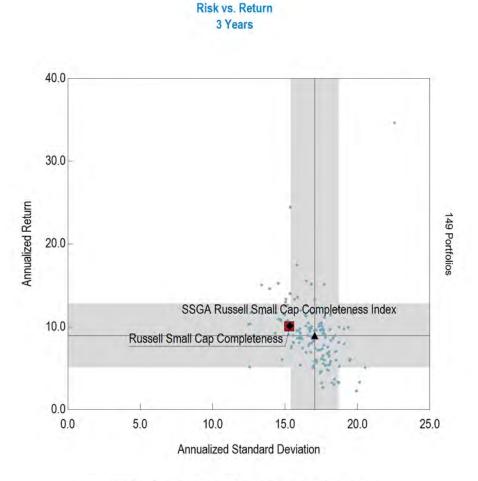


SSGA Russell Small Cap Completeness Index vs. eV US Small Cap Core Equity Gross Universe



Re	turn	Rank)																			
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 Index	-9.2	(37)	18.2	(23)	16.5	(84)	-3.5	(68)	7.4	(37)		()		()	-	()		()	-	()	
Russell Small Cap Completeness	-9.2	(37)	18.3	(23)	16.6	(84)	-3.4	(68)	7.4	(40)	38.5	(66)	18.0	(39)	-3.9	(72)	26.6	(56)	37.7	(24)	

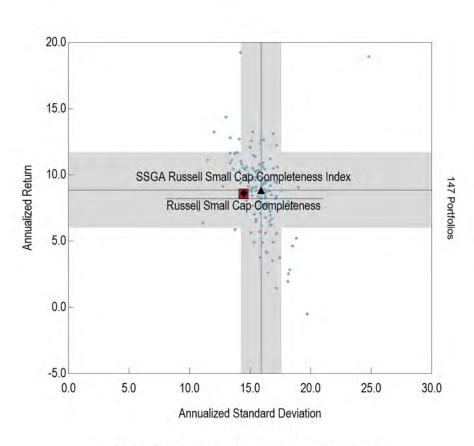




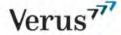


- · Russell Small Cap Completeness
- Universe Median
- 68% Confidence Interval
- eV US Small Cap Core Equity Gross





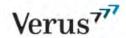
- SSGA Russell Small Cap Completeness Index
- · Russell Small Cap Completeness
- ▲ Universe Median
- 68% Confidence Interval
- eV US Small Cap Core Equity Gross



	Portfolio	Russell 2500 Growth
Number of Holdings	69	1,376
Weighted Avg. Market Cap. (\$B)	7.56	5.19
Median Market Cap. (\$B)	5.57	1.19
Price To Earnings	30.70	26.77
Price To Book	5.54	5.09
Price To Sales	2.12	1.98
Return on Equity (%)	19.95	4.94
Yield (%)	0.61	0.73
Beta	0.91	1.00

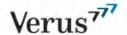


Top Holdings		1	Top Contributo	rs		DORROLL CONTINUEDIS					
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
BWX TECHNOLOGIES	3.27%	INSULET	2.74	38.16	1.05	ABIOMED	1.47	-31.71	-0.47		
TREX	3.03%	TREX	2.35	26.82	0.63	EURONET WWD.	3.30	-13.04	-0.43		
MARTIN MRTA.MATS.	2.76%	BURLINGTON STORES	2.57	17.44	0.45	GRAND CANYON	2.38	-16.08	-0.38		
BURLINGTON STORES	2.54%	MARTIN MRTA.MATS.	2.27	19.38	0.44	EDUCATION					
INSULET	2.53%	TELEDYNE TECHS.	2.06	17.57	0.36	ROGERS	1.78	-20.78	-0.37		
TRANSUNION	2.48%	BWX TECHNOLOGIES	2.92	10.15	0.30	GLAUKOS	1.61	-17.10	-0.28		
EURONET WWD.	2.46%	LAMB WESTON HOLDINGS	1.84	15.12	0.28	EXACT SCIS.	1.15	-23.44	-0.27		
TELEDYNE TECHS.	2.42%	CAMBREX	0.99	27.11	0.27	ADTALEM GLOBAL	1.72	-15.45	-0.27		
GRAND CANYON EDUCATION	2.37%	CBOE GLOBAL MARKETS	2.21	11.22	0.25	EDUCATION	1.40	45.04	0.04		
ENCOMPASS HEALTH	2.29%	TRANSUNION	2.25	10.44	0.23	PENUMBRA	1.49	-15.94	-0.24		
Total	26.14%					VIRTU FINANCIAL CL.A MIDDLEBY	0.99 1.69	-23.93 -13.85	-0.24 -0.23		



William Blair SMID Cap Growth vs. eV US Mid Cap Growth Equity Gross Universe 35.0 30.0 25.0 20.0 Annualized Return (%) 15.0 10.0 5.0 0.0 -5.0 -10.0 YTD 3 Years 7 Years Quarter Fiscal YTD 1 Year 5 Years 10 Years

	Return (R	ank)															
5th Percentile	1.8		32.2		1.8		11.1		20.7		15.4		16.8		16.6		
25th Percentile	0.4		29.4		0.4		8.8		17.2		12.9		14.7		15.1		
Median	-0.8		26.4		-0.8		5.2		15.2		11.8		13.9		14.2		
75th Percentile	-2.7		23.3		-2.7		1.2		13.5		10.4		13.0		13.4		
95th Percentile	-5.3		18.5		-5.3		-3.3		12.0		8.3		11.4		12.5		
# of Portfolios	87		87		87		87		85		84		80		73		
William Blair SMID Cap Growth	1.1	(11)	26.5	(50)	1.1	(11)	3.2	(61)	18.9	(16)	15.4	(5)	16.8	(6)	16.1	(9)	
Russell 2500 Growth	-3.2	(78)	20.0	(91)	-3.2	(78)	-4.1	(98)	12.3	(93)	10.2	(79)	12.8	(81)	13.5	(75)	

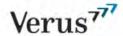


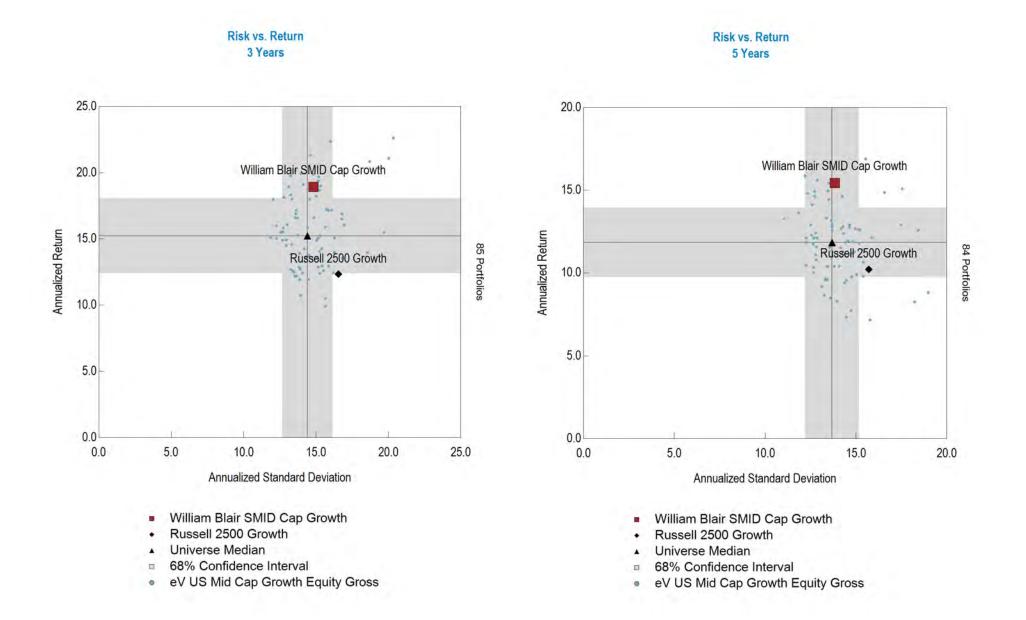
William Blair SMID Cap Growth vs. eV US Mid Cap Growth Equity Gross Universe 70.0 60.0 50.0 40.0 Annualized Return (%) 30.0 20.0 10.0 0.0 -10.0 -20.0 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009

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

William Blair SMID Cap Growth Russell 2500 Growth

Return	(Rank)																		
4.0		34.0		13.9		6.7		14.2		46.0		21.3		6.1		35.3		59.6	
-0.5		28.7		8.0		2.5		10.9		39.2		17.6		1.3		29.8		47.2	
-3.7		25.9		5.4		0.0		8.6		36.4		15.4		-2.1		26.7		41.9	
-6.5		23.1		2.6		-2.1		6.1		33.2		12.2		-6.1		22.5		34.9	
-10.8		17.7		-0.5		-6.3		2.6		29.0		6.0		-10.4		18.3		25.7	
93		97		105		105		117		106		111		122		127		142	
-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)
-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)

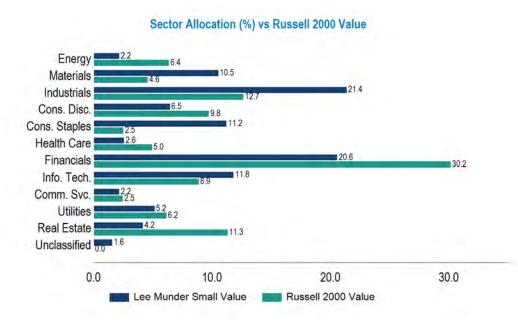




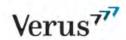




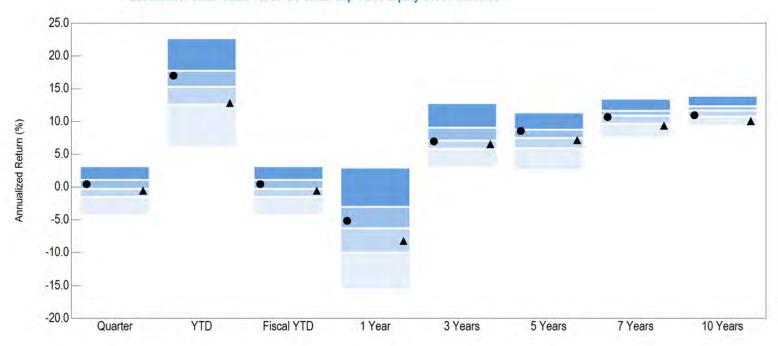
	Portfolio	Russell 2000 Value
Number of Holdings	92	1,387
Weighted Avg. Market Cap. (\$B)	3.06	1.96
Median Market Cap. (\$B)	2.54	0.62
Price To Earnings	16.44	14.85
Price To Book	1.92	1.62
Price To Sales	1.04	0.92
Return on Equity (%)	10.80	5.44
Yield (%)	1.68	2.21
Beta	1.00	1.00



Top Holdings		Top Contributo	rs		DOLLOIN CONTINUEDS						
Ending Period Weight		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MACOM TECH.SLTN.HDG. 2.	3% MACOM TECH.SLTN.HDG.	2.10	42.07	0.88	OWENS ILLINOIS NEW	1.00	-40.23	-0.40			
	3% MILACRON HOLDINGS	1.40	20.80	0.29	CONDUENT	1.10	-35.14	-0.39			
	3% HURON CNSL.GP.	1.30	21.75	0.28	CALLON PTL.DEL.	0.80	-34.14	-0.27			
	3% CACI INTERNATIONAL 'A'	1.90	13.04	0.25	ALLEGHENY TECHS.	1.20	-19.64	-0.24			
	2% TEAM	1.30	17.82	0.23	ALTRA INDUSTRIAL MOTION	1.00	-22.35	-0.22			
	2% PERFORMANCE FOOD GROUP	1.30	14.94	0.19	EAGLE BANC.	1.00	-17.57	-0.18			
	2% GENERAC HOLDINGS	1.50	12.87	0.19	INGEVITY	0.90	-19.33	-0.17			
	2% VALVOLINE	1.40	13.34	0.19	W R GRACE	1.40	-11.91	-0.17			
	2% AMERICOLD REALTY TRU CORPORATE OFFICE	ST 1.10	14.96	0.16	BANK OF NT BUTTERFIELD &.SON	1.40	-11.41	-0.16			
Total 22.	4% PROPS. TST.	1.10	13.98	0.15	PATTERSON COMPANIES	0.70	-21.24	-0.15			

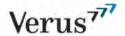


Lee Munder Small Value vs. eV US Small Cap Value Equity Gross Universe



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

Return (R	ank)														
3.1		22.7		3.1		3.0		12.8		11.4		13.5		13.9	
1.1		17.8		1.1		-3.0		9.1		8.8		11.7		12.3	
-0.2		15.3		-0.2		-6.3		7.1		7.5		10.9		11.7	
-1.5		12.6		-1.5		-10.0		5.9		5.9		9.7		10.8	
-4.3		6.2		-4.3		-15.6		3.1		2.6		7.5		9.4	
217		217		217		217		213		204		197		181	
0.4	(37)	17.0	(36)	0.4	(37)	-5.2	(40)	7.0	(53)	8.6	(29)	10.7	(57)	11.0	(73)
-0.6	(59)	12.8	(73)	-0.6	(59)	-8.2	(63)	6.5	(65)	7.2	(57)	9.4	(82)	10.1	(87)

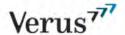


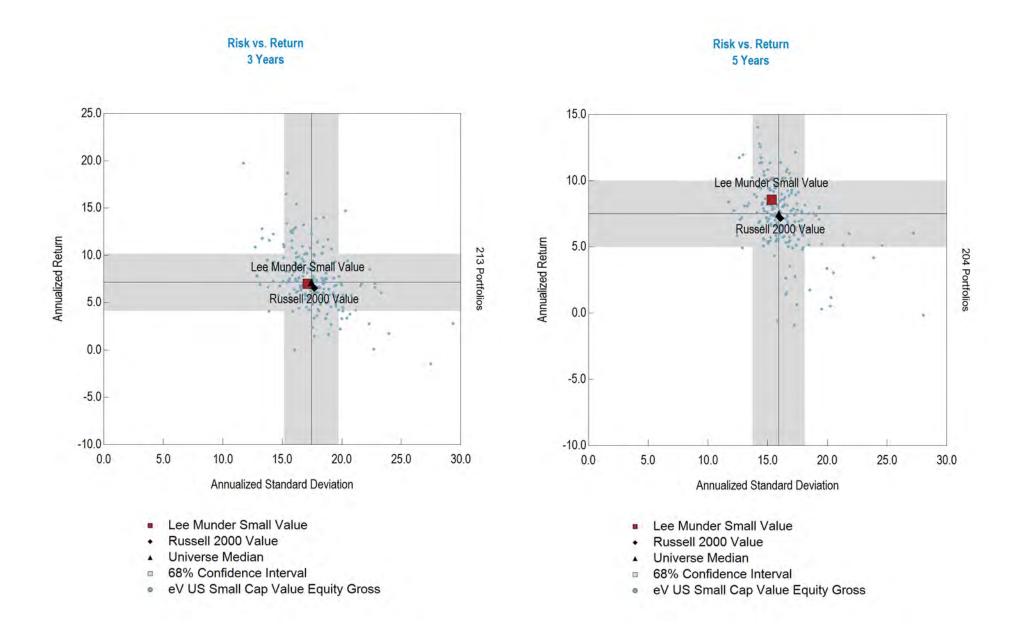
Lee Munder Small Value vs. eV US Small Cap Value Equity Gross Universe 70.0 60.0 50.0 40.0 Annualized Return (%) 30.0 20.0 10.0 0.0 -10.0 -20.0 -30.0 2018 2016 2014 2017 2015 2013 2012 2011 2010 2009

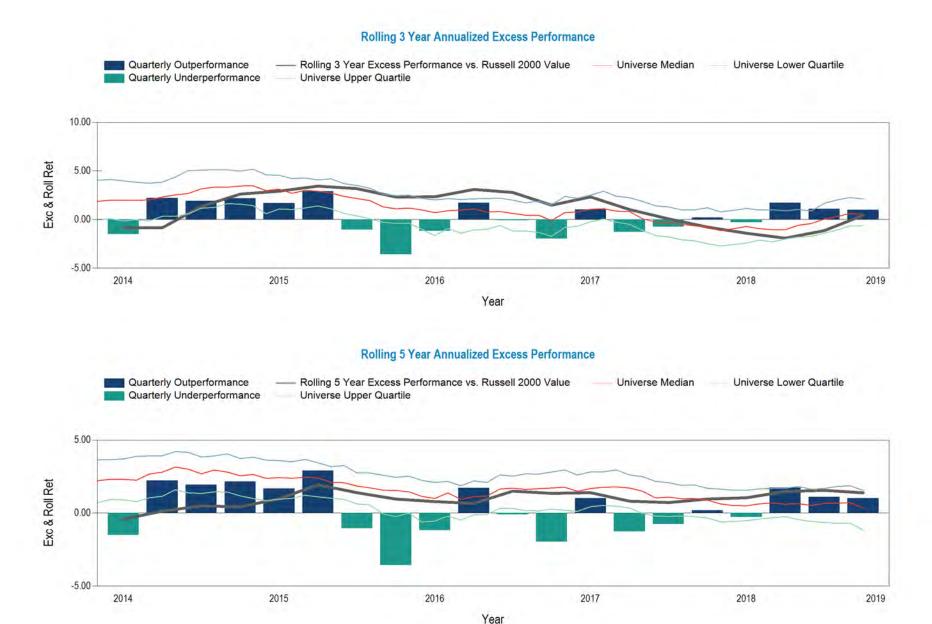
5th Per	centile
25th Pe	rcentile
Median	
75th Pe	rcentile
95th Pe	rcentile
# of Po	rtfolios
- 55-00	

Lee Munder Small Value Russell 2000 Value

Return	(Rank))																	
-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		16.8		-15.8		-6.3		27.8		10.3		-12.6		19.2		16.1	
220		224		222		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)









	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	312,973,649	-1.9	13.9	-1.9	0.8	7.3	3.6	4.4	-14.3	26.9	6.2	-5.9	-4.8
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
InvMetrics Public DB ex-US Eq Gross Rank		52	11	52	11	11	51	90	43	80	13	85	83
SSGA MSCI ACWI Ex US Index Fund	103,145,677	-1.7	11.9	-1.7	-0.9	6.6	3.2	4.7	-14.0	27.6	4.8	-5.5	-3.6
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank		69	61	69	29	47	78	90	42	49	17	96	49
PIMCO RAE Fundamental Global Ex US Fund	100,135,353	-1.7	7.9	-1.7	-4.3	6.4	2.4		-14.7	26.7	13.5	-10.9	-5.7
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4		-13.8	27.8	5.0	-5.3	-3.4
eV All EAFE Equity Gross Rank		68	93	68	60	52	90		47	53	1	99	79
SGA Global Growth	109,692,619	-2.2	22.1	-2.2	7.8								
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7								
eV ACWI ex-US Core Equity Gross Rank		66	1	66	1								

EAFE Effective Style Map 3 Years

Large
Value

SSGA MSCI ACWI Ex US Index Fund

PIMCO RAE Fundamental Global Ex US Fund

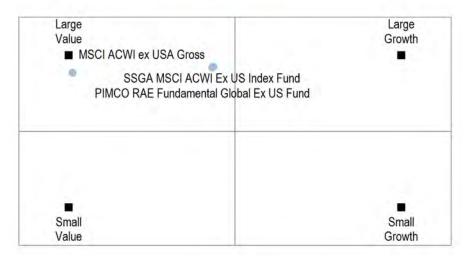
Small
Value

Large
Growth
MSCI ACWI ex USA Gross

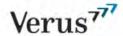
Ex US Fund

Small
Growth

EAFE Effective Style Map 5 Years

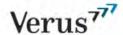


Research Affiliates converted to PIMCO RAE Fundamental Global Ex US Fund on 6/5/15 (performance prior to this date represents previously held Enhanced RAFI Global ex US). Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included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

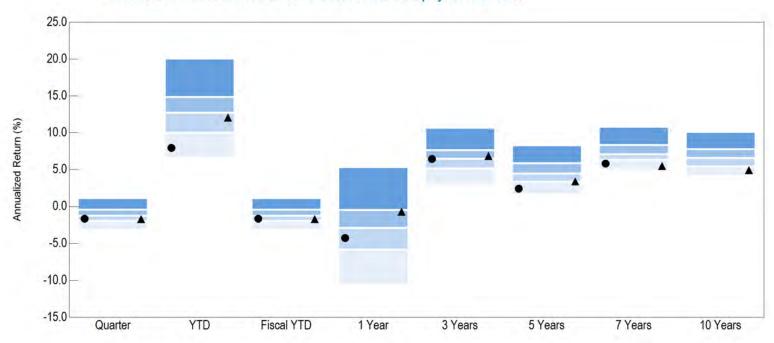


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total International Equity	312,973,649	-2.0	13.6	-2.0	0.5	6.9	3.2	4.1	-14.5	26.5	5.9	-6.2	-5.0
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
SSGA MSCI ACWI Ex US Index Fund	103,145,677	-1.8	11.8	-1.8	-1.0	6.6	3.1	4.6	-14.0	27.5	4.7	-5.5	-3.7
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4	4.9	-13.8	27.8	5.0	-5.3	-3.4
PIMCO RAE Fundamental Global Ex US Fund	100,135,353	-1.8	7.5	-1.8	-4.8	5.9	1.9		-15.1	26.0	13.0	-11.4	-5.9
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7	6.8	3.4		-13.8	27.8	5.0	-5.3	-3.4
SGA Global Growth	109,692,619	-2.3	21.7	-2.3	7.3								
MSCI ACWI ex USA Gross		-1.7	12.1	-1.7	-0.7								

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).



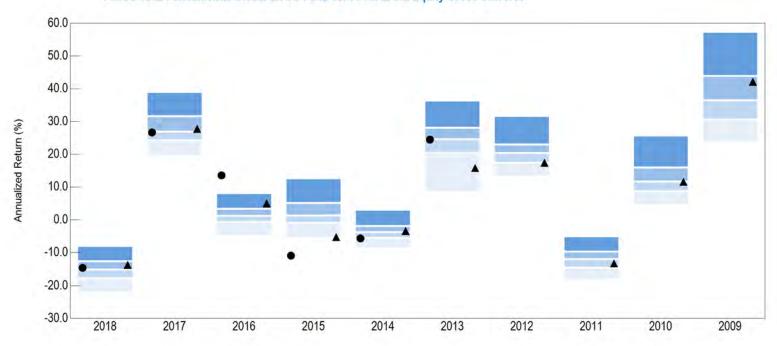
PIMCO RAE Fundamental Global Ex US Fund vs. eV All EAFE Equity Gross Universe



Return (R	(ank)														
1.1		20.0		1.1		5.3		10.6		8.3		10.8		10.1	
-0.4		14.9		-0.4		-0.4		7.7		5.9		8.4		7.8	
-1.2		12.7		-1.2		-2.9		6.5		4.5		7.1		6.6	
-1.9		10.1		-1.9		-5.9		5.2		3.4		6.3		5.4	
-3.1		6.7		-3.1		-10.5		3.0		1.6		5.0		4.2	
387		387		387		387		369		328		295		263	
nd -1.7	(68)	7.9	(93)	-1.7	(68)	-4.3	(60)	6.4	(52)	2.4	(90)	5.8	(88)		()
-1.7	(68)	12.1	(60)	-1.7	(68)	-0.7	(27)	6.8	(40)	3.4	(75)	5.5	(92)	4.9	(88)
	1.1 -0.4 -1.2 -1.9 -3.1 387 nd -1.7	1.1 -0.4 -1.2 -1.9 -3.1 387 nd -1.7 (68)	1.1 20.0 -0.4 14.9 -1.2 12.7 -1.9 10.1 -3.1 6.7 387 387 nd -1.7 (68) 7.9	1.1 20.0 -0.4 14.9 -1.2 12.7 -1.9 10.1 -3.1 6.7 387 387 nd -1.7 (68) 7.9 (93)	1.1 20.0 1.1 -0.4 14.9 -0.4 -1.2 12.7 -1.2 -1.9 10.1 -1.9 -3.1 6.7 -3.1 387 387 387 nd -1.7 (68) 7.9 (93) -1.7	1.1 20.0 1.1 -0.4 14.9 -0.4 -1.2 12.7 -1.2 -1.9 10.1 -1.9 -3.1 6.7 -3.1 387 387 387 387 nd -1.7 (68) 7.9 (93) -1.7 (68)	1.1 20.0 1.1 5.3 -0.4 14.9 -0.4 -0.4 -1.2 12.7 -1.2 -2.9 -1.9 10.1 -1.9 -5.9 -3.1 6.7 -3.1 -10.5 387 387 387 387 387 nd -1.7 (68) 7.9 (93) -1.7 (68) -4.3	1.1 20.0 1.1 5.3 -0.4 14.9 -0.4 -0.4 -1.2 12.7 -1.2 -2.9 -1.9 10.1 -1.9 -5.9 -3.1 6.7 -3.1 -10.5 387 387 387 387 387 nd -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60)	1.1 20.0 1.1 5.3 10.6 -0.4 14.9 -0.4 -0.4 7.7 -1.2 12.7 -1.2 -2.9 6.5 -1.9 10.1 -1.9 -5.9 5.2 -3.1 6.7 -3.1 -10.5 3.0 387 387 387 387 387 369 nd -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4	1.1 20.0 1.1 5.3 10.6 -0.4 14.9 -0.4 -0.4 7.7 -1.2 12.7 -1.2 -2.9 6.5 -1.9 10.1 -1.9 -5.9 5.2 -3.1 6.7 -3.1 -10.5 3.0 387 387 387 387 369 and -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52)	1.1 20.0 1.1 5.3 10.6 8.3 -0.4 14.9 -0.4 -0.4 7.7 5.9 -1.2 12.7 -1.2 -2.9 6.5 4.5 -1.9 10.1 -1.9 -5.9 5.2 3.4 -3.1 6.7 -3.1 -10.5 3.0 1.6 387 387 387 387 369 328 and -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52) 2.4	1.1 20.0 1.1 5.3 10.6 8.3 -0.4 14.9 -0.4 -0.4 7.7 5.9 -1.2 12.7 -1.2 -2.9 6.5 4.5 -1.9 10.1 -1.9 -5.9 5.2 3.4 -3.1 6.7 -3.1 -10.5 3.0 1.6 387 387 387 387 369 328 and -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52) 2.4 (90)	1.1 20.0 1.1 5.3 10.6 8.3 10.8 -0.4 14.9 -0.4 -0.4 7.7 5.9 8.4 -1.2 12.7 -1.2 -2.9 6.5 4.5 7.1 -1.9 10.1 -1.9 -5.9 5.2 3.4 6.3 -3.1 6.7 -3.1 -10.5 3.0 1.6 5.0 387 387 387 387 369 328 295 and -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52) 2.4 (90) 5.8	1.1 20.0 1.1 5.3 10.6 8.3 10.8 -0.4 14.9 -0.4 -0.4 7.7 5.9 8.4 -1.2 12.7 -1.2 -2.9 6.5 4.5 7.1 -1.9 10.1 -1.9 -5.9 5.2 3.4 6.3 -3.1 6.7 -3.1 -10.5 3.0 1.6 5.0 387 387 387 387 369 328 295 nd -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52) 2.4 (90) 5.8 (88)	1.1 20.0 1.1 5.3 10.6 8.3 10.8 10.1 -0.4 14.9 -0.4 -0.4 7.7 5.9 8.4 7.8 -1.2 12.7 -1.2 -2.9 6.5 4.5 7.1 6.6 -1.9 10.1 -1.9 -5.9 5.2 3.4 6.3 5.4 -3.1 6.7 -3.1 -10.5 3.0 1.6 5.0 4.2 387 387 387 387 369 328 295 263 and -1.7 (68) 7.9 (93) -1.7 (68) -4.3 (60) 6.4 (52) 2.4 (90) 5.8 (88)

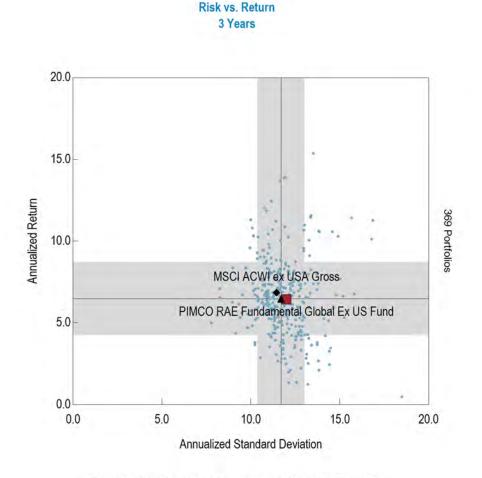


PIMCO RAE Fundamental Global Ex US Fund vs. eV All EAFE Equity Gross Universe



	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 Fu	nd -14.7	(47)	26.7	(53)	13.5	(1)	-10.9	(99)	-5.7	(79)	24.5	(51)		()	-	()		()		()	
MSCI ACWI ex USA Gross	-13.8	(40)	27.8	(48)	5.0	(16)	-5.3	(95)	-3.4	(47)	15.8	(90)	17.4	(77)	-13.3	(62)	11.6	(52)	42.1	(30)	

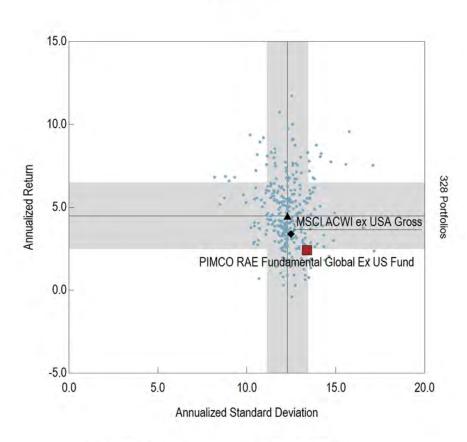




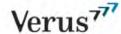


- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

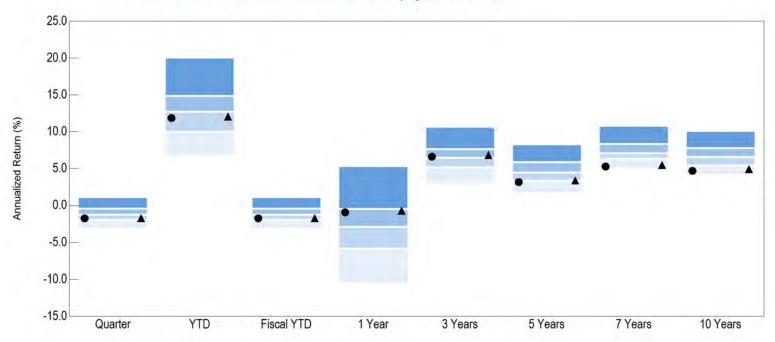




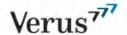
- PIMCO RAE Fundamental Global Ex US Fund
- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



SSGA MSCI ACWI Ex US Index Fund vs. eV All EAFE Equity Gross Universe

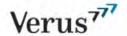


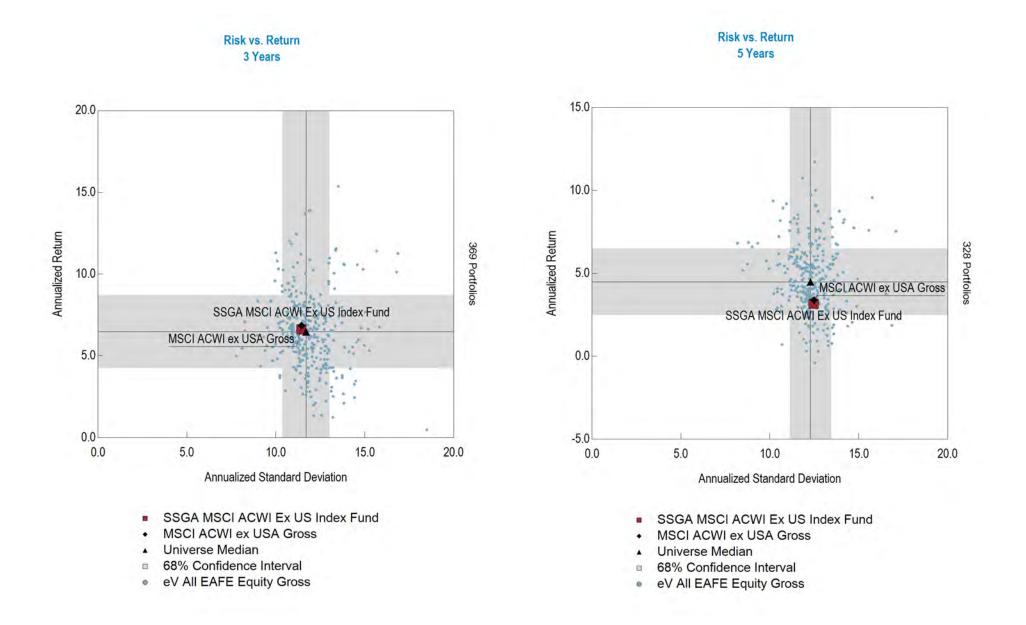
	Return (R	ank)														
5th Percentile	1.1		20.0		1.1		5.3		10.6		8.3		10.8		10.1	
25th Percentile	-0.4		14.9		-0.4		-0.4		7.7		5.9		8.4		7.8	
Median	-1.2		12.7		-1.2		-2.9		6.5		4.5		7.1		6.6	
75th Percentile	-1.9		10.1		-1.9		-5.9		5.2		3.4		6.3		5.4	
95th Percentile	-3.1		6.7		-3.1		-10.5		3.0		1.6		5.0		4.2	
# of Portfolios	387		387		387		387		369		328		295		263	
SSGA MSCI ACWI Ex US Index Fund	-1.7	(69)	11.9	(61)	-1.7	(69)	-0.9	(29)	6.6	(47)	3.2	(78)	5.3	(94)	4.7	(90)
MSCI ACWI ex USA Gross	-1.7	(68)	12.1	(60)	-1.7	(68)	-0.7	(27)	6.8	(40)	3.4	(75)	5.5	(92)	4.9	(88)



SSGA MSCI ACWI Ex US Index Fund vs. eV All EAFE Equity Gross Universe 60.0 50.0 40.0 30.0 Annualized Return (%) 20.0 10.0 0.0 -10.0 -20.0 -30.0 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009

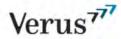
	Return	(Rank)																			
5th Percentile	-8.0		39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7		57.3		
25th Percentile	-12.6		31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1		44.0		
Median	-15.1		27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7		36.5		
75th Percentile	-17.8		24.3		-0.6		-0.9		-5.4		20.5		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		
SSGA MSCI ACWI Ex US Index Fund	-14.0	(42)	27.6	(49)	4.8	(17)	-5.5	(96)	-3.6	(49)	15.5	(90)	17.1	(81)	-13.5	(64)	11.2	(55)		()	
▲ MSCI ACWI ex USA Gross	-13.8	(40)	27.8	(48)	5.0	(16)	-5.3	(95)	-3.4	(47)	15.8	(90)	17.4	(77)	-13.3	(62)	11.6	(52)	42.1	(30)	





	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	463,170,650	1.3	7.1	1.3	8.4	3.7	3.4	4.8	0.5	4.3	5.5	-0.8	4.6
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
InvMetrics Public DB US Fix Inc Gross Rank		88	51	88	51	25	47	25	51	50	37	77	69
Total Domestic Fixed Income													
BlackRock Fixed Income	106,615,896	2.4	8.6	2.4	10.7	3.2	3.7	4.3	0.4	3.9	3.1	1.1	6.2
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
eV All US Fixed Inc Gross Rank		25	43	25	22	54	49	51	54	54	53	39	29
Doubleline Core Plus	91,700,549	1.7	8.1	1.7	8.8	3.3			0.0	4.2	4.8		
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
eV US Core Plus Fixed Inc Gross Rank		91	90	91	92	93			33	86	52		
MacKay Shields Core Plus	93,513,146	2.6	9.6	2.6	10.2	3.7			-0.6	5.0	5.1	-	
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
eV US Core Plus Fixed Inc Gross Rank		14	50	14	63	66			67	52	46		
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	90,552,267	-3.2	0.0	-3.2	1.8	3.9	1.5		2.4	3.0	6.8	-3.5	2.4
JPM GBI Global TR USD		1.1	6.6	1.1	8.7	1.2	2.1		-0.7	6.8	1.6	-2.6	0.7
eV Global Fixed Inc Unhedged Gross Rank		98	98	98	93	38	85		6	96	24	67	50
Total Emerging Markets Fixed Income													
PGIM Emerging Markets Debt	80,788,792										-	-	
50% JPM EMBI Global Div/50% JPM GBI EM Global Div													
eV Emg Mkt Fixed Inc Unhedged Gross Rank													

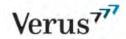
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. SSGA TIPS liquidated in 12/28/18. Shenkman HY liquidated 3/11/19. PGIM EMD funded 8/26/19.



Fixed Income Style Map Fixed Income Style Map 5 Years 3 Years BBgBarc US Aggregate TR Govt. Corp. Govt. Corp. Bonds MacKay Shields Core Plus Bonds Bonds Bonds BBgBarc US Aggregate TR BlackRock Fixed Income BlackRock Fixed Income Franklin Templeton Global Bond Plus Franklin Templeton Global Bond Plus Mortgages Mortgages

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Fixed Income	463,170,650	1.2	6.9	1.2	8.0	3.4	3.1	4.5	0.1	3.9	5.1	-1.1	4.3
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
Total Domestic Fixed Income													
BlackRock Fixed Income	106,615,896	2.3	8.4	2.3	10.4	3.0	3.5	4.0	0.1	3.6	2.9	0.8	6.0
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9	3.4	3.7	0.0	3.5	2.6	0.6	6.0
Doubleline Core Plus	91,700,549	1.7	7.9	1.7	8.5	3.0			-0.3	3.9	4.6		
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
MacKay Shields Core Plus	93,513,146	2.5	9.2	2.5	9.8	3.3			-1.0	4.5	4.7		
BBgBarc US Aggregate TR		2.3	8.5	2.3	10.3	2.9			0.0	3.5	2.6		
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	90,552,267	-3.3	-0.3	-3.3	1.4	3.4	0.9		1.9	2.4	6.1	-4.1	1.9
JPM GBI Global TR USD		1.1	6.6	1.1	8.7	1.2	2.1		-0.7	6.8	1.6	-2.6	0.7
Total Emerging Markets Fixed Income													
PGIM Emerging Markets Debt	80,788,792												
50% JPM EMBI Global Div/50% JPM GBI EM Global Div													

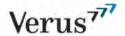
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. SSGA TIPS liquidated in 12/28/18. Shenkman HY liquidated 3/11/19. PGIM EMD funded 8/26/19.



BlackRock Fixed Income vs. eV All US Fixed Inc Gross Universe 25.0 20.0 Annualized Return (%) 15.0 10.0 5.0 0.0 YTD Quarter Fiscal YTD 1 Year 3 Years 5 Years 7 Years 10 Years

	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	BlackRock Fixed Income
•	BBgBarc US Aggregate TR

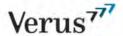
Return (R	ank)														
5.8		21.3		5.8		20.6		6.9		7.2		6.7		8.6	
2.3		10.5		2.3		10.4		5.0		4.9		4.9		6.3	
1.5		7.7		1.5		7.9		3.4		3.7		3.2		4.3	
0.9		5.2		0.9		5.1		2.5		2.6		2.2		3.1	
0.6		2.5		0.6		2.6		1.8		1.5		1.1		1.3	
1,841		1,841		1,841		1,838		1,782		1,713		1,609		1,398	
2.4	(25)	8.6	(43)	2.4	(25)	10.7	(22)	3.2	(54)	3.7	(49)	3.1	(53)	4.3	(51)
2.3	(30)	8.5	(44)	2.3	(30)	10.3	(27)	2.9	(62)	3.4	(58)	2.7	(63)	3.7	(62)

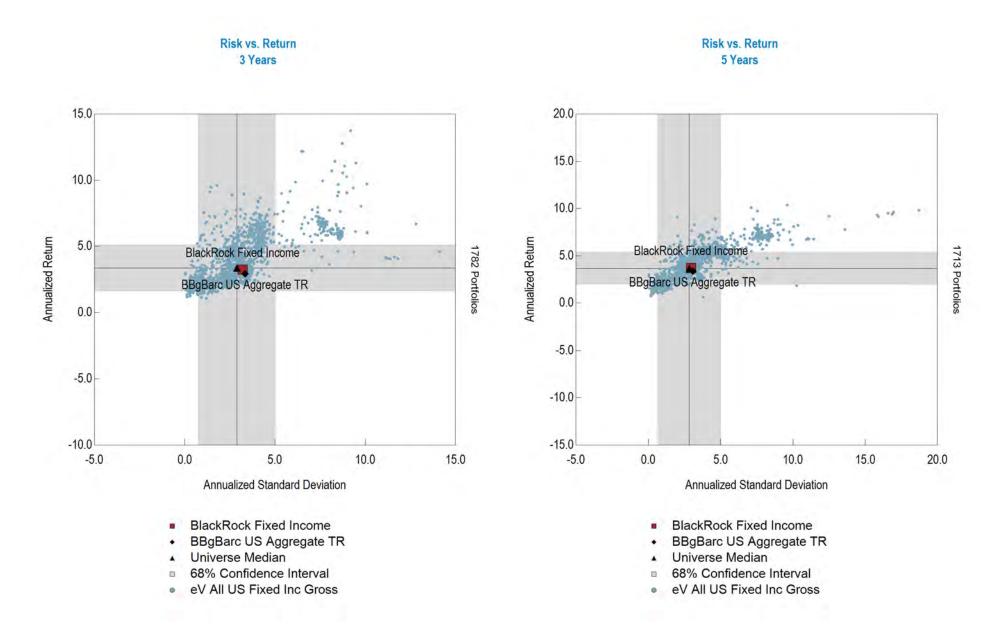


BlackRock Fixed Income vs. eV All US Fixed Inc Gross Universe 50.0 45.0 40.0 35.0 30.0 Annualized Return (%) 25.0 20.0 15.0 10.0 5.0 0.0 -5.0 -10.0 2018 2017 2016 2015 2014 2012 2011 2010 2013 2009

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



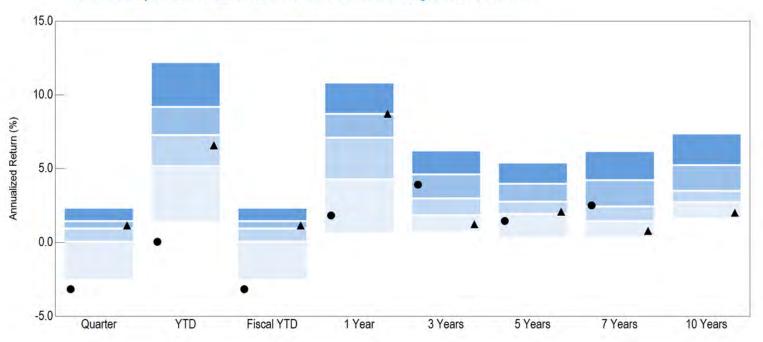




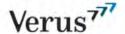




Franklin Templeton Global Bond Plus vs. eV Global Fixed Inc Unhedged Gross Universe



	Return (R	ank)														
5th Percentile	2.3		12.2		2.3		10.8		6.2		5.4		6.2		7.4	
25th Percentile	1.4		9.2		1.4		8.7		4.6		4.0		4.2		5.2	
Median	1.0		7.3		1.0		7.1		3.0		2.8		2.5		3.5	
75th Percentile	0.1		5.2		0.1		4.3		1.9		2.0		1.4		2.7	
95th Percentile	-2.5		1.4		-2.5		0.6		0.7		0.3		0.3		1.6	
# of Portfolios	225		225		225		225		213		194		166		118	
Franklin Templeton Global Bond Plus	-3.2	(98)	0.0	(98)	-3.2	(98)	1.8	(93)	3.9	(38)	1.5	(85)	2.5	(49)	-	()
JPM GBI Global TR USD	1.1	(42)	6.6	(62)	1.1	(42)	8.7	(25)	1.2	(88)	2.1	(72)	0.8	(90)	2.0	(92)



2010

2009

Franklin Templeton Global Bond Plus vs. eV Global Fixed Inc Unhedged Gross Universe 55.0 50.0 45.0 40.0 35.0 Annualized Return (%) 30.0 25.0 20.0 15.0 10.0 5.0 0.0 -5.0 -10.0

2014

2013

2012

2011

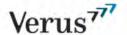
	Return	(Rank)																			
5th Percentile	2.5		15.0		14.5		2.0		7.1		9.8		20.2		10.4		15.5		50.1		
25th Percentile	-0.5		10.1		6.5		-0.6		4.2		2.8		14.3		6.9		9.9		18.4		
Median	-2.0		8.2		4.0		-2.7		2.3		-0.4		9.4		5.0		7.5		10.1		
75th Percentile	-3.7		6.5		1.8		-4.0		0.6		-3.2		5.9		3.2		6.0		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 Plus JPM GBI Global TR USD 	2.4 -0.7	(6) (27)	3.0 6.8	(96) (72)	6.8 1.6	(24) (79)	-3.5 -2.6	(67) (48)	2.4 0.7	(50) (75)	3.0 -4.5	(23) (89)	1.3	() (98)	7.2	() (19)	6.4	() (72)	1.9	() (99)	

2015

2017

2016

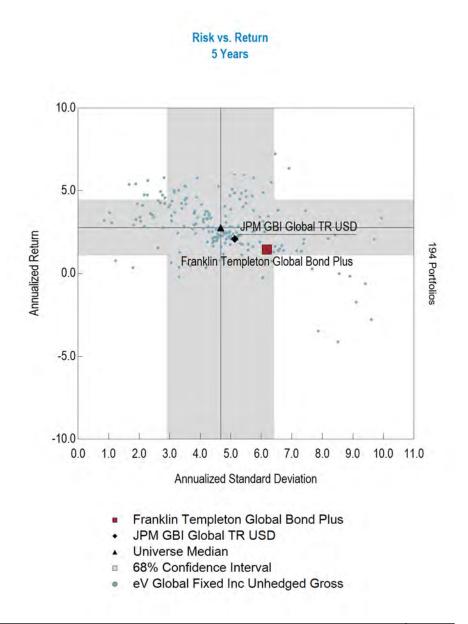
2018



3 Years 15.0 10.0 Annualized Return ranklin Templeton Global Bond Plus 5.0 213 Portfolios JPM GBI Global TR USD 0.0 -5.0 -10.0 10.0 0.0 5.0 15.0 Annualized Standard Deviation

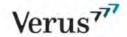
Risk vs. Return

- 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	141,503,132	1.5	4.1	1.5	6.5	6.4	9.0	8.7	8.8	4.3	9.0	16.0	13.1
NCREIF-ODCE		1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
RREEF America II	141,483,889	1.6	4.1	1.6	6.5	6.6	9.1	11.3	8.6	4.4	9.3	16.7	13.0
NCREIF-ODCE		1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8

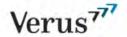
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. RREEF liquidated in 1Q 2018.



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Real Estate	141,503,132	1.5	4.1	1.5	6.5	6.3	8.6	8.5	8.8	4.3	8.0	15.1	12.5
NCREIF-ODCE		1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8
RREEF America II	141,483,889	1.6	4.1	1.6	6.5	6.5	8.7	10.7	8.6	4.4	8.2	15.7	12.0
NCREIF-ODCE		1.3	3.8	1.3	5.6	7.3	9.3	10.9	8.3	7.6	8.8	15.0	12.5
NCREIF Property Index		1.4	4.8	1.4	6.2	6.8	8.6	9.8	6.7	7.0	8.0	13.3	11.8

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2018	2017	2016	2015	2014
Total Liquid Alts/HFoF	87,612,612	-0.9	4.6	-0.9	0.6	4.1	2.7		0.9	5.4	0.3	0.7	5.4
ICE BofAML 90 DAY T-BILLS + 400 bps		1.3	4.1	1.3	5.5	4.6	4.0		4.9	3.9	3.3	3.1	3.5
Aetos Capital	44,138,206	-0.1	5.8	-0.1	1.5	3.9	3.2	4.6	-1.9	6.8	2.6	1.2	5.2
ICE BofAML 90 DAY T-BILLS + 400 bps		1.3	4.1	1.3	5.5	4.6	4.0	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	43,474,407	-1.7	3.3	-1.7	-0.1	4.3			3.8	4.0	0.6		
ICE BofAML 90 DAY T-BILLS + 400 bps		1.3	4.1	1.3	5.5	4.6			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	87,612,612	-0.9	4.6	-0.9	0.6	4.0	2.3		0.9	5.4	-0.5	0.0	4.6
ICE BofAML 90 DAY T-BILLS + 400 bps		1.3	4.1	1.3	5.5	4.6	4.0		4.9	3.9	3.3	3.1	3.5
Aetos Capital	44,138,206	-0.1	5.8	-0.1	1.5	3.8	2.8	4.2	-1.9	6.8	1.8	0.5	4.5
ICE BofAML 90 DAY T-BILLS + 400 bps		1.3	4.1	1.3	5.5	4.6	4.0	4.0	4.9	3.9	3.3	3.1	3.5
Titan Advisors	43,474,407	-1.7	3.3	-1.7	-0.1	4.3			3.8	4.0	-0.1		
ICE RofAMI 90 DAY T-RILLS + 400 hps		1.3	41	1.3	5.5	46			49	3.9	3.3		

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.

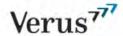
Manager Line Up	And the second	TALL STATE OF THE PARTY OF THE	1000	0. V 1. V 1.	0.000
Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
SSGA S&P 500 Flagship Fund	7/27/2011	SSGA	PGIM Emerging Markets Debt	8/26/2019	BNY
QMA Large Cap Core	12/1/2008	BNY	RREEF America II	3/1/2003	Deutsche
Waddell & Reed	6/4/2010	BNY	TA Associates Realty	6/1/2007	TA Realty
Robeco Boston Partners	2/1/1999	BNY	Aetos Capital	6/1/2005	Aetos
William Blair Mid Cap Grw	12/1/2006	BNY	BlackRock Private Capital II	7/13/2005	BlackRock
Lee Munder Small Value	8/26/2009	BNY	Pantheon USA Fund VI	7/26/2005	Pantheon
SSGA Russell Sm Cap Idx	5/17/2013	SSGA	PIMCO BRAVO	1/14/2011	PIMCO
PIMCO RAE	8/14/2012	PIMCO	KKR Mezzanine Partners	7/8/2011	KKR
SSGA MSCI ACWI ex US	1/1/2010	SSGA	Stepstone Secondary Opps II	5/10/2013	Stepstone
SGA Global Growth	6/4/2018	SGA	Titan Advisors	2/1/2016	Titan
Skellig DST Water Fund	10/28/2014	KBI	Ocean Avenue Fund III	5/27/2016	Ocean Ave
BlackRock Fixed Income	12/1/1995	BNY	Ocean Avenue Fund IV	9/16/2019	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:

17% Russell 3000, 17% MSCI ACWI ex US, 3% MSCI ACWI, 13% BBgBarc US Aggregate, 5% JPM GBI Global, 5% (50% JPM EMBI Global Div/50% JPM GBI EM Global Div), 15% NCREIF-ODCE, 5% NCREIF-ODCE + 200 bps, 5% Bloomberg Commodity, 5% Private Equity Returns, 5% Private Credit Returns, 5% 90 Day T-Bills + 400 bps.

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.

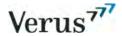
Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard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