





PERIOD ENDING: SEPTEMBER 30, 2018

Investment Performance Review for

**Tulare County Employees' Retirement Association** 

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Investment Landscape

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Review



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#### **VERUSINVESTMENTS.COM**

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# 3<sup>rd</sup> quarter summary

#### THE ECONOMIC CLIMATE

- The U.S., Mexico, and Canada reached a new trade agreement. The new deal, USMCA, involves few changes to NAFTA, but may create mildly more favorable terms for U.S. businesses. p. 13
- The U.S. continued to outshine other developed economies in Q2 with its strongest quarterly growth since 2014. A few smaller emerging market economies experienced idiosyncratic weakness that led to concerns of economic contagion, but fundamentals in most countries still appear strong. p. 14, 16

#### PORTFOLIO IMPACTS

- Emerging market equities delivered slight losses in Q3, but seem to have stabilized as currency depreciation recently subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). We maintain a positive outlook on emerging market equities. p. 30
- The Fed raised the target range for the fed funds rate by 0.25% to a range of 2.00%-2.25%. The probability of a December rate hike was 78%, as of October 8th. p. 20, 22
- U.S. trade discussions have narrowed in on China.
   Negotiations between the two countries in recent months do not appear to have produced tangible results. p. 17

#### THE INVESTMENT CLIMATE

- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are forecast to be 19.3% and 6.9% YoY, respectively. p. 27
- Fixed income yields around the world rose slightly. The U.S.
   Treasury yield hit a 7-year high of 3.23%, reigniting investor concerns over rising interest rates. p. 20
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, which is creating doubts around the sustainability of Italy's debt. p. 14, 15

#### **ASSET ALLOCATION ISSUES**

- Capital market returns have been largely flat-to-negative in 2018, with U.S. equities being the exception. Diversification remains important, but has been painful for investors in this environment. p. 26
- Trade conflicts between the U.S. and its trading partners appear to be mostly resolved. All eyes are on negotiations between U.S. and Chinese representatives, though it increasingly appears that these negotiations are broader in nature than trade alone. p. 17

A neutral to mild risk overweight may be warranted in today's environment

# What drove the market in Q3?

#### "Bullish U.S. stocks leave the rest of the world trailing"

#### S&P 500 VS. MSCI ACWI EX U.S. RELATIVE MONTHLY PERFORMANCE

Apr	May	Jun	Jul	Aug	Sep
-3.1%	3.2%	1.4%	1.4%	4.6%	-0.1%

Article Source: Financial Times, September 13<sup>th</sup>, 2018

#### "Traders take Fed's cues, pile on bets on U.S. rate hikes"

#### YEAR-END 2020 MARKET IMPLIED FED FUNDS RATE

Apr	May	Jun	Jul	Aug	Sep
2.70%	2.55%	2.65%	2.72%	2.62%	2.82%

Article Source: Reuters, September 17th, 2018

#### "Fitch cuts Italy's credit outlook on debt and governance concerns"

#### 10-YEAR ITALIAN-GERMAN YIELD SPREAD

Apr	May	Jun	Jul	Aug	Sep
123	245	238	228	291	268

Article Source: Financial Times, August 31st, 2018

#### "No breakthrough in U.S.-China trade talks as new tariffs kick in"

#### U.S. IMPORTS SUBJECT TO RECENTLY ENACTED TARIFFS (\$ BILLIONS)

Apr	May	Jun	Jul	Aug	Sep	
33	33	56	90	106	306	
rticle Source: CNRC August 23rd 2018						

Ticle Source. CNDC, August 25 , 201

#### U.S. VS. NON-U.S. EQUITY YTD PERFORMANCE



Source: Bloomberg, as of 9/30/18

#### MARKET IMPLIED FED FUNDS PRICING VS. FED DOTS (YEAR-END)



Source: Bloomberg, Federal Reserve, as of 10/8/18

#### 10-YEAR ITALIAN-GERMAN SOVEREIGN YIELD SPREAD



Source: Bloomberg, as of 9/30/18



# Economic environment



# U.S. economics summary

- Real GDP growth was 2.9% yearover-year in the second quarter. Expectations for third quarter growth have risen alongside recently strengthening U.S. economic data.
- U.S. inflation fell slightly to 2.3%
   YoY, moving closer to the U.S. Core
   CPI rate of 2.2% YoY.
- Non-farm payrolls added 134,000 jobs in September, missing the consensus estimate of 185,000.
   Hurricane Florence likely contributed to the miss, as leisure and hospitality employment fell by 17,000, the largest drop in a year.
- The U3 unemployment rate fell from 3.9% to 3.7% in September, the lowest rate since 1969. The U6 unemployment increased from 7.4% to 7.5%.
- The United States, Mexico, and Canada reached an agreement on a new trade deal to replace NAFTA.

- The new deal, USMCA, included provisions aimed towards protecting the business interests of North American auto manufacturers as well as workers' wages. The deal also partially opened the Canadian dairy market to U.S. farmers.
- The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24<sup>th</sup>. The White House claimed that the tariff rate will advance from 10% to 25% at yearend if no progress is made through negotiations in the meantime. China retaliated with tariffs of 10% on \$60 billion of U.S. imports.
- As expected, the Federal Open Market Committee raised the target range for the fed funds rate by 0.25%, moving the new range to 2.00%-2.25%. The market implied odds for an additional December rate hike were 78%, as of October 8th.

	Most Recent	12 Months Prior
GDP (YoY)	<b>2.9%</b> 6/30/18	2.1% 6/30/17
Inflation (CPI YoY, Core)	2.2% 9/30/18	1.7% 9/30/17
Expected Inflation (5yr-5yr forward)	2.2% 9/30/18	2.0% 9/30/17
Fed Funds Target Range	2.00 – 2.25% 9/30/18	1.00 – 1.25% 9/30/17
10 Year Rate	3.1% 9/30/18	2.3% 9/30/17
U-3 Unemployment	3.7% 9/30/18	<b>4.2%</b> 9/30/17
U-6 Unemployment	7.5% 9/30/18	8.3% 9/30/17



# GDP growth

Real GDP growth accelerated to 2.9% YoY (4.2% quarterly annualized rate) in the second quarter, driven in part by fiscal stimulus. This quarterly growth rate marked the fastest pace of expansion since the third quarter of 2014.

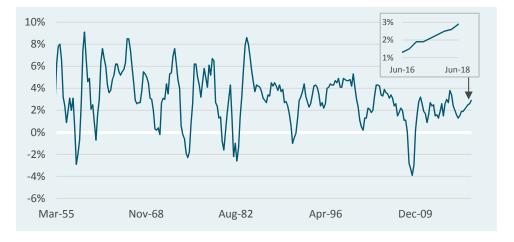
The consumer was once again the biggest contributor to growth after a slowdown in the previous quarter. Consumer spending added 2.6% to the quarterly growth rate. Exports and business investment also boosted growth – each contributed 1.1% to GDP growth. However, some of the increase in exports may have been a result of businesses

attempting to ship goods ahead of pending tariffs, pulling future growth into the current quarter.

Although the current expansion is near the longest on record, it still appears the economy is on solid footing without many typical signs of late-cycle overheating. While we are cautious about a potential prolonged economic war between the U.S. and China, we do not believe the tariffs that have been implemented thus far will in themselves create a material drag on the domestic economy. We remain watchful for any indirect effects on consumer and business confidence that could lead to a slowdown in activity.

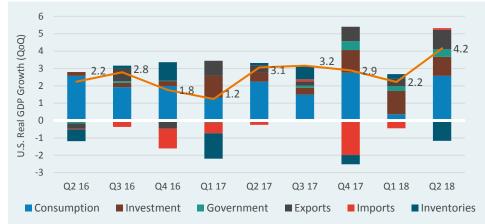
GDP growth was the highest since Q3 2014

#### U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 6/30/18

#### **U.S. GDP COMPONENTS**



Source: BEA, annualized quarterly rate, as of 6/30/18



### Inflation

Inflation has remained relatively muted throughout the current economic cycle. Headline and core CPI rose 2.2% and 2.3%, respectively over the 12 months ending in September.

Although there has been some occasional concern in the market over a potential spike in inflation, we have yet to see any sustained pressure on consumer prices. This effect has not been confined to the current cycle. In fact, secular disinflation caused in part by automation and

globalization has contributed to stable core inflation of around 1-3% per annum since the early 1990s.

The potential impact of tariffs on inflation has been widely scrutinized, but it is important to note that the flow-through from import prices to consumer prices is ambiguous. The flow-through will depend on numerous factors including substitution effects and the price elasticity of demand. At this point, we do not expect a material increase in inflation due to tariffs.

U.S. CPI (YOY)



#### BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 9/30/18

#### **INFLATION EXPECTATIONS**



Source: Bloomberg, as of 9/30/18



Source: Bloomberg, as of 9/30/18

### Labor market

Labor market trends were largely unchanged over the quarter. The economy continued to add jobs at a fairly steady pace and the U-3 unemployment rate fell further from 4.0% to 3.7% in September. The broader U-6 unemployment rate also tightened, dropping from 7.8% to 7.5%. This measure has finally recovered to below its pre-global financial crisis level, indicating that there may be fewer pockets of labor market slack as potential workers increasingly search for and find employment. However, looking at the broadest measure of employment – the percentage of Americans currently employed, we are currently at 60%, compared to 63% prior in 2006. This seems to suggests that labor slack remains.

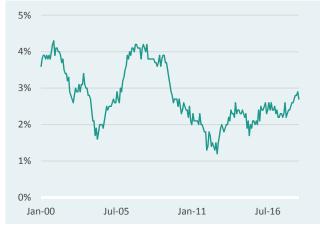
Wage growth remained moderate as average hourly earnings for private workers rose 2.7% from the previous year in September. On a real basis, however, wages rose 0.7% YoY, in-line with the long-term average since 1970.

Surging job openings, along with business survey responses, suggest companies are having a difficult time finding qualified workers. As of August, there were 7.1 million job openings compared to only 6.2 million people classified as unemployed.

#### UNEMPLOYMENT RATE

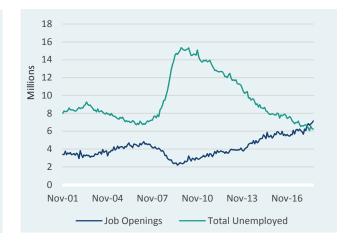


#### **AVERAGE HOURLY EARNINGS (YOY)**



#### Source: Bloomberg, as 9/30/18

#### JOB OPENINGS VS TOTAL UNEMPLOYED



Source: Bloomberg, as of 8/31/18



Source: FRED, as of 9/30/18

### The consumer

Real consumer spending rose 3.1% from the previous year in August, in-line with the long-term average over the past 30 years. Conditions facing consumers, including moderate income gains, a tight labor market, and low interest rates are still supportive of spending. Despite some evidence that the U.S. is moving into the later stages of the economic cycle, we have yet to see big increases in consumer spending, which is often indicative of overconfidence.

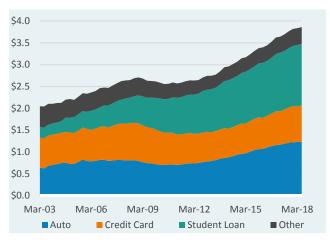
With the 30-year mortgage rate nearing 5%, there have been increasing concerns over the impact of rising rates on the

cost of living. However, a rise in market interest rates will impact various types of debt in different ways. For example, nearly all U.S. mortgage debt issued since the global financial crisis has been with fixed interest rates. Higher mortgage rates will have a greater impact on new home buyers, rather than all homeowners. In fact, household mortgage debt service fell to a cycle low of 4.2% of disposable income in the second quarter. On the other hand, interest rates on shorter-term debt, such as auto and credit card loans, will be much quicker to reflect changes in market rates.

#### REAL CONSUMER SPENDING (YOY)

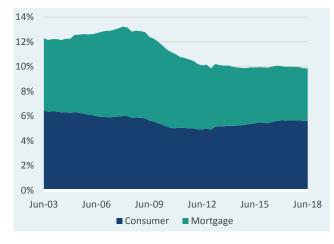


#### NON-HOUSING DEBT BALANCE (TRILLIONS)



#### Source: FRBNY, as of 6/30/18

#### **DEBT SERVICE AS % OF DISPOSABLE INCOME**



Source: Federal Reserve, as of 6/30/18



Source: Bloomberg, as of 8/31/18

### Sentiment

Sentiment readings from both households and businesses are incredibly strong. Americans across all income subgroups expressed optimism for the future, according to the University of Michigan Consumer Sentiment survey. The most often cited concern was U.S. tariffs, which were mentioned by one third of respondents. Those surveyed were optimistic about their personal financial situation, continued economic growth, and low inflation.

The Bloomberg U.S. Weekly Consumer Confidence Index has surpassed its 17-year high of 59.3, reflecting a rosy outlook

for personal finances, wages, and the economy.

The NFIB Small Business Optimism Index reached 107.9 in September – the third strongest reading in the 45-year history of the index. NFIB commented, "In the small business half of the economy, 2018 has produced 45-year record high measures of job openings, hiring plans, actual job creation, compensation increases (actual and planned), profit growth, and inventory investment." The positive outlook of small business owners is likely supportive of continued economic growth.

Consumers and business are confident about the future

#### CONSUMER COMFORT INDEX



Source: Bloomberg, as of 9/30/18 (see Appendix)

#### **CONSUMER SENTIMENT**



Source: University of Michigan, as of 9/30/18 (see Appendix)

#### NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 9/30/18 (see Appendix)



# Housing

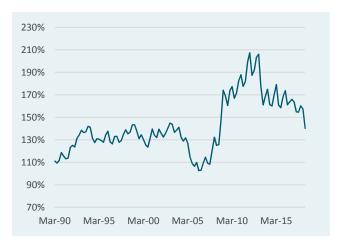
Single-family home prices appreciated at a strong pace. As of July, the Case-Shiller National Home Price Index was up 4.7% year-to-date. Over the past 5 years home prices have risen 5.3% per annum, outpacing wage growth and likely creating difficulties for those planning new purchases.

Nationwide home prices are now 11% above the previous high reached in mid-2006. Lower interest rates have partially offset rising prices, though this effect is fading as

borrowing rates have moved back towards pre-2008 levels.

U.S. home affordability has dropped materially in 2018 and is now back to a level not seen since late 2008. The 30-year fixed mortgage interest rate rose from 4.0% in January to more than 4.7% through the end of September. Home sales have recently slowed - perhaps a result of less buyer-friendly conditions.

#### HOUSING AFFORDABILITY INDEX

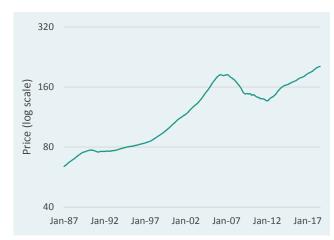


#### **EXISTING HOME SALES (MILLIONS)**



#### Source: Bloomberg, SAAR, as of 8/31/18

#### U.S. HOME PRICE INDEX



Source: Case-Shiller National Home Price Index, as of 7/31/18



Source: Bloomberg, as of 6/30/18

# International economics summary

- The U.S., Mexico, and Canada reached an agreement on a trade deal to replace NAFTA. The new U.S.-Mexico-Canada Agreement (USMCA) involves few material changes to NAFTA, but the terms appear mildly more favorable for U.S. businesses.
- U.S. negotiations with China, its largest trading partner, continued with little apparent progress. The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24<sup>th</sup>. The White House claimed that the tariff rate will advance from 10% to 25% at yearend if no progress is made in the meantime. China responded with retaliatory tariffs of 10% on \$60 billion of U.S. imports.
- Trade negotiations with other trading partners appear to be mostly resolved, easing concerns of a global trade war.

- Developed market economies are expected to grow less quickly in the coming years, while emerging economy growth rates are expected to rise.
- PMI readings around the globe have weakened during 2018, led by the Eurozone. U.S. PMIs remain very high, indicating expansion in the manufacturing and services sectors.
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, creating doubts around the sustainability of Italy's debt.
- The U.S. dollar appreciated by 1% during the quarter. A stable dollar would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.9%	2.7%	3.8%
	6/30/18	8/31/18	9/30/18
Eurozone	<b>2.1%</b> 6/30/18	2.1% 9/30/18	8.3% 6/30/18
Japan	1.3%	1.3%	2.4%
	6/30/18	8/31/18	6/30/18
BRICS	5.8%	2.5%	5.5%
Nations	6/30/18	6/30/18	6/30/18
Brazil	1.0% 6/30/18	<b>4.5%</b> 9/30/18	12.2% 9/30/18
Russia	1.9% 6/30/18	3.4% 9/30/18	<b>4.6%</b> 8/31/18
India	8.2%	3.7%	8.8%
	6/30/18	8/31/18	12/31/17
China	6.7%	2.3%	3.8%
	6/30/18	8/31/18	6/30/18



### International economics

While U.S. economic growth improved, international growth remained moderate. In the Eurozone, real GDP rose 2.1% YoY in Q2, down from 2.4% in Q1. In addition to slowing growth, political uncertainty in Italy and less stimulus from the European Central Bank has clouded the economic outlook. The political situation in Italy highlights the problems caused by an uneven recovery across the Eurozone. While the French and German economies may be in a position to withstand monetary tightening, it does not appear that this is the case in places such as Italy, Spain, and Portugal.

Political issues have also created much uncertainty in the United Kingdom with the March 2019 deadline for a Brexit deal fast approaching. Theresa May's initial plan was rejected by the European Union, and it appears both sides have at least considered how to move forward without a deal.

Synchronized global growth has moderated

Developed international inflation remains well below central bank targets, which may provide greater flexibility for management of these economic imbalances.

#### **REAL GDP GROWTH (YOY)**



#### **INFLATION (CPI YOY)**



#### UNEMPLOYMENT RATE

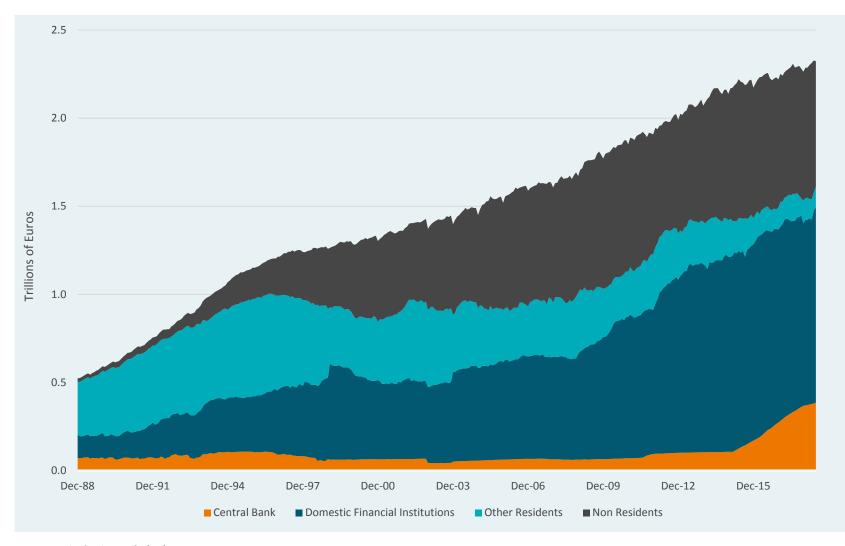


Source: Bloomberg, as of 6/30/18 Source: Bloomberg, as of 8/31/18

berg, as of 8/31/18 Source: Bloomberg, as of 8/31/18 or most recent release



# Italian debt ownership



European banks have helped suppress Italian bond yields

This support may be dwindling as central bank stimulus ends

Source: Bank of Italy, as of 6/30/18



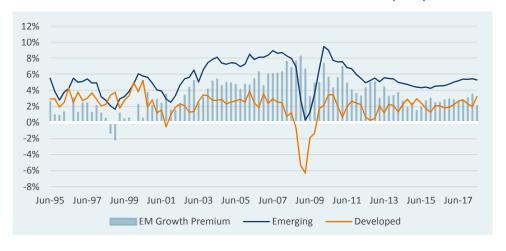
# Emerging economies

Several events over the quarter helped lead to broad weakness in emerging markets assets and to investor concerns about contagion, including a 25% plunge in the Turkish lira in August and Argentina securing a \$50 billion bailout from the IMF. Contagion events in EM economies, such as the Asian financial crisis in the 1990s, have been characterized by a trigger event that caused mass capital outflows, currency depreciation, rising domestic interest rates, and eventually recession. These economies have withstood multiple recent shocks, but the last serious emerging market contagion occurred nearly 20 years ago. This likely reflects material changes in these economies that have made them more resilient to exogenous events.

First, the development of local savings institutions has created a marginal buyer of debt when foreign investors sell that has helped combat interest rate shocks. Second, more emerging economies have moved to flexible exchange rate systems and accumulated significant FX reserves, which gives them more control to slow currency depreciation. Third, many emerging markets have trimmed their reliance on foreign capital, particularly in terms of hard currency debt. Overall, we believe emerging economies remain on solid footing, and provide investors with opportunities in both the short- and long-term.

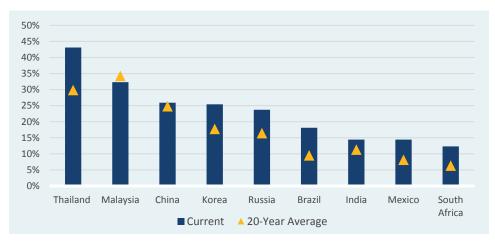
Economic contagion fears seem overblown

#### EMERGING VS. DEVELOPED ECONOMY REAL GDP GROWTH (YOY)



Source: IMF, as of 6/30/18

#### FX RESERVES (% OF GDP)



Source: IMF, GDP as of 6/30/18, FX reserves as of 8/31/18



### U.S.-China trade

Following the successful renegotiation of NAFTA, the Trump Administration has clearly focused in on U.S. and China trade terms. The U.S. implemented 10% tariffs on an additional \$200 billion of Chinese imports that may rise to a 25% rate at the beginning of next year if no progress is made in the meantime. China responded with retaliatory tariffs of 5-10% on \$60 billion of U.S. imports. Based on equity market reactions to this point, and the growing divide between U.S. and China market performance, it appears investors may be more concerned with the impact of trade on China. Chinese equities are down more than 30% from their recent peak in January, while U.S. equities have moved steadily higher.

As the conflict between the two side continues to drag on, it appears that this may be more than just a trade war. Recent developments, including U.S. sanctions on Chinese military leaders and naval run-ins in the South China Sea, point towards a much broader struggle centered around global hegemony. U.S. policy focused on confronting China's rise as a world power would represent a marked break from the past and widen the potential outcomes. If this is the case, the chances of a trade deal may be lower, and even the conclusion of a successful trade deal may not be a safe indicator of a return to stable relations between the two countries.

The U.S.-China conflict appears to be about more than just trade

#### U.S. IMPORTS SUBJECT TO TARIFFS (\$ BILLIONS)



Source: Verus, as of 9/30/18, only includes recently proposed or implemented tariffs

#### 1-YEAR EQUITY PRICE MOVEMENT (INDEXED TO 100)

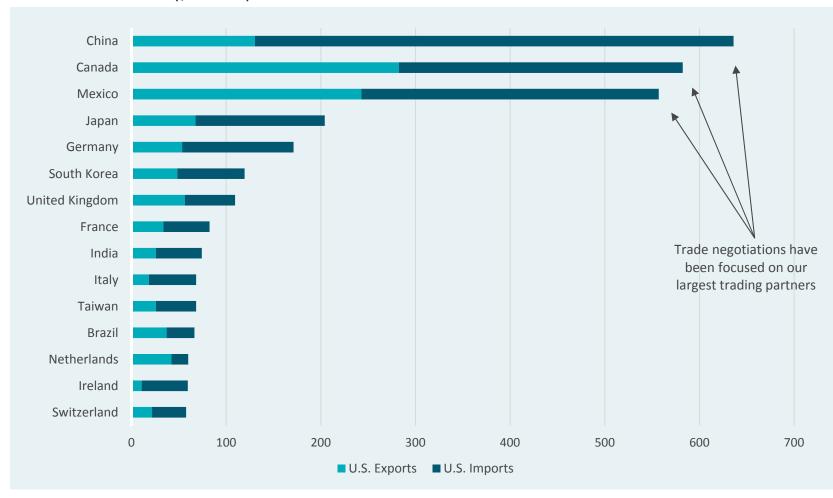


Source: Bloomberg, as of 9/30/18, China A shares are represented by the CSI 300 Index



### U.S. trade

#### U.S. TRADING PARTNERS (\$BILLIONS)



U.S. negotiations have focused on our largest trade partners

NAFTA will be replaced by the U.S.-Mexico-Canada Agreement (USMCA)

Source: U.S. Census Bureau, year 2017



# Fixed income rates & credit



### Interest rate environment

- The Federal Reserve raised the target range for the fed funds rate by 0.25%, to a range of 2.00%-2.25%. The odds for a December rate hike were 78%, as of October 8th.
- Fixed income yields around the world moved slightly higher during the quarter. The U.S. Treasury yield rose to a 7-year high of 3.23%, reigniting investor concerns over rising interest rates. The spread between 2- and 10-year yields has remained steady at around 30 bps.
- In September, the European Central Bank left interest rates unchanged, and confirmed its intent to leave rates at current levels "at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term." The ECB

- also stated that bond purchases of \$30 billion euros per month would be cut in half beginning in October, and would stop altogether at the end of the year.
- The yield spread between Italian and German 10-year bonds has exhibited significant volatility following Italy's political shakeup in the second quarter. Discussions around compliance with European Union budget rules, and the general fear that Italy may push either for structural monetary policy changes, or to leave the Eurozone, contributed to a tumultuous quarter.
- Emerging market local and hard yields were rangebound in Q3, but remained elevated due to continued idiosyncratic risks in countries such as Turkey and Argentina.

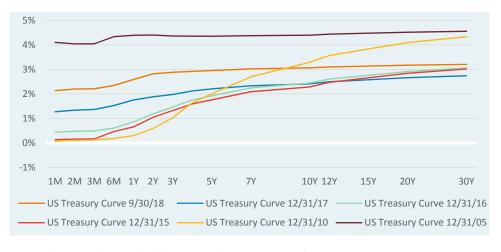
Area	Short Term (3M)	10 Year
United States	2.19%	3.06%
Germany	(0.56%)	0.47%
France	(0.56%)	0.80%
Spain	(0.39%)	1.50%
Italy	0.01%	3.15%
Greece	1.12%	4.18%
U.K.	0.77%	1.57%
Japan	(0.13%)	0.13%
Australia	1.89%	2.67%
China	2.97%	3.63%
Brazil	6.58%	11.76%
Russia	7.02%	8.69%

Source: Bloomberg, as of 9/30/18

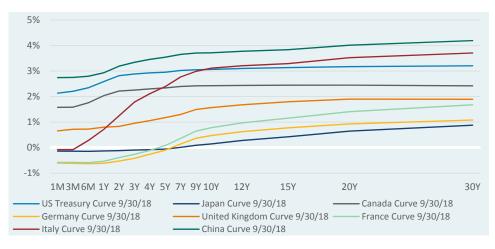


### Yield environment

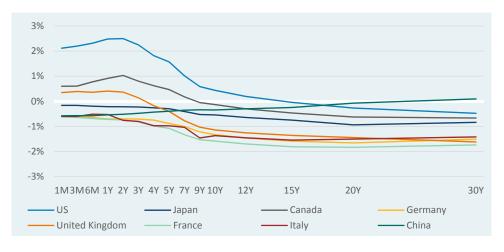
#### **U.S. YIELD CURVE**



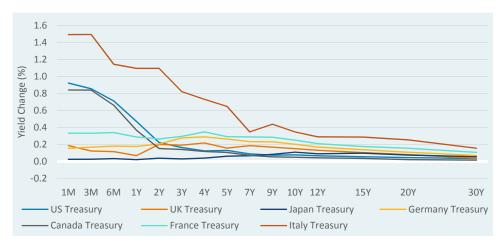
#### **GLOBAL GOVERNMENT YIELD CURVES**



#### YIELD CURVE CHANGES OVER LAST FIVE YEARS



#### **IMPLIED CHANGES OVER NEXT YEAR**



Source: Bloomberg, as of 9/30/18

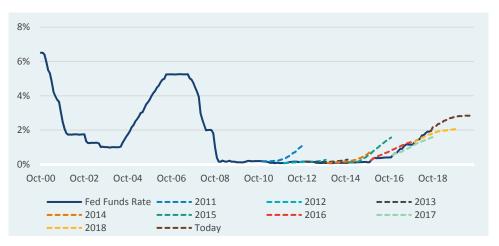


# Fed tightening vs. expectations

The market raised its expectations for further Fed tightening during the quarter. Investors are now pricing in a fourth rate hike in December, but only two more through the end of 2020, which would bring the fed funds rate to near 3%. Meanwhile, Fed officials have communicated a slightly more aggressive path of tightening with expectations to increase the benchmark interest rate to 3.4% by the end of 2020.

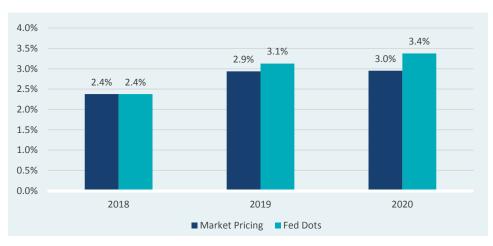
Over the past few years, there has been an interesting shift in how Fed policy has come in relative to market expectations. From 2010 to 2015, the market consistently overestimated when and by how much the Fed would hike rates. However, beginning in 2016 the Fed has been more aggressive than the market expected. Given the current differences between market pricing and Fed expectations, this trend has the potential to continue, which would likely act as a headwind to financial asset prices. However, it is important to remember that official guidance from the Fed dot plot assumes that economic conditions unfold as expected. Based on the uncertain future state of the economy, the Fed may be cautious relative its current expectations.

#### FED FUNDS RATE VS. MARKET EXPECTATIONS



Source: Bloomberg, as of 9/30/18, dotted lines are forward pricing at the start of the year

#### FED FUNDS EXPECTATIONS AT YEAR-END



Source: Bloomberg, Federal Reserve, as of 10/8/18



### Credit environment

Spreads in both bank loans and high yield credit are well below their historical averages. Loans are outperforming high yield bonds for only the second time in the last 13 years. Bank loans have limited duration risk due to their floating-rate nature, which is a quality that some investors have seen as attractive due to the rising rate story. However, credit quality in bank loans has deteriorated throughout the cycle as covenant-lite loans have dominated new issuance. While bank loans offer interest rate protection and a small spread premium over high yield, investors may be paying for this by taking greater downside risk.

U.S. high yield option-adjusted spreads tightened to a decade low in September, despite concerns over a global growth slowdown, rising U.S. Treasury yields, and a volatile landscape in emerging markets. The asset class generated a 2.4% total return over the quarter.

Credit spreads are tight across the capital structure

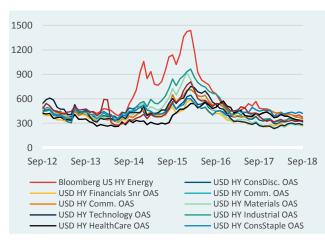
Based on low interest rates and tight spreads, we do not believe investors are being properly compensated for credit risk and recommend an underweight to U.S. investment and high yield credit.

#### **SPREADS**



Source: Barclays, Bloomberg, as of 9/30/18

#### HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/18

Market	Credit Spread (OAS 9/30/18)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	1.5%
US Aggregate	1.0%	1.0%
US High Yield	3.2%	3.5%
US Bank Loans*	3.7%	4.2%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/18

\*Discount margin 4-year life



### Issuance and default

Default activity has been low and stable in the U.S. credit market. The par-weighted default rate remains below its long-term average of 3.0-3.5%, currently at 2.0% for high yield bonds. Total default activity in the last six months encompassed five defaults and \$3.8 billion in affected bonds and loans, the lightest volume over a six-month period since June 2011.

Senior loan and high yield markets have essentially recovered from a wave of defaults seen in 2015-2016, generated from the energy and metals/mining sectors.

Recovery rates for high yield bonds have vastly improved since that time.

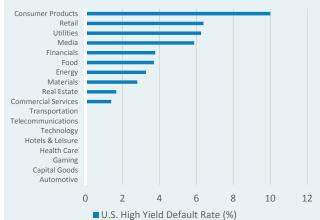
High yield new issue activity has totaled \$175 billion so far this year, which is down 35% over the same period a year ago. Meanwhile, issuance in leveraged loans totaled \$611 billion year-to-date. Notably, repricing activity represents 38% of total volume. New issue spreads continue to compress with strong demand supported by significant retail and institutional inflows into both high yield and senior loan asset classes, as well as CLO formation.

#### HY DEFAULT TRENDS (ROLLING 1 YEAR)



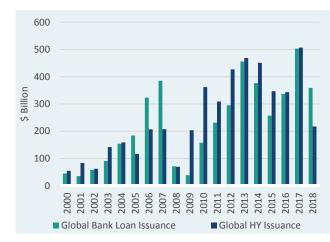
Source: BofA Merrill Lynch, as of 9/30/18

#### **HY SECTOR DEFAULTS (LAST 12 MONTHS)**



Source: BofA Merrill Lynch, as of 9/30/18 - par weighted

#### **GLOBAL ISSUANCE (BILLIONS)**



Source: Bloomberg, BofA Merrill Lynch, as of 9/30/18







# Equity environment

- U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. We remain concerned about the large valuation difference between U.S. and international equities, though the relatively positive outlook for the domestic economy should justify some of the valuation difference.
- Emerging market equities
   delivered slight losses in Q3, but
   seem to have stabilized as
   currency depreciation subsided
   (MSCI Emerging Markets Index
   -1.1%, JP Morgan EM Currency
   Index -1.6%). Many emerging
   market currencies have
   rebounded from their lows. We
   maintain a positive outlook on
   emerging market equities.
- Developed non-U.S. equities have remained range bound following the selloff in the first quarter.
   International equity performance

- outside of emerging markets has been flat (MSCI EAFE +1.4% unhedged, +2.9% hedged).
- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth is expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY.
- Large cap equities (Russell 1000 7.4%) outperformed small cap (Russell 2000 3.6%) during the quarter. Value stocks lagged growth by a similar margin (Russell 1000 Value 5.7% vs. Russell 1000 Growth 9.2%).
- The performance gap between growth and value equities widened further in Q3. The differential continued to be driven by strong returns generated by large names in the tech sector.

		QTD TOTAL RETURN		TOTAL RETURN YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
		(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
	arge Cap ssell 1000)	7.4	%	10.5	5%	17.8	3%
	Small Cap ssell 2000)	3.6	%	11.5	5%	15.2	2%
(Ru	arge Value ssell 1000 Value)	5.7%		3.9	%	9.5%	
(Ru	rge Growth ssell 1000 irowth)	9.2	%	17.1	1%	26.3	3%
	rnational Large SCI EAFE)	1.4%	2.9%	0.1%	2.9%	2.7%	7.1%
	urozone o Stoxx 50)	(0.2%)	1.2%	(2.5%)	1.6%	(4.6%)	(0.3%)
(F	U.K. TSE 100)	(1.8%)	(0.2%)	(2.7%)	2.0%	3.2%	7.4%
	Japan KKEI 225)	6.2%	8.7%	6.8%	7.4%	19.7%	20.7%
(MSC	nerging larkets I Emerging larkets)	(1.1%)	(0.2%)	(7.7%)	(3.8%)	(0.8%)	1.9%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/18



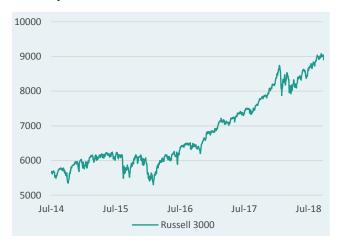
# Domestic equity

U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. Fears of trade conflict crowded the headlines, with the focus nearly all on China as the U.S. successfully concluded negotiations with other trading partners. Equity markets on both sides have generally rallied on news of potential resolution, though the performance gap between U.S. and Chinese equities has trended wider. Trade frictions will likely remain a headwind to performance.

Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY. If analyst forecasts are as overly optimistic as they typically are, this would put 2019 earnings growth at a more average rate of 5-6%. While average earnings growth can be conducive to moderate positive equity returns, current relatively high valuations could case concerns once growth rates decelerate.

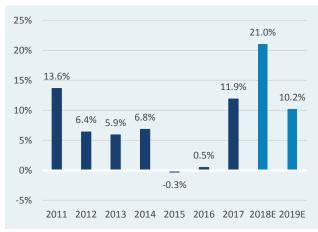
U.S. equities have risen with earnings growth and strong fundamentals, despite trade concerns

#### **U.S. EQUITIES**



#### Source: Russell Investments, as of 9/30/18

#### CALENDAR YEAR EARNINGS GROWTH



#### Source: FactSet, as of 10/12/18

#### S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 9/30/18



# Domestic equity size & style

Large cap equities (Russell 1000 7.4%) outperformed small cap equities (Russell 2000 3.6%) during the quarter. Growth stocks outpaced value stocks by a similar margin (Russell 1000 Growth 9.2% vs. Russell 1000 Value 5.7%).

Differences between sector composition in large-cap style benchmarks have explained much of the recent growth outperformance. Nearly 50% of the Russell 1000 Growth Index is in the more cyclical Information Technology and Consumer Discretionary sectors, which have been by far

and away the best performing sectors over the past year.

Size and value factor performance continues to frustrate investors. While the extent of underperformance is not anomalous, it may be testament to the long-term nature of factor investing. Unless an investor believes that these risk premia no longer exist, maintaining exposure and avoiding capitulation should be the primary goal.

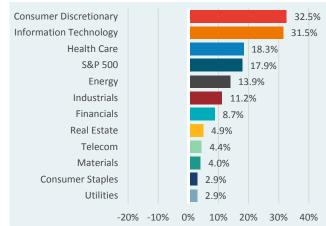
#### SMALL CAP VS LARGE CAP (YOY)



#### **VALUE VS GROWTH (YOY)**



#### 1-YEAR S&P 500 SECTOR RETURNS



Source: FTSE, as of 9/30/18

Source: Morningstar, as of 9/30/18



Source: FTSE, as of 9/30/18

# International developed equity

Unhedged international equities underperformed U.S. equities during Q3 (MSCI EAFE +1.4% vs. S&P 500 +7.7%). On a currency hedged basis, international equities delivered returns of 2.9%.

Currency movement continued to create losses for unhedged equity investors. U.S. investors that hedged their international equity exposure outperformed their unhedged peers by approximately 5% year-to-date (MSCI EAFE Index).

Regional divergence in earnings remained a story in Q3. Year-over-year growth in forward earnings reached 23% for U.S. equities, while estimates fell from 14% to 9% in emerging markets and from 12% to 10% in international developed markets, according to MSCI estimates.

Differences in forward P/E multiples between U.S. and non-U.S. equities remained high. At quarter-end, this valuation gap relative to international developed equity ranked in the 96<sup>th</sup> percentile since 2005. The U.S.-EM valuation gap ranked in the 89<sup>th</sup> percentile over the same period.

#### **EFFECT OF CURRENCY (1-YEAR ROLLING)**



#### EARNINGS GROWTH (YOY)



#### Source: MSCI, as of 9/30/18 – YoY growth in forward earnings

#### FORWARD P/E SPREADS RELATIVE TO U.S.



Source: MSCI, as of 9/30/18



Source: MSCI, as of 9/30/18

# Emerging market equity

Emerging market equities delivered a slight loss in Q3 but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many of these currencies have rebounded from their lows.

Developed markets are expected to grow less quickly in the coming years while emerging economic growth is expected to rise. A positive growth premium of emerging economies relative to developed economies has historically acted as a tailwind for EM outperformance.

We believe positive emerging economy growth trends, attractive valuations, a strong earnings environment, and depressed currencies should provide an environment of strong relative equity performance across these markets.

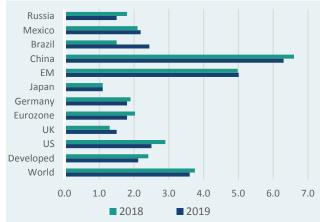
Conditions
remain positive
for medium-term
EM equity
performance,
though volatility
may persist

#### **EQUITY PERFORMANCE (3YR ROLLING)**



Source: Standard & Poor's, MSCI, as of 9/30/18

#### **GDP GROWTH EXPECTATIONS (%)**



Source: Bloomberg, as of 9/30/18

#### **EARNINGS GROWTH (YOY)**



Source: MSCI, as of 9/30/18 – YoY growth in forward earnings



# Emerging market currency movement

Currency moves across most of EM are in-line with DM (~5% depreciation)



South Africa, Brazil, and Russia are causing greater currency pain in EM

Many of these currencies have recovered some of their losses

Source: MSCI, Bloomberg, as of 9/30/18



# Equity valuations

Forward equity P/E multiples moved lower during the quarter and year-to-date as strong earnings growth expectations came to fruition. We remain concerned about the large valuation difference between U.S. and international equities, though the relatively positive domestic economic outlook and strong expected earnings growth through year-end should justify some of the valuation difference. However, because a significant portion of U.S. earnings outperformance has been due to a one-time tax cut, it may become more difficult to justify the valuation disparity beyond 2018.

Looking at markets through our *carry, value, trend,* and *macro* lens, carry and value have improved through lower prices and higher underlying earnings. Trend has flattened out in international markets as equity performance has been rangebound year-to-date. The macro environment has weakened outside the U.S., with economic data indicating a more average backdrop.

#### **FORWARD P/E RATIOS**

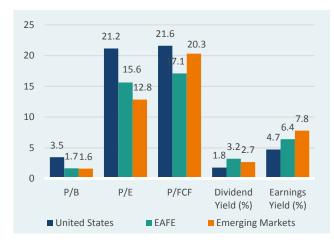


#### **MOMENTUM (1YR)**



#### Source: Standard & Poor's, MSCI, as of 9/30/18

#### VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, as of 9/30/18 - trailing P/E



Source: MSCI, as of 9/30/18

# Equity volatility

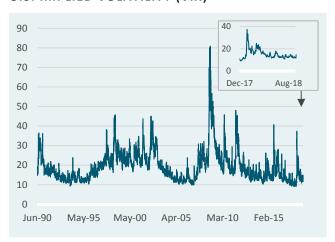
U.S. equity volatility remains muted. The VIX index ranged from 11 to 16 for the entirety of the quarter. Despite such an extended period of below-average volatility, it may be helpful to remember that the VIX Index has averaged 19.3 since 1990. Volatility has remain depressed or elevated for extended periods of time.

Realized volatility of the S&P 500 was below average at 9.1%. International equities have also exhibited muted volatility (MSCI EAFE 9.1%, MSCI Emerging Markets 13.3%).

Stories of idiosyncratic emerging market crises dominated news headlines over the quarter. However, emerging market equity volatility is at an average level (MSCI EM). At the end of the third quarter, the one-month implied volatility of the index was 17.1%, slightly below its three-year average of 18.5%. In Q3, the MSCI EM Index fell 1.1%, bringing the year-to-date decline to 7.7%.

Global equity volatility remained below average

#### U.S. IMPLIED VOLATILITY (VIX)



#### REALIZED 1-YEAR ROLLING VOLATILITY



#### Source: Bloomberg, as of 9/30/18

#### MSCI EM INDEX 1-MONTH IMPLIED VOLATILITY

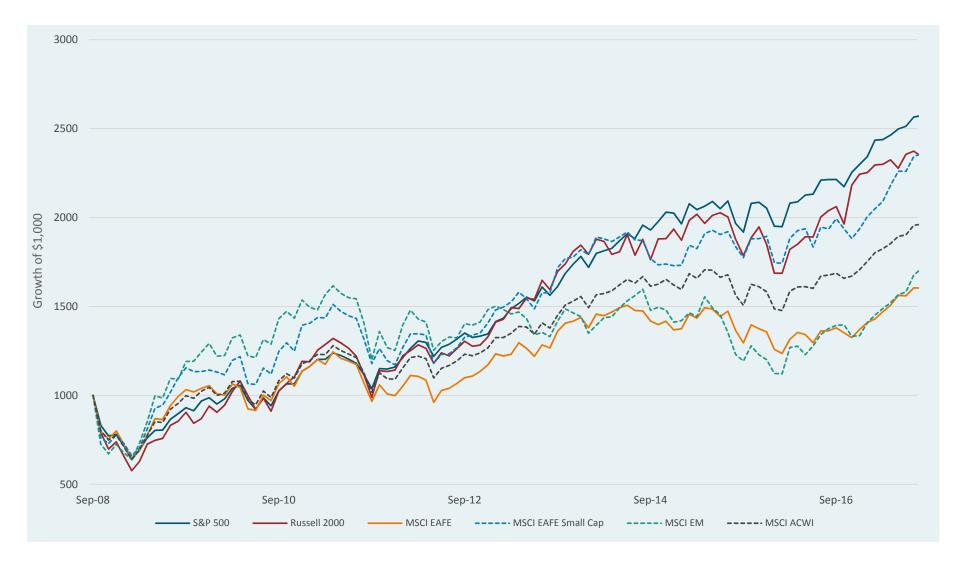


Source: Bloomberg, as of 9/30/18



Source: CBOE, as of 9/30/18

# Long-term equity performance



Source: Morningstar, as of 9/30/18



# Other assets



# Currency

The U.S. dollar appreciated 1% during the quarter on a tradeweighted dollar basis. A stable dollar going forward would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger. Some of the worst performing emerging market currencies have partially recovered from 2<sup>nd</sup> quarter losses.

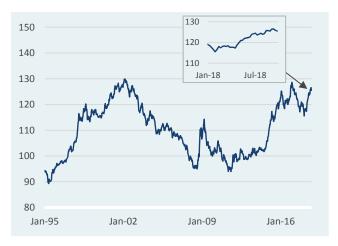
Major currencies have fluctuated widely relative to the U.S. dollar in 2018. Most currencies strengthened through the first quarter, but this trend reversed when international economic growth began to show weakness, which helped

push up the value of the dollar. Because foreign currencies have been positively correlated with equity markets, these movements have added to total volatility.

Wide short-term interest rate differentials between the U.S. and the rest of the world have created a tailwind for those hedging U.S. dollar exposures. For example, based on current FX forward pricing, an investor would lock in an annualized gain of 3.3% when hedging the euro, which is typically the biggest foreign currency exposure in portfolios.

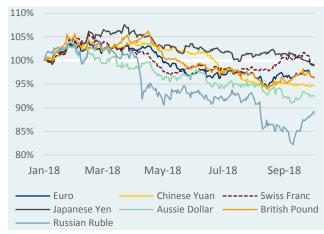
The U.S. dollar materially appreciated, reversing a multi-year downtrend

### U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, as of 9/30/18

### **USD MOVES VS MAJOR CURRENCIES**



Source: Verus, Bloomberg, as of 9/30/18

### ANNUALIZED FX HEDGING COSTS (GAINS)



Source: Bloomberg, as of 9/30/18, based on 3-month FX forwards



# Alternative beta

Alternative beta strategies have suffered sharp losses so far this year, near a two standard deviation downside event for many strategies based on historical returns and volatility. Returns from managers we follow were better in the third quarter, but most strategies are still digging out of a hole created in the first two quarters of the year. Factor exposure, in particular equity value, can help explain some of the poor performance. The long drawdown in the value factor has come at a time when other factors that are often relied on in alt beta strategies, including trend-following and short volatility, have also experienced losses. The magnitude of the

drawdown in the value factor is within normal bounds based on history, but it has been the longest on record. Momentum in U.S. equities has performed well, but this has not been enough to offset negative value returns.

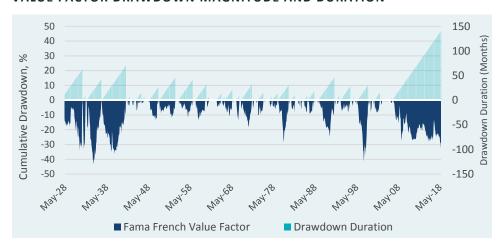
We reiterate our belief that alternative beta strategies are not "broken" per se, but instead have reflected extreme drawdowns in some factors and muted returns in others. We will continue to closely monitor these strategies and engage in frequent discussions with managers.

### U.S. MARKET NEUTRAL FACTOR PERFORMANCE (12-MONTH ROLLING)



Source: S&P Dow Jones, Thematic Market Neutral Indices, as of 9/30/18

### VALUE FACTOR DRAWDOWN MAGNITUDE AND DURATION



Source: Kenneth French Data Library, as of 8/31/18



# Hedge funds

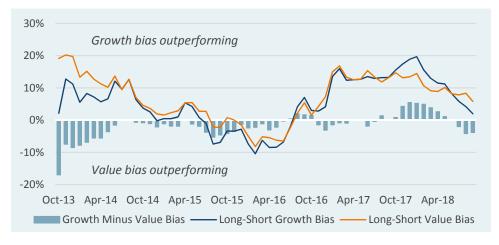
Hedge funds delivered modestly positive results across strategies in Q3 (HFRI Fund Weighted Composite +0.6%). Equity-focused managers had mixed results. Funds specializing in health care (+5.0%) stood out as strong performers. At the beginning of the quarter, growth-oriented managers had enjoyed a run of favorable results relative to value-oriented peers dating back to Q4 2017. Growth manager results relative to peers suffered as a narrow set of high growth equity names sold off in the quarter. Many other equity-focused managers were marginally positive or flat. Emerging market fund results ranged from small losses in Latin America to significant losses in China and India.

Within the fixed income markets, managers that focused on the credit and asset-backed securities sectors, in aggregate, were up about +1.5% for the quarter. Most other fixed income focused investment styles were modestly positive to flat for the period. Due to the relatively tight credit spreads, many credit-oriented managers are now carefully allocating capital to idiosyncratic long positions to protect against downside losses from a potential increase in spreads.

### HFRI HEDGE FUND STYLE PERFORMANCE



# GROWTH VS VALUE BIAS IN LONG-SHORT EQUITY MANAGERS (1-YR ROLLING PERFORMANCE)



Source: HFRI, as of 9/30/18



Source: HFRI, as of 9/30/18

# Private markets

# Deals increased in buyouts and venture; multiples are steady; buyout fundraising has slowed

- Buyout activity has continued to increase in 2018. Through the third quarter buyouts are up 25% and 24% when measured by dollar value and number of transactions, respectively. The size of the average buyout is virtually unchanged from 2017 (\$142 million). Unlike deal flow, fund capital raising has slowed from the peaks of 2017. Only 143 buyout funds representing \$121 billion closed so far this year, down from 184 funds representing \$178 billion through the same period last year. Trailing-twelve-month funds raised is down 25% from a record \$224 billion in 2017.
- Buyout multiples are largely unchanged from 2017. Average EV/EBITDA is 11.9x through September 30, 2018 (down from 12.1x in 2017) with debt multiples averaging 5.7x through the third quarter. Debt as a percentage of transaction value remains at 50%, which is down from 60% in 2013.
- Venture capital fundraising and deal volumes continue to set records. \$32 billion of venture capital has been raised in the U.S. through the first 9 months of 2018, an increase of 33% over the same period last year. Similarly, venture deals are up 37%. In fact, year-to-date venture deal volume (\$84 billion) exceeds the record of \$82 billion that was set in 2017.
- Balancing high deal multiples and a growing number of deals against a slowdown in fundraising, we advocate selectivity in fund investments.

### **BUYOUTS DEAL VOLUME & CAPITAL RAISED**



### TRANSACTION MULTIPLES



### **VENTURE DEAL VOLUME & FUNDRAISING**



Source: PitchBook Source: PitchBook



Source: PitchBook

# Appendix



# Periodic table of returns

BEST 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 YTD 5-Year 10-Year 17.1 Large Cap Growth 38.7 31.8 14.0 25.9 29.1 14.3 43.3 13.3 31.7 16.6 14.3 43.1 48.5 22.2 21.4 16.2 37.2 18.1 5.7 30.2 15.8 12.7 Small Cap Growth 27.0 22.8 26.9 1.4 26.9 38.8 13.2 21.3 13.7 13.0 17.3 33.2 12.2 7.3 6.7 47.3 20.1 23.5 15.8 -6.5 34.5 24.5 2.6 34.5 0.9 12.1 **Small Cap Equity** 20.3 20.7 17.9 25.0 11.5 12.1 Large Cap Equity 27.3 46.0 18.3 14.0 22.2 11.8 -21.4 32.5 1.5 33.5 11.8 12.1 22.2 10.5 3.3 1.6 11.1 11.1 39.2 7.5 18.4 16.8 0.4 11.8 7.1 Small Cap Value 16.2 26.5 2.8 1.0 11.6 28.4 16.4 33.1 0.0 21.7 10.7 Large Cap Value 15.6 24.3 6.0 2.5 30.0 14.5 16.6 -28.9 27.2 16.7 0.1 16.3 32.5 5.6 -0.4 11.3 9.9 9.5 14.3 -2.1 15.3 Real Estate 21.3 4.1 29.9 6.3 15.5 10.3 -33.8 16.1 23.3 4.9 11.2 14.6 3.5 6.3 -0.8 9.2 -3.0 12.1 60/40 Global Portfolio 4.9 20.9 11.4 29.7 12.9 5.3 15.1 7.0 -35.6 20.6 -2.9 14.6 4.2 -1.4 8.0 13.7 1.4 6.2 1.2 13.2 -15.5 25.2 11.4 13.3 -36.8 19.7 13.1 -4.2 11.5 11.0 3.4 7.1 7.8 1.3 Cash 4.4 5.4 -9.2 23.9 10.2 -5.5 18.9 10.5 1.2 Hedge Funds of Funds -2.5 11.4 -7.8 -15.7 4.6 10.4 5.8 -37.6 9.0 7.7 International Equity -5.1 -14.0 -12.4 -20.5 11.6 6.9 9.1 4.4 -38.4 11.5 8.2 -5.7 4.8 0.1 0.0 -4.4 5.1 -1.4 3.2 **US Bonds** -6.5 -22.4 -19.5 6.3 4.2 4.8 -38.5 -11.7 2.2 2.6 4.8 -21.7 9.0 -0.2 -7.5 1.0 -22.4 -20.4 -27.9 3.2 -1.6 -43.1 0.2 5.7 -13.3 0.1 -4.5 0.5 1.7 -2.0 0.5 0.3 Commodities -27.0 2.1 -24.7 -30.3 1.0 -16.9 0.1 -18.2 -1.1 -17.0 0.3 0.9 -7.2 -6.2 -21.2 -9.8 1.4 Small Cap Growth Commodities Large Cap Equity

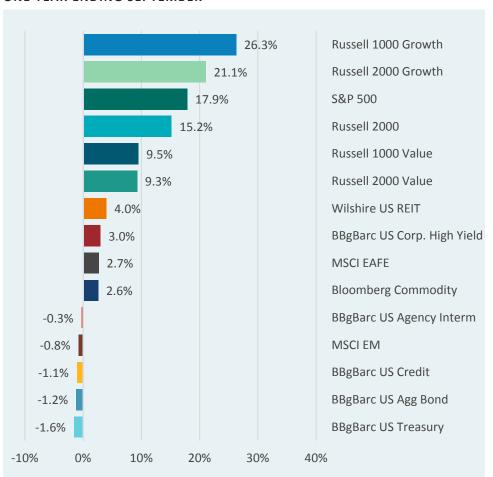


Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 6/30/18.

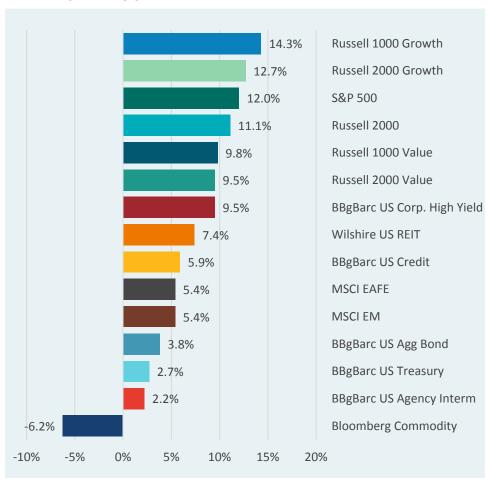


# Major asset class returns

### ONE YEAR ENDING SEPTEMBER



### TEN YEARS ENDING SEPTEMBER



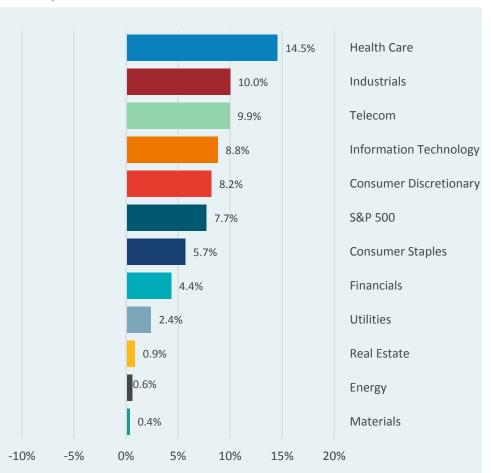
Source: Morningstar, as of 9/30/18

Source: Morningstar, as of 9/30/18

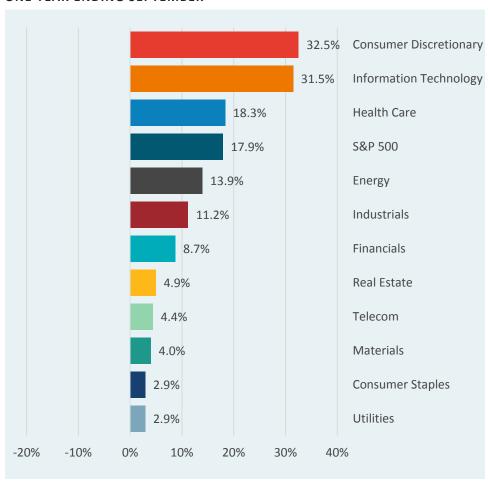


# S&P 500 sector returns

### THIRD QUARTER



### ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

Source: Morningstar, as of 9/30/18



# Detailed index returns

MEST		

### **FIXED INCOME**

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	0.6	7.7	10.6	17.9	17.3	13.9	12.0
S&P 500 Equal Weighted	0.1	5.4	7.3	13.9	15.4	12.5	13.1
DJ Industrial Average	2.0	9.6	8.8	20.8	20.5	14.6	12.2
Russell Top 200	0.8	8.4	11.7	19.3	18.1	14.5	12.0
Russell 1000	0.4	7.4	10.5	17.8	17.1	13.7	12.1
Russell 2000	(2.4)	3.6	11.5	15.2	17.1	11.1	11.1
Russell 3000	0.2	7.1	10.6	17.6	17.1	13.5	12.0
Russell Mid Cap	(0.6)	5.0	7.5	14.0	14.5	11.7	12.3
Style Index							
Russell 1000 Growth	0.6	9.2	17.1	26.3	20.6	16.6	14.3
Russell 1000 Value	0.2	5.7	3.9	9.5	13.6	10.7	9.8
Russell 2000 Growth	(2.3)	5.5	15.8	21.1	18.0	12.1	12.7
Russell 2000 Value	(2.5)	1.6	7.1	9.3	16.1	9.9	9.5

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	(1.1)	(8.0)	(8.0)	0.4	2.0	1.4	3.3
BBgBarc US Treasury Bills	0.2	0.5	1.3	1.5	0.8	0.5	0.4
BBgBarc US Agg Bond	(0.6)	0.0	(1.6)	(1.2)	1.3	2.2	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	(0.1)	0.2	0.2	(0.0)	0.4	0.6	1.1
BBgBarc US Treasury Long	(3.0)	(2.9)	(5.8)	(3.6)	0.7	4.4	5.5
BBgBarc US Treasury	(0.9)	(0.6)	(1.7)	(1.6)	0.2	1.3	2.7
Issuer							
BBgBarc US MBS	(0.6)	(0.1)	(1.1)	(0.9)	1.0	2.0	3.3
BBgBarc US Corp. High Yield	0.6	2.4	2.6	3.0	8.1	5.5	9.5
BBgBarc US Agency Interm	(0.2)	0.2	0.0	(0.3)	0.6	1.1	2.2
BBgBarc US Credit	(0.3)	0.9	(2.1)	(1.1)	3.0	3.4	5.9

INTERNATIONAL EQUITY							
Broad Index							
MSCI ACWI	0.4	4.3	3.8	9.8	13.4	8.7	8.2
MSCI ACWI ex US	0.5	0.7	(3.1)	1.8	10.0	4.1	5.2
MSCI EAFE	0.9	1.4	(1.4)	2.7	9.2	4.4	5.4
MSCI EM	(0.5)	(1.1)	(7.7)	(0.8)	12.4	3.6	5.4
MSCI EAFE Small Cap	(0.7)	(0.9)	(2.2)	3.7	12.4	8.0	9.7
Style Index							
MSCI EAFE Growth	(0.2)	1.5	0.6	5.8	10.3	5.6	6.2
MSCI EAFE Value	2.1	1.2	(3.5)	(0.4)	8.1	3.1	4.5
Regional Index							
MSCI UK	1.8	(1.7)	(2.7)	2.9	6.2	2.2	4.9
MSCI Japan	3.0	3.7	1.6	10.2	12.1	6.8	6.0
MSCI Euro	(0.1)	(0.4)	(3.6)	(3.2)	8.5	3.9	3.4
MSCI EM Asia	(1.7)	(1.8)	(6.8)	1.0	13.5	6.7	8.2
MSCI EM Latin American	4.7	4.8	(6.9)	(9.1)	13.7	(2.3)	0.7

OTHER							
Index							
Bloomberg Commodity	1.9	(2.0)	(2.0)	2.6	(0.1)	(7.2)	(6.2)
Wilshire US REIT	(2.8)	(5.4)	2.2	4.0	7.1	9.2	7.4
CS Leveraged Loans	0.7	4.4	4.4	5.6	5.4	4.4	5.8
Alerian MLP	(2.0)	7.0	5.2	3.3	3.9	(2.8)	10.0
Regional Index							
JPM EMBI Global Div	1.5	2.3	(3.0)	(1.9)	6.0	5.4	7.5
JPM GBI-EM Global Div	2.6	(1.8)	(8.1)	(7.4)	5.2	(1.7)	2.7
Hedge Funds							
HFRI Composite	(0.2)	0.6	1.5	4.1	5.4	4.1	4.6
HFRI FOF Composite	(0.0)	0.4	1.2	3.3	3.4	3.2	2.6
Currency (Spot)							
Euro	(0.2)	(0.5)	(3.3)	(1.8)	1.3	(3.0)	(1.9)
Pound	0.3	(1.2)	(3.6)	(2.8)	(4.9)	(4.2)	(3.1)
Yen	(2.4)	(2.5)	(8.0)	(0.9)	1.8	(2.9)	(0.7)

Source: Morningstar, HFR, as of 9/30/18



# **Definitions**

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

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

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

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# **Tulare County Employees' Retirement Association**

**Investment Performance Review Period Ending: September 30, 2018** 



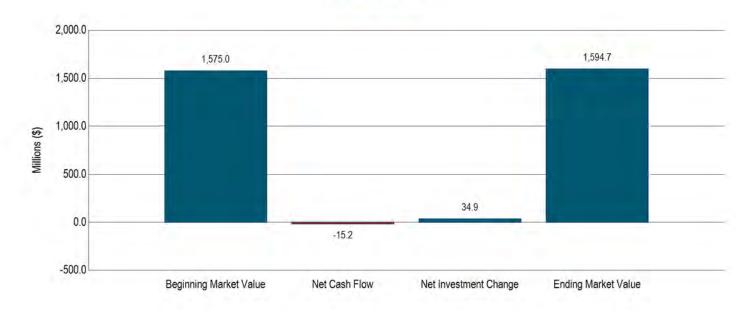
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SEATTLE 206-622-3700 LOS ANGELES 310-297-1777 SAN FRANCISCO 415-362-3484

## Fiscal Year-To-Date

Beginning Market Value	\$1,574,960,897
Net Cash Flow	-\$15,189,285
Net Investment Change	\$34,907,411
Ending Market Value	\$1,594,679,024

# Change in Market Value Last Three Months



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



	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	2.2	3.0	2.2	6.4	9.0	6.5	6.6	6.9	7.1
Policy Index	2.3	2.8	2.3	6.4	9.0	6.4	7.0	7.2	6.6
InvestorForce Public DB Gross Rank	75	70	75	74	79	83	89	65	23
Total Fund x Clifton	2.2	3.0	2.2	6.4	8.9	6.5			
Policy Index	2.3	2.8	2.3	6.4	9.0	6.4			
InvestorForce Public DB Gross Rank	76	71	76	76	81	83			
Total Domestic Equity	7.3	12.1	7.3	19.2	17.5	14.1	12.6	10.5	10.5
Russell 3000	7.1	10.6	7.1	17.6	17.1	13.5	12.0	9.9	7.8
InvestorForce Public DB US Eq Gross Rank	13	14	13	14	15	4	11	14	1
Total International Equity	1.1	-3.1	1.1	1.2	10.3	4.4	4.6	6.5	5.6
MSCI ACWI ex USA Gross	0.8	-2.7	0.8	2.3	10.5	4.6	5.7	7.7	6.3
InvestorForce Public DB ex-US Eq Gross Rank	22	54	22	63	51	72	85	87	94
Total Global Equity	2.2	-3.5	2.2	5.0	15.8		-	-	
MSCI ACWI Gross	4.4	4.3	4.4	10.3	14.0				
InvestorForce Public DB Glbl Eq Gross Rank	82	95	82	76	3				
Total Fixed Income	0.5	-0.7	0.5	-0.5	3.0	2.7	5.4	4.5	5.0
BBgBarc US Aggregate TR	0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.8	4.5
InvestorForce Public DB US Fix Inc Gross Rank	24	60	24	47	27	46	19	39	57
Total Domestic Fixed Income	0.3	-0.9	0.3	-0.4	2.6	2.7			
BBgBarc US Aggregate TR	0.0	-1.6	0.0	-1.2	1.3	2.2			
Total Global Fixed Income	1.3	0.6	1.3	-0.8	4.2	2.4	-		
JPM GBI Global TR USD	-1.7	-2.6	-1.7	-1.6	1.5	0.5			



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

Policy

Actual



New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Russell 3000 +300 bps, 5% BBgBarc High Yield +2% Lagged. All return periods greater than 1-year are rolling annualized returns. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Real Assets	1.0	4.4	1.0	7.5	6.1				
Real Assets Composite Benchmark	0.4	2.8	0.4	5.7	5.2				
Total Real Estate	2.0	6.4	2.0	8.1	7.6	10.0	4.2	8.2	8.5
NCREIF Property Index	1.7	5.3	1.7	7.2	7.8	9.6	6.4	9.0	
NCREIF-ODCE	2.1	6.5	2.1	8.7	8.8	10.7	5.6	8.3	8.6
Total Commodities	-1.9	-0.9	-1.9	6.0	2.6		-	-	
Bloomberg Commodity Index TR USD	-2.0	-2.0	-2.0	2.6	-0.1				
Commodities Broad Basket MStar MF Rank	34	39	34	33	32				
Total Alternatives	2.3	8.0	2.3	10.4	5.3	2.0	2.5		
CPI + 5%	1.4	6.2	1.4	7.4	7.1	6.6	6.5		
Total Private Equity	2.9	12.1	2.9	16.7	10.3	11.0	10.0		
Russell 3000 + 3%	7.9	13.0	7.9	21.1	20.5	16.8	15.3		
Total Private Credit	3.8	8.5	3.8	10.3	-		-		
BBgBarc High Yield +2% (Lagged)	1.5	2.1	1.5	4.7					
Total Liquid Alts/HFoF	0.8	4.8	0.8	5.8	3.7	4.0	-	-	
CPI + 5%	1.4	6.2	1.4	7.4	7.1	6.6			
Total Opportunistic	0.7	25.9	0.7	27.7	13.2	13.7	-		



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



New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Russell 3000 +300 bps, 5% BBgBarc High Yield +2% Lagged. All return periods greater than 1-year are rolling annualized returns. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



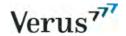
	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	2.2	2.8	2.2	6.1	8.6	6.1	6.3	6.6	6.8
Policy Index	2.3	2.8	2.3	6.4	9.0	6.4	7.0	7.2	6.6
Total Fund x Clifton	2.1	2.8	2.1	6.1	8.5	6.1			
Policy Index	2.3	2.8	2.3	6.4	9.0	6.4			
Total Domestic Equity	7.2	11.7	7.2	18.7	17.0	13.6	12.1	10.1	10.1
Russell 3000	7.1	10.6	7.1	17.6	17.1	13.5	12.0	9.9	7.8
Total International Equity	1.0	-3.3	1.0	0.9	9.9	4.1	4.2	6.2	5.2
MSCI ACWI ex USA Gross	0.8	-2.7	0.8	2.3	10.5	4.6	5.7	7.7	6.3
Total Global Equity	2.0	-4.1	2.0	4.1	14.8		-		-
MSCI ACWI Gross	4.4	4.3	4.4	10.3	14.0				
Total Fixed Income	0.4	-0.9	0.4	-0.8	2.6	2.3	5.1	4.3	4.8
BBgBarc US Aggregate TR	0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.8	4.5
Total Domestic Fixed Income	0.2	-1.2	0.2	-0.7	2.3	2.4	-	-	
BBgBarc US Aggregate TR	0.0	-1.6	0.0	-1.2	1.3	2.2			
Total Global Fixed Income	1.2	0.2	1.2	-1.3	3.7	1.9	-		
JPM GBI Global TR USD	-1.7	-2.6	-1.7	-1.6	1.5	0.5			
Total Real Assets	1.0	4.4	1.0	7.5	5.7		-		
Real Assets Composite Benchmark	0.4	2.8	0.4	5.7	5.2				
Total Real Estate	2.0	6.4	2.0	8.1	7.2	9.5	4.0	7.4	7.6
NCREIF Property Index	1.7	5.3	1.7	7.2	7.8	9.6	6.4	9.0	
NCREIF-ODCE	2.1	6.5	2.1	8.7	8.8	10.7	5.6	8.3	8.6
Total Commodities	-1.9	-0.9	-1.9	6.0	2.3		-		
Bloomberg Commodity Index TR USD	-2.0	-2.0	-2.0	2.6	-0.1				
Total Alternatives	2.3	8.0	2.3	10.4	4.8	1.4	2.1		
CPI + 5%	1.4	6.2	1.4	7.4	7.1	6.6	6.5		
Total Private Equity	2.9	12.1	2.9	16.7	9.6	10.1	9.5	-	
Russell 3000 + 3%	7.9	13.0	7.9	21.1	20.5	16.8	15.3		
Total Private Credit	3.8	8.5	3.8	10.3	-		-	-	
BBgBarc High Yield +2% (Lagged)	1.5	2.1	1.5	4.7					
Total Liquid Alts/HFoF	0.8	4.8	0.8	5.8	3.4	3.4	-	-	
CPI + 5%	1.4	6.2	1.4	7.4	7.1	6.6			
Total Opportunistic	0.7	25.9	0.7	27.7	12.4	12.7			



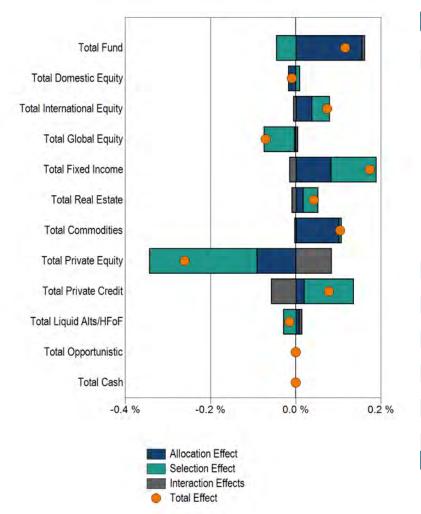
# Rolling Annualized Excess Performance and Tracking Error Total Fund vs. Policy Index



New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Russell 3000 +300 bps, 5% BBgBarc High Yield +2% Lagged. All return periods greater than 1-year are rolling annualized returns.



# Attribution Effects 3 Months Ending September 30, 2018



# **Performance Attribution**

	Last 3 Mo.	YTD
Wtd. Actual Return	2.1%	2.6%
Wtd. Index Return *	2.3%	2.7%
Excess Return	-0.2%	-0.1%
Selection Effect	0.0%	0.4%
Allocation Effect	0.2%	0.0%
Interaction Effect	0.0%	-0.2%

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

# Attribution Summary 3 Months Ending September 30, 2018

	Wtd., Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	7.2%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total International Equity	1.0%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%
Total Global Equity	2.0%	4.4%	-2.4%	-0.1%	0.0%	0.0%	-0.1%
Total Fixed Income	0.4%	0.0%	0.4%	0.1%	0.0%	0.0%	0.1%
Total Real Estate	2.0%	1.7%	0.3%	0.0%	0.0%	0.0%	0.0%
<b>Total Commodities</b>	-1.9%	-2.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Total Private Equity	2.9%	7.9%	-5.0%	-0.3%	-0.1%	0.1%	-0.3%
Total Private Credit	3.8%	1.5%	2.3%	0.1%	0.0%	-0.1%	0.0%
Total Liquid Alts/HFoF	0.8%	1.4%	-0.6%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic							
Total Cash							
Total	2.1%	2.3%	-0.2%	0.0%	-0.2%	0.0%	-0.3%

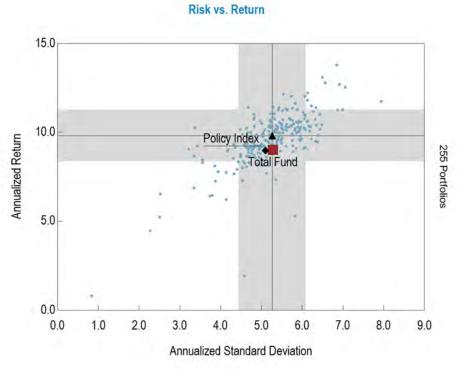
Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.



# Total Fund

# Risk Analysis - 3 Years (Gross of Fees)

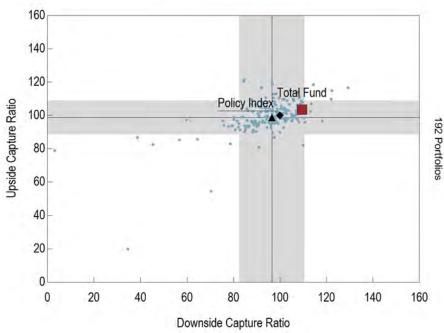
	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.40%	4.69%	-0.74%	1.12	1.05%	0.96	1.03	0.05	105.08%	112.77%



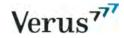


- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

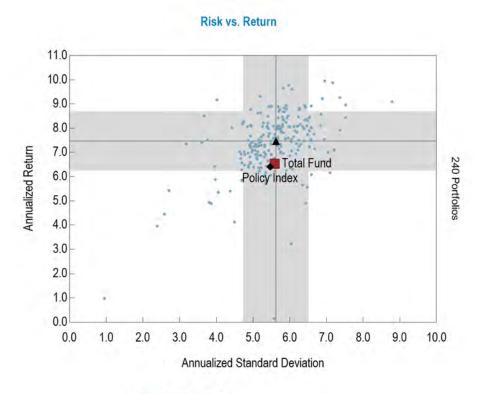




- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross



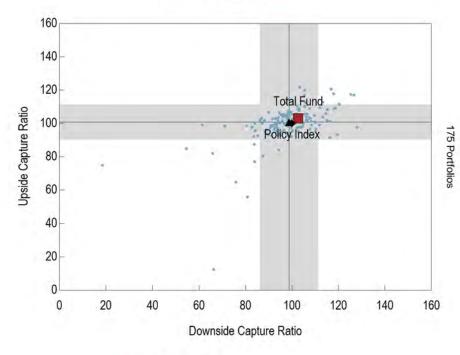
	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.53%	5.59%	0.04%	1.01	0.78%	0.98	1.08	0.16	103.09%	102.61%



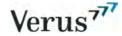


- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

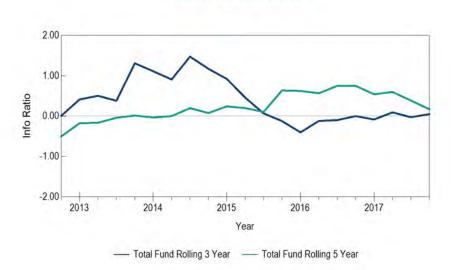
# Up Markets vs. Down Markets



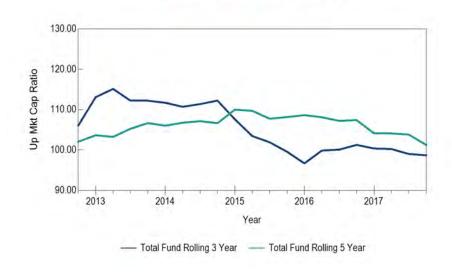
- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross



# 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	2017	2016	2015	2014	2013
Total Fund	1,594,679,024	100.0	2.2	3.0	2.2	6.4	9.0	6.5	6.6	14.3	7.6	-1.2	4.2	15.8
Policy Index			2.3	2.8	2.3	6.4	9.0	6.4	7.0	14.0	8.0	-1.1	4.6	12.6
InvestorForce Public DB Gross Rank			75	70	75	74	79	83	89	71	53	80	83	49
Total Fund x Clifton	1,586,563,483	99.5	2.2	3.0	2.2	6.4	8.9	6.5		14.2	7.6	-1.1	4.1	15.8
Policy Index			2.3	2.8	2.3	6.4	9.0	6.4		14.0	8.0	-1.1	4.6	12.6
InvestorForce Public DB Gross Rank			76	71	76	76	81	83		72	53	80	87	48
Total Domestic Equity	329,784,587	20.7	7.3	12.1	7.3	19.2	17.5	14.1	12.6	22.3	11.5	1.6	12.4	35.9
Russell 3000			7.1	10.6	7.1	17.6	17.1	13.5	12.0	21.1	12.7	0.5	12.6	33.6
InvestorForce Public DB US Eq Gross Rank			13	14	13	14	15	4	11	16	77	10	17	24
SSGA S&P 500 Flagship Fund	60,827,051	3.8	7.7	10.6	7.7	17.9	17.4	14.0		21.9	12.0	1.5	13.7	32.4
S&P 500			7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank			37	36	37	40	25	35		52	31	40	42	58
QMA Large Cap Core	61,462,941	3.9	7.6	10.2	7.6	18.4	17.6	14.8		22.5	12.5	2.1	15.6	34.3
S&P 500			7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank			39	41	39	35	24	15		42	25	31	20	37
lvy Large Cap Growth	67,586,477	4.2	8.7	20.4	8.7	28.1	20.0	16.9		30.2	2.1	7.6	12.8	37.3
Russell 1000 Growth			9.2	17.1	9.2	26.3	20.6	16.6		30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank			38	22	38	28	38	25		42	72	26	40	25
Boston Partners Large Cap Value	57,774,228	3.6	7.8	6.1	7.8	13.6	15.3	11.7	11.7	20.1	14.7	-3.9	11.8	37.0
Russell 1000 Value			5.7	3.9	5.7	9.5	13.6	10.7	9.8	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Gross Rank			12	37	12	34	37	43	26	22	54	65	58	26
SSGA Russell Small Cap Completeness Index	25,846,906	1.6	4.3	10.6	4.3	16.0	16.2	11.4		18.2	16.5	-3.5	7.4	
Russell Small Cap Completeness			4.3	10.7	4.3	16.1	16.3	11.4		18.3	16.6	-3.4	7.4	
eV US Small Cap Core Equity Gross Rank			44	49	44	40	59	64		23	84	68	37	
William Blair SMID Cap Growth	31,668,751	2.0	8.7	21.4	8.7	28.6	20.9	16.6	16.4	30.4	8.2	6.1	9.8	43.1
Russell 2500 Growth			7.2	15.8	7.2	23.1	18.0	12.9	13.6	24.5	9.7	-0.2	7.1	40.7
eV US Mid Cap Growth Equity Gross Rank			29	18	29	17	12	5	3	16	22	7	33	11
Lee Munder Small Value	24,618,232	1.5	1.8	5.2	1.8	8.4	15.3	10.9		8.6	28.4	0.4	5.1	33.1
Russell 2000 Value			1.6	7.1	1.6	9.3	16.1	9.9		7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank			45	55	45	60	48	45		68	38	9	60	85



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	281,354,689	17.6	1.1	-3.1	1.1	1.2	10.3	4.4	4.6	26.9	6.2	-5.9	-4.8	18.5
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6	5.7	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank			22	54	22	63	51	72	85	80	13	85	83	44
SSGA MSCI ACWI Ex US Index Fund	95,348,590	6.0	0.8	-2.9	0.8	2.0	10.3	4.4		27.6	4.8	-5.5	-3.6	15.5
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank			55	71	55	63	50	90		49	17	96	49	90
PIMCO RAE Fundamental Global Ex US Fund	95,401,847	6.0	1.7	-3.8	1.7	0.6	11.8	4.4		26.7	13.5	-10.9	-5.7	24.5
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank			25	82	25	78	27	89		53	1	99	79	51
SGA Global Growth	90,593,134	5.7	0.8		0.8									
MSCI ACWI ex USA Gross			0.8		0.8									
eV ACWI ex-US Core Equity Gross Rank			37		37									
Total Global Equity	45,380,047	2.8	2.2	-3.5	2.2	5.0	15.8			33.7	16.1	-11.5		
MSCI ACWI Gross			4.4	4.3	4.4	10.3	14.0			24.6	8.5	-1.8		
InvestorForce Public DB Glbl Eq Gross Rank			82	95	82	76	3			1	2	99		
Skellig DST Water Fund	45,380,047	2.8	2.2	-3.5	2.2	5.0	15.8			33.7	16.1	-11.5		
MSCI ACWI Gross			4.4	4.3	4.4	10.3	14.0			24.6	8.5	-1.8		
eV Global All Cap Equity Gross Rank			80	96	80	82	19			9	6	96		
Total Fixed Income	400,244,332	25.1	0.5	-0.7	0.5	-0.5	3.0	2.7	5.4	4.3	5.5	-0.8	4.6	-0.9
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
InvestorForce Public DB US Fix Inc Gross Rank			24	60	24	47	27	46	19	50	37	77	69	49
Total Domestic Fixed Income														
BlackRock Fixed Income	145,304,072	9.1	0.1	-1.5	0.1	-1.1	1.7	2.5	4.4	3.9	3.1	1.1	6.2	-1.5
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
eV All US Fixed Inc Gross Rank			76	82	76	86	62	55	51	54	53	39	29	75
Doubleline Core Plus	76,539,625	4.8	0.3	-0.6	0.3	-0.2				4.2	4.8			
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank			67	21	67	35				86	52			
MacKay Shields Core Plus	75,749,246	4.8	0.4	-1.3	0.4	-0.6				5.0	5.1			
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank			57	69	57	67				52	46			



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Shenkman High Yield	20,852,501	1.3	1.8	2.7	1.8	3.3	6.8	5.1		7.2	12.3	-2.4	2.5	6.3
ICE BofAML US High Yield TR eV US High Yield Fixed Inc Gross Rank			2.4 91	2.5 42	2.4 91	2.9 44	8.2 68	5.5 71	 	7.5 57	17.5 65	-4.6 51	2.5 52	7.4 81
SSGA TIPS	11,073,998	0.7	-0.8	-0.8	-0.8	0.4	2.0	1.4		3.0	4.7	-1.4	3.6	-8.6
BBgBarc US TIPS TR eV US TIPS / Inflation Fixed Inc Gross Rank			-0.8 69	-0.8 73	-0.8 69	0.4 75	2.0 70	1.4 64	 	3. <i>0</i> 69	4.7 50	-1.4 63	3.6 44	-8.6 77
Total Global Fixed Income														
Franklin Templeton Global Bond Plus	70,724,890	4.4	1.3	0.6	1.3	-0.8	4.1	2.3		3.0	6.8	-3.5	2.4	3.0
JPM GBI Global TR USD			-1.7	-2.6	-1.7	-1.6	1.5	0.5		6.8	1.6	-2.6	0.7	-4.5
eV Global Fixed Inc Unhedged Gross Rank			21	21	21	48	37	45		96	24	67	50	23
Total Real Assets	172,834,077	10.8	1.0	4.4	1.0	7.5	6.1			5.0	10.4	0.4		
Real Assets Composite Benchmark			0.4	2.8	0.4	5.7	5.2			5.2	9.4	-0.7		
Total Real Estate	113,108,648	7.1	2.0	6.4	2.0	8.1	7.6	10.0	4.2	4.3	9.0	16.0	13.1	11.5
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
RREEF America II	112,600,292	7.1	1.9	6.2	1.9	7.8	7.9	10.3	5.7	4.4	9.3	16.7	13.0	15.5
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	508,356	0.0	4.1	9.9	4.1	13.0	7.6	10.3	2.6	5.2	4.6	16.7	15.1	5.2
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9



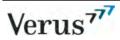
	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	59,725,429	3.7	-1.9	-0.9	-1.9	6.0	2.6			7.5	14.5	-26.3		
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank			34	39	34	33	32			16	27	80		
Gresham MTAP Commodity Builder	30,249,562	1.9	-0.8	0.7	-0.8	7.3	2.2			5.9	12.3	-25.4	-16.1	
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7	-17.0	
Commodities Broad Basket MStar MF Rank			16	29	16	26	37			28	53	71	34	
Wellington Commodity	29,475,866	1.8	-3.1	-2.5	-3.1	4.7	2.8			9.0	15.8	-25.7		
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank			83	64	83	39	31			9	13	73		
Total Liquid Alts/HFoF	64,669,497	4.1	0.8	4.8	0.8	5.8	3.7	4.0		5.4	0.3	0.7	5.4	11.0
CPI + 5%			1.4	6.2	1.4	7.4	7.1	6.6		7.2	7.2	5.8	5.8	6.6
Aetos Capital	32,312,811	2.0	1.2	2.3	1.2	3.3	4.3	4.3	4.6	6.8	2.6	1.2	5.2	11.4
ICE BofAML 90 DAY T-BILLS + 400 bps			1.2	3.6	1.2	4.6	3.9	3.7	3.9	3.9	3.3	3.1	3.5	4.1
Titan Advisors	32,356,686	2.0	0.5	7.4	0.5	8.5				4.0	0.6			
ICE BofAML 90 DAY T-BILLS + 400 bps			1.2	3.6	1.2	4.6				3.9	3.3			



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	1,594,679,024	100.0	2.2	2.8	2.2	6.1	8.6	6.1	6.3	13.9	7.1	-1.6	3.8	15.4
Policy Index			2.3	2.8	2.3	6.4	9.0	6.4	7.0	14.0	8.0	-1.1	4.6	12.6
Total Fund x Clifton	1,586,563,483	99.5	2.1	2.8	2.1	6.1	8.5	6.1		13.8	7.0	-1.6	3.7	15.5
Policy Index			2.3	2.8	2.3	6.4	9.0	6.4		14.0	8.0	-1.1	4.6	12.6
Total Domestic Equity	329,784,587	20.7	7.2	11.7	7.2	18.7	17.0	13.6	12.1	21.9	11.1	1.2	12.0	35.3
Russell 3000			7.1	10.6	7.1	17.6	17.1	13.5	12.0	21.1	12.7	0.5	12.6	33.6
SSGA S&P 500 Flagship Fund	60,827,051	3.8	7.7	10.5	7.7	17.9	17.3	14.0		21.8	12.0	1.4	13.7	32.4
S&P 500			7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
QMA Large Cap Core	61,462,941	3.9	7.5	9.9	7.5	18.0	17.2	14.4		22.1	12.1	1.8	15.2	33.9
S&P 500			7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
Ivy Large Cap Growth	67,586,477	4.2	8.6	19.9	8.6	27.4	19.3	16.3		29.5	1.6	7.1	12.3	36.6
Russell 1000 Growth			9.2	17.1	9.2	26.3	20.6	16.6		30.2	7.1	5.7	13.0	33.5
Boston Partners Large Cap Value	57,774,228	3.6	7.7	5.7	7.7	13.1	14.8	11.2	11.2	19.6	14.2	-4.4	11.4	36.4
Russell 1000 Value			5.7	3.9	5.7	9.5	13.6	10.7	9.8	13.7	17.3	-3.8	13.5	32.5
SSGA Russell Small Cap Completeness Index	25,846,906	1.6	4.3	10.6	4.3	16.0	16.2	11.3		18.1	16.5	-3.5	7.3	
Russell Small Cap Completeness			4.3	10.7	4.3	16.1	16.3	11.4		18.3	16.6	-3.4	7.4	
William Blair SMID Cap Growth	31,668,751	2.0	8.5	20.6	8.5	27.5	19.9	15.5	15.4	29.3	7.2	5.2	8.8	42.0
Russell 2500 Growth			7.2	15.8	7.2	23.1	18.0	12.9	13.6	24.5	9.7	-0.2	7.1	40.7
Lee Munder Small Value	24,618,232	1.5	1.6	4.5	1.6	7.5	14.3	9.9		7.7	27.3	-0.5	4.1	31.8
Russell 2000 Value			1.6	7.1	1.6	9.3	16.1	9.9		7.8	31.7	-7.5	4.2	34.5
Total International Equity	281,354,689	17.6	1.0	-3.3	1.0	0.9	9.9	4.1	4.2	26.5	5.9	-6.2	-5.0	18.3
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6	5.7	27.8	5.0	-5.3	-3.4	15.8
SSGA MSCI ACWI Ex US Index Fund	95,348,590	6.0	0.7	-2.9	0.7	1.9	10.2	4.3		27.5	4.7	-5.5	-3.7	15.5
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
PIMCO RAE Fundamental Global Ex US Fund	95,401,847	6.0	1.5	-4.1	1.5	0.1	11.3	3.9		26.0	13.0	-11.4	-5.9	23.7
MSCI ACWI ex USA Gross			0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
SGA Global Growth	90,593,134	5.7	0.7		0.7									
MSCI ACWI ex USA Gross			0.8		0.8									
Total Global Equity	45,380,047	2.8	2.0	-4.1	2.0	4.1	14.8			32.6	15.1	-12.3		
MSCI ACWI Gross			4.4	4.3	4.4	10.3	14.0			24.6	8.5	-1.8		
Skellig DST Water Fund	45,380,047	2.8	2.0	-4.1	2.0	4.1	14.8			32.6	15.1	-12.3		
MSCI ACWI Gross			4.4	4.3	4.4	10.3	14.0			24.6	8.5	-1.8		



	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	400,244,332	25.1	0.4	-0.9	0.4	-0.8	2.6	2.3	5.1	3.9	5.1	-1.1	4.3	-1.2
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
Total Domestic Fixed Income														
BlackRock Fixed Income	145,304,072	9.1	0.1	-1.7	0.1	-1.3	1.4	2.2	4.2	3.6	2.9	0.8	6.0	-1.8
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
Doubleline Core Plus	76,539,625	4.8	0.2	-0.9	0.2	-0.5				3.9	4.6			
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2				3.5	2.6			
MacKay Shields Core Plus	75,749,246	4.8	0.3	-1.5	0.3	-1.0				4.5	4.7			
BBgBarc US Aggregate TR			0.0	-1.6	0.0	-1.2				3.5	2.6			
Shenkman High Yield	20,852,501	1.3	1.6	2.3	1.6	2.8	6.3	4.5		6.7	11.7	-2.9	2.0	5.8
ICE BofAML US High Yield TR			2.4	2.5	2.4	2.9	8.2	5.5		7.5	17.5	-4.6	2.5	7.4
SSGA TIPS	11,073,998	0.7	-0.8	-0.9	-0.8	0.3	2.0	1.3		3.0	4.6	-1.5	3.6	-8.6
BBgBarc US TIPS TR			-0.8	-0.8	-0.8	0.4	2.0	1.4		3.0	4.7	-1.4	3.6	-8.6
Total Global Fixed Income														
Franklin Templeton Global Bond Plus	70,724,890	4.4	1.2	0.2	1.2	-1.3	3.5	1.7		2.4	6.1	-4.1	1.9	2.5
JPM GBI Global TR USD			-1.7	-2.6	-1.7	-1.6	1.5	0.5		6.8	1.6	-2.6	0.7	-4.5
Total Real Assets	172,834,077	10.8	1.0	4.4	1.0	7.5	5.7	-		5.0	9.5	-0.4	-	
Real Assets Composite Benchmark			0.4	2.8	0.4	5.7	5.2			5.2	9.4	-0.7		
Total Real Estate	113,108,648	7.1	2.0	6.4	2.0	8.1	7.2	9.5	4.0	4.3	8.0	15.1	12.5	11.5
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
RREEF America II	112,600,292	7.1	1.9	6.2	1.9	7.8	7.5	9.7	5.2	4.4	8.2	15.7	12.0	15.0
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	508,356	0.0	4.1	9.9	4.1	13.0	7.2	9.7	1.4	5.2	3.7	15.4	14.6	5.1
NCREIF Property Index			1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9



# Total Fund Performance Summary (Net of Fees)

# Period Ending: September 30, 2018

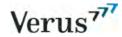
	Market Value	% of Portfolio	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	59,725,429	3.7	-1.9	-0.9	-1.9	6.0	2.3			7.5	13.6	-26.8		
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	30,249,562	1.9	-0.8	0.7	-0.8	7.3	1.8			5.9	11.5	-25.9	-16.8	
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7	-17.0	
Wellington Commodity	29,475,866	1.8	-3.1	-2.5	-3.1	4.7	2.5			9.0	14.9	-26.3		
Bloomberg Commodity Index TR USD			-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Total Liquid Alts/HFoF	64,669,497	4.1	0.8	4.8	0.8	5.8	3.4	3.4		5.4	-0.5	0.0	4.6	9.9
CPI + 5%			1.4	6.2	1.4	7.4	7.1	6.6		7.2	7.2	5.8	5.8	6.6
Aetos Capital	32,312,811	2.0	1.2	2.3	1.2	3.3	4.0	3.8	4.2	6.8	1.8	0.5	4.5	10.4
ICE BofAML 90 DAY T-BILLS + 400 bps			1.2	3.6	1.2	4.6	3.9	3.7	3.9	3.9	3.3	3.1	3.5	4.1
Titan Advisors	32,356,686	2.0	0.5	7.4	0.5	8.5				4.0	-0.1			
ICE BofAML 90 DAY T-BILLS + 400 bps			1.2	3.6	1.2	4.6				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	14.00%	9.56%	0.05%	1.00	0.04%	1.00	1.41	1.38	100.33%	99.92%
QMA Large Cap Core	14.83%	9.85%	0.60%	1.02	1.43%	0.98	1.46	0.62	103.83%	96.75%
Ivy Large Cap Growth	16.92%	11.02%	-0.03%	1.02	3.16%	0.92	1.49	0.11	103.50%	101.98%
Boston Partners Large Cap Value	11.69%	10.63%	0.31%	1.06	3.04%	0.92	1.05	0.32	106.97%	99.53%
SSGA Russell Small Cap Completeness Index	11.39%	11.54%	-0.02%	1.00	0.06%	1.00	0.94	-0.65	99.73%	100.01%
William Blair SMID Cap Growth	16.56%	10.75%	6.10%	0.81	3.98%	0.91	1.49	0.92	93.98%	72.41%
Lee Munder Small Value	10.88%	12.26%	2.08%	0.89	2.96%	0.96	0.85	0.33	87.10%	85.39%
SSGA MSCI ACWI Ex US Index Fund	4.39%	11.19%	-0.20%	1.00	0.06%	1.00	0.35	-3.42	99.06%	100.48%
PIMCO RAE Fundamental Global Ex US Fund	4.42%	12.31%	-0.47%	1.06	3.20%	0.94	0.32	-0.06	113.59%	108.79%
BlackRock Fixed Income	2.51%	2.64%	0.40%	0.97	0.27%	0.99	0.76	1.30	103.51%	93.23%
Shenkman High Yield	5.06%	4.14%	0.58%	0.81	1.36%	0.95	1.10	-0.35	82.90%	80.84%
SSGA TIPS	1.37%	3.60%	0.00%	1.00	0.03%	1.00	0.24	0.04	99.94%	99.91%
Franklin Templeton Global Bond Plus	2.30%	5.51%	2.37%	-0.17	7.94%	0.02	0.33	0.23	0.79%	-42.74%
RREEF America II	10.50%	4.29%	3.21%	0.68	3.35%	0.50	2.33	-0.06	64.28%	
TA Associates Realty	10.27%	5.34%	2.71%	0.79	4.38%	0.35	1.83	0.16	70.76%	
Aetos Capital	4.32%	2.82%	-1.80%	1.66	2.81%	0.01	1.36	0.23	118.92%	

							IRR Analysis	as of IRR date				
Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 9/30/2018 <sup>3</sup>	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) <sup>1</sup>	Tot. Value/ Paid-In (TVPI) <sup>2</sup>	Net IRR Since Inception <sup>6</sup>	IRR Date
Private E	quity											
2005	BlackRock Private Capital II <sup>7</sup>	\$4,912,173	\$15,000,000	\$15,000,000	100%	\$0	\$19,025,132	\$5,351,174	126.8%	159.6%	7.5%	06/30/18
2016	Ocean Avenue Fund III	\$12,813,853	\$20,000,000	\$11,200,000	56%	\$8,800,000	\$1,200,000	\$11,813,853	10.7%	125.1%	32.7%	06/30/18
2004	Pantheon USA Fund VI	\$3,754,125	\$15,000,000	\$14,175,000	95%	\$825,000	\$18,673,426	\$4,157,552	131.7%	158.2%	7.3%	06/30/18
2016	Pathway Private Equity Fund Investors 8	\$12,333,496	\$20,000,000	\$10,357,420	52%	\$9,642,580	\$688,017	\$12,288,496	6.6%	125.7%	19.7%	06/30/18
2017	Pathway Private Equity Fund Investors 9	\$3,753,237	\$20,000,000	\$3,782,784	19%	\$16,217,216	\$29,547	\$0	0.8%	100.0%	N/A	N/A
2011	Stepstone Secondary Opportunities Fund II8	\$17,294,537	\$27,500,000	\$27,500,000	100%	\$0	\$18,839,558	\$17,294,537	68.5%	131.4%	14.2%	06/30/18
Private C	redit						-34.4					
2016	TPG Diversified Credit	\$46,983,269	\$80,000,000	\$43,659,262	55%	\$36,340,738	\$485,608	\$41,019,423	1.1%	108.7%	11.0%	06/30/18
Private R	eal Estate											
2007	TA Associates VIII	\$508,356	\$30,000,000	\$30,000,000	100%	\$0	\$29,787,171	\$5,243,521	99.3%	101.0%	1.5%	06/30/18
Opportur	istic											
2010	KKR Mezzanine Partners	\$3,277,371	\$15,000,000	\$15,000,000	100%	\$0	\$17,819,791	\$3,305,893	118.8%	140.6%	8.8%	06/30/18
2011	PIMCO Bravo	\$637,156	\$15,000,000	\$15,000,000	100%	\$0	\$27,040,381	\$637,156	180.3%	184.5%	22.3%	06/30/18
											***************************************	
	Total Private Markets	\$106,267,573	\$257,500,000	\$185,674,466	72%	\$71,825,534	\$133,588,631	\$101,111,605	71.9%	129.2%		
	% of Portfolio (Market Value)	6.7%										

<sup>(</sup>DPI) is equal to (capital returned / capital called)



<sup>&</sup>lt;sup>2</sup>(TVPI) is equal to (market value + capital returned) / capital called

<sup>&</sup>lt;sup>3</sup>Last known market value + capital calls - distributions

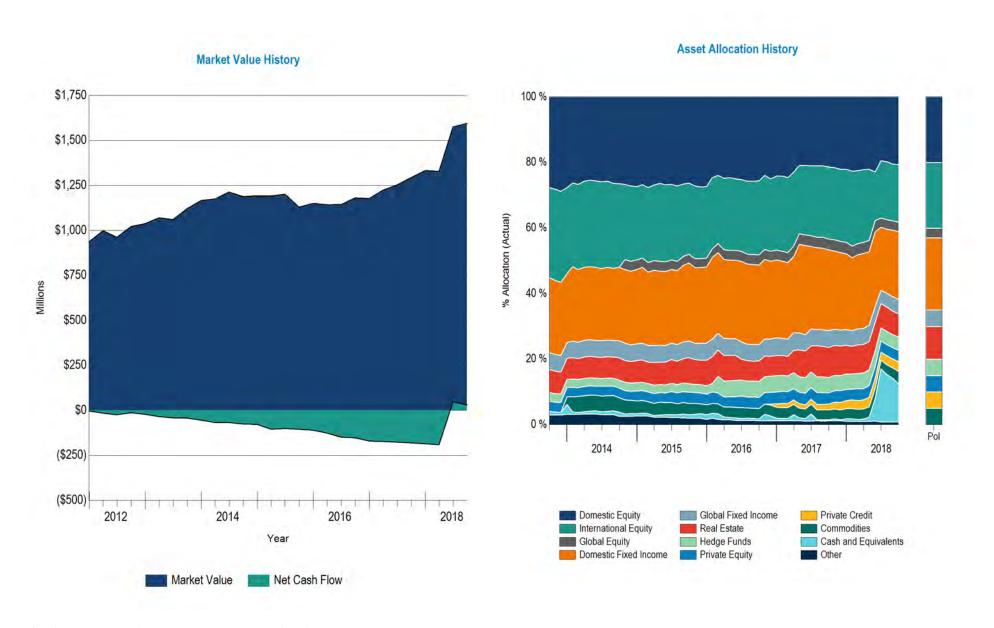
<sup>&</sup>lt;sup>4</sup>IRR currently unavailable for these funds.

<sup>&</sup>lt;sup>5</sup>Investment period ended, no further capital to be called.

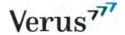
<sup>&</sup>lt;sup>6</sup>Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

<sup>&</sup>lt;sup>7</sup>BlackRock: Total capital called is \$15,519,967 which includes recycled distributions.

<sup>&</sup>lt;sup>8</sup>StepStone: \$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	Current				Within IPS
Current		Policy			Current Balance	Current Allocation	Policy	Difference	Policy Range	Range?
1				Domestic Equity	\$329,784,587	20.7%	20.0%	\$10,848,782	10.0% - 30.0%	Yes
				International Equity	\$281,354,689	17.6%	20.0%	-\$37,581,115	10.0% - 30.0%	Yes
	00.70/		20.0%	Global Equity	\$45,380,047	2.8%	3.0%	-\$2,460,324	0.0% - 5.0%	Yes
	20.7%		20.076	Domestic Fixed Income	\$329,519,441	20.7%	22.0%	-\$21,309,944	20.0% - 45.0%	Yes
				Global Fixed Income	\$70,724,890	4.4%	5.0%	-\$9,009,061	0.0% - 10.0%	Yes
				Real Estate	\$113,108,648	7.1%	10.0%	-\$46,359,254	0.0% - 15.0%	Yes
				Hedge Funds	\$64,669,497	4.1%	5.0%	-\$15,064,455	0.0% - 10.0%	Yes
				Private Equity	\$54,861,721	3.4%	5.0%	-\$24,872,230	0.0% - 10.0%	Yes
	17.6%		20.0%	Private Credit	\$46,983,269	2.9%	5.0%	-\$32,750,682	0.0% - 10.0%	Yes
	100000		20.070	Commodities	\$59,725,429	3.7%	5.0%	-\$20,008,523	0.0% - 10.0%	Yes
				Cash and Equivalents	\$186,536,738	11.7%		\$186,536,738		No
	2.8%			Other	\$12,030,068	0.8%		\$12,030,068		No
	2000		3.0%	Total	\$1,594,679,024	100.0%	100.0%			
	20.7%		22.0%							
			22.0%							
	4.4%									
	4.470		5.0%							
	7.1%		3.070							
	12.7 %									



4.1% 3.4% 2.9%

3.7%

11.7%

0.8%

10.0%

5.0%

5.0%

5.0%

5.0%

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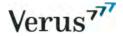
Account	Fee Schedule	Market Value As of 9/30/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Aetos Capital	0.70% of Assets	\$32,312,811	2.0%	\$226,190	0.70%
BlackRock Alternative Advisors	120,000 Annually	\$4,912,173	0.3%	\$120,000	2.44%
BlackRock Fixed Income	0.25% of First 100.0 Mil, 0.25% of Next 100.0 Mil	\$145,304,072	9.1%	\$363,260	0.25%
Boston Partners Large Cap Value	0.45% of First 50.0 Mil, 0.35% of Next 50.0 Mil, 0.30% Thereafter	\$57,774,228	3.6%	\$252,210	0.44%
Doubleline Core Plus	0.28% of First 100.0 Mil, 0.25% Thereafter	\$76,539,625	4.8%	\$214,311	0.28%
Franklin Templeton Global Bond Plus	0.62% of First 50.0 Mil, 0.51% of Next 50.0 Mil, 0.45% Thereafter	\$70,724,890	4.4%	\$415,697	0.59%
Gresham MTAP Commodity Builder	0.75% of Assets	\$30,249,562	1.9%	\$226,872	0.75%
Ivy Large Cap Growth	0.60% of First 25.0 Mil, 0.50% of Next 25.0 Mil, 0.40% Thereafter	\$67,586,477	4.2%	\$345,346	0.51%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	0.38% of Assets	\$3,277,371	0.2%	\$12,290	0.38%
Lee Munder Small Value	0.90% of First 25.0 Mil, 0.85% of Next 75.0 Mil, 0.30% Thereafter	\$24,618,232	1.5%	\$221,564	0.90%
MacKay Shields Core Plus	0.40% of Assets	\$75,749,246	4.8%	\$302,997	0.40%
Mellon Capital Cash Account	No Fee	\$186,536,738	11.7%		
Ocean Avenue Fund III	0.85% of Assets	\$12,813,853	0.8%	\$108,918	0.85%
Pantheon Ventures	0.47% of Assets	\$3,754,425	0.2%	\$17,796	0.47%
Pathway Private Equity Fund Investors 8	0.61% of Assets	\$12,333,496	0.8%	\$75,234	0.61%
Pathway Private Equity Fund Investors 9	0.58% of Assets	\$3,753,237	0.2%	\$21,769	0.58%
PIMCO Bravo	1.60% of Assets	\$637,156	0.0%	\$40,778	6.40%
PIMCO RAE Fundamental Global Ex US Fund	0.78% of First 25.0 Mil, 0.43% of Next 75.0 Mil, 0.38% Thereafter	\$95,401,847	6.0%	\$497,728	0.52%
QMA Large Cap Core	0.35% of First 50.0 Mil, 0.30% of Next 50.0 Mil, 0.25% Thereafter	\$61,462,941	3.9%	\$209,389	0.34%
RREEF America II	0.95% of Assets	\$112,600,292	7.1%	\$1,069,703	0.95%

\*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.

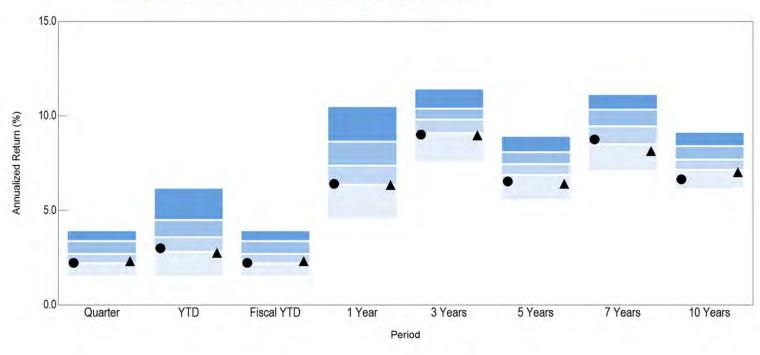


Account	Fee Schedule	Market Value As of 9/30/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
SGA Global Growth	0.45% of Assets	\$90,593,134	5.7%	\$407,669	0.45%
Shenkman High Yield	0.50% of Assets	\$20,852,501	1.3%	\$104,263	0.50%
Skellig DST Water Fund	0.77% of Assets	\$45,380,047	2.8%	\$347,157	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	\$95,348,590	6.0%	\$64,709	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	\$25,846,906	1.6%	\$12,923	0.05%
SSGA S&P 500 Flagship Fund	0.03% of Assets	\$60,827,051	3.8%	\$18,248	0.03%
SSGA TIPS	0.06% of First 50.0 Mil, 0.05% of Next 50.0 Mil, 0.04% Thereafter	\$11,073,998	0.7%	\$6,644	0.06%
Stepstone Secondary Opportunities Fund II	343,750 Annually	\$17,294,537	1.1%	\$343,750	1.99%
TA Associates Realty	0.60% of Assets	\$508,356	0.0%	\$3,050	0.60%
The Clifton Group	Asset Based Fee: 0.0375% (Quarterly) Retainer Fee: \$4,500 (Quarterly) Minimum Expense: \$50,000 (Annual)	\$8,115,541	0.5%		
Titan Advisors	.75% on AUM, 10% on performance, 5% hurdle rate.	\$32,356,686	2.0%		
TPG Diversified Credit	No Fee	\$46,983,269	2.9%		
Wellington Commodity	0.75% of Assets	\$29,475,866	1.8%	\$221,069	0.75%
William Blair SMID Cap Growth	0.95% of First 10.0 Mil, 0.80% of Next 20.0 Mil, 0.75% of Next 20.0 Mil, 0.70% of Next 50.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$31,668,751	2.0%	\$267,516	0.84%
Investment Management Fee		\$1,594,667,906	100.0%	\$6,539,050	0.41%

<sup>\*</sup>TPG fee schedule is as follows: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term investor designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period (3) TICP 30bps on remaining capital contributions. Total MV does not include Fidelity International Growth balance of \$11,118.



# Total Fund Cumulative Performance vs. InvestorForce Public DB Gross



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

■ Total Fund▲ Policy Index

Return (Ra	ank)														
3.9		6.2	-	3.9		10.5		11.4		8.9		11.1		9.2	
3.4		4.5		3.4		8.6		10.4		8.1		10.3		8.4	
2.7		3.6		2.7		7.4		9.8		7.5		9.5		7.7	
2.2		2.8		2.2		6.4		9.1		6.9		8.5		7.2	
1.5		1.5		1.5		4.5		7.6		5.6		7.1		6.1	
267		266		267		265		255		240		226		208	
2.2	(75)	3.0	(70)	2.2	(75)	6.4	(74)	9.0	(79)	6.5	(83)	8.8	(68)	6.6	(89)
2.3	(70)	2.8	(76)	2.3	(70)	6.4	(76)	9.0	(80)	6.4	(85)	8.1	(84)	7.0	(81)



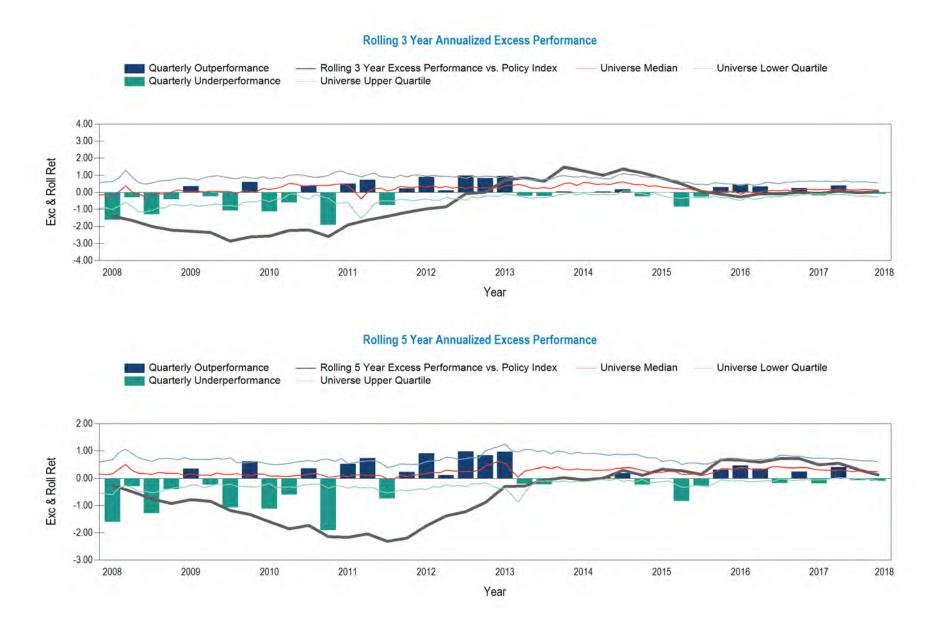
### Total Fund Consecutive Periods vs. InvestorForce Public DB Gross 30.0 25.0 20.0 15.0 10.0 Annualized Return (%) 5.0 0.0 -5.0 -10.0 -15.0 -20.0 -25.0 -30.0 -35.0 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 Period

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

● Total Fund ▲ Policy Index

-	27.77																	
	9.4		2.2		8.0		20.8		14.6		3.6		15.4		27.0		-10.1	
	8.4		0.9		6.8		18.0		13.4		1.9		14.0		22.4		-20.1	
	7.7		0.1		5.8		15.5		12.4		0.9		12.9		20.2		-24.9	
	6.9		-0.9		4.6		13.3		10.7		-0.3		11.7		15.9		-27.6	
	5.3		-2.6		3.2		8.5		7.8		-2.5		8.6		10.5		-30.3	
	305		316		248		231		236		206		188		184		181	
(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)	-27.7	(77)
(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)	-24.5	(46)
		7.7 6.9 5.3 305 (71) 7.6	7.7 6.9 5.3 305 (71) 7.6 (53)	7.7 0.1 6.9 -0.9 5.3 -2.6 305 316 (71) 7.6 (53) -1.2	7.7 0.1 6.9 -0.9 5.3 -2.6 305 316 (71) 7.6 (53) -1.2 (80)	7.7 0.1 5.8 6.9 -0.9 4.6 5.3 -2.6 3.2 305 316 248 (71) 7.6 (53) -1.2 (80) 4.2	7.7 0.1 5.8 6.9 -0.9 4.6 5.3 -2.6 3.2 305 316 248 (71) 7.6 (53) -1.2 (80) 4.2 (83)	7.7 0.1 5.8 15.5 6.9 -0.9 4.6 13.3 5.3 -2.6 3.2 8.5 305 316 248 231 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8	7.7 0.1 5.8 15.5 6.9 -0.9 4.6 13.3 5.3 -2.6 3.2 8.5 305 316 248 231 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49)	7.7 0.1 5.8 15.5 12.4 6.9 -0.9 4.6 13.3 10.7 5.3 -2.6 3.2 8.5 7.8 305 316 248 231 236 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8	7.7 0.1 5.8 15.5 12.4 6.9 -0.9 4.6 13.3 10.7 5.3 -2.6 3.2 8.5 7.8 305 316 248 231 236 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8 (43)	7.7 0.1 5.8 15.5 12.4 0.9 6.9 -0.9 4.6 13.3 10.7 -0.3 5.3 -2.6 3.2 8.5 7.8 -2.5 305 316 248 231 236 206 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8 (43) -0.8	7.7 0.1 5.8 15.5 12.4 0.9 6.9 -0.9 4.6 13.3 10.7 -0.3 5.3 -2.6 3.2 8.5 7.8 -2.5 305 316 248 231 236 206 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8 (43) -0.8 (86)	7.7 0.1 5.8 15.5 12.4 0.9 12.9 6.9 -0.9 4.6 13.3 10.7 -0.3 11.7 5.3 -2.6 3.2 8.5 7.8 -2.5 8.6 305 316 248 231 236 206 188 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8 (43) -0.8 (86) 12.6	7.7 0.1 5.8 15.5 12.4 0.9 12.9 6.9 -0.9 4.6 13.3 10.7 -0.3 11.7 5.3 -2.6 3.2 8.5 7.8 -2.5 8.6 305 316 248 231 236 206 188 (71) 7.6 (53) -1.2 (80) 4.2 (83) 15.8 (49) 12.8 (43) -0.8 (86) 12.6 (57)	8.4     0.9     6.8     18.0     13.4     1.9     14.0     22.4       7.7     0.1     5.8     15.5     12.4     0.9     12.9     20.2       6.9     -0.9     4.6     13.3     10.7     -0.3     11.7     15.9       5.3     -2.6     3.2     8.5     7.8     -2.5     8.6     10.5       305     316     248     231     236     206     188     184       (71)     7.6     (53)     -1.2     (80)     4.2     (83)     15.8     (49)     12.8     (43)     -0.8     (86)     12.6     (57)     17.8	8.4     0.9     6.8     18.0     13.4     1.9     14.0     22.4       7.7     0.1     5.8     15.5     12.4     0.9     12.9     20.2       6.9     -0.9     4.6     13.3     10.7     -0.3     11.7     15.9       5.3     -2.6     3.2     8.5     7.8     -2.5     8.6     10.5       305     316     248     231     236     206     188     184       (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)	8.4     0.9     6.8     18.0     13.4     1.9     14.0     22.4     -20.1       7.7     0.1     5.8     15.5     12.4     0.9     12.9     20.2     -24.9       6.9     -0.9     4.6     13.3     10.7     -0.3     11.7     15.9     -27.6       5.3     -2.6     3.2     8.5     7.8     -2.5     8.6     10.5     -30.3       305     316     248     231     236     206     188     184     181       (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)     -27.7





	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	329,784,587	7.3	12.1	7.3	19.2	17.5	14.1	12.6	22.3	11.5	1.6	12.4	35.9
Russell 3000		7.1	10.6	7.1	17.6	17.1	13.5	12.0	21.1	12.7	0.5	12.6	33.6
InvestorForce Public DB US Eq Gross Rank		13	14	13	14	15	4	11	16	77	10	17	24
SSGA S&P 500 Flagship Fund	60,827,051	7.7	10.6	7.7	17.9	17.4	14.0		21.9	12.0	1.5	13.7	32.4
S&P 500		7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank		37	36	37	40	25	35		52	31	40	42	58
QMA Large Cap Core	61,462,941	7.6	10.2	7.6	18.4	17.6	14.8		22.5	12.5	2.1	15.6	34.3
S&P 500		7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank		39	41	39	35	24	15		42	25	31	20	37
Ivy Large Cap Growth	67,586,477	8.7	20.4	8.7	28.1	20.0	16.9		30.2	2.1	7.6	12.8	37.3
Russell 1000 Growth		9.2	17.1	9.2	26.3	20.6	16.6		30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank		38	22	38	28	38	25		42	72	26	40	25

U.S. Effective Style Map 3 Years



U.S. Effective Style Map 5 Years

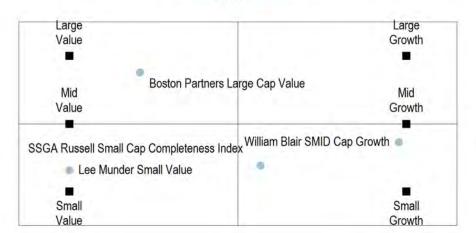


Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

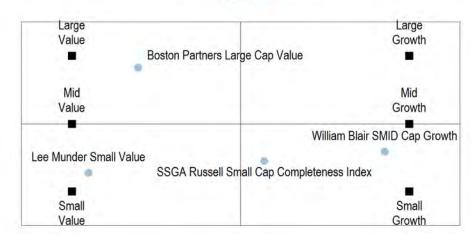


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Boston Partners Large Cap Value	57,774,228	7.8	6.1	7.8	13.6	15.3	11.7	11.7	20.1	14.7	-3.9	11.8	37.0
Russell 1000 Value		5.7	3.9	5.7	9.5	13.6	10.7	9.8	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Gross Rank		12	37	12	34	37	43	26	22	54	65	58	26
SSGA Russell Small Cap Completeness Index	25,846,906	4.3	10.6	4.3	16.0	16.2	11.4		18.2	16.5	-3.5	7.4	
Russell Small Cap Completeness		4.3	10.7	4.3	16.1	16.3	11.4		18.3	16.6	-3.4	7.4	
eV US Small Cap Core Equity Gross Rank		44	49	44	40	59	64		23	84	68	37	
William Blair SMID Cap Growth	31,668,751	8.7	21.4	8.7	28.6	20.9	16.6	16.4	30.4	8.2	6.1	9.8	43.1
Russell 2500 Growth		7.2	15.8	7.2	23.1	18.0	12.9	13.6	24.5	9.7	-0.2	7.1	40.7
eV US Mid Cap Growth Equity Gross Rank		29	18	29	17	12	5	3	16	22	7	33	11
Lee Munder Small Value	24,618,232	1.8	5.2	1.8	8.4	15.3	10.9		8.6	28.4	0.4	5.1	33.1
Russell 2000 Value		1.6	7.1	1.6	9.3	16.1	9.9		7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank		45	55	45	60	48	45		68	38	9	60	85

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	2017	2016	2015	2014	2013
Total Domestic Equity	329,784,587	7.2	11.7	7.2	18.7	17.0	13.6	12.1	21.9	11.1	1.2	12.0	35.3
Russell 3000		7.1	10.6	7.1	17.6	17.1	13.5	12.0	21.1	12.7	0.5	12.6	33.6
SSGA S&P 500 Flagship Fund	60,827,051	7.7	10.5	7.7	17.9	17.3	14.0		21.8	12.0	1.4	13.7	32.4
S&P 500		7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
QMA Large Cap Core	61,462,941	7.5	9.9	7.5	18.0	17.2	14.4		22.1	12.1	1.8	15.2	33.9
S&P 500		7.7	10.6	7.7	17.9	17.3	13.9		21.8	12.0	1.4	13.7	32.4
Ivy Large Cap Growth	67,586,477	8.6	19.9	8.6	27.4	19.3	16.3		29.5	1.6	7.1	12.3	36.6
Russell 1000 Growth		9.2	17.1	9.2	26.3	20.6	16.6		30.2	7.1	5.7	13.0	33.5
Boston Partners Large Cap Value	57,774,228	7.7	5.7	7.7	13.1	14.8	11.2	11.2	19.6	14.2	-4.4	11.4	36.4
Russell 1000 Value		5.7	3.9	5.7	9.5	13.6	10.7	9.8	13.7	17.3	-3.8	13.5	32.5
SSGA Russell Small Cap Completeness Index	25,846,906	4.3	10.6	4.3	16.0	16.2	11.3		18.1	16.5	-3.5	7.3	
Russell Small Cap Completeness		4.3	10.7	4.3	16.1	16.3	11.4		18.3	16.6	-3.4	7.4	
William Blair SMID Cap Growth	31,668,751	8.5	20.6	8.5	27.5	19.9	15.5	15.4	29.3	7.2	5.2	8.8	42.0
Russell 2500 Growth		7.2	15.8	7.2	23.1	18.0	12.9	13.6	24.5	9.7	-0.2	7.1	40.7
Lee Munder Small Value	24,618,232	1.6	4.5	1.6	7.5	14.3	9.9		7.7	27.3	-0.5	4.1	31.8
Russell 2000 Value		1.6	7.1	1.6	9.3	16.1	9.9		7.8	31.7	-7.5	4.2	34.5

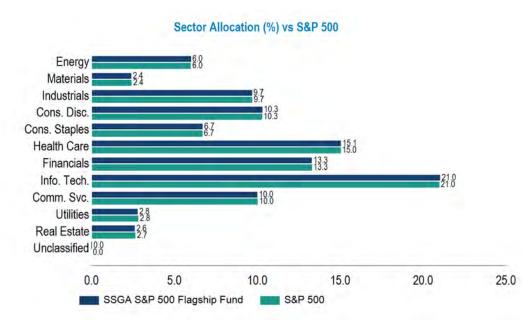


S <sub>GA</sub> <sub>S</sub>				Boston	DAN	Will	an A	ړ	SGA PUL	Sell She	Co.			
SSCA SAPSON FIRED	Ohio Sun	A Large	Calo Colo	Sostor Car	Grown #	S Large C	181 AND VALLE #	SMIDC&	Grown #	Sunder Sh	# Health	onpleten	ess Index	%
SSGA S&P 500 Flagship Fund	#		139	90.9	42	99.5	59	89.4	4	7.8	1	0.6	1	0.1
QMA Large Cap Core	139	60.2	-	-	22	61.1	32	64.7	4	5.1	4	4.0	60	5.4
Ivy Large Cap Growth	42	29.3	22	28.0	**	**	5	7.6	0	0.0	0	0.0	0	0.0
Boston Partners Large Cap Value	59	26.2	32	26.3	5	13.9			0	0.0	0	0.0	7	0.8
William Blair SMID Cap Growth	4	0.2	4	0.6	0	0.0	0	0.0	à	-	2	1.8	62	7.4
Lee Munder Small Value	1	0.0	4	0.5	0	0.0	0	0.0	2	4.3		-	89	4.9
SSGA Russell Small Cap Completeness Index	1.	0.0	60	8.3	0	0.0	7	3.2	62	83.2	89	92.0	÷	-

Correlation Matrix
9 Months Ending September 30, 2018

					SCAP			
Seg.			Poston P.	William	,	Sell Shell C		
Ser See sign	Plan OMA La	To Cap Cope	Scan Gonth	Millen Bair Sulle	C. Se Minde	Snall Salle Snall Salle	le,	
	Ship Fund	Cap Core	40 Growin	AN VAILLE	40 Grown	Jall Value	ess Index	560 SO
SSGA S&P 500 Flagship Fund	1.00	47	-	-	, i	, <u></u>	-	2
QMA Large Cap Core	1.00	1.00	-	-	-	-	-	ж
Ivy Large Cap Growth	0.91	0.90	1.00	12	÷	à.	<u>.</u>	44
Boston Partners Large Cap Value	0.93	0.91	0.76	1.00	-	2 1	(2)	42)
William Blair SMID Cap Growth	0.70	0.72	0.76	0.51	1.00	4	040	2
Lee Munder Small Value	0.67	0.73	0.59	0.46	0.70	1.00	-	
SGA Russell Small Cap Completeness Index	0.75	0.79	0.74	0.53	0.91	0.93	1.00	2
S&P 500	1.00	1.00	0.91	0.93	0.70	0.67	0.75	1.00

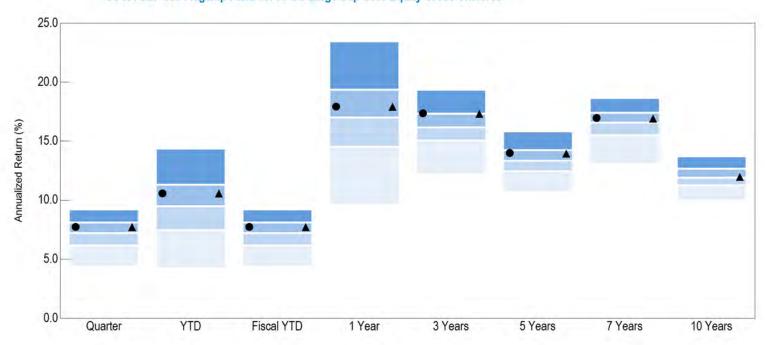
	Portfolio	S&P 500
Number of Holdings	506	505
Weighted Avg. Market Cap. (\$B)	229.36	228.05
Median Market Cap. (\$B)	21.50	21.50
Price To Earnings	32.61	24.49
Price To Book	6.80	5.27
Price To Sales	4.29	4.10
Return on Equity (%)	24.54	22.82
Yield (%)	1.89	1.88
Beta	1.00	1.00



Top Holdings		To	op Contributo	rs		DOLLOHI COHUIDULOIS						
Ending Period Weigh	nt		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
APPLE	4.23%	APPLE	3.95	22.38	0.88	FACEBOOK CLASS A	2.02	-15.37	-0.31			
MICROSOFT	3.58%	MICROSOFT	3.30	16.43	0.54	GENERAL ELECTRIC	0.51	-16.26	-0.08			
AMAZON.COM	3.35%	AMAZON.COM	2.97	17.84	0.53	WELLS FARGO & CO	1.05	-4.50	-0.05			
BERKSHIRE HATHAWAY 'B'	1.70%	BERKSHIRE HATHAWAY 'B'	1.56	14.71	0.23	INTEL	1.01	-4.29	-0.04			
FACEBOOK CLASS A	1.62%	PFIZER	0.93	22.51	0.21	TWITTER	0.12	-34.83	-0.04			
JP MORGAN CHASE & CO.	1.55%	JOHNSON & JOHNSON	1.42	14.63	0.21	MICRON TECHNOLOGY	0.26	-13.75	-0.04			
JOHNSON & JOHNSON	1.51%	VISA 'A'	1.03	13.49	0.14	SCHLUMBERGER	0.41	-8.38	-0.03			
ALPHABET 'C'	1.50%	JP MORGAN CHASE & CO.	1.54	8.88	0.14	NETFLIX	0.74	-4.42	-0.03			
ALPHABET A	1.47%	MERCK & COMPANY	0.71	17.67	0.13	APPLIED MATS.	0.20	-15.93	-0.03			
EXXON MOBIL	1.47%	CISCO SYSTEMS	0.89	13.94	0.12	GENERAL MOTORS	0.22	-13.60	-0.03			
Total	21 00%											

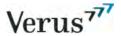


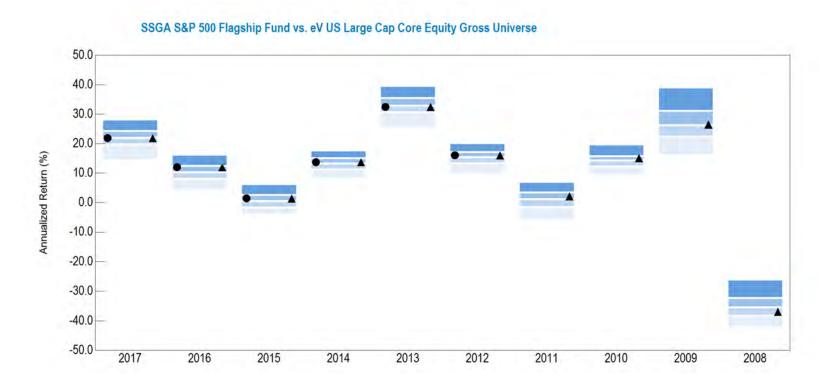
### SSGA S&P 500 Flagship Fund vs. eV US Large Cap Core Equity Gross Universe



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

Return (R	ank)														
9.2	-	14.4		9.2		23.4		19.3		15.8		18.7		13.7	
8.1		11.3		8.1		19.4		17.3		14.2		17.4		12.7	
7.2		9.5		7.2		17.0		16.2		13.4		16.6		11.9	
6.2		7.5		6.2		14.5		15.1		12.5		15.5		11.3	
4.4		4.2		4.4		9.6		12.2		10.7		13.1		10.0	
305		305		305		305		293		279		251		218	
7.7	(37)	10.6	(36)	7.7	(37)	17.9	(40)	17.4	(25)	14.0	(35)	17.0	(37)		()
7.7	(37)	10.6	(37)	7.7	(37)	17.9	(41)	17.3	(27)	13.9	(37)	16.9	(38)	12.0	(49)





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

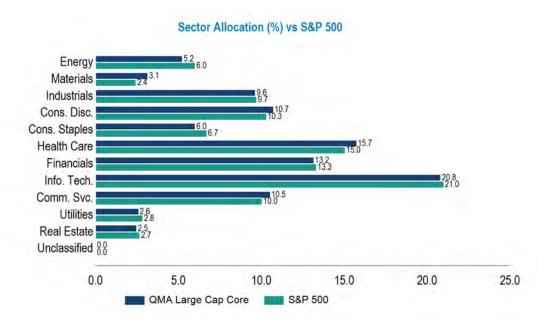
SSGA S&P 500 Flagship Fund

S&P 500

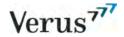
Return	(Rank)																		
28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1		-26.1	
24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2		-32.3	
22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3		-35.4	
19.8		8.2		-1.6		11.4		30.8		13.4		-1.5		12.3		22.6		-38.1	
14.4		4.3		-4.1		8.2		25.4		9.8		-5.9		9.1		16.1		-42.3	
318		308		267		267		261		254		259		254		280		312	
21.9	(52)	12.0	(31)	1.5	(40)	13.7	(42)	32.4	(58)	16.1	(39)		()	-	()		()		()
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)	-37.0	(62)



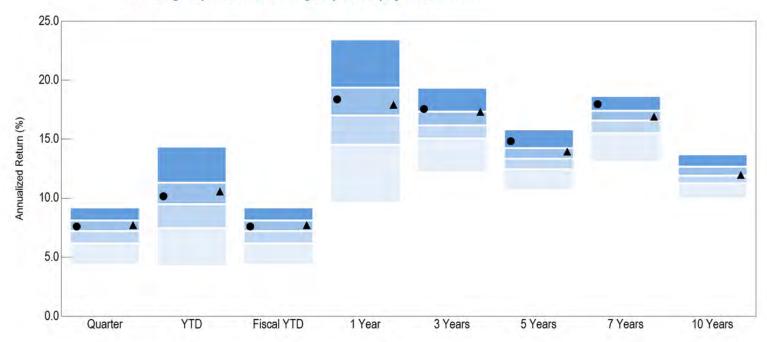
	Portfolio	S&P 500
Number of Holdings	207	505
Weighted Avg. Market Cap. (\$B)	203.64	228.05
Median Market Cap. (\$B)	26.55	21.50
Price To Earnings	28.96	24.49
Price To Book	5.67	5.27
Price To Sales	3.83	4.10
Return on Equity (%)	26.40	22.82
Yield (%)	1.82	1.88
Beta	1.09	1.00



Top Holdings			Top Contributor	rs		<b>Bottom Contributors</b>						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
APPLE	3.35%	APPLE	2.96	22.38	0.66	FACEBOOK CLASS A	2.39	-15.37	-0.37			
AMAZON.COM	2.97%	MICROSOFT	2.59	16.43	0.43	WESTERN DIGITAL	0.59	-23.73	-0.14			
MICROSOFT	2.97%	AMAZON.COM	1.82	17.84	0.32	FREEPORT-MCMORAN	0.69	-19.12	-0.13			
JP MORGAN CHASE & CO.	2.23%	ILLUMINA	0.78	31.43	0.25	LAS VEGAS SANDS	0.50	-21.34	-0.11			
ALPHABET 'C'	2.09%	VISA 'A'	1.58	13.49	0.21	GENERAL MOTORS	0.63	-13.60	-0.09			
FACEBOOK CLASS A	1.85%	NVIDIA	1.12	18.69	0.21	WESTLAKE CHEMICAL	0.34	-22.58	-0.08			
VISA 'A'	1.66%	ABBOTT LABORATORIES	1.01	20.82	0.21	ANADARKO PETROLEUM	0.90	-7.60	-0.07			
BANK OF AMERICA	1.64%	EXPRESS SCRIPTS	0.00	02.05	0.00	STATE STREET	0.64	-9.50	-0.06			
CISCO SYSTEMS	1.48%	HOLDING	0.88	23.05	0.20	GAP	0.59	-10.23	-0.06			
VERIZON COMMUNICATIONS	1.45%	JP MORGAN CHASE & CO.	2.21	8.88	0.20	CHEMOURS	0.54	-10.58	-0.06			
Total	21.69%	CISCO SYSTEMS	1.40	13.94	0.20							



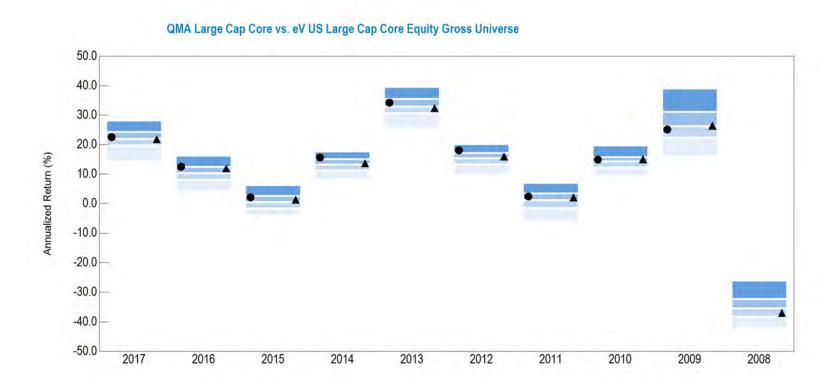
### QMA Large Cap Core vs. eV US Large Cap Core Equity Gross Universe



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

Return (R	ank)															
9.2		14.4		9.2		23.4		19.3		15.8		18.7		13.7		
8.1		11.3		8.1		19.4		17.3		14.2		17.4		12.7		
7.2		9.5		7.2		17.0		16.2		13.4		16.6		11.9		
6.2		7.5		6.2		14.5		15.1		12.5		15.5		11.3		
4.4		4.2		4.4		9.6		12.2		10.7		13.1		10.0		
305		305		305		305		293		279		251		218		
7.6	(39)	10.2	(41)	7.6	(39)	18.4	(35)	17.6	(24)	14.8	(15)	18.0	(14)	-	()	
7.7	(37)	10.6	(37)	7.7	(37)	17.9	(41)	17.3	(27)	13.9	(37)	16.9	(38)	12.0	(49)	



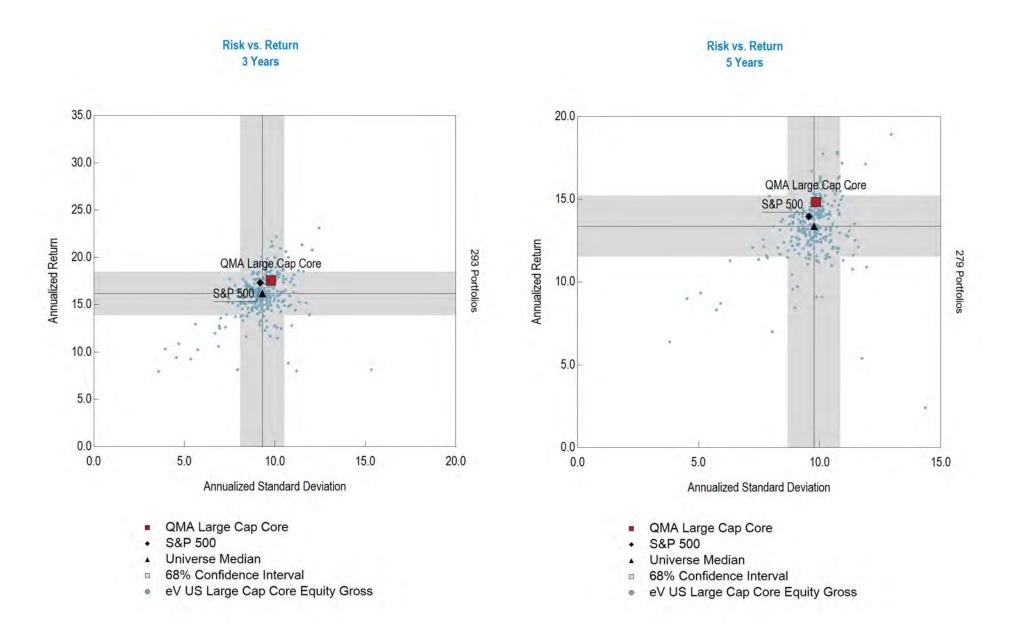


5th Percentile	
25th Percentile	
Median	
75th Percentile	
95th Percentile	
# of Portfolios	

QMA Large Cap Core S&P 500

Return	(Rank)																		
28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1		-26.1	
24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2		-32.3	
22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3		-35.4	
19.8		8.2		-1.6		11.4		30.8		13.4		-1.5		12.3		22.6		-38.1	
14.4		4.3		-4.1		8.2		25.4		9.8		-5.9		9.1		16.1		-42.3	
318		308		267		267		261		254		259		254		280		312	
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)		()
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)	-37.0	(62)





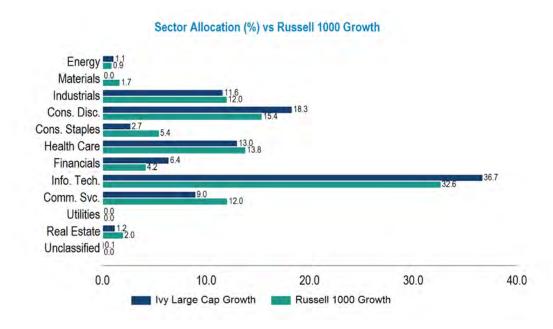


### Rolling 5 Year Annualized Excess Performance



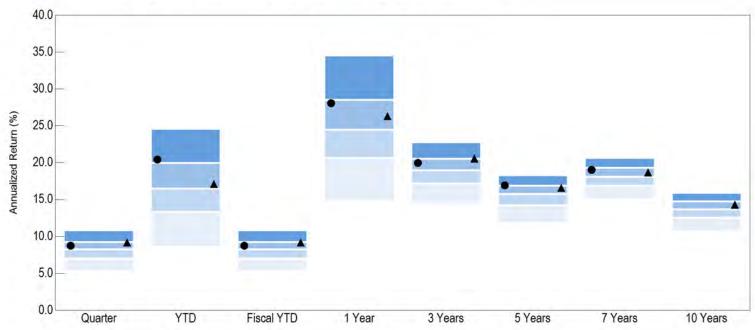


	Portfolio	Russell 1000 Growth
Number of Holdings	44	542
Weighted Avg. Market Cap. (\$B)	298.32	291.64
Median Market Cap. (\$B)	83.33	12.71
Price To Earnings	45.78	28.60
Price To Book	12.88	9.17
Price To Sales	6.90	5.45
Return on Equity (%)	34.82	32.14
Yield (%)	0.92	1.17
Beta	1.13	1.00



Top Holdings			Top Contributors	S		<b>Bottom Contributors</b>						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MICROSOFT	7.14%	MICROSOFT	6.70	16.43	1.10	FACEBOOK CLASS A	2.91	-15.37	-0.45			
APPLE	6.57%	APPLE	4.77	22.38	1.07	ELECTRONIC ARTS	2.28	-14.56	-0.33			
AMAZON.COM	5.96%	AMAZON.COM	5.51	17.84	0.98	HALLIBURTON	1.86	-9.64	-0.18			
VISA 'A'	4.61%	SALESFORCE.COM	4.26	16.59	0.71	MICROCHIP TECH.	0.85	-12.86	-0.11			
MASTERCARD	4.51%	MASTERCARD	4.56	13.42	0.61	CHARLES SCHWAB	2.62	-3.57	-0.09			
SALESFORCE.COM	3.88%	VISA 'A'	4.32	13.49	0.58	S&P GLOBAL	2.11	-3.93	-0.08			
CME GROUP	3.88%	VF	2.96	15.22	0.45	LAM RESEARCH	0.68	-11.61	-0.08			
V F	3.17%	INTUITIVE SURGICAL	1.96	19.96	0.39	HUNT JB TRANSPORT SVS.	1.42	-1.96	-0.03			
HOME DEPOT	3.12%	CATERPILLAR	2.80	13.09	0.37	BOOKING HOLDINGS	0.71	-2.13	-0.01			
NIKE 'B'	3.07%	ADOBE (NAS)	3.36	10.72	0.36	AMERICAN TOWER	1.29	1.34	0.02			
Total	45.91%											

# Ivy Large Cap Growth vs. eV US Large Cap Growth Equity Gross Universe

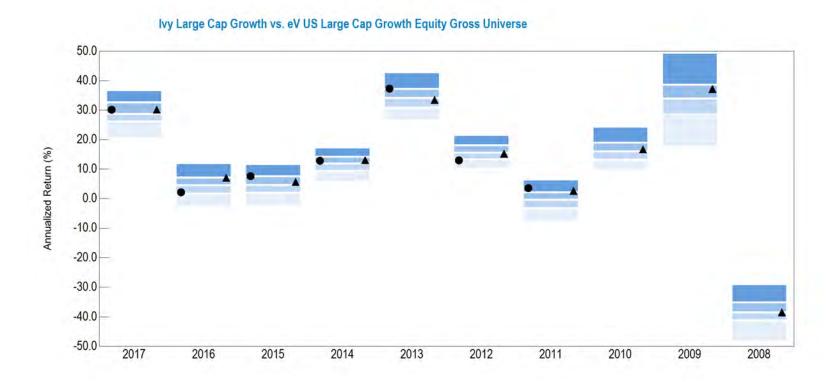


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Ivy Large Cap Growth
 Russell 1000 Growth

Return (R	ank)														
10.8		24.6		10.8		34.5		22.8		18.3		20.6		15.9	
9.2		20.0		9.2		28.5		20.5		16.9		19.3		14.7	
8.3		16.5		8.3		24.5		19.0		15.8		18.1		13.7	
7.0		13.4		7.0		20.7		17.2		14.2		16.9		12.6	
5.3		8.6		5.3		14.8		14.5		11.9		15.1		10.7	
253		253		253		253		246		242		226		216	
8.7	(38)	20.4	(22)	8.7	(38)	28.1	(28)	20.0	(38)	16.9	(25)	19.0	(30)	-	()
9.2	(27)	17.1	(47)	9.2	(27)	26.3	(39)	20.6	(25)	16.6	(34)	18.7	(40)	14.3	(34)



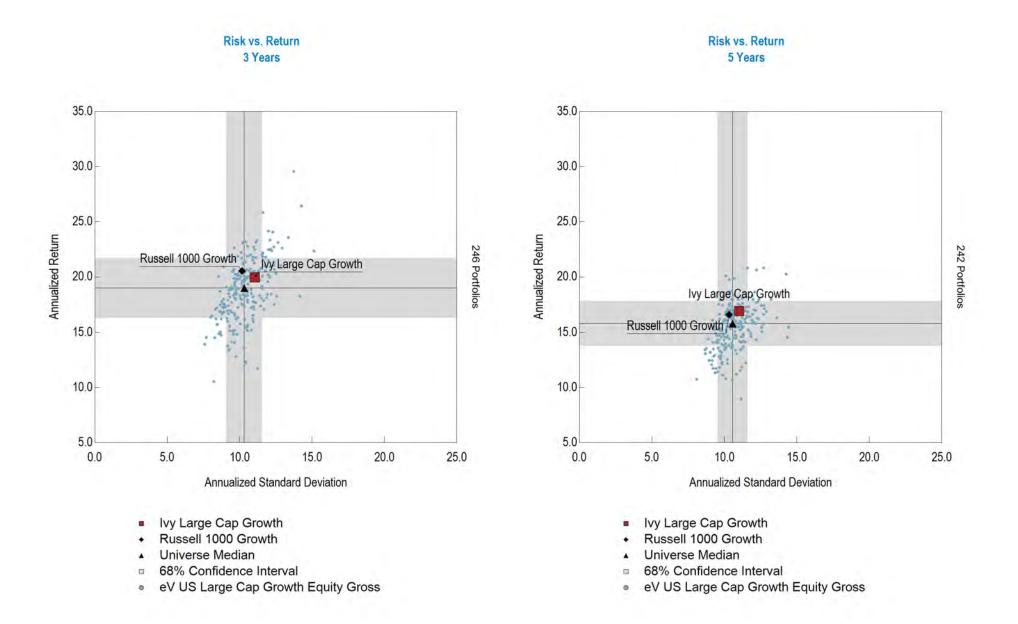


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

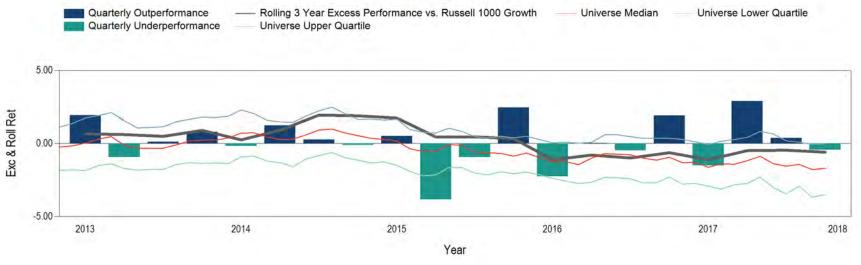
lvy Large Cap Growth Russell 1000 Growth

Return	(Rank)																		
36.7		12.0		11.6		17.3		42.8		21.6		6.4		24.4		49.5		-29.1	
32.7		7.3		7.6		14.3		37.3		18.2		2.2		19.1		38.6		-35.1	
28.8		4.6		4.7		12.0		34.3		15.7		-0.3		16.1		34.0		-38.4	
26.2		1.8		2.1		9.5		31.0		13.4		-3.2		13.2		28.7		-41.1	
20.5		-2.7		-2.4		5.8		26.6		10.2		-8.0		9.6		17.7		-48.4	
265		282		270		291		274		274		294		304		350		381	
30.2	(42)	2.1	(72)	7.6	(26)	12.8	(40)	37.3	(25)	13.0	(78)	3.6	(17)		()	-	()	-	()
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)	-38.4	(51)

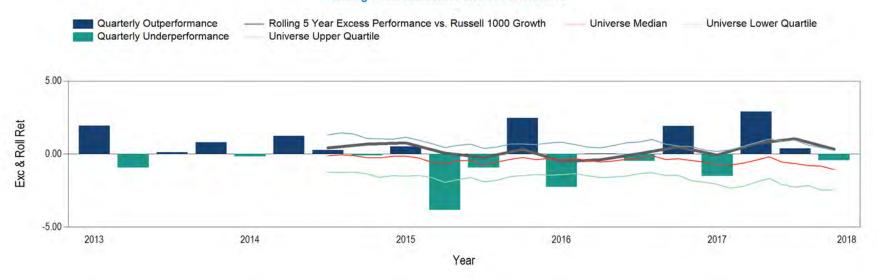




## Rolling 3 Year Annualized Excess Performance

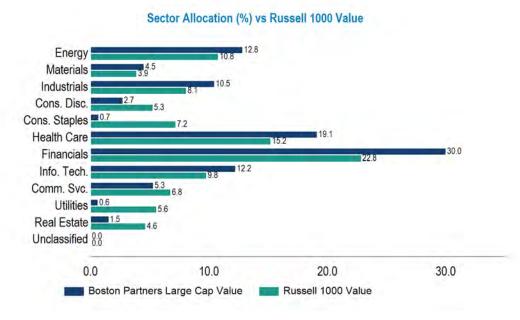


### Rolling 5 Year Annualized Excess Performance





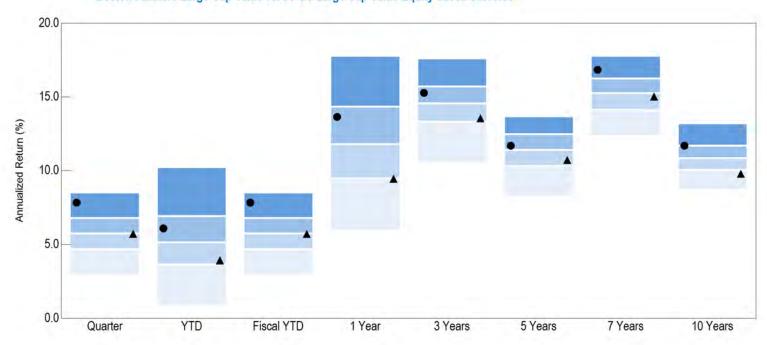
	Portfolio	Russell 1000 Value
Number of Holdings	77	727
Weighted Avg. Market Cap. (\$B)	152.24	119.71
Median Market Cap. (\$B)	36.82	9.69
Price To Earnings	20.90	20.58
Price To Book	2.97	2.85
Price To Sales	2.62	2.99
Return on Equity (%)	15.67	12.85
Yield (%)	2.24	2.47
Beta	1.04	1.00



Top Holdings		Т	op Contributo	rs		Bottom Contributors							
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution				
JOHNSON & JOHNSON	4.23%	PFIZER	2.59	22.51	0.58	EQT	0.77	-19.80	-0.15				
BANK OF AMERICA	4.22%	BERKSHIRE HATHAWAY 'B'	3.93	14.71	0.58	WELLS FARGO & CO	3.24	-4.50	-0.15				
BERKSHIRE HATHAWAY 'B'	4.16%	JOHNSON & JOHNSON	3.73	14.63	0.55	EBAY	0.79	-8.94	-0.07				
JP MORGAN CHASE & CO.	3.92%	CISCO SYSTEMS	3.30	13.94	0.46	CHEVRON	2.96	-2.36	-0.07				
CITIGROUP	3.57%	CVS HEALTH	1.62	23.26	0.38	BARRICK GOLD (NYS)	0.44	-15.37	-0.07				
CISCO SYSTEMS	3.45%	JP MORGAN CHASE & CO.	3.92	8.88	0.35	CIMAREX EN.	0.72	-8.48	-0.06				
WELLS FARGO & CO	3.10%	MERCK & COMPANY	1.96	17.67	0.35	WESTROCK	0.87	-5.55	-0.05				
PFIZER	2.90%	ORACLE	1.97	17.48	0.35	FIAT CYLR.AUTOS. (NYS)	0.63	-7.31	-0.05				
COMCAST A	2.79%	ANDEAVOR	1.86	16.92	0.31	OWENS CORNING	0.31	-14.08	-0.04				
CHEVRON	2.64%	CITIGROUP	3.61	7.87	0.28	CRH ADR 1:1	0.63	-6.80	-0.04				
Total	3/1 07%												

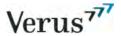


### Boston Partners Large Cap Value vs. eV US Large Cap Value Equity Gross Universe

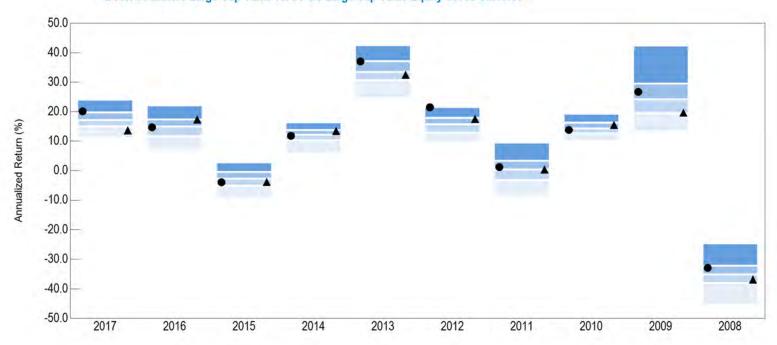


	5th Percentile
	25th Percentile
	Median
	75th Percentile 95th Percentile
	# of Portfolios
•	Boston Partners Large Cap Value
•	Russell 1000 Value

eturn (R	lank)														
8.5		10.2		8.5		17.8		17.6		13.7		17.8		13.2	
6.8		6.9		6.8		14.3		15.7		12.5		16.3		11.7	
5.8		5.2		5.8		11.8		14.6		11.4		15.3		10.8	
4.7		3.7		4.7		9.5		13.3		10.3		14.1		10.1	
2.9		0.9		2.9		5.9		10.5		8.2		12.3		8.7	
334		334		334		334		332		323		296		267	
7.8	(12)	6.1	(37)	7.8	(12)	13.6	(34)	15.3	(37)	11.7	(43)	16.8	(17)	11.7	(26)
5.7	(53)	3.9	(71)	5.7	(53)	9.5	(76)	13.6	(73)	10.7	(68)	15.0	(58)	9.8	(82)



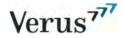
### Boston Partners Large Cap Value vs. eV US Large Cap Value Equity Gross Universe

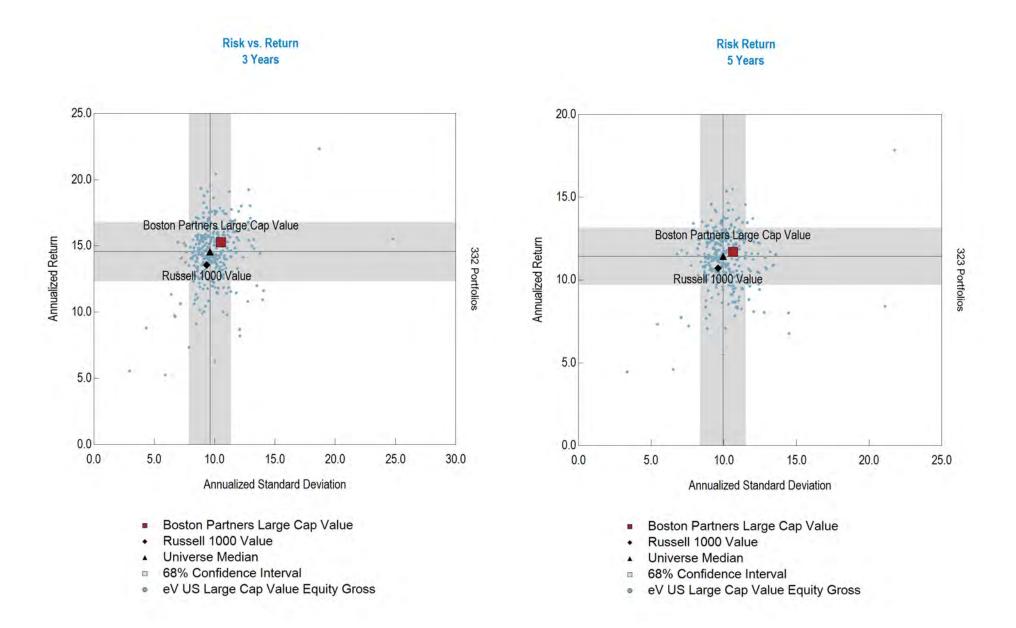


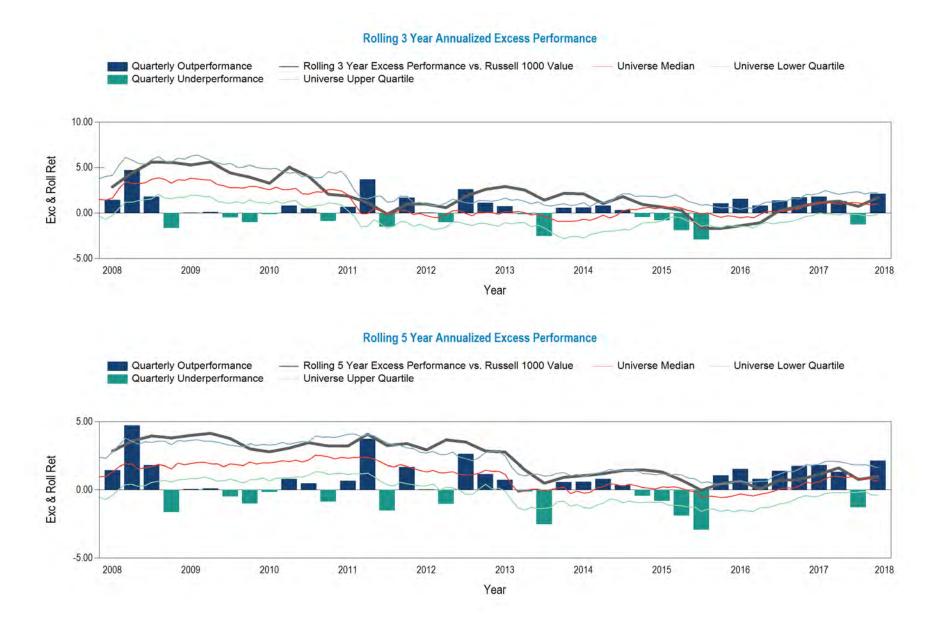
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Boston Partners Large Cap Value Russell 1000 Value

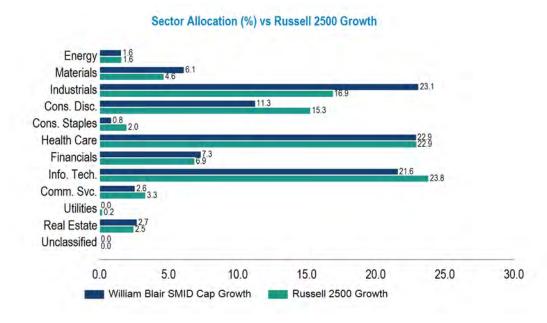
Return	(Rank)																		
24.0	(I valle)	22.1		2.8		16.3		42.5		21.5		9.5		19.2		42.3		-24.7	
19.8		17.4		-0.4		13.9		37.2		18.0		3.4		16.3		29.5		-32.1	
17.2		15.0		-2.6		12.2		33.6		15.7		0.5		14.3		24.3		-35.1	
15.1		11.8		-5.1		10.4		30.8		13.0		-3.1		12.7		19.6		-37.9	
11.2		7.0		-9.4		5.9		24.6		9.6		-8.6		10.1		13.5		-45.3	
342		346		312		307		310		303		310		323		360		376	
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)	-33.0	(30)
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)	-36.8	(68)





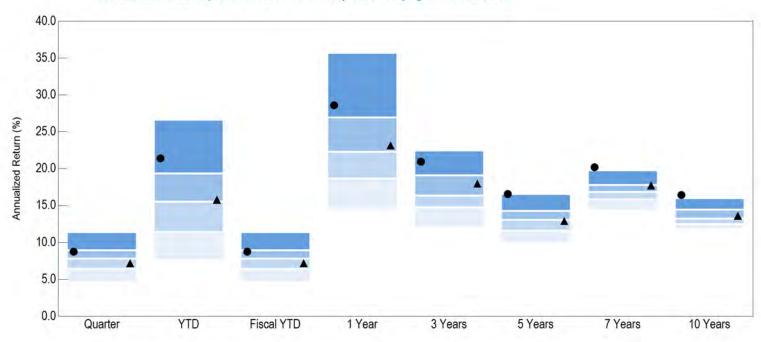


	Portfolio	Russell 2500 Growth
Number of Holdings	73	1,501
Weighted Avg. Market Cap. (\$B)	7.74	5.65
Median Market Cap. (\$B)	6.25	1.31
Price To Earnings	37.48	23.77
Price To Book	8.13	6.92
Price To Sales	4.85	4.01
Return on Equity (%)	17.78	13.27
Yield (%)	0.61	0.58
Beta	0.85	1.00



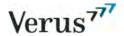
Top Holdings		Top Contributor	rs		Bottom Contributors						
Ending Period Weight		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
COSTAR GP. 2.81%	DEXCOM	1.67	50.60	0.84	FLOOR & DECOR	1.29	-38.84	-0.50			
BWX TECHNOLOGIES 2.78%	LIGAND PHARMS.'B'	2.30	32.50	0.75	HOLDINGS 'A'	0.04	40.00	0.40			
ENCOMPASS HEALTH 2.51%	VEEVA SYSTEMS CL.A	1.59	41.65	0.66	MARTIN MRTA.MATS.	2.34	-18.33	-0.43			
COPART 2.44%	01 4111/00	1.08	59.69	0.65	COPART	3.08	-8.89	-0.27			
LIGAND PHARMS.'B' 2.41%	DOOFDO	1.48	32.17	0.48	VIRTU FINANCIAL CL.A	0.95	-22.14	-0.21			
BOOZ ALLEN HAMILTN.HLDG. 2.25%	DALL	1.74	24.04	0.42	BANK OZK	1.11	-15.32	-0.17			
DEXCOM 2.17%	LIEIGO NEMALIAL	1.69	23.99	0.41	JONES LANG LASALLE	1.16	-13.05	-0.15			
VEEVA SYSTEMS CL.A 2.08%	FORTINET	0.81	47.80	0.39	FIRSTCASH	1.68	-8.49	-0.14			
SIX FLAGS ENTM. 2.08%	TELEDVALE TEOLIO	1.60	23.92	0.38	SITEONE LANDSCAPE SUPPLY	1.16	-10.28	-0.12			
TRANSUNION 2.02%	EXACT SCIS.	1.18	32.00	0.38	CBOE GLOBAL MARKETS	1.30	-7.51	-0.10			
Total 23.55%					2U	0.86	-10.02	-0.09			

### William Blair SMID Cap Growth vs. eV US Mid Cap Growth Equity Gross Universe

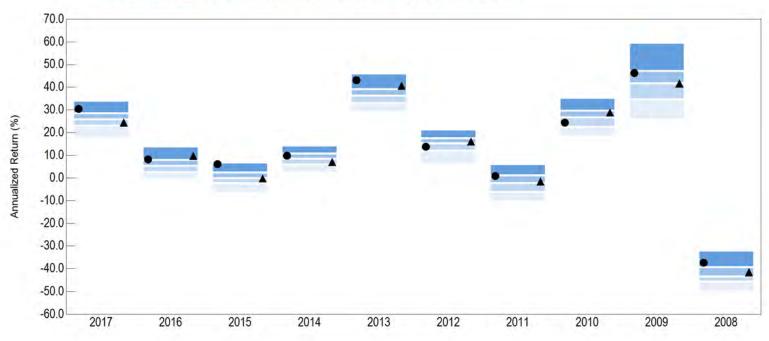


	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	William Blair SMID Cap Growth
٨	Russell 2500 Growth

Return (R	ank)														
11.4		26.6		11.4		35.7		22.5		16.5		19.7		16.0	
9.0		19.3		9.0		26.9		19.1		14.3		17.8		14.5	
7.8		15.6		7.8		22.3		16.4		13.1		16.8		13.2	
6.4		11.4		6.4		18.7		14.7		11.6		15.9		12.5	
4.7		7.6		4.7		14.5		12.1		9.9		14.4		11.8	
95		95		95		95		94		91		86		76	
8.7	(29)	21.4	(18)	8.7	(29)	28.6	(17)	20.9	(12)	16.6	(5)	20.2	(3)	16.4	(3)
7.2	(64)	15.8	(47)	7.2	(64)	23.1	(45)	18.0	(36)	12.9	(54)	17.7	(30)	13.6	(41)



### William Blair SMID Cap Growth vs. eV US Mid Cap Growth Equity Gross Universe

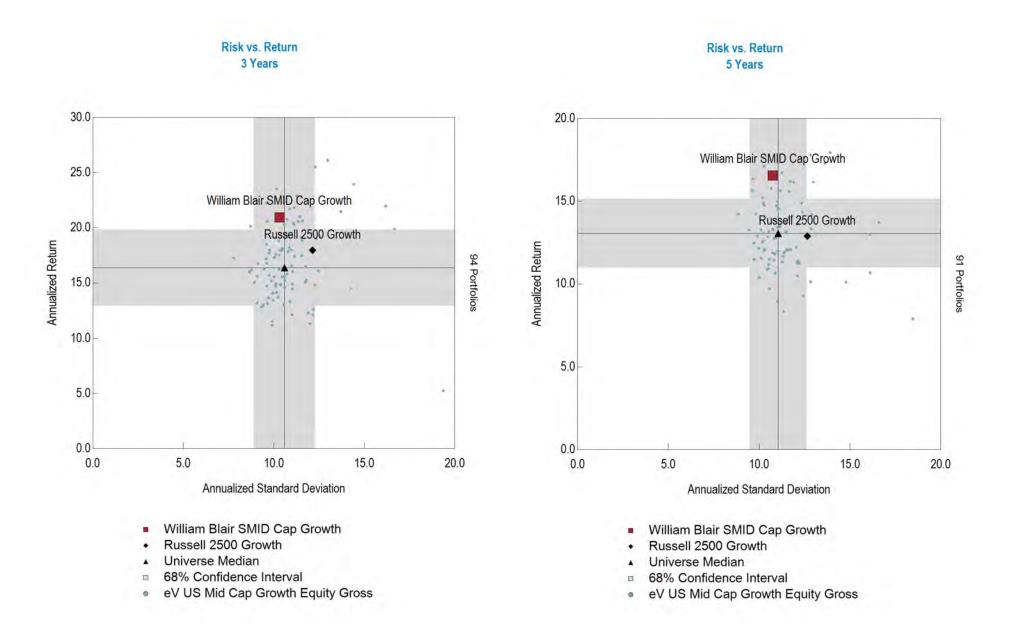


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

William Blair SMID Cap Growth Russell 2500 Growth

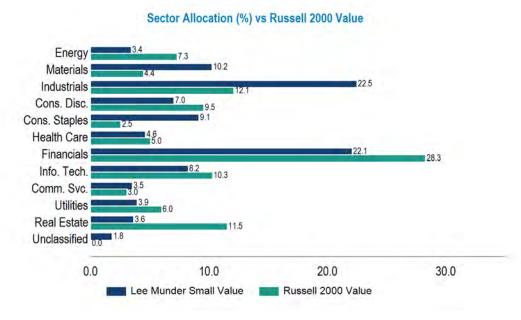
Return	(Rank)	100																		
34.0		13.9		6.7		14.2		46.0		21.3		6.1		35.3		59.6		-32.0		
28.7		8.0		2.5		10.9		39.2		17.6		1.3		29.8		47.2		-39.3		
25.9		5.4		0.0		8.6		36.4		15.4		-2.1		26.7		41.9		-43.2		
23.1		2.6		-2.1		6.1		33.2		12.2		-6.1		22.5		34.9		-45.5		
17.7		-0.5		-6.3		2.6		29.0		6.0		-10.4		18.3		25.7		-49.8		
97		105		105		117		106		111		122		127		142		158		
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)	-37.4	(19)	
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)	-41.5	(39)	
			1.				11		1				1 /		1		1			/





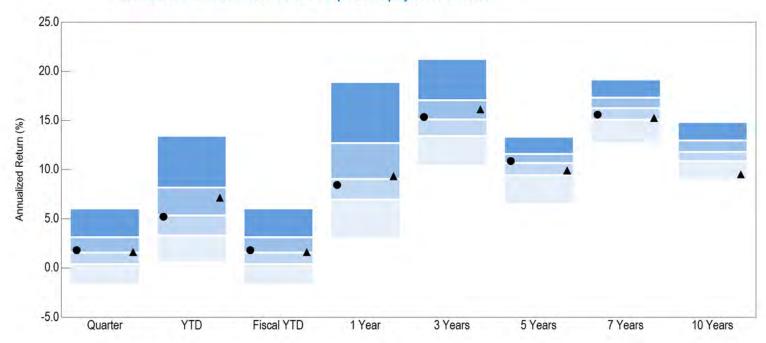


	Portfolio	Russell 2000 Value
Number of Holdings	96	1,387
Weighted Avg. Market Cap. (\$B)	3.17	2.12
Median Market Cap. (\$B)	2.87	0.80
Price To Earnings	15.69	14.47
Price To Book	2.45	1.78
Price To Sales	2.24	2.56
Return on Equity (%)	10.56	7.12
Yield (%)	1.47	1.79
Beta	0.81	1.00



Top Holdings		T	op Contributo	rs	<b>Bottom Contributors</b>							
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MACOM TECH.SLTN.HDG.	2.55%	CLEAN HARBORS	1.02	28.86	0.29	DIEBOLD NIXDORF	0.51	-62.34	-0.32			
STERLING BANCORP	2.25%	CHAS.RVR.LABS.INTL.	1.42	19.85	0.28	KORN FERRY	1.52	-20.33	-0.31			
IBERIABANK	2.04%	ENCOMPASS HEALTH	1.52	15.51	0.24	INTERNATIONAL						
NATIONAL GENERAL HDG.	1.94%	ITT	1.32	17.47	0.23	MACOM TECH.SLTN.HDG.	2.54	-10.59	-0.27			
BLACKSTONE MGE.TST.CL.A	1.84%	BANK OF NT BUTTERFIELD				BANKUNITED	1.83	-12.88	-0.24			
		&.SON	1.52	14.29	0.22	SRC ENERGY	1.12	-19.33	-0.22			
NEXSTAR MEDIA GROUP CL.A	1.84%	INGEVITY	0.81	26.00	0.21	EAGLE BANC.	1.12	-17.46	-0.19			
TEAM	1.84%	-				HOSTESS BRANDS CL.A	0.91	-18.60	-0.17			
BANK OF NT BUTTERFIELD &.SON	1.74%	HURON CNSL.GP.	1.02	20.78	0.21							
FNB	1.74%	MURPHY USA	1.32	15.04	0.20	TREEHOUSE FOODS	1.73	-8.87	-0.15			
		ALLEGHENY TECHS.	1.12	17.64	0.20	MATTHEWS INTL.'A'	1.02	-14.39	-0.15			
VIAVI SOLUTIONS	1.74%	NEXSTAR MEDIA GROUP				DEL FRISCO'S	0.44	04.40	0.44			
Total	19.51%	CL A	1.62	11.44	0.19	RESTAURANT GP.	0.41	-34.13	-0.14			

### 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
٨	Russell 2000 Value

Return (R	ank)															
6.0		13.4		6.0		18.9		21.2		13.3		19.2		14.8		
3.1		8.2		3.1		12.7		17.1		11.6		17.4		13.0		
1.6		5.4		1.6		9.1		15.1		10.7		16.3		11.8		
0.4		3.4		0.4		7.0		13.4		9.4		15.1		10.9		
-1.6		0.6		-1.6		3.0		10.4		6.5		12.7		9.0		
221		221		221		221		216		207		195		175		
1.8	(45)	5.2	(55)	1.8	(45)	8.4	(60)	15.3	(48)	10.9	(45)	15.6	(71)	44	()	
1.6	(49)	7.1	(33)	1.6	(49)	9.3	(49)	16.1	(35)	9.9	(66)	15.3	(74)	9.5	(94)	



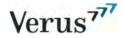
# | Second | S

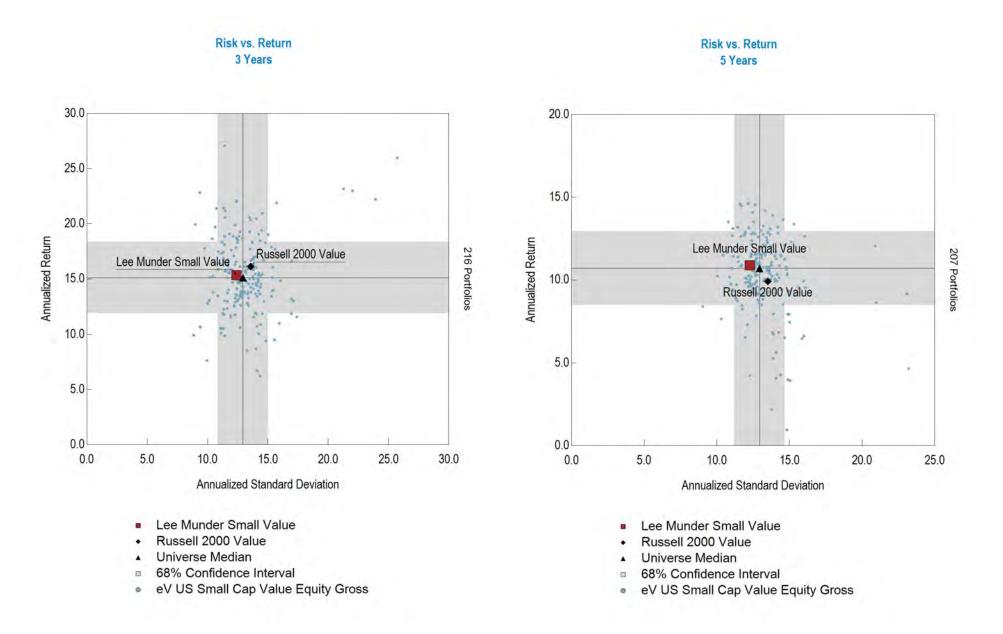
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Lee Munder Small Value

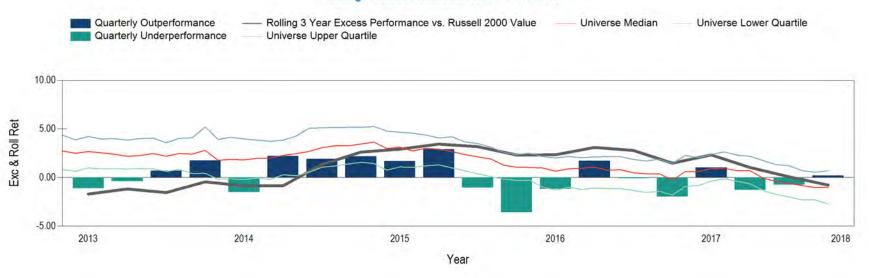
Russell 2000 Value

Return	(Rank)																			
20.2		36.7		1.5	-	11.2		49.4		25.7		5.3		35.6		64.2		-23.8		
14.1		30.7		-2.2		8.2		42.1		20.8		0.0		30.2		42.1		-28.7		
11.1		27.2		-4.3		5.8		38.1		16.9		-3.3		26.9		32.0		-32.3		
7.8		22.2		-7.7		3.1		35.2		14.7		-6.2		23.8		25.5		-36.3		
3.7		16.8		-15.8		-6.3		27.8		10.3		-12.6		19.2		16.1		-43.3		
224		222		212		206		199		187		177		186		197		221		
8.6	(68)	28.4	(38)	0.4	(9)	5.1	(60)	33.1	(85)	15.7	(61)	-6.9	(79)	26.8	(54)		()	1-	()	
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)	-28.9	(27)	

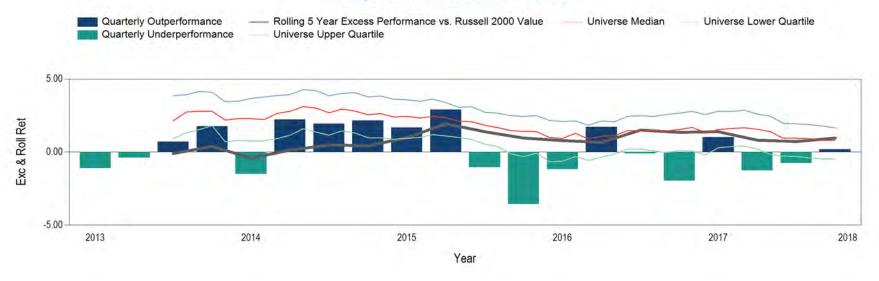




### Rolling 3 Year Annualized Excess Performance



### Rolling 5 Year Annualized Excess Performance





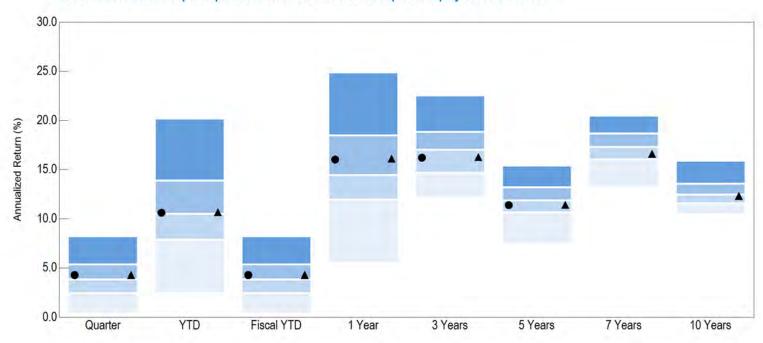
	Portfolio	Russell Small Cap Completeness
Number of Holdings	2,490	2,519
Weighted Avg. Market Cap. (\$B)	7.07	7.07
Median Market Cap. (\$B)	1.30	1.29
Price To Earnings	21.56	19.12
Price To Book	5.18	3.80
Price To Sales	3.99	3.64
Return on Equity (%)	10.31	10.94
Yield (%)	1.34	1.14
Beta	0.99	1.00



Top Holdings			<b>Top Contributo</b>	rs		<b>Bottom Contributors</b>							
Ending Period Weigh	it		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution				
TESLA	0.69%	SQUARE CL.A	0.34	60.63	0.21	TESLA	0.92	-22.80	-0.21				
SERVICENOW	0.65%	WORLDPAY A	0.48	23.83	0.11	NXP SEMICONDUCTORS	0.76	-21.54	-0.16				
WORLDPAY A	0.58%	IAC/INTERACTIVECORP	0.22	42.12	0.09	LAS VEGAS SANDS	0.54	-21.34	-0.11				
NXP SEMICONDUCTORS	0.56%	DEXCOM	0.17	50.60	0.08	LEAR	0.24	-21.64	-0.05				
SQUARE CL.A	0.54%	FORTINET	0.17	47.80	0.08	ZILLOW GROUP CLASS C	0.13	-25.08	-0.03				
T-MOBILE US	0.41%	SERVICENOW	0.60	13.43	0.08	ON SEMICONDUCTOR	0.19	-17.11	-0.03				
LAS VEGAS SANDS	0.41%	LULULEMON ATHLETICA	0.24	30.15	0.07	NVR	0.19	-16.82	-0.03				
WORKDAY CLASS A	0.40%	VEEVA SYSTEMS CL.A	0.17	41.65	0.07	US FOODS HOLDING	0.16	-18.51	-0.03				
PALO ALTO NETWORKS	0.40%	WORKDAY CLASS A	0.33	20.53	0.07	SCIENTIFIC GAMES	0.05	-48.32	-0.03				
DELL TECHNOLOGIES	0.37%	WELLCARE HEALTH PLANS		30.15	0.07	POLARIS INDUSTRIES	0.15	-16.92	-0.02				
Total	5.00%												



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

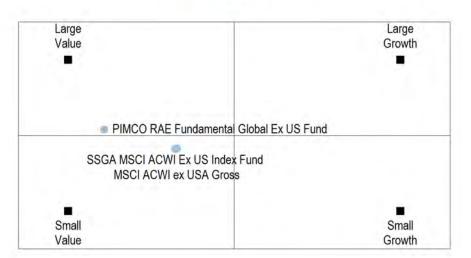


1	Return (R	lank)														
5th Percentile	8.2		20.2		8.2		24.9		22.5		15.4		20.5		15.9	
25th Percentile	5.4		13.9		5.4		18.5		18.8		13.2		18.7		13.6	
Median	3.9		10.5		3.9		14.5		17.0		11.9		17.3		12.5	
75th Percentile	2.5		7.9		2.5		12.0		14.7		10.7		16.1		11.6	
95th Percentile	0.4		2.5		0.4		5.5		12.2		7.5		13.2		10.5	
# of Portfolios	167		167		167		167		163		158		149		125	
<ul> <li>SSGA Russell Small Cap Completeness Index</li> </ul>	4.3	(44)	10.6	(49)	4.3	(44)	16.0	(40)	16.2	(59)	11.4	(64)	-	()	-	()
▲ Russell Small Cap Completeness	4.3	(44)	10.7	(48)	4.3	(44)	16.1	(39)	16.3	(58)	11.4	(63)	16.6	(67)	12.3	(55)

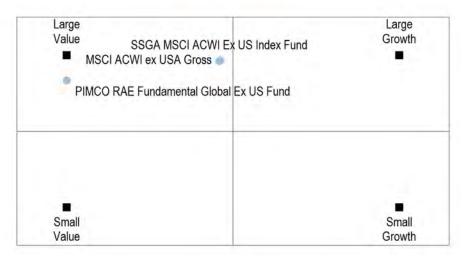


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	281,354,689	1.1	-3.1	1.1	1.2	10.3	4.4	4.6	26.9	6.2	-5.9	-4.8	18.5
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6	5.7	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank		22	54	22	63	51	72	85	80	13	85	83	44
SSGA MSCI ACWI Ex US Index Fund	95,348,590	0.8	-2.9	0.8	2.0	10.3	4.4		27.6	4.8	-5.5	-3.6	15.5
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank		55	71	55	63	50	90		49	17	96	49	90
PIMCO RAE Fundamental Global Ex US Fund	95,401,847	1.7	-3.8	1.7	0.6	11.8	4.4		26.7	13.5	-10.9	-5.7	24.5
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank		25	82	25	78	27	89		53	1	99	79	51
SGA Global Growth	90,593,134	0.8		0.8									
MSCI ACWI ex USA Gross		0.8		0.8									
eV ACWI ex-US Core Equity Gross Rank		37		37									

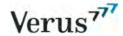
EAFE Effective Style Map 3 Years



EAFE Effective Style Map 5 Years



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

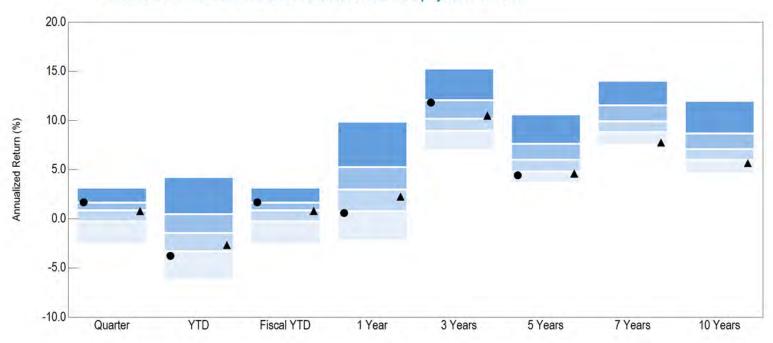


	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	281,354,689	1.0	-3.3	1.0	0.9	9.9	4.1	4.2	26.5	5.9	-6.2	-5.0	18.3
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6	5.7	27.8	5.0	-5.3	-3.4	15.8
SSGA MSCI ACWI Ex US Index Fund	95,348,590	0.7	-2.9	0.7	1.9	10.2	4.3		27.5	4.7	-5.5	-3.7	15.5
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
PIMCO RAE Fundamental Global Ex US Fund	95,401,847	1.5	-4.1	1.5	0.1	11.3	3.9		26.0	13.0	-11.4	-5.9	23.7
MSCI ACWI ex USA Gross		0.8	-2.7	0.8	2.3	10.5	4.6		27.8	5.0	-5.3	-3.4	15.8
SGA Global Growth	90,593,134	0.7		0.7									
MSCI ACWI ex USA Gross		0.8		0.8									

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

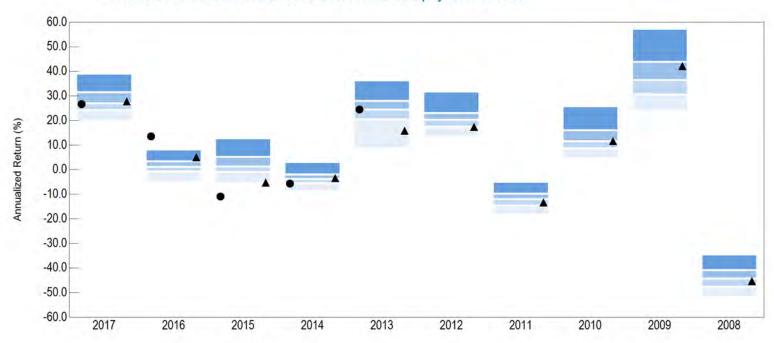


### PIMCO RAE Fundamental Global Ex US Fund vs. eV All EAFE Equity Gross Universe

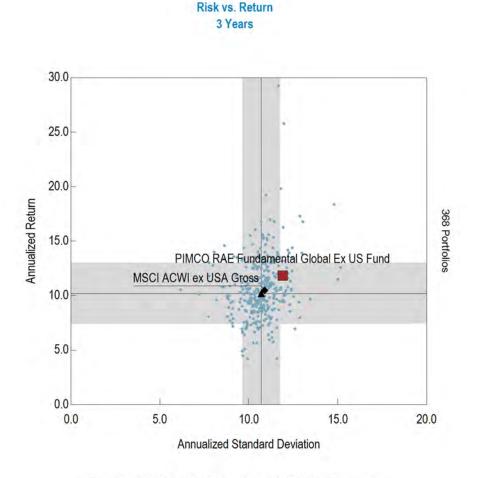


Re	eturn (R	ank)														
5th Percentile	3.2		4.2		3.2		9.9		15.3		10.6		14.0		12.0	
25th Percentile	1.7		0.5		1.7		5.3		12.1		7.6		11.6		8.7	
Median	0.9		-1.4		0.9		3.0		10.2		6.0		9.9		7.1	
75th Percentile	-0.2		-3.3		-0.2		0.8		9.0		4.8		8.8		6.0	
95th Percentile	-2.6		-6.2		-2.6		-2.2		7.0		3.7		7.6		4.6	
# of Portfolios	390		388		390		388		368		331		298		264	
PIMCO RAE Fundamental Global Ex US Fund	1.7	(25)	-3.8	(82)	1.7	(25)	0.6	(78)	11.8	(27)	4.4	(89)	-	()	-	()
MSCI ACWI ex USA Gross	8.0	(54)	-2.7	(68)	0.8	(54)	2.3	(59)	10.5	(46)	4.6	(83)	7.7	(94)	5.7	(83)

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



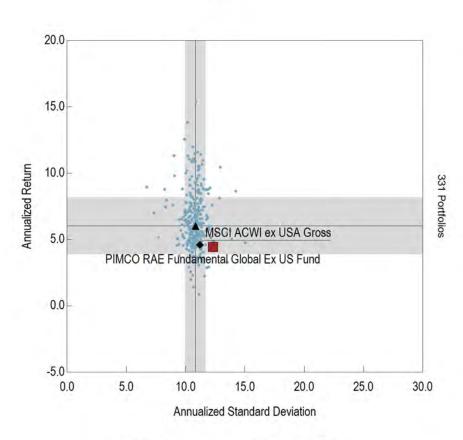
R	eturn	(Rank)																		
5th Percentile	39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7		57.3		-34.5	
25th Percentile	31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1		44.0		-40.8	
Median	27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7		36.5		-44.1	
75th Percentile	24.3		-0.6		-0.9		-5.4		20.5		17.5		-14.5		8.7		30.7		-47.5	
95th Percentile	19.7		-4.9		-5.4		-8.6		8.6		13.3		-18.2		4.6		23.7		-51.5	
# of Portfolios	370		350		325		314		284		263		278		352		455		477	
PIMCO RAE Fundamental Global Ex US Fund	26.7	(53)	13.5	(1)	-10.9	(99)	-5.7	(79)	24.5	(51)	-22	()		()	-	()		()	-	()
MSCI ACWI ex USA Gross	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)	-45.2	(59)



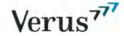


- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

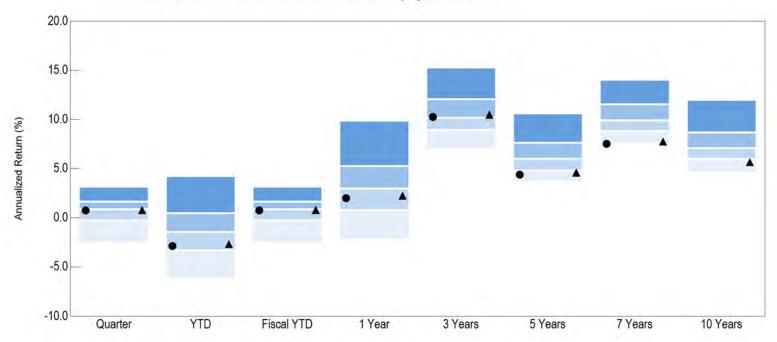




- PIMCO RAE Fundamental Global Ex US Fund
- MSCI ACWI ex USA Gross
- Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



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

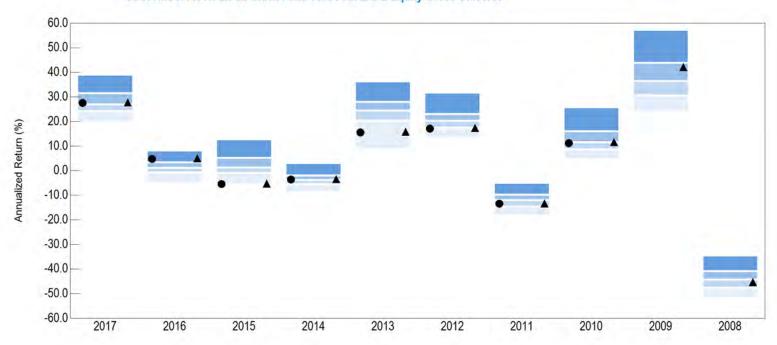


2.0															
3.2		4.2		3.2		9.9		15.3		10.6		14.0		12.0	
1.7		0.5		1.7		5.3		12.1		7.6		11.6		8.7	
0.9		-1.4		0.9		3.0		10.2		6.0		9.9		7.1	
-0.2		-3.3		-0.2		0.8		9.0		4.8		8.8		6.0	
-2.6		-6.2		-2.6		-2.2		7.0		3.7		7.6		4.6	
390		388		390		388		368		331		298		264	
0.8	(55)	-2.9	(71)	0.8	(55)	2.0	(63)	10.3	(50)	4.4	(90)	7.5	(96)	-	()
8.0	(54)	-2.7	(68)	0.8	(54)	2.3	(59)	10.5	(46)	4.6	(83)	7.7	(94)	5.7	(83)
	-0.2 -2.6 390 0.8	-0.2 -2.6 390 0.8 (55)	1.7 0.5 0.9 -1.4 -0.2 -3.3 -2.6 -6.2 390 388 0.8 (55) -2.9	1.7 0.5 0.9 -1.4 -0.2 -3.3 -2.6 -6.2 390 388 0.8 (55) -2.9 (71)	1.7     0.5     1.7       0.9     -1.4     0.9       -0.2     -3.3     -0.2       -2.6     -6.2     -2.6       390     388     390       0.8     (55)     -2.9     (71)     0.8	1.7     0.5     1.7       0.9     -1.4     0.9       -0.2     -3.3     -0.2       -2.6     -6.2     -2.6       390     388     390       0.8     (55)     -2.9     (71)     0.8     (55)	1.7     0.5     1.7     5.3       0.9     -1.4     0.9     3.0       -0.2     -3.3     -0.2     0.8       -2.6     -6.2     -2.6     -2.2       390     388     390     388       0.8     (55)     -2.9     (71)     0.8     (55)     2.0	1.7     0.5     1.7     5.3       0.9     -1.4     0.9     3.0       -0.2     -3.3     -0.2     0.8       -2.6     -6.2     -2.6     -2.2       390     388     390     388       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)	1.7     0.5     1.7     5.3     12.1       0.9     -1.4     0.9     3.0     10.2       -0.2     -3.3     -0.2     0.8     9.0       -2.6     -6.2     -2.6     -2.2     7.0       390     388     390     388     368       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3	1.7     0.5     1.7     5.3     12.1       0.9     -1.4     0.9     3.0     10.2       -0.2     -3.3     -0.2     0.8     9.0       -2.6     -6.2     -2.6     -2.2     7.0       390     388     390     388     368       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)	1.7     0.5     1.7     5.3     12.1     7.6       0.9     -1.4     0.9     3.0     10.2     6.0       -0.2     -3.3     -0.2     0.8     9.0     4.8       -2.6     -6.2     -2.6     -2.2     7.0     3.7       390     388     390     388     368     331       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)     4.4	1.7     0.5     1.7     5.3     12.1     7.6       0.9     -1.4     0.9     3.0     10.2     6.0       -0.2     -3.3     -0.2     0.8     9.0     4.8       -2.6     -6.2     -2.6     -2.2     7.0     3.7       390     388     390     388     368     331       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)     4.4     (90)	1.7     0.5     1.7     5.3     12.1     7.6     11.6       0.9     -1.4     0.9     3.0     10.2     6.0     9.9       -0.2     -3.3     -0.2     0.8     9.0     4.8     8.8       -2.6     -6.2     -2.6     -2.2     7.0     3.7     7.6       390     388     390     388     368     331     298       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)     4.4     (90)     7.5	1.7     0.5     1.7     5.3     12.1     7.6     11.6       0.9     -1.4     0.9     3.0     10.2     6.0     9.9       -0.2     -3.3     -0.2     0.8     9.0     4.8     8.8       -2.6     -6.2     -2.6     -2.2     7.0     3.7     7.6       390     388     390     388     368     331     298       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)     4.4     (90)     7.5     (96)	1.7     0.5     1.7     5.3     12.1     7.6     11.6     8.7       0.9     -1.4     0.9     3.0     10.2     6.0     9.9     7.1       -0.2     -3.3     -0.2     0.8     9.0     4.8     8.8     6.0       -2.6     -6.2     -2.6     -2.2     7.0     3.7     7.6     4.6       390     388     390     388     368     331     298     264       0.8     (55)     -2.9     (71)     0.8     (55)     2.0     (63)     10.3     (50)     4.4     (90)     7.5     (96)



Return (Rank)

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

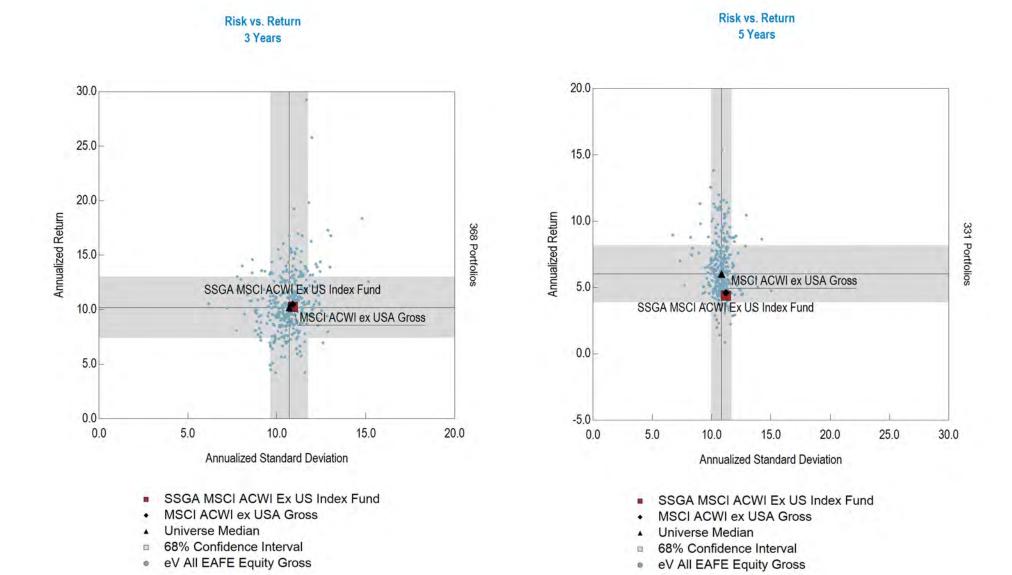


	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	SSGA MSCI ACWI Ex U

SSGA MSCI ACWI Ex US Index Fund
MSCI ACWI ex USA Gross

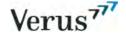
	(																		
39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7		57.3		-34.5	
31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1		44.0		-40.8	
27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7		36.5		-44.1	
24.3		-0.6		-0.9		-5.4		20.5		17.5		-14.5		8.7		30.7		-47.5	
19.7		-4.9		-5.4		-8.6		8.6		13.3		-18.2		4.6		23.7		-51.5	
370		350		325		314		284		263		278		352		455		477	
27.6	(49)	4.8	(17)	-5.5	(96)	-3.6	(49)	15.5	(90)	17.1	(81)	-13.5	(64)	11.2	(55)		()	144	()
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)	-45.2	(59)





	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	400,244,332	0.5	-0.7	0.5	-0.5	3.0	2.7	5.4	4.3	5.5	-0.8	4.6	-0.9
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
InvestorForce Public DB US Fix Inc Gross Rank		24	60	24	47	27	46	19	50	37	77	69	49
Total Domestic Fixed Income													
BlackRock Fixed Income	145,304,072	0.1	-1.5	0.1	-1.1	1.7	2.5	4.4	3.9	3.1	1.1	6.2	-1.5
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
eV All US Fixed Inc Gross Rank		76	82	76	86	62	55	51	54	53	39	29	75
Doubleline Core Plus	76,539,625	0.3	-0.6	0.3	-0.2				4.2	4.8			
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank		67	21	67	35				86	52			
MacKay Shields Core Plus	75,749,246	0.4	-1.3	0.4	-0.6				5.0	5.1			
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank		57	69	57	67				52	46			
Shenkman High Yield	20,852,501	1.8	2.7	1.8	3.3	6.8	5.1		7.2	12.3	-2.4	2.5	6.3
ICE BofAML US High Yield TR		2.4	2.5	2.4	2.9	8.2	5.5		7.5	17.5	-4.6	2.5	7.4
eV US High Yield Fixed Inc Gross Rank		91	42	91	44	68	71		57	65	51	52	81
SSGA TIPS	11,073,998	-0.8	-0.8	-0.8	0.4	2.0	1.4		3.0	4.7	-1.4	3.6	-8.6
BBgBarc US TIPS TR		-0.8	-0.8	-0.8	0.4	2.0	1.4		3.0	4.7	-1.4	3.6	-8.6
eV US TIPS / Inflation Fixed Inc Gross Rank		69	73	69	75	70	64		69	50	63	44	77
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	70,724,890	1.3	0.6	1.3	-0.8	4.1	2.3		3.0	6.8	-3.5	2.4	3.0
JPM GBI Global TR USD		-1.7	-2.6	-1.7	-1.6	1.5	0.5		6.8	1.6	-2.6	0.7	-4.5
eV Global Fixed Inc Unhedged Gross Rank		21	21	21	48	37	45		96	24	67	50	23

Vertas Transition Account used to liquidated PIMCO Core Plus on 11/15/15, remaining balance is residual cash. MacKay Shields and Doubleline funded 12/1/15. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

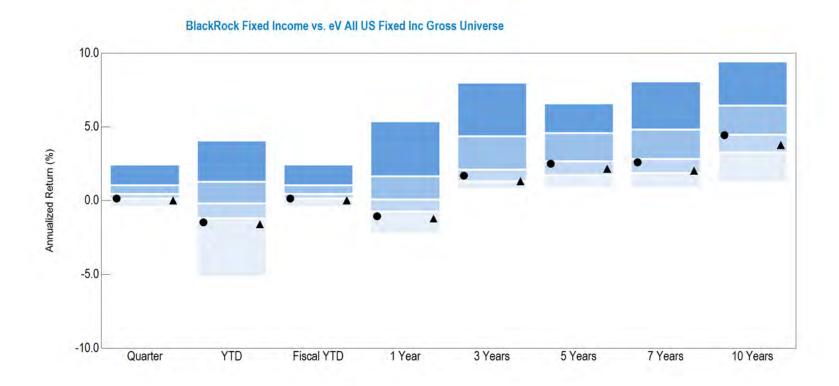


Fixed Income Style Map Fixed Income Style Map 5 Years 3 Years Govt. Corp. Govt. Corp. Bonds Bonds Bonds Bonds Shenkman High Yield Shenkman High Yield BlackRock Fixed Income BlackRock Fixed Income Franklin Templeton Global Bond Plus SSGA TIPS SSGA TIPS Franklin Templeton Global Bond Plus Mortgages Mortgages

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	400,244,332	0.4	-0.9	0.4	-0.8	2.6	2.3	5.1	3.9	5.1	-1.1	4.3	-1.2
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
Total Domestic Fixed Income													
BlackRock Fixed Income	145,304,072	0.1	-1.7	0.1	-1.3	1.4	2.2	4.2	3.6	2.9	0.8	6.0	-1.8
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2	1.3	2.2	3.8	3.5	2.6	0.6	6.0	-2.0
Doubleline Core Plus	76,539,625	0.2	-0.9	0.2	-0.5				3.9	4.6			
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2				3.5	2.6			
MacKay Shields Core Plus	75,749,246	0.3	-1.5	0.3	-1.0				4.5	4.7		-	
BBgBarc US Aggregate TR		0.0	-1.6	0.0	-1.2				3.5	2.6			
Shenkman High Yield	20,852,501	1.6	2.3	1.6	2.8	6.3	4.5		6.7	11.7	-2.9	2.0	5.8
ICE BofAML US High Yield TR		2.4	2.5	2.4	2.9	8.2	5.5		7.5	17.5	-4.6	2.5	7.4
SSGA TIPS	11,073,998	-0.8	-0.9	-0.8	0.3	2.0	1.3		3.0	4.6	-1.5	3.6	-8.6
BBgBarc US TIPS TR		-0.8	-0.8	-0.8	0.4	2.0	1.4		3.0	4.7	-1.4	3.6	-8.6
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	70,724,890	1.2	0.2	1.2	-1.3	3.5	1.7		2.4	6.1	-4.1	1.9	2.5
JPM GBI Global TR USD		-1.7	-2.6	-1.7	-1.6	1.5	0.5		6.8	1.6	-2.6	0.7	-4.5

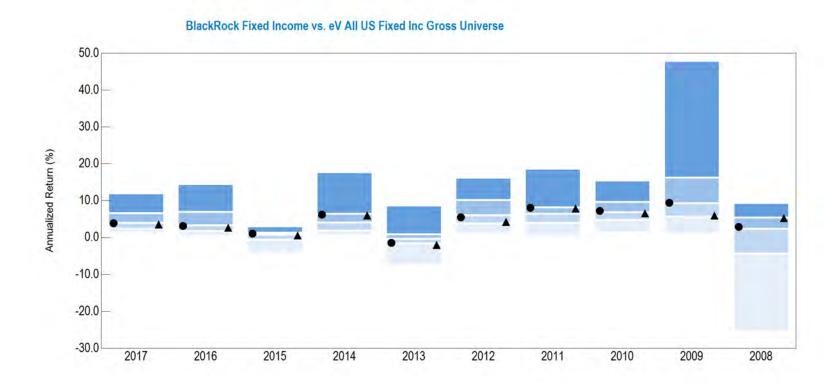
Vertas Transition Account used to liquidated PIMCO Core Plus on 11/15/15, remaining balance is residual cash. MacKay Shields and Doubleline funded 12/1/15.





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

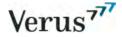
Return (R	ank)														
2.4		4.1		2.4		5.4		8.0		6.6		8.1		9.4	
1.1		1.3		1.1		1.7		4.4		4.6		4.8		6.4	
0.5		-0.2		0.5		0.1		2.1		2.7		2.8		4.5	
0.1		-1.2		0.1		-0.7		1.3		1.8		1.9		3.3	
-0.4		-5.2		-0.4		-2.2		0.8		0.9		0.9		1.3	
1,849		1,849		1,849		1,849		1,796		1,710		1,612		1,351	
0.1	(76)	-1.5	(82)	0.1	(76)	-1.1	(86)	1.7	(62)	2.5	(55)	2.6	(56)	4.4	(51)
0.0	(83)	-1.6	(84)	0.0	(83)	-1.2	(89)	1.3	(77)	2.2	(65)	2.0	(71)	3.8	(64)

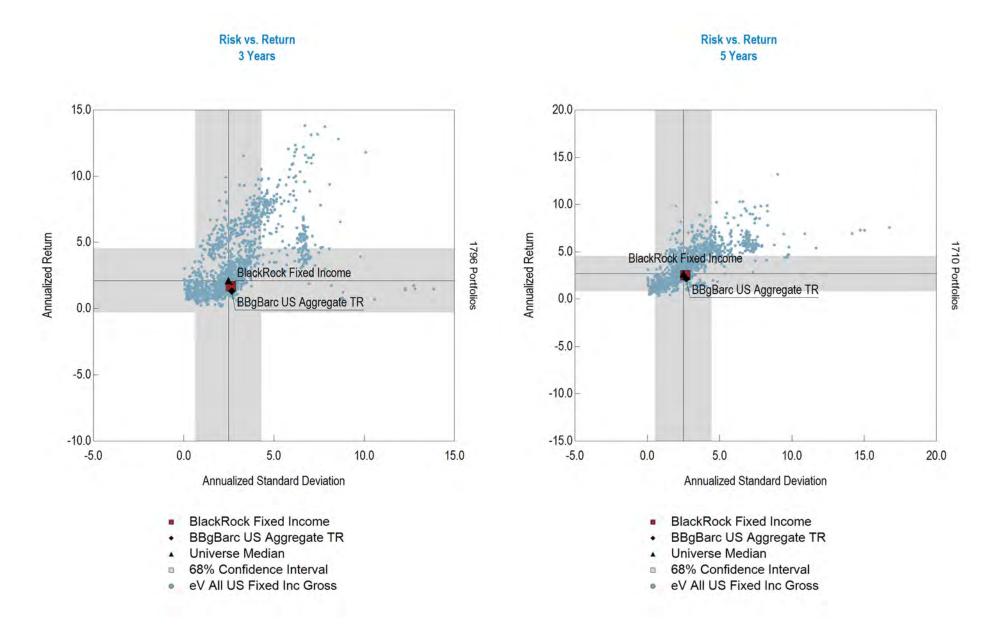


	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	BlackRock Fixed

BlackRock Fixed Income
 BBgBarc US Aggregate TR

Return	(Rank	)																		
12.0	•	14.5		3.0		17.7		8.7		16.2		18.6		15.5		47.9		9.4		
6.6		7.0		1.4		6.4		0.9		10.2		8.2		9.7		16.3		5.4		
4.1		3.3		0.8		4.2		-0.3		6.1		6.5		6.9		9.3		2.4		
2.4		1.8		-0.5		2.0		-1.5		3.8		4.0		4.8		5.7		-4.3		
1.1		0.4		-4.1		0.5		-7.5		1.1		0.4		1.4		1.2		-25.4		
1,843		1,722		1,394		1,364		1,281		1,241		1,211		1,157		1,287		1,380		
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)	2.9	(48)	
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)	5.2	(27)	

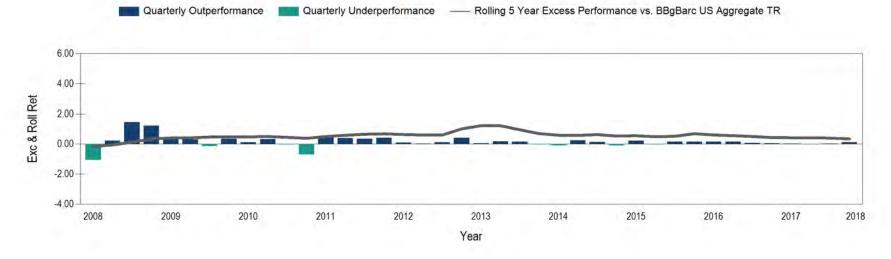




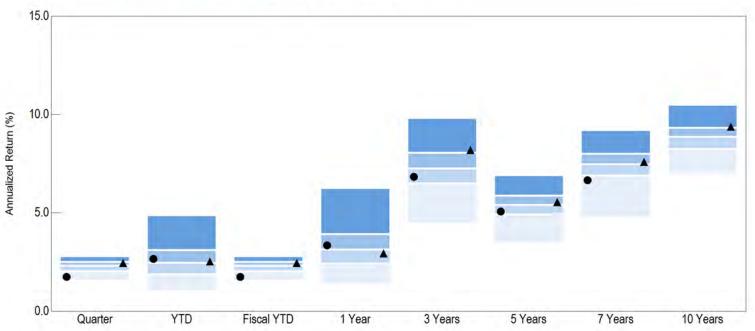
#### Rolling 3 Year Annualized Excess Performance



### Rolling 5 Year Annualized Excess Performance



# Shenkman High Yield vs. eV US High Yield Fixed Inc Gross Universe



	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	Shenkman High Yield
٨	ICE BofAML US High Yield TR

Return (R	ank)														
2.8		4.9		2.8		6.3		9.8		6.9		9.2		10.5	
2.5		3.1		2.5		3.9		8.1		5.9		8.0		9.3	
2.3		2.5		2.3		3.1		7.3		5.4		7.5		8.9	
2.0		1.9		2.0		2.4		6.5		4.9		6.9		8.3	
1.6		1.0		1.6		1.4		4.5		3.5		4.8		7.0	
204		204		204		204		194		174		153		125	
1.8	(91)	2.7	(42)	1.8	(91)	3.3	(44)	6.8	(68)	5.1	(71)	6.7	(85)	- 22	()
2.4	(34)	2.5	(47)	2.4	(34)	2.9	(57)	8.2	(22)	5.5	(41)	7.6	(44)	9.4	(23)



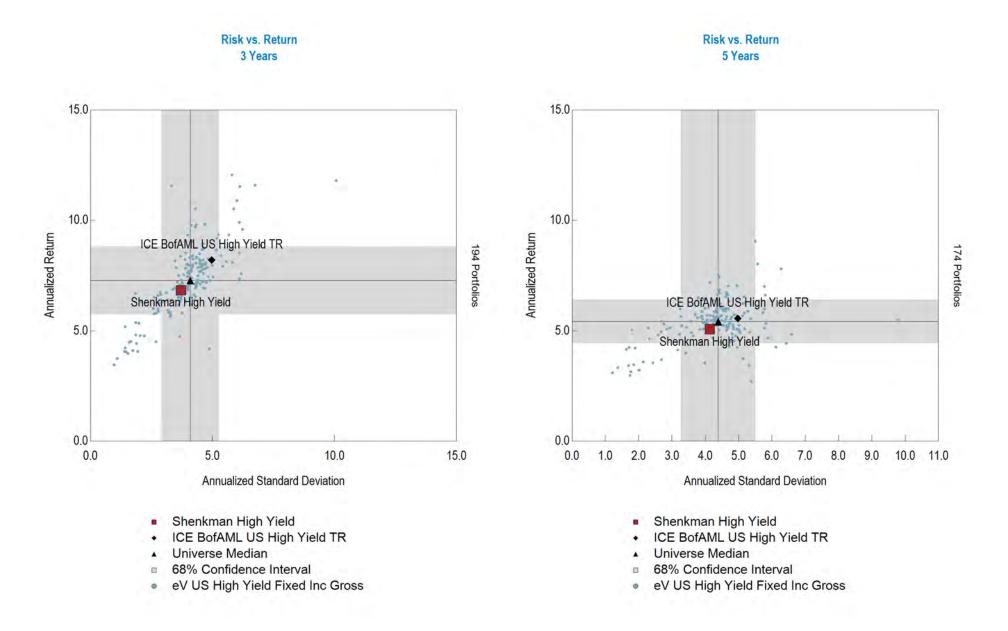
#### Shenkman High Yield vs. eV US High Yield Fixed Inc Gross Universe 80.0 70.0 60.0 50.0 40.0 Annualized Return (%) 30.0 20.0 10.0 0.0 -10.0 -20.0 -30.0 -40.0 2017 2016 2013 2012 2015 2014 2011 2010 2009 2008

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

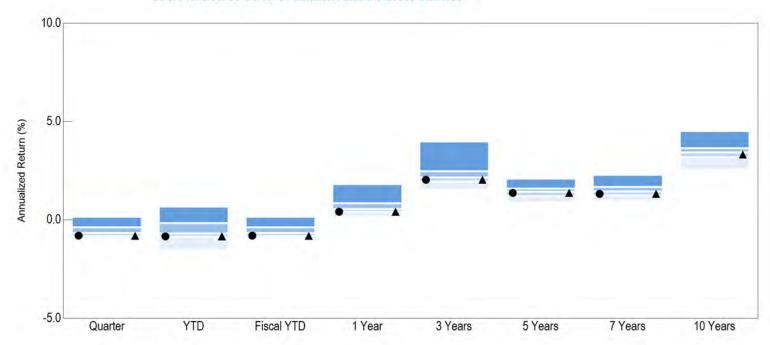
Shenkman High YieldICE BofAML US High Yield TR

Return	(Rank)																			
10.0		20.3		2.3		5.2		11.7		19.4		7.9		22.8		70.8		-13.1		
8.3		16.0		-0.7		3.5		9.1		16.7		6.2		16.3		51.8		-18.6		
7.5		14.0		-2.4		2.5		7.6		15.5		4.9		14.9		45.0		-21.2		
6.5		11.3		-3.8		1.5		6.6		14.0		3.5		13.6		37.4		-24.9		
4.0		6.6		-7.2		0.0		5.0		8.9		-0.7		10.9		29.6		-35.7		
198		183		155		141		130		129		117		106		123		131		
7.2	(57)	12.3	(65)	-2.4	(51)	2.5	(52)	6.3	(81)	12.3	(89)	6.1	(27)	-	()		()	-	()	
7.5	(53)	17.5	(14)	-4.6	(83)	2.5	(51)	7.4	(55)	15.6	(47)	4.4	(60)	15.2	(42)	57.5	(16)	-26.4	(82)	



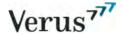


#### SSGA TIPS vs. eV US TIPS / Inflation Fixed Inc Gross Universe

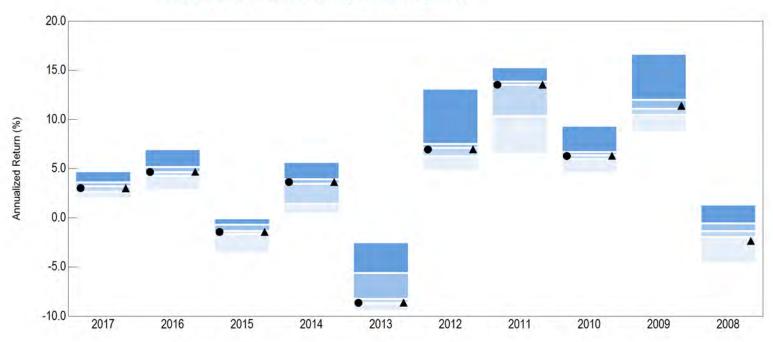


	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	SSGA TIPS
٨	BBgBarc US TIP

eturn (R	ank)														
0.1		0.7		0.1		1.8		4.0		2.1		2.3		4.5	
-0.4		-0.2		-0.4		0.9		2.5		1.6		1.7		3.7	
-0.7		-0.7		-0.7		0.6		2.2		1.4		1.4		3.4	
-0.8		-0.9		-0.8		0.4		2.0		1.2		1.3		3.2	
-1.0		-1.5		-1.0		0.2		1.6		0.9		1.0		2.5	
39		39		39		39		38		38		37		33	
-0.8	(69)	-0.8	(73)	-0.8	(69)	0.4	(75)	2.0	(70)	1.4	(64)	1.3	(72)		()
-0.8	(74)	-0.8	(73)	-0.8	(74)	0.4	(75)	2.0	(70)	1.4	(64)	1.3	(72)	3.3	(71)



#### SSGA TIPS vs. eV US TIPS / Inflation Fixed Inc Gross Universe

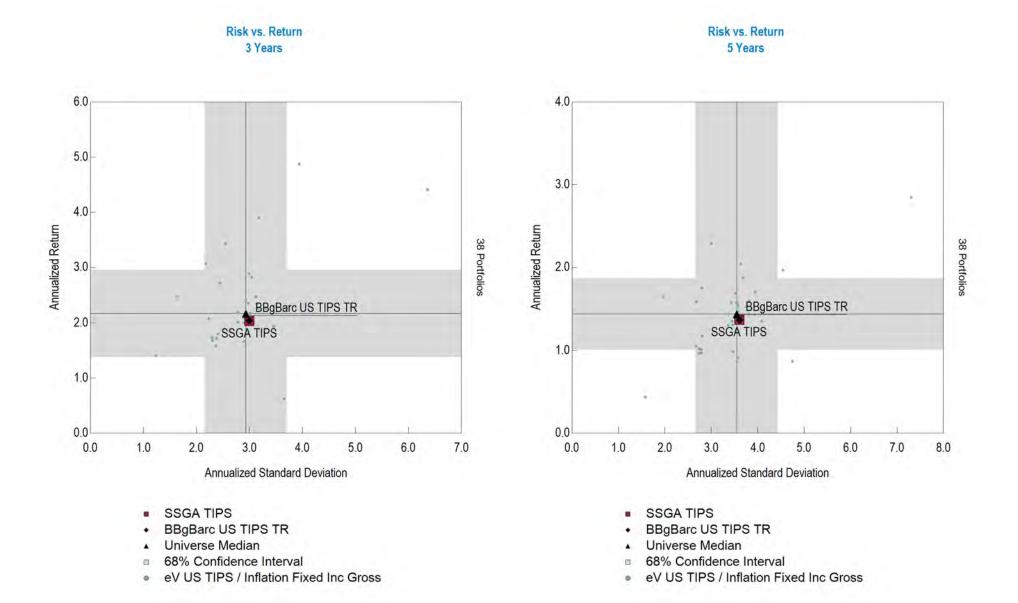


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

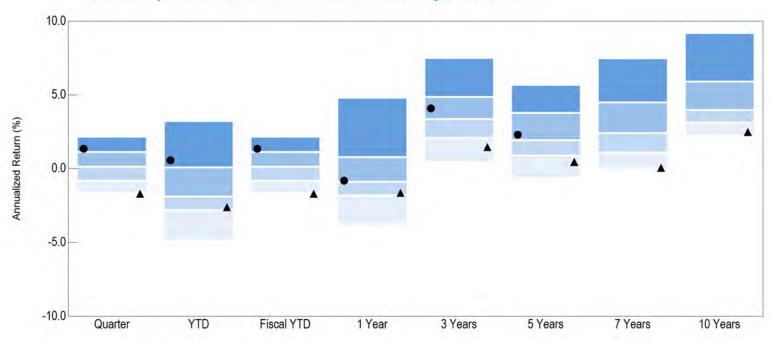
SSGA TIPSBBgBarc US TIPS TR

Return	(Rank)																		
4.7		7.0		-0.1		5.7		-2.5		13.1		15.3		9.4		16.7		1.3	
3.6		5.2		-0.7		4.0		-5.6		7.5		13.9		6.7		12.0		-0.5	
3.2		4.7		-1.3		3.5		-8.2		7.1		13.5		6.4		11.1		-1.4	
2.7		4.3		-1.6		1.4		-8.6		6.3		10.4		6.0		10.5		-1.9	
2.0		2.8		-3.6		0.4		-9.4		4.9		6.6		4.6		8.7		-4.6	
38		42		44		50		43		43		47		39		37		40	
3.0	(69)	4.7	(50)	-1.4	(63)	3.6	(44)	-8.6	(77)	6.9	(67)	13.5	(51)	6.3	(62)		()		()
3.0	(71)	4.7	(47)	-1.4	(59)	3.6	(44)	-8.6	(76)	7.0	(66)	13.6	(49)	6.3	(57)	11.4	(35)	-2.4	(85)





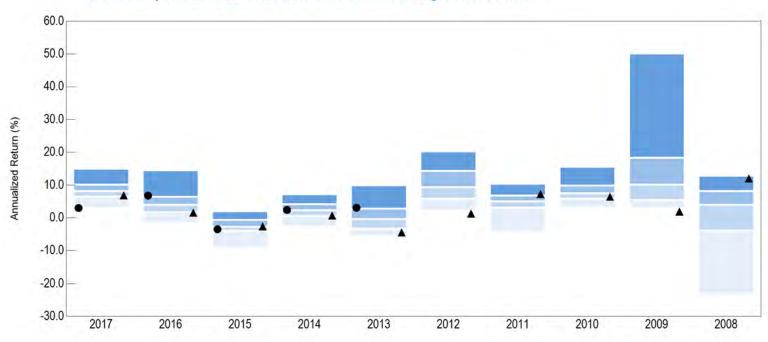
### Franklin Templeton Global Bond Plus vs. eV Global Fixed Inc Unhedged Gross Universe



Return (R	ank)														
2.2		3.2		2.2		4.8		7.5		5.7		7.5		9.2	
1.1		0.1		1.1		0.8		4.9		3.8		4.5		5.9	
0.1		-1.9		0.1		-0.9		3.4		2.0		2.4		4.0	
-0.8		-2.8		-0.8		-1.8		2.1		0.9		1.1		3.1	
-1.6		-4.9		-1.6		-3.8		0.5		-0.6		0.0		2.2	
232		232		232		232		223		202		162		118	
1.3	(21)	0.6	(21)	1.3	(21)	-0.8	(48)	4.1	(37)	2.3	(45)		()		()
-1.7	(97)	-2.6	(70)	-1.7	(97)	-1.6	(74)	1.5	(88)	0.5	(86)	0.1	(94)	2.5	(95)
	2.2 1.1 0.1 -0.8 -1.6 232	1.1 0.1 -0.8 -1.6 232 1.3 (21)	2.2 3.2 1.1 0.1 0.1 -1.9 -0.8 -2.8 -1.6 -4.9 232 232 1.3 (21) 0.6	2.2 3.2 1.1 0.1 0.1 -1.9 -0.8 -2.8 -1.6 -4.9 232 232 1.3 (21) 0.6 (21)	2.2     3.2     2.2       1.1     0.1     1.1       0.1     -1.9     0.1       -0.8     -2.8     -0.8       -1.6     -4.9     -1.6       232     232     232       1.3     (21)     0.6     (21)     1.3	2.2     3.2     2.2       1.1     0.1     1.1       0.1     -1.9     0.1       -0.8     -2.8     -0.8       -1.6     -4.9     -1.6       232     232     232       1.3     (21)     0.6     (21)     1.3     (21)	2.2     3.2     2.2     4.8       1.1     0.1     1.1     0.8       0.1     -1.9     0.1     -0.9       -0.8     -2.8     -0.8     -1.8       -1.6     -4.9     -1.6     -3.8       232     232     232     232       1.3     (21)     0.6     (21)     1.3     (21)     -0.8	2.2     3.2     2.2     4.8       1.1     0.1     1.1     0.8       0.1     -1.9     0.1     -0.9       -0.8     -2.8     -0.8     -1.8       -1.6     -4.9     -1.6     -3.8       232     232     232     232       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)	2.2     3.2     2.2     4.8     7.5       1.1     0.1     1.1     0.8     4.9       0.1     -1.9     0.1     -0.9     3.4       -0.8     -2.8     -0.8     -1.8     2.1       -1.6     -4.9     -1.6     -3.8     0.5       232     232     232     232     223       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1	2.2     3.2     2.2     4.8     7.5       1.1     0.1     1.1     0.8     4.9       0.1     -1.9     0.1     -0.9     3.4       -0.8     -2.8     -0.8     -1.8     2.1       -1.6     -4.9     -1.6     -3.8     0.5       232     232     232     232     223       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)	2.2     3.2     2.2     4.8     7.5     5.7       1.1     0.1     1.1     0.8     4.9     3.8       0.1     -1.9     0.1     -0.9     3.4     2.0       -0.8     -2.8     -0.8     -1.8     2.1     0.9       -1.6     -4.9     -1.6     -3.8     0.5     -0.6       232     232     232     232     223     202       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)     2.3	2.2     3.2     2.2     4.8     7.5     5.7       1.1     0.1     1.1     0.8     4.9     3.8       0.1     -1.9     0.1     -0.9     3.4     2.0       -0.8     -2.8     -0.8     -1.8     2.1     0.9       -1.6     -4.9     -1.6     -3.8     0.5     -0.6       232     232     232     232     223     202       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)     2.3     (45)	2.2     3.2     2.2     4.8     7.5     5.7     7.5       1.1     0.1     1.1     0.8     4.9     3.8     4.5       0.1     -1.9     0.1     -0.9     3.4     2.0     2.4       -0.8     -2.8     -0.8     -1.8     2.1     0.9     1.1       -1.6     -4.9     -1.6     -3.8     0.5     -0.6     0.0       232     232     232     232     223     202     162       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)     2.3     (45)	2.2     3.2     2.2     4.8     7.5     5.7     7.5       1.1     0.1     1.1     0.8     4.9     3.8     4.5       0.1     -1.9     0.1     -0.9     3.4     2.0     2.4       -0.8     -2.8     -0.8     -1.8     2.1     0.9     1.1       -1.6     -4.9     -1.6     -3.8     0.5     -0.6     0.0       232     232     232     232     223     202     162       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)     2.3     (45)      ()	2.2     3.2     2.2     4.8     7.5     5.7     7.5     9.2       1.1     0.1     1.1     0.8     4.9     3.8     4.5     5.9       0.1     -1.9     0.1     -0.9     3.4     2.0     2.4     4.0       -0.8     -2.8     -0.8     -1.8     2.1     0.9     1.1     3.1       -1.6     -4.9     -1.6     -3.8     0.5     -0.6     0.0     2.2       232     232     232     232     223     202     162     118       1.3     (21)     0.6     (21)     1.3     (21)     -0.8     (48)     4.1     (37)     2.3     (45)      ()



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



Return	(Rank)																		
15.0		14.5		2.0		7.1		9.8		20.2		10.4		15.5		50.1		12.8	
10.1		6.5		-0.6		4.2		2.8		14.3		6.9		9.9		18.4		8.2	
8.2		4.0		-2.7		2.3		-0.4		9.4		5.0		7.5		10.1		4.0	
6.5		1.8		-4.0		0.6		-3.2		5.9		3.2		6.0		5.4		-3.8	
3.0		-1.5		-9.2		-2.7		-5.6		2.2		-4.2		3.0		3.2		-23.0	
231		221		189		159		142		118		108		76		72		73	
3.0	(96)	6.8	(24)	-3.5	(67)	2.4	(50)	3.0	(23)		()		()	-	()		()		()
6.8	(72)	1.6	(79)	-2.6	(48)	0.7	(75)	-4.5	(89)	1.3	(98)	7.2	(19)	6.4	(72)	1.9	(99)	12.0	(7)
	15.0 10.1 8.2 6.5 3.0 231	10.1 8.2 6.5 3.0 231 3.0 (96)	15.0 14.5 10.1 6.5 8.2 4.0 6.5 1.8 3.0 -1.5 231 221 3.0 (96) 6.8	15.0 14.5 10.1 6.5 8.2 4.0 6.5 1.8 3.0 -1.5 231 221 3.0 (96) 6.8 (24)	15.0 14.5 2.0 10.1 6.5 -0.6 8.2 4.0 -2.7 6.5 1.8 -4.0 3.0 -1.5 -9.2 231 221 189 3.0 (96) 6.8 (24) -3.5	15.0 14.5 2.0 10.1 6.5 -0.6 8.2 4.0 -2.7 6.5 1.8 -4.0 3.0 -1.5 -9.2 231 221 189 3.0 (96) 6.8 (24) -3.5 (67)	15.0     14.5     2.0     7.1       10.1     6.5     -0.6     4.2       8.2     4.0     -2.7     2.3       6.5     1.8     -4.0     0.6       3.0     -1.5     -9.2     -2.7       231     221     189     159       3.0     (96)     6.8     (24)     -3.5     (67)     2.4	15.0 14.5 2.0 7.1 10.1 6.5 -0.6 4.2 8.2 4.0 -2.7 2.3 6.5 1.8 -4.0 0.6 3.0 -1.5 -9.2 -2.7 231 221 189 159 3.0 (96) 6.8 (24) -3.5 (67) 2.4 (50)	15.0     14.5     2.0     7.1     9.8       10.1     6.5     -0.6     4.2     2.8       8.2     4.0     -2.7     2.3     -0.4       6.5     1.8     -4.0     0.6     -3.2       3.0     -1.5     -9.2     -2.7     -5.6       231     221     189     159     142       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0	15.0     14.5     2.0     7.1     9.8       10.1     6.5     -0.6     4.2     2.8       8.2     4.0     -2.7     2.3     -0.4       6.5     1.8     -4.0     0.6     -3.2       3.0     -1.5     -9.2     -2.7     -5.6       231     221     189     159     142       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)	15.0     14.5     2.0     7.1     9.8     20.2       10.1     6.5     -0.6     4.2     2.8     14.3       8.2     4.0     -2.7     2.3     -0.4     9.4       6.5     1.8     -4.0     0.6     -3.2     5.9       3.0     -1.5     -9.2     -2.7     -5.6     2.2       231     221     189     159     142     118       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)	15.0     14.5     2.0     7.1     9.8     20.2       10.1     6.5     -0.6     4.2     2.8     14.3       8.2     4.0     -2.7     2.3     -0.4     9.4       6.5     1.8     -4.0     0.6     -3.2     5.9       3.0     -1.5     -9.2     -2.7     -5.6     2.2       231     221     189     159     142     118       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4       10.1     6.5     -0.6     4.2     2.8     14.3     6.9       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2       231     221     189     159     142     118     108       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4       10.1     6.5     -0.6     4.2     2.8     14.3     6.9       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2       231     221     189     159     142     118     108       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4     15.5       10.1     6.5     -0.6     4.2     2.8     14.3     6.9     9.9       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0     7.5       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2     6.0       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2     3.0       231     221     189     159     142     118     108     76       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()      ()      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4     15.5       10.1     6.5     -0.6     4.2     2.8     14.3     6.9     9.9       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0     7.5       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2     6.0       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2     3.0       231     221     189     159     142     118     108     76       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()      ()      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4     15.5     50.1       10.1     6.5     -0.6     4.2     2.8     14.3     6.9     9.9     18.4       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0     7.5     10.1       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2     6.0     5.4       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2     3.0     3.2       231     221     189     159     142     118     108     76     72       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()      ()      ()      ()      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4     15.5     50.1       10.1     6.5     -0.6     4.2     2.8     14.3     6.9     9.9     18.4       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0     7.5     10.1       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2     6.0     5.4       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2     3.0     3.2       231     221     189     159     142     118     108     76     72       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()      ()      ()      ()      ()	15.0     14.5     2.0     7.1     9.8     20.2     10.4     15.5     50.1     12.8       10.1     6.5     -0.6     4.2     2.8     14.3     6.9     9.9     18.4     8.2       8.2     4.0     -2.7     2.3     -0.4     9.4     5.0     7.5     10.1     4.0       6.5     1.8     -4.0     0.6     -3.2     5.9     3.2     6.0     5.4     -3.8       3.0     -1.5     -9.2     -2.7     -5.6     2.2     -4.2     3.0     3.2     -23.0       231     221     189     159     142     118     108     76     72     73       3.0     (96)     6.8     (24)     -3.5     (67)     2.4     (50)     3.0     (23)      ()



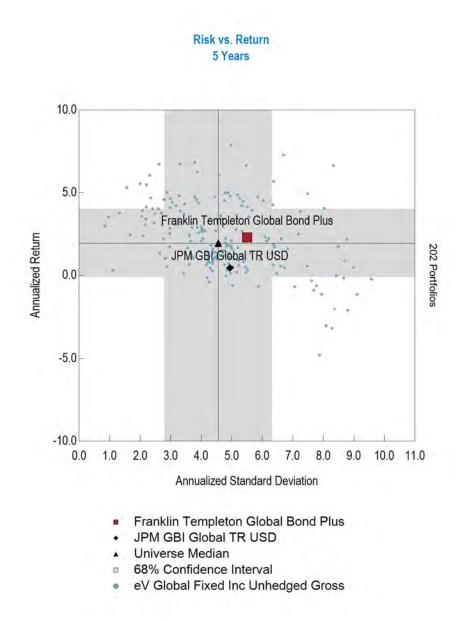
3 Years 15.0 10.0 Franklin Templeton Global Bond Plus Annualized Return 5.0 223 Portfolios JPM GBI Global TR USD 0.0 -5.0 -10.0 10.0 0.0 5.0 15.0

Risk vs. Return

Franklin Templeton Global Bond Plus

Annualized Standard Deviation

- 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	2017	2016	2015	2014	2013
Total Real Estate	113,108,648	2.0	6.4	2.0	8.1	7.6	10.0	4.2	4.3	9.0	16.0	13.1	11.5
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
RREEF America II	112,600,292	1.9	6.2	1.9	7.8	7.9	10.3	5.7	4.4	9.3	16.7	13.0	15.5
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	508,356	4.1	9.9	4.1	13.0	7.6	10.3	2.6	5.2	4.6	16.7	15.1	5.2
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9

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	2017	2016	2015	2014	2013
Total Real Estate	113,108,648	2.0	6.4	2.0	8.1	7.2	9.5	4.0	4.3	8.0	15.1	12.5	11.5
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
RREEF America II	112,600,292	1.9	6.2	1.9	7.8	7.5	9.7	5.2	4.4	8.2	15.7	12.0	15.0
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	508,356	4.1	9.9	4.1	13.0	7.2	9.7	1.4	5.2	3.7	15.4	14.6	5.1
NCREIF Property Index		1.7	5.3	1.7	7.2	7.8	9.6	6.4	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	6.5	2.1	8.7	8.8	10.7	5.6	7.6	8.8	15.0	12.5	13.9

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	59,725,429	-1.9	-0.9	-1.9	6.0	2.6			7.5	14.5	-26.3		
Bloomberg Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank		34	39	34	33	32			16	27	80		
Gresham MTAP Commodity Builder	30,249,562	-0.8	0.7	-0.8	7.3	2.2			5.9	12.3	-25.4	-16.1	
Bloomberg Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7	-17.0	
Commodities Broad Basket MStar MF Rank		16	29	16	26	37			28	53	71	34	
Wellington Commodity	29,475,866	-3.1	-2.5	-3.1	4.7	2.8			9.0	15.8	-25.7		
Bloomberg Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank		83	64	83	39	31			9	13	73		

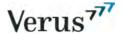
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.



	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	59,725,429	-1.9	-0.9	-1.9	6.0	2.3			7.5	13.6	-26.8		
Bloomberg Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	30,249,562	-0.8	0.7	-0.8	7.3	1.8			5.9	11.5	-25.9	-16.8	
Bloomberg Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7	-17.0	
Wellington Commodity	29,475,866	-3.1	-2.5	-3.1	4.7	2.5			9.0	14.9	-26.3		
Bloombera Commodity Index TR USD		-2.0	-2.0	-2.0	2.6	-0.1			1.7	11.8	-24.7		

	Market Value	3 Mo	YTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Liquid Alts/HFoF	64,669,497	0.8	4.8	0.8	5.8	3.7	4.0		5.4	0.3	0.7	5.4	11.0
CPI + 5%		1.4	6.2	1.4	7.4	7.1	6.6		7.2	7.2	5.8	5.8	6.6
Aetos Capital	32,312,811	1.2	2.3	1.2	3.3	4.3	4.3	4.6	6.8	2.6	1.2	5.2	11.4
ICE BofAML 90 DAY T-BILLS + 400 bps		1.2	3.6	1.2	4.6	3.9	3.7	3.9	3.9	3.3	3.1	3.5	4.1
Titan Advisors	32,356,686	0.5	7.4	0.5	8.5				4.0	0.6			
ICE BofAML 90 DAY T-BILLS + 400 bps		1.2	3.6	1.2	4.6				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	2017	2016	2015	2014	2013
Total Liquid Alts/HFoF	64,669,497	0.8	4.8	0.8	5.8	3.4	3.4		5.4	-0.5	0.0	4.6	9.9
CPI + 5%		1.4	6.2	1.4	7.4	7.1	6.6		7.2	7.2	5.8	5.8	6.6
Aetos Capital	32,312,811	1.2	2.3	1.2	3.3	4.0	3.8	4.2	6.8	1.8	0.5	4.5	10.4
ICE BofAML 90 DAY T-BILLS + 400 bps		1.2	3.6	1.2	4.6	3.9	3.7	3.9	3.9	3.3	3.1	3.5	4.1
Titan Advisors	32,356,686	0.5	7.4	0.5	8.5				4.0	-0.1			
ICE BofAMI 90 DAY T-RILLS + 400 bps		12	3.6	12	46				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.

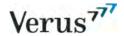
nager Line Up					
Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
SSGA S&P 500 Flagship Fund	7/27/2011	SSGA	Franklin Templeton Global	4/3/2012	BNY
QMA Large Cap Core	12/1/2008	BNY	RREEF America II	3/1/2003	Deutsche
Waddell & Reed	6/4/2010	BNY	TA Associates Realty	6/1/2007	TA Realty
Robeco Boston Partners	2/1/1999	BNY	Gresham MTAP Commodity	12/31/2013	Gresham
William Blair Mid Cap Grw	12/1/2006	BNY	Wellington Commodity	1/3/2014	Wellington
Lee Munder Small Value	8/26/2009	BNY	Aetos Capital	6/1/2005	Aetos
SSGA Russell Sm Cap Idx	5/17/2013	SSGA	BlackRock Private Capital II	7/13/2005	BlackRock
PIMCO RAE	8/14/2012	PIMCO	Pantheon USA Fund VI	7/26/2005	Pantheon
SSGA MSCI ACWI ex US	1/1/2010	SSGA	PIMCO BRAVO	1/14/2011	PIMCO
SGA Global Growth	6/4/2018	SGA	KKR Mezzanine Partners	7/8/2011	KKR
Skellig DST Water Fund	10/28/2014	KBI	Stepstone Secondary Opps II	5/10/2013	Stepstone
BlackRock Fixed Income	12/1/1995	BNY	Titan Advisors	2/1/2016	Titan
Doubleline Core Plus	12/1/2015	BNY	Ocean Avenue	5/27/2016	Ocean Ave
MacKay Shields Core Plus	12/1/2015	MacKay	Pathway	4/12/2016	Pathway
Shenkman High Yield	9/1/2010	SSGA	TPG Diversified Credit	11/21/2016	TPG
SSGA TIPS	9/1/2009	SSGA			

#### Policy & Custom Index Composition

Policy Index:

20% Russell 3000, 20% MSCI ACWI ex US, 27% BBgBarc US Aggregate, 3% MSCI ACWI, 10% NCREIF Property, 5% Bloomberg Commodity, 5% CPI +500 bps, 5% Russell 3000 +300 bps, 5% BBgBarc High Yield +2% Lagged.

#### 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.

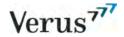
**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio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



## Disclaimer

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